



**NTC STAVEBNÍ TECHNIKA spol. s r.o.**

Jiřinková 120, 552 03 Česká Skalice

Tel: +420 491 401 650

e-mail: [ntc@ntc.cz](mailto:ntc@ntc.cz)

Fax: +420 491 401 609

[www.ntc.cz](http://www.ntc.cz)



**ISO 9001**

LL-C (Certification)

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# OPERATION MANUAL

## GENERATING SETS

### line TR / TRT / TRH



(issued 11/2017)

ORIGINAL OPERATION MANUAL (2006/42/EC)

# ***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*

|                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Výrobce (manufacturer):</b>                                                                                                                | <b>NTC STAVEBNÍ TECHNIKA spol. s r.o.</b>                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Sídlo firmy (legal address):</b>                                                                                                           | <b>Jiřinková 120, Česká Skalice 552 03</b>                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sídlo provozovny:</b><br>(company headquarters)                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>IČ (identification number):</b>                                                                                                            | <b>63221152</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Osoba pověřená sestavením a uchováváním technické dokumentace:</b><br>(person in charge of assembling and storing technical documentation) | <b>NTC STAVEBNÍ TECHNIKA spol. s r.o.</b>                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Název (model):</b>                                                                                                                         | <b>ELEKTROCENTRÁLA / GENERATOR</b>                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Typ (type):</b>                                                                                                                            | <b>TR-2,5; TR-3,3; TR-3E; TR-5E; TR-6E; TR-7E; TRH-221; TRT-6,5...</b>                                                                                                                                                                                                                                                                                                                                                                        |
| <b>výrobní číslo (serial number)</b>                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Popis (description):</b>                                                                                                                   | Jednofázová rámová stavební elektrocentrála slouží jako přenosný zdroj elektrické energie na stavbách a všude tam, kde není dostupná rozvodová síť. Elektrocentrála je poháněna motorem HONDA (čistý výkon 6 kW).<br><i>Single-phase frame-type construction generators serve as a portable source of electricity on construction sites where mains electricity is not at hand. The machine is driven with engine HONDA (net power 6 kW).</i> |
| <b>Všechna příslušná ustanovení, která výrobek splňuje</b><br>(The product meets all relevant provisions)                                     | Elektromagnetická kompatibilita – směrnice 2004/108/ES; NV 616/2006 Sb.<br><i>Electromagnetic Compatibility Directive 2004/108/EEC</i><br>Strojní zařízení – směrnice 2006/42/ES; NV 176/2008 Sb.<br><i>Machinery Directive 2006/42/EC</i><br>Emise hluku – směrnice 2000/14/ES; NV 9/2002 Sb.<br><i>Noise Emission 2000/14/EC</i>                                                                                                            |
| <b>Harmonizované technické normy:</b><br>(The harmonized technical standards)                                                                 | <b>EN ISO 12100-1, EN ISO 12100-2, EN 60204-1, EN ISO 14121-1, EN 61000-6-3, EN 61000-6-1</b>                                                                                                                                                                                                                                                                                                                                                 |
| <b>Osoby zúčastněné na posouzení shody</b><br>(Persons involved in the assessment of conformity)                                              | <b>Notifikovaná osoba č. 1007 (the European Notified Body No. 1007)</b><br><br>MEEI Kft. TÜV Rheinland Group, H-1132 Budapest, Váci út 48/A-B                                                                                                                                                                                                                                                                                                 |
| <b>Použitý postup na posouzení shody:</b><br>(To the conformity assessment applied procedure)                                                 | <b>Na základě směrnice 2000/14/ES příloha VI</b><br><i>Pursuant to the Directive for Noise Emission 2000/14/EC Annex VI</i><br><b>Na základě směrnice 2006/42/ES příloha IX</b><br><i>Pursuant to the Machinery Directive 2006/42/EC Annex IX</i>                                                                                                                                                                                             |
| <b>Naměřená hladina akustického výkonu:</b><br>(Measured sound power level)                                                                   | <b>L<sub>WA</sub> = 94 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Garantovaná hladina akustického výkonu:</b><br>(Guaranteed sound power level)                                                              | <b>L<sub>WA</sub> = 95 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                 |

