



*Stereophonic*

**THE FISHER 202-R**

**SERVICE**

**MANUAL**



MODEL 202-R

CHASSIS SERIAL NUMBERS  
FROM 10001 TO 19999 INCLUSIVE

PRICE: \$1.00

FISHER RADIO CORPORATION • NEW YORK

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# PARTS DESCRIPTION LIST

## CAPACITORS

10 % tolerance for all fixed capacitors, unless otherwise noted or marked GMV (guaranteed minimum value.)

Symbol	Description	Part No.
C1	Ceramic, 24uuf, 5 %, N150, 1000V	C50070-8
C2	Molded, .01uf, 20 %, 600V	C2747
C3	Variable, AM	C799-119
C4	Ceramic, 100uuf, N1500, 1000V	C50070-6
C5	Ceramic, feedthru, .001uf, GMV	C592-187
C6	Molded, .01uf, 20 %, 600V	C2747
C7	Ceramic, 10uuf, $\pm$ .5uuf, NPO, 500V	CC20CJ100D5
C8	Ceramic, 100uuf, N1500, 1000V	C50070-6
C9	Electrolytic, 25uf, 6V	C639-114
C10	Ceramic, 100uuf, N1500, 1000V	C50070-6
C11	Ceramic, trimmer	C662-123
C12	Ceramic, feedthru, .001uf, GMV	C592-187
C13	Variable, FM	C726-116
C14	Ceramic, feedthru, .001uf, GMV	C592-187
C15	Ceramic, .02uf, +80 -20 %, 500V	C50089-4
C16	Ceramic, feedthru, .001uf, GMV	C592-187
C17	Ceramic, 3uuf, NPO, 1000V	C50070-28
C18	Ceramic, feedthru, .001uf, GMV	C592-187
C19	Ceramic, .005uf, 20 %, 500V	C50089-1
C20	Ceramic, .02uf, +80 -20 %, 500V	C50089-4
C21, 22	Ceramic, trimmer	C662-123
C23	Ceramic, 10uuf, $\pm$ .5uuf, NPO, 500V	CC20CJ100D5
C24	Ceramic, 8uuf, $\pm$ .5uuf, N220, 500V	CC20RJ080D5
C25	Ceramic, .68uuf, 500V	C50077-6N
C26	Electrolytic, three section A — 40uf 300V B — 40uf 300V C — 40uf 300V	C50180-24
C27	Ceramic, feedthru, .001uf, GMV	C592-187
C28	Ceramic, .001uf, 1000V	C50072-3
C29	Ceramic, feedthru, .001uf, GMV	C592-187
C30	Ceramic, 100uuf, N1500, 1000V	C50070-6
C31	Mylar, .047uf, 250V	C50197-52
C32	Ceramic, 100uuf, N1500, 1000V	C50070-6
C33	Ceramic, 68uuf, N750, 500V	CC20UJ680K5
C34	Ceramic, 100uuf, N1500, 1000V	C50070-6
C35	Mica, 470uuf, 5 %, 300V	C3334
C36	Ceramic, 47uuf, N750, 1000V	C50070-4
C37	Ceramic, 24uuf, 5 %, N150, 1000V	C50070-8
C38	Ceramic, 100uuf, 5 %, N1500, 1000V	C50070-19
C39	Ceramic, 100uuf, N1500, 1000V	C50070-6
C40	Ceramic, 10uuf, $\pm$ .5uuf, NPO, 500V	CC20CJ100D5
C41	Ceramic, .001uf, 1000V	C50072-3
C42, 43	Ceramic, feedthru, .001uf, GMV	C592-187
C44	Ceramic, .02uf, +80 -20 %, 500V	C50089-4
C45	Mica, 470uuf, 5 %, 300V	C3334
C46	Ceramic, .005uf, 20 %, 500V	C50089-1
C47	Ceramic, feedthru, .001uf, GMV	C592-187
C48, 49	Ceramic, .02uf, +80 -20 %, 500V	C50089-4
C50, 51	Ceramic, .005uf, 20 %, 500V	C50089-1
C52	Mylar, .1uf, 250V	C50197-54
C53	Ceramic, .0027uf, 1000V	C50072-17
C54	Mica, 470uuf, 5 %, 300V	C3334
C55, 56	Ceramic, .005uf, 20 %, 500V	C50089-1
C57	Mylar, .047uf, 250V	C50197-52
C58	Mylar, .1uf, 250V	C50197-54
C59	Ceramic, .005uf, 20 %, 500V	C50089-1
C60	Ceramic, 10uuf, $\pm$ .5uuf, NPO, 500V	CC20CJ100D5
C61	Mica, 470uuf, 5 %, 300V	C3334
C62	Ceramic, .02uf, +80 -20 %, 500V	C50089-4
C63	Ceramic, .0027uf, 1000V	C50072-17
C64, 65, 66, 67	Ceramic, .005uf, 20 %, 500V	C50089-1
C68	Ceramic, 5uuf, $\pm$ .5uuf, NPO, 500V	CC20CJ050D5
C69	Ceramic, .005uf, 20 %, 500V	C50089-1
C70	Ceramic, 100uuf, N1500, 1000V	C50070-6
C71	Ceramic, .02uf, +80 -20 %, 500V	C50089-4
C72	Ceramic, 100uuf, N1500, 1000V	C50070-6

