

CABINET-REAR VIEW

SERVICING IN THE FIELD

CRT IMPLOSION PROTECTION AND CLEANING

Implosion protection is an integral part of the picture tube, cleaning accomplished without CRT removal.

FUSE DEVICES

A 1.5-amp fuse is used for AC line protection. (See photo, Cabinet - Rear View.)

VHF TUNER

The fine tuning mechanically engages oscillator slug for adjustment (one slug for each channel).

UHF TUNER

The UHF Tuner employs a detent mechanism for channel selection. Fine tuning is adjusted by rotating the fine tuning knob.

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the horiz hold coil. (See photo, Cabinet - Rear View.)

AGC

The AGC may be varied by an AGC Delay control. (See Placement Chart.)

CENTERING

Centering is accomplished by proper adjustment of two magnetic rings located on the yoke rear cover. (See photo, Cabinet - Rear View.)

SET 1659 FOLDER 1

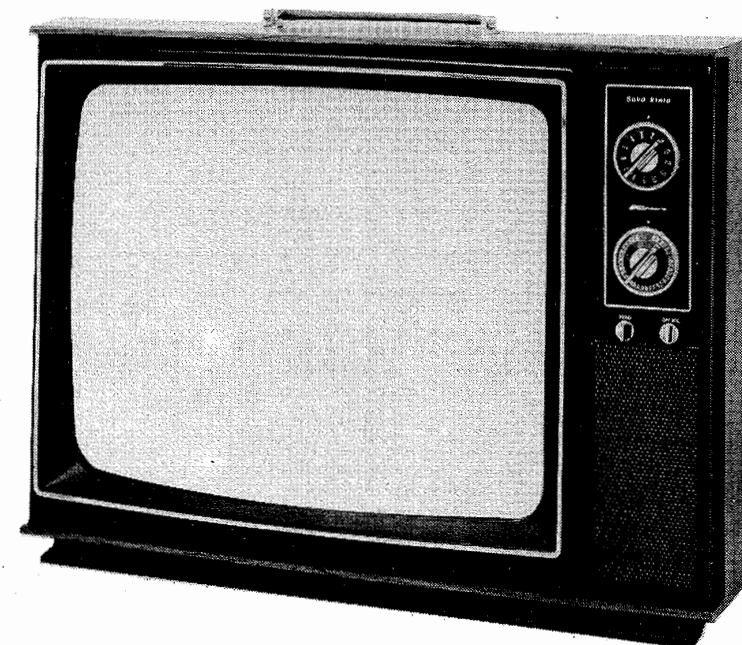
K MART MODELS
SKB1600/1900AD/AE/AF/AG/AH

PHOTOFACT® Folder

with CIRCUITRACE

K MART MODELS
SKB1600/1900AD/AE/AF/AG/AH

For Supplier Address See PHOTOFACT Index



Model SKB1900A

SAFETY PRECAUTIONS

See page 9

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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. 7PC1815R

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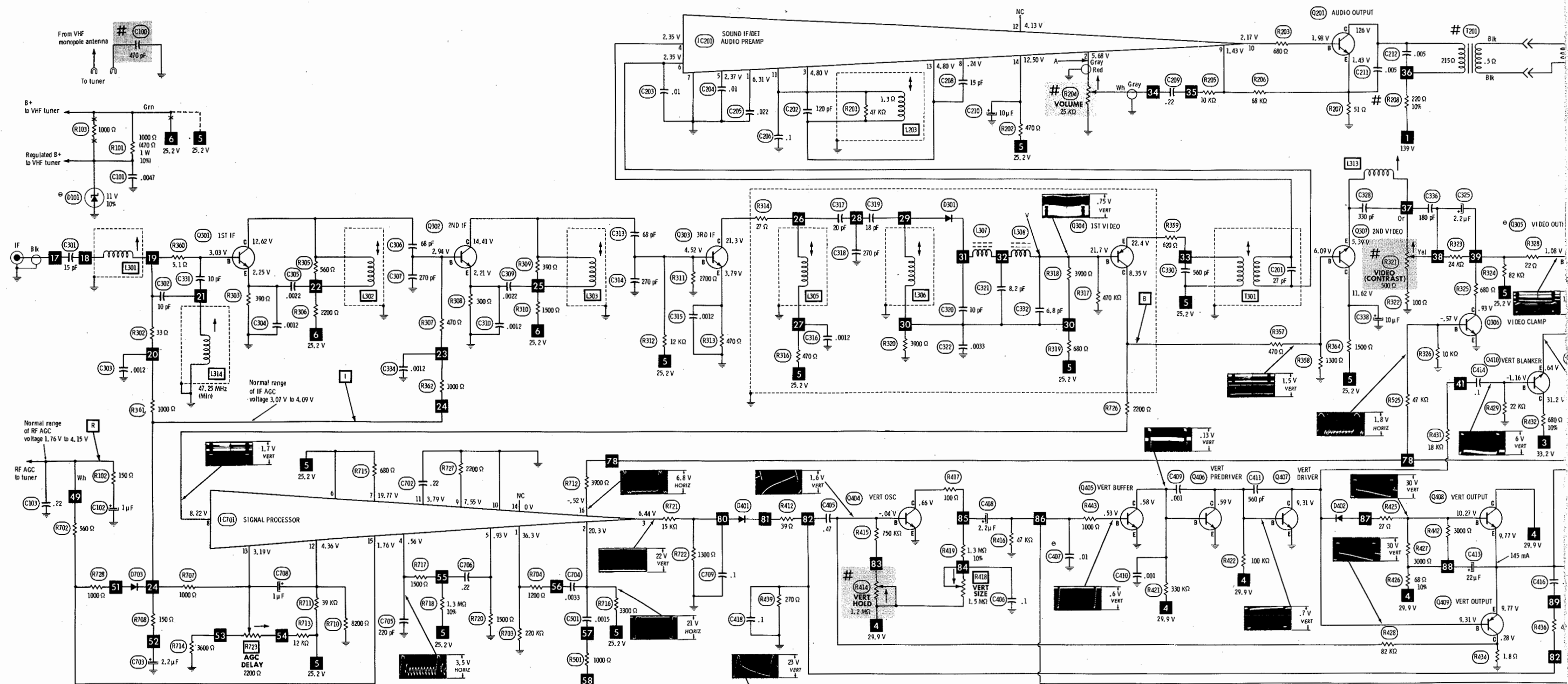
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DATE 6-77

SET 1659 FOLDER 1

K MART MODELS
SKB1600/1900AD/AE/AF/AG/AH

SET 1659 FOLDER 1



For SAFETY use only equivalent replacement part.

— Circuitry not used in some versions

--- Circuitry used in some versions

⊙ See parts list

⊛ Nominal value

⊥ Ground

Waveforms: triggered scope, keyed rainbow generator

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.

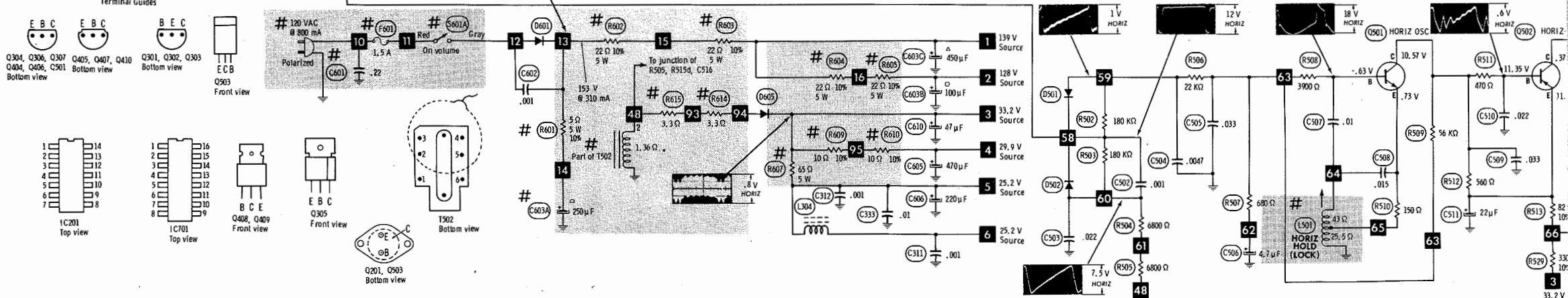
Terminal identification may not be found on unit.

Resistors are 1/2W or less, 5% unless noted.

Value in () used in some versions.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITACE

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DISASSEMBLY INSTRUCTIONS

Chassis Removal

Remove six screws holding cabinet back. While removing back, disconnect antenna leads from inside set.

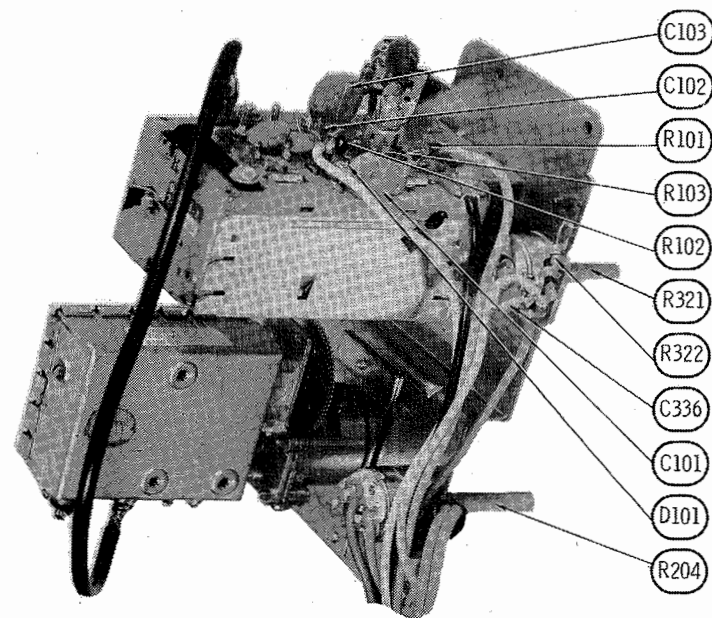
NOTE: The chassis is mounted with slide-out guides molded into cabinet bottom and is secured to cabinet front with a mounting screw.

Remove all knobs and lay set face down on a soft protective surface. Disconnect CRT socket, HV anode lead, and speaker wires. Loosen and remove deflection yoke.

Remove four to six mounting screws holding tuner assembly and remove hex head screw (bottom) holding chassis. Slide chassis partially from cabinet and disconnect ground wire. Lift chassis and tuner assembly from cabinet.

