HITACHI

SERVICE MANUAL

NTSC | M2XU CHASSIS

PA	No. 0024

20SA2B/C032
20SA4B/C034

R/C: CLU-681GJ
CLU-691GR

CAUTION: Before servicing this chassis, it is important that the service technician read the "Safety Precaution" and "Product Safety Notices" in this Service Manual.

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This television receiver will display television closed captioning (CC or ☐) in accordance with paragraph 15.119 of the FCC rules.

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health and Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

SAFETY NOTICE
USE ISOLATION TRANSFORMER WHEN SERVICING

Components having special safety characteristics are identified by ⚠ on the schematics and on the parts list in this Service Data and its supplements and bulletins. Before servicing this chassis, it is important that the service technician read and follow the "Safety Precautions" and the "Product Safety Notices" in this Service Manual.

* For continued x-radiation protection, replace picture tube with original type or Hitachi approved equivalent type.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

SOLID STATE COLOR TELEVISION

July 1993

HHEA - MANUFACTURING DIVISION

SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.

WARNING: Since the chassis of this receiver is connected to one side of the AC power supply during operation, whenever the receiver is plugged in, service should not be attempted by anyone unfamiliar with the precautions necessary when working on this type of receiver.

The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep picture tube away from the body while handling.
2. When service is required, an isolation transformer should be inserted between power line and the receiver before any service is performed on a "HOT" chassis receiver.
3. When replacing a chassis in the receiver, all the protective devices must be put back in place, such as barriers, non-metallic knobs, adjustment and compartment cover-shields, isolation resistors-capacitors, etc.
4. When service is required, observe the original lead dress. Extra care should be taken to assure correct lead dress in the high voltage circuitry area.
5. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by a different manufacturer. Furthermore, where a short circuit has occurred, replace those components that indicate evidence of overheating.
6. Before returning a serviced receiver to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the receiver by the manufacturer has become defective, or inadvertently defeated during servicing.

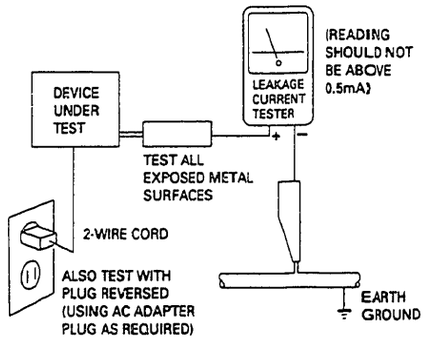
Therefore, the following checks should be performed for the continued protection of the customer and service technician.

Leakage Current Cold Check

With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (antennas, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.24M Ω and a maximum resistor reading of 12M Ω. Any resistance value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into an AC 120V 60Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on. Using a "leakage Current Tester (Simpson Model 229 or equivalent)", measure for current from all exposed metal parts of the cabinet (antennas, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.



AC LEAKAGE TEST

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE RECEIVER TO THE CUSTOMER.

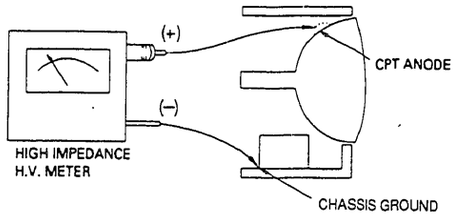
High Voltage

This receiver is provided with a hold down circuit for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this hold down circuit is operated correctly.

Serviceman Warning

With minimum Brightness and Contrast, the operating high voltage in this receiver is lower than 31.0kV. In case any component having influence on the high voltage is replaced, confirm that high voltage with minimum Brightness and Contrast is lower that 31.0kV. To measure H.V. use a high impedance H.V. meter. Connect (-) to chassis earth and (+) to the CPT anode button (See the following connection diagram).

NOTE: Turn the power switch off without fail before the connection to the Anode button is made.



X-Radiation

TUBE: The primary source of X radiation in this receiver is the picture tube. The tube utilized in this chassis is specially constructed to limit X radiation emission.

For continued X radiation protection, the replacement tube must be the same type as the original, HITACHI approved type.

When troubleshooting and making test measurements in a receiver with an excessive high voltage problem, avoid coming unnecessarily close to the picture tube and the high voltage component.

Do not operate the chassis longer than is necessary to locate the cause of the excessive voltage.

PRODUCT SAFETY NOTICE

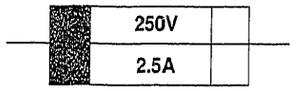
Many electrical and mechanical parts in HITACHI television receivers have special safety related characteristics. These are often not evident from visual inspection not can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacements parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified with an⚠ mark in the schematics and parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards,

Production Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of HITACHI Service Manual may be obtained at a nominal charge from HITACHI HOME ELECTRONICS (AMERICA), INC.

CAUTION

The following symbol near the fuse indicates fast operating fuse to be replaced. Fuse ratings appear within the symbol. Example:



F901

The rating of fuse F901 is 2.5A-250V.

Replace with the same type fuse for continued protection against fire.

TECHNICAL SPECIFICATIONS

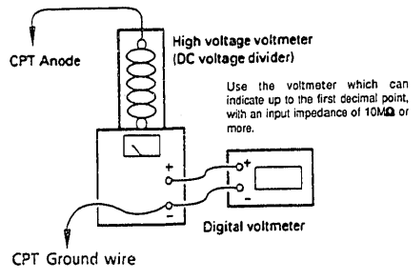
ANTENNA INPUT IMPEDANCE..... 75Ω (300Ω)
CHANNEL COVERAGE
VHF BAND..... 2 - 13
UHF BAND ..... 14 - 69
CATV MID BAND ..... A-5 - A-1
A -I
SUPER BAND ..... J - W
HYPER BAND ..... W+1 - W+28
ULTRA BAND .....W+29 - W+84
RECEIVING CHANNEL 181ch
CHANNEL INDICATOR .....DIGITAL/ON SCREEN
INTERMEDIATE FREQUENCY
Picture IF Carrier 45.75MHz
Sound IF Carrier ..... 41.25 MHz
Sound IF 4.50MHz

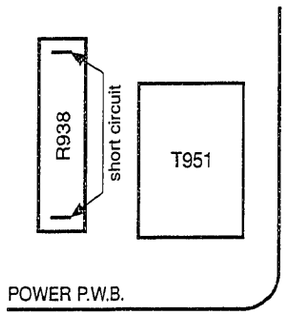
POWER INPUT AC120V, 60Hz
POWER RATINGS 115W
CONVERGENCE ..... Self Convergence
FOCUS ..... Electrostatic
PICTURE TUBE..... A51KQN61X
SPEAKER ..... 2 Speakers (60 x 120mm)
SOUND OUTPUT ..... 1W x 2

TECHNICAL CAUTIONS

High voltage limiter circuit operation check

1. Connect the high voltage voltmeter between the CPT anode terminal (anode cap) and ground as shown in the diagram.
2. Set the AC input voltage to 120 ± 3V.
3. Receive the broadcast signal and set the contrast level and the brightness level to maximum. Adjust the screen VR and sub brightness VR so that beam current is 1.25 ± 0.1mA.
4. Check that the constant high voltage is 26.5 ± 1.5kV at this time.
5. Set the AC input voltage to 100 ± 5V and then short circuit both ends of R938.
6. Leave the setting of the contrast, brightness and screen VRs as in item (3) and gradually increase the AC input voltage. Check that the picture disappears when the high voltage is less than 31.0kV.
7. Turn the switch of the set off immediately after checking that the picture disappears.



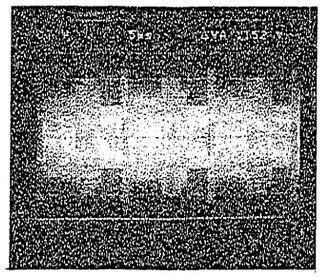


IC901

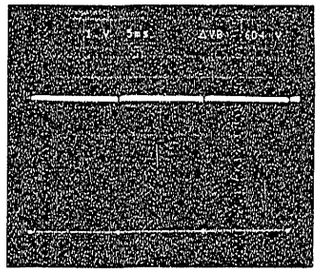
WAVEFORMS AT EACH SECTION

Numbers inside ◯ correspond to locations shown in the circuit diagram.

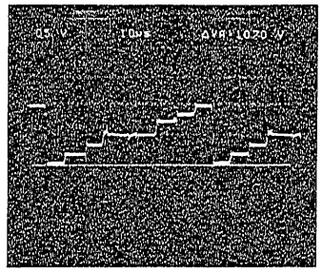
(1) U101 pin 7 IF (BM)



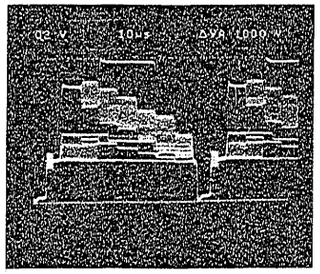
(5) IC 201 pin 28



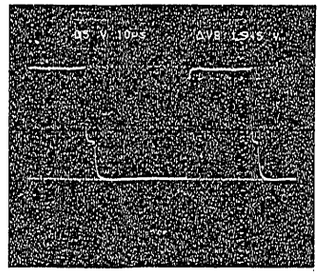
(9) IC201 pin 19



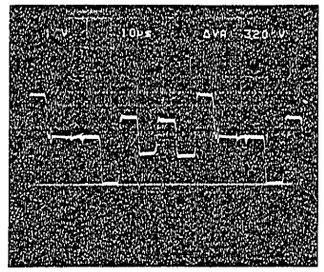
(2) IC201 pin 38



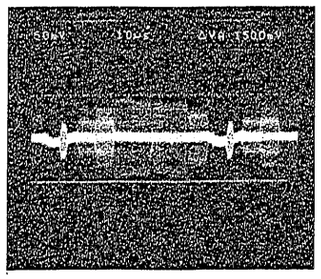
(6) IC201 pin 23



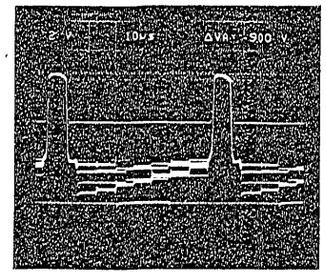
(10) IC201 pin 20



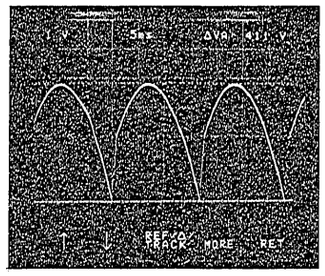
(3) IC201 pin 36



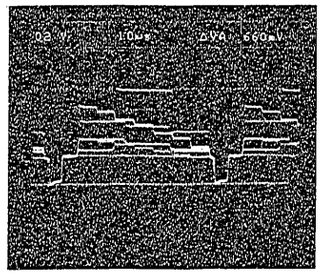
(7) IC201 pin 21



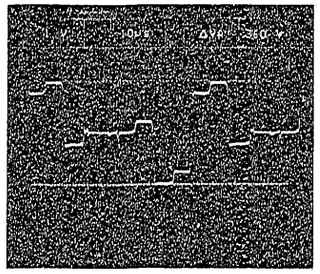
(11) M-connector pin 3



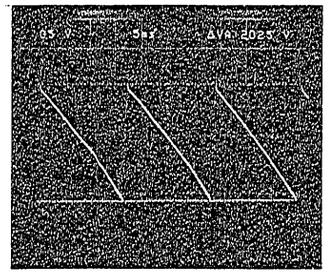
(4) IC201 pin 34



(8) IC201 pin 18



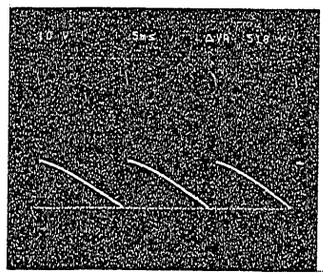
(12) IC601 pin 7



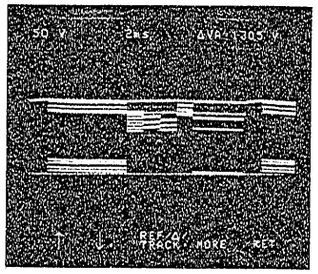
WAVEFORMS AT EACH SECTION

Numbers inside ◯ correspond to locations shown in the circuit diagram.

