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5. Repeat the above procedure until Channels 1 and 22 are accurately calibrated, and no further adjustments of either C21 or T2 are necessary.

## **TRANSMITTER ALIGNMENT**

*Important Note:* This must only be carried out by a properly authorized technician who is equipped with the necessary test equipment to ensure that the Mark VIII RADIO-PHONE transmitter conforms to FCC regulations.

1. Equip transmitter with Channel 11 and Channel 22 crystals.

2. Connect dummy load (50 ohms, 5 watts) to antenna socket.
3. Set transmitter to Channel 22, and switch on power. Depress press-to-talk switch.
4. Adjust L1 until output is obtained. Turn slug of L1 anti-clockwise until crystal stops oscillating. (Noted by zero output.
5. Turn slug of L1 clockwise until crystal just commences to oscillate, and then carefully turn in the slug of L1 clockwise an extra quarter-turn. (90°).
6. Switch transmitter to Channel 11, and adjust core of L3 for maximum output.

**MARK VIII RADIO-PHONE  
LIST OF PARTS**

**ORDER PARTS BY STOCK NUMBER, THROUGH A LOCAL RCA DISTRIBUTOR**

<i>Symbol No.</i>	<i>Stock No.</i>	<i>Drawing No.</i>	<i>Description</i>
<b>MI-17704</b>			
			<i>Capacitors:</i>
C1	226223	8914319-225	mica, 110 mmf $\pm 2\%$ , 500 v
C2		8914319-304	mica, 12 mmf $\pm 5\%$ , 500 v
C3		3460181-1	ceramic, 1000 mmf 500 v, GMV
C4		3460181-1	ceramic, 1000 mmf 500 v, GMV
C5		8979937-4	electrolytic, 4 mf 150 v (C.D-BBR)
C6		8914319-332	mica, 220 mmf $\pm 5\%$ , 500 v
C7	226176	3460282-4	variable, ceramic, 6 mmf-25 mmf Coef. NPO
C8	226222	8914319-228	mica, 150 mmf $\pm 2\%$ , 500 v
C9		8914319-306	mica, 18 mmf $\pm 5\%$ , 500 v
C10		3460181-1	ceramic, 1000 mmf 500 v, GMV
C11		3460181-1	ceramic, 1000 mmf 500 v, GMV
C12		3460181-1	ceramic, 1000 mmf 500 v, GMV
C13	226219	722406-413	ceramic, 10 mmf $\pm 0.25$ mmf 500 v
C14	226220	993020-111	ceramic, 8 mmf $\pm 0.25$ mmf 500 v, Coef. N750
C15		442905-17	ceramic, 2.2 mmf $\pm 10\%$ , 500 v
C16	224051	8914319-234	mica, 270 mmf $\pm 2\%$ , 500 v
C17	218241	8914319-218	mica, 56 mmf $\pm 2\%$ , 500 v
C18	224629	8914319-219	mica, 62 mmf $\pm 2\%$ , 500 v
C19		735715-115	paper, 0.015 mf $\pm 20\%$ , 400 v
C20	218241	8914319-18	mica, 56 mmf $\pm 1\%$ , 500 v
C21	226177	3460404-1	variable, 2.3 mmf-15 mmf
C22	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C23	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C24	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C25	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C26			part of T3
C27			part of T3
C28	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C29			part of T4
C30			part of T4
C31	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C32		3460181-1	ceramic, 1000 mmf 500 v, GMV
C33		3460158-1	ceramic, 5000 mmf 500 v, GMV
C34	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C35			part of T5
C36			part of T5
C37	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C38		3460158-1	ceramic, 5000 mmf 500 v, GMV
C39		735715-25	paper, 0.1 mf $\pm 20\%$ , 200 v
C40		8914319-331	mica, 200 mmf $\pm 5\%$ , 500 v
C41		722418-422	ceramic, 100 mmf $\pm 10\%$ , 500 v
C42		3460158-1	ceramic, 5000 mmf 500 v, GMV
C43		460158-1	ceramic, 5000 mmf 500 v, GMV
C44		8914319-331	mica, 200 mmf $\pm 5\%$ , 500 v
C45	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C46		3460181-1	ceramic, 1000 mmf 500 v, GMV
C47		735715-125	paper, 0.1 mf $\pm 20\%$ , 400 v
C48		3460181-1	ceramic, 1000 mmf 500 v, GMV

