



AU5000LD ATOMISER

Conversion Kit for Standard AU5000 Atomiser

1. Introduction

The Micronair AU5000LD atomiser is designed specifically for the aerial application of crop protection chemicals where a narrow spectrum of large droplets is necessary to avoid drift and ensure accurate swath placement.

The AU5000LD uses a stack of conical discs to produce the spray droplets. Each disc has teeth around its periphery to provide issuing points for the droplets and to ensure consistent, controlled droplet formation. Grooves inside the discs ensure a precise feed of the spray liquid to the teeth. This tooth-and-groove configuration is unique to Micron Sprayers and the technology has been proven over many years on ground-based atomisers.

If the AU5000LD is used on fast aircraft (typically turbine powered types operating at more than 120 MPH, 190 Km/hr), large droplets can be shattered as they enter the airstream. In order to minimise this effect, the AU5000LD can be fitted with a slotted air deflector plate that provides a controlled air velocity profile around the disc stack and causes the droplets to be accelerated gradually into the airstream with a minimum of shattering.

The AU5000LD is recommended for the following applications:

- Large Droplet Placement (LDP) application of insecticides
- Low Volume (LV) application of insecticides and fungicides
- Application of herbicides at rates of up to 40 l/ha

The AU5000LD conversion kit is intended for installation on standard AU5000 atomisers. All items required to convert an atomiser are included in the kit and the modification can be carried out in a few minutes.

The AU5000LD is not intended for ULV application. It is recommended that the disc stack is removed and replaced with the standard AU5000 gauze for all applications requiring a droplet size of 100 µm VMD or less. This change can easily be made in the field and allows maximum flexibility of application technique.

2. Installation

The procedure to fit an AU5000LD conversion kit to an existing atomiser is as follows (part numbers in *italics* refer to items shown in the AU5000 handbook and part numbers in plain type refer to the list at the end of this document):

