OPERATION MANUAL

Vibratory plate compactors

VD15, 18, VD20, 24

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ORIGINAL OPERATION MANUAL (2006/42/ES)

(vydání 03/2012)

ES PROHLÁŠENÍ O SHODĚ *(originál)*

EC Declaration of Conformity (original)

Prohlašujeme, že zařízení definované níže uvedenými údaji je ve shodě s požadavky níže uvedených NV a směrnic
We declare that the trough below mentioned specifications defined equipment complies with requirements of below cited Directives

Výrobce *(manufacturer):*	**NTC STAVEBNÍ TECHNIKA spol. s r.o.**
Sídlo firmy *(company domicile):*	**V Aleji 654, Nové Město nad Metují 549 01**
Sídlo provozovny: *(office premises)*	**Maloskalická 120, Česká Skalice 552 03**
IČ *(identification number):*	**63221152**
Osoba pověřená sestavením a uchováváním technické dokumentace: *(Person in charge of assembling and storing technical documentation)*	**NTC STAVEBNÍ TECHNIKA spol. s r.o.**
Název *(model):*	**VIBRAČNÍ DESKA JEDNOSMĚRNÁ / VIBRATORY PLATE**
Typ *(type):*	**VD15, 18, 20, 24**
Výrobní číslo *(serial number)*	
Popis *(description):*	Vibrační desky jsou určeny pro zhutňování všech druhů zemin včetně navazujících půdních úseků, pro zhutňování příkopů a ploch, jakož i pro zhutňování asfaltových povrchů. Při použití s plastovou podložkou je možné vibrační desku používat rovněž pro zahutnění zámkové dlažby. Pohon vibrační desky je zajištěn čtyřdobým jednoválcovým motorem HONDA (čistý výkon: 3,6 kW). *The forward vibratory plates are designed for compaction of soils or asphalt layers, when used with an optional plastic pad it can be used also for compaction of concrete pavement. The machine is driven with four-stroke single-cylinder engine HONDA (net power 3,6 kW).*
Všechna příslušná ustanovení, která výrobek splňuje *(The product meets all relevent provisions)*	Strojní zařízení – směrnice 2006/42/ES; NV č.176/2008 Sb. *Machinery Directive 2006/42/EC* Emise hluku – směrnice 2000/14/ES; NV č.9/2002 Sb. *Noise Emission 2000/14/EC* Elektromagnetická kompatibilita – směrnice 2004/108/ES; NV č.616/2006 Sb. *Electromagnetic Compatibility Directive 2004/108/EC*
Harmonizované technické normy a technické normy: *(The harmonized technical standards and technical standards)*	**ČSN EN ISO 12100, ČSN EN 500-1+A1, ČSN EN 500-4, ČSN EN 474-1+A1, ČSN EN 602204-1 ed.2, EN ISO 14982:2009**
Osoby zúčastněné na posouzení shody *(Persons involved in the conformity assessment)*	**Autorizovaná osoba č. 255** *(authorized Body No. 255)* **Notifikovaná osoba č. 1016** *(the European Notified Body No. 1016)* Státní zkušebna zemědělských, potravinářských a lesnických strojů, a.s., Třanovského 622/11, 16304 Praha 6-Řepy, ČR *The Government Testing Laboratory of Agricultural, Food Industry and Forestry Machines,Jjoint-stock company*
Použitý postup na posouzení shody: *(To the conformity assessment applied procedure)*	**Na základě směrnice 2000/14/ES příloha VI; NV č.9/2002 Sb., příloha č.5** *Pursuant to the Directive for Noise Emission 2000/14/EC Annex VI* **Na základě směrnice 2006/42/ES příloha VIII; NV č.176/2008 Sb., příloha č.8** *Pursuant to the Machinery Directive 2006/42/EC Annex VIII*
Naměřená hladina akustického výkonu: *(Measured sound power level)*	L_{WA} = **103 dB**
Garantovaná hladina akustického výkonu: *(Guaranteed sound power level)*	L_{WA} = **105 dB**

Poznámka: Veškeré předpisy byly použity ve znění jejich změn a doplňků platných v době vydání tohoto prohlášení bez jejich citování.
Note: All regulations were applied in wording of later amendments and modifications valid at the time of this declaration issue without any citation of them.

Místo a datum vydání:
Place and date of issue:
Česká Skalice, 28.05.2012

Osoba zmocněná k podpisu za výrobce:
Signed by the person entitled do deal in the name of producer:

Jméno (Name):
Ing. Petr Ratsam

Funkce (Grade)
jednatel společnosti *(Company Executive)*

Podpis *(signature)*

Congratulations! You have purchased a non-reversible vibratory plate compactor. You receive high-quality and powerful compaction machine, intended for professional use under the heaviest conditions.

Read carefully this operation manual before starting the machine and always keep the instruction - this way you will secure safe operation, high working output and long durability of the machine.

The manufacturer bears no responsibility for damages arising from not keeping the operation manual.

The manufacturer of this machine is the company NTC STAVEBNÍ TECHNIKA spol. s r.o.
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552 03 Česká Skalice
tel.: +420 491 452 184, fax: +420 491 401 609
E-mail: ntc@ntc.cz

NTC STAVEBNÍ TECHNIKA spol. s r.o. is a light construction equipment manufacturer with a long-term experience. NTC machines are exported to many European countries, among others to Spain, Netherlands, Italy, Hungary, Romania and Russia.
NTC has certified quality control system according to ISO 9001.
All manufactured models undergo testing, measuring and consideration of safety risks; all machines conform to safety standards and bear the CE mark.

