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KUBOTA Corporation

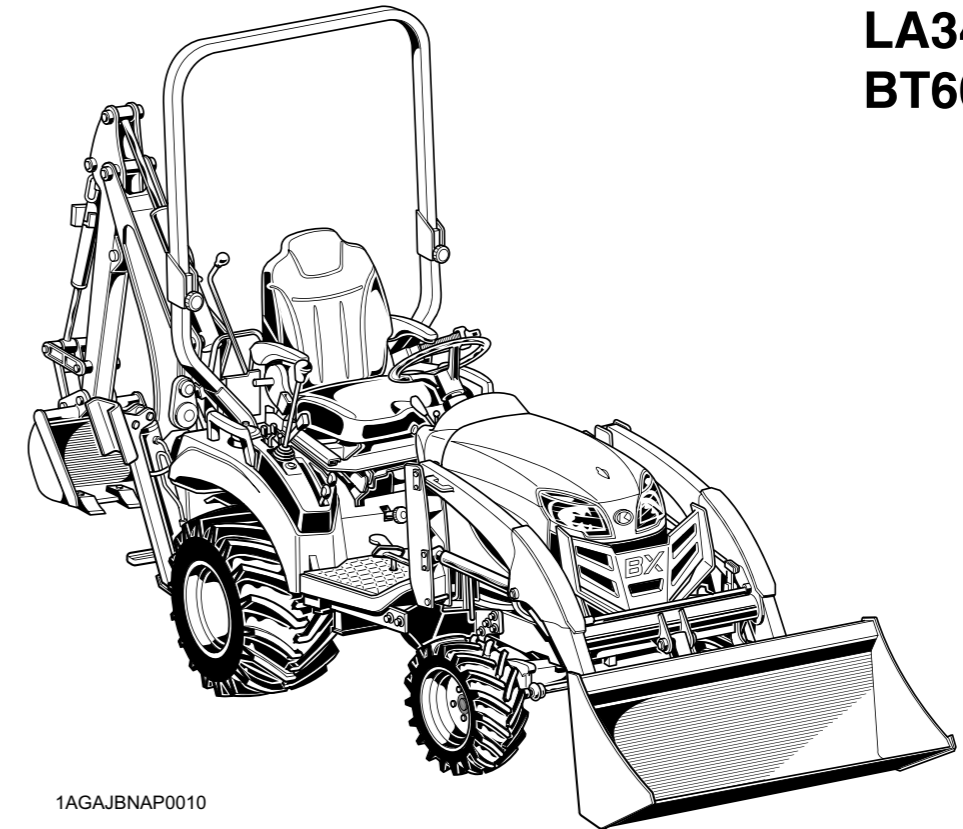
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OPERATOR'S MANUAL

KUBOTA TRACTOR

MODELS **BX23S**
LA340
BT603



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READ AND SAVE THIS MANUAL



ABBREVIATION LIST

Abbreviations	Definitions
2WD	2-Wheel Drive
4WD	4-Wheel Drive
API	American Petroleum Institute
ASABE	American Society of Agricultural and Biological Engineers, USA
ASTM	American Society of Testing and Materials, USA
DIN	Deutsches Institut für Normung, GERMANY
DT	Dual Traction [4WD]
fpm	Feet Per Minute
Hi-Lo	High Speed-Low Speed
HST	Hydrostatic Transmission
m/s	Meters Per Second
PTO	Power Take Off
RH/LH	Right-hand and left-hand sides are determined by facing in the direction of forward travel
ROPS	Roll-Over Protective Structures
rpm	Revolutions Per Minute
r/s	Revolutions Per Second
SAE	Society of Automotive Engineers, USA
SMV	Slow Moving Vehicle

California Proposition 65

WARNING

Engine exhaust, some of its constituents, certain vehicle components and fluids, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.











































IMPORTANT

The engine in this machine is not equipped by the manufacturer with a standard spark arrester. It is a violation of California Public Resource Code Section 4442 to use or operate this engine on or near any forest-covered, brush-covered land, or grass-covered land unless the exhaust system is equipped with a working spark arrester meeting state laws. Other states or federal areas may have similar laws.

**Canadian Electromagnetic Compatibility (EMC):
This machine complies with Industry Canada ICES-002.**

UNIVERSAL SYMBOLS

As a guide to the operation of your tractor, various universal symbols have been utilized on the instruments and controls. The symbols are shown below with an indication of their meaning.

 Safety Alert Symbol	 Slow
 Read Operator's Manual	 Fast
 Hour meter/Elapsed Operating Hours	 Brake
 Diesel Fuel	 Parking Brake
 Fuel-Level	 4-Wheel Drive-Off
 Empty	 4-Wheel Drive-On
 Full	 Speed set-On
 Engine-Run	 Speed set-Off
 Diesel Preheat/Glow Plugs (Low Temperature Start Aid)	 Differential Lock
 Starter Control	 Hydraulic Control-Lowered Position
 Engine-Stop	 Hydraulic Control-Raised Position
 Engine Oil-Pressure	 3-Point Lowering Speed Control
 Engine Coolant-Temperature	 Remote Cylinder-Retract
 Battery Charging Condition	 Remote Cylinder-Extend
 Electrical Power-accessories	 Mid-PTO
 Hazard Warning Lights	 Mid-Rear-PTO
 Turn Signal	 Rear-PTO
 Headlight	 Power Take-Off Clutch Control-Off Position
 Master Lighting Switch	 Power Take-Off Clutch Control-On Position
 Engine Speed Control	 Tilt Steering Lever
	 Loader Lock Lever Lock Position
	 Loader Lock Lever Unlock Position

FOREWORD

You are now the proud owner of a KUBOTA Tractor. This tractor is a product of KUBOTA's quality engineering and manufacturing. It is made of the excellent materials and under rigid quality control systems. It will give you long, satisfactory service. To obtain the best use of your tractor, please read this manual carefully. It will help you become familiar with the operation of the tractor and contains many helpful hints about tractor maintenance. It is KUBOTA's policy to utilize, as quick as possible, every advance in our research. The immediate use of new techniques in the manufacturing of products may cause some small parts of this manual to become outdated. KUBOTA distributors and dealers will have the most up-to-date information. Please do not hesitate to consult them.



SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.



DANGER : Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION : Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.

NOTE : Gives helpful information.

CONTENTS

▲ SAFE OPERATION	▲-1
TRACTOR.....	1
LOADER	7
BACKHOE.....	9
SERVICING	1
SPECIFICATIONS OF THE TRACTOR	3
SPECIFICATION TABLE	3
TRAVELING SPEEDS	4
SPECIFICATIONS OF THE LOADER.....	5
LOADER SPECIFICATIONS	5
BUCKET SPECIFICATIONS.....	5
DIMENSIONAL SPECIFICATIONS	6
OPERATIONAL SPECIFICATIONS.....	7
LOADER TERMINOLOGY.....	9
SPECIFICATIONS OF THE BACKHOE	10
BACKHOE SPECIFICATIONS.....	10
Dimensions	10
Specifications.....	11
Lift Capacity (Per SAE J31).....	13
BACKHOE TERMINOLOGY	14
IMPLEMENT LIMITATIONS	15
INSTRUMENT PANEL AND CONTROLS.....	17
PRE-OPERATION CHECK OF THE TRACTOR.....	19
DAILY CHECK	19
PRE-OPERATION CHECK OF THE LOADER	20
LUBRICATION	20
TRANSMISSION FLUID	20
REAR BALLAST	20
Liquid Ballast in Rear Tires.....	20
TIRE INFLATION	20
TEST OPERATION.....	20
REMOVING AIR FROM HYDRAULIC SYSTEM	21
PRE-OPERATION CHECK OF THE BACKHOE.....	22
PRE-OPERATION CHECKS	22
OPERATOR'S SEAT	22
BALLAST	22
TIRE INFLATION	22
OPERATING THE ENGINE.....	23
STARTING THE ENGINE	23
Cold Weather Starting	25

Block Heater (Option).....	25
STOPPING THE ENGINE.....	25
WARMING UP	26
Warm-up and Transmission Oil in the Low Temperature Range.....	26
JUMP STARTING	26
OPERATING THE TRACTOR.....	28
OPERATING NEW TRACTOR	28
Do not Operate the Tractor at Full Speed for the First 50 Hours.....	28
Changing Lubricating Oil for New Tractors.....	28
GETTING ON AND OFF THE TRACTOR	28
OPERATING FOLDABLE ROPS	28
To Fold the ROPS	28
To Raise the ROPS to Upright Position.....	29
Adjustment of Foldable ROPS.....	30
STARTING	31
Operator's Seat.....	31
Seat Belt	32
Tilt Steering Adjustment.....	32
Head Light Switch.....	32
Hazard Light Switch.....	33
Turn Signal Light Switch	33
Brake Pedal	33
Range Gear Shift Lever (Hi-Lo).....	34
Front Wheel Drive Lever.....	35
Hand Accelerator Lever	35
Parking Brake Pedal.....	35
Speed Control Pedal.....	36
Speed Set Device	36
STOPPING.....	37
Stopping.....	37
CHECK DURING DRIVING	37
Immediately Stop the Engine if:.....	37
Easy Checker(TM).....	38
Fuel Gauge.....	38
Coolant Temperature Gauge	38
Hour Meter.....	39
Tachometer.....	39
PARKING	40
Parking.....	40
OPERATING TECHNIQUES	40
Differential Lock.....	40
Operating the Tractor on a Road	41
Operating on a Slopes and Rough Terrain	41
Transport the Tractor Safely	41
Directions for Use of Power Steering.....	42
ACCESSORY.....	43
12V Electric Outlet.....	43
Glove Box	43
REVERSING THE SEAT	43
PTO	45

PTO OPERATION.....	45
PTO Select Lever	45
PTO Clutch Lever	46
PTO Shaft Cover and Shaft Cap	46
Stationary PTO	46
PTO Drive Shaft.....	47
3-POINT HITCH & DRAWBAR.....	48
3-POINT HITCH.....	49
Attaching and detaching implements.....	49
Lifting Rod (Right).....	49
Top Link.....	49
Check Chains	49
HITCH	49
Removing the 3-Point Hitch.....	50
Installing the 3-Point Hitch.....	50
HYDRAULIC UNIT.....	51
3-POINT HITCH CONTROL SYSTEM.....	51
Hydraulic Control	51
3-point Hitch Lowering Speed.....	51
AUXILIARY HYDRAULICS	52
Connecting Hoses for Backhoe	52
Disconnecting Hoses for Mower	53
MOWER LIFT LINKAGE SYSTEM	54
Cutting Height Control Dial	54
Hydraulic Control Unit Use Reference Chart.....	55
TIRES, WHEELS AND BALLAST	56
TIRES.....	56
Inflation Pressure.....	56
Dual Tires	56
WHEEL TREAD	56
Front Wheels	56
How to Jack Up Front Axle	57
Rear Wheels.....	57
How to Jack Up Machine	57
BALLAST	58
Front Ballast.....	58
Rear Ballast	58
OPERATING THE LOADER.....	60
FILLING THE BUCKET.....	60
LIFTING THE LOAD	60
CARRYING THE LOAD	61
DUMPING THE BUCKET	61
LOWERING THE BUCKET.....	61
OPERATING WITH FLOAT CONTROL.....	61
LOADING FROM A BANK	62
PEELING AND SCRAPING	63
LOADING LOW TRUCKS OR SPREADERS FROM A PILE.....	63
BACKFILLING.....	63

HANDLING LARGE HEAVY OBJECTS.....	64
VALVE LOCK.....	65
BUCKET LEVEL INDICATOR.....	65
QUICK COUPLER SYSTEM.....	65
FRONT REMOTE HYDRAULIC CONTROL SYSTEM (if equipped)	66
Install	66
Control Lever	66
Remote Control Coupler Connecting and Disconnecting	67
ATTACHING ATTACHMENTS	68
DETACHING ATTACHMENTS	70
DISMOUNTING THE LOADER.....	70
MAINTENANCE	70
ATTACHMENTS	70
Quick Bucket.....	70
Pallet Fork.....	71
Snow Blade.....	71
Front Guard	71
OPERATING THE BACKHOE.....	73
OPERATING SPEED	73
BACKHOE CONTROLS.....	73
Boom & Swing Lever	73
Boom & Swing Lock Lever.....	74
Dipperstick & Bucket Lever.....	74
Stabilizer Control Levers.....	75
PLACING THE STABILIZERS	75
GENERAL BACKHOE OPERATION	76
Dipperstick Digging.....	76
Spoil Pile Location	76
Straight Wall or Cemetery Digging	76
Stabilizer pads (Standard)	77
TRANSPORTING.....	77
Driving to the Job-site.....	78
Trailer Transporting	78
MAINTENANCE OF THE TRACTOR.....	79
SERVICE INTERVALS	79
LUBRICANTS, FUEL AND COOLANT	80
BIODIESEL FUEL (BDF)	83
PERIODIC SERVICE OF THE TRACTOR.....	85
HOW TO OPEN THE HOOD	85
Front Guard and Hood.....	85
DAILY CHECK	85
Walk Around Inspection.....	85
Checking Fuel and Refueling.....	86
Checking Engine Oil Level.....	86
Checking Transmission Fluid Level	87
Checking Coolant Level.....	87
Cleaning Panel and Radiator Screen	88
Checking Brake Pedal	88
Checking Gauges, Meters and Easy Checker(TM)	88

Checking Head Light, Hazard Light etc.....	88
Checking Seat Belt and ROPS.....	88
Checking and Cleaning of Electrical Wiring and Battery Cables.....	89
Checking Movable Parts.....	89
EVERY 50 HOURS.....	89
Lubricating Grease Fittings.....	89
Checking Engine Start System.....	90
Checking OPC System.....	91
Checking Wheel Bolt Torque.....	91
Cleaning the Lock Lever Shaft.....	92
EVERY 100 HOURS.....	92
Checking Battery.....	92
Cleaning Air Cleaner Element.....	94
Checking Fuel Filter.....	94
Adjusting Fan belt Tension.....	95
Adjusting HST Neutral Spring (for Speed Control Pedal).....	96
Adjusting Brake Pedal.....	96
EVERY 200 HOURS.....	97
Replacing Engine Oil Filter.....	97
Changing Engine Oil.....	97
Replacing Transmission Oil Filter.....	98
Adjusting Toe-in.....	98
EVERY 400 HOURS.....	99
Adjusting Front Axle Pivot.....	99
Changing Transmission Fluid.....	99
Cleaning Transmission Strainer.....	100
Changing Front Axle Case Oil.....	100
Replacing Fuel Filter Element.....	100
EVERY 800 HOURS.....	100
Adjusting Engine Valve Clearance.....	100
EVERY 1000 HOURS OR 1 YEAR.....	100
Replacing Air Cleaner Element.....	100
EVERY 1500 HOURS.....	101
Checking Fuel Injection Nozzle Injection Pressure.....	101
EVERY 2000 HOURS OR 2 YEARS.....	101
Flushing Cooling System and Changing Coolant.....	101
Anti-Freeze.....	102
EVERY 3000 HOURS.....	102
Checking Injection Pump.....	102
EVERY 1 YEAR.....	103
Checking Radiator Hoses and Clamps.....	103
Checking Power Steering Line.....	103
Checking Fuel Lines.....	103
Checking Intake Air Line.....	104
Checking Engine Breather Hose.....	104
EVERY 4 YEARS.....	104
Replacing Radiator Hose (Water pipes).....	104
Replacing Power Steering Hose.....	104
Replacing Fuel Lines.....	104
Replacing Engine Breather Hose.....	104
Replacing Intake Air Line.....	104

SERVICE AS REQUIRED.....	105
Bleeding Fuel System.....	105
Replacing Fuse.....	105
Replacing Light Bulb.....	106
MAINTENANCE OF THE LOADER.....	107
LUBRICATION.....	107
RE-TIGHTENING OF HARDWARE.....	107
Tightening Bolts and Nuts.....	107
DAILY CHECKS.....	108
EVERY 50 HOURS.....	108
Checking main frame bolt and nut torque.....	108
MAINTENANCE OF THE BACKHOE.....	109
DAILY CHECKS.....	109
LUBRICATION.....	110
BUCKET SERVICE.....	110
Changing the Backhoe Bucket.....	110
Changing the Bucket Teeth.....	110
EVERY 50 HOURS.....	111
Checking Sub Frame Bolt Torque.....	111
General Torque Specification.....	112
STORAGE OF THE TRACTOR.....	113
TRACTOR STORAGE.....	113
REMOVING THE TRACTOR FROM STORAGE.....	113
REMOVING THE LOADER.....	114
STORAGE OF THE LOADER.....	118
REINSTALLING THE LOADER.....	119
ADJUSTING THE HEIGHT OF LIFTING STAND.....	123
REMOVING THE BACKHOE.....	127
REMOVAL OF THE BACKHOE.....	127
STORAGE OF THE BACKHOE.....	129
REINSTALLING THE BACKHOE.....	130
TROUBLESHOOTING.....	133
ENGINE TROUBLESHOOTING.....	133
OPTIONS.....	134
APPENDICES.....	135
INDEX.....	135



SAFE OPERATION

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 experience they may have, 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.

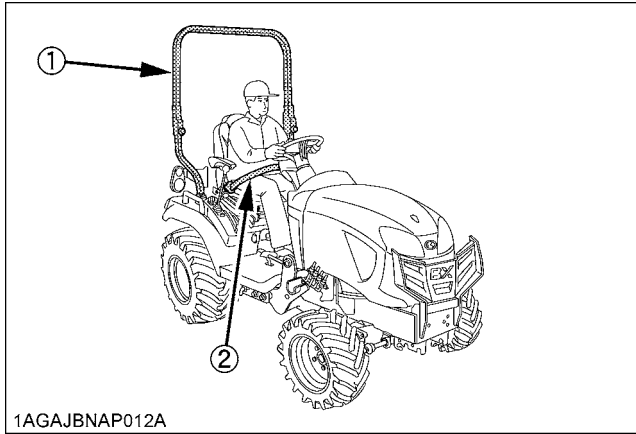
1. BEFORE OPERATING THE TRACTOR

1. Know your equipment and its limitations. Read this entire manual before attempting to start and operate the tractor.
2. Pay special attention to the danger, warning and caution labels on the tractor.
3. Do not operate the tractor or any implement attached to it while under the influence of alcohol, medication, controlled substances or while fatigued.
4. Carefully check the vicinity before operating tractor or any implement attached to it. Do not allow any bystanders around or near tractor during operation.
5. Before allowing other people to use your tractor, explain how to operate and have them read this manual before operation.
6. Never wear loose, torn, or bulky clothing around tractor. It may catch on moving parts or controls, leading to the risk of an accident. Use additional safety items, e.g. hard hat, safety boots or shoes, eye and hearing protection, gloves, etc., as appropriate or required.
7. Do not allow passengers to ride on any part of the tractor at anytime. The operator must remain in the tractor seat during operation.
8. Check brakes, 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 "PERIODIC SERVICE OF THE TRACTOR" section.)
9. Keep your tractor clean. Dirt, grease, and trash build up may contribute to fires and lead to personal injury.
10. Use only implements meeting the specifications listed under "IMPLEMENT LIMITATIONS" in this manual or implements approved by KUBOTA.
11. 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 3-point hitch to improve stability. Follow the safe operating procedures specified in the implement or attachment manual.
12. Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.

◆ CAB, ROPS

1. KUBOTA recommends the use of a CAB or Roll Over Protective Structures (ROPS) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death, should the tractor be upset. Check for overhead clearance which may interfere with a CAB or ROPS.
2. Set parking brake and stop engine. Remove any obstruction that may prevent raising or folding of the ROPS. Do not allow any bystanders. Always perform function from a stable position at the rear of the tractor. Hold the top of the ROPS securely when raising or folding. Make sure all pins are installed and locked.
3. If the CAB or ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
4. Never modify or repair any structural member of a CAB or ROPS because welding, bending, drilling, grinding, or cutting may weaken the structure.
5. If any structural member of the CAB or ROPS is damaged, replace the entire structure at your local KUBOTA Dealer.
6. If the tractor is equipped with a foldable ROPS it may be temporarily folded down only when absolutely necessary for areas with height constraints. There is no operator protection provided by the ROPS in the folded position. For operator safety the ROPS should be placed in the upright and locked position and the seat belt fastened for all other operations.
7. Always use the seat belt if the tractor has 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.



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- (1) ROPS
- (2) Seat belt

2. OPERATING THE TRACTOR

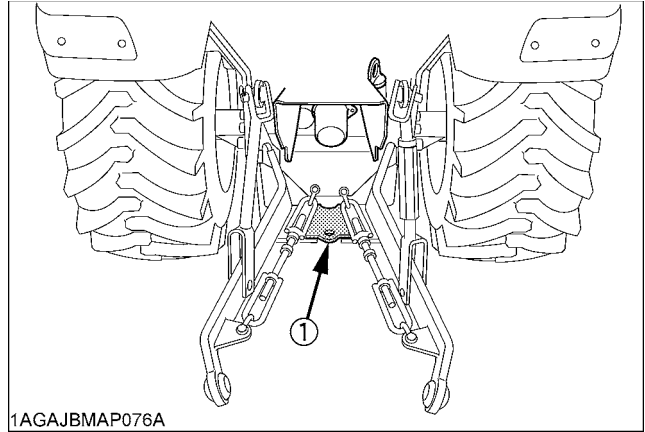
Operator safety is a priority. Safe operation, specifically with respect to overturning hazards, entails understanding the equipment and environmental conditions at the time of use. Some prohibited uses which can affect overturning hazards include traveling and turning with implements and loads carried too high etc. This manual sets forth some of the obvious risks, but the list is not, and cannot be, exhaustive. It is the operator's responsibility to be alert for any equipment or environmental condition that could compromise safe operation.

◆ Starting

1. Always sit in the operator's seat when starting engine or operating levers or controls. Adjust seat per instructions in the operating the tractor section. Never start engine while standing on the ground.
2. Before starting the engine, make sure that all levers (including auxiliary control levers) are in their neutral positions, that the parking brake is engaged, and that the Power Take-Off (PTO) is disengaged or "OFF". Fasten the seat belt if the tractor has a CAB, a fixed ROPS or a foldable ROPS in the upright and locked position.
3. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
4. Do not operate or idle engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless, and deadly.
5. Check before each use that operator presence controls are functioning correctly. Test safety systems. (See "Checking Engine Start System" and "Checking OPC System" in "EVERY 50 HOURS" in "PERIODIC SERVICE OF THE TRACTOR" section.) Do not operate unless they are functioning correctly.

◆ Working

1. Pull only from the hitch. Never hitch to axle housing or any other point except hitch; such arrangements will increase the risk of serious personal injury or death due to a tractor upset.



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- (1) Hitch

2. Keep all shields and guards in place. Replace any that are missing or damaged.
3. Avoid sudden starts. To avoid upsets, slow down when turning, on uneven ground, and before stopping.
4. The tractor cannot turn with the differential locked and attempting to do so could be dangerous.
5. Do not operate near ditches, holes, embankments, or other ground surface features which may collapse under the tractor's weight. The risk of tractor upset is even higher when the ground is loose or wet. Tall grass can hide obstacles, walk the area first to be sure.
6. Watch where you are going at all times. Watch for and avoid obstacles. Be alert at row ends, near trees, and other obstructions.
7. When working in groups, always let the others know what you are going to do before you do it.
8. Never try to get on or off a moving tractor.
9. Always sit in the operator's seat when operating levers or controls.
10. Do not stand between tractor and implement or trailed vehicle unless parking brake is applied.
11. Do not operate or tow at speeds exceeding specific travel speed.

◆ Safety for children

Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to machines and the work they do.

1. Never assume that children will remain where you last saw them.
2. Keep children out of the work area and under the watchful eye of another responsible adult.
3. Be alert and shut your machine down if children enter the work area.
4. Never carry children on your machine. There is no safe place for them to ride. They may fall off and be run over or interfere with your control of the machine.

5. Never allow children to operate the machine even under adult supervision.
6. Never allow children to play on the machine or on the implement.
7. Use extra caution when backing up. Look behind and down to make sure area is clear before moving.

◆ Operating on slopes

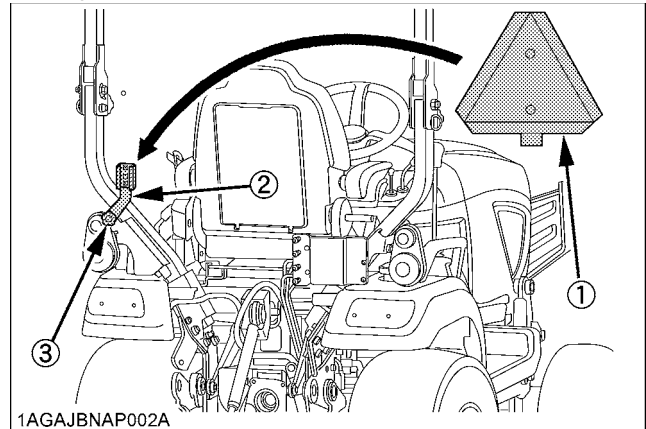
Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution.

1. To avoid upsets, always back up steep slopes. If you cannot back up the slope or if you feel uneasy on it, do not operate on it. Stay off slopes too steep for safe operation.
2. Driving forward out of a ditch, mired condition or up a steep slope increases the risk of a tractor to be upset backward. Always back out of these situations. Extra caution is required with 4-wheel drive models because their increased traction can give the operator false confidence in the tractor's ability to climb slopes.
3. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, direction or apply brake and make sudden motions of the steering wheel.
4. Avoid changing gears speed when climbing or going down a slope. If on a slope changing gears to neutral could cause loss of control.
5. Special attention should be made to the weight and location of implements and loads as such will affect the stability of the tractor.
6. To improve stability on slope, follow recommendations for proper ballasting as shown in "BALLAST" section.
7. When driving down a slope, ensure that 4-wheel drive is engaged to increase traction (if equipped).

◆ Driving the tractor on the road

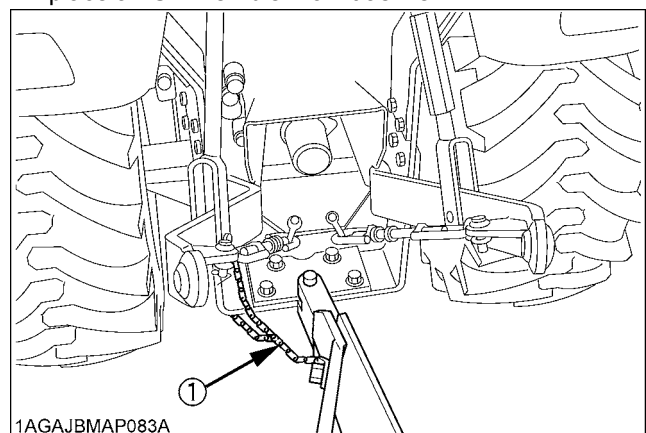
1. Check the front wheel engagement. The braking characteristics are different between 2 and 4-wheel drive. Be aware of the difference and use carefully.
2. Always slow the tractor down before turning. Turning at high speed may tip the tractor over.

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



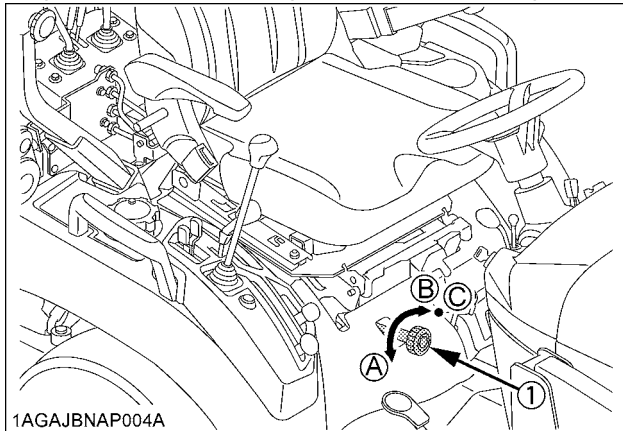
- (1) SMV emblem
(2) Bracket
(3) Knob nut

4. On public roads use the SMV emblem and hazard lights, if required by local traffic and safety regulations.
5. Observe all local traffic and safety regulations.
6. Turn the headlights on. Dim them when meeting another vehicle.
7. Drive at speeds that allow you to maintain control at all times.
8. Do not apply the differential lock while traveling at road speeds. The tractor may run out of control.
9. Avoid sudden motions of the steering wheel as they can lead to a dangerous loss of stability. The risk is especially great when the tractor is traveling at road speeds.
10. Keep the ROPS in the "UP" position and wear the seat belt when driving the tractor on the road. Otherwise, you will not be protected in the event of a tractor roll-over.
11. Do not operate an implement while the tractor is on the road. Lock the 3-point hitch in the raised position.
12. When towing other equipment, use a safety chain and place an SMV emblem on it as well.



- (1) Safety chain

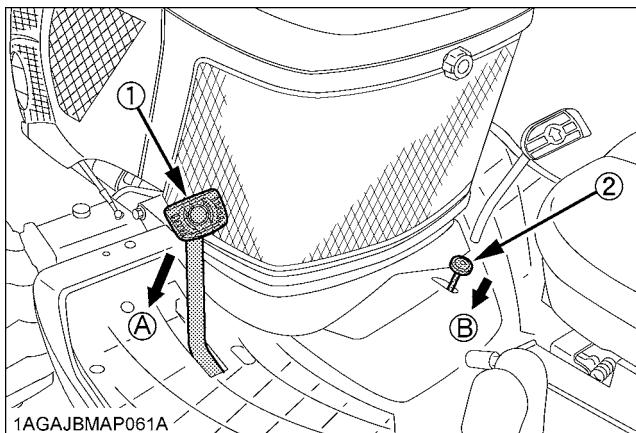
- Set the implement lowering speed knob in the "LOCK" position to hold the implement in the raised position.



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

3. PARKING THE TRACTOR

- Disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine, remove the key from the ignition and lock the cab door (if equipped). Leaving transmission in gear with the engine stopped will not prevent tractor from rolling.

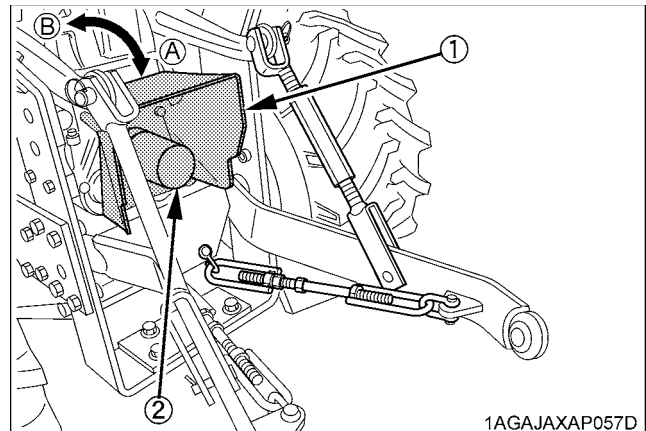


(1) Brake pedal (A) "DEPRESS"
 (2) Parking brake pedal (B) "PUSH DOWN (2) WHILE DEPRESSING (1)"

- Make sure that the tractor has come to a complete stop before dismounting.
- Avoid parking on steep slopes, if at all possible park on a firm and level surface; if not, park across a slope and chock the wheels.
 Failure to comply with this warning may allow the tractor to move and could cause injury or death.

4. OPERATING THE PTO

- Wait until all moving components have completely stopped before getting off the tractor, connecting, disconnecting, adjusting, cleaning, or servicing any PTO driven equipment.
- Keep the PTO shaft cover in place at all times. Replace the PTO shaft cap when the shaft is not in use.

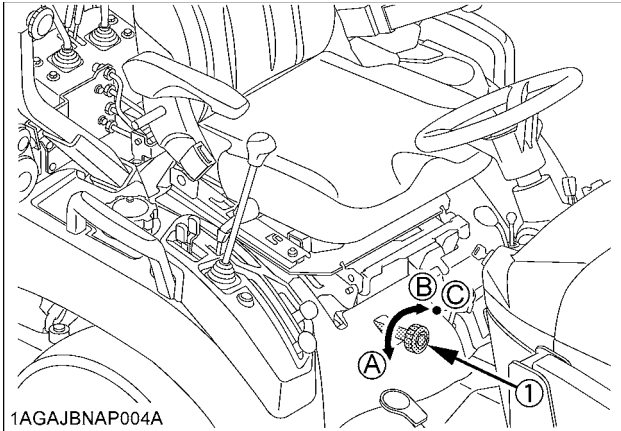


(1) PTO Shaft cover (A) "NORMAL POSITION"
 (2) PTO Shaft cap (B) "RAISED POSITION"

- Before installing or using PTO driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment.
- When operating stationary PTO driven equipment, always apply the tractor parking brake and place chocks behind and in front of the rear wheels. Stay clear of all rotating parts. Never step over rotating parts.

5. USING 3-POINT HITCH

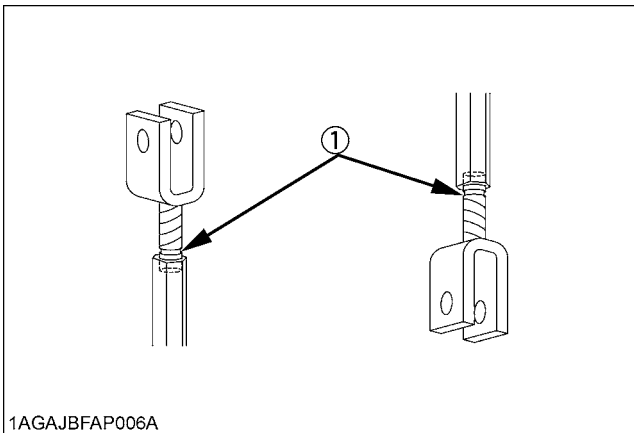
1. Use the 3-point hitch only with equipment designed for 3-point hitch usage.
2. When using a 3-point hitch mounted implement, be sure to install the proper counterbalance weight on the front of the tractor.
3. When transporting on the road, set the implement lowering speed knob in the "LOCK" position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



(1) 3-point hitch lowering speed knob

(A) "FAST"
(B) "SLOW"
(C) "LOCK"

4. To avoid injury from separation:
Do not extend lift rod beyond the groove on the threaded rod.

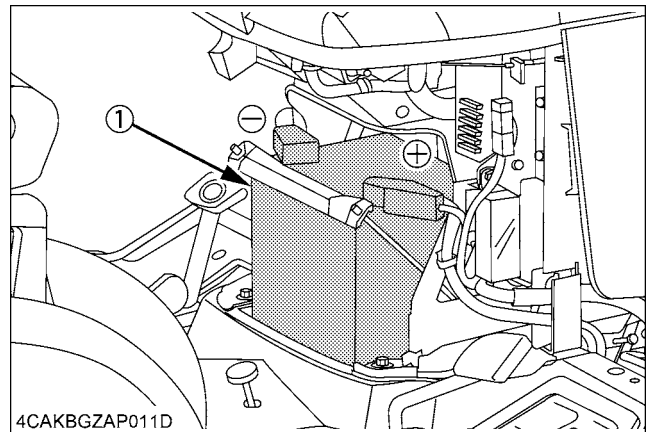


(1) Groove

6. SERVICING THE TRACTOR

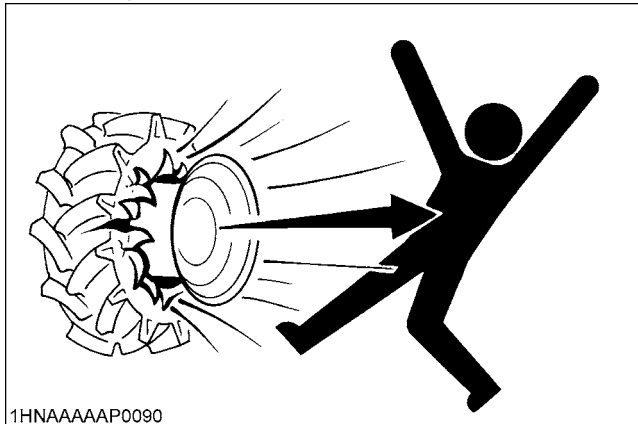
Before servicing the tractor, park it on a firm, flat and level surface, set the parking brake, lower all implements to the ground, place the gear shift lever in neutral, stop the engine and remove the key.

1. Allow the tractor time to cool off before working on or near the engine, muffler, radiator, etc.
2. Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely. If the tractor has a coolant recovery tank, add coolant or water to the tank, not the radiator. (See "Checking Coolant Level" in "DAILY CHECK" in "PERIODIC SERVICE OF THE TRACTOR" section.)
3. Always stop the engine before refueling. Avoid spills and overfilling.
4. Do not smoke when working around battery or when refueling. Keep all sparks and flames away from battery and fuel tank. The battery presents an explosive hazard, because it gives off hydrogen and oxygen especially when recharging.
5. Before "jump starting" a dead battery, read and follow all of the instructions. (See "JUMP STARTING" in "OPERATING THE ENGINE" section.)
6. Keep first aid kit and fire extinguisher handy at all times.
7. Disconnect the battery's ground cable before working on or near electric components.
8. To avoid the possibility of battery explosion, do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Check the fluid level regularly and add distilled water as required so that the fluid level is between the UPPER and LOWER levels.
9. To avoid sparks from an accidental short circuit, always disconnect the battery's ground cable (-) first and reconnect it last.

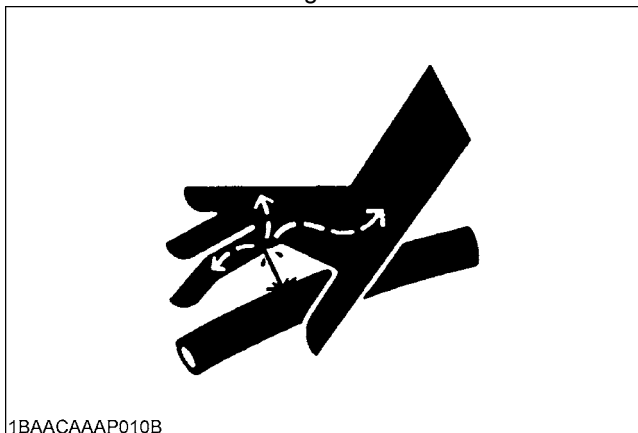


(1) Battery

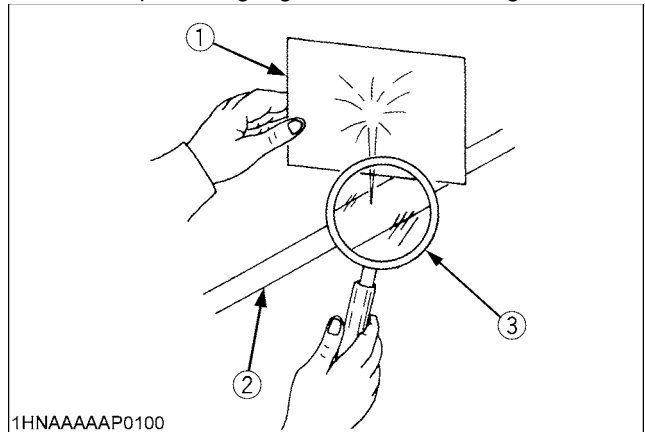
- 10. Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- 11. Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.



- 12. Securely support the tractor when either changing wheels or adjusting the wheel tread width.
- 13. Make sure that wheel bolts have been tightened to the specified torque.
- 14. Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
- 15. Escaping hydraulic fluid under pressure has sufficient force to penetrate skin, causing serious personal injury. Before disconnecting hydraulic lines, be sure to release all residual pressure. Before applying pressure to the hydraulic system, make sure that all connections are tight and that all lines, pipes, and hoses are free of damage.



- 16. Fluid escaping from pinholes may be invisible. Do not use hands to search for suspected leaks; use a piece of cardboard or wood. 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 will produce gangrene or severe allergic reaction.



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

- 17. Waste products such as used oil, fuel, hydraulic fluid, and batteries, can harm the environment, people, pets and wildlife. Please dispose properly. See your local Recycling Center or KUBOTA Dealer to learn how to recycle or get rid of waste products.

LOADER

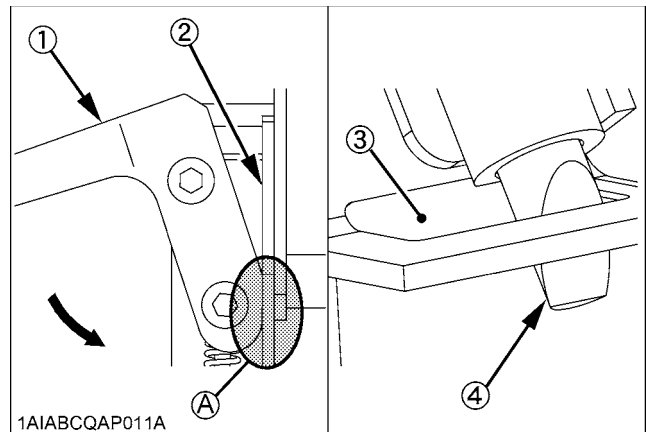
Most loader equipment accidents can be avoided by following simple safety precautions. These safety precautions, if followed at all times, will help you operate your loader safely.

1. BEFORE OPERATING THE LOADER

1. Read and understand all instructions and precautions found in both the tractor and the loader operator's manuals before using the loader.
Lack of knowledge can lead to accidents.
2. It is the owner's responsibility to ensure that anyone who will operate the loader reads this manual first and becomes familiar with the safe operation of the loader.
3. For your safety, a ROPS with a seat belt is strongly recommended by KUBOTA in almost all applications. If your tractor has a foldable ROPS, fold it down only when absolutely necessary and raise it up and lock it again as soon as possible. Do not wear the seat belt when a foldable ROPS is down or a fixed ROPS is removed. If you have any questions, consult your local KUBOTA dealer.

Always use the seat belt when the tractor is equipped with a ROPS. Never use the seat belt when the tractor is not equipped with a ROPS.

4. Visually check for hydraulic leaks and broken, missing, or malfunctioning parts.
Make necessary repairs before operating.
5. Replace damaged or illegible safety labels. See following pages for required labels.
6. When the front loader is mounted on the tractor, enter and exit the operator's seat only from left side of the tractor.
7. Engage the loader control valve lock to prevent accidental actuation when the implement is not in use or during transport. Do not utilize the valve lock for machine maintenance or repair.
8. Assemble, remove and reinstall the loader only as directed in this manual. Failure to do this could result in serious personal injury or death.
9. Follow the precautions below when attaching implements.
 - Make sure both handles (LH, RH) contact the ear plates at the points (A) and are all the way down.
 - Make sure both lock pins (LH, RH) protrude through the pin slots.
 - KUBOTA recommends the use of KUBOTA attachments on KUBOTA loaders. Non-KUBOTA attachments, if used, must comply with ISO 24410, first edition 2005-04-15.
 - Use of a non-KUBOTA attachment that does not comply with ISO 24410 or the improper positioning of handle(s) or non-protrusion of pin(s) may result in detachment of the attachment or deformation, causing loss of performance, personal injury or death.



- (1) Handle
- (2) Ear plate
- (3) Pin slot
- (4) Lock pin

(A) The handle contacts the ear plate at the points.

2. OPERATING THE LOADER

1. Operate the loader only when properly seated at the controls. Do not operate from the ground.
2. Move and turn the tractor at low speeds.
3. Never allow anyone to get under the loader bucket or reach through the boom when the bucket is raised.
4. Keep children, others and livestock away when operating loader and tractor.
5. Do not walk or work under a raised loader bucket or attachment unless it is securely blocked and held in position.
6. For tractor stability and operator safety, rear ballast must be added to the 3-point hitch and to the rear wheels when using loader.
7. To increase stability adjust the rear wheels to the widest setting that is suitable for your application.
8. Exercise extra caution when operating the loader with a raised bucket or attachment.
9. Do not lift or carry any person on the loader, in the bucket, or other attachment.
10. Avoid loose fill, rocks and holes. They can be dangerous for loader operation or movement.
11. Avoid overhead wires and obstacles when the loader is raised. Contacting electric lines can cause electrocution.
12. Gradually stop the loader boom when lowering or lifting.
13. Use caution when handling loose or shiftable loads.
14. Using loaders for handling large, heavy, or shiftable objects is not recommended without proper handling attachments.

15. Handling large heavy objects can be extremely dangerous due to :
 - 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.
 16. If you must perform this sort of work (item 15), protect yourself by :
 - Never lift the load higher than necessary to clear the ground.
 - Add rear ballast to the tractor to compensate for the load or use rear implement.
 - Never lift large objects with equipment that may permit them to roll back onto the operator.
 - Move slowly and carefully, avoiding rough terrain.
 17. Never lift or pull a load from any point on the loader (or any attachments) with a chain, rope, or cable. Doing so could cause a rollover or serious damage to the loader.
 18. Be extra careful when operating the tractor on a slope, always operate up and down, never across the slope. Do not operate on steep slopes or unstable surfaces.
 19. When operating another implement on a hillside, be sure to remove the loader to reduce the risk of rollover.
 20. Carry loader boom at a low position during transport. (You should be able to see over the bucket.)
 21. Allow for the loader length when making turns.
4. Escaping hydraulic oil under pressure can have 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.
 5. Do not tamper with the relief valve setting. The relief valve is pre-set at the factory. Changing the setting can cause overloading of the loader and tractor which may result in serious personal injury.
 6. When servicing or replacing 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.

3. AFTER OPERATING THE LOADER

1. When loader work is complete and parking or storing, choose flat and hard ground. Lower the loader boom to the ground, stop the engine, set the brakes and remove the key before leaving the tractor seat.
2. Make sure the detached loader is on stands and on a hard, level surface.
3. Before disconnecting hydraulic lines, relieve all hydraulic pressure by moving the controls.
4. Do not remove the loader from the tractor without an approved bucket attached.

4. SERVICING THE LOADER

1. Always wear safety goggles when servicing or repairing the machine.
2. Do not modify the loader. Unauthorized modification may affect the function of the loader, which may result in personal injury.
3. 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. They can settle or suddenly leak down or be accidentally lowered.

BACKHOE

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.

1. BEFORE OPERATING BACKHOE

1. Read and understand all precautions in this manual before service or operation. Allow only trained personnel to operate or service this equipment.
2. It is the owner's responsibility to ensure that anyone who will operate the backhoe reads this manual first and becomes familiar with the safe operation of the backhoe.
3. For safe operation, check the mounting bolts for tightness and that the mount levers are in the right position before operation.
4. Never operate tractor with backhoe attached and loader removed.
5. 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.
6. Replace any safety decal that becomes damaged, lost or illegible. Also renew all decals when repainting.

2. OPERATING THE BACKHOE

1. Do not allow anyone other than the operator on the unit while in operation or transport.
2. Keep all person and animals away from swing area of backhoe.
3. 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.
4. Operate the backhoe from the backhoe operator's seat only.
5. When using on slopes, one stabilizer may be lower than the other. Use extreme care during excavation as risk of tip-over will increase.
6. To reduce the risk of tip-over on a slope, place the spoil to the high side of the excavation.
7. Do not dig under the stabilizer or tractor, especially in soft or sandy condition. 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.
8. Never operate the machine or any equipment while under the influence of alcohol or other drugs, or while fatigued.
9. When leaving the machine unattended, be sure to lower the backhoe to the ground. Set the parking brake, lock the left control lever, then shut the engine off and remove the key.

3. 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)

4. SERVICING THE BACKHOE

1. Before disconnecting hydraulic lines, relieve all hydraulic pressure by moving the controls.
2. Always use personal protection device 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 jack stands.
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.

7. DANGER, WARNING AND CAUTION LABELS

(1) Part No. K2871-6548-1

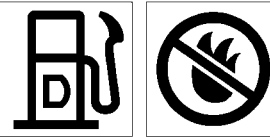
▲WARNING

TO AVOID PERSONAL INJURY OR DEATH:

1. Read and understand the operator's manual before operation.
2. 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




**ULTRA LOW SULFUR
DIESEL FUEL ONLY**

1BDAHAOAP002A


(3) Part No. K2591-6557-2

▲WARNING



TO AVOID PERSONAL INJURY OR DEATH FROM ROLL-OVER:

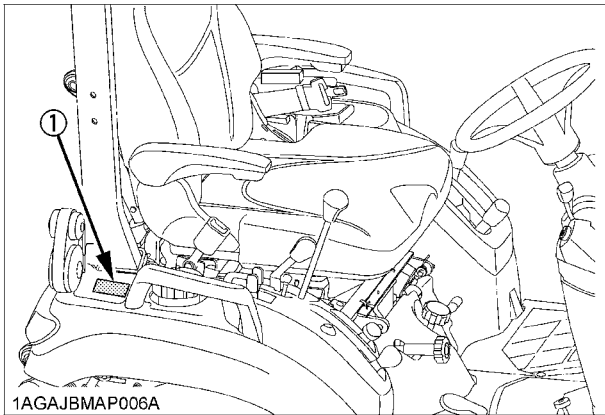
1. Keep Roll-Over Protective Structures (ROPS) in the upright and locked position.
2. Fasten SEAT BELT before operating.



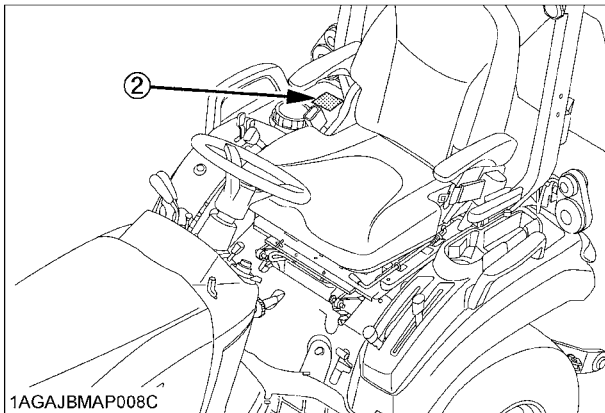
THERE IS NO OPERATOR PROTECTION WHEN THE ROPS IS IN THE FOLDED POSITION.

1. Check the operating area and fold the ROPS only when absolutely necessary.
2. Do not wear SEAT BELT if ROPS is folded.
3. Raise and lock ROPS as soon as vertical clearance allows.
4. Read ROPS related instructions and warnings.

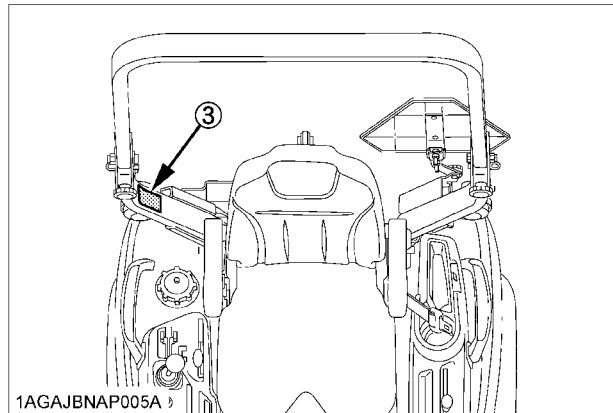
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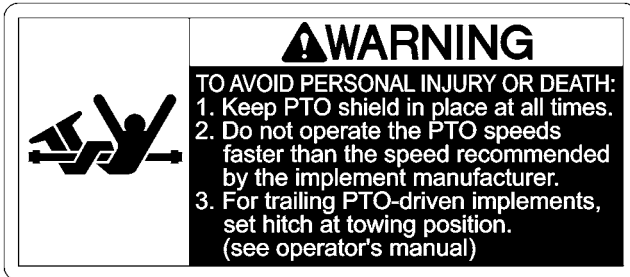


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1AGAJBNAPO05A

(1) Part No. K2581-6554-1



1AGAJBMAP0470

(2) Part No. K2581-6555-1



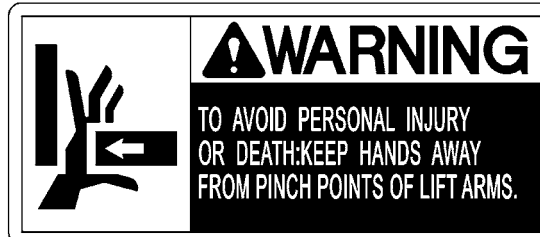
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(3) Part No. K2871-6556-1



1AGAJBMAP0490

(4) Part No. K2871-6552-2



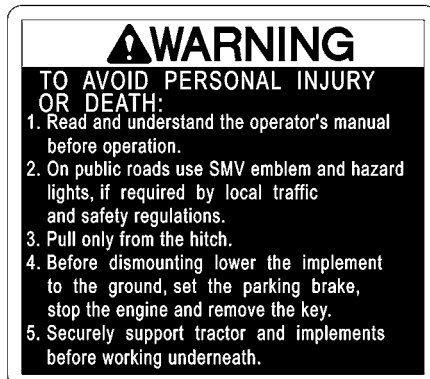
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(5) Part No. K2651-6568-1

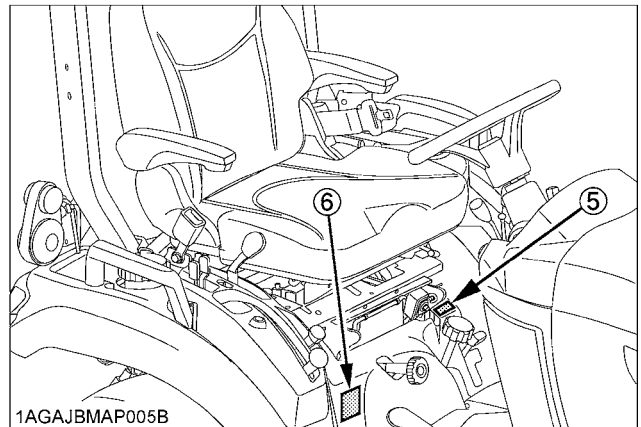
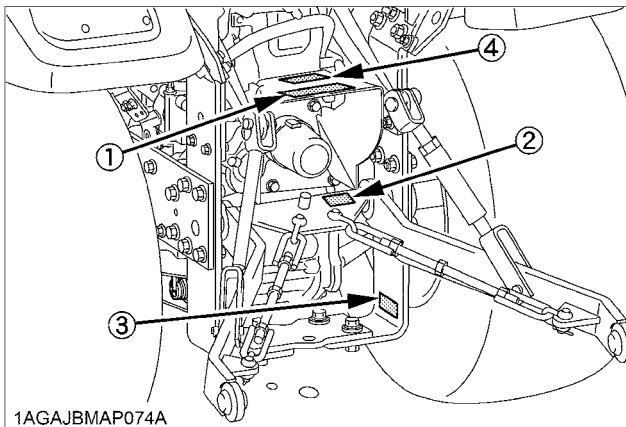


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(6) Part No. K2871-6558-1



1AGAJBMAP0530



(1) Part No. K2871-6541-1



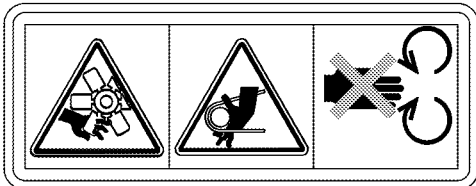
▲ DANGER

TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY:

1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
2. Start engine only from operator's seat with transmission and PTO off. Never start engine while standing on the ground.

1AGAJAXAP048E

(3) Part No. K2581-6543-1
Stay clear of engine fan and fanbelt.

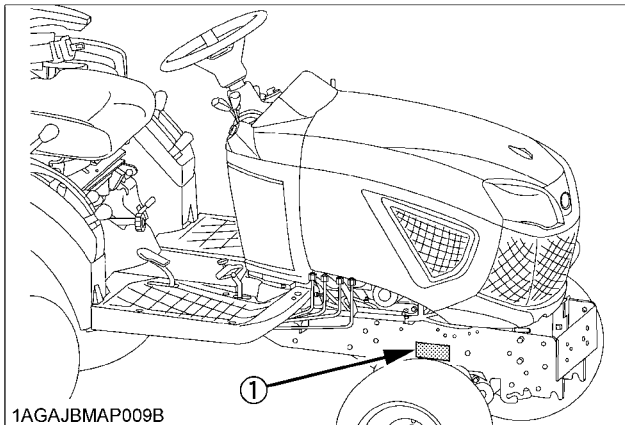


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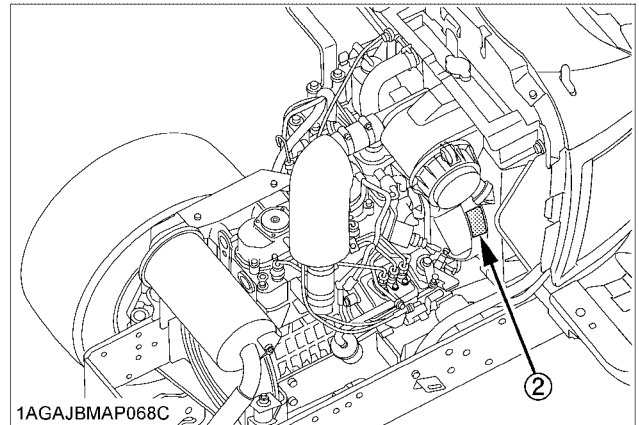
(2) Part No. K2581-6547-1
Stay clear of engine fan and fanbelt.



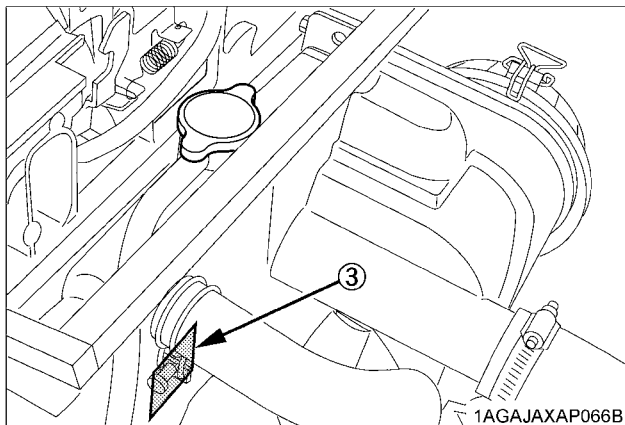
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1AGAJBMAP009B



1AGAJBMAP068C



1AGAJAXAP066B

(1) Part No. K7591-6114-2

						SMF 26R-560								
FLAMMABLES	SHIELD EYES	KEEP OUT OF THE REACH OF CHILDREN	CAUTION OF SULFURIC ACID	READ INSTRUCTION MANUAL CAREFULLY	EXPLOSIVE									
DANGER EXPLOSIVE GASES CIGARETTES, FLAMES OR SPARKS COULD CAUSE BATTERY TO EXPLODE. ALWAYS SHIELD EYES AND FACE FROM BATTERY. DO NOT CHARGE OR USE BOOSTER CABLES OR ADJUST POST CONNECTIONS WITHOUT PROPER INSTRUCTION AND TRAINING. CALIFORNIA PROPOSITION 65 WARNING: Batteries, battery packs, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. WASH HANDS AFTER HANDLING.			POISON CAUSES SEVERE BURNS. CONTAINS SULFURIC ACID. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. IN EVENT OF ACCIDENT FLUSH WITH WATER AND CALL A PHYSICIAN IMMEDIATELY.			<table border="1"> <tr> <td>NOMINAL VOLTAGE</td> <td>12V</td> </tr> <tr> <td>COLD CRANKING AMPS</td> <td>560</td> </tr> <tr> <td>CRANKING AMPS</td> <td>690</td> </tr> <tr> <td>RESERVE CAPACITY(MINUTES)</td> <td>86</td> </tr> </table>	NOMINAL VOLTAGE	12V	COLD CRANKING AMPS	560	CRANKING AMPS	690	RESERVE CAPACITY(MINUTES)	86
NOMINAL VOLTAGE	12V													
COLD CRANKING AMPS	560													
CRANKING AMPS	690													
RESERVE CAPACITY(MINUTES)	86													
FITTING DATE: 0 1 2 3 4 5 6 7 8 9 YEAR		INDICATOR: ● OK ○ CHARGE ● REPLACE		MADE IN KOREA										
1 2 3 4 5 6 7 8 9 10 11 12 MONTH														

1AYAACQAP256A

(3) Part No. K2871-6542-1

Do not touch hot surface like muffler, etc.



1AGAJBMAP0520

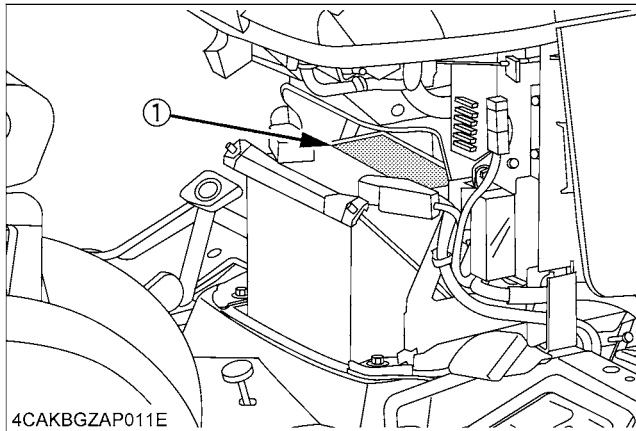
(2) Part No. K2871-6564-1

▲WARNING
 Never modify or repair a ROPS because welding, grinding, drilling or cutting any portion may weaken the structure.

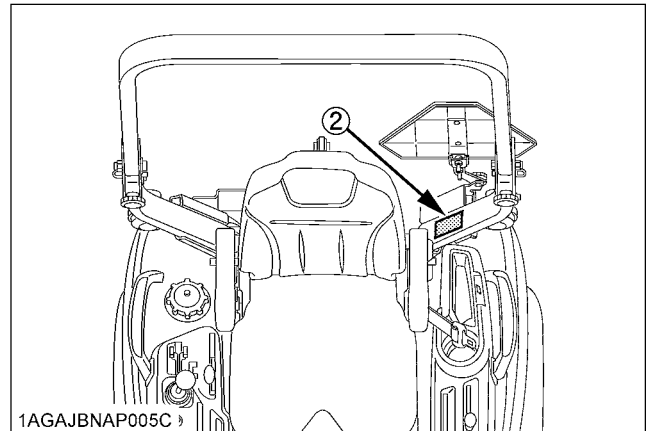
▲WARNING
 TO AVOID PERSONAL INJURY OR DEATH WHEN RAISING OR FOLDING ROPS:

1. Set parking brake and stop engine.
2. Remove any obstruction that may prevent raising or folding of the ROPS.
3. Do not allow any bystanders.
4. Always perform function from a stable position at the rear of the tractor.
5. Hold the top of the ROPS securely when raising or folding.
6. Make sure all pins are installed and locked.

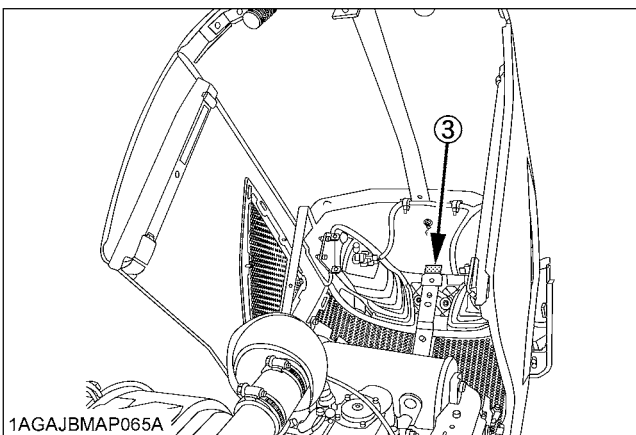
1AGAJBMAP0560



4CAKBGZAP011E



1AGAJBNAP005C



1AGAJBMAP065A

DANGER, WARNING AND CAUTION LABELS OF THE LOADER

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

▲ WARNING

TO AVOID PERSONAL INJURY :

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

1AIABAHAP019G

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

▲ DANGER




TO AVOID SERIOUS INJURY OR DEATH CAUSED BY ROLLOVERS :

1. ROPS and a fastened seat belt are strongly recommended in almost all applications. Foldable ROPS should be in upright and locked position if equipped.
2. Adjust rear wheels to the widest setting that is suitable for the work.
3. Add recommended wheel ballast and rear weight for stability.
4. DO NOT drive on steep slopes or unstable surfaces.
5. Carry loader arms at low position during transport. Move and turn tractor at slow speeds.

