Hive Shield Entrance (HSE)

Introduction

Last autumn (2025) many colonies were attacked by wasps and despite doing all the things you should do, in the end we were left with one colony in our out apiary which to our amazement made it through the winter. You may have also suffered from sustained wasp attacks and wondered what you could do?

This year (2026) we are fighting back! We have planted lemon balm and wild garlic around our hives, both of which are meant to deter wasps. Unfortunately the bunnies around the hives have decided to dig up the newly planted lemon balm. However, we have also designed a new hive entrance which will make access for the wasps (and mice) very difficult.

This document describes how to make the hive entrance which we have based on National Abelo poly hives but with some minor changes the design can be adapted to most hive types.

Overview

Our own chairperson, **John Maynard,** published on our WhatsApp Group a design called the Wasp Confounder that sparked our thinking. Our design is very similar to John's but with refinements. You can see a couple of videos here of our prototype in action with our bees: https://drive.google.com/drive/folders/1VNBSqHxokfYrN1ZsLNnn47xCWatIC8nA?usp=sharing. We added the new entrance to our hive on Tuesday (7th April 26) and of course initially there was pandemonium. It took the bees around 10-15 minutes to figure out the new entrance. Within 24 hours (the second video on the 8th) you can see the new entrance had been fully accepted.

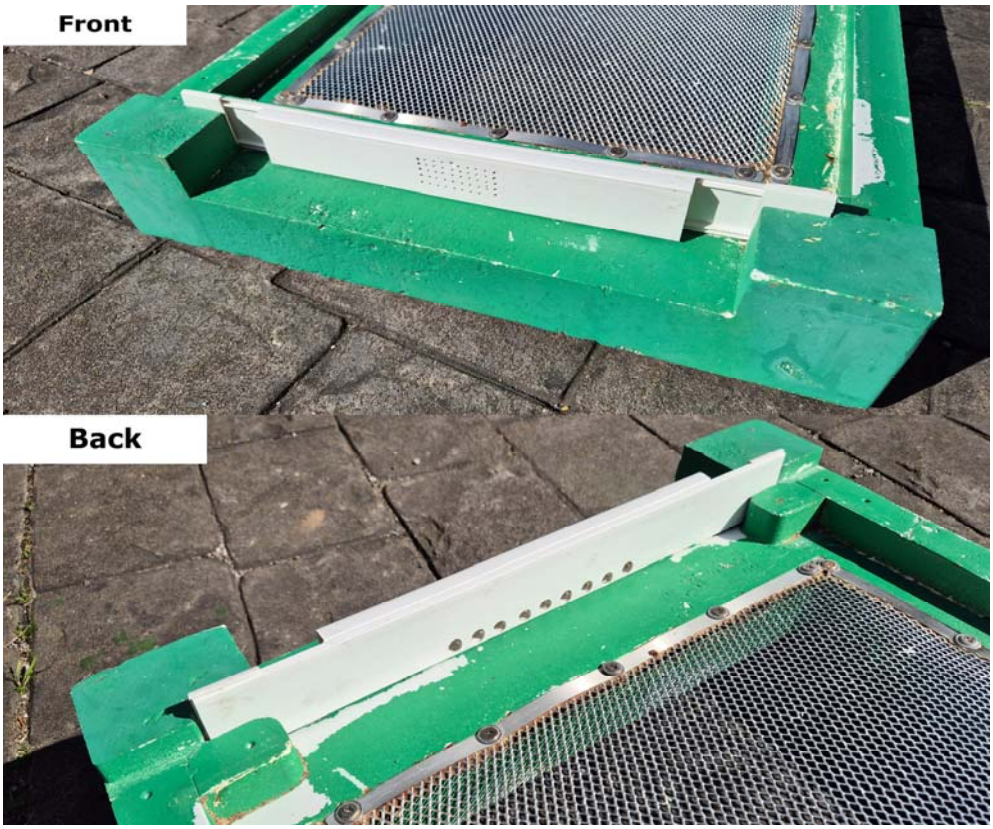
The back of the entrance uses 8mm – 10mm holes - correct for bee space. The front of the hive entrance is shielded (we have called our design the Hive Shield Entrance - HSE) but has a matrix of small holes on the front to attract/confuse marauding wasps. If they do figure out they need to go left or right and to go down a "tunnel" then the bees can defend this. The next obstacle the wasps have to negotiate is getting through the hive entrance holes. Again easily defendable.

