TEN00352-00

Operation & Maintenance Manual

BULLDOZER

D275AX-5E0

SERIAL NUMBERS 30209 and up

ecot3

⚠ WARNING

Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept near the machine for reference and periodically reviewed by all personnel who will come into contact with it.

NOTICE

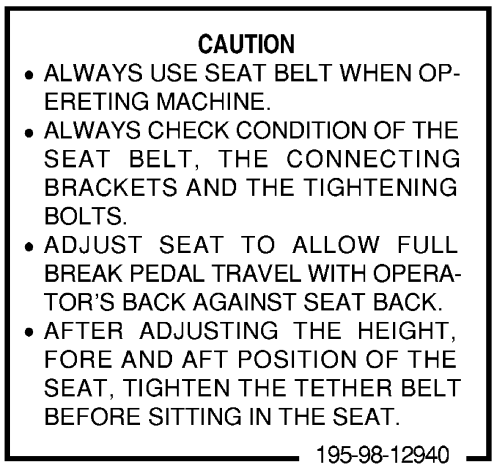
Komatsu has Operation & Maintenance Manuals written in some other languages. If a foreign language manual is necessary, contact your local distributor for availability.

KOMATSU

(8) Caution for engine running (09667-03001)

(9) Caution for handling accumulator (09659-53000)

(10) Caution for use of seat belt (195-98-12940)

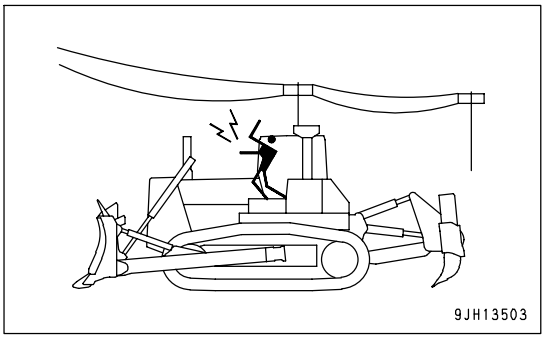


(11) Caution for approach when machine moving (09812-03000)

DO NOT GO CLOSE TO HIGH-VOLTAGE CABLES

Do not travel or operate the machine near electric cables. There is a hazard of electric shock, which may cause serious personal injury or death. On jobsites where the machine may go close to electric cables, always do as follows.

- Before starting work near electric cables, inform the local power company of the work to be performed, and ask them to take the necessary action.



- Even going close to high-voltage cables can cause electric shock, which may cause serious burns or even death. Always maintain a safe distance (see the table on the right) between the machine and the electric cable. Check with the local power company about safe operating procedure before starting operations.
- To prepare for any possible emergencies, wear rubber shoes and gloves. Lay a rubber sheet on top of the seat, and be careful not to touch the chassis with any exposed part of your body.
- Use a signalman to give warning if the machine approaches too close to the electric cables.
- When carrying out operations near high voltage cables, do not let anyone near the machine.
- If the machine should come too close or touch the electric cable, to prevent electric shock, the operator should not leave the operator's compartment until it has been confirmed that the electricity has been shut off.
  Also, do not let anyone near the machine.

Voltage of Cables	Safety Distance
100V - 200V	Over 2 m (7 ft)
6,600V	Over 2 m (7 ft)
22,000V	Over 3 m (10 ft)
66,000V	Over 4 m (14 ft)
154,000V	Over 5 m (17 ft)
187,000V	Over 6 m (20 ft)
275,000V	Over 7 m (23 ft)
500,000V	Over 11 m (36 ft)

ENSURE GOOD VISIBILITY

This machine is equipped with mirrors to ensure good visibility, but even then there are places that cannot be seen from the operator's seat, so be careful when operating.

When traveling or carrying out operations in places with poor visibility, it is impossible to check for obstacles in the area around the machine and to check the condition of the jobsite. This leads to danger of serious personal injury or death. When traveling or carrying out operations in places with poor visibility, always observe the following.

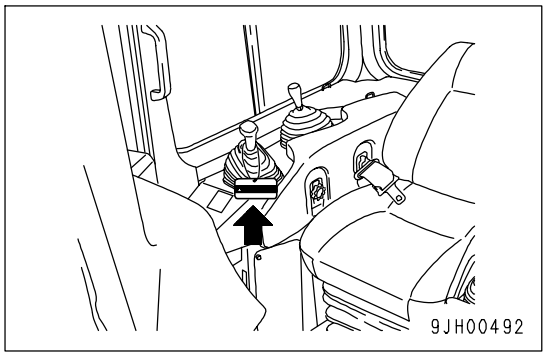
- Position a signalman if there are areas where the visibility is not good.
- Only one signalman should give signals.
- When working in dark places, turn on the working lamp and front lamps installed to the machine, and set up additional lighting in the work area if necessary.
- Stop operations if the visibility is poor, such as in mist, snow, rain, or dust.
- When checking the mirrors installed to the machine, remove all dirt and adjust the angle of the mirror to ensure good visibility.
- If the machine is equipped with cameras, clean off any dirt from the lens and make sure that the camera gives a clear view.

PRECAUTIONS FOR MAINTENANCE

PRECAUTIONS BEFORE STARTING INSPECTION AND MAINTENANCE

DISPLAY WARNING TAG DURING INSPECTION AND MAINTENANCE

Always display the "DANGER! Do NOT operate" warning tag during the inspection and maintenance. If there is any "DANGER! Do NOT operate!" warning tag displayed, it means that someone is carrying out inspection and maintenance of the machine. If the warning sign is ignored and the machine is operated, there is danger that the person carrying out inspection or maintenance may be caught in the rotating parts or moving parts and suffer serious personal injury or death. Do not start the engine or touch the levers.



- If necessary, put up signs around the machine also.
  Warning tag part number: 09963-03001
  When not using this warning tag, keep it in the toolbox.
  If there is no toolbox, keep it in the pocket for the Operation and Maintenance Manual

KEEP WORKPLACE CLEAN AND TIDY

Do not leave hammers or other tools lying around in the work place. Wipe up all grease, oil, or other substances that will cause you to slip. Always keep the work place clean the tidy to enable you to carry out operations safely. If the work place is not kept clean and tidy, there is the danger that you will trip, slip, or fall over and injure yourself.

SELECT SUITABLE PLACE FOR INSPECTION AND MAINTENANCE

- Stop the machine on firm, level ground.
- Select a place where there is no hazard of landslides, falling rocks, or flooding.

ONLY AUTHORIZED PERSONNEL

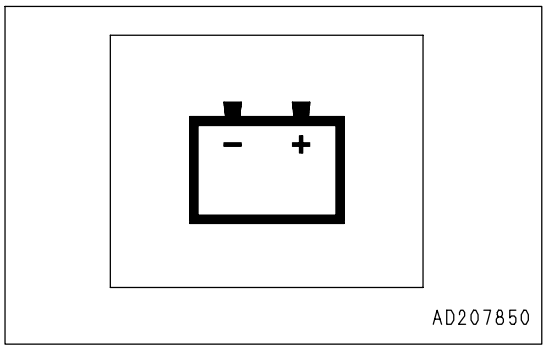
Do not allow any unauthorized personnel into the area when servicing the machine. If necessary, employ a guard.

APPOINT LEADER WHEN WORKING WITH OTHERS

When repairing the machine or when removing and installing the work equipment, appoint a leader and follow his instructions during the operation.

CHARGE CONDITION CAUTION LAMP

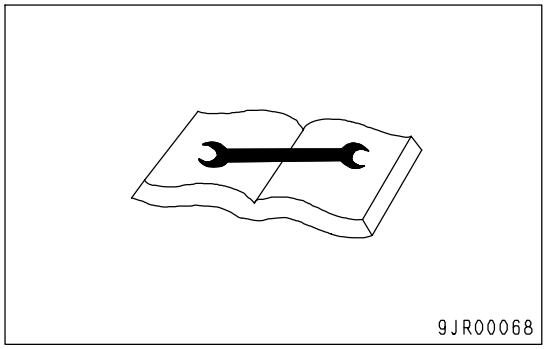
Lamp (1) indicates an abnormality in the charging system while the engine is running.
If the monitor lamp flashes, check the V-belt tension. If any abnormality is found, see "OTHER TROUBLE (PAGE 3-159)".



REMARK
This monitor lamp lights when the starting switch is turned to ON immediately after the engine is started or immediately before the engine is stopped. It does not indicate a problem.

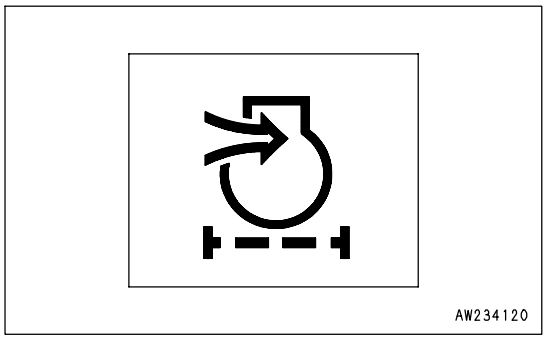
MAINTENANCE CAUTION LAMP

Lamp (2) lights up when the filter or oil change interval has been reached. DISPLAY PANEL B (Multi-information) (PAGE 3-18) to the maintenance mode and check or replace the applicable filter or oil.



