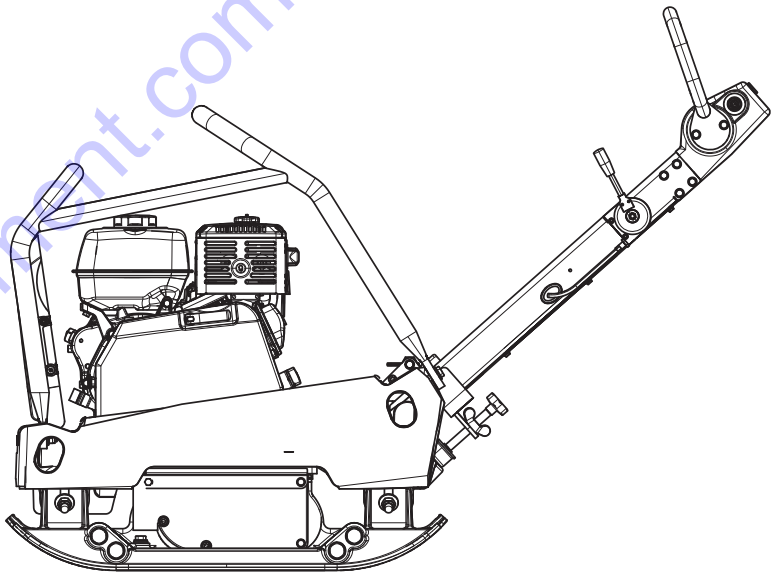
APR 52/75
APR 58/75

VIBRATION PLATE

HONDA GX390UT2X

AMMANN



Translation of Original Operation Manual

From Serial No. 3000001

2-00002087 EN

PARTS FINDER

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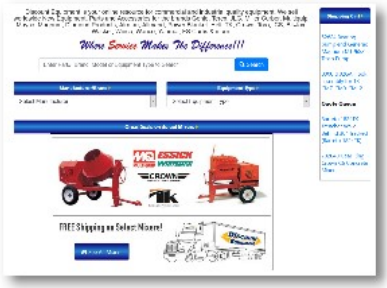

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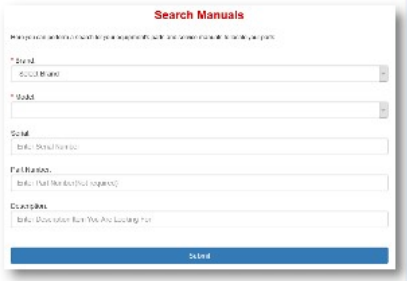

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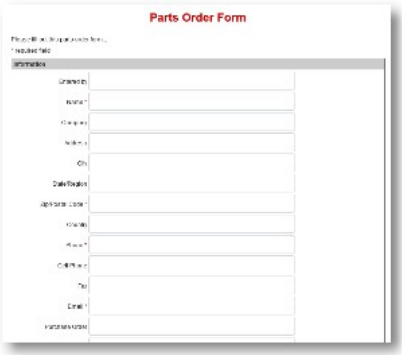

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AMMANN

EG-Konformitätserklärung
EC-Declaration of Conformity

gemäß Maschinen-Richtlinie 2006/42/EG, Anhang II A und Geräuschrichtlinie 2000/14/EG
as defined by the Machinery directive 2006/42/EC Annex II A and Noise directive 2000/14/EC

Hersteller (Name und Anschrift): Manufacturer (name and adress):	*Ammann Verdichtung GmbH* *Josef-Dietzgen-Straße 36* *53773 Hennef* *GERMANY*	
	Vibrationsplatte | Vibration plate	
Hiermit erklären wir, dass die Maschine (Typ) Herewith we declare that the machine (Type)	***APR 52/75***	***APR 58/75***
	HONDA *GX390UT2X*	*HONDA* *GX390UT2X*
Leistung / Output / Puissance / Capacità:	*6.4 kW*	*6.4 kW*
Seriennummer: Serial number:	*Weitere Informationen siehe Typenschild.* *Look at machine plate for more information.*	

folgenden einschlägigen Bestimmungen entspricht: complies with the following provisions applying to it:	*2006/42/EG* *2006/42/EC*	*2000/14/EG* *2000/14/EC*	*2005/88/EG* *2005/88/EC*	*2014/30/EG* *2014/30/EC*
Angewandte harmonisierte Normen : Applied harmonized standards:	*EN 500-1* *EN 500-4*			
Die benannte Stelle nach 2000/14/EG The notified body of 2000/14/EC	*TÜV Rheinland LGA Products GmbH* *Tillystraße 2* *90431 Nürnberg* *GERMANY* *Kenn-Nr. 0197*			
wurde (wird) eingeschaltet zur / was (is) engaged for				
Konformitätsbewertung nach Anhang VIII aus 2000/14/EG valuation of conformity to Annex VIII of 2000/14/EC	ISO 9001 Zertifikats-Nr.: ISO 9001 certificate No.:		*09100 67054*	
Gemessener Schallleistungspegel $L_{WA,m}$ Measured sound power level $L_{WA,m}$	*105 dB*	*105 dB*		
Garantierter Schallleistungspegel $L_{WA,m}$ Guaranted sound power level $L_{WA,m}$	*108 dB*	*108 dB*		

Hennef, 15.07.2024
Thomas Frenzel, MD&COO / i.V. Mark Pütz, HoR&D

Ort, Datum
Place, date

Unterschrift, Angabe der Funktion im Unternehmen
Signature, acting in the company

Aufbewahrung der technischen Unterlagen bei o.g. Person.
Technical documents are kept by the above mentioned person.

Imprint

This document was written by the technical editors of Ammann Verdichtung GmbH.

The illustrations and visualizations in this document are for general illustration purposes only. Therefore, illustrations and functional possibilities may deviate from the delivered machine. Ammann Verdichtung GmbH reserves the right to change this documentation and the descriptions and technical data contained therein without prior notice.

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Fax: +49 2242 8802-59
E-mail: info.avd@ammann.com

Identification

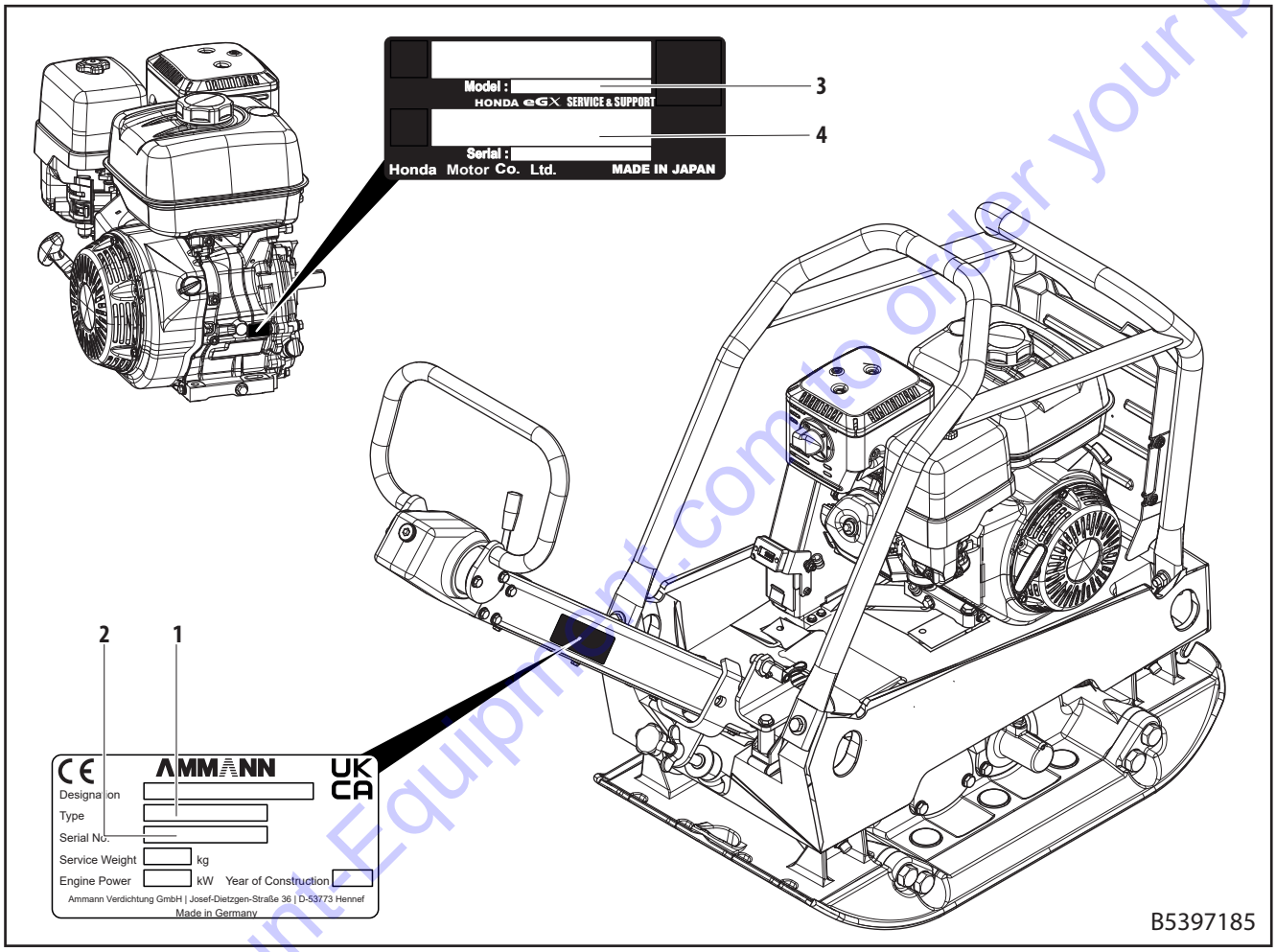
Identification of the machine

Enter the following information in the operating instructions. This enables the instructions to be clearly assigned to the appropriate machine. The information can be found on the rating plate and the motor rating plate.

Manufacturer information

Ammann Verdichtung GmbH
Josef-Dietzgen-Straße 36
53773 Hennef
Germany

Telefon: +49 2242 8802-0
Fax: +49 2242 8802-59
E-Mail: info.avd@ammann.com



1. Machine type: _____
2. Machine no: _____
3. Engine type: _____
4. Engine no: _____

Contents

1. Introduction

1.1 Purpose of the operating instructions

You must read these operating instructions before you operate the plate compactor for the first time or when you are instructed to perform other work on the plate compactor.

Using and handling the plate compactor described below is not a matter of course. It is explained in detail in the accompanying technical documentation.

Pay particular attention to the chapter on safety instructions.

1.1.1 Operating instructions

These instructions are to be considered a part of the machine. They must be kept carefully near the machine during the entire service life of the machine. These instructions must also be passed on to subsequent owners or users of the machine.

Using these instructions

- makes it easier to get familiar with the machine
- avoids malfunctions caused by improper operation.

Observing the maintenance instructions

- increases the reliability of the machine during its utilization on the construction site
- increases the service life of the machine
- reduces repair costs and downtimes.

Residual risks

The operating instructions inform and warn you of residual risks against which risk reduction by design and protective measures is not or not completely effective.

Keep these instructions always at the place where the machine is used. Operate the machine only after instruction and in compliance with these instructions.

1.2 Orientation in the operating instructions

Representation of general information icons

These operating instructions contain the following general information icons to guide you, the reader, through the operating instructions and to provide you with essential information.

Pictogram	Meaning
	Caution - material damage possible This pictogram tells you that the machine can be damaged during an action if the specified actions are not observed and carried out correctly.
	Important information This pictogram indicates essential additional information.
	Information about the documentation This pictogram tells you that parts of the documentation require special or additional attention (such as supplier instructions, etc.)

1.2.1 Representation of warning

Potentially dangerous operations must be performed when working with the machine. These actions are preceded by warnings that must be observed

	Important information on the warnings in the operating instructions • Observe all warnings on the machine and in the documentation, and be particularly careful in these cases. Also, communicate all warnings to other users. • Warnings (as well as requirements and prohibitions) are for your personal protection!

1.2.2 Design of the warnings in the operating instructions

Prefixed warnings on the product:

DANGER
 Identifies an imminent hazard that will cause serious or fatal injuries if not avoided.

WARNING
 Identifies a hazard that can result in serious or fatal injuries if not avoided.

CAUTION
 Identifies a hazard that can cause light injuries if not avoided.

IMPORTANT
 Identifies a situation that can cause material damage to the machine if not avoide.

ENVIRONMENT
 Indicates an environmental hazard that may cause damage to the environment.

NOTE
 Supplementary information on operating the machine.

Embedded warnings within an action (example):

1. Action
2. Action
3.  **WARNING!** Danger of suffocation from exhaust fumes. Start the engine only outdoors or in well-ventilated areas.
4. Action
5. Action

Symbols and pictograms used in the document

The warnings are always used together with an icon or a pictogram. These icons and pictograms often identify the source of danger and warn of hazardous areas, risks or obstacles. They also inform the user about the recommended personal protective equipment, requirements and prohibitions.

Pictogram	Meaning
	Warning of a dangerous point
	Warning of hot surfaces
	Warning of chemical burns
	Warning of suspended loads
	Warning of crushing injuries
	Warning of hazardous substances or mixtures
	Warning of danger of crushing fingers

Pictogram	Meaning
	Warning of fire hazard
	Explosion hazard
	Warning of electrical voltage
	Caution possible damage to property
	Warning of environmentally hazardous substances or mixtures
	No smoking, sparks or naked flames
	No access for persons with pacemakers or implanted defibrillators

Pictogram	Meaning	Application	Danger
	**General commandment**		
	**Read the operating instructions**		
	**Use hearing protection**	To protect against hearing injuries.	Excessive noise pollution.
	**Use eye protection**	To protect against injuries to the eyes.	Penetration of foreign bodies or acids.
	**Use foot protection**	Use to protect against injuries to the feet.	Impacts or blows to the feet with objects or contact with hot surfaces and chemicals
	**Use hand protection**	Use to protect against injury to hands.	Impacts or blows to the hands with objects or contact with hot surfaces and chemicals.
	**Use protective clothing**	Use during maintenance or when working with the machine.	Chemicals, heat and cold.
	**Use head protection**	Use to protect against injuries to the head.	Objects falling on the head or impact with the head against obstacles.
	**Use respiratory protection**	Use to protect against injury to the respiratory tract.	Escaping toxic vapors and gases.
	**Keep away from children**		

2. Safety, health and environmental regulations

2.1 Intended use

This machine may only be used for:

- Any compaction work in civil engineering and road construction. Compacting is possible with
  - soil materials, such as sand, gravel, slag, crushed stone.
  - paving stones.

Any other utilization is not in accordance with the intended use and is therefore improper. The safety of the personnel working with the machine can be impaired in such a case. The manufacturer accepts no liability for any damage resulting from such use.

The operational safety of the machine is only ensured if the machine is used as intended.

Intended use also includes compliance with all the information in these instructions.

2.2 Foreseeable misuse

Foreseeable misuse (abuse) includes:

- Operation by personnel who have not been instructed in using the machine.
- Weighting the machine.
- Riding on the machine.
- Using the machine as an attachment.
- Operation in inclined positions of more than 20°.
- Noncompliance with these instructions.
- Noncompliance with the safety instructions.
- Using on:
  - Hard concrete.
  - Driving with vibration on a set bitumen surface.
  - Heavily frozen soil.
  - Ground that is not able to support the machine.
  - Operation in the vicinity of precipices.

2.3 Conversion and modification

Any unauthorized modifications, additions or conversions to the machine are not permitted for safety reasons.

Spare parts and special equipment not supplied by us are not approved by us either. Installing and/or using such material can impair the handling and operating safety of the machine.

Any liability of the manufacturer is excluded for damage caused by using non-genuine parts or special equipment.

2.4 Operating personnel

Only trained, instructed persons over 18 years of age who have been authorized to do so are allowed to move and operate the machine. The responsibilities must be clearly defined and adhered to during operation.

In deviation from this, young people may be employed to the extent necessary to achieve their training objective and provided that their safety is ensured by a supervisor.

Persons under the influence of alcohol, medication or drugs are not allowed to operate, maintain or repair the machine.

Maintenance and repair, especially of hydraulic systems and electronic components, require special knowledge and may only be carried out by skilled personnel (mechanics for construction machinery, agricultural machinery).

2.5 Inspection

Road rollers, trench rollers and plate compactors must undergo a safety inspection by an expert as required by the conditions of use and the operating conditions, but at least once a year.

2.6 Residual risks

Although this Ammann machine was built in accordance with the current state of the art and the applicable rules of technology, it can still pose a risk to persons and property if

- it is not used as intended
- it is operated by untrained and unsuitable personnel
- it is improperly modified or converted
- the safety regulations are not observed

Consequently, each person involved in operation, maintenance or repair of the machine must read and observe the operating instructions and, in particular, the safety regulations. If necessary, the operating company must request this to be confirmed by a signature.

In addition, the following must be instructed and complied with:

- Applicable regulations for the prevention of accidents
- Generally recognized safety rules
- Country-specific regulations

2.7 Residual hazards in individual life phases and tasks

2.7.1 Transportation

During the transportation of the machine, the dead weight of the machine poses a crushing hazard. Incorrect handling can cause crushing of limbs and serious injuries. Consequently, observe the following instructions:

- Always switch off the engine when you load or transport the machine.
- Observe the transportation instructions in this document.
- Only use suitable means of transport and lifting gear of sufficient load-bearing capacity.
- Attach suitable slings to the lashing points provided.
- Secure the machine against tilting or slipping.
- Never stay under a suspended load. There is danger to life!
- Secure the machine also on the transport vehicle against rolling, slipping and overturning.

