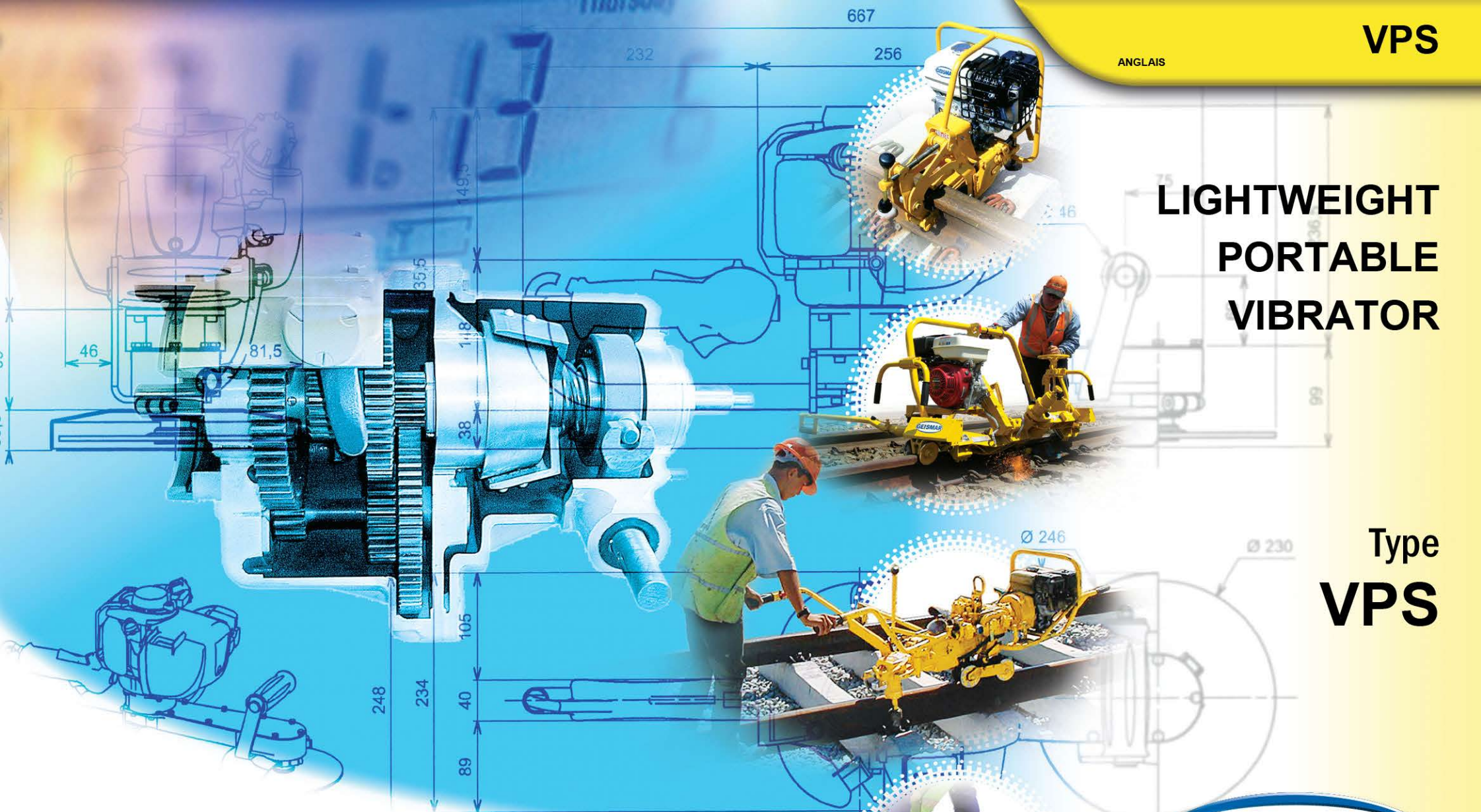


VPS

ANGLAIS

# LIGHTWEIGHT PORTABLE VIBRATOR

Type  
VPS



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GEISMAR, the quality choice !

You have just acquired a machine for laying and servicing railway lines. We thank you for choosing equipment developed and constructed by GEISMAR / STUMEC, the fruit of over eighty years' experience.

Every day since 1924, the GEISMAR Group has been investing in research and state-of-the-art construction to offer you the quality and reliability so essential to the requirements of the world of railways.

This machine, built entirely in France from design through to delivery, has been subjected to continuous, extremely strict controls. Formed of different mechanical elements assembled by highly qualified fitters, your machine has been tested, calibrated and controlled at every stage of its production.

We are convinced that it will give you every satisfaction and are, of course, at your service to offer you any recommendations you may require for its use or its maintenance.

We thank you for the confidence you have shown in us and, in the hope that we will remain one of your privileged partners, we would like to confirm that we are totally available for any comments or recommendations you may care to make.

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# CHAPTER 1 – SAFETY

## 1.1 Foreword

The following set of rules has been drawn up to ensure the application of precautionary principles that help to preserve the safety of persons and property when the machine is in use. Any failure to comply with these rules can have serious repercussions (bodily injury, etc.), and can even be fatal, so we must draw your attention to the fact that all persons involved in the use, maintenance, storage or custody of the machine covered by the present manual must be familiar with these rules.

Any users who cause an accident through failure to comply with these rules will be held personally responsible for the results of their actions.

## 1.2 Instructions for safety and general use

All persons using, servicing or repairing this equipment must have undergone the training, possess the skills, and have at their disposal the tools necessary to carry out any such operations.

Before using the equipment, even in a maintenance context, it is necessary to read the corresponding instruction manual, together with its appendices, and the safety rules in force in the workplace.

Comply carefully with the general safety instructions drawn up for the site by the person in charge of the site, especially if the work is carried out without stopping or diverting traffic.

The equipment can only be used, serviced or repaired by competent personnel who have undergone thorough specialized training beforehand. The technical documentation and the instructions are useful in completing the knowledge acquired during the training courses, but they can in no way replace theoretical and practical qualifying training, provided in accordance with good professional practice.

If the operating company is not in a position to carry out the necessary training for its staff, at a satisfactory level, the GEISMAR/STUMEC Company is able to provide advice concerning the training programme to be implemented.

The training must include an explanation of the various equipment functions, the instructions for use and maintenance, and the safety rules applicable, together with practical exercises.

**IMPORTANT! All persons using the machine must comply with the labour regulations in force**



**The GEISMAR/STUMEC Company cannot be held responsible for any modifications made without its written approval, or for any assembly work not in conformity with its recommendations, especially in the case of use of parts other than original manufacturer's parts.**

## 1.3 **General safety instructions**

- **The operator and the working environment**

- ⇒ To avoid all risks of accident or injury, it is essential to wear:
  - Sturdy, non-flammable clothing that is suitably close-fitting
  - Strong, non-slip gloves
  - Safety shoes
  - Protective eyewear
  - Safety helmet
  - All other equipment necessary on the site or when using the machine
- ⇒ In the case of use of ear defenders, the safety instructions in force on the site must be complied with at all times.
- ⇒ Make sure that the machine vibrations do not lead to a loss of sensitivity in the hands. Adapt the working periods to the level of vibration caused by the machine, which is shown within the framework of normal use.
- ⇒ Do not work with the machine if you are not sure that you can control it correctly. Do not start working with the machine until you are sure that you can do so in full safety, for yourself (good conditions of visibility and lighting) and for other people (work calmly and carefully). Take care to ensure you have a firm, stable footing; all unstable working positions must be prohibited.
- ⇒ The user must be in a physical and mental condition enabling work to be carried out without danger.
- ⇒ The work area must be free of all obstacles. The work area (and the surrounding areas) must be free of all flammable substances.
- ⇒ If anything does not seem clear to you, whether it concerns the machine or the work to be carried out, ask a qualified person for information. Do not base your work on assumptions.
- ⇒ For underground use (tunnel or gallery), or in a closed area, make sure there is sufficient ventilation or extraction to avoid the risks generated by inhaling exhaust gases or by their build-up.
- ⇒ This equipment must not be used in an explosive atmosphere.
- ⇒ Avoid working positions in which exhaust gases could come into contact with parts of the body, whether protected or not.
- ⇒ In a general way, take all necessary precautions to prevent flammable products from coming into contact with fire hazards.
- ⇒ The operator must ensure that no one else is within the working area. In particular, it is necessary to make sure that in the direction in which the machine is travelling, no one can be hit. If someone is nonetheless in the path of the machine, the operator must stop and warn the person of his passage.
- ⇒ When the machine is installed on the track, it must be handled only by the number of operators strictly necessary for its normal use.
- ⇒ As the overall size of the machines does not enable extinguishers to be carried on them, we strongly recommend placing extinguishers of an appropriate type to deal with the fire hazards close to the machine.
- ⇒ The user must comply with all the regulatory environmental instructions applicable to the machine in use.

- The operator and the machine

- ⇒ Before putting the machine into service each time, check that its condition and its operation are in compliance with the instructions.  
In particular, make sure that the controls are free and in good working order, and that they are in the “stop” or “neutral” position. Never make any modifications that could affect correct operation of the control systems.
- ⇒ All the protective elements must be kept carefully in place and in good condition.
- ⇒ Always keep the machine clean and remove any accumulated dust, especially if it could absorb flammable products.
- ⇒ Always move forwards when working.
- ⇒ When working, always hold the machine with both hands to ensure control at all times, and to be able to use it in full safety.
- ⇒ Never bring a machine close to a flame or a source of heat.
- ⇒ The machine must never be positioned close to hot or protruding elements that could damage some parts (tanks, exhaust, housings...).
- ⇒ Never move away from a machine while the engine is running, even when it is idling. Stop the engine immediately if the machine is not in use. After stopping the engine, wait until all moving parts have come to a complete stop.
- ⇒ Work on the electrical installations on the machine can only be carried out by suitably qualified persons.
- ⇒ Read and make sure you fully understand all the signs placed on the machine, and always comply with all the instructions.
- ⇒ The signs placed on the machine include pictograms, manufacturer’s plates, and instruction labels. Make sure they are kept clean and replaced if they have been damaged, or if they are missing or illegible. If one of these elements is on a part that is to be replaced, a new element must be present on the replacement part. Please contact us on this subject.
- ⇒ When using a lifting device, the lifting operations of the machine must be done only using the lifting points indicated on the instruction manual.
- ⇒ When possible, the lifting of the machine is to be done only when the machine needs to be set in or out of the track. If the machine has to stay lifted (for a maintenance operation for example), the hazardous area must be signaled/marked, so that no one can stay below the machine or walk close by.

**THE MACHINE MUST NEVER BE USED FOR A PURPOSE OTHER THAN THAT FOR WHICH IT IS INTENDED**

**NEVER TOUCH A MOVING PART WITH A TOOL, OR WITH THE HAND, OR WITH ANY OTHER PART OF THE BODY**

**IT IS ESSENTIAL TO STOP THE ENGINE AND SET THE CONTROL TO THE STOP POSITION BEFORE CARRYING OUT :**

- ANY HANDLING WORK
- ANY WORK TO CHANGE TOOLS OR SOCKETS
- ANY WORK INVOLVING FUEL OR OIL (FILLING, TOPPING UP, CHECKING LEVELS, ETC.)
- ANY REPAIR, MAINTENANCE OR CLEANING WORK

- Using and handling fuel and oil

- ⇒ It is essential to stop the engine and set the control to the stop position before carrying out any work involving fuel (filling up, checking the level, draining, etc.).
- ⇒ Always keep suitable extinguishers ready for use in all areas where fuel is handled (storage, filling up, etc.).
- ⇒ Always store fuel and oil in separate cans specially designed for the purpose and bearing the labels required by regulations. They must be stored in a safe place, well away from all types of fire hazard.
- ⇒ Each time a machine is started up, and while it is running, make sure that there are no fuel leaks from any part of the machine. If a leak is suspected, stop the engine immediately and do not restart the machine until the leak has been repaired.
- ⇒ Never carry out any work on a fuel tank or handle fuel to fill a tank, or for any other reason, in an area where there could be a fire hazard (such as a burning cigarette, a blowtorch, sparks, etc.) or substances that are incandescent or at a high temperature (such as welding spatters, slag, clinker, etc.). All such work must always be carried out outdoors or in a well-ventilated area.
- ⇒ Always turn all mobile phones off while filling a tank with fuel or handling fuel.
- ⇒ Carefully tighten the fuel filler cap each time, and check that no fuel leaks from it.
- ⇒ Always remove a filler cap slowly, to enable any internal pressure to be released without spraying any fuel out. Take special care if the surrounding temperature is high.
- ⇒ When putting fuel in a machine that has heated up, never fill the tank completely. Do not put in more than three-quarters of the tank capacity.
- ⇒ If fuel starts to boil in the tank when putting fuel in a machine that has heated up, screw the cap on again immediately and leave the machine to cool down.
- ⇒ Make sure the fuel used is suitable for the type of engine on the machine. See the user manual for the engine.
- ⇒ Do not inhale fuel vapour.
- ⇒ If it is necessary to drain the fuel tank, pour the fuel into a container designed for the purpose and bearing the labels required by regulations. Always close them tightly, even if they only contain a small quantity. Never use a glass container.
- ⇒ Never use fuel for cleaning work. Use only non-flammable, non-toxic products that are harmless for the user, the equipment and environment.
- ⇒ If fuel has been spilt near the filling area for any reason, clean it up immediately. Clean straightaway any spillage of fuel on the skin. Make sure no fuel has been spilt on your clothes; otherwise, change clothes immediately. Remove all rags or other materials used to wipe fuel, and store them in a safe place well away from all sources of heat or combustion. Move the machine well clear of any spilt fuel before starting it up (at least 6 metres away), and do not move any closer to the area while the engine is running.

