Operating Instructions

Translation of the operating instructions

JUMBOMOBIL JM Vacuum Slab Laying Machine

JM-VARIO-200-B

Bitte beachten Sie, dass das Produkt ohne vorliegende Betriebsanleitung in Landessprache nicht eingesetzt / in Betrieb gesetzt werden darf. Sollten Sie mit der Lieferung des Produkts keine Betriebsanleitung in Ihrer Landessprache erhalten haben, kontaktieren Sie uns bitte. In Länder der EU / EFTA senden wir Ihnen diese kostenlos nach. Für Länder außerhalb der EU / EFTA erstellen wir Ihnen gerne ein Angebot für eine Betriebsanleitung in Landessprache, falls die Übersetzung nicht durch den Händler/Importeur organisiert werden kann.

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.

1 Contents

2 EC-Declaration of Conformity

DESCRIPTION: JUMBOMOBIL JM Vacuum Slab Laying Machine
JM-VARIO-200-B
5200.0020

Manufacturer: **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/EG

Based on the following harmonized standards (in excerpts):

DIN EN ISO 12100	**2010**	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010).
DIN EN ISO 13857	**2008**	Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs
DIN EN 60204-1 (IEC 60204-1)	**1997** 1997	Safety of machinery, electrical equipment of industrial machines. Part 1: General requirements
DIN 45625	**02.77**	Airborne noise measurement; enveloping surface-procedure; compressor including vacuum pump.
DIN EN 1012-1	**07.96**	Compressors and vacuum pumps; Safety requirements part 1 and 2.
DIN EN 1012-2	**07.96**	

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, 24.07.2018.....

(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

- 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 carriage for lifting device JUMBOMOBIL JM, serves as a mobile crane jib exclusively for the JUMBOMOBIL JM lifting devices. Do not use it for other lifting devices or as a crane jib for other purposes. The admissible max. load must not be exceeded:

- Max. load (working load limit WLL) with **3,000 mm (118 “)** jib length: **200 kg (440 lbs)**
- The maximum carrying capacity must not be exceeded. Observe the type plate!
- Transport of persons and animals with the load or the lifting device itself is forbidden!

- **Unauthorized alteration of the lifting device is forbidden for safety reasons!**
- The operating, maintenance and service instructions in this manual must be observed.

- 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!

- ***Do not exceed*** the maximum carrying capacity of the suction plates!!!
  Danger: Load (stone slab) **will fall down!**

Only suction plates of the manufacturer **PROBST** shall be used!!!

The use of suction plates with a smaller carrying capacity than the lifting unit is *forbidden!*
<u>Danger</u>: Load will fall down.
(It is permissible to use suction plates with a higher carrying capacity than the lifting unit)

The use of this device is only permitted in proximity to the ground.
The Load must not be lifted above 1,8 m (70,8 inch)!

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.

UNAUTHORIZED TRANSPORTIONS:

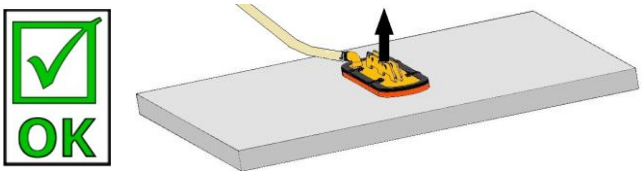
All **unauthorized alterations** of the device and the use of any self-made additional equipment could cause danger and are therefore **forbidden**!!

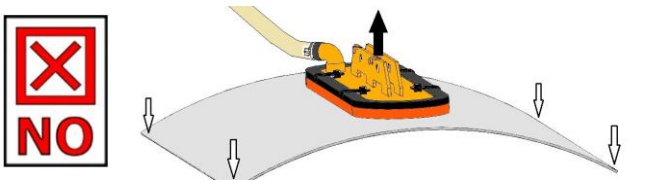
The **carrying capacity** and the **nominal width/gripping range** the device are not allowed to cross over.

All unauthorized transportations with the device <u>are not allowed</u>!

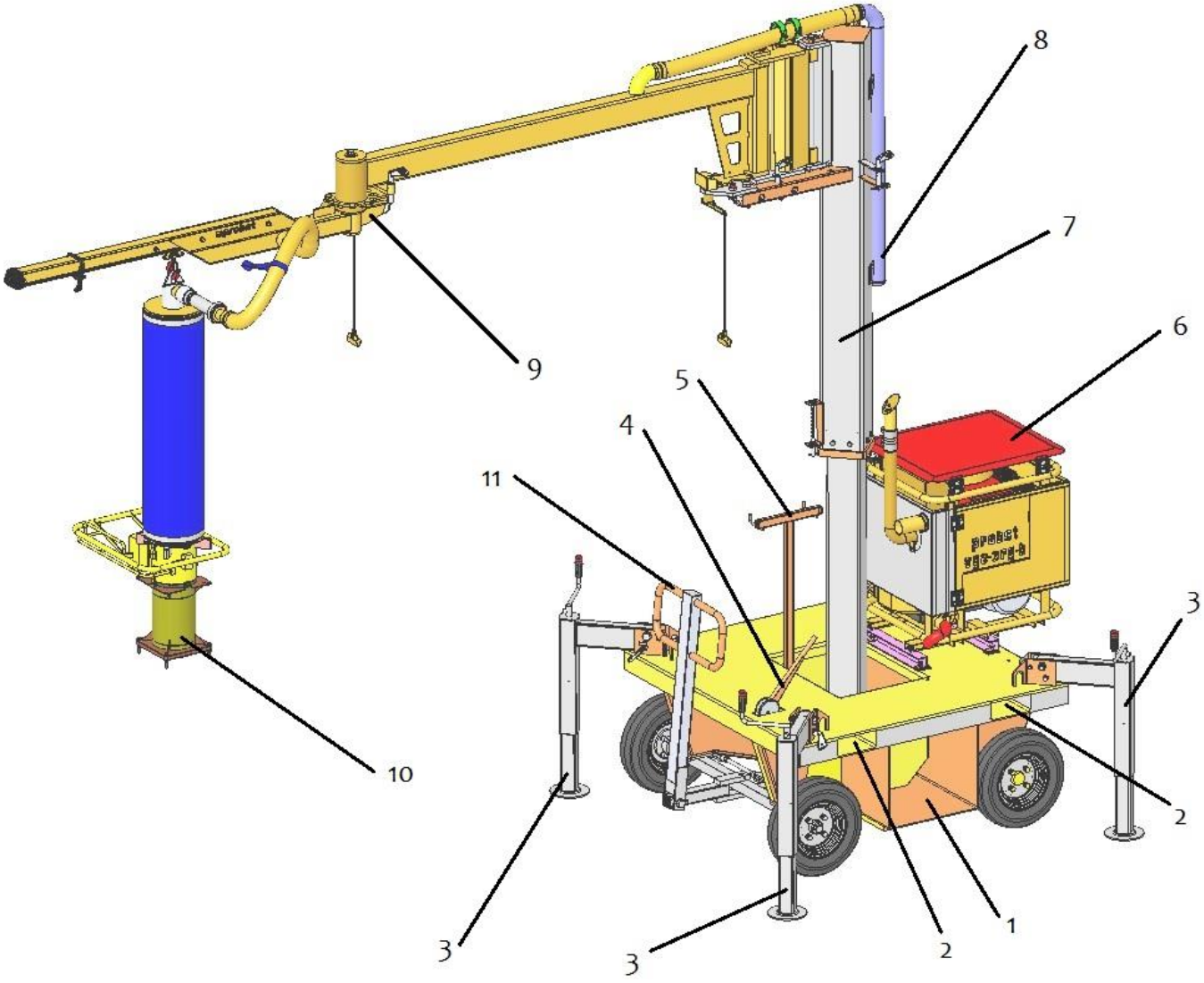
- Transportation of people and animals.
- Transportation of other loads and material than described in this manual.
- Never suspend any goods with ropes, chains or similar at the device.
- Gripping of gripping goods with **packaging foil**, because they could fall down.

- 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!





3.2 Survey and construction



Parts with safety function appear in **bold type**

1	2 support boxes for counterweights	6	Petrol engine / vacuum blower unit
2	Fork sleeves for forks (forklift truck)	7	Mast, adjustable
3	**Supports**	8	Vacuumm suction hose
4	**Hand break**	9	Crane jib (swing crane)
5	Park position for operating valve unit	10	Operating valve unit (BE) / Lifting hose unit (HE)
		11	Drawbar

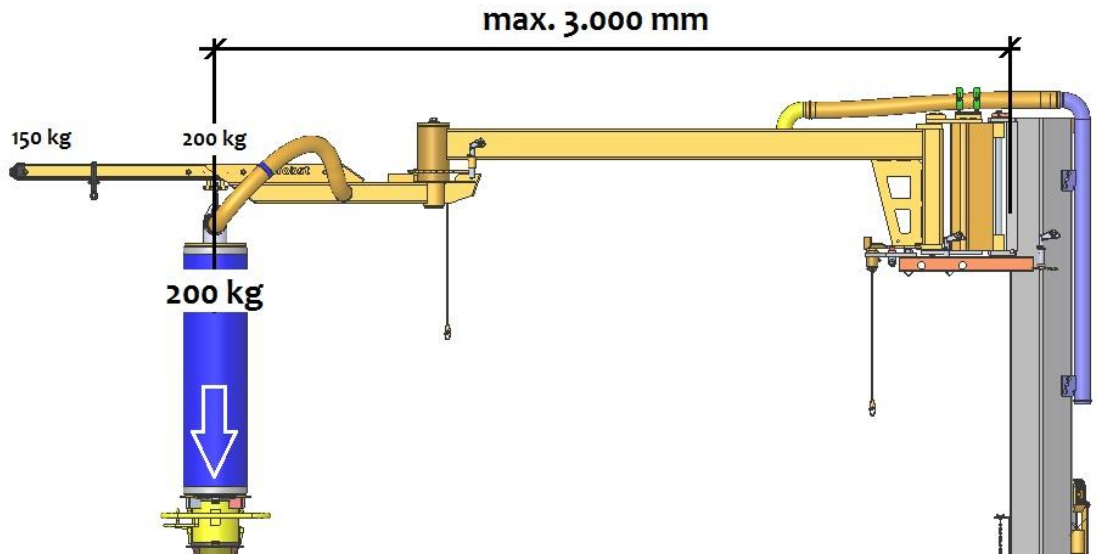
3.3 Technical data

Swing range	350 °
Dead weight	730 kg (1,609 lbs)
tire pressure	4 bar

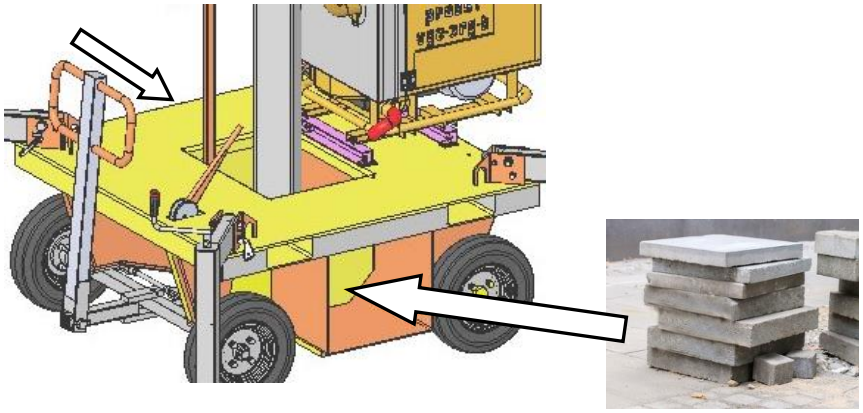
Device type	Max. carrying capacity / working load limit (WLL)	necessary ballast (counterweights)	max. jib length
JM-VARIO-200-B	200 kg */** (440 lbs)	400 kg (880 lbs)	3,000 mm (118 “)

* = Value at 420 mbar low pressure

** When working with a carrying capacity /workingload limit **of 200 kg** (440 lbs), the operating radius of the jib will be limited to **3,000 mm** (118”).



Furthermore the chassis must be loaded with **counterweights** (e.g. with stone slabs 400x300 mm) on both sides ⬊⬉of the chassis (supplied by the customer). **Otherwise there is a risk of overturning of the JM!!!**



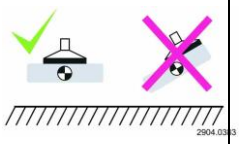
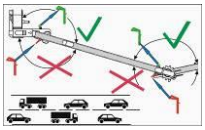
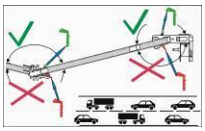
For further technical details see the attached type plate /technical data sheet (D5200.0020).

4 Safety

4.1 Safety symbols

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

4.2 Safety Marking

WARNING SIGN			
Symbol	**Meaning**	Order-No.:	
	It is not allowed to be under hanging loads. **Danger to life!**	2904.0209 2904.0204	50 mm 80 mm
	Do not lift any components off-centre.	2904.0383 (102x52 mm)	
	Swing range is only for the right area allowed (when working direct on roadways – **danger** of accidents with motorcars).	2904.0474	
	Swing range is only for the lift area allowed (when working direct on roadways – **danger** of accidents with motorcars).	2904.0475	

WARNING SIGN			
Symbol	**Meaning**	Order-No.:	Size:
	Danger of pinching the hands.	2904.0221 2904.0220 2904.0107	30 mm 50 mm 80 mm

REGULATORY SIGN			
Symbol	**Meaning**	**Order-No.:**	**Size:**
	Each operator must have read and understood the operating instructions (and all safety instructions).	2904.0665 2904.0666	30 mm 50 mm
	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
	Maintenance plan for Honda GXV 340	2904.0329	- - - - - - -
	Fill in unleaded fuel only	2904.0340	- - - - - - -
	Vakuum hose lifter components	----------	2904.0384
	Adjusting the Hovering Position (without load)	----------	2904.0385
	Information about the working load limit on the type plate of the suction plate has priority!	2904.0730	95x250 mm

4.3 Definition skilled worker / specialist

Only skilled workers or specialists is it allowed to carry out the installation,- maintenance, - and repair work on these device!

Skilled workers or specialists must have for the following points (if it applies for these device), the necessary professional knowledge.

- for mechanic
- for hydraulics
- for pneumatics
- for electrics

4.4 Personal safety requirements

- Only qualified, authorized certificated personal is allowed to operate the device and all devices which are connected (lifting equipment).

- Each operator must have read and understood the operating instructions.
- The manual guiding is only allowed for machines with handles.

4.5 Protective equipment

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

- Protective clothing
- Safety gloves
- Safety shoes

4.6 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.

4.7 Safety at work

- The use of the vacuum lifting device is only permitted in proximity to the ground. Do not swing it over people heads.
- 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.
- 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.
- 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 vacuum lifting device should not be opened if the opening path of the gripping arm is blocked by a resistance (e.g. other concrete blocks or the like)!

- The capacity and the nominal width the vacuum lifting device are not allowed to cross over.
- 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.

4.8 Requirements for the Installation Location

- The lifting vacuum lifting device may not be used in explosion-risk rooms or areas.
- The ambient temperature may not exceed 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.

4.9 Special Hazards

- The operating range has to be covered for unauthorized persons, especially children.
- The workplace has to be sufficiently illuminated.
- Take care when 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.
- 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.
- This can happen if the vacuum generator fails. An integrated vacuum reservoir maintains the vacuum for a short safety period whose duration depends on the porosity of the work piece surface.

- 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.

4.10 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.

4.11 Behaviour in Emergencies

An emergency situation exists when:

- power suddenly fails (unit switches off),
- the vacuum drops below -0.42 bar (red area of the pressure gauge).

- 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!

4.12 Testing the Safety Devices

The lifting device is equipped with following safety equipment:

- pressure gauge (with red danger zone display)

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.

4.12.1 Inspecting the vacuum hoses and hose clamps

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

4.12.2 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.

4.13 Behaviour in Emergencies

An emergency situation exists when

- power suddenly fails (device switches off),
- the vacuum pressure drops below -0.42 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.

4.14 Checking the Safety Devices

The lifting device is equipped with following safety devices:

- vacuum gauge with red danger zone

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

Checking the Vacuum Gauge and the Warning Device

⇨ 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 – 0.42 bar.**

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.

4.15 Function Control

4.15.1 General

- 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 any cracks, splits or damaged parts on any 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.
- Unrecognisable information signs (such as regulatory or prohibition signs) must be replaced.

4.15.2 Checking the Safety Devices

The lifting device has the following guards:

- hand brake, arresting the carriage
- support legs
- transport locks

Check this safety devices:

- 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.

Checking the hand brake::

- Lock the hand brake
- Push the carriage hard. It must not move.

Checking the support legs:

- Check before any use, if all four legs have been unfolded and locked.
- Check whether all supports have been wound down far enough to rest on the ground safely.

You can squeezes your hands when not handling the support legs properly upon swinging them in and out.

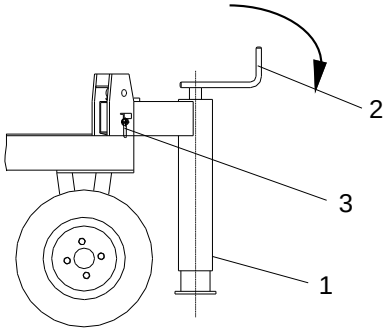
4.15.3 ELEKTRIC

- Check all electric cables for connection.
- Defective electrical parts may be exchanged only of **qualifiefd personnel** in the **dead condition**.
- The electric cables must be free of breaks and abrasion. Take care that there are no outstanding edges, where the hoses could kook in.

5 Adjustments

5.1 Set-up

- The pressure in the tires must be 4.0 bar.
- Bring the JUMBOMOBIL JM to the desired site.
- Pull the hand brake.
- Unfold all four support legs (1), insert the locking bolts and secure these.
- Level the carriage: turn the cranks (2) on the legs and watch the plumb on the crane column.



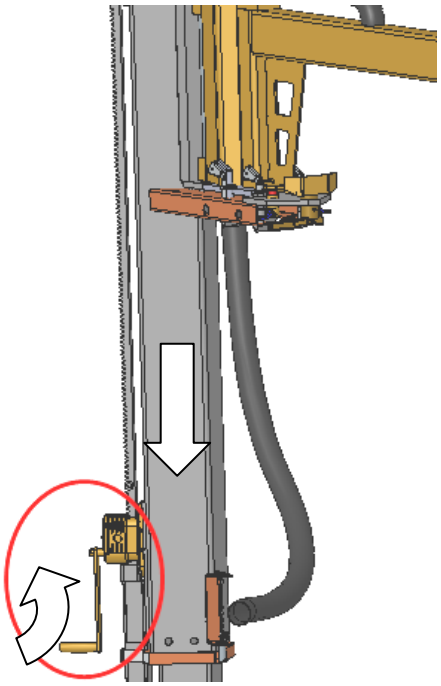
5.2 Preparing the JUMBOMOBIL JM for transport

The device can be transported on a car trailer (considering the dimensions and allowable total weight).

The transport of the device *JUMBOMBIL JM* with unsecured crane jib is **strictly forbidden**.
Danger of accident!
Therefore fold up the crane jib unconditionally.

Remove the lifting hose unit with operating valve unit (from crane jib)

By turning of the crank move the mast downwards (🡻)

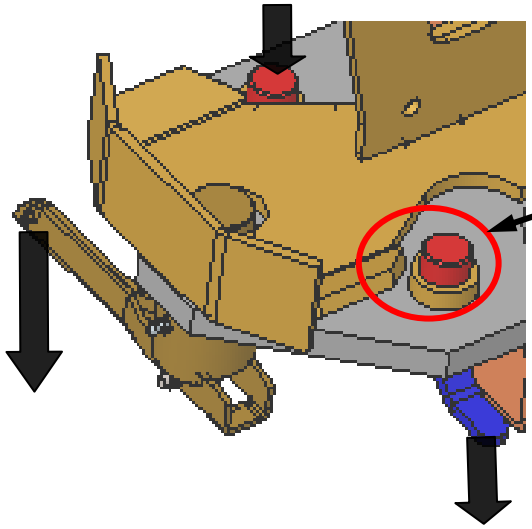


❶

Move (fold up) the crane jib in transport position.

❷

Make the rear part of the crane jib movable by releasing the 3 safety bolts (🡻)).



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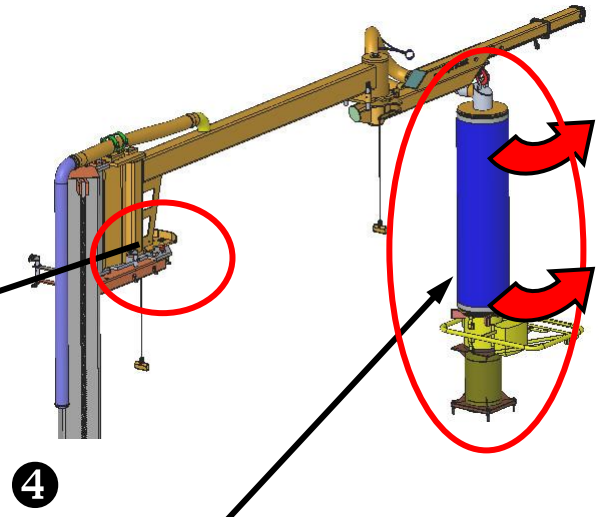

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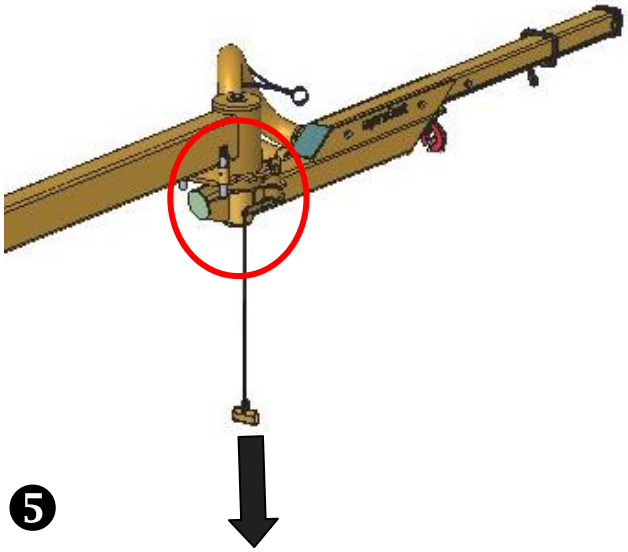
Remove the lifting hose unit from the crane jib



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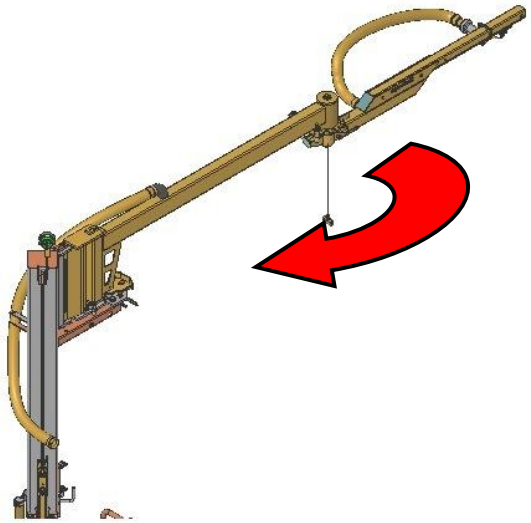

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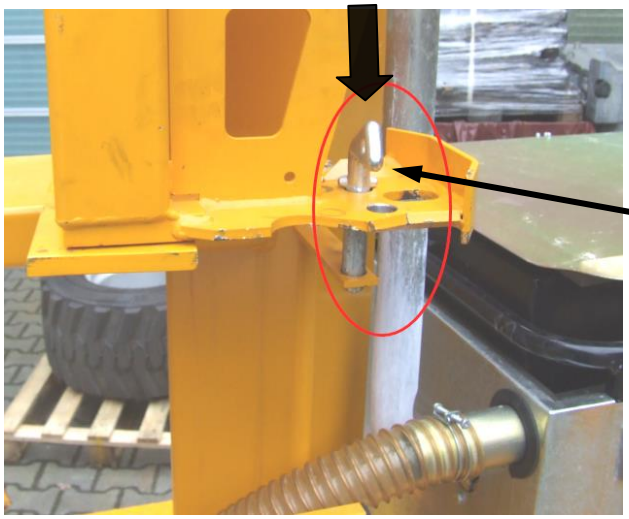
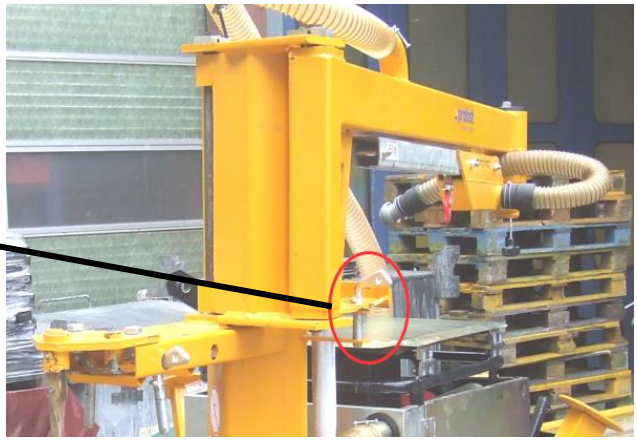
❼

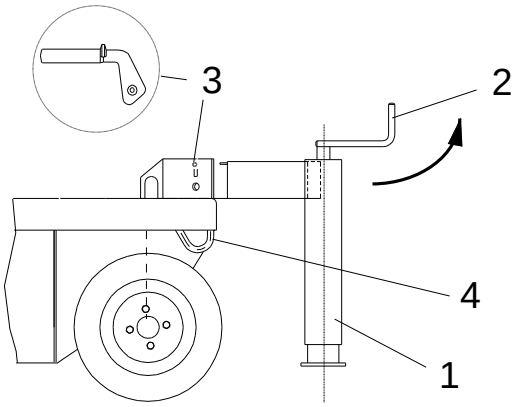
❽ Socket pin in parking position



Secure the crane jib with a locking bolt.



Wind the support legs up with the crank (2) and fold in the support legs (1). Secure them with the locking bolts (3).



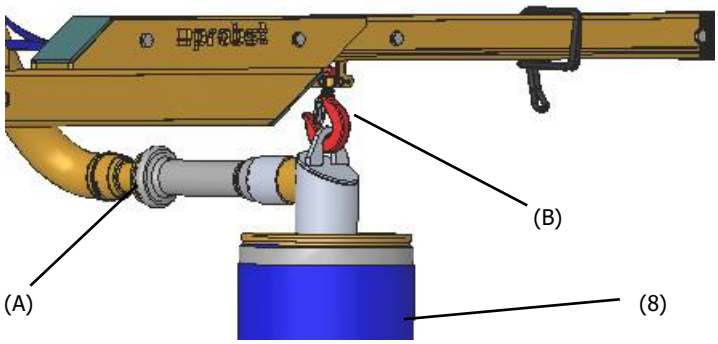
5.3 Fastening for transport

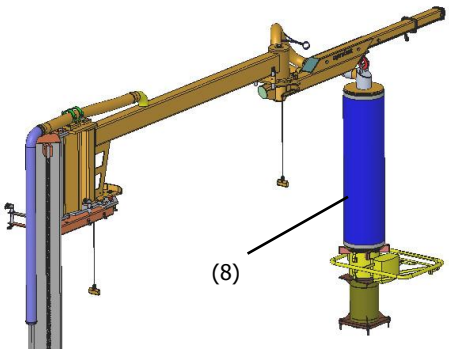
For transport you can tie the carriage firmly on all four corners. Use ropes of sufficient strength or chains and sling these around the steel rods at the corners of the carriage.

