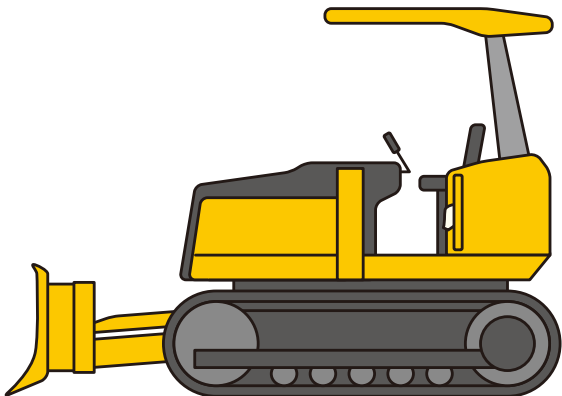


Construction machine basics and inspection, etc.

(1) Types of main construction machine

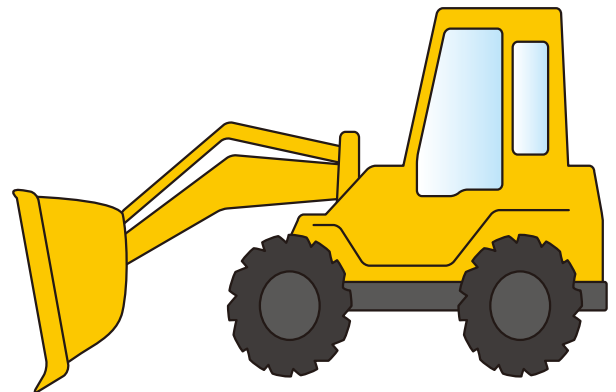
1. Bulldozer

Bulldozers are the crawler-type tractors with a blade and a ripper, and is used for crushing hard ground and rocks by pressing, leveling and ripping.



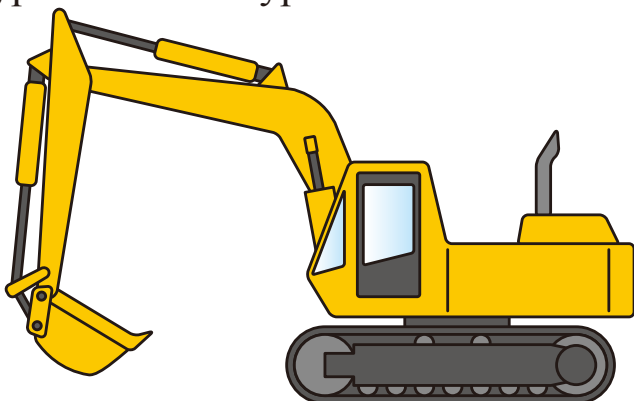
2. Tractor shovel (wheel type)

This is a wheel type tractor with a bucket attached. It is used for loading, transporting, and removing earth and sand from the ground surface.



3. Hydraulic shovel (backhoe)

Excavators are mainly suitable for excavation of hard soil below the ground surface, and there are crawler type and wheel type.