CONTENTS:

Revize č.	**Obsah**	**Datum**
1	Updating, new model machine VD24	02/2010
2	Updating the technical data	03/2012

1. SAFETY INSTRUCTIONS

1.1. General instructions for operation of light construction equipment

1.1.1. Requirements for qualification of the operator

1. The machine must be operated by trained reliable operators of age above 18. The operator must read and understand the safety instructions, the regulations valid for the respective jobsite and valid technological procedure. This should be proved by getting the operator's signature.
2. The operator is obliged to use suitable working dress, safety gloves and firm boots with hard tip. Do not wear loose or torn clothes, chains or jewelry that could be caught by moving parts of the machine. The operator is obliged to use safety goggles and ear protection.
3. The machine may be used for intended purpose only, in accordance with this operation manual.

1.1.2. Contractor's obligations

The contractor is understood to be a physical or legal person that carries out construction works and for such purpose uses construction equipment. The contractor is responsible for operational safety.
The contractor is obliged to:

- designate the operator and arrange his training
- ensure safe working conditions
- inspect attendance of the safety regulations
- inspect that the operator works with the machine in accordance with the Operation Manual
- ensure regular inspections, maintenance and repairs of the machine
- store the Operation Manual so that it is readily available
- arrange suitable, safe and adequate storing of the machine when not in use

The contractor is also responsible for proper attendance of lawful regulations of work safety and regulations valid for each respective jobsite.

1.1.3. Operator's obligations

The operator is to be designated by the contractor, while keeping conditions of the article 1.1.1.
The operator is namely obliged to:

- prior to starting, he should read and understand the Operation Manual including the safety instructions
- attend all instructions of the Operation Manual
- learn about the jobsite and the locally valid safety regulations; these must be kept during the work
- pay full attention to operation of the machine
- arrange that regular inspections, maintenance and repairs of the machine are carried our as according to the Operation Manual
- require from the contractor proper conditions for keeping safety instructions, regular inspections, maintenance and repairs
- avoid damage, misuse or unauthorized use to the machine, namely by proper storing the machine to a secured place

1.1.4. Operation of the machine

Before starting:

1. Check the machine thoroughly; repair all failures before starting the engine. If the failures cannot be repaired at the jobsite, do not operate the machine.
2. Check the fuel system for leaking. Dripping fuel poses fire hazard.

Starting and operation:

3. When starting the engine, take stable position and held the grip firmly.
4. The controls must be in good order.
5. The operator must not leave from his position when the engine is running.
6. Stop the engine before interrupting the work. When parking the machine, secure it from falling.
7. Stop the engine before refueling. Avoid contact between fuel and hot parts of the engine. Let the engine to cool down first.
8. Keep the fuel tank tightly closed. Close the fuel tap when not in operation. Drain the fuel before transporting the machine for longer distances.

DANGER! Leaking fuel tank and distribution may cause explosion. Replace these parts immediately if damaged.

Jobsite:

9. No bystanders are allowed within the operational range of the machine. Especially children should be kept in safe distance.
10. Do not operate the machine in areas with explosion danger.
11. If operated in closed spaces (halls, tunnels), there should be ensured sufficient ventilation.
12. Held and guide the machine with high care in order to avoid hands injury caused with contact with an obstacle.
14. Do not smoke, do not use naked flame. Do not work close to flammables or in explosion danger areas.
15. Avoid touching hot parts. The exhaust silencer and other parts of the engine are very hot during operation and touching them can cause serious burns.

1.1.5. Maintenance and Service

1. Do not remove any covers or other safety devices. In case this must be done because of service, install all the parts back before starting.
2. Use genuine spare parts only. Do not carry out any modifications without prior written approval of the manufacturer.
3. Stop the engine before servicing the machine

1.1.6. Transport and Storage

1. When loading and transporting the machine fasten the machine properly on the carrier.
2. The machine is to be transported in upright position (with engine upwards). This position is also suitable for storing.
3. Prior to long-term storage: Conserve the machine, cover it and store it at safe, dry and ventilated place

1.1.7. Testing

It is recommended to test the machine by authorized service at least once a year or more often if used under heavy conditions.
If necessary, carry out repairs of all possible failures.

1.2. Prohibited activities

Never:

- use the machine for other than intended purposes
- use the machine in other way than as described in the Operation Manual
- operate the machine drunk or intoxicated
- operated the machine if its operation could cause harm to other people

- start and operate the machine if there are other people within the dangerous area
- operate the machine if some safety device (i.e. cover) is damaged or missing
- operate the machine in areas with external risks (risk of soil flow, dangerous fumes, risk of explosion, risk of electrical shock, etc.)
- operate the machine in areas where its operation may cause damage to buildings, structures or utility lines
- operate the machine within the protective range of power lines or transformer stations
- operate the machine under poor visibility or at night, unless the jobsite is sufficiently illuminated
- leave unprotected machine
- disable or modify safety devices, protective and safety systems
- operate the machine with leaking oil, fuel or other liquids
- start the engine in other way than described in the Operation Manual
- clean a running machine
- smoke or use naked flame when refueling

1.3. Hygienic principles

Oil derivates (fuel, lubricants) as well as paints and thinners are harmful agents. Anyone who gets into contact with such agents is obliged to protect himself and follow general principles health protection as well as to follow instructions valid for each specific agent.
Pay special care to:

- skin care
- wash hands properly after finishing the work and apply suitable cream

Store the fuels, lubricants, paints, thinners, cleansing and conservation agents, as well as other dangerous agents in original containers, properly sealed. Never allow storing in unmarked bottles or containers or even in beverage bottles. Store such agents in safe place, out of reach of children.
In case that the agent gets into touch with skin or eyes, or when it is eaten or inhaled, apply the first aid and get immediately medical aid.

1.4. Environmental principles

Fuel, lubricants and other operational fluids are harmful to environment. This category also includes part of the machine that get into contact with operational fluids, such as filter and hydraulic hoses.
After use these belong to dangerous waste.
Pay high attention to avoid leakage of the fluids and their escape into soil or water (including the sewage).
Store the fluids in such manner, that the fluids gets caught in case of accidental leakage.
If these agents still escape, arrange their safe collection and liquidation.