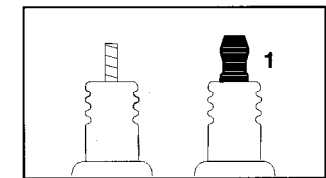
**IN CERTAIN CASES HANDLING OIL CAN GIVE RISE TO THE SAME TYPE OF RISKS AS HANDLING FUEL. IT IS THEN ESSENTIAL TO TAKE THE SAME PRECAUTIONS WITH OIL AS THOSE SET OUT ABOVE FOR FUEL.**

- Tools to be used on the machine

- ⇒ Use only the types of tools intended for normal use of the machine.
- ⇒ Measure the speed of all rotating tools at regular intervals.
- ⇒ Never use tools at speeds greater than the maximum speed for which they have been designed and approved.
- ⇒ Never use damaged tools or tools that have reached their maximum level of wear.

- The engine on the machine

- ⇒ Never touch the hot parts of the engine, and especially the exhaust pipe. If it is necessary to work on the engine, wait until it has cooled down.
- ⇒ The factory setting of engine corresponds to the conditions of the production site (fuel, temperature, altitude, etc...), verify at receipt of the machine the rotational speed of the engine and correct if necessary.
- ⇒ Check the engine rotation speed at regular intervals, and especially after fitting tools or reassembling the machine. Adjust if necessary.
- ⇒ Never exceed the speed shown in the technical specifications.
- ⇒ After starting with the choke, remember to return the choke to the normal running position.
- ⇒ Never wind the starter rope around your hand, and never release it suddenly.
- ⇒ If the machine does not operate correctly after the engine has been started, stop the engine and inform the head of maintenance.
- ⇒ For petrol engines, use only spark plugs whose tops are as shown in drawing 1 opposite. If the plug is fitted with a screw top, make sure the top is fully tightened. After fitting the spark plug, make sure that the plug cap is in good condition and that it stays firmly on the plug. Carefully check the fastening system to make sure that no sparks can be formed.



- Using trolleys (If applicable)

- ⇒ A machine designed to work on a trolley must not be used without the trolley. The trolley is thus an integral part of the machine. The machine and the trolley must not be used separately.
- ⇒ Trolleys whose use is dedicated to a machine must never be used to transport equipment or personnel, or attached to a vehicle.
- ⇒ Before fitting the machine on its trolley, it must be placed correctly on the track to ensure that it can run freely. If it is on a sloping section of track, make sure the trolley is kept immobile while the machine is being put on the track or taken off it.
- ⇒ Attention, the trolley takes up the full width of the track and can cause injuries to the legs if it hits someone.



## 1.4 Special safety instructions

### 1.4.1 Possible risks liable to be caused by the use of the “VPS” lightweight portable vibrator

The main risks that the “VPS” lightweight portable vibrator may cause to users and persons in the vicinity are:

- ➔ Fires resulting from handling fuel incorrectly.
- ➔ Inhalation of particles when tamping ballast.
- ➔ Risks of being burnt by the tip of the vibrator after intensive use.
- ➔ Ballast being projected by the tip’s vibrations.

### 1.4.2 Tip quality and instructions for use

- **The engine MUST be stopped before the tip is changed.**
- Only use tips officially authorized for this type of machine and which possess technical characteristics (type and dimensions) that comply with §2.3 Technical characteristics / tip” and with the instruction plate riveted to the machine.



**Users are RESPONSIBLE for all accidents involving non-authorized tips.**

- Never use a cracked or chipped tip. Broken tips must be discarded immediately and be replaced by tips in perfect condition.
- When the tip is working, never touch it with your hand or any other part of your body.
- **When the tip is working, make sure that it is not close to any obstacle such as sleepers or rails.**
- Regularly check the maximum speed of the engine under NO LOAD conditions, especially after reassembling the machine. Never check the machine’s maximum speed when it is working, as risks of accident risks are extremely high. To avoid all risks of accident, we recommend using an electronic no-contact tachometer.

### 1.4.3 Personal protective equipment

- Personnel using this equipment must wear the clothing specified in paragraph §1.3 “General safety regulations / the operator and his environment”.
- They must wear safety helmets and safety boots with non-slip soles and steel toe-caps.
- We also recommend wearing a means of protection to avoid inhaling any particles when ballast is being tamped.
- Use of ear-muffs is also recommended (**However, railway regulations in force and applicable to the worksite must be referred to, in order to see whether muffs may be used or not).**



#### 1.4.4 Precautions concerning fuel

- Clean the area around the filling point, to prevent any impurity entering the tank or damaging the seal on the fuel cap.
- Open the fuel cap carefully so that any possible overpressure inside can escape gently, without any fuel being projected.
- Only use lead-free petrol with an octane index of at least 90 RON. **GASOHOL, METHANOL, ETHANOL and ALCOHOL are NOT ALLOWED.** Use of these products increases risks of fire and explosions that are liable to cause serious or even fatal injury to the operator and any other persons in the vicinity.
- As petrol is highly inflammable, carry the machine at least 6 meters away from the filling point before starting it up.
- Regularly check the seal on the fuel cap. Regularly check the state of the gasket fitted to the oil-filler plug. Replace immediately if there is any leakage of fuel or oil.

#### 1.4.5 Transport - Handling

- Never transport the lightweight portable vibrator with the engine on, even when idling.
- Carry the lightweight portable vibrator in its transport bag.
- All operations for on and off-tracking the machine **MUST** be carried out with the engine OFF.
- Whenever the machine is transported in a vehicle, attach it carefully to prevent it from moving.

#### 1.4.6 Working

- **The lightweight portable vibrator MUST BE WARMED UP before use.**
- The lightweight portable vibrator must only be used by a single authorized operator.
- If work is being done on a two-line track, pay close attention to any traffic on the line that is still open. In all cases, the lightweight portable vibrator must only be used in compliance with rail-company instructions for the worksite concerned.
- **This machine has been designed and built only for tamping ballast on railway lines** (See 4.3 §4.3 “Instructions for using the lightweight portable vibrator”). Any other use different from those described in this manual will be considered “*non-compliant*” and will release the manufacturer from all its responsibilities, these being totally assumed by the user.

“*Compliant use*” means following the recommendations inherent to using and servicing the machine as described in this manual. In addition, it is compulsory to comply with all the standards recommended and described for preventing occupational accidents, and general regulations in terms of safety, occupational medicine and legislation in force be taken into account.

- Before starting the machine, check that the body and tip are held correctly in position. Never make any modifications to the machine.
- When working, always hold the machine with both hands. Hold the control handle firmly with one hand in order to keep the machine under control at all times with the other hand permanently holding the other handle. Hold the two handles firmly with both fingers and thumbs.
- **Always tamp ballast with the engine at maximum speed.**
- Never use ether or any other similar product for helping to start the engine.
- Never leave a lightweight portable vibrator with the engine running at idling speed. Stop the engine immediately when the machine is no longer required for use. Before putting the machine down, wait until the bit has completely stopped moving.

- The engine **MUST** be stopped before any servicing or repair operation. If the engine needs to be running (carburettor adjustment and maximum speed check under NO-LOAD conditions) making sure that the work area is well aired or ventilated.
- Never use a lightweight portable vibrator whose silencer is faulty (risks of fire and problems with hearing).
- Make sure that nobody is present in the machine's zone of action.
- As soon as the engine starts running, it will emit toxic exhaust gasses. These gasses may be odourless and invisible. Never use the machine in closed or poorly aired premises. When working in cuttings, hollows in the land or enclosed areas, always make sure that the zone is well-ventilated. **Dangers of intoxication.**



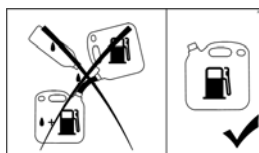
- Perfect adjustment of the engine's idling speed is particularly important to ensure that the tip does not vibrate when the accelerator trigger is released (refer to the engine manufacturer's instructions delivered with the machine if ever any adjustment is required). **NB: When the accelerator trigger is released, the bit will continue to move for a short time.**
- If compressed air is used for cleaning, wear protective clothing and a mask or glasses. Air pressure on the outlet jet must be under 2 bars.

#### 1.4.7 Pictograms and safety instructions

The presence of pictograms and safety instructions in the positions indicated is compulsory on the lightweight portable vibrator. If any of them are missing or deteriorated, replacements **MUST** be ordered immediately and installed in the position provided for. If any part with a label on it has been replaced, make sure that a new label has been glued to the new part.



Reference: N° **12528** (yellow background)  
Position: Glued to the tubular frame on the portable vibrator



Reference: N° **36370** (white background)  
Position: Glued to the portable vibrator fuel tank



Reference: N° **FTA**  
Position: Glued to the tubular frame on the portable vibrator

## CHAPTER 2 – MACHINE DESCRIPTION

### 2.1 General

<i><u>Manufacturer:</u></i>	<i><u>Name of equipment</u></i>	<i><u>Type:</u></i>
<b>GEISMAR / STUMEC</b> Route d'Italie 38110 LA TOUR DU PIN <b>FRANCE</b>	Lightweight portable vibrator	VPS

The VPS lightweight portable vibrator has been designed for continuous ballast-tamping by vibration under all types of sleeper (wood, concrete, steel). It meets ad hoc requirements and is characterized by being rapid and easy to put into use and its self-contained power unit.

Easy-to-handle, self-contained and efficient, the lightweight portable vibrator is the ideal compromise between performance and flexibility.

Its power and lightweight make it extremely easy to use with its incorporated drive unit that enables work to be done at any angle and significantly increases production performance.

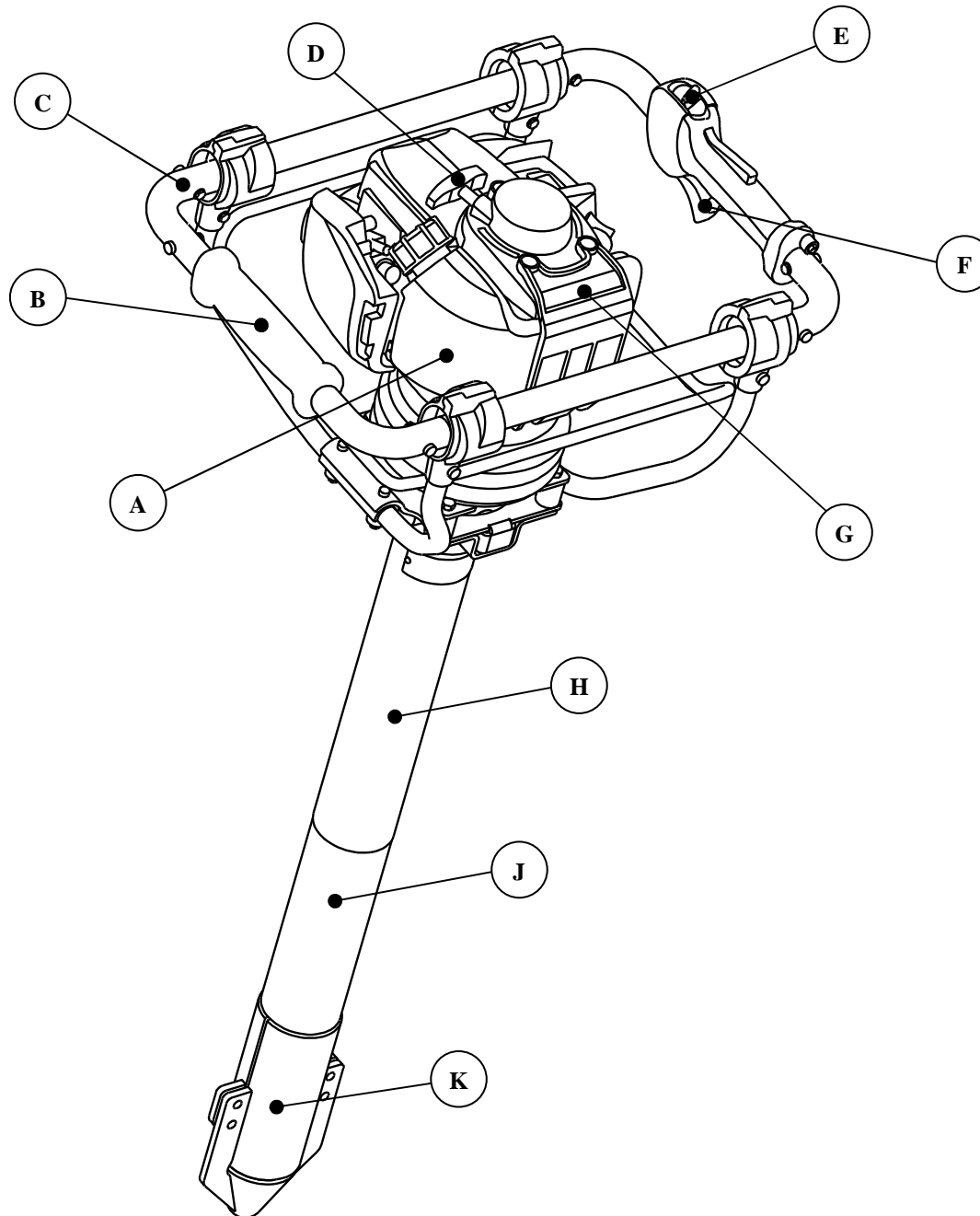
Considerable research work has been carried out on vibration characteristics in order to reduce the level of vibrations transmitted to the operator and protect the petrol engine whilst maintaining excellent tamping quality at the same time. Fitted with a suitable tip, the vibrator provides operators with a highly efficient machine, irrespective of depth of ballast and lifting height.

