

33217-100 with built in dual FM module.

31217

(GDR bugs VI)

Country of origin: GDR

## DATA SUMMARY

**Organisation:** MfS, Abt 26, GDR.

**Manufacturer:** OTS<sup>3)</sup>, GDR.

**Year of Introduction:** Around 1976.

**Purpose:** Wireless bug for covert overhearing.

**Transmitter:** Free running oscillator. External sub-miniature dynamic or electret microphone. FM without pre-emphasis.

Depending on variation and time of issue: additional dual FM and 80-100Hz masking hum. <sup>4)</sup>

**AF frequency response:** 200Hz to 8kHz.

**Deviation:** Maximum  $\pm 75$ kHz.

**Frequency coverage:** 940-980MHz. (Band V)

**RF output:** Depending on variation: 15 to 40 mW.

**Aerial:**  $\frac{1}{4}$  wave; 110mm long flex wire.

**Power Supply:** External 9V battery or miniature AC mains power unit 33217-20.

**Dimensions:** 7mm high, 16.5mm wide, 32mm long (depending on variation).

## REMARKS

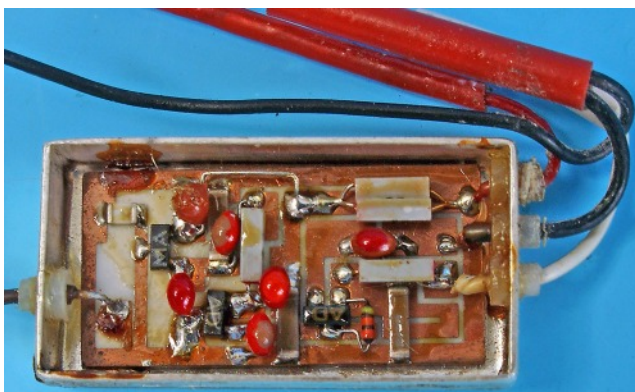
The 31217-1<sup>1)</sup> was the second model in a series of subminiature 3<sup>rd</sup> generation wireless bugs operating in the frequency band of 940-980MHz. (Band V) It was powered by an external battery or mains power unit e.g. 33217-20. The design and construction of the RF part of the 31216, 31217 and 31218 series of bugs was basically similar. The RF oscillator was free running to keep the size small, but consequently unstable and dependent on temperature and battery voltage. It was for this reason that the associated receivers (31215 or 31225, see Chapters 126 and 131) had a very wide tracking range. For stable operation the transmitter SMD components were mounted on a 0.8mm thick AL<sub>2</sub>O<sub>3</sub> (Alumina) ceramic plate, copper plated on both sides. The complete transmitter was fitted in a silver plated copper box with removable lid in a white PVC enclosure. The 31217-1 and 31217-11 were designed for magnetic microphones; 31217-111 and later variations used exclusively an electret microphone. Other variations of the 31217 (33217 <sup>2)</sup>) differed in RF output and were usually larger or the actual ceramic circuit plate was fitted in a different enclosure in combination with other modules. Later versions had a built-in dual FM <sup>4)</sup> module for speech concealment and masking hum. Variations 31217-131/132 and 133, also known as 'Botond', were developed and produced in Hungary. (See page 4)

<sup>1)</sup> Known as 'Sender mittlere Leistung Band V' (Medium power transmitter Band V)

<sup>2)</sup> When the 'Decknummernschlüssel' (Covert number key) was changed in January 1977, items previously designated 31..., were renamed 33....

<sup>3)</sup> Developed and produced at Außenstelle Beucha des ITU (Institut für Technische Untersuchungen), an OTS covert firm.

