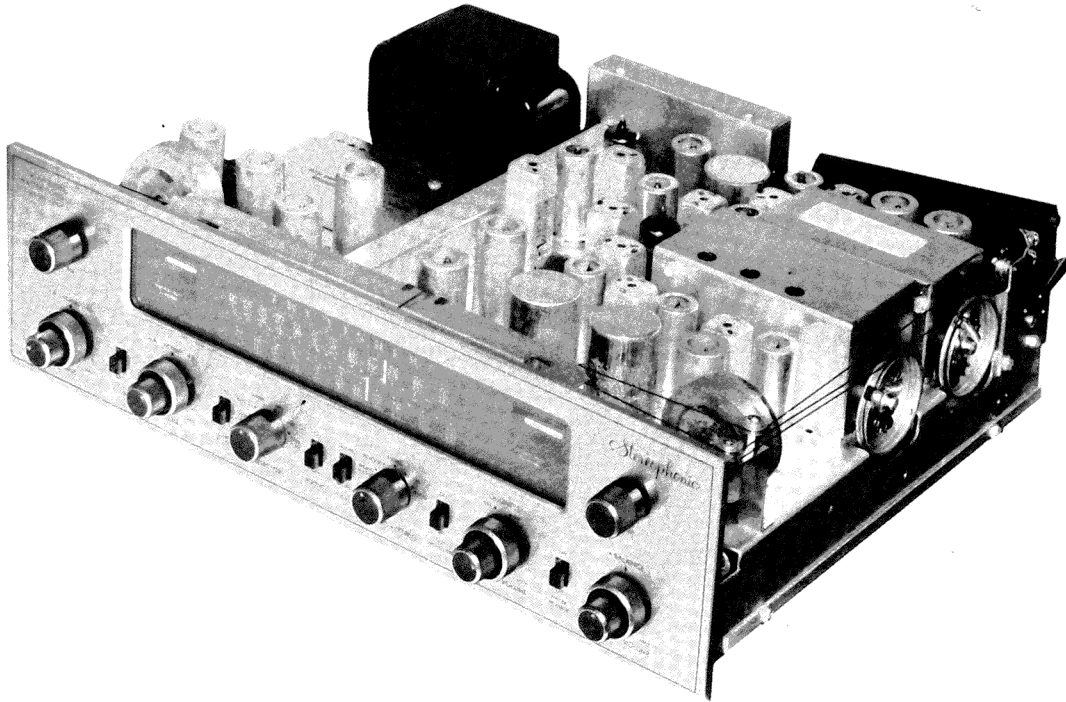


FISHER
MODEL 202-TFISHER
MODEL 202-T

TRADE NAME	Fisher Model 202-T (Serial #30001-39999 Inclusive)		
MANUFACTURER	Fisher Radio Corp., 21-21 44th Drive, Long Island City 1, N. Y.		
TYPE SET	AC Operated 21 Tube FM-AM Receiver With Stereo Amplifier		
POWER SUPPLY	105 - 120 Volts AC, 50-60 Cycles	RATING	95 Watts, .88 Amp. @117 Volts AC
TUNING RANGES - BROADCAST	540 - 1600KC	FREQ. MOD.	88 - 108MC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KL141

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
Use only enough generator output to provide a usable indication.	
Suggested Alignment Tools: A1, A25, A26, A27	GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722 9150, 9298, WALSCO #2516, 2518, 2519
A2 Thru A7, A9, A16 thru A21.....	GENERAL CEMENT #5097, 8727 WALSCO #2515
A8, A13, A14, A15, A22, A23, A24....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A10, A11, A12.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side of Audio generator to pin 7 (plate) of AM detector. Low side to chassis.	10KC	(AM) Point of non-interference. (AM Bandwidth at "SHARP".)	AC probe channel "B" RCDR. output jack.	A1	Adjust for MINIMUM deflection.
2.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400% AM)	"	DC probe to point $\diamond A$. Common to chassis.	A2, A3, A4, A5, A6, A7	Adjust for maximum deflection.
3.	"	455KC (30KC Swp.)	Point of non-interference. (AM Bandwidth at "BROAD".)	USE SCOPE Connect across Ch. "B" RCDR. Output jack.		Retouch A2 for symmetry of response.
4.	High side thru 220mmf to AM antenna terminal #3. Low side to chassis.	600KC (400% AM)	600KC	Scope as above. DC probe of VTVM to point $\diamond A$. Common to chassis.	A8, A9	Check for sine wave. Adjust for maximum deflection on VTVM.
5.	"	1400KC	1400KC	"	A10, A11, A12	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

FM Muting Switch Off.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .01mfd to pin 1 (grid) of 2nd FM IF. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point $\diamond B$. Common to chassis.	A13, A14, A15	Adjust for maximum deflection.
7.	"	"	"	DC probe to point $\diamond C$. Common to chassis.	A14	Readjust A14 for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
8.	High side to ungrounded tube shield floating over FM Mixer- Osc. Low side to chassis.	"	"	DC probe to point $\diamond D$. Common to chassis.	A16, A17, A18, A19, A20, A21	Adjust for maximum deflection.

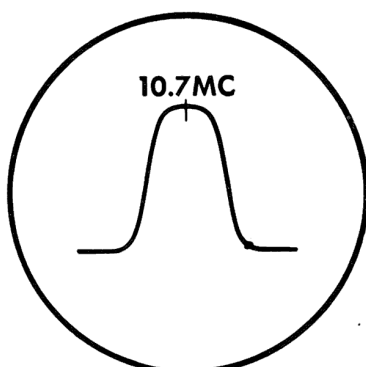


FIG. 1

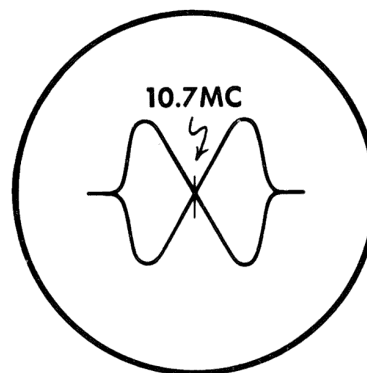


FIG. 2

ALIGNMENT INSTRUCTIONS (cont)

