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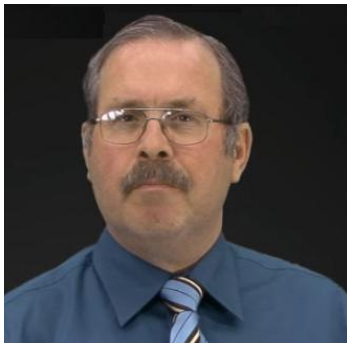

Radio Communications / Electronics Installation & Commissioning Engineer

Experience & competence

I was educated in the British Royal Air Force in the days when an engineer needed many skills, such as:

> *Knowledge of transmission/multiplexing, handheld/mobile/base station radio, repeaters, antennas, satellite, climate-control, power & backup systems, basic mechanics, soldering, fault finding (from system to component level), cryptography and aircraft navigation aids (eg. CADF, ILS, NDB, etc).*

My training and experience therefore makes me the ideal choice for most engineering or educational rolls.

I was employed as a test & installation engineer for international telecom companies up to 1995. Since then I worked in several different and simultaneous rolls, for example: Installation Methods Engineer, Technical Author/Writer, Document Editor (English), Educational Film Presenter & Course Developer.

I handled radio frequencies, antennas, analogue and digital circuit design, radio system planning, coverage & site surveys, installation, testing and full-time teaching. I have exceptional skills in circuit testing, antennas & related components; see the "Articles" and "Patents #2" paragraphs below.

Some key areas of expertise:

Radio and electronic:

- Installation & commissioning of radio systems
- Antenna system installation and configuration
- Antenna components (filters, cavities, TMA, etc)
- System planning, coverage survey and testing
- Fault-finding from system to component level
- RF, AF, analogue design & modification
- Printed circuit board layout and design
- Maintenance of radio & electronic systems
- Equipment repair (incl. supervising technicians)
- Use of test equipment + soldering (expert level)
- System installation and commissioning
- Radio direction finding (+ RDF antenna design)
- Digital circuit design & modification
- Laboratory tests for type approvals

Educational:

- Video film course developer / manuscript writer
- Video / Multimedia presenter and "mentor"
- Short course developer/presenter (classroom)
- Full-time teacher in radio, electronics / telecoms

Writing & documentation:

- End-user documentation editor (English)
- Technical writer for end-user documentation
- Testing and documentation for type approvals
- Video film course developer / manuscript writer
- Video / Multimedia presenter
- Researching new test methods for CPI

Managerial:

- Repair facility manager (multinational staff - 8 years)
- Project manager (1½ year – Ericsson, 1998)

Languages

- English – mother tongue
- Swedish – quite good
- Arabic – beginner (written and spoken)

Employment History

ERICSSON, Kista, Sweden

Feb 1995 to May 2010:

I was employed by Ericsson from February 1995 to May 2010; the last 5 years through a small consultant company. During my 15 years employment I had five main rolls:

1. Method engineer.
2. Project Manager.
3. Method engineer in educational films.
4. Technical author/writer.
5. Editor for end-user documentation.

I was initially employed as a GSM radio base station installation method engineer, for the RBS 2000 series. Responsibilities included researching and gathering technical information, language & terminology editing and providing technical advice to other course developers in the department. I also functioned as technical writer for end-user documentation, editor, project manager, and held responsibility for sound manuscripts, sound quality, and technical content in video and multimedia educational films.

As a method engineer my input to technical writers was of a higher standard that the writers so I was given dual rolls: researching installation methods and technical author.

The video courses I developed were intended as educational tools. They have also been used a “FOA” (First Office Application) to prove radio installations of new equipment, and to provide source material input to designers and customer product information manual writers.

In all these rolls I have been regarded as a possessor of in-depth information, knowledge and experience. I am constantly sought after by writers and method engineers for technical advice.

CABLE & WIRELESS PLC, London, United Kingdom

Jun 1991 to Sep 1994, and **Jul 1985 to Jun 1989**

Employed to install and commission a nationwide communications system in Saudi Arabia, followed by Maintenance of the same system in Jeddah, and then in Riyadh.

Duties included nationwide radio system installation and management of up to 15 locally employed workshop engineers, creating maintenance instructions, and radio system fault finding beyond the scope of normal workshop staff. Design & implementation of "special" needs by the customer, for example:

1. Communications “inter-connect” panels. An active system for inter-connecting 14 VHF voice repeaters. Used by the Saudi Arabia National Guard, in each of two regions (Jeddah and Mecca), allowing controllers to control the repeater system in another region. This involved the design and production of plug-in “splitter panels” to combine or split control signals in two directions.