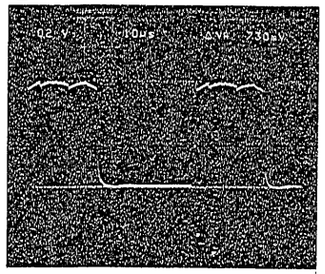
(13) IC601 pin 12



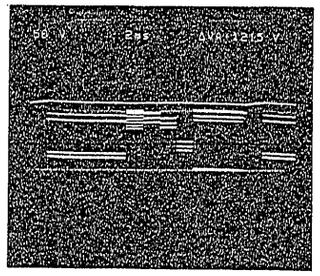
(17) Q801 collector



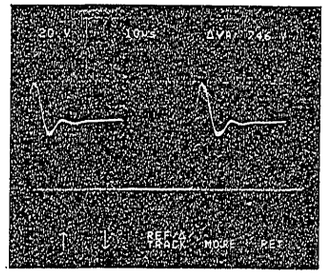
(14) Q705 base



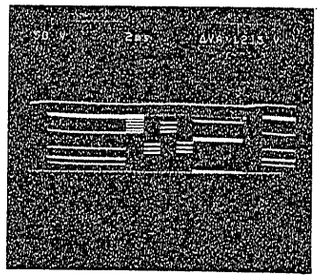
(18) Q802 collector



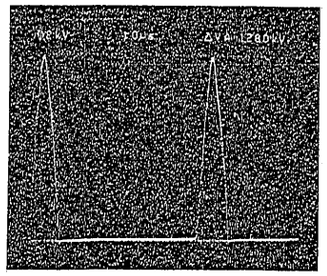
(15) Q705 collector



(19) Q803 collector



(16) Q704 collector (use 100x probe)



DC VOLTAGE TABLES

CIRCUIT NO.	PIN NO.	VOLTAGE (V DC)
Q101	B	4.5
	C	5.1
	E	5.2
Q104	B	0.7
	C	2.0
	E	0.2
Q105	B	0.2
	C	3.0
	E	0.2
Q106	B	0.7
	C	0.1
	E	0.0
Q109	B	0.7
	C	0.0
	E	0.0
Q203	B	4.6
	C	9.0
	E	3.9
Q204	B	4.0
	C	9.0
	E	3.3
Q205	B	3.3
	C	0.0
	E	3.9
Q301	B	5.2
	C	4.4
	E	0.0
Q302	B	4.2
	C	0.0
	E	4.4
Q303	B	2.2
	C	9.1
	E	1.5
Q304	B	10.0
	C	0.0
	E	9.3
Q305	B	2.9
	C	9.0
	E	2.2
Q306	B	0.0
	C	0.9
	E	0.0
Q307	B	2.9
	C	8.5
	E	2.2
Q308	B	8.4
	C	3.9
	E	9.1
Q309	B	0.0
	C	6.9
	E	0.0
Q310	B	3.6
	C	9.1
	E	2.9
Q312	B	2.2
	C	9.1
	E	1.6
Q4002	B	1.6
	C	5.2
	E	0.9
Q4003	B	0.0
	C	9.1
	E	0.0
Q4004	B	0.0
	C	0.0
	E	0.0

CIRCUIT NO.	PIN NO.	VOLTAGE (V DC)
Q4005	B	0.0
	C	0.0
	E	0.0
Q4007	B	9.8
	C	11.4
	E	0.0
Q4501	B	8.8
	C	9.0
	E	8.1
Q4502	B	8.8
	C	9.0
	E	8.1
Q4503	B	2.9
	C	8.8
	E	2.5
Q4504	B	2.9
	C	8.8
	E	2.6
Q4505	B	1.2
	C	2.5
	E	0.8
Q4506	B	0.5
	C	0.8
	E	0.0
Q4507	B	1.6
	C	5.1
	E	0.9
Q4508	B	0.0
	C	11.2
	E	0.0
Q501	B	0.0
	C	9.1
	E	0.0
Q502	B	3.0
	C	8.4
	E	2.3
Q503	B	8.4
	C	6.3
	E	9.1
Q603	B	0.0
	C	4.5
	E	0.0
Q604	B	3.9
	C	1.7
	E	4.1
Q605	B	0.0
	C	5.0
	E	0.0
Q702	B	9.4
	C	0.1
	E	6.2
Q704	B	1.5
	C	98.5
	E	1.6
Q705	B	0.4
	C	27.4
	E	0.0
Q706	B	0.0
	C	4.5
	E	0.0
Q707	B	10.1
	C	11.8
	E	9.4
Q801	B	5.2
	C	187.6
	E	5.0

CIRCUIT NO.	PIN NO.	VOLTAGE (V DC)
Q802	B	5.3
	C	180.1
	E	5.1
Q803	B	5.4
	C	181.3
	E	5.2
Q804	B	5.0
	C	4.4
	E	4.4
Q805	B	5.1
	C	5.2
	E	4.4
Q901	B	1.3
	C	4.5
	E	0.6
Q902	B	19.4
	C	0.0
	E	19.9
Q903	B	0.0
	C	19.9
	E	0.0
Q904	B	18.0
	C	18.7
	E	18.8
Q905	B	31.9
	C	-1.3
	E	18.9
Q906	B	11.9
	C	18.8
	E	11.4
IC101	1	5.1
	2	5.1
	3	5.1
	4	5.1
	5	0.0
	6	0.0
	7	0.0
	8	0.0
	9	5.1
	10	0.0
	11	2.4
	12	2.5
	13	5.2
	14	2.7
	15	2.9
	16	5.1
	17	0.1
	18	5.1
	19	3.5
	20	0.5
	21	0.0
	22	0.0
	23	0.0
	24	0.0
	25	4.4
	26	4.9
	27	2.3
	28	0.0
	29	0.0
	30	0.5
	31	7.9
	32	3.5
	33	2.1
	34	4.2
	35	3.7
	36	0.5

CIRCUIT NO.	PIN NO.	VOLTAGE (V DC)
IC101	37	0.1
	38	6.6
	39	8.4
	40	5.1
	41	0.8
	42	0.1
	43	2.0
	44	5.2
	45	5.0
	46	5.0
	47	0.0
	48	0.0
	49	0.0
	50	0.2
	51	5.0
	52	5.0
IC102	1	0.8
	2	0.8
	3	0.0
	4	0.0
	5	0.0
	6	2.4
	7	4.4
	8	3.9
	9	4.7
	10	4.1
	11	3.8
	12	3.5
	13	2.9
	14	3.5
	15	3.5
	16	5.2
	17	2.8
	18	2.9
	19	2.6
	20	1.3
	21	0.7
	22	0.0
IC103	1	5.1
	2	5.1
	3	0.0
	4	5.1
	5	5.2
	6	5.2
	7	5.1
	8	5.1
IC104	1	13.4
	2	0.0
	3	5.2

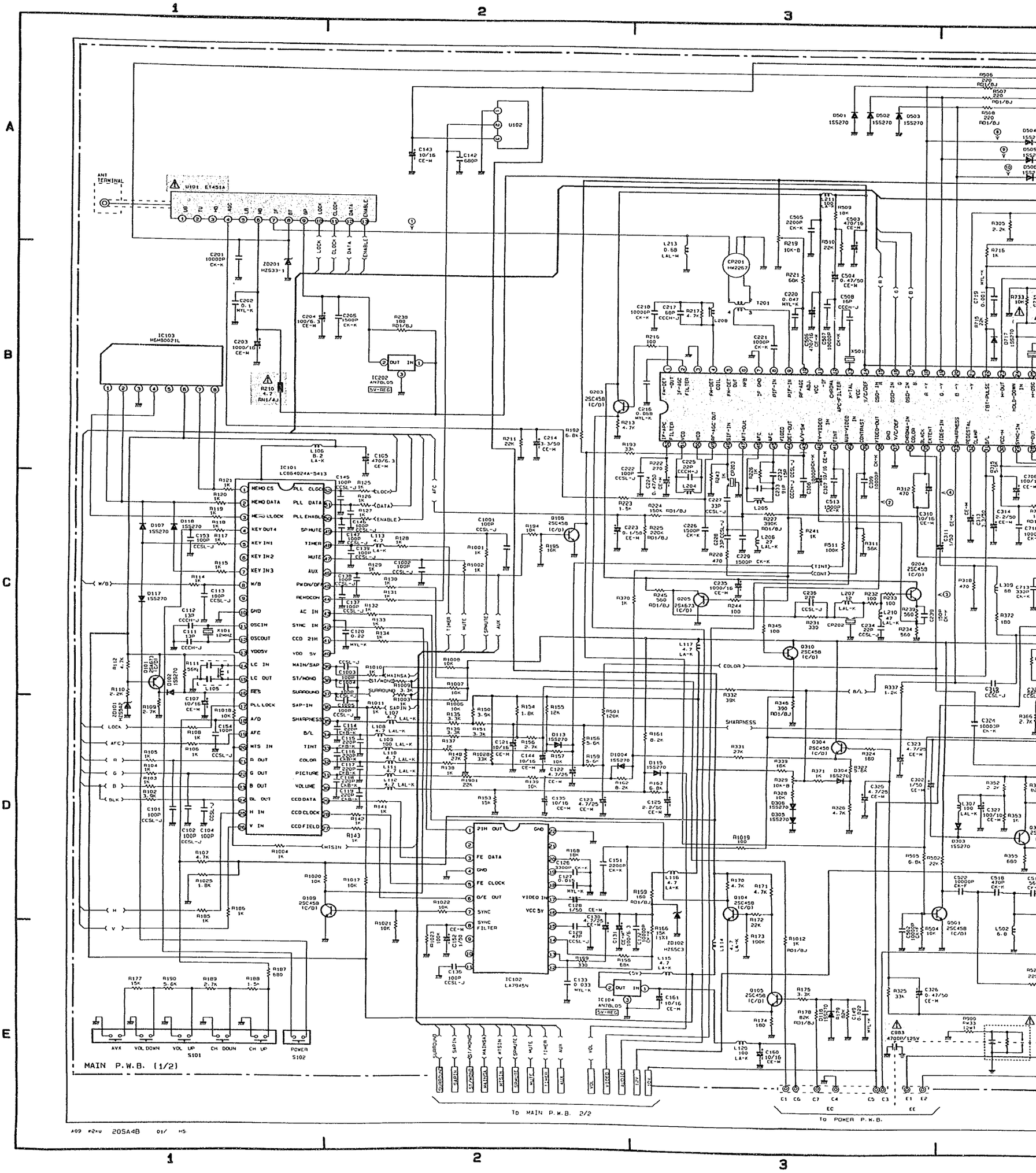
DC VOLTAGE TABLES

CIRCUIT NO.	PIN NO.	VOLTAGE (V DC)
IC201	1	4.2
	2	6.8
	3	0.0
	4	5.7
	5	4.3
	6	4.1
	7	0.0
	8	4.5
	9	4.5
	10	5.0
	11	8.9
	12	5.8
	13	5.5
	14	9.0
	15	0.0
	16	0.0
	17	0.0
	18	5.2
	19	5.3
	20	5.4
	21	4.1
	22	0.6
	23	0.9
	24	0.1
	25	5.3
	26	5.9
	27	8.0
	28	4.6
	29	7.0
	30	7.8
	31	4.2
	32	2.7
	33	5.8
	34	4.4
	35	8.4
	36	4.5
	37	0.0
	38	3.6
	39	7.0
	40	0.0
	41	4.2
	42	4.9
	43	0.3
	44	3.3
	45	3.2
	46	3.2
	47	5.9
	48	0.0
	49	2.0
	50	8.0
	51	8.0
	52	5.0

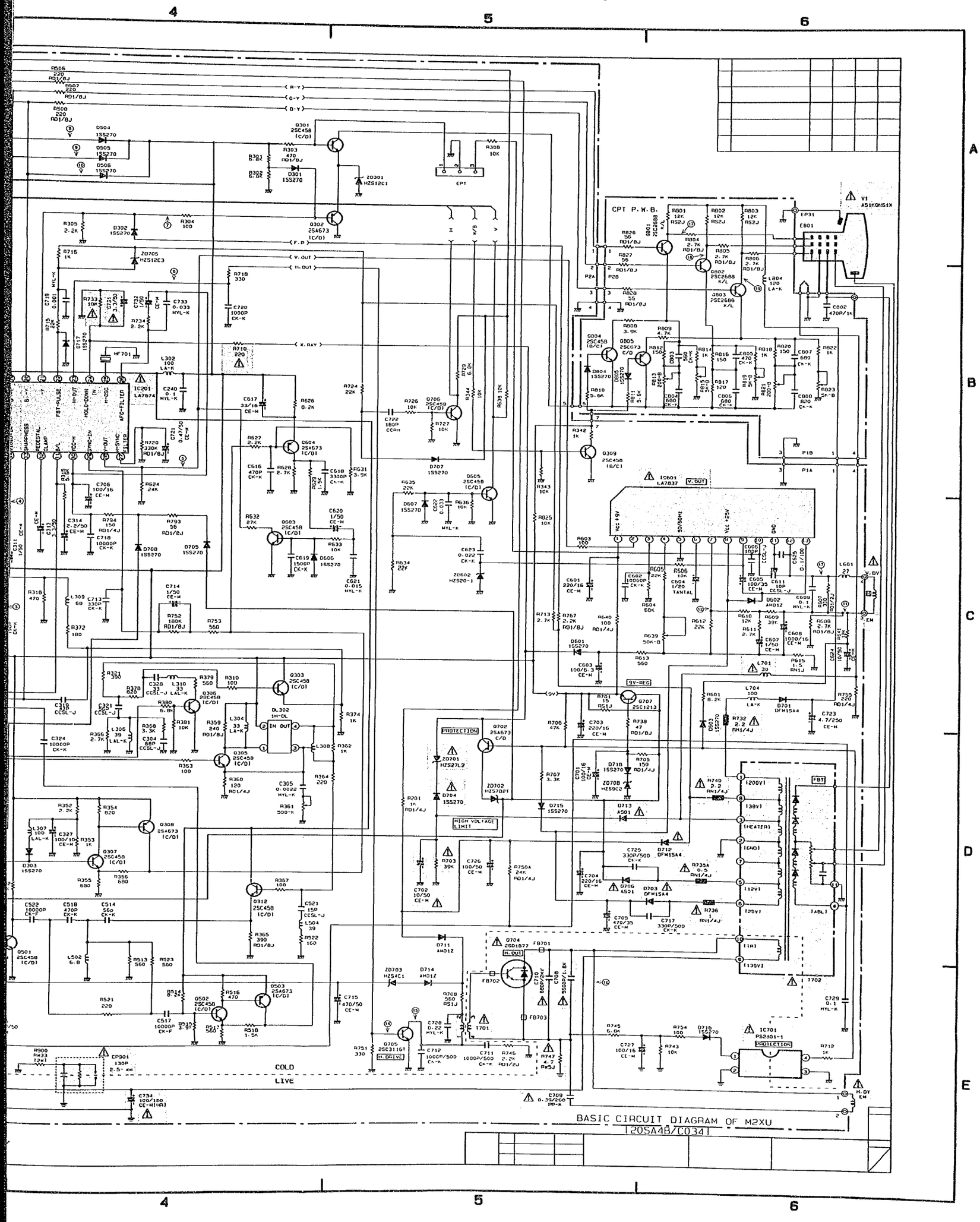
CIRCUIT NO.	PIN NO.	VOLTAGE (V DC)
IC202	1	9.3
	2	0.0
	3	5.2
IC4001	1	1.3
	2	1.3
	3	0.0
	4	4.7
	5	4.8
	6	0.0
	7	8.3
	8	6.3
	9	0.0
	10	4.8
	11	4.8
	12	4.8
	13	1.3
	14	4.8
	15	0.6
	16	5.0
	17	0.5
	18	7.8
	19	4.9
	20	7.8
	21	4.7
	22	0.0
	23	6.9
	24	0.0
	25	0.0
	26	8.0
	27	4.8
	28	4.8
	29	3.2
	30	3.0
	31	0.1
	32	9.1
	33	0.1
	34	3.5
	35	4.8
	36	0.7
	37	3.9
	38	4.1
	39	4.7
	40	4.2
	41	1.8
	42	4.8