2.7.2 Operation

During the operation of the machine, there are various residual hazards that arise from the intended use of the machine and cannot be eliminated by the design. Consequently, observe the following instructions:

2.7.3 Prior to starting

- Wear personal protective equipment (safety shoes, sound-insulating equipment, etc.).
- Familiarize yourself with the operating and control elements and with the operation of the machine.
- Check to ensure that all safety devices are properly in place.
- Never start the machine with defective instruments or control elements. There is a risk of injury!
- Look at your work environment and prepare it for working on it. This includes, among other things:
  - Removing obstacles from the working area.
  - Checking the load-bearing capacity of the ground.
  - Providing necessary protection elements.
  - The points listed here are frequently occurring activities in connection with the field of application of the machine. The list is not exhaustive and depends on the particular working environment. Therefore, always adapt it to your working environment.

2.7.4 Starting

- Starting and operating the machine in potentially explosive atmospheres is prohibited!
- Strictly observe the procedures to switch the machine on and off and the control indicators explained in the operating instructions.
- A machines with an electrical starter may only be started and operated from the control panel. Non-compliance will result in damage to the electronic system.
- Starting with battery jumper cables:

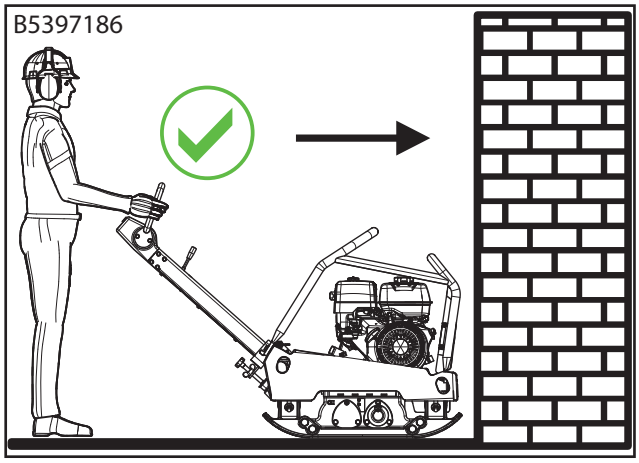
■ **NOTE:** Always connect the ground cable last and disconnect it first! Connect «Plus» to «Plus» and «Minus» to «Minus» (ground cable). Incorrect connection will cause serious damage to the electrical system.

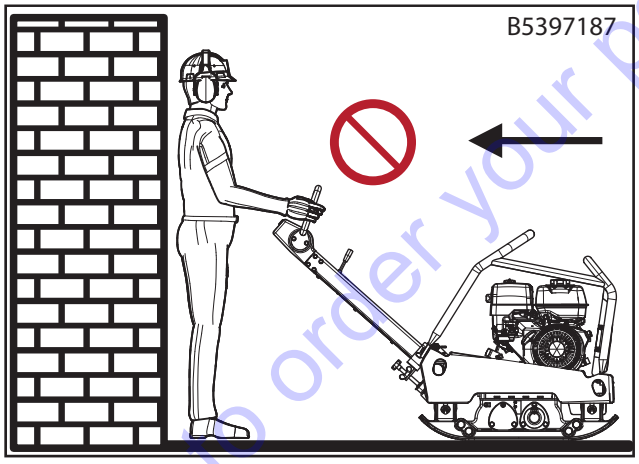
Starting in closed rooms, tunnels, galleries or deep trenches

■ **WARNING!** Engine exhaust gases are dangerous to life! When operating the machine in a closed room, tunnel, gallery or deep trench, make sure that there is sufficient breathable air to ensure good health. Wear respiratory protection!

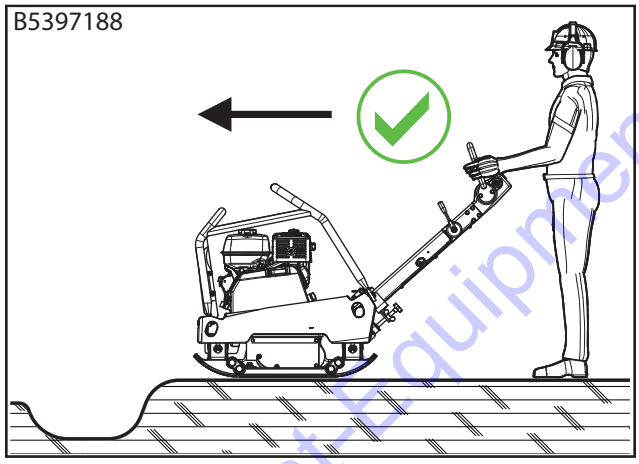
2.7.5 Guiding the machine

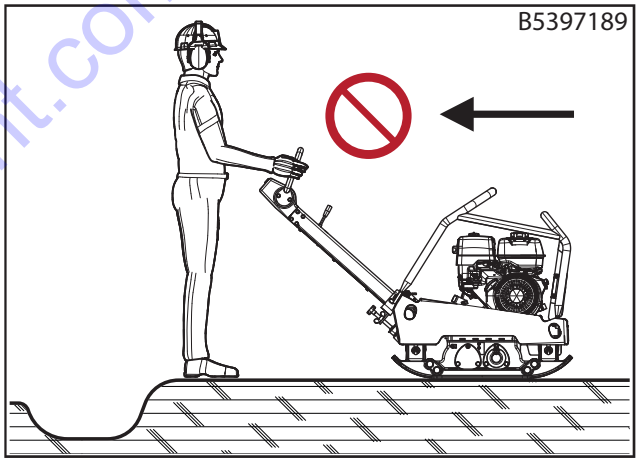
- Prior to starting the operation, check the effectiveness of the safety devices and brakes. Inoperative protective devices and brakes
- you discover any defects on the safety devices or other defects that affect the safe operation of the machine, stop machine operation immediately and eliminate the defect.
- Never fasten operating devices that are intended to adjust themselves automatically when released.
- When compacting near buildings or over pipelines or similar objects, check the effect of the vibration on the building or pipelines and stop compaction work if necessary. Always:
  - Guide the machine such that the machine operator can not suffer crushing injuries (between the machine and obstacles such as buildings, walls or objects).



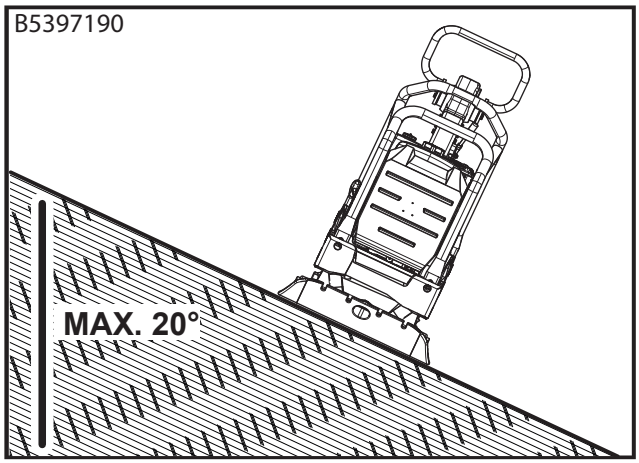


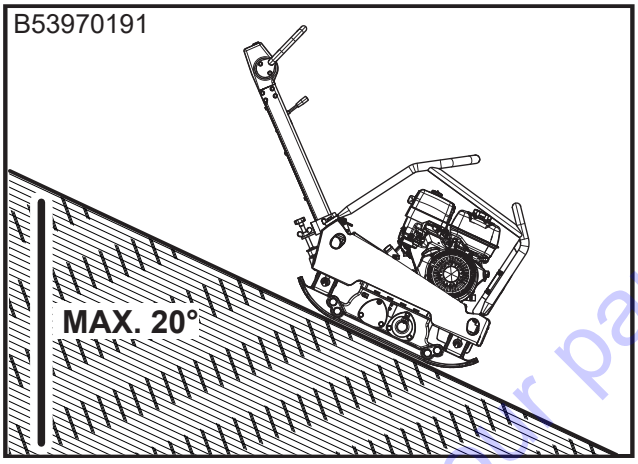
  - Guide the machine such that there is no risk for the machine operator to fall (in trenches, construction pits or on embankments).



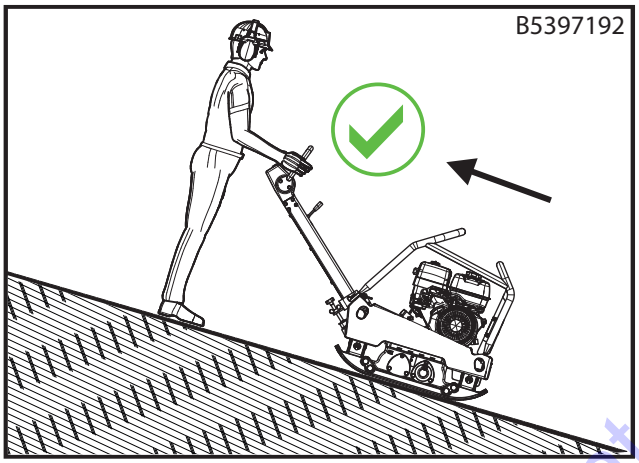


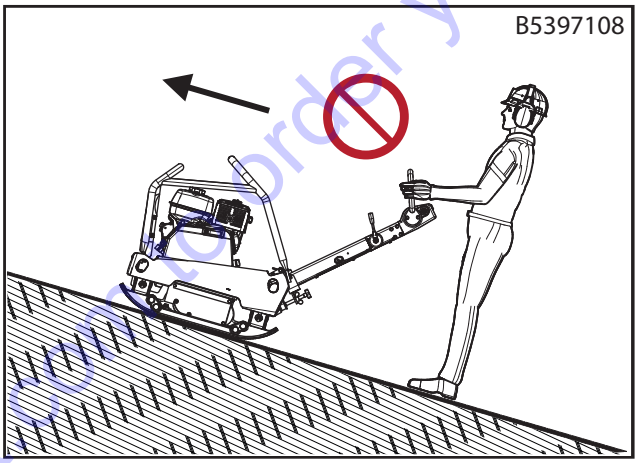
  - Refrain from any mode of operation which impairs the stability of the machine.





- Move carefully on slopes, always in a direct upward direction.





- On steep slopes, move uphill in reverse to prevent the machine from tilting onto the machine operator.

2.7.6 Parking the machine

- After work, park the machine on a level surface, stop the drive, secure it against unintentional movement and unauthorized use (remove the key).
- If available, close the fuel cock

■ **NOTE:** Never park or store a machine with an integrated carriage on the carriage. The carriage is only designed for the transport of the device. There is a risk of machine damage.

2.7.7 Refueling

- Wear respiratory protection and protective gloves during the refueling process. Fuels are harmful to health.
- To refuel the machine, you must open the engine hood. When the engine hood is open and the engine is running at the same time, there are hot surfaces and other hazardous areas inside the machine that can be reached. There is a risk of injury. Therefore, switch off the machine before you open the engine hood.
- Naked flames and smoking are prohibited during the refueling process. A naked flame can ignite the fuel-air mixture. There is a fire hazard!
- Use a funnel to fill the fuel into the tank. Do not spill any fuel. Spilled fuel must be recovered immediately. It must not seep into the soil.
- After refueling, check the seat of the tank cap. It must be tight and sit firmly on the tank. A leaking fuel tank can be the cause of explosions. It must therefore be replaced immediately.

2.8 Maintenance and repair work

Properly performed maintenance, inspection and adjustment activities are essential components in the safety concept of the machine. If this work is not done properly, there is a great risk of injury from non-functioning safety devices. Consequently, observe the following points:

- Observing the related deadlines, perform the maintenance, inspection and adjustment activities specified in the operating instructions, including the information on the replacement of parts.
- Only qualified and authorized persons are allowed to carry out maintenance work.
- Spare parts must comply with the technical requirements specified by the manufacturer. Consequently, use only genuine spare parts.
- To replace larger assemblies and individual parts, use only suitable and technically faultless hoisting gear and load handling equipment of sufficient load-bearing capacity. Carefully attach and secure the parts at the hoisting gear! Dropping parts can cause serious injuries.
- Reinstall and check all safety devices properly after maintenance and repair work has been completed.
- Remove any damage immediately.

Maintenance to electrical equipment

The machine's electrical equipment must be checked regularly. Problems such as loose connections, chafe marks or burnt cables must be eliminated immediately.

Maintenance of hydraulic lines

- Only persons with special knowledge and experience in hydraulics are allowed to work on hydraulic equipment!
- Prior to working on hydraulic lines, ensure that they are pressure-less. Escaping pressurized hydraulic oil can cause serious injuries!
- Hydraulic oil must be drained at operating temperature - there is a risk of scalding! Wear protective gloves.

■ **NOTE:** Never start the engine when the hydraulic oil is drained. There is a risk of machine damage!

- Do not readjust the pressure relief valve.
- All of the hoses and screw connections must be checked regularly for leaks and any externally visible signs of damage!
- Once all work has been finished, check (with the system still depressurized) all connections and screw fittings for leaks.
- Replace hydraulic hose lines that show external damage. Replace hydraulic hoses generally at appropriate intervals (depending on the time they have been used), even if no safety-relevant defects are apparent.

Battery maintenance

- Secure removed batteries against tipping over, short circuiting, slipping or damage during transport. Failure to do so can cause short circuits, escape of battery acid and fire.
- No smoking or open flames when working on the battery. They pose a fire and explosion hazard!
- Dispose of used batteries according to applicable regulations.
- Never place tools on the battery. Tools can bridge contacts and cause short circuits. This may cause injury.

Handling acid batteries:

- Wear safety gloves. Battery acid is caustic. Do not get acid on your hands or your clothing. Rinse with clear water and consult a doctor if you are injured by acid!
- Filled batteries must be transported in an upright position to prevent acid leaks.
- During the charging process, highly explosive oxyhydrogen gas can form and collect in the battery. Beyond a critical amount, there is danger of explosion. When recharging the battery, remove the sealing plugs, so that the gas can escape and dissipate.

2.9 Machine disposal

The user is obliged to abide by the national laws and regulations covering waste and environmental protection when disposing of the machine at the end of its service life. In these cases we recommend that you always:

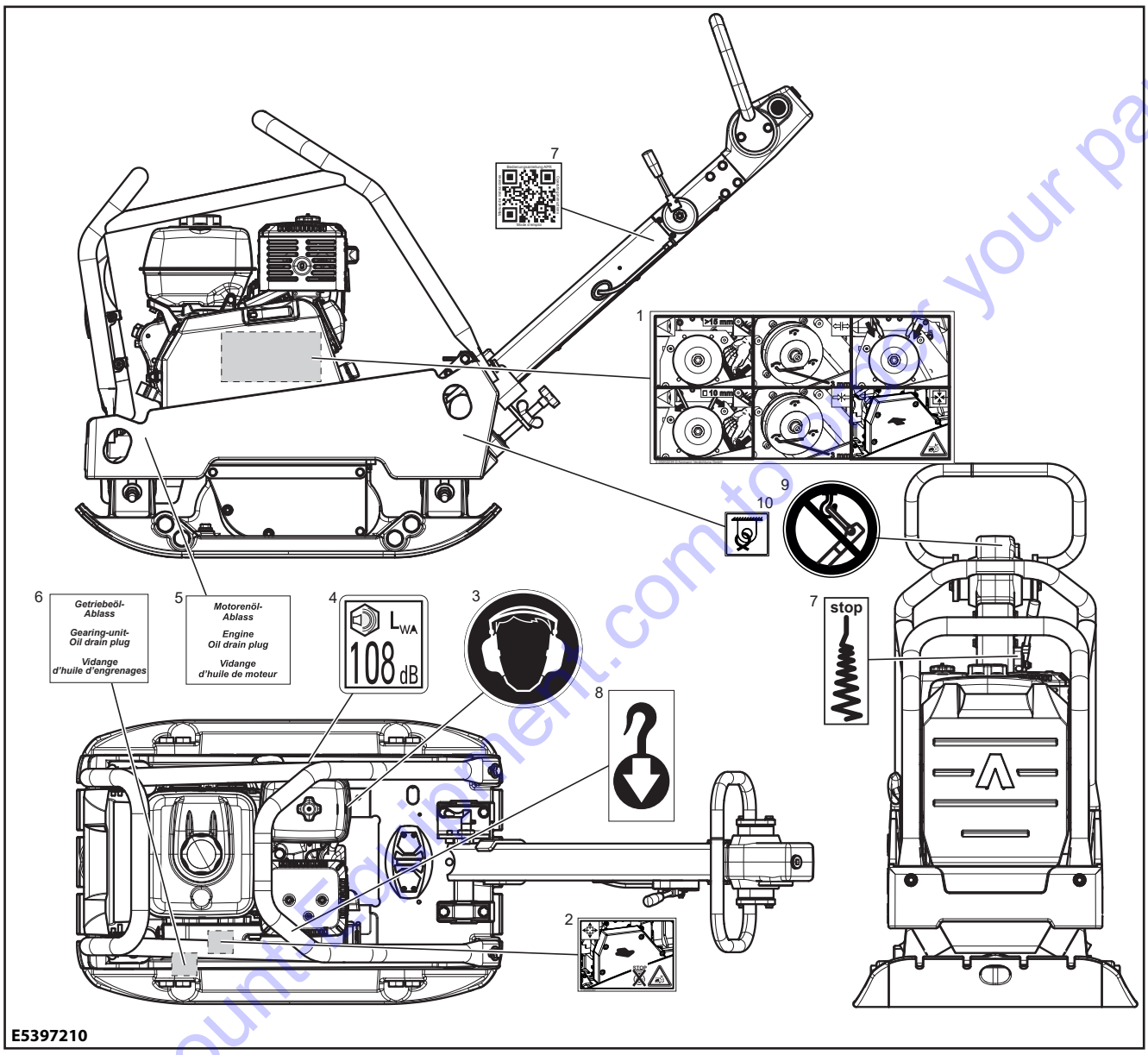
- consult specialized companies that have been authorized for these activities.
- contact the machine's manufacturer or the accredited contractual service organizations authorized by them.

