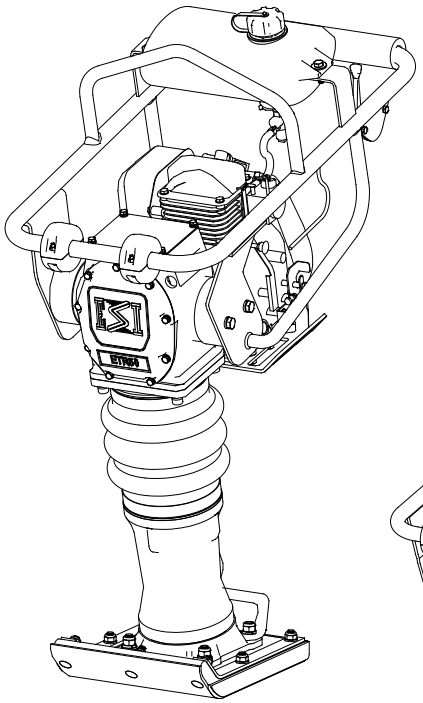
EQUIPMENT SYNERGY INTERNATIONAL

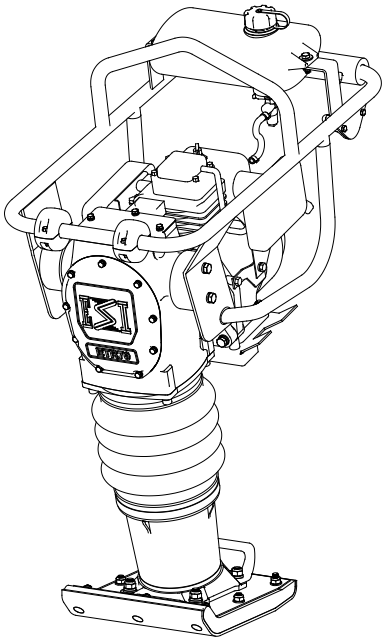
TÜVRheinland® Precisely Right.

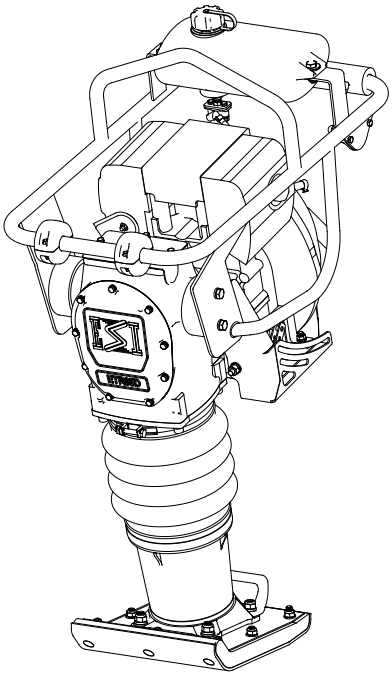
Certificate No. 31227/1

Certificate No. SG 94/03938

Rammers Range





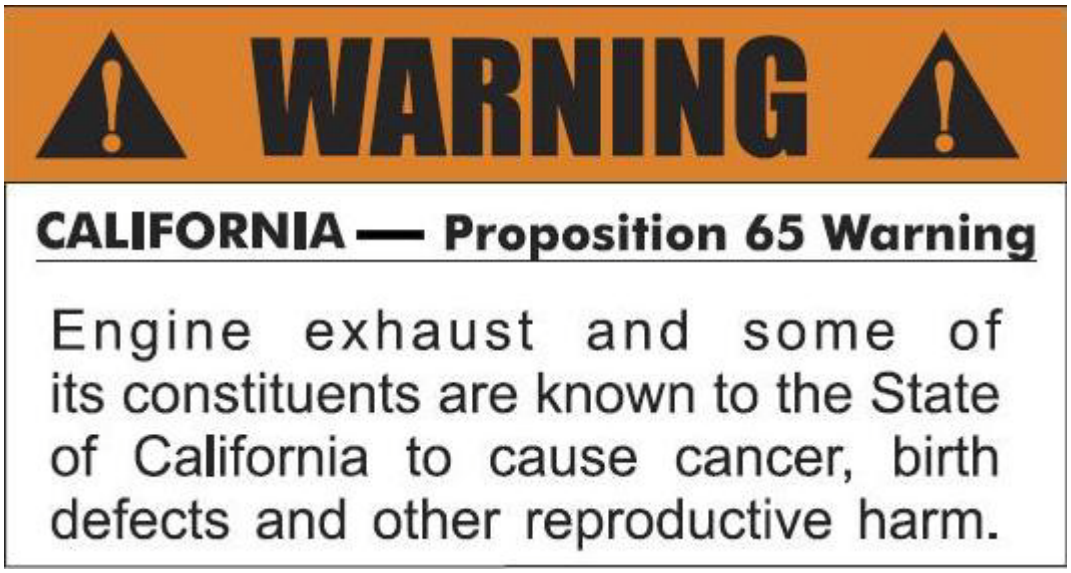


ETR50
ETR70
ETR85
Manual Version 1

Operator's Manual

Rammer

Rammer Proposition Warning



EC DECLARATION OF CONFORMITY / DECLARATION CE DE CONFORMITE / DECLARACIÓN DE CONFORMIDAD CE / DECLARAÇÃO CE DE CONFORMIDADE

