

SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check inner board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.

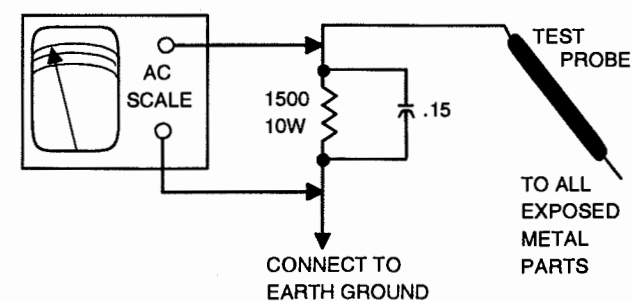
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15μF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500μA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.



HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC to the receiver. Depress the power button. Momentarily connect a 1000 ohms across R414. The receiver should lose raster and sound and remain in that state. If the receiver does not lose raster and sound, the high voltage shutdown circuit should be repaired. To resume normal operation remove AC power, wait 15 seconds and test the receiver for normal operation.

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

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A Bell Atlantic Company
2647 Waterfront Parkway East Drive, Suite 100
Indianapolis, IN 46214-2041

Printed in the United States of America 5 4 3 2 1

Page 1 SET 4077



99PF01431



PHOTOFACT® Technical Service Data

SET 4077

MODELS A13P02D, LGA14P02D (CHASSIS CN-1151)

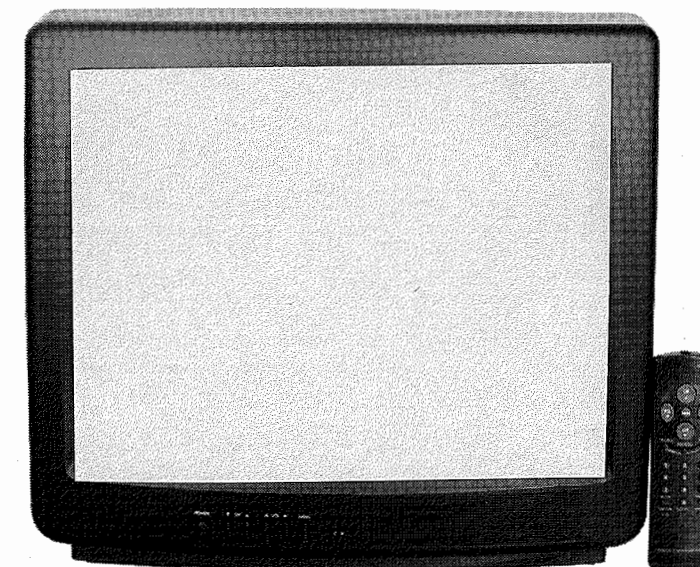
ZENITH

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ZENITH

Models A13P02D, LGA14P02D (Chassis CN-1151)



Representative Model

Essential coverage
for servicing a television receiver...

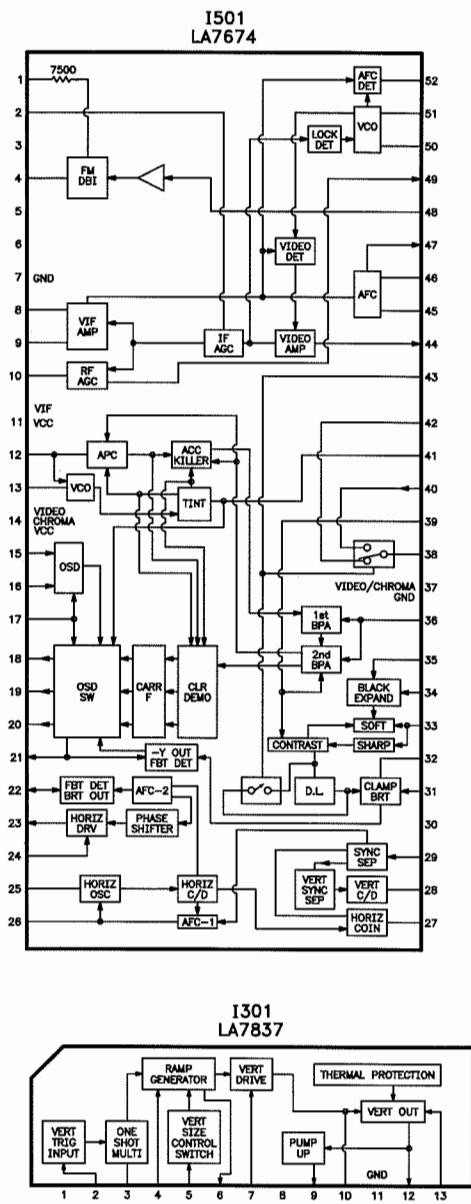
- Schematics
- Component locations
- Parts list



