Identifying Australian 300 and 400 series Magneto Phones

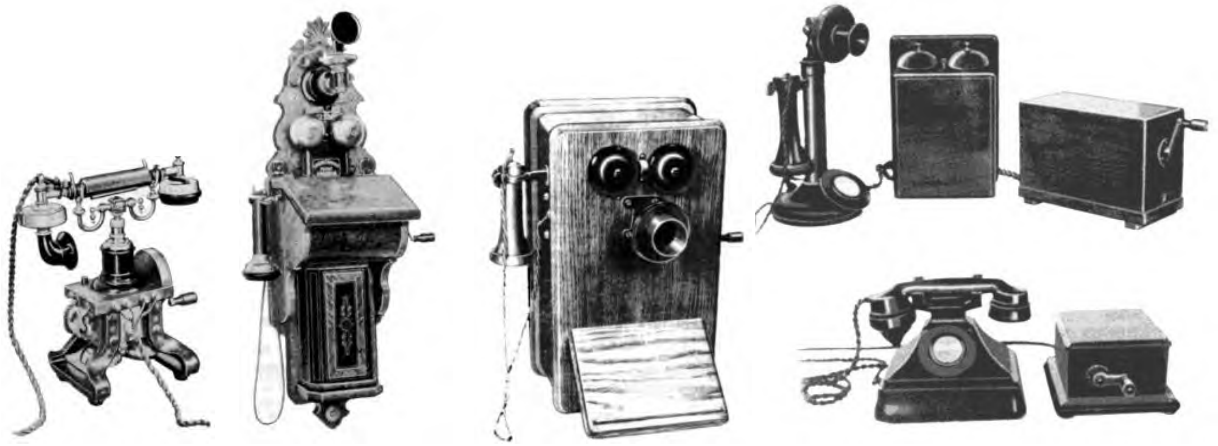
(John Paskulich)

Sources:

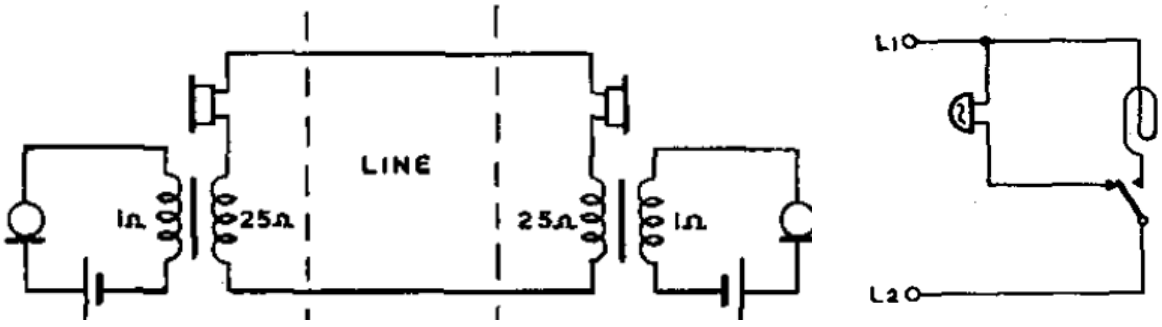
PMG doc "Magneto Telephones" (1958)
PMG Substation Equipment Handbooks 1951-1969
https://www.britishtelephones.com/
http://www.telephonecollecting.org/Bobs%20phones/
https://www.cool386.com/magneto/magneto.html
Telecommunications Journal of Australia
ATCS newsletter Mar. 2004. *The unknown phone identified.* D Parker

Introduction

Magneto telephones date back prior to 1880 and persisted in Australia's telephone network until 1991. They used a local battery (usually 3V) to power the transmitter and signalling was by a hand-wound AC generator and matching bell set. Switching was achieved through an operator-connected manual exchange but they could equally be used in simple directly connected private intercom links.