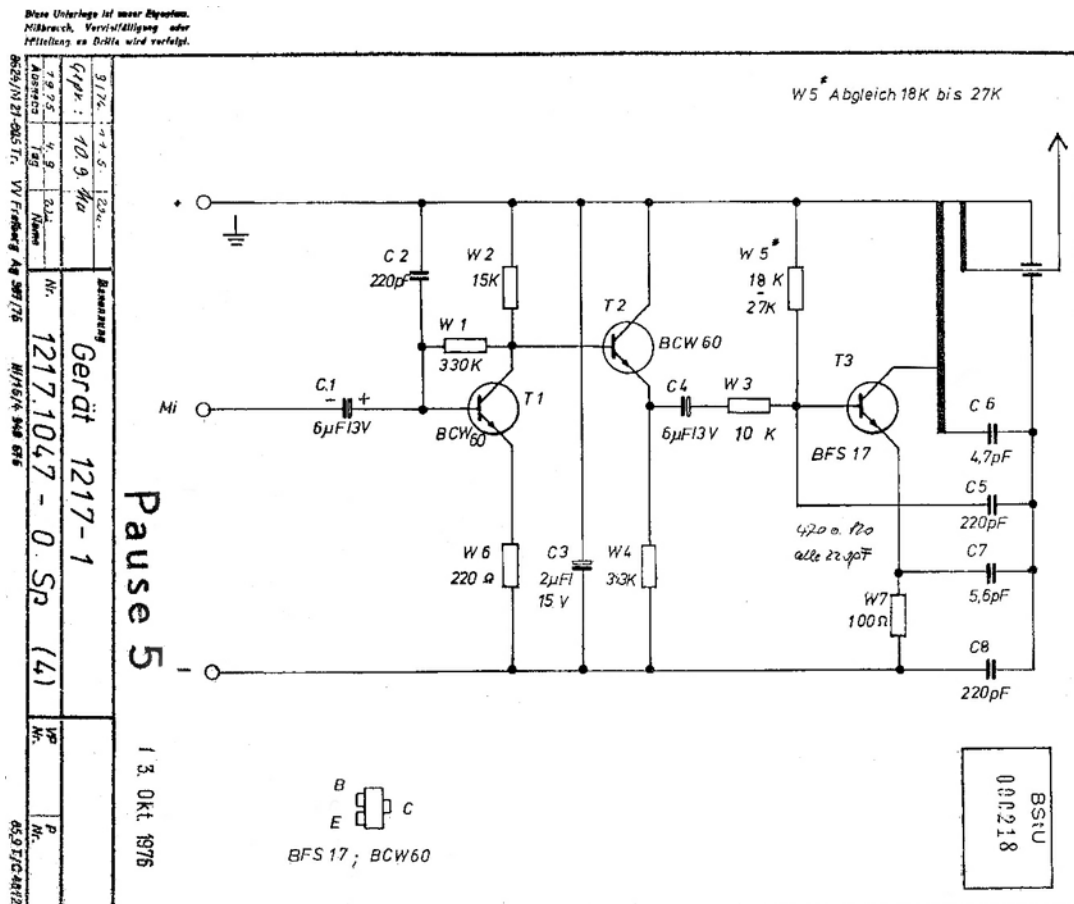
<sup>4)</sup> Known as Sprachverschleierung SV (speech concealment) with later added Maskerator (M), 80 or 100Hz masking hum.



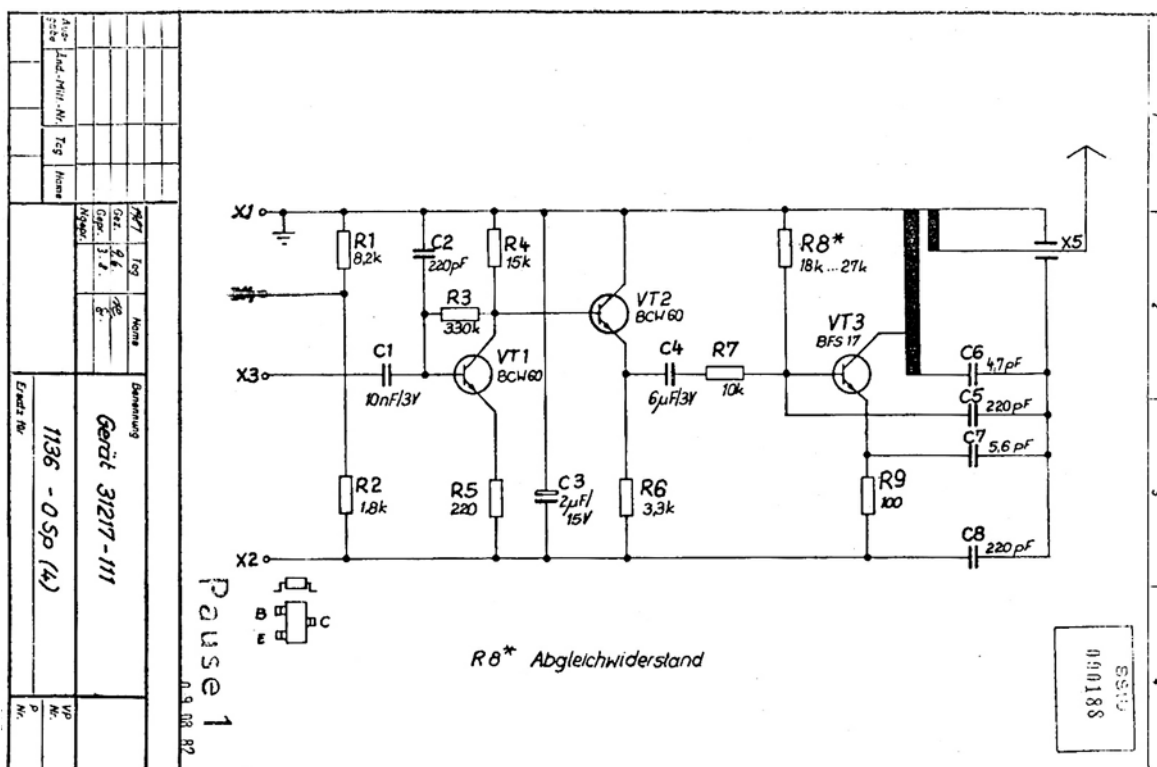
**Internal view of a 31217-1. The complete transmitter was mounted in a silver plated copper box, with removable lid fitted in a white plastic enclosure.**

