

AF-60

The JET mode of the
AP-7 Jet Phaser



Important notes - DO NOT SKIP!

If you're using any of our footswitch daughterboards,

DOWNLOAD THE DAUGHTERBOARD DOCUMENT

- Download and read the appropriate build document for the daughterboard as well as this one **BEFORE** you start the build.
- DO NOT solder the supplied Current Limiting Resistor (CLR) to the main circuit board even if there is a place for it. This should be soldered to the footswitch daughterboard. This applies to older PCBs with a pad marked LED next to the IN V G OU pads.

POWER SUPPLY

Unless otherwise stated in this document this circuit is designed to be powered with 9V DC Tip-Negative supply.

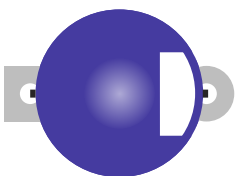
COMPONENT SPECS

Unless otherwise stated in this document:

- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them. For kits that use 3mm resistors instead of standard 6mm, these will usually be either 0.125W or 0.4W.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

LAYOUT CONVENTIONS

Unless otherwise stated in this document, the following are used:



Electrolytic capacitors:

Long leg (anode) to square pad. Stripe indicates cathode.



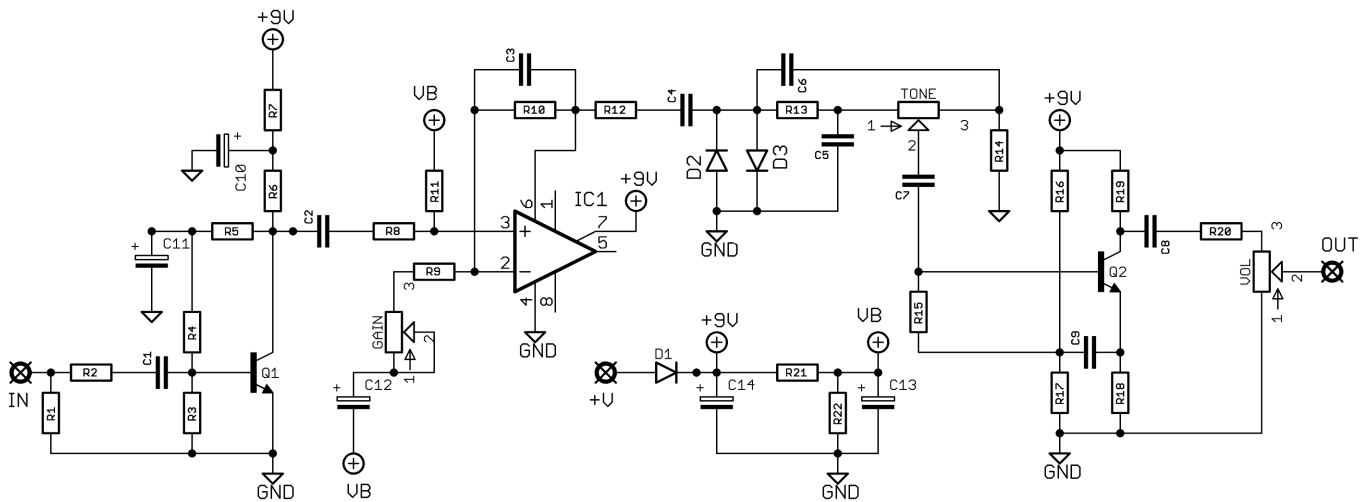
Diodes/LEDs:

Striped leg (cathode) to square pad. Short leg to square pad for LEDs. The exception to this is with Russian germanium diodes - stripe = anode.

- **ICs:**

Square pad indicates pin 1.

