



Operating Instructions

Translation of original operating instructions

POWERJET PJ-1650 Vacuum-Lifting-Device

PJ 1650-B



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Please note that the product may not be used / put into operation without these operating instructions in the national language. If you did not receive operating instructions in your national language with the delivery of the product, please contact us. In countries of the EU / EFTA we will send them to you free of charge. For countries outside the EU / EFTA, we will be pleased to provide you with an offer for an operating manual in the national language if the translation cannot be organised by the dealer/importer.

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EC Declaration of Conformity

DESCRIPTION: POWERJET PJ-1650 Vacuum-Lifting-Device
PJ-1650-B
52400036

Hersteller: Probst GmbH
Gottlieb-Daimler-Straße 6
71729 Erdmannhausen, Germany
info@probst-handling.de www.probst-handling.de

Complies with the following provisions applying to it

EC-machinery directive 2006/42/EC

Based on the following harmonized standards (in excerpts):

DIN EN ISO 12100

Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)

DIN EN ISO 13857

Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)

DIN EN 1012-1 / DIN EN 1012-2

Compressors and vacuum pumps; Safety requirements part 1 and 2.

DIN EN 60204-1 (IEC 60204-1)

Safety of machinery, electrical equipment of industrial machines. Part 1: General requirements

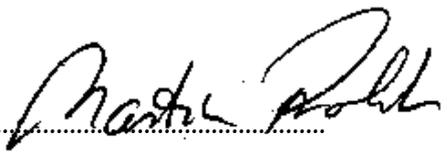
2014/35/EU (Low voltage standard)

2014/30/EU (Electromagnetic compatibility)

Authorized person for EC-dokumentation:

Name: J. Holderied
Address: Probst GmbH; Gottlieb-Daimler-Str. 6; 71729 Erdmannhausen, Germany

Signature:

Erdmannhausen, 18.09.2017.....

(M. Probst, Managing director)

EC-Declaration of Conformity / UKCA-Declaration of Conformity

Manufacturer: Probst GmbH
Gottlieb-Daimler-Straße 6
71729 Erdmannhausen, Germany
info@probst-handling.de
www.probst-handling.com



Importer: Probst Ltd
Unit 2 Fletcher House
Stafford Park 17
Telford Shropshire TF3 3DG, United Kingdom
www.probst-handling.co.uk
sales@probst-handling.co.uk



The machine described above complies with the relevant requirements of the following EU directives:
The object of the declaration described above is in conformity with the relevant UK-Regulations and UK-Guidelines:

EC-machinery directive 2006/42/EC (Reference: OJ L 157, 09.06.2006)

UK-Regulation: Supply of Machinery (Safety) Regulations 2008 (SI 2008 No. 1597)

The following standards and technical specifications were used:

DIN EN ISO 12100

Safety of machinery - General principles for design - Risk assessment and risk reduction

UK-Regulation: BS EN ISO 12100-1:2003+A1:2009

DIN EN ISO 13857

Safety of machinery - safety distances to prevent hazard zones being reached by upper and lower limbs.

UK-Regulation: BS EN ISO 13857:2019

2014/30/EU (Electromagnetic compatibility) / (Reference: OJ L 96, 29.03.2014)

UK-Regulation: Electromagnetic Compatibility Regulations 2016 (SI 2016 No. 1091)

DIN EN 60204-1 (IEC 60204-1)

Safety of machinery, electrical equipment of industrial machines. Part 1: General requirements.

UK-Regulation: BS EN 60204-1:2018

DIN EN 1012-1 / DIN EN 1012-2

Compressors and vacuum pumps; Safety requirements part 1 and 2.

UK-Regulation: BS EN 1012-1:2010

Authorized person for EC-documentation:

Name: Jean Holderied

Address: Probst GmbH; Gottlieb-Daimler-Straße 6; 71729 Erdmannhausen, Germany

Authorized person for UK-documentation:

Name: Nigel Hughes

Address: Probst Ltd ; Unit 2 Fletcher House; Stafford Park 17; Telford Shropshire TF3 3DG, United Kingdom

Signature, information to the subscriber:

Erdmannhausen, 02.08.2021.....
(Eric Wilhelm, Managing director)



3 General

3.1 Authorized use



Prohibition

- The device is only designed for the use specified in this documentation.
- Every other use is not authorized and is forbidden!
- All relevant safety regulations, especially regulations of the declaration of conformity, and additional local health and safety regulations have to be observed.

The device **PJ-1650-B** is exclusively applicable for lifting, transporting and laying of dense stone slabs, concrete elements and steps kerb stones and so on with the corresponding suction plates (**with minimum -0,4 bar underpressure**).

This device can be hung from any carrier/support frame (e.g. excavator, Probst hydraulic installation clamp VM) by means of load hook, chains, cables and such like.

Various suction plates can be fitted to the device (**PJ-1650-B**) via a quick release locating pin, enabling it to be used for many different purposes and with many different loads.

This device is equipped with the following safety devices:

- Vacuum manometer.
- Acoustic electronic warning device (battery-operated)
- Safety chain

Optional accessories:

- PJ-b-HAE (Best.-Nr.: 4190.0122) = hydraulic operated release device (for one—man operation). These release operation of the stone slab is controlled from the drivers seat.
- Radio remote control PJ-B-FFS (4240.0502) for suction release for PJ-1650-B
- Transport trolley PJ-RS (4240.0497) for PJ-1650-B



Only suction plates of the manufacturer **PROBST** shall be used, which shows doubtless a **maximum carrying capacity/working load limit (WLL)** at a pressure of **- 0.4 bar (- 5.8 psi)** at the *carrying capacity sticker*. In unclear circumstances the vacuum device and the suction plate may not be put into operation. The manufacturer must be contacted!



Danger

- Some suction plates which can be mounted to the device will reduce its carrying capacity. *The maximum load is indicated on each suction plate.*
- Use only suction plates which are **approved** for this device!



Prohibition

- **Do not exceed** the maximum carrying capacity/working load limit (WLL) of the suction plates!!! **Danger: Load (stone slabs) will fall down!**
- **Do not exceed** the maximum carrying capacity/working load limit **WLL** (1,650 kg / 3,650 lbs) of the device (**PJ-1650-B**)



Danger

The use of this device is only permitted in proximity to the ground.



Attention

Store and transport the device only in a vertical position (standing) - never horizontal (lying) position, because otherwise motor oil flows into the air filter. The consequences can be start problems and strong smoke emission.

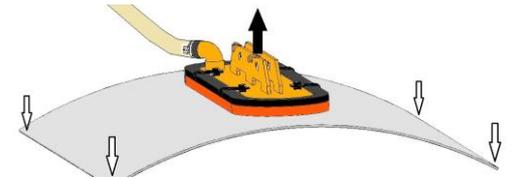
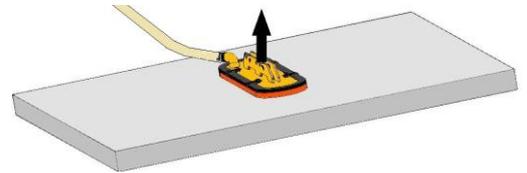


Prior to every operation the user must ensure that:

- the equipment is suited to the intended operation,
- the functioning and the working condition of the equipment is examined,
- the loads are suitable to be handled.

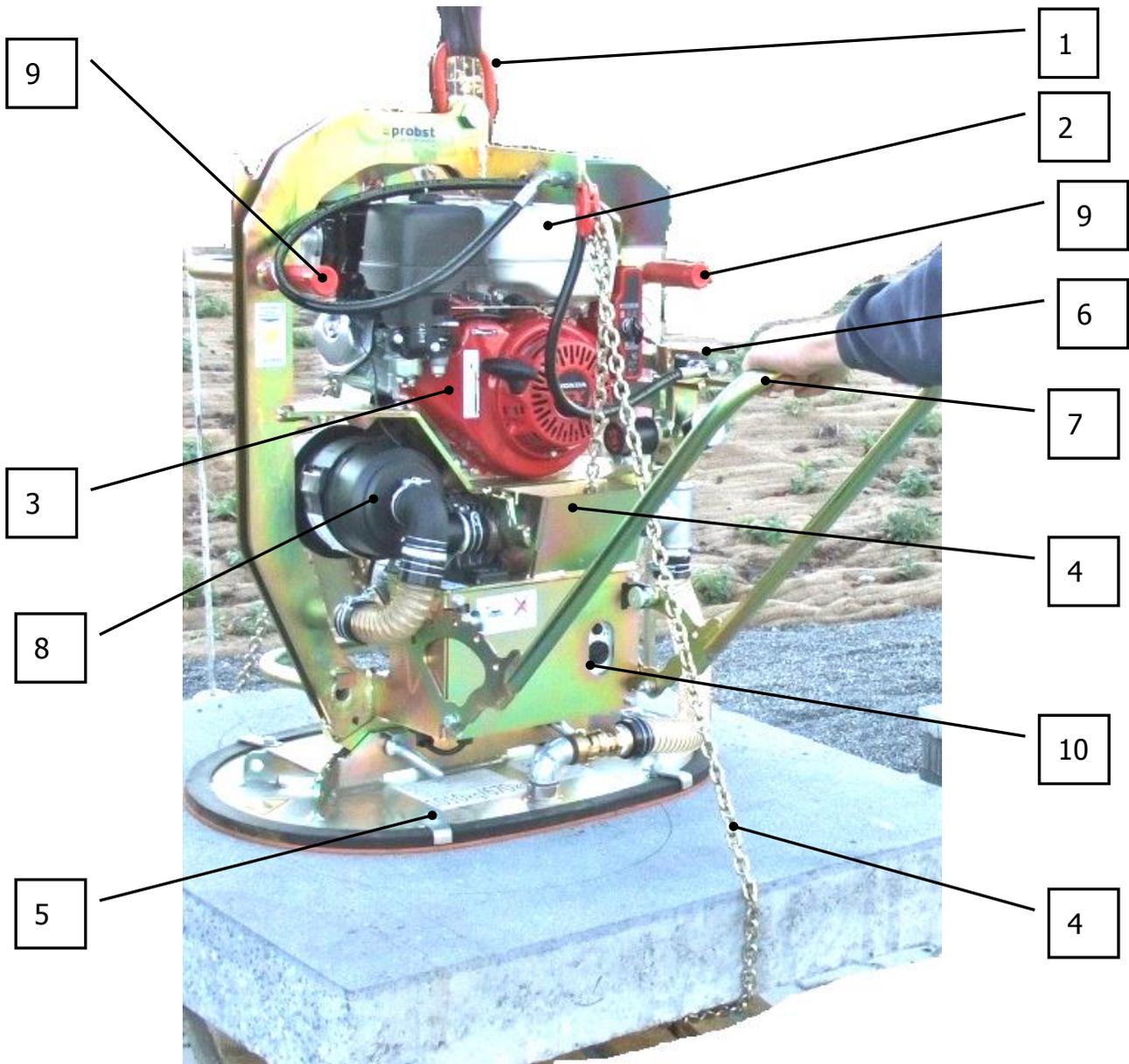
Any doubts about instructions should be raised with the manufacturer prior to use.

- The load (stone slabs) which is to be sucked and transported, must have sufficient inherent stability, otherwise there is **risk of breakage** when lifting!
- Stone slabs **must not** be bend when lifting - especially take care with thin and large-sized stone slabs!
- Generally, the load (stones slab) is only to be sucked in the **middle**, otherwise the load hangs diagonally under the device and the load could break - especially when lifting large stone slabs with a small suction plate.
- Standard suction plates are not suitable for the transport of glass plates!



- **The carrying capacity/working load limit (WLL) of the device of 1,650 kg (3,650 lbs) must not be exceeded!**
- **The weight of the load (Stone slab) may not exceed the maximum carrying capacity/working load limit (WLL) of the suction plate.**

3.2 Survey and construction



1	Suspension lug for support frame	6	Release button (for release operation)
2	Tank for Petrol engine (only unleaded petrol)	7	Handle (to guide the device)
3	Petrol engine (HONDA GX 270)	8	Air filter
4	Safety chain (with chain box)	9	Handle
5	Suction plate	10	Acoustic electronic warning device(battery-operated)

3.3 Technical data

The exact technical data (carrying capacity/working load limit (WLL), dead weight, etc.) are listed on the type plate.

3.4 Safety symbols

<p>Danger</p>	<p><u>Danger to life!</u> Identifies imminent hazard. If you do not avoid the hazard, death or severe injury will result.</p>
<p>Attention</p>	<p><u>Hazardous situation!</u> Identifies a potentially hazardous situation. If you do not avoid the situation, injury or damage to property can result.</p>
<p>Prohibition</p>	<p><u>Prohibition!</u> Identifies imminent a prohibition. If you do not avoid the prohibition, death and severe injury, or damage to property will result.</p>

3.5 Safety Marking

WARNING SIGN			
Symbol	Meaning	Order-No.:	
	<p>It is not allowed to be under hanging loads. Danger to life!</p>	<p>2904.0210 2904.0209 2904.0204</p>	<p>30 mm 50 mm 80 mm</p>
	<p>Do not lift any components off-centre.</p>	<p>2904.0383 (102x52 mm)</p>	
	<p>Store and transport the device only in a vertical position (standing) - never horizontal (lying) position, because otherwise motor oil flows into the air filter. The consequences can be start problems and strong smoke emission.</p>	<p>2904.0584 (97x52 mm)</p>	
	<p>The safety chains must fit tightly to the load Prohibition: safety chains must never hang loose under the load!</p>	<p>2904.0689</p>	
	<p>It is not allowed to position suction plates off-centre.</p>	<p>29040337 (optional)</p>	

WARNING SIGN			
Symbol	Meaning	Order-No.:	Size:
	Danger of squeezing the hands.	2904.0221 2904.0220 2904.0107	30 mm 50 mm 80 mm
	Danger: Injury of hands and fingers – belt drive	2904.0451	48x54 mm
REGULATORY SIGN			
Symbol	Meaning	Order-No.:	Size:
	ATTENTION! Clean filter daily with compressed air. Do not hit filter cartridge against any object!!! Exchange in case of much dirt.	2904.0687	Ø 50 mm
	Each operator must have read and understood the operating instructions (and all safety instructions).	2904.0665 2904.0666	30 mm 50 mm

3.6 Function Control

- Before using the device check the functions and the working condition.
- Maintenance and lubrication are only permitted when device is shut down!
- Do not use the device, until all faults which can cause safety hazards are removed.
- If there are splits at carrying parts of the device, immediately stop using it.
- The operating instructions must be available at the workplace every time.
- Do not remove the data-plates of the machine.
- Unrecognizable data-plates (such as prohibition and warning signs) must be replaced.

3.7 Instructions for Installation, Maintenance and Operating Personnel



The device must be installed and maintained by qualified personnel, mechanics and electricians.

Each person in your company involved in the installation, start-up, operation, maintenance, and repair of the device must have read and understood the operating instructions and especially the chapter "Safety" therein.



Your company must ensure by internal measures

- that the operators of the lifting device are properly trained,
- that they have read and understood the operating instructions,
- that the operating instructions will be available to them at any time.

The responsibilities for the tasks carried out with the device must be clearly organized and observed. There must be no ambiguity regarding responsibilities.

3.8 Safety at work



Danger

- The use of the vacuum lifting device is only permitted in proximity to the ground. Do not swing it over peoples heads.



Prohibition

- While using the vacuum lifting device is the stay of persons in the working area forbidden. Except it is indispensable. Caused of the way of using the vacuum lifting device , e.g. if the device must be leaded by hand.



Prohibition

- While using the vacuum lifting device be sure that there are no persons in the working area. Danger to Life!!
- The operator is not allowed to leave the control unit as long as the vacuum lifting device loaded with load. The load must always be in the range of vision of the operator.



Prohibition

- The manual guiding of is only allowed for vacuum lifting devices with handles.
- Do not use the vacuum lifting device to jerk seized set down load.
- Do not lift any components off-centre, because that could fall down.
- The capacity and the nominal width the vacuum lifting device are not allowed to exceed.
- Avoid quick or jerky movements with the vacuum lifting device. E.g. caused through driving fast over uneven grounds/site is forbidden. Because the gripping good could fall down.

3.9 Requirements for the Installation Location



Prohibition

- The lifting vacuum lifting device may not be used in explosion-risk rooms or areas.
- The ambient temperature may not exceed +3° and 40 °C (if this temperature is exceeded, please consult the manufacturer before using the device).
- The vacuum lifting device must be connected to the electrical supply and the main switch of the crane from which it is suspended.
Ensure, by means of internal instructions and regular inspections, that the area around the workplace is kept clean and tidy at all times.

3.10 Special Hazards



Attention

- The operating range have to be covered for unauthorized persons, especially children.
- The workplace have to be sufficiently illuminated.



Prohibition

- Take care handling wet, dirty and not solidified components.
- The working with the vacuum lifting device in case of atmospheric editions under 37,5° F is forbidden!
Because the goods could be fall down caused by dampness or freezing.



Danger

- Take care in case of thunderstorm!
- Since the load is held on the suction plates of the unit by a vacuum, it will fall off as soon as this vacuum is lost.



Danger

- This can happen if the vacuum generator fails. If the vacuum generator fails, lower the load immediately if this is possible. Otherwise, leave the danger area below the load immediately.
- The unit draws in large amounts of air and hair and items of clothing can be drawn into the air inlet. Do not look into the air inlet when the unit is running: it is even possible for your eyes to be drawn into the air inlet.

3.11 Workplaces

- The workplace of the operator is in front of the operator handle.
- The operator must stand so that he can see the vacuum gauge at all times.

3.12 Behaviour in Emergencies

An emergency situation exists when:

- power suddenly fails (unit switches off),
- the vacuum drops below -0.4 bar (red area of the pressure gauge).



Danger

In such cases, lower the load immediately if this is possible. Otherwise, leave the danger area below the load immediately. The load will be dropped from the lifting device!

3.13 Testing the Safety Devices

The lifting device is equipped with following safety equipment:

- pressure gauge (with red danger zone display)
- alarm signal (audio)



Attention

Check this equipment

- at the beginning of each shift (when operating in shifts),
- once a week (when operating continually).
- Correct faults before operating the device. If faults occur during operation, switch the device off and correct the faults before continuing work with the device.

3.13.1 Inspecting the vacuum hoses and hose clamps

- Check that all vacuum hoses and hose clamps are securely seated. Tighten any loose connections.

3.13.2 Testing the vacuum reservoir

- See the sub-section "Leak test" in the section "Maintenance"



- Rectify any detected faults before using the lifting device. If a fault becomes apparent during, switch off the lifting device and rectify the fault.

3.14 Protective equipment

The protective equipment must consist, according to the safety regulations of the following parts:

- Protective clothing
- Safety gloves
- Safety shoes
- Hearing protector

3.15 Behaviour in Emergencies



An emergency situation exists when

- power suddenly fails (device switches off),
- the vacuum pressure drops below -0.4 bar to the red section on the scale of the vacuum gauge.

Lower the load immediately if possible. If this is not possible, immediately leave the dangerous area near the load, since it will be dropped from the device.

3.16 Checking the Safety Devices

The lifting device is equipped with following safety devices:

- vacuum gauge with red danger zone
- warning device, audible

Check these devices at the beginning of each shift (when operating in shifts) or once a week (when operating continually).

Check this equipment:

- at the beginning of each shift (when operating in shifts),
- once a week (when operating continually).

Checking the Vacuum Gauge and the Warning Device



Attention

Warning device monitors the operating vacuum and power failure

⇒ Switch on the lifting device.

⇒ Place the lifting device on a stone slab or similar material and apply vacuum.

Caution: Simply apply vacuum to attach the suction pads to the stone slab. Do not lift the stone slab, since it may be dropped during the test!

