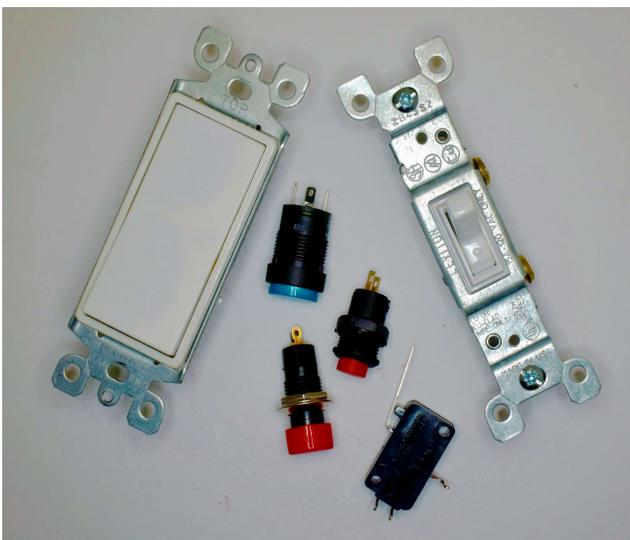


A “Light-Touch” PTT Switch for Boom Mic Desk-Top Operation

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I recently installed a boom microphone for use with my new FTDX10 HF transceiver, with a Heil HM-12 microphone. Not having looked ahead too far, I soon discovered that first I needed a suitable mic-to-radio cable with pin-out for the DX10, and I also would have to have either a foot-switch or some other kind of hand switch to operate the PTT. (egads! Yet more \$ \$)

Well I immediately I ruled out a foot-switch, which I considered as being big and “clunky”, with yet another cable to get tangled up in. Not to mention the horror stories from other hams about desperate “foot-groping” for the foot-switch beneath the operating position at critical times.



A hand switch was a possibility and several options were out there, for example a “modified” hospital call switch with a button on the end, or a “trigger” type handheld switch such as offered by Heil.

Now, I have severe arthritis in my hands (as well as in other places!) and neither of these options would work for me – prolonged times of clenching my hand would be a problem. I realized that what I needed and wanted was a basic low-force, push-on, push-off, switch that could live obscurely on my desk near to the transceiver.

Figure 1 above left, shows some of the switches that I acquired for testing, after scouring on-line catalogues etc.

In the end I chose just two for further testing:

- a) the Leviton 01451-001 “quiet” AC toggle switch (above right), and
- b) the NKK YB16xxx push-button (center top), that had many options for buttons, colours, illumination etc.

With either one, there were potential mounting issues. The NKK switch although quite short, still needed its solder terminals bent almost 90° in order to fit in the 1” high Hammond aluminum box I favoured. (Hammond 1590G)

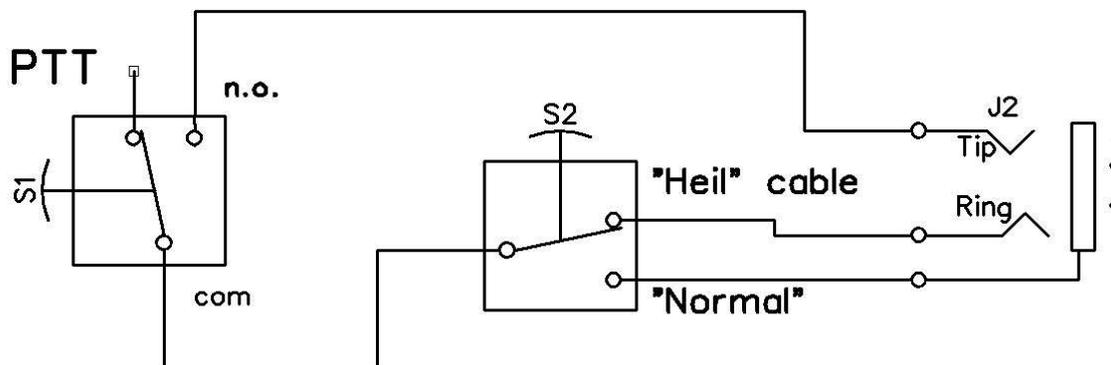
However the Leviton AC toggle switch would need more extensive metalwork to fit neatly into the aforementioned aluminum box. (actually I still like the “feel” of it a lot!)



Fig 2 left shows the completed PTT switch in use. (using the NKK switch in the Hammond box, painted fire engine red!) (note: for a few

more \$ you can get a Hammond pre-painted box which likely looks better than my home painted version!

