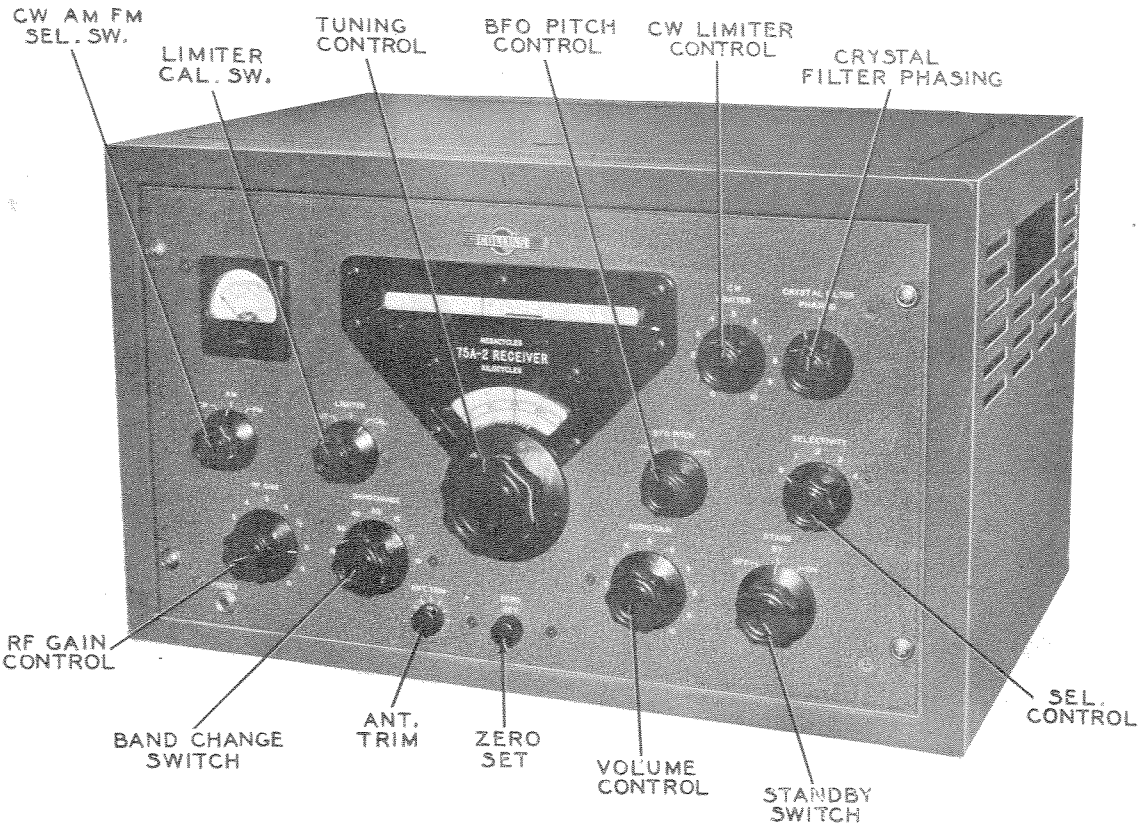


COLLINS
MODEL 75A-2

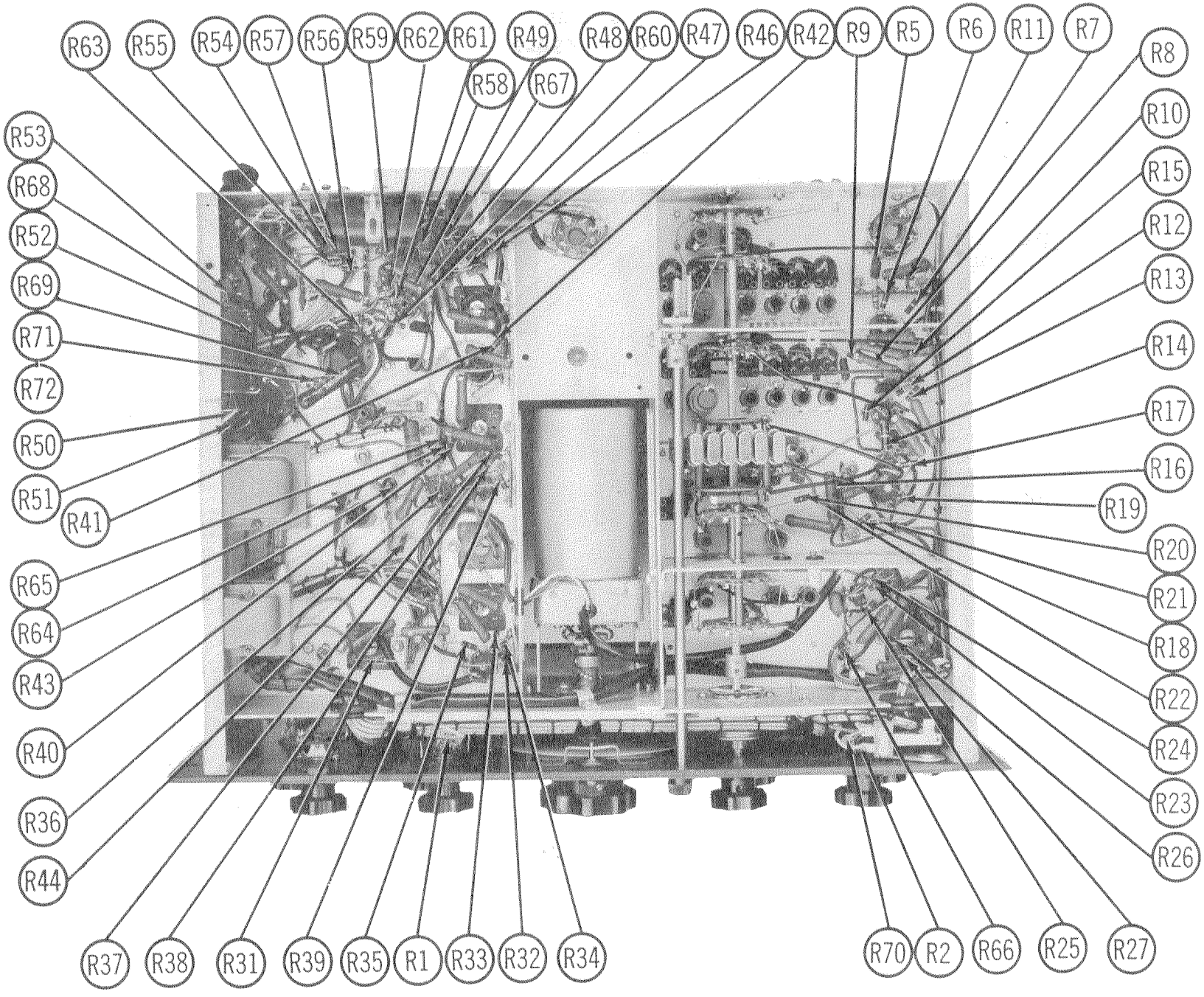
COLLINS
MODEL 75A-2

TRADE NAME	Collins Model 75A-2
MANUFACTURER	Collins Radio Co., Cedar Rapids, Iowa
TYPE SET	AC Operated Multi-band Superheterodyne Communications Receiver
TUBES	Seventeen
POWER SUPPLY	110-120 Volts AC - 60 Cycle
RATING	.840 Amp @ 117 Volts AC

FREQ. RANGES

BAND	FREQ.
160 Meters	1.5 - 2.5 MC
80 Meters	3.2 - 4.2 MC
40 Meters	6.8 - 7.8 MC
20 Meters	14.0 - 15.0 MC
15 Meters	20.8 - 21.8 MC
11 Meters	26.0 - 28.0 MC
10 Meters	28.0 - 30.0 MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana


R63
R55
R54
R57
R56
R59
R62
R61
R49
R48
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R46
R42
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R6
R11
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R24
R23
R26
R37
R38
R31
R39
R35
R1
R33
R32
R34
R70
R2
R66
R25
R27

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set the pointer, tune in a station of known frequency and adjust pointer setting on the dial cord to coincide with that frequency on the dial scale. Alignment should be done preferably by one familiar with communications equipment and experienced in their alignment. Certain steps of the alignment require the use of a 100 KC frequency standard with an output range from 1.5 to 30 MC and an accuracy of .001% or better.

455KC IF ALIGNMENT

Set Audio gain control at minimum.
Set RF gain control at maximum.
Set CW-AM-FM switch to AM position.

