TMG INDUSTRIAL®

TMG-GRT22

PRODUCTMANUAL

v.2026.06.05

Cultivator



⚠ WARNING



Please read and understand the product manual completely before assembly

- Check the parts list to make sure all parts are received.
- Wear safety goggles or other protective gear while assembling.
- Do not return products to dealers, who are not equipped to handle returns.

Missing parts or have questions on assembly?
Email: cs@tmgindustrial.com
Or visit: tmgindustrial.com

This operating manual covers the operation and maintenance of the TMG-GRT22.

All content in this manual is based on the latest information available at the time of printing.

◇No part of this manual may be reproduced without written consent.

This manual should be considered part of the farm management equipment and must be transferred together when reselling.

◇Products sold at each stage may differ from those listed in the manual; please refer to the actual product when purchasing.

security information

Your safety and that of others is paramount. We have provided essential safety information in both the manual and on the machine. Please read it carefully.

Safety information warns you of potential hazards that could injure yourself or others. Each safety message is preceded by a safety symbol and a safety phrase: Hazard, Warning, or Caution.

◇Please pay special attention to the statements in the above quotation:

Risk: Failure to follow the instructions may result in severe personal injury or even death.

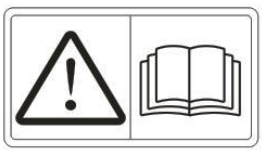
Warning: Failure to follow the instructions may cause equipment damage and personal injury.

Note: Failure to follow the instructions may cause damage to equipment and personnel.

Damages Prevention Information

You can also see other important information marked with "Note".
Note: Failure to follow the instructions may cause equipment damage.

Security Protection



◆ When operated strictly according to the instructions, the field management machine will function safely and reliably as designed. Before use, please read and understand these instructions carefully; failure to do so may result in personal injury or equipment damage.

Security Measures

● When starting the engine, set the gear shift lever to neutral.
● Be safe when the machine is operating!
● Be careful of injuries caused by rotary tiller blades!
● Fuel and lubricating oils must strictly comply with specified grades and remain clean!
● Before shifting gears, disengage the clutch (release the clutch lever) and reduce engine speed to a low level. Using reverse gear at low speed is safer.
● When operating the agricultural management machine on slopes, use reverse gear with caution.

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◆1. Training

a) Carefully read the operation and maintenance manual. Gain a comprehensive

understanding of all operating mechanisms and the correct methods for machine operation. Master how to shut down the equipment and quickly disengage the operating mechanisms.

b) Children are strictly prohibited from using the machine. Adults who do not read the instruction manual are also strictly prohibited from operating it.

c) Keep the work area unoccupied, especially free of children and pets.

◆2. Preparation

a) Thoroughly inspect the area where the machine will be used and remove all debris.

b) Before starting the engine (motor), disengage all clutches and shift to neutral.

c) Do not operate the machine without wearing an appropriate coat. Wearing non-slip

footwear will enhance stability when standing on slippery surfaces.

d) Handle fuel with care as it is flammable.

1) Store fuel in appropriate containers.

2) During engine operation or when the thermal machine is running, it is strictly

prohibited to add fuel to the tank or lubricating oil to the tank body.

3) Fueling should be performed with extreme care outdoors; it must not be done indoors.

4) Before starting, tighten the fuel tank cover and wipe away any spilled fuel.

e) No adjustments shall be made during engine operation (except for special adjustments recommended by the manufacturer).

f) Safety goggles must be worn during all operations involving handling, such as preparation, operation, or maintenance.

◆3. Manipulation

a) Hands and feet must not be near rotating parts or placed beneath them.

b) Exercise extreme caution when operating on (or across) gravel surfaces, sidewalks, or highways; remain vigilant for potential hazards and traffic conditions; and do not carry passengers.

c) After colliding with debris, shut down the engine and conduct a thorough inspection of the field management machine for any damage. If damaged, it must be repaired before being restarted or operated again.

d) Always be mindful of your footing to avoid slipping or falling.

e) If the machine exhibits abnormal vibration, immediately shut down the engine to

identify the cause; vibration is typically an early indicator of a fault.

f) When leaving the operating position, the engine must be stopped before performing maintenance, adjustment, or inspection to clear any blade blockages.

g) When the machine is operating without human operation, all possible preventive measures shall be taken: disconnect the power output shaft, lower the auxiliary equipment, shift to neutral, and turn off the engine.

h) Before cleaning, repairing, or inspecting the machine, turn off the engine and ensure all moving parts are completely stationary.

i) The exhaust gases emitted by the engine are harmful; do not operate it indoors.

j) Do not operate the field management machine in the absence of appropriate protective devices, covers, or other safety measures in place.

I. SAFETY PRECAUTIONS AND WARNINGS

K) Principle: Children and pets.

l) Do not overload the machinery due to excessive digging depth or high speed.

m) The machine must not operate at high speeds on slippery surfaces. When reversing, observe behind you and proceed with caution.

n) Onlookers are strictly prohibited from approaching the machine.

o) Only additional devices and equipment permitted by the manufacturer of the agricultural machinery may be used (e.g., wheel counterweights, balance weights, cab components, etc.).

p) Do not operate the field management machine when visibility or lighting conditions are poor.

q) Exercise caution during cultivation operations on hard surfaces, as the blades may become lodged in the ground and propel the field management machine forward. If this occurs...

In the event of an emergency, release the handrails and do not attempt to operate the machine.

r) Do not operate the agricultural management machine on steep slopes.

s) When operating the agricultural management machine uphill or downhill, take

precautions to prevent it from overturning.

