

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 ground 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 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.

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC. Use the remote to set customer controls for normal operation. Momentarily short BC14901 (see Q14901 base) to ground. The receiver should lose raster and sound. If receiver does not lose raster and sound, the shutdown circuit should be repaired. To resume normal operation, remove AC power for approximately 30 seconds and then turn the receiver on.

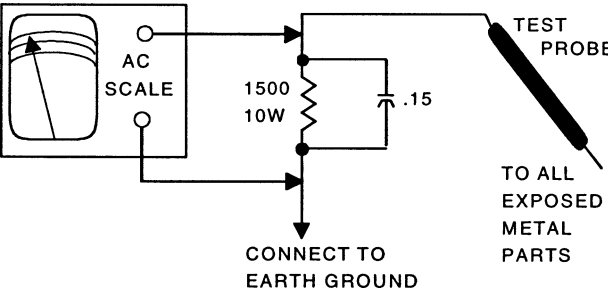
SAFETY CHECKS — FIRE AND SHOCK HAZARD

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.



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

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PHOTOFACT<sup>®</sup> Technical Service Data  
SILVER

SET 4674

MODEL F36668YX1 (CHASSIS CTC203CA)

RCA

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RCA  
Model F36668YX1 (Chassis CTC203CA)



Representative Model

Essential coverage  
for servicing a television receiver...

- Schematics
- Component locations
- Parts list

Coverage includes this additional model and chassis:

Model	Chassis
F36668YX53	CTC203CA7



JANUARY 2003 SET 4674

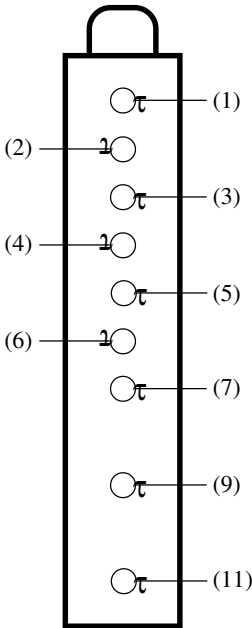
## TUNER INFORMATION

### TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
(1) AGC	2.3V	2.7V	2.5V
(2) TU	2.0V	5.1V	5.2V
(3) 5V	5.2V	5.2V	5.2V
(4) CLK	5.1V	5.1V	5.1V
(5) DATA	5.1V	5.1V	5.1V
(6) +5V	5.2V	5.2V	5.2V
(7) +5V	5.2V	5.2V	5.2V
(9) +33V	34.4V	34.5V	34.5V
(11) IF	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

### TUNER TERMINAL GUIDE



### 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.

- ▾ NTE Electronics, Inc. (NTE)
- ▾ Sencore, Inc.

### 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

## MISCELLANEOUS ADJUSTMENTS

NOTE: All procedures require an antenna connected and power applied to the set.

### HIGH VOLTAGE CHECK

Tune in a picture. Set brightness, contrast, and color to minium. Connect a high voltage probe to the CRT anode. High voltage should measure 30.5kV to 32.5kV.

### SERVICE MENU

The following adjustment procedures are accessed thru a service menu. To access the service menu, turn the receiver on, press the menu button and hold it down while pressing the power button. While holding down the menu button, release the power button and press the volume + button. The screen will display a one line menu, on the left the parameter P0, and on the right the value of that parameter V0. Release buttons. Adjustments are made by selecting the proper parameter and changing the value of that parameter. To change the parameter number use channel up and down buttons. To adjust the current value of that parameter use volume + and - buttons. To access and change any of the adjustments, the proper parameter pass number must be entered. This information is listed at the beginning of the alignment. When these parameters are modified, the T-Chip and the corresponding EEPROM are updated. All service adjustments are bus controlled, except focus and screen.

NOTE: In order to adjust the RF AGC, audio or video levels, tuner, PIP, or stereo circuits, the ChipperCheck hardware and software must be used. This can be purchased from Thomson Electronics. Before making any changes to any of the values, record the On Set values.

### SERVICE ADJUSTMENT PARAMETERS

Parameter No.	Parameter Name	On Set Value	Value Range	Comment
0	Pass number for service adjustment parameters.	Must set to 76	-	May not advance until value is set to 76.
1	Error Code 1	0	0 - 255	Displays the first error detected. Set to 0 before exiting. See Error Codes Chart.
2	Error Code 2	0	0 - 255	Displays the second error detected. Set to 0 before exiting. See ErrorCodes Chart.
3	Error Code 3	0	0 - 255	Displays the last error detected. Set to 0 before exiting. See Error Codes Chart.
4	Horizontal Phase	7	0 - 15	Tune in a crosshatch pattern, adjust to center the pattern on the screen.
5	EW DC (Width)	21	0 - 31	Tune in a crosshatch pattern, adjust for slight horizontal overscan.
6	EW Amplitude	12	0 - 15	Set value to 12.
7	EW Tilt	6	0 - 15	Set value to 6.
8	Top Corner Pin Correction	5	0 - 7	Set value to 5.
9	Bottom Corner Pin Correction	5	0 - 7	Set value to 5.
10	Vertical DC	34	0 - 63	Tune in a crosshatch pattern, adjust to center vertically.
11	Vertical Size	83	0 - 127	Tune in a crosshatch pattern, adjust for slight vertical overscan.
12	Vertical Countdown Mode	0	0 - 3	Set value to 0. ( 0 = Standard, 1 = Non-Standard, 2 = 50Hz, 3 = 48Hz )
13	Red Bias	21	0 - 127	Press menu button on the TV set for setup line.
14	Green Bias	9	0 - 127	Press menu button on the TV set for setup line.
15	Blue Bias	5	0 - 127	Press menu button on the TV set for setup line.
16	Red Drive	40	0 - 63	-
17	Green Drive	37	0 - 63	-
18	Blue Drive	39	0 - 63	-
19	Gemstar Horizontal OSD Position	162	0 - 255	Set value to 162.
20	Gemstar Vertical OSD Position	68	0 - 255	Set value to 68.
21	Gemstar PIP Horizontal Position	40	0 - 255	Set value to 40.
22	Gemstar PIP Vertical Position	43	0 - 255	Set value to 43.
23	Gemstar PIP Window Vertical Size	3	0 - 13	Set value to 3.

### COLOR TEMPERATURE

NOTE: See Service Adjustment Parameters to change drive and bias values.

Press menu button for collapsed raster service line. Disconnect the antenna. Preset the red, green, and blue drive values to 32. Adjust screen control for a service line that is just visible. Adjust red, green, and blue drives to obtain a white raster. Check the low light to high light gray scale tracking. Repeat the procedure, if necessary, to obtain the best performance

## ERROR CODES CHART

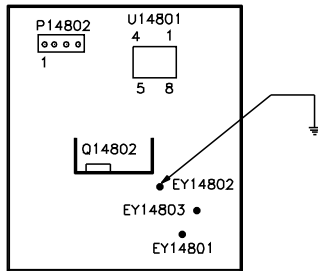
Error Code DEC	HEX	Error Location	Condition Indicated
0	00	No error code	-
1	01	16.0V fault	16.0V STBY source is failing.
3	03	12.0V run fault	12.0V source is failing.
4	04	T4 Chip	Run supply failed.
8	08	T4 Chip	X-ray protection caused high voltage shutdown.
9	09	T4 Chip (POR)	Power supply problem at (POR) power on reset.
10	0A	PIP module error (POR)	Power supply problem at (POR) power on reset/PIP.
11	0B	Stereo decoder (POR)	Power supply problem at reset/Stereo decoder.
16	10	Run IIC Bus held low	Run IIC clock or data held low.
18	12	Standby IIC Bus held low	Standby IIC clock or data held low.
23	17	Gemstar 4 Board	Guide fatal error on set using Gemstar 4 Board.
24	18	Gemstar 4 Board	Task monitor error on set using Gemstar 4 Board.
25	19	Gemstar 4 Board	Watchdog error on set using Gemstar 4 Board.
26	1A	Gemstar 4 Board	Task monitor error on set using Gemstar 4 Board.
32	20	Gemstar 4 Board	CPU error on set using Gemstar 4 Board.
34	22	Gemstar 4 Board	Gemstar fails to acknowledge.
44	2C	PIP module error	PIP fails to acknowledge.
102	66	Octal DAC	Octal DAC fails to acknowledge.
128	80	Stereo decoder	Stereo decoder fails to acknowledge.
160	A0	Main or PIP tuner EEPROM	Main or PIP tuner EEPROM fails to acknowledge.
186	BA	T4 Chip	T4 Chip fails to acknowledge.
196	C4	Main tuner PLL/DAC	Main tuner PLL IC fails to acknowledge.
198	C6	Main tuner PLL/DAC	Main tuner DAC IC fails to acknowledge.