455 KC IF ADJUSTMENT (SLIGHT MISALIGNMENT)

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.001MFD	High side to Pin 1, (grid) of 6BA6 (V7). Low side to chassis.	455KC (unmod.)	160M	Point of non interference	DC probe to Point (A). Common to chassis.	A1, A2 A3, A4 A5, A6 A7, A8	Set Crystal selectivity control to "O." Advance signal generator output to just give a noticeable increase in deflection of VTVM. Adjust A1 through A8 for maximum deflection.
2	"	High side to Pin 7, (Grid) of 6BE6 (V4). Low side to chassis.	see remarks	"	"	"	"	Set crystal selectivity switch to "4" and carefully tune signal generator for maximum deflection on VTVM. Attenuate generator to maintain below 8 volts at Point (A). Set crystal selectivity control to "O." Adjust A1 through A9 for maximum deflection.
3	"	"	3KC less than Step 2.	"	"	"	A10	Set crystal selectivity control to "L." Adjust generator output to give 5 volts at Point (A). Adjust A10 for maximum deflection.

The knob on the phasing control should be set so that minimum hiss is present when positioned at the center of the scale. Continue with Step 6.

455 KC IF ADJUSTMENT (LARGE MISALIGNMENT)

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.001MFD	High side to pin 1, (grid) of 6BA6 (V9). Low side to chassis.	455KC (unmod.)	Any	Point of non-interference.	DC probe to Point (A). Common to chassis.	A1, A2	Set crystal selectivity control to "O." Advance signal generator output to just give a noticeable increase in deflection of VTVM. Adjust A1 and A2 for maximum deflection.
2.	"	High side to pin 1, (grid) of 6BA6 (V8). Low side to chassis.	"	"	"	"	A3, A4	Adjust for maximum deflection.
3.	"	High side to pin 1 (grid) of 6BA6 (V7). Low side to chassis.	"	"	"	"	A5, A6, A7, A8	"
4.	"	High side to pin 7 (grid) of 6BE6 (V4). Low side to chassis.	See remarks	"	"	"		Set crystal selectivity control to "4" and carefully tune signal generator for maximum deflection on VTVM. Attenuate generator to maintain below 8 volts at Point (A). Set crystal selectivity control to "O." Adjust A1 through A9 for maximum deflection.
5.	"	"	3KC less than Step 4.	"	"	"	A10	Set crystal selectivity control to "1." Adjust generator to give 5 volts at Point (A). Adjust A10 for maximum deflection.

The knob on the phasing control should be set so that minimum hiss is present when positioned at the center of the scale.

CRYSTAL OSCILLATOR ADJUSTMENT

Connect the DC probe of a VTVM through a one meg. isolating resistor to pin 7 of 6BE6 (V2).
Place the band switch on 80 meters and adjust A11 for maximum deflection. Successively adjust A12, A13, A14, A15, and A16 for maximum deflection on the corresponding bands of 40, 20, 15, 11 and 10 meters.
The frequency of the crystal oscillator can be adjusted over a limited range by the controls named above (A11 thru A16). After the receiver is aligned this feature may be used to reduce the calibration error between bands.
Couple the receiver to the output of an accurate frequency standard providing 100 KC harmonics.
Tune the receiver to zero beat with 2 MC. Do not turn the tuning dial or BFO pitch control during the remainder of this adjustment. Turn the band switch successively through the remaining bands and adjust the corresponding control in each case (A11, A12, etc.) for zero beat.
Detuning of the crystal oscillator will reduce the injection voltage to the first mixer. This effect is usually small. However if the crystal oscillator should stop oscillating because of this adjustment, the zero set control may be used instead, to get exact calibration of that particular band.

VARIABLE IF ALIGNMENT

Adjust the front panel controls as follows: OFF-STANDBY-ON switch at "ON," CW-AM-FM switch on "AM," CRYSTAL FILTER SELECTIVITY switch on "0," CRYSTAL FILTER PHASING on line, AUDIO GAIN at maximum.

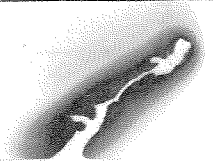
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	.001MFD	High side to pin 1 (grid) of 6BE6 (V2). Low side to chassis.	1.6MC (unmod.)	80 meters	4.1MC	DC probe to Point (A). Common to chassis.	A17, A18	Adjust for maximum deflection.
7.	"	"	2.4MC	"	3.3MC	"	A19, A20	Adjust for maximum deflection. Repeat steps 6 & 7 until no change is noted.
8.	"	"	3.455MC	10 meters	30.0MC	"	A21, A22	Adjust for maximum deflection.
9.	"	"	5.455MC	"	28.0MC	"	A23, A24	Adjust for maximum deflection. Repeat steps 8 & 9 until no change is noted.