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, 03.02.2011

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

**Jméno (Name):**  
Ing. Petr Ratsam

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

**Podpis (signature)**

**Congratulations! You have purchased a generating set of the TR / TRT / TRH line. You receive high-quality and powerful machine, intended for professional use under the heaviest conditions.**

**Read carefully this operation manual before starting the machine and always keep the instruction - this is the only way to protection of health of the operator and other people, 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.**

**This machine is supplied by:**

NTC STAVEBNÍ TECHNIKA spol.s r.o.  
Jiřinková 120  
552 03 Česká Skalice  
Czech Republic

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| Revision No. | Content                 | Date    |
|--------------|-------------------------|---------|
| 01           | Technical data updating | 05/2010 |
|              |                         |         |
|              |                         |         |

## **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 out 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. Stop the engine before interrupting the work. When selecting a place for the machine, secure it from falling.
6. Stop the engine before refueling. Avoid contact between fuel and hot parts of the engine. Let the engine to cool down first.
7. 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:**

8. No bystanders are allowed within the operational range of the machine. Especially children should be kept in safe distance.
9. Do not operate the machine in areas with explosion danger.
10. If operated in closed spaces (halls, tunnels), there should be ensured sufficient ventilation.
11. Held and guide the machine with high care in order to avoid hands injury caused with contact with an obstacle.
12. Do not smoke, do not use naked flame. Do not work close to flammables or in explosion danger areas.
13. 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.

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#### **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.

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#### **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. 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.

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#### **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 derivatives (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. Hygienic data**

Guaranteed noise level is 99 dB(A).

**1.7. Disposal of the packing material**

Company NTC STAVEBNÍ TECHNIKA spol. s r.o. is registered with company EKO-KOM a.s.

There is an agreement made between NTC and EKO-KOM a.s. related to buy-out of all sorts of packing materials.

## 2. TECHNICAL DESCRIPTION

### 2.1. Technical data

#### Single-phase generators

| MODEL:             | TR-2,2          | TR-2,5          | TR-3,3          | TR-3E<br>AVR    | TR-5E           | TR-6E           | TR-7E           | TR-13E           |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| Voltage:           | 230 V           | 230 V           | 230 V           | 230 V           | 230 V           | 230 V           | 230 V           | 230 V            |
| Frequency:         | 50 Hz           | 50 Hz           | 50 Hz           | 50 Hz           | 50 Hz           | 50 Hz           | 50 Hz           | 50 Hz            |
| Power:             |                 |                 |                 |                 |                 |                 |                 |                  |
| 1 phase:           | 2,2 kVA         | 2,5 kVA         | 3,3 kVA         | 3,3 kVA         | 5 kVA           | 6 kVA           | 7 kVA           | 13 kVA           |
| Cos phi:           | 1               | 1               | 1               | 1               | 1               | 1               | 1               | 1                |
| Current:           |                 |                 |                 |                 |                 |                 |                 |                  |
| 1 phase:           | 10,8 A          | 10,8 A          | 14,3 A          | 14,3 A          | 21,7 A          | 26 A            | 30,5 A          | 56 A             |
| Krytí:             | IP 23           | IP 23           | IP 23           | IP 23           | IP 23           | IP 23           | IP 23           | IP 23            |
| Voltage regulation | capacity        | capacity / AVR  | capacity / AVR  | AVR             | capacity / AVR  | capacity        | capacity / AVR  | capacity / AVR   |
| Starting           | manual          | manual          | manual          | manual          | manual          | manual          | manual          | electric         |
| Engine:            | Honda GX160     | Honda GX160     | Honda GX200     | Honda GX200     | Honda GX270     | Honda GX390     | Honda GX390     | Honda GX630      |
|                    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV     |
| Max. output:       | 4,8 HP/ 3,6 kW  | 4,8 HP/ 3,6 kW  | 5,5 HP/ 4,1 kW  | 5,5 HP/ 4,1 kW  | 8 HP/ 6 kW      | 11 HP/ 8,2 kW   | 11 HP/ 8,2 kW   | 20,8 HP/ 15,5 kW |
| RPM:               | 3600 / min.     | 3600 / min.     | 3600 / min.     | 3600 / min.     | 3600 / min.     | 3600 / min.     | 3600 / min.     | 3600 / min.      |
| Fuel tank:         | 3,7 l           | 3,7 l           | 3,7 l           | 3,7 l           | 6 l             | 6,5 l           | 6,5 l           | 11 l             |
| Weight:            | 35 kg           | 38 kg           | 40 kg           | 40 kg           | 58 kg           | 72 kg           | 75 kg           | 113 kg           |
| Dims(mm)           | 500 x 380 x 380 | 600 x 400 x 450 | 600 x 400 x 450 | 600 x 400 x 450 | 740 x 520 x 550 | 740 x 520 x 550 | 740 x 520 x 550 | 1060 x 660 x 600 |

