

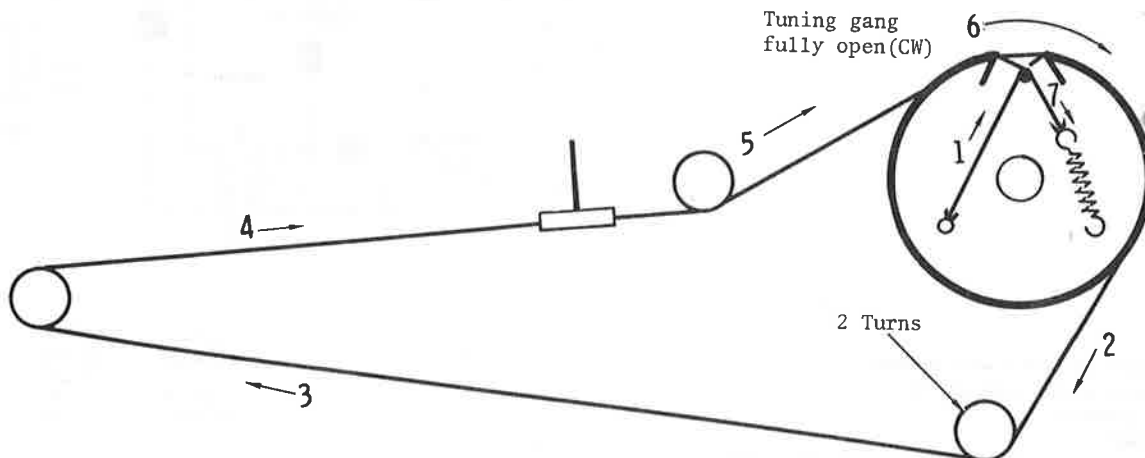
For Supplier Address See PHOTOFACT Index

WARDS AIRLINE MODELS GMJ-2047B/58A/87B/96E/
97B, GMJ-2127B/-2237C, GMJ-2347C/48A/67C/68A

MODEL GMJ-2047B

SAFETY PRECAUTIONS

See page 13.

DIAL CORD STRINGINGWARDS AIRLINE MODELS GMJ-2047B/58A/87B/96E/
97B, GMJ-2127B/-2237C, GMJ-2347C/48A/67C/68A

SET 1655 FOLDER 3

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

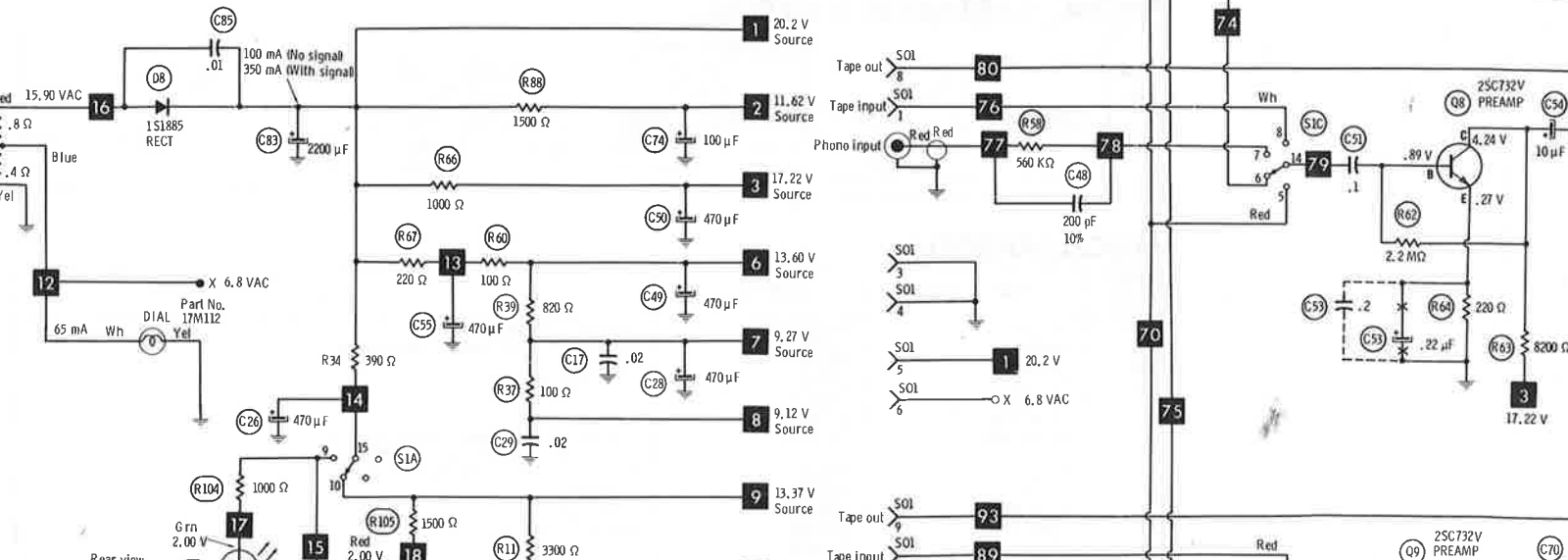
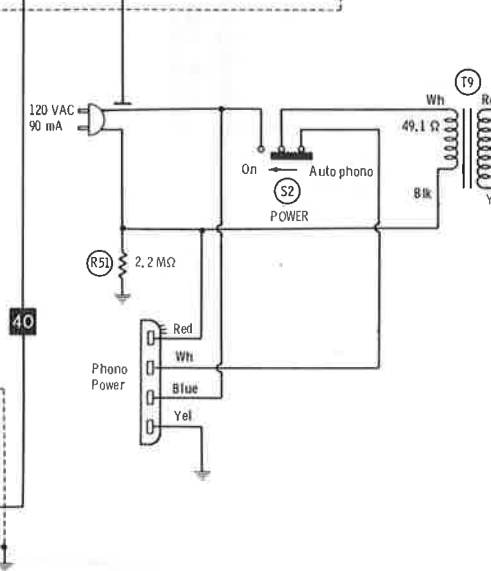
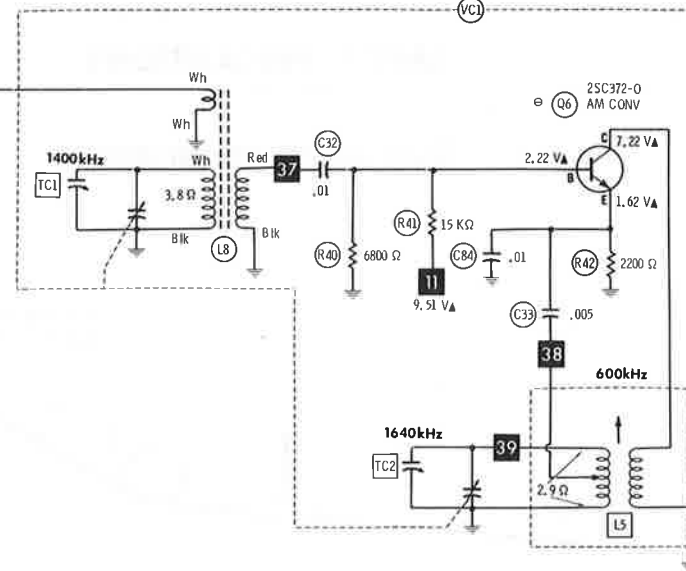
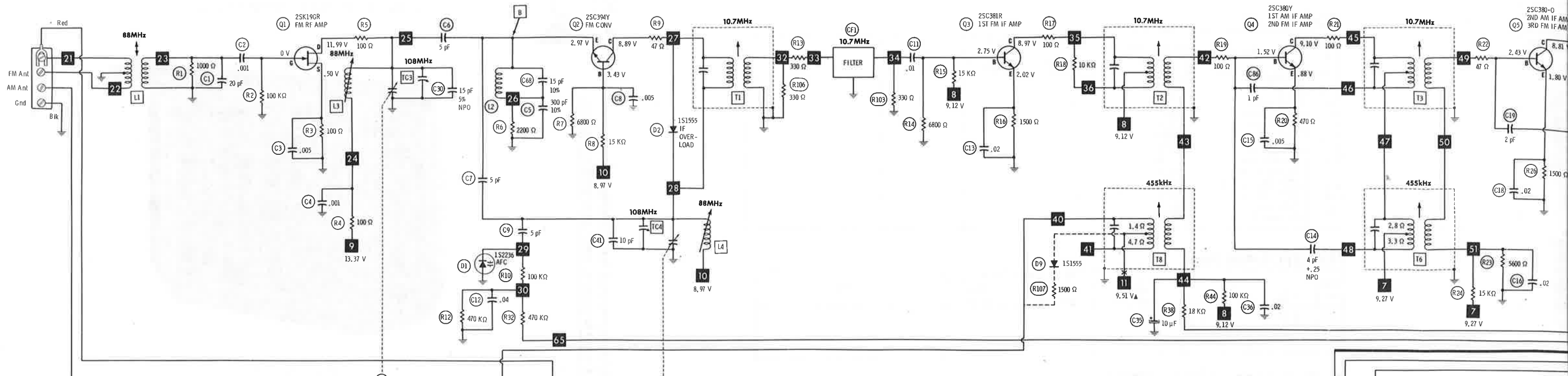
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. 7PN1742R

