

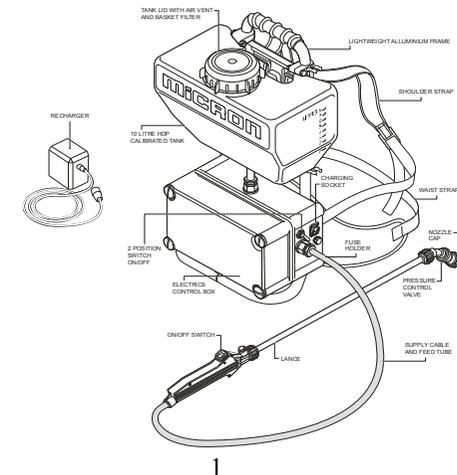
NOTES

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1. DESCRIPTION

- High quality sprayer developed for the professional operator
- For use in forestry, horticulture, amenity, industrial and agricultural situations
- Comfort maximised by ergonomically designed frame and harness
- Powered by a 12v electric motor using integral rechargeable battery
- Delivers continuous spray or accurately metered repeat doses
- Constant pressure valve ensures accurate spray delivery at 1.5 bars
- 10 litre tank provides up to 1000 x 10 ml shots per fill
- Typical work rate exceeds 4000 plants, weeds or pot plants per day

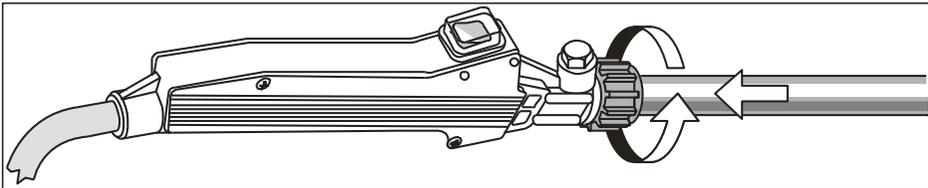


2. SPECIFICATION

Weight (empty)	-	8 kg
Voltage and power	-	12v DC / 1.5 amps / 1.8 watts
Battery life	-	4 hours continuous use / 10,000 shots
Frame and straps	-	Aluminium frame with padded PVC/Polyester strapping
Tank	-	10 litres, HDPE with 100 mm filling aperture
Pump	-	12v DC diaphragm pump with viton seals
Controls - operation	-	Three positions: continuous / off / metered dose
Nozzle tips supplied	-	Evenspray Flat Fan 03E80 (Blue) DeflecTip DT1.0 (Yellow) 80 deg. Flat Fan 03 (Blue) Hollow cone FCX2 (Yellow) (see page 4 for information on selection)

3. PREPARING THE SPRAYER FOR USE

A. The Spray Lance



The sprayer is supplied with:

- spray lance
- trigger unit attached to the sprayline
- a selection of nozzle tips

- Screw the lance onto the trigger unit. Do not overtighten.
- Select an appropriate nozzle and attach to the spray lance using the jet screw cap.

DECLARATION OF CONFORMITY

Name of manufacturer or supplier:	Micron Sprayers Ltd.
Full postal address:	Bromyard Industrial Estate, BROMYARD, Herefordshire
Country of origin:	England
Post code:	HR7 4HS
Description of Product:	Battery powered, hand-held agricultural spraying machine.
Name and model number of machine:	AutoDos
Place of Issue:	Bromyard, England
Name of authorised representative:	G. S. Povey
Position of authorised Representative:	Joint Managing Director