### ERROR CODES

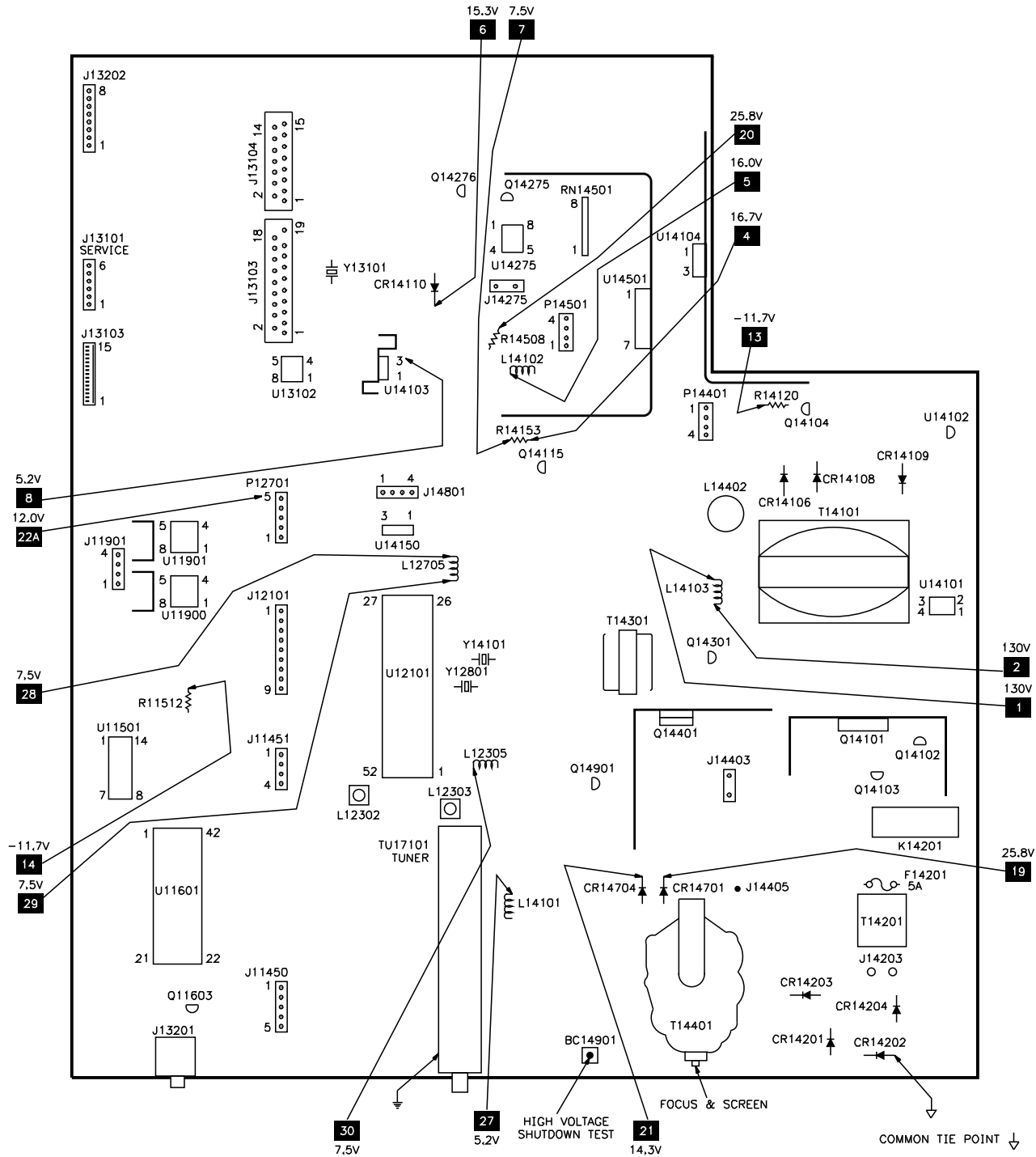
If certain failures occur, the matching error codes will be stored in the EEPROM. These error codes will be displayed in parameters 1, 2, and 3. The first failure error code will be stored at parameter 1 and the second failure error code will be stored at parameter 2. Parameter 3 will be updated to display the most recent failure occurred in the chassis. If a failure of a bus IC occurred, the normal acknowledgment checking of that bus will be disabled in the service mode and the address of that IC which failed will be stored in one of the error code parameters. After every repair is done to the chassis it is recommended to check the error code parameters, and reset them back to value 0.

