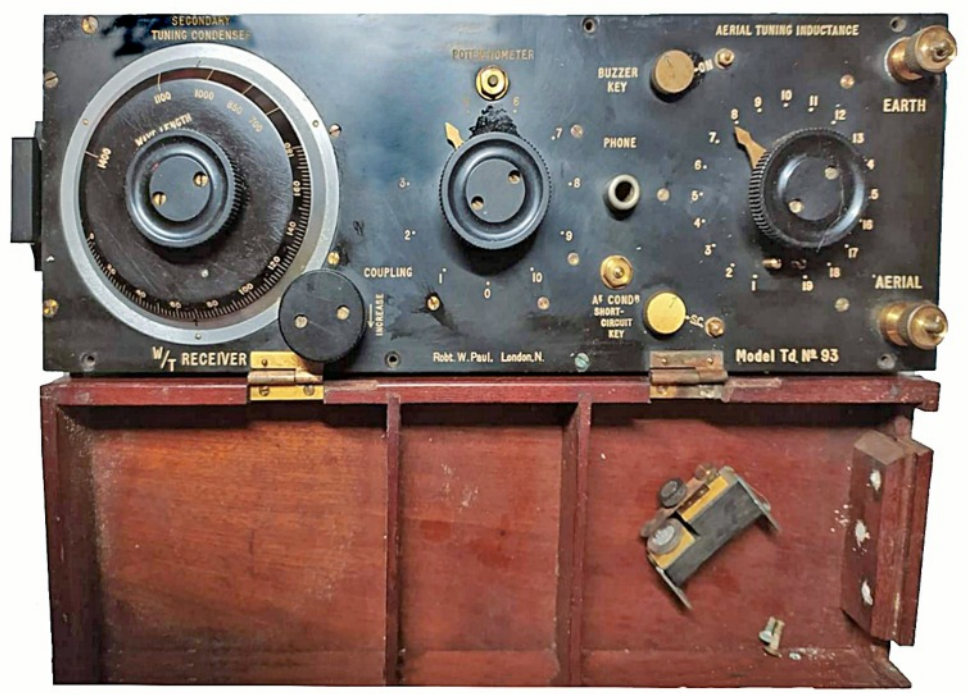
Date of issue: Dec. 2023.



RAF Model Td

DATA SUMMARY

Organisation: Royal Air Force.
Manufacturer: R.W. Paul, London, and other makers.
Year of Introduction: Believed 1916. *)
Purpose: Lightweight aircraft receiver.
Receiver: Tuner with crystal detector and a Brown relay electro-magnetic AF amplifier.
Frequency: 171 - 550 M (Scale calibrated in feet).
Aerial: Trailing aerial 60m length.
Power supply: Three Ever-Ready dry cells Type E.
Size (cm): Height 10, length 10, width 29 (estimated).
Weight (kg): 2.3

References

- Royal Air Force W/T Apparatus. Receiver Model 'Td', F.S. publication 99, Air Ministry, October 1918.
- Particulars of W.T Apparatus in the Royal Air Force, F.S. Publication 110, December 1918.
- The Wireless World, Aircraft Wireless Section, March 1920, pp 729-731.

REMARKS

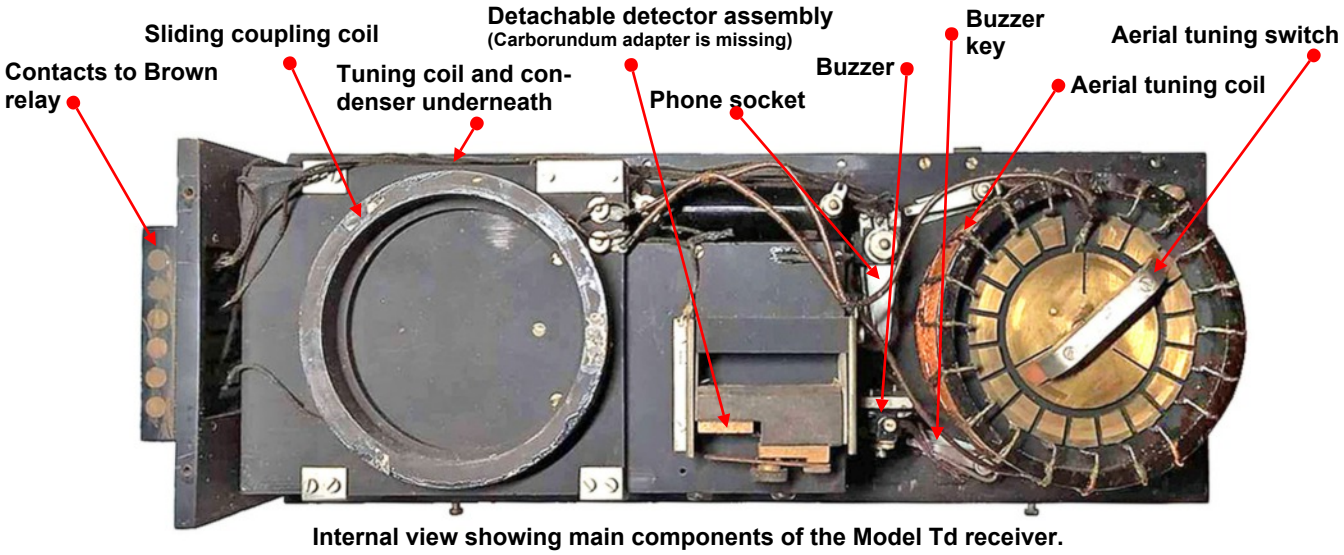
The Model Td was a small and lightweight receiver designed for installation in Royal Air Force aircraft where only a very limited space was available for wireless equipment. According F.S. Publication 99, it was used with Type 52, Type 53 and French Rouzet spark transmitters. It could also be used as a ground receiver. The receiver was enclosed in a wooden case with an ebonite front panel and a hinged, detachable cover. Dry batteries for the detector and testing buzzer, as well as the detector assembly, were accessible through a removable lid at the top of the receiver. The telephone socket was arranged with two spring contacts, whereby the insertion of the telephone plug automatically connected the batteries.