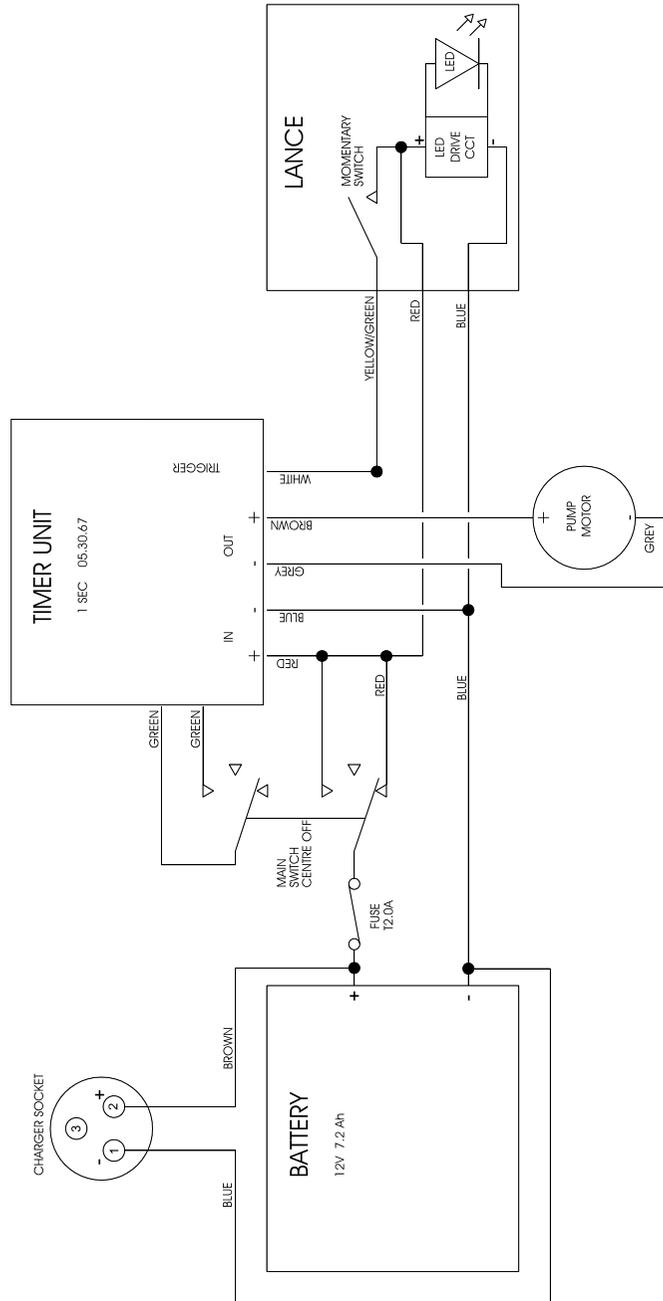
DECLARATION:

I declare as the authorised Representative, that the above information in relation to the supply/manufacture of this product is in conformity with the requirements of the 2006/42/EC Machinery Directive, the EMC Directive 2004/108/EC and complies with the relevant essential health and safety requirements.

Signature of authorised Representative:

A handwritten signature in black ink, appearing to read 'G. S. Povey', written over a horizontal line.

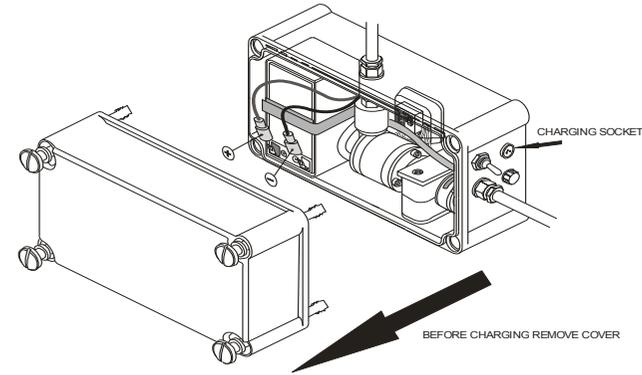
9. AUTODOS ELECTRICAL WIRING DIAGRAM



B. Connecting the Battery

The battery is supplied fully charged.

- Remove the 4 screws and remove the battery box.
- Connect the red (positive) wire to the + (positive) battery terminal.
- Connect the black (negative wire) to the - (negative) battery terminal.
- Replace the battery box and tighten the screws.