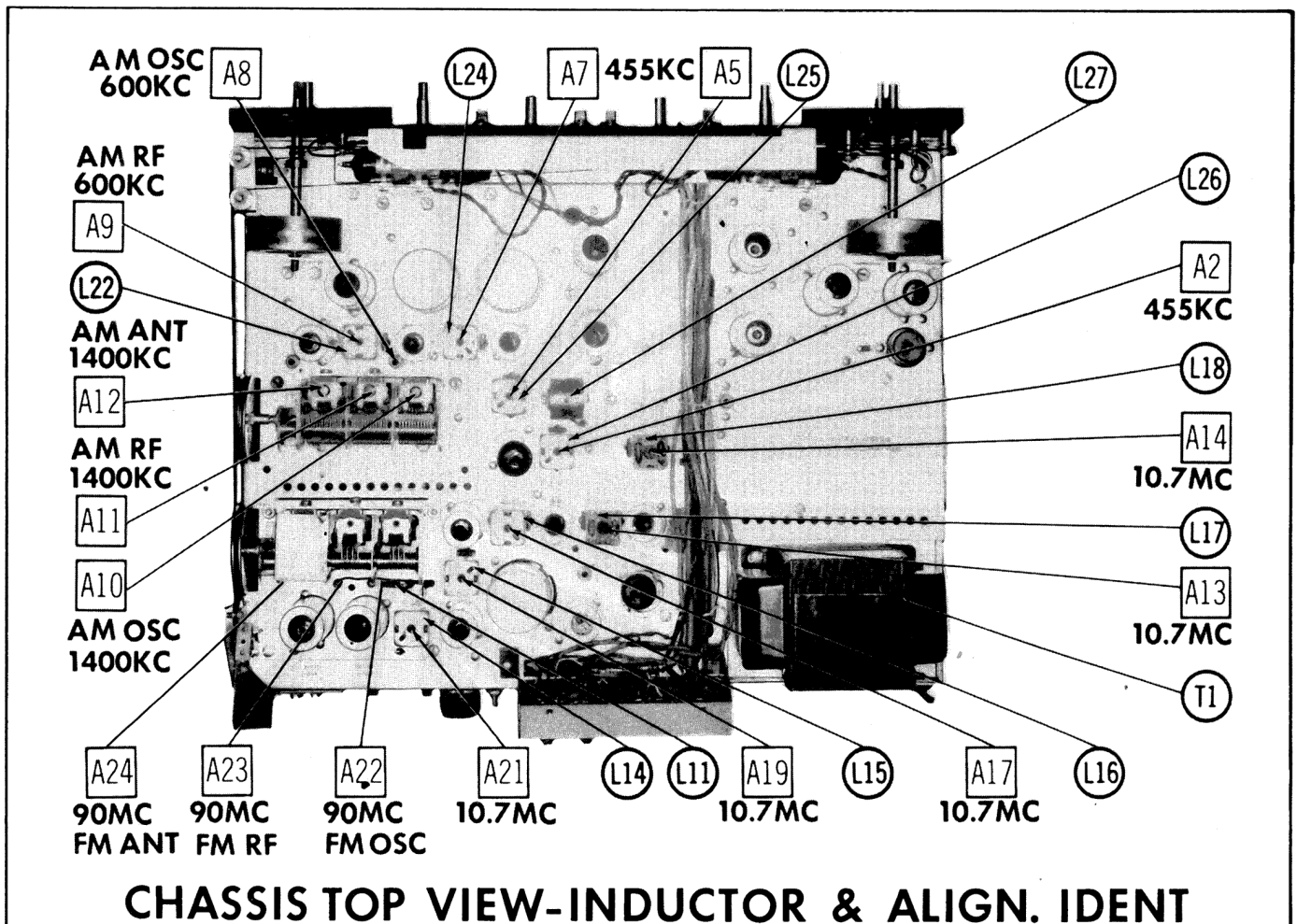
FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.
FM Muting Switch Off.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	High side thru .01mfd to pin 1 (grid) of 2nd FM IF. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. Amp. to point \diamond B. Low side to chassis.	A13, A14, A15	Disconnect stabilizing capacitor C6. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C6.
7.	"	"	"	Vert. Amp. to point \diamond C. Low side to chassis.	A14	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A15 for maximum amplitude and straightness of crossover lines.
8.	High side to ungrounded tube shield floating over FM Mixer-Osc. Low side to chassis.	"	"	Vert. Amp. to point \diamond D. Low side to chassis.	A16, A17, A18, A19, A20, A21	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	Across FM antenna terminals #5 & 6 with 120 Ω in each lead.	90MC (22.5MC Swp)	(FM) 90MC	DC probe to point \diamond D. Common to chassis. Scope across Ch. "A" RCDR. output jack.	A22, A23, A24	Check for sine wave. Adjust for maximum deflection on VTVM.
10.	"	106MC	106MC	"	A25, A26, A27	Check for sine wave. Adjust for maximum deflection on VTVM. Repeat Steps 9 and 10.



CHASSIS TOP VIEW-INDUCTOR & ALIGN. IDENT

FISHER
MODEL 202-T

FOLDER 9

PARTS LIST AND DESCRIPTIONS

TUBES

GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
ITEM No.	USE	TYPE	USE	TYPE	
V1	FM RF Amplifier	ECC88 (6DJ8) *	AM Tuning Indicator	EM84 (6FG6) *	
V2	FM Mixer-FM Osc.	ECC85/6AQ8	Channel A Preamp.	ECC83/12AX7	
V3	1st FM IF Amplifier	6AU6	Channel A AF Amp. -	ECC8/12AT7	
V4	2nd FM IF Amplifier	6AU6	Channel A Cath. Follower	ECC8/12AX7	
V5	3rd FM IF Amplifier	6AU6	Channel A AF Amp. -	ECC83/12AX7	
V6	4th FM IF Amplifier	6AV6	Channel B Cath. Follower	ECC8/12AX7	
V7	FM Tuning Osc.	6AV6	Channel B Preamp.	ECC83/12AX7	
V8	FM Tuning Indicator	EM84 (6FG6) *	Channel B AF Amp. -	ECC8/12AX7	
V9	AM RF Amplifier	6BE6	Channel B Cath. Follower	ECC83/12AX7	
V10	AM Converter	6BE6	Channel B AF Amp. -	ECC8/12AX7	
V11	1st AM IF Amplifier	6BQ6	Rectifier	E281/6CA4	
V12	2nd AM IF Amp. -AM Det.	6BF8/6DC8			

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		FISHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SPRAGUE PART No.	
C1A	40 350	C50180-3		FP327.89 TC58	TMT-3337 TD-40-250	TYLS-4581 *
C1B	40 300					
C1C	40 250					
C1D	40 200					
C2A	40 250	C50180-4		FP327.89 TC58	TMD-2315 TD-40-250	TYL-2575 TVA-1511
C3A	40 250	C50180-5				
C4A	1000 30	C50180-7		FP217.87	TMD-2315	TYL-2575
C5	2 70					
C6	8 50					
C7	25 6					
C8	25 6					
C9	25 6					
C10	8 50					
C11	1 250					
C12	25 6					
C13	25 6					
C14	25 6					

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

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

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	
C15	8 NPO ± .5mmf	#C662-123					
C16	100 N1500	#C50070-6					
C17	100 N1500	#C50070-6					
C18	100 N1500						
C19	1000						
C20	1000						
C21	1000						
C22	1000						
C23	1000						