C73	Ceramic, 24uuf, 5 %, N150, 1000V	C50070-8
C74	Ceramic, 560uuf, 1000V	C50072-14
C75	Mica, trimmer	C629-151-5
C76	Mylar, .047uf, 250V	C50197-52
C77	Ceramic, 100uuf, N1500, 1000V	C50070-6
C78	Ceramic, .005uf, 20 %, 500V	C50089-1
C79	Ceramic, .0027uf, 1000V	C50072-17
C80	Ceramic, .01uf, 20 %, 500V	C50089-3
C81	Ceramic, .02uf, 20 %, 500V	C50089-5
C82	Ceramic, 24uuf, 5 %, N150, 1000V	C50070-8
C83	Ceramic, .005uf, 20 %, 500V	C50089-1
C84	Ceramic, .02uf, +80 -20 %, 500V	C50089-4
C85	Ceramic, 150uuf, 1000V	C50072-18
C86	Ceramic, .005uf, 20 %, 500V	C50089-1
C87	Ceramic, .0027uf, 1000V	C50072-17
C88	Ceramic, .005uf, 20 %, 500V	C50089-1
C89	Mylar, .1uf, 250V	C50197-54
C90	Ceramic, 15uuf, N75, 1000V	C50070-18
C91, 92	Electrolytic, 20uf, 250V	C746-145
C93, 94	Ceramic, .005uf, 20 %, 500V	C50089-1
C95, 96	Mylar, .1uf, 250V	C50197-54
C97	Ceramic, .005uf, 20 %, 500V	C50089-1
C98	Ceramic, .0027uf, 1000V	C50072-17
C99, 100	Mylar, .1uf, 250V	C50197-54
C101	Ceramic, 12uuf, NPO, 1000V	C50070-2
C102	Ceramic, .0027uf, 1000V	C50072-17
C103	Ceramic, .005uf, 20 %, 500V	C50089-1
C104	Ceramic, 330uuf, 1000V	C50072-1
C105	Molded, .0033uf, 5 %, 200V	C68P332J2
C106	Ceramic, .005uf, 20 %, 500V	C50089-1
C107, 108	Ceramic, 330uuf, 1000V	C50072-1
C109	Electrolytic, 8uf, 50V	C629-138
C110	Ceramic, .005uf, 20 %, 500V	C50089-1

## RESISTORS AND POTENTIOMETERS

In ohms, 10 % tolerance, 1/2 watt, unless otherwise noted. K=kilohm, M=megohm.

Symbol	Description	Part No.
R1	Composition, 1K, 10 %, 1/2 W	RC20BF102K
R2	Composition, 330, 10 %, 1/2 W	RC20BF331K
R3	Composition, 270, 10 %, 1/2 W	RC20BF271K
R4	Composition, 2.7K, 10 %, 1/2 W	RC20BF272K
R5	Composition, 820K, 10 %, 1/2 W	RC20BF824K
R6	Composition, 4.7, 10 %, 1/2 W	RC20BF477K
R7	Composition, 8.2K, 5 %, 1/2 W	RC20BF822J
R8	Composition, 820K, 10 %, 1/2 W	RC20BF824K
R9	Composition, 100K, 10 %, 1/2 W	RC20BF104K
R10	Composition, 100, 10 %, 1/2 W	RC20BF101K
R11	Composition, 120, 10 %, 1/2 W	RC20BF121K
R12, 13	Composition, 220, 10 %, 1/2 W	RC20BF221K
R14	Composition, 47K, 10 %, 1/2 W	RC20BF473K
R15	Composition, 1K, 10 %, 1/2 W	RC20BF102K
R16, 17	Composition, 330K, 10 %, 1/2 W	RC20BF334K
R18	Composition, 4.7, 10 %, 1/2 W	RC20BF477K
R19	not used	
R20	Wirewound, 270, 10 %, 5W	R684-141
R21	Composition, 820K, 10 %, 1/2 W	RC20BF824K
R22	Wirewound, 270, 10 %, 5W	R684-141
R23	Composition, 100, 10 %, 1/2 W	RC20BF101K
R24	Composition, 2.2K, 10 %, 1/2 W	RC20BF222K
R25	Composition, 470K, 10 %, 1/2 W	RC20BF474K
R26	Composition, 22K, 10 %, 1/2 W	RC20BF223K
R27	Composition, 470, 10 %, 1/2 W	RC20BF471K
R28	Composition, 100, 10 %, 1/2 W	RC20BF101K
R29	Composition, 1K, 10 %, 1/2 W	RC20BF102K
R30	Composition, 18K, 10 %, 1W	RC20BF183K
R31	Composition, 82K, 10 %, 1/2 W	RC20BF823K
R32	Composition, 150, 10 %, 1/2 W	RC20BF151K
R33	Composition, 1M, 10 %, 1/2 W	RC20BF105K
R34	Composition, 470, 10 %, 1/2 W	RC20BF471K
R35	Composition, 100, 10 %, 1/2 W	RC20BF101K
R36	Composition, 22M, 10 %, 1/2 W	RC20BF226K