1.5. Disposal of the machine

After the machine exceeds its lifetime period, the contractor is obliged to arrange its proper disposal in accordance with the respective lawful regulations and with regards to environmental protection.
It is highly recommended to commit this task to a specialized company.

1.6. Safety instructions related to compaction machines

Besides of general safety instruction, the following special instruction must be followed:
1. Prior to starting the work, find out where are underground spaces, utility lines, etc.

2. Prior to working with the machine, always consider the danger to nearby buildings caused by vibration transfer.
3. When working inside digs or trenches, always secure the sides against falling down and burying the operator.
4. When working at the edge of slopes or banks, always keep safe distance in order to prevent landslide and machine and/or operator falling down or rolling over.
5. Never work with the machine at such inclinations where is a danger of machine rolling over or slipping down.

1.7. Hygienic data

Noise:
Declared level of acoustic pressure A in workplace of the operator
(measured according to ČSN EN ISO 11201 by conditions determined in ČSN EN 500-4, Annex B).

	VD15	VD18	VD20	VD24
$L_{pA,d}$ [dB]	91+4	92+4	91,5+2,5	91+1

Guaranteed level of acoustic power A
(measured according to NV č.9/2002 Sb., Annex č. 3, part B, point 9c) and ČSN EN ISO 3744:2010)

	VD15	VD18	VD20	VD24
$L_{WA,G}$ [dB]	105	105	105	105

Vibration:
Declared overall value of vibrations acceleration – transferred to hand – arm of vibratory plate operator
(measured according to ČSN EN ISO 20643 by conditions determined in ČSN EN 500-4, Annex C).

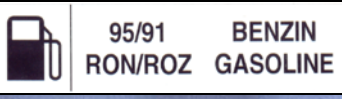
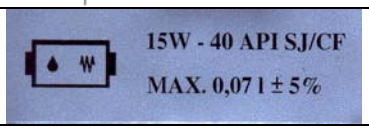
	VD15	VD18	VD20	VD24
a_{hvd} [$m.s^{-2}$]	8,4+3,4	8,8+3,6	8,2+3,3	12,5 +5,0

With regard to value of declared level of acoustic pressure in operator´s area and value of vibrations transferred to operator´s arms, when operating particular type of vibratory plate it is necessary to use, in accordance to Government regulation no. 272/2011 Sb. in valid version, personal protection equipment effectual in such level of acoustic pressure or vibrations transferred to arms, whose values for particular type of vibratory plate are determined by machine operator by workplace categorization.

Manuals for operation of vibratory plate must be modified so, that there are obvious technological pauses leading to interruption of operator machine usage.

1.8. List of safety symbols used on the machine

At the designated types of machinery vibration plate types VD15, 18, 20 and 24 to comply with the Act No. 22/1997 Coll. on technical requirements for products, as amended, located stickers symbols safety signs, symbols and informative descriptions of the design and implementation determine the technical norm.
The following text shows individual stickers (labels) placed on the machine. Each individual sticker is provided with the respective explanatory text.

1.	A united sticker comprising safety signs according to ČSN ISO 3864 (symbols B.2.5, B.3.1 and NB.2.26) and the CE symbols pursuant to Governmental Order 291/2000 Sb. including the explanatory text. Sign B.2.5 orders the operating staff to wear ear protectors when the machine is in operation. Sign 7.28 informs the operating staff that they are obliged to read the Operating Instructions before work with the machine. The NB.2.26 sign orders the operating staff (operators) to wear protective gloves when working with the machine to protect the hands from vibrations. Warning sign B.3.1 (exclamation mark) warns the operators against danger. Information for the operating staff how to perform repairs, cleaning and setting the machine.	
2.	Sticking label No. 8.1 pursuant to ČSN ISO 6405-1 marks the location of the engine oil discharging screw.	
3.	Sticking label No. 7.25 pursuant to ČSN ISO 6405-1 (the symbol marks the hoisting point, (i.e. the place in which the machine can be hoisted).	
4.	A sticker informing the operating staff about the fuel to be used for the engine of the machine.	
5.	Sticker with the symbol vibrator and verbal indication of the type specified oil and its maximum volume.	
6.	Sticker "RED CIRCLE" Sticker indicates the closing screw hole for pouring oil into the vibrator machine.	
7.	A sticker showing the noise level measured according to the conditions set forth in Noise Emission Directive 2000/14/EC	
8.	Sticker containing symbols for control of gas engine machines, is used when the throttle on the machine.	

1.9. Disposal of the Packing Material

The company of *NTC STAVEBNÍ TECHNIKA spol. s r.o.* is registered with the *EKO-KOM a.s.* company. This means that there is a contract between EKO-KOM a.s. and *NTC STAVEBNÍ TECHNIKA spol. s r.o.* on repurchase of all kinds of packing materials either by *NTC* or by suppliers of the packing materials.

2. TECHNICAL DESCRIPTION

Non-reversible vibratory plate compactors are intended for compaction of soil, asphalt and pavements.
These vibratory plates have optimized centrifugal force and compaction area and thus reach optimal compaction effect.
The vibratory effect is ensured by non-directed eccentric which creates circular vibration.
The main working part - the base plate - is a structure made of welded steel. The vibrator is bolted or welded to the base plate. The engine plate is mounted to the base plate through the rubber mounts.
The vibratory plate is driven by a four-stroke single-cylinder air cooled engine. The most common ones are gasoline engines HONDA. The engine is connected with the vibrator by a drive belt, with a centrifugal clutch which disengages the drive at idle speed.
The operator controls the machine with a folding handle.
Special equipment to transport the chassis vibration plates, plastic mat compaction and paving throttle.

