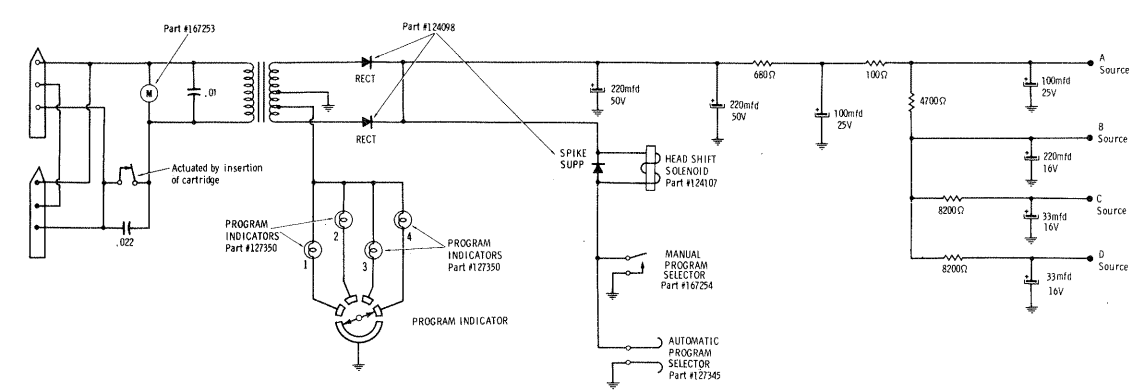


Nominal Voltages May Vary



Alternate Circuits Used in Models VZT30W/31L/32S/33F

A PHOTOFACT STANDARD NOTATION SCHEMATIC  
© Howard W. Sams & Co., Inc. 1973

SET 12 96 FOLDER 4

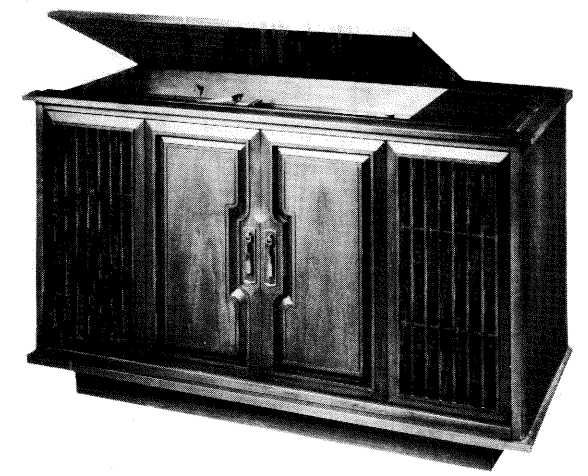
RCA CHASSIS  
RC-1239K, RS-252J

# PHOTOFACT® Folder

with CIRCUITRACE®

For Supplier Address See PHOTOFACT Index

MODELS	
VQT30W	VZT30W(1)
VQT31L	VZT31L(1)
VQT32S	VZT32S(1)
VQT33F	VZT33F(1)
(1) Have 8-Track tape player TC-604/RK332B	



Model VQT30W

## RECORD CHANGER SERVICING

### RECORD CHANGER RP-234A-4

### ADJUSTMENTS

#### TONE ARM SETDOWN

Adjust screw B1 so the needle sets down in the center of the lead-in groove on a 12-inch record. Turning the screw clockwise moves the set-down point inward.

#### NEEDLE PRESSURE

Nominal pressure 8-1/2 grams.

#### TONE ARM HEIGHT

Adjust B2 so the top of the tone arm clears a 12-inch record on the center spindle shelf during the change cycle. Turning B2 clockwise decreases the lift-up height.

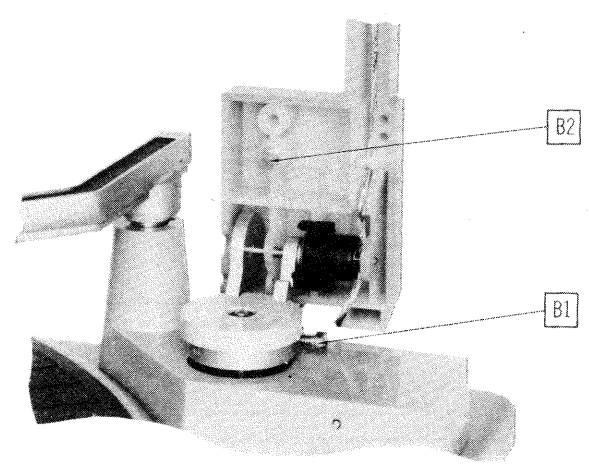
#### CLEANING

Use a cloth dampened with isopropyl alcohol to clean the driving surfaces of the idler wheel, motor shaft and inside rim of the turntable.

#### LUBRICATION

Apply light nonhardening grease to sliding cam surfaces and pivot points, light machine oil on the tone arm lift rod, idler wheel bearings, and motor bearings.

DO NOT lubricate turntable driving surface, the teeth on cycling gear or turntable hub.



REMEMBER TO ASK— "What else needs fixing?"

HOWARD W. SAMs & CO., INC. Indianapolis, Indiana 46206



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 the particular type of replacement part listed.