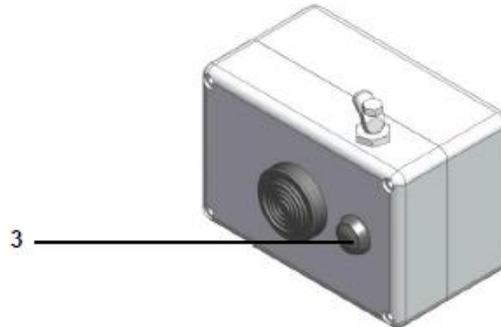
⇒ When the vacuum has built up, lift the edge of a suction pad to create a leak.

⇒ **The reading on the vacuum gauge decreases. When the vacuum drops below -0.4 bar, the warning device must sound.**



To ensure that the operation device operates safely, always **test the warning device** before each use.

Press button (3) for function test at the warning device. → Beep sounds for approx. 2 sec. ✓



- When starting the device the warning signal must sound. If not, the battery of the warning device must be changed (See the separate operating instructions in the appendix for more information.)

Checking the Vacuum Hoses and Hose Clamps:

Check all vacuum hoses and clamps for proper mounting and tighten the clamps if necessary.

Checking the Vacuum Reservoir

See “Testing for Leaks” in chapter “Maintenance”

Correct any faults before using the device. If faults occur during operation, switch the device off and correct the faults before continuing work with the device.

3.17 Unauthorized transportations



Prohibition

All unauthorized transportations with the device are not allowed!

- Transportation of people and animals.
- Transportation of other loads and material than described in this manual.

3.18 Unauthorized alterations



Prohibition

All unauthorized alterations of the device and the use of any self-made additional equipment could cause danger and are therefore forbidden!!

4 Installation

4.1 Mechanical connection

4.1.1 Positioning of suction plates

 For each application of the device (PJ-1650-B) the different suction plates must be fastened to the corresponding place to the device.



The device (PJ-1650-B) with sucked in load (stone slab) must **always** hang on the support frame (e.g. excavator) vertical.

4.2 Initiation

The device must be installed and maintained by qualified personnel, mechanics and electricians.

4.2.1 Suspension lug

- The device is equipped with a suspension lug and can be mounted on various support frames/lifting devices.

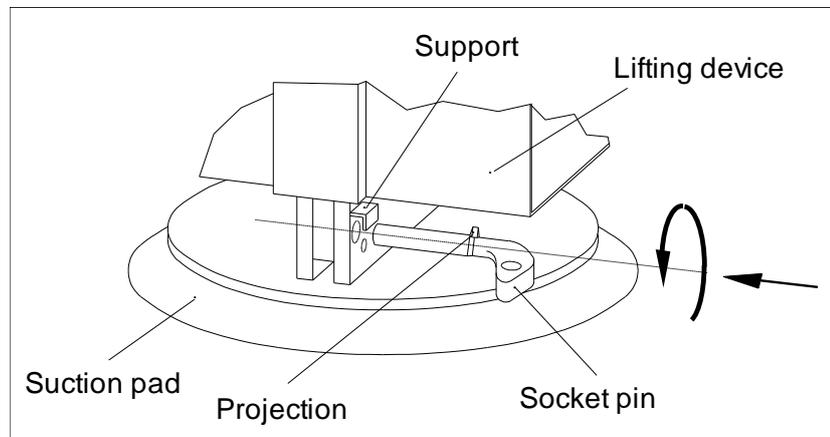


- Take careful that the suspension lug is safety joined with the crane hook and can not slip down.



- **The maximum carrying capacity of the support frame/lifting device is not allowed to cross over by the dead weight of the device and the maximum load.**

4.3 Mounting the suction pad to the lifting device



- Suspend the lifting device from the suspension eye bolt on the crane or hoist used. Secure it safely!



Attention

Take the weight of the lifting device and the maximum carrying capacity into consideration!

- Insert the suction pad into the support of the lifting device.
- Feed the socket pin into the boring until the projection of the socket pin is at the shoulder of the suction pad. Turn the socket pin downward until the projection is secure under the support. Check whether the socket pin firmly secured. The socket pin must not be able to be pulled out without turning.
- Connect the vacuum hose to the suction pad and lock it with the integrated lock nut.
- Before lifting loads check the safety equipment as described in section “Checking the Safety Devices”.

4.4 Refueling the engine



Danger

- **Gasoline is highly flammable. Always keep the fuel tank closed.**
- Do not smoke or allow flames when using gasoline. Do not inhale the fumes.
- To refuel the engine, switch off the device and engine.
- Only refuel the engine when it is switched off and cooled down.
- After refueling, tightly close the tank.
- Do not fill the fuel tank completely; fill up to approx. 4cm under the brim of the fill neck, so the fuel has room to expand.
- Starting the engine
- Stopping the engine

4.5 Use of the spreader bar with 2 suction plates

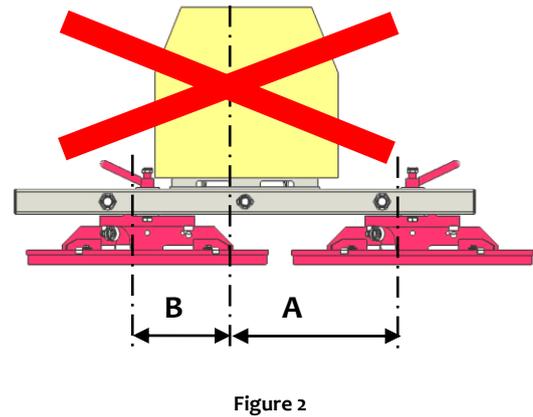
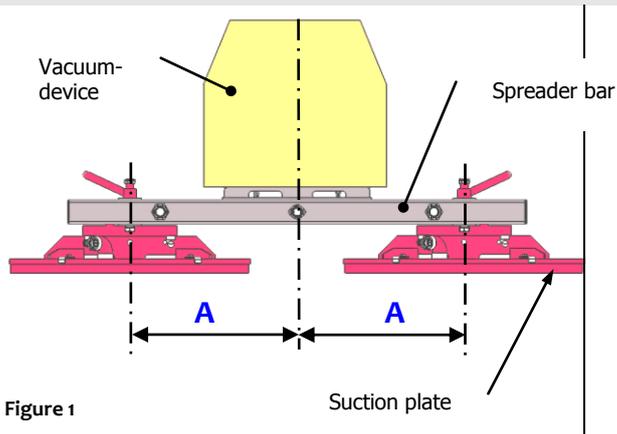


When using the spreader bar with 2 suction plates only suction plates of the same design (carrying capacity, dimensions and form) may be used!

The suction plates must always have the *same* distance (A) to the vertical centre axis of the spreader bar (see figure 1).

Unequal positioning of the suction plates is not permitted (see figure 2)!

Take care that the load (stone slab) hangs always *horizontal*.



4.5.1 Attaching the safety chain (of the optional spreader bar)

- Lift the device with the sucked load just a little (approx.. 20 cm)
- Then remove both safety chains from the chain cases of the spreader bar (TRA).



- Throw the safety chains underneath the load (concrete slab) .
Never grip with the hands under load. - Caution: Danger of squeezing hands!!!
- Suspend and tighten both safety chains as shown in picture 1. Place the end of the chains into the chain cases.
- The safety chains must fit tightly to the load, in that way that the load is held in case of a vacuum failure (Fig. 1)



- **The safety chains must never hang loose under the load, otherwise the load may fall down, in case of a vacuum failure (Fig. 2).**

- Now the device with sucked load be transported to the place of destination.

- Lower the load carefully (distance to the ground approx. 20 cm), then remove safety chains and throw it under the load.



- Never grip with the hands under load (stone slab)! Danger of squeezing!!!
- Safety chains should be returned to chain cases.
- Put the device with the sucked load completely down on the floor.

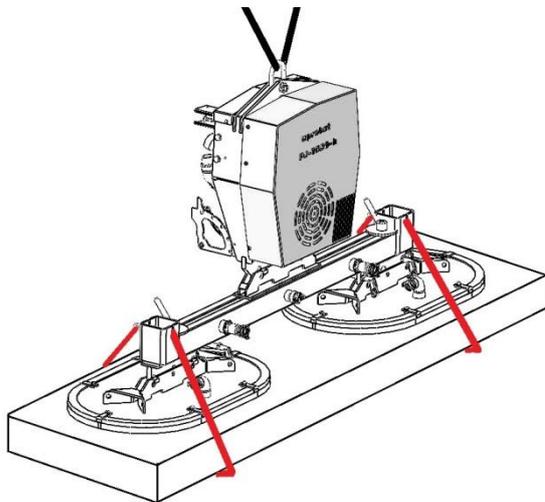


Fig. 1

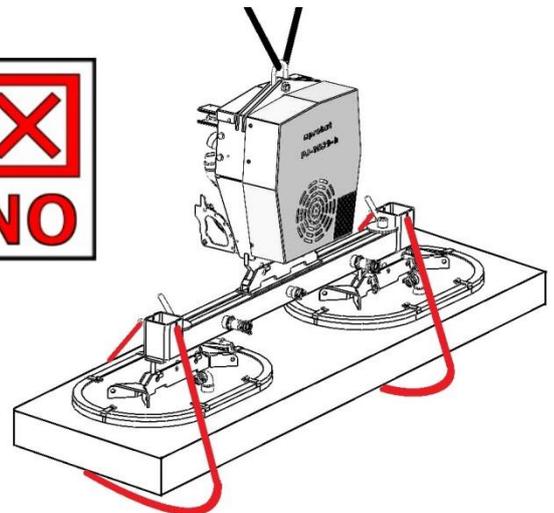


Fig. 2

5 Operating

5.1 Safety Instructions

- Wear safety shoes and gloves.
- Never exceed the maximum lifting capacity (**1650 kg**) of the device or of the crane or hoist used. Include the weight of the lifting device. Observe the name plate.
- Some suction pads which can be mounted to the device will reduce its carrying capacity. The maximum load is indicated on each suction pad. Never exceed the load indicated!
- Always lower the load before taking longer breaks!
- Operate the device only when the warning device is switched on.
- If the warning device sounds (under -0,4 bar), reduce the load immediately if possible.
- Do not stand below the load. Always keep clear of the load.
- Never transport people or animals with the load or the lifting device itself!
- Operate only when you can view the entire working area. Look out for other persons in the working area. Never maneuver loads above people.
- Do not let go of the handle while lifting a load.
- Do not pull loads to the side or drag them along with the lifting device.
- Do not tear off loads that have become stuck.
- If a power failure occurs, put the load down immediately if possible. Immediately leave the danger area near the load.
- Apply suction to and lift appropriate loads only (check for stability and porosity).
- Always monitor the pressure gauge. Never lift loads when the vacuum is below **-0.4 bar**.
- **When the pointer of the pressure gauge moves into the red danger zone below -0.4 bar, replace the load immediately.**
- Set work pieces down on free, level surfaces only, as they could otherwise slip.
- Release the load only when it is completely safely resting on the surface.
Keep fingers away from the load when you release it as they can be crushed!
- Always distribute load evenly on the suction surfaces.

5.2 Transport of the device



Transport the device only in a vertical position (standing) - never horizontally (lying), because otherwise motor oil flows into the air filter (see Fig.1)

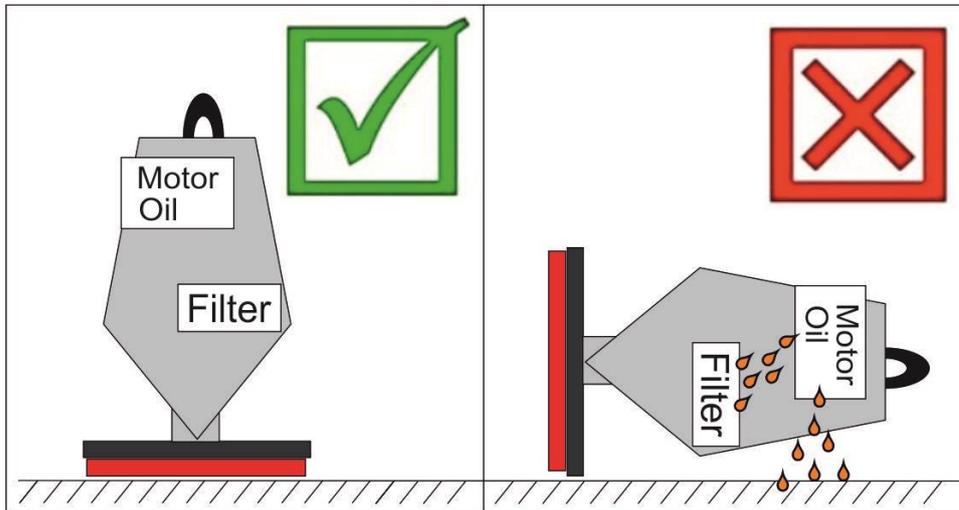


Fig. 1

5.3 Device operation - general

The handgrip of the device (PJ-1650-B) is adjustable to the body size of the operator.

1. Pull both spring bolts a little out (right and left of the device) then turn and release it
2. Move the handgrip downwards (↓), to achieve the desired working height
3. To lock the handgrip, pull the both spring bolts (right and left of the unit) a little out, turning and releasing it until they lock in position



To ensure safe operation, the warning device must be checked before each use of the device!

5.4 Lifting and Landing Loads

- Connect the device (PJ-1650-B) at an corresponding carrier (e.g. excavator).
- Connect the suction hose at the device (PJ-1650-B).
- Open fuel valve and choke (Fig. 2)
- Start the Honda petrol engine (with electro starter (1)). Move switch to “ON” (↘). Insert and rotate ignition key (↙)
- Or start the Honda petrol engine by pulling (powerful) at the start grip (2). (see details in the Honda operating instructions)
- Regulate the engine speed (Fig. 4)

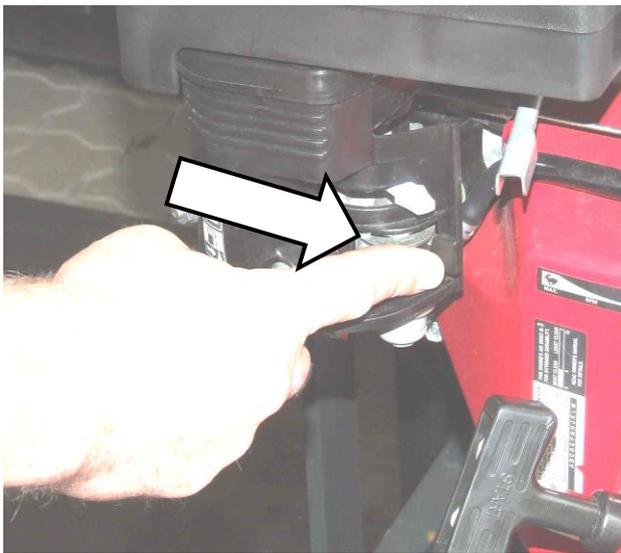


Fig. 2

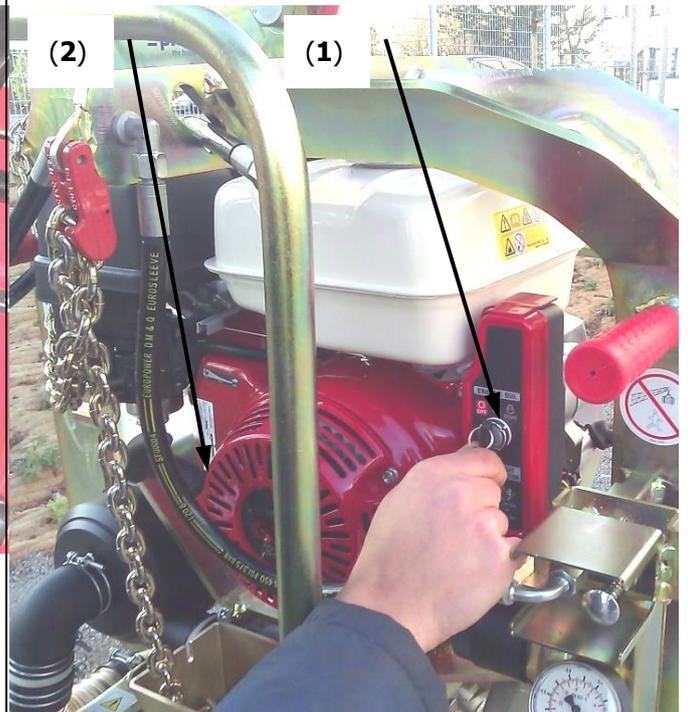


Fig.3



Fig. 4

- Position the lifting device directly above the load. Do not pull to the side. Distribute load evenly.
- Place the lifting device in the middle on the load.
- When the suction plate rests on the load (stone slab) starts the function “suction”.
- Watch the pressure gauge. As soon as a vacuum pressure of -0.4 bar has been reached you can lift the load. Do not under any circumstances lift the load before the manometer has reached this level as the load would fall off.
- When lifting be sure to lift only one piece at a time. Use a screwdriver to carefully remove any pieces attached to the one you are lifting before proceeding
- Lift the device with the sucked load just a little (20 cm), then remove the safety chain (7) from the chain box (6) and throw it under the lifted load.



Danger



Danger

Never grip with the hands under the load (stone slab) – danger of squeezing the hands!

Suspend and tighten the security chain (7) on the other side of the device (place the end of the chain into the chain box (6). **The safety chain must never hang loose under the load, otherwise load may fall down (Fig. B)!**

- The safety chain must fit tightly to the load (Fig. A), so that load with vacuum failure (e.g. due to power failure) is held by the security chain.



Fig. 5

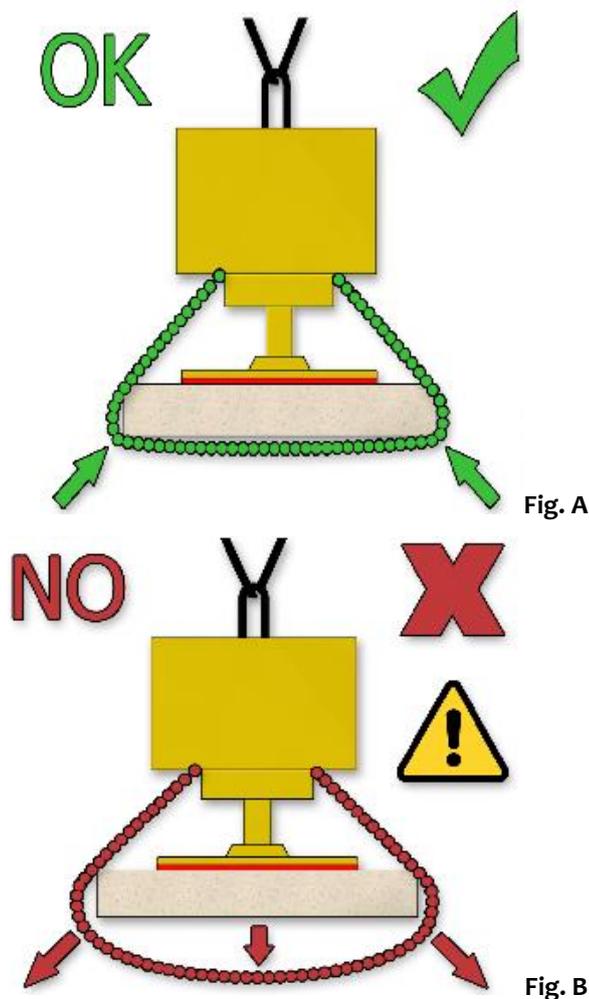


Fig. A

Fig. B

5.4.1 Lowering the load



Danger

- Lower the load carefully (10-20 cm to the ground) remove the safety chain (7).

Never grip with the hands under the load (stone slab) – danger of squeezing the hands!

Place the security chain (7) into the chain box again..

- Lower the device with the sucked load complete on the ground.
- To release the load (stone slab), press the release button (5). (→ Fig. 6).