The machine is fitted with its own petrol engine and, as such is completely self-contained and can be easily used by a single operator.

The weight of the lightweight portable vibrator has been reduced as much as possible to make it easy to transport, but capable of sinking into ballast by its own weight without needing to be pushed by the operator. The machine's ergonomic design gives the operator maximum visibility and optimal handling conditions.

Contrary to methods used by other vibrators, the action given by the GEISMAR self-contained vibrator is neither percussion-based nor unidirectional. The strong vibration movements produced by the engine are transmitted to the ballast via the tip and body assembly.

## 2.2 Overview



Item	Name
A	Fuel tank
B	Left handle
C	Tubular frame
D	Pull-start grip
E	On/Off Switch
F	Accelerator trigger
G	Engine
H	Vibrator body
J	Protective sleeve
K	Tip



## 2.3 Technical specifications

### Machine dimensions

Length / width / height ..... mm 525 / 390 / 1105

### Weight

Machine (without tip) ..... kg 16,3

Machine (with tip) ..... kg 19

### Noise

Acoustic pressure level (L<sub>aeq</sub>) <sup>(1)</sup> ..... dB (A) 97 (±2)

Acoustic power level (L<sub>wa</sub>) <sup>(2)</sup> ..... dB (A) 104 (±2)

### Vibrations

Vibration level (left handle) (A<sub>eq</sub>) <sup>(3)</sup> ..... ms<sup>-2</sup> 7.2 (±2%)

Vibration level (control handle) (A<sub>eq</sub>) <sup>(3)</sup> ..... ms<sup>-2</sup> 5.9 (±2%)

Estimated vibration level for 1 hour's use over a full 8-hour day (A<sub>eq</sub>) <sup>(3)</sup> ..... ms<sup>-2</sup> 2.53 (±2%)

### Engine

Model ..... HONDA GX35 – 4-stroke

Power (at 7000 rpm) ..... kW 1.2 (= 1.65 HP) at 7,000 rpm) \*\*

Cylinder capacity ..... cm<sup>3</sup> 35

Spark plug (with suppressor) ..... NGK BM6A or NGK BMR6A\* (gap 0.6 – 0.7 mm)

Fuel ..... Unleaded petrol

Fuel tank capacity ..... litres 0.70

Fuel consumption ..... l/h 0.71

Starting system ..... Automatic recoil starter

Pollutant gas values emitted by the engine ..... g/kW.hr CO = 296 / NO<sub>x</sub> = 3.31 (approx.)

### Machine

Rotation speed (no-load) ..... rpm 7,500

Rotation speed (under load) ..... rpm 5,500

Idling speed ..... rpm 3,000 ±200

Frequency (without load) ..... Hz 125

Frequency (under load) ..... Hz 92

Treated steel-alloy tip capable of providing 300 hours' work depending on work environments.

\* Spark-plugs with suppressors are compulsory within the European community.

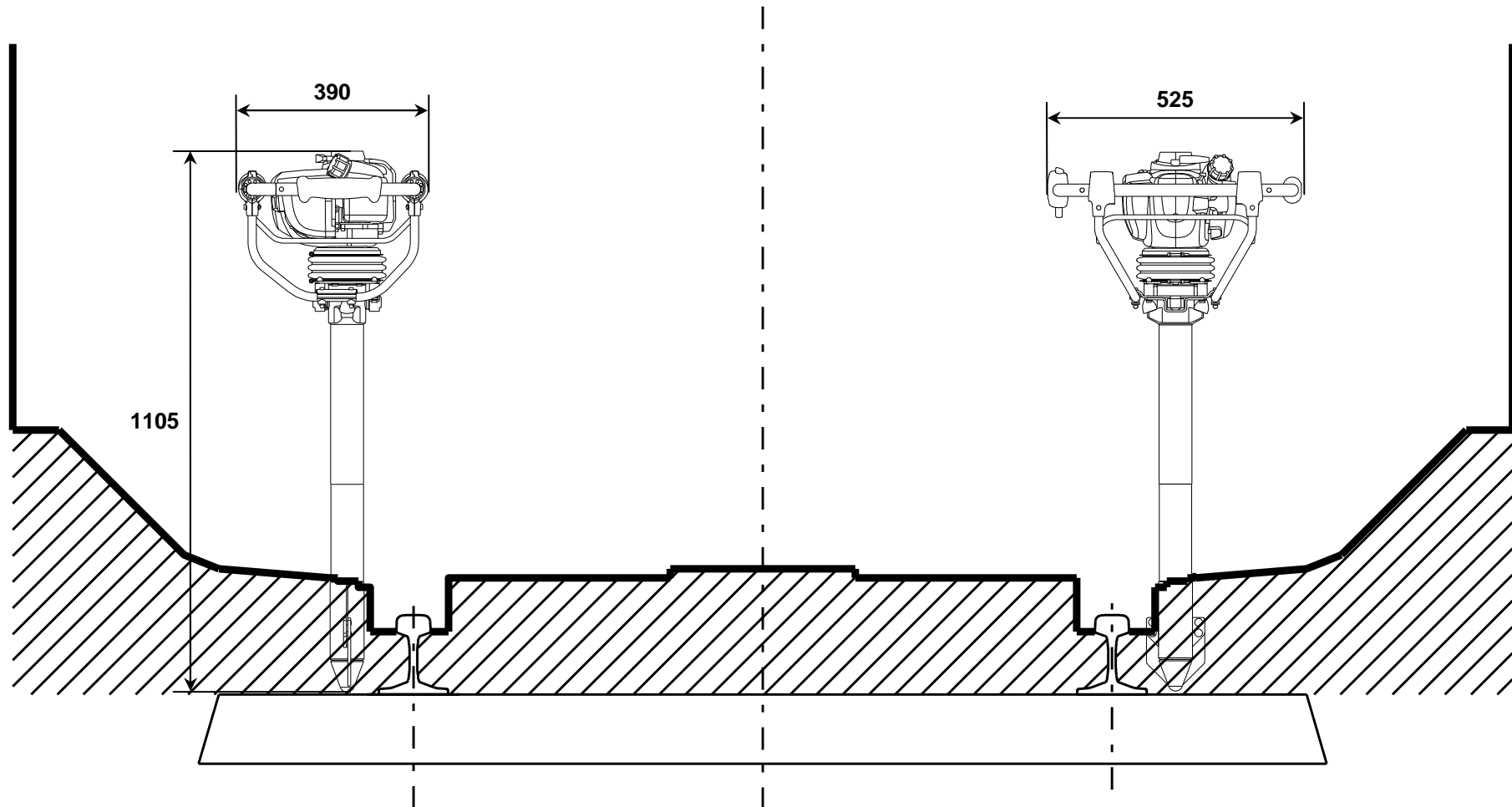
\*\* The engine power given in this document corresponds to the net power produced tested on a standard engine and measured to SAE J1349 standards at a given engine speed. This power value may vary on other standard engines. The net power produced by the engine mounted on the machine may vary for numerous reasons, such as the engine speed for a specific application, environmental conditions, etc. The power indicated is for use of the machine between 0 and 1500 meters' altitude. Please consult for any applications at levels over 1500 m.

<sup>(1)</sup> Measurements taken under load as per NF EN ISO 11204. <sup>(2)</sup> Measurements taken under load as per NF EN ISO 3746. <sup>(3)</sup> Vibration readings taken under load as per NF EN ISO 5349.

→ The VPS has been approved by the SNCF under number DPI ...

## 2.4 Positioning the vibrator on the gauge

The following diagram gives the machine's dimensions compared with low track gauge UIC 505-1 (track with a nominal gauge of 1435).



## CHAPTER 3 – INSTALLATION – POSITIONING

### 3.1 Fuel

Petrol with a minimum octane level of 90 RON must be used for the lightweight portable vibrator's four-stroke engine. Ordinary unleaded petrol containing no more than 10% of ethanol (SP95-E10) or 5% of methanol in volume may be used.

**Petrol ➔ GASOHOL and ALCOHOL are NOT ALLOWED**

*Storing petrol ➔* petrol oxidizes and its condition deteriorates as time goes by. Drain the fuel tank and leave the engine running until it stops every time the machine is no longer in service.

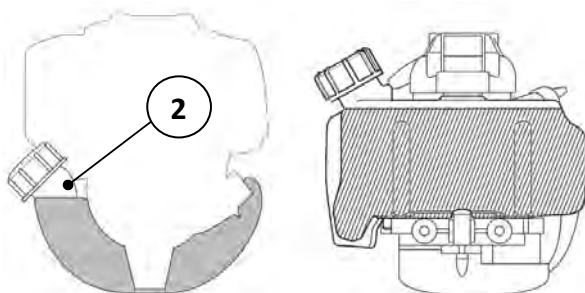
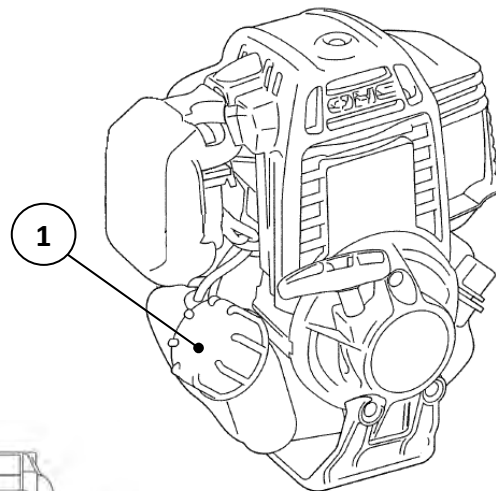
#### 3.1.1 Filling up with fuel

Take care when opening the fuel can. ⚠ Pressure may build up inside the can. Open it carefully.

Before filling up, carefully clean the fuel cap, Item ① and its surrounding area to prevent any impurity from getting into the fuel tank.

Put the machine in a vertical position so that the petrol cap, Item ① is facing upwards.

There should be no fuel in the filler neck.②



**NEVER FILL UP WITH FUEL WITH THE ENGINE RUNNING, OR OVERHEATED**

#### • Opening the cap:

① Turn the cap, Item ① by hand anticlockwise as far as possible.

② Remove the petrol cap.



Open the fuel tank carefully so that any inside overpressure can escape gently, without any fuel being projected.



Never open the fuel cap using a tool. You risk damaging the cap and letting fuel escape.

③ Fill up the tank in a well-ventilated area and never close to possible ignition sources, such as: blow-torches, sparks, welding flash, etc.

Move the machine more than 6m away from its filling point before start-up.

**Do not spill fuel when filling and never fill the tank completely. Only pour in a quantity of fuel equal to  $\frac{3}{4}$  of the tank's maximum capacity.**

#### • Closing the cap:

① Put the cap in position over the filling hole.

② Turn the cap clockwise as far as possible by hand.

#### 3.1.2 Transporting the machine

Never transport the lightweight portable vibrator with the engine on, even when idling.

Whenever the machine is transported, attach it carefully to prevent it from moving.

