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# HARWIN

## Instruction Sheet

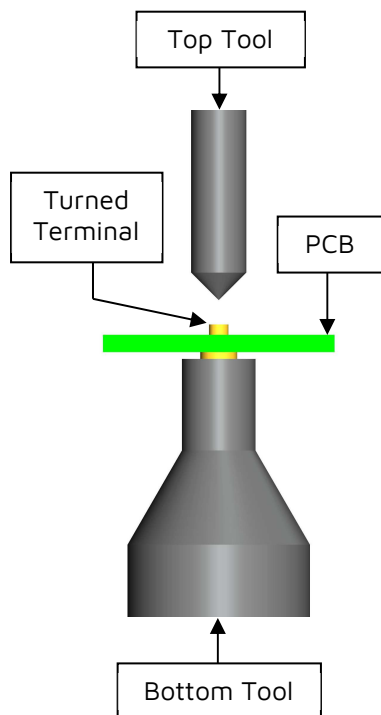
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Punch and Die Instructions  
(Top and Bottom Tool Sets)



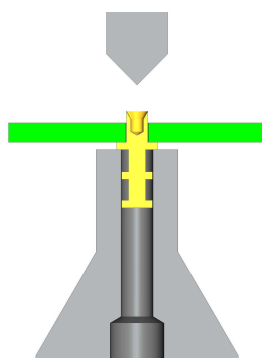
## PROCEDURE FOR USE

The punch and die tools have been designed for use with Harwin's turned terminals and lugs. They work together to swage the terminal onto the PCB.

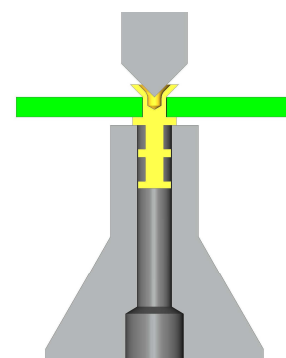


The top tool must be used in a toggle or fly press so that it swages the terminal in a vertical movement and with a controlled stroke. The bottom tool must be fixed securely at the same time, correctly aligned with the top tool. Use of a hammer instead of a press is not recommended as this is highly likely to cause damage to the terminal and not provide a secure swage.

The bottom tool is used to locate the terminal in position whilst the top tool swages the terminal, securing it tightly in the PCB.



**Cross section of terminal before swaging**



**Cross section of terminal after swaging**

There are a variety of different top and bottom tools for use with different terminals. Bottom tools have different size holes for the terminals, and top tools have different style ends. The appropriate terminals for each top and bottom tool are detailed on the technical drawings.

The stroke of the press should be adjusted for each type of terminal/tool to ensure the parts are securely swaged to PCB without damage to PCB.

Once swaged, the terminals still require soldering to give electrical continuity. The swage is purely for mechanical retention, and does not give a gas tight electrical connection.

Turned terminals will exhibit signs of cracking in swaged area, this is normal and typical examples are shown below.