#### 3-phase generators

| Model:             | TRT-5,5         | TRT-6,5         | TRT-6,5 AVR     | TRT-10          | TRT-14           | TRT-14 AVR       |
|--------------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|
|                    | 400 / 230 V     | 400 / 230 V     | 400 / 230 V     | 400 / 230 V     | 400 / 230 V      | 400 / 230 V      |
| Voltage:           | 50 Hz           | 50 Hz           | 50 Hz           | 50 Hz           | 50 Hz            | 50 Hz            |
| Frequency:         |                 |                 |                 |                 |                  |                  |
| Power:             | 5,5 kVA         | 7 kVA           | 7 kVA           | 8 kVA           | 14 kVA           | 14 kVA           |
| 3 phase:           | 0,8             | 0,8             | 0,8             | 0,8             | 0,8              | 0,8              |
| Cos phi:           | 4 kVA           | 4 kVA           | 4 kVA           | 4 kVA           | 3x4 kVA          | 3x4 kVA          |
| 1 Phase:           |                 |                 |                 |                 |                  |                  |
| Current:           | 7,9 A           | 9,4 A           | 9,4 A           | 14,2A           | 20 A             | 20 A             |
| 3 phase:           | 18 A            | 18 A            | 18 A            | 17 A            | 3 x 20 A         | 3 x 20 A         |
| 1 phase:           | IP 23           | IP 23           | IP 23           | IP 23           | IP 23            | IP 23            |
| Protection:        |                 |                 |                 |                 |                  |                  |
|                    | capacity        | capacity        | AVR             | capacity        | capacity         | AVR              |
| Voltage regulation | manual          | manual          | manual          | manual          | electric         | electric         |
| Starting           | Honda GX270     | Honda GX390     | Honda GX390     | Honda GX390     | Honda GX630      | Honda GX630      |
| Engine:            | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV    | 4-takt - OHV     | 4-takt - OHV     |
|                    | 8 HP/ 6 kW      | 11 HP/ 8,2 kW   | 11 HP/ 8,2 kW   | 11 HP/ 8,2 kW   | 21HP/15,5kW      | 21 HP/ 15,5 kW   |
| Max. output:       | 3600 / min.     | 3600 / min.     | 3600 / min.     | 3600 / min.     | 3600 / min.      | 3600 / min.      |
| RPM:               | 6 l             | 6,5 l           | 6,5 l           | 6,5 l           | 11 l             | 11 l             |
| Fuel tank:         | 73 kg           | 76 kg           | 78 kg           | 76 kg           | 112 kg           | 116 kg           |
| Weight:            | 740 x 520 x 550 | 740 x 520 x 550 | 740 x 520 x 550 | 740 x 520 x 550 | 1060 x 660 x 600 | 1060 x 660 x 600 |

