POSITION OF SERVICE METER

This is at the left upper part of the monitor panel.

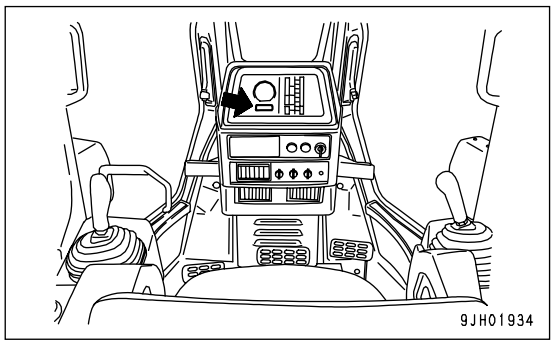
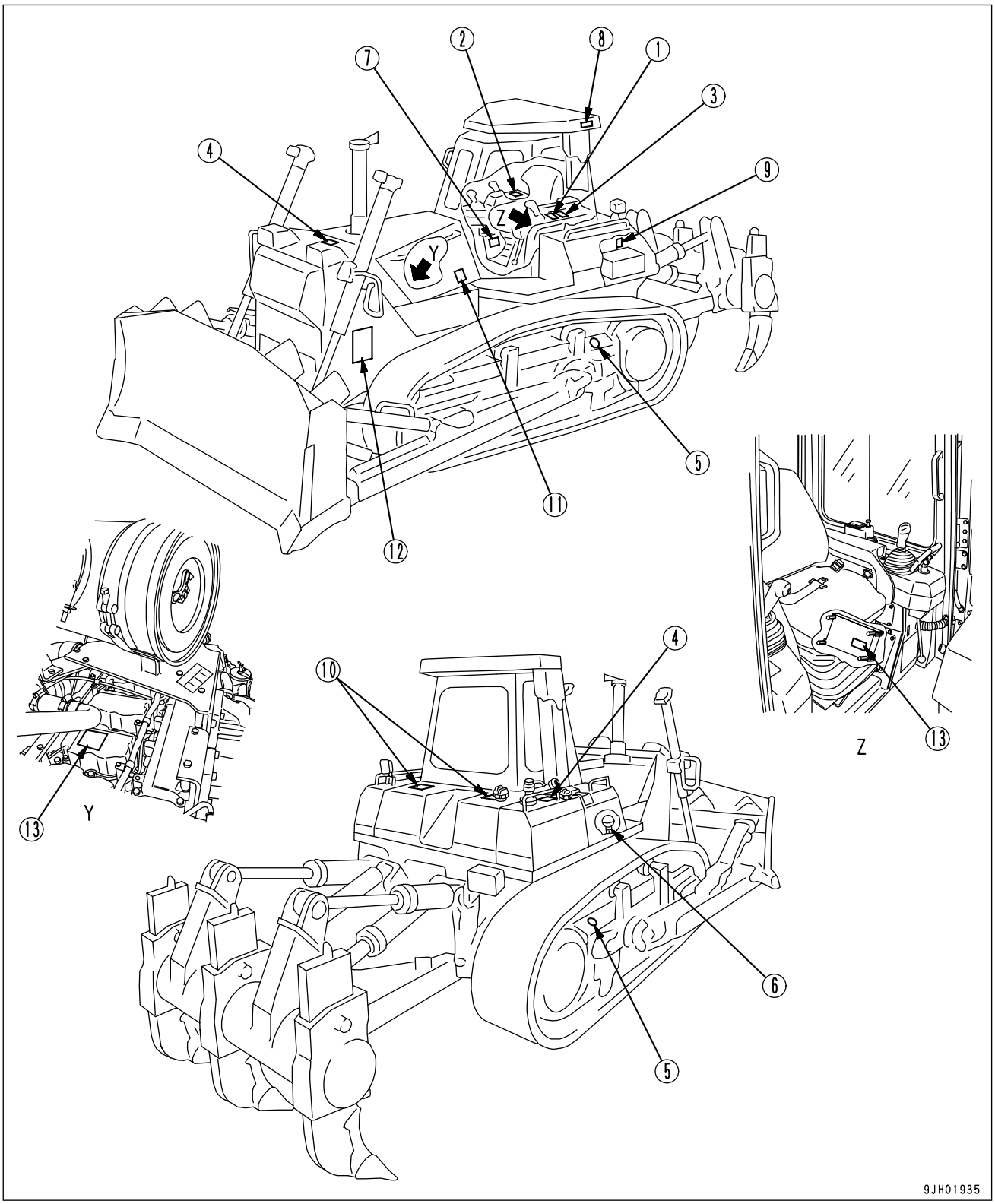


TABLE OF ENTER SERIAL NO. AND DISTRIBUTOR

Machine serial No.	
Engine serial No.	
Distributor name	
Address	
Service Personal	
Phone/Fax	

