FERGUSON *Fine* TELEVISION

TABLE MODELS
941T
941TS
(ALEXANDRA PALACE)

SERVICE MANUAL

1. GENERAL SPECIFICATION

1.1. Description

The Ferguson 941T Table Model Television Receiver is designed to give a picture of full brilliance with the maximum definition realizable on a 9" tube, and has ample sensitivity to receive the B.B.C. transmission within a radius of some 30 miles from Alexandra Palace.

The Model 941TS is intended for distribution outside this 30-mile radius, where the signal to noise ratio is less favourable, and is identical to the 941T except for the alignment of the R.F. circuits.

It has thus been found possible to make the best use of the conditions existing in the fringe area without sacrifice of picture quality for sets installed in areas where the signal strength is high. Either type of receiver may be converted to the other type by re-alignment of the R.F. circuits should it be found that better reception would result.

The receiver is fitted with a 9" magnetically focussed and deflected cathode-ray tube, giving a picture 7¾" x 6" and is housed in a walnut table cabinet 16" wide x 13¾" high x 13" deep. There are two main controls only on the front of the cabinet, "Brilliance" and "Sound Volume On/Off." Other less frequently used controls are accommodated at the rear.

The sound output stage drives a 6¾" permanent magnet loudspeaker, giving ample volume and excellent quality.

The receiver will function on supply mains of 200 to 250 volts A.C. or D.C. without any additional equipment.

1.2. Chassis Arrangement

The cathode-ray tube and all valves and components, except the loudspeaker, are mounted on one chassis. The loudspeaker is mounted on the right-hand side of the cabinet.

A removable fibreboard panel is fitted beneath the cabinet, to provide easy access to the underside of the chassis, and the cabinet backboard is also readily detachable for access to the picture shift, focussing adjustment and valves.

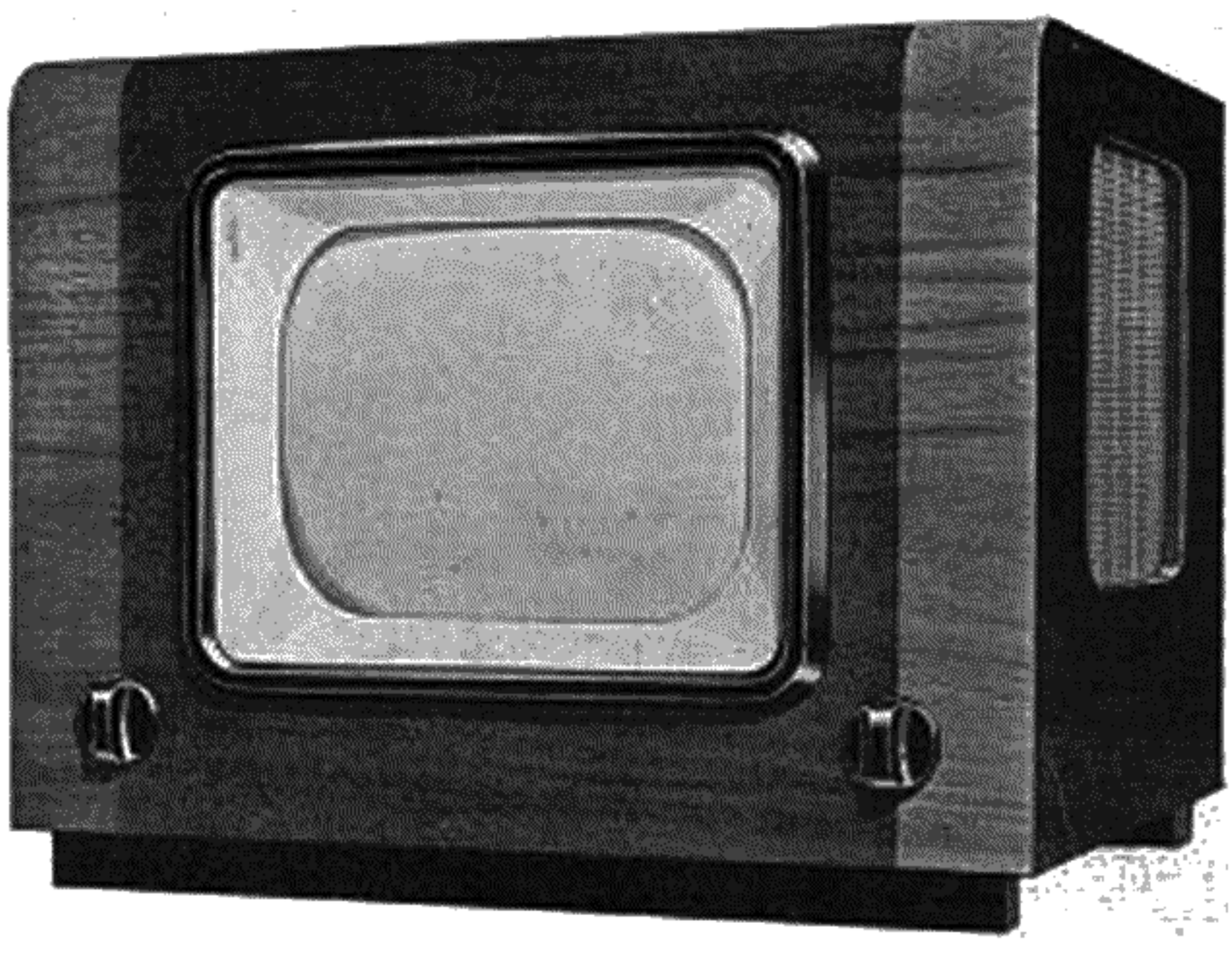
1.3. Valve Line-up

In addition to the picture tube, the circuit employs 18 valves, functioning as follows:-