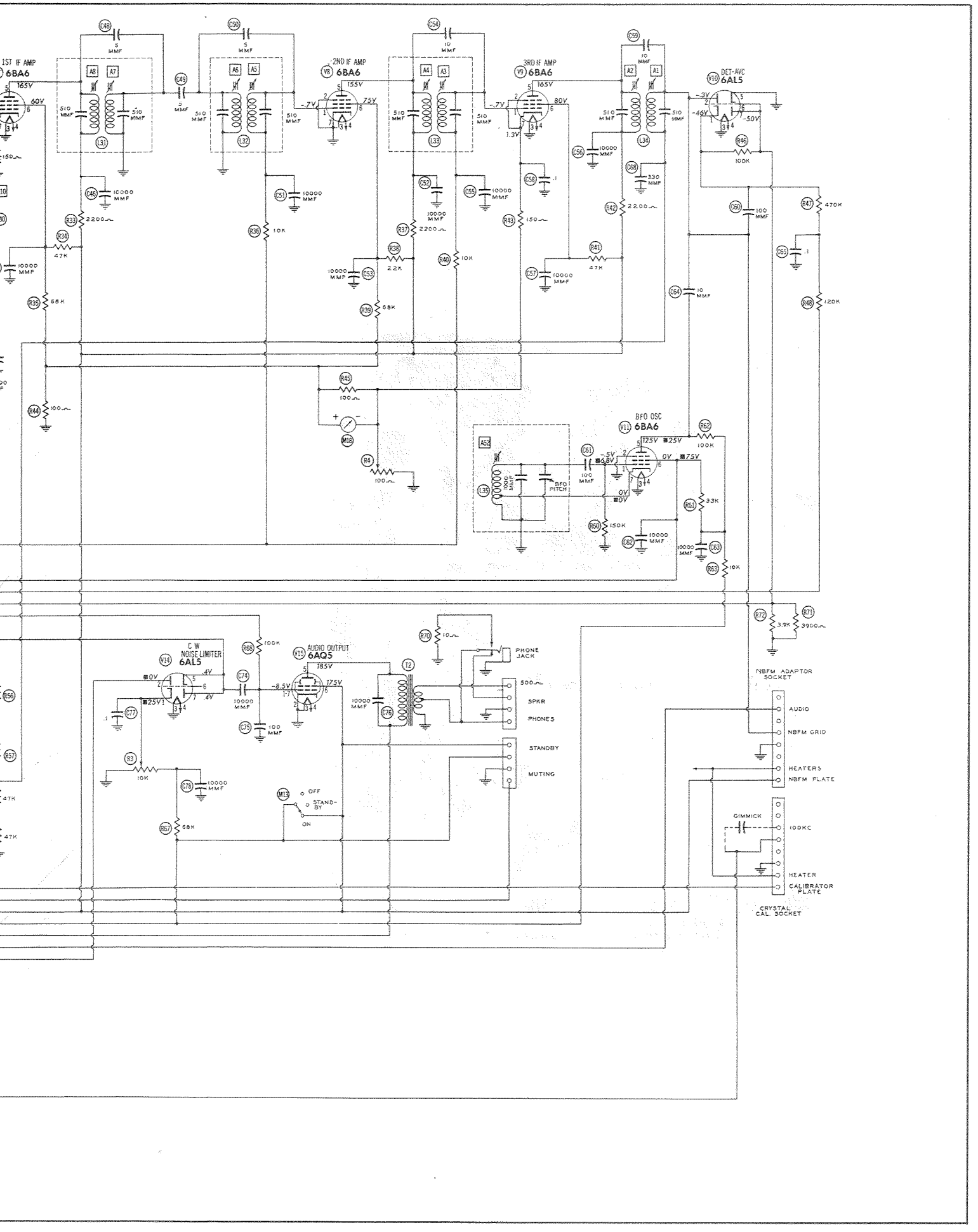
"TWEET" TRAP ADJUSTMENT

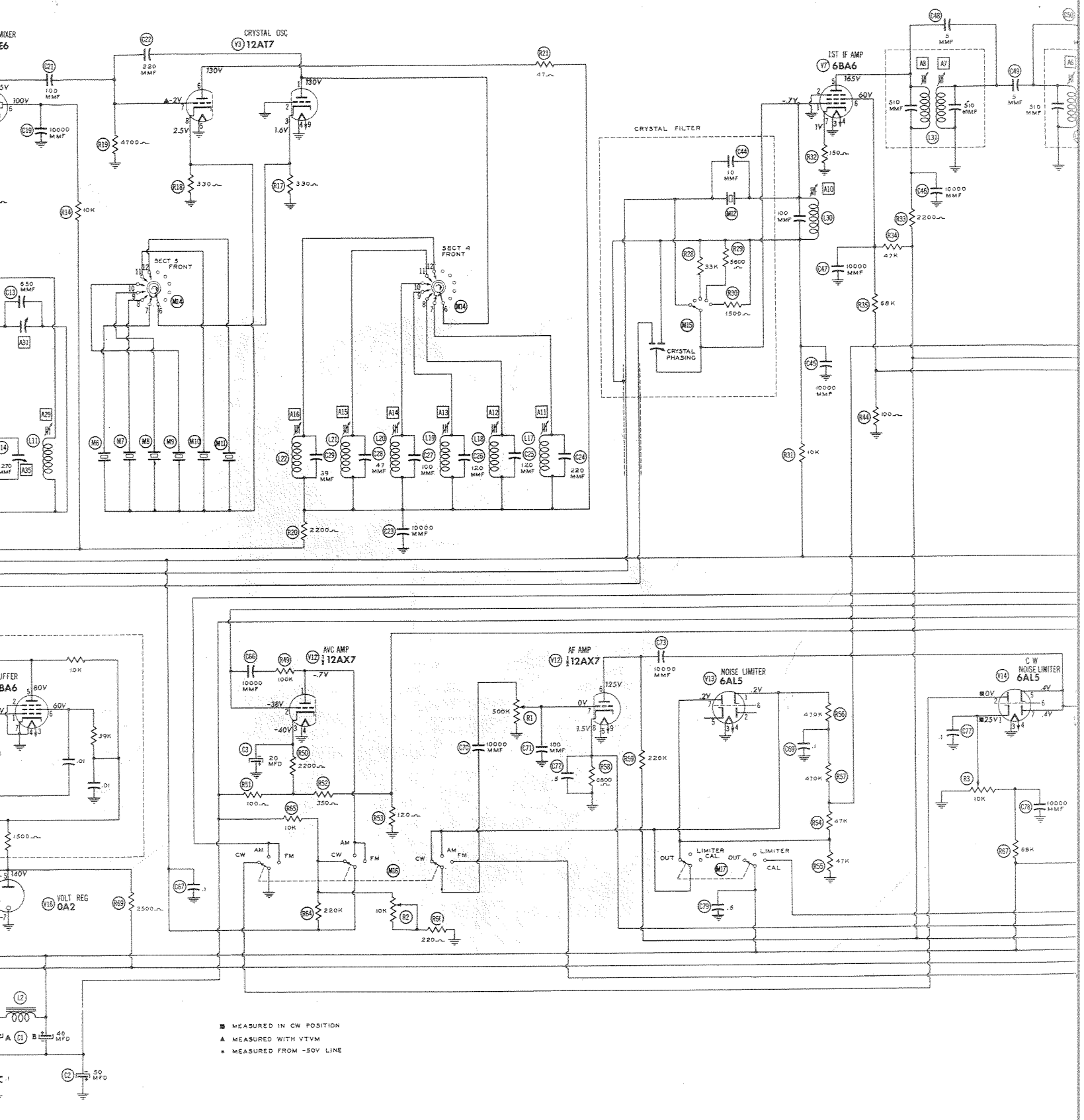
A third order tweet appears at 3533 KC in the 80 meter CW band. This is a result of the 5.7 MC crystal beating with the second harmonic of the VFO at the mixer V4. To reduce this effect, turn on the BFO, tune in the tweet and adjust A25 for minimum tweet.

RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
10.	Direct	High side to antenna terminal. Low side to chassis.	1.6MC (unmod.)	160 meters	1.6MC	DC probe to Point (A). Common to chassis.	A26	Adjust for maximum deflection.
11.	"	"	2.4MC	"	2.4MC	"	A27	Adjust for maximum deflection. Repeat steps 10 & 11 until no improvement is noted.
12.	"	"	3.3MC	80 meters	3.3MC	"	A28, A29	Adjust for maximum deflection.
13.	"	"	4.1MC	"	4.1MC	"	A30, A31	Adjust for maximum deflection. Repeat steps 12 & 13 until no improvement is noted.