CRT Removal

Follow "Chassis Removal" procedure. Remove four screws holding CRT brackets. Lift CRT from cabinet front. Do not lift CRT by the neck.



TUNER ASSEMBLY

RESISTANCE MEASUREMENTS

MEASUREMENTS BELOW TAKEN WITH METER HAVING .08V MAX BETWEEN PROBE TIPS													
ITEM	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	PIN 13
V301	FIL	5000	300K	5000	NC	5000	110K	FIL					
IC201	12K	4200	5200	INF	4600	INF	0	50	68K	INF	5200	2600	5200
IC701	220K	4800	15K	1.3M	1500	1800	2500	3800	2200	0	INF	6800	3000
												PIN 15 5200	PIN 16 900
ITEM	E	B	C		ITEM	E	B	C		ITEM	E	B	C
Q201	51	INF	14K (1)		Q306	0	8200	20K		Q408	60K (1)	3400	1800
Q301	390	5000	4000		Q307	560	1300	3200		Q409	60K (1)	INF (2)	1.8
Q302	300	5500	3300		Q404	0	80K	1.7M		Q410	75	22K	2500
Q303	470	2200	2200		Q405	0	20K	330K		Q501	175	55K	2600
Q304	2400	5600	1700		Q406	0	330K	100K		Q502	2200	3300	INF (2)
Q305	75	20K	110K		Q407	0	100K	INF (2)		Q503	0	1.4	14K (1)

- (1) This reading will vary depending upon the condition of the electrolytic in the circuit.
 (2) Reading depends upon polarity of meter connections.

TROUBLESHOOTING CHECK CHART

The following chart lists component failures most likely to produce the indicated symptom.

SWEEP

No raster, has sound: D505, CRT.
 No raster, no sound: Horiz Osc/Driver/Output, D504, D605.
 No Vert deflection: Vert Osc/Buffer/Predriver/Driver/Outputs.
 Poor vert lin or foldover: Vert Osc/Buffer/Predriver/Driver/Outputs.
 Poor horiz lin or foldover: Horiz Driver/Output, D504.
 Narrow picture: Horiz Driver/Output, D504.

Vert off freq: Vert Osc.
 Horiz off freq: D501, D502, Horiz Osc.

SYNC

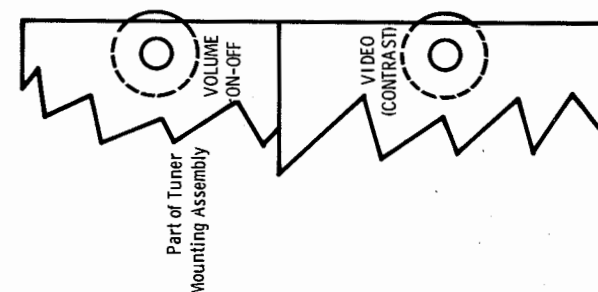
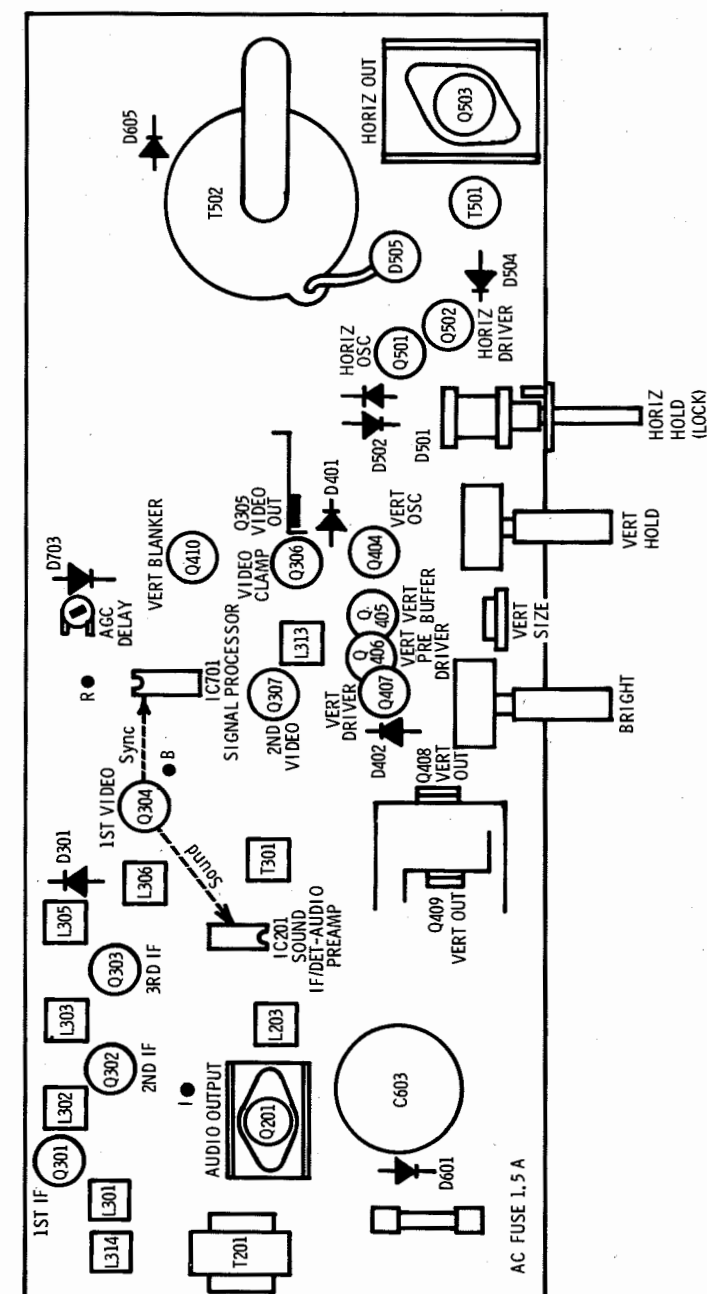
No vert sync: Vert Osc.
 No horiz sync: D501, D502, Horiz Osc.
 No vert/horiz sync: Signal Processor, D401.

PICTURE or SOUND

No pic, no sound, no raster: Fuse, D601, D605.
 No pic, no sound, has raster: Tuner, 1st/2nd/3rd IFs, D301.
 No pic, no sound, has snow: Tuner, Signal Processor.
 No pic, has sound, no raster: 2nd Video, Video Output/Clamp, Vert Blanker, CRT.
 Has pic, no sound: Sound IF-Det-Audio Preamp, Audio Output.
 Overloaded picture: Signal Processor, D301.

TOP VIEW

D101 Mounted on VHF Tuner



PLACEMENT CHART

K MART MODELS
 SKB1600/1900AD/AE/AF/AG/AH

FOLDER 1

TV ALIGNMENT INSTRUCTIONS

Use an isolation transformer, or observe polarity, and maintain line voltage at 120VAC. Allow a 20-minute warm-up period for receiver and test equipment.
Suggested Alignment Tools: GC ELECTRONICS

L203, L313, T301, VHF Tuner IF Output Coil9296, 9297, 9300
L301, L302, L303, L305, L306, L3149440

PRELIMINARY INSTRUCTIONS

Set the channel selector to the highest unused channel. Set scope sweep to external. Connect scope vertical input to scope vertical input on sweep/marker generator. Connect scope external horizontal input to scope horizontal input on sweep/marker generator. Ground test equipment to TV chassis unless specified otherwise. Use only enough generator output to provide a usable indication.
Note: Response may vary slightly from that shown.
Connect a jumper between test points I and R.
Connect a Bias Supply to test point I and adjust for 3.6 volts.

VIDEO IF ALIGNMENT

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To test point B.	Thru .001uF to mixer test point on VHF tuner.	44MHz (10MHz Sweep)	47.25MHz	Adjust L314 for minimum. See Figure 1.
"	"	"	42.17MHz 44.00MHz 45.75MHz 47.25MHz	Adjust L301, L302, L303, L305, L306, VHF Tuner IF Output Coil for maximum gain and symmetry of response. See Figure 2. L301 affects 42.17MHz. L302 affects 44.00MHz. L303 affects 42.17MHz and 44.00MHz. L305 affects 45.75MHz. L306 affects Tilt. VHF Tuner IF Output Coil affects overall response. See Figure 2.

4.5MHz TRAP ALIGNMENT

Tune in a strong TV signal and set the contrast at maximum. Adjust the fine tuning until a beat pattern is visible on the screen. Adjust L313 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Tune in a station and adjust T301 for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce the signal while aligning for undistorted output by adjusting L203.

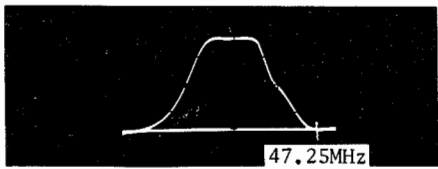


Fig. 1.

