



A general view of the Philco BV-613 receiver, which was similar in appearance and internal construction to the BV-611 and BV-612.

DATA SUMMARY

Design/Manufacturer: Philco (uk). (Actually a converted BV-612).

Year of Introduction: 1944.

Purpose: Welfare broadcast receiver.

Frequency coverage: 500kHz to 1,500kHz.
(Tuning scale calibrated in metres: 600-200m).

IF: 125kHz.

Sensitivity: 20µV-50µV for 50mW AF output.

AF output: 50mW into a built-in 3 Ohm loudspeaker, or low resistance headphones.

Circuit features: Superheterodyne. RF, Mixer/osc, IF, Det/AVC/AF, AF output.

Valves: ARP34 (2x), ARTH2, AR21, VT52, 6X5G.

Aerial: 25ft of Wire Electric R5, on a spool permanently connected to the set. Separate earth lead.

Power Supply: 6V, 72/80Ah accumulator.

Consumption: 4.8A.

Dimensions (in) and weight (lb):

Height 10 ½, length 8½, width 7¼; Weight 17½.

V.O.A.S. : ZA 24798.

References:

- Reception Set Philco BV-613, Working Instructions, ZA25123, n.d. (Card).
- EMERs Telecommunications, Receiver Broadcast, BV-613, Data Summary, E 740, May 1945.
- Reception Set Philco BV-611 and BV-612 (6-Volt operation), Working Instructions booklet, WO 987, ZA 12598, n.d.
- Signals Info in brief. (Provided by C.I.E.M.E.). August 1945.
- Wireless for the Warrior, Volume 3, Reception Sets, Louis Meulstee, Wimborne Publishing, 2001, isbn 0952063 35 2.
- WftW Volume 4, Supplement, Chapter 358, 'Beetle', Aug 2025.

Philco BV-613

Revision v 1.01

Country of origin:
England

The previous Version 1.00 of Chapter 288 originally covered the Philco BV-611 and BV-612 receivers, along with their incorrectly assumed origin. These are now included in the more tenable WftW Volume 4, Supplement, Chapter 385, 'Beetle'.

This revision (V.101) is also a follow-up to WftW Volume 3, Chapter: Receiver Broadcast (#64), incorporating later-found information, data and photographs.

REMARKS

The Philco BV-613 was a British welfare medium wave broadcast receiver, converted from the Philco BV-612, a long wave receiver previously used for listening to the 'Beetle' German invasion alerts (See Supplement Chapter 358). These conversions, were carried out by P.R. & T.C. (Believed Pye Radio and Telsen Co.) in 1944 when an invasion could no longer be expected.

It explained the rather unusual low intermediate frequency of 125kHz. The self-contained BV-613 receiver was housed in a metal case, and included a vibrator power pack and loudspeaker, powered by a 6-Volt accumulator. It had no carrying handle on the top panel. The dial was calibrated in metres. The loudspeaker was mounted into the side cover of the case, with a jack socket for connecting a low-resistance headphones in parallel with the speaker. A special dustproof construction was employed to prevent the entry of dust and metal particles into the speaker. The receiver had no canvas carrier with side pockets, unlike the BV-612 parent set. Access to the interior was obtained by removing the three hexagon head self-tapping fixing screws and lifting the metal side cover of the set.

Power for the receiver was obtained from a 6-volt, 72 or 80Ah accumulator. When connecting, it was not necessary to observe the polarity. The design of the Philco BV series was based on that of a pre-war Philco commercial car radio receiver, type 817. See WftW Vol. 4 Supplement, Chapter 358 for details.

The BV-612 was broadly similar to the BV-611. These were manufactured in 1940 and 1941; therefore, no EMERs existed. However, ordnance servicing instructions were included in the Working Instructions booklet.

Speculated explanation of abbreviated type number:

Accumulator version: BV-611, 612 and 613 = Broadcast Vehicle.

Battery version: BP-412 and BP-413 = Broadcast Portable.

Technical description

The receiver circuit was a conventional superheterodyne with an RF stage (ARP34) and a combined mixer/local oscillator (ARTH2). The intermediate frequency was 125 kHz and was amplified by an ARP34. The combined second detector, AVC, and first AF amplifier valve was an AR21, with the AVC applied to the RF and mixer stages. The output from the first AF stage was further amplified to the AF output stage (VT52).

