General Information

Also Covers:
Panasonic TC-14S1R/B/BH
Chassis: Z5
CRT: A34EAC01X13 (B)
A34EFU13X91 (BH)
Remote Control:
TNQ8E0460 (TC-14SIR/B)
TNQ8E0461 (All others)
Main Power Button:
TBX8E018

Specifications

Power Source:	220V - 240V AC 50 Hz
Power Consumption:	39W
Aerial Impedance:	75 W unbalanced, coaxial type
Receiving System:	PAL - 1 (UHF) PAL - 60
Receiving Channels:	UHF E21 - E69
Intermediate Frequency:	Video: 39.5 MHz Sound: 33.5 MHz Colour: 35.07 MHz (PAL)
Video/Audio Terminals:	
AV1 In:	Video: (21 pin) 1 Vp-p 75 W Audio: (21 pin) 500mVrms 10k W RGB: (21 pin)
AV1 Out:	Video: (21 pin) 1Vp-p 75 W Audio: (21 pin) 500mVrms 1k W
RCA In:	Video: 1Vp-p 75 W Audio: 500mVrms 1k W
High Voltage: (zero beam current)	24.3KV+0.7/-1.0KV
Picture Tube:	A34EAC01X13 - (B models) A34EFU13X91 - (BH models) 36cm V 90° measured diagonally
Audio Output:	Internal Speaker: 5W Speaker: 8 W Impedance

Service Adjustments

Safety Precautions

Note:
* Replacement CRT's are not interchangeable.
* Replacement CRT must be the same part number as originally fitted.
* For part number please refer to replacement parts list.

This receiver uses a HOT chassis, after service please ensure that the chassis is returned to its correct position. Particular care being taken to position of the customer controls. Failure to do so could endanger customer safety.

General Guidelines

1: It is advisable to insert an isolation transformer in the AC supply before servicing a hot chassis.
2: When servicing, observe the original lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3: After servicing, see that all the protective devices such as, insulation barriers, shields and isolation R - C combinations are correctly installed.
4: When the receiver is not being used for a long period of time, unplug the power cord from the AC outlet.
5: Potentials as high as several kV are present when this receiver is in operation. Operation of the receiver without the rear cover involves the danger of a shock hazard from the receiver power supply. Servicing should not be attempted by anyone who is not familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the chassis before handling the tube.
6: After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

Leakage Current Cold Check

1: Unplug the AC cord and connect a jumper between the two prongs of the plug.
2: turn on the receiver's power switch.
3: Measure the resistance value with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as, screw heads, aerials, connectors, control shafts etc. When the exposed metallic part has a return path to the chassis the reading should be between 4M W and 20M W. When the exposed metal does not have a return path to the chassis the reading must be infinite.

Leakage Current Hot Check

1: Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2: Connect a 2k ohm 10W resistor in series with an exposed metallic part on the receiver and an earth such as a water pipe.
3: Use an AC voltmeter with high impedance to measure the potential across the resistor.
4: Check each exposed metallic part and check the voltage at each point.
5: Reverse the AC plug at the outlet and repeat each of the above measurements.
6: The potential at any point should not exceed 1.4Vrms. In case a measurement is outside the limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and rechecked before being returned to the customer.

HOT CHECK CIRCUIT

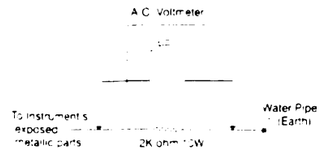


Fig 1.

X-Radiation Warning

1: The potential sources of X-Radiation in TV sets are the high voltage section and the picture tube.
2: when using a picture tube test jig for service ensure that the jig is capable of handling 26kV without causing X-Radiation.

Note:
It is important to use an accurate periodically calibrated high voltage meter.

1: Set the brightness to minimum.
2: Measure the high voltage. the meter should indicate: 24.3kV +0.7kV/-1.0kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
3: To prevent an X-Radiation possibility, it is essential to use the specified tube.

