

Polish A and AP Series I (A 1 to A 3)

This supplement chapter is a follow up and should be read in conjunction with the Polish section in WftW Volume 4.

INTRODUCTION

The Polish A and AP series of resistance, partisans and agents radios, also known as the Pipsztok (Peepshtock) range, were produced by the Polish Army in Exile in Great Britain. Developed by chief designer Ing. Tadeusz Heftman, and built by the Polish Military Wireless Research Unit workshops in Stanmore, England, they were intended to be dropped by air in German occupied Poland for the Armia Kriowa (Polish Home

Army). Because of the miniaturisation and build quality of the Polish radios, a large proportion of the production went to SOE and resistance groups in Europe. This chapter is a follow up of the Pipsztok Chapter in WftW Vol.4, with additionally found information which was not available at the time, particularly the early models. Divided in two chapters: 254 (the Polish A series) and 255 (the Polish AP series), all currently known

information was put together, along with circuit diagrams, technical data, major technical differences, similarities and key features of each model as a help with identification. It should be noted that engraving of the functions of controls was in Polish or in English, depending on the destination. The AP classification was introduced in 1943.

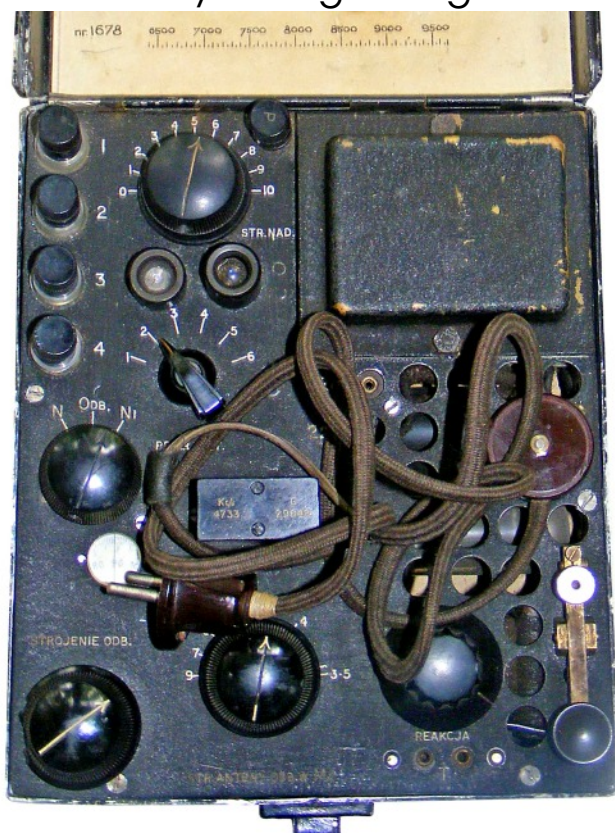
Common features

Interesting common design and mechanical construction features of the Polish Stanmore A and AP series:

- Self contained transmitter-receiver housed in a metal box with a protective lid and built-in AC mains power unit. An 8-pt octal socket on the front panel was provided for connecting AC mains, an external DC power pack or hand generator.
- The transmitter was crystal controlled using a single 6L6 valve. A Morse key was permanently fitted on the right hand bottom side of the front panel. The A 2, AP-2, AP-4 and AP-5 had the possibility to connect an external Morse key. This feature was only found in the AP-4 circuit diagram.
- The receiver was a superheterodyne, based on the 1936 'Super-Gainer' design, with the addition of an IF stage in the A 2, AP-2, AP-4 and AP-5.
- In all models the (high-resistance) headphones were isolated from DC HT. In the A 1 and A 3 by means of a capacitor, and using an AF output transformer in the other models.
- The A series had the valves fitted inside under the front panel, as opposed to the AP series where the valves were located in a recessed area on the front panel avoiding overheating the set.

Polish A 1

Country of origin: England



The photograph above shows the initial version of the Polish A 1. The AC mains voltage selector was located on the front panel below the transformer. The aerial terminals were coloured black (or red) and the reaction control had no engraved pointed arrow.



Believed to be a later produced variation of the A 1, having the AC mains voltage selector at the side of the transformer. Note that the (smaller) holes of the previous AC mains voltage selector position were still apparent. The four aerial terminals were coloured red in some variations.