GB/US

We, **ESI, 101 Gannaway Drive Suite #3 PO Box 997 Jamestown, NC 27282 USA**, hereby certify that if the product described within this certificate is bought from an authorized ESI dealer within the EEA, it conforms to the following directives: Machinery Directive 2006/42/EC, Electromagnetic Compatibility Directive 2004/108/EC (as amended by 92/31/EEC & 93/68 EEC). The physical agent (vibration) conforms with the directive 2002/44/EC. The low voltage directive 2006/95/EC, BS EN ISO 12100-1/2 Safety of machinery and associated harmonized standards, where applicable. Noise emissions conform to directive 2005/88/EC Annex VI), for machines under article 12 the notified body is **TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln, Germany.**

F

Nous soussignons, **101 Gannaway Drive Suite #3 PO Box 997 Jamestown, NC 27282 USA**, certifions que si le produit décrit dans ce certificat est acheté chez un distributeur de la marque déposée “ESI” au sein de la EEA, celui-ci est conforme aux norms CEE ci-après: Norme de la machine 2006/42/CE, Norme compatible pour l’électromagnétisme 2004/108/CE (modifie par 92/31/CEE et 93/68/CEE). Le nombre de vibrations est en accord avec la directive 2002/44/CE. Caractéristiques basse tension 2006/95/CEE, BS EN ISO 12100-1/2 , Norme de sécurité des machines et des critères associés et configurés, si applicable. Les émissions debruit sont conformes à la directive 2005/88/CE Annexe VI pour machines, article 12. L’objet mentionné est **TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln, Allemagne.**

E

La Sociedad**, 101 Gannaway Drive Suite #3 PO Box 997 Jamestown, NC 27282 USA**, por el presente documento certifica que si el producto descrito en este certificado es comprado a un distribuidor autorizado de ESI en la EEA, este es conforme a las siguientes directivas: 2006/42/CE de la CEE, Directiva 2004/108/CEE sobre Compatibilidad Electromagnética (según enmiendas 92/31/CEE y 93/68 CEE). El numero de vibraciones esta de acuerdo con la Directiva 2002/44/CE. Directiva sobre Bajo Voltaje 2006/95/CEE, BS EN ISO 12100-1/2 de Seguridad de Maquinaria y Niveles armonizados estándares asociados donde sean aplicables. Emisión de Ruídos conforme a la Directiva 2005/88/CE Anexo VI para máquinas bajo articulo 12 la mencionada unidad está **TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln, Germany.**

P

O signatário, **101 Gannaway Drive Suite #3 PO Box 997 Jamestown, NC 27282 USA**, pelo presente, declara que se o produto descrito neste certificado foi adquirido a um distribuidor autorizado do ESI em qualquer pais da EEA, está em conformidade com o estabelecido nas seguintes directivas comunitárias: 2006/42/CE, Directiva de Compatibilidade Electromagnética 2004/108/CEE (conforme corrigido pelas 92/31/EEC & 93/68 EEC). O numero de vibrações está de acordo com a directiva 2002/44/CE LB. A directiva de baixa voltagem 2006/95/CEE, BS EN ISO 12100-1/2 Segurança da maquinaria e às normas harmonizadas afins se aplicáveis. As emissões de ruido respeitam e estão dentro das directivas para máquinas 2005/88/CE Anexo VI, artigo 12, sendo o organismo notificado **TÜV Rheinland Product Safety GmbH - Am Grauen Stein – D-51105 Köln, Germany.**

PRODUCT TYPE……	**TYPE DE PRODUIT….**	**TIPO DE PRODUCTO..**	**TIPO DE PRODUCTO..**
MODEL……..	**MODELE……...**	**MODELO……...**	**MODELO……...**
SERIAL No……..	**Nº DE SERIE……..**	**Nº DE SERIE……**	**Nº DE SÉRIE……**
DATE OF	**DATE DE**	**FECHA DE**	**DATA DE**
MANUFACTURE…….	**FABRICATION……**	**FABRICACIÓN……**	**FABRIC……..**
WEIGHT……..	**POIDS……**	**PESO……**	**PESO……**

EQUIPMENT SYNERGY INTERNATIONAL

Signed by: Quality Manager - On behalf of ESI

Anita Tan

Foreword

This manual has been written to help you operate the ESI rammer safely. It is intended primarily for dealers and operators of ESI equipment. It is recommended that you keep this manual or a copy of it with the machine so that it is readily available for reference.

Before you operate or carry out any maintenance on this machine YOU MUST READ and UNDERSTAND this manual.

Should you have ANY QUESTIONS about the safe use or maintenance of this machine after reading this manual, ASK YOUR SUPERVISOR or CONTACT:
ESI Equipment Synergy International at 1-866-648-7101 (toll free)

ESI reserves the right to change machine specification without prior notice or obligation.

Safety Notation Explanation

Texts in this manual to which special attention must be paid are shown in the following way:

CAUTION

This CAUTION sign indicates a potential hazard, which if ignored, could result in injuries to the operator and/or those close by, as well as damaging the machine.

WARNING

This WARNING sign indicates a potential hazard, which if ignored could result in the DEATH of the operator and/or those close by.