C. Recharging and Maintaining the Battery

CAUTION:

Always Remove Pump Enclosure Cover when charging the battery

The battery will need recharging after approximately 4 hours of continuous use or 10,000 shots.

- Connect the battery charger supplied with the sprayer to the 3 pin socket on the control panel.
- Switch on the sprayer (either continuous or metered dose position).
- Connect the battery to the mains electricity and switch on.
The red "in operation" and the green "charging" indicators will glow.
- The battery will be fully charged in approximately 3 hours after which the red light will cease to glow.
- After charging remove the charger from the mains and the sprayer, and return the switch to the central "off" position to prevent slow battery discharge.
Charger should always be disconnected from the machine, as soon as the Battery is fully charged

Always store the battery fully charged.

If the sprayer is to be stored for more than a month, it is recommended that the battery is disconnected.

A 3 amp fuse is fitted to protect the electrical system and pump.

AUTODOS PARTS LIST

NO	DESCRIPTION	PART NO.	NO	DESCRIPTION	PART NO.
1	Backpack frame, 8 litre, green	6370	33	Tube, 8mm id x 12mm od - 0.14m	5414/14
2	Bracket, tank retaining	6398	34	Connector hose	6387
3	Plate, tank retaining	6399	35	Clip, Herbi, Size E, black	6407
4	Screw, M6 x 30mm, hex	5727	36	Clip, hose, size BB, Nylon	5417
5	Washer, M6, flat, s/s	5722	37	Fuse holder	6379
6	Nut, M6, nyloc	5984	38	Fuse, 5amp	5502
7	Clamp Saddle 19mm round	6406	39	Pump, Motor, EDC 200	6386
8	Bolt, M6 x 40, hex, s/s	5970	40	Clamp assembly, 38mm	6396
9	Tank, 8 litre	5586	41	Battery, 12 volt, 7Ah	5503
10	Cap assembly	5208A	42	Connector, 3 way push in	6782
11	Filter bowl	5449	43	Connector, electric = 3 blocks	5942
12	Clip spring, 3/8", coated	6403	44	Charger, Battery (UK) + 6792	BC-01
13	Screw, No 4 x 3/8", S/T	5027	45	Charger, Battery (EU) + 6792	BC-02
14	Handle with electronic timing	6368	or	Charger, Battery (US) + 6792	BC-03
15	Lance, 60cm, extension with	6369	or	Clip, R	5671
16	O Ring	6401	46	0.5 litre measuring jug	5420
17	Elbow, 45 deg, 11/16" x 16 tpi	6400	47	Nozzle HCX6 Hollow Cone	6391
18	Valve, constant flow	6404			
19	Nozzle, 80SF01, orange	6390			
20	Nozzle, 80 degree, flat fan	6372			
21	Nozzle, 80 degree, flat fan	5805			
22	Nozzle, 80 degree, flat fan	5806			
23	Nozzle, HCX05 Hollow cone	5856			
24	Cap, 11/16", nozzle	6402			
25	Enclosure complete	6392			
26	Plate, battery mounting	6380B			
27	Screw				
28	Socket	6791			
29	Timer (supplied with 6368)				
30	Screw, No.4 x 1/2" pozi pan head, AB, S/S	4939			
31	Switch, toggle, DPDT 16 amp	6377			
32	Cable gland, 20mm, black	6395			

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NOZZLE SELECTION

The following guidance will assist the selection of the optimum nozzle for best results. Before using, ensure that the volume applied conforms with the instructions on the label.

Evenspray Flat Fan 03E80 (Blue) was red

Use for medium volume ground based herbicide spraying at 0.75 - 1.0m spray width. Use for 0.75x0.75 to 1.0 x 1.0 m sq. metered dose applications over the tree. Also allows accurate placement where weeds are to be sprayed while avoiding the crop.

Use where the label specified a herbicide rate per hectare.

