Kubota

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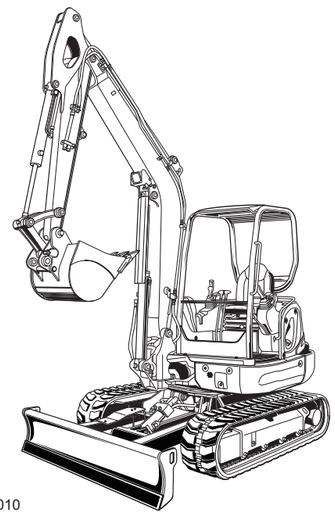
English (U.S.A./CANADA)
Code No. RD158-8121-3

KX040-4

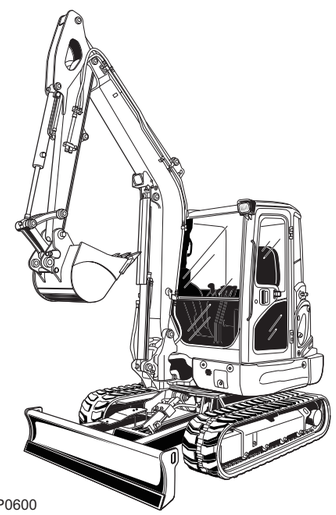
OPERATOR'S MANUAL

KUBOTA EXCAVATOR

MODEL KX040-4



1BAAAADAP1010



1BAAAADAP0600

READ AND SAVE THIS MANUAL

PRINTED IN JAPAN

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Kubota

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⚠ SAFE OPERATION

Careful operation is your best insurance against an accident.

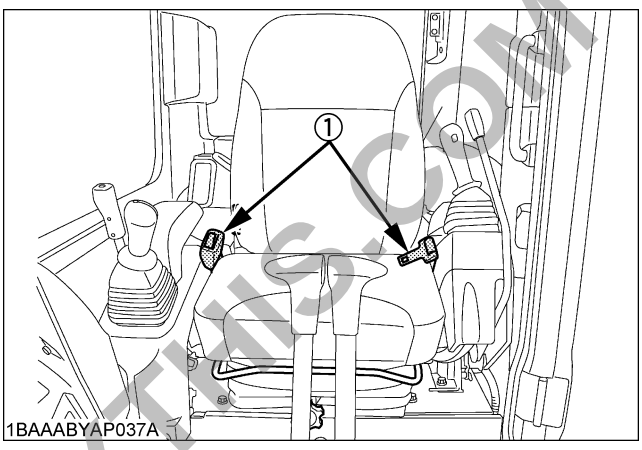
Read and understand this manual carefully, before operating the excavator.

Every user, however experienced, should carefully read and understand this manual and those of the attachments and accessories before operating the excavator. The owner is obliged to inform all operators of these instructions in detail.

Keep this manual in the storage location. (See "Where to keep Operator's Manual" in "MAINTENANCE" section.)

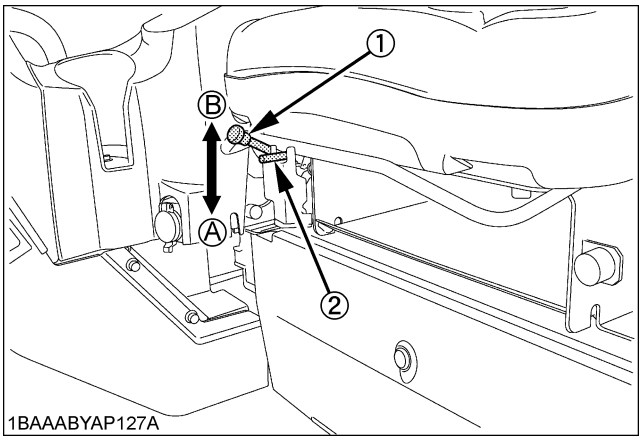
1. BEFORE OPERATION

1. Know your equipment and its limitations. Read and understand this entire manual before attempting to start and operate the excavator.
2. Obey the danger, warning and caution labels on the machine.
3. For your safety, a ROPS/FOPS (Roll-Over Protective Structure, Falling Objects Protective Structure.) with a seat belt is installed by KUBOTA. Always use the seat belt when the machine is equipped with a ROPS/FOPS as this combination will reduce the risk of serious injury or death, should the excavator be upset or falling objects occur.
   Do not modify any structural members of the ROPS/FOPS by welding, drilling, bending, grinding or cutting, as this may weaken the structure. If any component is damaged, replace it. Do not attempt repairs. If the ROPS/FOPS is loosened or removed for any reason, make sure all parts are reinstalled correctly. Tighten mounting bolts to proper torque.
4. ROPS/FOPS structure complies with ISO 3471, ISO 3449 and OSHA regulations.
5. The seat belt must be inspected regularly and replaced if frayed or damaged.



(1) Seat belt

6. Always sit in the operator's seat when starting engine or operating levers or controls.
7. Study control lever pattern A and pattern B. Then choose the one which is most familiar.
   Familiarize yourself with the pattern selected by operating the unit slowly and at low engine speed.
   - Engage the lever lock to prevent accidental pattern change.



(1) Pattern selector lever (Two Pattern Selection System:TPSS)
(2) Lever lock
(A) "Pattern A"
(B) "Pattern B"

8. Do not operate the excavator while under the influence of alcohol, medication, controlled substances or while fatigued.