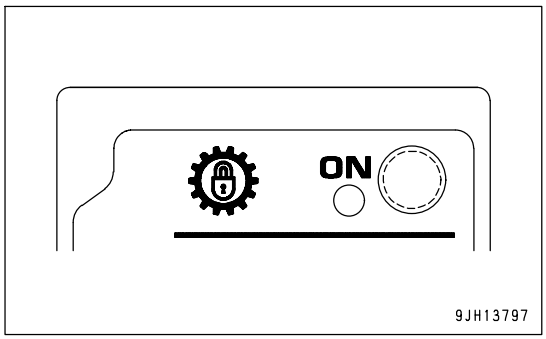
AIR CLEANER CLOGGING CAUTION LAMP

Lamp (3) warns operator that the air cleaner is clogged.
If it flashes, stop the engine, check and clean the air cleaner.



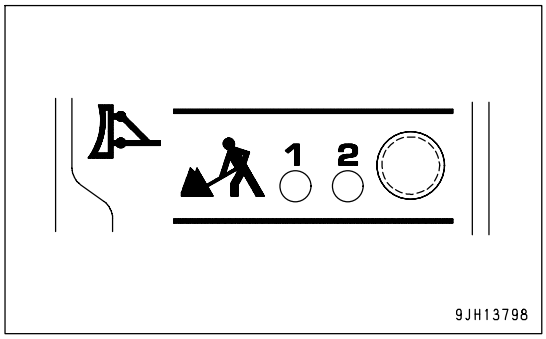
LOCK UP MODE SWITCH

Switch (1) is used when more power is needed rather than high production (such as when dozing loose soil).
The drive is switched between torque converter drive and direct drive according to the load. When it is ON, the lamp lights up.



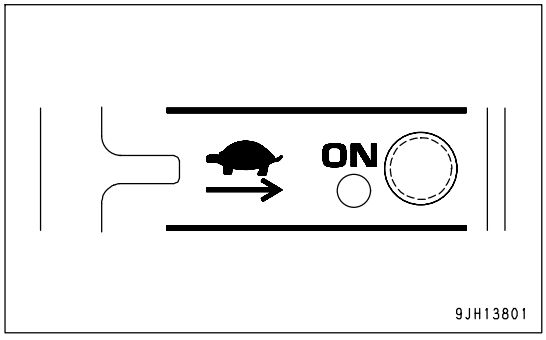
ECONOMY MODE SWITCH

Switch (2) is used for hauling work after ripping or for dozing blasted rock.
When the system is OFF, if the switch is pressed once, mode [1] lights up, and if it is pressed again, mode [2] lights up.
Select the mode according to the type of rock.

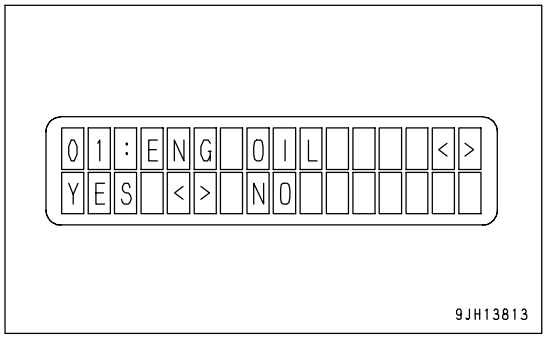


REVERSE SLOW MODE SELECTOR SWITCH

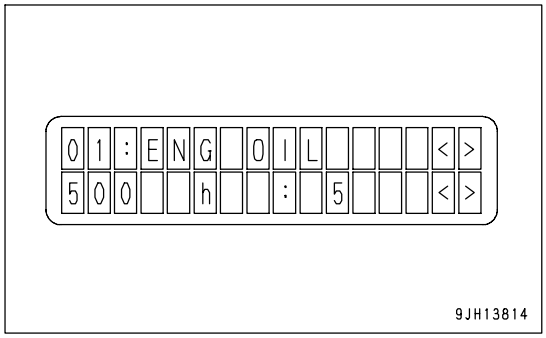
Switch (3) is used to make small reductions in the travel speed when traveling in R1, R2, or R3.
When it is turned ON, the lamp lights up.



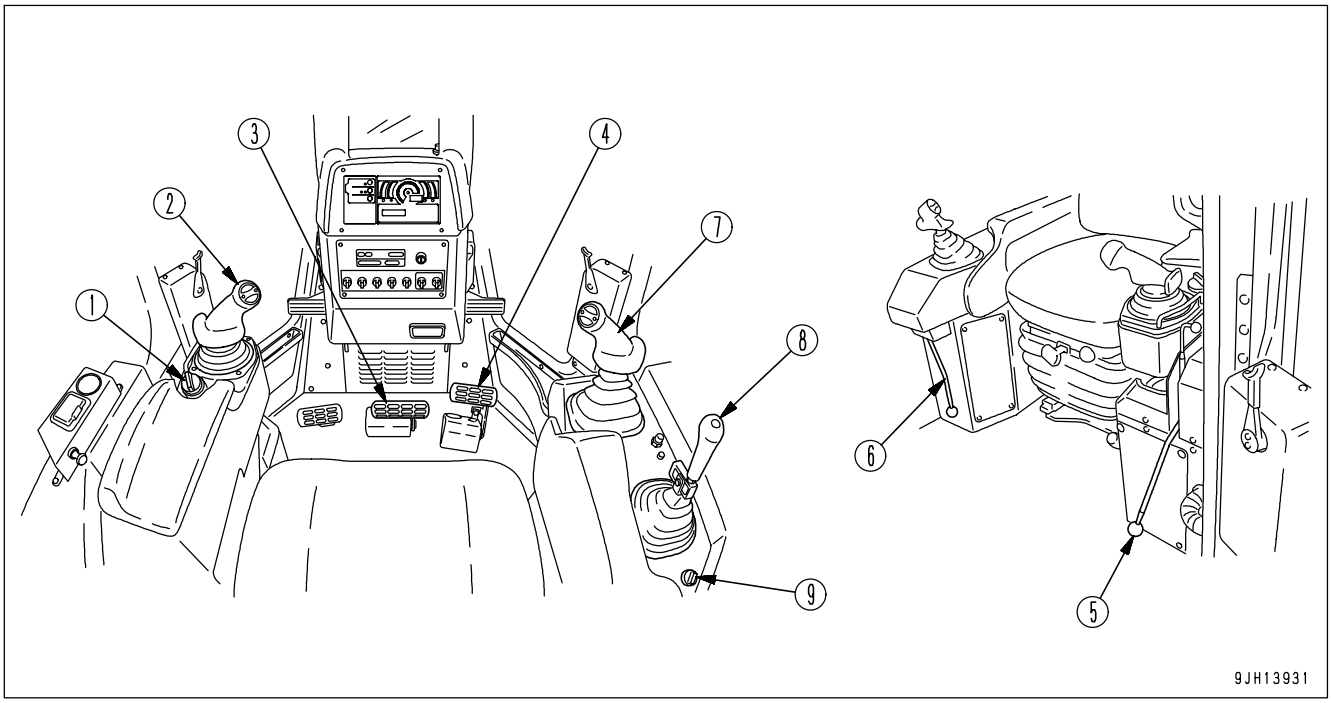
When the oil or filter has been replaced, select the applicable item, then operate the buzzer cancel switch to ◇.
The screen will ask if you want to display the replacement history. Operate the information switch to select YES, then operate the buzzer cancel switch to ◇. The replacement account will increase by 1, the replacement interval will be reset, and the oil, filter change interval lamp will go out.
When this is done, if the maintenance caution lamp does not go out, there is another item close to the replacement time, so check the situation.



REMARK
To return to the function selection mode, operate the buzzer cancel switch to □.



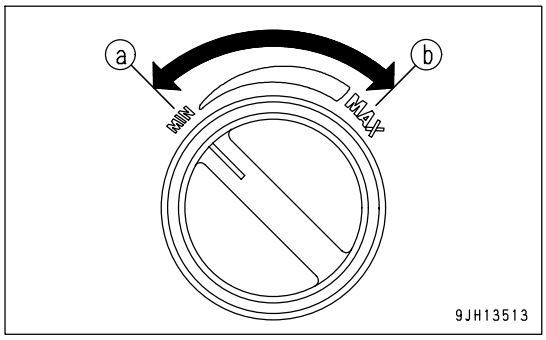
CONTROL LEVERS, PEDALS



(1) Fuel control dial
(2) Joystick (steering, directional and gear shift lever)
(3) Brake pedal
(4) Decelerator pedal
(5) Parking brake lever
(6) Work equipment lock lever
(7) Blade control lever
(8) Ripper control lever
(9) Pin puller control switch (for giant ripper)

FUEL CONTROL DIAL

Dial (1) is used to control the engine speed and output.
(a) Low idling position: Turn fully to the left
(b) High idling position: Turn fully to the right

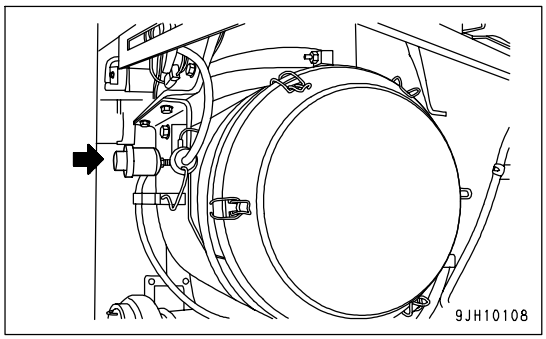


REMARK

To stop the engine, turn the starting switch to the OFF position.