## References:

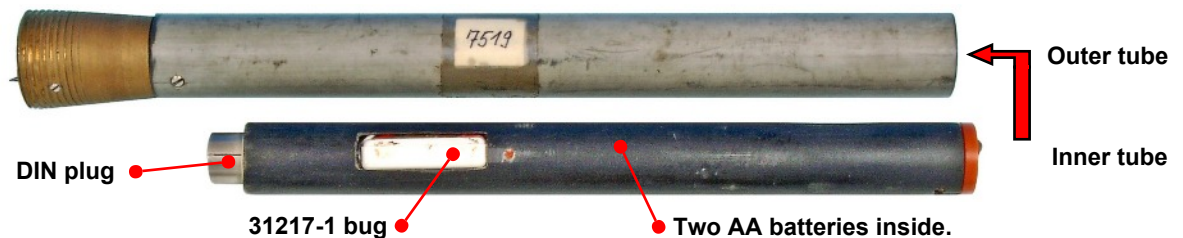
- With thanks to Detlev Vreisleben, DC7KG, Germany for taking excellent photographs and scans, and providing detailed historical and technical information.
- OTS document A048 kleinstsender /31217-1, dated 1976.
- Kennblatt 31217-100, 110 and 111.
- Inventurlisten der operationellen Technik, MfS Abt. 26, Berlin, Sept. 1987.
- Deckbezeichnungen UHF-B-Technik, 10-08-1984.



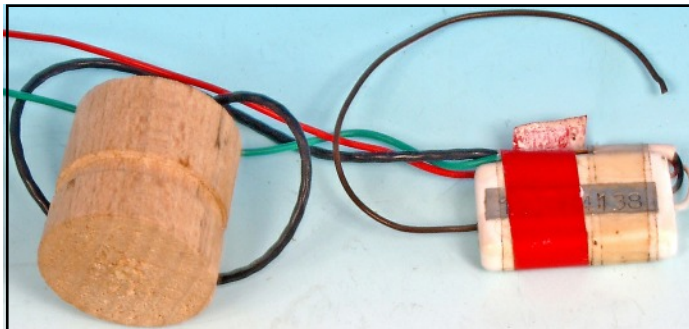
Circuit diagram of the original 31217-1 and 31217-11. The RF part differed very little from the earlier 31216-1. This early version was developed for an external dynamic microphone.



Circuit diagram of the 31217-111. This was a minor modification to the 31217-1 allowing the use of an electret microphone.



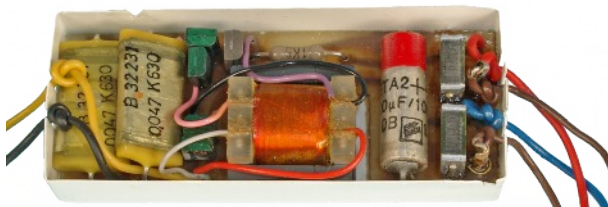
A variation of 31217-1 was fitted in a plastic inner tube along with two AA batteries. The dynamic microphone was mounted at the bottom end of a PVC outer tube, connected via a 3-pt DIN plug and socket to the transmitter. The whole assembly could be placed on a wooden surface by two sharp pins fitted at the bottom. (*Collection Cryptomuseum*)