◆4. Maintenance and Storage

a) Maintain the machine, auxiliary devices, and equipment in a safe working condition.

b) At regular intervals, check whether the tightening of shear bolts, engine mounting bolts, and other bolts is appropriate to ensure proper secure fastening.

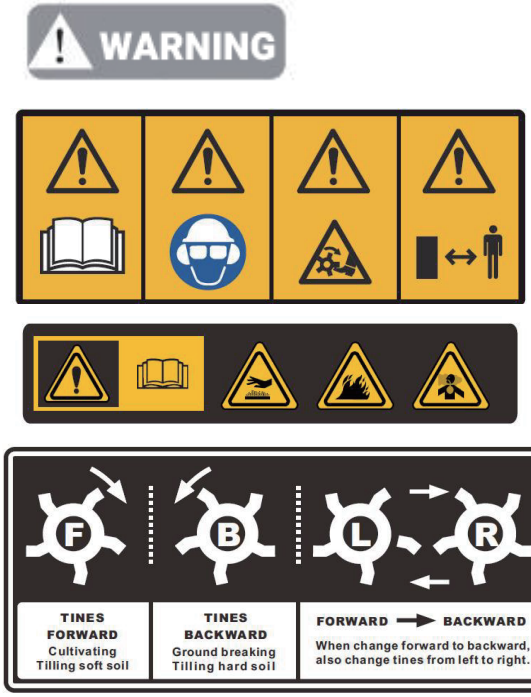
The verification device is operating safely.

c) The machine shall be stored indoors and away from fire sources; the engine must be cooled before storage.

d) If the field management device is to be stored long-term, the user manual must always be kept as essential documentation.

e) Do not repair the machine arbitrarily unless you have the appropriate tools and the instruction manual for disassembly, assembly, and maintenance.