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TECHNICAL DATA

				KUBOTA EXCAVATOR			
Model name				KX040-4			
Type				Canopy	CAB	Angle Blade Type	
						Canopy	CAB
Operating weight (including operator's)			kg (lbs.)	4170 (9193)	4310 (9502)	4330 (9546)	4470 (9855)
Engine	Type			Water cooled 4 cycle diesel engine with 3 cylinder			
	Model name			D1803-CR-TE4-BH1	D1803-CR-TE4-BH2	D1803-CR-TE4-BH1	D1803-CR-TE4-BH2
	Total displacement		cc (cu.in)	1826 (111.4)			
	Engine power SAE J1955 gross		kW (Hp)	30.1 (40.4)			
	Rated speed		rpm	2200			
	Low idling speed		rpm	1150			
Performance	Unit swing speed		rpm	9.2			
	Travel speed	Fast	km/h (mph)	5.0 (3.1)			
		Slow	km/h (mph)	2.9 (1.8)			
	Ground pressure (With operator)		kPa (kgf/cm^2) [psi]	31.2 (0.318) [4.53]	32.3 (0.330) [4.68]	32.4 (0.331) [4.70]	33.5 (0.342) [4.86]
	Max. climbing angle		% (deg)	*36 (20)			
	Angle in case of crossing slope		% (deg)	*27 (15)			
Dozer	Width x Height		mm (in.)	1700 x 350 (66.9 x 13.8)		1700 x 385 (66.9 x 15.2)	
	Max swing	Left	deg	---		25	
		Right	deg	---		25	
Boom swing angle		Left	rad (deg)	1.20 (70)			
		Right	rad (deg)	0.96 (55)			
Pressure connection for attachments	Max. displacement (Theoretical)		L (US gal) / min	65 (17) (AUX1 port) 37 (9.8) (Thumb port)			
	Max. pressure		MPa (kgf/cm^2) [psi]	[AUX1 port] 17.2 (175) [2500]		[Thumb port] 17.2 (175) [2500]	
Fuel tank capacity			L (US gal)	64 (17)			

NOTE :

- Above dimensions are based on the machine with QUICK HITCH BUCKET.
- Above dimensions are based on the machine with rubber track.
- Specifications subject to change without notice.

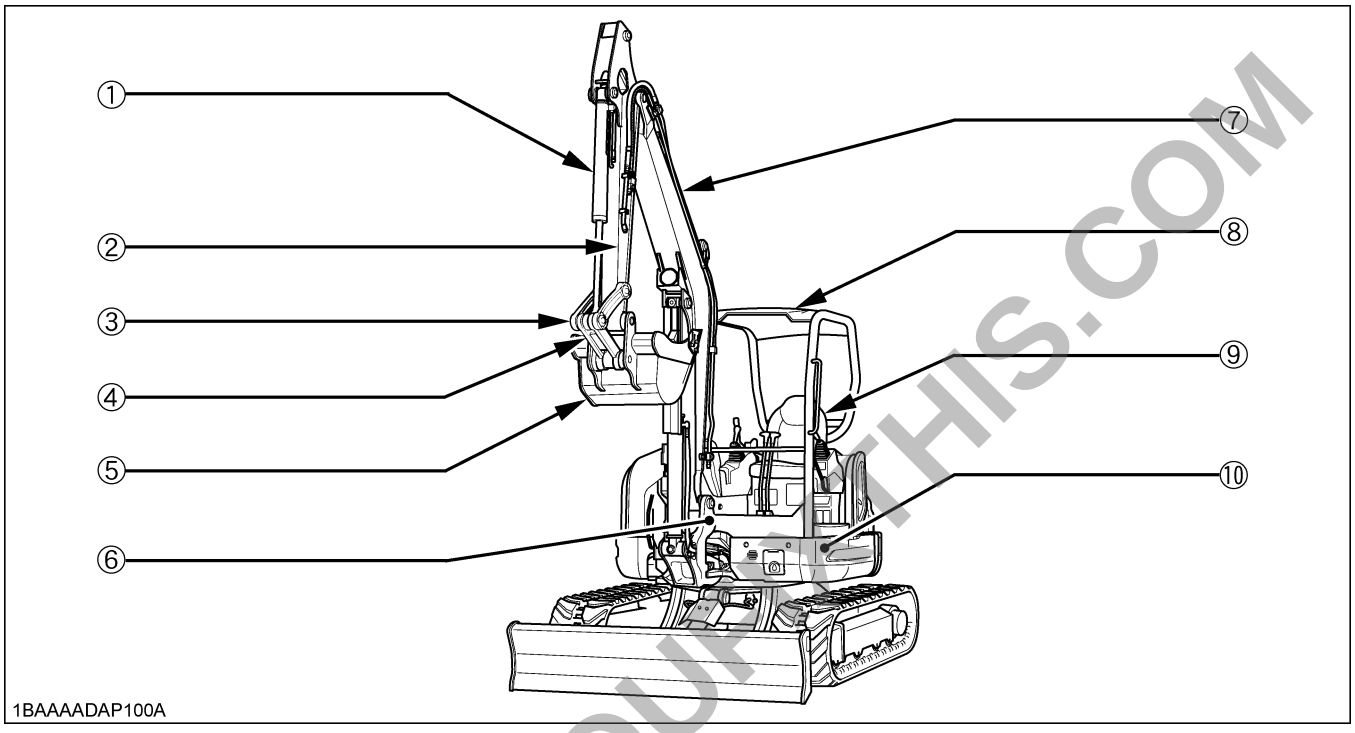
* With unloaded digging bucket.
* Firm compacted soil.
* Operators must exercise extra caution and follow instructions in the operator's manual.
* Worse condition or heavier attachment to the above will decrease climbing angle.

- ROPS/FORS structure complies with ISO 3471, ISO 3449 and OSHA regulations.