DeflecTip DT1.0 (Yellow) was orange

For wide angle, low volume spraying up to 2m spray width.

Useful in situations where the nozzle needs to be kept close to the ground in situations of variable wind speeds.

Also used for inter-row applications where crop foliage must be avoided.

Use where the label specifies a herbicide rate per hectare.

80 deg. Flat Fan 03. (Blue) was red

Use for medium volume insecticide spraying where good penetration is required, and for the application of foliar herbicides to scrub and other tall weeds.

Use only where a product dilution rate is recommended rather than a rate per hectare.

Hollow Cone FCX2 (Yellow) was orange

For ground based herbicide low volume spot spraying where a circle of herbicide is sprayed around single trees, while avoiding the tree.

May also be used for insecticide spraying.

Use only where a product dilution rate is recommended rather than a rate per hectare.

NOZZLE OUTPUT CHART AT 1.5 BAR PRESSURE

Nozzle	Colour	Spray Quality at 1.5 bar	ml/metered dose (spot)	ml/minute continuous flow	Rate/hectare (1m width & 1m/second speed)
Flat Fan 03E80	Blue	Medium	15 ml	870 ml	150 l/ha
DeflecTip DT1.0	Yellow	Fine/medium	10 ml	600 ml	100 l/ha
80 deg. Flat Fan 03.	Blue	Medium	15 ml	870 ml	n/a
Hollow Cone FCX2	Yellow	Fine	10 ml	600 ml	n/a

IMPORTANT: This table is for guidance only. Each nozzle should be routinely checked for output, and this information used to accurately calibrate the sprayer to calculate the correct amount of pesticide concentrate to add to the

CALIBRATION EXAMPLES

Please note that these are provided for your assistance, and are not intended to replace systems learned when undertaking your NPTC PA6 spray operator certification.

1. Herbicide line application

In this situation the operator is likely to be walking at a fixed speed and applying a uniform spray width.

e.g. using DeflecTip DT1.0 nozzle, a walking speed of 1m/sec. And a spray width of 1.0m.

First spray for 1 minute into a measuring jug to check that 600 ml is emitted as per the chart above.

Assuming the tank is to be filled with 8.0 litres of water, and the volume applied is 100l/ha, then one tank full will treat 8/100 ha.

- if the rate of herbicide to be applied is 1.0l/ha, then 8/100 x 1.0 litres needs to be added to each tank full = approximately 0.08 litres (80 ml)

- if the rate of herbicide to be applied is 2.5l/ha, then 8/100 x 2.5 litres needs to be added to each tank full = approximately 0.2 litres (200 ml)

2. Herbicide spot application

The above calculation is also valid for metered dose (spot) treatments PROVIDING the area of the treated spot is 1.0m x 1.0m (1.0 sq.m).

If the area of the spot is smaller, then the dilution rate must be adjusted accordingly to account for the increased volume of pesticide applied.

e.g. if area of spot is 0.8m x 0.8m = 0.64 sq.m then taking the above examples:

- if the "line" rate is 80 ml of product / 8 litre tank full, then the dilution rate must be reduced to: $80 \times 0.64 = 50$ ml per 8 litre tank full.

- if the "line" rate is 200 ml of product / 8 litre tank full, then the dilution rate must be reduced to $200 \times 0.64 = 125$ ml per 8 litre tank full.

An alternative calculation can be used as follows:

3. Spot treatments where a rate per ha is given on the label

E.g. using the DeflecTip DT1.0 nozzle to discharge 10 ml diluted product per spot an 8.0 litre (8,000 ml) tank full will apply 800 x 10 ml shots.

If applying 2.5 litre product / ha (2500 ml/ha) over 1m spots then as 1 ha = 10,000 sq.m then each 1.0m spot will need $2500/10,000 = 0.25$ ml pesticide.

As each 8.0 litre tank full provides 800 x 10 ml shots

6. TROUBLE SHOOTING

The AutoDos, if properly maintained will prove highly reliable.