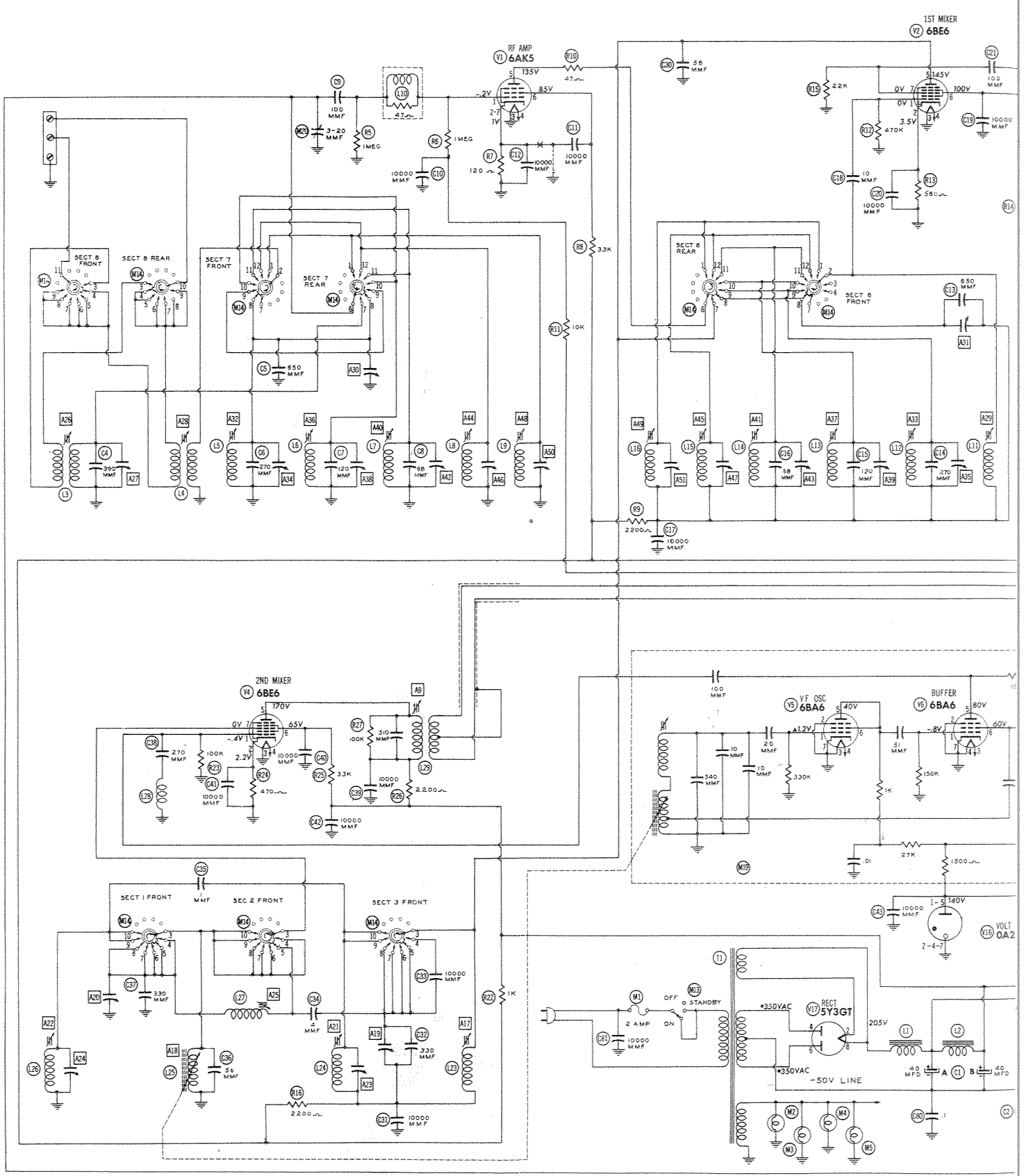


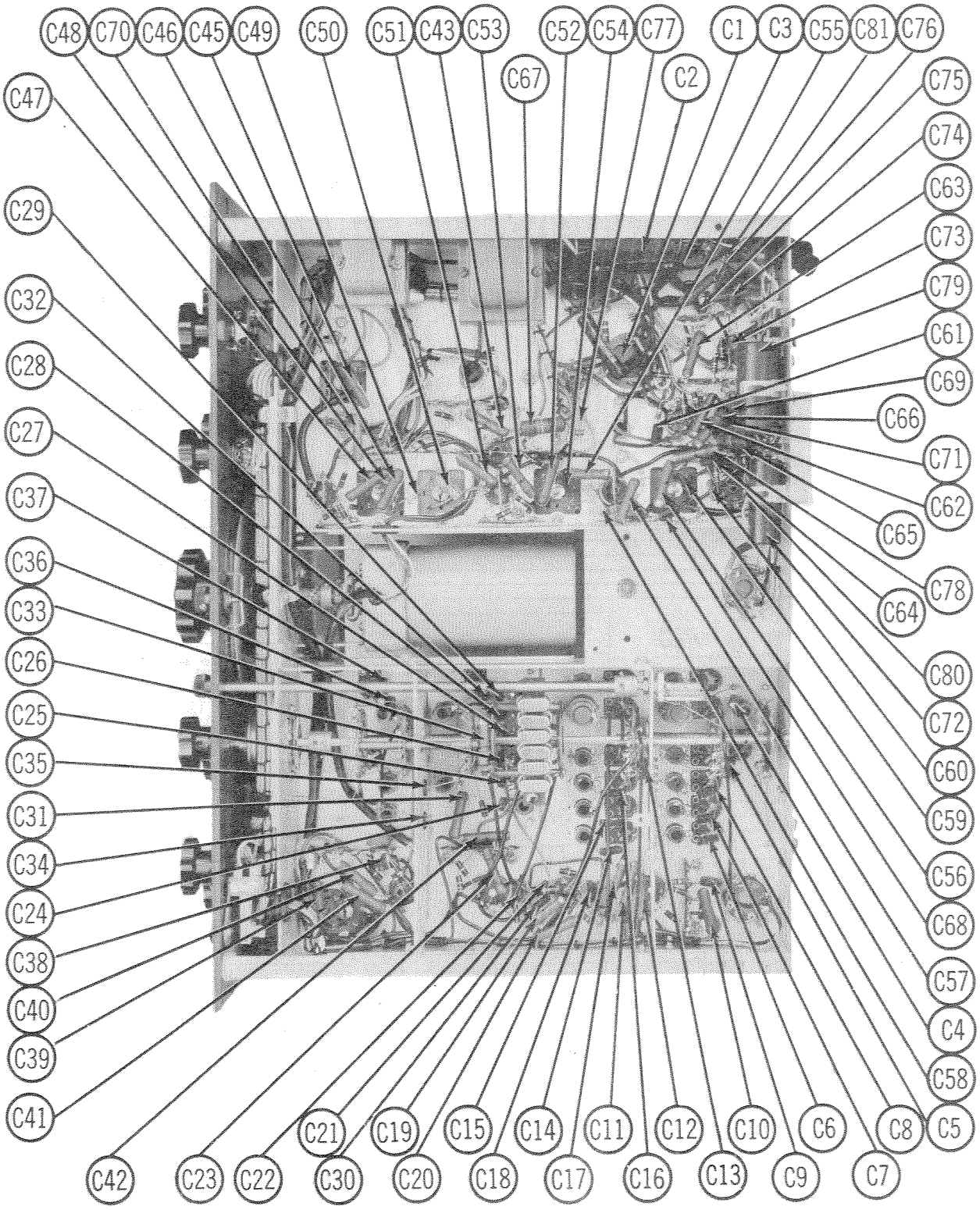

1ST IF AMP
6BA6
2ND IF AMP
6BA6
3RD IF AMP
6BA6
DET-AVC
6AL5
BFO OSC
6BA6
C W
NOISE LIMITER
6AL5
AUDIO OUTPUT
6AQ5
PHONE JACK
500Ω SPKR
PHONES
STANDBY
MUTING
OFF
STAND-BY
ON
NBFM ADAPTOR SOCKET
AUDIO
NBFM GRID
HEATERS
NBFM PLATE
GIMMICK
100KC
HEATER
CALIBRATOR PLATE
CRYSTAL CAL. SOCKET
BFO PITCH



■ MEASURED IN CW POSITION
▲ MEASURED WITH VTVM
● MEASURED FROM -50V LINE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.


1ST MIXER
V2 6BE6
RF AMP
V1 6AK5
SECT 8 FRONT
SECT 8 REAR
SECT 7 FRONT
SECT 7 REAR
SECT 6 REAR
SECT 6 FRONT
2ND MIXER
V4 6BE6
V5 VF OSC 6BA6
V6 6BA6
BUFFER
SECT 1 FRONT
SEC 2 FRONT
SECT 3 FRONT
V16 0A2
V17 RECT 5Y3GT
2 AMP
OFF
STANDBY
ON
-50V LINE
*350VAC
*350VAC
205V
40 MFD
40 MFD
100K
1MEG
33K
10K
2200
1K
1500
27K
150K
330K
470K
100 MMF
650 MMF
10000 MMF
330 MMF
270 MMF
120 MMF
88 MMF
56 MMF
10 MMF
20 MMF
51 MMF
540 MMF
510 MMF


C48
C70
C46
C45
C49
C50
C51
C43
C53
C52
C54
C77
C1
C3
C55
C81
C76
C67
C2
C75
C47
C74
C29
C63
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C56
C24
C68
C38
C57
C40
C4
C39
C58
C41
C21
C19
C15
C14
C11
C12
C10
C6
C8
C5
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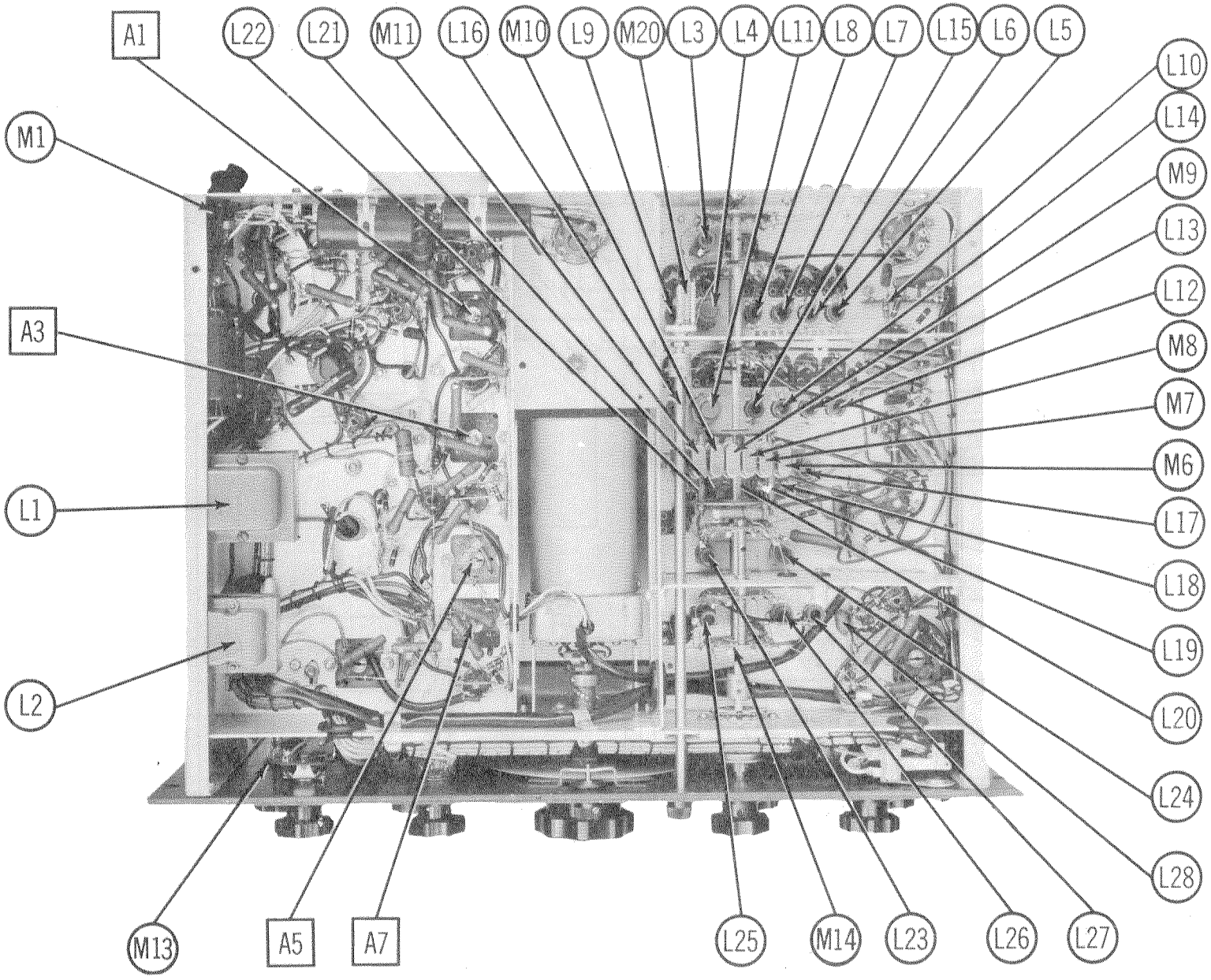
C22
C30
C20
C18
C17
C16
C13
C9
C7