Two vision and sound R.F. amplifiers.
Two vision R.F. amplifiers.
Vision R.F. detector and noise suppressor.
Video amplifier.
Synch. separator and amplifier.
Two sound R.F. amplifiers.
Sound detector, A.V.C. and audio-amplifier.
Audio output.
Two scanning oscillators.
Two scanning output valves.
Two rectifiers (H.T. and E.H.T.).
Power efficiency diode.
A Westector is used for sound noise suppression.

1.4. Circuit Features

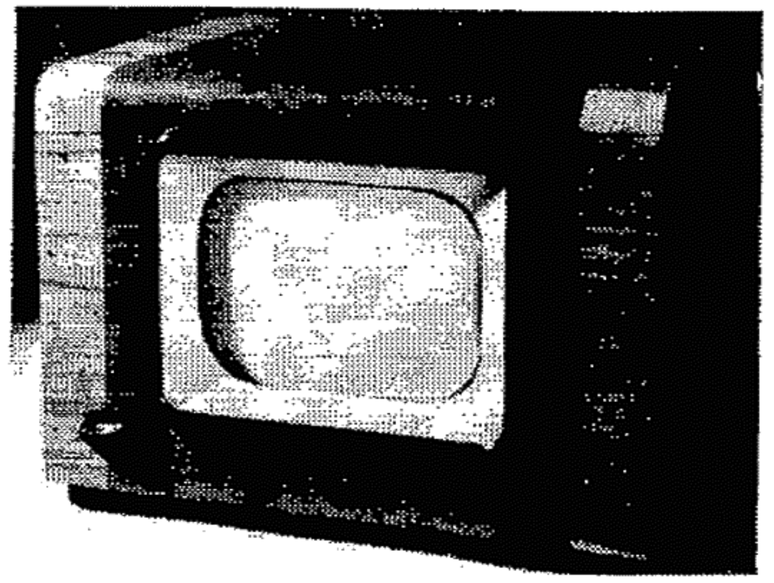
There are, effectively 4 tuned R.F. stages, in each of the sound and vision channels. Six R.F. amplifiers are employed, the first two functioning on both sound and vision.



FERGUSON

941, 951

Nineteen-valve AC-DC television receiver with 9in. CRT giving a 7½ by 6in. picture. Walnut veneered cabinet. For 200 to 250V AC or DC mains. Model 941 is for London frequencies and 951 for Midlands. Ferguson Radio Corporation, Ltd., Enfield, Middlesex.



THE receiver has a TRF circuit with permeability tuned coils. First two RF amplifiers are common to sound and vision. Vision interference and sound noise suppression circuits are incorporated. EHT is obtained from line flyback pulses. The receiver is assembled on 14½ by 12 in. chassis.

Model 941T is for operating within 30 miles of Alexandra Palace. In Model 94ITS RF alignment is adjusted to give a greater vision sensitivity.

ains consumption at 225V is approximately 125W.

Aerial.—75-ohm coaxial feeder is coupled by L1, L2 to first RF amplifier V1. Outer screen of coaxial should be connected to earth and is coupled to receiver chassis through C63.

Vision channel consists of four RF amplifiers, V1 to V4, signal rectifier and interference suppressor V5, and video output V6.

Single peak transformer coupling is used between V1, V2, V3, V4 and signal rectifier V5A. Secondaries L4, L6 are damped by R7, R14 respectively to provide a wide bandwidth to cover both sound and vision frequencies. Tuning of RF stages is staggered to give an overall bandwidth of approximately 4.5 mc/s at 6dB down. Gain of V1, V2 is controlled by R4, the contrast control, in the common cathode circuit.

Suppressor grids of V1, V2 are earthed and control grid circuits are returned to a point (junction of R1, R3) which is less positive than the cathodes. This arrangement maintains reasonably constant the input capacity and resistance of the valves irrespective of the setting of R4.

L9 trimmed by C9, T1 in the cathode of V3 is a sound rejector tuned to 41.5 mc/s.

Rectified signal across R16 is DC coupled through peaking choke L12 to video output amplifier V6. V6 is DC coupled through RF choke L13 to cathode of CRT. R22 limits the DC potential between cathode and heater of CRT.

Interference suppressor.—Diode V5B is coupled via C13 to anode of V6, and cathode is normally held just below cut-off by charge on C13, which is equal to "peak white." When a high-frequency negative-going interference pulse appears at anode V6, then due to long time constant of R17, C13, the cathode of V5B is driven heavily negative and V5B conducts and short circuits the interference pulse to chassis.

Sound channel.—The sound signal of 41.5 mc/s is amplified with the vision by V1 and then developed across rejector circuit in the cathode of V3 and fed by C27 to L18 (tuned to 41.5 mc/s) in the grid V8. Single peak transformer coupling leads to RF amplifier V9 and to rectifier diode of V10. The rectified signal developed across R69 is fed by R48 through C39 and noise suppressor rectifier and