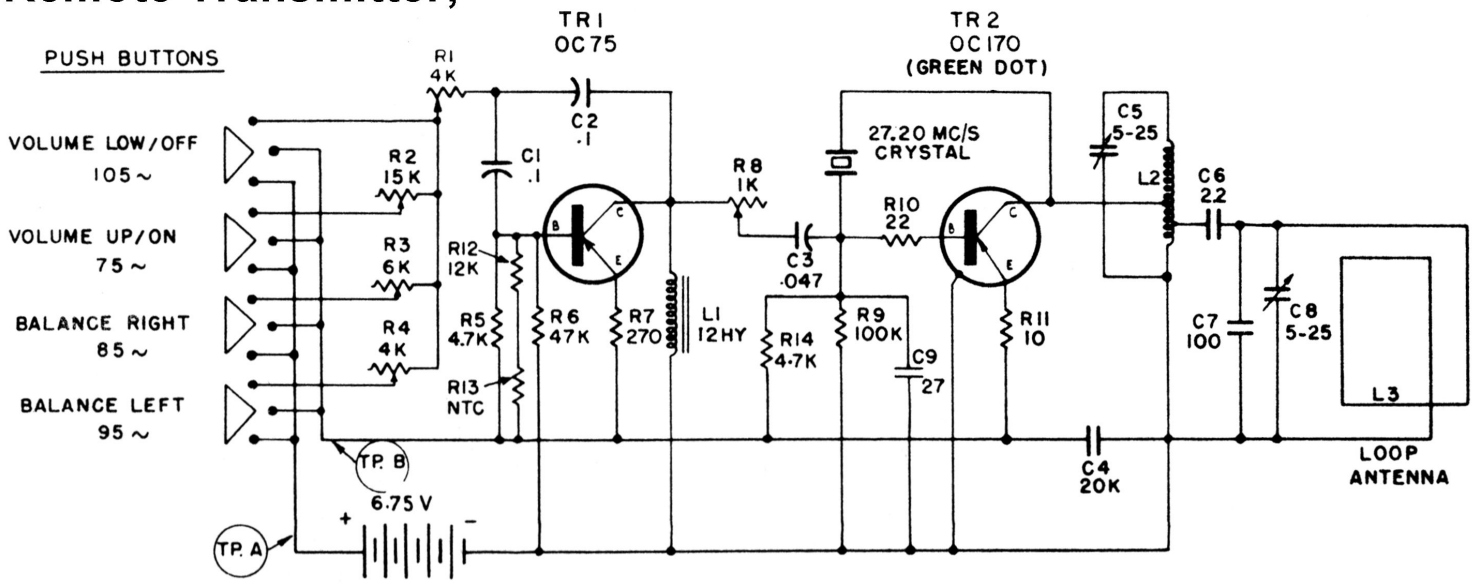
Remote Transmitter;



Alignment;

External Receiving Antenna

In locations where increased sensitivity is desired the receiver antenna may be removed from the cabinet and stretched out vertically or horizontally from the rear of the cabinet. The antenna should not be placed on a concrete floor or metal lathed wall. To make an external antenna, use insulated #16 stranded wire cut to a length of 8½ ft. (quarter wave length).

Remote Receiver Alignment

1. Turn receiver on and allow at least 10 minutes warm-up.
2. Connect a correct length antenna and switch to **Long Range.**
3. Connect a VTVM to TP1; -15 V DC scale.
4. Turn slug of Osc. coil L50 full out. Turn slug in (clockwise) to a maximum reading on V.T.V.M. Continue turning clockwise until voltage at TP1 drops 10% or for a maximum of one half turn whichever is reached first.
5. Short VTVM probes together. Set to -15 V dc scale and adjust pointer to read about half scale. Connect VTVM to TP2.
6. Remove transmitter cover and join "TPA & TPB" with a very short clip lead. The transmitter will now function as a 27.2 mc/s signal generator for alignment purpose. Place the transmitter at such a distance and orientation from the receiver that as alignment progresses the voltage at TP2 can be maintained between -2 V & -5 V higher than the no signal voltage.
7. Adjust slugs of antenna coil L20, RF coil L21, and IF coils L22 & L23 for maximum reading at TP2. If more than one peak is found on any tuned circuit, use the one with the slug furthest out of the coil.