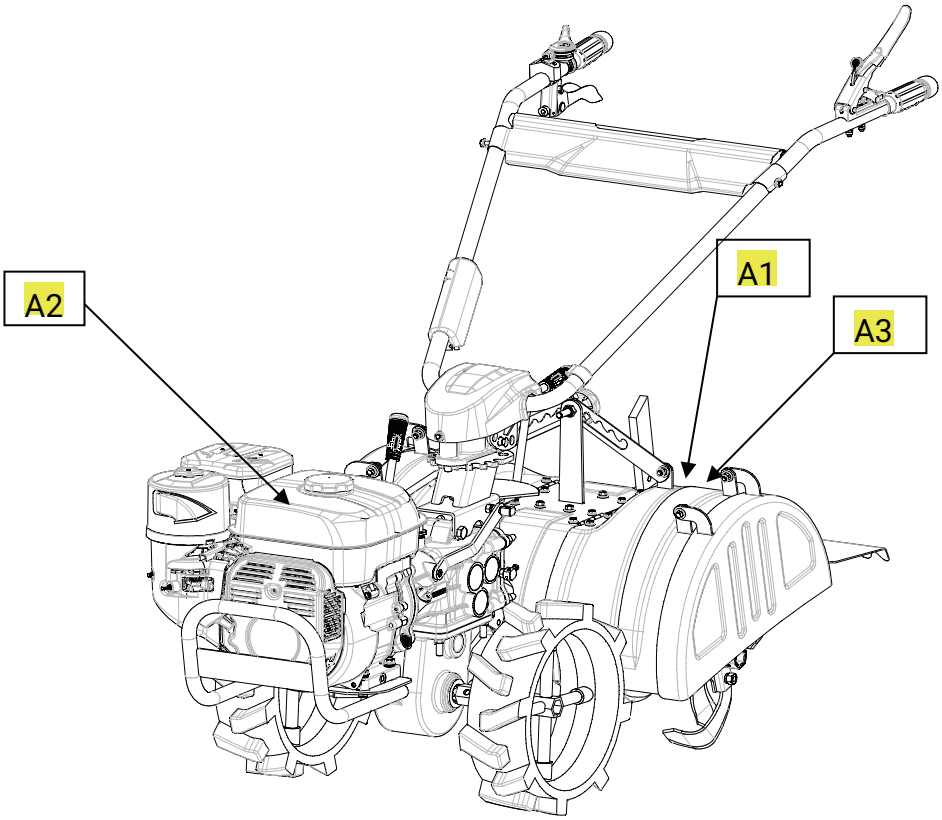
◆5. Explanation of Safety Warning Signs



A1

A2

A3



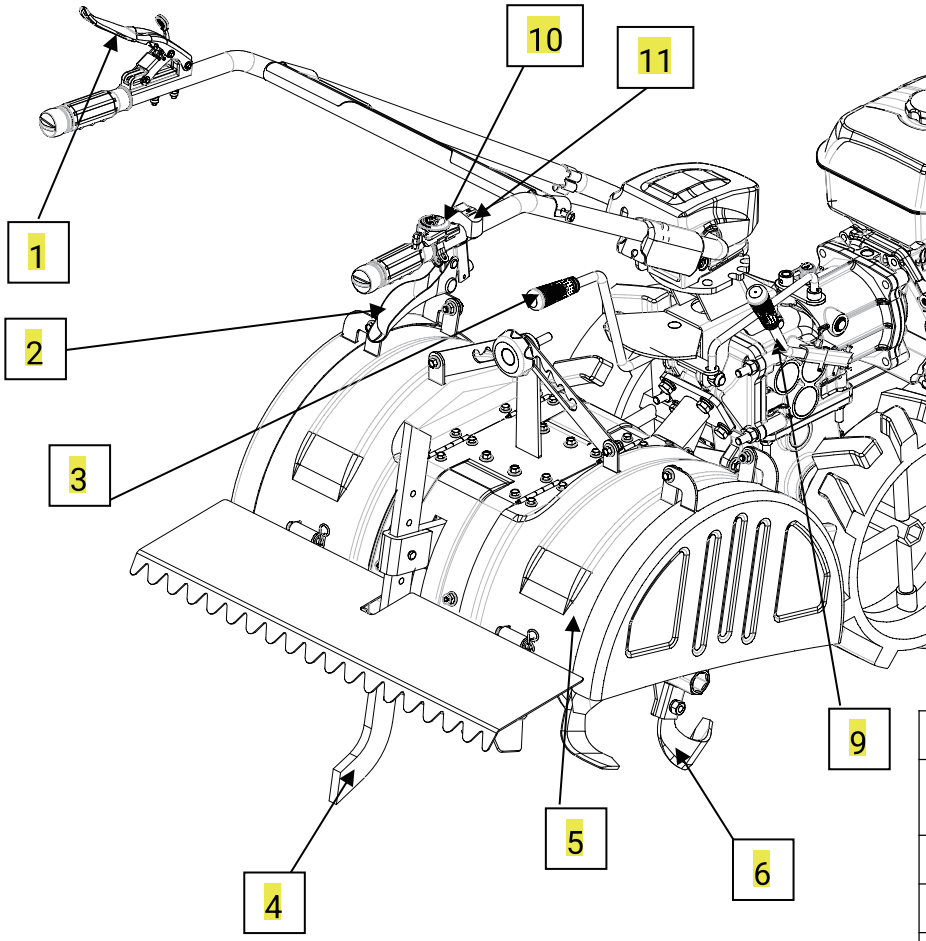
II. MAIN TECHNICAL SPECIFICATIONS AND SUPPORTING REQUIREMENTS

◆1. Table of Main Technical Specifications and Supporting Requirements

order number	project name		unit	design value
1	main engine	specifications and models	/	TMG-GRT22
		structural style	/	two wheel drive
		outline dimension	mm	1500*660*1000
		architecture quality	kg	82
		Main Drive Type	/	gear wheel
		Clutch Type	/	Always-on split-type clutch
		Job Speed	km/h	0.35
2	Accompanying Engine	model	/	WM170F/P-2
		power	Kw	4
		speed	r/min	3600
		Fuel Type	/	gasoline
3	rotary cultivator attachment	Tool Type	/	3 tablets per group; 3 groups in total
		Work Range	cm	54
		Rotary tillage depth	cm	≥10
4	Trenching Device	Tool Type	/	6 tablets
		ditching	cm	27
		trenching depth	cm	≥10

※ Specifications may change due to improvements; they are for reference only and not intended as acceptance criteria.

◆ 2. Structural Diagram and Circuit Diagram



1	Clutch Handle
2	Armrest adjustment handle
3	shift rod
4	Resistance Bar
5	dashboard
6	Rotary tiller blade
7	road wheel
8	bumper
9	Output Clutch Handle
10	Throttle switch
11	Starter Off Switch

III. SCOPE OF APPLICATION

This machine is suitable for dry land cultivation in greenhouses, vegetable fields, orchards, gardens, and other areas across plains, hills, and mountainous regions.
Operation on slopes with a gradient ≥20° is strictly prohibited.

IV. INSTALLATION METHOD

Assemble after opening the box:

1、 Remove the entire device and its accessories.
2、 Install the wheel assembly onto the main unit and secure the wheels using a pin shaft and retaining ring B (Figure 1).
3、 Install the handrail control assembly onto the main unit and secure it using flat washers, spring washers, and nuts (Figure 2).
4、 Install the rotary tiller blade assembly and soil-breaking shovel onto the output shaft of the tillage box, then secure the blade assembly using a pin and retaining spring B.

Secure the earth-breaking shovel with bolts (Figure 3).

5、 Install the fender assembly onto the main unit support frame and secure it with bolts (Figure 4).
6、 Install the resistance rod, connecting rod, gear shift lever, armrest cover plate, and transmission box cover onto the entire unit, then attach the pin shaft and retaining spring B (Figure 5).

