

DYNAPAC

Vibratory Rammer LT5000/6000/7000

Operation & Maintenance ILT6000EN3, January 2004

Petrol Engine:

Honda GX100 (LT5000)

Honda GX100 (LT6000)

Honda GX120 (LT7000)

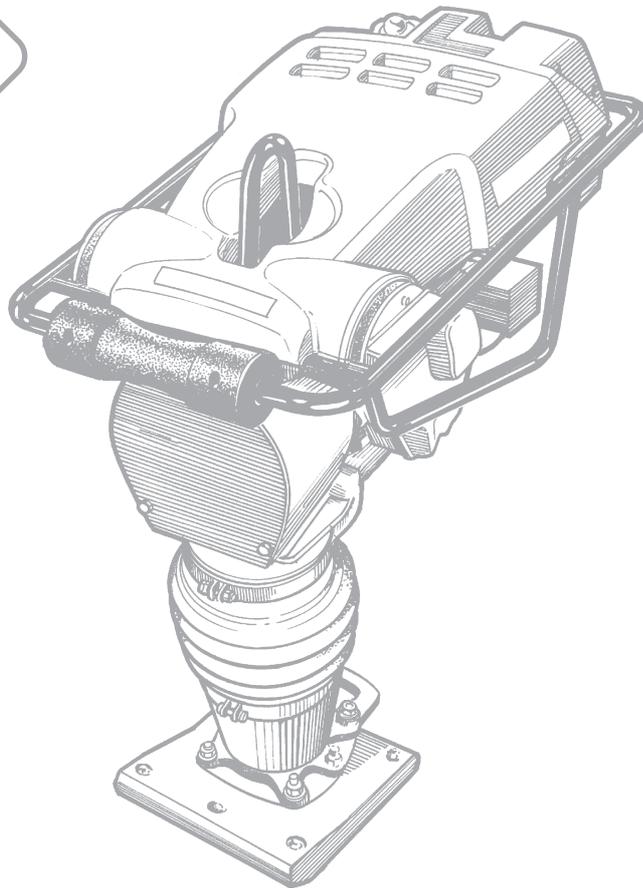
These instructions apply from:

LT5000 PIN (S/N) *75100020*

LT6000 PIN (S/N) *76100020*

LT7000 PIN (S/N) *77100020*

KEEP THIS MANUAL
AVAILABLE FOR
FUTURE USE



Dynapac's LT5000/6000/7000 tampers are suitable for compacting soil in trenches, around poles and in restricted spaces. It has been designed to comply with contractors' highest demands in terms of efficiency, simplicity and operators comfort.

The LT tampers are designed for operation in well ventilated spaces, as all combustion engine machines.

CONTENTS

	Page
General	3
Machine plate	3
Safety instructions (For all Light products)	4-6
Safety decals, location/description	7, 8
Fuel and lubricants	9
Technical data	10
Technical data – Dimensions	11
Operation	12-14
Instructions for lifting	15
Long time storage	15
Maintenance – Service points	16, 17
Maintenance – Every 10 hours of operation	18
Maintenance – Every 100 hours of operation	19
Carburettor – LT5000/6000	20
Carburettor – LT7000	21
Maintenance – Every 500 hours of operation	22
Troubleshooting	23

WARNING SYMBOLS

WARNING



WARNING: Indicates danger or hazardous procedure that could lead to serious or mortal injury if the warning is neglected.

CAUTION



CAUTION: Indicates danger or hazardous procedure that could lead to machine or property damage if the warning is neglected.

SAFETY INSTRUCTIONS

WARNING



The safety instructions are included in this manual and must be studied by the operator. Always follow the safety rules and keep the manual available for future use.

WARNING



Read through the entire manual before starting any maintenance operations.

WARNING



Ensure good ventilation (air extraction) if the engine is run indoors.

GENERAL

It is important that the machine is maintained correctly to ensure proper function. It should be kept clean so that any leakage, loose bolts and loose connections can be discovered in time.

Make a habit of inspecting the machine every day before starting up by checking all round it to detect any sign of leakage or other faults.



SPARE A THOUGHT FOR THE ENVIRONMENT!
Do not let oil, fuel and other environmentally hazardous substances contaminate the environment. Always dispose of used filters, drained oil and any remaining fuel properly.

This manual contains instructions for periodic attention which should normally be carried out by the operator.

CAUTION

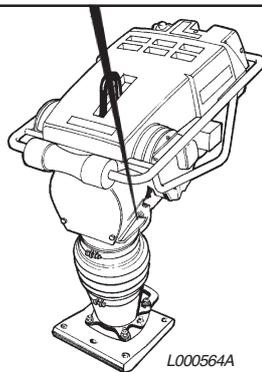


There are additional instructions relating to the engine, for which the manufacturer's instructions are detailed in the engine manual.

MACHINE PLATE

Fill in all data below, when delivering and commissioning the machine.

DYNAPAC 			
Metso Dynapac AB Box 504, SE-371 23 Karlskrona Sweden			
Type	Operating mass kg	Rated Power kW	Year of Mfg
Product Identification Number			
			358090SE



.....
Engine Model

.....
Engine Number

SAFETY INSTRUCTIONS (FOR ALL LIGHT PRODUCTS)

Symbols

The signal words WARNING and CAUTION used in the safety instructions have the following meanings:

WARNING



WARNING: Indicates danger or hazardous procedure that could lead to serious or mortal injury if the warning is neglected.

CAUTION



CAUTION: Indicates danger or hazardous procedure that could lead to machine or property damage if the warning is neglected.

Important rules for your safety

WARNING



The machine must not be modified without the prior consent of the manufacturer. Use only original parts. Use only the accessories recommended by Dynapac. If modifications not approved by Dynapac are carried out, these could result in serious injury to yourself or other personnel.