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	
C24	1000						
C25	8 NPO ± .5mmf	#C662-123					
C26	8 N750	#C50070-19					
C27	100 N1500 5%						
C28	100 N1500 5%						
C29	200 10%						
C30	24 N150 5%	#C50070-8					
C31	47 N750 10%						
C32	100 N1500	#C50070-6					
C33	5 N220 ± .5mmf	#C662-123					
C34	5 N150 ± .5mmf	#C20R050D5					
C35	100 N1500	#C20P1050D5					
C36	1000	#C50070-6					
C37	1000						
C38	5000						
C39	1000						
C40	20000						
C41	5000						
C42	2700 10%						
C43	5000						
C44	2700 10%						
C45	5000						
C46	47 N750						
C47	5000						
C48	2700 10%						
C49	20000						
C50	5000						
C51	12 NPO 10%						
C52	5000						
C53	5000						
C54	.1 250V 10%						
C55	12 NPO 10%						
C56	5000						
C57	2700 10%						
C58	5000						
C59	300 10%						
C60	200 10%						
C61	5000						
C62	300 10%						
C63	.0033 200V 5%						
C64	.1 250V 5%						
C65	.02 250V						
C66	.05 250V						
C67	5000						
C68	5000						
C69	220 10%						
C70	5 NPO ± .5mmf						
C71	5000						
C72	20000						
C73	24 N150 5%	#C50070-8					
C74	5 NPO ± .5mmf	#C50070-5					
C75	100 N1500						
C76	20000						
C77	5000						
C78	20000						
C79	.68						
C80	10 NPO ± .5mmf						
C81	100 N1500						
C82	100 N1500						
C83	470 5%						
C84	5000						
C85	20000						
C86	5000						
C87	5000						
C88	.047 250V						

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT) (cont)

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
RL14	10meg		RL56	1800Ω	
RL15	470K		RL57	2.2meg	
RL16	1.5meg		RL58	100K	
RL17	100K		RL59	1800Ω	
RL18	1800Ω		RL60	330K	
RL19	2.2meg		RL61	1meg	
RL20	100K		RL62	1500Ω	
RL21	1800Ω		RL63	47K	
RL22	330K		RL64	68K	
RL23	470K		RL65	10K	
RL24	1meg		RL66	10K	
RL25	47K		RL67	1000Ω	
RL26	27K		RL68	1000Ω	
RL27	27K		RL69	1200Ω IW	
RL28	470K		RL70	1200Ω IW	
RL29	470K		RL71	400Ω 5W	
RL30	470K		RL72	400Ω 5W	
RL31	68K		RL73	100Ω 5W	
RL32	82K		RL74	12Ω 5W	
RL33	100		RL75	1000Ω	
RL34	2700Ω IW		RL76	18K	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	FISHER PART No.	REPLACEMENT DATA
K1	Phone Equalization		PC50187-3	
K2	Tone Comp.	100mmf, 4700mmf, 4700mmf, 1000Ω, 100K, 470K	PC657-140	Centralab PC-190 Sprague TC-1
K3	High Freq. Filter		PC50187-2	
K4	Phone Equalization		PC50187-3	
K5	Tone Comp.	100mmf, 4700mmf, 4700mmf, 1000Ω, 100K, 100K, 470K	PC657-140	Centralab PC-190 Sprague TC-1
K6	High Freq. Filter		PC50187-2	

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		FISHER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Coil	L50066-8	TV-180	4608	RTC-8518	3.3uh
L2	FM Ant. Trans.	L728-124				
L3	RF Choke	L50066-2	BC-561	4602	RTC-8515	1uh
L4	RF Choke	L50066-19		4588	RTC-8513	.56uh
L5	RF Choke	L50066-19		4588	RTC-8513	.56uh
L6	RF Choke	L629-180				
L7	FM RF Coil	L728-128				
L8	RF Choke	L50066-2	BC-561	4602	RTC-8515	1uh
L9	FM Osc. Coil	L728-125				
L10	RF Choke	L50066-2	BC-561	4602	RTC-8515	1uh
L11	RF Choke	L50066-3	BC-561	4602	RTC-8515	1.2uh
L12	Cathode Choke	L50066-19		4588	RTC-8515	.56uh
L13	F.I. Choke	L50066-3	BC-561	4602	RTC-8515	1.2uh
L14	1st FM IF Trans.	Z2682-117	FM-256	1463	RTC-8515	
L15	2nd FM IF Trans.	Z2682-142	FM-254	1463	RTC-8515	
L16	3rd FM IF Trans.	Z250210-2	FM-254	1463	RTC-8515	
L17	4th FM IF Trans.	L551-121	FM-254	1463	RTC-8515	
L18	Ratio Detector	Z2592-170	FM-254	1463	RTC-8515	
L19	FM Muting Osc. Coil	L50210-21	FM-254	1463	RTC-8515	
L20	AM Ant. Trans.	L721-139	BC-380	70-A	RTC-8731	
L21	Loopstick	L721-136	BC-419	705-A	RTC-8732 *	
L22	AM RF Trans.	L670-151	BC-382 *	70-RF *	RTC-8646	
L23	AM Osc. Coil	L50210-22	BC-393	70-OSC		
L24	1st AM IF Trans.	Z250210-3				
L25	2nd AM IF Trans.	Z250210-3				
L26	3rd AM IF Trans.	Z250210-3				
L27	10KC Filter Coil	L644-120	BC-353	12-C2	RTC-8633	

① Wound on 100Ω Resistor.

▲ Connect M5 & M6 externally.

* Fabricate Mounting.

TRANSFORMER (POWER)

ITEM No.	RATING		FISHER PART No.	REPLACEMENT DATA				NOTES
	PRI.	SEC.		Merit PART No.	Stancor PART No.	Thorderson PART No.	Triad PART No.	
T1	117V @ .88A	520 VCT @ .100A	T721-115					
	SEC. 3 6.3V @ 2.7A	SEC. 4 6.3V (Not Used)						
	SEC. 5 25V @ .7A							

RECTIFIERS

ITEM No.	RATING		FISHER PART No.	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	FISHER PART No.		GENERAL ELECTRIC PART No.	RCA PART No.	SARKIS TABZIAN PART No.	SYLVANIA PART No.	
M1	.450A	SR721-143 *						* Bridge Type Selenium

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA		
			FISHER PART No.	HOLDER	BUSS PART No.
M2	3AG	3A 250V	F-3000	342003	AGC-3 HKP

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		FISHER PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3	IN295	V-IN295	IN295	IN295	Tuning Ind. Rectifier (Clip In)
M4	IN295	V-IN295	IN295	IN295	Tuning Ind. Rectifier (Clip In)
M5	IN542	V-IN542	IN295	IN295	FM Det. (Clip In) Matched
M6	IN542	V-IN542	IN295	IN295	FM Det. (Clip In) Pair