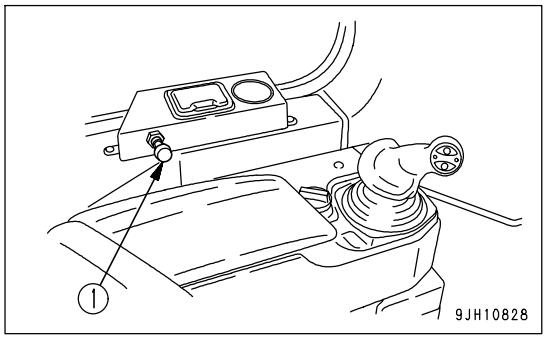
DUST INDICATOR

This is on the air cleaner bracket inside the engine room.
This device indicates that the air cleaner element is clogged.
For details on how to clean the element, see "CHECK, CLEAN AND REPLACE AIR CLEANER ELEMENT (PAGE 4-25)".



POWER SOURCE

The cigarette lighter socket (1) can be used as a power source for 24V equipment and the accessory socket (2) can be used for 12V equipment.



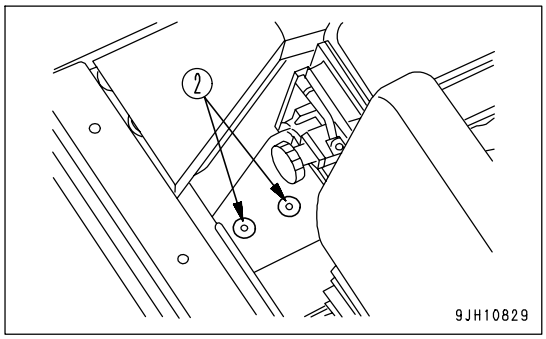
NOTICE

The cigarette lighter is 24V. Do not use it as the power source for 12V equipment.

The capacity of the cigarette lighter is 120W (24V x 5A).

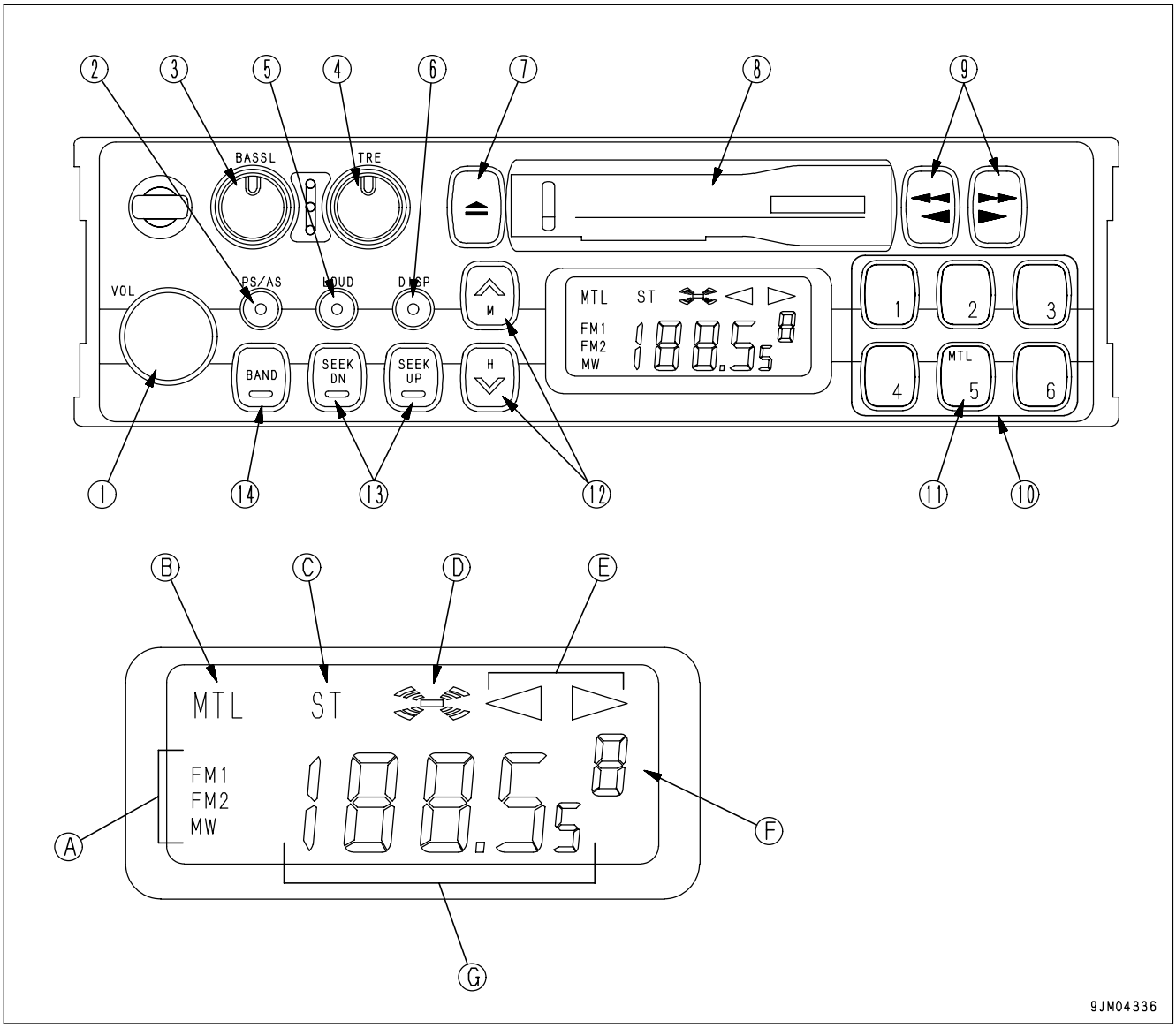
There are 2 accessory sockets. Their capacity is 60W (12V x 5A).

These 2 accessory sockets only provide power when the starting switch is ON.



CAR STEREO, HANDLING

EXPLANATION OF COMPONENTS



(1) Power switch/volume
(2) Auto-store/preset scan button
(3) Bass control knob
(4) Treble control knob
(5) Loudness button
(6) Time/radio display selector button
(7) Tape eject button
(8) Cassette door
(9) Fast forward, rewind buttons
(10) Preset buttons
(11) Metal tape button
(12) Manual tuning buttons
(13) Seek tuning buttons
(14) Band selector button

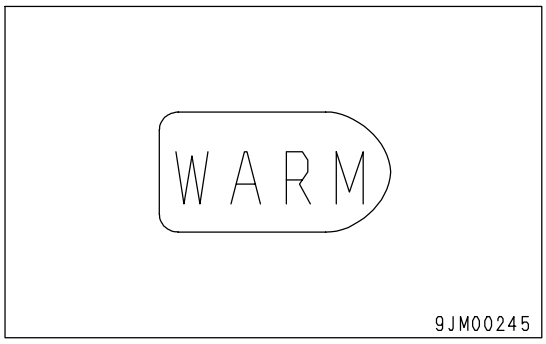
(A) Band display
(B) Metal tape display
(C) FM stereo reception display
(D) Loudness display
(E) Tape direction display
(F) Preset channel display
(G) Time/frequency display

TEMPERATURE CONTROL SWITCH (WARM)

Use switch (3) to increase the temperature.

Press this switch to increase the temperature of the air sent from the air conditioner.

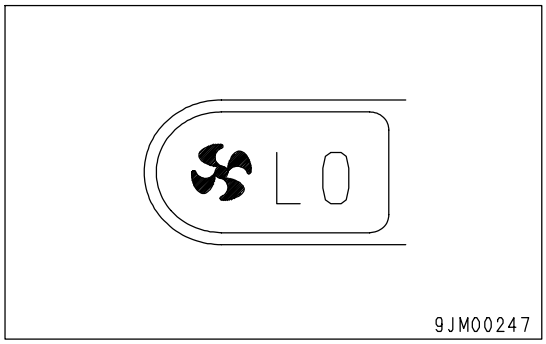
The higher the temperature becomes, the further the indicator moves into the red range.