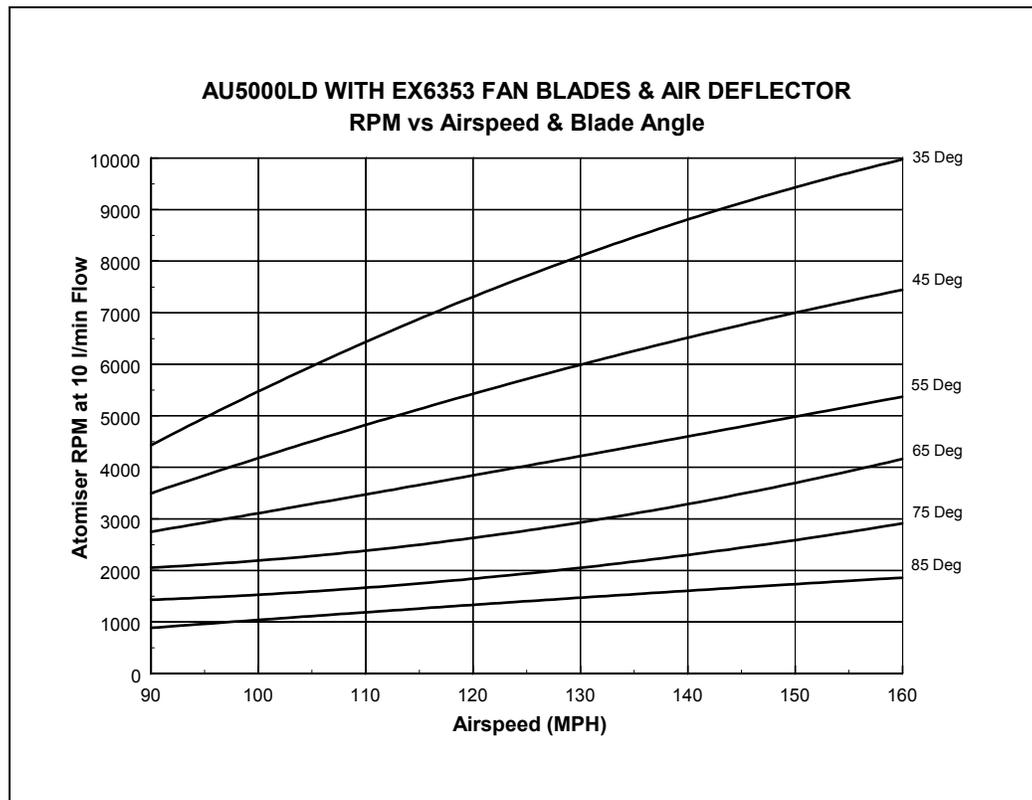
1. If necessary, remove the atomiser from its mounting clamp (the mounting clamp can be left on the boom if it is already fitted)
2. Remove the three screws (*EX2612*) and washers (*SP123C*) securing the gauze (*EX1510*) to the atomiser hub. Slide off the gauze.
3. Remove the atomiser spindle assembly (*EX2292*) from the bearings in the hub.
4. Remove the shut-off cap (*EX2291*), seal (*CBP766*), circlip (*CBP828*) and spring (*CBP845*) from the end of the spindle.
5. Clean the end of the spindle, particularly the area around circlip groove and the concave deflector ring.
6. Slide the spray distributor sleeve (*EX6763*) over the end of the spindle. Press or gently tap the closed end of the sleeve until it clips into position and the open end is in contact with the face of the concave deflector ring on the spindle.
7. Re-fit the spindle into the hub.
8. If the air deflector plate is to be used, locate the plate (*CBP2752*) against the rear face of the aluminium ring of the disc assembly and align the three holes with the tapped holes in the ring (these should be the three blind holes that do not also pass through the black flange at the forward face). Secure the plate with the three 8-32 x 7/16" screws (*EX2612*) and washers (*SP123C*) provided.
9. If already fitted, remove the three 8-32 x 1/2" screws (*EX2369*) and washers (*SP123C*) securing the black flange of the disc assembly to the aluminium ring.
10. Ensure that the outside of the perforated drive tube of the atomiser hub is clean.
11. Slide the disc assembly over the drive tube until the black flange touches the hub flange. Align the holes and fit the three screws and washers removed in step (9).
12. If the atomiser is to be used at a spraying airspeed of over 120 MPH (190 Km/hr) the standard *EX1772* fan blades should be replaced with shorter *EX6353* blades.
13. Re-fit the atomiser to the mounting clamp. Fit and wire-lock the securing nut and diaphragm check valve as described in the AU5000 handbook.
14. If the VRU feeding the atomiser is connected to a 1/8" NPT boom outlet, it is recommended that a second feed is provided to the VRU from an adjacent nozzle outlet. If the VRU is fed from a 1/4" NPT outlet a secondary feed is not necessary. See AU5000 handbook for details. This ensures that the necessary flow to the atomiser can be achieved without using an excessive boom pressure.