1AIABAHAP017A

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

▲ DANGER




TO AVOID SERIOUS INJURY OR DEATH CAUSED BY FALLING LOADS :

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

1AIABAHAP016A

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

▲ DANGER



TO AVOID SERIOUS INJURY OR DEATH CAUSED BY CONTACT WITH ELECTRIC LINES:

- Check overhead clearance.

1AIABAHAP018A

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

▲ WARNING



TO AVOID INJURY FROM FALLS OR BEING CRUSHED :

1. DO NOT stand or work under raised loader or bucket.
2. DO NOT use loader as jack for servicing.
3. DO NOT use loader as a work platform.
4. NEVER connect chain, cable or rope to loader bucket while operating loader.

1AIABAHAP020A

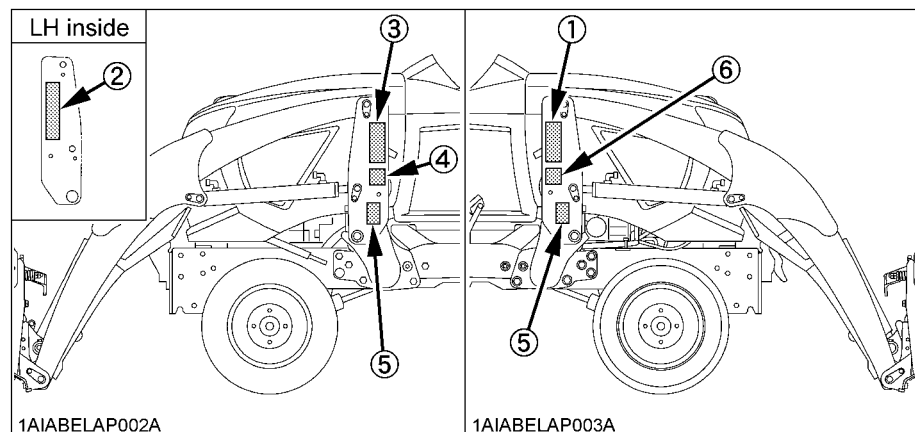
(6) Part No. 7J061-5649-1

▲ WARNING

TO AVOID INJURY FROM CRUSHING :

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

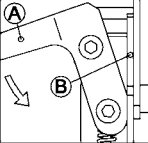
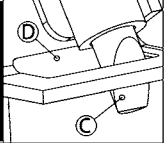
1AIABACAP084A



1AIABELAP002A

1AIABELAP003A

(1) Part No. 7J626-3648-3

▲ DANGER	
TO AVOID PERSONAL INJURY OR DEATH	
<p>1. Make sure both handles (LH,RH) (A) contact the ear plates (B) at the points and are all the way down.</p> 	<p>2. Make sure both lock pins (LH,RH) (C) protrude through the pin slots (D).</p> 
<p>(A):HANDLE (B):EAR PLATE (C):LOCK PIN (D):PIN SLOT</p>	
<p>Kubota recommends the use of Kubota attachments on Kubota loaders. Non-Kubota attachments, if used, must comply with ISO 24410, first edition 2005-04-15.</p>	<p>Use of a non-Kubota attachments that does not comply with ISO 24410 or the improper positioning of handle(s) or non-protrusion of pin(s) may result in detachment of the attachment or deformation, causing loss of performance, personal injury or death.</p>
<p>For information, contact your Kubota Dealer</p>	

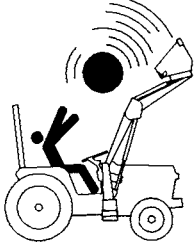
1AIABELAP044A

(2) Part No. 7J048-3923-6

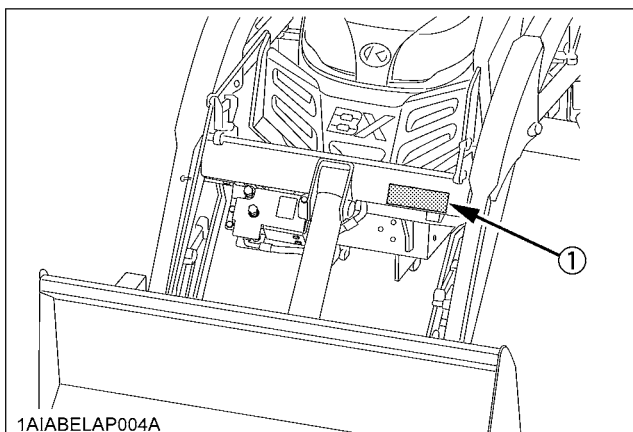
▲ DANGER	
PALLET FORK RATED CAPACITY	
LA403, LA504, LA534	: 600 LBS.
LA434	: 390 LBS.
LA344, LA340	: 240 LBS.
TO AVOID PERSONAL INJURY OR DEATH CAUSED BY ROLLOVER	
<ul style="list-style-type: none"> • Do not exceed rated load listed above. • Use rear implement and tire ballast recommended in loader operator's manual. • Operate tractor slowly taking special care when turning. 	

1AIABELAP0380

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

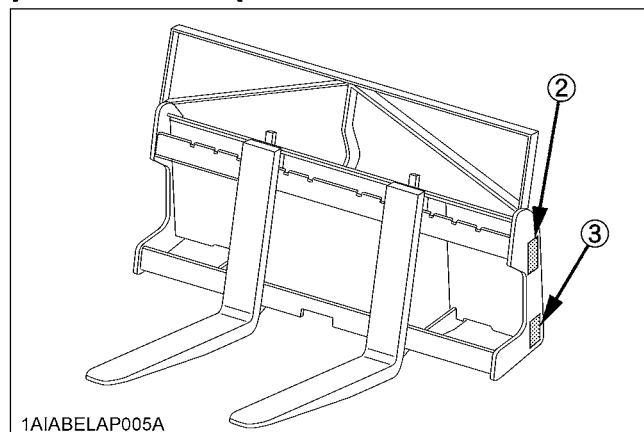
▲ DANGER	
	
TO AVOID SERIOUS INJURY OR DEATH CAUSED BY FALLING LOADS :	
<ol style="list-style-type: none"> 1. Load on raised bucket or fork can fall or roll back onto operator causing serious injury or death. 2. Use approved clamping and / or guard attachments for handling large, loose or shiftable loads such as bales, posts, sheets of plywood etc. 3. Carry loads as low as possible. 	

1AIABACAP075A



1AIABELAP004A

[BX2415 Pallet Fork]



1AIABELAP005A

DANGER, WARNING AND CAUTION LABELS OF THE BACKHOE

(1) Part No. 75597-7528-1

▲ WARNING

TO AVOID PERSONAL INJURY: WHEN MOUNTING AND DISMOUNTING THE BACKHOE.

1. When starting the engine, always sit in the operator's seat.
2. 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.
3. Keep hands, feet and body from between tractor and backhoe. Never allow any part of body under the machine.

1HNAAACAP008E

(2) Part No. 75595-7517-2



▲ WARNING

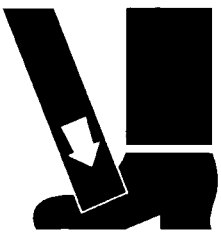
TO AVOID PERSONAL INJURY:

STAY CLEAR OF OPERATING AREA OF THE BACKHOE.

1HNAAACAP011E

(3) Part No. 75595-7524-2

▲ WARNING



TO AVOID PERSONAL INJURY:

KEEP BOTH FEET ON FOOT PLATFORM AND AWAY FROM STABILIZER.

1HNAAACAP012E

(4) Part No. 7K501-7529-1



SWING LOCK PIN

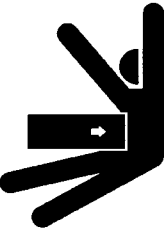
▲ WARNING

TO AVOID PERSONAL INJURY:

Set the swing lock pin, and lower the boom to the ground when leaving the operator's seat.

1AJABAEAP028A

(5) Part No. 75597-7517-3

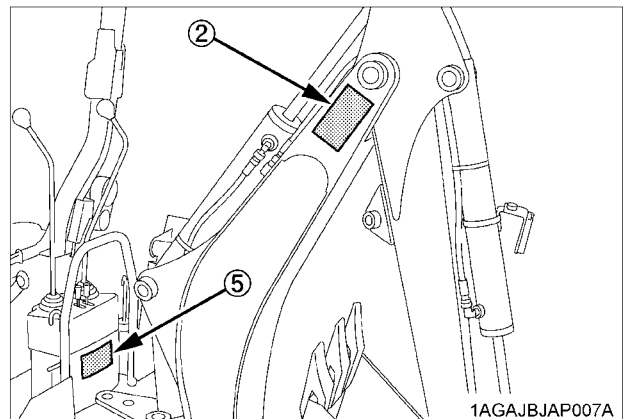
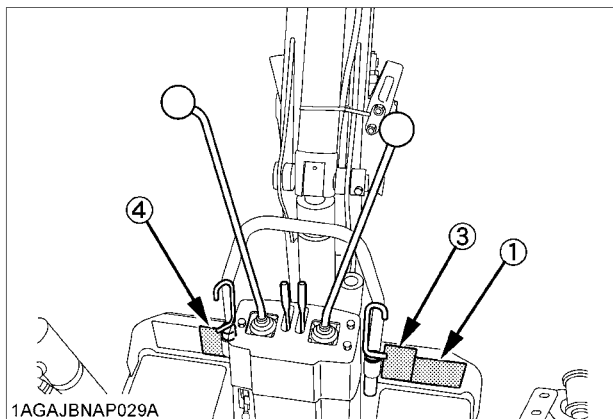


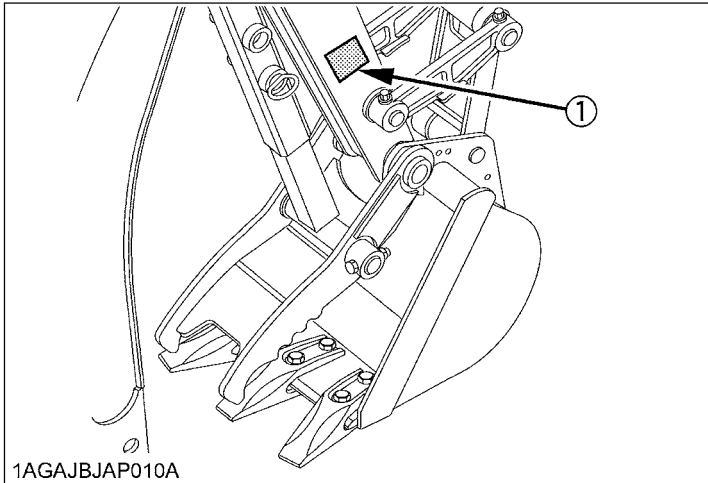
▲ DANGER

TO AVOID SERIOUS CRUSHING INJURY OR DEATH:

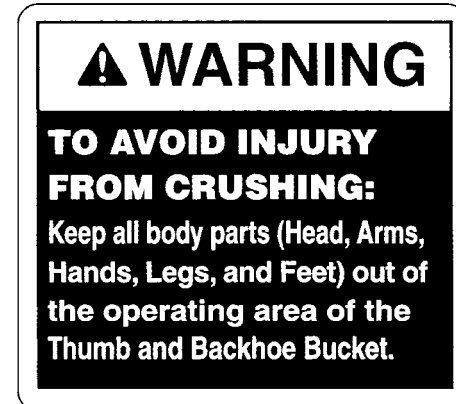
MAKE SURE BOOM SWING LOCK PIN IS INSTALLED FROM OPERATOR'S SEAT BEFORE ENTERING THIS AREA.

1HNAAACAP010E



[BX6316 MECHANICAL THUMB] (Option for BT603)

(1) Part No. 7K523-8452-1 (Both sides)



1AGAJBAP034E

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

Your dealer has knowledge of your new tractor, loader and backhoe and has the desire to help you get the most value from them. 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 tractor or your local KUBOTA Dealer. When in need of parts, be prepared to give your dealer the tractor, engine, loader and backhoe serial number.

Locate the serial numbers now and record them in the space provided.

Concerning the tractor and loader, the reference to left hand and right hand used in this manual refers to the position when standing at the rear of the unit and facing forward.

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

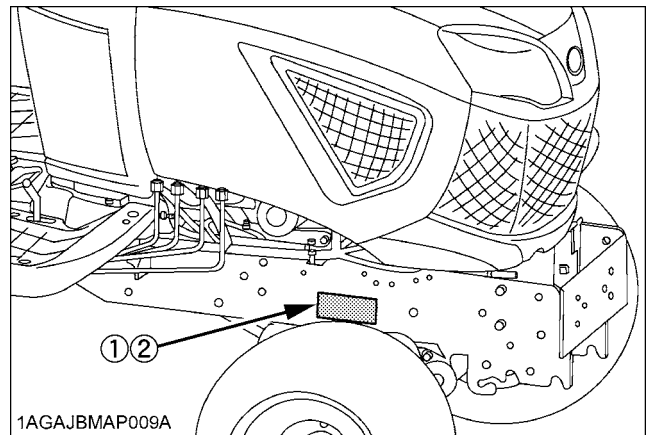
	Type	Serial No.
Tractor	BX23S	
ROPS		
Engine	D902	
Loader	LA340, LA340S	
Backhoe	BT603	
Date of Purchase		
Name of Dealer		
(To be filled in by purchaser)		

◆ Warranty

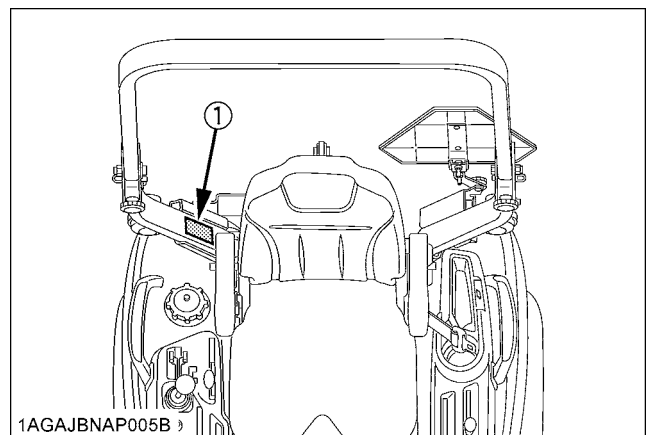
This tractor is warranted under the KUBOTA Limited Express Warranty, a copy of which may be obtained from your selling dealer. No warranty shall, however, apply if the tractor has not been handled according to the instruction given in the Operator's Manual even if it is within the warranty period.

◆ Scrapping the tractor and its procedure

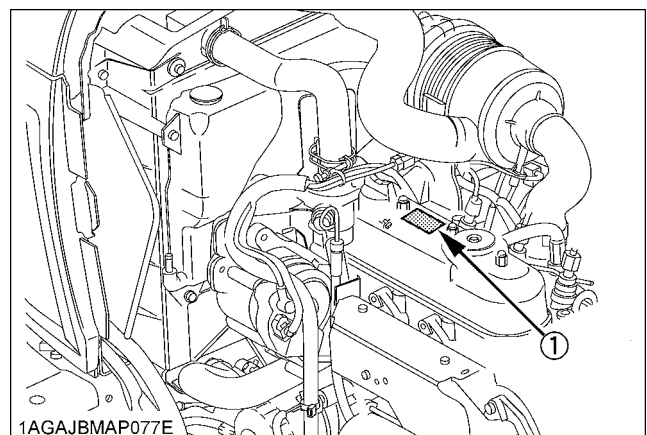
To put the tractor out of service, correctly follow the local rules and regulations of the country or territory where you scrap it. If you have questions, consult your local KUBOTA Dealer.



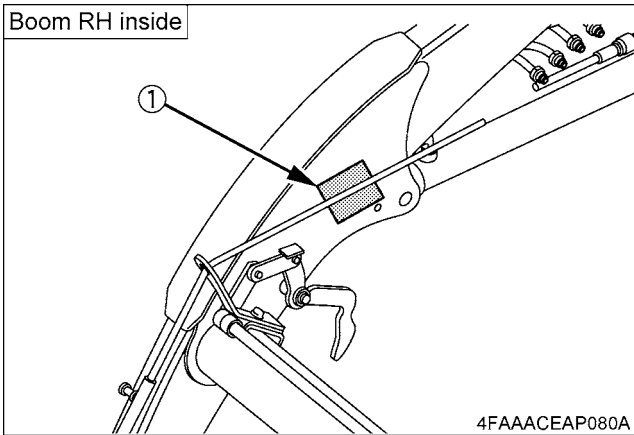
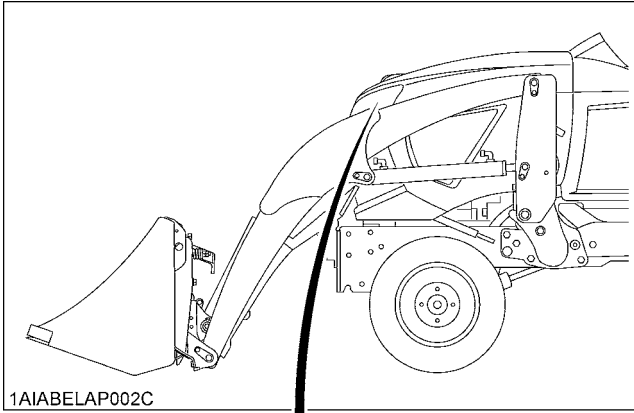
(1) Tractor identification plate
(2) Tractor serial number



(1) ROPS identification plate
(ROPS serial No.)



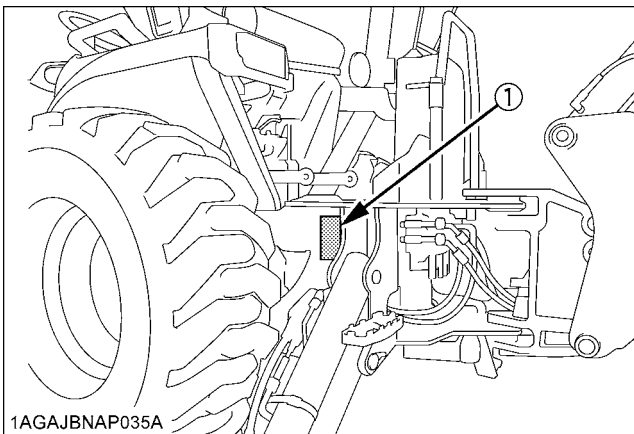
(1) Engine serial number



(1) Loader serial number

NOTE :

- The loader serial number label (1) is attached to the inside of the boom.



(1) Backhoe serial number

SPECIFICATIONS OF THE TRACTOR

SPECIFICATION TABLE

Model		BX23S				
PTO power *1		kW (HP)		13.2 (17.7)		
Engine	Maker		KUBOTA			
	Model		D902			
	Type		Liquid-cooled, 4-cycle diesel			
	Number of cylinders		3			
	Bore and stroke		mm (in.)		72 x 73.6 (2.83 x 2.90)	
	Total displacement		cm ³ (cu. in.)		898 (54.8)	
	Engine gross power *2		kW (HP)		17.1 (23.0)	
	Rated revolution		rpm		3200	
	Low idling revolution		rpm		1350 to 1550	
	Maximum torque		N-m (lbf-ft)		56.1 (41.4)	
	Battery				12V, CCA: 560A, RC: 86 min	
	Fuel				Diesel fuel No.2 [above -10 °C (14 °F)] Diesel fuel No.1 [below -10 °C (14 °F)]	
Capacities	Fuel tank		L (U.S.gals.)		25 (6.6)	
	Engine crankcase (with filter)		L (U.S.qts.)		3.3 (3.4)	
	Engine coolant		L (U.S.qts.)		3.1 (3.3)	
	Recovery tank		L (U.S.qts.)		0.4 (0.4)	
	Transmission case		L (U.S.gals.)		11.3 (2.98)	
Dimensions	Overall length (without 3P)		mm (in.)		2210 (87.0) w / Front guard	
	Overall length (with 3P)		mm (in.)		2515 (99.0) w / Front guard	
	Overall width		mm (in.)		1145 (45.1)	
	Overall height	(with ROPS)		mm (in.)		2190 (86.2)
				mm (in.)		1255 (49.4) (Top of seat)
	Wheel base		mm (in.)		1400 (55.1)	
	Min. ground clearance		mm (in.)		148 (5.83)	
	Tread	Front		mm (in.)		930 (36.6)
Rear		mm (in.)		820 (32.2)		
Weight (with ROPS)		kg (lbs.)		725 (1600)		
Clutch				N / A		
Traveling system	Tire	Front		18 x 8.50-10 (Turf, Bar, Ind.)		
		Rear		26 x 12.00-12 (Turf, Bar, Ind.)		
	Steering		Hydrostatic type power steering			
	Transmission		Main: Hydrostatic transmission, High-Low gear shift (2 forward, 2 reverse)			
	Brake		Wet disk type			
Min. turning radius		m (feet)		2.3 (7.5)		

4 SPECIFICATIONS OF THE TRACTOR

Model			BX23S	
Hydraulic unit	Hydraulic control system		Directional control, auto-return lever system	
	Pump capacity L/min. (gals/min.)		23.5 (6.2)	
	System pressure MPa (kgf/cm ²)[psi]		12.3 to 12.8 (126 to 130) [1790 to 1850]	
	Three point hitch		SAE Category 1 (Optional)	
	Three point hitch Max. lift force *3	At lift points N (lbs.)	5390 (1210)	
		24in. behind lift points N (lbs.)	3040 (680)	
	Remote control valve coupler (rear : Opton)	System	2 valves	
		Coupler	ISO 7241-1 series A	
Remote control valve coupler (front : Opton)	System	2 valves		
	Coupler (fitting)	ISO 7241-1 series B		
PTO	Rear PTO		SAE 1-3/8, 6 splines	
		Revolution	STD (2500 rpm)	
	MID-PTO		USA No.5 (KUBOTA 10-tooth) involute spline	
		Revolution	STD (2500 rpm)	

The company reserve the right to change the specifications without notice.

NOTE: *1 Manufacturer's estimate

*2 SAE J1995

*3 See and check "IMPLEMENT LIMITATIONS."

TRAVELING SPEEDS

(At max engine rpm)

Model		BX23S	
Tire size (Rear)		26 X 12.00 - 12	
Speed control pedal	Range gear shift lever	km / h	mph
Forward	Low	0 to 6.5	0 to 4.0
	High	0 to 13.5	0 to 8.4
Reverse	Low	0 to 5.0	0 to 3.1
	High	0 to 10.5	0 to 6.5

The company reserves the right to change the specifications without notice.

SPECIFICATIONS OF THE LOADER

LOADER SPECIFICATIONS

LOADER MODEL		LA340	LA340S
TRACTOR MODEL		BX23S	
BOOM CYLINDER	BORE mm (in.)	40 (1.57)	
	STROKE mm (in.)	326 (12.8)	
BUCKET CYLINDER	BORE mm (in.)	65 (2.56)	
	STROKE mm (in.)	196 (7.7)	
CONTROL VALVE		One Detent Float Position, Single Bucket Dump, Power Beyond Circuit	
RATED FLOW	L/m (GPM)	14 (3.7)	
MAXIMUM PRESSURE	MPa (kg/cm ² , psi)	12.8 (130, 1850)	
NET WEIGHT (APPROXIMATE)	kg (lbs.)	*217 (478)	

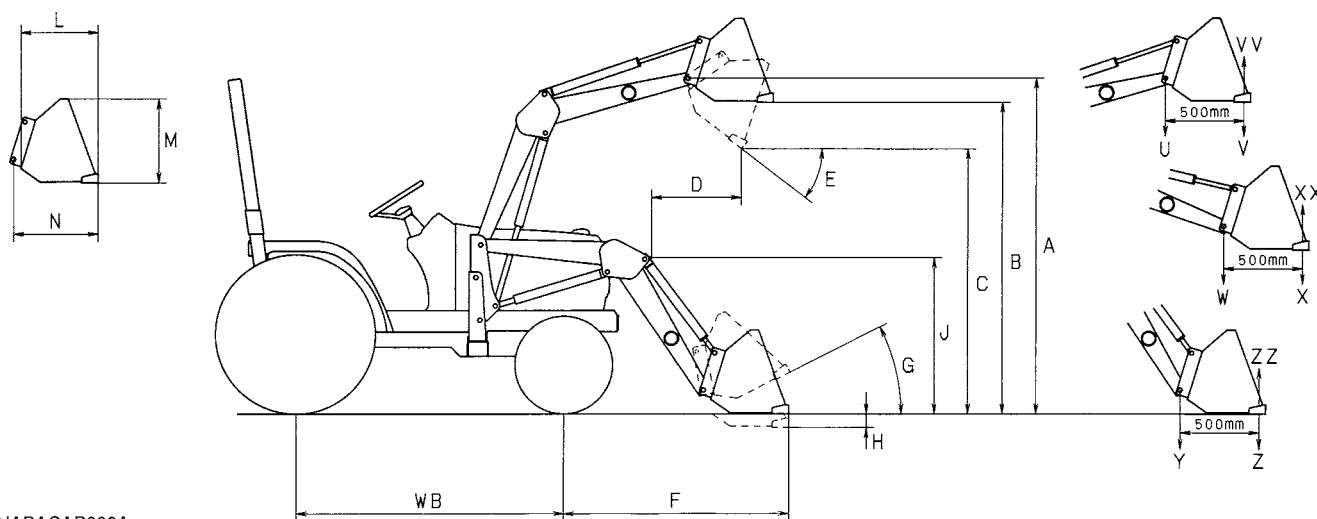
*include the Quick Bucket 48"

BUCKET SPECIFICATIONS

LOADER MODEL		LA340	LA340S
MODEL		SQUARE 48"	
TYPE		RIGID	QUICK HITCH
WIDTH	mm (in.)	1219 (48.0)	
DEPTH (L)	mm (in.)	491 (19.3)	470 (18.5)
HEIGHT (M)	mm (in.)	465 (18.3)	523 (20.6)
LENGTH (N)	mm (in.)	538 (21.2)	586 (23.1)
CAPACITY	STRUCK m ³ (CU.FT.)	0.14 (4.9)	0.13 (4.6)
	HEAPED m ³ (CU.FT.)	0.17 (6.0)	
WEIGHT	kg (lbs.)	60 (132)	56 (123)

DIMENSIONAL SPECIFICATIONS

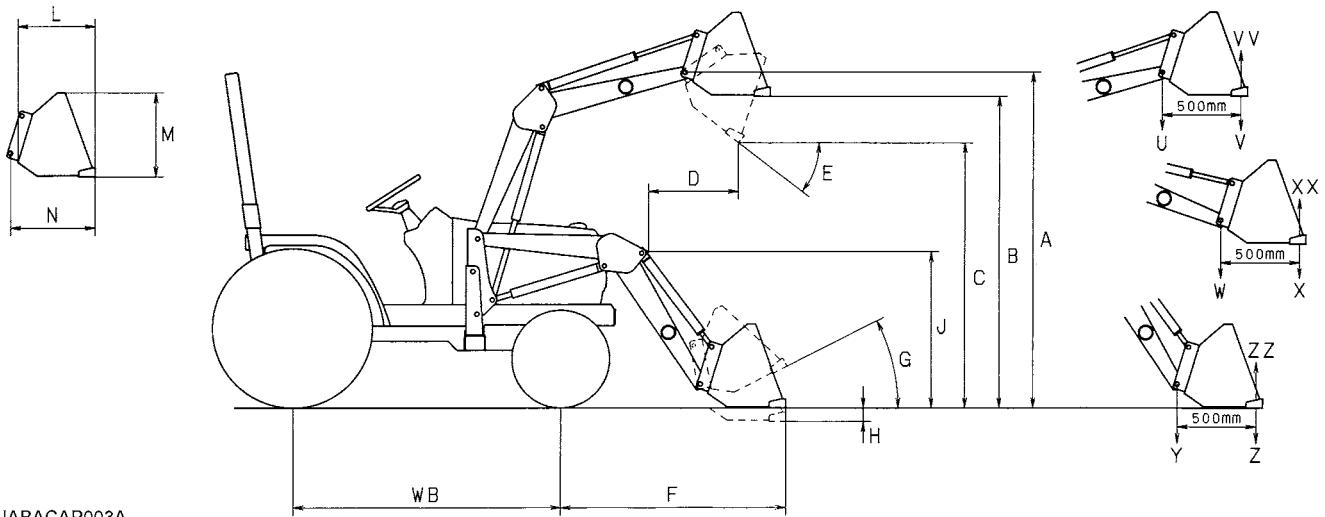
LOADER MODEL		LA340	LA340S
TRACTOR MODEL		BX23S	
A	MAX. LIFT HEIGHT (TO BUCKET PIVOT PIN)	1804 (71.0)	
B	MAX. LIFT HEIGHT UNDER LEVEL BUCKET	1662 (65.4)	1664 (65.5)
C	CLEARANCE WITH BUCKET DUMPED	1323 (52.1)	1288 (50.7)
D	REACH AT MAX. LIFT HEIGHT (DUMPING REACH)	646 (25.4)	677 (26.5)
E	MAX. DUMP ANGLE	45	
F	REACH WITH BUCKET ON GROUND	1392 (54.8)	1438 (56.6)
G	BUCKET ROLL-BACK ANGLE	29	
H	DIGGING DEPTH	125 (4.9)	122 (4.8)
J	OVERALL HEIGHT IN CARRYING POSITION	990 (39.0)	



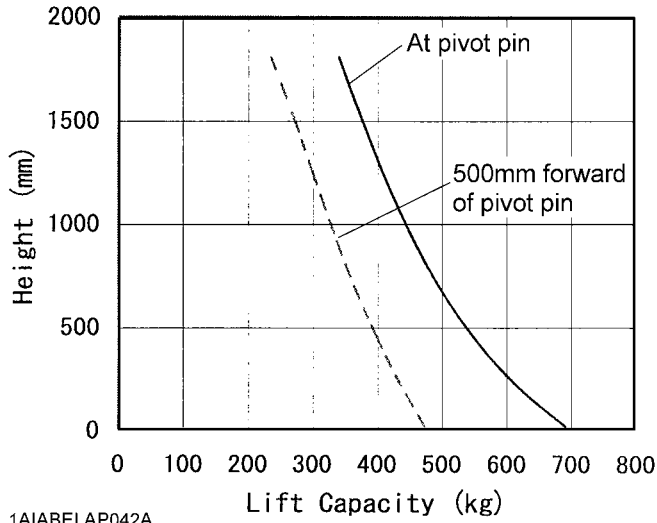
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OPERATIONAL SPECIFICATIONS

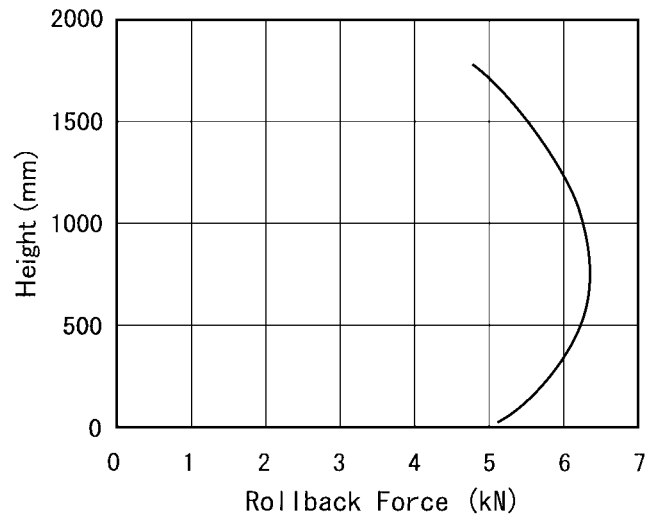
LOADER MODEL			LA340	LA340S
TRACTOR MODEL			BX23S	
U	LIFT CAPACITY (BUCKET PIVOT PIN, MAX. HEIGHT)	kg (lbs.)	335 (739)	278 (613)
V	LIFT CAPACITY (500 mm FORWARD, MAX. HEIGHT)	kg (lbs.)	231 (509)	192 (423)
W	LIFT CAPACITY (BUCKET PIVOT PIN, 1500 mm HEIGHT)	kg (lbs.)	372 (820)	317 (699)
X	LIFT CAPACITY (500 mm FORWARD, 1500 mm HEIGHT)	kg (lbs.)	268 (591)	229 (505)
Y	BREAKOUT FORCE (BUCKET PIVOT PIN)	N (lbs.)	6258 (1407)	5719 (1286)
Z	BREAKOUT FORCE (500 mm FORWARD)	N (lbs.)	4389 (987)	4008 (901)
VV	BUCKET ROLL-BACK FORCE AT MAX. HEIGHT	N (lbs.)	4731 (1064)	4431 (996)
XX	BUCKET ROLL-BACK FORCE AT 1500mm HEIGHT	N (lbs.)	5557 (1249)	5264 (1183)
ZZ	BUCKET ROLL-BACK FORCE AT GROUND LEVEL	N (lbs.)	5456 (1227)	5195 (1168)
RAISING TIME		sec.	3.3	
LOWERING TIME		sec.	2.5	
BUCKET DUMPING TIME		sec.	2.7	
BUCKET ROLLBACK TIME		sec.	2.3	



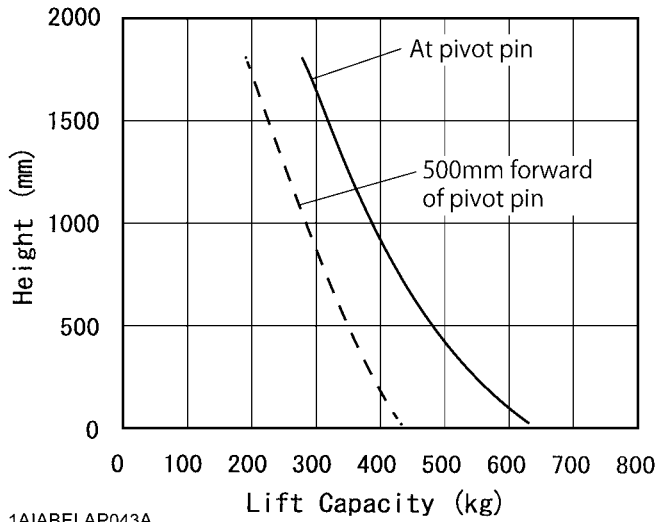
[LA340]



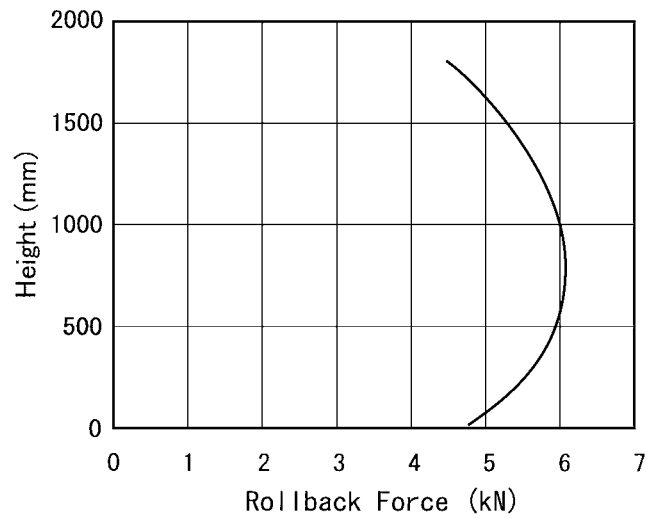
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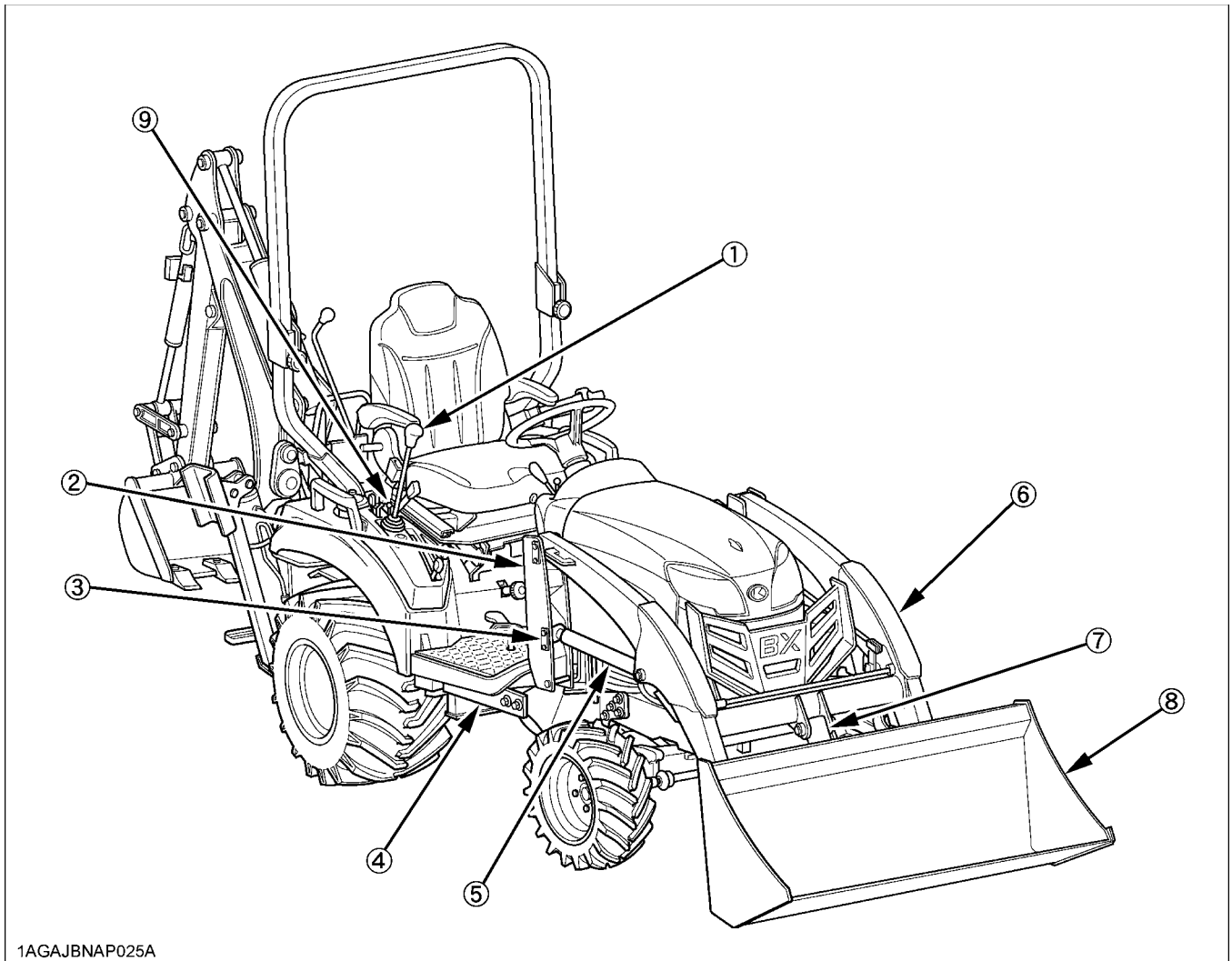
[LA340S]



1AIABELAP043A



LOADER TERMINOLOGY



1AGAJBNAPO25A

- (1) Loader control lever
- (2) Side frame
- (3) Mounting hook
- (4) Main frame
- (5) Boom cylinder

- (6) Boom
- (7) Bucket cylinder
- (8) Bucket
- (9) Lock lever

SPECIFICATIONS OF THE BACKHOE

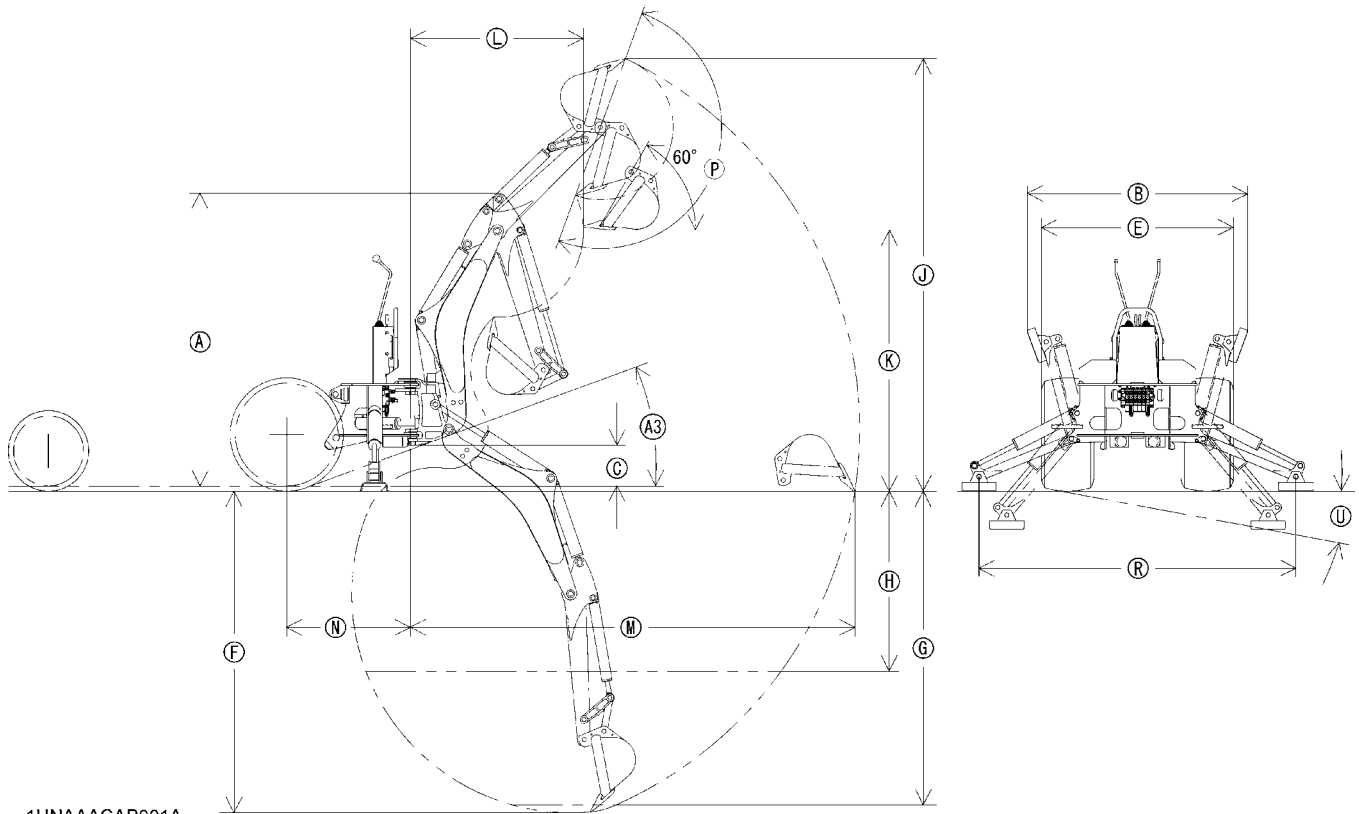
BACKHOE SPECIFICATIONS

■ Dimensions

Model		BT603
Transport height	(A)	1719 mm (67.7 in.)
Stabilizer spread-transport	(B)	1296 mm (51.0 in.)
Ground clearance	(C)	240 mm (9.4 in.)
Overall width	(E)	1128 mm (44.4 in.)
Maximum digging depth	(F)	1889 mm (74.4 in.)
Digging depth, 2 ft. flat bottom	(G)	1842 mm (72.5 in.)
Digging depth, 8 ft. flat bottom	(H)	1059 mm (41.7 in.)
Operating height, fully raised	(J)	2539 mm (100 in.)
Loading height	(K)	1533 mm (60.4 in.)
Loading reach	(L)	1016 mm (40.0 in.)
Reach from swing pivot	(M)	2612 mm (102.8 in.)
Swing pivot to rear axle center line	(N)	726 mm (28.6 in.)
Bucket rotation	(P)	180 deg.
Stabilizer spread-operating	(R)	1862 mm (73.3 in.)
Angle of departure per SAE J1234	(A3)	20.1 deg.
Leveling angle	(U)	11 deg.
Swing arc		140 deg.

NOTE :

- The specifications are taken with KUBOTA BX23S tractor. (Tire size : Front 18 X 8.5-10, Rear 26 X 12.00-12)



Specifications

Digging force (Per SAE J49)

With bucket cylinder	8610 N (1936 lbs.)
With dipperstick cylinder	5209 N (1171 lbs.)

Cycle Time (seconds)

Boom cylinder, extend	4.5
Boom cylinder, retract	3.7
Swing cylinder, from 90 degrees to center	1.5
Dipperstick cylinder, extend	4.1
Dipperstick cylinder, retract	3.4
Bucket cylinder, extend	3.1
Bucket cylinder, retract	2.4
Stabilizer cylinder, max. height to ground	2.9
Stabilizer cylinder, ground to max. height	2.3

12 SPECIFICATIONS OF THE BACKHOE

Hydraulic cylinders

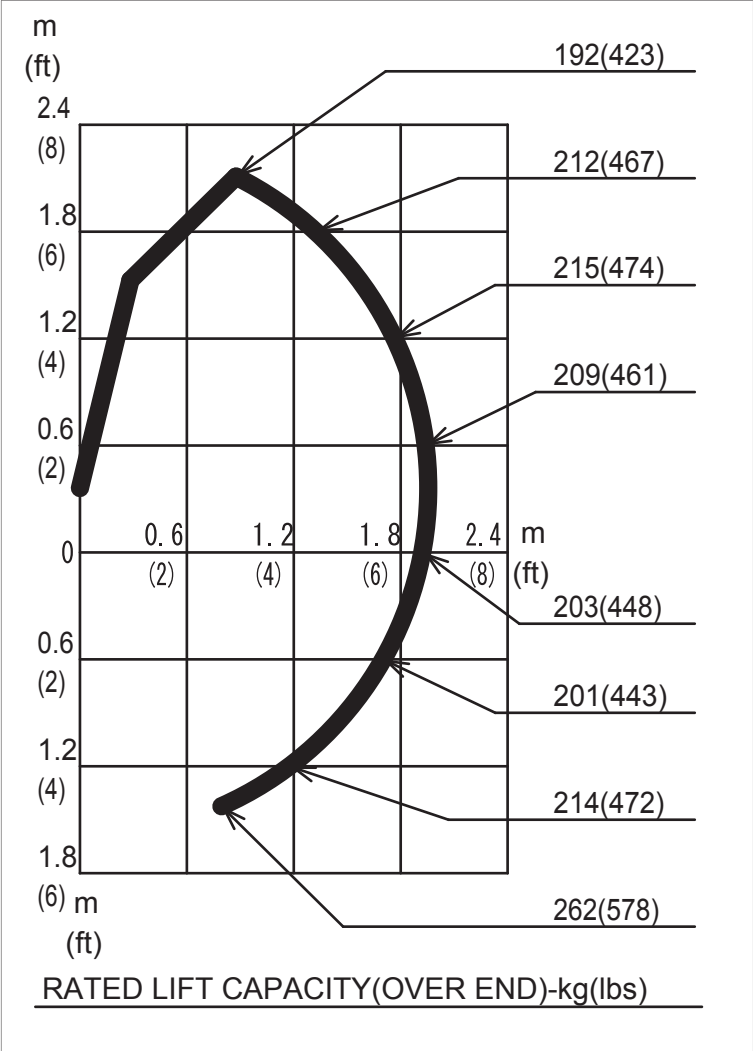
	Boom cm (in.)	Dipperstick cm (in.)	Bucket cm (in.)	Stabilizer cm (in.)	Swing cm (in.)
Rod diameter	3.0 (1.18)	2.5 (0.98)	2.5 (0.98)	2.5 (0.98)	3.0 (1.18)
Cylinder bore	6.5 (2.56)	6.0 (2.36)	5.0 (1.97)	6.0 (2.36)	6.0 (2.36)

Bucket Sizes

	Width cm (in.)	SAE truck Capacity m ³ (cu-ft)	SAE Heaped Capacity m ³ (cu-ft)	Number of Teeth	Weight kg (lbs)
Trenching 8"	20.3 (8)	0.009 (0.317)	0.011 (0.388)	2	10 (22)
Trenching 12"	30.5 (12)	0.014 (0.494)	0.020 (0.706)	3	13 (29)
Trenching 16"	40.6 (16)	0.020 (0.706)	0.029 (1.024)	3	16 (35)

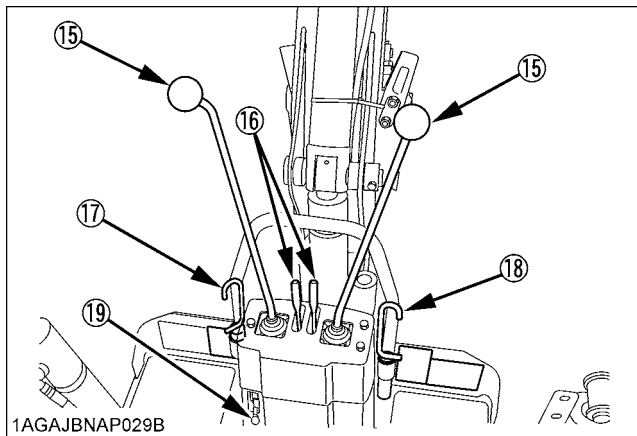
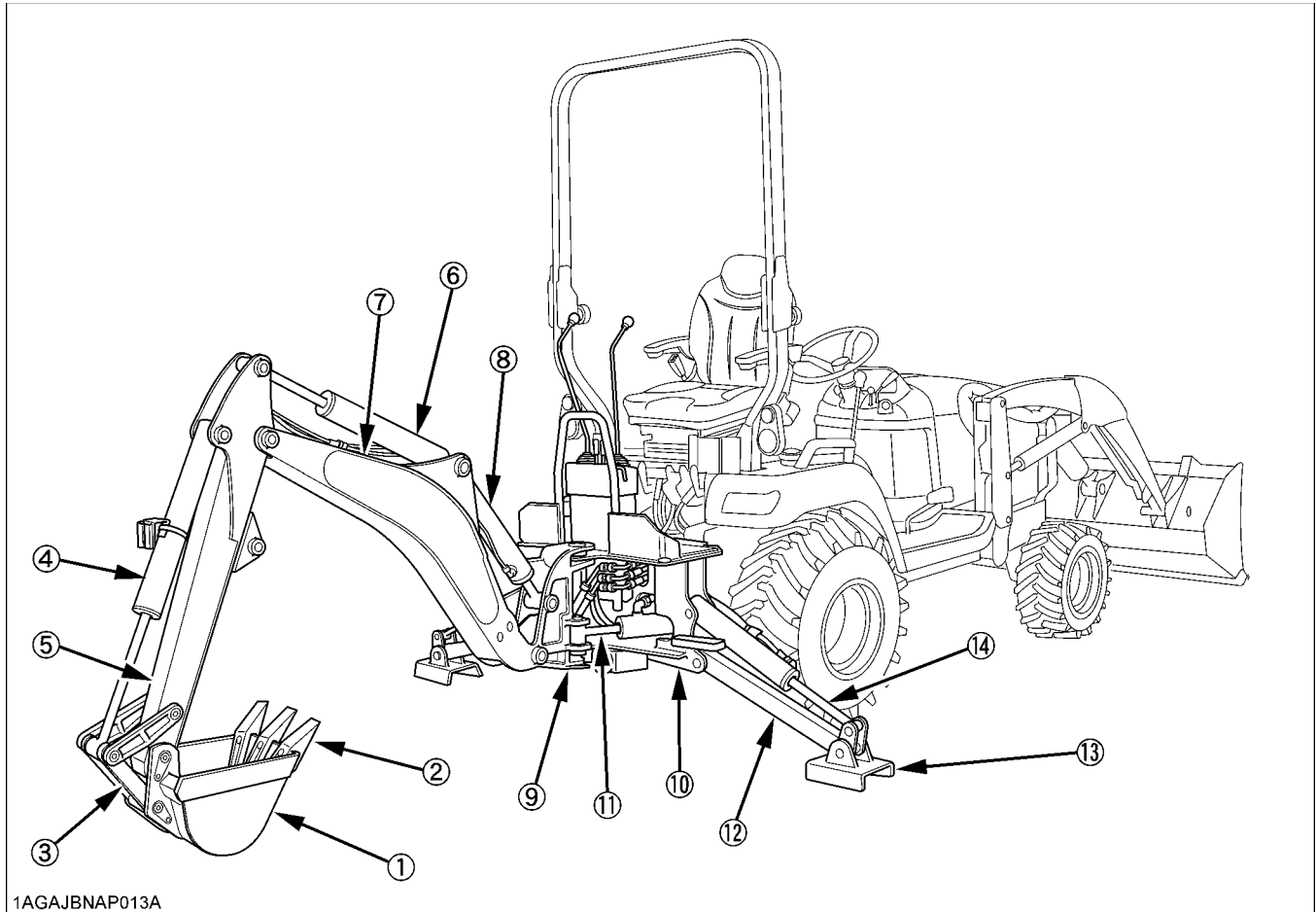
■ Lift Capacity (Per SAE J31)

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



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BACKHOE TERMINOLOGY



- (1) Backhoe bucket
- (2) Bucket teeth
- (3) Bucket link
- (4) Bucket cylinder
- (5) Dipperstick
- (6) Dipperstick cylinder
- (7) Boom
- (8) Boom cylinder
- (9) Swing frame
- (10) Main frame
- (11) Swing cylinder
- (12) Stabilizer
- (13) Stabilizer pad
- (14) Stabilizer cylinder
- (15) Joystick control
- (16) Stabilizer control
- (17) Swing lock pin
- (18) Boom lock pin
- (19) Boom and swing lock lever

IMPLEMENT LIMITATIONS

The KUBOTA Tractor has been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Use with implements below may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others.

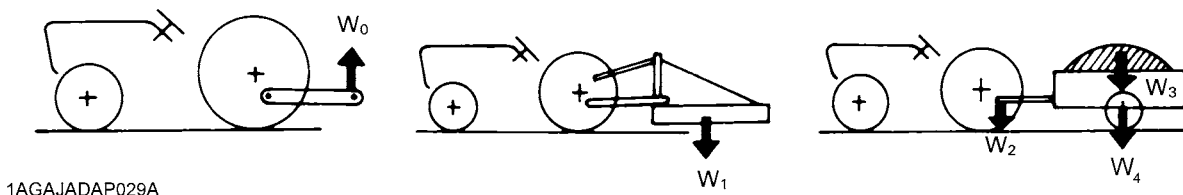
- Implements are not sold or approved by KUBOTA
- Implements exceed the maximum specifications listed below, or
- Implements are otherwise unfit for use with the KUBOTA Tractor

[Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.]

	Tread (max. width)		Lower link end max. lifting weight W_0
	Front	Rear	
BX23S	930 mm (36.6 in.)	820 mm (32.2 in.)	550 kg (1210 lbs.)

	Actual figures			
	Implement weight W_1 and / or size	Max. Hitch Load W_2	Trailer loading weight W_3 Max. capacity	Total weight W_4
BX23S	As in the following list (Shown on the next page)	250 kg (550 lbs.)	800 kg (1765 lbs.)	1100 kg (2425 lbs.)

Lower link end max. lifting weight.....The max. allowable load which can be put on the lower link end : W_0
 Implement weight.....The implement's weight which can be put on the lower link : W_1
 Max. hitch load..... W_2
 Trailer loading weightThe max. loading weight for trailer (without trailer's weight) : W_3
 Total weightThe max. loading weight for trailer with trailer's weight : W_4



NOTE :

- Implement size may vary depending on soil operating conditions.
- Strictly follow the instructions outlined in the operator's manual of the mounted or trailed machinery or trailer, and do not operate the combination tractor - machine or tractor - trailer unless all instructions have been followed.
- Forestry Application
 Following hazards exist;
 (a) toppling trees, primarily in case a rear-mounted tree grab-crane is mounted at the rear of the tractor;
 (b) penetrating objects in the operator's enclosure, primarily in case a winch is mounted at the rear of the tractor.
 Optional equipments such as OPS (Operator Protective Structure), FOPS (Falling Object Protective Structure), etc. to deal with these hazards and other related hazards are not available for this tractor. Without such optional equipment use is limited to tractor specific applications like transport and stationary work.

Implement		Remarks		BX23S
Backhoe *1		Max. Digging Depth	mm(ft)	1840 (6)
		Max. Weight	kg(lbs.)	266 (586) w/o Bucket
Front-end loader *2		Max. lifting capacity	kg(lbs.)	335 (739)
		(Bucket pivot pin, max. height) *3		
		Max. width	cm(in.)	122 (48)
		Sub frame		Necessary
Mower	Mid-mount	Max. cutting width	cm(in.)	152 (60)
		Max. weight	kg(lbs.)	134 (295)
	Rotary-Cutter (1 Blade)	Max. cutting width	cm(in.)	122 (48)
		Max. weight	kg(lbs.)	181 (400)
	Rear-mount (2 or 3 Blade)	Max. cutting width	cm(in.)	152 (60)
		Max. weight	kg(lbs.)	262 (577)
	Flail-mower	Max. cutting width	cm(in.)	107 (42)
Sickle bar	Max. cutting width	cm(in.)	122 (48)	
Rotary tiller		Max. tilling width	cm(in.)	127 (50)
		Max. weight	kg(lbs.)	197 (435)
Bottom plow		Max. size	in.	14 x 1
Disc plow		Max. size	in.	22 x 1
Cultivator		Max. size	cm(in.)	122 (48) 1 Row
Disc harrow		Max. harrowing width	cm(in.)	122 (48)
		Max. weight	kg(lbs.)	249 (549)
Sprayer		Max. tank capacity	L(U.S.gals.)	150 (40)
Front blade		Max. cutting width	cm(in.)	152 (60)
		Sub frame		Necessary
Rear blade		Max. cutting width	cm(in.)	152 (60)
		Max. weight	kg(lbs.)	112 (248)
Box blade		Max. cutting width	cm(in.)	152 (60)
		Max. weight	kg(lbs.)	170 (375)
Snow blower (Front)		Max. working width	cm(in.)	127 (50)
		Max. weight	kg(lbs.)	160 (353)
		Sub frame		Necessary
Post hole digger		Digging depth	cm(in.)	114 (45)
Rotary broom		Cleaning width	cm(in.)	119 (47)
Trailer		Max. load capacity	kg(lbs.)	800 (1765) *4
		Max. weight	kg(lbs.)	1100 (2425)

*1 KUBOTA provides BT603 Backhoe for BX23S.

No other Backhoe installed by 3-point hitch is permitted for BX23S.

*2 KUBOTA provides LA340 and LA340S Front-end Loader for BX23S.

*3 The value contains the weight of KUBOTA standard bucket.

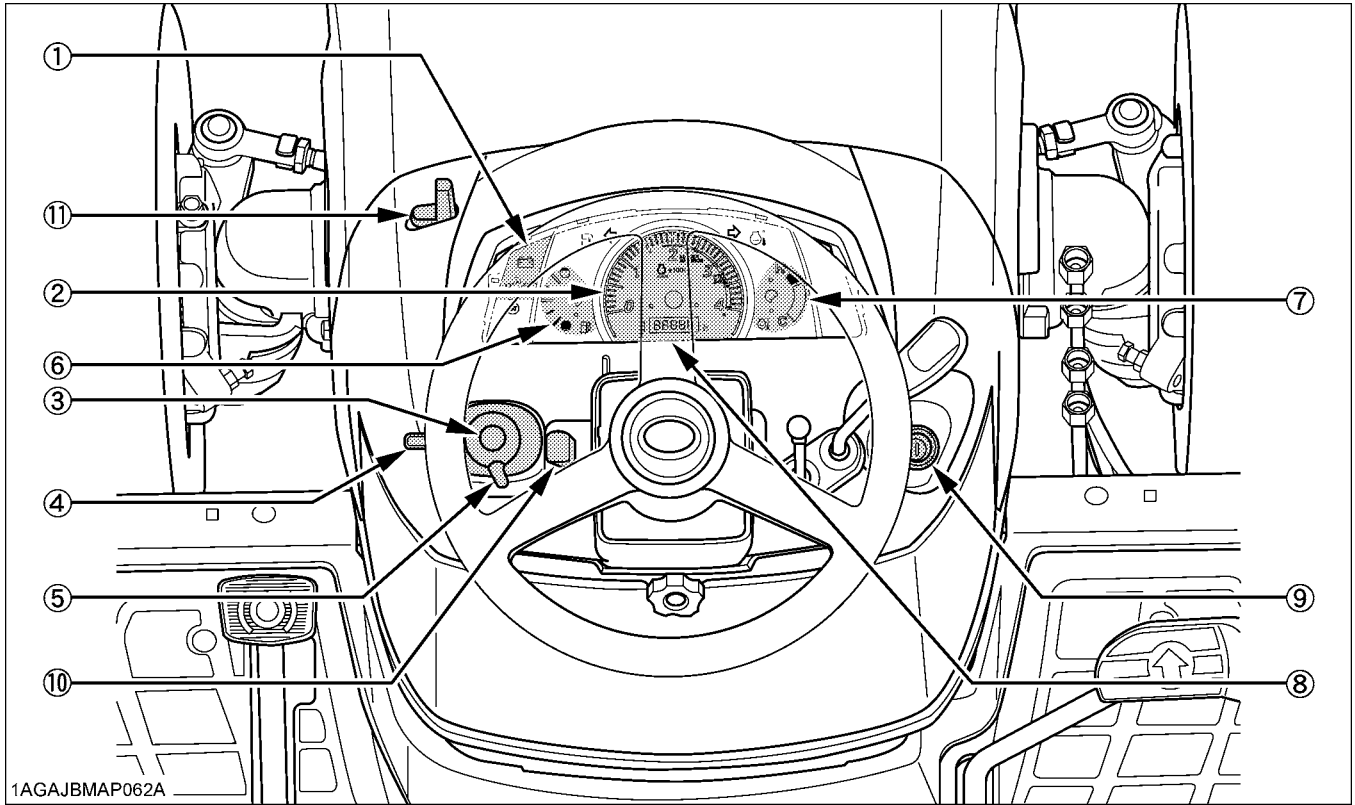
*4 Reduce speed and trailer loads when operating in slippery conditions or when operating on slopes and utilize front wheel drive.

NOTE :

- Implement size may vary depending on soil operating conditions.