# PARTS DESCRIPTION LIST

**R37** Composition, 47K, 10%, 1/2 W  
**R38** Composition, 470K, 10%, 1/2 W  
**R39** Composition, 33K, 10%, 1/2 W  
**R40** Composition, 1K, 10%, 1/2 W  
**R41** Composition, 470, 10%, 1/2 W  
**R42** Composition, 1K, 10%, 1/2 W  
**R43** Composition, 1M, 10%, 1/2 W  
**R44** Composition, 820K, 10%, 1/2 W  
**R45** Composition, 470K, 10%, 1/2 W  
**R46** Composition, 150, 10%, 1/2 W  
**R47** Composition, 180, 10%, 1/2 W  
**R48** Composition, 47K, 10%, 1/2 W  
**R49** Composition, 1K, 10%, 1/2 W  
**R50** Composition, 27K, 10%, 1/2 W  
**R51** Composition, 1K, 10%, 1/2 W  
**R52** Composition, 68K, 10%, 1/2 W  
**R53** Composition, 470K, 10%, 1/2 W  
**R54, 55** Composition, 47K, 10%, 1/2 W  
**R56** Composition, 22M, 10%, 1/2 W  
**R57** Composition, 27K, 10%, 1/2 W  
**R58** Composition, 3.9K, 10%, 1/2 W  
**R59** Composition, 47K, 10%, 1/2 W  
**R60** Composition, 390K, 10%, 1/2 W  
**R61** Composition, 100K, 10%, 1/2 W  
**R62** Potentiometer, 500K, AM level  
**R63** Composition, 82K, 10%, 1/2 W  
**R64** Composition, 1K, 10%, 1/2 W  
**R65** Composition, 2.7K, 10%, 1/2 W  
**R66** Composition, 220K, 10%, 1/2 W  
**R67** Composition, 100K, 10%, 1/2 W  
**R68** Composition, 6.8K, 10%, 1/2 W  
**R69** Composition, 27K, 10%, 1W  
**R70** Potentiometer, 25K  
**R71** Composition, 1K, 10%, 1/2 W  
**R72** Composition, 10M, 10%, 1/2 W  
**R73** Dep. Carbon, 470K, 5%, 1/3 W  
**R74** Composition, 10M, 10%, 1/2 W  
**R75, 76** Composition, 220K, 10%, 1/2 W  
**R77** Composition, 1M, 10%, 1/2 W  
**R78** Composition, 47K, 10%, 1/2 W  
**R79** Composition, 560, 10%, 1/2 W  
**R80** Composition, 470K, 10%, 1/2 W  
**R81** Composition, 390K, 10%, 1/2 W  
**R82** Potentiometer, 100K, muting  
**R83** Composition, 100K, 10%, 1/2 W  
**R84** Composition, 4.7K, 10%, 1/2 W  
**R85** Composition, 56K, 10%, 1/2 W  
**R86** Composition, 68K, 5%, 1/2 W  
**R87** Potentiometer, 250K, FM level  
**R88** Dep. Carbon, 470K, 5%, 1/3 W  
**R89** Composition, 2.2M, 10%, 1/2 W  
**R90** Composition, 1K, 10%, 1/2 W  
**R91** Composition, 1.8M, 10%, 1/2 W  
**R92** Composition, 2.2M, 10%, 1/2 W  
**R93, 94** Composition, 560, 10%, 1/2 W  
**R95** Dep. Carbon, 470K, 5%, 1/3 W  
**R96, 97** Dep. Carbon, 100K, 5%, 1/3 W  
**R98** Composition, 330, 10%, 1/2 W  
**R99, 100** Composition, 150K, 10%, 1/2 W  
**R101** Composition, 22M, 10%, 1/2 W  
**R102** Composition, 820K, 5%, 1/2 W  
**R103** Composition, 4.7K, 10%, 1/2 W  
**R104** Composition, 820K, 5%, 1/2 W  
**R105** Composition, 100K, 10%, 1/2 W  
**R106** Composition, 560, 10%, 1/2 W  
**R107** Composition, 1M, 10%, 1/2 W  
**R108** Composition, 5.6K, 10%, 1/2 W  
**R109, 110** Composition, 4.7K, 10%, 1/2 W  
**R111** Composition, 47K, 10%, 1/2 W  
**R112** Composition, 100, 10%, 1/2 W  
**R113** Composition, 1K, 10%, 1/2 W  
**R114** Composition, 15K, 10%, 1/2 W

