



# BHA User Guide

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## Using the BHA InJecta Unit

### BHA InJecta System

The BHA InJecta system has been designed specifically for use with BHA biological and chemical products. The InJecta system provides a fast and efficient approach for the delivery of BHA capsule products into tree stems.

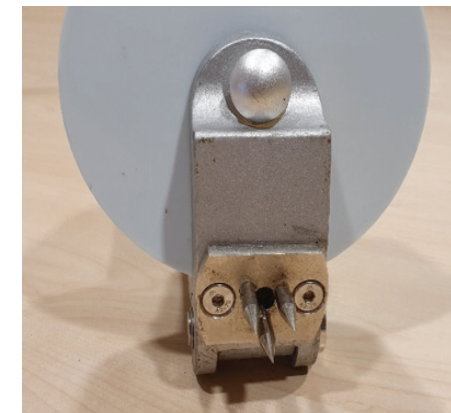
This section provides step by step instructions for the correct use of the BHA InJecta unit.



## Removing the magazine from the InJecta unit

### Step 1

Fully withdraw the drill bit to the rear position – the head unit cannot be opened otherwise.



### Step 2

Pull the knob at the front of the InJecta head unit to open the head mechanism.



### Step 3

Magazine can be removed by lifting off the spindle.



## Loading the magazine with plugs and capsules

The BHA InJecta magazine is designed to hold 30 BHA capsules and sealing plugs. These are loaded in tandem into each of the 30 chambers. Note that the magazine has 31 chambers as one (in central position) must remain empty to allow for the initial drilling action. The inner section rotates in a clockwise direction.

### Step 1

Flip open the magazine lid.



### Step 2

Position inner section to centre the hole at position #1.

### Step 3

Load the wooden plugs singly into each of the 30 chambers keeping position #1 empty.



### Step 4

Load the capsules individually into each of the 30 chambers (on-top of the plugs), again keeping position #1 empty.



Note that all 30 positions now show capsules at the top (with position # 1 empty).



### Step 5

Close lid firmly, it should click shut.



Note that plugs are visible at the rear of the magazine with position # 1 empty.





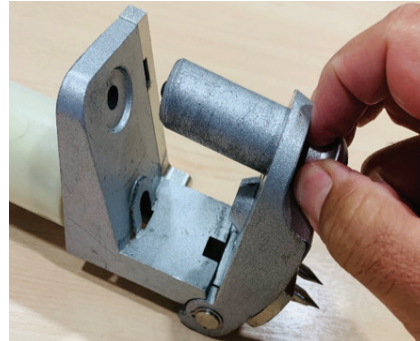
## Engaging the magazine with the InJecta unit

### Step 1

Fully withdraw the drill bit to the rear position – unit cannot be opened otherwise.

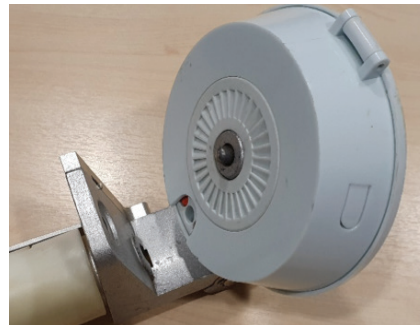
### Step 2

Pull the knob at the front of the InJecta head to open the head mechanism.



### Step 3

Place the loaded magazine unit onto the spindle with the lid facing forward, and matching the location of risers with the cut-outs.



### Step 4

Close the front. The magazine should now be firmly engaged and drill bit can be pushed forward through the empty chamber (position # 1).



### Step 5

Cordless drill can now be attached to drive shaft.



## Operating the InJecta unit

### Step 1

Hold the InJecta unit by the D handle with drill pulled back slightly to retract drill bit behind the pointed locator pins.



### Step 2

Push the pointed locator pins on the front of the InJecta unit firmly onto the tree stem to provide grip. This can be done with a slight jabbing motion.



### Step 3

While pushing the D handle forward (firmly towards the tree), drill into the stem until the full depth is achieved with a clearing action.



While maintaining forward pressure on the D Handle, withdraw the drill bit clear of the hole and then stop drilling. The head unit should remain firmly pushed against the tree.