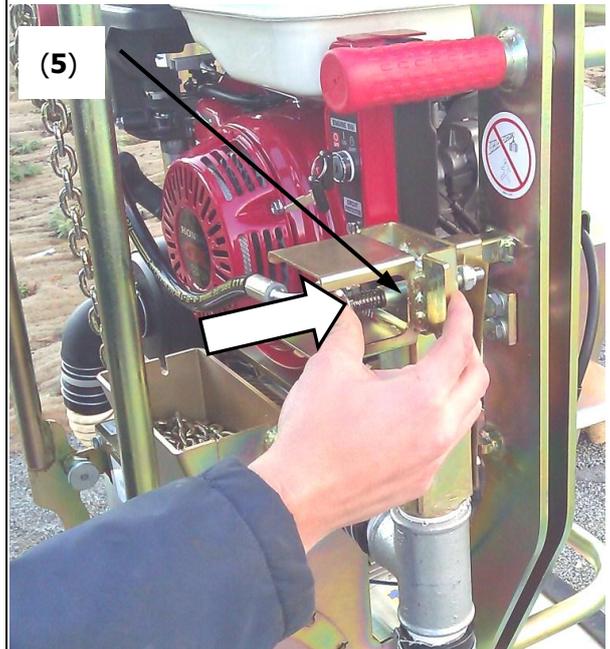


Fig. 6

- Through the installation of the PJ-b-HAE (Part.-Nr.: 4190.0122) and the installation of an additional hydraulic line to the support frame, the load can be released directly from the driver's seat (→ Fig. 6a).

PJ-b-HAE (Best.-Nr.: 4190.0122) = hydraulic operated release device (for one-man operation)



Fig. 6a



Attention

Use the blower with closed suction hose (when a load is sucked) maximum 5 minutes, otherwise exists danger of overheating (blower could be damaged)!

5.4.2 Raising of the suction power



- To increase the suction power when lifting of highly porous loads (stone slabs) the standard mounted quick-change coupling (6) can be removed from the suction plate to connect the vacuum hose directly to the suction plate.
- Therefor remove the quick-change coupling (6) from the suction hose (→ Fig. 7 + 8).
- Connect the suction hose (7) direct at the suction plate (→ Fig. 9)

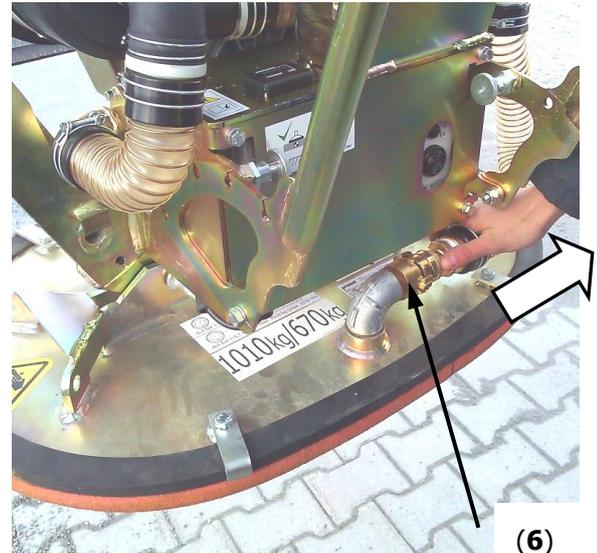


Fig. 7

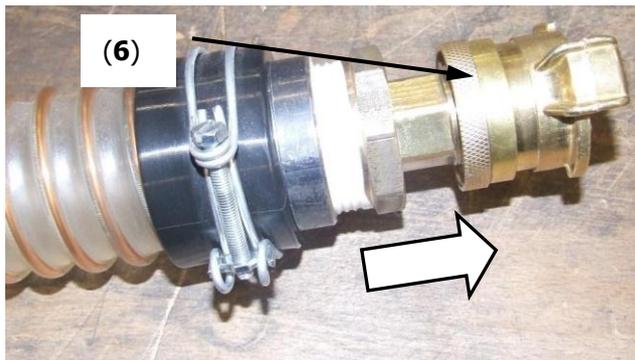


Fig. 8

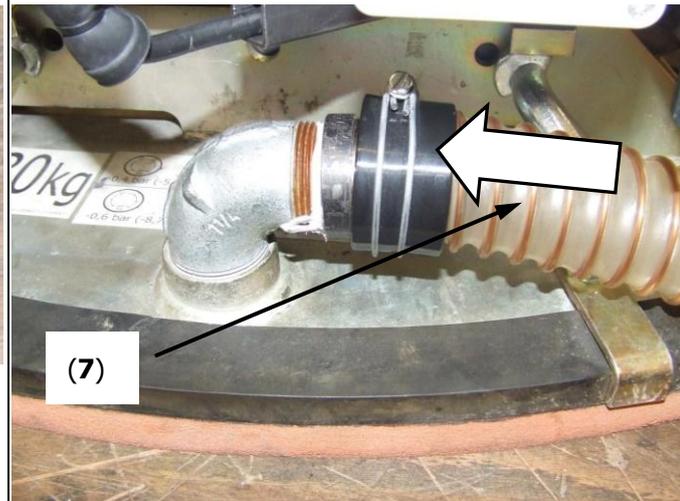


Fig. 9

5.4.3 Lifting wet loads

- The device (PJ-1650-B) is not intended for picking up wet stone slabs. When picking up wet stone slabs, please observe the following:
- Remove water from the suction surface.
- Carry out the following points after working with damp parts:
Lift up the lifting device. Make sure that the area around the suction plate is clear and that no items or water can be drawn in.
- Let the pump idle to run dry for at least 5 minutes.
- To do this, lift the device (WITHOUT load) with the carrier (excavator) approx. 20 cm and set to the function "suction".
- Then switch off the device.

5.4.4 Charge the battery (after the end of work)

- Frequent starts of the gasoline engine with the electric starter and short motor run times, it is recommended to charge the battery with a suitable charger (after the end of work).
- Therefore remove the 4 screws (at the front covering - see arrows ↙ in Fig. 10) and connect the negative and positive pole of the charger at the battery.

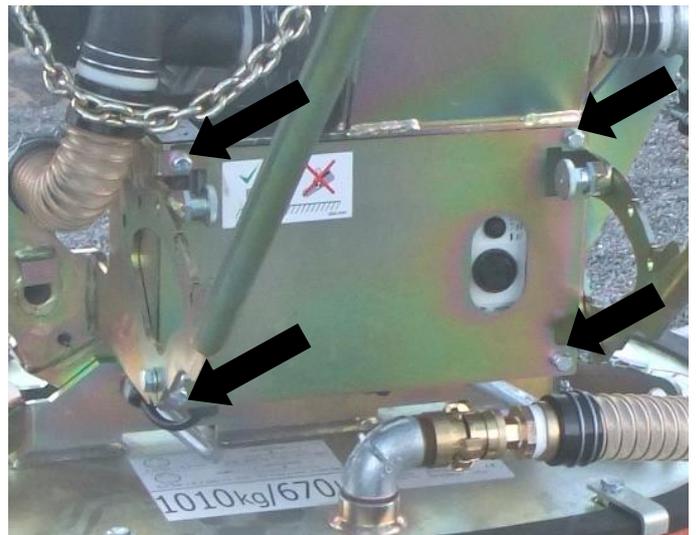


Fig. 10

5.4.5 Downtime

Store the device in a closed and frost-free room (not uncovered outdoors).

6 Troubleshooting

The device must be installed and maintained by qualified personnel such as mechanics and electricians only. After each repair or maintenance job check the safety equipment.

Error	Cause	Remedy
Blower does not run	Engine is defective	Check the engine/call customer service
	V-belt is broken/too loose	Replace/restretch the V-belt
Blower runs, but does not produce suction	Slide valve is closed	Open it
	Vacuum hose is defective, connectors are not tight	Check, replace vacuum hose
Vacuum pressure does not reach -0.4 bar	Workpiece has cracks, openings or is porous	Workpiece is not suitable for suction
	Seal is damaged	Replace the seal
	Pressure gauge is defective	Replace the pressure gauge
	V-belt is loose	Restretch the V-belt
Engine does not run	Fuel tank is empty	Refuel the tank
Engine does not run	Fuel valve is closed	Open the fuel valve
	Engine is defective	Check the engine/call customer service
Petrol engine goes out and immediate re-starting is not possible	Gasoline supply interrupted	Check gasoline lines and fuel level in tank
	Ignition coil is defective	Check ignition coil and if necessary exchange
Warning device does not function	See engine operating instructions (appendix)	
Load cannot be sucked. Prescribed negative pressure cannot be achieved no more. Negative pressure diminishes itself too fast, when switching the device off.	Leakage at vacuum plate by deposited dirt between rubber seal and suction plate. Rubber seal wore or porously (aging after effect of UV radiation)	Remove rubber seal from suction plate. Clean suction plate and slot in rubber seal. Draw up and fasten rubber seal on suction plate again. If necessary exchange rubber seal.

7 Maintenance

7.1 General



To ensure the correct function, safety and service life of the device the following points must be executed in the maintenance interval.

Used **only original spare parts**, otherwise the warranty expires.



Attention

All operations may only be made in unpressurised, electro less and closed state of the device!

The device must be installed and maintained by qualified personnel such as mechanics and electricians only. After each repair or maintenance job check the safety equipment as described in the "Safety" chapter.

MECHANICAL

Service interval

First inspection after
25 operating hours

Regularly (at least once a week)

All 50 operating hours

Minimum 1x per year
(at rough conditions shorten
the interval)

OIL CHANGE

See → enclosed HONDA
user manual – chapter
“oil change”

Maintenance work

- Control and tighten all screws and connection.
(The implementation is only allowed by an expert).
- Remove dirt or dust that has accumulated on parts of the device.
- Tighten all screws and connection (Take care that the tightening torques according to the property class of the screws are observed).
- Check all joints, bolts, guidance's and gears for correct function, if necessary adjust or replace it.
- Check of all the suspension parts, bolts and straps. Check for corrosion and safety by an expert.

Oil drain
crew



7.2 Suction pads/ seals

- Remove items and contaminations such as adhesives, glue, saw dust, dust etc. from the seals at least once a week. Use glycerin to clean the seals.
- Immediately replace damaged seals (those with tears, holes, ripples).
- Do not use petrol (gasoline) to clean the device. It is highly flammable and its fumes are hazardous. Use cold-cleaning solvent. Do not smoke while cleaning.
Do not use aggressive or corrosive fluids to clean the device. The vacuum hose will otherwise become leaky or be destroyed.

7.3 Filter

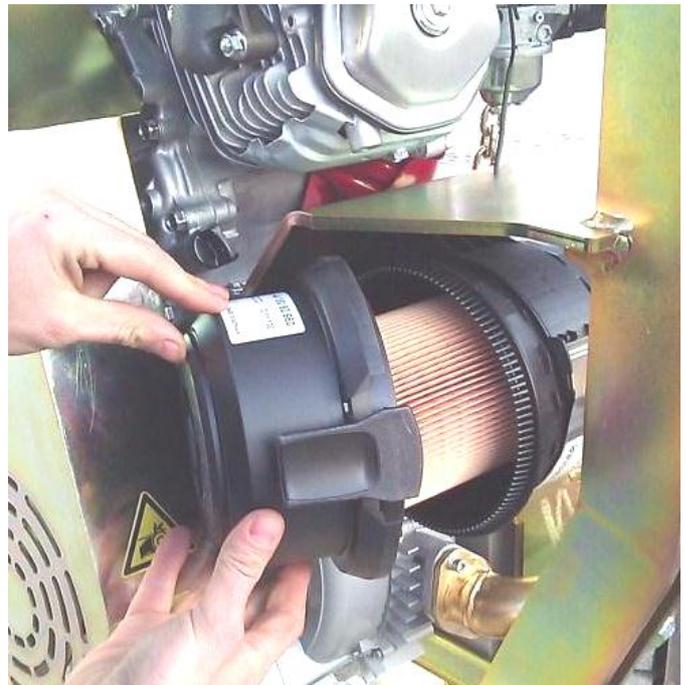
- Check the filter at least once a week, blow the filter cartridge out (from the inside to the outside).
Do not knock the filter!
When it is contaminated heavily, replace the filter cartridge. Disposal in normal house waste
- Do not allow dust to enter into the suction opening when removing the filter cartridge.



Attention

Do not breath dust, when cleaning the filter.

Use a fine particle mask.



7.4 Safety procedures

- It is the contractors responsibility to ensure that the device is checked by an expert in periods of max. 1 year and all recognized errors are removed (→ see BGR 500).
- The corresponding regulations of the declaration of conformity have to be observed!
- We recommend, that after checking the device the badge „Safety checked“ is put on the device. (Order-No.: 2904.0056 + inspection sticker with date)
- You can receive these badges from us.



The check by an expert must be proved!

Device	Year	Date	Expert	Company

7.5 Hints to the identification plate



Type, serial-number and production year are very important for the identification of your device. If you need information to spare-parts, warranty or other specific details please refer to this information.

The max. carrying capacity is the maximum load which can be handled with the device. Do not exceed this carrying capacity.

If you use the device in combination with other lifting equipment (Crane, chain hoist, forklift truck, excavator) consider the deadweight of the device

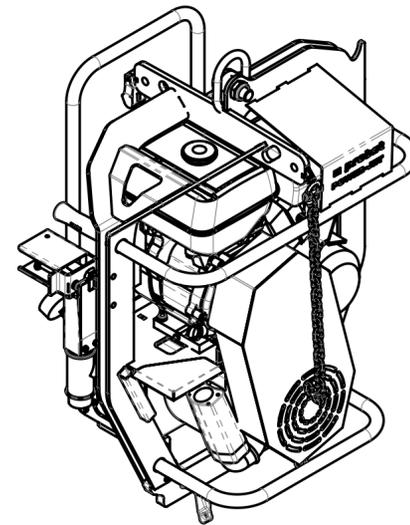
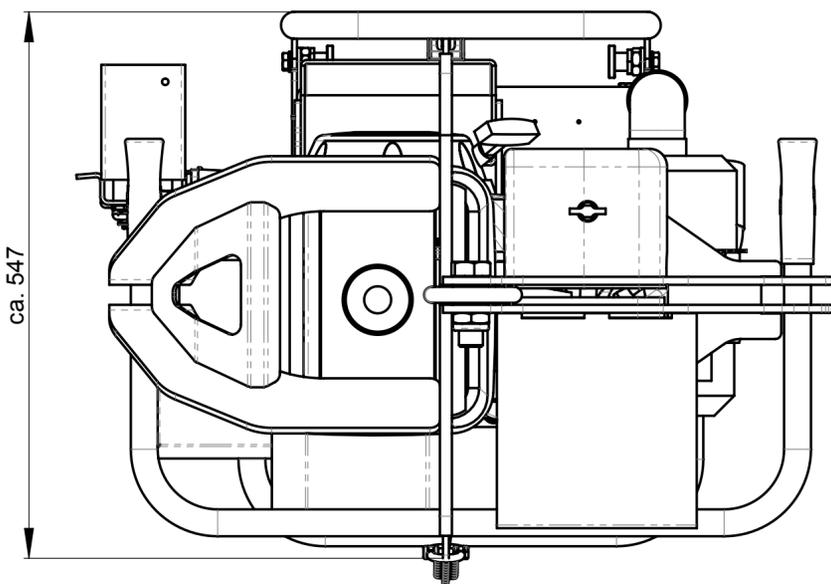
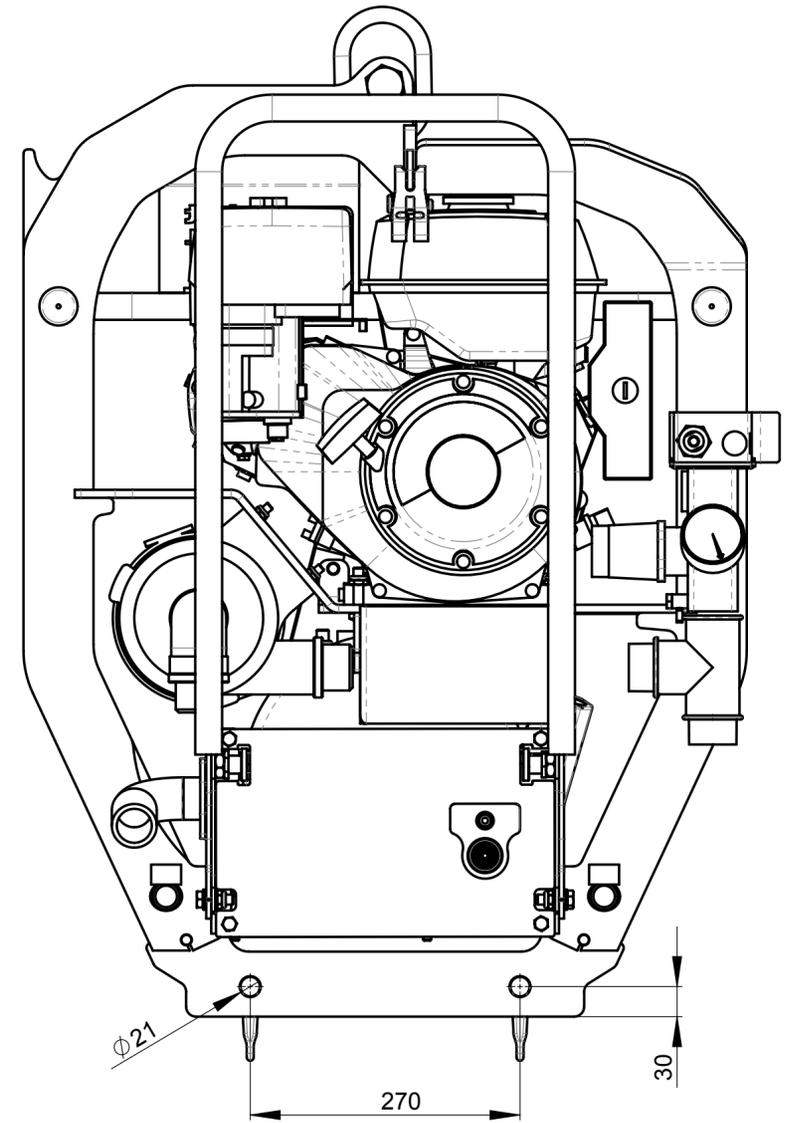
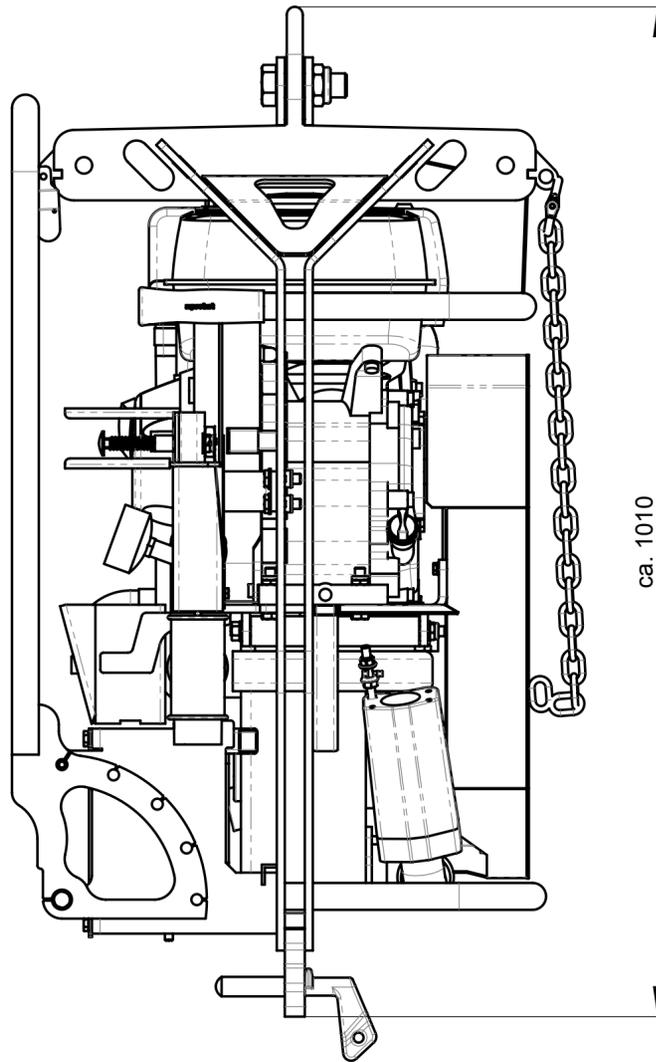
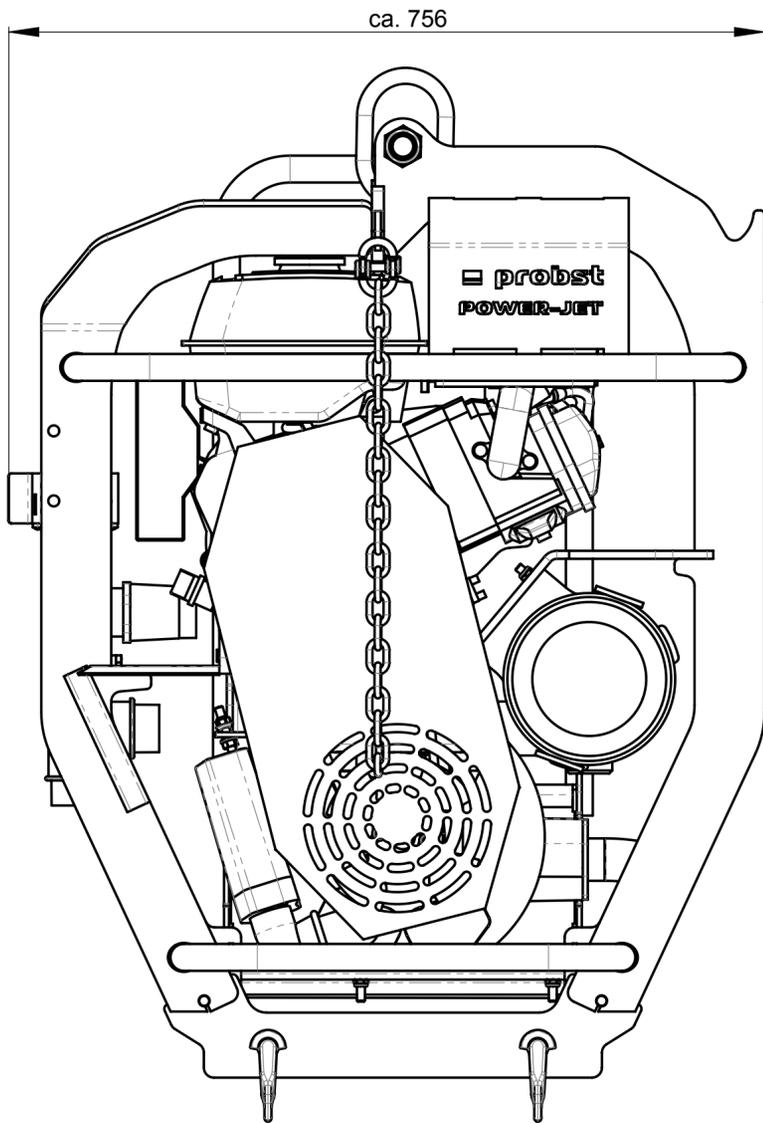