**Generators with welders:**

| <b>Model:</b>               | <b>TRH-170</b>     | <b>TRH-200</b>     | <b>TRH-171</b>     | <b>TRH-221</b>     | <b>TRH-300</b>     |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Voltage:</b>             | 230 V              | 230 V              | 3x400 / 230 V      | 3x400 / 230 V      | 3x400 / 230 V      |
| <b>Frequency:</b>           | 50 Hz              | 50 Hz              | 50 Hz              | 50 Hz              | 50 Hz              |
| <b>Power:</b>               |                    |                    |                    |                    |                    |
| 3 phase:                    |                    |                    | 5,5 kVA            | 6,5 kVA            | 8 kVA              |
| 1 phase:                    | 5 kVA              | 7 kVA              | 3,5 kVA            | 3,5 kVA            | 3 kVA              |
| <b>Current:</b>             |                    |                    |                    |                    |                    |
| 3 phase:                    |                    |                    | 7,8 A              | 9,2 A              | 11,4 A             |
| 1 phase:                    | 21 A               | 30 A               | 15 A               | 15 A               | 13 A               |
| <b>Welding current max:</b> | <b>170 A AC</b>    | <b>200 A AC</b>    | <b>170 A DC</b>    | <b>200 A DC</b>    | <b>300 A DC</b>    |
| <b>Engine:</b>              | <b>Honda GX270</b> | <b>Honda GX390</b> | <b>Honda GX270</b> | <b>Honda GX390</b> | <b>Honda GX630</b> |
| Max. output:                | 8 HP/ 6 kW         | 11 HP/ 8,2 kW      | 8 HP/ 6 kW         | 11 HP/ 8,2 kW      | 21,1 HP/ 15,5 kW   |
| Fuel tank:                  | 6 l                | 6,5 l              | 6 l                | 6,5 l              | 11 l               |
| Weight:                     | 73 kg              | 82 kg              | 82 kg              | 86 kg              | 126 kg             |
| Dims(mm)                    | 740 x 520 x 550    | 860 x 530 x 550    | 860 x 530 x 550    | 860 x 530 x 550    | 1060 x 660 x 600   |

Generators which use AC welding current (TRH-170, TRH-200) are suitable for rutile electrode.

Generators which use DC welding current (TRH-171, TRH-221, TRH-300) are suitable for any electrode .

**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.**

**2.2. Lubricants**

Use high-quality engine oils of the following specifications: 10W-30, 15W-40.

|              |                   |                                                 |
|--------------|-------------------|-------------------------------------------------|
| - engine oil | HONDA GX 160      | capacity cca 0,6 ltr                            |
|              | HONDA GX 270, 390 | capacity cca 1,1 ltr                            |
|              | HONDA GX 630      | 1,5 ltr without oil filter, 1,7 ltr with filter |

**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.

**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.

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.

**2.5 Control panel for generator with welder TRH**

- 1 – controller of welding current settings
- 2 – 3-positions switch of welding current
- 3 – socket of welding cable +
- 4 – socket of welding cable –
- 5 – current protection fuse
- 6 – single phase socket 230V
- 7 – free phase socket 400V

**3. PRIOR TO STARTING****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.**

**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 leaded or unleaded gasoline with octane number 90 or higher.

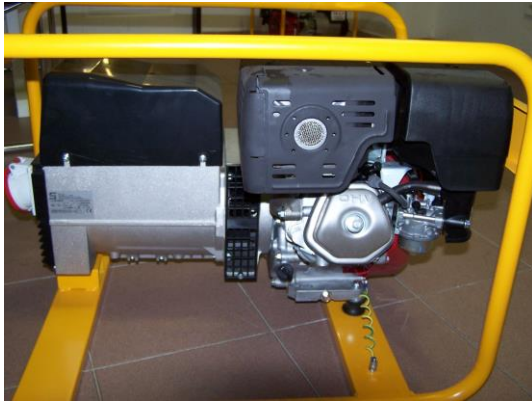
If necessary, top up fuel, up to the edge of the sieve. Never use dirty gasoline or mixture with

oil. Prevent dust, dirt or water from entering into the tank.

**3.4. Inspection of air filter**

Check the air filter on a daily basis. Clean or replace the filter element as necessary.