#### Step 4

While maintaining forward pressure on the D handle – gently pull back on the drill unit to engage the magazine, a clicking noise will be heard. This will rotate the chamber one position to load the plug and capsule in the correct position.



#### Step 5

Without re-starting the drill (in stationary mode) gently push drill bit forward to insert the capsule and plug into the drilled hole with a slight tamping motion.

It is not necessary to drive the plug deep into the tree, this will reduce the success of the treatment by compressing the capsule.

The InJecta unit can now be removed from the tree.

The plug should now be firmly placed, slightly visible about level with the surface of the drill hole.



#### Capsule Placement

Placement of capsules into the tree is dependent upon tree size and number of stems. For BHA chemical herbicides, this is a dose-dependent process. Capsules should be placed in the stem at 20 cm above ground level; however placement further up the stem is possible provided that it is below major branching points.

#### BHA Chemical products

The dose required per tree stem is one capsule per 10cm of stem circumference. The chart on the following page can be used as a guide.

#### Dosing Chart: Chemical products

Stem circumference range	Max diameter (cm)	Dose
Up to 10cm	4	1 capsule
11 - 20cm	7	2 capsules
21 - 30cm	10	3 capsules
31 - 40cm	13	4 capsules
41 - 50cm	16	5 capsules

Stem circumference can be determined with a tape measure or a ready guide stick can be simply made using wooden dowel/quad and 4 inch nails spaced according to the maximum diameter for each dose level. With practice, estimation by eye is sufficient.



A simple measuring guide for estimating stem diameter range

Multiple doses must be distributed with equal spacing (one every 10 cm) in a ring around the stem. For two doses, place capsules on opposite sides of the stem, for three - space in thirds and so on. Correct and equal spacing maximises the distribution of chemical herbicide around the trunk.

For multiple stemmed targets, each stem emerging from the ground should be treated individually according to size.

## BHA Biological products:

BHA biological products are not dose-dependent in the same way as chemical herbicide products. The BHA biological agents create an infection process once inserted into the tree; therefore a single capsule is sufficient to cause disease and eventual death of the treated plant. However, where the target plant is exceptionally large, or has multiple stems, treatment with multiple capsules will lead to the faster establishment of dieback.

## Dosing Chart: Biological products (e.g. Di-Bak Parkinsonia)

Tree form	Dosage
Single-stem tree	1 capsule
Multi-stemmed tree	1 capsule per stem
Very large tree	Multiple capsules spaced around stem (optional)

Capsules should be injected at a height of 20cm above soil level where possible.

Note: Products must be applied according to Product Label Instructions.

## Applying the BHA capsules without a BHA InJecta unit

The BHA InJecta unit was designed for efficient and effective delivery of its patented capsule and plug system. The unit produces a treatment hole of optimum size and correct depth for effective placement in the stem and seals the treatment hole with an air-tight plug. Using these products without the InJecta unit may compromise the success of the treatment.

If the manual application of BHA products is required, the following guidelines should be followed:

### Drill size

Treatment hole must be drilled with an 8mm diameter bit.

### Drill depth

Hole depth should be 25-30mm. Placement of the capsule outside this range will place it away from the plant sap stream. A depth guide can be easily made by slipping a cut length of tubing/pipe over the drill bit or by applying a ring of masking tape to the drill bit.





### Capsule placement

A single capsule is placed into each freshly drilled hole. The one minute rule applies here, do not allow the drill hole to dry out before application of the capsule.



### Inserting the plug

The BHA plug is inserted into the drill hole over the capsule.



### Driving the plug

The plug is tapped into the hole with a small hammer or similar tool. This creates an air-tight seal which is essential for the action of the biological or chemical product. It is not necessary to drive the plug deep into the tree, this will reduce the success of the treatment by compressing the capsule.



The top of the plug should be slightly proud of the tree surface.

