Operating instructions

Example photo

LTS LandTechnik Sexauer

VICAR

Dear customer,

We are pleased that you have chosen a VICAR sprayer and hope that you will be satisfied with our product.

Please read the operating instructions carefully and follow them to ensure that you get the best performance from your newly purchased VICAR sprayer for a long time to come. The manufacturer cannot accept any liability for any damage or accidents that may occur if these instructions are not followed.

These operating instructions are an integral part of the machine and must always be included with the sale, even when selling to third parties.

Please keep the operating instructions in a safe place.

The manufacturer reserves the right to make changes to the operating instructions at any time and without prior notice. This applies to all illustrations, data and descriptions.

Table of contents

1. Intended use

The VICAR sprayer is intended for spraying plant protection products in viticulture, fruit growing, hop growing, rose growing, tree nurseries and similar indoor crops.

Any other use is considered improper use. The manufacturer is not liable for any resulting damage. The user alone bears the risk.

Intended use also includes compliance with the operating, maintenance and servicing instructions prescribed by the manufacturer.

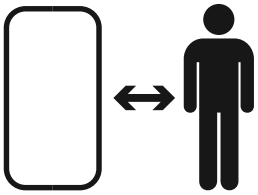
The relevant accident prevention regulations and other generally recognised safety, occupational health and road traffic regulations must be observed.

The manufacturer accepts no liability for any damage resulting from unauthorised modifications to the VICAR sprayer.

IMPORTANT: Participation in public road traffic

- Before travelling on public roads and paths, make sure that the tractor and VICAR sprayer or implement combination complies with the provisions of the German Road Traffic Licensing Regulations (StVZO). (Permissible total weight, permissible axle loads, lighting, warning signs, etc.)

2. Warnings



Maintain sufficient safety distance!

Wear gloves!

Wear safety goggles!

Wear hearing protection!

Wear respiratory protection!

Wear safety shoes!

Caution with rotating drive shafts!

Before starting work, read the operating instructions and
and safety instructions before starting work!

3. Safety regulations

The following safety regulations must be observed:

- Read and observe the safety instructions before commissioning!
- Never remove or modify the safety devices!
- Switch off the appliance before carrying out maintenance or servicing work!
- Never go under the unsecured appliance for repair, maintenance or inspection!
- The safety distance must be maintained!
- The VICAR sprayer may only be used, maintained and repaired by persons who have been trained and informed of the dangers!
- Do not enter the work area when the PTO shaft is rotating! There is an increased risk of accident in the event of contact. Do not wear loose or baggy clothing (scarves)!
- Uninvolved persons must not be in the working area of the machine.
- Keep children away from the VICAR sprayer and the spray liquid!
- Observe the warning and information signs attached to the appliance! They provide important information for safe operation!
- Only operate the appliance at the prescribed/necessary speed. (not above 540 rpm)
- The PTO selector lever **must** be in the 540 rpm gearbox position. No liability is accepted for damage to the pump caused by higher gearbox settings!
- Refer to the operating instructions for the recommended PTO speed. Observe the different values of the room cultures.
- Components such as the fibreglass tank, painted and coated surfaces, control panel, motors, junction boxes and plugs must be protected from pressurised water and heat! **Do not use a high-pressure cleaner!**
- Wheel bolts and positioning bolts of the half-axles must be checked for tightness before commissioning! To avoid consequential damage to the container, the wheel distance to the container must be at least 20 mm.

4. Safety instructions for handling plant protection products

- Standard safety guards must not be removed or modified.
- Replace damaged guards with new ones.
- Replace damaged seals and shut-off devices.
- Do not use any crop protection agents that tend to stick or solidify, as this will negatively affect the spraying result.
- If repairs by welding, soldering etc. are necessary on machine parts that come into contact with the crop protection agent, this may only be carried out after thorough cleaning with water.
- Persons who come into contact with the crop protection product or who work with the sprayer must wear appropriate protective clothing to protect themselves against contamination with the crop protection product. (Protective gloves, etc.)
- The regulations of the pesticide manufacturer and the employers' liability insurance association must be observed.
- Corresponding literature is available from the Federal Office for Agriculture and Food (BLE media service).
- Do not eat, drink or smoke while working with plant protection products.
- Clean your hands and face thoroughly with soap after each contact with the spray agent / spray liquid and after finishing work.

5. Preventing accidents

Most accidents that occur during use, maintenance and transport are caused by failure to observe the simplest basic rules.

It is therefore important that **all** persons involved in the use of the machine take note of the following rules and observe them carefully:

- To maximise the benefits of the VICAR sprayer, it must be in perfect working order. Maintenance and repair work may only be carried out by trained personnel. Spare parts must at least fulfil the technical requirements specified by the device manufacturer! This is only guaranteed by VICAR original spare parts!

- Before each use, the hitching bolts on the three-point hitch must be checked and the nuts and bolts checked.

- Always switch off the engine and remove the ignition key during maintenance and repair work!

- Do not transport persons or objects on the device during work and transport on roads!

- Only work with a fully protected drive, i.e. PTO shaft with complete PTO shaft protection and additional protection on the tractor and VICAR sprayer. Ensure that the PTO shaft connections engage securely!

- When working on the machine, it should be parked on level ground or a stable support!

- When working on the raised implement, always secure it mechanically using suitable support elements!

6. Kurzbeschreibung
HAS, ATU, NTU, AT, NT

- Before commissioning the VICAR sprayer, the oil level at the pump should first be checked (use engine oil (use engine oil 15/40).
- Check the oil level at the gearbox. Use 90 grade gear oil. Change the oil every 200 operating hours or if the oil colour changes.
- Rinse the container and suction filter thoroughly and remove any foreign bodies. Open the ball valve between the suction filter and container.
- Insert suction filter, pressure filter and nozzle strainers to prevent blockages and possible consequential damage from foreign bodies and deposits.
- Check rim and axle bolts for tightness.
- Check cardan shaft for correct length. There should be a 20 cm clearance between the tractor and the machine in a straight position. Regularly lubricate joints and the inner tube (despite Teflon coating).
- Check the drawbar for correct attachment. (trailing implement) Lengthen or shorten the drawbar until the trailed implement tracks the tractor correctly.
  Note: The longer the drawbar, the greater the tracking radius!
- After taking these precautions, fill the tank with approx. 50 litres of water for testing.
- Open the free ball valve at the control valve so that any air can escape.
- Switch on the PTO shaft. Attention: only use selector position 540 rpm!
- Wait until the water flows out of the ball valve with an even jet and then close it immediately.
- Check the pressure gauge for pressure fluctuations (max. 1 bar).
- Turning clockwise (manually) increases the pressure, turning anti-clockwise reduces it.
- Check the agitator. The injector nozzle is cleaned from the outside. Unscrew the plastic union nut and pull out the inner part of the injector nozzle using a hose. (Only clean when the container is empty)

<u>Winter protection for VICAR sprayers</u>

- Remove the suction filter cover and drain cover under the tank.
- Open all ball valves and switch on the cardan shaft briefly until no more water escapes from the free ball valve.
- Tip: The appliances can also be flushed with antifreeze to make them frost-proof.