- These recommendations are based on international safety standards.
- You must also observe any local safety regulations which may be in force. Read all instructions carefully before operating the machine. Keep the instructions in a safe place.
- Signs and stickers giving important information about safety and maintenance are supplied with every machine. Make sure that they are always legible. The ordering numbers for new stickers can be found in the spare parts list.
- Use of the machine and its accessories is restricted to the applications specified in the product literature.
- For reasons of product safety, the machine must not be modified in any way.
- Replace damaged parts immediately. Replace all wear parts in good time.

Be alert

Always pay attention to what you are doing, and use your common sense. Do not use the machine if you are tired or under the influence of drugs, alcohol or other substances which can affect your vision, reaction ability or judgement.

Safety equipment

WARNING



Long exposure to loud noise without ear protectors can cause permanent damage to hearing.

WARNING



Long exposure to vibrations can damage the hands, fingers and wrists. Do not use the machine if you experience discomfort, cramp or pain. Consult a doctor before resuming work with the machine.

Always use approved safety equipment. The operator, and people in the immediate vicinity of the working area, must wear:

- Safety helmet
- Safety goggles
- Ear protectors
- Dust mask in dusty environments
- High-visibility clothing
- Protective gloves
- Protective shoes

Avoid wearing loosely fitting clothing that might get caught in the machine. If you have long hair, cover it with a hair net. Vibrations from hand-held machines are transmitted into the hands via the handles of the machine. Dynapac's machines are equipped with vibration-relieved handles. Depending on operation, the course and duration of exposure, the recommended limit values for hand and arm vibration can be exceeded. Take suitable measures as required, eg, wear protective gloves, and do not vibrate already compacted material.

Be alert to acoustic signals from other machines in the working area.

Working area

Do not use the machine near flammable material or in explosive environments. Sparks can be emitted from the exhaust pipe, and these can ignite flammable material. When you take a pause or have finished working with the machine, do not park it on or near flammable materials. The exhaust pipe can get very hot during operation, and can cause certain material to ignite. Make sure that there are no other personnel inside the working area while the machine is in use. Keep the worksite clean and free of extraneous objects. Store the machine in a safe place, out of unauthorized's reach, preferably in a locked container.

SAFETY INSTRUCTIONS (FOR ALL LIGHT PRODUCTS)

Filling with fuel (Gasoline/diesel)



Petrol has an extremely low flash-point and can be explosive in certain situations. Do not smoke. Make sure that worksite ventilation is good.

Keep away from all hot or spark-generating objects when handling fuel. Wait until the machine has cooled before filling the tank. Fill the tank at least 3 metres away from where you intend to use the machine. Avoid spilling petrol, diesel or oil on the ground. Protect your hands from contact with petrol, diesel and oil.

Open the tank cap slowly to release any overpressure that might exist in the tank. Do not overfill the tank. Inspect the machine for fuel leakage regularly.

Do not use a machine that is leaking fuel.

Starting the machine



Before starting read instruction book and make your self familiar with the machine and make sure that:

- All handles are free from grease, oil and dirt.
- The machine does not show any obvious faults.
- All protective devices are securely fastened in their places.
- All control levers in "neutral" position.

Start the machine according to the instruction-book.

Operation



Keep your feet well clear of the machine.



Do not operate the machine in poorly ventilated spaces. There is a risk of carbon monoxide poisoning.

Use the machine only for the purpose for which it is intended. Make sure you know how to stop the machine quickly in the event of an emergency situation.



Always take extreme care when driving the machine on slopes. Always drive straight up and down on slopes. Do not exceed the maximum gradability of the machine according to the instruction book. Stay clear of machine when operating on a slope or in a trench.

Do not touch the engine, the exhaust pipe or the eccentric element of the machine. They gets very hot during operation and can cause burn injuries.

Do not touch V-belts or rotating parts during operation.

Parking

Park the machine on ground as level and firm as possible. Before leaving machine:

- Apply the parking brake.
- Shut off the engine and pull the ignition key out.

Loading/Unloading



Never remain under or in the immediate vicinity of the machine when it is lifted by a crane. Only use marked lifting points. Always make sure that all lifting devices are dimensioned for the weight of the products.

Maintenance

Maintenance work must only be carried out by skilled personnel. Keep unauthorized persons away from the machine. Do not carry out maintenance work while the machine is moving or the engine is running.

SAFETY INSTRUCTIONS (FOR ALL LIGHT PRODUCTS)

Working with the hydraulic system

Regular maintenance of the hydraulic system is important. Minor damage or a split hose or coupling can have devastating consequences. Bear in mind that the hydraulic hoses are made of rubber and can deteriorate with age, which can result in splitting. In all cases of uncertainty with regard to durability or wear, replace the hoses with new original hoses from Dynapac.

Working with battery

The battery contains poisonous and corrosive sulphuric acid. Wear protective glasses and avoid getting acid on your skin, clothes or on the machines. If you get sulphuric acid on yourself, rinse the skin with water. If you get acid in your eyes, rinse them with water for at least 15 minutes and seek immediate medical treatment. The gas that is emitted by the battery is explosive. When fitting or replacing a battery, always take care so that you do not short-circuit the battery poles.

