



PERFORMANCE · EFFICIENT · RELIABLE

HCR-110

Jumping Jack Tamper — Vibratory Tamping Rammer

OPERATION MANUAL

For your safety, BEFORE operating or servicing this machine, YOU MUST READ and STUDY this manual carefully. Keep this manual readily available for reference.

HCR-110 Product Identification	
Model	HCR-110 Vibratory Tamping Rammer
Product Type	Jumping Jack Tamper (Impact Rammer)
Power Source	4-Stroke Air-Cooled Gasoline Engine
Serial Number	_____

IMPORTANT: This manual contains important safety, operation, maintenance and product information. Read all instructions before operating this machine. Keep this manual with the machine at all times. The contents and data in this manual are subject to change without further notice.

Table of Contents

1. Preface
2. Intended Use & Features
3. Technical Parameters
4. Main Structure
5. Working Principle
6. Operation & Safety Precautions
7. Maintenance & Lubrication
8. Wearing Parts List
9. Certificate of Approval
10. Product Warranty
11. Contact Information

1. Preface

Thank you for choosing the STARVOX HCR-110 Jumping Jack Tamper (Vibratory Tamping Rammer). This manual will guide you through the correct handling, operation and maintenance procedures for your machine.

For your own safety and to protect against injury, carefully read, understand and observe all safety instructions described in this manual before operation. Following the operation requirements in this manual will keep the machine in the best condition and extend its service life.

Please read this manual carefully before use and keep it properly for future reference. With the continuing improvement of STARVOX products, there may be differences between the contents described in this manual and the actual product. The actual product prevails. If you have questions, contact your authorized STARVOX dealer.

Intended Use: The STARVOX HCR-110 is a vibratory impact rammer designed for compacting sandy soil, gravel, lime-soil (three-element mix) and various sandy soils. It is especially suitable for narrow sites such as indoor floors, courtyards and trenches, and can complete compaction tasks that large and medium-sized compaction machinery cannot accomplish. Do not use this machine for any other purpose.

2. Intended Use & Features

The STARVOX HCR-110 vibratory tamping rammer is manufactured in accordance with standard JC/T 5014.1-92. It features a compact structure, light weight, strong ramming force, high production efficiency, good contact performance, and flexible, simple, safe and reliable operation.

The machine is especially suitable for the compaction of sandy soil, gravel, three-element mix (lime-sand-soil) and various sandy soils, and is particularly suitable for construction in narrow sites such as indoor floors, courtyards and trenches, where it can accomplish compaction tasks that large and medium-sized compaction machinery cannot complete.

3. Technical Parameters

Item	HCR-110 Specification
Impact Frequency	250–750 times/min
Bouncing Height	40–70 mm
Impact Energy	56–90 N·m
Rated Power	2.2–3 kW
Travel Speed	10–13 m/min
Machine Weight	70–110 kg
Power Source	Gasoline engine, 4-stroke, air-cooled; Max power / rated speed: 5.5–6.5 Ps / 3600 rpm
Fuel Consumption	310 g/kW·h

Note: Specifications are based on the HCR series (HCR80–HCR125) as defined by the manufacturer; the HCR-110 lies within this range.

Packing Information

Item	Specification
Product Name	Jumping Jack Tamper (Tamping Rammer, 3-piece bundle set)
Model	HCR-110
Packing	3 pcs per bundle
Bundle Dimensions	1,360 × 880 × 1,160 mm (approx. 1.39 CBM)
Bundle Weight	230 kg gross / 210 kg net
Material	Q235 steel
Year of Manufacture	2026

4. Main Structure

The STARVOX HCR-110 vibratory tamping rammer mainly consists of the handle, engine, coupling, crankcase, transmission gear, connecting rod, push rod assembly, springs, inner and outer cylinders, ramming plate, dust cover and travel wheels.