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DECEMBER 1998 SET 4077

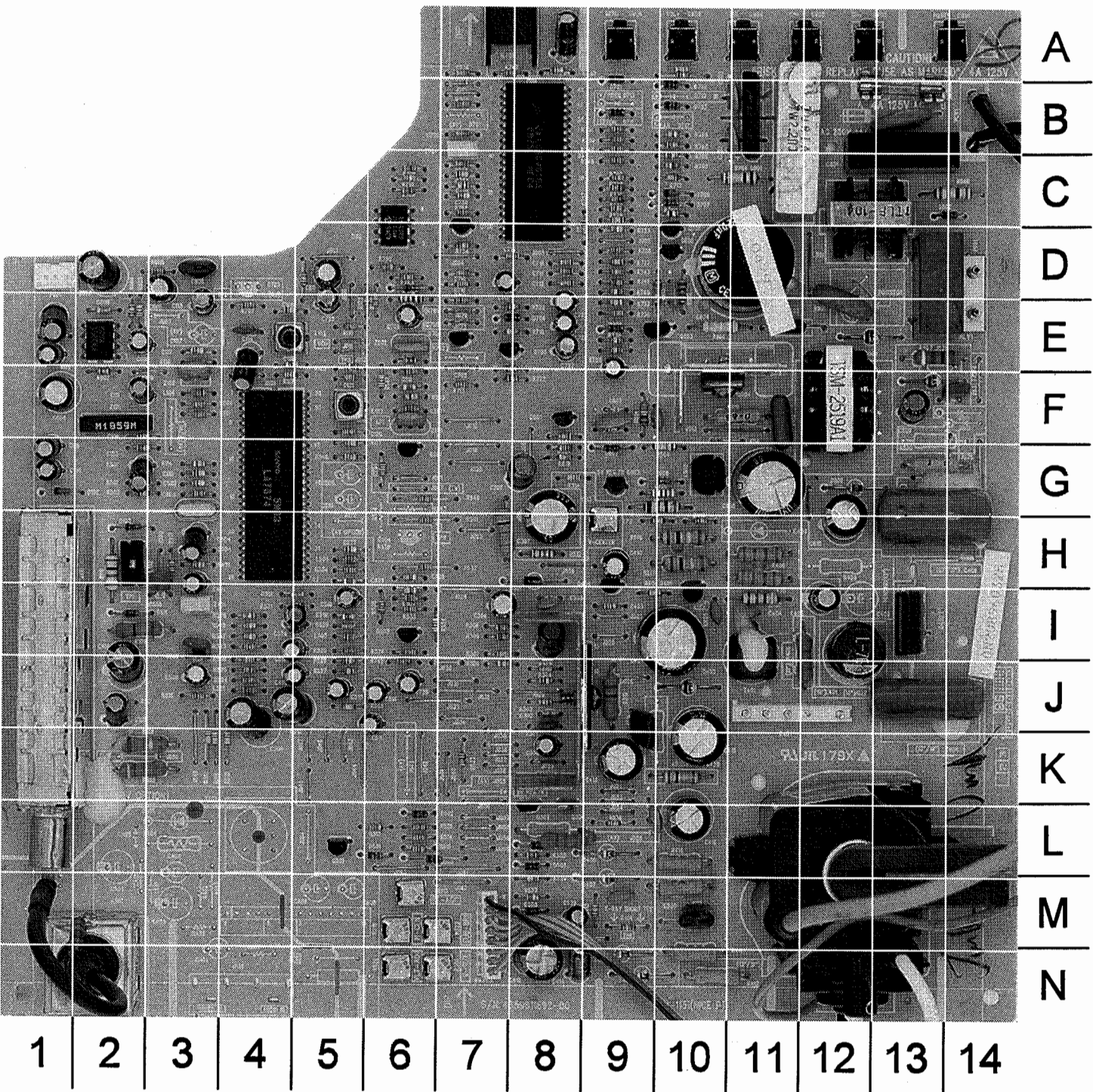
IC FUNCTIONS



MAIN BOARD, GRIDTRACE LOCATION GUIDE

ASB1	N-2	C525	H-5	D501	L-6	Q803	E-9	R513	L-6	R742	J-6
C104	G-2	C526	H-6	D502	L-6	Q804	F-10	R514	L-6	R743	D-9
C105	G-1	C527	H-5	D503	L-6	Q806	D-10	R515	L-6	R745	B-10
C106	J-2	C529	M-8	D504	H-3	R108	K-2	R516	M-6	R746	B-10
C108	E-4	C530	M-10	D505	M-8	R109	I-2	R517	H-3	R747	A-7
C109	J-2	C601	E-2	D507	L-8	R110	H-2	R518	J-3	R748	C-9
C110	G-3	C603	D-2	D508	L-8	R111	D-5	R519	L-8	R749	B-9
C111	F-2	C604	F-1	D509	M-8	R112	J-2	R520	M-8	R750	B-9
C112	E-3	C605	D-3	D701	A-9	R113	M-6	R521	L-6	R751	B-9
C113	E-3	C606	E-2	D702	B-10	R114	G-3	R522	M-7	R752	D-6
C114	E-4	C607	E-1	D703	B-10	R115	F-3	R523	K-7	R753	D-6
C115	F-4	C608	D-3	D704	E-7	R116	E-3	R524	I-6	R754	D-7
C116	E-4	C609	E-1	D706	E-9	R117	F-4	R525	J-5	R755	C-7
C117	E-6	C701	B-7	D707	C-10	R118	E-5	R526	J-5	R758	E-9
C118	F-6	C702	C-7	D708	D-6	R120	E-6	R527	J-5	R764	C-11
C119	G-1	C703	C-7	D709	C-10	R121	G-5	R528	I-6	R765	C-10
C120	F-5	C706	C-7	D711	B-9	R122	E-6	R529	I-6	R766	C-10
C121	F-5	C708	E-7	D801	B-11	R123	E-5	R530	I-5	R767	A-10
C123	G-2	C709	E-6	D802	C-13	R203	F-6	R531	I-5	R780	C-9
C301	J-9	C710	D-7	D804	E-12	R204	G-6	R532	H-6	R801	B-11
C302	J-8	C711	D-7	D806	G-12	R301	K-8	R533	I-6	R804	G-10
C303	I-8	C712	C-10	D805	F-13	R302	J-8	R534	H-5	R805	F-8
C304	I-7	C715	D-7	D807	G-9	R303	J-8	R535	L-8	R806	E-10
C305	I-8	C716	D-8	D808	G-10	R304	J-8	R536	L-9	R807	E-13
C306	G-8	C717	D-8	F801	B-13	R305	N-7	R537	M-8	R808	G-13
C307	H-8	C718	D-8	I301	K-9	R306	J-7	R540	G-6	R810	G-10
C308	K-8	C725	E-5	I501	F-4	R307	I-7	R541	H-6	R811	G-10
C401	H-3	C726	J-6	I601	E-2	R308	I-7	R546	G-5	R812	D-10
C402	J-4	C727	E-8	I701	B-7	R309	I-7	R547	F-6	R814	F-9