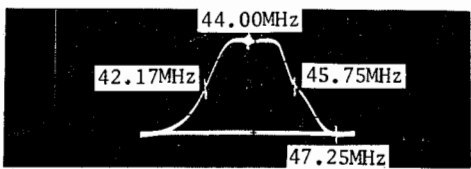
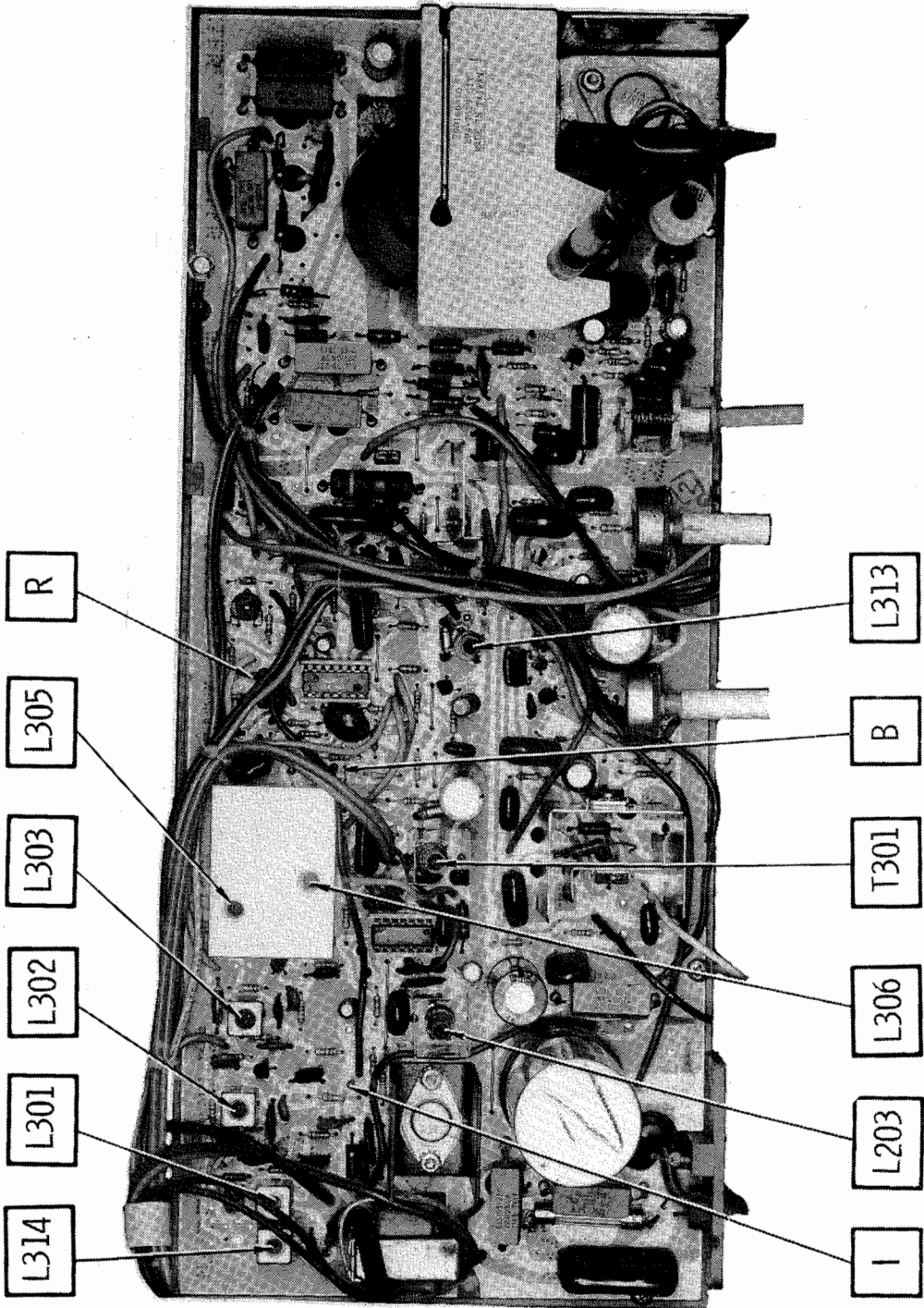


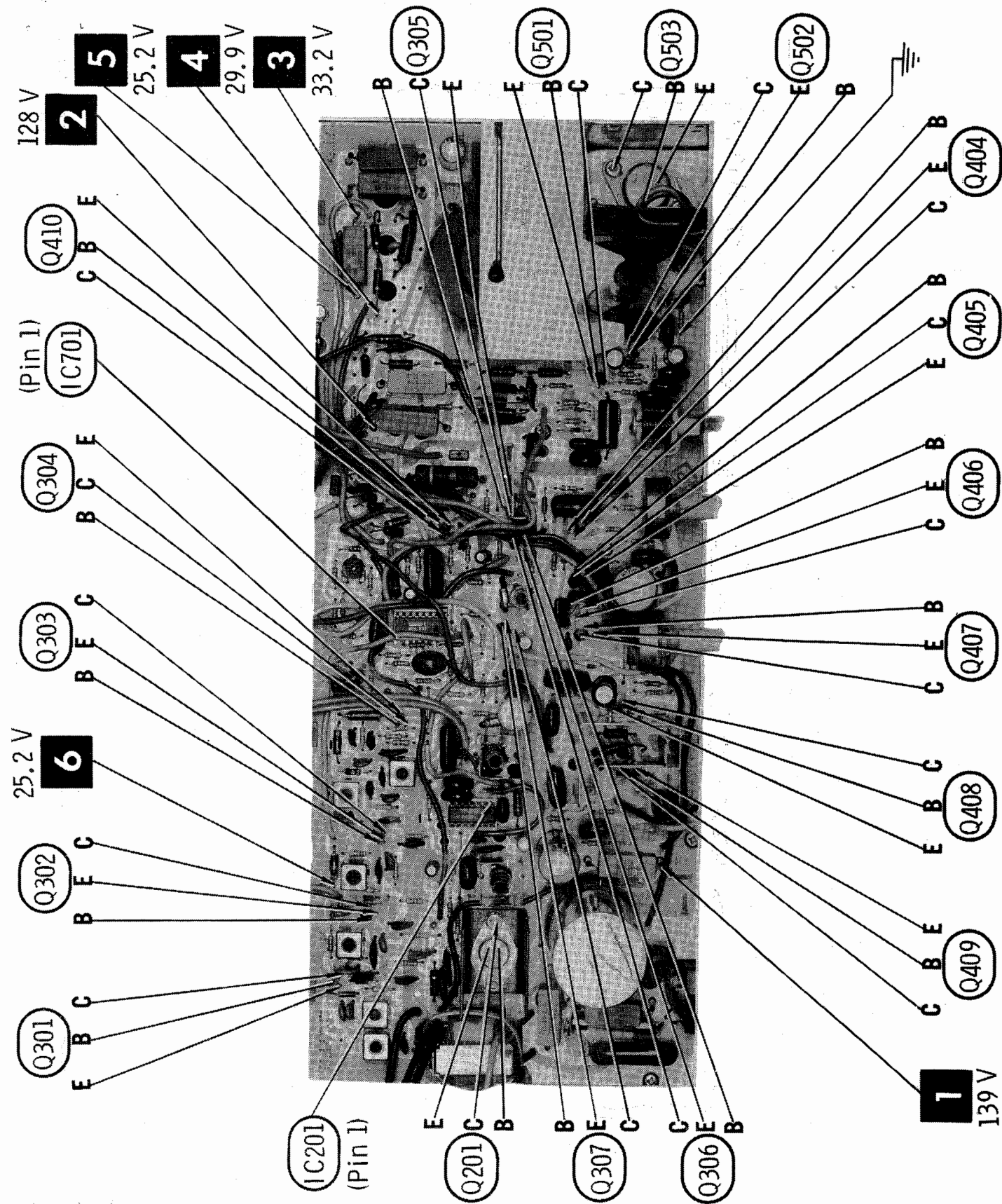
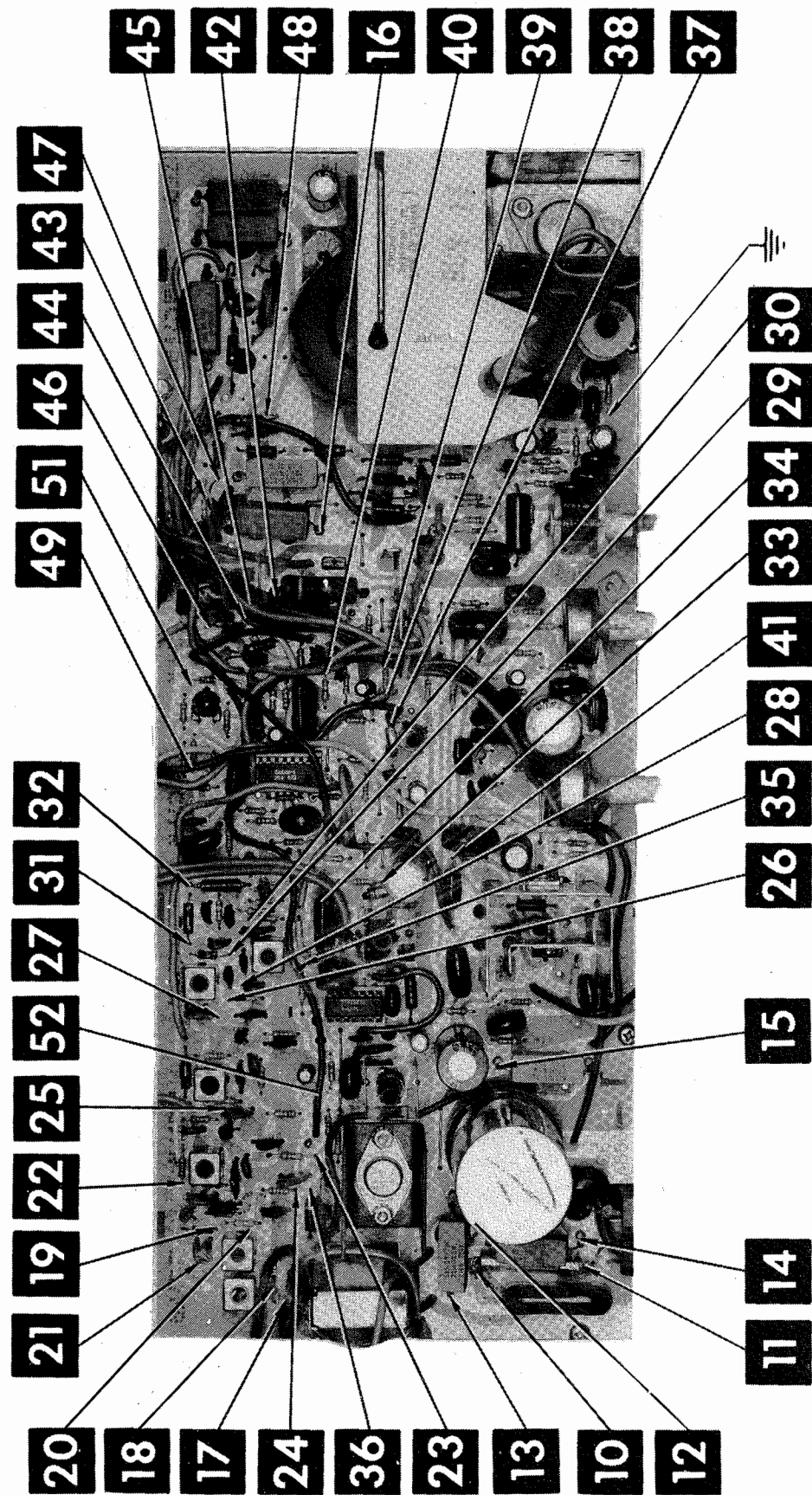
Fig. 2.