**RC20BF473K**  
**RC20BF474K**  
**RC20BF333K**  
**RC20BF102K**  
**RC20BF471K**  
**RC20BF102K**  
**RC20BF105K**  
**RC20BF824K**  
**RC20BF474K**  
**RC20BF151K**  
**RC20BF181K**  
**RC20BF473K**  
**RC20BF102K**  
**RC20BF273K**  
**RC20BF102K**  
**RC20BF683K**  
**RC20BF474K**  
**RC20BF473K**  
**RC20BF226K**  
**RC20BF273K**  
**RC20BF392K**  
**RC20BF473K**  
**RC20BF394K**  
**RC20BF104K**  
**R50103-6**  
**RC20BF823K**  
**RC20BF102K**  
**RC20BF272K**  
**RC20BF224K**  
**RC20BF104K**  
**RC20BF682K**  
**RC30BF273K**  
**R50103-2**  
**RC20BF102K**  
**RC20BF106K**  
**R33DC474J**  
**RC20BF106K**  
**RC20BF224K**  
**RC20BF105K**  
**RC20BF473K**  
**RC20BF561K**  
**RC20BF474K**  
**RC20BF394K**  
**R50160-63**  
**RC20BF104K**  
**RC20BF472K**  
**RC20BF563K**  
**RC20BF683J**  
**R50103-1**  
**R33DC474J**  
**RC20BF225K**  
**RC20BF102K**  
**RC20BF185K**  
**RC20BF225K**  
**RC20BF561K**  
**R33DC474J**  
**R33DC104J**  
**RC20BF331K**  
**RC20BF154K**  
**RC20BF226K**  
**RC20BF824J**  
**RC20BR472K**  
**RC20BF824J**  
**RC20BF104K**  
**RC20BF561K**  
**RC20BF105K**  
**RC20BF562K**  
**RC20BF472K**  
**RC20BF473K**  
**RC20BF101K**  
**RC20BF102K**  
**RC20BF153K**

**R115** Composition, 1K, 10%, 1/2 W  
**R116** Composition, 270, 5%, 1/2 W  
**R117** Dep. Carbon, 22K, 5%, 1/3 W  
**R118** Composition, 1.5K, 10%, 1/2 W  
**R119** Composition, 1K, 10%, 1/2 W  
**R120, 121** Composition, 6.8K, 5%, 1/2 W  
**R122** Composition, 470K, 10%, 1/2 W  
**R123** Composition, 3.3, 10%, 1/2 W  
**R124** Composition, 150K, 10%, 1/2 W  
**R125** Composition, 1M, 10%, 1/2 W  
**R126** Composition, 100K, 10%, 1/2 W

**RC20BF102K**  
**RC20BF271J**  
**R33DC223J**  
**RC20BF152K**  
**RC20BF102K**  
**RC20BF682J**  
**RC20BF474K**  
**RC20BF3R3K**  
**RC20BF154K**  
**RC20BF105K**  
**RC20BF104K**

## COILS, CHOKES AND TRANSFORMERS

Symbol	Description	Part No.
L1, 2	FM antenna, matching coils	L509-139
L3, 4	Choke, filament, ferrite bead	L592-189
L5	AM ferrite loop	L50210-24
L6	AM ant., transformer	L670-151
L7	FM ant., coil	L726-129
L8	Choke, 1 Micro-henry	L50066-2
L9, 10	Choke, .56 Micro-henry	L50066-19
L11	FM, RF coil	L726-126
L12	FM, osc. coil assembly	A5726-123
L13	Choke, R.F.	L629-180
L14	Choke, .56 Micro-henry	L50066-19
L15	Choke, 1 Micro-henry	L50066-2
L16	AM osc. coil	L50210-22
L17, 18	Choke, 1 Micro-henry	L50066-2
L19	Muting osc. coil	L50210-22
L20	10Kc filter coil	L644-120
L21	Choke, 3.3 Micro-henries	L50066-8
L22	Choke, 1 Micro-henry	L50066-2
L23, 24,		
25, 26, 27	Choke, filament, ferrite bead	L592-189
T1	Transformer, power	T766-115
Z1	FM, I.F. Transformer	ZZ662-117
Z2, 3	FM, I.F. Transformer	ZZ50210-2
Z4	FM, I.F. Transformer	ZZ50210-4
Z5, 6	FM, limiter coil assembly	L670-145
Z7	FM, Ratio detector	ZZ592-170
Z8	AM, R.F. Transformer	L670-151
Z9, 10	AM, I.F. Transformer	ZZ629-135
Z11	AM, I.F. Transformer	ZZ2984