- If the jib is allowed to swing around, it may cause severe injury, fatal accidents are possible.
- Transport the carriage only when the column has been wound down and retracted jib.
- Lock the hinges of the jib and the joint in the middle with locking bolts.

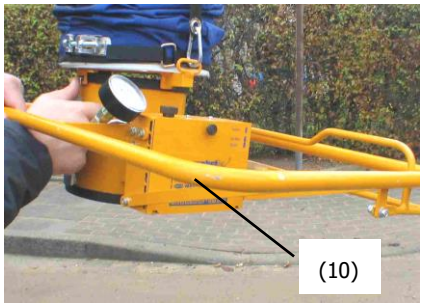
6 Installation

6.1 Fixing the lifting hose unit HE

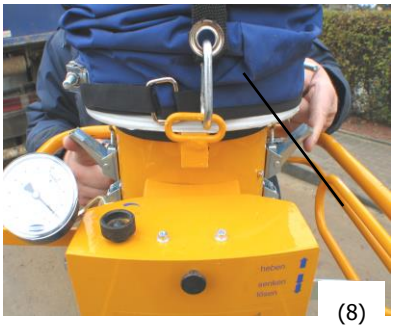




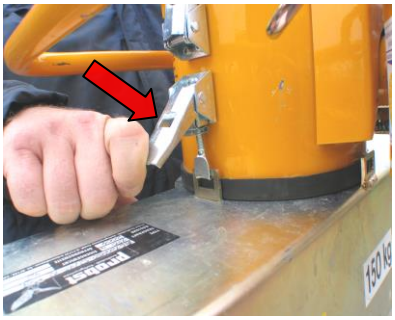
- Insert lifting hose (8) at the hook (B) on the crane jib.
- Connect vacuum hose (A) with lifting hose (8) and secure with clips



Connect operating valve unit with lifting hose.



- Connect lifting hose (8) with operating valve unit (10) and secure with clips.

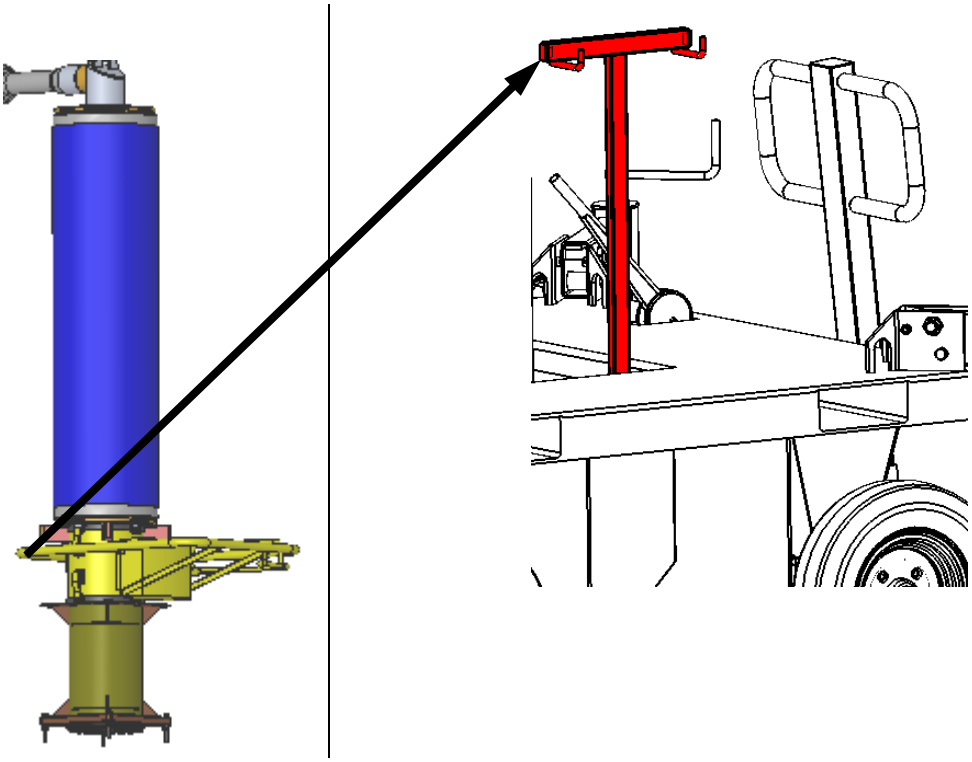


- Connect operating valve unit (10) and suction plate and secure with clips. **Regard that the hooks are fit correct.**

6.2 Fasten lifting hose unit

Secure the *vacuum hose lifter unit* against swinging around before every driving with the device JUMBOMOBIL JM against swiveling by using the holder (parking position) .Danger of injury!

Secure the operating valve unit at the park position(for operating valve unit).



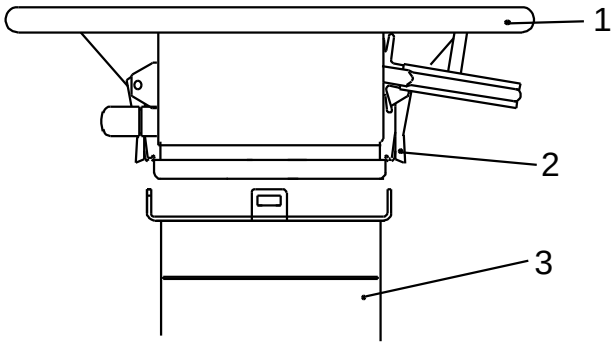
The combination of the lifting hose assy, operator handle, lifting hose cylinder (SZV) and suction pad and coupling of the suction hose to the connector of the lifting hose assy results in a device ready to operate. The connections must be made only when the device is shut off.

6.3 Connection of operator handle and lifting hose cylinder - SZV

Put the operator handle (1) onto the hose ring of the lifting hose cylinder. It is fitted with a seal (3).

Put the hooks of the clamps (2) on the operator handle into the lags on the connecting disk of the lifting hose cylinder.

Then close the clamps and lock them with the pin against unintentional opening.

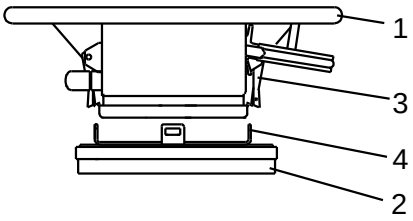


6.4 Installation

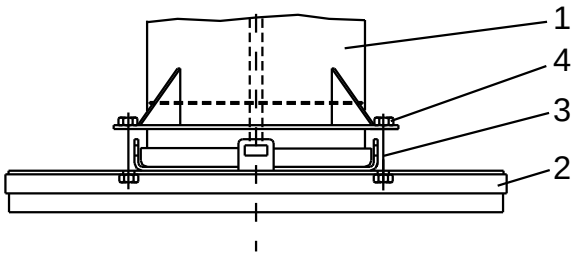
The combination of the lifting hose unit, operating valve unit, hose cylinder extension and suction pad and coupling of the suction hose to the connector of the lifting hose unit results in a device ready to operate. The connections must be made only when the device is shut off.

6.5 Connection of lifting hose cylinder and suction pad

Open the clamps (2) on the lifting hose cylinder (1) . Apply the suction pad. (4). Insert the hooks into the lags on the suction pad and close the clamps .



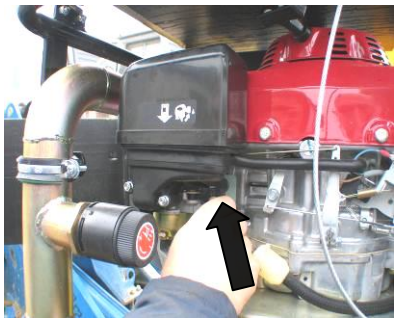
Put the lifting hose cylinder (1) onto the suction pad (2), screw it with four bolts (3) and lock it with hex nuts (4).



7 Operation

7.1 Start-up

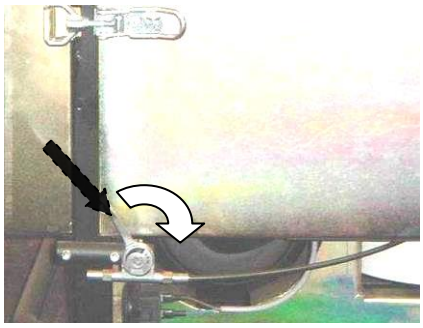
Picture 1



- Open petrol tap.

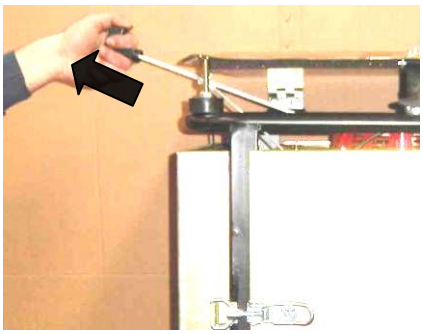
See operating instructions HONDA GXV 340

Picture 2



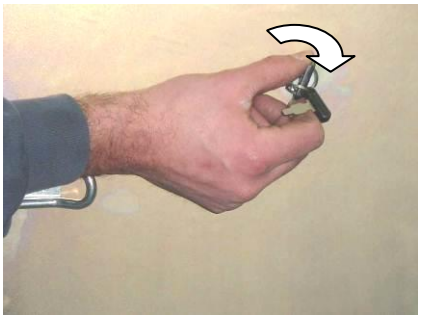
- Move start-/Stop lever complete on the right.

Picture 3



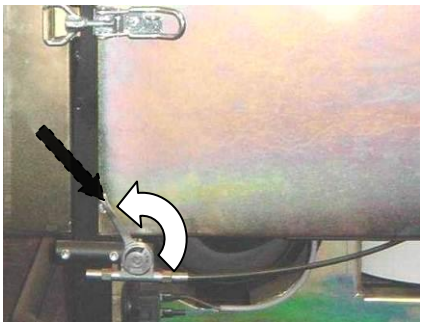
- Start the petrol engine by pulling (powerful) at the start grip. (VERSION I)

Picture 4



- Alternatively starting petrol engine at electro starter. (VERSION II)

Picture 5



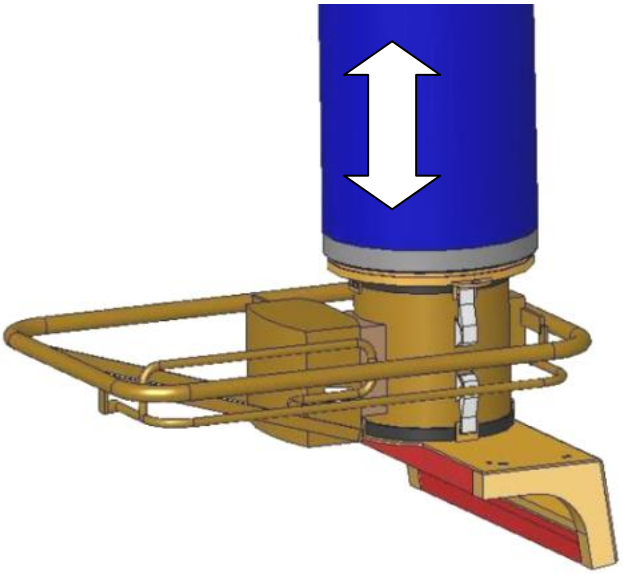
- Then move start/-stop lever again a little on the left.

7.2 Adjusting the hovering position

7.2.1 Adjusting the hovering position without load

Open and remove both snap hooks off the vacuum hose corset in order to release the vacuum hose unit (for vacuum operation).

Vacuum hose is now released.



The hovering position <u>without load</u> must be adjusted with each operation.

The hovering position of the lifting device must be adapted to the weight of the vacuum head.
A valve (2) in the tube support cylinder is used to adjust it.

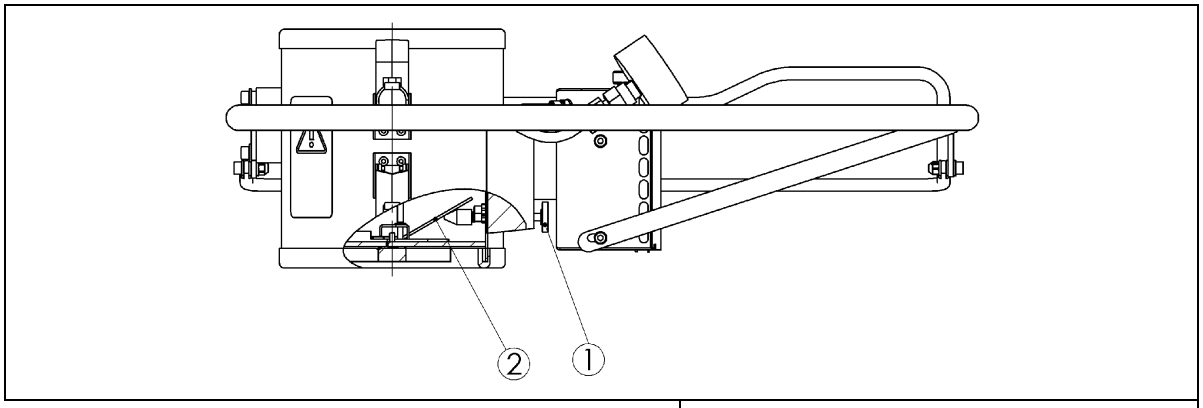
When you apply the vacuum head to the load a valve is fully opened by a plunger and the valve rod in the vacuum head. The load can be sucked and lifted.

Adjustment:

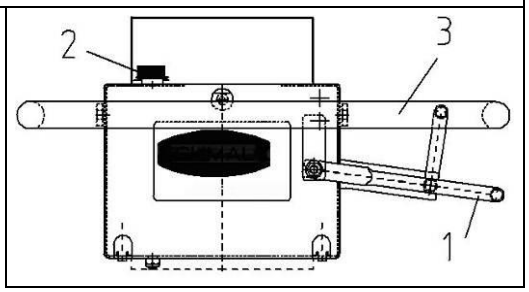
⇨ Turn the adjustment screw (1) at the operating unit (accessible from the bottom).
Turn clockwise (direction of arrow) ➔ Valve becomes opened.
Turn counter-clockwise ➔Valve becomes closed.

⇨ The farther the valve is opened the lower the device hovers.

When the valve is closed totally the device bounce up abruptly as soon the blower is switched on!



- Place the vacuum head directly above the load/kerb stone.
- Press the regulator lever (1) down. The lifting tube descends and the vacuum head lowers.
- Apply the vacuum head to the load. Distribute load evenly.
- Slowly push the regulator lever (1) upward. The device attaches to the load.

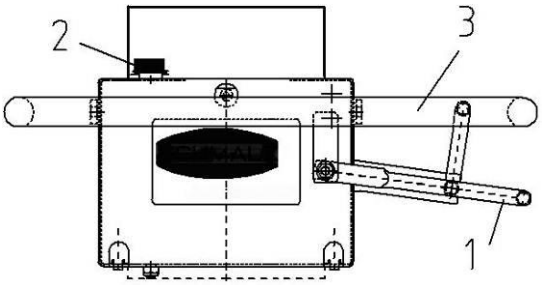


Control lever (of operating valve unit) must not be on the position "Lift", for more than 90 seconds. Because otherwise the blower could be damaged and fail, (all guarantee claims are void) and power is wasted unnecessarily.

7.2.2 Adjusting the hovering position with load

Turn the adjusting screw (2) to adjust the hovering position with the load.

Caution: Do not confuse this adjustment with the hovering position without load.



⇨ Turn screw clockwise ➔ the hovering position will be lower.

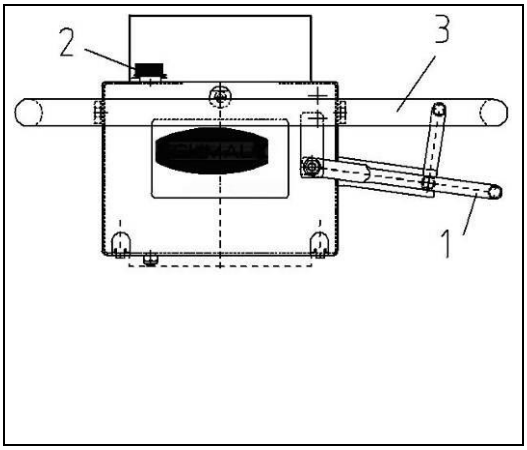
⇨ Turn screw counter-clockwise ➔ the hovering position will be higher.

Control lever (of operating valve unit) must not be on the position "Lift", for more than 90 seconds. Because otherwise the blower could be damaged and fail, (all guarantee claims are void) and power is wasted unnecessarily.

The hovering position with load should not be adjusted to the highest position of the lifting hose unit because otherwise: the blower could be damaged and fail, (all guarantee claims are void) and power is wasted unnecessarily.

- Slowly move the regulator lever (1) downward - "Lower". The lifting tube descends and the vacuum head lowers with the load.
- Do not operate the regulator lever control abruptly, while you firmly hold the handlebar (3), as this can cause the load to fall off, because the vacuum suddenly vanishes.
- Lower the load to the chosen position.
- To land the load push the regulator lever down all the way. Tip the valve control box a little and lift it off the load.

For further details see the attached operating instruction. Operating valve unit/Lifting hose unit



Ill. 15

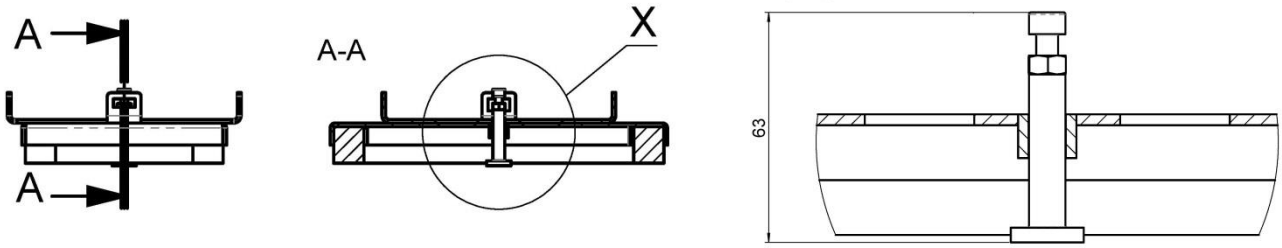
Ill. 16

Ill. 17

7.2.3 Valve tappet adjustment

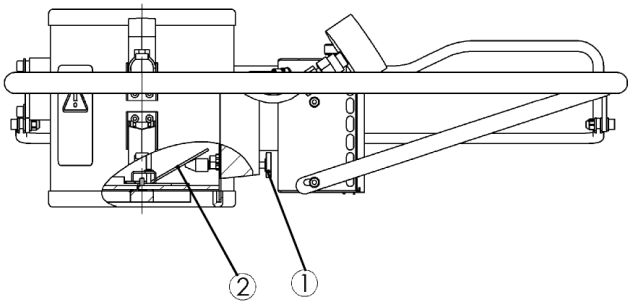
The distance of the tappet at the upper side of suction plate (mounting side operating valve unit) is adjusted to 63 mm (ex works) und secured with locknut.

Never change these distance, otherwise the load (kerb stone) could fall down. **Danger of accidence!**



While placing the suction plate on the load/kerbstone, the installed valve tappet will completely open the flap, which is used to adjust the hoverimg position without load.

As a result the suction will be easier. In addition to that a higher level of safety is achieved, while lifting up porous materials or pick up a load beyond the center of gravity.



If it happens often that the valve tappet gets jammed, while using very dusty, dirty kerbstones/plates/etc., you can continuing work without the valve tappet.

Requirements for this are very airtight materials. But this needs to be tested by the user in each individual case. In case of doubt it is necessary to work **ALWAYS with valve tappet** and this needs to be **cleaned from time to time..**

When engine breakdown the load/kerb stones does not fall down (check valve).

Residual vacuum lowers the operating valve unit/lifting hose unit with the sucked in load/kerb stone slowly.

Do not use the device to jerk [sic!] seized loads/kerbstones!

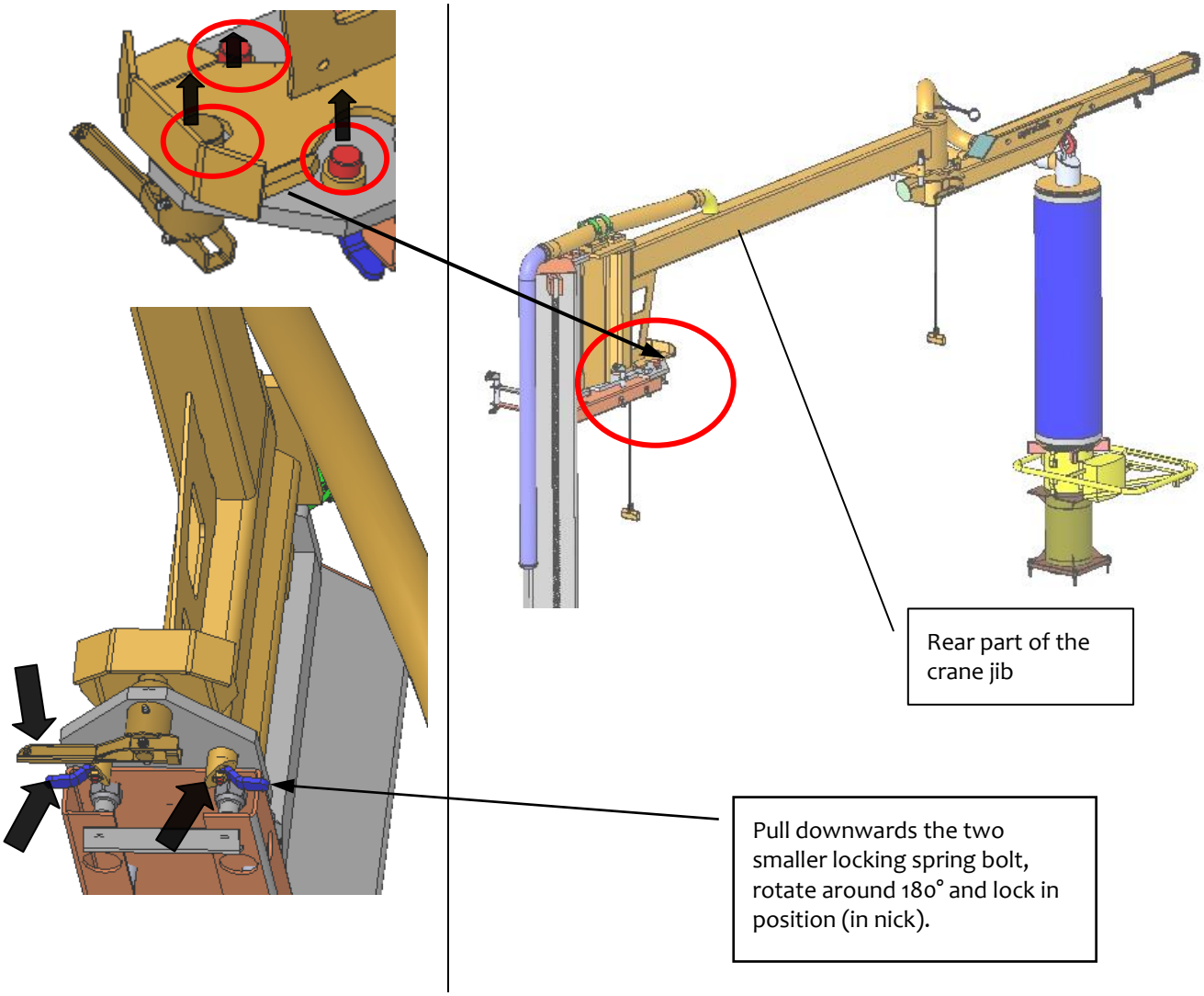
No work stoppage (pause) with sucked load/kerb stone, danger of the overheating of the vacuum blower!!!

Adjust engine speed in such way that a minimum vacuum of -0.42 bar is present (see ↘ manometer at the operating valve unit).

7.3 Working range of the crane jib

To be able to work near shop windows, roads, footways or other sensitive items you can limit the swivelling range of the crane jib.

To arrest (lock) the rear part of the crane jib release the 3 locking levers.



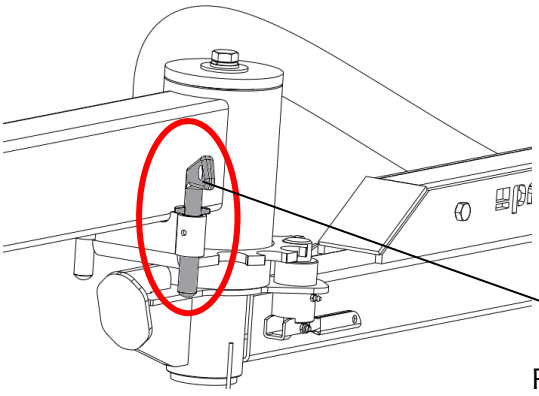
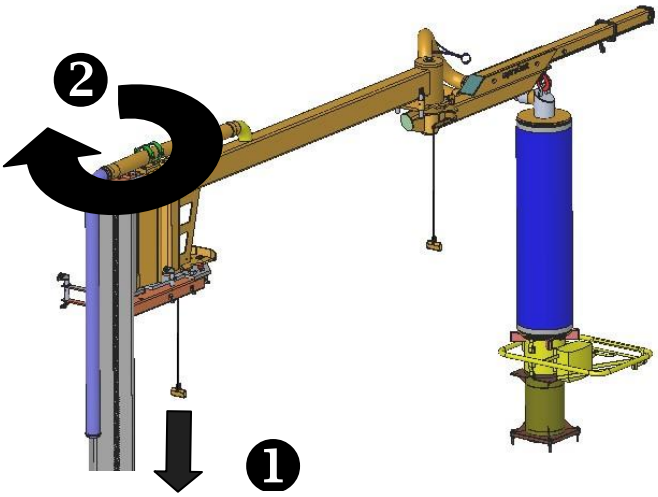
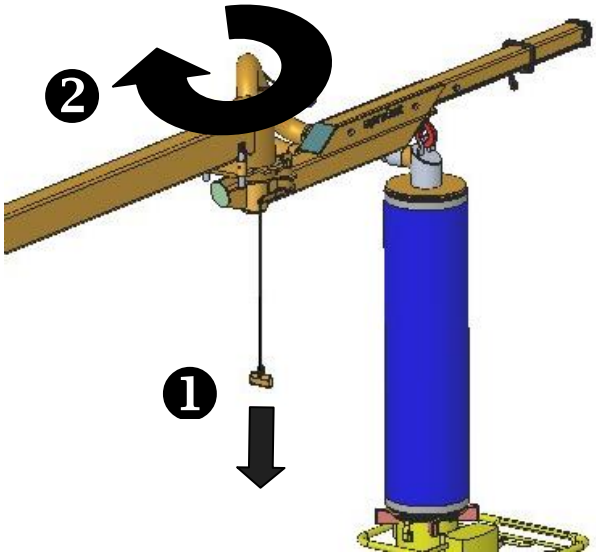


Fig. 03

To make the front part of the crane jib movable, pull at the cord (🡻) to release the locking lever at the gear ring (on the crane jib).

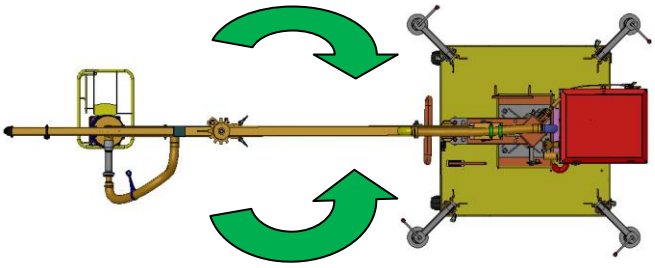




- Remove the operating valve unit from the holder (➔).

- Remove both socket pins at the crane jib (🡕) to swing the crane jib around 360°.

- Pull at the cord (🡻) to release the locking lever at the gear ring (on the crane jib).