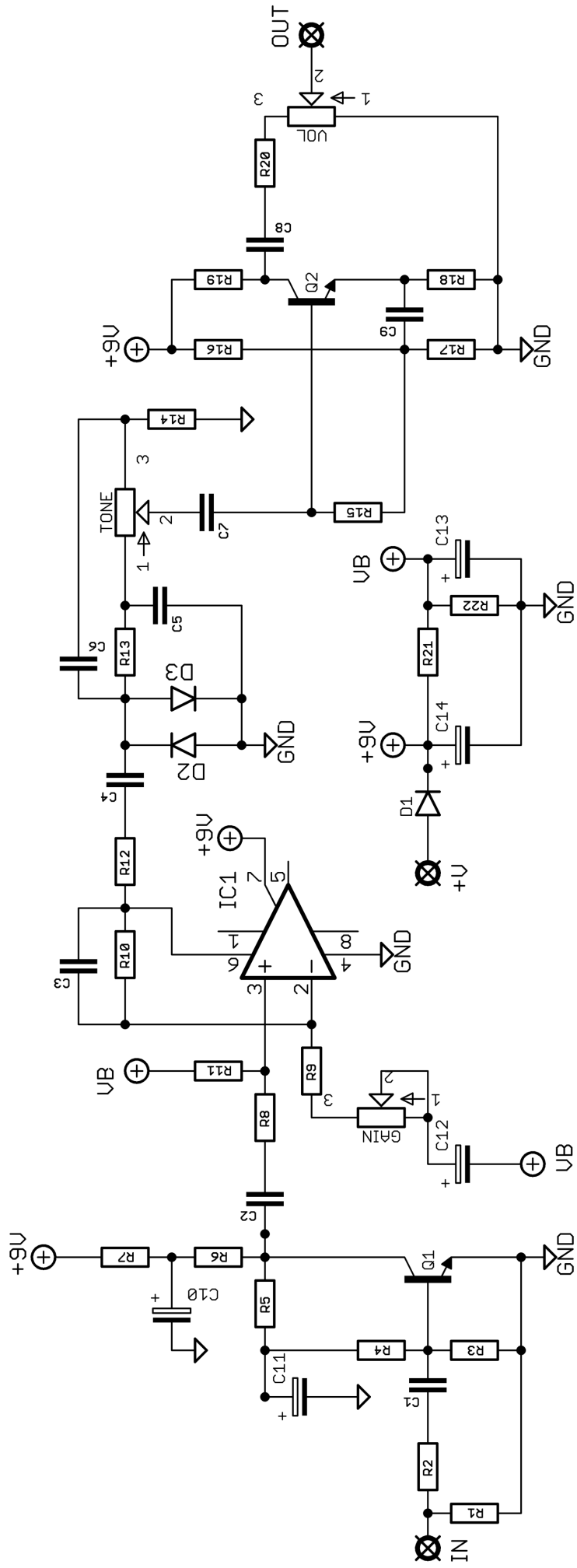
Schematic + BOM

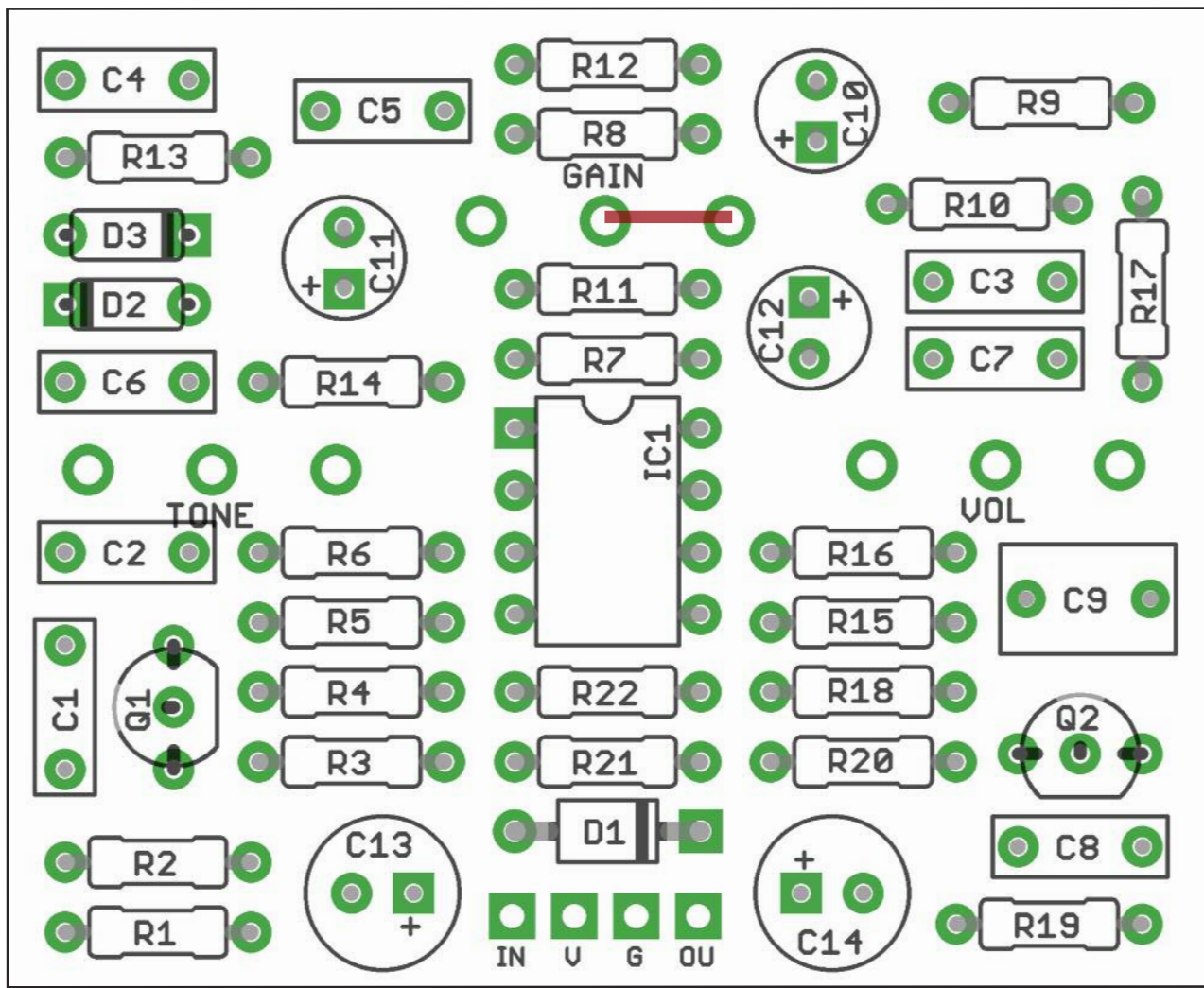


| | | | | | |
|-----|---------|-----|-----------|--------|--------|
| R1 | 100K | C1 | 22n | D1 | 1N5817 |
| R2 | 15K | C2 | 10n | D2-3 | 1N4148 |
| R3 | 220K | C3 | 250p | IC1 | LM741 |
| R4 | 470K | C4 | 47n | Q1-2 | 2N3904 |
| R5 | 470K | C5 | 1n | GAIN** | 1MC |
| R6 | 15K | C6 | 2n2 | TONE | 100KB |
| R7 | 1K | C7 | 47n | VOL | 50KA |
| R8 | 10K | C8 | 47n | | |
| R9 | 10K | C9 | 1u | | |
| R10 | 2M2 | C10 | 10u elec | | |
| R11 | 10K | C11 | 10u elec | | |
| R12 | 10K | C12 | 10u elec | | |
| R13 | 33K | C13 | 100u elec | | |
| R14 | 33K | C14 | 100u elec | | |
| R15 | 1M | | | | |
| R16 | 100K | | | | |
| R17 | 56K | | | | |
| R18 | 6K8 | | | | |
| R19 | 15K | | | | |
| R20 | Jumper* | | | | |
| R21 | 22K | | | | |
| R22 | 22K | | | | |

*Original has a 47K resistor here, but there's really no need.

**Original has no gain control - it's fixed at all-out wowzer. Adding the Gain pot lets you dial it down to almost clean if you really want to. To be honest, this things is best full tilt. See later in the doc if you want to leave this control out. Gain pot modification by AionFX.





PCB layout ©2023 Pedal Parts Ltd.

The power and signal pads on the PCB conform to the FuzzDog Direct Connection format, so can be paired with the appropriate daughterboard for quick and easy offboard wiring. Check the separate daughterboard document for details.

Be very careful when soldering the diodes and transistors. They're very sensitive to heat. You should use some kind of heat sink (crocodile clip or reverse action tweezers) on each leg as you solder them. Keep exposure to heat to a minimum (under 2 seconds). Same goes for the IC if you aren't using a socket.

Snap the small metal tag off the pots so they can be mounted flush in the box.

You should solder all other board-mounted components before you solder the pots and switches. Once they're in place you'll have no access to much of the board. Make sure your pots all line up nicely.

The best way to do that is to solder a single pin of each pot in place then melt and adjust if necessary before soldering in the other two pins.

To omit the GAIN control simply add a jumper as shown above in red in place of the pot.