The simple schematic is shown below in Figure 3 with the parts needed.



#	RefDes	Name	Quantity
1	J2	3.5mm stereo jack	1
2	S1	NKK YB16WCKW01 PB	1
3	S2	SPST small toggle sw	1

Notes:

1. The bottom of the Hammond box was lined with insulation paper, which we used to call “fish-paper” back “in the day”, for some odd reason. This is to prevent shorting, in case the switch terminals get too close.

2. Nomal PTT connections are from chassis ground to the designated ptt pin in the microphone connector. Hence connections in the box to the 3.5mm jack, are from ground terminal to “tip” connection.

However, if you use a Heil connection, as in a Heil pig-tail PTT jack , then PTT ground is the “ring” connection on the 3.5mm jack. Switch S2 allows choosing which connection method you use.

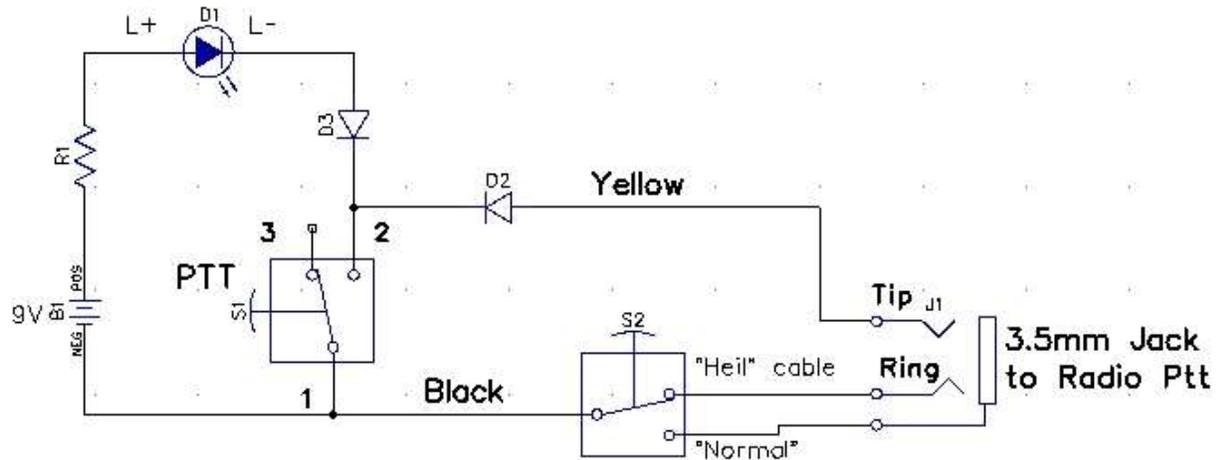
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Additional information:

After using the “Light touch PTT Switch” for a few months, I decided to see if I could illuminate the switch button when pressed.

I noted that the non-illuminated NKK switch I had purchased, actually came with an empty internal LED socket and fixed connections to bottom terminals. I was delighted to find that I just needed to inserted a 3mm white led and connect it to an external 9V battery with a series 1k5 resistor. Voila! A lighted button!

See below for the improved circuit.



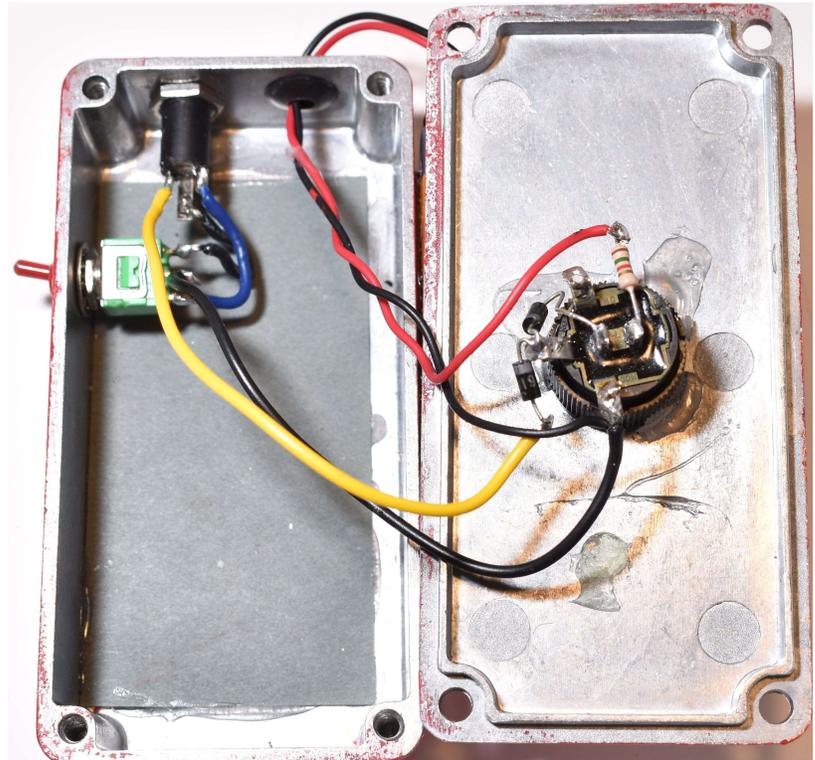
#	RefDes	Name	Quantity
1	B1	9V Battery	1
2	D1	LED-3mm Round White	1
3	D2, D3	1N5819 Schottky diode	2
4	J1	3.5mm stereo jack	1
5	R1	1k5 1/4w resistor	1
6	S1	NKK YB16WCKW01 PB	1
7	S2	SPST small toggle sw	1