## LIST OF PARTS (Cont.)

Symbol No.	Stock No.	Drawing No.	Description
C49		8914319-328	mica, 150 mmf $\pm 5\%$ , 500 v
C50		3460158-1	ceramic, 5000 mmf 500 v, GMV
C51	219181	8982802-1	electrolytic, 10 mf 50 v
C52		722418-422	ceramic, 100 mmf $\pm 10\%$ , 500 v
C53		3460181-1	ceramic, 1000 mmf 500 v, GMV
C54		735715-207	paper, 0.0033 mf $\pm 20\%$ , 600 v
C55		735715-117	paper, 0.022 mf $\pm 20\%$ , 400 v
C56		735715-25	paper, 0.1 mf $\pm 20\%$ , 200 v
C57	226178	3460245-1	electrolytic, 100/50/50 mf 200/350/ 350 v
C58	226179	3460254-1	electrolytic, 100 mf 200 v
C59		735715-125	paper, 0.1 mf $\pm 20\%$ , 400 v
C60		3460158-1	ceramic, 5000 mmf 500 v, GMV
C61	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C62		3460158-1	ceramic, 5000 mmf 500 v, GMV
C63		3460158-1	ceramic, 5000 mmf 500 v, GMV
C64		442905-18	ceramic, 2.7 mmf $\pm 10\%$ , 500 v
C65	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C66		8914319-335	mica, 300 mmf $\pm 5\%$ , 500 v
C67	226221	993020-116	ceramic, 18 mmf $\pm 2\%$ , 500 v Coef. N750
C68	226218	993018-28	ceramic, 56 mmf $\pm 1\%$ , 500 v, Coef. N330
C69	219975	3450593-1	variable, ceramic, 1.5 mmf-10 mmf 600 v
C70	224626	8914319-8	mica, 22 mmf $\pm 0.5$ mmf 500 v
CR1	226180	3460474-1	Diode
CR2	226182	3450227-1	Rectifier - selenium
CR3	223216	3430063-1	Rectifier - silicon, RCA 3583
CR4	223216	3430063-1	Rectifier - silicon, RCA 3583
DS1	48474	3460388-1	Lamp - neon, NE-2
DS2	48474	3460388-1	Lamp - neon, NE-2
J1	51800	727215-3	Connector - female, coaxial, antenna
J2	226167	3450222-1	Connector - male, 8 contact, power
L1	226183	3460256-1	Coil - oscillator, transmitter
L2	226185	3460381-1	Reactor - R.F. choke, 100 microhenry
L3	226184	3460256-2	Coil - power amplifier
L4	226186	3460382-1	Reactor - R.F. choke, 120 microhenry
L5	226187	3460402-1	Coil - 54 MC wave trap
LS1	107262	973925-1	Speaker - oval, P.M. V.C-3.2 ohm
			<i>RESISTORS: Fixed, composition, <math>\pm 10\%</math>, 1/2 w unless otherwise specified.</i>
R1		82283-74	10,000 ohm
R2		82283-82	47,000 ohm
R3		99126-187	15,000 ohm $\pm 5\%$ , 2 w
R4	226188	3460386-1	wire wound, 2300 ohm $\pm 3\%$ , 5 w
R5		82283-89	180,000 ohm
R6		82283-48	68 ohm
R7		82283-79	27,000 ohm
R8		90496-79	27,000 ohm, $\pm 10\%$ , 1 w
R9		90496-70	4700 ohm $\pm 10\%$ , 1 w
R10		82283-102	2.2 megohm
R11		82283-82	47,000 ohm

