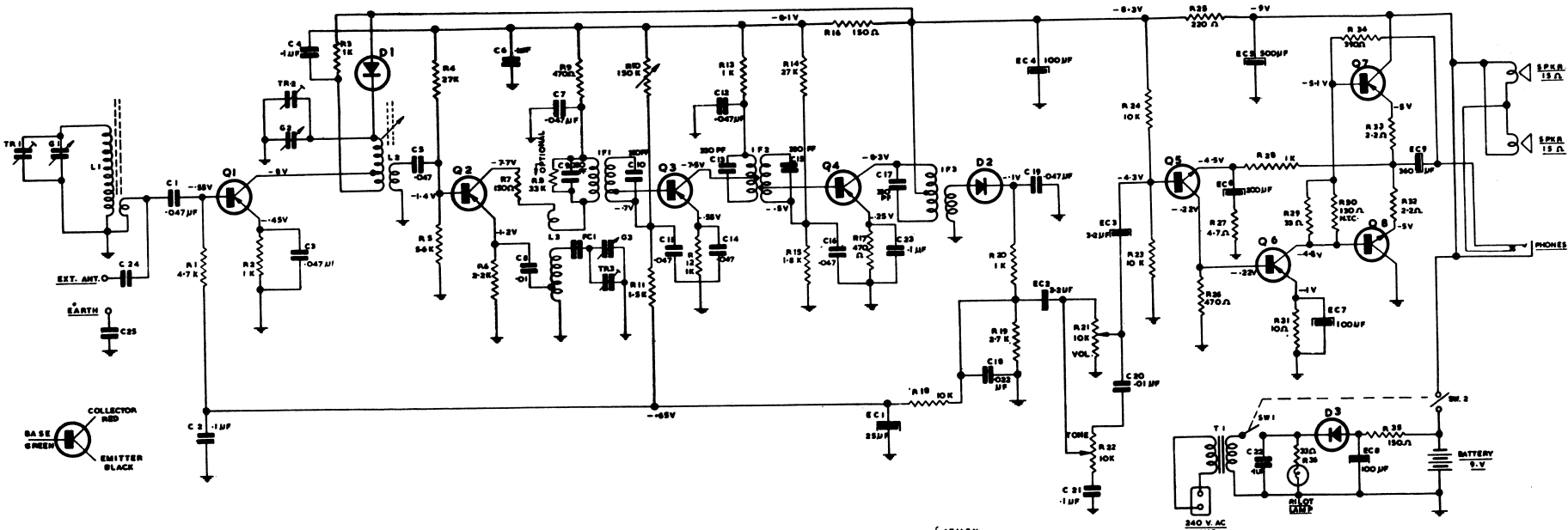
FERRIS 'GEMINI' MODEL 207

HIGH FIDELITY TRANSISTOR PORTABLE



R1 - 4·7K	10%	RESISTOR
R2 - 1K	10%	RESISTOR
R3 - 1K	10%	RESISTOR
R4 - 27K	10%	RESISTOR
R5 - 5·6K	10%	RESISTOR
R6 - 2·2K	10%	RESISTOR
R7 - 150K	10%	RESISTOR
R8 - 33 K	10%	RESISTOR
R9 - 470Ω	10%	RESISTOR
R10 - 150K		VARIABLE RESISTOR
R11 - 1·5 K	10%	RESISTOR
R12 - 1 K	10%	RESISTOR
R13 - 1 K	10 %	RESISTOR
R14 - 27 K	10%	RESISTOR
R15 - 1·8 K	10%	RESISTOR
R16 - 150Ω	10%	RESISTOR
R17 - 470 Ω	10%	RESISTOR
R18 - 10 K	10%	RESISTOR
R19 - 2·7K	10%	RESISTOR
R20 - 1 K	10%	RESISTOR
R21 - 10K	POTENTIOMETER	
R22 - 10K	POTENTIOMETER	
R23 - 10K	10%	RESISTOR
R24 - 10K	10%	RESISTOR
R25 220Ω	10%	RESISTOR
R26 470Ω	10%	RESISTOR
R27 4·7 Ω	10%	RESISTOR
R28 1K	10%	RESISTOR

R29 - 33Ω	10%	RESISTOR
R30 - 130Ω N.T.C.		RESISTOR
R31 - 10Ω	10%	RESISTOR
R32 - 2·2Ω	10%	RESISTOR
R33 - 2·2Ω	10%	RESISTOR
R34 - 390Ω	10%	RESISTOR
R35 - 150Ω	10%	RESISTOR
R36 - 330	10%	RESISTOR