INSTRUMENT PANEL AND CONTROLS

■ Instrument Panel, Switches and Hand Controls

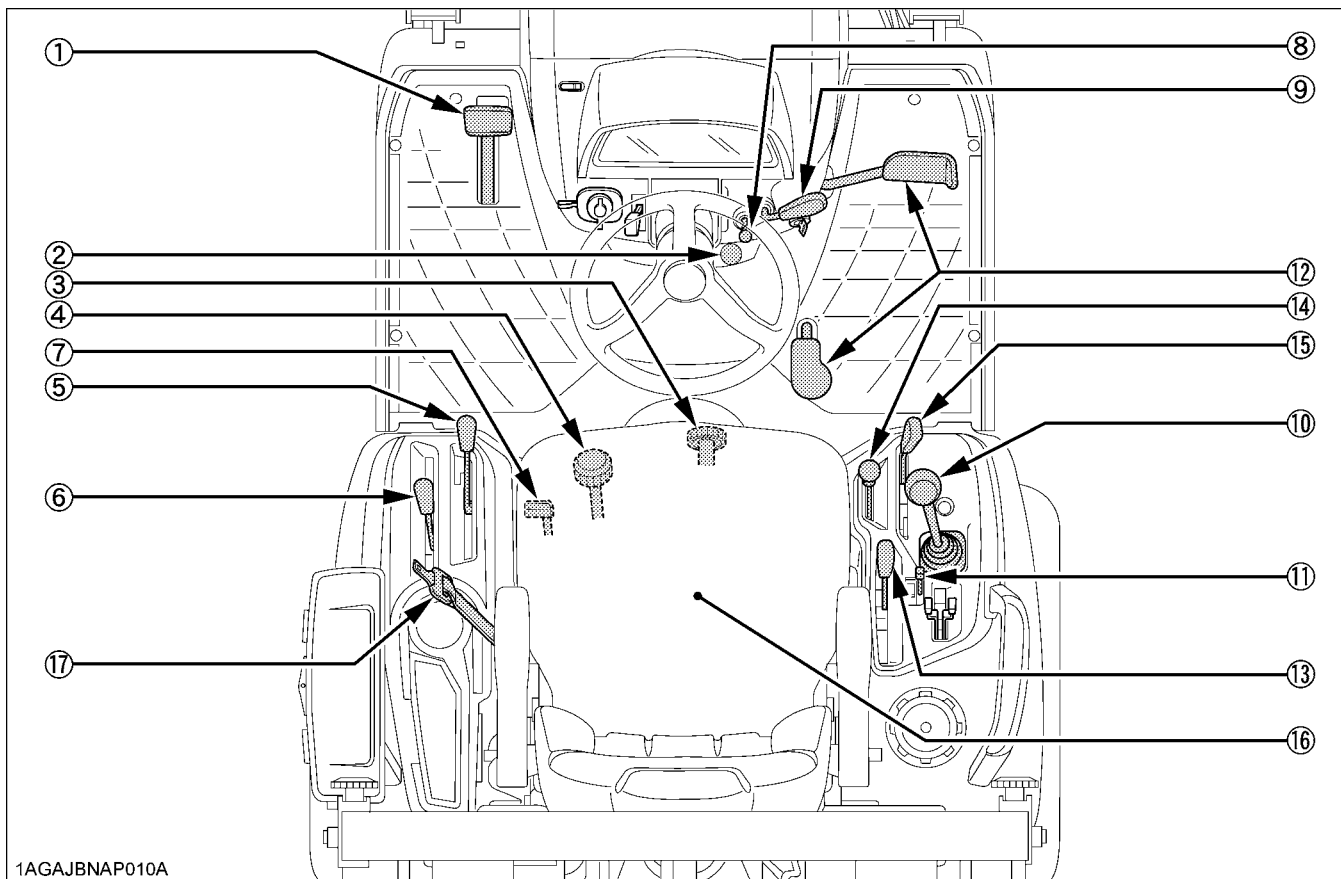


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ILLUSTRATED CONTENTS

(1) Easy Checker(TM).....	23,38
(2) Tachometer.....	39
(3) Hazard light switch.....	33
(4) Turn signal light switch.....	33
(5) Head light switch.....	32
(6) Fuel gauge.....	38
(7) Coolant temperature gauge.....	38
(8) Hour meter.....	39
(9) Key switch.....	23
(10) Tilt lever.....	23
(11) Hood open lever.....	85

■ Foot and Hand Controls



ILLUSTRATED CONTENTS

(1) Brake pedal.....	23,33,35,40
(2) Parking brake lock pedal.....	23,33,35,40
(3) 3-Point hitch lowering speed knob.....	51
(4) Cutting height control dial.....	54
(5) PTO clutch lever.....	23,46
(6) PTO select lever.....	45
(7) Differential lock pedal.....	40
(8) Speed set rod	36
(9) Hand accelerator lever.....	23,35
(10) Loader control lever.....	60,61
(11) Lock lever.....	23,65
(12) Speed control pedal.....	23,36
(13) Hydraulic control lever.....	23,51,54
(14) Front wheel drive lever.....	35
(15) Range gear shift lever (Hi-Lo).....	23,34
(16) Operator's seat.....	31
(17) Seat belt.....	32

PRE-OPERATION CHECK OF THE TRACTOR

DAILY CHECK

To prevent trouble from occurring, it is important to know the condition of the tractor well. Check it before starting.



WARNING

To avoid serious injury or death:

- **Be sure to check and service the tractor on a level surface with the engine shut off and the parking brake "ON" and implement lowered to the ground.**

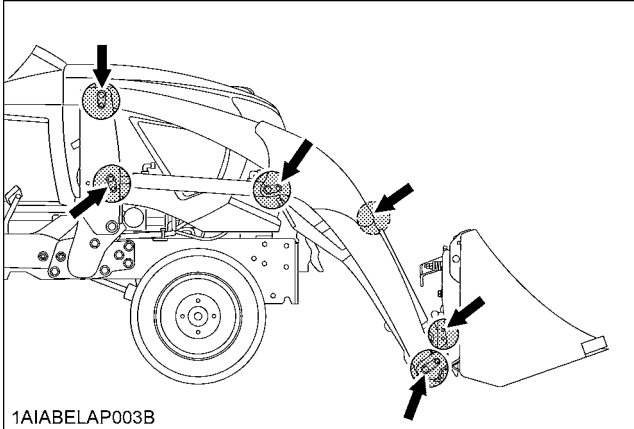
Check item

- Walk around inspection
- Check engine oil level
- Check transmission oil level
- Check coolant level
- Clean grill and radiator screen
- Check air cleaner evacuator valve
(When used in a dusty place)
- Check brake pedal
- Check indicators, gauges and meter
- Check lights
- Check wire harness
- Check seat belt and ROPS
- Check movable parts
- Refuel
(See "DAILY CHECK" in "PERIODIC SERVICE OF THE TRACTOR" section.)
- Care of danger, warning and caution labels
(See "DANGER, WARNING AND CAUTION LABELS" in "SAFE OPERATION" section.)

PRE-OPERATION CHECK OF THE LOADER

LUBRICATION

Lubricate all grease fittings with SAE multipurpose grease, including the control arm.



TRANSMISSION FLUID

Check tractor transmission fluid level. Add fluid if necessary. Refer to the tractor's Operator's Manual for instructions and proper fluid. Repeat this check after purging air from the system. At that time, it will be necessary to add transmission fluid.

IMPORTANT :

- To check tractor transmission fluid level, lower the bucket to the ground and lower the 3 point hitch.

REAR BALLAST



WARNING

To avoid serious injury or death:

- For tractor stability and operator's safety, rear ballast should be added to the rear of the tractor in the form of 3-point counter weight and rear wheel ballast. The amount of rear ballast will depend on the application.

Implement as Counter Weight	
Backhoe	Approx. 266 kg (586 lbs.)
Box Blade	Approx. 190 kg (420 lbs.)
Rear Blade	
Rotary Tiller	
Ballast Box	

■ Liquid Ballast in Rear Tires

See "TIRES, WHEELS AND BALLAST" section.

TIRE INFLATION

Insure that the tractor tires are properly inflated. See "TIRES, WHEELS AND BALLAST" section.

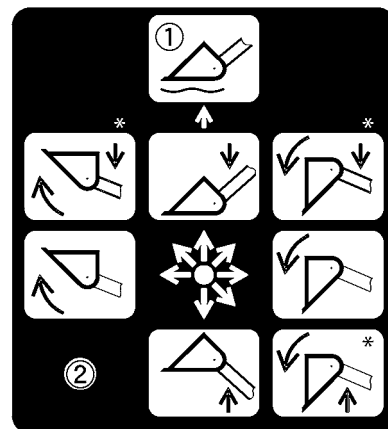
TEST OPERATION



WARNING

To avoid serious injury or death:

- Keep engine speed at low idle during the test operation.
- 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, tubes and hoses are not damaged.
- Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.
- 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.
- Do not move the control lever into float position when the bucket is off the ground.



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- (1) Float
- (2) Blank

NOTE :

- When the lever is at each corner position marked by asterisk (*), boom and bucket cylinders work at the same time. However, the blank position (Raise & Roll back) is not recommended for scooping because of insufficient lift force.

To start test operation, slightly move the control lever from "N" position. Slowly raise the loader boom just enough for the bucket to clear the ground when fully dumped. Slowly operate through the dump and roll back cycles.

IMPORTANT :

- If the boom or bucket does not operate in the directions indicated on the label, lower the bucket to the ground, stop the engine, and relieve all hydraulic pressure. Recheck and correct all hydraulic connections.

REMOVING AIR FROM HYDRAULIC SYSTEM

Repeat raising and lowering the boom and bucket operations until all the air is removed from the system and the system responds properly.

PRE-OPERATION CHECK OF THE BACKHOE

PRE-OPERATION CHECKS

Prior to starting the engine, make pre-operation checks according to "MAINTENANCE OF THE BACKHOE" section.



WARNING

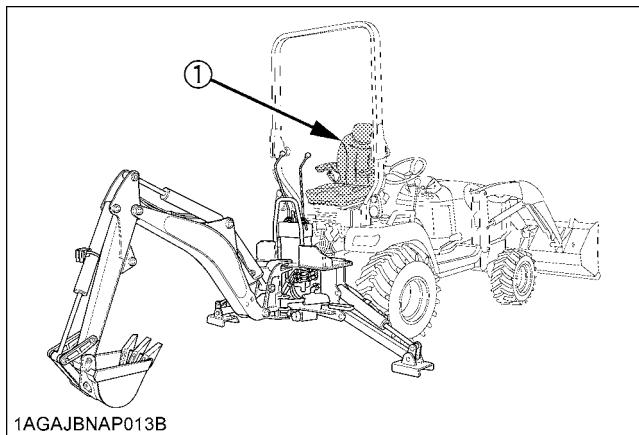
To avoid serious injury or death:

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

PRE-OPERATING INSTRUCTION

OPERATOR'S SEAT

Operator's seat for the BX23S tractor can be used to operate loader and backhoe. See "OPERATING THE TRACTOR" section for the detail to turn the seat around for backhoe operation.



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(1) Operator's seat (backhoe position)

BALLAST



WARNING

To avoid serious 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 BT603 backhoe is installed on the tractor, liquid ballast in the rear tires should be removed.

TIRE INFLATION

Insure that the tractor tires are properly inflated. See "TIRES, WHEELS AND BALLAST" section.

OPERATING THE ENGINE



WARNING

To avoid serious injury or death:

- Read and understand "SAFE OPERATION" in the front of this manual.
- Read and understand the danger, warning and caution labels located on the tractor.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- Never start engine while standing on ground. Start engine only from operator's seat.
- Make it a rule to set all shift levers to "NEUTRAL" positions and to place PTO lever in "OFF" position before starting the engine.

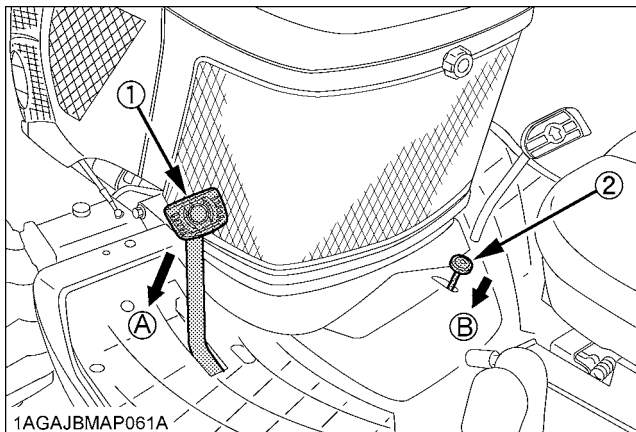
IMPORTANT :

- Do not use starting fluid or ether.
- To protect the battery and the starter, make sure that the starter is not continuously turned for more than 30 seconds.

STARTING THE ENGINE

1. Make sure the parking brake is set.

1. To set the parking brake;
 - (1) Depress the brake pedal.
 - (2) Latch the brake lock pedal on pushing and holding the parking brake lock pedal then releasing pressure on the brake pedal.
2. To release the parking brake, depress the brake pedal again.



(1) Brake pedal (A) "DEPRESS"
 (2) Parking brake lock pedal (B) "PUSH DOWN (2) WHILE DEPRESSING (1)"

NOTE :

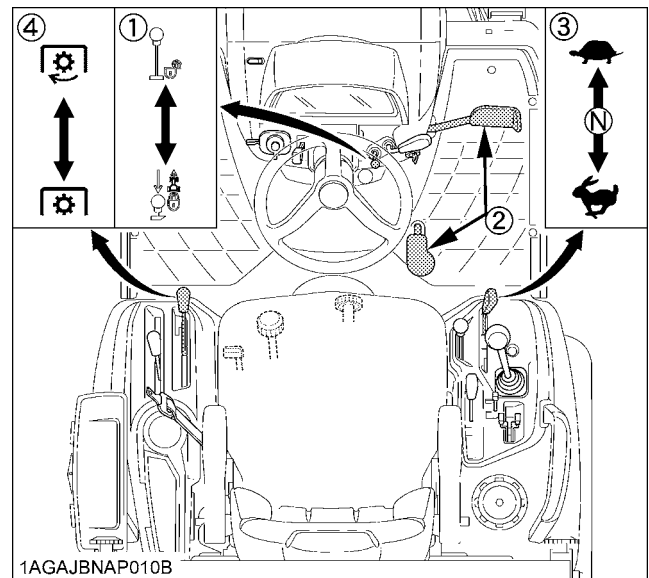
- It is recommended that the operator practice engaging and disengaging the parking brake on a flat surface without the engine running before operating the tractor for the first time.

2. Place the PTO clutch lever in "OFF" position.

3. Place the speed set rod in "OFF" position.

Place the speed control pedal in "NEUTRAL" position.

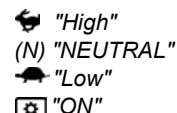
Place the range gear shift lever (Hi-Lo) in "NEUTRAL" position.



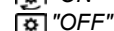
(1) Speed set rod



(2) Speed control pedal
 (3) Range gear shift lever (Hi-Lo)



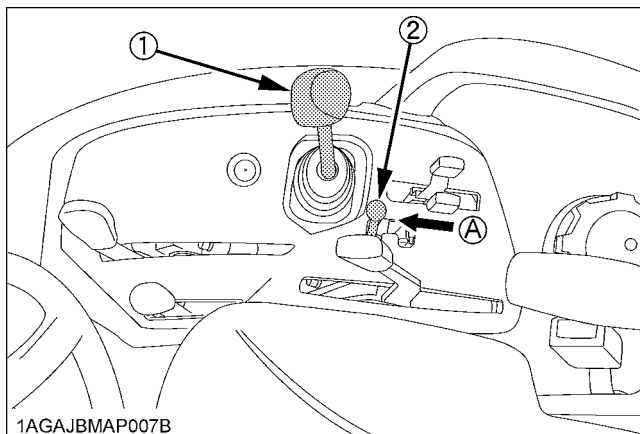
(4) PTO clutch lever



NOTE :

- The speed control pedal automatically return to "NEUTRAL" when the operator's foot is released from the pedal.

4. Lock the loader control lever in "LOCK" position.

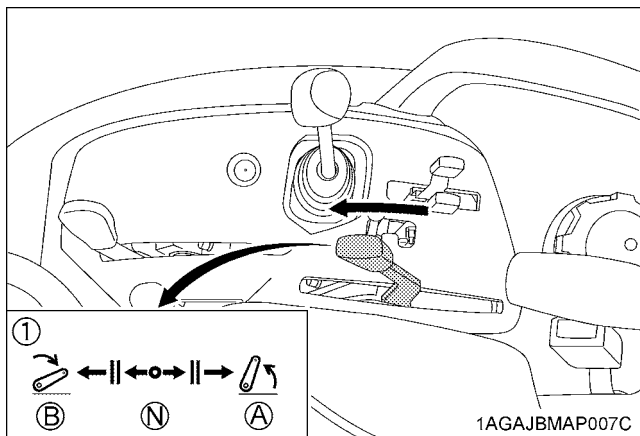


(1) Auxiliary hydraulic control lever (A) "LOCK"
(2) Lock lever

5. Move the hydraulic control lever forward. (With the implement in place.)

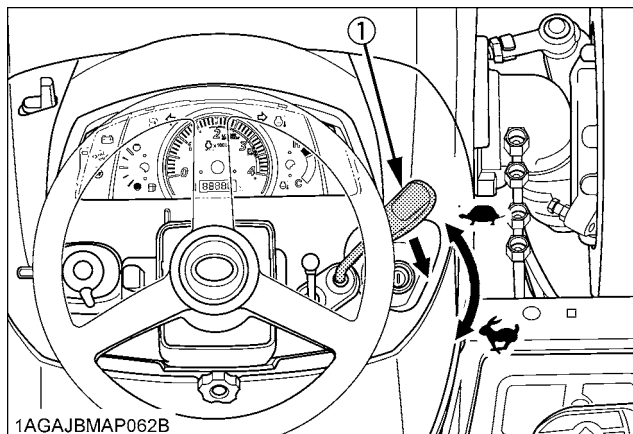
To lower implement, move the hydraulic control lever forward.

Check that implement is down at lowest position.



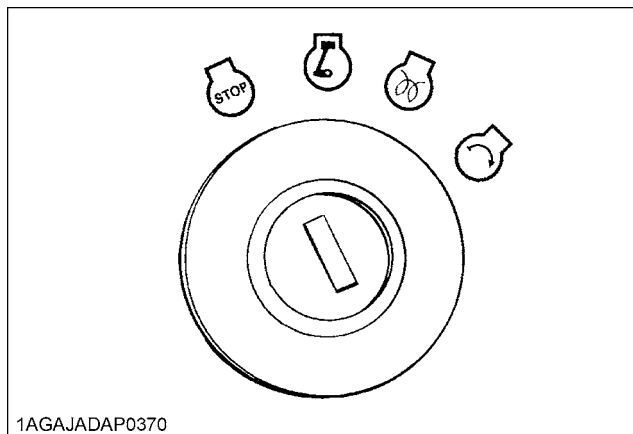
(1) Hydraulic control lever (A) "RAISED"
(B) "LOWERED"
(N) "NEUTRAL POSITION"

6. Set the hand accelerator lever to about 1/2 way.



(1) Hand accelerator lever "INCREASE"
"DECREASE"

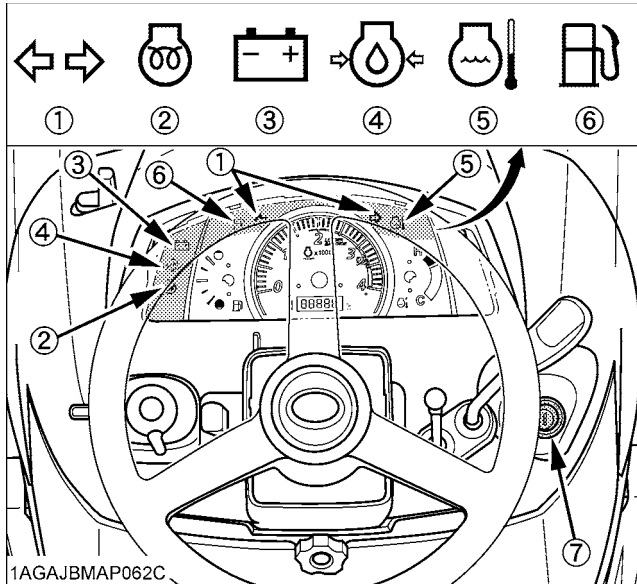
7. Insert the key into the key switch and turn it "ON".



"OFF" "PREHEAT"
"ON" "START"

◆ Check Easy Checker(TM) Lamps:

- When the key is turned "ON", lamps (5) (6) only should come on. If trouble should occur at any location while the engine is running, the warning lamp corresponding to that location comes on.



- Turn signal/Hazard light indicator
- Preheat
- Electrical charge
- Engine oil pressure
- Coolant temperature indicator
- Low fuel indicator
- Key switch

IMPORTANT :

- Daily checks with the Easy Checker(TM) only, are not sufficient. Never fail to conduct daily checks carefully by referring to Daily Check section. (See "DAILY CHECK" in "PERIODIC SERVICE OF THE TRACTOR" section.)

8. Turn the key to "PREHEAT" position and hold it for about 2 to 3 seconds.

For the appropriate preheating time, refer to the table below:

Temperature	Preheating Time
Over 0°C (32°F)	2 to 3 sec.
-5 to 0°C (23 to 32°F)	5 sec.
-15 to -5°C (5 to 23°F)	10 sec.

NOTE :

- Glow plug indicator (2) comes on while engine is being preheated.

9. Turn the key to "START" position and release it when the engine starts.

IMPORTANT :

- Because of safety devices, the engine will not start except when the speed control pedal is in "NEUTRAL" position and the PTO clutch lever is in "OFF" position respectively.

■ Cold Weather Starting

When the ambient temperature is below -5°C (23°F) and the engine is very cold. If the engine fails to start after 10 seconds, turn off the key for 30 seconds. Then repeat steps 8 and 9. To protect the battery and the starter, make sure that the starter is not continuously turned for more than 30 seconds.

■ Block Heater (Option)

A block heater is available as an option from your dealer. It will assist you in starting your tractor when the ambient temperature is below -15°C (5°F).

10. Check to see that all the lamps on the Easy Checker(TM) are "OFF".

If the lamp is still "ON", immediately stop the engine and determine the cause.

STOPPING THE ENGINE

- After slowing the engine to idle, turn the key to "OFF".
- Remove the key.

NOTE :

- If key does not stop the engine, consult your local KUBOTA Dealer.

WARMING UP



WARNING

To avoid serious injury or death:

- Be sure to set the parking brake during warm-up.
- Be sure to set all shift levers to "NEUTRAL" positions and to place PTO lever in "OFF" position during warm-up.

For 5 minutes after engine start-up, allow engine to warm up without applying any load, this is to allow oil to reach every engine part. If load should be applied to the engine without this warm-up period, trouble such as seizure, breakage or premature wear may develop.

■ Warm-up and Transmission Oil in the Low Temperature Range

Hydraulic oil serves as transmission fluid. In cold weather, the oil may be cold with increased viscosity. This can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. This in turn can result in premature wear in the hydraulic system or malfunctions such as resistance in the speed control pedal and difficulty engaging the range gear shift lever. To prevent the above, observe the following instructions: Warm up the engine at about 50% of rated rpm according to the table below:

Ambient temperature	Warm-up time requirement
Above 0°C (32°F)	At least 5 minutes
-10 to 0°C (14 to 32°F)	5 to 10 minutes
-20 to -10°C (-4 to 14°F)	10 to 15 minutes
Below -20°C (-4°F)	More than 15 minutes

IMPORTANT :

- Do not operate the tractor under full load condition until it is sufficiently warmed up.

JUMP STARTING



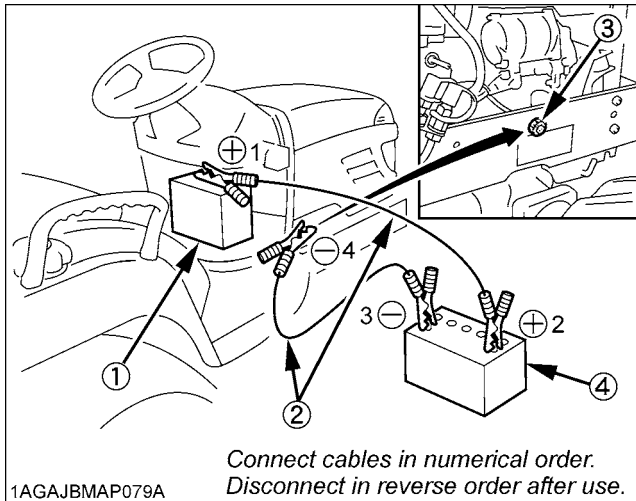
WARNING

To avoid serious injury or death:

- Battery gases can explode. Keep cigarettes, sparks, and flames away from battery.
- If tractor battery is frozen, do not jump start engine.
- Do not connect other end of negative (-) jumper cable to negative (-) terminal of tractor battery.
- When carrying on the following steps 4 and 11, do not allow the positive (+) terminal of the battery to touch other parts.
- To prevent short circuit, before connecting jumper cables, make sure to remove the metal-battery- holder.

When jump starting engine, follow the instructions below to safely start the engine.

1. Bring helper vehicle with a battery of the same voltage as disabled tractor within easy cable reach. "THE VEHICLES MUST NOT TOUCH".
2. Engage the parking brakes of both vehicles and put the shift levers in "NEUTRAL". Shut both engines off.
3. Put on safety goggles and rubber gloves.
4. Take the dead battery out and put it on the step.
5. Ensure the vent caps are securely in place. (if equipped)
6. Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery and clamp the other end of the same cable to the positive (red, (+) or pos.) terminal of the helper battery.
7. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
8. Clamp the other end to the engine block or frame of the disabled tractor as far from the dead battery as possible.
9. Start the helper vehicle and let its engine run for a few moments. Start the disabled tractor.
10. Disconnect the jumper cables in the exact reverse order of attachment. (Steps 8, 7 and 6).
11. Put the battery back and fix it.



- (1) Dead battery
- (2) Jumper cables
- (3) Engine block or frame
- (4) Helper battery

IMPORTANT :

- This machine has a 12volt negative (-) ground starting system.
- Use only same voltage for jump starting.
- Use of a higher voltage source on tractors electrical system could result in severe damage to tractors electrical system.
Use only matching voltage source when "Jump starting" a low or dead battery condition.

OPERATING THE TRACTOR

OPERATING NEW TRACTOR

How a new tractor is handled and maintained determines the life of the tractor.

A new tractor just off the factory production line has been, of course, tested, but the various parts are not accustomed to each other, so care should be taken to operate the tractor for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become "broken-in." The manner in which the tractor is handled during the "breaking-in" period greatly affects the life of your tractor. Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important to properly break-in your tractor. In handling a new tractor, the following precautions should be observed.

■ Do not Operate the Tractor at Full Speed for the First 50 Hours.

- Do not start quickly nor apply the brakes suddenly.
- In winter, operate the tractor after fully warming up the engine.
- Do not run the engine at speeds faster than necessary.
- On rough roads, slow down to suitable speeds. Do not operate the tractor at fast speed.

The above precautions are not limited only to new tractors, but to all tractors. But it should be especially observed in the case of new tractors.

■ Changing Lubricating Oil for New Tractors

The lubricating oil is especially important in the case of a new tractor. The various parts are not "broken-in" and are not accustomed to each other; small metal grit may develop during the operation of the tractor; and this may wear out or damage the parts. Therefore, care should be taken to change the lubricating oil a little earlier than would ordinarily be required.

For further details of change interval hours, See "MAINTENANCE OF THE TRACTOR" section.

GETTING ON AND OFF THE TRACTOR

1. Never try to get on or off a moving tractor or jump off the tractor to exit.
2. Face the tractor when getting into or out of the tractor. Do not use the controls as hand holds to prevent inadvertent machine movements.
3. Always keep steps and floor clean to avoid slippery conditions.

OPERATING FOLDABLE ROPS



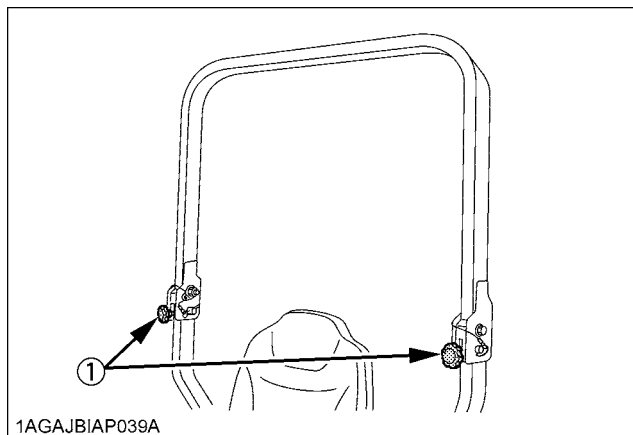
WARNING

To avoid serious injury or death:

- When raising or folding the ROPS, apply parking brake, stop the engine and remove the key. Always raise or fold ROPS from a stable position at the rear of tractor.
- Fold the ROPS down only when absolutely necessary and fold it up and lock it again as soon as possible.
- Before proceeding to fold ROPS, check for any possible interference with installed implements and attachments. If interference occurs, contact your KUBOTA Dealer.

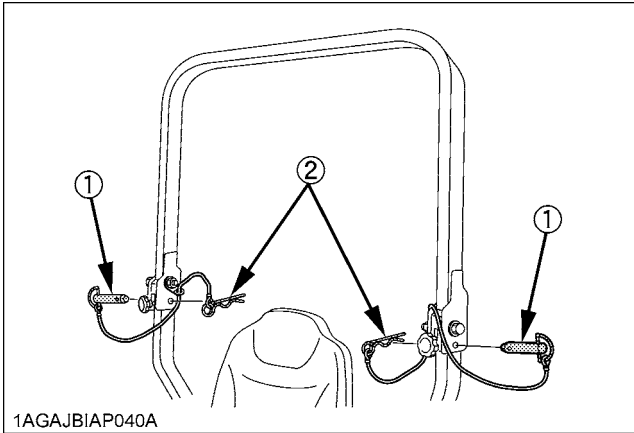
■ To Fold the ROPS

1. Loosen the holding knob bolts.



(1) Holding Knob bolts

2. Remove both set pins.



(1) Set pins
(2) Snap pins

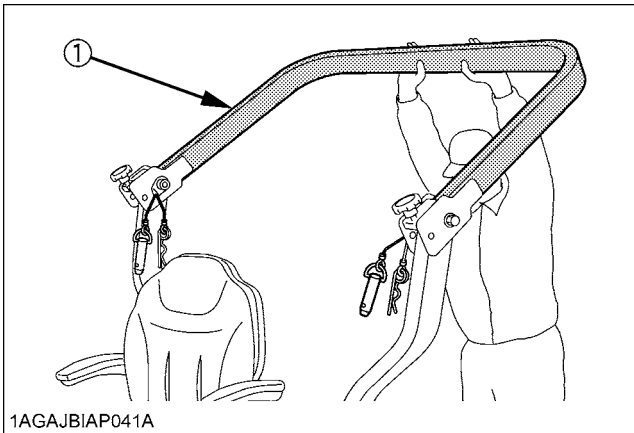
3. Fold the ROPS.



CAUTION

To avoid personal injury:

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



(1) ROPS

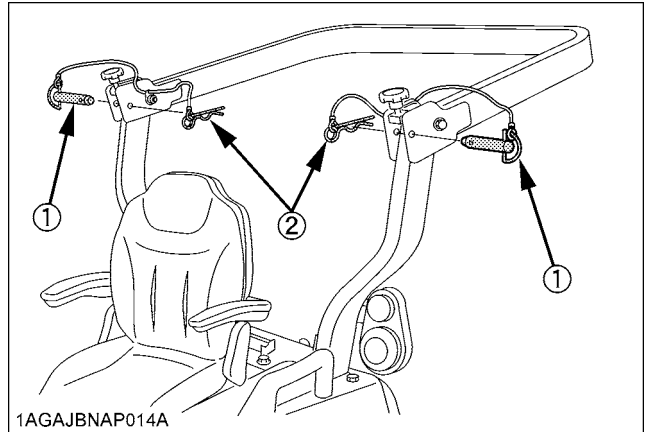
4. Align set pin holes and insert both set pins and secure them with the snap pins.



CAUTION

To avoid personal injury:

- Make sure that both set pins are properly installed and secured with the snap pins.



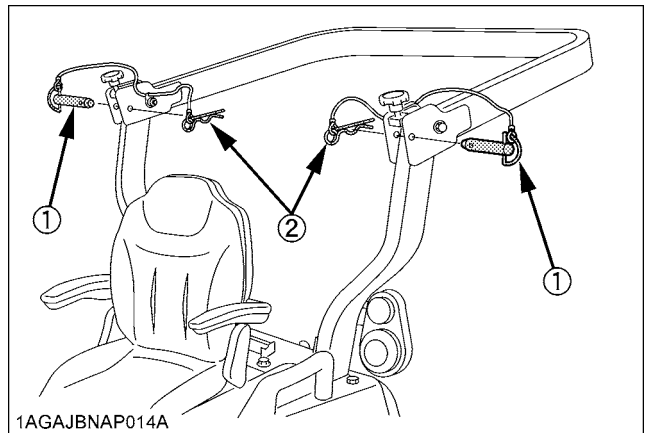
(1) Set pins
(2) Snap pins

NOTE :

- Take care not to bump the ROPS against the rod of backhoe cylinder when folding the ROPS.

To Raise the ROPS to Upright Position

1. Remove both snap pins and set pins.



(1) Set pins
(2) Snap pins

2. Raise ROPS to the upright position.



CAUTION

To avoid personal injury:

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

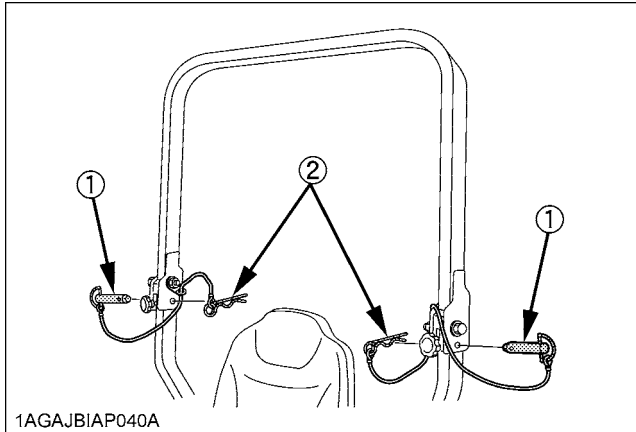
- Align set pin holes, insert both set pins. Secure them with the snap pins.



CAUTION

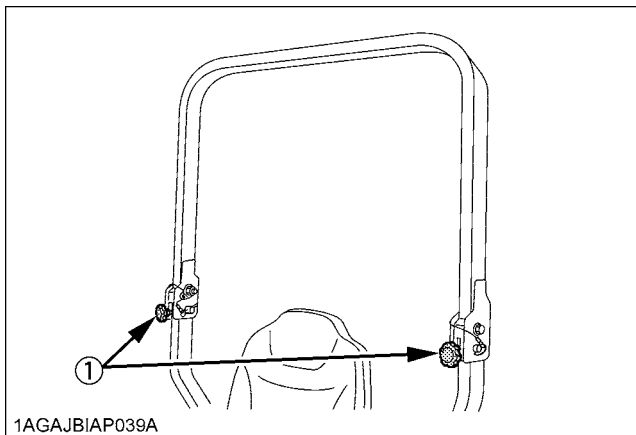
To avoid personal injury:

- Make sure that both set pins are properly installed as soon as the ROPS is in the upright position and secured with the snap pins.



- (1) Set pins
- (2) Snap pins

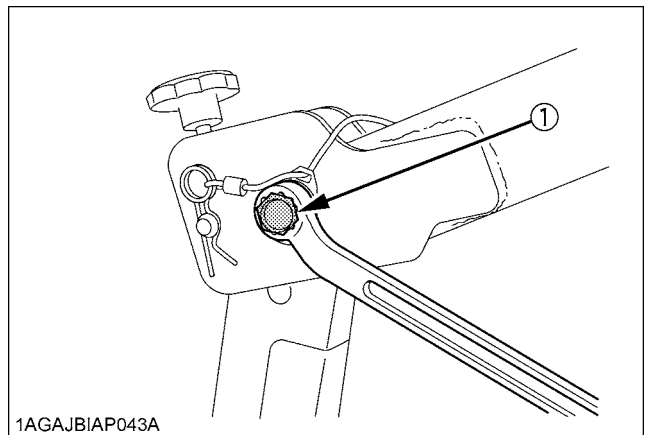
- Tighten the holding knob bolts.



- (1) Holding knob bolts

■ Adjustment of Foldable ROPS

- Adjust free fall of the ROPS upper frame regularly.
- If you feel less friction in folding the ROPS, tighten the nut (1) until you feel the right friction in the movement.



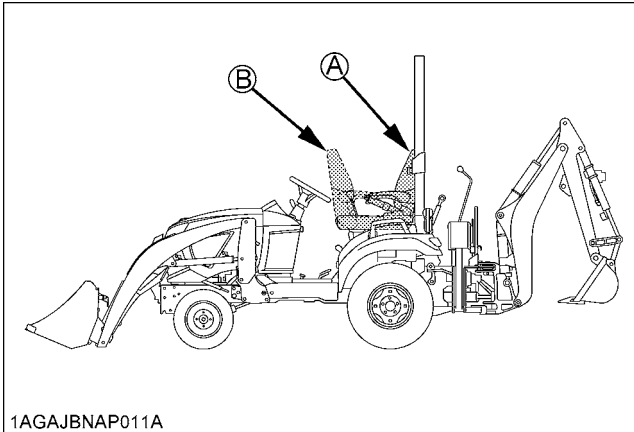
- (1) Nut

STARTING

1. Adjust the operator's position and engage the seat belt.

NOTE :

- The seat and suspension should be adjusted to ensure that the controls are comfortably at hand for the operator, ensuring that the operator maintains a good posture.



1AGAJBNAP011A

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

NOTE :

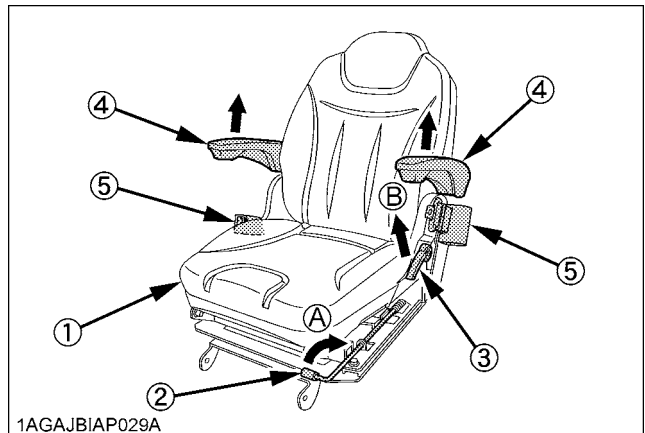
- The turning's direction of the seat is one-way. Make sure that the seat is rotated to the proper direction.
- For more details, see "REVERSING THE SEAT" section.

Operator's Seat

WARNING

To avoid serious injury or death:

- Make adjustments to the seat only while the tractor is stopped.
- Make sure that the seat is completely secured after each adjustment.
- Do not allow any person other than the operator to ride on the tractor.



1AGAJBIAP029A

- | | |
|--------------------------------|---------------|
| (1) Seat | (A) "PULL UP" |
| (2) Position adjust lever | (B) "PULL" |
| (3) Backrest tilt adjust lever | |
| (4) Arm rest | |
| (5) Seat belt | |

◆ Travel adjustment

Pull up the position adjust lever and slide the seat backward or forward, as required. The seat will lock in position when the lever is released.

◆ Tilt adjustment

Pull the backrest tilt adjust lever and tilt the backrest to the desired position.

IMPORTANT :

- After adjusting the operator's seat, be sure to check that the seat is properly locked.
- Be sure the operator's seat is out of contact with the top link.
- See "REVERSING THE SEAT" section when using seat in backhoe position.

■ Seat Belt

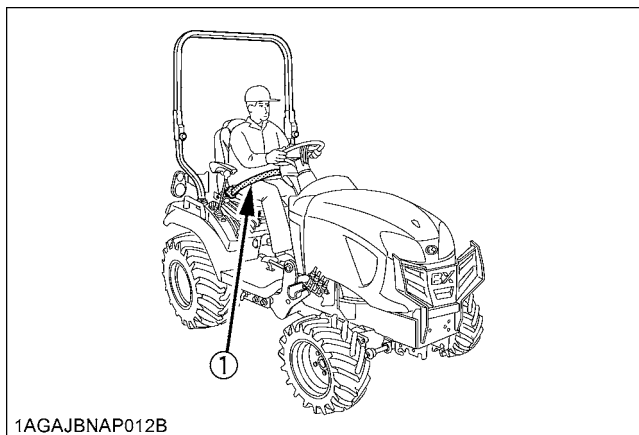
! WARNING

To avoid serious injury or death:

- Always use the seat belt when the ROPS is installed.

Do not use the seat belt if the tractor is not equipped with ROPS.

Adjust the seat belt for proper fit and connect to the buckle. The seat belt is auto-locking retractable type.



1AGAJBNAPO12B

(1) Seat belt

2. Adjust steering position.

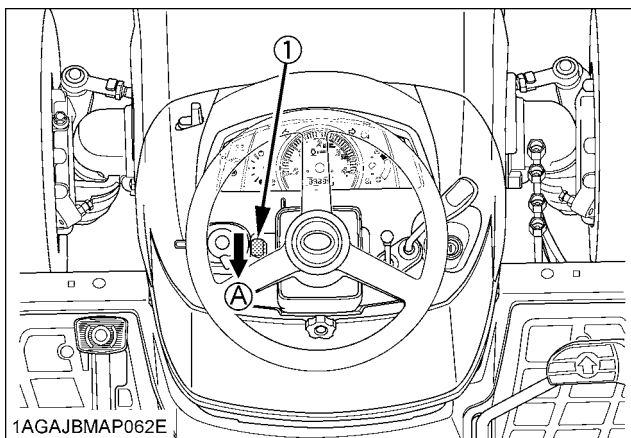
■ Tilt Steering Adjustment

! CAUTION

To avoid personal injury:

- Do not adjust the steering wheel while the tractor is in motion.

Adjust the steering wheel to proper position. The steering wheel can be adjusted while the tilt lever is pulled.



1AGAJBMAP062E

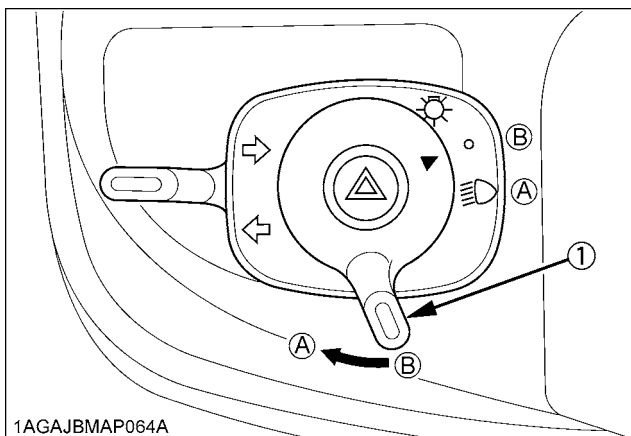
(1) Tilt lever

(A) "PULL"

3. Select Light Switch Positions.

■ Head Light Switch

To turn on the head lights, turn the head light switch clockwise. Turn the head light switch counterclockwise to turn off the head lights.



1AGAJBMAP064A

(1) Head light switch

(A) "ON"

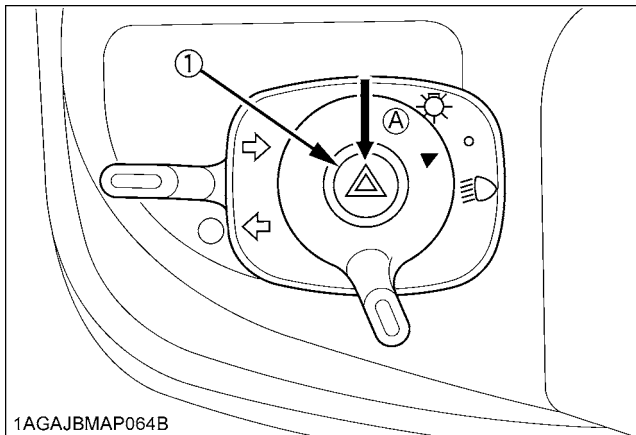
(B) "OFF"

■ Hazard Light Switch

1. When pressing the hazard-light-switch, the hazard lights flash along with the indicator on the instrument panel.
2. When pressing the hazard-light-switch again, the hazard lights turn off.

NOTE :

- The hazard-light-switch is operative when the key switch is only on position.



1AGAJBMAP064B

(1) Hazard light switch (A) Push on-off

■ Turn Signal Light Switch

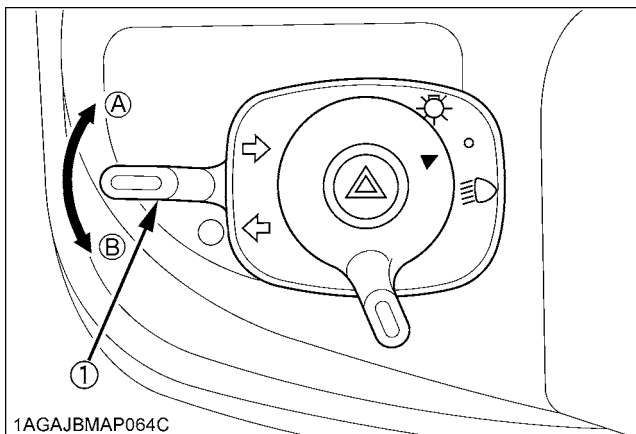
To indicate a right turn, turn the turn signal light switch clockwise.

To indicate a left turn, turn the turn signal light switch counterclockwise.

When the left or right turn signal is activated in combination with the hazard lights, the indicated turning light will flash and the other will stay on.

NOTE :

- Be sure to return switch to center position after turning.



1AGAJBMAP064C

(1) Turn signal light switch (A) "RIGHT TURN" (B) "LEFT TURN"

4. Check the Brake Pedal.

■ Brake Pedal

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

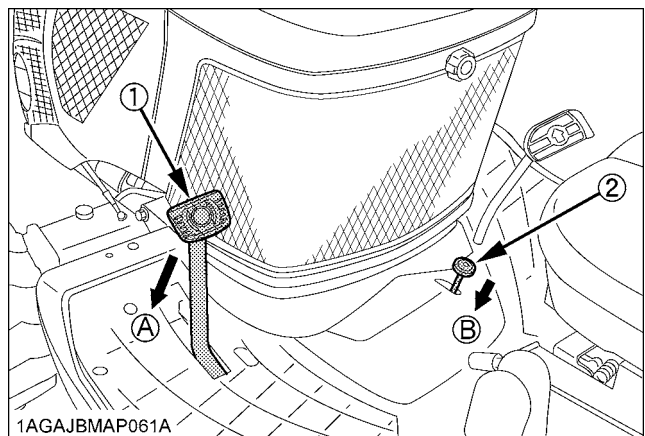
1. Depress brake pedal.
2. Depress parking brake lock pedal.
3. Release brake pedal.



WARNING

To avoid serious injury or death:

- Do not brake suddenly. An accident may occur as a result of a heavy towed load shifting forward or loss of control.
- To avoid skidding and loss of steering control when driving on icy, wet, or loose surfaces, make sure that the tractor is correctly ballasted, operated at reduced speed, and operated with the front wheel drive engaged if equipped.
- The braking characteristics are different between 2-wheel drive and 4-wheel drive. Know the difference between 2-wheel drive and 4-wheel drive and use them carefully.
- Engage 4-wheel drive for 4-wheel braking when traveling down a slope.



1AGAJBMAP061A

(1) Brake pedal (A) "DEPRESS"
(2) Parking brake lock pedal (B) "PUSH DOWN (2) WHILE DEPRESSING (1)"

5. Start the engine.



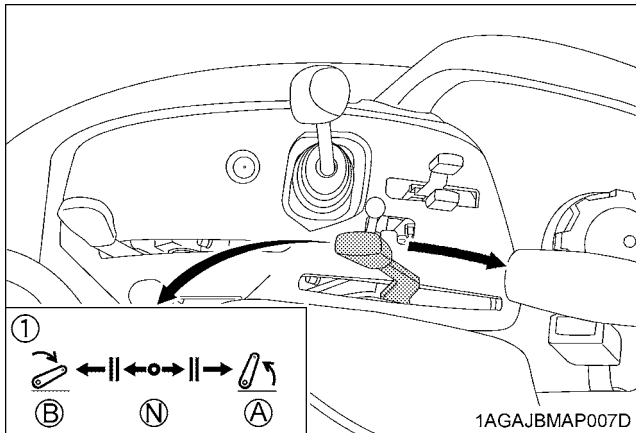
WARNING

To avoid serious injury or death:

- Read and understand "SAFE OPERATION" in the front of this manual.
- Read and understand the danger, warning and caution labels located on the tractor.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- Never start engine while standing on ground. Start engine only from operator's seat.
- Make it a rule to set all shift levers to "NEUTRAL" positions and to place PTO lever in "OFF" position before starting the engine.

6. Raise the Implement.
(see "HYDRAULIC UNIT" section.)

Move the hydraulic control lever rearward.



(1) Hydraulic control lever

- (A) "RAISED"
- (B) "LOWERED"
- (N) "NEUTRAL POSITION"

7. Select the Travel Speed.

■ Range Gear Shift Lever (Hi-Lo)

The range gear shift can only be shifted when tractor is completely stopped.



WARNING

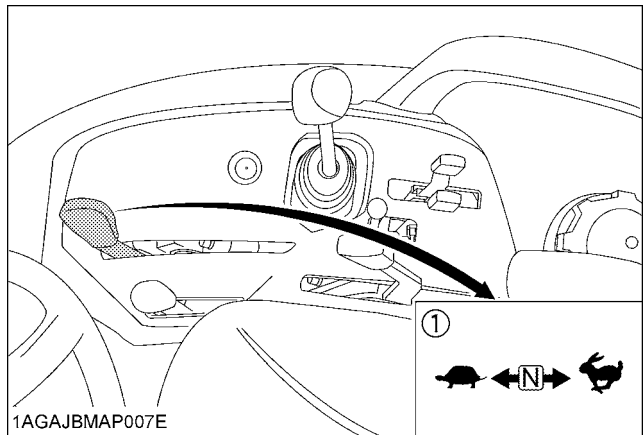
To avoid serious injury or death:

- Make sure the range shift lever is fully engaged into "H" or "L" position before climbing or descending a slope.

IMPORTANT :

Do not force the range gear shift lever.

- If it is difficult to shift the range gear shift lever into "NEUTRAL" position;
 - (1) Depress the brake pedal firmly for several seconds.
 - (2) Without reducing the brake pedal force, shift the range gear shift lever.
- If it is difficult to shift the range gear shift lever into "L" or "H" from "NEUTRAL" position;
 - (1) Slightly depress the speed control pedal to rotate the gears inside of transmission.
 - (2) Release the speed control pedal to "NEUTRAL" position.
 - (3) Shift the range gear shift lever.
- To avoid damage of transmission, stop tractor before shifting between ranges.



(1) Range gear shift lever (Hi-Lo)

- 🐎 "HIGH"
- (N) "NEUTRAL POSITION"
- 🐎 "LOW"

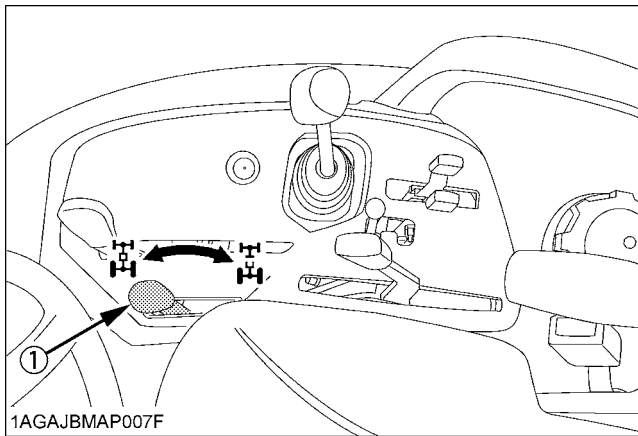
Front Wheel Drive Lever

WARNING

To avoid serious injury or death:

- Do not engage the front wheel drive when traveling at road speed.
- When driving on icy, wet or loose surfaces, make sure the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate at reduced speed and engage front wheel drive.
- An accident may occur if the tractor is suddenly braked, such as by heavy towed loads shifting forward or loss of control.
- The braking characteristics are different between 2 and 4-wheel drive. Be aware of the difference and use carefully.

Use the lever to engage the front wheels with the tractor stopped. Shift the lever to "ON" to engage the front wheel drive.



(1) Front wheel drive lever
 ↑ "ON"
 ↓ "OFF"

IMPORTANT :

- To avoid damage of transmission, when front wheel drive lever is not smoothly shifted, slightly step forward or rearward on speed control pedal.
- Tires will wear quickly if front wheel drive is engaged on paved roads.

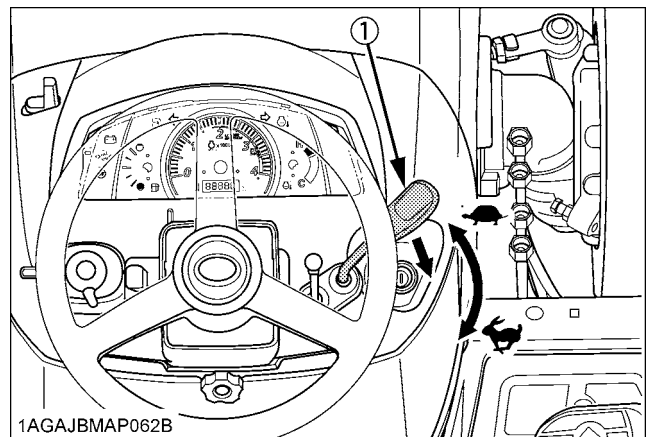
Front wheel drive is effective for the following jobs:

1. When greater pulling force is needed, such as working in a wet field, when pulling a trailer, or when working with a front-end loader.
2. When working in sandy soil.
3. When working on a hard soil where a rotary tiller might push the tractor forward.
4. Additional braking at reduced speeds.

8. Accelerate the Engine.

Hand Accelerator Lever

Pulling the hand accelerator lever back increases engine speed, and pushing it forward decreases engine speed.

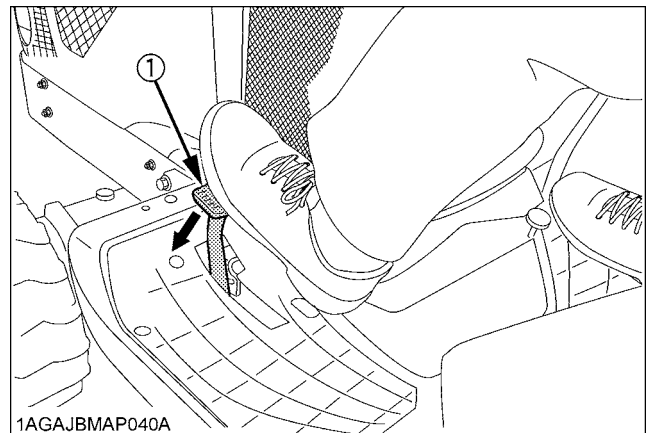


(1) Hand accelerator lever
 ↖ "INCREASE"
 ↗ "DECREASE"

9. Unlock the Parking Brake.

Parking Brake Pedal

To release the parking brake, depress the brake pedal again.



(1) Brake pedal

10. Depress the Speed Control Pedal.

■ Speed Control Pedal



WARNING

To avoid serious injury or death:

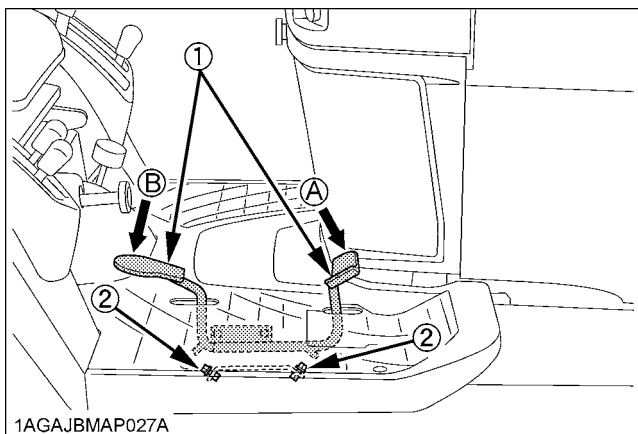
- Do not operate if tractor moves on level ground with foot off Speed Control Pedal.

Forward Pedal

Depress the forward pedal with the toe of your right foot to move forward.

Reverse Pedal

Depress the reverse pedal with the heel of your right foot to move backward.



(1) Speed control pedal

(A) "FORWARD"

(B) "REVERSE"

(2) Stopper bolts

IMPORTANT :

- To prevent serious damage to the HST, do not adjust the stopper bolts.

NOTE :

- When you stand up from the seat with the speed control pedal stepped on, the engine will stop regardless of whether the machine is moving or not. This is because the tractor is equipped with Operator Presence Control system (OPC).

■ Speed Set Device

The Speed Set Device is designed for tractor operating efficiency and operator's comfort. This device will provide a constant forward operating speed by mechanically holding the speed control pedal at a selected position.

◆ To engage Speed Set Device

1. Accelerate speed to desired level using Speed Control Pedal.
2. Push and hold the speed set rod downward to "ON" position.
3. Release Speed Control Pedal.
4. Release the speed set rod and desired speed will be maintained.

◆ To disengage Speed Set Device

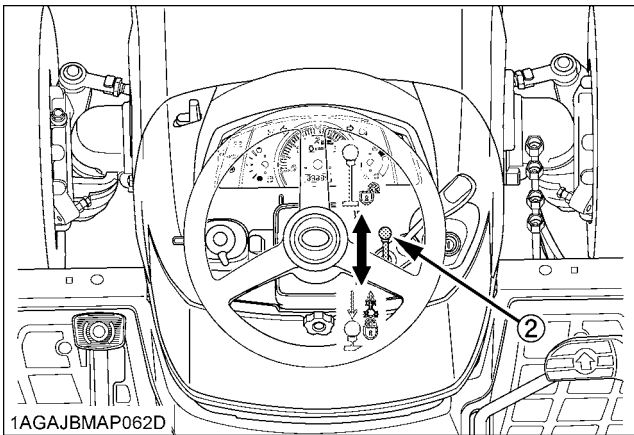
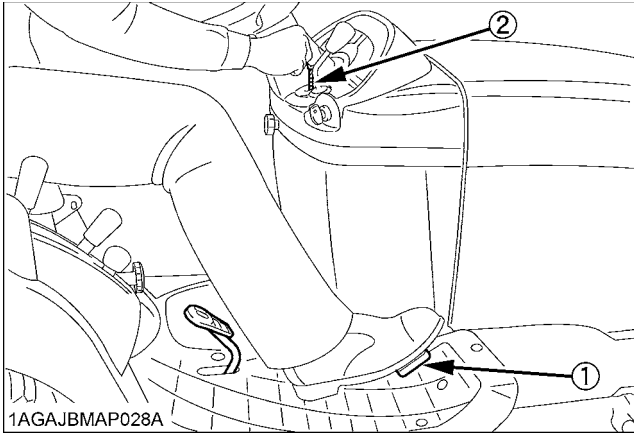
- Depress the brake pedal.

NOTE :

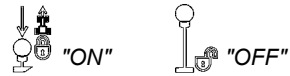
- If you step on the speed control pedal on the forward acceleration side, the speed set device will disengage.
- Speed set device will not operate in reverse.

IMPORTANT :

- To prevent the damage of speed set device, do not depress the reverse pedal when the speed set device is engaged.



(1) Speed control pedal
(2) Speed set rod



STOPPING

■ Stopping

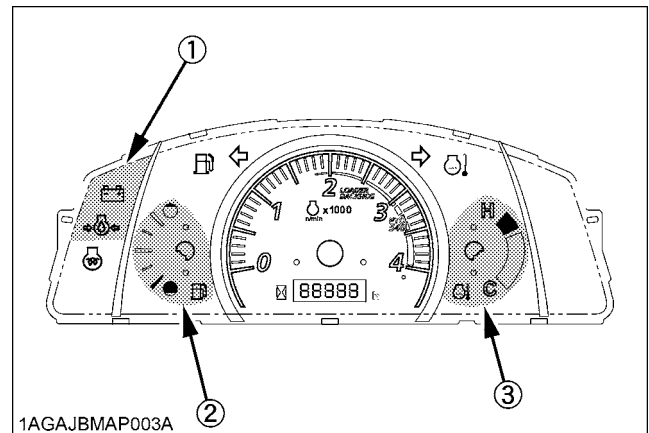
1. Slow the engine down.
2. Step on the brake pedal.
3. After the tractor has stopped, disengage the PTO, lower the implement to the ground, shift the range gear shift lever to "NEUTRAL" and set the parking brake.

CHECK DURING DRIVING

■ Immediately Stop the Engine if:

- The engine suddenly slows down or accelerates,
- Unusual noises suddenly are heard,
- Exhaust fumes suddenly become very dark,

While driving, make the following checks to see that all the parts are functioning normally.



- (1) Easy checker(TM)
- (2) Fuel gauge
- (3) Coolant temperature gauge

■ Easy Checker(TM)

If the warning lamps in the Easy Checker(TM) come on during operation, immediately stop the engine, and find the cause as shown below.

Never operate the tractor while Easy Checker(TM) lamp is "ON".

Engine oil pressure

If the oil pressure in the engine goes below the prescribed level, the warning lamp in the Easy Checker(TM) will come on.

If this should happen during operation, and it does not go off when the engine is accelerated to more than 1000 rpm, check level of engine oil.

(See "Checking Engine Oil Level" in "DAILY CHECK" in "PERIODIC SERVICE OF THE TRACTOR" section.)

Electrical charge

If the alternator is not charging the battery, the indicator in the Easy Checker(TM) will come on. If this should happen during operation, check the electrical charging system or consult your local KUBOTA Dealer.

NOTE :

- For checking and servicing of your tractor, consult your local KUBOTA Dealer for instructions.

■ Fuel Gauge

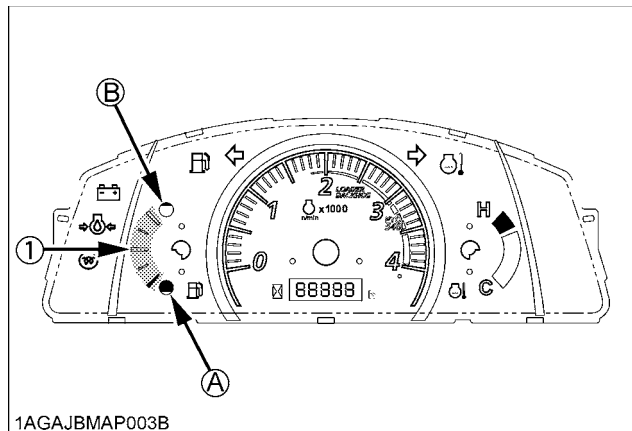
When the key switch is "ON", the fuel gauge indicates the fuel level.

It's for the check if the gauge is working.

When the fuel is close to empty level, the low fuel indicator of the Easy Checker(TM) comes on.

Be careful not to empty the fuel tank. Otherwise air may enter the fuel system.

Should this happen, the system should be bled. (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE OF THE TRACTOR" section.)



1AGAJBMAP003B

(1) Fuel gauge

(A) "EMPTY"

(B) "FULL"

NOTE :

- In case fuel gauge system becomes disconnected, the needle will return to the most bottom position. If this occurs, consult your local KUBOTA Dealer. Once you turn "OFF" and when the system gets back to normal, the needle also points normal position.

■ Coolant Temperature Gauge



WARNING

To avoid serious injury or death:

- Do not remove radiator cap until coolant temperature is well below its boiling point. Then loosen cap slightly to the stop to relieve any pressure before removing cap completely.

Overheat indication:

1. When the coolant temperature stays at 123 °C (253.4 °F), the indicator on the Easy Checker(TM) comes on. Reference (Red zone range): 123 to 130 °C (254 to 266 °F)
2. When the coolant temperature stays below 118 °C (244.4 °F), the indicator turns off.

If the coolant temperature indicator on the Easy Checker(TM) comes on:

1. Place the PTO clutch lever in "OFF" (DISENGAGE) position.
2. Move the machine to the level surface, and apply the parking brake.
3. Place the hand accelerator lever in the engine idle position, and operate the engine for a few minutes.
4. Check the Cooling System, after it has sufficient time to cool down.

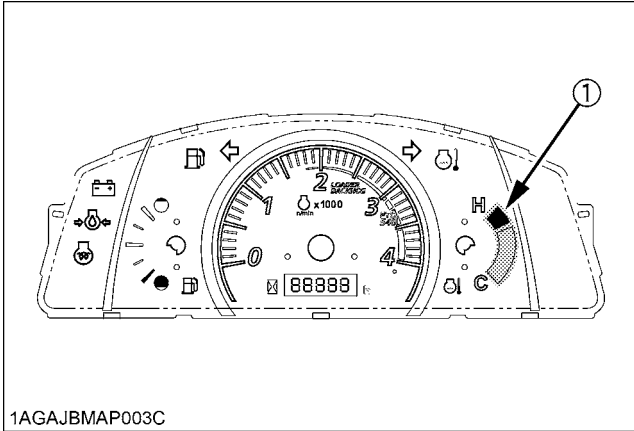
Check the following items:

1. Shortage or leakage of the coolant.
2. Foreign matter on the radiator net or dust and dirt between the radiator fins.

3. Looseness of fan belt.
4. Blockage in the radiator tube.
(See "PERIODIC SERVICE OF THE TRACTOR" section.)

NOTE :

- In case coolant temperature gauge system becomes short, the needle will return to the most bottom position. If this occurs, consult your KUBOTA Dealer. Once you turn "OFF" and when the system gets back to normal, the needle also points normal position.



