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## R.N.A.S. Model Tf

### DATA SUMMARY

**Organisation:** RNAS/RFC.

**Manufacturer:** Unknown.

**Year of Introduction:** Believed 1917. \*)

**Purpose:** Airship and larger aircraft receiver.

**Receiver:** Regenerative detector, two AF stages.

**Frequency:** 150 - 2500 m (In three ranges).

150-350 m, 500-700 m, 1000-2500 m.

**Mode:** Spark, tonic-train and CW.

**Valves:** French pattern 'R' types (3x). BTH or Stearn.

**Aerial:** Trailing aerial.

**Power supply:** Dry battery 100V and 6V accumulator.

**Size (cm):** Height 23, length 16.2, width 26.

**Weight:** 4.1kg, exclusive batteries and accumulator.

### REMARKS

Model Tf was a receiver designed for installation in larger aircraft, sea-planes, and airships of the Royal Naval Air Service (and possibly the Royal Flying Corps, though this has not been confirmed) for the reception of spark, tonic train and CW signals. The receiver was originally designed at the RNAS Development Establishment, as was the case with receiver Models Ta through Td.

It should be noted that the British Army RFC and RNAS were merged in April 1918 into the Royal Air Force. This included both W/T research establishments, which became the RAF W/T Establishment at Biggin Hill. It is possible that at that time, technical publications of both Arms were revised and reprinted as RAF F.S. Publications.

The naval units of the RAF came to be called the 'Fleet Air Arm' in 1924, but in 1937 the government announced that full administrative control of the Fleet Air Arm was to return to the Admiralty.

The Model Tf receiver was enclosed in a wooden case with an ebonite front panel and a hinged, detachable cover. Three French pattern type R valves (manufactured by the British B.T.H. or Stearn) were accessible through a removable lid at the top of the receiver, fitted with inspection/ventilation windows.

Arrangements in the circuit were made so that it could be used on a closed loop aerial for direction finding. Power was derived from an external HT battery and a 6V accumulator, connected to a 4-pin plug fitted on the front panel of the receiver.

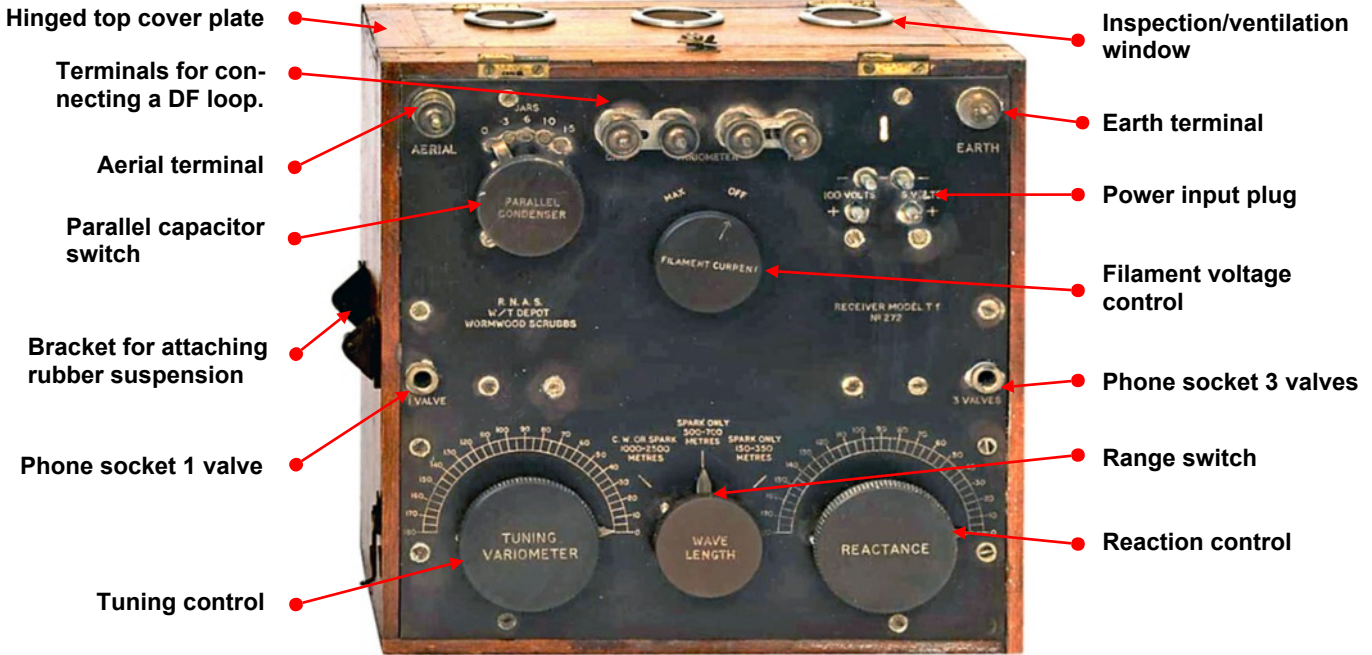
Two telephone sockets were fitted: one for listening with a single valve without amplification, and a second connected to a two-valve amplifier.