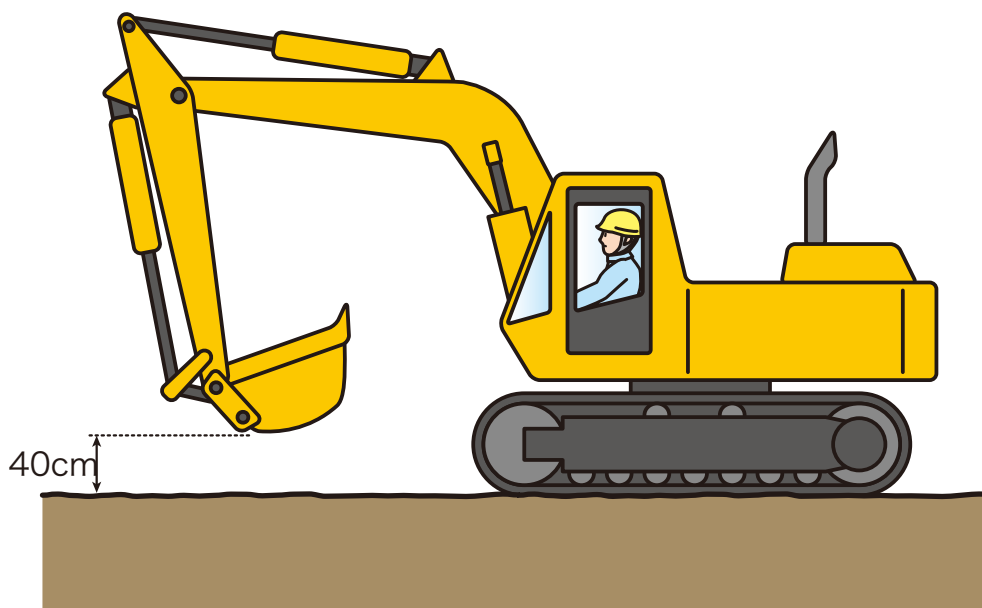
4. Roller

Machines that compacts (rolls and compresses) land and asphalt composites, including road rollers, tire rollers, and vibration rollers.

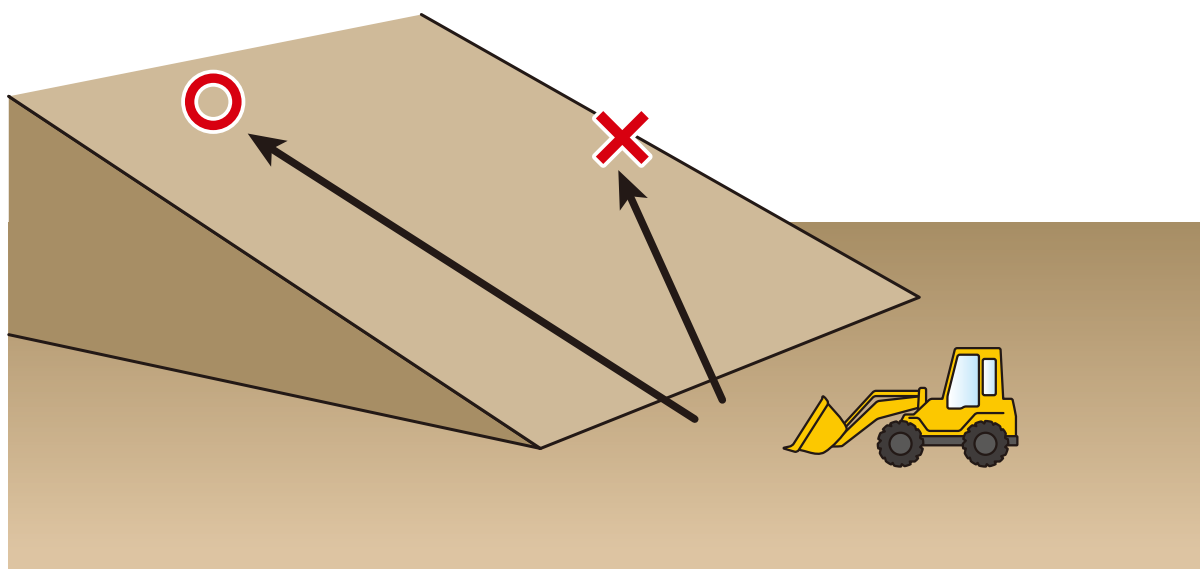


(2) Basic knowledge of safe driving (Part 1)

1. When starting a machine, after confirming the surrounding safety well, make an engine run to an appropriate speed and raise the work apparatus by about 40cm.