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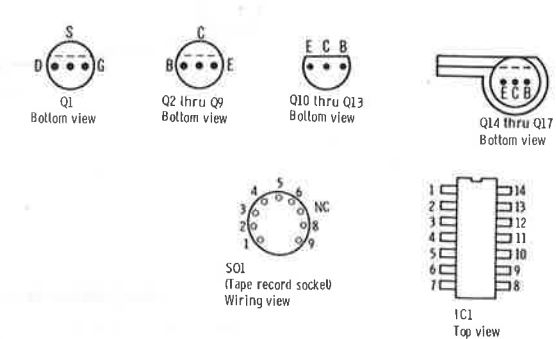
SET 1655 FOLDER 3



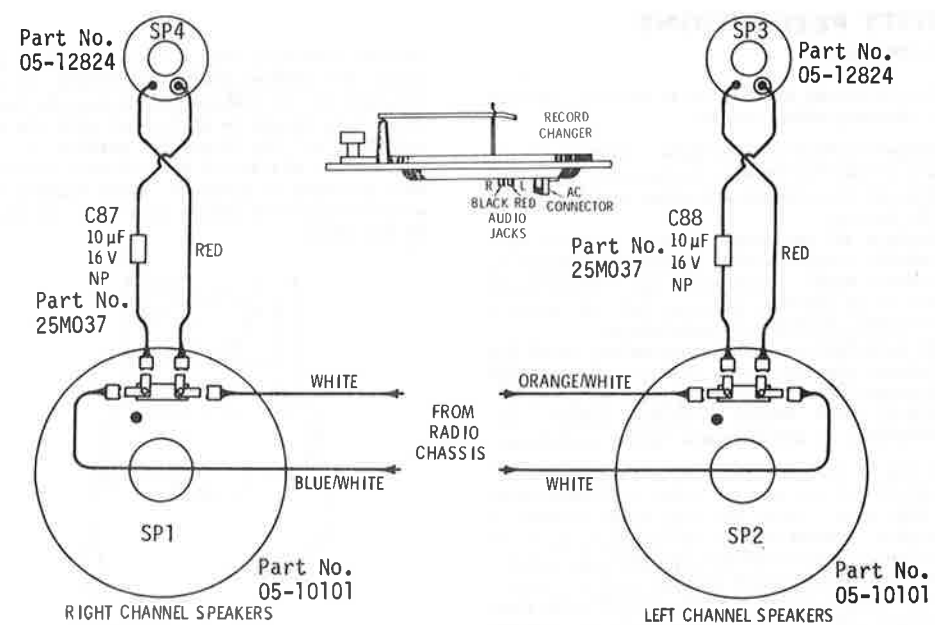
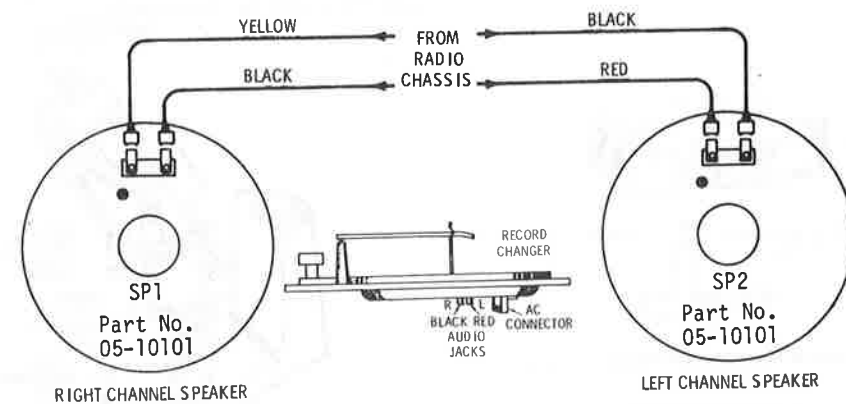
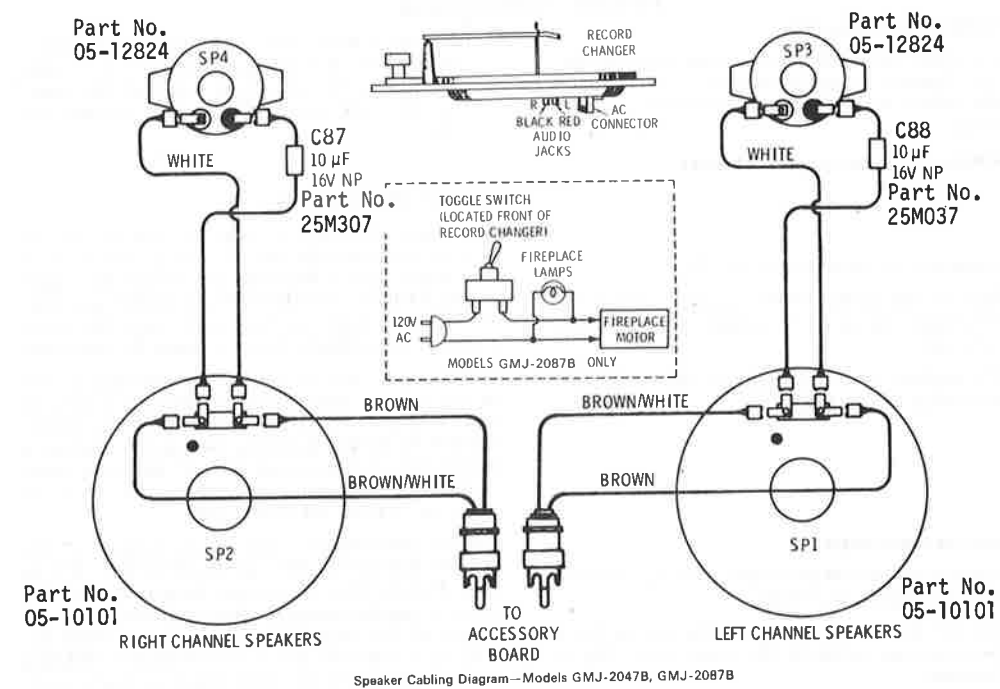


✕ Circuitry not used in some versions
 --- Circuitry used in some versions
 ⊕ See parts list
 ⚡ Ground
 Measurements with switching as shown unless noted:
 ■ FM Stereo signal ▲ AM
 Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Arrow at control indicates direction of advance.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.

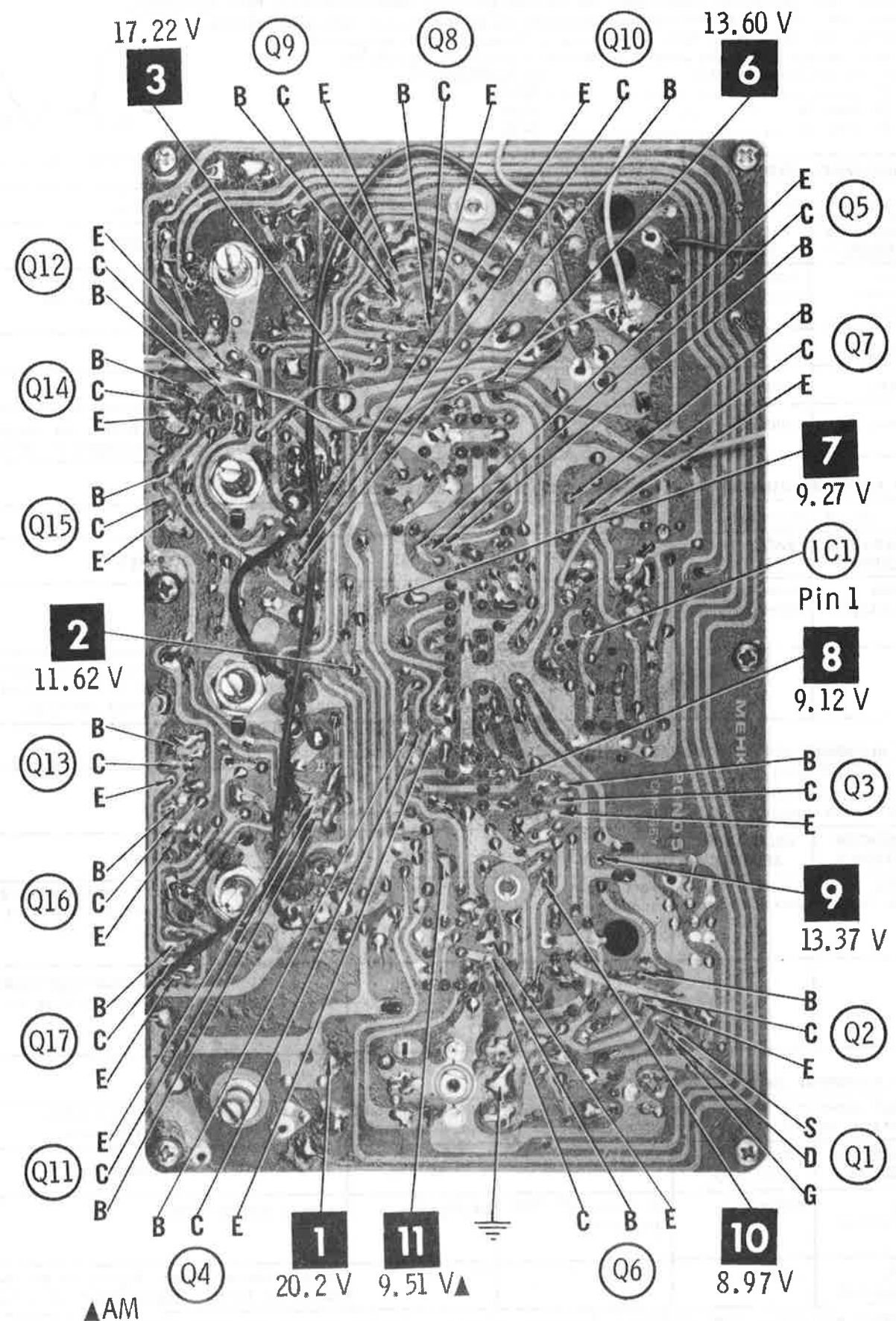
A PHOTOFAC STANDARD NOTATION SCHEMATIC
 WITH **CIRCUITRACE**
 © Howard W. Sams & Co., Inc. 1977



