



# *Weedswiper*

Six metre, three metre, two metre folding and two metre fixed.



## Instruction Manual

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# WeedSwiper

**A New Generation of Weed Wiper from: Micron Sprayers Ltd.**

## DESCRIPTION

### Unique features of the WeedSwiper include:

- **SUPPLY-ON-DEMAND.** Automatic control of fluid flow to the contact pads via the patented sensors and Hydrostat control system
- Contact pads manufactured from R12, a strong, tufted material that holds fluid until a target plant is swiped
- Pad material with extremely good fluid retention properties
- 150mm (6") deep pads provide a large fluid transfer area ensuring adequate dose of active ingredient (a.i.)
- All units can be folded and operated at narrower widths than their overall working width, and have simple boom end break-back return system

### Fluid control to the contact pads:

- The unique Hydrostat controller has variable settings to control the pump output to the pads, replacing fluid only when it has been swiped onto the target plant
- Hydrostat settings of 0-9 reflect the dilution rate of the a.i.
- Sensors in the pad material constantly measure pad wetness and, via the Hydrostat control system, replace fluid only as it is required
- The pad cannot receive more fluid than the chosen Hydrostat setting allows hence preventing product from reaching non-target plants
- Hydrostat settings can be altered 'on the move' if required

### Tanks:

- Every WeedSwiper is supplied with 2 tanks, one for the a.i. mixture, the other for clean water
- The clean water tank is used to:
  - Wet the pads to near saturation point PRIOR to any work being carried out
  - Rinse the WeedSwiper through AFTER work. Detergent and brushing may also be required to clear any plant wax and soil from the pads

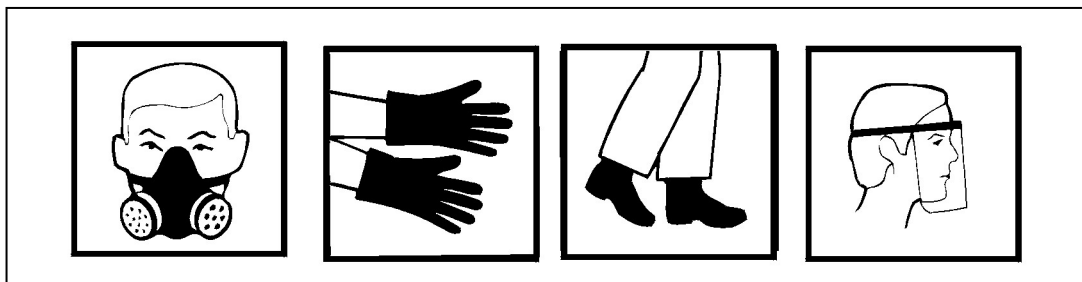
NB. ALWAYS pre-mix the product BEFORE putting it into the tank

## SAFETY

Before handling pesticide or other chemicals, **always** read the product label to learn what personal protective equipment (PPE) is required for mixing and spraying operations.

When spraying indoors or in confined spaces it is typically recommended to use:-

- overall
- rubber boots
- gloves
- face shield or eye goggles
- respirator / mask



## MIXING AND FILLING

### Test with Clean Water

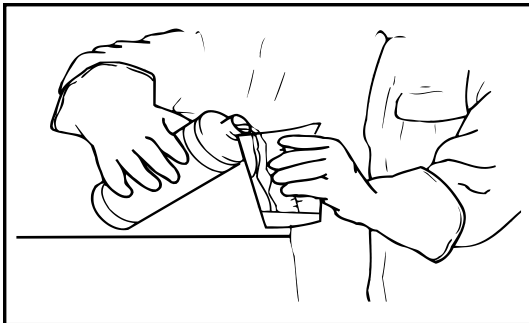
Before the first treatment it is recommended to carry out a test with clean water in order to check the correct operation of the sprayer and familiarise yourself with how the sprayer works.

### Filling the Tank

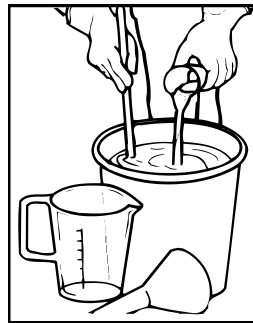
In order to protect people, animals and the environment agricultural sprayers should only be filled indirectly by open and free falling water, particularly when filling from the water mains. This is to avoid any possible contamination of the water supply by reverse suction of the filling pipe back into the water source. The filling tube must not come into contact with the liquid inside the tank and the tank itself.

The tank is equipped with graduations indicating the quantity of liquid inside the tank. This is designed to be read when the sprayer is on level ground.