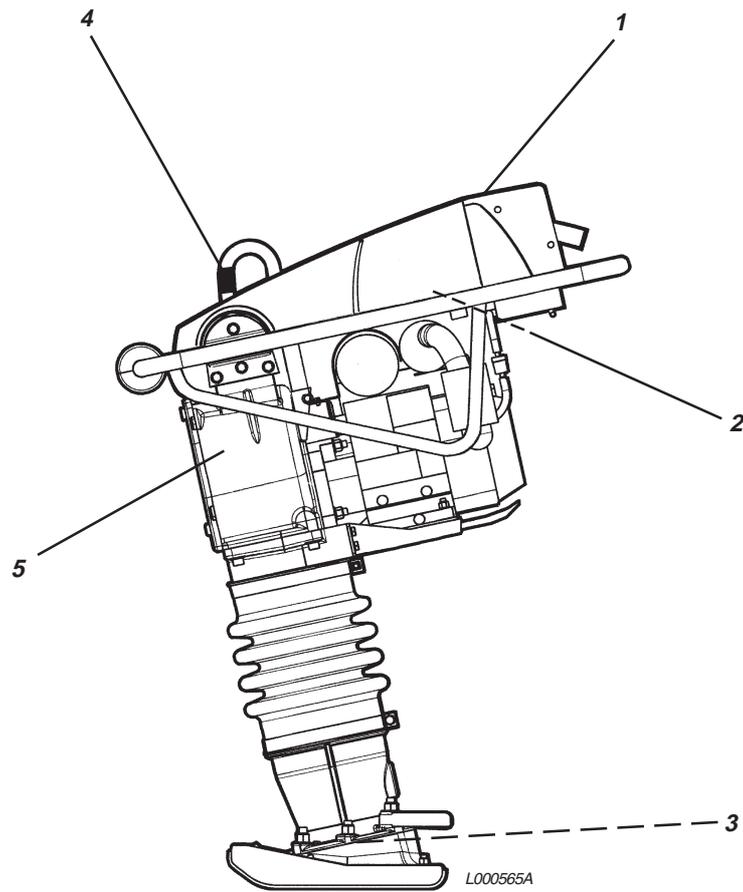
Repair

Never use a machine that is damaged. Qualified repair work requires trained personnel, please contact your nearest authorized workshop.

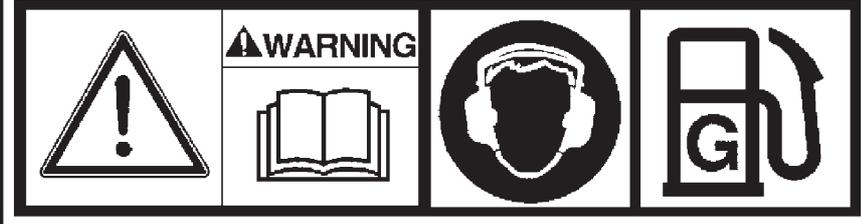
Extinguishing fires

If there is a fire in or on the machine, it is best to use an ABE-class fire extinguisher. However, a BE-class CO₂ extinguisher is also suitable.

SAFETY DECALS, LOCATION/DESCRIPTION



SAFETY DECALS, LOCATION/DESCRIPTION

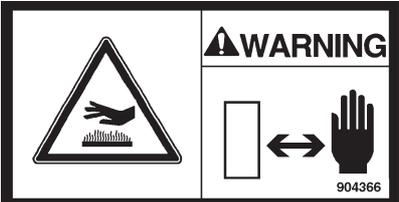
1. 

The operator is urgently requested to read the safety manual, and the operation and maintenance instructions before using the machine.

Use ear protectors

Fuel

DYNAPAC
385495

2. 

904366

Warning: hot surfaces in the exhaust system. Do not touch the exhaust silencer

3. 

791088

Compressed spring assembly. Read the service manual.

4. 

281269

Lifting point

5. 

791292

LWA

104 dB

Guaranteed Sound Power level (LT5000/6000)

5. 

791295

LWA

107 dB

Guaranteed Sound Power level (LT7000)



When transporting the machine in a horizontal position, it is essential that no fuel leaks out. If necessary, empty the fuel tank prior to transportation.

FUEL AND LUBRICANTS

	ENGINE OIL	Use SAE 15W / 40: 0,4 lit. (0.4 qts) Shell Universal Engine Oil TX15W-40 or equivalent
	RAMMING CYLINDER OIL	Use SAE 10W / 30: 0,9 lit. (0.9 qts) Shell Universal Engine Oil TX15W-40 or equivalent LT5000 0,6 lit. (0.6 qts) Shell Universal Engine Oil TX15W-40 or equivalent
	FUEL	Use normal quality gasoline (unleaded): 2,5 lit. (2.6 qts)

WARNING



Stop the engine before refilling the fuel tank. Never refuel near an open flame or sparks which could start a fire. Don't smoke. Use pure fuel and clean filling equipment. Take care not to spill fuel.

Spare parts for service (spare part number)	LT 5000/6000 Honda GX100	LT 7000 Honda GX120
Air filter for engine	93 89 32	93 62 64
Fuel filter for engine	93 54 38	93 54 38
Spark plug	93 89 34	92 48 42

TECHNICAL DATA

	LT5000	LT6000	LT7000
Weight			
Operating weight, kg (lbs)	63 (139)	69 (152)	78 (172)
Compaction data			
Vibr. frequency, Hz	12	12	12
Vibr. frequency, vpm	720	720	720
Length of stroke, mm (in)	50-60 (2.0-2.4)	65-75 (2.6-3.0)	70-80 (2.8-3.1)
Operating data			
Speed of travel, m/min (feet/min)	15-18 (49-59)	15-18 (49-59)	15-18 (49-59)
Volumes			
Fuel tank, lit. (qts)	2,5 (2.6)	2,5 (2.6)	2,5 (2.6)
Engine, lit. (qts)	0,3 (0.3)	0,3 (0.3)	0,4 (0.4)
Ramming cylinder, lit. (qts)	0,6 (0.6)	0,9 (0.9)	0,9 (0.9)
Fuel consumption, l/h (qts/h)	0,69 (0.73)	0,69 (0.73)	0,87 (0.92)
Engine			
Model	Honda GX100 Manual start	Honda GX100 Manual start	Honda GX120 Manual start
Output, kW (hp)	2,2 (3.0)	2,2 (3.0)	2,9 (3.9)
Engine speed, vpm	3800-3900	3800-3900	3600-3700
Idling	1600-1900	1600-1900	1400-1600

Noise and Vibrations

The following sound levels and vibration levels are determined based on the operating cycle on a macadam course as described by EU directive 2000/14/EC.

