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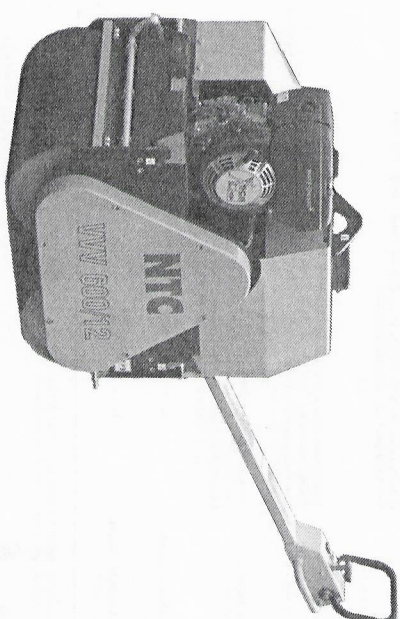


ISO 9001
LL-C (Certification)

OPERATION MANUAL

WALK-BEHIND VIBRATORY ROLLERS

VVV 600/12, VVV 601/12
VVV 700/22, VVV 701/22
VVV 700/22E



(issued 4/2013)
From S/N 2000 on

ORIGINAL OPERATION MANUAL (2006/42/EC)

ES/EU PROHLÁŠENÍ O SHODĚ (originál)

EC/EU Declaration of Conformity (original)

Prohlášíme, že zařízení definované níže uvedenými údaji je ve shodě s požadavky níže uvedených NV a směrníc

I/ declare that the through below mentioned specification defined equipment complies with requirements of below cited Directives

Výrobce (manufacturer): Sídlo
firmy (company domicile):NTC STAVERBÍ TECHNIKA spol. s r.o.
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IC (identification number):

63221152

Osoba pověřená sestavením a
uchováváním technické dokumentace:
(Person in charge of assembling
and storing technical documentation)

NTC STAVERBÍ TECHNIKA spol. s r.o.

Název (model):

VIBRAČNÍ VÁLEČ VEDENÝ / WALK-BEHIND VIBRATORY ROLLER

Typ (type):

VVV 600/12(HE), VVV 601/12(HE), VVV 700/22(E)(HE), VVV 701/22(HE)

Výrobní číslo (serial number)

E2734-01

Popis (description):

Vibrační váleč typu VVV jsou určeny pro zhotovování všech druhů zemin a pro zhotovování železobetonových povrchů. Vibrační váleč je vybaven motorem HONDA (celý výkon 4,1 – 6,3 kW) nebo dieselovým motorem HATZ (celý výkon 3,6 – 6,6 kW) a pohoně zajišťuje hydraulický systém.
The walk-behind vibration rollers of the VVV line are designed for compaction of all sort soft soils as well as for compaction of asphalt surfaces. The machine is driven engine HONDA (net power: 4,1 - 6,3 kW) or diesel engine HATZ (net power 3,6 – 5,0 kW) and travel is ensured by the hydraulic system.

Všechna příslušenství, která výrobek splňuje

(The product meets all relevant provisions)

Stojní 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 2014/53/EU, NV č. 117/2016 Sb.
Electromagnetic Compatibility Directive 2014/53/EUHarmonizované technické normy a
technické normy:
(The harmonized technical standards
and technical standards)ČSN EN ISO 12100, ČSN EN 506-1+A1, ČSN EN 500-4, ČSN EN 474-1+A1,
ČSN EN 6034-1 ed.2, EN ISO 14982:2009Odkazy zúčastnění na posouzení
shody
(References involved in the assessment
of conformity)Autorizovaná osoba č. 255 (authorized Body No. 255)
Notifikovaná osoba č. 1016 (the European Notified Body No. 1016)
Státní ústřední zkušební ústav, potravářského a lesnického stroje, a.s., Třanovského 622/11, 16304 Praha 6-Rap, ČR
The Government Testing Laboratory of Agricultural, Food Industry and Forestry Machines, Joint-stock companyPoužitý 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 17
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 17IINaměřená hladina akustického výkonu:
(Measured sound power level)L_{WA} = 96, 99, 100 dBGarantovaná hladina akustického výkonu:
(Guaranteed sound power level)L_{WA} = 105 dBPoznámka: Všechny předpisy byly použity ve znění jejich změny a doplnků platných v době vydání tohoto prohlášení bez jejich úprav.
Note: All regulations were applied in wording of later amendment 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 Škalce, 01.01.2012

Osoba zmocněná k podpisu za výrobce:

Signed by the person entitled to deal in the name of producer

Jméno (Name)

Ing. Petr Ralsam

Funkce (Grade)

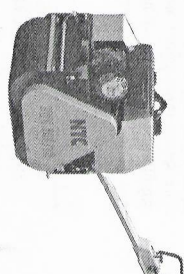
Jednatel společnosti (Company Executive)

Podpis (Signature)

Thank you for buying the walk-behind vibratory roller of the VVV line. You have just received a compaction machine of high quality and for its class high compaction power. This machine is suitable for operation under the toughest conditions.

Before you attempt to operate the machine, please carefully read and understand this operation manual. Operate the machine always only in accordance with this manual - this is the only way to ensure safety and health protection for the operator and the bystanders, as well as operational safety, high output and long durability of the machine.

The manufacturer bears no responsibility for any damages which arose due to the machine was operated in discrepancy with the operation manual.



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Disclaimer: Specifications, descriptions and illustrations contained in this manual are based on knowledge in the time of issue. Manufacturer reserves the right to modify any part of the manual without notice.

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Revision No.	Content	Datum
1	Updating by the European Directive 42/2006/EC	01/2010

1. Safety Instructions

The safety instructions described in various chapters of the operation manual and other documentation supplied with the machine must be amended with safety instructions valid in the respective country of operation, with special regards to jobsite organization, technology and personnel.

1.1 Obligations of the User

- The user of the machine is obliged to ensure that the operator reads and understands the operation manual and other safety instructions valid for the respective jobsite. The user should inspect that the instructions are always attended.
- The user is obliged to issue the instructions for operation and maintenance of the machine which include the safety instructions. Especially the following items should be described:
 - Location and marking of underground utility lines, underground spaces, points of penetration of dangerous agents, bearing capacity of the terrain and inclination of the area to be compacted.
- If necessary (see "Hygienical data") the user is obliged to ask the local hygienical authority to pronounce the job as risky because of noise and vibrations.

1.2 Requirement for the Operator's Qualification

- The operator should be trained according to ISO 7130 (Earthmoving machines. Training of operators.) and other local and national codes and specification that are valid for operators of this class of machines.
- Without such license, the machine can be operated only by a trainee under supervision of certified lector.
- The license holder is obliged to keep the license properly and submit it for request to an inspection body.
- Short-time operation can be done also by physically and mentally capable person older than 18 years, who is:
 - entrusted by the manufacturer for assembly, inspection and demonstration of the machines and for training of the operators; such person must know the safety instructions valid for the jobsite;
 - who is entrusted by the machine user for operation or maintenance of the machine, trained and who proved its qualification in accordance with special regulations.

The operator should be trained and at least once in 2 years and should pass a test of safety instructions.

1.3 Operator's Obligations

- Before operating the machine, the operator should read and understand the operation manual, especially the safety instructions. He is obliged to attend the instruction all the time. This is valid also for service personnel.
- Do not operate the machine unless you fully understand all its functions and unless you fully understand how to operate it.
- Attend all safety labels located at the machine; keep these labels readable.
- Know your jobsite! It is necessary to know possible obstacles, inclinations, underground

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8. Maintenance Schedule

Regular inspections and adjustments keep the machine in optimal technical condition.

