

# **MELBOURNE TECHNICAL COLLEGE**

## **TRAINING MANUAL FOR RAAF WIRELESS MAINTENANCE MECHANICS 1941-1945**

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The pages that follow form one of the 'textbooks' used in the initial training of Wireless Maintenance Mechanics between 1941–1945, at the Radio School of The Melbourne Technical College (now RMIT), during World War II. This 'textbook' comprises a series of texts assembled from valve data books, the Radio Amateur's Handbook, published by the American Radio Relay League (ARRL), the Postmaster-General's Department training leaflets and course notes previously prepared for pre-war radio training courses conducted by the College.

## FOREWORD

After the outbreak of war with Germany in 1939 young men were encouraged to enlist in one of the three military services – The Army, Navy or Air Force. Many were attracted to the Royal Australian Air Force (RAAF), to train as pilots. All men had to pass through “Rookie” training, an intense four weeks of drill and physical training. Victorians underwent these courses at the construction camp adjacent to the then recently completed Rocklands Dam or at the Shepparton or Melbourne Showgrounds.

In addition to flying duties a wide range of other essential musterings were on offer. One such alternative was the posting of Wireless Maintenance Mechanic which was also the base training for what was originally termed Radio Direction Finding Mechanic (or RDF Mechanic, in later 1942 to be known as Radar Mechanic). After passing through “Rookie” training and the rigid selection process, those showing an aptitude for or interest in radio, including the top-secret Radar, were then required to initially train as Wireless Maintenance Mechanics, (generally referred to as Wireless Mechanics). This comprised an intensive twenty-four-week course at the Melbourne Technical College. Instruction was either at the College’s Radio School or in the annex in Little Lonsdale Street.

From September 1941, a new course was commenced every four weeks and from January 1943, every two weeks, with up to 80 trainees in each course. At the conclusion of each segment, they were examined on what they had learned in that course segment. Failure meant falling back to the following course to again study that segment. If trainees failed again they were given the opportunity to transfer to a different RAAF mustering. The numbers re-mustering, for various reasons, were about 30%. Of the successful trainees about 50% proceeded to Richmond RAAF Base in NSW for a further three months training as Radar Mechanics.

While on course, most trainees were billeted in the Melbourne Exhibition Building. Each week day they assembled at 7.30am for roll call before marching to their classrooms, returning to barracks for lunch. After resuming lectures until 5pm they again marched back to barracks. Time was allowed for private study until meal time and lights out. Discipline at all stages was rigidly enforced (not always successfully) by service police.

As there were many courses running at Melbourne Technical College, accommodation at the Exhibition Building was stretched. Those trainees from Melbourne, or who had relatives there, were encouraged to board out. They were still required to report back for the morning parades.

The course covered basic electricity and magnetism; electrical technology, batteries, generators and motors; measuring instruments; DC and AC circuits; transformers; Radio: acoustics; reception, thermionic valves, receivers, transmitters, antennas, etc. There was quite an amount of practical work such as soldering and constructing test equipment.

The pages that follow form the main ‘textbook’ used for training of RAAF Wireless Maintenance Mechanics at the Radio School of The Melbourne Technical College. This “textbook” comprises a series of texts assembled from valve data books, the Radio Amateur’s Handbook, published by the ARRL (American Radio Relay League), the Postmaster-General’s Department training leaflets, and course notes prepared for pre-war radio training courses at the College. Another textbook entitled “Electrical & Radio Notes for Radio Mechanics” also from the Radio School, Melbourne Technical College, covers the type of questions that were used in the fortnightly examinations. A copy of that textbook is available on the Australian War Memorial website via [www.awm.gov.au/collection/PUB02615](http://www.awm.gov.au/collection/PUB02615).

The original copy of this “textbook” and the ‘Electrical & Radio Notes for Radio Mechanics’ textbook were donated to the RAAF Museum at Point Cook, Victoria, at the request of the late Len Ralph (Sergeant, Radar Mechanic; Secretary of the Victorian RAAF Radar Association). It was Len’s request that both of these textbooks should be preserved in this way and made available electronically. This “textbook” is now located in the Association’s collection at the Museum. At the time of writing it is intended that the “textbook” will be accessible on line via [www.radarreturns.net.au](http://www.radarreturns.net.au)

Alex Culvenor  
(Leading Aircraftman Radar Mechanic)  
President,  
Victorian RAAF Radar Association