A1
L22
L21
M11
L16
M10
L9
M20
L3
L4
L11
L8
L7
L15
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L5
L10
L14
M9
L13
L12
M8
M7
M6
L17
L18
L19
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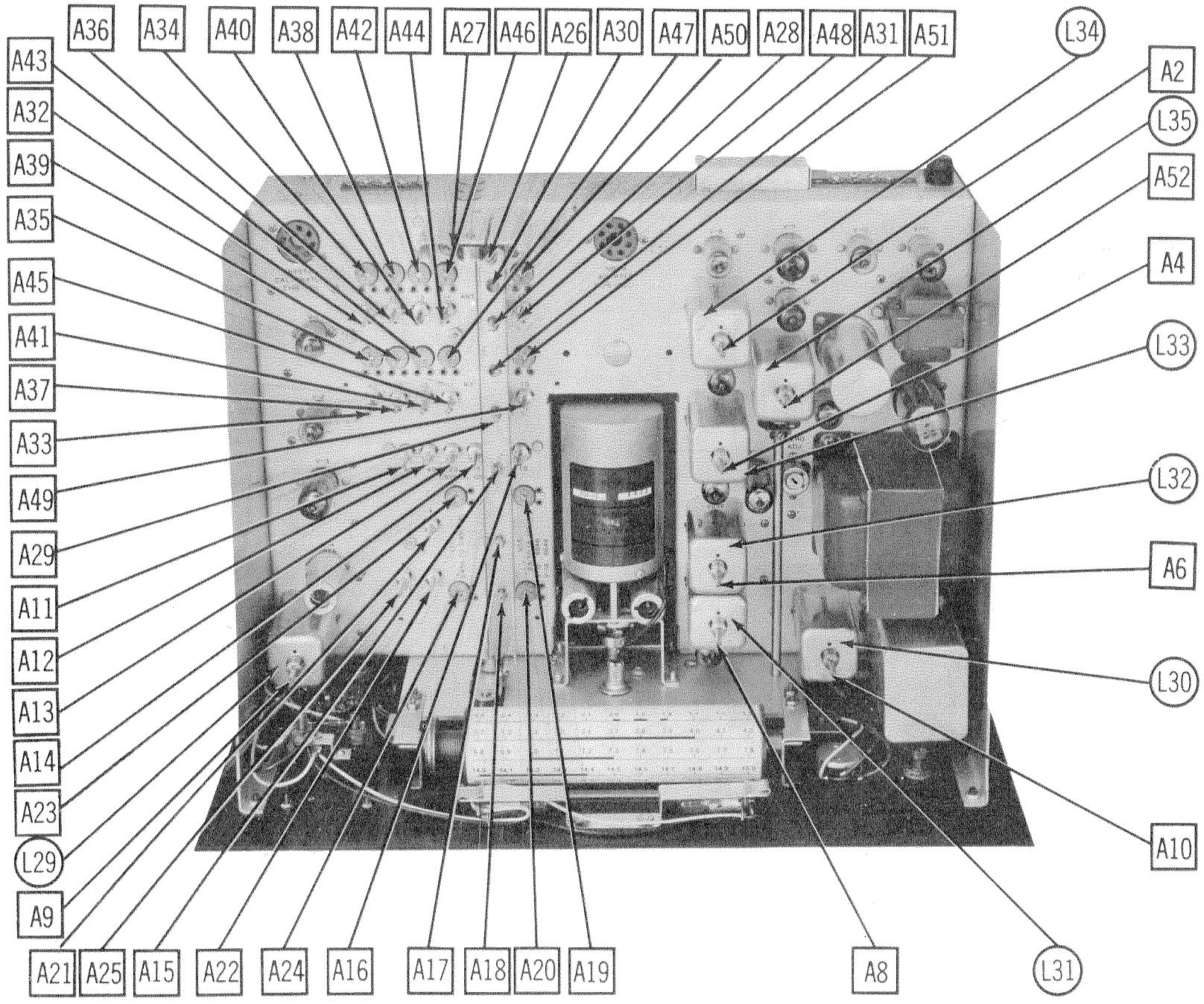
M14
L25
A7
A5
M13
L2
L1
A3
M1


A36
A34
A40
A38
A42
A44
A27
A46
A26
A30
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A50
A28
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L34
A43
A32
A39
A35
A45
A41
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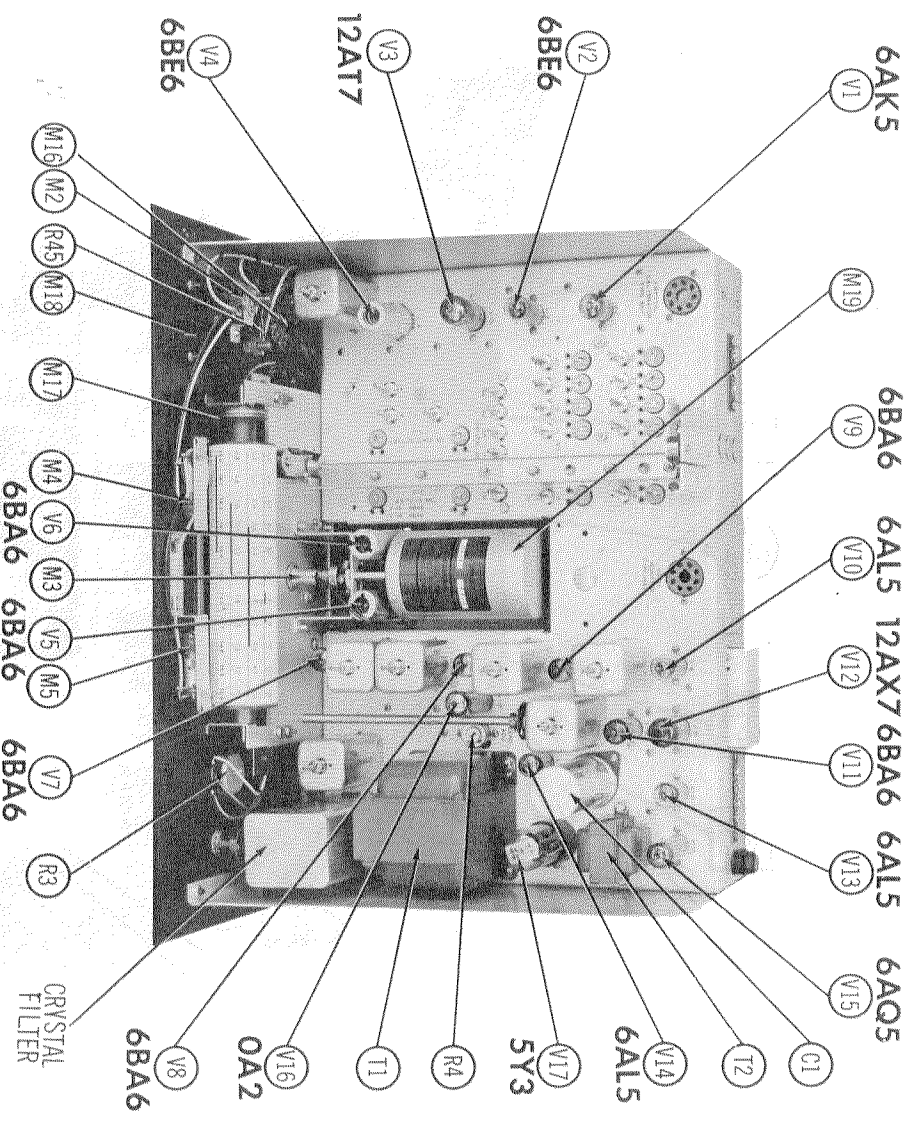
A23
L29
A9
A21
A25
A15
A22
A24
A16
A17
A18
A20
A19
A8
L31
A10
L30
L32
A6
L33
A4
A52
L35
A2

