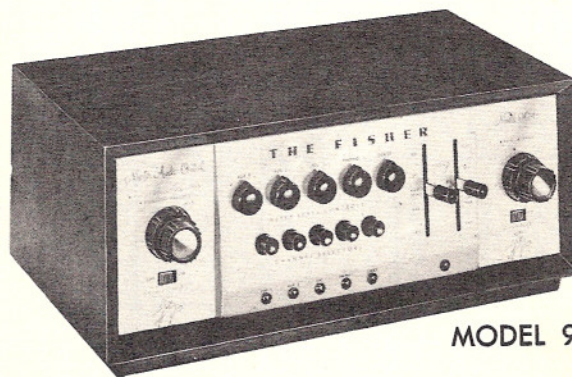


THE FISHER 90-C SERVICE MANUAL



MODEL 90-C

CHASSIS SERIAL NUMBERS
10001 - 19999 INCLUSIVE

PRICE: \$1.00

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N-647-1P

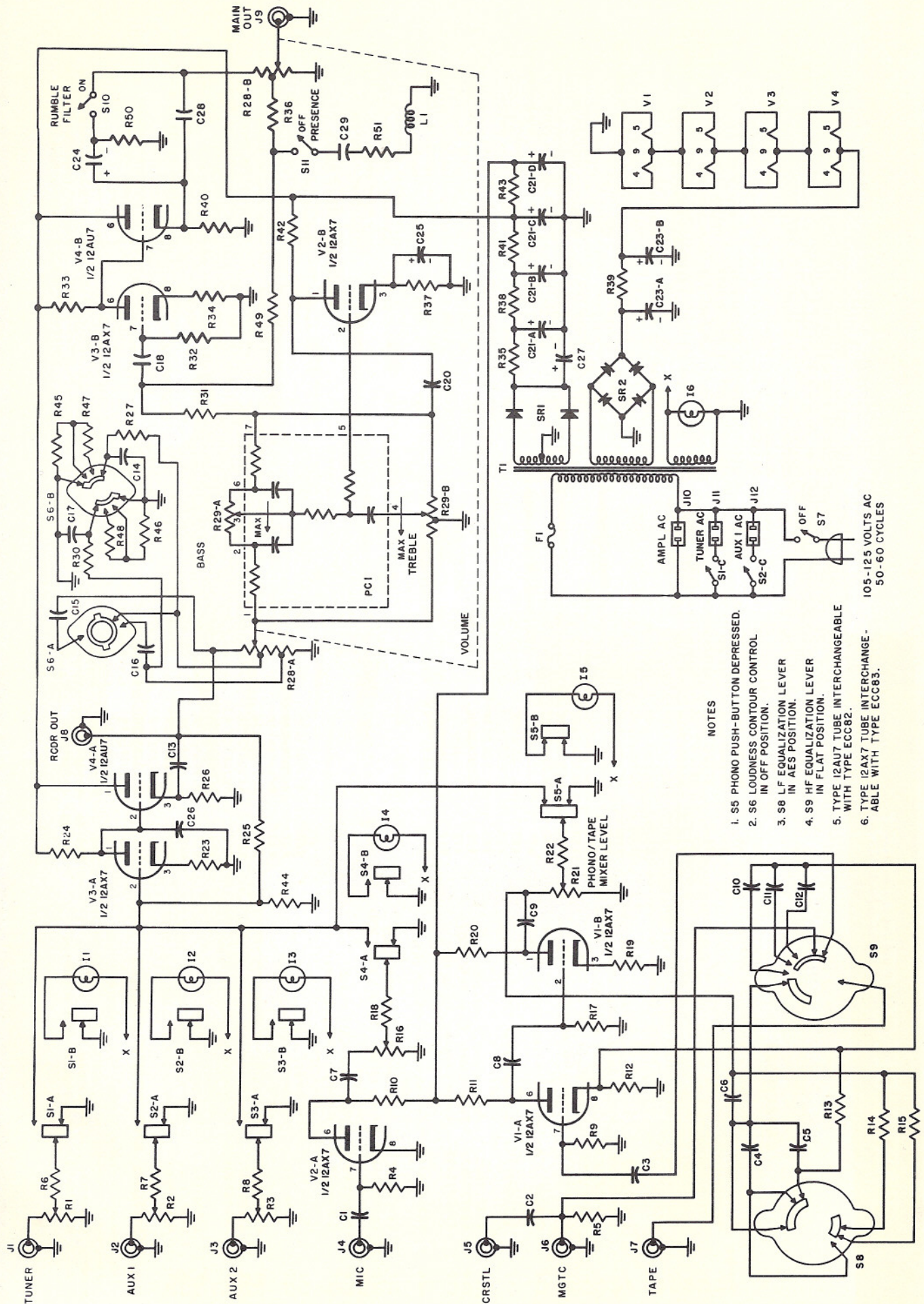


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SCHEMATIC DIAGRAM • MODEL 90-C



NOTES

1. S5 PHONO PUSH-BUTTON DEPRESSED.
2. S6 LOUDNESS CONTOUR CONTROL IN OFF POSITION.
3. S8 LF EQUALIZATION LEVER IN AES POSITION.
4. S9 HF EQUALIZATION LEVER IN FLAT POSITION.
5. TYPE 12AU7 TUBE INTERCHANGEABLE WITH TYPE ECC82.
6. TYPE 12AX7 TUBE INTERCHANGEABLE WITH TYPE ECC83.