CIRCUIT NO.	PIN NO.	VOLTAGE (V DC)
IC4002	1	4.6
	2	0.0
	3	4.6
	4	4.7
	5	4.7
	6	4.7
	7	3.5
	8	2.6
	9	4.6
	10	0.0
	11	2.6
	12	2.6
	13	4.6
	14	4.6
	15	2.6
	16	1.4
	17	4.7
	18	4.7
	19	0.0
	20	4.6
	21	9.1
	22	4.6
IC4501	1	1.3
	2	0.0
	3	11.2
	4	0.0
	5	0.0
	6	1.3
	7	5.9
	8	10.3
	9	0.0
	10	11.4
	11	10.3
	12	5.7
IC601	1	9.0
	2	0.0
	3	4.5
	4	4.6
	5	0.0
	6	4.6
	7	4.2
	8	25.3
	9	2.5
	10	1.4
	11	0.0
	12	13.9
	13	25.9
IC701	1	0.6
	2	0.0
	3	0.0
	4	9.4
IC901	1	0.0
	2	99.9
	3	117.2
	4	99.1

BASIC CIRCUIT DIAGRAM 20SA4B

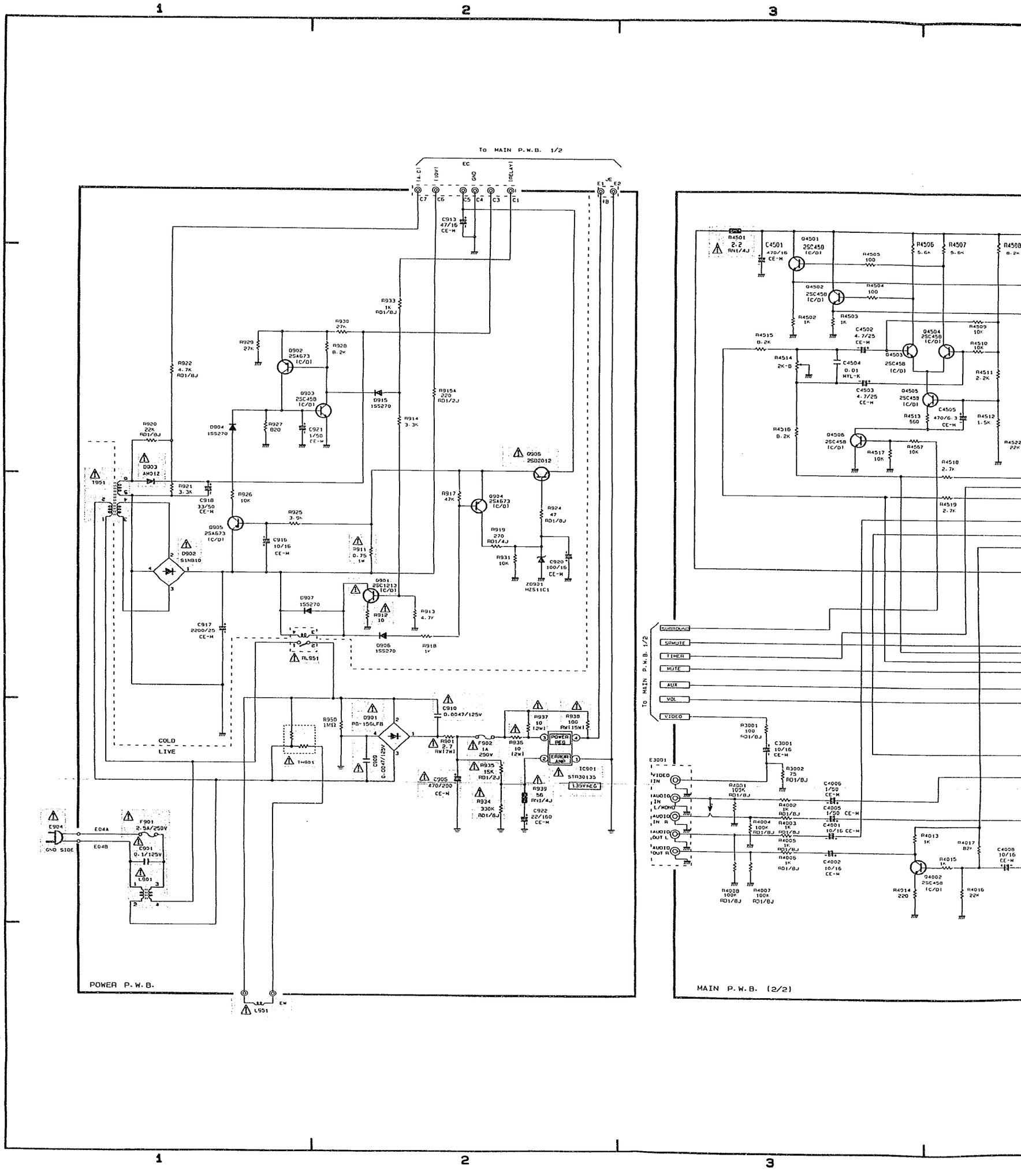


PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.



- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

BASIC CIRCUIT DIAGRAM 20SA4B/C



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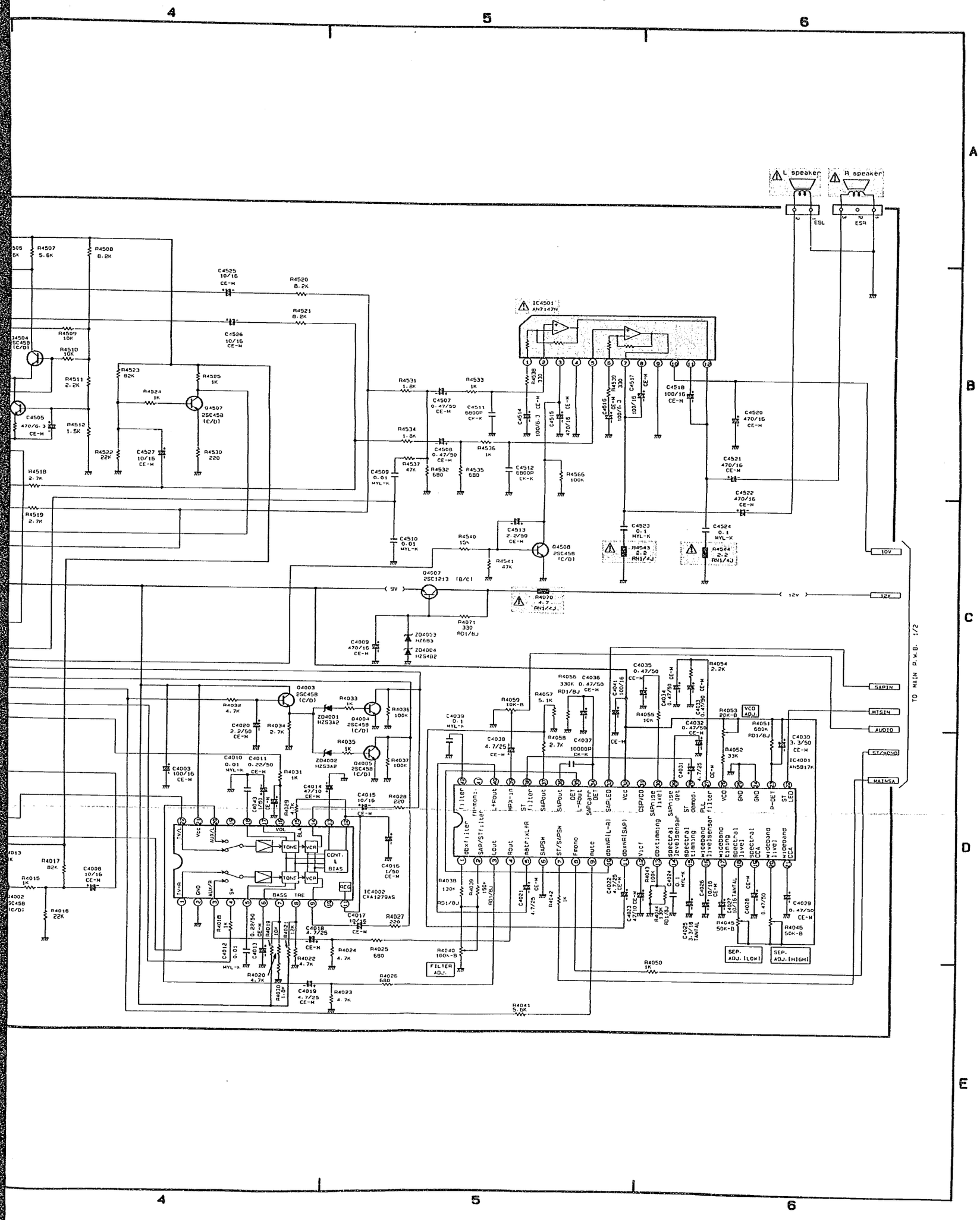
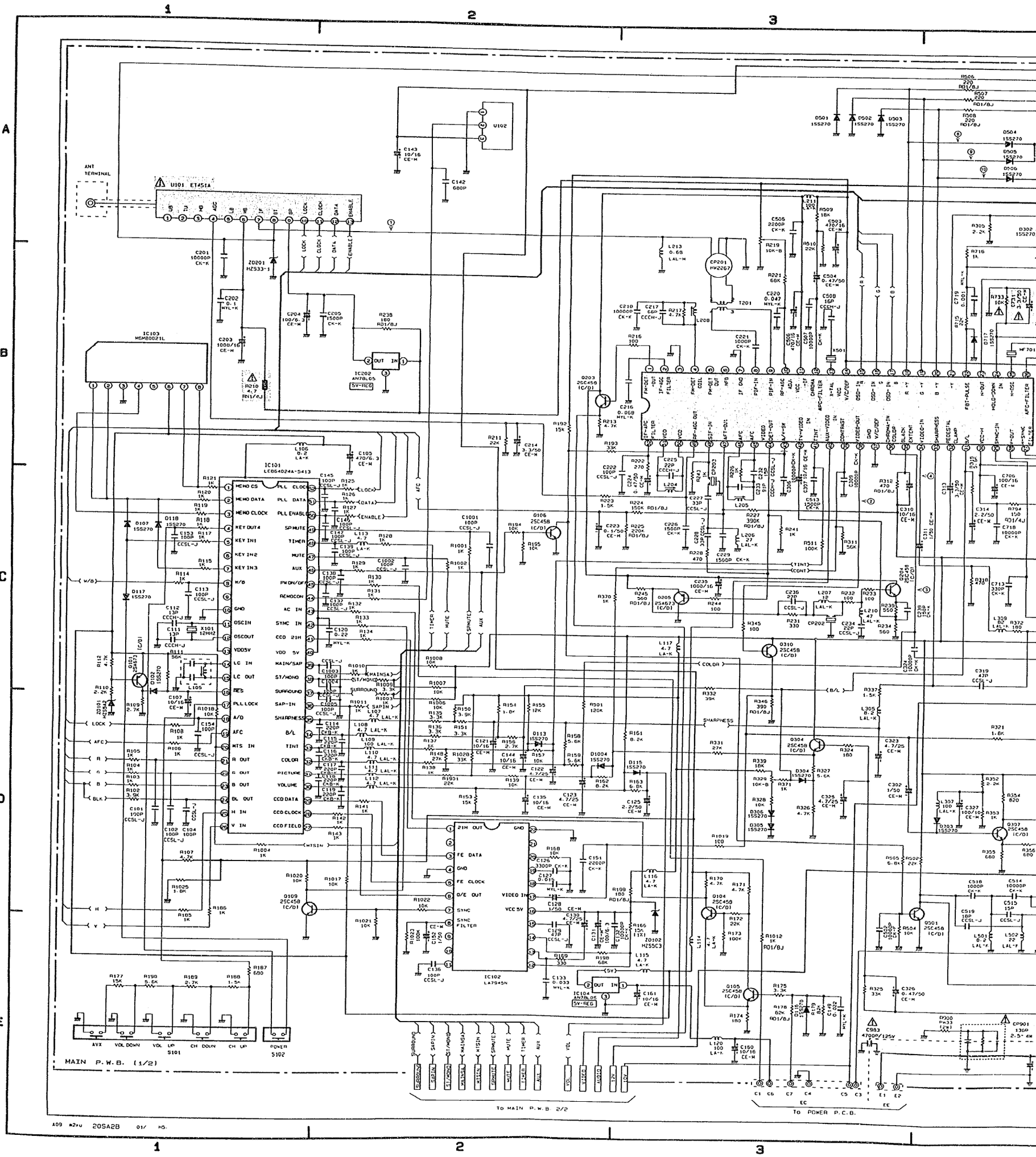
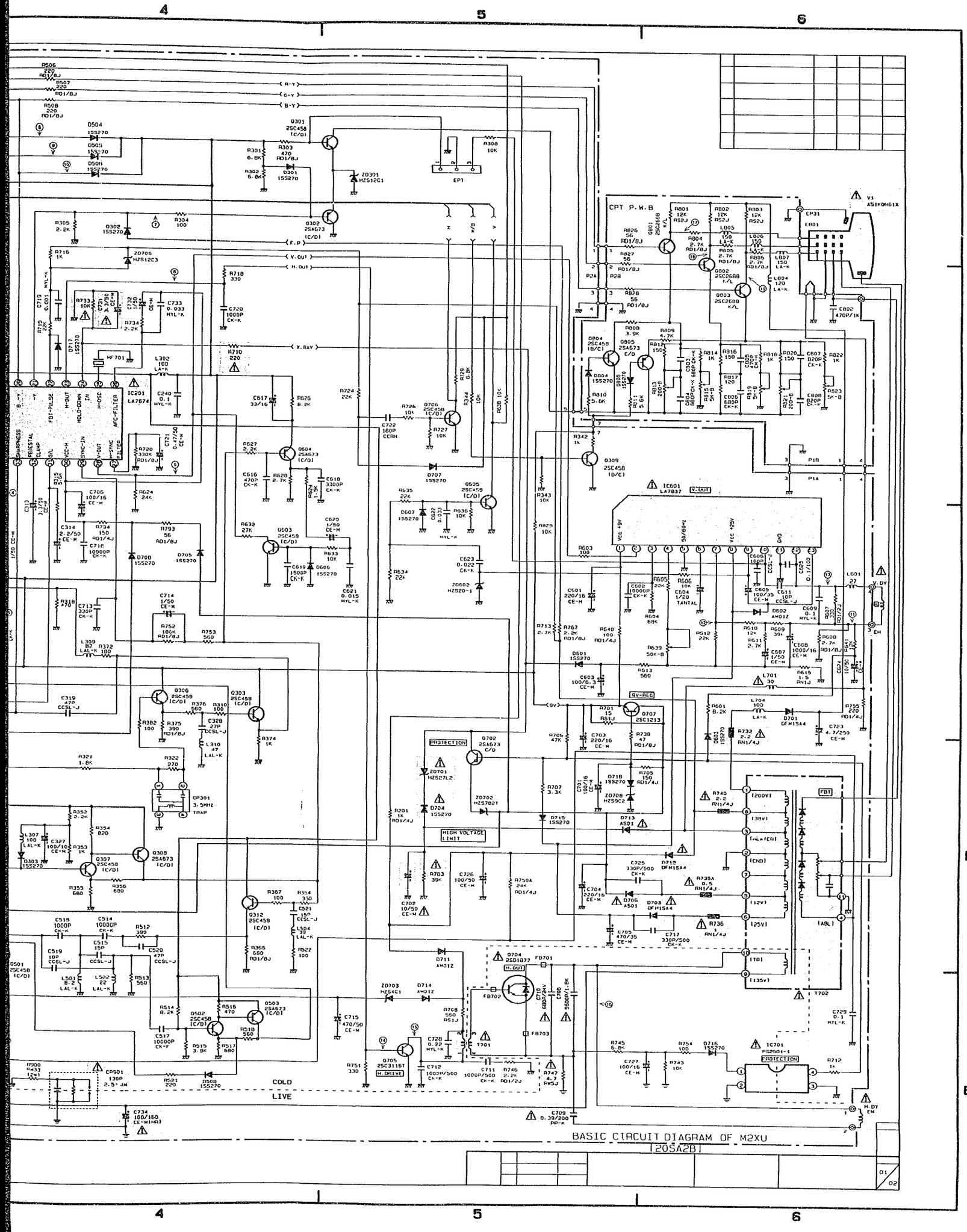


- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

BASIC CIRCUIT DIAGRAM 20SA2B/C

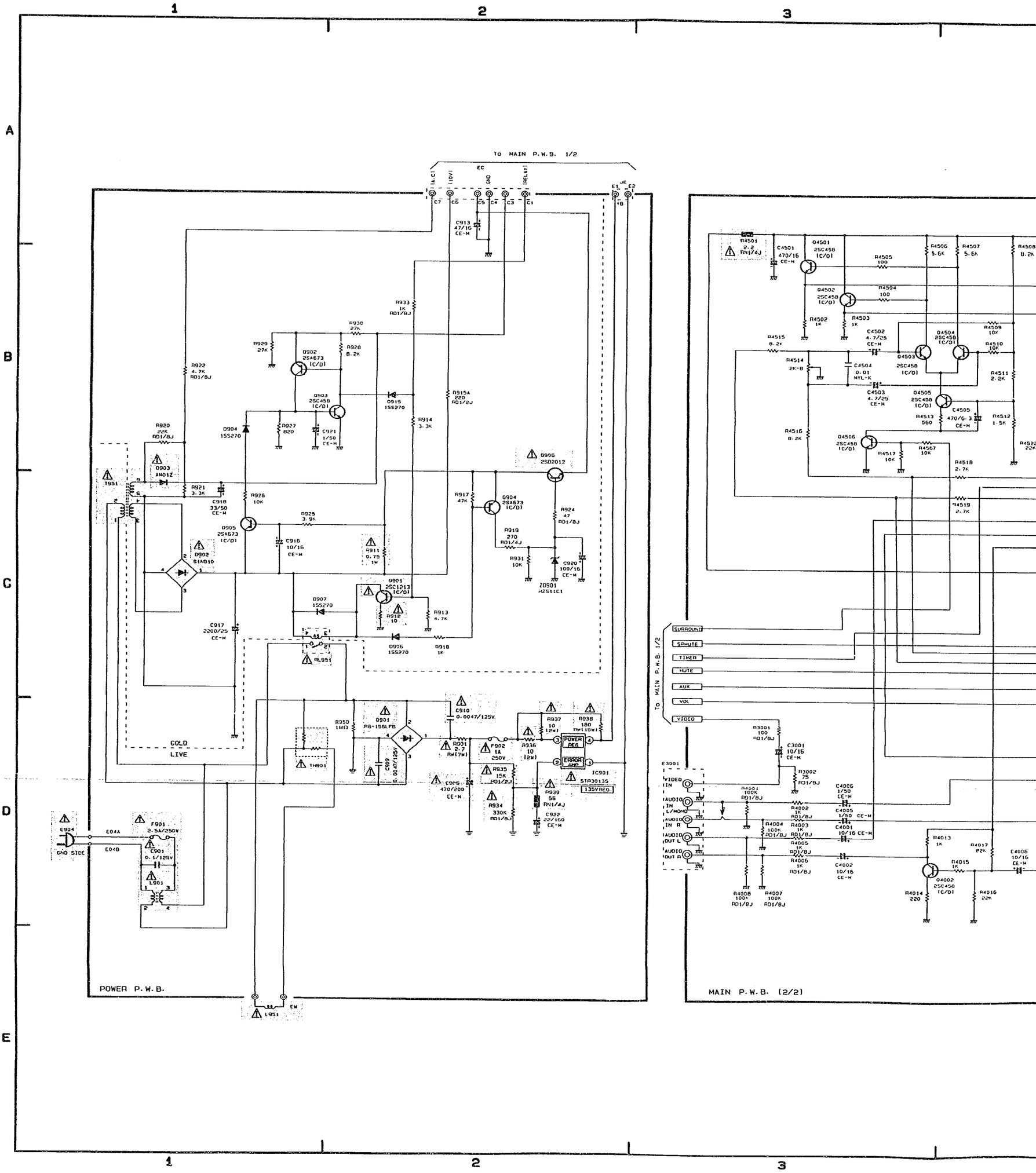


PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

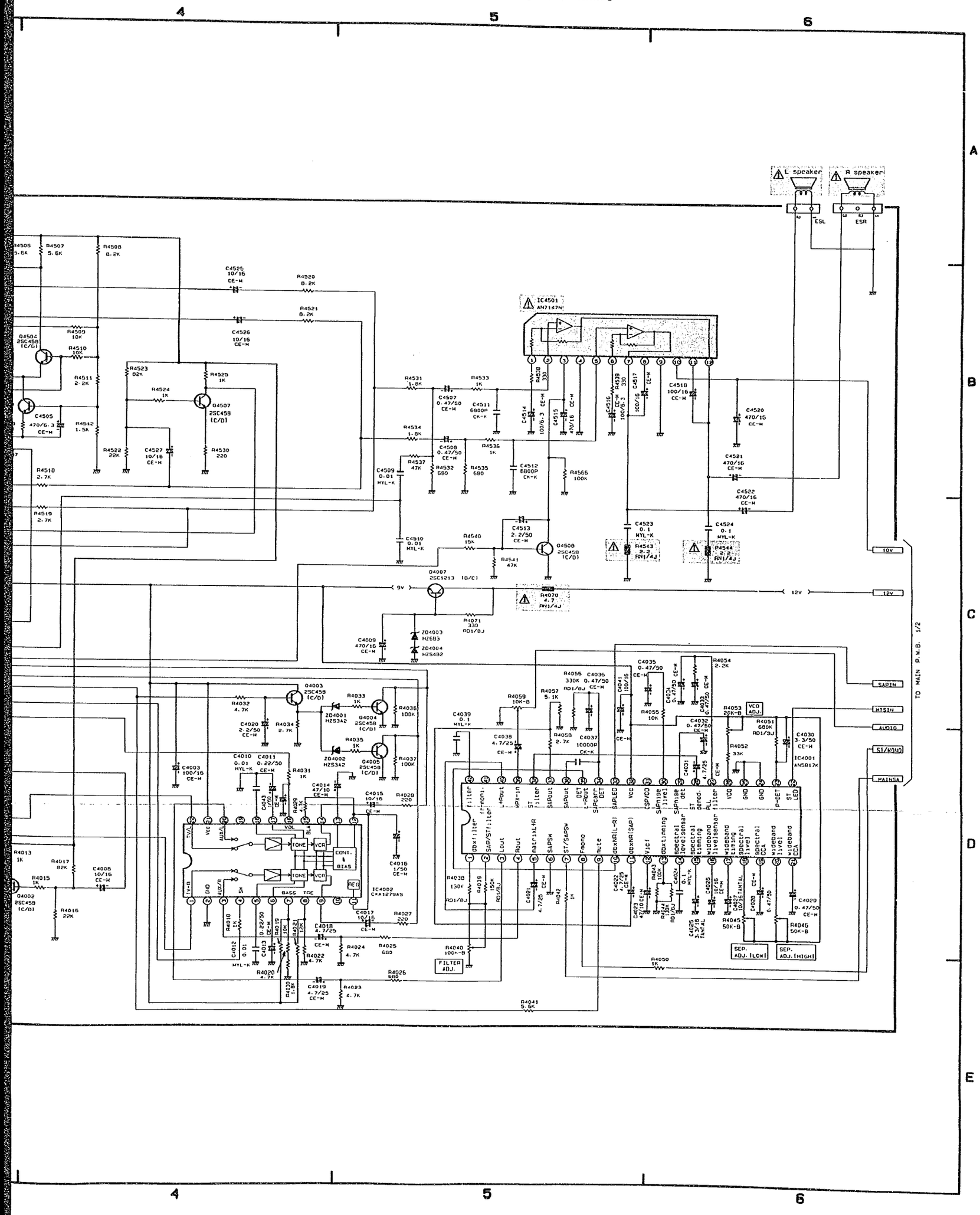


• Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
• All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

BASIC CIRCUIT DIAGRAM 20SA2B/C



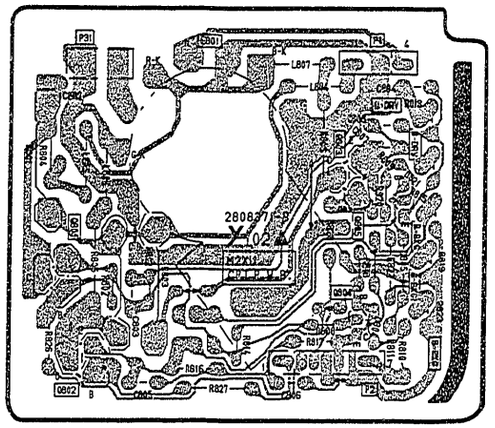
PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.