7. Gebrauchsanweisung für HAS, ATU, NTU, AT, NT

1. Intended use of the plant protection equipment

The intended equipment of each device consists of the basic devices, pumps, control valves, fans and optional equipment. (can be seen from the enclosed combination matrix)

2. Precautionary measures and correct filling of the devices

The water and spray agent must enter the tank via the filling sieve. Switch off the fan (0 position) and switch on the agitator to prevent over-concentration of the spray liquid before starting work. It is also important to ensure that there is no direct connection between the water hose and the tank contents. This can be achieved by hanging the hose and allowing the water to fall freely into the tank. For dosing instructions and correct mixing of the spray mixture, please refer to the respective instructions for use of the spray agent manufacturer. The barrel filling injector is operated by opening and closing the associated ball valve located on the distributor pipe. Please note that it can only work when the pump is running. To prevent the tank from overflowing, the device must not be left unattended during filling.

Attention: Plant protection equipment must not be filled in water protection zones. The rinsing device is located in the filling sieve and can be operated via the feed tap on the distributor pipe. Ensure that the container lid is closed while the crop protection agent is being rinsed in. After the induction process, the feed tap must be closed again to avoid pressure losses.

3. Operating and setting ranges of the appliance

These can be found from page 24 onwards. Information on the pumps can be found in the table on page 33.

4. For instructions on residual quantities that the appliance no longer applies as intended, please refer to the table on page 29

5. Emptying and cleaning the appliance

The container is emptied via the free ball valve located on the distributor pipe. A hose is connected to this valve and the remaining contents of the container are pumped into a container and collected. When emptying the suction filter and the pressure lines (hoses and nozzle elbow), the leaking liquid must also be collected so that it does not get into the environment. The appliance should be thoroughly rinsed with water after each use. Empty as described above.

6. Checking the dosing

precise dosing (emptying the nozzles) is achieved by driving a test section with the device in operation. The amount of liquid used is then calculated by topping up to the previous level. The liquid consumption of the calculated area (test section) can thus be converted to the hectare. This process should be carried out with water. Please also refer to the spraying plan supplied with each machine. Calculation and formula as well as an example are also included.

7. Mesh size and filter
Filling sieve = 1.0 mm
Suction filter = 0.5 mm
Nozzle sieves = 0.5 mm / ceramic discs
Pressure filter = 0.4 mm (50mesh) / standard nozzles
Pressure filter = 0.2 mm (80mesh) / injector nozzles

8. Functionality of the sprayer
A functional check should be carried out after a long period of inactivity (winter). A spot check should also be carried out before each use.

9. Restrictions on the use of certain plant protection products
We are not currently aware of any pesticides with harmful effects on our equipment. For negative effects of combinations of agents, please refer to the respective information provided by the crop protection manufacturer.

10. Umstellen oder Veränderungen des Pflanzenschutzgerätes
Sollten durch Änderungen oder Eigenbau Veränderungen vorgenommen werden, so ist der Ausführende dafür zuständig.

11. Possibilities of connection with other devices
Connection is not possible.

12. Testing the crop Protektion equipment
The following must be observed for the testing of the devices by the agricultural machinery specialist company with control stations. The pressure gauges have an external thread of ¼" or ½". Test pressure gauges can also be connected to the drain cock using a ¼" x ½" reducer. To measure the respective volume flow, easily detachable hoses are attached to the pumps and fittings. To test the individual nozzles, a hose is attached to the nozzle and the collected water is then checked in a measuring cup.

13. These instructions for use apply to the following appliance types **AS, ATU, NTU, AT, NT**
The respective appliance type can be found on the type plate attached to the front frame of each machine.

8. Construction details / Standard equipment

The VICAR sprayer is available with the following standard equipment:

- Frame made of U-iron construction, all frame parts hot-dip galvanised
- Moulded tank with large filling sieve and injector agitator nozzle
- All pipes and nozzle bends made of V2A stainless steel
- Nozzles can be swivelled and switched off
- Track adjustment for all trailing axles (not for brake axles)
- PTO shaft (wide-angle PTO shaft 80° with Teflon coating for trailing axles)
- Manual remote control with centre tap on all models
- Special hitching device with centre joint and pendulum deflection for true tracking (trailers up to 2000 l)
- Rinsing tank for all models
- Hand washing tank for all models
- Internal drum cleaning from 500 litres
- Steerable support wheel from 1500 l
- For model 1500/2000 l, Cat. II required, otherwise no warranty
- Brake axle compulsory for 1500/2000/3000 l
- Half-sided air shut-off (mandatory for drift reduction classes)
- Extension tubes 440, 450, 540 (mandatory for drift reduction classes)

9. Mounting and application of BAS injection system

1. Nozzle attachment (see Fig. 1.)
The nozzle holders supplied (4 pcs.) are only suitable for the 440/460 turbines. They are mounted opposite the standard nozzle elbow. It is up to you which outlet (position) you choose.

1.

2.

2. Device assembly and connection (see Fig. 2.)
The complete basic appliance is mounted on the existing drawbar. It is attached using the hexagon bolts of the drawbar extensions.
Ensure that the base carrier is correctly adjusted horizontally and vertically. The drive is powered by the tractor's hydraulics. Hydraulic hoses are required from specialised dealers. (length specification required)
Finally, the nozzles are connected to the pump with the fabric hoses.

3. Setting
The diaphragm pump is switched on and off via the tractor's control unit. You control the output via the red central tap on the control valve and the pressure via the black rotary knob.

4. Application
However, this concentration may only be applied in conjunction with a process that uses a higher quantity of water (e.g. fungal treatment).
The exact application rate is calculated using the enclosed application table.

5. Example
100 litres of highly concentrated spray liquid are to be applied for botryticide or insecticide treatment:

Calculation formula: $\frac{\text{l/ha x row width x driving speed}}{(\ 600 \text{ x open nozzles}\ )}$

Example: $\frac{\text{100 l/ha x 2.00m x 6 km/h = 0.5 l/min}}{(\ 600 \text{ x 4 pcs.}\ )}$

Attention!
When travelling every 2nd row, the result **x 2** must be taken.