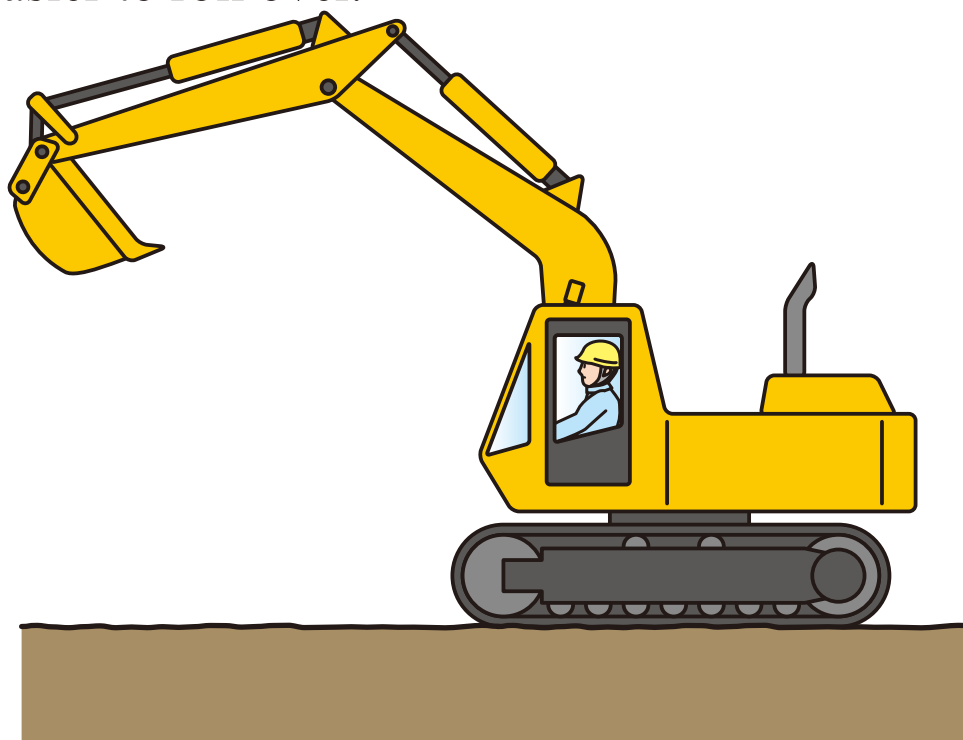


2. When going up and down on hills with a machine, go straight as much as possible. There is a risk of falling on an inclined surface, so do not change the direction. Especially be careful when turning to the lower side.

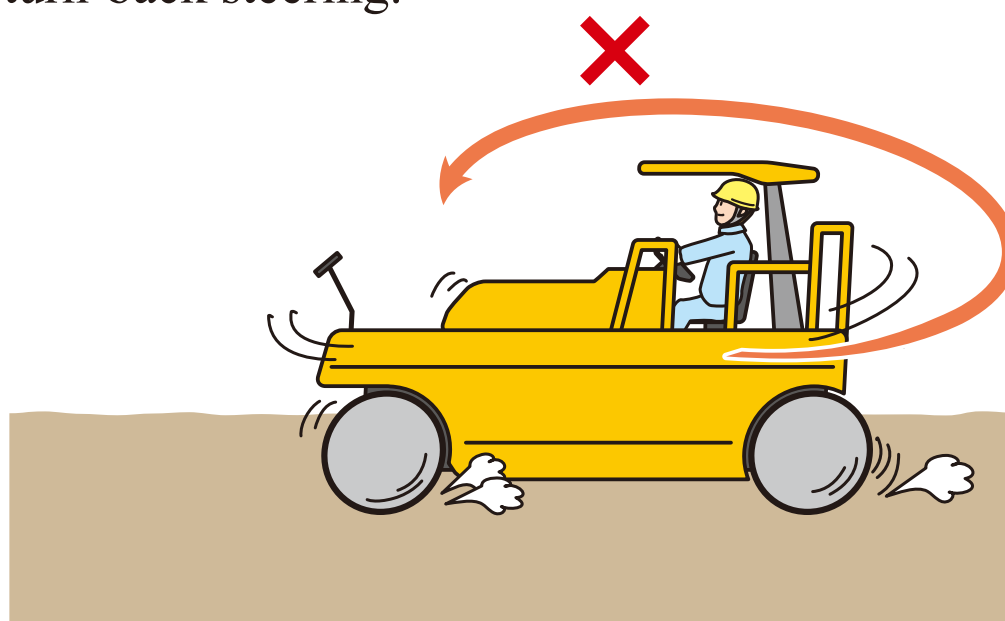


(3) Basic knowledge of safe driving (Part 2)

3. When raising a work apparatus such as a bucket and a blade, the center of gravity of the machine becomes higher that makes the machine easier to roll over.