The primary circuit comprised an aerial tuning coil variable by a switch with 19 positions, connected in series with a coupling coil. Through a rack and pinion mechanism, this coupling coil provided a variable degree of coupling to the secondary tuned circuit. It is interesting to note that the tuning scale of this circuit was calibrated in wavelengths of feet. The detector was a carborundum type, mounted on an ebonite base fitted with two metal tags that slid in aluminium guides. This construction permitted the direction of the potentiometer current to be reversed.

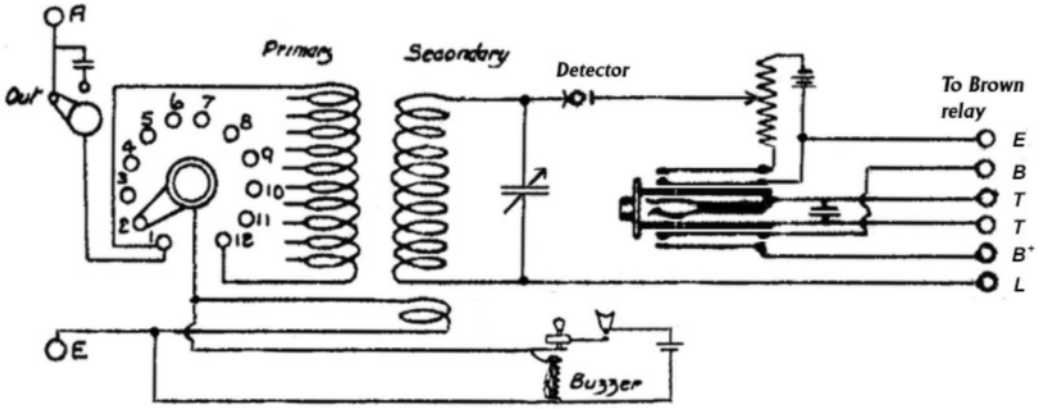
The Td receiver was commonly employed in conjunction with a Brown relay. The latter served as an electro-magnetic AF amplifier utilized prior to the introduction of valves. It connected to the receiver through a 6-pt cable and plug, positioned in the aft part of the aircraft to minimize interference from the engine. The connections for the 6-pt plug and cable were consistent across Models Tb, Tc, and Td. Despite the obsolescence of the Td by 1918, it continued to be utilized as a substitute for Type Tb, potentially with a valve amplifier (see page 3).

Model Td, S/N 138, held in the collection of the Science Museum in London. Note the four brass lugs at the corners where the receiver was fixed in the aircraft.

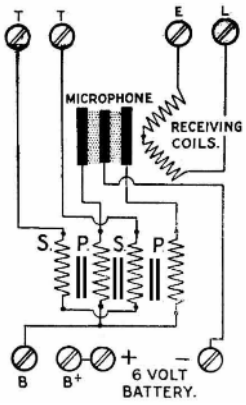
*) Although the user handbook (F.S. Publication 99) mentioned in the references was dated October 1918, it is believed that this was a later reprint, and the receiver had been introduced much earlier, as the Ta, Tc, and Td receivers were declared obsolescent at that time.