   The panels plugged into Audio + E&M telephone exchange patch panels, and routed control traffic over microwave telephone multiplex network to the other region. This plug-in approach eliminated the need for permanent modifications to the existing (and well documented) system.

2. AC 230 V no-break supply. Due to unstable local AC power causing computer problems, DC-AC converters were designed to modems with AC power, derived from an existing 24 V DC supply.

   To the best of my knowledge these power inverters are still in use today.

3. Designed special interface units (RF cavity/tuned circuit), to isolate DC potentials, when 12 V radio equipment was installed in a 24 V vehicle (the “royal bus”). The unit used tightly coupled 450MHz resonant tuned circuits, with no DC continuity.

4. Emergency repeater. Microwave (MUX) for telephone traffic was disabled by a building site crane obstruction. I used two cross-coupled transmitter/receivers, installed locally, to relay the VHF network to the UHF mobiles used by North Jeddah royal palace guards.

5. Designed a solar regulator and cycler to charge and cycle radio backup batteries. The power was used for security forces radio coverage at the Riyadh camel races, and Jeddah to Medina highway during the annual holy pilgrimage.

6. Design of simple workshop test equipment, such as an accurate frequency alignment tool for low-frequency signalling tones, e.g. 71.2Hz CTCSS tones, where locally available test equipment was limited to an accuracy of +/- 1Hz. My instrument was accurate to +/- 0.01Hz.

I also worked as a system "trouble-shooter" for other regions in the kingdom and as a system expert, to fault-find and rectify problems beyond the scope of technicians and engineers in other regions.

TAIT MOBILE RADIO Ltd, Huntingdon, United Kingdom

Jun 1989 to Jun 1991

I was initially employed for site installation and commissioning of Tait Mobile Radio (UK) radio communications equipment, for example, repeaters, community repeaters, “Trunked Radio” (earlier version of TETRA and RAKEL) to MPT1327 and MPT1341. I assumed the roll of designer due to shortage of staff (the design “expert was offered another job”). Examples of projects I designed include:

1. Portable repeaters. These comprised two pairs of transmitters and receivers (transceivers) to extend the range of the police radio communications system for temporary or emergency local communications. The system was used by 90% of the UK police force.

2. Logic control system to select and establish radio communications between Norwegian tankers and oil platforms, for computer monitoring of oil delivery.

3. On-board analogue intercom. Used by Huntingdon (UK) fire services so fire-fighting teams can communicate during high ambient noise conditions. System was integrated with 2-way mobile radio.

4. Modification of VHF FM mobile transceivers to provide RS-232 data output. Used by UK ambulance service to give printout confirmation of instructions to paramedic teams.

5. Design of simple digital RF synthesizer. Unit used to demonstrate synthesizer principles during full time education of dealer's technicians and engineers in Tait products.

PYE TELECOMMUNICATIONS Ltd, Cambridge, United Kingdom

Sep 1975 to Jun 1985

Supervision of factory production lines, for radio system components, followed by laboratory functional tests and alignment of the system prior to leading a field installation and commissioning team, worldwide. Responsibilities included management of installation teams and technical support to other installation teams. Techniques and functions included:

1. VHF and UHF analogue radio repeaters, control panels for PMR / LMR.
2. Alignment and test of cavity duplexers, diplexers and filters.
3. Quasi-synchronous FM transmitter installation and alignment.
4. Automatic site select of received transmissions (ASSORT) equipment alignment.
5. Multi-receiver "signal quality voting" equipment alignment and repair.
6. Community repeaters (Shared repeater system).
7. Full time education of customer's staff in RF, digital, microprocessor and synthesizer operation.
8. Service department repair of the complete range of PYE Telecom equipment.

I also served in a service and repair depot for the complete range of PYE telecommunications base and mobile equipment, after serving two years in factory production test (PYE PF1, PF70 and PF8).

ROYAL AIR FORCE (RAF), United Kingdom

Sep 1968 to Sep 1975

After one year's education in a medical discipline, I was further educated in two stages (1 + 2 years) to engineer – equivalent to HNC/HND. My duties included scheduled servicing, installation, calibration, repair, replacement and adjustment of ground communication equipment and systems. I also performed 3rd-line refurbishment and repair of airfield and military communications equipment.

Equipment range included ground and air communications equipment, radio navigational aids, telegraphy terminal and cryptographic equipment, communications control and airfield intercommunication (intercom) systems and miscellaneous vehicle mounted communications equipment (mobile radio telephones).