Guaranteed acoustic power level

L_{WA} dB (A)	104	104	107
-----------------	-----	-----	-----

Sound-pressure level at the operator's ear (ISO 6396)

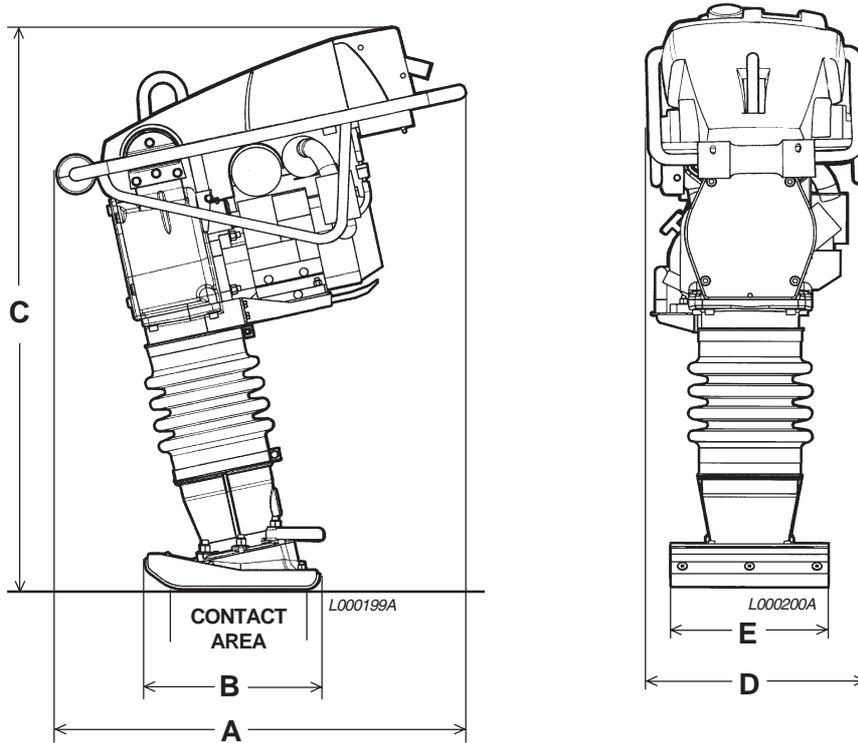
L_{pA} dB (A)	91	91	96
-----------------	----	----	----

Hand and arm vibration (ISO 5349-1)

a_{hv} m/s ²	7	7	11
---------------------------	---	---	----

These values may differ during operation due to the specific operational conditions.

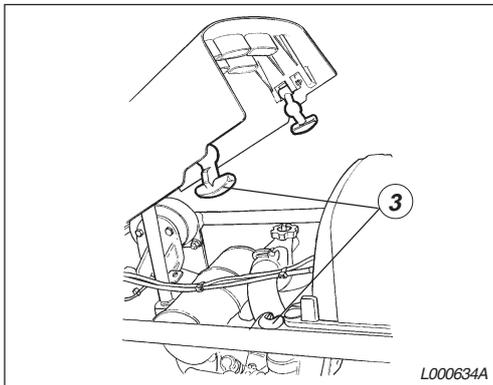
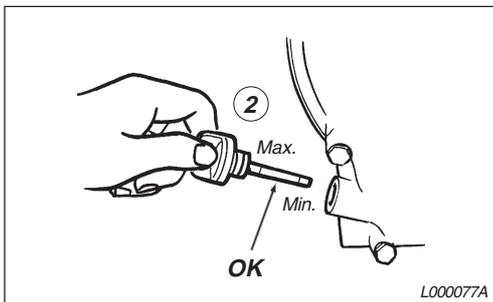
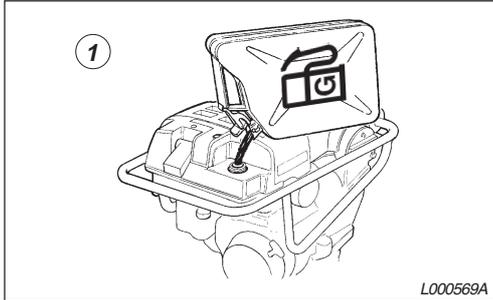
TECHNICAL DATA – DIMENSIONS



	LT5000	LT6000	LT7000
A mm (in)	810 (31.9)	810 (31.9)	810 (31.9)
B mm (in)	330 (13)	330 (13)	330 (13)
C mm (in)	1030 (40.5)	1074 (42.3)	1074 (42.3)
D mm (in)	422 (16.6)	422 (16.6)	422 (16.6)
E mm (in)	150 (5.9)	230 (9.1)	280 (11)
Contact area, m² (sq feet)	0,034 (0.37)	0,053 (0.57)	0,065 (0.70)

OPERATION

Before start

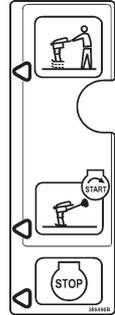


1. Fill the fuel tank.
Tankvolume 2,5 lit. (2.6 qts)

① Working mode

② Start/Idling

③ Stop/Transport/
Refuel

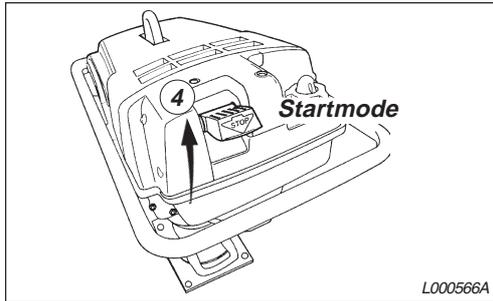


2. Check the oil level in the engine while the tamper is upright.

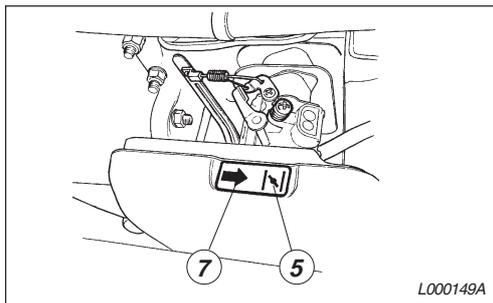
3. Check that the hood is locked.