105-125 VOLTS AC
50-60 CYCLES

PARTS DESCRIPTION LIST

CAPACITORS

20% tolerance for all capacitors, unless noted otherwise.

Symbol	Order No.	Description
C1	CK62GP103V6	Ceramic disc, .01 uf, 600V
C2	CC21GP101M5	Ceramic tubular, 100 uf, 500V
C3	C68P203M2	Paper tubular, .02 uf, 200V
C4	C68P332K2	Paper tubular, 3300 uf, 10%, 200V
C5	CC21GP721K5	Ceramic tubular, 720 uf, 10%, 500V
C6	C68P222K2	Paper tubular, 2200 uf, 10%, 200V
C7	C68P473M4	Paper tubular, .047 uf, 400V
C8	CK62GP103V6	Ceramic disc, .01 uf, 600V
C9	C68P473M4	Paper tubular, .047 uf, 400V
C10	CC21GP441K5	Ceramic tubular, 440 uf, 10%, 500V
C11	CC21GP121K5	Ceramic tubular, 120 uf, 10%, 500V
C12	CC21GP221K5	Ceramic tubular, 220 uf, 10%, 500V
C13	C68P104V2	Paper tubular, 0.1 uf, 200V
C14	C68P203K2	Paper tubular, .02 uf, 10%, 200V
C15	C26GP102K5	Ceramic tubular, .001 uf, 10%, 500V
C16	CC21GP471K5	Ceramic tubular, 470 uf, 10%, 500V
C17	C68P203K2	Paper tubular, .02 uf, 10%, 200V
C18	C68P682K2	Paper tubular, 6800 uf, 10%, 200V
C19	—	Not used
C20	C68P104M4	Paper tubular, 0.1 uf, 400V
C21	C-546-115	Electrolytic, four-section, each 40 uf, 250V
C22	—	Not used
C23	C-546-116	Electrolytic, two-section, each 1000 uf, 30V
C24	C-546-126	Electrolytic, 1 uf, 250V
C25	C-556-137	Electrolytic, 25 uf, 6V
C26	CC21GP301K5	Ceramic tubular, 300 uf, 10%, 500V
C27	C-546-133	Electrolytic, 10 uf, 300V
C28	C68P473K2	Paper tubular, .047 uf, 10%, 200V
C29	C68P222K2	Paper tubular, 2200 uf, 10%, 200V

RESISTORS AND POTENTIOMETERS

Type: composition. Values in ohms, 10% tolerance, 1/2 watt, unless noted otherwise. K = kilohms. M = megohms.

Symbol	Order No.	Description
R1-3	R-50000-13	Potentiometer, 500K, mixer-level

R4	RC20BF186K	Resistor, 18M
R5	RC20BF104K	Resistor, 100K
R6-8	RC20BF224K	Resistor, 220K
R9	RC20BF225K	Resistor, 2.2M
R10, 11	RC20BF224K	Resistor, 220K
R12	RC20BF272K	Resistor, 2700
R13	RC20BF154K	Resistor, 150K
R14	RC20BF225K	Resistor, 2.2M
R15	RC20BF335K	Resistor, 3.3M
R16	R-50000-13	Potentiometer, 500K, mixer-level
R17	RC20BF225K	Resistor, 2.2M
R18	RC20BF224K	Resistor, 220K
R19	RC20BF222K	Resistor, 220K
R20	RC20BF224K	Resistor, 220K
R21	R-50000-13	Potentiometer, 500K, mixer-level
R22	RC20BF224K	Resistor, 220K
R23	RC20BF272K	Resistor, 2700
R24	RC20BF224K	Resistor, 220K
R25	RC20BF394K	Resistor, 390K
R26	RC20BF473K	Resistor, 47K
R27	RC20BF103K	Resistor, 10K
R28	RS-546-152CX	Potentiometer, ganged dual-section volume, assembled with S6 and S7: R28-A: 100K, taps at 37.5K, 62.5K R28-B: 25K, center-tapped
R29	R-647-111	Potentiometer, two-section: R29-A: 1M, bass tone R29-B: 500K, center-tapped, treble tone

R30	RC20BF103K	Resistor, 10K
R31	RC20BF104K	Resistor, 100K
R32	RC20BF474K	Resistor, 470K
R33	RC20BF224K	Resistor, 220K
R34	RC20BF272K	Resistor, 2700
R35	RC20BF332K	Resistor, 3300
R36	RC20BF473K	Resistor, 47K
R37	RC20BF272K	Resistor, 2700
R38	RC20BF332K	Resistor, 3300
R39	RC40BF150K	Resistor, 15, 2W
R40	RC20BF473K	Resistor, 47K
R41	RC20BF332K	Resistor, 3300
R42	RC20BF104K	Resistor, 100K
R43	RC20BF103K	Resistor, 10K
R44	RC20BF105K	Resistor, 1M
R45, 46	RC20BF103K	Resistor, 10K
R47, 48	RC20BF153K	Resistor, 15K