DANGER!

Turn off the engine before carrying out any maintenance or repair work. In case the engine must be running during some procedure, secure sufficient ventilation (exhaust fumes contain dangerous carbon monoxide). Use only genuine spare parts supplied from the manufacturer. The manufacturer will not honor any warranty claims arising from use of non-original spare parts.

Item	Operation	After 1st month or Initial 20 hours	Daily	Every 3 months or 50 hours	Every 6 months or 100 hours	Every 12 months or 300 hours
Engine oil	Inspection - oil level					
	Exchange					
Visual inspection of hydraulic system for leaks						
Air filter	Inspection					
	Cleaning - as needed					
	Exchange					
V-belt	Inspection - tensioning					
	Inspection - tensioning					
Drive chain	Inspection - tensioning					
	Inspection - cleaning					
Sparkling plug	Inspection - cleaning					
Rubber mounts	Inspection - cleanliness					
Fuel hose	Inspection, replacement as needed					
Valve clearance	Inspection, adjustment					
Fuel tank and sieve	Cleaning					
Vibrator	Visual inspection for leaking					
Scrapers	Inspection, adjustment					
Sprinkling	Inspection, cleaning of water tank					
Travel control	Inspection					
	Adjustment of neutral position (2)					
Battery	Inspection, electrolyte level					
Fastening of control bar	Greasing					
Hydraulic oil	Visual inspection for leaking					
	Exchange (+filter replacement)					
	Exchange every 2 years or 500 working hours (whichever occurs earlier)					

- To be done more often if operated in dusty environment!!!
- These operations should be preferably done by authorized service technician.

7. Troubleshooting

Failure	Reason	Remedy
Engine cannot be started or got off during operation	No fuel in the tank, closed fuel tap	Add fuel, open the tap
	Engine switch in „0“ position	Turn the switch into the „1“ position
	Wrong position of the choke lever	Choke should be turned on at cold engine and off at warm engine
	No sparking - faulty sparking plug	Check the sparking plug, clean it or replace
Engine is running, the machine does not travel	Clogged air filter	Check the air filter, clean it or replace
	Low oil level (oil sensor turns the engine off)	Check oil level and add oil up to the upper mark
	Disconnected electrical connectors of engine ON/OFF switch (from below the control bar)	Check electrical connection
	Faulty coupling of hydraulic pump drive	Replace the coupling it as needed
Vibration does not work (engine is running, travel is O.K.)	Failure of the control cable	Check function of the control cable
	Loose or disconnected drive chain	Remove the cover and check the drive chain
	Failure of the hydraulic system	Call service
	Loose or broken V-belt of electromagnetic clutch drive of clutch-to-vibrator drive	Tension the V-belts or replace them as needed
	Faulty electromagnetic clutch	Check electrical connection at the clutch, at the switch and at the engine

If the above mentioned procedure does not lead to elimination of the failure, call authorized service. When communicating with the service, always have ready the serial number of the machine.

7. Before starting the work, inspect the machine thoroughly, check all safety devices, indicators and controls. In case of any failure which could endanger the safe operation, do not start the machine and report the failure to the responsible manager.
8. If any failure is found during the operation, immediately stop the machine and secure it from unauthorized starting.
9. During operation, follow the machine and record all failures into the operator's diary.
10. The operator is obliged to keep the operator's diary, which should contain records of changing shifts, of failures, repairs and other significant events.
11. Before starting the engine, check that the travel control lever and the vibration switch are in neutral (zero) position. The parking brake should be engaged and no bystanders are allowed around the machine. No obstacles should be around and under the machine.
12. Be sure the parking brake is disengaged before attempting to ride the machine.
13. Attend the operational instructions during operation. Pay full attention to operation of the machine.
14. Attend the technological procedure and orders of the responsible manager.
15. When traveling around the jobsite, adjust the travel speed to be adequate to terrain, compaction work and other conditions. Follow the path of the machine to avoid collision with an obstacle. When working on a slope, the operator should be always above the machine, never below it.
16. When you are going to leave the machine after termination or interruption of the work, secure the machine from unauthorized use or accidental movement by engaging the parking brake.
17. After termination of the work, place the machine to a suitable area (level area of sufficient bearing capacity), where the machine stability is not in doubt. The machine should not project into transport paths. The machine should be safe from falling objects and other danger of act of God (floods, soil falls, etc.).
18. If it is necessary to park the machine on public roads, it must be marked in accordance with the valid regulations.
19. After termination of work, all failures and damages should be written in the operator's diary. When passing the machine to another operator, let him know about all failures.
20. Use protective wear, safety boots, hard hat and ear protection (effective at 90 dB(A)). Do not wear loose or torn clothes.
21. Keep the machine equipped with prescribed accessories.
22. If the machine gets into contact with a high-voltage power lines:
 - arrange that the voltage is switched off,
 - warn the other from coming near or touching the machine.
22. Keep the machine free of oil or other flammables.
23. Under all circumstances observe messages marked with „-“.

1.4 Forbidden Activities

-1- NOTE!

The machine is not approved for operation on public roads.

NEVER:

- NEVER operate the machine drunk or intoxicated;
- NEVER operate the machine when its operation could endanger its technical shape, personnel safety, or when its operation could cause damage to property or cause harm to the environment;
- NEVER start and operate the machine, if there are other people close around the machine (except of operators' training);
- NEVER start and operate the machine if any of the safety devices is dismantled or faulty (parking brake, travel control lever, covers, etc.);
- NEVER start the engine in closed spaces, unless proper ventilation is ensured. Concentrated exhaust fumes are dangerous!
- NEVER travel and compact with the machine on such slopes, where the machine could roll over. The nominal

static stability is in real operation not achieved due to dynamical effects. The machine should not be inclined more than 20° (36%) in all directions due to limitations valid for the engine (for long-term operation);

- NEVER travel uphill of inclination above 20° (36%) with full water tank. **WARNING!** The machine may roll over.
- NEVER travel and compact with the machine on such slopes, where the soil could slide down with the machine or where the machine could lose its adhesion and slide down;
- NEVER operate the machine in another way or for another purpose than those specified in the operation manual;
- NEVER travel and compact with the machine close to edges of ditches, holes, slopes, etc., which could collapse and bury the machine;
- NEVER compact with vibrations close to buildings and constructions which could get damaged due to vibration transfer;
- NEVER carry other people on the machine;
- NEVER operate the machine close to other machinery except of those who work in collaboration with the machine;
- NEVER operate the machine in such location, which is not visible from the

1.5 Operation

1. When starting the engine, keep proper posture and hold firmly the grip.
2. Check all controls of the machine.
3. Control the machine by its handle; never leave running machine.
4. Be sure the parking brake is disengaged before attempting to ride the machine. Failure to do that may cause the hydraulic hoses to burst or the drive belts to burn.
5. Before leaving the machine, place the machine on firm and level area, turn off the engine and engage the parking brake.
6. Turn off the engine before refueling. Avoid contact of fuel and hot parts of the engine.
7. Close the fuel tank properly. Close the fuel tap when the machine is out of operation.

operator's position, unless suitable signalization is secured;

- NEVER operate the machine within the protective strip of high-voltage power line;
- NEVER run across the power cables, unless they are sufficiently protected;
- NEVER operate in night, unless whole area is sufficiently illuminated;
- NEVER leave the machine when it is working;
- NEVER leave unsecured machine;
- NEVER put the safety devices out of operation, never modify these devices;
- NEVER use the machine with leaking oil, fuel or other fluids;
- NEVER start the machine in other than prescribed manner;
- NEVER clean running machine;
- NEVER service the machine unless it is secured from accidental move or unauthorized starting. Avoid rotating parts;
- NEVER touch moving parts of the machine by hand or handheld tool;
- NEVER smoke or use naked flame when refueling or when exchanging oil;
- NEVER carry any objects on the machine.

