

OPERATING INSTRUCTIONS UNIMA 60-120 Flex



**ULV- Applicator for weed control
in areas of specialised cultivation such as nurseries, orchards and
vineyards, ornamental plant and vegetable gardens, as well as
agricultural, forestry, communal and non-cultivated lands.**

**The unit has been developed for the *undiluted*
application of ROUNDUP® products (Glyphosate).**

Important:

Before application, carefully read the usage instructions for the unit and the plant protective agent!
Observe safety instructions!

For questions regarding plant protective agents, consult the manufacturer!

Observe the requirements and regional regulations for the use of herbicides and, if necessary,
obtain approval from the responsible authorities (e.g. environmental conservation agency)!

Application is to be performed only by a competent user.

Remarks about usage of the unit:

Settings: This system is not suitable for the application of water.
Use herbicides for testing the spray action and calibration of the
flow rate.



Keep the applicator and pesticides out of the reach of children.

Noise emission from the unit equates to less than 70 dB(A).

Manufacturer:

Mantis ULV-Sprühgeräte GmbH

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UNIMA

For the undiluted application of Roundup® products (Glyphosate)

Intended usage:

Weed control in areas of specialised cultivation such as nurseries, orchards and vineyards, ornamental plant and vegetable gardens, as well as agricultural, forestry, communal and non-cultivated lands.

Before application, carefully read the usage instructions for the applicator unit and pesticides.

Observe safety instructions.

For questions regarding pesticides, consult the manufacturer!

Observe the requirements and regional regulations for the use of herbicides. Permission is required from the responsible authorities (e.g. environmental conservation agency) for the application of herbicides on surfaces used for non-agricultural, forestry or gardening purposes ("non-cultivated lands"). Application is not permitted on sealed surfaces (e.g. pavement surfaces) with connection to sewage water systems from which the danger of run-off exists! Application is to be carried out only by a competent user.

Noise emission from the unit equates to less than 70 dB (A).

Protective measures

Observe the remarks in the pesticide usage instructions regarding user safety and wear recommended body protection. Wear protective gloves when filling the chemical substance.

Do not eat, smoke or drink while working with pesticides. Avoid chemical spillage without fail. Thoroughly clean hands and face after completion of work.

Thoroughly clean and dry the unit immediately following its usage. Never use the mouth to blow out nozzles or other small parts!



Keep pesticide applicators and chemical substances away from children.

Assembly and preparation for initial application

Charge the battery for at least 16 hours. Attention! Follow the sequence without fail:

1. Depress the switch in the powerpack; the lamp illuminates.
2. Insert the plug jack into the charger socket.
3. Insert the charging unit into the 230 volt power outlet.

The battery has reached its full voltage capacity after approx. 16 hours charging time. When the charging process is complete, first unplug the charging unit from the 230 volt power outlet, and then remove the applicator unit plug from the charger socket.

Unit assembly is described for the individual models. Assembly of the spray hoods according to the draft on page 4. and connect all plugs. Please connect the hoses not until the output volume is checked. To check the spray width place underlay (cardboard or paper) on the ground and select a output quantity.

General remarks regarding applicator unit function and deployment

Pesticides: This applicator unit was originally designed for the undiluted application of Roundup products (Glyphosate). Practical experience has shown, however, that other herbicides can also be deployed in conjunction with this technology. Considering the many products on the market with their differing formulations, it is not possible to provide a complete list with application rate recommendations. Specifications for adjusting the unit listed on following pages relate to the usage of Roundup UltraMax (Glyphosate 450 gr/ltr). In general, all products with a comparable viscosity are suitable. If it is intended to use a product other than Roundup UltraMax, its application should be first tested over a small area on a trial basis. Usage instructions for the chosen herbicide should be observed in every case, along with local requirements.

Applicator unit function: Rotating atomisers are driven by means of a rechargeable battery. Metering on all the units mentioned is path-dependent and takes place by means of a wheel driven pump. Droplets are formed by the centrifugal force of the rotating atomiser. The droplets are discharged downwards by the rotating atomiser through a continuously variable, adjustable segment. Residual chemical in the tank not intended for application is approx. 50 ml. This residual fluid can be refilled back into the original herbicide container.