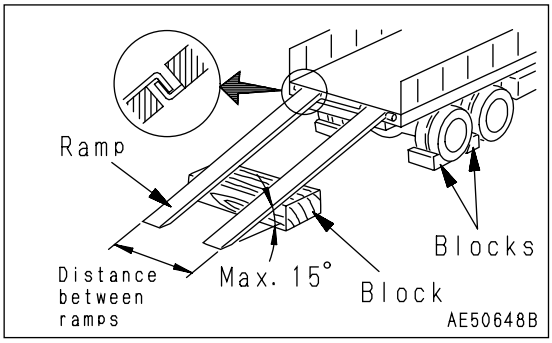
POSITIONS OF SAFETY PICTOGRAMS



TRANSPORTATION

LOADING AND UNLOADING

When loading or unloading the machine, mistaken operation may bring the hazard of the machine tipping over or falling, so particular care is necessary. Always do as follows.



- Perform loading and unloading on firm, level ground only. Maintain a safe distance from the edge of the road or cliff.
- Always use ramps of adequate strength. Be sure that the ramps are wide, long, and thick enough to provide a safe loading slope. Take suitable steps to prevent the ramps from moving out of position or coming off.
- Be sure the ramp surface is clean and free of grease, oil, ice and loose materials. Remove dirt from machine-tracks. On a rainy day, in particular, take extremely careful since the ramp surface is slippery.
- Run the engine at low idling, set to low speed, and operate the machine slowly when loading or unloading.
- When on the ramps, do not operate any lever except for the travel lever.
- Never correct your steering on the ramps. If necessary, drive off the ramps, correct the direction, then enter the ramps again.
- The center of gravity of the machine will chenge suddenly at the joint between the ramps and the track or trailer, and there is danger of the machine losing its balance. Travel slowly over this point.
- When loading or unloading to an embankment or platform, make sure that it has suitable width, strength, and grade.
- For machines equipped with a cab, always lock the door after loading the machine. If this is not done, the door may suddenly open during transportation.
  Refer to "TRANSPORTATION (PAGE 3-120)".

SHIPPING

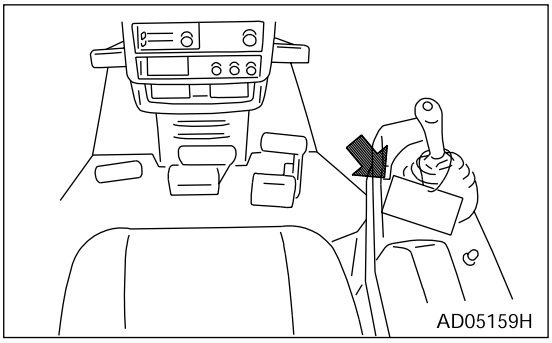
When shipping the machine on a trailer, do as follows.

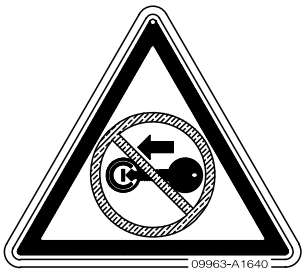
- Investigate all state and local laws governing the weight, width, and length of a load. If necessary, disassemble the work equipment. The width, height and weight of the load differ according to the work equipment, so take this into account when determining the shipping route.
- When passing over bridges or structures on private land, check first that the structure is strong enough to support the weight of the machine. When traveling on public roads, check first with the relevant authorities and follow their instructions.
- For details of the shipping procedure, see "TRANSPORTATION (PAGE 3-120)" in the OPERATION section.

PRECAUTIONS FOR MAINTENENCE

WARNING TAG

- Always attach the "DO NOT OPERATE" warning tag to the work equipment control lever in the operator's cab to alert others that you are performing service or maintenance on the machine. Attach additional warning tags around the machine if necessary.
  Warning tag Part No. 09963-A1640
  Keep this warning tag in the tool box while it is not used. If there is not the tool box, keep the tag in the operation manual pocket.
- If others start the engine, or touch or operate the work equipment control lever while you are performing service or maintenance, you could suffer serious injury or property damage.





KEEP WORK PLACE CLEAN AND TIDY

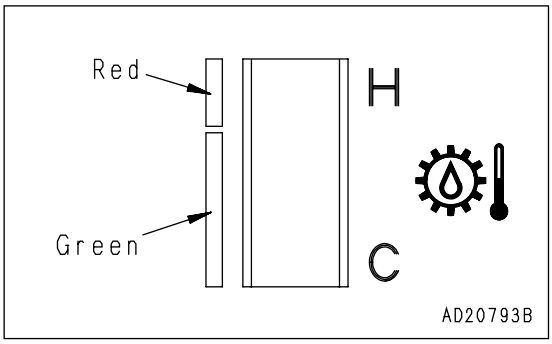
Do not leave hammers or other tools lying around in the work place. Wipe up all grease, oil, or other substances that will cause you to slip. Always keep the work place clean the tidy to enable you to carry out operations safely. If the work place is not kept claen and tidy, there is the danger that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

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.
When working with others, misunderstandings between workers can lead to serious accidents.