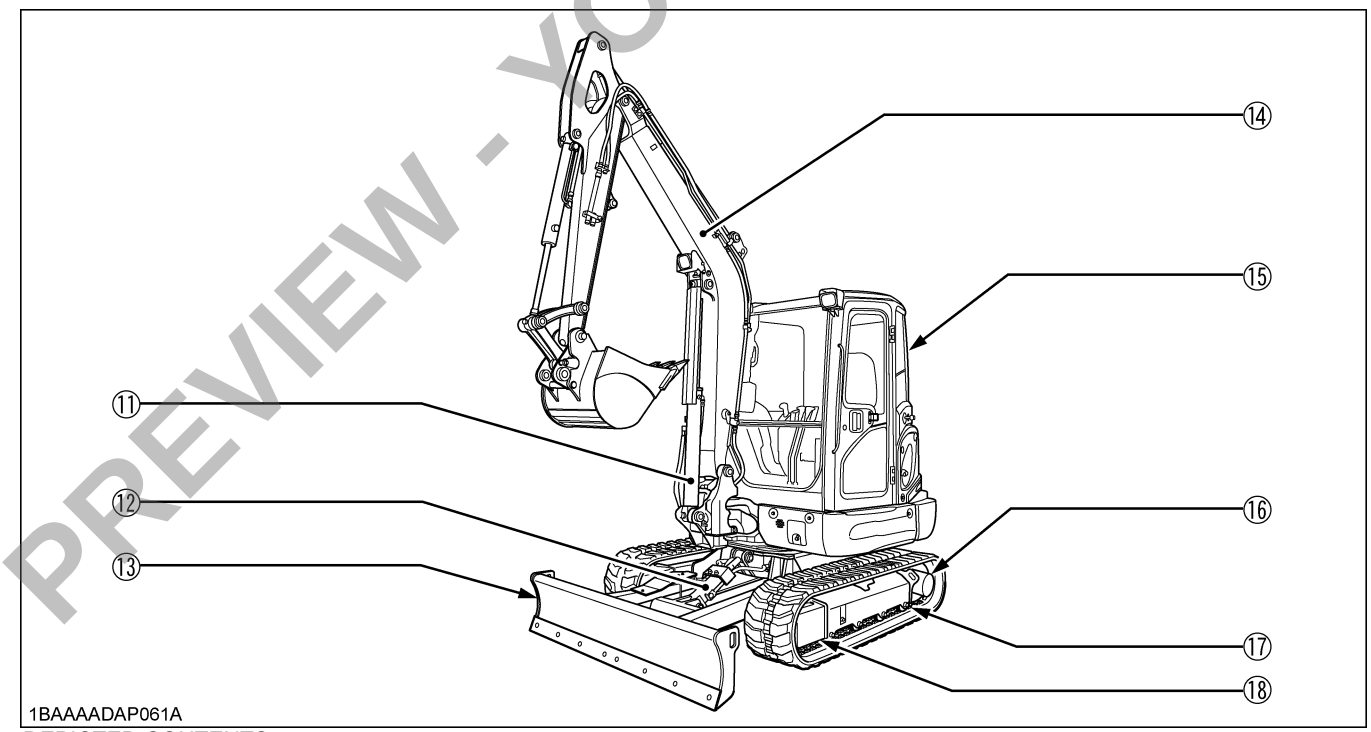
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DESCRIPTION OF MACHINE PARTS



1BAAAADAP100A



1BAAAADAP061A

DEPICTED CONTENTS

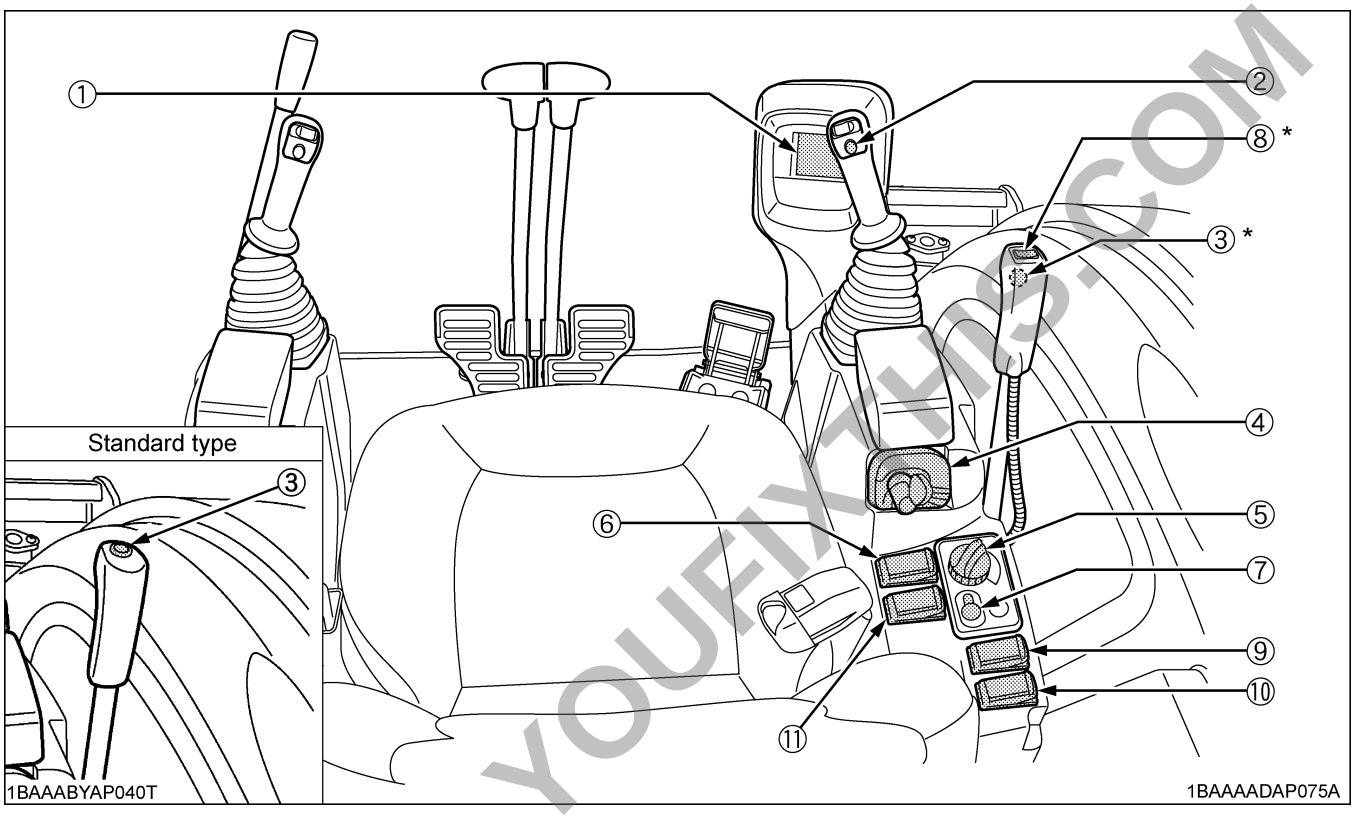
(1) Bucket cylinder
(2) Arm
(3) Bucket link 2 and 3
(4) Bucket link 1
(5) Bucket
(6) Swing bracket
(7) Arm cylinder
(8) Canopy
(9) Seat
(10) Swing frame
(11) Boom cylinder
(12) Dozer cylinder
(13) Dozer blade
(14) Boom
(15) Cab
(16) Drive sprocket
(17) Track roller
(18) Front idler