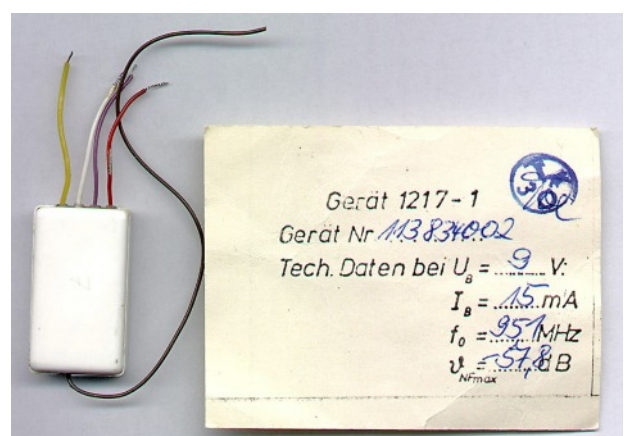
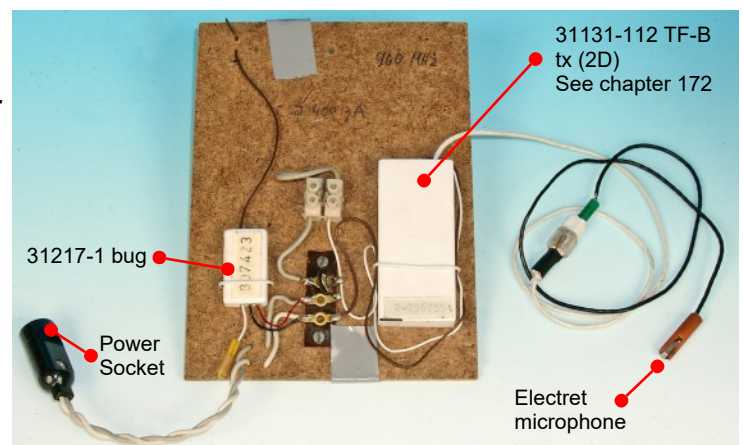
Microphone opening.

A 31217 with its microphone fitted in a wooden cylinder used for hiding in a wooden object such as the bottom of a door (left).

Setup of an early dual FM system using a 31217-1 (left unit) and a 31131-112 TF-B tx (2D) originally developed for line transmission, operating on 40kHz. (Larger unit right). This was later replaced by smaller units which were usually built in a bug. An electret microphone can be seen right of the TF-B tx (2D). (See also Chapter 131.)



Miniature AC mains power unit 33217-20.



Unissued 31217-1 with certificate (above) and 33217-100<sup>2)</sup> with integrated dual FM module (left).

A certificate with type and serial number along with technical specifications such as DC voltage and current, frequency and microphone AF input sensitivity was issued with each individual unit.



## Botond. Hungarian Band V bug 31217-132.

Sennheiser MM-301  
dynamic microphone

Amplifier T1

Oscillator T2

Botond bug with its cover detached. The  
enclosure was a silver plated copper box.

Actual bug.

On-off micro-  
switch, actuated  
by a pin or bend  
paper clip.Holder for two  
AAA batteries.Embedded pin used for  
temporary attachment  
of the bug.

1/4 wave Aerial

General view of a Botond, show-  
ing the two sharp metal pins,  
protruding the lid, which were  
used for fixing the bug under a  
piece of furniture. (See enlarged  
inset)For a more permanent  
solution a hole was provided  
for a thin wood screw.Pin for actuating  
on/off switch.

## REMARKS

A Botond bug was enclosed in a milled synthetic material container, covered with a wood veneer layer, normally hidden attached under a piece of furniture. It had an built-in microphone and operated on band V on a preset frequency between 940 and 980MHz. Powered by two AAA batteries it could function for about 5½ days. Sizes were 111x60x14mm; weight 54g. The actual size of the transmitter unit was 50x9x9mm. The range was about 100-150m.

The bug was developed and produced in the late 1970s in Hungary for the State Security Department of the Ministry of Interior. (Belügyminisztérium Allambiztonsági Szervek) Imported in the GDR by the MfS it was known as 31217-132.

The Botond (31217-132) circuit diagram was basically very simple, comprising a dynamic Sennheiser microphone, a microphone amplifier T1 and free running oscillator T2. The frequency could be altered by the setting of C4.

## References:

- The circuit diagram, most of the photos and information on the Botond courtesy Crypto Museum, Eindhoven, Holland.
- For a full description of the Botond, see the museum website at [www.cryptomuseum.com](http://www.cryptomuseum.com)