NOTE: Loose (broken) fuel tank or fuel lines may lead to fire or explosion. Such faulty part must be replaced immediately!

8. The machine must not be operated in an explosion-dangerous area.
9. DANGER! The exhaust fumes are poisonous! If operated in closed spaces (deep ditches, tunnels, etc.) ensure sufficient ventilation.
10. The operator should use protective boots, ear protection and safety gloves during operation.
11. Extra care should be paid when operating the machine at the edges of ditches, holes, etc. to avoid rolling over or falling down of the machine.

6.2 Storage

1. Store the machine on a safe place, where it is protected from misuse and where is no danger of the act of God (fire, floods, etc.).
2. Place the machine to a firm and level area with sufficient bearing capacity, where soil cannot slide down and bury the machine.
3. Engage the parking brake and secure both drums with wedges.
4. If possible, store the machine under roof, in dry and well-ventilated space.
5. Clean the machine thoroughly before storing.

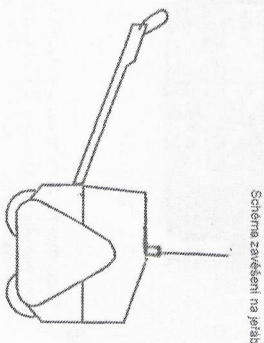
6. In case the machine is going to be stored for prolonged period (over winter), it is recommended to conserve all metallic parts (sprockets, pins, etc.) with a suitable conservation oil. **DO NOT CONSERVATE THE DRUMS!** Repair all points of damaged paint.

7. Drain the water tank before winter storage. In order to drain as much water as possible, place the machine against a slope. Open both water taps and let water to run out.

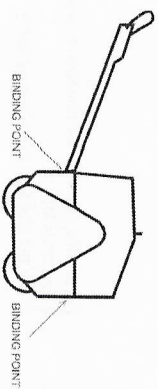
6. Transport and Storage

6.1 Transport

1. Keep safety instructions given in the chapter 1.7.
2. When hoisting the machine on a crane, fix the hook to the central eye at the frame (see scheme).



3. Drain water tank before climbing to a carrier. Pay special care, as the machine may roll over easily.
4. When transporting the machine on a carrier, engage the parking brake, secure both drums with wedges and fix the machine with binding means to the binding points (see scheme).



4. For easy transport, the manufacturer recommends to use special trailer with tipping platform. This kind of trailer is available from the manufacturer (for Czech Republic only). In other countries, it is recommended to source such trailer locally.

Fig. Trailer PV 210.16 PROFI

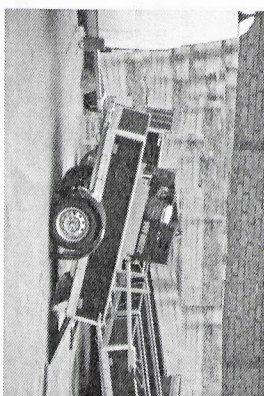
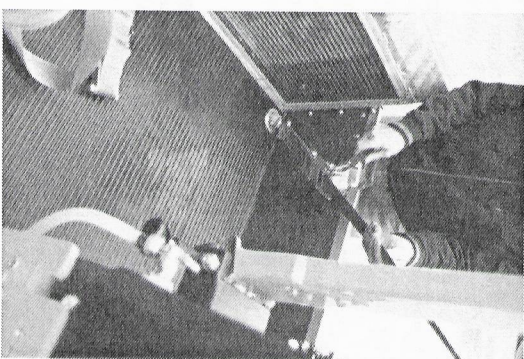


Fig. Fastening of the machine on the trailer



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12. When working on a slope, do not exceed inclination of 20° (36%). If exceeded, the machine may roll over.
13. Guide the machine in such manner to avoid collision with an obstacle and possible hands injury.
14. Follow the travel path to avoid collision with another person or with an obstacle.

1.6. Operation in Dangerous Spaces

Any damage to the utility lines should be immediately reported to their respective owner. At the same time, the location should be closed for unauthorized access.

1.7 Transport of the Machine

1. When loading and transporting the machine, fasten the binding means to the respective binding points (see point 6, see also art. 1.13 point 8).
2. Drain the water tank before climbing to a carrier. Pay special attention, there is a danger of the machine rolling over.
3. On a carrier, secure the machine safely to prevent its movement on the bed or its rolling over.
4. When hoisting on a crane, fasten the hook to the designated eye on the machine's frame (see art. 1.13, point 7). Use rope of sufficient capacity. Only qualified binder is allowed to hook the machine.

!-DANGER!

Never enter under hoisted machine!

1.8 Testing

The machine should be tested by authorized service technician in intervals depending on operating conditions, but at least once per year.

1.9 Service

- Lubrication, maintenance and adjustment of the machine should be done by trained personnel only.
- The service intervals as according to the maintenance table should be followed (see art. 8).
- Before servicing, place the machine on a firm and level area and secure it from accidental move and unauthorized starting.

15. When reversing, be sure there is enough space behind the machine in order to avoid collision with an obstacle.

16. If the operator still gets between the control bar and an obstacle when reversing and the control handle pushes him to the obstacle, the travel control lever would get pushed forward and the machine would run away of the operator (the dead man's control).

The operator is forbidden to work alone on a jobsite, where is no other person within contact, who is able to bring help in emergency, unless there is another effective control or connection.

LEVER TRAVEL (SEE 3.1 BASIC PARAMETERS VV) IS USED TO CONTROL ONLY, IF ON VIBRATION (WORKING SET, T.J. MAXIMUM SPEED), VIBRATORY ROLLER KEPT NOT BE LIABLE FOR LIFTING TRAVEL LEVER, ROTATING, FIXED, DRIVEN, ETC., AS THIS WOULD DAMAGE TO ITS FLEXIBLE STORAGE! IN CASE OF DAMAGE DUE TO MACHINES FROM THIS COMPANY IS NOT RESPONSIBLE FOR DAMAGES!

The technician would inspect if the machine is in satisfactory conditions for safety reasons and would suggest necessary repairs.

- Mark the machine with a label "Machine out of operation".
- Carry out service operations only when the machine is at standstill and after the engine cools down.
- Adjustment and other operations which must be done at running engine should be done at presence of another person, who is ready to shut down the engine in case of emergency.

- Before servicing, clean thoroughly the machine. Pay special attention to the respective points of servicing.
- Use only suitable and undamaged tools.
- Use genuine spare parts only. The manufacturer does not bear any responsibility for damages arising from use of non-original spare parts.
- When working at night, the whole area must be sufficiently illuminated.
- In case it is necessary to remove covers or other safety devices, these must be put back before putting the machine in operation.

1.10. Fire Prevention Instructions

- The flammable liquids used at the machine are classified into the following classes of fire danger:
1st class - gasoline
2nd class - diesel
4th class - mineral oils, grease
- Do not exchange oil at area, where is danger of fire or explosion.
- Mark the area with tables "No smoking" and "No naked flame".
- The area must be capable to absorb such quantity of flammable liquid, that is equal to the capacity of the biggest used container.
- The area must be equipped with fire extinguishers.