The manufacturer accepts no liability for any harm caused to the health of users or for any environmental damage caused by failure to comply with the instructions above.

2.9.1 Safety devices

Labeling on the machine

The following information, safety and warning signs are attached to the machine.



	Article no.	Qty.	Designation		Article no.	Qty.	Designation
1	2-00202239	1	V-belt tension film	6	2-00202071	1	Gear oil drain film
2	2-00202242	1	V-belt protection film	7	2-00209001	1	QR code label
3	2-00204129	1	Wear hearing protection film	8	2-00202260	1	Central point suspension film
4	2-00202602	1	108 dB sign	9	2-00202530	1	Foil prohibition crane hook
5	2-00202060	1	Engine oil drain film	10	2-00202011	4	<Bracing point> sign

3. Machine specification

3.1 Machine description

The machines of the APR series are reversible vibration plates that use the 2-shaft vibrating system. The engine drives the exciter on the base plate via centrifugal clutch and V-belt.

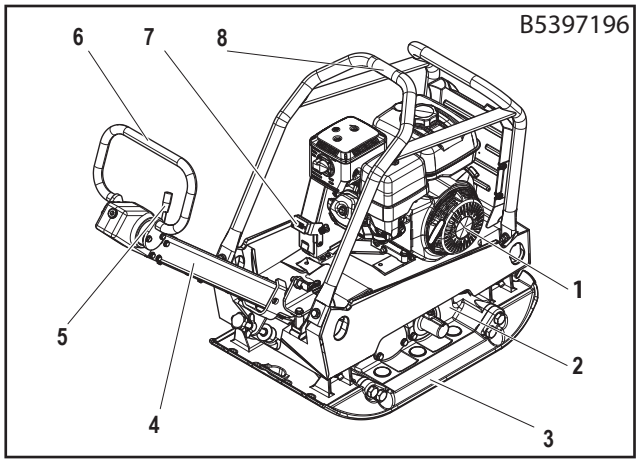
Using the integrated unbalance elements, the exciter generates the vibrations required for compaction.

The machine is guided at the draw-bar handle. The machine is operated via the control elements of the draw-bar

The APR series is suitable for all compaction work in civil engineering and road construction.

Compacting is possible with all soil materials, such as sand, gravel, light cohesive soils, slag, crushed stone and paving stones.

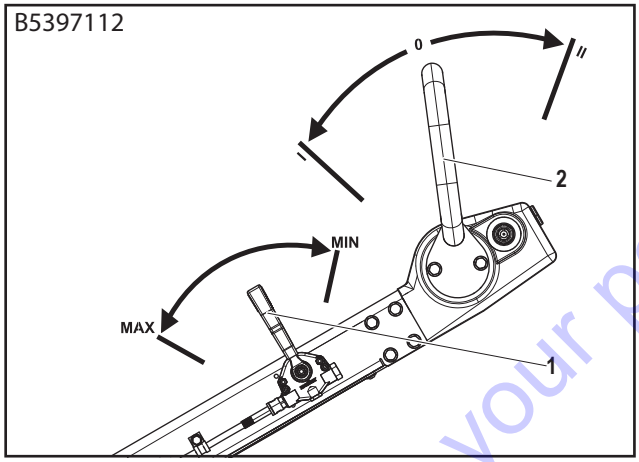
3.1.1 Machine overview



1. Petrol engine
2. Base plate with exciter
3. Mounting bracket [1)]
4. Draw-bar
5. Speed lever
6. Draw-bar handle / Control lever
7. Operating hours meter[1)]
8. Central point suspension

[1)] Special accessories.

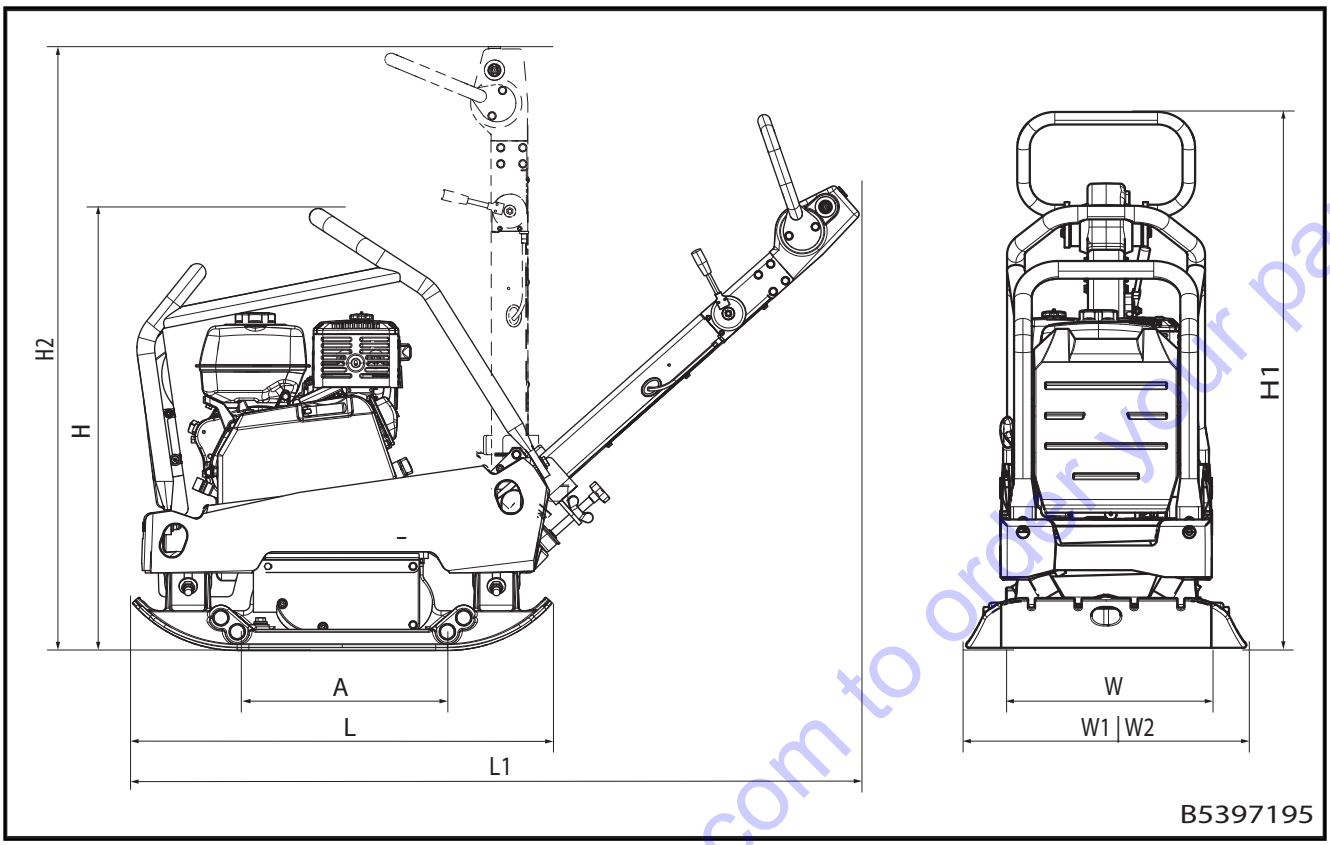
3.1.2 Control elements overview



1 Speed lever

2 Control lever

3.2 Technical data



	APR 52/75 HONDA	APR 58/75 HONDA
1. Dimensions		
W	450 mm | 17.7 in	
W1	600 mm | 23.6 in	
W2	750 mm | 29.5 in	
L	898 mm | 35.4 in	
L1	1670 mm | 65.7 in	1650 mm | 64.96 in
A	450 mm | 17.7 in	
H	953 mm | 37.5 in	973 mm | 38.3 in
H1	1000 mm | 39.4 in	
H2	1270 mm | 50.0 in	1305 mm | 51.4 in
2. Weights		
Operating weight, basic unit	365 kg | 805 lb	417 kg | 921 lb
Max. Operating weight, including options	414 kg | 913 lb	466 kg | 1029 lb
Mounting brackets 75 mm | 2.95 in	+ 19.0 kg | 42 lb	
Mounting brackets 150 mm | 5.9 in	+ 39.0 kg | 86 lb	

Machine specification

	APR 52/75 HONDA	APR 58/75 HONDA
3. Drive		
Engine type	HONDA	
Type of construction	1-cylinder 4-stroke gasoline engine	
Emissions guideline		
Output	6.4 kW | 8.6 hp	
at (Engine speed)	3000 rpm	
Cool system	Air cooling	
Fuel tank capacity	6.1 ℓ | 1.6 US gal | 1.3 imp gal	
Fuel consumption	approx. 3.0 ℓ/h | 0.8 gph | 0.7 imp gal/h	
Max. inclination	20 °	
Max. climbing ability	30 %	
Drive type	Via centrifugal clutch and V-belt.	
Forward/reverse control	Hydraulic	
Operating temperature range	-15°C to 40°C | 5°F to 104°F	
4. Speeds		
Working speed	0 – 29 m/min | 0 – 1.1 mph	
5. Vibration		
Max. Vibration force	52 kN	58 kN
Max. Vibration frequency	65 Hz	
6. Special accessories		
Mounting bracket 75 mm | 2.95 in	●	●
Mounting bracket 150 mm | 5.9 in	●	●
Wear protection plates	●	●
Operating hours meter	●	●
ServiceLink	●	●

● = Special accessories | ■ = Series | — = Not available

	APR 52/75 HONDA	APR 58/75 HONDA

7. Noise and vibration specifications

The following noise and vibration data in accordance with the EC Machinery Directive in the version (2006/42/EC) were determined taking into account the harmonized standards and directives listed below. In practical operation, the values can deviate from these values, depending on the prevailing conditions.

9.1 Noise specification[2)]

The noise specification required in accordance with Annex 1, section 1.7.4.u of the EC Machinery Directive is specified as follows for

Sound pressure level at the place of work L_{PA}	95 dB	96 dB
Measured sound power level $L_{WA,m}$	106 dB	107 dB
Guaranteed sound power level $L_{WA,g}$	108 dB	108 dB

The noise values were determined taking the following guidelines and standards into account:
Directive 2000/14/EC | EN ISO 3744 | EN 500-4

9.2 Vibration specification

The noise specification required in accordance with Annex 1, section 1.7.4.u of the EC Machinery Directive is specified as follows for

Total vibration value of the acceleration a_{hv}	< 2,5 m/s²	< 2,5 m/s²
Uncertainty K	1.0 m/s²	1,0 m/s²

The acceleration value was determined taking the following guidelines and standards into account:
EN 500 | DIN EN ISO 5349

[2)] Since the admissible rating sound level of 85 dB (A) can be exceeded with this machine, sound protection devices must be worn by the operator.

4. Machine operation

4.1 Control elements

IMPORTANT

Shift lever block.

If the control lever is switched too fast several times, it will lock into rear drive. In this case:

a) Let the lever in forward drive go to the maximum; in a few seconds the block releases.

✓ The control lever can be switched again.

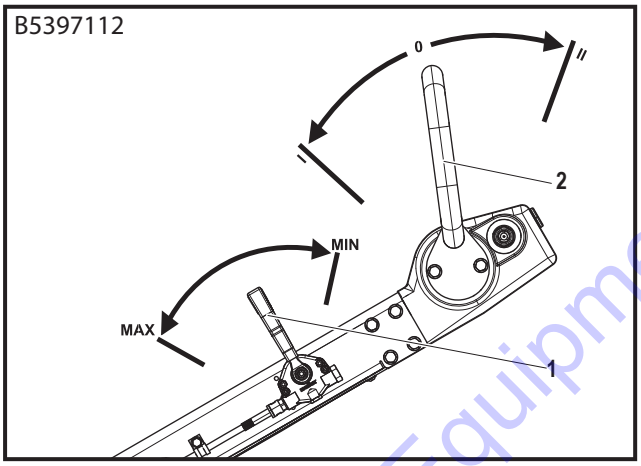
IMPORTANT

When switching at a standstill, the lever will lock. The block lifts immediately after the engine is started back up.

a) Switch the control lever only when the engine is running.

b) Start the engine, the block releases.

✓ The control lever can be switched again.



Speed lever (1)

MIN Idle
MAX Full throttle

The engine RPM is continuously adjusted with the speed lever. At the lowest engine RPM, power transfer from the engine to the exciter is interrupted, and the engine idles. The centrifugal clutch switches on after about ¼ of the adjustment path.

Control lever (2)

The shift lever is for adjusting the imbalances in the exciter and thus continuous regulation of the speed and the

I Forward driving direction
0 Point vibration
II Rearward driving direction

Only at maximum forward drive (**I**) does the shift lever automatically stay in position. In all other positions, the shift lever moves to maximum forward drive after it is let up on.

4.2 Before commissioning

⚠ DANGER

Risk of death, injury or damage to property.

Failure to follow this manual and all the safety instructions it contains can result in death, injury or property damage.

a) Carefully read and follow this manual, especially the safety instructions.

b) Read and observe the engine operating manual and its instructions on safety, operation and maintenance.

⚠ WARNING

Failure to use personal safety equipment (PSE) or using unsuitable equipment, may harm heath or cause injury.

a) Personal safety equipment includes:
- Ear protection
- Safety shoes
- Work gloves
- Breathing protection

b) Determine and prepare the right personal safety equipment for the job.

c) Use only personal safety equipment that is in proper condition and provides effective protection.

d) Adjust the personal safety equipment to the person, such as to body size.

To commission, do as follows:

1. Place the machine on a level floor.
2. Inspect
   - Engine oil level
   - Hydraulic oil level
   - Fuel supply
   - Screw joints for firm seating
   - Condition of engine and machine (visual inspection)
3. Top up low lubricants according to the lubricant chart.
4. Adjust and lock the draw-bar.

✓ Once commissioning is finished, the engine can be started.

4.3 Adjust/lock draw-bar

4.3.1 Lock the draw-bar

IMPORTANT

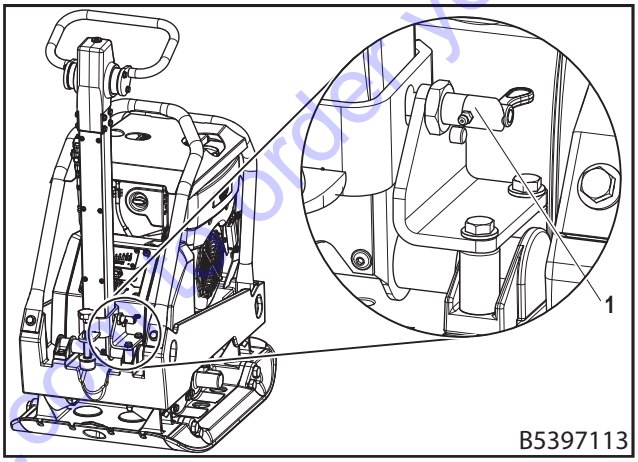
Material damage hazard.

If the draw-bar is locked during normal operation, the lock's parts can be damaged.

a) Do not lock the draw-bar during normal operation.

b) The draw-bar lock is used only to make the machine easier to transport.

- The draw-bar can be fixed in a vertical position (**1**).



- The locked draw-bar makes it easier to handle the machine when loading.

4.3.2 Set the working height

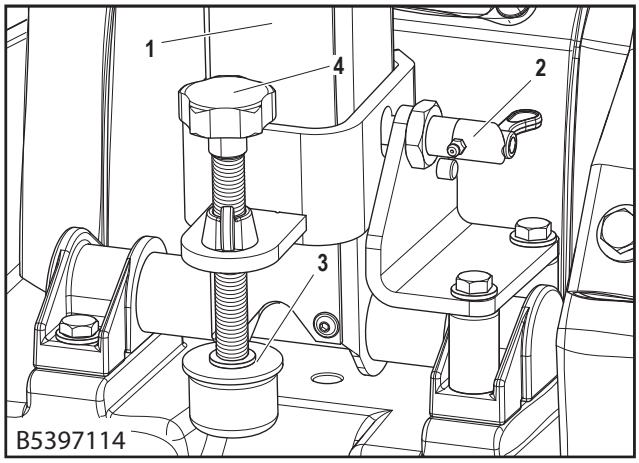
⚠ CAUTION

Injury hazard!

When setting the draw-bar height, a freely moving draw-bar can tilt, hit and injure bystanders.

a) Lock the draw-bar before height adjustment.

The adjustment screw (**1**) can be used to optimize the working height. This allows you to avoid injury and tension through incorrect postures.



To set the optimum working height, do as follows:

1. Bring the draw-bar (**1**) into vertical position and lock by turning the deadbolt (2).

► The deadbolt (**2**) audibly snaps in.

2. Loosen the wing nut (**3**).

► The adjustment screw (**4**) can be freely rotated.

► Turning clockwise presses the draw-bar toward the engine. This raises the working height.

► Turning counterclockwise moves the draw-bar away from the engine. This decreases the working height.

3. Set the adjustment screw (**4**) to get the optimal working height.
4. Lock the position of the adjustment screw (**4**) by tightening the wing nut (**3**).
5. Hold on to the draw-bar (**1**). Unlock the deadbolt (**2**).