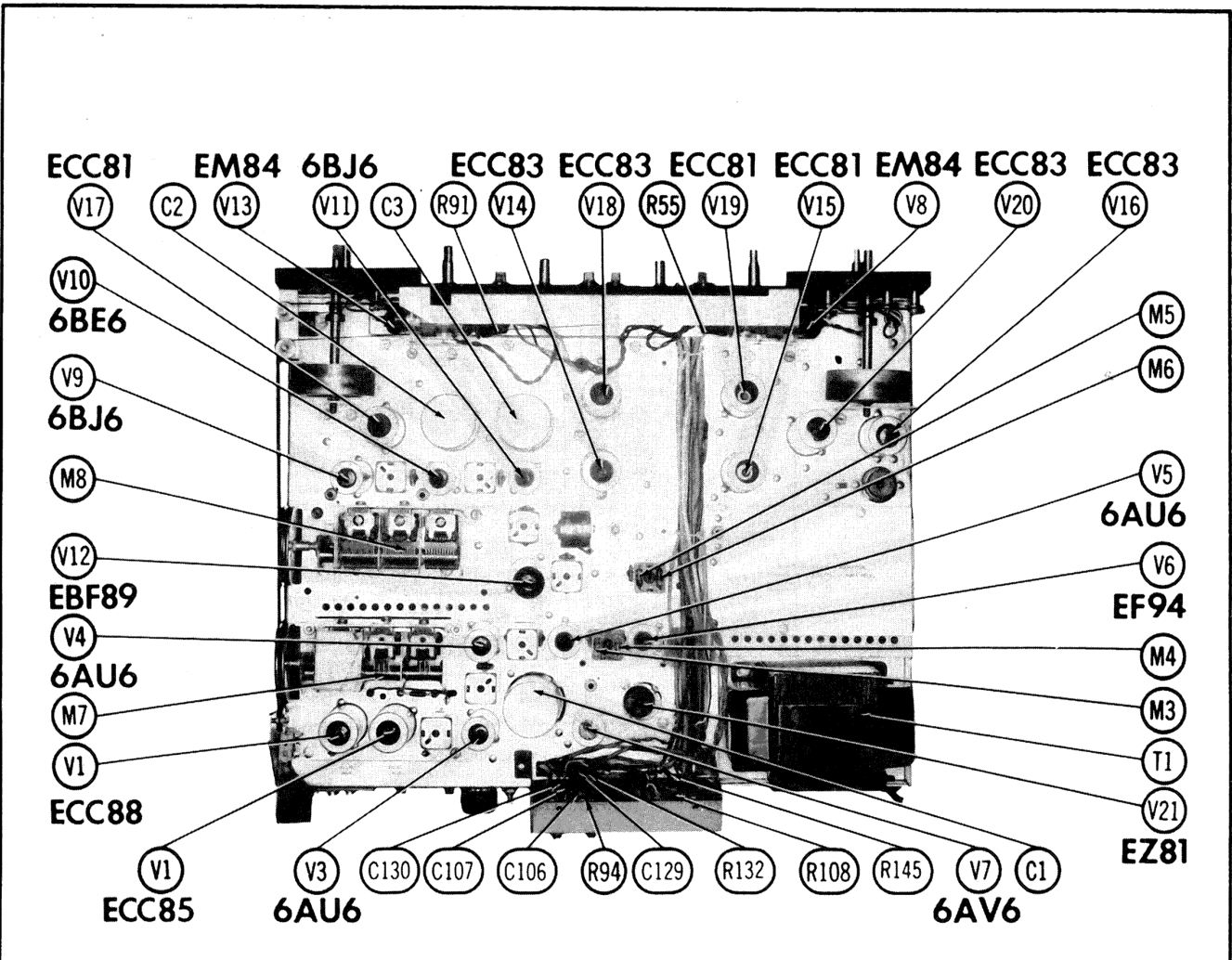
MISCELLANEOUS

ITEM No.	PART NAME	FISHER PART No.	NOTES
M7	Tuning Cap.	C726-116	FM, 2 Gang
M8	Switch	C684-127	AM, 3 Gang (Ant. 10-505mmf, RF 10-503mmf, Osc. 7-138mmf)
M9	Switch	S721-144	Function Selector (Rotary Wafer)
M10	Switch	S721-145	Mono-Stereo (Rotary Wafer)
M11	Switch	S50200-2 *	Local-Distance (DPDT, Slide Type)
M12	Switch	S50200-2 *	FM AUX - AUX (DPDT, Slide Type)
M13	Switch	S50200-2 *	AM Sharp-AM Broad (DPDT, Slide Type)
M14	Switch	S50200-2 *	Muting (DPDT, Slide Type)
M15	Switch	S50200-2 *	Lo Filter, Off-On (DPDT, Slide Type)
M16	Switch	S50200-2 *	Tape Off-On (DPDT, Slide Type)
M17	Switch	S50200-2 *	Hi Filter Off-On (DPDT, Slide Type)
M18	Switch	S50200-2 *	Normal-Reverse (DPDT, Slide Type)

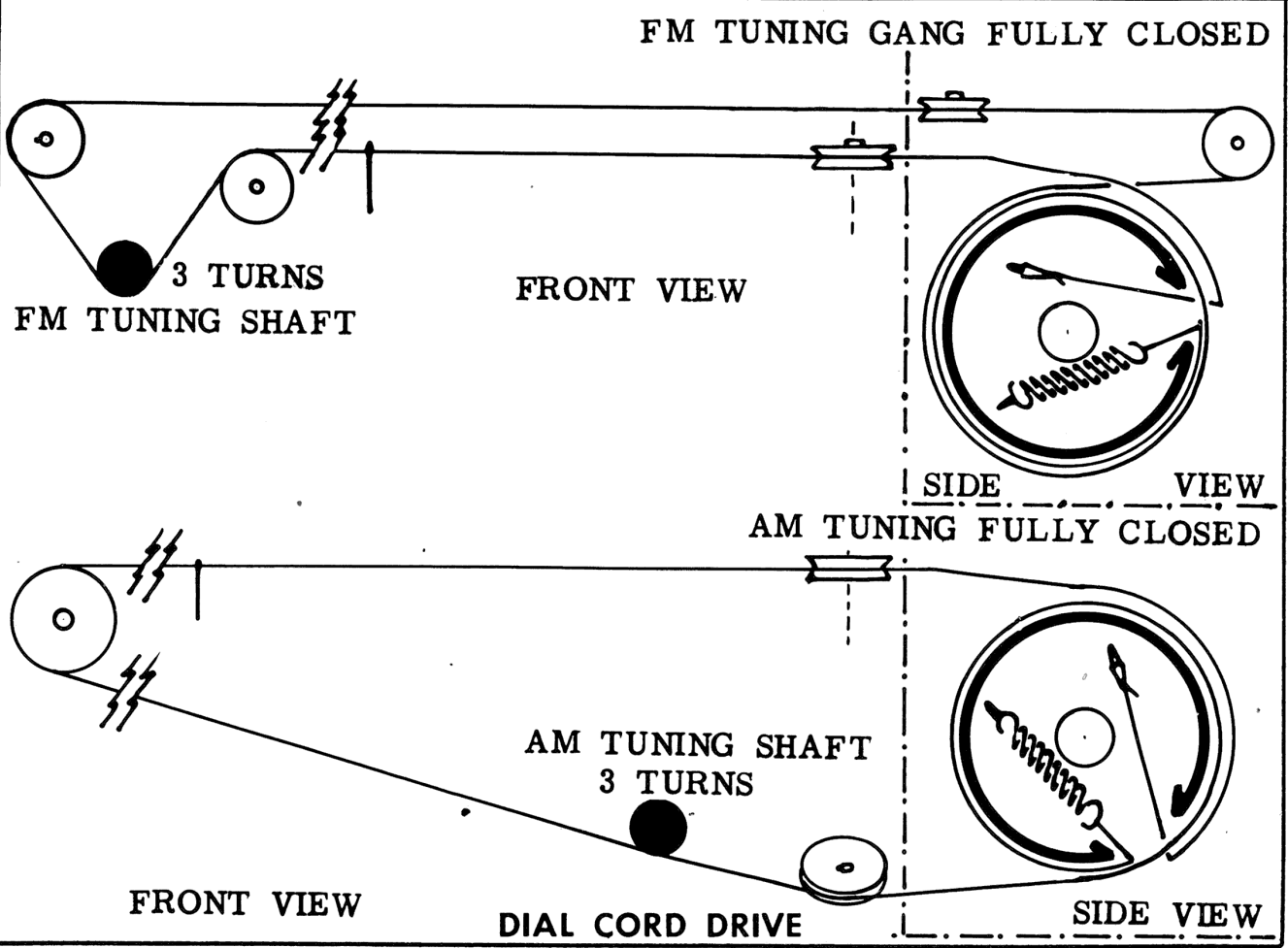
* Alternate Part #550200-4.