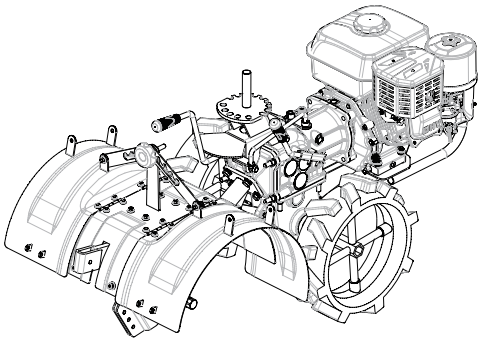


Figure1

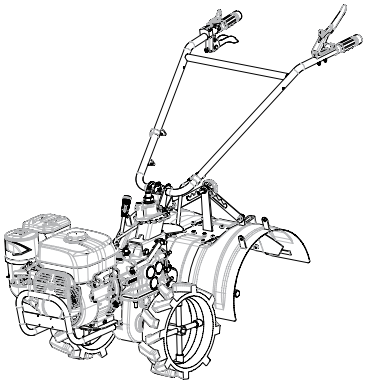


Figure2

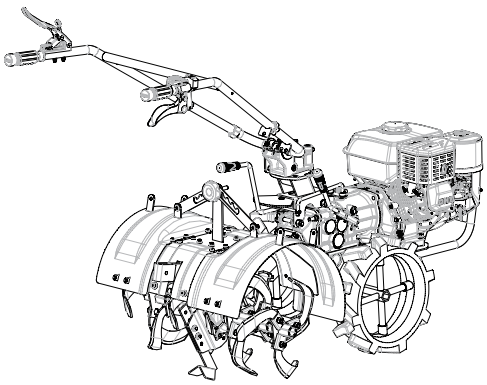


Figure 3

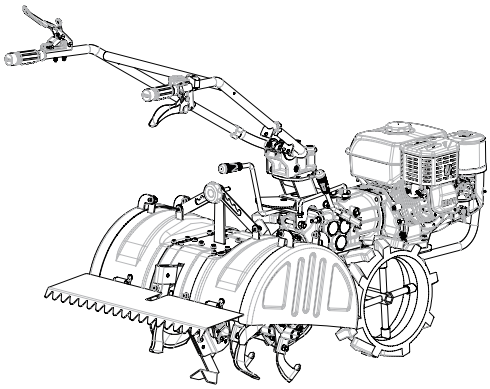


Figure 4

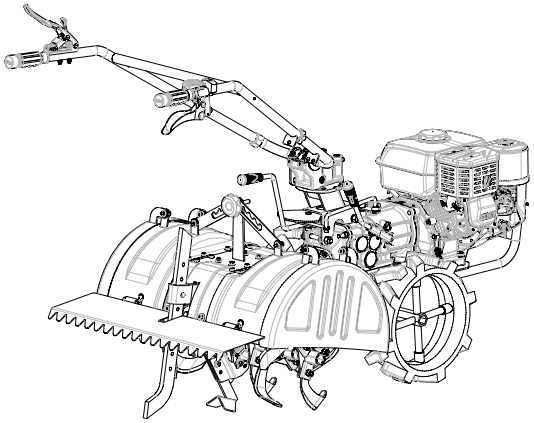


Figure 5

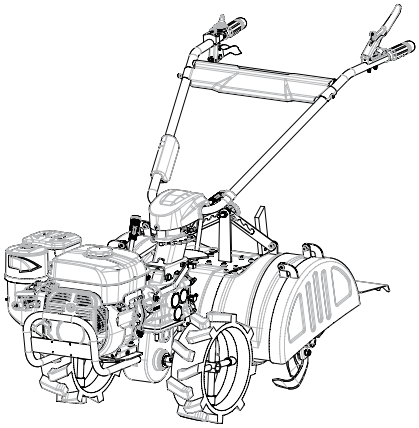


Figure 6

V. OPERATING INSTRUCTIONS

Upon leaving the factory, the field management machine undergoes routine adjustments. However, before using it for cultivation, users should inspect and calibrate all components to ensure optimal performance during operation.

◆1. Check and refuel

◇1.1 Check whether all connection bolts are loose.

◇1.2 Check the operation of all control components in the steering system (throttle, clutch, gear shift lever) for smoothness and any misalignment, then address any issues identified.

◇1.3 Set the transmission shift lever and output clutch lever to neutral position.

◇1.4 Add engine oil:

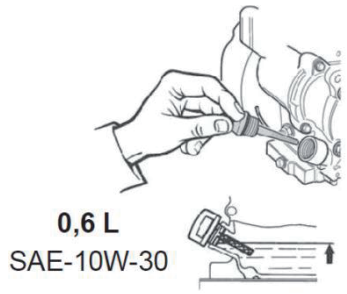
· The use of SAE 10W-30 lubricating oil in the gasoline engine crankcase is specified in Figure 6.

· Add 10L of 30-grade lubricating oil to the transmission. Level the entire unit and unscrew the oil gauge to fill the oil through the oil injection port on the top of the transmission. To check the oil level, insert the oil gauge; the oil level should fall between the upper and lower limits indicated on the gauge, then tighten the oil gauge. (See Figure 7)

③ Add engine oil to the air filter; remove the outer cover of the air filter and fill it with approximately 0.1 liters of 20-grade engine oil.

◇1.5 Add gasoline: fill the oil tank with 90-octane gasoline.

◇1.6 Perform pre-start preparations according to the gasoline engine manual.



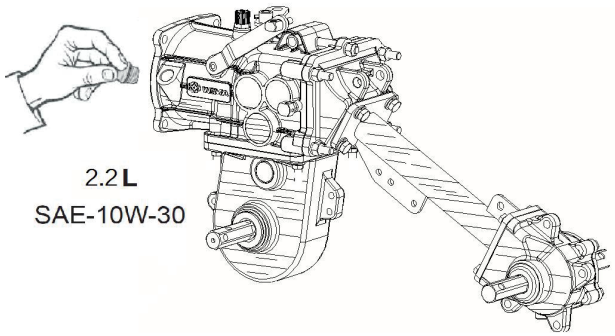


Figure 6 Figure 7

Figure 6 Figure 7

◆2. Status Adjustment of the Rural Management Device

ATTENTION Before adjusting the armrest height, place the field management machine on a flat surface to prevent accidental tipping.

◇2.1 Adjustment of the Scaffolding

Hold the adjustment lever of the armrest frame to adjust its height and orientation; release it when set to the desired position.

◇2.2 Adjustment of Tilling Depth

By adjusting the height of the resistance rod, the tillage depth can be controlled: lowering the resistance rod reduces the tillage depth; raising it increases the depth.

The adjustment has increased the cultivation depth; thus, the planting depth has become greater.

◆3. Launch

ATTENTION The gear shift lever and output clutch handle must be in neutral position.