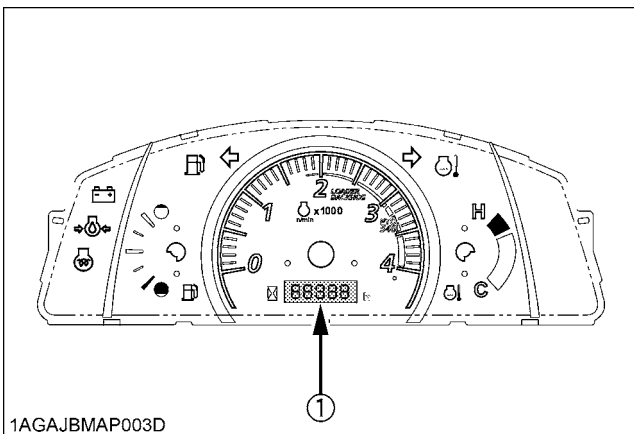
1AGAJBMAP003C

(1) Coolant temperature gauge

Hour Meter

The hour meter indicates in 5 digits the hours the tractor has been used;

- From 0.0 to 9999.9 Hr, the display operates every 0.1 Hr step.
- 10000 to 99999 Hr, every 1 Hr step.
- After 99999 Hr, 99999 Hr stays on.



1AGAJBMAP003D

(1) Hour meter

Tachometer

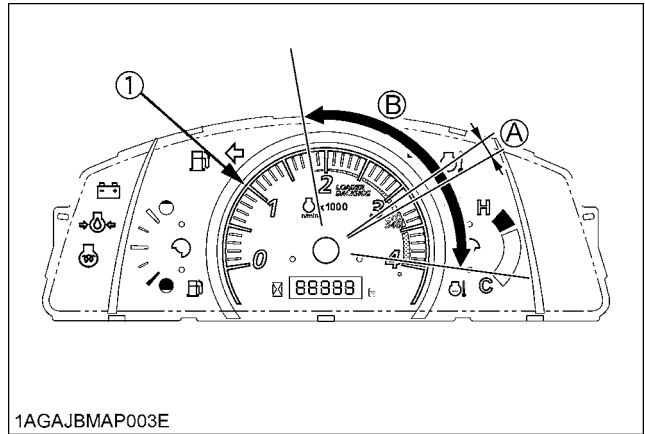
When the key switch is "ON" and the engine is "ON", the tachometer indicates the engine revolution per minute.

NOTE :

- When the key is turned "ON", the tachometer should indicate 4000 rpm for just a moment.

Recommended Engine Speed

- PTO 540: Use within yellow range.
- Loader/Backhoe: Use within orange range.



1AGAJBMAP003E

(1) Tachometer

(A) Yellow range

(B) Orange range

PARKING

■ Parking

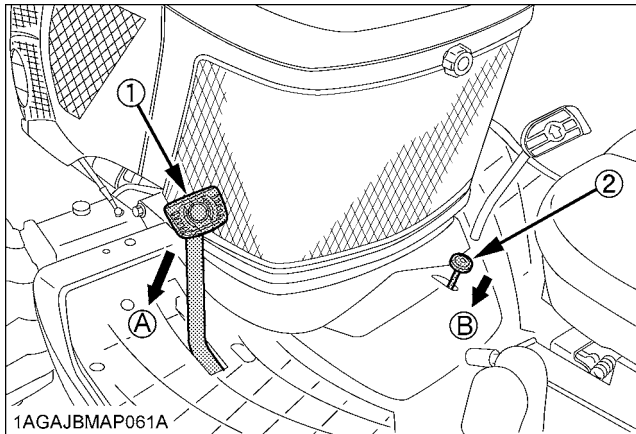


WARNING

To avoid serious injury or death:
BEFORE GETTING OFF TRACTOR

- Always set parking brake and lower all implements to the ground.
Leaving transmission in gear with the engine stopped will not prevent the tractor from accidental rolling.
- Stop the engine and remove the key.

1. When parking, be sure to set the parking brake.
To set the parking brake;
 - (1) Depress the brake pedal.
 - (2) Latch the brake pedal with the parking brake lock pedal.



- (1) Brake pedal (A) "DEPRESS"
 (2) Parking brake lock pedal (B) "PUSH DOWN (2) WHILE DEPRESSING (1)"

2. Before getting off the tractor, disengage the PTO, lower all implements to the ground, place all control levers in their "NEUTRAL" positions, set the parking brake, stop the engine and remove the key.
3. If it is necessary to park on an incline, be sure to chock the wheels to prevent accidental rolling of the machine.

OPERATING TECHNIQUES

■ Differential Lock



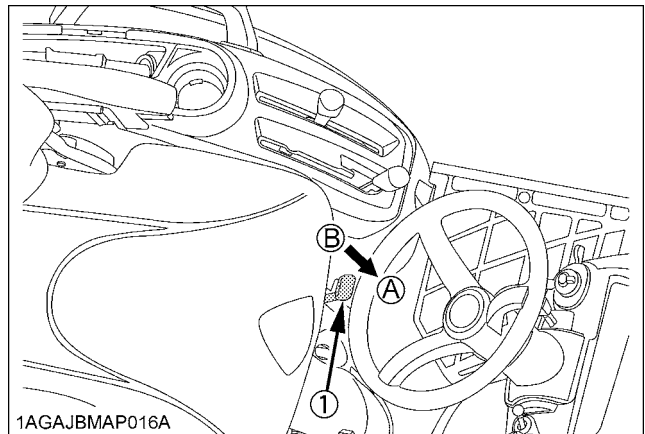
WARNING

To avoid serious injury or death due to loss of steering control:

- Do not operate the tractor at high speed with differential lock engaged.
- Do not attempt to turn with the differential lock engaged.
- Be sure to release the differential lock before making a turn in field conditions.

If one of the rear wheels should slip, step on the differential lock pedal. Both wheels will then turn together, reducing slippage.

Differential lock is maintained only while the pedal is depressed.



- (1) Differential lock pedal (A) Press to "ENGAGE"
 (B) Release to "DISENGAGE"

IMPORTANT :

- When using the differential lock, always slow the engine down.
- To prevent damage to power train, do not engage differential lock when one wheel is spinning and the other is completely stopped.
- If the differential lock cannot be released in the above manner, alternately press speed control pedal forward and backward slightly.

■ Operating the Tractor on a Road

WARNING

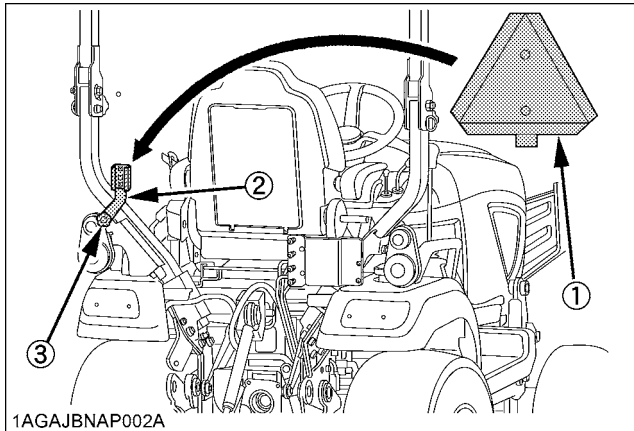
To avoid serious injury or death:

- When traveling on road with 3-point hitch mounted implement attached, be sure to have sufficient front weight on the tractor to maintain steering ability.

Be sure SMV emblem and warning lamps are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and warning lamps on equipment.

Consult your local KUBOTA Dealer for further details.

1. Loosen the knob nut and turn the bracket vertically and fasten the knob nut.
2. Set SMV emblem.



- (1) SMV emblem
(2) Bracket
(3) Knob nut

■ Operating on a Slopes and Rough Terrain

WARNING

To avoid serious injury or death:

- Always back up when going up a steep slope. Driving forward could cause the tractor to tip over backward. Stay off hills and slopes too steep for safe operation.
- Avoid changing gears when climbing or descending a slope.
- If operating on a slope, never disengage shift levers to "NEUTRAL". Doing so could cause loss of control.
- Do not drive the tractor close to the edges of ditches or banks which may collapse under the weight of the tractor. Especially when the ground is loose or wet.

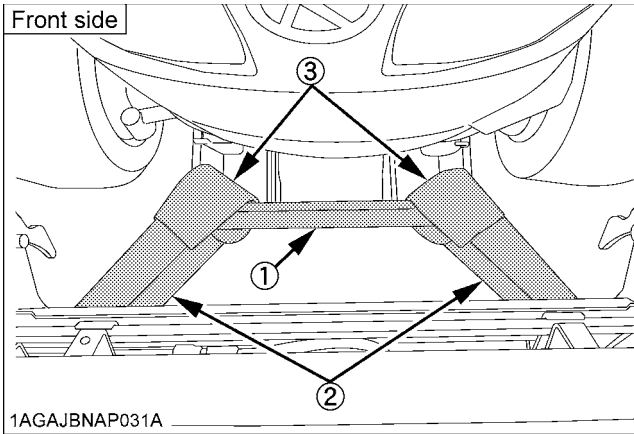
1. Slow down for slopes, rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.
2. Before descending a slope, shift to a gear low enough to control speed without using brakes.

■ Transport the Tractor Safely

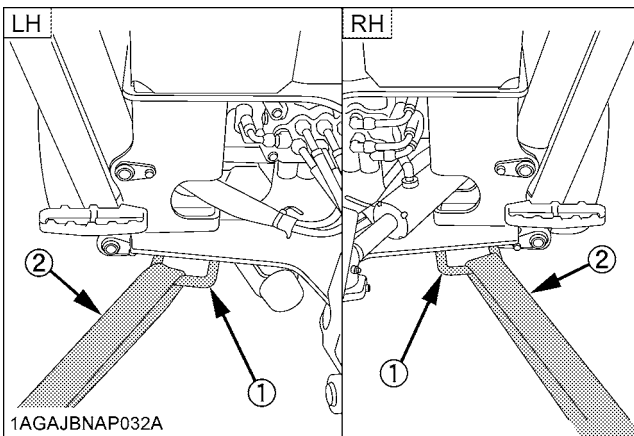
WARNING

To avoid personal injury or death:

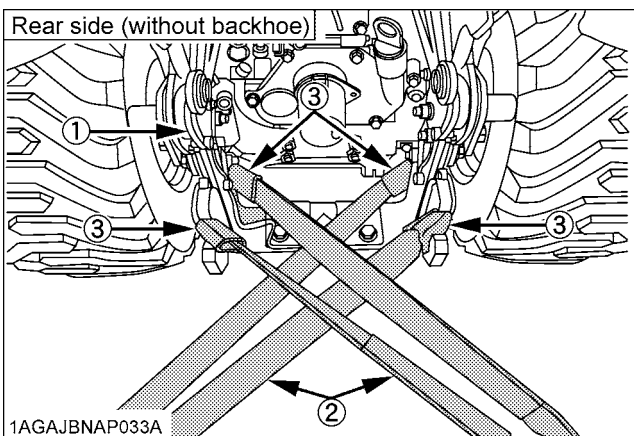
- When transporting, the tractor must be carried on a truck. Pay attention to the points below when transporting the tractor.
- Make sure the ramps used for loading are of sufficient capacity and securely connected to safely support the tractor throughout the loading/unloading process.
- Stop the engine, lower all implements, apply the parking brake and place chocks against the front and rear tires.
- Secure the portions of the tractor which are shown in the figures below by using adequate straps or chains.
- Adequate straps or chains should take into account the weight of the unit, anticipated loads or forces, required factors of safety and any other pertinent information.
- Always comply with Federal and/or Local regulations for securement and transport.



- (1) Tractor frame
- (2) Heavy-duty strap
- (3) Cloth



- (1) Tie-down stay (under the backhoe)
- (2) Heavy-duty strap



- (1) Tractor frame
- (2) Heavy-duty strap
- (3) Cloth

■ Directions for Use of Power Steering

1. Power steering is activated only while the engine is running. While the engine is stopped, the tractor functions in the same manner as tractors without power steering.
2. When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the steering wheel in this position for a long period of time.
3. Avoid turning the steering wheel while the tractor is stopped, or tires may wear out sooner.
4. The power steering mechanism makes the steering easier. Be careful when driving on a road at high speeds.

ACCESSORY

■ 12V Electric Outlet

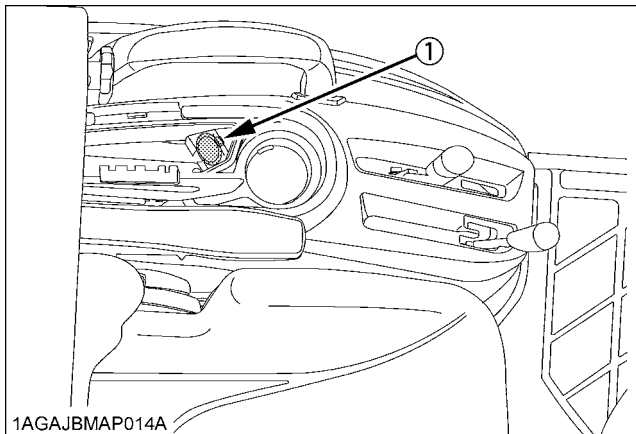
An auxiliary light or other devices may be connected to this connector.

NOTE :

- Do not connect a light or other device that draws more than 120 watts to this connector, or the battery may discharge very rapidly or the outlet may fail.

IMPORTANT :

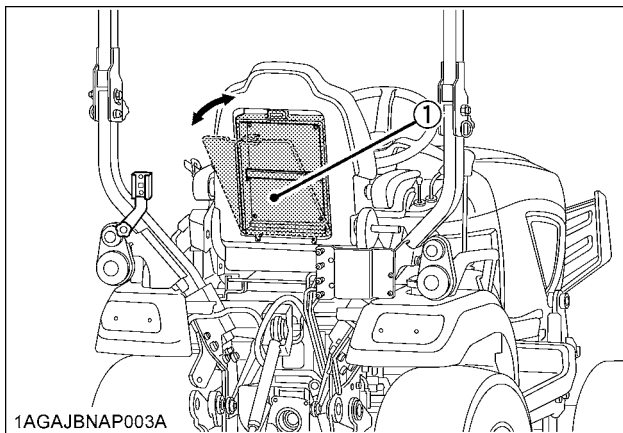
- Do not use as a cigarette lighter.
- Do not use when wet.



1AGAJBMAP014A

(1) 12V electric outlet

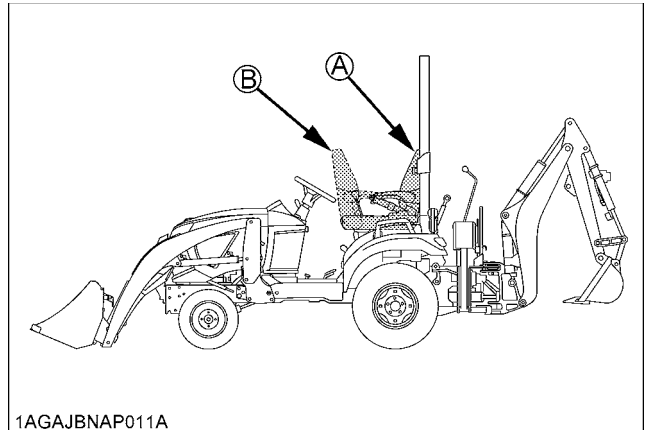
■ Glove Box



1AGAJBNAP003A

(1) Glove box

REVERSING THE SEAT

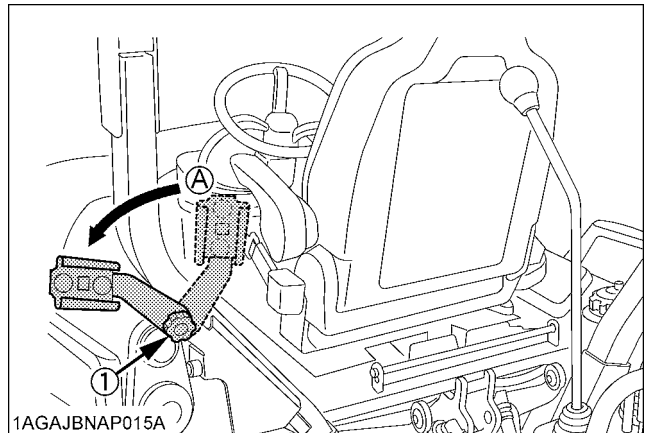


1AGAJBNAP011A

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

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

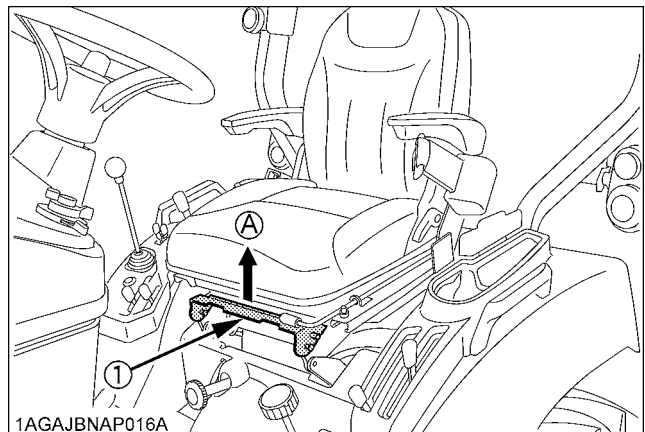
1. Loosen the knob nut behind the ROPS and move the bracket left as shown in the illustration.



1AGAJBNAP015A

(1) Bracket (A) "LEFT"

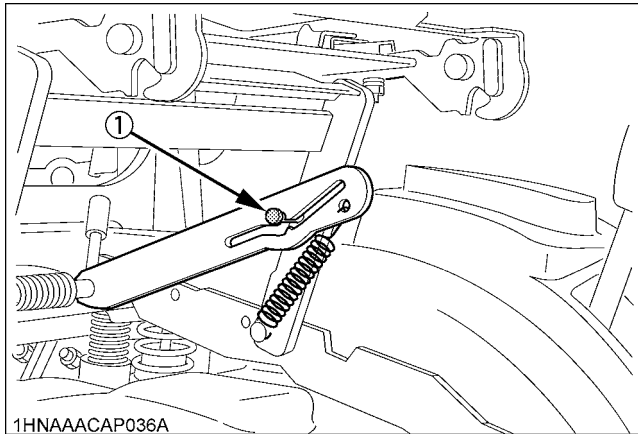
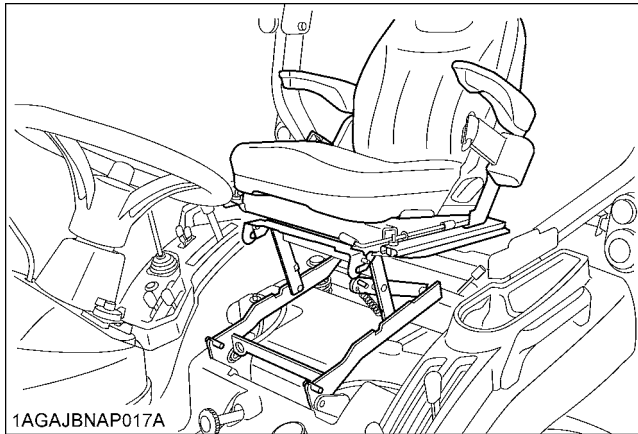
2. Pull the lever up as shown in the illustration to release the seat lock.



1AGAJBNAP016A

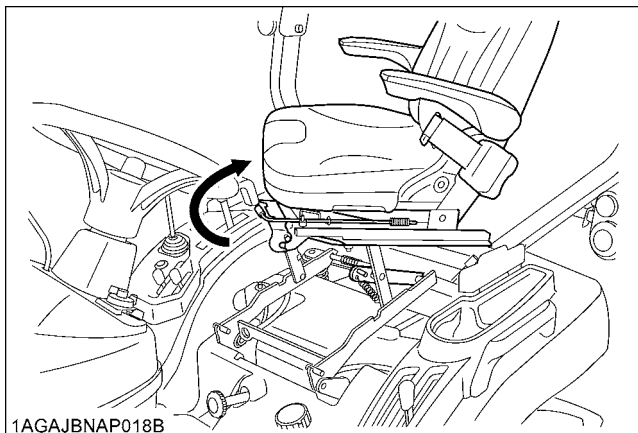
(1) Seat lock lever (A) "RELEASE"

3. Raise the seat until the seat pin comes in to the detent notch (see illustration).



(1) Seat pin

4. Turn the seat around rearward.



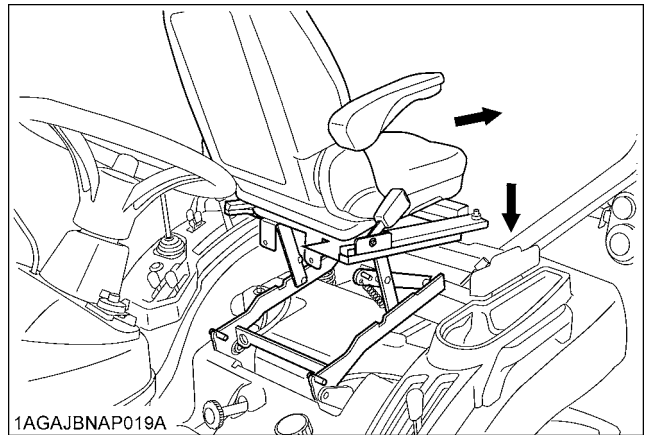
IMPORTANT :

- Grip the arms of the seat and swivel the seat.

NOTE :

- Make sure to turn the seat for the indicated direction in the above figure.

5. Push the seat backward, then the seat pin will come out from detent notch. Push the seat down until the lever is locked at the backhoe position.



NOTE :

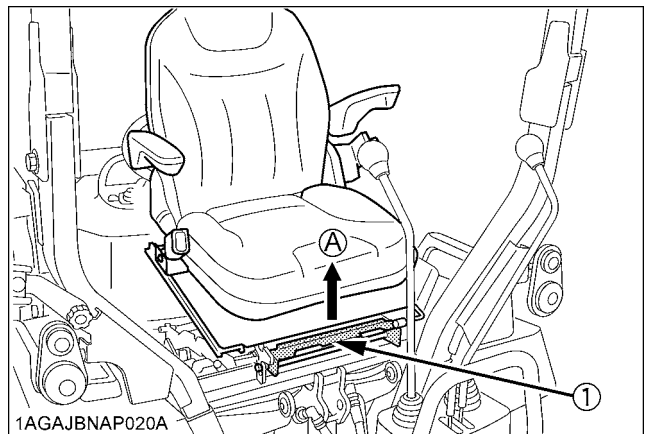
- If the seat pin does not come out from the detent notch, apply grease in the notch.

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

IMPORTANT :

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

7. For tractor driving position, pull the lever up, and follow the reverse procedure mentioned above.



(1) Seat lock lever

(A) "RELEASE"

PTO

PTO OPERATION



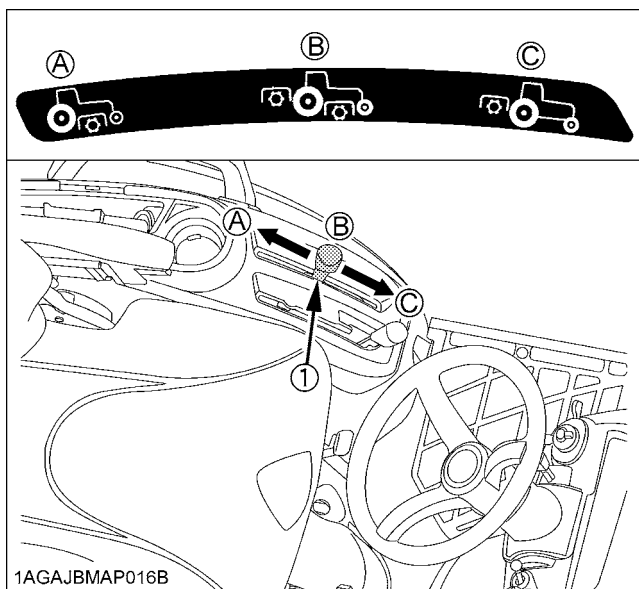
WARNING

To avoid serious injury or death:

- Before operation, be sure to select the position of the PTO select lever (mid, mid/rear, rear).
- Disengage PTO, stop engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.

■ PTO Select Lever

The tractor has a 540 rpm rear PTO speed and a 2500 rpm mid-PTO speed.



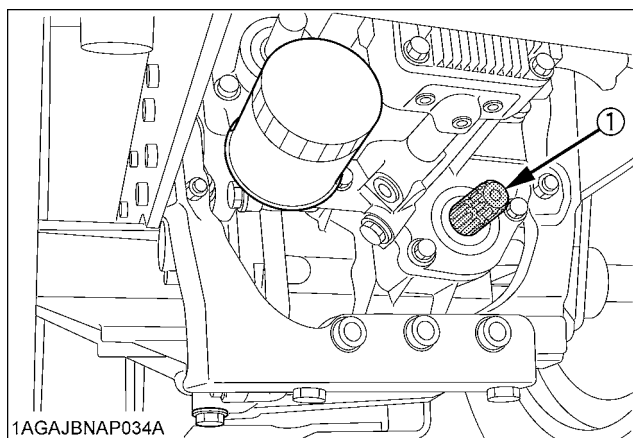
(1) PTO select lever

- (A) Mid-PTO position
(B) Mid-Rear-PTO position
(C) Rear-PTO position

◆ Mid-PTO

To use Mid-PTO, shift the PTO select lever to Mid-PTO position and the PTO clutch lever to "ON" position.

The Mid-PTO is available for KUBOTA approved implements.



1AGAJBNAPO34A

(1) Mid-PTO

◆ Mid-Rear PTO

To use mid and rear PTO at the same time, shift the PTO select lever to mid-rear PTO position and the PTO clutch lever to "ON" position.

◆ Rear PTO

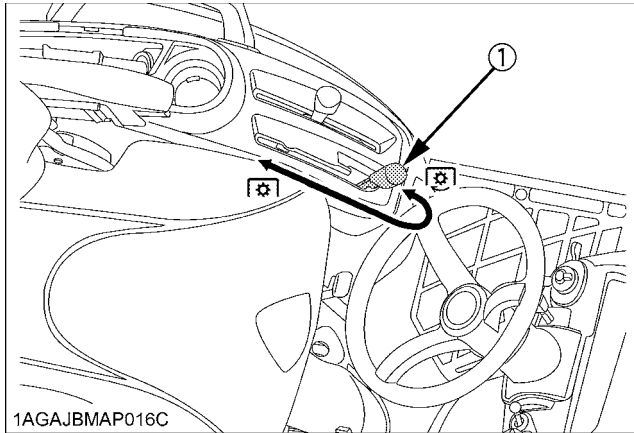
To use rear PTO, shift the PTO select lever to rear PTO position and the PTO clutch lever to "ON" position.

IMPORTANT :

- To avoid shock loads to the PTO, reduce engine accelerator from full to half speed by pushing up on engine accelerator when engaging the PTO, then open the accelerator to full.
- To avoid damage of transmission, when PTO select lever is not smoothly shifted, slightly shift PTO clutch lever.

■ PTO Clutch Lever

1. The PTO clutch lever engages or disengages the PTO clutch which gives the PTO independent control.
2. Shift the lever to "ON" to engage the PTO clutch. Shift the lever to "OFF" to disengage the PTO clutch.



1AGAJBMAP016C

(1) PTO clutch lever

"ON" "ENGAGE"

"OFF" "DISENGAGE"

IMPORTANT :

- To avoid shock loads to the PTO, reduce engine accelerator from full to half speed by pushing up on engine accelerator when engaging the PTO, then re-engage the engine to full.
- To avoid damage to PTO clutch and implement, shift the PTO clutch lever slowly, when engaging the PTO clutch. Do not keep the PTO clutch lever half way.

NOTE :

- Tractor engine will not start if the PTO clutch lever is in the engaged "ON" position.
- When you stand up from the seat with the PTO clutch lever at "ON" (Engaged) position, the engine will stop regardless of the position of the PTO select lever. This is because the tractor is equipped with Operator Presence Control system (OPC).

■ PTO Shaft Cover and Shaft Cap

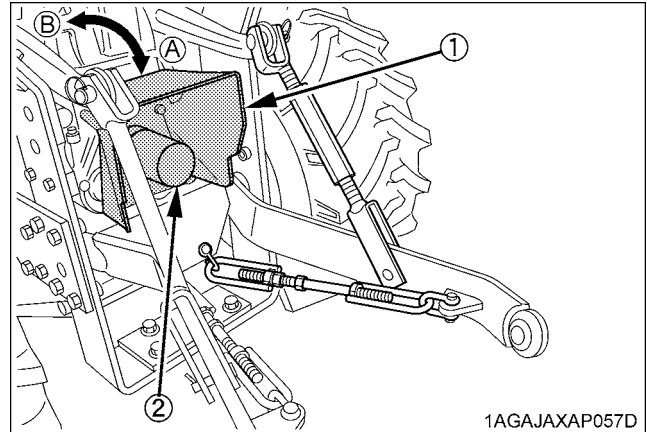
Keep the PTO shaft cover in place at all times. Keep the PTO shaft cap when the PTO is not in use.



WARNING

To avoid serious injury or death:

- Before connecting or disconnecting a drive shaft to PTO shaft, be sure engine is "OFF" and raise up the PTO shaft cover.
- Afterward be sure to return the PTO shaft cover to "NORMAL POSITION".



1AGA JAXAP057D

(1) PTO shaft cover
(2) PTO shaft cap(A) "NORMAL POSITION"
(B) "RAISED POSITION"

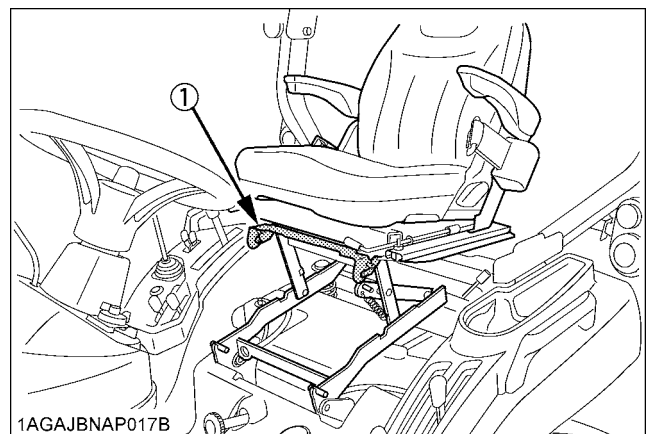
IMPORTANT :

- The universal joint of the PTO drive shaft is technically limited in its moving angle. Refer to the PTO Drive Shaft Instructions for proper use.

■ 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 brake and place blocks at the tires.
2. Make sure all shift levers are at "NEUTRAL", and start the engine.
3. Set the PTO clutch lever to engage "ON".
4. Set the engine speed to provide recommended rear PTO speed.
5. Unlock the seat lock lever and stand up and raise the seat.

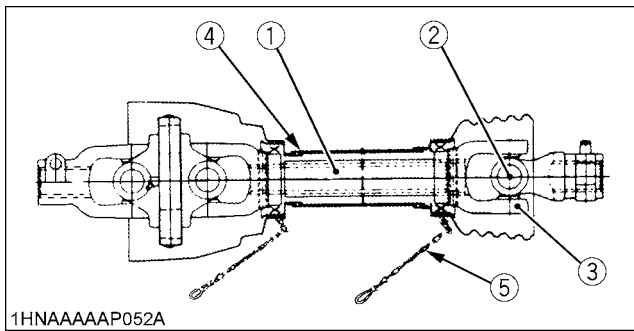


1AGA JBNAP017B

(1) Seat lock lever

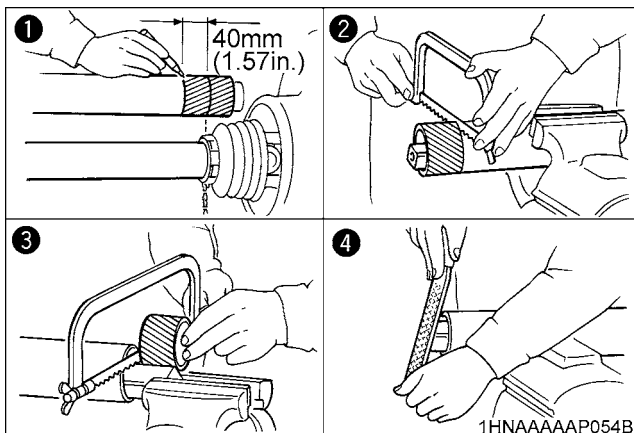
6. Turn the seat around rearward and lock the seat at backhoe position. (See "REVERSING THE SEAT" in "OPERATING THE TRACTOR" section.)

■ PTO Drive Shaft



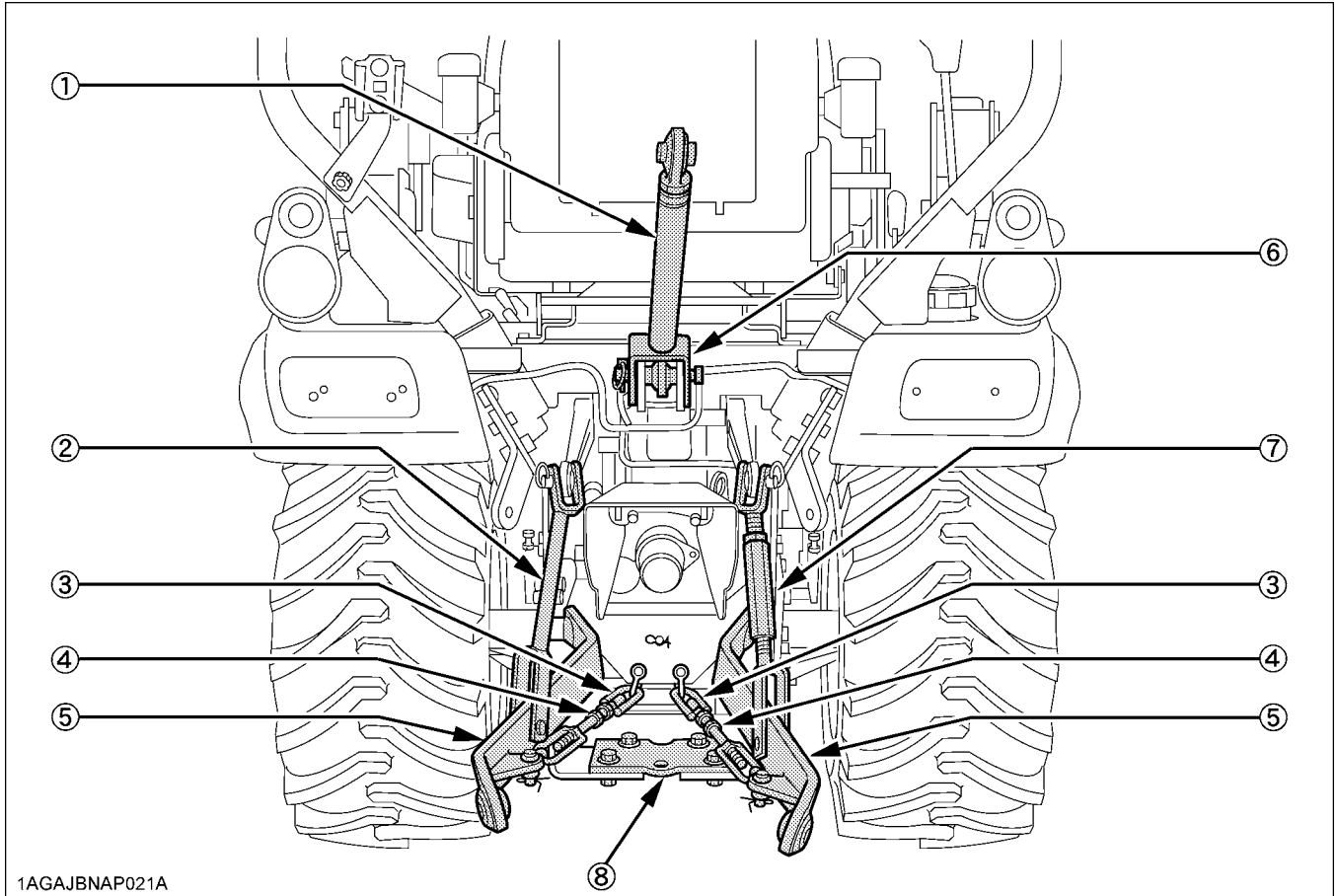
- (1) Inner and outer sliding profile tubes
- (2) Journal cross assy
- (3) Fitting yoke
- (4) Safety guard (In, Out)
- (5) Chain

1. When using a PTO drive shaft, read the operator's manual of the implement before operating the implement.
PTO drive shafts are designed for specific machines and power requirement.
2. To adjust the length of the PTO drive shaft, refer to the following instructions.
 - (1) To adjust the length, hold the half shafts next to each other in the shortest working position and mark them.
 - (2) Shorten inner and outer guard tubes equally.
 - (3) Shorten inner and outer sliding profiles tube by the same length as the guard tubes.
 - (4) Round off all sharp edges and remove burrs.
Grease sliding profiles.



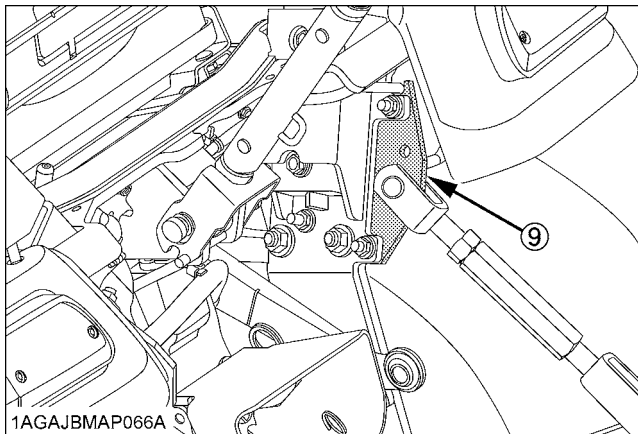
3. Make sure that the PTO drive shaft is securely connected at both ends before operating.

3-POINT HITCH & DRAWBAR



1AGAJBNAPO21A

Use holder plate to hold lower link higher while mowing with mid-mount mower only over uneven terrain.



1AGAJBMAP066A

- (1) Top link
- (2) Lifting rod (Left)
- (3) Check chains
- (4) Turnbuckle
- (5) Lower link
- (6) Top link holder
- (7) Lifting rod (Right)
- (8) Hitch
- (9) Holder plate

(9) Holder plate

3-POINT HITCH

■ Attaching and detaching implements



WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key.
- Do not stand between tractor and implement unless parking brake is applied.
- Before attaching or detaching implement, locate the tractor and implement on a firm, flat and level surface.
- Whenever an implement or other attachment is connected to the tractor 3-point hitch, slowly move the 3-point hitch through the full range of operation and check for interference, binding or PTO separation before operating the machine.

■ Lifting Rod (Right)

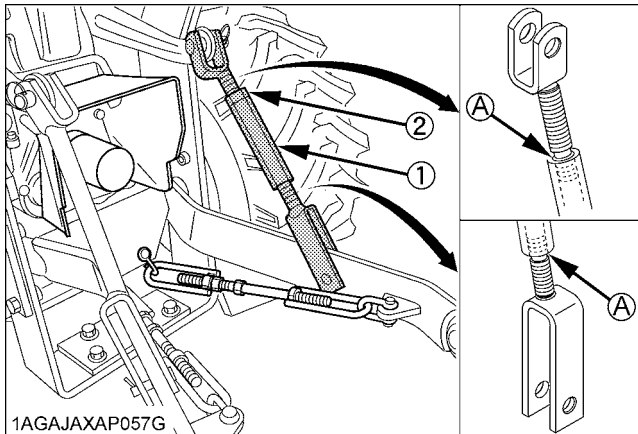


WARNING

To avoid serious injury or death from separation:

- Do not extend lifting rod beyond the groove on the thread rod.

Level a 3-point mounted implement from side to side by turning the adjusting turnbuckle to shorten or lengthen the adjustable lifting rod with the implement on the ground. After adjustment, tighten the lock nut securely. Do not extend lift rod beyond the groove on the threaded rod when extending it.



(1) Adjusting turnbuckle
(2) Lock nut

(A) Groove

■ Top Link

1. Adjust the angle of the implement to the desired position by shortening or lengthening the top link.
2. The proper length of the top link varies according to the type of implement being used.

NOTE :

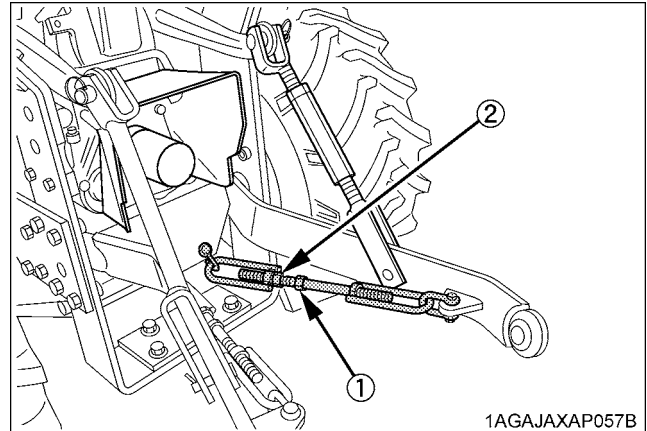
- When not using the top link, make it the shortest length and fix it to the top link holder.

■ Check Chains

Make sure that the check chains are installed in the figures below.

Adjust the turnbuckle to control horizontal sway of the implement.

After adjustment, retighten the lock nut.



(1) Turnbuckle

(2) Lock nut

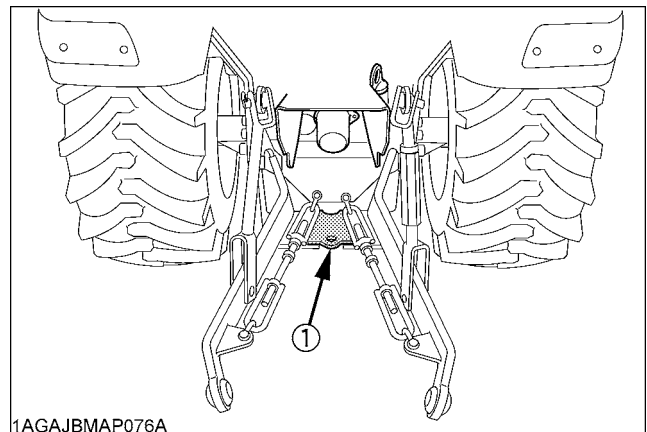
HITCH



WARNING

To avoid serious injury or death:

- Never pull from the top link, the rear axle or any point above the hitch. Doing so could cause the tractor to tip over rearward causing personal injury or death.



(1) Hitch

■ Removing the 3-Point Hitch

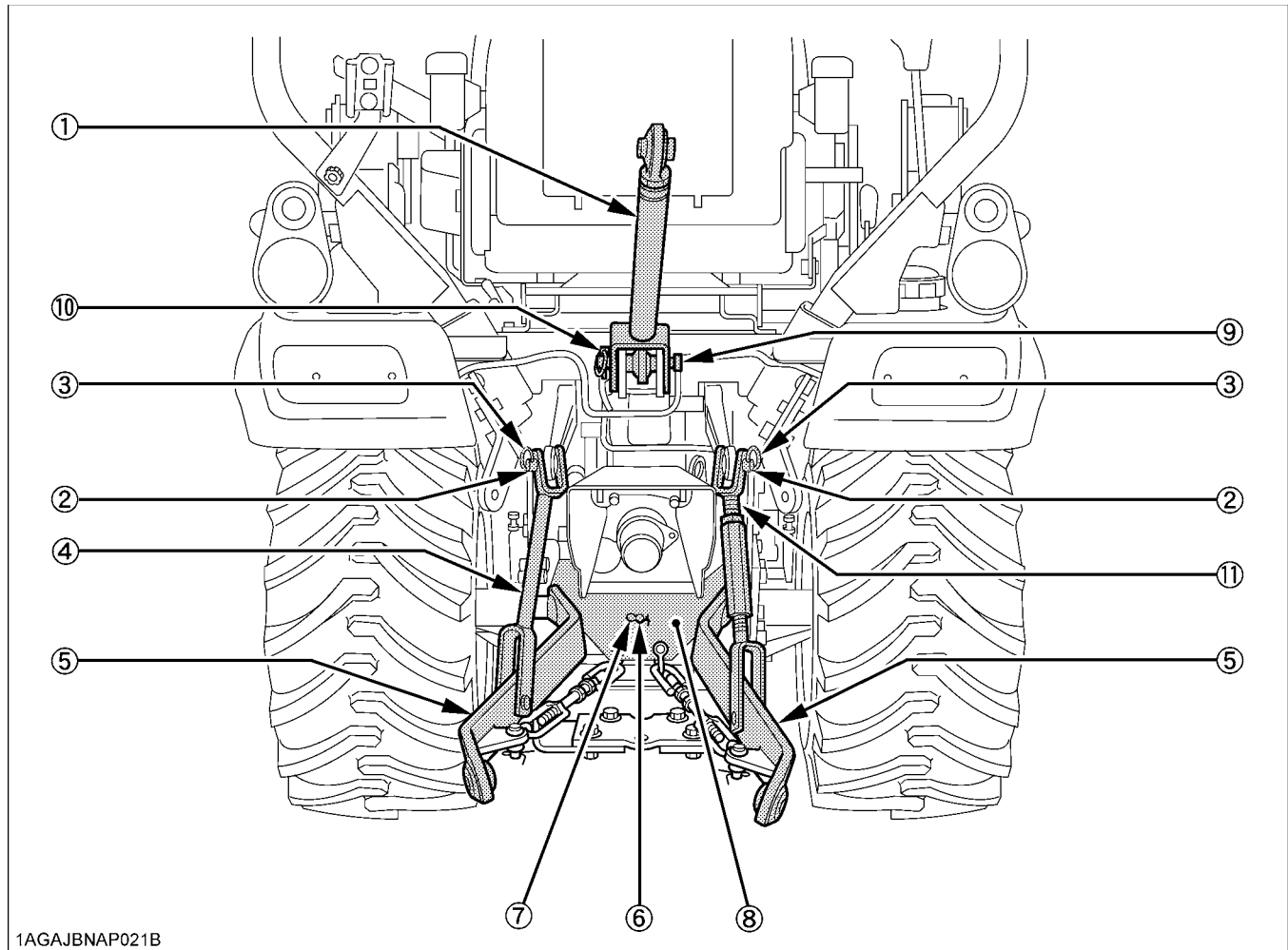
When installing the backhoe, remove the 3-point hitch.

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 rods.

3. Remove the hair pin and stopper pin. Then remove the check chain plate and lower links.

■ Installing the 3-Point Hitch

1. Follow the reverse procedure mentioned above.



1AGAJBNAPO21B

- (1) Top link
- (2) Clevis pin
- (3) Snap ring
- (4) Lifting rod (Left)
- (5) Lower link
- (6) Stopper pin

- (7) Hair pin
- (8) Check chain plate
- (9) Top link pin
- (10) Lynch pin
- (11) Lifting rod (Right)

HYDRAULIC UNIT

3-POINT HITCH CONTROL SYSTEM



WARNING

To avoid serious injury or death:

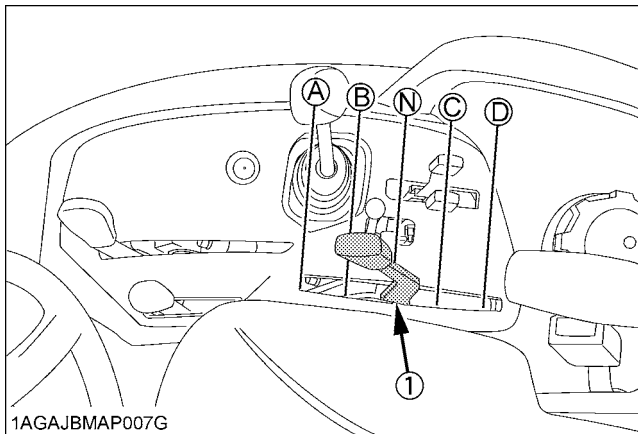
- Before using the 3-point hitch controls, ensure that no person or object is in the area of the implement or 3-point hitch.
- Do not stand on or near the implement or between the implement and tractor when operating the 3-point hitch controls.

Hydraulic Control

Operating the hydraulic control lever actuates the hydraulic lift arm, which controls the elevation of 3-point hitch mounted implement.

To lower implement, move the hydraulic control lever forward; to raise it, move the hydraulic control lever rearward.

The positions (B) and (C) of the lever in contact with the inner stopper enables you to control the valve with ease in increments of approximately 6.4 mm (0.25 in.) at the lower link end.



(1) Hydraulic control lever

- (A) "DOWN"
- (B) "SLOW DOWN"
- (N) "NEUTRAL"
- (C) "SLOW UP"
- (D) "UP"

IMPORTANT :

- If the 3-point hitch can not be raised by setting the hydraulic control lever to the "UP" position after long term storage or when changing the transmission oil, follow these air bleeding procedures.
 - (1) Stop the engine.
 - (2) Set the hydraulic control lever to the down position and start the engine.
 - (3) Operate the engine at low idle speed for at least 30 seconds to bleed air from the system.
- Do not operate until the engine is warmed up. If operation is attempted when the engine is still cold, the hydraulic system may be damaged.
- If noises are heard when implement is lifting after the hydraulic control lever has been activated, the hydraulic mechanism is not adjusted properly. If you do not correct the unit will be damaged. Contact your KUBOTA Dealer for adjustment.

3-point Hitch Lowering Speed

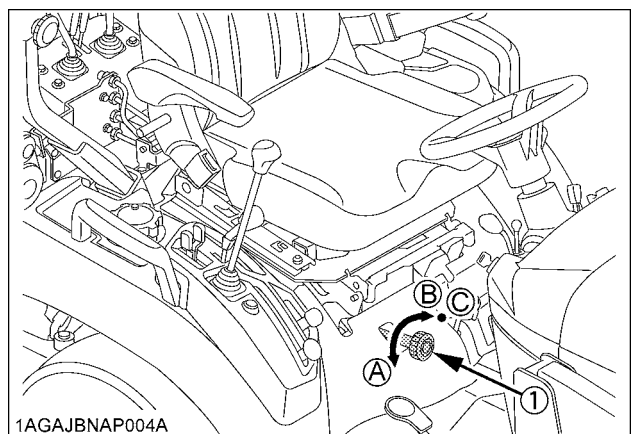


WARNING

To avoid serious injury or death:

- Fast lowering speed may cause damage or injury. Lowering speed of implement should be adjusted to 2 or more seconds.

The lowering speed of the 3-point hitch can be controlled or locked in similar fashion to a water faucet, turn toward (A) to increase, (B) to reduce and (C) firmly to the stop for lock.



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

AUXILIARY HYDRAULICS

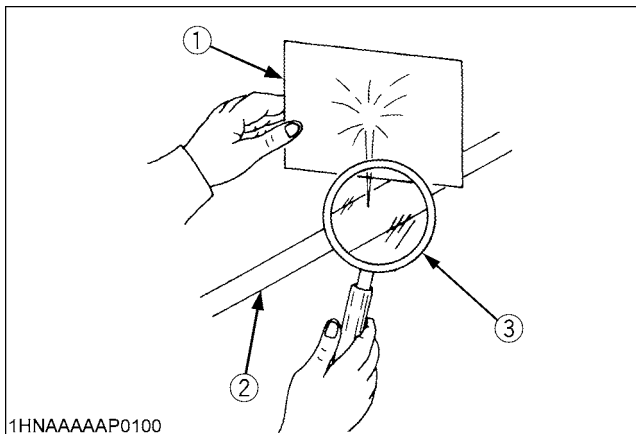
On the tractor hydraulic outlet is provided.



WARNING

To avoid serious injury or death:

- 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, tubes and hoses are not damaged.
- Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.
- 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.



1HNAAAAAP0100

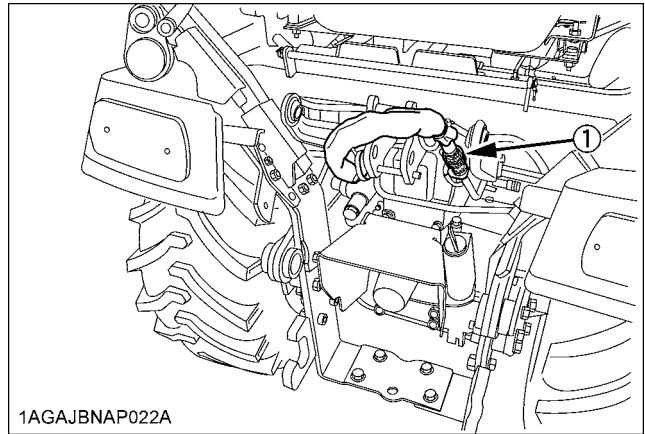
- (1) Card board
- (2) Hydraulic line
- (3) Magnifying glass

■ Connecting Hoses for Backhoe

It can be used with the BT603 Backhoe.

When mounting the backhoe.

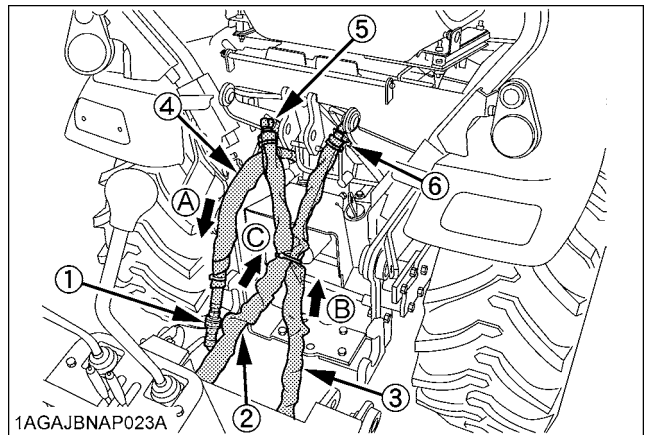
1. Disconnect the coupler.



1AGAJBNAPO22A

- (1) Coupler

2. Route the implement inlet, outlet, and power beyond hose as shown in the illustration.



1AGAJBNAPO23A

- | | |
|---------------------------------|--------------------------|
| (1) Inlet hose (backhoe) | (A) To Backhoe (outlet) |
| (2) Outlet hose (backhoe) | Max. flow |
| (3) Power beyond hose (backhoe) | 14 L/min. |
| (4) Outlet hose (tractor) | (3.7 U.S.gals./min.) |
| (5) Return pipe (tractor) | (B) From Backhoe (inlet) |
| (6) Power beyond pipe (tractor) | (C) Return to tank |

IMPORTANT :

- For hydraulic outlet, be sure to use the control valve of the "Power beyond type" (with relief valve) and third line return to tank for the operation of hydraulic block.

■ Disconnecting Hoses for Mower

Do not attach nor operate the mower with the backhoe still in place.

When installing the mower, remove the backhoe from the tractor with following procedure.

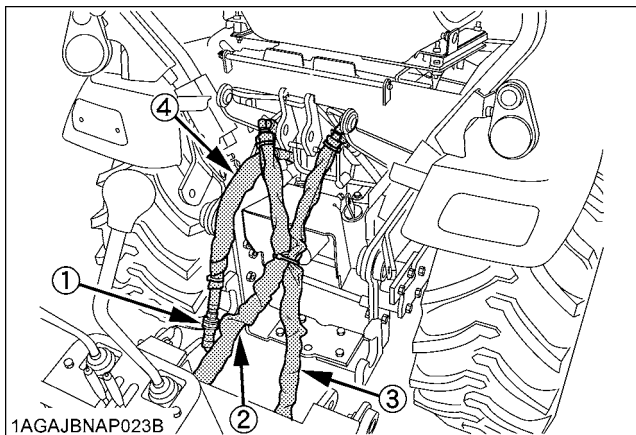


WARNING

To avoid serious injury or death:

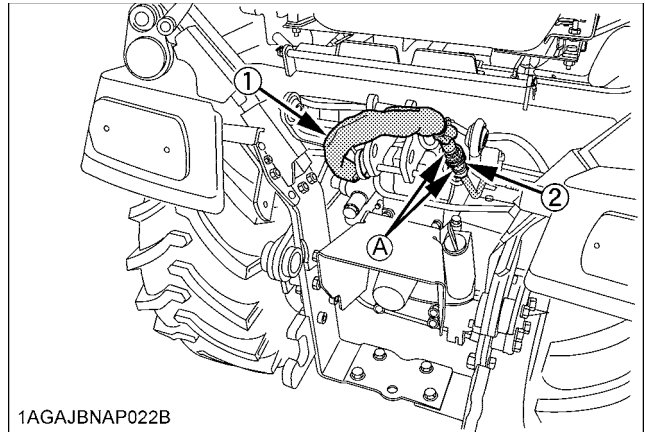
- Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure.
- Before applying pressure to system, be sure all connections are tight and that lines, tubes and hoses are not damaged.
- Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.
- 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. Shut the engine off and set the parking brake.
2. Tilt the operator's seat forward.
3. Remove hydraulic pressure by moving the controls.
4. Disconnect the backhoe inlet hose, outlet hose and power beyond hose.



- (1) Inlet hose (backhoe)
- (2) Outlet hose (backhoe)
- (3) Power beyond hose (backhoe)
- (4) Outlet hose (tractor)

5. Place the protective cap on the coupler of the backhoe inlet hose, the coupler of the outlet hose, and power beyond hose.
6. Connect the tractor outlet hose to the coupler of power beyond pipe.



- (1) Outlet hose (tractor)
- (A) To be connected
- (2) Power beyond pipe (tractor)

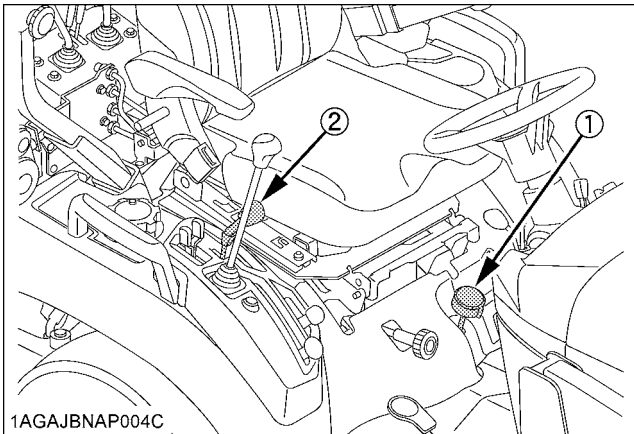
7. Place the protective cap on the male coupler of the tractor return pipe.

NOTE :

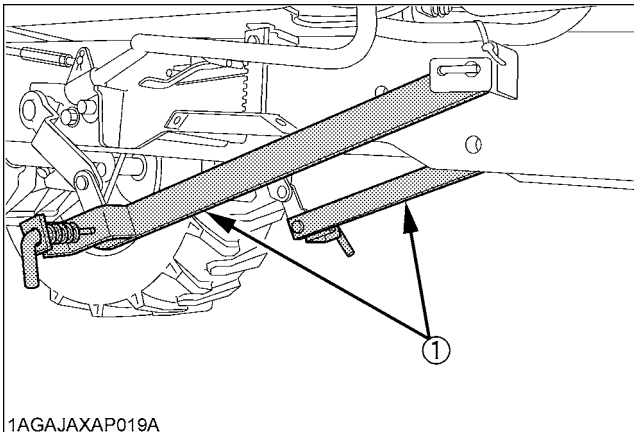
- When getting ready to use the backhoe after finishing mowing, connect the hoses of the tractor and backhoe in reverse order.

MOWER LIFT LINKAGE SYSTEM

■ Cutting Height Control Dial



(1) Cutting height control dial
(2) Hydraulic control lever



(1) Mower rear link

When mounting the Mid-mount mower, turn the cutting height control dial to the desired height.

For further details, refer to the operator's manual of ROTARY MOWER RCK60B-23BX, RCK54-23BX, RCK48-18BX, RCK60D-26BX and RCK54D-26BX.

IMPORTANT :

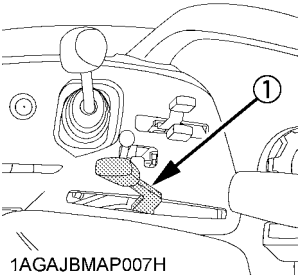
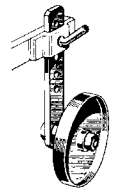
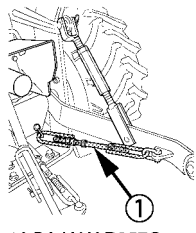
When operating the tractor without Mid-mount mower:

1. Move the hydraulic lever rearward to raise the mower rear links to the highest position.
2. Set the cutting height control dial to "TOP" position.

If this is not done, damage of the mower rear link can result.

Hydraulic Control Unit Use Reference Chart

In order to handle the hydraulics properly, the operator must be familiar with the following. Though this information may not be applicable to all types of implements and soil conditions, it is useful for general conditions.

Implement	Soil condition	 <p>1AGAJBMAP007H (1) Hydraulic control lever</p>	 <p>1AGAEBCAP0590 Gauge wheel</p>	 <p>1AGAJAXAP057C (1) Check chains</p>
Moldboard plow	Light soil Medium soil Heavy soil	Hydraulic control	YES/NO	Loose (Adjust the check chains so that the implement can move 5 to 6 cm (2.0 to 2.4 in.) laterally. Check chains should be tight enough to prevent excessive implement movement when implement is in raised position.)
Disc plow	---			
Harrower (spike, springtooth, disc type)	---			
Sub-soiler.....	---		YES	Tighten
Weeder, ridger.....	---		YES/NO (For implements with gauge wheels, lower the hydraulic control lever all way.)	
Earthmover, digger scraper, manure fork rear carrier....	---			
Mower (mid-and rear-mount type) Hayrake, tedder...	---			

TIRES, WHEELS AND BALLAST

TIRES



WARNING

To avoid serious injury or death:

- Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.

IMPORTANT :

- Do not use tires other than those approved by KUBOTA.
- When you intend to mount different size of tires from equipped ones, consult your dealer about front drive gear ratio for details.
Excessive wear of tires may occur due to improper gear ratio.

■ Inflation Pressure

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

	Tire sizes	Inflation Pressure
Rear	26x12.00-12 Turf	100kPa(1.0kgf/cm ² , 14psi)
	26x12.00-12 Bar	120kPa(1.2kgf/cm ² , 17psi)
	26x12.00-12 Ind.	120kPa(1.2kgf/cm ² , 17psi)
Front	18x8.50-10 Turf	120kPa(1.2kgf/cm ² , 17psi)
	18x8.50-10 Bar	150kPa(1.5kgf/cm ² , 22psi)
	18x8.50-10 Ind.	150kPa(1.5kgf/cm ² , 22psi)

NOTE :

- Maintain the maximum pressure in front tires, if using a front loader or when equipped with a full load of front weight.

■ Dual Tires

Dual tires are not approved.

WHEEL TREAD



WARNING

To avoid serious injury or death:

- Support tractor securely on stands before removing a wheel.
- Never operate tractor with a loose rim, wheel, or axle.

■ Front Wheels

Front tread can not be adjusted.

IMPORTANT :

- Do not turn front discs to obtain wider tread.

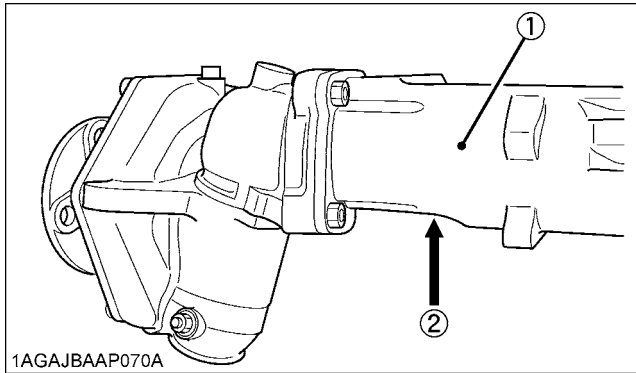
Tire	18x8.50-10 Turf, Bar, and Ind.
Tread	<p>930 mm 36.6 in.</p> <p>1AGA JAXAP075F</p>

How to Jack Up Front Axle

WARNING

To avoid serious injury or death:

- Before jacking up the tractor, park it on a firm and level ground and chock the rear wheels.
- Fix the front axle to keep it from pivoting.
- Select jacks that withstand the machine weight and set them up as shown below.