AIR FLOW SELECTOR SWITCH (LO)

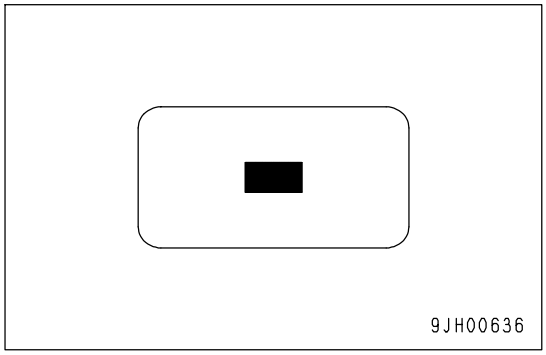
Switch (4) is used to set the flow of air from the air conditioner to LOW.

When this switch is pressed, the air flow is set to the minimum amount of the three available levels.



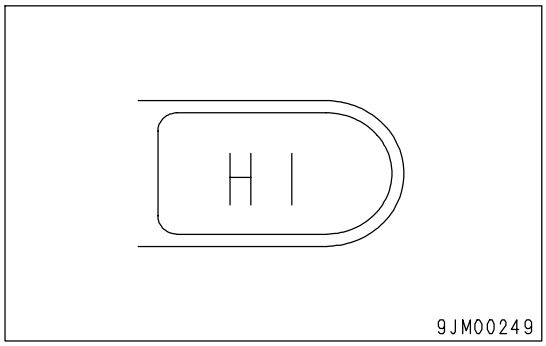
AIR FLOW SELECTOR SWITCH (MID)

Switch (4) is used to set the flow of air from the air conditioner to MID. When this switch is pressed, the air flow is set to the medium amount of the three available levels.

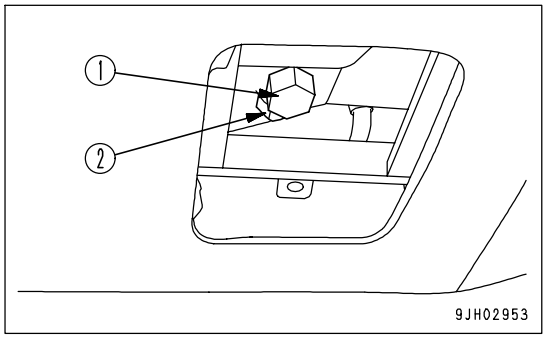


AIR FLOW SELECTOR SWITCH (HI)

Switch (4) is used to set the flow of air from the air conditioner to HI. When this switch is pressed, the air flow is set to the maximum amount of the three available levels.



6. If the oil is above the H mark, remove drain plug (1), loosen drain valve (2) to drain the excess oil, then check the oil level again.



REMARK

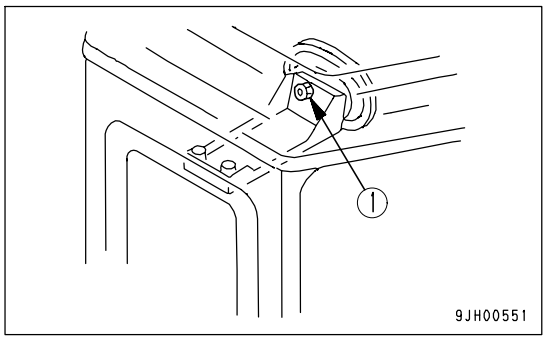
- When checking the oil level after the engine has been operated, wait for at least 15 minutes after stopping the engine before checking.
- If the machine is at an angle make it horizontal before checking.
- When adding oil, remove the dipstick form the holder to release the air inside the crankcase.
- The dipstick is marked with the levels for "ENGINE STOPPED" on one side and "ENGINE IDLING" on the other side.
  It is also possible to check the oil level with the engine idling, but be sure to remember the following points.
  · Check oil when the engine coolant temperature gauge is within the green range.
  · Read the dipstick on its reverse side marked with "ENGINE IDLING".

ADJUST MIRROR

WARNING

Be sure to adjust the mirrors before starting work. If they are not adjusted properly, you cannot secure the visibility and may be injured or may injure someone seriously.

Loosen nut (1) of the mirror and adjust the mirror to a position where it gives the best view from the operator's seat.
In particular, be sure to adjust the mirror so that people at the rear left or right of the machine can be seen clearly.



ADJUST JOYSTICK (PCCS LEVER)

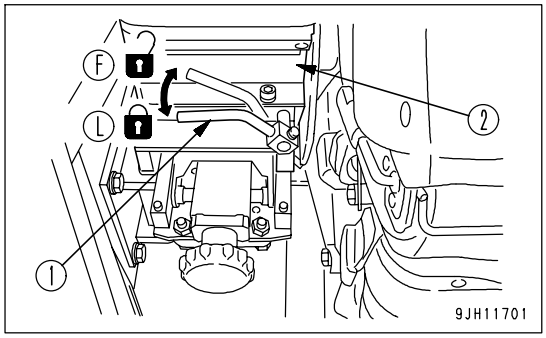
WARNING

After moving case (2) in order to adjust the position of the steering, directional, and gearshift lever, secure lock lever (1) into the notched hole, making sure it is in the LOCK position. If it is not completely locked, the steering, directional, and gearshift lever may unexpectedly move and cause damage, serious injury, or death.

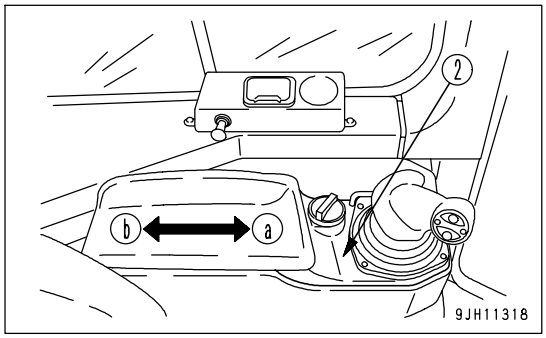
The steering, directional, and speed lever (wrist control type single lever: joystick) can be adjusted by 100 mm (3.9 in) in 5 stages to the front or rear. Adjust to the most suitable position to match the adjustment of the operator's seat.

1. Pull up lock lever (1) to the FREE position (F) at the rear of case (2) on left side of the operator's compartment.

2. With lock lever (1) pulled up, use your other hand to grip the front of case (2), then move it forward with your left and right hands. The joystick moves with case (2).



3. Move case (2) to the desired position until a click is heard. Then pull up lock lever (1) and release it. Lock lever (1) automatically returns to the LOCK position.
   (a) Front
   (b) Rear



REMARK
PCCS: Palm command control system

OPERATIONS AND CHECKS AFTER STARTING ENGINE

⚠ WARNING

- **If there has been any Emergency stop, abnormal actuation or trouble, turn the starting switch key to the OFF position.**
- **If the work equipment is operated without sufficiently warming the machine up, response of the work equipment to movement of the control lever will be slow, and the work equipment may not respond as the operator desires, so always perform the warming-up operation. Particularly in cold areas, be sure the warming-up operation is completed.**

CHECKING OF ENGINE STARTABILITY AND NOISE

When starting the engine, check that the engine causes no abnormal noise and that it starts up easily and smoothly. Check also that there is no abnormal noise when the engine is idling or when the revolution rises slightly.

- When there is an abnormal noise at the engine startup and if that condition continues, the engine may be damaged. In that case, ask your Komatsu distributor to check the engine as soon as possible.

CHECKING OF ENGINE ACCELERATION AND DECELERATION

Check that there is no irregularity in the engine speed and that the engine does not suddenly stop when the machine is stopped during normal travel.

Check also that the engine accelerates smoothly when the accelerator pedal is depressed.

- Carry out the inspection in a safe place and check that there is no one in the surrounding area.
- If the condition at low speed or when accelerating is extremely poor and that condition continues, there is danger that the engine may be damaged, that the operating feeling may become strange, that the braking effect may deteriorate, or that an unexpected accident may happen, so please ask your Komatsu distributor to carry out repairs as soon as possible.

BREAKING IN THE MACHINE

NOTICE

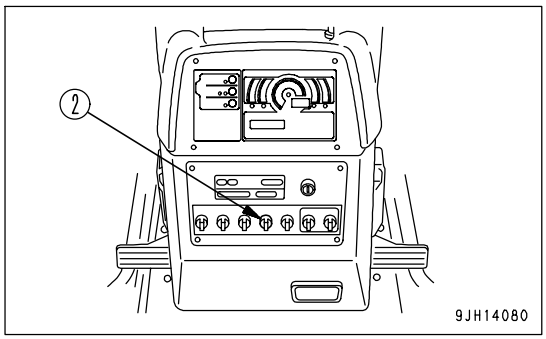
Your Komatsu machine has been thoroughly adjusted and tested before shipment from the factory. However, operating the machine under full load before breaking the machine in can adversely affect the performance and shorten the machine life.
Be sure to break in the machine for the initial 100 hours (as indicated on the service meter).

Make sure that you fully understand the content of this manual, and pay careful attention to the following points when breaking in the machine.