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	COLLINS PART No.	IRC PART No.	
R5	1Meg	1/2	745121200		RF Amp. Grid
R6	1Meg	1/2	745121200		RF Amp. Grid
R7	120Ω	1/2	745104800	BTS-120	RF Amp. Cathode
R8	33KΩ	1/2	745114900		RF Amp. Screen
R9	2200	1/2	745110000	BTS-2200	RF Amp. Plate Decoupling
R10	47Ω	1/2	745103000		Parasitic Suppressor
R11	10KΩ	1/2	745112800	BTS-10K	AVC Network
R12	470KΩ	1/2	745119800		1st. Mixer Grid
R13	560Ω	1/2	745107600	BTS-560	1st. Mixer Cathode
R14	10KΩ	1	745312800		1st. Mixer Screen
R15	22KΩ	1/2	745114200		1st. Mixer Injection Grid
R16	2200Ω	1/2	745110000	BTS-2200	1st. Mixer Plate Decoupling
R17	330Ω	1/2	745106500	BTS-330	Osc. Cathode
R18	330Ω	1/2	745106500	BTS-330	Osc. Cathode
R19	4700Ω	1/2	754111400	BTS-4700	Osc. Grid
R20	2200Ω	1/2	745110000	BTS-2200	Osc. Plate Decoupling
R21	47Ω	1/2	745103000		Parasitic Suppressor
R22	1000Ω	1	745308600	BTA-1000	Decoupling
R23	100KΩ	1/2	745117000		2nd. Mixer Injection Grid
R24	470Ω	1/2	745107200	BTS-470	2nd. Mixer Cathode
R25	33KΩ	1/2	745114900		2nd. Mixer Screen
R26	2200Ω	1/2	745110000	BTS-2200	2nd. Mixer Plate Decoupling
R27	100KΩ	1/2	745117000		2nd. Mixer Transformer Shunt
R28	33KΩ	1/2	745114900		Selectivity Network
R29	5600Ω	1/2	745111800		Selectivity Network
R30	1500Ω	1/2	745109300		Selectivity Network
R31	10KΩ	1/2	745112800		1st. IF Amp. Grid
R32	150Ω	1/2	745105100	BTS-150	1st. IF Amp. Cathode
R33	2200Ω	1/2	745110000	BTS-2200	1st. IF Amp. Plate Decoupling
R34	47KΩ	1/2	745115600		1st. IF Amp. Screen
R35	68KΩ	1/2	745116300		Voltage Divider
R36	10KΩ	1/2	745112800		2nd. IF Amp. Grid
R37	2200Ω	1/2	745110000	BTS-2200	2nd. IF Amp. Plate Decoupling
R38	22KΩ	1/2	745114200		2nd. IF Amp. Screen
R39	68KΩ	1/2	745116300		Voltage Divider
R40	10KΩ	1/2	745112800		3rd. IF Amp. Grid
R41	47KΩ	1/2	745115600		3rd. IF Amp. Screen
R42	2200Ω	1/2	745110000	BTS-2200	3rd. IF Amp. Plate Decoupling
R43	150Ω	1/2	745105100	BTS-150	3rd. IF Amp. Cathode
R44	100Ω	1/2	745104400	BTS-100	Meter Shunt
R45	100Ω	1/2	745104400	BTS-100	Meter Shunt
R46	100KΩ	1/2	745117000	BTS-100K	AVC Diode Load
R47	470KΩ	1/2	745119800	BTS-470K	AVC Filter
R48	120KΩ	1/2	745117400	BTS-120K	AVC Filter
R49	100KΩ	1/2	745117000	BTS-100K	AVC Filter
R50	2200Ω	1/2	745110000	BTS-2200	AVC Amp. Cathode
R51	100Ω	2	745504400		Bias Network
R52	350Ω	10	710135020	1 3/4A-350	Bias Network
R53	120Ω	2	745504800		Bias Network
R54	47KΩ	1/2	745115600	BTS-47K	Diode Det. Load
R55	47KΩ	1/2	745115600	BTS-47K	Diode Det. Load
R56	470KΩ	1/2	745119800	BTS-470K	Diode Filter
R57	470KΩ	1/2	745119800	BTS-470K	Diode Filter
R58	6800Ω	1/2	745112100	BTS-6800	AF Amp. Cathode
R59	220KΩ	1/2	745118400	BTS-220K	AF Amp. Plate
R60	150KΩ	1/2	745117700	BTS-150K	BFO Grid
R61	33KΩ	1/2	745114900	BTS-33K	BFO Screen
R62	100KΩ	1/2	745117000	BTS-100K	BFO Plate
R63	10KΩ	1/2	745112800	BTS-10K	BFO Decoupling
R64	220KΩ	1/2	745118400	BTS-220K	Voltage Divider
R65	10KΩ	1/2	745112800	BTS-10K	Voltage Divider
R66	220Ω	1/2		BTS-220K	Voltage Divider
R67	68KΩ	1	745116300	BTA-68K	Voltage Divider
R68	100KΩ	1/2	745117000	BTS-100K	Output Grid
R69	2500Ω	10	710003000	1 3/4A-2500	Voltage Regulator Plate
R70	10Ω	2	745500200		Phone Shunt
R71	3900Ω	1		BTA-3900	Bias Network
R72	3900Ω	1		BTA-3900	Bias Network

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA COLLINS PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C40	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	2nd. Mixer Screen
C41	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	2nd. Mixer Cathode
C42	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Bypass
C43	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Bypass
C44	10	500	912043200	1469-00001		5R5Q1		MS-41	Crystal Filter Shunt
C45	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	AVC Filter
C46	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	1st. IF Amp. Plate
C47	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	1st. IF Amp. Screen
C48	5		916438500	SI5NP0	TCZ-4.7		NP0K-050		IF Coupling
C49	5		916438400	SI5NP0	TCZ-4.7		NP0K-050		IF Coupling
C50	5		916438500	SI5NP0	TCZ-4.7		NP0K-050		IF Coupling
C51	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	AVC Filter
C52	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	2nd. IF Amp. Plate
C53	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	2nd. IF Amp. Screen
C54	10	500	912043200	1468-00001	D6-100	5W5Q1	GP1K-100	1FM-41	IF Coupling
C55	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	AVC Filter
C56	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	3rd. IF Amp. Plate
C57	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	3rd. IF Amp. Screen
C58	.1	150	913023900	P288-1	DF-104	PJ2P1		2TM-P1	3rd. IF Amp. Cathode
C59	10	500	912043200	1468-00001	D6-100	5W5Q1	GP1K-100		IF Coupling
C60	100	500	912049500	1469-0001		5R5Q1		MS-31	IF Coupling
C61	100	500	912049500	1469-0001		5R5Q1		MS-31	BFO Grid Cap
C62	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	BFO Screen
C63	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Bypass
C64	10	500	912043200	1469-00001		5R5Q1		MS-41	BFO Coupling
C65	.1	200	931033300	P288-1	DF-104	PJ2P1		2TM-P1	AVC Filter
C66	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	AVC Amp. Filter
C67	.1	200	931033300	P288-1	DF-104	PJ2P1		2TM-P1	AVC Filter
C68	330	500	912053000	1469-00035	D6-331		GP2K-331		Diode RF Filter
C69	.1	200	931033300	P288-1	DF-104	PJ2P1		2TM-P1	Noise Limiter Filter
C70	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	Audio Coupling
C71	100	500	912049500	1468-0001	D6-101	5W5T1	GP1K-101		AF Amp. Grid Filter
C72	.5	200	931016900	P288-5		PJ2P5		2TM-P5	AF Amp. Cathode
C73	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	Audio Coupling
C74	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	Audio Coupling
C75	100	500	912049500	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Audio Output Grid
C76	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	Audio Output Plate
C77	.1	150	931023900	P288-1	DF-104	PJ2P1		2TM-P1	CW Noise Limiter Cathode
C78	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Bypass
C79	.5	600	931020500	684-5		PJ6P5			RF Bypass
C80	.1	150	931023900	P288-1	DF-104	PJ2P1		2TM-P1	Bias Filter
C81	10000		913056600	SII0000	D6-103	TM5S1	GP2-333-103	5HK-S1	Line Filter

† Some Models use 47MMF in this application (Part No. 912047100)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA COLLINS PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	376-4499-00	Q13-133	AG-60-Z	B-60	Audio Gain Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R1A per instructions
R2A	10KΩ	½	376-3522-00	Q11-116	AM-27-S	B-14	RF Gain Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R2A per instructions
R3A	10KΩ	½	376-4022-00	Q14-116	AM-30-V	B-17	CW Limiter Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R3A per instructions
R4	100Ω	1	377-0122-00				"S" Meter Zero Adjustment Control - Wire Wound

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA COLLINS PART No. FUSE	COLLINS PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	2A. 250V.	264 4070 00	265 1002 00	312002	342001	AGC2	HKP

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA COLLINS PART No.		NOTES
M2	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47
M3	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47
M4	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47
M5	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47

MISCELLANEOUS

ITEM No.	PART NAME	COLLINS PART No.	NOTES
M6	Crystal	291 8070 00	5.7MC
M7	Crystal	291 8071 00	9.3MC
M8	Crystal	291 8072 00	16.5MC
M9	Crystal	291 8073 00	23.3MC
M10	Crystal	291 8074 00	31.455MC
M11	Crystal	291 8075 00	33.455MC
M12	Crystal	291 5957 00	455KC
M13	Switch	259 0363 00	Off - Stand By - On
M14A	Bandswitch	269 1294 00	Variable IF Selecting
B		269 1294 00	Variable IF Selecting
C		269 1294 00	Variable IF Selecting
D		269 1293 00	Crystal Coil Selecting
E		269 1293 00	Crystal Selector
F		269 1296 00	Mixer Grid Coil Selecting
G		269 1296 00	RF Amp. Grid Coil Selecting
H		269 1295 00	Antenna Coil Selecting
M15	Switch	259 0415 00	Selectivity
M16	Switch	259 0416 00	CW-AM-FM
M17	Switch	259 0417 00	Limiter
M18	"S" Meter	458 0044 00	1 MA-50Ω±20% DC Res.
M19	VFO Assembly	70E-12	Hermetically Sealed
M20	Variable Air Trimmer	922 0033 00	Antenna (2.6-19.7MMF)
	Trimmers	917 1038 00	(8-50MMF) (Alignment Adjustments A19, A20, A23, A24, A27, A30, A31, A34, A35, A38, A39, A42, A43)
	Trimmers	917 1036 00	(5-25MMF) (Alignment Adjustments A46, A47, A50, A51)