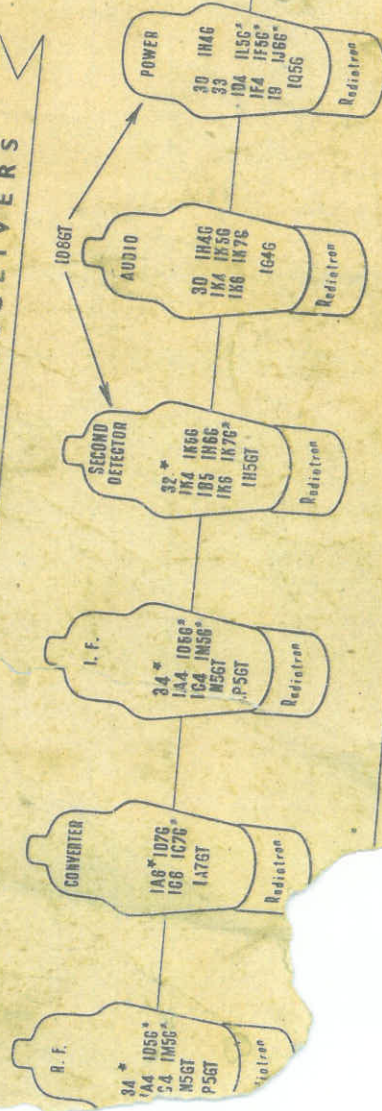
April 2013

# AD I O T R O N

## ALVE LOCATION CHART

COMMERCIAL TYPES

### TYPES FOR BATTERY RECEIVERS



### TYPES FOR A.C. RECEIVERS







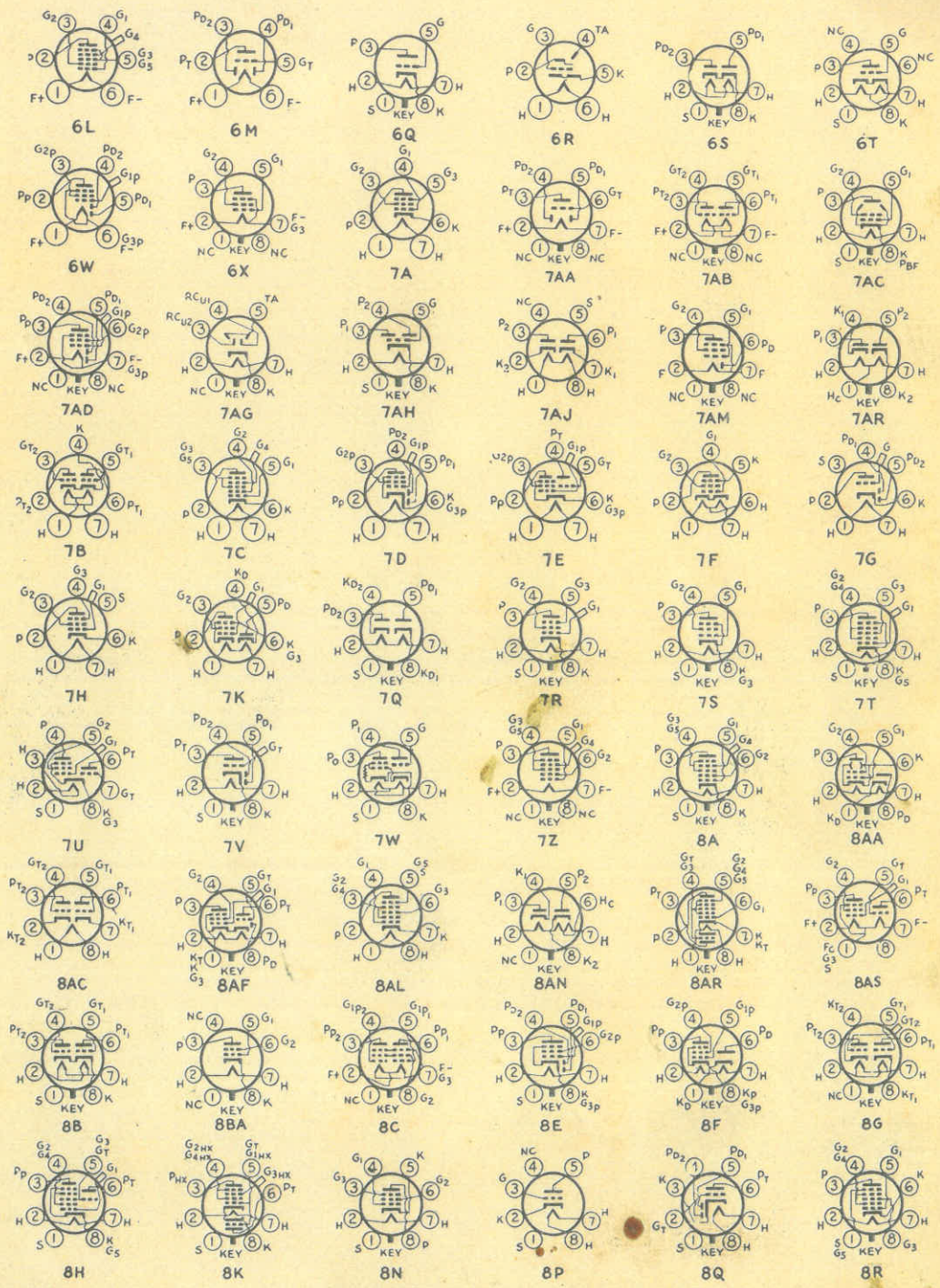
Bottom views are shown. Terminal designations on sockets are as follows:

BP = Bayonet Pin	H = Heater	P = Plate (Anode)
F = Filament	K = Cathode	P <sub>1</sub> = Starter-Anode
G = Grid	NC = No Connection	P <sub>BF</sub> = Beam-Forming Plates
RC = Ray-Control Electrode		

Alphabetical subscripts D, P, T and HX indicate, respectively, diode unit, pentode unit, triode unit or hexode unit in multi-unit types.

S = Shell  
 TA = Target  
 ● = Gas-Type Tube  
 U = Unit





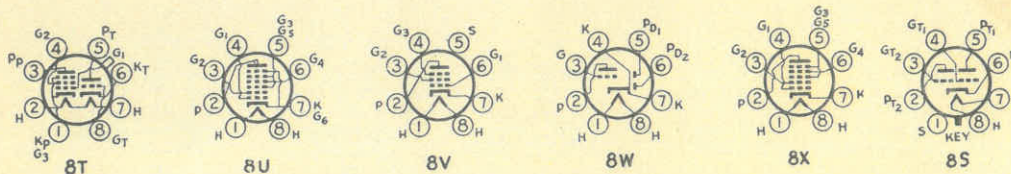
### RECEIVING TUBE DIAGRAMS

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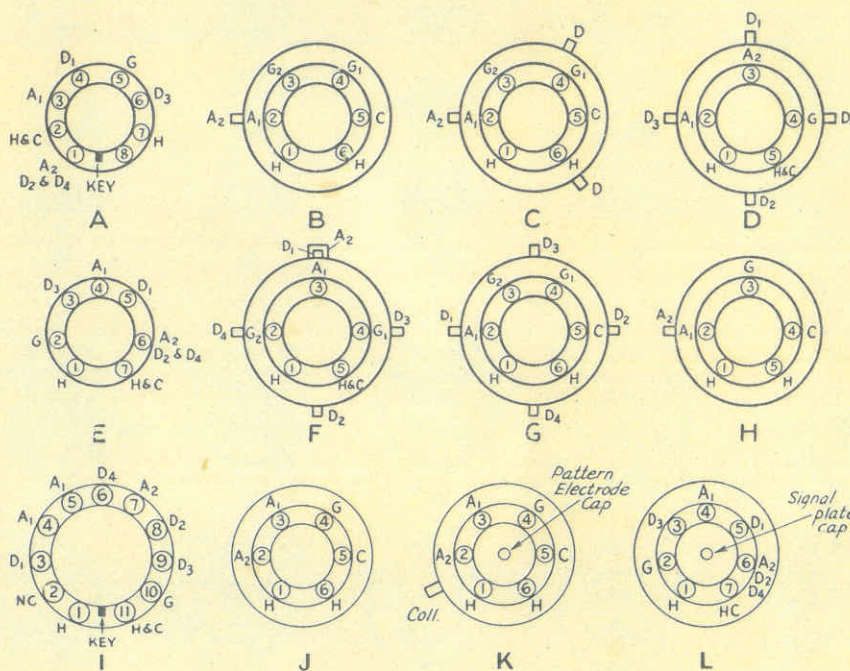
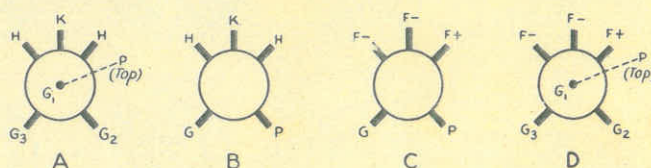