Contents

Safety Information

For your own personal protection and for the safety of those around you, please read and ensure you fully understand the following safety information. It is the responsibility of the operator to ensure that he/she fully understands how to operate this equipment safely.

CAUTION

Improper maintenance can be hazardous. Read and understand this section before you perform any maintenance, service or repairs.

If you are unsure about the safe and correct use of the rammer, consult your supervisor or ESI.

General Safety

- This machine is heavy and must not be lifted single-handedly; either get help or use suitable lifting equipment.
- This machine is to be used for is intended application only.
- This machine must only be operated by well-trained personnel.
- The owner of this machine must observe, and train the user to observe, the effective laws of labor protection in the country of application.
- Personal Protective Equipment (PPE) must be worn by the operator whenever the equipment is being used.
- Cordon off the work area and keep members of the public and unauthorized personnel at a safe distance.
- This machine must be operated on ground where stability is guaranteed. When working near the rim of excavated trenches, use the machine properly so that the machine may not fall down or collapse the excavation.
- Make sure you know how to safely switch this machine OFF before you switch it ON in case you run into any difficulties.
- Always switch OFF the engine before servicing it.
- During use, the engine becomes very hot. Always allow the engine to cool down before touching it or adding fuel.
- Never leave the engine running and unattended.
- Never remove or tamper with any fitted guards; they are there for your own protection. If they are damaged or missing, DO NOT USE THE MACHINE until the guard has been replaced or repaired.
- Always switch OFF the engine before transporting it, moving it around site or servicing it.
- Do not operate the machine when you are ill, feeling tired or when under the influence of alcohol or drugs.
- This machine is designed to eliminate the possible risks arising from the use of it. However, risks DO reside, and these residual risks are not always clearly recognizable and may cause personal injury or property damage, and possibly death. If such unpredictable and unrecognizable risks

become apparent, the machine must be stopped immediately, and operator or his supervisor must take appropriate measure to eliminate such risks. It is sometimes necessary that the manufacturer must be informed of such an event for future countermeasures.

Fuel Safety

WARNING

Fuel is flammable. It may cause injury and property damage. Shut down the engine, extinguish all open flames and do not smoke while filling the fuel tank. Always wipe up any spilled fuel.

- Before re-fuelling, switch off the engine and allow it to cool.
- When re-fuelling, use a proper funnel, and avoid spilling over the engine.
- When re-fuelling, DO NOT smoke or allow naked flames in the area.
- Spilt fuel must be made safe immediately by using the appropriate absorbent. If fuel is spilt on your clothes, change them.
- Store fuel in an approved, purpose made container away from heat and sources of ignition.

Health & Safety

Dust

The compaction process can produce dust, which may be hazardous to your health. Always wear a mask that is suited to the type of dust being produced.

Fuel

Do not ingest fuel or inhale fuel vapors and avoid contact with your skin. Wash fuel splashes immediately. If you get fuel in your eyes, irrigate with a large amount of water and seek medical attention as soon as possible.

Exhaust Fumes

WARNING

The exhaust fumes produced by this machine are highly toxic and can kill!

Do not operate the rammer indoors or in confined spaces. Make sure the work area is adequately ventilated.

PPE (Personal Protective Equipment)

Suitable PPE must be worn when using this equipment i.e. safety goggles, gloves, ear defenders, dust mask and steel toe-capped footwear (with anti-slip soles for added protection). Wear clothing suitable for the work you are doing.