Rear view
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
 Function switch S1 shown in FM ST position
 Switch sequence:
 1 AM
 2 FM ST
 3 Phono
 4 Tape



Courtesy of the Manufacturer



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

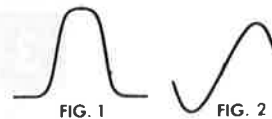
MAIN BOARD

WARDS AIRLINE MODELS GMJ-2047B/58A/87B/96E/97B, GMJ-2127B/-2237C, GMJ-2347C/48A/67C/68A

FOLDER 3

ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Connect low sides of generator and indicator to ground unless specified otherwise. Maintain line voltage at 120V AC. Allow a 15-minute warm-up period. Use only enough generator output to obtain a suitable indication. Suggested alignment Tools: GC ELECTRONICS:
L6, L7 9293
L5, T6 thru T8 8728
L1, T1 thru T5 9440



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
455kHz 400-hertz Modulation	Tuning gang fully open	Output meter across voice coil	T7,T6,T8	Adjust for maximum. Repeat until no further improvement is noted.
600kHz	600kHz	"	L5	Adjust for maximum.
1640kHz	1640kHz	"	TC2	Adjust for maximum.
1400kHz	1400kHz	"	TC1	Adjust for maximum. Repeat AM alignment until no further improvement is noted.

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

High side of generator thru .001uF to point B.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
10.7MHz Unmodulated	Point of non- interference	DC probe of VTVM to point C.	(1) T5,T3,T2,T1	Adjust for maximum.
"	"	DC probe of VTVM to point D.	T4	Adjust for zero reading. A positive or negative reading will be obtained on either side of correct setting.

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

High side of generator thru .001uF to point B.
Use 60-hertz, frequency-modulated signal, 450kHz sweep.
Use 60-hertz sawtooth voltage in scope for horizontal deflection.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
10.7MHz 450kHz Sweep	Point of non- interference	Vert input of scope to point C.	(1) T5,T3,T2,T1	Disconnect stabilizing capacitor C22. Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C22.
"	"	Vert input of scope to point D.	T4	Adjust T5 & T4 for maximum amplitude and straightness of line similar to Fig. 2.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead. Adjustment of coils by bending should not be attempted unless the coil is deformed or replaced.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
88MHz Unmodulated	88MHz	DC probe of VTVM topoint C.	L4,L3,L1	Adjust for maximum.
108MHz Unmodulated	108MHz	"	TC4,TC3	Adjust for maximum. Repeat FM RF steps until no further improvement is noted.

(1) Before adjusting, vary generator frequency slightly. Maximum output indicates exact IF.

CARTRIDGE INFORMATION

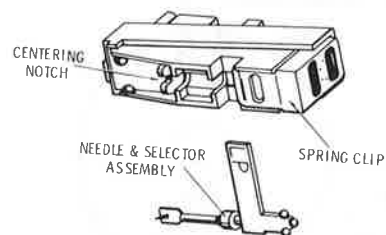
The ceramic stereo-phono cartridge used in this record changer is equipped with a dual-tipped needle which is permanently cemented into its housing.

CARTRIDGE ASSEMBLY REPLACEMENT

1. Snap out the cartridge assembly.
2. Remove the pickup wire connectors from the cartridge, noting their respective pins or orientation.
3. To replace cartridge, replace the connectors and snap in cartridge.

NEEDLE REPLACEMENT

1. Position the needle lever arm halfway between the two playing positions.
2. Tilt the lever back to remove the needle from the centering notch of the yoke, then slide it forward.



Cartridge & Needle; 60-176. Needle; T-58XSD.

Cartridge, Needle & Housing

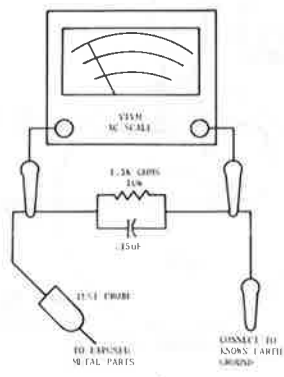
SAFETY PRECAUTIONS

LEAKAGE TEST

Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Replace all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A (Ward No. 88025733) or use alternate method as follows:

Plug the AC line-cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 ohm, 10-watt resistor paralleled by a .15mf capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 ohms per volt, or higher, sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the



Leakage Test Diagram

Courtesy of the Manufacturer

SERVICE INSTRUCTIONS

3. To replace, insert the needle under the spring clip and slide it to the rear. Be sure the needle is resting in the centering notch of the yoke. Flip the lever arm to the desired playing position.

SERVICE ADJUSTMENTS

If the tone arm fails to clear a stack of records or does not touch the record to be played when it sets down, adjust the tone arm height by means of the HEIGHT ADJUSTING SCREW (see Figure 26). To raise the tone arm, turn the screw clockwise; counterclockwise to lower the tone arm.

If the needle fails to land in the starting groove of the record, adjust the set-down position by means of the NEEDLE SET-DOWN ADJUSTMENT SCREW. Rotating the screw clockwise moves the set-down point toward the center post; counterclockwise rotation moves the set-down point away from the center post.

Needle pressure is adjusted by means of the NEEDLE-PRESSURE ADJUSTMENT KNOB (see Figure 26). To assure longer needle life, nominal needle pressure should be within 3 to 4 grams. If this value cannot be achieved, move the NEEDLE PRESSURE ADJUSTMENT SPRING accordingly. Once this adjustment is made, readjustment should not be necessary.

