

# Operation & Maintenance Manual

## **GALEO**

# **PC600-7**

# **PC600LC-7**

## **HYDRAULIC EXCAVATOR**

<b>SERIAL NUMBERS</b>	<b>PC600-7</b>	<b>20001 and up</b>
	<b>PC600LC-7</b>	<b>20001 and up</b>

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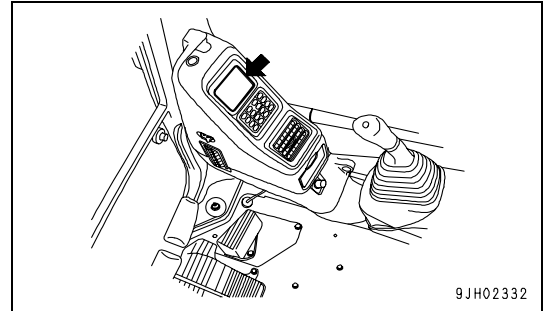


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### SERVICE METER LOCATION

On top of the machine monitor



### YOUR MACHINE SERIAL NUMBERS AND DISTRIBUTOR

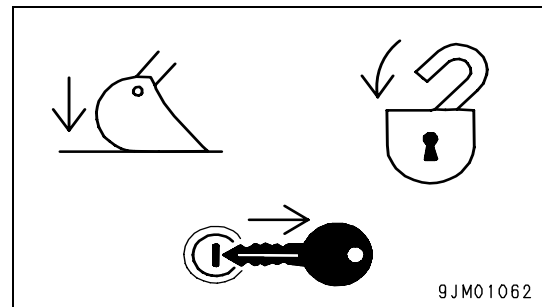
Machine serial No.	
Engine serial No.	
Product identification number (PIN)	
Distributor name	
Address	-----
	-----
	-----
Service Personnel	-----
Phone/Fax	-----

## SAFETY LABELS

The following warning signs and safety labels are used on this machine.

- Be sure that you fully understand the correct position and content of labels.
- To ensure that the content of labels can be read properly, be sure that they are in the correct place and always keep them clean. When cleaning them, do not use organic solvents or gasoline. These may cause the labels to peel off.
- There are also other labels in addition to the warning signs and safety labels. Handle those labels in the same way.
- If the labels are damaged, lost, or cannot be read properly, replace them with new ones. For details of the part numbers for the labels, see this manual or the actual label, and place an order with Komatsu distributor.

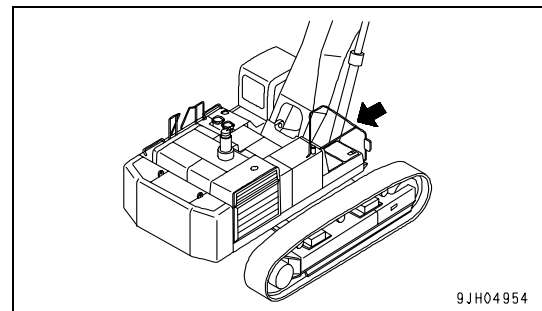
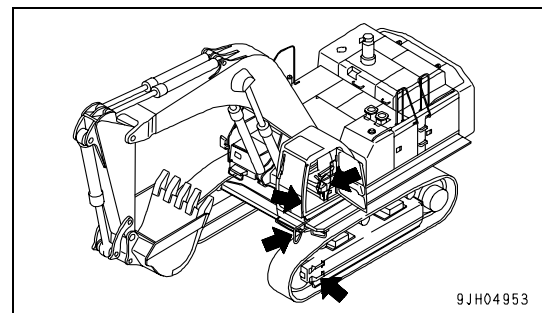
- When leaving the machine, always lower the work equipment completely to the ground, set lock lever (1) securely to the LOCK position (L), then stop the engine. Use the key to lock all the equipment. Always remove the key, take it with you, and keep it in the specified place.



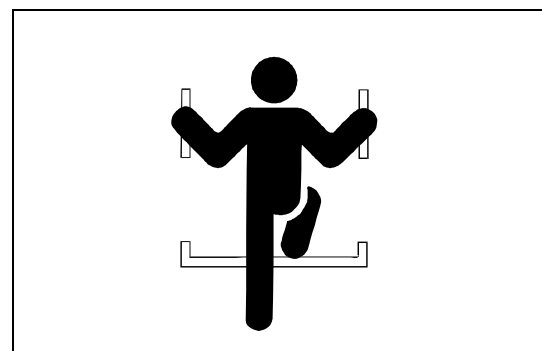
### HANDRAILS AND STEPS

To prevent personal injury caused by slipping or falling off the machine, always do as follows.

- Use the handrails and steps marked by arrows in the diagram on the right when getting on or off the machine.



- To ensure safety, always face the machine and maintain three-point contact (both feet and one hand, or both hands and one foot) with the handrails and steps (including the track shoe) to ensure that you support yourself.
- Do not grip the control levers or lock lever when getting on or off the machine.
- Never climb on the engine hood or covers where there are no non-slip pads.
- Before getting on or off the machine, check the handrails and steps (including the track shoe). If there is any oil, grease, or mud on the handrails or steps (including the track shoe), wipe it off immediately. Always keep these parts clean. Repair any damage and tighten any loose bolts.
- Do not get on or off the machine while holding tools in your hand.

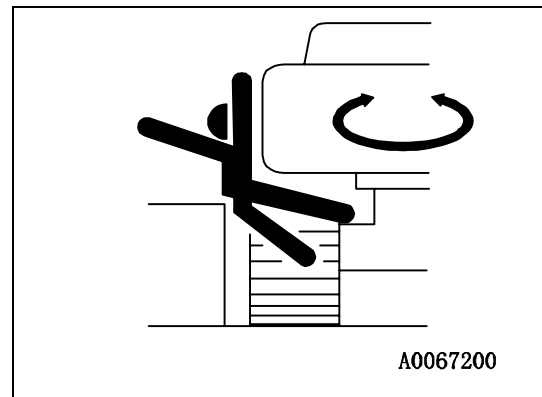
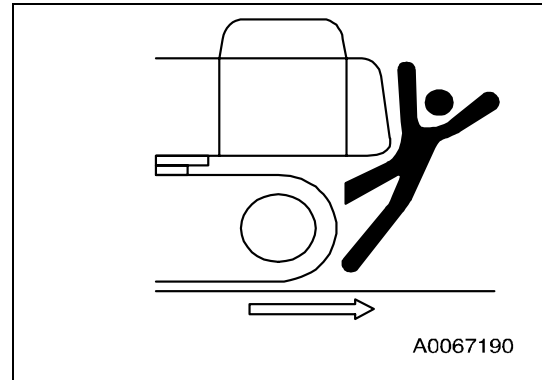


- Do not allow anyone apart from the operator to ride on the machine.
- Check that the travel alarm works properly.
- Always lock the door and windows of the operator's compartment in position (open or closed).

On jobsites where there is a hazard of flying objects or of objects entering the operator's compartment, check that the door and windows are securely closed.

- If there is an area to the rear of the machine which cannot be seen, position a signal person. Take special care not to hit other machines or people when turning or swinging the machine.