Example:

7.6 Hints to the renting/leasing of PROBST devices

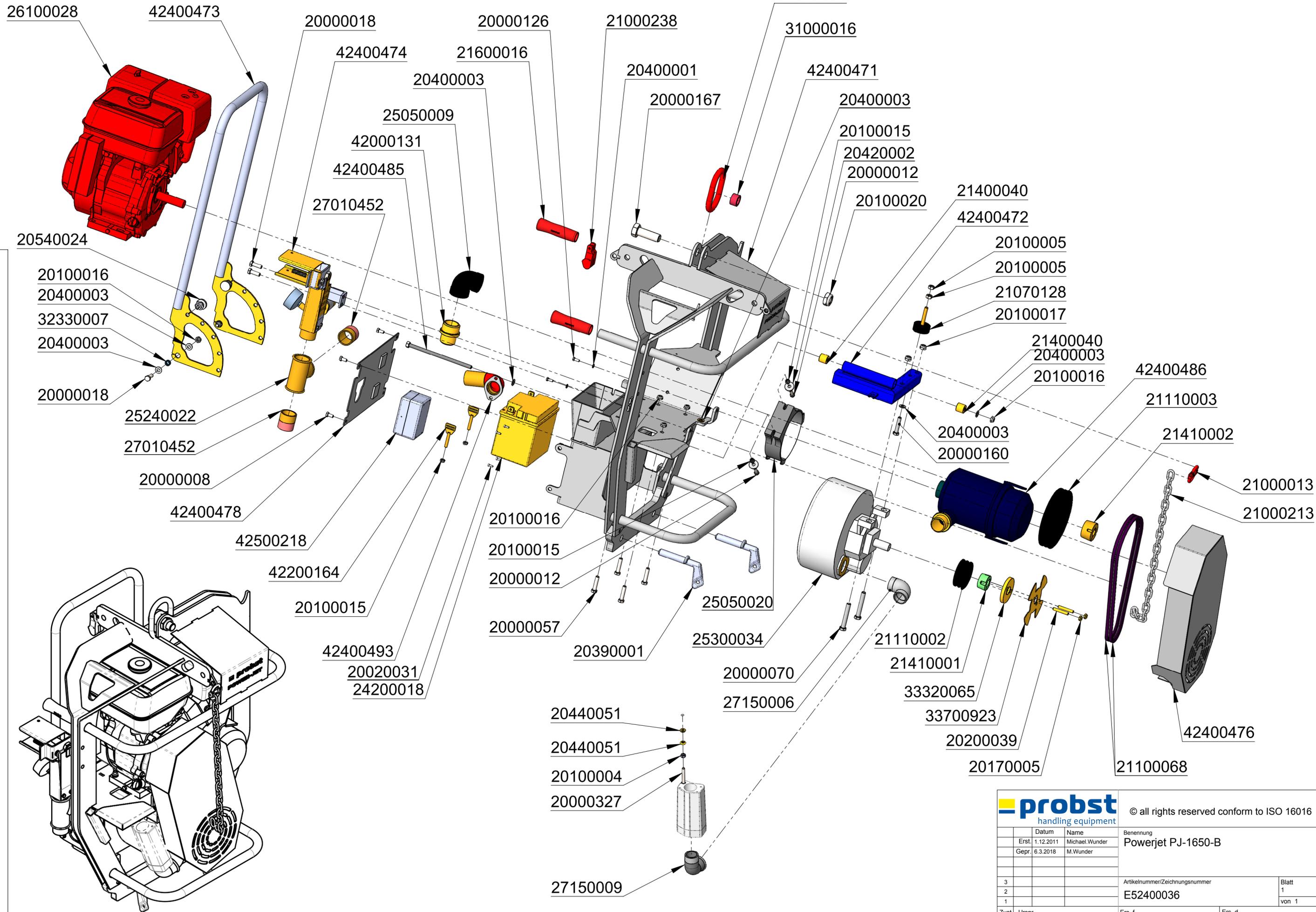


With every renting/leasing of PROBST devices the original operating instructions must be included unconditionally (in deviation of the users country's language, the respective translations of the original operating instructions must be delivered additionally)!



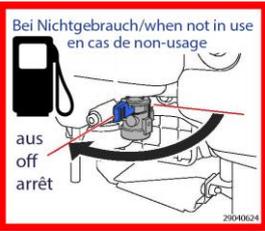
Tragfähigkeit: 1650 kg
 working load limit: 3650 lbs

		© all rights reserved conform to ISO 16016	
	Datum	Name	Benennung
	Erst. 23.1.2012	Michael.Wunder	Powerjet PJ-1650-B
	Gepr. 6.3.2018	M.Wunder	
3			Artikelnummer/Zeichnungsnummer
2			D52400036
1			Blatt 1 von 1
Zust.	Urspr.	Ers. f.	Ers. d.



probst handling equipment		© all rights reserved conform to ISO 16016	
		Benennung Powerjet PJ-1650-B	
		Artikelnummer/Zeichnungsnummer E52400036	
		Blatt 1 von 1	
Zust. Urspr.		Ers. f. Ers. d.	

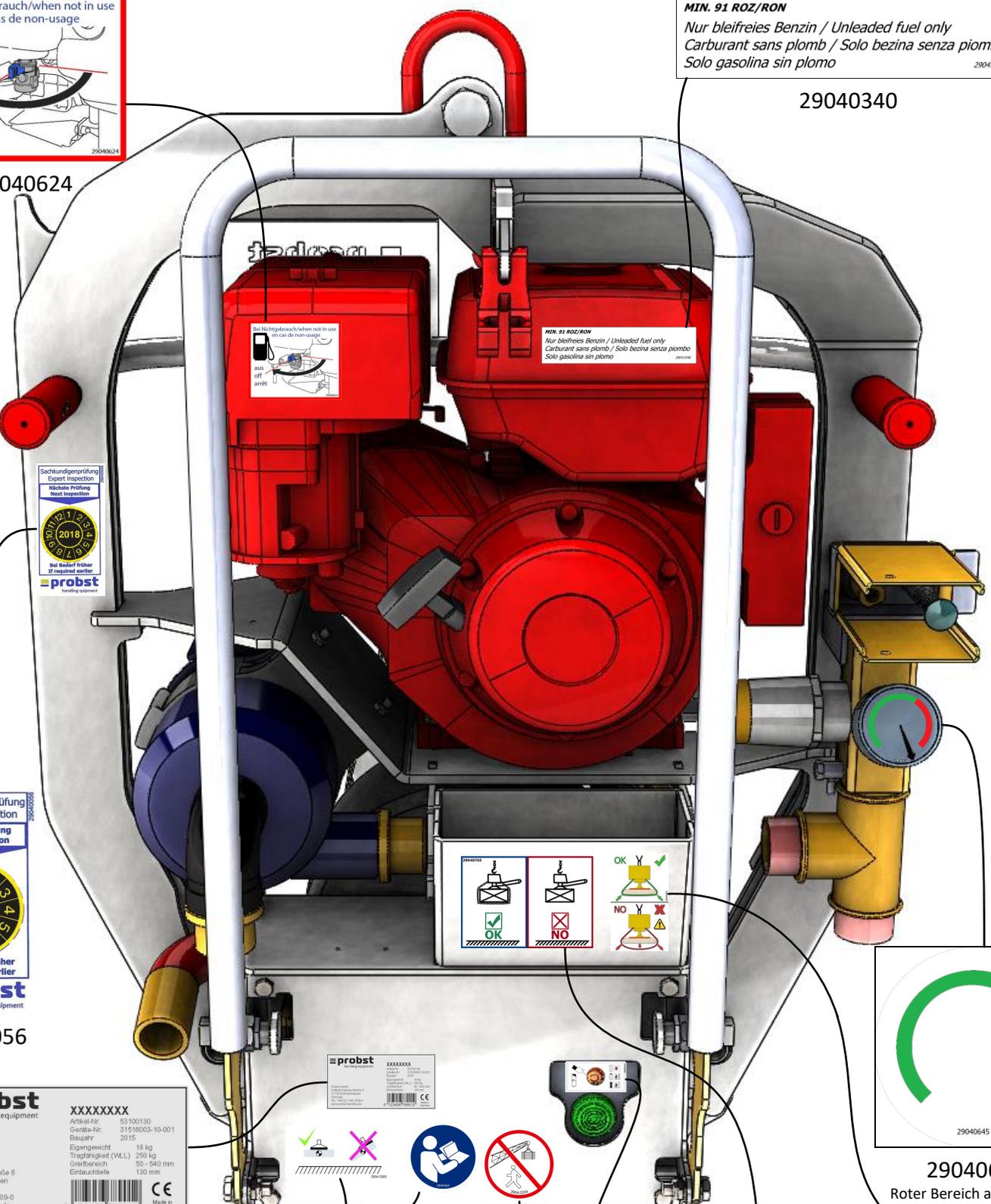
A52400036 PJ-1650-B



MIN. 91 ROZ/RON
 Nur bleifreies Benzin / Unleaded fuel only
 Carburant sans plomb / Solo bezina senza piombo
 Solo gasolina sin plomo

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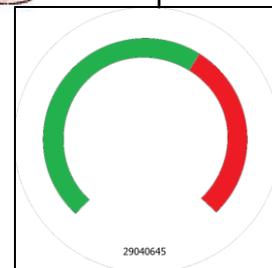
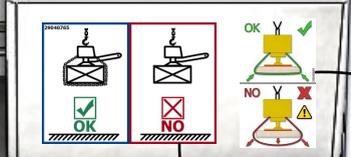
probst handling equipment

XXXXXXXX
 Artikel-Nr. 53100130
 Geräte-Nr. 31516003-10-001
 Baujahr 2015
 Eigengewicht 18 kg
 Tragfähigkeit (VLL) 250 kg
 Greifbereich 50 - 540 mm
 Einlauchtiefe 130 mm

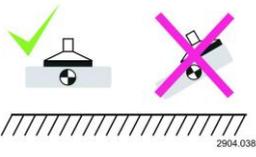
Probst GmbH
 Gottlieb-Damler-Strasse 6
 71729 Erdmannhausen
 Germany
 Tel. +49 (0) 7144 3309-0
 www.probst-handing.de

0 123456 789012

Made in Germany



29040645
 Roter Bereich ab -0,4 bar/
 Red area at -0,4 bar



29040383



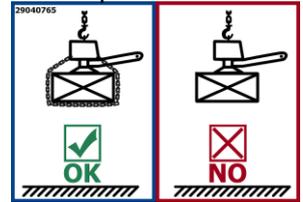
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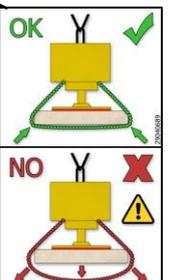
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29040444



29040765



29040689



1. Safety

Instructions for installation, maintenance and operating staff

This unit should only be installed and maintained by qualified specialist personnel.

All persons commissioned with the task of setting up, starting up, operating, maintaining and repairing the device at the company of the user must have read and understood the operating instructions, in particular the "Safety" section.

The company of the user must take internal measures to ensure that:

- ⇒ The users of the device are trained.
- ⇒ They have read and understood the operating instructions.
- ⇒ The operating instructions are accessible to them at all times.

The responsibilities for the various tasks to be carried out on the unit must be clearly specified and adhered to.



Do not cover the opening for the alarm generator sound.
Do not close the reference pressure hole.

Installation location requirements

The unit may not be operated in rooms where there is a risk of explosion.

The ambient temperature may not exceed 50 °C.

Intended use

The unit is designed to monitor the operating vacuum.

For safety reasons, the unit may not be modified or changed without approval.

- ⇒ The operating, maintenance and servicing conditions prescribed in these operating instructions must be observed.
- ⇒ Rectify any faults before starting up the device. Should faults occur during operation, they must be rectified immediately.

2. Technical Specifications

Power supply	2 x D batteries 1.5 V, 18,000 mAh
Frequency range of alarm generator	Approx. 3,000 Hz
Noise level of alarm generator	> 95 dB(A)
Dimensions	120x80x70 mm

3. Description

The warning device is designed for lifting units that require a self-powered warning device.

The warning device creates an audible warning signal as soon as the vacuum falls below approx. 380 mbar. It also monitors vacuum drops and increases.

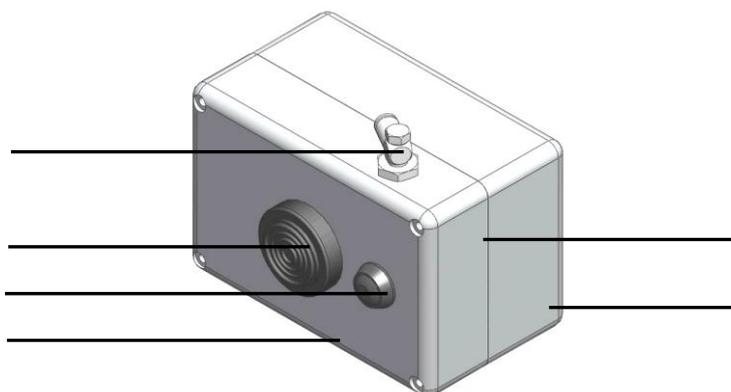
No warning signal occurs when the vacuum drops very quickly (lowering the workpiece) or increases very quickly (picking up dense work pieces with a small suction plate). Nor does a warning signal occur if the vacuum is lower than approx. 70 mbar.



To ensure that the warning device operates safely, always test the device for function before each use.



While working, always watch the manometer attached to the lifting unit to aid the warning device in recognizing vacuum drops.



No.	Product name
1	Vacuum connection
2	Alarm generator
3	Button for the function test
4	Reference pressure hole
5	Housing cover
6	Housing lower section

Product name	Item No.
D battery 1.5 V (2 required)	21.07.01.00019

4. Function Test



To ensure that the warning device operates safely, always test the device for function before each use.

During the function test, all of the electronics including the alarm generator and sensor are tested and the state of the batteries is checked.

Performing the Function Test

1. The function test is performed at ambient temperature without an attached workpiece (manometer shows 0 mbar).
2. Press button for approx. 1 second
3. Evaluate the signal tone:

Meaning of function test signal tone:

Signal tone	Meaning
☺ Signal tone approx. 2 sec.	Function test successful. → Warning device ready for operation.
☹ Very short signal tone (10 ms)	Battery voltage too low → Replace the batteries
	Vacuum or pressure applied → Perform test at ambient temperature Sensor faulty → Replace entire warning device
☹ No signal tone at all	Batteries dead → Replace the batteries
	Electronics faulty → Replace entire warning device

Note: A short signal tone of 10 ms is necessary for technical reasons to test the voltage of the batteries.

5. Maintenance

In order to maintain the device, perform the prescribed function test daily or before starting work. Remove the batteries from the device if it is to be idle for an extended period. The vacuum hoses must be checked for leaks and damage on a monthly basis.



The batteries must be replaced if the function test fails or cannot be performed, or if the alarm generator becomes quieter. Replacing the batteries does not mean that the function test does not have to be performed.

The replacement interval depends on use conditions and the frequency of alarms.

Note on accident prevention inspections:

It is recommended to replace the batteries of the warning device during the yearly accident prevention inspection of the entire lifting unit.

Additionally, a complete lifting procedure with simulation of a leakage should be carried out during the yearly accident prevention inspection.

Replacing the batteries

1. Unscrew the housing cover.
2. Replace the D batteries with new ones of the same type. Observe the polarity.
Do not use lithium-ion or rechargeable batteries.
3. Dispose of batteries in accordance with the existing regulations.
4. Screw the housing cover shut.
5. Perform the function test. The device is now ready for operation.

6. Troubleshooting

Problem	Cause	Solution
Alarm generator does not sound when button is pressed (see function test for procedure)	Button was not held long enough	Press button for approx. 1 second
	Button is pressed continuously (e.g. jammed, stuck in place)	Free the button and press it again
	Batteries dead	Replace batteries
	Battery contacts are corroded or dirty	Clean the battery contacts and the contact surfaces of the battery holder
Alarm generator does not sound on vacuum drop	Electronics fault	Replace entire warning device
	Vacuum hose plugged, kinked or ruptured	Replace hose
	Batteries dead	Replace batteries
	Battery contacts are corroded or dirty	Clean the battery contacts and the contact surfaces of the battery holder
Alarm generator is quiet	Electronics fault	Replace entire warning device
	Battery voltage too low	Replace batteries immediately.



INTRODUCTION

Thank you for purchasing a Honda engine. We want to help you to get the best results from your new engine and to operate it safely. This manual contains information on how to do that; please read it carefully before operating the engine. If a problem should arise, or if you have any questions about your engine, consult an authorized Honda servicing dealer.

All information in this publication is based on the latest product information available at the time of printing. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation. No part of this publication may be reproduced without written permission.

This manual should be considered a permanent part of the engine and should remain with the engine if resold.