The Type T21A transmitter and Tf receiver installations, both designed during WW1 for CW operation, were considered so efficient that they were adapted for long-distance reconnaissance purposes. They were subsequently introduced into all bombing and Army cooperation squadrons, becoming standard equipment by 1923. Although considerable skill was required on the part of the operator to obtain good reception with the Model Tf in the air, remarkable results were achieved with the installation, which remained in use in the service until a few years before the Second World War.

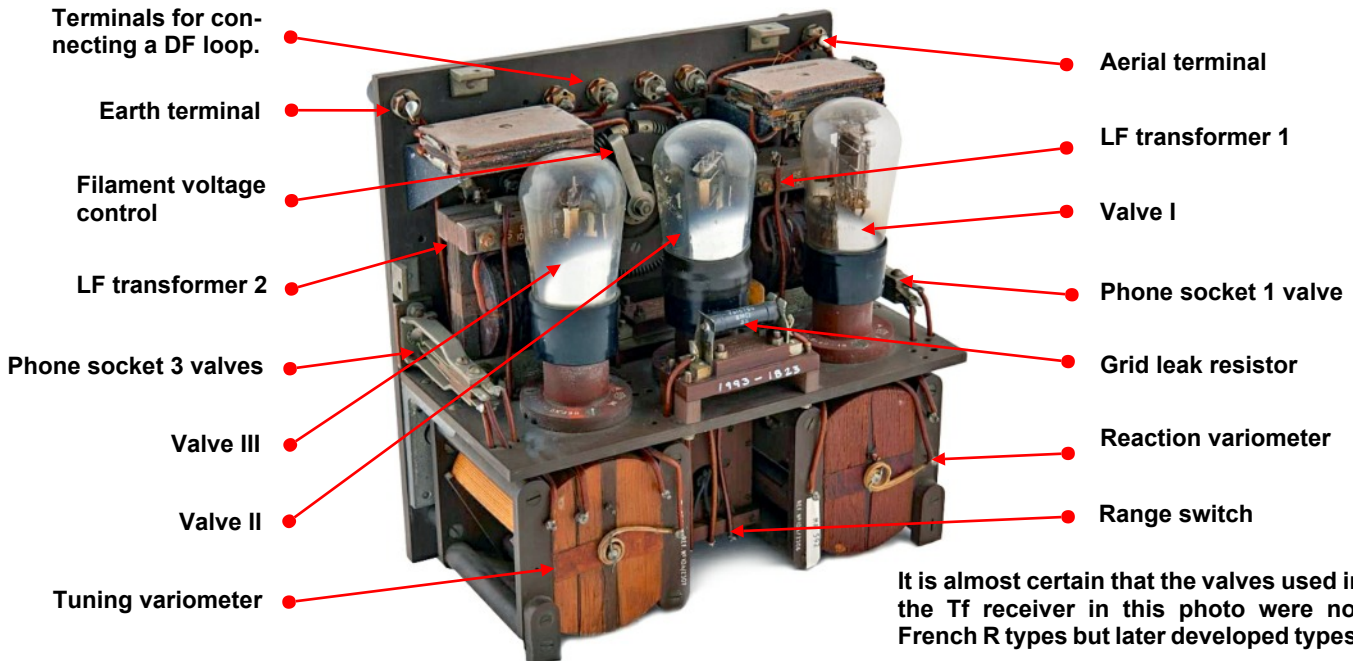
### References

- Royal Air Force W/T Apparatus. Receiver Model 'Tf', F.S. publication 75, Air Ministry, September 1918.
- Particulars of W.T Apparatus in the Royal Air Force, F.S. Publication 110, December 1918.
- The Wireless World, Aircraft Wireless Section, 1920-3.
- The second World War, 1939-1945, Signals, Vol.III, Aircraft Radio, Chapter 23..
- The Flowerdown link 1918-1978, SI LLR Burgh, isbn 0 9507349 0, Privately printed, 1980.