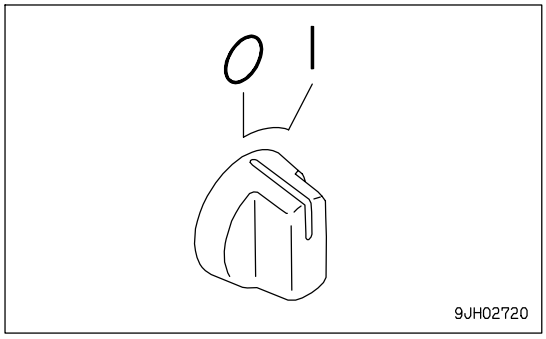
- Run the engine at idle for 15 seconds after starting it. During this time, do not operate the control levers or fuel control dial.
- Idle the engine for 5 minutes after starting it up.
- Avoid operation with heavy loads or at high speeds.
- Immediately after starting the engine, avoid sudden starts, sudden acceleration, unnecessary sudden stops, and sudden changes in direction.

AUTO SHIFT DOWN OPERATION

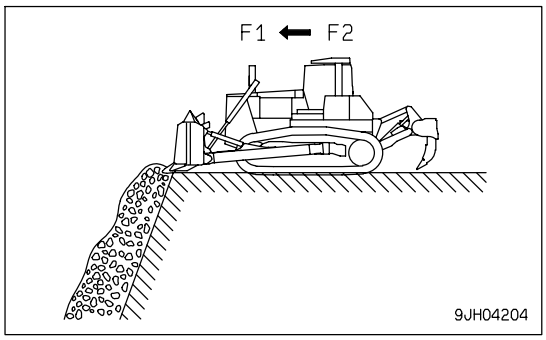
If the travel speed has gone down because of the load condition when traveling, the transmission is automatically shifted to low speed. Set auto shift down switch (2) on the instrument panel in front of the operator's seat to the b (ON) position to actuate the auto shift.



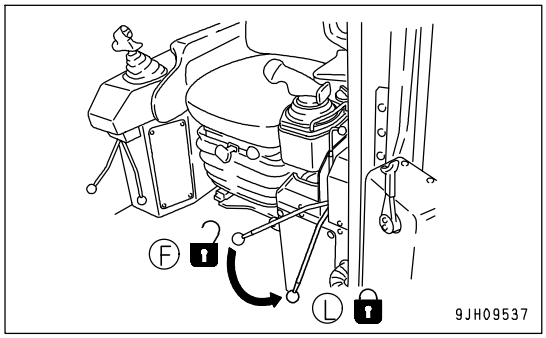
OFF position (a): Automatically canceled
ON position (b): Automatically shifted down to lower speed range



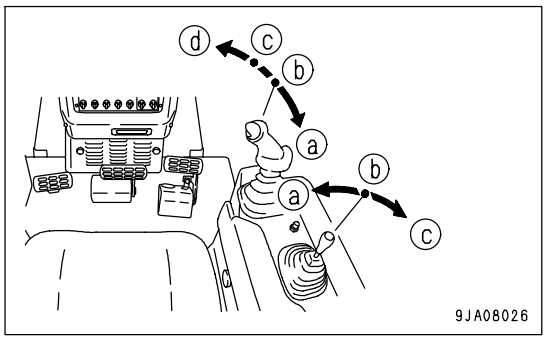
The transmission is automatically shifted down F2→ F1, F3 → F2, R2 → R1, R3 → R2.



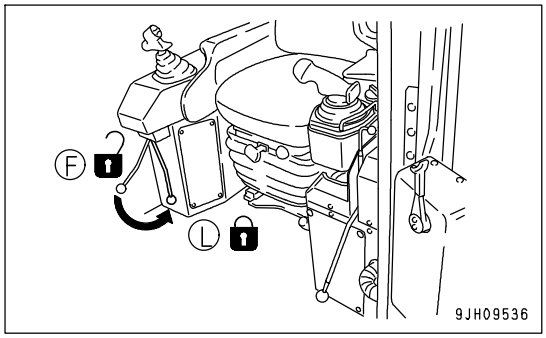
3. Operate parking brake lever (4) to the LOCK (L) position.



4. Operate blade control lever (5) and ripper control lever (6) to the LOWER (c) position to lower the blade and ripper to the ground.
5. Operate blade control lever (5) and ripper control lever (6) to the HOLD (b) position.



6. Set work equipment lock lever (7) to the LOCK position (L).

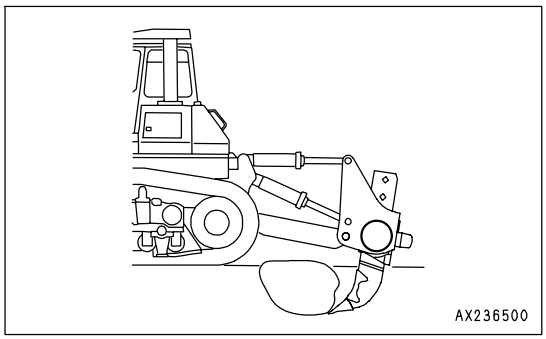


CHECK AFTER STOPPING ENGINE

1. Walk around the machine and check the work equipment, machine exterior, and undercarriage, also check for any leakage of oil or coolant. If any problems are found, repair them.
2. Fill the fuel tank.
3. Check the engine compartment for paper and debris. Clean out any paper and debris to avoid a fire hazard.
4. Remove any mud affixed to the undercarriage.

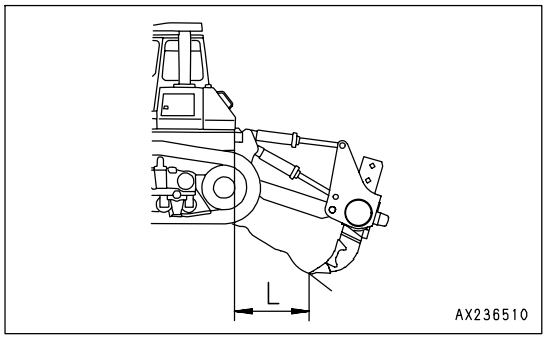
DIGGING UP BOULDERS OR ROCKBED

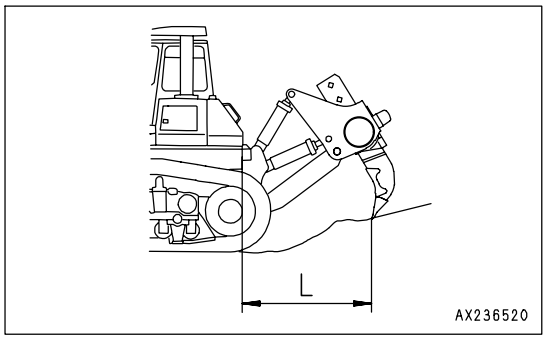
During ripper operations, if stubborn boulders or rockbed cause the travel speed to become slower, operate the tilt cylinder to dig up the boulder/rockbed.



OPERATING ON SLOPES

When using the variable ripper, adjust the length of the tilt cylinder to select dimension L.





ADJUSTING RIPPER

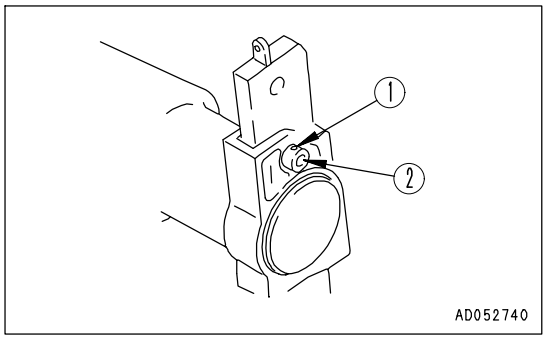
ADJUSTING DIGGING DEPTH

There are mounting holes in the shank to chose to match the ripping depth. Normally, use the bottom hole, but if particularly deep ripping is needed, use the top hole.

- When a giant ripper is installed, use the pin puller.
  For details, see "METHOD OF OPERATING PIN PULLER (PAGE 3-131)".

(Machines equipped with multi-shank ripper)

1. Place a pointed object on the tip of pin (1), then hit with a hammer to remove from the opposite side.
2. Remove pin (2) and change the position of the shank hole.
3. Insert pin (1) partially by hand then knock it in with a hammer.
   - The pin is made of one piece, so insert it partially by hand then knock it in with a hammer.



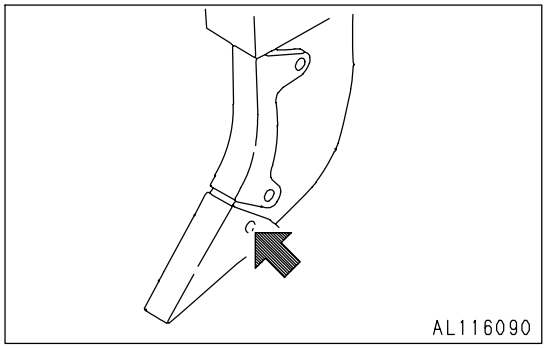
REPLACING POINT AND PROTECTOR

To protect the shank, if the protector and point installed to the tip are worn, replace them.

Place a pin remover on the pin marked by the arrow, then hit with a hammer to remove from the opposite side.

REMARK

The pin is a unitized type, so insert the pin partially by hand, then knock it in fully with a hammer.