The power supply provided 270V high tension from a non-synchronous Vibrator No. 2 or 6 via a step-up transformer and a full-wave rectifier valve of type 6X5G.

RECEIVERS, *Philco* BROADCAST **BV613**

(6 VOLT OPERATION)

Examine interior of Set

Access to the interior is obtained by removing the front cover fixing screws and lifting the cover from the receiver. Note that the loudspeaker which is mounted inside the front cover is connected to the receiver by a flexible lead.

make sure

- (a) That the valves and vibrator are in the correct positions as indicated.
- (b) That the small metal clips are in position on the caps of their respective valves.
- (c) That the metal screening cases for valve VT52, ARP34, and 6X5G are fixed securely to the bases provided for them.
- (d) That the dial lamp is in position as indicated.

Always

- (a) Switch the receiver OFF when not in use.
- (e) Keep the Battery Cable lugs and accumulator terminals clean. If they show signs of corrosion they must be cleaned and smeared with vaseline before reconnecting.
- (b) Keep the set clean and dry.
- (f) Make periodic check on accumulator and see that it is recharged regularly.
- (c) If set stops, replace valves one by one by valves of the same type. Take care that the key on the valve locates with the key way in the holder. DO NOT FORCE.

Z.A.25123

RECEIVERS, *Philco* BROADCAST **BV613**

WORKING INSTRUCTIONS

1. TO OPERATE

- (a) Place receiver in position with loudspeaker facing outwards and controls upwards.
- (b) Switch receiver ON by turning the left-hand knob about half-way in a clockwise direction. (If all connections have been made correctly, the pilot lamp should light up.) Allow a few seconds for the valves to warm up.
- (c) Slowly rotate the TUNING CONTROL (right-hand knob) a little either side of the calibration mark for the required wavelength and adjust for maximum strength.
- (d) Adjust the volume to the desired level by means of the VOLUME CONTROL which is combined with the ON-OFF SWITCH—left-hand knob. Clockwise rotation increases volume.

2. AERIAL

The aerial lead is already attached to the receiver. This rubber-insulated wire (Wire, Electric, R5) should be suspended with the free end in the most convenient position as high as possible, and away from "earthy" objects. An outdoor aerial will give best results. It is essential to keep the aerial away from sources of interference.

3. EARTH

Connect the earth wire (Wire, Electric, R5) attached to the receiver to a good earth.

4. CONNECTING RECEIVER TO ACCUMULATOR

Fasten the Battery Cable lugs (Lugs, Cable, .076 in., 3/8ths in. Side Slot) securely to the two terminals on a 6 volt, 72 ampere hour or 80 ampere hour accumulator. Polarity need not be observed.

Z.A. 25123

The working instructions card for the Reception Set BV-613 contained a drawing that was actually of a Philco BV-612, which had a carrying handle on top.

ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS

RECEIVER, BROADCAST, BV 613

DATA SUMMARY

PURPOSE
Medium-wave welfare broadcast receiver.

DESCRIPTION
A six-valve superheterodyne receiver, using R.F., frequency changer, I.F., detector and output stages. A full-wave rectifier is also employed. The set is housed in a metal case which also contains the loudspeaker and vibrator pack.

PHYSICAL DATA
Weight : 17½ lb.
Length : 8½ in.
Width : 7½ in.
Height : 10½ in.

FREQUENCY
Coverage : 1,500kc/s.—500kc/s.
Internal : 125kc/s.

PERFORMANCE
At 1,400kc/s: 20µV input for 50mW output.
At 600kc/s: 50µV input for 50mW output.

POWER REQUIREMENTS
6V, 72Ah, battery supplying vibrator to give 270V, 4-8A.

AERIAL SYSTEM
Short wire aerial attached to set.

END

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TELECOMMUNICATIONS
E 740

Fig. 1—General view of equipment

VALVES		
Circuit reference	Type	Function
V1A	ARP34	R.F.
V2A	ARTH2	Frequency changer
V1B	ARP34	I.F.
V3A	AR21	Detector
V4A	VT52	Output
V5A	6X5G	Full-wave rectifier

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This EMERs Data Summary E 740 was the only technical document found for the BV-613.

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