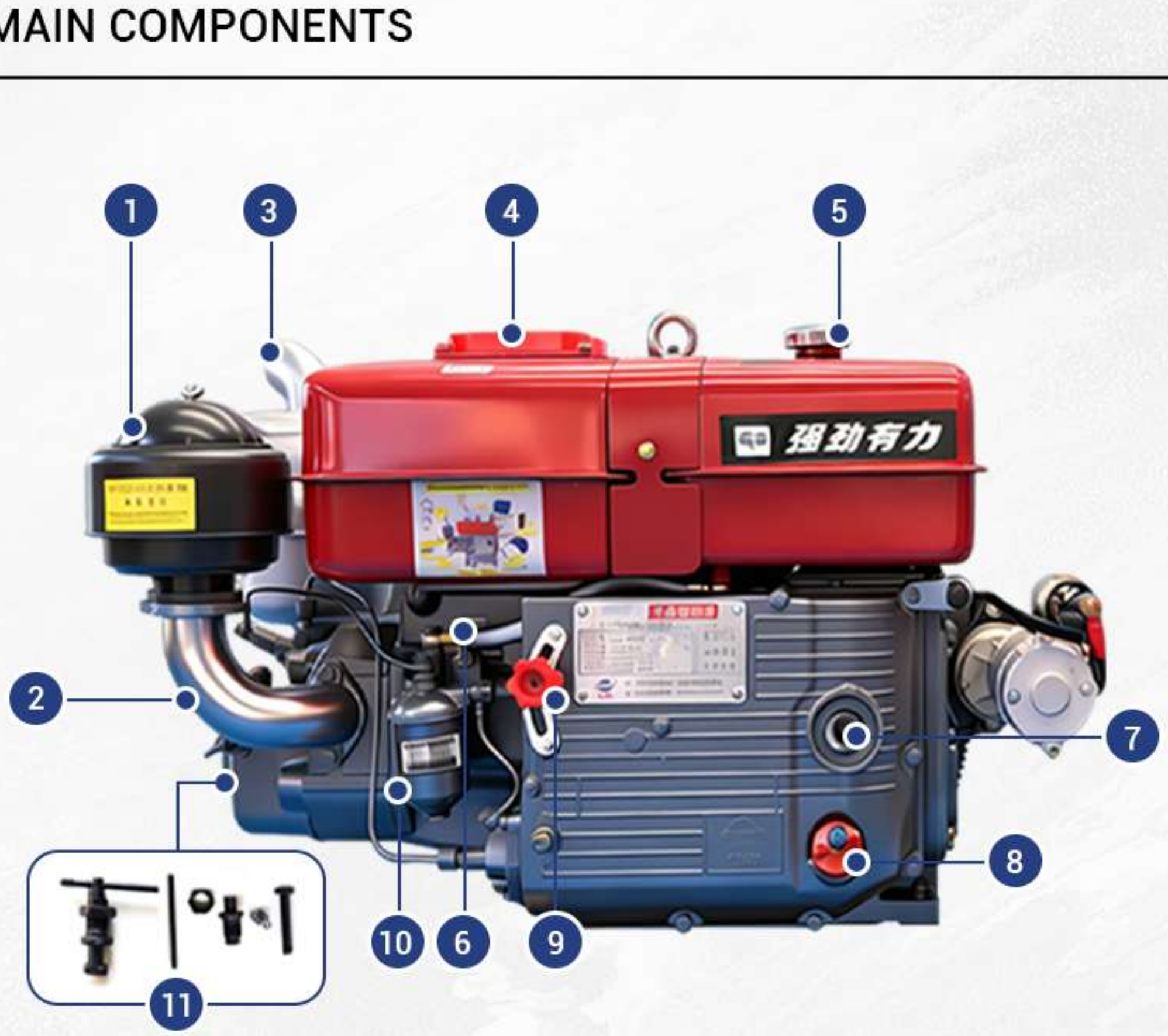
KAWISE

Diesel Engine Pellet Mill

STARTUP AND MAINTENANCE GUIDE

MAIN COMPONENTS



1 Air Filter Assembly	2 Intake Pipe	3 Exhaust Pipe
4 Cooling Water Filler Port	5 Fuel Filler Port	6 Fuel Shut Off Valve
7 Manual Starting Shaft Socket		8 Engine Oil Filler Port
9 Throttle Control Lever	10 Fuel Filter Assembly	11 Decompression lever

A diesel engine works by compressing air to a high temperature. When fuel is injected into the cylinder, it ignites automatically, driving the piston and crankshaft to deliver power to the pellet machine.