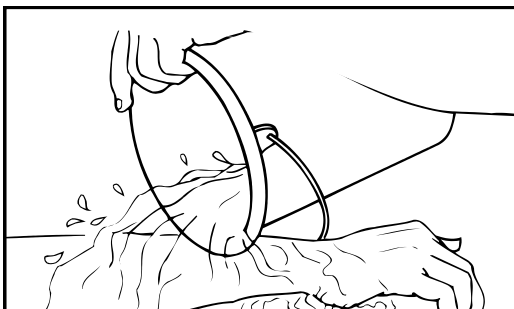
Mixing and filling is generally the most hazardous process in the spraying operation. **Always** follow the label instructions. **Only** mix enough spray for the area to be treated if using water-based mixtures to avoid the need for disposal of unused spray mix.



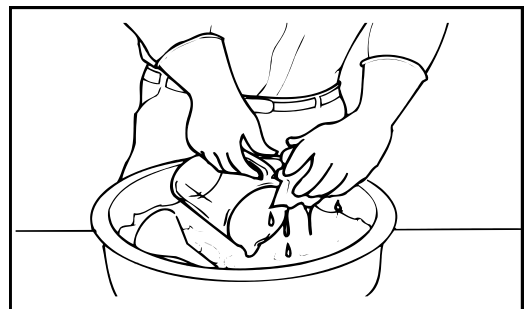
**Always** wear gloves when handling agrochemicals and equipment.



**Always** use the correct equipment when mixing and measuring.



**Always** wash off any skin contamination



**Always** clean all equipment after use.

## MOUNTING INSTRUCTIONS

### Preliminary Checks

When you first receive the WeedSwiper sprayer check that the sprayer is complete. If any parts are damaged or missing, refer to your supplier or to Micron Sprayers Limited.

### Machine transport and handling

If it is necessary to lift the machine, use proper fabric slings and hoists or bridge crane with sufficient lifting capability.

Only lift or move the machine when the tank is empty. If there is liquid in the tank, the machine will be heavier and the liquid shifting could vary the centre of gravity causing uncontrolled movement.

**Do not** lift the machine with a fork lift truck unless it is secured.

**Do not** stand under the machine when it is suspended in the air.

### Mounting on the tractor

Before mounting on any vehicle ensure that the vehicle is suitable for this purpose. A suitable vehicle should:

- be capable of sustaining the weight of the sprayer when full and ready to work (i.e. 280Kg). Failure to meet this specification is dangerous as it could lead to loss of sensitivity on the steering and consequently the possibility of overturning on sloping ground.
- possess a three point linkage capable of bearing the weight of the sprayer when full (i.e. 280Kg).

**If in doubt as to the suitability of the vehicle refer to the manufacturer.**

- Adjust the length of the top link so that the sprayer is horizontal in the working position.

**The WeedSwiper is designed to be mounted on the rear of a vehicle. When it is not mounted on a vehicle the boom arms must be lifted up and secured using the securing pins provided.**

### CAUTION:

When coupling up the WeedSwiper to the tractor using the three point linkage, be aware of any moving parts on the vehicle.



## INSTALLATION PROCEDURES

Always refer to items shown on photos or exploded parts drawings for ease of identification of parts during installation.

The frame is fitted with 3 point linkage CAT.1 pins to suit most tractors.

### Connection

- Connection of the Backplate to the 12 volt power supply of the vehicle may be direct to the battery on the vehicle or other direct 12 volt supply point.
- Ensure that the main inline switch is in the 'OFF' position.
- Connect the positive (+) lead to the positive terminal of the battery.
- Connect the negative (-) lead to the negative terminal of the battery.

## OPERATION

### Before spraying

Before filling the WeedSwiper tank with chemical, it is recommended that you follow these procedures to check that everything is working correctly.

- Place a small amount of clean water in the spray tank, ensuring the filter is in place when filling. Failure to use the filter will increase the likelihood of blockages from contaminated water.
- Turn the Hydrostat control box to the '**ON**' position, to purge all the air from the system.
- Check that all the pads are in good condition.
- Check that all maintenance procedures have been followed.
- Check all plumbing and fittings to ensure there is no damage or leaks.
- Check that tank, filters, lines are clean.

## **TESTING THE HYDROSTAT AND SENSOR CIRCUITRY**

The Micron WeedSwiper Hydrostat control box can be tested in the field by using a test lead. The lead feeds a dummy signal to the Hydrostat which makes it think a pad is attached. In addition, the test lead can be used to test the sensor cabling, under certain conditions.

### **Hydrostat Testing Procedure:**

Connect the test lead to the two outer pins on the Hydrostat plug and switch the Hydrostat on. The buzzer, the "POWER" and "PUMP ON" LED's should all be on for about three seconds as the circuitry carries out a self-check.

Setting the Hydrostat knob to about position \*4 should switch the buzzer and "PUMP ON" LED on. Reducing the setting to about position \*3.5 should switch the buzzer and "PUMP ON" LED off. Adjust the knob slowly to allow for the time integration in the circuitry.