C403	I-12	C728	E-8	I702	C-6	R310	J-9	R601	F-3	R815	D-10
C404	I-11	C729	E-8	IL701	A-7	R311	H-7	R602	F-2	R816	H-10
C405	I-10	C730	E-9	L102	H-2	R312	H-8	R603	E-2	R817	H-10
C406	J-13	C735	A-8	L104	F-3	R313	H-9	R604	E-2	R818	F-11
C407	I-10	C736	A-7	L105	E-4	R314	G-8	R605	K-2	R819	G-8
C408	H-13	C737	D-8	L106	F-6	R401	H-3	R607	E-1	R820	N-6
C410	H-9	C738	C-7	L107	F-5	R402	C-10	R608	D-3	R821	G-8
C412	N-8	C801	B-13	L201	F-6	R403	I-9	R705	B-7	R888	C-14
C414	N-8	C802	B-11	L401	I-12	R404	I-9	R707	E-4	R901	E-12
C415	L-10	C803	B-11	L501	J-4	R405	H-11	R708	C-6	RLY1	D-13
C416	L-10	C804	D-11	L502	I-6	R406	H-11	R709	C-6	RS801	B-13
C417	M-9	C805	F-10	L503	I-5	R407	I-11	R710	C-6	SW01	A-14
C418	K-9	C806	A-8	L504	H-5	R408	J-12	R711	H-10	SW02	A-12
C419	K-10	C807	F-9	L801	C-12	R411	N-10	R713	F-7	SW03	A-11
C501	G-2	C808	G-11	L802	G-10	R412	N-10	R714	E-7	SW04	A-11
C502	G-3	C809	F-13	L803	E-11	R414	M-9	R715	E-6	SW05	A-10
C503	G-3	C810	H-12	P401	J-11	R415	M-9	R716	E-7	SW06	A-9
C504	H-3	C811	D-5	P601	D-1	R416	L-10	R718	E-7	T401	J-11
C505	H-3	C813	F-11	P901	D-14	R417	M-10	R720	E-7	T402	L-12
C507	I-3	C817	F-9	Q201	G-6	R418	H-10	R721	E-7	T801	F-12
C508	J-3	C820	D-10	Q401	I-10	R420	K-10	R722	F-7	U101	K-1
C509	J-4	C821	F-14	Q402	I-13	R501	G-2	R723	D-9	X501	G-3
C511	J-6	C888	M-2	Q404	I-9	R502	G-2	R727	D-9	Z101	F-1
C512	I-5	D101	I-2	Q501	L-5	R503	I-4	R728	D-9	Z102	F-3
C513	J-4	D102	G-1	Q502	L-8	R504	J-4	R729	C-9	Z201	F-6
C514	J-6	D103	H-2	Q503	I-6	R505	J-4	R730	C-9	Z202	E-6
C515	J-5	D301	H-8	Q506	L-8	R506	J-4	R731	C-9	Z401	I-3
C517	I-4	D401	M-9	Q701	D-10	R507	I-4	R732	C-9	Z701	B-7
C518	I-5	D403	J-10	Q703	E-7	R508	I-4	R734	E-9		
C519	I-5	D404	N-9	Q705	E-7	R509	I-4	R736	E-9		
C520	I-5	D405	N-9	Q706	D-7	R510	K-4	R737	E-9		
C522	I-6	D406	L-9	Q801	F-8	R511	K-3	R740	D-9		
C524	I-5	D407	M-9	Q802	G-9	R512	K-3	R741	D-9		