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DATA SUMMARY Polish A 1

Organisation: Polish Army in exile.
Design: Tadeusz Heftman.
Manufacturer/Workshop: Polish Military Wireless Research Unit, Stanmore, Great Britain.
Year of Introduction: 1941.
Purpose: Agents, resistance groups.
Transmitter:
Frequency coverage: 3.5-9.5MHz.
RF output: 8-10W.
Circuit features: Crystal oscillator/RF power amplifier.
Receiver:
Frequency coverage: 3.5-6.5MHz and 6.5-9.5MHz.
Circuit features: Mixer/Oscillator, Reg. IF/Detector, AF output, based on the 1936 'Super-Gainer' design.
 The IF valve could be brought into oscillation for CW reception by means of the reaction control.
AF output: High impedance headphones.
Valves: 6L6, 6K8, 6SC7, 5Z4, located inside the set.
Power Supply: 120/220V AC mains. An 8-pt octal socket on the front panel was provided for connecting AC mains, an external DC power pack or hand generator.
Dimensions (cm) and weight:
 Height 9, length 25, width 19½; weight 5kg.



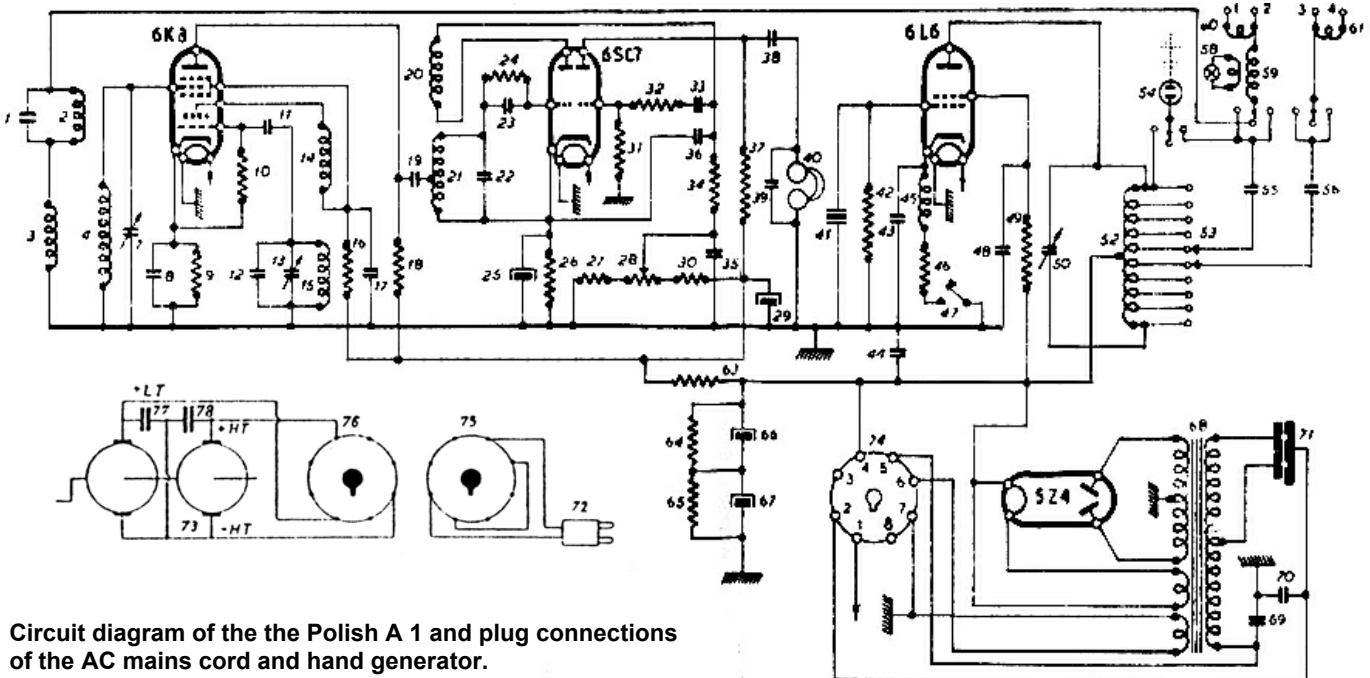
Underside view of the A 1 showing the compactness of the radio. Most of the components were imported from the USA.



Top side view of the A 1 removed from its enclosure, showing the four steel valves, mains transformer and the mechanical construction of the Morse key.

Key features of the Polish A 1.

