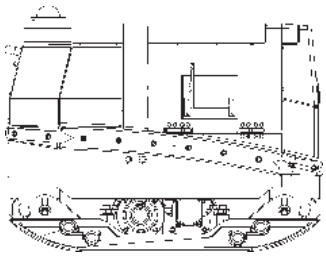
AMMANN

Translation of the Original operating instructions

APH 1000 TC

Serial Nr. 10000001-



Book ID: 2-00002028EN

Maschinen

AMMANN

EG-Konformitätserklärung

EC-Declaration of Conformity / Déclaration „CE“ de Conformité / Declaración de conformidad de la CE

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
conformément à la directive „CE“ relative aux machines 2006/42/CE, Annexe II A et la directive du bruit 2000/14/CE
conforme a la directiva de maquinaria 2006/42/CE, Anexo II A y a la directiva sobre ruidos 2000/14/CE

Hersteller (Name und Anschrift): Manufacturer (name and adress): Fabricant (nom et adress): Fabricante (nombre y dirección):	*Ammann Verdichtung GmbH* *Josef-Dietzgen-Straße 36* *D-53773 Hennef*
	Vibrationsplatte / Vibration plate / Plaque vibrante
Hiermit erklären wir, dass die Maschine (Typ) Herewith we declare that the machine (Type) Par la présente, nous déclarons que la machine (Type) Por la presente, declaramos que la máquina (Tipo) **Leistung** / Output / Puissance / Potencia:	***APH 1000 TC*** *Hatz 1D90V* *10.9 kW*
Seriennummer: Serial number: Numéro de série: Número de serie:	*weitere Informationen siehe Typenschild* *look at machine plate for more information* *informations détaillés sur plaque type* *para más información consulte la placa de características*

folgenden einschlägigen Bestimmungen entspricht: complies with the following provisions applying to it: correspond aux dispositions pertinentes suivantes: corresponde a las siguientes disposiciones pertinentes:			
2006/42/EG *2006/42/EC* *2006/42/CE* *2006/42/CE*	*2000/14/EG* *2000/14/EC* *2000/14/CE* *2000/14/CE*	*2005/88/EG* *2005/88/EC* *2005/88/CE* *2005/88/CE*	*2004/108/EG* *2004/108/EC* *2004/108/CE* *2004/108/CE*

Angewandte harmonisierte Normen : Applied harmonized standards: Normes harmonisées appliquées: Normas armonizadas aplicadas:	*EN 500-1 ; EN 500-4*
Die benannte Stelle nach 2000/14/EG The notified body of 2000/14/EC L'organisme habilité de 2000/14/CE El organismo citado según 2000/14/CE	*TÜV Rheinland* *Product Safety GmbH* *D-51101 Köln* *Kenn-Nr. 0197*

wurde (wird) eingeschaltet zur / was (is) engaged for / intervient pour / ha (habrá) intervenido para:

Konformitätsbewertung nach Anhang VIII aus 2000/14/EG valuation of conformity to Annex VIII of 2000/14/EC conformément à l'Annexe VIII de 2000/14/CE la evaluación de conformidad, según Anexo VIII de 2000/14/CE	**ISO 9001 Zertifikats-Nr.:** ISO 9001 certificate No.: ISO 9001 attestation n°: ISO 9001 nº de certificado: *09100 67054*

Gemessener Schallleistungspegel $L_{WA,m}$ Measured sound power level $L_{WA,m}$ Niveau de puissance de son $L_{WA,m}$ Nivel de potencia sonora medido $L_{WA,m}$	**Garantierter Schallleistungspegel $L_{WA,g}$** Guaranted sound power level $L_{WA,g}$ Niveau de puissance de son garanti $L_{WA,g}$ Nivel de potencia sonora garantizado $L_{WA,g}$
107 dB	*109 dB*

ppa. Schulz

Hennef, 20.10.2011

ppa. Dipl.-Ing. Reiner Schulz, Technische Leitung

Ort, Datum
Place, date / Lieu, date / Lugar, fecha

Unterschrift, Angabe der Funktion im Unternehmen
Signature, acting in the company / Signature, en qualitè de / Firma, en calidad de Assinatura

Aufbewahrung der technischen Unterlagen bei o.g. Person
Technical documents are kept by the above mentioned person
Conservation des documents techniques par la personne susmentionnée
La persona arriba indicada guarda la documentación técnica

Foreword

AMMANN

These instructions include:

- Safety regulations
- Operating instructions
- Maintenance instructions

These instructions have been prepared for operation on the construction site and for the maintenance engineer.

These instructions are intended to simplify operation of the machine and to avoid malfunctions through improper operation.

Observing the maintenance instructions will increase the reliability and service life of the machine when used on the construction site and reduce repair costs and downtimes.

Always keep these instructions at the place of use of the machine.

Only operate the machine as instructed and follow these instructions.

Do not fail to comply with the safety provisions, as well as the rules for safety and health protection at work («*BGR 118 - Dealing with moving road construction machinery*») of the German federation of institutions for statutory accident insurance and prevention (HVBG), as well as the applicable accident prevention regulations.

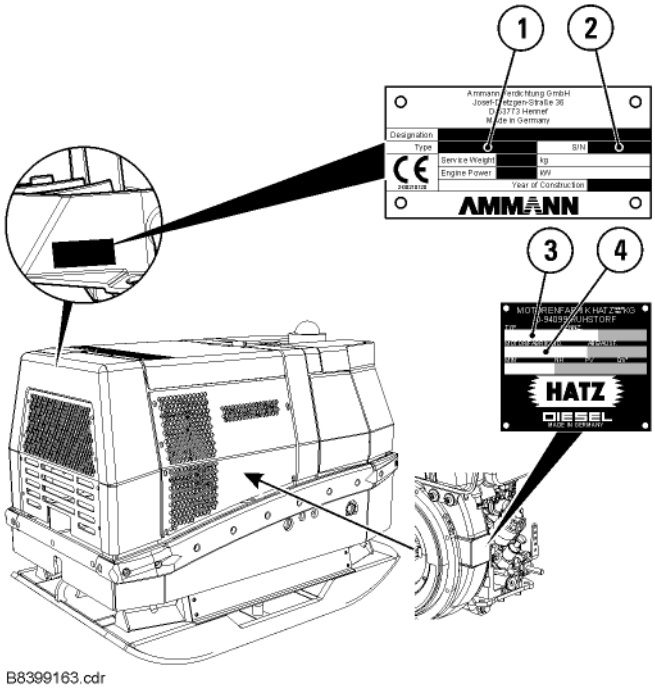
Also observe the corresponding rules and regulations valid in your country.

Ammann Verdichtung GmbH is not liable for the function of the machine when used in an improper manner and for other than the intended purpose.

Operating errors, improper maintenance and the use of incorrect operating materials are not covered by the warranty.

The above information does not extend the warranty and liability conditions of business of Ammann Verdichtung GmbH.

We reserve us the right to take changings due to technical development without announcement.



Please enter (data on machine type plate)

1. Mach.-type: _____

2. Mach.-No.:_____

3. Engine-type: _____

4. Engine-No.: _____

Ammann Verdichtung GmbH
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Printed in Germany Ref.-No. 2-00002028EN 09/2012 AVD

Inhalt

1. Safety regulations

This Ammann machine has been built according to the state of the art in compliance with the pertinent rules. Nevertheless, these machines can still constitute a hazard to persons and property if:

- not used for the intended purpose,
- not operated by suitably qualified and instructed personnel,
- modified or converted in an improper manner,
- the pertinent safety regulations are not observed

For this reason, any person entrusted with the operation, maintenance or repair of the machine is obliged to read and follow the operating instructions and particulary to observe the safety regulations. If necessary, it must be confirmed by the signature of the company using the machine.

Furthermore, the following must be made known and observed:

- pertinent regulations for the prevention of accidents,
- generally recognised safety rules,
- country-specific regulations

Normal use

The machine is suitable for all compaction jobs in civil works and road construction. All ground materials such as sand, gravel, sludge, crushed stone, asphalt and composite sett paving can be compacted.

Improper use

The machine can constitute hazards if not used by instructed personnell or for other than the intended purpose.

Weighing down and riding on the machine is forbidden.

The machine must not be used on slopes with a gradient of more than 25°.

Do not use the machine on hard concrete, set asphaltic surfaces, highly frozen or unstable surfaces.

Who is allowed to operate the machine?

Only suitable qualified, instructed and authorised persons over 18 years of age may operate the machine.

In variance from this, minors can be employed, as long as it is necessary to their training objective and their protection is assured by a supervisor.