1AGAJBAAP070A

- (1) Front axle case
- (2) Jack points

Rear Wheels

Rear tread width can not be adjusted.

IMPORTANT :

- Do not turn rear discs to obtain wider tread.

Tire	26x12.00-12 Turf, Bar, and Ind.
Tread	<p>820 mm 32.2 in.</p>

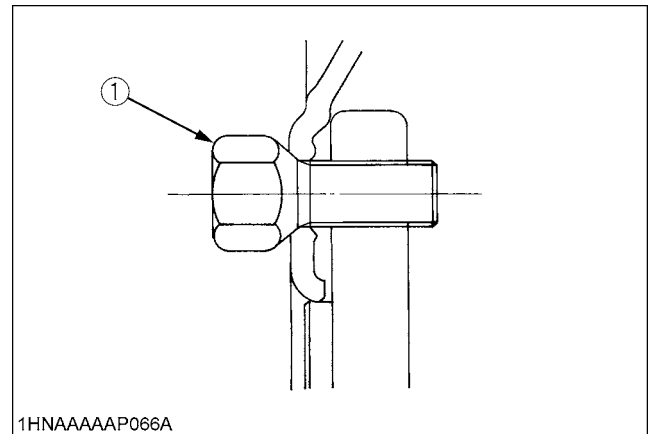
1HNAAAAAP064A

IMPORTANT :

- Always attach tires as shown in the drawings.
- If not attached as illustrated, transmission parts may be damaged. When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200m (200yards), after one day (8 hours) and thereafter every 50 hours (as per maintenance chart).

NOTE :

- Use the tapered bolts for wheels with beveled or tapered holes.



1HNAAAAAP066A

- (1) Bolt

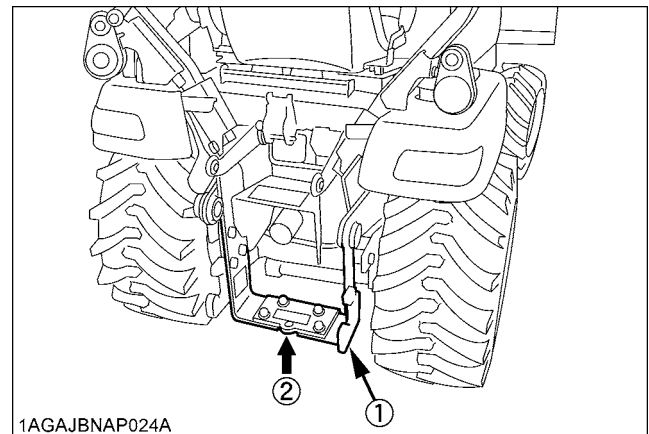
Front 149.2 to 179.0 N-m
(15.2 to 18.3 kgf-m)
(110 to 132 lbf-ft)
Rear 108.5 to 130.2 N-m
(11.1 to 13.3 kgf-m)
(80 to 96 lbf-ft)

How to Jack Up Machine

WARNING

To avoid serious injury or death:

- Before jacking up the tractor, park it on a firm and level ground and chock the front wheels.
- Fix the front axle to keep it from swinging.
- Select a jack that withstands the machine weight and set it up as shown below.



1AGAJBNAP024A

- (1) Frame
- (2) Jack point

BALLAST



WARNING

To avoid serious injury or death:

- Additional ballast will be needed for transporting heavy implements. When the implement is raised, drive slowly over rough ground, regardless of how much ballast is used.
- Do not fill the front wheels with liquid to maintain steering control.

NOTE :

- The ballast is not required when doing the normal operations with the BX23S tractor, LA340 loader and BT603 backhoe connected in factory settings.

■ Front Ballast

Add weights if needed for stability and improve traction. Heavy pulling and heavy rear mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip over. Remove weight when no longer needed.

IMPORTANT :

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

Maximum weight	125 kg (275 lbs.)
----------------	-------------------

■ Rear Ballast

Add weight to rear wheels if needed to improve traction or for stability. The amount of rear ballast should be matched to job and the ballast should be removed when it is not needed.

The weight should be added to the tractor in the form of liquid ballast.

When the loader is attached on the tractor and the backhoe is not, the rear wheel weight (option) should be installed to the tractor.

◆ Liquid Ballast in Rear Tires

Water and calcium chloride solution provides safe economical ballast. Used properly, it will not damage tires, tubes or rims. The addition of calcium chloride is recommended to prevent the water from freezing. Use of this method of weighting the wheels has the full approval of the tire companies. See your tire dealer for this service.

Liquid weight per tire (75 Percent filled)

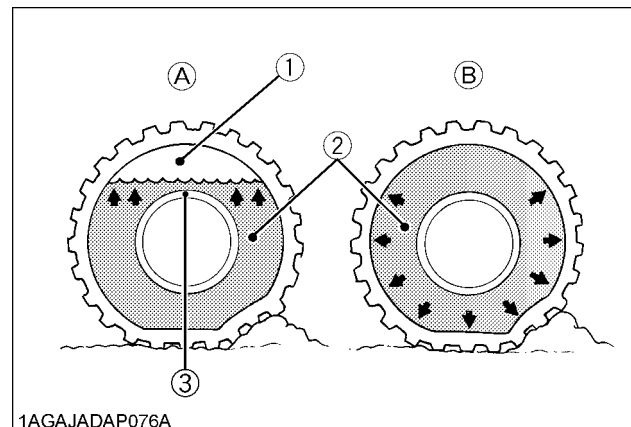
Tire sizes	26x12.00-12
Slush free at -10°C (14°F) Solid at -30°C (-22°F) [Approx. 1 kg (2 lbs.) CaCl ₂ per 4 L (1 gal) of water]	45 kg (99 lbs.)
Slush free at -24°C (-11°F) Solid at -47°C (-52°F) [Approx. 1.5 kg (3.5 lbs.) CaCl ₂ per 4 L (1 gal) of water]	50 kg (110 lbs.)
Slush free at -47°C (-52°F) Solid at -52°C (-62°F) [Approx. 2.25 kg (5 lbs.) CaCl ₂ per 4 L (1 gal) of water]	56 kg (123 lbs.)

NOTE :

- When mounting a heavy implement, a liquid in the tire may not be required.

IMPORTANT :

- Do not fill tires with water or solution more than 75% of full capacity (to the level of valve stem at 12 o'clock position).



- (1) Air
(2) Water
(3) Valve stem

- (A) Correct : 75% Full
Air compresses like a cushion
(B) Incorrect : 100% Full
Water can not be compressed

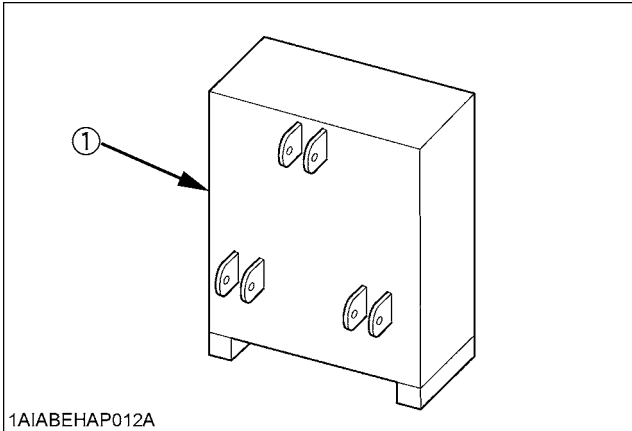
- To avoid damage of transmission, do not use rear wheel weights and liquid ballast at the same time.
- Do not add liquid ballast or any other weights to the front tires.
- While BT603 backhoe is installed on the tractor, liquid ballast in the rear tires should be removed.

◆ Rear Wheel Weight (option)

The rear wheel weight can be installed to the 3-point hitch. Consult your local KUBOTA dealer to use.

NOTE :

- Besides the rear wheel weight, a 3-point kit is required for installing the weight.



(1) Rear wheel weight

OPERATING THE LOADER

The loader should be operated with the tractor engine speed depending on the application and the operator's level of experience. Excessive speeds are dangerous, and may cause bucket spillage and unnecessary strain on the tractor and loader.

When operating in temperatures below -1°C (30°F), run the tractor engine below 1200 rpm until the oil temperature exceeds -1°C (30°F).

The following text and illustrations offer suggested loader and tractor operating techniques.



WARNING

To reduce the possibility of roll over:

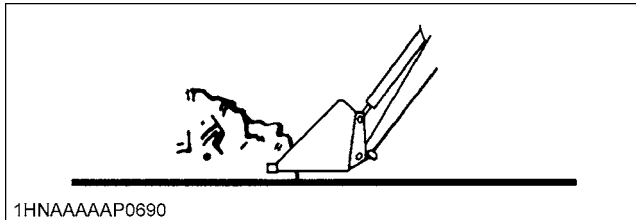
- It is not recommended that the loader be attached when operating another implement on a hillside.

IMPORTANT :

- When operating the loader in rough terrain, remove the mower to avoid damage to the mower.

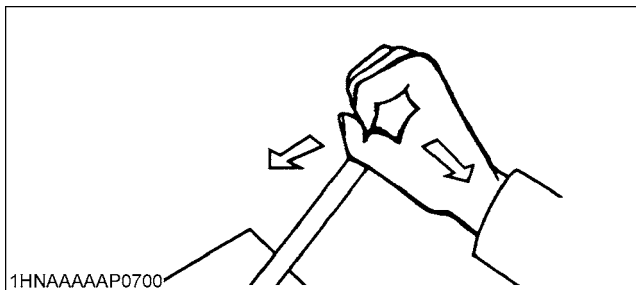
FILLING THE BUCKET

Approach and enter the pile with a level bucket.



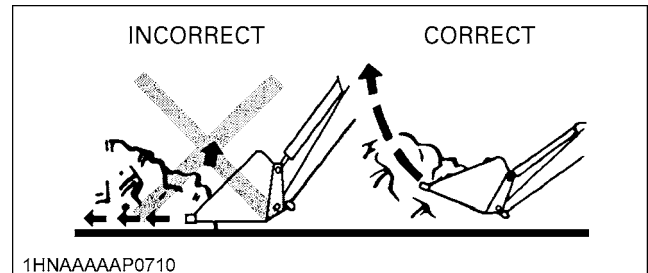
1HNAAAAAP0690

Ease control lever toward you and then left to rollback and lift the bucket.



1HNAAAAAP0700

The rollback and lifting of the bucket will increase efficiency because a level bucket throughout the lifting cycle resists bucket lift and increases breakaway effort.



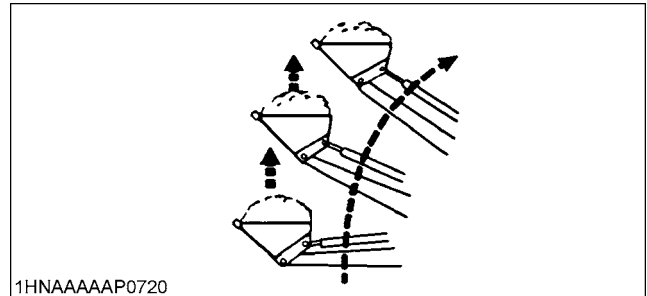
1HNAAAAAP0710

NOTE :

- Do not be concerned if the bucket is not completely filled during each pass. Maximum productivity is determined by the amount of material loaded in a given period of time. Time is lost if 2 or more attempts are made to fill the bucket on each pass.

LIFTING THE LOAD

When lifting the load, keep the bucket positioned to avoid spillage.



1HNAAAAAP0720



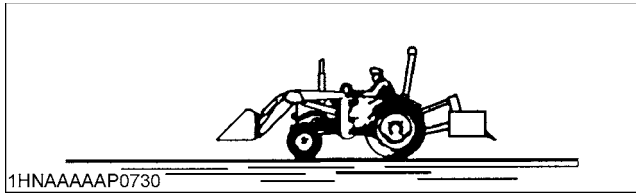
WARNING

To avoid serious injury or death:

- Do not attempt to lift bucket loads in excess of the loader capacity.
- Before raising the bucket to full height, make sure the tractor is on level ground. If not, it may tip over, even if the tractor is not moving.

CARRYING THE LOAD

Position the bucket just below the level of the tractor hood for maximum stability and visibility, whether the bucket is loaded or empty.



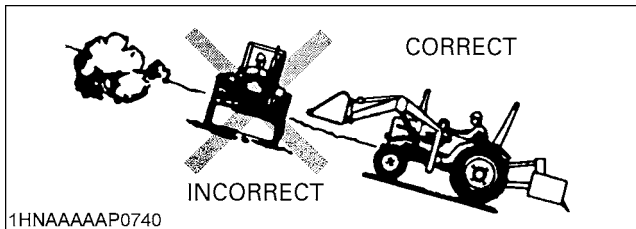
Use extreme care when operating the loader on a slope. Keep the bucket as low as possible. This keeps the bucket and tractor center of gravity low and will provide maximum tractor stability.



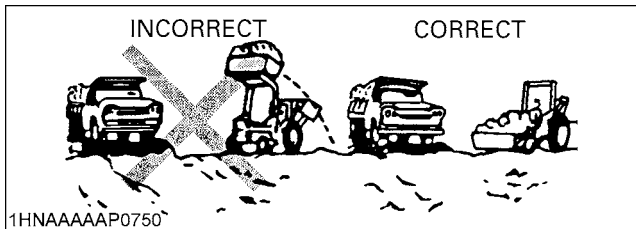
WARNING

To avoid serious injury or death:

- Be extra careful when working on inclines.
- When operating on a slope, always operate up and down the slope, never across the slope.

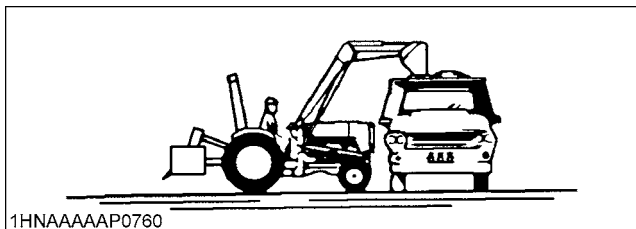


When transporting a load, keep the bucket as low as possible to avoid tipping, in case a wheel drops in a rut.



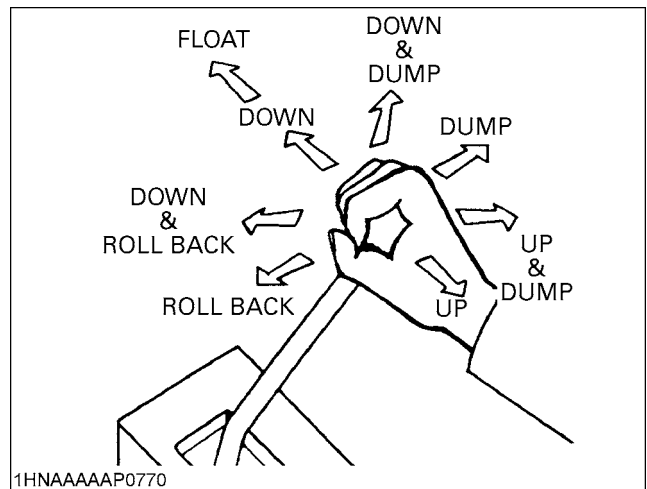
DUMPING THE BUCKET

Lift the bucket just high enough to clear the side of the vehicle. Move the tractor in as close to the side of the vehicle as possible, then dump the bucket.



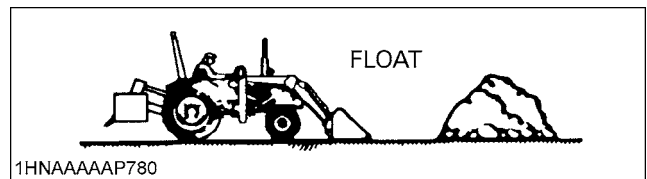
LOWERING THE BUCKET

After the bucket is dumped, back away from the vehicle while lowering and rolling back the bucket.

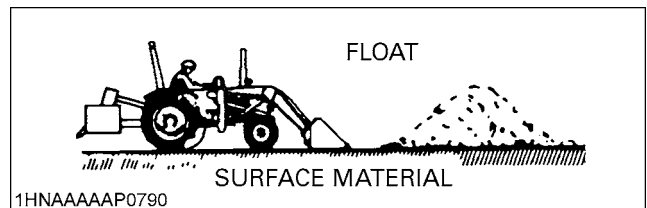


OPERATING WITH FLOAT CONTROL

During operation on hard surface, keep the bucket level and put the lift control in the float position to permit the bucket to float on the working surface. If hydraulic down pressure is exerted on the bucket it will wear faster than normal.

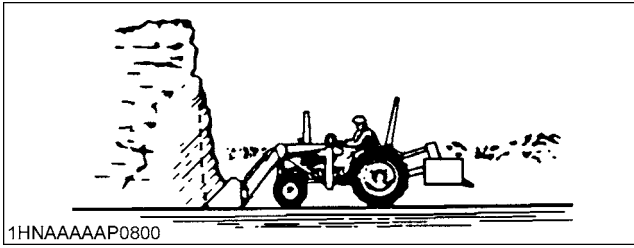


The float position will also avoid mixing of surface material with stockpile material. The float position will reduce the chance of surface gouging while removing snow or other material, or when working with a blade.



LOADING FROM A BANK

Choose a forward gear that provides a safe ground speed and power for loading.



1HNAAAAAP0800



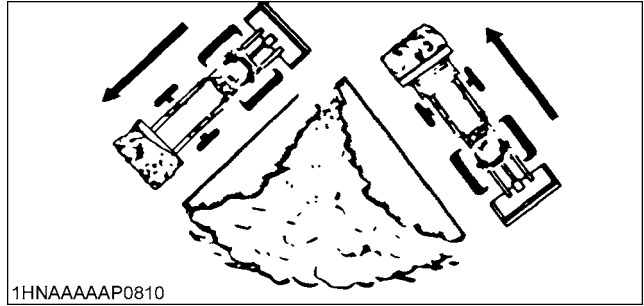
WARNING

To avoid serious injury or death:

- Be extra careful when working on inclines.
- When operating on a slope, always operate up and down the slope, never across the slope.

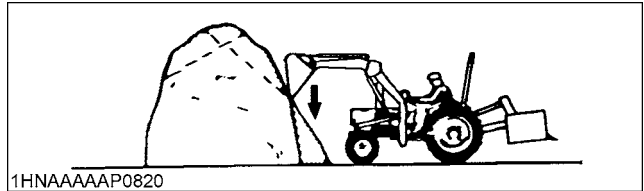
NOTE :

- Loader lift and break-away capacity diminish as loading height is increased.



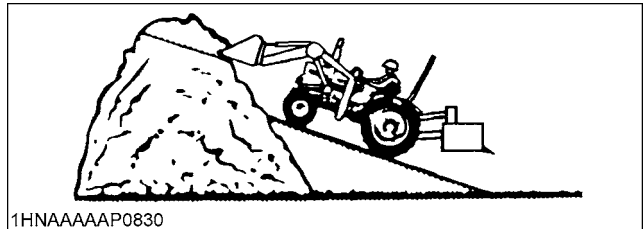
1HNAAAAAP0810

Side cutting is a good technique for cutting down a big pile. Wheel width should not exceed the bucket width for this procedure.



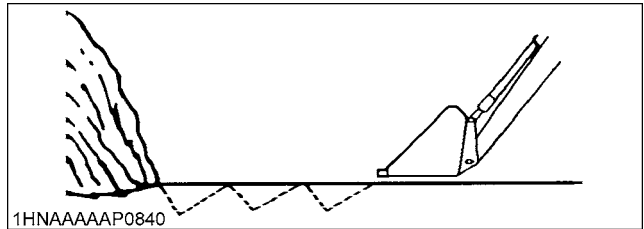
1HNAAAAAP0820

If the pile sides are too high and liable to cause cave-in, use the loader to break down the sides until a slot can be cut over the top.



1HNAAAAAP0830

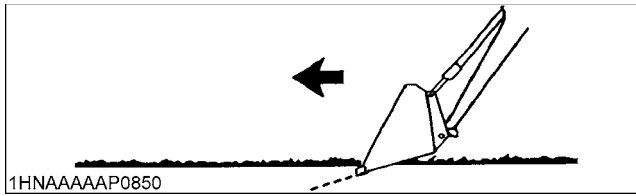
Another method for large dirt piles is to build a ramp to approach the pile.



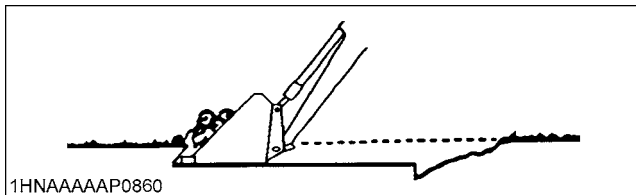
1HNAAAAAP0840

It is important to keep the bucket level when approaching a bank or pile. This will help avoid gouging the work area.

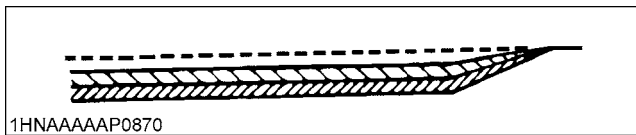
PEELING AND SCRAPING



Use a slight bucket down angle, travel forward, and hold the lift control forward to start the cut. Make a short cut and break-out cleanly.

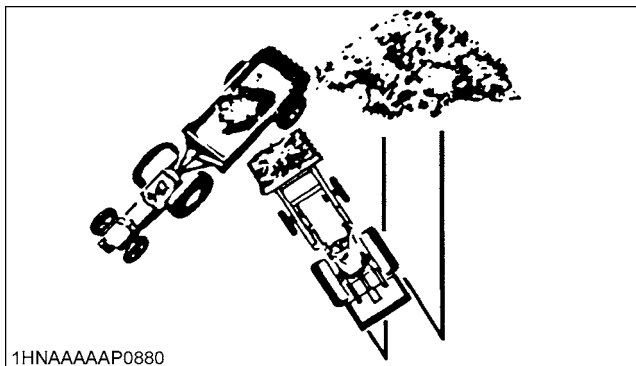


With the bucket level, start a cut at the notch approximately 2 in. deep. Hold the depth by feathering the bucket control to adjust the cutting edge up or down. When the front tires enter the notch, adjust the boom cylinder to maintain proper depth.

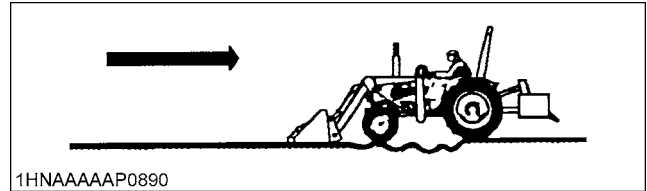


Make additional passes until the desired depth is reached. During each pass, use only the bucket control while at working depth. This will allow you to concentrate on controlling the bucket angle to maintain a precise cut.

LOADING LOW TRUCKS OR SPREADERS FROM A PILE

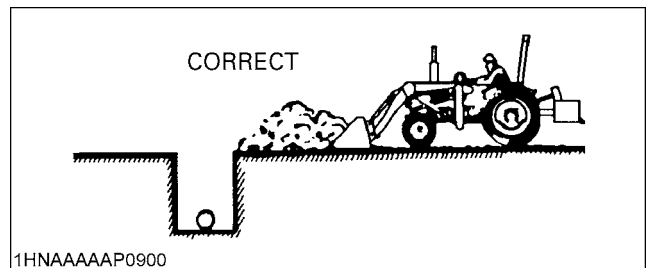


For faster loading, minimize the angle of turn and length of run between pile and spreader.

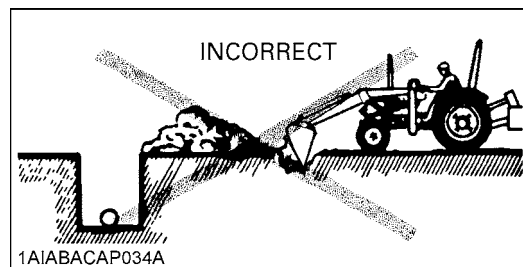


Back grade occasionally with a loaded bucket to keep the work surface free of ruts and holes. Also, hold the lift control forward so the full weight of the bucket is scraping the ground. Use the heel of the bucket.

BACKFILLING



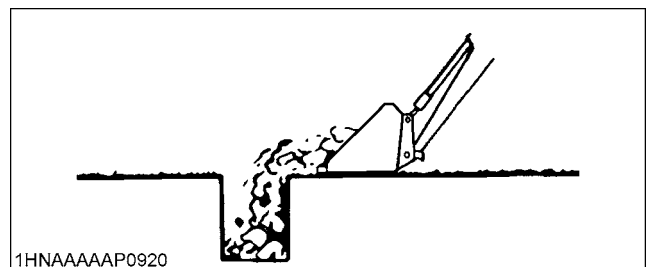
Approach the pile with the bucket flat.



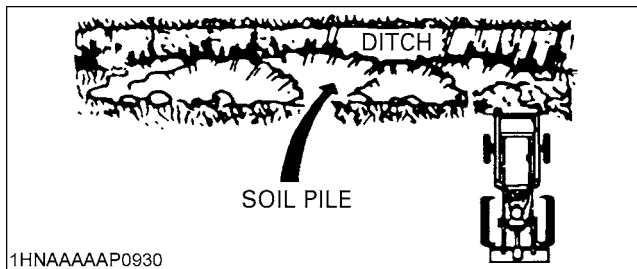
Poor operating methods will move less dirt and make it more difficult to hold a level grade.

IMPORTANT :

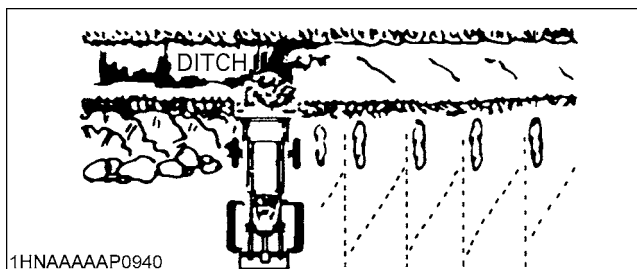
- Do not use the bucket in the dumped position for bulldozing. As shown above, this method will impose severe shock loads on the dump-linkage, the bucket cylinders, and the tractor.



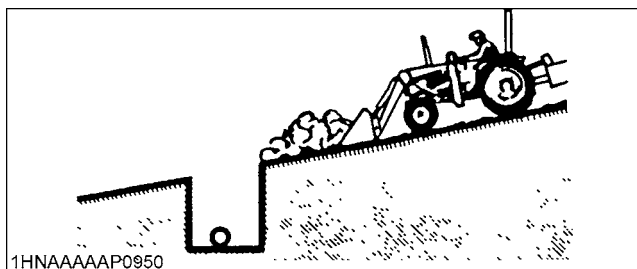
Leave dirt in the bucket because dumping on each pass wastes time.



Operate at right angles to the ditch. Taking as big a bite as the tractor can handle.



Leave dirt which drifts over the side of the bucket for final cleanup.



Pile dirt on the high side for easier backfilling on a slope.

HANDLING LARGE HEAVY OBJECTS



DANGER

To avoid serious injury or death:

- Handling large, heavy objects can be dangerous due to :
 - (A) Danger of rolling the tractor over.
 - (B) Danger of upending the tractor.
 - (C) Danger of the object rolling or sliding down the loader boom onto the operator.
- If you must perform the above work, protect yourself by :
 - (A) Not lifting the load higher than necessary to clear the ground when moving.
 - (B) Adding rear ballast to the tractor to compensate for the load.
 - (C) Not lifting large objects with equipment that does not have an anti-rollback device.
 - (D) Moving slowly and carefully.
 - (E) Avoiding rough terrain.
 - (F) Keeping transport distance as short as possible and carry the load as low as possible during transport.
 - (G) Confirm loader/bucket are at proper height and have stopped moving before transport.

VALVE LOCK

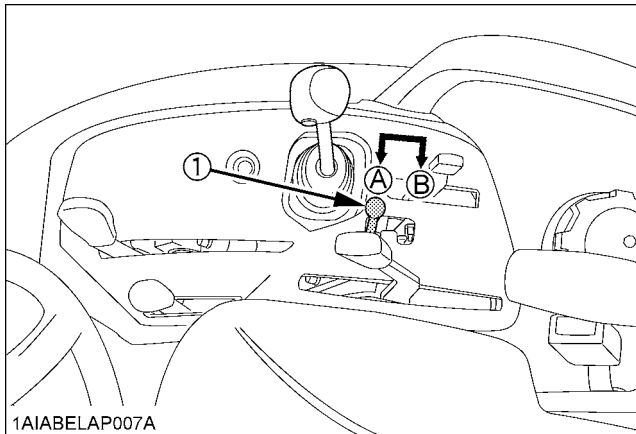


WARNING

To avoid serious 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 equipped with a valve lock feature. The control valve is locked in "NEUTRAL" position. The lock is not intended and will not prevent a leak down of the implement during the period of storage.



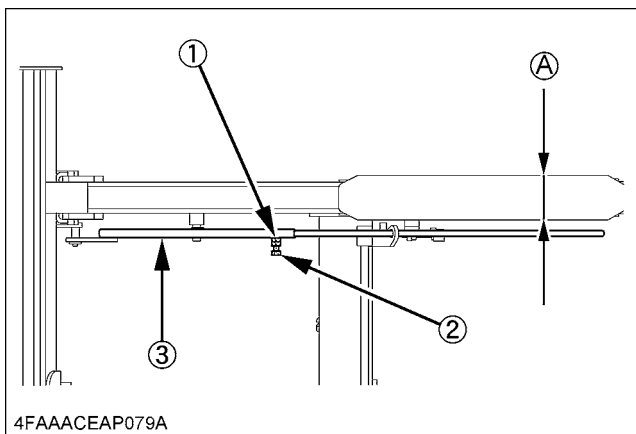
1AIABELAP007A

(1) Lock lever

(A) "LOCK"
(B) "UNLOCK"

BUCKET LEVEL INDICATOR

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



4FAAAACEAP079A

(1) M8 nut
(2) M8 bolt
(3) Indicator rod

(A) Parallel

IMPORTANT :

- Fix the indicator rod in parallel with the boom. In this way, the indicator rod end does not hit the bonnet when opening and closing the bonnet.

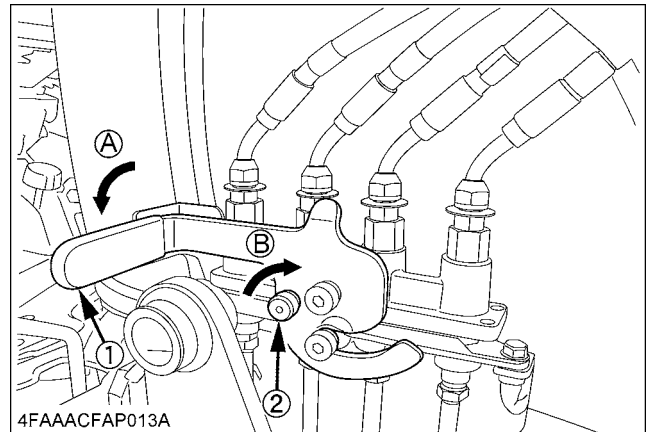
QUICK COUPLER SYSTEM

This system is designed to easily connect and dis connect the hydraulic hoses simultaneously without oil leak when attaching and detaching the loader.

How to use Quick Coupler

◆ Connecting

1. Connect the quick coupler and lower the lever until it stops. Now turn the safety lock button clockwise.



4FAAACFAP013A

(1) Lever

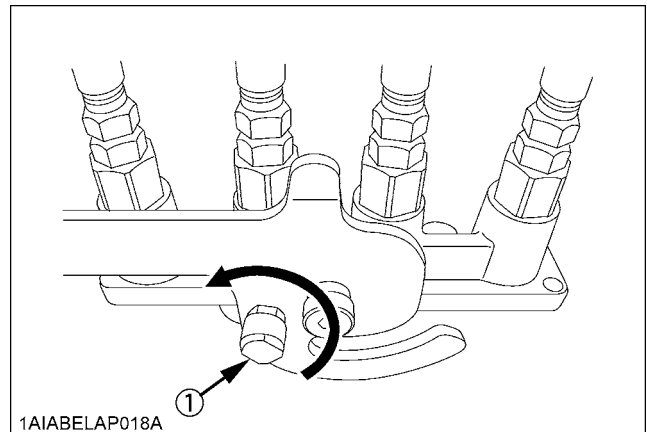
(2) Safety lock button

(A) Lower

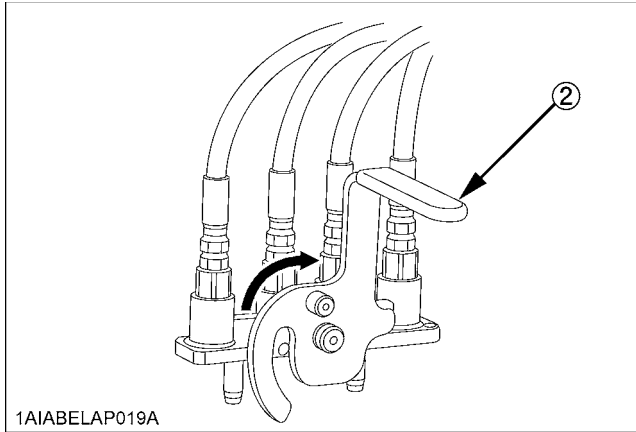
(B) Clockwise

◆ Disconnecting

1. Turn the safety lock button counterclockwise to unlock it. Then raise the lever until it stops.



1AIABELAP018A



- (1) Safety lock button
- (2) Lever

IMPORTANT :

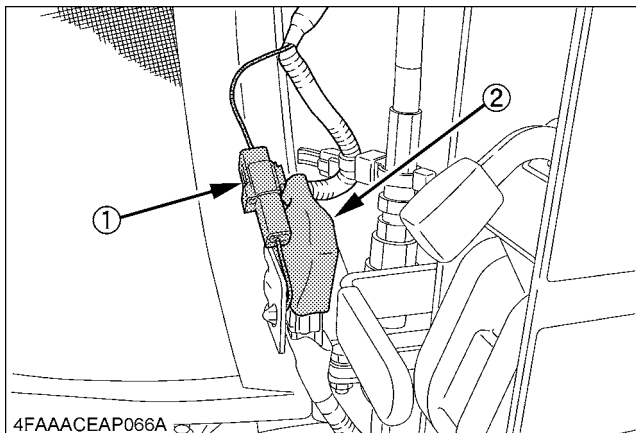
- Before connecting each, ensure to carefully clean the mating surfaces of the fixed part, of the mobile part and the reference pins.
- Lubricate periodically all the moving components.
- Be sure to relieve all pressure before connecting or disconnecting lines.

FRONT REMOTE HYDRAULIC CONTROL SYSTEM (if equipped)

This system can be used for a front mounted hydraulic implement, as it provides hydraulic oil to the front outlet directly.

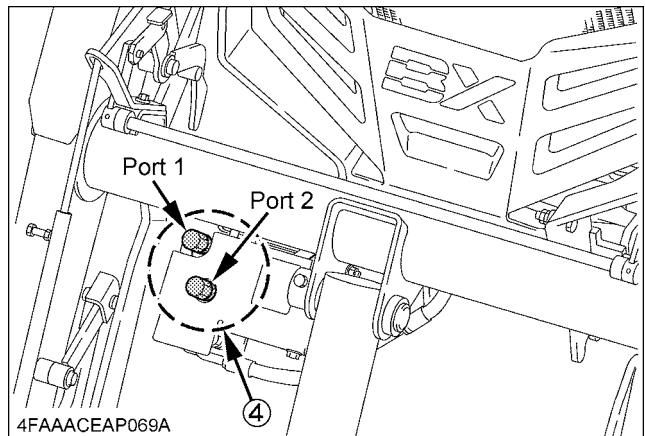
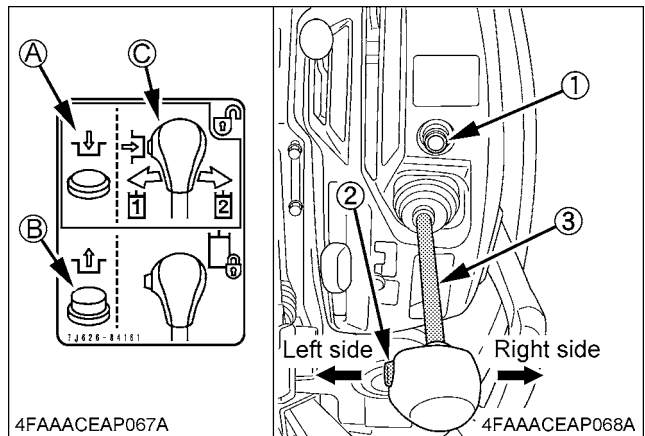
Install

1. Mount the loader and connect the wire harness.



- (1) Main harness line
- (2) Cap connecting

Control Lever

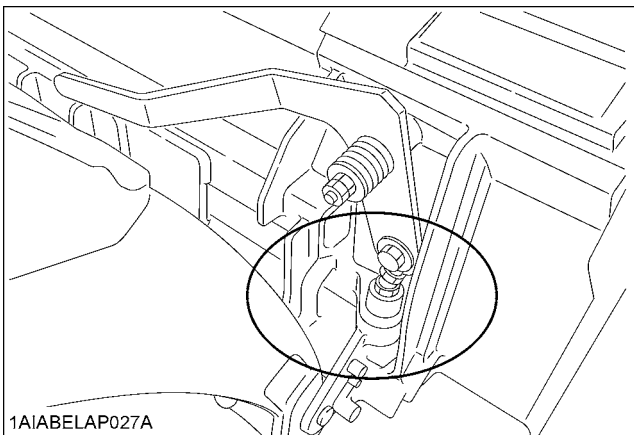


- (1) Front hydraulic valve main switch
- (2) Activation switch
- (3) Operating lever
- (4) Front hydraulic outlet
- (A) Front hydraulic valve main switch ON
- (B) Front hydraulic valve main switch OFF
- (C) Activation switch ON

1. Front hydraulic valve main switch ON
Push the front hydraulic valve main switch (1) to engage the front hydraulic valve.
A light on the switch will illuminate to indicate that the front hydraulic valve is on, and to enable the activation switch (2) and operation of lever.
2. Activation switch operation ON/OFF
(i) When operating lever to left side with pressing the (2) button, hydraulic oil will come out of port 1 and return through port 2 as long as operating lever to left side with pressing the button.
(ii) When operating lever to right side with pressing the "(2)" button, hydraulic oil will come out of port 2 and return through port 1 as long as operating lever to right side with pressing the button.
3. Front hydraulic valve main switch OFF
Push the front hydraulic valve main switch again to disengage the front hydraulic valve, and the light of the front hydraulic valve main switch will turn off.

IMPORTANT :

- While a front mounted hydraulic attachment is used, make sure the hydraulic hose is routed out of contact with the left and right bucket links. (Keep the hose from running over within the circled zone in the figure below.)

**WARNING**

To avoid personal injury or death:

- Valve lock does not lock out switch-operated third-function hydraulics, which are active when the key switch and the front hydraulic valve main switch are ON.

Remote Control Coupler Connecting and Disconnecting

**WARNING**

To avoid personal injury or death:

- Stop the engine and relieve pressure before connecting or disconnecting lines.
- Do not use your hand to check for leaks.

◆ Relieve Hydraulic Pressure

1. Move the key switch to the "RUN" position.

NOTE :

- Don't start the engine.
2. Push the front hydraulic valve main switch "ON".
 3. Press the activation switch and move the loader lever to left and right several times.
 4. Push the front hydraulic valve main switch "OFF".
 5. Turn the key switch to the "OFF" position.

◆ Connecting

1. Clean both couplers.
2. Remove dust plugs.
3. Insert the implement coupler to the tractor hydraulic coupler.
4. Pull the implement coupler slightly to make sure couplers are firmly connected.

◆ Disconnecting

1. Lower the implement first to the ground to release hydraulic pressure in the hoses.
2. Clean the couplers.
3. Press the "Activation switch" and move the loader lever to left and right a couple of times to relieve hydraulic pressure.
Pull the hose straight from the hydraulic coupler to release it.
4. Clean oil and dust from the coupler, and then replace the dust plugs.

NOTE :

- Your local KUBOTA dealer can supply parts to adapt couplers to hydraulic hoses.

ATTACHING ATTACHMENTS

[if equipped]

This quick attach coupler is designed to be used with KUBOTA attachments. Non-KUBOTA attachments, if used, must comply with ISO 24410, first edition 2005-04-15. This quick attach coupler allows the operator to change easily without the use of tools.



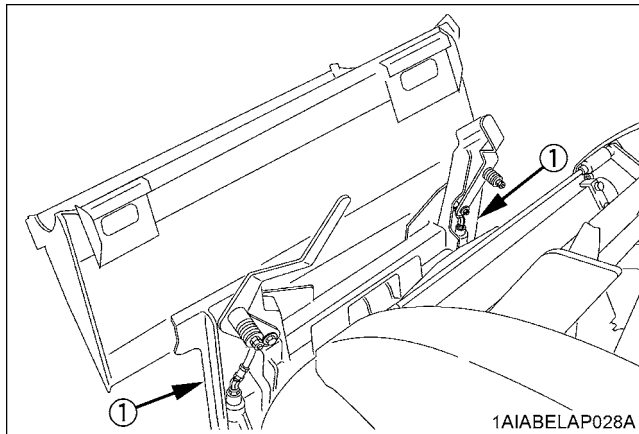
DANGER

To avoid personal injury or death:

- Use of a non-KUBOTA attachment that does not comply with ISO24410 or the improper positioning of handle(s) or non-protrusion of pin(s) may result in detachment of the attachment or deformation, causing loss of performance, personal injury or death.

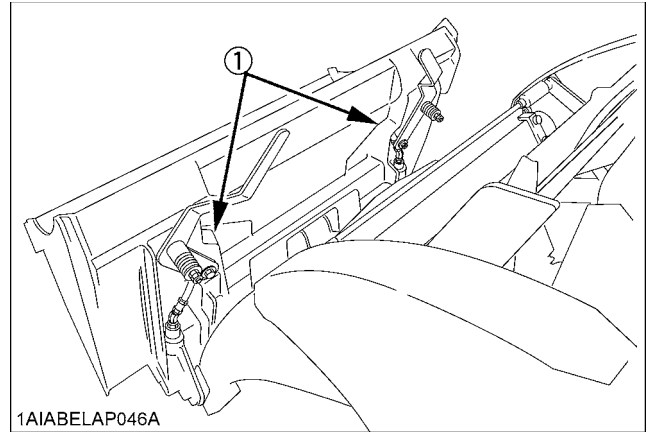
NOTE :

- Attachments should be located on a flat, firm surface when attaching and detaching them from the quick attach coupler.
1. To mount an attachment, pull the handles of the quick attach coupler to the unlatched position to release the latching pins. The quick attach coupler handles must be all the way up to ensure that the latching pins are fully retracted.
 2. Position the tractor squarely in front of the attachment and tilt the quick attach coupler forward with the bucket cylinder.



(1) Quick attach coupler

3. Ease the quick attach coupler mounting plate into the saddle of the attachment.
4. Roll the quick attach coupler back using the bucket cylinder and raise the boom slightly. The back of the attachment should rest against the front of the quick attach coupler mounting plate and the weight of the attachment should be supported by the loader.



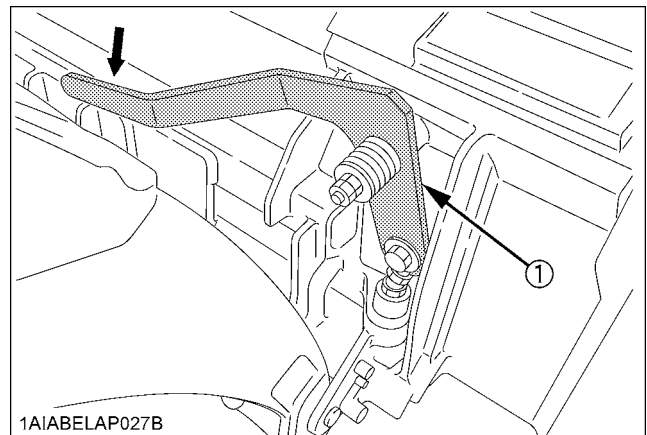
(1) Quick attach coupler



CAUTION

To avoid personal injury or machine damage:

- Raise the boom only enough to latch the attachment.
The attachment could swing off the quick attach coupler.
5. When the attachment is properly seated in the saddle and against the front of the quick attach coupler mounting plate, turn off the engine and set the parking brake. Push the quick attach coupler handles to the fully latched position. Verify both latching pins are completely engaged in the base of the attachment.



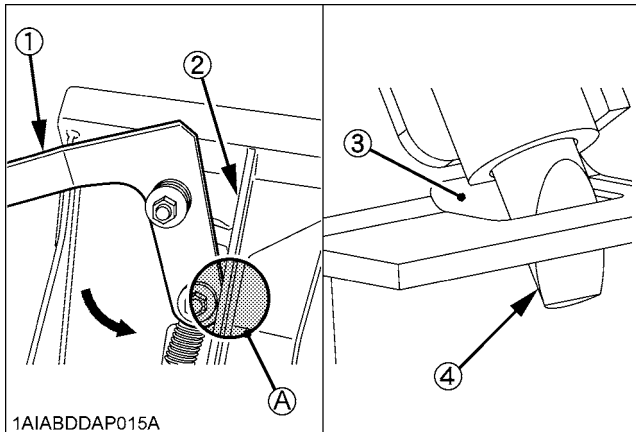
(1) Quick attach coupler handle



DANGER

To avoid personal injury or death:

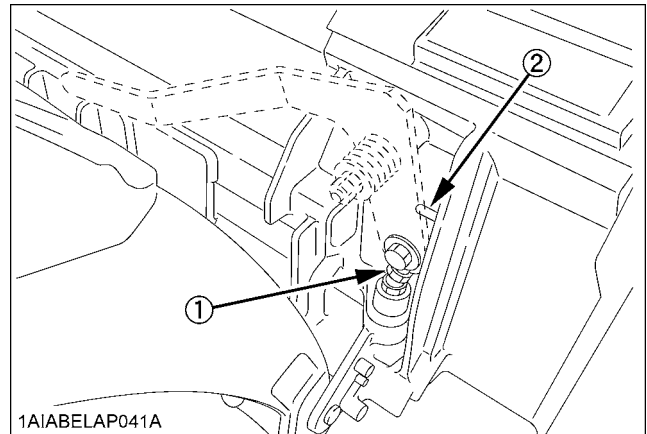
- The following engagement points are critical.
 - 1) The lock pins of the quick attach coupler have to protrude into and through the pin slots of the attachment on both sides. It is critical that the pins are in good condition and without visible signs of wear or damage and that the operator align the loader quick attach coupler with the attachment to allow the pins to go through the pin slots.
 - 2) Both handles have to be pushed down until the handles contact the ear plates near the points where the pin bolt goes through the handle (A).
 - 3) Do not operate the tractor or attachment unless all of the above conditions are met.



- 1AIABDDAP015A
- (1) Handle
 - (2) Ear plate
 - (3) Pin slot
 - (4) Lock pin

(A) The handle contacts the ear plate at the points.

6. Visually verify when pushing the quick attach coupler handles into locked position that the latch pins rotate completely and are located underneath the stop of the quick attach coupler.



- 1AIABELAP041A
- (1) Latch pins
 - (2) Quick attach coupler stopper

7. When attaching different attachments visually inspect for broken or damaged pins. If broken or damaged pins are found, replace before using. Use of broken pins may result in attachment detachment or deformation, causing loss of performance, personal injury or death.
8. You are now ready to use the attached attachment. All compatible attachments attach and detach using the same method.



WARNING

To avoid personal injury, death or machine damage:

- Never operate or transport attachments which are not attached completely.
- Always replace damaged hardware immediately.

DETACHING ATTACHMENTS

[if equipped]

1. Detaching attachments is done in the reverse of attaching attachments. The procedure is below.
2. Lower the attachment to ground level with the attachment slightly in the rolled back position. Stop the engine and set the parking brake.
3. Pull the quick attach coupler handles to the unlatched position to release the latching pins.
4. While sitting in the tractor operator's seat, start the engine and slowly move the loader control lever to the "DUMP" position until the attachment is pushed away slightly from the quick attach coupler.
5. Lower the loader boom so that the quick attach coupler mounting plate clears the attachment saddle.
6. Back away from the attachment slowly.
7. If an attachment is not going to be detached to the quick attach coupler immediately, push the handles of the quick attach coupler to the locked position to prevent damage to the handle assembly.

DISMOUNTING THE LOADER

[if equipped]



WARNING

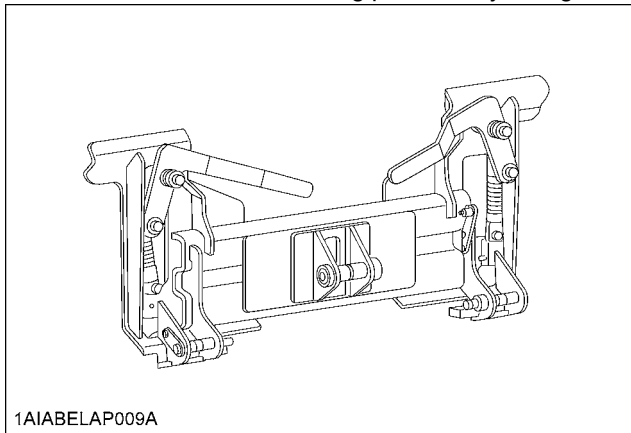
To avoid personal injury, death or machine damage:

- Remove loader from tractor only when an approved loader bucket is attached.

Follow instructions provided in "REMOVING THE LOADER" section in this operator's manual.

MAINTENANCE

1. Attachments are secured to the quick attach coupler with an over center latching system. It is important that these parts are kept clean, lubricated and free from debris.
2. Keep the latching pins and latching handles free from debris. Lubricate the latching pins weekly with grease.

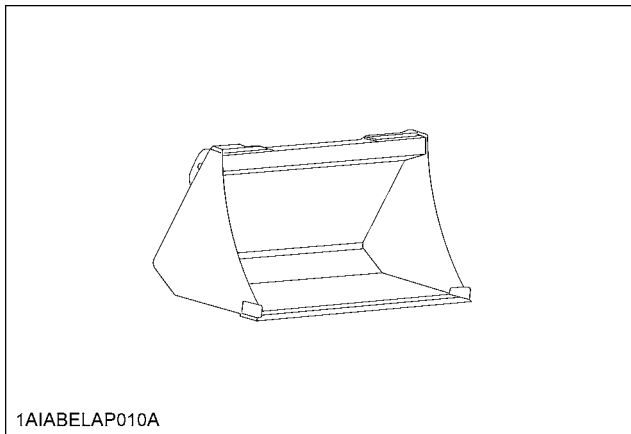


3. Keep the latching handles tight. If the handles become loose, tighten the hex nut slightly to remove any play from the handles.
4. Clean the saddle, at the top of the attachment, and the latching pin slots of any dirt and debris before mounting an attachment to the quick attach coupler.

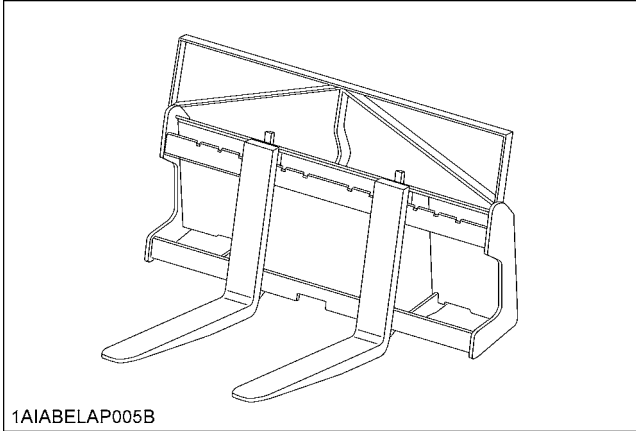
ATTACHMENTS

[Option for quick attach coupler]

■ Quick Bucket

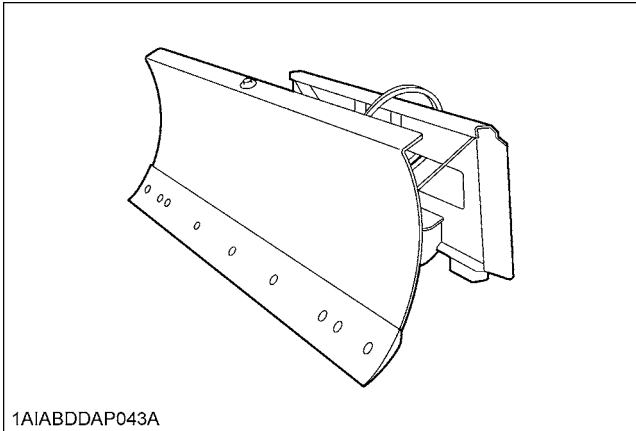


■ **Pallet Fork**



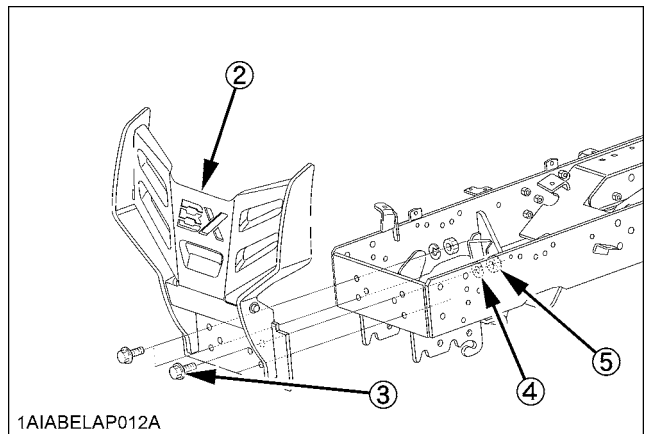
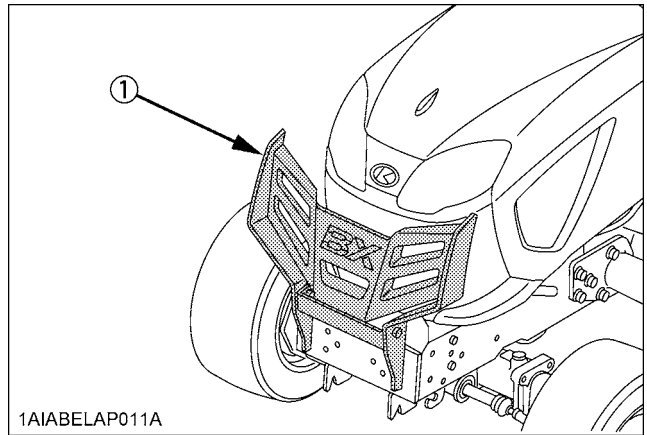
LOADER MODEL	RATED CAPACITY
LA340, LA340S	109 kg (240 lbs.)

■ **Snow Blade**



■ **Front Guard**

1. Attach the front guard in position on the tractor.



- (1) Front guard
- (2) Front guard plate
- (3) 4-M12 x 35 Flange bolt
- (4) 4-M12 spring washer (nut side)
- (5) 4-M12 nut

IMPORTANT :

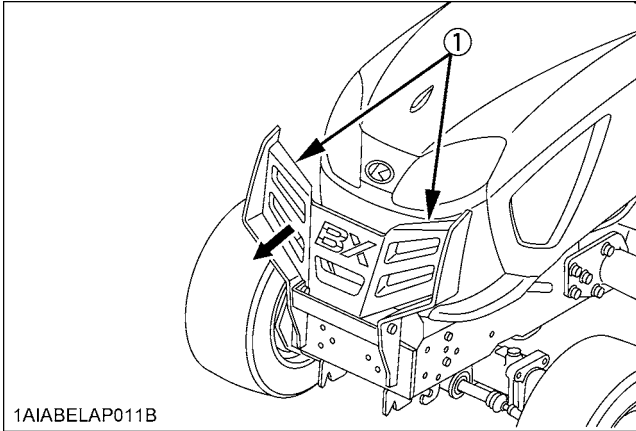
- Before moving the tractor or the front loader, make sure the front guard is tightly fastened.

◆ **How to open the upper front guard**

1. Lower the boom to the ground with the bucket in level position.
2. Hold the handle part (1) and pull the front guard forward.

IMPORTANT :

- Lower the front loader to the ground before opening the upper front guard.
- Do not raise the boom while the upper front guard is opened.



(1) *Handle part*

OPERATING THE BACKHOE

OPERATING SPEED



WARNING

To avoid serious injury or death:

- 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 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.
 2. When operating in temperature below 0°C (32°F), run the tractor engine below about 50% of rated rpm until the oil temperature exceeds 0°C (32°F).

BACKHOE CONTROLS

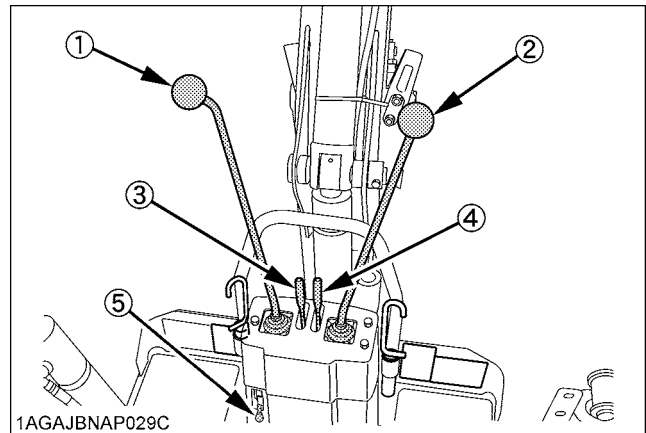


WARNING

To avoid serious injury or death:

- 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.
- Put the boom and swing lock lever into lock position when the backhoe is not in use or during transport.

The backhoe is controlled by using the 2 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.

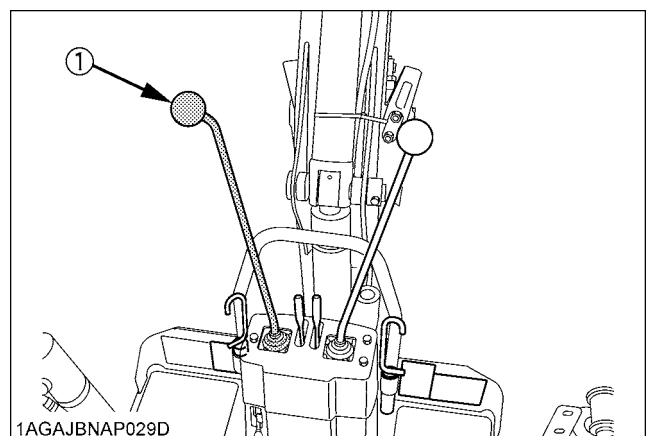


- (1) Boom and swing lever
- (2) Dipperstick and bucket lever
- (3) Stabilizer control lever, left
- (4) Stabilizer control lever, right
- (5) Boom and swing lock lever

■ 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

■ Boom & Swing Lock Lever

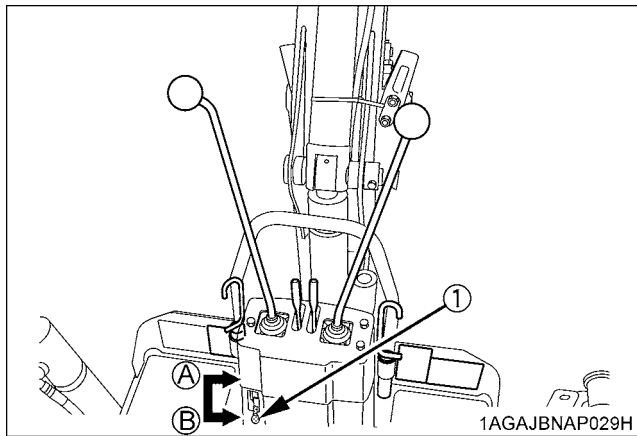
⚠ WARNING

To avoid serious injury or death:

- Do not utilize the boom and swing lock lever for machine maintenance or repair.
- The boom and swing lock lever is to prevent accidental actuation when implement is not in use or when getting on and off from backhoe.

To lock the boom and swing lever, move down the boom and swing lock lever.

To unlock the boom and swing lever, move up the boom and swing lock lever.



(1) Boom and swing lock lever

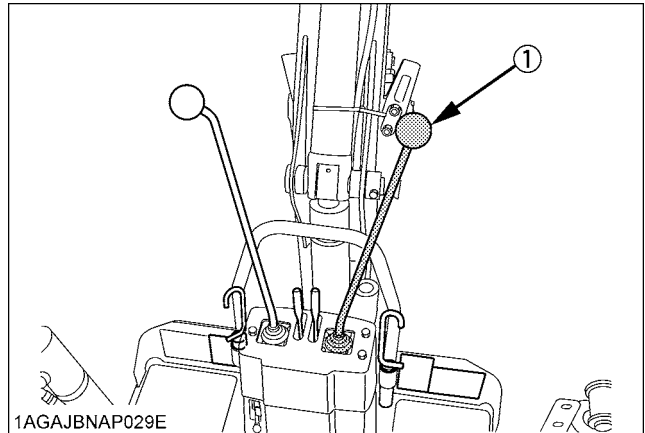
- (A) "UNLOCK"
- (B) "LOCK"

■ Dipperstick & Bucket Lever

Pushing the lever forward will crowd out the dipperstick and the bucket out 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.



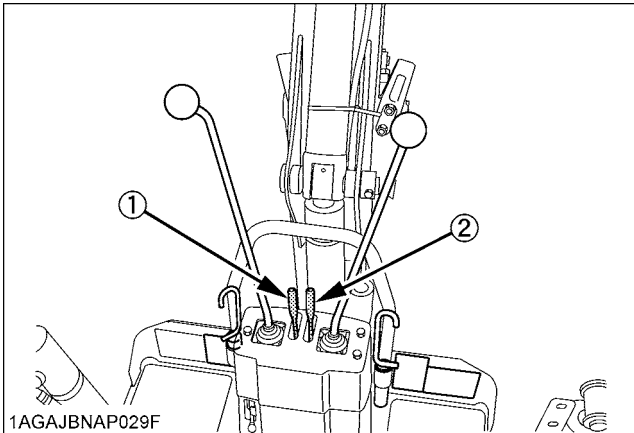
(1) Dipperstick and bucket lever

■ Stabilizer Control Levers

The stabilizers are the only controls that may be operated from out of the backhoe operator's seat over then only for the purpose of mounting or dismounting backhoe from tractor.

Be sure to stay well clear of stabilizers, arms and pads during installation or removal process. This is necessary because the mounting step moves up and down in conjunction with the stabilizer cylinder.