Commercial offerings are much more expensive and we could not find a product that would readily fit an Abelo poly hive base. However with our design it is possible to make 5 of these shielded entrances from a 2m length of 38mm by 16mm trunking from Screwfix - cost £5!

Two Week Review

At our last inspection (21st April 26) which was two weeks after the fitting of the HSE the bees have clearly accepted the new entrance. When coming into the hive they land on the landing board and run along the entrance (right or left) and go into the tunnel.
There were concerns raised over the flow of bees in/out of the hive given the Abelo hive entrance is 130mm by 8mm high compared to a minimum entrance/exit space for the HSE is 9 holes by 8mm giving 72mm spaced across nearly 130mm with 10mm between holes - but we saw no evidence of reduced flow.
There was also concern that the entrance hole would dislodge the pollen sacks on the bee's legs. During our inspection we could see lots of bees inside the hive carrying pollen. We also looked inside the HSE and could not find any dislodged pollen.

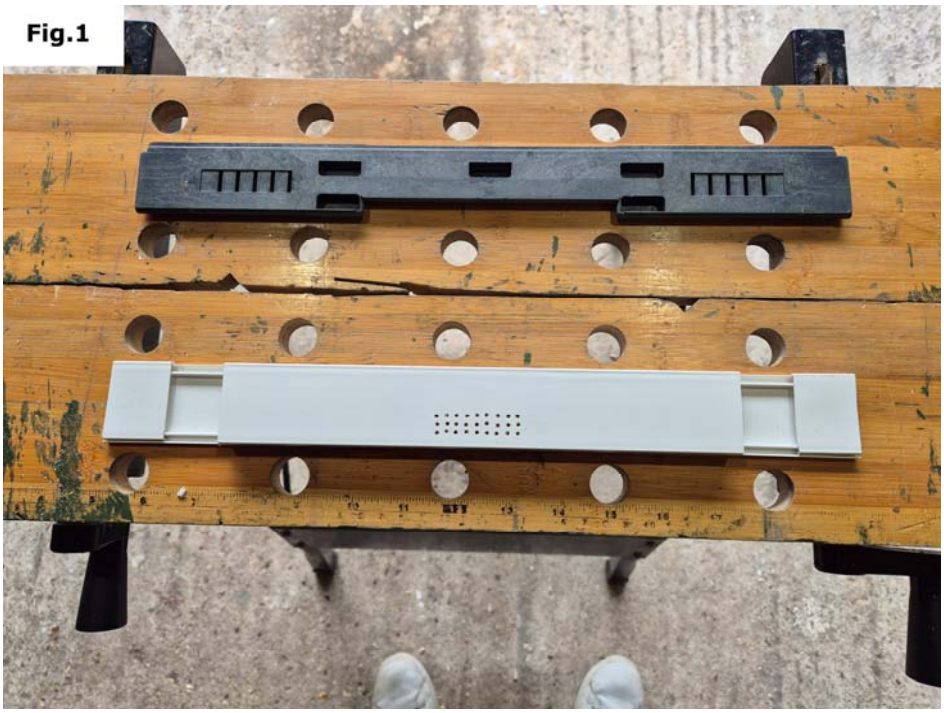
Hive Shield Entrance (HSE)



This is approximately 5 minutes after inserting the new entrance.