## LIST OF PARTS (Cont.)

<i>Symbol No.</i>	<i>Stock No.</i>	<i>Drawing No.</i>	<i>Description</i>
R12		82283-49	82 ohm
R13		90496-76	15,000 ohm $\pm 10\%$ , 1 w
R14		82283-82	47,000 ohm
R15		82283-82	47,000 ohm
R16		82283-48	68 ohm
R17		90496-70	4700 ohm $\pm 10\%$ , 1 w
R18		82283-100	1.5 megohm
R19		82283-79	27,000 ohm
R20		82283-94	470,000 ohm
R21		82283-45	39 ohm
R22		82283-86	100,000 ohm
R23		82283-52	150 ohm
R24		82283-110	10 megohm
R25		99126-79	27,000 ohm $\pm 10\%$ , 2 w
R26		82283-102	2.2 megohm
R27		82283-110	10 megohm
R28		82283-94	470,000 ohm
R29		82283-98	1 megohm
R30		82283-90	220,000 ohm
R31		82283-90	220,000 ohm
R32			part of S3
R33		82283-106	4.7 megohm
R34		82283-92	330,000 ohm
R35		82283-94	470,000 ohm
R36		82283-109	8.2 megohm
R37		82283-96	680,000 ohm
R38		82283-84	68,000 ohm
R39		82283-83	56,000 ohm
R40		82283-94	470,000 ohm
R41		90496-56	330 ohm $\pm 10\%$ , 1 w
R42		82283-86	100,000 ohm
R43		82283-102	2.2 megohm
R44		82283-100	1.5 megohm
R45		82283-92	330,000 ohm
R46		82283-92	330,000 ohm
R47		82283-83	56,000 ohm
R48		82283-98	1 megohm
R49		82283-95	560,000 ohm
R50		99126-62	1000 ohm $\pm 10\%$ , 2 w
R51		99126-53	180 ohm $\pm 10\%$ , 2 w
R52		82283-38	10 ohm
R53		90496-79	27,000 ohm $\pm 10\%$ , 1 w
R54		82283-55	270 ohm
S1	226189	3460252-1	Switch - rotary, channel select transmit
S2	226189	3460252-1	Switch - rotary, channel select receive
S3	226190	3460253-1	Resistor - variable, volume squelch D.P.S.T. switch
T1	226191	3460272-1	Transformer - R.F. interstage
T2	226192	3460274-1	Coil - oscillator, receiver
T3	226193	3460255-1	Transformer - I.F.
T4	226193	3460255-1	Transformer - I.F.