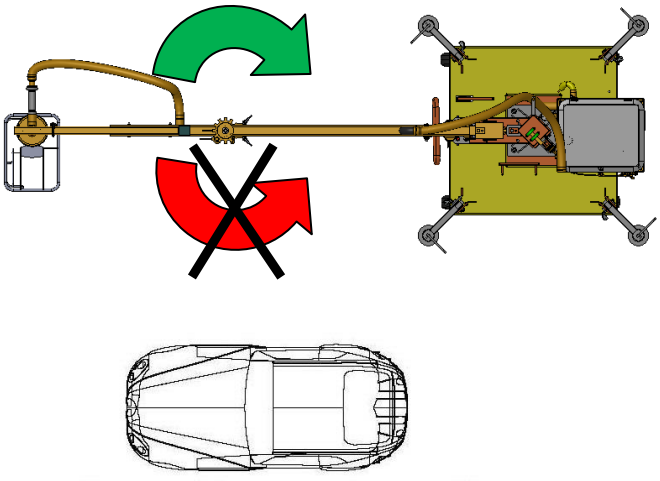


- Operating range of the crane jib around 360°.

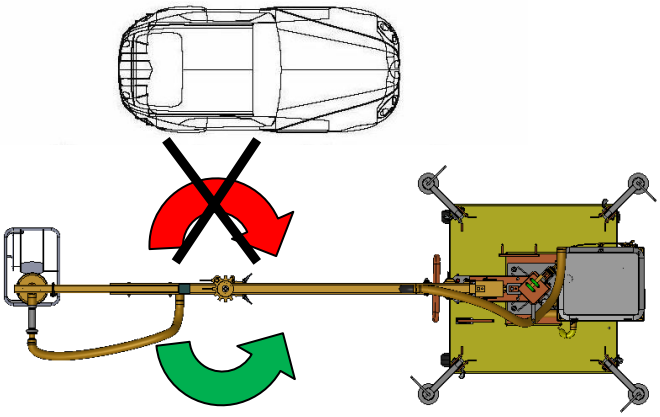
The using of the working range of the crane jib around 350° is strictly forbidden, when working direct on roadways – danger of accidents with motorcars, if vacuum lifting hose unit swings in to the roadway area!

The swing area of the vacuum lifting hose must be limited for the dangerous area (trailing roadway). Therefore limit the swing area of the crane jib with the corresponding plug bolts.

- Insert the corresponding 2 socket pins (left side in direction of travelling) at the crane jib (🡼) to delimit the working range of the crane jib to the left.



- Insert the corresponding 2 socket pins (right side in direction of travelling) at the crane jib (🡽) to delimit the working range of the crane jib to the right.



8 Maintenance and care

8.1 Maintenance

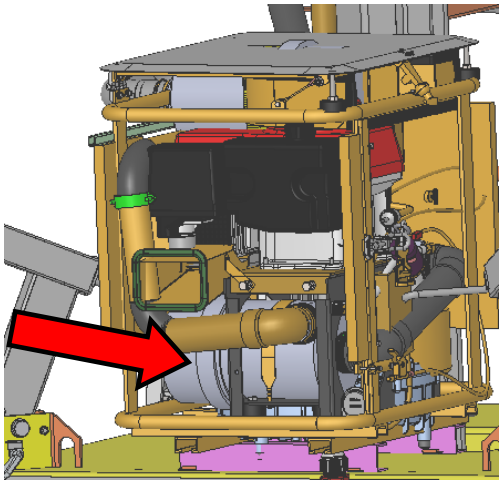
To ensure the correct function, safety and service life of the device the following points must be executed in the maintenance interval.

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

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

MECHNICAL

Service interval	Maintenance work
First inspection after 25 operating hours	• Control and tighten all screws and connection. (The implementation is only allowed by an expert).
Daily	• Clean filter *daily* with compressed air. Do not hit filter cartridge against any object!!! Exchange in case of much dirt. (see ↘ Ill. A)
All 50 operating hours	• 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. • Grease all slidings (if available) when the device is in opened position with a spatula.
Minimum 1x per year (at rough conditions shorten the interval)	• Check of all the suspension parts, bolts and straps. Check for corrosion and safety by an expert.



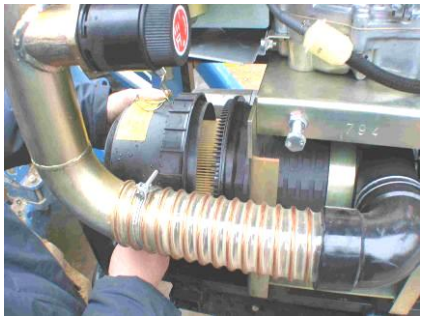
Ill. A

VACUUM/PETROL ENGINE

- Only persons with the appropriate knowledge and ability are allowed to repair the device
- Before the device is used again, it has to be checked by an expert.

Service interval	Maintenance work
daily	• Check engine oil level (see Honda operating instructions) • Clean air filter and blower (see fig. 1-3).
After one week	• Control and tighten all screws and connection
After one month	• Grease all joints, bolts, guidance's. • Grease all grease nipple every month • Oil change according to manufacturer data (HONDA) replacement (note the specifications).
Minimum 1x per year (at rough conditions shorten the interval)	• Check of all the suspension parts, bolts and straps. Check for corrosion and safety by an expert. (=> BGR 500)
	•

Fig. 1

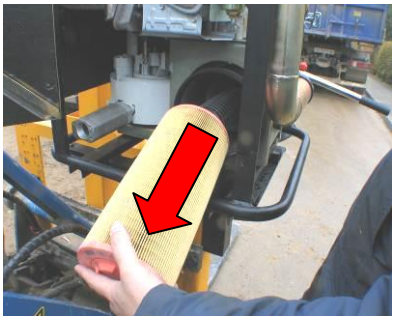


- Disassemble filter cap.

Fig.2

- Check seal and renew when damaged.

Fig.3



- Remove Filter and clean (compressed air), when necessary renew

ELECTRICS

Service interval	Maintenance work
After 25 operating hours	**Control all electrical connections and/or retighten (the implementation is only allowed by an expert)**
All 50 operating hours	• Check all fuses (if existing). • Check the electric cabeling for breaks and abrasion (if necessary replace it (only qualified personal)).

8.1.1 Maintenance Plan

	Interval				
	Daily	Weekly	Monthly	Every 6 months	Every 12 months
Check the safety devices: - vacuum gauge OK?	X				X
Inspect the filter		X			X
Electrical equipment OK? Cable glands tight?					X
Check the state of charge of the battery	X				X
Drain off condensation		X	X		
Are the vacuum hoses in good condition (not brittle, not kinked, no abrasion, no leaks)?			X		X
Are all connections and hose clamps tight.?				X	
Are the brief operating instructions, the rating plate and the load plate still attached to the device?					X
Are the Operating Instructions still available and are the users familiar with them?					X
Inspect supporting elements (crane beam, etc.) for deformation, wear and other damage.					x
Clean and inspect the suction plates (no cracks, sealing lip free of damage, etc.) and replace as necessary		X			X
Is the inspection certificate up to date?					X
General condition of the device					X
Leak test			X		X

8.2 Suction Plates and Sealing Lips

Clean the sealing lips with glycerine once per week to remove any objects or dirt such as glue, wood chips, dust etc.

Damaged or worn sealing lips (cracks, holes, deformation) must be replaced immediately.

Use only cold solvent for cleaning the device. Do not use benzene or caustic liquids, since these will damage the hoses.

8.3 Filter

Inspect the paper filter at least once per week.

If it is very dirty, replace it.

Procedure:

- Open the cover of the lifting device.
- Loosen the hose clamp and take out the filter.
- Install the new filter and secure it with the hose clamp.
- Close the cover of the lifting device.

8.4 Repairs

- Only persons with the appropriate knowledge and ability are allowed to repair the device
- Before the device is used again, it has to be checked by an expert.

For all repairs the device must be completely shut down!

8.5 Safety procedures

- It is the contructors 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)
- You can receive these badges from us.

The check by an expert must be proved!

Device	Year	Date	Expert	Company

8.6 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 these information.

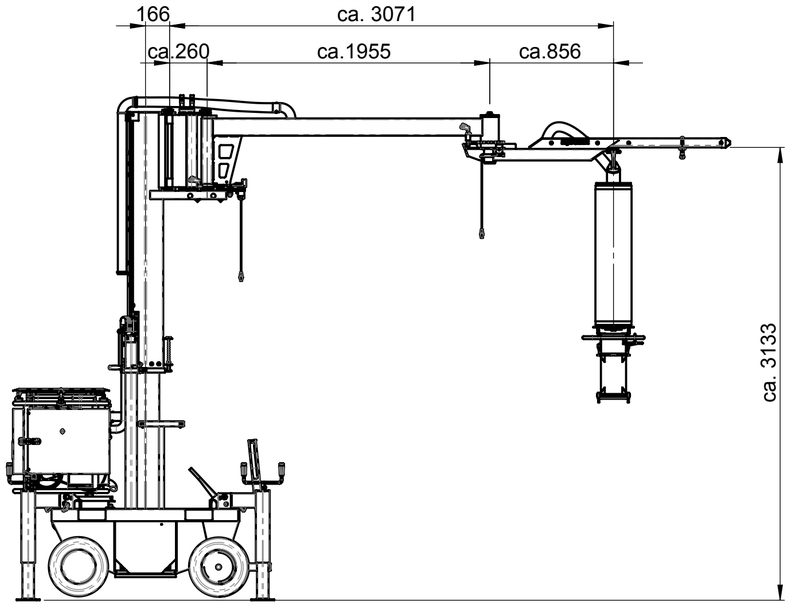
The max. carrying capacity is the maximum load which can be handled with the device. Do not exceed this carrying capacity.

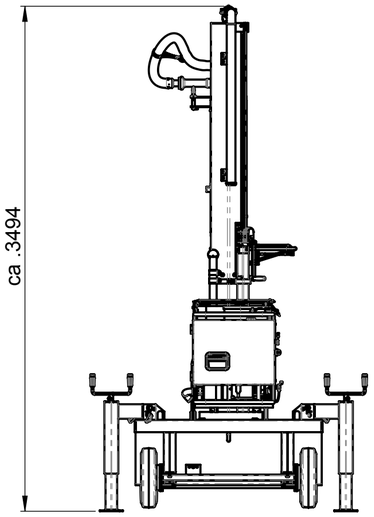
If you use the device in combination with other lifting equipment (Crane, chain hoist, forklift truck, excavator) consider the deadweight of the device

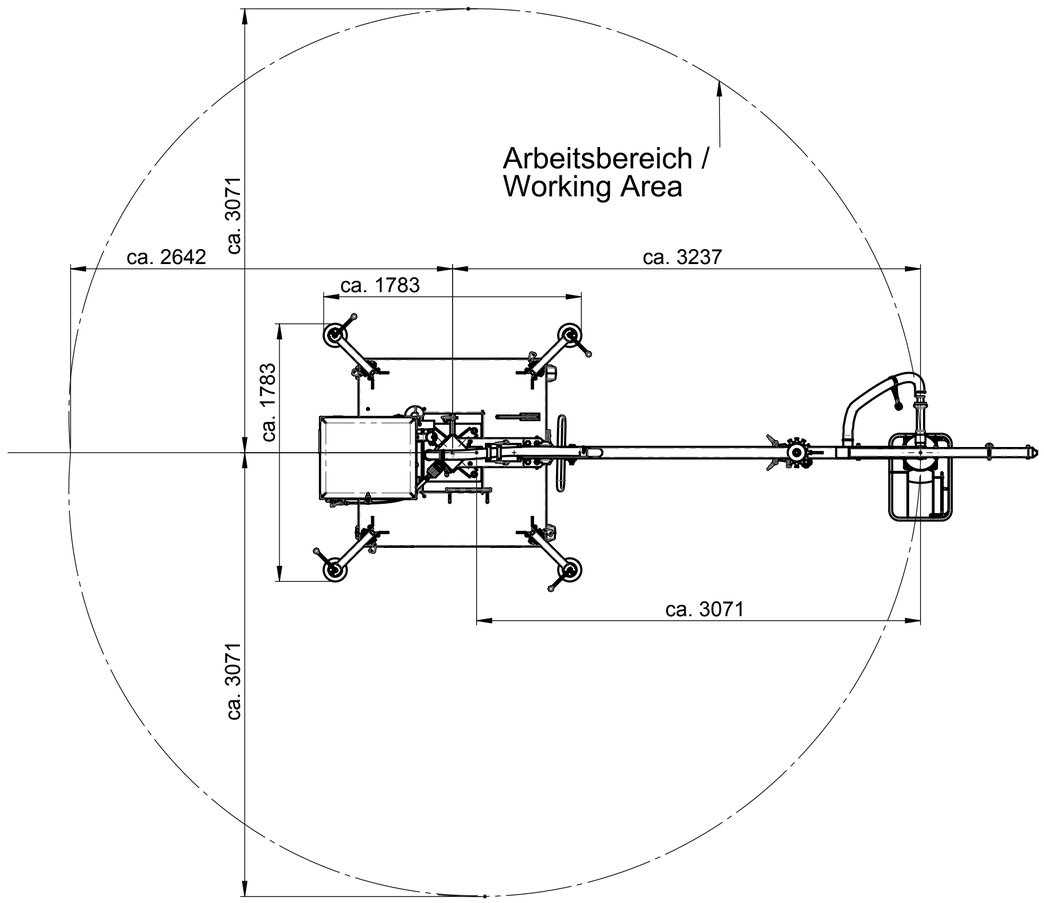
Example:

8.7 Hints to the renting/leasing of PROBST devices

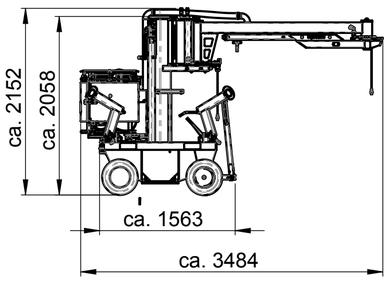
With every renting/leasing of PROBST devices the original operating instructions must be included unconditionally (in deviation of the users country's language, the respective translations of the original operating instructions must be delivered additionally)!

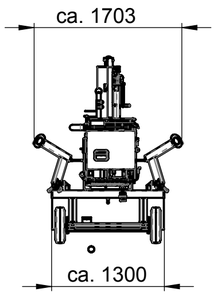






Transportmaße / Transport Situation:





Tragfähigkeit / Working Load Limit WLL:
200 kg / 440 lbs

Eigengewicht / Dead Weight:
730 kg / 1610 lbs

Product Name:
JM-VARIO-200-B Vacuum Slab Laying Machine

probst handling equipment

		Datum	Name
	Erst.	3.12.2013	Ralf.Northe
	Gepr.	14.9.2017	R.Northe
1			

Benennung
Jumbomobil JM-VARIO-200-B

Artikelnummer/Zeichnungsnummer
D52000020

Blatt 1 von 1

Zust. | Urspr. | Ers. f. | Ers. d.

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see separate list

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siehe separate Liste
see separate list

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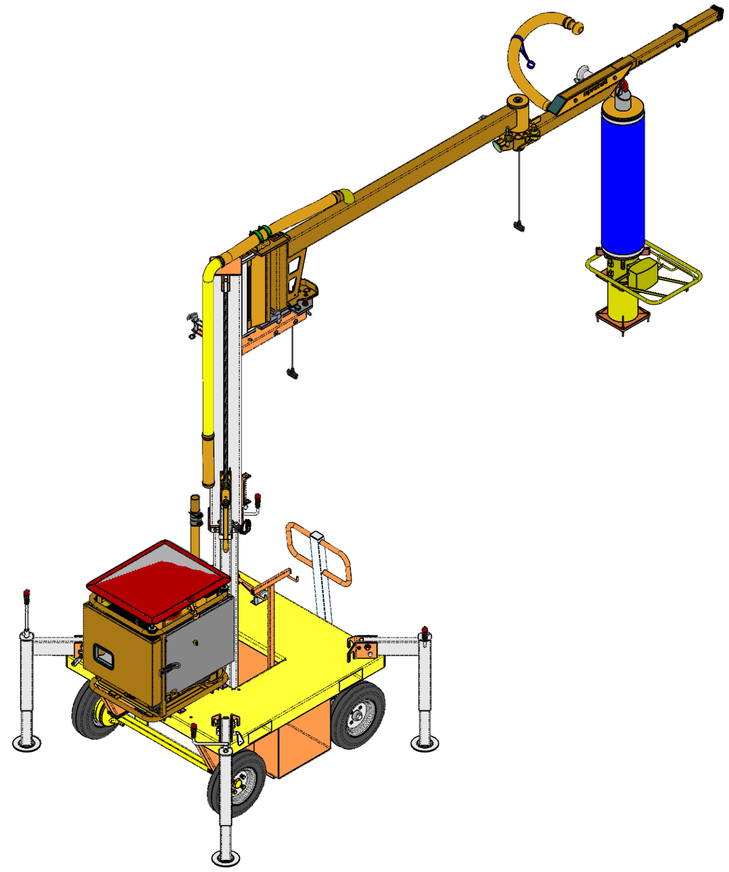
Ersatzteile auf Anfrage
spare parts at inquiry

42101114
Ersatzteile siehe Anleitung
spare parts see manual

42100539
Ersatzteile siehe Anleitung
spare parts see manual

42100008
Ersatzteile siehe Anleitung
spare parts see manual



probst

		Datum	Name
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	Gepr.	23.07.2024	R.Northe
2			
1			
Rev.	Urspr.	Ers. f.	Ers. d.

Benennung
Jumbomobil JM-VARIO-200-B

Artikelnummer/Zeichnungsnummer
E52000020

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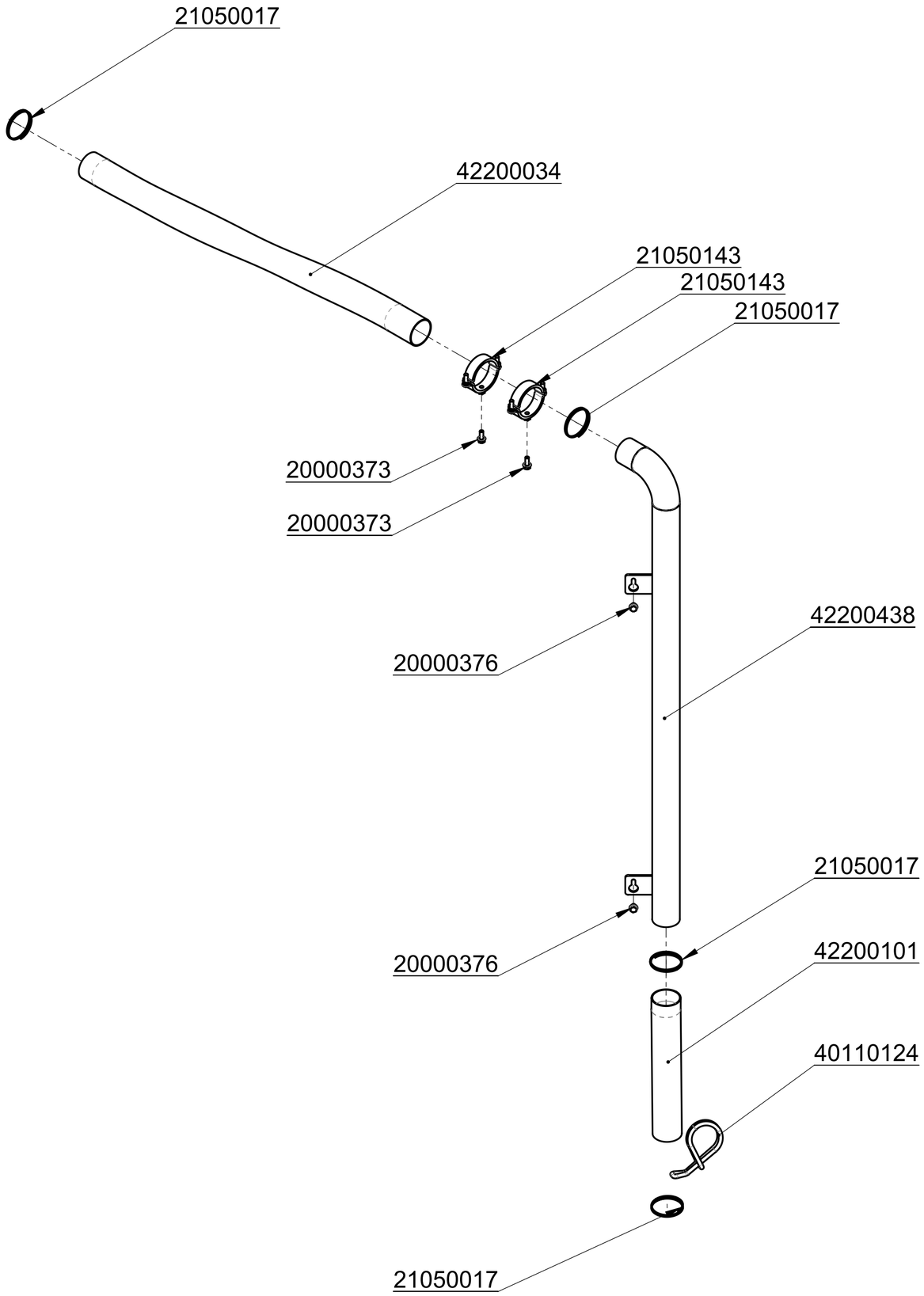

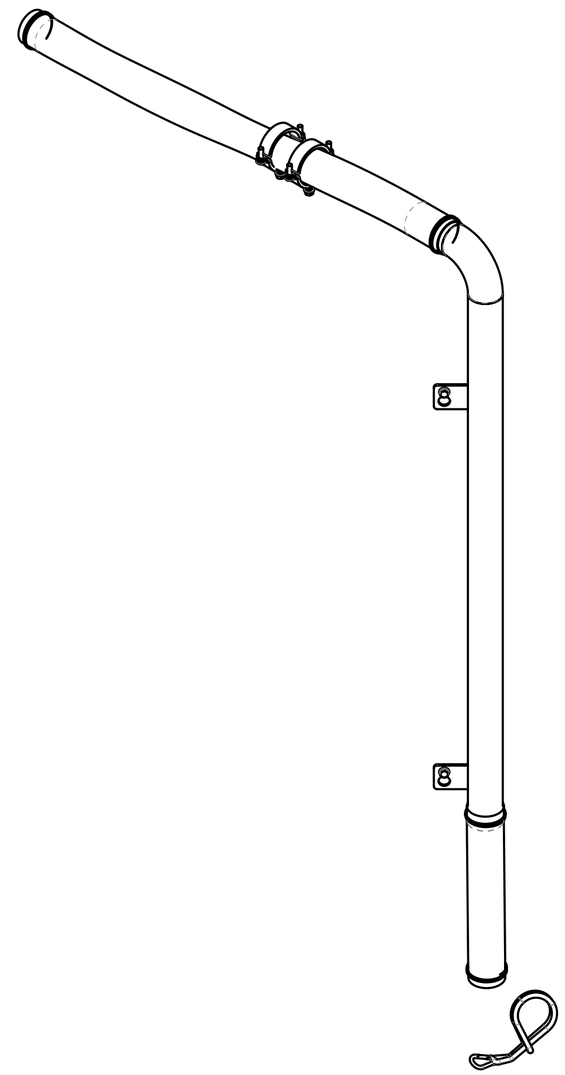

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		Datum	Name
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	Gepr.	21.11.2023	R.Seidel
2			

Benennung
Luftführung Mast JM kpl.
Nachrüstbaugruppe

Artikelnummer/Zeichnungsnummer
E42200439

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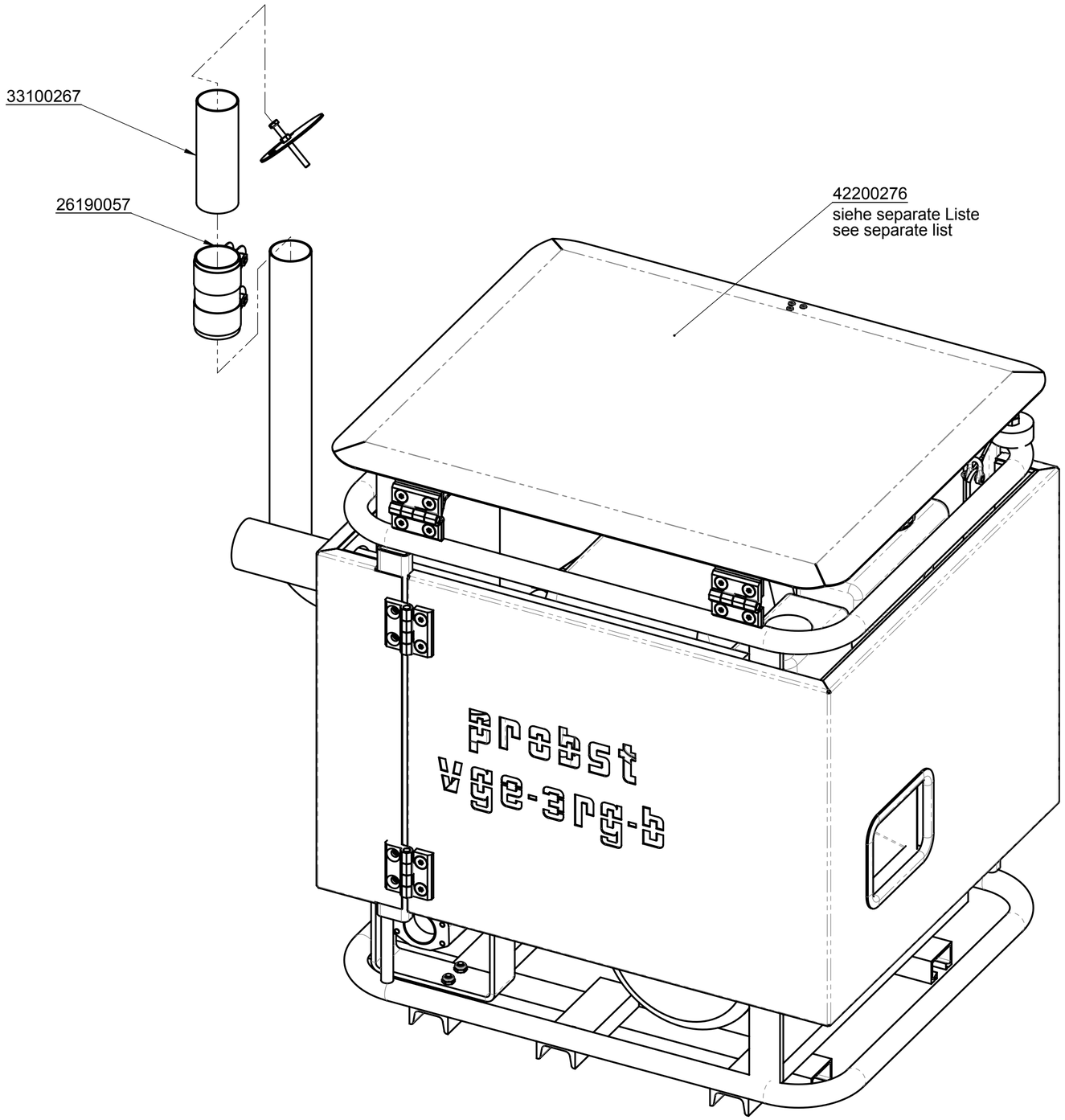
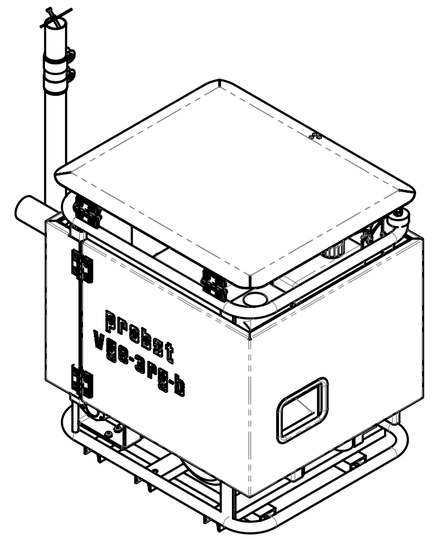
Zust. | Urspr. | Ers. f. | Ers. d.





probst handling equipment

		Datum	Name
	Erst.	6.10.2016	R.Northe
	Gepr.	31.3.2017	I.Krasnikov
1			

Zust. | Urspr. | Ers. f. | Ers. d.