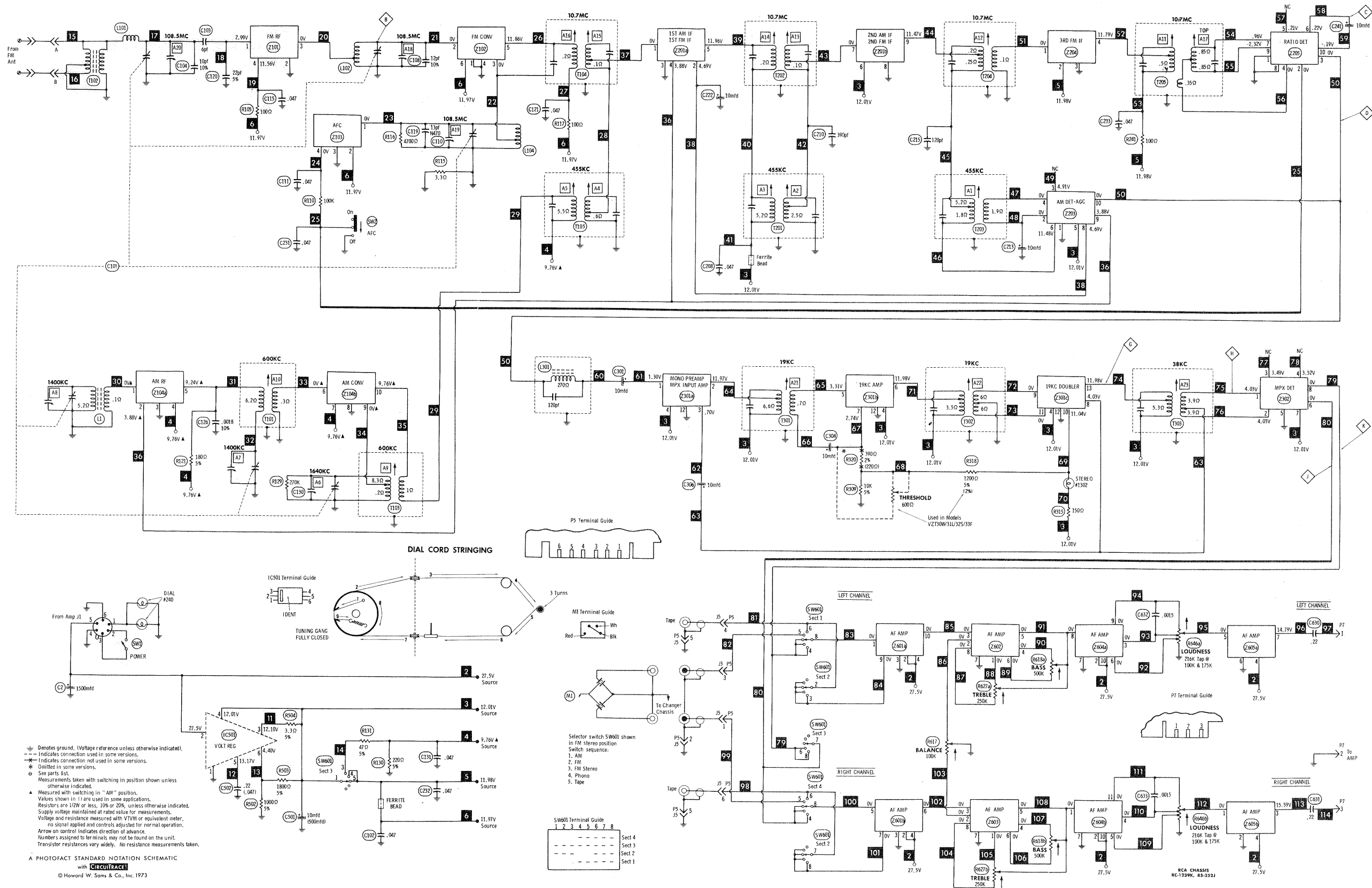
Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1973 Howard W. Sams & Co., Inc., Indianapolis, Indiana 46206. Printed in U. S. of America