Note that on Hydrostat versions sold after January 1997 the "PUMP ON" LED flashes when the pump/solenoid is not energised.

### **Analysis of Problems:**

If the Hydrostat does not switch on or off at the stated settings check for a bad connection in the cable such as a loose screw which connects the signal wires in the plug (the outer two terminals of the seven pin male plug) or possibly a break in the wires between the plug and circuit board. To test, open the plug and check the screws and identify the two signal wires (usually yellow and white).

**IMPORTANT.** Check also that the prongs of each pin are separated by the width of the slit. If the prongs have closed slightly a bad connection may result.

Open the Hydrostat box, shave a small amount of insulation off the signal wires inside and connect the test lead. If the buzzer stops when the Hydrostat is set to around \*3.5 or less then the Hydrostat is O.K. and there is a break in the signal wires in the cable. If it does not stop there is a fault in the Hydrostat circuit board.

If the signal circuitry is working normally but the pump is not switching on or off there could be a fault in the pump wires (usually red for +12v power and green for earth). As with the signal wires identify them inside the Hydrostat box and remove a small amount of insulation so that a test light or multi-meter can be attached. If the cabling tests O.K. check the pump by applying 12 volts directly to it. Note. The pump must be connected with the correct polarity.

## **TESTING THE HYDROSTAT AND SENSOR CIRCUITRY Cont**

### **Sensor Cabling Test Procedure:**

This test can be carried out with both sensor plates installed in the pad only when:

- The pad is dry OR
- There is no or extremely dilute herbicide in the pad.

Note. Herbicide in a wet or damp pad will upset the test signal.

If it is necessary to test the signal cables when the pad is wet or has herbicide in it remove one of the sensor plates from the pad so that no circuit can be made through the pad.

Note. Only the plates on the front of the pad are active. The rear plates are washers to clamp the active plates to the pad.

With the test lead connected between the two sensor plates use the same test sequence as described above for testing the Hydrostat.

In all tests proceed methodically through the problems testing one section of the system at a time.

If a problem persists that you cannot identify then contact:

## CHECKING PROCEDURES FOR PUMP

### SAFETY PRECAUTIONS:

- **BE SURE** to wear suitable protective clothing.
- **BE SURE** to use a suitable container to catch spray liquid if necessary.
- **MAKE CERTAIN** that there is ample liquid in the tank.

Ensure that all electrical plugs are in place and the battery connections are firm. Turn the switch on Hydrostat box to the **ON position**, the pump motor should now run.

### PUMP NOT RUNNING

- Wire the pump directly up to the battery, if the pump runs then check all the wiring until the fault is found.
- If the pump still does not run, contact the supplier for advice or replace the pump.

## MAINTENANCE

- Empty tank completely, observing all safety precautions.
- Flush out tank with clean water and detergent, run the sprayer to flush the lines and spray lines for at least two minutes.
- Carefully and thoroughly hose down the sprayer, taking particular care not to spray the pump directly, as liquid may enter the back of the pump into the motor housing
- Remember to collect all residue and dispose off following Regulation Guide lines
- Winter storage, run antifreeze around the system to prevent frost damage

## AFTER SPRAYING

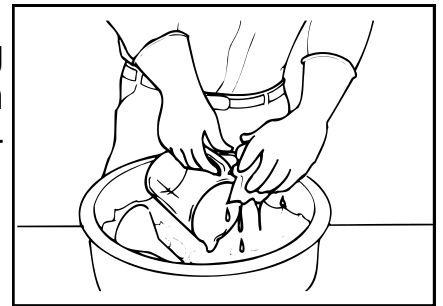
### Sprayer Washing

After treatment wash all equipment thoroughly inside and out. Contaminated equipment can be very dangerous for people, especially for children.

### System wash

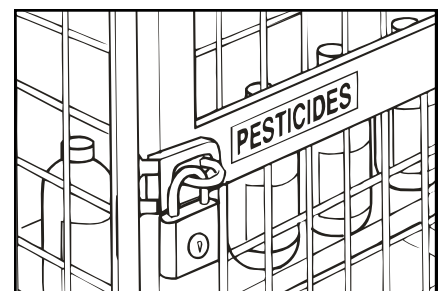
The sprayer is equipped with a system wash tank which must be filled with clean water. This is used to rinse the intake circuit, delivery filter, pump and spray lines.

- Wash the chemical product containers well, using proper equipment and rinsing up to 3 times with clean water. Dispose of washing residues in accordance with regulations.



- Collect washed containers and dispose of them properly. Do not leave empty pesticide containers in the environment and do not re-use them for any other purpose. It is advisable to make a hole in the bottom of containers when they are empty to prevent re-use.
- Carefully wash sprayers after and dispose of washing residues in accordance with regulations.
- All protective clothing should be washed separately from other clothes and stored. Contaminated gloves should be washed inside and out.