Benennung
Vakuum-Gebläseeinheit
für Jumbo-Mobil JM
mit E-Start, VGE-3RGb-E und Gehäuse

Artikelnummer/Zeichnungsnummer
E42200418

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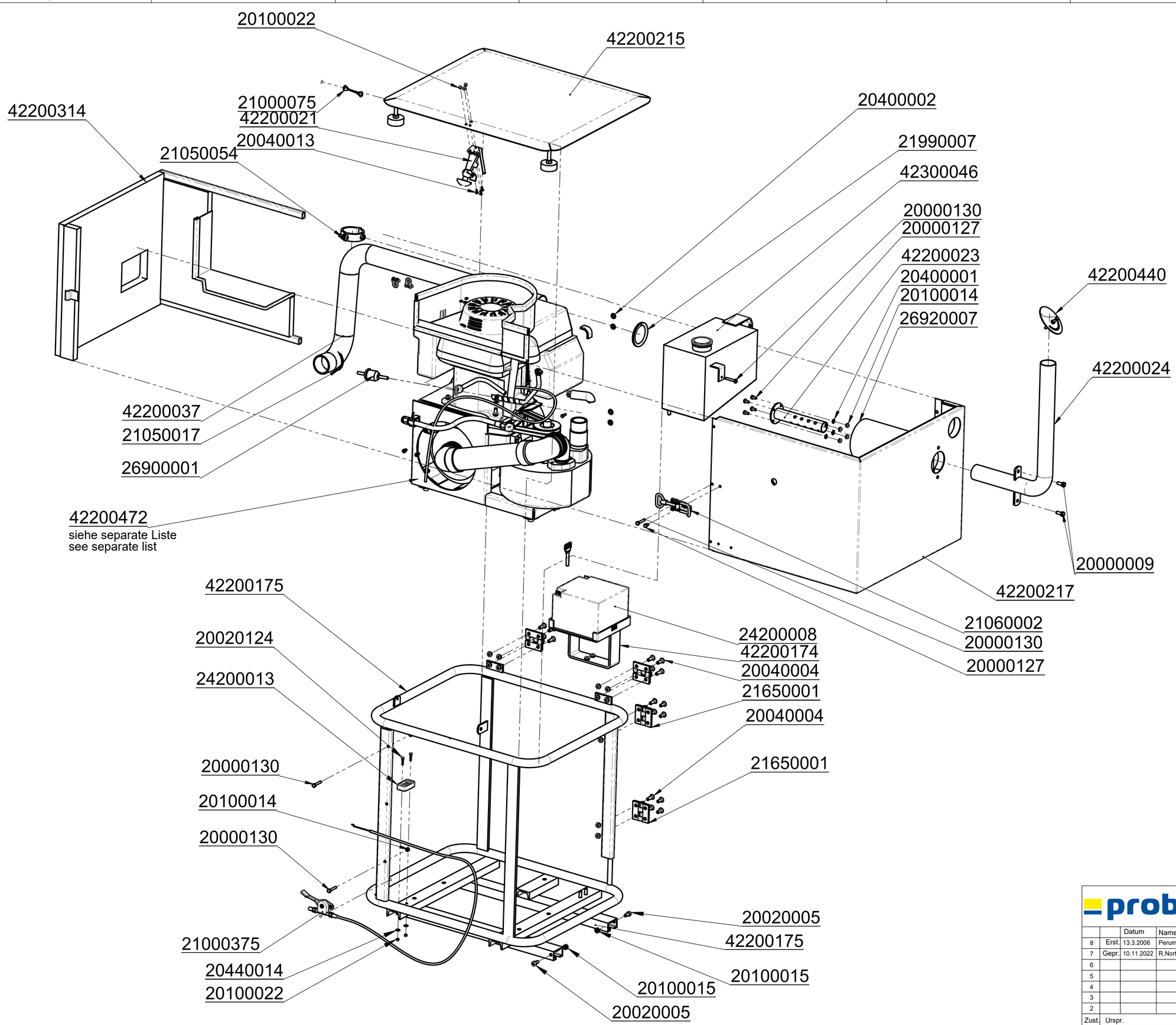

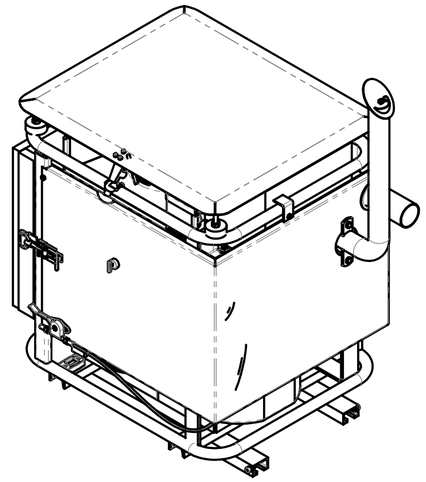

		Datum	Name
8	Erst.	13.3.2006	Perumal.Hurth
7	Gepr.	10.11.2022	R.Northe
6			
5			
4			
3			
2			
Zust.	Urspr.		

Benennung
Vakuum-Gebläseeinheit für Jumbo BV-b mit E-Start, Gebläse VGE-3RGb-E, und Gehäuse (GXV 390)

Artikelnummer/Zeichnungsnummer
E42200276

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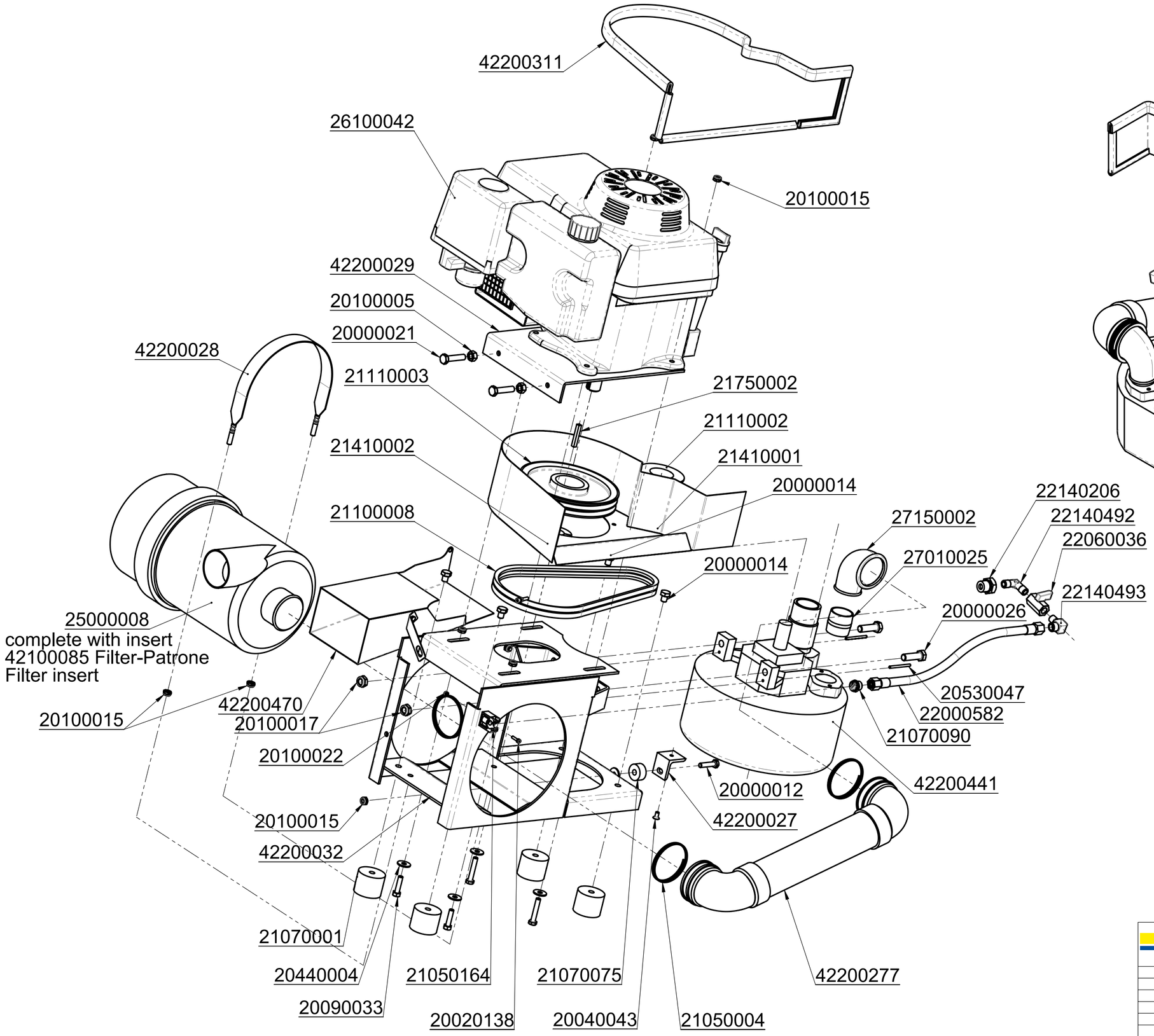
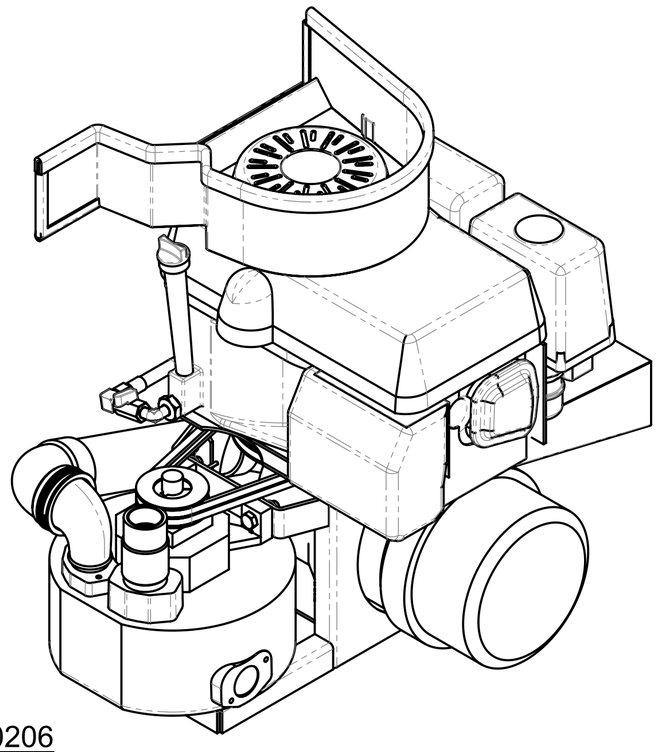
Ers. d.





probst handling equipment

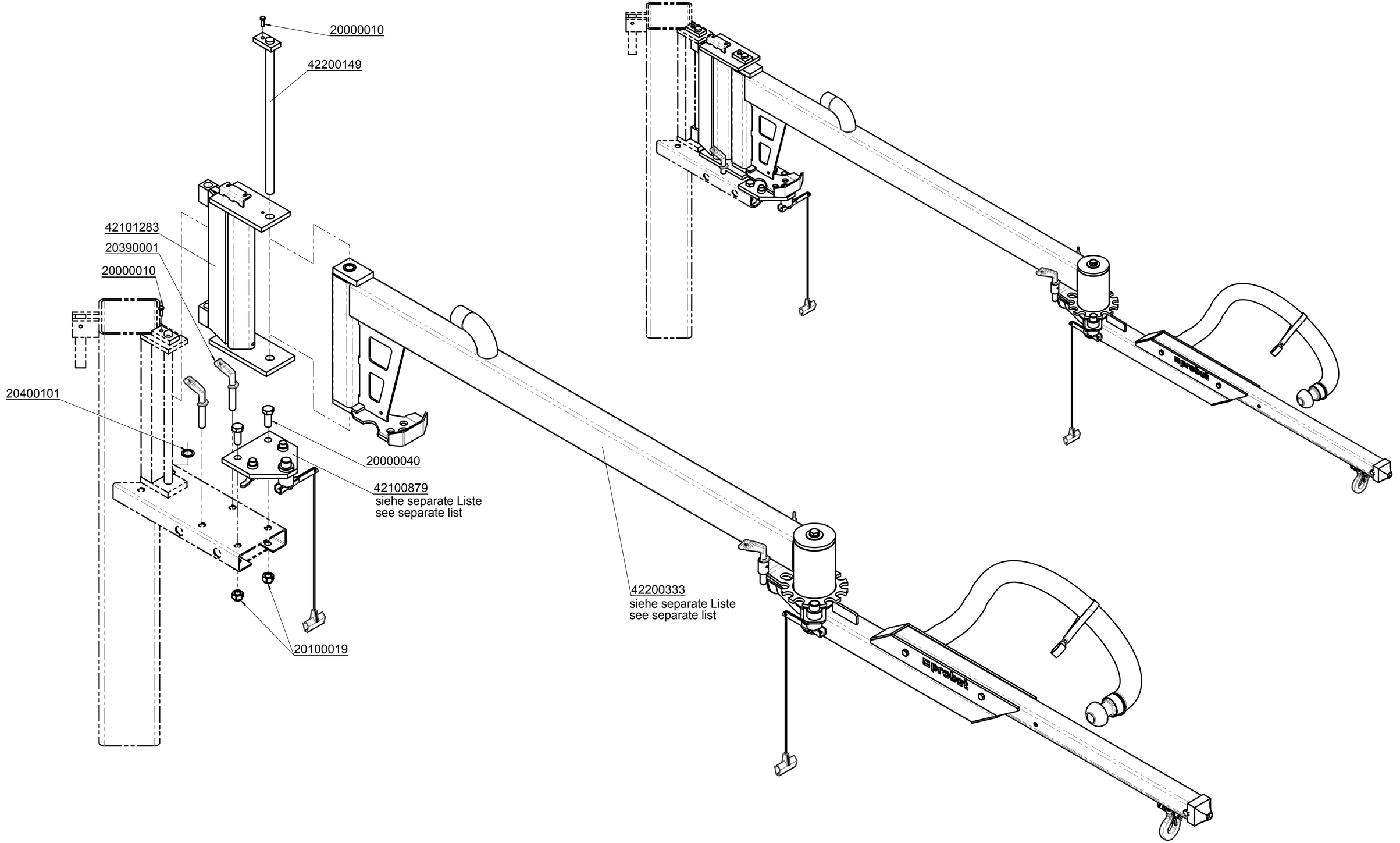
		Datum	Name
	Erst.	16.11.2020	M.Wunder
	Gepr.	16.11.2020	M.Wunder

Benennung
Gebläse + B-Motor GXV390 kompl.
mit E-Start für BV-B

Artikelnummer/Zeichnungsnummer
E42200472

Blatt 1 von 1

Zust. | Urspr. | Ers. f. | Ers. d.



probst handling equipment

		Datum	Name
	Erst.	30.4.2014	Ralf.Northe
	Gepr.	18.1.2018	R.Northe

Benennung
Nachrüstsatz Jumbomobil JM 150-e-K
mit Knickausleger inkl. Ausleger

Artikelnummer/Zeichnungsnummer
E42100884

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von 1

Zust.	Urspr.	Ers. f.	Ers. d.
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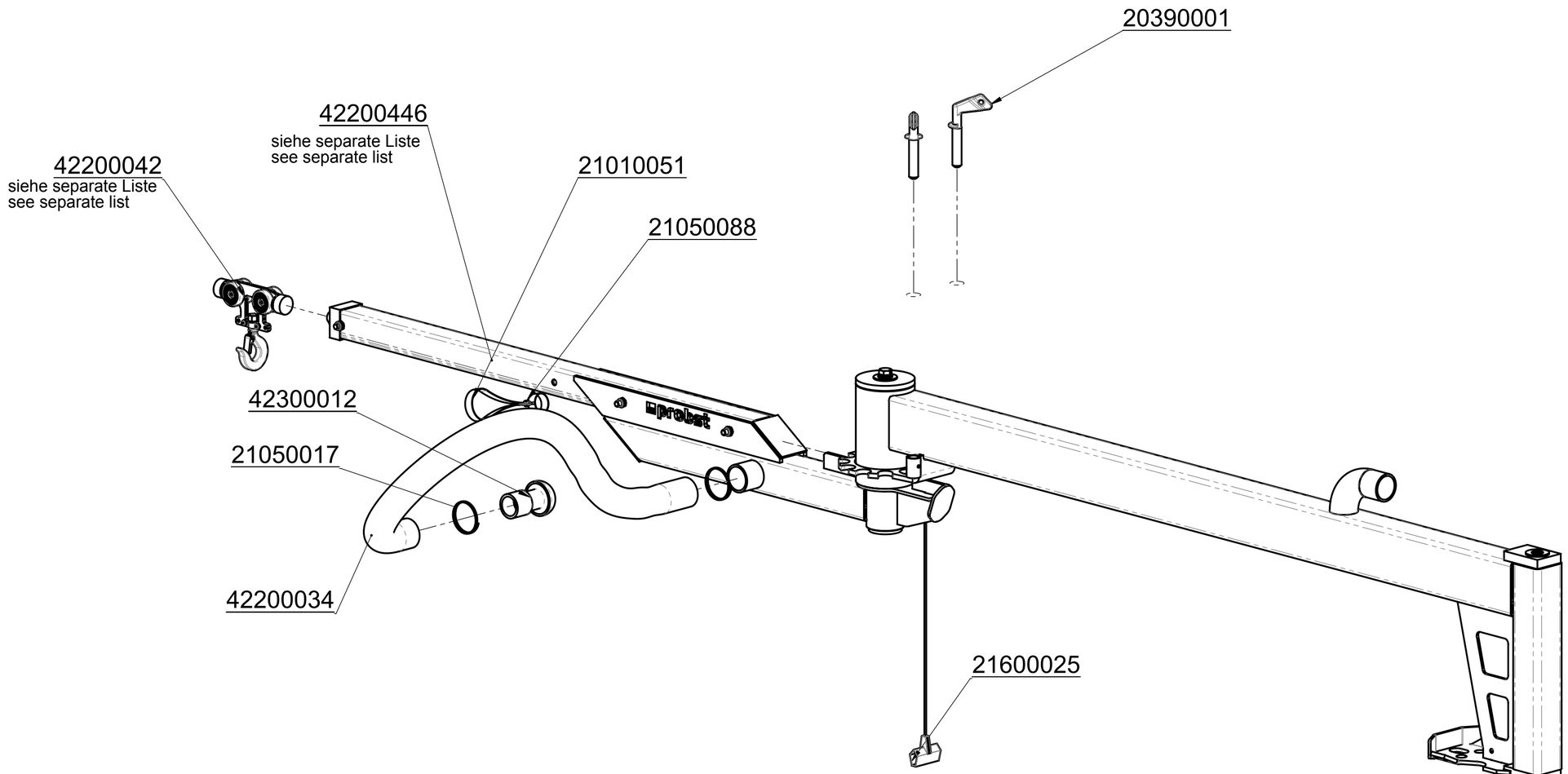
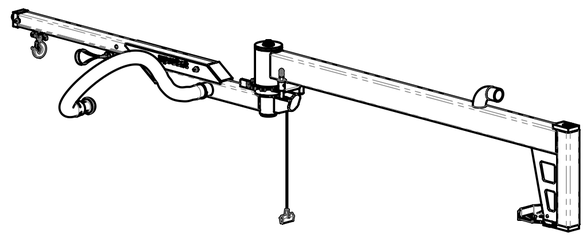




probst handling equipment

		Datum	Name
	Erst.	22.5.2012	Perumal.Hurth
	Gepr.	14.3.2017	J.Werner
2			
1			
Zust.	Urspr.	Ers. f.	Ers. d.

Benennung

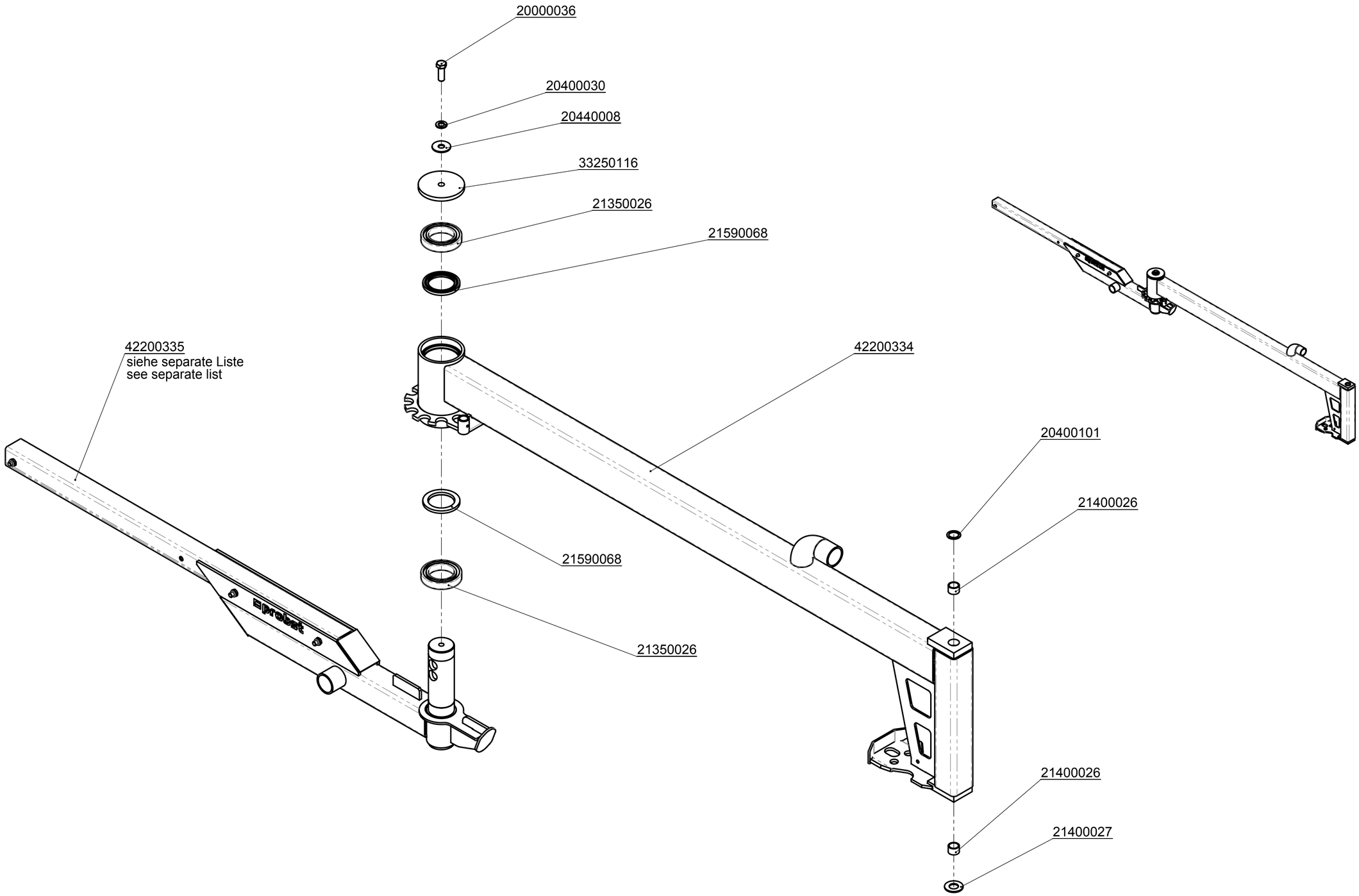
Knickausleger Jumbo BV

Ausladung 3450 mm, Tragfähigkeit 150 kg

Artikelnummer/Zeichnungsnummer

E42200333

Blatt 1 von 1



probst handling equipment

		Datum	Name
	Erst.	14.3.2017	J.Werner
	Gepr.	18.1.2018	R.Northe

Benennung
Knickausleger 150-3500 Zukaufteil

Artikelnummer/Zeichnungsnummer
E42200446

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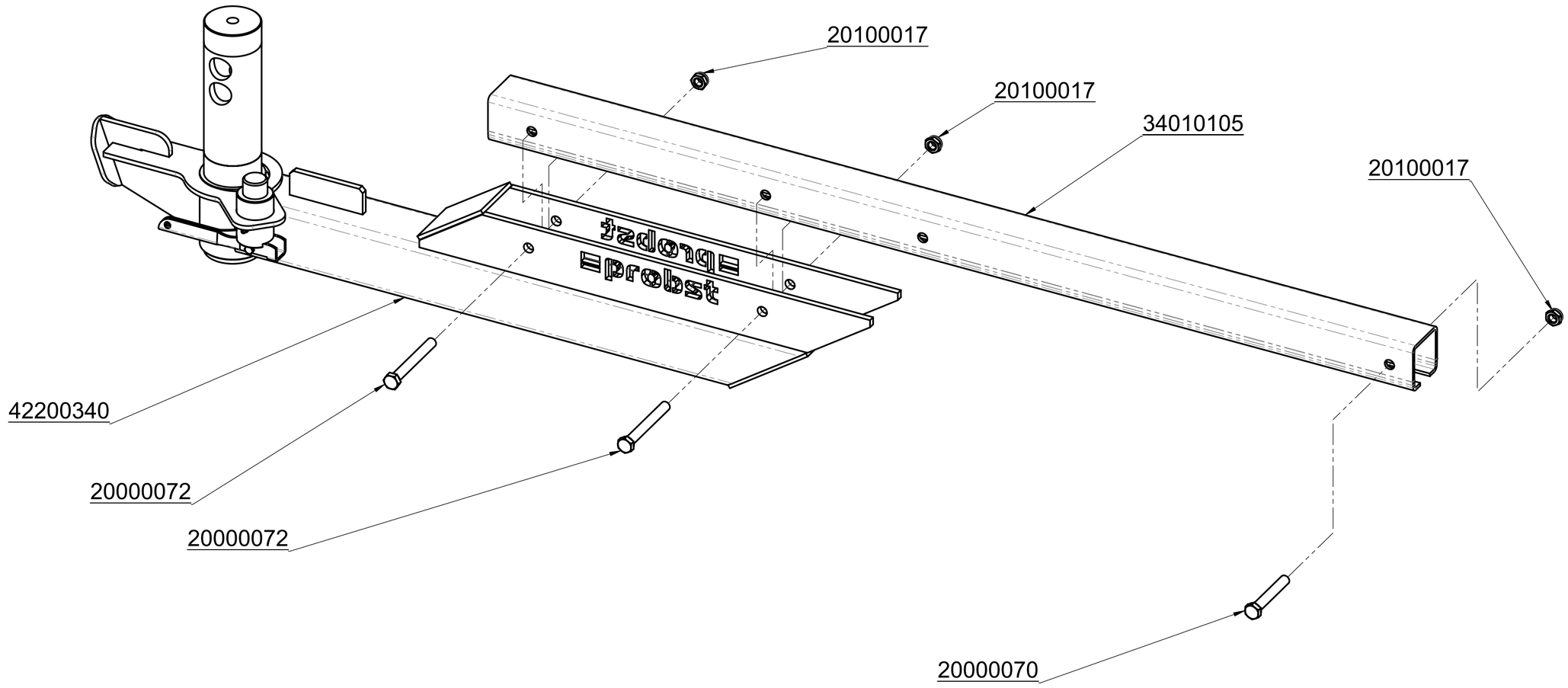
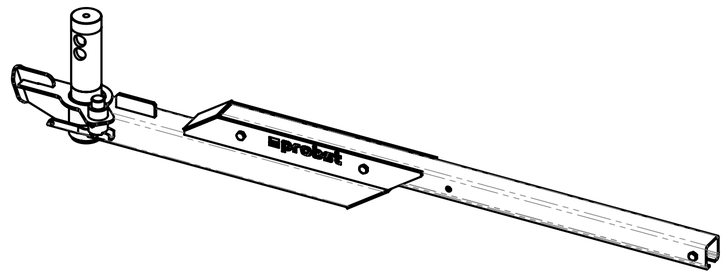
1			





