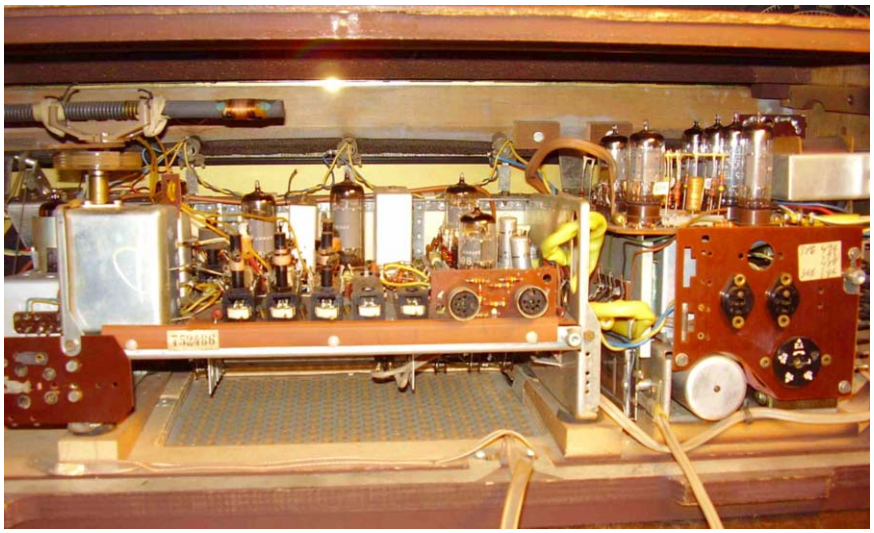
Telefunken Opus Steuergerät Hi-Fi 2430, 1963,
Opus Studio 2650, 1965



These are top performance radio sets from the mid sixties, well representing the excellence reached by tube equipment before the solid state age. Their style, the walnut cabinet with straight lines and flip over front cover, recalled the look of hi-fi equipment from U.S. manufacturers. And, just like any American built hi-fi, the steuergerät radios required external speaker boxes. Inside the cabinet there are two major subassemblies: the tuner, including IF stages, stereo decoder and audio preamp, and the power module, which includes the two push-pull audio amplifiers and the power supply.

Both have three AM bands, LW, MW, SW, and the FM ranging up to 104 MHz. Two tuning dials with coaxial drive knobs on the right: the FM tuning knob also acts as band spread (Lupe) in short wave reception. Radios came already equipped with the stereo decoder. There are two DIN input connectors, for turntable and for tape recorder.

The semiconductor era contamination is visible in these models: Telefunken made extensive use of printed circuit boards and advanced assembly techniques. To save space many components were grouped into some hot welded and partially molded single-in-line subassemblies. A piggyback board hosted the FM stereo decoder. Another subassembly contained the output stage feedback network. Unfortunately the solder side of the boards is not easily accessible and it is hard to trace any signal and to replace faulty components.

Opus 2430, in the upper pictures, was built around 1963. It still uses vacuum tubes in the audio power amplifiers, even if semiconductors are making their entrance in several circuits. The radio uses 13 tubes, 1 transistor, 8 germanium diodes, 1 silicon varactor and 2 selenium rectifiers: ECC85, ECH81, EF89, EAF801, ECF80, ECC808, ECC83, ECC83, EL95, EL95, EL95, EL95, EM84, AC117, E15C125EP, BA110, 2 x AA113, 6 x OA161, B250C250.

Opus Studio 2650, below, was made just a couple of years later and looks almost identical to the 2430. Nevertheless, the audio amplifier section is all solid-state. The result is a curious hybrid, with a lot of HV and LV supply voltages, AC filament voltages too. In this hybrid you can find vacuum tubes controlled by semiconductors, as the varactor diode in the AFC circuit, which controls the oscillator section of the ECC85, as well as semiconductors driven by vacuum tubes, as the same varactor diode whose bias voltage is stabilized by a neon tube. A total of 7 tubes, 11 diodes, 19 transistors and 4 selenium and silicon rectifiers are used through the radio. Tubes are ECC85, ECH81, EF89, EAF801, ECF80, EM87 and ZA1004.

Key features:

- **Two tuning dials, dual coaxial knob**
- **Automatic tuning control on FM. Band spread on SW**
- **Two IF amplifiers, high sensitivity**
- **FM stereo decoder**
- **Stereo audio amplifier, push-pull output stages**
- **External speakers, top and loud sound**

Keep them alive!