

COURSE OF TRAINING FOR TELECOMMUNICATION TECHNICIANS

COMPLETED BY

ON NO 15 TELECOMMUNICATION TECHNICIAN COURSE

CONDUCTED AT THE RAAF SCHOOL OF RADIO

FROM 3MAY74 TO 30CT75

COURSE CONTENT

To graduate as a Telecommunication Technician the trainee must undergo the applicable number of 50 minute periods of training for, and pass the appropriate theory and practical examinations in each of the subjects listed. At the end of the Technician Phase the trainee is remustered to Telecommunications Technician.

Mechanic Phase

<u>Subject</u>	<u>Brief Detail</u>	<u>Periods</u>
Basic Fitting:	Hand tools; files; drills; precision measuring instruments; heat treatment; sheet metal bending; rivets; rivetting; marking out; practical exercises.	41
DC Theory:	Electron theory; current electricity; simple electric circuits; resistance; energy; power; conductors; insulators; cells; batteries; static electricity; magnetism; electro-magnetism; capacitors; appropriate mathematics - Arithmetic, Algebra, Indices.	104
AC Theory:	CR circuits; inductance; AC; AC resistive; inductive and capacitive circuits; series resonance; parallel resonance; filters; appropriate mathematics - trigonometry, logarithms, vectors, graphs.	104
Valve Theory:	AC and DC measurement; CRO familiarization; thermionic emission; vacuum tube diode; metal rectifier; transformers, rectifier circuits and filters; the triode electron tube; triode amplifier principles and circuits; tetrodes, pentodes and beam power tetrodes; electron tube faults; P and N semi-conductor materials.	100
Transistor Theory:	The semi-conductor diode; the junction transistor; transistor amplifier principles and circuits; voltage regulated power supplies; distortion and heterodyning in amplifiers; AF amplifiers; sine-wave oscillators.	96
Principles of Reception:	Types of modulation; RF amplifiers; RF losses; reception of AM Transmission; typical communications receiver; the thyatron; the CRO.	96

/Principles

<u>Subject</u>	<u>Brief Detail</u>	<u>Periods</u>
Principles of Transmission:	RF power amplifiers, AM transmission; typical AM transmitter; transmission lines; antennae and radio propagation; direction finding; SSB transmission and reception; FM transmission and reception.	100
Basic Radio Servicing:	Workshop safety; soldering; wiring and cables; circuit tracing; build, align and fault find on a broadcast band superhet receiver; printed circuit board soldering; test equipment - AVO, VTVM, megger, valve tester, transistor tester, CR bridge.	199
Technical Administration:	Technical orders and instructions; defect reporting; maintenance forms; RAAF stores system; ground safety; electrical systems; aircraft handling; communications procedures.	16

Mechanic Phase Periods


856

Technician Phase

<u>Subject</u>	<u>Brief Detail</u>	<u>Periods</u>
Advanced Radio Servicing:	Safety precautions; care and use of test equipment; circuit analysis and logical fault analysis on: power supplies, valve amplifiers, transistor amplifiers, valve superheterodyne receiver; mobile power supplies.	140
Pulse Techniques:	Introduction to pulse; differentiation and integration circuits; clippers; clamps; multivibrators; schmitt triggers; blocking oscillators; diode step counter; time base generators; coincidence gates; delay lines; digital computers; counters; pulse systems (eg CRO).	200
Electronic Control Techniques:	Electrical machines, tape recorders, photo tubes and photo semiconductor devices, solid state devices extending transistor high frequency response, field effect transistors, uni-junction transistor, PNP transistors, integrated circuits and special semi-conductor devices.	37
Telecommunication Theory:	Basic signalling theory, single current keying, leakage, resistance, inductance, and capacitance, double current keying, distortion, signal codes, non-polarised relays, polarised relays, and logic circuits.	43

/Telecommunication

<u>Subject</u>	<u>Brief Details</u>	<u>Periods</u>
Analog, Digital	Semi-conductor devices, Analog techniques, digital techniques, functional blocks and sub-systems.	105
Telecommunications Equipment:	Electro-mechanical transmit and receive equipment, operating on 5 unit start-stop sequential code at speeds of 45, 50 and 75 bauds. Equipment taught includes M28, M14 and M15 teletype.	385
Touch Typing:	Basic care and maintenance of typewriter. Typing practice to reach speed of 15 words per minute.	52
Telegraph Terminal Equipment:	Analysis of circuit and operation of triple transmitter distributors, automatic message numbering devices, automatic motor control switches, line patching units, line terminating units, power supplies and meters. Maintenance, servicing and fault diagnosis of all of the above.	53
AF/FRC-801 Microwave Link:	Communications link in the 'S' band (2700 MHz) utilizing frequency synthesizers and audio multiplex techniques.	148
Telegraph Test Equipment and Solid State Switching:	Analyse circuit and operation of telegraph test equipment to view, measure, and transmit, distorted and undistorted telegraph signals at speeds ranging from 40 to 190 bauds. Analyse circuit and operation of low level drive board, solid state relay and solid state/reed relay capable of speeds up to 5000 wpm. Service, maintain and fault find on all of the above.	70
Technician Phase Periods		1233
TOTAL PERIODS		2089


Squadron Leader
Chief Instructor