MAIN BOARD



PARTS LIST

SCHEMATIC COMPONENT LOCATION GUIDE

ASB1	A-3	C605	A-6	D505	E-11	R108	A-2	R522	D-12	R780	C-27
C104	C-3	C606	A-7	D507	D-22	R109	D-22	R523	D-12	R783	B-23
C105	A-2	C607	B-7	D508	D-22	R110	A-2	R524	D-1	R801	A-18
C106	D-23	C608	B-7	D509	E-11	R111	C-2	R525	D-1	R804	B-20
C108	C-3	C609	A-6	D701	B-25	R112	C-2	R526	C-12	R805	B-20
C109	C-1	C701	E-26	D702	B-25	R113	C-3	R527	C-12	R806	A-21
C110	D-23	C702	E-26	D703	B-25	R114	C-3	R528	B-8	R807	B-21
C111	A-5	C703	B-24	D704	D-26	R115	A-5	R529	A-9	R808	B-22
C112	B-5	C706	B-2	D706	B-4	R116	B-5	R530	B-9	R810	C-23
C113	C-5	C708	D-25	D707	E-26	R117	C-4	R531	C-12	R811	B-23
C114	A-5	C709	B-26	D708	C-25	R118	A-4	R532	C-9	R812	C-21
C115	C-4	C710	B-26	D709	E-26	R120	B-1	R533	B-7	R814	B-20
C116	C-4	C711	D-26	D710	C-25	R121	B-3	R534	C-8	R815	C-20
C117	A-4	C712	E-26	D711	C-25	R122	B-2	R535	D-22	R816	A-23
C118	B-4	C715	E-27	D712	C-25	R123	B-2	R536	E-22	R817	A-23
C119	A-2	C716	E-27	D713	C-25	R203	B-5	R537	E-12	R818	C-20
C120	B-3	C717	E-27	D801	A-19	R204	C-6	R540	C-11	R819	A-20
C121	B-2	C718	D-27	D802	B-18	R301	D-4	R541	C-10	R820	B-20
C123	C-3	C725	A-4	D804	A-21	R302	D-5	R546	B-5	R821	A-20
C301	D-7	C726	D-28	D805	C-22	R303	D-5	R547	B-5	R830	A-21
C302	D-5	C727	C-28	D806	B-22	R304	D-6	R601	A-6	R888	A-17
C303	D-5	C728	C-9	D807	A-20	R305	D-6	R602	A-6	R901	A-18
C304	D-5	C729	C-28	D808	C-23	R306	D-6	R603	A-6	R902	B-14
C305	D-7	C730	C-10	DY	D-7	R307	D-6	R604	A-6	R903	B-14
C306	D-6	C731	D-23	F801	A-17	R308	D-6	R605	B-23	R904	B-14
C307	E-7	C732	B-24	I301	D-5	R309	D-7	R607	B-7	R905	B-14
C308	D-23	C735	B-23	I501	A-5	R310	D-7	R608	B-7	R906	B-14
C401	D-3	C736	A-26	I501	B-10	R311	E-6	R705	B-27	R907	B-15
C402	E-25	C737	B-4	I501	B-4	R312	E-7	R707	C-4	R908	B-15
C403	E-5	C738	C-26	I501	D-2	R313	E-7	R708	B-27	R909	C-14
C404	E-5	C801	A-17	I601	A-6	R314	D-7	R709	B-27	R910	D-14
C405	E-5	C802	B-19	I701	A-27	R320	D-4	R710	A-27	R911	D-14
C406	E-7	C803	A-19	I702	B-28	R321	D-4	R711	E-28	R912	D-14
C407	A-23	C804	B-19	IL701	A-25	R401	D-3	R713	D-25	R913	D-14
C408	E-7	C805	B-20	L102	B-1	R402	E-25	R714	D-26	R914	C-15
C409	E-8	C806	B-23	L104	B-5	R403	E-4	R715	B-26	R915	C-15
C410	E-3	C807	B-20	L105	C-4	R404	E-4	R716	B-26	R916	B-14
C412	C-22	C808	A-22	L106	A-4	R405	E-5	R718	D-26	R917	C-14
C414	E-3	C809	B-22	L107	B-3	R406	E-5	R720	D-25	R918	C-14
C415	D-21	C810	C-23	L201	B-5	R407	E-5	R721	D-25	R919	C-14
C416	D-21	C811	B-23	L401	D-8	R408	D-7	R722	D-25	R920	C-14
C417	E-21	C813	B-21	L501	C-11	R409	E-8	R723	D-27	R921	C-15
C418	E-21	C817	B-20	L502	B-8	R411	C-20	R727	D-27	R922	B-15
C419	E-9	C820	C-20	L503	A-9	R412	E-9	R728	D-27	RF	A-3
C501	C-11	C821	B-21	L504	B-8	R414	E-3	R729	C-27	RLY1	A-18
C502	C-11	C822	A-21	L801	A-18	R415	E-3	R730	C-9	RS801	A-17
C503	C-9	C823	C-23	L802	A-22	R416	D-21	R731	C-27	SP1	A-8
C504	C-11	C888	A-3	L803	A-21	R417	E-20	R732	C-27	SW01	B-25
C505	D-1	C901	B-14	L900	B-18	R418	E-3	R734	B-4	SW02	B-25
C507	D-2	C902	D-14	L901	C-22	R420	E-11	R736	D-27	SW03	B-25
C508	D-2	C903	C-14	PCW1	A-17	R501	C-11	R737	C-27	SW04	B-25
C509	D-23	C904	D-16	Q201	B-6	R502	C-11	R740	C-9	SW05	B-25
C511	D-1	C905	D-16	Q401	E-4	R503	B-10	R741	C-27	SW06	B-25
C512	D-1	CR881	A-2	Q402	E-6	R504	B-11	R742	A-10	SW901	A-13
C513	A-23	CR882	A-2	Q404	E-3	R505	B-11	R743	C-10	T401	E-5
C514	C-12	D101	D-23	Q501	A-12	R506	B-11	R745	E-26	T402	D-10
C515	C-12	D102	A-1	Q502	D-22	R507	B-10	R746	E-26	T801	B-22
C517	C-12	D103	A-1	Q503	A-9	R508	B-11	R747	A-26	V901	C-16
C518	B-9	D301	D-6	Q506	E-22	R509	B-11	R748	B-26	X501	C-9
C519	A-9	D302	D-4	Q701	E-27	R510	B-13	R749	B-26	Z101	B-2
C520	A-10	D401	D-3	Q703	D-25	R511	C-13	R750	C-26	Z102	B-5
C522	B-8	D402	E-8	Q705	D-25	R512	B-13	R751	C-26	Z201	C-5
C524	C-12	D403	D-9	Q706	C-26	R513	B-13	R752	C-25	Z202	A-4
C525	C-8	D404	C-20	Q801	B-20	R514	E-1	R753	C-25	Z401	D-2
C526	B-7	D405	E-3	Q802	B-23	R515	E-1	R754	C-26	Z701	E-26
C527	B-8	D406	D-21	Q803	B-21	R516	E-1	R755	C-26		
C529	E-11	D407	E-21	Q804	B-21	R517	D-1	R758	A-4		
C530	E-11	D501	E-1	Q806	C-21	R518	D-2	R764	B-18		
C601	A-6	D502	E-1	Q901	B-14	R519	D-22	R765	E-26		
C603	A-7	D503	E-1	Q902	C-14	R520	D-22	R766	E-26		
C604	B-24	D504	D-1	Q903	B-14	R521	D-13	R767	E-27		

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- Sencore, Inc.
- Terrell & Nobis (TNI Electronics)
- Thomson Consumer Electronics, Inc. (SK, TCE)