Review the instructions provided with the equipment powered by this engine for any additional information regarding engine startup, shutdown, operation, adjustments or any special maintenance instructions.

United States, Puerto Rico, and U.S. Virgin Islands:
We suggest you read the warranty policy to fully understand its coverage and your responsibilities of ownership. The warranty policy is a separate document that should have been given to you by your dealer.

SAFETY MESSAGES

Your safety and the safety of others are very important. We have provided important safety messages in this manual and on the engine. Please read these messages carefully.

A safety message alerts you to potential hazards that could hurt you or others. Each safety message is preceded by a safety alert symbol  and one of three words, DANGER, WARNING, or CAUTION.

These signal words mean:

 **DANGER** You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

 **WARNING** You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

 **CAUTION** You CAN be HURT if you don't follow instructions.

Each message tells you what the hazard is, what can happen, and what you can do to avoid or reduce injury.

DAMAGE PREVENTION MESSAGES

You will also see other important messages that are preceded by the word NOTICE.

This word means:

 **NOTICE** Your engine or other property can be damaged if you don't follow instructions.

The purpose of these messages is to help prevent damage to your engine, other property, or the environment.

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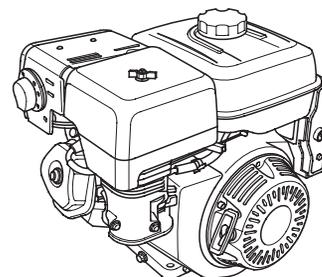
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37Z5K604
00X37-Z5K-6040

HONDA

OWNER'S MANUAL MANUEL DE L'UTILISATEUR MANUAL DEL PROPIETARIO

GX240 · GX270 · GX340 · GX390



WARNING:

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

ENGLISH

FRANÇAIS

ESPAÑOL

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SAFETY INFORMATION

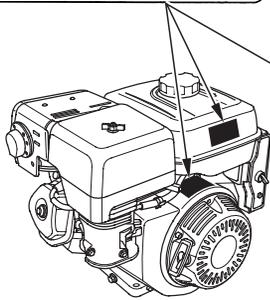
- Understand the operation of all controls and learn how to stop the engine quickly in case of emergency. Make sure the operator receives adequate instruction before operating the equipment.
- Do not allow children to operate the engine. Keep children and pets away from the area of operation.
- Your engine's exhaust contains poisonous carbon monoxide. Do not run the engine without adequate ventilation, and never run the engine indoors.
- The engine and exhaust become very hot during operation. Keep the engine at least 1 meter (3 feet) away from buildings and other equipment during operation. Keep flammable materials away, and do not place anything on the engine while it is running.

SAFETY LABEL LOCATION

This label warns you of potential hazards that can cause serious injury. Read it carefully. If the label comes off or becomes hard to read, contact your Honda dealer for replacement.



The safety label should be located either on the fuel tank, fan cover or packaged loosely with the engine to be applied by the manufacture.



The label is packaged with the engine.

See the manufacturer's instructions provided with the equipment.

For Canada:
French label is packaged with the engine.



Gasoline is highly flammable and explosive. Turn engine off and let cool before refueling.

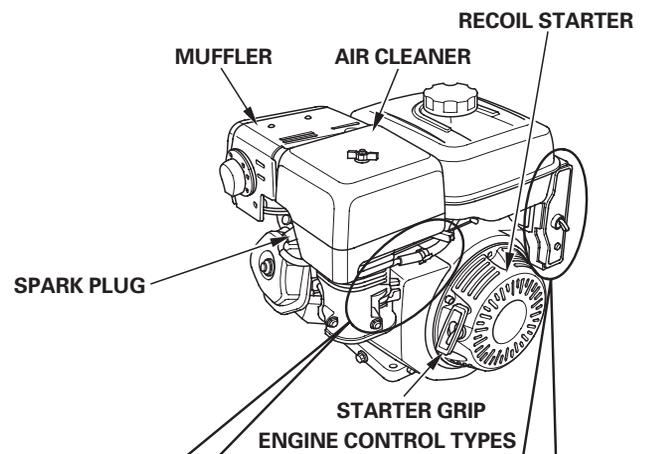
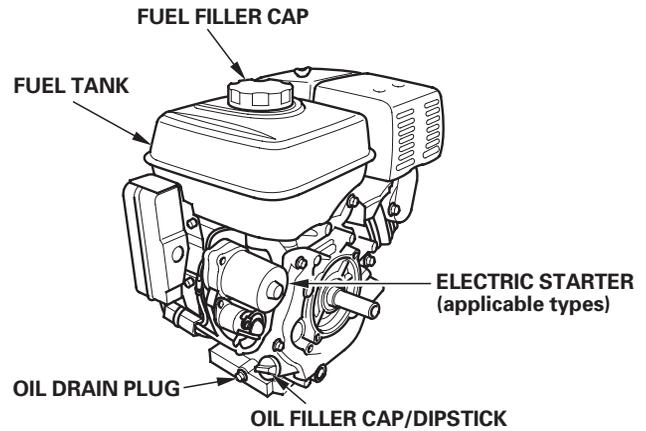


The engine emits toxic poisonous carbon monoxide gas. Do not run in an enclosed area.

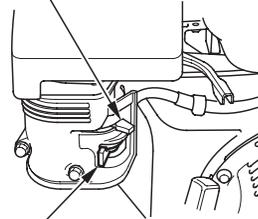


Read Owner's Manual before operation.

COMPONENT & CONTROL LOCATION

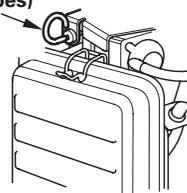


CHOKE LEVER



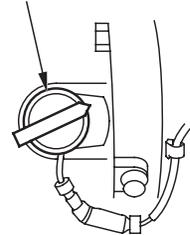
FUEL VALVE LEVER

CHOKE ROD (applicable types)

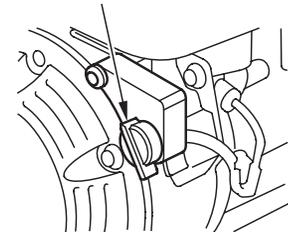


EXCEPT ELECTRIC STARTER TYPES

ENGINE SWITCH

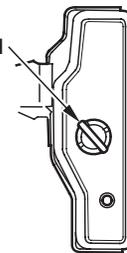


ENGINE SWITCH



ELECTRIC STARTER TYPES

ENGINE SWITCH





FEATURES

OIL ALERT® SYSTEM (applicable types)

“Oil Alert is a registered trademark in the United States”

The Oil Alert system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase can fall below a safe limit, the Oil Alert system will automatically stop the engine (the engine switch will remain in the ON position).

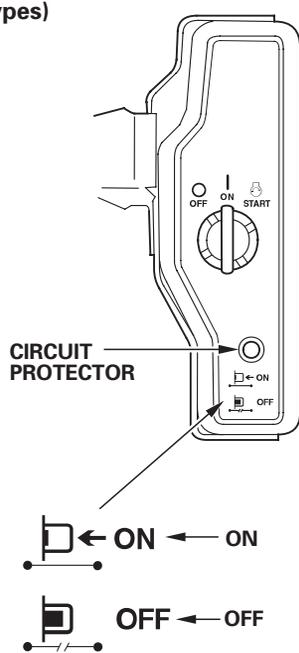
If the engine stops and will not restart, check the engine oil level (see page 9) before troubleshooting in other areas.

CIRCUIT PROTECTOR (applicable types)

The circuit protector protects the battery charging circuit. A short circuit, or a battery connected with reverse polarity, will trip the circuit protector.

The green indicator inside the circuit protector will pop out to show that the circuit protector has switched off. If this occurs, determine the cause of the problem, and correct it before resetting the circuit protector.

Push the circuit protector button to reset.



BEFORE OPERATION CHECKS

IS YOUR ENGINE READY TO GO?

For your safety, and to maximize the service life of your equipment, it is very important to take a few moments before you operate the engine to check its condition. Be sure to take care of any problem you find, or have your servicing dealer correct it, before you operate the engine.

⚠ WARNING

Improperly maintaining this engine, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously hurt or killed.

Always perform a pre-operation inspection before each operation, and correct any problem.

Before beginning your pre-operation checks, be sure the engine is level and the engine switch is in the OFF position.

Always check the following items before you start the engine:

Check the General Condition of the Engine

1. Look around and underneath the engine for signs of oil or gasoline leaks.
2. Remove any excessive dirt or debris, especially around the muffler and recoil starter.
3. Look for signs of damage.
4. Check that all shields and covers are in place, and all nuts, bolts, and screws are tightened.

Check the Engine

1. Check the fuel level (see page 8). Starting with a full tank will help to eliminate or reduce operating interruptions for refueling.
2. Check the engine oil level (see page 9). Running the engine with a low oil level can cause engine damage.

The Oil Alert system (applicable types) will automatically stop the engine before the oil level falls below safe limits. However, to avoid the inconvenience of an unexpected shutdown, always check the engine oil level before startup.

3. Check the reduction case oil level on applicable types (see page 9). Oil is essential to reduction case operation and long life.
4. Check the air filter element (see page 10). A dirty air filter element will restrict air flow to the carburetor, reducing engine performance.
5. Check the equipment powered by this engine.

Review the instructions provided with the equipment powered by this engine for any precautions and procedures that should be followed before engine startup.





OPERATION

SAFE OPERATING PRECAUTIONS

Before operating the engine for the first time, please review the *SAFETY INFORMATION* section on page 2 and the *BEFORE OPERATION CHECKS* on page 3.

For your safety, do not operate the engine in an enclosed area such as a garage. Your engine's exhaust contains poisonous carbon monoxide gas that can collect rapidly in an enclosed area and cause illness or death.

⚠ WARNING

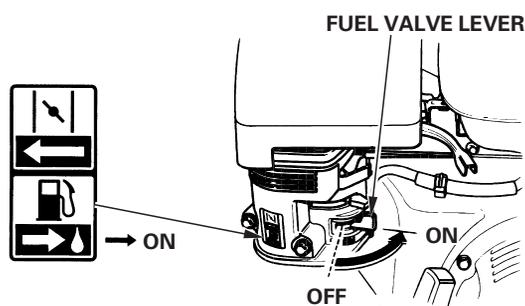
Exhaust contains poisonous carbon monoxide gas that can build up to dangerous levels in closed areas. Breathing carbon monoxide can cause unconsciousness or death.

Never run the engine in a closed, or even partly closed area where people may be present.

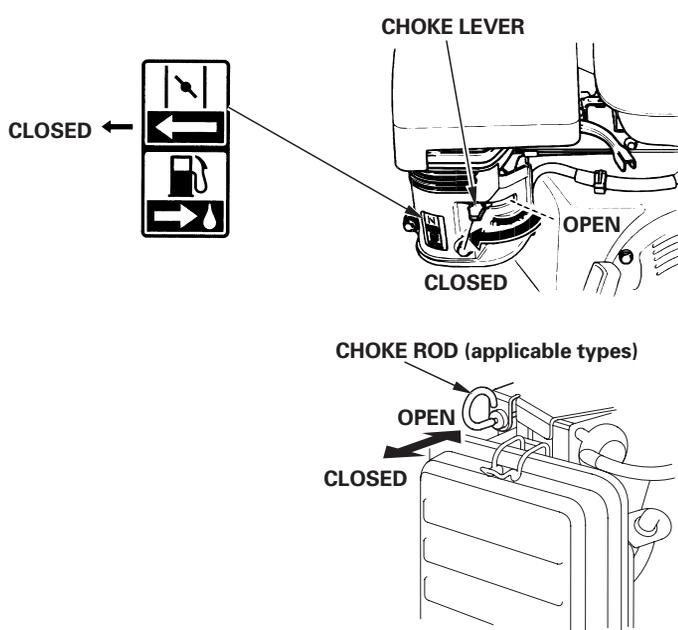
Review the instructions provided with the equipment powered by this engine for any safety precautions that should be observed with engine startup, shutdown or operation.

STARTING THE ENGINE

1. Move the fuel valve lever to the ON position.



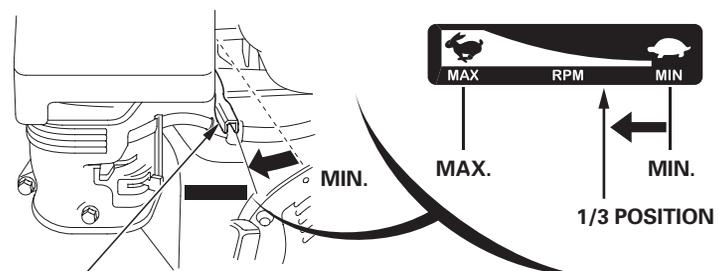
2. To start a cold engine, move the choke lever or choke rod (applicable types) to the CLOSED position.



To restart a warm engine, leave the choke lever or choke rod in the OPEN position.

Some engine applications use a remote-mounted choke control rather than the engine-mounted choke lever shown here. Refer to the instructions provided by the equipment manufacturer.

3. Move the throttle lever away from the MIN. position, about 1/3 of the way toward the MAX. position.

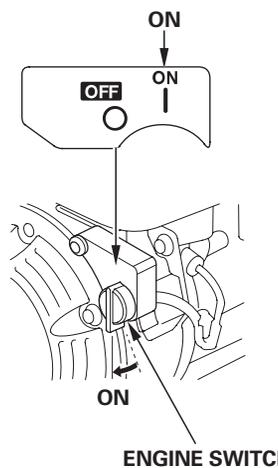
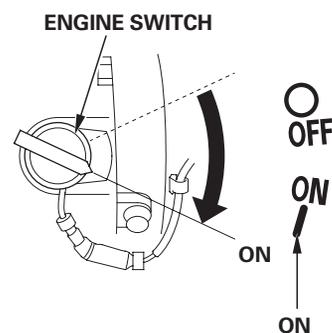


THROTTLE LEVER

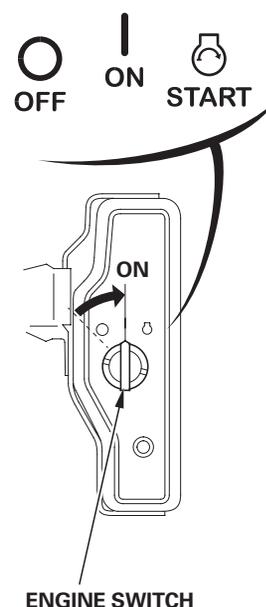
Some engine applications use a remote-mounted throttle control rather than the engine-mounted throttle lever shown here. Refer to the instructions provided by the equipment manufacturer.

4. Turn the engine switch to the ON position.

EXCEPT ELECTRIC STARTER TYPES



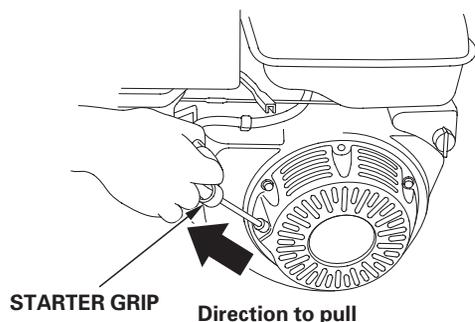
ELECTRIC STARTER TYPES



5. Operate the starter.

RECOIL STARTER

Pull the starter grip lightly until you feel resistance, then pull briskly in the direction of the arrow as shown below. Return the starter grip gently.



NOTICE

Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

ELECTRIC STARTER (applicable types):

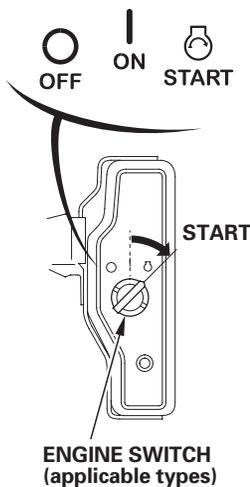
Turn the key to the START position, and hold it there until the engine starts.

If the engine fails to start within 5 seconds, release the key, and wait at least 10 seconds before operating the starter again.

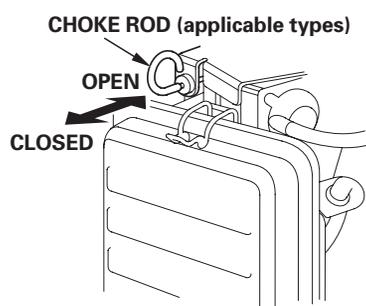
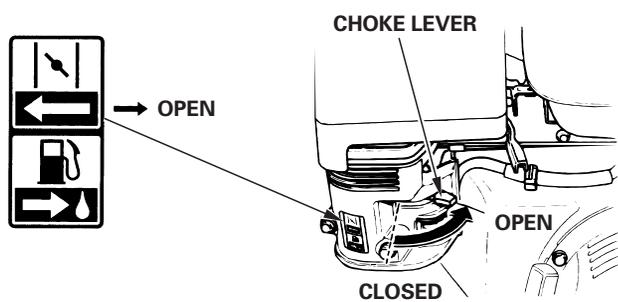
NOTICE

Using the electric starter for more than 5 seconds at a time will overheat the starter motor and can damage it.

When the engine starts, release the key, allowing it to return to the ON position.



6. If the choke lever or choke rod (applicable types) has been moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.

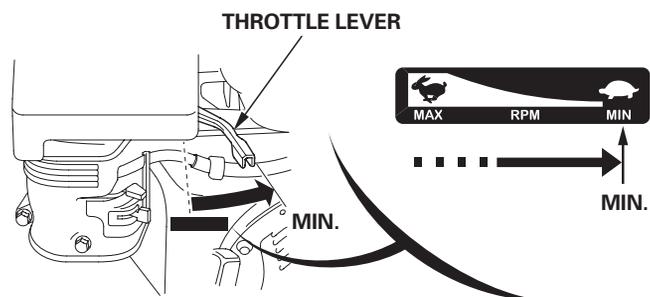


STOPPING THE ENGINE

To stop the engine in an emergency, simply turn the engine switch to the OFF position. Under normal conditions, use the following procedure. Refer to the instructions provided by the equipment manufacturer.

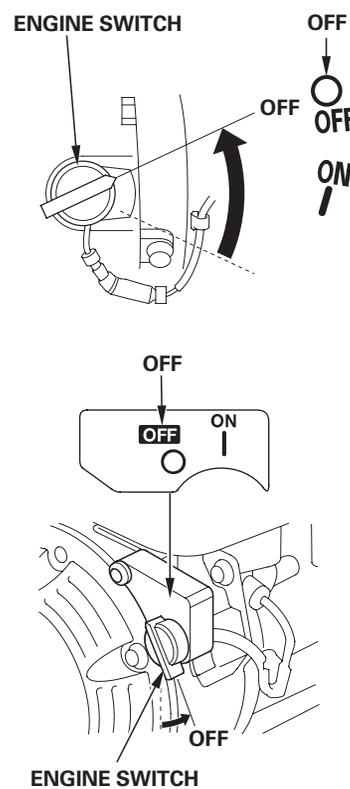
1. Move the throttle lever to the MIN. position.

Some engine applications use a remote-mounted throttle control rather than the engine-mounted throttle lever shown here.