Transmitter Alignment

Note: Each transmitter is factory adjusted to suit the reed frequencies of the receiver with the same serial number. Transmitters are therefore not interchangeable without realignment

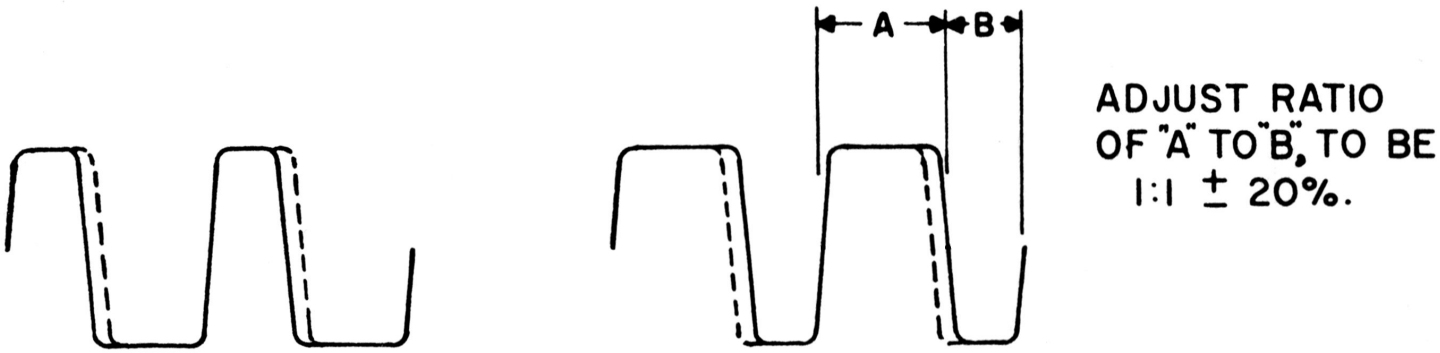
1. Connect scope and V.T.V.M. to TP2 of receiver. Remove all connections from antenna terminals and switch to short range. (VTVM pre-adjusted to half scale).
2. Carefully remove bottom portion of the transmitter case.
3. Check that the loop antenna is firmly tensioned against its fibre retainer.
4. To align the transmitter hold the assembly about one foot away from the receiver antenna with the fingers of the holding hand in position to operate the function buttons.

   NOTE: All references to direction of rotation are determined with the component side facing the operator.

Alignment Continued;

The RF oscillator end of the transmitter must be held away from the body and all metal surfaces during alignment.

5. Turn R8, Modulation Depth Control, to maximum clockwise position (maximum resistance). Set R1 to centre of its range.
6. Press the left end of the Volume Low button to operate the RF oscillator but not the tone oscillator.
7. Tune tank coil capacitor, C5 for maximum deflection of VTVM.
8. Tune loop antenna capacitor, C8 for maximum deflection of VTVM.
9. Repeat steps 6, 7 & 8. Check that oscillator starts immediately button is pushed. If starting unreliable, turn C5 slightly clockwise. Maintain output level at TP2 between -2 & -5 volts higher than the no signal voltage by approaching or moving away from the receiver.
10. Press Volume Low button in centre, operating both RF & tone oscillators. Turn R8 counter-clockwise slowly until modulation waveform observed at TP2 is seen to be nearly symmetrical and sinusoidal or flat topped in shape.