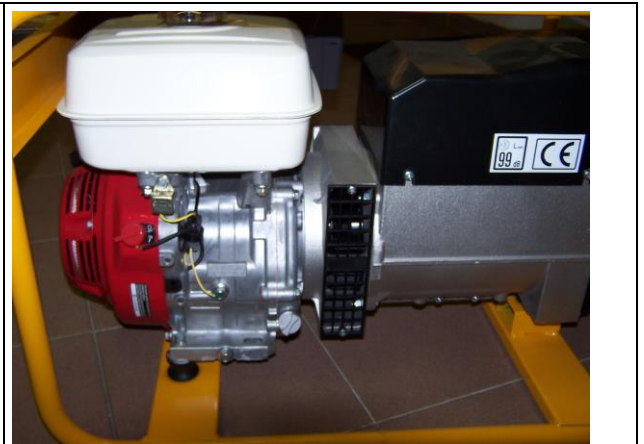
**Never operate the engine without the filter or with a damaged one. Dirt and dust entering the engine would cause its rapid damage.**



## **4. Operating the machine**

### **4.1. Starting**

1. Turn the fuel tap into the „ON“ position
2. Turn on the ignition switch.
3. Place the choke lever in the engaged position. Do not engage the choke at warm engine.
4. Set up the throttle lever into the idle position.
5. Pull up the starter grip till some resistance is felt, then pull vehemently. Do not release the grip, but return it slowly to the original position.
6. Let the engine to warm up, then disengage the choke.



### **4.2. Operating the machine**

1. Engine revolutions are fixed and cannot be adjusted.
2. Select the suitable output mode (220 V or 380 V). It is possible to connect both single-phase and three-phase appliances at the same time.
3. CAUTION: Stop the engine ONLY after disconnecting the appliances. Check periodically fuel level and avoid running out of fuel under load.

### **4.3. Turning the engine OFF**

1. Turn the ignition switch into the "OFF" position.
3. Close the fuel tap.

**4.4. Handling, transport, storage**

When handling and transporting the machine, observe the safety instructions shown in this manual, as well as generally valid regulations

for work with manipulation or hoisting equipment.

**4.4.1. Manual manipulation**

When manipulating with the machine manually, it is usually necessary to have more people available, in order to stay within the maximal weight permitted for manual lifting. Hold the

machine by the frame or the base plate. Never lift the machine by the engine or drive unit.

**4.4.2. Manipulation using a hoisting device**

The machine may be loaded and transported only using a hoisting device of adequate bearing capacity (weight of the machine is shown in the chapter "Technical Data").

This operation may be done only by a person holding valid crane licence.

When loading with a crane, always observe the safety regulations valid for work with a crane.

Secure the rope at the designated point on the machine.

**4.4.3. Manipulation using a forklift**

For more frequent handling with a forklift (i.e. for sending the machine via a spedition company), it is recommended to place the

machine on a pallet. Use standard EUR pallet 1,2 x 0,8 m.

**4.4.4. Transport**

For transport, secure the machine from tipping over, falling down or skidding along the carrier. Fit the fastening traps on designated locations

on the machine. Transport the machine in upright position.

**4.4.5. Storage**

Store the machine in a closed place, where the machine is secure from theft and unauthorized use. Preferably choose a roofed dry place, free of chemicals and excessive dust.

Prior to long-term storage it is recommended to clean the machine, repair damaged paint and apply a preservative (including inside of the engine). Mark the machine as being conserved.

**4.5. Special conditions of operation****4.5.1. 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.

**4.5.2. 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 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 hrs.          | Every 3 months or 50 hrs.               | Every 6 months or 100 hrs.          |
|-------------------------------|-------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|-------------------------------------|
| Engine oil                    | Inspection of oil level | <input checked="" type="checkbox"/> | DAILY                               |                                         |                                     |
|                               | Exchange                |                                     | <input checked="" type="checkbox"/> |                                         | <input checked="" type="checkbox"/> |
| Air filter                    | Inspection              | <input checked="" type="checkbox"/> |                                     | <input checked="" type="checkbox"/> (1) |                                     |
|                               | Cleaning                |                                     |                                     |                                         |                                     |
| Spark plug (gasoline engines) | Inspection - cleaning   |                                     |                                     |                                         | <input checked="" type="checkbox"/> |
| Fuel hose                     | Inspection - Exchange   | Every two years                     |                                     |                                         |                                     |
| Valve clearance               | Inspection - adjustment | Every 12 months or 250 hrs. (2)     |                                     |                                         |                                     |
| Fuel tank and sieve           | Cleaning                | Every 12 months or 300 hrs. (2)     |                                     |                                         |                                     |
| Rubber mounts                 | Inspection              |                                     |                                     |                                         | 150 hrs                             |

- 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.**