## PLACEMENT CHART

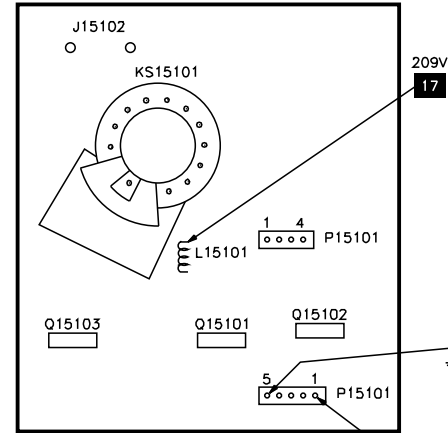
## PINCUSHION BOARD



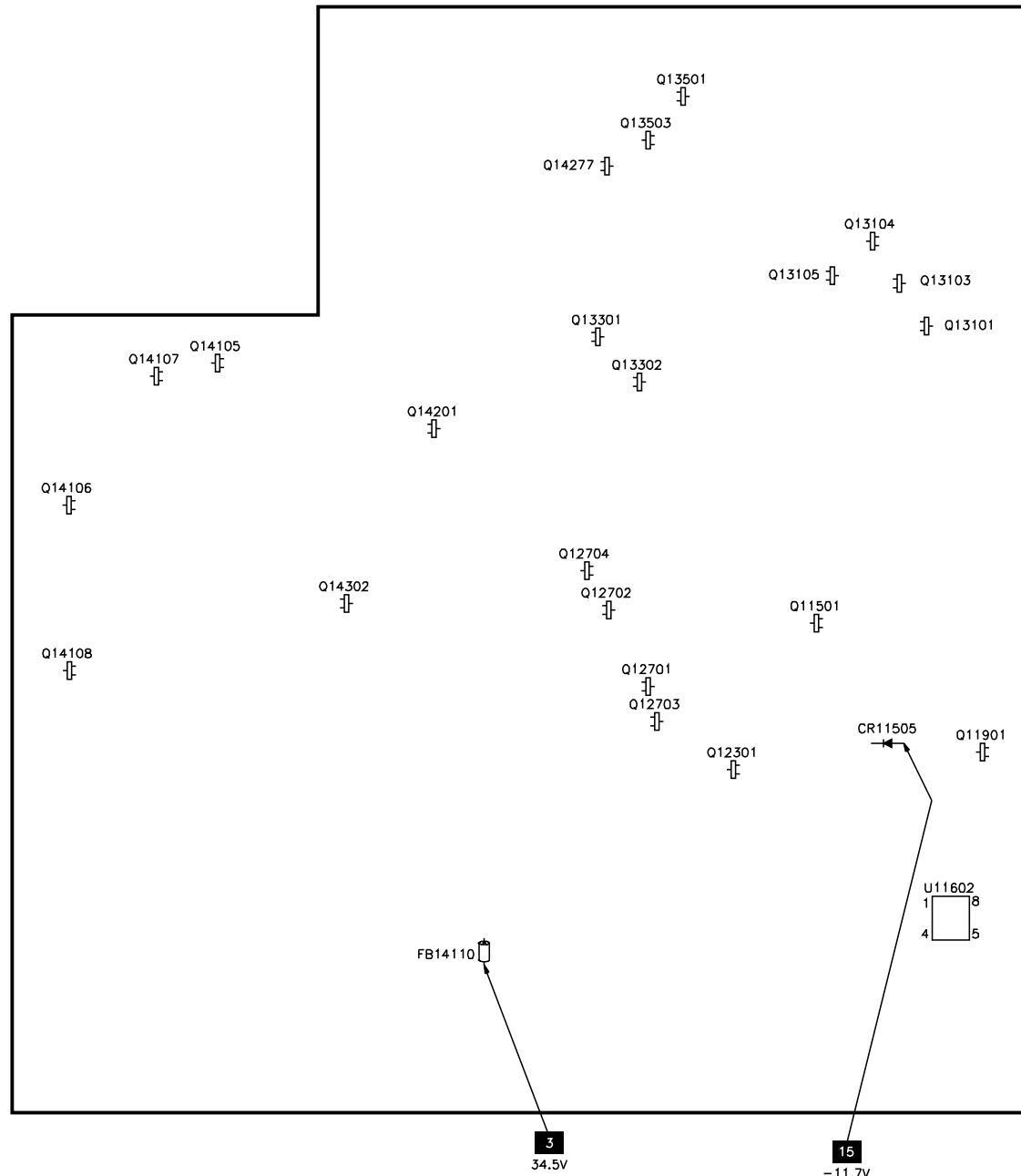
## MAIN BOARD - TOP VIEW



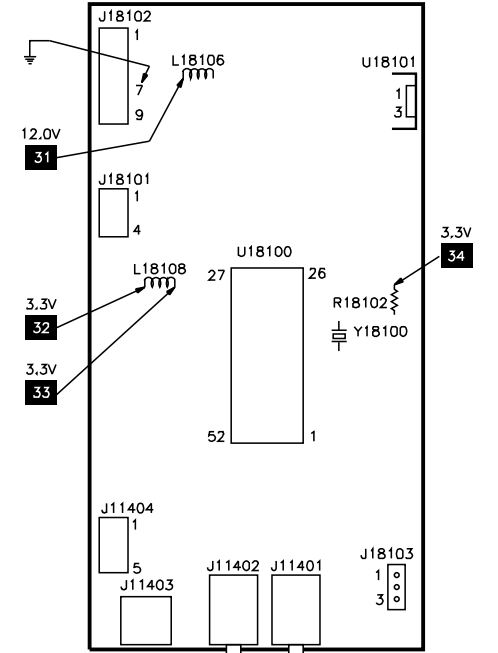
## CRT BOARD



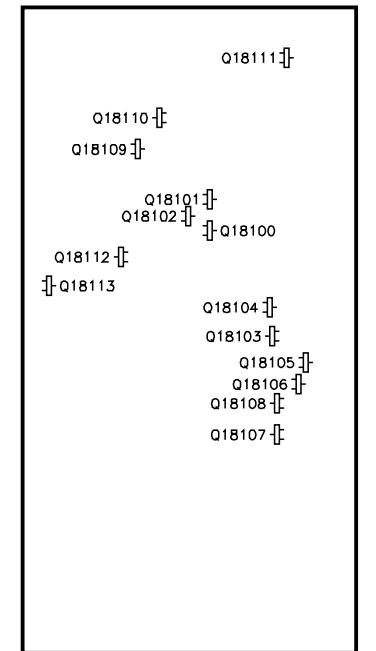
## MAIN BOARD - BOTTOM VIEW



### PIP BOARD - TOP VIEW



### PIP BOARD - BOTTOM VIEW



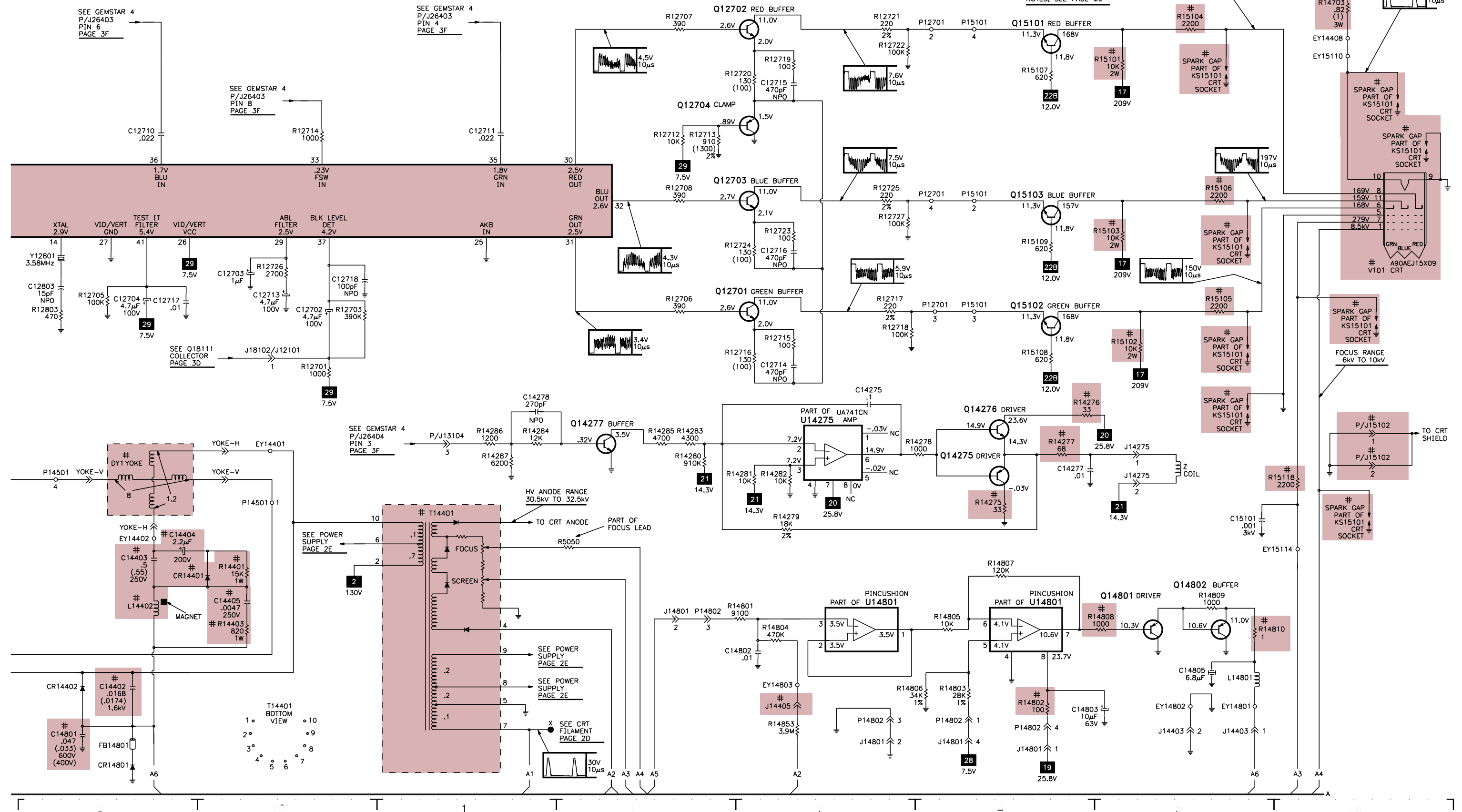
This is a detailed photofact standard notation schematic diagram for a television receiver. The diagram is organized into several main functional sections:

- Tuner Section (Top Left):** Includes input pins for +32V, +5V, and AGC. It features a tuner IC (U1201) with various pins for IF, RF, and AGC. A note states "TUNER NOT INCLUDED IN THIS COVERAGE".
- IF Amplifier Section (Top Center):** Contains an IF amplifier IC (U1201) and a video IF/LUMA/CHROMA/DEFL IC (U1201). It includes various filters, capacitors, and inductors. Waveform captures are shown for the IF signal.
- Video Amplifier Section (Top Right):** Features a video amplifier IC (Q1301) and a video IF/LUMA/CHROMA/DEFL IC (U1201). It includes various capacitors and a video output pin.
- Vertical Deflection Section (Bottom Left):** Includes a vertical output IC (U1401) and a vertical output IC (U1401). It features various capacitors, inductors, and a vertical output pin.
- Horizontal Deflection Section (Bottom Center):** Contains a horizontal output IC (Q1401) and a horizontal output IC (Q1401). It includes various capacitors, inductors, and a horizontal output pin.
- Power Section (Bottom Right):** Includes a power supply section with a transformer (T1401) and a power supply IC (Q1401). It features various capacitors and a power supply pin.

The diagram includes numerous component values, such as resistors (R12301, R12302, R12303, R12304, R12305, R12306, R12307, R12308, R12309, R12310, R12311, R12312, R12313, R12314, R12315, R12316, R12317, R12318, R12319, R12320, R12321, R12322, R12323, R12324, R12325, R12326, R12327, R12328, R12329, R12330, R12331, R12332, R12333, R12334, R12335, R12336, R12337, R12338, R12339, R12340, R12341, R12342, R12343, R12344, R12345, R12346, R12347, R12348, R12349, R12350, R12351, R12352, R12353, R12354, R12355, R12356, R12357, R12358, R12359, R12360, R12361, R12362, R12363, R12364, R12365, R12366, R12367, R12368, R12369, R12370, R12371, R12372, R12373, R12374, R12375, R12376, R12377, R12378, R12379, R12380, R12381, R12382, R12383, R12384, R12385, R12386, R12387, R12388, R12389, R12390, R12391, R12392, R12393, R12394, R12395, R12396, R12397, R12398, R12399, R12400, R12401, R12402, R12403, R12404, R12405, R12406, R12407, R12408, R12409, R12410, R12411, R12412, R12413, R12414, R12415, R12416, R12417, R12418, R12419, R12420, R12421, R12422, R12423, R12424, R12425, R12426, R12427, R12428, R12429, R12430, R12431, R12432, R12433, R12434, R12435, R12436, R12437, R12438, R12439, R12440, R12441, R12442, R12443, R12444, R12445, R12446, R12447, R12448, R12449, R12450, R12451, R12452, R12453, R12454, R12455, R12456, R12457, R12458, R12459, R12460, R12461, R12462, R12463, R12464, R12465, R12466, R12467, R12468, R12469, R12470, R12471, R12472, R12473, R12474, R12475, R12476, R12477, R12478, R12479, R12480, R12481, R12482, R12483, R12484, R12485, R12486, R12487, R12488, R12489, R12490, R12491, R12492, R12493, R12494, R12495, R12496, R12497, R12498, R12499, R12500, R12501, R12502, R12503, R12504, R12505, R12506, R12507, R12508, R12509, R12510, R12511, R12512, R12513, R12514, R12515, R12516, R12517, R12518, R12519, R12520, R12521, R12522, R12523, R12524, R12525, R12526, R12527, R12528, R12529, R12530, R12531, R12532, R12533, R12534, R12535, R12536, R12537, R12538, R12539, R12540, R12541, R12542, R12543, R12544, R12545, R12546, R12547, R12548, R12549, R12550, R12551, R12552, R12553, R12554, R12555, R12556, R12557, R12558, R12559, R12560, R12561, R12562, R12563, R12564, R12565, R12566, R12567, R12568, R12569, R12570, R12571, R12572, R12573, R12574, R12575, R12576, R12577, R12578, R12579, R12580, R12581, R12582, R12583, R12584, R12585, R12586, R12587, R12588, R12589, R12590, R12591, R12592, R12593, R12594, R12595, R12596, R12597, R12598, R12599, R12600, R12601, R12602, R12603, R12604, R12605, R12606, R12607, R12608, R12609, R12610, R12611, R12612, R12613, R12614, R12615, R12616, R12617, R12618, R12619, R12620, R12621, R12622, R12623, R12624, R12625, R12626, R12627, R12628, R12629, R12630, R12631, R12632, R12633, R12634, R12635, R12636, R12637, R12638, R12639, R12640, R12641, R12642, R12643, R12644, R12645, R12646, R12647, R12648, R12649, R12650, R12651, R12652, R12653, R12654, R12655, R12656, R12657, R12658, R12659, R12660, R12661, R12662, R12663, R12664, R12665, R12666, R12667, R12668, R12669, R12670, R12671, R12672, R12673, R12674, R12675, R12676, R12677, R12678, R12679, R12680, R12681, R12682, R12683, R12684, R12685, R12686, R12687, R12688, R12689, R12690, R12691, R12692, R12693, R12694, R12695, R12696, R12697, R12698, R12699, R12700, R12701, R12702, R12703, R12704, R12705, R12706, R12707, R12708, R12709, R12710, R12711, R12712, R12713, R12714, R12715, R12716, R12717, R12718, R12719, R12720, R12721, R12722, R12723, R12724, R12725, R12726, R12727, R12728, R12729, R12730, R12731, R12732, R12733, R12734, R12735, R12736, R12737, R12738, R12739, R12740, R12741, R12742, R12743, R12744, R12745, R12746, R12747, R12748, R12749, R12750, R12751, R12752, R12753, R12754, R12755, R12756, R12757, R12758, R12759, R12760, R12761, R12762, R12763, R12764, R12765, R12766, R12767, R12768, R12769, R12770, R12771, R12772, R12773, R12774, R12775, R12776, R12777, R12778, R12779, R12780, R12781, R12782, R12783, R12784, R12785, R12786, R12787, R12788, R12789, R12790, R12791, R12792, R12793, R12794, R12795, R12796, R12797, R12798, R12799, R12800, R12801, R12802, R12803, R12804, R12805, R12806, R12807, R12808, R12809, R12810, R12811, R12812, R12813, R12814, R12815, R12816, R12817, R1