Checking applicator unit function: Chemical solutions may flow quicker or slower due to temperature fluctuations, for which reason the flow rates in the Metering table should be checked and corrected as necessary. This system is not suitable for the application of water. Please use herbicides at all times for testing the spray process and calibrating the flow rate. Check the rotating atomiser on a daily basis for cleanliness and free turning motion. Check the output volume from time to time throughout the season.

Deployment of the applicator unit: Adjust the height of the spray hood in such a manner that it is as close to the ground as possible - if it is set too high, the risk of spray driftage exists. During operation, chemical fluid will collect in the rotating atomiser reservoir and will continue to drip for approx. 30 seconds after the shut-off valve has been closed if the unit is tilted. In order to avoid damage to cultivated plants due to dripping, we recommend closing the shut-off valve at the end of a row, for example, then folding the spray hood upwards and waiting approx. 30 seconds until the reservoir has emptied.

Spray width

- Place an underlay (cardboard or paper) on the ground and prop up the unit on stands.
- Actuate the switch button on the powerpack while simultaneously turning the wheel and appraising the spray width obtained, initially at one location. The spray width must be set in such a manner that the droplets are discharged over the entire width of the spray hood. The optimal spray width under standard operating conditions is set by the manufacturer.
- Compensate for deviations is possible by loosening screw (F) and sliding the width adjustment on the atomiser (see drawing).
- Further details regarding operating width adjustment can be found on the respective pages for the individual applicator units.

VARIMANT Calibration Instruction

Roundup - undiluted -

Checking the flow rate

km/h	m/min.	l/ha	nominal value ml/min.	pump calibration
4	67	2	5,5	B
		3	7,5	D
		4	10,5	G
6	100	1	4,5	A
		2	7,5	D
		2,5	10	F
8	133	1	5,5	B
		1,5	7,5	D
		2	10,5	G

Cleaning

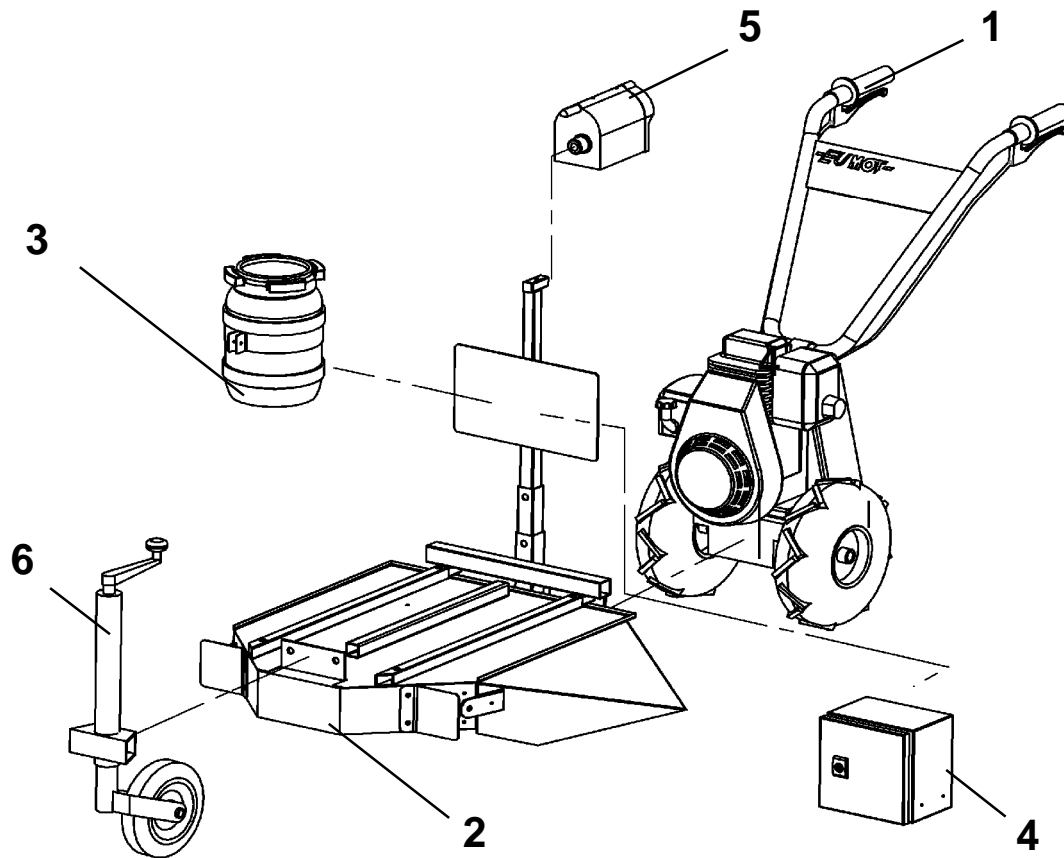
Do not clean the applicator unit with a high-pressure sprayer or with an intense water jet spray.