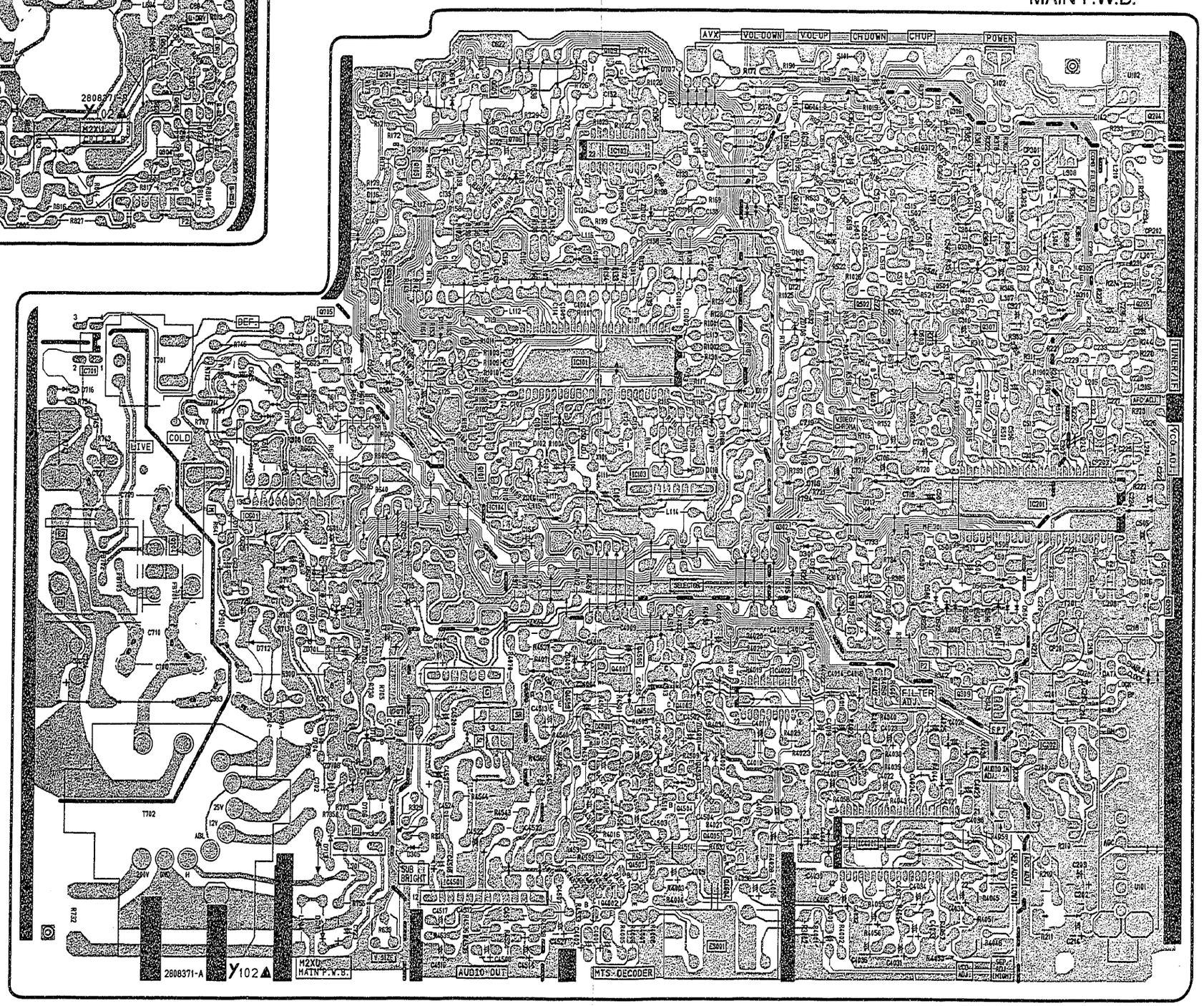
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.

PRINTED WIRING BOARD

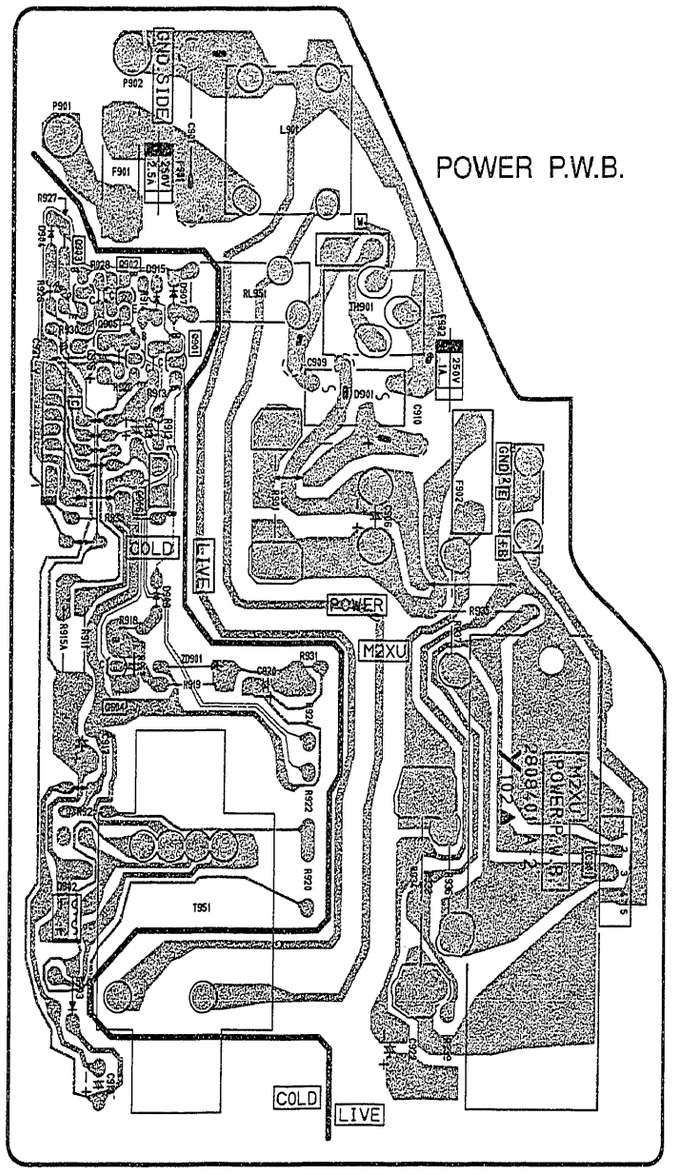
C.P.T. P.W.B.



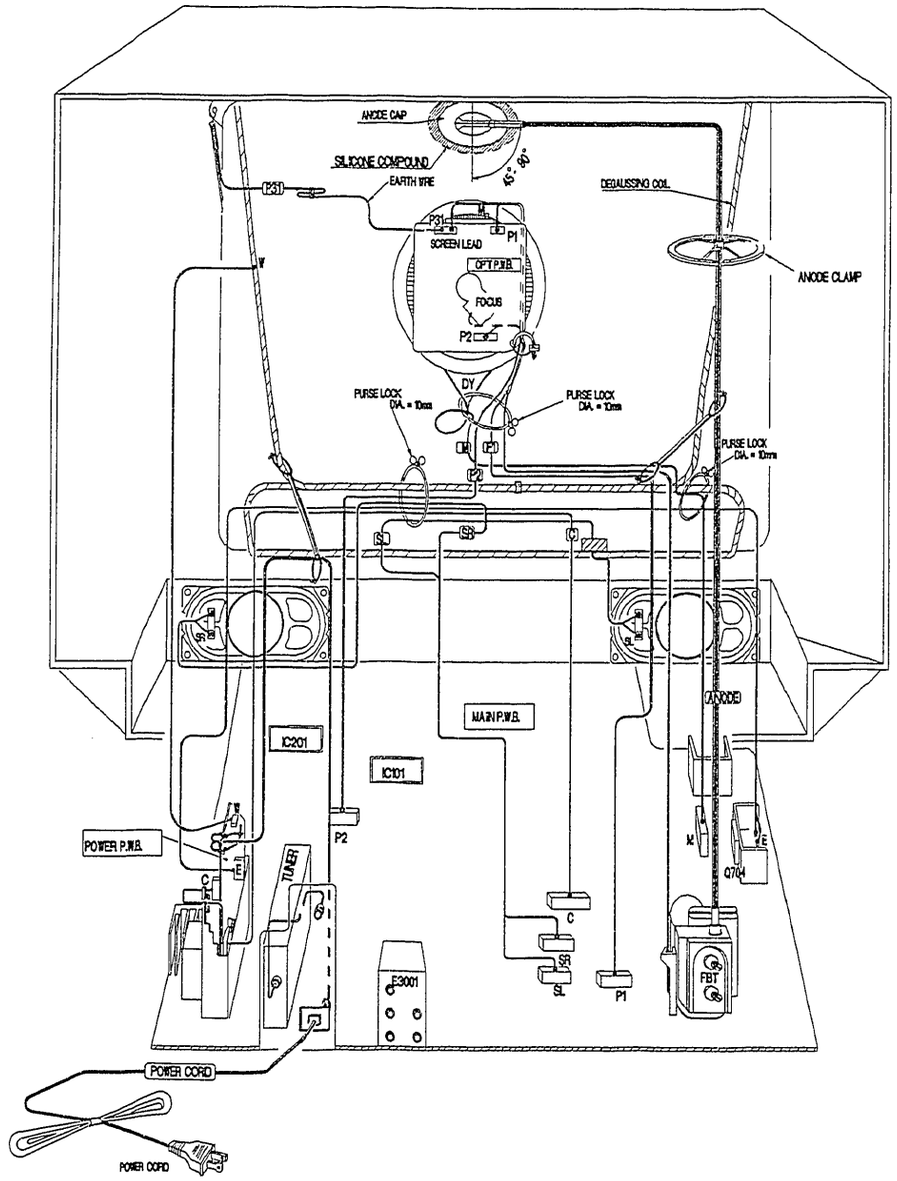
MAIN P.W.B.



PRINTED WIRING BOARD



WIRING DIAGRAM



REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE: **Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.**

ABBREVIATION

Capacitors - - - - CD: Ceramic Disc, PF: Polyester Film, EL: Electrolytic, PP: Polypropylene, PR: Paper, TA:Tantalum, TM: Trimmer
Resistors - - - - - CF: Carbon Film, CC: Carbon Composition, MF: Metal Oxide Film, VR: Variable Resistor, WW: Wire Wound, FR: Fuse Resistor, MG: Metal Glazed
Semiconductors - - TR: Transistor, DI: Diode, ZD: Zener Diode, VA: Varistor, TH: Thermisor, IC: Integrated Circuit

SYMBOL NO.	PART NO.	PART DESCRIPTION
		CAPACITORS
C1001	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C1002	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C1003	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C1004	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C1005	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C101	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C102	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C104	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C105	0800072	CAPACITOR ELECTROLYTIC 470MF 6.3V
C107	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C111	0246443	CD 13PF +-5% 50V
C112	0246443	CD 13PF +-5% 50V
C113	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C114	0890078	CAPACITOR CERAMIC DISCAL 220PF +-10% 50V
C115	0890078	CAPACITOR CERAMIC DISCAL 220PF +-10% 50V
C116	0890078	CAPACITOR CERAMIC DISCAL 220PF +-10% 50V
C117	0890078	CAPACITOR CERAMIC DISCAL 220PF +-10% 50V
C118	0890078	CAPACITOR CERAMIC DISCAL 220PF +-10% 50V
C119	0890078	CAPACITOR CERAMIC DISCAL 220PF +-10% 50V
C120	0880062	CAPACITOR POLYESTER FILM 0.22MF +-10% 50V
C121	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C122	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V
C123	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V
C125	0800005	CAPACITOR,ELECTROLYTIC 2.2MF 50V
C126	0244107	CD 3300PF +-10% 50V
C127	0880046	POLYESTER FILM 0.015MF +-10% 50V
C128	0800003	CAPACITOR ELECTROLYTIC 1MF 50V
C129	0890069	CAPACITOR,CERAMIC DISCAL 47PF +-5% 50V
C130	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V
C131	0800047	CAPACITOR ELECTROLYTIC 100MF 6.3V
C132	0244171	CD 0.01MF +80-20% 50V
C133	0880051	POLYESTER FILM 0.033MF +-10% 50V
C135	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C136	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C137	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C138	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C139	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C142	0890085	CAPACITOR CERAMIC DISCAL 680PF +-10% 50V
C143	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C144	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C145	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C146	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C147	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C149	0880048	POLYESTER FILM 0.022MF +-10% 50V
C151	0244105	CD 2200PF +-10% 50V
C152	0800003	CAPACITOR ELECTROLYTIC 1MF 50V
C153	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C154	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C160	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C161	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C201	0244171	CD 0.01MF +80-20% 50V
C202	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V
C203	0800082	CAPACITOR ELECTROLYTIC 1000MF 16V
C204	0800047	CAPACITOR ELECTROLYTIC 100MF 6.3V
C205	0890089	CAPACITOR CERAMIC DISCAL 1500PF +-10% 50V
C214	0800007	CAPACITOR,ELECTROLYTIC 3.3MF 50V
C216	0880055	CAPACITOR POLYESTER FILM 0.068MF +-10% 50V
C217	0246460	CD 68PF +-5% 50V
C218	0244171	CD 0.01MF +80-20% 50V
C220	0880053	POLYESTER FILM 0.047MF +-10% 50V
C221	0890087	CAPACITOR CERAMIC DISCAL 1000PF +-10% 50V
C222	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C223	0800101	CAPACITOR ELECTROLYTIC 0.1MF 50V
C224	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V
C225	0246448	CD 22PF +-5% 50V
C226	0890089	CAPACITOR CERAMIC DISCAL 1500PF +-10% 50V
C227	0890067	CAPACITOR CERAMIC DISCAL 33PF +-5% 50V
C228	0890067	CAPACITOR CERAMIC DISCAL 33PF +-5% 50V
C229	0890089	CAPACITOR CERAMIC DISCAL 1500PF +-10% 50V
C232	0890063	CAPACITOR CERAMIC DISCAL 15PF +-5% 50V
C233	0246463	CD 91PF +-5% 50V
C234	0890065	CAPACITOR CERAMIC DISCAL 22PF +-5% 50V
C235	0800082	CAPACITOR ELECTROLYTIC 1000MF 16V
C236	0890066	CAPACITOR,CERAMIC DISCAL 27PF +-5% 50V
C239	0890076	CAPACITOR CERAMIC DISCAL 150PF +-10% 50V
C240	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V
C3001	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C302	0800003	CAPACITOR ELECTROLYTIC 1MF 50V
C304	0890071	CERAMIC DISCAL 56PF +-5% 50V (20SA4B ONLY)
C305	0244171	CD 0.01MF +80-20% 50V (20SA4B ONLY)
C306	0244171	CD 0.01MF +80-20% 50V
C307	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C309	0244171	CD 0.01MF +80-20% 50V