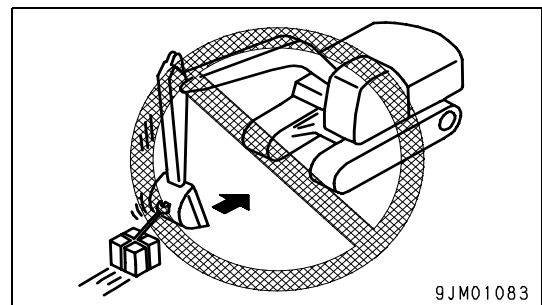
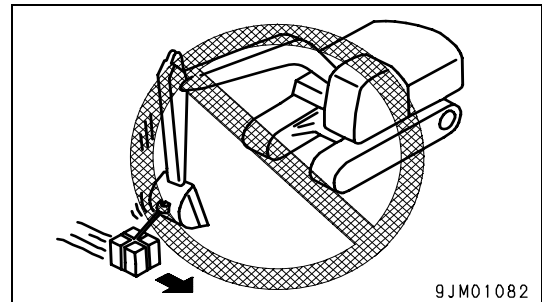
Always be sure to carry out the above precautions even when the machine is equipped with mirrors.



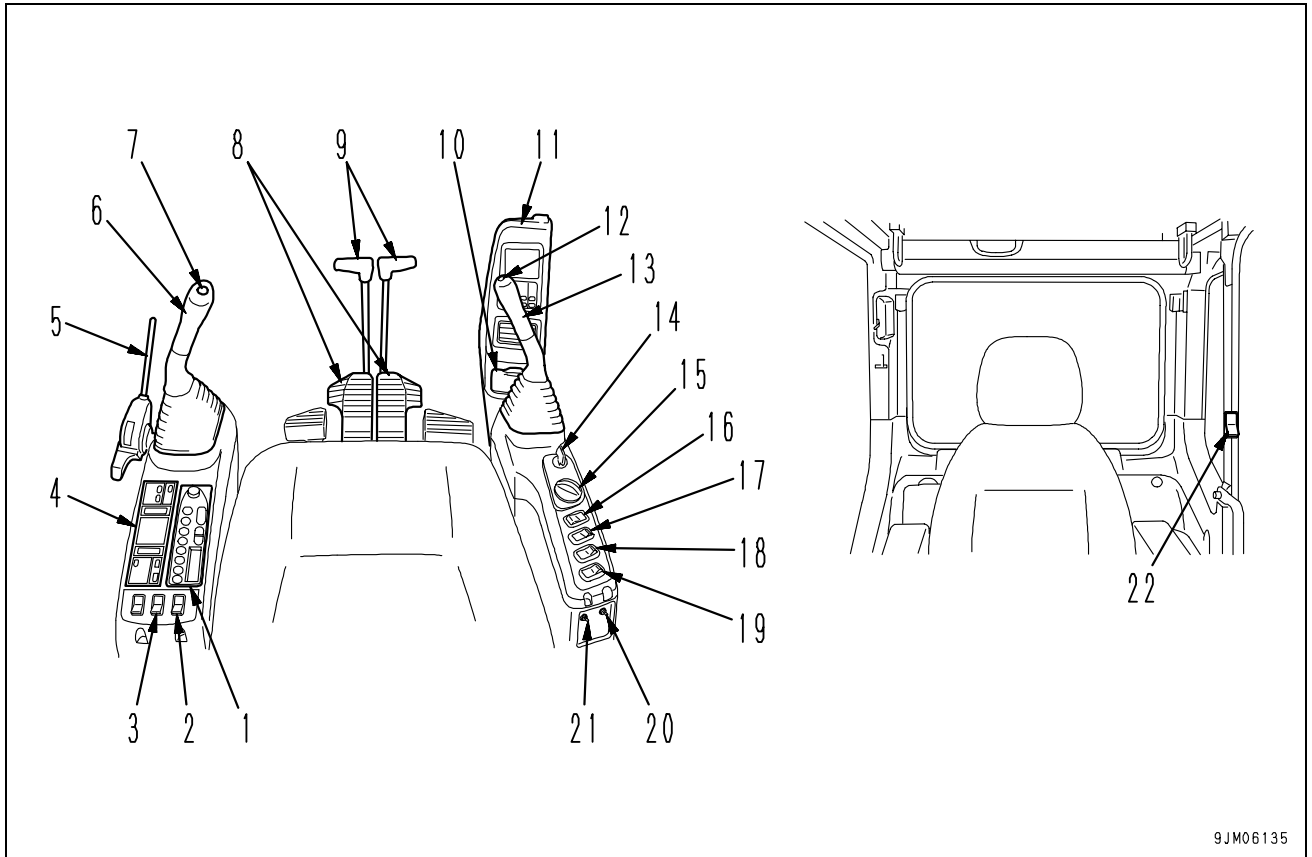
## LIFTING OBJECTS WITH BUCKET

### SAFETY RULES FOR LIFTING OBJECTS

- Do not carry out lifting work on slopes, soft ground, or other places where the machine is not stable.
- Use wire rope that conforms to the specified standard.
- Always observe the specified lifting load strictly.
- It is dangerous if the load hits any worker or structure. Always check carefully that the surrounding area is safe before swinging or turning the machine.
- Do not start, swing, or stop the machine suddenly. There is a hazard that the lifted load will swing.
- Do not pull the load to the side or in towards the machine.
- Do not leave the operator's seat when there is a raised load.



**CONTROLS AND GAUGES**



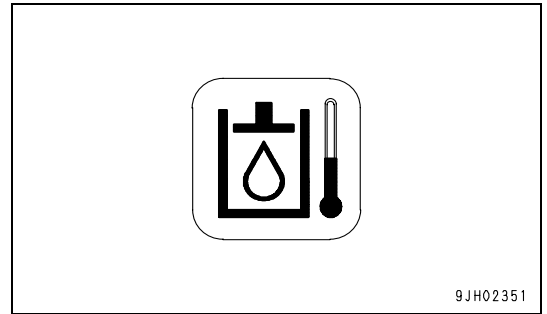
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- |  |   |
|--|---|
| (1) Car radio  | (11) Machine monitor                    |
| (2) Lower wiper switch<br>(machines with fixed front window cab)<br>or Large capacity airflow air conditioner blower<br>switch (If equipped) | (12) Horn switch                        |
| (3) Revolving warning lamp switch (option)   | (13) R.H. work equipment control lever  |
| (4) Air conditioner control switch   | (14) Starting switch                    |
| (5) Lock lever   | (15) Fuel control dial                  |
| (6) L.H. work equipment control lever  | (16) Lamp switch                        |
| (7) One-touch power max. switch  | (17) Alarm buzzer stop switch           |
| (8) Travel pedals  | (18) Swing lock switch                  |
| (9) Travel levers  | (19) Machine push-up switch             |
| (10) Cigarette lighter   | (20) Swing holding brake release switch |
|  | (21) Emergency pump drive switch        |
|  | (22) Step light switch                  |

**Hydraulic Oil Temperature Monitor**

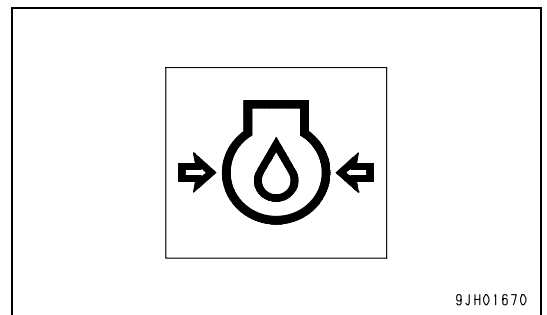
This monitor (2) warns the operator that the hydraulic oil temperature has risen. If it lights up red during operations, run the engine at low idling or stop the engine and wait until the oil temperature goes down and the monitor changes to green.

Check that there is no clogging of the radiator grill or any other problem that will cause overheating.



**Engine Oil Pressure Monitor**

This monitor (3) lights up red if the engine lubrication oil pressure goes below the normal level. If it lights up red, stop the engine, and check the lubrication system and the level of oil in the oil pan.