## LIST OF PARTS (Cont.)

<i>Symbol No.</i>	<i>Stock No.</i>	<i>Drawing No.</i>	<i>Description</i>
T5	226193	3460255-1	Transformer - I.F.
T6	226194	3465188-1	Transformer - output and modulation
T7	226224	3465197-1	Transformer - power
XV1	226195	3450460-1	Socket - tube, 9 pin
XV2	226196	3450401-1	Socket - tube, 7 pin
XV3	226197	3450507-1	Socket - tube, 7 pin
XV4	226196	3450401-1	Socket - tube, 7 pin
XV5	226198	3450403-2	Socket - tube, 9 pin
XV6	226196	3450401-1	Socket - tube, 7 pin
XV7	226196	3450401-1	Socket - tube, 7 pin
XY1	226199	3460288-1	Socket - crystal
XY2	226199	3460288-2	Socket - crystal
XY3	226199	3460288-2	Socket - crystal
XY4	226199	3460288-1	Socket - crystal
	226156	3460297-501	Cable - AC power cord and plug
	226216	3450553-502	Circuit - printed board assembly with components
	226215	3450595-1	Connector - female, microphone (4 contacts)
	226200	3465206-2	Knob - volume
	226201	3465206-4	Knob - squelch
	226202	3465206-5	Knob - channel select, transmit or receive
	226203	3460328-1	Knob - tuning
	226205	3460360-1	Label - 1 thru 23 (2 required)
	226206	3450696-1	Label - "Black"
	226207	3450696-2	Label - channel 7 (2 required)
	226208	3450696-3	Label - "Tuning"
	226209	3460379-1	Label - E,F,G,H,I (2 required)
	226210	3460379-2	Label - E,A,B,C,D (2 required)
	226214	3470265-501	Microphone
	226204	3470143-1	Panel - front grille panel
	226211	3460471-1	Panel - "Transmit" "Squelch" "Channel" "Vol-on" Trim.
	226212	3460471-2	Panel - "Receive" "Channel" trim
	226213	3460471-3	Panel - trim 2.62 in. x 0.59 in.
	226217	3450580-1	Plate - RH & LH hand cabinet top access plates 2.24 in. x 2.80 in.
	211035	3450404-4	Shield - tube
			<i>CRYSTALS FOR REPLACEMENT PURPOSES:</i>
	21A224	3460419-1	Crystal - receive, channel 1 (Crystal freq. 28.615 MC)
	21A225	3460419-2	Crystal - receive, channel 2 (Crystal freq. 28.625 MC)
	21A226	3460419-3	Crystal - receive, channel 3 (Crystal freq. 28.635 MC)
	21A227	3460419-4	Crystal - receive, channel 4 (Crystal freq. 28.655 MC)
	21A228	3460419-5	Crystal - receive, channel 5 (Crystal freq. 28.665 MC)
	21A229	3460419-6	Crystal - receive, channel 6 (Crystal freq. 28.675 MC)
	21A230	3460419-7	Crystal - receive, channel 7 (Crystal freq. 28.685 MC)
	21A231	3460419-8	Crystal - receive, channel 8 (Crystal freq. 28.705 MC)
	21A232	3460419-9	Crystal - receive, channel 9 (Crystal freq. 28.715 MC)
	21A233	3460419-10	Crystal - receive, channel 10 (Crystal freq. 28.725 MC)
	21A234	3460419-11	Crystal - receive, channel 11 (Crystal freq. 28.735 MC)
	21A235	3460419-12	Crystal - receive, channel 12 (Crystal freq. 28.755 MC)