C1 -·047µF	25V CAPACITOR
C2 - ·1µF	25V CAPACITOR
C3 -·047µF	25V CAPACITOR
C4 - ·1µF	25V CAPACITOR
C5 -·047µF	25V CAPACITOR
C6 - ·1µF	25V CAPACITOR
C7 - ·047µF	25V CAPACITOR
C8 - ·01µF	125V POLYESTOR CAP.
C9 - 330PF	125V STYROSEAL "
C10 - 330 PF	125V STYROSEAL "
C11 -·047µF	25V CAPACITOR
C12 -·047µF	25V CAPACITOR
C13 - 330PF	125V STYROSEAL CAP.
C14 -·047µF	25V STYROSEAL "

PC1 - 330 PF 5% PADDER

C15 - 330PF	125V STYROSEAL CAP.
C16 -·047µF	25V CAPACITOR
C17 - 330PF	125V STYROSEAL CAP.
C18 -·022 µF	25V CAPACITOR
C19 - ·047µF	25V CAPACITOR
C20 -·01 µF	25V CAPACITOR
C21 - ·1 µF	25V CAPACITOR
C22 - ·1 µF	125V POLYESTOR CAP.
C23 - ·1 µF	125V POLYESTOR CAP.
C24 - ·001µF	4 KV CERAMIC
C25 - ·001µF	4 KV CERAMIC
EC1 - 25 µF	6V ELECTRO
EC2 - 3·3 µF	6V ELECTRO
EC3 - 3·3 µF	6V ELECTRO
EC4 - 100µF	12V ELECTRO
EC5 - 500µF	12V ELECTRO
EC6 - 500µF	6V ELECTRO
EC7 - 100µF	4V ELECTRO
EC8 - 100µF	12V ELECTRO
EC9 - 360µF	6 V ELECTRO

G1, G2, G3 } 3 GANG TUNING CAPACITOR 300 PF PER SECTION

BATTERY 9V TYPE 2761

TR1 - 2 PLATE TRIMMER
TR 2 - 2 PLATE TRIMMER
TR 3 - 3-30 PF AIR TRIMMER

S1, S2 } D.P.S.T. SEMI - ROTARY

PILOT LAMP - 12 V 2W

L1 - ROD AER. COIL TYPE 7118
L2 RF COIL TYPE 7203
L3 OSC. COIL " 7322

T1 - POWER TRANS. TYPE 3252

D1, D2 } OA90 1N462A
D3 - B31

IF1 - 455 KC TRANS - TYPE 9123
IF2 - " " " 9123
IF3 - " " " 9121

Q1	AF115N, 2SA246, 2N2063
Q2	AF115N, 2SA246, 2N2063
Q3	AF117N, 2N1638, 2N373
Q4	AF117N, 2N1638, 2N373
Q5	AC172, 2N649
Q6	AC125, 2N406
Q7	AC126, AS126
Q8	AC127, 2N649