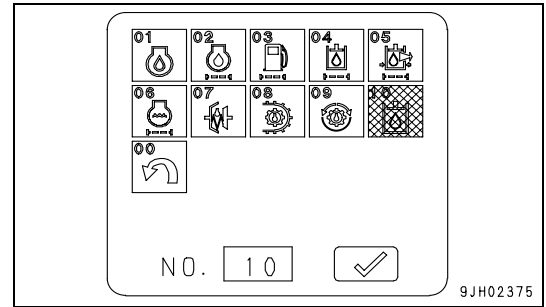
**REMARK**

The color when the monitor lights up for the basic check items, caution items, and emergency stop items is as follows.

Type of monitor	Color when monitor lights up		
	When normal	When abnormal	At low temperature
Radiator coolant level monitor	OFF	Red	-
Engine oil level monitor	OFF	Red	-
Maintenance interval monitor	OFF	Red	-
Charge monitor	OFF	Red	-
Fuel level monitor	Green	Red	-
Air cleaner clogging monitor	OFF	Red	-
Engine water temperature monitor	Green	Red	White
Hydraulic oil temperature monitor	Green	Red	White
Engine oil pressure monitor	OFF	Red	-

- The maintenance display items are as follows.

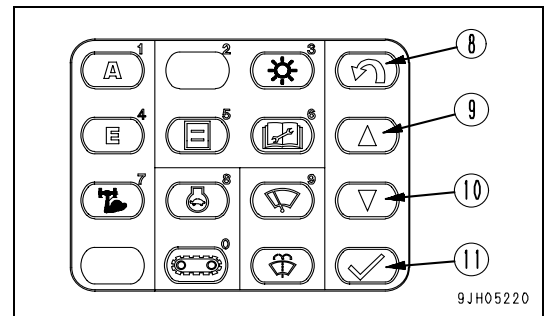
Monitor No.	Maintenance item	Initial setting display (H)
01	Engine oil change	500
02	Replace engine oil filter	500
03	Replace fuel filter	500
04	Replace hydraulic oil filter	1000
05	Replace hydraulic tank breather	1000
06	Replace corrosion resistor	1000
07	PTO case oil change	1000
08	Final drive case oil change	2000
09	Machinery case oil change	1000
10	Hydraulic oil change	5000



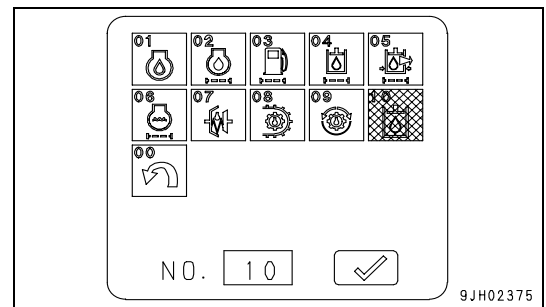
If it is desired to change the setting for the maintenance interval, please contact your Komatsu distributor.

- The method of checking the time remaining to maintenance is as follows.

1. Look at the maintenance screen, press up switch (9) or down switch (10) on the monitor switch portion, and select the item. (The color of the monitor for the selected item is inverted to black.)



2. After selecting the monitor item, press input confirmation switch (11). The display screen will switch to the time remaining to maintenance. (Press back switch (8) to return to the previous screen.)

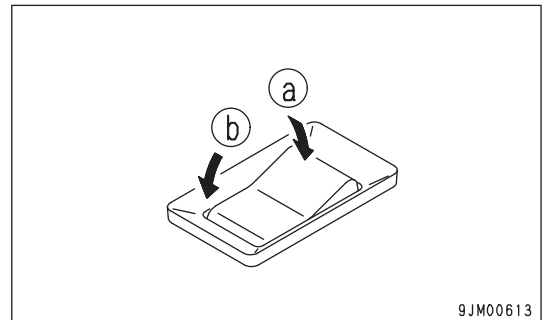


**Step Light Switch**

(If equipped)

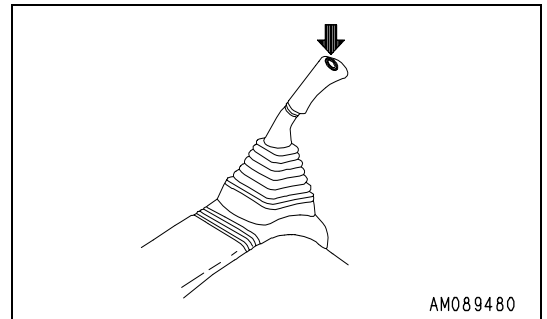
Use this switch (14) when getting off the machine at night.

- When the switch is turned to the ON (a) position, the step light will light up for approx. 60 seconds.
- Even if the starting switch key is at the OFF position, the step light will light up for approx. 60 seconds when the switch is pressed.

**One-Touch Power Max. Switch**

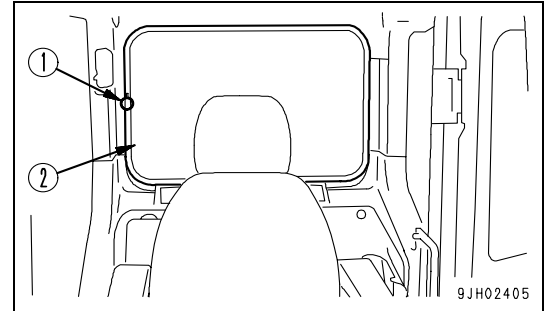
This switch (15) on the left work equipment control lever is used to actuate the power max and slow down functions.

Press once (single click) and keep the switch pressed. The one-touch power max. function is actuated for a maximum of 8.5 seconds at A and E mode.



## EMERGENCY EXIT FROM OPERATOR'S CAB

- If for some reason, the cab door does not open, remove the rear window and use it as an emergency escape.
- Remove the rear window as follows.
  1. Pull ring (1) and completely remove seal (2) from the rubber core.
  2. When the corner of the rear window glass is pushed strongly, it can be removed to the outside.
    - Do not remove the rear window except when using it as an emergency exit.



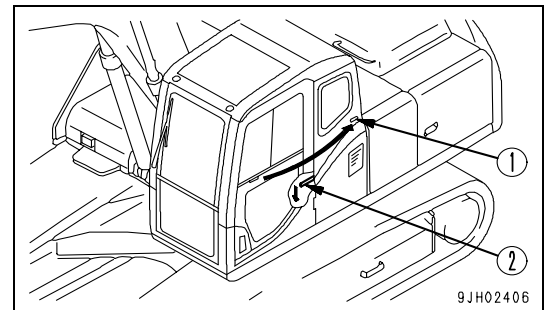
## DOOR LOCK

### WARNING

- Before releasing the door lock, always stop the machine on flat ground. Never release the door lock on a slope. The door may suddenly close and cause injury.
- When releasing the door lock, do not extend your body or hands outside the machine and do not put your hands on the door frame. The door may suddenly close and cause injury.

Use the door lock to fix the door in position after opening it.

1. Push the door against catch (1) to lock it in position.
2. To release the lock, press knob (2) down at the left side of the operator's seat to release the catch.  
When fixing the door, fix it firmly to the catch.



