

TF-B tx (2B) Telephone 3

33014
(GDR line bugs VIII)
Country of origin: GDR

(To be read in conjunction with Chapter 163 and 168.)

DATA SUMMARY

Organisation: MfS, Abt. 26, GDR.

Design/manufacturer: MfS, OTS, Abt. 33.

Year of Introduction: 1982.

Purpose: Miniature line based bug for use over a standard subscriber telephone line. Fitted in a metal tube.

FM carrier frequencies: 24kHz, 40kHz, 104kHz; $\pm\frac{1}{2}$ kHz.

Dimensions (mm): 72 long, 12 dia.

Weight: 14g. (Board only)

Technical details: See Chapter 168.

Microphone: Knowles electret type BT 1751 or BT 1759.

REMARKS

TF-B tx (2B) with covert number 33014 was a sub-miniature line based bug, fitted in a metal tube. It used a standard subscriber telephone line as part of a transmission medium to an Operational Support Point or direct to the CEKO system if the distance allowed this. When this chapter was compiled no further technical details or a circuit diagram of the 33014 was available. Later that year, this chapter was updated after a selection of GDR bugs were added to the collection of the Crypto museum and the 33014 was investigated in detail. The 33014 was functionally similar to the other TF-B tx (2B) bugs described in chapters 168 and 169, using more advanced technologies to achieve a further miniaturisation, catalogued under design variation 5. Noted were three variants: with integrated microphone, external microphone and board only, each having 3 different channels.

Currently known covert numbers of TF-B tx (2B) 33014.

33014-11/12/13* TF-B tx (2B) board only.

33014-101/102/103* TF-B tx (2B) assembly with internal microphone.

33014-111/112/113* TF-B tx (2B) assembly with external microphone.

* 3 different channels.

There were, as far as could be traced, five different variations in the design of the TF-B tx (2) bugs, functionally similar but built with different components, used for specific purposes.

Variation 1 [in TF-B tx (2A) and TF-B tx (2C)] used a HEF 4046 PLL;

Variation 2 [in TF-B tx (2B)] used a CD 4046A PLL;

Variation 3 [in TF-B tx (2D)] used a VCO 30 PLL.

Variation 4 [in TF-B tx (2A)] OSA version with unknown components.

Variation 5 [in TF-B tx (2B)] 33014 with an USK-14 hybrid circuit.

Apart from a different type PLL/VCO, there were numerous changes in the circuits, required for each application, e.g. input circuit, power requirement, FM carrier frequency and remote on-off switching.

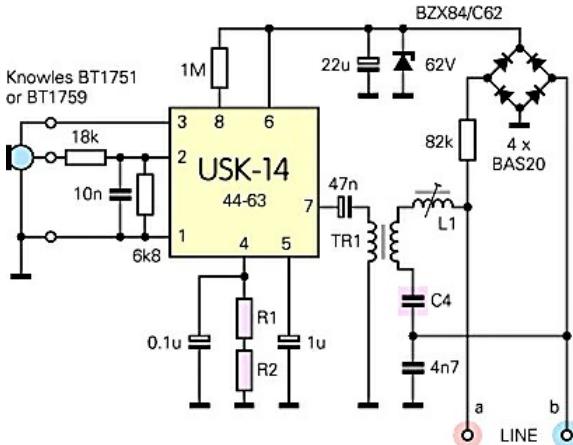


The thin steel tube embodying the 33014 bug was usually fitted in a hole drilled in the wall from a neighbouring apartment. An original type of drill used for boring through wood is shown below.