Objective, Materials and Tools

Fig.1

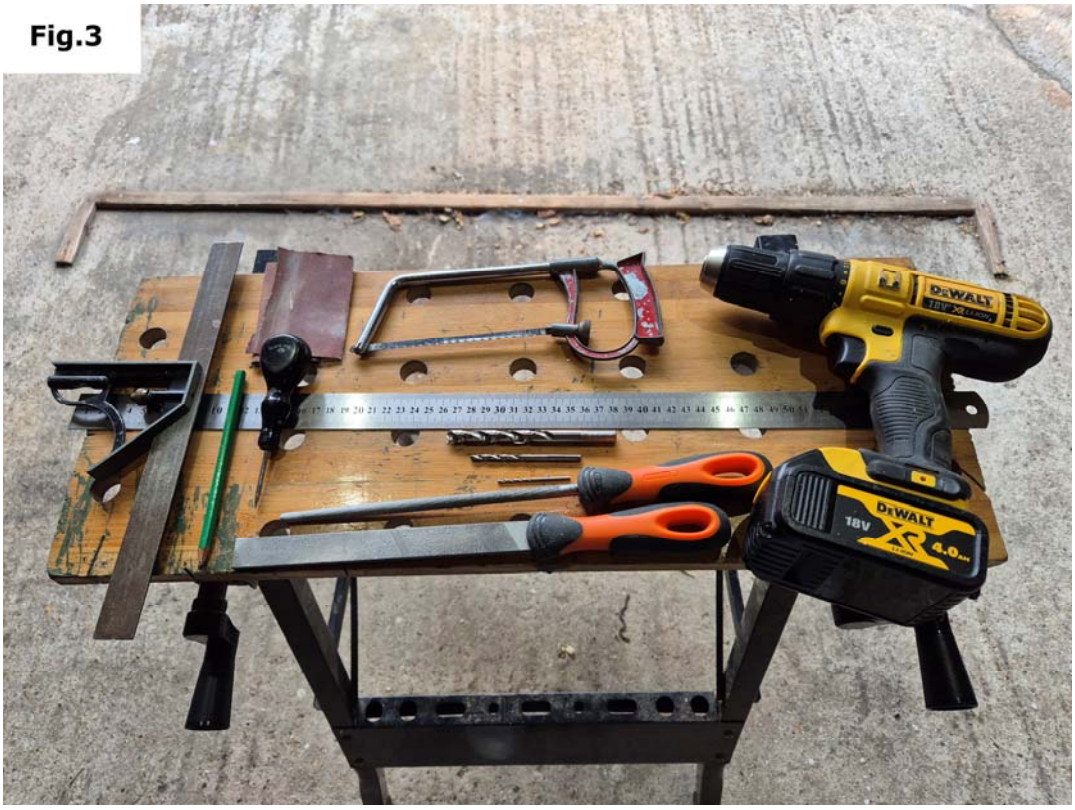


The intention is to replace the Abelo hive entrance with the new entrance made from electrical trunking.

Fig.2

The material being used to make the HSE is electrical trunking. This can be purchased in many different places; however we suggest Screwfix - cost is around £5 for one 2m length.