POWER TRAIN OIL TEMPERATURE GAUGE

This gauge (2) indicates the oil temperature of the torque converter outlet. If the temperature is normal during operation, the green range will light.
If the red range lights up during operation,move the Fuel control dial to lower the engine speed to approx. 3/4 of the full speed, reduce the load and run until the oil temperature enters the green range.
If the power train oil temperature enters the red range, and the power train oil temperature monitor flashes and the alarm buzzer sounds, stop the machine and run at low idling until the oil temperature enters the green range.

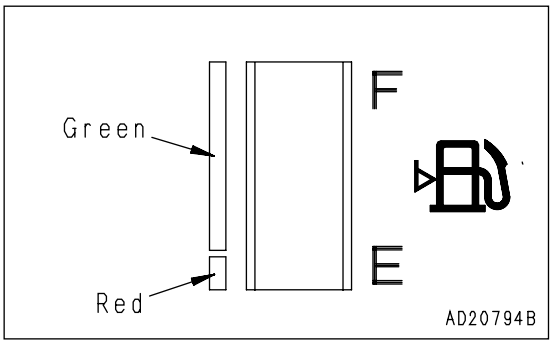


NOTICE
If the power train oil temperature gauge often enters the red range, we recommend you to lower the travel speed one range (for example, F2 to F1)to reduce the load on the power train when operating.

FUEL GAUGE

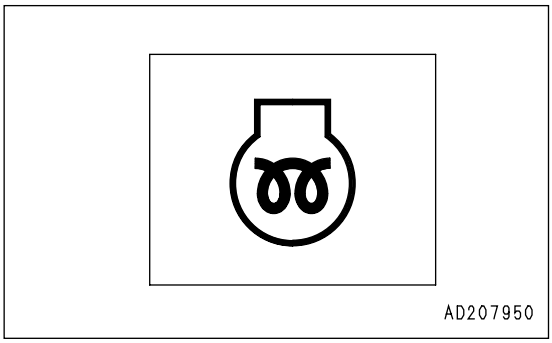
This gauge (3) indicates the amount of fuel in the fuel tank. If there is enough fuel in the tank while the engine is running, the green range lights. If the red range lights, there is less than 60ℓ (15.84 US gal, 13.20 UK gal)of fuel in the tank.
When the red range lights, add fuel.

REMARK
The display is not directly proportional with the remaining amount of fuel.

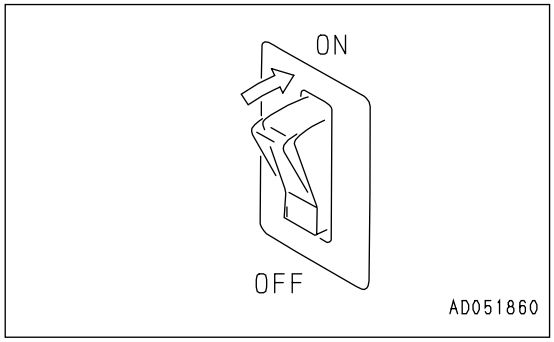


ENGINE PREHEATING PILOT LAMP

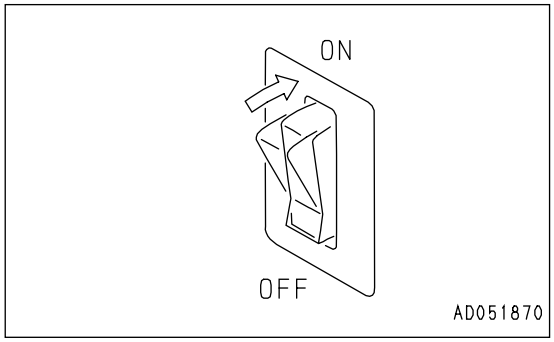
When the electrical heater is used to start the engine in cold weather, this lamp (4) indicates that preheating is being carried out.
When the switch is ON, the preheating pilot lamp on the monitor panel lights up. (when the ambient temperature is below approx. -5ºC.)



- Wiper only
  If this is switched on, the wiper will start.



- Wiper and window washer
  If this is kept pressed to the ON position while the wiper is working,water will be sprayed out.