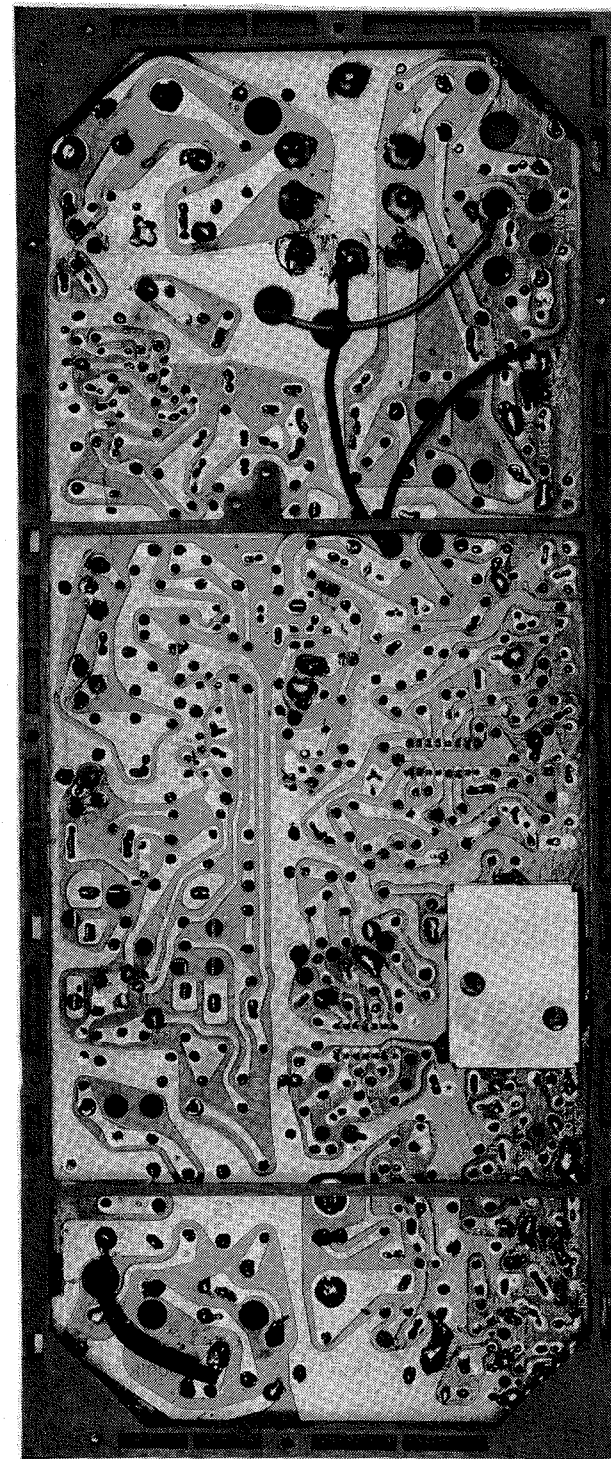
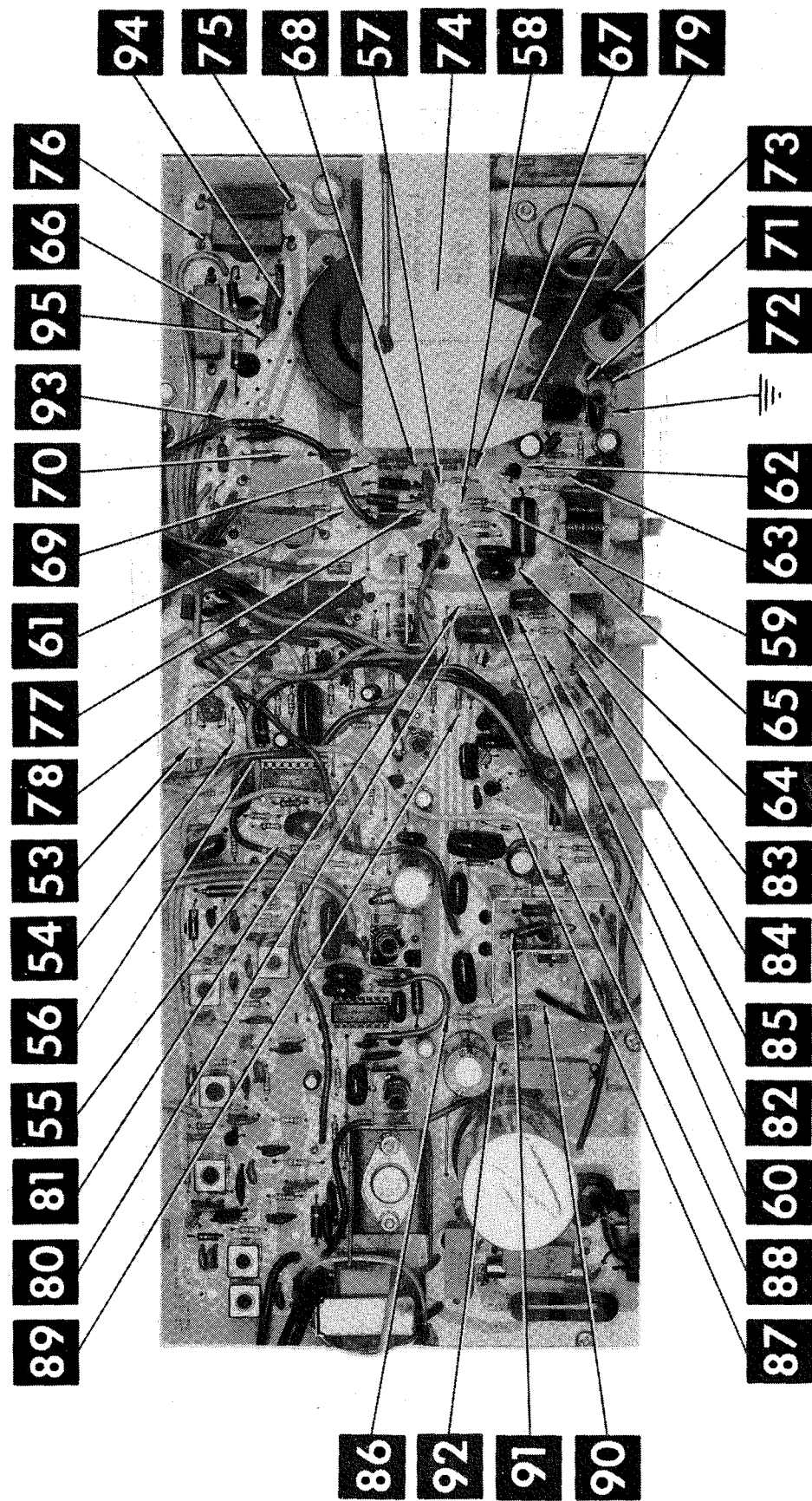