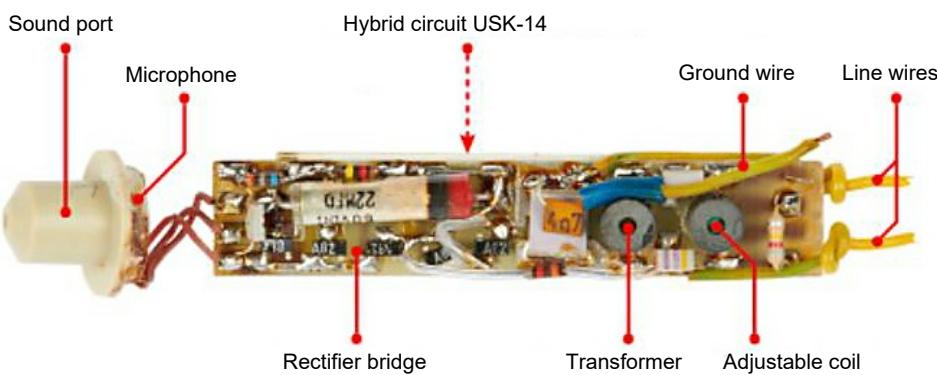
References:

- With thanks to Detlev Vreisleben, DC7KG, Germany for taking excellent photographs and scans, and providing further technical and historical information.
- More technical details of the 33014, recently investigated by the Cryptomuseum, were incorporated in version 1.01 of this chapter with kind permission.

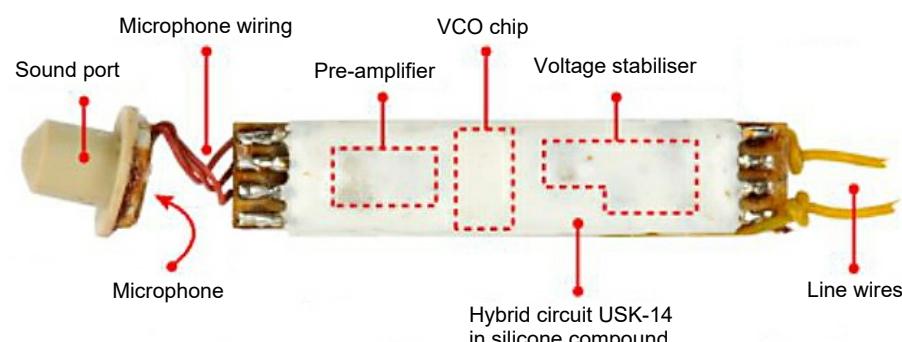


Circuit diagram of the 33014 TF-B tx (2B). It was basically similar to that of the 33010 (Chapter 168) which used a CD 4046 PLL/VCO.

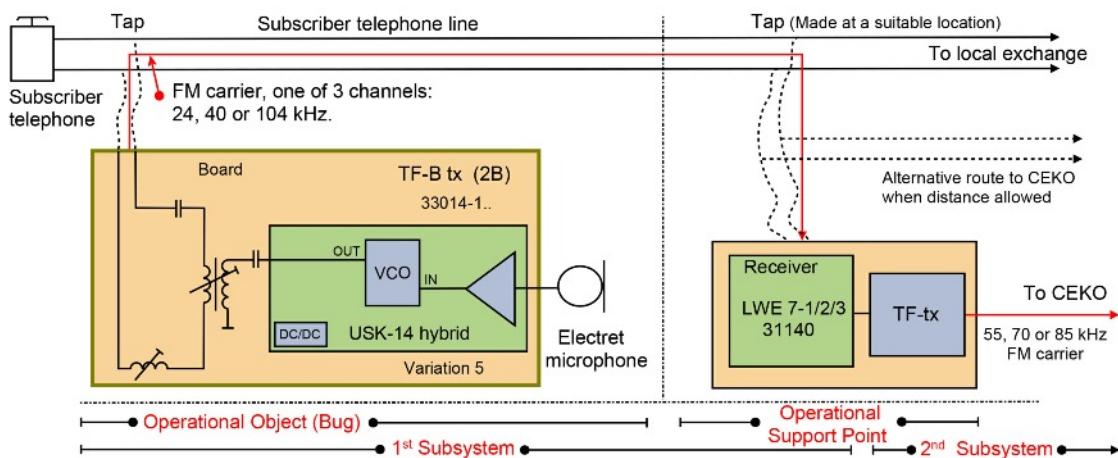
Circuit diagram and photos below courtesy Paul Reuvers,



Top view of 33014-101, 102 or 103 which had an internal microphone.



Underside view of 33014 showing the USK-14 ceramic hybrid circuit.



Block diagram TF-B (2B) Subscriber telephone system. Variation 5.