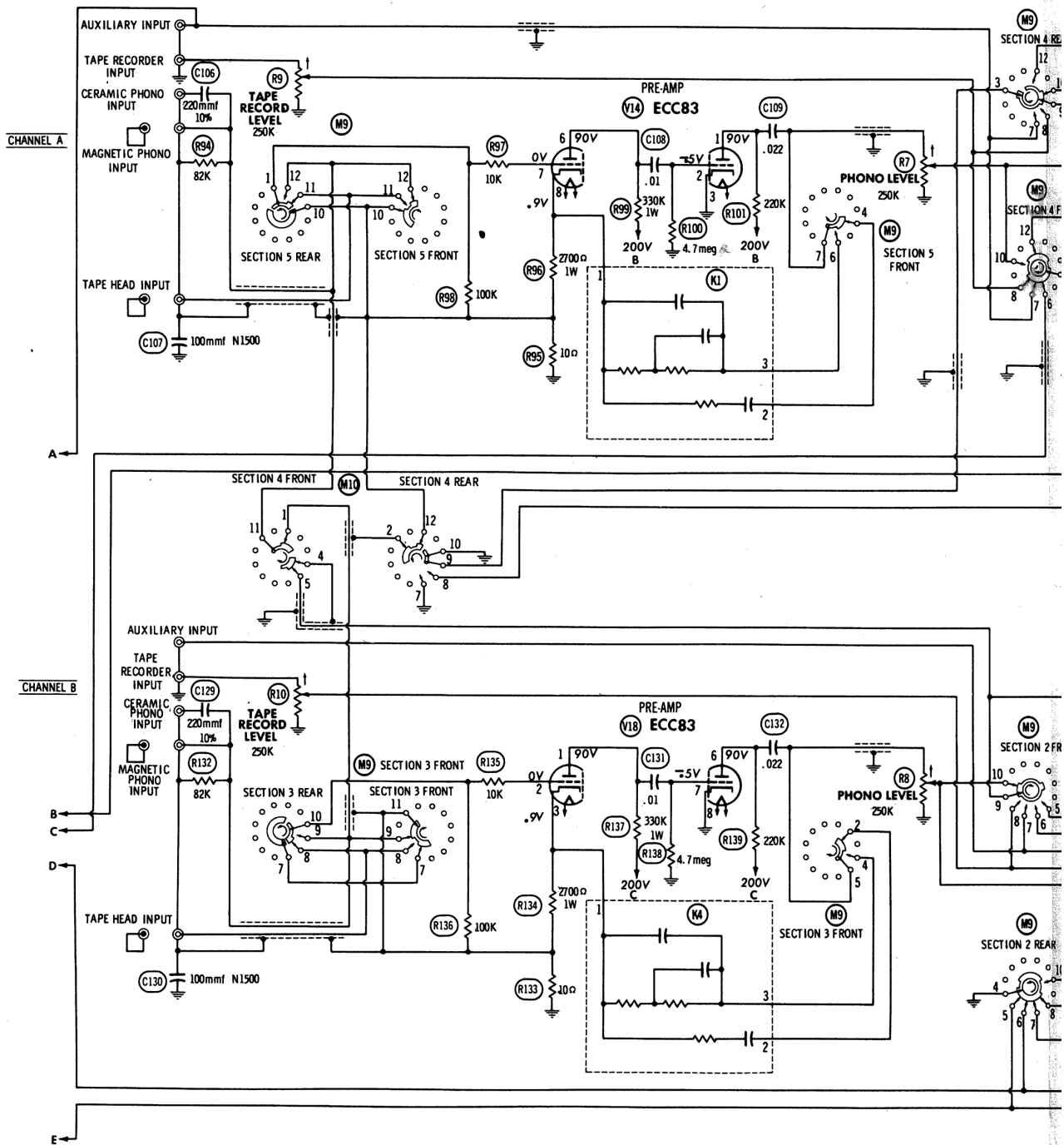
WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8550 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7 1/2 Ft. Length)