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	257 0040 00	6AK5	7BD	
V2	1st. Mixer	257 0048 00	6BE6	7CH	
V3	Crystal Osc.	255 0205 00	12AT7	9A	
V4	2nd. Mixer	257 0048 00	6BE6	7CH	
V5	VF Oscillator	255 0185 00	6BA6	7BK	
V6	Buffer	255 0185 00	6BA6	7BK	
V7	1st. IF Amplifier	255 0185 00	6BA6	7BK	
V8	2nd. IF Amplifier	255 0185 00	6BA6	7BK	
V9	3rd. IF Amplifier	255 0185 00	6BA6	7BK	
V10	Detector-AVC Rectifier	257 0018 00	6AL5	6BT	
V11	BFO	255 0185 00	6BA6	7BK	
V12	AVC Amplifier-AF Amplifier	255 0201 00	12AX7	9A	
V13	Noise Limiter	257 0018 00	6AL5	6BT	
V14	C-W Noise Limiter	257 0018 00	6AL5	6BT	
V15	Audio Output	255 0195 00	6AQ5	7BZ	
V16	Volt. Regulator	257 0252 00	0A2	5BO	
V17	Rectifier	255 0157 00	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: COLLINS PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	183100900	AFH2-57		UPT4445		TVL-2764	▲ Filter
B	40	450							■ Filter
C2	50	150	183104500	PRS150/50		BR5015A		TVA-1414	Bias Filter
C3	20	150	183104200	PRS150/20		BR2015A		TVA-1410	AVC Amp. Cathode
C4	390	500	912053500						Fixed Trimmer
C5	650	500	912054800						Fixed Trimmer
C6	270	500	912052400						Fixed Trimmer
C7	120	500	912050100						Fixed Trimmer
C8	68	500	912048300	1469-00007		5R5Q7		MS-47	Fixed Trimmer
C9	100	500	912049500	1468-0001	D6-101	5W5T1		1FM-31	RF Coupling
C10	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	AVC Filter
C11	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Amp. Screen Bypass
C12	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Amp. Cathode Bypass
C13	650	500	912054800						Fixed Trimmer
C14	270	500	912052400						Fixed Trimmer
C15	120	500	912050100						Fixed Trimmer
C16	68	500	912048300	1469-00007		5R5Q7		MS-47	Fixed Trimmer
C17	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Amp. Plate Dec.
C18	10	500	912043200	1468-00001	D6-100	5W5Q1	GP1K-100	MS-41	RF Coupling
C19	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	1st. Mixer Screen
C20	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	1st. Mixer Cathode
C21	100	500	912049500	1469-0001		5R5T1		MS-31	Osc. Coupling
C22	220	500	912051900						Osc. Grid Cap.
C23	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	Osc. Plate Bypass
C24	220		912051900						Fixed Trimmer
C25	120	500	912050100						Fixed Trimmer
C26	120	500	912050100						Fixed Trimmer
C27	100	500	912049500	1469-0001		5R5T1		MS-31	Fixed Trimmer
C28	47	500	912047100	1469-00005		5R5Q5		MS-45	Fixed Trimmer
C29	39	500	912046500	1469-00004		5R5Q4		MS-44	Fixed Trimmer
C30	56	500							Fixed Trimmer †
C31	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	1st. Mixer Plate Dec.
C32	330	500	912053000						Fixed Trimmer
C33	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	RF Coupling
C34	4		916438100				NP0K-040		IF Coupling
C35	1		916436800		TCZ-1		NP0K-010		IF Coupling
C36	56	500							Fixed Trimmer †
C37	330	500	912053000						Fixed Trimmer
C38	270	500	912052400						Fixed Padder
C39	10000		913056600	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	2nd. Mixer Plate Dec.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC @ .84A	700VCT .110ADC	5VAC @ 2A	6.3VAC @ 5.5A	662-0017-00		P-3153 ①	PV-120A ①

① Drill new mtg. holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T2	3.6KΩ	500Ω Tapped @ .4Ω	290Ω	23Ω Tapped @ .7Ω	667-0018-00				

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ↓)	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
L1	.110ADC	100Ω	3 Henries	668-0020-00	C-2303 ②	C-2994		② Drill one new Mounting Hole
L2	.055ADC	270Ω	5 Henries	668-0019-00	C-1706	C-2975	R-650 ②	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L3	Ant. Coil	0Ω	.8Ω	504 7038 002		160 Meter
L4	Ant. Coil	.1Ω	.1Ω	504 7039 002		80 Meter
L5	Ant. Coil	.1Ω		504 7000 001		40 Meter
L6	Ant. Coil	.1Ω		504 6999 001		20 Meter
L7	Ant. Coil	.1Ω		504 6997 001		15 Meter
L8	Ant. Coil	.1Ω		504 6996 001		11 Meter
L9	Ant. Coil	.1Ω		504 6996 001		10 Meter
L10	Parasitic Supp.	0Ω		504 7064 001		Wound on 47Ω Resistor
L11	RF Coil	.1Ω		504 7037 002		80 Meter
L12	RF Coil	.1Ω		504 7000 001		40 Meter
L13	RF Coil	.1Ω		504 6999 001		20 Meter
L14	RF Coil	.1Ω		504 6997 001		15 Meter
L15	RF Coil	.1Ω		504 6996 001		11 Meter
L16	RF Coil	.1Ω		504 6996 001		10 Meter
L17	Osc. Coil	.1Ω		504 7004 001		80 Meter
L18	Osc. Coil	.1Ω		504 6998 001		40 Meter
L19	Osc. Coil	0Ω		504 6997 001		20 Meter
L20	Osc. Coil	0Ω		504 7001 001		15 Meter
L21	Osc. Coil	0Ω		504 7001 001		11 Meter
L22	Osc. Coil	0Ω		504 7001 001		10 Meter
L23	Variable IF	.5Ω		504 7005 001		
L24	Variable IF Coil Shunt	1.7Ω		504 7002 001		Used on 10 and 11 meter band only
L25	Variable IF	1Ω		504 7005 001		
L26	Variable IF Coil Shunt	1.7Ω		504 7002 001		Used on 10 and 11 meter band only
L27	Variable IF Padder	.1Ω		505 1738 001		
L28	RF Choke	7.8Ω		240 0073 00		
L29	2nd. Mixer Trans.	1.7Ω	.6Ω	278 0083 00		Tap @ .3Ω
L30	1st. IF Trans.	4.6Ω		278 0085 00		
L31	2nd. IF Trans.	1.6Ω	1.6Ω	278 0084 00		
L32	2nd. IF Trans.	1.6Ω	1.6Ω	278 0084 00		
L33	3rd. IF Trans.	1.6Ω	1.6Ω	278 0084 00		
L34	4th. IF Trans.	1.6Ω	1.6Ω	278 0084 00		
L35	BFO Coil	1.7Ω		278 0082 00		Tap @ .2Ω

SET 111 FOLDER 4

14.	"	"	6.9MC	40 meters	6.9MC	"	A32, A33	Adjust for maximum deflection.
15.	"	"	7.7MC	"	7.7MC	"	A34, A35	Adjust for maximum deflection. Repeat steps 14 & 15 until no improvement is noted.
16.	"	"	14.1MC	20 meters	14.1MC	"	A36, A37	Adjust for maximum deflection.
17	"	"	14.9MC	20 meters	14.9MC	"	A38, A39	Adjust for maximum deflection. Repeat steps 16 & 17 until no improvement is noted.
18.	"	"	20.9MC	15 meters	20.9MC	"	A40, A41	Adjust for maximum deflection.
19.	"	"	21.7MC	"	21.7MC	"	A42, A43	Adjust for maximum deflection. Repeat steps 18 & 19 until no improvement is noted.
20.	"	"	26.2MC	11 meters	26.2MC	"	A44, A45	Adjust for maximum deflection.
21.	"	"	27.8MC	"	27.8MC	"	A46, A47	Adjust for maximum deflection. Repeat steps 20 & 21 until no improvement is noted.
22.	"	"	28.2MC	10 meters	28.2MC	"	A48, A49	Adjust for maximum deflection.
23.	"	"	29.8MC	"	29.8MC	"	A50, A51	Adjust for maximum deflection. Repeat steps 22 & 23 until no improvement is noted.

