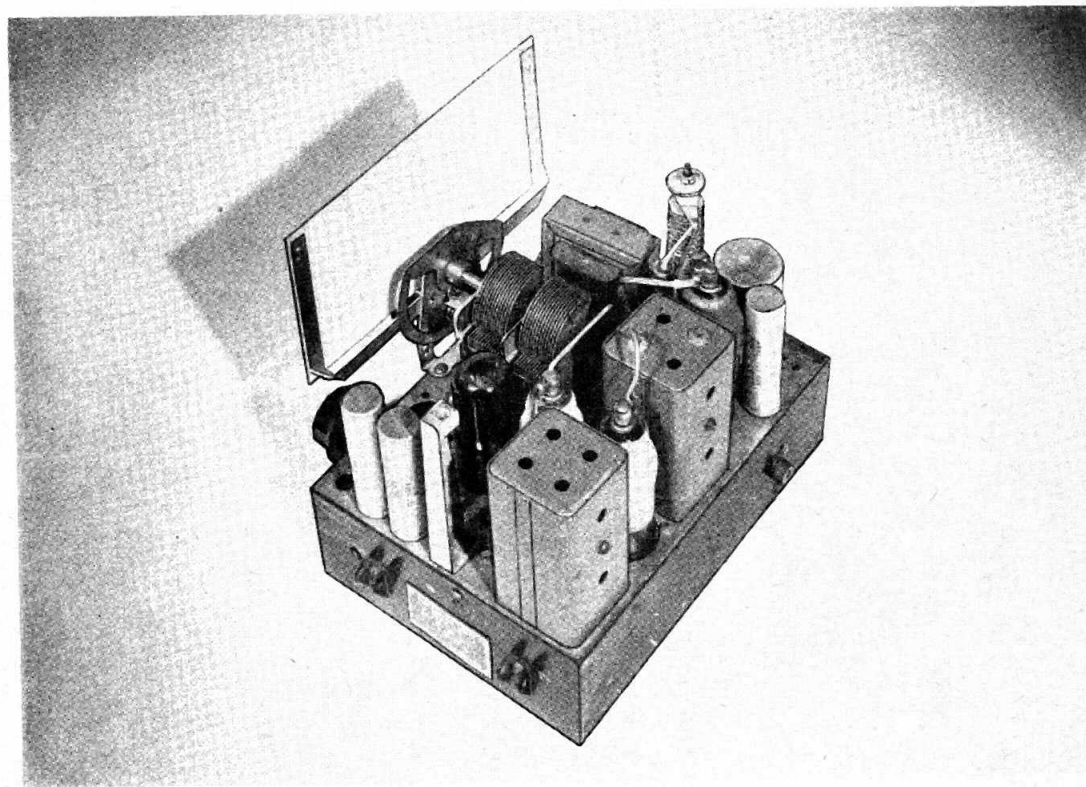


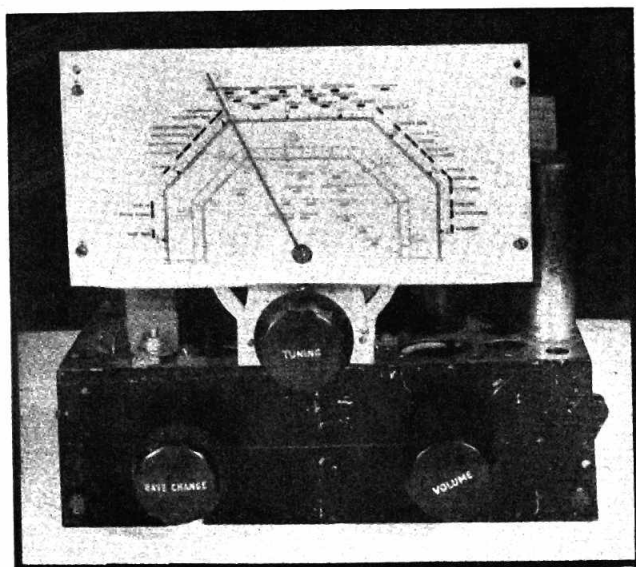
CONVERTING

THE

TR1196 RECEIVER



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Converting THE TR1196 RECEIVER

by

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of the Radio and
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THE receiver portion of the TR1196 lends itself to easy conversion to an all-wave, mains operated receiver, and in the accompanying article details for this are given, with photographic illustrations.