► Slowly lower the draw-bar until the set working height is reached.

✓ The working height is set.

4.4 Engine operation

⚠ DANGER

Death hazard from breathing exhaust.

In closed or poorly ventilated spaces, poisonous engine exhaust gases can lead to unconsciousness and even death.

a) In a poorly ventilated environment (e.g. construction pits) wear breathing protection.

b) Never operate the device in closed or poorly ventilated spaces.

c) Do not inhale exhaust.

⚠ WARNING

Death/injury hazard from operation in an explosion-prone atmosphere!

Starting and operating the machine in explosion- and fire-prone areas can cause severe injury or even death.

a) Never start or operate the machine in explosion- or fire-prone areas.

⚠ WARNING

Injury hazard from damage and defects on the machine.

Damage and defects on the machine, especially the safety equipment, are hazard sources. Damaged machines can injure the machine operator or bystanders.

a) Before every startup, visually inspect for damage.

b) If damage is located and identified, do not operate the machine.

c) Replace defective components.

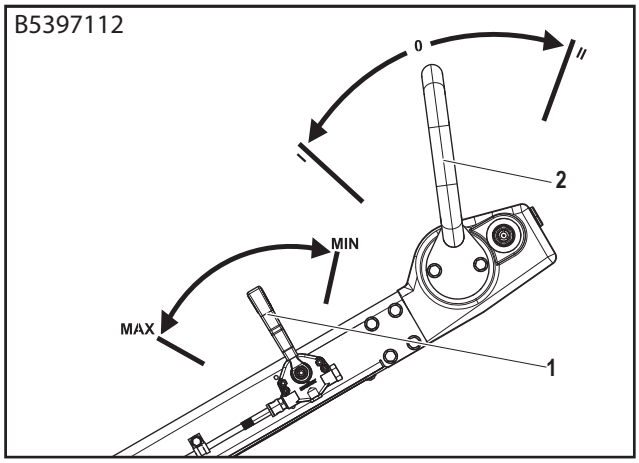
⚠ WARNING

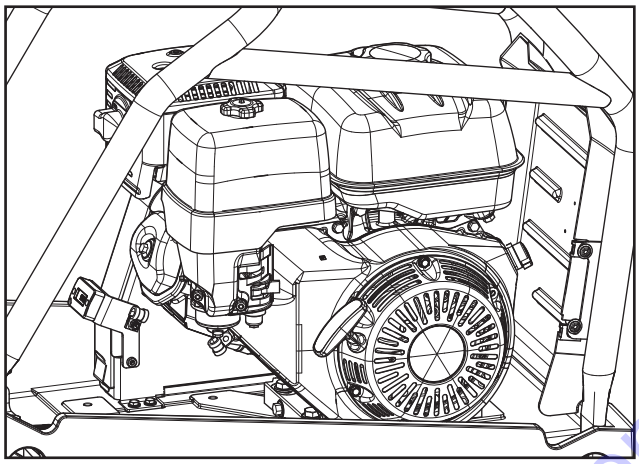
Starter sprays can cause injury or engine damage.

Use of starter sprays can cause uncontrolled combustion in the engine. Uncontrolled combustion can injure people and damage the engine.

a) Never use starter sprays.

4.4.1 Control elements overview





1 Speed lever
2 Control lever
3 Fuel tap
4 Choke lever
5 Engine switch
6 Starter grip

4.4.2 Low oil protection system

IMPORTANT

Risk of engine damage.

a) If the oil level is not too low, do not start the engine. Contact an authorized dealer of the engine manufacturer and have the problem rectified.

- The engine is equipped with a low oil protection system:
- If the engine oil level is too low, the engine switches off and can no longer be started. In this case:
- Check the engine oil level, top up if necessary.
- Repeat the starting procedure.

4.4.3 Starting the engine

NOTE

a) Do not activate the choke when the engine is warm.

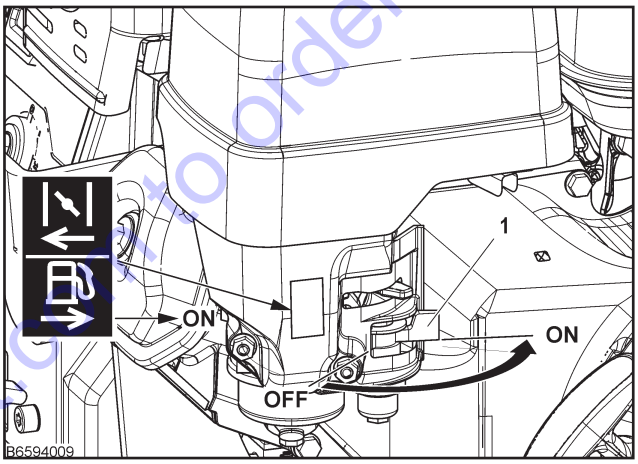
NOTE

Risk of damage to the starter.

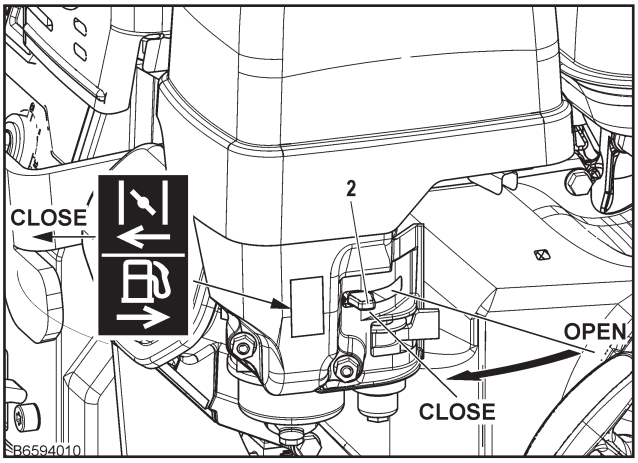
a) Do not let the starter grip snap back against the engine.

b) Guide it back slowly so that the starter doesn't get damaged.

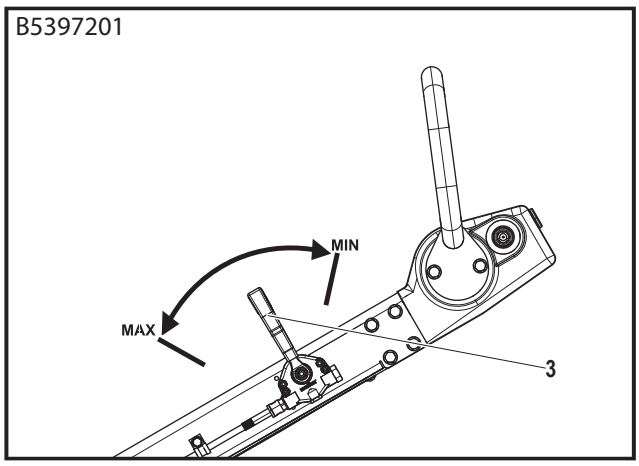
To start the engine, proceed as follows:



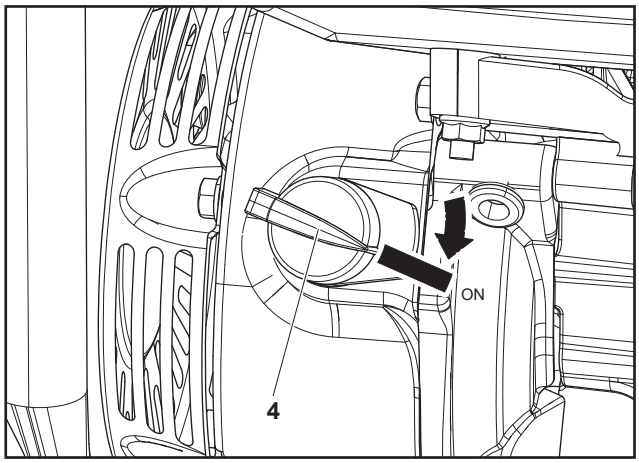
1. Set fuel tap (**1**) to «*ON*».



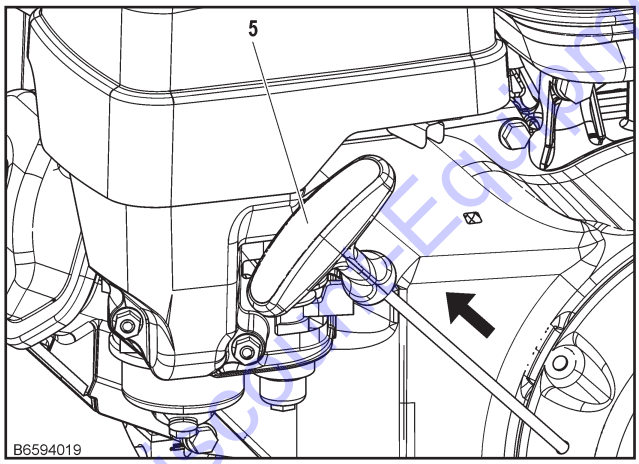
2. Set choke lever (**2**) to «*CLOSE*».



3. Push the throttle lever (**3**) approx. 1/3 in the direction of «*MAX*».



4. Set the engine switch (**4**) to the «*ON*» start position.

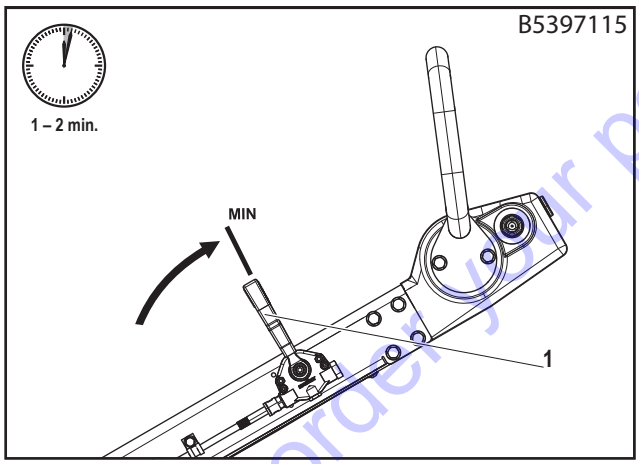


5. Pull the starter grip (**5**) lightly until you feel resistance, then pull briskly in the direction of the arrow as shown below.

✓ The engine starts. Now follow chapter „4.4.4 After the engine starts".

4.4.4 After the engine starts

1. In the event of irregularities:
   - Switch off the engine immediately.
   - Determine and rectify the fault.
   - Details on troubleshooting can be found in the „Help in case of malfunctions" chapter.



2. Set the speed lever (**1**) to «*MIN*».
3. Allow the engine to warm up for 1 - 2 minutes.
4. In the event of a false start, return the speed lever (**1**) to the starting position and repeat the starting procedure.

✓ Machine is ready for operation.

4.4.5 Shut off the engine

NOTE

a) To stop the engine in an emergency, set the start key to «**0**».

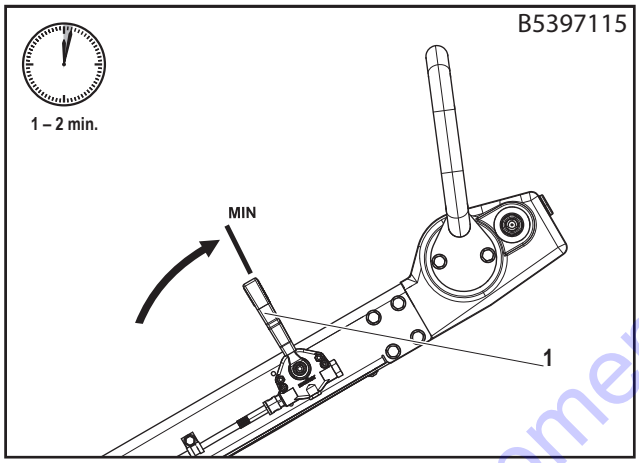
⚠ WARNING

Risk of injury due to unauthorised access.

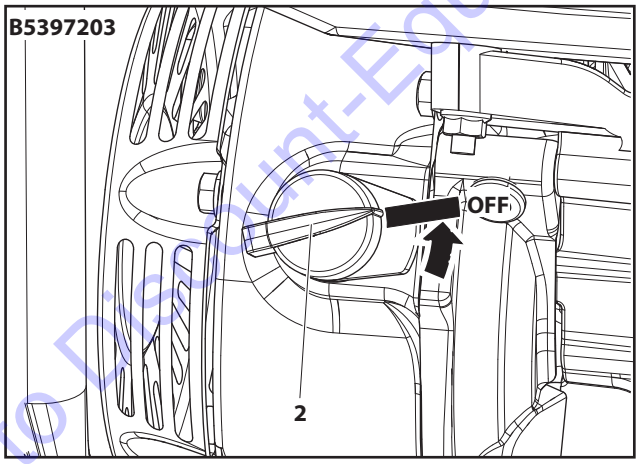
There is a risk of injury if unauthorised persons handle the unit.

a) Protect the machine from unauthorised access during interruptions to operation or after the end of work.

To switch off the motor, proceed as follows:



1. Set the engine speed lever (**1**) to «MIN».
2. Allow the engine to run for 1 – 2 minutes.



3. Set the motor switch (**2**) to the stop position «*OFF*».

► The engine switches off.

✓ The engine is switched off.

4.5 Operating the machine

⚠ DANGER

Death hazard from tilting or sliding the machine.

The machine can tip over or slide due to skidding material, unstable edges or smooth surfaces. This can cause severe injury or death.

b) Navigate slopes carefully, and always drive upward in a straight direction.

c) Drive up steep slopes backwards to keep from tipping the machine.

d) At the edge of ditches and ledges, and in front of obstacles, drive the machine in such a way that there is no falling or crushing hazard to the driver.

e) When driving the machine backwards, guide the machine sideways to prevent the machine operator from being crushed.

f) Keep adequate distance from trench edges and embankments.

g) Refrain from any manner of working that threatens the machine's stability!

h) Do not move over hard concrete, hardened bitumen surfaces, frozen ground or ground that does not have an adequate load capacity.

IMPORTANT

Risk of engine damage.

Prolonged idling can cause engine damage.

a) Shut down the engine during longer breaks.

IMPORTANT

Difficulties in starting up the exciter.

Under unfavorable conditions, it can be difficult for the exciter to start up. The engine can not reach its rated speed in such a case.

a) Actuate the control lever repeatedly.

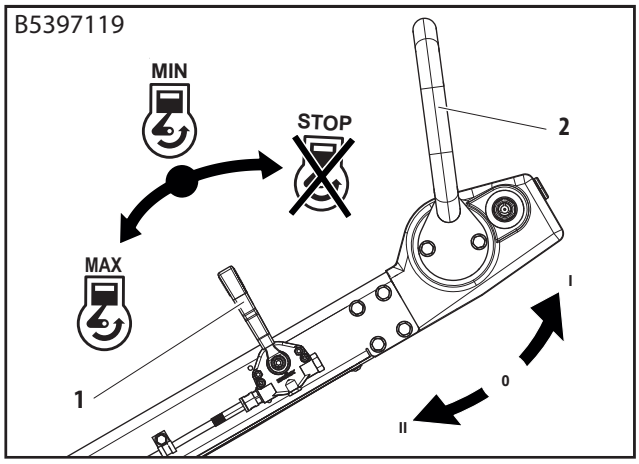
IMPORTANT

Beware of material damage.

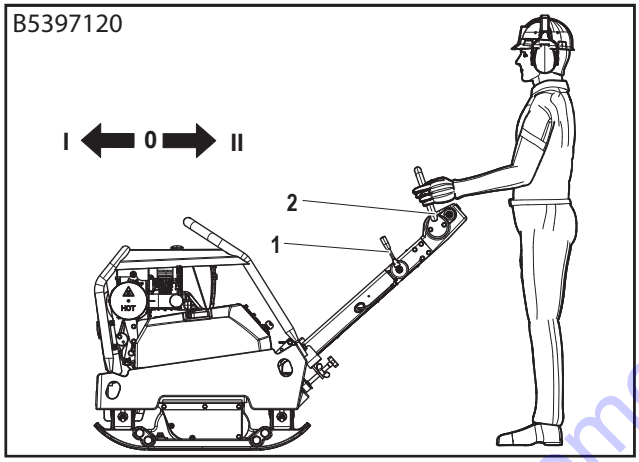
a) When compacting interlocking pavement, using wear protection plates (special accessories) is recommended to prevent damage to machine and compaction material.

Use the following procedure to start work:

1. Start the engine.



2. Set the speed lever (**1**) to «*MAX*».
3. Set the direction and the speed of travel on the control lever (**2**).



► The place intended for the operator to be is behind the machine.

4. Guide and steer the machine by the draw-bar handle (**3**); the operator walks sideways next to the draw-bar.
5. To stop the machine, set the speed lever (**1**) to «*MIN*».

► The machine stops, but the engine continues running.

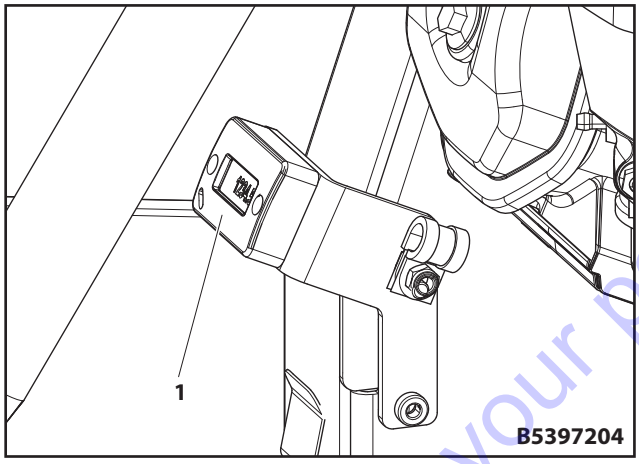
6. For short pauses, set the speed lever to «*MIN*».