### 3.2 Inspection of the lightweight portable vibrator

Every element comprising the lightweight portable vibrator must be examined by qualified personnel for any possible defects before start-up. This inspection is mainly a visual and functional check-up.

The inspection phase enables a check to be made to ensure that all elements are safe and secure and that they have not been damaged during transport or storage.

➔ **Inspection of protective housings and mouldings** (this check must be made with the engine switched off)

Check visually that there are no external defects, distortions, superficial cracks, wear or marks of corrosion.

➔ **Level-checking (these checks must be made with the engine switched off)**

- **Fuel level:** Check the fuel level and top-up if necessary (⚠ : Refer to §1.3 “General safety regulations” / sub-§: “Using and handling fuel” before any operation”).
- **Engine oil level:** Check the engine oil level and top up if necessary. (See the documentation on servicing the engine supplied with the machine).

➔ **Checking operation** (these checks must be carried out with the engine switched off)

- Check that the accelerator trigger and the ON/Off switch work correctly. These units must move without difficulty and never undergo any modifications.
- Visually check the condition of the fixed stops, the silent blocks on the handles and the machine as well as the state of the bellows and protective sleeve.

➔ **Check on safety devices:**

- Check that handles are clean and dry.
- Start up the engine (⚠ : Refer to §4.2 “Starting up the lightweight portable vibrator”) and check that it stops correctly when the switch is moved to the “0” position.



**SHOULD ANY ANOMALY BE DETECTED DURING THE INSPECTION PHASE OR WHEN IN OPERATION, THE MACHINE MUST BE RETURNED TO A COMPLIANT CONDITION BY QUALIFIED PERSONNEL OR THE MANUFACTURER, BEFORE REUSE.**

## CHAPTER 4 - OPERATION

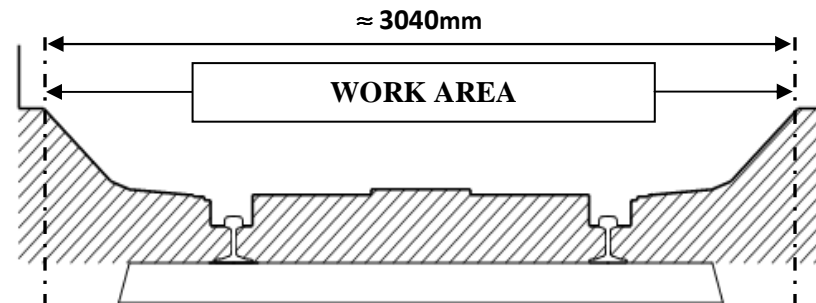
### 4.1 Operating conditions

#### The operator's work area and position

The operator's work area is both inside and outside either rail.



If certain works require leaving this zone, check safety conditions, especially if works are carried out without traffic being stopped on the adjacent line.



## 4.2 Starting up the lightweight portable vibrator

Systematically check the condition of the tip before using the lightweight portable vibrator. There must be no cracks on the vibrator's tip and barrel. Should any anomaly be observed, change the faulty parts (See §5.1.10 "Replacing the tip on the lightweight portable vibrator"). Systematically check the oil level on the engine before start-up. Never use the machine without its exhaust deflector.

Positions for choke lever, Item ① (See Fig.1)

↑ = **Normal running position** – the engine is running or ready for start-up.

To move the choke, Item ① from position ↑ to ↗, push it to the required position.

↗ = **Cold start** – position for starting the engine when cold.

Positions for control handle, Item ② (See Fig.2)

0 = **Motor stop** – ignition switched off.

1 = **Running position** – position for starting the engine when hot.

Start = **Start-up position** – position for starting the engine when cold.

➔ To start the engine:

① Push switch Item ② to its "Start" position if the engine is cold. To do this, move the switch from position "1" to the "Start" position whilst pressing the accelerator trigger at the same time. Or move the switch to position "1" if the engine is hot.

② Position the choke lever, Item ① (See Fig.1 and Fig.3) depending on the outside and engine temperatures:

- If the engine is **cold**, place the choke lever on ↗ (cold start).
- If the engine is **hot**, place the choke lever Item ① on ↑ (hot start), idem if the engine has already run, but is still cold or if the engine is very hot and has been stopped for less than 5 min.

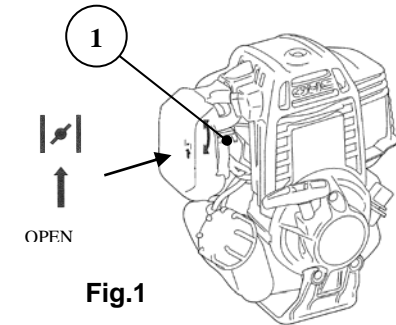
③ Place the tip on the ground, and hold the lightweight portable vibrator in a vertical position. Then start the engine by pulling on the starter rope Item ③ vertically.

⚠ During the start-up phase, make sure that the tip is not close to any obstacle, especially sleepers or rails.

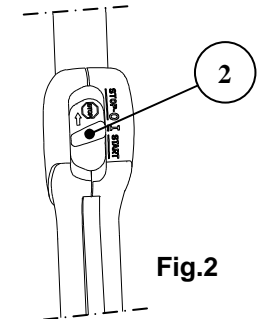
⚠ **Do not start the machine holding it with the acceleration trigger.** In this position, the operator may lose control of the lightweight portable vibrator due to a lack of stability.

④ After the first pull, put the choke lever Item ① back to ↑ (See Fig.1) and switch Item ② to position "1". Continue pulling vertically on the starter rope Item ③ until the engine starts. As soon as the engine starts running, let it run at idling speed for 30 seconds before use. If, when accelerating:

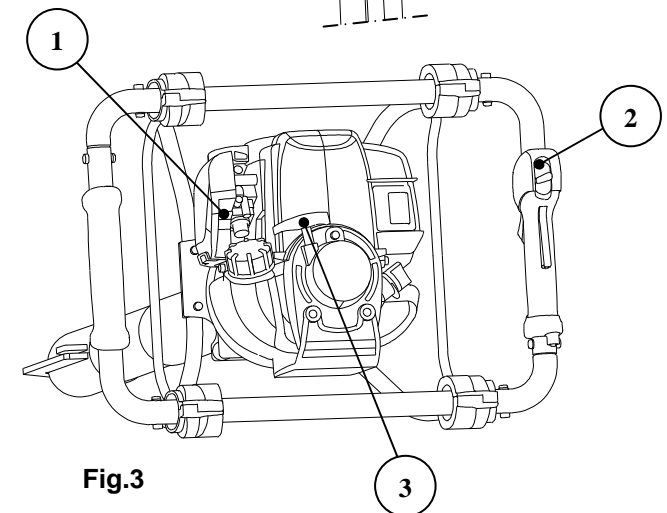
- The engine does not run smoothly, the vibrator is not hot enough.
- The engine runs smoothly, the vibrator is hot enough to begin work.



**Fig.1**



**Fig.2**



**Fig.3**



### 4.3 Instructions for using the lightweight portable vibrator

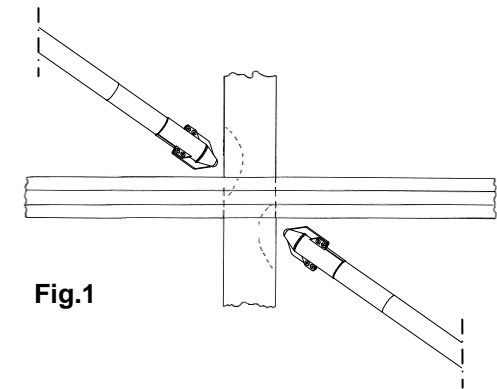
Before starting the lightweight portable vibrator, be sure to hold it in a vertical position with the tip on the ground. Do not start the lightweight portable vibrator with the tip in the ballast.

When in a work position with the tip positioned as shown in Fig. 1, it must be moved under the sleeper. This movement is carried out by the operator. To obtain good results, the tip must always be placed close to the rail. The tip moves under the rail and compacts the ballast where maximum density is required.

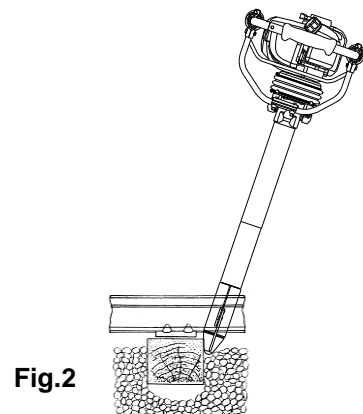
**The lightweight portable vibrator must always be used with the engine running at full power.**

We recommend that the following instructions are followed for obtaining the best results:

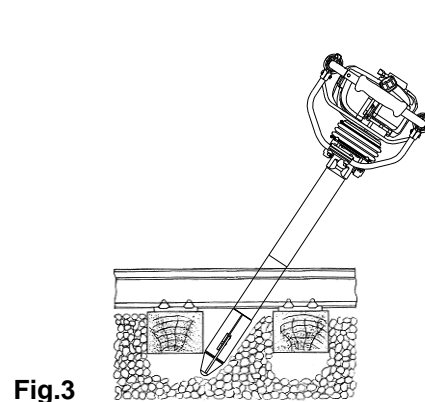
- **Fig.2** → The vibrator body is placed in a virtually vertical position against the sleeper, which allows the tip to penetrate the ballast without removing any ballast from it.
- **Fig.3** → Then the vibrator must be angled downwards so that the tip passes under the sleeper. Vibration will make a sufficiently large opening under the sleeper, for an extra quantity of ballast to be fed in.
- **Fig.4** → The ballast is then pushed under the sleeper by moving the vibrator to and fro at which time the ballast is completely tamped down. Do not try to force or push the vibrator. Its weight is quite sufficient by itself. Any extra manoeuvres will delay its action. The engine must always be allowed to vibrate freely. The tool just needs to be guided. Penetration into ballast that is in poor condition is made easier by pointing the tip downwards. The tip must be inserted close to the sleeper and along its side.
- **Fig.5** → Carry out a left-right-left movement using the grips on the lightweight portable vibrator to accentuate the ballast-tamping operation.



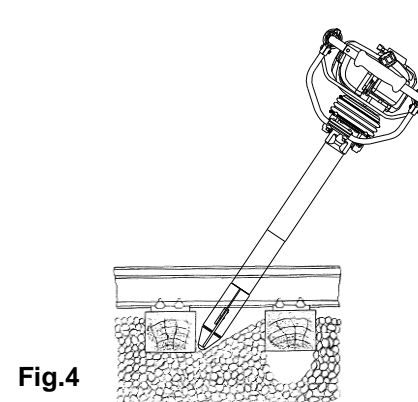
**Fig.1**



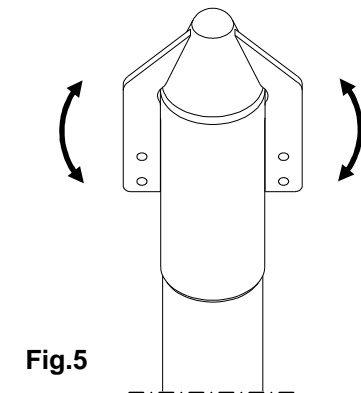
**Fig.2**



**Fig.3**



**Fig.4**



**Fig.5**

The lightweight portable vibrator is fitted with a chassis mounted on shock-absorbers so that vibration is reduced to a minimum for the operator. This reduces operator fatigue and enables operators to increase the length of working periods with the lightweight portable vibrator.

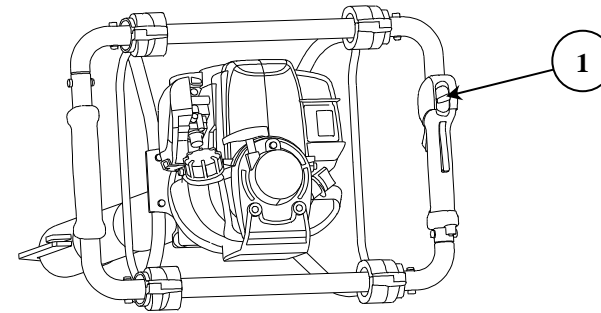


**Always use the lightweight portable vibrator at full power when ballast-tamping. Do not jog the accelerator trigger. Never use the lightweight portable vibrator for more than a few seconds with the tip outside the ballast as this may damage the machine.**

## 4.4 Stopping the lightweight portable vibrator

### To stop the engine:

- ➊ Move switch Item ① to position “0”.



## 4.5 Storage

### 4.5.1 General storage instructions

During periods when the equipment is not being used, it is essential that it be stored correctly to keep it in good condition. Poorly stored equipment is liable to show risks of deterioration when reused. Therefore, it is important for the personnel in charge of storage to use the utmost care in storing this equipment away and to comply scrupulously with recommendations.