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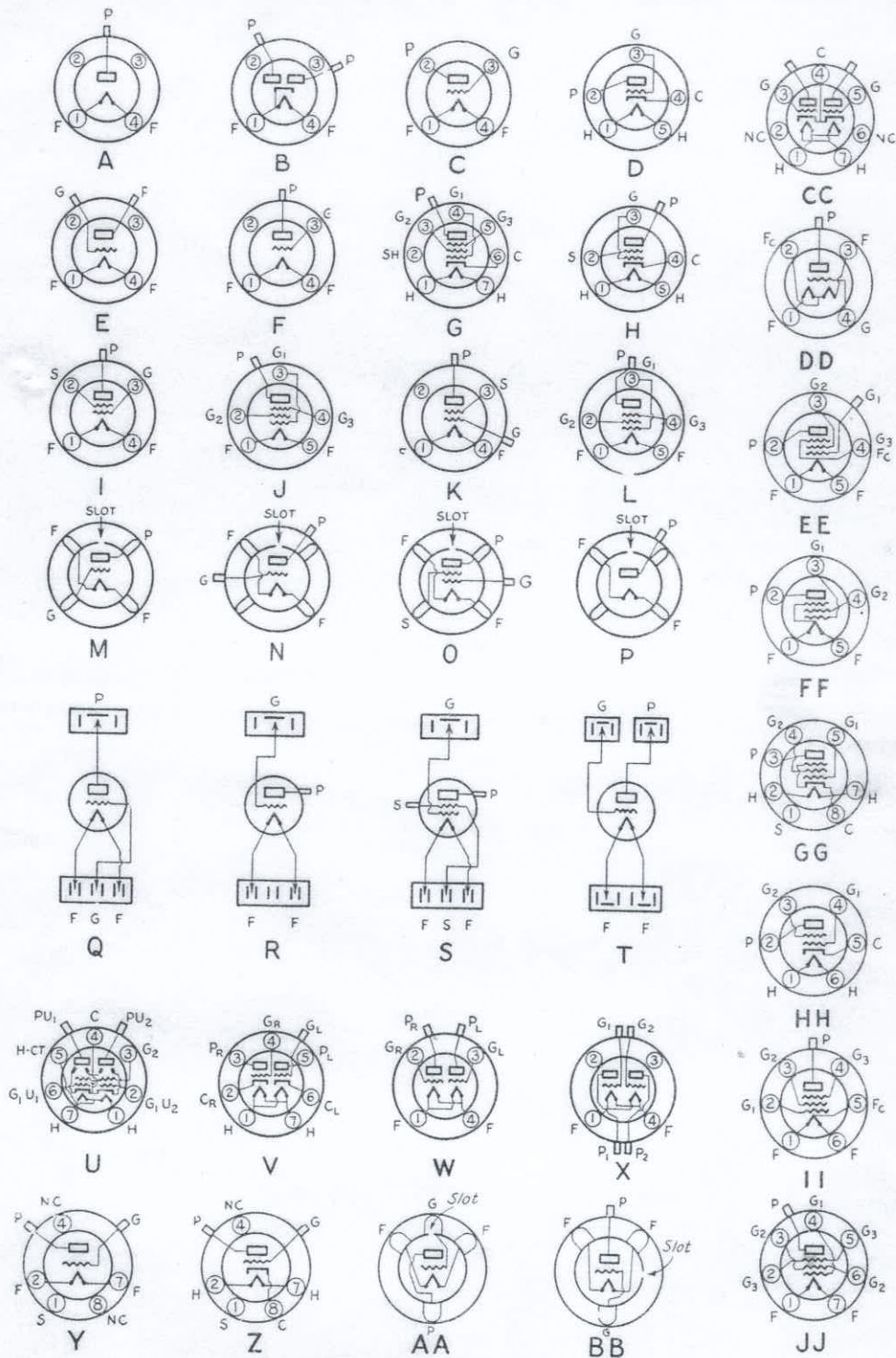
### SOCKET CONNECTIONS FOR ACORN TUBES

Bottom views — looking at short end.



### SOCKET CONNECTIONS FOR CATHODE-RAY TUBES

H denotes heater, C cathode, G grid, A anode, D deflecting plate, COLL collector. Inner rings of base diagram indicate socket connections; connections on outer ring indicate bulb cap-type terminals. Views are from bottoms of tubes.



### TRANSMITTING TUBE BASE DIAGRAMS

Bottom views are shown. F denotes filament, H heater, C cathode, G grid, S screen (or shell in octal-based tubes), P plate. G<sub>1</sub>, G<sub>2</sub>, G<sub>3</sub>, etc., denote grids numbered in order from cathode outward; numeral subscripts in multi-unit tubes denote elements common to one unit.