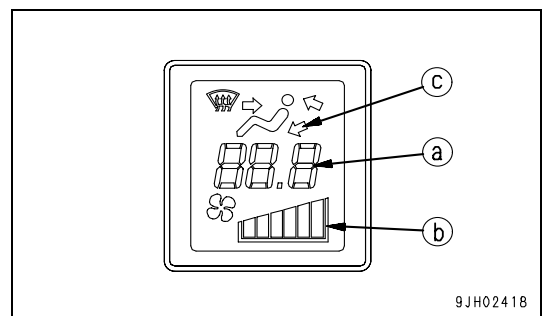
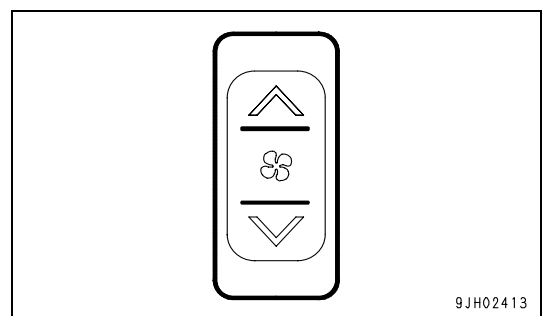
**Stopping Automatic Operation**

Press OFF switch (1). The displays for temperature setting (a) and air flow (b) on the display monitor, and the lamps above auto switch (5) and air conditioner switch (8) go out, and the operation stops.

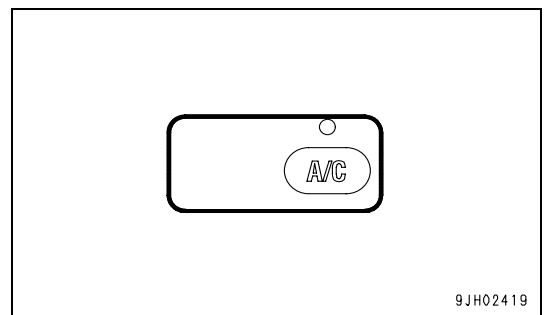


**Manual Operation**

1. Press fan switch (2) and adjust the air flow. When doing this, check that temperature setting (a) and air flow (b) are displayed on the display monitor.



2. Turn air conditioner switch (8) ON. Check that the lamp at the top of the air conditioner switch lights up.



### Manual Tuning

Press tuning button (5) and set to the desired frequency.

Each time the button is pressed, the frequency will move up or down in steps of 9 kHz (AM) or 0.1 MHz (FM).

∨ button: Move to a higher frequency station

∧ button: Move to a lower frequency station

- If the frequency reaches the top or bottom limit, it will automatically change as follows: top limit → bottom limit, or bottom limit → top limit

### Automatic Tuning

Keep tuning button (5) pressed for at least 0.5 seconds. When a broadcasting station is picked up, it will automatically stop. To search for the next station, press tuning button (5) again for at least 0.5 seconds.

∨ button: Move to a higher frequency station

∧ button: Move to a lower frequency station

- If tuning button (5) is pressed during auto tuning, the auto tuning will be canceled and the frequency at the point where it is canceled will be picked up.

### Setting Correct Time

1. Press display selector button (4) to display the time.  
After 5 seconds, the display will return to the frequency display and the time cannot be corrected. If this happens, press display selector button (4) again.
2. Press time adjustment button (8) and adjust the hour and minute.  
H button: Adjusts hour (advances one hour each time it is pressed)  
M button: Adjusts minute (advances one minute each time it is pressed)  
If the H or M button are kept pressed, the time will advance continuously until the button is released.  
SET button: Sets to start of hour (when it is pressed, the minute returns to 00)  
If the minute display is between 0 and 05, and the SET button is pressed, the minute reading will return to 00. If it is pressed when the minute display is between 55 and 59, the minute display will return to 00 and the hour will advance by 1. If the minute display is between 06 to 54, can not adjust.

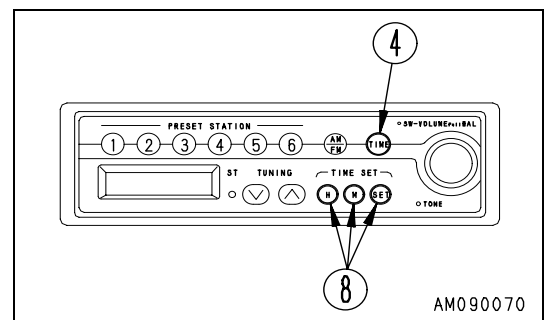
#### Example

10:05 → 10:00

10:59 → 11:00

10:26 → 10:26

Press the H, M, and SET buttons to set to the correct time.



# MACHINE OPERATIONS AND CONTROLS

## BEFORE STARTING ENGINE

### Walk-Around Checks

Before starting the engine, look around the machine and under the machine to check for loose nuts or bolts, or leakage of oil, fuel, or coolant, and check the condition of the work equipment and hydraulic system. Check also for loose wiring, play, and accumulation of dust at places which reach high temperatures.



### WARNING

**Remove any flammable materials from around the battery or engine muffler, turbocharger, or other high temperature engine parts. Leakage of fuel or oil will cause the machine to catch fire. Check carefully, and be sure to repair any abnormalities, or please contact your Komatsu distributor.**

Carry out the following inspections and cleaning every day before starting the engine for the day's work.

1. Check for damage, wear, play in work equipment, cylinders, linkage, hoses  
Check that there are no cracks, excessive wear, or play in the work equipment, cylinders, linkage, or hose. If any abnormality is found, repair it.
2. Remove the dirt from around the engine, battery, and radiator.  
Check that there is no dirt accumulated around the engine or radiator. Check also that there is no flammable material (dry leaves, twigs, etc.) around the battery, engine muffler, turbocharger, or other high temperature parts of the engine. If any dirt or flammable materials are found, remove them.
3. Check for leakage of water or oil around engine  
Check that there is no leakage of oil from the engine or leakage of water from the cooling system. If any abnormality is found, repair it.
4. Check for oil leakage from hydraulic equipment, hydraulic tank, hoses, joints  
Check that there is no oil leakage. If any abnormality is found, repair the place where the oil is leaking.
5. Check for oil leakage from around engine, fuel tank, hoses, around fuel cooler  
Check that there is no fuel leakage. If any abnormality is found, repair the place where the fuel is leaking.
6. Check the undercarriage (track, sprocket, idler, guard) for damage, wear, loose bolts, or leakage of oil from rollers.  
If any abnormality is found, repair it.
7. Check for abnormality in handrails, steps, loose bolts.  
If any abnormality is found, repair it. Tighten any loose bolts.

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## (C) Adjusting seat tilt

## ● Forward tilt

Push lever (3) up to adjust the angle of the front of the seat. (4 stages)

- To raise the angle at the front of the seat, keep the lever pushed up and apply your weight to the rear of the seat.
- To lower the angle at the front of the seat, keep the lever pushed up and apply your weight to the front of the seat.

## ● Rear tilt

Pull lever (4) up to adjust the angle of the rear of the seat. (4 stages)

- To raise the angle at the rear of the seat, keep the lever (3) pulled up and stand up slightly to remove your weight from the seat.
- To lower the angle at the rear of the seat, keep the lever (3) pulled up and apply your weight to the

Amount of tilt: Up 13°, down 13°

## ● Adjusting seat height

It is possible to move the seat up or down by combining adjustments forward tilt and rear tilt.

After setting the forward tilt or rear tilt to the desired height, operate the opposite part to set the seat horizontal then secure in position.

Height adjustment: 60 mm (2.4 in)

## (D) Adjusting armrest angle

Armrest (5) can be made to spring up by hand approx. 90°.

In addition, by turning the bottom (6) of the armrest by hand it is possible to make fine vertical adjustments of the armrest angle.

Armrest adjustment angle: 25°.

**REMARK**

If the seatback is pushed forward without armrest (5) being raised, the armrest will automatically rise.

If the cable at the rear of the armrest (5) is tense (the seatback is pushed forward), armrest (5) cannot be adjusted even when the dial (6) is turned. When adjusting the angle of armrest (5), set the seatback to a position where it is easy to carry out operations, then adjust the angle.

## (E) Overall fore-and-aft adjustment of seat

Move lever (7) to right, set to the desired position, then release the lever. In this case, the operator's seat, left and right control levers, and safety lock lever all slide together.