High Voltage

1: Receive a crosshatch pattern.
2: Set Contrast, Bright and Sub-bright controls to their minimum positions (zero beam current).

Adjustment Procedure

1: Connect a high voltage meter (Electrostatic type) to an anode of the picture tube.
2: Confirm that the high voltage is within a range of 24.3kV +0.7kV/-1.0kV.

Shut Down Circuit Test

This test must be made as a final check before the set is returned to the customer.

1: Receive the Phillips pattern.
2: Check that the shut-down circuit functions when -60V is applied to TPE7, but does not function when -40V is applied.

Adjustments

B Voltage

Preparation:
1: Operate the TV set.
2: Set controls:
Bright (R318): minimum
Sub Bright (R306): minimum
Contrast: minimum
Beam Current: zero

Adjustment Procedure:
1: Confirm the indicated test points for the specified voltage.

TPE 10:	135V ± 10V
TPE 11:	21V ± 2V
TPE 6:	26.7V ± 1.5V
TPE 4:	15.5V ± 1.0V
TPE 3:	8.0V ± 1.0V
TPE 14:	30V ± 2.5V
TPE 13:	103V ± 1.5V
TPE 1:	11V ± 1V
TPE 9:	23.3V ± 1.0V
TPE 5:	12.0V ± 1.0V
TPE 2:	5.0V ± 0.3V

AFC

Preparation:
1: Operate the TV set.
2: Connect a DVM to TPE58.

Adjustment Procedure:
1: Apply 39.5 MHz continuous wave to TPE 54 (IF pin of tuner) (0.5Vp-p/75W)
2: Adjust L104 so that voltage at TPE58 becomes 2.5±0.1V.
3: Change the frequency and confirm the voltage as shown below:
+ 100kHz: less than 1.0V
-100kHz: more than 4.0V.

RF AGC

Preparation:
1: Receive the Phillips pattern.
2: Set the input level to 65±2dB (75W open).
3: Connect an oscilloscope to TPE59 (RF AGC terminal).

Adjustment Procedure:
1: Turn RF AGC control R109 fully counter-clockwise.
2: Slowly turn RF AGC control clockwise to set it at the point just before voltage at TPE59 starts to fall.

Sub Contrast

Preparation:
1: Receive a Phillips pattern. (Input level 75dB).
2: Connect an oscilloscope to TPE15.
3: Set controls to:
Brightness: minimum
Contrast: maximum
Colour: minimum
PIX: minimum

Adjustment Procedure:
1: Adjust Sub brightness (R306) to set the black level to 0.2V.
2: Adjust the Sub contrast (R316) to set the drive voltage to 2.0V ± 0.1V-p. See Fig 2. on next page.

Sub Colour

Preparation:
1: Receive a PAL colour bar pattern.
2: Set controls to:
Brightness: minimum
Contrast: maximum

Recommended Safety Parts

Item	Part No.	Description
	2153.15H	Fuse
	ENV87877G3	Tuner
	TQB8E0839	Instruction Book
	TQB8E0882	Set-up Guide
13	TSX8E0012	Mains Lead
7	TKU8E00144	Rear Cover
8	TKY8E028	Cabinet
C355, C812, C824	ECKC3D152J	Ceramic 2KV 1.5nF
C357, C572	ECKC2H152J	Ceramic 500V 1.5nF
C452, C454, C561, C563, C566, C808, C851, C855	ECKC2H471J	Ceramic 500V 470pF
C553	ECWH12H822J	Ceramic 500V 8.2nF
C558	ECWF2H474J	Film 500V 470nF
C567	ECKC2H561J	Ceramic 500V 560pF
C802	ECQU2A473MN	Film 200V 47nF
C803, C804, C805, C806	ECKC2H472J	Ceramic 500V 4.7nF
C807	ECES2GG101	Elect 400V 100uF
C817	ECKCNS102J	1.2KV 1nF
C823	ECKC2H103J	Ceramic 50v 10nF

Recommended Safety Parts Cont'd.