## MISCELLANEOUS

Symbol	Description	Part No.
CR1	Varicap, type 6.8SC20	V-726-130
CR2, 3	Silicon diode, type 2E4	SR782-117
CR4, 5	Diode, matched pair, type 1N542	V-1N542
F1	Fuse, 1.5 amp.	F766-141
I1, 4	Lamp, dial	1-50082-61
I2, 3	Lamp, meter, #470F	150009-4
I5, 6, 7	Lamp, #47	150009-1
K1	Relay	K50276-1
M1	Meter, FM	M766-136
M2	Meter, AM	M766-137
S1, 2	Switch, slide	S50200-2
S3	Switch, AM, antenna	S766-133
S4	Switch, power	S766-133
S5	Switch, AM, bandwidth	S766-132
S6	Switch, FM, AFC	S766-134
S7	Switch, selector	S766-135
S8	Switch, muting	part of R82
SR-1	Selenium rectifier bridge	SR740-137
—	FM dipole assembly	A550227-1
—	Knob, tuning	E50224-2
—	Knob	E50224-1
—	Jewel, red	I50162-1
—	Jewel, yellow	I50162-2
—	Jewel, green	I50162-4
—	Dial, glass	N766-107
—	Fuse holder	X1036

# ALIGNMENT INSTRUCTIONS

**Read These Instructions With Extreme Care Before Attempting Alignment.**

**CHASSIS:** Turn the station selectors completely counterclockwise, without forcing. Dial pointers should be at zero index mark on logging scale. If not, reset the dial pointers. Disconnect the external antennas and the antenna link. Set Ferrite Loop to normal position, parallel to rear panel. When using an oscilloscope for alignment, set the output level controls for no overload, as shown by the proper waveform shape. Set FM antenna switches to "Distant" and 300 ohms.

**SIGNAL GENERATORS:** The signal generator equipment must be able to supply the following: FM RF  $\pm 22.5$  KC deviation at 400 cps; FM-IF deviation  $\pm 250$  KC at 50-100 cps; AM RF modu-

lated 30% at 400cps; AM IF with 30 KC sweep for AM bandwidth adjustment; audio oscillator accurately calibrated for 1 and 10 KC audio output for testing the 10 KC AM whistle filter.

**INDICATOR:** DC VTVM, AC VTVM, and scope for alignment.

**ALIGNMENT:** Allow the chassis and test instruments to warm up for at least fifteen minutes. Adjust the line voltage for 117 volts AC, 50-60 cycles. Use fully insulated tools: a small screwdriver for all trimming capacitors; a K-Tran tool for Z1, Z2, Z3, Z4, Z8, Z9, Z10 and Z11; a hex tool for Z7, Z5, Z6, L7, L12, L11, L19 and L16.

**NOTES:** 1—For AM Alignment connect lead between the junction of R21, R8 & C31 and ground.

2—For calibrating both the AM and FM-RF, use as low an output voltage as possible from your signal generator.

3—Decrease FM Signal Generator output while adjusting FM-IF transformers so that DC VTVM shows noted voltage.

4—The center frequency should be kept constant for FM-IF, limiter and ratio detector alignment. The use of a sweep generator with marker is recommended.

5—If adjustment of muting oscillator is necessary, adjust it for 3 MC with a Grid-dip Meter.