Fore-and-aft adjustment: 180 mm (7.1 in) (9 stages)

## (F) Adjusting suspension

Turn knob (8) to the right to make the suspension harder, or to the left to make the suspension softer. Adjust the reading of the dial to match the operator's weight and select the optimum suspension.

**REMARK**

To obtain the optimum adjustment, turn the knob (8) so that the indicator of the weight display (kg) in the transparent portion of knob (8) is the same as the operator's weight.

**REMARK**

The actuation time for the turbo protect function and the relationship with the engine coolant temperature are as shown below.

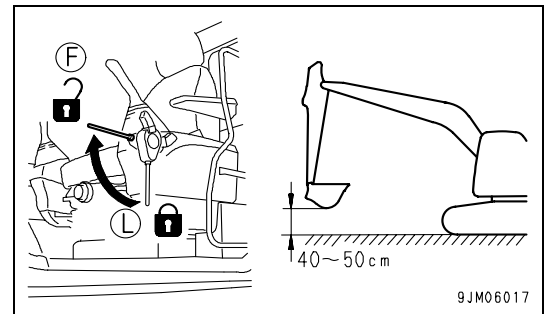
If the fuel control dial is operated within the time shown below, the engine speed will not change.

Cooling water temperature	Turbo protect time (sec.)
Above 10 °C (50 °F)	0
10 to -10 °C (50 to 14 °F)	Change 0 to 5
below -10 °C (14 °F)	5

- In cold weather, the turbo protect function is actuated, so the engine speed is maintained below 1000 rpm for several seconds. After that, the automatic warming-up function raises the engine speed to 1200 rpm.

## Moving Machine Forward

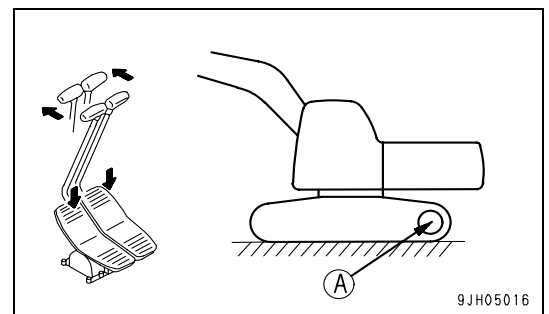
1. Set lock lever (4) in the FREE position (F), fold the work equipment, and raise it 40 to 50 cm (16 to 20 in) from the ground.



2. Operate right and left travel levers (5) or right and left travel pedals (6) as follows.

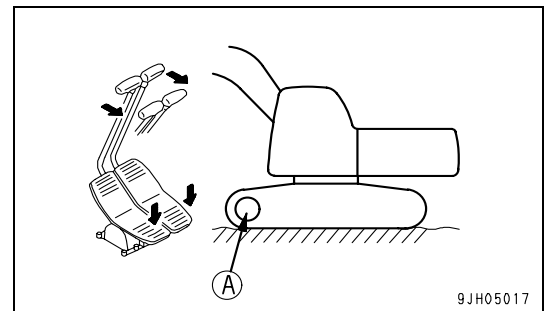
- When the sprocket (A) is at the rear of the machine

Push levers (5) forward slowly or depress the front part of pedals (6) slowly to move the machine off.



- When the sprocket (A) is at the front of the machine

Pull levers (5) backward slowly or depress the rear part of pedals (6) slowly to move the machine off.



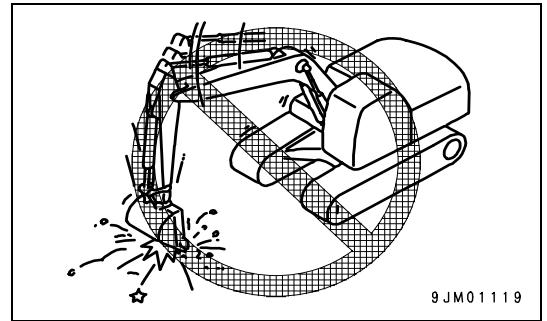
3. Check that the alarm sounds properly. If the alarm does not sound, please contact your Komatsu distributor for repair.

### REMARK

In cold temperatures, if the machine travel speed is not normal, carry out the warming-up operation thoroughly. In addition, if the undercarriage is clogged with mud and the machine travel speed is not normal, remove the soil and mud from the undercarriage.

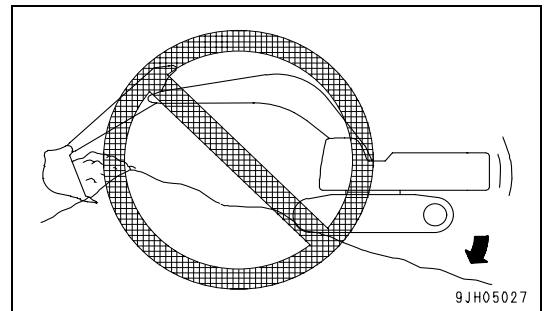
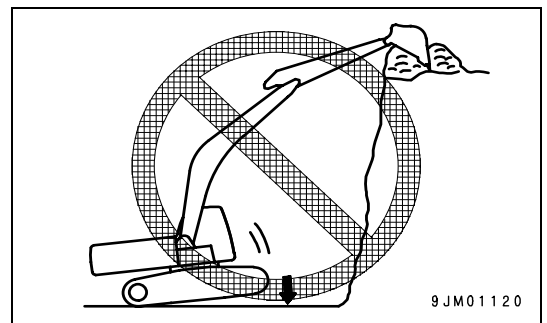
**Operations Using Bucket Dropping Force**

Do not use the dropping force of the machine for digging, or use the dropping force of the bucket as a pickaxe, breaker, or pile driver. This will markedly reduce the life of the machine.



**Operations Using Machine Dropping Force**

Do not use the dropping force of the machine for digging.

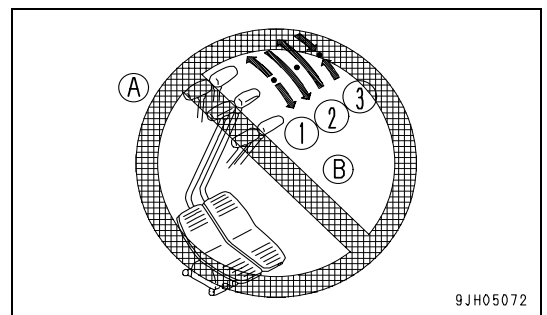


**Digging Hard Rocky Ground**

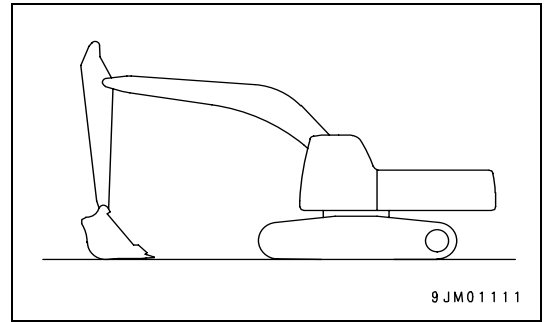
Do not attempt to directly excavate hard rocky ground with the work equipment. It is better to excavate it after breaking up by some other means. This will not only save the machine from damage but make for better economy.