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



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

PLACING THE STABILIZERS



WARNING

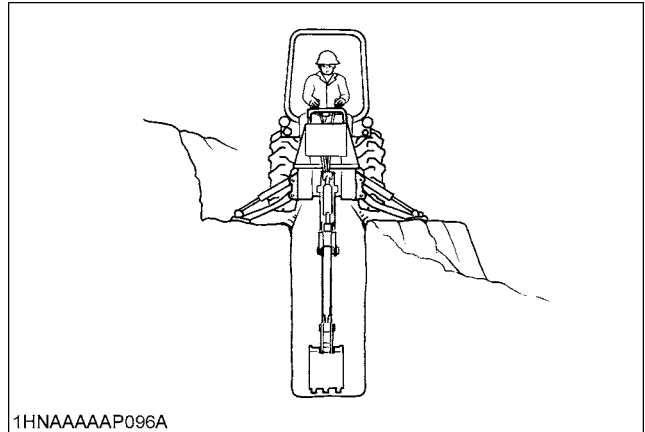
To avoid serious injury or death:

- When working on slopes, one stabilizer may be lower than the other.
- 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. Back drag 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



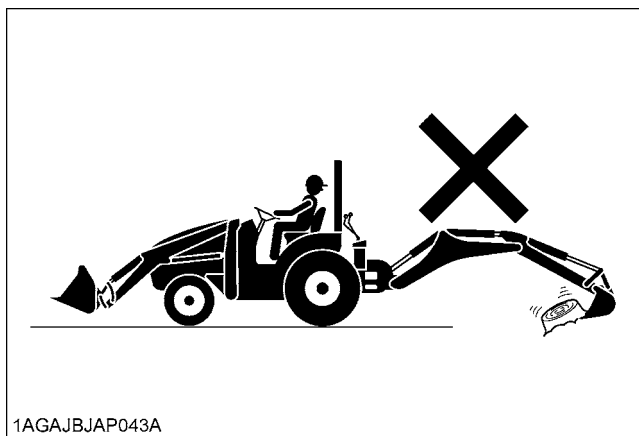
WARNING

To avoid serious injury or death:

- Do not dig under the stabilizer or tractor, especially in soft or sandy condition. 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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■ 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



WARNING

To avoid serious injury or death:

- 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.

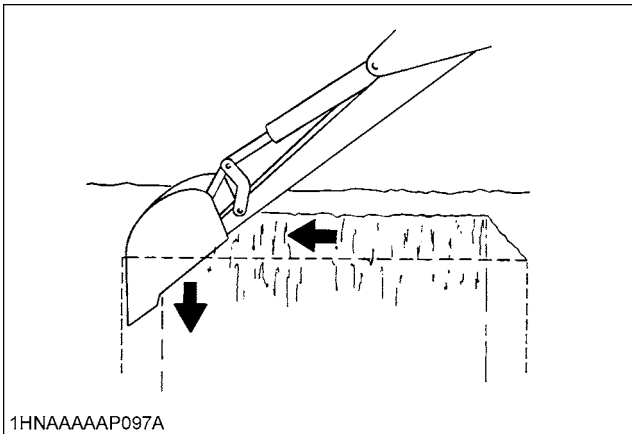
The height of spoil pile can be controlled without moving the tractor. Approach the pile with the backhoe bucket full and ready to empty. Instead of dumping on top, lower the full bucket into the top of the pile. Begin dumping and crowding out at the same time. As the bucket opens and dumps, the bottom 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.

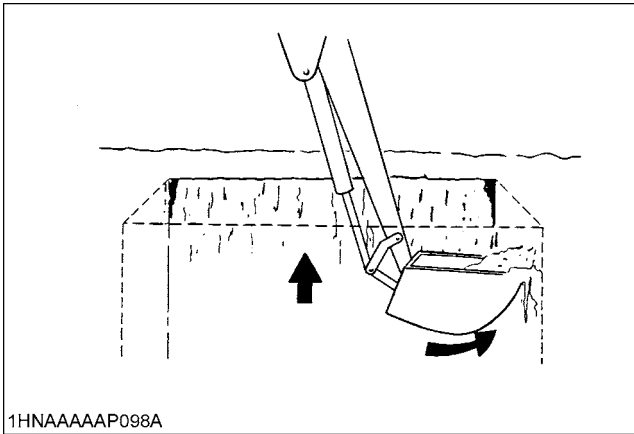
Finish the far wall by crowding out while forcing the bucket down with the boom.

Curl the bucket out to keep the bottom of the bucket vertical while making the down cut.



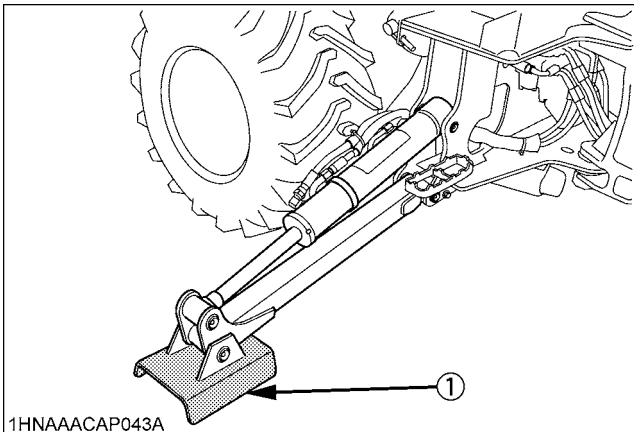
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To finish the near wall, raise the boom while crowding in. The bucket will have to be curled in to keep the cutting edge horizontal with the wall during the up cut.



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.

■ Stabilizer pads (Standard)



(1) Stabilizer pads

IMPORTANT :

- Always lower stabilizers slightly when changing from one position to another to avoid soil splash.

TRANSPORTING

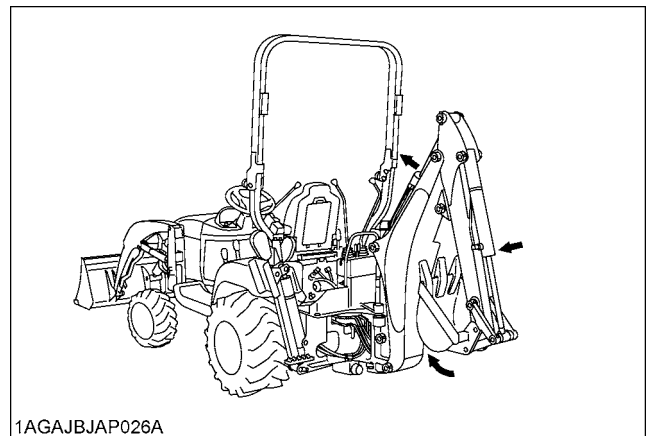


WARNING

To avoid serious injury or death:

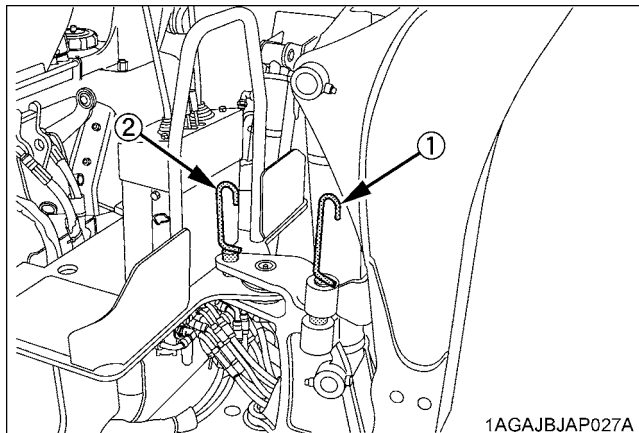
- Before transporting the machine, raise and center the boom, close the dipperstick, curl the bucket, engage the boom and swing locks and put the boom and swing lock lever into lock position.
- Always securely fasten the tractor / loader / backhoe, with chains and chain binders, to transport vehicle.

Determine and note the load height of the backhoe, for underpass clearance, before transporting.

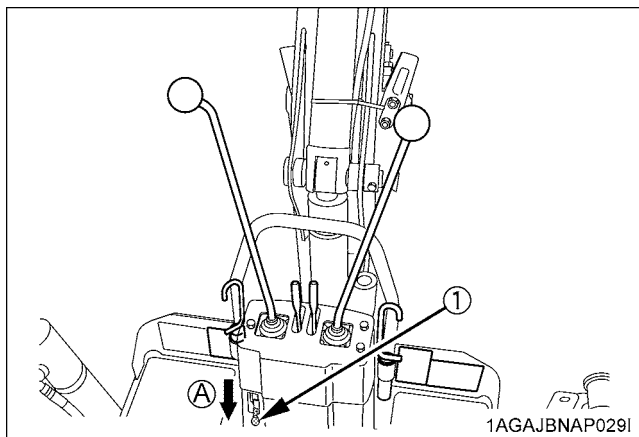


■ Driving to the Job-site

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. Put the boom and swing lock lever into lock position.



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



(1) Boom and swing lock lever (A) "LOCK"

■ 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 hood for proper securement, and remove SMV sign from holder driving transport to avoid damage, reinstall after transport.

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 OF THE TRACTOR

SERVICE INTERVALS

No.	Items		Indication on hour meter													Since then	Ref. page				
			50	100	150	200	250	300	350	400	450	500	550	600	650					700	
1	Engine oil	Change	☉			○				○				○			every 200 Hr	97	*1		
2	Engine oil filter	Replace	☉			○				○				○			every 200 Hr	97	*1		
3	Transmission oil filter	Replace	☉			○				○				○			every 200 Hr	98	*1		
4	Engine start system	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	90			
5	OPC system	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	91			
6	Greasing	--	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	89			
7	Wheel bolt torque	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	91			
8	Lock lever	Clean	○	○	○	○	○	○	○	○	○	○	○	○	○	○	every 50 Hr	92			
9	Battery condition	Check		○		○			○			○		○		○	every 100 Hr	92	*4		
10	Air cleaner element	Clean		○		○			○			○		○		○	every 100 Hr	94	*2		
		Replace															every 1000 Hr or 1 year	100	*3	@	
11	Fuel filter element	Check		○		○			○			○		○		○	every 100 Hr	94			@
		Replace								○							every 400 Hr	100	*K		
12	Fan belt	Adjust		○		○			○			○		○		○	every 100 Hr	95			
13	HST neutral spring	Adjust		○		○			○			○		○		○	every 100 Hr	96	*K		
14	Brake pedal	Adjust		○		○			○			○		○		○	every 100 Hr	96			
15	Toe-in	Adjust				○			○			○		○			every 200 Hr	98			
16	Transmission fluid	Change							○								every 400 Hr	99			
17	Transmission strainer	Clean							○								every 400 Hr	100			
18	Front axle case oil	Change							○								every 400 Hr	100			
19	Front axle pivot	Adjust							○								every 400 Hr	99			
20	Engine valve clearance	Adjust															every 800 Hr	100	*K		
21	Fuel injection nozzle Injection pressure	Check															every 1500 Hr	101	*K	@	
22	Injection pump	Check															every 3000 Hr	102	*K	@	
23	Cooling system	Flush															every 2000 Hr or 2 years	101	*5		
24	Coolant	Change															every 2000 Hr or 2 years	101	*5		
25	Radiator hose and clamp	Check															every 1 year	103	*R		
		Replace															every 4 years	104	*K		
26	Power steering oil line	Check															every 1 year	103	*R		
		Replace															every 4 years	104	*K		
27	Fuel line	Check															every 1 year	103	*R	@	
		Replace															every 4 years	104	*K		
28	Intake air line	Check															every 1 year	104	*R	@	
		Replace															every 4 years	104	*K		
29	Engine breather hose	Check															every 1 year	104	*R		
		Replace															every 4 years	104	*K		

For North American market

NOTE:

◆ **Fuel:**

- Cetane number of 45 is minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20°C (-4 °F) or elevations above 1500 m (5000 ft).
- Diesel fuels specified to EN 590 or ASTM D975 are recommended.
- No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)

◆ **Engine Oil:**

- Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above:
- Refer to the following table for the suitable API classification engine oil according to the engine type (with internal EGR, external EGR or non-EGR) and the fuel.

Fuel used	Engine oil classification (API classification)	
	Oil class of engines except external EGR	Oil class of engines with external EGR
Ultra Low Sulfur Fuel [<0.0015% (15 ppm)]	CF, CF-4, CG-4, CH-4 or CI-4	CF or CI-4 (Class CF-4, CG-4 and CH-4 engine oils cannot be used on EGR type engines)

EGR: Exhaust Gas Re-circulation

- The CJ-4 engine oil is intended for DPF (Diesel Particulate Filter) type engines, and cannot be used on this tractor.

	except external EGR	with external EGR
Model	BX23S	---

◆ **Transmission Oil:**

*KUBOTA Super UDT-2: For an enhanced ownership experience, we highly recommend Super UDT-2 to be used instead of standard hydraulic/transmission fluid.

Super UDT-2 is a proprietary KUBOTA formulation that delivers superior performance and protection in all operating conditions.

Regular UDT is also permitted for use in this machine.

- Indicated capacities of water and oil are manufacturer's estimate.

For other than North American market

NOTE :◆ **Fuel:**

- Cetane number of 45 is minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20 °C or elevations above 1500 m.
- If diesel fuel with sulfur content greater than 0.5% (5000 ppm) sulfur content is used, reduce the service interval for engine oil and filter by 50%.
- NEVER use diesel fuel with sulfur content greater than 0.05% (500 ppm) for EXTERNAL EGR type engine.
- DO NOT use diesel fuel with sulfur content greater than 1.0% (10000 ppm).
- Diesel fuels specified to EN 590 or ASTM D975 are recommended.
- No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)

◆ **Engine Oil:**

- Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above:
- With the emission control now in effect, the CF-4 and CG-4 lubricating oils have been developed for use of a low-sulfur fuel on on-road vehicle engines. When an off-road vehicle engine runs on a high-sulfur fuel, it is advisable to employ the "CF or better" lubricating oil with a high Total Base Number (TBN of 10 minimum).
- Refer to the following table for the suitable API classification engine oil according to the engine type (with internal EGR, external EGR or non-EGR) and the fuel (low-sulfur or high-sulfur fuel).

Fuel used	Engine oil classification (API classification)	
	Oil class of engines except external EGR	Oil class of engines with external EGR
High Sulfur Fuel [$\geq 0.05\%$ (500 ppm)]	CF (If the "CF-4, CG-4, CH-4 or CI-4" lubricating oil is used with a high-sulfur fuel, change the lubricating oil at shorter intervals. (approximately half))	---
Low Sulfur Fuel [$<0.05\%$ (500 ppm)] or Ultra Low Sulfur Fuel [$<0.0015\%$ (15 ppm)]	CF, CF-4, CG-4, CH-4 or CI-4	CF or CI-4 (Class CF-4, CG-4 and CH-4 engine oils cannot be used on EGR type engines)

EGR: Exhaust Gas Re-circulation

- The CJ-4 engine oil is intended for DPF (Diesel Particulate Filter) type engines, and cannot be used on this tractor.

	except external EGR	with external EGR
Model	BX23S	---

◆ **Transmission Oil:**

The oil used to lubricate the transmission is also used as hydraulic fluid. To insure proper operation of the hydraulic system and to complete lubrication of the transmission, it is important that a multi-grade transmission fluid is used in this system. We recommend the use of **KUBOTA UDT or SUPER UDT fluid** for optimum protection and performance. (Consult your local KUBOTA Dealer for further detail.)

Do not mix different brands together.

- Indicated capacities of water and oil are manufacturer's estimate.

BIODIESEL FUEL (BDF)

B0-B20 Biodiesel fuels (BDF): mixed diesel fuels containing 20% or less biodiesel can be utilized under the following conditions.

IMPORTANT :

- Concentrations greater than B5 (5%) are NOT approved for common rail engines and engines with aftertreatment device.
Such fuel use can cause damage and reduce engine life.
 - Refueling and handling fuel should be done with caution in order to avoid contact with the fuel and spillage that could create a potential environmental or fire hazard. Wear appropriate protective equipment when refueling.
- ◆ Applicable BDF:
1. Blended diesel fuels containing 6% through 20% BDF (B6 - B20) which comply with American Society for Testing and Materials (ASTM) D7467 Standard, as revised, can be used without adversely affecting the performance and durability of the engine and fuel system components.
 2. Any mineral oil diesel fuel, if used, must conform to ASTM D975 (or the European EN590) Standard, as revised. B100 fuel used to make Biodiesel blended fuels must meet ASTM D6751 (or EN14214) Standard, as revised. The final blended fuel B20 must conform to ASTM D7467 Standard, as revised. Straight vegetable oil is NOT allowed in any blended fuel.
 3. Allowable blended fuel is mineral oil diesel fuel blended with B100 (i.e. 100% BDF). The blended fuel ratio shall be less than 20% B100 and 80% or more diesel fuel. The B100 source used for Biodiesel blends must be purchased from an accredited BQ-9000 marketer or producer. More information about qualified marketer(s) and producer(s) can be found at <http://www.bq-9000.org>.
- ◆ Preparation:
1. Before using BDF concentrations greater than B5, you are advised to replace the engine oil, engine oil filter and fuel filter with new oil and filters. For replacement procedures, refer to the "PERIODIC SERVICE" section.
- ◆ Product Warranty, Emission and Other Precautions:
1. The engine emission control system was certified according to current regulations based on the use of non-BDF. When using BDF, the owner is advised to check applicable local and federal emission regulations and comply with all of them.
 2. BDF may cause restricted or clogged fuel filters during cold weather conditions, resulting in the engine not operating properly.
 3. BDF encourages the growth of microorganisms which may cause degradation of the fuel. This in turn may cause fuel line corrosion or reduce fuel filter flow earlier than expected.
 4. BDF inherently absorbs moisture which may cause degradation of the fuel earlier than expected. To avoid this, drain the water separator and fuel filter port often.
 5. Do not use Biodiesel concentrations higher than 20% (i.e. greater than B20). Engine performance and fuel consumption will be affected, and degradation of the fuel system components may occur.
 6. Do not readjust the engine fuel control system as this will violate emission control levels for which the equipment was approved.
 7. Compared with soybean-based and rapeseed-based feedstock, palm oil-based feedstock has a thicker consistency (i.e. higher viscosity) at lower temperatures. Consequently, fuel filter performance may be reduced, particularly during cold weather conditions.
 8. The KUBOTA Warranty, as specified in the Owner's Warranty Information Guide, only covers defects in product materials and workmanship. Accordingly, any problems that may arise due to the use of poor quality fuels that fail to meet the above requirements, whether biodiesel or mineral oil based, are not covered by the KUBOTA Warranty.
- ◆ Routine handling:
1. Avoid spilling BDF onto painted surfaces as this may damage the finish. If fuel is spilled immediately wipe clean and flush with soapy water to avoid permanent damage.
 2. When using BDF, you are advised to maintain a full tank of fuel, especially overnight and during short term storage, to reduce condensation within the tank. Be sure to tighten the fuel cap after refueling to prevent moisture build up within the tank. Water in the Biodiesel mixture will damage fuel filters and may damage engine components.

- ◆ Maintenance Requirements when using BDF B0 through B5:
Follow the oil change intervals recommended by referring to the "MAINTENANCE" section. Extended oil change intervals may result in premature wear or engine damage.
- ◆ Maintenance Requirements when using BDF B6 through B20:
The maintenance interval for fuel related parts changes.
See the table below for the new maintenance interval.

Items		Interval	Remarks
Fuel filter element	Check	every 50 Hr	
	Replace	every 200 Hr	Consult your local KUBOTA Dealer for this service.
Fuel line	Check	every 6 months	Replace if any deterioration (crack, hardening, scar or deformation) or damage occurred. If you feel you are unable to make the following service correctly and safely, contact your local KUBOTA Dealer.
	Replace	every 2 years	Consult your local KUBOTA Dealer for this service.

- ◆ Long Term Storage:
 1. BDF easily deteriorates due to oxygen, water, heat and foreign substances.
Do not store B6 through B20 longer than 1 month and B5 longer than 3 months.
 2. When using B6 through B20 and storing the machine longer than 1 month, drain the fuel from the tanks and replace with light mineral oil diesel fuel.
Subsequently, run the engine at least 30 minutes to remove all of the Biodiesel from the fuel lines.
 3. When using B5 fuel and storing machine longer than 3 months, drain the fuel from the tanks and replace with light mineral oil diesel fuel.
Subsequently, run the engine at least 30 minutes to remove all of the Biodiesel from the fuel lines.

PERIODIC SERVICE OF THE TRACTOR



WARNING

To avoid serious injury or death:

- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered.
- If necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.

HOW TO OPEN THE HOOD



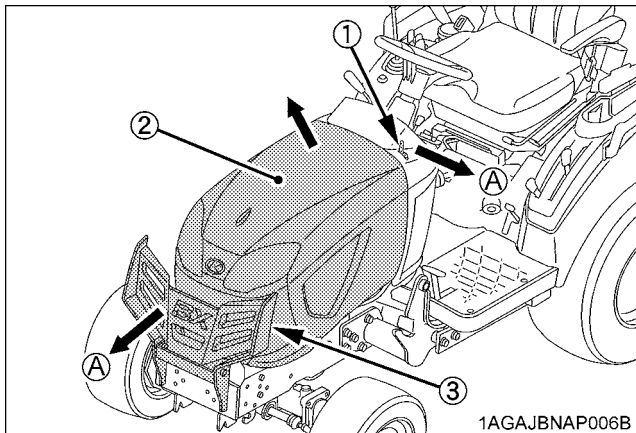
WARNING

To avoid serious injury or death from contact with moving parts;

- Never open the hood or engine side cover while the engine is running.
- Do not touch muffler or exhaust pipes while they are hot;
Severe burns could result.

■ Front Guard and Hood

1. Pull the front guard forward.
2. To open the hood, pull the hood open lever to release the latch and open the hood.



(1) Hood open lever

(A) "PULL"

(2) Hood

(3) Front guard

DAILY CHECK

For your own safety and maximum service life of the machine, make a thorough daily inspection before operating the machine or starting the engine.



WARNING

To avoid serious injury or death:

Take the following precautions when checking the tractor.

- Park the machine on firm and level ground.
- Set the parking brake.
- Lower the implement to the ground.
- All residual pressure of the hydraulic system released.
- Stop the engine and remove the key.

■ Walk Around Inspection

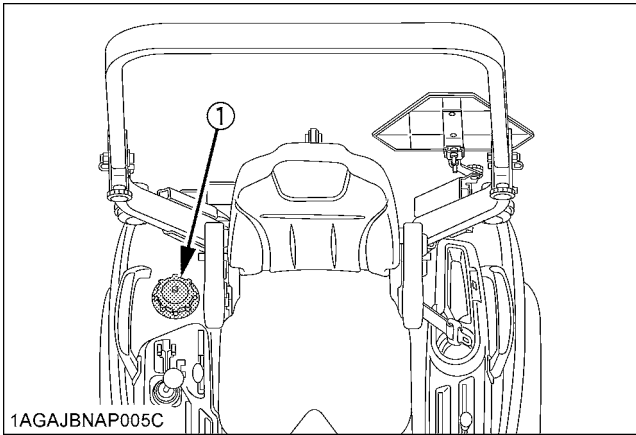
Look around and under the tractor for such items as loose bolts, trash build-up, oil or coolant leaks, broken or worn parts.

■ Checking Fuel and Refueling

! WARNING

- To avoid serious injury or death:
- Do not smoke while refueling.
 - Be sure to stop the engine and remove the key before refueling.
- To avoid allergic skin reaction:
- Wash hands immediately after contact with diesel fuel.

1. Turn the key switch to "ON", check the amount of fuel by fuel gauge.
2. Fill fuel tank when fuel gauge shows 1/4 or less fuel in tank.
3. Use grade No.2-Diesel fuel at temperatures above -10 °C (14 °F).
Use grade No.1-Diesel fuel at temperatures below -10 °C (14 °F).



(1) Fuel tank cap

Fuel tank capacity	25 L (6.6 U.S.gals.)
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IMPORTANT :

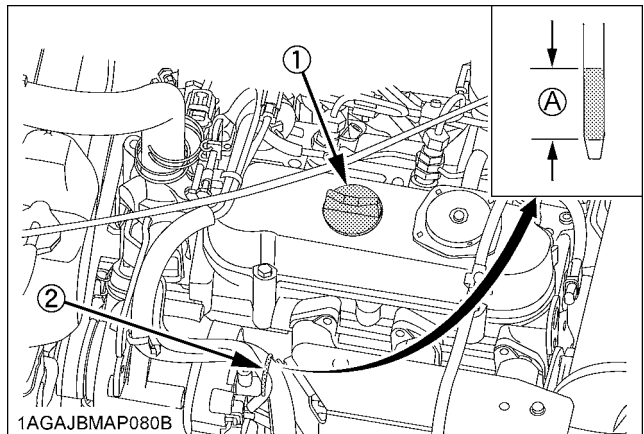
- Do not permit dirt or trash or water to get into the fuel system.
- Be careful not to empty the fuel tank, otherwise air will enter the fuel system, necessitating bleeding before next engine start.
- Be careful not to spill fuel during refueling. If a spill should occur, wipe it off at once, or it may cause a fire.
- To prevent condensation (water accumulation) in the fuel tank, fill the tank before parking overnight.

■ Checking Engine Oil Level

! WARNING

- To avoid serious injury or death:
- Be sure to stop the engine before checking the oil level.

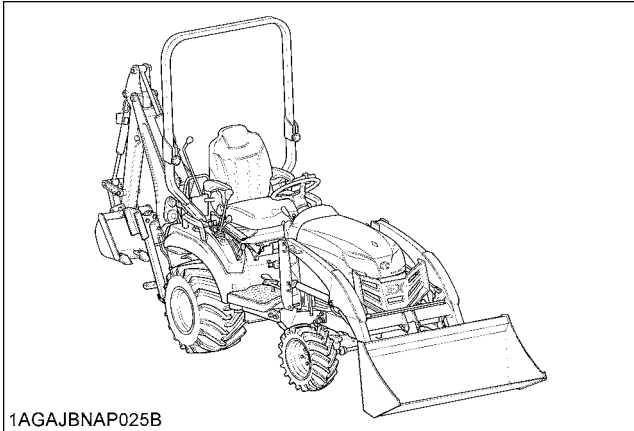
1. Park the machine on a firm, flat and level surface.
2. Check engine oil before starting the engine, or, after 5 minutes or more when the engine has been stopped.
3. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the two notches.
If the level is too low, add new oil to the prescribed level at the oil inlet.
(See "LUBRICANTS" in "MAINTENANCE OF THE TRACTOR" section.)



(1) Oil inlet (A) Oil level is acceptable within this range.
(2) Dipstick

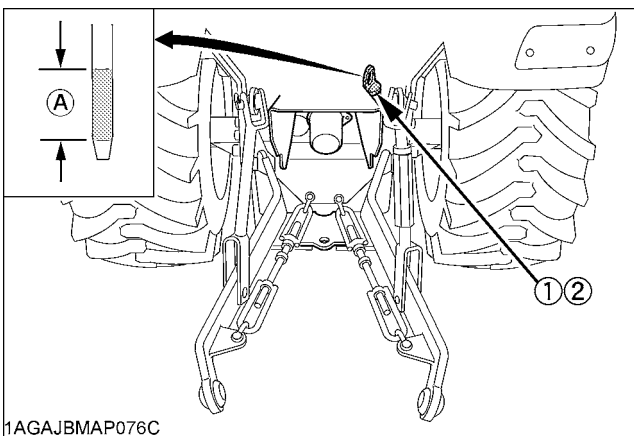
IMPORTANT :

- When using an oil of different maker or viscosity from the previous one, remove all of the old oil and oil filter. Never mix two different types of oil.
- If oil level is low, do not run engine.
- When using BT603 Backhoe and checking oil level, locate the tractor/loader/backhoe on a flat and set the loader/backhoe as illustrated below.



■Checking Transmission Fluid Level

1. Park the machine on a firm, flat and level surface, lower the implement to the ground and stop the engine.
2. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the two notches. If the level is too low, add new oil to the prescribed level at the oil inlet.
(See "LUBRICANTS" in "MAINTENANCE OF THE TRACTOR" section.)



(1) Oil inlet (A) Oil level is acceptable within this range.
(2) Dipstick

IMPORTANT :

- If oil level is low, do not run engine.

■Checking Coolant Level



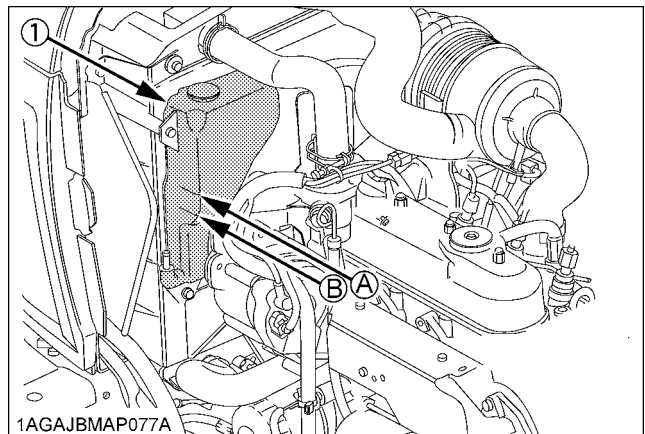
WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key before checking coolant level.
- Do not remove the radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing cap completely.

1. Check to see that the coolant level is between the "H" and "L" marks of recovery tank.
2. When the coolant level drops due to evaporation, add soft water only. In case of leakage, add antifreeze and soft water in the specified mixing ratio up to the "H" level.

(See "Flushing Cooling System and Changing Coolant" in "EVERY 2 YEARS" in "PERIODIC SERVICE OF THE TRACTOR" section.)



(1) Recovery tank (A) "H"
(B) "L"

IMPORTANT :

- If the radiator cap has to be removed, follow the above "WARNING" and securely retighten the cap.
- Use clean, fresh soft water and anti-freeze to fill the recovery tank.
- If water should leak, consult your local KUBOTA Dealer.

■ Cleaning Panel and Radiator Screen



WARNING

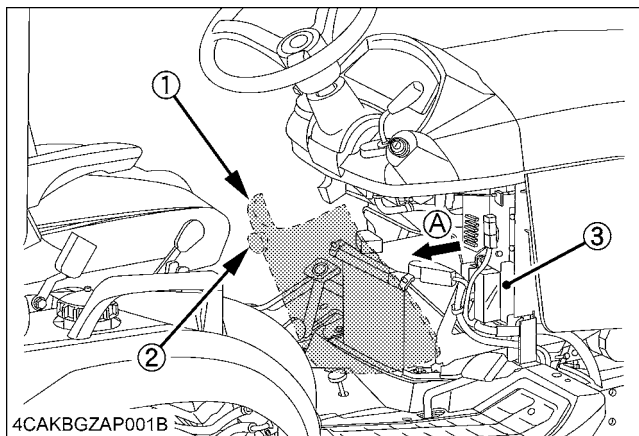
To avoid serious injury or death:

- Be sure to stop the engine and remove the key before removing the screen.
- Before checking or cleaning it, wait long enough until it cools down.

1. Check panel screen to be sure they are clean from debris.
2. Detach the radiator screen, and then remove all the foreign material.

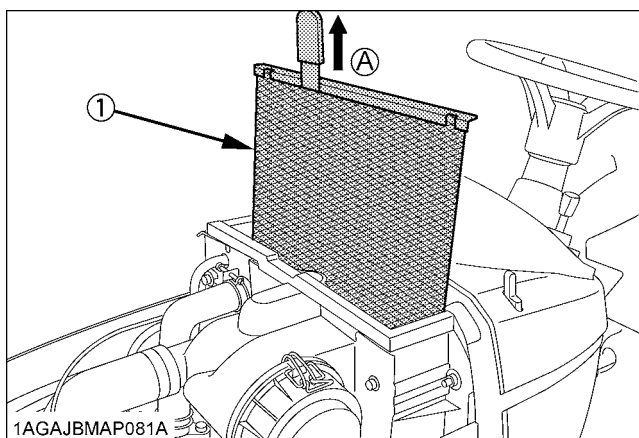
NOTE :

- If the dust or chaff is accumulated in the battery compartment, open the panel and clean completely.



- 4CAKBGZAP001B
- (1) Panel
(2) Knob
(3) Center pillar

(A) "REMOVE"



- 1AGAJBMAP081A
- (1) Radiator screen

(A) "REMOVE"

IMPORTANT :

- Panel and radiator screen must be clean from debris to prevent engine from overheating and to allow good air intake for air cleaner.
- Be sure to reinstall the panel on the pillar completely to prevent the invasion of dust.
- Be sure to stop the engine to avoid personal injury and to allow good air intake for air cleaner.

■ Checking Brake Pedal

1. Inspect the brake pedal for free travel, and smooth operation.
2. Adjust if incorrect measurement is found:
(See "Adjusting Brake Pedal" in "EVERY 100 HOURS" in "PERIODIC SERVICE OF THE TRACTOR" section.)

■ Checking Gauges, Meters and Easy Checker(TM)

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

■ Checking Head Light, Hazard Light etc.

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

■ Checking Seat Belt and ROPS

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

■ Checking and Cleaning of Electrical Wiring and Battery Cables



WARNING

To avoid serious injury or death:

- A loosened terminal or connector, or damaged wire may affect the performance of electrical components or cause short circuits. Leakage of electricity could result in a fire hazard, a dead battery or damage to electrical components.
- Replace damaged wires or connections promptly.
- If a fuse blows soon after replacement, **DO NOT USE THE CAPACITY LARGER THAN RECOMMENDED OR BYPASS THE FUSE SYSTEM.**
- Many wiring connections are protected by waterproof plugs. Plug and unplug these connections carefully and make sure they are sealed correctly after assembly.
- Accumulation of dust, chaff and spilled fuel deposits around the battery, electrical wiring, engine or exhaust system may cause fire hazards.
CLEAN THESE AREAS BEFORE STARTING WORK.
- To avoid premature electrical malfunctions **DO NOT APPLY** high pressure water directly to battery, wiring, connectors, electrical components or instrument panel.

Inspect the following Regularly:

1. Check wiring for chafed or cracked insulation.
2. Check wiring harness clamps. Replace if necessary.
3. Check connectors and terminals for looseness, contamination or overheated (discolored) connections.
4. Check instrument panel for correct operation of switches and gauges.

Consult your KUBOTA Dealer regarding maintenance, diagnosis and repair.

■ Checking Movable Parts

If any of the movable parts, such as levers and pedals, is not smoothly moved because of rust or sticky material, do not attempt to force it into motion.

In the above case, remove the rust or the sticky material, and apply oil or grease on the relevant spot.

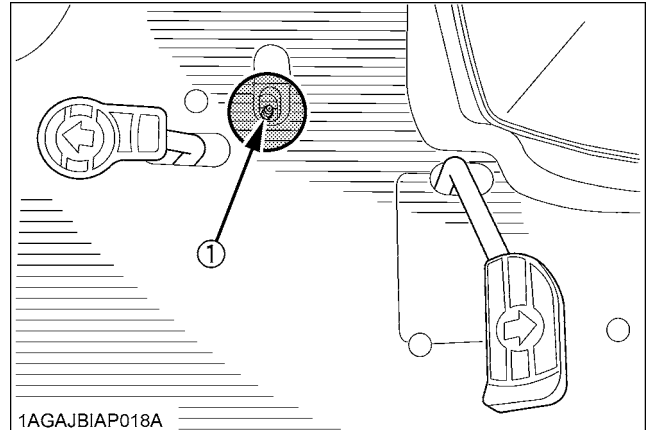
Otherwise, the machine may get damaged.

EVERY 50 HOURS

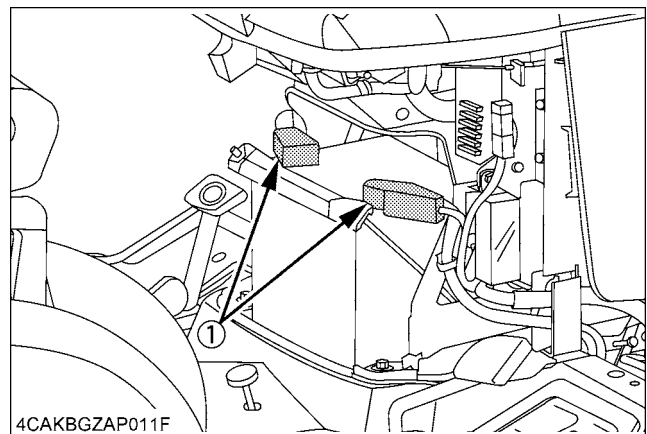
■ Lubricating Grease Fittings

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

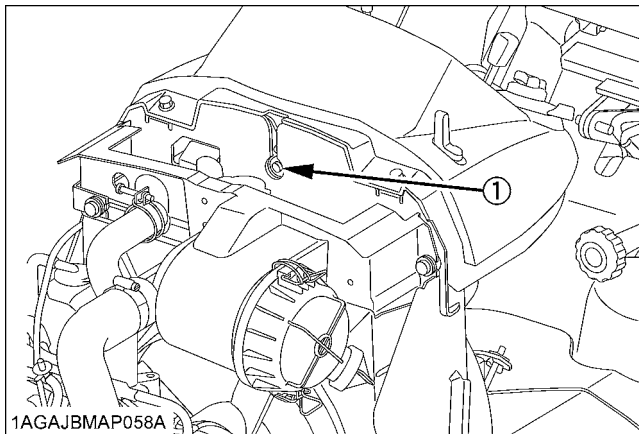
If you operated the machine in extremely wet and muddy conditions, lubricate grease fittings more often.



(1) Grease fitting (Speed control pedal)

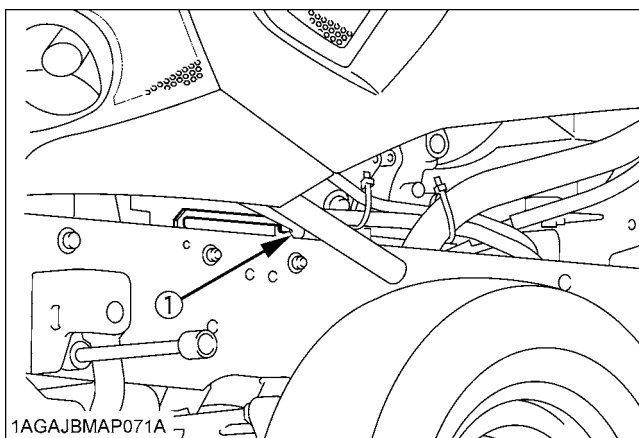


(1) Battery terminals



1AGAJBMAP058A

(1) Bonnet Lock



1AGAJBMAP071A

(1) Bonnet guide

■ Checking 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.

◆ Preparation before testing.

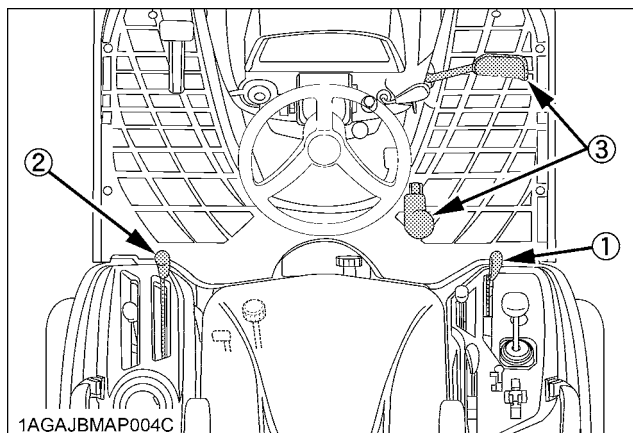
1. Sit on operator's seat.
2. Set the parking brake and stop the engine.
3. Shift the range gear shift lever to "NEUTRAL" position.
4. Check the speed control pedal "NEUTRAL" position.
5. Shift the PTO clutch lever to "OFF" position.

◆ Test 1: Switch for the speed control pedal

1. Make sure that the range gear shift lever is set in "NEUTRAL" position.
2. Depress the speed control pedal.
3. Turn the key to "START" position.
4. The engine must not crank.
5. If it cranks, consult your local KUBOTA Dealer for this service.

◆ Test 2: Switch for the PTO clutch lever

1. Make sure that the range gear shift lever is set in "NEUTRAL" position.
2. Make sure that the speed control pedal is set in "NEUTRAL" position.
3. Shift the PTO clutch lever to "ON" position.
4. Turn the key to "START" position.
5. The engine must not crank.
6. If it cranks, consult your local KUBOTA Dealer for this service.



1AGAJBMAP004C

- (1) Range gear shift lever (Hi-Lo)
- (2) PTO clutch lever
- (3) Speed control pedal

■ Checking OPC 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.

◆ Preparation before testing.

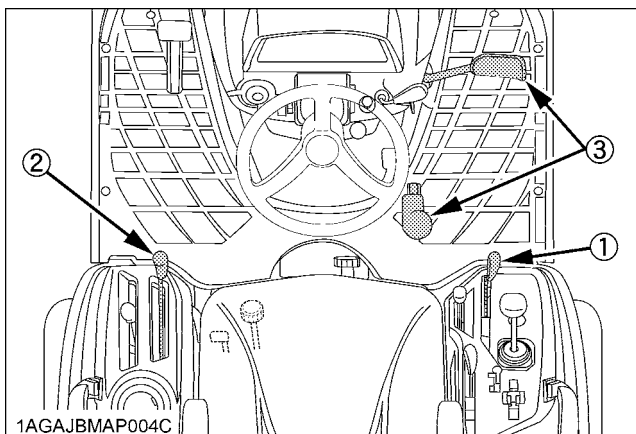
1. Sit on operator's seat.
2. Set the parking brake and stop the engine.
3. Shift the range gear shift lever to "NEUTRAL" position.
4. Check the speed control pedal "NEUTRAL" position.
5. Shift the PTO clutch lever to "OFF" position.

◆ Test 1: Switches for the operator's seat and the speed control pedal

1. Start the engine.
2. Depress the speed control pedal.
3. Stand up. (Do not get off the machine.)
4. The engine must shut off after approximately 1 second.
5. If it does not stop, consult your local KUBOTA Dealer for this service.

◆ Test 2: Switches for the operator's seat and the PTO clutch lever.

1. Start the engine.
2. Engage the PTO clutch lever.
3. Stand up. (Do not get off the machine.)
4. The engine must shut off after approximately 1 second.
5. If it does not stop, consult your local KUBOTA Dealer for this service.



- 1AGAJBMAP004C
- (1) Range gear shift lever (Hi-Lo)
 - (2) PTO clutch lever
 - (3) Speed control pedal

■ Checking Wheel Bolt Torque

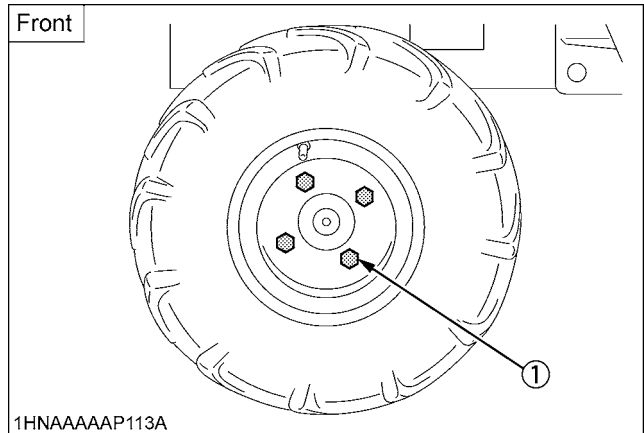


WARNING

To avoid serious injury or death:

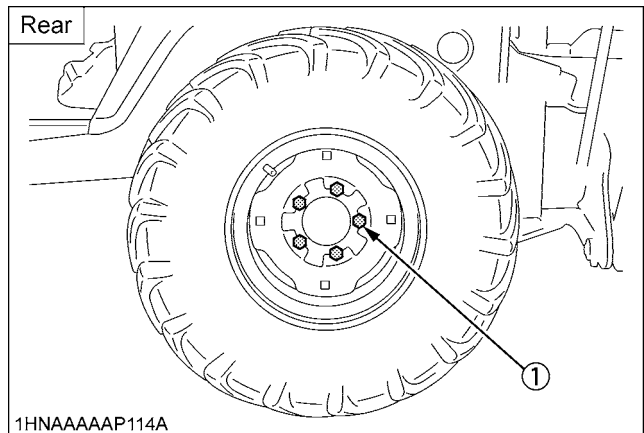
- Never operate tractor with a loose rim, wheel, or axle.
- Any time bolts are loosened, retighten to specified torque.
- Check all bolts frequently and keep them tight.

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



1HNAAAAAP113A

- (1) 149.2 to 179.0 N-m (15.2 to 18.3 kgf-m, 110 to 132 lbf-ft)

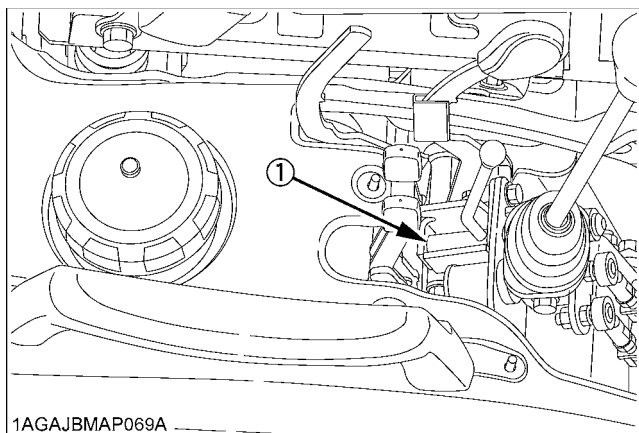


1HNAAAAAP114A

- (1) 108.5 to 130.2 N-m (11.1 to 13.3 kgf-m, 80 to 96 lbf-ft)

■ Cleaning the Lock Lever Shaft

1. Before you use the lock lever, clean the lever movable area (1).



(1) Lever movable area

EVERY 100 HOURS

■ Checking Battery

⚠ DANGER

To avoid the possibility of battery explosion:
For the refillable type battery, follow the instructions below.

- Do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Otherwise, the battery component parts may prematurely deteriorate, which may shorten the battery's service life or cause an explosion.
- Check the fluid level regularly and add distilled water as required so that the fluid level is between the UPPER and LOWER levels.

⚠ WARNING

To avoid serious injury or death:

- Never remove the battery cap while the engine is running.
- Keep electrolyte away from eyes, hands and clothes. If you are splattered with it, wash it away completely with water immediately and get medical attention.
- Keep open sparks and flames away from the battery at all times. Hydrogen gas mixed with oxygen becomes very explosive.
- Wear eye protection and rubber gloves when working around battery.
- Tighten the battery holder firmly when you reassemble the battery.
- Make sure to put a clamp to the positive cable of the battery.

The factory-installed battery is of non-refillable type. If the battery is weak, charge the battery or replace it with new one.

IMPORTANT :

- Mishandling the battery shortens the service life and adds to maintenance costs.
The original battery is maintenance free, but needs some servicing.
If the battery is weak, the engine will be difficult to start and the lights will be dim. It is important to check the battery periodically.
- When exchanging an old battery for a new one, use battery of equal specification in table below.

Battery Type	Volts (V)	Reserve Capacity (min)	Cold Cranking Amps	Normal Charging Rate(A)
526RMF	12	86	560	8.6

(For non-accessible maintenance-free type batteries.)
 Maintenance-free, non-accessible batteries are designed to eliminate the need to add water. Yet the volume of electrolyte above plates may eventually become depleted due to abnormal conditions such as high heat or improper regulator setting. Use a voltmeter to check the state of charge. (See reference chart below to determine if charging is necessary.)

Battery voltage	Reference state of charge
12.6	100% (Full charge)
12.4	75%
12.2	50%
12.0	25%
11.8	0%

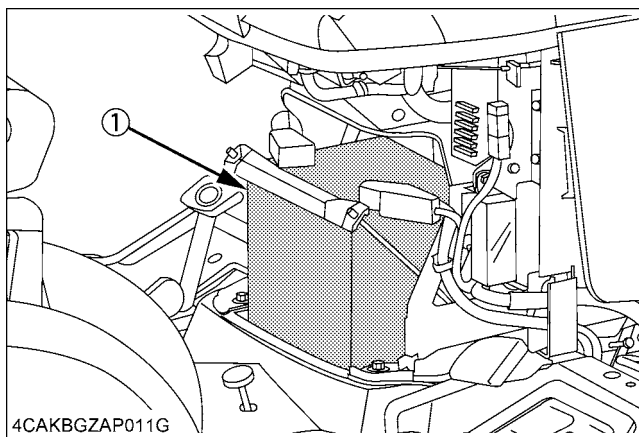
◆ **Battery Charging**



WARNING

To avoid serious injury or death:

- When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.
- When disconnecting the cable from the battery, start with the negative terminal first. When connecting the cable to the battery, start with the positive terminal first.
- To prevent short circuit, before charging, make sure to remove the metal-battery-holder.
- Never check battery charge by placing a metal object across the posts.
 Use a voltmeter or hydrometer.



(1) Battery

IMPORTANT :

- Since the metal-battery-holder can crack, do not tighten it too much.

1. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then charge for at least 1 hour at 6.5 amperes.
2. A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as early as possible. Failure to do this will shorten the battery's service life.
3. When the specific gravity of electrolyte is between 1.27 and 1.29 the charging is completed.

◆ **Battery for storage**

1. When storing the tractor for a long period, remove the battery from tractor, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
2. The battery self-discharges while it is stored. Recharge it once every 3 months in hot seasons and once every 6 months in cold seasons.

■ Cleaning Air Cleaner Element



WARNING

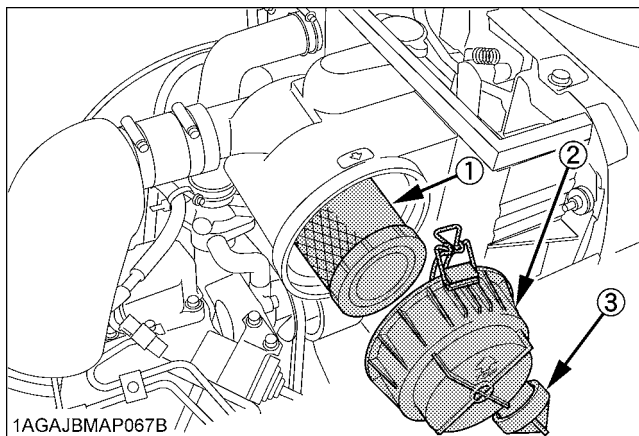
To avoid serious injury or death:

- Be sure to stop the engine and remove the key before cleaning air cleaner element.

1. Remove the air cleaner cover and the element.
 - (1) Undo the hook
 - (2) Turn the cover clockwise and detach it.
2. Clean the element:
 - 1) When dry dust adheres to the element, blow compressed air from the inside, turning the element. Pressure of compressed air must be under 205kPa (2.1kgf/cm², 30psi).
 - 2) When carbon or oil adheres to the element, soak the element in detergent for 15 minutes then wash it several times in water, rinse with clean water and dry it naturally. After element is fully dried, inspect inside of the element with a light and check if it is damaged or not. (referring to the instructions on the label attached to the case.)
3. Replace air cleaner element:
Every 1000 hours or every 1 year whichever comes first.

NOTE :

- Check to see if the evacuator valve is blocked with dust.



- (1) Element
- (2) Cover
- (3) Evacuator valve

IMPORTANT :

- The air cleaner uses a dry element, never apply oil.
- Do not run the engine with filter element removed.
- Align the arrow marks when reinstalling the cover. If the cover is improperly fitted, dust passes by the baffle and directly adheres to the element.

◆ Evacuator Valve

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

■ Checking Fuel Filter



WARNING

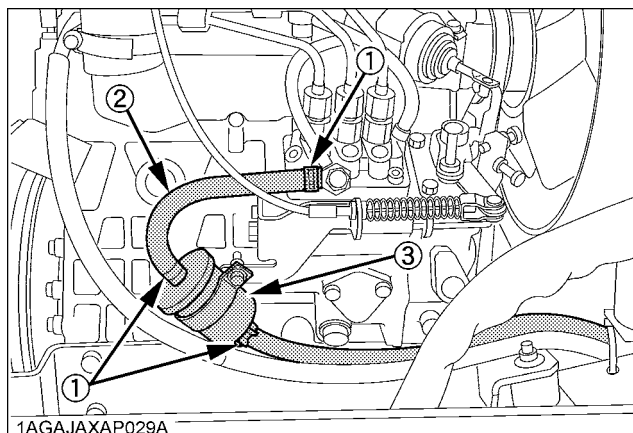
To avoid serious injury or death:

- Stop the engine and remove the key before checking fuel lines and fuel filter.
- Check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.

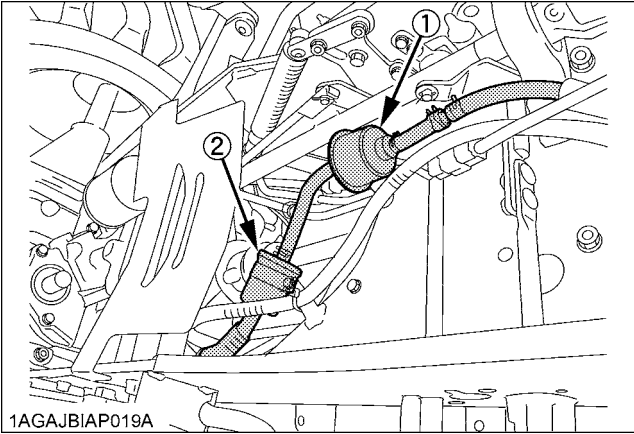
1. The fuel line is made of rubber and ages regardless of service period.
2. After inspection, if the fuel line and clamps are found damaged or deteriorated, replace them.
3. Check fuel filter, if it is clogged by debris or contaminated by water, replace it.

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. Particular care must be taken in order to avoid dust and dirt getting into the fuel system. Entrance of dust and dirt causes malfunction of the fuel pump.



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



- (1) Fuel pump
- (2) Fuel filter

NOTE :

- If the fuel line is removed, be sure to properly bleed the fuel system.
(See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE OF THE TRACTOR" section.)

■ Adjusting Fan belt Tension



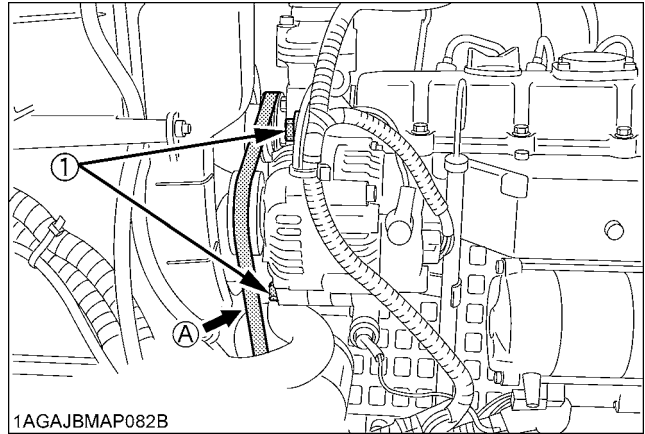
WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key before checking belt tension.

Fan belt tension (deflection)	7 to 9 mm (0.28 to 0.35 in.) when the belt is pressed in the middle of the span.
-------------------------------	--

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to belt between pulleys.
3. If tension is incorrect, loosen the alternator mounting bolts and, using a lever placed between the alternator and the engine block, pull the alternator out until the deflection of the belt falls within acceptable limits.
4. Replace fan belt if it is damaged.



(1) Bolt

(A) Check the belt tension

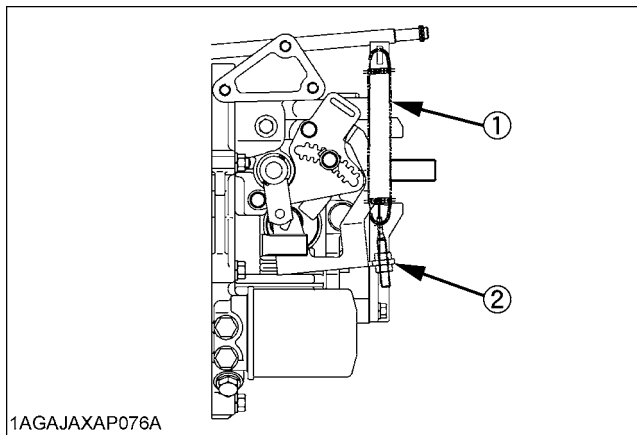
■ Adjusting HST Neutral Spring (for Speed Control Pedal)

WARNING

To avoid serious injury or death:

- Do not operate if tractor moves on level ground with foot off speed control pedal.
- If tractor moves on level ground with foot off the pedal, or, if the pedal is too slow in returning to "NEUTRAL" position when removing the foot from the pedal, consult your local KUBOTA Dealer.

The HST neutral spring located under the front right side of the fender can adjust returning speed of speed control pedal. Consult your local KUBOTA Dealer for service.



(1) HST neutral spring
(2) Adjusting nut

■ Adjusting Brake Pedal

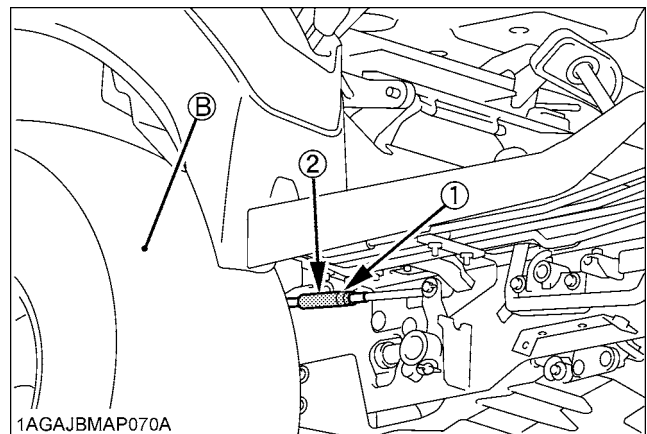
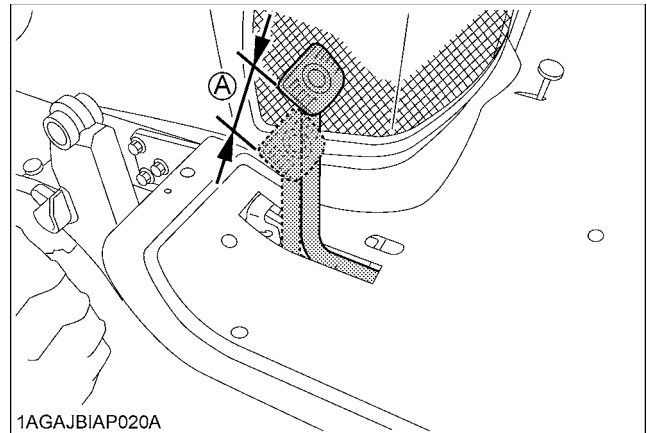
WARNING

To avoid serious injury or death:

- Stop the engine, remove the key, lower the implement to the ground, and chock the wheels before checking brake pedal.
- Even if the brake pedal free travel is within the limitation, adjust the brake pedal following the procedure below.
- If you are not able to adjust, consult your local KUBOTA Dealer.

Proper brake pedal free travel	25 to 35 mm (1.0 to 1.4 in.) on the pedal
--------------------------------	---

1. Release the parking brake.
2. Loosen the lock nut and turn the turnbuckle to adjust the rod length so that the brake pedal free travel is 10 mm (0.4 in.)
3. Extend the turnbuckle 1 additional turn.
4. Retighten the lock nut.
5. Depress the brake pedal several times and make sure the brake pedal free travel is from 25 to 35 mm (1.0 to 1.4 in.)



(1) Lock nut
(2) Turnbuckle
(A) Free travel
(B) Right rear tire

EVERY 200 HOURS

■ Replacing Engine Oil Filter

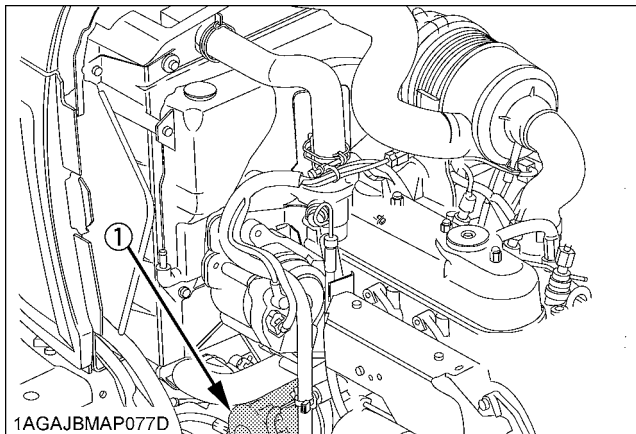


WARNING

To avoid serious injury or death:

- Be sure to stop the engine before replacing the oil filter cartridge.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. Remove the oil filter.
2. Put a film of clean engine oil on the rubber seal of the new filter.
3. Tighten the filter quickly until it contacts the mounting surface.
Tighten filter by hand an additional 1/2 turn only.
4. After the new filter has been replaced, the engine oil normally decreases a little. Make sure that the engine oil does not leak through the seal and be sure to check the oil level on the dipstick.
5. Fill the engine oil up to the prescribed level.
6. Properly dispose of used oil.



(1) Engine oil filter

IMPORTANT :

- To prevent serious damage to the engine, use only a KUBOTA genuine filter.

■ Changing Engine Oil



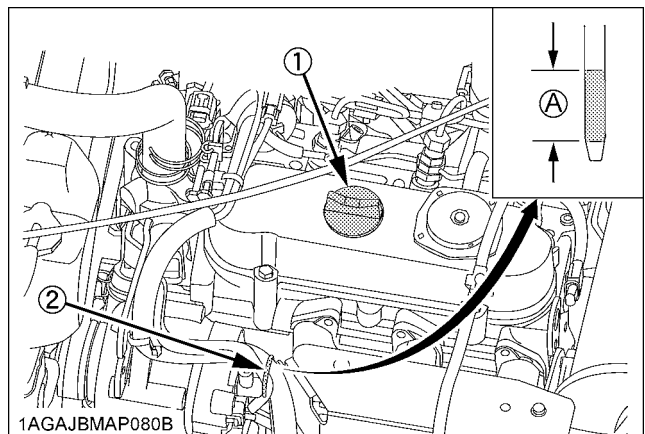
WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key before changing the oil.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

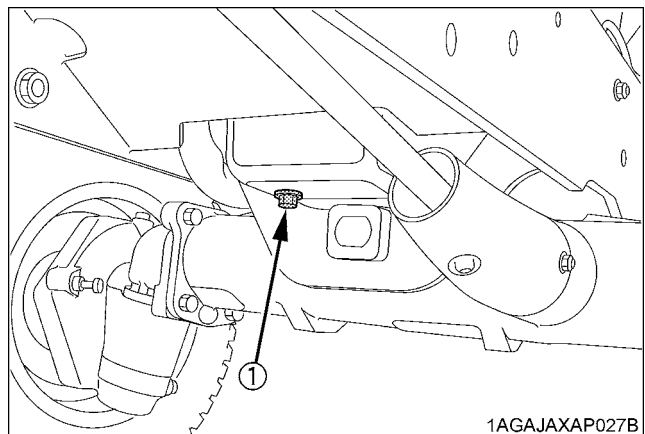
1. To drain the used oil, remove the drain plug at the bottom of the engine and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug.
3. Fill with the new oil up to the upper notch on the dipstick.
(See "LUBRICANTS" in "MAINTENANCE OF THE TRACTOR" section.)
4. Properly dispose of used oil.

Oil capacity with filter	3.1 L (3.3 U.S.qts.)
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(1) Oil inlet
(2) Dipstick

(A) Oil level is acceptable within this range



(1) Drain plug

■ Replacing Transmission Oil Filter

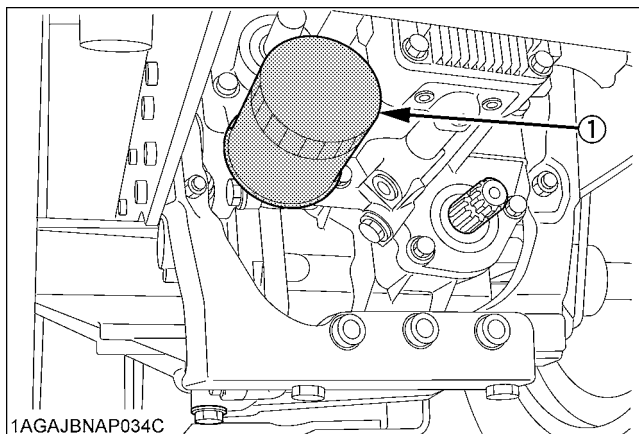


WARNING

To avoid serious injury or death:

- Be sure to stop the engine before changing the oil filter cartridge.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. Remove the oil filter.
2. Put a film of clean transmission oil on rubber seal of new filter.
3. Tighten the filter quickly until it contacts the mounting surface.
Tighten filter by hand an additional 1/2 turn only.
4. After the new filter has been replaced, the transmission fluid level will decrease a little. Make sure that the transmission fluid does not leak through the seal, and check the fluid level.
Top up if necessary.
5. Properly dispose of used oil.