BAND COVERAGE 525 - 1760 KC/S
I.F. FREQUENCY 455 KC/S

TOTAL BATTERY CURRENT 16 MA FOR 9V BATTERY

COLLECTOR CURRENT OF O/P STAGE FOR ZERO SIG. 2·5 MA

ALL RESISTORS 1/2 WATT UNLESS OTHERWISE STATED

NOTE - ALL VOLTAGES CHECKED WITH 20,000 O.P.V METER AT ZERO SIGNAL INPUT

DO NOT OPERATE SET WITHOUT SPEAKERS CONNECTED

DRG. No. R 1831

FERRIS MODEL 207-208

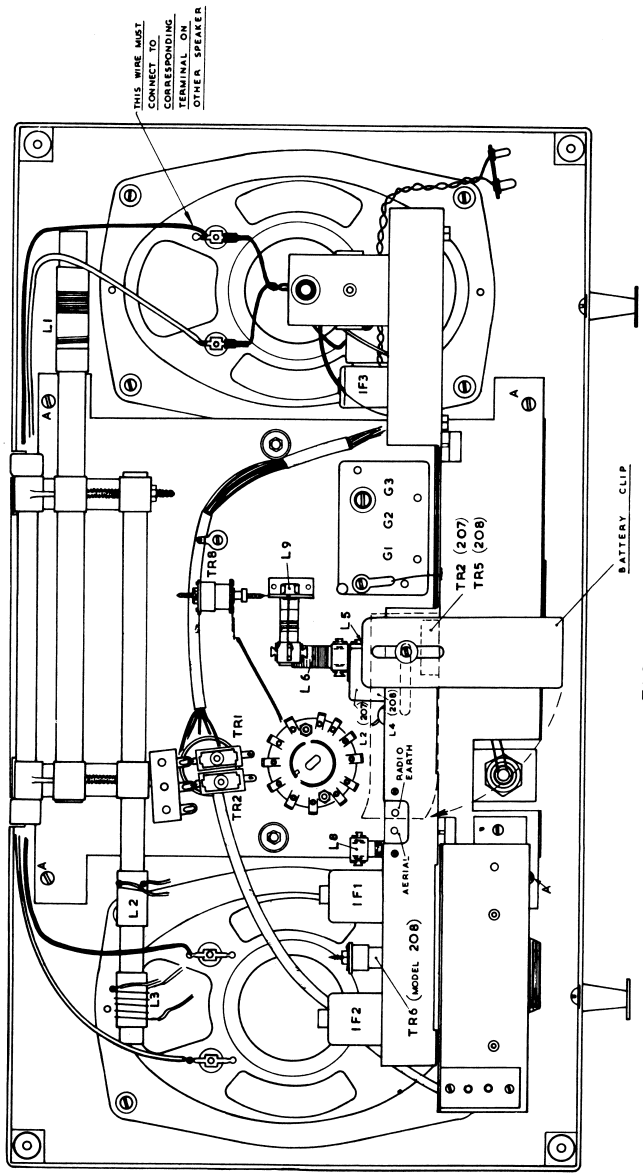


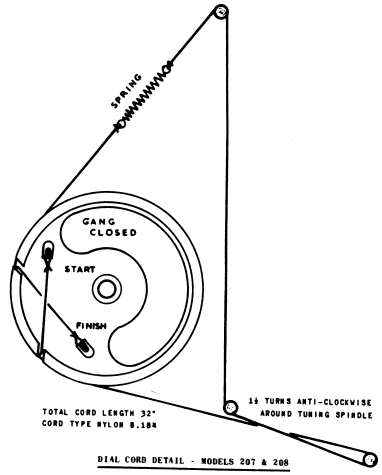
FIG. 2.
REAR CABINET-HALF REMOVED

CAUTION:

When connecting up speakers, ensure that they are in the same phase i.e. termination of leads to speaker terminals is in the same sequence for both speakers (See Fig. 2).

TO REPLACE THE VOLUME CONTROL:

(1) Remove chassis as previously described.
(2) Remove 3/8" nut and shakeproof washer which secures control to sub-plate (See Fig. 3).
(3) Remove 4 screws holding sub-plate.
(4) After disconnecting volume control, withdraw it through the aperture in the main front plate.
(5) Reverse above procedure to install new control.



DIAL CORD DETAIL - MODELS 207 & 208

DIAL CORD REPLACEMENT:

(1) Remove chassis from cabinet.
(2) Remove plastic pointer (pointer is a "snap" fit into the pointer carriage).
(3) Remove 4 screws securing dial scale and back plate to main front plate (see Fig. 3). Restring dial in accordance with diagram.
(4) After replacing dial back-plate and scale, fit pointer to pointer carriage. Slide pointer carriage along dial cord as required to achieve calibration.

ALIGNMENT PROCEDURE

For all alignment operations connect the earth side of the signal generator to the frame or case and keep the generator output as low as possible to avoid A.V.C. action. Set volume at maximum.

Note: Use proper alignment tool for making adjustments. Cores are easily broken by improper handling making replacement of entire coil or transformer necessary.