## D

SEE T14401  
PIN 7  
PAGE 2C

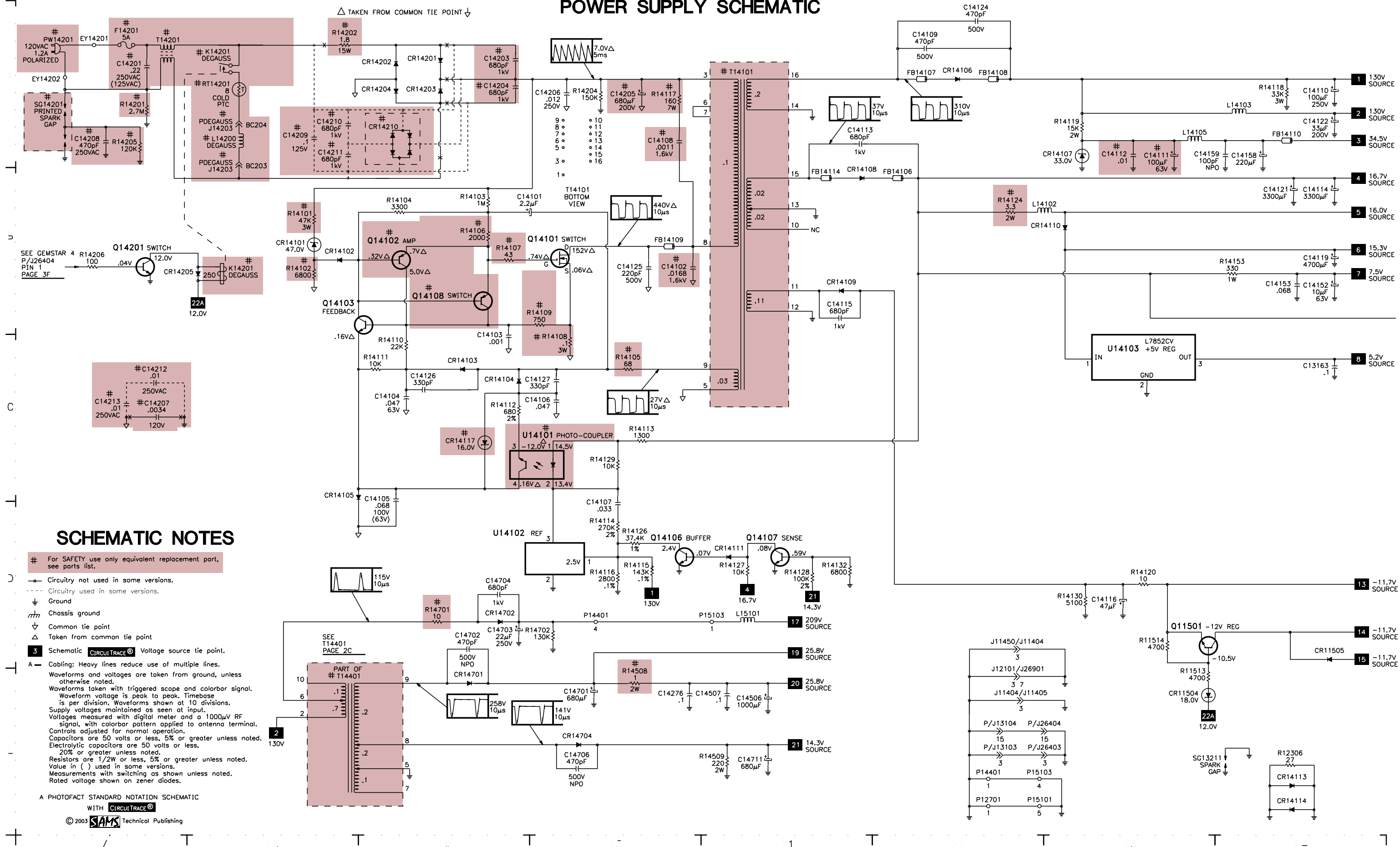




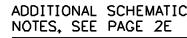
E

## POWER SUPPLY SCHEMATIC

F

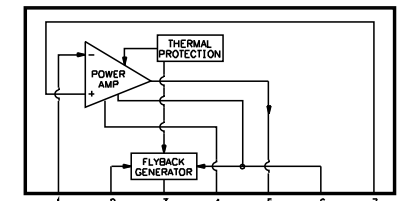
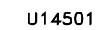
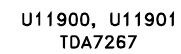
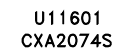


## G



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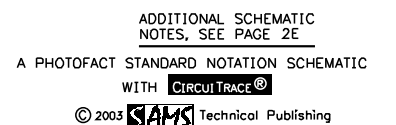
## IC FUNCTIONS



**MODEL F36668YX1 (CHASSIS CTC203CA)**



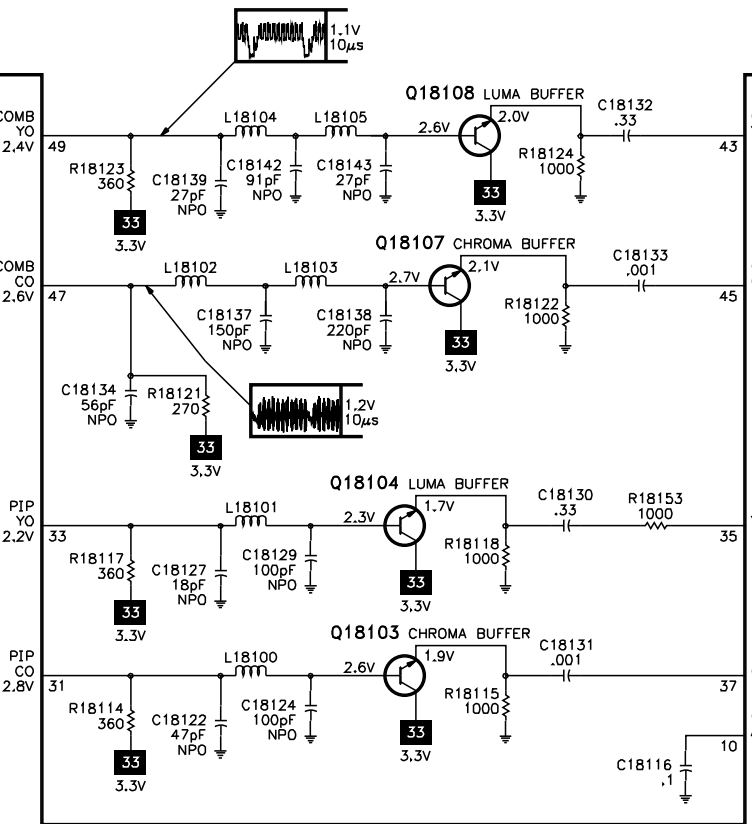
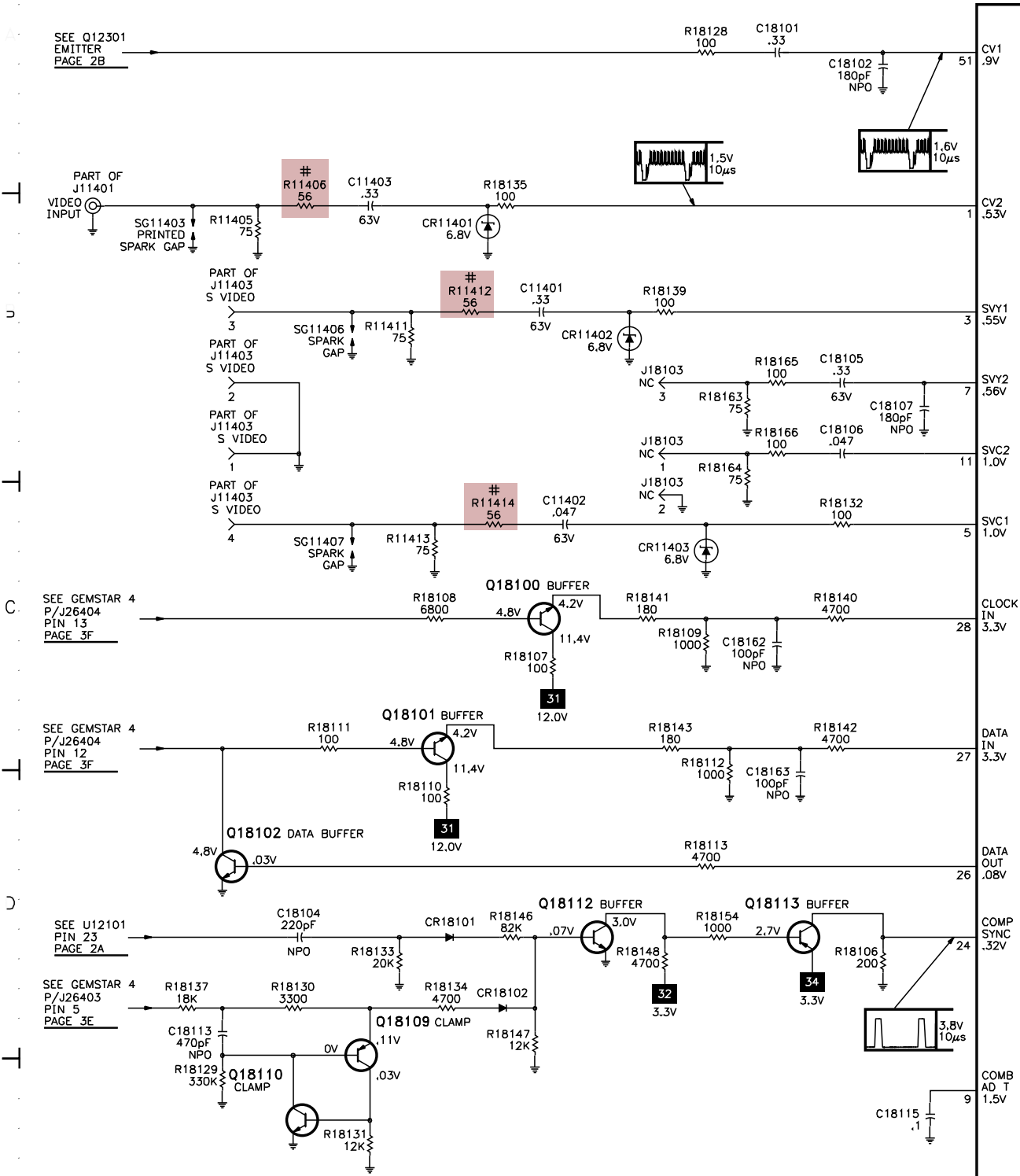
## B