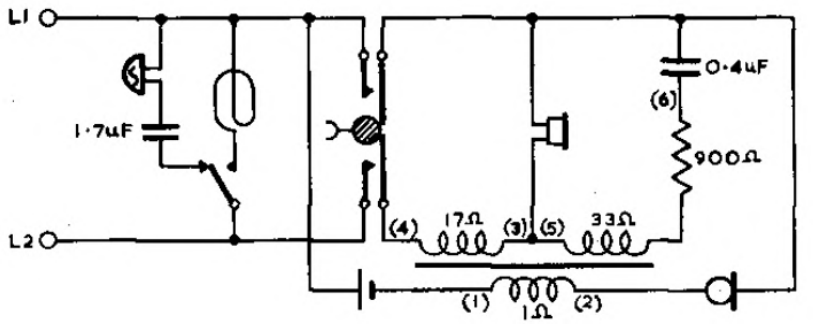
Some early magneto telephones. The battery was inside the early wall phones but table models had a separate battery box and often also had separate generators



Magneto concept. L: Speech circuit. R: Signalling circuit

300 series “Bakelite” magneto telephones

Manufactured in both Britain from 1938 and Australia from1945, there were obvious differences between layout and construction practices of British and Australian models. This persisted into the later 400 series.



300 series simplified circuit

Identification

The Postmaster General’s Dept (PMG), identified all of its equipment with codes and serial and item numbers.

Code descriptors e.g. MT. MW etc*:*

M = Magneto. T = table, W = wall, P = portable (could be unplugged and moved and had a small handle fitted). Earlier descriptors sometimes had a suffix H = handset to differentiate it from a separate receiver type e.g. candlestick.

Serial/item numbers - examples *(PMG Substation Equipment Handbook 1951)*

334 model black Bakelite magneto table telephones:
Standard magneto telephone: S1/58: 334 MT Black
Portable version: S1/53A 334 MP Black
Control lock version: S1/27 334 MT Black

Coloured phones *(Green and red models were soon dropped due to fading)*

S1/64. 334 MT Ivory
S1/74. 334 MT Jade green
S1/84. 334 MT Chinese red

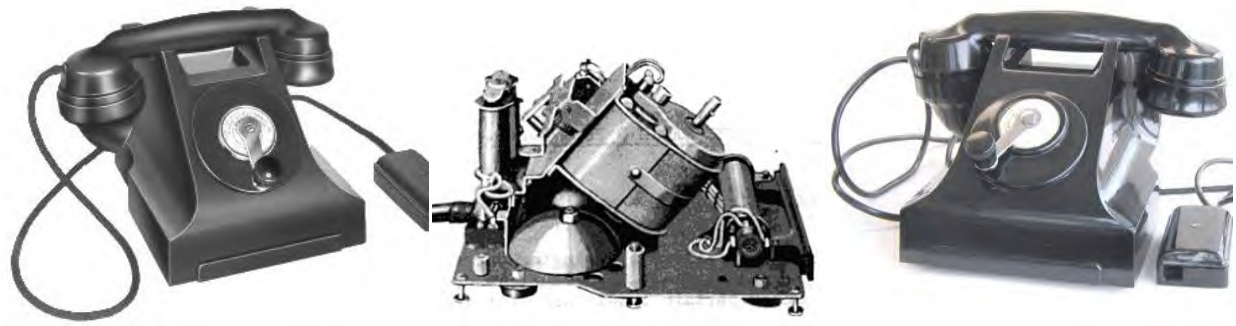
Battery box and cords

The 300 and 400 series magneto telephones required a separate battery box, usually of Bakelite or plastic and located near the telephone .The battery typically comprised two, number 6, 1.5v dry cells. Original 300 and 400s were fitted with fabric-covered cords but often retrofitted with plastic coated “curly” cords.