#### ⇒ Protection systems for storing

The choice of protection systems for storing depends on 2 main factors:

- The length of storage time.
- Storage conditions: “Non-sheltered” storage (exposed to weather conditions) and “sheltered” storage (a building, a closed or open shed, a canopy, etc.).

The equipment may only be stored away after it has been “run in”. Measures must be taken for providing easy access to the equipment for carrying out servicing operations.

#### ⇒ Storage premises

Generally speaking, equipment storage premises must offer the best possible protection against:

- dust, exhaust gasses and moisture.
- direct sunlight.
- rapid changes in temperature.

#### ⇒ Putting into store

The condition of equipment when it is re-used after storage depends on the way it has been prepared and protected before being stored away.

- Equipment must be cleaned (after cleaning, protect mobile elements with grease).
- A technical inspection must be made for detecting any possible anomalies.

### 4.5.2 Special storage instructions

In the event of non-use for over a week:





- ➔ Using a well-ventilated area, empty the fuel tank into a recipient and clean the tank.
- ➔ Eliminate fuel in compliance with environment protection regulations.
- ➔ Run the engine until the carburettor is completely empty, otherwise the membranes in the carburettor may stick.
- ➔ Clean the machine thoroughly, especially the fins on the cylinder and the air filter.

## CHAPTER 5 – SERVICING / MAINTENANCE

### 5.1 Servicing

The equipment can only be serviced and repaired by qualified persons possessing the necessary skills and a sound general knowledge of mechanical engineering.

Appropriate training and tooling are required for servicing and repairing this equipment correctly.

-  Before any servicing or repair operation is carried out, the engine must be stopped (leave the control in the stop position) and left until cold.
-  To a large extent, the machine's safety in use relies on it being serviced correctly.
-  Waste resulting from servicing and maintenance operations (fluids, filters, used rags, etc.) must be processed as per regulations in force and environmental protection directives.
-  Replace or repair all worn, damaged or missing parts, whenever there is a safety risk.

#### 5.1.1 List of equipment and accessories required for servicing

The following tooling is required for carrying out servicing and maintenance operations correctly:

<i>Standard tooling (supplied with the machine)</i>	<i>Servicing and maintenance tooling (not supplied with the machine)</i>
Plug spanner (Ref. FVL) 4 (Ref.GBJ) and 5 mm (Ref.GBK) Allen key	7, 8 and 10 mm flat spanners 3 Allen keys Universal pliers and mallet Flat and Philips screwdrivers

This list of tooling does not exclude normal but essential equipment required for servicing, such as: rags, brushes, grease, etc.

#### 5.1.2 Engine

- Other operations: Refer to the instructions on the engine provided with the machine.

**If ever the engine needs to be replaced, only fit an engine supplied by GEISMAR, as it will have been specially prepared for use on the lightweight portable vibrator.**

### 5.1.3 Cleaning

Make sure that the machine is kept as clean as possible. The machine's service life and its satisfactory operation depend on the care given in cleaning it.

Clean the machine carefully with a clean rag or an air gun, taking care to remove any dirt that may be deposited on it, especially close to moving parts and the cooling fins on the engine. As a precaution, systematically wear gloves to avoid injuring or burning your hands. Do not use petrol for cleaning. Only use non-inflammable and non-toxic products that are inoffensive for the user and the equipment.

### 5.1.4 Tightening

After a running-in period of about 1 hour's work, check that all accessible nuts and screws are tight and seated correctly.

Refer to plan 36 000 ME for the tightening torques to be applied on the machine's silent blocks if ever they need to be replaced.

### 5.1.5 Removing the engine cover

In order to carry out certain maintenance operations and access certain parts of the engine, engine cover, Item ②, must be removed and the exhaust deflector must be dismantled by loosening the 2 screws holding it to the exhaust unit.

**Do not start the engine when the cover has been removed.**

Proceed as follows for removing the engine cover:

- ① Unscrew bolt Item ① (See Fig.1).
- ② Remove engine cover Item ②.

### 5.1.6 Carburettor

On leaving our works, the carburettor is delivered with the best-possible setting corresponding to the barometric and climatic conditions in our works at the time.

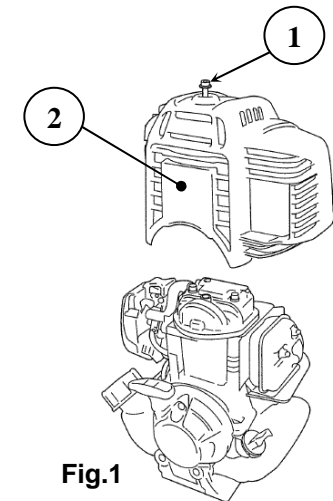
Besides normal servicing during use, it is recommended that any possible repairs or adjustments to the carburettor are carried out by members of the GEISMAR sales or repair network. All carburettor adjustments must be made when the engine is hot.

Regularly check the engine's maximum speed when under load (5,500 rpm) (See §2.3 "Technical characteristics"). A check must be made before the machine is used for the first time, weather conditions and altitude may considerably modify settings.

Use an electronic rev-counter for this check (Ref. HLN). If the engine speed is higher than 5,500 rpm under load (as shown in §2.3 "Technical characteristics"), settings must be adjusted.

Rotate the carburettor setting screw very carefully and in small steps, as the slightest adjustment will give rise to a significant change in the way the engine runs.

Too low or too high speeds on the vibration generating mechanism may cause premature wear on certain parts, or even serious operating incidents.



**Fig.1**

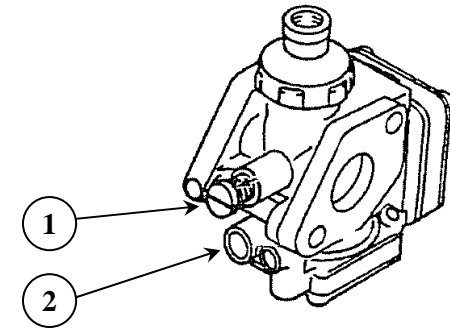
➔ **Adjusting idling speed:** (nominal idling speed: 3,000 rpm)

➔ **If the engine stalls when idling:**

Turn the idling speed screw Item ① clockwise until the tip begins to vibrate and then go a ¼ turn backwards, so that the tip no longer vibrates when the engine is idling.

➔ **If the tip vibrates at idling speed:**

Turn the idling speed screw Item ① anti-clockwise until the tip stops vibrating and then turn the screw an extra ¼ turn in the same direction.



**⚠ If the tip continues to vibrate after resetting, have your lightweight portable vibrator repaired by your specialist dealer.**

### 5.1.7 Spark plug

Should the engine lack power, be difficult to start, or give problems when idling; always check the state of the spark plug before anything else.

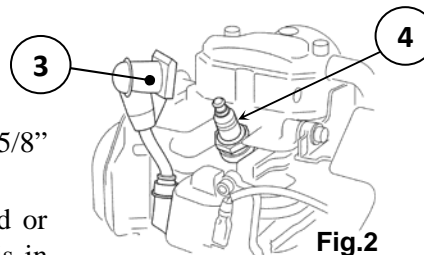
➔ **Proceed as follows to remove the spark plug:**

❶ Disconnect the plug cap Item ③ and remove any dirt from around the spark-plug Item ④ (See Fig.2).

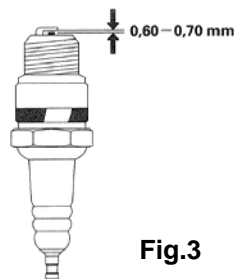
❷ Remove the spark plug Item ④ with a 5/8" plug spanner.

❸ Check the plug. Replace it if damaged or extremely dirty, if its sealing washer is in poor condition or if its electrode is worn.

❹ Measure the gap between the electrodes (See Fig.3). If necessary, correct the gap by bending the side electrode. The gap between the electrodes should be 0.6 / 0.7mm.



**Fig.2**



**Fig.3**

**Always use spark plugs with suppressors (See §2.3 "Technical Characteristics"). Other spark plugs may damage the piston and cylinder.**

➔ **Proceed as follows to refit the spark plug:**

❶ Screw in the plug.

❷ Replace the plug cap firmly in position (See Fig. 2).

A plug that is not screwed in sufficiently tightly may cause overheating and possibly damage the engine. Over-tightening the plug may damage the threads in the cylinder head.

### 5.1.8 Cleaning/replacing the air filter

A dirty filtration system may give rise to the following problems:

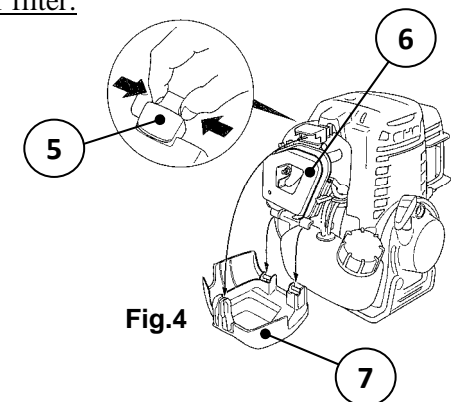
- Abnormal fuel consumption.
- Problems in starting up the engine.
- A drop in engine power.
- Premature engine wear.

**Proceed as follows to clean or replace the air filter:**

❶ Push in the locking tab, Item ⑤ and remove the cover on the air filter, Item ⑦ (See Fig.4).

❷ Remove the air filter, Item ⑥, and then clean or replace it depending on its condition.

❸ Refit the air filter and then put the filter cover back in place.



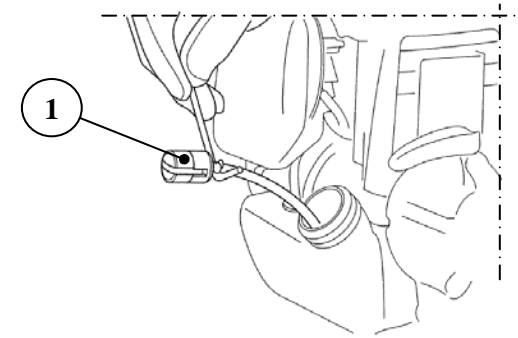
**Fig.4**



### 5.1.9 Fuel filter

Check that the engine oil filler cap is tight before checking the state of the fuel filter, Item ①, so as to avoid losing any oil when handling.

- ① Remove the fuel filler cap and drain the fuel into an approved petrol recipient by tilting the engine sideways towards the fuel filler neck.
- ② Pull the fuel filter out of the fuel filler neck by pulling on the fuel pipe with a length of metal wire (See figure opposite).
- ③ Check the fuel filter. If the filter is dirty, remove it and wash it in non-inflammable solvent. If it is extremely dirty replace it.
- ④ Re-insert the fuel filter in the fuel tank and tighten the fuel filler cap as far as possible.



### 5.1.10 Replacing the tip on the lightweight portable vibrator

**⚠ Before carrying out any repair operation, the engine MUST be stopped and the tip be left to cool down.**

**Whenever the fins on the tip of the lightweight portable vibrator are worn or broken, if cracks appear or the tip has reached its limits of wear, it MUST be replaced by a new tip.**

➔ Remove the damaged tip on the lightweight portable vibrator by proceeding as follows:

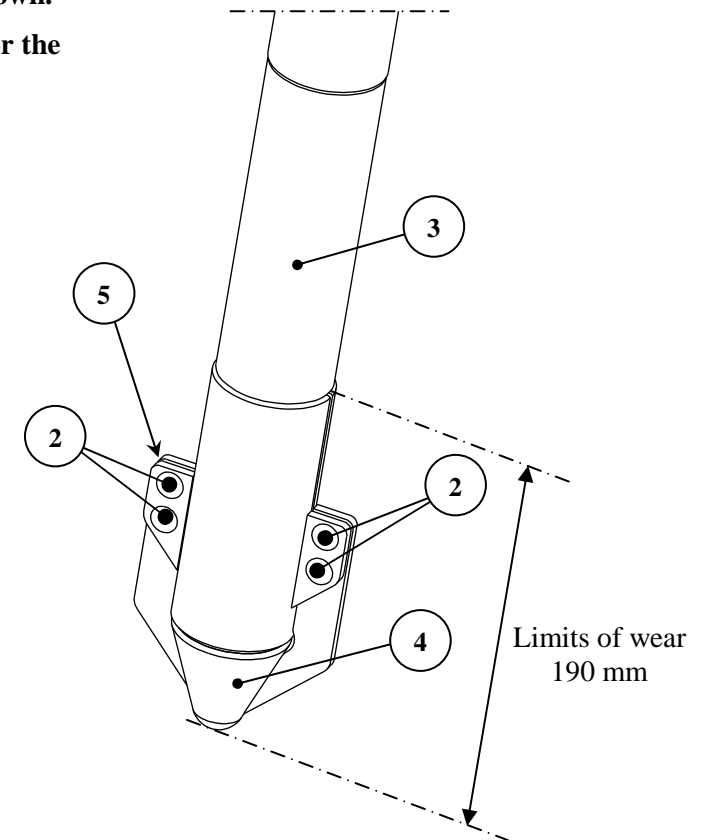
- ① Completely unscrew the 4 screws, Item ②.
- ② Insert a washer (or any flat object) in the slot, Item ⑤, opposite the holes for the 4 screws, Item ②, then screw in the 4 screws, Item ②, from the other side of the tip so as to widen slot, Item ⑤.
- ③ Remove the vibrator tip, Item ④ from the body, Item ③, by tapping alternately on either side of the tip with a mallet.