Item	Part No.	Description
R254	ERQ14AJ100	Metal 0.25W 5% 10 Ω
R259	WRQ1CJP120	Metal 1W 5% 12 Ω
R302	ERQ14AJ470	Metal 0.25W 5% 47 Ω
R520	ERQ12HJ1R0	Metal 0.5W 5% 1R0 Ω
R521	ERQ2CJP8R2	Metal 2W 5% 8R2 Ω
R522	ERQ12HJ1R2	Metal 0.5W 5% 1R2 Ω
R568	ERQ12HJ8R2	Metal 0.5W 5% 8R2 Ω
R801	ERF5ZK2R7	Wound 5W 20% 2.7 Ω
R809	TSF19401	FS Link
R812	WEQ12HJ330	Metal 0.5W 5% 33 Ω
R815	ERD75TAJ825	Carbon 0.75W 5% 8M2 Ω
R828	ERW12PKR33	Wound 0.5W 10% 0R33 Ω
S801	ESB91232A	Switch
T552	TLF15638F	Flyback Transformer
TX-14S1T/B		
1	A34EAC01X13	CRT
10	TNP8EY008AC	Y P. C. B.
11	TNP8EE004AD	E P. C. B.
12	TNP8ET001AA	T P. C. B.
C512	ECKC2H222J	Ceramic 500V 2200pF
C556	ECKC3D821JB	Ceramic 2KV 820pF
R3508	ERQ14AJ100	Metal 0.25W 5% 10 Ω
R375	ERDS1FJ152	Carbon 0.5W 5% 1K5 Ω
R564	ERQ12HJU1RS	Metal 0.5W 5% 1R5 Ω

Recommended Safety Parts Cont'd.

Item	Part No.	Description
TX-14S1T/BH		
1	A34EAC01X13	CRT
10	TNP8EY008AC	Y P. C. B.
11	TNP8EE004AF	E P. C. B.
C512	ECKC2H222J	Ceramic 500V 2200pF
C556	ECKC3D821JB	Ceramic 2KV 820pF
R1215	ERO25CKF9531	Metal 0.25W 1% 9K53 Ω
R375	ERDS1FJ152	Carbon 0.5W 5% 1K5 Ω
R564	ERQ12HJU1R5	Metal 0.5W 5% 1R5 Ω
TC-14S1R/B		
1	A34EAC01X13	CRT
10	TNP8EY008AC	Y P. C. B.
11	TNP8EE004AF	E P. C. B.
C512	ECKC2H222J	Ceramic 500V 2200pF
C556	ECKC3D821JB	Ceramic 2KV 820pF
R1215	ERO25CKF9531	Metal 0.25W 1% 9K53 Ω
R375	ERDS1FJ152	Carbon 0.5W 5% 1K5 Ω
R564	ERQ12HJU1R5	Metal 0.5W 5% 1R5 Ω
TC-14S1R/BH		
1	A34EFU13X91	CRT
10	TNP8EY008AJ	Y P. C. B.
11	TNP8EE004BR	E P. C. B.
12	TNP8ET001AA	T P. C. B.
C512	ECKC2H103J	Ceramic 50V 10nF

Service Adjustments Cont'd.

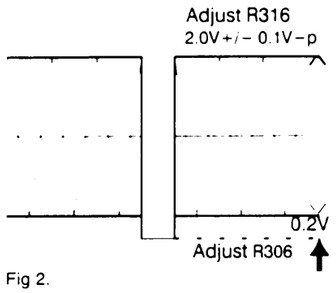


Fig 2.

Colour: centre
PIX: minimum

3: Connect an oscilloscope to TPE15.

Adjustment Procedure:

1: Adjust the Sub colour (R607) for 1.2Vp-p±0.1V at TPE15 as shown in fig. 3.