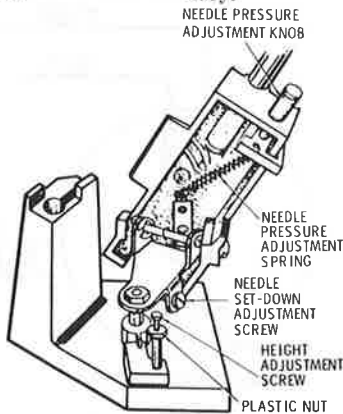
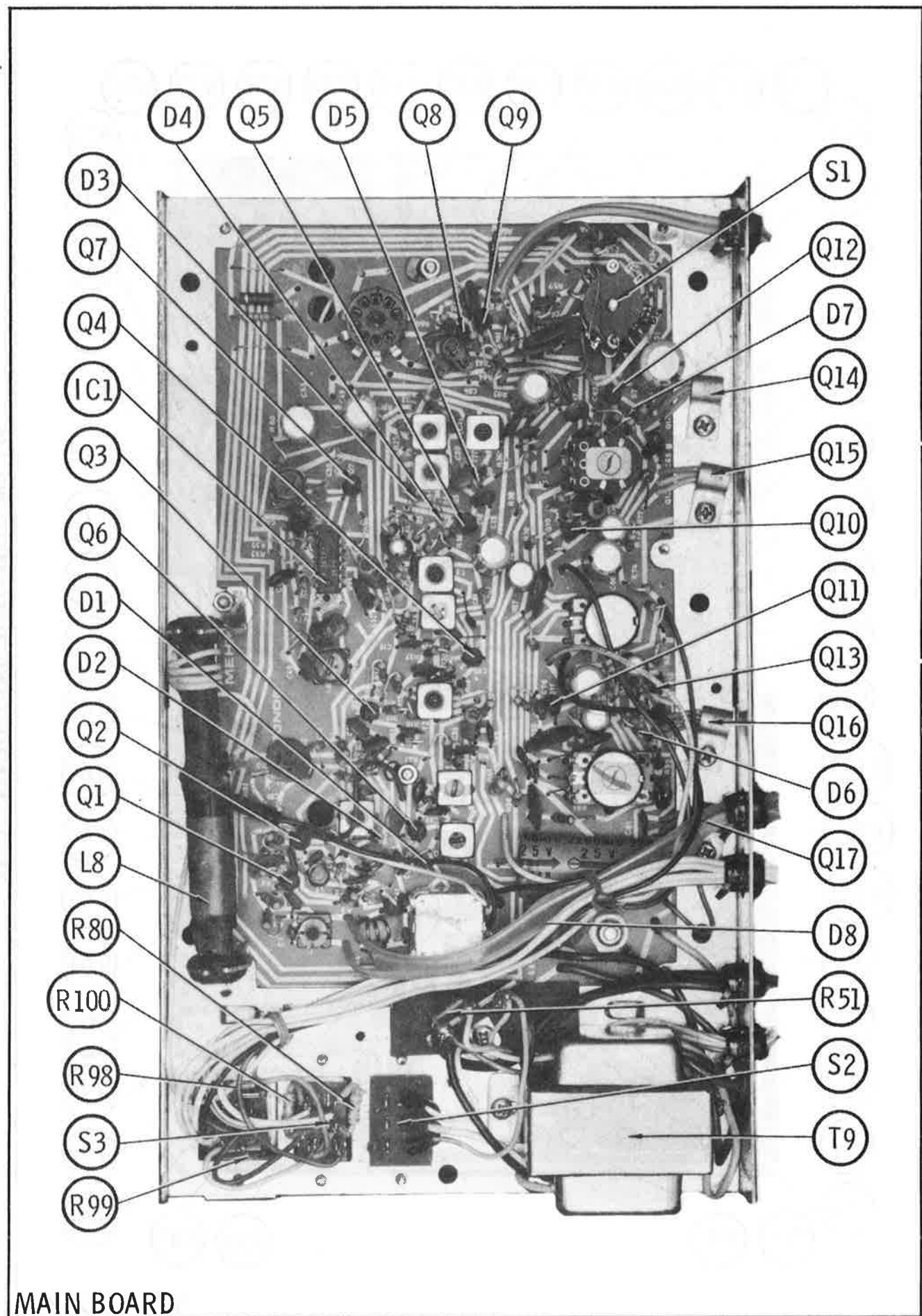


Figure 26. Tone Arm Adjustments

Courtesy of the Manufacturer

chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)

A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

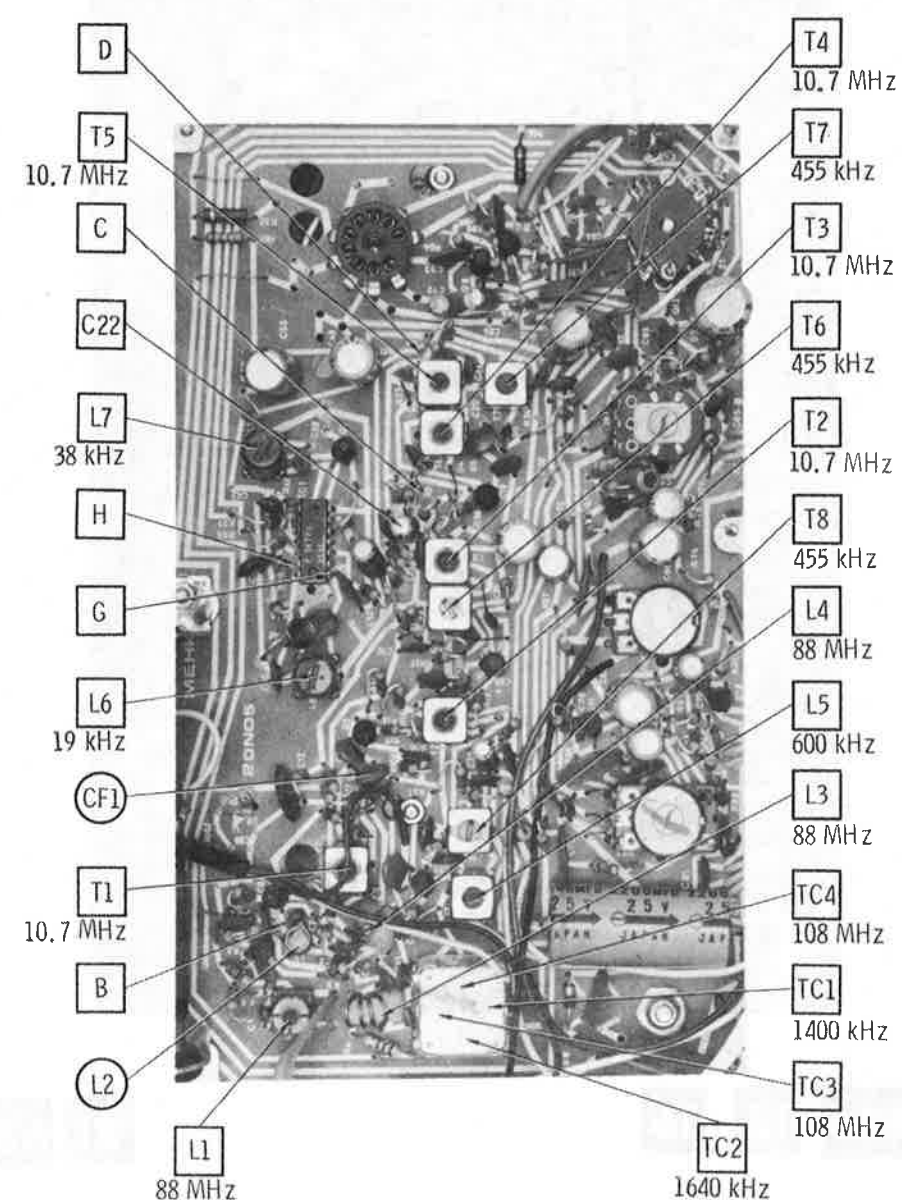


MAIN BOARD

ALIGNMENT INSTRUCTIONS (Continued)

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

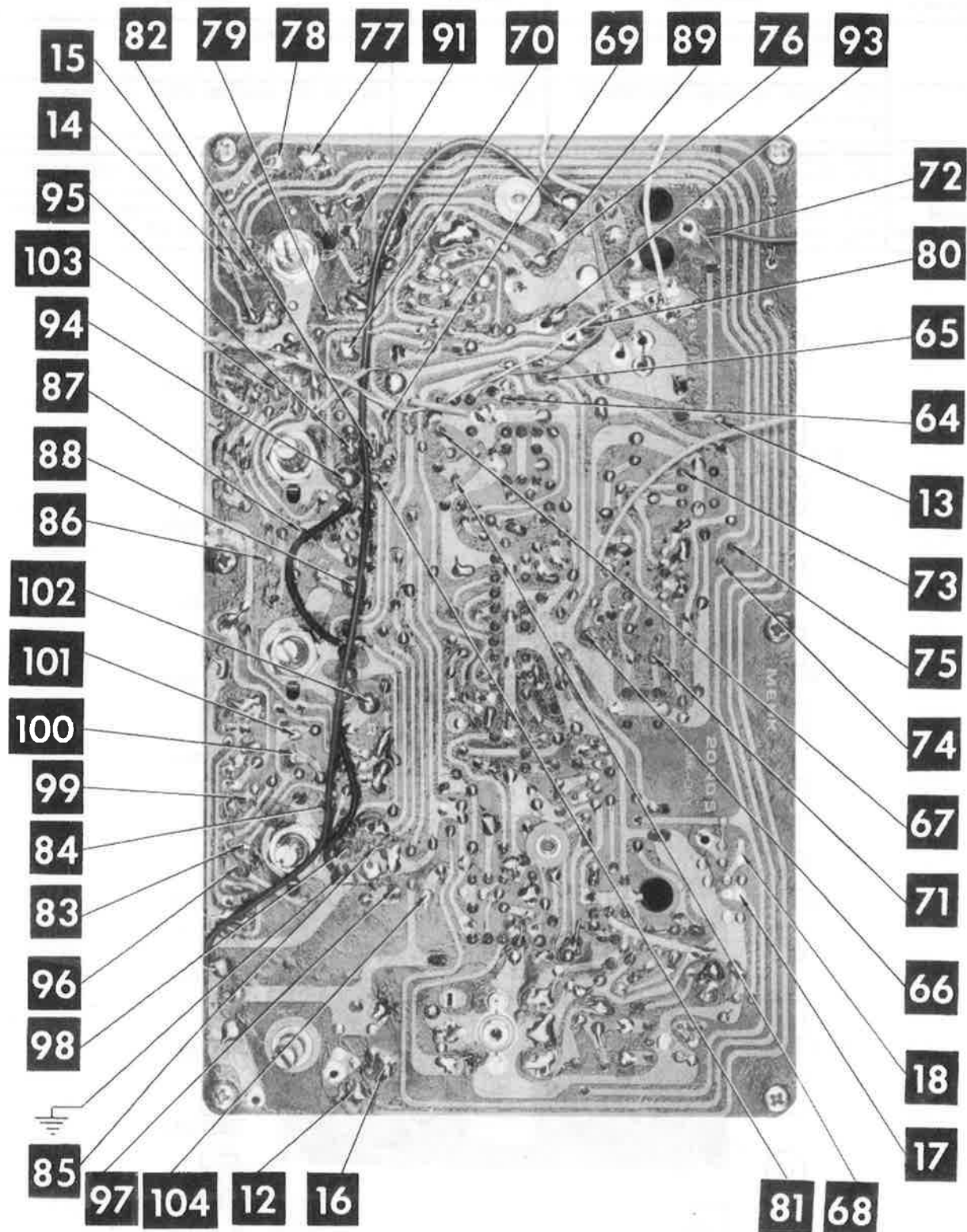
High side of generator thru 47K to point D.			
GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
19kHz	Vert input of scope thru 47K to point G.	L6	Adjust for maximum.
19kHz	Vert input of scope thru 47K to point H.	L7	Adjust for maximum 38kHz response.
Modulated Left Channel	Vert input of scope to IC1, Pin 11.	L7	Adjust for MINIMUM. This step should require only slight adjustment.
Modulated Right Channel	Vert input of scope to IC1, Pin 12.		Check for MINIMUM. If necessary, make compromise adjustment of L7.