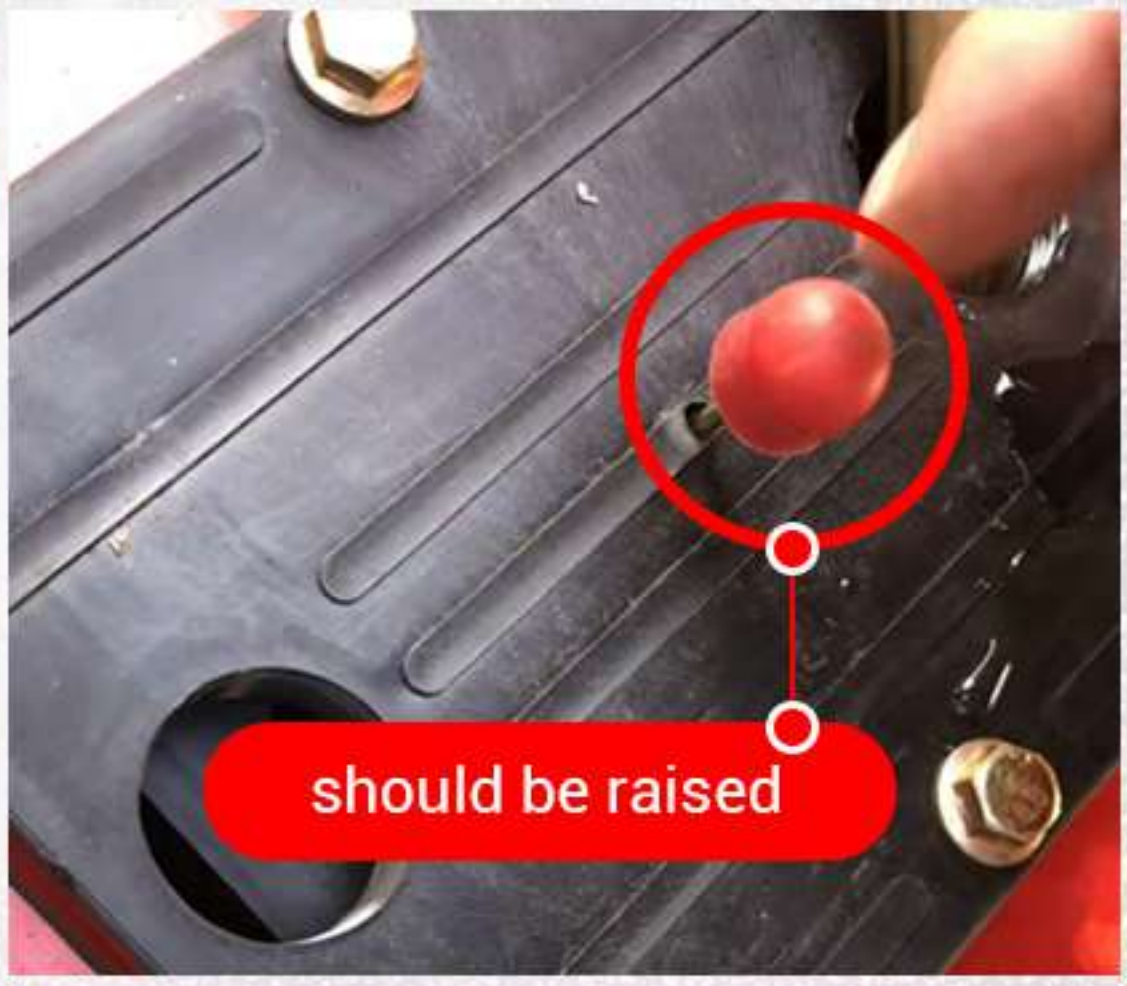
During startup, single cylinder diesel engines use a decompression mechanism to reduce resistance and are started either manually or electrically, depending on the power source.

PRE-START CHECKS

Before each start, complete the following checks to prevent machine damage.

- Check **engine oil** and keep the level within the marked range.
- Ensure **cooling water** is sufficient. Never run without water.
- Make sure **diesel fuel** is sufficient and the fuel valve is open.
- Check **belt tension** and adjust if necessary.
- Keep the area around the flywheel and belts clear. Keep people away from moving parts.

Check Engine Oil



Check Cooling Water Float

Keep Fuel Valve Open

Check Belt Tension

Notes

Recommended engine oil CN40 for high temperatures and CN30 for low temperatures.

Use clean, soft cooling water, such as tap water or rainwater.

STARTING PROCEDURE

Manual and electric starting methods are available. Follow the corresponding procedure based on the machine configuration.