**Sudden Lever Shifting High Speed Travel**

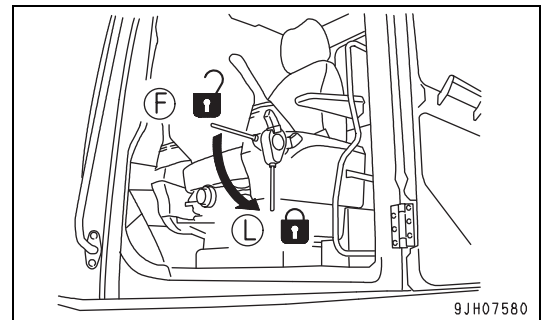
- (1) Never carry out sudden lever shifting as this may cause sudden starting.
- (2) Avoid sudden lever shifting from forward (A) to reverse (B) (or from reverse (B) to forward (A)).
- (3) Avoid sudden lever shifting change such as sudden stopping from near top speed (lever release operation).



- Lower the bucket horizontally until the bottom touches the ground.



- Set lock lever (3) in the LOCK position (L).

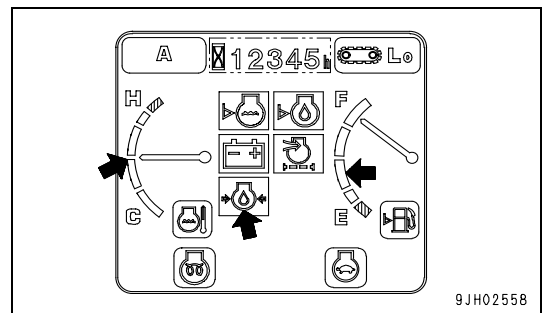


**CHECK AFTER SHUT OFF ENGINE**

Check the engine water temperature, engine oil pressure, and fuel level on the machine monitor.

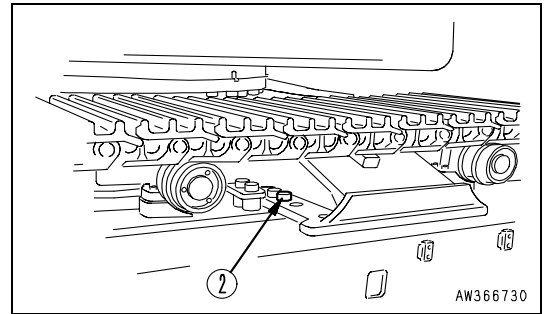
**REMARK**

After stopping the engine, if the starting switch is turned within approx. 10 seconds to the ON or START position to start the engine again, the monitor display is not reset, and the screen before the starting switch was turned OFF is displayed.



**Increasing Track Gauge**

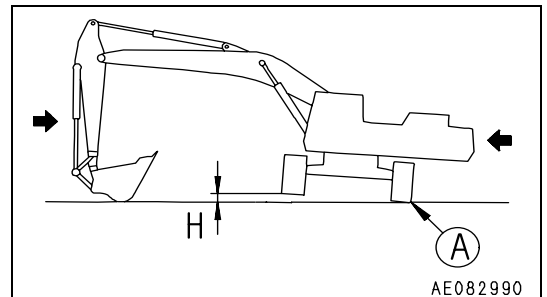
1. Remove center frame mounting bolts (2) (one side, front + rear: 8 bolts) from the front and rear of the track frame on the side to be extended.



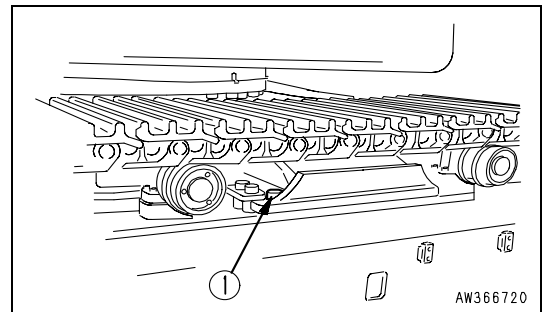
2. Swing the upper structure so that it is at 90° on the opposite side to track frame (A) to be extended.

**REMARK**

Height H of the track frame being raised should be less than 50 mm (2 in). Take care not to raise the track frame so much that the stopper bolt is distorted.



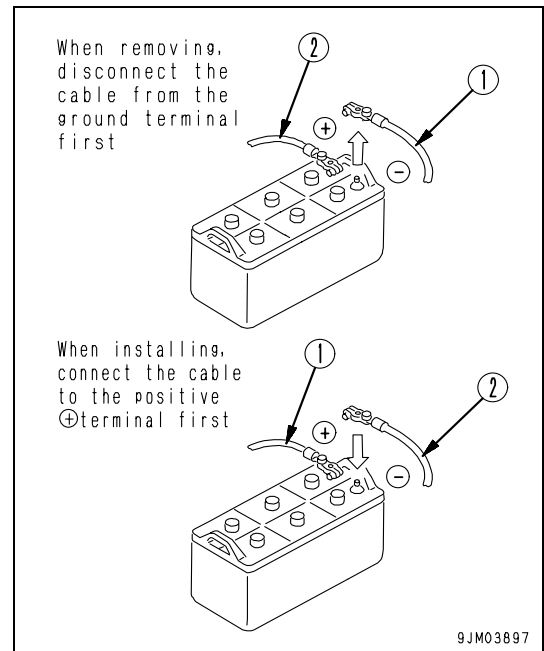
3. Using the arm, pull the machine to the front.  
The track frame will slide.
4. Extend the track frame until it comes into contact with the stopper, then lower the machine slowly to the ground. Install bolts (1) (one side, front + rear: 16 bolts) and tighten to specified torque.
5. Tightening torque: 1960 - 2450 N·m  
(200 - 250 kgf·m, 1450 - 1810 lbft)
6. Follow the same procedure to retract the track frame on the other side.
  - Stop the machine on firm level ground when extending or retracting the track frame gauge width.
  - Never operate the cylinders suddenly when extending or retracting the track frame gauge width. It is dangerous if they are operated suddenly.



## DISCHARGED BATTERY

**⚠ WARNING**

- It is dangerous to charge a battery when mounted on a machine. Make sure that it is dismantled before charging.
- When checking or handling the battery, stop the engine and turn the starting switch key to the OFF position.
- The battery generates hydrogen gas, so there is a hazard of explosion. Do not bring lighted cigarettes near the battery, or do anything that will cause sparks.
- Battery electrolyte is dilute sulphuric acid, and it will attack your clothes and skin. If it gets on your clothes or on your skin, immediately wash it off with a large amount of water. If it gets in your eyes, wash it out with fresh water and consult a doctor.
- When handling batteries, always wear protective goggles and rubber gloves.
- When removing the battery, first disconnect the cable from the ground (normally the negative (-) terminal). When installing, install the positive (+) terminal first. If a tool touches the positive terminal and the chassis, there is danger that it will cause a spark, so be extremely careful.
- If the terminals are loose, there is danger that the defective contact may generate sparks that will cause an explosion. Terminals should be connected firmly.
- When removing or installing the terminals, check which is the positive (+) terminal and which is the negative (-) terminal.
- Patina on the terminals may cause self-discharge. Use sandpaper or wire brush to polish patina developed terminals, and connect cables after coating it with thin grease.