However, the following procedures may assist in remedying possible operating difficulties.

Pump does not operate when lance button depressed

Battery flat or switch turned off.

Battery terminals incorrectly attached.

NB. The lance button contacts are to the rear of the button and may be missed if using thick gloves.

Pump operates but no spray emerges

Nozzle blocked - remove and clean or replace.

Tank spray outlet or line filter inside tank blocked.

Pump operates but poor spray pattern

Nozzle partially blocked or worn - clean or replace.

Nozzle too large for pump capacity - replace with recommended nozzle.

Nozzle "dribbles" when lance button not depressed

One way valve inside tank malfunctioning - clean or replace.

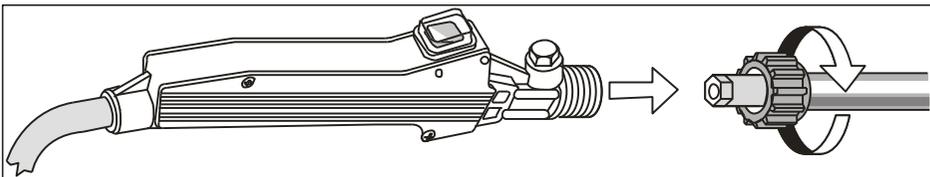
5. AFTER USE

CLEANING AND STORAGE

Always completely spray out the tank contents before cleaning.

After spraying, add around 0.5 litres of water, and swill around the tank before spraying out in continuous mode over a discard area in the area which has been treated.

Rinse the tank twice more, and spray out the third rinsing to clean out the hoses, pump, lance and nozzle.



After all the spray has been discharged, de-couple the spray lance at the union nut to release any residual water held in the spray line.

Recharge the battery and then switch to the OFF position to avoid battery damage.

MAINTENANCE

With regular cleaning and battery maintenance the AutoDos should give many years trouble free operation.

Simple maintenance involves regularly cleaning the sprayer both internally and externally. It is also advised to carry spare CFValves® (Red 1.5 Bar) and nozzle tips as these may become worn, blocked or damaged with regular use.

Always ensure switch is in the OFF position when the sprayer is not in use to avoid battery discharge and for long periods of storage it is advised to disconnect and remove the 12V sealed lead acid battery.

Always use the correct battery charger as supplied with the sprayer, to maintain battery condition.

Make sure hose pipe and electrical wires in the spray lance are not damaged with use. Repair/replace as necessary.

then each 8.0 litre tank full will require $800 \times 0.25 \text{ ml} = 200 \text{ ml}$ pesticide.

If the spots are less than 1.0 sq.m then the rate reduction calculation in 2. Must be followed.

4. Herbicide, insecticide or fungicide application where a dilution rate is given on the label.

This dilution may be used for continuous or metered dose (spot) applications.

E.g. dilution rate of 400 ml of product in 10 litres of water (this could also be expressed on the label as 4 litre product in 100 litre water, or 40 ml product per 1 litre water).

The dilution rate for an 8 litre tank full is $(8/10) \times 400 \text{ ml} = 320 \text{ ml}$ product.

5. Insecticide treatments over large plants (e.g. Christmas trees).

Where a dilution rate is given on the label, follow 4. Above.

Where a rate per ha is given on the label then the water volume applied will depend on several variables, namely:

- the walking speed / time spent treating each tree (size related)
- the size of nozzle
- the pressure (normally 1.5 bars)

Once the nozzle, pressure and spraying system has been decided, the water volume applied per ha may be determined as follows:

- i. Mark out 10 x 10m (100 sq. metres) in an area of crop which is typical of that to be sprayed (as there are 10,000 sq.m in a hectare, then this area = 1/100 of a ha.
 - ii. Fill the tank to the brim with clean water.
 - iii. Spray the trees in the marked area to provide a suitable level of cover.
 - iv. Measure the amount of water needed to completely refill the sprayer.
- NB. This will need to be repeated when spraying plantations with bigger or smaller trees.