L: Battery box to right of wall phone. R: Cover off showing 2 x no 6 cells

British made 300 series models

333. Described in a Telecommunications Journal of Australia (TJA) of 1938, the 333 was the first of the 300 style magneto phones. A simple instrument using an induction coil with no sidetone cancellation and no bell isolating capacitor, it was soon superseded by the improved 334 MT. The 333 is recognised by its **concentric** generator faceplate and **front drawer blanking (dummy) plate**. Note the vertical bell motor and all components mounted on the base plate. WW2 started in 1939 so very few 333s would have been delivered as production shifted to a war footing.

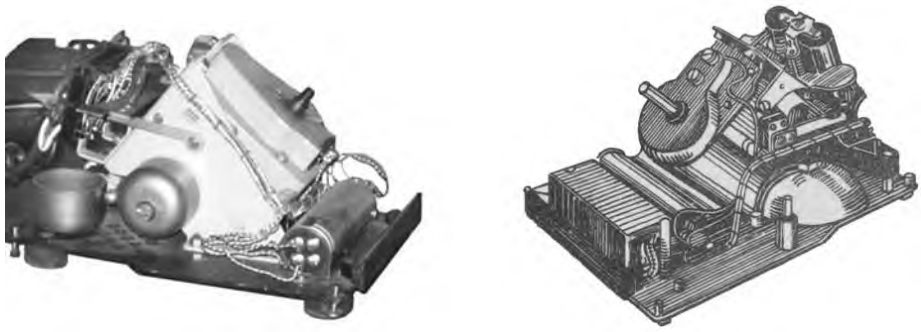


L – R: 333, Internal layout (no capacitor) and 334

334. Developed in 1940, the 334 was an updated version of the 333 with a bell capacitor and a proper anti-sidetone induction coil (ASTIC). It is recognised by the same front drawer blanking plate but an **eccentric** generator faceplate due to the inclusion of the bell capacitor which required moving the generator back slightly. Wartime difficulties would imply no significant deliveries until war's end (1945).

336. The 336CBT was a CB model fitted with a generator (described in TJA 1938). It was used as an extension phone off an extension switch. The magneto signalled back to the main station. Its external appearance was almost identical to the 334. 336 PMG ID: Black S1/56, Ivory S1/66, Jade S1/76, Chinese red S1/86.

338. British made, the 338 is similar in appearance to the 333 with the drawer dummy and a **concentric** generator faceplate. It was a mid 1950s emergency model produced by TMC using non-standard parts to keep up supplies of magneto phones. The most obvious differences to the 334 are its smaller bell gongs with one mounted vertically and one horizontally, a larger generator, a different base plate and a concentric generator faceplate.



L-R. 338 internals compared to 334

Other UK magneto telephones

Ericsson Telephone Co etc. produced a range of magneto phones that differed from the above. These appear in Australian collections and some were used by the PMG such as extension phone S271/43, a combined dial/magneto phone - below.

Extension phone S271/43 (Ericsson N1049H)

Australian made 300 models

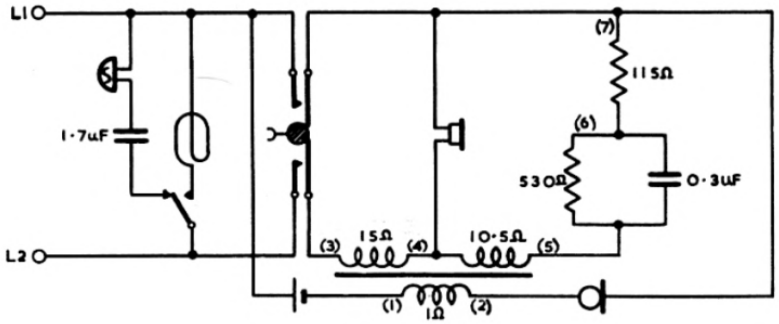
300 MT (S1/94) and 300MW (S1/95). Introduced post-WW2 (described in TJA 1945), these used a locally designed magneto generator fitted directly into the "dial aperture" of the standard Bakelite case. They are recognised externally by the concentric generator plate and absence of drawer dummy in the table model's case. The internal layout is also very different to UK versions because of the generator.