First, it is necessary to remove certain components which are not required. These are as follows: On the top deck, the pre-tuning assembly and Mansbridge capacitor. Underneath, proceeding from the Jones plug end—the phone transformer and Mansbridge capacitors (this gives the required space for the Osmor all-wave coil pack, which just fits nicely here). In the next compartment, remove the Jones plug, which takes up a lot of unnecessary room, and the potentiometer which was used for controlling the cathodes of the VR57 and VR53. Also take out V1 valve base (nearest the bakelite plug socket) and the latter with its bakelite strip, which now leaves a useful space for the $16 + 16 \mu\text{F}$ filter capacitor. In the main compartment, remove the microphone transformer, BFO coil, and the volume control potentiometer which is of no use owing to its short spindle length.

As the Osmor coil pack was used for the conversion, the writer decided to use the circuit provided with the pack, with certain modifications which will be explained later.

Valves V1, V4 and V5 were discarded, and all connections removed from the bases of V4 and V5—we have already taken out the holder of V1. V6, the DDT (VR55) was replaced in the socket of V4, and rewired accordingly. The original V6 holder was used for the 6V6 output valve—see cover photo. Next check the resistors and capacitors on the tag strips against those required, and remove any not wanted.

At this stage, the IF transformers need a little attention. It will be seen that the first IFT has two leads coming from the top of the can. Only one of these is wanted, so remove the can and snip off that lead which is joined to C21 (100 pF) and R19 (500 k Ω) on the top right looking at the trimmers. C21 and R19 may also be removed, if desired.

Now have a look at the bottom coil—a 200 Ω resistor will be noted which has a lead from each side going out through the base plate. The writer is not quite clear as to why this was used, as it is not shown in the original circuit. However, remove the right-hand lead, still looking at the trimmers, and short the resistor by soldering a piece of wire across it. This now gives us the four leads which we need, which should be left wired as shown in the TR1196 circuit, except for the connection from V3 grid to C21.

Next we deal with IFT2 (T3 in circuit). Here again, remove the can cover and, looking at the trimmers, it will be seen that the bottom coil here also has the 200 Ω resistor with the extra lead. This resistor is dealt with in the same way as in IFT1 (T2). The top half of the IFT is normal and should not be interfered with. Only one lead has to be rewired; that is the return half of the secondary going to the volume control, which should be connected as shown in the Osmor circuit.

Now return to the coil pack. This should be placed in the central portion of the compartment, as shown in the illustration, but, before doing so, solder on five leads about 10 ins. long, and an extra lead to Tag 4. Two leads from Tags 3 and 4 are taken through a hole in the deck of the chassis to be soldered to the 2-gang 500 pF tuning capacitor, and the other three leads are passed through into

the Jones plug compartment for connection to the frequency changer valve and AVC line as shown in the Osmor coil pack circuit. For the benefit of the uninitiated, the VR57 is a Mullard EK32 octode frequency changer with variable- μ characteristics, and it is essential that the SG (pins 3, 5) should not have more than 80V applied, so that it is advisable to leave it wired to R8, R9 and C12.

The pin connections of the VR57 are as follows: Pin 1, to chassis. Pins 2 and 7, to 6.3V heater winding. Pin 3, anode to primary of IFT1. Pin 4, G3 and G5. Pin 5, osc. grid to 100 pF and 50 k Ω . Pin 6, osc. anode to 150 pF, 50 k Ω and via capacitor to Tag 5. Top Cap, control grid taken to that section of the tuning capacitor to which the lead from Tag 3 has already been connected.