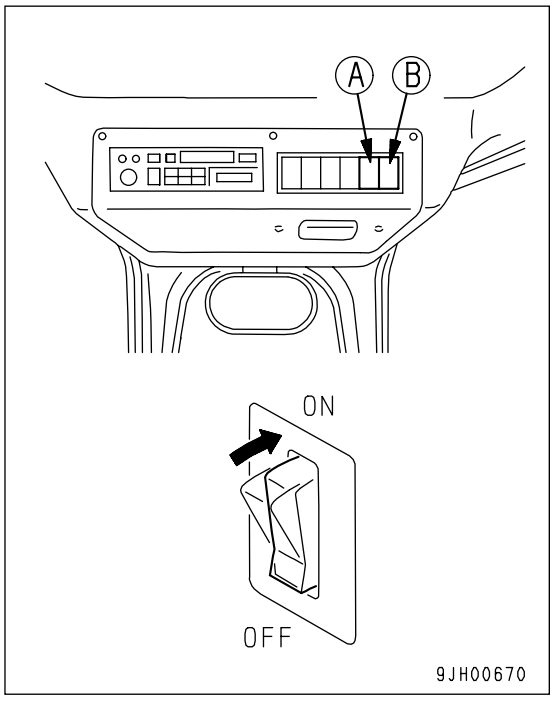
ADDITIONAL WORKING LAMP SWITCH

(MACHINES EQUIPPED WITH CAB) (OPTION)

This switch (5) is used to turn on the additional working lamp.

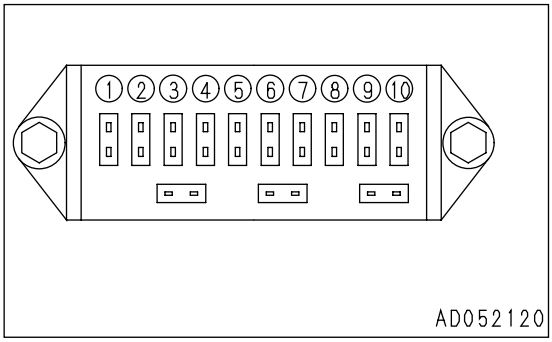
(A) Head lamp switch
(B) Rear lamp switch

Push in the direction of the arrow to turn on the lamps.



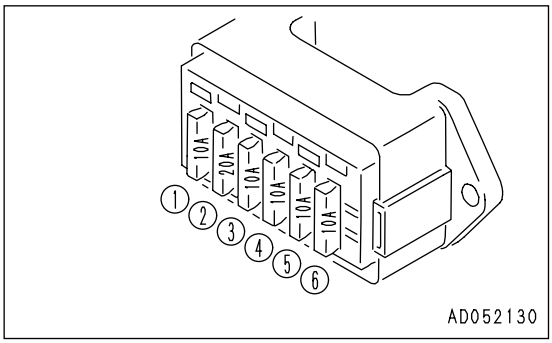
FUSE CAPACITY AND NAME OF CIRCUIT

Fuse box (1)



No.	Fuse capacity	Circuit	Remarks
(1)	15 A	Horn, pin puller	
(2)	15 A	Engine	
(3)	20 A	Rear lamp	
(4)	20 A	Front lamp	
(5)	10 A	Controller,HSS	
(6)	15 A	Monitor pannel, alarm buzzer	
(7)	—	—	
(8)	20 A	Air conditioner	
(9)	20 A	Backup alarm	
(10)	10 A	Cab, key switch	Power circuit

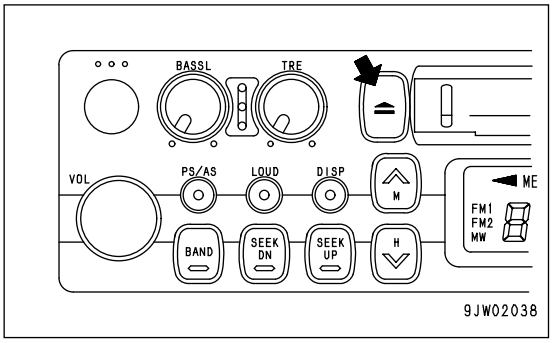
Fuse box (2) (machine equipped with cab)



No.	Fuse capacity	Circuit
(1)	10 A	Radio memory
(2)	20 A	Radio, lamp, cigarette lighter
(3)	10 A	Rear wiper
(4)	10 A	Right door wiper
(5)	10 A	Front wiper
(6)	10 A	Left door wiper

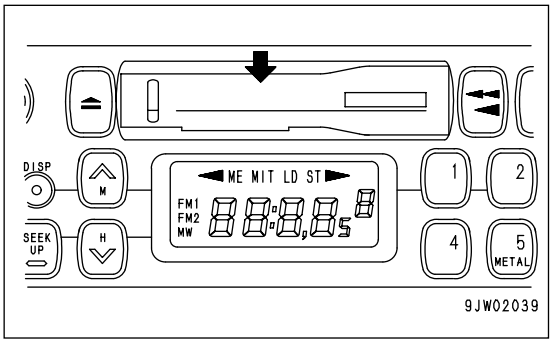
TAPE EJECT BUTTON

This button (7) is used to stop the tape and to eject the cassette.
When this button is pressed, the tape is ejected and the the radio plays.