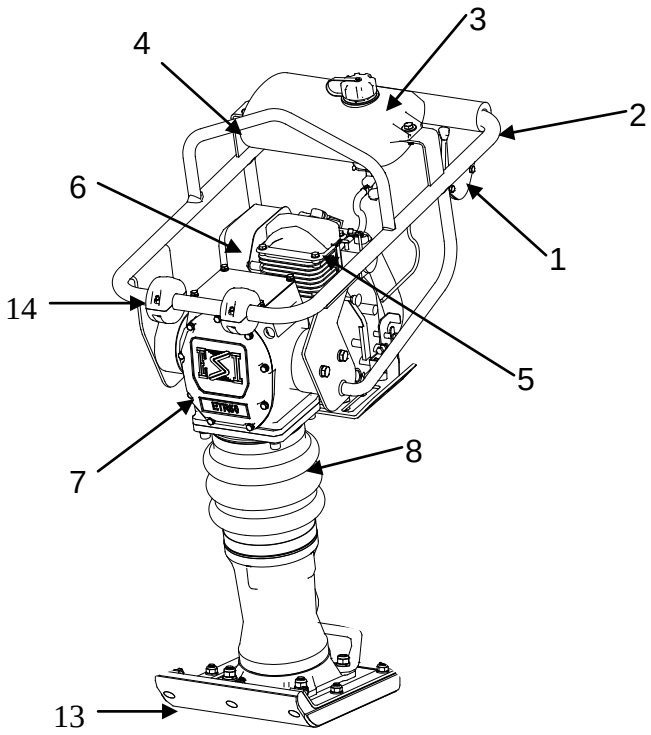
Environment

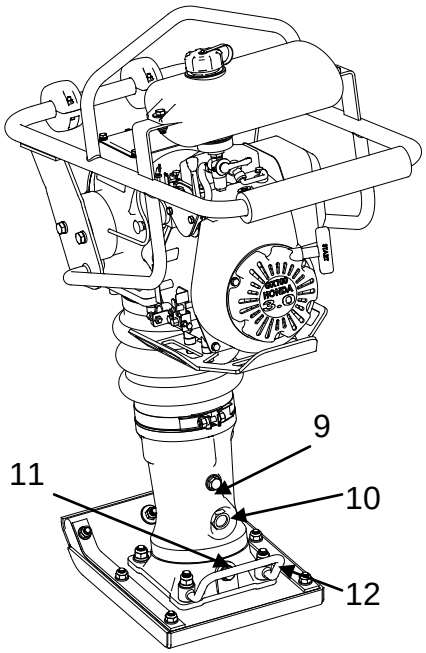
In order to protect the environment please recycle any discarded apparatus or accessories. The table beside provides you with a list of the machine's components and their respective materials. Take the discarded apparatus to the relevant recycling facilities.

Component	Material
Handle	Steel
Ramming Shoe	Plywood and Steel
Rubber Isolators	Rubber and Steel
Bellow	Urethane
Crankcase	Aluminum
Crankcase Cover	Aluminum
Gears	Steel
Engine	Steel and Aluminum
Various Parts	Steel and Aluminum

Machine Description

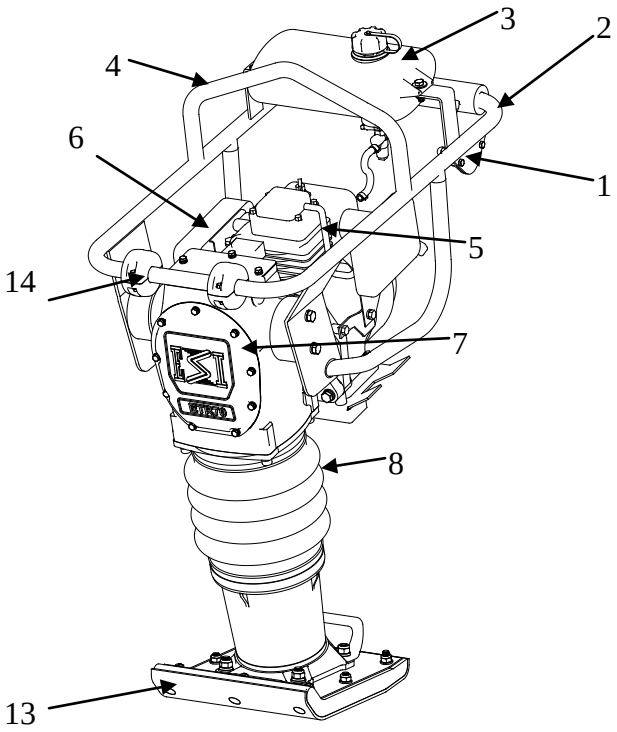
ETR50

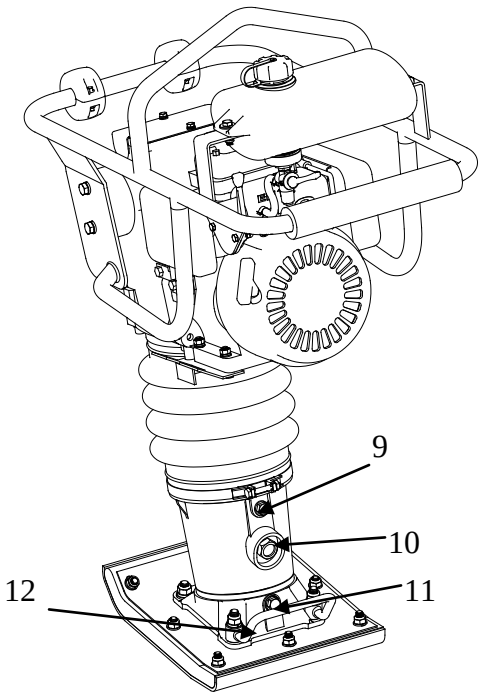




1. Throttle Lever
2. Operating Handle
3. Fuel Tank (Petrol)
4. Lifting Hook
5. Engine
6. Muffler
7. Nameplate
8. Bellow
9. Oil Bath Fill Plug
10. Oil Level Sight Glass
11. Drain Valve
12. Handle
13. Rammer Shoe
14. Roller