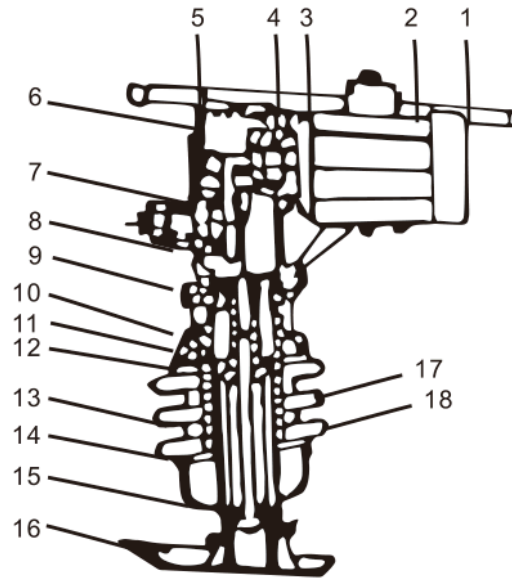


Figure 1 — HCR-110 Main Structure

No.	Part Name	No.	Part Name
1	Handle	10	Push Rod Assembly
2	Engine (Gasoline, 4-stroke)	11	Oil Filler Hole
3	Coupling	12	Outer Cylinder
4	Gear Shaft	13	Inner Cylinder
5	Crankcase	14	Spring
6	Crankcase Cover	15	Pressure Plate
7	Crank Gear	16	Ramming Plate
8	Connecting Rod	17	Travel Wheels
9	Coupling Pin Shaft	18	Dust Cover

5. Working Principle

During operation, the power of the engine is transmitted to the gear shaft through the coupling, which then drives the crank gear to rotate; the connecting rod drives the push rod to move up and down reciprocally. Due to the absorption and release of energy by the springs, the rammer jumps rapidly and delivers an impact to the soil to be compacted, thereby achieving the compaction effect.

In addition, since the machine body and the ramming plate are inclined at a certain angle, the rammer automatically moves forward while impacting rapidly.

6. Operation & Safety Precautions

(1) Requirements Before Operation

1. Operators should read this manual carefully and understand the operating essentials.
2. Check whether all parts of the machine are loose and whether the fastening bolts are tightened.
3. Check the engine oil level and the lubrication condition; add oil if insufficient.
4. Check the engine and its attachments: fuel level, air cleaner, spark plug cap and stop switch must be in good condition; make sure there is no fuel leakage.
5. Set the engine switch to the "ON" position, open the fuel valve, and close the choke (for cold start).
6. Start the engine with the recoil starter. After starting, let the engine run at low speed for 2–3 minutes to warm up, then open the throttle to the working position.

(2) Operation Requirements

1. Place the rammer on the flat ground to be compacted.
2. Control the engine with the engine switch and begin working.
3. During work, do not grip the handle too tightly; holding it just firmly enough to keep the machine from tipping and to control the travel speed and direction of the rammer will reduce vibration transferred to the operator.
4. During normal operation, do not press the handle down forcefully, so as not to affect the bouncing height of the rammer.
5. Turning the handle allows the rammer to advance in the required direction or turn on the spot.
6. When working on loose fill or going uphill, press the handle down slightly to increase the forward speed of the rammer.
7. This machine is a small compaction machine. Backfill should be compacted in layers, with each layer no thicker than 250 mm and compacted three passes (back and forth). In areas requiring extra compaction, apply several additional passes until the engineering requirements are met.
8. To move the rammer over a short distance, first lift the handle slightly upward, hook the travel wheels into the hooks, press the handle down so that the center of gravity tilts backward, and then push the rammer.

(3) Operation Precautions

WARNING: Failure to follow the safety instructions below may result in personal injury or equipment damage.

1. Refuel only with the engine stopped and cooled down. Do not smoke or use open flames near fuel. Wipe off any spilled fuel before starting the engine.
2. Operate the machine only in well-ventilated areas. Engine exhaust contains carbon monoxide — never run the engine in an enclosed space without ventilation.
3. Keep hands, feet and clothing away from all moving parts and from the hot muffler. The muffler remains hot after the engine is stopped.
4. Protect the rammer from moisture. Operating in the rain is strictly forbidden.
5. It is strictly forbidden to operate the rammer on concrete pavement or other rigid hard surfaces.
6. If any abnormal noise is found during operation, stop the machine immediately for inspection.