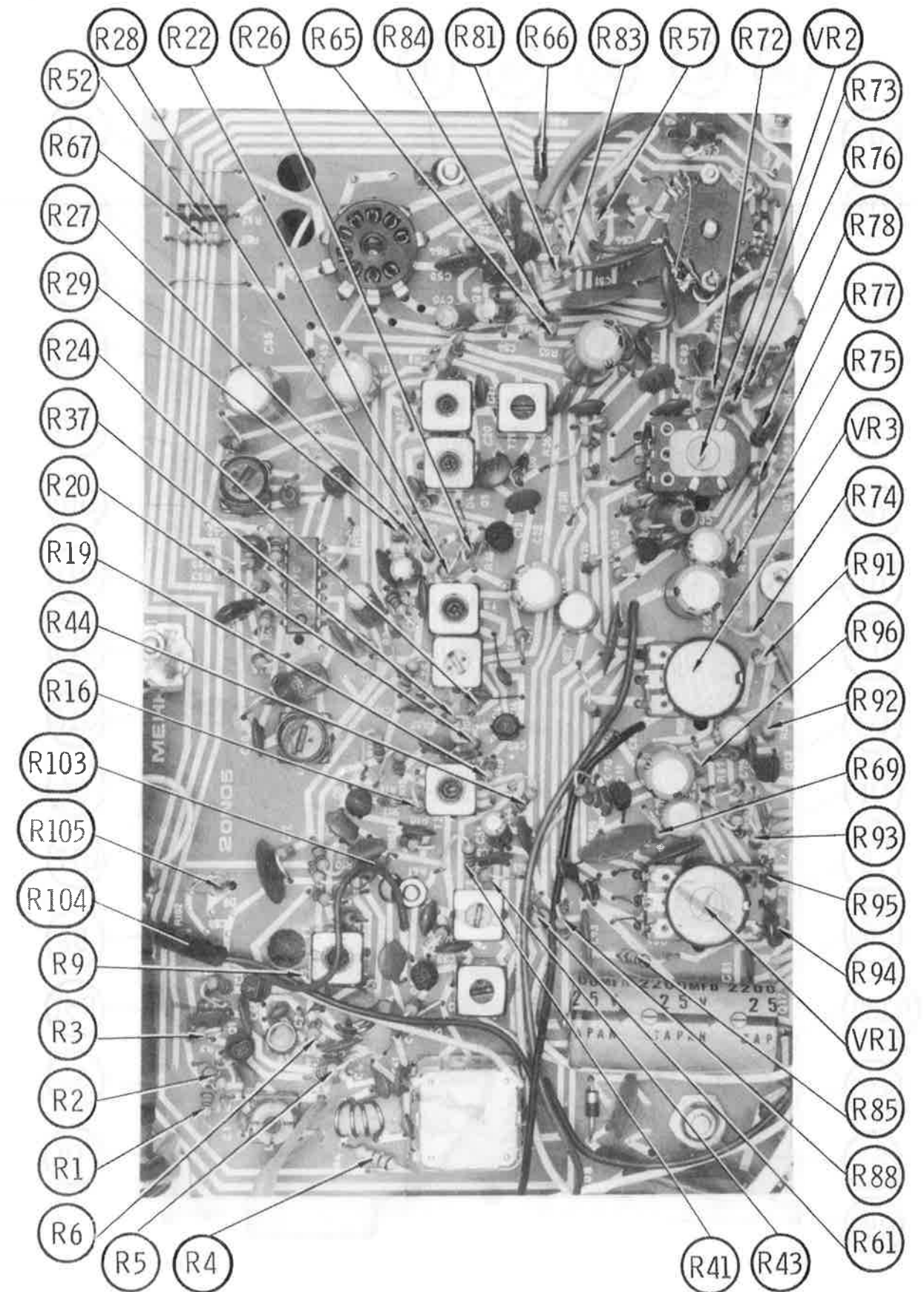
WARDS AIRLINE MODELS GMJ-2047B/58A/87B/96E/97B, GMJ-2127B/-2237C, GMJ-2347C/48A/67C/68A