probst handling equipment				© all rights reserved conform to ISO 16016
		Datum	Name	Benennung
	Erst.	24.9.2013	Ralf.Northe	Vorderarm Knickausleger kompl. 150-3500
	Gepr.	15.9.2016	I.Krasnikov	
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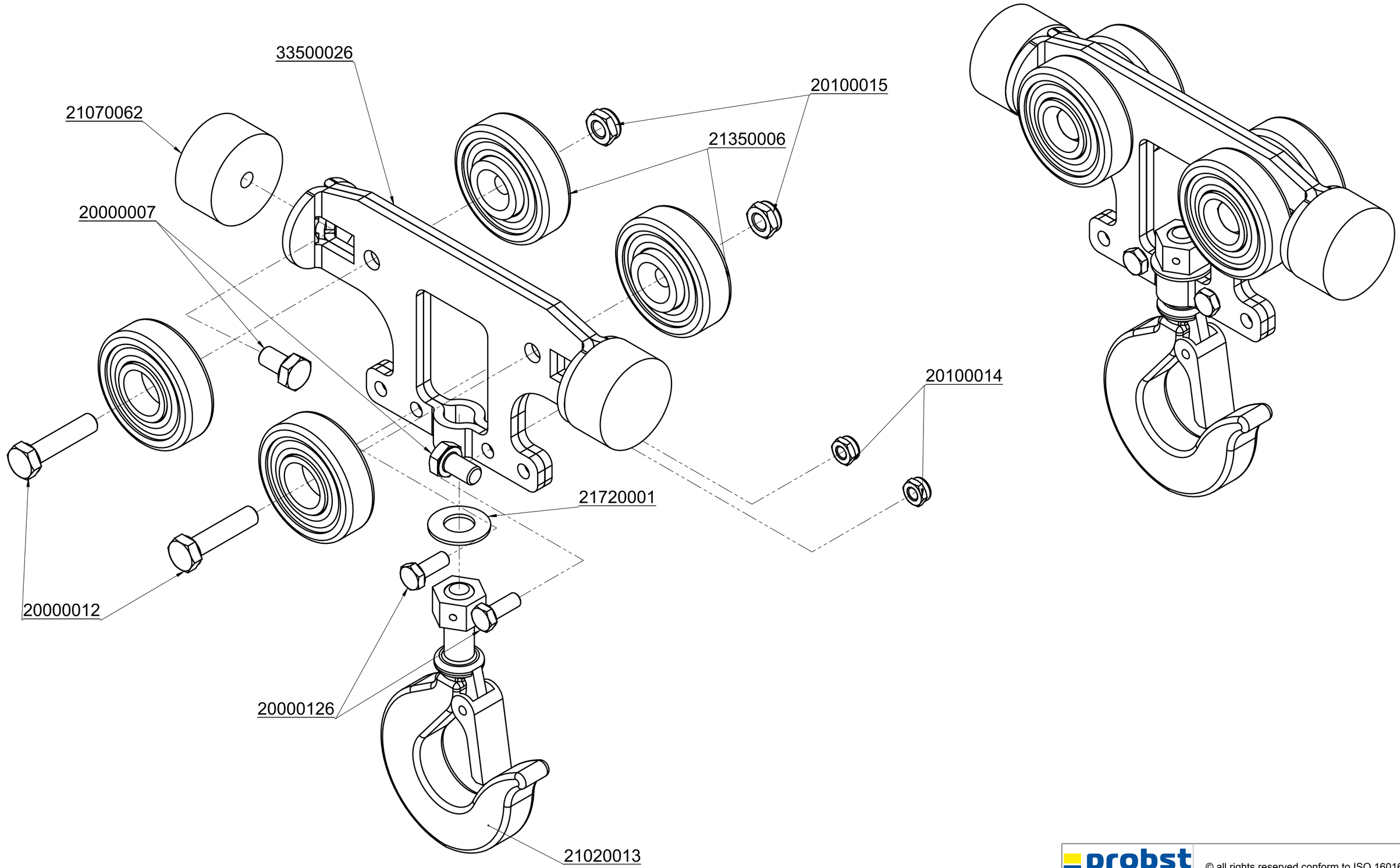
Zust.	Urspr.			Ers. f. — Ers. d.



probst handling equipment

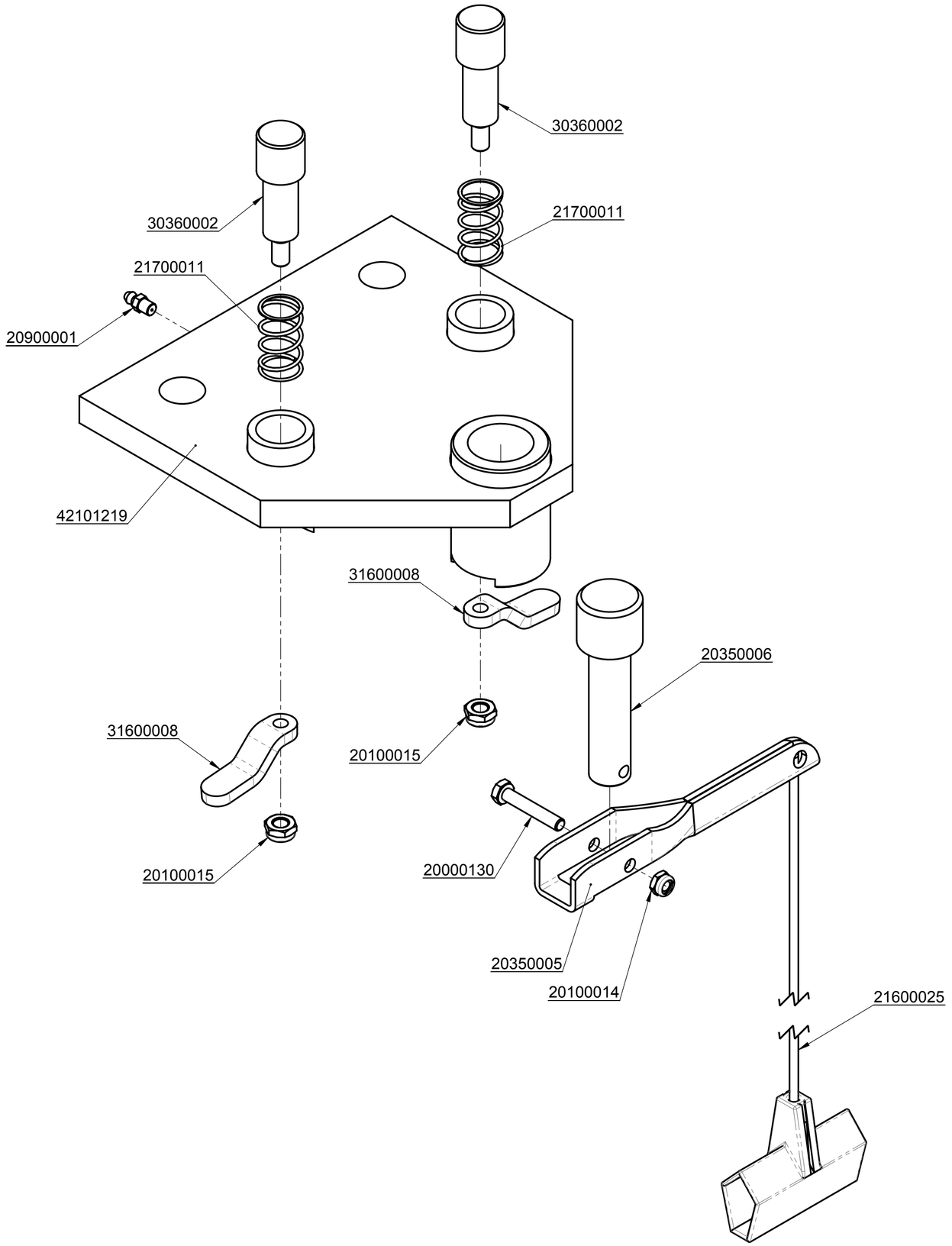
		Datum	Name
	Erst.	25.7.2012	M.Kaltenbach
	Gepr.	15.9.2016	I.Krasnikov

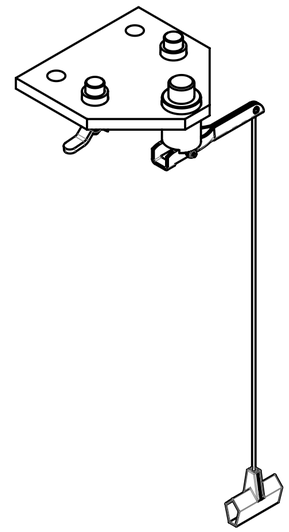
Benennung
Fahrwagen kompl. für Hubeinheit TM

Artikelnummer/Zeichnungsnummer
E42200042

Blatt 1
von 1

Zust. | Urspr. | Ers. f. | Ers. d.





probst handling equipment

		Datum	Name
	Erst.	31.3.2017	I.Krasnikov
	Gepr.	31.3.2017	I.Krasnikov

Benennung

Halterung Stützbeinsicherung

für JM zu Knickausleger

Artikelnummer/Zeichnungsnummer

E42100879

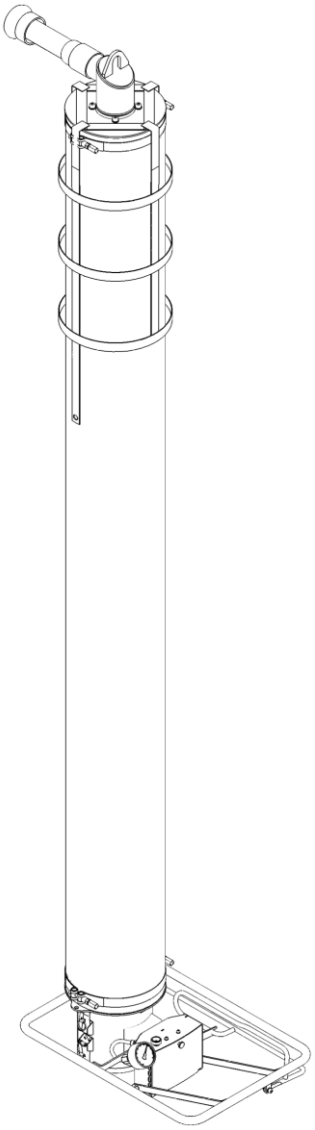
Blatt 1 von 1

Zust.	Ursprung	Ers. f.	Ers. d.
3			

Filterübersicht / Filter overview
JUMBO-BV-B/-VARIO-B JUMBOMOBIL-B/-VARIO-B

25000008	Luftfilter Euro-Piclon für JM und BV inkl. Filterpatrone Air filter complete for JM and BV, incl. filter cartridge	
25050010	Filtermatte für BE 174x111 mm Filter mat for BE 174x111 mm	
26900001	Kraftstofffilter für BV-Tank (8 Liter) M&H Nr.: WK 31/4 Fuel filter for BV-tank (8 litre) M&H No.: WK 31/4	
26900021	Luftfiltermatte für GXV270 Typ:17218-ZE8-003 auch 17218 Air filter mat for GXV270 Type:17218-ZE8-003 also 17218	
42100085	Luftfilter-Patrone Micro Top Mann-C-15-300, für JM-Serie C Airfilter cartridge Micro Top Mann-C-15-300, for JM-Series C Einzelteil von 25000008 / single part of 25000008	
25000020	Luftfilter Einsatz für Honda-Benzinmotor GXV270 Air filter cartridge for Honda petrol engine GXV270	
25000046	Luftfilter Einsatz für Honda-Benzinmotor GXV340 Air filter cartridge for Honda petrol engine GXV340	

Vacuum Hose Lifter Components
Lifting hose unit with Operating Valve Unit



CE

Keep these Operating Instructions for future use !

Table of Contents

Special Features

The unit is equipped with the following special feature(s):

(See the Appendix for special operating instructions and spare parts.)

If the special features require a separate list of spare parts or parts subject of consumption, the corresponding list in section "Spare parts" is invalid.

1 Safety

1.1 Instructions for the Company

The *Vacuum Hose Lifter* has been manufactured according to current technological standards and is safe. Still, it will present hazards

- ⇨ if the device is not operated by qualified or, at least trained staff,
- ⇨ if the device is used contrary to the approved applications (see 1.5).

Problems can arise:

- ⇨ for the health and life of operators and other persons,
- ⇨ for the lifting device and other valuable goods.

1.2 Instructions for the Installation, Maintenance and Operating Personnel

The *Vacuum Hose Lifter* must be installed and maintained by qualified personnel, mechanics and electricians. Any work on the electrical equipment may be carried out only by a qualified electrician.
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 chapters "Safety" and ”Operating” 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. Ambiguity regarding responsibilities must not exist.
We recommend that you protect the lifting device from unauthorized use, e. g. by a key-switch.

1.3 Hazard Alert Symbols in this Manual

The hazard alert messages in this manual are labelled as follows:

Danger

Identifies imminent hazard. If you do not avoid it, death or servere injury will result.

Caution

Identifies a potentially hazardous situation. If you do not avoid it, minor or moderate injury can result.

1.4 Installation Site Requirements

The lifting device must not be operated in rooms with explosive atmosphere.
If desired, the *Vacuum Hose Lifter* can be supplied in explosion-protected version.
The ambient temperature must be between +0°C and 40 °C
(if this temperature may be exceeded, consult the manufacturer).
Ensure by internal instructions and checks that the installation site is always clean and well organized.

1.5 Intended Use

Danger

The *Vacuum Hose Lifter* is designed to lift and transport items of all kinds.
The maximum lifting capacity must not be exceeded, however. Observe the name plate!
The loads must be stable enough that they cannot be destroyed during raising!
Transport of persons and animals with the load or the lifting device itself is forbidden!
Unauthorized alteration of the lifting device is forbidden for safety reasons!

Only suction plates of the manufacturer **PROBST** shall be used!!!

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!
Do not exceed the maximum carrying capacity of the suction plates!!!
Danger: Load (stone slabs) will fall down!

Prohibition

The use of suction plates with a smaller **carrying capacit**y than the lifting unit is **forbidden**! **Danger**: Load will fall down.
(It is permissible to use suction plates with a higher carrying capacity than the lifting unit).

The use of this device is only permitted in proximity to the ground.
The Load **must not** be lifted above **1,8 m** (70,8 inch)!

1.6 Emissions

The equivalent continuous sound pressure level amount in operation (workpiece sucked on) is for the *Vacuum Hose Lifter* below 70 dB (A).

1.7 Special Hazards

The load is held at the suction head by underpressure. If there is a sudden interruption of the vacuum generator, the underpressure at the suction head decreases. As a result the lifting tube of the device descends and the load lowers.
This happens in a sudden power failure. A non-return valve in the rotary suction fitting ensures that the vacuum can escape only slowly. However, this will work only when the regulator lever is moved to "Lift".
When power fails, immediately put the load down if possible. If this is not possible, immediately leave the dangerous area near the load.
The device generates a very strong suction which can draw in hair and clothing. Do not look into the suction opening or place small objects close to suction openings when the device is switched on.

1.8 Workplace

Danger

The workplace of the operator is in front of the control unit.
Make sure, that there will be no unauthorized operating of the main switch from the lifting device (for example with a padlock at the main switch).
Never stand below the load.

1.9 Instructions for the Operator

As an operator of the lifting device you must be trained before start-up. You must have read and understood the operating instructions and especially the chapters "Safety" and ”Operating”.
Be sure, that only authorized persons use the device. You are responsible for others in the operating range of the equipment.
Local safety requirements are fully applicable. Safety instructions in this document are complementary to the rules in force and do not supersede the latter.

1.10 Equipment for Personal Protection

Wear safety shoes when operating the device.
Before transporting dangerous goods the appropriate safety clothes have to be put on.

1.11 Behaviour in Emergencies

As an example sudden power failure is an emergency (the device switches off invariably!).
Turn the control handle fully to position "Lift". The operating unit lowers itself slowly with the load.

1.12 Checking the Guards

A non-return valve is mounted inside the rotary suction fitting. It prevents the load from dropping off the vacuum head if there is a sudden power failure.
Check the function of this non-return valve at the beginning of each shift (when operating in shifts) or once a week (when operating continually).
During the check stay outside the dangerous area.
When power fails, immediately put the load down if possible. If this is not possible, immediately leave the dangerous area near the load.
Checking:

- ⇨ Switch on the lifting device.
- ⇨ Lift a load and turn the control handle fully to position "Lift".
- ⇨ Switch off the lifting device. The device must lower itself slowly with the load. The load must not drop off at once.

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.

2 Technical Data

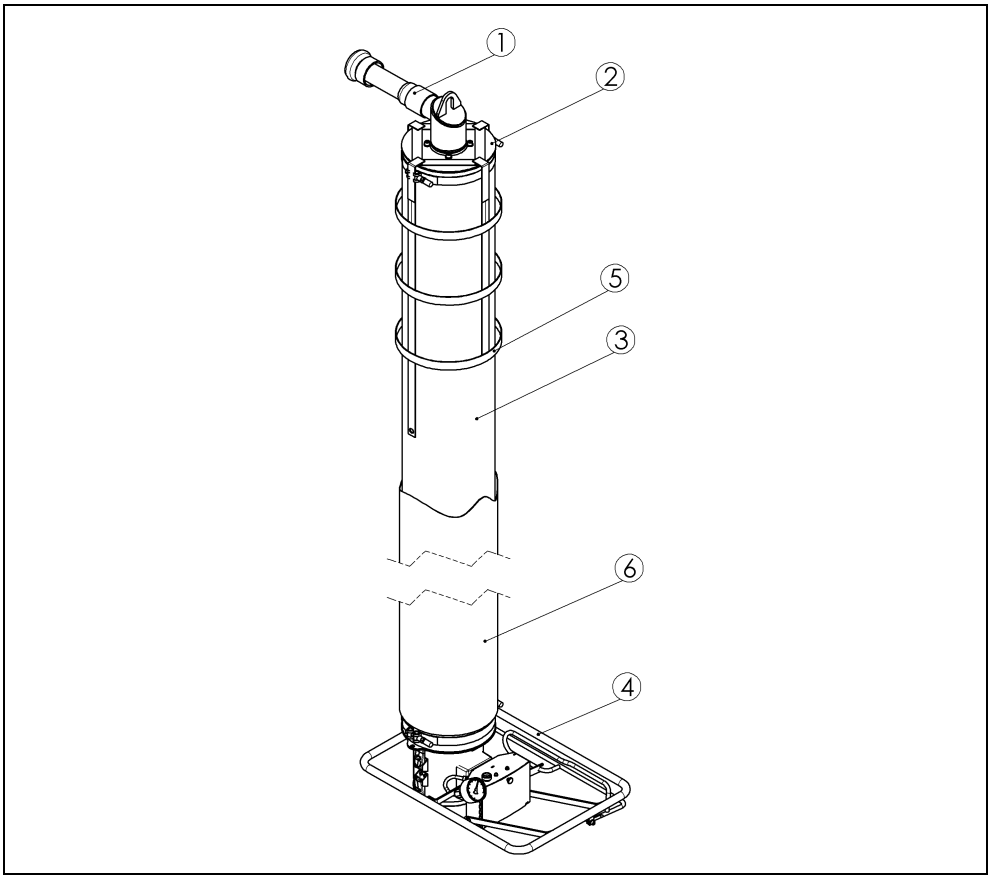
Ambient temperature	0 - 40 °C
Max. lifting stroke	approx. 1550 mm

3 Description

3.1 Components of the *JUMBO*

The *Vacuum Hose Lifter* consists essentially out of:

Pos.	Description	Remarks
1	Coupling	customer connection
2	Rotary suction fitting	customer connection
3	Lifting tube	customer connection
4	Operating unit	with regulator handle
5	Securing net	-
6	Covering for lifting tube	-



3.2 Rotary Suction Fitting

The rotary suction fitting is connected to the suction hose of the blower and the lifting tube (3).
The lifting device is suspended on the rotary suction fitting.
The lifting device can be rotated endlessly.

3.3 Lifting Tube

The lifting tube transmits the vacuum to the vacuum head(s) and realize the lifting movement of the lifting device.

3.4 Control Unit

With the control unit the lifting and lowering of loads is controlled by changing the vacuum in the lifting device. It regulates the flow of outside air to the lifting unit.

The flow of outside air and therefore the vacuum is controlled by an orifice disc. It is operated by a regulator lever (Pos. 4.2). The load is lifted when the control opening is fully closed by the slider. The farther the control opening is open, the more outside air will be drawn in. The load will lower.

3.5 Accessories

Dust Filter
The installation of a dust filter is urgently recommended to protect the fan from all kinds of dirt (dust from surroundings, dirty loads etc.)
Observe the enclosed installation instructions for dust filter.
Note: If no dust filter is used, foreign objects must be excluded from the guarantee as a possible cause of failure.

Motor Overload switch
With this device, the blower can be switched on and off. An integrated overcurrent switch prevents the blower motor form being damaged by high current.

Tube cylinder Extension
The tube cylinder extension is designed for handle parts in high-sided boxes, crates, wire-mesh boxes, etc. The tube cylinder extension has to be mounted between the vacuum head and the control unit.

Vacuum gauge
The vacuum gauge indicates the underpressure at the vacuum head and thereby the status of operation of the lifting device. It is mounted at the control unit.

Protection Tube
The protection tube is a protective covering for the lifting tube.

Retaining net
The retaining net is for space-saving storage of the lifting device. The length of the lifting tube is reduced to a minimum.

4 Installation

4.1 Installation Procedure

The *Vacuum Hose Lifter* must be installed and maintained by qualified personnel, mechanics and electricians. Any work on the electrical equipment may be carried out only by a qualified electrician.

Blower Installation
⇨ Install the vacuum blower as described in the separate operating instructions.

Checking the Rotation Direction
Before commissioning, check that the blower rotation direction corresponds with that in the separate manual.

Caution

When mounting the suction hose, observe that the hose is hanged up spirally turned (∅ at least 800 mm). Its length has to be the 1.3 to 1.5 times the jib length. The suction hose must hang down freely. It must not lie flat, rub or catch on anything.

Danger

⇨ Mount the rotary suction fitting (7) to the transport trailer (5) of the crane. Fasten it safely! Insert the transport trailer into the crane jib (2).

⇨ Mount the end stop (6) at the end of the crane jib. Never work without an end stop on the crane jib, otherwise the lifting device can fall off.

⇨ Connect the suction hose to the rotary suction fitting (4) and secure it with a hose clamp.

If you install the suction hose, note that the hose contracts under the pressure of vacuum by approximately 10 to 15 %.
Therefore, a loose installation with length compensation should be provided. Longer, linear distances can also be bridged with a plastic pipe. The overall length should not exceed 50 m. Long suction hoses reduce the capacity and the dynamics of the tube lifter.

4.2 Adjusting the Hovering Position (without load)

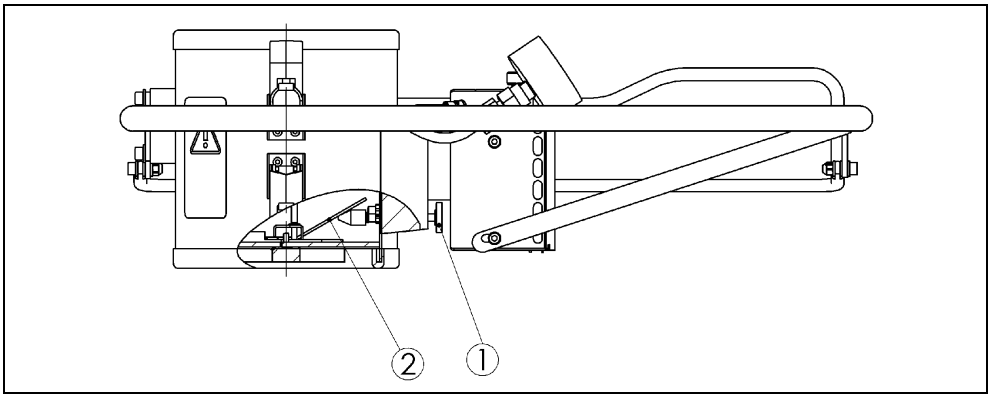
The hovering position of the lifting device must be adapted to the weight of the vacuum head. A valve (2) in the tube support cylinder is used to adjust it.
When you apply the vacuum head to the load a valve is fully opened by a plunger and the valve rod in the vacuum head. The load can be sucked and lifted.
Adjustment:

⇨ Turn the adjustment screw (1) at the operating unit (accessible from the bottom).
Turn clockwise (direction of arrow) ➔ Valve becomes opened.
Turn counter-clockwise ➔Valve becomes closed.

Danger

⇨ The farther the valve is opened the lower the device hovers.

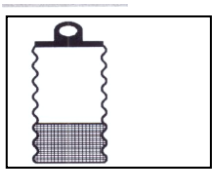
When the valve is closed totally the device bounce up abruptly as soon the blower is switched on!



4.3 Replacing the lifting tube

The lifting tube can be replaced on-site.

The lifting tube must always be installed with the reinforced section at the bottom!



Caution

Procedure:

- Clamp the rotary inlet in a vice, holding it by the screws of the tube holder (Fig. 1).
- Remove the protective caps from the ends of the threads of the hose clamps.
- Use a spanner to remove the hose clamps from the tube cylinder (Fig. 2) and the rotary inlet (Fig. 3).
- Remove the adhesive tape from the old lifting tube.
- Unscrew the old lifting tube from the tube mounting of the tube cylinder (Fig. 4).
- Unscrew the lifting tube from the tube mounting of the rotary inlet (Fig. 5).
- Lightly grease the threads of the tube mountings (Fig. 6).
- Mount the new lifting tube with the reinforced section at the bottom!
- Fully screw the new lifting tube onto the threads of the rotary inlet (Fig.7).
- Fully screw the new lifting tube onto the threads of the tube cylinder (Fig. 8).
- Wind tow full turns of adhesive tape (Coroplast) around the ends of the lifting tube to seal it to the tube cylinder (Fig. 9) and the rotary inlet (Figs. 10, 11).
- Place the hose clamps on the ends of the lifting tube and tighten them with a torque of 10 Nm, using a torque wrench (Fig. 12).
- Fit the protective caps on the ends of the threads of the hose clamps.


Fig. 1


Fig. 2


Fig. 3


Fig. 4

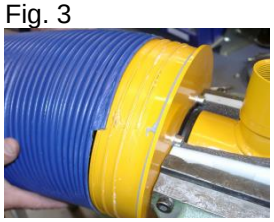


Fig. 5

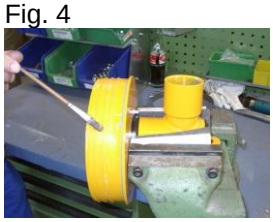


Fig. 6


Fig. 7


Fig. 8


Fig. 9


Fig. 10


Fig. 11


Fig. 12

Serial number →

Lifting tube dimension →

← Article number lifting tube

5 Operating

5.1 Safety Instructions

Local safety requirements are fully applicable. The following safety instructions are complimentary to the rules in force and do not supersede the latter:

- ⇨ Wear safety shoes.
- ⇨ Before transporting dangerous goods the corresponding safety clothes have to be put on.
- ⇨ Never exceed the maximum lifting capacity of the lifting device. Observe the name plate on the handle.
- ⇨ Do not stand below the load. Always keep clear of the load.
- ⇨ Never carry 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 manoeuvre loads above people.
- ⇨ Never lean about lifted loads.
- ⇨ Do not let go of the handle whilst lifting a load.
- ⇨ Do not pull loads to the side or drag them along with the lifting device.
- ⇨ Do not rip loose loads that have become jammed.
- ⇨ If there is a power failure immediately turn the handle (***JUMBOERGO***) resp. push upwards the regulator lever (***JUMBOSPRINT***) fully to "Lift" to prevent the load from dropping off. The reserve vacuum will let the lifting device lower slowly with the load.
- ⇨ Apply suction and lift only to appropriate loads (check for stability and porosity).
- ⇨ The lifting device is mounted into the crane rails with rail end stops. While moving against the rail end stops, strong horizontal forces can occur. These forces can result in releasing the load.