Note ◇3.1 Before starting, set the gear shift lever and output clutch lever to neutral position.

◇3.2 Start the gasoline engine according to the steps specified in the user manual.

◇3.3 The gasoline engine shall run at idle (1450–1750 rpm) under no-load conditions for 2–3 minutes.

◇ 3.4 Check whether the gasoline engine is operating normally; if not, stop the engine for inspection.

◆4. Operation

◇4.1 Starting: With the clutch lever in the release position and all gear shift levers in neutral, follow the steps outlined in the Engine User Manual to start the engine.

◇4.2 Operation: Place the gear shift lever in the desired position and press the control lever to engage the working or driving mode.

◇4.3 Forward rotary tillage: When the field management machine cultivates soft soil, set the gear shift lever to 1 or 2 and the output clutch lever to 1, then perform forward rotary tillage (see Figure 8).

◇4.4 Reverse rotary tillage: When operating the field management machine on hard ground, interchange the rotary tiller blade assembly left and right, set the shift lever to either first or second gear, engage the output clutch lever in R position, and perform reverse rotary tillage (see Figure 9).

◇4.5 Trenching Work:

◇4.5.1 Remove the rotary tiller blade assembly and rear mudguard from the main unit, and store them properly;

◇4.5.2 Install the trenching blade assembly onto the machine as shown in Figure 10;

◇4.5.3 Install the upper and lower cleaning grooves behind the fender (as shown in Figure 10);

◇4.5.4 Adjust the fender to the appropriate angle and secure it, then install the resistance rod and rear wheel assembly onto the entire unit (as shown in Figure 11).

◇4.5.5 Set the shifting lever of the field management machine to first or second gear, position the output clutch lever in R gear, and perform trenching operations (as shown in Figure 12).

◇4.6 Parking: ① Release the clutch lever;

- Set all shift levers to neutral;
- Turn off the ignition switch.

◇5. Precautions for Using the Rural Management Machine

◇5.1 During operation, monitor the functionality and noise levels of all components, verify that all connections are secure without any looseness; if abnormalities are detected, immediately shut down the machine for inspection and troubleshooting.

◇5.2 Do not operate the machine under heavy load immediately after cold startup, especially for new units or those that have undergone major repairs.

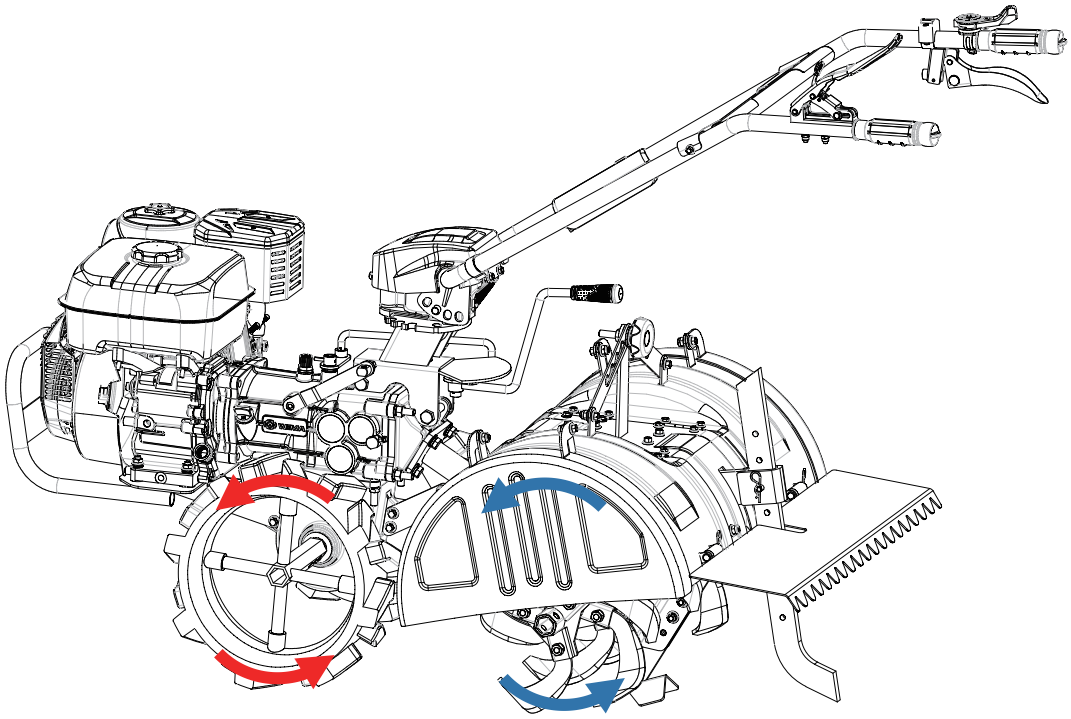
◇ 5.3 Regularly inspect the engine, transmission, and plow mechanism for oil; replenish oil immediately if insufficient.

◇5.4 It is prohibited to cool the engine by watering.

