

OPERATING INSTRUCTIONS

VARIMANT-1 VARIMANT-2



**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
D-21502 Geesthacht,
Telephone + 49 (0)4152 / 8459-0,
Internet: www.mantis-ulv.eu

Vierlander Str. 11 a
FAX + 49 (0)4152 / 8459-11
E-Mail: mantis@mantis-ulv.eu

USER SAFETY RECOMMENDATIONS

- Always observe the safety recommendations for user protection in the "directions for use" of the chemical and wear the recommended personal protective equipment.
- Do not eat, smoke or drink when working with pesticides.
- Dispose of excess pesticide mix and rinse in accordance with label instructions.
- Always keep pesticides and applicators out of the reach of children.
- After use, thoroughly clean the applicator.

The atomiser is powered by the vehicle electrical system. The fluid metering is handled by a metering pump. The droplets are formed by the centrifugal force of the atomiser and discharged downwards through an adjustable segment. Flow rate can be affected by temperature fluctuations, therefore the flow rate specified in the calibration table has to be checked and adjusted as required. Check the atomiser daily to be sure it is clean and operating smoothly. The spray hood should pass closely over the top of the area to be treated. Switch off the atomiser at the end of the treatment.

CAUTION

Before lifting the spray hood switch off the system.

Set the Spray band of the atomiser by adjusting the spray limiters (see drawing). The spray band should be set so that the droplets are discharged across the entire compartment width. Fill the tank. Find a clean dry surface, preferably a concrete base, or place a cardboard panel under the spray hood and check the coverage on the panel. Adjust as required and recheck. Be sure you understand all the functions of the applicator before starting treatment.

VARIMANT

Assembly Instruction

- A. Mount sprayer to front of tractor
- B. Set height of sprayboom
- C. Connect electrical plug into 12 V socket of the tractor.
- D. Adjust spray width of atomizers (see drawing)

Caution:

If the plug is removed:

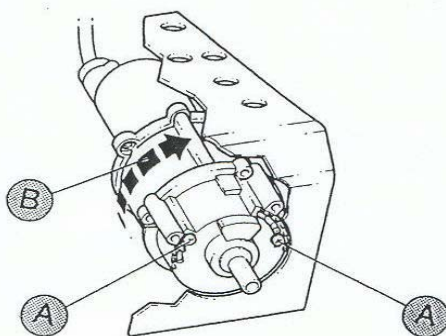
blue lead is - (minus)

brown lead is + (plus)

Check atomiser disc direction of rotation

Checking the Flow Rate

1. Fill tank with chemical solution
2. Fit screw cap with cock and filter onto container
3. Set metering knob to suggested letter (A-H). Refer to table.
4. Disconnect hose coupling
5. Collect fluid in the metric measuring cup for 1 minute.
6. Check table and (if required) adjust metering knob to obtain desired flow rate.
7. Repeat steps 5 & 6 (if necessary)



A = Spray width variation

B = Direction of rotation

VARIMANT Calibration Instruction for Roundup - undiluted -

Dosing pump Mafex -3 Piston for VARIMANT-1

km/h	m/min.	l/ha	nominal value ml/min.	pump calibration
4	67	1	3,4	B
		1,5	5	C
		2	6,8	E
6	100	2	5	C
		3	7,5	F
		4	10	I
8	134	2	6,8	E
		3	10	I
		4	13,4	L

Dosing pump Mankar -3 Piston for VARIMANT-2

km/h	m/min.	l/ha	nominal value ml/min.	pump calibration
4	67	1	3,4	A
		1,5	5	C
		2	6,8	D
6	100	1	5	C
		1,5	7,5	E
		2	10	H
10	166	1	8,25	G
		1,5		
		2		

The discharge quantity may vary depending on different operating conditions. Therefore users are advised to check the nominal discharge rate with regard to the individual operating conditions and to correct the dosage table, if necessary.