2.1. Basic technical data

Vibration plates are characterized by one-way design with a comfortable cushioned handle and folding ROPS, which protects the engine from damage and ease of handling.

Type		VD15	VD18	VD20	VD24
Weight	**[kg]**	**85**	**95**	**105**	**115**
Frequency	[Hz]	100	100	100	100
Centrifugal force	[kN]	15	18	20	24
Max. speed	[m/min]	25	25	25	25
Max. gradability	[%]	30	30	30	30
ENGINE		HONDA	HONDA	HONDA	HONDA
Model		**GX160**	**GX160**	**GX160**	**GX160**
Fuel		gasoline	gasoline	gasoline	gasoline
Oil sensor		YES	YES	YES	YES
Net engine power*	**[kW]**	**3,6**	**3,6**	**3,6**	**3,6**
Rated engine speed	[RPM]	3600	3600	3600	3600
Fuel consumption	[l/hr]	1,4	1,4	1,4	1,4
Capacity of water tank	[l]	12	12	12	12

*performance of engine is according to SAE J1349

Actual output of the engine installed in the machine can be different with regard to various factors, such as operation speed of the engine, operation conditions, maintenance and other factors.
Engine operation speed IS NOT IDENTICAL with engine rated speed and this is set according to technical parameters of the machine.

Basic dimensions:

Dimension	**H**	**H1**	**H2**	**L**	**L1**	**L2**	**W**
VD15	**930**	570	745	1200	**565**	695	**400**
VD18	**930**	570	745	1200	**565**	695	**450**
VD20	**935**	575	750	1200	**565**	695	**500**
VD24	**935**	575	750	1200	**565**	695	**500**

Heavily marked dimensions are given in the tender section of the catalog business.

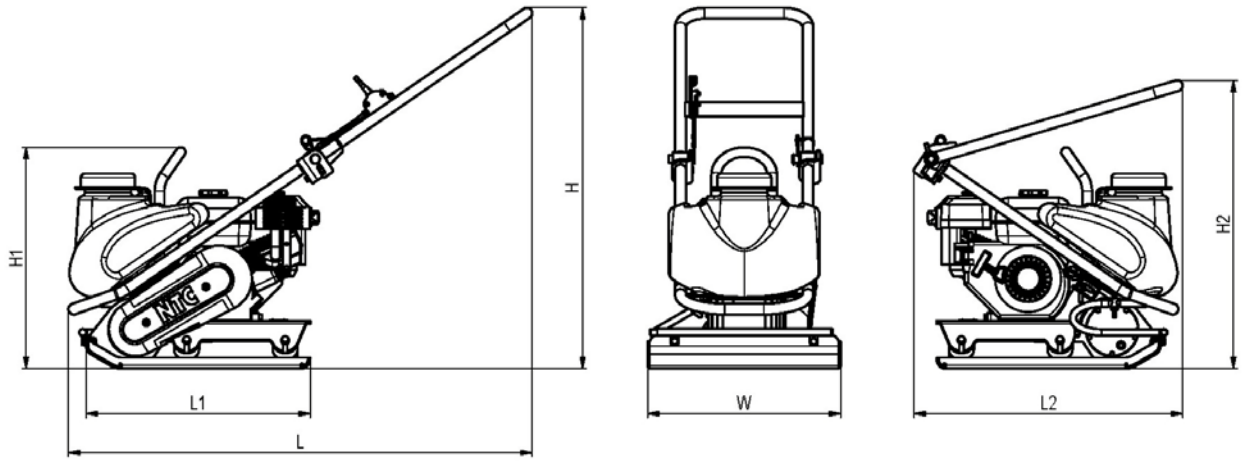


Fig. Description

1. Plate with vibrator, 3. Frame with handlebars, 4. Engine, 5. Sprinkling, 6. Cover, 10. Signs

2.2. Lubricants

For use in both engine and the vibrator use high-quality engine oils of the following specifications: 15W-40 API SJ/CF

- engine oil HONDA GX160	capacity 0,60 ltr
- oil in the vibrator	capacity 0,07 ltr ± 5%

2.3. Identification

It is highly important to refer the exact type and serial number of your machine whenever contacting the manufacturer or the dealer (i.e. for warranty reasons, ordering of spare parts or service, for technical questions). These data are stated at the type plate.

Fig. Location of type plate

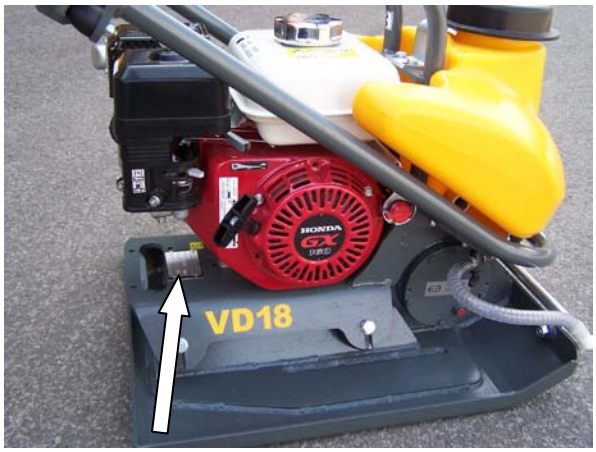
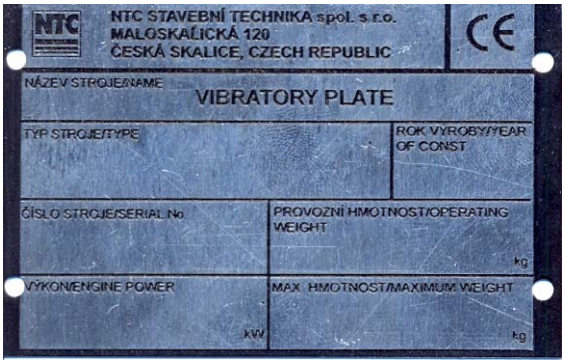