**If the wear on screws, Item ② on the tip does not enable the unit to be dismantled, these screws must be drilled with a drill of a smaller diameter than that of the screws.**

➔ To put a new tip in place on the body, proceed as follows:

Make sure that the 'O' ring ref. GAE has been fitted in the new tip and that no abrasive elements are present on the new tip or the body.

- ① Insert a washer (or any flat object) in the slot Item ⑤ opposite the holes for screws Item ②.
- ② Screw in the screws, Item ②, with the screw heads on the side opposite the chamfer. The slot, Item ⑤, will open.
- ③ Fit the tip of the vibrator on the body Item ③ as described above. If necessary, use a mallet for forcing the tip completely into position against its stop.
- ④ Retighten the 4 screws, Item ②, on the side of the countersunk hole to lock the tip in position.



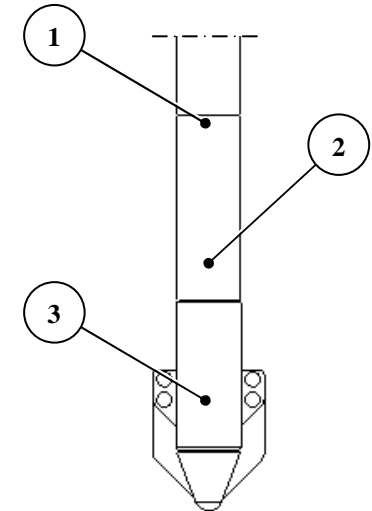
### 5.1.11 Protective sleeve

For replacing the protective sleeve, Item ② the tip, Item ③, of the lightweight portable vibrator needs to be removed (See §5.1.10 “Replacing the tip on the lightweight portable vibrator”).

- ❶ Remove the protective sleeve Item ② from the body, Item ① using a cutter and opening it on both sides. As the sleeve is glued in place, it may adhere firmly to the body.
- ❷ Once the protective sleeve has been removed, clean the surface of the body to remove all remaining traces of glue and pieces of sleeve.
- ❸ Apply glue to the ¼ of the inner surface of the body that will be in contact with the protective sleeve in order to push the glue upwards along it when the replacement protective sleeve is slid into position.

**⚠ Only use a two-component acrylic adhesive.**

- ❹ Slide the protective sleeve upwards along the body until it is in position. Hold it in position for a few seconds.
- ❺ Refit the tip of the lightweight portable vibrator (See §5.1.10 “Replacing the tip on the lightweight portable vibrator”).



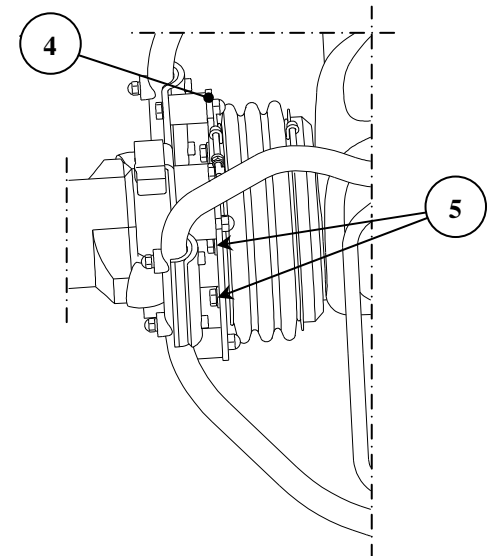
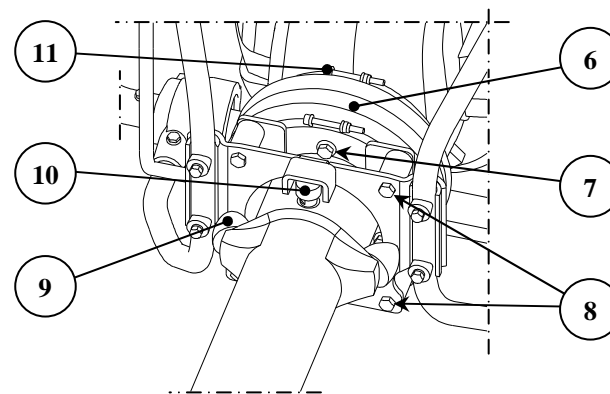
### 5.1.12 Engine coupling

**⚠ These operations must only be carried out by qualified personnel possessing the necessary skills. Should any problem occur, contact the manufacturer of the machine. Work in a clean environment.**

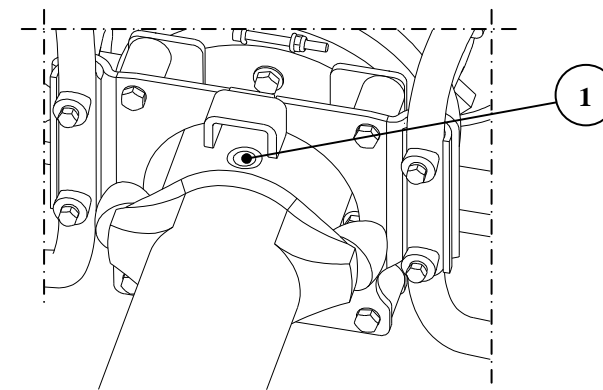
Proceed as follows for removing the engine and dismantling the engine coupling:

The tip on the lightweight portable vibrator must be removed beforehand. (See §5.1.10 “Replacing the tip on the lightweight portable vibrator”).

- ❶ Remove the 4 screws, Item ⑧.
- ❷ Remove the 4 screws, Item ⑤, holding the 2 plates, Item ④, in position and then remove the plates.
- ❸ Unscrew the 2 elastic studs, Item ⑨. Remove them by tilting the engine slightly from one side to the other.
- ❹ As the tubular chassis is now free, unscrew the 2 fixed stops, Item ⑩, with a flat 22 mm wrench. Remove them by tilting the engine slightly from one side to the other.
- ❺ Loosen the clamping collar on the bellows, Item ⑥, and extract the bellows, Item ⑪.
- ❻ Remove the 2 screws, Item ⑦.



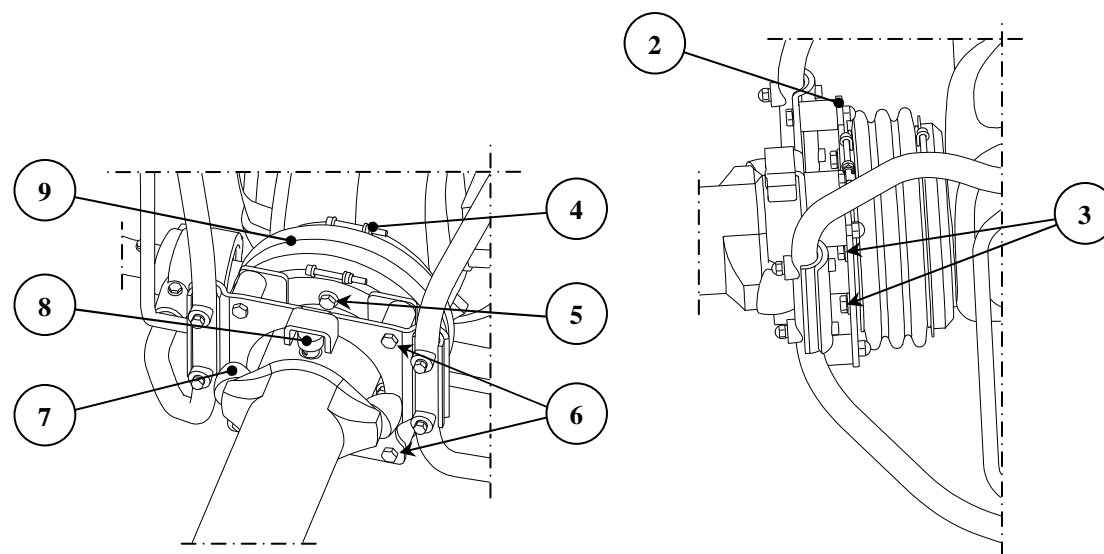
- ⑦ Screw an 8 mm screw into the end of the transmission shaft. Turn the screw already fitted on the shaft using a 13 mm wrench and align the coupling pin with the holes for the fixed stops, Item ①.
  - ⑧ Remove the pin from the coupling with a drift (you may need to move the engine to insert the drift)
  - ⑨ Pull on the body + tip assembly and the engine of the lightweight portable vibrator for accessing the engine coupling.
- ➔ **As the engine torque is transmitted by means of a spring, make sure that the spring is in good condition.**



Proceed as follows for refitting the engine:

With the tip on the lightweight portable vibrator already removed.

- ① Couple the engine and the body together.
- ② Insert the 2 screws, Item ⑤ for positioning the engine + body assembly.
- ③ Fit the bellows, Item ⑨ and the bellows clamping collar, Item ④ and tighten in position.
- ④ Screw in an 8 mm screw on the end of the transmission shaft. Turn the screw already fitted on the shaft using a 13 mm wrench and align the coupling pin with the holes for the elastic studs.
- ⑤ Fit the pin on the transmission shaft using a drift (you may need to move the engine to insert the pin).
- ⑥ Fit the 2 fixed stops, Item ⑧, with a flat 22 mm wrench. Fit them by tilting the engine slightly from one side to the other.
- ⑦ Fit the 2 elastic studs, Item ⑦.
- ⑧ Screw in the 4 screws, Item ③, holding the 2 plates, Item ②.
- ⑨ Screw in the 4 screws, Item ⑥.
- ⑩ Fit the tip on the lightweight portable vibrator. (See §5.1.10 "Replacing the tip on the lightweight portable vibrator").



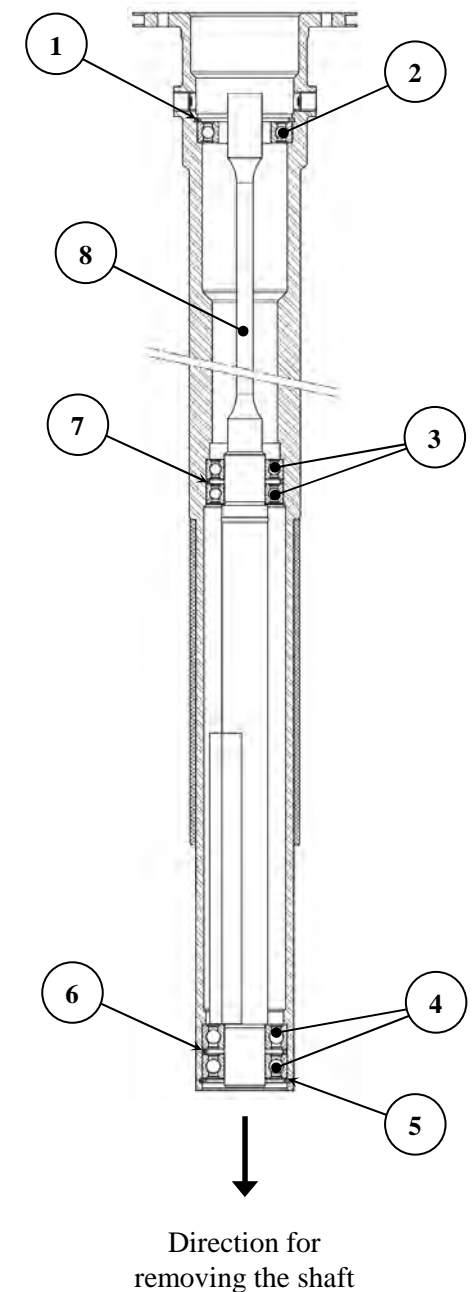
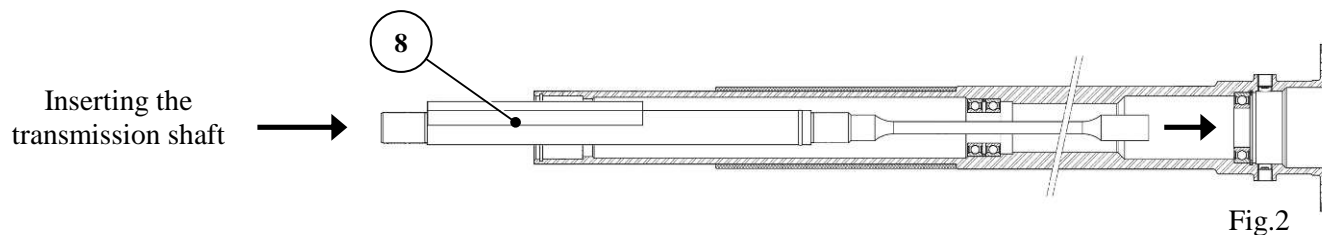
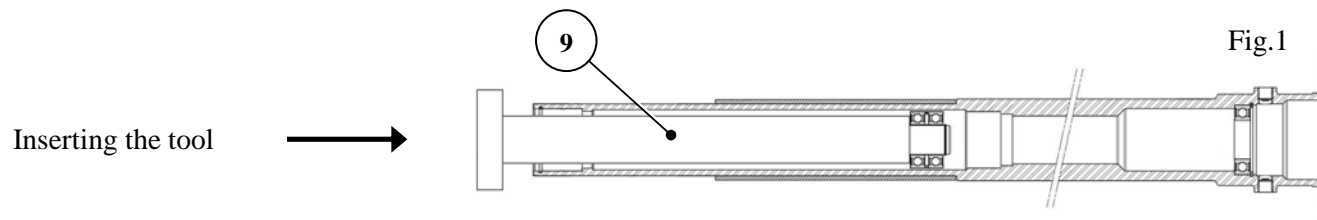
**After reassembly, check that the tip on the lightweight portable vibrator vibrates normally.**

