FM German Radios

I built my first FM radio, a kit from the popular ‘Scuola Radio Elettra’, in 1960. Soon I was fascinated by its clear, noise-free sound. Today, almost 50 years later, most of the AM broadcast stations have been switched off, but the FM spectrum is still crowded by every kind of music. Nevertheless, a fine radio is required to enjoy pleasant notes: a beautiful vacuum tube radio, with its huge lacquered cabinet, which adds its timbre just like a piano case, returns typical warm, loud, and brilliant sounds. German radios were the finest sets, built with extreme care in every detail, from the circuits to the components, from the speaker system to the cabinet itself.

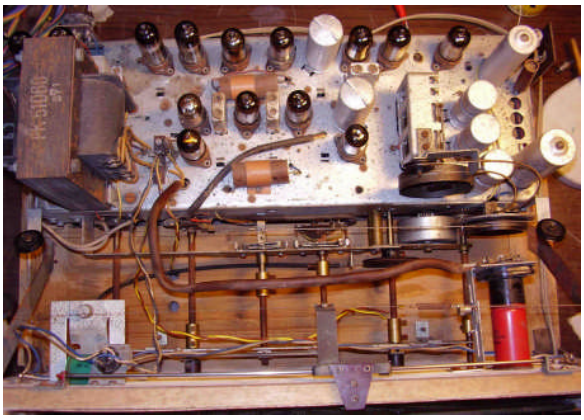
In Europe regular FM broadcast started in the very early ‘950s; in Italy it started in 1951. Early radios were derived from existing AM sets, adding somewhere a FM tuner. The audio section still retained more or less the 5KHz bandwidth of the past, with a single large speaker. Very soon the architecture changed to a new standardized one, while audio performances became to evolve.

New components were introduced, such as the ECC85, twin triode FM converter, the EABC80, triple-diode/triode detector/discriminator and audio preamp, or the double section IF transformers, containing both AM and FM LC circuits. The quasi-standard architecture included separate FM and AM converters, a common IF amplifier, sometimes with a second tube amplifier for higher AM sensitivity and for improved FM limiting, and a common audio amplifier. A keyboard soon replaced rotary band switches; in top models keys could be lighted when operated and the FM key (UKW) could select, through two-way clutches, an alternate tuning pointer. The audio section was improved year after year, to take advantage of the increased bandwidth offered by FM. The first step, around 1952-1953, was the addition of a second speaker, usually an electrostatic tweeter, to add some response at frequencies over 5KHz. Unfortunately, such kind of speaker gave very feeble sound levels. Soon later, more efficient dynamic tweeters came in use: roughly since 1954, two dynamic tweeters were usually mounted in the sides of the cabinet, giving a surrounding sound effect, referred to as ‘3D’, ‘spatial sound’ or ‘raumklang’. Also audio amplifiers were improved, adding separate treble and bass controls, and often a physiologic volume control. Average output power was around 4W, while top radios came with push-pull out stages, delivering about 8W to the speakers, with high-quality sound. Around the late 1956, to increase the presence and the brilliance, a new speaker system became popular: it included one or two large woofers and some smaller mid-range on the front panel, plus a high-frequency horn driver, with radiators in the cabinet side. In the years, some models could include extra features, such as automatic motor tuning or multiple tuning dials, variable AM IF bandwidth, sometimes driven by the treble control knob, SW bandspread or ‘Lupe’, power saving switch or ‘Sparschaltung’, magic-eye saving switch, tone register keys.

A stereophonic audio stage was the next step, splitting in two the audio amplifier and the speaker system. The output power was doubled, although the acoustic power was someway limited by the unchanged cabinet volume and by the total number of speakers that could be accommodated into the cabinet. For years, until the early FM stereo broadcast services, available stereophonic sources were limited to the record player (or changer) and to the tape recorder. For this reason the radio operated with both channels in parallel when used as AM or FM radio receiver.

The last evolution of these beautiful radios, around 1964, was the addition of the FM stereo-decoder. About in the same period a new shape of radio was introduced by the major manufacturers to approach the Hi-Fi market dominated by the U.S. modular architecture. The new type was the so-called ‘steuergerat’, a half-height wooden box, containing a top performance chassis, with external speaker enclosures. Unfortunately this was also the swan-song of tube radios: solid state was going to replace vacuum tubes everywhere, but solid state soon spoke Japanese.

Philips DI 700 A, Gran Concerto



The Philips DI 700 A Gran Concerto was not a German radio, since it was produced by Philips Italy. It has been listed as example of very early FM radio design. Two separate tuners are used for AM and for FM, with a common push-pull audio amplifier. Single 25 cm speaker.
At the time, just few wealthy people could be interested to a FM radio. In the DI 700A Gran Concerto everything spoke of top-class: from the huge console to the massive record changer with dynamic pick-up, to the attractive design. 15 tubes were used: ECH42, EF42, EF42, EAF42, EF40, EAF42, EF42, EF42, EB41, EB41, EL41, EL41, EM34, AZ41, AZ41.

Keep them alive!