Nozzles and pressure: ATR violet at 10 bar or ATR brown at 6 bar.

10. Operating instructions for BAS injection system

1. Intended equipment of the crop protection device
The intended equipment of each implement consists of the following components: pumps, hydraulic motor, control valves and optional equipment (as shown in the combination matrix enclosed with each implement).

2. Precautions and correct filling of the equipment.
The water and spray agent must enter the tank via the filling sieve. Care must also be taken to ensure that there is no direct connection between the water hose and the contents of the tank. This can be achieved by hanging the hose and allowing the water to fall freely into the tank. For dosing instructions and correct preparation of the spray mixture, please refer to the respective instructions for use of the spray agent companies. The pump can be switched on via the hydraulic motor during or after adding the agent to ensure good agitation. The appliance must not be left unattended during filling. Otherwise the tank could overflow. It should also be noted that crop protection equipment should not be filled in water protection zones.

3. Operating equipment and setting ranges of the appliance
The operating equipment can be found on page 1.
Information on setting ranges and application is shown on page 2.

4. Information on residual quantities that the appliance no longer applies as intended,
see the table on page 29

5. Emptying and cleaning the device
The tank is emptied via the ball valve on the underside of the tank. The residual contents are collected in a container using the pump. When emptying the pressure filter, the suction and pressure lines (hoses and nozzle elbow), the liquid must be collected.
The appliance should be cleaned thoroughly after each use. Empty as described above.

6. Check the dosage
Accurate dosing (emptying the nozzles) is achieved by running a test section with the appliance in operation. The amount of liquid used is then calculated by topping up to the previous level. The liquid consumption of the calculated area (test section) can thus be converted to the hectare. Please also refer to the spraying plan supplied with each machine. Calculation and formula as well as an example are also included. This is all very important, as the machine is driven with high concentration.

7. Functionality of the sprayer
A functionality check should be carried out after a long period of inactivity (winter). A spraying check should also be carried out before each use.

8. Restriction of the use of certain plant protection products
We are not currently aware of any pesticides with harmful effects on our equipment. For information on the negative effects of combinations of products, please refer to the respective information provided by the crop protection manufacturers.

9. Conversion or modification of the crop protection equipment.
The manufacturer accepts no liability whatsoever if changes are made as a result of modifications or self-construction.

10. Options for connection with other appliances
A connection with other devices is possible by changing the attachment and the nozzle attachment.

11. Inspection of the crop protection equipment
The following must be observed when the equipment is tested by a specialised agricultural machinery company with a control station.
When using these injection systems in conjunction with all VICAR turbines, an implement inspection is required (but without a separate inspection sticker and costs). Easily removable hoses are attached to the pumps and fittings to measure the respective volume flow. To discharge the individual nozzles, a hose is attached to the nozzle and the collected water is then checked in a measuring cup.

12. Agitator
An injector agitator nozzle was used as a good agitator for these small containers. The agitator is switched on by opening the tap on the supply line. If the agitation is too strong with certain agents (foaming), it can be switched off again using the tap. Switch off the agitator even if the desired pressure is not reached. Always make sure that the agitator nozzle is not blocked. If this is the case, it can be cleaned from the connection.

13. Strainers and filters
The suction filter is attached directly to the pump. The mesh size is 0.6 mm. The pressure filter is also located on the pump and has a mesh size of 0.4 mm. This is particularly important because no clogging may occur during the application of the usually highly concentrated agents.

14. These instructions for use apply to the following appliance types **BAS**
The respective appliance type can be found on the type plate, which is attached to the front of the frame on each machine.
The respective type, pump, tank size, chassis number and year of manufacture are engraved on the type plate (tank frame).

11. Notes for UT420

- When connecting the hydraulic hoses, please ensure that the pressure and return hoses are not mixed up!

- When using the tractor for the first time, the return pressure on the tractor must be checked by a specialised workshop. It should not exceed the maximum pressure of 3 bar, otherwise the shaft seal of the hydraulic motor will be damaged.

- Please refer to page 27 for the recommended setting of the air outlets.

12. Notes for BT430

- Please ensure that the top link is in the correct position when mounting. This should be mounted as horizontally as possible in order to achieve the greatest possible travel distance. The lower link pins can be moved for this purpose.

- The PTO selector shaft position and the PTO shaft speed can be freely selected.

- In the combined application, e.g. leaf cutter / leaf remover, the corresponding PTO speed to the engine speed must be selected. Two gear stages are available for the BT430 leaf blower.

13. Assemblies

Assemblies of the VICAR sprayer

13.1 Filters

Intake filter

Modell NT 50mesh

Modell AT 50mesh

Modell BAS 50mesh

(Please check and clean regularly!)

Pressure filter

Modell NT 50/80mesh

Modell AT 50/80mesh

Modell BAS 50mesh

(Please check and clean regularly!)

13.2 Tanks

Rinsing container

NT - Trailers

AT - Attachment

Caution:

Do not pour any spray liquid into the fresh water tank!

Do not drink from it!

Hand wash container

NT - Trailers

AT - Attachment

Caution:

Do not pour any spray liquid into the fresh water tank!

Do not drink from it!

13.3 Multi-way taps

Function of the accessories

4. Wash-in container

3. Drum filling injector

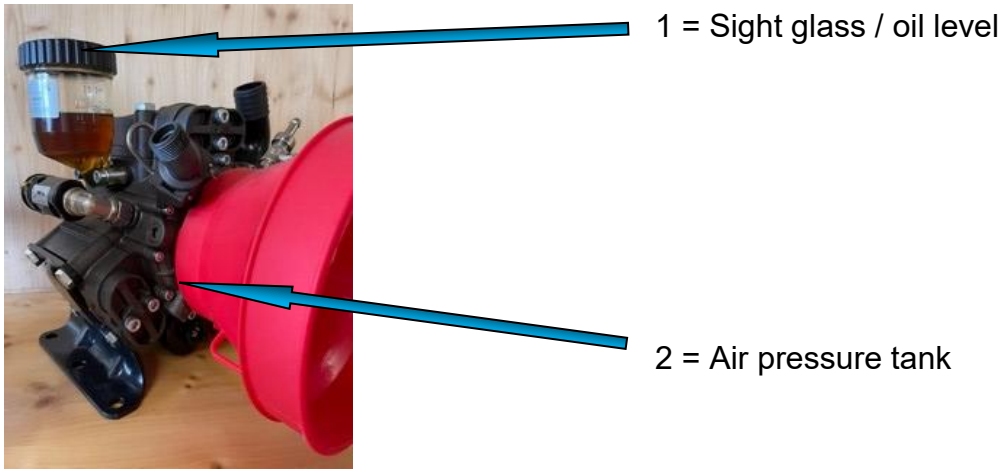
2. Flushing device in the filler sieve

1. Internal container cleaning

14. Preparation

Before starting work with the VICAR sprayer, the following work must be carried out to ensure safety and efficiency.