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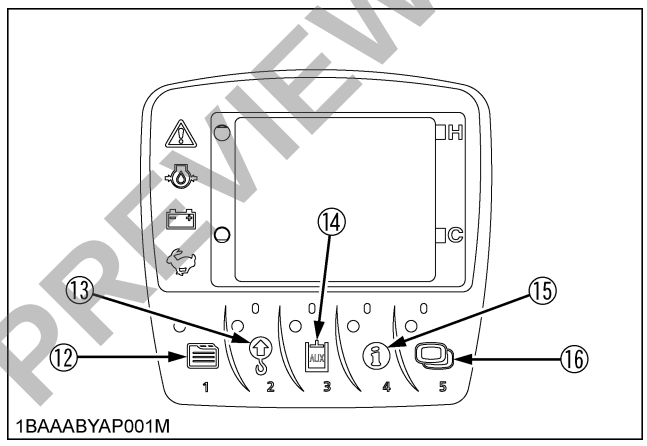
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INSTRUMENT PANEL AND CONTROL ELEMENTS

■ Instrument Panel, Switch



(1) LCD display
(2) Horn switch
(3) Travel speed switch
(4) Starter switch
(5) Throttle potentiometer
(6) Light switch
(7) Auto idle control switch
(8) Angle blade control switch
*Angle blade type only
(9) Eco mode switch
(10) DPF inhibit switch
(11) Beacon light switch (Cab only)



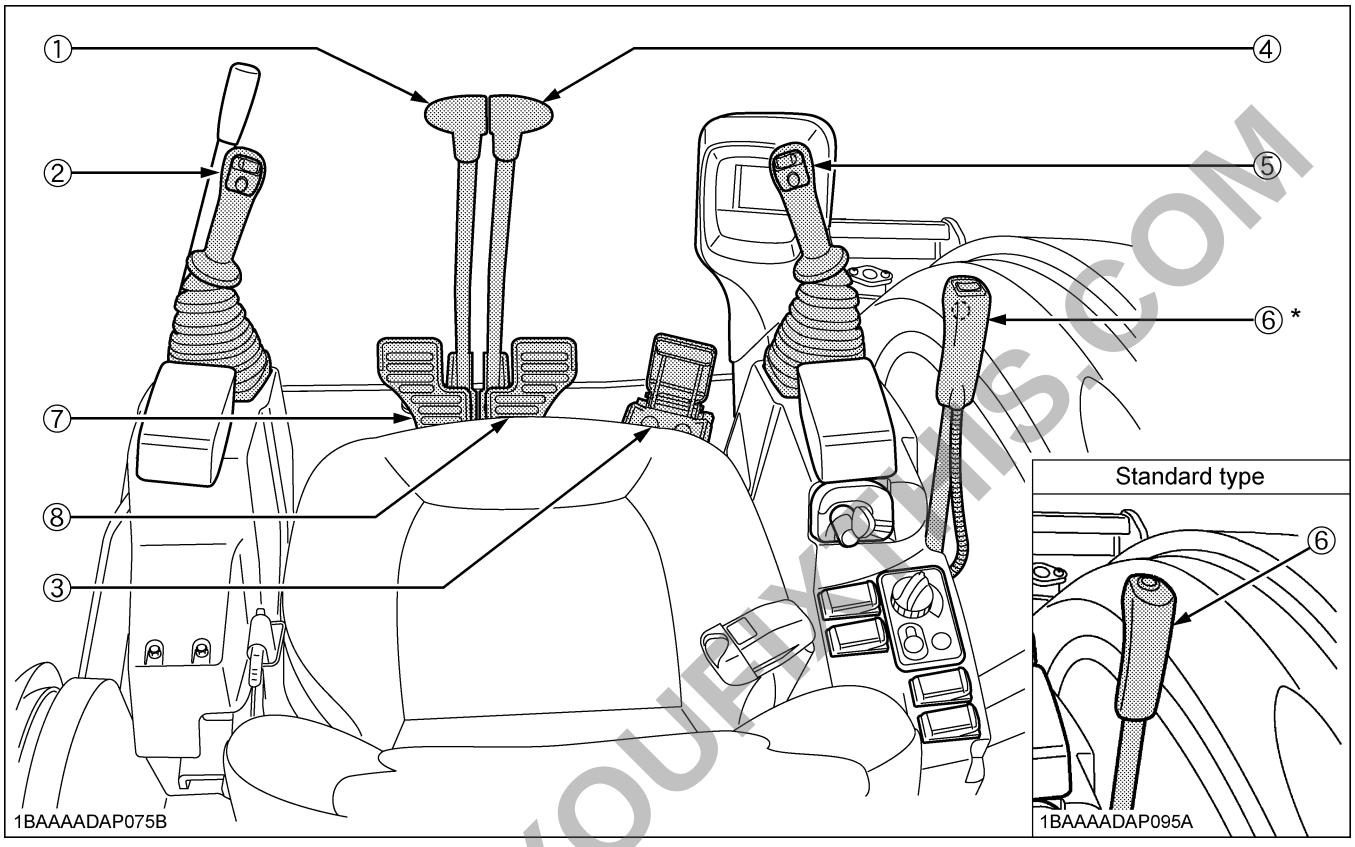
(12) User setting switch (Switch 1)
(13) - (Switch 2)
(14) AUX port enable switch (Switch 3)
(15) Information switch (Switch 4)
(16) Display selector switch (Switch 5)