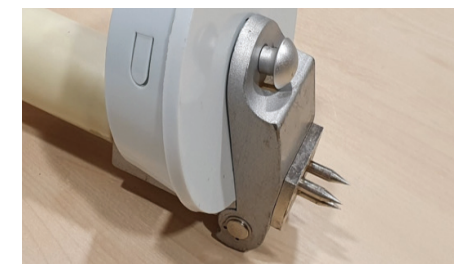


## BHA InJecta unit maintenance

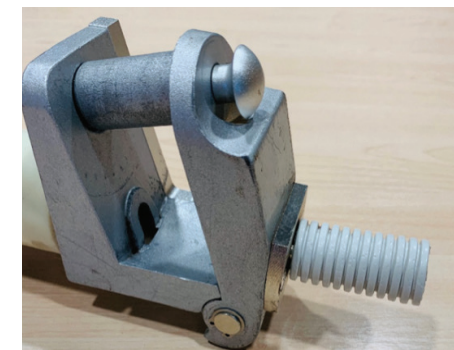
Your BHA InJecta unit is manufactured for robust operation under field conditions. However, like all equipment it will require a certain level of care and maintenance to guarantee reliable service.

### Point Guard

The sharp locating pins should be kept guarded when not in use to prevent injury and to maintain their sharp points.



A short length of flexible electrical conduit can be used as a point guard during transport and storage.



### Magazine

The magazine should be tapped or blown out regularly to remove drill shavings. A squirt of spray lubricant can be applied to the gap between the outer housing and inner carousel if required.

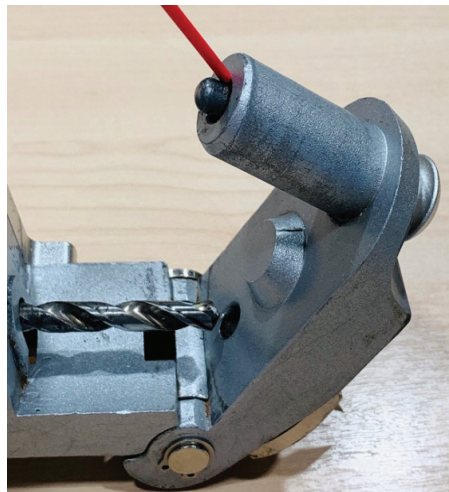


### Lubrication

Your InJecta unit should be lubricated occasionally using spray lubricant to maintain free and smooth action.

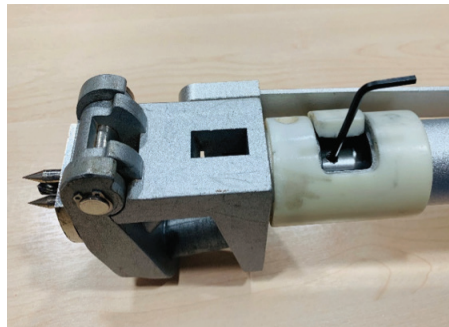


All moving parts should be lubricated.



### Drill bit release

The 8mm diameter, (long-shaft) drill bit can be removed for sharpening or replacement by releasing the 6 mm grub screw in the chuck head.



### Withdrawing the drill bit

Once released, the drill bit is withdrawn from the front of the InJecta unit. Take care of the sharp points on the locating pins.



### Drill bit length

Note: Drill bit length is critical to achieving correct drilling depth (25 - 30mm). Ensure that when replacing the drill bit that is of the correct size: 8mm diameter and 165 mm in length. This is a standard size which is readily available from a hardware store.

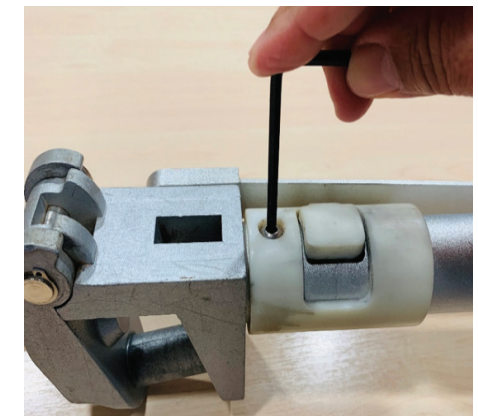
### Drill bit notch

The drill bit has a notch ground in its shaft to assist with grub screw tensioning. Where a replacement bit is used a similar notch should be made using a file or angle grinder.



### Tensioning

Regularly check tension on all screws, grub screws and fastening points.



### Replacement parts

Replacement parts can be supplied by BHA.





## AVAILABLE NOW

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