- Check that all screws are firmly tightened.
- Parts / components that are damaged or missing must be replaced or retrofitted before operation!
- Check oil level (1) and air reservoir (2)!
- Before each use, check that all protective devices on the tractor, VICAR sprayer and PTO shaft are functional and in order.



15. Hitching to the towing vehicle

The following must be checked and observed:

- The road safety and operational safety of the towing vehicle and the VICAR sprayer must be checked before each start-up!
- No-one may stand between the towing vehicle and the VICAR sprayer unless the vehicle is secured against rolling away by the parking brake and / or wheel chocks!
- Do not stand within the turning and swivelling range of the appliance!
- The wheel nuts of the centre wheel and the support wheel must be tightened for the first time after 20 operating hours and then every 40 operating hours thereafter.
- The air pressure in the tyres must be checked. The required air pressure must be selected according to the tyre manufacturer's specifications or see also the VICAR spare parts list for the corresponding tyre type.
- Supports must be moved to the top position and secured for travelling.
- Attach the VICAR sprayer to the tractor's drawbar / lower link and secure.
- Screw the control box to a suitable position on the tractor.
- Connect the control box to the tractor's existing 12 V socket.
- Connect the hydraulic lines to the tractor, ensuring that they are connected correctly. Switch off the PTO drive for connection.

16. Mounting the PTO shaft

The following must be checked and observed:

- The PTO shaft may only be fitted and removed with the PTO shaft switched off, the engine switched off and the ignition key removed!
- To attach: Unlock the safety catch and at the same time push the PTO shaft onto the PTO shaft until the safety catch engages!
- After attaching the VICAR sprayer to the tractor, check the length of the PTO shaft. (min. 20cm play)
- **When attaching to different tractors, check the length again!**
- When the sprayer is not in use, the PTO shaft can be hung up / stored in the bracket provided to protect it!
- When attaching the PTO shaft to the machine, make sure that the device guard covers the PTO shaft guard in all operating positions!
- For your personal safety, it is important to replace the guards immediately if they are damaged or worn.
- The PTO shaft support must be fully retracted during operation and secured with the locking pin.

  An extended PTO shaft can restrict the swivelling range and cause damage to the shaft itself or to the drawbar!

17. Checking the liquid output

Liquid output should generally be checked once a year at the start of the season or whenever changes are made to the liquid circuit or nozzles are replaced.

Before determining the liquid output, the VICAR sprayer must be fitted with the appropriate nozzles for the operating conditions.

The nozzle manufacturer's application table can be used for this purpose.

The nozzles must be selected according to the determined forward speed and the desired application rate so that the required nozzle output is in the optimum pressure range between 8 and 15 bar.

The liquid output (litres/min) must now be checked on the device with water.

- To do this, fill the tank with water up to a clearly visible mark; a mark at the narrowest point, e.g. the filler dome, is favourable. This makes the measurement more accurate and faster.
- After filling the tank with water, set the required pressure. (The pressure to be set depends on the engine speed determined for the optimum driving speed).
- Ensure that all lines in the system are filled with fluid. Air in the system falsifies the measurement. (If necessary, spray in advance until the spray nozzles emit a uniform amount of liquid).
- Switch off the VICAR sprayer and fill the tank again up to the previously selected mark in the filler dome.
- Test spray for at least 2 minutes.
- Determine the volume used by topping up to the mark and compare with the calculated total output. (For small quantities or to increase the accuracy of the measurement, it may make sense to spray for longer).
- If there are deviations, the spraying pressure must be corrected and the process repeated. Higher pressure results in greater liquid output and vice versa.
- Record the result in writing.

18. Adjusting the VICAR sprayer

- The liquid application rate (l/ha) depends heavily on the crop to be treated (species, training form, vegetation stage) and should be taken from the recommendations of the plant protection product manufacturer or the official plant protection service.

- The application rate of plant protection product for the intended application is contained in the instructions for use of the plant protection product.

- The area information is generally given in hectares. (ha)

- **Caution: Never prepare more spray liquid than is absolutely necessary!**

- This is particularly important if it is the last spraying.

- At least at the beginning of the spraying season, the output quantity of the sprayer should be checked at the nozzles and compared with the specifications in the operating instructions.

- All JKI Braunschweig approved plant protection products are compatible, but should not be left in the tank longer than necessary.

19. Nozzle ejection Ceramic discs

Nozzles with ceramic discs for fruit growing

Nozzle bore	**1,0**	**1,2**	**1,5**	**1,2**	**1,5**	**1,8**	**2,0**
Twist drill hole	**without**	**without**	**without**	**with**	**with**	**with**	**with**
15 bar	1,41	1,87	2,49	2,75	4,27	5,77	6,25
20 bar	1,60	2,14	2,84	3,14	4,79	6,57	7,00
25 bar	1,76	2,39	3,18	3,51	5,26	7,35	7,70
30 bar	1,93	2,57	3,41	3,78	5,66	7,86	8,32

Formula: $\frac{\text{l/ha } \mathbf{x} \text{ Row width } \mathbf{x} \text{ Travelling speed}}{600 : \text{Open nozzles}}$

Example: 1000 l/ha **x** 2,5 m **x** 6 km/h **:** 600 **:** 12 Nozzles **=** 2,08 l/min
This corresponds to ceramic disc 1.2 and swirl disc without hole at approx. 17 bar.

Attention: When travelling every 2nd row, the result x2 must be taken!

= 4.16 l/min ceramic plate 1.5 and swirl disc with hole at approx. 13 bar.