L-R: 300 MT, 300 MW, and generator location/layout

330 MT was a wartime "expedient" telephone assembled in Australia from locally made Bakelite cases (by STC/AWA) and a variety of spare parts from several sources including a GEC compact, base mounted, generator. Some versions had "military" handsets but typically used 164 style handsets as supplied by Siemens at the time. The external appearance was similar to the later Australian 300MT with a concentric generator plate and no drawer dummy.

400 series "Bakelite" magneto telephones

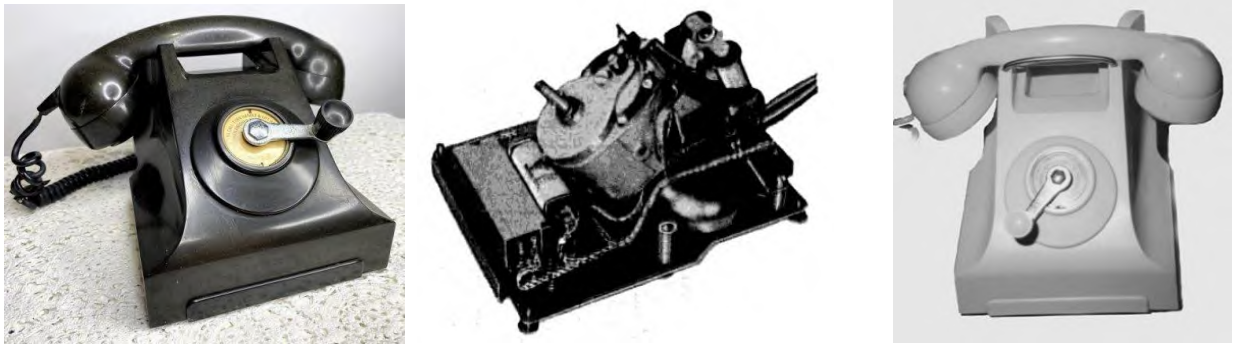
Manufactured in both UK and Australia, the 400 series was developed for the PMG in 1957 based on the British, prototype, no.700, Bakelite phone. It used a curved Ericsson/GEC 1000 type handset and 300 case. Designed to work on longer and lighter gauge cables, it was fitted with a more efficient ASTIC and more sensitive rocking armature receiver.



Simplified 400 series circuit

British made 400 models

Mechanically similar to the UK made 300 series except for the new handset and slight variations in circuitry, it is, again, recognisable by the **eccentric** generator faceplate and front drawer blanking plate. Serial and item no's: MT Black S1/403, MT Ivory S1/408 and MP Ivory S1/409. Ivory models only made by Ericsson UK.



British 400 series magneto telephones - note similarity to 334

Australian made 400 models

Retaining the case mounted generator, the 400 is similar to the earlier Australian made 300 series, except for the new handset and slight variations in circuitry, Again, recognisable by the **concentric** generator faceplate and **no** front drawer blanking plate on the table model. Australia also made a wall version - based on the 300 MW. Serial and item no's: 400 MT Black S1/403, MW black S1/415.

L-R Australian 400MT and 400MW- note similarity to 300 MT and MW

Coincidentally, PMG serial/item numbers for all the 400 series telephones were in the 400s. This did not happen with any other Australian phones. Collectors have retrospectively adopted these numbers to identify the models. This writer doubts that this was the PMG's original intention but try and tell that to some collectors!

"Bakelite" 300 and 400 series phones were obsolescent by the early 1960s but because some magneto exchanges persisted in Australia for another quarter of a century and alternatives were not cost effective, PMG/Telecom regularly repaired or refurbished these obsolete phones until the end. As well, "enthusiasts" have had the last 30 years to "fiddle" with them so it is highly likely that significant variations from the above (colloquially known as "bitzers) will regularly appear on the collectables market.