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
C310	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	C4504	0244171	CD 0.01MF +80-20% 50V
C311	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	C4505	0800072	CAPACITOR ELECTROLYTIC 470MF 6.3V
C313	0800007	CAPACITOR,ELECTROLYTIC 3.3MF 50V	C4507	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V
C314	0800005	CAPACITOR,ELECTROLYTIC 2.2MF 50V	C4508	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V
C319	0890069	CAPACITOR,CERAMIC DISCAL 47PF +-5% 50V	C4509	0880044	CAPACITOR POLYESTER FILM 0.01MF +-10% 50V
C321	0890071	CERAMIC DISCAL 56PF +-5% 50V (20SA4B ONLY)	C4510	0880044	CAPACITOR POLYESTER FILM 0.01MF +-10% 50V
C323	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C4511	0244111	CD 6800PF +-10% 50V
C324	0244171	CD 0.01MF +80-20% 50V	C4512	0244111	CD 6800PF +-10% 50V
C325	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C4513	0800005	CAPACITOR,ELECTROLYTIC 2.2MF 50V
C326	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C4514	0800047	CAPACITOR ELECTROLYTIC 100MF 6.3V
C327	0800048	CAPACITOR ELECTROLYTIC 100MF 10V	C4515	0800074	CAPACITOR ELECTROLYTIC 470MF 16V
C328	0890067	CAPACITOR CERAMIC DISCAL 33PF +-5% 50V	C4516	0800047	CAPACITOR ELECTROLYTIC 100MF 6.3V
C4001	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	C4517	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V
C4002	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	C4518	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V
C4003	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V	C4520	0800074	CAPACITOR ELECTROLYTIC 470MF 16V
C4005	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	C4521	0800074	CAPACITOR ELECTROLYTIC 470MF 16V
C4006	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	C4522	0800074	CAPACITOR ELECTROLYTIC 470MF 16V
C4008	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	C4523	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V
C4009	0800074	CAPACITOR ELECTROLYTIC 470MF 16V	C4524	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V
C4010	0880044	CAPACITOR POLYESTER FILM 0.01MF +-10% 50V	C4525	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C4011	0253942	EL 0.22MF 50V	C4526	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C4012	0880044	CAPACITOR POLYESTER FILM 0.01MF +-10% 50V	C4527	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V
C4013	0253942	EL 0.22MF 50V	C502	0244171	CD 0.01MF +80-20% 50V
C4014	0800039	CAPACITOR ELECTROLYTIC 47MF 10V	C503	0800074	CAPACITOR ELECTROLYTIC 470MF 16V
C4015	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	C504	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V
C4016	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	C505	0244105	CD 2200PF +-10% 50V
C4017	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	C506	0800074	CAPACITOR ELECTROLYTIC 470MF 16V
C4018	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C507	0244171	CD 0.01MF +80-20% 50V
C4019	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C508	0246445	CD 16PF +-5% 50V
C4020	0800005	CAPACITOR,ELECTROLYTIC 2.2MF 50V	C513	0890089	CAPACITOR CERAMIC DISCAL 1500PF +-10% 50V
C4021	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C514	0890071	CAPACITOR CERAMIC DISCAL 56PF +-5% 50V
C4022	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C517	0244171	CD 0.01MF +80-20% 50V
C4023	0800039	CAPACITOR ELECTROLYTIC 47MF 10V	C518	0890083	CAPACITOR CERAMIC DISCAL 470PF +-10% 50V
C4024	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V	C521	0890116	CAPACITOR CERAMIC DISCAL 15PF +-5% 50V
C4025	0292712	TA 3.3MF 16V	C522	0244171	CD 0.01MF +80-20% 50V
C4026	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	C601	0800058	CAPACITOR ELECTROLYTIC 220MF 16V
C4027	0292714	TA 10MF +-10% 16V	C602	0244141	CD 0.01MF +-10% 50V
C4028	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C603	0800047	CAPACITOR ELECTROLYTIC 100MF 6.3V
C4029	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C604	0292716	TA 1MF +-10% 20V
C4030	0800007	CAPACITOR,ELECTROLYTIC 3.3MF 50V	C605	0800052	CAPACITOR ELECTROLYTIC 100MF 35V
C4031	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C606	0890074	CAPACITOR CERAMIC DISCAL 100PF +-5% 50V
C4032	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C607	0800003	CAPACITOR ELECTROLYTIC 1MF 50V
C4033	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C608	0800082	CAPACITOR ELECTROLYTIC 1000MF 16V
C4034	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C609	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V
C4035	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C611	0890061	CAPACITOR CERAMIC DISCAL 10PF +-0.5% 50V
C4036	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	C616	0890083	CAPACITOR CERAMIC DISCAL 470PF +-10% 50V
C4037	0244171	CD 0.01MF +80-20% 50V	C617	0800032	CAPACITOR-ELECTROLYTIC 33MF 16V
C4038	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C618	0244107	CD 3300PF +-10% 50V
C4039	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V	C619	0890089	CAPACITOR CERAMIC DISCAL 1500PF +-10% 50V
C4041	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V	C620	0800003	CAPACITOR ELECTROLYTIC 1MF 50V
C4043	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	C621	0880046	POLYESTER FILM 0.015MF +-10% 50V
C4501	0800074	CAPACITOR ELECTROLYTIC 470MF 16V	C622	0880051	POLYESTER FILM 0.033MF +-10% 50V
C4502	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C623	0244173	CD 0.022MF +80-20% 50V
C4503	0800009	CAPACITOR ELECTROLYTIC 4.7MF 25V	C624	0800018	CAPACITOR ELECTROLYTIC 10MF 50V

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
C625	0279859	PF 0.1MF +-10% 100V	R1002	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C701	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V	R1003	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
⚠C702	0800018	CAPACITOR ELECTROLYTIC 10MF 50V	R1004	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C703	0800058	CAPACITOR ELECTROLYTIC 220MF 16V	R1006	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C704	0800058	CAPACITOR ELECTROLYTIC 220MF 16V	R1007	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C705	0800076	CAPACITOR ELECTROLYTIC 470MF 35V	R1008	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C706	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V	R1009	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W
⚠C708	0262421	PF 5600PF +-5% 1800V	R1010	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
⚠C709	0299933	PP 0.39MF +-10% 200V	R1011	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
⚠C710	0244209	CD 680PF +-10% 1600V	R1012	0100065	CF 1K OHM +-5% 1/8W
C711	0244501	CD 1000PF +-10% 500V	R1017	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C712	0244501	CD 1000PF +-10% 500V	R1018	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C713	0890081	CAPACITOR,CERAMIC DISCAL 330PF +-10% 50V	R1019	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
C714	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	R102	0700048	RESISTOR,CARBON FILM 3.9K OHM +-5% 1/16W
C715	0800077	CAPACITOR,ELECTROLYTIC 470MF 50V	R1020	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C717	0243507	CD 330PF +-10% 500V	R1021	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C718	0244171	CD 0.01MF +80-20% 50V	R1022	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
C719	0880031	CAPACITOR POLYESTER FILM 1000PF +-10% 50V	R1023	0700067	RESISTOR,CARBON FILM 100K OHM +-5% 1/16W
C720	0890087	CAPACITOR CERAMIC DISCAL 1000PF +-10% 50V	R1025	0700044	RESISTOR,CARBON FILM 1.8K OHM +-5% 1/16W
C721	0800001	CAPACITOR ELECTROLYTIC 0.47MF 50V	R1028	0700061	RESISTOR,CARBON FILM 33K OHM +-5% 1/16W
C722	0248106	CD 180PF +-5% 50V	R103	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C723	0259171	EL 4.7MF 250V	R104	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C725	0243507	CD 330PF +-10% 500V	R105	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C726	0800053	CAPACITOR ELECTROLYTIC 100MF 50V	R106	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C727	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V	R107	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W
C728	0880062	CAPACITOR POLYESTER FILM 0.22MF +-10% 50V	R108	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C729	0880057	CAPACITOR POLYESTER FILM 0.1MF +-10% 50V	R109	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W
⚠C731	0800007	CAPACITOR,ELECTROLYTIC 3.3MF 50V	R110	0700045	RESISTOR,CARBON FILM 2.2K OHM +-5% 1/16W
C732	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	R111	0700064	RESISTOR,CARBON FILM 56K OHM +-5% 1/16W
C733	0880051	POLYESTER FILM 0.033MF +-10% 50V	R112	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W
⚠C734	0259151	EL 100MF 160V	R114	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C802	0245605	CD 470PF +-10% 1KV	R115	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C803	0890084	CAPACITOR CERAMIC DISCAL 560PF +-10% 50V	R117	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C804	0890085	CAPACITOR CERAMIC DISCAL 680PF +-10% 50V	R118	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C805	0890083	CAPACITOR CERAMIC DISCAL 470PF +-10% 50V	R119	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C806	0890085	CAPACITOR CERAMIC DISCAL 680PF +-10% 50V	R120	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C807	0890085	CAPACITOR CERAMIC DISCAL 680PF +-10% 50V	R121	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C808	0890086	CAPACITOR CERAMIC DISCAL 820PF +-10% 50V	R125	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
⚠C901	0279718	PF 0.1MF +-10% 125V	R126	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
⚠C906	0253891	EL 470MF 200V	R127	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
⚠C909	0249495	CD 4700PF +80-20% 250V	R128	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
⚠C910	0249495	CD 4700PF +80-20% 250V	R129	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C913	0800041	CAPACITOR ELECTROLYTIC 47MF 16V	R130	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C916	0800015	CAPACITOR,ELECTROLYTIC 10MF 16V	R131	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C917	0800368	CAPACITOR ELECTROLYTIC 2200MF 25V	R132	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C918	0800035	CAPACITOR ELECTROLYTIC 33MF 50V	R133	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C920	0800049	CAPACITOR,ELECTROLYTIC 100MF 16V	R134	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
C921	0800003	CAPACITOR ELECTROLYTIC 1MF 50V	R135	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W
C922	0253957	EL 22MF 160V	R136	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W
⚠C983	0249394	CD 4700PF +-20%	R137	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
			R138	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
		RESISTORS	R139	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
			R141	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R1001	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R142	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R143	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R231	0700034	RESISTOR,CARBON FILM 330 OHM +-5% 1/16W
R148	0700059	RESISTOR CARBON FILM 27K OHM +-5% 1/16W	R232	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R150	0700048	RESISTOR,CARBON FILM 3.9K OHM +-5% 1/16W	R233	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R151	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W	R234	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W
R153	0700056	RESISTOR,CARBON FILM 15K OHM +-5% 1/16W	R238	0100047	CF 180 OHM +-5% 1/8W
R154	0700044	RESISTOR,CARBON FILM 1.8K OHM +-5% 1/16W	R239	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W
R155	0700055	RESISTOR,CARBON FILM 12K OHM +-5% 1/16W	R241	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R156	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W	R243	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R157	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R244	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R158	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W	R245	0100059	CF 560 OHM +-5% 1/8W
R159	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W	R3001	0100041	CF 100 OHM +-5% 1/8W
R161	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W	R3002	0100038	CF 75 OHM +-5% 1/8W
R162	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W	R301	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W
R163	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W	R302	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W
R166	0174595	MF 15K OHM 1/16W +-1%	R303	0100057	CF 470 OHM +-5% 1/8W
R168	0700057	RESISTOR,CARBON FILM 18K OHM +-5% 1/16W	R304	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R169	0700034	RESISTOR,CARBON FILM 330 OHM +-5% 1/16W	R305	0700045	RESISTOR,CARBON FILM 2.2K OHM +-5% 1/16W
R170	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R308	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R171	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R310	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R172	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R311	0700064	RESISTOR,CARBON FILM 56K OHM +-5% 1/16W
R173	0700067	RESISTOR,CARBON FILM 100K OHM +-5% 1/16W	R312	0700036	RESISTOR,CARBON FILM 470 OHM +-5% 1/16W
R174	0700031	RESISTOR,CARBON FILM 180 OHM +-5% 1/16W	R315	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W
R175	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W	R318	0700036	RESISTOR,CARBON FILM 470 OHM +-5% 1/16W
R177	0700056	RESISTOR,CARBON FILM 15K OHM +-5% 1/16W	R321	0700035	CF 390 OHM +-5% 1/16W (20SA4B ONLY)
R178	0100111	CF 82K OHM +-5% 1/8W	R321	0700044	CF 1.8K OHM +-5% 1/16W (20SA2B ONLY)
R179	0700066	RESISTOR,CARBON FILM 82K OHM +-5% 1/16W	R322	0700033	CF 270 OHM +-5% 1/16W (20SA2B ONLY)
R185	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R324	0700031	RESISTOR,CARBON FILM 180 OHM +-5% 1/16W
R186	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R325	0700061	RESISTOR,CARBON FILM 33K OHM +-5% 1/16W
R187	0700038	RESISTOR,CARBON FILM 680 OHM +-5% 1/16W	R326	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W
R188	0700043	RESISTOR,CARBON FILM 1.5K OHM +-5% 1/16W	R327	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W
R189	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W	R328	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R190	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W	R329	0150287	VR 10K OHM-B
R1901	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R331	0700059	RESISTOR CARBON FILM 27K OHM +-5% 1/16W
R192	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W	R332	0700062	RESISTOR,CARBON FILM 39K OHM +-5% 1/16W
R193	0700061	RESISTOR,CARBON FILM 33K OHM +-5% 1/16W	R337	0700042	CF 1.2K OHM +-5% 1/16W (20SA4B ONLY)
R194	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R337	0700043	CF 1.5K OHM +-5% 1/16W (20SA2B ONLY)
R195	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R339	0700057	RESISTOR,CARBON FILM 18K OHM +-5% 1/16W
R198	0700065	RESISTOR CARBON FILM 68K OHM +-5% 1/16W	R342	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R199	0100047	CF 180 OHM +-5% 1/8W	R343	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R201	0114161	CF 1K OHM +-5% 1/4W	R344	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
⚠ R210	0119687	FR 4.7 OHM +-5% 1/4W	R345	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R211	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R346	0100055	CF 390 OHM +-5% 1/8W
R213	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R352	0700045	RESISTOR,CARBON FILM 2.2K OHM +-5% 1/16W
R216	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W	R353	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R217	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R354	0700039	RESISTOR,CARBON FILM 820 OHM +-5% 1/16W
R219	0150287	VR 10K OHM-B	R355	0700038	RESISTOR,CARBON FILM 680 OHM +-5% 1/16W
R221	0700065	RESISTOR CARBON FILM 68K OHM +-5% 1/16W	R356	0700038	RESISTOR,CARBON FILM 680 OHM +-5% 1/16W
R222	0700033	RESISTOR,CARBON FILM 270 OHM +-5% 1/16W	R359	0100050	CF 240 OHM +-5% 1/8W (20SA4B ONLY)
R223	0700043	RESISTOR,CARBON FILM 1.5K OHM +-5% 1/16W	R360	0114133	CF 120 OHM +-5% 1/4W (20SA4B ONLY)
R224	0100117	CF 150K OHM +-3% 1/8W	R361	0150282	VR 500 OHM(B) (20SA4B ONLY)
R225	0100121	CF 220K OHM +-5% 1/8W	R362	0700041	CF 1K OHM +-5% 1/16W (20SA4B ONLY)
R226	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R363	0700027	CF 100 OHM +-5% 1/16W (20SA4B ONLY)
R227	0100127	CF 390K OHM +-5% 1/8W	R364	0700034	RESISTOR,CARBON FILM 330 OHM +-5% 1/16W
R228	0700036	RESISTOR,CARBON FILM 470 OHM +-5% 1/16W	R365	0100055	CF 390 OHM +-5% 1/8W