ETR70





1. Throttle Lever
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7. Nameplate
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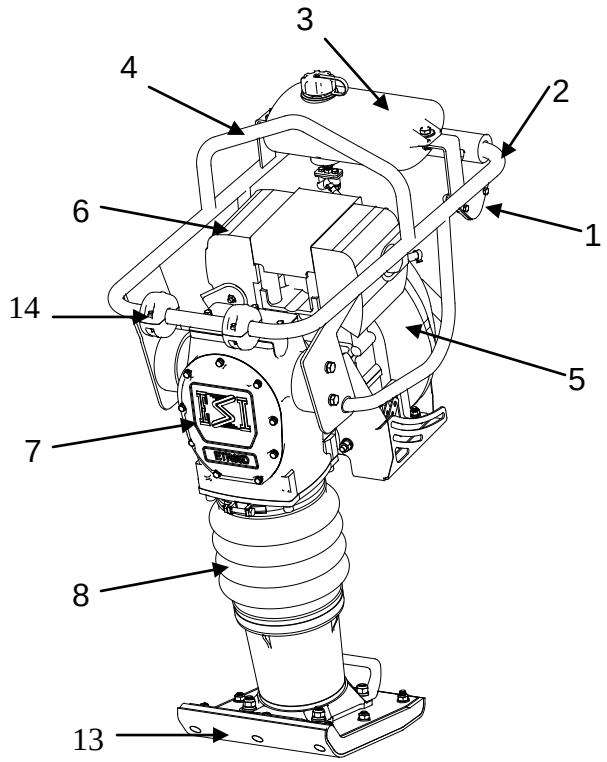
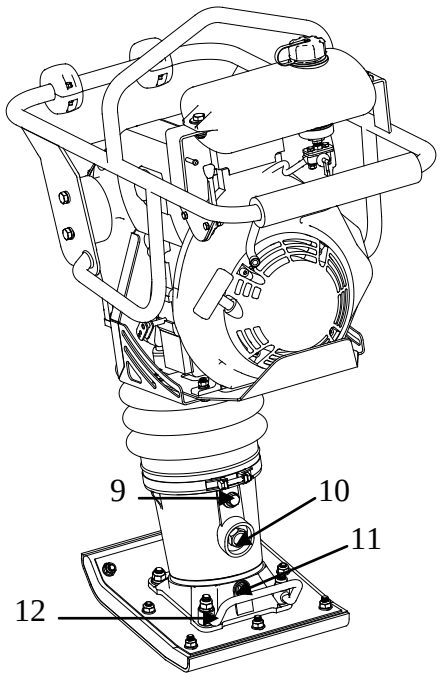
9. Oil Bath Fill Plug
10. Oil Level Sight Glass
11. Drain Valve
12. Handle
13. Rammer Shoe
14. Roller

ETR85





1. Throttle Lever
2. Operating Handle
3. Fuel Tank (Diesel)
4. Lifting Hook
5. Engine
6. Muffler
7. Nameplate
8. Bellow
9. Oil bath Fill Plug
10. Oil Level Sight Glass
11. Drain Valve
12. Handle
13. Rammer Shoe
14. Roller

Pre-Start Checks

The following Pre-start-up inspection must be performed before the start of each work session. Please refer to the service & maintenance section for detailed guidance. If any fault is discovered, the rammer must not be used until the fault is rectified.

1. Thoroughly inspect the machine for signs of damage.
2. Check hoses, filler openings, drain plugs and any other areas for signs of leakage. Fix any leaks before operating.
3. Check the engine oil level and top up as necessary.
4. Check the engine fuel level and top up as necessary. Use clean fuel. Use of contaminated fuel would damage the fuel system. Do not overfill fuel tank, this may cause fuel spillage.
5. Check that the air filter is clean. Excessive dirt/dust accumulation within the filter element will cause erratic engine operation. Clean the air filter element when it is contaminated. (See Service & Maintenance Section)
6. Check for fuel and oil leaks.
7. For Spring Cylinder Oil Bath System models, check the oil level through the oil level sight glass at the rear of the tamper foot.
8. If oil is not visible, add 10W-30 motor oil into the oil fill plug opening. NOTE: The oil level should be kept at the half way point of the sight glass.
9. Check all nuts, bolts fasteners for tightness. Retighten as necessary.
10. Clean any dirt from the recoil starter and foot pedestal. Wipe the entire unit clean before operating.
11. Replace any missing or damaged Safety Operation decals.

Start and Stop Procedure

CAUTION

Improper operation can be hazardous. Read and understand this section before you start the machine.

Before starting the engine, make sure that the Safety Switch is in the ON position and the Throttle Lever is set to the IDLE position. (Figure 1)