OPERATION

Starting the engine

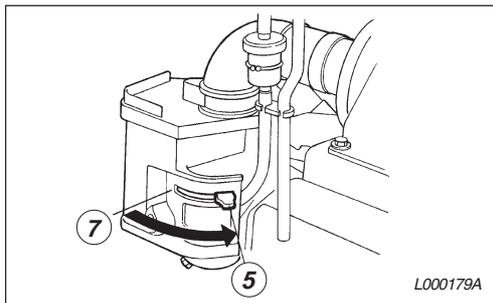


4. Put the throttle in the start mode.



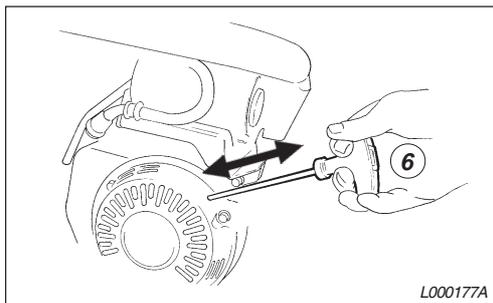
LT5000/6000 (Honda GX100)

5. Move the choke lever to the CLOSED  position. The choke may not be needed if the engine is warm or the air temperature is high.



LT7000 (Honda GX120)

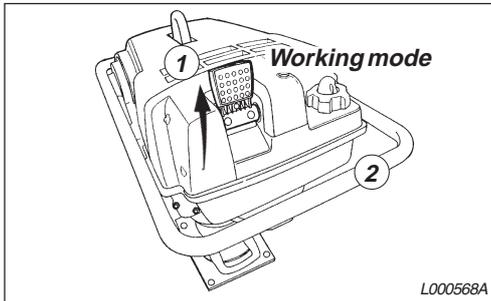
5. Move the choke lever to the CLOSED  position. The choke may not be needed if the engine is warm or the air temperature is high.



6. Pull slowly on the magnapull starter handle (4) until you feel it engage, then let the handle return a short distance and pull sharply to start the engine. Do not allow the starter grip to snap back against the engine. Return it gently to prevent damages to the starter.
7. When the Choke Lever has been moved to CLOSED  position at the time of starting, move it to OPEN position. Let the engine run without load at idle for a few minutes for warm up.

OPERATION

Operating



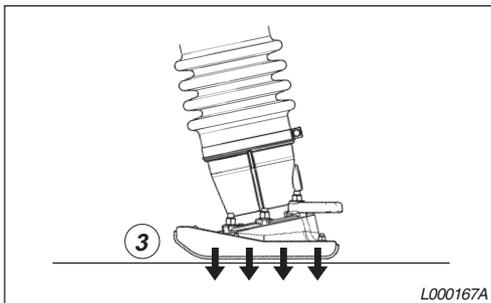
1. Move the throttle to the working mode and the tamper will begin to move.

CAUTION



During operation, the engine must always work at full throttle (working mode).

2. Guide the tamper with guide handle.



3. Take care that the shoe hits parallel to the ground.

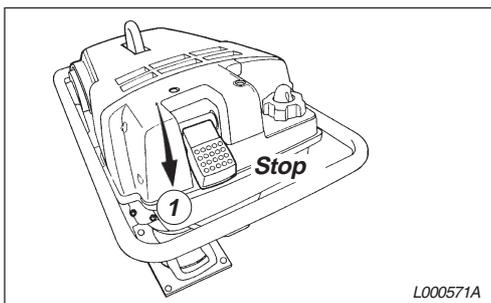
4. Do not fight or overpower the machine.

WARNING



Never work on hard surfaces (solid rock, hardened concrete or such). When working in trenches always make sure that they are wide enough. When working in a narrow trench, the ramming shoe should get caught between the walls of the trench, the rammer may mis-strike and can be severely damaged. The ramming shoe may especially be damaged severely. Make certain that the rammer is steered only by using the hand grip. It should only be pushed. The rammer must not be pressed into the materials being compacted. Excessive pressure to the operation handle will lead to the unsatisfactory compaction due to the fact that the jumping action is hindered. If the machine falls over while working, switch off the engine before raising it.

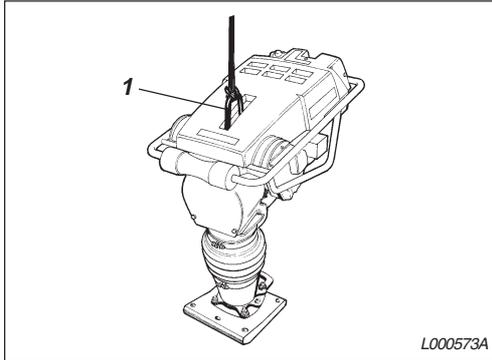
Stopping the engine



1. Put the throttle in the stop mode. Fuel supply to the engine is cut off in this mode, tank ventilation is closed and the engine switch is Off.

INSTRUCTIONS FOR LIFTING

Transport and lifting



WARNING



Keep well clear of the hoisted machine.

CAUTION



Use only the frame lifting hook (1) for lifting the machine.

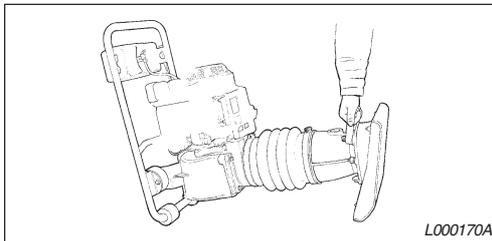
CAUTION



All lifting devices must be dimensioned in order to fulfill all regulations. Before lifting check that ramming shoe is correctly attached and not damaged.

The weight is noted on the machine data plate; see the "Machine data plate" section.