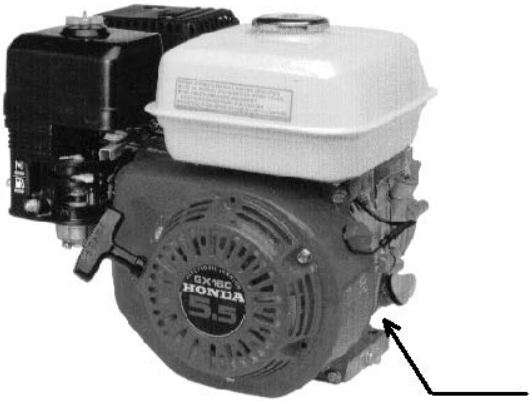
Fig. Example of type plate

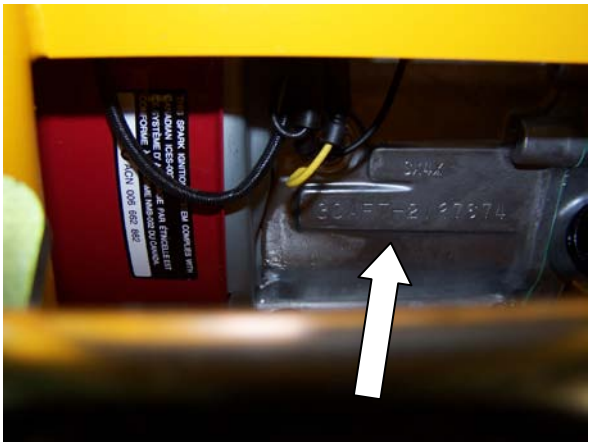


2.4. Identification of the engine

In the case of engine related problems refer also the engine type and serial number. This number of stamped at the engine block (for HONDA). In a case of doubts please contact an authorized service or the manufacturer.

Fig. Location of serial number at the HONDA engine





It is recommended to write down important identification data of your machine into the following table. You will find it useful when ordering parts or service, in case of a warranty claim or in the event of reporting stolen equipment.

Model	
Serial number	
Year of production	
Engine type	
Engine serial number	

3. PRIOR TO STARTING

- Continually check that the engine leaks or a vibrator oil. You contact an authorized service center or manufacturer in case of failure.
- Bolted joints are glued to rubber mount. We therefore recommend against any potential activity associated with the tightening and loosening of joints and contact information to an authorized service or the manufacturer.

3.1. Inspection of engine oil level

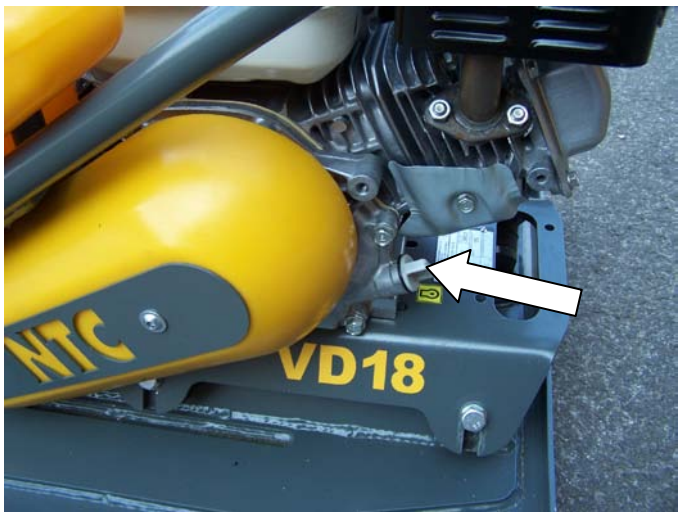
Use the recommended oil only.
The viscosity class should be selected with regards to usual ambient temperature at the respective location.
Wipe the filler and the dipstick with a clean cloth. Place the dipstick in the hose without screwing it in. If the oil level is below the mark, top up oil to the upper mark.

ATTENTION:
Operation with insufficient oil level will cause serious damage to the engine.

Oil level is to be checked daily!

Checking the oil level must be in accordance with the instructions for operating the engine!
Place the machine into a horizontal position. Before you unscrew the plug from the control / filler on the engine, so carefully clean the area to prevent degradation of oil contamination and subsequent engine damage. With proper oil level is level with the hole at the same time, oil is leaking slightly.

Fig. Check engine oil level



3.2. Visual inspection of the machine

Inspect the machine regularly, with particular attention to:

- completeness of the machine (missing parts);
- condition of the protective devices (covers) and controls;
- bolter connections;
- fuel or oil leakage;
- intactness of rubber mounts

3.3. Inspection of fuel level

For gasoline engines use gasoline for motor vehicles with an octane rating of 90 or more.
We recommend that petrol NATURAL 95.
At low levels of fuel is the fuel necessary to fill up the edge of the filtered water.
Never use dirty gasoline or mixture with oil. Prevent dust, dirt or water from entering into the tank.

3.4. Inspection of air filter

This activity is performed in accordance with the instructions for operating the engine!
Place the machine into a horizontal position.
Paper cartridge air filter, check to make sure that it is clean and in good condition.
Paper filter cartridge carefully clean with compressed air from the inside out. In the case of significant pollution filter paper cartridge change.
Wash the foam cuff in water and detergent, **not flammable!** In case of damage replace the foam cuff.

Fig. Inspection of air filter - HONDA engines

Cleaner air, clean or replace.

Never operate the engine without the filter or with a damaged one. Dirt and dust entering the engine would cause its rapid damage.