20. Nozzle output Albuz – ISO / AVI / CVI

Pressure in bar	Output l / min Tolerance + / - 10 %							
	orange 80-01	green 80-015	yellow 80-02	violet 80-025	blue 80-03			
1								
2								
3								
4								
5	0,52	0,78	1,03	1,29	1,55			
6	0,57	0,85	1,13	1,41	1,7			
7	0,61	0,92	1,22	1,53	1,83			
8	0,65	0,98	1,31	1,63	1,96			
9	0,69	1,04	1,39	1,73	2,08			
10	0,73	1,1	1,46	1,83	2,19			
11	0,77	1,15	1,53	1,92	2,3			
12	0,8	1,2	1,6	2	2,4			
13	0,83	1,25	1,67	2,08	2,5			
14	0,86	1,3	1,73	2,16	2,59			
15	0,89	1,34	1,79	2,24	2,68			
16	0,92	1,39	1,85	2,31	2,77			
17	0,95	1,43	1,9	2,38	2,86			
18	0,98	1,47	1,96	2,45	2,94			
19	1,01	1,51	2,01	2,52	3,02			
20	1,03	1,55	2,07	2,58	3,09			

Formula: $\frac{\text{l/ha } \mathbf{x} \text{ Row width } \mathbf{x} \text{ Travelling speed}}{\text{600 : Open nozzles}}$

Example: 500 l/ha **x** 1,8 m **x** 6 km/h **: 600 : 8** Nozzles **=** 1,12 l/min
This corresponds to AVI green at 10 bar or AVI yellow at 6 bar

Attention: When travelling every 2nd row, the result x2 must be taken!

= 2,25 l/min this corresponds to AVI violet for 15 bar

21. Nozzle output Albuz - ATR

Pressure in bar	Output l / min Tolerance + / - 10 %							
	white	violet	brown	yellow	orange	red	green	blue
1	0,13	0,17	0,23	0,35	0,47	0,66	0,85	1,17
2	0,18	0,23	0,32	0,48	0,65	0,91	1,17	1,61
3	0,22	0,28	0,38	0,58	0,78	1,09	1,41	1,94
4	0,25	0,32	0,44	0,66	0,89	1,25	1,61	2,21
5	0,27	0,36	0,48	0,73	0,99	1,38	1,78	2,45
6	0,3	0,39	0,52	0,8	1,07	1,5	1,94	2,67
7	0,32	0,42	0,56	0,86	1,15	1,62	2,08	2,86
8	0,34	0,44	0,6	0,91	1,22	1,72	2,21	3,05
9	0,36	0,47	0,63	0,96	1,29	1,81	2,34	3,21
10	0,37	0,49	0,66	1,01	1,36	1,9	2,45	3,37
11	0,39	0,51	0,69	1,05	1,42	1,99	2,56	3,53
12	0,41	0,53	0,72	1,1	1,47	2,07	2,67	3,67
13	0,42	0,55	0,75	1,14	1,53	2,15	2,77	3,81
14	0,44	0,57	0,77	1,18	1,58	2,22	2,86	3,94
15	0,45	0,59	0,8	1,22	1,63	2,29	2,95	4,07
16	0,47	0,61	0,82	1,25	1,68	2,36	3,04	4,19
17	0,48	0,63	0,85	1,29	1,73	2,43	3,13	4,31
18	0,49	0,64	0,87	1,32	1,78	2,49	3,21	4,42
19	0,5	0,66	0,89	1,36	1,82	2,56	3,29	4,53
20	0,52	0,67	0,91	1,39	1,86	2,62	3,37	4,64

Formula: $\frac{\text{l/ha } \mathbf{x} \text{ Row width } \mathbf{x} \text{ Travelling speed}}{600 : \text{Open nozzles}}$

Beispiel: 400 l/ha **x** 1,6 m **x** 6 km/h **: 600 : 8** Nozzles **=** 0,80 l/min
This corresponds to ATR yellow at 6 bar

Attention: When travelling every 2nd row, the result x2 must be taken!

= 1.60 l/min which corresponds to ATR-red at 7 bar

22. Recommended settings for drift reduction for 440, 450, 540

Turbine 440 - Vol. Strom 6.850 / 8.400 m3/h

	Row width / height	Gearbox stage	PTO speed	Output top/bottom
Viticulture	bis 2 m / bis 2,20 m	2	380	-20° / -25°
Viticulture	bis 3 m / bis 2,20 m	2	400	-15° / -20°
Fruit growing	bis 3 m / bis 2,50 m	2	420	-20° / -15°

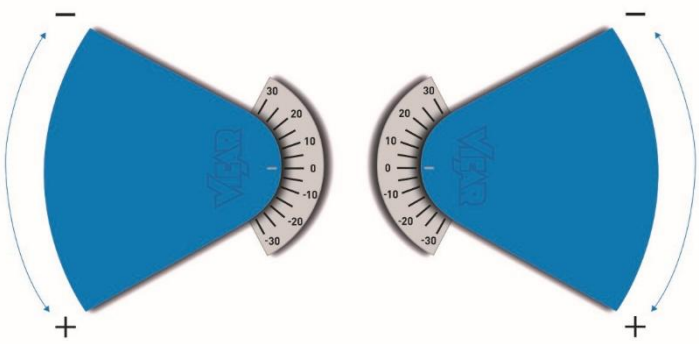
Turbine 450 - Vol. Strom 13.500 / 15.800 m3/h

	Row width / height	Gearbox stage	PTO speed	Output top/bottom
Viticulture	bis 2 m / bis 2,20 m	1	300	-10° / -15°
Viticulture	bis 3 m / bis 2,20 m	1	340	-10° / -15°
Fruit growing	bis 3,50 m / bis 4 m	2	380	-5° / -10°
Fruit growing	bis 5 m / bis 5 m	2	420	-5° / -10°

Attention: Gearbox stage 2 is not required for vineyards up to 3 metres row width!

Turbine 540 – Vol. Strom 19.500 / 21.800 m3/h

	Row width / height	Gearbox Stage	PTO speed	Outlet top/bottom
Fruit growing	bis 5m / bis 5 m	1	380	-5° / -10°
Fruit growing	bis 8 m / bis 8 m	2	420	-5° / -10°
Hops	/ bis 9 m	2	460	-30° / -15°



All recommendations apply in optimum weather conditions and can be individually optimised by the user to reduce drift.