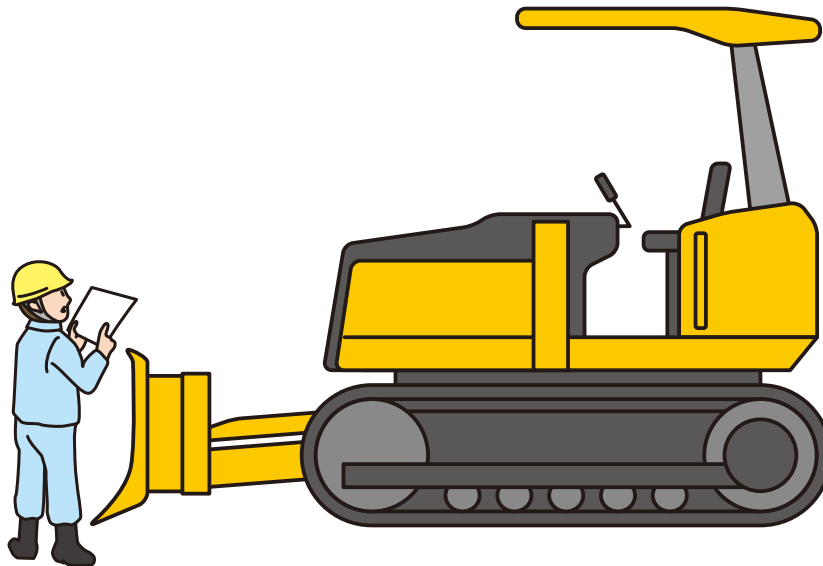


4. When driving, avoid sudden direction changes, and turn around with the turn-back steering.

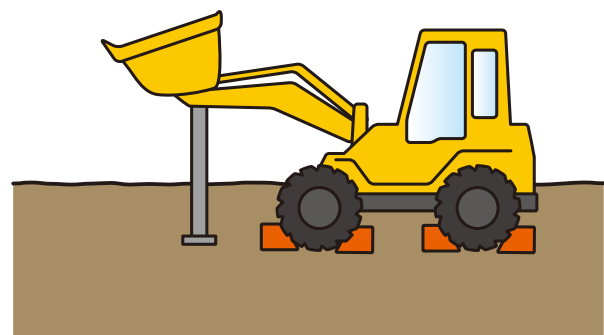


(4) Basic items for inspection

1. Inspection and maintenance are necessary to operate construction machineries safely and efficiently.



2. Apply a brake and a safety lock during an inspection. While checking on a slope, apply a parking brake and a locking device or wheel stoppers. When inspecting the bucket raised, support it with a safety post.



(5) Pre-work inspection

1. In order to check the condition of machines that are used on that day, conduct the pre-work inspection before starting operations, and work with no defects.



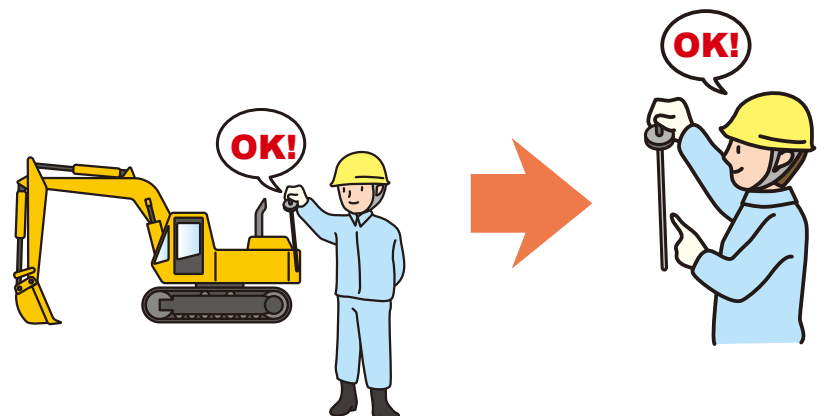
2. In a pre-work inspection, following items are inspected.