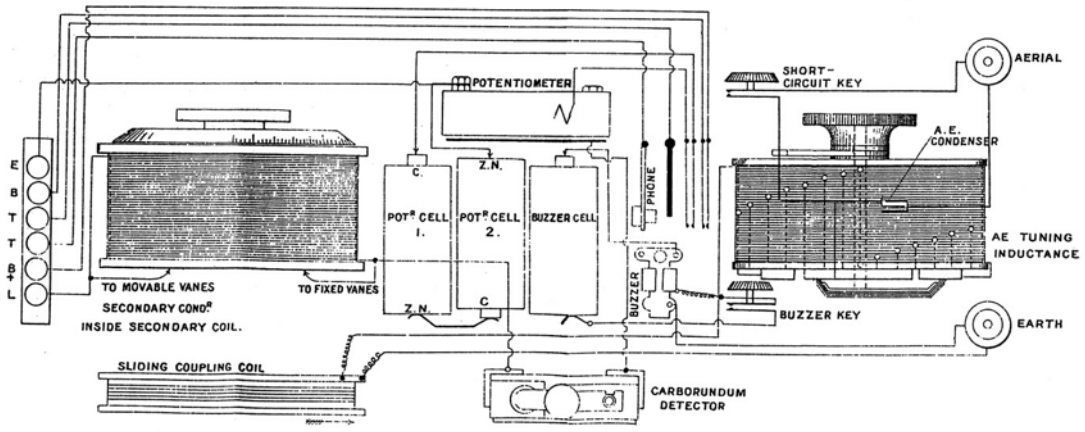
Internal view showing main components of the Model Td receiver.



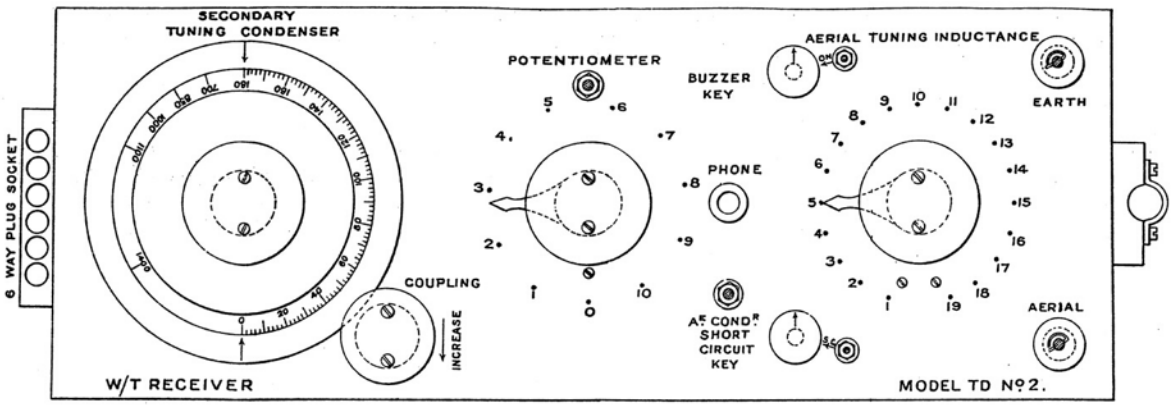
Circuit diagram of Model Td receiver.



The 6-pt socket connected to a Brown relay.



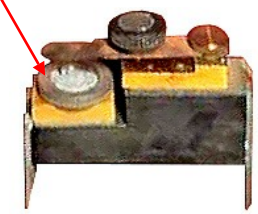
Practical circuit diagram of Model Td receiver.



Front panel drawing of Model Td receiver.

Model Td detector assembly

Screwed carborundum adapter.



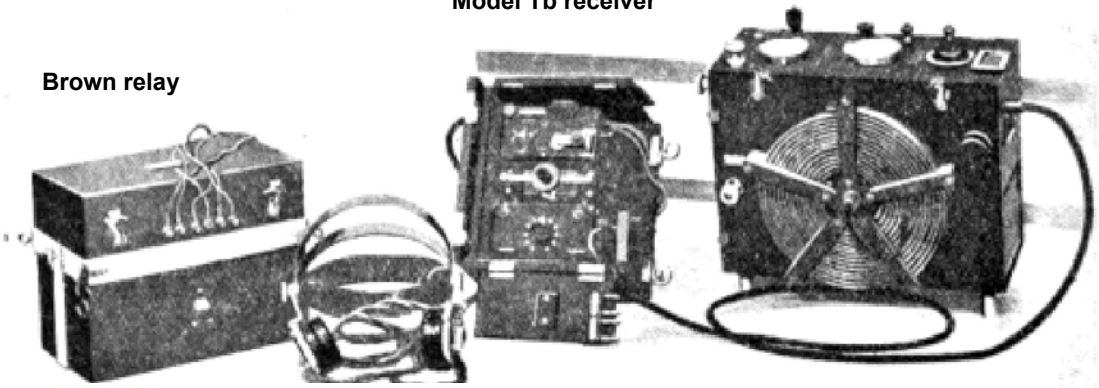
The carborundum detector assembly for the Model Td was mounted on an ebonite base fitted with two metal tags that slid into contacts on the Model Td receiver. The carborundum was positioned in a screwed adapter, which was universal for all service receivers of this type. Despite the need for an additional battery and potentiometer, its exceptional durability and reliability made it most suitable for withstanding the vibrations encountered in aircraft.