1.11. Environmental and Hygienical Principles

The user of the machine is obliged to attend general principles of health protection and environmental protection, as well as the respective law, regulations and standards that are valid for the specific territory when the machine is used.

- Oil products, paints and solvents are harmful agents. Workers who get into contact should keep general principles of health protection and follow the safety and hygienical instructions issued by producers of such agents.

Pay special care to:

- protection of skin when working with oil products and paints;

- Bolted connections are to be tightened with prescribed torque and secured with a special glue. Contact authorized service or the manufacturer (see art. 4).

DANGER!

Avoid skin burns when draining hot oil.

DANGER!

Hydraulic fluid escaping under high pressure (as when loosening couplings of the hydraulic system) may penetrate your skin and cause serious injury. Therefore first release pressure from the hydraulic system.

- Flammable liquids, such as oil, gasoline or diesel fuel, should be stored in metal drums, barrels, etc.
- The containers must be always properly closed for storing.
- The containers must be placed with the opening up and secured from leaking or dripping.
- The containers must be marked with description of the content and class of fire danger.

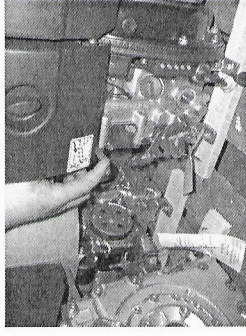
NOTE! The hydraulic system of travel is highly sensitive for cleanliness of the hydraulic oil. Therefore use always only absolutely clean oil, preferably directly from original containers.

- wash your hands properly after work and before meals, treat your hands with suitable reparation cream.
- Oil products, paints and solvents, as well as cleansing and conservation agents should be always kept in properly closed original containers. Do not allow storing of such agents in unmarked cans and bottles as it could be easily interchanged for food and drinks.
- If such agents get into accidental contact with skin, eyes, mucous membranes or if vapors are inhaled, apply immediately the first aid principles. If swollen, seek medical assistance.
- Used operational fluids including used filters and hoses become dangerous waste. Such

5.4.2. Engine HATZ

1. Turn off the vibrator. Slide the throttle control lever to the idle position (0) – see above.
2. Depress the red knob at the front side of the engine to stop the engine.

NOTE: Do not forget to turn off the ignition key and remove it from the switch box. Otherwise the battery may get discharged (see 5.1.2.).



5.5. Special Conditions of Operation

5.5.1. 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.

5.5.2. Operation at High Altitudes

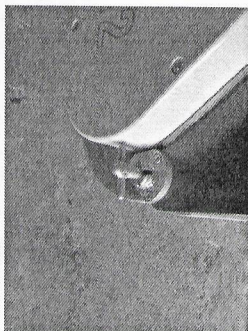
With increasing altitude, engine power decreases due to changed oxygen content. Within certain extent, it is possible to improve the engine power by installing different main nozzle and by adjusting the carburetor (gasoline engines) or by adjusting the injection system (diesel engines). Should the machine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

5.5.3. 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.

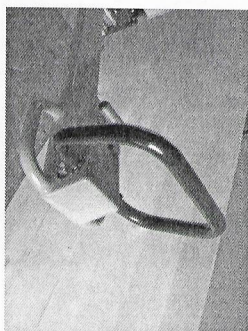
5.2 Travel Control

Be sure the parking brake is disengaged before attempting to ride the machine. Failure to do that may cause the hydraulic hoses to burst or the drive belts to burn.



Verify that nobody is endangered by the machine. Before reversing, be sure that there is sufficient free space behind you.

Direction and speed of travel is controlled by the travel control lever. Releasing of the lever brings the machine to a halt.



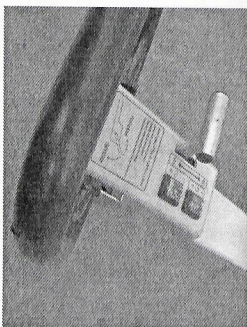
5.3 Turning on the Vibration

Turn on the vibration only at such surface, which can be compacted (soil, fresh asphalt). Never turn on vibration on hard surface (as concrete), as the vibrations get excessively transferred into the machine's structure.

1. Turn on and off the vibrator using the electric switch at the control bar.
2. Before turning on the vibrator, slide the throttle control lever into the "FULL THROTTLE" position (also marked with the "RABBIT" symbol).

NOTE:

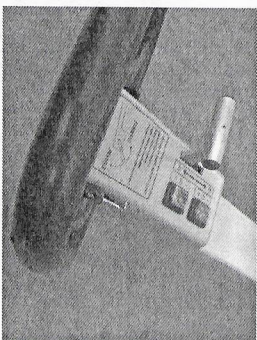
The machine is equipped with a terminal switch that disables vibration unless full throttle is set.



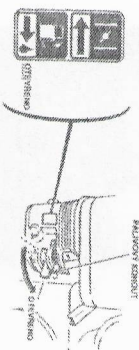
5.4 Turning the Machine Off

5.4.1 Gasoline Engine (HONDA)

1. Turn off the vibrator. Slide the throttle control lever to the idle position (0).



2. Turn off the engine ignition switch (at the control bar).
3. Turn off the fuel tap.



agents and parts should be disposed of with respect to the respective environmental and

health protection regulations.

1.1.2 Liquidation of the Machine

After termination of its service life, the machine should be liquidated in accordance with the respective environmental regulations. When liquidating a machine, the battery must be removed (models VVV 600/12HE, VVV 601/12HE, VVV 700/22HE, VVV 701/22HE) and removed oil fill from the engine and from the hydraulic circuitry, including oil filters, hydraulic hoses, hydromotor and hydraulic pump.

In accordance with the law of waste disposal, the owner is obliged to:

- metallic parts are to be disposed off to subjects which are authorized to collect and liquidate this sort of material;
- dismantled battery is to be disposed off to subjects which are authorized to collect and liquidate this sort of material;

- used engine and hydraulic oil is to be disposed off to subjects which are authorized to collect and liquidate waste oils;
- dismantled oil filters, used hydraulic hoses, hydraulic pumps and hydromotors is to be disposed off to subjects which are authorized to collect and liquidate this sort of material;

The manufacturer bears no responsibility for health or environmental damages arising from insufficient attendance to the above mentioned principles.

1.1.3 List of Safety Signs Used at the Machine

At the said models of walk-behind rollers type VVV 600/12(HE) a VVV 700/22(HE), there are in accordance to the law No. 22/1997 as amended, used adhesive stickers with safety markings, symbols and informative texts, as

specified by the respective ČSN technical standard.
In the following text, the stickers are illustrated as they appear at the machine. Each illustration is supplemented with a description.