CASSETTE DOOR

Set the cassette with the exposed portion of the tape on the right side and insert it in cassette door (8).

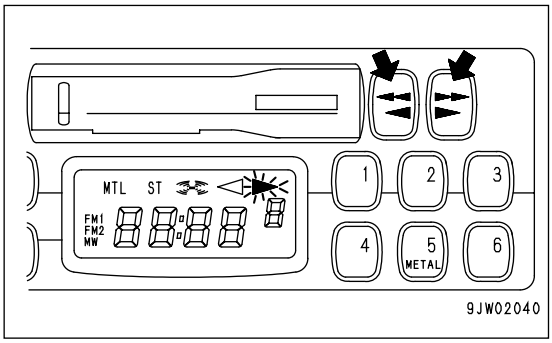


FAST FORWARD, REWIND BUTTONS

These buttons (9) are used to fast forward or rewind the tape.

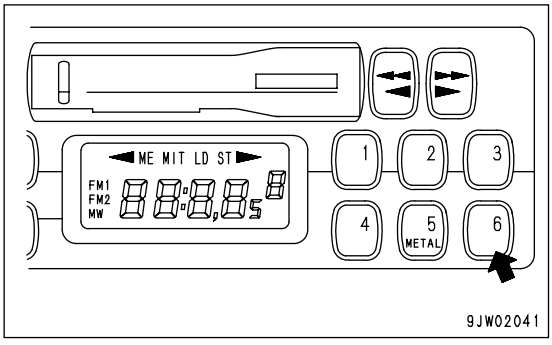
- **Fast forward/rewind**

If you press the button pointing in the same direction as the arrow indicating the direction of play, the tape will be fast forwarded; if you press the button pointing in the opposite direction, the tape will be rewound.
To stop the tape, lightly press the button that is not locked. The fast forward or rewind operation will be canceled.



PRESET BUTTONS

These buttons (10) are used to call up the broadcast station frequencies preset in memory for each of buttons No.1 to No.6. It is possible to preset 18 stations (FM:12; AM:6)with these buttons.

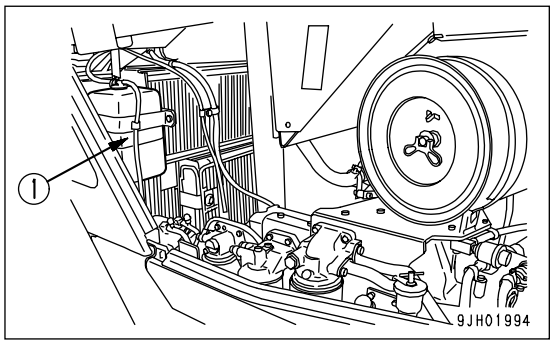


CHECK COOLANT LEVEL, ADD WATER

⚠ WARNING

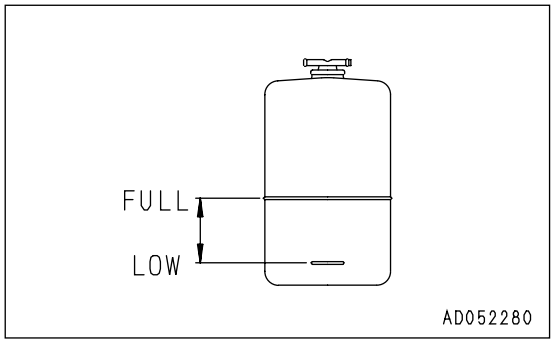
- **Normally, do not open the radiator cap. When checking the cooling water level, check the sub-tank when the engine is cold.**
- **Do not remove the cap when the radiator water is hot. Boiling water may spurt out. After the water temperature goes down, turn the cap slowly to release the pressure, then remove it.**

1. Open the engine side cover on the left side of the chassis, and check that the cooling water is between the FULL and LOW marks on sub-tank (1). If the water level is low, add water to the FULL level through the water filler port in sub-tank (1).



REMARK
The coolant may overflow from the sub-tank drain hose. This is no problem. It occurs because too much coolant has been added.

2. After adding water, tighten the cap securely.
3. If the sub-tank is empty, check for leakage of water, then add water to the radiator and sub-tank.
4. After adding water, close the engine side cover.