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

Maintenance and repairs, in particular of hydraulic systems and electronic components require special knowledge and must be carried out only by skilled persons (mechanics specialising in construction and agricultural machinery).

Conversions and modifications to the machine

Unauthorised modifications and conversion of the machine are not permitted for safety reasons.

Spare parts and special equipment not delivered by us are also not approved by us. The installation and/or the use of such parts can also have a detrimental effect on the operating safety.

The manufacturer disclaims all liability for any damage resulting from the use of non-original parts or special equipment.

Safety information in the operating instructions

The following signs and designations are used in the manual to designate instructions of particular importance:

Refers to special information on how to use the machine most efficiently.

Refers to special information and/or orders and prohibitions directed towards preventing damage

Refers to orders and prohibitions designed to prevent injury or extensive damage.

Information on safe and environmentally-friendly disposal of operating and ancillary agents as well

Transporting the machine

Only load and transport the machine as specified in the operating instructions.

Only use suitable means of transport and hoisting with sufficient loading capacity!

Attach suitable slinging means to the points of attachment provided.

Secure the machine to prevent it from tilting or slipping.

It is highly dangerous to walk or stand under suspended loads.

Secure the machine on transport vehicles to prevent it from rolling, slipping and tilting.

Starting the machine

Prior to starting

Familiarise yourself with the operating and control elements and the mode of operation of the machine and the working environment. This includes, e.g. obstacles in the working area, loading capacity of the ground and the necessary safety provisions.

Use personal protective equipment (safety footwear, hearing protectors, etc.).

Check to ensure that all safety devices are firmly in place.

Do not start the machine if instruments or control devices are faulty.

Starting

For machines with handstart, only use the safety cranks tested by the manufacturer, and precisely follow the operating instructions of the motor manufacturer.

To crank-start diesel motors; Important is the correct position to the motor and the correct hand position on the crank.

The handcrank must be turned with maximum force until the motor starts, otherwise the crank can rebound.

Precisely follow the starting and stopping procedures specified in the operating instructions and observe indicator lights.

Only start and operate machines with an electrical starter from the instrument panel.

Starting and operation of the machine in potentially explosives atmospheres is forbidden!

Starting with battery junction cables

Connect «*positive*» to «*positive*» and «*negative*» to «*negative*» (earthing lead). Always connect the earthing lead last and disconnect first! Incorrect connection will cause serious damage to the electrical system.

Starting in enclosed spaces, tunnels, mines or deep ditches

Engine exhaust gas are highly dangerous!

For this reason, when operating the machine in enclosed spaces, tunnels, mines or deep ditches, it is important to ensure that there is sufficient air to breath (see UVV «*Construction work*», BGV C22, paragraphs 40 and 41).

Machine control

Operating devices which adjust themselves automatically when released in normal use, must not be locked.

Check protective devices and brakes for proper functioning prior to operation.

When reversing, particularly on the edges and banks of ditches, as well as in front of obstacles, the machine operator cannot fall or be crushed.

Always keep a safe distance away from the edges and banks of ditches and refrain from any actions which could cause the machine to topple over!

Always control the machine, so that hand injuries through hard objects are avoided!

Always ascend slopes carefully in a direct path.

Reverse up steep slopes to prevent the machine from toppling over on to the machine operator.

If faults on the safety devices or other faults detrimental to the safe operation of the machine are noticed, operation of the machine must be stopped immediately and the faults remedied.

When undertaking compaction work in the vicinity of buildings or above pipelines and similar, check the effect of the vibrations on the buildings and pipes and stop compaction work if necessary.

Parking the machine

Park the machine on a firm and level surface.

Shutdown the drive and secure it to prevent accidental movement and unauthorised use. If available, close the fuel valve. Do not place or store equipment with integrated moving gear on the chassis. The moving device is intended only for transportation purposes.

Filling petrol

Only fill petrol by switched-off motor.

No open fire, do not smoke.

Do not spill any fuel, collect discharging fuel in a suitable container, prevent fuel from seeking into the soil.

Ensure that the filler cap is tight.

Leaky fuel tanks constitute an explosion hazard and must therefore be replaced immediately.

Maintenance and repairs

Observe the maintenance, inspection and adjustments and intervals specified in the operating instructions, as well as the information for part replacement.

Maintenance work must be undertaken only by qualified and authorised persons.

Maintenance and repairs only by switched-off drive.

Only carry out maintenance and repairs when the machine is parked on a firm and even surface and is secured to prevent it from rolling.

When changing larger assemblies and individual components, only use suitable and perfectly functioning hoistings and lifting gears with suitable loading capacity. Attach and secure parts on hoisting carefully!

Spare parts must comply with the technical requirements of the manufacturer. Therefore only use original spare parts.

Hydraulic lines must previously be rendered pressureless, before working on them. Hydraulic oil discharging under pressure can cause serious injuries.

Work on hydraulic devices must be undertaken only by persons with a special knowledge of hydraulics and the necessary experience!

Do not adjust pressure relief valves.

Drain hydraulic oil at operating temperature—caution risk of scalding!

Collect discharging hydraulic oil and dispose of the same in an environmentally-friendly manner.

Do not start the motor when hydraulic oil has been drained off.

After completing all work (by pressureless system), inspect all connections and bolted connections for leaks.

Inspect all hoses and bolted connections for leaks at regular intervals and externally visible damage! Rectify any damage immediately.

Replace externally damaged hydraulic hoselines at regular intervals (depending on time used), even when no safety-relevant faults are visible.

Before working on the electrical system of the machine, disconnect the battery and insulate by covering or remove.

Inspect the electrical equipment of the machine at regular intervals. Faults such as loose connections, worn or scorched cables must be immediately eliminated.

During transport, secure the battery to prevent it from tilting, short-circuit, slipping and damage.

Dispose of used batteries in a proper manner.

Do not place any tools on the battery.

Handling acid-batteries

Transport filled batteries upright to prevent acid spillage.

Keep away from sparks, open fire and other sources of ignition.

Avoid contact of acid with skin and clothing. In case of contact, wash off acid immediately with clear water and go to medical institution.

Properly refit and inspect all protective devices after maintenance and repairs.

Testing

Road rollers, trench rollers and vibrating plates must be tested for safety by an expert depending on the particular application and operating conditions as required, however at least once a year.

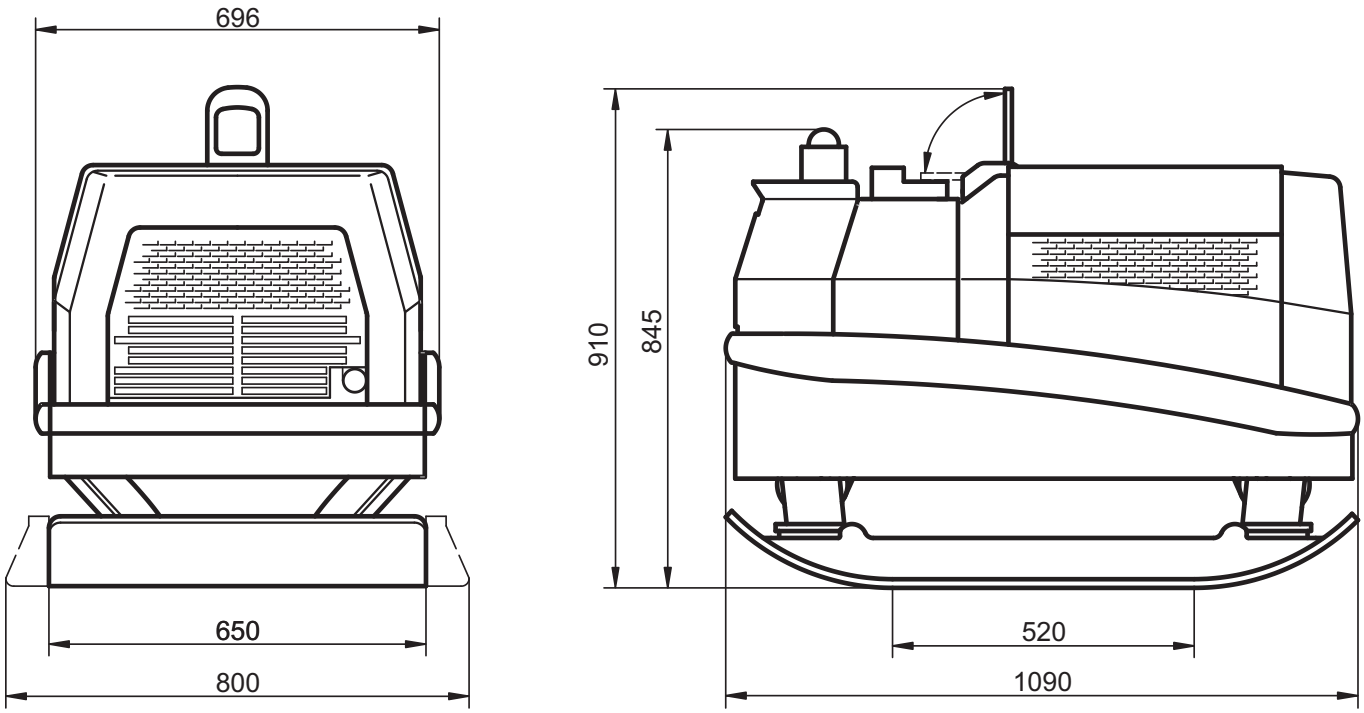
Disposal of the machine after finish of its service life

At disposal of the machine after finish of its service life, the owner is obliged to comply with national regulations and laws on wastes and protection of environment. Therefore we recommend in such cases to contact the following:

- professional specialized companies engaged in such activities and having the relevant certificate
- the manufacturers or contracting service organizations authorized by him.