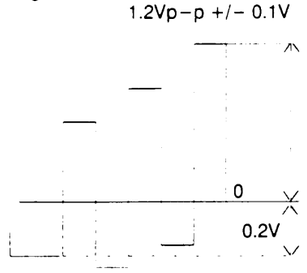


Fig 3.

Text Contrast (TX -21S1T only)

Preparation:

1: Receive a teletext signal.
2: Connect an oscilloscope T2 pin 5.

Adjustment Procedure:

1: Adjust R3515 to obtain the waveform as shown in fig. 4.

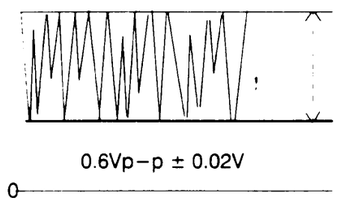
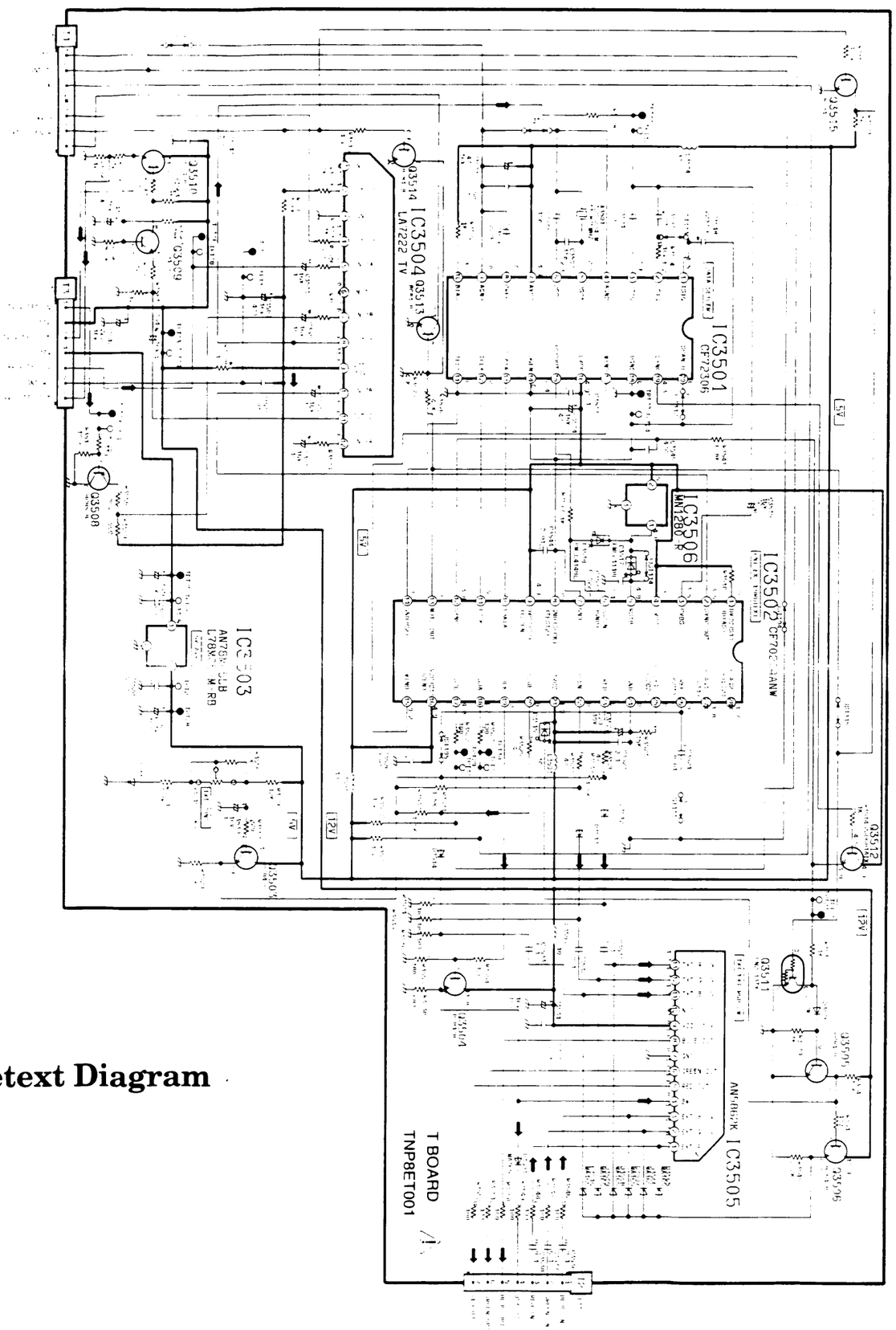