BROADCAST ALIGNMENT - MODEL 207

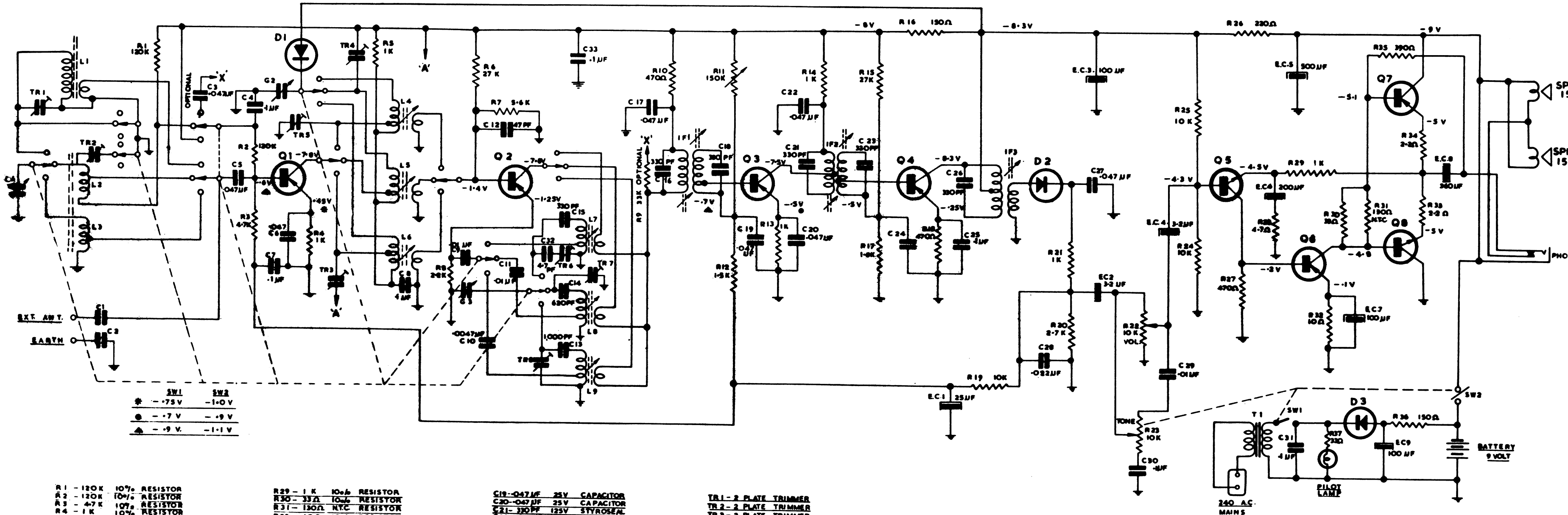
STEP	Connect Sig. Gen. to	Tune Sig. Gen. to	Tune Receiver to	Adj. for Max. Output
1 2 3	Base of AF 115 Converter via .1 uf capacitor	455 KC/S	Gang fully open " " "	IF3 (one core) IF2 (all cores IF1 on outer peaks)
4	Repeat above adjustments until no further increase can be obtained.			
5	Aerial terminal via .1 uf capacitor & 330 ohm resistor	525 KC/S	Gang fully closed	Osc. coil slug (L3)
6		1760 KC/S	Gang fully open	B/C osc. trim TR3
7	Repeat steps 5 & 6 until band limits are 525 - 1760 KC/S.			
8	Aerial terminal via .1 uf capacitor & 330 ohm resistor	600 KC/S	600 KC/S	*RF coil slug (L2) *Ant. coil adj.(L1)
9		1500 KC/S	1500 KC/S	TR1 TR2

* Rock gang back and forth through signal.
Repeat Steps 8 & 9 until no further increase can be obtained.
Check sensitivity at 600, 1000 and 1500 KC/S.

Refer to circuit diagram for core and trimmer identification.

FERRIS "SUPER FRINGE" MODEL 208

3 BAND-8 TRANSISTOR PORTABLE.



	SW1	SW2
✱	- ·75 V	-1·0 V
●	- ·7 V	- ·9 V
▲	- ·9 V.	-1·1 V

R1 - 120K 10% RESISTOR
R2 - 120K 10% RESISTOR
R3 - 4·7K 10% RESISTOR
R4 - 1K 10% RESISTOR
R5 - 1K 10% RESISTOR
R6 - 27K 10% RESISTOR
R7 - 5·6K 10% RESISTOR
R8 - 2·2K 10% RESISTOR
R9 - 33K 10% RESISTOR
R10 - 470Ω 10% RESISTOR
R11 - 150Ω VARIABLE RESISTOR
R12 - 1·5K 10% RESISTOR
R13 - 1K 10% RESISTOR
R14 - 1K 10% RESISTOR
R15 - 27K 10% RESISTOR
R16 - 150Ω 10% RESISTOR
R17 - 1·8K 10% RESISTOR
R18 - 470Ω 10% RESISTOR
R19 - 10K 10% RESISTOR
R20 - 2·7K 10% RESISTOR
R21 - 1K 10% RESISTOR
R22 - 10K POTENTIOMETER
R23 - 10K POT. D.P.S.T. SWITCH
R24 - 10K 10% RESISTOR
R25 - 10K 10% RESISTOR
R26 - 220Ω 10% RESISTOR
R27 - 470Ω 10% RESISTOR
R28 - 4·7Ω 10% RESISTOR