### 5.1.13 Changing the bearings on the transmission shaft

- ⚠ Before carrying out any repair operation, the engine MUST be stopped and the tip be left to cool down.**  
**⚠ This operation must only be carried out by qualified personnel possessing the necessary skills. Should any problem occur, contact the manufacturer of the machine. Work in a clean environment when replacing bearings.**

The body on the portable vibrator must be removed for replacing the bearings on the transmission shaft. To do this, proceed as follows:

- ❶ Remove the tip on the vibrator. (See §5.1.10 “Replacing the tip on the lightweight portable vibrator”).
- ❷ Uncouple the engine from the portable vibrator’s body. See §5.1.12 “Engine coupling”.
- ❸ Remove the 2 circlips, Items ❶ and ❺.
- ❹ Remove the transmission shaft, Item ❸ using a slide hammer puller for extracting the shaft (See figure opposite). Bearings, Items ❷ and ❸ may remain inside the body. Remove them with a punch shank and mallet.
- ❺ Remove the bearings from the portable vibrator shaft and clean the shaft and the inside of the body with a clean cloth.
- ❻ Insert bearing, Item ❷ from the engine side of the body using a punch shank and a mallet. Insert circlip, Item ❶.
- ❼ Fit the 2 bearings, Item ❸, with spacer, Item ❷ between them, on the bearing assembly tool, Item ❹ (Ref.12888). Insert the tool into the body from the tip end, and then put the bearings in position inside the body by tapping on the tool with a mallet (See Fig.1).
- ❽ Using a mallet, insert the transmission shaft, Item ❸, into the body from the tip end (See Fig.2).
- ❾ Fit the 2 bearings, Item ❹ together with spacer, Item ❷ between them onto the body using a punch shank and mallet. Insert circlip, Item ❺.
- ❿ Refit the portable vibrator’s tip onto the body (See §5.1.10 “Replacing the tip on the lightweight portable vibrator”) then reconnect the engine to the body (See §5.1.12 “Engine coupling”).



## 5.2 Maintenance

### 5.2.1 Preventive maintenance schedule

ELEMENTS	TYPE OF OPERATION	FREQUENCY									Ref.
		Before every use	After every use	Once a week	After 2 h	First fortnight or 5 h	1 month or 10 h	3 month or 25 h	In case of deterioration	As required	
The whole machine	Machine inspection	X									Chap.3 - § 2
	Give a general clean		X								Chap.5 § 1.3
Engine cover	Clean			X							Chap.5 § 1.5
Protective sleeve	Replace								X		Chap.5 § 1.11
Control elements	Check operation	X									Chap.3 § 2
Accessible nuts and screws	Re-tighten					X				X	Chap.5 § 1.4
Engine	Inspection	X									Chap.5 § 1.2
	Air filter								X	X	Chap.5 § 1.8
	Oil change							X		X	Chap.5 § 1.2
Carburettor	Check that tip does not vibrate at idling speed	X									Chap.5 § 1.6
	Adjust settings									X	Chap.5 § 1.6
Tip	Check	X									Chap.4 § 2
	Replace								X	X	Chap.5 § 1.10
Engine coupling	Replace								X		Chap.5 § 1.12
Shaft bearing	Replace								X	X	Chap.5 § 1.13

NB: These recommendations are not limitative. Permanent surveillance of the machine and well-organized preventive servicing will most certainly extend the machine's service life.

Indications given in this preventive maintenance schedule apply to normal operation. For more difficult conditions and longer working days, the frequencies given must be reduced correspondingly.



### 5.2.2 List of normal wear parts

A list of the machine's normal wear parts is given below together with the conditions for their replacement.

However, all worn, damaged or missing parts **MUST** be exchanged or repaired immediately, especially when a safety risk exists.

Description	Reference	Number	Replacement conditions
Bellows	36 272	1	Wear or breakage
Elastic stud	36 356	4	
Elastic stud	36 379	2	
Conical progressive stop	EPU	2	
Elastic stud	LYX	6	
Stop	MPA	4	
Rubber shock-absorber	MPB	4	
Clamping collar	36 278	2	Breakage
Elastic pin Ø 2 x 12	PC	2	
Elastic pin Ø 5x40	VU	1	
Bearing n° 6005 EE	MP	2	Wear or dysfunction
Bearing n° 6205 EE – C3	MNS	2	
Bearing n° 6005 EE – C3	MNT	2	
Bearing n° 600/32 ZZ	MQC	1	
Protective sleeve	36 367 A	1	Deterioration
Spring	36 270 D	1	Wear or deterioration
Tip screw	HEU	4	
Tip	36 359 A	1	Limit of wear = 190 mm

## CHAPTER 6 – ACCESSORIES & OPTIONS

### 6.1 Accessories

#### 6.1.1 Transport bag

The transport bag for the lightweight portable vibrator, Ref. 36368, is equipped with an adjustable shoulder strap and a pocket lined with thermal insulation material. It can then be carried easily and in complete safety.



## **CHAPTER 7 – SPARE PARTS CATALOG**

### **7.1 Drawings and parts lists**

## IMPORTANT

Afin que votre commande de pièces de rechange soit suivie d'une livraison prompte et correcte, bien indiquer :

- Le rep., le nombre et la désignation des pièces de rechange
- Le type et le n° de série de la machine (plaque sur le châssis)

\*\*\*\*\*

## IMPORTANT

To ensure that you are delivered promptly and correctly after placing an order for spare parts please state:

- the Reference, number and description of the spare parts
- the type and serial number of the machine (to locate this number, look at the plate on the chassis)

\*\*\*\*\*

## WICHTIG

Um uns eine schnelle und fehlerlose Erledigung Ihres Ersatzteil-Auftrages zu erlauben, bitten wir Sie um folgende Angaben :

- Seriennummer und Baujahr der maschine
- Benennung und Bestellnummer der Ersatzteile



**36373**

**RZ**  
**MRS**

**N° 36000 ML**

**01 - 14**

**VPS moteur HONDA GX35**

Ensemble déflecteur d'air moteur

**36375**

**FVF**  
**36377**  
**HSF**



**FKY**

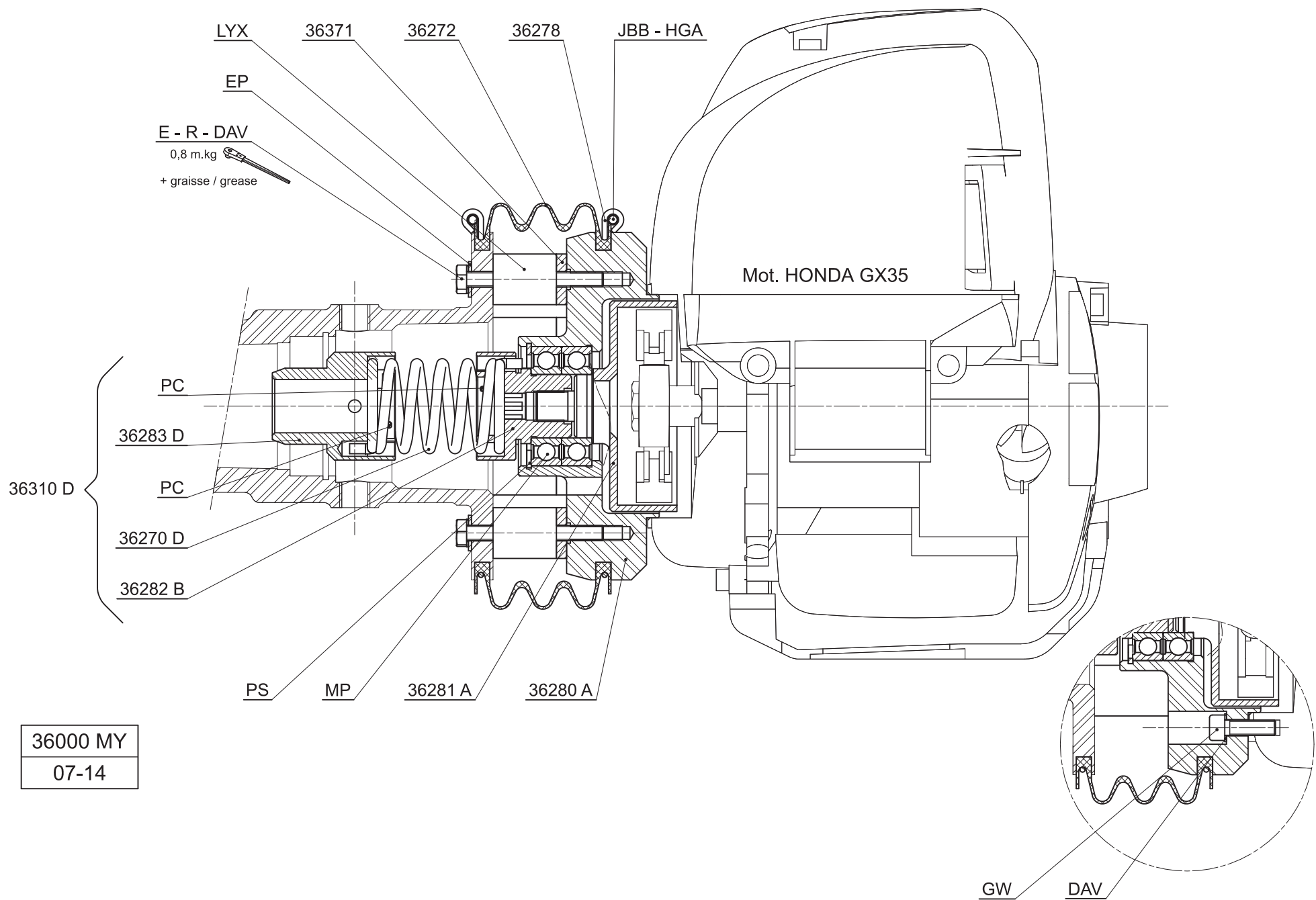
**36376**

**HSF**

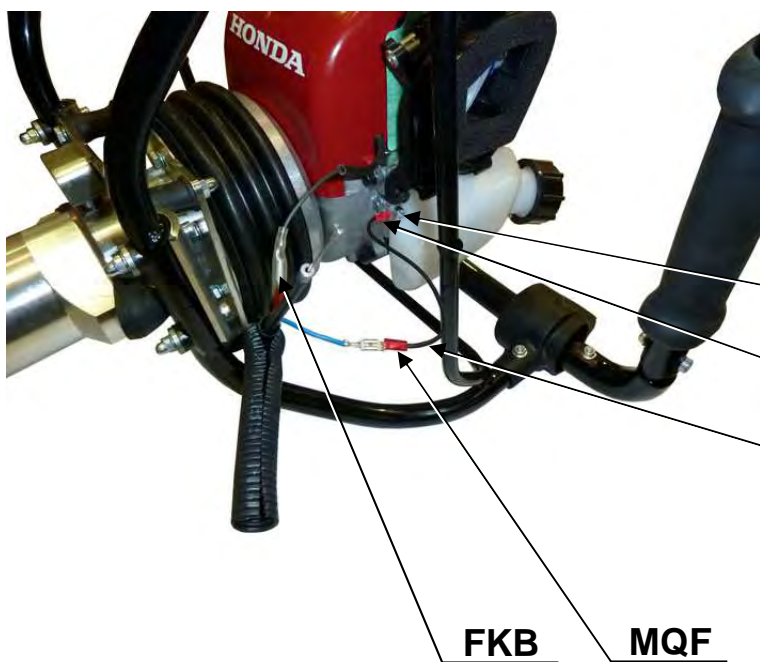


Ref.	Qty	Description	Ref.	Qty	Description
36 373	1	Air deflector protector	RZ	2	Washer Z5
36 375	1	Reinforcing sheet	FKY	1	Screw Chc 5 x 25
36 376	1	Spacer Ø 5,5 x 12 x 7	FVF	1	Screw Chc 5 x 35
36 377	1	Spacer Ø 5,5 x 12 x 12	HSF	2	Elastic ring Ø 6
			MRS	2	Screw caps