	Ref. page
Starter switch	6
LCD display	7
Fuel gauge	
Water temperature gauge	
Hour meter	
Engine tachometer	
Glow lamp	
User setting switch	
AUX port enable switch	
Information switch	
Display selector switch	7
Warning lamp	10
Horn switch	17
Light switch	17
Auto idle control switch	18
Throttle potentiometer	18
Travel speed switch	18

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■ Control Pedals and Levers



(1) Drive lever (left)
(2) Attachment control lever (left)
(3) Boom swing pedal
(4) Drive lever (right)
(5) Attachment control lever (right)
(6) Dozer control lever
*Angle blade type
(7) Drive pedal (left)
(8) Drive pedal (right)

Ref. page

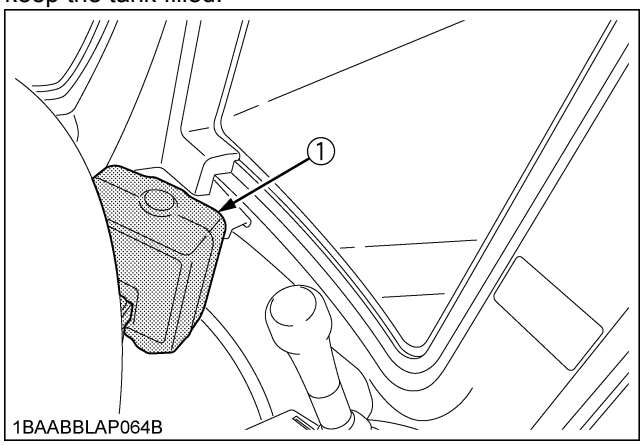
Drive lever (left) 32
Attachment control lever (left) 36, 37
Boom swing pedal 37
Drive lever (right) 32
Attachment control lever (right) 36, 37
Dozer control lever 34

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■Checking Washer Liquid

If the windows washer is switched on with the washer liquid tank empty, the motor may be damaged. Always keep the tank filled.



(1) Washer liquid tank

■Checking and Cleaning Engine and Electrical Wiring

CAUTION

To avoid personal injury:

- **Always stop the engine and remove the key before cleaning the wiring, cables and engine.**

Before starting, check whether flammable substances have gathered on the battery, the cables and wiring, the muffler or on the engine. Remove thoroughly.
Check the electrical circuitry for disconnections, shorts or loose terminals.

■Washing Whole Machine

IMPORTANT :

- Do not wash the excavator with the engine running. Water could enter the air filter and damage the engine. Make sure that the air filter is kept dry.
- Remove the mud before washing the machine.

■Greasing Front Attachments (without Bucket Pin and Boom Swing Fulcrum)

CAUTION

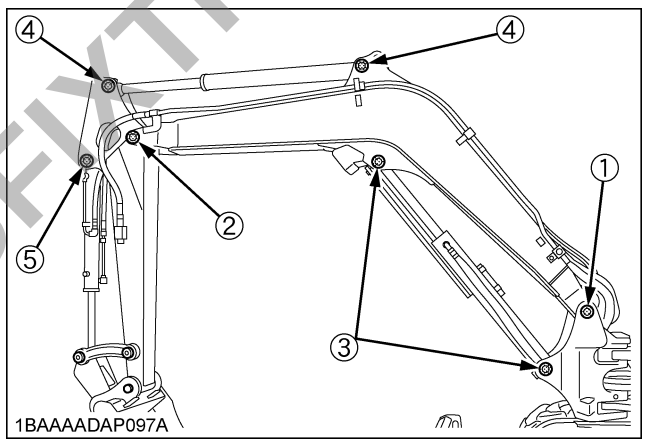
To avoid personal injury:

- **First lower all attachments on the ground then stop the engine and remove the key.**
- **While greasing, take care not to step on the bucket teeth.**

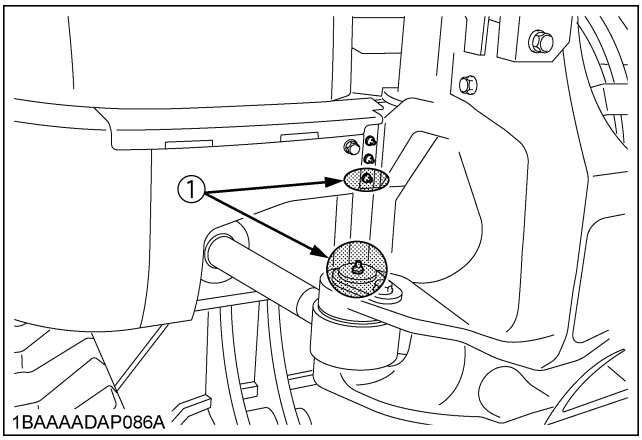
IMPORTANT :

- When doing excavation work in water, generously grease the following points. After ending work, grease again.

Grease the marked grease nipples shown by arrows in the illustration below.