1. Open the fuel shut-off valve by moving the **fuel cock** lever to the **open** position. (Figure 2)

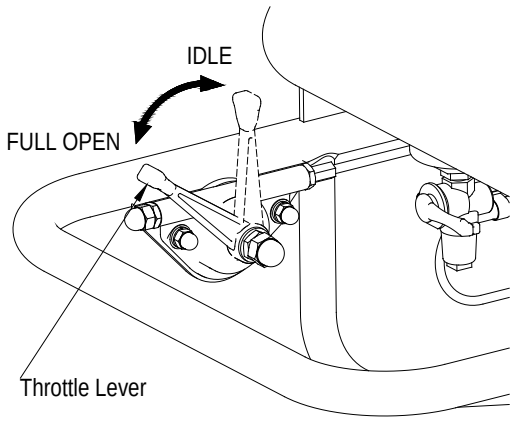


Figure 1

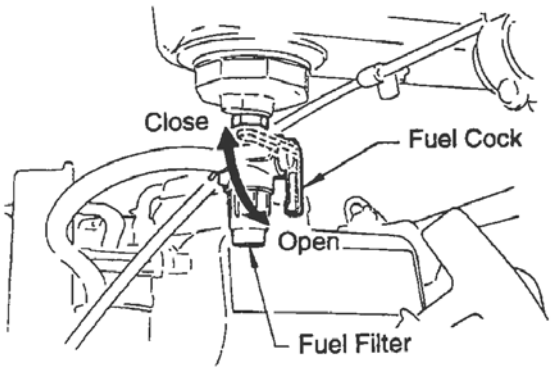


Figure 2

2. Set the engine ON/OFF switch to the "**ON**" position (Start). (Figure 3)

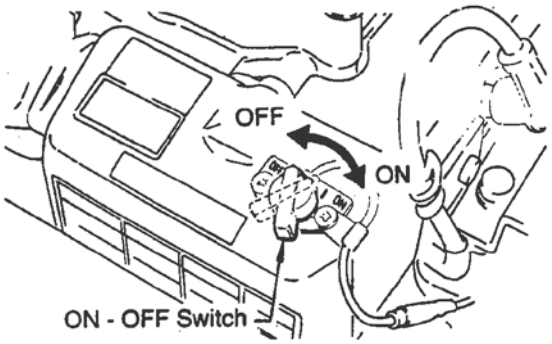


Figure 3

3. Set the throttle lever to the **STARTING** position (Halfway between HIGH and LOW position).

4. Close the choke lever (Figure 4). Turning the choke lever 90 degrees clockwise closes the choke. In cold weather, start the unit with choke fully closed. In warm weather or when the engine is warm, the unit can be started with choke halfway or completely open.

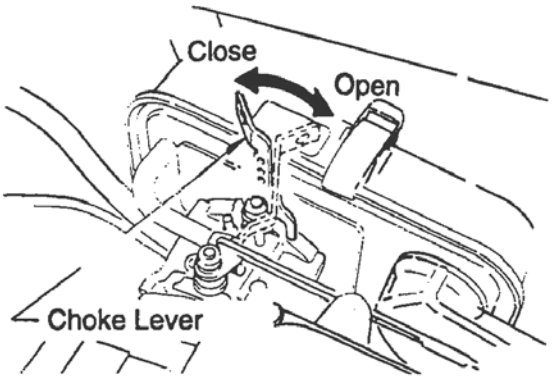


Figure 4

5. Grip the recoil starter (Figure 5) handle and pull it until you feel a slight resistance. Then pull sharply and quickly. Return the recoil starter handle to the starter case before releasing.

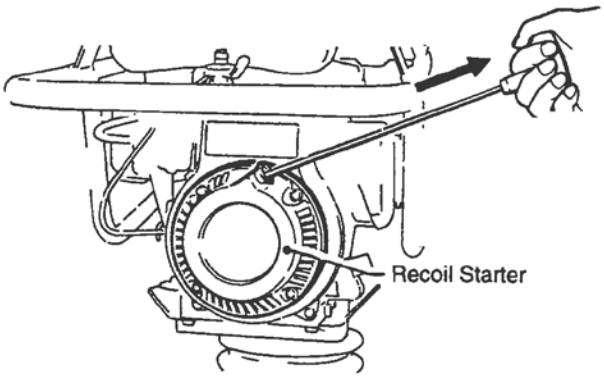


Figure 5

6. If engine fails to start, move the choke lever (Figure 4) to the half open position to avoid flooding.
7. Repeat steps 1 to 6.
8. If the engine does not start after repeated attempts, check the spark plug for excess fuel. Clean and replace the spark plug as needed.
9. Once engine has started successfully, let the engine warm up for a few minutes at idle speed if necessary.
10. To start the rammer tamping action, move the throttle lever (Figure 1) quickly from idle to the **FULL OPEN** position. **DO NOT** move the throttle lever slowly as this may cause damage to the clutch or spring.

CAUTION

Make sure the throttle lever is moved to the FULL OPEN position. Operating the rammer at less than full speeds can result in damage to the clutch spring's foot and will cause excessive wear to the clutch shoes and clutch drum.

11. For diesel engine, please refer to diesel engine user manual.
12. ESI rammers are designed to run up to 4,000rpm. At optimum rpm the foot hits at the rate of 600 to 715 blows per minute. Increasing throttle speed past the factory setting rpm does not increase impacts and may damage unit. The rammers are designed to advance forward while tamping. For faster advance, pull back slightly on the handle so that the rear of foot contacts soil first.
13. To stop the tamping action, move throttle lever quickly from the **FULL OPEN** to **IDLE** position.
14. To **STOP THE ENGINE**, move throttle lever quickly from the **FULL OPEN** to **IDLE** position (Figure 6) and run the engine for three minutes at low speed. After the engine ***cools***, turn the engine start/stop switch to the "**OFF**" position (Figure 3) until engine comes to a complete stop.

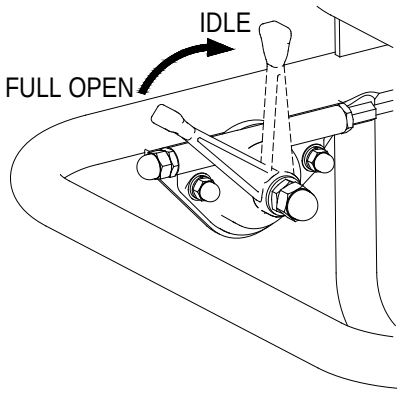


Figure 6

15. Close the fuel shut-off valve by moving the fuel cock lever to the **CLOSED** position. See Figure 2.

Operation

Having carried out the checks listed in the 'pre-start' section, you may start the engine.