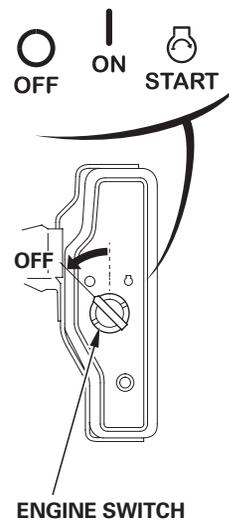


2. Turn the engine switch to the OFF position:

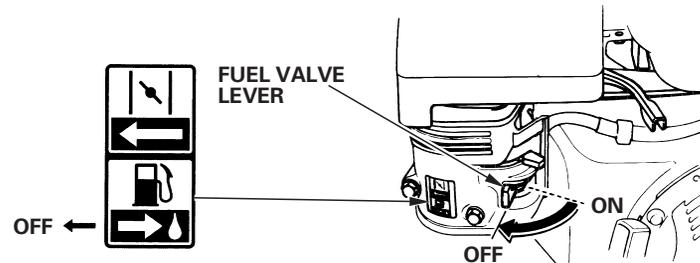
EXCEPT ELECTRIC STARTER TYPES

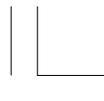


ELECTRIC STARTER TYPES



3. Turn the fuel valve lever to the OFF position.



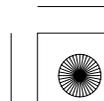
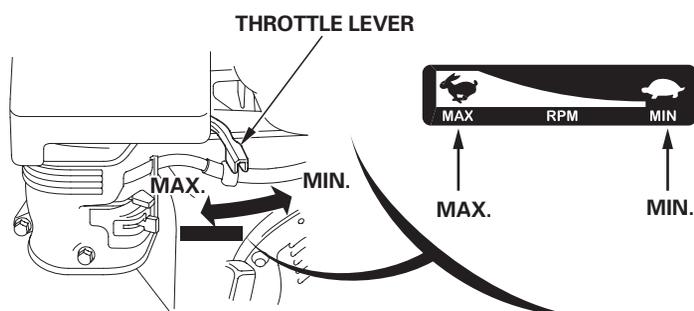


SETTING ENGINE SPEED

Position the throttle lever for the desired engine speed.

Some engine applications use a remote-mounted throttle control rather than the engine-mounted throttle lever shown here. Refer to the instructions provided by the equipment manufacturer.

For engine speed recommendations, refer to the instructions provided with the equipment powered by this engine.





SERVICING YOUR ENGINE

THE IMPORTANCE OF MAINTENANCE

Good maintenance is essential for safe, economical and trouble-free operation. It will also help reduce pollution.

⚠ WARNING

Improper maintenance, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously hurt or killed.

Always follow the inspection and maintenance recommendations and schedules in this owner's manual.

To help you properly care for your engine, the following pages include a maintenance schedule, routine inspection procedures, and simple maintenance procedures using basic hand tools. Other service tasks that are more difficult, or require special tools, are best handled by professionals and are normally performed by a Honda technician or other qualified mechanic.

The maintenance schedule applies to normal operating conditions. If you operate your engine under severe conditions, such as sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, consult your servicing dealer for recommendations applicable to your individual needs and use.

Maintenance, replacement, or repair of the emission control devices and systems may be performed by any engine repair establishment or individual, using parts that are "certified" to EPA standards.

MAINTENANCE SAFETY

Some of the most important safety precautions follow. However, we cannot warn you of every conceivable hazard that can arise in performing maintenance. Only you can decide whether or not you should perform a given task.

⚠ WARNING

Failure to properly follow maintenance instructions and precautions can cause you to be seriously hurt or killed.

Always follow the procedures and precautions in this owner's manual.

SAFETY PRECAUTIONS

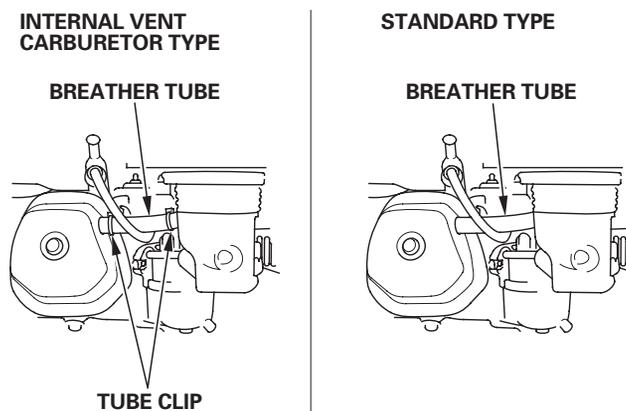
- Make sure the engine is off before you begin any maintenance or repairs. This will eliminate several potential hazards:
 - **Carbon monoxide poisoning from engine exhaust.**
Be sure there is adequate ventilation whenever you operate the engine.
 - **Burns from hot parts.**
Let the engine and exhaust system cool before touching.
 - **Injury from moving parts.**
Do not run the engine unless instructed to do so.
- Read the instructions before you begin, and make sure you have the tools and skills required.
- To reduce the possibility of fire or explosion, be careful when working around gasoline. Use only a non-flammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks and flames away from all fuel related parts.

Remember that an authorized Honda servicing dealer knows your engine best and is fully equipped to maintain and repair it. To ensure the best quality and reliability, use only new Honda Genuine parts or their equivalents for repair and replacement.

MAINTENANCE SCHEDULE

REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first.	Each Use	First Month or 20 Hrs	Every 3 Months or 50 Hrs	Every 6 Months or 100 Hrs	Every Year or 300 Hrs	Refer to Page
ITEM						
Engine oil	Check level	○				9
	Change		○	○		9
Reduction case oil (applicable types)	Check level	○				9
	Change		○	○		10
Air cleaner	Check	○				10
	Clean		○ (1)	○ * (1)		10 – 11
	Replace				○ * *	
Sediment cup	Clean			○		12
Spark plug	Check-adjust			○		12
	Replace				○	
Spark arrester (applicable types)	Clean			○		13
Idle speed	Check-adjust				○ (2)	13
Valve clearance	Check-adjust				○ (2)	Shop manual
Combustion chamber	Clean	After every 500 Hrs. (2)				Shop manual
Fuel tank & filter	Clean			○ (2)		Shop manual
Fuel tube	Check	Every 2 years (Replace if necessary) (2)				Shop manual

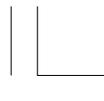
- * • Internal vent carburetor with dual element type only.
- Cyclone type every 6 months or 150 hours.



- * * • Replace paper element type only.
- Cyclone type every 2 years or 600 hours.

- (1) Service more frequently when used in dusty areas.
- (2) These items should be serviced by your Honda servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.
- (3) For commercial use, log hours of operation to determine proper maintenance intervals.

Failure to follow this maintenance schedule could result in non-warrantable failures.



REFUELING

Recommended Fuel

Unleaded gasoline	
U.S.	Pump octane rating 86 or higher
Except U.S.	Research octane rating 91 or higher Pump octane rating 86 or higher

This engine is certified to operate on unleaded gasoline with a pump octane rating of 86 or higher (a research octane rating of 91 or higher).

Refuel in a well-ventilated area with the engine stopped. If the engine has been running, allow it to cool first. Never refuel the engine inside a building where gasoline fumes may reach flames or sparks.

You may use unleaded gasoline containing no more than 10% ethanol (E10) or 5% methanol by volume. In addition, methanol must contain cosolvents and corrosion inhibitors. Use of fuels with content of ethanol or methanol greater than shown above may cause starting and/or performance problems. It may also damage metal, rubber, and plastic parts of the fuel system. Engine damage or performance problems that result from using a fuel with percentages of ethanol or methanol greater than shown above are not covered under warranty.

If your equipment will be used on an infrequent or intermittent basis, please refer to the fuel section of the HELPFUL TIPS & SUGGESTIONS chapter (see page 13) for additional information regarding fuel deterioration.

⚠ WARNING

Gasoline is highly flammable and explosive, and you can be burned or seriously injured when refueling.

- Stop engine and keep heat, sparks, and flame away.
- Refuel only outdoors.
- Wipe up spills immediately.

NOTICE

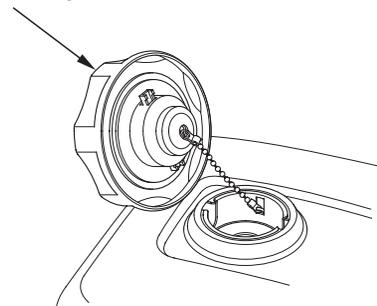
Fuel can damage paint and some types of plastic. Be careful not to spill fuel when filling your fuel tank. Damage caused by spilled fuel is not covered under the Distributor's Limited Warranty.

Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the fuel tank.

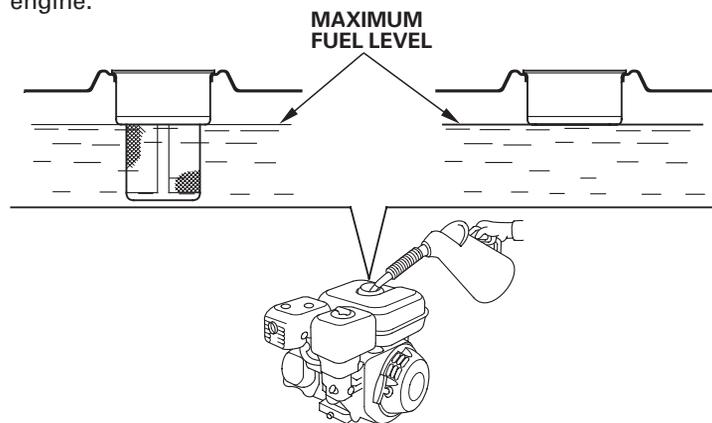
For refueling, refer to the manufacturer's instructions provided with the equipment. See the following for a Honda supplied standard fuel tank refueling instruction.

1. With the engine stopped and on a level surface, remove the fuel filler cap and check the fuel level. Refill the tank if the fuel level is low.

FUEL FILLER CAP



2. Add fuel to the bottom of the maximum fuel level limit of the fuel tank. Do not overfill. Wipe up spilled fuel before starting the engine.



3. Refuel carefully to avoid spilling fuel. Do not fill the fuel tank completely. It may be necessary to lower the fuel level depending on operating conditions. After refueling, tighten the fuel filler cap securely.

Keep gasoline away from appliance pilot lights, barbecues, electric appliances, power tools, etc.

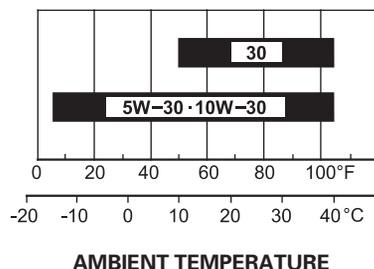
Spilled fuel is not only a fire hazard, it causes environmental damage. Wipe up spills immediately.

ENGINE OIL

Oil is a major factor affecting performance and service life. Use 4-stroke automotive detergent oil.

Recommended Oil

Use 4-stroke motor oil that meets or exceeds the requirements for API service category SJ or later (or equivalent). Always check the API service label on the oil container to be sure it includes the letters SJ or later (or equivalent).



SAE 10W-30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.

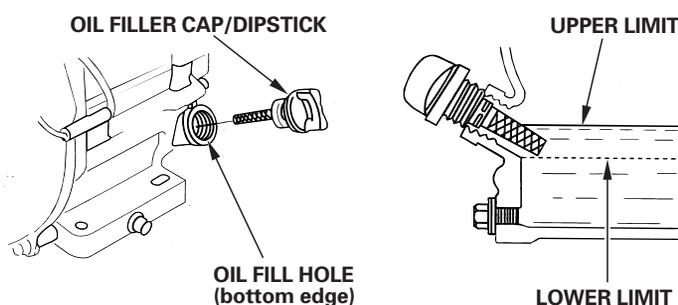




Oil Level Check

Check the engine oil level with the engine stopped and in a level position.

1. Remove the oil filler cap/dipstick and wipe it clean.
2. Insert the oil filler cap/dipstick into the oil filler neck as shown, but do not screw it in, then remove it to check the oil level.
3. If the oil level is near or below the lower limit mark on the dipstick, fill with the recommended oil (see page 8) to the upper limit mark (bottom edge of the oil fill hole). Do not overfill.
4. Reinstall the oil filler cap/dipstick.

**NOTICE**

Running the engine with a low oil level can cause engine damage. This type of damage is not covered by the Distributor's Limited Warranty.

The Oil Alert system (applicable types) will automatically stop the engine before the oil level falls below the safe limit. However, to avoid the inconvenience of an unexpected shutdown, always check the engine oil level before startup.

Oil Change

Drain the used oil when the engine is warm. Warm oil drains quickly and completely.

1. Place a suitable container below the engine to catch the used oil, then remove the oil filler cap/dipstick, oil drain plug and washer.
2. Allow the used oil to drain completely, then reinstall the oil drain plug and new washer, and tighten the oil drain plug securely.

Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash, pour it on the ground, or pour it down a drain.

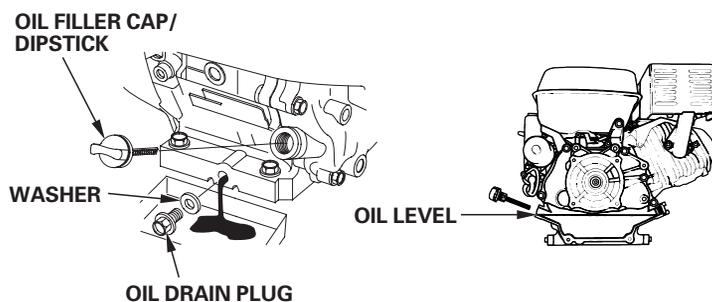
3. With the engine in a level position, fill with the recommended oil (see page 8) to the upper limit mark (bottom edge of the oil fill hole) on the dipstick.

NOTICE

Running the engine with a low oil level can cause engine damage. This type of damage is not covered by the Distributor's Limited Warranty.

The Oil Alert system (applicable types) will automatically stop the engine before the oil level falls below the safe limit. However, to avoid the inconvenience of an unexpected shutdown, fill to the upper limit, and check the oil level regularly.

4. Install the oil filler cap/dipstick and tighten securely.



REDUCTION CASE OIL (applicable types)

Recommended Oil

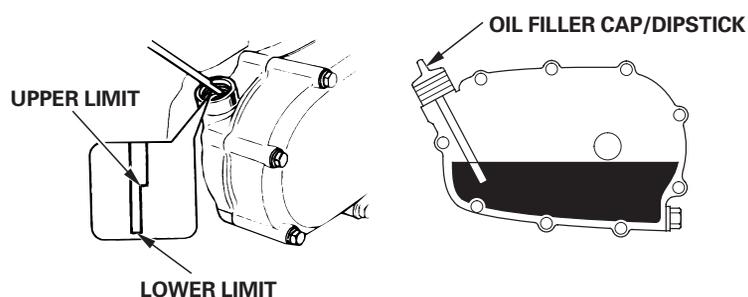
Use the same oil that is recommended for the engine (see page 8).

Oil Level Check

Check the reduction case oil level with the engine stopped and in a level position.

1/2 Reduction Case With Centrifugal Clutch

1. Remove the oil filler cap/dipstick and wipe it clean.
2. Insert and remove the oil filler cap/dipstick without screwing it into the filler hole. Check the oil level shown on the oil filler cap/dipstick.
3. If the oil level is low, add the recommended oil to reach the upper limit mark on the dipstick.
4. Screw in the oil filler cap/dipstick and tighten securely.





Oil Change

Drain the used oil while the engine is warm. Warm oil drains quickly and completely.

1. Place a suitable container below the reduction case to catch the used oil, then remove the oil filler cap/dipstick, the drain plug and washer.
2. Allow the used oil to drain completely, then reinstall the drain plug and a new washer, and tighten it securely.

Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash or pour it on the ground or pour it down a drain.

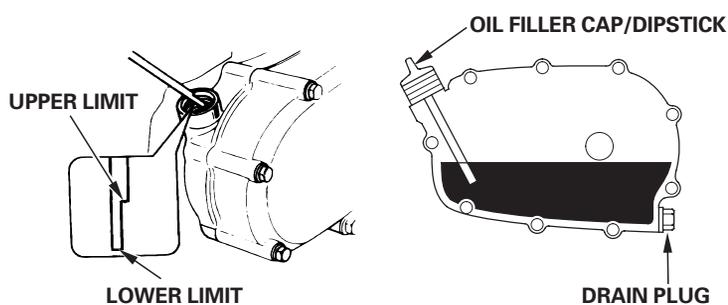
3. With the engine in a level position, fill with the recommended oil (see page 8) to the upper limit mark on the dipstick. To check the oil level, insert and remove the dipstick without screwing it into the filler hole.

Reduction case oil capacity: 0.30 L (0.32 US qt, 0.26 Imp qt)

NOTICE

Running the engine with a low reduction case oil level can cause reduction case damage.

4. Screw in the oil filler cap/dipstick and tighten securely.



AIR CLEANER

A dirty air cleaner will restrict air flow to the carburetor, reducing engine performance. If you operate the engine in very dusty areas, clean the air filter more often than specified in the MAINTENANCE SCHEDULE (see page 7).

NOTICE

Operating the engine without an air filter, or with a damaged air filter, will allow dirt to enter the engine, causing rapid engine wear. This type of damage is not covered by the Distributor's Limited Warranty.

Inspection

Remove the air cleaner cover and inspect the filter elements. Clean or replace dirty filter elements. Always replace damaged filter elements. If equipped with an oil-bath air cleaner, also check the oil level.

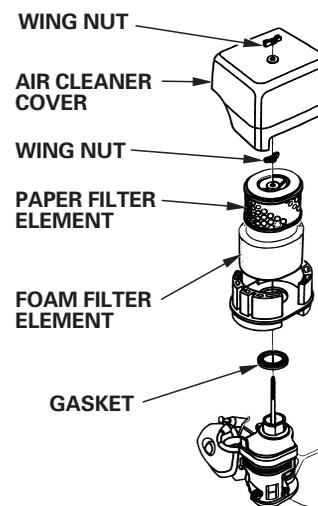
Refer to pages 10 – 11 for instructions that apply to the air cleaner and filter for your engine type.

Cleaning

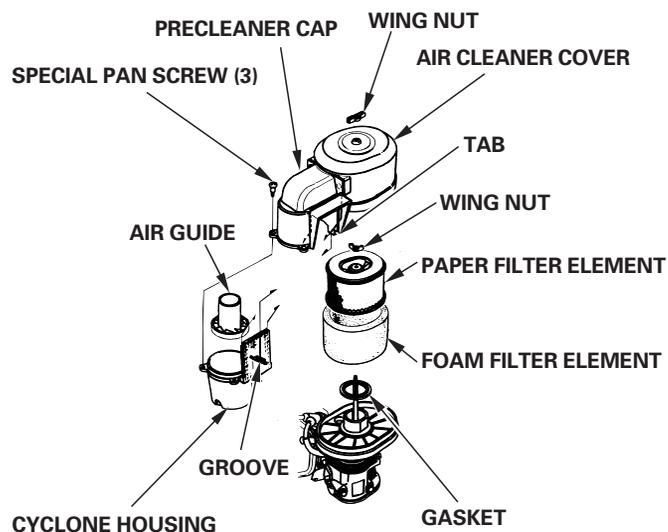
Dual-Filter Element Types

1. Remove the wing nut from the air cleaner cover, and remove the cover.
2. Remove the wing nut from the air filter, and remove the filter.
3. Remove the foam filter from the paper filter.
4. Inspect both air filter elements, and replace them if they are damaged. Always replace the paper air filter element at the scheduled interval (see page 7).

STANDARD DUAL-FILTER ELEMENT TYPE



CYCLONE DUAL-FILTER ELEMENT TYPE





5. Clean the air filter elements if they are to be reused.

Paper air filter element: Tap the filter element several times on a hard surface to remove dirt, or blow compressed air [not exceeding 207 kPa (2.1 kgf/cm², 30 psi)] through the filter element from the inside. Never try to brush off dirt; brushing will force dirt into the fibers.

Foam air filter element: Clean in warm soapy water, rinse, and allow to dry thoroughly. Or clean in non-flammable solvent and allow to dry. Dip the filter element in clean engine oil, then squeeze out all excess oil. The engine will smoke when started if too much oil is left in the foam.

6. CYCLONE TYPE ONLY: Remove the three pan-head screws from the pre-cleaner cap, then remove the cyclone housing and air guide. Wash the parts with water, dry them thoroughly, and reassemble them.

Be sure to install the air guide as shown in the illustration.

Install the cyclone housing so the air intake tab fits into the groove in the pre-cleaner cap.

7. Wipe dirt from the inside of the air cleaner case and cover using a moist rag. Be careful to prevent dirt from entering the air duct that leads to the carburetor.