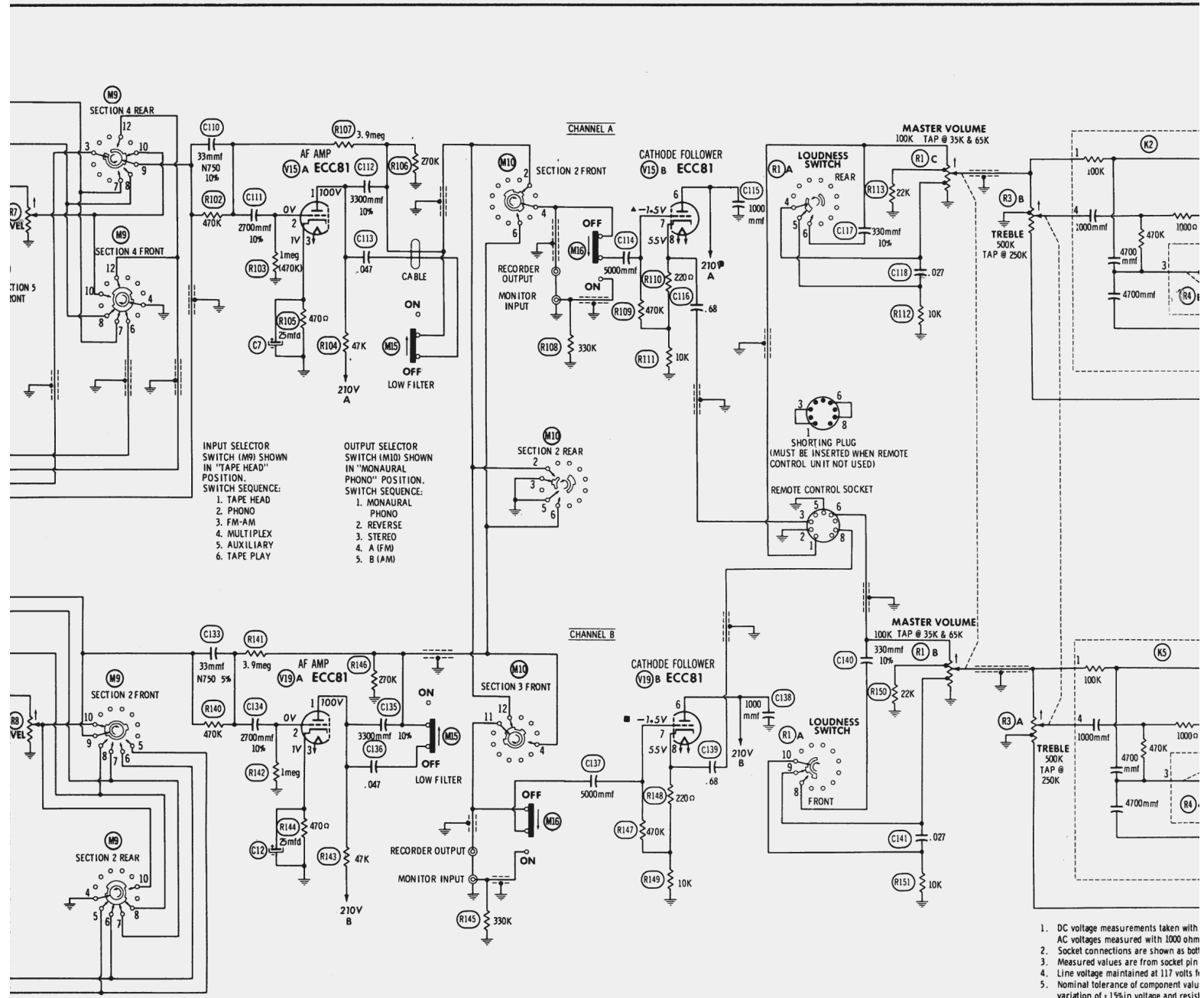
CHASSIS TOP VIEW



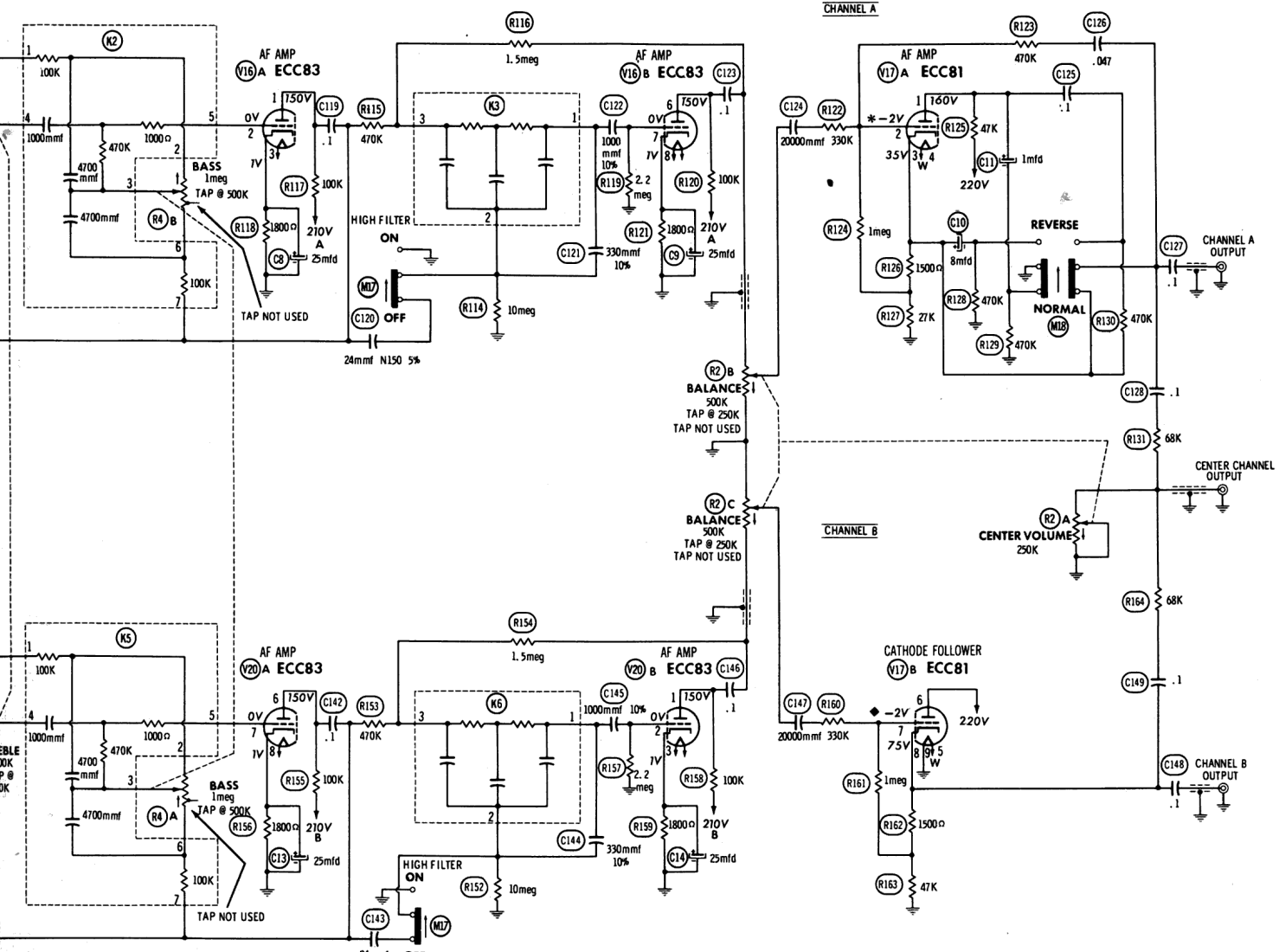


A PHOTOFACT STANDARD NOTATION SCHEMATIC

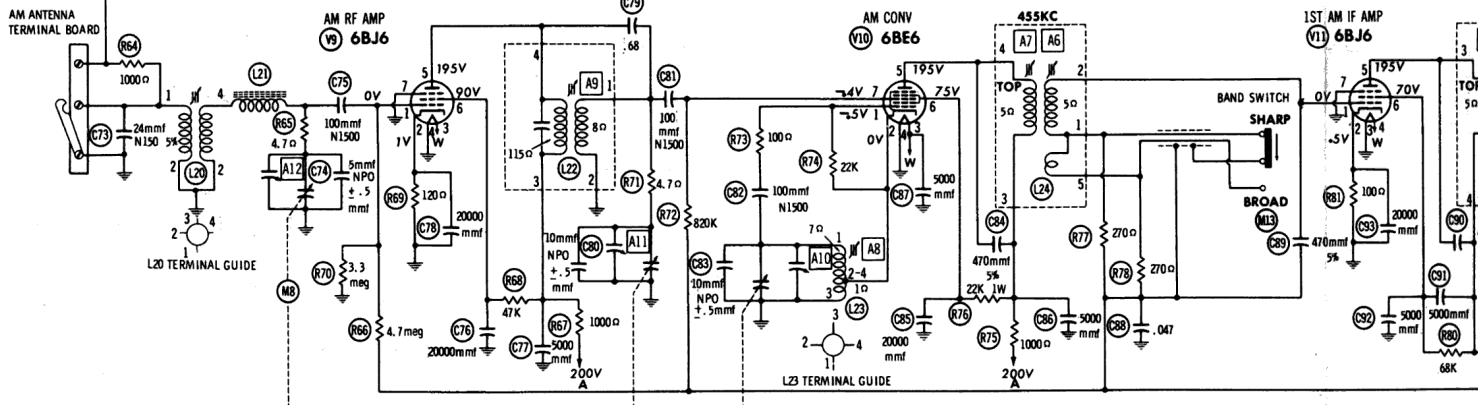
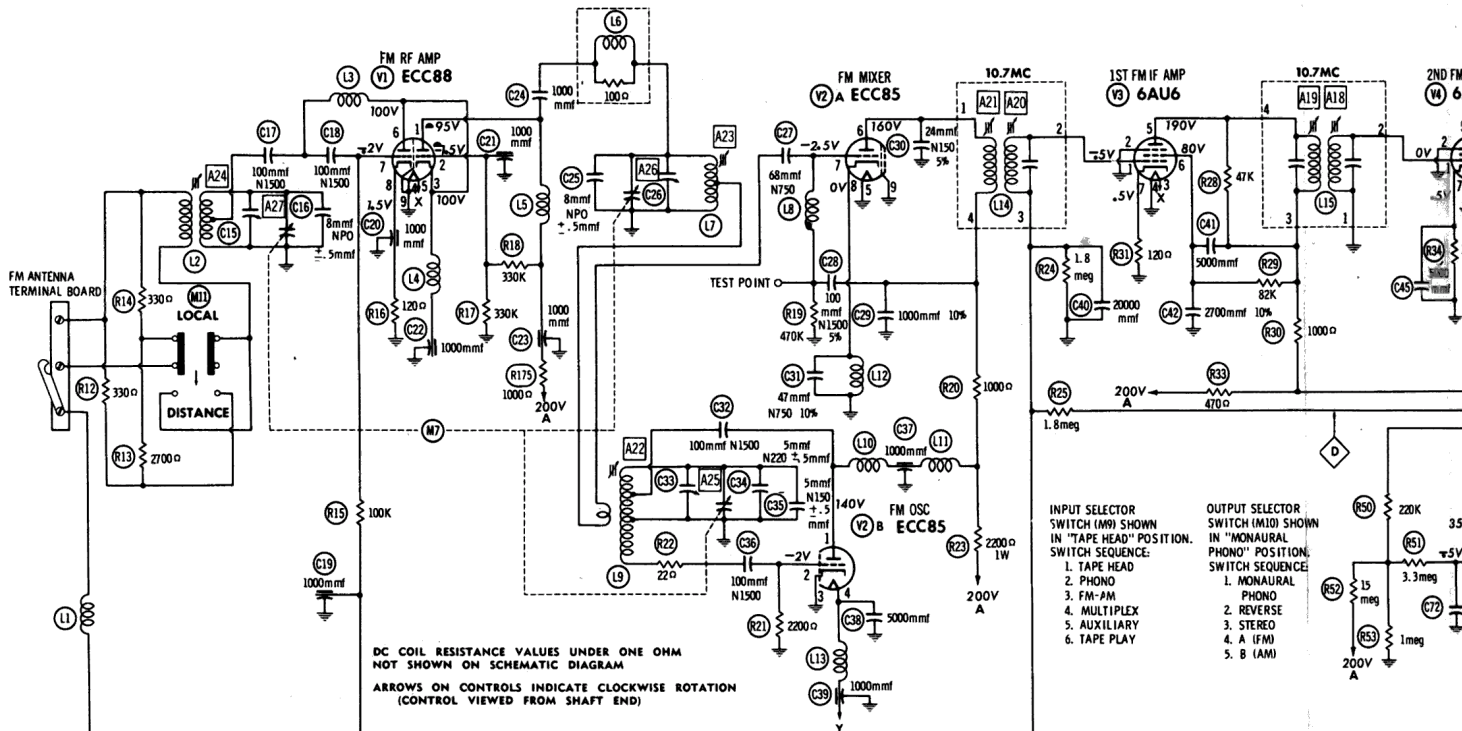
©Howard W. Sams & Co., Inc. 1960



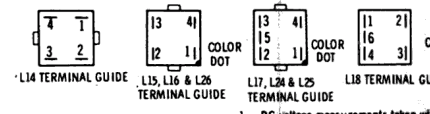
1. DC voltage measurements taken with 1000 ohm
2. AC voltages measured with 1000 ohm
3. Socket connections are shown as both
4. Measured values are from socket pin
5. Line voltage maintained at 117 volts h
6. Nominal tolerance of component valu
7. variation of +15% in voltage and resist
8. All controls at minimum, proper out



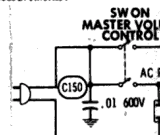
DC voltage measurements taken with vacuum tube voltmeter;
 AC voltages measured with 1000 ohm per volt voltmeter.
 Socket connections are shown as bottom views.
 Measured values are from socket pin to common ground.
 Line voltage maintained at 117 volts for voltage readings.
 Nominal tolerance of component values makes possible a
 variation of ±15% in voltage and resistance readings.
 All controls at minimum, proper output load connected.