R29 - 1K 10% RESISTOR
R30 - 33Ω 10% RESISTOR
R31 - 130Ω N.T.C. RESISTOR
R32 - 10Ω 10% RESISTOR
R33 - 2·2Ω 10% RESISTOR
R34 - 2·2Ω 10% RESISTOR
R35 - 390Ω 10% RESISTOR
R36 - 150Ω 10% RESISTOR
R37 - 33Ω 10% RESISTOR

C1 - ·001UF 4KV CERAMIC
C2 - ·001UF 4KV CERAMIC
C3 - ·047UF 25V CAPACITOR
C4 - ·1UF 25V CAPACITOR
C5 - ·047UF 25V CAPACITOR
C6 - ·047UF 25V CAPACITOR
C7 - ·1UF 25V CAPACITOR
C8 - ·1UF 25V CAPACITOR
C9 - ·01UF 125V POLYESTOR
C10 - ·0047UF 50V CAPACITOR
C11 ·01UF 125V CAPACITOR
C12 - 47PF 500V CAPACITOR
C13 - 1000PF 5% STYROSEAL
C14 - 620PF 5% STYROSEAL
C15 - 330PF 5% STYROSEAL
C16 - 330PF 125V STYROSEAL
C17 - ·047UF 25V CAPACITOR
C18 - 330PF 125V STYROSEAL

C19 - ·047UF 25V CAPACITOR
C20 - ·047UF 25V CAPACITOR
C21 - 330PF 125V STYROSEAL
C22 - ·047UF 25V CAPACITOR
C23 - 330PF 125V STYROSEAL
C24 - ·047UF 25V CAPACITOR
C25 - ·1UF 25V CAPACITOR
C26 - 330PF 125V STYROSEAL
C27 - ·047UF 25V CAPACITOR
C28 - ·022UF 25V CAPACITOR
C29 - ·01UF 25V CAPACITOR
C30 - ·1UF 25V CAPACITOR
C31 - ·1UF 125V POLYESTOR
C32 - 4·7PF 500V CERAMIC
C33 - ·1UF 25V CAPACITOR

EC1 - 25UF 6V ELECTRO
EC2 - 3·2UF 6V ELECTRO
EC3 - 100UF 12V ELECTRO
EC4 - 3·2UF 6V ELECTRO
EC5 - 500UF 12V ELECTRO
EC6 - 200UF 6V ELECTRO
EC7 - 100UF 4V ELECTRO
EC8 - 360UF 6V ELECTRO
EC9 - 100UF 12V ELECTRO

G1, G2, G3 } 3 GANG TUNING CAPACITOR 300 PF PER SECTION

TR1 - 2 PLATE TRIMMER
TR2 - 2 PLATE TRIMMER
TR3 - 2 PLATE TRIMMER
TR4 - 2 PLATE TRIMMER
TR5 - 2 PLATE TRIMMER
TR6 - 3-30PF AIR TRIMMER
TR7 - 3-30PF " "
TR8 - 3-30PF " "

L1 - ROD AER COIL TYPE 7118
L2 - AER COIL - TYPE 7406
L3 - AER COIL - " 7407
L4 - R.F. COIL - " 7203
L5, L6 } R.F. COIL - " 7506
L7 - OSC COIL - " 7322
L8 - OSC COIL - " 7605
L9 - OSC COIL - " 7603

IF1 - 455 KC TRANS - TYPE 9123
IF2 - " " - " 9123
IF3 - " " - " 9121

T1 - POWER TRANS - TYPE 3259

PILOT LAMP 12V 2W

D1, D2 } OA 90, IN 60 A
D3 - BS1

BATTERY - 9V TYPE 2761

Q1 { AF115N, 2SA246, 2N2083
Q2 { AF115N, 2SA246, 2N2083
Q3 { AF117N, 2N1638, 2N373
Q4 { AF117N, 2N1638, 2N373
Q5 { AC 172, 2N649
Q6 { AC125, 2N406
Q7 { AC 128, AS 128
Q8 { AC 127, 2N649