[Check the following matters]

- Leakage of water and oil
- Check and refill cooling water (Figure on the right)
- Check and replenish the oil level in each part
- Check and replenish of oils and fats such as the engine oil
- Check and replenish brake fluid
- Water drainage of a fuel tank
- Tension adjusting for a radiator fan belt
- Tire air pressure
- Status of stretching in crawlers
- Loose bolts and nuts
- Check the oil level in a hydraulic oil tank (Figure shown below)



When the radiator is hot, be aware that hot water may blow out if the cap is removed.

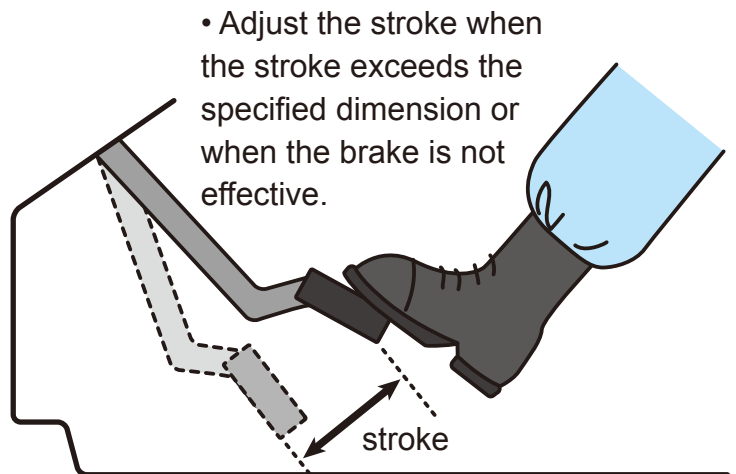


(6) Inspection after engine start (Part 1)

1. The inspections (inspections determined by laws and regulations) that must be carried out after starting an engine are followings.

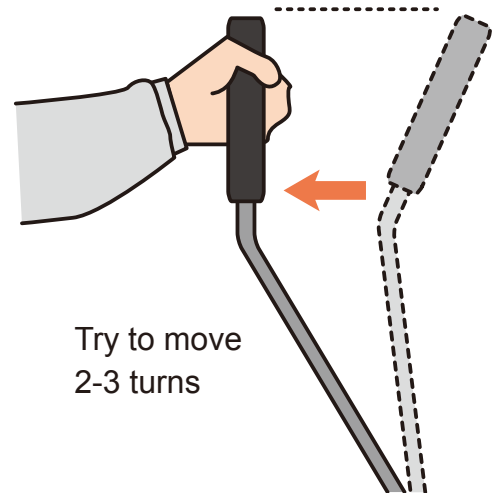
• Function of the Brake

Check that the brake pedal free movement is not too much and that a brake work well.

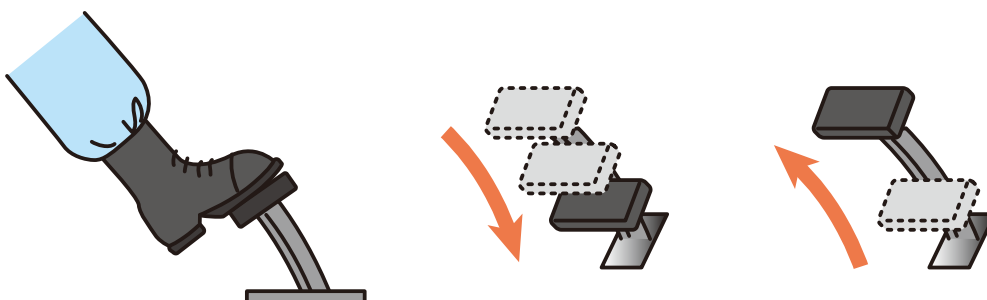


• Function of the clutch

Check the main clutch pedal, play of the lever, operating force, and stroke, and adjust the defects according to the instruction manual.