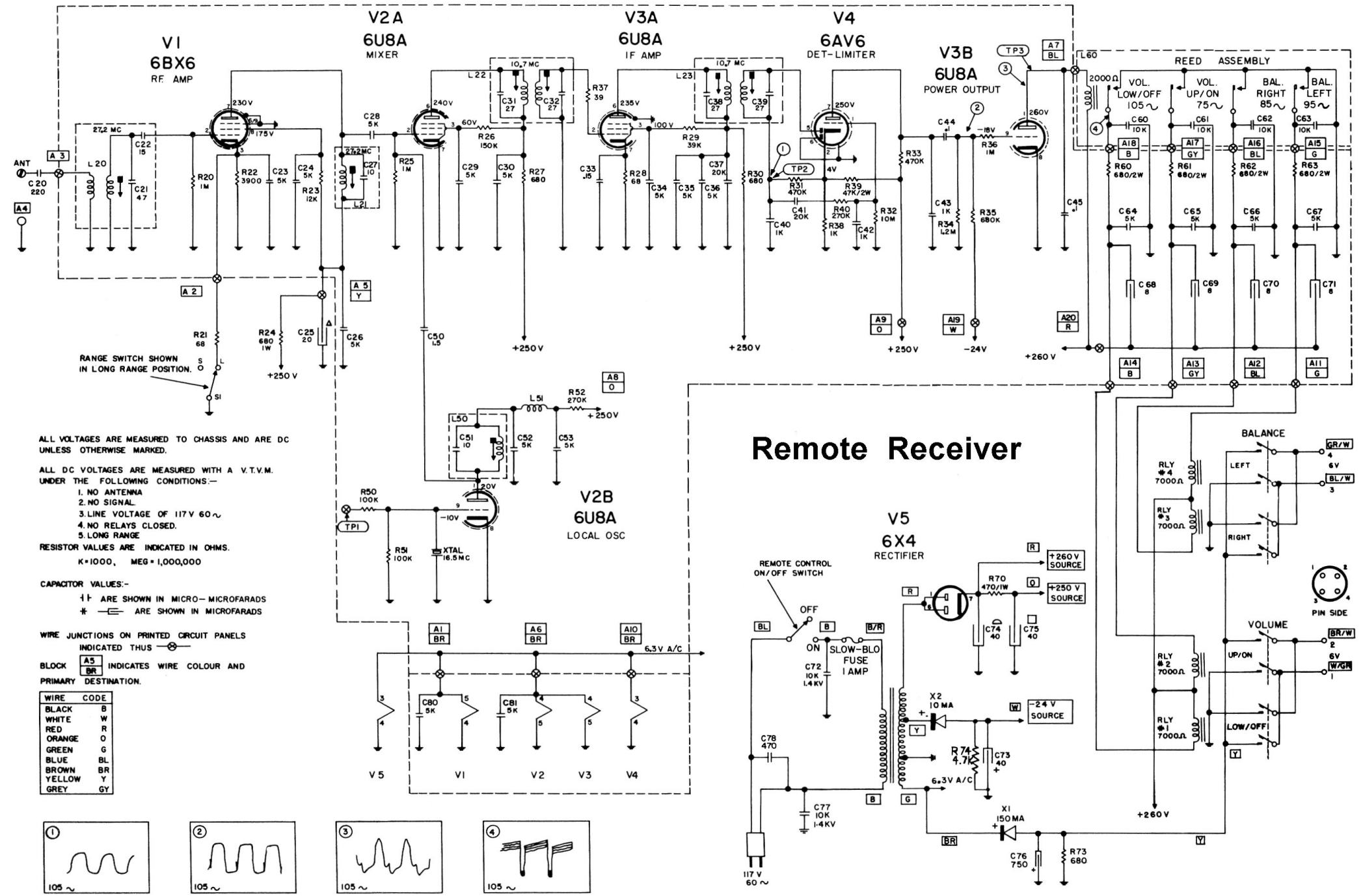
PERMISSIBLE VARIATION OF MODULATION WAVEFORM SYMMETRY FROM LOWEST TO HIGHEST "TONE" FREQUENCY.

11. Move transmitter closer to the antenna terminal to raise the output level at TP2 to between -5 and -10 volts higher than the no signal voltage. Turn R1 fully counter-clockwise. Press Volume Low button in centre. Observe resonant reed filter unit. Turn R1 clockwise very slowly to a point at which the Volume Low relay first closes. Release Volume Low button and allow reed to stop vibrating. Press Volume Low button several times to check that the relay closes without hesitation or intermittent drop out and that reed is vibrating smoothly with no chattering or contact bounce.
12. Repeat procedure described in step 11 to adjust R2, R3 & R4 for Volume Up, Balance Right & Balance Left functions respectively.

