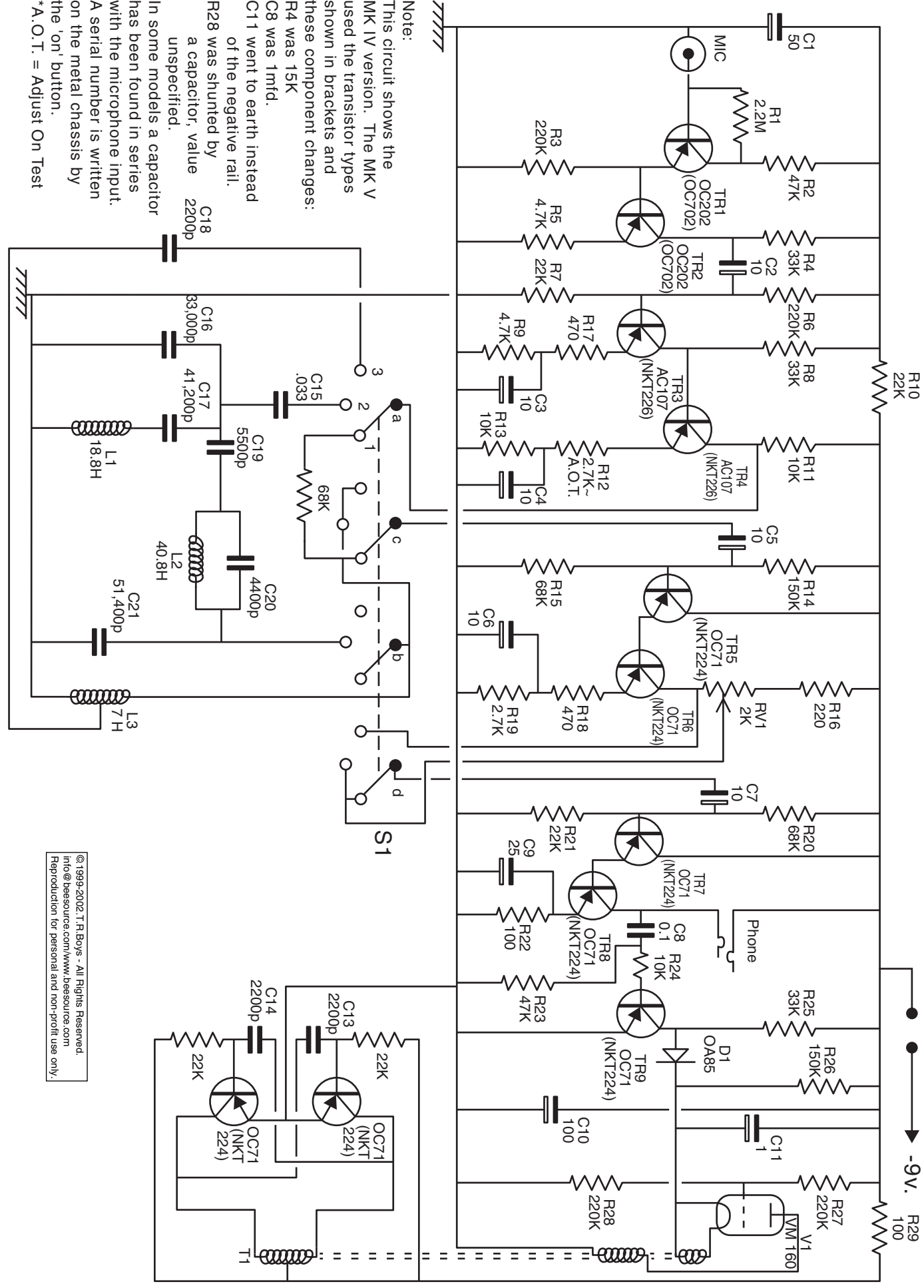


WOODS APIDICTOR MK. 4 & 5 - Circuit



Note:
This circuit shows the MK IV version. The MK V used the transistor types shown in brackets and these component changes:
R4 was 15K
C8 was 1mf/d.
C11 went to earth instead of the negative rail.
R28 was shunted by a capacitor, value unspecified.
C18 2200p

In some models a capacitor has been found in series with the microphone input. A serial number is written on the metal chassis by the 'on' button.
*A.O.T. = Adjust On Test

WOODS APIDICTOR - TECHNICAL DESCRIPTION

Transistors 1 - 8 are a conventional audio amplifier with a crystal microphone input and earphone output.

Between Tr4 and Tr5 the signal goes through one of three channels selected by wafers a, b and c of switch S1

Position 1: Full bandwidth

Position 2: Bandpass filter 225 - 285Hz

Position 3: High pass filter cut off 3,000Hz

Wafer d of S1 is used to bypass the volume control on position 3

The output signal is further amplified by Tr9, rectified positive by D1 and fed to the cathode of V1, a magic eye indicator valve, such that the green eye extinguishes above a certain signal level. Using position 2 of S1, the louder the warble, the lower the gain setting at which the eye goes out. Hence, the lower end of RV1 is painted red to indicate that the warble is loud enough to justify a hive inspection. If it is necessary to turn the volume up to hear the warble, it is not loud enough to indicate swarm preparations so that section is painted green.