CHASSIS-TOP VIEW

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FOLDER 1

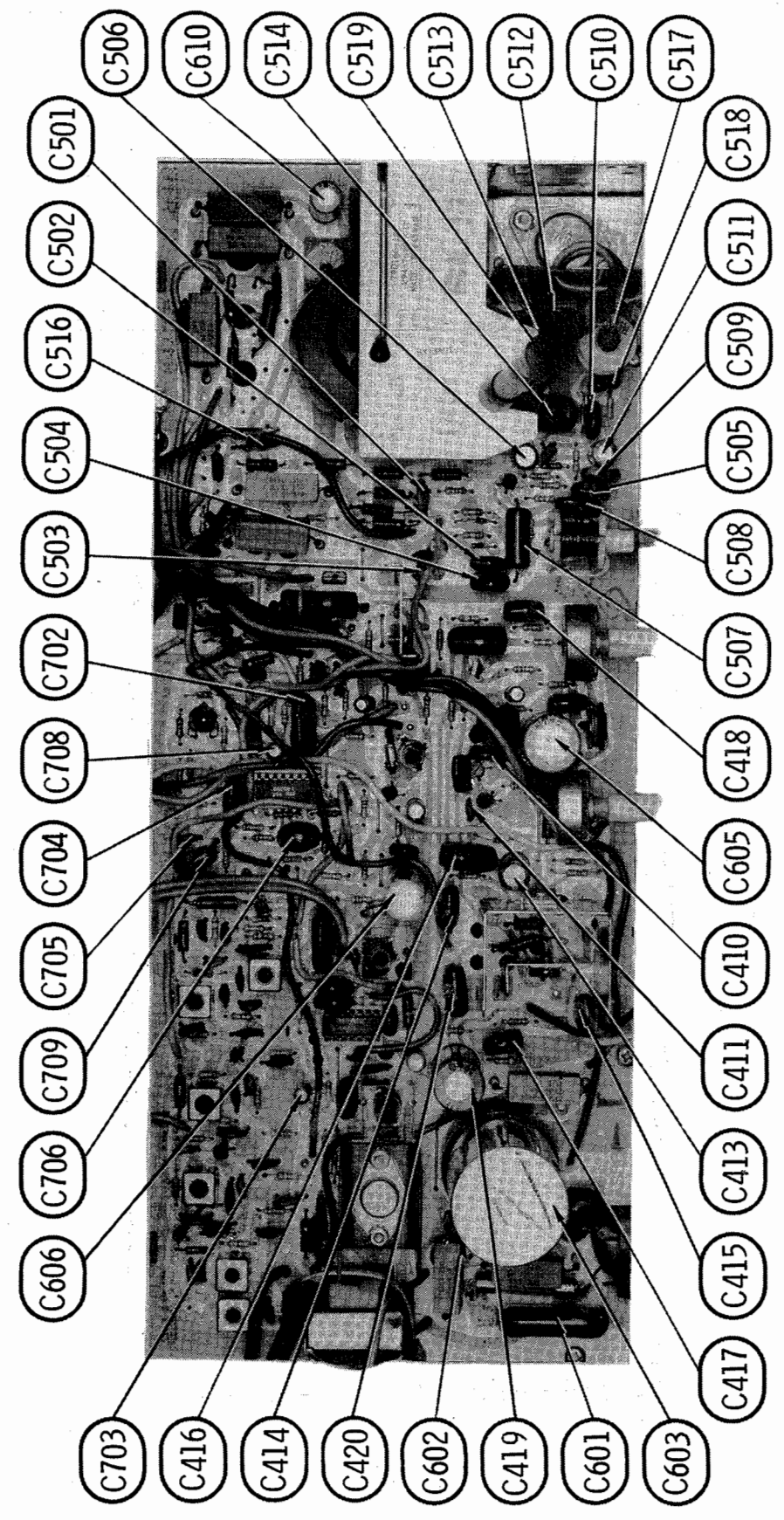
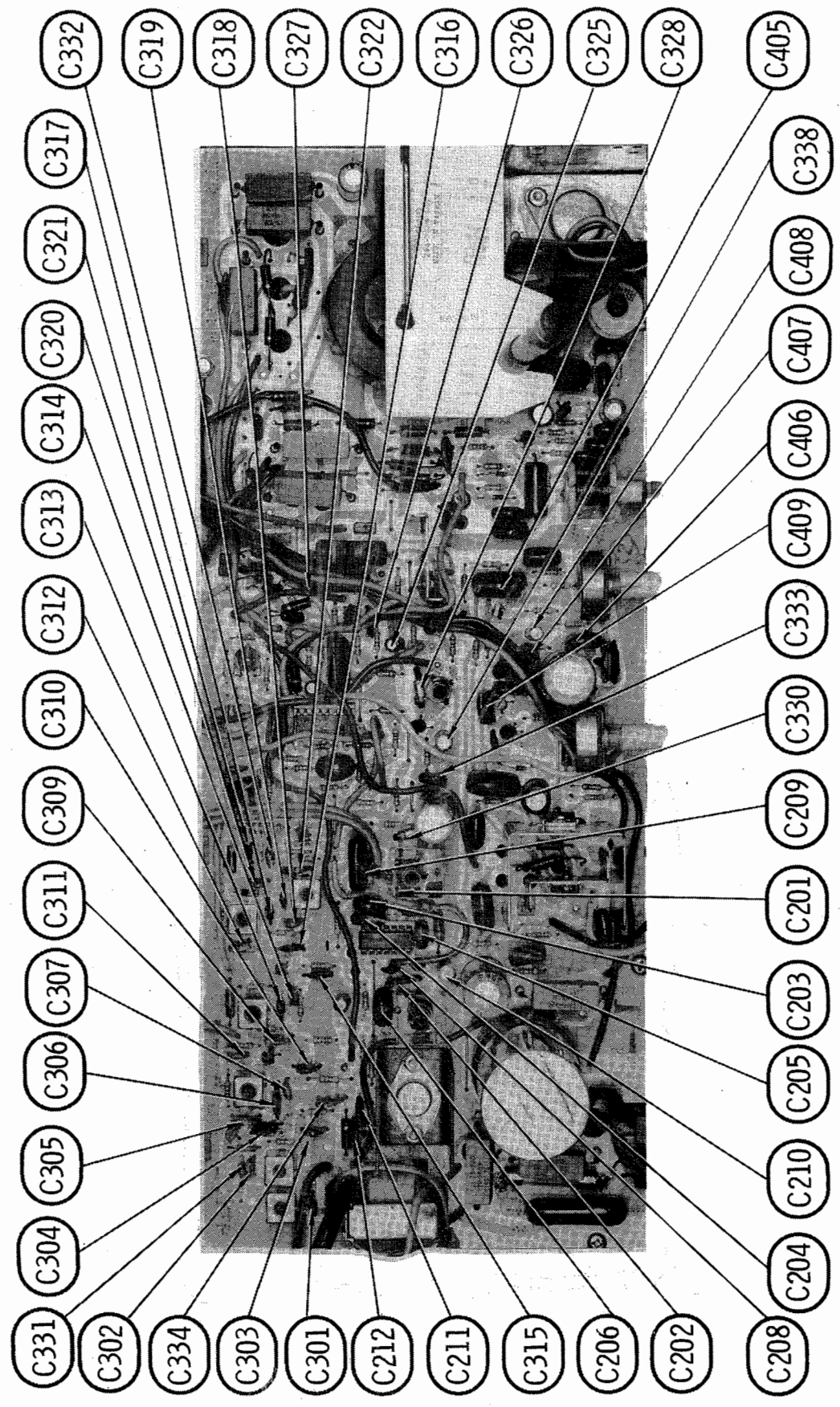