Notes:

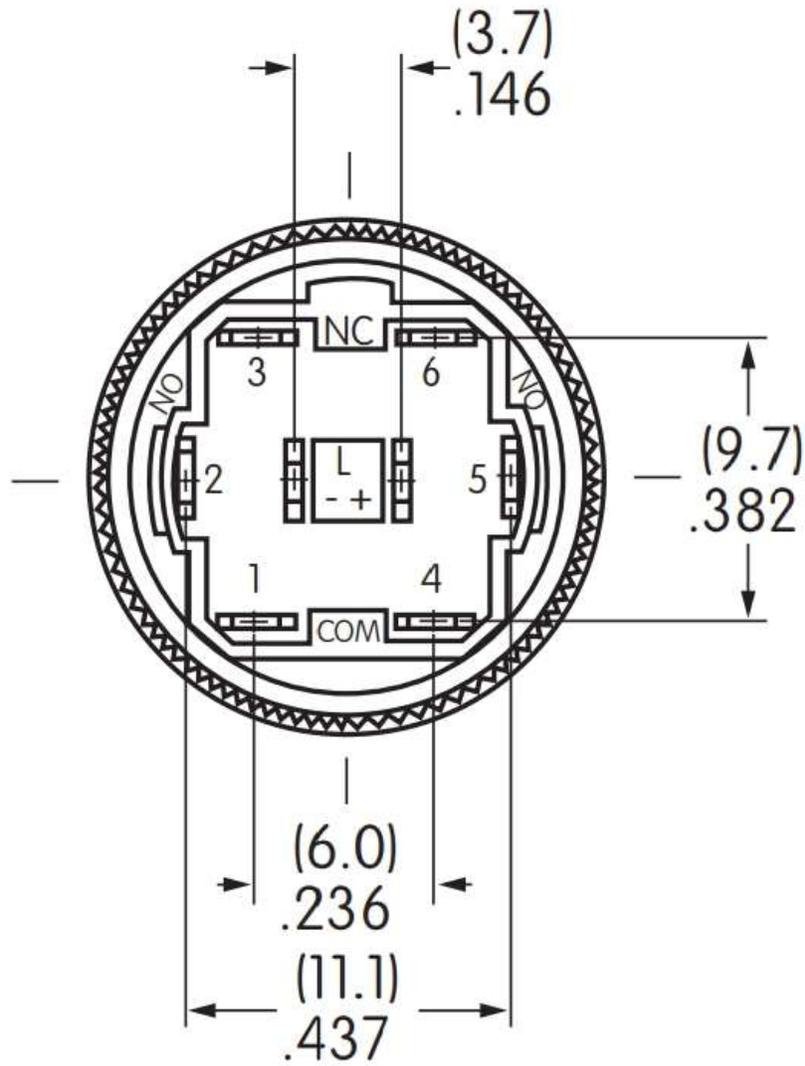
LED D1 is inside of S1
 Wire colours are what I used
 Numbers 1,2,3 and L-, L+
 are switch terminal marking

Battery Options:

The 9 V battery could be placed inside the Hammond box if the switch was moved to provide more space. I decided to simply velcro it to the outside of the box, which makes changing it much easier. Of course you could use a pair of 3V CR2032 lithium cells on the inside. In this case reduce resistor R1 to 470 ohms.



End view of NKK switch and terminals:



Note: Terminals 4,5,6 are not present on the single pole switch.