BATTERY

WARNING

- **The battery generates flammable gas. Do not bring fire or sparks near the battery.**
- **Battery electrolyte is dangerous. If it gets in your eyes or on your skin, wash it off with a large amount of water and consult a doctor.**
- **Battery electrolyte dissolves paint. If it gets on the bodywork, wash it off immediately with water.**
- **If the battery electrolyte is frozen, do not charge the battery or start the engine with a different power source. There is danger that the battery may explode.**
- **Battery electrolyte is toxic. Do not let it flow into drainage ditches or spray it on to the ground surface.**

When the ambient temperature drops, the capacity of the battery will also drop. If the battery charge ratio is low, the battery electrolyte may freeze. Maintain the battery charge as close as possible to 100%. Insulate it against cold temperature to ensure the machine can be started easily the next morning.

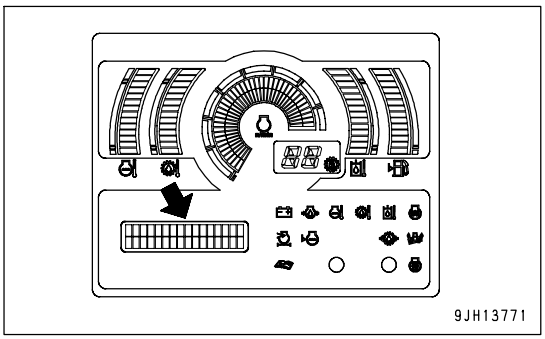
REMARK
Measure the specific gravity and calculate the charging rate from the following conversion table.

Electrolyte Temperature / Charging Rate (%)	20°C (68°F)	0°C (32°F)	-10°C (14°F)	-20°C (-4°F)
100	1.28	1.29	1.30	1.31
90	1.26	1.27	1.28	1.29
80	1.24	1.25	1.26	1.27
75	1.23	1.24	1.25	1.26

- As the battery capacity drastically drops in low temperatures, cover or remove the battery from the machine, store the battery in a warm place, and install it again the next morning.
- If the electrolyte level is low, add distilled water in the morning before beginning work. Do not add water after the day's work to prevent diluted electrolyte in the battery from freezing during the night.

MONITOR PANEL

When an error code appears on the display panel B (multi-information), take appropriate remedies based upon the table below.



Abnormality code	Abnormality	Method of displaying abnormality	Remedy
E01	• Lock up torque converter does not come ON • Dual tilt does not work	Abnormality code and service hour are displayed in turn on service meter portion	The automatic functions stop and some functions stop, but it is still possible to carry out operations. Please contact your Komatsu distributor immediately for repairs.
E02	• Tilt limit does not work • Does not shift up or shift down • Pitch does not work	Abnormality code and service hour are displayed in turn on service meter portion, caution lamp flashes, buzzer sounds	If user stops engine and then starts again, operations are possible without limit functions. However, user must be careful. Please contact your Komatsu distributor immediately for repairs.
E03+CALL	• Number of speed ranges that can be used is limited • Engine does not run at full speed • Excessive shock when shifting gear • Turning ability becomes poor • Excessive braking shock • Abnormal engine coolant temperature sensor	Abnormality code and service hour are displayed in turn on service meter portion, caution lamp flashes, buzzer sounds	Move machine to a safe place, then contact your Komatsu distributor immediately for repairs.
E04+CALL	• Engine control impossible • Travel impossible • Machine does not stop	Abnormality code and service hour are displayed in turn on service meter portion, caution lamp flashes, buzzer sounds	Stop machine, then contact your Komatsu distributor immediately for repairs.

FUEL

- To prevent the moisture in the air from condensing and forming water inside the fuel tank, always fill the fuel tank after completing the day's work.
- The fuel pump is a precision instrument, and if fuel containing water or dirt is used, it cannot work properly.
- Be extremely careful not to let impurities get in when storing or adding fuel.
- Always use the fuel specified in the Operation and Maintenance Manual.
  Fuel may congeal depending on the temperature when it is used (particularly in low temperature below -15°C (5 °F)). It is necessary to use the fuel that is suitable for the temperature.
- Before starting the engine, or when 10 minutes have passed after adding fuel, drain the sediment and water from the fuel tank.
- If the engine runs out of fuel, or if the filters have been replaced, it is necessary to bleed the air from the circuit.

NOTICE

Always use diesel oil for the fuel.

To ensure good fuel consumption characteristics and exhaust gas characteristics, the engine mounted on this machine uses an electronically controlled high-pressure fuel injection device. This device requires high precision parts and lubrication, so if low viscosity fuel with low lubricating ability is used, the durability may drop markedly.

COOLANT AND WATER FOR DILUTION

- The coolant has the important function of preventing corrosion as well as preventing freezing.
  Even in the areas where freezing is not an issue, the use of antifreeze coolant is essential.
  Komatsu machines are supplied with Komatsu Supercoolant (AF-NAC). Komatsu Supercoolant (AF-NAC) has excellent anticorrosion, antifreeze and cooling properties and can be used continuously for 2 years or 4000 hours.
  As a basic rule, we do not recommend the use of any coolant other than Komatsu genuine supercoolant (AF-NAC). If you use another coolant, it may cause serious problems, such as corrosion of the engine and aluminum parts of the cooling system.
- The Supercoolant is already diluted with distilled water, so it is not flammable.
- With the Supercoolant (AF-NAC), the density used for the coolant differs according to the ambient temperature.
  For details of the coolant density, see "CLEAN INSIDE OF COOLING SYSTEM (PAGE 4-22)".
  Even in areas where it is not considered necessary to prevent freezing, always use Supercoolant (AF-NAC) with a density of over 30% in order to prevent corrosion of the cooling system.
  Supercoolant (AF-NAC) is diluted with distilled water that does not contain any ions or water-hardening substances. Never dilute the Supercoolant with ordinary water.
- When using antifreeze, always observe the precautions given in the Operation and Maintenance Manual.
- If the engine overheats, wait for the engine to cool before adding coolant.
- If the coolant level is low, it will cause overheating, and will also cause problems with corrosion due to air entering the coolant.

STANDARD TIGHTENING TORQUES FOR BOLTS AND NUTS

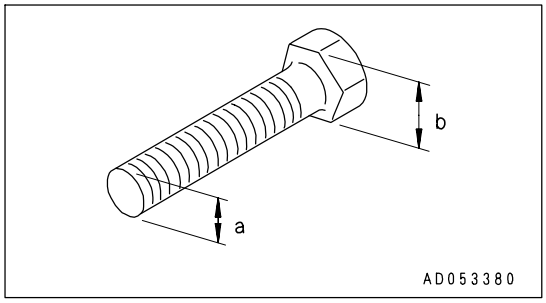
TORQUE LIST

CAUTION

If nuts, bolts, or other parts are not tightened to the specified torque, it will cause looseness or damage to the tightened parts, and this will cause failure of the machine or problems with operation.
Always pay careful attention when tightening parts.

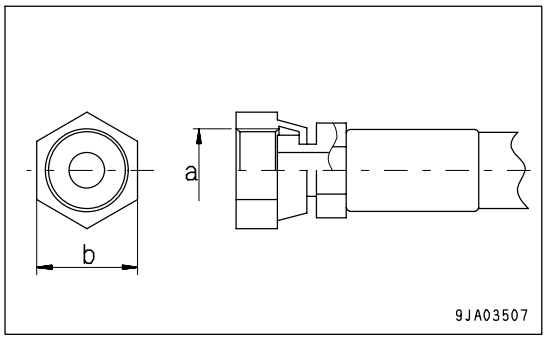
Unless otherwise specified, tighten the metric nuts and bolts to the torque shown in the table below.
If it is necessary to replace any nut or bolt, always use a Komatsu genuine part of the same size as the part that was replaced.

Thread diameter of bolt (a)(mm)	Width across flats (b)(mm)	Tightening torque					
		Target value			Service limit		
		Nm	kgm	lbft	Nm	kgm	lbft
6	10	13.2	1.35	9.8	11.8-14.7	1.2-1.5	8.7-10.8
8	13	31	3.2	23.1	27-34	2.8-3.5	20.3-25.3
10	17	66	6.7	48.5	59-74	6.0-7.5	43.4-54.2
12	19	113	11.5	83.2	98-123	10.0-12.5	72.3-90.4
14	22	172	17.5	126.6	153-190	15.5-19.5	112.1-141
16	24	260	26.5	191.7	235-285	23.5-29.5	170.0-213.4
18	27	360	37	267.6	320-400	33.0-41.0	238.7-296.6
20	30	510	52.3	378.3	455-565	46.5-58.0	336.3-419.5
22	32	688	70.3	508.5	610-765	62.5-78.0	452.1-564.2
24	36	883	90	651	785-980	80.0-100.0	578.6-723.3
27	41	1295	132.5	958.4	1150-1440	118.0-147.0	853.5-1063.3
30	46	1720	175.0	1265.8	1520-1910	155.0-195.0	1121.1-1410.4
33	50	2210	225.0	1627.4	1960-2450	200.0-250.0	1446.6-1808.3
36	55	2750	280.0	2025.2	2450-3040	250.0-310.0	1808.3-2242.2
39	60	3280	335.0	2423.1	2890-3630	295.0-370.0	2133.7-2676.2



Apply the following table for Hydraulic Hose.