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC88	1900Ω	150K	INF	0Ω	1Ω	INF	1meg	120Ω	0Ω
V2	ECC85 6AQ8	13100Ω	2200Ω	0Ω	1Ω	0Ω	4100Ω	470K	0Ω	0Ω
V3	6AU6	1meg	0Ω	1Ω	0Ω	12400Ω	183K	120Ω		
V4	6AU6	0Ω	0Ω	1Ω	0Ω	1400Ω	157K	120Ω		
V5	6AU6	47K	0Ω	1Ω	0Ω	1900Ω	184K	0Ω		
V6	EF94 6AU6	220K 1540K	0Ω	1Ω	0Ω	1900Ω	115K	100Ω		
V7	6AV6	1250K	0Ω	1Ω	0Ω	150K	90K 100K	10Ω 220K		
V8	EM84	4meg	NC	0Ω	0Ω	1Ω	169K	1540K	NC	1540K
V9	6BJ6	2.8meg	120Ω	1Ω	0Ω	1900Ω	149K	0Ω		
V10	6BE6	22K	1Ω	0Ω	1Ω	1900Ω	124K	3.4meg		
V11	6BJ6	2.5meg	100Ω	0Ω	1Ω	1900Ω	170K	0Ω		
V12	EF89 6DC8	128K	6Ω	180Ω	1Ω	0Ω	1900Ω	95K	820K	0Ω
V13	EM84	3.4meg	NC	180Ω	0Ω	1Ω	169K	1540K	NC	1540K
V14	ECC83 12AX7	1230K	4.7meg	0Ω	10Ω	10Ω	1340K	110K 10K	2700Ω	NC
V15	ECC81 12AT7	150K	1meg	470Ω	10Ω	10Ω	13500Ω	480K	10K	NC
V16	ECC83 12AX7	1100K	400K	1800Ω	10Ω	10Ω	1100K	2.2meg	1800Ω	NC
V17	ECC81 12AT7	150K	1meg	28K	1Ω	1Ω	12500Ω	1meg	48K	0Ω
V18	ECC83 12AX7	1340K	110K 10K	2700Ω	0Ω	10Ω	1230K	4.7meg	0Ω	NC
V19	ECC81 12AT7	150K	1meg	470Ω	0Ω	10Ω	13500Ω	480K	10K	NC
V20	ECC83 12AX7	1100K	2.2meg	1800Ω	0Ω	10Ω	1100K	400K	1800Ω	NC
V21	EZ81 6CA4	65Ω	NC	1Ω	0Ω	1Ω	NC	68Ω	NC	NC