23. Recommended settings for drift reduction for 460, 456, UT420

Turbine 460 - Vol. Strom 8.100 / 9.950 m3/h

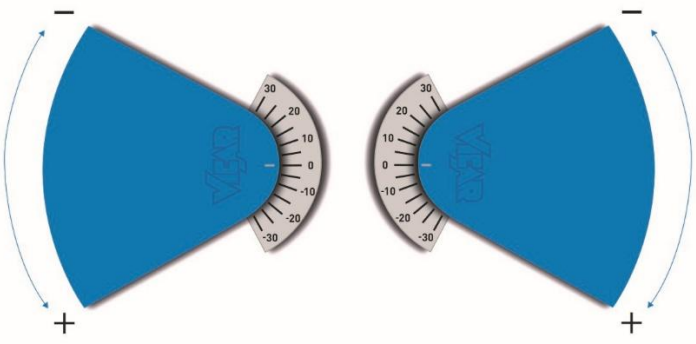
	Row width / height	Gearbox stage	PTO speed	Exit top/centre/bottom
Viticulture	bis 2 m / bis 2,20 m	2	380	+10° / 0° / -10°
Viticulture	bis 3 m / bis 2,20 m	2	400	+5° / 0° / -10°
Fruit growing	bis 3 m / bis 2,50 m	2	420	0° / 0° / - 5°

Turbine 456 - Vol. Strom 13500 / 15800 m3/h

	Row width / height	Gearbox stage	PTO speed	Exit top/centre/bottom
Viticulture	bis 2 m / bis 2,20 m	1	320	+10° / 0° / 10°
Viticulture	bis 3 m / bis 2,20 m	1	360	+5° / 0° / -10°
Fruit growing	bis 3,50 m / bis 4 m	2	400	0° / 0° / - 5°
Fruit growing	bis 5 m / bis 5 m	2	440	0° / 0° / - 5°

Attention: Gearbox stage 2 is not required for vineyards up to 3 metres row width!

The overlap can be increased or minimised as required via the centre outlets. This makes the larger nozzle selection for the grape zone superfluous.



All recommendations apply in optimum weather conditions and can be individually optimised by the user to reduce drift.

24. Setting recommendation for drift reduction (with extension tubes) for 440, 450

The following designs are required to minimise drift!

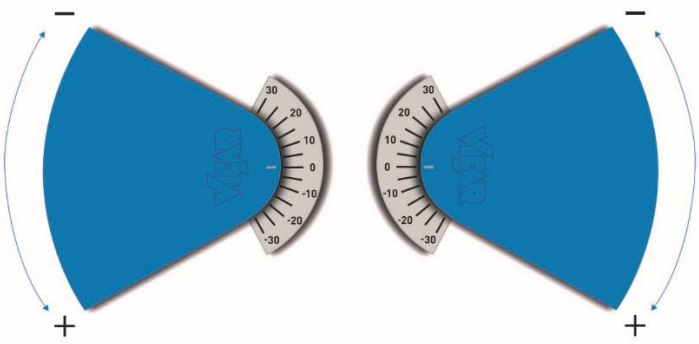
Turb. 440 with 50cm Extension – Vol. Strom 6.850 / 8.400 m3/h

	Row width / height	Gearbox Stage	PTO speed	Output top/bottom
Viticulture	bis 2 m / bis 2,20 m	2	380	- 0 ° / -25°
Viticulture	bis 3 m / bis 2,20 m	2	400	- 0 ° / -20°
Fruit growing	bis 3 m / bis 2,50 m	2	420	-10° / -15°

Turb. 450 with 30cm Extension – Vol. Strom 13.500 / 15.800 m3/h

	Row width / height	Gearbox stage	PTO speed	Output top/bottom
Viticulture	bis 2 m / bis 2,20 m	1	300	0 ° / -15°
Viticulture	bis 3 m / bis 2,20 m	1	340	0 ° / -15°
Fruit growing	bis 3,50 m / bis 4 m	2	380	-5 ° / -10°
Fruit growing	bis 5 m / bis 5 m	2	420	-5 ° / -10°

Attention: Gearbox level 2 is not required in vineyards up to 3 metres row width!



All recommendations apply in optimum weather conditions and can be individually optimised by the user to reduce drift.

25. Preparing the spray liquid

- Only prepare as much crop protection agent as is required.
- Fill the spray tank with approx. 75% of the calculated amount of water.
- When filling with water from the mains, do not immerse the filling hose in the spray liquid.
- Withdrawal from surface water is only permitted with official authorisation and if contamination is avoided.
- Alternatively, the spray liquid tank can also be filled using an optional external suction system.
- The spray liquid tank has a hydraulic agitator to keep the spray liquid moving intensively and prevent it from settling.
- Then fill the crop protection agent into the filling sieve and, if available, rinse in via the rinsing device.
- The filling sieve for the spray cocktail is located on top of the spray cocktail tank.
- Water-soluble granules should be added directly above the water surface in the spray cocktail tank while stirring.

  Important:
  Do not rinse in granules via the filling sieve, as they tend to clump together and block the filling sieve.
- Clean empty pesticide containers and dispose of them in accordance with legal regulations. Cleaning fluid can be added to the spray liquid.
- Then top up the water in the spray cocktail tank to the calculated target quantity.
- Observe the maximum fill level of the spray cocktail tank on the fill level indicator. Do not fill above the maximum tank level.

26. Emptying after use

- Plant protection products may only be applied to areas used for agriculture, forestry or horticulture.
- This also applies to the residual quantities of spraying liquids in crop protection equipment due to technical reasons as well as to washing water that is produced when cleaning the inside and outside of the equipment and the crop protection agent containers.
- Plant protection products should never be left in the VICAR sprayer for long periods of time, which is why the required spray volume should be calculated precisely at the start of the spraying operation.
- Any excess or superfluous spray liquid must be disposed of in accordance with the applicable guidelines of the Julius Kühn Institute in Braunschweig.
- When diluting with fresh water, it is advisable to add it via the tank cleaning nozzle. This ensures that the tank is also cleaned during dilution.
- It is advisable to switch off the agitator for the last 50 litres in order to empty the tank as far as possible.

27. Technical residual quantity

- Due to the design, however, a certain amount of technical residue always remains in the tank.
- The technical residual quantity is the part of the spray liquid that remains in the device after spraying empty. It can no longer be dispensed properly by the pump and nozzle.
- Under no circumstances may the technical residue enter the sewage system or surface water, but must be diluted with water from the fresh water tank or from external containers in a ratio of at least 1:10.
- This diluted residual quantity is only sprayed on a part of the field (approx. 1000m²).