(1) Filter

IMPORTANT :

- To prevent serious damage to the hydraulic system, use only a KUBOTA genuine filter.

■ Adjusting Toe-in

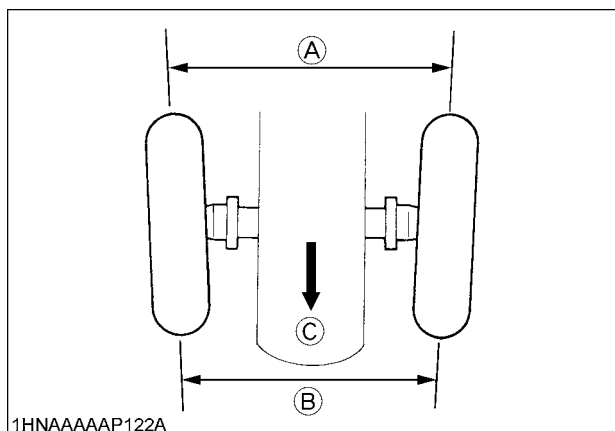


WARNING

To avoid serious injury or death:

- Park tractor on a firm, flat and level place.
- Lower the implement to the ground, apply the parking brake.
- Stop the engine and remove the key.

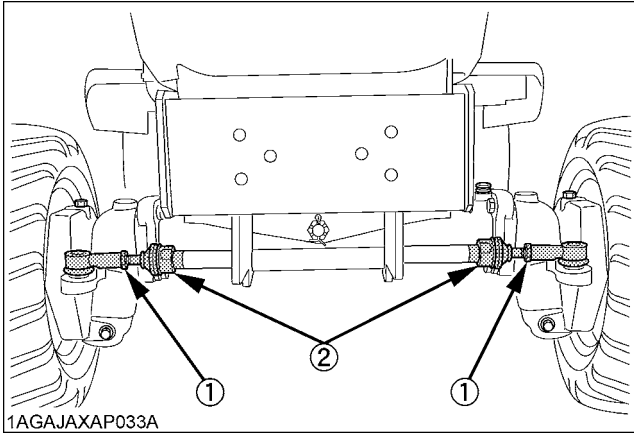
1. Turn steering wheel so that front wheels are in the straight ahead position.
2. Measure distance between tire beads at front of tire, hub height.
3. Measure distance between tire beads at rear of tire, hub height.
4. Front distance should be 0 to 5 mm (0 to 0.2 in.) less than rear distance. If not, adjust tie rod length.



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

◆ Adjusting procedure

1. Loosen the lock nut and turn the tie rod to adjust the rod length until the proper toe-in measurement is obtained.
2. Retighten the lock nut.



(1) Lock nuts
(2) Tie rod

EVERY 400 HOURS

■ Adjusting Front Axle Pivot



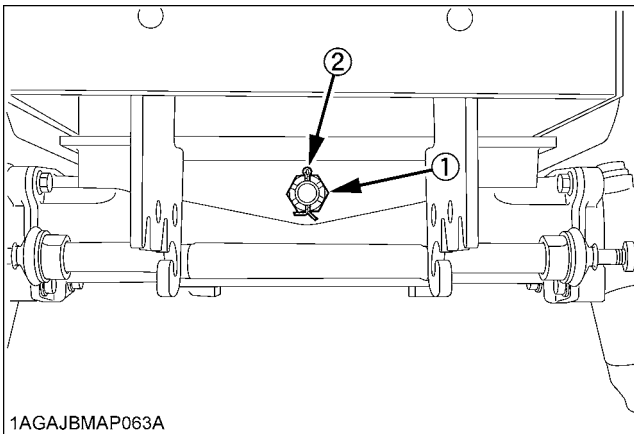
WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key before adjusting the front axle pivot.

◆ Adjusting procedure

1. Remove the split pin, tighten the adjusting nut (tightening torque 20 N-m, 2.0 kgf-m, 15 lbf-ft).
2. Make sure that one of the nut slots aligns with the split pin hole.
3. Tighten the nut slightly if necessary to align.
4. Replace the split pin.



(1) Adjusting nut
(2) Split pin

■ Changing Transmission Fluid



WARNING

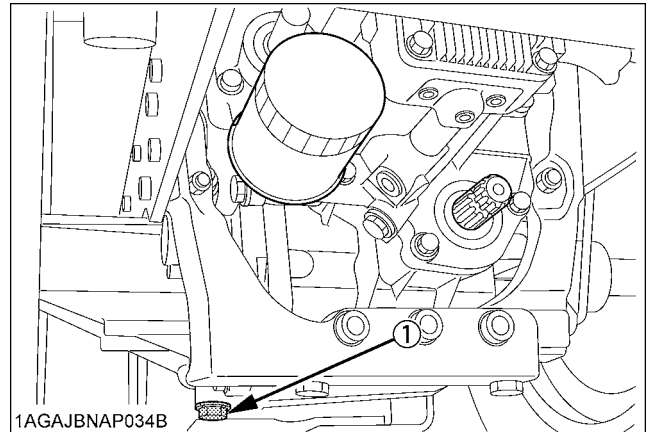
To avoid serious injury or death:

- Allow engine to cool down sufficiently, oil can be hot and can burn.

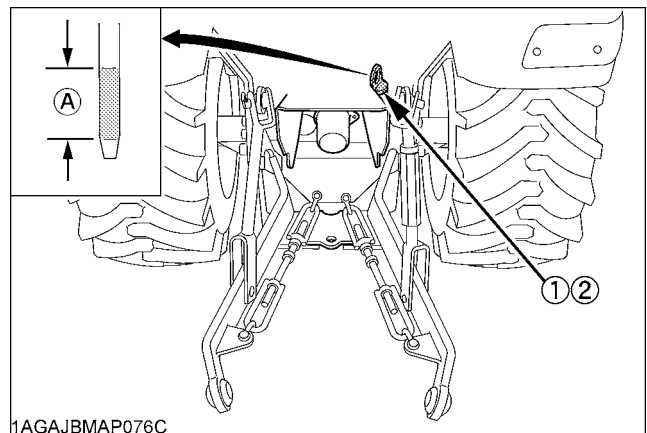
1. To drain the used oil, remove the drain plug at the bottom of the transmission case and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug.
3. Clean the transmission strainer.
4. Fill with new KUBOTA SUPER UDT fluid up to the upper notch on the dipstick.
(See "LUBRICANTS" in "MAINTENANCE OF THE TRACTOR" section and "DAILY CHECK" in "PERIODIC SERVICE OF THE TRACTOR" section.)
5. After running the engine for a few minutes, stop it and check the oil level again, add oil to prescribed level.
6. Properly dispose of used oil.

Oil capacity

11.6 L (3.1 U.S. gals.)



(1) Drain plug



(1) Oil inlet
(2) Dipstick

(A) Oil level is acceptable within this range.

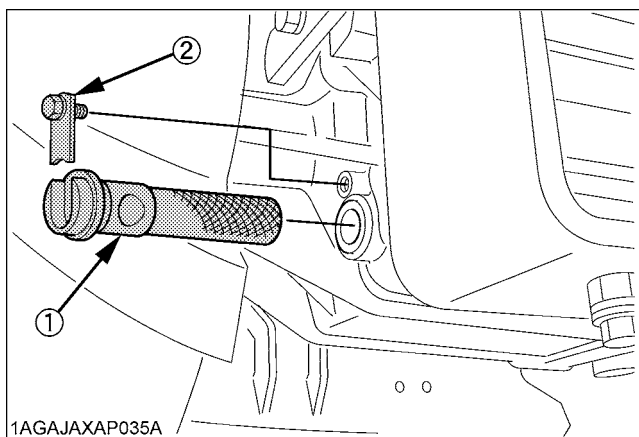
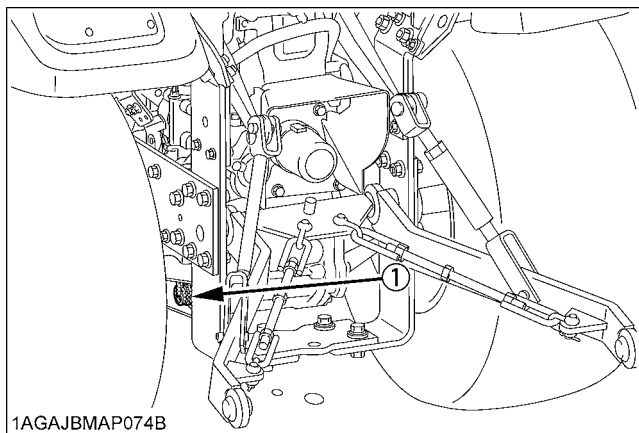
IMPORTANT :

- Do not operate the tractor immediately after changing the transmission fluid.
Run the engine at medium speed for a few minutes to prevent damage to the transmission.

■Cleaning Transmission Strainer

When changing the transmission fluid, disassemble and rinse the strainer with nonflammable solvent to completely clean off filings.

When reassembling be careful not to damage the parts.



- (1) Strainer
- (2) Filter plate

NOTE :

- Since the fine filings in the oil can damage the precision component parts of the hydraulic system, the end of the suction line is provided with an oil strainer.

■Changing Front Axle Case Oil

! WARNING

To avoid serious injury or death:

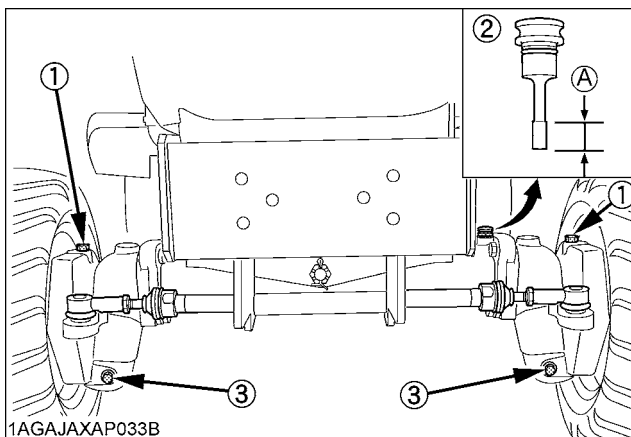
- Be sure to stop the engine and remove the key before adjusting the front axle pivot.

1. Park the tractor on a firm, flat, and level place.
2. To drain the used oil, remove the right and left drain plugs and oil gauge at the front axle case and drain the oil completely into the oil pan.
3. After draining reinstall the drain plugs.
4. Remove the right and left breather plugs.
5. Fill with new oil up to the upper notch on the dipstick. (See "LUBRICANTS" in "MAINTENANCE" section.)

IMPORTANT :

- After 10 minutes, check the oil level again; add oil to prescribed level.

6. After filling, reinstall the oil gauge and breather plugs.



- (1) Breather plug
 - (2) Oil gauge with dipstick
 - (3) Drain plug
- (A) Oil level is acceptable within this range

■Replacing Fuel Filter Element

Consult your local KUBOTA Dealer for this service.

EVERY 800 HOURS

■Adjusting Engine Valve Clearance

Consult your local KUBOTA Dealer for this service.

EVERY 1000 HOURS OR 1 YEAR

■Replacing Air Cleaner Element

Replace every 1000 hours or every 1 year whichever comes faster.

(See "Cleaning Air Cleaner Element" in "EVERY 100 HOURS" in "PERIODIC SERVICE" section.)

EVERY 1500 HOURS

■ Checking Fuel Injection Nozzle Injection Pressure

Consult your local KUBOTA Dealer for this service.

EVERY 2000 HOURS OR 2 YEARS

Be sure to do the following service once every 2000 hours or every 2 years whichever comes faster.

■ Flushing Cooling System and Changing Coolant



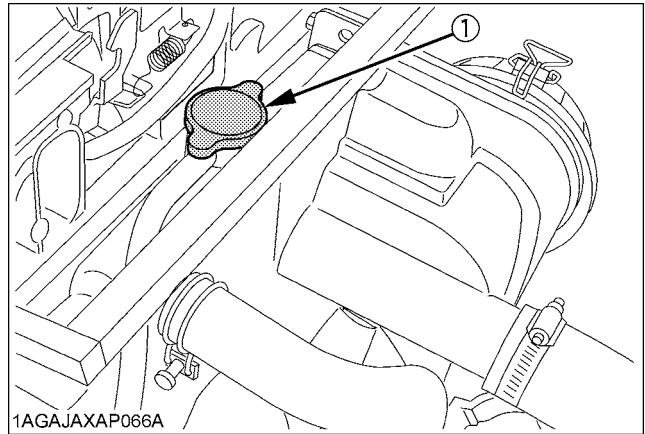
WARNING

To avoid serious injury or death:

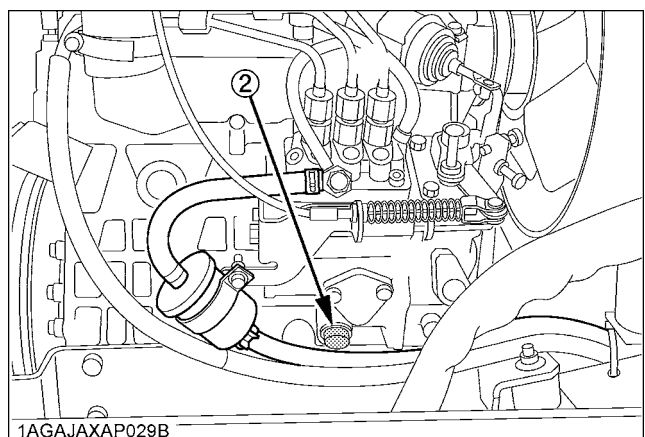
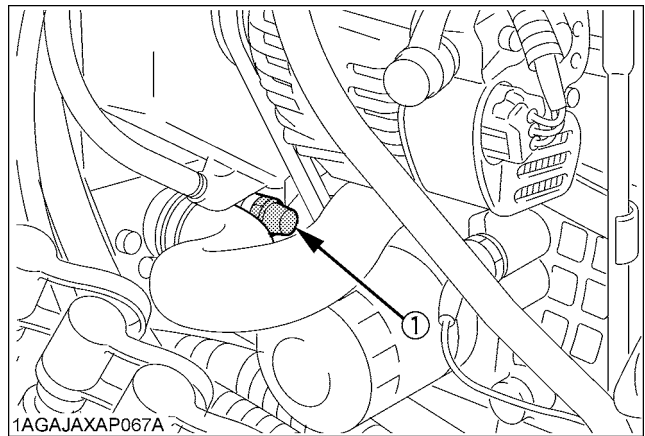
- Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.

1. Stop the engine and let cool down.
2. To drain the coolant, open the radiator-drain-plug or the engine-drain-plug and remove the radiator cap. The radiator cap must be removed to completely drain the coolant.
3. After all coolant is drained, close the drain plug.
4. Fill with clean soft water and cooling system cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean soft water and anti-freeze until the coolant level is just below the radiator cap. Install the radiator cap securely.
7. Fill with coolant up to the "H" mark on the recovery tank.
8. Start and operate the engine for few minutes.
9. Stop the engine and let cool.
10. Check coolant level of recovery tank and add coolant if necessary.

Coolant capacity (With recovery tank)	3.1 L (3.3 U.S. qts.)
--	-----------------------



(1) Radiator cap



(1) Radiator Drain plug
(2) Engine Drain plug

IMPORTANT :

- Do not start engine without coolant.
- Use clean, fresh soft water and anti-freeze to fill the radiator and recovery tank.
- When mixing the anti-freeze with water, the anti-freeze mixing ratio is 50%.

- Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.

■ **Anti-Freeze**



WARNING

To avoid serious injury or death:

- When using antifreeze, put on some protection such as rubber gloves. (Antifreeze contains poison.)
- If someone drank antifreeze, seek immediate medical help. Do NOT make a person throw up unless told to do so by poison control or a health care professional. Use standard first aid and CPR for signs of shock or cardiac arrest. Call your local Poison Control Center or your local emergency number for further assistance.
- When antifreeze comes in contact with the skin or clothing, wash it off immediately.
- Do not mix different types of Antifreeze. The mixture can produce chemical reaction causing harmful substances.
- Antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from antifreeze.
- When draining fluids from the engine, place some container underneath the engine body.
- Do not pour waste onto the ground, down a drain, or into any water source.
- Also, observe the relevant environmental protection regulations when disposing of antifreeze.

Always use a 50/50 mix of long-life coolant and clean soft water in KUBOTA engines.

Consult your local KUBOTA Dealer concerning coolant for extreme conditions.

1. Long-life coolant (hereafter LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
2. Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat this procedure 2 or 3 times to clean up the inside.
3. Mixing the LLC
Premix 50% LLC with 50% clean soft water. When mixing, stir it up well, and then fill into the radiator.
4. The procedure for the mixing of water and antifreeze differs according to the make of the antifreeze and the ambient temperature. Refer to SAE J1034 standard, more specifically also to SAE J814c.

* At 1.013 x 10⁵Pa (760mmHg) pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

5. Adding the LLC
 - (1) Add only water if the mixture reduces in amount by evaporation.
 - (2) If there is a mixture leak, add the LLC of the same manufacturer and type in the same mixture percentage.
 - * Never add any long-life coolant of different manufacturer. (Different brands may have different additive components, and the engine may fail to perform as specified.)
6. When the LLC is mixed, do not employ any radiator cleaning agent. The LLC contains anticorrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
7. KUBOTA's genuine long-life coolant has a service life of 2 years. Be sure to change the coolant every 2000 hours or every 2 years whichever comes faster.

NOTE :

- The above data represent industry standards that necessitate a minimum glycol content in the concentrated antifreeze.

EVERY 3000 HOURS

■ **Checking Injection Pump**

Consult your local KUBOTA Dealer for this service.

Vol % Anti-freeze	Freezing Point		Boiling Point*	
	°C	°F	°C	°F
50	-37	-34	108	226

EVERY 1 YEAR

■ Checking Radiator Hoses and Clamps

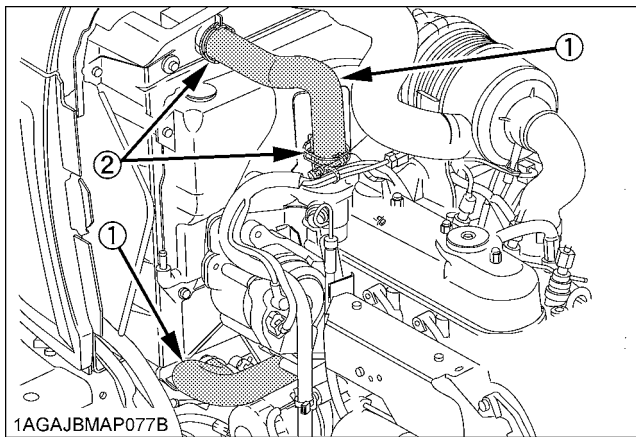


WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key before checking radiator hose and clamps.

1. If hose clamps are loose or water leaks, tighten bands securely.
2. Replace hoses and tighten hose clamps securely, if radiator hoses are swollen, hardened or cracked.
3. Properly dispose of used coolant.
Replace hoses and hose clamps if you checked and found that hoses are swollen, hardened or cracked.



1AGAJBMAP077B

- (1) Radiator hoses (2 pcs)
(2) Hose clamps (4 pcs)

◆ Precaution at Overheating

Take the following actions in the event the coolant temperature be nearly or more than the boiling point, what is called "Overheating".

1. Stop the machine operation in a safe place and keep the engine idling unloaded.
2. Don't stop the engine suddenly, but stop it after about 5 minutes of unloaded idling.
3. Keep yourself well away from the machine for an additional 10 minutes or until the steam has blown out.
4. Checking that there is no danger such as burn, get rid of the causes of overheating according to the manual, see "TROUBLESHOOTING" section, and then, start the engine again.

■ Checking Power Steering Line

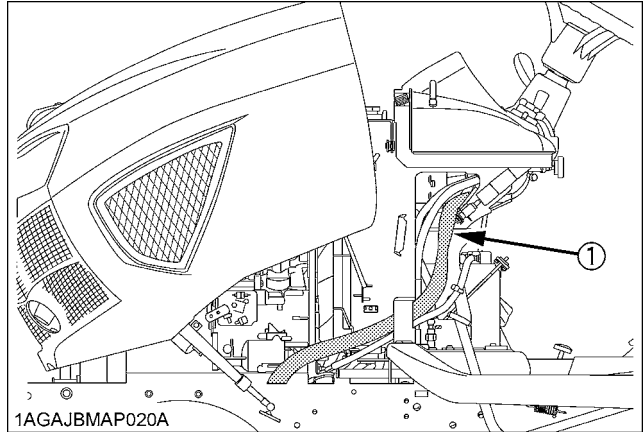


WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key before checking power steering line.

1. Check to see that all lines are tight and not damaged.
2. If hoses are found to be worn or damaged, replace or repair them at once.



1AGAJBMAP020A

- (1) Power steering pressure hose

■ Checking Fuel Lines



WARNING

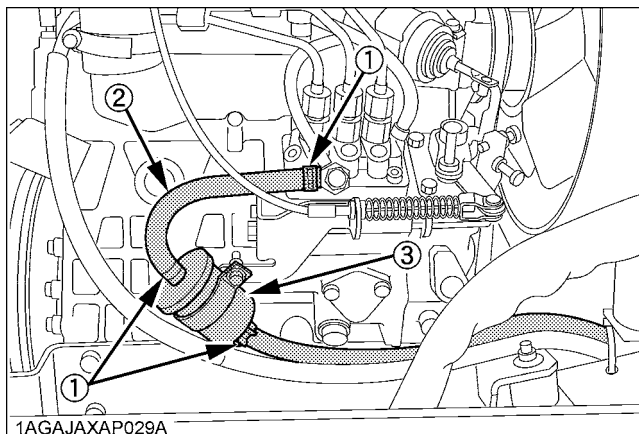
To avoid serious injury or death:

- Stop the engine and remove the key before checking fuel lines and fuel filter.
- Check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.

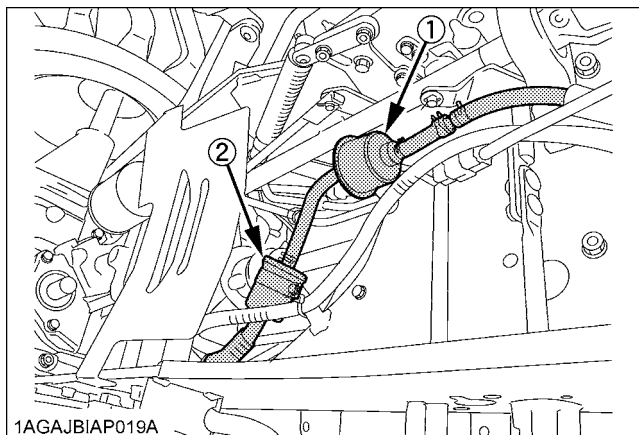
1. The fuel line is made of rubber and ages regardless of service period.
2. After inspection, if the fuel line and clamps are found damaged or deteriorated, replace them.
3. Check fuel filter, if it is clogged by debris or contaminated by water, replace it.

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. Particular care must be taken in order to avoid dust and dirt getting into the fuel system. Entrance of dust and dirt causes malfunction of the fuel pump.



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



(1) Fuel pump
(2) Fuel filter

NOTE :

- If the fuel line is removed, be sure to properly bleed the fuel system.
(See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE OF THE TRACTOR" section.)

■ Checking Intake Air Line

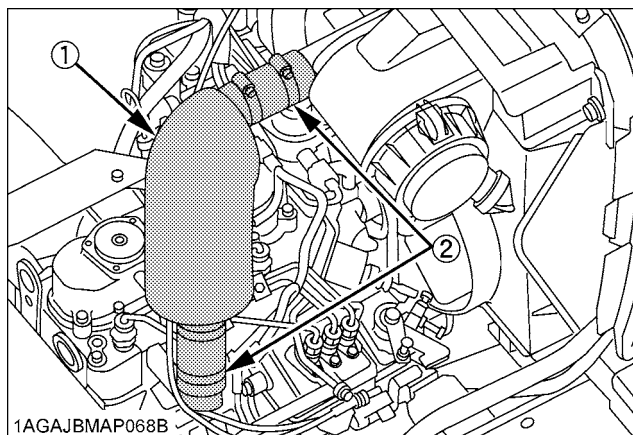


WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key before checking intake air line.

1. Check to see that hose and hose clamps are tight and not damaged.
2. If hose and clamps are found to be worn or damaged, replace or repair them at once.



(1) Hose
(2) Hose clamp

■ Checking Engine Breather Hose

Consult your local KUBOTA Dealer for this service.

EVERY 4 YEARS

■ Replacing Radiator Hose (Water pipes)

Replace the hoses and clamps.

(See "Checking Radiator Hose and Clamp" in "EVERY 1 YEAR" in "PERIODIC SERVICE" section.)

■ Replacing Power Steering Hose

Consult your local KUBOTA Dealer for this service.

■ Replacing Fuel Lines

Consult your local KUBOTA Dealer for this service.

■ Replacing Engine Breather Hose

Consult your local KUBOTA Dealer for this service.

■ Replacing Intake Air Line

Consult your local KUBOTA Dealer for this service.

SERVICE AS REQUIRED

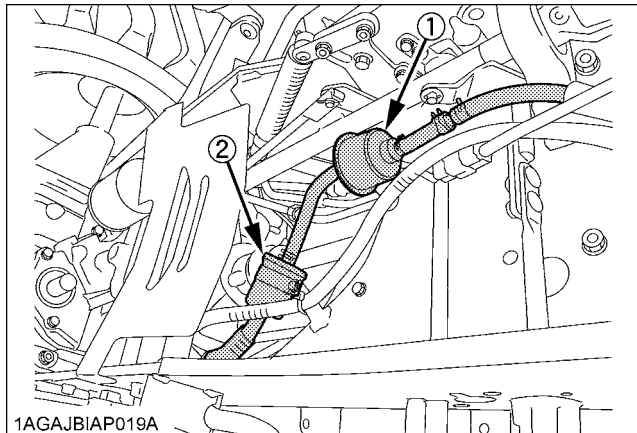
■ Bleeding Fuel System

Air must be removed:

1. When the fuel filter or lines are removed.
2. When the tank is completely empty.
3. After the tractor has not been used for a long period of time.

◆ Bleeding procedure is as follows:

1. Fill the fuel tank with fuel.



(1) Fuel pump
(2) Fuel filter

2. Turn the key switch to "ON" position for about 30 seconds. Doing so allows fuel pump to work and pump air out of the fuel system.
3. Start the engine and run for about 30 seconds, and then stop the engine.

■ Replacing Fuse

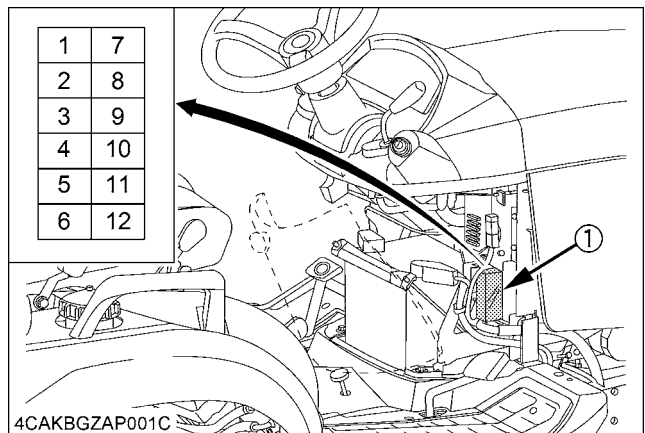
The tractor electrical system is protected from potential damage by fuses.

A blown fuse indicates that there is an overload or short somewhere in the electrical system.

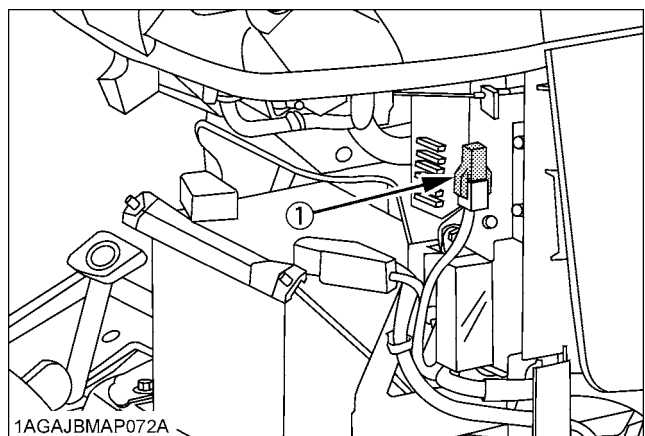
If any of the fuses should blow, replace with a new one of the same capacity.

IMPORTANT :

- Before replacing a blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage to the tractor electrical system. Refer to the troubleshooting section of this manual or your local KUBOTA Dealer for specific information dealing with electrical problems.



(1) Fuse box



(1) Slow blow fuse

◆ Protected circuit

[Fuse box]

FUSE No.	CAPACITY (A)	Protected circuit
1	-	-
2	-	-
3	10	OPTION (3RD-FUNCTION)
4	10	OPC
5	15	DC OUTLET
6	5	FUEL PUMP
7	-	-
8	5	GLOW INDICATOR
9	5	METER
10	15	STOP SOLENOID
11	20	LAMP
12	20	OPTION (WORK LIGHT)

CAPACITY (A)	Protected circuit
Slow blow Fuse (50A)	Check circuit against wrong battery connection

■ Replacing Light Bulb

1. Head light
Take the bulb out of the light body and replace with a new one.
2. Other lights
Detach the lens and replace the bulb.

Light	Capacity
Head light	37.5W x 2
Tail light	12.8W x 2
Hazard light	23W x 2

MAINTENANCE OF THE LOADER



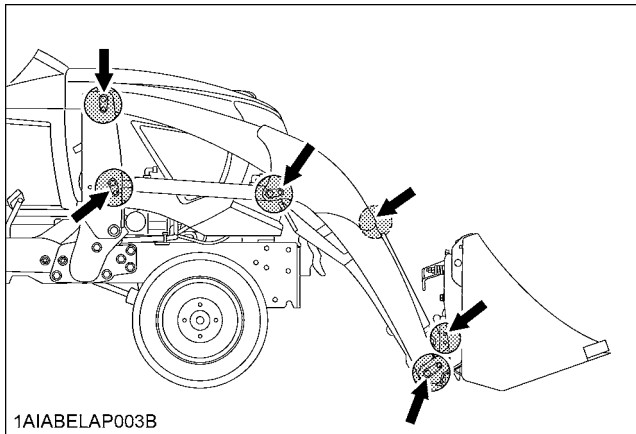
WARNING

To avoid personal injury or death:

- Be sure to check and service the tractor on a flat surface with the bucket on the ground, engine shut off, the key removed and the parking brake on.

LUBRICATION

1. Lubricate all grease fittings every 10 hours of operation. Also, lubricate joints of control lever linkage every 10 hours. High quality grease designating "extreme pressure" and containing Molybdenum disulfide is recommended. This grease may specify "Moly EP" on its label.



2. Daily before operation, check the tractor hydraulic fluid level. If low, add as described in "PERIODIC SERVICE OF THE TRACTOR" section. Also change the filter element and the hydraulic fluid as recommended in "PERIODIC SERVICE OF THE TRACTOR" section.

RE-TIGHTENING OF HARDWARE

After 20 to 30 hours of initial loader operation, re-tighten all mounting bolts and nuts to the required torque value as specified in the "Tightening Torque Chart".

■ Tightening Bolts and Nuts

Tighten all bolts and nuts with required torque.

Location	Bolt / Nut	Required Torque
Main frame	M14 bolts or nuts	147 N-m (15.0 kgf-m) (108 lbf-ft)

NOTE :

- Before finally tightening all mounting hardware, start the engine and apply down pressure to the bucket until the loader raises the front wheels slightly, and make sure that the mounting pins can be rotated easily. Tighten all bolts and nuts in this position.

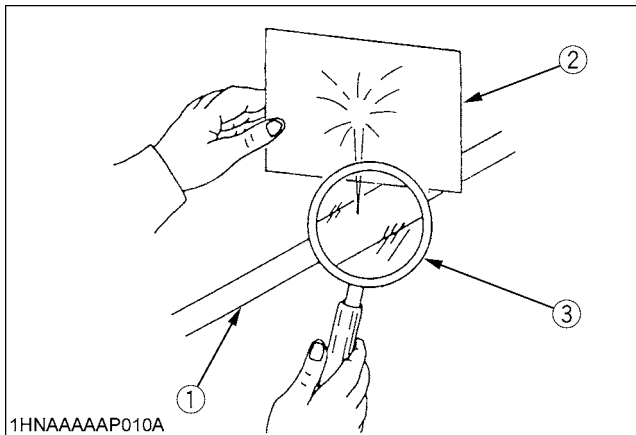
DAILY CHECKS

1. Check all hardware daily before operation.
Tighten hardware to torque values as specified in the "Tightening Torque Chart".
2. 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.

WARNING

To avoid serious injury or death:

- 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, tubes, and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

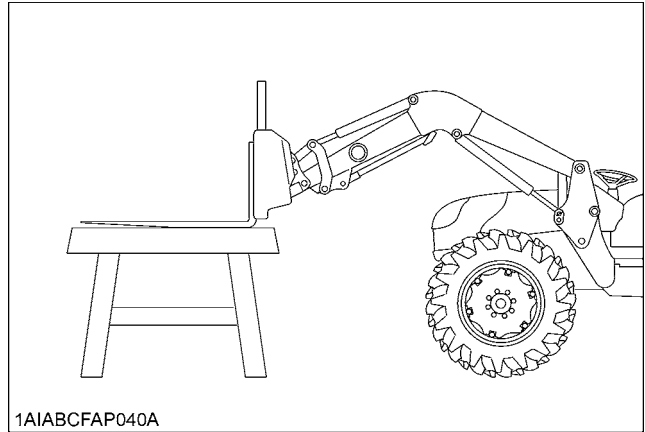


1HNAAAAP010A

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

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.

- When removing the engine side covers, be careful not to touch hot loader cylinders. Allow all surfaces to cool before performing maintenance.
- Before servicing the loader or the tractor, be sure to place the loader boom in contact with the ground. If the loader boom must be raised during service or maintenance, support the boom as shown in the figure.



1AIABCFAP040A

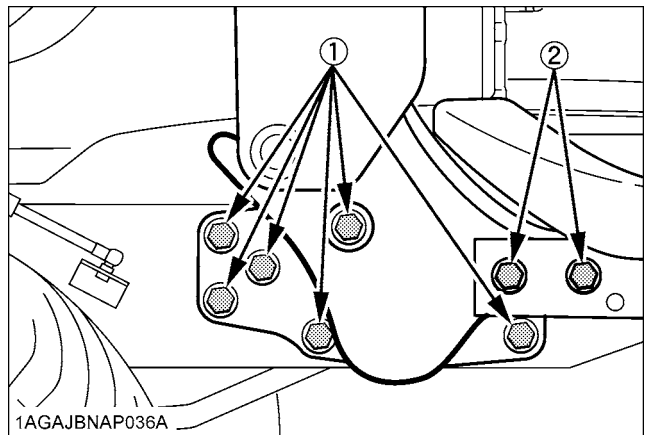
EVERY 50 HOURS

■ Checking main frame bolt and nut torque

WARNING

To avoid serious injury or death:

- Never operate front loader with a loose main frame.
- Any time bolts and nuts are loosened, retighten to specified torque.
- Check all bolts and nuts frequently and keep them tight.
- Check main frame bolts and nuts regularly especially when new. If they are loose, tighten them as follows.



1AGAJBNAP036A

- (1) Tightening torque : 147 N-m (15.0 kgf-m, 108 lbf-ft)
- (2) Tightening torque : 203 N-m (20.7 kgf-m, 150 lbf-ft)

MAINTENANCE OF THE BACKHOE

DAILY CHECKS

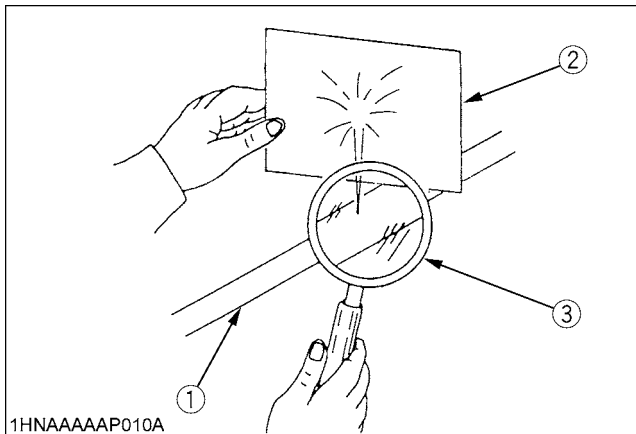


WARNING

To avoid serious injury or death:

- 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.

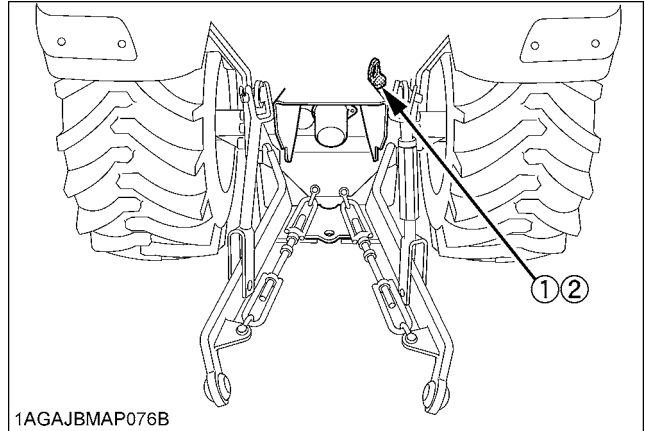
Fluid escaping from a very small hole can be almost invisible. Do not use hands to search for suspected leak, use a piece of cardboard or wood. If injured by escaping fluid, see a doctor at once. Serious infection or allergic reaction will develop if proper medical treatment is not administered immediately.



1HNAAAAAP010A

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

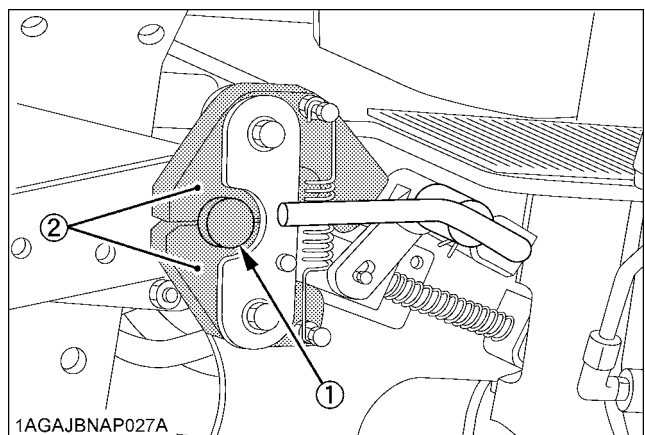
1. The backhoe is run by the tractor hydraulic system. Daily before operation, check the tractor hydraulic level. If low, replenish the oil as described in "PERIODIC SERVICE OF THE TRACTOR" section. Also check the filter screen and change the hydraulic fluid as recommended in "PERIODIC SERVICE OF THE TRACTOR" section.



1AGAJBMAP076B

- (1) Oil port
- (2) Dipstick

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 pins are grabbed surely by the support hooks on the main frame before operation.

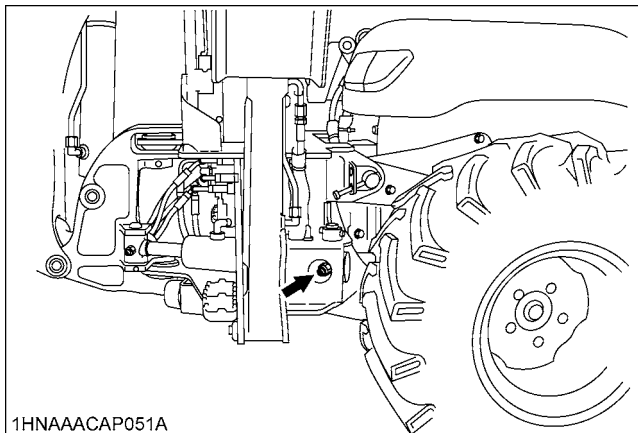
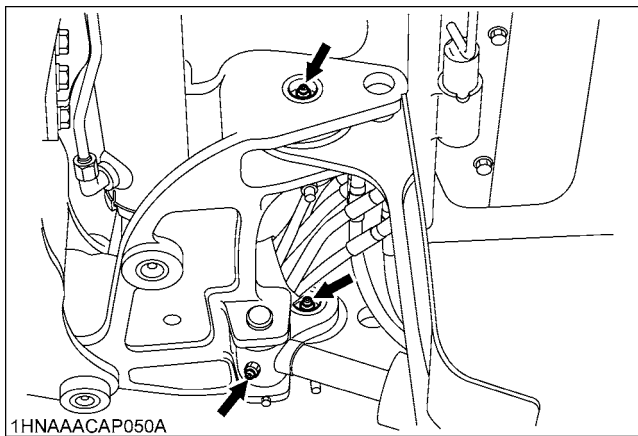
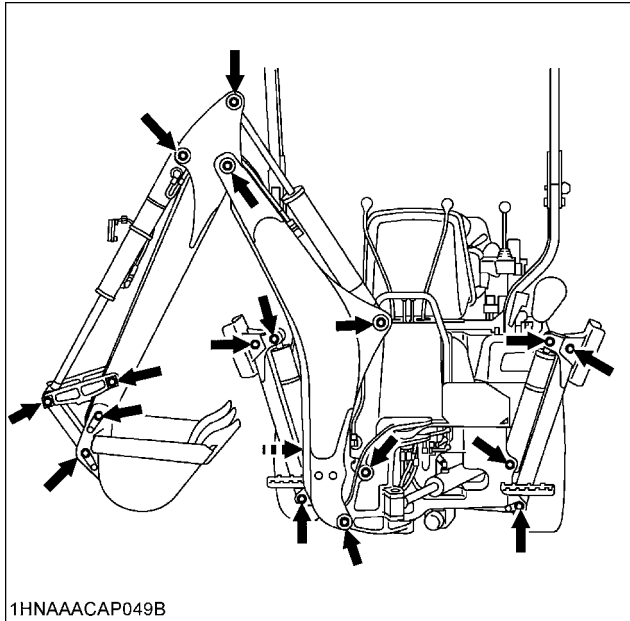


1AGAJBNAP027A

- (1) Mounting pin
- (2) Support hooks

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 its label.



BUCKET SERVICE



WARNING

To avoid serious injury or death:

- 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.

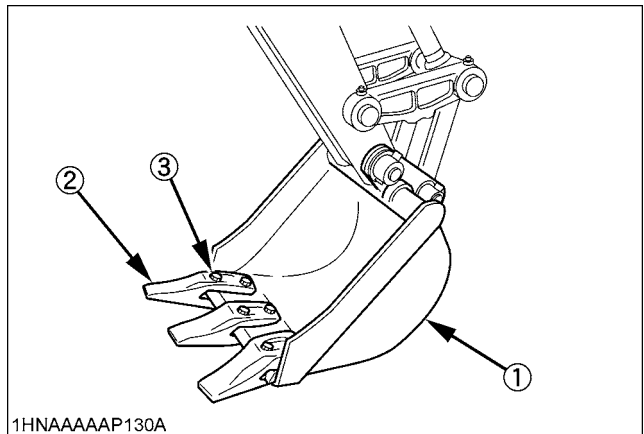
Place the bucket to be installed on its bottom, near the backhoe dipperstick and the bucket to be removed.

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

EVERY 50 HOURS

■ Checking Sub Frame Bolt Torque

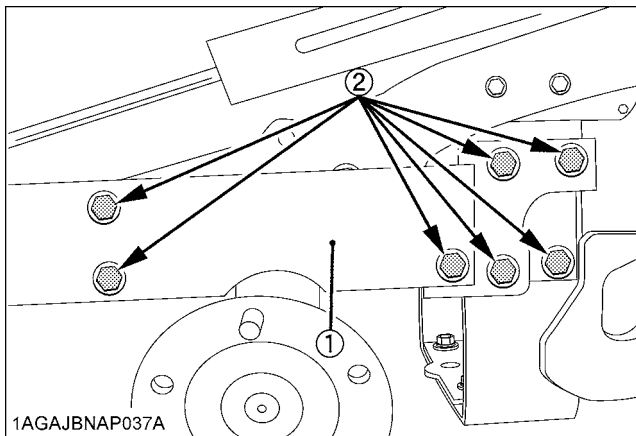


WARNING

To avoid serious injury or death:

- 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.



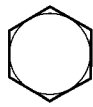
- (1) Sub frame
(2) Bolts

Tightening torque: 147 N-m (15.0 kgf-m, 108 lbf-ft)

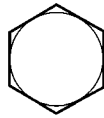
General Torque Specification

American standard cap screws with UNC or UNF threads 			Metric cap screws 		
SAE grade No.		GR5 or GR8	Property class		8.8 Approx. SAE GR5
1/4	(lbf-ft) (N-m) (kgf-m)	7.2 to 8.6 9.8 to 11.7 1.0 to 1.2	M6	(lbf-ft) (N-m) (kgf-m)	7.2 to 8.3 9.8 to 11.2 1.0 to 1.1
5/16	(lbf-ft) (N-m) (kgf-m)	14 to 17 19 to 23.1 1.9 to 2.4	M8	(lbf-ft) (N-m) (kgf-m)	17.4 to 20.2 23.6 to 27.4 2.4 to 2.8
3/8	(lbf-ft) (N-m) (kgf-m)	25 to 30 33.9 to 40.7 3.5 to 4.2	M10	(lbf-ft) (N-m) (kgf-m)	35.5 to 41.2 48.1 to 55.8 4.9 to 5.7
1/2	(lbf-ft) (N-m) (kgf-m)	65 to 78 88.1 to 105.8 9.0 to 10.8	M12	(lbf-ft) (N-m) (kgf-m)	57.2 to 66.5 77.5 to 90.1 7.9 to 9.2
9/16	(lbf-ft) (N-m) (kgf-m)	90 to 108 122 to 146.4 12.4 to 14.9	M14	(lbf-ft) (N-m) (kgf-m)	91.2 to 108 124 to 147 12.6 to 15.0
5/8	(lbf-ft) (N-m) (kgf-m)	130 to 156 176.3 to 211.5 18.0 to 21.6	M16	(lbf-ft) (N-m) (kgf-m)	145 to 166 196 to 225 20.0 to 23.0

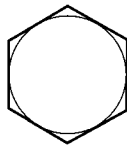
Top of bolt



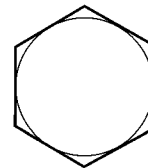
M8



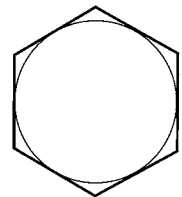
M10



M12



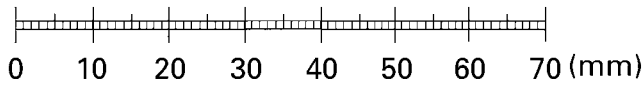
M14



M16

1HNAAAAAP1310

Length



1HNAAAAAP1320

STORAGE OF THE TRACTOR



WARNING

To avoid personal injury or death:

- Do not clean the machine while the engine is running.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- When storing, remove the key from the key switch to avoid unauthorized persons from operating the tractor and getting injured.

TRACTOR STORAGE

If you intend to store your tractor for an extended period of time, follow the procedures outlined below. These procedures will insure that the tractor is ready to operate with minimum preparation when it is removed from storage.

1. Check the bolts and nuts for looseness, and tighten if necessary.
2. Apply grease to tractor areas where bare metal will rust also to pivot areas.
3. Detach the weights from the tractor body.
4. Inflate the tires to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about 5 minutes.
6. With all implements lowered to the ground, coat any exposed hydraulic cylinder piston rods with grease.
7. Remove the battery from the tractor. Store the battery following the battery storage procedures.
(See "Battery" in "EVERY 100 HOURS" in "PERIODIC SERVICE OF THE TRACTOR" section.)
8. Keep the tractor in a dry place where the tractor is sheltered from the elements. Cover the tractor.
9. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat. If the tractor must be stored outdoors, cover it with a waterproof tarpaulin. Jack the tractor up and place blocks under the front and rear axles so that all 4 tires are off the ground. Keep the tires out of direct sunlight and extreme heat.

IMPORTANT :

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

REMOVING THE TRACTOR FROM STORAGE

1. Check the tire air pressure and inflate the tires if they are low.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Install the battery. Before installing the battery, be sure it is fully charged.
4. Check the fan belt tension.
5. Check all fluid levels (engine oil, transmission/hydraulic oil, engine coolant and any attached implements).
6. Start the engine. Observe all gauges. If all gauges are functioning properly and reading normal, move the tractor outside. Once outside, park the tractor and let the engine idle for at least 5 minutes. Shut the engine off and walk around tractor and make a visual inspection looking for evidence of oil or water leaks.
7. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes as necessary.

REMOVING THE LOADER

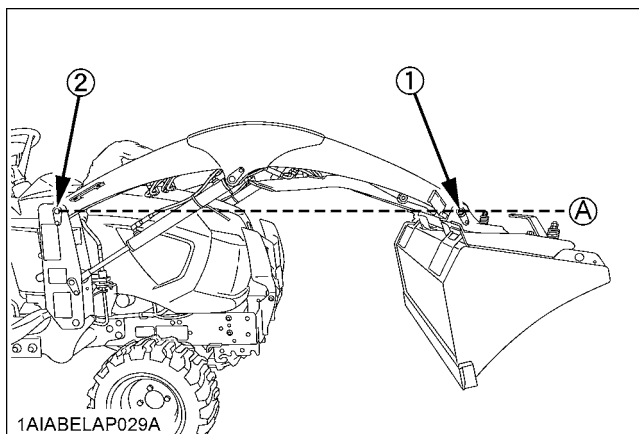


WARNING

To avoid personal injury or death:

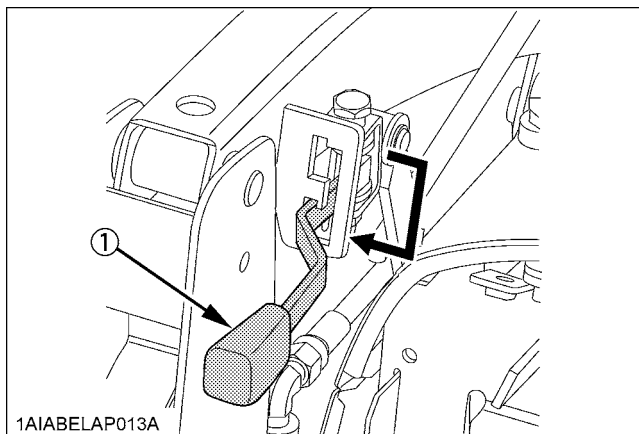
- Make sure an approved bucket is attached before removing the loader from the tractor.
- For removing the loader, choose flat and hard ground, preferably concrete.
- If the ground surface is soft, place suitable planks on the ground for the bucket and stand.
- When starting the engine or using the hydraulic control valve, always sit in the operator's seat.
- Make sure the bucket and stand are at ground level.

1. Set the engine speed to 1800 rpm, raise the boom until the bucket pin is the height of the boom fulcrum pin.
2. Dump the bucket fully.

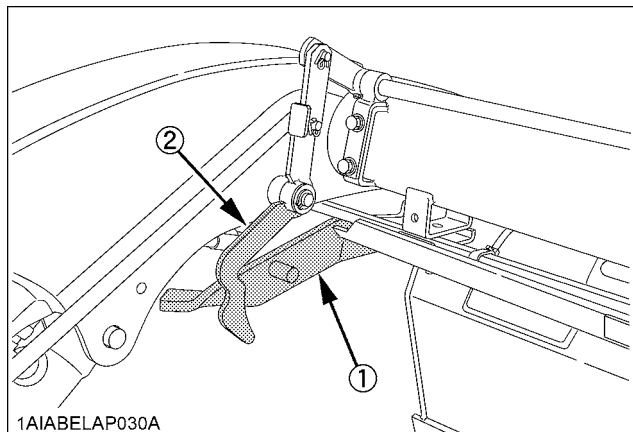


(1) Bucket pin (A) Same height
(2) Boom fulcrum pin

3. Slide the stand lever downward direction completely and release the stand from stand hook.

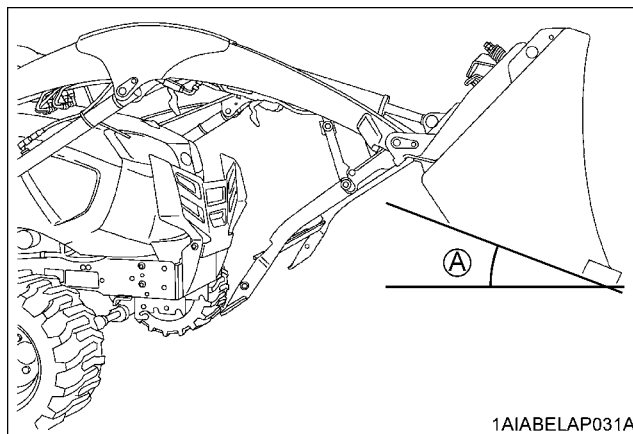


(1) Stand lever



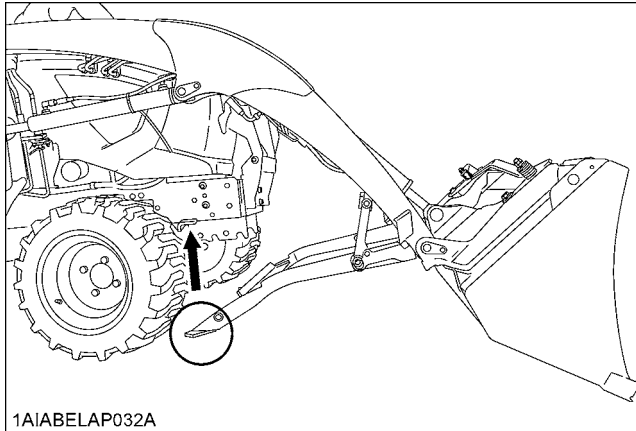
(1) Stand
(2) Stand hook

4. Get the bucket rolled back until its bottom is positioned about 20 degrees with respect to the ground surface.



(A) 20 degrees

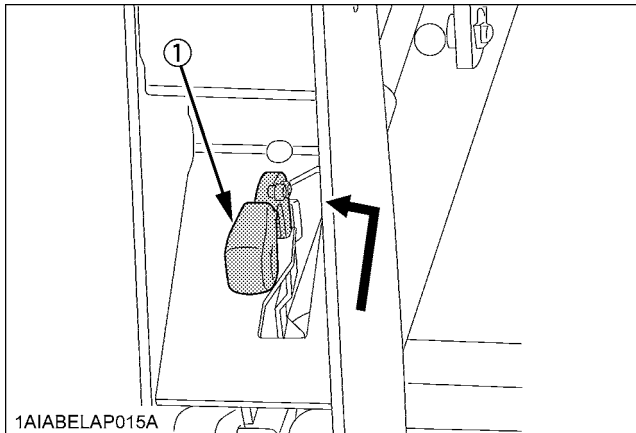
5. Lower the boom and raise the front wheels slightly.



IMPORTANT :

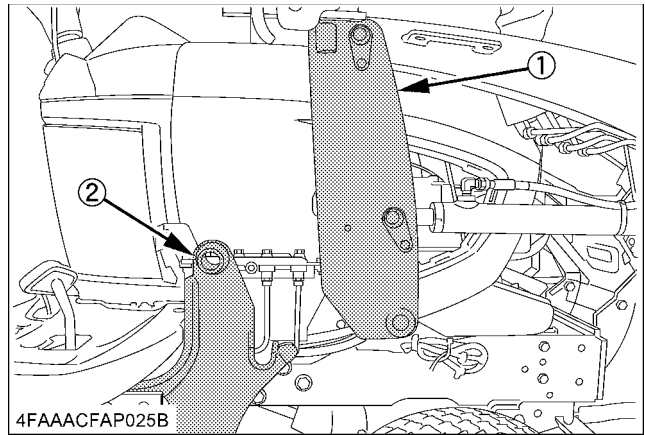
- When raising the front wheels, the stands are not to be grounded.

6. Slide the mounting levers (both sides) to the upward direction as shown.

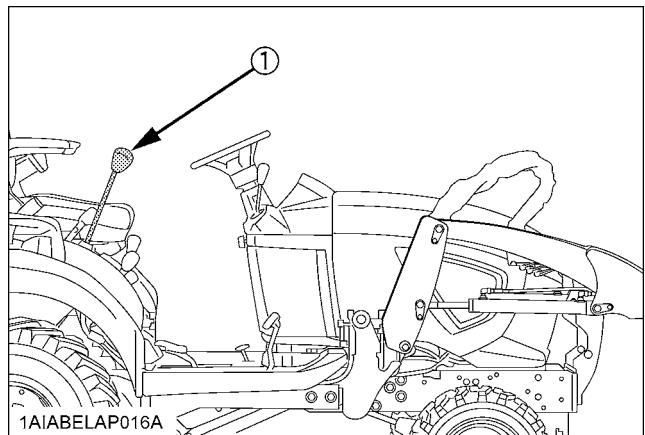


(1) Mounting lever

7. Slowly move the loader control lever to rollback position to raise the loader side frames up and out of the receivers of the main frames as shown.

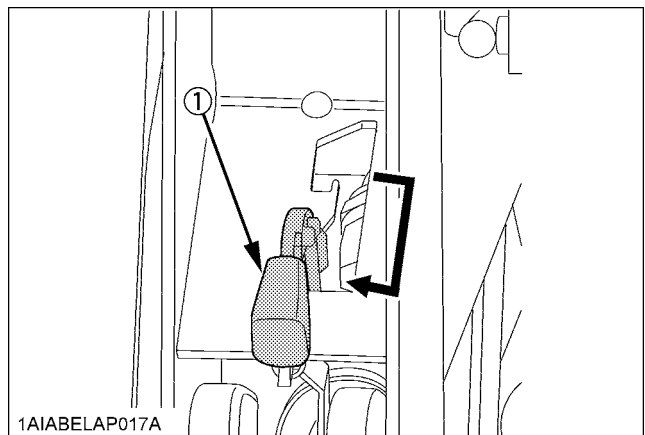


(1) Main frame
(2) Sub frame



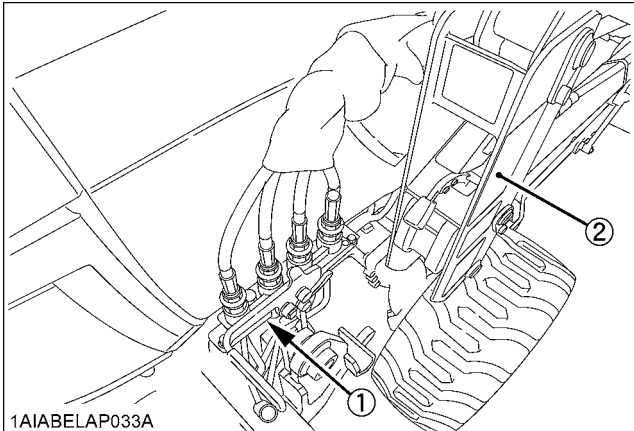
(1) Loader control lever

8. Down the mounting levers (both sides) as shown below.



(1) Mounting lever

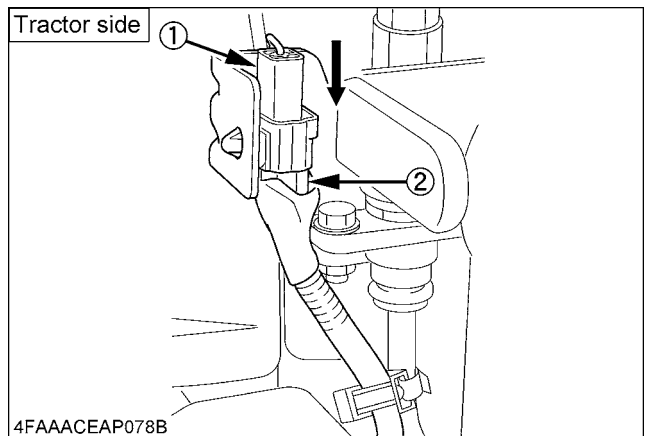
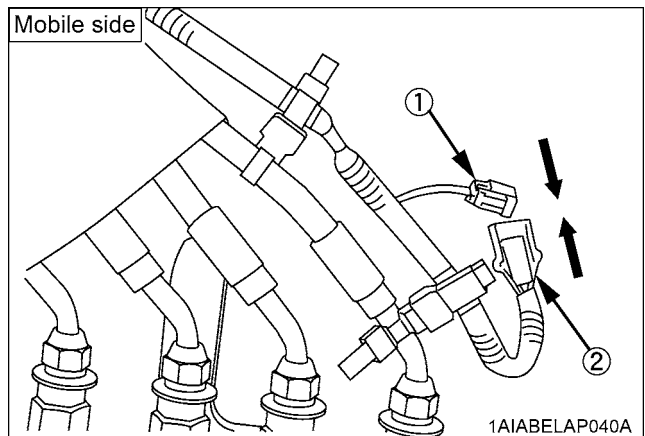
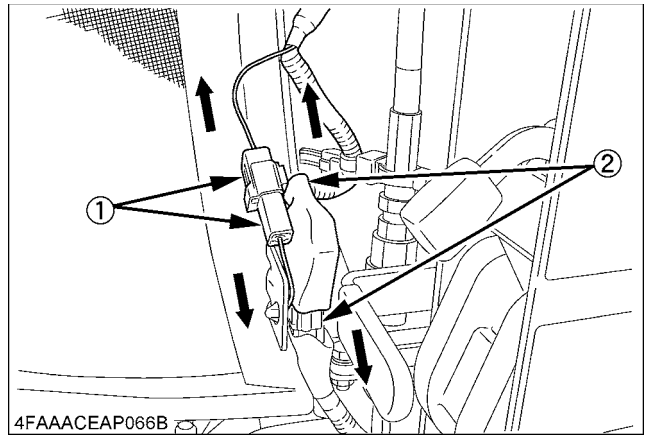
9. Back the tractor so that the quick coupler is positioned at the back of side frame as shown in below figure.



(1) Quick coupler
(2) Side frame

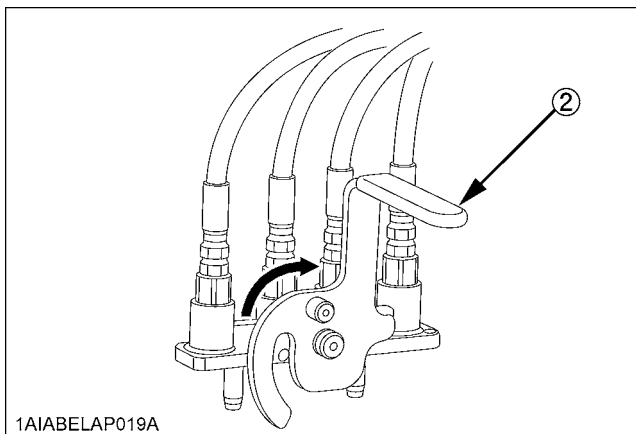
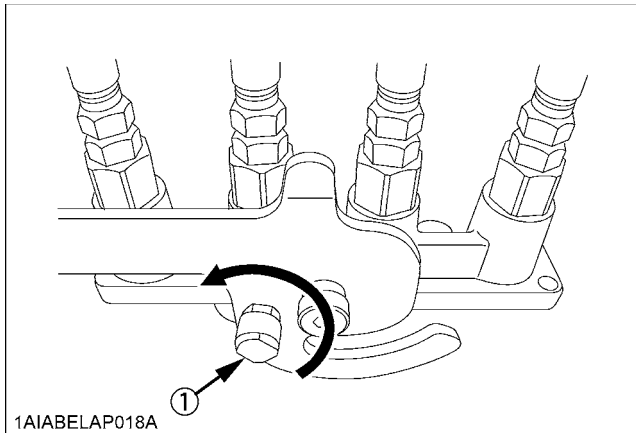
10. Stop the engine and slowly release all hydraulic pressure by moving the loader control lever in all directions

11. When the 3rd function kit is mounted, remove the connector and connect the cap to mobile side and tractor side connector.