(1) Boom bottom linkage
(2) Arm bottom linkage
(3) Boom cylinder boss
(4) Arm cylinder boss
(5) Bucket cylinder boss



(1) Swing cylinder boss

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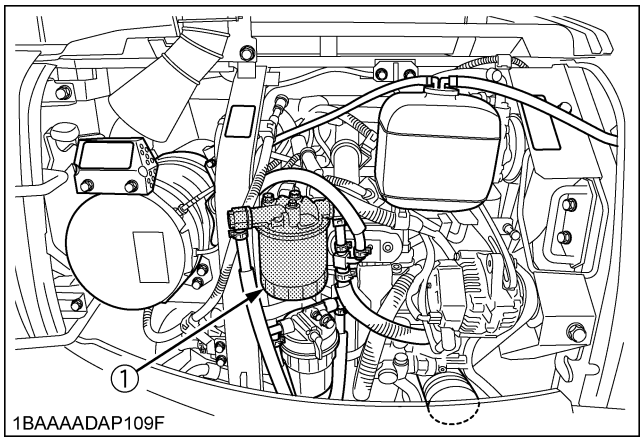
■Replacing Fuel Filter Cartridge

CAUTION

To avoid personal injury:

- **Keep fire away.**

1. Remove the filter with the filter wrench.
2. Apply a light film of fuel to the seal of the new filter and turn in tightly by hand.
3. Open the cock of the fuel filter again.



(1) Fuel filter cartridge

IMPORTANT :

- After exchange of the filter, the fuel system must be purged of air.

■Replacing Breather Filter

See **"Replacing Hydraulic Return Filter Element"** in **"EVERY 1000 SERVICE HOURS"** section.

■Replacing Fan Belt

Consult your local KUBOTA Dealer for this service.

EVERY 1000 SERVICE HOURS

Do all 50, 100, 200, 250 and 500 hour servicing at the same time.

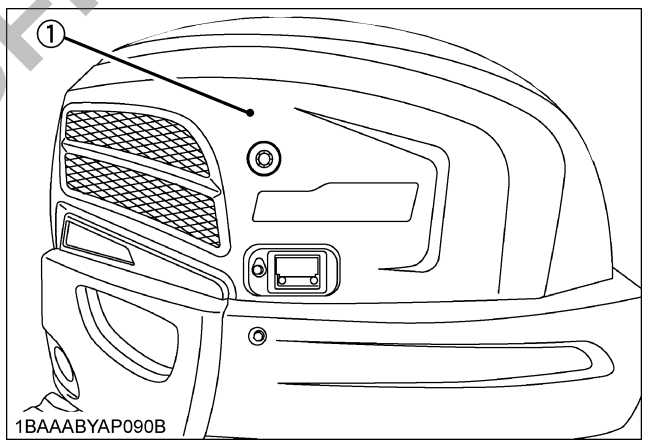
■Replacing the Hydraulic Pilot Filter Element

CAUTION

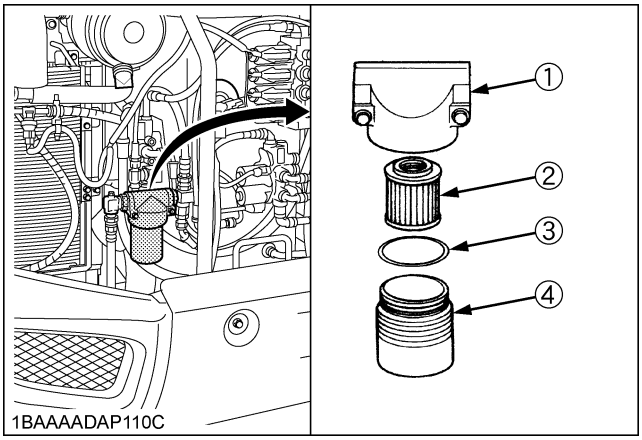
To avoid personal injury:

- **Before replacing the element, wait long enough for the hydraulic fluid to cool down.**

1. Open the side cover.
2. Remove the pilot filter case from the head cover.
3. Wrench and pull out the element downward.
4. Replace the O-ring with a new one.
5. Apply a light coating of clean hydraulic oil to the O-ring and fit it to the case firmly. Be careful not to scratch the O-ring.
6. Attach the case to the head cover firmly.
7. Let the engine run for approx. 3 minutes.
8. Check the oil level of hydraulic oil tank, then tighten the oil filling plug.



(1) Rear right cover



(1) Head cover
(2) Element
(3) O-ring
(4) Case

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UP AND DOWNHILL DRIVING

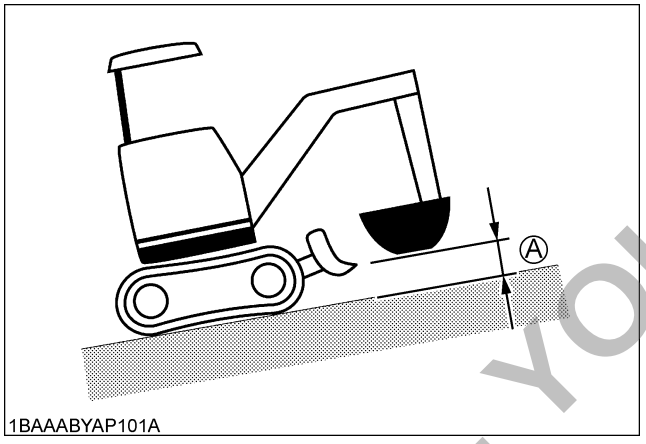
CAUTION

To avoid personal injury:

- **When travelling up or down a slope, use extra caution and follow the instructions below.**

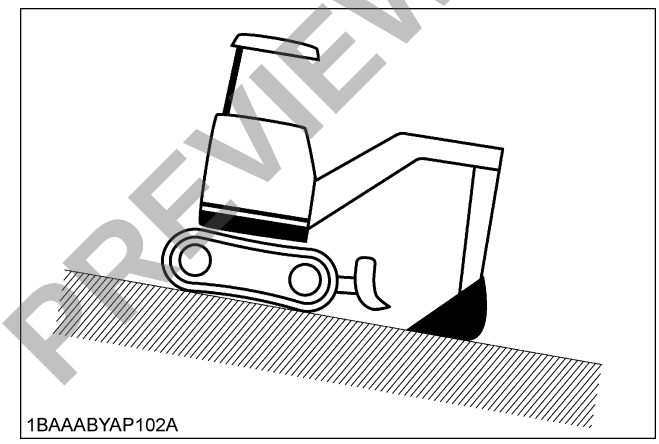
While traveling uphill, keep the lower edge of the bucket approx. 20 to 40 cm (8 to 16 in.) above the ground. Although the KUBOTA excavator will not slip easily because of the tracks, it is safer to let the bucket slide over the ground while traveling downhill. Always choose slow speed for uphill and downhill traveling.