SEMICONDUCTORS

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
D101	ZPD9.1	-	NTE5018A	ECG5018A	SK9A1
D102	UZ-9.1BM	903-10088	NTE5018A	ECG5018A	-
	ZPD33	-	NTE5036A	ECG5036A	SK33A
	ZPD33B	-	-	-	-
	UZ-33B	903-10254	-	-	-
D103	ZPD5.1	-	NTE5010A	ECG5010A	SK5A1
	UZ5.1BM	903-10086	NTE135A	ECG135A	SK5V1
D301	1N4003	903-10087	NTE116	ECG116	SK3113
D302	1N4148	903-10053	NTE519	ECG519	SK3100
D401	ZPD9.1	-	NTE5018A	ECG5018A	SK9A1
	UZ9.1BM	903-10088	NTE5018A	ECG5018A	SK9A1
# D402	BYD33G	-	NTE552	ECG552	SK9000
	BYD33G-T	903-10255	-	-	-
D403	BYV95C	903-10258	NTE580	ECG580	SK5036
D404 Thru					
D407	BYD33G	-	NTE552	ECG552	SK9000
	BYD33G-T	903-10255	-	-	-
D501 Thru					
D505	1N4148	903-10053	NTE519	ECG519	SK3100
D507	ZPD9.1	-	NTE5018A	ECG5018A	SK9A1
	UZ-9.1BM	903-10088	NTE5018A	ECG5018A	-
D508, 09	1N4148	903-10053	NTE519	ECG519	SK3100
D701 Thru					
D704	1N4148	903-10053	NTE519	ECG519	SK3100
D706	1N4148	903-10053	NTE519	ECG519	SK3100
D707, 08	ZPD3.9	-	NTE5007A	ECG5007A	SK3A9
	UZ-3.9B	903-10128	NTE5007A	ECG5007A	SK3A9
D709	ZPD033	-	-	-	-
	UZ-33B	903-10254	NTE5036A	ECG5036A	-
D710 Thru					
D713	1N4148	903-10053	NTE519	ECG519	SK3100
# D801	PBS208GU	-	-	-	-
	PBS208GU-CA	903-10090	-	-	-
D802	1N4148	903-10053	NTE519	ECG519	SK3100
D804, 05	BYD95C	903-10224	NTE580	ECG580	SK5036
D806	BYD33G	-	NTE552	ECG552	SK9000
	BYD33G-T	903-10255	-	-	-
D807	-	903-10259	-	-	-
D808	ZPD6.2	-	NTE5013A	ECG5013A	SK6A2
	MTZ6.2-B	903-10253	NTE5013A	ECG5013A	SK6A2
# I301	LA7837	905-10083	NTE7104	ECG7104	-
# I501	LA7674	905-10123	-	-	-
I601	KA2201N	905-10270	-	-	SK9394
I701	LC864616V	-	-	-	-
	LC864616A-5H13	905-10309	-	-	-
I702	24LC02	-	-	-	-
	24LC02B	905-10307	-	-	-
Q201	KTA1266Y	921-10032	NTE290A	ECG290A	SK3114A
Q401	KTC3207	921-10030	NTE399	ECG399	SK9352
# Q402	2SD2499	921-10120	-	-	-
Q404	KTC3198Y	921-10045	NTE85	ECG85	SK9229
Q501	KTA1270Y	921-10029	NTE290A	ECG290A	SK3114A
Q502	KTC3205Y	921-10028	-	-	-
Q503	KTA1266Y	921-10032	NTE290A	ECG290A	SK3114A
Q506	KTC3198Y	921-10045	NTE85	ECG85	SK9229
Q701, 03, 05	KTC3198Y	921-10045	NTE85	ECG85	SK9229
Q706	KTA1266Y	921-10032	NTE290A	ECG290A	SK3114A
Q801	MPSA92	921-10131	NTE288	ECG288	SK3434
Q802	KTC3207	921-10030	NTE399	ECG399	SK9352
Q803	KSC2500B	921-10129	-	-	-
# Q804	KSE13009-H2	921-10130	-	-	-
Q806	KTC3203Y	921-10121	NTE382	ECG382	SK9137
Q901, 02, 03	KTC3207	921-10030	NTE399	ECG399	SK9352

For SAFETY use only equivalent replacement part.

PARTS LIST continued

CAPACITORS & ELECTROLYTICS

Item No.	Rating	Mfr. Part No.
C305	10pF ±.5pF 500V NPO	822-10747
C406	.006 5% 1.6kV	822-10237
# C409	1µF 20% 160V	822-10184
# C414	10µF 50V	822-10558
C529	2.2µF 50V NP	822-10737
C801	.1 10% 250VAC	822-10243
# C802, 03	.0022 10% 500V	822-10228
# C804	220µF 250V	822-10743
# C813	.0027 5% 630V	822-10746
C822	470pF 2kV	-
# C888	270pF 250VAC	-
C904	.001 ±.1pF 2kV	822-10549

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

Item No.	Function/Rating	Mfr. Part No.
# DY	Yoke Horiz 3.25mH Vert 28.8mH	895-10015
L102	.55µH	820-10051
L104	22µH	820-10052
L105	AFT	820-10071
L106	15µH	820-10054
L107	VCO	820-10070
L201	15µH	820-10054
L401	Horizontal Linearity	-
L501	15µH	820-10054
L502	56µH	820-10058
L503	82µH	820-10203
L504	10µH	820-10053
# L801	Line Filter	820-10204
L802	94mH	820-10179
L803	Ferrite Bead	949-10005
L900	Degaussing	820-10046
L901	180µH	820-10064
T401	Horizontal Drive	895-10052
T402 (1)	Horizontal Output	895-10058
# T801	SMPS	895-10059

For SAFETY use only equivalent replacement part.
(1) Focus and screen controls are part of T402.

CONTROLS & RESISTORS

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
# R113	10K RF AGC	863-10871	-
# R305	22K Vertical Size	863-10872	-
# R312	620 5% 1/2W	863-10234	HW162
# R313	5000 Vertical Centering	863-10874	-
# R314	560 5% 1/4W	863-10584	QW156
# R409	5600 5% 1W	863-10866	1W256
R411	3.3 5% 1W Fusible	863-10858	F1W3D3
R412	3.6 5% 1W Fusible	863-10859	F1W3D6
# R414	12K 5% 1/6W	863-10842	-
# R415	10K 5% 1/6W	863-10202	-
R416, 17	2.2 5% 1W Fusible	863-10857	F1W2D2
# R504	1000 5% 1/6W	863-10193	-
# R516	470 Horizontal Centering	-	-
	5000 Horizontal Centering	863-10873	-
# R522	5000 Sub Brightness	863-10874	-
# R764	56K 5% 1/2W	863-10834	HW356
# R801	2.2 5% 7W Wirewound	863-10875	-
# R806	390K 5% 1/2W	863-10831	HW439
# R807	47 5% 1W	863-10864	1W047
R808	1 5% 1W Fusible	863-10856	F1W1D0
R818	.68 5% 1W Fusible	863-10861	-
	.75 5% 1W Fusible	-	-
# R820	1000 Volt Adjust	863-10870	-
# R830	12K 5% 2W	863-10868	2W312
# R888	2.2M 5% 1/2W	863-10829	HW522
# R901	8.3 Cold PTC	863-10826	-
R906	5000 Red Bias	863-10577	-
R911	200 Green Drive	863-10576	-
R913	5000 Green Bias	863-10577	-
R918	200 Blue Drive	863-10576	-
R920	5000 Blue Bias	863-10577	-
# RS801	Varistor (SVC271)	863-10706	-

For SAFETY use only equivalent replacement part.