28. Residual quantity

Device type and container size (nominal volume)	Horizontal emptying with complete pumping out	Horizontal pumping until the pressure changes	Slope inclination forwards		Slope inclination to the rear		Slope inclination to the left		Slope inclination to the right	
	l	l	l - %		l - %		l - %		l - %	
AT200 ATS200 HAS200	1,2	3,8	4,6	20	4,6	20	4,0	25	5,8	12
AT300 ATS300 HAS300	1,2	3,9	4,9	20	5,5	20	4,1	25	8,5	12
AT400 ATS400 HAS400	1,4	4,2	5,3	20	6,4	20	4,4	25	11,6	12
AT500 ATS500 HAS500	2,1	4,4	5,5	20	7,5	20	4,5	25	14,4	12
AT600 ATS600 HAS600	2,2	4,7	5,9	20	9,1	20	5,1	25	16,9	12
NT400	2,8	5,2	7,2	25	9,2	25	6,7	25	6,7	25
NT600	2,8	5,6	10,8	22	15,7	22	7,5	22	7,5	22
NT800	2,9	5,9	14,9	21	20,5	21	8,1	22	8,1	22
NT1000	2,9	5,9	17,4	22	20,0	21	10,4	25	10,4	25
NT1200	2,9	5,9	17,4	22	209	21	10,4	25	10,4	25
NT1500	4,6	10,2	35,4	18	3,2	18	36,4	18	36,4	18
NT2000	5,2	13,0	47,0	18	55,0	6	58,5	16	58,5	16
	l	l	l - Grad		l - Grad		l - Grad		l-Grad	
BAS100	0,8	1,4	1,8		1,8		2,1		2,1	
BAS200	1,2	1,8	2,0		2,0		2,3		2,3	

29. Cleaning after use

The VICAR sprayer is also cleaned on an untreated strip at the edge of the field, preferably with a spray gun that is supplied with water from the fresh water tank.

- The pump is switched on briefly to clean the pump, fittings and hoses. To support the cleaning effect, all fittings/valves/taps must be operated several times. **Do not use a high-pressure cleaner!**

- Nozzles and filters must be cleaned with particular care, disassembled if necessary and checked for wear/damage. Worn and damaged parts must be replaced. **Do not use a high-pressure cleaner!**

- All hydraulic cylinders must also be retracted when hosing down to avoid corrosion on the piston rods. **Do not use a high-pressure cleaner!**

  After use, the VICAR sprayer must be thoroughly cleaned inside and out with plenty of water; a little soda can be added to support the cleaning effect. **Do not use a high-pressure cleaner!**

- When spraying the outside of the appliance with water, please note that the electrical components are only splash-proof and must not be exposed to direct water jets or the effects of the weather! **Do not use a high-pressure cleaner!**

- If the VICAR sprayer is not used for a longer period of time after the last use, the corrosion-sensitive metal parts must be oiled.

Caution!

We would like to expressly point out once again that no harsh cleaning agents or high-pressure cleaners may be used when cleaning the VICAR sprayer! This will prevent damage to electronic components such as motors and sensors as well as fibreglass and cast aluminium parts.

Otherwise, depending on the solvent used in the cleaner, the different materials such as thermoplastics, duoplastics or elastomers of the plastic coating will be attacked. Using a high-pressure cleaner, for example, makes the composite material GRP soft and unstable. On cast parts, the coating is washed out at the open areas (e.g. scratches) and gradually peels off.

Tip: Spray the machine with penetrating oil or wax before use to prevent the pesticides from sticking. Then simply rinse off with a hose and, if necessary, wipe off lightly with a sponge. This sealant provides both care and corrosion protection.

30. Gear ratio

	Gear stage 1	Gear stage 2
Turbine 410 klein	1:5	1:6
Turbine 410 groß	1:6	1:7
Twin turbine 430	1:5	1:6,2
Twin turbine 440	1:4,5	1:5,5
Twin turbine 460	1:4,5	1:5,5
Twin turbine 450	1:4	1:5
Twin turbine 456	1:4	1:5
Twin turbine 540	1:5	1:5,5

31. Tyre pressure

	Tyre pressure in bar	PSI
10,0 / 75 - 15,3	2,5	35
10,0 / 80 - 12	2,5	35
11,5 / 80 - 15,3	3,4	49
16 x 6,5 - 8	2,5	35
23 x 8,5 - 12	2,5	35
23 x 10,5 - 12	2,5	35
26 x 12,0 - 12	2,5	35
165 / 70 - R13	3,0	44
195 / 55 - R10	6,2	90
340 / 55 - 16 = 13,0 / 55 - 16	2,5	35
400 / 60 - 15,50	3,5	51

32. Litre specifications of the containers

Attachment type	Nominal volume	Is-Volume	Rinsing container
AT/ATU 200	200	219	23
AT/ATU 300	300	330	31
AT/ATU 400	400	420	38
AT 500	500	535	48
AT 600	600	635	48

Hand wash tank for AT and NT models 15 litres each.

Follower type	Nominal volume	Is-Volume	Rinsing container
NT/NTU 400	400	422	30
NT/NTU 600	600	700	45
NT/NTU 800	800	907	45
NT/NTU 1000	1000	1045	45
NT/NTU 1200	1200	1150	50
NT/NTU 1500	1500	1575	96
NT/NTU 2000	2000	2120	115

33. Data table of VICAR pumps

Type	Diaphragm piston	L/min	gpm	bar	psi	HP	U.P.M	KG	Length	Width	Height	Suction connection	Pressure connection
M 70	3	70	15,4	50	725	10	550	12	268	312	260		
M 73	3	70	15,4	50	725	10	550	12	268	312	260		
M 85	3	82	18	50	725	11	550	25,5	380	360	415		
M 104													
M 130	4	130	28,6	50	725	17,9	550	31	490	350	400		
IP 100	3	106	23,3	50	725	15	550	44	450	410	425		
IP 140	4	140	30,8	50	725	19,3	550	51	435	455	440		
ML 80													
AR 202	2	20	5,3	20	290	0,7	650	4	224	215	200	20er	2x0,8
AR 503	3	55	14,5	40	580	5,2	550	13	362	326	345	30er	¾“
AR 803	3	81	21,4	50	725	9,9	550	20	350	335	409	40er	¾“
AR 813	3	81	21,4	50	725	9,9	550	20	350	335	409	40er	¾“
AR 1044	4	105	27,7	50	725	13,1	550	22	348	375	409	40er	¾“
AR 1064	4	105	27,7	50	725	13,1	550	22	348	375	409	40er	¾“
AR 1516	6	151	39,9	50	725	18,6	550	34	406	446	415	40er	¾“
BHS 200	4	193,7	51,2	50	725	21,8	550	65	467	451	418	40er	¾“
T 55	3	50	13,2	50	725	6,5	550					¾“	3/8“
T 77	3	70	18,5	60	870	11	550					1“	¾“
T 122	6	120	31,7	60	870	18,5	550					2x 1“	2x ¾“

34. Setting the pressure equalisation fitting for the electric remote control with servomotors (Bay-Pass)

Explanation:

Each electric boom section valve of the servomotors has a bay-pass for pressure equalisation regulation. This means that no matter which boom sections you have opened, the working pressure is always the same.