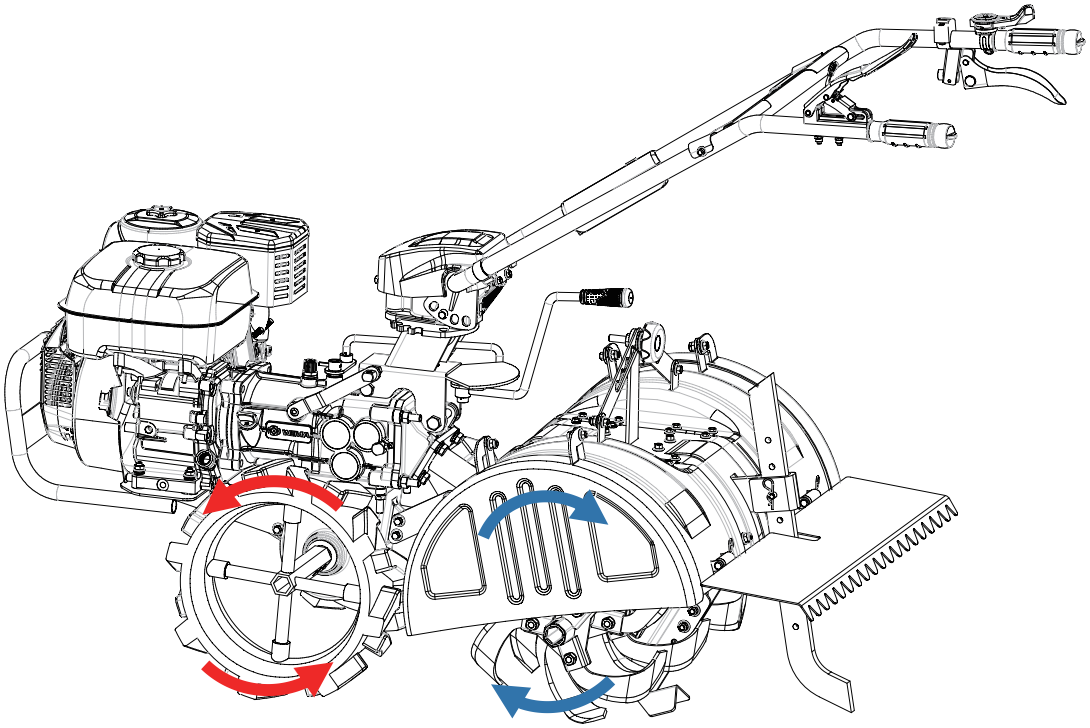
◇5.5 During cultivation, prevent the agricultural machinery from tipping over.

◇5.6 It is strictly prohibited to operate agricultural machinery equipped with cutting blades on hard stone surfaces to prevent damage to the blades.

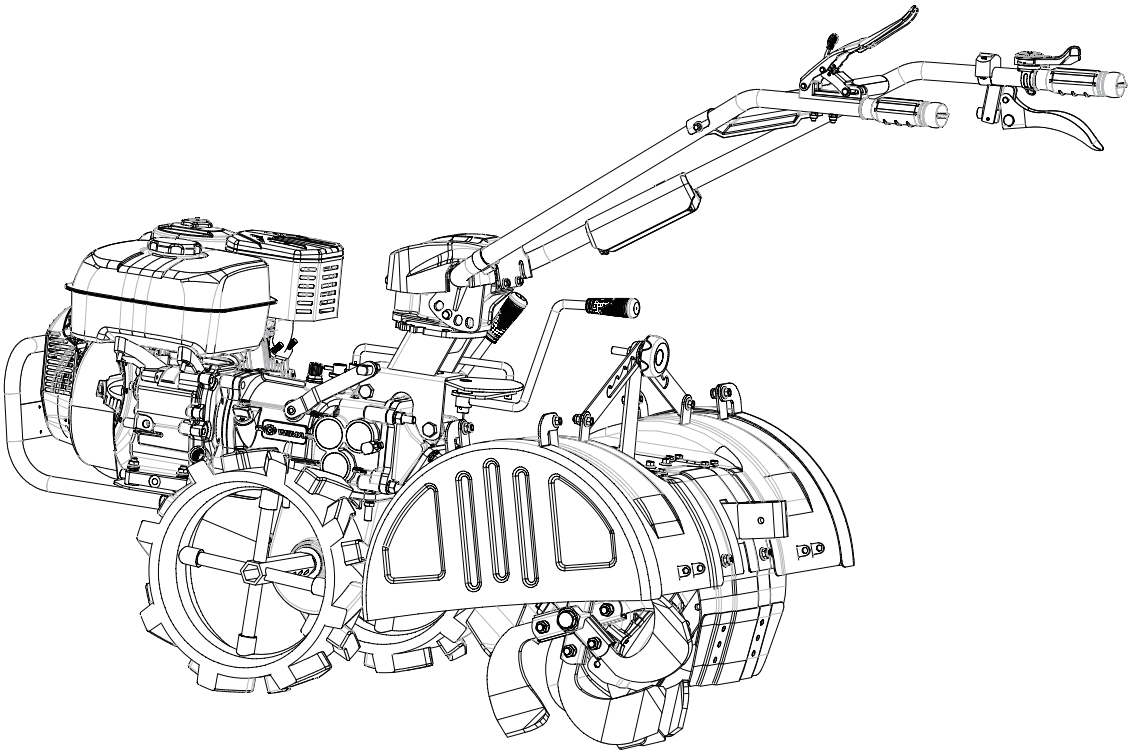
◇5.7 After use, thoroughly remove soil, weeds, and oil residues from the agricultural machinery to maintain its cleanliness.