Cleaning during the season: During short work breaks (a few hours), herbicide can remain in the system as long as the shut-off valve remains closed. After work completion: before cleaning, refill the chemical solution into its original container. Open the shut-off and set the metering pump to maximum. Fill the chemical tank halfway with water, then with the unit positioned, switch the system on and let it run for 3 Minutes and allow the fluid to drain into a collector tank or, apply the cleaning fluid to the already treated surface. Remove any remaining water from the tank and let it run for approximately 2 Minutes again until the system is completely empty.



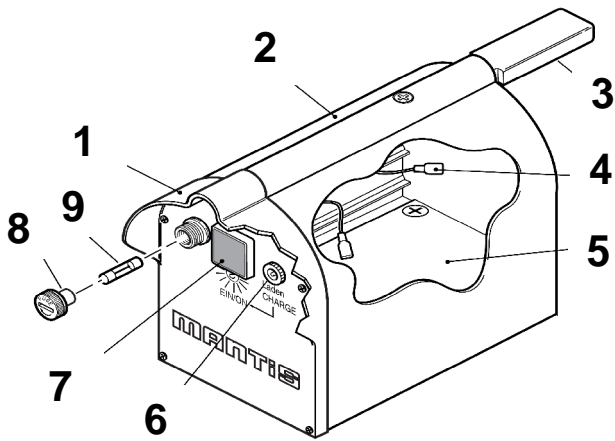
Cleaning at the end of the season: Rinse the unit with warm water as described above. Additionally: Unscrew filter and clean screen as necessary. The spray hood and the atomiser housing can be cleaned with a moist cloth. Remove the atomiser disc in order to avoid damage. With heavy contamination, the atomiser housing should be unscrewed to remove contaminants and plant parts. Connect the unit to the charging device (see below).

UNIMA



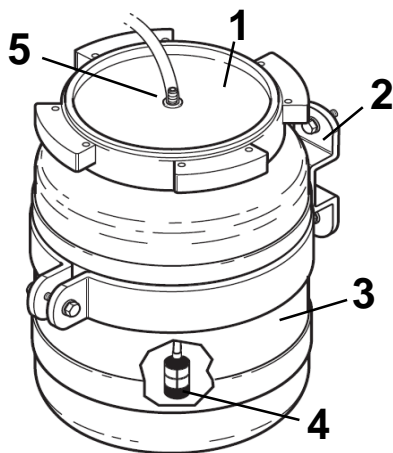
Teil Art.Nr. Bezeichnung

1	101442	Walking tractor, EUMOT (optional)
2	102328	Spray hood metal 60-120cm
3	100589	Tank subassembly, consisting of: Tank 6L, tank holder, lid and filter
4	101854	Pump unit MANKAR-3 SELECT Capacity 2 - 20 ml
5	102217	Powerpack complete ABS, for MANKAR SELECT
6	102424	castor wheel 200x50



Teil Art.Nr. Bezeichnung

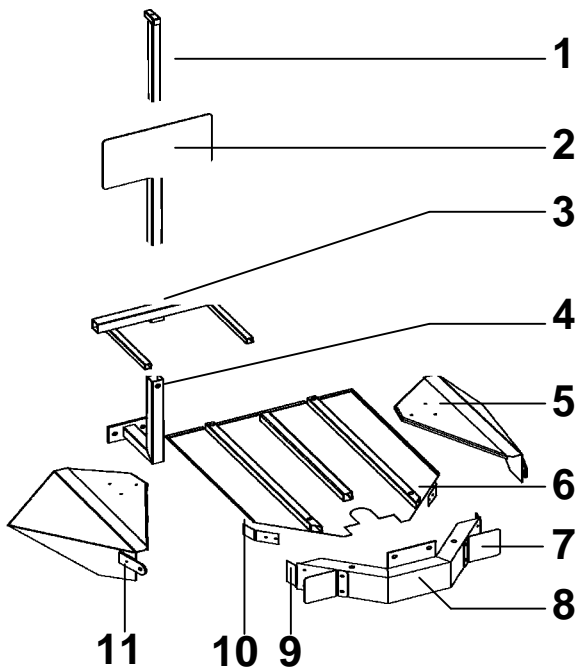
1	100466	Powerpack cover
2	100469	Powerpack housing
3	100461	Powerpack mounting bar for MANKAR
4	101563	Cable set, MANKAR powerpack
5	100895	Storage battery 12 V - 7 Ah
6	100693	Socket, d=2,1 mm
7	100464	Switch with control light
8	100365	Fuse holder complete
9	100730	Fuse T3.15 Amp
	102606	Storage battery 12 V - 12 Ah