Test the board!

Check the relevant daughterboard document for more info before you undertake this stage.

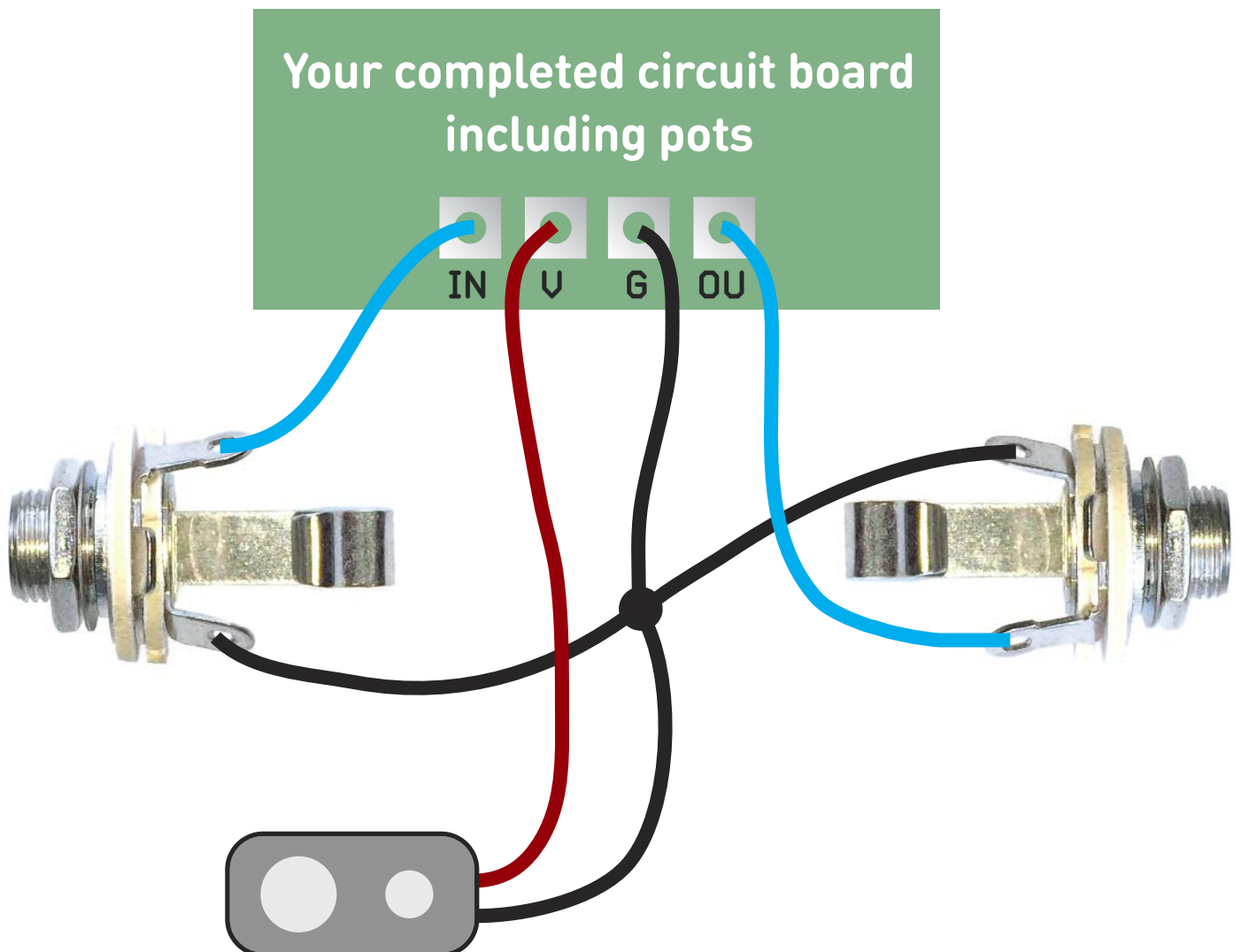
UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

Once you've finished the circuit it makes sense to test it before starting on the switch and LED wiring. It'll cut down troubleshooting time in the long run. If the circuit works at this stage, but it doesn't once you wire up the switch - guess what? You've probably made a mistake with the switch.

Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

If you're using a ribbon cable you can tack the wires to the ends of that. It's a lot easier to take them off there than it is to desolder wires from the PCB pads.