Calculation example:

If 1.6 litres was sprayed over 100 sq.m (1/100 ha)

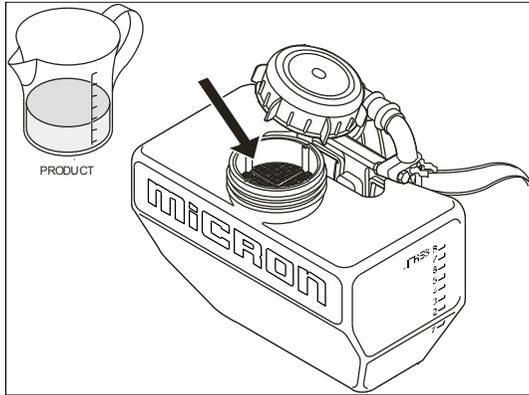
Then the water volume applied per ha is $100 \times 1.6 = 160 \text{ l/ha}$

It will therefore take 20 x 8 litre tank fulls to spray 160 litres over 1 ha.

If the product rate is 2 l/ha (2000 ml)

Then the amount of product per tank will be $2000/20 = 100 \text{ ml}$ per 8 litre tank full.

TANK MIXING PROCEDURE



Half fill the tank with clean water.
Add the required amount of pesticide.
Fill the tank to the 8 litre level and securely fit the tank lid.
Rock or shake the sprayer to complete the mixing.

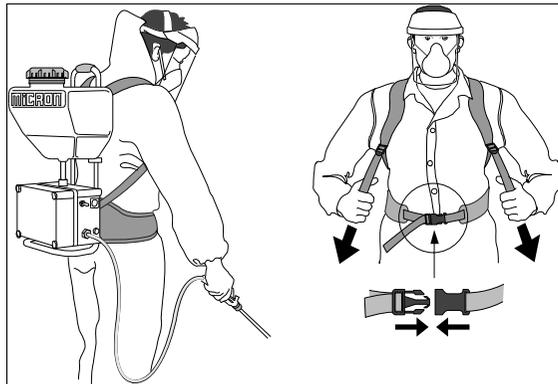
FITTING THE SPRAYER AND SPRAYING

Before fitting, position the switch to the Continuous Spray, or Metered Dose.

It is recommended that after filling, the sprayer is placed on a table or bench to assist the fitting of the sprayer on the operator's back.

The AutoDos should be positioned on the operator's back with the straps loose before the waist belt is coupled.

The straps are then adjusted by pulling down on the adjustment tabs.



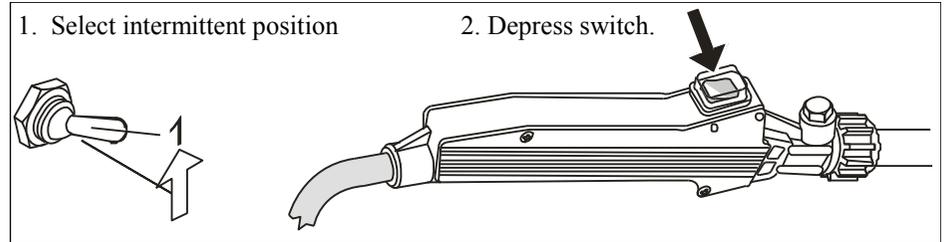
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It is likely that the first 5 to 10 seconds of spraying will emit inadequately mixed spray material which is either too dilute or too concentrated.

This should be sprayed on a discard area within the area to be sprayed.

For continuous spray, press the thumb trigger on the spray lance for the period of spraying.

For a metered dose, depress and release the trigger to provide a repeatable 1 second discharge.



It should be noted that if the spray discharge does not provide the minimum volume required by the label, then a double discharge per plant, tree or weed may be required. If this is the case, then this "double dose" must be acknowledged during the calibration process.



Spot weed

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