- Features and significant recognition items of the A 1:*
- Four valves were located inside under the front panel.
 - Four terminals for connecting a (dipole) aerial/counterpoise.
 - Frequency coverage 3.5-9.5MHz in a single range.
 - The receiver had two ranges, but this was in practice combined in the pre-selector tuning.
 - Two variations, only differing in detail (Coloured aerial terminals and a changed position of the AC main voltage selector).
 - It was basically similar to the A 3 which had a different (2-8MHz) frequency coverage, spread over two switched ranges.
 - 3 position send/receive switch: Send-Receiver-Tune.
 - Two tuning lamps.



Circuit diagram of the the Polish A 1 and plug connections of the AC mains cord and hand generator. Note that the symbols of the electrolytic capacitors (25, 29, 66 and 67) were drawn wrongly in reverse position.

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Polish A 2

Country of origin: England



An A 2 was fitted with a DC current meter. The function of the two terminals above the Morse key was not recorded but might have been used to connect an external Morse key.



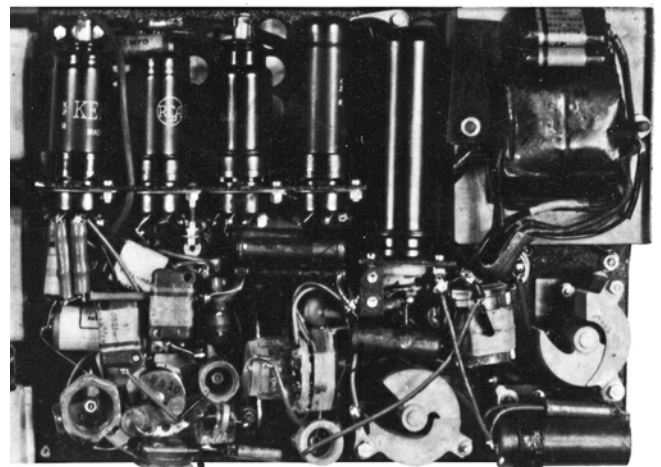
A believed to be later A 2 variation with a cover plate over the meter opening (Note the three holes for fitting a meter). The two extra terminals above the Morse key were absent and the RF power switch and receiver range switch were coloured in connection to coloured dots on associated controls.

Key features of the Polish A 2.

Features and significant recognition items of the A 2:

The A 2 was developed to provide a much wider frequency coverage (3.5-16MHz) as opposed to the A 1 (3.5-9.5 MHz). The transmitter on a later variation had a range of 4-16MHz.

- Five valves were located inside under the front panel.
- Break-in operation.
- No send-receive switch.
- RF gain ('Volume' control by means of a potentiometer in the receiver aerial input circuit).
- Addition of an IF amplifier valve.
- Switch for reduced (half) power during tuning.
- A HT current meter was fitted in an early variation; in a later version the meter opening was covered with a round plate.
- With its extra IF valve the set became easily overheated. It may be speculated that for this reason the AP-2 was developed.
- It is believed that the A 2 and AP-2 were functionally similar and differed not much in their circuit diagram.
- Terminals for connecting an external Morse key were fitted in the early variation.
- Two tuning lamps.
- Two red coloured aerial terminals.
- No 'Netting' lamp as opposed to the AP-2.