1.	A sticker containing symbols of safety marking as per ČSN ISO 3864 (symbol No. B.2.5, NB.3.19 and NB.2.26), symbol as per ČSN ISO 6405-1 (symbol No. 7.28), symbol of graphic version of the Czech marking of conformity as per government regulation No. 179/1997 Sb. as modified by NV No. 291/2000 Sb. Information for practical operation of the machine. Safety marking, symbol No. B.2.5 that orders the operator to wear ear protection for the whole time of operation. Marking, symbol No. 7.27 issues the obligation to the operator to read the Operator's Manual before beginning the work with the machine. Safety marking, symbol No. NB.2.26 issues the obligation to the operator to use safety gloves protecting against the effects of vibration for the whole time of operation. Safety warning mark, symbol No. B.3.1 (exclamation mark) that warn the operator from the risks and dangers. Information for the operator how to proceed at repairing, cleaning or adjusting of the machine.	THE MACHINE MUST BE AT STANDSTILL FOR REPAIRING, CLEANING OR ADJUSTMENT
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Vibratory Roller line vv

Operation manual

2.	A sticker of warning according to ČSN ISO 3864. This symbol informs the operator, that dangerous temperatures are under the cover for the whole time of operation.	
3.	A sticker of symbol No. 8.1. according to ČSN ISO 6405-1 (the sticker marks the draining plug of engine oil).	
4.	Combined sticker containing symbols No. 6.1, 7.1 and 7.2 according to ČSN ISO 6405-1; as well as the symbols of turtle and running rabbit meaning idle run and full speed of the machine. Also contains the symbols of switch for turning the vibrator ON/OFF and switch for turning the engine OFF.	
5.	Combined sticker No. 11.6 as per ČSN ISO 6105-1. The sticker marks the marking brake.	
6.	Informative sticker „CAUTION“. Informs the operator to release the parking brake before operating the machine.	
7.	A sticker of symbol No. 7.25 according to ČSN ISO 6405-1 (a symbol marking the lifting point)	
8.	A sticker marking the points to be used when fastening the machine for transport.	
9.	A sticker illustrating the symbol of water taps of the sprinkling mechanism.	
10.	A sticker HYDRAULIC TANK informs the user of the sort of hydraulic oil.	
11.	A sticker WATER TANK informs the user of the max. capacity of the water tank.	
12.	A sticker containing information of the type of fuel suitable for the engine.	

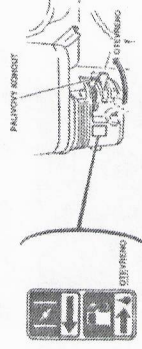
Vibratory Roller line VVV

5. Operation

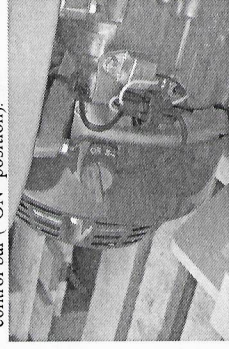
5.1 Engine Starting

5.1.1 Gasoline Engine (HONDA)

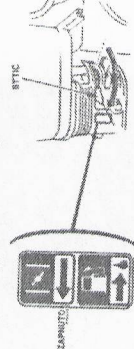
1. Turn the fuel tap into the "ON" position.



2. Turn on the ignition switch, located at the control bar ("ON" position).



3. Put the choke lever into the "CHOKE" position. Do not use choke at warm engine or at high ambient temperature.



4. If the machine is equipped with electric start, follow points 1 and 3, then turn the key in the ignition (1) to "START" position. After starting the engine with the key back to "ON" and for running the engine remains in this position.



Operation manual

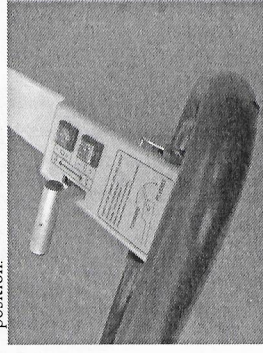
5.1.2 Diesel Engine (HATZ)

Diesel engines HATZ have electric starter. The switch box is located at the front of the machine (see pics). Start the engine by turning the key, release the key after starting.

The engine can be also started manually (i.e. in case of discharged battery). Always however have the ignition turned on, otherwise the vibrator will not work.

Keep principles and procedures prescribed by the HATZ operation manual.

1. Set the throttle control lever into the idle position.



2. Pull the grip of the starting cord slowly till you can feel some resistance, then pull vehemently. Do not release the grip immediately, but return it slowly to the original position.
3. Let the engine to warm up, then close the choke (lever in the "OPEN" position).
4. Let the engine to run at idle for a while to warm up.

5. Before turning on the vibrator, slide the throttle control lever into the "FULL THROTTLE" position (also marked with the "RABBIT" symbol). The machine is equipped with a switch which disables vibration unless full throttle is used.

Keep principles and procedures prescribed by the HONDA operation manual.



4.10. Check – Electromagnetic Clutch. The electromagnetic clutch makes one assembly together with the hydraulic pump.

The clutch serves for turning vibration on and off. The used clutch is of a high quality and ensures troublefree operation for the whole lifetime of the machine.

For proper operation of the machine keep the clutch free of dirt. Dirty clutch may result in overheating when disengaged or slipping when engaged, both leading to rapid wear and damage to the clutch.

Remove dirt between the friction segments i.e. by a thin metal (feeler gauge), blowing off, or with similar method.

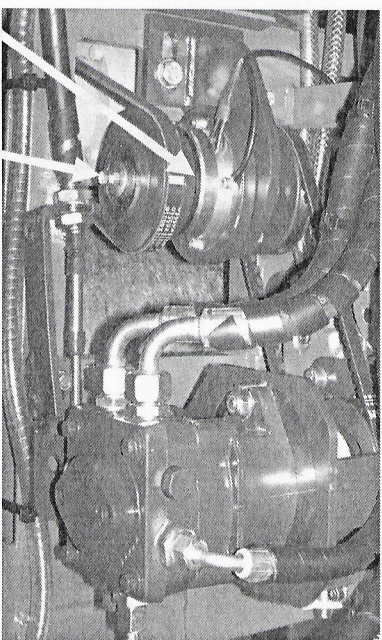
New clutch is factory adjusted to proper clearance. This clearance needs no further adjustment for the whole service life of the machine.

To check proper function:

1. Let the engine idle for a while, with the vibrator disengaged. Then, check if the clutch does not warm up (by hand, with engine off). If the clutch does warm up, the clearance is too small, or some dirt is stuck between the friction segments.
2. Test the roller with vibration (at full throttle). If the clutch slips when engaging (insufficient vibration, irregular operation), the clearance is too high, or the friction segments are greasy.

The clearance between the clutch plates (approx. 0,15 – 0,45mm) can be checked with a feeler gauge.

For adjustment of clutch clearance use genuine parts only! Disassembly and assembly of the hydraulic pump and the clutch should be done exclusively by an authorized service.



- 1) Measuring point
- 2) Clutch gap adjusting bolt

13.	A sticker containing instructions for controlling the travel control lever.	FUNCTION OF TRAVEL CONTROL LEVER → Forward (with the lever raised) ← Reverse (with the lever lowered) (Travel speed is adjusted to the degree of the lever inclination)
14.	A sticker containing the maintenance schedule and specifications, what maintenance is to be done including the service intervals.	TABLE OF MAINTENANCE Check the following items at the specified intervals: 1. Check the oil level in the engine oil pan. 2. Check the oil level in the hydraulic pump. 3. Check the oil level in the clutch. 4. Check the oil level in the vibrator. 5. Check the oil level in the travel control lever. 6. Check the oil level in the safety instructions. 7. Check the oil level in the operation manual. 8. Check the oil level in the disposal of the packing material. 9. Check the oil level in the settlement of the buy-back of all sorts of packing material with the EKO-KOM a.s. company.
15.	A sticker containing the safety instructions.	SAFETY INSTRUCTIONS Read the operation manual carefully before starting the machine. 1. Do not operate the machine if you are not familiar with the operation manual. 2. Do not operate the machine if you are not familiar with the safety instructions. 3. Do not operate the machine if you are not familiar with the disposal of the packing material. 4. Do not operate the machine if you are not familiar with the settlement of the buy-back of all sorts of packing material with the EKO-KOM a.s. company.
16.	A sticker specifying the noise emission level as measured in accordance to NV No. 9/2002 Sb.	105 dB
17.	A sticker containing information about maximal type inflation.	200 kPa
18.	A sticker marks location of operation hour counter	OPERATION HOUR COUNTER
19.	A sticker containing information about oil level in the vibrator.	V
20.	A sticker marking the oil filling plug at the vibrator.	V
21.	A sample of sticker marking the machine type.	VVV 601/12

1.14 Disposal of the Packing Material
Company NTC STAVEBNÍ TECHNIKA spol.s r.o. is registered with the company EKO-KOM a.s.