Danger

If the lifting unit (lifting tube) is not able to lift the vacuum-gripped load, never try to support the lifting of the load, it is possible that the gripper's holding force is inadequate.
The load could fall ➔ risk of injury.

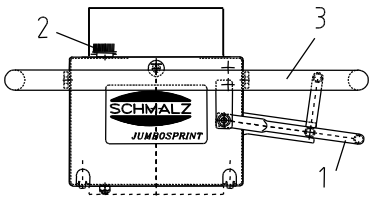
5.2 Lifting, Lowering and Landing Loads

The following operating steps must be checked by a qualified mechanic prior to use of the device by the operating personnel. Correct faults before start-up.

The hovering position (without load) must be adjusted prior to start up, see 4.2.

Danger

Lifting



- ⇨ Place the vacuum head directly above the load.
- ⇨ Press the regulator lever (1) down. The lifting tube descends and the vacuum head lowers.
- ⇨ Apply the vacuum head to the load. Distribute load evenly.
- ⇨ Slowly push the regulator lever (1) upward. The device attaches to the load.

Attention: the regulator lever must not be on the position "Lift" for more than 90 seconds because otherwise:

- ⇨ the blower could be damaged and fail, all guarantee claims are void!
- ⇨ power is wasted unnecessarily.

Attention

Adjusting the hovering position with load

Turn the adjusting screw (2) to adjust the hovering position with the load.
Caution: Do not confuse this adjustment with the hovering position without load.

- ⇨ Turn screw clockwise ➔ the hovering position will be lower.
- ⇨ Turn screw counter-clockwise ➔ the hovering position will be higher.


Attention

Attention: the hovering position with load should not be adjusted to the highest position of the control unit because otherwise:

- ⇨ the blower could be damaged and fail, all guarantee claims are void!
- ⇨ power is wasted unnecessarily.

Lowering, Placing


Danger

- ⇨ Slowly move the regulator lever (1) downward - "Lower". The lifting tube descends and the vacuum head lowers with the load.
  Do not operate the regulator lever control abruptly, while you firmly hold the handlebar (3), as this can cause the load to fall off, because the vacuum suddenly vanishes.
- ⇨ Lower the load to the chosen position.
- ⇨ To land the load push the regulator lever down all the way. Tip the valve control box a little and lift it off the load.

6 Trouble Shooting

The device must be installed and maintained by qualified personnel, mechanics and electricians. Any work on the electrical equipment may be carried out only by a qualified electrician.
After each repair or maintenance job check the guards as described in the Operating Manual ”Safety”.

If a load cannot be lifted, check through the following list to find the problem and correct it.

Error	Remedy
Opposite direction of rotation	⇨ Transpose the phases of the blower connection.
The required vacuum is not reached	⇨ Check the suction hose and tube lifter for airtightness. ⇨ Check the mounting of the suction heads ⇨ Clean resp. replace the dust filter cartridge
The load is too heavy	Split the load, use other lifting device.
The load is too porous or of low bending strength	Load cannot be lifted, try using a different vacuum head.
Suction hose is damaged	Replace hose or cut out damaged piece and connect remaining hose with a tube and hose clamps
Vacuum lifting tube is damaged	Replace the vacuum lifting tube
Connection of the vacuum head is damaged	Check seal on the tube cylinder, replace it.
Vacuum head is damaged	Check seal on the vacuum head, replace it.
The load drop off when you lower it	Please contact the manufacturer
The vacuum is reached but the lifting device can not lift porous loads	Please contact the manufacturer
The control unit of the tube lifter hangs in the upper block position (with running blower) even without load and is not coming down by turning the handle or regulator lever	⇨ Turn the adjustment screw at the control unit clockwise ⇨ Clean or replace the dust filter of the control unit

7 Maintenance

7.1 General Notes

The *Vacuum Hose Lifter* may be installed and maintained only by qualified personnel such as mechanics and electricians.
After any repair or maintenance work, check the safety devices as described in the section "Safety".

7.2 Cleaning

The maintenance proceedings and intervals are described in the service-table.
Use cleaning detergent to clean the device (do not use petrol (gasoline) or aggressive or corrosive fluids to clean the device. The vacuum lifting tube and the suction hose will otherwise become leaky or be destroyed).
Remove items and contaminations such as adhesives, glue, saw dust, dust etc. sticking to the vacuum heads at least once a week. Use glycerine to clean the seals. Immediately replace damaged vacuum heads (tears, holes, waves).

7.3 Accident prevention rules

Accident prevention rules require a yearly inspection of lifting device and crane by a qualified person.

7.4 Service-Table

	Interval				
	daily	weekly	monthly	1/2-yearly	yearly
Tube Lifter					
Is the lifting tube in good condition (not porous, no scrubbing spots, no holes and with that tight)?			X		X
Is the fastening of the lifting tube correct (wire clips at the correct place, tightening)?					X
Can the rotary suction fitting be rotated easily itself?			X		X
Does the rotary handle resp. the control handle operates smooth?			X		X
Are all junctions fixed, hose band clips etc.?					X
Are the type- and the lifting- capacity label still on the machine?					X
Is the operating instruction still present and does the worker know of it?					X
Is the handle firm?					X
Is the filtermat still at the operator unit and is it cleaned?			X		X
Check supporting parts (such as the suspension of the device) on deformation, wear, rust or other damages.				X	
Function					
Can the device be lifted and lowered without weight easily ? (Adjusting the valve in the operating unit)			X		X
JUMBOSPRINT: Can the hovering position of the device with weight be adjusted easily ? (Adjusting the adjusting screw at the operating unit)					X
Does the non return valve work by power failure?			X		X
Check the general condition of the machine.					X

8 Notes on the Name Plate

On the nameplate the main data for the lifting device is indicated.
The nameplate is firmly connected to the device.
The nameplate contains the following information:

Caution

Type and number are vital for identification of the unit. Indicate these when ordering spares or filing claims and other inquiries.

The max. lifting capacity indicates for which maximum load the device can be used. The max. load must not be exceeded.

9 Storage

If you are not using the Jumbo Sprint vacuum hose lifter, you should store it correctly to best preserve the product quality. This entails the following:

- ⇨ Clean the product (see 7.2) and let it dry if wet
- ⇨ Store the product in a room that protects it from moisture and frost (recommendation: in the manufacturer's storage case)
- ⇨ Storage temperature: +0 – 40 °C

To start up the system again, refer to chapter 4, "Installation"

10 Guarantee, spare and consumable parts

This equipment is guaranteed in accordance with our General Conditions of Business. This also applies to spare parts where these are original parts supplied by us.

We will assume no liability for damage caused by the use of non-original spare parts and accessories.

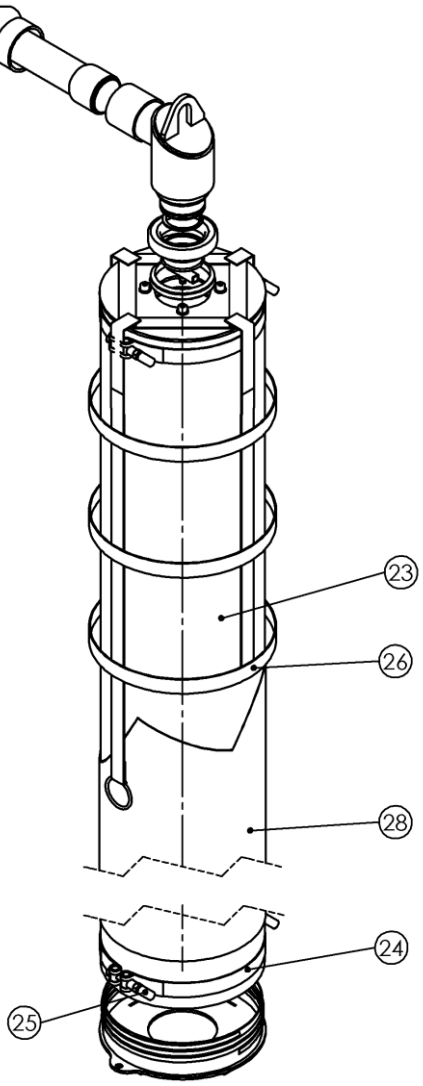
Wear and consumable parts are not covered by the guarantee.

The most important spare and consumable parts are shown in the following list.

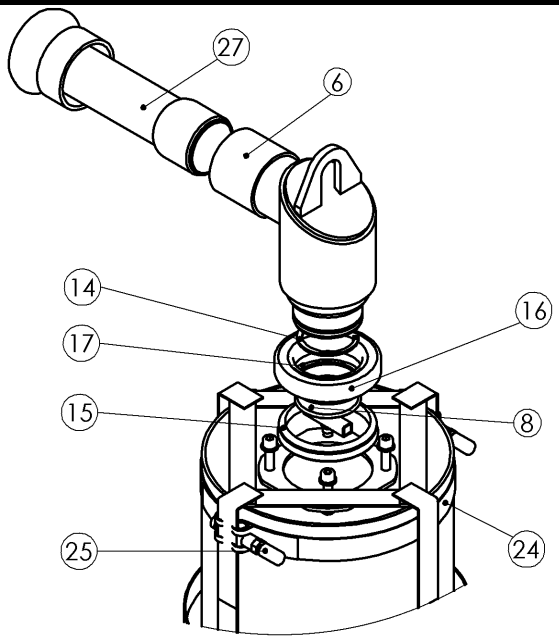
Abbreviations:
- Spare part = **E**
- Consumable part = **V**
- Consumable-part assembly, contains consumable parts = **VB**

Hubeinheit mit Bedieneinheit
Ersatzteile/ /Spare Parts

Hubeinheit / Lifting Hose Assy



Dreheinheit / Rotation Unit



Hubeinheit mit Bedieneinheit
Ersatzteile/ /Spare Parts

probst handling equipment

Hubeinheit / Lifting Hose Assy						
Pos.	*Menge / Amount*	*Bezeichnung*	*Description*	*Abmessung / Dimension*	*Art. No.*	*Legende*
6	1	G 2“ - L 56 - D 66,3	G 2“ - L 56 - D 66,3		2700.0007	E
8	1	Flachsauggreifer_PFG	Flat suction pad_PFG		4210.0610	V
14	1	DIN 472 - 54 x 2,0	DIN 472 - 54 x 2,0		2048.0025	E
15	1	V-Ring	V-ring		4210.0611	V
16	1	Kugellager	Bearing		2135.0022	E
17	1	DIN 471 - 65 x 2,5	DIN 471 - 65 x 2,5		2048.0026	E
23	1	Hubschlauch	Lifting hose	PVC	2527.0010	V
24	2	Schlauchschelle	Hose clamp	SSB	2105.0068	E
25	4	Kappe für SSB	Cap for SSB		2202.0042	E
26	1	Haltenetz	Securing net		2527.0005	V
27	1	Kupplung	Coupling		4200.0042	E
28	1	Schutzhülle	Covering for lifting tube		2529.0007	E

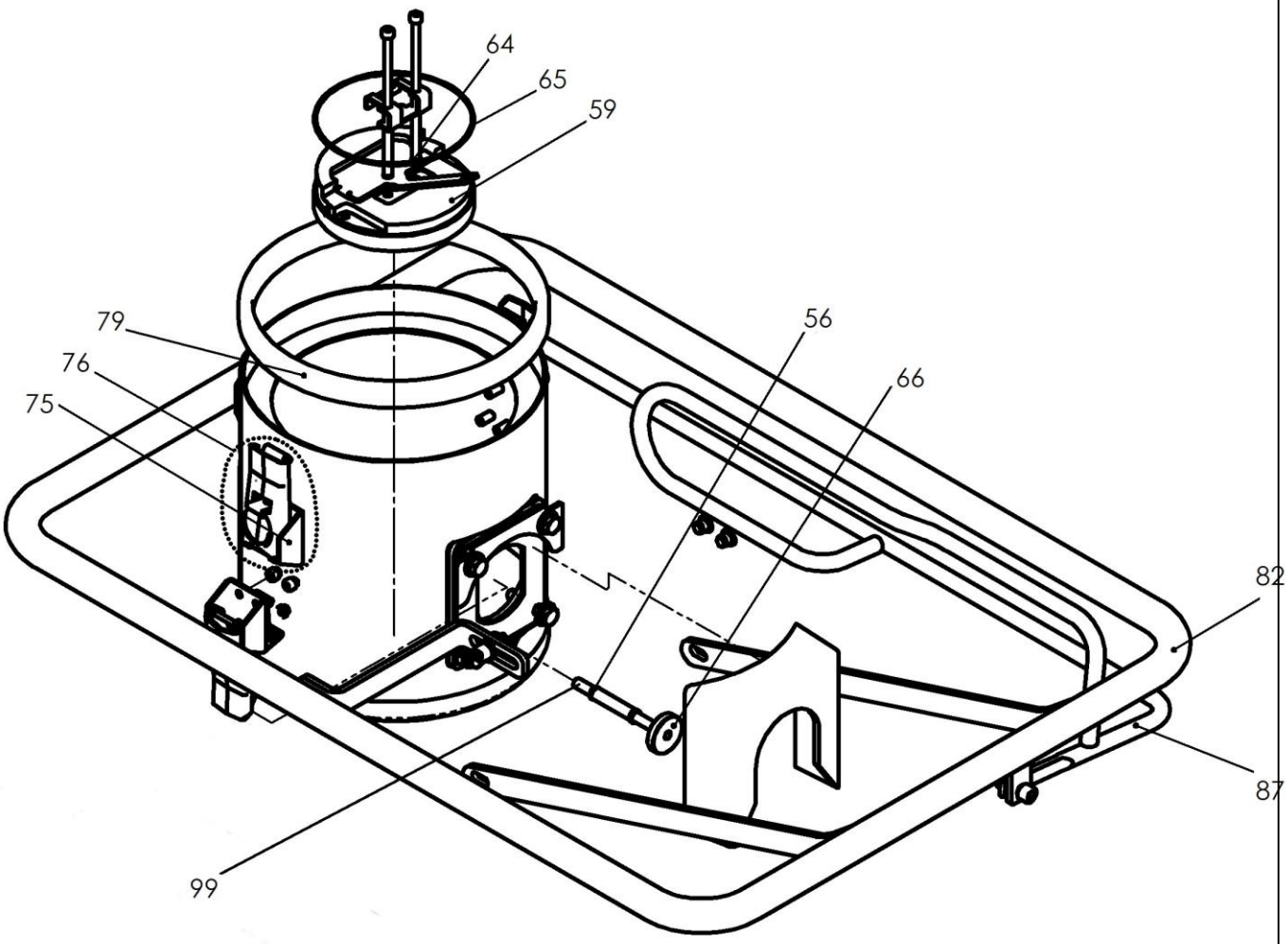
E= **E**rsatzteil, **V**= **V**erschleißteil, **VB**= **V**erschleißteil**b**augruppe, enthält Verschleißteile
E= Spare part, **V**= Consumable part, **VB**= Consumable-part assembly, contains consumable parts

Hubeinheit / Lifting Hose Assy						
Pos.	*HE 35-E/S-BP*	*HE 50-E/S-BP*	*HE 80-E/S-BP*	*HE 150-E/S-BP*	*HE 200-E/S-BP*	*HE 300-E/S-BP*
23	11.04.01.10007	11.04.01.10028	11.04.01.10066	11.04.01.10178	11.04.01.10070	11.04.01.10129
24	10.07.10.00048	10.07.10.00049	10.07.10.00039	10.07.10.00046	10.07.10.00040	10.07.10.00065
26	11.01.12.10141	11.01.14.10058	11.01.05.10248	11.01.23.10043	11.01.25.10039	11.01.25.10084
28	11.04.01.10023	11.04.01.10018	11.04.01.10017	11.04.01.10132	11.04.01.10073	11.04.01.10127

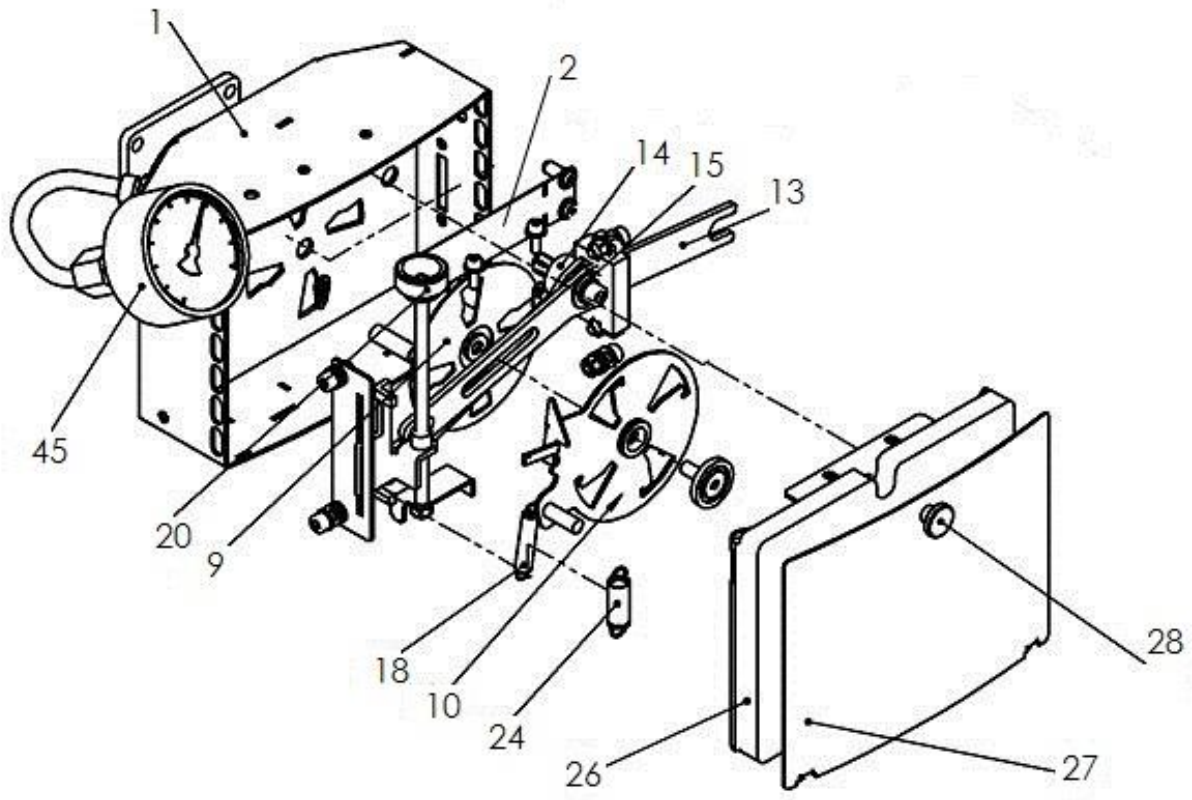
E= **E**rsatzteil, **V**= **V**erschleißteil, **VB**= **V**erschleißteil**b**augruppe, enthält Verschleißteile
E= Spare part, **V**= Consumable part, **VB**= Consumable-part assembly, contains consumable parts

Hubeinheit mit Bedieneinheit
Ersatzteile/ /Spare Parts

Ventileinheit, Bedieneinheit / Valve Unit, Operating handle



Ventileinheit / Valve Unit



Hubeinheit mit Bedieneinheit
Ersatzteile/ /Spare Parts

probst handling equipment

Ventileinheit, Bedieneinheit / Valve Unit, Operating handle						
Pos.	*Menge / Amount*	*Bezeichnung*	*Description*	*Abmessung / Dimension*	*Art. No.*	*Legende*
1	1	Ventilgehäuse kpl.	Valve casing compl.		4210.0612	E
2	1	Federklappe	Spring flap		4210.0608	E
9	1	Reibbelag	Friction lining		4210.0613	E
10	1	Scheibe	Disk		4210.0614	E
13	1	Schieber	Slide		4210.0401	E
14	1	Hülse	Socket for slide		4210.0535	E
15	1	Gleitlager	Bearing bush		4210.0536	E
18	1	Zugfeder	Tension spring	Z 066 OI	2171.0008	E
20	1	Stellschraube	Adjusting screw		4210.0403	E
24	1	Zugfeder	Tension spring	Z 081 HI	2171.0009	E
26	1	Filtermatte	Filter mat		2505.0010	V
27	1	Abdeckung f. Ventilklappe	Cover for valve unit		4210.0615	E
28	1	Rändelschraube	Knurled screw		2009.0038	E
45	1	Manometer VAM	Manometer VAM		2213.0007	E
56	1	Druckfeder	Spring (pressure)		2170.0044	E
59	1	Ventilklappe	Valve flap		4210.0558	E
64	2	Druckfeder	Spring (pressure)		2170.0045	E
65	1	O-Ring	O-ring seal		2155.0087	V
66	1	Rändelmutter	Knurled nut		2019.0021	E
75	4	Spannhaken für Spannverschluss	Tension hook		2106.0011	E
76	2	Spannverschluss	Tension lock		2106.0004	
79	2	Schlitzgummiring	Ruber seal		4210.0091	V
82	1	Haltebügel	Supporting strap		4210.0405	E
87	1	Reguliergriff	Control handle		4210.0406	E
99	1	Rundstab	Rod		4210.1051	E

E= **E**rsatzteil, **V**= **V**erschleißteil, **VB**= **V**erschleißteil**b**augruppe, enthält Verschleißteile
E= Spare part, **V**= Consumable part, **VB**= Consumable-part assembly, contains consumable parts

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 is 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.

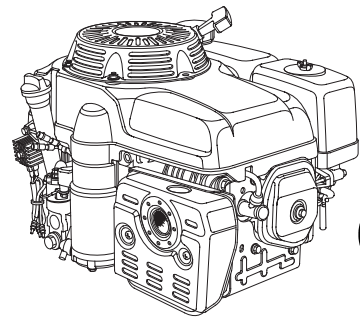
GXV340UT2·GXV390UT1

32Z5N600
00X32-Z5N-6000

HONDA

ENGLISH

OWNER'S MANUAL
MANUEL DE L'UTILISATEUR
MANUAL DEL PROPIETARIO
GXV340 · GXV390



⚠ WARNING: ⚠

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

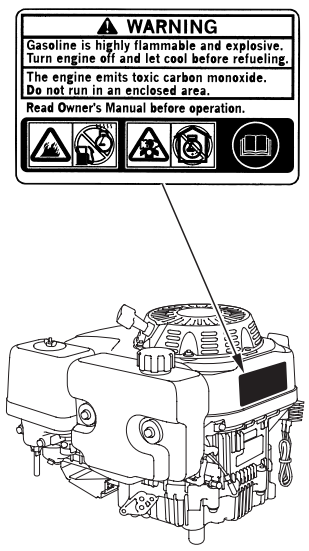
CONTENTS

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.



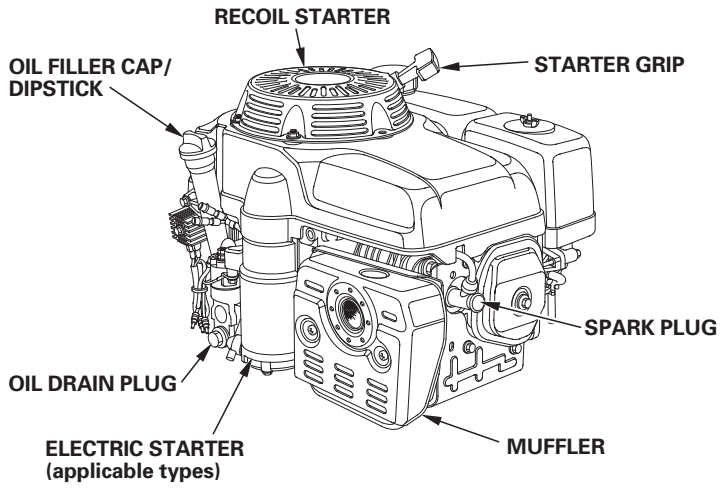
For Canadian types only:
French label comes with the engine.

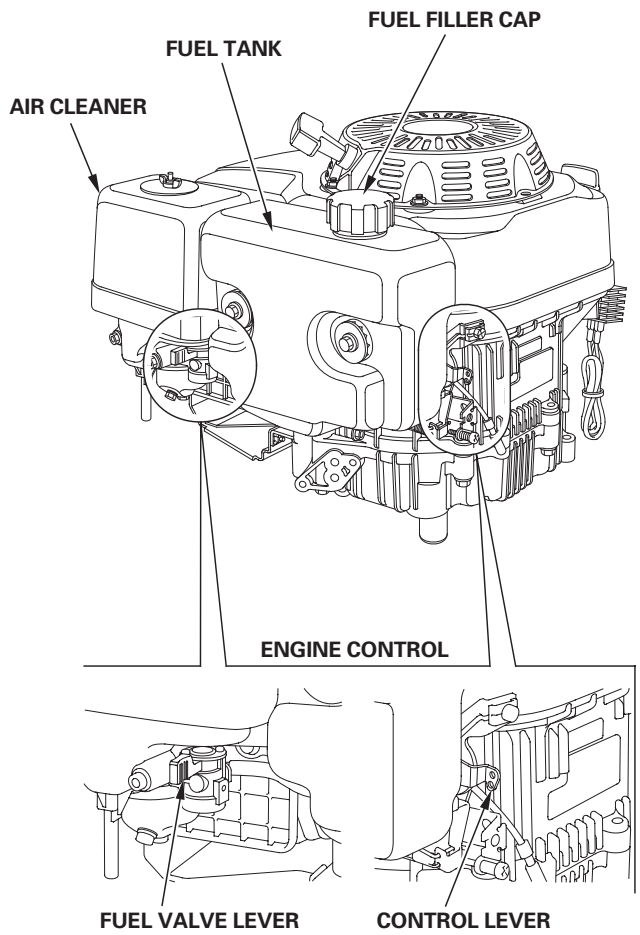

Gasoline is highly flammable and explosive.
Turn engine off and let cool before refueling.


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


Read Owner's Manual before operation.

COMPONENT & CONTROL LOCATION





FEATURES

OIL ALERT® SYSTEM (applicable types)
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 sound a buzzer, warning you that oil needs to be added to the engine.

The Oil Alert® system is not designed to be used in place of checking the oil. Check the oil level prior to each use.

The ‘‘Oil Alert®’’ buzzer will arm you when engine oil needs to be added to the crankcase. If the buzzer sounds, stop the engine and add oil (see page 9).

NOTICE

The buzzer indicates insufficient oil. Running the engine with insufficient oil can cause serious engine damage.

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 preoperation inspection before each operation, and correct any problem.

Before beginning your preoperation 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®’’ buzzer (applicable types) will warn you when engine oil needs to be added to the crankcase. If the buzzer sounds, stop the engine and add oil.
3. Check the air filter element (see page 10). A dirty air filter element will restrict air flow to the carburetor, reducing engine performance.
4. 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 .

⚠ WARNING

Carbon monoxide gas is toxic. Breathing it can cause unconsciousness and even kill you.