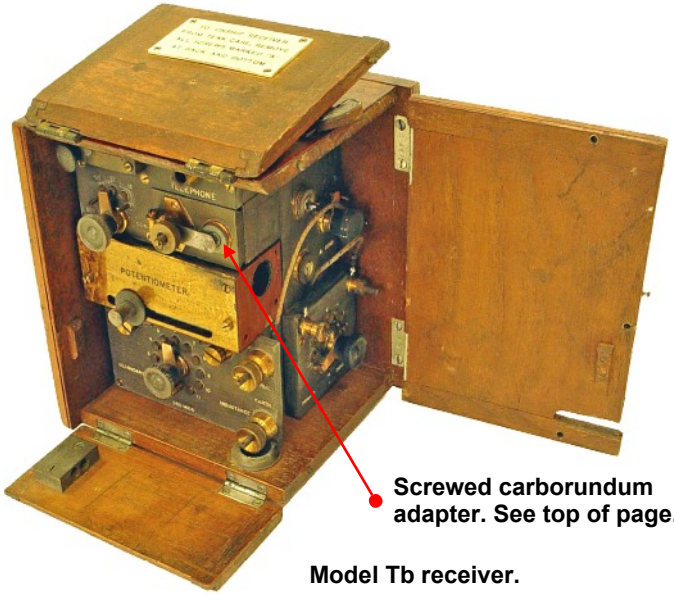
Model Tb receiver with Brown relay and early Type 52 transmitter

Model Tb receiver

Type 52 transmitter

Brown relay



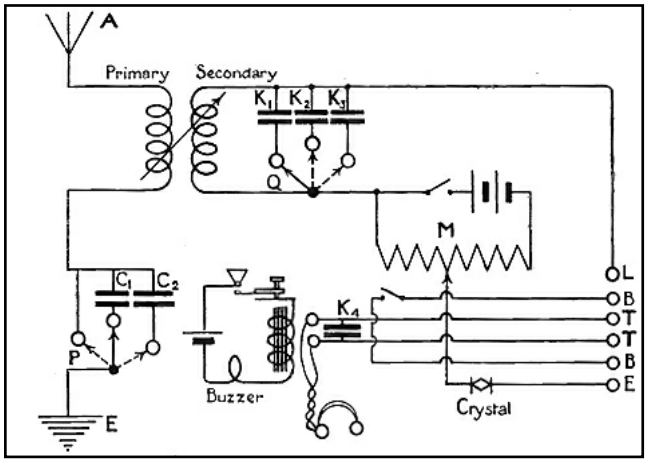


Screwed carborundum adapter. See top of page.

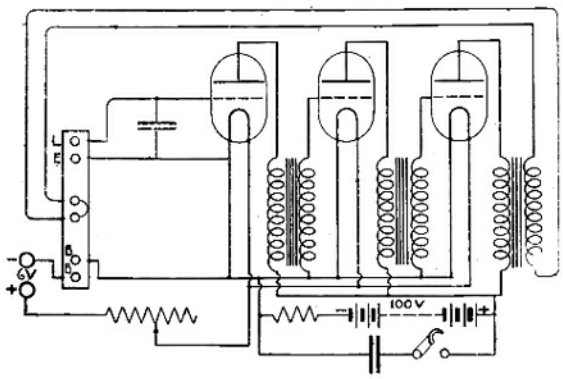
Model Tb receiver.

The receiver Model Tb preceded the Model Td and shared some electrical similarities, albeit being larger and heavier. It featured a slightly wider tuning range, spanning from 100 to 600M. The secondary tuning was managed by a switch with 11 positions.

One of the references noted a replacement for the Brown relay and carborundum detector with a valve amplifier. This amplifier, either the 'A' Mk. IV or 'C' Mk.IV, is detailed in WftW Pamphlet Series No. 10, titled 'Listening Stations.'



Circuit diagram of Model Tb receiver.



Circuit diagram of a valve amplifier, connected as an alternative to a Brown relay by the same 6-pt cable.