Fig 4.

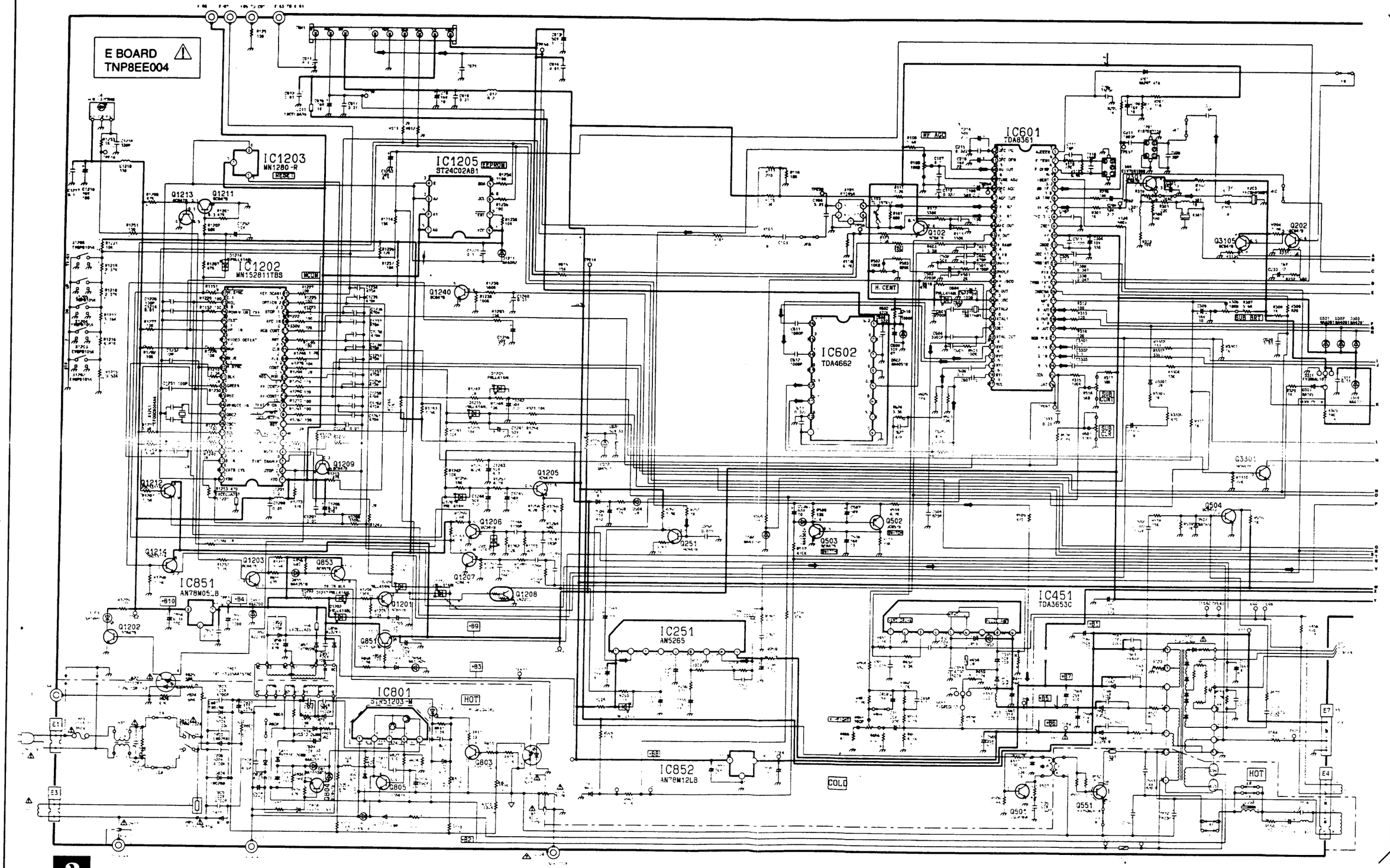
Recommended Safety Parts Cont'd.