## LIST OF PARTS (Cont.)

Symbol No.	Stock No.	Drawing No.	Description
	21A236	3460419-13	Crystal - receive, channel 13 (Crystal freq. 28.765 MC)
	21A237	3460419-14	Crystal - receive, channel 14 (Crystal freq. 28.775 MC)
	21A238	3460419-15	Crystal - receive, channel 15 (Crystal freq. 28.785 MC)
	21A239	3460419-16	Crystal - receive, channel 16 (Crystal freq. 28.805 MC)
	21A240	3460419-17	Crystal - receive, channel 17 (Crystal freq. 28.815 MC)
	21A241	3460419-18	Crystal - receive, channel 18 (Crystal freq. 28.825 MC)
	21A242	3460419-19	Crystal - receive, channel 19 (Crystal freq. 28.835 MC)
	21A243	3460419-20	Crystal - receive, channel 20 (Crystal freq. 28.855 MC)
	21A244	3460419-21	Crystal - receive, channel 21 (Crystal freq. 28.865 MC)
	21A245	3460419-22	Crystal - receive, channel 22 (Crystal freq. 28.875 MC)
	21A246	3460419-23	Crystal - receive, channel 23 (Crystal freq. 28.905 MC)
	21A247	3460421-1	Crystal - transmit, channel 1 (26.965 MC)
	21A248	3460421-2	Crystal - transmit, channel 2 (26.975 MC)
	21A249	3460421-3	Crystal - transmit, channel 3 (26.985 MC)
	21A250	3460421-4	Crystal - transmit, channel 4 (27.005 MC)
	21A251	3460421-5	Crystal - transmit, channel 5 (27.015 MC)
	21A252	3460421-6	Crystal - transmit, channel 6 (27.025 MC)
	21A253	3460421-7	Crystal - transmit, channel 7 (27.035 MC)
	21A254	3460421-8	Crystal - transmit, channel 8 (27.055 MC)
	21A255	3460421-9	Crystal - transmit, channel 9 (27.065 MC)
	21A256	3460421-10	Crystal - transmit, channel 10 (27.075 MC)
	21A257	3460421-11	Crystal - transmit, channel 11 (27.085 MC)
	21A258	3460421-12	Crystal - transmit, channel 12 (27.105 MC)
	21A259	3460421-13	Crystal - transmit, channel 13 (27.115 MC)
	21A260	3460421-14	Crystal - transmit, channel 14 (27.125 MC)
	21A261	3460421-15	Crystal - transmit, channel 15 (27.135 MC)
	21A262	3460421-16	Crystal - transmit, channel 16 (27.155 MC)
	21A263	3460421-17	Crystal - transmit, channel 17 (27.165 MC)
	21A264	3460421-18	Crystal - transmit, channel 18 (27.175 MC)
	21A265	3460421-19	Crystal - transmit, channel 19 (27.185 MC)
	21A266	3460421-20	Crystal - transmit, channel 20 (27.205 MC)
	21A267	3460421-21	Crystal - transmit, channel 21 (27.215 MC)
	21A268	3460421-22	Crystal - transmit, channel 22 (27.225 MC)
	21A269	3460421-23	Crystal - transmit, channel 23 (27.255 MC)
<b>POWER SUPPLY</b>			
<b>6V -17705-A, 12V -17705</b>			
C101	223142	8982805-6	<i>Capacitors:</i> ceramic, 0.1 mf +80 -20%, 50 v
C102	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C103	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C104	210685	3460161-1	ceramic, 0.02 mf +80 -20%, 500 v
C105		3460174-2	paper, 0.33 mf ±20%, 600 v (Buffer) Sprague #161P33406
C106	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C107	205656	3460157-1	ceramic, 0.01 mf +80 -20%, 500 v
C108	223142	8983805-6	ceramic, 0.1 mf +80 -20%, 50 v
G1	220000	3460134-1	Vibrator - non-synchronous, 6 v 115 cps
G1	220001	3460134-2	Vibrator - non-synchronous, 12 v, 115 cps
L101	219982	3460110-1	Coil - hash filter, 30 microhenry

## LIST OF PARTS (Cont.)

Symbol No.	Stock No.	Drawing No.	Description
T101 XG1	226174 31769	3465217-1 3450225-1	Transformer - vibrator, 6/12 volt Socket - female, 4 contact, vibrator
	226175	3460422-501	<i>Miscellaneous:</i> Cable - 6 volt, DC or 12 volt DC power cable assembly
	214876	3450122-107	Fuse - 8 amp slo-blo
	212156	3450122-108	Fuse - 10 amp slo-blo
	226524	3450628-6	Holder - fuse
<b>MICROPHONE ASSEMBLY</b>			
	226214		Microphone Assembly
	226785		Bracket - mounting bracket
	226781		Cable - 4 conductor coil cable with shield - less connector
	226782		Case - case back and mounting button assembly
	226783		Case - case front and nameplate assembly
	226778		Clamp - cable clamp
	226780		Connector - male, 4 contact - less clamp, for microphone cable
	226784		Mainplate - mainplate and switch button assembly
	226776		Pad - between grille of case front and front of cartridge
	226773		Screw - #4 B.H. type "A" screw, 3/4" long - case closing screws (2 per stock number)
	226774		Screw - #5 B. H. type "A" screw, 1/2" long - for clamping mainplate assembly to case back (2 per stock number)
	226775		Screw - pan head thread cutting screw - for mounting switch to mainplate assembly (2 per stock no.)
	226777		Spring - microphone cable strain relief spring
	226779		Switch - D.P.D.T. slide switch
	226786		Transmitter - microphone cartridge compression block and foil strip assembly