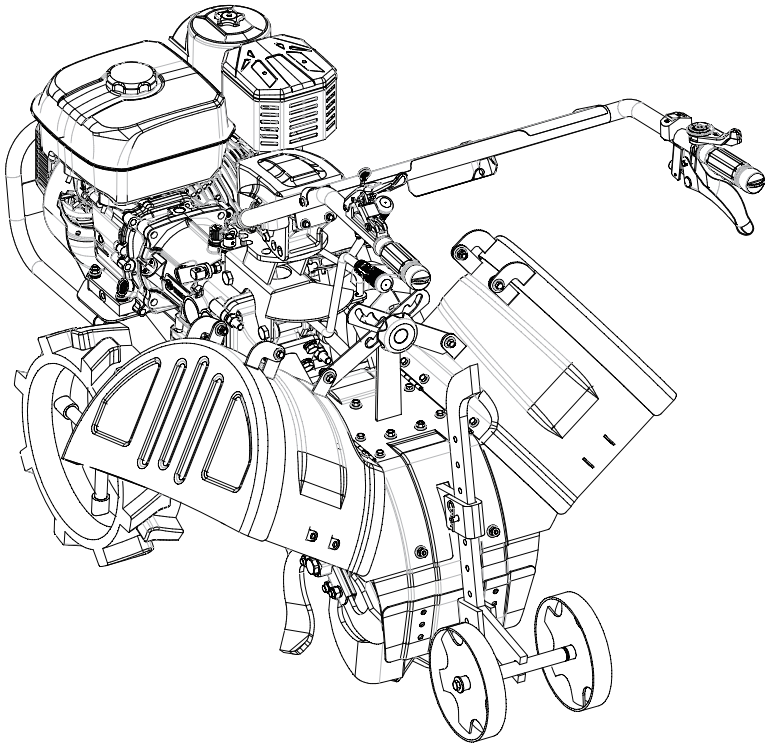
(Figure 8)



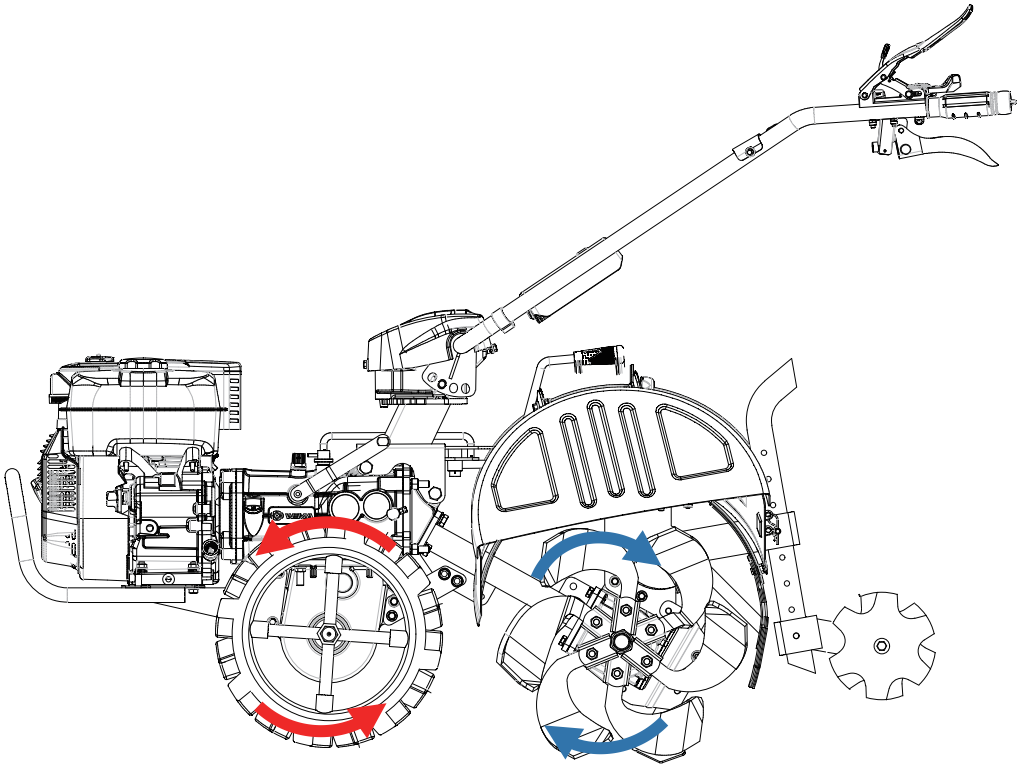
(Figure 9)



(Figure 10)



(Figure 11)



(Figure 12)

VI. MAINTENANCE AND CARE OF AGRICULTURAL MANAGEMENT EQUIPMENT

During operation, the field management machine inevitably experiences loosening of connecting bolts and component wear due to mechanical stress, friction, and load variations. These issues disrupt normal system performance, leading to abnormal clearance, reduced engine power output, increased oil consumption, component misalignment, and a higher incidence of malfunctions, significantly impairing its operational efficiency. To mitigate these problems, rigorous and regular maintenance practices adhering to a "prevention-first" approach are essential for maintaining optimal technical condition and extending the machine's service life.

◆1. burning-in

◇1.1 For engine break-in procedures, refer to the User Manual.

◇1.2 After major overhaul, the new field management machine should first operate under

no-load conditions for 10 minutes, then under light load conditions for 2 hours. Only after confirming no abnormalities can the machine commence normal rotary tillage operations.

◆2. Technical Maintenance of Agricultural Management Machinery

◇2.1 Routine maintenance for each shift (to be performed before and after work).

· Listen carefully to observe any abnormal phenomena in various components (e.g., unusual noises, overheating, or loose screws).

· Check the engine and transmission housing for any oil leaks.

· Check whether the oil level in the engine and transmission housing is between the upper and lower marks on the oil gauge.

· Clean mud, debris, weeds, and oil stains promptly from the entire unit and its accessories.

· Complete the belief record.

◇2.2 Primary Maintenance (first 20 hours of operation)

② Perform maintenance on all internal kilns for each shift.