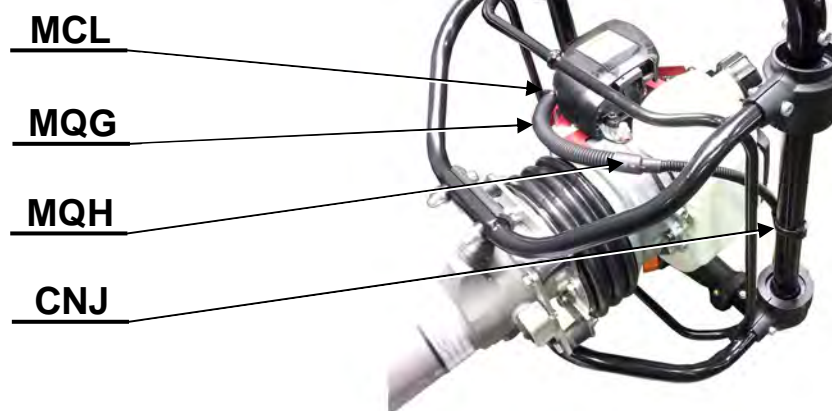
Ref.	Qty	Description	Ref.	Qty	Description
36 272	1	Bellows	E	2	Screw H 6x16
36 278	2	Clamping collar	R	4	Screw H 6x20
36 280 A	1	Adaptation crankcase	EP	6	Washer M6
36 281 A	1	Clutch bell	GW	4	Screw Chc 6x20
36 371	6	Washer Ø6,2x20x4	MP	2	Bearing n° 6005 EE
36 310 D	1	Coupling complete, including :	PS	1	Circlips 47i
- 36 270 D	1	Spring	DAV	10	Washer DI 6
- 36 282 B	1	Clutch nut	HGA	2	Nylstop nut M4
- 36 283 D	1	Rotor hub	JBB	2	Screw Chc 4x40
- PC	2	Elastic slitted pin Ø2x12	LYX	6	Spring pad Ø20x25



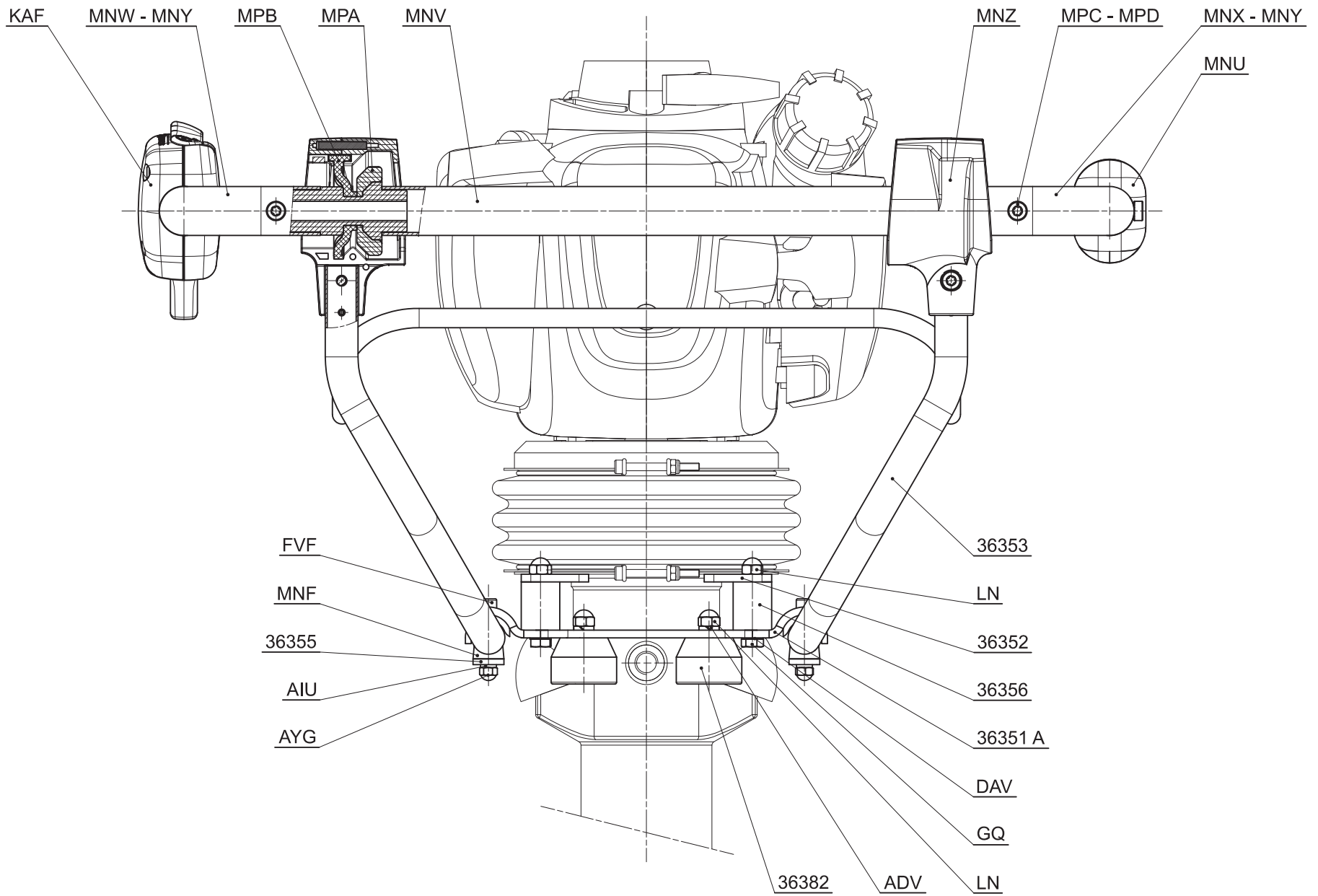
**N° 36000 MJ**  
**07 - 13**

**VPS moteur HONDA GX35**

Ensemble préparation moteur

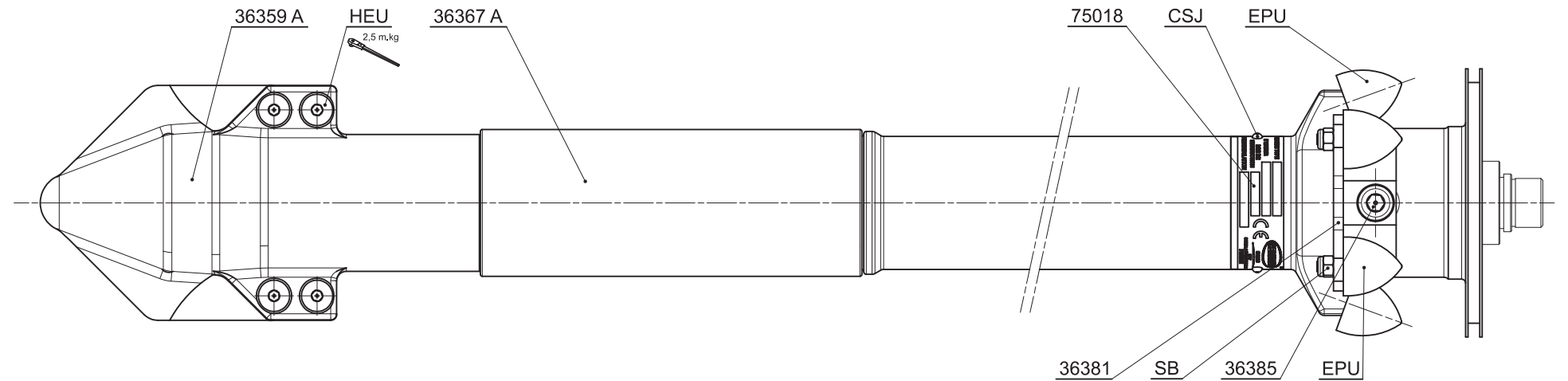
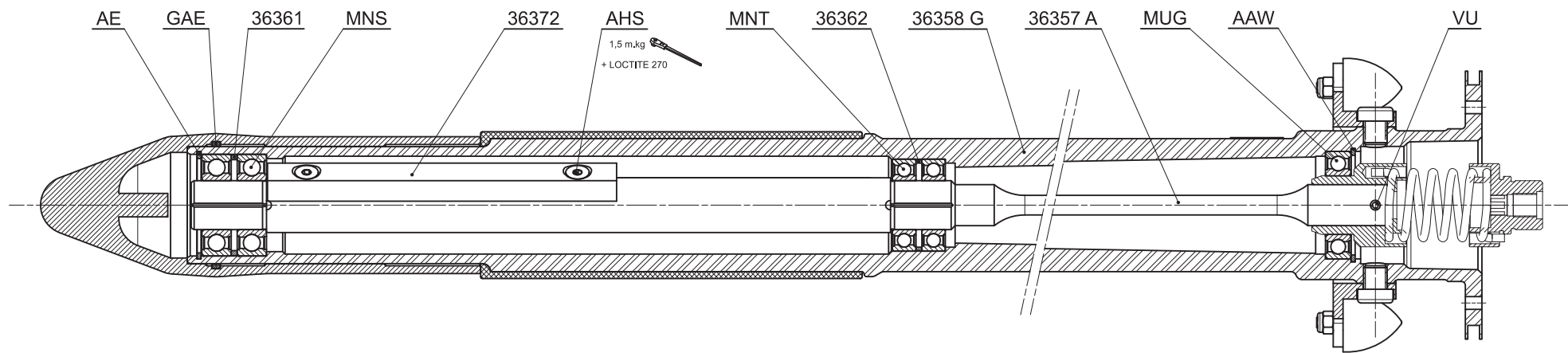


Ref.	Qty	Description	Ref.	Qty	Description
36 363	1	Sheath and throttle cable set	CFS	1	Screw Chc 5x8
61 050	1	Sheath thrust	CNJ	1	Polyamide collar
			FKB	1	Male connector Ø 4
			KJJ	1	Round lug Ø 5
			MCL	1	Polyamide collar
			MQF	1	Male connector 4,8 x 0,8
			MQG	1	Sheath Ø11 - 200mm long.
			MQH	1	heat shrinkable sheath 24/8 - 40mm long.
			*	1	Wire 1mm <sup>2</sup> - 150mm long.



Ref.	Qty	Description	Ref.	Qty	Description
36 351 A	1	Linking sheet	GQ	4	Screw H 6x10
36 352	2	Elastic stud support	LN	8	Blind nut M6
36 353	1	Handle frame	ADV	4	Washer W6
36 355	4	Washer Ø5,5x16x3	AIU	4	Washer W5
36 356	4	Elastic stud	AYG	4	Blind nut M5
36 382	4	Hollow stop	DAV	4	Washer DI6
			FVF	4	Screw Chc 5x35
			KAF	1	Complete acceleration handle
			MNF	4	Form washer 15-17
			MNU	1	Left handle
			MNV	2	Straight tube
			MNW	1	Knurled tubular handle
			MNX	1	Smooth tubular handle
			MNY	2	Bracket
			MNZ	4	Damper housing
			MPA	4	Stop
			MPB	4	Rubber damper
			MPC	10	Cylindrical screw M5x30
			MPD	10	Nut M5





Ref.	Qty	Description	Ref.	Qty	Description
36 357 A	1	Shaft	AE	1	Circlips 52i
36 358 G	1	Tube	VU	1	Elastic pin Ø5x40
36 359 A	1	Tamping tip	SB	4	Nylstop nut M6
36 361	1	Spacer Ø46,5x51,5x3	AAW	1	Circlips 55i
36 362	1	Spacer Ø43x46,5x3	AHS	4	Screw Fhc 6x16
36 367 A	1	Protective sleeve	CSJ	2	Round head rivet n°4 - Ø2,9x4,8
36 372	1	Unbalance piece	EPU	6	Progressive stop
36 381	2	Progressive stop support	GAE	1	O-Ring Ø60x3
36 385	2	Screw Chc 12x12, low head	HEU	4	Screw Fhc 8x16
75 018	1	Firm plate	MNS	2	Ball bearing n°6205 EE / C3
			MNT	2	Ball bearing n°6005 EE / C3
			MUG	1	Ball bearing n°6006 ZZ