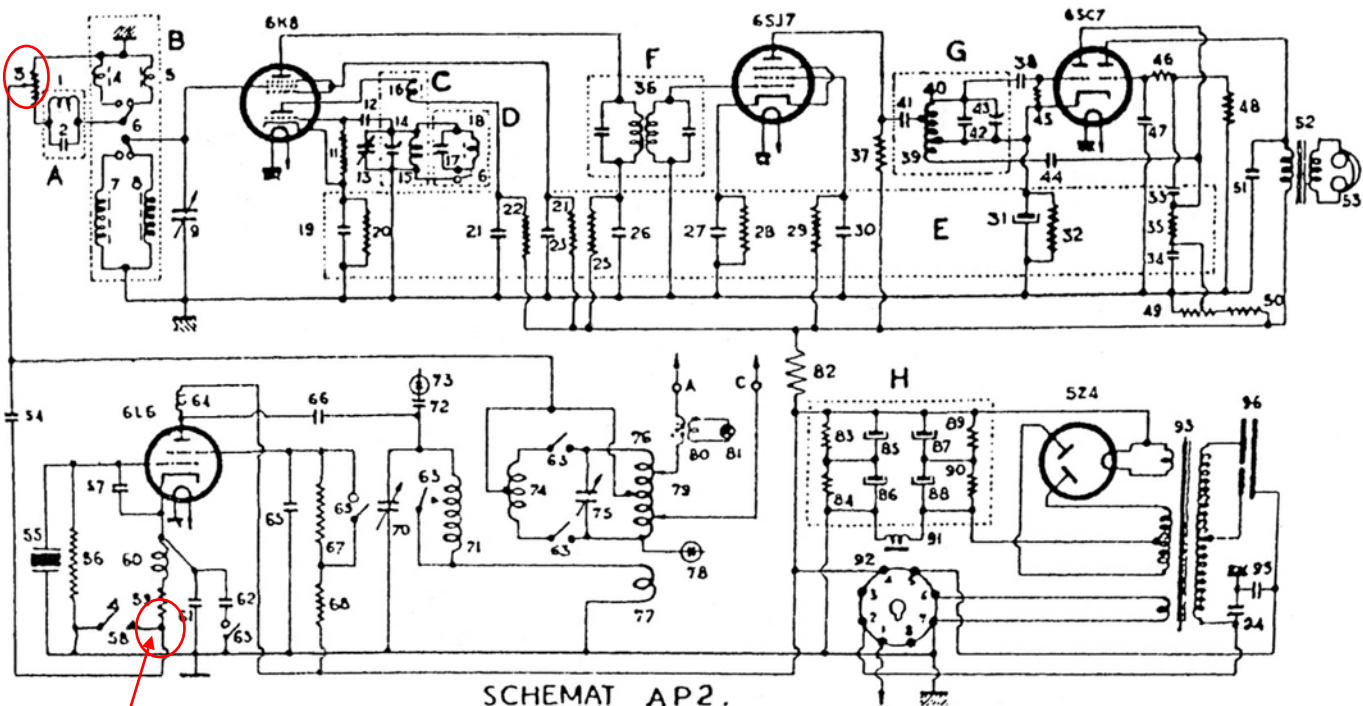
Polish A 2 seen from the bottom, unfortunately in black/white, showing an extra (IF) valve

DATA SUMMARY Polish A 2

Organisation: Polish Army in exile.
Design: Tadeusz Heftman.
Manufacturer/Workshop: Polish Military Wireless Research Unit, Stanmore, Great Britain.
Year of Introduction: 1942.
Purpose: Agents, resistance groups.
Transmitter:
Frequency coverage: 3.5-8/8-16MHz; (later variation 4-8/8-16MHz).
RF output: 8-10W.
Circuit features: Crystal oscillator/RF power amplifier.
Receiver:
Frequency coverage: 3.5-8/8-15MHz (3.5-9/9-15MHz).
Circuit features: Mixer/Oscillator, IF stage, Reg. IF/ Detector, AF output, based on the 1936 'Super-Gainer' design. The IF/detector valve could be brought into oscillation for CW reception by means of the reaction control.
AF output: High impedance headphones (4000 Ohm).
Valves: 6L6, 6K8, 6SC7, 5Z4 located inside the set.
Power Supply: 120/220V AC mains. An 8-pt octal socket on the front panel was provided for connecting AC mains, an external DC power pack or hand generator.
Dimensions (cm) and weight:
 Height 9½ (10 with lid), length 28, width 21½ ; weight 5kg.



Detail photo of an A 2 showing the Morse key with two terminals of connecting an external Morse key, headphone socket, reaction control, (RF) volume control, octal power socket, AC mains selector and crystal socket.



Break-in/send.

Circuit diagram of the AP-2 (and believed also that of the A 2 which did not have a netting lamp). The plug connections of the AC mains cord and hand generator were identical to that of the A 1, A 3 and later AP series. Note the simple transmit break-in feature and a potentiometer in the receiver aerial circuit functioning as RF gain control. Although the symbols of the electrolytic capacitors were correctly drawn, it is believed that the choke (91) in the power supply should be located in the HT plus, between 85 and 87.