BAND COVERAGE BROADCAST 525 / 1760 KC/S
SW1 - 2-6 MC/S
SW2 - 6-18 MC/S

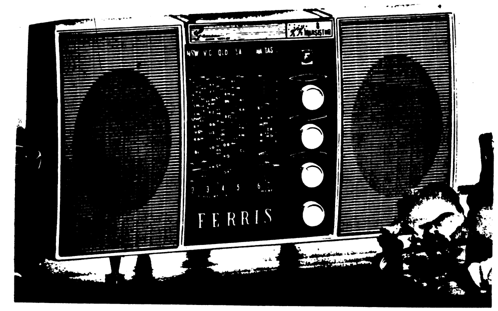
TOTAL BATTERY CURRENT 16 MA FOR 9V BATTERY

COLLECTOR CURRENT OF O/P STAGE FOR ZERO SIG. 2·5 MA

ALL RESISTORS ½ WATT UNLESS OTHERWISE STATED.

NOTE - ALL VOLTAGES CHECKED WITH 20,000 O.P.V. METER AT ZERO SIGNAL INPUT.

DO NOT OPERATE SET WITHOUT SPEAKERS CONNECTED.



ALIGNMENT PROCEDURE

3 BAND ALIGNMENT - MODEL 208. SET BAND SWITCH TO B/C

STEP	Connect Sig. Gen. to	Tune Sig. Gen. to	Tune Receiver to	Adj. for Max. Output
1 2 3	Base of AF 115 Converter via .1 uf capacitor	455 KC/S	Gang fully open	IF3 (one core) IF2 (all cores IF1 on outer peaks)
4	Repeat above adjustments until no further increase can be obtained.			
5	Aerial terminal via .1 uf capacitor	525 KC/S	Gang fully closed	Osc. coil slug (L7)
6	& 330 ohm resistor	1760 KC/S	Gang fully open	Osc. trim TR 6
7	Repeat steps 5 and 6 until band limits are 525 - 1760 KC/S.			
8	Aerial terminal via .1 uf capacitor	600 KC/S	600 KC/S	*RF coil slug (L4) *Ant. coil adj.(L1)
9	& 330 ohm resistor	1500 KC/S	1500 KC/S	TR1 TR5
	* Rock gang back and forth through signal. Repeat steps 8 and 9 until no further increase can be obtained. Check sensitivity at 600, 1000 and 1500 KC/S.			

SHORTWAVE 1 ALIGNMENT - SET BAND SWITCH TO SW 1

STEP	Connect Sig. Gen. to	Tune Sig. Gen. to	Tune Receiver to	Adj. for Max. Output
10	Aerial terminal via .1 uf capacitor	1.95 MC/S	Gang fully closed	Osc. coil slug (L8)
11	& 330 ohm resistor	6.1 MC/S	Gang fully open	Osc. trim TR7
	Repeat steps 10 and 11 until band limits are 1.95 - 6.1 MC/S.			
12	Aerial terminal via .1 uf capacitor	2.2 MC/S	2.2 MC/S	*RF coil slug (L5) *Ant. coil adj.(L2)
13	& 330 ohm resistor	5.0 MC/S	5.0 MC/S	*TR2 TR4
	* Rock gang back and forth through signal. Repeat steps 12 and 13 until no further increase can be obtained.			

SHORTWAVE 2 ALIGNMENT - SET BAND SWITCH TO SW2.

STEP	Connect Sig. Gen. to	Tune Sig. Gen. to	Tune Receiver to	Adj. for Max. Output
14	Aerial terminal via .1 uf capacitor	5.9 MC/S	Gang fully closed	Osc. coil slug (L9)
	& 330 ohm resistor	18.1 MC/S	Gang fully open	Osc. coil trim TR8
	Repeat steps 14 and 15 until band limits are 5.9 - 18.1 MC/S.			
16	Aerial terminal via .1 uf capacitor	6.5 MC/S	6.5 MC/S	*RF coil slug (L6) *Ant. coil adj.(L3)
	& 330 ohm resistor	15 MC/S	15 MC/S	TR3
	* Rock gang back and forth through signal. Repeat steps 16 and 17 until no further increase can be obtained.			