Lifting handle



CAUTION



Lay the machine down when switched off and not in use.

WARNING



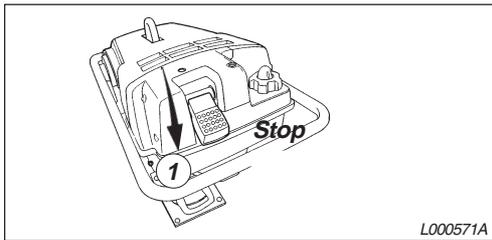
Always lash the machine securely for all transportation.

For moving short distances, the machine can be tilted forward so that it rests on the plastic wheels on the handle. Lift the transport handle and roll the machine forward or backward. Put the throttle in stop mode so that no fuel runs out.

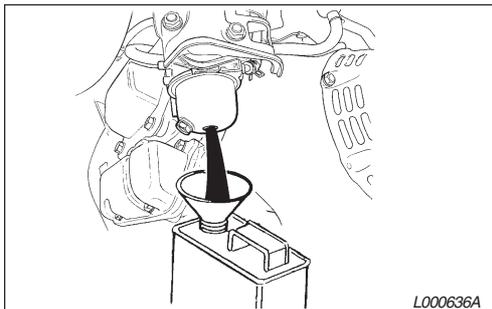
WARNING



Keep your feet clear of the machine.



LONG TIME STORAGE



1. Clean the machinery. Remove mud and dirt from the ramming shoe.

2. Clean the air cleaner.

3.  Drain all fuel from the fuel tank and carburetor. Collect the contents in a receptacle and dispose of it properly.

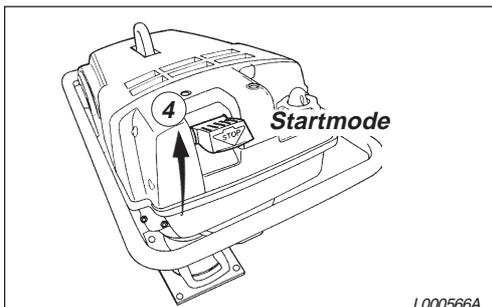
4. Put the throttle in start mode and empty fuel through the carburetor drain plug.

5. Pull the starter grip lightly until pressure is felt.

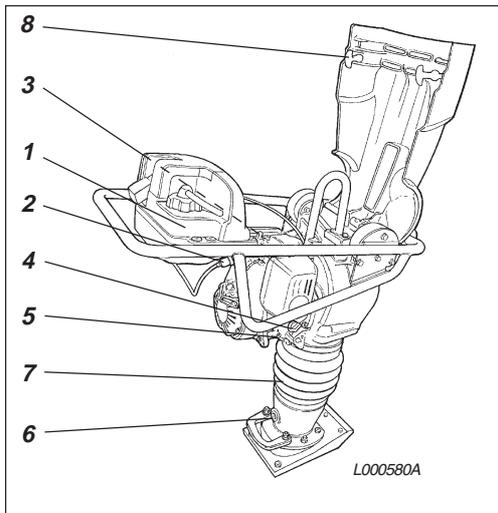
6. Clean up oil and dust accumulation on rubber parts.

7. Apply a light coat of oil on the ramming shoe to prevent rust formation.

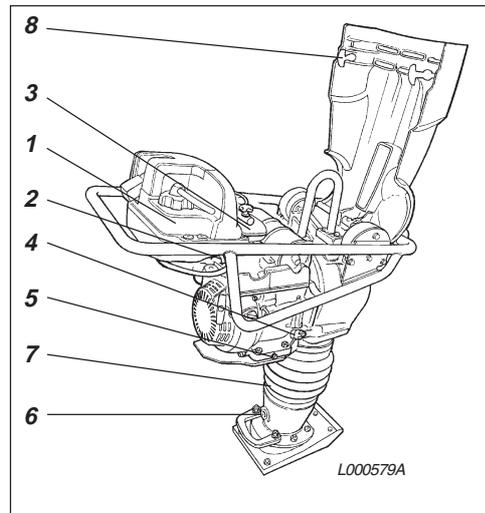
8. Put the cover entirely on the machine, and store the machine in dry, dust-free area.



MAINTENANCE – SERVICE POINTS



LT5000/6000



LT7000

1. Fuel tank
2. Fuel filter
3. Air filter
4. Oil dipstick
5. Oil drain plug
6. Rammer oil sightglass
7. Bellows
8. Hood lock

Every 10 hours of operation

Item in fig.	Maintenance	see page	Comments
1	Check and replenish fuel	12	
4	Check and replenish engine oil	18	
	Check for oil leakage		
	Check/retighten bolted joints (rammer foot).	18	
3	Check air cleaner elements	19	
6	Check ramming system lubrication with sight glass	18	

The first 20 hours of operation

Item in fig.	Maintenance	see page	Comments
5	Change engine oil	19	
3	Clean / replace air cleaner elements		See engine manual
	Check the engine revs.	20, 21	
7	Change ramming system oil	22	

MAINTENANCE – SERVICE POINTS

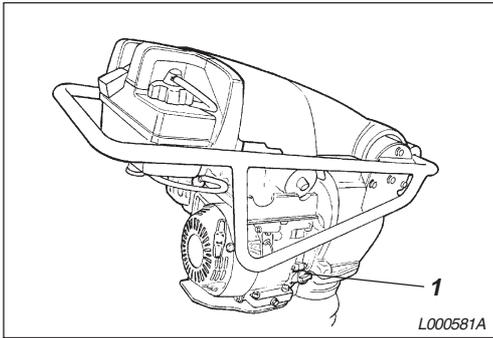
Every 100 hours of operation

Item in fig.	Maintenance	see page	Comments
5	Change engine oil	19	See engine manual
3	Clean / replace air cleaner elements	19	
	Check the engine revs.	20, 21	
3	Check and clean the spark plug	19	

Every 500 hours of operation (Atleast once a year)