Participation in military field exercises where temporary but reliable HF and VHF communications was required between ground forces, and ground to air VHF communications. To take responsibility of radio links and networks during field exercised. Attached to RAF No1 (Harrier) squadron.

Articles and documents published

I have written articles in electronic magazines and periodicals around the world. For example: in Belgium, Great Britain, USA, France, Germany and Italy. Some of the larger articles were:

"**Canny Cavities**", (Practical Wireless, UK, 1996).
I documented the design and construction of resonant cavities for amateur radio use. Article followed a project to build a modern "crystal radio receiver" using a metal food tin, fitted with a resonator and one diode, used to receive analogue VHF and UHF NBFM transmissions (for example: taxi, police, NMT and emergency traffic). FM was demodulated by means of "slope detection". Article also covered cavities in series-pass and notch configurations for TX and RX sharing a common antenna.

"**Universal RF Synthesizer**", (QTC, Sweden, Oct 2009)
A practical design, with full construction notes, of a complex RF synthesiser. The design is capable of both single and dual modulus counting techniques and uses simple circuits, readily available and

affordable components. The 6-page article included printed circuit board design and layout for download from my own homepage server.

I have had eight articles published in QTC, the last four were written in the Swedish language.

Approximately eight antenna design articles, (On The Air, Canada, 1998)
This was a series of constructional articles published over one year describing antennas for use in the MF, HF and VHF bands. Articles were used to educate the hobbyist, but some antennas were quite complex, for VHF and UHF use. One of the VHF antenna designs gives +4dBi of gain, and can be constructed using only wire cutters, all within 10 minutes.

Article included HTML/JAVA script to calculate antenna dimensions.

Electrical solar panels, (next project for publication during 2010)
I have designed and constructed electrical solar panels (photo-voltaic). This has also been complemented with dimensioning solar power panels for self-contained electrical installations, and inventive ideas for power economy. The article is being written after a small island in a Swedish lake has been installed with self-contained lighting, well-water, TV and light domestic power.

In addition to this I have my own homepages documenting some 250 designs for radio transmitters, receivers, and electronics, complete with photographs and printed circuit board foil patterns. The homepages attract up to 250,000 visitors a year, making me well known in the international "hamradio" world due to my simple but practical designs.

Inventions and patents

During my service with Ericsson, I identified a major problem. As a project manager was asked to find a "revolutionary new tool" for lesser educated antenna installers:

1. I experienced radio base station cabinet enclosures "breathing" during climatic and temperature changes. My solution was to use a reed air pump to apply a little positive air pressure inside the cabinet, thus avoiding the situation of a low internal air pressure sucking moisture into the cabinet.

   Ericsson did not act upon the suggestion.

2. As project manager for Ericsson I was tasked with finding a designer/manufacturer for a simple antenna test tool that did not require "a degree in RF engineering" to operate. The tool should ideally give a GO/NO-GO indication. After contacting many companies, without success, I decided to design such a tool myself. Ericsson had 10 prototypes made and tested in China. A patent was registered, which was subsequently given to an outside company (not Ericsson core business).

   My tool cost less than US$100 and was a "throw-away" instrument; not requiring service or repair.

Education

Course	Duration	Result
City & Guilds (of London) Institute	**4 years****	Attained distinction (*spetskompetens*)
RAF "Electronic Fitter (Comms)" (*RAF "högskola"*)	**2 years***	Attained top marks in most areas
RAF "Electronic Mech (Comms)" (*RAF "högskola"*)	**1 year**	Attained top marks in all areas

* *Equivalent to civilian qualification HNC/HND - engineer*
** *Private study in preparation for C&G examination as "external candidate", in pursuance of hamradio license*

Since 1995 I have attended many short courses, for example: presentation skills, office skills, word processing, SGML (TagTool), MS-Office, MS-FrontPage, Adobé PhotoShop, PSP, Adobé Audition, Adobé Premiere Pro 1.5, and Autodesk 3D-studio MAX. I have recently begun courses in MPLAB tools for programming single-chip processors (PIC12F & PIC16F), and started an AutoCAD video course.

References

Written and contactable references are available on request.

Personal data

I am native British subject, with Swedish citizenship (dual nationality) and reside in Sweden. I am quite prepared to rent accommodation local to the place of employment. My wife and I may be willing to relocate, if a suitable employment opportunity presents itself ("*home is where the work is*").

I am available for full-time employment: no period of notice is required.