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R366	0700046	CF 2.7K OHM +-5% 1/16W (20SA4B ONLY)	R4051	0100133	CF 680K OHM +-5% 1/8W
R367	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W	R4052	0700061	RESISTOR,CARBON FILM 33K OHM +-5% 1/16W
R368	0700048	CF 3.9K OHM +-5% 1/16W (20SA4B ONLY)	R4053	0150157	VR 200K OHM-B RV-6
R370	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4054	0700045	RESISTOR,CARBON FILM 2.2K OHM +-5% 1/16W
R371	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4055	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R372	0700031	RESISTOR,CARBON FILM 180 OHM +-5% 1/16W	R4056	0100125	CF 330K OHM +-5% 1/8W
R374	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4057	0187082	CF 5.1K OHM +-5% 1/16W
R378	0700039	RESISTOR,CARBON FILM 820 OHM +-5% 1/16W	R4058	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W
R379	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W	R4059	0150287	VR 10K OHM-B
R380	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W	⚠ R4070	0119687	FR 4.7 OHM +-5% 1/4W
R381	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R4071	0100053	CF 330 OHM +-5% 1/8W
R4001	0100113	CF 100K OHM +-5% 1/8W	⚠ R4501	01195051	FR 2.2 OHM +-5% 1/4W
R4002	0100065	CF 1K OHM +-5% 1/8W	R4502	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R4003	0100065	CF 1K OHM +-5% 1/8W	R4503	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R4004	0100113	CF 100K OHM +-5% 1/8W	R4504	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R4005	0100065	CF 1K OHM +-5% 1/8W	R4505	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R4006	0100065	CF 1K OHM +-5% 1/8W	R4506	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W
R4007	0100113	CF 100K OHM +-5% 1/6W	R4507	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W
R4008	0100113	CF 100K OHM +-5% 1/8W	R4508	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W
R4013	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4509	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R4014	0700032	RESISTOR,CARBON FILM 220 OHM +-5% 1/16W	R4510	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R4015	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4511	0700045	RESISTOR,CARBON FILM 2.2K OHM +-5% 1/16W
R4016	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R4512	0700043	RESISTOR,CARBON FILM 1.5K OHM +-5% 1/16W
R4017	0700066	RESISTOR,CARBON FILM 82K OHM +-5% 1/16W	R4513	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W
R4018	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4514	0150284	VR 2K OHM-B
R4019	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R4515	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W
R4020	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R4516	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W
R4021	0700055	RESISTOR,CARBON FILM 12K OHM +-5% 1/16W	R4517	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R4022	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R4518	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W
R4023	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R4519	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W
R4024	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R4520	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W
R4025	0700038	RESISTOR,CARBON FILM 680 OHM +-5% 1/16W	R4521	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W
R4026	0700038	RESISTOR,CARBON FILM 680 OHM +-5% 1/16W	R4522	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W
R4027	0700032	RESISTOR,CARBON FILM 220 OHM +-5% 1/16W	R4523	0700066	RESISTOR,CARBON FILM 82K OHM +-5% 1/16W
R4028	0700032	RESISTOR,CARBON FILM 220 OHM +-5% 1/16W	R4524	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R4029	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R4525	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R4030	0700044	RESISTOR,CARBON FILM 1.8K OHM +-5% 1/16W	R4530	0700032	RESISTOR,CARBON FILM 220 OHM +-5% 1/16W
R4031	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4531	0700044	RESISTOR,CARBON FILM 1.8K OHM +-5% 1/16W
R4032	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W	R4532	0700038	RESISTOR,CARBON FILM 680 OHM +-5% 1/16W
R4033	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4533	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R4034	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W	R4534	0700044	RESISTOR,CARBON FILM 1.8K OHM +-5% 1/16W
R4035	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R4535	0700038	RESISTOR,CARBON FILM 680 OHM +-5% 1/16W
R4036	0700067	RESISTOR,CARBON FILM 100K OHM +-5% 1/16W	R4536	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R4037	0700067	RESISTOR,CARBON FILM 100K OHM +-5% 1/16W	R4537	0700063	RESISTOR CARBON FILM 47K OHM +-5% 1/16W
R4038	0100116	CF 130K OHM +-5% 1/8W	R4538	0700034	RESISTOR,CARBON FILM 330 OHM +-5% 1/16W
R4039	0100117	CF 150K OHM +-5% 1/8W	R4539	0700034	RESISTOR,CARBON FILM 330 OHM +-5% 1/16W
R4040	0150160	VR 10K OHM-B +-30%	R4540	0700056	RESISTOR,CARBON FILM 15K OHM +-5% 1/16W
R4041	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W	R4541	0700063	RESISTOR CARBON FILM 47K OHM +-5% 1/16W
R4042	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	⚠ R4543	01195051	FR 2.2 OHM +-5% 1/4W
R4043	0700067	RESISTOR,CARBON FILM 100K OHM +-5% 1/16W	⚠ R4544	01195051	FR 2.2 OHM +-5% 1/4W
R4044	0100116	CF 130K OHM +-5% 1/8W	R4566	0700067	RESISTOR,CARBON FILM 100K OHM +-5% 1/16W
R4045	0150290	VR 50K OHM (B)	R4567	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R4046	0150290	VR 50K OHM (B)	R501	0100115	CF 120K OHM +-5% 1/8W
R4050	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R502	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
R504	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R716	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R505	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W	R718	0700034	RESISTOR,CARBON FILM 330 OHM +-5% 1/16W
R506	0100049	CF 220 OHM +-5% 1/8W	R720	0100125	CF 330K OHM +-5% 1/8W
R507	0100049	CF 220 OHM +-5% 1/8W	R724	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W
R508	0100049	CF 220 OHM +-5% 1/8W	R726	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R509	0700057	RESISTOR,CARBON FILM 18K OHM +-5% 1/16W	R727	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R510	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R729	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W
R511	0700067	RESISTOR,CARBON FILM 100K OHM +-5% 1/16W	⚠R732	0119505 1	FR 2.2 OHM +-5% 1/4W
R513	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W	⚠R733	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R514	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W	R734	0700045	RESISTOR,CARBON FILM 2.2K OHM +-5% 1/16W
R515	0700048	RESISTOR,CARBON FILM 3.9K OHM +-5% 1/16W	⚠R735A	0119838	FR 0.5 OHM +-5% 1/4W
R516	0700036	RESISTOR,CARBON FILM 470 OHM +-5% 1/16W	⚠R736	0119512 1	FR 1 OHM +-5% 1/4W
R517	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W	R738	0100033	CF 47 OHM +-5% 1/8W
R518	0700043	RESISTOR,CARBON FILM 1.5K OHM +-5% 1/16W	⚠R740	0119505 1	FR 2.2 OHM +-5% 1/4W
R521	0700032	RESISTOR,CARBON FILM 220 OHM +-5% 1/16W	R743	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R522	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W	R745	0700052	RESISTOR,CARBON FILM 6.8K OHM +-5% 1/16W
R523	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W	R746	0113758	CF 2.2K OHM +-5% 1/2W
R601	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W	⚠R747	0141090	WW 4.7 OHM+-10% 5W
R603	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W	R750A	0114210	CF 24K OHM +-5% 1/4W
R604	0700065	RESISTOR CARBON FILM 68K OHM +-5% 1/16W	R751	0700034	RESISTOR,CARBON FILM 330 OHM +-5% 1/16W
R605	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R752	0100119	CF 180K OHM +-5% 1/8W
R606	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R753	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W
R607	0113737	CF 330 OHM +-5% 1/2W	R754	0700027	RESISTOR,CARBON FILM 100 OHM +-5% 1/16W
R608	0100075	CF 2.7K OHM +-5% 1/8W	R755	0114139	CF 220 OHM +-5% 1/4W
R609	0700062	RESISTOR,CARBON FILM 39K OHM +-5% 1/16W	R767	0100073	CF 2.2K OHM +-5% 1/8W
R610	0700055	RESISTOR,CARBON FILM 12K OHM +-5% 1/16W	R793	0100035	CF 56 OHM +-5% 1/8W
R611	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W	R794	0114135	CF 150 OHM +-5% 1/4W
R612	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R801	0110271	MF 12K OHM +-5% 2W
R613	0700037	RESISTOR,CARBON FILM 560 OHM +-5% 1/16W	R802	0110271	MF 12K OHM +-5% 2W
R615	0119733	MF 1.5 OHM +-10% 1W	R803	0110271	MF 12K OHM +-5% 2W
R624	0187098	CF 24K OHM +-5% 1/16W	R804	0100075	CF 2.7K OHM +-5% 1/8W
R626	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W	R805	0100075	CF 2.7K OHM +-5% 1/8W
R627	0700045	RESISTOR,CARBON FILM 2.2K OHM +-5% 1/16W	R806	0100075	CF 2.7K OHM +-5% 1/8W
R628	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W	R808	0700048	RESISTOR,CARBON FILM 3.9K OHM +-5% 1/16W
R629	0700043	RESISTOR,CARBON FILM 1.5K OHM +-5% 1/16W	R809	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W
R632	0700059	RESISTOR CARBON FILM 27K OHM +-5% 1/16W	R810	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W
R633	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R811	0700051	RESISTOR,CARBON FILM 5.6K OHM +-5% 1/16W
R634	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R812	0700029	RESISTOR,CARBON FILM 150 OHM +-5% 1/16W
R635	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R813	0150109	VR 200 OHM-B RS-6
R636	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R814	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R638	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W	R815	0150113	VR 5K OHM-B RS-6
R639	0150290	VR 50K OHM (B)	R816	0700029	RESISTOR,CARBON FILM 150 OHM +-5% 1/16W
R640	0114131	CF 100 OHM +-5% 1/4W	R817	0700028	RESISTOR,CARBON FILM 120 OHM +-5% 1/16W
R641	0700055	RESISTOR,CARBON FILM 12K OHM +-5% 1/16W	R818	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R701	0110101	MF 15 OHM +-5% 1W	R819	0150113	VR 5K OHM-B RS-6
⚠R703	0700062	RESISTOR,CARBON FILM 39K OHM +-5% 1/16W	R820	0700029	RESISTOR,CARBON FILM 150 OHM +-5% 1/16W
R705	0114135	CF 150 OHM +-5% 1/4W	R821	0150109	VR 200 OHM-B RS-6
R706	0700063	RESISTOR CARBON FILM 47K OHM +-5% 1/16W	R822	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R707	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W	R823	0150113	VR 5K OHM-B RS-6
R708	0110139	MF 560 OHM +-5% 1W	R825	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
⚠R710	0700032	RESISTOR,CARBON FILM 220 OHM +-5% 1/16W	R826	0100035	CF 56 OHM +-5% 1/8W
R712	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W	R827	0100035	CF 56 OHM +-5% 1/8W
R713	0700046	RESISTOR,CARBON FILM 2.7K OHM +-5% 1/16W	R828	0100035	CF 56 OHM +-5% 1/8W
R715	0700058	RESISTOR,CARBON FILM 22K OHM +-5% 1/16W	R900	0147060	WW 33 OHM +-5% 2W