Teil Art.Nr. Bezeichnung

100589 Tank subassembly, consisting of: Tank 6L, tank holder, lid and filter

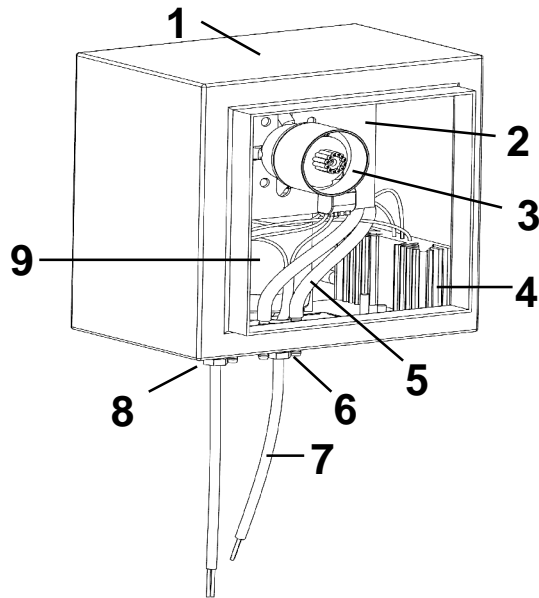
1	100625	Tank lid for 6L tank
2	100623	Tank bracket for 6 litre tank
3	100624	Tank, capacity 6 litre
4	100398	Intake filter
5	100085	Hose stem 6mm



Teil Art.Nr. Bezeichnung

102423 Spray hood metal 60-120cm

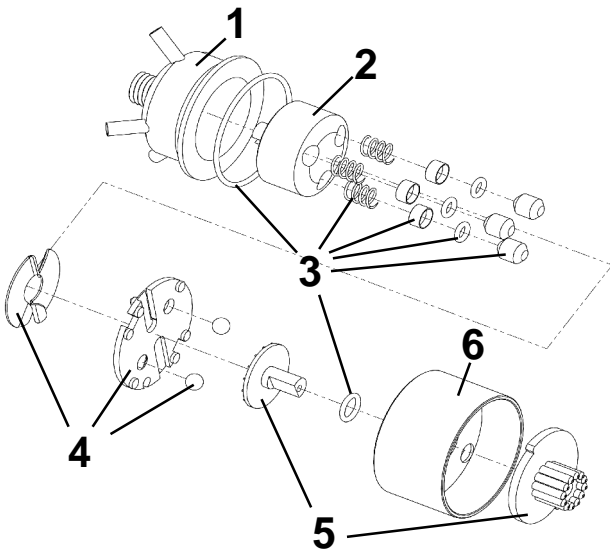
1	102456	bracket for powerpack, spray hood 60-120
2	101506	mounting plate for pump unit and 6L tank
3	102457	adapter fork for spray hood 60-120
4	102458	adapter walking traktor to spray hood 60-120
5	102459	chamber, left for spray hood 60-120
6	102460	cover for spray hood 60-120
7	102461	deflector for spray hood 60-120
8	102462	chamber, midsection for spray hood 60-120
9	102463	hinge for spray hood 60-120
10	102464	spring steel for spray hood 60-120
11	102465	chamber, right for spray hood 60-120