FOLDER 3

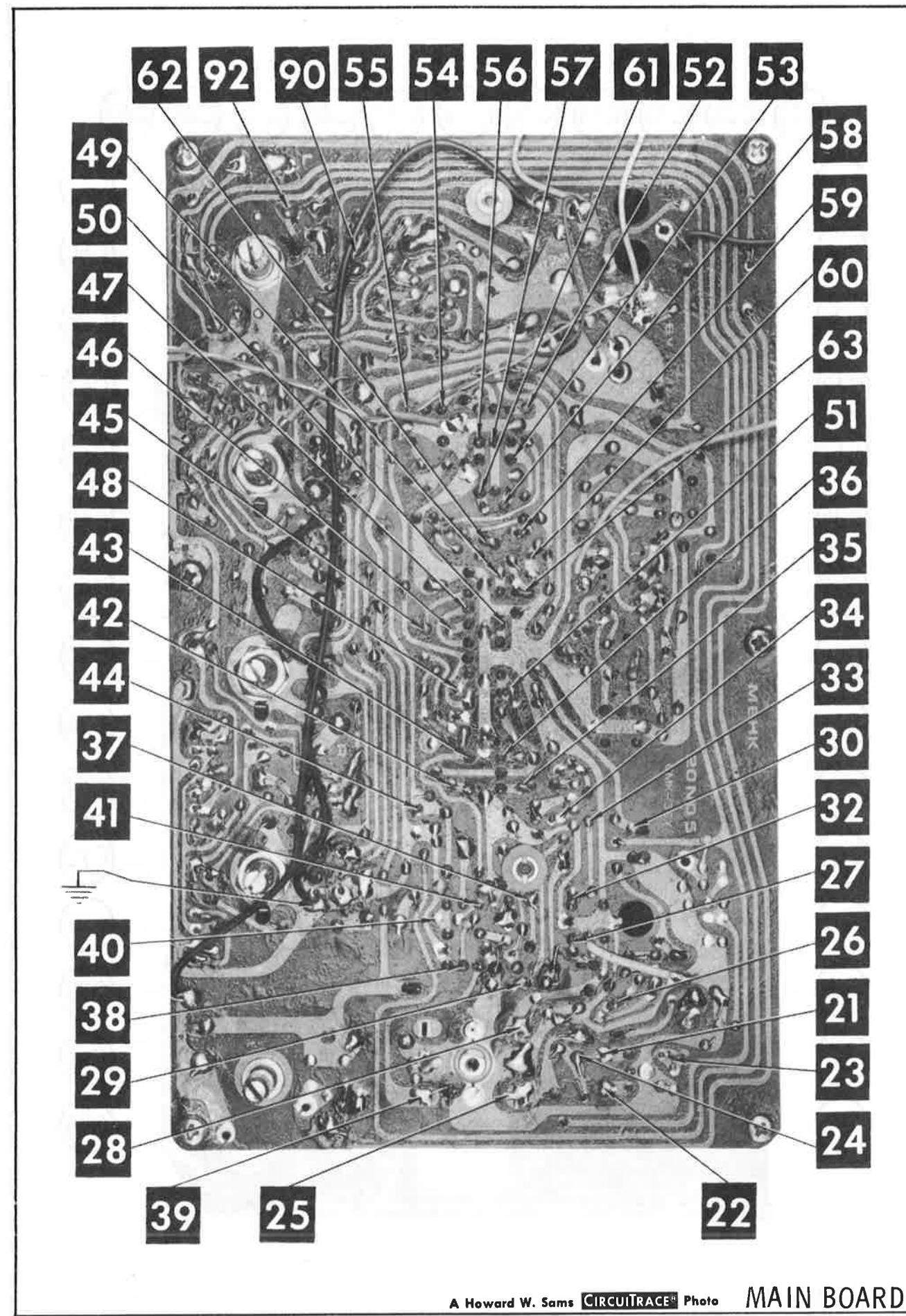
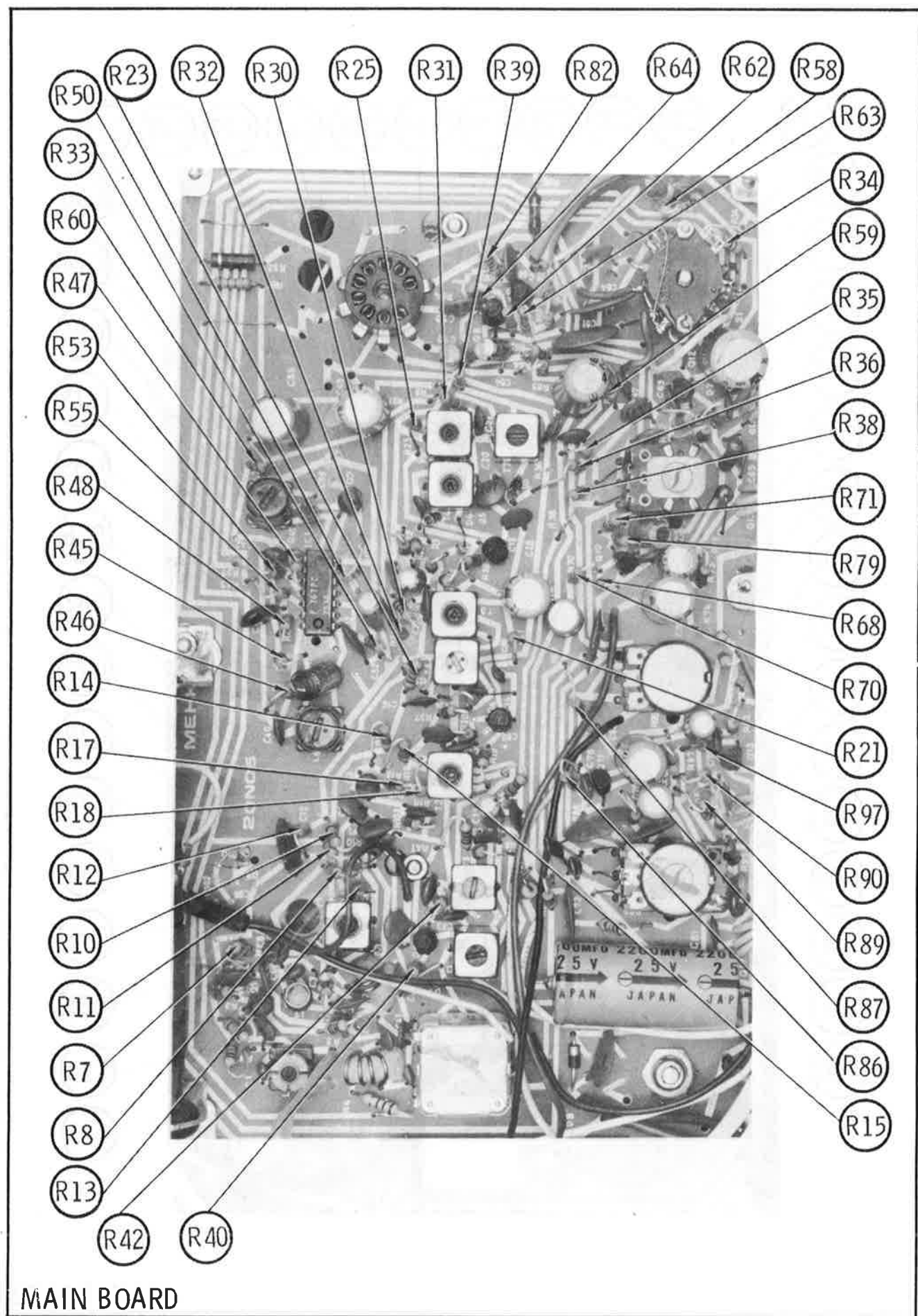
MAIN BOARD