The ESI rammers are fitted individually with a centrifugal clutch. This allows the engine to run at idle without driving the power transmission gears. As the engine speed is increased, the clutch will engage and the engine will drive the power transmission gears.

- To avoid damage to the centrifugal clutch, move the throttle lever quickly from the **IDLE** to **FULL OPEN** position. For correct operation, the engine speed should be set to maximum.
- Avoid operating the machine on a fully compacted, hard, or non-yielding surface. Otherwise, the power transmission gears will be damaged, and the life of the machine will be greatly reduced.
- When working in a narrow trench, if the ramming shoe should get caught between the walls of the trench, the rammer may miss-strike and can be severely damaged. The ramming shoe may especially be damaged severely.
- Be sure that the rammer is steered only with the handle. It should only be pushed. The rammer must not be pressed into the materials being compacted. Excessive pressure on the operating handle will lead to the unsatisfactory compaction due to the fact that the jumping action is hindered.
- If soil is so dry as to create dust clouds while operating the rammer, some moisture should be added to the ground material to improve compaction. This will also reduce service to the air filter.

Operation at High Altitude

For continuous High-Altitude operation above 1,000m (3,000FT), it will be necessary to change the engine main jet to a type that will allow for correct fueling of the engine. Otherwise, the unit will suffer from a lack of engine power and not work correctly. Please contact ESI for details.

Service and Maintenance

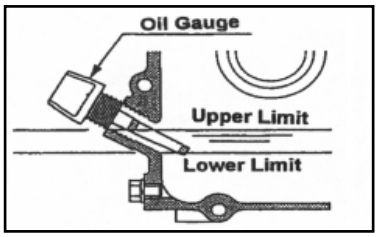
The ESI rammers are designed to give many years of trouble-free operation. It is, however, important that the simple regular maintenance listed in this section is carried out. It is recommended that an approved ESI dealer carry out all major maintenance and repairs. Always use genuine ESI replacement parts, the use of non-genuine ESI parts may void your warranty. Before any maintenance is carried out on the machine, switch off the engine and disconnect the spark plug. Always set the machine on level ground to ensure any fluid levels will be correctly read. Only use recommended oils.

Servicing the Engine

Service the engine according to the engine manufacturer's specifications. Refer to the engine operation and maintenance manual.

Maintenance: Every 8 hours or daily

1. Check for loose bolts and nuts, retighten if necessary.
2. Check and clean air filter element, service the element according to the engine manufacturer's recommendations. If operating conditions are unusually dusty and severe, filter element cleaning should be done more frequently.
3. Check oil level in crankcase of engine and replenish as necessary. Check oil level in the ramming cylinder as per following procedures.
   - Make sure that the machine has not been run in the last 10 minutes.
   - Set the machine on a level surface and remove the oil plug.
   - The top surface of the oil must be seen just below the lower rim of the hole for oil sight glass. Replenish as necessary.



NOTICE: Care should be taken not to overfill the rammer with oil. Overfilling will cause excessive load on the engine, which may result in poor or irregular vibration.

Maintenance: Every 50 hours or weekly.

Check for loose bolts and nuts. Retighten if necessary.

Maintenance: Every 450 – 500 hours.

Change the ramming cylinder oil. Do not overfill.

Fuel & Lubricant

Model	Fuel		Engine Crankcase		Ramming Cylinder	
	Type	Capacity	Type	Capacity	Type	Capacity
ETR50	Unleaded gasoline	3 L	SAE 10W - 40	300 ml	SAE 10W - 40	500 ml
ETR70				400 ml		900 ml
ETR85	Diesel			0.75 ml		

If you are operating the rammer in an extreme temperature then select the proper engine oil for that temperature. In that case same oil may be used in both the engine crankcase and the ramming cylinder.

Transportation and Storage

Lifting

Where it is necessary to use lifting equipment to position the rammer, check and confirm that the rubber mounts on the operation handle is not damaged or cracked. If they are, replace the rubber mounts before attempting to lift the unit.

Also make sure that the lifting equipment has a **WLL (Working Load Limit)** suitable for the rammer's weight. Attach suitable chains or slings **ONLY** to the lifting point on top of the rammer operating handle.

NEVER leave the engine running whilst transporting or moving the rammer, even if it is only a short distance.

Transportation

When transporting or storing the unit, place the unit in an upright position if at all possible. Should the unit be required to be laid down, **NEVER** lay the unit in a manner where the air cleaner is facing downwards. Otherwise, the oil in the cylinder may get into the combustion chamber or in the air cleaner, which may result in starting difficulties. Laying the unit forward (the crankcase cover facing downwards) may not cause any spill of the engine oil into the cylinder or air cleaner of the engine. However, if the engine is still hot, spilt fuel on the engine may cause a fire.

CAUTION

Wait until the unit is completely cool before laying it down.

Long Term Storage

For long-term storage, empty the fuel in the carburetor by running the engine with the fuel valve being closed. (Figure 7)

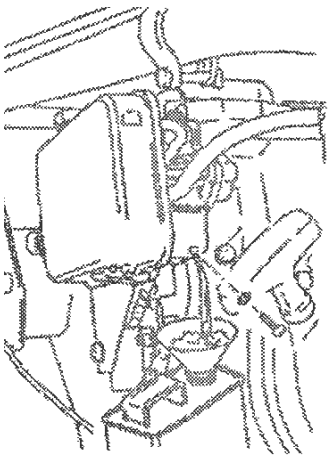


Figure 7

The chemical composition of the fuel will deteriorate after prolonged storage. When the machine needs to be stored for a long time, remove all the fuel from the fuel tank and the fuel line. Also remove the fuel from the float chamber of the carburetor by draining the fuel out from the drain plug.