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
# ASB1	Shield Box	895-10034	Antenna
# F801	Fuse	936-10020	4Amp, 125V
IL701	Receiver	905-10265	Remote (TFMW5380)
# PCW1	Line Cord	811-10010	AC, Polarized
	Line Cord	811-10003	AC, Polarized (Charcoal)
RLY1	Relay	995-10007	Degaussing
SCT1	Socket	878-10011	CRT
SP1	Speaker	849-10010	1 3/4" X 3 1/2", 8 Ohms, 1 1/2W
SW01	Switch	885-10050	Power
SW02	Switch	885-10050	Channel Down
SW03	Switch	885-10050	Channel Up
SW04	Switch	885-10050	Volume Down
SW05	Switch	885-10050	Volume Up
SW06	Switch	885-10050	Menu
SW901	Switch	885-10011	Service
U101 (1)	Tuner	975-10025	UHF/VHF
# V901	CRT	900-10002	A34JLL40X
X501	Crystal	903-10091	3.58MHz
Z101	Filter	905-10311	SAW
Z102	Crystal	905-10094	4.5MHz
Z201	Trap	905-10095	4.5MHz
Z202	Filter	905-10096	4.5MHz
Z401	Resonator	905-10093	15.76kHz
Z701	Resonator	905-10310	503kHz
	Antenna	801-10006	-
	Balun	895-10022	Antenna, 300/75 Ohms
	Fuse Holder	862-10001	For F801 (2 Used)
	Magnet	949-10002	Purity/Convergence
	PC Board	809-10263	Main
	Transmitter	924-10032	Remote (SC3492A)
	Wedge	894-10004	Yoke Positioning (3 Used)

For SAFETY use only equivalent replacement part.
(1) Contact TNI Electronics for replacement; order by part number on tuner.

TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
AGC	7.4V	7.4V	7.4V
9V	9.5V	9.5V	9.5V
IF	0V	0V	0V
33V	34.3V	34.3V	34.3V
5V	5.1V	5.1V	5.1V
CLOCK	0V	0V	0V
DATA	4.6V	4.6V	4.6V
ENABLE	0V	0V	0V

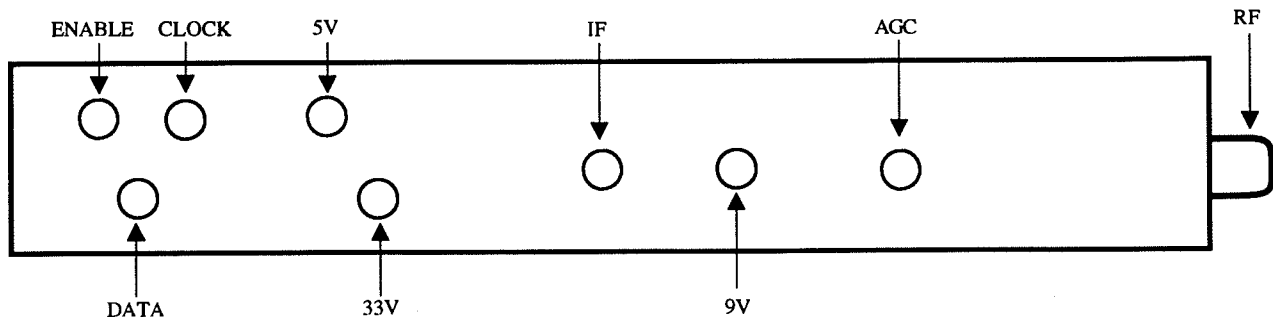
NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.



Created with pride by the employees
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TUNER TERMINAL GUIDE



CABINET PARTS

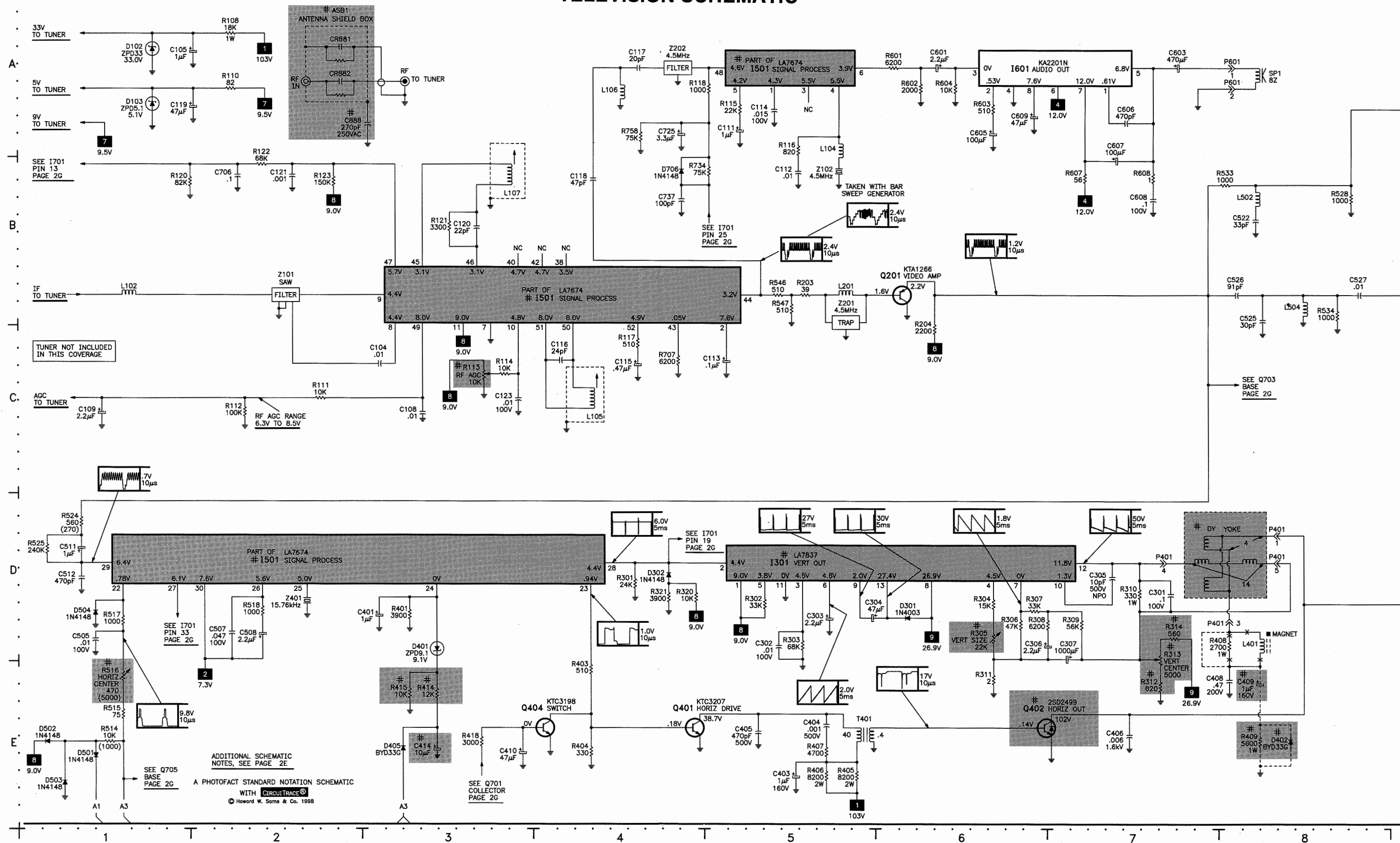
Item	Mfr. Part No.
Button Assembly	959-10076
Cabinet Front Assembly	857-10161
Cabinet Rear	802-10001
Remote Sensor	942-10041