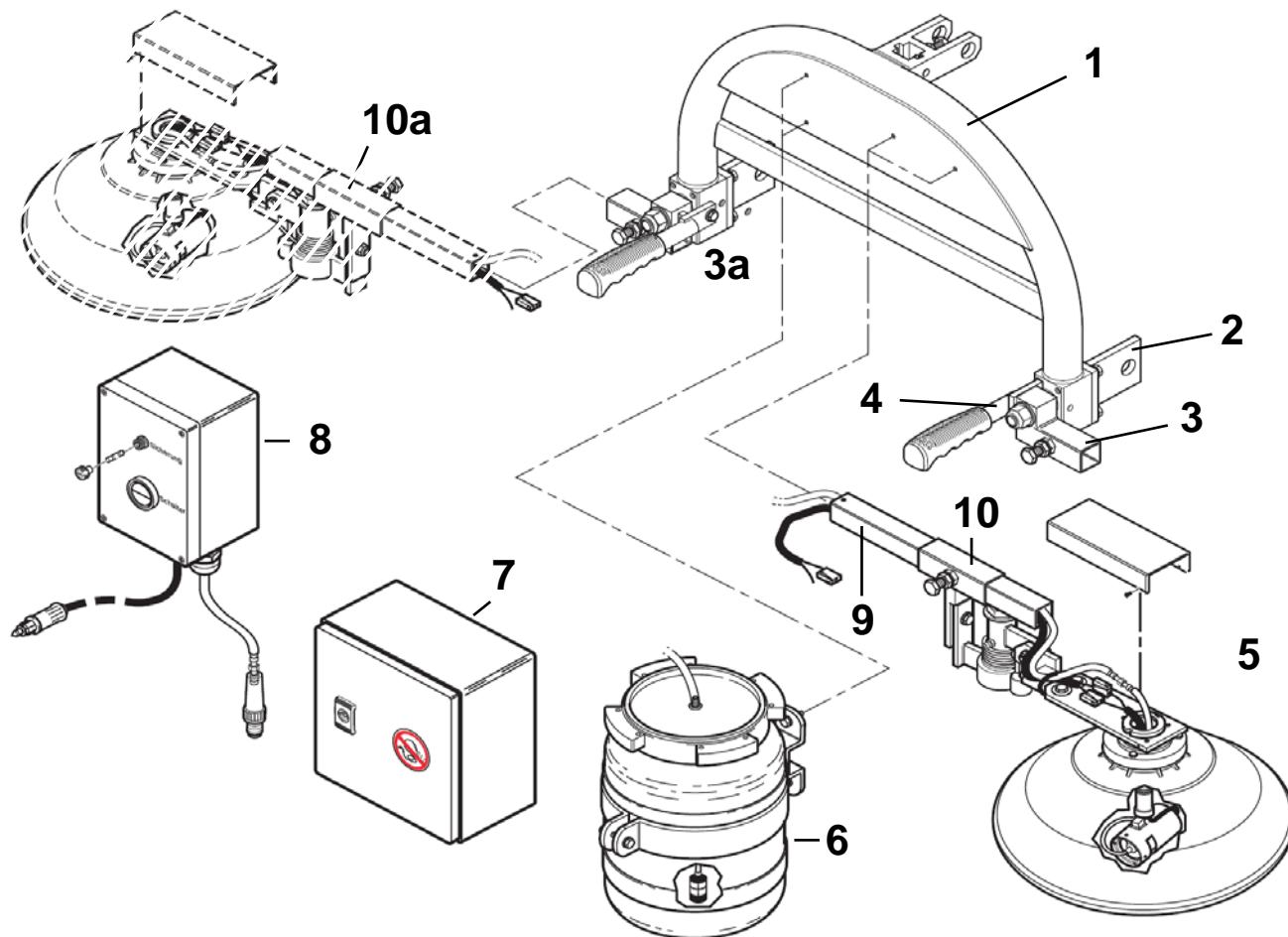
CLEANING

Clean VARIMANT at least every evening after use.

1. Remove cap with tube and filter from the chemical container.
Immerse the filter in a container with tap water.
2. Set metering knob to maximum delivery and switch machine „ON“.
Run machine until the plastic tubes are free of chemical and only clean chemical issues from the atomisers.