DATE 2-73

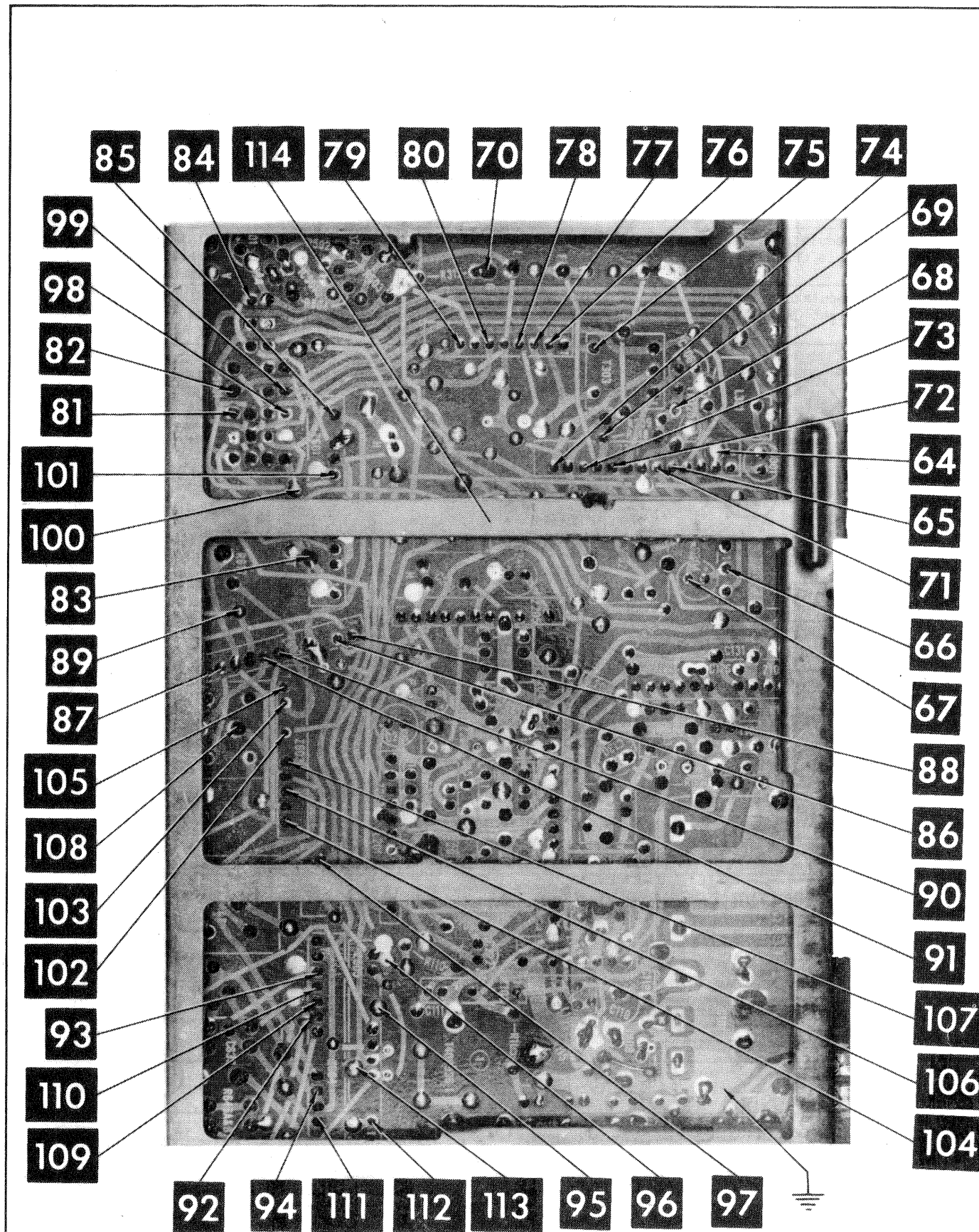
SET 12 96 FOLDER 4

RCA CHASSIS  
RC-1239K, RS-252J

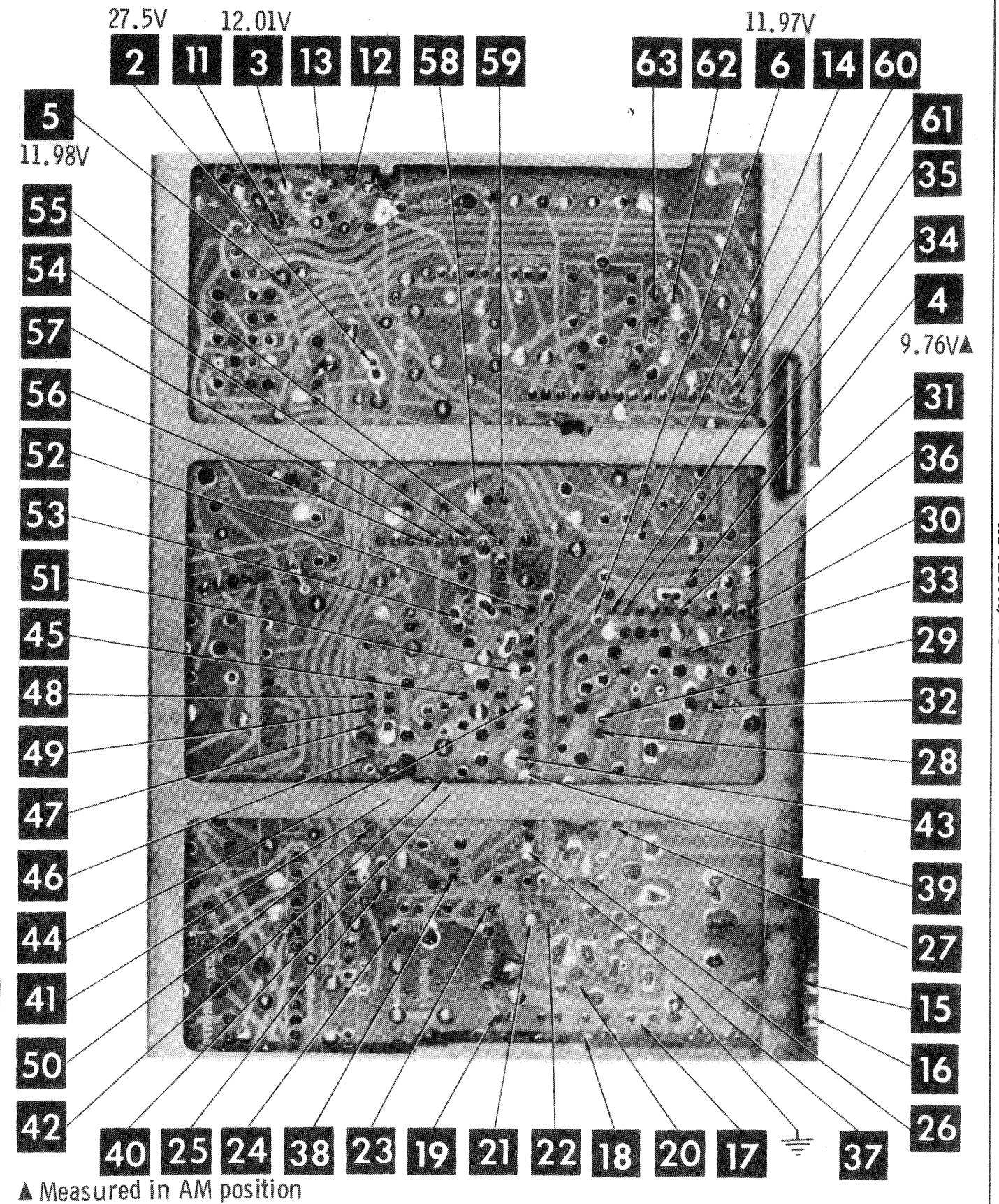
SET 12 96 FOLDER 4







A Howard W. Sams **CIRCUITRACE**® Photo



▲ Measured in AM position



ALIGNMENT INSTRUCTIONS

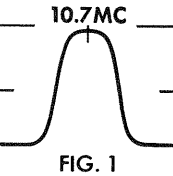
CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 117VAC. Allow a 15-minute warm-up period. Use only enough generator output to obtain a suitable indication. Suggested Alignment Tools: A1 thru A23: GC ELECTRONICS 8606, 8606L, 8869, 9296, 9300, 9302

AM ALIGNMENT—SELECTOR IN AM POSITION

Connect generator across loop fashioned of several turns of wire. Set volume at maximum.				
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1. 455KC 400 cycle modulation	Tuning gang fully open.	Output Meter across voice coil.	A1, A2 A3, A4 A5	Adjust for maximum. Repeat until no further improvement can be made.
2. 1640KC	"	"	A6	Adjust for maximum.
3. 1400KC	Tune to signal	"	A7, A8	"
4. 600KC	"	"	A9 A10	Rock tuning gang and adjust for maximum. Repeat steps 2 thru 4 until no further improvement can be made.

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

High side of generator thru .001mfd to point $\diamond$ , low side to ground.				
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
5. 10.7MC Unmodulated	Point of non-interference	DC probe of VTVM to point $\diamond$ , common to ground.	A11, A12 A13, A14 A15, A16	Adjust for maximum.
6. "	"	DC probe of VTVM to point $\diamond$ , common to ground.	A17	Adjust for zero reading. A positive or negative reading will be obtained on either side of the correct setting.