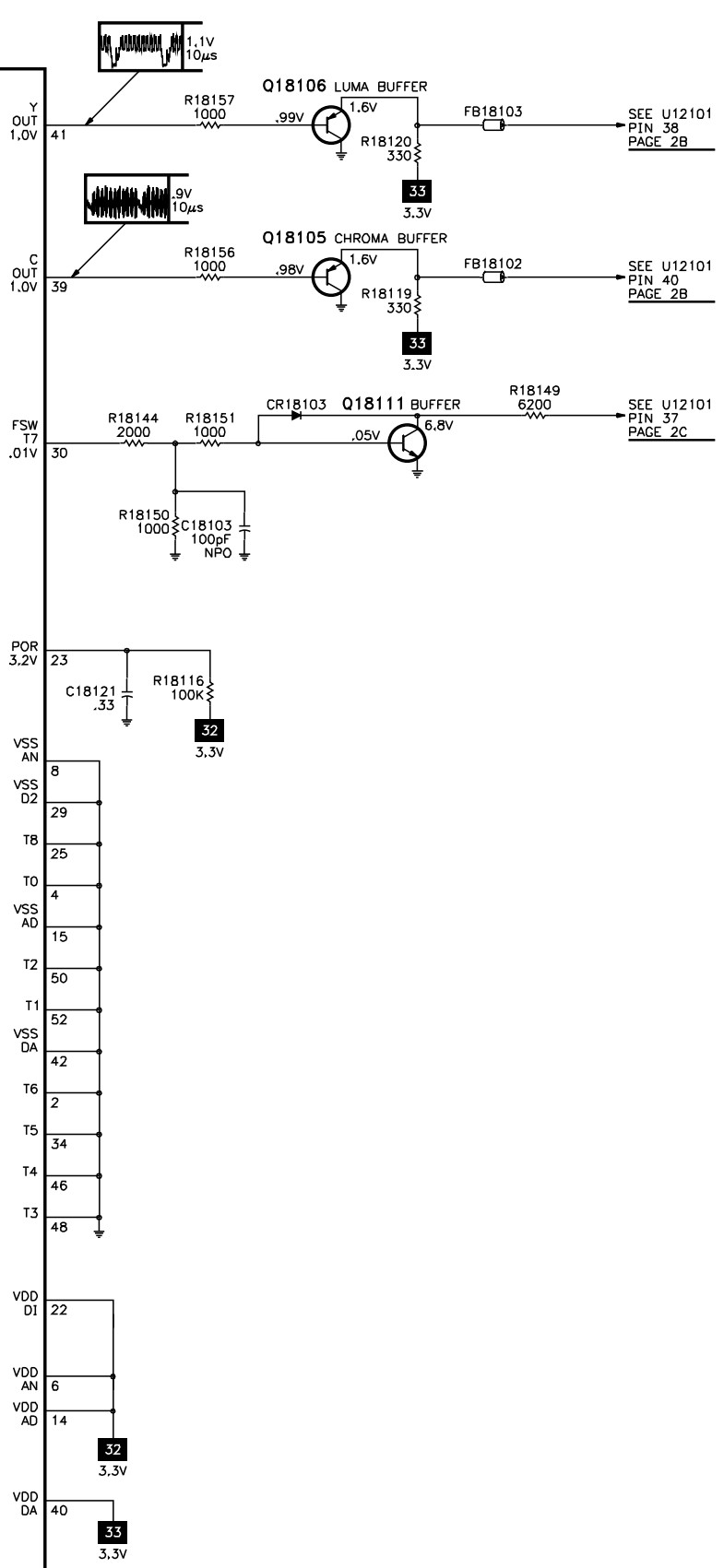
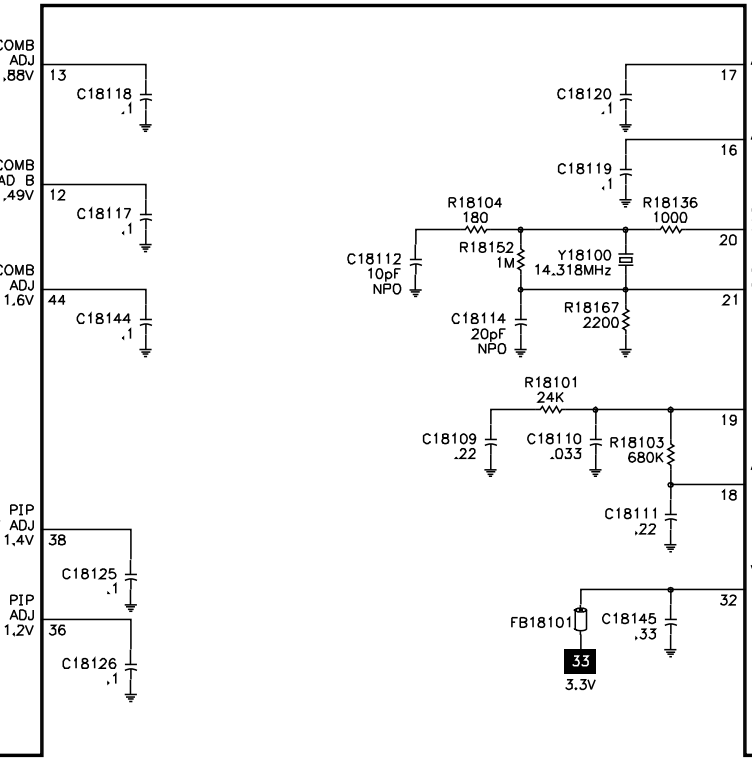
C

PIP SCHEMATIC

D



U18100 FPIP

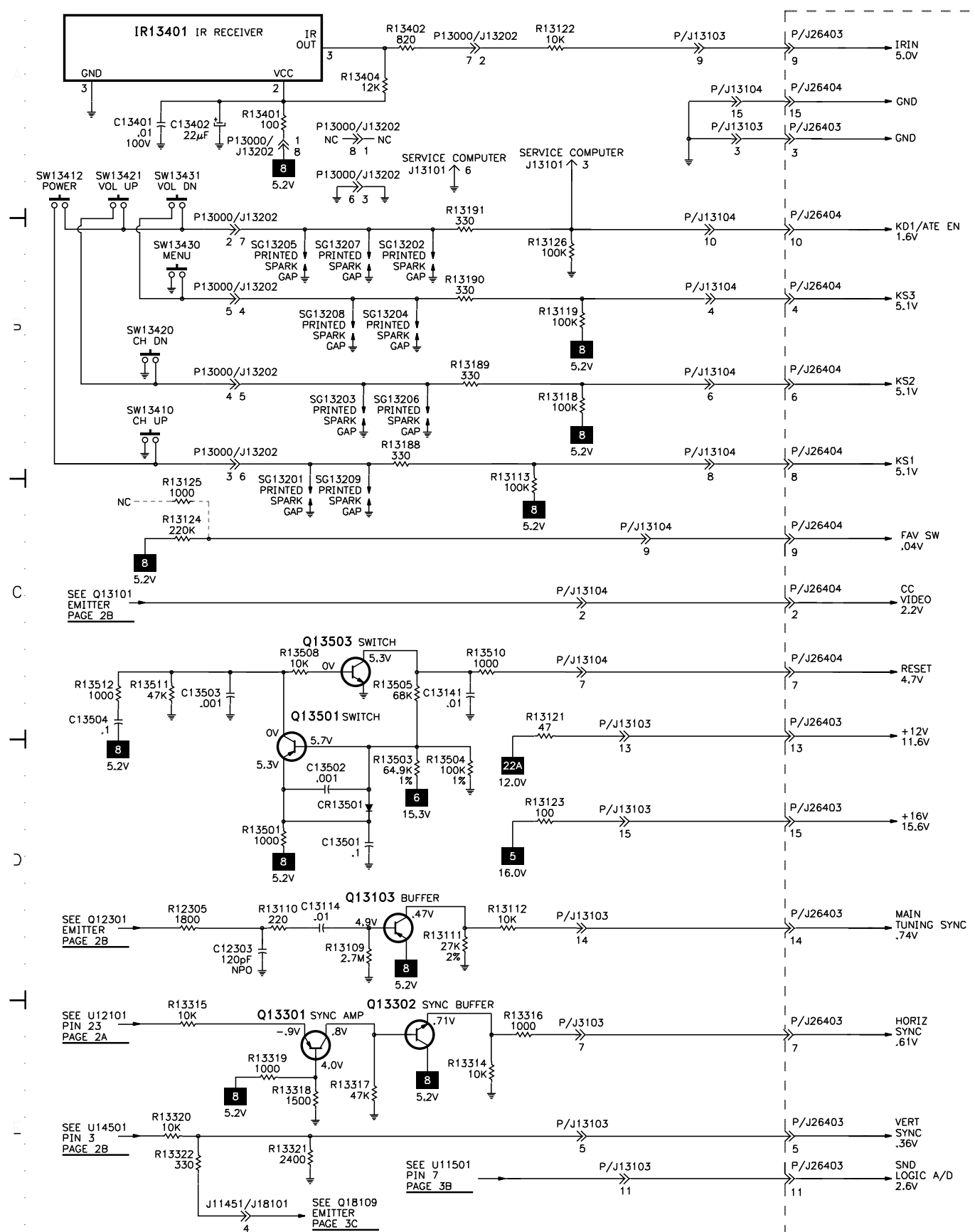


ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 2E

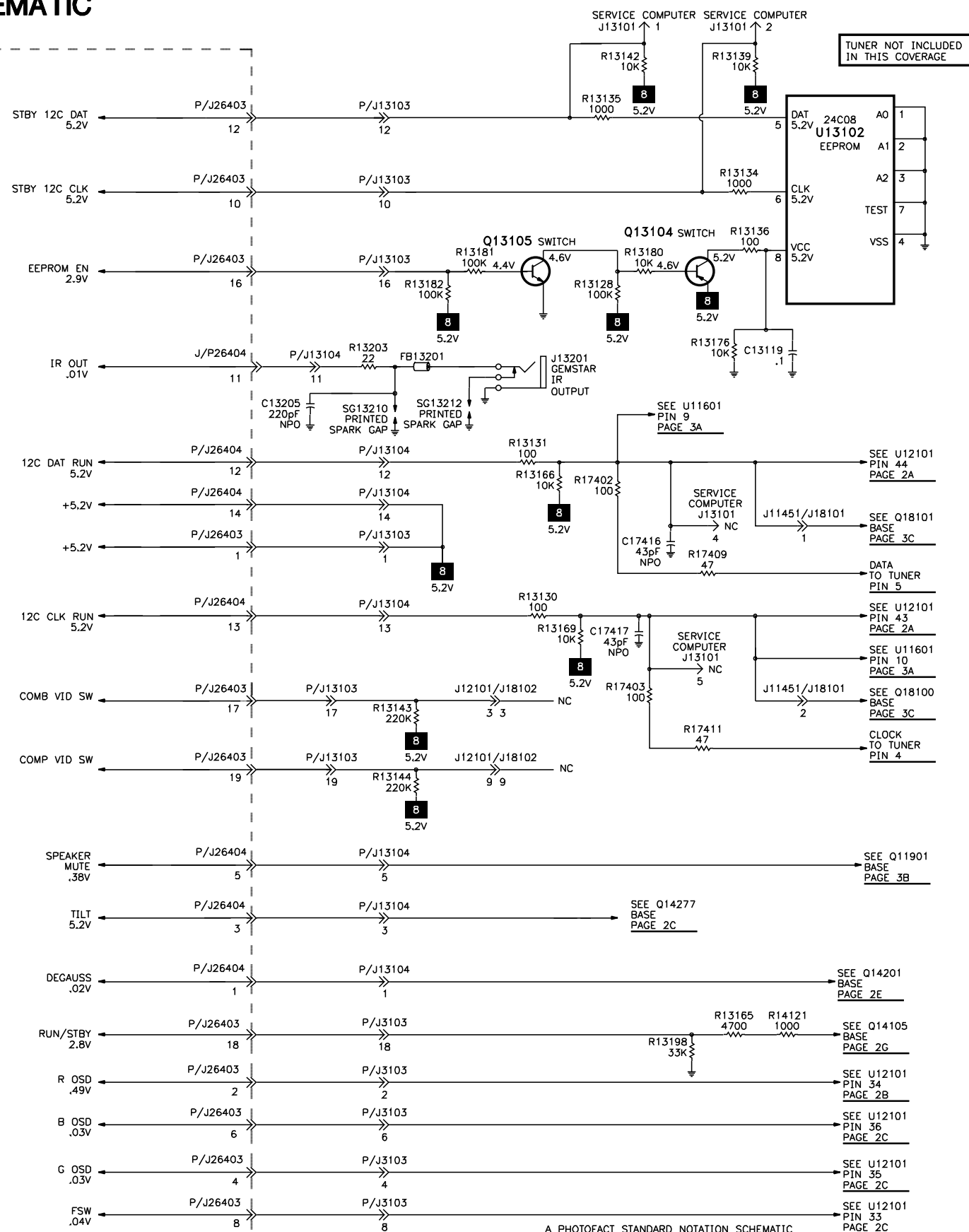
A PHOTOFACT STANDARD NOTATION SCHEMATIC  
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## GEMSTAR 4 SCHEMATIC