Avoid any areas or actions that expose you to carbon monoxide.

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.

Control Lever

The control lever operates the engine switch, throttle, and choke.

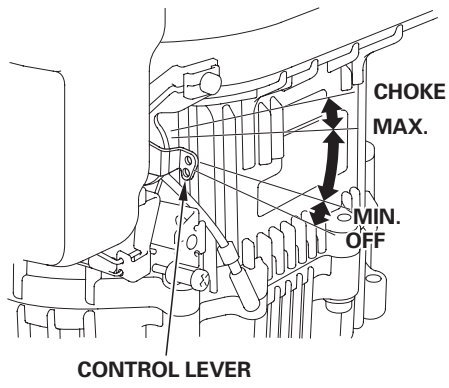
OFF————Stop the engine by switching off the ignition system. All other control lever positions leave the ignition system switched on.

MIN. ————For running the engine at idle speed.

MAX. ————For restarting a warm engine, and for running the engine at maxinum speed.

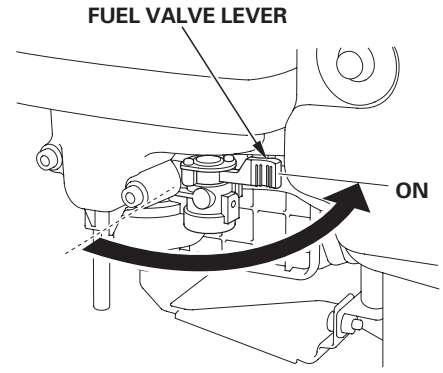
CHOKE——Enriches the fuel mixture for starting a cold engine.

The control lever shown here will be connected to a remote control on the equipment powered by this engine. Refer to the instructions provided with that equipment for remote control information.

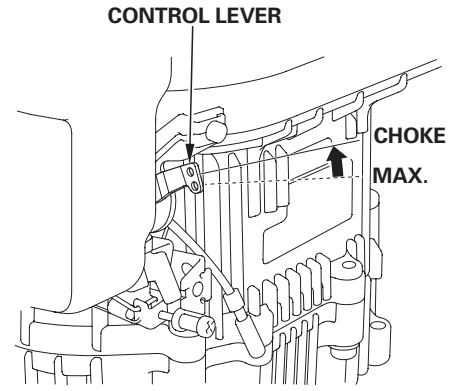


STARTING THE ENGINE

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



2. To start a cold engine, move the control lever to the CHOKE position.



To restart a warm engine, leave the control lever in the MAX. position.

The control lever shown here will be connected to a remote control on the equipment powered by this engine. Refer to the instructions provided with that equipment for remote control information.

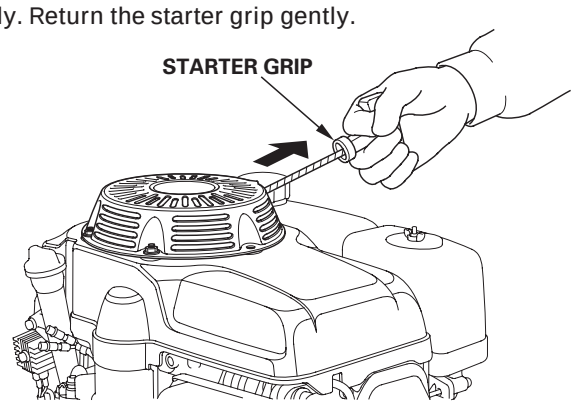
3. Turn the engine switch to the ON position.

There may be a remote engine switch mounted on the equipment powered by this engine. Refer to the instructions provided with the equipment for remote control information.

4. Operate the starter.

   RECOIL STARTER

   Pull the starter grip lightly until you feel resistance, then pull briskly. 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):

   The electric starter will be connected to a remote control on the equipment powered by this engine. Refer to the instructions provided with the equipment for remote control information.

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

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

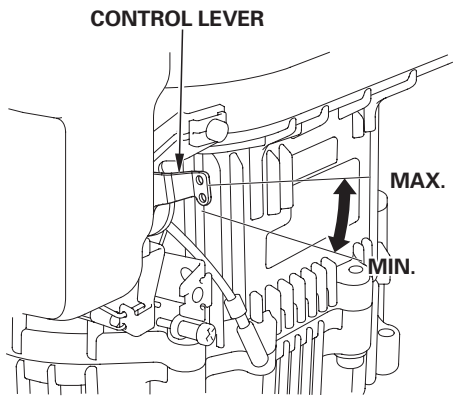
NOTICE

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 engine switch key, allowing it to return to the ON position.

5. If the control lever was moved to the CHOKE position to start the engine, gradually move it to the MAX. or MIN. position as the engine warms up.

   The control lever shown here will be connected to a remote control on the equipment powered by this engine. Refer to the instructions provided with that equipment for remote control information.

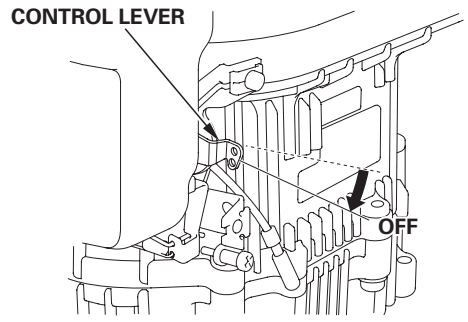


STOPPING THE ENGINE

To stop the engine in an emergency, simply move the control lever to the OFF position. Under normal conditions, use the following procedure.

1. Move the control lever to the OFF position.

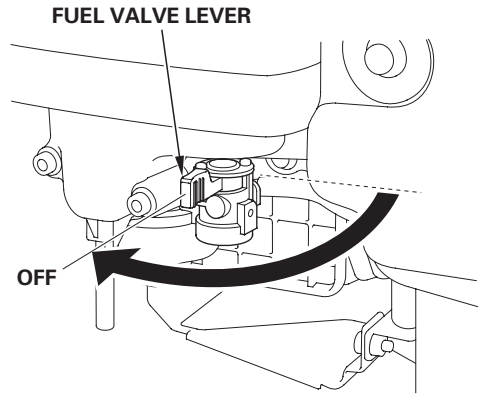
   The control lever shown here will be connected to a remote control on the equipment powered by this engine. Refer to the instructions provided with the equipment for remote control information.



2. Turn the engine switch to the OFF position.

   There may be a remote engine switch mounted on the equipment powered by this engine. Refer to the instructions provided with the equipment for remote control information.

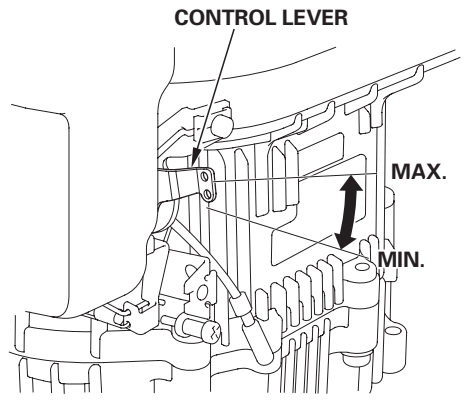
3. Turn the fuel valve lever to the OFF position.



SETTING ENGINE SPEED

Position the control lever for the desired engine speed.

The control lever shown here will be connected to a remote control on the equipment powered by this engine. Refer to the instructions provided with that equipment for remote control information and engine speed recommendations.



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 nonflammable 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 genuine Honda 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. / ITEM		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
Engine oil	Check level	○					9
	Change		○		○		9
Air filter	Check	○					10
	Clean			○ (1)			
	Replace					○ *	
Spark plug	Check-adjust				○		10
	Replace					○	
Spark arrester (applicable types)	Clean				○		11
Idle speed	Check-adjust					○ (2)	Shop manual
Valve clearance	Check-adjust					○ (2)	Shop manual
Combustion chamber	Clean	After every 250 Hrs. (2)					Shop manual
Fuel tank & filter	Clean					○ (2)	Shop manual
Fuel tube	Check	Every 2 years (Replace if necessary) (2)					Shop manual

* Replace paper element type only.

(1) Service more frequently when used in dusty areas.

(2) These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to 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. Unleaded gasoline produces fewer engine and spark plug deposits and extends exhaust system life.

⚠ 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 oil/gasoline mixture. Avoid getting dirt or water in the fuel tank.

Occasionally you may hear a light ''spark knock'' or ''pinging'' (metallic rapping noise) while operating under heavy loads. This is no cause for concern.

If spark knock or pinging occurs at a steady engine speed, under normal load, change brands of gasoline. If spark knock or pinging persists, see an authorized Honda servicing dealer.

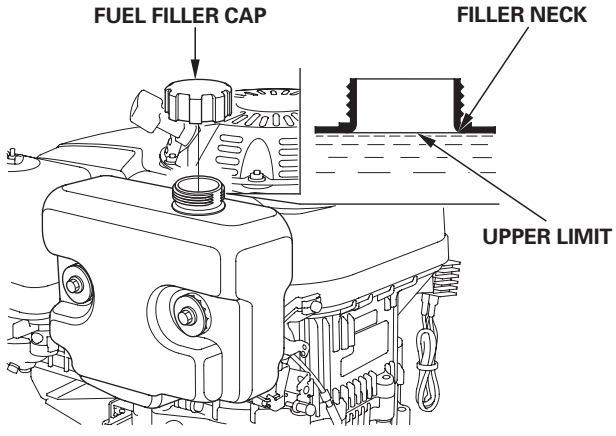
NOTICE

Running the engine with persistent spark knock or pinging can cause engine damage.

Running the engine with persistent spark knock or pinging is considered misuse, and the Distributor's Limited Warranty *does not cover parts damaged by misuse.*

1. With the engine stopped and on a level surface, remove the fuel filler cap and check the fuel level.

2. Refill the tank if the fuel level is low. Do not fill above the upper limit of the fuel tank. Wipe up spilled fuel before starting the engine.



Refuel in a well-ventilated area before starting the engine. If the engine has been running, allow it to cool. Refuel carefully to avoid spilling fuel. Do not fill the fuel tank completely. Fill tank to the upper limit level below the filler neck of the fuel tank to allow for fuel expansion. It may be necessary to lower the fuel level depending on operating conditions. After refueling, tighten the fuel filler cap securely.

Never refuel the engine inside a building where gasoline fumes may reach flames or sparks. 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.

For information regarding oxygenated fuels, please refer to page 15.

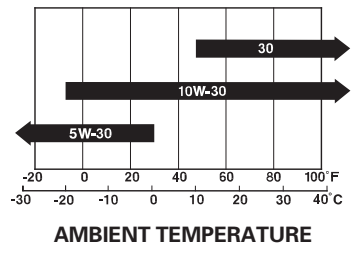
ENGINE OIL

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 classification SJ, SL, or equivalent. Always check the API service label on the oil container to be sure it includes the letters SJ, SL, or equivalent.

SAE Viscosity Grades



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

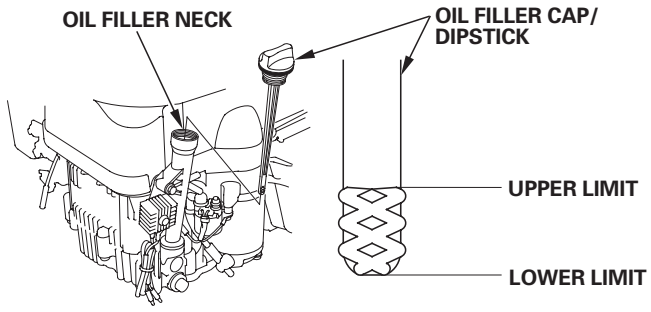
Check the engine oil level with the engine stopped and in a level position.

1. Remove the oil filler cap/dipstick and wipe it clean.

2. Insert and remove the oil filler cap/dipstick without screwing it into the oil filler neck. Check the oil level shown on the dipstick.

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. Do not overfill.

4. Screw in the filler cap/dipstick securely.



NOTICE

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

The ‘‘Oil Alert®’’ buzzer (applicable types) will warn you when engine oil needs to be added to the crankcase. If the buzzer sounds, stop the engine and add oil.

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 down a drain.

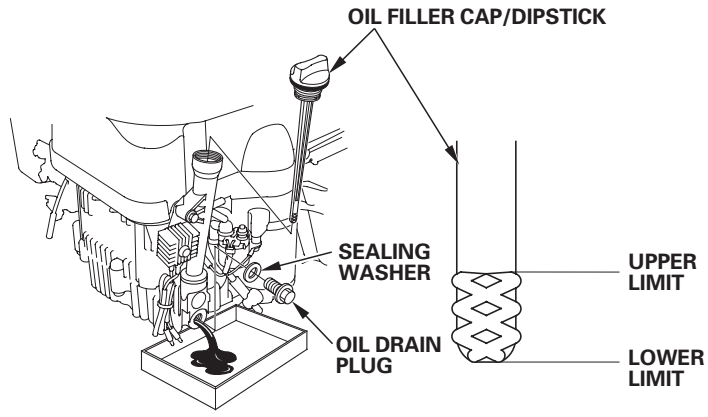
3. With the engine in a level position, fill to the upper limit mark on the dipstick with the recommended oil (see page 8).

NOTICE

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

The ‘‘Oil Alert®’’ buzzer (applicable types) will warn you when engine oil needs to be added to the crankcase. If the buzzer sounds, stop the engine and add oil.

4. Screw in the oil filler cap/dipstick 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.

NOTICE

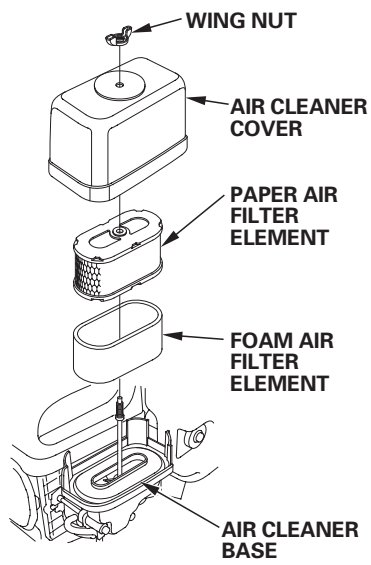
Operating the engine without an air filter, or with a damaged air filter, will allow dirt to enter the engine, causing rapid engine wear. This type of damage is not covered by the Distributor's Limited Warranty.

Inspection

Remove the air cleaner cover and inspect the filter elements. Clean or replace dirty filter elements. Always replace damaged filter elements.

Cleaning

1. Remove the wing nut from the air cleaner cover, and remove the cover.
2. Remove the air filter elements.
3. Remove the foam air filter element from the paper air filter element.
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).



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 nonflammable 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. Wipe dirt from the inside of the air cleaner base and cover, using a moist rag. Be careful to prevent dirt from entering the air duct that leads to the carburetor.
7. Place the foam air filter element over the paper element, and reinstall the assembled air filter.
8. Install the air cleaner cover, and tighten the wing nut securely.

SPARK PLUG

Recommended Spark Plugs: BPR5ES (NGK)
W16EPR-U (DENSO)

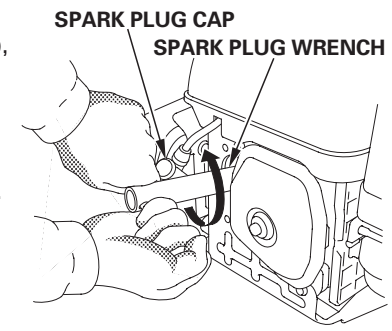
The recommended spark plug is the correct heat range for normal engine operating temperatures.

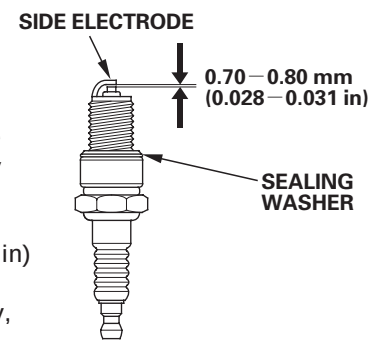
NOTICE

An incorrect spark plug can cause engine damage.

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. Inspect the spark plug. Replace it if damaged, 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: 0.70—0.80 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.
7. When installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer.
8. 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.

9. 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.

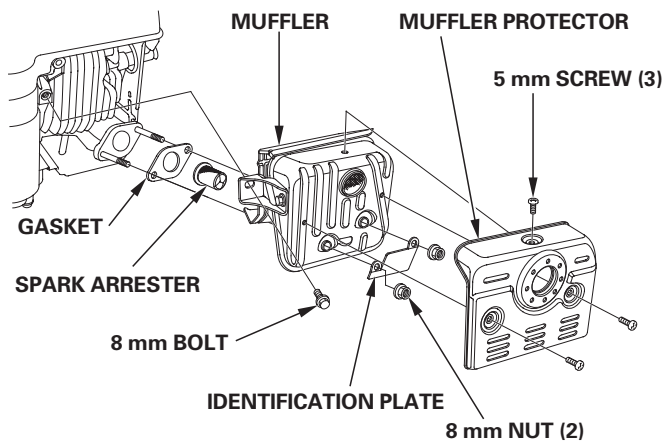
If the engine has been running, the muffler will be hot. Allow it to cool before servicing the spark arrester.

Spark Arrester Removal

1. Remove the three 5 mm screws from the muffler protector.

2. Remove the 8 mm bolt and the two 8 mm nuts, and remove the muffler protector, identification plate, muffler and gasket from the cylinder.

3. Remove the spark arrester from the muffler (take care not to damage the wire mesh).



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 gasket, spark arrester, muffler, identification plate, and muffler protector in reverse order of removal.

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
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 problems may occur within a few months, or even less if the gasoline was not fresh when you filled the fuel tank.

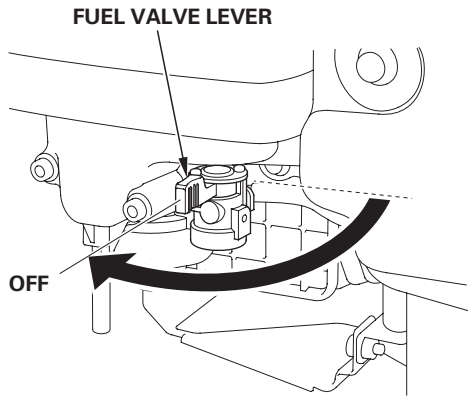
Fuel system damage or engine performance problems resulting from neglected storage preparation are not covered under the *Distributor's Limited Warranty*.

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, and move the fuel valve lever to the OFF position.

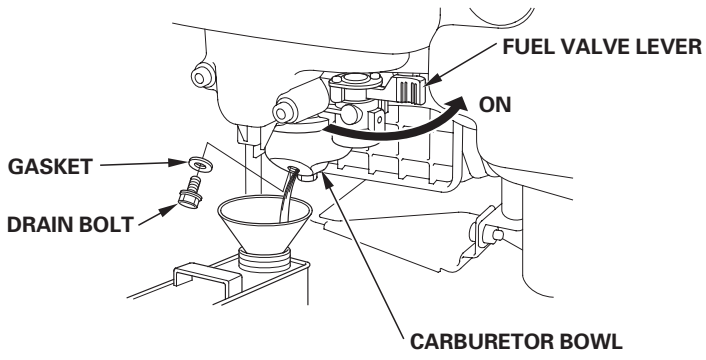


Draining the Fuel Tank and Carburetor

⚠ 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.

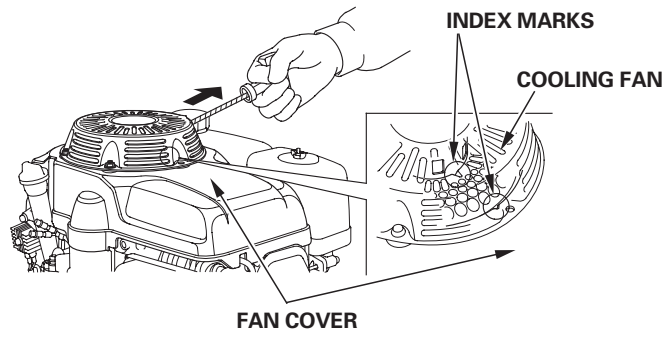
1. Place an approved gasoline container below the carburetor, and use a funnel to avoid spilling fuel.
2. Remove the drain bolt and gasket, and drain the carburetor bowl fuel into an approved gasoline container.
3. Move the fuel valve lever to the ON position. This will allow the fuel tank to drain through the carburetor bowl.



4. After draining the carburetor bowl and fuel tank, install the drain bolt and gasket and tighten securely.

Engine Oil

1. Change the engine oil (see page 9).
2. Remove the spark plug (see page 10).
3. Pour a tablespoon 5—10 cm^3 (5—10 cc) of clean engine oil into the cylinder.
4. Pull the starter rope several times to distribute the oil in the cylinder.
5. Reinstall the spark plug.
6. Pull the starter rope slowly until resistance is felt.
   (At this time the index mark on the cooling fan aligns with the index mark on the fan cover).
   This will close the valves so moisture cannot enter the engine cylinder. Return the starter rope 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.

Unless all fuel has been drained from the fuel tank, leave the fuel valve lever in the OFF position to reduce the possibility of fuel leakage.

Position the equipment so the engine is level. 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

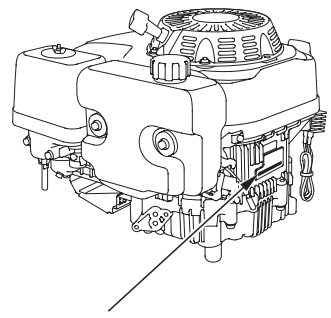
ENGINE WILL NOT START	Possible Cause	Correction
1. Electric starting (applicable types): Check battery and fuse.	Battery discharged.	Recharge battery.
	Fuse burnt out.	Replace fuse.
2. Check control positions.	Fuel valve OFF.	Move lever to ON position.
	Choke open.	Move control lever to CHOKE position unless the engine is warm.
	Engine switch OFF. (if equipped)	Turn engine switch to ON position or move the throttle control away from the OFF position.
3. Check engine oil level.	Engine oil level low (Oil Alert types).	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.12). 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.10).
	Spark plug wet with fuel (flooded engine).	Dry and reinstall spark plug. Start engine with control 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).
2. Check fuel.	Bad fuel; engine stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p.10). 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.

TECHNICAL & CONSUMER INFORMATION

TECHNICAL INFORMATION

Serial Number Location
Record the engine serial number, type and purchase date in the space below. You will need this information when ordering parts and when making technical or warranty inquiries.



Engine serial number: __ __ __ __ – __ __ __ __ __ __ __

Engine type: ___ ___ ___ ___

Date Purchased: _____ / _____ / _____

Battery Connections for Electric Starter(applicable types)

Use a 12-volt battery with an ampere-hour rating of at least 18 Ah.

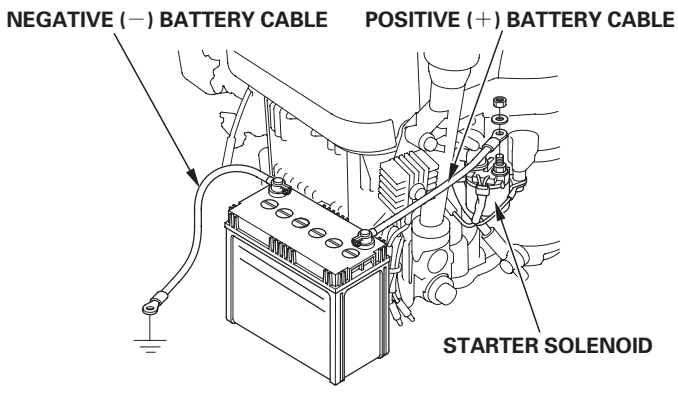
Be careful not to connect the battery in reverse polarity, as this will short circuit the battery charging system. Always connect the positive (+) battery cable to the battery terminal before connecting the negative (−) battery cable, so your tools cannot cause a short circuit if they touch a grounded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

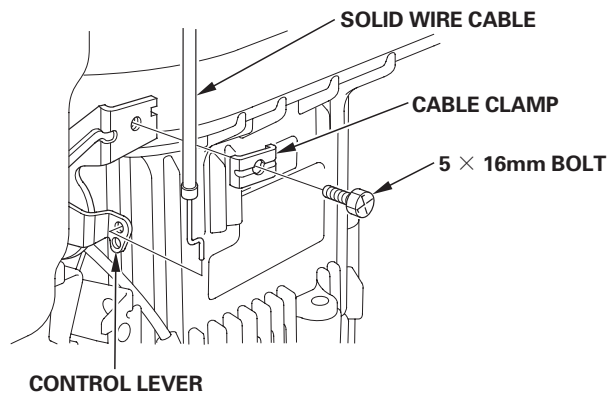
Keep all sparks, open flames, and smoking materials away from the battery.

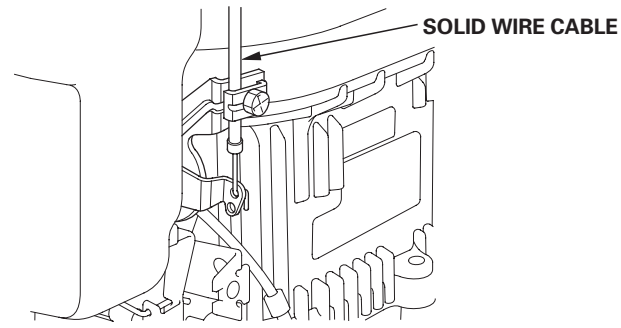
1. Connect the battery positive (+) cable to the starter solenoid terminal as shown.
2. Connect the battery negative (−) cable to an engine mounting bolt, frame bolt, or other good engine ground connection.
3. Connect the battery positive (+) cable to the battery positive (+) terminal as shown.
4. Connect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



Remote Control Linkage

The control is provided with a hole for cable attachment. Install a solid wire cable as shown below. Do not use braided wire cable.





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.

Oxygenated Fuels

Some conventional gasolines are being blended with alcohol or an ether compound. These gasolines are collectively referred to as oxygenated fuels. To meet clean air standards, some areas of the United States and Canada use oxygenated fuels to help reduce emissions.

If you use oxygenated fuel, be sure it is unleaded and meets the minimum octane rating requirements.

Before using an oxygenated fuel, try to confirm the fuel's contents. Some states/provinces require this information to be posted on the pump.

The following are the EPA approved percentages of oxygenates:

ETHANOL — (ethyl or grain alcohol) 10% by volume
You may use gasoline containing up to 10% ethanol by volume. Gasoline containing ethanol may be marketed under the name Gasohol.

MTBE — (methyl tertiary butyl ether) 15% by volume
You may use gasoline containing up to 15% MTBE by volume.

METHANOL — (methyl or wood alcohol) 5% by volume
You may use gasoline containing up to 5% methanol by volume as long as it also contains cosolvents and corrosion inhibitors to protect the fuel system. Gasoline containing more than 5% methanol by volume may cause starting and/or performance problems. It may also damage metal, rubber, and plastic parts of your fuel system.

If you notice any undesirable operating symptoms, try another service station or switch to another brand of gasoline.
Fuel system damage or performance problems resulting from the use of an oxygenated fuel containing more than the percentages of oxygenates mentioned above are not covered under the *Distributor's Limited Warranty*.

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 lean carburetor settings and other systems to reduce the emissions of carbon monoxide, oxides of nitrogen, and hydrocarbons.

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 and Canadian emission regulations. We recommend the use of genuine Honda 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

An Air Index Information hang tag/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 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 [0－65 cm³ (0－65 cc)] 125 hours [greater than 65 cm³ (65 cc)]
Intermediate	125 hours [0－65 cm³ (0－65 cc)] 250 hours [greater than 65 cm³ (65 cc)]
Extended	300 hours [0－65 cm³ (0－65 cc)] 500 hours [greater than 65 cm³ (65 cc)]

The Air Index Information hang tag/label must remain on the engine until it is sold. Remove the hang tag before operating the engine.