Tag 2 is soldered to a 100 k Ω resistor, the other end of which is joined to a 0.1 μF capacitor grounded to chassis, and a 1 Meg Ω resistor. The other end of this latter is taken to one of the diodes of the DDT, from which a 100 pF capacitor goes to the anode of V3.

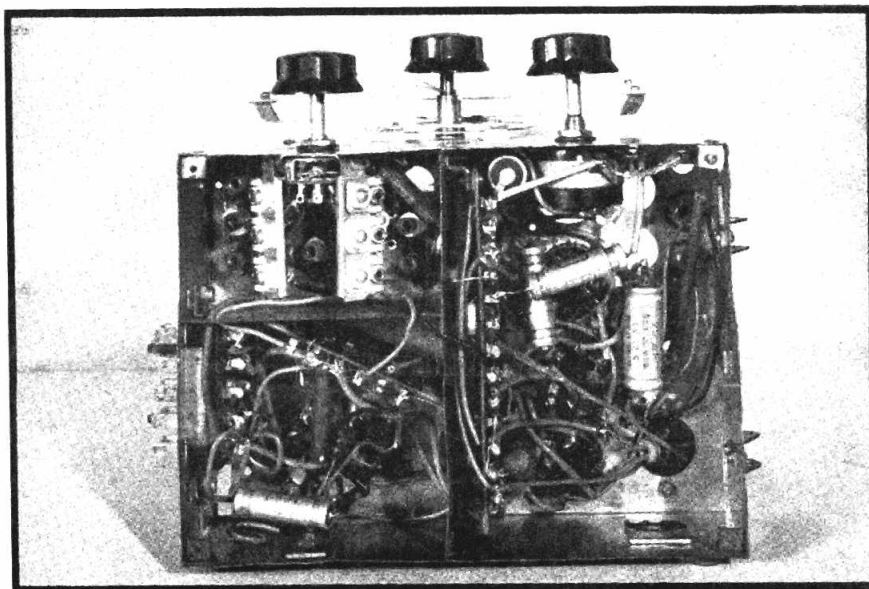
Tag 1 is taken via a 0.01 μF capacitor to the aerial socket—this is fitted in the hole left by the removal of the V2/V3 cathode control potentiometer. A 10 k Ω $\frac{1}{2}$ W resistor is connected from the aerial socket to ground. The cathode resistors of V2 and V3 (R10 and R17) should be grounded. This completes the mods to the coil pack and V2.

Valve 3 remains as shown in the TR1196 circuit, except where amended as has been described. The grid of V6 is taken to the volume control as shown in the Osmor circuit, and the cathode resistors R34 and R35 should be removed and a 3 k Ω $\frac{1}{2}$ W resistor substituted. C37 should also be taken out, and replaced