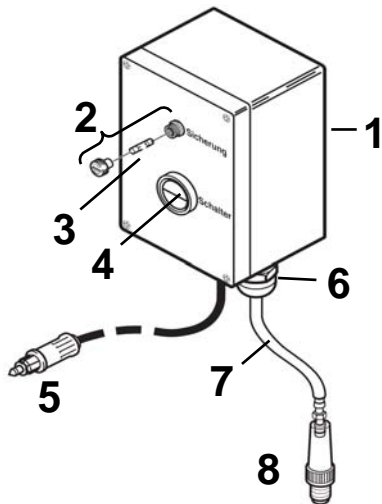


VARIMANT-1 and VARIMANT-2



Item Part No. Description

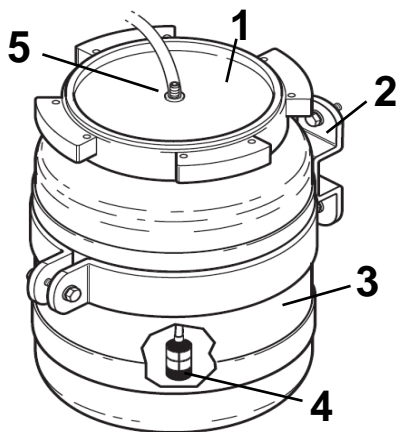
1	101797	3-point hitch for VARIMANT/FLEXOMANT
2	101541	Lower link for 3-point hitch VARIMANT/FLEXOMANT
3	100676	Swivel VARIMANT, left side
3a	101550	Swivel VARIMANT, right side
4	100677	Adjustment with handhold
5	101265	Spray hood arm (K) 36 cm Version: plastics with atomizer
6	100589	Tank subassembly, consisting of: Tank 6L, tank holder, lid and filter for VARIMANT
7	100582	Pump unit MANKAR-3 DC/DC, Capacity 2 x 5 - 12 ml/min
8	102224	Control box with 1 switch, without converter for VARIMANT
9	100671	Extension arm VARIMANT
10	101789	Width adjustment, left side
10a	101790	Width adjustment, right side



Item Part No. Description

100977 Housing, steel, 200x200x155mm, for control box and pump box

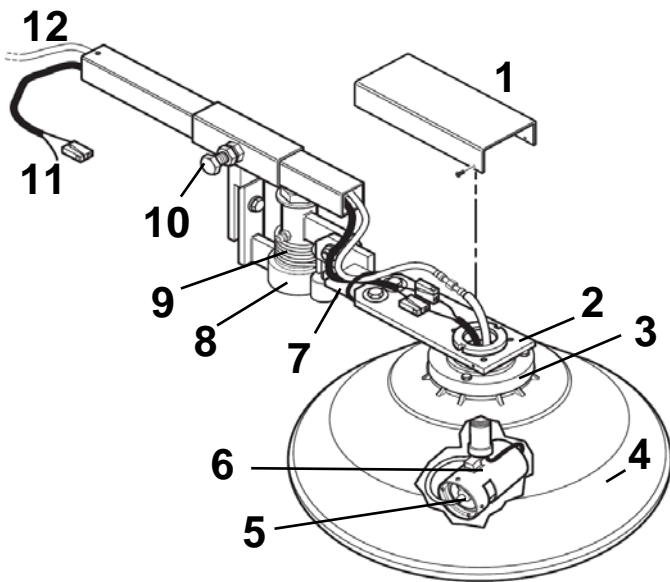
1	101534	Connection box, grey, Typ 1002, WINNER
2	100365	Fuse holder complete
3	100730	Fuse T3.15 Amp
4	101564	Switch with control light
5	100121	Screwed cable gland PG 7, plastic
6	100069	E-cable with 2-core plug
7	101548	Lead 2 x 1,00 mm ² , sold by metre
8	101532	Plug, 7poles



Item Part No. Description

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

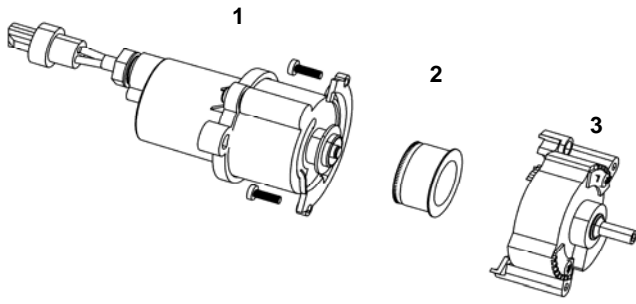
1	100625	Tank lid for 6 litre tank
2	100623	Tank holder for 6 litre tank
3	100624	Tank, 6 litre
4	100281	Filter MINI-MANTRA
5	100085	Hose stem