[UPHILL TRAVELING]



(A) 20 to 40 cm (8 to 16 in.)

[DOWNHILL TRAVELING]

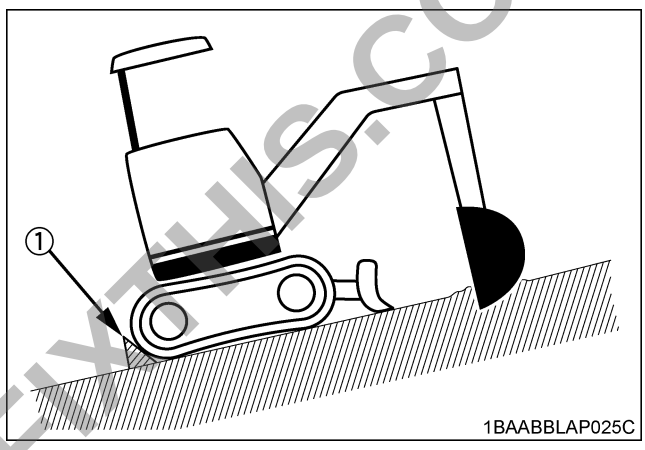


PARKING ON A SLOPE

WARNING

To avoid personal injury or death:

- **When the excavator is parked or left unattended on a slope, be sure to put the bucket on the ground and place all control levers in neutral position, then brace the tracks with chocks.**

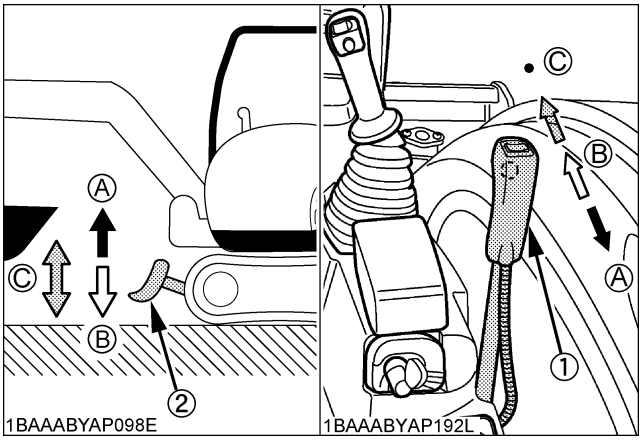


(1) Chock

OPERATION OF THE DOZER

1. To raise the dozer, pull back the control lever. To lower the dozer, push the control lever forward.

   To float the dozer, push the control lever more forward to the locked position.



(1) Dozer control lever
(2) Dozer
(A) "Raise"
(B) "Lower"
(C) "Float" (Locked position)

2. While undertaking earth moving work, control both drive levers with the left hand and the dozer control lever with the right hand.

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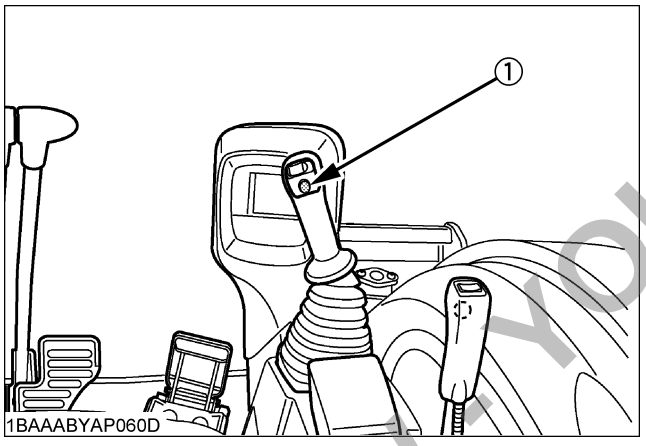
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OPERATION OF THE ENGINE

CAUTION

To avoid personal injury:

- **Read "SAFE OPERATION" at the beginning of this operator's manual.**
- **Obey the danger, warning and caution labels on the excavator.**
- **To avoid the danger of exhaust fume poisoning, do not operate the machine in a closed building without proper ventilation.**
- **Always start the engine from the operator's seat. Do not start the engine while standing next to the excavator. Before starting the engine, sound the horn to get the attention of persons standing nearby.**



(1) Horn switch

IMPORTANT :

- Do not use starting fluid or ether.
- In order not to overload the battery and starter, avoid engaging the starter for more than 10 sec.
- If the engine does not start in 10 sec., please wait 20 sec. or more, before attempting to restart.