- Clean up oil and dust accumulation on rubber parts.
- Clean the base plate and apply a light coating of oil to prevent rust formation.
- Cover the machine and store in a dry place.

Trouble Shooting

Problems	Possible Causes	Countermeasures
Engine will not start.	1. No fuel. 2. Fuel valve has been closed. 3. Engine is turned off. 4. Contaminated/damaged spark plug. 5. Faulty carburetor.	1. Fill fuel tank. 2. Open fuel valve. 3. Turn engine ON. 4. Replace spark plug. 5. Service the carburetor.
Engine stops suddenly or stops when the engine rpm is increased.	1. See above. 2. Main jet of the carburetor is clogged with dirt. 3. Air filter element is dirty. 4. Spark plug cap is loose.	1. See above. 2. Take out main jet of the carburetor and clean with an air gun. 3. Clean the element. 4. Tightly fit cap to the plug.
Engine runs but unit does not produce impact.	1. Lack of engine power. 2. Clutch is slipping. 3. Power transmission gears are damaged.	1. See above. 2. Dismantle clutch assembly, clean shoe and drum with proper solvent. Replace clutch shoe if necessary. 3. Contact dealer.

Technical Data

MODEL	ETR50H	ETR70RF
DIMENSION (LxWxH) - in (mm)	28.9 x 15.4 x 40.2 (733 x 390 x 1,022)	770 x 410 x 1,067 (30.3 x 16.1 x 42.0)
OPERATING WEIGHT - lbs (kg)	121 (55)	78 (172)
SHOE SIZE (LxW) - in (mm)	13.1 x 10.8 (333 x 275)	335 x 285 (13.2 x 11.2)
STROKE - in (mm)	2.8 (70)	80 (3.1)
IMPACT FORCE - lb (kg)	2,205 (1,000)	1,600 (3,527)
BLOWS PER MINUTE	600 - 650	630 - 680
TRAVEL SPEED - ft/min (m/min)	32.8 - 42.7 (10 - 13)	9 - 12 (29.5 - 39.4)
COMPACTED AREA - ft²/h (m²/h)	2,799 (260)	300 (3,229)
FUEL TANK CAPACITY - gal (ltr)	0.8 (3)	
ENGINE	HONDA GX100	ROBIN EH12-2D
ENGINE TYPE	4-STROKE GASOLINE	
MAX. POWER OUTPUT - kW (hp)	GX100 @ 2.1 (2.8)	EH12-2D @ 2.9 (4.0)

MODEL	ETR85D
DIMENSION (LxWxH) - in (mm)	30.4 x 16.1 x 42.8 (771 x 409 x 1,086)
OPERATING WEIGHT - lbs (kg)	192 (87)
SHOE SIZE (LxW) - in (mm)	13.2 x 11.2 (335 x 285)
STROKE - in (mm)	3.2 (82)
IMPACT FORCE - lb (kg)	3,968 (1,800)
BLOWS PER MINUTE	650 - 700
TRAVEL SPEED - ft/min (m/min)	26.2 - 36.1 (8 - 11)
COMPACTED AREA - ft²/h (m²/h)	3,337 (310)
FUEL TANK CAPACITY - gal (ltr)	0.8 (3)
ENGINE	HATZ 1B20
ENGINE TYPE	4-STROKE DIESEL
MAX. POWER OUTPUT - kW (hp)	3.1 (4.2)

Warranty

Your new ESI rammer is warranted to the original purchaser for a period of one-year (12 months) from the original date of purchase.

The ESI warranty covers defects in design, materials and workmanship.

The following are not covered under the ESI warranty:

1. Damage caused by abuse, misuse, dropping or other similar damage caused by or as a result of failure to follow assembly, operation or user maintenance instructions.
2. Alterations, additions or repairs carried out by persons other than ESI or their recognized agents.
3. Transportation or shipment costs to and from ESI or their recognized agents, for repair or assessment against a warranty claim, on any machine.
4. Materials and/or labor costs to renew, repair or replace components due to fair wear and tear.
5. The engine, air filter and the engine spark plug. The engine will be warranted by the engine manufacturer. Please contact the nearest engine dealer for engine warranty.

Liability

ESI declines any liability for possible damages to persons and/or things, which might arise from improper or wrong use of the machine or non-observance of the operating instructions in this manual.

ESI and/or their recognized agents, directors, employees or insurers will not be held liable for consequential or other damages, losses or expenses in connection with or by reason of or the inability to use the machine for any purpose.

Warranty Claims

All warranty claims should firstly be directed to the local dealer, either by telephone, by fax, by email, or in writing.

USE ONLY GENUINE ESI PARTS AND ACCESSORIES!

For your own safety, the safety of others and the life of the machine.

Notes

Notes

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Certificate No. 31227/1

Certificate No. SG 94/03938

EQUIPMENT SYNERGY INTERNATIONAL

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