# F



ADDITIONAL SCHEMATIC  
NOTES, SEE PAGE 2E

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SCHEMATIC COMPONENT LOCATION GUIDE

C11401	B38	C11908	C35	C14103	C19	C14321	D2	C18126	E40	CR14110	B23	L14101	B28	Q15102	C14	R11607	D31	R12315	C2	R13126	B47	R14110	C19	R14323	D4	R17411	C51	R18164	C39
C11402	C38	C11909	B35	C14104	C19	C14322	E4	C18127	B41	CR14111	D21	L14102	B22	Q15103	B14	R11608	D30	R12316	C3	R13128	B51	R14111	C19	R14324	D1	R18101	D41	R18165	B39
C11403	B38	C11910	A35	C14105	D19	C14401	E7	C18129	B41	CR14113	E24	L14103	A24	Q18100	C38	R11609	D31	R12317	B4	R13130	C51	R14112	C19	R14326	D1	R18102	D27	R18166	C39
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C11451	B30	C11913	A36	C14107	D20	C14403	D9	C18131	C41	CR14115	C27	L14200	A18	Q18102	D37	R11612	A32	R12701	C10	R13134	A51	R14114	D20	R14328	D4	R18104	D41	RN14501	D5
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C11501	D32	C12304	A4	C14112	B23	C14504	D8	C18138	B41	CR14204	A19	L18100	C41	Q18107	B41	R11617	B31	R12706	C12	R13143	C50	R14119	A23	R14503	D5	R18110	D38	SW13410	B45
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C11507	E30	C12310	B4	C14118	A28	C14701	E20	C18145	E42	CR14402	E9	L18105	A41	Q18112	D38	R11622	B32	R12712	B12	R13176	B51	R14124	B22	R14509	E21	R18115	C41	SW13431	B45
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C11624	A5	C12805	B6	C14209	A18	C18107	B40	CR11504	E23	FB18102	B44	Q14104	A26	R11504	D32	R11915	B33	R12808	C8	R13501	D45	R14281	D13	R14905	D2	R18142	D39	U14150	C27
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C11626	A32	C12807	C8	C14211	B18	C18110	E42	CR11601	B33	IR13401	A45	Q14106	D20	R11506	D32	R11918	C33	R13102	A8	R13504	D46	R14283	D12	R14909	D3	R18144	B43	U14501	D7
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C11630	A33	C13141	C46	C14276	E20	C18114	D41	CR12702	E4	J11402	C36	Q14201	B17	R11510	D35	R12201	A3	R13110	D45	R13511	C45	R14287	D11	R15104	A15	R18149	B44	U18101	D26
C11631	A33	C13163	C24	C14277	D14	C18115	E40	CR13501	D46	J11402	C36	Q14275	D14	R11511	D30	R12302	B2	R13111	D46	R13512	C45	R14303	D1	R15105	C15	R18150	B43	V101	C16
C11632	A30	C13205	B50	C14278	C11	C18116	C42	CR14101	B18	J13201	B51	Q14276	C14	R11512	E30	R12303	B1	R13112	D46	R14101	B18	R14304	E5	R15106	B15	R18151	B43	Y12801	B9
C11633	A30	C13401	A45	C14302	E5	C18117	D40	CR14102	B18	K14201	A18	Q14277	D12	R11513	E23														



MAIN BOARD



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BC14901	O7	C12710*	I4	C14321*	I5	FB14110	L5	R11507*	K1	R12711	K4	R13503*	B4	R14402	I7
C11450	O3	C12711*	I4	C14322*	I6	FB14114	F10	R11508*	K1	R12712*	G4	R13504*	B3	R14403	G9
C11451	O3	C12712*	G3	C14401*	J8	FB14401	J8	R11509*	K1	R12713*	G4	R13505*	B3	R14501	C6
C11453*	O3	C12713	H4	C14402	K8	FB14501	I6	R11510*	K1	R12714*	I4	R13508*	B3	R14503	B6
C11454*	O3	C12714*	G4	C14403	F8	FB14801	J9	R11511	J1	R12715*	H4	R13510*	C4	R14504	D7
C11455*	O3	C12715*	G4	C14404	F7	J11403	L9	R11512	J2	R12716*	G4	R13511*	B3	R14506	D6
C11456*	N3	C12716*	H4	C14405	F9	J11450	N3	R11513*	G2	R12717	G4	R13512*	B3	R14507	B6
C11501*	K2	C12717*	J5	C14406	J8	J11451	K3	R11514*	G2	R12718*	G3	R14101	J10	R14508	D6
C11502*	K2	C12718*	I5	C14502	B7	J11901	H1	R11601*	N2	R12719*	G4	R14102	J10	R14509	D7
C11503*	K1	C12801*	I5	C14504	B6	J12101	I3	R11602*	M3	R12720*	G4	R14103	K10	R14520*	I5
C11504	K1	C12802*	J4	C14505	C7	J13101	D1	R11603*	M3	R12721	G4	R14104	K11	R14701	N7
C11506	K1	C12803*	J5	C14506	C7	J13103	E3	R11604*	M3	R12722*	H3	R14105	H11	R14702	E9
C11507	J2	C12805*	J4	C14507*	C7	J13104	C3	R11605*	M2	R12723*	I4	R14106	K11	R14703	E7
C11601	N2	C12806	J6	C14521	H5	J13201	O1	R11606*	M2	R12724*	I4	R14107	J11	R14704	O9
C11602	N2	C12807*	J5	C14701	M7	J13202	C1	R11607*	M2	R12725	G4	R14108	J11	R14705	L9
C11603	N2	C13102*	E1	C14702*	M8	J14203	M11	R11608*	M1	R12726*	H4	R14109	J11	R14706	G5
C11604	M3	C13114*	D2	C14703	E9	J14275	C5	R11609*	M2	R12727*	G3	R14110	I11	R14852*	I6
C11605*	M3	C13119*	E3	C14704	E8	J14403	J10	R11611*	M1	R12731	H4	R14111	I12	R14853	M9
C11606*	M3	C13141*	C4	C14706*	M8	J14405	M9	R11612*	L2	R12801*	I5	R14112*	H11	R14901	E7
C11607*	M3	C13163*	F5	C14710	N10	J14801	G5	R11613*	L1	R12802*	I5	R14113	F11	R14902	K7
C11608*	M2	C13205*	O1	C14711	L8	K14201	K11	R11614*	L2	R12803*	J6	R14114*	E12	R14903	N7
C11609*	M2	C13501*	B4	C14801	I8	L12302	K4	R11615*	N2	R12804*	I4	R14115	E11	R14904	G6
C11610*	M2	C13502*	B3	C14901	E8	L12303	K5	R11616*	N2	R12805*	J4	R14116	E12	R14905*	O7
C11611	M2	C13503*	B3	C14902	E8	L12305	J6	R11617*	M2	R12806*	J6	R14117	I10	R14906*	J6
C11612*	M1	C13504*	B4	C14903*	I5	L12705	H5	R11618*	N2	R12807*	J6	R14118	E11	R14909*	I6
C11613*	M2	C14101	K11	C14904*	K6	L14101	M6	R11619*	O2	R12808*	J6	R14119	D12	R17130*	O6
C11614	N2	C14102	H10	C17416*	L4	L14102	D6	R11620*	O2	R13101	D1	R14120	D9	R17402*	L4
C11615*	N2	C14103*	K11	C17417*	L4	L14103	G9	R11621*	M1	R13102	D2	R14121	E9	R17403*	L4
C11616	N2	C14104	J12	CF12201	J4	L14105	D11	R11622*	L1	R13103	D2	R14122	D10	R17409*	M4
C11617	N3	C14105	J12	CF12301	J4	L14401	I8	R11623*	L1	R13108	F3	R14123	D10	R17411*	M4
C11618	M2	C14106*	H11	CR11501*	J1	L14402	F9	R11624*	L1	R13109*	E2	R14124	D9	RN14501	C7
C11619	N3	C14107*	F12	CR11502*	K1	P12701	G3	R11625*	L1	R13110*	C2	R14126*	E12	RT14201	L11
C11620	M3	C14108	I11	CR11503	K1	P14401	D8	R11626*	K2	R13111*	E2	R14127*	D10	SF12301	J6
C11621*	L2	C14109	F10	CR11504	G2	P14501	D6	R11627	F2	R13112*	D2	R14128	E9	T14101	G11
C11622*	L2	C14110	E10	CR11505*	J2	Q11501*	G2	R11701*	K2	R13113*	B2	R14129*	H1	T14201	M11
C11623	M3	C14111	D12	CR11601*	L1	Q11603	O2	R11702*	K2	R13118	C2	R14130	F12	T14301	H8
C11624	N1	C14112	D11	CR11602	N2	Q11901*	J1	R11703*	K2	R13119	C2	R14132*	D11	T14401	N9
C11625*	L2	C14113	F11	CR11603*	O2	Q12301*	J4	R11704*	K2	R13121*	D4	R14151	G5	TU17101	N4
C11626*	L2	C14114	F11	CR12301*	K5	Q12701*	H4	R11705	K2	R13122*	E4	R14153	E6	U11501	J2
C11627*	M2	C14115	F11	CR12702	G6	Q12702*	G4	R11706*	J3	R13123	D4	R14155	E6	U11601	L2
C11628	L1	C14116	E11	CR13501	B3	Q12703*	H4	R11707	K2	R13124*	C4	R14157	E6	U11602*	L1
C11629*	L2	C14118	E9	CR14101	K10	Q12704*	G4	R11708*	K2	R13126*	C2	R14158	F6	U11900	I2
C11630	K2	C14119	F5	CR14102	K11	Q13101*	E2	R11709*	K2	R13128*	D2	R14159	F6	U11901	H2
C11631*	L1	C14121	F12	CR14103	H12	Q13103*	D2	R11909	G2	R13130*	B2	R14201	N12	U12101	J5
C11701*	J2	C14122	H9	CR14104	H12	Q13104*	D2	R11910*	I2	R13131*	B2	R14202	O11	U13102	E3
C11702*	K2	C14124	F10	CR14105	J11	Q13105*	D2	R11911*	I2	R13134*	E2	R14204	M10	U14101	H12
C11703	K2	C14125	I11	CR14106	F10	Q13301*	D4	R11912*	H2	R13135*	D2	R14205	N12	U14102	E12
C11704*	J3	C14126*	I12	CR14107	D12	Q13302*	D4	R11913*	H2	R13136*	E3	R14206*	D7	U14103	E5
C11705	J2	C14127*	I12	CR14108	F10	Q13501*	B3	R11915*	J1	R13139*	E2	R14275	B6	U14104	C8
C11906*	J2	C14150	H5	CR14109	F11	Q13503*	B4	R11917	F2	R13142*	E2	R14276	B6	U14150	G5
C11907*	H2	C14151	H5	CR14110	D5	Q14101	J11	R11918*	J1	R13143	C4	R14277	B5	U14275	B5
C11908	J2	C14152	H6	CR14111	E11	Q14102	J11	R11919*	J1	R13144	C4	R14278	B5	U14501	C7
C11909	H2	C14153*	I5	CR14113*	P3	Q14103	J11	R11920*	I1	R13165*	D2	R14279*	B5	Y12801	I6
C11910*	H2	C14154*	F6	CR14114*	P3	Q14104	D10	R11921*	G1	R13166*	B2	R14280*	C6	Y14101	I6
C11912*	G2	C14155	O5	CR14115	F6	Q14105*	D10	R12201*	J4	R13169*	B2	R14281*	C6		
C11913	I1	C14158	L6	CR14117	I12	Q14106*	E12	R12302*	J6	R13176*	E3	R14282*	C5		
C11914	G1	C14159*	L6	CR14201	O10	Q14107*	D11	R12303*	J5	R13180*	D2	R14283*	C5		
C12301*	J5	C14160*	M6	CR14202	O11	Q14108*	K11	R12304*	J4	R13181*	D2	R14284*	C5		
C12302*	J5	C14201	M12	CR14203	N10	Q14115	E6	R12305*	J4	R13182*	D2	R14285*	C5		
C12303*	J4	C14203	O10	CR14204	N11	Q14201*	D7	R12306*	J5	R13183*	D4	R14286*	C5		
C12304*	K5	C14204	O11	CR14205	D11	Q14275	B5	R12307*	J3	R13185*	E4	R14287*	C5		
C12305	K5	C14205	L10	CR14301	G8	Q14276	B5	R12308*	K5	R13188	B2	R14303	H6		
C12306	N6	C14206	M10	CR14401	F8	Q14277*	C5	R12309*	K5	R13189	B2	R14304*	G8		
C12307*	J5	C14207	O11	CR14402	K8	Q14301	H9	R12310*	J5	R13190	B2	R14305	I8		
C12308*	J5	C14208	N12	CR14501	C7	Q14302*	G8	R12311*	J4	R13191	B2	R14306	H8		
C12310	K5	C14275*	B5	CR14701	M8	Q14401	J8	R12315*	K5	R13198*	D3	R14309	G8		
C12312*	K5	C14276*	B6	CR14702	F8	Q14901	K7	R12316*	J5	R13203	O1	R14310	H7		
C12313*	J5	C14277*	B5	CR14704	M8	R11460*	O3	R12317*	K4	R13314*	E4	R14318	D6		
C12314	K6	C14278*	C5	CR14801	J8	R11461*	O3	R12701*	I4	R13315*	D4	R14319	D6		
C12701	I4	C14302*	G8	CR14901	E7	R11462*	O3	R12702	G5	R13316*	E4	R14320*	I6		
C12702	I4	C14303*	G8	CR14902	J7	R11463*	O3	R12703*	I4	R13317*	E4	R14322*	I6		
C12703	H5	C14304	H8	F14201	L11	R11501*	K3	R12704	I3	R13318*	E4	R14323*	I6		
C12704	H3	C14305	H8	FB13201	O1	R11502*	K3	R12705*	J5	R13319*	D5	R14324*	H6		
C12706	F6	C14306	H8	FB14106	F10	R11503*	K1	R12706*	I4	R13320	D5	R14326*	I6		
C12707	H5	C14309*	G8	FB14107	F10	R11504*	K3	R12707*	I4	R13321*	F5	R14327*	H6		
C12708*	H5	C14310	G8	FB14108	F10	R11505*	K1	R12708*	I4	R13322	F4	R14328*	G6		
C12709*	J4	C14320	I6	FB14109	I11	R11506*	K3	R12710	K4	R13501*	B4	R14401	G8		