Caution: This setting should be made each time you change the nozzle!

Basic setting:

Run the machine at low speed, close both bay passes (0 position).

- Open both sections on the remote control and set a working pressure of 10 bar on the control valve, then close both again.
- Open the right-hand section and correct the 10 bar value again with the left-hand bay pass.
- Then open the left-hand section and correct the 10 bar value again with the right-hand bay pass.
- The set pressure should now be the same in all three positions.

35. Storage of the machine

If the VICAR sprayer is not used for a longer period of time, the following work should be carried out:

- Check the function of all moving parts and replace any damaged parts.
- Check valves and fittings.
- Check that all screws are tight.
- Check oil and grease levels.
- Empty all tanks via the existing taps/drain plugs and clean with fresh water.
- To prevent mould, do not close tanks tightly during storage.
- Store spray liquid that is no longer required properly in the containers provided until the next use.
- Clean the suction filter with fresh water.
- Remove nozzles, clean (e.g. with a soft brush, do not use hard objects!) and store in a protected place.
- Remove filter, clean and check for damage.
- Check the oil level of the pump, check the diaphragm and valves for damage.
- Only replace damaged parts with original VICAR spare parts.
- Caution:
  When recommissioning the appliance, follow the instructions in the "Maintenance" chapter!

36. Disposal of the machine

The complete machine and/or machine parts as well as the operating materials and lubricants must be disposed of separately and in accordance with the applicable regulations.

37. Loss-reducing devices

Please refer to the current list of "Loss-reducing devices" for the classification and the prescribed conditions of use for operation as a "loss-reducing device"

(www.julius-kuehn.de/geraete)

Please note that the "loss-reducing version" requires the remote-controlled half-sided air shut-off! Please refer to the following table for other necessary equipment.

Blower type	Additional equipment Extension tubes	Hydr. half-sided air shut-off	Nozzle type	JKI Test number
Turbine 440	X	X	Please refer to the JKI list	G1775
Turbine 450	X	X	Please refer to the JKI list	G1745
Turbine 456		X	Please refer to the JKI list	G2194
Turbine 460		X	Please refer to the JKI list	G1650
Turbine 540	X	X	Please refer to the JKI list	G2195

The necessary equipment can also be retrofitted!

Extension tubes

Hydr. half-sided air shut-off

38. Guarantee

We provide a guarantee for our appliances in the event of manufacturing or assembly defects.

The warranty covers the replacement of parts that prove to be defective.

The warranty period depends on the legal situation valid at the time of delivery of the machines to the customer.

For repairs within the warranty period, the manufacturer must be consulted in advance.

We expressly point out that a warranty claim can only be made after the defective parts have been inspected or returned.

The defective part must be returned together with the completed **warranty claim** form.

The warranty claim is cancelled:

- if the consumer has made changes to the original structure of the appliance,
- if no original spare parts from VICAR have been used,
- in the event of operating errors,
- if the permissible power limit is exceeded,
- improper use of the appliance,
- if these operating instructions are not observed.

Labelling:

Each machine is labelled with the following data:

- Manufacturer
- Year of manufacture
- Machine no.
- Type designation

This data must be stated when ordering spare parts, making customer service claims and submitting warranty claims.

39. Guarantee application

zukunftsorientiert und engagiert

Garantie- und Service Pass / Guarantee and service pass

Gerät / Devise

Typ / Type: _____

Seriennummer / Serial Number: _____

Händler / Dealer

Firma / Company: _____

Straße / Street: _____

Ort / Place: _____

Käufer / Buyer

Firma / Company: _____

Vorname / First name: _____

Nachname / Last name: _____

Straße / Street: _____

Ort / Place: _____

Telefon / Phone: _____

e-Mail / e-Mail: _____

Kaufdatum / Purchase date: _____

☐ Hiermit ermächtigen wir die Firma LTS Sexauer, uns bei neuen Produkten sowie Erneuerungen unseres bestehenden Sprühgerätes ☐ telefonisch ☐ per Post oder per ☐ e-Mail zu kontaktieren.

Bei elektronischem Versand per e-Mail wird keine Unterschrift/Stempel benötigt. Hier gilt als Bestätigung die Signatur und der Versand als PDF.

Datum / Stempel / Unterschrift:
Date / Stamp / Signature: _____

Um den vollen Umfang unseres Garantie- sowie Serviceprogrammes zu erhalten, bitten wir Sie, uns das ausgefüllte Dokument unmittelbar nach dem Erwerb zu übermitteln. Bitte senden Sie uns dieses per Fax an 0 76 62 / 83 84 oder per e-Mail an: garantie@vicar.de

40. Checklist for attaching VICAR devices

AT = Attachment

Company address: …….....

Customer address: ……..

Service staff: ……..

Customer name: ……..

Vehicle registration number: ……...

VICAR number and type: ……...

	ToDo	✔	Note
1	Pressure filter and intake filter screen inserted		Do not run without filter
2	Top link adjusted		Horizontal - sloping towards the machine
3	PTO shaft fitted - length checked		Wide angle to machine AT= 6cm
4	Remote control positioned		Connect electrics
5	PTO shaft checked for lubrication		Grease nipple and inner tube
6	Oil levels of gearbox and pump checked		Minimum is sufficient
7	Axle/wheel bolts checked for tightness		
8	Machine filled and checked for leaks		Tank connections
9	Machine checked for pressure		20 bar

Date / Signature of service technician

Date / Signature customer

41. Checklist for mounting the VICAR devices

NT = Trailer

Company address: …….....

Customer address: ……..

Service staff: ……..

Customer name: ……..

Vehicle registration number: ……...

VICAR number and type: ……...

	ToDo	✔	Note
1	Pressure filter and suction filter screen used		Do not run without filter
2	Drawbar length adapted to tractor		Check tracking accuracy
3	PTO shaft fitted - length checked		Wide angle on machine - NT= 20 cm
4	Remote control positioned		Connect electrics
5	PTO shaft checked for lubrication		Grease nipple and inner tube
6	Drawbar checked for lubrication		Grease nipple
7	Oil levels of gearbox and pump checked		Minimum is sufficient
8	Wheel distance to tank checked		Approx. 20mm / finger width
9	Axle/wheel bolts checked for tightness		
10	Machine filled and checked for leaks		Tank connections
11	Machine checked for pressure		System 20 bar

Date / Signature of service technician

Date / Signature customer