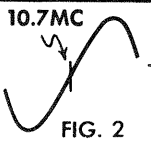


FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001mfd to point $\diamond$ , low side to ground. Use only enough marker signal for indication. Use 60 cycle frequency modulated signal with 450KC sweep. Use 60 cycle sawtooth voltage in scope for horizontal deflection.				
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
5. 10.7MC 450KC Sweep	Point of non-interference	Vert. amp of scope to point $\diamond$ , low side to ground.	A11, A12 A13, A14 A15, A16	Disconnect stabilizing capacitor C241. Adjust for maximum gain and symmetry of response similar to Fig.1 with marker as shown. Reconnect C241
6. "	"	Vert. amp of scope to point $\diamond$ , low side to ground.	A17	Adjust A 17 (secondary) to place marker at center of "S" curve similar to Fig. 2. Readjust A 11 (primary) for maximum amplitude and straightness of line.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

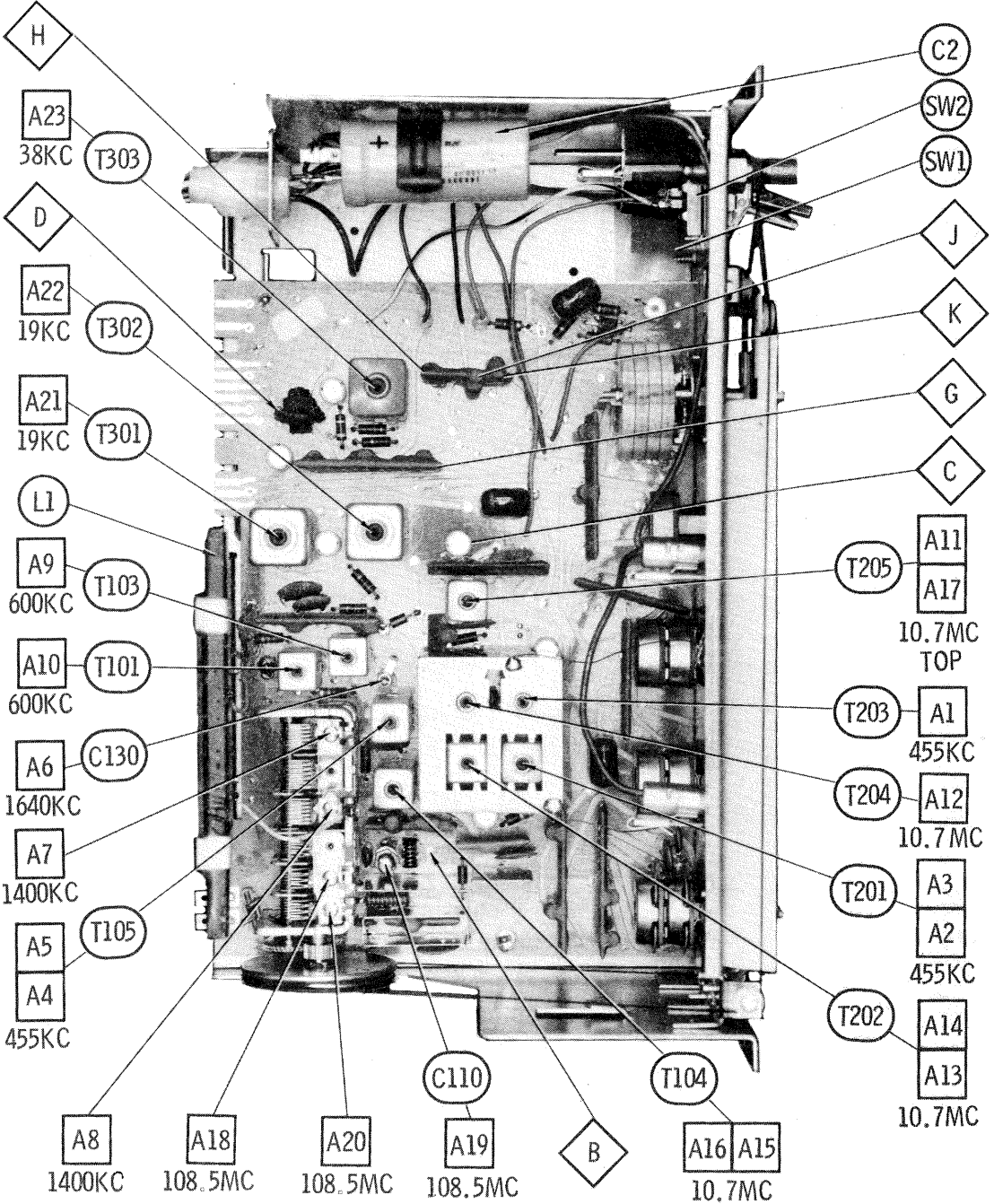
Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead.				
GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
7. 108.5MC	High freq. end	DC probe of VTVM to point $\diamond$ , common to ground.	A18, A19 A20	Adjust for maximum.