The manufacturer is not responsible for damages to health of owners neither for damages to the environment in events of failing to comply with above mentioned hygienic and ecological principles.

2. Technical data



APH 1000 TC	
1. Operating weights	
Basic unit	715 kg
with mounting brackets 75 mm	747 kg
2. Working width	
Basic unit	650 mm
with mounting brackets 75 mm	800 mm
3. Drive	
Engine type	Hatz 1D90 V
Construction type	1-cylinder, four-stroke diesel
Engine rating	10,9 kW / 14,8 hp
at rpm	3000 1/min
Cooling system	Air
Fuel tank capacity	10,0 l
Fuel consumption	ca. 2,5 l/h
max. gradibility	35 %
max. gradient	25°
Drive	hydraulic power-transmission
Control forwards/backwards	hydraulic
4. Vibration	
Overall vibrating power	up to 63 kN
Vibration frequency	up to 46 Hz

5. Operating speed	
0 - 28 m/min	
6. Maximum performance	
Basic unit	1090 m²/h
with mounting brackets 75 mm	1350 m²/h
7. Infra-red control	
max. range transmitter/receiver	18 m
Safety distance	1 m
Charging time transmitter battery	ca. 10 min.
8. Special equipment	
Operating hours meter	
9. Noise data*	
The following noise data according to EC Machinery Directive in the version (2006/42/EC), was determined, taking into account the following standards and directives. In operational use, values can deviate depending on the prevailing conditions. The noise data specified in Appendix 1, sub-clause 1.7.4.u of the EC Machinery Directive is for:	
the sound pressure level at the operator place is L_{PA}	88 dB
Measured sound power level $L_{WA,m}$	107 dB
Guaranted sound power level $L_{WA,g}$	109 dB
The noise values were determined, taking into account the following directives and standards: Directive 2000/14/EC / EN ISO 3744 / EN 500-4	

*Since the permissible noise rating level of 85 dB can be exceeded with this machine, the operator must wear suitable hearing protection.

3.1 Description

The APH 1000 TC is a remote controlled steerable and reversible vibratory tamper, which operates on the 2-shaft-oscillation system.

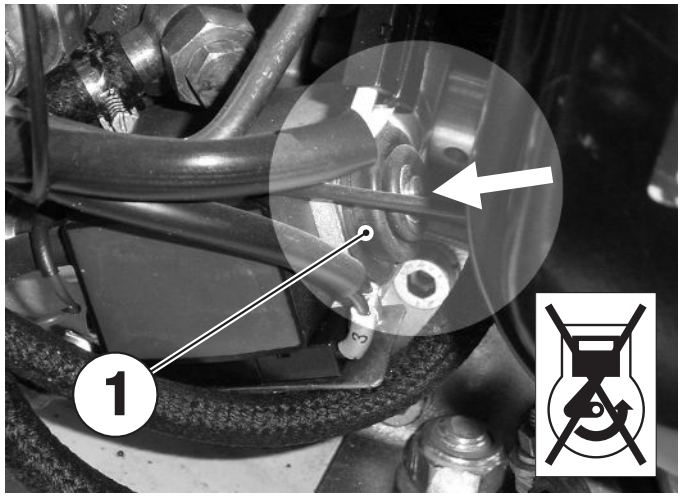
The exciter on the base plate is operated by hydrostatic drive from the diesel engine. The exciter creates the vibration needed for compacting by means of the integral flyweights. The machine is operated by cable or by infrared remote control.

The APH 1000 TC is suitable for all compacting work in civil engineering and road building, particulary for working excavations. All forms of base material can be compacted, such as sand, gravel, slag, ballast, bitumen and compound block pavement.

Care is needed on inclined slopes, the machine can slip if there is material with poor adhesion or the surface is smooth.

Do not work on solid concrete or a bonded bitumen covering.

3.1.1 General view of unit



1 Magnetic valve

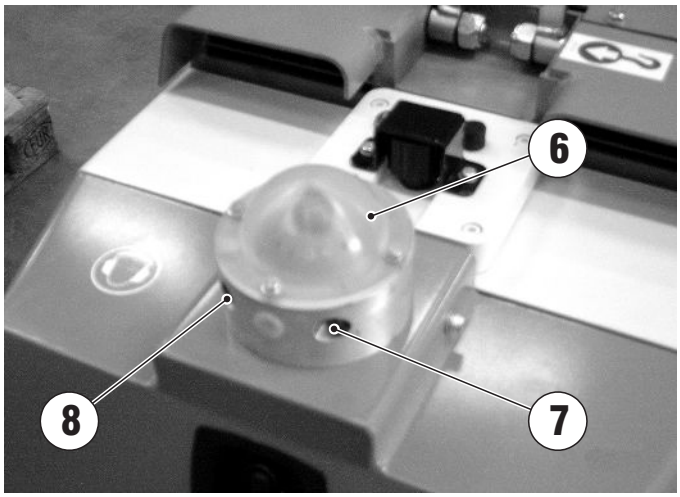
On failure of the transmitter the motor can be stopped by pushing the magnetic valve. The motor can only be restarted after a 2 min. prolonged use.

2 Diesel engine

3 Exciter

4 Base plate

5 Receiver



6 Receiving control lamp (orange)

monitors the transmitter/receiver reception:

forward ⇨ flashing light
reverse ⇨ steady light

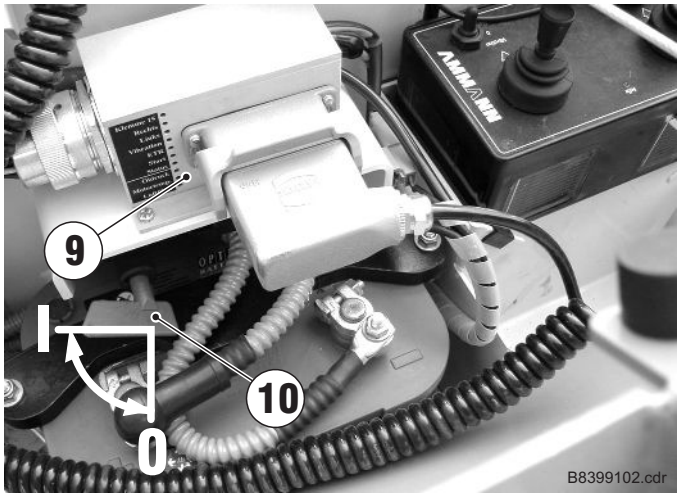
If the transmitter is moved out of the receiving range or reception is disturbed, the lamp goes out and the machine stops after 3 sec.. In this case the transmitter must be moved back into receiving range.

7 Oil pressure indicator light (green)

monitors the operation of the oil pump and the motor oil level.

8 Load indicator light (red)

monitors the operation of the generator.



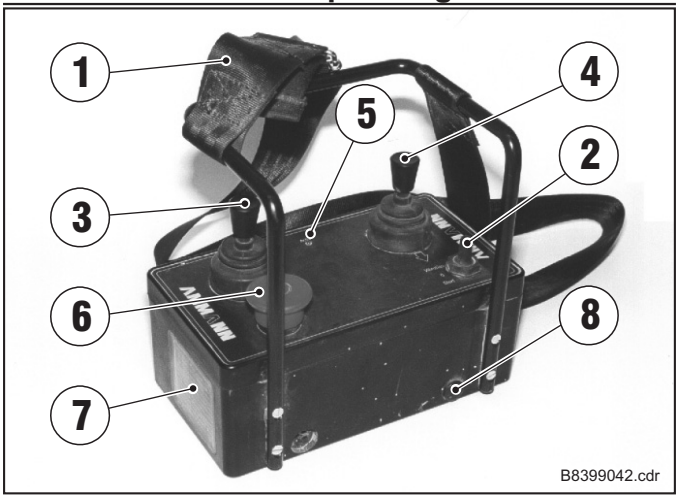
9 Valve control unit

10 Battery master switch

0 ⇨ OFF
I ⇨ ON

serves to prevent unauthorised use and the discharging of the vehicle battery through prolonged use.

