

**I. Heating - RECIRC**

A. When the control switch and lever are operated as shown in the diagram, warm air is sent out. Use this position when strong cooling is needed.

1. Place levers ① and ④ in the position shown in the diagram.
2. Set switch ③ to the desired position.

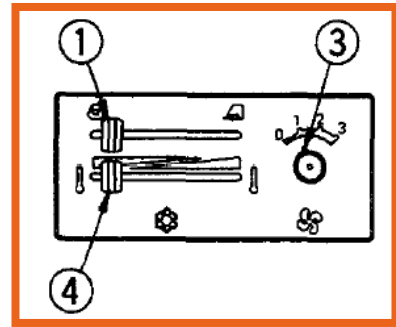


Fig. 1.2.3.4.5.50 Heating - RECIRC

**II. Heating - FRESH**

1. If the air inside the cab is no longer fresh, set FRESH/RECIRC selector lever ① to FRESH to bring in fresh air.
2. Keep the other switches at the same positions as for heating (RECIRC).
3. In this position, the inside of the cab is pressurized to prevent the entry of dust.

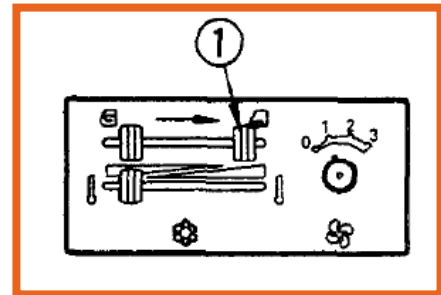


Fig. 1.2.3.4.5.51 Heating - FRESH

**Remark**

1. If the cab is not heated up sufficiently, turn FRESH/RECIRC selector lever I back to RECIRC.
2. This increases the heating effect.

**C. Dehumidifying and heating**

1. Push switches ②. When temperature control lever ④ is placed at the central position, dry warm air blows out.
2. Keep the other switches at the same positions as for heating (FRESH).

**Remark**

1. If this is used in spring and fall on rainy days when the air inside the cab is damp, there is no problem of the windows misting up, and the cab be warmed up to a comfortable temperature.

**D. Precautions When Using Air Conditioner**

1. Carry out ventilation from time to time when using the cooler.
2. If you smoke when the cooler is on, the smoke may start to hurt your eyes.
3. Turn the lever to FRESH to remove the smoke while continuing the cooling.
4. When running the air conditioner for a long time, turn the lever to the FRESH position once an hour to carry out ventilation and cooling.

**I. Be careful not to make the temperature in the cab too low**

1. When the cooler is on, temperature must be set so that it feels slightly cool when entering the cab (5 - 6°C lower than the outside temperature).
2. This temperature difference is considered to be the most suitable for your health, so always be careful to adjust the temperature properly.

**II. Direction of vents when cooling**

1. If the vents (left & right) in the middle of the dashboard are turned so that cold air plays directly on the cab door glass, moisture may condense on the outside of the cab door glass and reduce the visibility.
2. This situation occurs particularly in high temperature areas.
3. If this happens, turn the vent fully to the rear and raise the air conditioner temperature setting slightly higher.

### III. Inspection during Off-Season

1. Even during the off-season, run the compressor at low speed for several minutes once a week to prevent the loss of the oil film at the lubricated parts of the compressor.
2. Run the engine at low speed and set the temperature control lever at the central position.

#### Remark

1. When the ambient temperature is low, if the compressor is suddenly run at high speed, it may cause failure of the compressor.
2. Note that the system is set so that the compressor will not run when the cooler switch is turned on if the ambient temperature is less than 2 - 6.5 C°.

### IV. Procedure for Replacing Receiver

1. Replace the receiver once every two years.
2. After replacing the receiver, add compressor oil.
3. Turn the receiver at an angle and measure the oil remaining inside the receiver.
4. Then add the same amount of oil to fill the receiver.

#### Remark

1. Depending on the condition of use, the replacement interval may be shorter.
2. If the receiver is used when the desiccant has exceeded the water absorption limit the refrigerant circuit may become clogged and cause failure of the compressor.

### V. Precautions when replacing receiver

1. If the receiver is left for more than 15 minutes with the blind cover removed
2. The moisture in the air will be absorbed, and this will reduce the life of the desiccant.
3. If you remove the blind cover, connect the piping quickly, evacuate the system and fill with refrigerant.
4. When removing the refrigerant from the refrigerant circuit; release it gradually from the low pressure side to prevent oil from following out.

### VI. Cleaning Air Filter

1. If the air filter for the FRESH or RECIRC air intake becomes clogged
2. The cooling or heating capacity will drop.
3. To prevent this, clean air filter with compressed air once a week

**E. Handling Heater****A. Method of Operation to heat quickly**

1. Set the switches to the position shown in the diagram on the right to carry out heating quickly.
2. Set FRESH/RECK selector lever ① and temperature control lever 3 to the position in the diagram on the right.
3. Set blower switch ② to position 3 (HIGH).