If it works, carry on and do your switch wiring. If not... aw man. At least you know the problem is with the circuit. Find out why, get it working, THEN worry about the switch etc.



Now's the time
to refer to the
daughterboard
document for
your chosen
bypass method.

Enjoy your pedal!

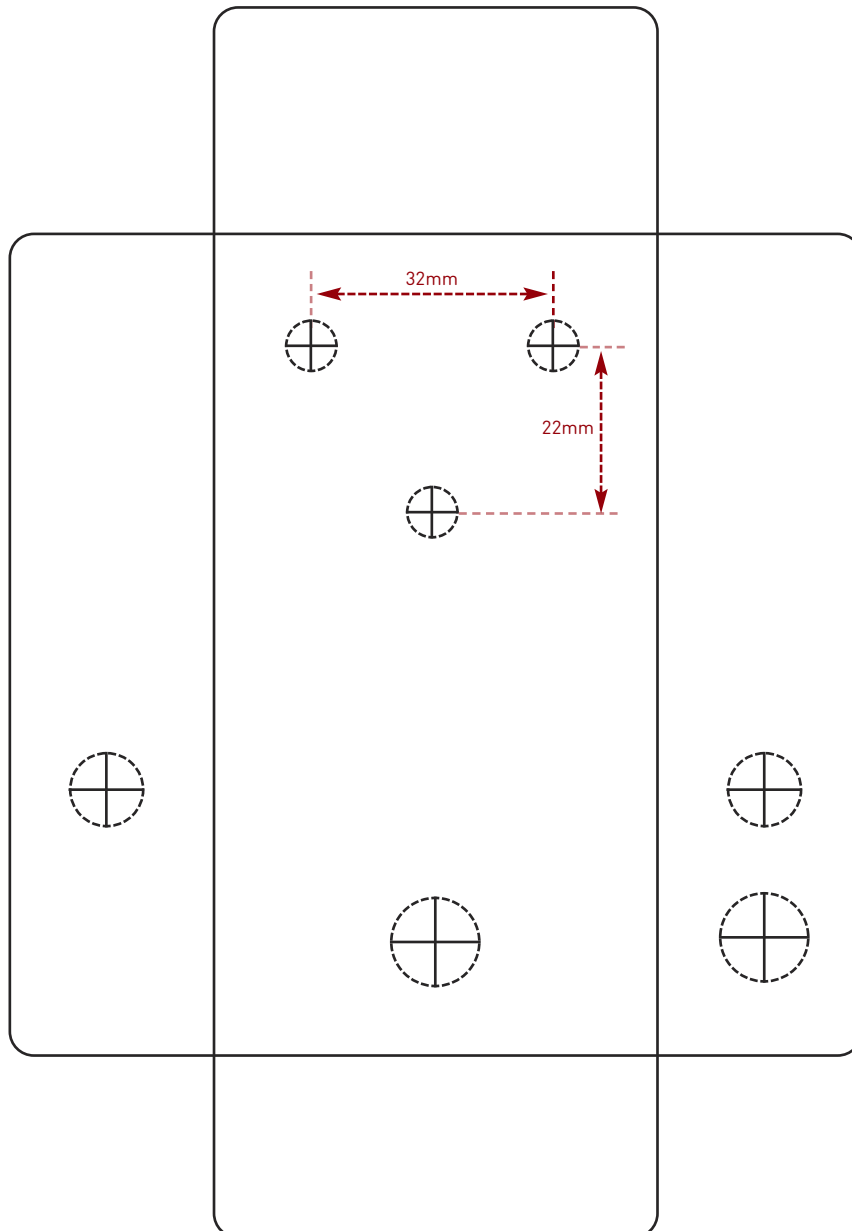
Drilling template without battery - side DC

Hammond 1590B - 60 x 111 x 31mm

It's a good idea to drill the pot and
toggle switch holes 1mm bigger if
you're board-mounting them.
Wiggle room = good!

Recommended drill sizes:

| | |
|-----------------|------|
| Pots | 7mm |
| Jacks | 10mm |
| Footswitch | 12mm |
| DC Socket | 12mm |
| Toggle switches | 6mm |



This template is a rough guide only. You should ensure correct marking of your enclosure before drilling. You use this template at your own risk.

Pedal Parts Ltd can accept no responsibility for incorrect drilling of enclosures.

FuzzDog.co.uk