**Battery Removal And Installation**

- Before removing the battery, remove the ground cable (normally connected to the negative (-) terminal). If any tool touches between the positive terminal and the chassis, there is a hazard of sparks being generated.
- When installing the battery, connect the ground cable last.
- When replacing the battery, fix the battery securely in position with the battery mounting clamp. Tightening torque of mounting bolt: 9.8 to 19.6 N·m (1.0 to 2.0 kgf·m, 7.2 to 14.5 lbf)

# MAINTENANCE

## **WARNING**

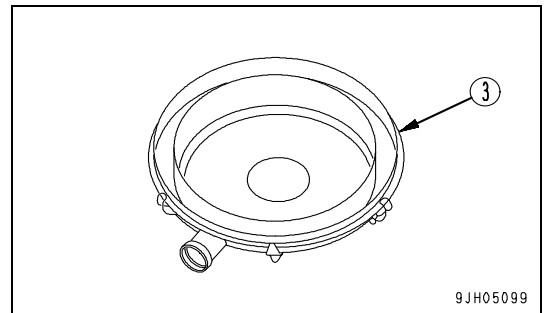
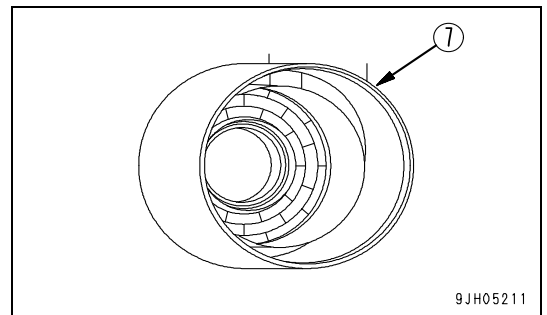
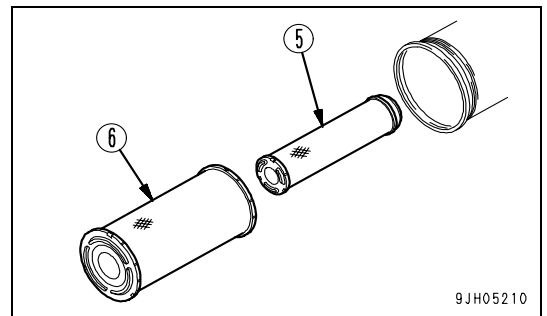
Please read and make sure that you understand the SAFETY section before reading this section.

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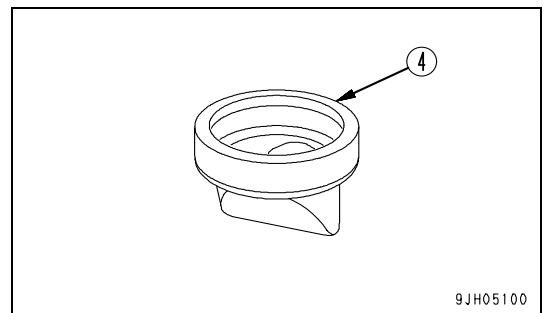
No.	Supplier	Engine Oil [CD or CE] SAE10W, 30, 40 10W30, 15W40 (The 15W40 oil marked * is CE.)	Gear Oil [GL-4 or GL-5] SAE80, 90, 140	Grease [Lithium-Base] NLGI No.2	Anti-freeze Coolant [Ethylene Glycol Base] Permanent Type
1	KOMATSU	EO10-CD EO30-CD EO10-30CD EO15-40CD	GO90 GO140	G2-LI G2-LI-S	AF-ACL AF-PTL AF-PT(Winter, one season type)
2	AGIP	Diesel sigma S super dieselmulti- grade *Sigma turbo	Rotra MP	GR MU/EP	-
3	AMOCO	*Amoco 300	Multi-purpose gear oil	PYKON premium grease	-
4	ARCO	*Arcofleet S3 plus	Arco HD gear oil	Litholine HEP 2 Arco EP moly D	-
5	BP	Vanellus C3	Gear oil EP Hypogear EP	Energrease LS-EP2	Antifreeze
6	CALTEX	*RPM delo 400 RPM delo 450	Universal thuban Universal thuban EP	Marfak all purpose 2 Ultra-duty grease 2	AF engine coolant
7	CASTROL	*Turbomax *RX super CRD	EP EPX Hypoy Hypoy B Hypoy C	MS3 Spheerol EPL2	Anti-freeze
8	CHEVRON	*Delo 400	Universal gear	Ultra-duty grease 2	-
9	CONOCO	*Fleet motor oil	Universal gear lubricant	Super-sta grease	-
10	ELF	Multiperformance 3C Performance 3C	-	Tranself EP Tranself EP type 2	Glacelf
11	EXXON (ESSO)	Essolube D3 *Essolube XD-3 *Essolube XD-3 Extra *Esso heavy duty Exxon heavy duty	Gear oil GP Gear oil GX	Beacon EP2	All season coolant
12	GULF	Super duty motor oil *Super duty plus	Multi-purpose gear lubricant	Gulfcrown EP2 Gulfcrown EP special	Antifreeze and coolant
13	MOBIL	Delvac 1300 *Delvac super 10W-30, 15W-40	Mobilube GX Mobilube HD	Mobilux EP2 Mobilgease 77 Mobilgrease special	-

## NOTICE

- **Never remove the inner element (5). It will allow dirt to enter and cause failure of the engine.**
  - **Do not use a screwdriver or other tool.**
3. After removing the outer element (6), cover the air connector inside the air cleaner body with a clean cloth or tape to prevent dirt or dust from entering.
  4. Wipe off or brush off the dirt stuck to cover (3) and the inside of the air cleaner body (7).

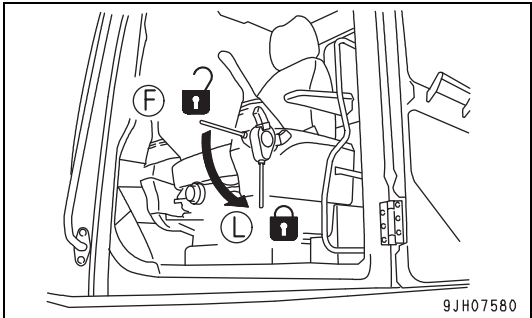


5. Remove any dirt or dust that is accumulated to evacuator valve (4) installed to cover (3).



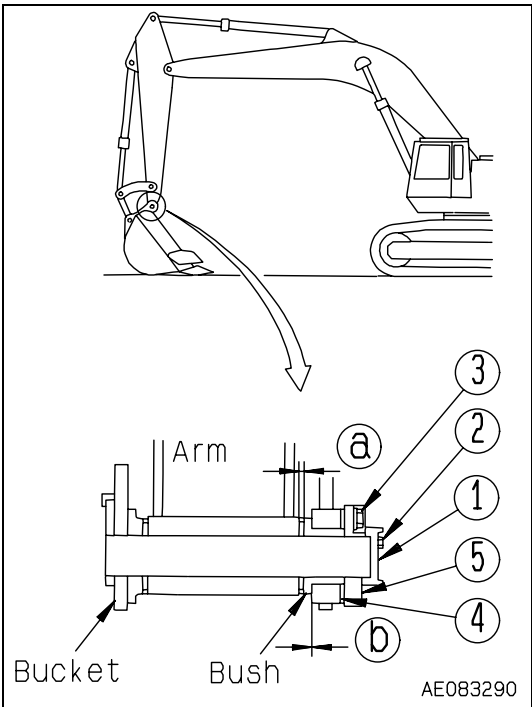
**ADJUST BUCKET CLEARANCE**

**⚠ WARNING**  
 It is dangerous if the work equipment is mistakenly moved when adjusting the bucket clearance.  
 Set the work equipment in a stable condition, stop the engine, then set the lock lever securely to the LOCK position (L).



If there is excessive free play on the coupling section of the bucket and arm, adjust the bucket clearance in the following manner.

1. Set the work equipment to the position shown in the diagram on the right, then stop the engine and set lock lever (1) to the LOCK position (L).
2. Loosen 3 bolts (2), 6 bolts (3), plate (1) and plate (5).
3. Take out shims (4) equivalent in size to free play (a).  
 Thickness of shim (4) is 0.5 mm or 1.0 mm (0.02 or 0.04 in).  
 When free play (a) is less than a thickness of shim, do not compress the shims by tightening bolt (2).
4. Tighten 3 bolts (2) and 6 bolts (3).