There is made the „Agreement of complex settlement“ of buy-back of all sorts of packing material with the EKO-KOM a.s. company.

2. Hygienical 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)

$L_{pA,d}$ [dB]	VVV 600/1 2 81+4	VVV 601/12 81+4	VVV 600/12HE 85+4	VVV 601/12HE 85+4
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$L_{pA,d}$ [dB]	VVV 700/2 2 83+4	VVV 700/22E 2 83+4	VVV 700/22HE 85+4	VVV 701/22HE 85+4
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Guaranteed level of acoustic power A

(measured according to NV 89/2002 Sb., Annex 8, point B, point 9c) and ČSN EN ISO 3744:2010)

$L_{WA,G}$ [dB]	VVV 600/1 2 105	VVV 601/12 105	VVV 600/12HE 105	VVV 601/12HE 105
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$L_{WA,G}$ [dB]	VVV 700/2 2 105	VVV 700/22E 2 105	VVV 700/22HE 105	VVV 701/22HE 105
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Vibration:

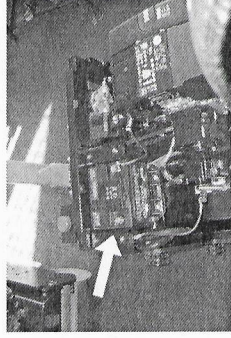
Declared overall value of vibrations acceleration – transferred to hand – arm of vibratory roller operator
(measured according to ČSN EN ISO 20643 by conditions determined in ČSN EN 500-4, Annex C).

$a_{h,d}$ [$m.s^{-2}$]	VVV 600/12 5,14+2,06	VVV 601/12 5,14+2,06	VVV 600/12HE 3,6+1,8	VVV 601/12HE 3,6+1,8
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$a_{h,d}$ [$m.s^{-2}$]	VVV 700/22 2,76+1,38	VVV 700/22E 2,76+1,38	VVV 700/22HE 3,2+1,6	VVV 701/22HE 3,2+1,6
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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 roller 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 roller are determined by machine operator by workplace categorization.

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



4.8 Check – Chain Tensioning

See Maintenance Schedule point 8.

Recommended procedure:

Dismantle the chain cover.
If possible, suspend the machine on a crane, so that both drums are above ground. If not available, lift the machine using a jack or rock the machine by the control bar (not by the travel control lever!) in order to equalize tension in the individual branches.

4.9 Check – Drive Belt Tensioning

See Maintenance Schedule point 9.

Properly tensioned belts should have deflection about 1 cm under finger pressure.

When pushing against the belt, which leads from the hydraulic pump to the tensioning pulley, the rubber mount under the hydraulic pump must show no deformation. Also, tension of the drive belt must not cause any deformation of this rubber mount. If necessary, adjust belt tension by electromagnetic clutch bracket bolts. (position 1,2)

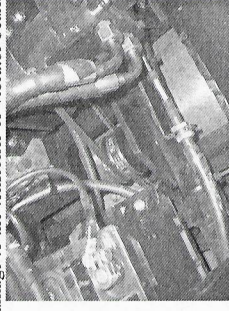
NOTE: It is exceptionally important not to over-tension the belt between the tensioner (the layshaft) and the vibrator. This belt links the lower machine frame with the base plate; there is a mutual movement between these parts during operation (based on vibration of the lower frame). This drive belt must be loose

Tension the chain by means of the tensioner, so that its deflection on the longest branch is 6-10mm.

Note: All bolts are glued.

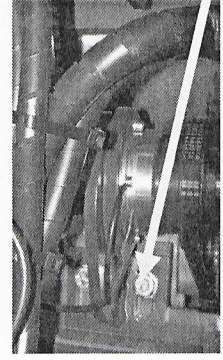
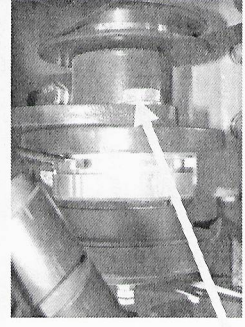
It is recommended to commit this operation to an authorized service.

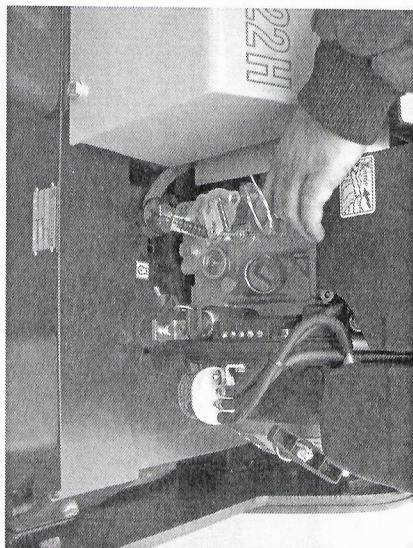
enough to enable such movement (deflation approx. 1-1,5 cm). Its over-tensioning may lead to damage to the tensioner or vibrator bearings.



Note: All bolts are secured with glue.

It is recommended to commit this operation to an authorized service.





4.6 Check - Hydraulic Oil Level

Do not open the hydraulic tank during warranty. Do not disconnect the hydraulic circuitry, nor replace any hydraulic components. In case of any failure of the hydraulic system during warranty, call authorized service.

The manufacturer delivers the machine with sealed hydraulic tank. By breaking the seal, the user voids warranty.

After warranty, check the hydraulic oil level with a dipstick located under the filler cap. Add oil if necessary.

NOTE: Use only clean oil of the same sort as that used in the tank. Before removing the tank cap, clean the cap thoroughly. All containers used for storing or handling the

oil must be perfectly clean. Do not leave the tank open for prolonged period.

It is highly recommended to fill the oil tank from filling device with external filtering system, or directly from original containers. Best of all, let this operation to be done by authorized service.



4.7 Check and maintenance - Battery

A battery is used at rollers with HATZ engines (see the Maintenance Schedule - point 8).

1. Open the plugs and check the electrolyte level. If necessary, add distilled water so that electrolyte reaches up to the mark (the level should not drop below the inner plates).
2. Check the battery fastening.
3. Clean battery terminals and wire clamps and apply them with grease.

3. Technical Description

The walk-behind vibratory rollers of the VVV line are designated for compaction of all sorts of soils as well as for compaction of asphalt surfaces.

The machines feature optimal combination of centrifugal force, vibration frequency and static weight, resulting in excellent compaction effect on various materials.

The walk-behind vibratory rollers of the VVV line are fitted with a non-directed vibration exciter which emits circular vibration with single direction. The vibrator is fixed to the lower frame and with both drums. The exciter is driven from the engine via driving belts and an electromagnetic clutch. The controls - switch of the clutch, travel control lever and the engine STOP switch are located at the control bar within reach of the operator.