3.2 Remote control operating elements



1 Carrying belt

2 Motor/vibration switch

The switch moves across three positions:

Start	Start engine
0	Neutral position: engine running/machine stopped
Vibration	Vibration on; machine moves forward

3/4 Lever for movement

The machine is steered with the movement levers.

5 Control light (RED)

This flashes when the transmitter is active. If a function is activated and the light does not flash, there will be no transmission. In this case either the

- STOP-switch (6) is pressed or
- the battery in the transmitter is flat

6 STOP switch

The motor and machine is switched off with this switch.

7 Solar cells

The remote control is provided with solar cells for charging the battery (see section)

8 Adress setting

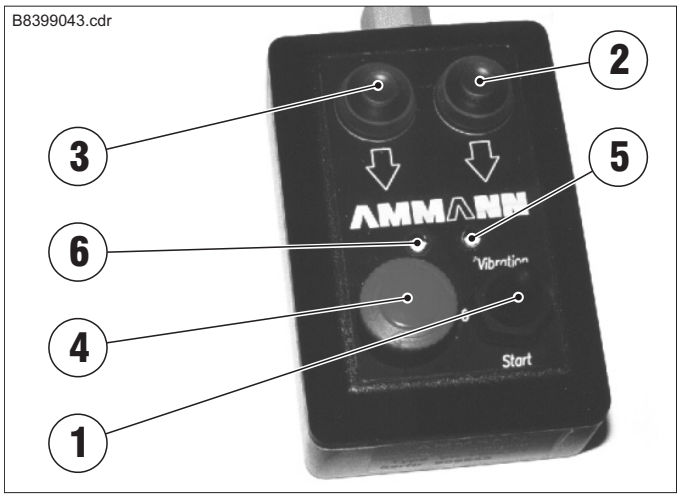
The adresses on the transmitter and receiver must match.

- Remove plugs
- Set addresses with a screw driver; up to four addresses can be set.

Example:

Transmitter	Receiver
0	0
1	1
2	2
3	3

3.3 Hand operation elements



1 Motor/vibration switch

The switch moves across three positions:

Start:	Start engine
0Neutral position:	engine running/machine stopped
Vibration:	Vibration on; machine moves forward

2/3 Lever for movement

The machine is steered with the movement levers.

4 STOP switch

The motor and machine is switched off with this switch.

5 Oil pressure indicator light (green)

monitors the operation of the oil pump and the motor oil level.

6 Load indicator light (red)

monitors the operation of the generator.

Important

When operating under cable control the IR receiver control lights are switched out.

3.4 Transmitter battery

Important

The solar cells should not be covered over prior to, during and after operation, as this would prevent automatic charging.

Keep the solar cells free from dirt etc., to ensure that automatic charging is carried out.

In good weather conditions the power supply of the transmitter is provided by the solar cells, in very bad weather conditions the transmitter is supplied through the build-in battery.

The battery is charged through the solar cells. With an absolutely flat battery the remote control can be returned to operation after a 10 minute charging time.

3.5 Before starting operations

Use personal protective equipment (in particular hearing protectors and safety shoes).

Observe the safety conditions.

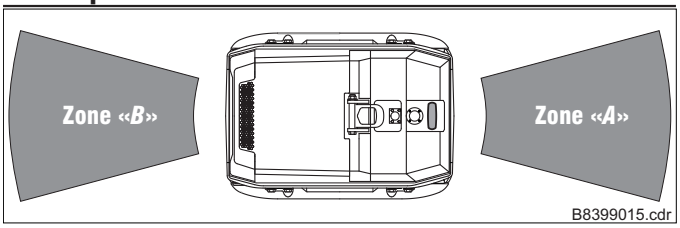
Observe the operation and maintenance instructions.

Read the Engine operating instructions. Observe the Importants on safety, operation and maintenance contained in them.

- Stand the machine on an even surface.
-
- Check
  - adress setting
  - screw connections for tightness
  - condition of engine and machine
  - stop switch
  - the Engine oil level
  - the hydraulic oil level
  - the fuel supply
  - that screw connections are secure
  - the condition of the Engine and the machine.

Top-up any missing lubrication in accordance with the lubrication table.

3.6 Operation with infrared remote control

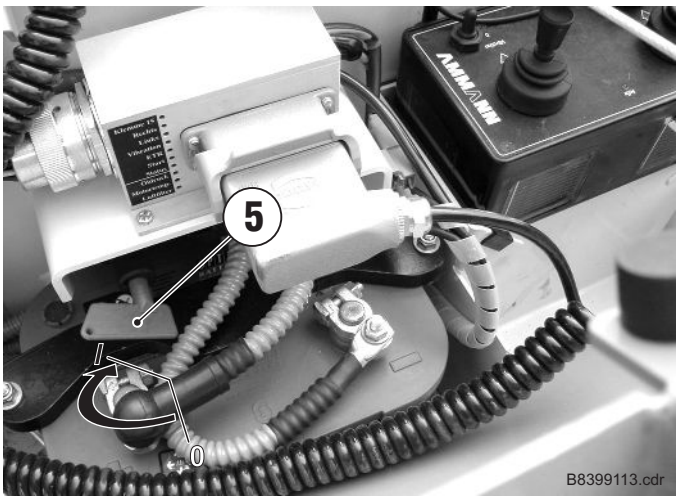


- The proper position for the operator is behind the machine (Zone «*A*»).

If the operator is on the other side (Zone «B»), the directions of the positioning units and the relevant control action *do not* match.

If the transmitter is faulty for any reason whatsoever, stop the machine immediately with the magnetic valve.

- The maximum range for the transmitter/receiver is ca. 18 m.
- The machine will switch off independently:
  - If the distance is insufficient for safety (1m).
  - If the maximum range is exceeded (ca.18 m).
  - If the remote control connection is interrupted for more than 3 sec..
  - If power to the transmitter or receiver unit fails.
- The drive function must be reselected, if
  - the receiver has no command signal from the transmitter for longer than 15 min..
  - the connection between the transmitter/receiver is interrupted for longer than 15 minutes. During this period the selected drive function remains switched on.
- The transmitter has only a limited transmission range. It must always be held pointed towards the machine. If there is excess deviation to right or left, upwards or downwards, the machine will not start, or if running will immediately cut out.
- The transmitter and receiver elements must be cleaned each time before starting work.



- Switch battery master switch to «*I*».

- Attach remote control with carrying strap.

- Release Stop switch (1) by moving upwards.
- Start the engine by moving lever (2) to «*Start*»; the engine accelerates to rated speed.

Important

Depress starting lever (2) until the charging indicator light (red) on receiver or hand-held controller extinguishes.

- To move forward, set switch (2) to «*Vibration*».
- Change direction of travel by moving control lever (3+4) (see table):

Travel lever	Position	Travel direction
③ ④	0	⇧
③ ④	I 0	⇗
③ ④	0 I	⇖
③ ④	0 I	⇘
③ ④	I 0	⇙
③ ④	I	⇩

TAB05001GB.cdr

3.6.1 Switching off the machine

Attention

In dangerous situations, the machine can be switched off by pressing the Stop-switch (1)

- Set switch (2) to «*0*».
- Press switch (1); this switches off the engine.
- Set the battery master switch to «*0*» and remove the key.