\* Located on  
bottom of  
board.

PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.	Item No.	Type No.	Mfr. Part No.	NTE Part No.
CR11401	-	232710	-	Q14801	-	219025	NTE159
CR11402	-	220638	NTE5014A	Q14802	-	223656	-
CR11403	-	232710	-	# Q14901	-	147665	NTE159
CR11501, 02	-	232709	-	Q15101, 02, 03	-	215497	NTE2501
CR11503	-	215488	NTE136A	Q18100, 01	-	215495	-
CR11504	-	226463	-	Q18102	-	219412	-
CR11505	-	232709	-	Q18103, 04	-	215495	-
CR11601	-	232709	-	Q18105, 06	-	215496	-
# CR11602	-	159429	NTE5019T1	Q18107, 08	-	215495	-
CR11603	-	232709	-	Q18109	-	215496	-
CR12301	-	227051	-	Q18110, 11, 12	-	215495	-
CR12702	-	198589	NTE519	Q18113	-	215496	-
CR13501	-	164874	NTE177	U11501	MC3403N	241785	NTE987
CR14101	-	232221	-	U11601	CXA2074S	237930	-
CR14102	-	198589	NTE519	U11602	-	237474	-
CR14103, 04	-	139706	NTE177	U11900, 01	TDA7267	244225	-
CR14105	-	198589	NTE519	# U12101	LA7612A	252842	-
CR14106	-	243636	-		LA7612N	241266	-
CR14107	-	217306	-	U13102	24C08	251160	-
CR14108	-	243636	-		-	251271	-
CR14109	-	176296	NTE552	# U14101	-	223653	-
CR14110	-	155276	NTE116	U14102	-	231525	-
CR14111	-	198589	NTE519	U14103	L7852CV	241752	-
CR14113, 14	-	232709	-	U14104	KA7812	162394	NTE966
CR14115	-	215488	NTE136A	U14150	L78S75CV	231526	-
# CR14117	-	244224	-	U14275	UA741CN	237477	NTE941M
CR14201 Thru				U14501	-	215531	NTE1788
CR14204	-	147015	NTE125	U14801	-	223682	NTE928M
CR14205	-	198589	NTE519	U18100	-	248620	-
# CR14210	-	214649	NTE5331	U18101	-	214704	NTE956
CR14301	-	176296	NTE552				
# CR14401	-	140971	NTE558	Item No.	Function/Rating	Mfr. Part No.	Notes
CR14402	-	242907	-	C11612, 13	22pF 5% 50V NPO	194903	-
CR14501	-	155276	NTE116	C12303	120pF 5% 50V NPO	194902	-
CR14701	-	241304	-	C12714, 15, 16	470pF 5% 50V NPO	214732	-
CR14702	-	176296	NTE552	C12718	100pF 5% 50V NPO	193340	-
CR14704	-	207878	NTE519	C12803	15pF 5% 50V NPO	200538	-
CR14801	-	243636	-	C12805	120pF 5% 50V NPO	194902	-
# CR14901	-	157301	NTE177	C13102	120pF 5% 50V NPO	174414	-
# CR14902	-	159429	NTE5019T1		120pF 5% 50V NPO	194902	-
CR18101, 02, 03	-	232709	-	C13205	220pF 5% 50V NPO	205551	-
Q11501	-	215495	-	# C14102	.0168 1.6kV	237355	-
Q11603	-	177788	NTE31	# C14108	.0011 1.6kV	244208	-
Q11901	-	215495	-	# C14111	100µF 20% 63V	237425	-
Q12301	-	215496	-	# C14112	.01 10% 50V	240934	-
Q12701, 02, 03	-	215495	-	C14113, 15	680pF 10% 1kV	190538	-
Q12704	-	215496	-	C14159, 60	100pF 5% 50V NPO	193340	-
Q13101, 03, 04	-	215496	-	# C14201	.22 20% 250VAC	-	-
Q13105	-	215495	-		.22 20% 125VAC	231451	-
Q13301	-	215496	-	# C14203, 04	680pF 10% 1kV	190538	-
Q13302	-	215495	-	# C14205	680µF 20% 200V	190560	-
Q13501	-	215496	-	# C14207	.0034 20% 120V	223330	-
Q13503	-	215495	-	# C14208	470pF 10% 250VAC	250102	-
Q14101	-	244223	-	# C14209	.1 20% 125V	229322	-
# Q14102	-	147665	NTE159	# C14210, 11	680pF 20% 1kV	190538	-
Q14103	-	232218	-	# C14212, 13	.01 20% 250VAC	252973	-
Q14104	-	243955	-	C14278	270pF 5% 50V NPO	197597	-
Q14105, 06, 07	-	215495	-	C14303	470pF 5% 50V NPO	214732	-
# Q14108	-	215496	-	C14310	15pF 1% 250V NPO	223899	-
Q14115	-	177788	NTE31	C14322	39pF 5% 50V NPO	202905	-
Q14201	-	219412	-	C14401	470pF 5% 50V NPO	214732	-
Q14275	-	219025	NTE159	# C14402	.0168 1.6kV	237355	-
Q14276	-	229220	-		.0174 1.6kV	247717	-
Q14277	-	215495	-	# C14403	.5 5% 250V	200150	-
Q14301	-	146851	NTE287		.55 5% 250V	214753	-
Q14302	-	215495	-	# C14404	2.2µF 20% 200V	247673	-
# Q14401	-	237470	-				