Item Part No. Description

100582 Pump unit MANKAR-3 DC/DC, Capacity 2 x 5 - 12 ml/min

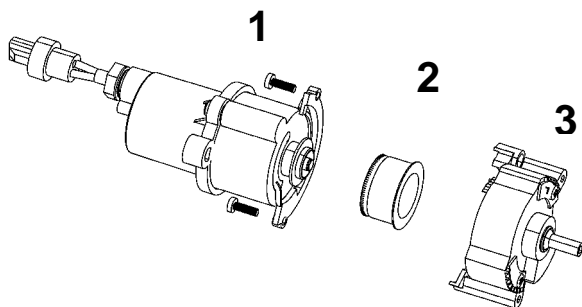
1	101534	Housing, steel, 200x200x155mm, for control box and pump box
2	102285	Fitting panel for MANKAR pumps
3	100522	Metering pump MANKAR-3, capacity 5 - 10 ml/min for MANKAR-110 P and VARIMANT
4	100667	Converter 12V to 6V
5	101284	Tube PVC- , 4 x 2 mm, 20 cm
6	100085	Hose stem
7	101536	Lead GS/BL 2 x 0,75
8	100121	Screwed cable gland PG 7, plastic
9	100177	Pump motor 12 V with Hall-Sensor



Teil Art.Nr. Bezeichnung

100522	Dosing pump MANKAR-3 Capacity 5 - 10 ml
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1	100528	Pump housing, 2 pressure lines, for MANKAR
2	100138	Rotor-3, chromed brass for piston pump
3	102373	Sealing kit for MANKAR-3
4	101626	Repair kit MANKAR dosing pump, pressure plate / wobble plate
5	102429	Repair kit MANKAR dosing pump, Dosing adjustment knob / Graduated dial
6	100534	Pump cover



Teil Art.Nr. Bezeichnung

100320 Segmental-atomiser for MANKAR

1	102417	Motor-Modul for atomizer MANKAR
2	100478	Atomiser disc for segment atomiser
3	101996	Segment-module for atomiser incl. width adjustments

GUARANTEE

- I. If the purchase is a commercial transaction for both sides, the Customer must examine the goods immediately on receipt, as far as this is possible during the regular course of business and if there is a defect, inform the Vendor immediately.
- II. If the Customer does not make a complaint, the goods are considered approved, unless there is a defect, which was not visible during the examination. Furthermore §§ 377 ff. HGB applies.
- III. The Vendor may choose to eliminate the defects or deliver an item free of defects, (rectification of defects). If the rectification of defects fails, the Customer has the right to choose to either demand a reduction in price or to withdraw from the contract.
- IV. Further claims from the Customer, in particular due to consequential damage caused by a defect are in principle disqualified. This does not apply in cases of intent, gross negligence or breaches of contract by the Vendor as well as in cases of injury to life, body or health. The right of the Customer to withdraw from the contract remains unaffected.
- V. Warranty claims lapse after 24 months, respectively after 12 months in case of commercial use of the goods. The limitation period begins at delivery. The guarantee expires, if the delivered goods change or are handled incorrectly.
- VI. The Vendor is not responsible for material defects on deliveries, which he sources from third parties and forwards unchanged to the Customer. Responsibility in the case of intent or negligence remains unaffected. The preceding regulations do not imply a change to the burden of proof to the disadvantage of the Customer.
- VII. Claims for defects do not only exist in cases of negligible deviations from the agreed properties and conditions or only in negligible impairment of usefulness.
- VIII. Necessary expenses for the purpose of the rectifying defects are to be paid by the Customer, if they increase due to delivery to a different place than the place of business of the Customer, unless the transport corresponds to its intended use.

EG-Declaration of conformity Council Directive 2006/42/EG

Mantis ULV-Sprühgeräte GmbH, Vierlander Straße 11 a, 21502 Geesthacht declare under our sole responsibility that the following products are in conformity with the provisions of the following Council Directive: 2006/42/EG

Typ MANKAR-ONE, MANKAR-TWO
Typ MANTRA, MINI-MANTRA / PLUS, MICRO-MANTRA, MICRO-VASO, MANKAR HQ
Typ FLEXOMANT-1W, FLEXOMANT-2W, FLEXOMANT-3W, FLEXOMANT-4W,
FLEXOMANT-PLUS, VARIMANT-1, VARIMANT-2, VARIMANT-4 PLUS,
VARIMANT-WINNER-TOP, VARIMANT-WINNER-UNO
Typ MAFEX
Typ ROFA

Hiske Weissmann
Managing Director



Geesthacht January 2015

(Place and date of signature)

(Name, title and signature)