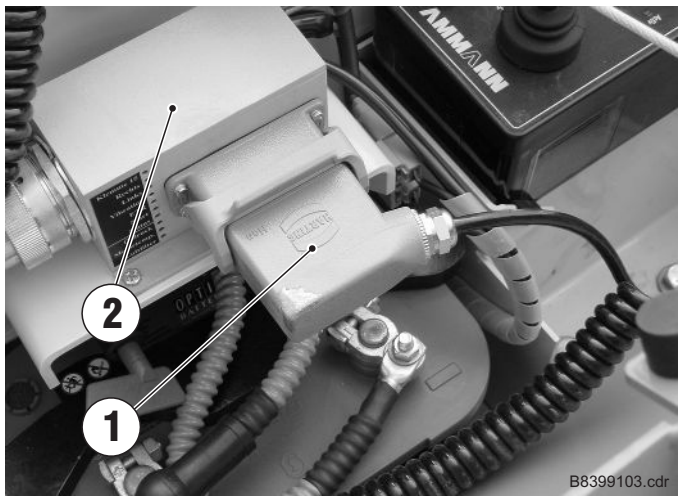
Important

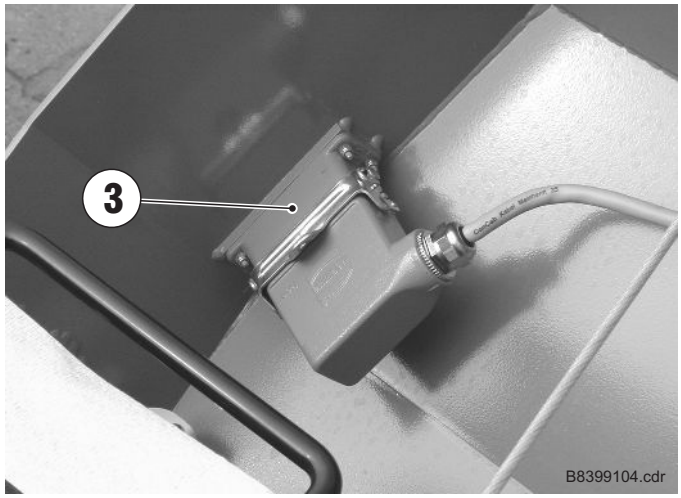
At the end of work and during breaks, leave Stop-switch (1) depressed; this considerably reduces the power conumption of the transmitter.

The machine can only be restarted when the red and green control lamps have extinguished.

3.7 Cable operation

3.7.1 Production of the cable connection





- Unbold the IR receiver (1) from the black box (2), withdraw and position on the park socket (3). The IRreceiver is now out of operation.

Important

In order to protect the plug from dirt and damage always position the out of the use plug un the park socket.

When washing the machine always position a plug in the Black box connection socket to prevent the ingress af water and dirt.

- Insert and bolt the cable operation unit plug into the Black box.
- The cable operation unit is now ready for use.

3.7.2 Operation

Attention

All safety notes of section «*3.6 Operation with IR remote control*» also apply for operation by cable.

The safety stop switches are not active with control by cable.

- The operation af the machine is as with IR remote control.

4.1 Loading and transportation

Danger

Only use sufficiently strong and secure loading ramps when loading.

Check the contact points (frame, lifting rings) before use for damage and wear. Immediately replace damaged parts.

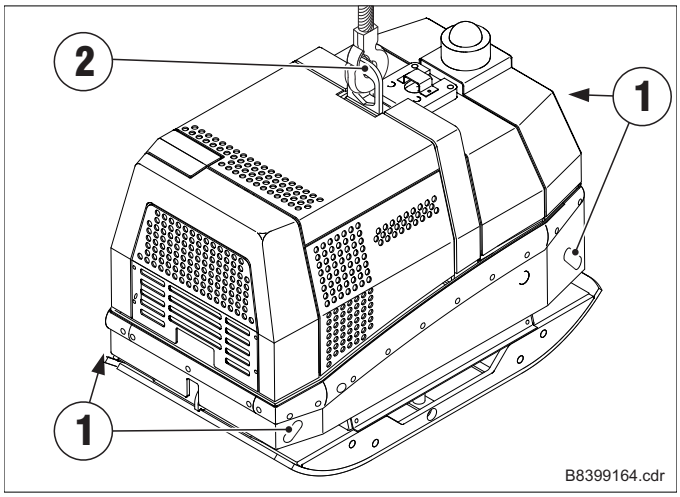
Secure the machine against rolling or slipping off and against tipping over.

Ensure that no persons will be endangered.

When loading, lashing down and lifting the machine always use the provided lifting points.

Persons are in danger, if they

- **go near swinging loads or**
- **stand under swinging loads**



- After loading, the machine has to be attached in place (1).
- Use the centre-of-gravity suspension point (2) in order to lift the machine.

5. Maintenance

5.1 General notes

Careful maintenance:

- ⇨ **increased service life**
- ⇨ **increased function security**
- ⇨ **reduced downtimes**
- ⇨ **increased reliability**
- ⇨ **reduced 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 thorougly 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.**
- **Before commencing work on any electrical equipment, disconnect the battery and cover it with insulating materials.**
- **Do not exchange „PLUS“ and „MINUS“ poles on the battery.**
- **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.**
- **Burn-out lightbulbs 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.**

5.2 Maintenance schedule

Intervals / Works	daily	20 h	50 h	100 h	250 h	500 h	1000 h	as required
Clean machine	●							
Check engine oil level[1)]	●							
Change engine oil[1)]					●			
Change engine oil filter[1)]		●[3)]			●			
Check, clean air filter[1)]	●							
Change air filter element[1)]						●		
Change fuel filter[1)]						●		
Drain water (fuel tank)[1)]		●						
Check suction air intake[1)]	●							
Exciter: Check oil level			●					
Exciter: Change oil[2)]					●			
Check hydraulic oil level	●							
Change hydraulic oil[2)]						●[3)]	●	
Change pressure filter element[2)]		●[3)]					●	
Change ventilation filter[2)]						●[3)]	●	
Check the hydraulic hose lines				●				
Check rubber buffer				●				
Retightened screw connections		●[3)]		●				
Check, adjust the valve clearance[1)]					●			

[1)]Observe the motor manual
[2)]Annually
[3)]First time

5.3 Lubrication schedule

Lubricating point	Quantity	Changing intervals	Lubricant	Order No.
1. Engine				
APH 1000 TC	1.5 l	first time after 20 h; then every 250 h	Engine oil API SG-CE SAE 10W40	2-80601100
incl. engine oil filter	1.6 l			51-01480000
2. Exciter				
APH 1000 TC	2.7 l	250 h or annually	Gear oil in acc. with JDM J20C	2-80601110
3. Hydraulic				
APH 1000 TC	27.0 l	first time after 500 h, then every 1000 h or annually	Hydraulic oil HVLP 46	2-80601070
4. Pressure filter element				
APH 1000 TC		first time after 20 h, then with each hydr. oil change		2-80199165
5. Ventilationfilter				
APH 1000 TC		with each hydr. oil change		2-80126329

5.4 Firmenalternative Schmierstofftabelle

	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
FINA	a. Kappa FE b. Kappa Turbo DI	Transfluid AS	a. Hydran TSX 32 b. Biohydran TMP 32[2)]	——	Finamatic 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
KLEENOIL PANOLIN	——	——	Panolin HLP Synth 32[2)]	——	——
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.

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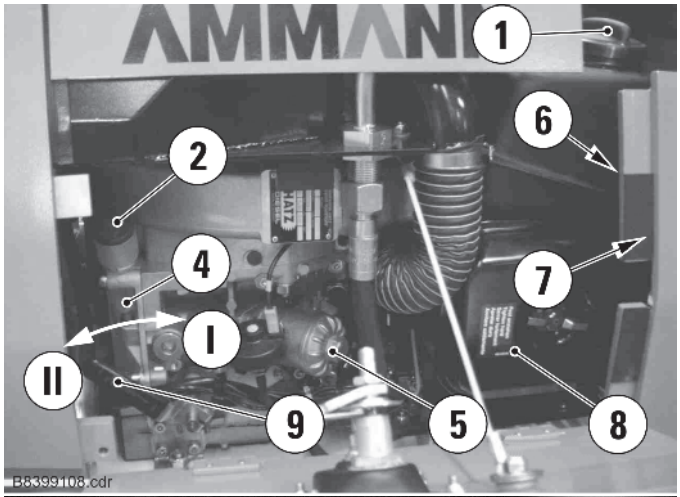
5.5 Maintenance work on the motor

Only the maintenance work which has to be performed daily is included in the Operating Manual. Please refer to the Engine Operating Manual and to the maintenance instructions and intervals listed therein.

5.5.1 Overview



1 Fuel filling socket
2 Oil filling socket
3 Oil outlet
4 Oil measuring dip
5 Oil filter
6 Fuel filter
7 Water outlet, fuel tank
8 Air filter
9 Speed lever

The engine speed can be reduced with the speed lever (9) (e.g. maintenance).

I = Idling (about 1400 rpm)
II = Full throttle (about 3000 rpm)

Important

On completion of work, set the speed to full throttle (II) again, so that the engine reaches its full output.

5.5.2 Filling-up with fuel

Danger

Only top-up by stationary motor.

No open fire.

Do not smoke.

Do not fill-up in closed rooms.

Do not inhale petrol fumes.

Collect spilt fuel in a suitable container and prevent spillage entering the soil.