► The machine idles.

7. For longer breaks and after work
   - Set the engine switch to «*OFF*».
   ► The engine is switched off.
   - Secure the machine against unauthorized access.

✓ The work is finished.

4.6 Operating hours meter[1)]



- The operating hours counter (**1**) can be used to call up several kinds of information:
  - Whole operating hours.
  - Engine oil and air filter change intervals are displayed:

Engine oil and air filter change intervals			
	1. Serv.-Alarm	2. Serv.-Alarm	3. Serv.-Alarm
Display	CHG OIL	CHG OIL	CHG Air Filter
Interval	20 hrs.	100 hrs.	50 hrs.
Count down	----	25 hrs. before	25 hrs. before
Flashing time 2 hrs. .			

[1)]Special accessories.

5. Loading and transportation

5.1 Loading and transportation

DANGER

Death hazard from suspended load!

The machine has a high intrinsic weight. Improper lifting and transport can cause the machine to fall and injure people.

a) It is forbidden to
- walk under suspended loads,
- stand under suspended loads!
- ride on suspended loads.

b) Make sure no one is in danger!

c) Only use load-bearing capable and stable loading ramps for loading.

d) Check the attachment points (shackles, lifting eyes) for damage or wear before use. Damaged parts must be changed immediately.

e) Secure the machine against rolling, sliding and tipping over.

f) Always use the provided lifting points when loading, lashing and lifting the machine.

g) After loading, lock the draw-bar.

IMPORTANT

Risk of material damage due to slippery loading surfaces.

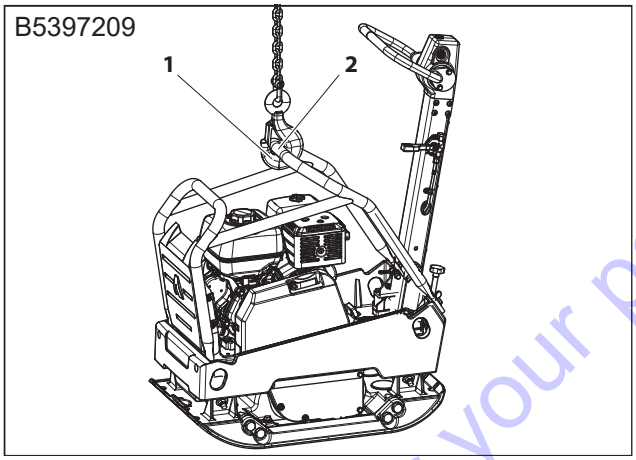
a) Keep the cargo bed and contact surfaces on the machine clean and free of ice, snow and other slippery materials.

NOTE

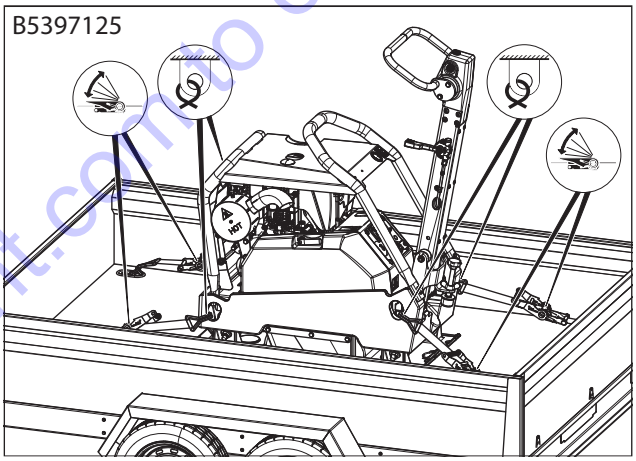
a) Keep the machine horizontal during transportation.

To transport the machine or lift it with a crane, do as follows:

1. Lock the draw-bar.



2. Hang the crane hooks (**1**) in the central point suspension (**2**).
3. Load the machine onto the transport vehicle.
4. Remove the crane hooks from the central point suspension.



5. Secure the machine to the transport lugs with straps and tie it down correctly.

► Attach the lashing to the eyelets in the upper section (**3**) at the front and rear.

6. At the destination, loosen the transport locks.
7. Hang the crane hooks into the central point suspension.
8. Lift the machine with a crane and unload it.
9. Place the machine on a level floor and prepare it for operation.

✓ Machine transport is completed.

6. Maintenance

6.1 General instructions

Careful maintenance will ensure:

- ⇨ A longer service life.
- ⇨ Greater functional safety.
- ⇨ Less downtime.
- ⇨ Greater reliability.
- ⇨ Lower repair costs.

- Observe the safety regulations!
- Maintenance works should only be carried out when the engine is shut off.
- The engine and machine should be cleaned thoroughly before carrying out maintenance work.
- Park the machine on a flat surface and secure it against rolling away and slipping.
- Ensure that operating materials and replaced parts are disposed of safely and in an environmentally-friendly way.
- It is essential that short-circuits be prevented in cables carrying current.
- Before welding works on the machine put-off all connections and battery cables.
- Burned-out light-bulbs in indicator lamps should be replaced immediately.
- When cleaning the machine with a high-pressure water jet, do not spray the electrical components directly.
- After washing the components, blow-dry them with compressed air in order to prevent surface leakage current and corrosion.

6.2 Maintenance overview

Maintenance works \ Maintenance intervals	8 hrs. (Daily)	20 hrs. (Weekly)	50 hrs. (Monthly)	100 h (½-yearly)	250 h (Yearly)	As required
Clean the machine.	●					
Check engine oil level [1].	●					
Change engine oil [1].		●[3]		●		
Change engine oil filter [1].		●[3]			●	
Check, clean air filter [1].	●					●
Change air filter element [1].			●			●
Check spark plug, adjust [1].					●	
Change spark plug [1].					●	
Check valve clearance [1].					●	
Exciter: Check oil level.			●			
Exciter: Change oil [2].			●[3]		●	
Replace shift piston seal.					●	
Replace shift piston bearing.					●	
Check hydraulic oil level.	●					
Check hydraulic hose lines.				●		
Check V-belt tension.	●					
Replace V-belt.				●		●
Check rubber buffer.	●					
Check screw connections for tightness.		●[3]	●			

[1] See engine operating manual.

[2] Minimum once a year.

[3] For the first time.

6.3 Lubrication schedule

Lubricating points	Quantity	Change interval	Lubricant	Order No.
1. Engine (HONDA GX390UT2X)				
APR 52/75 APR 58/75	1.10 l | 1.16 US qt | 0.97 imp qt	For the first time after 20 hrs.; then every 100 hrs. or annually.	Engine oil API SG-CE SAE 10W40	2-80601100
2. Exciter				
APR 52/75 APR 58/75	1.00 l | 1.057 US qts | 0.880 imp qt	For the first time after 100 hrs.; then every 250 hrs. or annually.	Transmission oil JDM J20C	2-80601110
3. Hydraulics				
APR 52/75 APR 58/75	0.65 l | 0.687 US qt | 0.572 imp qt	Not required. (Change in case of repair)	Hydraulic oil HVLP 46	2-80601070

6.4 Alternative lube oil table

	Engine oil API SG-CE SAE 10W40	Gear oil in acc. with JDM J 20 C	Special hydro-oil ISO-VG 32	Hydr.-oil HVLP 46	ATF – oil
ARAL	Extra Turboral SAE 10W40	Fluid HGS	Vitam GF 32	Vitam HF 46	ATF 22
BP	Vanellus C6 Global Plus SAE 10W40	Hydraulik TF-JD	Energol HLP-HM 32	Bartran HV 46	Autran MBX
CASTROL	Tection SAE 10W40	Agri Trans Plus	Hyspin SP 32	Hyspin AVH-M 46	TQ-D
ESSO	Ultra 10W40	Torque Fluid 56	Univis N 32	Univis N 46	ATF 21611 II-D
FUCHS	Titan Unic MC	Agrifarm UTTO MP	a. Renolin ZAF 520 b. Plantohyd 32 S[2)]	Renolin B 46 HVI	Titan ATF 3000
HONDA	——	4 Stroke Oil 10W30 API/SJ	——	——	——
KLEENOIL PANOLIN	——	——	Panolin HLP Synth 32[2)]	——	——
LIQUI MOLY	——	SPECIAL TEC AA 10W-30	——	——	——
MOBIL	a. Delvac SHC b. Mobil Super M 10W40 c. Mobil Super S 10W40[1)]	a. Mobilfluid 424 b. Mobilfluid 426	Mobil DTE 24	Univis N 46	ATF 220
SHELL	Engine Oil DG 1040	Donax TD	Tellus T32	Tellus T 46	a. Donax TA b. Donax TX
TOTAL	Rubia Polytrafic 10W-40	Transmission MP	Azolla ZS 32	Equivis ZS 46	Fluide ATX

[1)]Semi-synthetic light-duty oils
[2)]Biological multi-purpose hydraulic-oils;
The miscibility and compatibility with mineral oil based hydraulic oils and biological hydraulic-oils should be examined in the individual case.
The residual mineral oil content should be reduced acc. to VDMA specification 24 569.

TAB01003EN (A)

7. Maintenance engine

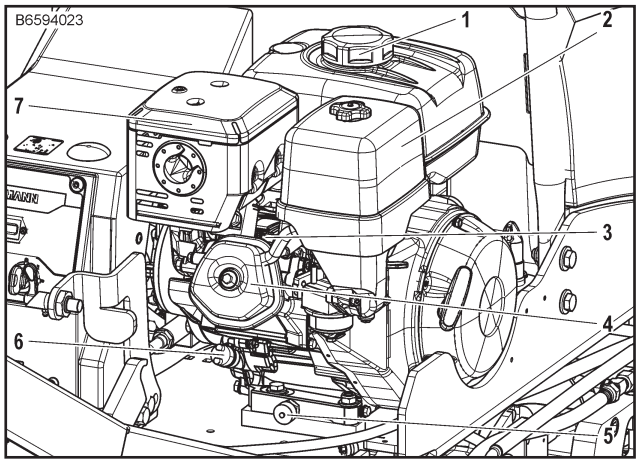
7.1 General information

NOTE

Information on documentation

This manual lists only the daily engine maintenance tasks. Follow the engine's operating manual and the warnings and intervals shown therein.

7.2 Overview



1 Fuel filler neck
2 Air filter
3 Spark plug
4 Valve cover
5 Engine oil drain
6 Oil dipstick | Oil filler neck
7 Silencer

7.3 Fuel system

7.3.1 Fuel

⚠ DANGER

Death hazard from flammable substances.

Petrol is extremely flammable and explosive. During tank fill-ups, this can cause burns, severe injuries or death.

a) Fill the tank only when the engine is off.
b) No open flame.
c) No smoking.
d) Do not fill the tank in enclosed spaces.
e) Do not inhale fuel fumes.
f) Do not spill fuel. If fuel spills, clean it up immediately.

ENVIRONMENT

Pollution hazard from spilled fuel.

a) Do not overfill the fuel tank and do not spill any fuel.
b) Collect escaping fuel and dispose of it according to local environmental regulations.

7.3.2 Fuel quality

- The motor is certified to operate on unleaded gasoline with a research octane rating of 91 or higher (pump octane rating of 86 or higher).
- You may use unleaded gasoline containing no more than 10% ethanol (E10) or 5% methanol by volume.
- In addition, methanol must contain cosolvents and corrosion inhibitors.
- Use of fuels with content of ethanol or methanol greater than shown above may cause starting and/or performance problems.
- It may also damage metal, rubber, and plastic parts of the fuel system.
- Motor damage or performance problems that result from using a fuel with percentages of ethanol or methanol greater than shown above are not covered under the Warranty.

7.3.3 Fuel fill level

Machine type	Engine type	Filling quantity	
APR 52/75	HONDA GX390UT2X	4.7 ℓ	1.24 US gal 1.03 Imp gal
APR 58/75			

7.3.4 Check the fill level, add fuel

IMPORTANT

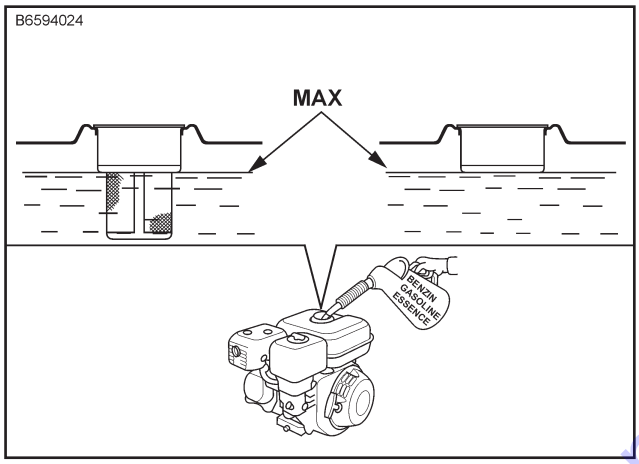
Beware of engine damage.

Using poor-quality or contaminated fuel can cause engine damage.

a) Use only fuel that meets the designated specifications.
b) Never use stale or contaminated petrol or an oil/petrol mixture.
c) Ensure that neither dirt or water gets into the fuel tank.

To check the fuel level or to add fuel, do as follows:

1. Place the machine on an even, solid surface.
2. Shut off the engine.



3. Clean the area around the fuel filler neck.
4. Open the tank cap (**1**).
5. Visually check the fuel level.

► Add fuel to the bottom of the maximum fuel level limit of the fuel tank. Do not overfill.

6. Wipe up spilled fuel before starting the engine.
7. Tightly close the fuel cap.

✓ Fuel level checked / fuel added.

7.4 Engine oil level

7.4.1 Check, refill

⚠ CAUTION

Injury hazard!

Prolonged contact with engine oil can cause skin irritation.

a) Wear safety gloves.
b) If there is skin contact, clean the affected areas thoroughly with soap and water.

⚠ CAUTION

Danger of burns.

There is a danger of burns when working on a hot engine.

♦ Wear safety gloves.

ENVIRONMENT

Environmental hazard from spilled operating materials.

a) Collect the used oil and dispose of it in an environmentally-friendly manner.
b) Do not allow oil to seep into the ground or the sewage system.
c) Replace defective seals immediately.

NOTE

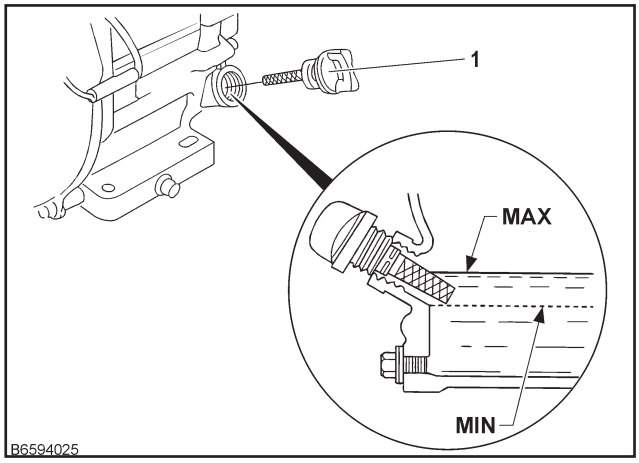
Danger of later engine damage.

a) Operating the engine with an oil level below the min. mark or above the max. mark can lead to engine damage.
b) When checking the oil level, the engine must be horizontal and have been switched off for a few minutes.

To check the engine oil level or to add engine oil, do as follows:

1. Place the machine on an even, solid surface; the engine must be horizontal.
2. Shut off the engine.

► For a hot engine, wait a few minutes for the oil to flow back into the oil pan.



3. Release the dipstick (**1**) from the clamp.
4. Clean the area around the cap/dipstick (**1**).
5. Remove the oil filler cap/dipstick (**1**) and wipe it clean.
6. Insert the oil filler cap/dipstick into the oil filler neck as shown, but do not screw it in, then remove it to check the oil level.
7. If the oil level is near or below the lower limit mark on the dip- stick, fill with the recommended oil to the upper limit mark (bot- tom edge of the oil fill hole). Do not overfill.
8. Reinstall the oil filler cap/dipstick.

✓ Engine oil level checked / engine oil topped up.

7.5 Air filter

7.5.1 Check, clean

⚠ DANGER

Risk of fire and explosion caused by inflammable substances.

a) For cleaning the filter element, do not use any flammable or aggressive materials.

b) In the work area, do not smoke, and prevent open flames or sparks.

⚠ CAUTION

Risk of injury!

There is a risk of foreign bodies getting into your eyes when you work with compressed air.

a) Wear protective goggles.

b) Never point the compressed air jet at a person or at yourself.

IMPORTANT

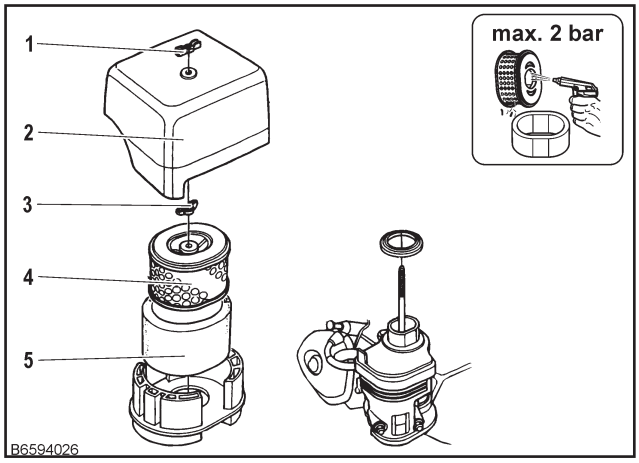
Risk of engine damage from missing or malfunctioning air filter.

a) Replace filter element
- if there is the slightest damage in the areas of sealing surface, filter paper and filter cartridge,
- if there is damp and oily contamination,
- if the engine power decreases or the color of the exhaust gas changes,
- at least once a year.

b) Never operate the engine without air filter insert.

c) Do not allow dirt into the air channel and carburettor.