Nominal-No. of threads (a)	Width across flats (b) mm	Tightening torque					
		Target valve			Parmissible range		
		Nm	kgm	lbft	Nm	kgm	lbft
9/16 -18UNF	19	44	4.5	32.5	34 - 54	3.5 - 5.5	25.3 - 39.8
11/16 -16UN	22	74	7.5	54.2	54 - 93	5.5 - 9.5	39.8 - 68.7
13/16 -16UN	27	103	10.5	75.9	84 - 132	8.5 - 13.5	61.5 -97.6
1 -14UNS	32	157	16.0	115.7	128 - 186	13.0 - 19.0	94.0 - 137.4
1˙3/16 -12UN	36	216	22.0	159.1	177 - 245	18.0 - 25.0	130.2 - 180.8

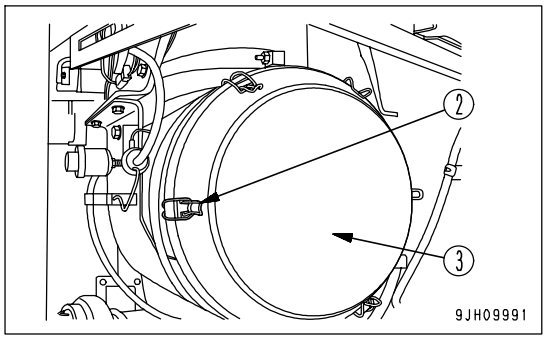


CLEANING OUTER ELEMENT

NOTICE

Before and after cleaning the element, do not leave or keep it in direct sunlight.

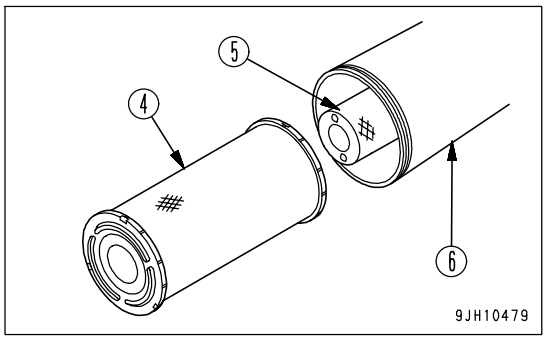
1. Remove 6 holders (2), then remove cover (3) and take out outer element (4).



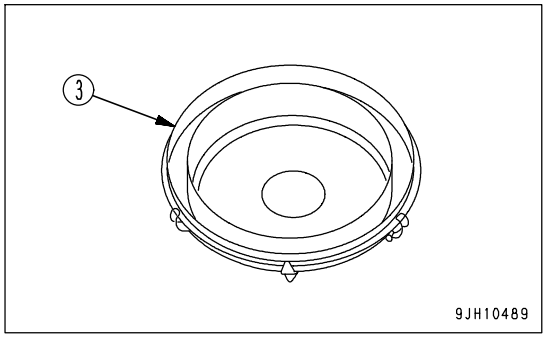
NOTICE

- **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.**

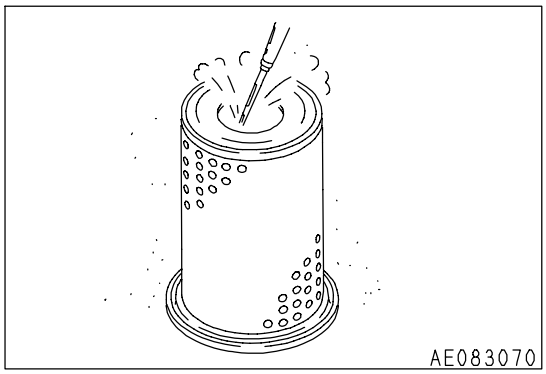
2. Hold the outer element (4), move it carefully up and down and to the left and right, and rotate the element to the left and right while pulling it out.



3. After removing the outer element, cover the air connector inside the air cleaner body with a clean cloth or tape to prevent dirt or dust from entering.
4. Use a brush or cloth to remove all the dirt stuck to cover (3) and the inside of air cleaner body (6).



5. Direct dry compressed air (Max. 0.69 MPa (7 kg/cm^2, 99.4 PSI)) from the inside of the outer element along its folds. Then direct the compressed air from the outside along the folds, and again from the inside.
   1) Check that the inner element is not loose. If it is loose, insert it securely.
   2) If the yellow piston overlaps the red zone (A) on the outer diameter immediately after the outer element is cleaned, replace both the inner and outer elements.



NOTICE

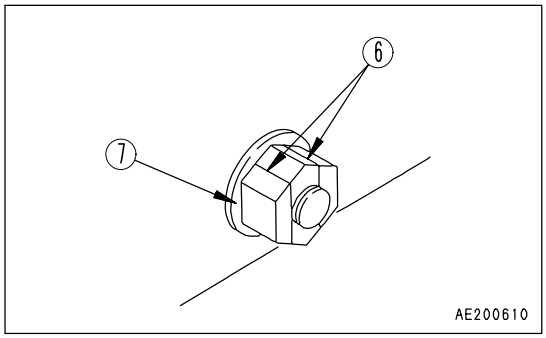
If small holes or thinner parts are found on the element when it is checked with an electric bulb after cleaning and drying, replace the element.

When cleaning the element, do not hit it or beat it against something.

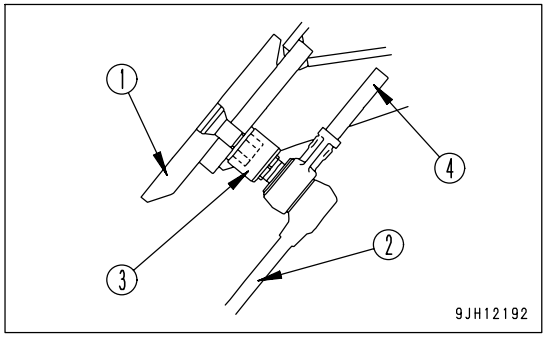
Do not use an element whose folds or gasket or seal are damaged.

REMARK
The tightening operation is easier if the power wrench that has been supplied is used.

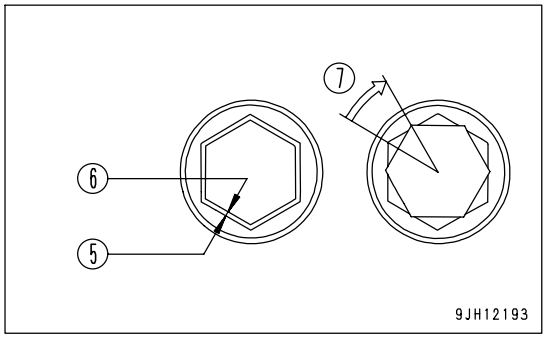
When the nut is rusted and is removed by gas cutting, cut on both side (6) of the nut as shown in the diagram.
Be careful not to damage seat surface (7).
If it is damaged, repair it. Be careful not to get spatter on the mounting surface.



METHOD OF USING POWER WRENCH
The power wrench set is equipped with a special socket.
This socket is designed to grip the nuts and prevent the wrench set from pulling out. This means that tightening can be performed by one worker.
This socket has a double construction, and is designed so that the outside can rotate 30°
It is used as follows.
(1) Cutting edges or end bit
(2) Ratchet handle or torque wrench
(3) Rotating socket
(4) Reaction arm

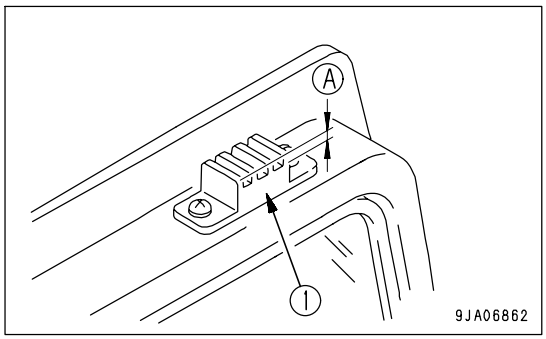


1. Align the hexagons of the inside socket (6) and outside socket (5), the insert the nut that is to be tightened or loosened.
2. After inserting the nut, turn the outside socket (5) 30· clockwi se (7).
   When this is done, the outside socket will catch the notch in the nut seat surface, and the wrench will not come off.
3. Put the reaction arm (4) in contact with the blade rib, and tighten or loosen.
4. Turn the outside socket (5) counterclockwise, and remove the wrench.



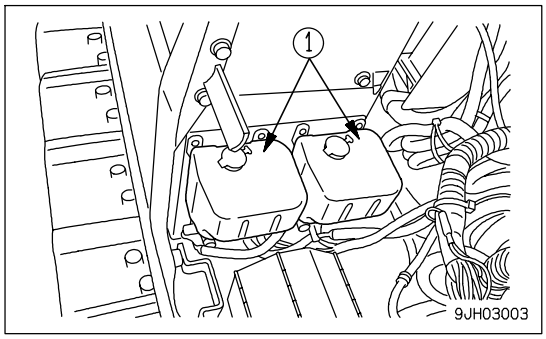
REPLACE DOOR DAMPER

If depth (A) of the groove of door damper rubber (1) is less than 2 mm (0.08 in), replace the damper.
There are 4 dampers: 1 each at the top and bottom on the left and right doors.