7. Maintenance & Lubrication

1. After each day's work, remove sand and attached debris from the ramming plate, keep the rammer clean, and check all bolts for looseness. When the machine is used for the first time, all fasteners must be thoroughly checked half an hour after work begins, and any loosened parts must be retightened promptly.
2. Add 0.8 kg of #10 engine oil before starting a new machine. Add 0.4 kg of engine oil for every 30 hours of operation; after changing the oil three times, change the oil once every 100 hours of operation. The oil drain hole is located at the lower part of the rammer, on the steel bowl.
3. The engine should be given special attention to moisture protection at all times.
4. Disassembly sequence of the machine:
 - First remove the ramming plate from the bottom, then remove the connecting nut (clip) at the lower part of the push rod assembly, and take off the bottom plate, spring and upper pressure plate.
 - Loosen the round lock nut of the dust cover and remove the inner cylinder and outer cylinder.
 - Use snap-ring pliers to remove the snap ring of the pin shaft, drive out the pin shaft, and remove the push rod.
 - Unscrew the fixing bolts on the crankcase cover, and drive the cover out from the crankcase body.
 - Remove the snap ring that fixes the crank gear and the cover with snap-ring pliers, then draw the crank gear out of the cover using two M8 bolts.
 - Remove the engine fixing bolts and take off the engine; remove the snap ring fixing the gear shaft and the crankcase with snap-ring pliers, then remove the gear shaft.
 - For assembly, follow the reverse order. Pay attention to the installation of the sealing parts at all connection points.

8. Wearing Parts List

No.	Name & Specification	Qty	Main Assembly Location	Standard
1	Single-Row Radial Ball Bearing 6204	1	Connecting Rod	GB276-93
2	Single-Row Radial Ball Bearing 6207	2	Crankcase / Crankcase Cover	GB276-93
3	Needle Bearing HK0322	1	Gear & Crankcase Cover	GB290-93
4	Single-Row Radial Ball Bearing 6206	1	Crankcase-to-Cover Connection	GB276-93
5	O-Ring 69.6 × 2.65	1	Oil Seal Seat	JB/T7757.2-95
6	O-Ring 94.6 × 3.55	1	Crankcase-to-Outer-Cylinder Connection	JB/T7757.2-95
7	O-Ring 74.6 × 3.55	1	Ramming-Plate-to-Inner-Cylinder Connection	JB/T7757.2-95
8	Oil Seal B42 × 62 × 8	1	Inside Oil Seal Seat	GB9877.1-98
9	Gear Shaft	1	Crankcase	—
10	Crank Gear	1	Crankcase	—
11	Coupling Pin Shaft	1	Push Rod / Connecting Rod	—
12	Spring (Set)	1	Inner Cylinder	—
13	Dust Cover	1	Inner & Outer Cylinder	—
14	Vibration-Damping Block	2	Handle	—
15	Push Rod Assembly	1	Inner Cylinder	—

9. Certificate of Approval

Product Model	HCR-110
Name	Jumping Jack Tamper (Tamping Rammer)
Factory Number	
Inspector	
Result of Inspection	This product has passed final inspection and is approved for delivery. Date: _____ Year ____ Month ____ Day

As our products are under continuous development, certain parts of the current product may differ from this manual. The actual product prevails; no further notice will be given.

10. Product Warranty

User / Company Name	
Detailed Address	
Telephone	Postal Code: _____
Equipment Model	HCR-110
Equipment No.	
Purchase Date	Warranty Period: _____
Invoice No.	
Seller Name	
Seller Signature (Seal)	User Signature (Seal)

11. Contact Information

Shanghai Junyuan International Trade Co., Ltd. | Brand: STARVOX Equipment
Email: service@starvox.com.cn