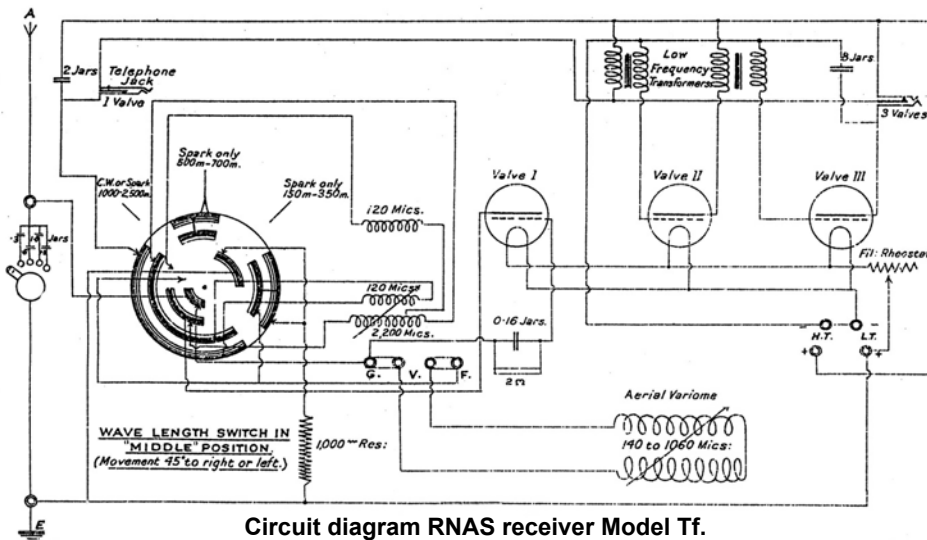
\*) The user handbook (F.S. Publication 75), mentioned in the references above as an RAF publication dated September 1918, was believed to be a reprint of an RNAS technical publication after the formation of the RAF. The Model Tf receiver had been introduced much earlier and was primarily used in the RNAS.



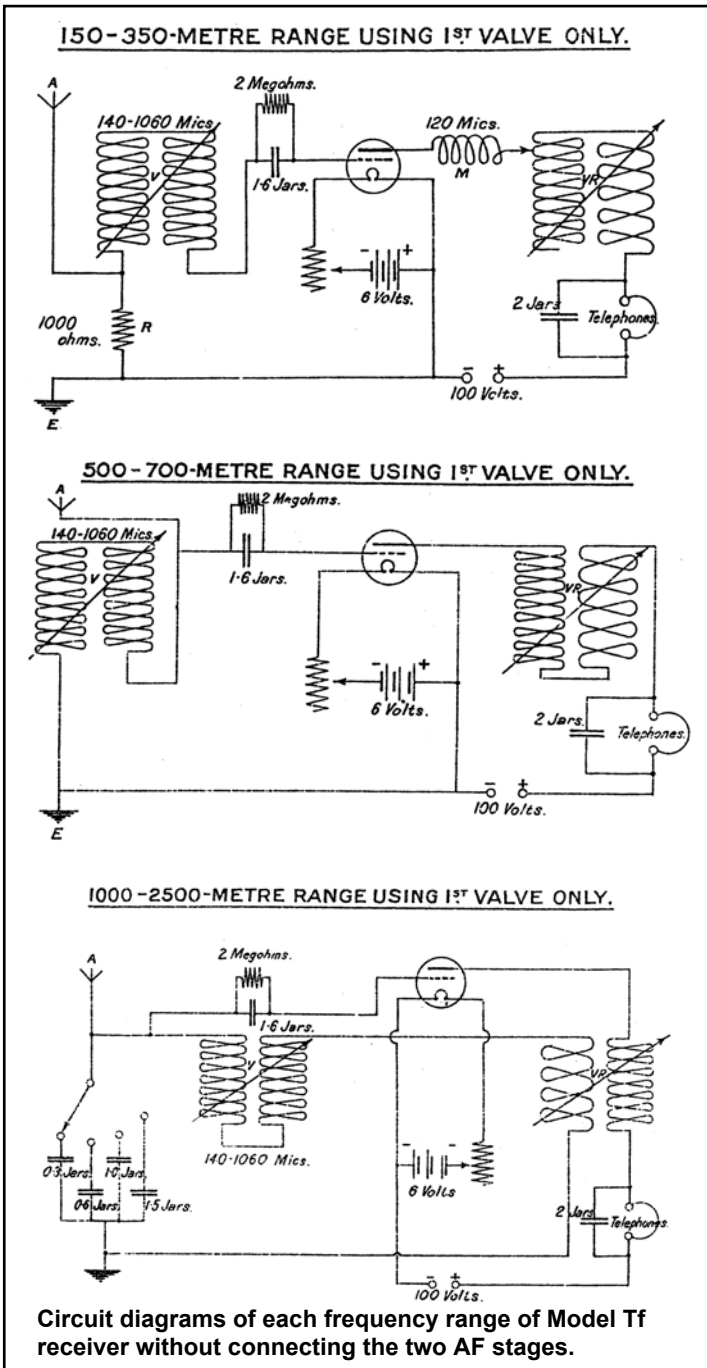
Front panel view with explanation of the controls Model Tf receiver.