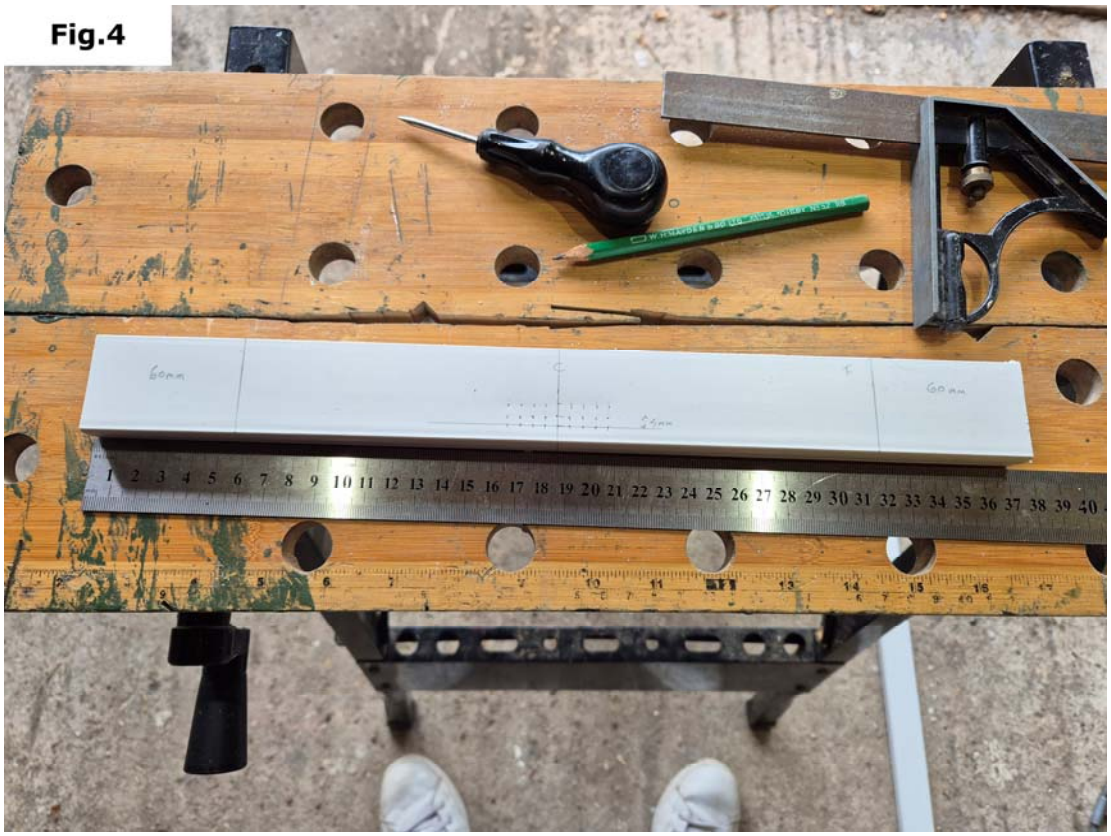
Fig.3



You will need these tools (or similar). Drill sizes are 2mm, 4mm and 7mm. You will also need an 8mm drill to ensure you have the optimal bee space for the rear entrance holes.

Marking, Cutting and Drilling

Fig.4



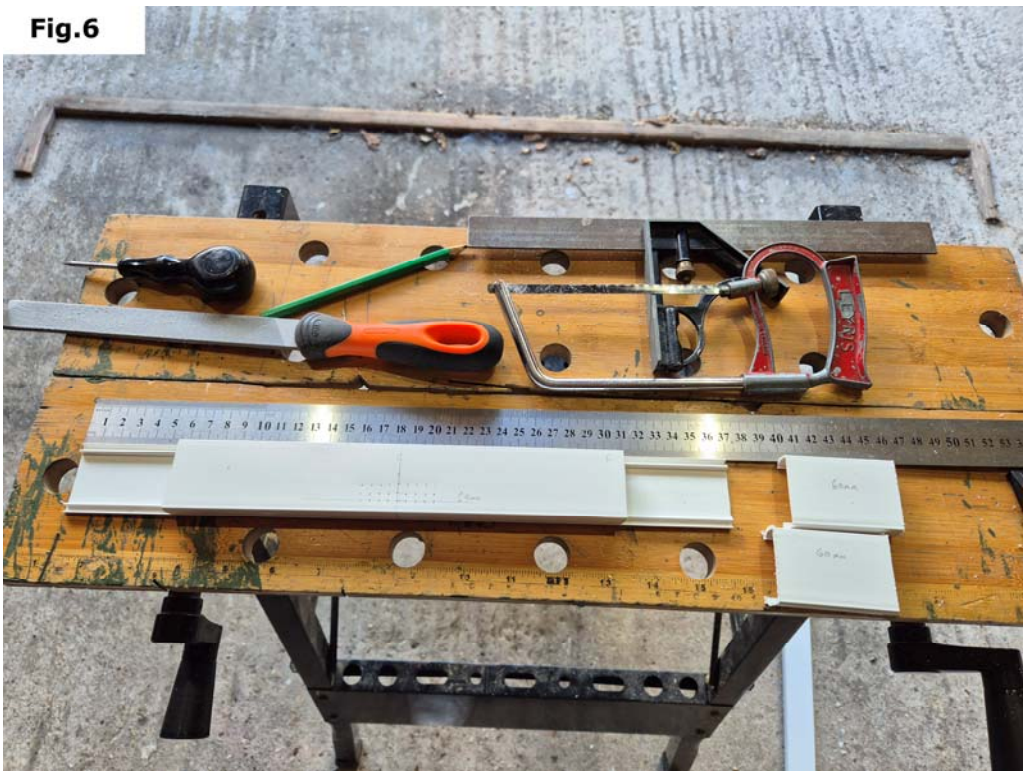
The following dimensions are for the **HSE to fit the Abelo National poly hive base**. If you are fitting this to **any other hive type** you will need to modify the sizes.
However, it is mainly the back of the trunking that will vary in size. The front of the trunking, i.e. the section that forms the tunnel, will need to be cut to 250mm and the waste ends from the front of the trunking are only needed for the Abelo HSE design.
If you are fixing the HSE to a wooden hive you may also need a couple of screws to fix the back of the trunking to your hive.