STARTING THE ENGINE

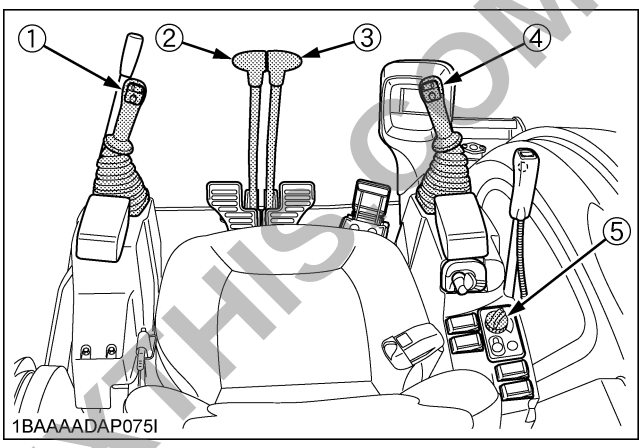
CAUTION

To avoid personal injury:

- **The operator should not depend solely on the warning lamps, but should always conduct the routine checks (see "MAINTENANCE").**

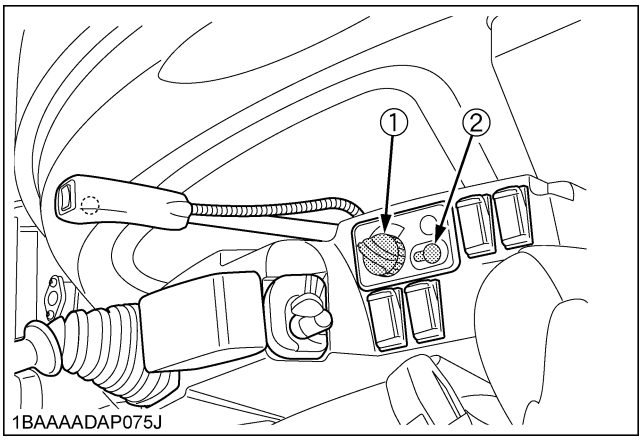
Start the engine in the following manner:

1. Before starting the engine, make sure that all control levers are in the neutral positions.



(1) Attachment control lever (left)
(2) Drive lever (left)
(3) Drive lever (right)
(4) Attachment control lever (right)
(5) Throttle potentiometer

2. Pull the lock lever all the way back. (lock position)
3. Put the throttle potentiometer in the middle between "🐇" and "🐢" symbols. The switch for Auto Idle control is in the OFF position.
   (See "AUTO IDLE (AI) OPERATION" in the Excavator operation.)



(1) Throttle potentiometer
(2) Switch for Auto Idle control

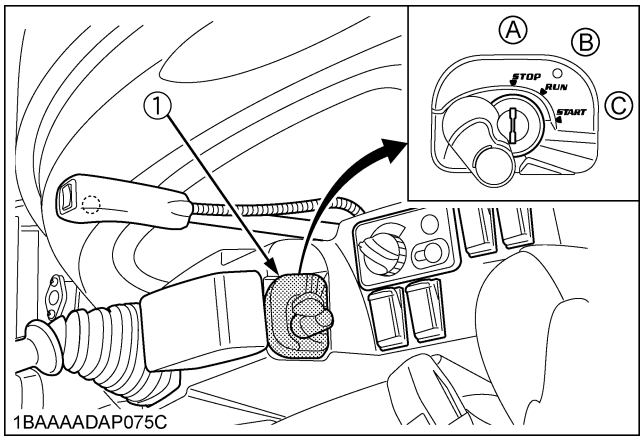
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OTHER ADJUSTMENTS AND REPLACEMENTS

PURGING OF THE FUEL SYSTEM

1. Fill up the excavator with fuel.
2. Turn the starter key to the position "RUN".
3. The air in the fuel system will automatically be purged within one minute.



(1) Starter switch

(A) "STOP"
(B) "RUN"
(C) "START"

IMPORTANT :

- If the purging was insufficient, the engine dies right after starting. In this case repeat steps 2 to 3 again.

ADJUSTMENT OF TRACKS

◆ **To loosen the tracks, follow the following procedure:**

CAUTION

To avoid personal injury:

- **Do not loosen the grease nipple completely or too quickly. Otherwise grease under high pressure in the tension cylinder could squirt out.**
- **Do not crawl under the excavator.**

1. Loosen the bolts and remove the cover.
2. Using a socket wrench, loosen the grease nipple a few turns.
3. When grease oozes out from the thread, rotate the track and loosen the track in the lifted position (see illustration).

After adjustment is completed:

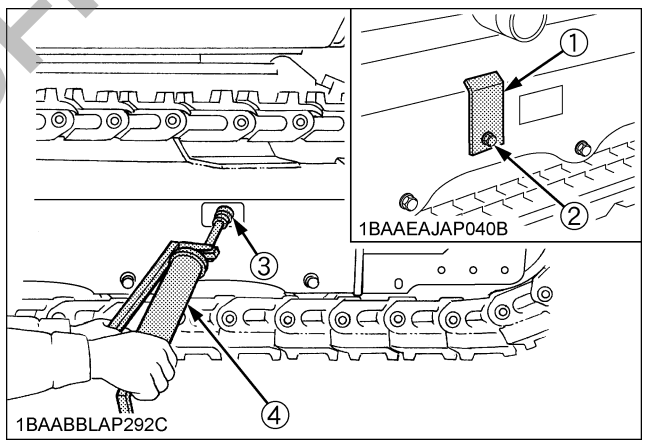
Using the socket wrench, tighten the grease nipple. Tightening torque must be between 98 to 108 N-m (72.3 to 79.7 ft-lbs).

IMPORTANT :

- If the tracks are too tight, wear is increased.
- If the tracks are too loose, the track pads may collide with the sprocket and wear is increased.
  The track may dislocate or come off.
- Clean the track after every use.
- Should the track tension be high due to sticking mud, lift the track with the help of the boom, arm and bucket, idle the engine and remove mud from the track by rotating it.

◆ **Tense the tracks as specified:**

1. Loosen the bolt and remove the cover.
2. Apply grease to the grease nipple.



(1) Cover
(2) Bolt
(3) Grease nipple
(4) Grease gun

3. **Rubber Tracks**

   Tense the track in the lifted position, so that the distance "A" (clearance between the track roller and the inside surface of the track) see illustration, in this case, if there is a seam mark "∞" on the inside surface of the track, the seam mark "∞" is positioned on the top center between the idler and the sprocket.

   Steel Tracks

   To check the track tension, the track must be lifted from the ground as shown. The track tension is correct if the clearance between the outer end of the track roller and the track interior surface corresponds to the dimension specified in the table below.

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