Internal view with explanation of components Model Tf receiver.

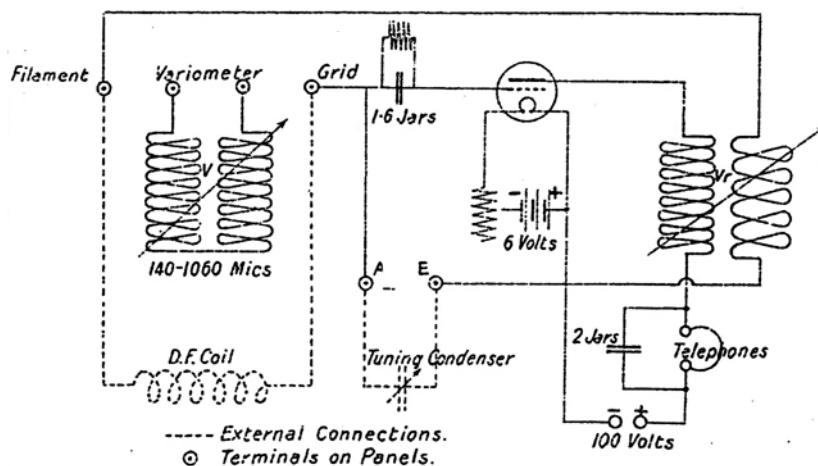


Circuit diagram RNAS receiver Model Tf.



**STORES LIST FOR RECEIVER, MODEL Tf.**

| Reference No. | Description.   | Denomination of Quantity. | Quantity |
|---------------|--|---------------------------|----------|
| 1806          | Receiver, Model Tf, with component parts as follows :- | No.                       | 1        |
| 1785          | Valve-holders - - -                                    | 3                         |          |
| 1786          | Rheostat, filament - -                                 | 1                         |          |
| 1787          | Panel, ebonite, carrying terminals and regulators      | 1                         |          |
| 1788          | Condenser, grid, for detecting valve - - -             | 1                         |          |
| 1789          | Carbon rod grid leak - -                               | 1                         |          |
| 1790          | Switch, multiple-segment, wave-length - - -            | 1                         |          |
| 1791          | Variometer, aerial - -                                 | 1                         |          |
| 1792          | " reaction - - -                                       | 1                         |          |
| 1793          | Inductance, anode, small                               | 1                         |          |
| 1794          | Condensers, parallel—0.3, 0.6, 1.0, 1.5 jars - - -     | 1                         |          |
| 1795          | Resistance, 1,000 ohms -                               | 1                         |          |
| 1796          | Jacks, telephone - - -                                 | 2                         |          |
| 1797          | Condenser, H.F. Shunt, 2 jars                          | 1                         |          |
| 1798          | Condenser, L.F. Shunt, 8 jars                          | 1                         |          |
| 1801          | Plug, 4-way, with H.T. and L.T. leads.                 | No.                       | 1        |
| 1357          | Battery, E.R., 100-volt - - -                          | "                         | 1        |
| 1641          | Accumulator, 6-volt, Peto and Radford.                 | "                         | 2        |
| 1123          | Valves, French pattern, Class " R "                    | "                         | 3        |
| 1802          | Brackets, aluminium, fitted with suspension.           | "                         | 2        |
| 1803          | Box, transport, fitted with suspension.                | "                         | 1        |
| 1800          | Battery box for Receiver, Model Tf                     | "                         | 1        |
| 1804          | Condenser, .3 m.f., for do.                            | 1                         |          |
| 1805          | Coil, 2,000-ohm, for do.                               | 1                         |          |
| 1447          | Ammeter, 0-3 ampères - - -                             | No.                       | 1        |
| 115           | Telephones, pattern 520 - - -                          | "                         | 1        |
| 117           | Leads, pattern 1304, with telephone plug.              | "                         | 1        |
| 1065          | Switch, 5-ampère, tumbler - - -                        | "                         | 1        |



If direction finding reception was required, the tuning variometer was disconnected and replaced by an DF loop. An external tuning capacitor was connected to the aerial and earth terminals.

**Model Tf receiver adapted for direction finding. Drawn using 1<sup>st</sup> valve only.**