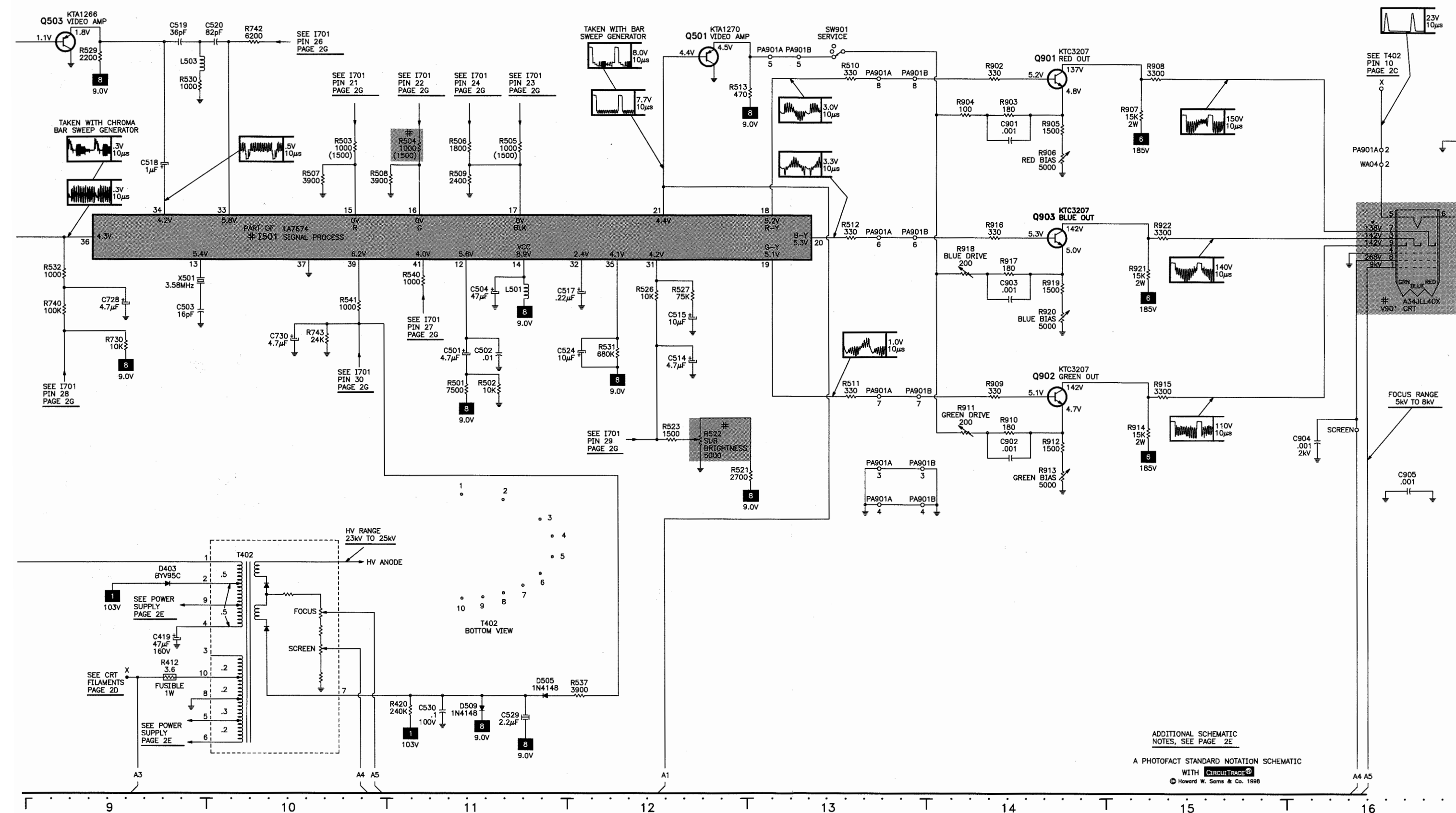
TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

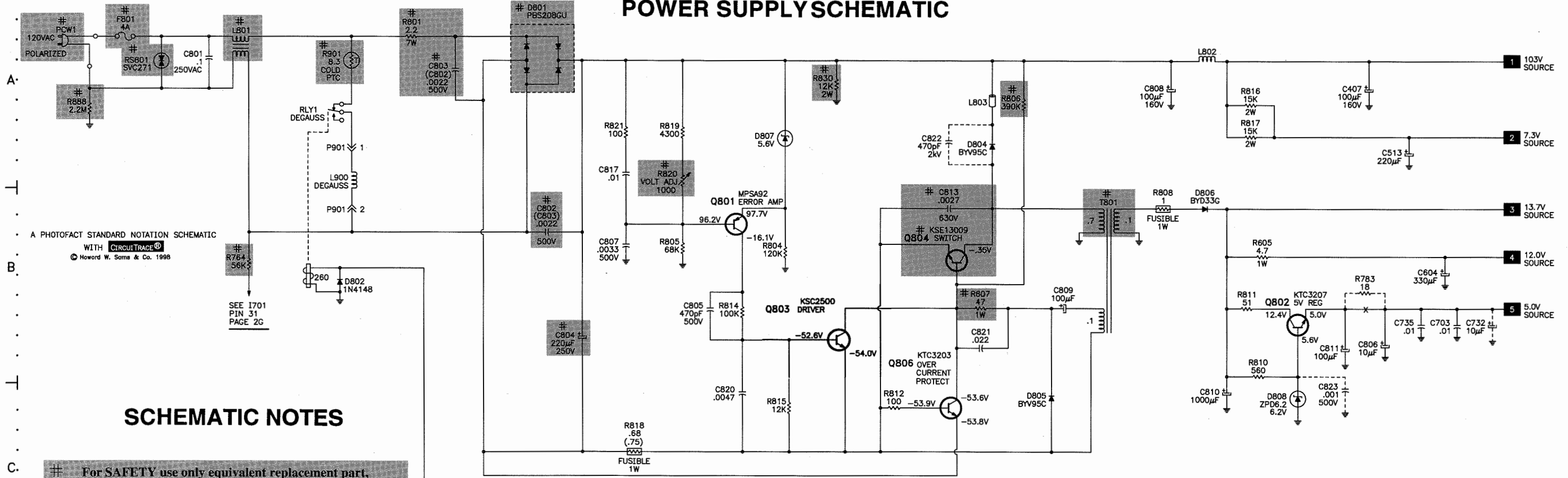
Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR570
Generators		Capacitance Analyzer	LC102
RGB	CM2125	CRT Analyzer	CR7000
Multiburst Signal	VG91	AC Leakage Tester	PR570
Color Bar	VG91	Inductance Analyzer	LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	SC3100	Field Strength Meter	SL753
Frequency Meter	SC3100	Transistor Tester	TF46
Hi-Voltage Probe	HP200	Horizontal Analyzer	HA-2500
Accessory Probes	TP212	Video Analyzer	VG91, TVA92