4. OPERATING THE MACHINE

4.1. Starting

1. Turn the fuel valve to the open position.

Fig. Open fuel valve engine

2. Turn the switch (ignition switch) the motor position ON (lever switch down).

Fig. Engine ON/OFF switch

3. Engine throttle position to give SLOWLY (slightly open throttle).

Fig. Lever position in gas engine slowly

4. Turn the choke to start position. Do not choke when the engine is warm or if the higher ambient temperature.

Fig. On the motor choke

5. Handle pull the starter cord until you feel resistance, then pull rapidly.
   Starter cord handle drop sharply back. In retrospect, it is moving her hands to hold.

Fig. Starter motor pulled out cord

6. After a gradual warm up the engine, move the choke lever to OFF position.

Fig. Choke off the engine

7. Motor full loads before running moment leave to heat up.

8. Move the throttle to full throttle position. At about 1700 rev / min centrifugal clutch automatically switches the machine begins to vibrate.

Fig. The lever position, engine throttle

If the machine is equipped with the optional throttle lever (1), use it to control engine speed. Otherwise keep the same instructions as above.

Fig. Throttle lever in the IDLE position

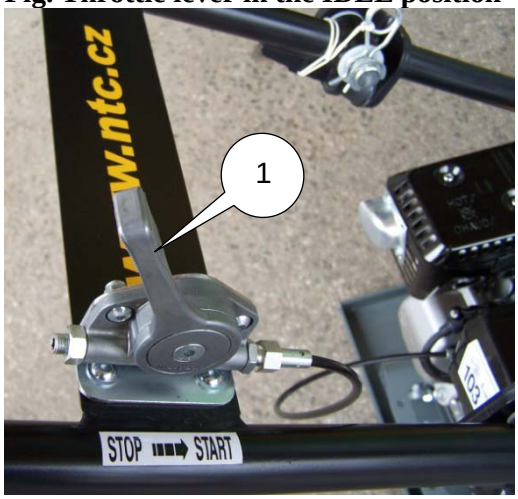


Fig. Throttle level in the FULL position

With the machine work (vibrate) only if the lever in the engine to full throttle position, otherwise it may damage the machine or engine.

Starting and stopping the engine is described in detail in the attached instruction manual Honda engine.

4.2. Operating the machine

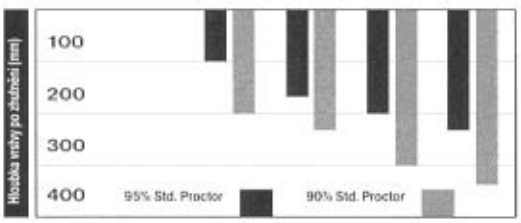
Run the machine across the area to be compacted, keeping slightly overlapping lanes. For good compaction, it is recommended to do 4 travels in each lane.

For soil compaction, the best results will be reached when compacting by layers, each layer not thicker than 20-30 cm of loose soil, depending on the type of soil.

Approximate compaction effect for compaction to 90% (95%) of Proctor Standard is shown in the following table. For exact control of the degree of compaction, some method of compaction measurement must be used.

TAB. Compaction effect

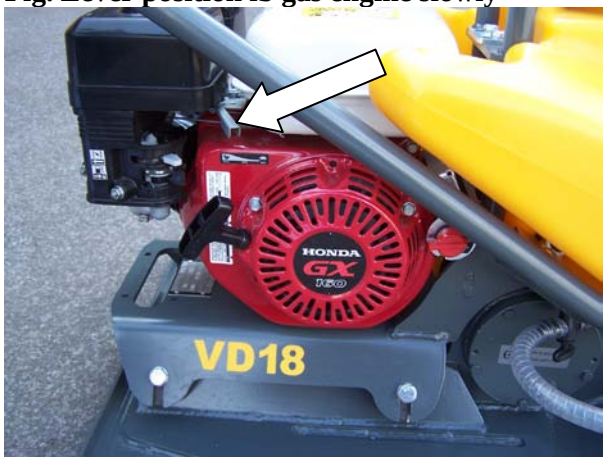
This table is valid for sand and gravel, considering 4 passes. For mixed soils is reduced by approx. 30%.



4.3. Turning the engine OFF

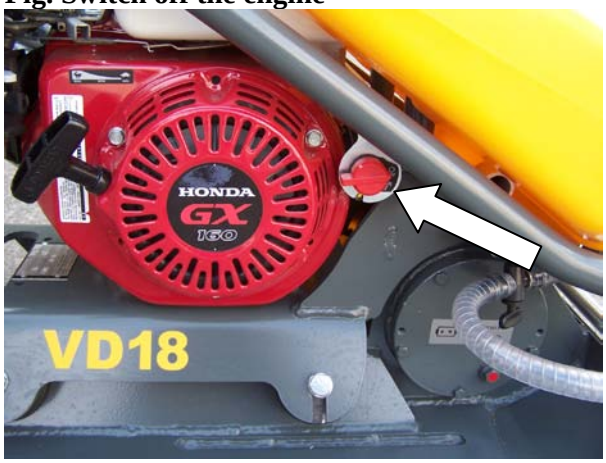
1. Set up the throttle control leer into the idle position. The centrifugal clutch gets disengaged and vibration will stop.

Fig. Lever position ib gas engine slowly



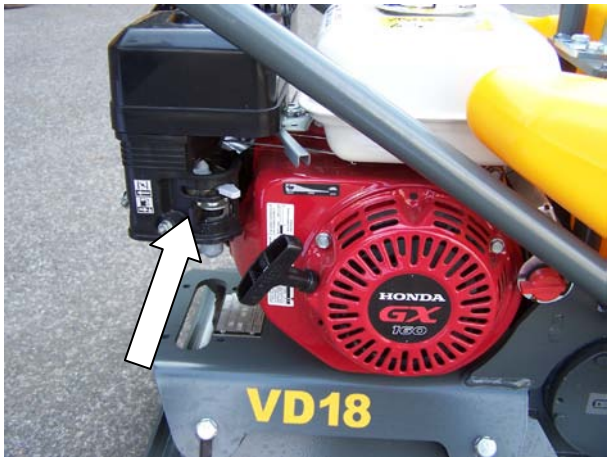
2. Turn the ignition switch into the "OFF" position (switch lever is up).