A two-transistor oscillator and transformer provide It and ht supplies for V1. It had been the inventor's intention to substitute a meter for the magic eye but this was never implemented.

Recommended Usage of the Instrument

The microphone is mounted in a rubber housing designed to fit in a suitable hole in the back of the brood chamber, level with the top of the frames. The hole should be 1-5/8 inch diameter and fitted with a standard rubber sink plug when not in use. The inside of the hole should be covered with thin black polythene film.

The Apidictor should be in its leather case, hung from the neck. The earpiece lead comes out under the veil and is plugged into the appropriate socket. Plug the microphone into the hive. With the volume fully up and the switch in position 1, press the on button and listen. Normal hive noise will be heard and the indicator will glow green.

Switch to position 2 and listen for the warbling, bubbling sound. Turn the volume down until the green light just goes out. If the arrow on the volume control points to the green area, close the hive up and leave for 5 days. If the arrow points to the red area, the colony may be preparing to swarm.

Switch to position 3. Thump the side of the hive and listen to the hiss. If it is short and sharp, about a quarter of a second, swarming is unlikely. If the hiss is more rounded and longer, swarm preparations can be expected. Either way, the previous test shows that an inspection is needed.

© 1999.T.R.Boys - All Rights Reserved.
info@beesource.com/www.beesource.com
Reproduction for personal and non-profit use only.

WOODS APIDICTOR MK 4 - PANEL LAYOUT AND USAGE OF THE CONTROLS

Referring to the view of the front panel, the salient features are as follows:

At the bottom left hand corner is the on/off switch, spring loaded. The instrument is only on as long as the button is pressed.

Above the switch is the socket for the earpiece, stethoset or headphones.

At the right hand side of the panel is the microphone socket.

Centrally mounted is the 'magic eye' indicator. For low level signals it glows green but reduces to a thin red line (eye closed) on detecting stronger signals.

The large knob to left of centre is a 3-position switch.

Position 1 is for listening to the complete hive noise.

Position 2 is for listening to the warble.

Position 3 is for listening to the hiss. (Volume control disabled in this position)

The large knob to the right of centre is the volume control. This is used as follows:

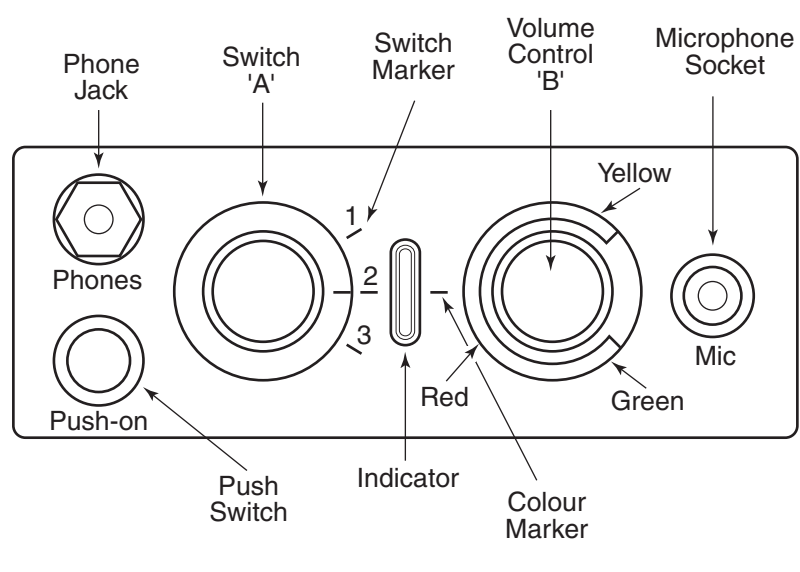
With the switch in position 2, rotate the volume control and listen for the warbling sound. Rotate the knob clockwise until the green indicator just goes out. Note that the quieter the warble is, the further up the volume has to be turned to do this.

If the pointer reaches the green area of the scale, it indicates that the warble is not significant, all is well and you can move on to the next hive. If the 'eye' closes with the pointer in the red area, it indicates a loud warble and the colony should be inspected for swarm cells. If no swarm cells are found, check again in 5 days.

See also 'Recommended Usage of the Instrument'

This document was prepared for the benefit of people with original apidictors which needed servicing. Many beekeepers have had copies because they wish to make their own version and it is necessary to point out that many of the original components are no longer available and, in any case, modern equivalents will be smaller and produce better results. It should be possible to obtain a complete amplifier on a single chip. Anyone considering commercial production should first study UK patent no.729067.1958 which is still valid.

Further information on the general principles and details of Eddie Woods' work on other beesounds can be found in 'Listen to the Bees' published by Northern Bee Books, Scout Bottom Farm, Mytholmroyd, Hebden Bridge, Yorkshire, HX7 5JS, UK. Post free price is £1.50 in the UK, or US\$3.00. Tel: 01422 882751, Fax: 01422 886157, e-mail NBB@Recordermail.demon.co.uk



© 1999.T.R.Boys - All Rights Reserved.
info@beesource.com/www.beesource.com
Reproduction for personal and non-profit use only.