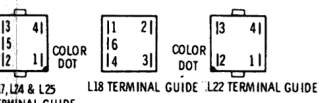
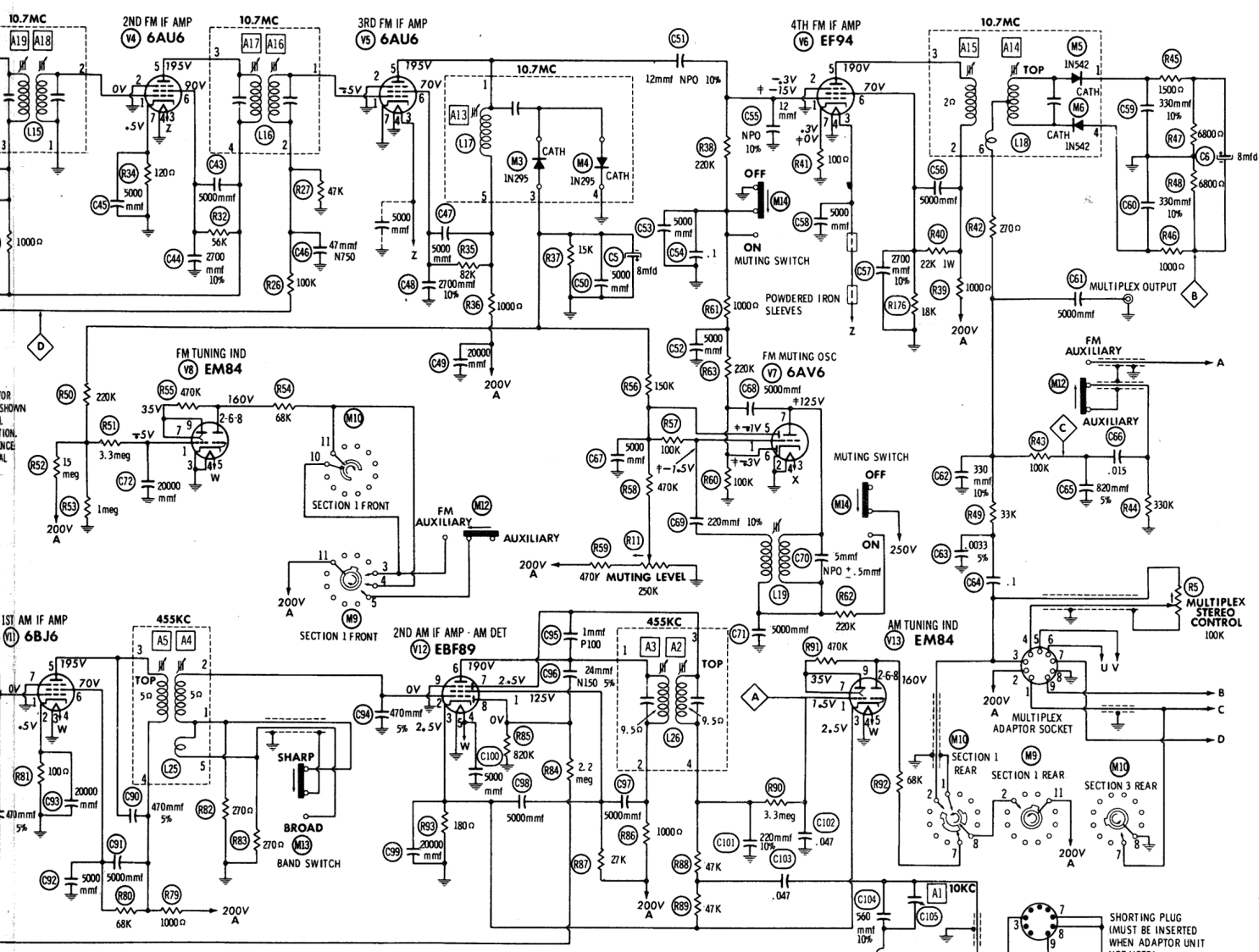


- DC voltage measurements taken with AC voltages measured with 1000 oh
- Socket connections are shown as is
- Measured values are from socket pin
- Line voltage maintained at 117 volts
- Nominal tolerance on component va variation of +15% in voltage and resl
- Volume control at maximum, no sig measurements.

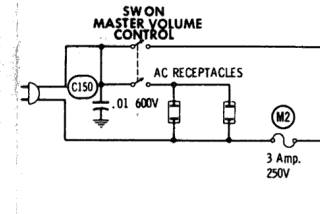


ALL MEASUREMENTS MADE IN STEREO MODE POSITION AND FM-AM INPUT POSITION.
 † THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLY
 † MEASURED FROM PIN 3 OF V21.
 † MEASURED FROM PIN 8 OF V19.
 † MEASURED FROM PIN 8 OF V17.
 * MEASURED FROM PIN 3 OF V17.
 NC NO CONNECTION

A PHOTOFAC STANDARD NOTATION SCHEMATIC



L1, L24 & L25 L18 TERMINAL GUIDE L22 TERMINAL GUIDE
 DC voltage measurements taken with vacuum tube voltmeter;
 AC voltages measured with 1000 ohm per volt voltmeter.
 Socket connections are shown as bottom views.
 Measured values are from socket pin to common ground.
 Line voltage maintained at 117 volts for voltage readings.
 Nominal tolerance on component values makes possible a
 variation of +15% in voltage and resistance readings.
 Volume control at maximum, no signal applied for voltage
 measurements.



MEASUREMENT AND FM-AM INPUT POSITION.
 THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
 ▲ MEASURED FROM PIN 7 OF V15.
 † MEASURED WITH MUTING SWITCH ON.
 ● MEASURED FROM PIN 3 OF V1.
 ○ ALL POSITIONS OTHER THAN FM-AM.