Item Part No. Description

101265 Spray hood arm (K) 36 cm Version: plastics with atomizer

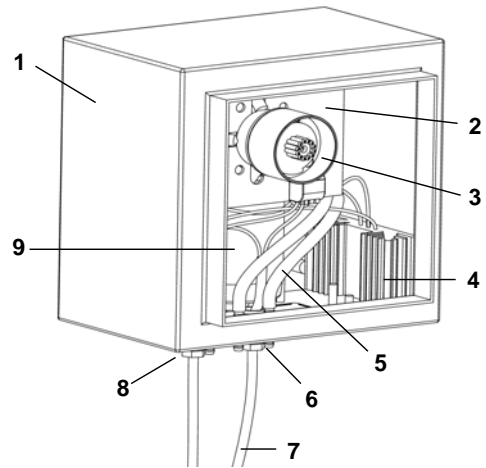
1	100672	Covering sheet
2	100673	Swinging arm for spray hood VARIMANT / FLEXOMANT
3	100571	Cover for ball bearing
4	101175	Spray hood 36 cm Ø for VARIMANT
5	100320	Segmental Atomiser for MANKAR
6	100619	Atomiser protective tube
7	101655	Flange for pivot
8	101825	Pivot for VARIMANT
9	100674	Spring 4 mm for pivot VARIMANT / FLEXOMANT
10	101134	Hexagon screw M 10 x 30 mm galvanized
11	101536	Lead GS/BL 2 x 0,75
12	100885	Tube PVC- , 4 x 2 mm, sold by metre



Part Art. No. Designation

100320 Atomiser for MANKAR

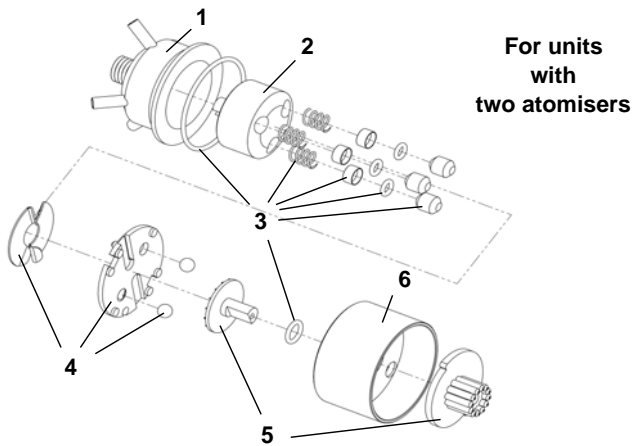
1	102417	Motor module for segmental atomiser MANKAR
2	100478	Atomiser disc for herbicide atomiser
3	101996	Segment module for segmental atomiser



Part Art. No. Designation

**100515 Pump unit MAFEX-3 DC/DC Capacity 2-20 ml/min
100582 Pump unit MANKER-3 DC/DC Capacity 2 x 5-12 ml/min**

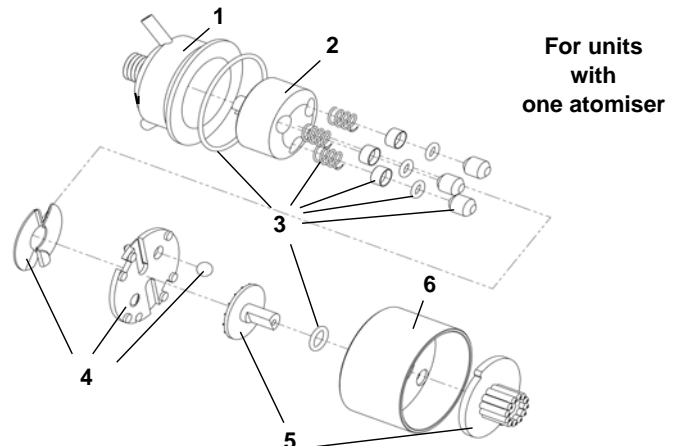
1	100977	Housing, steel, 200x200x155mm
2	102285	Fitting panel for MANKAR pumps
2a	102284	Fitting panel for MAFEX pumps
3	100522	Dosing pump MANKAR-3, capacity 5 - 10 ml/min
3a	101565	Dosing pump MAFEX-3, capacity 2 - 20 ml/min
4	100667	Converter 12V to 6V
5	101284	Tube PVC-, 4x2mm 20cm
6	100085	hose stem
7	101536	Lead GS/BL 2x0,75
8	100121	Screwed cable gland PG 7, plastic
9	100177	Pump motor 12V with Hall-sensor



Part Art. No. Designation

100522 Metering pump MANKAR-3, capacity 5 - 10 ml/min

1	100528	Housing, pump housing, MS for MANKAR
2	100138	Rotor-3, MS for piston pumps MAFEX / MANKAR
3	102373	Sealing set for MANKAR/MAFEX-3
4	101626	Repair set, MANKAR metering pump, pressure plate/wobble plate
5	102429	Repair set, MANKAR metering pump, metering adjustment knob/selector disc
6	100534	Cover for piston pump