R49	RC20BF394K	Resistor, 390K
R50	RC20BF225K	Resistor, 2.2M
R51	RC20BF103K	Resistor, 10K

MISCELLANEOUS

Symbol	Order No.	Description
F1	F-3297	Fuse, 0.5 ampere
I1-6	I-50009-2	Lamp, channel indicator, AC pilot
J1-7	J-3143	Jack, input
J8, 9	J-3143	Jack, output
J10-12	J-546-129	Receptacle, auxiliary AC
L1	L-629-153	Coil, 1 h, presence
PC1	PC-552-105	Printed ckt, tone control
S1-5	S-546-113	Switch assembly, five pushbuttons, channel selector
S6	Part of R28	Switch, loudness contour
S7	Part of R28	Switch, AC power
S8	S-50022-4	Switch, lever, HF equalization
S9	S-50022-5	Switch, lever, LF equalization
S10, 11	S-629-155	Switch, rumble filter, presence
SR1	SR-3283	Selenium rectifier, B-plus supply
SR2	SR-3078	Selenium rectifier, filament supply
T1	T-546-114	Transformer, power
—	AS-50004-1	Shielded cable, 4 feet, with molded plugs
—	P-1031	Plug, standard RETMA

MECHANICAL PARTS

Order No.	Description
A-647-103	Dress panel, etched brass
I-50010-2	Jewel, green, channel indicator
I-50010-3	Jewel, red, AC power
A-50007-1	Retaining ring, jewel
X-546-138	Socket assembly, five channel lamps
X-546-130	Socket, AC pilot lamp
E-50049-2	Knob: volume/AC power, treble
E-50049-4	Knob: loudness contour, bass
E-546-108	Knob: channel pushbutton
E-546-109	Knob: mixer-level
E-546-135	Knob, lever: equalization
X-1036	Fuse holder, with cover
E-3287	Tube shield
A-546-121	Bottom cover
H3255141AA	Retaining screw, bottom cover
H125383AA	Mounting screw, three required
H106W121AA	Flat washer, three required

VOLTAGE AND RESISTANCE MEASUREMENTS

All readings below taken with a vacuum-tube voltohmmeter with respect to chassis ground. All channel selector pushbuttons out, and mixer-level controls at minimum. Volume control at minimum. Loudness contour, presence control off. Rumble filter at 20 cycles. Bass and treble tone controls at mid-position (flat response). LF equalization lever switched to AES, and HF lever to FLAT. All readings are subject to normal variation of 10%.

Resistance Reference Chart

Disconnect the chassis AC power cord. Discharge all electrolytic capacitors to chassis ground through a 100-ohm resistor. Disconnect all cables to associated equipment. Readings are in ohms with respect to chassis ground.

SYMBOL TUBES	TUBE SOCKET PINS								
	1	2	3	4	5	6	7	8	9
V1	1M+	2.2M	2.2K	0	0	1M+	2.2M	2.7K	8+
V2	1M+	500Ka	2.7K	8+	8+	1M+	18M	0	12+
V3	1M+	300Kb	2.7K	12+	12+	1M+	470K	2.7K	15+
V4	1M+	1M+	47K	15+	15+	1M+	1M+	47K	18+
SUPPLY CAPACITORS	TERMINAL SYMBOLS	RESISTANCE	NOTES						
C21-A	No Mark	1M+	K Kiloohms						
C21-B	▲	1M+	M Megohms						
C21-C	■	1M+	+ Minimum reading, rising as electrolytic capacitors charge.						
C21-D	◐	1M+	a Reading varies from 200K to 500K with different settings of bass tone and volume controls.						
C23-A	▲	30+	b Reading varies from 120 K to 220K with any pushbutton depressed, and corresponding mixer-level control rotated.						
C23-B	◐	18+							
C27	+	1M+							

Voltage Reference Chart

Set line voltage at 117 volts AC, 50-60 cycles. All readings are in DC volts with respect to chassis ground. Allow 15-minute instrument warm-up before taking measurements.

SYMBOL TUBES	TUBE SOCKET PINS								
	1	2	3	4	5	6	7	8	9
V1	92	0	1	0	0	96	0	1	6
V2	130	0	1	6	6	85	N	0	12
V3	90	0	1	12	12	97	0	1	18
V4	180	90	100	18	18	180	97	105	24
SUPPLY CAPACITORS	TERMINAL SYMBOLS	VOLTAGE	NOTES						
C21-A	No Mark	225	N DC reading less than 1 volt negative						
C21-B	▲	205							
C21-C	■	180							
C21-D	◐	170							
C23-A	▲	28							
C23-B	◐	24							
C27	+	250							



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