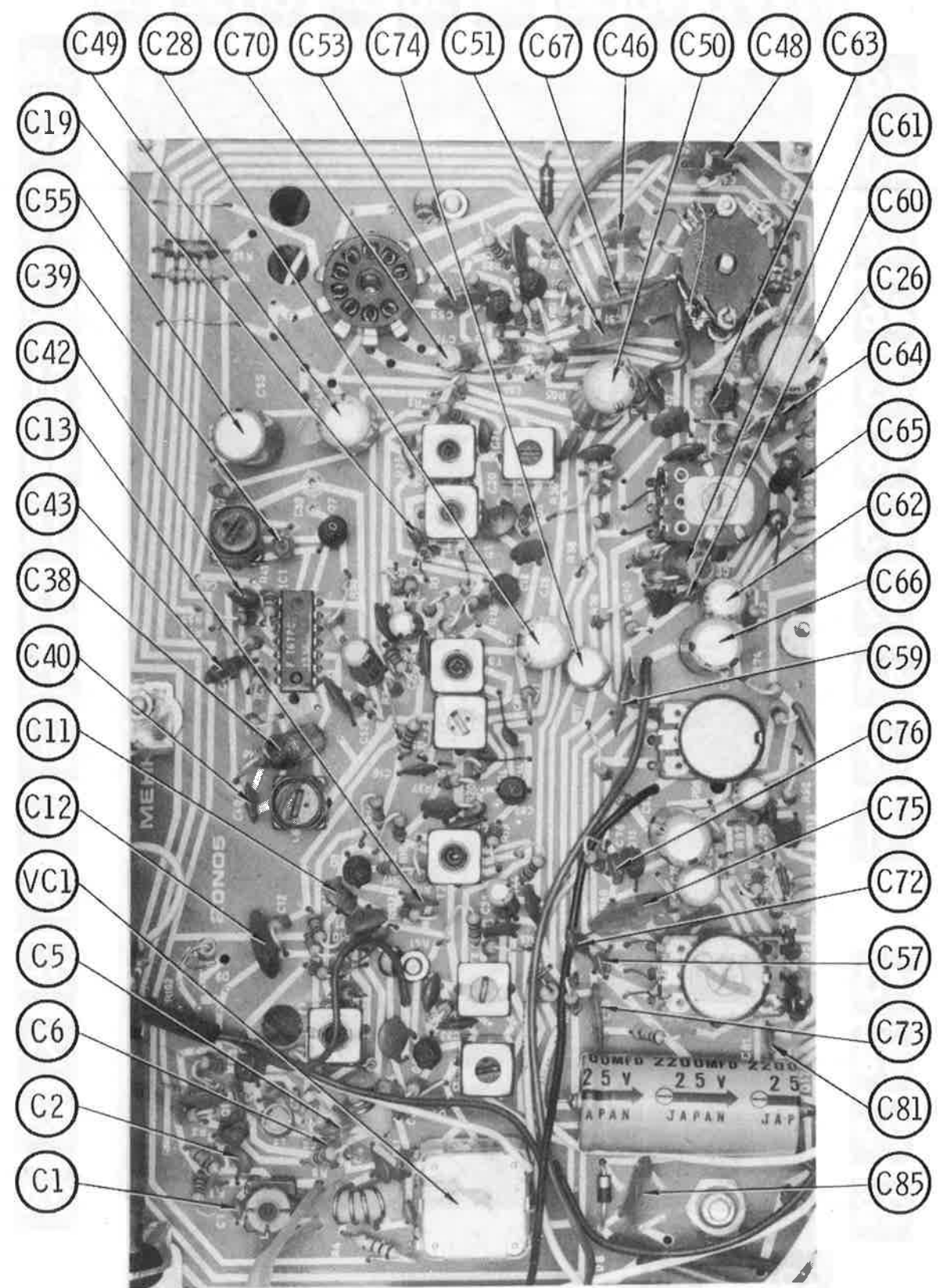


MAIN BOARD A Howard W. Sams CIRCUITRACE® Photo

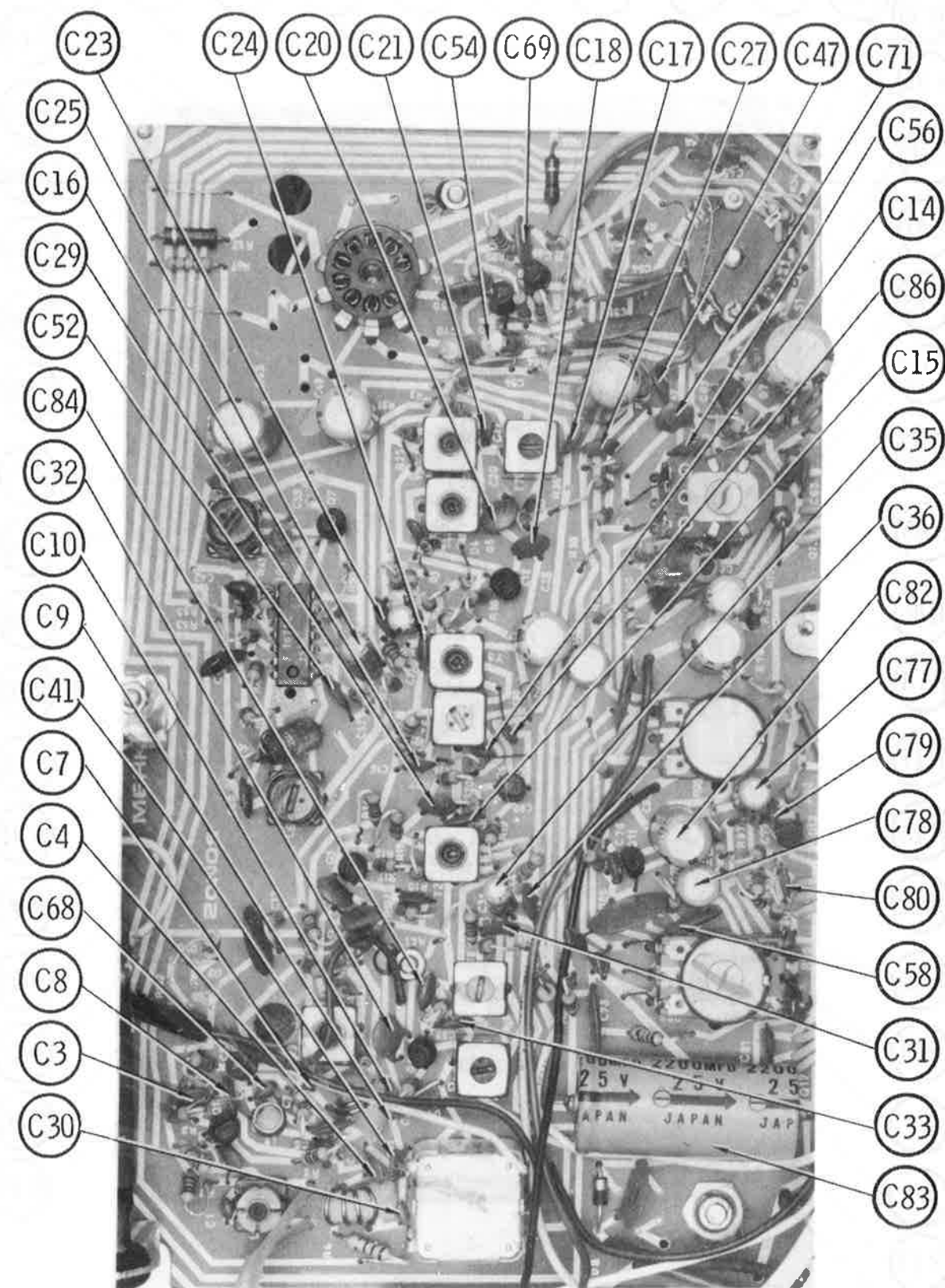


MAIN BOARD





MAIN BOARD



MAIN BOARD

PARTS LIST AND DESCRIPTION
(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA						
			GENERAL ELECTRIC PART No.	IR WORKMAN PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.
D1	1S2236	17M125 17M124	GE-90	D201	PTC214	HEPR2503	RE 195	SK3126	RT-262
D2	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218
D3	1N60		1N60(7)	1N60 (7)	PTC206M(6)	HEPR9135(7)	RE 86(6)	SK3088(7)	RT-263(7)
D4	1N60								
D5	1N60		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263
D6	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218
D7	1S1555		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218
D8	1S1885		GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213
D9	1S1555(1)		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218
IC1	UA767PC		GEIC-9	IC513	PTC721	HEPC6056P	RE 309-IC	SK3161	TVCN-10
LED 1									
LED 2									
Q1	2SK19GR		GE-FET-2	FE-100	PTC161	HEPF0021	RE 45	SK3116	RT-175
Q2	2SC394Y		GE-17	(1R)2SC460B	PTC121	HEPS0009	RE 9	SK3018	RT-309
Q3	2SC381R		GE-61	TR-24	PTC132	HEPS0011	RE 13	SK3124	RT-107A
Q4	2SC380Y		GE-61	TR-24	PTC132	HEPS0016	RE 28	SK3124	RT-107A
Q5	2SC380(0)		GE-61	TR-24	PTC132	HEPS0016	RE 28	SK3124	RT-107A
Q6	2SC372-0		GE-20	TR-24	PTC121	HEPS0015	RE 13	SK3018	RT-308
Q7	2SC372-0		GE-20	TR-24	PTC121	HEPS0015	RE 13	SK3018	RT-308
Q8	2SC732V		GE-62	TR-21	PTC139	HEPS0024	RE 192	SK3124	RT-304
Q9	2SC732V		GE-62	TR-21	PTC139	HEPS0024	RE 192	SK3124	RT-304
Q10	2SC828S		GE-18	TR-21	PTC121	HEPS0015	RE 192	SK3122	RT-302
Q11	2SC828S		GE-18	TR-21	PTC121	HEPS0015	RE 192	SK3122	RT-302
Q12	2SC1317P		GE-210	TR-21	PTC136	HEPS0025	RE 17	SK3024	RT-107A
Q13	2SC1318		GE-210	TR-21	PTC136	HEPS0025	RE 17	SK3024	RT-302
Q14	2SC1317P		GE-210	TR-21	PTC136	HEPS0025	RE 17	SK3024	RT-107A
Q15	2SC1318		GE-210	TR-21	PTC136	HEPS0025	RE 17	SK3024	RT-302
Q16	2SA643(5)		GE-67		PTC177	HEPS0025	RE 197		
Q17	2SD261(5)		GE-63		PTC178		RE 196		
Q18	2SD261(5)		GE-63		PTC178		RE 196		
Q19	2SA643(5)		GE-67		PTC177		RE 197		

- (1) Used in some versions.
- (5) Half of complementary pair. (Q14 and Q15; Q16 and Q17)
- (6) Matched pair.
- (7) Two required - select matched pair.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFRG. PART No.	CORNELL- DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C22	10 10V	CE10U10V100-10	PC10-25	VTT10A25	QV1-41	EV-1222
C25	4.7 10V	CE4.7U10V100-10	PC5-50	VTT4R7A50	QV1-27	EV-1319
C26	470 10V	CE470U10V100-10	PC500-16	VTT470J16	QV1-149	EV-1150
C28	470 10V	CE470U10V100-10	PC500-16	VTT470J16	QV1-149	EV-1150
C35	10 16V	CE10U16V100-10	PC10-25	VTT10A25	QV1-41	EV-1222
C49	470 16V	CE470U16V100-10	PC500-16	VTT470J16	QV1-151	EV-1250
C50	470 16V	CE470U16V100-10	PC500-16	VTT470J16	QV1-151	EV-1250
C53	.22 35V	(1)		TDC224M050EL	QDT1-10	SD50-R229
C54	10 10V	CE10U10V100-10	PC10-25	VTT10A25	QV1-41	EV-1222
C55	470 16V	CE470U16V100-10	PC500-16	VTT470J16	QV1-151	EV-1250
C61	4.7 10V	CE4.7U10V100-10	PC5-50	VTT4R7A50	QV1-27	EV-1319
C62	100 10V	CE100U10V100-10	PC100-10	VTT100E10	QV1-93	EV-1130
C66	470 16V	CE470U16V100-10	PC500-16	VTT470J16	QV1-151	EV-1250
C69	.22 35V	(1)		TDC224M050EL	QDT1-10	SD50-R229
C70	10 10V	CE10U10V100-10	PC10-25	VTT10A25	QV1-41	EV-1222
C74	100 16V	CE100U16V100-10	PC100-16	VTT100F16	QV1-95	EV-1230
C77	4.7 10V	CE4.7U10V100-10	PC5-50	VTT4R7A50	QV1-27	EV-1319
C78	100 10V	CE100U10V100-10	PC100-10	VTT100E10	QV1-93	EV-1130
C82	470 16V	CE470U16V100-10	PC500-16	VTT470J16	QV1-151	EV-1250
C83	2200 25V	25M001	WBR2000-25	TC2520A	QE1-629	TVA-1213

- (1) Used in some versions.