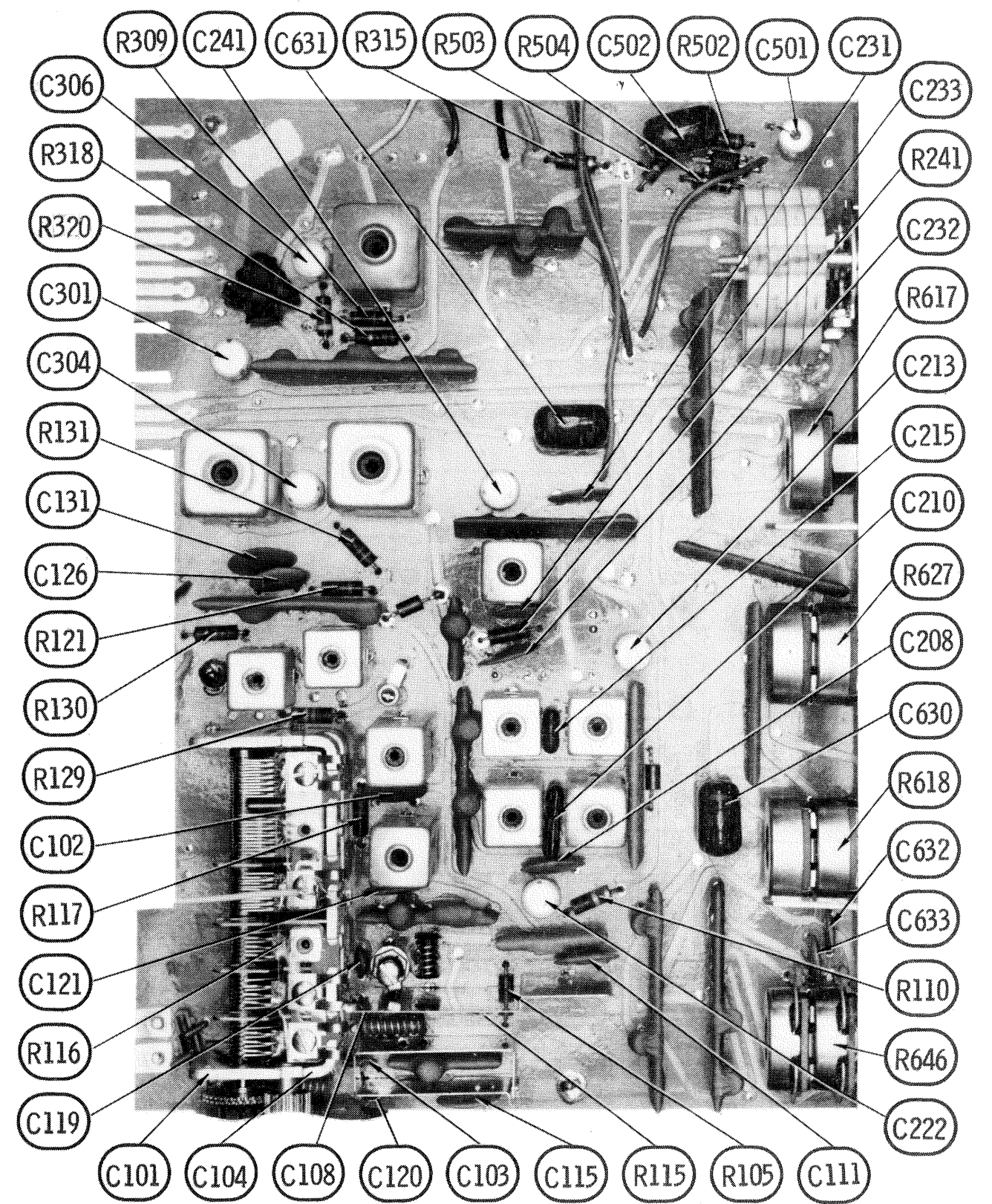
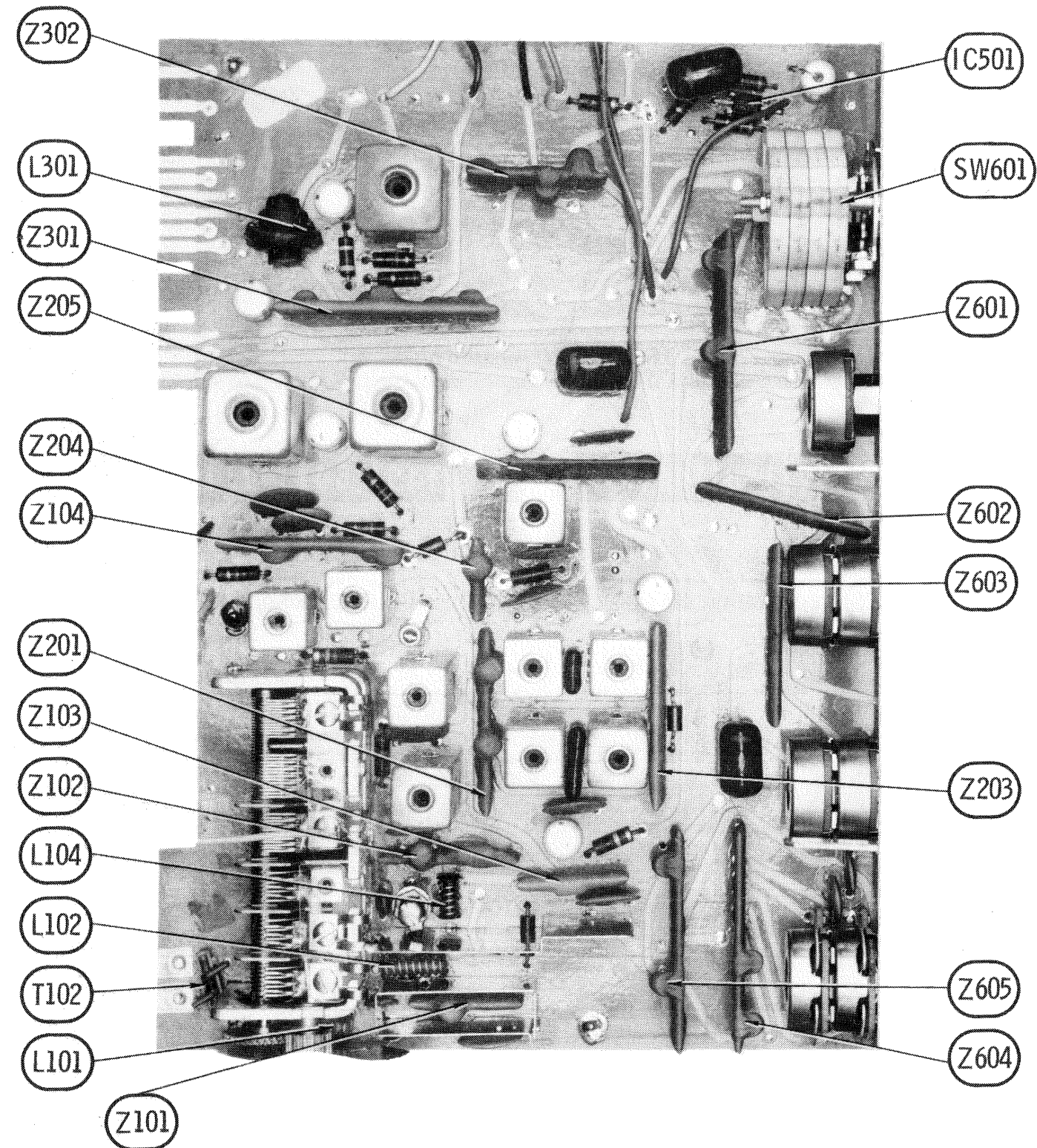