Fig. Switch off the engine



3. Turn the fuel valve to the closed position.

Fig. Closed fuel valve engine



4.4. Handling, transport, storage

When handling the machine and its transport strictly follow the safety instructions in this manuals, as well as generally applicable transcripts to work with handling equipment or lifting equipment..

4.4.1. Manual handling

When manual handling is usually needed to co-parties for order to comply with the maximum load weight, which the worker may lift. Lift the machine frame for or the grips. Do not lift the machine engine!

4.4.2. Handling by crane

The machine is allowed to handle and transport the equipment only with adequate capacity (weight machines is given in chapter "Technical Specifications").
When loading crane it must comply with applicable regulations to work with the crane. This activity may be performed only by qualified person (s) with valid card.
Binding means fix it in the space frame of the machine.

4.4.3. Handling by forklift

If the machine is often handled with a forklift (for example when sending collection service), we attach a variety of machine and send it together with a variety. For one machine is suitable for "small" range of dimensions 0.8 x 0.6 m, two machines for a variety of standard EUR 1.2 x 0.8 m.

4.4.4. Transport

When transport the machine must be adequately secured against overturning, falling or shifting to the base.
The machine must be transported in an upright position.

4.4.5. Storage

Store the machine in place secured against theft and misuse. We recommend a dry sheltered place does not affect the chemical substances and where there is excessive dust.
Before long-term storage engine first clean, repair the damaged areas and preserve the paint (including the preservation of the motor). Clearly label the machine is conserved.

4.5. Special conditions of operation

4.5.1. Operation at low ambient temperature

Compaction at temperature below freezing is highly dependent on water content in the soil to be compacted. Under such conditions, soil becomes harder and more difficult to compact. It is possible to compact dry materials or rapidly compact fresh soil, before it gets frozen.

4.5.2. Operation at high altitudes

With increasing altitude, engine power decreases due to changed oxygen content. Within certain extent, it is possible to improve the engine power by installing different main nozzle and by adjusting the carburetor (gasoline engines) or by adjusting the injection system (diesel engines). Should the machine be operated in high altitudes (above 1500 m above sea level), contact the engine manufacturer to carry out the adjustments.
In case that you intent to operate the machine in high altitudes in the time of purchase, consult the manufacturer.

4.5.3. Operation in Dusty Environment

In case that the machine is operated in extremely dusty environment, it is recommended to shorten the service intervals for cleaning or replacement of the air filter.
Clean the machine from dust regularly.

5. MAINTENANCE

Basic maintenance as described in this Operation Manual can be carried out by the operator. Repairs and adjustments beyond the extent of this Manual should be done by an authorized service center.
In the warranty period it is strictly prohibited to dismantle the vibrator; such repair can be done exclusively by an authorized service center. Further, no interventions into engine except of the prescribed maintenance are allowed in the warranty period.

Bolts of the rubber mounts are secured with a glue. Therefore it is highly recommended to contact authorized service before dismantling or mounting the rubber mounts.

5.1. Engine maintenance

- see enclosed engine operation manual.

5.2. Tensioning of the drive belt

Inspect tensioning of the drive belt on a regular basis. Belt deflection should be about 10mm under finger pressure (2 kg).
When necessary to tighten the belt, proceed as follows:

- Loose two bolt fastening the water tank. Tilt the tank forwards and carefully place aside (not necessary to disconnect the water hose).
- Loose four bolts that fasten the engine to the base plate and a lock nut of the tensioning screw (located under the water tank).
- Tension the drive belt by means of the tensioning screw.
- Re-tighten the bolts and the lock nut.
- Replace the water tank.

Bear in mind that the drive belt connects the engine and the vibrator, which are in mutual movement under operation. Be careful not to over tension the belt, so that it is able to allow this movement.

DO NOT OVERTENSION THE BELT!

Fig. Inspection of drive belt tensioning

Fig. Irrigation dam removal

Loosen the two hexagonal screws M8x16 and pull through the water reservoir beneath the spray tank holder.

5.3. Inspection of vibrator oil level

Continually check that oil leaking from the vibrator. Interval control and exchange of oil in the vibrator (see section 6)
The vibrator is filled with 0.07 l ± 5% oil 15W-40.
To check the oil level, proceed as follows:
Place the machine on a level area.
Unscrew the inspection plug (marked “oil level”; oil should slightly run out.
In case of oil escape, stop the machine immediately and contact authorized service.
In the warranty period only authorized service may carry out repairs of the vibrator. Any unauthorized intervention into the vibrator voids warranty.

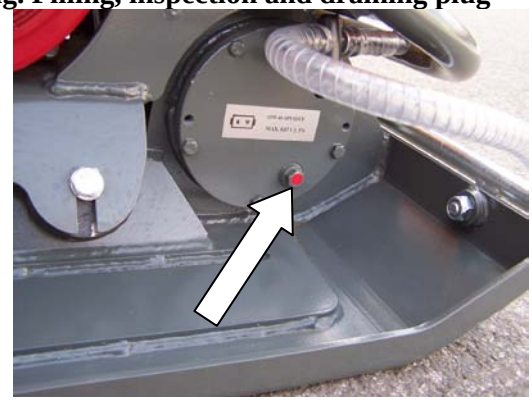
ATTENTION
Low oil level in the vibrator may cause serious damage to the bearings vibrator High oil level will increase the temperature of the vibrator, reduces engine power or engine "chokes".