Travel of the machine is ensured by the hydraulic system, consisting of a regulating hydraulic pump and a hydromotor. Torque from the hydromotor is then transferred by a drive chain and sprockets to the drums. The

hydrostatic system of travel includes also the hydraulic oil tank and oil filtration system.

The engine, hydraulic pump, electromagnetic clutch of vibration and water tank are located at a frame, which is connected to the vibrating part of the machine with 4 rubber mounts.

The machine is driven by four-stroke, single-cylinder air cooled engine HONDA (VVV 600/12, VVV 700/22) or with diesel engine HATZ (VVV 600/12HE, VVV 700/22HE).

Travel speed and direction can be controlled by the travel control lever. Travel speed can be controlled infinitely, within the range from zero to maximal speed.

The vibratory roller has a sprinkling system with a water tank and water distribution to both drums.

Besides of the basic version with steering bar, the roller can be also supplied with a steering wheel (VVV 601/12, VVV 701/22). The steering wheel makes maneuvering easier. The control members of travel, throttle and vibration are the same at both versions.

3.1. Basic Technical Data

VVV 600/12		VVV 600/12G
See 3.3		See 3.3
Weight	560 kg	565 kg
Transport weight	527 kg	532 kg
Frequency	60 Hz	60 Hz
Centrifugal force	12 kN	12 kN
Travel speed	0-5 KPH	0-5 KPH
	0-2 KPH	0-2 KPH
	20° (36%)	20° (36%)
Max. gradability	301	301
Water tank capacity		
Engine	HONDA	HONDA
Type	GX 200	GX 270
Cooling	Air	Air
Net power	4.1 kW	6.3 kW
Rated speed	3600 min ⁻¹	3600 min ⁻¹
VVV 600/12HE		VVV 600/HE3
See 3.3		See 3.3
Dimensions VVV		
Weight	580 kg	585 kg
Transport weight	545 kg	550 kg
Frequency	60 Hz	60 Hz
Centrifugal force	12 kN	12 kN
Travel speed	0-5 KPH	0-5 KPH
	0-2 KPH	0-2 KPH
	20° (36%)	20° (36%)
Max. gradability	301	301
Water tank capacity		
Engine	HATZ	HATZ
Type	1B20	1B30
Cooling	Air	Air
Net power	3.4 kW	5.0 kW
Rated speed	3600 min ⁻¹	3600 min ⁻¹
VVV 601/12		VVV 601/12HE
See 3.3		See 3.3
Dimensions VVV		
Weight	610 kg	630 kg
Transport weight	577 kg	595 kg
Frequency	60 Hz	60 Hz
Centrifugal force	12 kN	12 kN
Travel speed	0-5 KPH	0-5 KPH
	0-2 KPH	0-2 KPH
	20° (36%)	20° (36%)
Max. gradability	301	301
Water tank capacity		
Engine	HONDA	HATZ
Type	GX 200	1B20
Cooling	Air	Air
Net power	4.1 kW	3.4 kW
Rated speed	3600 min ⁻¹	3600 min ⁻¹
Operational weight – Includes oil fill, full fuel tank and full water tank.		
Transport weight – Includes oil fill, but empty fuel tank and empty water tank.		
Engines HONDA are four-stroke, single-cylinder, air-cooled engines. Fuel – gasoline without oil.		
Engines HATZ are diesel air cooled engines. Fuel – diesel.		

4.3.2. Diesel Engines

Use diesel fuel according to the following specifications:

- CEN EN 590, resp. DIN/EN 590
- DIN 51 601
- BS 2869: A1 and A2
- ASTM D 975-88: 1-D and 2-D
- VV-F-800C: DF-A, DF-1 and DF-2
- NATO code F-54 and F-75

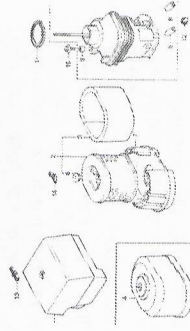
At temperatures below freezing, use a winter-grade diesel fuel or mixture with special additives (i.e. kerosene), in order to prevent precipitation of paraffins in the fuel system of the machine. When buying the diesel fuel at gas stations, there is usually the correct fuel available.

4.4 Check - Air Cleaner

Check the air cleaner for cleanliness. If dirty, clean or replace the element.

Filter element of paper type should be just blown off – never should it be washed.

Never operate the engine without the filter element. Dust and dirt would cause rapid damage to the engine.



4.5 Engine Maintenance

- see enclosed engine operation manual

NEVER INCREASE ENGINE SPEED ABOVE PRESET LIMIT!

Excessive engine speed may lead to damage of the machine.

The manufacturer bears no responsibility for any damage resulting from such reason!

4.5.1. Adjustment of engine idle speed decelerator HATZ

HATZ increase preload control cable to the gas engine so the engine was running smooth and to prevent the idling vibration of the upper frame of the machine and battery. Adjust the idling speed screw through the spring.

Please note - due to uneven running engine at low speeds may be set to occur GUMOKOV damage, leakage of electrolyte from the battery, etc.

4. Before Starting

- Regularly check the vibrator, engine and the hydraulic system for oil leakages. In a case of failure call authorized service center or the manufacturer.
- All important bolts at the machine are secured with a glue and tightened to prescribed torque. Therefore we strongly recommend to contact an authorized service center or the manufacturer for necessary assembly procedure before the work is started.

4.1 Basic Inspection

Inspect the machine regularly. Pay special attention to:

- whether the machine is complete (if some parts are not lost)
- if some bolted connections are not loosened

- if fuel or lubricants do not escape from the engine, vibrator or the hydraulic system
 - whether rubber mounts are not partially or fully torn
- Pay special care to the condition of protective devices (covers) and controls.

4.2 Check - Engine Oil Level

It is highly recommended to check oil level even at machines, which are equipped with the oil sensor. In the case of machines which do not have the oil sensor, daily oil level check is of utmost importance.

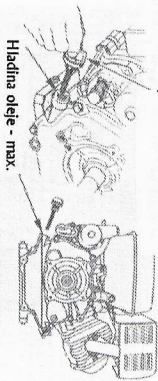
Use recommended oils only! Choose oil viscosity in accordance to the temperature conditions at the place of use.

Attention:

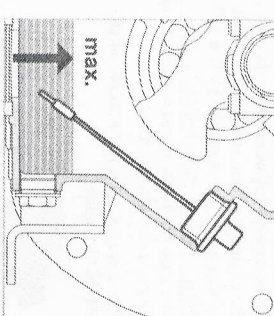
Operation with insufficient oil level may result in serious damage to the engine. In a case any leakage is found, stop the engine immediately and call service.

How to check oil level:**Engines HONDA**

Zatka pinčito a
kontrolního olejového
prvku s mětkou



Place the engine in horizontal position. Unscrew the oil plug from the filter/inspection hole. Oil level should be at the at the edge of the hole, oil should slightly run out.

Engines HATZ

Place the engine in horizontal position. Wipe the plug and the filler with a clean cloth. Dip the dipstick into the filler screwing it in. If the oil level does not reach to the dipstick, add oil into the filler up to the upper mark on the scale.

4.3 Check - Fuel Level**4.3.1 Gasoline Engines**

Use leaded or unleaded gasoline suitable for motor vehicles, with octane number 91 and more. If necessary, refuel up to the edge of the

filler sieve. Never use gasoline mixed with oil, not dirty gasoline. Prevent dust, dirt or water from getting into the fuel tank.