ALIGNMENT INSTRUCTIONS (Continued)

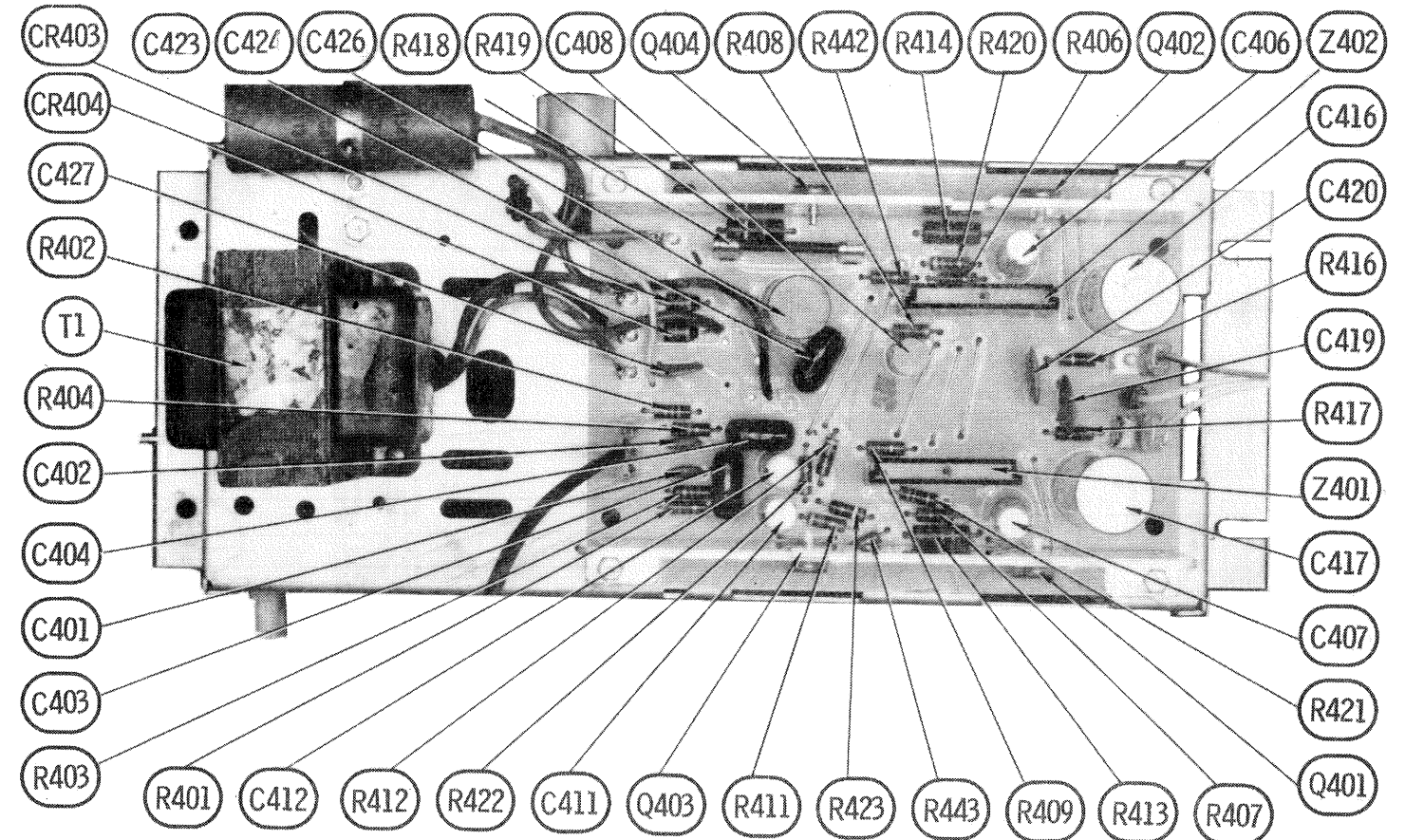
FM STEREO MULTIPLEX ALIGNMENT USING FM STEREO SIGNAL GENERATOR ( $\pm .0001\%$  ACCURACY)

High side of generator thru 47K to point $\diamond$ , low side to ground.			
GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
19KC	Vert. amp of scope thru 47K to point $\diamond$ , low side to ground.	A21, A22	Adjust for maximum.
"	Vert. amp of scope thru 47K to point $\diamond$ , low side to ground.	A23	Adjust for maximum 38KC response.
Modulated Left Channel	Vert. amp of scope to point $\diamond$ , low side to ground.	A21, A22 A23	Adjust for MINIMUM. This step should require only slight adjustment.
Modulated Right Channel	Vert. amp of scope to point $\diamond$ , low side to ground		Check for MINIMUM. If necessary make compromise adjustment of A21, A22, A23.









AMP PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.			WORKMAN PART No.	MFR. PART No.
R413	1 5% 2W WW	WS-1		R417	10 1/2W Carbon	CA-10	
R414	1 5% 2W WW	WS-1		R418	56 5W WW		131074(1444859-9)
R416	10 1/2W Carbon	CA-10		R419	39 2W WW		116436(993022-254)

TRANSFORMER (Power)

ITEM No.	RATING			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	MFR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ .145AAC	47.9VAC @ .90ADC	6.14VAC @ .036AAC	134373 (1461174-24)				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
SP1	6 1/2"PM	6.8 ohm	131143(1454687-502)	
SP2	3"PM	10 ohm	130638(1454685-501)	3A07Z8
SP3	6 1/2"PM	6.8 ohm	131143(1454687-502)	
SP4	3"PM	10 ohm	130638(1454685-501)	3A07Z8

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA							
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	
F1	4/10A @ 250V Pigtail SLO-BLO	130791 (988794-6)		MDV 4/10		315.400			

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M3	Motor		
S3	Switch		
Z401	Module	134377(1410519-4) [1]	Phono On Changer
Z402	Module	134377(1410519-4) [1]	AF Amp

[1] Part #136252 (1454940-502) used in Models VZT30W, VZT31L, VZT30W, VZT31L, VZT32S, VZT33F.