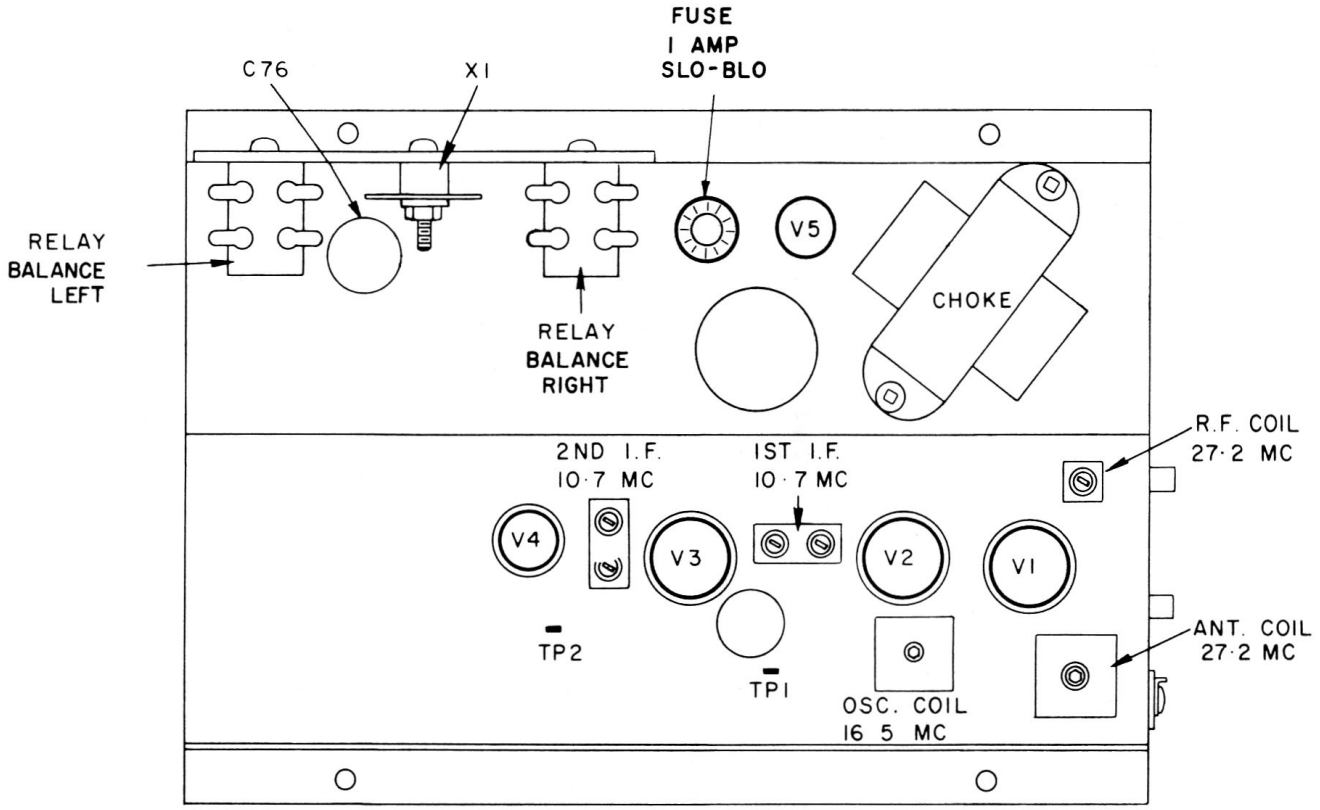
    NOTE: As R1 is in series with R2, R3 & R4 any change to R1 will necessitate readjustment of R2, R3 & R4 also.
13. Readjust capacitors C5, C8 and resistor R8 to obtain maximum modulation amplitude and best waveform symmetry with new tone frequencies.

    NOTE: Only slight adjustment required.