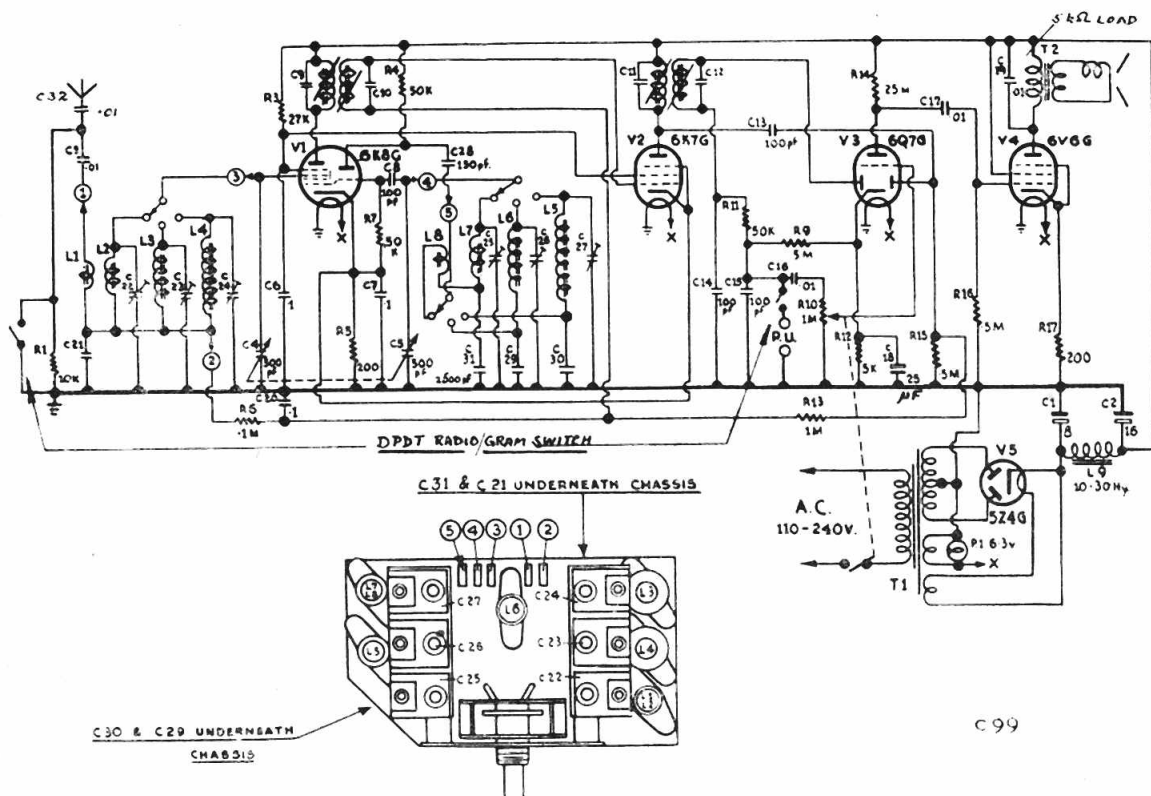
by a 25 μ F 12V capacitor. Resistors R33, R32, R30 and the capacitor C34 are removed. The anode of V6 is now taken through a 250 k Ω and a 47 k Ω to HT. From the junction of these two resistors, an 8 μ F 350V electrolytic is connected to ground. Also from the anode of V6, a 0.05 μ F capacitor is connected to the control grid of the 6V6 output valve, in series with a 4.7 k Ω grid stopper on the grid side. From the junction of these two, a 500 k Ω grid leak is taken to ground. The remainder of the connections to the 6V6 are as shown in the Osmor circuit.

For the power supply, a small 6.3V 1.5A heater transformer may be used, with a selenium 60 mA half-wave rectifier for HT., and a 1,000 Ω 10W vitreous enamelled resistor with 16 + 16 μ F electrolytic for smoothing. It should be remembered that with this arrangement the chassis will be connected to one side of the mains, and due precautions should be taken. Alternatively, of course, a standard AC power pack may be employed, though this will probably mean the use of an extra chassis.

