Conrad Jutson and General Electric's Radio Receiver Department, Utica, NY

I had the opportunity to interview Mr. Jutson for this article, and he kindly allowed me to copy some GE literature he had. This interview grew out of some correspondence we had regarding the P780, a formidable AM radio which GE manufactured from 1960 to at least 1965. Mr. Jutson played a significant role in the development of this radio, which offered extraordinary performance, durability, and battery life. An article about the P780 is available here.

Q. Describe briefly how you came to be involved in radio engineering. Was radio work your first choice, or did you end up there?

My first involvement in radio engineering was in 1948 when I completed an 18-month course in the British Royal Navy to qualify as a Radio Electrical Artificer (note: an Artificer is a craftsman (or artisan)). Previously, starting in 1943, I had completed four years of schooling to become an Electrical Artificer in the Fleet Air Arm Branch of the Royal Navy. Following that, and after a year at sea, the Navy requested volunteers to transfer to the Radio and Radar Branch. During my time as an artificer (responsible for repair and maintenance of all Naval radio and radar equipment on various bases and ships), I first became interested in the design of audio amplifiers and built my own systems to listen to records. During my last assignment in 1956 at an experimental establishment, I first started work on a transistor circuit design for test equipment.

On leaving the Royal Navy in December 1957, I immigrated to America and after landing in New York City, started searching for work. My search led me to the Radio Receiver Department of General Electric in Utica, NY, where I interviewed for the position of design technician in the transistor radio department. My lack of a formal engineering degree prevented my starting off as an engineer, so I spent four years as a technician working with engineers, first on audio circuit design and ultimately on the entire radio design.

Q. What roles did you fill at the Radio Division?

After four years as a technician working for engineers, I was promoted to Specialist Electrical Design with beginning-to-end responsibility for a specific radio circuitry design. Two years later, I was promoted to Team Leader Multi-Band Engineering where I had a team of engineers and designers responsible for the department's complete line of multi-band radios. In 1965 (?), I moved from the Engineering department to the Marketing department to become Product Planner of all portable radios for the department. My next assignment was as Manager of

Q. What would be your favorite GE radio you had a hand in designing?

My favorite radio would be the P990 multi band because it posed the biggest challenge. In order for it to be cost effective, our production methods would not allow for the traditional hand-wiring circuitry required for multi-band designs, so I had previously (for the P925) developed special components (switches, tuning capacitors, etc) that could be dip soldered.

Demand for short wave radios grew rapidly in the early 60's (the Kennedy days) when US consumer interest in world affairs and news exploded and lower cost multi band radios from Japan were coming on the market. The P990 was one-third the retail price of the Zenith and Magnavox portables and a very good seller.

Q. What kind of challenges did the design team face in meeting the Japanese challenge and staying on top technically and performance-wise?

Yes, the Japanese portable radios were a formidable challenge (although at that time more for their lower price than performance). All RRD sections were formed into multifunctional cost reduction teams to meet the challenge. Combination engineering, manufacturing and purchasing task

International Planning as the department, like many other GE divisions, was challenged to expand its market and product development to overseas locations and markets.

Q. How would you describe the radio development team at GE? What was the focus of the radio division when you were there? Did the radio division eventually cease operations or get transferred overseas?

GE, of course, had a long history in the development and manufacture of commercial and consumer radios, and when I arrived on the scene in January 1958, the Radio Receiver Department (RRD) had been a separate department for many years and was a market share leader in tube table and clock radios. The transistor radio engineering section was started earlier, in 1956, with Ralph Brown as its manager. Early prototype transistor radios were developed in the advanced engineering laboratory by a small design group, including Joe Worcester, an engineer who was one of the earliest innovators in transistor circuitry. By the time I arrived, Ralph had assembled a team of engineers and technicians, among whom were Frank Banovic (who was the engineer I worked for on the P780), Dick Miller, Selby Young (both EE's) with Hank Smith and Ray Hanson (who was later to become a leading specialist in FM radio design) as technicians. Mechanical engineers and designers along with Industrial Design engineers made up the team and we were supported by specialty engineers in such areas as speaker, coil and transistor design. The names I have given you only represent the small group that I immediately worked with and I have later tried to list other people that I remember. The major focus of the RRD was still table and clock radios, and the early transistor radios were fairly low-performance AM models.

During my tenure in RRD, some production of the circuit boards for AM-FM transistor radios was moved to a new start-up production operation at Shannon Airport in Ireland, and GE also purchased a small radio company in Hong Kong which eventually became the manufacturing operation for all portable transistor radios. This was later expanded to include radio production operations in Singapore. During the 1980's, GE sold all of its consumer electronic operations (radio, television, audio) to RCA, who in turn and at a later date sold out to Thompson Corp. of France.