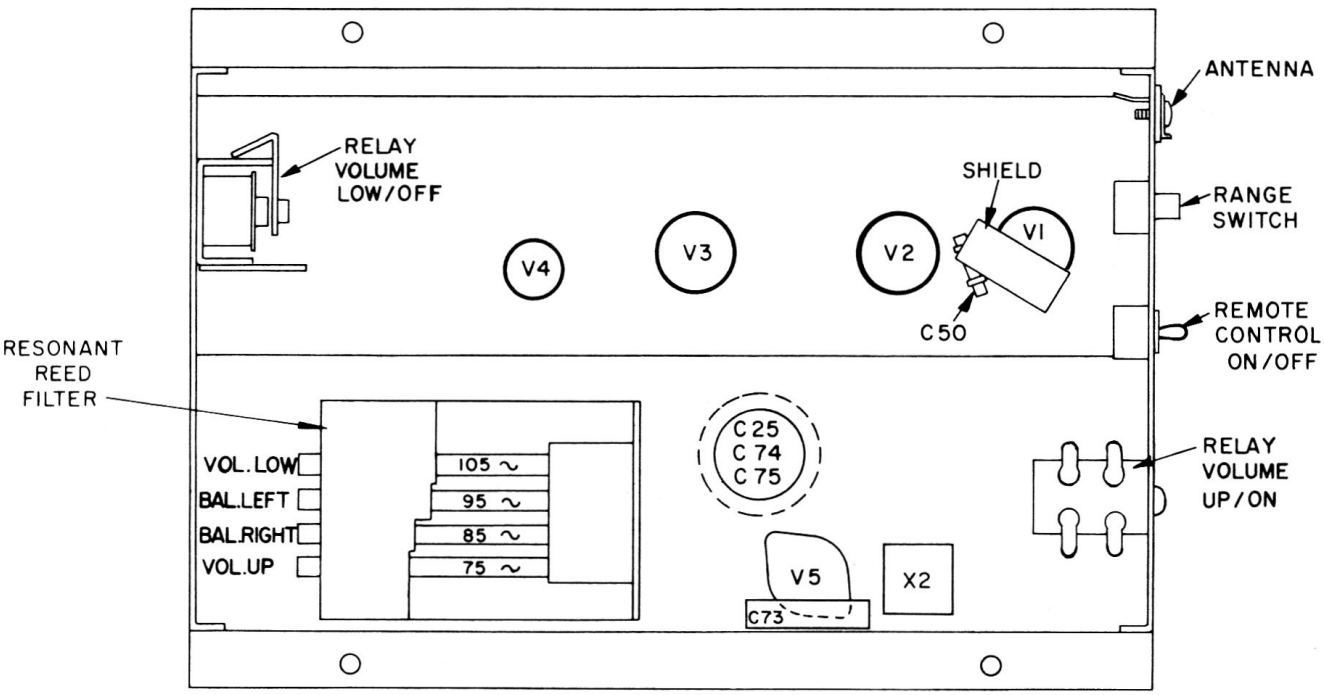
    It will be necessary to adjust the R8 setting for best compromise of symmetry between the lowest and the highest frequency (Volume Low & Volume Up).
14. Add bottom section of transmitter case. Check that modulation symmetry has not changed.


V1
6BX6
RF AMP
V2A
6U8A
MIXER
V3A
6U8A
IF AMP
V4
6AV6
DET-LIMITER
V3B
6U8A
POWER OUTPUT
REED ASSEMBLY
VOL. LOW/OFF 105~
VOL. UP/ON 75~
BAL. RIGHT 85~
BAL. LEFT 95~
ANT
RANGE SWITCH SHOWN IN LONG RANGE POSITION.
+250 V
+260 V
-24V
-10V
ALL VOLTAGES ARE MEASURED TO CHASSIS AND ARE DC UNLESS OTHERWISE MARKED.
ALL DC VOLTAGES ARE MEASURED WITH A V.T.V.M. UNDER THE FOLLOWING CONDITIONS:—
1. NO ANTENNA
2. NO SIGNAL.
3. LINE VOLTAGE OF 117 V 60~
4. NO RELAYS CLOSED.
5. LONG RANGE
RESISTOR VALUES ARE INDICATED IN OHMS.
K=1000, MEG=1,000,000
CAPACITOR VALUES:-
ARE SHOWN IN MICRO—MICROFARADS
ARE SHOWN IN MICROFARADS
WIRE JUNCTIONS ON PRINTED CIRCUIT PANELS INDICATED THUS
BLOCK INDICATES WIRE COLOUR AND PRIMARY DESTINATION.
WIRE CODE
BLACK B
WHITE W
RED R
ORANGE O
GREEN G
BLUE BL
BROWN BR
YELLOW Y
GREY GY
Remote Receiver
V5
6X4
RECTIFIER
REMOTE CONTROL ON/OFF SWITCH
OFF
ON
SLOW-BLO FUSE 1 AMP
+260 V SOURCE
+250 V SOURCE
-24 V SOURCE
6.3V A/C
117 V 60~
BALANCE
VOLUME
LEFT
RIGHT
UP/ON
LOW/OFF
PIN SIDE
RLY #4 7000Ω
RLY #3 7000Ω
RLY #2 7000Ω
RLY #1 7000Ω
V5
V1
V2
V3
V4

Remote Receiver Chassis Layouts



TOP VIEW



BOTTOM VIEW

TUBE LOCATION AND ALIGNMENT POINTS