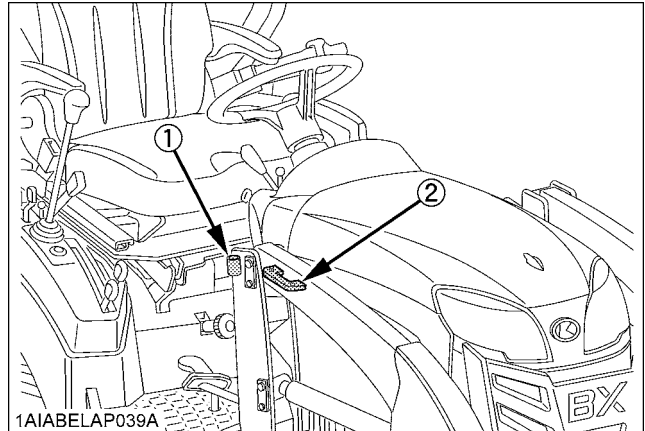
(1) Cap
(2) Connector

12. Unfasten seat belt, turn the safety lock button counterclockwise to unlock it. Then raise the lever until it stops.



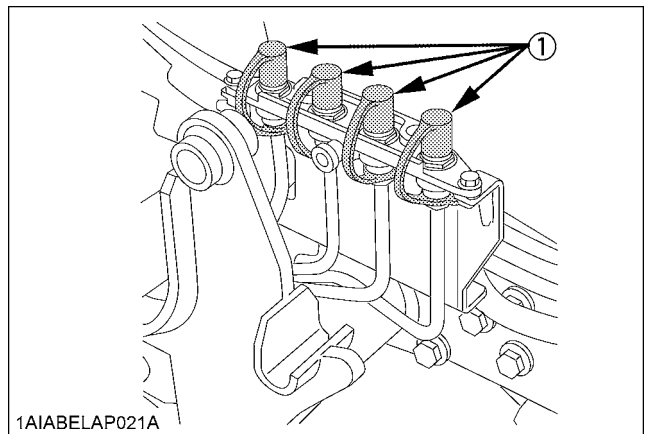
(1) Safety lock button
(2) Lever

13. Put the mobile part on the coupler stay (1).
For CAB model, put on the coupler stay (2).



(1) Coupler stay
(2) Coupler stay (For CAB model)

14. Place the protective caps and plugs on the quick coupler ends.

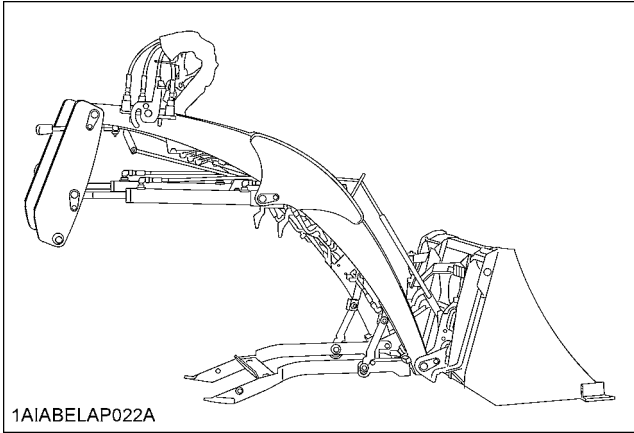


(1) Protective caps

15. Wear the seat belt and slowly back the tractor away from the loader.

STORAGE OF THE LOADER

1. Store the loader in a clean dry place.
2. Make sure the loader is properly supported.



3. Check hydraulic hoses and connections. Repair or replace if necessary.
4. Repair or replace any worn, damaged or missing parts.
5. Lubricate loader as described "LUBRICATION" in "MAINTENANCE OF THE LOADER" section.
6. Apply a coat of grease to all exposed cylinder rods and mounting pins to prevent rust.
7. Repaint worn or scratched parts.

REINSTALLING THE LOADER

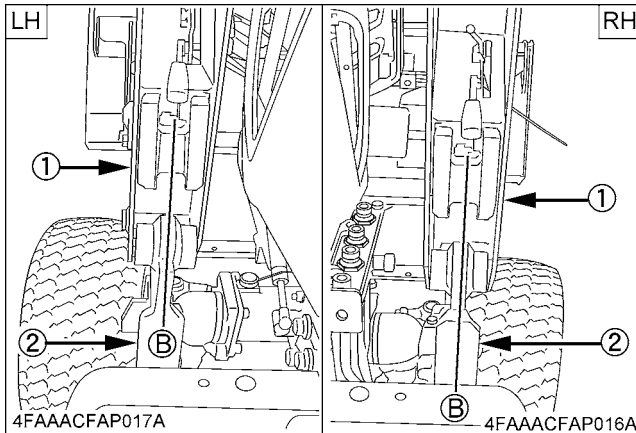
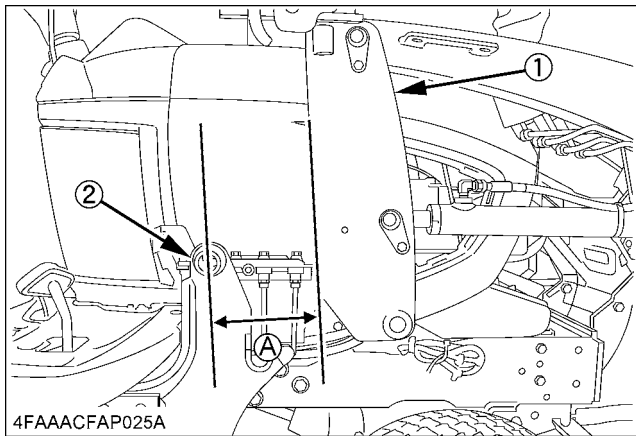


WARNING

To avoid personal injury or death:

- When starting the engine and operating the hydraulic control valve, always sit in the operator's seat.

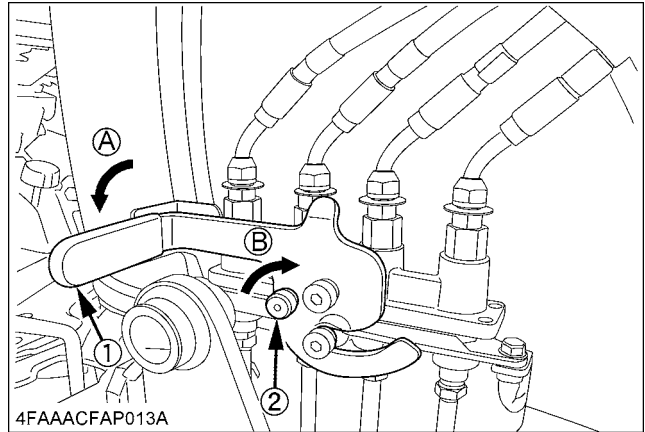
1. Slowly drive the tractor between the loader side frames as shown in the figure.



- (1) Side frame
(2) Main frame

- (A) 150 to 200 mm
(B) Center of side frames

2. Stop the engine and unfasten the seat belt.
3. Remove the cap. Connect the quick coupler and lower the lever until it stops. Now turn the safety lock button clockwise.



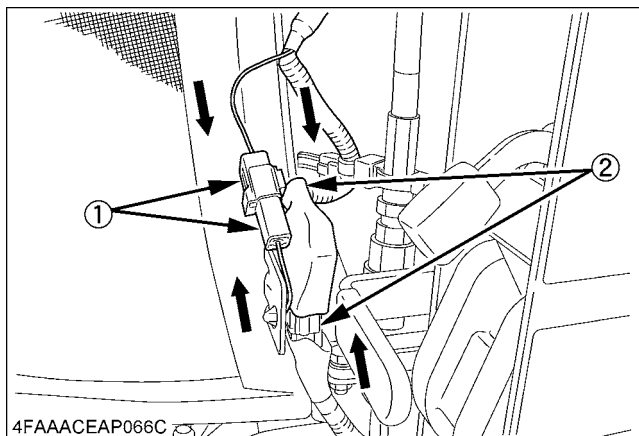
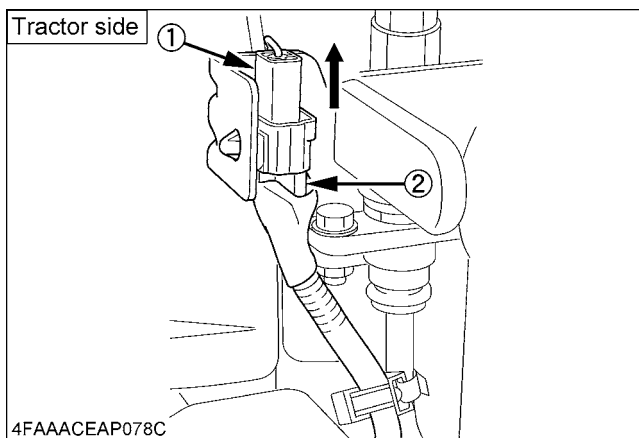
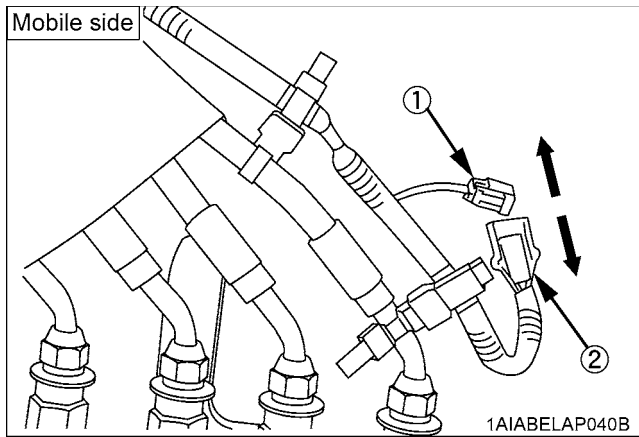
- (1) Lever
(2) Safety lock button

- (A) Lower
(B) Clockwise

IMPORTANT :

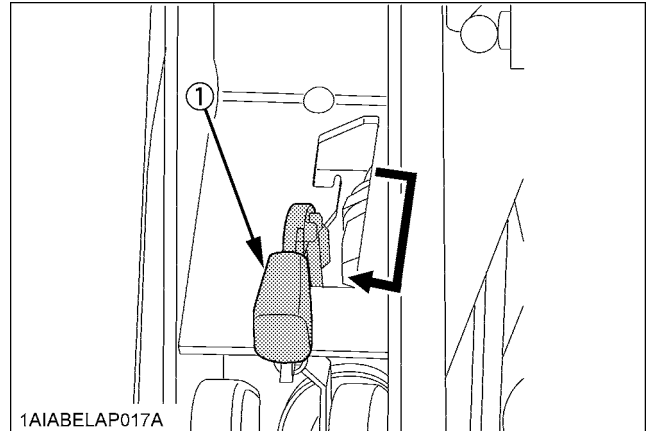
- Get the quick coupler locked, and move up and down the lever to make sure the coupler is tightly locked.

4. When mounting the 3rd function kit, remove the cap from mobile side and tractor side connector. And then connect connectors and caps as shown below.



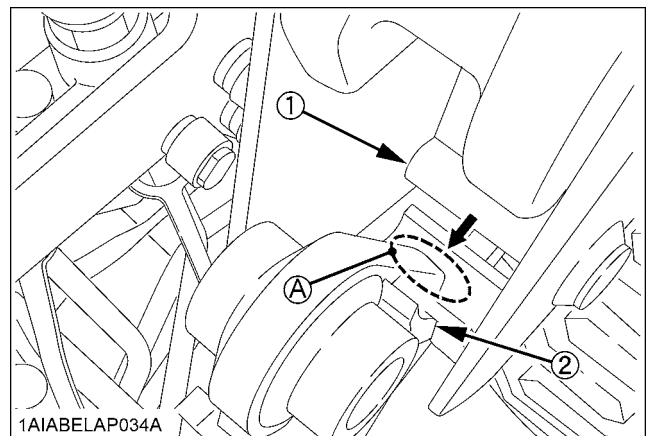
(1) Cap
(2) Connector

5. Make sure the mounting levers (both sides) are at its low position as shown below.



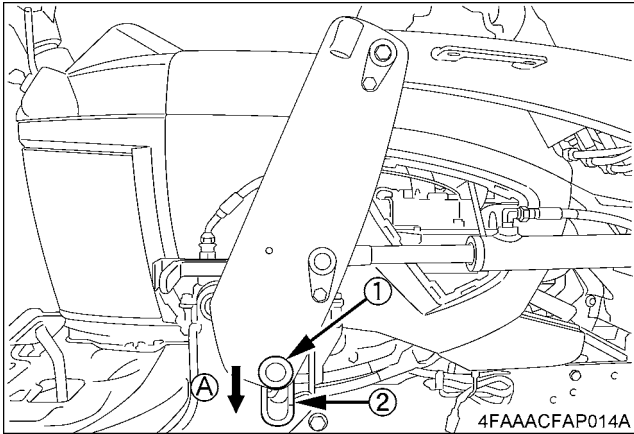
(1) Mounting lever

6. Start the engine and run at 1800 rpm.
7. Slowly move the loader control lever to up position until the guide boss of both side frames touches the main frames.



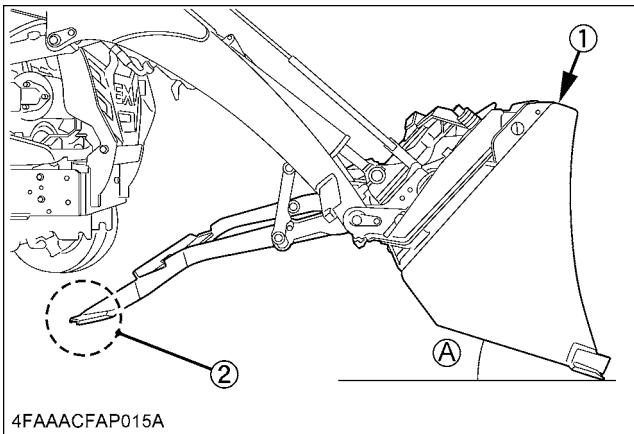
(1) Guide boss of side frame (A) Touch
(2) Main frame

8. Slowly move the loader control lever to dump position to lower the side frames into the main frames and engage the bosses of the main frames to the guide bosses of the side frames.



(1) Guide boss of side frame (A) Engage
(2) Boss of main frame

9. Slowly move the loader control lever to the dump position until the bucket tilts down 20 degrees or so to the ground.

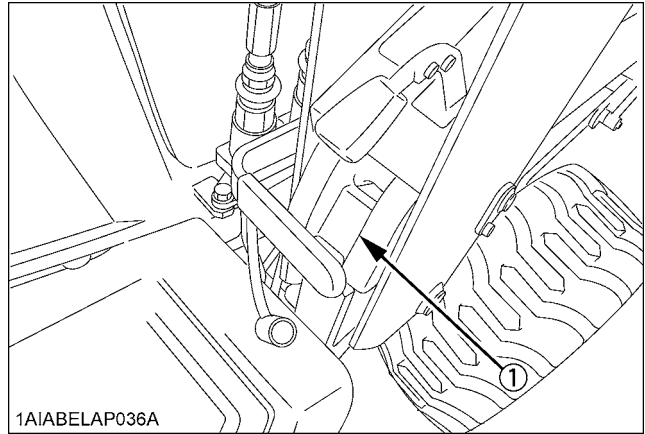


(1) Bucket (A) 20 degrees
(2) Tip of the stand

IMPORTANT :

- Make sure the tips of the stands are off the ground.

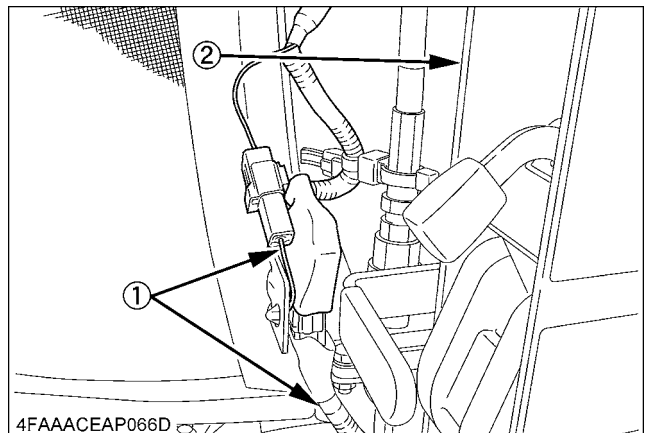
10. Slowly move the loader control lever to down position to lift the front wheels slightly with the loader until mount hooks are completely mounted on main frame as shown.



(1) Mount hook

IMPORTANT :

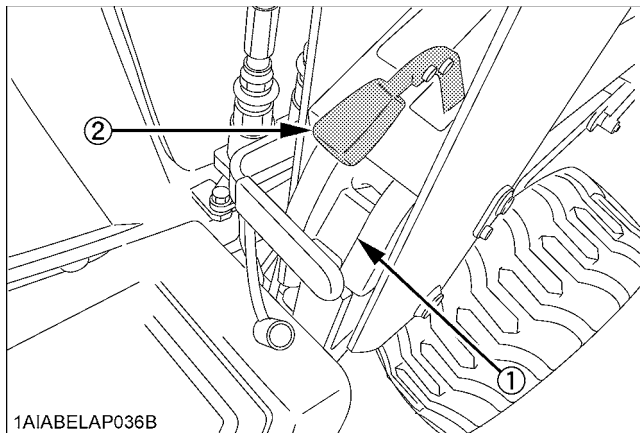
- Make sure the hooks at both sides are properly mounted on the main frame.



(1) Wire harness
(2) Side frame

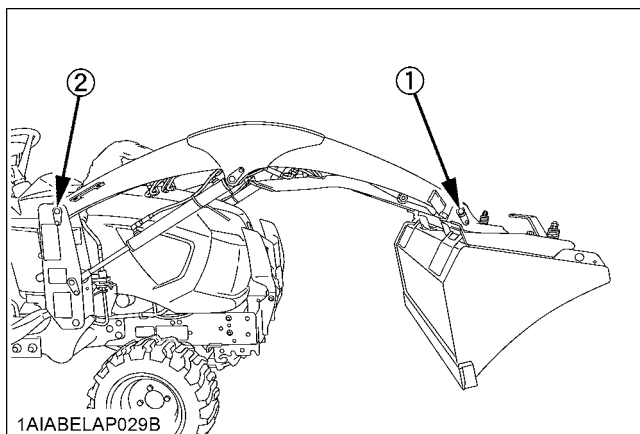
- Make sure not to pinch the wire harness in the side frame when mounting the 3rd function kit.

11. Slowly move the loader control lever to the up position until the cutting edge of the bucket comes up slightly off the ground. Then make sure the right and left mounting levers can not be activated. Do not use the machine if the cutting edge of the bucket is off the ground but the mount hooks are unlocked.



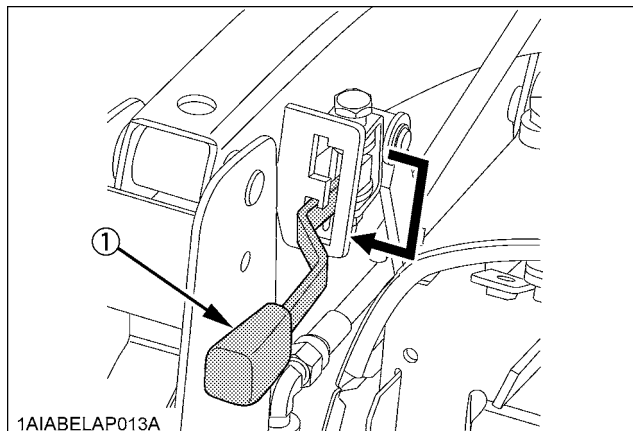
(1) Mount hook
(2) Mounting lever

12. Raise the boom until the bucket fulcrum pin is the height of the boom fulcrum pin.



(1) Bucket fulcrum pin
(2) Boom fulcrum pin

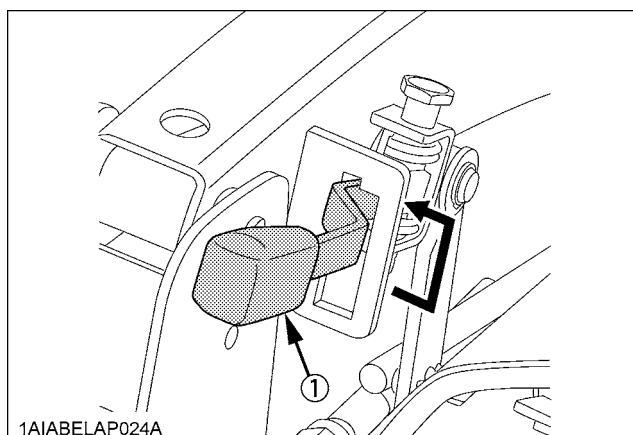
13. Make sure the stand lever is at its low position as shown below.



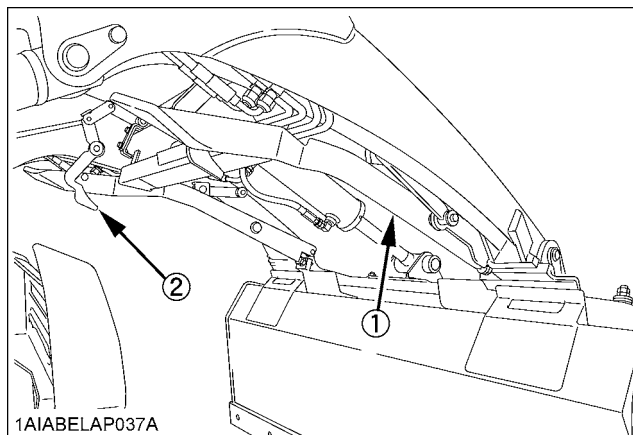
(1) Stand lever

14. Slowly dump the bucket until the stand is touched to the boom.

15. Slide the stand lever upward direction. Then, slide it left side completely as shown and hold the stand by stand hook.



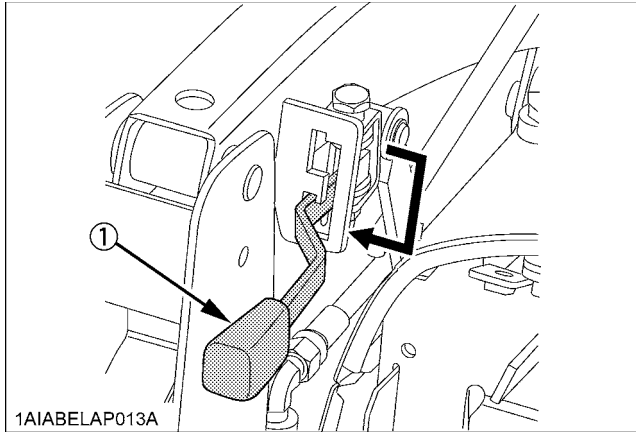
(1) Stand lever



(1) Stand
(2) Stand hook

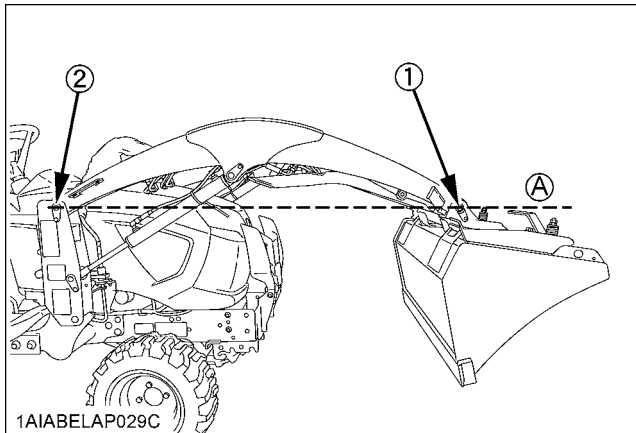
ADJUSTING THE HEIGHT OF LIFTING STAND

1. Make sure the stand lever is at its low position as shown below.



(1) Stand lever

2. Raise the boom until the bucket fulcrum pin comes up to the height of the boom fulcrum pin. Then roll back the bucket to maximum.

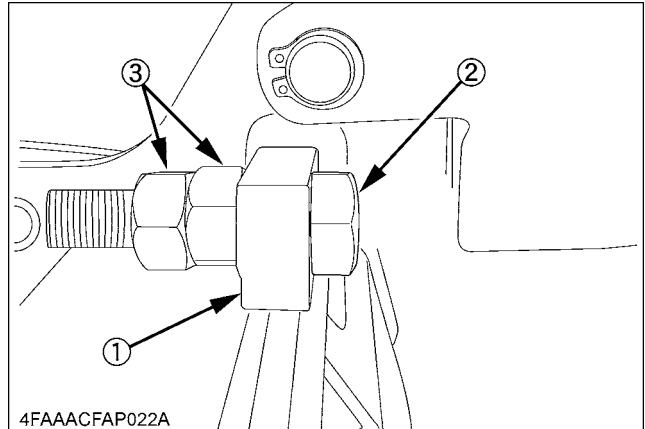


(1) Bucket fulcrum pin
(2) Boom fulcrum pin

(A) Same height

3. Stop the engine.

4. Apply the adjusting bolts to the right and left stand adjusting blocks as shown below.



(1) Adjusting block
(2) Adjusting bolt
(3) Lock nut

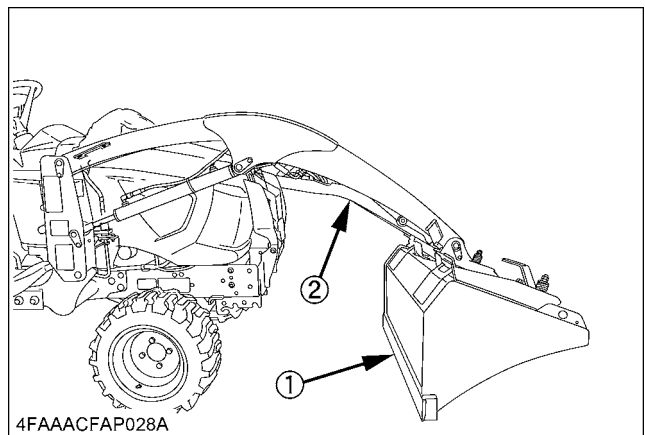
IMPORTANT :

- Be sure to the bolts all the way to prevent the damage of the stand.

NOTE :

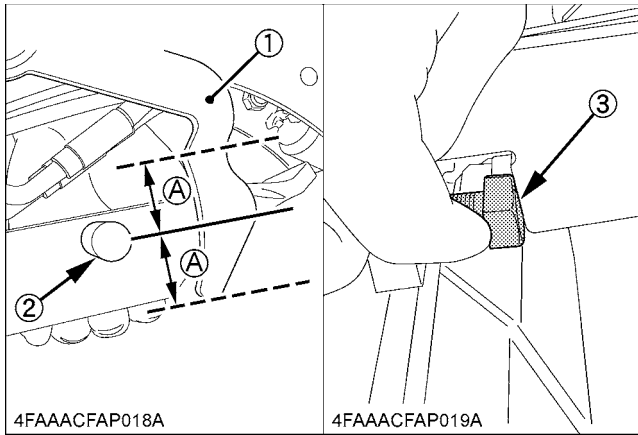
- There is no need to tighten up the lock nuts.

5. Move the loader control lever to the dump position and check to see if the stands are folded as specified.
6. Fasten the seat belt and start the engine.
7. Move the loader control lever to the dump position until the hydraulic pressure gets relieved. Then lower the boom to put the bucket on the ground.



(1) Bucket
(2) Stand

8. Lift the stand on the right side of the loader up to the position shown below. Reposition the adjusting bolt until it comes in contact with the stand.



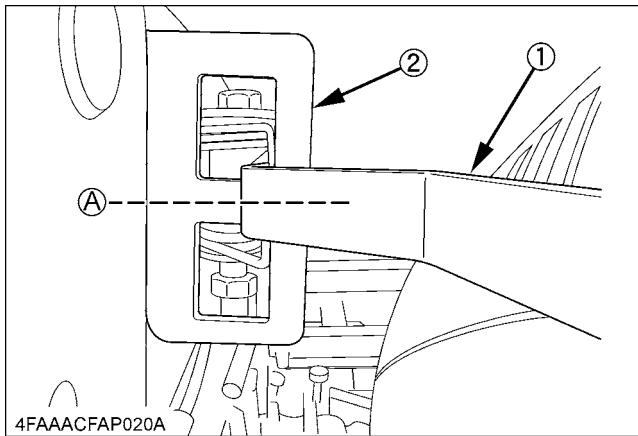
(1) Stand hook
 (2) Stand pin
 (3) Adjusting bolt
 (A) Almost the same

NOTE :

- The bolt position is provisional and may be roughly set at this stage.

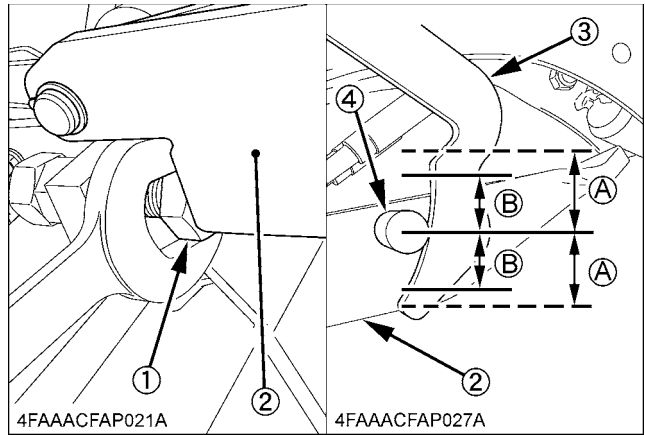
9. Adjust the adjusting bolt in the same way as for the stand on the left side of the loader.

10. Position the stand lever as shown in the figure.



(1) Stand lever
 (2) Lever guide
 (A) Center

11. Turn the adjusting bolt on the right side of the loader to set the stand pin as shown below. Using the lock nut, get the stand pin locked.



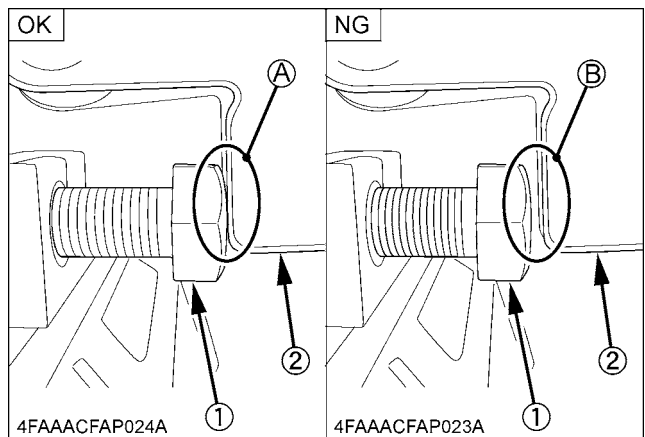
(1) Adjusting bolt
 (2) Stand
 (3) Stand hook
 (4) Stand pin
 (A) Almost the same
 (B) Adjusting rage: ± 15 mm

IMPORTANT :

- Be careful not to allow the stands to go beyond their adjustable range. Otherwise the stands may get damaged.

12. Turn the adjusting bolt on the left side of the loader in the same way as for the right side. Using the lock nut, get the stand pin locked.

13. Look at the right and left stands to make sure the heads of the adjusting bolts are pressed upon the stands.

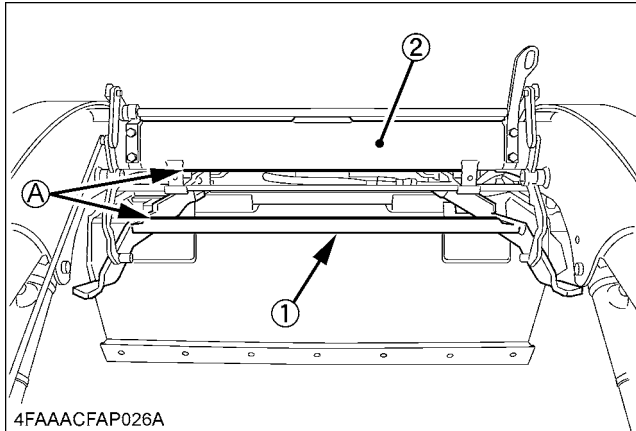


(1) Adjusting bolt
 (2) Stand
 (A) "TOUCH"
 (B) "NOT TOUCH"

IMPORTANT :

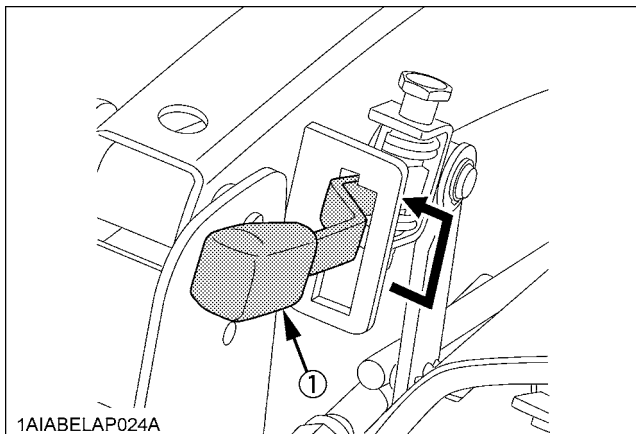
- Double-check that these bolt heads are pressed upon the stands. Otherwise the stands may get damaged in storing them away.

14. Be also sure that the stands run parallel with the loader pipe.

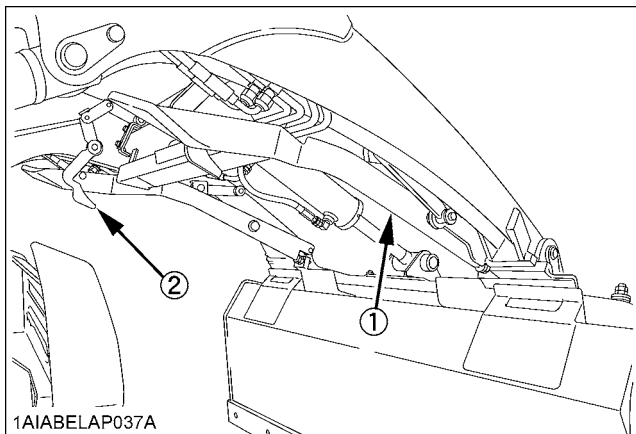


(1) Stand (A) "PARALLEL"
(2) Loader pipe

15. Slide the stand lever in the upward direction and make sure the stand gets locked.

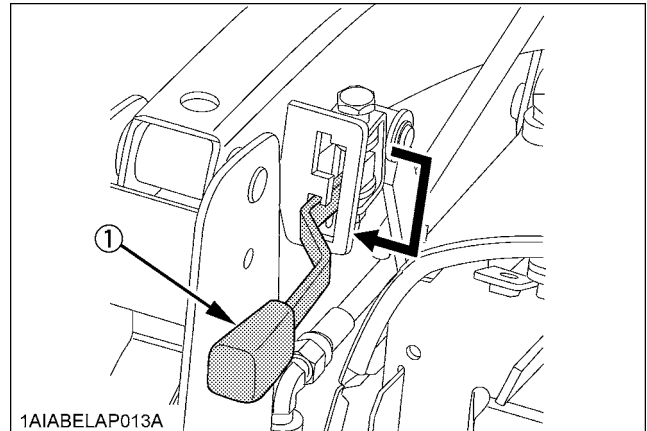


(1) Stand lever



(1) Stand
(2) Stand hook

16. Set the stand lever to the low position.



(1) Stand lever

17. Fasten the seat belt. Get the engine started, roll back the bucket and move up the boom, both to maximum.

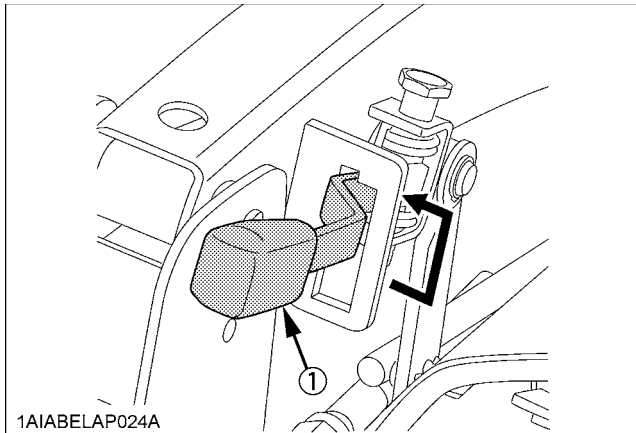
18. Stop the engine.

19. Move the loader control lever to the dump position until the bucket comes to a complete stop. Then make sure the stands are folded as specified.

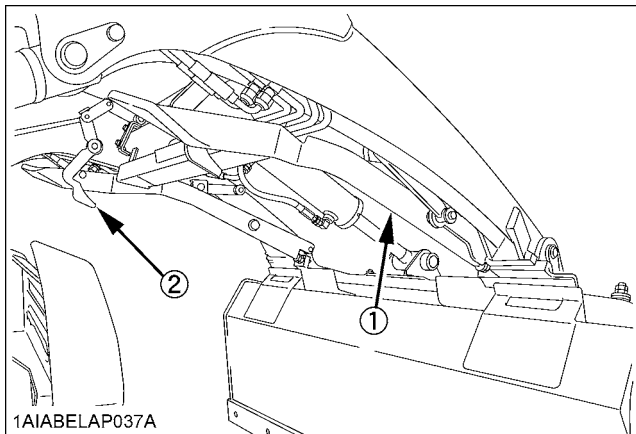
20. Fasten the seat belt. Get the engine started and raise the engine speed up to 1800 rpm.

21. Slowly dump the bucket until the stand is touched to the boom.

22. Slide the stand lever upward direction. Then, slide it left side completely as shown and hold the stand by stand hook.



(1) Stand lever



(1) Stand
(2) Stand hook

REMOVING THE BACKHOE

REMOVAL OF THE BACKHOE



WARNING

To avoid serious injury or death:

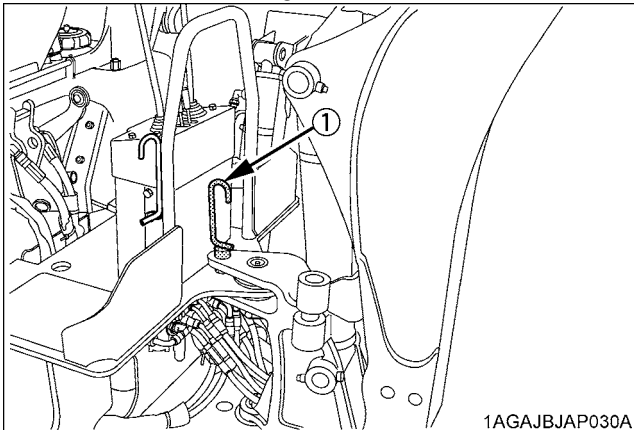
- Before starting the engine, always sit in the tractor operator's seat.
- Before getting off the tractor, make sure that PTO lever is off and range gear shift lever is in neutral. Then set the parking brake.
- Keep hands, feet and body from between tractor and backhoe. Never allow any part of body under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

IMPORTANT :

- Before removing the backhoe, set the engine speed to approximately 1800 rpm.
- 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.

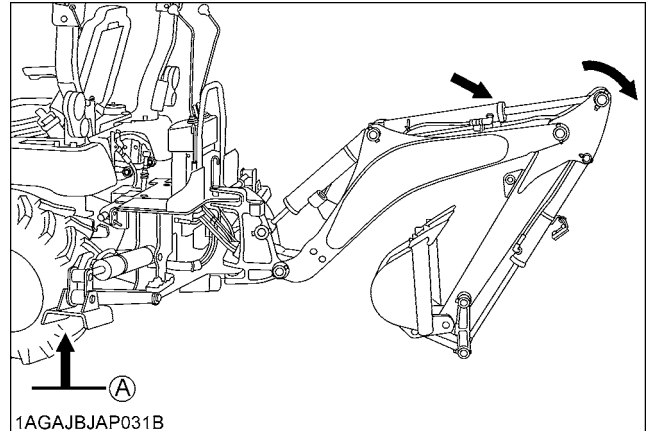
1. Set the swing lock pin to prevent the pivoting of the boom before removing the backhoe.



(1) Swing lock pin

2. Stand beside the rear tire, fold the boom and dipper completely and dump the bucket to approximately 60 degrees.

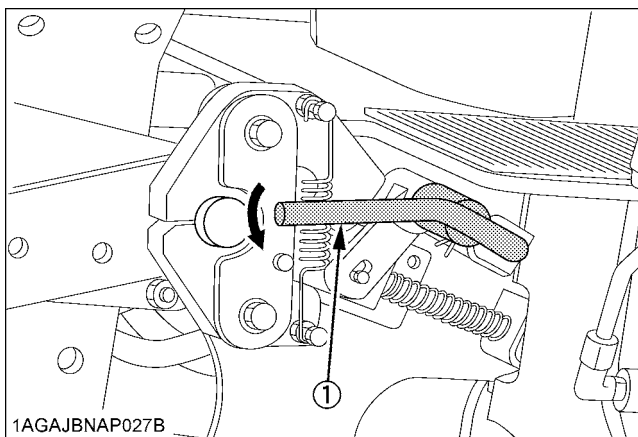
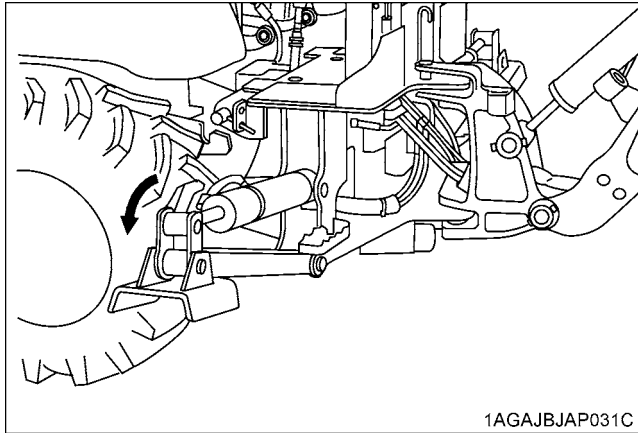
3. Keep the stabilizer pads at about 381 mm (15.0 in.) high.



(A) 381 mm (15.0 in.)

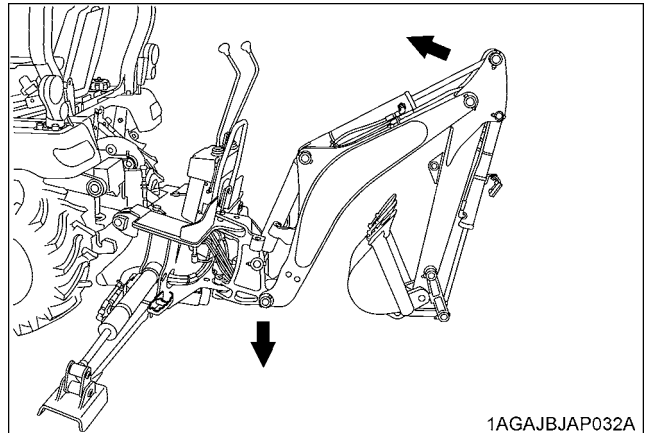
- Lower the boom and raise the rear wheels slightly off the ground. While the mounting levers are pulled, the mounting pins of the main frame may turn in both directions.

When the mounting pins come to release position push the levers in holding hole to release the mounting pins.

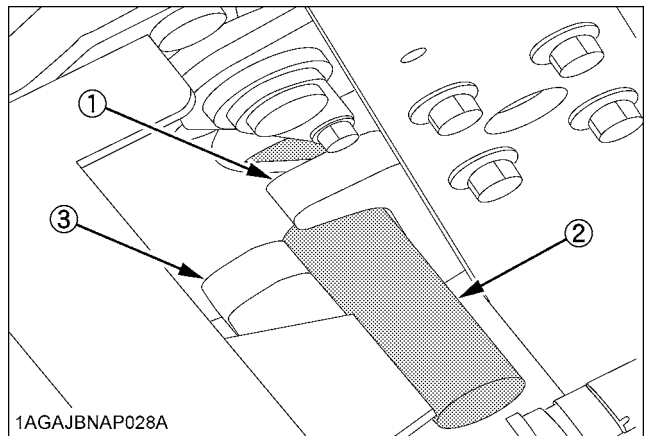


(1) Mounting lever

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



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



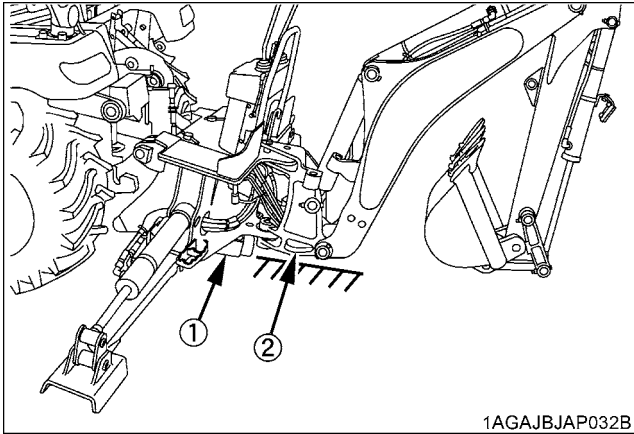
- (1) Guide stopper
- (2) Mounting bar
- (3) Support hook

- Move the tractor forward from the backhoe about 203 mm (8.0 in.)

IMPORTANT :

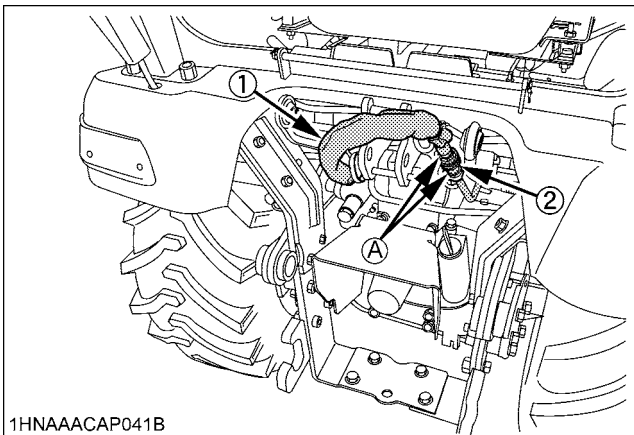
- Be careful not to damage or break the hoses when moving the tractor.

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 inlet, outlet and power beyond hoses from the tractor.
 - (2) Connect tractor's outlet hose to the coupler of power beyond pipe. Cap the other couplers.



(1) Outlet hose (tractor) (A) To be connected
(2) Power beyond pipe (tractor)

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

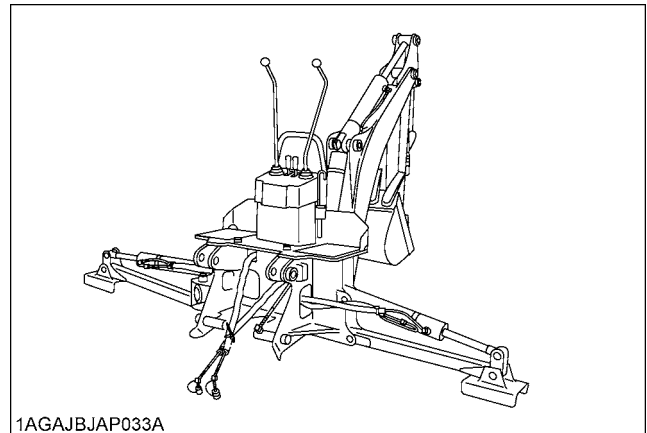
NOTE :

- The entire 3-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 3-point hitch before using the loader with backhoe removed.

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 couplers 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.

WARNING

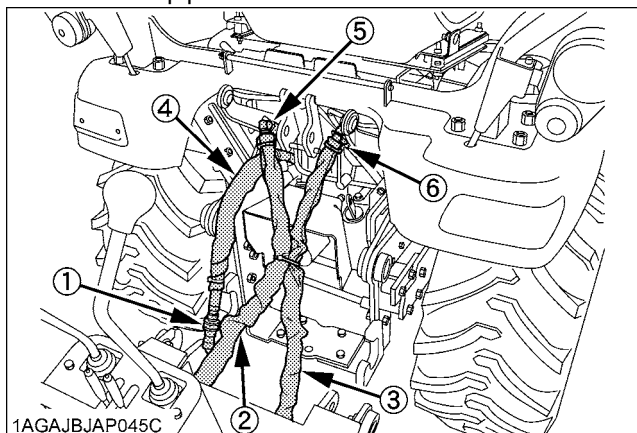
To avoid serious injury or death:

- Make sure the tractor PTO is disengaged.

IMPORTANT :

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

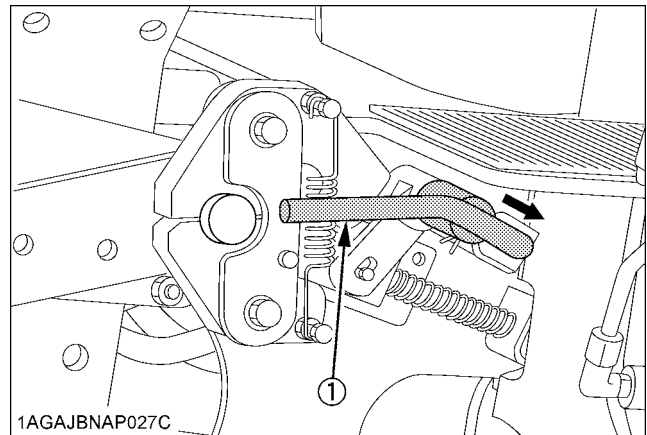
1. Remove the 3-point hitch and / or drawbar. (if equipped)
 2. Detach the mower, if attached in position.
 3. Make sure the swing lock pin is inserted.
 4. Slowly back the tractor / loader, centering to the backhoe main frame.
- Stop the tractor 254 to 304 mm (10.0 to 12.0 in.) away from the backhoe.
5. Shut the engine off and set the parking brake.
 6. Connect the inlet, outlet and power beyond hoses of the backhoe to the outlet hose, power beyond pipe and return pipe of the tractor.



- (1) Inlet hose (Backhoe)
- (2) Outlet hose (Backhoe)
- (3) Power beyond hose (Backhoe)
- (4) Outlet hose (Tractor)
- (5) Return pipe (Tractor)
- (6) Power beyond pipe (Tractor)

IMPORTANT :

- Make sure both hoses are firmly connected before starting the engine.
7. Pull the mounting levers for left/right mounting pins of backhoe main frame to release mounting pins.



(1) Mounting lever

8. Restart the engine.

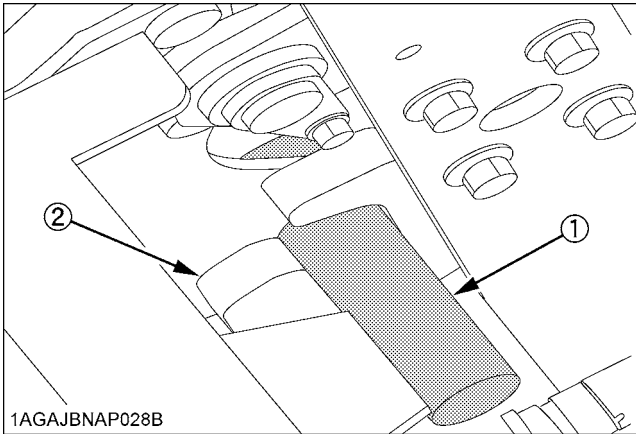
WARNING

To avoid personal injury or death:

- Do not move the boom and swing lever to the swing position.
9. Stand beside the rear tire. Move the boom to fully raising position and raise the backhoe by operating the stabilizers until the mount bar on the backhoe main frame is slightly higher than the tractor main frame support hooks.

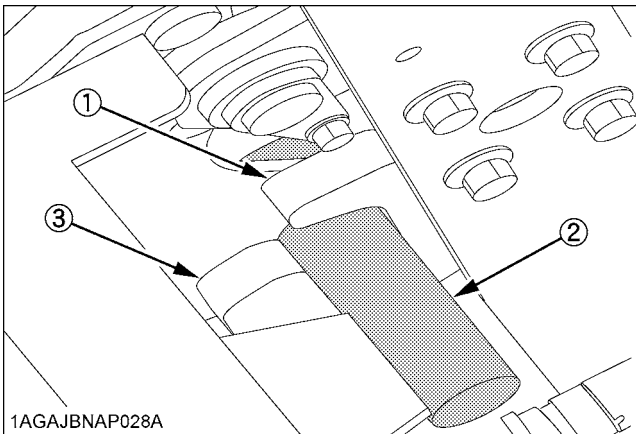
NOTE :

- If the support hooks are not parallel to the mounting bars, adjust with the stabilizers.



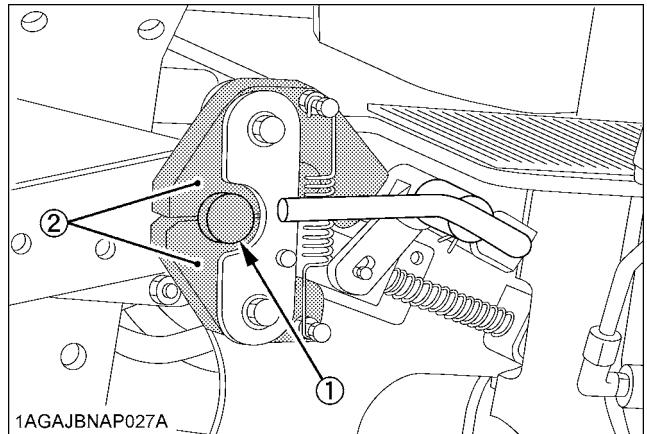
(1) Mounting bar
(2) Support hook

10. Move the tractor backward until the support hooks on the tractor main frame are just beneath the mounting bars on the backhoe main frame.



(1) Guide stopper
(2) Mounting bar
(3) Support hook

11. Lower the mounting bars onto the support hooks by operating the stabilizer and boom control levers.
12. Lower the boom slowly and interlock the mounting pins with the support hooks.



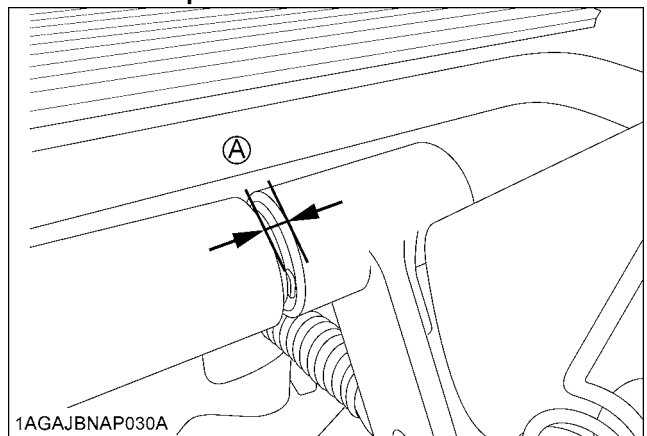
(1) Mounting pin
(2) Support hooks

13. Continue to slowly lower the boom so that rear wheels are slightly off the ground. (Lock pins will click.)

! WARNING

To avoid serious injury or death:

- Make sure left/right mounting pins are in holding position.
- When the mounting, check the gap between the mounting bar and link. If they has a gap, the link shall be pushed in.



(A) Gap

14. Operate the boom/stabilizers to maximum lift height and insert the boom lock pin.

IMPORTANT :

- If the slide bar of the mounting pins is inserted to the upper hole, the mounting pin comes off and the backhoe might come off. Therefore, please make sure to insert the slide bar to the 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 OF THE TRACTOR" section for oil type and correct level.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

If something is wrong with the engine, refer to the table below for the cause and its corrective measure.

Trouble		Cause	Countermeasure
Engine is difficult to start or won't start.		<ul style="list-style-type: none"> No fuel flow. 	<ul style="list-style-type: none"> Check the fuel tank and the fuel filter. Replace filter if necessary.
		<ul style="list-style-type: none"> Air or water is in the fuel system. 	<ul style="list-style-type: none"> Check to see if the fuel line coupler bolt and nut are tight. Bleed the fuel system. (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE OF THE TRACTOR" section.) Remove water from the system and replace the fuel filter.
		<ul style="list-style-type: none"> In winter, oil viscosity increases, and engine revolution is slow. 	<ul style="list-style-type: none"> Use oils of different viscosities, depending on ambient temperatures. Use engine block heater. (Option)
		<ul style="list-style-type: none"> Battery becomes weak and the engine does not turn over quick enough. 	<ul style="list-style-type: none"> Clean battery cables and terminals. Charge the battery. In cold weather, always remove the battery from the engine, charge and store it indoors. Install it on the tractor only when the tractor is going to be used.
Insufficient engine power.		<ul style="list-style-type: none"> Insufficient or dirty fuel. The air cleaner is clogged. 	<ul style="list-style-type: none"> Check the fuel system. Clean or replace the element.
Engine stops suddenly.		<ul style="list-style-type: none"> Insufficient fuel. 	<ul style="list-style-type: none"> Refuel. Bleed the fuel system if necessary.
Exhaust fumes are colored.	Black	<ul style="list-style-type: none"> Fuel quality is poor. Too much oil. The air cleaner is clogged. 	<ul style="list-style-type: none"> Change the fuel and fuel filter. Check the proper amount of oil. Clean or replace the element.
	Blue white	<ul style="list-style-type: none"> The inside of exhaust muffler is damp from fuel. Injection nozzle trouble. Fuel quality is poor. 	<ul style="list-style-type: none"> Heat the muffler by applying load to the engine. Check the injection nozzle. Change the fuel and fuel filter.
Engine overheats.		<ul style="list-style-type: none"> Engine overloaded. 	<ul style="list-style-type: none"> Shift to lower gear or reduce load.
		<ul style="list-style-type: none"> Low coolant level. 	<ul style="list-style-type: none"> Fill cooling system to the correct level; check radiator and hoses for loose connections or leaks.
		<ul style="list-style-type: none"> Loose or defective fan belt. 	<ul style="list-style-type: none"> Adjust or replace fan belt.
		<ul style="list-style-type: none"> Dirty radiator core or grille screens. 	<ul style="list-style-type: none"> Remove all trash.
		<ul style="list-style-type: none"> Coolant flow route corroded. 	<ul style="list-style-type: none"> Flush cooling system.

If you have any questions, consult your local KUBOTA Dealer.

OPTIONS

Consult your local KUBOTA Dealer for further details.

- 18 x 8.5-10 Turf Tire
- 26 x 12.0-12 Turf Tire
- Engine Block heater
 - For facilitating starting and reducing warm up period in cold weather.
- Rear Work Light
 - For high visibility for night work
- Rear wheel weight
- Sunshade for ROPS
- Tool box

APPENDICES

INDEX

12V Electric Outlet.....	43	Front Ballast	58
3-point Hitch Lowering Speed	51	Front Guard	71
Air Cleaner Element	100	Front Guard and Hood.....	85
Air Cleaner Element	94	Front Wheel Drive Lever.....	35
Anti-Freeze.....	102	Front Wheels	56
Attaching and detaching implements	49	Fuel and Refueling	86
Battery	92	Fuel Filter.....	94
Block Heater (Option).....	25	Fuel Filter Element	100
Boom & Swing Lever.....	73	Fuel Gauge.....	38
Boom & Swing Lock Lever	74	Fuel Injection Nozzle Injection Pressure	101
Brake Pedal.....	33	Fuel Lines	103
Brake Pedal.....	88	Fuel Lines	104
Brake Pedal.....	96	Fuel System.....	105
Check Chains	49	Fuse.....	105
Cold Weather Starting	25	Gauges, Meters and Easy Checker(TM)	88
Connecting Hoses for Backhoe	52	General Torque Specification	112
Control Lever.....	66	Glove Box	43
Coolant Level	87	Hand Accelerator Lever	35
Coolant Temperature Gauge.....	38	Hazard Light Switch.....	33
Cutting Height Control Dial.....	54	Head Light Switch.....	32
Differential Lock.....	40	Head Light, Hazard Light etc.	88
Dimensions.....	10	Hour Meter.....	39
Dipperstick & Bucket Lever	74	How to Jack Up Front Axle	57
Dipperstick Digging	76	How to Jack Up Machine	57
Directions for Use of Power Steering	42	HST Neutral Spring (for Speed Control Pedal).....	96
Disconnecting Hoses for Mower.....	53	Hydraulic Control	51
Do not Operate the Tractor at Full Speed for the First 50 Hours.	28	Hydraulic Control Unit Use Reference Chart.....	55
Driving to the Job-site.....	78	Immediately Stop the Engine if:.....	37
Dual Tires	56	Inflation Pressure.....	56
Easy Checker(TM)	38	Injection Pump	102
Electrical Wiring and Battery Cables	89	Install	66
Engine Breather Hose.....	104	Installing the 3-Point Hitch	50
Engine Breather Hose	104	Intake Air Line.....	104
Engine Oil.....	97	Intake Air Line.....	104
Engine Oil Filter.....	97	Lift Capacity (Per SAE J31).....	13
Engine Oil Level	86	Lifting Rod (Right).....	49
Engine Start System.....	90	Light Bulb.....	106
Engine Valve Clearance.....	100	Liquid Ballast in Rear Tires.....	20
Fan belt Tension.....	95	Lubricating Grease Fittings.....	89
Flushing Cooling System and Coolant	101	Lubricating Oil for New Tractors	28
Foldable ROPS	30	Main frame bolt and nut torque.....	108
Front Axle Case Oil	100	Movable Parts.....	89
Front Axle Pivot.....	99	OPC System.....	91
		Operating on a Slopes and Rough Terrain	41
		Operating the Tractor on a Road	41

Operator's Seat	31	Transport the Tractor Safely	41
Pallet Fork	71	Turn Signal Light Switch	33
Panel and Radiator Screen	88	Walk Around Inspection.....	85
Parking	40	Warm-up and Transmission Oil in the Low Temperature Range	26
Parking Brake Pedal.....	35	Wheel Bolt Torque.....	91
Power Steering Hose	104		
Power Steering Line	103		
PTO Clutch Lever.....	46		
PTO Drive Shaft	47		
PTO Select Lever	45		
PTO Shaft Cover and Shaft Cap.....	46		
Quick Bucket	70		
Radiator Hose (Water pipes).....	104		
Radiator Hoses and Clamps	103		
Range Gear Shift Lever (Hi-Lo).....	34		
Rear Ballast.....	58		
Rear Wheels.....	57		
Remote Control Coupler Connecting and Disconnecting	67		
Removing the 3-Point Hitch.....	50		
Seat Belt.....	32		
Seat Belt and ROPS.....	88		
Snow Blade	71		
Specifications	11		
Speed Control Pedal	36		
Speed Set Device.....	36		
Spoil Pile Location.....	76		
Stabilizer Control Levers	75		
Stabilizer pads (Standard).....	77		
Stationary PTO.....	46		
Stopping	37		
Straight Wall or Cemetery Digging	76		
Sub Frame Bolt Torque	111		
Tachometer	39		
The Backhoe Bucket	110		
The Bucket Teeth	110		
The Lock Lever Shaft	92		
Tightening Bolts and Nuts	107		
Tilt Steering Adjustment	32		
To Fold the ROPS.....	28		
To Raise the ROPS to Upright Position	29		
Toe-in	98		
Top Link.....	49		
Trailer Transporting	78		
Transmission Fluid	99		
Transmission Fluid Level.....	87		
Transmission Oil Filter.....	98		
Transmission Strainer	100		

KUBOTA Corporation is ...

Since its inception in 1890, KUBOTA Corporation has grown to rank as one of the major firms in Japan.

To achieve this status, the company has through the years diversified the range of its products and services to a remarkable extent. 30 plants and 35,000 employees produce over 1,000 different items, large and small.

All these products and all the services which accompany them, however, are unified by one central commitment. KUBOTA makes products which, taken on a national scale, are basic necessities. Products which are indispensable. Products which are intended to help individuals and nations fulfill the potential inherent in their environment. KUBOTA is the Basic Necessities Giant.

This potential includes water supply, food from the soil and from the sea, industrial development, architecture and construction, and transportation.

Thousands of people depend on KUBOTA's know-how, technology, experience and customer service. You too can depend on KUBOTA.