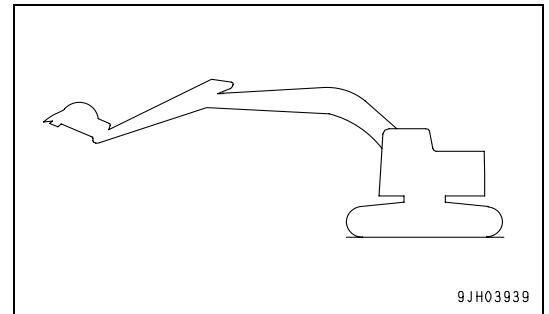
With this adjustment, clearance (b) becomes larger, but play (a) is removed.

**CHECK NITROGEN GAS CHARGE PRESSURE IN ACCUMULATOR (control circuit)****NOTICE**

If the nitrogen gas charge pressure in the accumulator is low and operations are continued, it will become impossible to release the remaining pressure inside the hydraulic circuit in a failure occurs on the machine.

Check the nitrogen gas charge pressure as follows.

1. Set the work equipment to maximum reach as shown in the diagram on the right.



2. Stop the engine and carry out the LOWER operation for the boom.
3. Check that the tip of the bucket drops at least 1m.

If the tip of the bucket drops less than 1m, the charge pressure inside the accumulator is low, so please contact your Komatsu distributor.

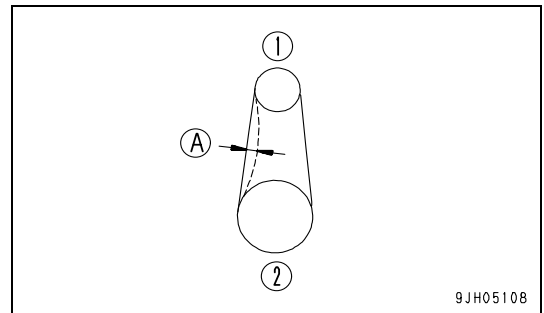
**CHECK ALTERNATOR DRIVE BELT TENSION, ADJUST**

**Checking**

If you push the belt at the center between the alternator (1) and the drive pulley (2) with your thumb

[approximately 98.1N (10 kgf)] and you get deflection of (A), it is normal.

(A): 13 to 16 mm (0.51 to 0.63 in)



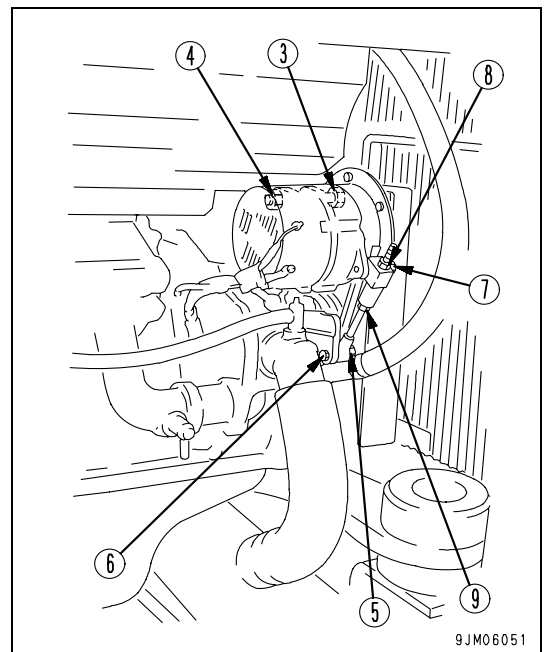
**Adjustment**

1. Loosen bolts and nuts (3) - (8) in number order, and move the alternator.

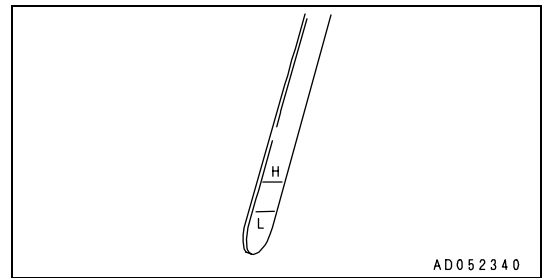
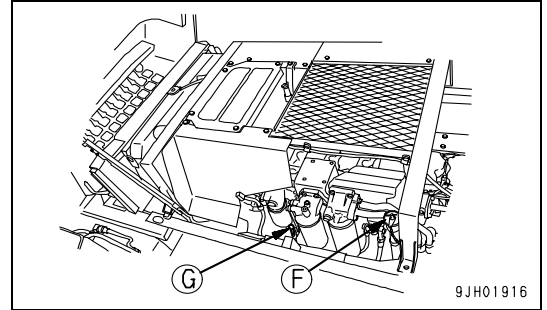
- Adjust the belt tension with nut (9) as follows:  
TIGHTEN to INCREASE tension  
LOOSEN to DECREASE tension

2. After adjusting the belt, tighten the bolts and nuts (3) to (8) in the order of (8) to (3) (the opposite order from loosening). Finally, tighten nut (9).

- Check each pulley for damage, wear of the V-groove, and wear of the V-belt. Check in particular that the V-belt does not contact the bottom of the V-groove.
- If the V-belt is elongated and there is no more allowance for adjustment, or if the belt is cracked or cut, replace the belt.
- When the V-belt has been replaced, adjust again after running for 1 hour.



5. When installing, bring the packing surface into contact with the seal surface of the filter holder, then tighten a further 3/4 - 1 turn.
  - When using a filter wrench for tightening, be extremely careful not to damage the filter or cause dents.
6. After replacing the filter cartridge, add engine oil through oil filler port (F) so that the oil level is between the H and L marks on dipstick (G).
7. Run the engine for a short time at low idling, then stop the engine. Check that the oil level gauge is between the H and L marks. For details, see "Check Oil Level In Engine Oil Pan, Add Oil (3-76)".

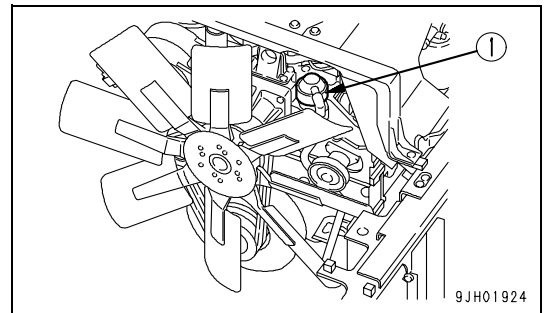


## CLEAN ENGINE BREATHER

### WARNING

- The parts and oil are at high temperature after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before cleaning the engine breather.
- When using compressed air, there is a hazard that dirt may be blown up and cause serious injury. Always use safety glasses, dust mask, or other protective equipment.

1. Wipe away dust around the breather.
2. Remove breather (1).
3. Rinse the whole breather in diesel oil or flushing oil. Dry with compressed air, then install it.
4. Replace O-ring with new one. Coat a new O-ring with engine oil, set it, then install breather (1).



## CLEAN, CHECK TURBOCHARGER

Contact your Komatsu distributor for cleaning and inspection.

## CHECK ALTERNATOR, STARTING MOTOR

The brushes may be worn, or the bearing may have run out of grease, so contact your Komatsu distributor for inspection or repair.

When the engine is frequently started, ask for inspection every 1000 hours or every 6 months, whichever comes sooner.

## CHECK ENGINE VALVE CLEARANCE, ADJUST

As special tool is required for removing and adjusting the parts, you shall request Komatsu distributor for service.

## CHECK INJECTOR

Check the color of the exhaust gas visually. If there is any abnormality in the exhaust gas color, contact your Komatsu distributor for inspection.

For details, see "TROUBLES AND ACTIONS (3-139)" "Exhaust color is black".

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