Item	Part No.	Description
TC-14S1R/BH Cont'd.		
C555	ECQE6104K	Film 600V 100nF
C556	ECKC3D331J	Ceramic 2KV 330pF
D813	TLP621GR-LF2	Photo Coupler
R1215	ERO25CKF9531	Metal 0.25W 1% 9K53 Ω
R365	ERDS1FJ152	Carbon 0.5W 5% 1K5 Ω
R554	ERQ14AJ151	Metal 0.25W 5% 150 Ω
R564	ERQ12HJ1R5	Fusible 0.5W 5% 1R5 Ω
R564	ERQ12HKR39	Metal 0.5W 5% 0R39 Ω
TX-14S1T/B & TC-14S1R/B (CRT Option)		
1	A34EAC01X13	CRT
10	TNP8EY008AC	Y P. C. B.
11	TNP8EE004AD	E P. C. B. TX14SIT only
11	TNP8EE004AF	E P. C. B. TC14S1R only
C556	ECKC3D821J	Ceramic 2KV 820pF
R564	ERQ12HJR39P	Metal 0.5W 5% R39 Ω
TX-14S1T/BH & TC-14S1R/BH (CRT Option)		
1	A34EFU13X91	CRT
10	TNP8EY008AJ	Y P. C. B.
11	TNP8EE004BR	E P. C. B. TX14SIT only
11	TNP8EE004BD	E P. C. B. TC14S1R only
C556	ECKW3D821J	Ceramic 2KV 820pF
R564	ERQ12HJR39P	Metal 0.5W 5% R39 Ω