- Store products safely, .



**WE STRONGLY RECOMMEND DAILY RINSING OF THE TANK AND EQUIPMENT WITH CLEAN WATER AFTER ANY USE.**

**N.B Any chemical left over for along period should be stored in a appropriate container and disposed of in accordance with regulations**

## **WeedSwiper Target Plants**

The WeedSwiper can control weeds growing at least 150mm (6") above the desired plant species. Weeds in arable, grassland, forestry, vineyards and amenity situations can be controlled.

EXAMPLES OF TARGET WEEDS INCLUDE: ragwort, thistles, nettles, docks, bracken, gorse, heather, broom, bramble, weed beet, wild chrysanthemum, fathen, wild oats, reed, bulrush, sedge, soft rush, ground elder, Japanese knotweed, giant hogweed, rosebay willow herb, silver birch re-growth, hazel, rhododendron plus volunteer arable crops e.g. potatoes, oilseed rape, etc.

## Operators Guide to Successful Use of the WeedSwiper

1. Weeds must be at least 150mm (6") taller than the crop canopy to ensure no risk of damage to the desired plant species.
2. Treat weeds as they become tall enough to be swiped, more than once if necessary, with successive treatments carried out in the opposite direction to the previous one.
3. ALWAYS use one tank for a.i. mix and the other tank for clean water. Having decided which tank is for what purpose thereafter NEVER change its use.
4. NEVER operate the pump with the tank outlet tap closed.
5. AVOID excessive forward speeds (above 10 kph).
6. Use water only to thoroughly wet the pad material PRIOR to any treatments.
7. Where water from the clean water tank has been used to wet the pads remember to CLOSE the tap on the clean water tank and OPEN the tap on the a.i. mixture tank BEFORE continuing.
8. PRE-MIX the chosen product PRIOR to putting into the tank and avoid mixing more a.i. mixture than is required for the task. Dilution rates will vary depending upon weed maturity.
9. Start work with only half a tank of mixture to evaluate product use compared to weed density. This will help to avoid the need to dispose of excess product mix.
10. ALWAYS endeavour to prevent the pads from dripping a.i. mixture into the crop canopy by choosing the correct Hydrostat setting for the a.i. mixture.
11. IMPORTANT. When working on hillsides that are too steep to travel up and down it is advisable, where possible, to work these areas in runs of no more than 200 metres long across the hill to ensure the product does not concentrate at one end of the pads.
12. Site the WeedSwiper in a designated area to avoid pollution. Set the Hydrostat to 'constant pump' until the pad material drips across the entire width. Reduce the Hydrostat setting until the pump stops. On the first few runs keep nudging the Hydrostat setting up until the pump comes on, then reduce it until the pump stops. Repeat this process until you have determined the 'drip point' of the a.i. mixture. When this point has been reached reduce the Hydrostat setting by a fraction to ensure it is set just below the drip point of the a.i. mix being used. The buzzer will stop at this point.
13. Swipe the first two runs again to ensure weeds are adequately treated as, initially, product takes a little time to reach the pads. IMPORTANT. Always ensure sufficient product mix has run through the pads to be certain the a.i. mixture has reached the pre-mixed dilution rate.
14. ALWAYS wash off and clear the pads of any plant wax or soil which may build up during work.
15. At the end of each task rinse the system through thoroughly with clean water from the rinsing tank. Use the 'constant pump' setting on the Hydrostat box for this purpose.
16. Boom covers are supplied for use when the WeedSwiper is being transported to:
  - Prevent damage occurring to the pads, and
  - Protect the environment from unintentional contact with contaminated pads.

## CONVERSION FACTORS

1 yard	= 3 feet	= 0.91 metre
1 metre	= 39.37 inches	= 1.09 yards
1 metre/sec	= 2.237 miles per hr	= 196.9 ft/min

1 US gal	= 0.83 Imp gal	= 3.78 litres
1 Imp gal	= 1.20 US gals	= 4.54 litres
1 litre	= 0.26 US gal	= 0.22 Imp gal
1 US pint	= 16 US fl ounces	= 0.47 litres
1 Imp pint	= 20 Imp fl ounces	= 0.57 litre

1 pound	= 16 ounces	= 0.45 kilogram
1 kilogram	= 2.20 pounds	= 35.3 ounces
1 ounce	= 28.35 grams	

1 pound/sq inch	= 0.068 atmosphere	= 0.067 bar
1 atmosphere	= 14.70 pounds/sq in	= 1.01 bar
1 bar	= 14.50 pounds/sq in	= 0.98 atmosphere
1 kilopascal	= 0.01 bar	= 0.145 pounds/sq in

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