## AM ALIGNMENT

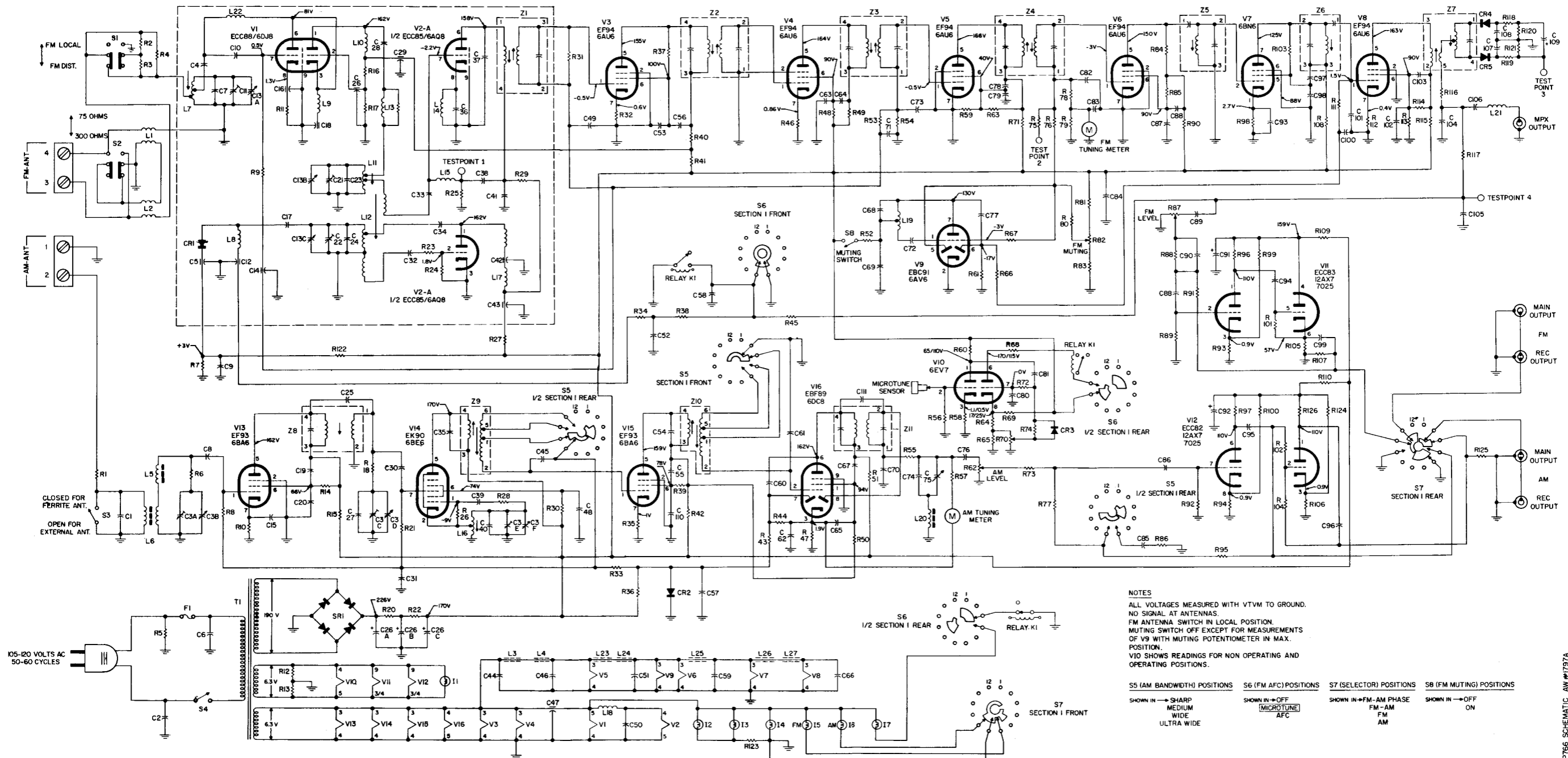
STEPS	CHASSIS			SIGNAL GENERATOR			INDICATOR		ALIGNMENT	
	AM BANDWIDTH	SELECTOR	STATION SELECTOR	COUPLING	FREQ.	MOD.	TYPE	CONNECTION	ADJUST	INDICATION
1	SHARP	AM	Point of no signal and no interference	Audio Gen. with 1V Output connected to Pin 7 of V16	10 KC	None	AC VTVM	to AM Main Output	C75	Minimum Output
2	SHARP	AM	Point of no signal and no interference	AM RF Gen. connected thru .01-uf cap. in series with hot lead to V14, Pin 7	455 KC	30% AM at 400 cps	DC VTVM	to the Junction of R55 & C70	Z9, Z10, Z11, top & bottom	Maximum negative voltage
3	WIDE	AM	Point of no signal and no interference	AM Sweep Gen. connected thru .01-uf cap. in series with hot lead to V14, Pin 7	455 KC	30 KC sweep	Scope	to AM Main Output	Z11	Adjust slightly for symmetrical curve
4	SHARP	AM	600 KC	AM Gen. connected thru 220-uuf cap. in series with hot lead to antenna terminal 2	600 KC	30% AM at 400 cps	Scope	to AM Main output. DC VTVM to the Junction of R55 & C70	L16, Z8, L5	Check for sine waveform Maximum negative voltage
5	SHARP	AM	1400 KC	AM Gen. connected thru 220-uuf cap. in series with hot lead to antenna terminal 2	1400 KC	30% AM at 400 cps	Scope	to AM Main output. DC VTVM to the Junction of R55 & C70	C3E, C3C, C3A	Check for sine waveform Maximum negative voltage
6	Repeat steps 4 and 5 for proper dial calibration and maximum output.									