- Clean around the fuel filler socket (1).
- Open the fuel filler socket and
- Visually check the fuel level.
- Top-up if necessary. All diesel oils sold as fuel and complying with the following minimum specification can be used: EN 590; DIN 51601 - DK; BS 2869 A1 / A2 or ASTM D 975 - 1D / 2D.
- Close the tank tightly.

5.5.3 Check motor oil level

Environment

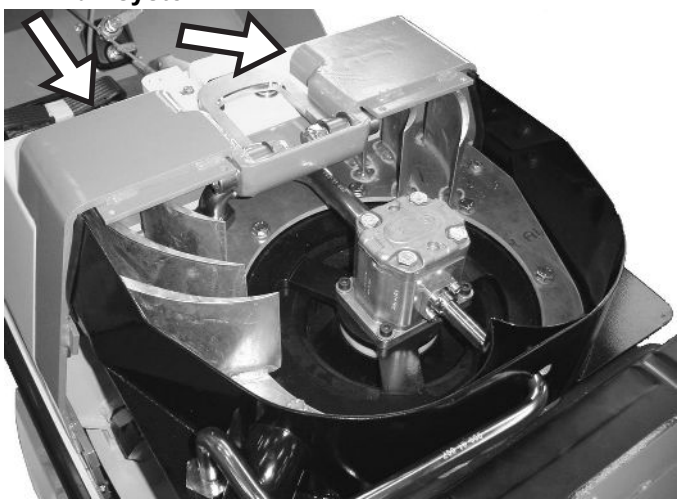
Collect old oil and dispose of it in an environment friendly manner.

Do not permit oil to run onto the floor into the drains.

Immediately replace damaged seals.

- Park the machine horizontally.
- Clean the area around the measuring dip.
- Draw out measuring dip(7), wipe-off with clean, lintfree cloth.
- Insert measuring dip again until the stop.
- Draw out measuring dip again and check oil level.
- If necessary, refill oil until upper marking.
- Clean area around filler socket.
- Open the filler socket (2).
- Fill-in required oil quantity.
- Secure oil filling socket.
- Insert measuring dip.
- Allow the motor to run for approx. 1 min. and check oil level; complete if necessary.

5.5.4 Check area around combustion air and cooling air system



Check intake opening for combustion air and cooling air intakes. Remove coarse obstructions such als leaves, stones and earth.

5.5.5 Draining off water (fuel tank)

The fuel tank must be checked once a week for accumalations of water in order to prevent water from penetrating into the sensitive injection system.

- Unscrew screw to last turn on the thread.
- Collect drops which flow out in a clear container.
- Determine by visual inspection whether water is draining out (water settles to the bottom of the container).
- As soon as fuel flows out, close the screw again.

5.5.6 Cleaning the air filter element

Change filter element:

- **If the filter element or sealing ring is damaged**
- **After cleaning twice**
- **If there are soot-containing deposits**
- **If moist or oily**
- **When engine performance reduces or**
- **the colour of the exhaust gas changes**

Never operate the engine without air filter element fitted.

- Remove air-cover
- Carefully pull out filter element.
- Use a jet of dry compressed air (*max. 5 bar*) to blow through the filter element from the inside outwards, moving it up and down at the same time, until no further dust emerges.

Risk of eye injuries! – Wear safety goggles.

- Tilt the filter element and hold it against the light (or shine a light through it) to trace any cracks or other damage.
- Clean air cover and -housing with lintfree cloth.
- Carefully pull in the filter element.
- Fit-up the cover.

5.6 Maintenance Machine

5.6.1 Cleaning

The machine has to be cleaned daily.

Attention

After cleaning

- **all cables, hoses, connections and connectors are to be checked for leakage, holed connections, chafing points and other damage.**
- **Detected faults are to be eliminated immediately.**

No combustible or aggressive materials are to be used for cleaning.

5.6.2 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

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Tightness classes for screws with untreated, unlubricated surfaces.

The values provide for a 90% use of the tensile limit with a coefficient of friction $\mu_{(gas)}$ = 0.14.

The maintaining of the tightening torque will be checked with torque spanners.

The use of MoS2 lubrication will not exceed the given values.

Important

Self-locking nuts must be renewed after each dismantling.

5.6.3 Screwed connections

It is important to check the screwed connections perodically of the vibration appartus, to ensure that they are well screwed. Observe tightening torques.

5.6.4 Rubber buffer

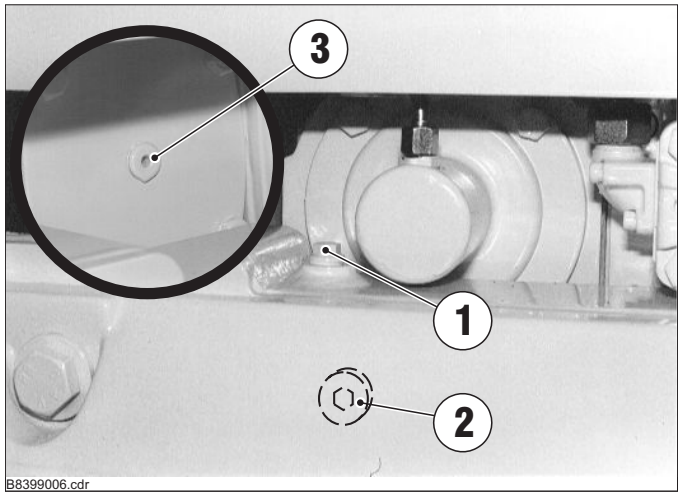
Check the rubber buffer for cracks and breaks as well as for secure seating, immediately replace in the event of damage.

5.6.5 Exciter: Oil level / Oil change

Important

Change vibrator oil when it is warm.

The venting screw (3) must always first be unscrewed when checking the oil level or changing the oil.



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- Unscrew the Ventilation screw (3), oil fill screw (1) and oil drain screw (2).
- Drain-off old oil.

Danger

Care is to be taken with the draining of hot oil : danger of scalding!

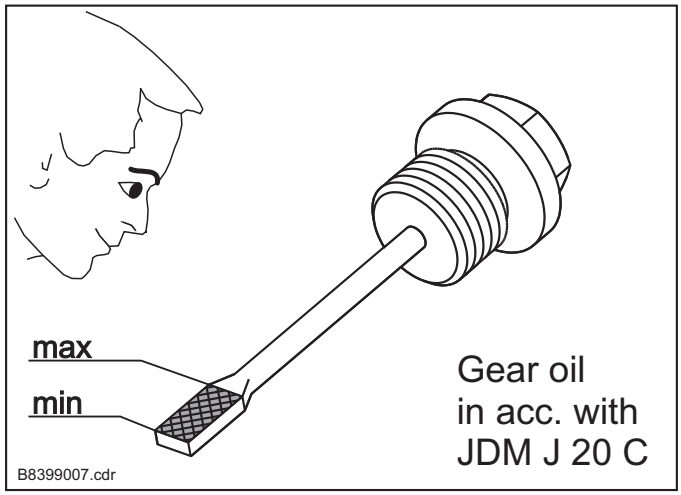
Environment

Collect oil which has run out or overflowed and dispose it in an environment friendly manner.

- Screw-in oil drain screw (2).
- Fill-in new oil through the oil fill hole (1). See lubrication plan for quantity and quality.

Attention

In order to guarantee sufficient lubrication, the oil level must be between the minimum and maximum mark on the dipstick. With a lesser level of oil there exists a danger of gear damage through overheating.



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- Screw in oil fill screw (1) and ventilation screw.

5.7 Hydraulic system

Before working on the hydraulic make the system pressureless.

Carry out the change of hydraulic oil while it is still warm in accordance to the lubrication plan and the lubrication table.

Do not start the motor while the hydraulic oil is draining under any circumstance.

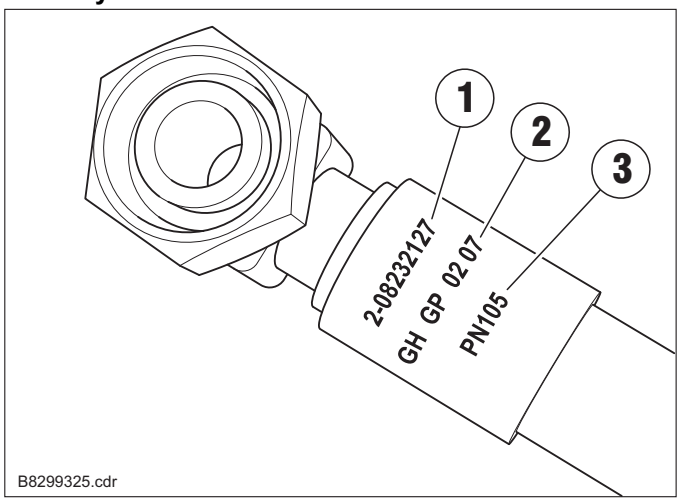
Immediately replace any damaged seals.