Use the following procedure to check or to clean the air filter:



1. Remove the wing nut (**1**) from the air cleaner cover (**2**), and remove the cover.
2. Remove the wing nut from the air filter (**3**), and remove the filter.
3. Remove the foam-filter (**5**) from the paper filter (**4**).
4. Inspect both air filter elements, and replace them if they are damaged.
5. Clean the air filter elements if they are to be reused:

► Paper air filter element

   a. Blow dry compressed air (Max. 2 bar | 29.007 psi) through the filter cartridge (**4**) from the inside out.

► Foam air filter element

   a. Clean in warm soapy water, rinse, and allow to dry thoroughly. Or clean in non-flammable solvent and allow to dry.

   b. Dip the filter element (**5**) 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 case and cover using a moist rag. Be careful to prevent dirt from entering the air duct that leads to the carburettor.
7. Place the foam air filter element (**5**) over the paper element (**4**).
8. Reinstall the assembled air filter. Be sure the gasket is in place beneath the air filter.

✓ Air filter checked / cleaned.

8. Maintenance machine

8.1 Cleaning

⚠ WARNING

Fire and explosion hazard from combustible materials.

Combustible materials can cause severe burns.

a) Never use petrol or cleaning solutions with a low combustion point for cleaning.
b) Do not use flammable or aggressive materials for cleaning.

ENVIRONMENT

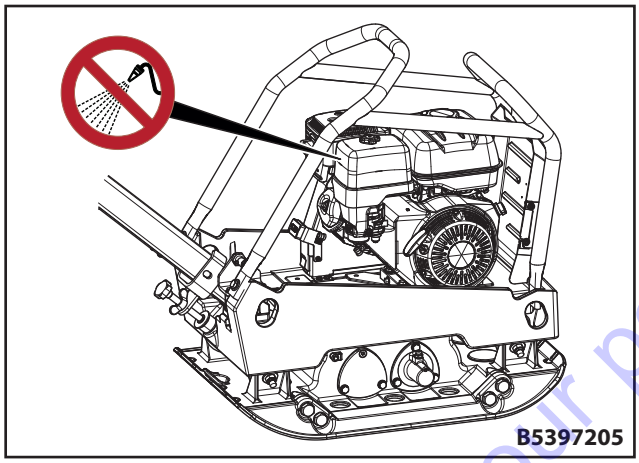
Environmental hazard from spilled cleaning agent.

c) Clean the machine only at a workplace with a collection system for cleaning agent to prevent pollution to the earth and groundwater.
d) NEVER use prohibited cleaning agents.

IMPORTANT

Water entering the machine can cause property damage.

a) Before cleaning the machine with the high-pressure cleaner, protect the engine from water and moisture.
b) Spray off the machine with the high-pressure cleaner only at the bottom area.
   - Do not spray the engine or the engine control device.
   - Do not spray electrical components.
   - Do not point the water jet directly into the air filter.
   - Leave the battery cover on the battery.



To clean the machine, do as follows:

1. Spray the surface of the machine with a high-pressure cleaner.

► Clean the machine every day.

2. After cleaning, check the cables, wires and screw joints for leaks, loose connections, chafe marks and other damage and for contamination of the plug contacts.

► Eliminate any problems immediately.

✓ The machine has been cleaned.

8.2 Screw joints

NOTE

c) Replace self-locking nuts after every dismantling.

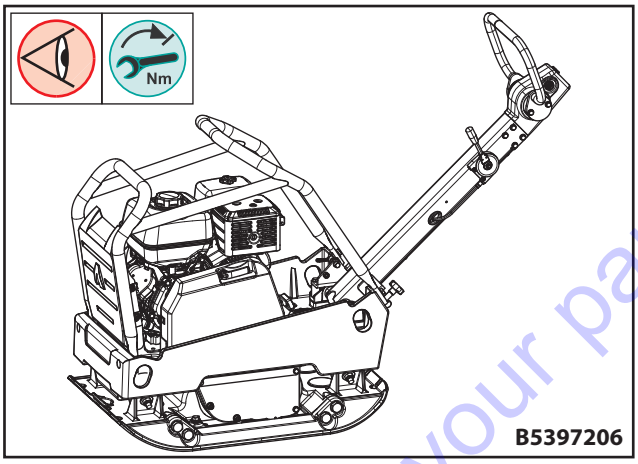
Tightening torque

Ø	8.8		10.9		12.9	
	Nm	ft lb	Nm	ft lb	Nm	ft lb
M 4	3	2	4,4	3	5	4
M 5	6	4	8,7	6	10	7
M 6	10	7	15	11	18	13
M 8	25	18	36	26	43	31
M 10	49	36	72	53	84	61
M 12	85	62	125	92	145	106
M 14	135	99	200	147	235	173
M 16	210	154	310	228	365	269
M 18	300	221	430	317	500	368
M 20	425	313	610	449	710	523
M 22	580	427	830	612	970	715
M 24	730	538	1050	774	1220	899
M 27	1050	774	1480	1092	1774	1308
M 30	1420	1047	2010	1482	2400	1770

TAB01001

- Tightening classes for screws with untreated, non-lubricated surfaces.
- The values indicate 90% utilization of the yield strength; at a friction coefficient of $\mu_{total} = 0.14$.
- Compliance with the tightening torques is to be checked using torque wrenches.
- The specified values will not apply if an MoS2 lubricant is used.

8.2.1 Checking the screw joints



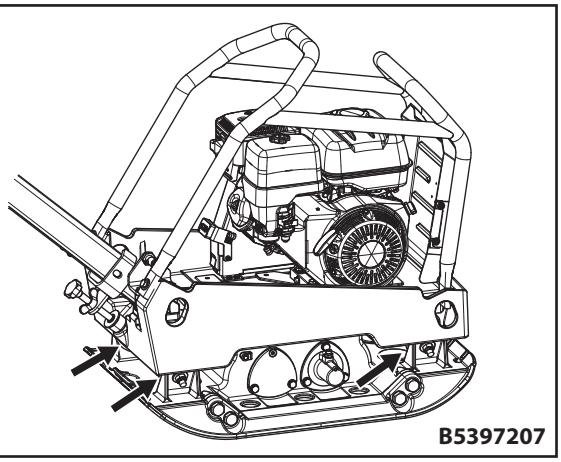
With vibrating devices it is always important to check the screw connections for tightness at regular intervals.

1. For that, do as follows:
2. Check all screw joints for firm seating.
3. Retighten the screw joints, if necessary.

► Note the torques.

✓ The screw joints have been checked.

8.3 Inspect rubber buffer



To check the rubber buffers, do as follows:

1. Check the rubber buffers as shown for:
   - Cracks and ruptures
   - Correct seating.

► Replace damaged rubber buffers immediately.

✓ The rubber buffers have been checked.

8.4 Exciter

⚠ CAUTION

Burn hazard from hot oil.

Working on the exciter may pose a burn hazard from hot oil.

d) Wear safety gloves.
e) Slowly, carefully open the oil drainage screw to release pressure.

ENVIRONMENT

Environmental hazard from spilled operating materials.

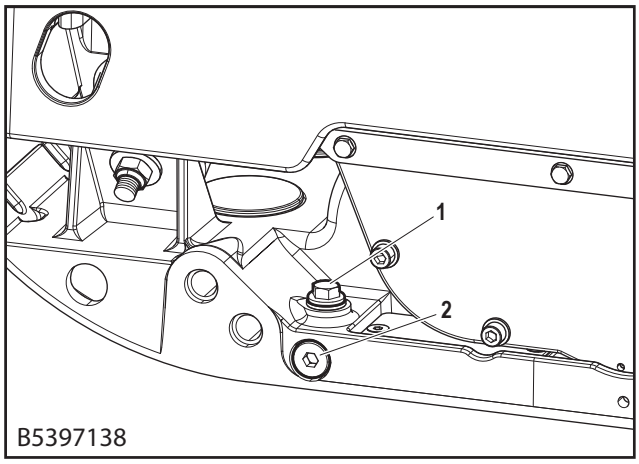
f) Collect the used oil and dispose of it in an environmentally-friendly manner.
g) Do not allow oil to seep into the ground or the sewage system.

NOTE

h) Change the transmission oil when it is warm.
i) When the dipstick is screwed in, the optimal oil level is between the «MIN» and «MAX» lines.

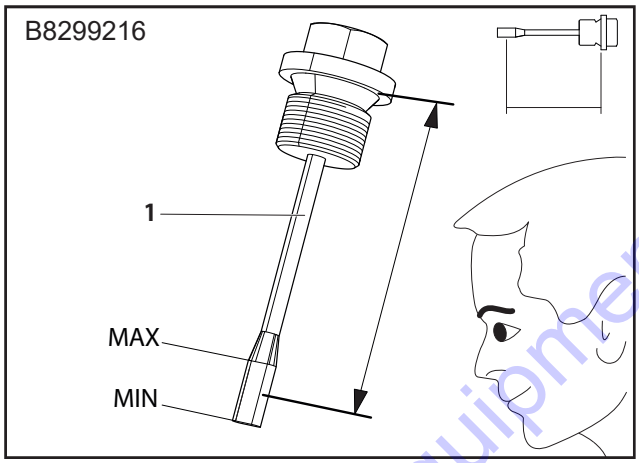
8.4.1 Oil level / Oil change

To check the exciter's oil level, do as follows:



1. Screw out the oil filling screw or dipstick (**1**).
2. Check the oil level.
3. Top up the oil, if necessary.
4. Screw in the oil filling screw or dipstick (**1**) with a new seal.

✓ Oil level checked.



To change the exciter's oil, do as follows:

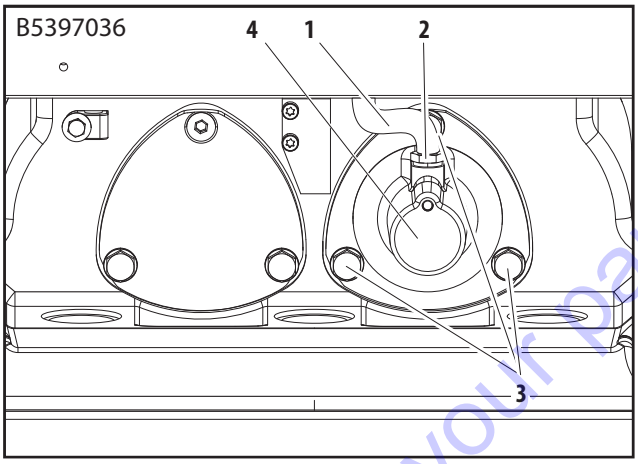
1. Screw out the oil filling screw or dipstick (**1**) and oil drain plug (**2**).

► Drain the used oil into a container and dispose of it according to local regulations.

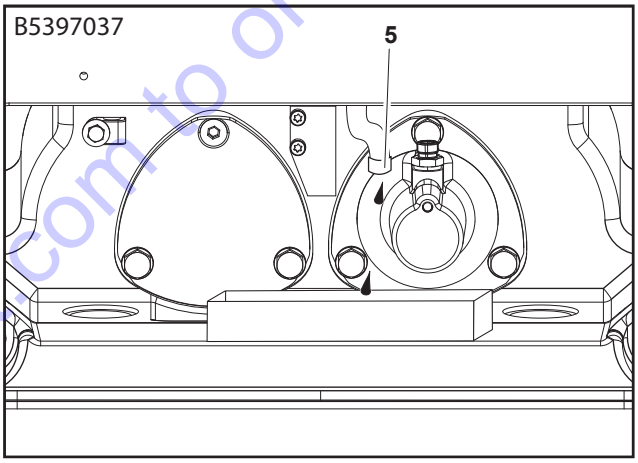
2. Screw the oil drain plug (**2**) back in.
3. Pour new oil into the oil fill hole. Oil quantity and quality (see chapter „6.3 Lubrication schedule“ auf Seite 36).
4. Screw in the oil filling screw or dipstick (**1**).
5. Screw out the oil filling screw or dipstick (**1**).
6. Check the oil level again, and add oil if necessary.
7. Screw in the oil filling screw or dipstick (**1**) with a new seal.

✓ Oil changed in exciter.

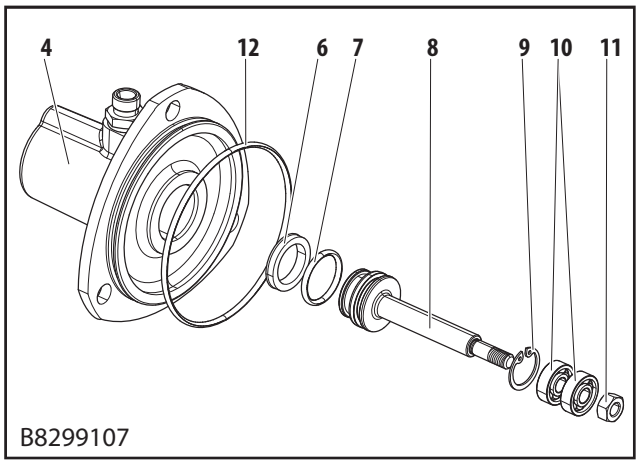
8.4.2 Shift piston overview



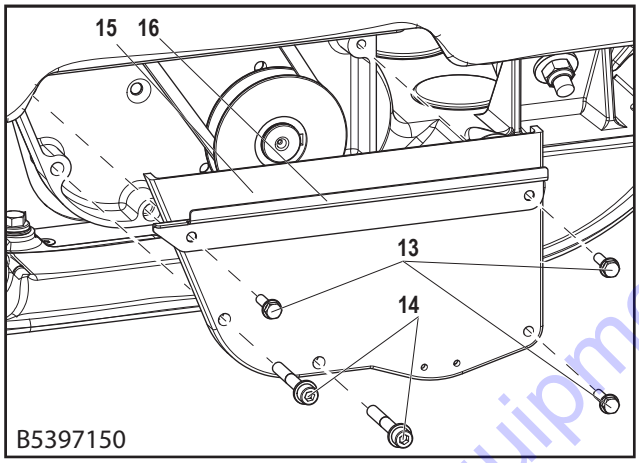
1. Hydraulic oil line
2. Oil connection
3. Screws
4. Shift cover



5. Caps



6. Seal
7. O-ring
8. Shift piston
9. Safety ring
10. Bearing
11. Nut
12. Seal



13. Screws with washers
14. Screws with washers
15. V-belt guard (a)
16. V-belt guard (b)

8.4.3 Change the shift piston seal

⚠ CAUTION

Injury hazard from rotating parts.

Crushing injuries can occur with an open-running belt drive.

j) Perform inspection and maintenance only with the engine off.
k) Do not operate the machine without the V-belt guard.

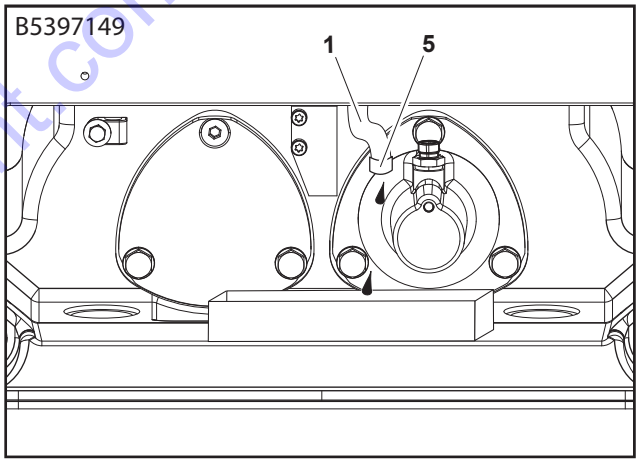
ENVIRONMENT

Environmental hazard from operating materials.

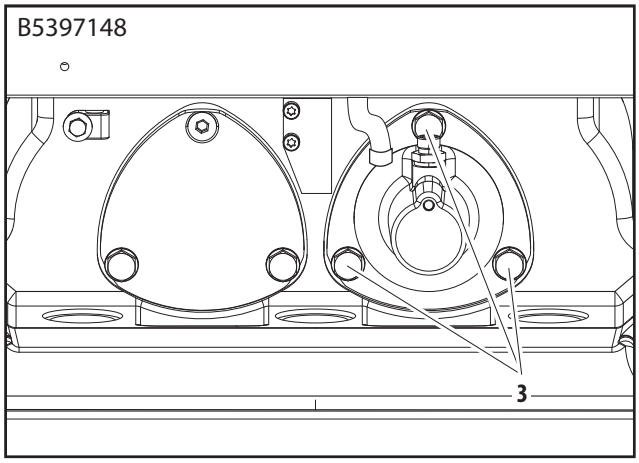
l) Collect the used oil and dispose of it in an environmentally-friendly manner.
m) Do not allow oil to seep into the ground or the sewage system.