· Replace the engine and transmission oil.

· Check and adjust the clutch and gear shift system.

◇2.3 Secondary Maintenance (after 100 hours of operation)

· Replace the engine and transmission oil.

· Check the compression scale of the clutch compensation sleeve.

· For other components of the field management machine, such as rotary tiller blades or connecting bolts, replace them with new parts if damaged.

◇2.4 Technical Maintenance (200 hours of work)

① Disassemble the entire unit at a designated local service center for cleaning and inspection; severely worn parts must be replaced or repaired as necessary.

◆ 3. Technical Maintenance Schedule for the Agricultural Management Machine

(Items marked "✓ " indicate required maintenance tasks)

Operation gap / Maintenance Content	Each use	First month or 20 hours	Every three months or every 50 hours	Every six months or every 100 hours
Oil level check	✓			
Power Engine Oil Replacement		✓		✓
Box Oil Change		✓		✓
Air Filter Inspection	✓			
Clean the air filter			✓	
Check the tightness of the bolts and nuts.	✓			
Check the cable	✓			
Check the performance of the clutch lever.	✓			
Check of the clutch cable compensation sleeve		✓		✓
Remove dirt, weeds, and oil stains	✓			

◆4. Long-term storage of the agricultural management machine

When a field management machine needs to be stored for an extended period, the following measures should be taken to prevent sawing damage.

◇4.1 Clean the exterior surface of dust and dirt.

◇4.2 Drain the lubricating oil from the transmission box and add fresh oil.

◇4.3 Apply rust-proof oil to areas without paint on non-aluminum alloy surfaces.

◇4.4 Store the machine in a well-ventilated, dry, and safe indoor location.

◇4.5 Store all accompanying tools, product certificates of conformity, and user manuals properly.

VII. ADJUSTMENT METHODS AND DATA

◆1. Method for adjusting the separation cable

After prolonged use, the field management machine may experience poor clutch performance due to wear of the friction plates and clutch fork; in such cases, the clutch cable should be adjusted.

◇1.1 Clutch Cable Adjustment

◇1.1.1 Each machine must be equipped with a normally open clutch limit sleeve device; the use of ordinary clutch cables is strictly prohibited.

◇1.1.2 When adjusting the tension of the clutch cable, ensure the compression range of the small sleeve remains within the specified limits. When releasing the clutch lever in the operating position, the output shaft must stop within 2 seconds. If the compression range exceeds these limits, replace the clutch cable immediately.

◇1.1.3 When adjusting the clutch cable, set the adjustment screws on both the clutch fork arm and the clutch cable mounting bracket to the proper positions, then tighten the adjustment nuts.



(Work compression range: 2–4 mm)

ask：
After debugging all gear positions, press the clutch lever to compress the small

◆2. Method for adjusting the throttle cable

◇2.1 Adjust the throttle cable so that the throttle lever can be turned to both maximum and minimum positions, then tighten the throttle switch screw.

VIII. COMMON FAULTS AND TROUBLE-SHOOTING METHODS

1. Common Faults and Resolution Methods Table for Garden Management Devices:

phenomenon	cause	Exclusion Method
Gear shift not in place	The hexagonal screw on the gear shift fork shaft has broken.	Replace the hex screw
	The slider has worn out excessively.	Change the slider
	Wear on the gear shift fork shaft	Replace the gear shift fork shaft
	The internal positioning spring of the first axis has failed.	Replace the spring
	Deformation of the gear shift lever causes interference during gear shifting.	Calibrate the shift lever or replace it
clutch slip	The compensation sleeve is not compressed sufficiently.	Adjust the clutch cable
	Friction pad wear	Replace the clutch core assembly
	The clutch cable adjustment is too loose.	Adjust the clutch cable
Excessive gear noise	There is too little oil in the transmission.	Add oil
	Excessive side clearance due to excessive gear wear	Change the gear
Oil leakage from the incubation box	Oil seal damaged	Replace the oil seal (25*35*7)
	Paper pad is damaged	Replace the paper pad
Oil leakage from the transmission housing	The paper liner inside the box is damaged.	Replace the paper pad

surface		
Oil leakage at the clutch fork shaft	O-ring failure	Replace the O-ring with φ 9.5*2.65
Oil leakage at the gear shift shaft	Oil seal failure	Replace the oil seal (12*18*4)
Oil leakage at the flange connection.	The bolt at this location is loose.	Tighten the bolt at this location.
	The paper pad at this location is damaged.	Replace the paper pad

IX. LIST OF WEARABLE PARTS

order number	name	Associated Component
1	Clutch cable	Handrail Assembly
2	Throttle cable	Handrail Assembly
3	Throttle and Engine Stop Switch	Handrail Assembly
4	Rubber handle	gear-box
5	Shock-absorbing grip	Handrail Assembly
6	Extraction shaft oil seal	gear-box
7	oil plug	Components of the transmission box, driving box, and plowing box
8	Engine wear-prone components	Refer to the engine manual and the accompanying diagram booklet.

X. LIST OF ATTACHMENTS

order number	name	quantity	unit	use	remarks
1	350×100 walking wheels	1	assistant	The agricultural management machine is moving.	standard configuration
2	3 pieces of rotary tillage blades, divided into 3 groups	1	assistant	Rotary tillage operation	
3	6-piece trenching knife set	1	assistant	Trenching operation	
3	Resistance Bar	1	Item	Limit the depth of land cultivation	
4	driver's tool	1	assistant	For machine maintenance	
5	Rear Wheel Assembly	1	assistant	For trenching operations	