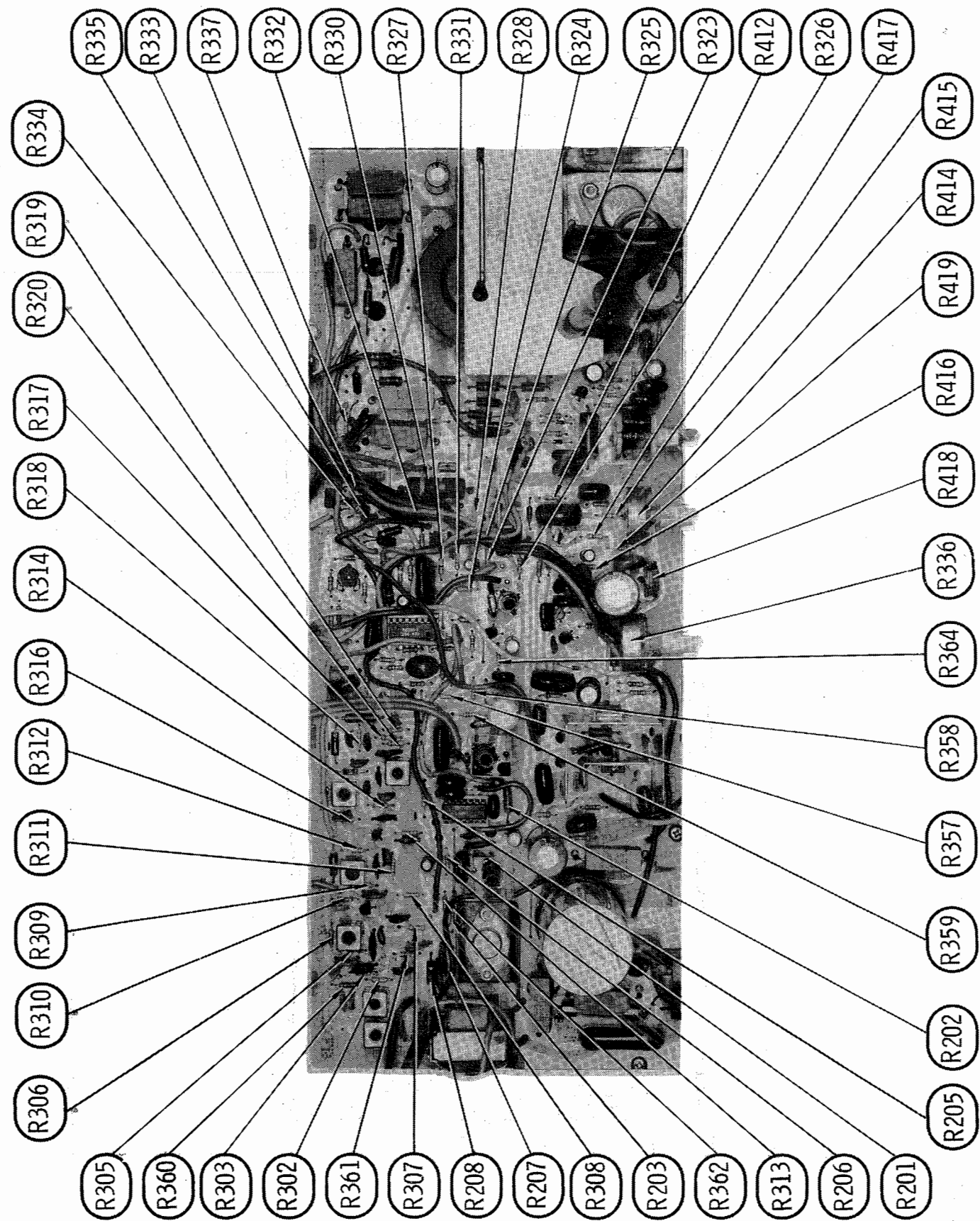
SHIELD LOCATION - MAIN BOARD

K MART MODELS
SKB1600/1900AD/AE/AF/AG/AH

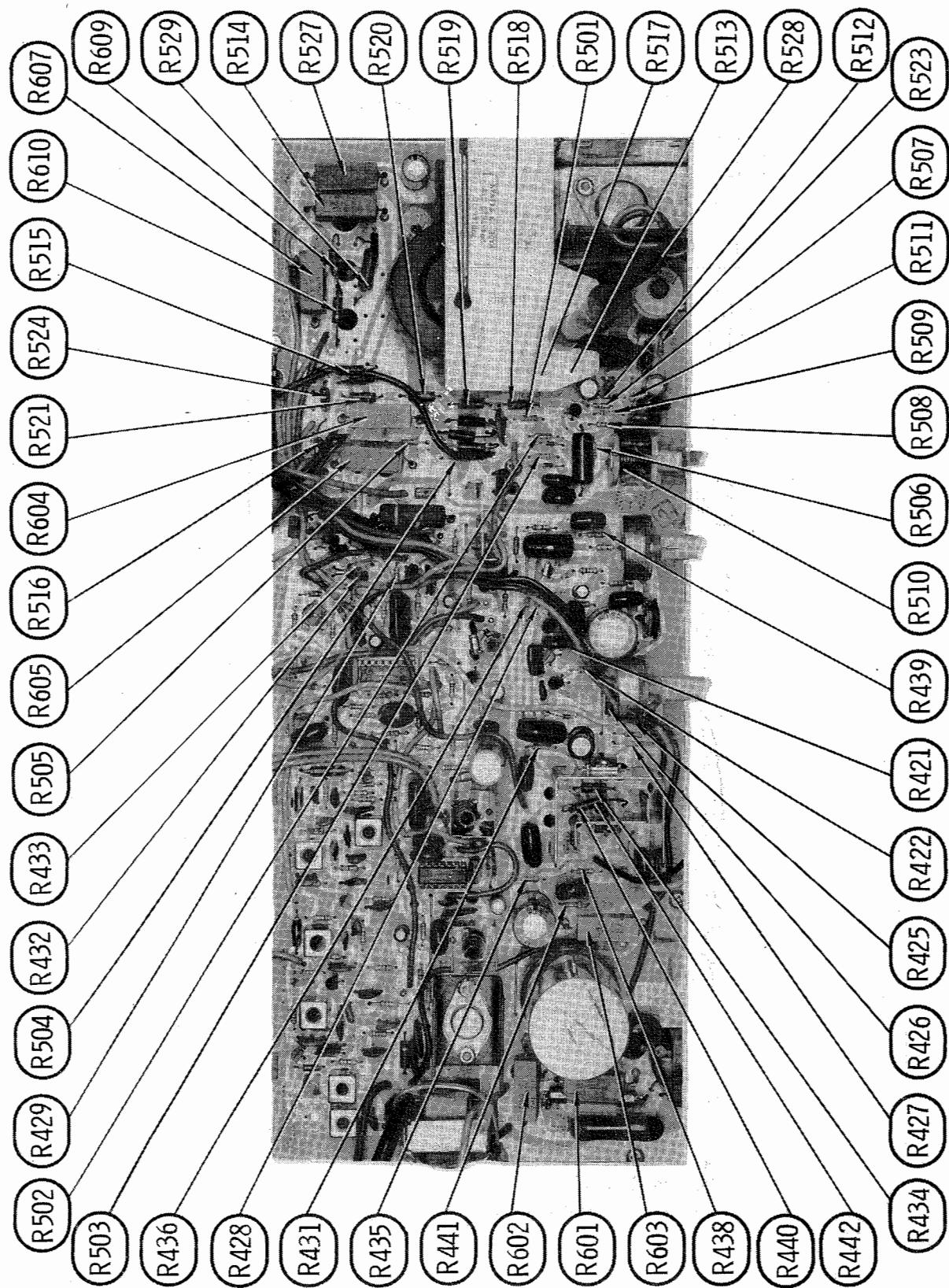
FOLDER 1



MAIN BOARD

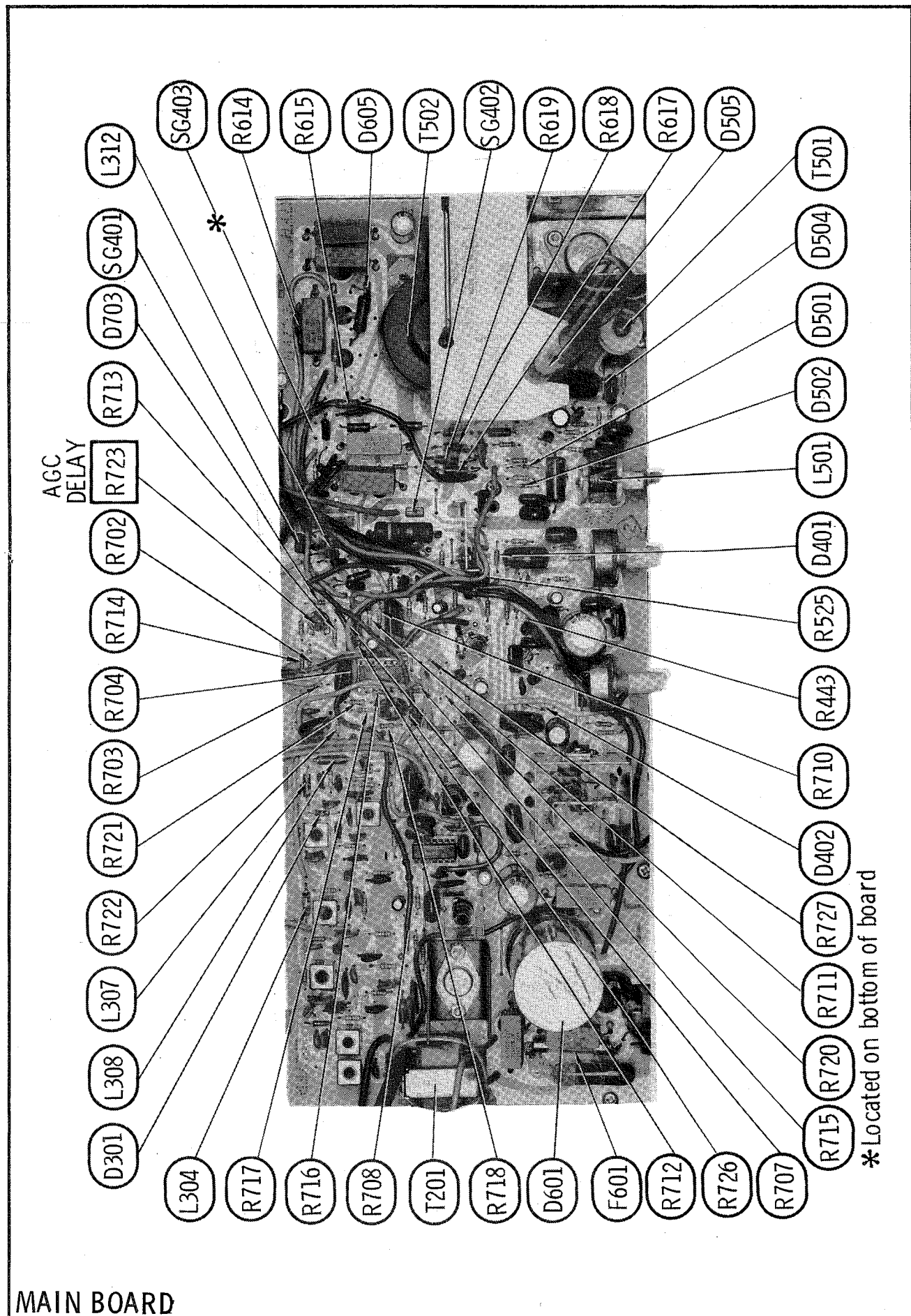


MAIN BOARD



K MART MODELS
SKB1600/1900AD/AE/AF/AG/AH

FOLDER 1



MAIN BOARD

SAFETY PRECAUTIONS

IMPORTANT PRODUCT SAFETY INFORMATION

Operation of receiver outside of cabinet or with back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, escutcheon, picture tube dag and tuner cluster when operating chassis.

These receivers have a "polarized AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the "ground side" and the narrow blade connects to the "hot side" of the AC line. This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the "polarized" type.

Since the chassis of these receivers are connected to one side of the AC supply during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

Certain HV failures can increase X-ray radiation. Receivers should not be operated with HV levels exceeding the specified rating for their chassis type. The maximum operating HV specified for the chassis used in these receivers is **18.5 KV \pm 1 KV** at zero beam current with a line voltage of 120V AC. Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the receiver that could cause a rise in high voltage or operating supply voltages. No changes should be made to the original design of the receiver. **Components shown in the shaded areas on the schematic should be replaced with exact Factory replacement parts. The use of unauthorized substitute parts may create a shock, fire or other hazard.**

To determine the presence of high voltage, use an accurate, high impedance, HV meter connected between second anode lead and the CRT dag grounding device. When servicing the High Voltage System, remove static charge from it by connecting a 10K ohm resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead. (AC line cord disconnected from chassis.)

The picture tube used in this receiver employs integral implosion protection. Replace with tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only when wearing shatter-proof goggles and after discharging the high voltage completely. Keep others without shatter-proof goggles away.

Courtesy of the Manufacturer

When removing springs or spring mounting parts from tuner, tuner cluster or chassis, shatter-proof goggles must be worn. Keep others without shatter-proof goggles away.

SAFETY INSPECTION

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

PROTECT YOUR CUSTOMER

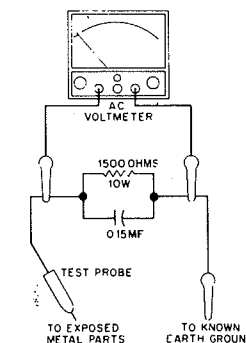
1. Some leads in the receiver have been secured with wire ties that are required for safe operation and/or correct performance. If any ties are removed for servicing, it is mandatory that the ties are replaced to secure the leads as originally manufactured. Non-reusable ties should be replaced with approved Part No. 50A102-1. Do not replace with other types.
2. 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.
3. 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.
4. To be sure that no **shock hazard** exists, check for leakage current in the following manner.

Plug the AC line cord into a polarized adaptor (Admiral Part No. 89A116-1). Plug the adaptor 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 chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

Any 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.

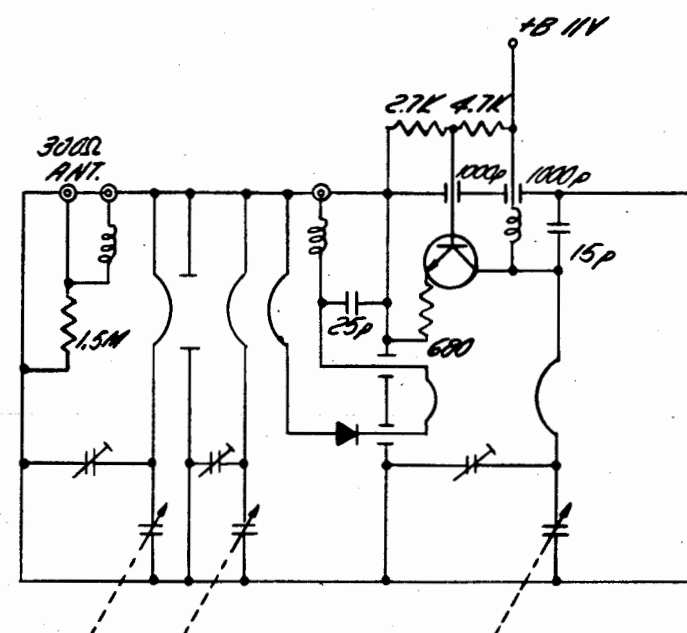
Reverse adaptor in the AC receptacle and repeat the above test.