Change the return filter element and the air filter with each change of hydraulic oil.

Change the hydraulic oil also after each major repair on the hydraulic unit.

Collect the drained-off hydraulic oil and dispose it in an environment friendly manner.

5.7.1 Hydraulic hose lines

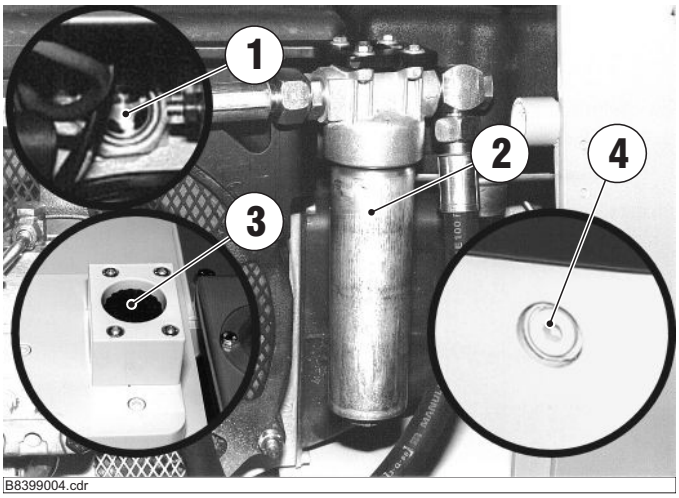


1 Ammann Article No.
2 Manufacturer/Month and year of manufacture
3 Max. operating pressure

The function of hydraulic hose lines must be tested at regular intervals (minimum once a year) by an expert (with a knowledge of hydraulics).

Hose lines must immediately be replaced in the following instances:

- Damage to the outer layer to the inner lining (abrasion marks, cracks, cuts, etc.).
- Brittleness of the outer layer (cracking of hose covering).
- Unnatural deformations of the hose line. This applies to both a pressureless and pressurised condition (e.g. layer separation, blister formation, crushed areas, kinks).
- Leaks.
- Damage or deformation of hose fittings (impaired sealing function).
- Hose slips out of the fitting.
- Corrosion of fitting (degrading of function and strength).
- Improper installation.
- Use beyond the expiry date of max. 6 years.



5.7.2 Check the hydraulic oil level

- Check the oil level through the oil jauge glass (1).
- If necessary top up the oil level up to the upper area of the glass.

If hydraulic oil is missing by the daily hydraulic oil level control, the components, hoses and connections have to be checked immediately.

5.7.3 Changing the pressure filter element

- Release the filter beaker (2); collect the draining oil in a suitable container.
- Withdraw the old filter element and dispose of it in an environmentally friendly manner.
- Remove the remaining oil from the filter container, dispose of it in an environmentally friendly manner and clean out the filter beaker with diesel oil.
- Check the o-ring and change it if necessary.
- Insert a new filter element.
- Push the filter beaker carefully over the filter element until the stop, screw on and tighten.

5.7.4 Hydraulic oil change

- Clean the filling pipe area.
- Open the ventilation filter (3).
- Open the drain screw (5).

Take care when draining hot oil. There is a risk of scalding!

- Drain off old hydraulic oil.
- Screw in drain screw; use new gasket.
- Fill with fresh oil (for quantity and quality see Lubrication schedule (section 5.3)).
- Screw in filling screw.
- Change pressure filter element.
- Change ventilation filter.

6. Battery

The instructions on the battery and in

Wear eye protection during all operations.

Keep children away from acid, batteries, and chargers.

Explosion hazard :

- *While charging batteries, a highly explosive oxyhydrogen mixture develops, therefore:*

Fire, sparks, open light, and smoking forbidden!

- *Avoid spark creation when operating with cables and electric devices!*
- *Avoid short-circuits!*
- *Avoid electro-static discharges.*

Corrosive hazard

Battery acid is highly corrosive, therefore:

- *Wear protective gloves and eye protection during all operations on the battery.*
- *Do not tilt battery, acid may leak from the degassing openings.*

First aid

- *Rinse out acid splashed in the eyes immediately for several minutes with clear water. Then consult a doctor immediately.*
- *Neutralize acid splashes on skin or clothing immediately with acid neutralizer (soda) or soap suds and rinse with plenty of water.*
- *If acid has been drunk, immediately consult a doctor!*

Warning note

- *Do not place batteries in direct sunlight without protection (box becomes crumbling).*
- *Discharged batteries can freeze up (freezing point of acid of fully charged battery -70°C, at 50% state of charge*

Disposal

- *Hand in old batteries at a collection point.*
- *The notes listed under point 1 are to be followed during transport.*
- *Never dispose of old batteries as domestic waste!*
- *Transport damaged batteries in suitable containers (acid leakage).*

6.0.1 Storage and transport

- Unfilled batteries do not require any maintenance.
- Always store wet charged batteries in a cool place (but not in a refrigerator or freezer).
- Regularly check the state of charge or use charge maintaining devices.
- Recharge wet charged batteries at an acid density of 1.21 kg/l or 12.3 V open circuit voltage or after request for charge by the optical state of charge indicator at the latest (see point 7.0.4).
- Wet charged batteries are to be transported and stored upright, protected against tipping over, and protected against short-circuit, since acid may escape otherwise.

6.0.2 Commissioning

- Regard safety regulations.
- Wet charged delivered batteries are ready for use. Only install sufficiently charged batteries, minimum 12.50 V open circuit voltage.
- Remove sealing plugs. Fill the individual cells of the battery with sulphuric acid according to DIN IEC60933-1 of density 1.28 kg/l up to the maximum acid level.
- Allow battery to stand for 15 minutes, tilt slightly several times, and refill acid if necessary.
- Tightly screw in or press in the sealing plugs.
- Wipe off any acid splashes.
- In case the battery does not show a sufficient starting performance due to too low temperature or unfavourable storage conditions, the battery needs to be recharged (see point 7.0.4).

6.0.3 Installation in and removal

- Prior to removing the battery, switch off the engine and all electric consumers.
- When removing the battery, first disconnect the negative terminal (-), then disconnect the positive terminal (+).
- Clean battery terminal and terminal clamps and treat them with acid-free grease.
- Clamp battery tightly (use original fastening).
- Only remove the protection cover from the positive terminal in the vehicle when connecting the battery and place it on the terminal of the replaced battery in order to avoid short-circuits and spark creation.
- When installing the battery, first connect the positive terminal (+), then connect the negative terminal (-).
- Assure tight fit of the terminal clamps.
- Take over accessories such as terminal covers, elbow piece, tube connection, closing plugs and terminal clamp holders (where available) from the replaced battery and connect them the same way.
- Keep at least one degassing opening unclosed, otherwise explosion hazard (this also concerns the return transport of the old battery).

6.0.4 External charging

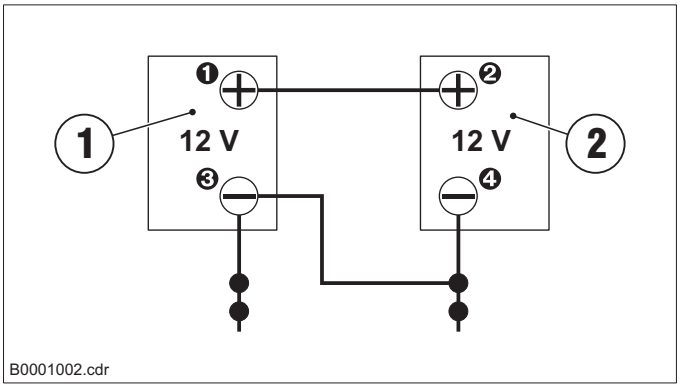
- Read and follow manual of the charger manufacturer.
- Check electrolyte level before charging and balance it where necessary (see point 7.0.5 – maintenance)
- Only charge the battery with suitable, voltage regulated chargers with the same nominal voltage, otherwise the battery has to be disconnected/removed. Recommendation:
  Charging current: 1/10 Ampere of the battery capacity Ah
  Charging voltage: 14,4 V
- Never charge frozen batteries or batteries with a temperature higher than 45°C.
- Connect the positive terminal (+) of the battery with the positive terminal (+) of the charger and the negative terminal (-) of the battery with the negative terminal (-) of the charger.
- Only switch on the charger after connecting it to the battery.
- Only switch off the charger after charging has been completed.
- Interrupt charging if the acid temperature exceeds 55°C.
- In case the battery becomes hot or acid leaks, the charging must be interrupted!
- The battery is fully charged if:
  - Current and voltage remain constant with voltage regulated chargers.
  - The charging voltage does not rise anymore within two hours with a current regulated charger. The automatic charger switches off or switches over to maintain charge.
- Ensure good ventilation during charging.