Polish A 3
Country of origin: England



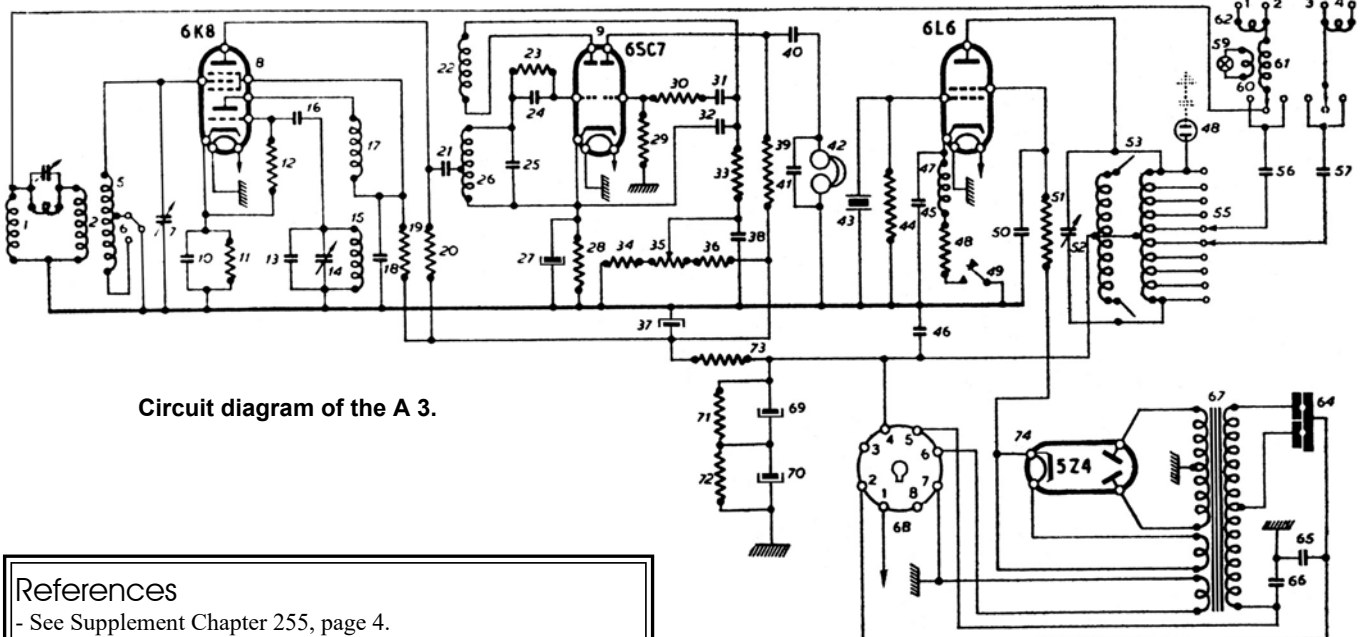
The Polish A 3, pictured above, was affectionately named Nelka or Nelkami, an abbreviation of Anieli Skoskiewiczowa (Neli) who was employed at the production division of the Communication Forces Command.

DATA SUMMARY Polish A 3

Organisation: Polish Army in exile.
Design/Manufacturer/Workshop: Polish Military Wireless Research Unit, Stanmore, England.
Year of Introduction: Believed 1942.
Purpose: Agents, resistance groups.
Transmitter:
Frequency coverage: 2-4MHz and 4-8MHz.
RF output: 8W.
Circuit features: Crystal oscillator/RF power amplifier.
Receiver:
Frequency coverage: 2-4MHz and 4-8MHz.
Circuit features: Mixer/Oscillator, Reg. IF/Detector, AF output, based on the 1936 'Super-Gainer' design. The IF/detector valve could be brought into oscillation for CW reception by means of the reaction control.
AF output: High impedance headphones.
Valves: 6L6, 6K8, 6SC7, 5Z4.
Power Supply: 120/220V AC mains. An 8-pt octal socket on the front panel was provided for connecting AC mains, an external DC power pack or a hand generator.
Dimensions (cm) and weight:
 Height 9, length 25, width 19½; weight 5kg.

Key features of the Polish A 3.

- Features and significant recognition items of the A 3:
- Four valves were located inside under the front panel.
 - Four (black) terminals for connecting a (dipole) aerial/counterpoise.
 - Frequency coverage 2-8MHz in two ranges.
 - It was basically similar to the A 1 which had a different (3.5-9.5MHz) frequency coverage in a single range.
 - Three position send-receive-send switch combined with transmitter frequency range switch.
 - Two tuning lamps.
 - No 'Netting' lamp.



References

- See Supplement Chapter 255, page 4.