CHECK WINDOW WASHER FLUID LEVEL, ADD FLUID

If there is air in the window washer fluid, check the level and add fluid.
Open the battery cover, check the level of the fluid in window washer tank (1), and if it is low, add automobile window washer fluid.
When adding fluid, be careful not to let any dust get in.



CHECK BRAKE PERFORMANCE

WARNING

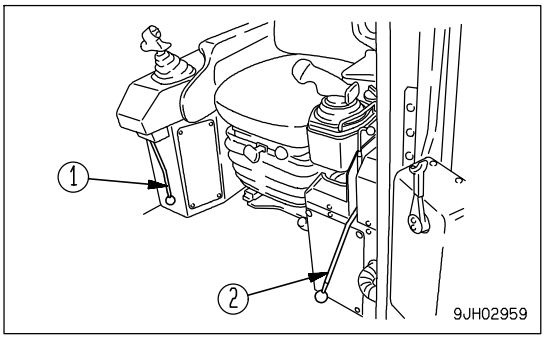
If the machine moves during the following operation, please contact your Komatsu distributor for repairs immediately.

NOTICE

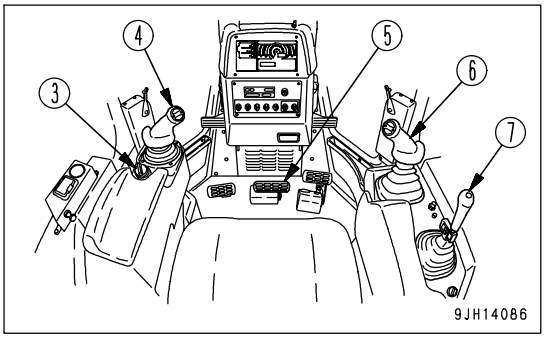
Do not place the joystick in the 1st speed position.
Otherwise, it will cause damage to the machine.

Before starting the engine, check that the area around the machine is safe, then do as follows:

1. Start the engine.
2. After completing the warm-up operation, set fuel control dial (3) to the SLOW position.
3. Set work equipment lock lever (1) to the FREE position then operate blade control lever (6) and ripper control lever (7) to raise the blade and ripper.
   Leave the work equipment lock lever (1) in the FREE position.
4. Set parking brake lever (2) to the FREE position.

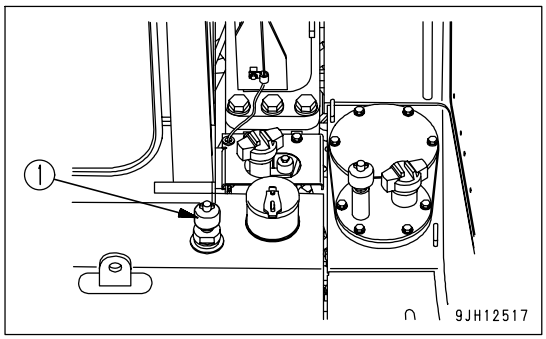


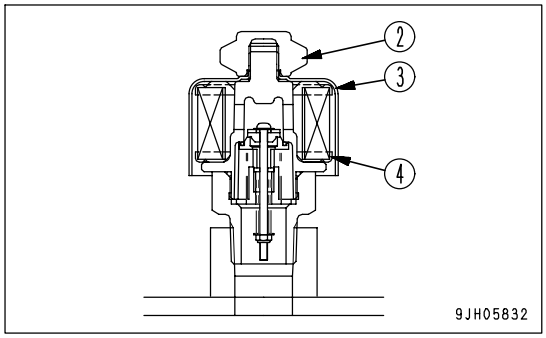
5. Depress brake pedal (5), set joystick (4) in FORWARD, then press the shift up button to enter 2nd speed.
6. Operate fuel control dial (3) and gradually raise the engine speed to full throttle. (Keep the brake pedal depressed.)
7. Check that the machine does not move. This indicates that brake performance is normal.



REPLACE FUEL TANK BREATHER ELEMENT

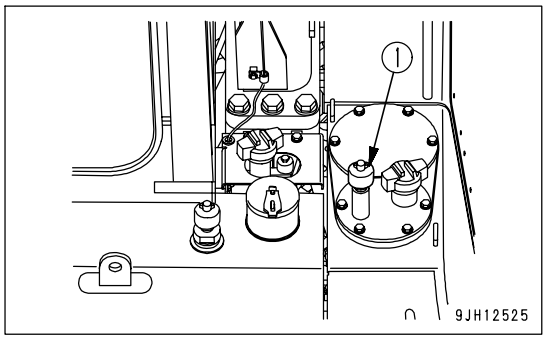
1. Remove nut (2) of breather assembly (1) at the top surface of the fuel tank, then remove cover (3).
2. Replace breather element (4) with a new part.
3. Install cover (3) and nut (2).

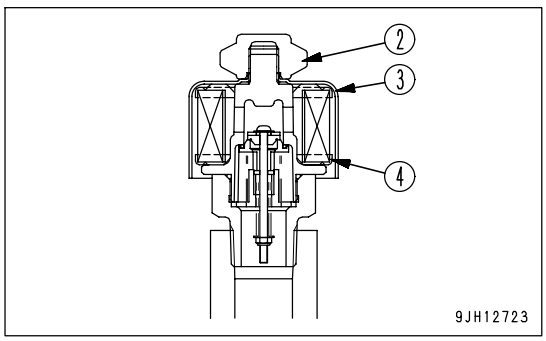




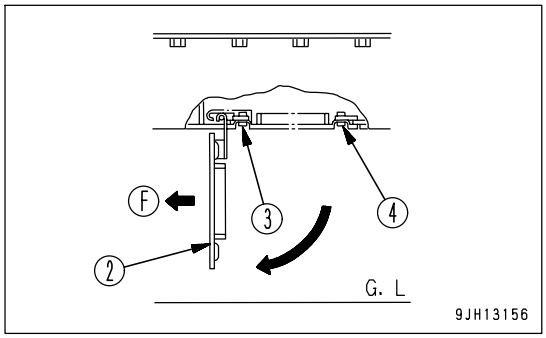
REPLACE HYDRAULIC TANK BREATHER ELEMENT

1. Remove nut (2) of breather assembly (1) at the top of the hydraulic tank, then remove cover (3).
2. Replace breather element (4) with a new part.
3. Install cover (3) and nut (2).



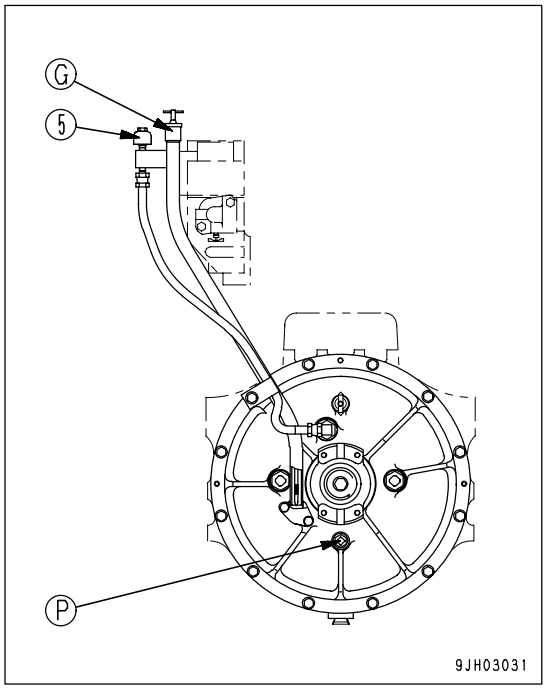


2) Hold cover (2) and gradually remove 2 bolts (4) at the rear of the chassis. (Be careful when doing this. Rain water may run out.)
3) Lower cover (2) slowly and open it. Drain plug (P) can be seen at the top.



(F)Front of the machine

3. Remove dipstick (G), then remove drain plug (P) and drain the oil.
   After draining the oil,tighten drain plug (P).
4. Add oil through the holder of dipstick (G). After adding the oil, insert dipstick (G).
5. Remove any dirt or dust stuck to breather (5), then wash with clean diesel oil or flushing oil. If it cannot be cleaned completely, replace with a new part.
6. Install undercover (2), then close engine side cover (1) on the left side of the machine.



EVERY 8000 HOURS SERVICE

Maintenance for every 10, 100, 250, 500, 1000, 2000, and 4000 hours of service should be performed at the same time.

REPLACE HIGH-PRESSURE PIPING CLAMPS

Contact your Komatsu distributor to have the engine high-pressure clamps replaced.

REPLACE FUEL SPLAY PREVENTION CAPS

Contact your Komatsu distributor to have the fuel spray prevention cap replaced.

HARD SOIL (HARD CLAY, SHALE, ETC.)

If digging is carried out in F pitch, and the chassis is raised and the blade is tilted, the end bit will dig in better.