Specifications

GXV340

Length × Width × Height	433 × 382 × 406 mm (17.0 × 15.0 × 16.0 in)
Dry weight	31 kg (68 lbs)
Engine type	4-stroke, overhead valve, single cylinder
Displacement [Bore × Stroke]	338 cm³ (20.6 cu-in) [82 × 64 mm (3.2 × 2.5 in)]
Max. output	6.6 kW (9.0 PS, 8.9 bhp) at 3,600 rpm
Max. torque	21.6 N·m (2.20 kgf·m, 15.9 lbf·ft) at 2,500 rpm
Engine oil capacity	1.10 ℓ (1.16 US qt , 0.97 Imp qt)
Fuel tank capacity	2.1 ℓ
Fuel consumption	2.3 ℓ/h at 3,000 rpm
Cooling system	Forced air
Ignition system	Transistorized magneto
PTO shaft rotation	Counterclockwise

GXV390

Length × Width × Height	433 × 382 × 406 mm (17.0 × 15.0 × 16.0 in)
Dry weight	32 kg (71 lbs)
Engine type	4-stroke, overhead valve, single cylinder
Displacement [Bore × Stroke]	389 cm³ (23.7 cu-in) [88 × 64 mm (3.5 × 2.5 in)]
Max. output	7.6 kW (10.3 PS, 10.2 bhp) at 3,600 rpm
Max. torque	24.2 N·m (2.47 kgf·m, 17.8 lbf·ft) at 2,500 rpm
Engine oil capacity	1.10 ℓ (1.16 US qt , 0.97 Imp qt)
Fuel tank capacity	2.1 ℓ
Fuel consumption	2.5 ℓ/h at 3,000 rpm
Cooling system	Forced air
Ignition system	Transistorized magneto
PTO shaft rotation	Counterclockwise

Tuneup Specifications

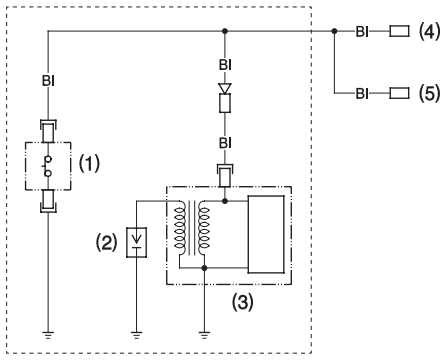
ITEM	SPECIFICATION	MAINTENANCE
Spark plug gap	0.70－0.80 mm (0.028－0.031 in)	Refer to page: 10
Idle speed	1,400 ± 150 rpm	See your authorized Honda dealer
Valve clearance (cold)	IN: 0.15 ± 0.02 mm EX: 0.20 ± 0.02 mm	
Other specifications	No other adjustments needed.	

Quick Reference Information

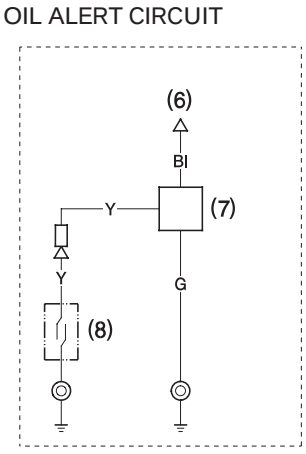
Fuel	Unleaded gasoline (Refer to page 8)	
	U.S.	Pump octane rating 86 or higher
	Except U.S.	Research octane rating 91 or higher Pump octane rating 86 or higher
Engine oil	SAE 10W-30, API SJ or SL, for general use. Refer to page 8.	
Spark plug	BPR5ES (NGK) W16EPR-U (DENSO)	
Maintenance	Before each use: • Check engine oil level. Refer to page 9. • Check air filter. Refer to page 10.	
	First 20 hours: Change engine oil. Refer to page 9.	
	Subsequent: Refer to the maintenance schedule on page 7.	

Wiring Diagrams

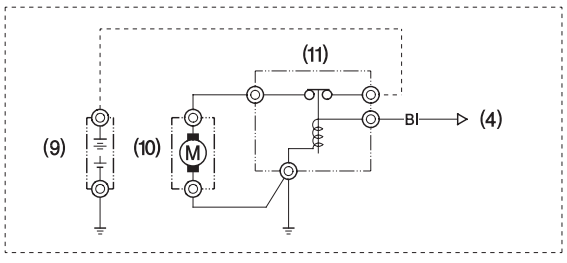
BASIC CIRCUIT



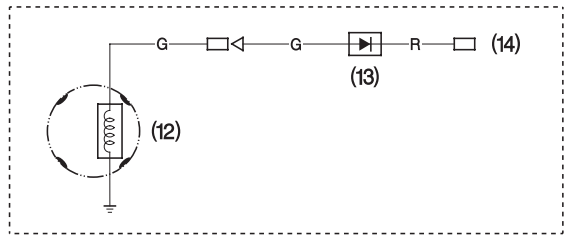
OIL ALERT CIRCUIT



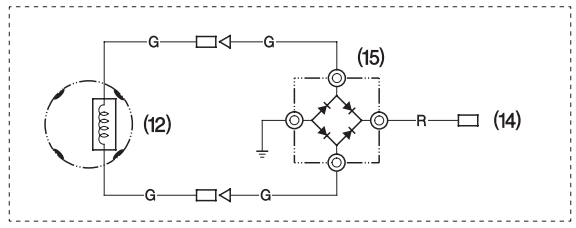
12V STARTER CIRCUIT



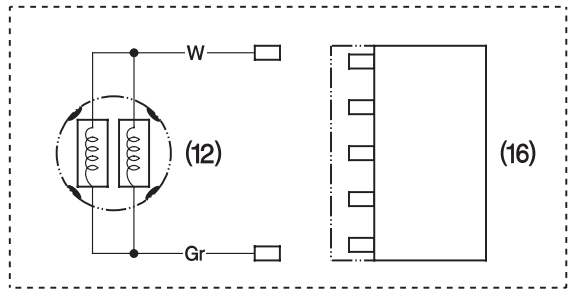
1A CHARGING SYSTEM



3A CHARGING SYSTEM



10A CHARGING SYSTEM



(1) ENGINE STOP SWITCH
(2) SPARK PLUG
(3) IGNITION COIL
(4) TO ENGINE SWITCH
(5) TO OIL ALERT CIRCUIT
(6) TO ENGINE STOP SWITCH
(7) OIL ALERT BUZZER
(8) OIL LEVEL SWITCH
(9) BATTERY (12 V)
(10) STARTER MOTOR
(11) STARTER SOLENOID
(12) CHARGING COIL
(13) DIODE
(14) TO LOAD
(15) RECTIFIER
(16) REGULATOR

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 14)
- 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 - 8:00 pm EST

Canada:
Honda Canada, Inc.
715 Milner Avenue
Toronto, ON
M1B 2K8

Telephone:	(888) 9HONDA9	Toll free
	(888) 946-6329	
English:	(416) 299-3400	Local Toronto dialing area
French:	(416) 287-4776	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

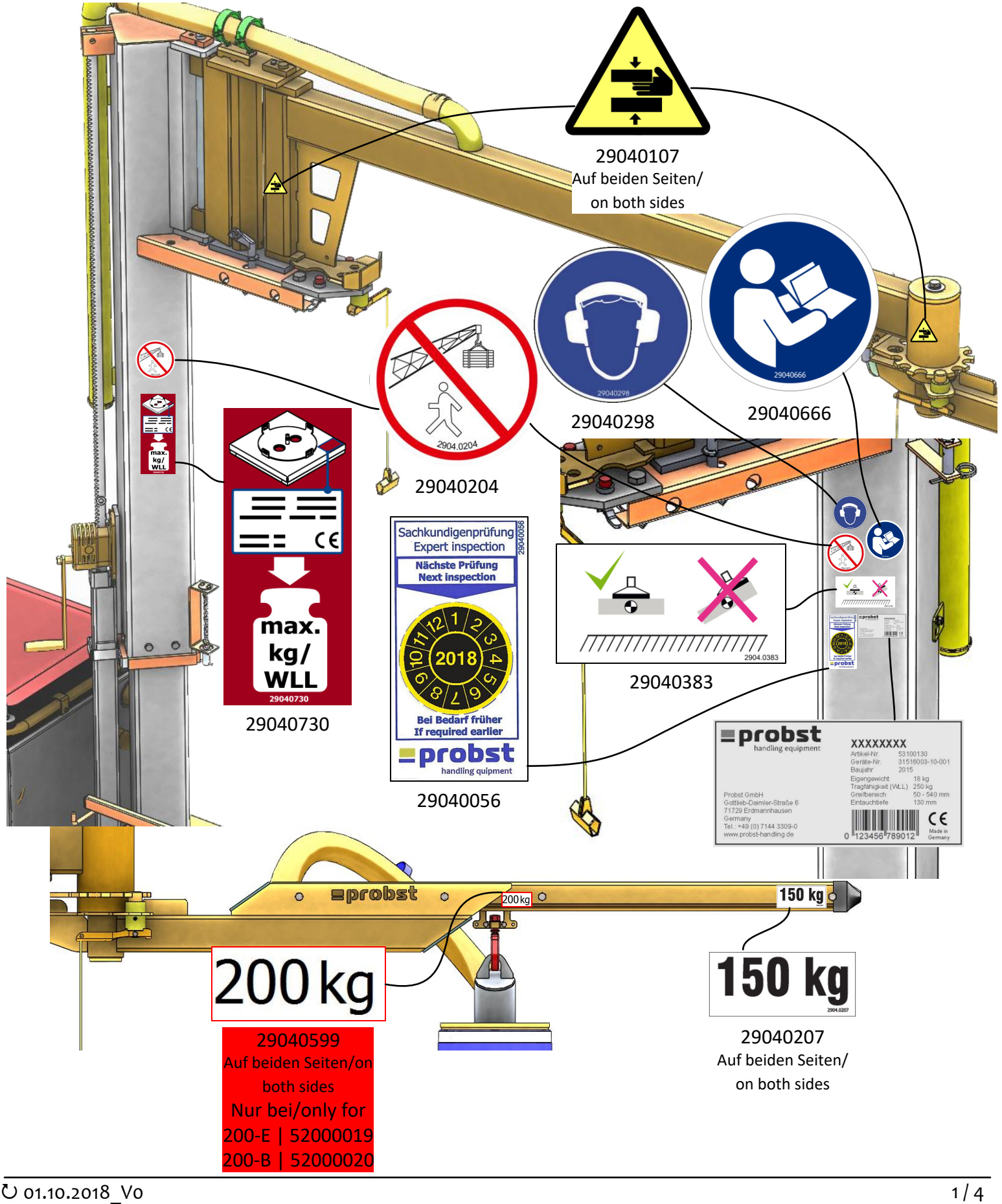
For European Area:
Honda Europe NV.
European Engine Center

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

All Other Areas:
Please contact the Honda distributor in your area for assistance.

HONDA
The Power of Dreams

A52000017 JM-VARIO-150-E
A52000018 JM-VARIO-150-B
A52000019 JM-VARIO-200-E
A52000020 JM-VARIO-200-B



Einige der Abbildungen sind möglicherweise optionales Zubehör des Gerätes/Some of pictures may be optional equipment of the device.

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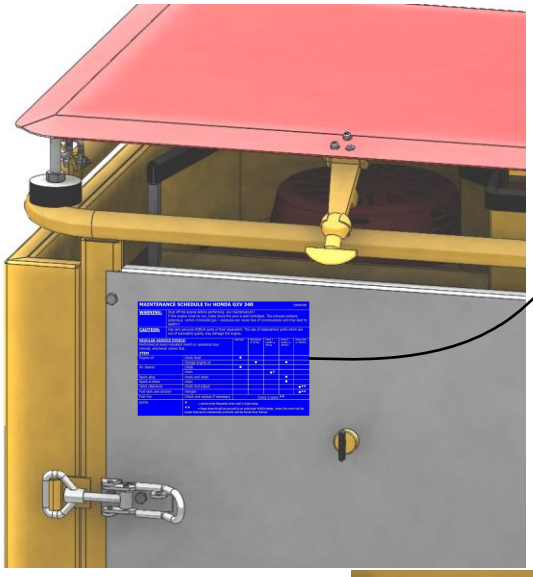
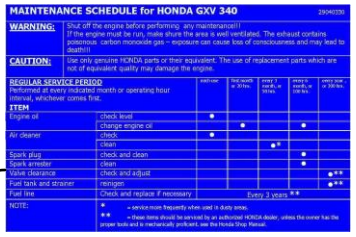
A52000019 JM-VARIO-200-E
A52000020 JM-VARIO-200-B





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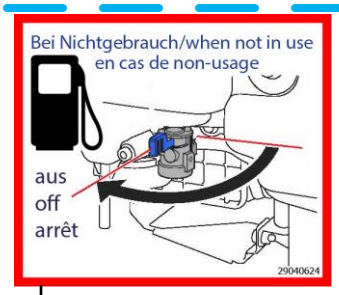
29040330 (GB)
29040331 (FR)



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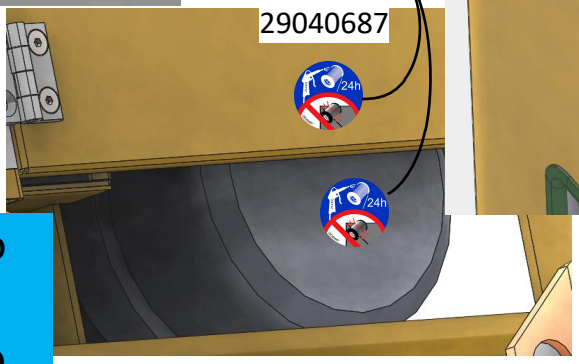

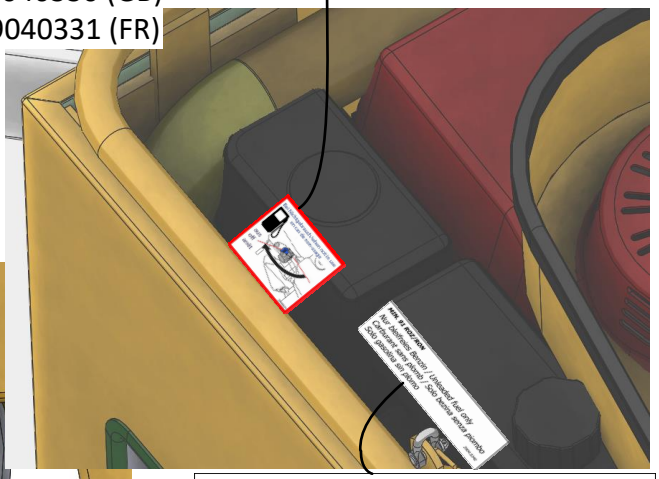

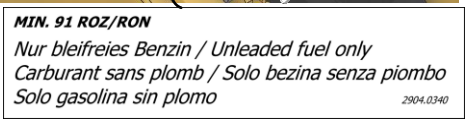

29040340

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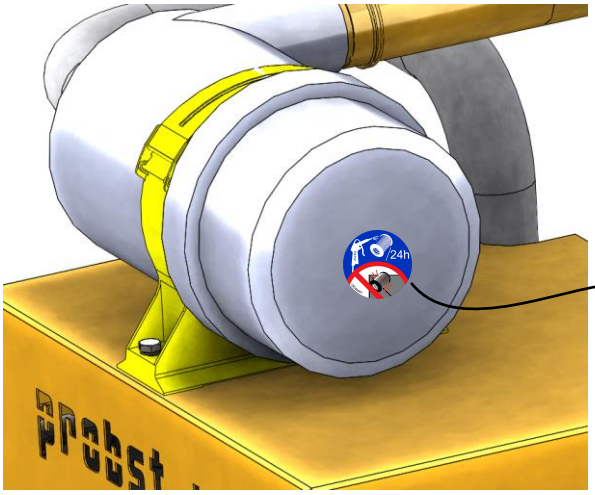
200-B | 52000020



29040687

Gilt für/applies to
150-E | 52000017
200-E | 52000019

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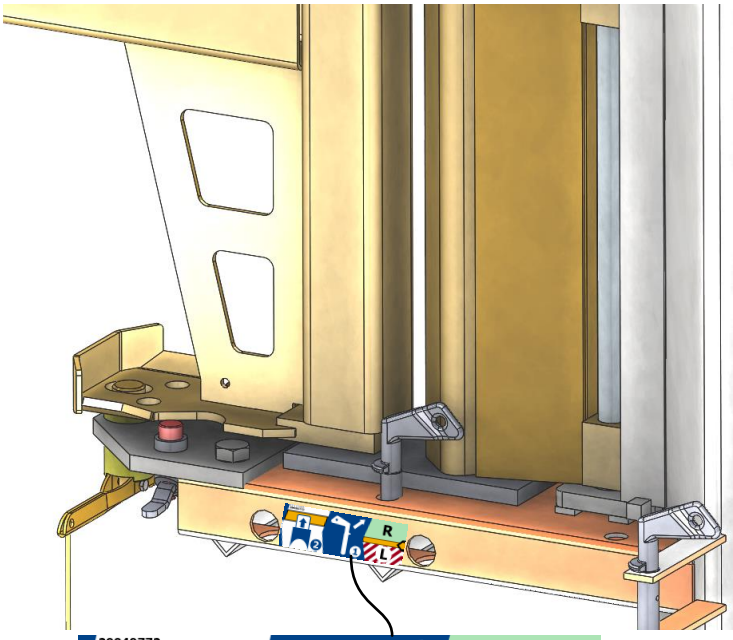
A52000017 JM-VARIO-150-E
A52000018 JM-VARIO-150-B
A52000019 JM-VARIO-200-E
A52000020 JM-VARIO-200-B

probst handling equipment

Linke Seite der Maschine / left side of the machine



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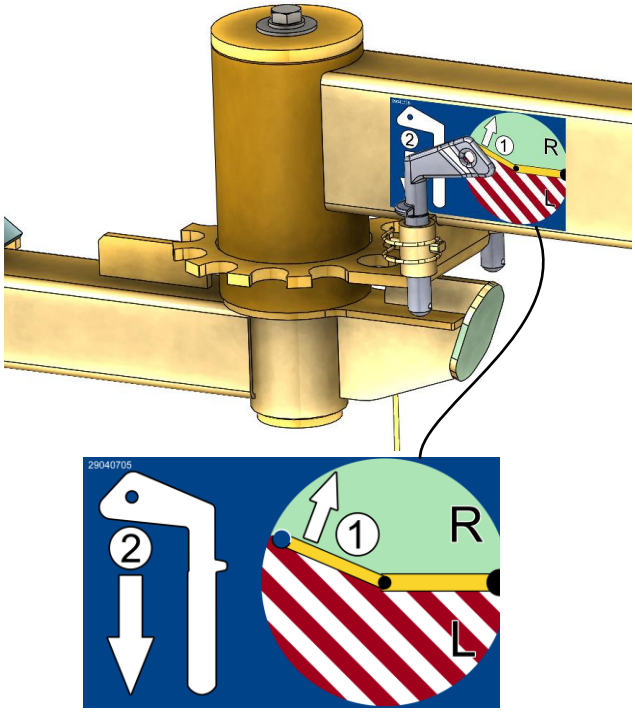
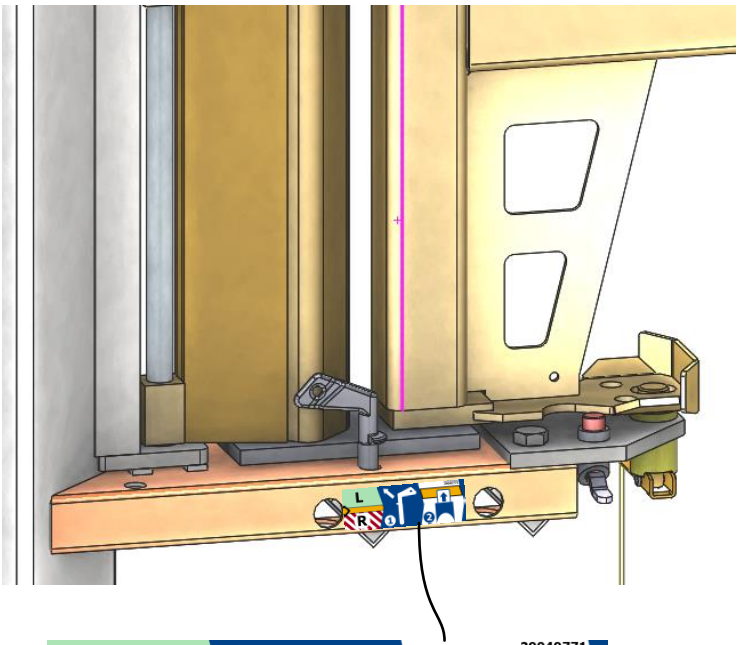


29040705

Rechte Seite der Maschine / right side of the machine



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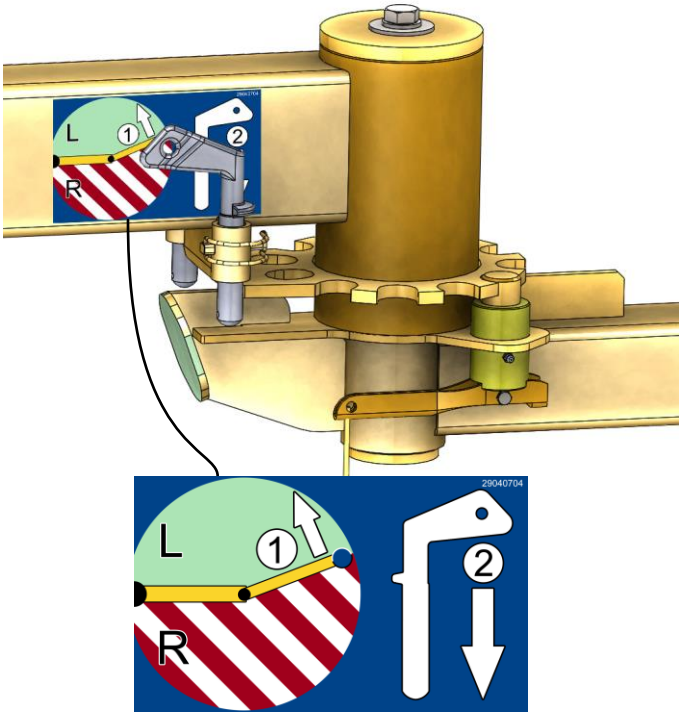

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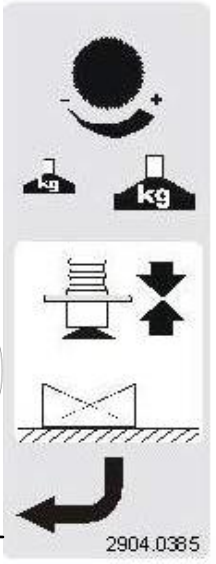
A52000020 JM-VARIO-200-B

29040384

29040666



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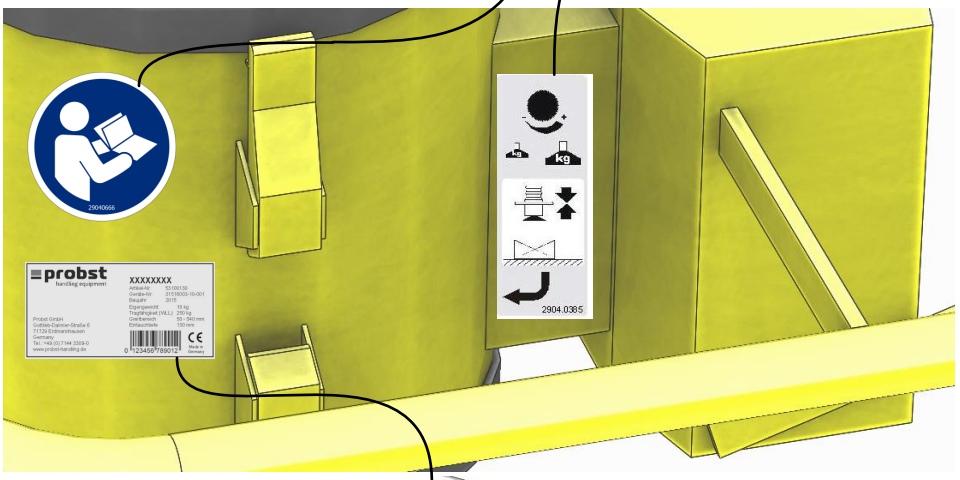
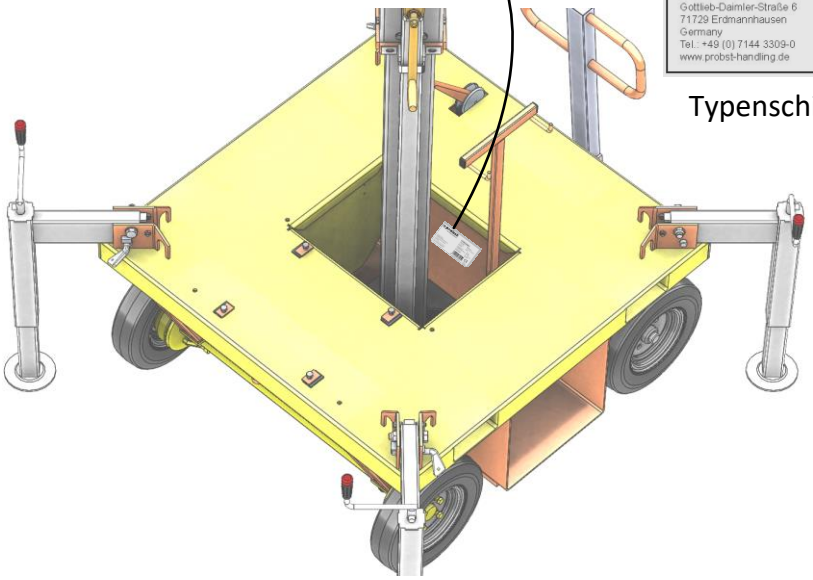
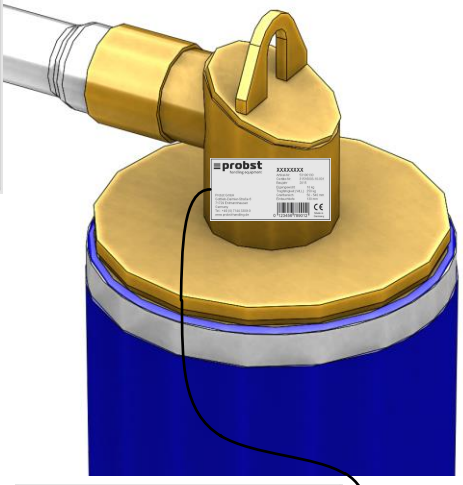


Typenschild Fahrgestell

Typenschild Bedieneinheit





Typenschild Hubeinheit

Einige der Abbildungen sind möglicherweise optionales Zubehör des Gerätes/Some of pictures may be optional equipment of the device.

Proof of maintenance

probst handling equipment

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.de / via fax or post

Operator: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Device type: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ **Article -No.:** _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Device-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*

Probst GmbH, Gottlieb-Daimler-Str. 6, 71729 Erdmannhausen, Germany,
Tel. +49 7144-3309-0, Fax +49 7144-3309-50, info@probst-handling.de

Proof of maintenance

probst handling equipment

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Operator: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Device type: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ **Article -No.:** _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Device-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*

Probst GmbH, Gottlieb-Daimler-Str. 6, 71729 Erdmannhausen, Germany,
Tel. +49 7144-3309-0, Fax +49 7144-3309-50, info@probst-handling.de

Proof of maintenance

probst handling equipment

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)].

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Operator: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Device type: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ **Article -No.:** _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Device-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*

Probst GmbH, Gottlieb-Daimler-Str. 6, 71729 Erdmannhausen, Germany,
Tel. +49 7144-3309-0, Fax +49 7144-3309-50, info@probst-handling.de