

'The Beaconator'

FDIM 2013 Buildathon kit

NOTE: the 2 capacitors marked .1uf at the rear of the key jack are supposed to be .01uf (marked 103 on the cap)

Every builder has a preferred style for populating and soldering a project board. The FDIM Buildathon session is very time critical as it is sandwiched between the seminars and the meet the speakers/vendor night activities. The 'Beaconator' project is fairly simple with a low parts count so we will take the FAST approach and simply build up the board with little testing in between stages. All the part values are marked on the board so you really don't need a schematic or much of a builder's guide to get all the parts in the right places.

The population sequence preferred by me, **W1REX**, is to solder the resistors, chokes, capacitors, semiconductors and accessory items which results in a board buildup from low to high. If you are building the project at home, where you have more time and usually more testing tools, then you should probably build the project in stages (notice the stage outlines on the board silk screen) and test each stage after it is built. The order of stages to most easily facilitate the testing is: DC input, Keyed +12, Keyer +5, Key Input, PicoKeyer, OP controls, RF oscillator, RF driver 30m low pass filter and RF output.

Some 'extra' bits are required:

A 32 ohm speaker to monitor the Picokeyer when programming it.

A +12v power cable with RCA plug.....MAKE one here!

A 50 ohm dummy load for the contest.....MAKE one here!

RESISTORS:

470 _____

1K _____

1K _____

47K _____
4.7K _____
220 _____
100 _____
8.2K _____
1K _____
56 _____

CHOKES (They look like resistors!)

22 uh _____
6.8 uh _____
.68 uh _____
.68 uh _____

CAPACITORS:

.1 uf (from tape & marked 104) at 6 (SIX) locations
(but NOT the 2 positions just behind the KEY jack)
.01uf (from tape & marked 103) at 4 (FOUR) locations
(including the 2 locations just behind the KEY jack)

22 uf
220 pf (marked 201)
100 pf (marked _____)
330 pf (marked _____)
680 pf (marked _____)
82 pf (marked _____)
330 pf (marked _____)

SEMICONDUCTORS:

IN5818
1N5231B (5.1v zener diode at ZD1)
2N3906
2N7000
8 pin DIP socket & Picokeyer chip
PN2222A

PN2222A

ACCESSORIES:

3 pin SIP crystal 'socket' (use a crystal as a holder while soldering)

yellow RCA JACK

yellow RCA JACK

1/8" STEREO JACK

tiny PUSHBUTTON SWITCH

50K potentiometer

twisted pair wire from PICOKEYER ST
(side tone) to a 32 ohm speaker

Make a power supply cable by attaching
a set of alligator clip leads to an RCA
patch cable. Of course, +12volts is on
the center pin.

Make a 51 ohm (close enough for
FDIM work) using an RCA plug and 51
ohm $\frac{1}{2}$ watt resistor.

The last thing that are going to do is
'pen down a crystal'. I have acquired some
10.118 crystals with open cans. We will
open them up and very carefully add some
mass to the crystal by making a little
graphite dot using a pencil. Check the
frequency and reseal the case. Now you
have a Beaconator...YOUR way!