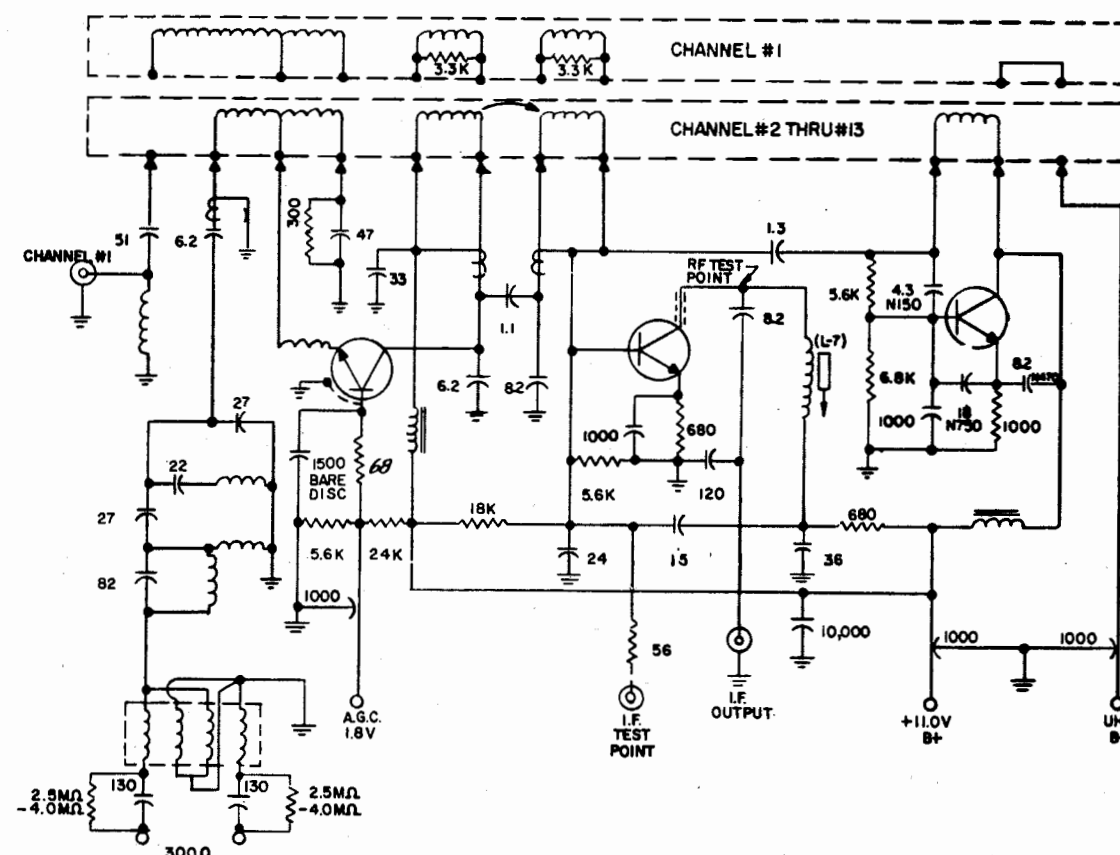
SKB1600/1900AD/AE/AF/AG/AH

K MART MODELS

FOLDER 1



Schematic Diagram 94A712-1 (Shown for Reference Only)



Schematic Diagram 94A611-1 (Shown For Reference Only)

Courtesy of the Manufacturer

PARTS LIST AND DESCRIPTION (CONTINUED)

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

Replacement parts shown may be superseded by the availability of newly introduced replacements. Have your local distributor check Sams COUNTER FACTS* for the most up-to-date replacement.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFG. PART No.	QUAM PART No.	
SP201	3" x 5" PM 3.2 Ohms	78A158-13	35A05	Used in Models SKB1900AD,AE,AF,AG,AH.
	3" PM 3.2 Ohms	78A283-1	30A05	Used in Models SKB1600AD,AE,AF,AG,AH.

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	WORKMAN PART No.
F601	1.5A @ 250V Pigtail	84A7-15 #		GJV 1 1/2		31801.5	

For SAFETY use only equivalent replacement part.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
FB501	Ferrite Bead	71A55-3	Part of Volume Control (R204)
FB502	Ferrite Bead	71A55-3	
S601	Switch	#	
SG401	Spark Gap	62A2-5	
SG402	Spark Gap	62A2-5	CRT Extension, Vert Hold, Brightness.
SG403	Spark Gap	62A2-5	
SG404	Spark Gap	62A2-5	
	AC Line Cord	89A162-11 #	
	Anode Lead	88A106-18 #	CRT
	Shaft	96A26-44 #	
	Socket	87A159-12	
	UHF Tuner	94A712-1 #	
	UHF Tuner	94A713-1 #	Used in Models SKB1600A Series
	VHF Tuner	94A610-1 #	
	VHF Tuner	94A611-1 #	
	VHF Tuner	94A613-1, -2 #	
	UHF Antenna	69A304-3	Used in Models SKB1900A Series
	VHF Antenna	69A344-9	
	VHF Antenna	69A353-3	

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

ITEM	PART No.	ITEM	PART No.
MODELS SKB1600AD, AE, AF, AG, AH		MODELS SKB1900AD, AE, AF, AG, AH	
Cabinet Front	34A357-37	Cabinet Front	34A331-52
Cabinet Back	33A1688-35	Cabinet Back	33A1788-8
Handle	37A330-33	Handle	37A315-13
Baffle, Speaker	32A1002-2	Speaker, Grille	34A326-1
Knob - UHF Channel Selector	33A1973-43	Baffle, Speaker	32A1003-2
Knob - UHF Channel Indicator	21A305-10	Control, Panel	23A2163-1
Knob - UHF Fine Tuning	33A2068-7	Knob - UHF Channel Indicator	21A305-10
Knob - VHF Channel Selector	33A2069-26	Knob - UHF Channel Selector	33A1973-43
Knob - VHF Fine Tuning	33A2070-8	Knob - UHF Fine Tuning	33A2068-7
Knob - Preference Control (2 used)	33A1639-4	Knob - VHF Channel Selector	33A2069-26
		Knob - VHF Fine Tuning	33A2070-8
		Knob - Preference (2 used)	33A1639-7

SKB1600/1900AD/AE/AF/AG/AH

FOLDER 1

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS™ for the most up-to-date replacement.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L203	Quadrature	72A317-6	72C317-6	74F566AP	
L301	Video IF Input	72A415-9	72C415-9		
L302	Video IF	72A415-1	72C415-1		
L303	Video IF	72A415-1	72C415-1		
L304	RF Choke	73A53-243			
L305	Video IF	72A415-6	72C415-6	72F184AP 23A225RPC	
L306	Video Detector	72A415-8	72C415-8		
L307	RF Choke	73A31-19			
L308	RF Choke	73A31-20			
L312	Peaking (180uH)	73A55-6			
L313	4.5MHz Trap	72A317-1	72C317-1		
L314	47.25MHz Trap	72A415-6	72C415-6		
T301	Sound IF	72A317-10	72C317-10		

COILS & TRANSFORMERS (Sweep Circuits)

ITEM No.	FUNCTION	REPLACEMENT DATA				
		MFGR. PART No.	OTHER IDENTIFICATION	MILLER PART No.	THORDARSON PART No.	TRIAD PART No.
L401	Yoke 110° Horiz 2.47MH Vert 22mH	750A1089-17 #	750C1089-17		Y176 (1)	YT-108-2 (1)
L501	Horiz Hold	94A480-1	94C480-1			
T501	Horiz. Driver	72A417-1	72C417-3			
T502	Horiz. Output	79A166-10 #	79D166-10			

For SAFETY use only equivalent replacement part.
(1) SEE COMPONENT CONNECTION DATA.

SWEEP COMPONENT CONNECTION DATA

ORIGINAL →	HORIZONTAL OUTPUT										VERTICAL OUTPUT									
	Original Connections										Original Connections									
REPLACEMENT ↓																				
THORDARSON																				
TRIAD																				
ORIGINAL →	YOKE										YOKE PLUG									
	Original Connections										TO YOKE TERMINALS									
REPLACEMENT ↓	ORG	YEL	WHT	BLK																
THORDARSON	YEL	BLK	BLU	RED	(1)															
TRIAD	YEL	BLK	BLU	RED	(1)															

(1) Use original vertical damping network.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T201	3100	3.2	700A1035-5 # T79C124-7X-W(1)			# For SAFETY use only equivalent replacement part. (1) Number on unit.

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS™ for the most up-to-date replacement.

WIRING DATA

High Voltage Lead	Use BELDEN No. 8868 (25 KV)
Shielded Hook-up Wire	Use BELDEN No. 8401 or 8421 (Single-Conductor) 8208 (Two-Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8528 (Solid) Available in 13 Colors 8522 (Stranded) Available in 13 Colors
300-Ohm Tuner Input Lead	Use BELDEN No. 8225
300-Ohm Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) 4-Conductor 8485 (Round) 5-Conductor 8488 (Round) 8-Conductor

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	MFGR. PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V301	19VFD4 #				Used in Models SKB1900AD,AE,AF,AG,AH.
	16VCDP4 # or 16VBXP4 #			16VCDP4	Used in Models SKB1600AD,AE,AF,AG,AH.

For SAFETY use only equivalent replacement part.

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFGR. 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.	SYLVANIA PART No.
D101	1N5857A	93A39-44(1)	GEZD-11	WEP604	ZB11A	HEPZ0414	RE 116	SK3139	RT-242	ECG5074
D301		93A8-1	GEZD-11	WEP604	ZB11B		RE 116	SK3139	RT-242	ECG5074
D401		93A64-1	1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D402		93A60-6	1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
D501		93A60-6	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D502		93A60-6	GE-300(7)	D200MP(6)	PTC214M(6)	HEPR0602(7)	RE 52(7)	SK3100(7)	RT-218(7)	ECG178MP(6)
D504		93A60-5	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D505		93A106-2 #								
		93A106-3(1) #								
		93A106-4(1) #								
D601		93A52-1	GE-504A	5A6D	PTC202	HEPR0054	RE 49	SK3017A	RT-215	ECG116
D605		93A60-7	GE-504A	5A4D	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D703		93A64-1	1N34AS	1N34A	PTC207	HEPR9134	RE 47	SK3087	RT-200	ECG109
IC201		56A9-1	GEIC-26			HEPC6060P	RE 331-IC		TVMC-41	ECG748
IC701		56A46-1								
Q201		57A192-10	GE-12	TR-81	PTC104	HEPS5011	RE 14	SK3131	RT-128	ECG124
Q301		57A139-4	GE-20 *	TR-24 *	PTC121 *	HEPS0020 *	RE 28 *	SK3117 *	RT-187 *	ECG319
Q302		57A139-4	GE-20 *	TR-24 *	PTC121 *	HEPS0020 *	RE 28 *	SK3117 *	RT-187 *	ECG319
Q303		57A138-4	GE-20 *	TR-24 *	PTC121 *	HEPS0024 *	RE 10 *	SK3117 *	RT-187 *	ECG233 *
Q304		57A159-12	GE-21	TR-20	PTC103	HEPS0019	RE 26	SK3114 *	RT-126A *	ECG159 *
Q305		57A172-8	GE-27	TR-79		HEPS3019	RE 44	SK3103	RT-159A	ECG190
		57A295-8(1)								
Q306		57A191-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q307		57A191-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q404		57A191-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q405		57A191-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q406		57A191-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q407		57A184-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q408		57A187-12(5)	GE-66	TR-76	PTC167	HEPS5027	RE 21	SK3054	RT-197	ECG291
Q409		57A188-12(5)	GE-69	TR-77	PTC166	HEPS5028	RE 22	SK3083	RT-196	ECG292
Q410		57A184-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q501		57A191-12	GE-20	TR-33 *	PTC121 *	HEPS0015	RE 13	SK3137 *	RT-107A *	ECG123A *
Q502		57A215-12			PTC141 *	HEPS3032 *		SK3179 *	RT-115 *	
Q503		57B186-11	GE-38	TR-61	PTC129A	HEPS5021	RE 32	SK3115		ECG238

For SAFETY use only equivalent replacement part.
* Lead Configuration may vary from original.
(1) Used in some versions.
(5) Half of complementary pair(Q408 and Q409).
(6) Matched pair.
(7) Two required - select matched pair.