VFO ADJUSTMENT

The VFO is carefully adjusted and sealed at the factory and should normally not require further adjustment.
If the oscillator drifts beyond a point which can be compensated with the zero set control, tune the receiver to an accurate 2000 KC frequency standard, set the vernier dial corrector to mid-scale, loosen two set screws on the oscillator shaft and turn the oscillator shaft until zero beat is obtained. Make the final adjustment on AM position and selectivity control at 4. Adjust the oscillator shaft for maximum indication on "S" meter and tighten screws without disturbing the setting of the oscillator shaft.
Check the tuning rate of the VFO by setting the tuning dial to give zero beat with a frequency standard at each end of one tuning range (14 and 15 MC for instance.) The tuning dial travel between these two points should be 10 turns ± 3 dial divisions.
If the error is greater than this the tuning unit should be removed and returned to the factory for adjustment.
After installing the repaired oscillator it will be necessary to align the oscillator with the dial. Carefully turn the oscillator shaft to the clockwise stop. Set the vernier dial at 2 MC on the 160 meter band. Turn the BFO on.
Couple a 2000 KC frequency standard to pin 7 of 6BE6 (V4).
Rotate the oscillator shaft approximately 5 turns counter clockwise until a tweet is heard in the speaker, then adjust to zero beat. Make the final adjustment with controls at AM and selectivity control at 4.
Adjust the oscillator shaft for maximum indication on "S" meter and tighten the set screws on the coupler shaft.

NARROW BAND CONVERSION

This receiver is designed with a band width of 4 KC at 6 db. down and 13 KC at 60 db. down. If extreme selectivity is desired it is possible to convert the 75A-2 receiver to a maximum band width of approximately 2.4 KC at 6 db. down.
To convert the set remove the bottom plate and remove the following circuit components: R27, C48, C50 and C54. Repeat alignment as outlined under 455 KC IF ADJUSTMENT (Large Misalignment).

BROAD BAND CONVERSION

Replace the 4 circuit components removed under NARROW BAND CONVERSION. Construct a "swamping tool" consisting of a .01MFD condenser in series with a 1000 ohm resistor and having an alligator clip at each end.
Set receiver controls as follows:

a. CW-FM-AM control to AM.
b. Selectivity control to position 2.
c. RF gain to full on.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
24.	.001MFD	High side to pin 1, (grid) of 6BE6 (V4). Low side to chassis.	See remarks	Any	Point of non-interference	DC probe to Point (A). Common to chassis.	A9	Tune signal generator to frequency of crystal filter (approx. 455KC) as indicated by maximum voltage at Point (A). Attenuate generator output to maintain approximately 5 volts at Point (A). Adjust A9 for maximum deflection.
25.	"	"	frequency of crystal filter	"	"	"	A7	Place swamping tool from terminal D of L31 to chassis. Adjust A7 for maximum deflection.
26.	"	"	"	"	"	"	A8	Place swamping tool from terminal A of L31 to chassis. Adjust A8 for maximum deflection.
27.	"	"	"	"	"	"	A5	Place swamping tool from terminal D of L32 to chassis. Adjust A5 for maximum deflection.
28.	"	"	"	"	"	"	A6	Place swamping tool from terminal A of L32 to chassis. Adjust A6 for maximum deflection.
29.	"	"	"	"	"	"	A3	Place swamping tool from terminal D of L33 to chassis. Adjust A3 for maximum deflection.
30.	"	"	"	"	"	"	A4	Place swamping tool from terminal A of L33 to chassis. Adjust A4 for maximum deflection.

ALIGNMENT OF BFO

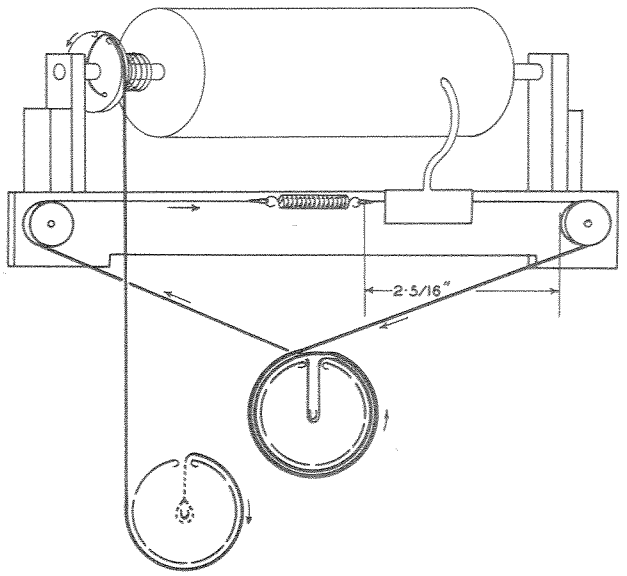
Alignment of the beat frequency oscillator should be performed after all other frequency controlling elements are aligned.
Connect the signal generator to the antenna terminals. Set the crystal filter knob to position 4. With the receiver in AVC position tune in the signal from the generator to exact crystal filter frequency as indicated by a sharp rise in "S" meter reading.
Set the BFO pitch control to center. Turn the receiver to CW position and adjust the BFO trimmer A52 for zero beat. If the knobs have been removed the BFO pitch knob may have been incorrectly replaced. It should be at center when its associated tuning capacitor is at half capacity setting.
To check the position of the capacitor proceed as follows: Connect the signal generator to pin 7 of V4. Set the receiver to CW position and rotate the BFO pitch control 180 degrees to each side of zero. The tone should change an equal amount each side of zero. Failure to do so indicates incorrect setting of the knob on the shaft. To correct this, rotate the control until the highest pitch obtainable is found, indicating that the capacitor plates are all in or all out. Loosen the BFO pitch control set screw, turn the knob 90 degrees in either direction, and tighten the set screw. Set the BFO control at zero and again adjust A52 for zero beat. It is possible that the knob is 180 degrees from the correct setting on the shaft. To check this possibility loosely couple the signal generator to the antenna terminals, set the signal at some 100 KC point (as 3700 KC) and, with the receiver on CW position and the BFO pitch control at zero, tune to zero beat. Rotate the BFO knob to + 1. Retune the receiver to zero beat. If the new dial setting is 1 KC less than before the BFO knob is on the shaft correctly. If the receiver dial indicates 1 KC more the BFO knob should be rotated 180 degrees on the condenser shaft.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	550KΩ	120Ω	0Ω	.1Ω	†3.6KΩ	†34KΩ	120Ω		
V 2	6BE6	470KΩ	560Ω	0Ω	.1Ω	†3.6KΩ	†11KΩ	22KΩ		
V 3	12AT7	†3.6KΩ	0Ω	330Ω	0Ω	0Ω	†3.6KΩ	4.7KΩ	330Ω	.1Ω
V 4	6BE6	100KΩ	470Ω	0Ω	.1Ω	†2.6KΩ	†33KΩ	1Ω		
V 5	6BA6	330KΩ	0Ω	0Ω	.1Ω	†32KΩ	†32KΩ	0Ω		
V 6	6BA6	150KΩ	0Ω	.1Ω	0Ω	†14KΩ	†43KΩ	0Ω		
V 7	6BA6	210KΩ	0Ω	0Ω	.1Ω	†2.6KΩ	†28KΩ	150Ω		
V 8	6BA6	210KΩ	0Ω	0Ω	.1Ω	†2.6KΩ	†18KΩ	0Ω		
V 9	6BA6	210KΩ	180Ω	0Ω	.1Ω	†2.6KΩ	†47KΩ	180Ω		
V 10	6AL5	100KΩ	94KΩ	0Ω	.1Ω	0Ω	400Ω	400Ω		
V 11	6BA6	150KΩ	0Ω	0Ω	.1Ω	†110KΩ	0Ω ■†43KΩ	.2Ω		
V 12	12AX7	190KΩ	690KΩ	2.6KΩ	0Ω	0Ω	†220KΩ	0Ω	6.8KΩ	.1Ω
V 13	6AL5	1Meg	INF	0Ω	.1Ω	INF	INF	47KΩ		
V 14	6AL5	10KΩ	■0Ω	0Ω	.1Ω	INF	INF	INF		
V 15	6AQ5	100KΩ	0Ω	0Ω	.1Ω	†390Ω	†370Ω	100KΩ		
V 16	0A2	†2.6KΩ	0Ω	INF	0Ω	†2.6KΩ	INF	0Ω		
V 17	5Y3GT	INF	16KΩ	INF	¶118Ω	†2.6KΩ	¶120Ω	INF	16KΩ	

ALL MEASUREMENTS TAKEN IN "AM" POSITION UNLESS NOTED
BAND SWITCH 80 METERS POSITION
M13 IN "ON" POSITION
M15 AT ZERO POSITION
M17 AT LIMITER POSITION
RF GAIN CONTROL FULLY CLOCKWISE
† MEASURED FROM PIN 8 OF V17
■ MEASURED IN "CW" POSITION
¶ MEASURED FROM -50VDC LINE

TUNING CONTROL FULLY CLOCKWISE



DIAL CORD STRINGING