Item in fig.	Maintenance	see page	Comments
2	Change fuel filter and clean the fuel tank		
7	Change ramming system oil	22	
8	Check the hood lock	22	

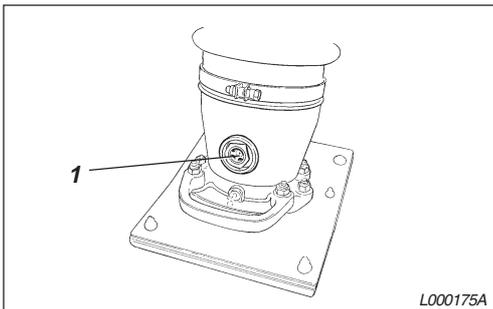
MAINTENANCE – EVERY 10 HOURS OF OPERATION



1. Oil dipstick

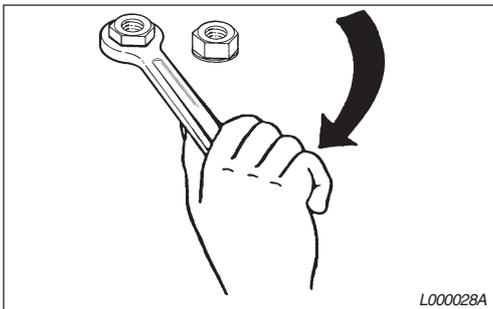
1. Check oil level (1) in the engine.
2. Check air cleaner.

We recommend reading the detailed engine instructions supplied with the machine.



1. Sight glass

3. Check oil level in the tamper leg through the sight glass (1). The level should be at the middle of the sight glass.



4. Check and, where necessary, tighten screws and nuts.

CAUTION



Take special care with bolted joints on the rammer foot.



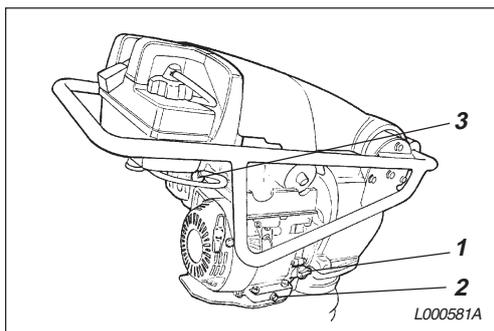
5. Keep machine clean. The machine shall always be upright when washed.

CAUTION



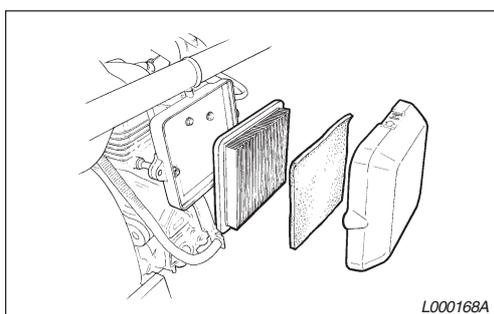
Never aim a water jet directly at the cap of the fuel tank. This is especially important when using a high-pressure jet. Put a plastic bag over the filler cap of the fuel tank and secure with a rubber band.

MAINTENANCE – EVERY 100 HOURS OF OPERATION



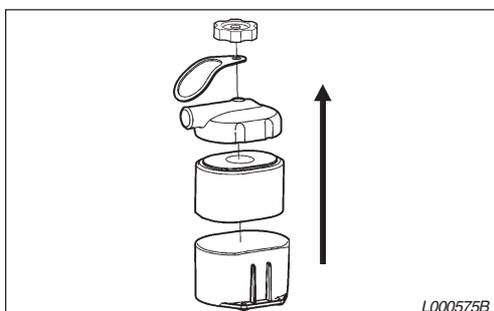
1. Oil dipstick
2. Oil drain plug
3. Spark plug

1. Change oil (see engine manual).
2. Check and clean the spark plug.



LT5000/6000

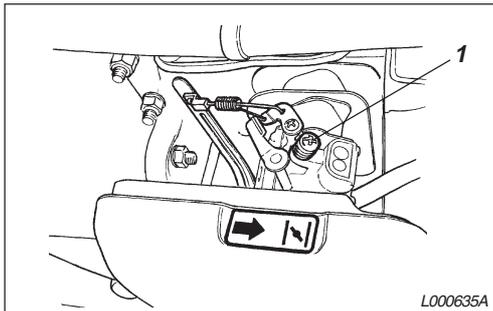
3. Replace air cleaner element (see engine manual).



LT7000

3. Replace air cleaner element. (see engine manual).

CARBURETTOR – LT5000/6000



1. Idling adjustment screw

CAUTION



The air cleaner must be cleaned and the engine run warm before adjusting the revs.

Tachometer PIN: 924719

Revs:

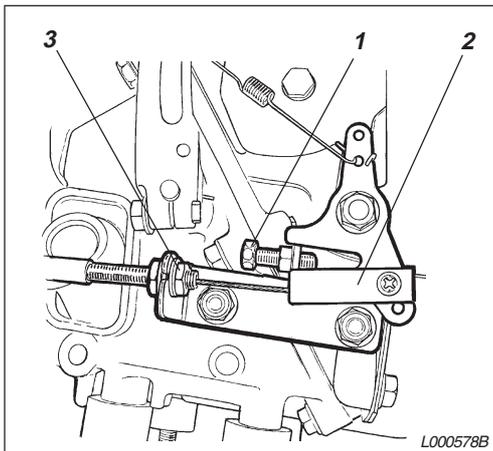
Idling Revs: 1600-1900 rpm

Engagement revs for centrifugal clutch, about: 2500 rpm

Working revs, about: 3800-3900 rpm

Idling adjustment

Start the engine and allow it to warm up. While the engine is running, turn the adjusting screw to give the standard idling revs for the engine. Increase and then decrease the engine speed. Wait 30-60 seconds, and then check the idling speed again.