5.4. Exchange of oil in the vibrator

To carry out oil exchange, proceed as follows:

- warm-up the vibrator to operational temperature
- turn off the engine, unscrew the drain plug (marked with an arrow)

Fig. Filling, inspection and draining plug



- incline the machine to drain off oil completely (c/a 0,07 ltr)
- add oil vibrator (filling control drain plug on vibrator - marked in red, see section 5.3) so that the oil level after settling just reached the lower edge of the hole plugs - oil leaking slightly

5.5. Inspection of bolted connections

We recommend starting the machine before each check screw connections.

Caution - All the important screw connections on the machine are glued and bolts are tight prescribed torque. We therefore recommend against any potential activity associated with the tightening and loosening of joints and contact information to an authorized service or the manufacturer.

5.6. Centrifugal clutch

If the starting clutch speed exceeds 1950 RPM can cause it to slip and subsequent damage. **Check and adjust clutch recommend an authorized service center.**

Fig. Engine speed monitoring tachometer

5.7. Adjustment of engine speed

In case of repair or replacement of the engine, adjust the engine speed as follows:
Remove the belt cover and measure revolutions of the vibrator pulley. The vibrator frequency is 100Hz (6000 RPM) and the engine speed is 3324 RPM.
Measure the revolutions with a suitable speedometer.

It is recommended to have the engine speed checked and adjusted by authorized service.

NEVER ADJUST HIGHER ENGINE SPEED!

When exceeding the engine speed set by the manufacturer may damage the machine.

The manufacturer does not recognize the claims of defects arising from this cause! DURING THIS WARRANTY MAY MAKE ADJUSTMENTS AUTHORIZED SERVICE ONLY!

6. NOTES

7. MAINTENANCE SCHEDULE

This maintenance schedule contains only the most important operations. Besides of these operations, carry out maintenance and repairs of the machine as necessary depending on the respective conditions of operation. Check also the engine operation manual.

WARNING:

Turn off the engine before any maintenance or repair activity.
Use genuine spare parts only. Use of non-original spare parts may lead to damage to the machine. The manufacturer will not honor any warranty claim arising from such reason.

Item	Operation	Initial inspection	After 1st month or 20 hours	Every 3 months or 50 hours	Every 6 months or 100 hours
Engine oil	Inspection of oil level	☑	DAILY		
	Exchange		☑		☑
Air filter	Inspection Cleaning	☑		☑ (1)	
Spark plug	Inspection - cleaning				☑
Filter bowl	Cleaning				☑
Fuel hose	Inspection - exchange	Every two years			
Valve clearance	Inspection - adjustment	Every 12 months or 250 hours (2)			
Fuel tank and sieve	Cleaning	Every 12 months or 300 hours (2)			
Vibrator	Inspection of oil level, exchange	Inspection for tightness - daily		Oil replacement - every 2 years	
Drive belt (3)	Tensioning			☑	
Rubber mounts	Inspection of the integrity				150 hours
Handle assembly	Lubrication, exchange				☑

1. **To be carried more often when operating in dusty environment!**
2. **It is recommended to be carried out by authorized service.**
3. **Replacement of drive belt every 300 hours.**

8. WARRANTY TERMS

The NTC construction machines are designed and manufactured to suit to long-term operation even under the toughest operating conditions. In accordance with long-term experience we can say that the machines reliably work not only for the warranty period, but even much longer.
Should the machine still fail to work to your full satisfaction, we are ready to be anytime helpful solving the problem. In a case of a failure, proceed as follows:

1. Check, whether the failure is not caused by a failure to follow the operation manual, or exclude trivial problems such as empty fuel tank, low oil level or clogged air filter.
2. If you do not succeed to repair the problem this way, contact the manufacturer or any authorized service (see the warranty certificate).
    - company name, your name, phone and fax number
    - machine model and serial number
    - description of the failure
    - in case that the machine is in warranty, inform the service that you are reporting a warranty claim and state date of purchase
4. In case of a warranty claim, the claim must be consequently submitted in writing, preferably using the form "Warranty Protocol".
5. Every warranty claim will be immediately considered and the service technician will discuss with you the method of repairing.

The following warranty conditions are valid for all NTC products:
Unless agreed otherwise, the producer warranties its products and good for a period of 12 months from date of delivery to the end-user. Should a failure cause by improper design, material or workmanship should occur within the warranty period, the manufacturer will by its sole decision repair or replace the faulty part.
The warranty does not cover fast wearing parts, such as the drive belts, rubber mounts, filter elements, spark plugs or control cables.
The manufacturer bears no responsibility for failures arising from failure to follow the operation manual, by improper maintenance or lack of it, by unprofessional service action, by using the machine for other than intended purpose, by using unsuitable fuels, lubricants, accident or act of God. The manufacturer further bears no responsibility for damages caused by transportation or storage. The warranty conditions are also stated at the warranty certificate.

Warranty Protocol

Number: (to be filled in by NTC comm. dept.)

Failure reporting (to be filled in by user of the machine):

Model:		**Serial number:**	
Detailed description of the failure:			
Is the machine in operable condition?		YES*	NO*
Date of the failure occurrence:		**Date of reporting:**	
Date of purchase:		The machine was purchased from: NTC / dealer*	Dealer:
User: (address, phone, contact person)			
Location of machine usage: (if different from the user´s address)			

This properly filled in protocol should be sent by fax or registered letter to the above address; that will help us to resolve your warranty claim quickly.

Confirmation of rightfulness of the warranty claim (to be filled in by NTC commercial department):

Date of sale:		**Warranty void:**	YES/NO*
Is the machine in warranty at the moment of reporting?	YES/NO*	Name:	Signature:

QC signature: **Date:**