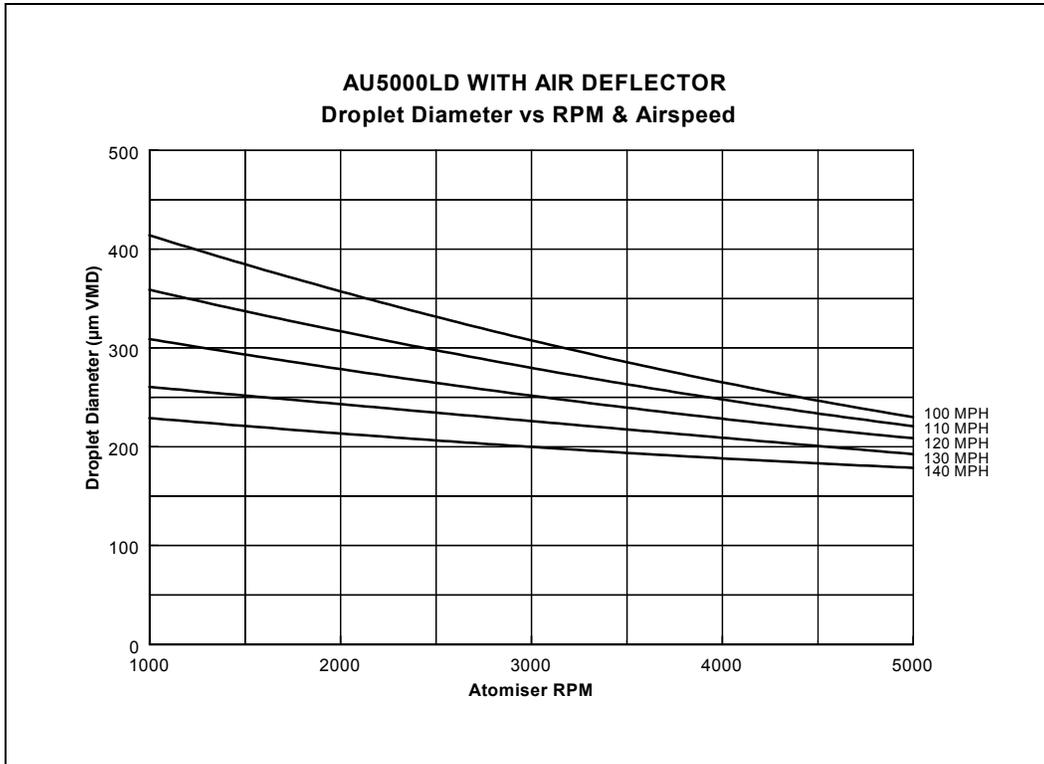
3. Calibration

AU5000LD atomisers must be adjusted to produce the correct droplet size and to give the required application rate before use. The calibration procedure is described in detail in the AU5000 handbook. Only points specific to the AU5000LD are covered here.

3.1. Droplet Size

1. Refer to the graph of droplet size against rotational speed and airspeed to determine the atomiser RPM required to produce the required droplet size at the operating (spraying) airspeed.
2. Refer to the graph of rotational speed against airspeed and blade angle to determine the blade angle required to give the required atomiser RPM at the operating airspeed.
3. Adjust the fan blades of all atomisers to the required angle (see AU5000 handbook for details).
4. If the aircraft is fitted with an application monitor with atomiser RPM transducers, check atomiser speed in flight and adjust the angle of the fan blades as necessary to achieve the correct RPM for each atomiser.





3.2. Flow Rate

The flow rate per atomiser is controlled by VRU setting and boom pressure as described in the AU5000 handbook. If it is not possible to achieve the required flow with the largest VRU setting (#13) without an excessive boom pressure, the VRUs should be set to the full-flow position.

4. Operation

The specific parameters for the operation of an aircraft fitted with AU5000LD atomisers will vary according to local conditions and best practice. The following points are for guidance only:

- The flying height and track spacing should normally be the same as used with hydraulic nozzles for a similar application technique.
- High airspeeds will result in increased shattering of spray droplets and a reduction in VMD, even with the air deflector plate fitted. The spraying airspeed should be as low as possible for the production of large droplets and minimisation of drift. This is particularly important near field boundaries adjacent to susceptible crops, pasture land, water courses etc.
- Atomiser RPM can increase if the speed of the aircraft is allowed to increase on the approach to the spray run. This can result in smaller droplets being produced when the boom valve is first opened. The airspeed should always be allowed to stabilise before the start of a spray run.

5. Maintenance

The bearings and other components of the AU5000LD should be maintained as described in the AU5000 handbook.

The AU5000LD disc stack should be kept clean by flushing the spray system with clean water after use. This is particularly important when using products with a high solids content.

If the discs become contaminated, they can be cleaned by slackening (but not removing) the nut at the rear of the disc assembly, separating the discs and washing them with a hose or pressure washer.

If necessary, the nut and cap at the rear of the disc assembly can be removed completely and the discs slid off the central carrier. The discs can then be soaked in water and detergent and cleaned with a stiff plastic (not metal) brush.

Should the discs become damaged, replacement sets are available from the Micronair Division of Micron Sprayers Ltd and from distributors.

6. Parts List

Item	Part No	Description	Qty	Notes
1	EX6765	Spindle diffuser sleeve	1	
2	EX6763	Disc carrier sleeve	1	
3	EX6762	Ring	1	
4	EX6761	End cap	1	
5	EX6754	Atomiser disc	23	Supplied as set
6	EX6760	Flanged shaft	1	
7	CBP2230	Nut	1	
8	CBP2228	Washer	1	
9	CBP2752	Air deflector plate	1	If specified
10	EX2612	Screw, 8-32 x 7/16"	6	Qty3 if no CBP2612
11	EX2639	Screw, 8-32 x 1/2"	3	
12	SP123C	Washer, 8-32	9	Qty 6 if no CBP2612
13	PC1037	Conversion kit complete	1	

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