**NOTE:** For steps 1 to 6 remove Tube V1.

## FM ALIGNMENT

1	FM Muting & AFC Switch Off	FM	Point of no signal and no interference	FM Generator connected to Pin 1 of V6	10.7 MC	None	Connect VTVM	to test point 3	Z5, Z6 top, Z7 bottom & top	Noted Volt. between +5 and +9 Volt, See Note 2
2	FM Muting & AFC Switch Off	FM	Point of no signal and no interference	FM Generator connected to Pin 1 of V6	10.7 MC	None	DC VTVM	to test point 4	Z7 top	Zero reading on zero center scale
3	FM Muting & AFC Switch Off	FM	Point of no signal and no interference	FM Generator connected to Pin 1 of V5	10.7 MC	$\pm 250$ K deviation	DC VTVM and Scope	to test point 2	Z4 top & bottom	With DC voltage between -2 and -4 volts, adjust for symmetrical curve
4	FM Muting & AFC Switch Off	FM	Point of no signal and no interference	FM Generator connected to Pin 1 of V4	10.7 MC	$\pm 250$ K deviation	DC VTVM and Scope	to test point 2	Z3 top & bottom	With DC voltage between -2 and -4 volts, adjust for symmetrical curve
5	FM Muting & AFC Switch Off	FM	Point of no signal and no interference	FM Generator connected to Pin 1 of V3	10.7 MC	$\pm 250$ K deviation	DC VTVM and Scope	to test point 2	Z2	With DC voltage between -2 and -4 volts, adjust for symmetrical curve
6	FM Muting & AFC Switch Off	FM	Point of no signal and no interference	FM Generator connected to ungrounded tube shield of V2	10.7 MC	$\pm 250$ K deviation	DC VTVM and Scope	to test point 2	Z1	With DC voltage between -2 and -4 volts, adjust for symmetrical curve
7	FM Muting & AFC Switch Off	FM	90 MC	FM Gen. connected thru two 120-ohm carbon resistors in series with lead to antenna terminals 3 and 4	90 MC	30% FM (22.5 KC Dev.) at 400 cps.	DC VTVM	to test point 2 and scope to FM Main Output	L12, L11, L7	Check for sine waveform and adjust for maximum negative voltage
8	FM Muting & AFC Switch Off	FM	106 MC	FM Gen. connected thru two 120-ohm carbon resistors in series with lead to antenna terminals 3 and 4	106 MC	30% FM (22.5 KC Dev.) at 400 cps.	DC VTVM	to test point 2 and scope to FM Main Output	C22, C21, C11	Check for sine waveform and adjust for maximum negative voltage
9	Repeat steps 7 and 8 for proper dial calibration and maximum output.									

# SCHEMATIC DIAGRAM



**NOTES**  
 ALL VOLTAGES MEASURED WITH VTVM TO GROUND.  
 NO SIGNAL AT ANTENNAS.  
 FM ANTENNA SWITCH IN LOCAL POSITION.  
 MUTING SWITCH OFF EXCEPT FOR MEASUREMENTS  
 OF V9 WITH MUTING POTENTIOMETER IN MAX.  
 POSITION.  
 V10 SHOWS READINGS FOR NON OPERATING AND  
 OPERATING POSITIONS.