1. Adjusting screw for working revs

2. Spring

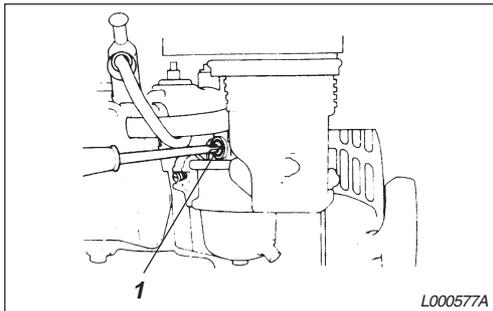
3. Adjusting screw for throttle wire

Adjusting the working revs

Adjust working revs with the screw (1). Ensure that there is about 5 mm pre-tension on the throttle-wire spring (2) at full throttle.

Adjust the length of the wire (3) to give the correct pre-tension.

CARBURETTOR – LT7000



1. Idling adjustment screw

CAUTION



The air cleaner must be cleaned and the engine run warm before adjusting the revs.

Tachometer PIN: 924719

Revs:

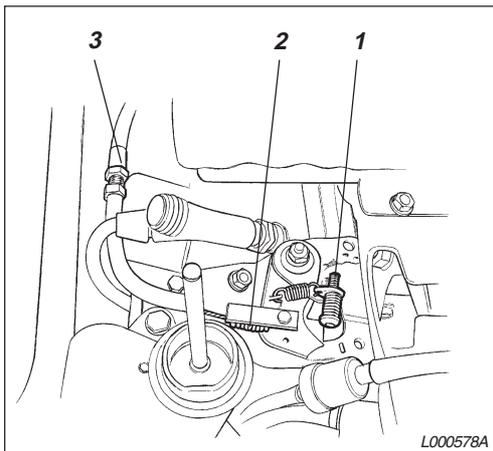
Idling Revs: 1400-1600 rpm

Engagement revs for centrifugal clutch, about: 2500 rpm

Working revs, about: 3600-3700 rpm

Idling adjustment

Start the engine and allow it to warm up. While the engine is running, turn the adjusting screw to give the standard idling revs for the engine.



1. Adjusting screw for working revs

2. Spring

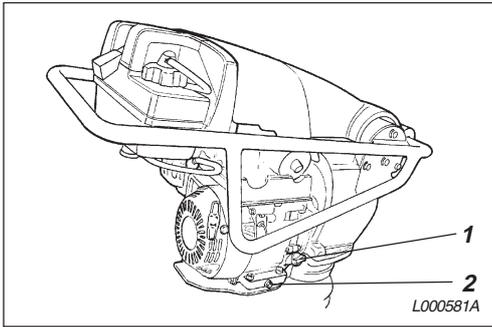
3. Adjusting screw for throttle wire

Adjusting the working revs

Adjust working revs with the screw (1). Ensure that there is about 5 mm pre-tension on the throttle-wire spring (2) at full throttle.

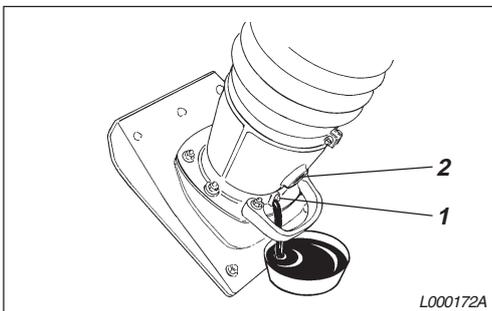
Adjust the length of the wire (3) to give the correct pre-tension.

MAINTENANCE – EVERY 500 HOURS OF OPERATION



1. Oil dipstick
2. Oil drain plug

1. Change engine oil (see engine manual).
2. Replace air cleaner element (see engine manual).
3. Replace fuel filter and clean the fuel tank.



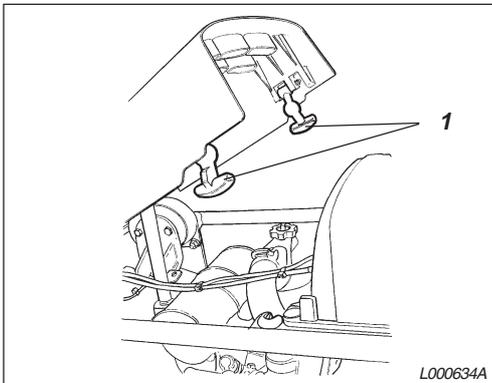
1. Oil drain plug
2. Sight glass

4. Change oil in the tamper leg. Screw out the drain plug (1) and empty the oil into a receptacle.



Save the oil in a can and dispose of it properly.

5. Refit the plug tight, making sure that the washer seal is undamaged.
6. Remove the sight glass (2) and fill with fresh oil as follows. Refit the sight glass and tighten firmly. The oil level should be at the middle of the sight glass.



1. Rubber straps

7. Check the rubber straps on the hood.

TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSE	REMEDY
Engine stalls or does not start	Insufficient fuel	Fill with gasoline, check the fuel filter
Engine does not accelerate, is hard to start or runs erratically	Air filter is dirty	Clean/replace the air filter
	Motor oil low	Fill with motor oil
Engine overheats	Motor oil low	Fill with motor oil
	Restricted air flow	Clean/replace the air filter
Engine runs, but rammer does not tamp	Clutch damaged	Repair or replace clutch
Engine running smoothly, but the tamper is uneven	Clutch damaged	Repair or replace clutch
	Oil or grease on clutch	Dismantle and remove oil/grease
	Soil buildup on ramming shoe	Clean shoe
	Broken or worn springs	Replace springs
	Incorrect engine revs.	Adjust engine revs.
	Fuel filter clogged	Replace fuel filter

DYNAPAC

Dynapac Compaction Equipment AB
Box 504, SE-371 23 Karlskrona, Sweden
Phone: +46 455 30 60 00
Fax: +46 455 30 60 30
www.dynapac.com