Performance of engine is according to SAE J1349 for engines HONDA and according to ISO 3046-1 for engines HATZ.

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.

	VVV 700/22	VVV 700/22G	VVV 700/22E
Dimensions VVV	See 3.3	See 3.3	See 3.3
Weight	875 kg	880 kg	880 kg
Transport weight	820 kg	825 kg	825 kg
Frequency	55 Hz	55 Hz	55 Hz
Centrifugal force	22 kN	22 kN	22 kN
Travel speed	- forward 0-4.7 KPH 0-2.0 KPH 20° (36%)	- forward 0-4.7 KPH 0-2.0 KPH 20° (36%)	- forward 0-4.7 KPH 0-2.0 KPH 20° (36%)
- reverse	50 l	50 l	50 l
Max. gradability	50 l	50 l	50 l
Water tank capacity	HONDA GX 270	HONDA GX 390	HONDA GX 390
Engine	Type Cooling	Type Cooling	Type Cooling
Net power	Air 6.3 kW	Air 8.7 kW	Air 8.7 kW
Rated speed	3600 min ⁻¹	3600 min ⁻¹	3600 min ⁻¹
(with control bar)			
Dimensions VVV	VVV 700/22HE	VVV 700/22HE4	
Weight	See 3.3 915 kg	See 3.3 915 kg	
Transport weight	845 kg	860 kg	
Frequency	55 Hz	55 Hz	
Centrifugal force	22 kN	22 kN	
Travel speed	- forward 0-4.7 KPH 0-2.0 KPH 20° (36%)	- forward 0-4.7 KPH 0-2.0 KPH 20° (36%)	
- reverse	50 l	50 l	
Max. gradability	50 l	50 l	
Water tank capacity	HATZ IB 30	HATZ IB 40	
Engine	Type Cooling	Type Cooling	
Net power	Air 5.0 kW	Air 7.3 kW	
Rated speed	3600 min ⁻¹	3600 min ⁻¹	
(with control wheel)			
Total length	VVV 701/22	VVV 701/22HE	
Control bar height	2800	2800	
Other dimensions	1230 mm	1230 mm	
Weight	995 kg	1025 kg	
Transport weight	940 kg	970 kg	
Frequency	55 Hz	55 Hz	
Centrifugal force	22 kN	22 kN	
Travel speed	- forward 0-4.7 KPH 0-2.0 KPH 20° (36%)	- forward 0-4.7 KPH 0-2.0 KPH 20° (36%)	
- reverse	50 l	50 l	
Max. gradability	50 l	50 l	
Water tank capacity	HONDA GX 270	HATZ IB 30	
Engine	Type Cooling	Type Cooling	
Net power	Air 6.3 kW	Air 5.0 kW	
Rated speed	3600 min ⁻¹	3600 min ⁻¹	

Operational weight – Includes oil fill, full fuel tank and full water tank.
 Transport weight – Includes oil fill, but empty fuel tank and empty water tank.
 Engines HONDA are four-stroke, single-cylinder, air-cooled engines. Fuel – gasoline without oil.
 Engines HATZ are diesel air cooled engines. Fuel – diesel.
 Performance of engine is according to SAE J1349 for engines HONDA and according to ISO 3046-1 for engines HATZ.
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.

3.2 Oils and Lubricants

For use in both engine and the vibrator use high-quality engine oils of the following specifications:
 10W-30 API SJ/CF

For additional information please consult the engine manuals for HONDA, HATZ

- oil in the vibrator engine oil (see 3.2)
 VVV 600/12 - capacity cca 0,12 l
 VVV 700/22 - capacity cca 0,18 l

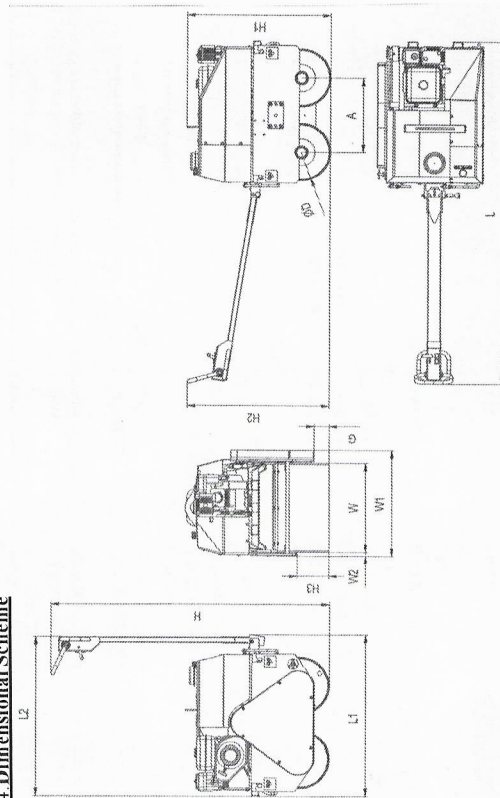
- hydraulic oil OH-HV 68

VVV 600/12 - capacity cca 9 l
 VVV 700/22 - capacity cca 9 l

3.3 Tyre inflation

Tyre of the steering wheel (for VVV 601/12 and 701/22) should be inflated to 200 kPa.

3.4 Dimensional Scheme



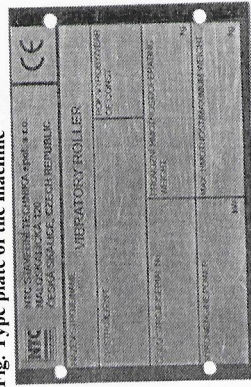
ROZMĚRY	A	D	G	H	H1	H2	H3	L	L1	L2	W	W1	W2
VVV 600/12	500	372	100	1880	1040	1100	205	2270	1085	1200	600	730	27
VVV 601/12	500	372	100	2000	1040	1100	205	2600	1800	-	600	730	27
VVV 700/22	580	452	116	2155	1110	1100	245	2710	1265	1250	700	830	32
VVV 701/22	580	452	116	2300	1110	1100	245	2880	1970	-	700	830	32

L1 bei VVV601/12 and 701/22 the dimension via the control wheel

3.5 Identification of the machine

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. Type plate of the machine



3.6 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), or stated at the type plate (HATZ).

In a case of doubts please contact an authorized service or the manufacturer.

Fig. Location of serial number at the HONDA engine

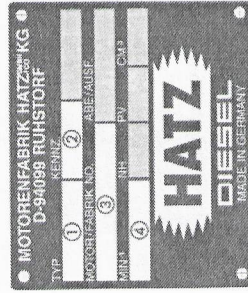
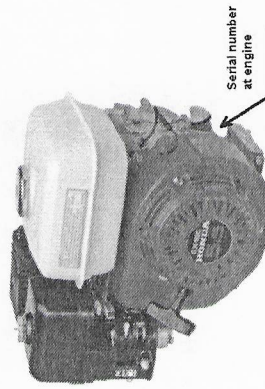


Fig. Serial number of the HATZ engine

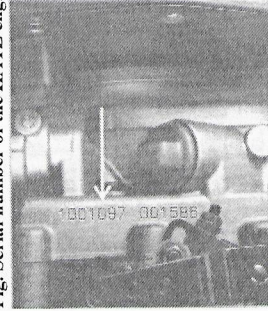


Fig. Type plate of the HATZ engine