



# POWER TILLERS



## POWER TILLERS

It is a prime mover in which the direction of travel and its control for field operation is performed by the operator walking behind it. It is also known as Hand tractor or walking type tractor. The concept of power tiller came in the world in the year 1920. Japan is the first country to use power tiller on large scale. In Japan, the first successful model of power tiller was designed in the year 1947. In India power tiller was introduced in the year 1963. Manufacturing of several makes of power tillers like Iseki, Sato, Krishi, Kubota, Yanmar and Mitsubishi were started in India after 1962. In agricultural power tillers are used for ploughing, sowing, spraying, harvesting and transporting works. It is the most wanted machine for puddling operation in rice cultivation.

## MAIN COMPONENTS

- Engine
- Transmission gears
- Clutch
  - ❖ Main Clutch
  - ❖ Steering Clutch
- Brakes
- Rotary unit

All power tillers are fitted with an I.C. engine. At present makes like Kubota, Mitsubishi, Krishi, Yanmar and Satoh use diesel engine. Iseki make use kerosene engine.

## CONSTRUCTIONAL DETAILS

For operation of power tiller, the power is obtained from the IC engine, fitted on the power tiller. The engine power goes to the main clutch with the help of belt or chain. From main clutch power is divided in two routes, one goes to transmission gears, steering clutch and then to wheels. The other component goes to the tilling clutch and then to tilling attachment. V- belt pulley is usually used to transmit power from the engine to the main clutch.

**Main clutch:** Power goes from engine to main clutch through V- belt – pulley arrangement

**Transmission gears:** Transmission gears consists of gears, shafts, and bearings. Transmission gears reduce speed of the engine and increase the torque at the wheels.

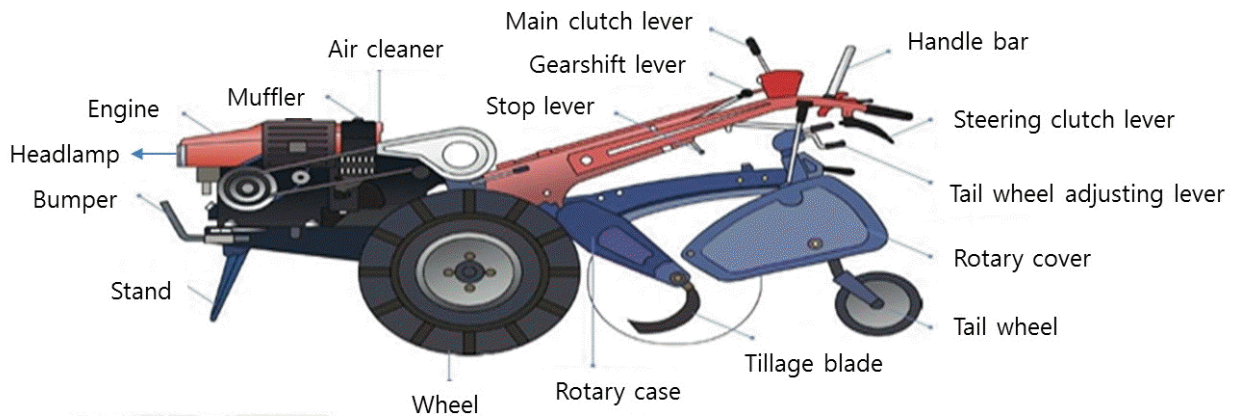
**Brakes:** All power tillers have braking arrangement for stopping the movement of power tiller.



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**Wheels:** Usually two to four ply pneumatic tyre are used in power tillers for the wheels. The inflation pressure ranges from 1.1 to 1.4 kg/cm<sup>2</sup>.

**Rotary unit:** Power tillers have a rotary unit for field operation. Rotary tines are used in rotary unit for soil cutting and pulverizing purposes. Rotary tines are of three types a) Straight tines b) Curved tines c) L shape blades



### APPLICATION

- For puddling operation in paddy fields- using rotary tines
- For cutting and pulverizing the soil in dry lands and in garden lands
- For cutting and pulverizing the stubbles of sugarcane, maize and cotton
- For sowing and inter-cultivation works
- For spraying of orchard trees
- For transporting purposes