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Knobs		Front Panel, Models VQT31, VZT31	134369
Loudness, Bass, Treble, Balance		VQT32, VZT32	134368
Models VQT Series	134381	VQT33, VZT33	131480
Models VZT Series	136196	VZT30	134737
Selector, Models VQT Series	134382	Cabinet Back, Models VQT30, VZT30	134370
Models VZT Series	136197	Models VQT31, VQT32,	
Tuning, Spin	130259	VQT33, VZT31, VZT32,	
Tuning, Models VQT Series	134380	VZT33	134371
Models VZT Series	136198		
Dial Glass, Models VQT Series	134393		

TUNER PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS

ITEM No.	TYPE / MFR. No. / PART No.	REPLACEMENT DATA						
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	MOTOROLA PART No.
1C501	134340(1464295-2)							

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		MFR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	1500 35V	115627 (1443353-2)	CTM-1284		WBR1500-50		WP068	TVL-1267
C213	10 10	116159 (1443265-6)	RME-A-D-010	EP15-10	WBR10-25	MT1-5	MTV10CB50	EV-1222
C222	10 10	116159 (1443265-6)	RME-A-D-010	EP15-10	WBR10-25	MT1-5	MTV10CB50	EV-1222
C241	10 10	116159 (1443265-6)	RME-A-D-010	EP15-10	WBR10-25	MT1-5	MTV10CB50	EV-1222
C301	10 10	116159 (1443265-6)	RME-A-D-010	EP15-10	WBR10-25	MT1-5	MTV10CB50	EV-1222
C304	10 10	116159 (1443265-6)	RME-A-D-010	EP15-10	WBR10-25	MT1-5	MTV10CB50	EV-1222
C306	10 10	116159 (1443265-6)	RME-A-D-010	EP15-10	WBR10-25	MT1-5	MTV10CB50	EV-1222
C501	10 50V 500 15 10 15	111789 (1470494-13) 110567 (990130-8)	RME-D-J-010	EP50-10	WBR10-50	MT1-6	MTV10CB50	EV-1622

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			ARCO/ELMENC0 PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C101	Tuning Gang	131350 1462882-2)					
C102	.047 100V			DD-503		GP150	
C103	6						
C104	10 NPO 10%		CCT0-100	DTZ-10	NP010	CN0410	10TCC-V56
C108	12 NPO 10%		CCT0-120	TCZ-12	NP012	CN0412	10TCC-Q10
C110	Trimmer	130280 (945366-4)					10TCC-Q12
C111	.047 100V			DD-503		GP150	
C115	.047 100V			DD-503		GP150	
C119	13 N470 5%		*			*	
C120	22 NPO 5%		CCT0-220	DTZ-22	NP022	GN0422	10TCC-Q22
C121	.047 100V			DD-503		GP150	
C126	.0018 10%		CCS-182	DD-182	GP1800	GP218	10TS-D18
C130	Trimmer	130129 (1474578-5)					
C131	.047 100V			DD-503		GP150	
C208	.047 100V			DD-503		GP150	
C210	390		DM-15-391	CPR-390J	CD15F391J500	SX339	MS-339
C215	120		DM-15-121	CPR-120J		SX312	MS-312
C231	.047 100V			DD-503		GP150	
C232	.047 100V			DD-503		GP150	
C233	.047 100V			DD-503		GP150	
C502	.22 75V		4DP-5-224		DPMS4P22	PVC4022	4PS-P22
C630	.22 75V		4DP-5-224		DPMS4P22	PVC4022	4PS-P22
C631	.22 75V		4DP-5-224		DPMS4P22	PVC4022	4PS-P22
C632	.0015		CCD-152	DD-152		GP215	10TS-D15
C633	.0015		CCD-152	DD-152		GP215	10TS-D15

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R617	Balance	100K	130281 (1472223-1)	F1-100K SNF108 CA005 BA006		QCB2 (1), B11-128, TM8, QCN, or (BU3, CF13, SS4, DC1, QCN)*	P15L, 3058 SH3250, SF3062
R618a	Bass (Left)	500K				B13-133, B13-133, SK9, QCM or (BU1, CF25, CR20, SS4, SS7A, DC1)*	P55A, 3014, RU55A, SL45
b	Bass (Right)	500K	130282 (1472229-1)	F2-500K, R2-500K, SNF100, CPN-2	NP-500K-Z, NR-500K-Z, SE-F-400, DC-2		
R627a	Treble (Left)	250K				B13-130, B13-130, SK9, QCM or (BU1, CF23, CR18, SS4, SS7A, DC1)*	P254A, 3014 RU254A, SL45
b	Treble (Right)	250K	130283 (1472229-2)	F2-250K, R2-250K, SNF100, CPN-2	NP-250K-Z, NR-250K-Z, SE-F-400, DC-2		
R246a	Loudness (Left)	216K Tap @ 100K & 175K	131361 (1473322-2)			B18-130XX, B18-130XX, SK9, QCM or (BU1, CF107TT, CR72TT, SS4, SS7A, DC1)*	
b	Loudness (Right)	216K Tap @ 100K & 175K					

RCA CHASSIS RC-1239K, RS-252J

FOLDER 4

### TUNER PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

**CONTROLS** (All wattages 1/2 watt, or less, unless listed) (cont)

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS—IRC PART No.	MALLORY PART No.
	Threshold	600 ohm	136028 (2) (1473354-4)				

\* "SNAPTROL" (1) Use QCB2 bushing instead of tab mount plate in TM8 Kit.  
(2) Used in models VZT30W, VZT31L, VZT32S, VZT33F.

## RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
R115	3.3 1/2W Carbon	CA-3.3		R504	3.3 5% 1/2W Carbon	CA-3.3	
R320	390 2% 1/2W						

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	Loopstick	130318 (1475857-1)	19-2020 (2)	7788 (1)	TB542
		130783 (1474857-1) (3)			
L101	FM RF (8 Turns)	130286 (1471048-7)			
L102	FM RF	130287 (1471048-5)			
L104	FM Oscillator	131357 (1471048-9)			
L301	72KC Trap	130289 (1472943-4)		72F395AI (2)	T864 (2)
T101	AM RF	130290 (1444826-2)			
T102	FM Balun	130291 (1443286-2)			
T103	AM Oscillator	130292 (1444827-2)			
T104	FM Input IF	130293 (1444828-3)			
T105	AM Input IF	130294 (1444829-4)			
T201	AM Interstage IF	130295 (1444829-5)			
T202	FM Interstage IF	130296 (1444828-4)			
T203	AM Output IF	130297 (1444829-6)			
T204	FM Interstage IF	130298 (1444828-5)			
T205	Ratio Detector	130299 (1444830-2)			
T301	19KC Input	130377 (1444831-1)			
T302	19KC Doubler	130378 (1444831-2)			
T303	38KC Output	130379 (1444831-3)			

(1) Ground one side of primary and secondary. (2) Shunt with 120PF Cap.

(3) Used in Models VZT30W, VZT31L, VZT32S, VZT33F

## PHONO CARTRIDGE & NEEDLES

ITEM No.	REPLACEMENT DATA						NOTES
	MFGR. PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		
	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1 M2	131777 *	133707		N576sd	5224D	2918DS + 2918DS	* 131779 (Cartridge/Needle Ass'y.) + For respective replacement cartridge.

## MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
Z101	Module	134359(1410507-2)	FM RF Amp
Z102	Module	130304(1410512-1)	FM Converter
Z103	Module	130305(1410511-1)	AFC
Z104	Module	134356(1410501-2)	AM-RF Amp & Conv.
Z201	Module	130307(1410510-1)	1ST & 2ND AM-FM IF Amp
Z203	Module	130308(1410509-1)	AM Detector
Z204	Module	130309(1410518-1)	3RD FM IF Amp
Z205	Module	131358(1410508-4)	FM Detector
Z301	Module	134358(1410506-3)	Mono Preamp, MPX Input Amp, 19KC Amp, 19KC Doubler
Z302	Module	130312(1410505-1)	MPX DET
Z601	Module	130313(1410504-1)	AF Amp
Z604	Module	130315(1410514-1)	AF Amp
Z605	Module	134357(1410517-3)	AF Amp
Z602	Component Combination	130314(1410513-1)	Tone
Z603	Component Combination	130314(1410513-1)	Tone
SW1	Switch	134362(1463166-3)	Power (On-Off)
SW2	Switch	134363(1463166-1)	AFC (On-Off)
SW601	Switch	134367(1476663-1)	Selector (AM,FM,FM Stereo, Phono, Tape)
	Printed Circuit Board	134644(1454930-505)	Receiver (Complete)

## AMP PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

## WIRING DATA

General-use Unshielded Hook-up Wire .....	Use BELDEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Low-loss Shielded Lead (Interconnecting) .....	Use BELDEN No. 8401 or 8421
Phono Pick-up Arm Cable .....	Use BELDEN No.
	8419 (Three Conductor-Shielded)

## SEMICONDUCTORS

ITEM No.	TYPE / MFR. No./PART No.	REPLACEMENT DATA						
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	MOTOROLA PART No.
CR403	126855 (1474778-4)	GE-510	3F20D	PTC205	SK3051		ECG156	
CR404	126855 (1474778-4)	GE-510	3F20D	PTC205	SK3051		ECG156	
Q401	131075 (1471132-4)	GE-28	1TRR-55	PTC110	SK3054		ECG152	
Q402	131075 (1471132-4)	GE-28	1TRR-55	PTC110	SK3054		ECG152	HEP245
Q403	131075 (1471132-4)	GE-28	1TRR-55	PTC110	SK3054		ECG152	HEP245
Q404	131075 (1471132-4)	GE-28	1TRR-55	PTC110	SK3054		ECG152	HEP245

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
			MFGR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL- DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	4	NP 25	125565 (1444818-3)	PRS7405 (1)			NPQT-2		
C4	4	NP 25	125565 (1444818-3)	PRS7405 (1)			NPQT-2		
C406	200	10V	131162 (1470494-28)	ME-6-D-200	EA15-250	WBR250-16	MT1-23	MTV200DB10	EV-1140
C407	200	10	131162 (1470494-28)	ME-6-D-200	EA15-250	WBR250-16	MT1-23	MTV200DB10	EV-1140
C408	25	50	127986 (1471882-11)	RME-F-J-025	EP50-25	WBR25-50	MT1-11	MTV25CB50	EV-1525
C411	50	25	121651 (1471882-12)	RME-F-G-050	EP30-50	WBR50-25	MT1-16.5	MTV50CD25	EV-1326
C412	50	25	121651 (1471882-12)	RME-F-G-050	EP30-50	WBR50-25	MT1-16.5	MTV50CD25	EV-1326
C416	1000	35	134376 (1096517-2)	RME-R-H-1000	EA50-1000	WBR1000-35		TC50100A	TVA-1316
C417	1000	35	134376 (1096517-2)	RME-R-H-1000	EA50-1000	WBR1000-35		TC50100A	TVA-1316
C423	1000	35	134376 (1096517-2)	RME-R-H-1000	EA50-1000	WBR1000-35		TC50100A	TVA-1316
C426	250	35	130249 (1470494-26)	RME-N-J-250	EA50-250	WBR250-50	QT1-29	TC50025A	EV-1545

(1) Indicates Aerovox part supplied by Arco.

## CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA				
				ARCO/ELMENCO PART No.	CENTRALAB PART No.	CORNELL- DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.01	1.4KV	133138 (1441023-129) 133138 (1441023-129)	CCD-471 CCD-471 4DP-4-154 4DP-4-154	DD-471 DD-471	GP470 GP470 DPMS4P15 DPMS4P15	2HV110 2HV110	30GA-S10 30GA-S10
C2	.01	1.4KV						
C401	470	10% 500V						
C402	470	10% 500V						
C403	.15	10% 75V						
C404	.15	10% 75V						
C419	.047	100V						
C420	.047	100V						
C424	.15	10% 75V						
C427	.01	500V						
				4DP-4-154 CCD-103	DD-103	DPMS4P15 GP10000	PVC6015 JF110	4PS-P16 10TS-S10