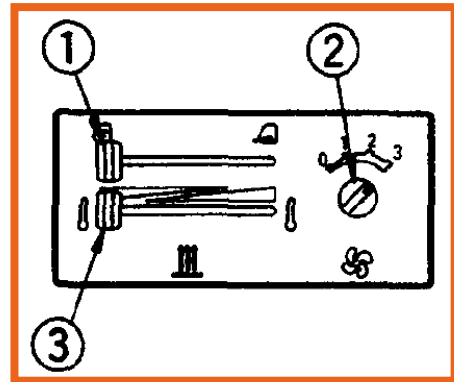


Fig. 1.2.3.4.5.52 Heater Switch

**Notice**

1. If heating is carried out continuously for a long period of time with the lever at the RECIRC position
2. The air inside the cab will become stale, so when the cab is warmed up, always set the FRESH/RECIRC selector lever ① to the FRESH position.
3. In this position, the inside of the cab is pressurized to prevent the entry of dust.

**Normal use**

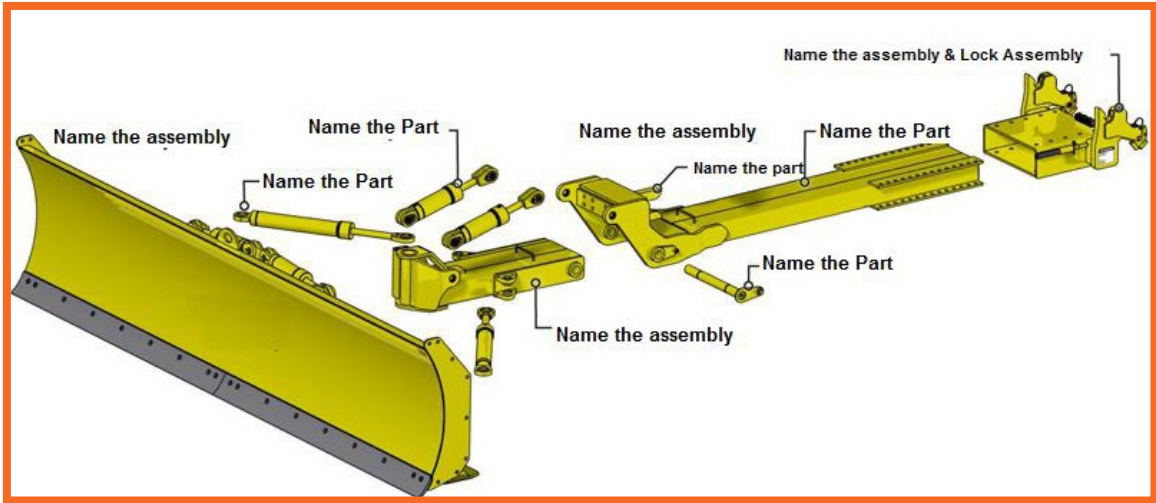
1. Set each switch to the desired position.

**B. Cleaning Air Filter**

1. If the air filter for the FRESH or RECIRC air intake becomes clogged, the heating capacity will drop.
2. To prevent this, clean the air filter with compressed air once a week.

**Briefly answer the following questions.**

**Question - 1. Write the names of different parts shown in the image below.**



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**Question - 2. List some controls of a Bulldozer?**

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**Question - 3. Write the functions of different parts of bulldozer?**

- A. Bucket Cylinder
- B. Ripper
- C. Final Drive
- D. Sprocket
- E. Idler
- F. Tilt Cylinder
- G. Roller

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Question - 4. List safety locks as many as you can?

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Question - 5. Name the parts of a Bulldozer?

S No.	Part	Name
1		
2		
3		
4		
5		

Tips



**What is door pocket ?**

Door pockets are on the inside of the left and right doors, and can be used for keeping things or Operation & Maintenance manual in the bulldozer.

Notes



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## 2. Prepare Bulldozer

- Unit 2.1 – Conducting pre-operation checks on the bulldozer
- Unit 2.2 – Conducting pre-operation routine maintenance of bulldozer
- Unit 2.3 – Recording details of checking and maintenance





## Key Learning Outcomes

**At the end of this unit, you will be able to:**

1. Check oil levels of engine, transmission, radiator coolant and brake
2. Check differential and hydraulic oil levels
3. Check condition of parking brake, main horn, reverse horn, warning lamp and
4. Check head light.
5. Ensure availability of safety features in Dozers like Audio Visual Alarm, camera, mirrors, Horn, auto fire protection system.

## UNIT 2.1 – Conducting Pre-Operation Checks On the Bulldozer

### Unit Objectives

At the end of this unit, you will be able to

1. Perform checks on oil levels of engine, transmission, radiator coolant and brake
2. Check differential and hydraulic oil levels
3. Perform checks on condition of parking brake, main horn, reverse horn, warning lamp and
4. Understand head light.
5. Understand the availability of safety features in Dozers like Audio Visual Alarm, camera, mirrors, Horn, auto fire protection system.

### 2.1.1 Pre-Operation Inspection

To ensure the maximum service life of the machine, operators must complete a thorough daily inspection before the start of each operational shift.

Operator must follow the following steps. 