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA			
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	20		DTZ-20	NP020	CN0420	10TCC-Q20
C2	.001		DD-102		GP210	10TS-D10
C3	.005		DC-502	MGP005	TA250	TG-D50
C4	.001		DD-102		GP210	10TS-D10
C5	300 10%		DD-301	GP300	GP330	10TS-T30
C6	5		DTZ-4R7	NP04P7	CN0547	10TCC-V47
C7	5		DTZ-4R7	NP04P7	CN0547	10TCC-V47
C8	.005		DC-502	MGP005	TA250	TG-D50
C9	5		DTZ-4R7	NP04P7	CN0547	10TCC-V47
C10	.001		DD-102		GP210	10TS-D10
C11	.01		DC-103	MGP01	TA110	TG-S10
C12	.04				GP140	5GA-S40
C13	.02		DC-203	MGP02	TA120	TG-S20

PARTS LIST AND DESCRIPTION (CONTINUED)
(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE	PART No.
						Q-LINE	GENERAL LINE
C14	4 NPO +.25	26M043					
C15	.005		DC-502	MGP005	TA250	QC2-123	TG-D50
C16	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C17	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C18	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C19	2		DTZ-2R2	NP02P2	CN0522		10TCC-V22
C20	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C21	100 10%		DD-101	GP100	GP310		10TS-T10
C23	300 10%		DD-301	GP300	GP330		10TS-T30
C24	300 10%		DD-301	GP300	GP330		10TS-T30
C27	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C29	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C30	15 NPO 5%		DTZ-15	NP015	CN0415		10TCC-Q15
C31	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C32	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C33	.005		DC-502	MGP005	TA250	QC2-123	TG-D50
C36	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C38	.01 5%	CJ.01U50V5					
C39	.0025 5%						
C40	.005		DC-502	CD19FD252J03	SX225	QC2-123	TG-D50
C41	10		DTZ-10	NP010	CN0410		10TCC-Q10
C42	.01 100V 10%			WMF1S1	EWFA1110	QF1-91	1PB-S10
C43	.01 100V 10%			WMF1S1	EWFA1110	QF1-91	1PB-S10
C46	200 10%		DD-201	GP200	GP320		10TS-T20
C47	.001		DD-102G	GP1000	GP210	QC2-81	5GA-D10
C48	200 10%		DD-201	GP200	GP320		10TS-T20
C51	.1		DC-104	MGP1	TA010	QC2-233	TG-P10
C52	500 10%		DD-501	GP500	GP350		10TS-T50
C53	.2	26M077 (2)					
C56	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C57	.0047 100V 10%			WMF1D47	EWFA247	QF1-57	1PB-D47
C58	.04				GP140		5GA-S40
C59	.1		DC-104	MGP1	TA010	QC2-233	TG-P10
C60	100 10%		DD-101	GP100	GP310		10TS-T10
C63	150		DD-151		GP315		10TS-T15
C64	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C65	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C67	.1		DC-104	MGP1	TA010	QC2-233	TG-P10
C68	15 10%						
C69	.2	26M077 (2)					
C71	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C72	.0047 100V 10%			WMF1D47	EWFA247	QF1-57	1PB-D47
C73	.04				GP140		5GA-S40
C75	.1		DC-104	MGP1	TA010	QC2-233	TG-P10
C76	100 10%		DD-101	GP100	GP310		10TS-T10
C79	150		DD-151		GP315		10TS-T15
C80	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C81	.02		DC-203	MGP02	TA120	QC2-157	TG-S20
C84	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C85	.01		DC-103	MGP01	TA110	QC2-141	TG-S10
C86	1				CN0510		10TCC-V10
TC1	Trimmer	(1)					
TC2	Trimmer	(1)					
TC3	Trimmer	(1)					
TC4	Trimmer	(1)					
VC1	Tuning Gang	28M030					

- (1) Part of Tuning Gang.
- (2) Used in some versions.

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
VR1A	Tone (Left)	100K	22M292				
B	Tone (Right)	100K					
VR2A	Volume (Left)	100K Tap @ 35K	22M291				
B	Volume (Right)	100K Tap @ 35K					
VR3	Balance	200K	22M293				

PARTS LIST AND DESCRIPTION
(When ordering parts, state Model, Part Number, and Description.)

COILS (RF-IF)

ITEM No.	FUNCTION	
L1	FM Antenna	47M719
L2	RF Choke	47M725
L3	FM RF	47M724
L4	FM Oscillator	47M726
L5	AM Oscillator	47M506
L6	19kHz Input	47M542
L7	38kHz Output	47M543
L8	Loopstick	50M044
T1	FM Input IF	47M536
T2	FM Interstage	47M534
T3	FM Interstage	47M534
T4	Ratio Det. (Sec.)	47M535
T5	Ratio Det. (Pri.)	47M537
T6	AM Interstage	47M486
T7	AM Output	47M502
T8	AM Input IF	47M754

TRANSFORMER (Power)

ITEM No.	RATING		
	PRI.	SEC. 1	
T9	120V AC @ .17A AC	15.90V AC @ .35A DC Tap @ 6.80V AC @ .065A AC	11M16

PHONO CARTRIDGE & NEEDLE

ITEM No.	MFR. PART No.		
	CARTRIDGE	NEEDLE	
M1	60-176		
M2		T-58XSD	

- (1) For respective replacement cartridge

MISCELLANEOUS

ITEM No.	PART NAME	
CF1	Filter	47M761
S1	Switch	12M311
S2	Switch	12M293
S3	Switch	12M293
	AC Power Cord	88MW10
	Hold Down Arm	B11040
	Idler Wheel	A10162
	Motor	31M026
	Motor	TP8/21
	Tone Arm	B10749
	Switch	B10601
	45 rpm Adaptor	88-929

CABINETS & CABINET PARTS

ITEM
Dial Pointer Assembly
Knob,Balance/Function/Loudness/Tone

WIRING DATA

General-use Unshielded Hook-up Wire
Power Cord
Low-loss Shielded Lead (Interconnect)
Phono Pick-up Arm Cable

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	FM Antenna	47M719			
L2	RF Choke	47M725			
L3	FM RF	47M724			
L4	FM Oscillator	47M726			
L5	AM Oscillator	47M586			
L6	19kHz Input	47M542			
L7	38kHz Output	47M543			
L8	Loopstick	50M044			
T1	FM Input IF	47M536			
T2	FM Interstage	47M534			
T3	FM Interstage	47M534			
T4	Ratio Det. (Sec.)	47M535			
T5	Ratio Det. (Pri.)	47M537			
T6	AM Interstage	47M486			
T7	AM Output	47M502			
T8	AM Input IF	47M754			

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFG. PART No.	THORDARSON PART No.	TRIAD PART No.	
T9	120V AC @ .17A AC	15.90V AC @ .35A DC Tap @ 6.80V AC @ .065A AC	11M165			

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	60-176		1312d	N782-sd(1)	5626D	3395DS(1)	
M2		T-58XSD		N782-7d		3395DS	

(1) For respective replacement cartridge.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	47M761	Ceramic (10.7MHz) Function (AM-FM Stereo-Phono-Tape) Power (On-Off) 2 Channel-4 Channel
S1	Switch	12M311	
S2	Switch	12M293	
S3	Switch	12M293	
	AC Power Cord	88MW109	E-V/GAME Replacement Number 1499-34. WALSCO Replacement Number 1499-34. Fireplace (Model GMJ-2087B) Changer Tube only Power (On Changer)
	Hold Down Arm	B110406-3	
	Idler Wheel	A101623	
	Motor	31M026	
	Motor	TP8/212	
	Tone Arm	B107499-8	
	Switch	B106016	
	45 rpm Adaptor	88-9294	

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

ITEM	PART No.	ITEM	PART No.
Dial Pointer Assembly Knob, Balance/Function/Loudness/Tone	31M072 40M270	Knob, Tuning	40M271

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8528 (Solid) Available in 13 Colors 8522 (Stranded) Available in 13 Colors
Power Cord	Use BELDEN No. 17106 (Plastic) -6 Ft. 17109 (Plastic) -9 Ft.
Low-loss Shielded Lead (Interconnecting) .	Use BELDEN No. 8401 or 8421
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two-Conductor-Unshielded) 8429 (Two-Conductor-Shielded) 8419 (Three-Conductor-Shielded)