Q. Please describe some of the radio models you were involved with.

I will chronologically list the models that I either partially or fully designed and I may have missed a few. I would have worked on all AM/FM or Multi-band models from 1959 through 1966.

forces developed a plan for the automated high speed assembly of "shirt pocket" AM portables, and I believe that the first model assembled on this Utica manufacturing program was the P1730, of which I have a sample. Also, innovative design strategies were implemented to take advantage of lower cost components. For example, our P975 portable was designed with new high-cost GE NPN silicon transistors, but one day a purchasing manager called us to say that he had been contacted by Philco, who had a large inventory of surplus high frequency MADT (germanium type) transistors for sale because they did not meet commercial equipment specs. So Ray Hanson and I collected several hundred samples and revised the circuitry from NPN to PNP configuration and did a yield sort to select which transistors performed okay in the various functional stages. We ended up buying a warehouse full of these units and saved the department millions of dollars. I seem to recall we received some small token of a few hundred dollars each! Had it been thirty years later in Silicon Valley, we would probably have quit and started our own company!!!

Q. Were all GE radios designed in Utica? When did this cease, if it ever did?

I think that all GE radios were designed in Utica until the RCA sale.

Q. Out of all the GE transistor radios you are familiar with, which do you feel offered the best performance, and why?

The AM reception on my P780 is far superior to any radio, home or auto, that I have experienced, including the best

Model	Description	Comments
P780	High-performance AM portable	With Frank Banovic
P860	"Rugged design" AM portable	The metal front proximity to the ferrite antenna made this a poor performer.
P975	"Rugged design AM/FM portable	With Ray Hanson. The P977 was a later version.
P925	AM/SW (4-12 MHz)	First GE transistorized shortwave portable. Awarded Cordiner Award.
P930	AM/SW (6-18 MHz)	Slide rule tuning
P990/1	Multi-band LW/AM/SW/FM	GE's first serious challenge to the Zenith Transoceanic
P1940	Automobile Portable	Good seller
P2940	Multi-band	When I was Team Leader
P2900	Multi-band	When I was Team Leader
P?	AM/FM/MB DF Antenna	Fun to design, but not a good seller

Toshiba models that I marketed. Of course, the P865 (which added an FM band to AM in a P780 case) provided wider performance but there were many models that came along later that offered outstanding features and performance.

Q. Which GE radio to you offered the best combination of performance and value (bang for the buck)?

If I recall correctly the P975 AM/FM (and follow on P977 version) was the best selling GE portable of the 60's, with over one million being sold. At $39.95 it was probably the best value.

Q. What were your first and last radio projects at GE?

The first was of course the P780 and the last during my engineering time was the P2900, (I think!).

Q. Was there any scheme to the model numbering used by GE for its radios?

The obvious letters were "P" for portables and they were assigned starting in the 700 to 900 range. Table radios were 100 to 200 and clocks were 400 to 500. Subsequent portable generations would be 1700's to 1900's and then 2700's to 2900's, and so on.

Q. What have you done since retirement? Are you a ham radio operator, or do you keep your hand in "the trade" in any other way?

I left GE in late 1969 and started with Toshiba as Director of Corporate Planning, in which role I spent a year or so working in Japan and the US on product, operational and distribution planning, before becoming VP of Sales

& Marketing. The company was in its formative years in the USA and we developed and introduced several leadership product lines. I relocated from New York City to Dallas in 1976 and joined Texas Instruments, first as Manager - New Business Planning for consumer products and later as Marketing Manager for personal computers. There were some interesting assignments, including the first electronic photography camera, developed by Dr. Willis Adcock, line 21 closed captioning for TV, and of course the home and personal computers (another interesting story). I was recruited by Atari in the fall of 1979 to join their personal computer division and became VP of Sales & Marketing. Moved on to Corporate VP Planning covering the three divisions of coin-op, consumer (video games), and computers (an even more interesting story!), ending up as VP-Sales in 1983. When Warner sold Atari in 1984, I decided to "work for myself" and until I retired in 1994 did business planning along with operational sales and marketing start-ups in Silicon Valley. The last company was fun (actually called Sounds Fun) started by a brilliant young engineer who was formerly VP of Disney Engineering (met him when we worked together on a Disney project). He invented a talking animated watch and came to me for a business plan and marketing organization. We got licenses from Disney, Warner and Turner for their characters and I moved down to LA area to get the business going. Over a three-year period we sold over a million watches, but at age 66, I was ready to retire. We settled on Whidbey Island in the Puget Sound and I just do a little consulting from time to time.

I'd like to thank Mr. Jutson for sharing his memories with me, and he apologizes for any errors or omissions, after all it was a long time ago. --Sarah