PARTS LIST continued

Item No.	Function/Rating	Mfr. Part No.	Notes	Item No.	Function/Rating	Mfr. Part No.	Notes
# C14405	.0047 10% 250V	142765	-	L18100	15μH	197613	-
# C14406	470pF 5% 2kV	227068	-	L18101	18μH	195711	-
C14702	470pF 10% 500V NPO	227050	-	L18102	8.2μH	149170	-
C14704	680pF 20% 1kV	190538	-	L18103	12μH	210687	-
C14706	470pF 10% 500V NPO	227050	-	L18104	10μH	160518	-
C14710	.01 20% 1kV	137583	-	L18105	-	197615	-
# C14801	.047 5% 600V	203738	-	L18106	-	190017	-
	.033 5% 400V	214747	-	L18108	4.7μH	237451	-
C14805	6.8μF 20% 50V NP	238292	-	L18111	-	244254	-
# C14904	.22 +80% -20% 25V	217298	-	# PW14201	Line Cord	241251	AC, Polarized
C15101	.001 10% 3kV	120696	-	# R11401, 03	2200 5% 1/2W	246613	-
C17416, 17	43pF 5% 50V NPO	214029	-	# R11406	56 5% 1/2W	247610	-
C18102	180pF 5% 50V NPO	211039	-	# R11407, 09	2200 20% 1/4W	237429	-
C18103	100pF 5% 50V NPO	193340	-	# R11412, 14	56 5% 1/2W	247610	-
C18104	220pF NPO	205551	-	# R11511, 12	100 5% 1/4W Nonflammable	198667	-
C18107	180pF 5% 50V NPO	211039	-	R11616	61.9K 1% 1/10W	225705	-
C18112	10pF NPO	200537	-	# R11627	10 5% 1/4W Nonflammable	241259	-
C18113	470pF NPO	214732	-	# R11909	16 5% 3W	244213	-
C18114	20pF 5% 50V NPO	220150	-	R12201	680 2% 1/10W	195939	-
C18122	47pF 5% 50V NPO	210689	-	R12302, 03	120K 2% 1/10W	207834	-
C18124	100pF 5% 50V NPO	174412	-	R12310	1800 2% 1/10W	197903	-
C18127	18pF 5% 50V NPO	214028	-	R12311	620 2% 1/0W	205339	-
C18129	100pF 5% 50V NPO	193340	-	R12317	240 2% 1/10W	197624	-
C18134	56pF NPO	214741	-	R12318	1800 2% 1/10W	197903	-
C18137	150pF NPO	214032	-	R12713	910 2% 1/10W	197627	-
C18138	220pF NPO	205551	-		1300 2% 1/10W	205340	-
C18139	27pF 5% 50V NPO	197604	-	R12717, 21, 25	220 2% 1/4W	175324	-
C18142	91pF 5% 50V NPO	192057	-	R12801	15K 2% 1/10W	205354	-
C18143	27pF 5% 50V NPO	197604	-	R12802	120K 2% 1/10W	207834	-
C18162, 63	100pF 5% 50V NPO	193340	-	R12804	13K 2% 1/8W	178285	-
CF12201	Filter	195702	4.5MHz		13K 2% 1/10W	205353	-
CF12301 (2)	Trap	181125	4.5MHz	R12805	750K 2% 1/10W	202914	-
CF12351 (1)	Trap	181125	4.5MHz	R13111	27K 2% 1/10W	205245	-
# DY1 (3)	Yoke	-	Horiz .95mH, Vert 17.4mH	R13503	64.9K 1% 1/10W	247691	-
# F14201	Fuse	175425	5Amp, 125V, Fast Acting	R13504	100K 1% 1/10W	215221	-
FB13201	Ferrite Bead	226467	-	# R14101	47K 5% 3W	232213	-
FB14106, 07, 08	Ferrite Bead	237504	-	# R14102	6800 5% 1/2W	179248	-
FB14109, 10	Ferrite Bead	226467	-	# R14105	68 5% 1/4W	175039	-
FB14114	Ferrite Bead	237504	-	# R14106	2000 5% 1/4W	175321	-
FB14401	Ferrite Bead	161237	-	# R14107	43 5% 1/4W	244214	-
FB14501	Ferrite Bead	215547	-	# R14108	.1 5% 3W Wirewound	244215	-
FB14801	Ferrite Bead	232765	-	# R14109	750 5% 1/4W	179317	-
FB18101	Ferrite Bead	239201	-	R14112	680 2% 1/10W	195939	-
FB18102, 03	Ferrite Bead	240150	-	R14114	270k 2% 1/10W	205375	-
IR13401	Receiver	245541	Remote	R14115	143K .1% 1/4W	244216	-
J11401	Jack	239389	Assembly	R14116	2800 .1% 1/4W	244217	-
J11402	Jack	245283	Assembly	# R14117	160 5% 7W Wirewound	227958	-
J11403	Jack	195705	S Video	R14118	33K 5% 3W	243805	-
J13201	Jack	214609	IR Output	# R14124	3.3 5% 2W Nonflammable	223680	-
# K14201	Relay	190490	Degaussing	R14126	37.4K 1% 1/10W	215215	-
# KS15101	Socket	233120	CRT	R14128	100K 2% 1/8W	176816	-
L12301 (2)	18μH	243894	-	# R14151	8.2 5% 1W	235378	-
L12302	-	215502	-	# R14201	2.7M 10% 1/2W	217662	-
L12303	-	233056	-	# R14202	1.8 10% 15W Wirewound	200444	-
L12305	10μH	175409	-	# R14205	120K 20% 1/2W	238903	-
L12352 (1)	18μH	195711	-	# R14275, 76	33 5% 1/4W	175754	-
L12705	10μH	175409	-	# R14277	68 5% 1/4W	175039	-
L14101	100μH	160186	-	R14279	18K 2% 1/10W	205356	-
L14102	27μH	190017	-	# R14305	2000 5% 3W	251832	-
L14103	22μH	215504	-	R14326	910 2% 1/10W	197627	-
L14105	47μH	244222	-	# R14401	15K 5% 1W	190557	-
# L14200	Degaussing	225836	-	# R14402	47 5% 1/2W	241321	-
L14401	4μH	215505	-	# R14403	820 5% 1W	175349	-
# L14402 (1)	17.5μH	210895	-	# R14506	13 5% 1W	231508	-
# L14402 (2)	-	192844	-	# R14507	1.5 5% 2W	237441	-
L14801	390μH	237452	-	# R14508	1 10% 2W Wirewound	215577	-
L15101	100μH	160186	-	# R14701	10 20% 1/2W	241261	-

PARTS LIST continued

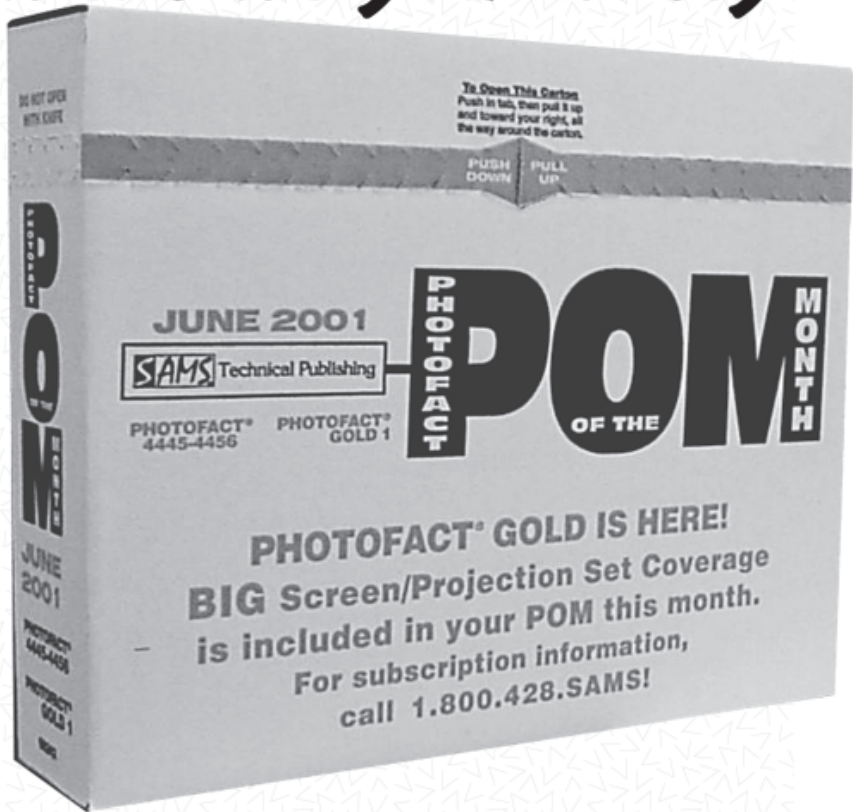
Item No.	Function/Rating	Mfr. Part No.	Notes
# R14703	.82 5% 3W Wirewound	243804	-
	1 5% 3W Wirewound	242608	-
# R14704	82K 10% 1/2W	239116	-
# R14705	27K 10% 1/2W	238958	-
R14706	976 1% 1/4W	244246	-
# R14802	100 5% 1/4W	198667	-
R14803	28K 1%	195731	-
R14806	34K 1% 1/4W	207881	-
# R14808	1000 5% 1/4W	237444	-
# R14810	1	233165	-
# R14901	100 5% 1/4W Nonflammable	198667	-
# R14902	36.5K 1% 1/4W	207882	-
# R14903	39.2K 1% 1/4W	190469	-
R14909	15K 2% 1/10W	205354	-
# R15101, 02, 03	10K 5% 2W Nonflammable	176656	-
# R15104, 05, 06	2200 10% 1/2W	247669	-
# R15110	18K 10% 1/2W	248974	-
# R15118	2200 10% 1/2W	247669	-
# R18125	30 5% 3W	247611	-
R18158	243 1% 1/10W	214132	-
R18159	392 1% 1/10W	214133	-
RN14501	Network	215499	-
# RT14201	8 Cold PTC	207768	-
SF12301	Filter	217318	SAW
SP1, 2	Speaker	243876	87mm, 8 Ohms
SW13410	Switch	245531	Channel Up
SW13412	Switch	245531	Power
SW13420	Switch	245531	Channel Down
SW13421	Switch	245531	Volume Up
SW13430	Switch	245531	Menu
SW13431	Switch	245531	Volume Down
# T14101	SMT	244228	-
# T14201	Line Filter	190507	-
# T14301	Horizontal Drive	215541	-
# T14401 (4)	Horizontal Output	244247	-
# TU17101 (1)	Tuner	249035	CTT5050T
# TU17101 (2)	Tuner	248782	CTF5800
# CRT (1)	CRT	HA90AEJ159	A90AEJ15X09
# CRT (2)	CRT	A90LPY3806	-
Y12801	Crystal	161235	3.58MHz
Y14101	Resonator	227064	507.5kHz
Y18100	Crystal	197652	14.318MHz
Z	Coil	237832	-
#	Adapter	239273	Jack Panel
#	Fuse Holder	176642	For F14201 (2 Used)
	PC Board	244469	CRT
	PC Board	247480	F2PIP
#	PC Board	237420	Front Panel
#	PC Board (1)	249017	Gemstar 4
#	PC Board (2)	253023	Gemstar 4
#	PC Board	244248	Pincushion
	Transmitter	240895	Remote
	PC Board (1)	251838	4.5MHz Trap

# For SAFETY use only equivalent replacement part.

- (1) Used in model F36668YX1.  
(2) Used in model F36668YX53.  
(3) Bonded part of CRT.  
(4) Screen and focus controls are part of T14401.

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MODEL F36668YX1 (CHASSIS CTC203CA)