To change the shift piston seal, do as follows:

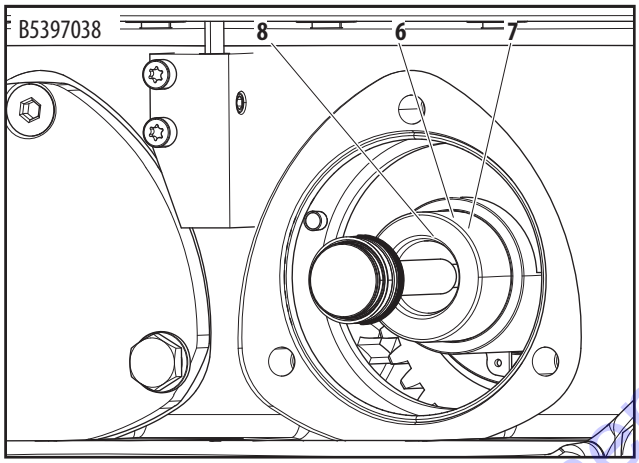
1. Screw the hydraulic oil line (**1**) from the oil connection (**2**) from the shift cover (**4**).
2. Fasten the plug (**5**) on the hydraulic oil line (**1**).



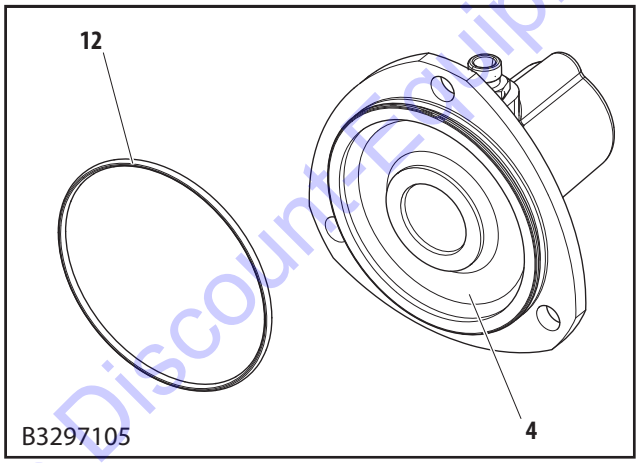
3. Put an oil collection container under the shift piston.



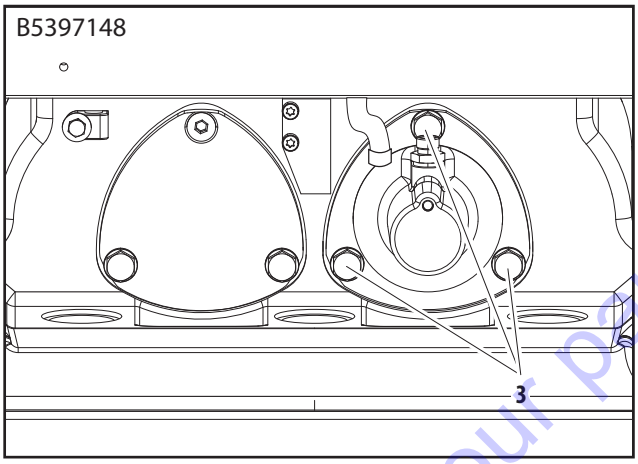
4. Loosen the screw (**3**).
5. Remove the screws (**3**).
6. Remove the shift cover (**4**).



7. Remove the seal (**6**) and O-ring (**7**).
8. Pull on the new O-ring (**7**) and new seal (**6**).



9. Replace the seal (**12**) from the shift cover (**4**)



10. Put on the shift cover (**4**).
11. Apply adhesive to the screws (**3**).
12. Install the screws (**3**) with washers.
13. Firmly tighten the screws (**3**).
14. Remove the plug (**5**) from the hydraulic oil line (1).
15. Screw the hydraulic oil line (1) onto the oil connection (2) on the shift cover (**4**).

✓ The shift piston seal has been changed.

8.4.4 Replace the shift piston bearing

⚠ CAUTION

Injury hazard from rotating parts.

Crushing injuries can occur with an open-running belt drive.

n) Perform inspection and maintenance only with the engine off.
o) Do not operate the machine without the V-belt guard.

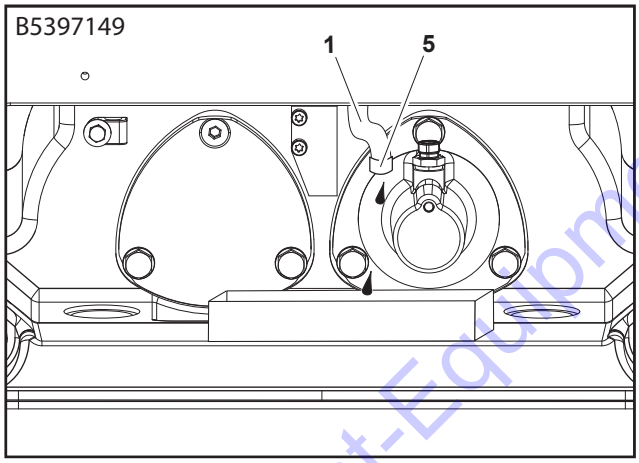
ENVIRONMENT

Environmental hazard from operating materials.

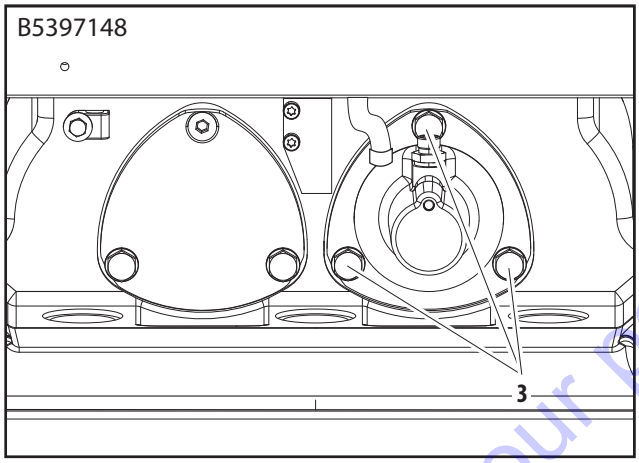
p) Collect the used oil and dispose of it in an environmentally-friendly manner.
q) Do not allow oil to seep into the ground or the sewage system.

To change the shift piston bearing, do as follows:

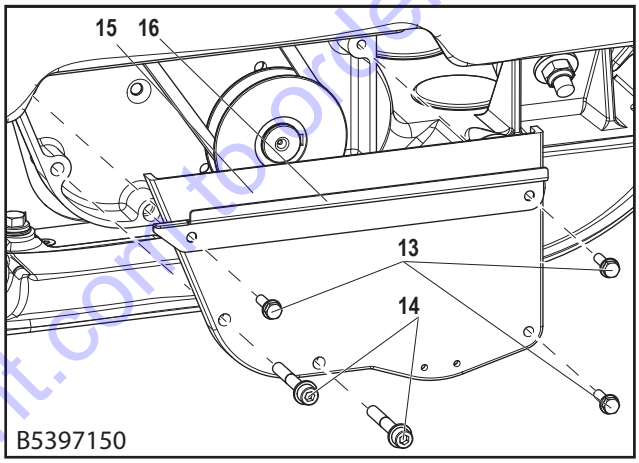
1. Screw the hydraulic oil line (**1**) from the oil connection (**2**) from the shift cover (**4**).
2. Fasten the plug (**5**) on the hydraulic oil line (**1**).



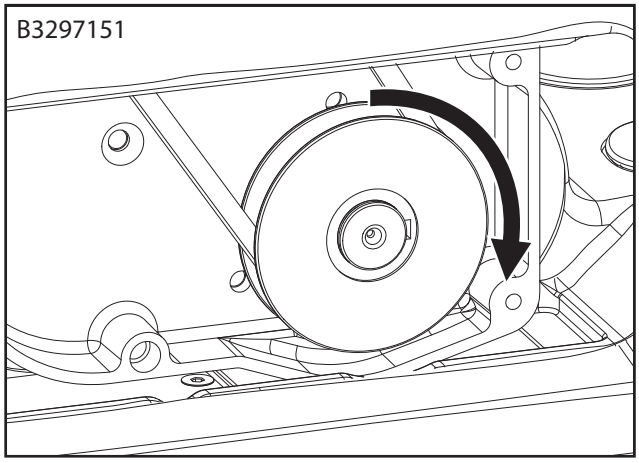
3. Put an oil collection container under the shift piston.



4. Loosen the screw (**3**).
5. Remove the screws (**3**).
6. Remove the shift cover (**4**).

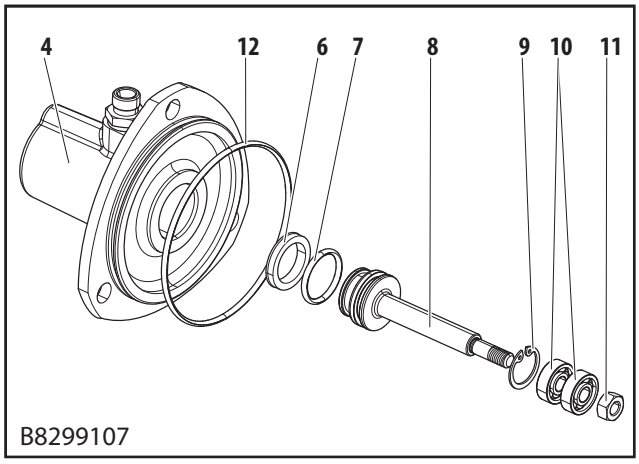


7. Unscrew the screws (**13**, **14**) with washers.
8. Remove the V-belt guard (**15**, **16**).

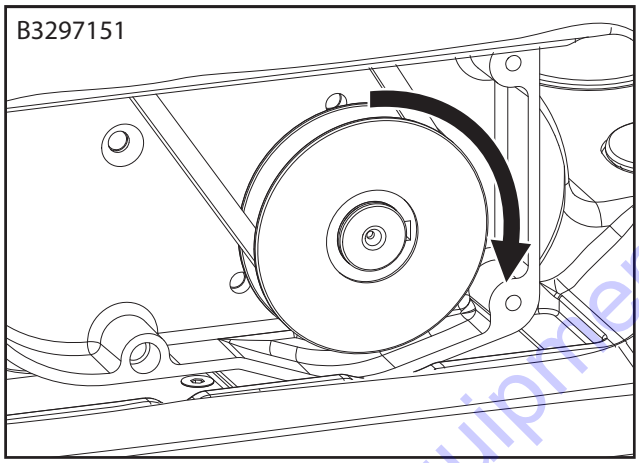


9. Turn the V-belt pulley clockwise until the piston is slid all the way forward.

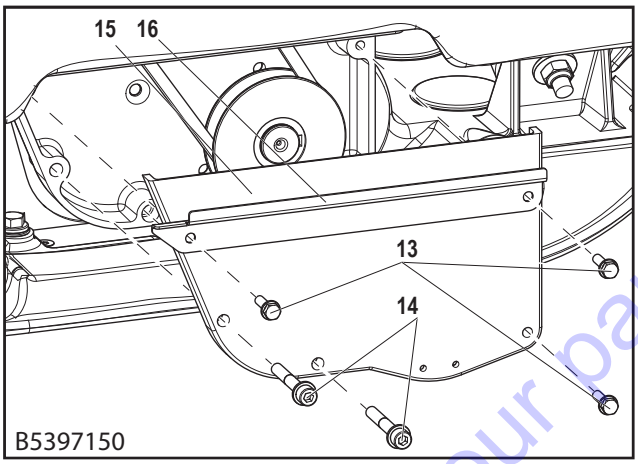
10. Remove the safety ring (**9**).



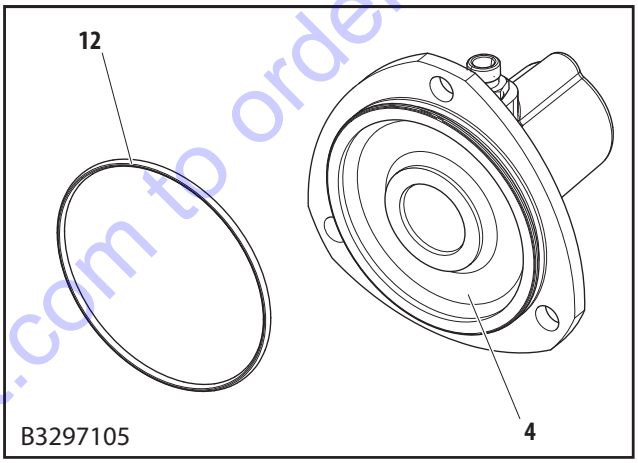
11. Pull out the shift piston (**8**).
12. Screw off the nut (**11**).
13. Pull off the bearing (**10**).
14. Pull on the new bearing (**10**).
15. Firmly screw on the nut (**11**).
16. Slide in the shift piston (**8**).



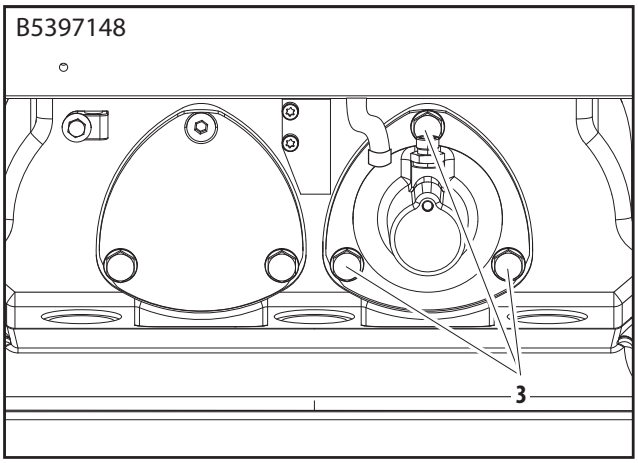
17. Turn the V-belt pulley (**2**) clockwise until the shift piston (**8**) is slid all the way forward.
18. Install the safety ring (**9**).



19. Fit the V-belt guard (**15**, **16**).
20. Screw in the screws (**13**, **14**) with washers.
21. Tighten the screws (**13**, **14**).



22. Replace the seal (**12**) from the shift cover (**4**).
23. Put on the shift cover (**4**).



24. Install the screws (**3**) with washers.
25. Firmly tighten the screws (**3**).
26. Remove the plug (**5**) from the hydraulic oil line (**1**).
27. Screw the hydraulic oil line (**1**) onto the oil connection (**2**) on the shift cover (**4**).

✓ The shift piston bearing has been changed.

8.5 V-belt

⚠ WARNING

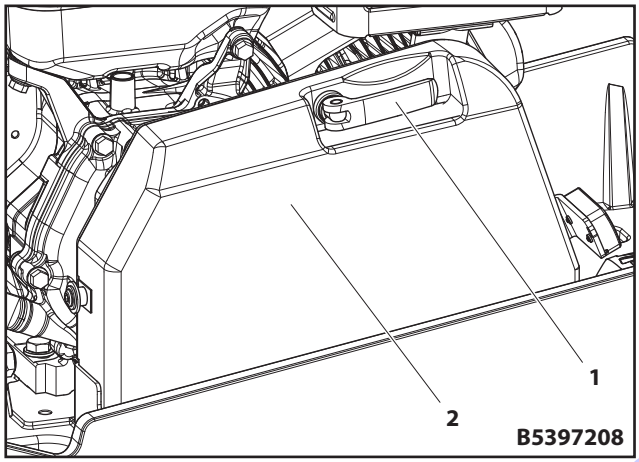
Injury hazard from rotating parts.
Crushing injuries can occur with an open-running belt drive.

a) Perform inspection and maintenance only with the engine off.
b) Do not operate the machine without the V-belt guard.

8.5.1 Inspect

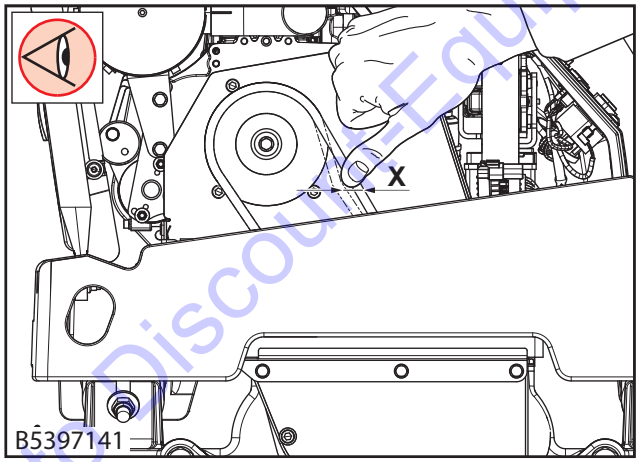
To check the V-belt, do as follows:

1. Shut off the engine.



2. Open the tension lock (**1**) and unscrew.
3. Remove the upper belt guard (**2**).
4. Check the V-belt condition.

► Replace defective or damaged V-belts.



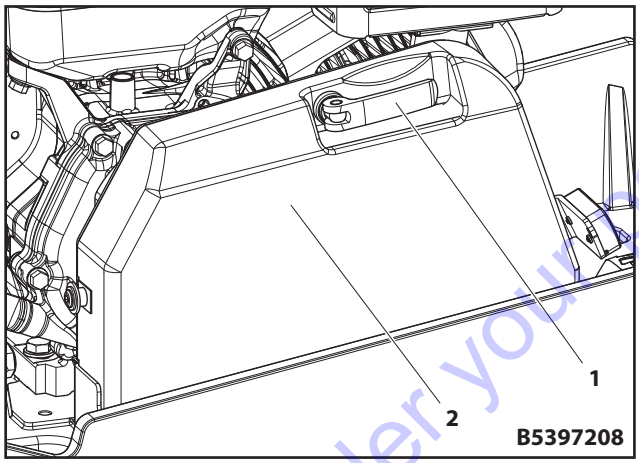
5. Check the V-belt tension, and tighten if necessary
   X = approx. 10 mm | 0,3937 in.