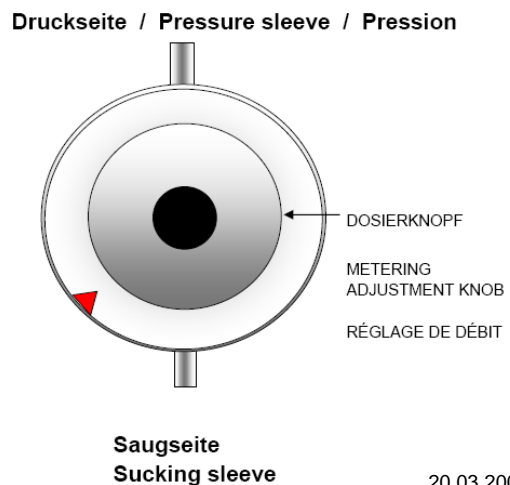
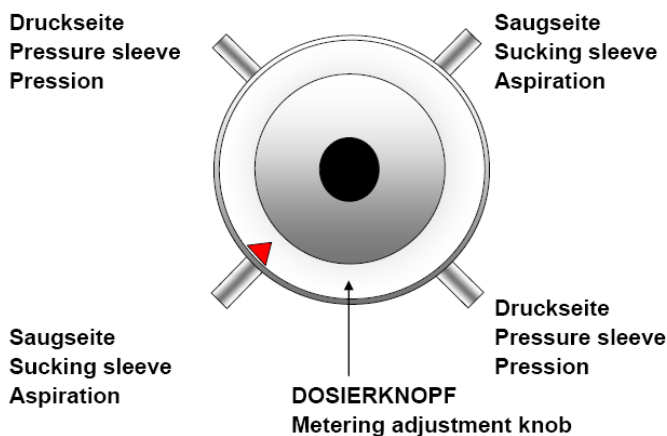
Part Art. No. Designation

100492 Metering pump MAFEX-3, capacity 2 - 20 ml/min

1	100493	Housing, pump housing, MS for MAFEX
2	100138	Rotor-3, MS for piston pumps MAFEX / MANKAR
3	102372	Sealing set for MAFEX-3
4	102436	Repair set, MAFEX metering pump, pressure plate/wobble plate
5	102437	Repair set, MAFEX metering pump, metering adjustment knob/selector disc
6	100534	Cover for piston pump

**Dosierpumpe MANKAR
Metering pump MANKAR
Pompe doseuse MANKAR**

**Dosierpumpe MAFEX
Metering pump MAFEX
Pompe doseuse MAFEX**



GUARANTEE

The manufacturer guarantees that in accordance with the present state of technology the article of purchase is free from defects as regards raw materials and construction. Guarantee is valid for all machines and apparatus for 24 months. The period of guarantee begins from the date of purchase by the user.

The manufacturer will decide to repair or replace faulty parts or issue a credit note.

Parts damaged due to normal wear and tear will not be replaced under guarantee. Carriage costs are borne by the manufacturer for faulty goods.

Unresolved claims do not entitle purchaser to withhold payments or set them against non-approved claims. Parts not manufactured by manufacturer are guaranteed by the original manufacturer under their terms. Warranty claims must be submitted in writing within 4 weeks of the damage being seen.

Repairs will be carried out with original manufacturer spare parts by an approved dealer.

Acknowledgement of a claim by manufacturer is binding only when a written notice is issued. Unless the manufacturer cannot make a repair, there is no right to cancellation of orders or to mitigation.

Compensation for direct or indirect damage will not be given.

Guarantee terminates if the article of purchase is altered by manipulation of third parties or by installing spare parts of extraneous origin and if the ascertained damage is directly caused thereby. Guarantee also terminates if orderer does not observe the operating instructions.

Guarantee does neither apply to natural wear, to damage caused during storage or by corrosion, nor to damage caused by negligent or improper handling. Guarantee does not apply to used machines or apparatus.

The operation instruction published by the manufacturer has been carefully prepared and is based on extensive tests.

Since manufacturer have no influence on installation and handling of apparatus, the company will not assume any responsibility for lack of success or for damages caused by the apparatus itself or by its use.

EG-Declaration of conformity Council Directive 98/37/EG

Mantis ULV-Sprühgeräte GmbH, Vierlander Straße 11 a, 21502 Geesthacht declares under our sole responsibility that the following products are in conformity with the provisions of the following Council Directive: 98/37/EG

Typ	MANKAR-P, MANKAR-110-P, MANKAR-110-GP, MANKAR-L, MANKAR-110 SELECT EL
Typ	MANTRA, MINI-MANTRA / PLUS, MICRO-MANTRA, MICRO-VASO
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

André Verder
Managing Director

Geesthacht January 2008

(Place and date of signature)

(Name, title and signature)