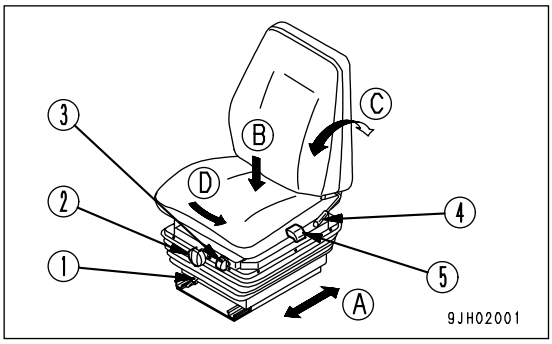
ADJUSTING BEFORE STARTING OPERATION

⚠ WARNING

- **Adjust the seat position at the beginning of each shift or when operators change.**
- **Adjust the seat so that the brake pedal can be depressed all the way with the operator's back against the backrest.**

ADJUSTING OPERATOR'S SEAT

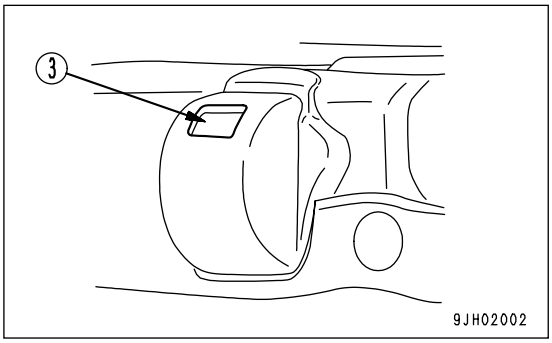
(A) Fore-aft adjustment of seat
Pull up lever (1), set the seat to a position where it is easy to operate, then release the lever.
Fore-aft adjustment: 160 mm (6.3 in) (8 stages)



(B) Weight and height adjustment of seat

- Turn knob (2) under the seat so that weight adjustment indicator (3) displays the green range. The height can be adjusted by turning the knob (2) while the green range is displayed.
- Turn the knob clockwise to raise the seat and turn the knob counterclockwise to lower the seat.

  Height adjustment range: stepless, 75 mm (3 in)
  Weight adjustment range: 50 to 130kg (110 to 237 lb)



(C) Adjusting reclining angle

REMARK
When the seat is pushed forward, the available reclining angle becomes greater; when the seat is pushed back, the available reclining angle becomes smaller. When moving the seat back, return the seat back to its original position before moving the seat.

Pull up lever (4), set the seatback to a position where it is easy to operate, then release the lever.

(D) Adjusting direction of seat
Pull up lever (5) to release the lock, then turn the seat to the right by hand. It is possible to change the direction of the seat to the 15º position.
After changing the angle of the seat, return the lever securely and lock it in position.

- Adjusting the seat angle to the right is done to make it easier to carry out ripper operations.

AFTER STARTING ENGINE

After starting the engine, do not immediately start operations.
First, carry out the following operations and checks.

⚠ WARNING

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

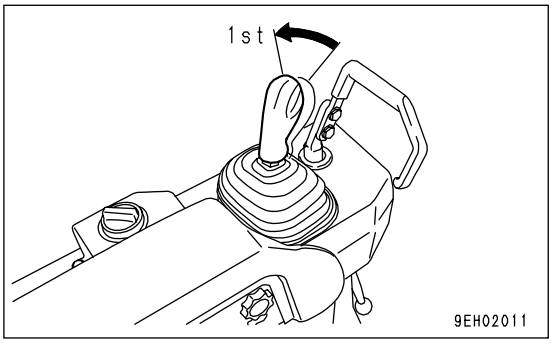
BREAKING-IN THE NEW MACHINE

NOTICE
Before operating the machine for the first time, confirm that cooling water is in the radiator. If the machine is delivered without cooling water in the radiator, completely clean the inside of the radiator by flowing city water through the radiator, then fill the radiator with cooling water.

⚠ CAUTION

Your Komatsu machine has been thoroughly adjusted and tested before shipment. However, operating the machine under severe conditions at the beginning can adversely affect the performance and shorten the machine life.
Be sure to breaking-in the machine for the initial 100 hours (as indicated by the service meter).
During breaking-in operations, follow the precautions described in this manual.

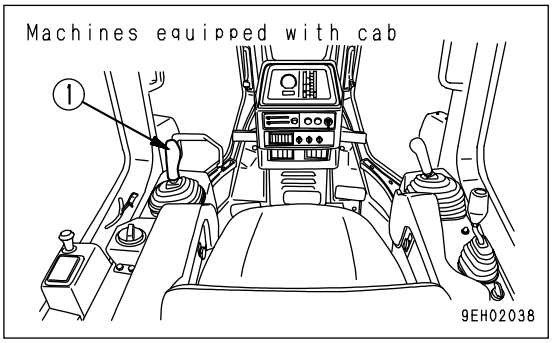
- Run the engine at idling for 15 seconds after starting it. During this time, do not operate the control levers or fuel control dial.
- Idle the engine for 5 minutes after starting it up.
- Avoid operation with heavy loads or at high speeds.
- Avoid sudden starts, sudden acceleration, sudden steering and sudden stops except in cases of emergency.