8. Place the foam air filter element over the paper element, and reinstall the assembled air filter. Be sure the gasket is in place beneath the air filter. Tighten the air filter wing nut securely.

9. Install the air cleaner cover, and tighten the wing nut securely.

Oil Bath & Single-Filter Element Types

1. Remove the wing nut, and remove the air cleaner cap and cover.

2. Remove the air filter element from the cover. Wash the cover and filter element in warm soapy water, rinse, and allow to dry thoroughly. Or clean in non-flammable solvent and allow to dry.

3. Dip the filter element in clean engine oil, then squeeze out all excess oil. The engine will smoke if too much oil is left in the foam.

4. **OIL BATH TYPE ONLY:** Empty the used oil from the air cleaner case, wash out any accumulated dirt with non-flammable solvent, and dry the case.

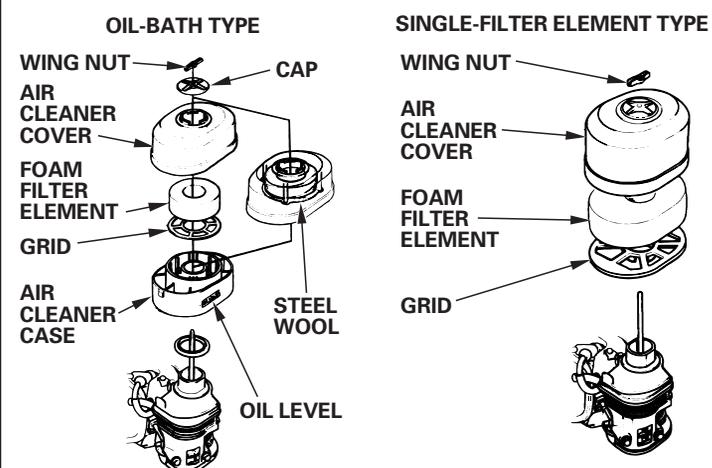
5. **OIL BATH TYPE ONLY:** Fill the air cleaner case to the OIL LEVEL mark with the same oil that is recommended for the engine (see page 8).

Oil capacities:

GX240/GX270: 60 cm³ (2.0 US oz, 2.1 Imp oz)

GX340/GX390: 80 cm³ (2.7 US oz, 2.8 Imp oz)

6. Reassemble the air cleaner, and tighten the wing nut securely.



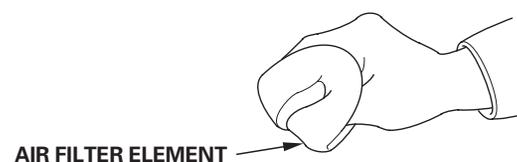
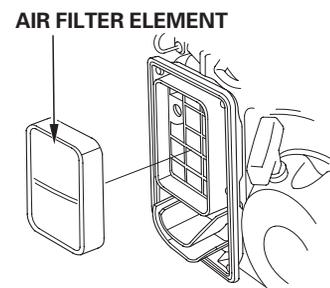
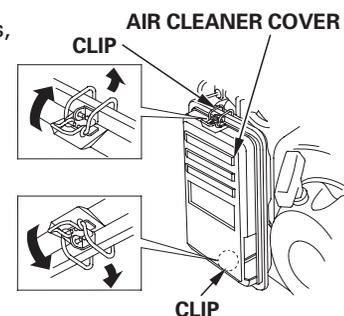
Low Profile Types

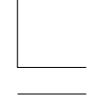
1. Unsnap the air cleaner cover clips, remove the air cleaner cover, and remove the air filter element.

2. Wash the element in a solution of household detergent and warm water, then rinse thoroughly, or wash in non-flammable or high flash point solvent. Allow the element to dry thoroughly.

3. Soak the air filter element in clean engine oil and squeeze out the excess oil. The engine will smoke during initial startup if too much oil is left in the element.

4. Reinstall the air filter element and the cover.





SEDIMENT CUP

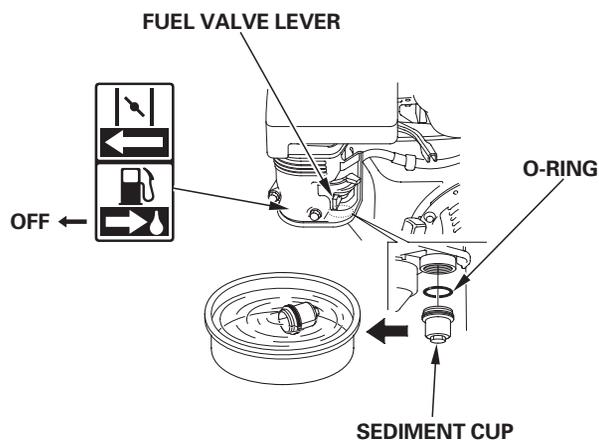
Cleaning

⚠ WARNING

Gasoline is highly flammable and explosive, and you can be burned or seriously injured when handling fuel.

- Stop engine and keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

1. Move the fuel valve lever to the OFF position, then remove the sediment cup and O-ring.
2. Wash the sediment cup in non-flammable solvent, and dry it thoroughly.



3. Place the O-ring in the fuel valve, and install the sediment cup. Tighten the sediment cup securely.
4. Move the fuel valve lever to the ON position, and check for leaks. Replace the O-ring if there is any leakage.

SPARK PLUG

Recommended Spark Plugs: BPR6ES (NGK)
W20EPR-U (DENSO)

The recommended spark plug has the correct heat range for normal engine operating temperatures.

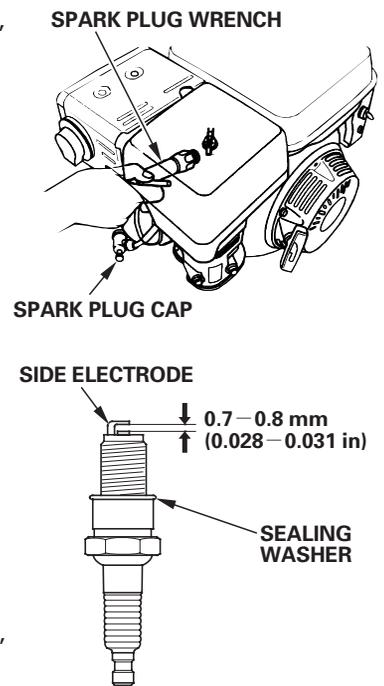
NOTICE

An incorrect spark plug can cause engine damage.

If the engine has been running, let it cool before servicing the spark plug.

For good performance, the spark plug must be properly gapped and free of deposits.

1. Disconnect the spark plug cap, and remove any dirt from around the spark plug area.
2. Remove the spark plug with a 13/16-inch spark plug wrench.
3. Visually inspect the spark plug. Replace it if damaged or badly fouled, if the sealing washer is in poor condition, or if the electrode is worn.
4. Measure the spark plug electrode gap with a wire-type feeler gauge. Correct the gap, if necessary, by carefully bending the side electrode. The gap should be: 0.7–0.8 mm (0.028–0.031 in)



5. Install the spark plug carefully, by hand, to avoid cross-threading.

6. After the spark plug is seated, tighten with a 13/16-inch spark plug wrench to compress the sealing washer.

When installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer.

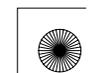
When reinstalling the original spark plug, tighten 1/8–1/4 turn after the spark plug seats to compress the washer.

NOTICE

A loose spark plug can overheat and damage the engine.

Overtightening the spark plug can damage the threads in the cylinder head.

7. Attach the spark plug cap to the spark plug.





SPARK ARRESTER (applicable types)

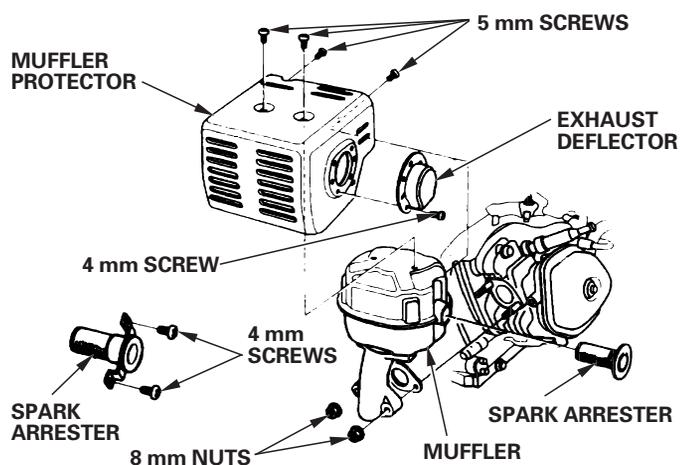
The spark arrester may be standard or an optional part, depending on the engine type. In some areas, it is illegal to operate an engine without a spark arrester. Check local laws and regulations. A spark arrester is available from authorized Honda servicing dealers.

The spark arrester must be serviced every 100 hours to keep it functioning as designed.

If the engine has been running, the muffler will be hot. Allow it to cool before servicing the spark arrester.

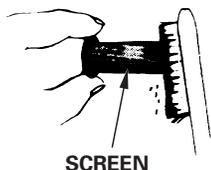
Spark Arrester Removal

1. Remove the two 8 mm nuts and remove the muffler from the cylinder.
2. Remove the three 4 mm screws from the exhaust deflector, and remove the deflector.
3. Remove the four 5 mm screws from the muffler protector and remove the muffler protector.
4. Remove the 4 mm screw from the spark arrester, and remove the spark arrester from the muffler.



Spark Arrester Cleaning & Inspection

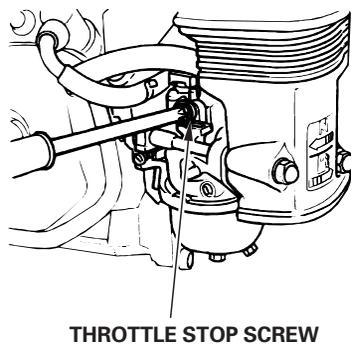
1. Use a brush to remove carbon deposits from the spark arrester screen. Be careful not to damage the screen. Replace the spark arrester if it has breaks or holes.
2. Install the spark arrester, muffler protector, exhaust deflector and muffler in the reverse order of disassembly.



IDLE SPEED

Adjustment

1. Start the engine outdoors, and allow it to warm up to operating temperature.
2. Move the throttle lever to its minimum position.
3. Turn the throttle stop screw to obtain the standard idle speed.



Standard idle speed: 1,400 ± 150 rpm

HELPFUL TIPS & SUGGESTIONS

STORING YOUR ENGINE

Storage Preparation

Proper storage preparation is essential for keeping your engine trouble-free and looking good. The following steps will help to keep rust and corrosion from impairing your engine's function and appearance, and will make the engine easier to start when you use it again.

Cleaning

If the engine has been running, allow it to cool for at least half an hour before cleaning. Clean all exterior surfaces, touch up any damaged paint, and coat other areas that may rust with a light film of oil.

NOTICE

Using a garden hose or pressure washing equipment can force water into the air cleaner or muffler opening. Water in the air cleaner will soak the air filter, and water that passes through the air filter or muffler can enter the cylinder, causing damage.

Fuel

NOTICE

Depending on the region where you operate your equipment, fuel formulations may deteriorate and oxidize rapidly. Fuel deterioration and oxidation can occur in as little as 30 days and may cause damage to the carburetor and/or fuel system. Please check with your servicing dealer for local storage recommendations.

Gasoline will oxidize and deteriorate in storage. Deteriorated gasoline will cause hard starting, and it leaves gum deposits that clog the fuel system. If the gasoline in your engine deteriorates during storage, you may need to have the carburetor and other fuel system components serviced or replaced.

The length of time that gasoline can be left in your fuel tank and carburetor without causing functional problems will vary with such factors as gasoline blend, your storage temperatures, and whether the fuel tank is partially or completely filled. The air in a partially filled fuel tank promotes fuel deterioration. Very warm storage temperatures accelerate fuel deterioration. Fuel deterioration problems may occur within a few months, or even less if the gasoline was not fresh when you filled the fuel tank.

Fuel system damage or engine performance problems resulting from neglected storage preparation are not covered under the *Distributor's Limited Warranty*.

You can extend fuel storage life by adding a gasoline stabilizer that is formulated for that purpose, or you can avoid fuel deterioration problems by draining the fuel tank and carburetor.

Adding a Gasoline Stabilizer to Extend Fuel Storage Life

When adding a gasoline stabilizer, fill the fuel tank with fresh gasoline. If only partially filled, air in the tank will promote fuel deterioration during storage. If you keep a container of gasoline for refueling, be sure that it contains only fresh gasoline.

1. Add gasoline stabilizer following the manufacturer's instructions.
2. After adding a gasoline stabilizer, run the engine outdoors for 10 minutes to be sure that treated gasoline has replaced the untreated gasoline in the carburetor.
3. Stop the engine.

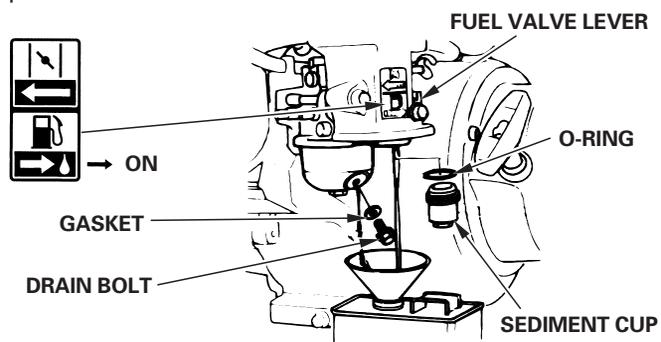


**Draining the Fuel Tank and Carburetor****⚠ WARNING**

Gasoline is highly flammable and explosive, and you can be burned or seriously injured when handling fuel.

- Stop engine and keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

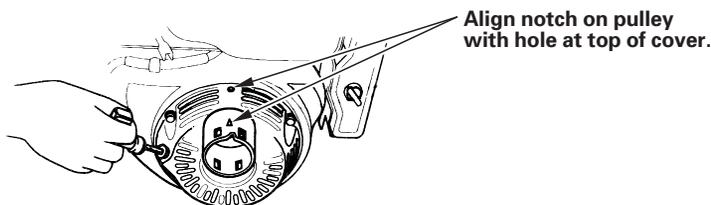
1. Move the fuel valve lever to the OFF positions.
2. Place an approved gasoline container below the carburetor, and use a funnel to avoid spilling fuel.
3. Remove the carburetor drain bolt and gasket. Remove the sediment cup and O-ring, then move the fuel valve lever to the ON position.



4. After all the fuel has drained into the container, reinstall the drain bolt, gasket, sediment cup and O-ring. Tighten the drain bolt and sediment cup securely.

Engine Oil

1. Change the engine oil (see page 9).
2. Remove the spark plug (see page 12).
3. Pour a teaspoon 5 – 10 cm³ (5 – 10 cc) of clean engine oil into the cylinder.
4. Pull the starter grip several times to distribute the oil in the cylinder.
5. Reinstall the spark plug.
6. Pull the starter grip slowly until resistance is felt and the notch on the starter pulley aligns with the hole at the top of the recoil starter cover. This will close the valves so moisture cannot enter the engine cylinder. Return the starter grip gently.

**Storage Precautions**

If your engine will be stored with gasoline in the fuel tank and carburetor, it is important to reduce the hazard of gasoline vapor ignition. Select a well-ventilated storage area away from any appliance that operates with a flame, such as a furnace, water heater, or clothes dryer. Also avoid any area with a spark-producing electric motor, or where power tools are operated.

If possible, avoid storage areas with high humidity, because that promotes rust and corrosion.

Keep the engine level in storage. Tilting can cause fuel or oil leakage.

With the engine and exhaust system cool, cover the engine to keep out dust. A hot engine and exhaust system can ignite or melt some materials. Do not use sheet plastic as a dust cover. A nonporous cover will trap moisture around the engine, promoting rust and corrosion.

If equipped with a battery for electric starter types, recharge the battery once a month while the engine is in storage. This will help to extend the service life of the battery.

Removal from Storage

Check your engine as described in the *BEFORE OPERATION CHECKS* section of this manual (see page 3).

If the fuel was drained during storage preparation, fill the tank with fresh gasoline. If you keep a container of gasoline for refueling, be sure it contains only fresh gasoline. Gasoline oxidizes and deteriorates over time, causing hard starting.

If the cylinder was coated with oil during storage preparation, the engine will smoke briefly at startup. This is normal.

TRANSPORTING

If the engine has been running, allow it to cool for at least 15 minutes before loading the engine-powered equipment on the transport vehicle. A hot engine and exhaust system can burn you and can ignite some materials.

Keep the engine level when transporting to reduce the possibility of fuel leakage. Turn the fuel valve to the OFF position (see page 5).



**TAKING CARE OF UNEXPECTED PROBLEMS**

ENGINE WILL NOT START	Possible Cause	Correction
1. Electric starting (applicable types): Check battery and fuse.	Battery discharged.	Recharge battery.
	Fuse burnt out.	Replace fuse. (p. 15).
2. Check control positions.	Fuel valve OFF.	Move lever to ON position.
	Choke open.	Move lever to CLOSED position unless the engine is warm.
	Engine switch OFF.	Turn engine switch to ON position.
3. Check engine oil level.	Engine oil level low (Oil Alert models).	Fill with the recommended oil to the proper level (p. 9).
4. Check fuel.	Out of fuel.	Refuel (p. 8).
	Bad fuel; engine stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 14). Refuel with fresh gasoline (p. 8).
5. Remove and inspect spark plug.	Spark plug faulty, fouled, or improperly gapped.	Gap or replace spark plug (p. 12).
	Spark plug wet with fuel (flooded engine).	Dry and reinstall spark plug. Start engine with throttle lever in MAX. position.
6. Take engine to an authorized Honda servicing dealer, or refer to shop manual.	Fuel filter restricted, carburetor malfunction, ignition malfunction, valves stuck, etc.	Replace or repair faulty components as necessary.

ENGINE LACKS POWER	Possible Cause	Correction
1. Check air filter.	Filter element(s) restricted.	Clean or replace filter element(s) (p. 10–11).
2. Check fuel.	Bad fuel; engine stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 14). Refuel with fresh gasoline (p. 8).
3. Take engine to an authorized Honda servicing dealer, or refer to shop manual.	Fuel filter restricted, carburetor malfunction, ignition malfunction, valves stuck, etc.	Replace or repair faulty components as necessary.

FUSE REPLACEMENT (applicable types)

The electric starter relay circuit and battery charging circuit are protected by a fuse. If the fuse burns out, the electric starter will not operate. The engine can be started manually if the fuse burns out, but running the engine will not charge the battery.

1. Remove the 6 × 12 mm screw from the rear cover of the engine switch box.
2. Remove the fuse cover, then pull out and inspect the fuse.

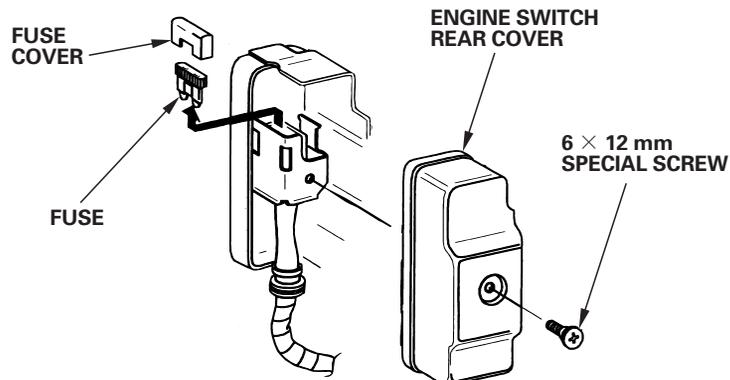
If the fuse is burnt out, discard the burnt-out fuse. Install a new fuse with the same rating as the one that was removed, and reinstall the cover.

If you have questions regarding the rating of the original fuse, contact your servicing Honda engine dealer.