Cut a piece of trunking 370mm in length. Draw a centre line at 185mm **all of the way around the trunking**.
From each end of the trunking measure 60mm on the front of the trunking. You will be cutting these pieces off (but keep one piece – so don't lose it).
On the centre line mark three 5mm increments. Draw three parallel lines marking off at 5mm increments 9 points (four each side of the centre line). This will be used to create a 27 hole matrix on the front of the hive which the wasps will be drawn to by the scent of the honey. If you have bradawl we recommend you make indentations for each of these 27 marks.

Fig.5

On the back of the trunking mark a point 4mm from the bottom edge on the centre line. Ensure this point **is opposite the 27 hole matrix** you made **on the front** of the trunking. Mark either side of the central line at 15mm intervals 4 points – giving a total of 9 holes to be drilled. As suggested with the 27 hole matrix we recommend you mark these points with a bradawl.

Fig.6



Slide the front of the trunking to each end of the back and cut off the 60mm sections. Use a flat file and sandpaper to remove any plastic burrs.

Fig.7

With the front and back parts of the trunking **latched together and lined up with the centre line** drill 9 pilot holes using a 4mm drill through the back part of the trunking. Be careful to drill **ONLY** through the back of the trunking.

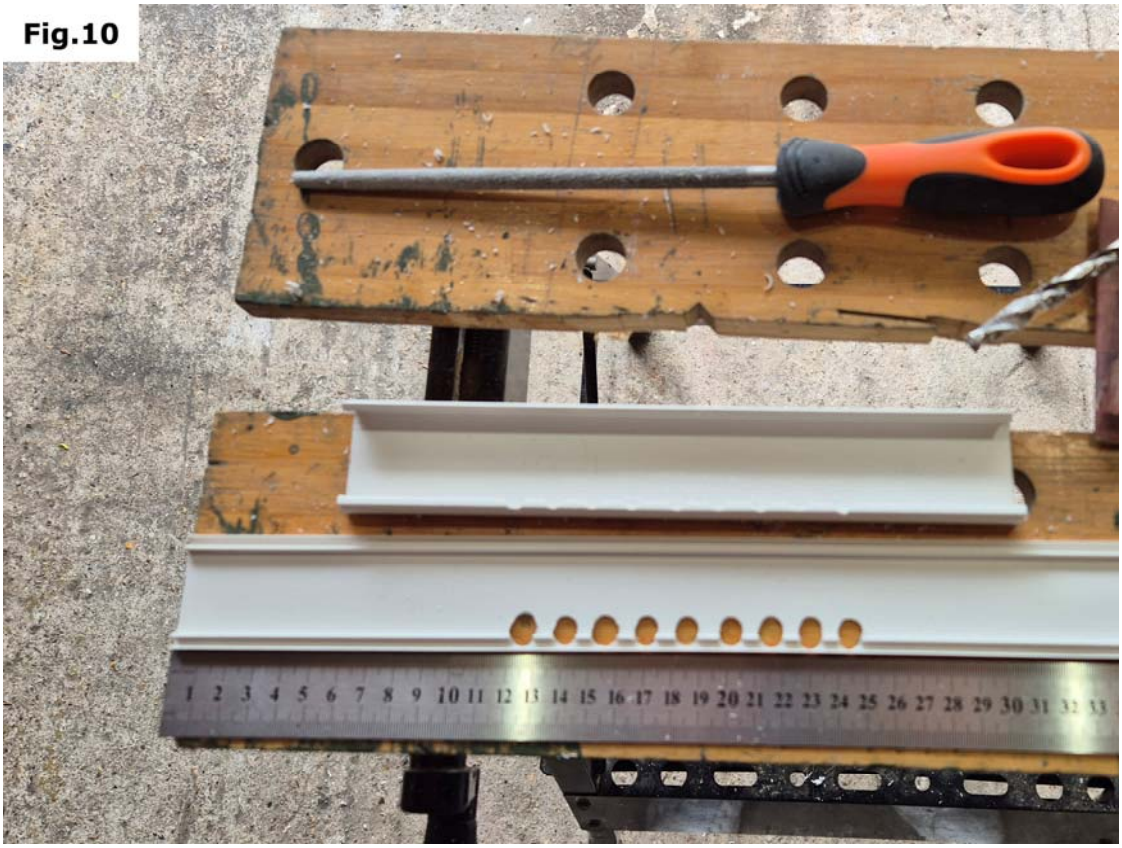
Fig.8

With the front and back parts of the trunking **latched together and lined up with the centre line** use a 7mm to drill through the 9 pilot holes. As you do this, because of the way the trunking latches together the thicker plastic will tend to push the drill bit upwards. Don't worry that you are going off line.

Fig.9

With the trunking **latched together** and clamped in the work bench ream through the thicker plastic latch moulding using the front part of the 7mm drill held at an angle of approximately 45° until the bottom part of the holes are in line with the bottom edge of the trunking as shown above.
Then with the drill at 90° to the trunking finish enlarging the holes so that they are flush with the bottom edge of the trunking. To ensure the holes are 8mm wide for bee space carefully run the drill bit up and down the holes you have made removing any small bits of plastic.

Fig.10



Separate the trunking and clean off all of the plastic burrs using a round file and sandpaper. **Be careful** as you pull the two sections apart because the section with the 9 holes is **quite weak** when being pulled apart. As you clean up the two parts with the round file and sandpaper you will increase the hole sizes slightly. Try not to make the holes greater than 10mm – 8mm is the ideal bee space – you can check the hole sizes with an 8mm drill.
As you can see from the videos when the bees walk along the inside of the “tunnel” there is now only a very small step from the “tunnel” into the hive. The tooth like structure that has been created in the back part of the trunking means that after latching with the front part the the HSE will remain robust.

