Smooth Semi Break-in Operations with *easyCW*

by Antonio Vernucci, I0JX

1. The Issue

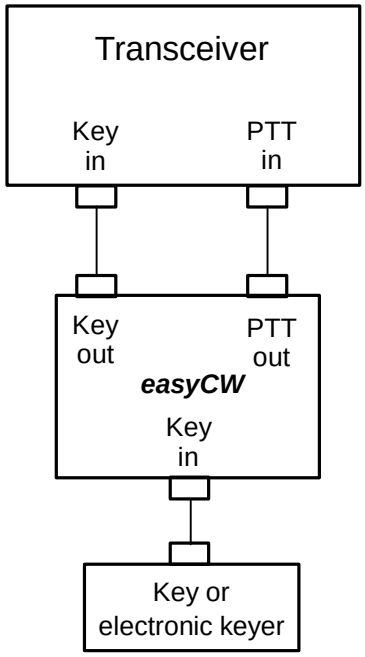
This article presents a gadget, called ***easyCW***, aiming to make your CW semi break-in operations more relaxed.

Actually, there are two main problems associated with semi break-in operations:
1) the first dot (or dash) often results to be shorter than normal, due to the truncation effect caused by the RF antenna relay switching time. Despite nearly all modern rigs have fast or solid-state relays compatible with QSK operations, this is usually not the case for linear amplifiers, mostly still using traditional RF relays
2) an undesirable arcing effect can occur at the moment the antenna relay is activated, due to the fact that, at that moment, RF is already present on the relay contacts.

Those things makes me quite nervous, especially when I happen to make a pause longer than the semi break-in delay and the transceiver goes back to reception.

2. The solution

The idea is that of inserting a box (i.e. ***easyCW***) between the transceiver and the key, as shown below.



Plase note that the internal transceiver semi break-in shall be deactivated (i.e.VOX set to OFF), or even left on but with the delay set to minimum.

On the first dot (or dash) ***easyCW*** activates the transceiver PTT, acting just like a semi-break circuit. As a matter of fact ***easyCW*** has its own delay adjustment which keeps the PTT activated for a short period after the last dot or dash has been transmitted.

However, the first dot (or dash) will not reach the transceiver key input, it being intercepted by ***easyCW***. This means that the transmission of the first dot (or dash) will be fully suppressed, though the transceiver antenna relay is activated.

All subsequent dots (and dashes) will instead be normally delivered to the transceiver, ***easyCW*** being fully transparent to them. The PTT will remain activated while dots (or dashes) are being transmitted.

How to operate with ***easyCW***? Very simple: knowing that the first dot (or dash) is deterministically suppressed, you shall just send an extra dot at the beginning of your trasmission. Actually, the first dot will only cause the transceiver PTT to be activated. Obviously, if you make a pause longer that the ***easyCW*** delay setting, the transceiver will return to receive, and you shall send another extra dot to continue transmission. After a minute you will get accustomed to this way of operating.

If you have a memory keyer, just store an extra dot at the beginning of each message.

The ***easyCW*** schematic diagram is shown in the next page. Just two common CMOS ICs and few other components: all very easy to find and at minimal cost.

The diagram assumes that your transceiver needs a ground on the PTT line or the CW keying line to operate, otherwise it would have to be modified.

The DP3T switch allows you to select one out of three transceivers. This is clearly optional.

The DPDT switch allows you to bypass the gadget should you want to do so (a LED will indicate that ***easyCW*** is active).

Have fun with ***easyCW***.

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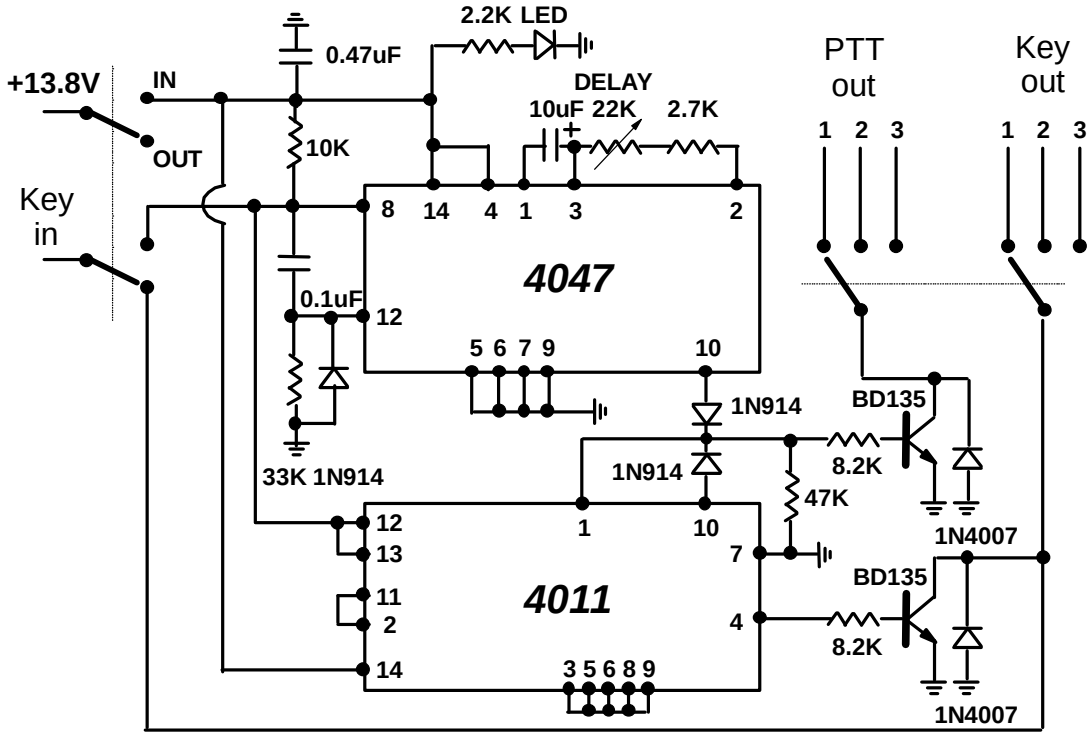
+13.8V
IN
OUT
Key
in
0.47uF
2.2K LED
DELAY
10uF 22K
2.7K
10K
0.1uF
33K 1N914
4047
4011
1N914
1N914
BD135
8.2K
47K
1N4007
BD135
8.2K
1N4007
PTT
out
Key
out
1 2 3
1 2 3