- Step 1 -** Inspect the area around and under the machine
- Step 2 -** Check the condition of the equipment and the hydraulic components
- Step 3 -** Look for loose bolts, trash buildup, oil, coolant leakage, and broken or worn parts.

The operator must also test all of the machine's systems, including: 

- Step 1 -** Backup alarm
- Step 2 -** Brakes
- Step 3 -** Indicators and gauges
- Step 4 -** Cooling system level
- Step 5 -** Engine oil level
- Step 6 -** Hydraulic system oil level
- Step 7 -** Seatbelt
- Step 8 -** Transmission oil level
- Step 9 -** All covers and guards
- Step 10 -** Mirrors.

## 2.1.2 Walk-Around and inspect the bulldozer

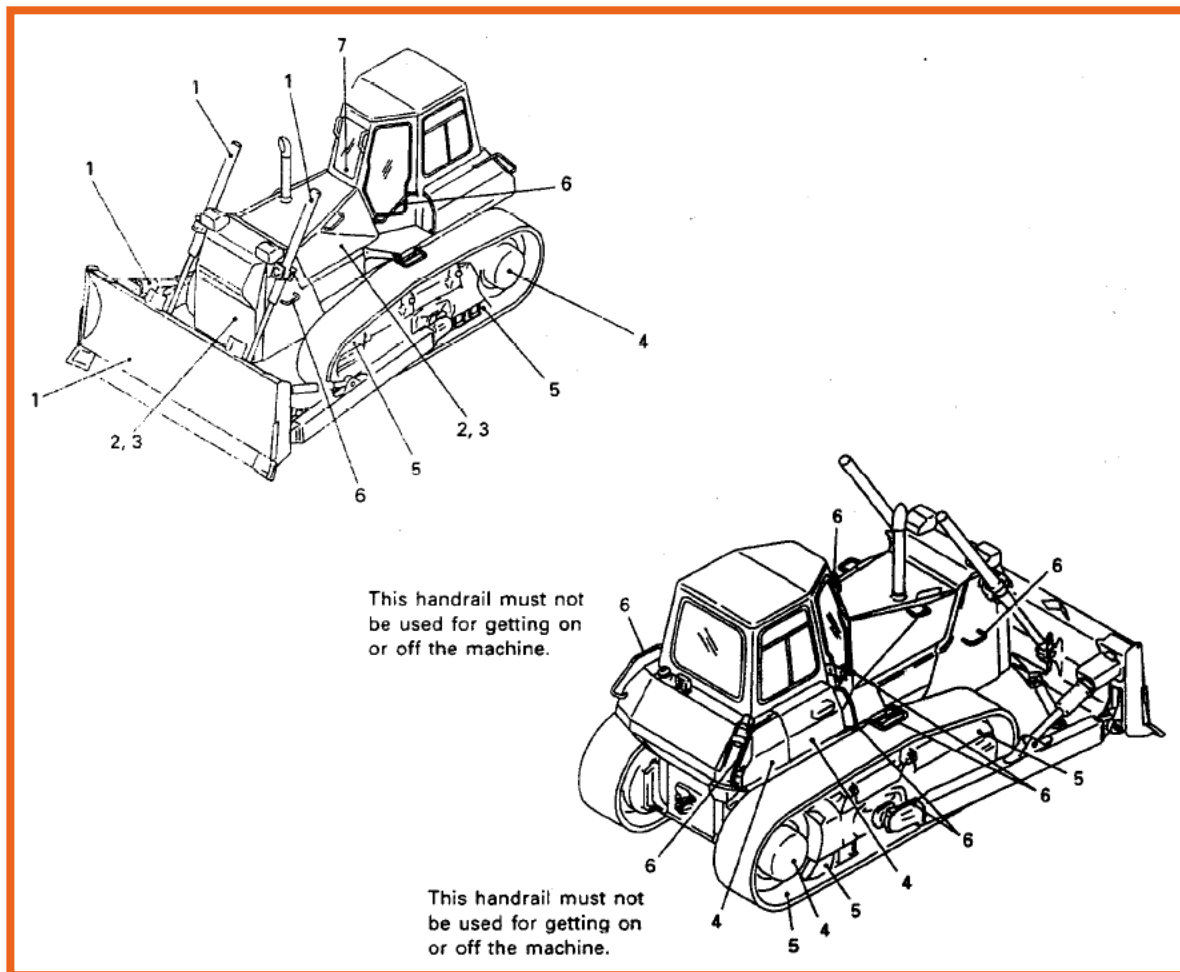


Fig. 2.1.2 Bulldozer

- Leakage of oil or fuel, or accumulation of flammable material around high temperature parts, such as the engine muffler or turbocharger, may cause fire.
- Check carefully, and if any abnormality is found, repair it or contact your Komatsu distributor.
- Do not get on or off the machine from the rear. Using this position is dangerous because it is easy to slip and you cannot be seen from the operator's compartment.
- Always use the handrail and step at the side when getting on or off the machine.
- Before starting the engine, look around the machine and under the machine to check for loose nut 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 collection of dust at places which reach high temperatures.
- Always carry out the items in this section before starting the engine each day.
- 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 hoses. If any abnormality is found, repair it.