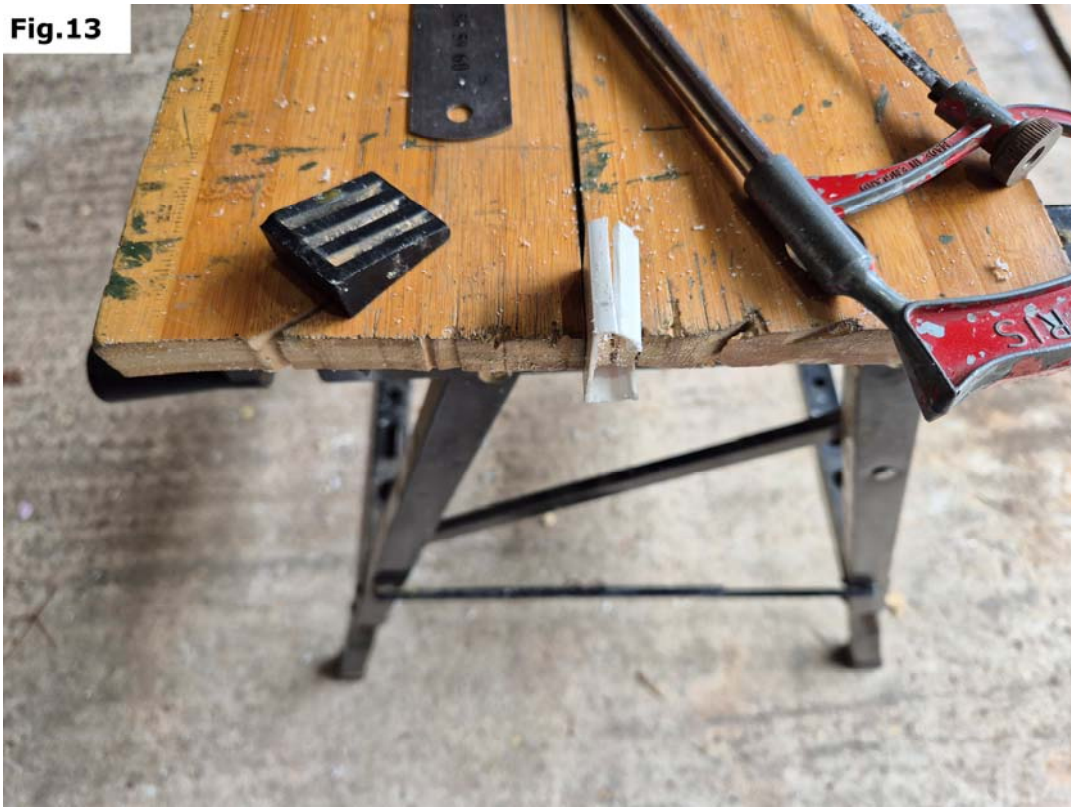
Fig.11

Clamp the top part of the trunking and carefully drill 27 2mm holes. It is not easy to get a nice square matrix!
Once you have completed the drilling clean off any plastic burrs with sandpaper.
You can now latch the top and bottom parts together. If you hold the HSE up to the light you will see that the front matrix of holes line up with some of the entrance holes into the hive. This is an important feature to help confuse the wasps – they can see (and smell) the entrance but can't get in.

Fig.12

With one of the waste sections of trunking you carefully saved earlier mark a centre line and cut into two 30mm pieces.

Fig.13



Clamp each piece and cut off most of the “shoulder” leaving enough plastic to sit on top of the back part of the trunking.

Fig.14

When you have finished cleaning off the plastic burrs and your mark up lines - we do this with paper and white spirit - this is the end of the construction and you can now fit the HSE to your hive. We think the best time would be early morning or late evening. However when we fitted ours it was around 2pm on a sunny day!

Other Uses

Entrance Reducer – the entrance holes on the back of the HSE can be covered over to reduce some of the entrance/exit holes.
Entrance Blocker – for the Abelo poly hive the space between the bottom of the first box in the hive stack and the hive base is 20mm. Therefore, because the entrance/exits are at the bottom of the HSE by simply turning the entrance upside down the holes on the back of the HSE will be covered by the first brood box in the hive stack.
Mouse Guard – it is not possible for a mouse to get down the tunnel let alone pass through an entrance/exit hole.

Our Thanks

John Maynard (new beekeeper currently chair of W&DBKA) for the initial design.
Kevin Cowley (very experienced beekeeper currently deputy chair of W&DBKA) for his initial review and comments.
Tasha Nichols (new beekeeper) for agreeing to test up to three of the new entrances on her Abelo poly hives.
Paul Jarvis (very experienced beekeeper) for testing this document and producing 10 entrances for his wooden hives (and has since made another 50 for his uncles hives).
"I have made 10 wasp entrance shields, ready for fitting when it all kicks off. Don't want to see wasp robbing going on again this year in my hives."
Garth Matthews (master beekeeper) for his review and comments.
“The HSE design appears to be a very promising addition to the “wasp defence” toolkit, particularly for Abelo poly hives. The use of an entrance tunnel is widely recognised as having clear advantages over simple entrance reduction and at a total materials cost of around £1 per hive, this represents a very small investment if it helps protect a colony and its honey stores. The added benefit of a further straightforward deterrent against Asian Hornet attack makes the design especially attractive. I look forward to seeing the results over the summer.”

Comments

If you have any questions or suggestions regarding this document:
Contact: Peter Munday – email: petermun@gmail.com or Lori Munday lorimunday@gmail.com.
We are currently the secretaries for W&DBKA with seven years of beekeeping experience.