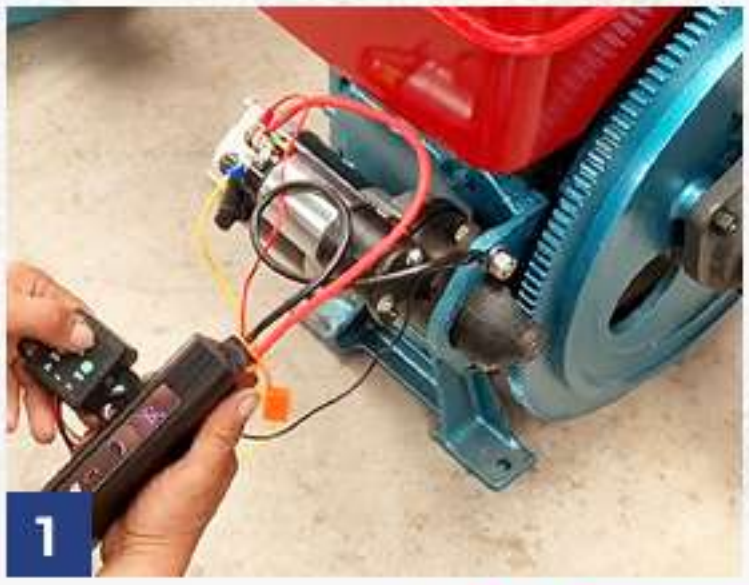
Manual Crank Start

- Make sure the machine is correctly installed, the intake and exhaust pipes are securely fixed, and the pellet machine is unloaded.
- Set the throttle control lever to the middle Start position.
- Press and hold the decompression lever to keep the engine in the decompressed state. Insert the hand crank properly into the manual starting shaft socket.
- Crank the engine. When ignition is heard, increase the cranking speed, then quickly release the decompression lever and continue cranking until the engine starts.
- Let the engine run at low speed for a short period. After stable operation is confirmed, begin pelletizing under full load.

Notes

After the engine starts, the hand crank will disengage automatically. Do not release the hand crank immediately after starting.

Electric Starting


1


2


3


4


5

- Make sure the machine is properly installed and unloaded. Check that the battery is sufficiently charged and all connections are secure.
- Set the throttle control lever to the middle Start position.
- Press and hold the decompression lever, then turn the ignition key or switch to start the engine.
- Release the ignition switch immediately after the engine starts.
- Let the engine run at low speed for about one minute. After stable operation is confirmed, gradually feed material and begin normal pelletizing.

COMMON PROBLEMS DURING STARTING AND OPERATION

The following are common issues that may occur during the starting and operation stages, along with recommended corrective actions.

Starting with no exhaust smoke

Difficult to start with no exhaust smoke

Possible Causes

- Fuel shut off valve is closed or fuel level is insufficient
- Air present in the fuel line
- Fuel filter is clogged
- Throttle control lever is in the stop position or set too low
- Decompression device not used during manual starting
- Insufficient battery power during electric starting

Solution

- Make sure the fuel shut off valve is open and fuel supply is sufficient
- Bleed air from the fuel line
- Clean or replace the fuel filter
- Set the throttle control lever to the middle position
- Use the decompression device correctly according to the starting method
- Check battery charge level and power connections for electric starting

Black exhaust smoke and low engine speed

Black exhaust smoke and low engine speed

Possible Causes

- Excessive load on the pellet machine or feeding too quickly
- Clogged air filter causing restricted air intake
- Improper throttle adjustment resulting in poor combustion

Solution

Avoid starting the engine under load, run at no load before gradual loading, control the feeding rate, clean or replace the air filter, and adjust the throttle according to the load.

Abnormal engine knocking noise

Abnormal engine knocking noise

Possible Causes

- Injection timing too advanced, causing excessive combustion impact
- Low engine oil level or insufficient lubrication
- Engine temperature too high
- Loose belts or components

Solution

Check that the engine oil level is within the normal range, inspect the cooling system and avoid continued operation at high temperature, and perform a general inspection to repair or replace any damaged or loose components.

MAINTENANCE NOTES

Proper daily maintenance ensures stable diesel engine operation and extends service life under pellet machine operating conditions.

Daily cleaning and maintenance

- Keep the engine clean and ensure proper cooling.
- Check for oil, fuel, and coolant leaks.
- Drain the fuel filter regularly.
- Close the fuel valve and clean around the engine after shutdown.

Maintenance and replacement

System	Component	Maintenance Action	Interval
Air Intake	Air Filter (1)	Clean dust from the filter to ensure smooth air intake	50–100 h
Fuel System	Fuel Filter (10)	Replace filter and drain water and impurities	100 h
Lubrication	Engine Oil (8)	Check oil level daily; replace if oil deteriorates	Daily
Cooling	Water Tank (4)	Check water level and clean scale regularly	Daily

Note

Maintenance intervals may vary depending on operating conditions.

Long Term Storage

If the equipment (such as a seasonally used pellet machine) will be shut down for an extended period:

Drain engine oil

Drain the used oil while the engine is warm, then refill with fresh oil.

Seal intake and exhaust

Cover the air filter and exhaust pipe with plastic to prevent moisture from entering the cylinder and causing rust.

Rotate the crankshaft

Manually turn the crankshaft several times each month to maintain an oil film on internal components.

This operating guide also applies to other diesel engine driven equipment, such as chaff cutters, feed mixers, and grinding machines.

This guide is intended as a practical reference to help users understand diesel engine starting methods and key operating points.

If operating conditions or equipment configurations differ, please contact us for further assistance.