Electric diagram and microwave-transmitter block diagram functioning description.

Block nr.1
Block nr. 1 turns the alternating voltage applied to terminals 7 and 8 of the microwave into a rectified voltage needed to supply the voltage control of block nr. 2.

Block nr.2
Block nr.2 regulates the rectified voltage at about 13,65V d.c..
This voltage allows to recharge an eventual floating battery and supplies the input voltage to the voltage control at 5V d.c. necessary to supply the logical processing circuit of the received signal.

Block nr.3
Block nr.3 protects the circuit from eventual faults due to a polarity inversion of the eventually applied battery.

Block nr.4
Block nr.4 consists of the parabola antenna and of the cavity which receive the signal in frequency emitted by the transmitter, and transformed into a sinusoidal input signal of the amplifier.

Block nr.5
Block nr.5 consists of the two amplification transistors with corresponding polarization networks that allow to amplify the signal coming from the cavity. The signal will be even more amplified by operational U2B and corresponding polarization network.

Block nr.6 and 7
Block nr.6, consisting of the dip-switch and the double exchange relay, selects the functioning mode of the microwave. During the test mode (alignment) the relay allows the breaking of the signal so as to inhibit the functioning of the automatic gain regulator during the alignment phases of the microwave.

Block nr.8
Block nr.8 consists of the potentiometric trimmer R18, that allows to manually regulate the quantity of amplified signal to allow the alignement of the microwave with voltage values far from the saturation threshold of the amplifier.

Block nr.9
Block nr.9 selects the frequency channel to compare with the received one.
This selection takes place thanks to the dip-switch DV1.
With all the dips in OFF position frequency nr.1=900Hz is achieved.
With dip 1 in ON position freqency nr.2=1160Hz is achieved
With dip 2 in ON position frequency nr.3=1500Hz is achieved
With all dips in ON position frequency nr.4=2400Hz is achieved

Block nr.10

Block nr.10 allows to filter the non-correlated frequencies with those received through the group of resistances and capacitors and the operational I1A. In output from this group there will be then a sinusoidal signal sufficient only when the frequency of the received sinusoid and the sinusoid selectioned on the receiver are in accordance.

Block nr.11

Block nr.11 amplifies (U2A and corresponding polarization network) in a definite way only the received signal having a frequency corresponding to the one selected.

Block nr.12

This block turns the amplified and received signal into a constant level rectified signal through the diode, capacitor and operational U3B rectification group.

Block nr.13

Block nr.13 consists of the gain automatic regulation group(A.G.C.) that stabilizes the received signal at a constant level through U3A and transistor Q3.

Block nr.14

This group (U5B) allows to have the rectified and stabilized signal in output at terminal M1 that allows the correct alignment of the microwave pair.

Block nr.15 and 16

In this block the constant signal (comp) in output from the amplification group is integrated through the trimmer and the capacitor(R62, C27) that allow to control in installment phase the adjustment of the surveying modes of the object crossing the microwave in a more or less fast way.

Block nr.17

This group (U4A and B) sets the alarm thresholds. In fact the outputs of these operationals are activated every time the rectified signal leaves the alarm window determined by the calibration of trimmer R45. The alarm thresholds are increased in case a pilot signal is sent to terminal 6.

Block nr.18

Block nr.18 allows to stop the microwave functioning through an external signal applied to terminal M5.

Block nr.19

Block nr.19 includes the control of the Darlington type transistor Q5 that allows to control the alarm relay.

Block nr.20

The alarm relay supplies an exchange contact free of potentials for connections of the microwave to alarm control panels.

Electric diagram and microwave-transmitter block diagram functioning description.

Block nr.1
Block nr.1 turns the alternate voltage applied to terminals 7 and 8 of the microwave into a rectified voltage necessary to supply the voltage regulator of block 2.

Block nr.2
Block nr.2 carries out an adjustment of the rectified voltage at about 13,65 d.c.. This voltage allows to recharge an eventual floating battery and supplies the input voltage for the adjusted supply voltage of the cavity driver and circuit logic pilot circuit .

Block nr.3
Block nr.3 protects the circuit from eventual faults due to polarity inversion of the eventually applied battery.

Block nr.4
Block nr.4 presets the oscillation frequency of the frequency generating circuit consisting of the operational group U1B. The presetting of the oscillation frequency takes place short-circuiting common terminal M9 with terminals M5, M6, M7, M8.
Short-circuiting terminal M9 with M5 frequency nr.1= 900Hz +/- 5% is achieved.
Short-circuiting terminal M9 with M6 frequency nr.2=1160Hz +/- 5% is achieved.
Short-circuiting terminal M9 with M7 frequency nr.3=1500Hz +/- 5% is achieved.
Short-circuiting terminal M9 with M8 frequency nr.4=2400Hz +/- 5% is achieved.

Block nr.5
Oscillation block nr.5 forms the frequency square wave equal to the one preset in block nr.4.

Block nr.6
Block nr.6 is the cavity control. The square wave form coming out of operational U1B controls the two control transistors that allow to have a higher power to control the cavity at disposition.

Block nr.7
Block nr.7 consisting of the cavity and of the emitter parable allows to give rise to the sinusoidal frequency emitted by the antenna which is the frequency signal emitted by the transmitter.