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SYMBOL NO.	PART NO.	PART DESCRIPTION
⚠R901	0141133	WW 2.7 OHM +-10% 7W
⚠R911	0119840	MF 0.75 OHM +-5% 1W
⚠R912	0700014	RESISTOR,CARBON FILM 10 OHM +-5% 1/16W
R913	0700049	RESISTOR,CARBON FILM 4.7K OHM +-5% 1/16W
R914	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W
R915A	0113733	CF 220 OHM +-5% 1/2W
R917	0700063	RESISTOR CARBON FILM 47K OHM +-5% 1/16W
R918	0700041	RESISTOR,CARBON FILM 1K OHM +-5% 1/16W
R919	0114141	CF 270 OHM +-5% 1/4W
R920	0100097	CF 22K OHM +-5% 1/8W
R921	0700047	RESISTOR,CARBON FILM 3.3K OHM +-5% 1/16W
R922	0100081	CF 4.7K OHM +-5% 1/8W
R924	0100033	CF 47 OHM +-5% 1/8W
R925	0700048	RESISTOR,CARBON FILM 3.9K OHM +-5% 1/16W
R926	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R927	0700039	RESISTOR,CARBON FILM 820 OHM +-5% 1/16W
R928	0700053	RESISTOR,CARBON FILM 8.2K OHM +-5% 1/16W
R929	0700059	RESISTOR CARBON FILM 27K OHM +-5% 1/16W
R930	0700059	RESISTOR CARBON FILM 27K OHM +-5% 1/16W
R931	0700054	RESISTOR,CARBON FILM 10K OHM +-5% 1/16W
R933	0100065	CF 1K OHM +-5% 1/8W
⚠R934	0100125	CF 330K OHM +-5% 1/8W
⚠R935	0113778	CF 15K OHM +-5% 1/2W
⚠R936	0110197	MF 10 OHM +-5% 2W
⚠R937	0110197	MF 10 OHM +-5% 2W
⚠R938	0141159	WW 180 OHM +-5% 15W
⚠R939	0119508	FR 56 OHM +-5% 1/4W
R950	0139015	CC 1M OHM +-20% 1/2W
		IC's
IC101	2001822	IC LC864024A-5413 (HHEA MD) (HSCC MD)
IC102	2004952	IC LA7945N
IC103	2381111	IC M6M80021L
IC104	2020461	IC AN78L05 (HHEA MD) (HSCC MD)
⚠IC201	2004133	IC LA7674
IC202	2020461	IC AN78L05 (HHEA MD) (HSCC MD)
IC4001	2004592	IC AN5817K
IC4002	2004362	IC CXA1279AS
⚠IC4501	2004022	IC AN7147N (HHEA MD) (HSCC MD)
⚠IC601	2000581	IC LA7837 (LINEAR)
⚠IC701	2000465	IC PS2501-1 (KD/LD) (PHOTO COUPLER)
⚠IC901	2912173	IC STR30135 (HHEA MD) (HSCC MD)
		TRANSISTORS
Q101	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q104	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q105	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q106	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q109	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q203	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q204	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q205	2320637	TR 2SA673C/D SI 80MHZ 400MW

SYMBOL NO.	PART NO.	PART DESCRIPTION
Q301	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q302	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q303	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q304	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q305	2320596	TR 2SC458C/D SI 230MHZ 200MW (20SA4B)
Q306	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q307	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q308	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q309	2320591	TR 2SC458B/C SI 230MHZ 200MW
Q310	2320591	TR 2SC458B/C SI 230MHZ 200MW
Q312	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4002	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4003	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4004	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4005	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4007	2320643	TR 2SC1213C SI 80MHZ 400MW
Q4501	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4502	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4503	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4504	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4505	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4506	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4507	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q4508	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q501	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q502	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q503	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q603	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q604	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q605	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q702	2320637	TR 2SA673C/D SI 80MHZ 400MW
⚠Q704	2327502	TR 2SD1877
Q705	2326218	TR 2SC3116T
Q706	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q707	2320643	TR 2SC1213C SI 80MHZ 400MW
Q801	2322562	TR 2SC2688 K/L/M SI 80MHZ 1.25W
Q802	2322562	TR 2SC2688 K/L/M SI 80MHZ 1.25W
Q803	2322562	TR 2SC2688 K/L/M SI 80MHZ 1.25W
Q804	2320591	TR 2SC458B/C SI 230MHZ 200MW
Q805	2320637	TR 2SA673C/D SI 80MHZ 400MW
⚠Q901	2320643	TR 2SC1213C SI 80MHZ 400MW
Q902	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q903	2320596	TR 2SC458C/D SI 230MHZ 200MW
Q904	2320637	TR 2SA673C/D SI 80MHZ 400MW
Q905	2320637	TR 2SA673C/D SI 80MHZ 400MW
⚠Q906	2315411	TRANSISTOR 2SD2012
		DIODES
D1004	23383211	DI 1SS270
D102	23383211	DI 1SS270
D107	23383211	DI 1SS270
D113	23383211	DI 1SS270
D115	23383211	DI 1SS270

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SYMBOL NO.	PART NO.	PART DESCRIPTION
D116	23383211	DI 1SS270
D117	23383211	DI 1SS270
D118	23383211	DI 1SS270
D301	23383211	DI 1SS270
D302	23383211	DI 1SS270
D303	23383211	DI 1SS270
D304	23383211	DI 1SS270
D305	23383211	DI 1SS270
D306	23383211	DI 1SS270
D501	23383211	DI 1SS270
D502	23383211	DI 1SS270
D503	23383211	DI 1SS270
D504	23383211	DI 1SS270
D505	23383211	DI 1SS270
D506	23383211	DI 1SS270
D601	23383211	DI 1SS270
D602	23394911	DI AM01Z
D603	23383211	DI 1SS270
D606	23383211	DI 1SS270
D607	23383211	DI 1SS270
D701	2338902	DI DFM1SA4
⚠D703	2338902	DI DFM1SA4
⚠D704	23383211	DI 1SS270
D705	23383211	DI 1SS270
⚠D706	23394821	DI AS01 (400V)
D707	23383211	DI 1SS270
D708	23383211	DI 1SS270
D711	23394911	DI AM01Z
⚠D712	2338902	DI DFM1SA4
⚠D713	23394821	DI AS01 (400V)
D714	23394911	DI AM01Z
D715	23383211	DI 1SS270
D716	23383211	DI 1SS270
D717	23383211	DI 1SS270
D718	23383211	DI 1SS270
D804	23383211	DI 1SS270
D805	23383211	DI 1SS270
⚠D901	2332794	DI RB-156 SI
⚠D902	2348392	DIODE SINB10 (HHEA MD) (HSCC MD)
⚠D903	23394911	DI AM01Z
D904	23383211	DI 1SS270
D906	23383211	DI 1SS270
D907	23383211	DI 1SS270
D915	23383211	DI 1SS270
ZD101	2339832	DIODE-ZENER HZS5A2
ZD102	2339839	ZD HZS5C3
ZD201	2339971	DIODE-ZENER HZS33-1
ZD301	2339887	DIODE-ZENER HZS12C1
ZD4001	2339812	DIODE-ZENER HZS3A2
ZD4002	2339812	DIODE-ZENER HZS3A2
ZD4003	2339846	ZD HZS6B3TA
ZD4004	2339825	ZD HZS4B2
ZD602	2339921	DIODE-ZENER HZS20-1
⚠ZD701	2339222	ZD HZS27-2L
ZD702	2339855	ZD HZS7B2
ZD703	2339827	DIODE-ZENER HZS4C1
ZD706	2339889	ZD HZS12C3
ZD708	2339868	ZD HZS9C2
ZD901	2339877	ZD HZS11C1
		TRANSFORMERS
T201	2145961	IF COIL
⚠T701	2274951	H.DRIVE TRANSFORMER
⚠T702	2437311	FLYBACK XFORMER C87LLI (HHEA MD) (HSCC)
⚠T951	2215633	POWER TRANSFORMER (HHEA MD) (HSCC MD)
		FUSES
⚠F901	2722212	FUSE 2.5A
⚠F902	2722211	FUSE 1A
		COMPOUND COMPONENTS
CP201	2300477	SAW FILTER HW2267
CP202	2167201	CERAMIC TRAP 4.5MHZ
CP203	2167311	CERAMIC FILTER 4.5MHZ
⚠CP901	2793313	COMPOUND COMPONENT
MF701	2167241	CERAMIC OSC 0.5MHZ
		COILS
L105	2146091	COIL-OSC
L106	2122238	LA AXIAL COIL 8.2 MICRO H
L107	2122938	LA AXIAL COIL 4.7 MICRO H
L108	2122938	LA AXIAL COIL 4.7 MICRO H
L109	2122956	LA AXIAL COIL 100 MICRO H +-10%
L110	2122938	LA AXIAL COIL 4.7 MICRO H
L111	2122938	LA AXIAL COIL 4.7 MICRO H
L112	2122938	LA AXIAL COIL 4.7 MICRO H
L113	2122938	LA AXIAL COIL 4.7 MICRO H
L114	2122235	LA AXIAL COIL 4.7 MICRO H
L115	2122235	LA AXIAL COIL 4.7 MICRO H
L116	2122235	LA AXIAL COIL 4.7 MICRO H
L117	2122235	LA AXIAL COIL 4.7 MICRO H
L120	2122253	LA AXIAL COIL 100 MICRO H
L204	2145971	IF COIL
L205	2142445	CARRIER FILTER AFS COIL
L206	2122948	LA AXIAL COIL 27 MICRO H +-10%
L207	2122944	LA AXIAL COIL 12 MICRO H
L208	2145981	DISCRIMINATOR COIL
L210	2122952	LAL AXALCOIL
L211	2122253	LA AXIAL COIL 100 MICRO H
L213	2122927	LA AXIAL COIL 0.68 MICRO H
L302	2122253	LA AXIAL COIL 100 MICRO H
L304	2122949	LA AXIAL 33 MICRO H +-10% (20SA4B ONLY)
L306	2122951	LA AXIAL 39 MICRO H +-10% (20SA4B ONLY)
L307	2122956	LA AXIAL COIL 100 MICRO H +-10%

PRODUCT SAFETY NOTE: **Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.**

SYMBOL NO.	PART NO.	PART DESCRIPTION
L308	2145901	COIL (20SA4B ONLY)
L309	2122954	LA AXIAL COIL 68 MICRO H +-10%
L310	2122949	LA AXIAL COIL 33 MICRO H +-10%
L502	2122941	LA AXIAL COIL 6.8 MICRO H +-10%
L504	2122951	LA AXIAL COIL 39 MICRO H +-10%
L601	2220583	COIL
⚠L701	2122213	FILTER COIL 30 MICRO H
L704	2122253	LA AXIAL COIL 100 MICRO H
L804	2122254	LA AXIAL COIL 120 MICRO H
⚠L901	2272391	LINE FILTER ELF-18
⚠L951	2275831	DEGAUSSING COIL (HHEA MD) (HSCC MD)
		SWITCHES
S101	2632853	TACTO SWITCH
S102	2632901	KEY SWITCH
		COLOR PICTURE TUBE
⚠V1	2471531	COLOR PICTURE TUBE A51KQN61X
		MISCELLANEOUS
	4159423	M3X12 SCREW W/WASHER
	4159423	M3X12 SCREW W/WASHER
	3739671	CORD HOLDER
⚠	3164621	BACK COVER ASS'Y (HHEA MD)
	8781646	4X16 TAPPING SCREW
	8781646	4X16 TAPPING SCREW
	4519503	3X12 TAPPING SCREW
	4159423	M3X12 SCREW W/WASHER
	4159425	3X16 TAPPING SCREW
	4518376	SCREW
	3106721	FRAME S-ASS'Y (HHEA MD) (HSCC MD)
	3273681	CONTROL BUTTON (HHEA MD) (HSCC MD)
	3727972	HOLDER-AC LINE CORD
DL302	2791101	DELAY LINE (20SA4B ONLY)
EC	2902266	7P SUB MINI PLUG PIN
⚠EM	2665272	4P PLUG PIN WITH BASE
EP31	2661751	PLUG PIN WITH BASE
⚠ERF	2687791	F-US ADAPTOR
EW	2661751	PLUG PIN WITH BASE
E05	3763751	SK BINDER
E1	2661752	PLUG PIN
E3001	2693841	TERMINAL BOARD (HHEA MD) (HSCC MD)
E301	2573921	REMOTE CONTROL CLU-691GR (HHEA MD) (HSCC MD) (20SA4B ONLY)
E301	2573786	REMOTE CONTROL CLU-681GJ (HHEA MD) (HSCC MD) (20SA2B ONLY)
⚠E601	2445071	DEFLECTION YOKE (HHEA MD) (HSCC MD)
E603	2788084	CPT EARTH WIRE
⚠E801	2953341	CRT SOCKET
⚠E901	2720221	FUSE HOLDER
⚠E902	2721793	FUSE HOLDER (HHEA MD) (HSCC MD)
E903	2787532	INSULATION PLATE
⚠E904	2972521	POWER CORD
FB701	2122652	FERRITE CORE
FB702	2122652	FERRITE CORE
FB703	2122652	FERRITE CORE
JRF	2664723	COAXIAL CABLE WITH PIN PLUG
N101	3731081	PURSE LOCK 10
N102	3737101	PURSE LOCK 15
N103	2788841	ANODE CLAMP
N107	3700342	WIRE CLAMP
N601	4615642	WEDGE (HHEA MD) (HSCC MD)
N601A	4520883	M3X12 SCREW WITH WASHER
N601B	8821114	NUT 3
N602	3333922	EARTH SPRING
N605	3763751	SK BINDER
N606	3763751	SK BINDER
N702A	4520883	M3X12 SCREW WITH WASHER
N901A	4520883	M3X12 SCREW WITH WASHER
N901B	4518771	3X10 TAPPING SCREW WITH SPRING WASHER (HHEA MD) (HSCC MD)
N919A	2784342	CONDENSER COVER
N919B	2784342	CONDENSER COVER
⚠RL951	2640572	POWER RELAY
⚠SP451	2412518	SPEAKER 9X5 (HHEA MD) (HSCC MD)
⚠SP452	2412518	SPEAKER 9X5 (HHEA MD) (HSCC MD)
⚠TH901	2341261	THERMISTOR
⚠U101	2428701	TUNER ET451A (HHEA MD) (HSCC MD)
U102	2381126	REMOTE CONTROL RECEIVER SPS-409-1F
X101	2168931	CRYSTAL (HHEA MD) (HSCC MD)
X501	2791505	CRYSTAL
Z803	3763751	SK BINDER

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