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PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS™ for the most up-to-date replacement.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFRG. PART No.	CORNELL- DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C102	1 25V	67A201-109-4	WBR1-50	TT25X1	QE1-11	TVA-1300
C210	10 25V	67A201-100-4	PC10-25	VTT10A25	QV1-43	EV-1322
C325	2.2 15V	67A201-229-3	PC2-100	VTT2R2A50	QV1-19	EV-1517
C338	10 25V	67A201-100-4	PC10-25	VTT10A25	QV1-43	EV-1322
C408	2.2 15V	67A201-229-3	PC2-100	VTT2R2A50	QV1-19	EV-1517
C413	22 50V	67A201-220-7	WBR25-50	VTT22E63	QV1-59	EV-1624
C419	1000 25V	67A201-102-4	WBR1000-25	VTT1000M25	QV1-185	EV-1360
C506	4.7 15V	67A201-479-3	PC5-50	VTT4R7A50	QV1-27	EV-1319
C511	22 25V	67A201-229-4	PC25-25	TC26C	QV1-57	EV-1324
C603A	250 165V	67A30-20				
B	100 150V					
C	450 150V					
C605	470 50V	67A201-471-7	WBR500-50	VTT470N50	QV1-159	EV-1550
C606	220 35V	67A201-221-6	WBR250-50	VTT220J35	QV1-121	EV-1440
C610	47 50V	67A201-470-7	PC50-50	VTT47G63	QV1-79	EV-1626
C703	2.2 15V	67A201-229-3	PC2-100	VTT2R2A50	QV1-19	EV-1517
C708	1 25V	67A201-109-4	PC1-50	TT25X1	QV1-9	EV-1315

CAPACITORS

ITEM No.	RATING	MFRG. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C100	470 1.4KV	65A10-392 #		DPMS6D47	EWF6247		6PS-D47
C101	.0047 10%			WMF05P22	EWFO5022		431P2249R5
C103	.22 10%				CN0427		10TCC-Q27
C201	27 NPO 5%		DTZ-120	WMF1S1	EWFI1A110	QF1-91	10TCC-T12
C202	120 NPO 5%			WMF1S1	EWFI1A110	QF1-91	1PB-S10
C203	.01 50V				M192P2239R8		1PB-S10
C204	.01 50V				EWFO5010		192P2239R8
C205	.022 50V				CN0415		431P1049R5
C206	.1 50V			WMF05P1	EWFO5022		10TCC-Q15
C208	15 NPO 10%	65A110-133	DTZ-15	NP015			
C209	.22 50V 10%	65A110-133		WMF05P22			
C211	.005 1.4KV 10%						
C212	.005 1.4KV 10%						
C301	15 NPO 5%	65A402-100-1	DTZ-15	NP015	CN0415		10TCC-Q15
C302	10 NPO +.25						
C303	.0012 10%		DD-122		GP212		10TS-D12
C304	.0012 10%		DD-122		GP212		10TS-D12
C305	.0022 10%				GP222		10TS-D22
C306	68 NPO 5%		DTZ-68	NP068	CN0468		10TCC-Q68
C307	270 10%		DD-271	GP270	GP327		10TS-T27
C309	.0022 10%				GP222		10TS-D22
C310	.0012 10%		DD-122		GP212		10TS-D12
C311	.001 10%		DD-102		GP210		10TS-D10
C312	.001 10%		DD-102		GP210		10TS-D10
C313	68 NPO 5%		DTZ-68	NP068	CN0468		10TCC-Q68
C314	270 10%		DD-271	GP270	GP327		10TS-T27
C315	.0012 10%		DD-122		GP212		10TS-D12
C316	.0012 10%		DD-122		GP212		10TS-D12
C317	20 NPO 5%		DTZ-20	NP020	CN0420		10TCC-Q20
C318	270 5%		DTZ-270				10TCC-T27
C319	18 NPO 5%				CN0418		10TCC-Q18
C320	10 NPO +.25	65A402-100-1					
C321	8.2 NPO +.25	65A402-829-1					
C322	.0033 10%			DPMS6D33	EWF6233		6PS-D33
C326	.0033 10%			DPMS6D33	EWF6233		6PS-D33
C327	.22 200V			DPMS6P22	EWFO5010		6PS-P22
C328	330 125V 5%			CD15FD331J03	SX333	QW1-39	MWA-331
C330	560 125V 5%			CD19FD561J03	SX356		MWC-561
C331	10 NPO +.25	65A402-100-1					
C332	6.8 NPO +.25	65A402-689-1					
C333	.01 50V			WMF1S1	EWFI1A110	QF1-91	1PB-S10
C334	.0012 10%		DD-122		GP212		10TS-D12
C336	180 10%		DD-181		GP318		10TS-T18
C405	.47 10%			WMF05P47	EWFO5047		431P4749R5
C406	.1 50V			WMF05P1	EWFO5010		431P1049R5
C407	.1 50V 10%			WMF05P1	EWFO5010		431P1049R5
	.01 10%	(1)		WMF1S1	EWFI1A110	QF1-91	1PB-S10
C409	.001 10%			DPMS6D1	EWFI1A210	QF1-1	1PB-D10
C410	.001 10%			DPMS6D1	EWFI1A210	QF1-1	1PB-D10
C411	560 10%		DD-561		GP356		10TS-T56
C414	.1 50V			WMF05P1	EWFO5010		431P1049R5
C415	.033 10%				M192P3339R8		192P3339R8
C416	.33 10%			WMF05P33	EWFO5033		431P3349R5
C417	.1 50V 10%			WMF05P1	EWFO5010		431P1049R5
C418	.1 50V 10%			WMF05P1	EWFO5010		431P1049R5
C420	.15 50V 10%			WMF05P15	EWFO5015		431P1549R5
C437	470 1.4KV	65A10-392 #					
C501	.0015		DD-152		GP215		10TS-D15

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS™ for the most up-to-date replacement.

CAPACITORS (cont)

ITEM No.	RATING	MFRG. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C502	.001 50V 10%			DPMS6D1	EWFI1A210	QF1-1	1PB-D10
C503	.022 50V 10%				M192P2239R8		192P2239R8
C504	.0047 50V 10%				M192P4729R8		192P4729R8
C505	.033 50V 10%				M192P3339R8		192P3339R8
C507	.01 200V 10%	63A25-2			SX110		2TM-S10
C508	.015 50V 10%				M192P1539R8		192P1539R8
C509	.033 50V 10%				M192P3339R8		192P3339R8
C510	.022 50V 10%				M192P2239R8		192P2239R8
C512	680 N2200 2KV 10%	65A110-453 #			*		
C513	680 N2200 2KV 10%	65A110-453 #			*		
C514	.18 400V 10%	64A54-3			*		
C516	.01		DD-1032	GP10000	GP110		5GA-S10
C517	.022 50V 10%				M192P2239R8		192P2239R8
C518	.001 10%			DPMS6D1	EWFI1A210	QF1-1	1PB-D10
C519	820 N2200 2KV 10%	65A110-452 #			*		
C601	.22 1.4KV	63A100-9 #					
C602	.001 1KV		DD-102		GP210		10TS-D10
C702	.22 50V 10%			WMF05P22	EWFO5022		431P2249R5
C704	.0033 50V				M192P3339R8		192P3339R8
C705	220		DD-221		GP322		10TS-T22
C706	.22 50V 10%			WMF05P22	EWFO5022		431P2249R5
C709	.1 50V 10%			WMF05P1	EWFO5010		431P1049R5

For SAFETY use only equivalent replacement part.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
(1) Used in some versions.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFRG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
R204	Volume/Switch	25K	75A213-12 #				
			75D213-12(5)				
			75A213-6#(6)				
R321	Volume/Switch	25K	75A213-11#				
	Video (Contrast)	500	75D213-11(5)				
	Brightness	500	75A213-3#(6)				
R336		100K	75A191-7 #				
			75D191-7(5)				
R414	Vert Hold	1.2meg	75A191-8 #				
			75D191-8(5)				
R418	Vert Size	1.5meg	75A101-57	T-2Meg		MTC26L1	X201R205B
			75C101-57(5)				
R723	AGC Delay	2200	75A199-1	T-2500 (18)	C-252 (18)	MTC252L1 (18)	X201R252B (18)

For SAFETY use only equivalent replacement part.
(5) Number on unit.
(6) Alternate part, may be used in some versions.
(18) Mount vertically and use jumper wires to "PC" Board.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFRG. PART No.			WORKMAN PART No.	MFRG. PART No.
R208	220 10% 1/2W Carbon	CA-220	60A106-221 #	R604	22 10% 5W WW		61A105-220 #
R330	3900 5% 3W Film	20-0024	#	R605	22 10% 5W WW		61A105-220 #
	3900 10% 3W Film	20-0024	61A163-392	R607	65 5% 5W WW	5W-SQ-65	61A20-18 #
			(1) #	R609	10 10% 1/2W Carbon	CA-10	60A105-100 #
R437	560 5% 1W Carbon		61A105-220 #	R610	10 10% 1/2W Carbon	CA-10	60A105-100 #
R514	22 10% 5W WW		60A105-242 #	R614	3.3 5% 1/2W Carbon	CA-3.3	60A105-339 #
R521	2400 5% 1/2W Carbon		61A105-220 #	R615	3.3 5% 1/2W Carbon	CA-3.3	60A105-339 #
R527	22 10% 5W WW		61A20-118 #	R617	10 5% 1/2W Carbon	CA-10	60A105-100 #
R601	5 10% 5W WW		61A105-220 #	R618	22 5% 1/2W Carbon	CA-22	60A105-220 #
R602	22 10% 5W WW		61A105-220 #	R619	12 5% 1/2W Carbon	CA-12	60A105-120 #
R603	22 10% 5W WW		61A105-220 #				

For SAFETY use only equivalent replacement part.
(1) Part of Deflection Yoke.

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