✓ V-belt checked.

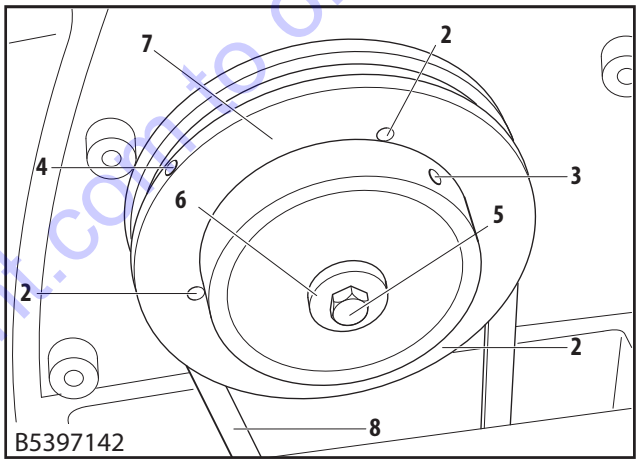
8.5.2 Tighten

To tension the V-belt, do as follows:

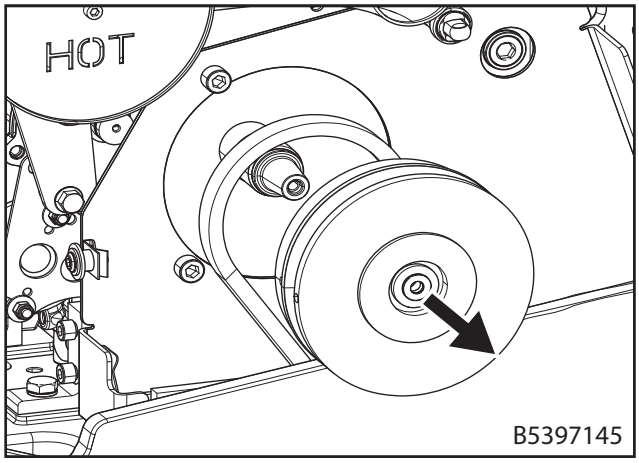
1. Shut off the engine.



2. Open the tension lock (**1**) and unscrew.
3. Remove the upper belt guard (**2**).

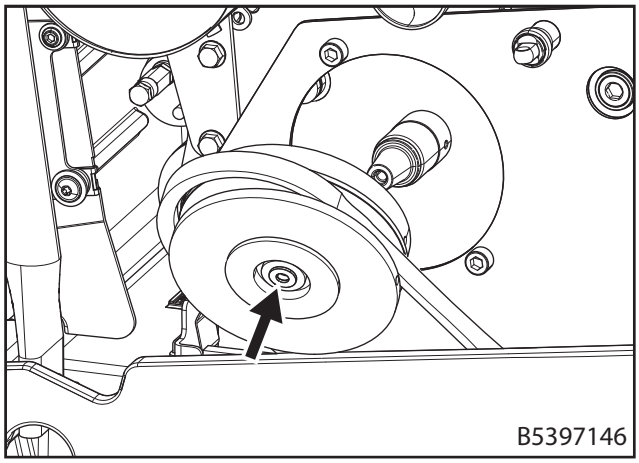


4. Loosen the threaded pins (**2**), but do not remove them.
5. Remove screw (**5**) with washer (**6**).

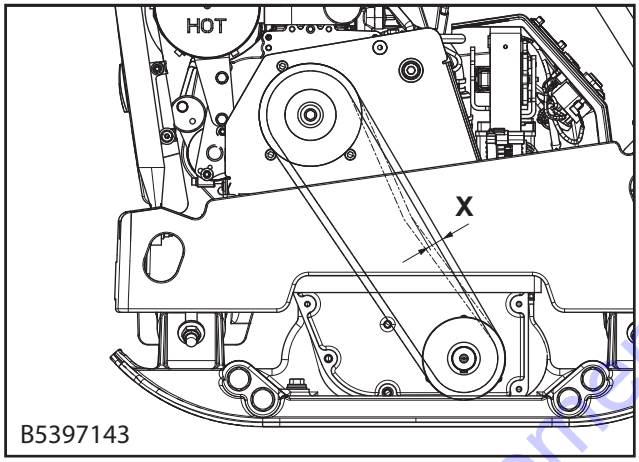


6. Remove the clutch from the shaft.

7. Insert the auxiliary tool (ø 6 mm) into holes (**3**) and (**4**).
8. Tension the V-belt (**7**) by turning the clutch halves (**3**) and (**4**) in opposite directions.



9. Insert the V-belt into the clutch.
10. Fasten clutch (**7**) to clutch shaft with V-belt.



11. Check the push-through dimension X = approx. 10 mm | 0,3937 in.
12. Correct if necessary.
13. Firmly tighten the threaded pins (**2**).
14. Insert the belt guard.
15. Screw in and close the tension lock.
16. Start the engine and let it run for 3 - 5 minutes.
17. Open the tension lock and unscrew.
18. Remove the upper belt guard (2).
19. Check the push-through dimension again, correct if necessary.
20. Install the V-belt guard.

✓ V-belt tensed.

8.6 Hydraulics

⚠ WARNING!

Injury hazard from hydraulic fluid escaping under high pressure.

Hydraulic fluid escaping under high pressure can penetrate your skin and into your body and seriously injure you.

a) The system must be depressurized before starting any work on the hydraulics.
b) Contact a qualified workshop immediately if you suspect that the pressure system is damaged.

⚠ CAUTION

Burn hazard from hot oil.

Working on the hot hydraulic system may pose a burn hazard from hot oil.

c) Wear safety gloves.

ENVIRONMENT

Environmental hazard from spilled operating materials.

d) Collect the used oil and dispose of it in an environmentally-friendly manner.
e) Do not allow oil to seep into the ground or the sewage system.

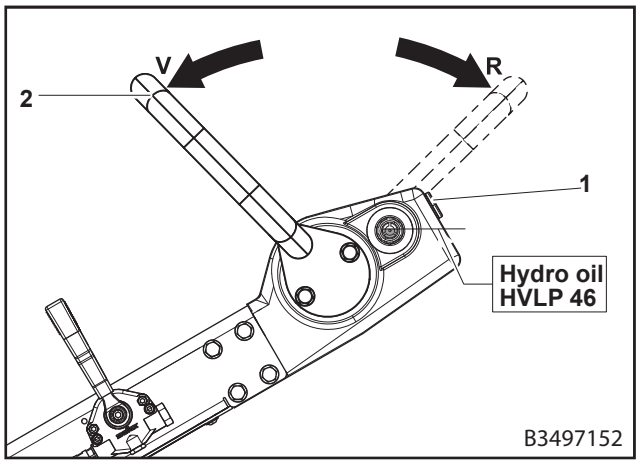
NOTE

f) The hydraulic oil is only to be changed when the oil is warm and according to the lubrication chart and the lubricant table.
g) Never start the engine if the hydraulic oil has been drained out.
h) Always change the hydraulic oil after a major repair has been made to the hydraulic system.
i) Damaged seals must be changed immediately.
j) Always change the return flow filter and the ventilation filter whenever the hydraulic oil is changed.

8.6.1 Check, refill hydraulic oil

IMPORTANT INFORMATION

a) During filling, the shift path shortens.



To check the hydraulic oil level or to add hydraulic oil, do as follows:

1. Place the machine on an even, solid surface.
2. Shut off the engine.
3. Visually check the oil level.

► Refill oil, if necessary

4. Remove the locking screw (**1**).
5. Set the shift lever to «*R*» (**2**).
6. Fill with hydraulic oil while constantly switching the drive lever.
7. Stop adding oil when
   - A clear clack sound can be heard in the exciter during the shifting process.
   - No more air cushion can be felt on the shift lever.

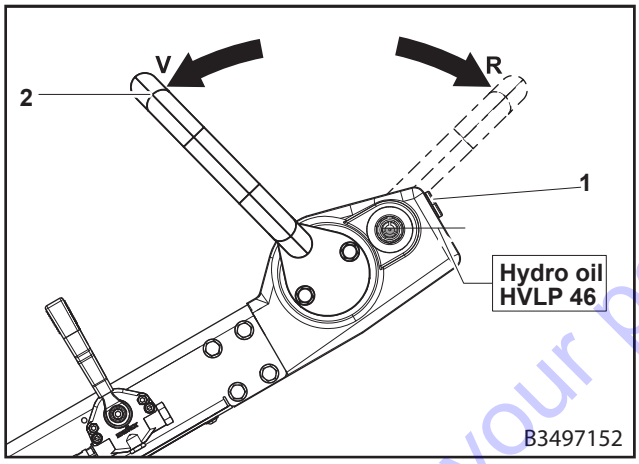
► Before checking the oil level again, ventilate first (see chapter „8.6.2 Bleed the circuit“).

8. The correct oil level should move within the range shown (see figure), and the shift lever must be in position «*R*».

► Refill oil, if necessary

✓ The hydraulic oil level has been checked and topped up.

8.6.2 Bleed the circuit



To bleed the circuit, do as follows

1. Place the machine on an even, solid surface.
2. Shut off the engine.
3. Switch the shift lever several times between «*V*» and «*R*».
4. Remove the locking screw (**1**).

► The air escapes.

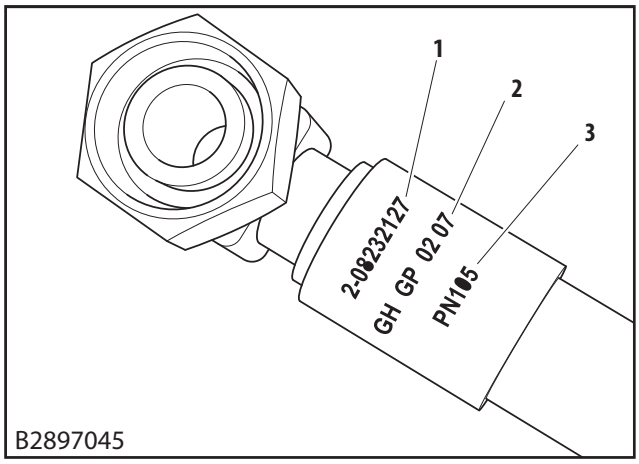
5. Install the locking screw (**1**).
6. Repeat steps 3 to 5 until there are no air bubbles in the hydraulic oil or when moving the shift lever reveals a firm stop.

■ **NOTE:** When the machine is running, the shift path returns to normal.

7. Firmly tighten the locking screw (**1**).

✓ The circuit has been bled.

8.6.3 Hydraulic hose lines



1 Manufacturer / production month & year

2 Maximum working pressure

3 Ammann item No.

A specialist must check the functionality of hydraulic hoses at regular intervals (at least once a year).

- Hoses must be immediately replaced if:
  - The outer layer is damaged down to the core (chafe marks, cracks, cuts, etc.).
  - Brittleness of the outer layer (cracking of the hose cover).
  - There are deformations that do not match the natural shape of the hose. This applies both in the unpressurized and pressurized states (e.g. delamination, blistering, pinch points, kinks).
  - Leaks.
  - Damaged or deformed hose fittings (sealing function affected).
  - Hose moving out of its fitting.
  - Corroded fitting (reduces function and strength).
  - Improper installation.
  - Maximum of 6 years of use exceeded.

9. Storage and disposal of the machine

9.7 Storage and disposal of the machine

9.7.1 Storing the machine

If you want to shut down the machine for a longer period of time (longer than 6 weeks), park it on a pallet on a level, solid surface such that it is in a stable position.

- The storage location should be dry and protected.
- The ambient temperature should be between 0 °C | 32 °F and 45 °C | 113 °F.
- Prior to storing the machine:
  - Clean it thoroughly.
  - Check it for leaks and damage, eliminate detected defects.
  - Cover it with a protective tarpaulin

9.7.2 Putting the machine back into operation

- Prior to putting the machine back into operation
  - Check the machine for leaks,
  - defective or leaking hydraulic hoses or
  - other damage.
- Eliminate detected defects.
- Check and retighten all screw connections.

9.8 Machine disposal

The user is obliged to abide by the national laws and regulations covering waste and environmental protection when disposing of the machine at the end of its service life. In these cases we recommend that you always

- Consult specialized companies that have been authorized for these activities.
- Contact the machine's manufacturer or the accredited contractual service organizations authorized by them.

The manufacturer accepts no liability for any harm caused to the health of users or for any environmental damage caused by failure to comply with the instructions above.

9.9 Disposal

ENVIRONMENT

Risk of environmental pollution due to spillage of hazardous substances

Disposing of electrical appliances in household waste or landfill sites can cause harmful substances to escape and enter the food chain. This can have a harmful effect on health and well-being.

a) Do not dispose of batteries in household waste.
b) Observe local laws and regulations. Or contact an authorized Honda dealer for disposal.

Inspection

Have the electronic components checked by an electronics specialist.

Road rollers, trench rollers and plate compactors must undergo a safety inspection by an expert as required by the conditions of use and the operating conditions, but at least once a year.

9.9.1 Expiry of the service life

CAUTION

The manufacturer is not liable for damage to health and environmental damage caused by non-compliance with the general principles of occupational safety, health and environmental protection in accordance with the laws, ordinances and regulations relating to this issue in the country of operation!

ENVIRONMENT

a) Prevent the operating fluids from escaping.

When disposing of the machine, the user is obliged to comply with national regulations and waste and environmental protection laws.

In such cases, we therefore recommend that you always contact specialized companies with the appropriate authorization that deal professionally with this activity.

We recommend this procedure before handing over the machine to the specialized company for disposal:

- Remove the battery from the machine.
- Empty the fuel tank.
- Empty the hydraulic oil reservoir.
- Drain the coolant from the cooling circuit.
- Drain the engine oil.

10. Help in case of malfunctions

10.1 General information

- Observe the safety regulations.
- Only qualified and authorized persons are allowed to carry out repair work.
- In case of a malfunction, check again the operating and maintenance instructions to ensure correct operation and maintenance.
- Please contact an Ammann Service branch if you are unable to identify or eliminate the cause of the malfunction yourself.
- Always start with checking the most accessible causes, or those that are easiest to check (fuses, LEDs, etc.).
- Never come into contact with rotating parts.

10.2 List of malfunctions

Possible cause	Remedial action	Comments
1. Engine does not start		
• Speed lever in «MIN» position.	• Push the throttle lever approx. 1/3 in the direction of «MAX».	
• Fuel valve lever «OFF».	• Move lever to «ON» position.	
• Choke «OPEN».	• Move lever to «CLOSED» position unless the engine is warm.	
• Engine oil level low.	• Fill with the recommended oil to the proper level.	
• Out of fuel.	• Refuel.	
• Bad fuel:	•	
- Engine stored without treating or draining petrol, or refuelled with bad petrol.	• Drain fuel tank and carburetor. Refuel with fresh gasoline.	
• Spark plug faulty, fouled, or improperly gapped.	• Gap or replace spark plug.	
• Spark plug wet with fuel (flooded engine).	• Dry and reinstall spark plug. Start engine with throttle lever in MAX. position.	
• Fuel filter restricted, carburettor malfunction, ignition malfunction, valves stuck, etc.	• Take engine to your servicing dealer, or refer to shop manual.	
2. Reduced engine performance		
• Bad fuel:	•	
- Engine stored without treating or draining petrol, or refuelled with bad petrol.	• Drain fuel tank and carburetor. Refuel with fresh gasoline.	
• Fuel filter restricted, carburettor malfunction, ignition malfunction, valves stuck, etc.	• Take engine to your servicing dealer, or refer to shop manual.	
• Air cleaner blocked.	• Remove dirt from air cleaner.	
• Incorrect valve clearance.	• Adjust valve clearance.	
• Too much oil in engine.	• Fill with the recommended oil to the proper level.	
• Default in hydraulic system.	• Contact a Ammann-service station.	
3. Engine is running, machine does not move forward		
• V-belt tension too low.	• Retense V-belt.	
• V-belt cracked.	• Replace V-belt.	
• Linings of centrifugal clutch worn.	• Replace linings and springs.	
• Too much oil in engine.	• Fill with the recommended oil to the proper level.	
• Too much oil in exciter.	• Check exciter oil level	
• Fault in hydraulic system.	• Contact Ammann service.	

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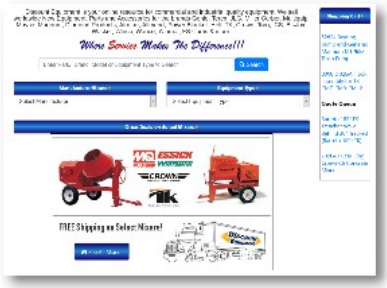

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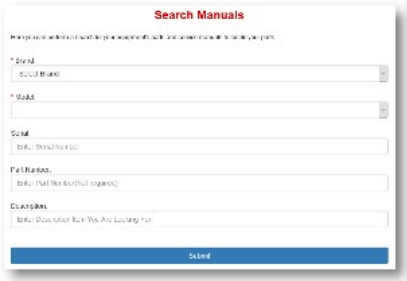

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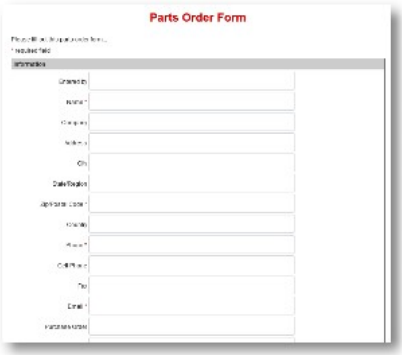

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