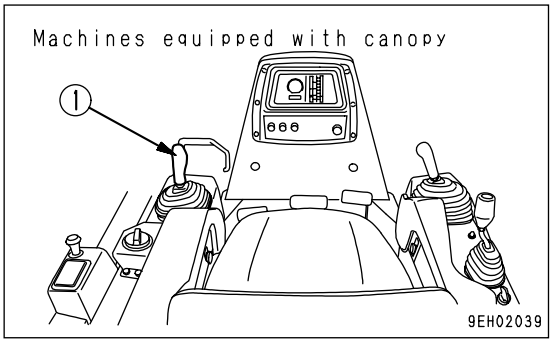


SHIFTING GEAR

It is possible to change the speed range when traveling, so there is no need to stop the machine when shifting gear.

1. Move joystick (1) to the desired gear position to shift gears.

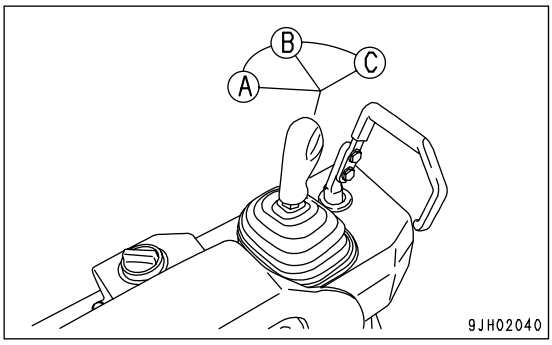




Gear shifting
Rotate the joystick 30º to carry out gear shifting operation.

Position (A): 1st
Position (B): 2nd
Position (C): 3rd

For details of the maximum speed at each speed range, see "SPECIFICATIONS (PAGE 5-2)".

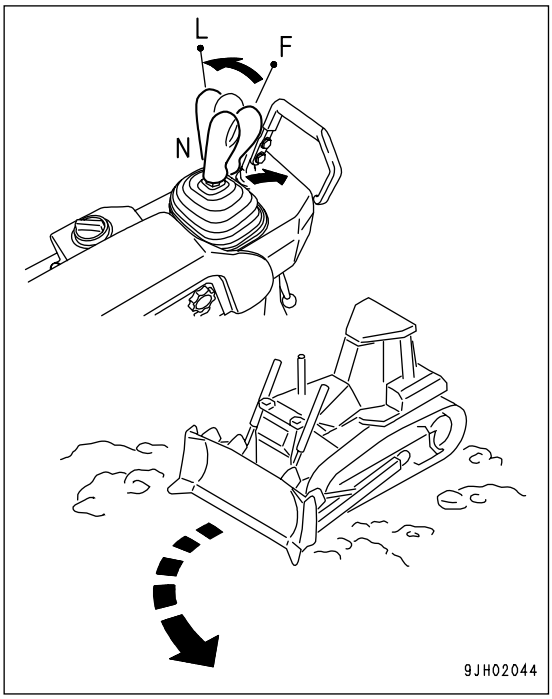


- **Turnig to left while traveling forward**

NOTICE
If the lever is operated partially to the forward or reverse position and then is operated in the direction of turn, the machine may carry out a counterrotation turn,so operate the lever fully to the forward or reverse position.

If the joystick (1) is pushed forward and moved partially to the left (L), the machine will start to turn gradually. After that, the lever can be moved further toward the end of its stroke to give the desired turning radius.

REMARK
If the joystick (1) is pushed forward and moved partially to the right, the machine will start to turn gradually to the right. After that, the lever can be moved further toward the end of its stroke to give the desired turning radius.
Do the same when traveling in reverse.

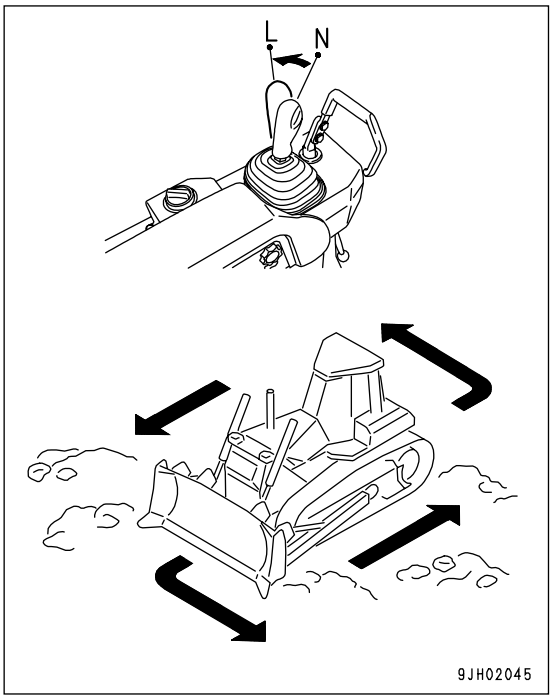


- **Carrying out counterrotation turn to left**

NOTICE
When carrying out a counterrotation turn, if the load is not equal on the left and right sides, the machine may carry out a pivot turn, so check the ground conditions and be careful not to hit any obstacles.