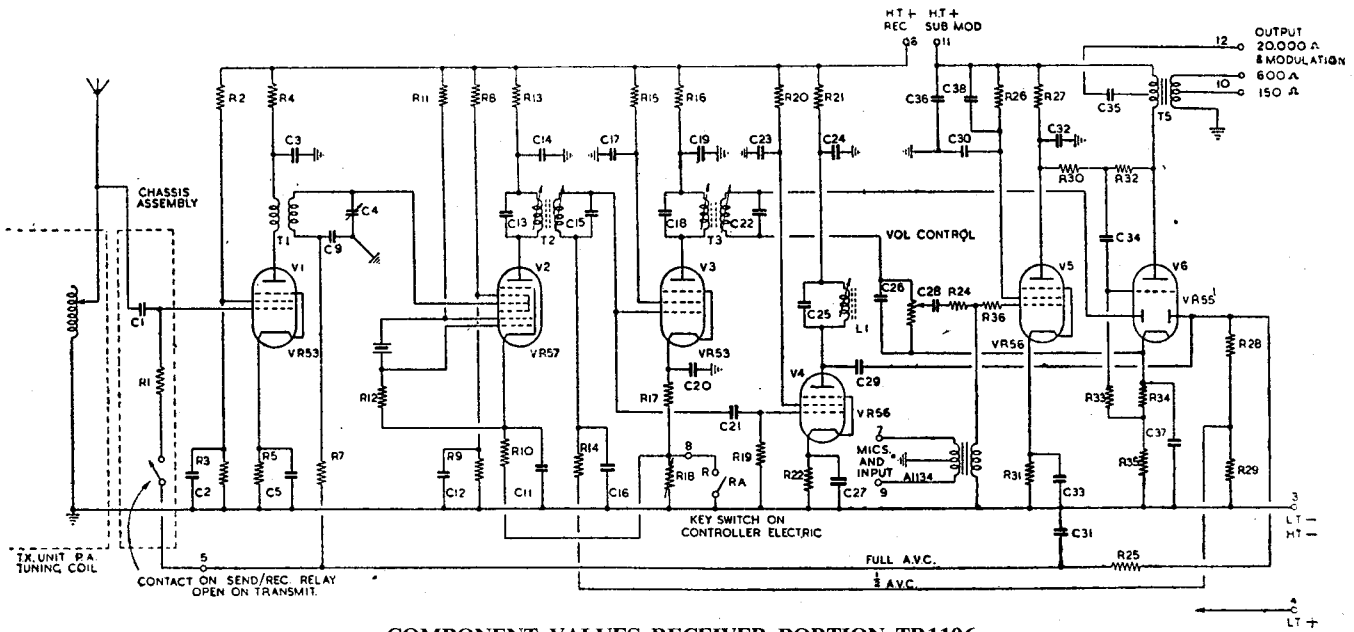
This now leaves us with only the alignment to do, and the first item is to retune the IF's to 465 kcs from the original setting of 460 kcs. It is best to do this with the aid of a signal



Underneath view of the modified receiver. A three-quarter rear view showing layout above deck is shown in the cover illustration.



THE OSMOR CIRCUIT REFERRED TO IN TEXT



COMPONENT VALUES RECEIVER PORTION TR1196
ORIGINAL CIRCUIT

Capacitors

C1, 50pF
C2, 3, 5, 9, 11, 28, 34, 0.01μF
C4, 8, variable
C12, 14, 16, 17, 19, 20, 23, 24, 27, 30, 31, 33, 37.
36, 38, 0.1μF
C13, 15, 18, 22, 150pF
C21, 29, 100pF

C25, 26, 200pF

C32, ~~100pF~~ 100pF

Resistors

R1, 7, 14, 25, 28, 29, 33, 1 MΩ
R2, 8, 9, 15, 23, 30, 100 kΩ
R3, 20, 200 kΩ
R4, 13, 16, ~~2kΩ~~ 2kΩ
R5, 10, 400 Ω

R19, 24, 32, 36, 500 kΩ

R31, 34, 35, 600 Ω

R17, 200 Ω

R18, 21, 5 kΩ

R11, 12, 50 kΩ

R22, 500 Ω

R26, 250 kΩ

R27, 60 kΩ

generator. Should the latter not be available, the Light programme should be tuned in, with the volume set at barely audible level, and the trimmers adjusted for maximum volume, starting with IFT2. Re-adjust on the Home

or North Regional wavelengths. Before making any adjustments to the trimmers of the coil pack, the Osmor instructions should first be studied.

With the conversion carried out as recommended in this article, the result will be an all-wave receiver equal in performance to a high-class commercial set, plus the great advantage of a much lower outlay.

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„ EX.	190—520	35—120	13—35
„ LM.	800—2,000	190—520	„

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Either of these types may be used in the TR1196 conversion if desired.