6.0.5 Maintenance

- Keep the battery surface clean and dry, only clean with damp or antistatic cloth.
- Protect terminals/connection clamps against corrosion (as described under point 7.0.3).
- Control electrolyte level (regard inner or outer marking on the box or optical acid level indicator in the lid).
- If necessary, refill demineralised or distilled water according to DIN IEC 60933-3… up to the maximum acid level (never refill acid, foreign matters or so-called optimizers).
- In case of high electrolyte loss, consult a garage.
- In case of insufficient starting performance, check battery and possibly recharge it (see point 7.0.4).

6.0.6 Jump Starting

- Only use standardized jump start cables (e.g. according to DIN 72 553).
- Regard instructions of the jump start cable manufacturer.
- Only use batteries of the same nominal voltage.
- Switch off the engine of the giving vehicle (1).
- Connect jump start cable to the positive terminal (+) of the donator battery Ê and to the positive terminal (+) of the receiving battery Ë or to the positive (+) vehicle connection terminal.
- Only then connect the jump start cable to the negative terminal (-) of the donating battery Ì and to a sturdy, blank mass in the receiving vehicle or to the negative (-) jump start point Í (Do not use the negative terminal of the receiving battery as a point of connection).



- Start receiving vehicle (2).
- In case the first attempt to jump start the vehicle fails, the donating vehicle can be started BEFORE the second jump start try.
- Disconnect the jump start cables in opposite order.

7. Troubleshooting

7.1 Blackbox

In the Blackbox received data is evaluated and the consumers controlled via power outputs.

Generator regulators and battery voltage are monitored. In the event of a faulty generator regulator or insufficient battery voltage, the consumers cannot be controlled via the power outputs; all functions with the exception of the «*Stop*» function are blocked.

The outputs for the drive functions are monitored for short and open-circuit. In the event of fault, all drive functions are blocked («*Status*» lights up), the engine continues to run despite fault. In this case, the engine must be stopped via the «*STOP*» button. When the fault has been cleared, work with the vibration plate can continue.

With charge signal absent

- Green indicator light at IR receiver or manual control as well as «*Oil pressure*» indicator light at the Blackbox light up, all drive functions are deactivated from the control unit.

With oil deficiency

- Green indicator light at IR receiver or manual control lights up, the diesel engine automatically switches off.

After stopping, the ignition switches off and the LIMA indicator light (red) and oil pressure indicator light (green) extinguish.

To support fault location, the following indicator lights are contained the housing of the Blackbox:

Designation	**Function**	
Terminal 15	Ignition	
right	Indicates function activated by transmitter In the event of a fault (short-circuit, etc.) the indicated function is not activated	
left		
vibration		
ETR		
Start		
Status	vibration fault, vibration left/right	
oil pressure	insufficient oil pressure	Fault memory display
Motor temperature	Motot temperature too high	
Air filter	Air filter clogged	

7.2 General information

Observe safety regulations.

In the event of faults, refer to the operating and maintenance instructions for correct operation and maintenance.

If the fault cannot be located, contact an Amman Service Centre.

Check whether the fault occurs both with the IR and cable control.

Always start with points that are easy to access and check, search for causes (fuses, LEDs, etc.)

Under no circumstances open the transmitter, receiver and Blackbox, as this will invalidate the Ammann warranty.

Do not touch moving parts.

Do not use fuses with a higher amp rating or bridge blow fuses. Fire hazard!

In case of blow fuses, locate the cause and remedy.

Only qualified and authorised persons may carry out repairs, particularly to the hydraulics.

7.3 Fault table

Possible cause	Remedy	Affected components	Remark	Chaptert
Engine does not start (starting faults) ⇨ Starter does not turn				
STOP button on IR or cable sender still locked	Unlock	IR sender, cable control	LED on IR sender does not flash	3.2, Item 6
Battery in IR sender discharged	Charge	IR sender	Charge battery, about 10 min.	3.2, Item 5
Cable control connected	Connect IR control	IR receiver		3.7
IR sender/receiver address does not correspond	Correct address setting	IR receiver/IR sender	Yellow LED on IR receiver does not flash	3.1.1, Item 6
Battery main switch off	Switch on	Cable harness	Yellow LED on IR receiver does not flash	3.1.1, Item 10
Sender operated outside range	Reduce distance	IR sender	Yellow LED on IR receiver does not flash	3.1.1, Item 6
Visual contact IR sender/receiver interrupted	Establish visual contact	IR sender	Yellow LED on IR receiver does not flash	3.1.1, Item 6
IR sender operated in local cut-off range	Increase distance	IR sender	Yellow LED on IR receiver flashes	3.1.1, Item 6
No reaction to manual control	Connect manual control	Cable control		3.7
Electrical faults:				
Fuse faulty	Change	Cable harness		3.1.1, Item 11
Starter battery discharged, faulty	Charge, replace	Battery		
Starter does not turn engine	Replace	Engine		
Connector loose, corroded	Establish reliable connection	Engine, cable harness		
Engine does not start ⇨ Starter turns				
Solenoid loose, misadjusted, blocked, faulty	Clear fault	Engine		3.1.1, Item 1
Fuel deficiency				
– Tank empty	Fill	Engine		
– Fuel filter clogged	Clean, replace	Engine		
– Fuel feed pump faulty	Replace	Engine		
Mechanical engine fault	Contact Hatz service	Engine		
Engine switches off directly after starting or during use				
Oil pressure too low	Fill oil	Engine	Oil pressure LED on blackbox lights for 15 min.	3.7.1,Item 2 / 6.1.1
Air filter clogged	Clean, replace	Engine	Air filter LED on blackbox lights for 15 min.	3.7.1,Item 2 / 6.1.1
Engine temperature too high	Allow to cool down, clean	Engine	Temperature LED on blackbox lights for 15 min.	3.7.1,Item 2 / 6.1.1
Fuel deficiency				
– Tank empty	Fill	Engine		
– Fuel filter clogged	Clean, replace	Engine		
– Fuel feed pump faulty	Replace	Engine		
Mechanical engine fault	Contact Hatz service	Engine		
Engine cannot be switched off				
Solenoid loose, misadjusted, blocked, faulty	Clear fault	Engine	Reset solenoid manually, loosen if necessary	3.1.1, Item 1
Mechanical engine fault	Contact Hatz service	Engine		
Possible cause	**Remedy**	**Affected components**	**Remark**	**Chapter**

Operating faults (vibration/vibration left or right)				
Charge battery in IR sender	Charge	IR-Sender	Charge battery, about 10 min.	3.2, Item 5
Sender operated outside range	Reduce distance	IR-Sender	Yellow LED on IR receiver does not flash	3.1.1, Item 6
Visual contact IR sender/receiver interrupted	Establish visual connection	IR-Sender	Yellow LED on IR receiver does not flash	3.1.1, Item 6
IR sender operated in local cut-off range	Increase distance	IR-Sender	Yellow LED on IR receiver flashes	3.1.1, Item 6
Electrical faults				
– Connectors loose, corroded	Establish reliable connection	Cable harness		
– Alternator charging signal faulty or missing	Check charging circuit	Engine, cable harness, battery	Red LED on IR receiver or cable control lights	3.1.1, Item 8
– Solenoid valves faulty	Replace		Respective diode vibration right/left on blackbox does not light	6.1
Mechanical fault on exciter gear	Check function		Respective diode vibration right/left on blackbox lights	
Fault in hydraulic system	Check function		Carry out valve function test with pressure gauge	Circuit diagram (see spare parts list)
Engine switch off faults				
Alternator charging signal faulty or missing	Check charging circuit	Engine, cable harness, battery	Red LED on IR receiver and cable control does not light	3.1.1, Item 8
Oil pressure switch faulty	Replace	Engine	Green LED on IR receiver and cable control does not light	3.1.1, Item 7
Blackbox does not switch off ignition	Switch off switch disconnector Otherwise the engine cannot be restarted	Engine	Diode clamp 15 on blackbox lights	6.1

Help on troubleshooting remote control components

If the machine functions perfectly with cable control, the blackbox is okay.

The IR sender is okay when its indicator light flashes when the actuator is operated (active).
The IR receiver is okay when it acknowledges the signals of the IR sender via the yellow receive indicator light.
If the receive indicator light (yellow) in the IR receiver does not acknowledge the sender signals, it or the blackbox is faulty (can be located by testing with cable control).

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09 / 2012