TELEVISION SCHEMATIC





POWER SUPPLY SCHEMATIC



SCHEMATIC NOTES

For SAFETY use only equivalent replacement part, see parts list.

* Circuitry not used in some versions.

--- Circuitry used in some versions.

⊥ Ground

⏏ Chassis ground

⤵ Common tie point

△ Taken from common tie point

3 Schematic CIRCUITRACE® Voltage source tie point.

A Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are taken from ground, unless noted otherwise.

Waveforms taken with triggered scope and colorbar signal.

Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.

Supply voltages maintained as seen at input.

Voltages measured with digital meter and a 1000μV RF signal, with colorbar pattern, applied to antenna terminal.

Controls adjusted for normal operation.

Capacitors are 50 volts or less, 5% or greater unless noted.

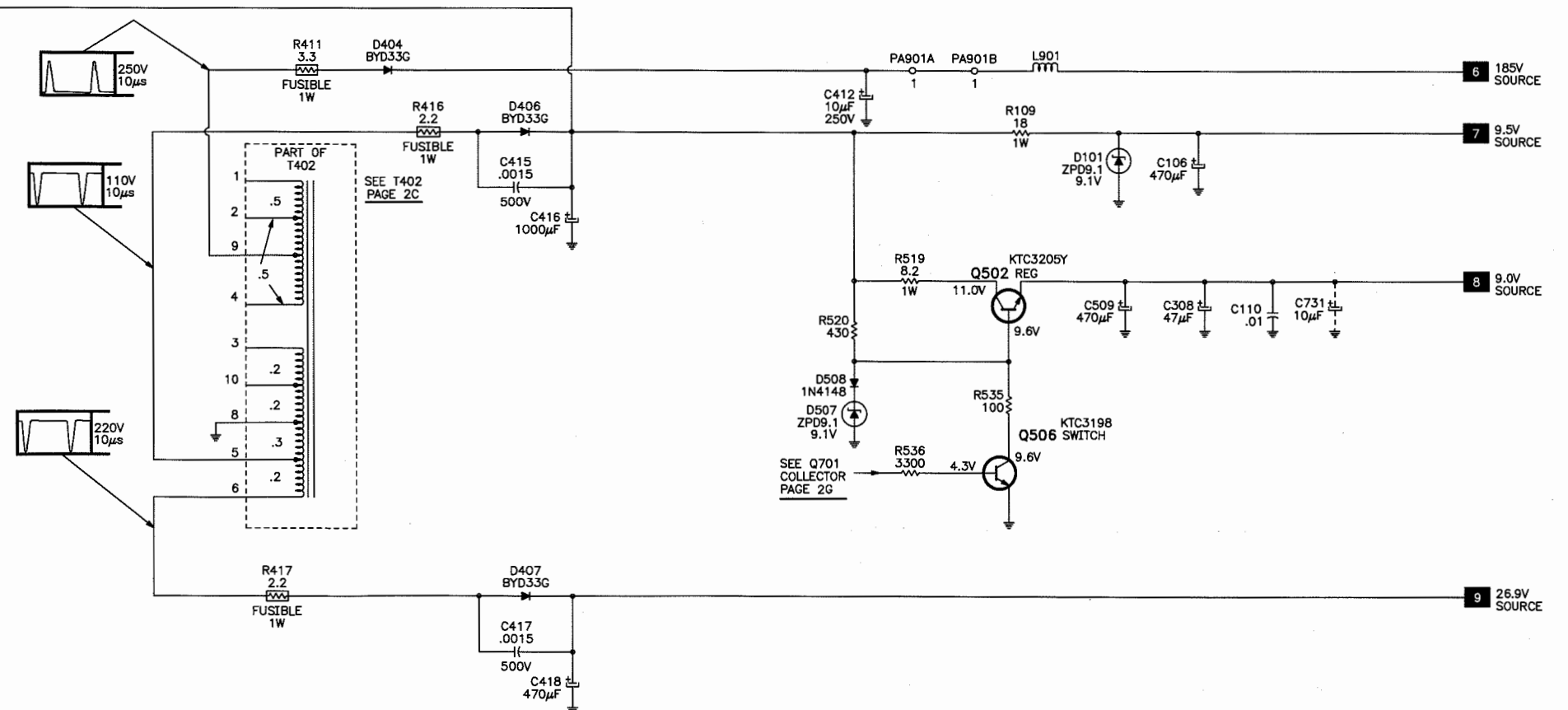
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.

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

Value in () used in some versions.

Measurements with switching as shown, unless noted.

Rated voltage shown on zener diodes.



G



R918 R911 R920 R913 R908
BLUE GREEN BLUE GREEN RED
DRIVE DRIVE BIAS BIAS BIAS

CRT BOARD



MODELS A13P02D, LGA14P02D (CHASSIS CN-1151)