Teletext Diagram



Main Diagram



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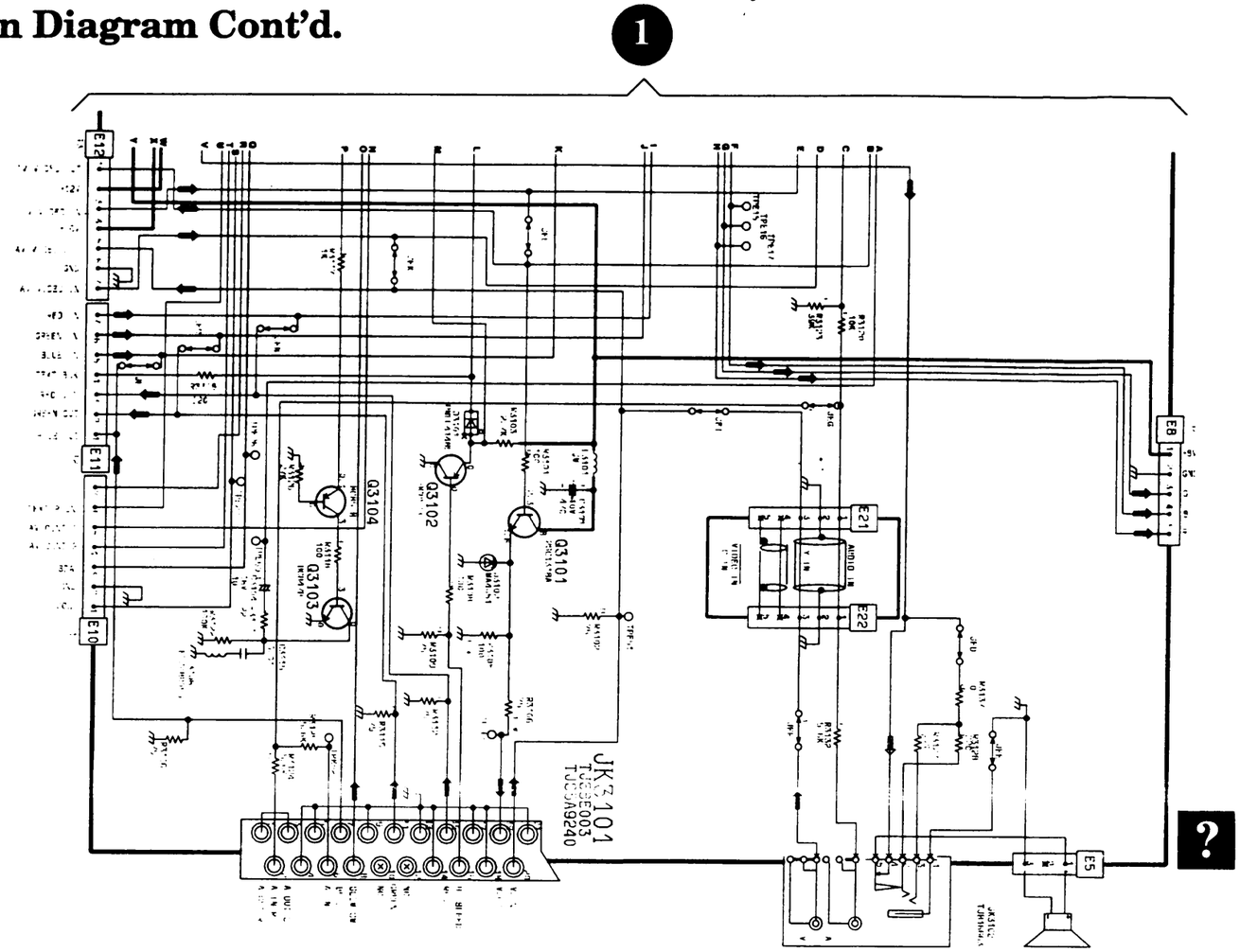
Main Diagram Cont'd.



Differences Table

DIFFERENCE LIST FOR E-BOARD TNP8EE004				
Cct. Ref. No.	TX-14S1T/BH TNP8EE004AD	TX-14S1T/BH TNP8EE004BR	TC-14S1R/B TNP8EE004AF	TC-14S1R/BH TNP8EE004BD
C554	TYA206XX027	NIL	TYA206XX027	NIL
C555	NIL	ECQE6104KFW	NIL	ECQE6104KFW
C556	ECKW3D331JBN	ECKW3D821JBN	ECKW3D331JBN	ECKW3D821JBN
D551	NIL	ERD07-15L7	NIL	ERD07-15L7
D552	NIL	RU2AMLFA1	NIL	RU2AMLFA1
R564	ERQ12HJ1R5P	ERQ12HJR39P	ERQ12HJ1R5P	ERQ12HJR39P
R616	ERJ6GEY473V	ERJ6GEYJ822V	ERJ6GEY473V	ERJ6GEYJ822V
R1215	NIL	NIL	ERDS2TKF9531	ERDS2TKF9531
L551	TYA205XX016	TYA205XX016	TYA205XX016	TYA205XX016
E10	CONNECTOR	CONNECTOR	NIL	NIL
E11	CONNECTOR	CONNECTOR	NIL	NIL
E12	CONNECTOR	CONNECTOR	NIL	NIL
JEK	NIL	NIL	WIRE LINK	WIRE LINK
JEL	NIL	NIL	WIRE LINK	WIRE LINK
JEN	NIL	NIL	WIRE LINK	WIRE LINK
JEO	NIL	NIL	WIRE LINK	WIRE LINK
JEP	NIL	NIL	WIRE LINK	WIRE LINK

CRT Diagram