**S5 (AM BANDWIDTH) POSITIONS**  
 SHOWN IN → SHARP  
 MEDIUM  
 WIDE  
 ULTRA WIDE

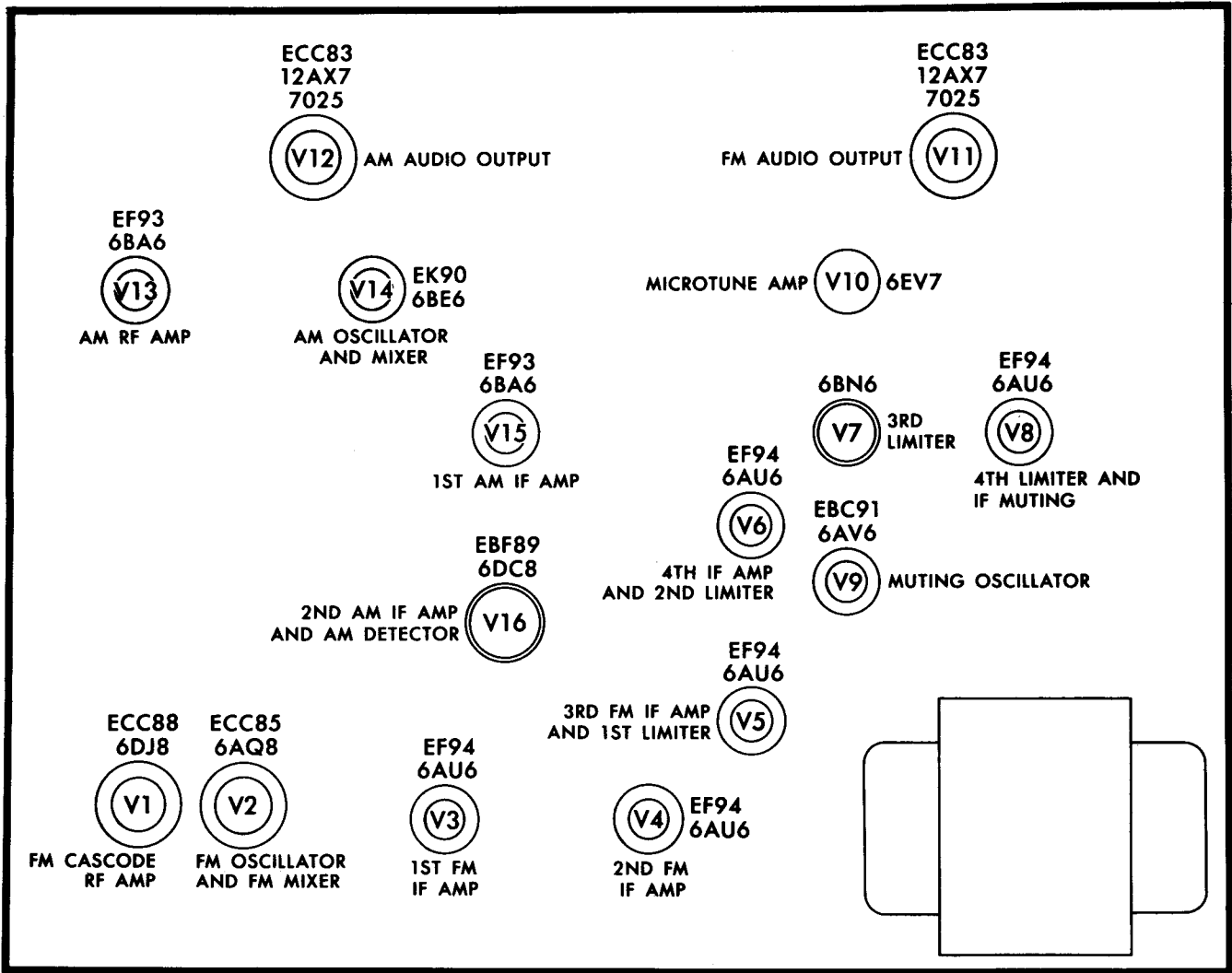
**S6 (FM AFC) POSITIONS**  
 SHOWN IN → OFF  
 MICROTUNE  
 AFC

**S7 (SELECTOR) POSITIONS**  
 SHOWN IN → FM-AM PHASE  
 FM-AM  
 FM  
 AM

**S8 (FM MUTING) POSITIONS**  
 SHOWN IN → OFF  
 ON

RESISTORS	R1	R2 R3	R4 R5	R6 R7	R8	R9 R10	R11 R12	R14 R15	R16 R17	R21 R22	R23 R24	R25 R26	R27 R28	R29	R30 R31	R32 R33	R34 R35	R37 R38	R40 R41	R43 R44	R45 R46	R47 R48	R49 R50	R51 R52	R54 R55	R56 R57	R58 R59	R61 R62	R63 R64	R66 R67	R69 R70	R72 R73	R75 R76	R78 R79	R81 R82	R84 R85	R87 R88	R90 R91	R93 R94	R96 R97	R98 R99	R101 R102	R103 R104	R105 R106	R108 R109	R111 R112	R113 R114	R115 R116	R117 R118	R120 R121
CAPACITORS	C1	C2	C3A C3B C3C	C4 C5 C6 C7 C8 C9	C10 C11 C12	C13A C13B C13C	C15 C16 C17 C18	C19 C20	C21 C22	C23 C24	C25 C26 C27 C28	C29 C30	C31 C32 C33 C34 C35 C36 C37 C38 C39	C40 C41 C42 C43 C44 C45 C46 C47	C48 C49	C50 C51	C52 C53 C54 C55	C56 C57 C58 C59 C60	C61 C62	C63 C64 C65 C66	C67 C68 C69 C70	C71 C72 C73 C74	C75 C76 C77	C78 C79 C80	C81 C82 C83	C84 C85	C86 C87 C88 C89 C90	C91 C92	C93 C94 C95	C96 C97 C98 C99	C100 C101	C102 C103 C104 C105 C106 C107 C108	C109																	

# TUBE LAYOUT



AW 1827



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