If the joystick (1) is placed at the N position and is operated partially to the left, the left and right tracks will rotate in opposite directions and the machine will carry out a counterrotation turn smoothly. If the lever is operated fully, the speed of the counter-rotation turn will increase.

REMARK
When carrying out a counterrotation turn to the right, move the joystick (1) to the right in the same way.



OTHER TROUBLE

- ( ): Always contact your Komatsu distributor when dealing with these items.
- In cases of abnormalities or causes which are not listed below, please contact your Komatsu distributor for repairs.

ELECTRICAL SYSTEM

Problem	Main causes	Remedy
Lamp does not glow brightly even when the engine runs at high speed	● Defective wiring ● Defective adjustment of fan belt tension	(● Check, repair loose terminals, disconnections) ● Adjust alternator belt tension For details, see EVERY 250 HOURS SERVICE
Lamp flickers while engine is running		
Charge lamp does not go out even when engine is running	● Defective alternator ● Defective wiring	(● Replace) (● Check, repair)
Abnormal noise is generated from alternator	● Defective alternator	(● Replace)
Starting motor does not turn when starting switch is turned to ON	● Defective wiring ● Insufficient battery charge ● Safety switch out of adjust	(● Check, repair) ● Charge (● Adjust safety switch)
Pinion of starting motor keeps going in and out	● Insufficient battery charge	● Charge
Starting motor turns engine sluggishly	● Insufficient battery charge ● Defective starting motor	● Charge (● Replace)
Starting motor disengages before engine starts	● Defective wiring ● Insufficient battery charge	(● Check, repair) ● Charge
Automatic preheating is not actuated	● Defective wiring ● Defective heater relay ● Defective engine controler	(● Check, repair) (● Replace) (● Check, replace)
Preheating pilot lamp does not light up (When the engine water temperature is below -5ºC)	● Defective wiring ● Defective heater relay	(● Check, repair) (● Replace)
Oil pressure caution lamp does not light up when engine is stopped (starting switch at ON position)	● Defective caution lamp ● Defective caution lamp switch ● Defective wiring	(● Replace) (● Replace) (● Check, repair)
Charge lamp does not light up when engine is stopped (starting switch at ON position)	● Defective charge lamp ● Defective wiring	(● Replace) (● Check, repair)
Outside of electrical intake air heater is not warm when touched by hand	● Defective wiring ● Disconnection in electrical intake air heater ● Defective operation of heater relay	(● Check, repair) (● Replace) (● Check, repair heater relay)

SAFETY CRITICAL PARTS

No.	Safety critical parts for periodic replacement	Q'ty	Replacement interval
1	Fuel tank - hand priming pump	1	Every 2 years or 4000 hours, whichever comes sooner
2	Engine overflow nipple - joint (bottom of fuel tank)	1	
3	Engine overflow nipple - joint (bottom of fuel tank)	1	
4	Joint (bottom of fuel tank) - fuel tank (overflow)	1	
5	Joint (bottom of fuel tank) - fuel tank (spill)	1	
6	Hand priming pump - supply pump	1	
7	P/L pump - P/L filter	1	
8	Steering case cover - HSS motor gear train	1	
9	P/L filter - transmission control valve	1	
10	Transmission control valve - brake valve	1	
11	Torque converter - oil cooler	1	
12	Oil cooler - transmission case, torque converter case	1	
13	Central pressure detection hose - transmission case, torque converter case	1	
14	Hydraulic tank - charge pump	1	
15	Charge pump - charge filter	1	
16	HSS, PPC charge valve - accumulator	1	
17	HSS, PPC charge valve - hydraulic tank	1	
18	HSS, PPC charge valve - PPC lock valve	1	
19	PPC lock valve - PPC valve (blade)	1	
20	PPC lock valve - PPC valve (ripper)	1	
21	HSS, PPC charge valve - CLSS valve	1	
22	HSS, PPC charge valve - HSS pump	1	
23	PPC relief valve - HSS pump	1	
24	HSS pump - HSS motor	1	
25	HSS pump - HSS motor	1	
26	HSS motor - central drain block	1	
27	Central drain block - hydraulic tank	1	
28	HSS motor - central drain block	1	
29	HSS motor - central drain block	1	
30	HSS pump - central drain block	1	
31	Central drain block - cooler bypass valve	1	