NOTICE

Never use a fuse with a rating greater than the one originally equipped with the engine. Serious damage to the electrical system or a fire could result.

3. Reinstall the rear cover. Install the 6 × 12 mm screw and tighten it securely.



Frequent fuse failure usually indicates a short circuit or an overload in the electrical system. If the fuse burns out frequently, take the engine to a servicing Honda dealer for repair.

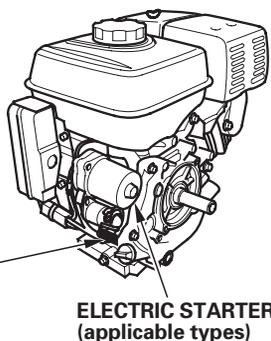




TECHNICAL INFORMATION

Serial Number Location

Record the engine serial number in the space below. You will need this information when ordering parts and when making technical or warranty inquiries.



SERIAL NUMBER & ENGINE TYPE LOCATION

ELECTRIC STARTER (applicable types)

Engine serial number: _____

Engine type: _____

Date Purchased: ____/____/____

Battery Connections for Electric Starter (applicable types)

Recommended Battery

GX240	12 V – 14 Ah ~ 12 V – 30 Ah
GX270	
GX340	12 V – 18 Ah ~ 12 V – 30 Ah
GX390	

Be careful not to connect the battery in reverse polarity, as this will short circuit the battery charging system. Always connect the positive (+) battery cable to the battery terminal before connecting the negative (-) battery cable, so your tools cannot cause a short circuit if they touch a grounded part while tightening the positive (+) battery cable end.

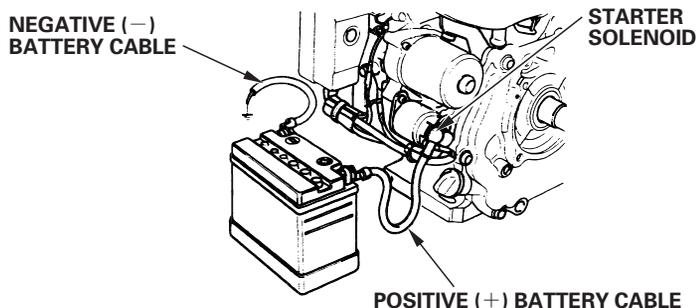
⚠ WARNING

A battery can explode if you do not follow the correct procedure, seriously injuring anyone nearby.

Keep all sparks, open flames, and smoking materials away from the battery.

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds. **Wash hands after handling.**

1. Connect the battery positive (+) cable to the starter solenoid terminal as shown.
2. Connect the battery negative (-) cable to an engine mounting bolt, frame bolt, or other good engine ground connection.
3. Connect the battery positive (+) cable to the battery positive (+) terminal as shown.
4. Connect the battery negative (-) cable to the battery negative (-) terminal as shown.
5. Coat the terminals and cable ends with grease.



NEGATIVE (-) BATTERY CABLE

STARTER SOLENOID

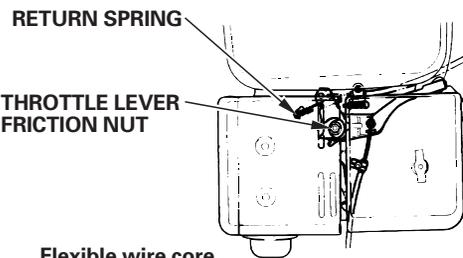
POSITIVE (+) BATTERY CABLE

Remote Control Linkage

The throttle and choke control levers are provided with holes for optional cable attachment. The following illustrations show installation examples for a solid wire cable and for a flexible, braided wire cable. If using a flexible, braided wire cable, add a return spring as shown.

It is necessary to loosen the throttle lever friction nut when operating the throttle with a remote-mounted control.

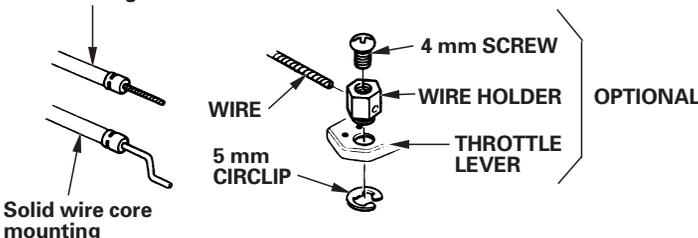
REMOTE THROTTLE LINKAGE



RETURN SPRING

THROTTLE LEVER FRICTION NUT

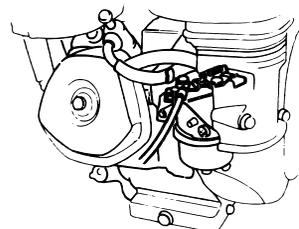
Flexible wire core mounting



Solid wire core mounting

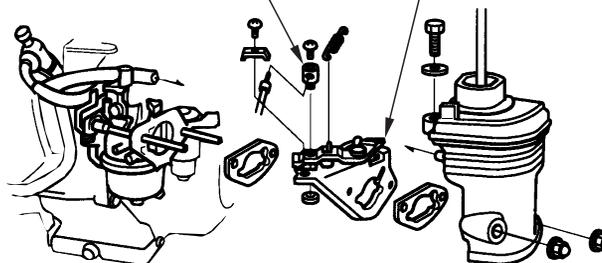
OPTIONAL

REMOTE CHOKE LINKAGE



WIRE HOLDER

CHOKE LEVER





Carburetor Modifications for High Altitude Operation

At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease, and fuel consumption will increase. A very rich mixture will also foul the spark plug and cause hard starting. Operation at an altitude that differs from that at which this engine was certified, for extended periods of time, may increase emissions.

High altitude performance can be improved by specific modifications to the carburetor. If you always operate your engine at altitudes above 1,500 meters (5,000 feet), have your servicing dealer perform this carburetor modification. This engine, when operated at high altitude with the carburetor modifications for high altitude use, will meet each emission standard throughout its useful life.

Even with carburetor modification, engine horsepower will decrease about 3.5% for each 300-meter (1,000-foot) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

NOTICE

When the carburetor has been modified for high altitude operation, the air-fuel mixture will be too lean for low altitude use. Operation at altitudes below 1,500 meters (5,000 feet) with a modified carburetor may cause the engine to overheat and result in serious engine damage. For use at low altitudes, have your servicing dealer return the carburetor to original factory specifications.

Emission Control System Information

Source of Emissions

The combustion process produces carbon monoxide, oxides of nitrogen, and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda utilizes appropriate air/fuel ratios and other emissions control systems to reduce the emissions of carbon monoxide, oxides of nitrogen, and hydrocarbons. Additionally, Honda fuel systems utilize components and control technologies to reduce evaporative emissions.

The U.S., California Clean Air Acts and Environment Canada

EPA, California and Canadian regulations require all manufacturers to furnish written instructions describing the operation and maintenance of emission control systems.

The following instructions and procedures must be followed in order to keep the emissions from your Honda engine within the emission standards.

Tampering and Altering

Tampering with or altering the emission control system may increase emissions beyond the legal limit. Among those acts that constitute tampering are:

- Removal or alteration of any part of the intake, fuel, or exhaust systems.
- Altering or defeating the governor linkage or speed-adjusting mechanism to cause the engine to operate outside its design parameters.

Problems That May Affect Emissions

If you are aware of any of the following symptoms, have your engine inspected and repaired by your servicing dealer.

- Hard starting or stalling after starting.
- Rough idle.
- Misfiring or backfiring under load.
- Afterburning (backfiring).
- Black exhaust smoke or high fuel consumption.

Replacement Parts

The emission control systems on your Honda engine were designed, built, and certified to conform with EPA, California (models certified for sale in California), and Canadian emission regulations. We recommend the use of Honda Genuine parts whenever you have maintenance done. These original-design replacement parts are manufactured to the same standards as the original parts, so you can be confident of their performance. The use of replacement parts that are not of the original design and quality may impair the effectiveness of your emission control system.

A manufacturer of an aftermarket part assumes the responsibility that the part will not adversely affect emission performance. The manufacturer or rebuilder of the part must certify that use of the part will not result in a failure of the engine to comply with emission regulations.

Maintenance

Follow the maintenance schedule on page 7. Remember that this schedule is based on the assumption that your machine will be used for its designed purpose. Sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, will require more frequent service.



**Air Index**

(Models certified for sale in California)

An Air Index Information label is applied to engines certified to an emission durability time period in accordance with the requirements of the California Air Resources Board.

The bar graph is intended to provide you, our customer, the ability to compare the emissions performance of available engines. The lower the Air Index, the less pollution.

The durability description is intended to provide you with information relating to the engine's emission durability period. The descriptive term indicates the useful life period for the engine's emission control system. See your *Emission Control System Warranty* for additional information.

Descriptive Term	Applicable to Emissions Durability Period
Moderate	50 hours (0 – 80 cc, inclusive) 125 hours (greater than 80 cc)
Intermediate	125 hours (0 – 80 cc, inclusive) 250 hours (greater than 80 cc)
Extended	300 hours (0 – 80 cc, inclusive) 500 hours (greater than 80 cc) 1,000 hours (225 cc and greater)

Specifications**GX240/GX270 (PTO shaft type S, with fuel tank)**

Length × Width × Height	355 × 430 × 422 mm (14.0 × 16.9 × 16.6 in)	
Dry mass [weight]	25.0 kg (55.1 lbs)	
Engine type	4-stroke, overhead valve, single cylinder	
Displacement [Bore × Stroke]	GX240	242 cm ³ (14.8 cu-in) [73.0 × 58.0 mm (2.9 × 2.3 in)]
	GX270	270 cm ³ (16.5 cu-in) [77.0 × 58.0 mm (3.0 × 2.3 in)]
Net power (in accordance with SAE J1349*)	GX240	5.3 kW (7.2 PS, 7.1 bhp) at 3,600 rpm
	GX270	6.0 kW (8.2 PS, 8.0 bhp) at 3,600 rpm
Max. Net torque (in accordance with SAE J1349*)	GX240	15.3 N·m (1.56 kgf·m, 11.3 lbf·ft) at 2,500 rpm
	GX270	17.7 N·m (1.80 kgf·m, 13.1 lbf·ft) at 2,500 rpm
Engine oil capacity	1.1 L (1.2 US qt, 1.0 Imp qt)	
Fuel tank capacity	5.3 L (1.40 US gal, 1.17 Imp gal)	
Cooling system	Forced air	
Ignition system	Transistor magneto	
PTO shaft rotation	Counterclockwise	

GX340/GX390 (PTO shaft type S, with fuel tank)

Length × Width × Height	380 × 450 × 447 mm (15.0 × 17.7 × 17.6 in)	
Dry mass [weight]	31.5 kg (69.4 lbs)	
Engine type	4-stroke, overhead valve, single cylinder	
Displacement [Bore × Stroke]	GX340	337 cm ³ (20.6 cu-in) [82.0 × 64.0 mm (3.2 × 2.5 in)]
	GX390	389 cm ³ (23.7 cu-in) [88.0 × 64.0 mm (3.5 × 2.5 in)]
Net power (in accordance with SAE J1349*)	GX340	7.1 kW (9.7 PS, 9.5 bhp) at 3,600 rpm
	GX390	8.2 kW (11.1 PS, 11.0 bhp) at 3,600 rpm
Max. Net torque (in accordance with SAE J1349*)	GX340	22.1 N·m (2.25 kgf·m, 16.3 lbf·ft) at 2,500 rpm
	GX390	25.1 N·m (2.56 kgf·m, 18.5 lbf·ft) at 2,500 rpm
Engine oil capacity	1.1 L (1.2 US qt, 1.0 Imp qt)	
Fuel tank capacity	6.1 L (1.61 US gal, 1.34 Imp gal)	
Cooling system	Forced air	
Ignition system	Transistor magneto	
PTO shaft rotation	Counterclockwise	

* The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600 rpm (Net Power) and at 2,500 rpm (Max. Net Torque). Mass production engines may vary from this value.

Actual power output for the engine installed in the final machine will vary depending on numerous factors, including the operating speed of the engine in application, environmental conditions, maintenance, and other variables.

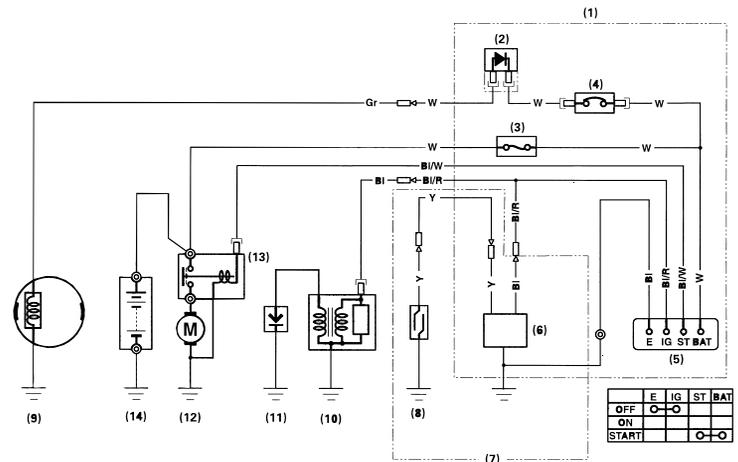
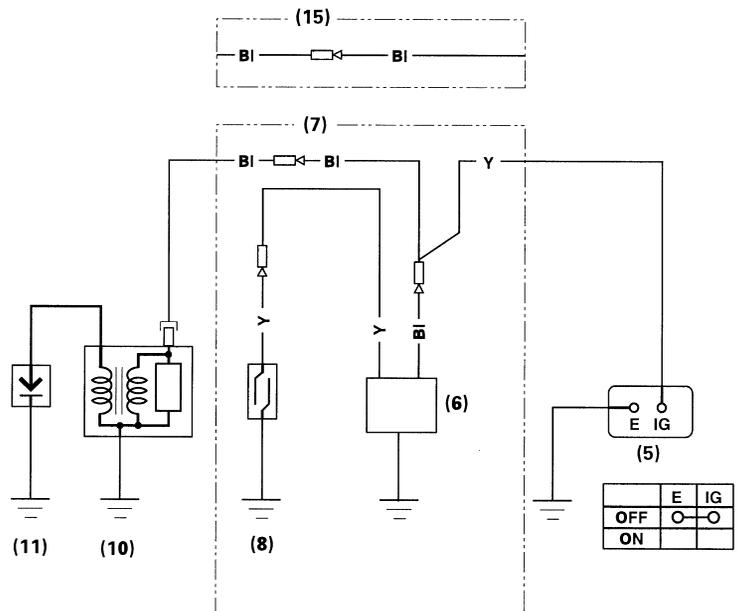


**Tuneup Specifications GX240/GX270/GX340/GX390**

ITEM	SPECIFICATION	MAINTENANCE
Spark plug gap	0.7–0.8 mm (0.028–0.031 in)	Refer to page: 12
Idle speed	1,400 ± 150 rpm	Refer to page: 13
Valve clearance (cold)	IN: 0.15 ± 0.02 mm EX: 0.20 ± 0.02 mm	See your authorized Honda dealer
Other specifications	No other adjustments needed.	

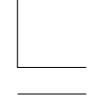
Quick Reference Information

Fuel	Unleaded gasoline (Refer to page 8)	
	U.S.	Pump octane rating 86 or higher
	Except U.S.	Research octane rating 91 or higher Pump octane rating 86 or higher
Engine oil	SAE 10W-30, API SJ or later, for general use. Refer to page 8.	
Reduction case oil	Same oil as engine oil, see above (applicable types).	
Spark plug	BPR6ES (NGK) W20EPR-U (DENSO)	
Maintenance	Before each use:	
	<ul style="list-style-type: none"> • Check engine oil level. Refer to page 9. • Check reduction case oil (applicable types). Refer to page 9. • Check air filter. Refer to page 10. 	
	First 20 hours:	
	<ul style="list-style-type: none"> • Change engine oil. Refer to page 9. • Change reduction case oil (applicable types). Refer to page 10. 	
	Subsequent: Refer to the maintenance schedule on page 7.	

Wiring Diagrams**With Oil Alert and Electric Starter****With Oil Alert and Without Electric Starter**

- | | |
|------------------------------|----------------------------------|
| (1) CONTROL BOX | (9) CHARGING COIL |
| (2) RECTIFIER | (10) IGNITION COIL |
| (3) FUSE | (11) SPARK PLUG |
| (4) CIRCUIT PROTECTOR | (12) STARTER MOTOR |
| (5) ENGINE SWITCH | (13) STARTER SOLENOID |
| (6) OIL ALERT UNIT | (14) BATTERY (12 V) |
| (7) Type with Oil Alert unit | (15) Type without Oil Alert unit |
| (8) OIL LEVEL SWITCH | |

Bl	Black	Br	Brown
Y	Yellow	O	Orange
Bu	Blue	Lb	Light blue
G	Green	Lg	Light green
R	Red	P	Pink
W	White	Gr	Gray



CONSUMER INFORMATION

DISTRIBUTOR/DEALER LOCATOR INFORMATION

United States, Puerto Rico, and U.S. Virgin Islands:

Call (800) 426-7701

or visit our website: www.honda-engines.com

Canada:

Call (888) 9HONDA9

or visit our website: www.honda.ca

For European Area:

Visit our website: <http://www.honda-engines-eu.com>

CUSTOMER SERVICE INFORMATION

Servicing dealership personnel are trained professionals. They should be able to answer any question you may have. If you encounter a problem that your dealer does not solve to your satisfaction, please discuss it with the dealership's management. The Service Manager, General Manager, or Owner can help. Almost all problems are solved in this way.

United States, Puerto Rico, and U.S. Virgin Islands:

If you are dissatisfied with the decision made by the dealership's management, contact the Honda Regional Engine Distributor for your area.

If you are still dissatisfied after speaking with the Regional Engine Distributor, you may contact the Honda Office as shown.

All Other Areas:

If you are dissatisfied with the decision made by the dealership's management, contact the Honda Office as shown.

«Honda's Office»

When you write or call, please provide this information:

- Equipment manufacturer's name and model number that the engine is mounted on
- Engine model, serial number, and type (see page 16)
- Name of dealer who sold the engine to you
- Name, address, and contact person of the dealer who services your engine
- Date of purchase
- Your name, address and telephone number
- A detailed description of the problem

United States, Puerto Rico, and U.S. Virgin Islands:

American Honda Motor Co., Inc.

Power Equipment Division

Customer Relations Office

4900 Marconi Drive

Alpharetta, GA 30005-8847

Or telephone: (770) 497-6400, 8:30 am - 7:00 pm ET

Canada:

Honda Canada, Inc.

715 Milner Avenue

Toronto, ON

M1B 2K8

Telephone: (888) 9HONDA9 Toll free

(888) 946-6329

(416) 299-3400

Local Toronto dialing area

Facsimile: (877) 939-0909 Toll free

(416) 287-4776

Local Toronto dialing area

Australia:

Honda Australia Motorcycle and Power Equipment Pty. Ltd.

1954 – 1956 Hume Highway Campbellfield Victoria 3061

Telephone: (03) 9270 1111

Facsimile: (03) 9270 1133

For European Area:

Honda Europe NV.

European Engine Center

<http://www.honda-engines-eu.com>

All Other Areas:

Please contact the Honda distributor in your area for assistance.



HONDA

The Power of Dreams



Proof of maintenance

Warranty claim for this machine only apply for performance of the mandatory maintenance works (by an authorised specialist workshop)! After each completed performance of a maintenance interval the included form must be fill out, stamped, signed and send back to us immediately ¹⁾.

1) via e-mail to service@probst-handling.com / via fax or post

Operator: _____

Device type: _____

Device-No.: _____

Article -No.: _____

Year of make: _____

First inspection after 25 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
	
		Name Signature

All 50 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
	
		Name Signature
		Company stamp
	
		Name Signature
		Company stamp
	
		Name Signature

Minimum 1x per year

Date:	Maintenance work:	Inspection by company:
		Company stamp
	
		Name Signature
		Company stamp
	
		Name Signature