Let's step on the clutch 2-3 times, and see the free movement and the returns

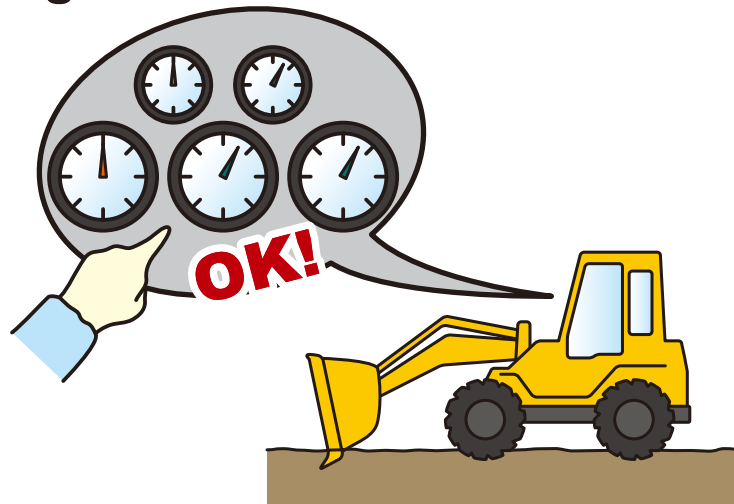


(7) Inspection after engine start (Part 2)

2. Check the following items after starting an engine.

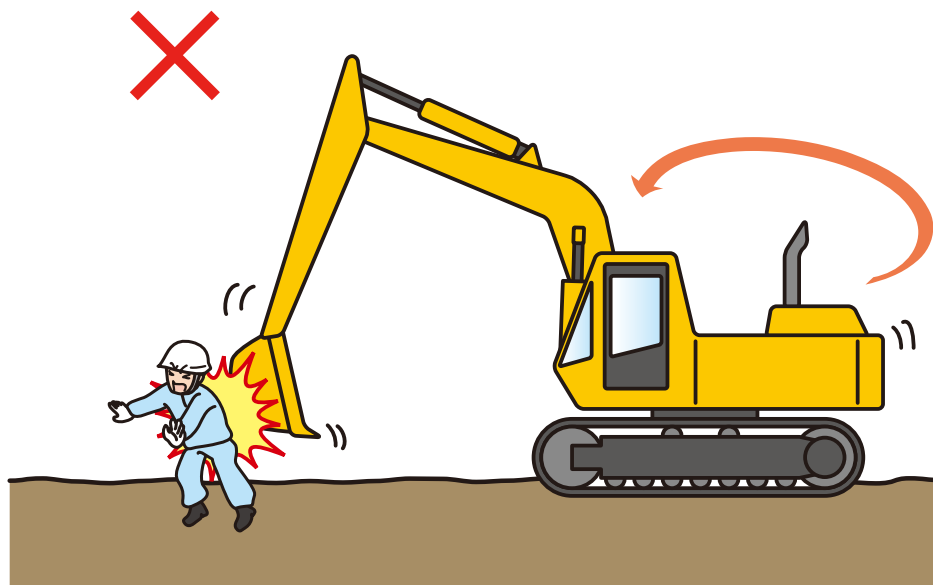
• Condition of the engine

Check the tachometer and engine sounds.



• Inspection of work equipment

Check that a lift arm, a boom, a bucket, etc. operate smoothly. In this case, check that there are no people in the vicinity and that there are no obstacles before operating the work equipment.



(8) Inspection after the work finishes

1. After lowering the work equipment to the ground and applying the parking brake, stop the engine and park in a safe place.



2. Do not refuel with an engine running. Also, do not refuel a machine while smoking.

