

Service Manual



Colour Television

TC-21L10R**TC-2125RT****TC-21F1****MX-3 Chassis**

Specifications

Power Source : AC 110 – 240V, 50/60 Hz**Power Consumption :** 82 W**Aerial Impedance :** 75 Ω unbalanced ,
Coaxial type**Receiving System :** 17 System**Receiving Channels :**

VHF 1 – 11 PAL B (Australia & N.Zealand)
1 – 12 PAL/SECAM D
1 – 12 NTSC M JAPAN
2 – 12 PAL/SECAM B,G
2 – 13 NTSC M U.S.A.

UHF 21 – 69 PAL G I/SECAM B, G, K1
28 – 69 PAL G (Australia)
13 – 56 PAL D
13 – 52 NTSC M JAPAN
14 – 69 NTSC M U.S.A.

CATV S1 – S41 (Hyper)

Intermediate Frequency :

Video 38.0 MHz
Sound 31.5 MHz (D, K, K1)
32.0 MHz (I)
32.5 MHz (B, G)
33.5 MHz (M)
Colour 33.57 MHz (PAL)
33.6 MHz (SECAM)
33.75 MHz (SECAM)
34.42 MHz (NTSC)

Video / Audio Terminals :

RAV In :	Video In	1 Vp-p 75 Ω
	Audio In	Approx. 400mVrms
Monitor Out :	Video Out	1 Vp-p 75 Ω
	Audio Out	Approx. 400mVrms

High Voltage : 28.5 kV (+1.2, -1.5)
at zero beam current**Picture Tube :** A51JXS95X
54 cm (21 inches)
Measured diagonally,
90° deflection**Audio Output :** 3.0 W**Speaker :** 9.65 x 5cm, 8 Ω .**Dimensions :** Height : 477.0 mm
Width : 518.0 mm
Depth : 478.0 mm**Mass :** 21.0 kg (Net Wt.)**Remote Controller :** 22 Functions infrared controller

Specifications are subject to change without notice.
Mass and dimensions shown are approximate.

Panasonic

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⚠ WARNING

This service literature is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warning cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service literature by anyone else could result in serious injury or death.

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Safety Precautions**General Guide Lines**

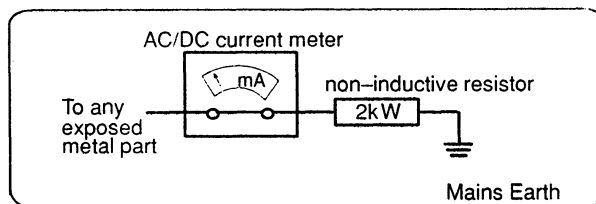
1. It is advisable to insert an isolation transformer in the AC supply before servicing this hot chassis.
2. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations, are properly installed.
4. When the receiver is not to be used for a long period of time, unplug the power cord from the AC outlet.
5. Potential, as high as 29.7 kV, is 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 thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the receiver chassis before handling the tube.
6. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

two prongs on the plug.

2. Turn on the receiver's power switch.
3. Measure the resistance value, with an ohmmeter, between the jumper 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 4 M Ω and 20 M Ω . When the exposed metal does not have a return path to the chassis, the reading must be infinite.

Leakage Current Hot Check (See Fig.1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 2 k Ω , non-inductive resistor and an AC/DC current meter, in series with each exposed metallic part on the receiver in turn and an earth such as a water pipe.
3. The current from any point should not exceed 0.7 mA peak AC or 2mA DC. In the case of a measurement being outside of these limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

**Fig. 1 Hot – Check Circuit****Leakage Current Cold Check**

1. Unplug the AC cord and connect a jumper between the

X-Radiation

Warning :

The potential sources of X-Radiation in TV sets are the EHT section and the picture tube.

When using a picture tube test jig for service, ensure that jig is capable of handling 29.7 kV without causing X-Radiation.

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

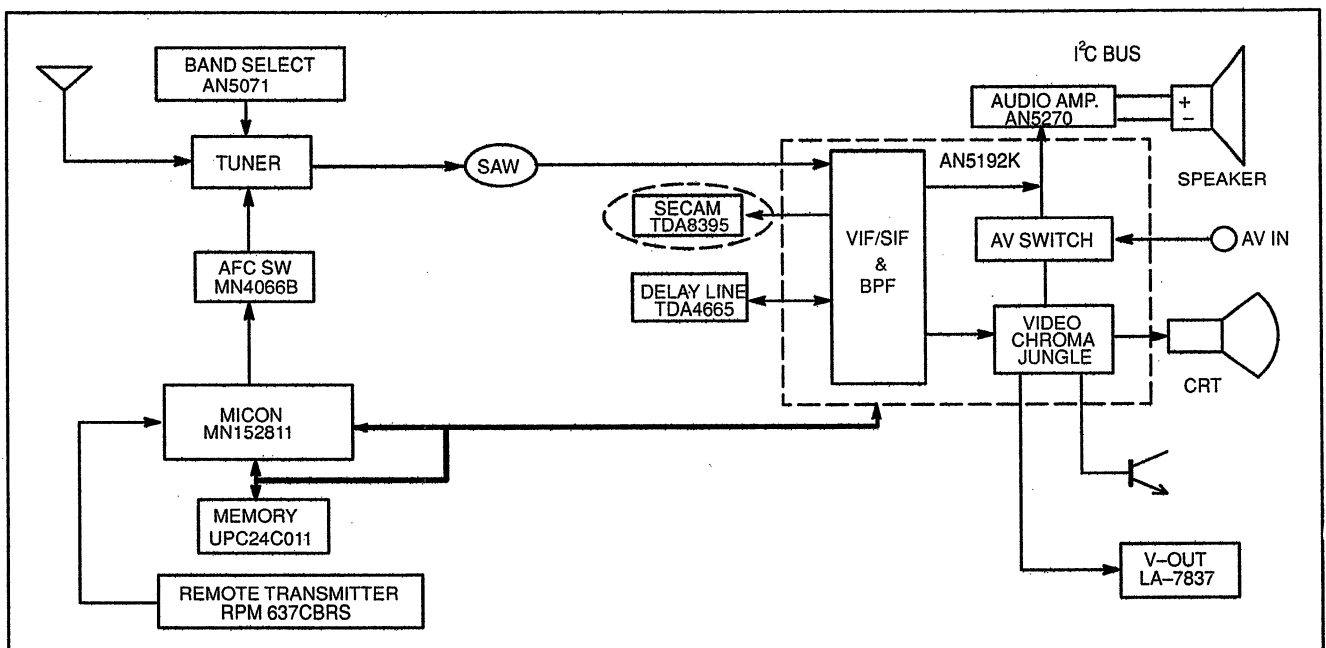
1. Set the brightness to minimum.
2. Set the service switch to the SERVICE position.
3. Measure the EHT. The meter reading should indicate 28.5 (+1.2, -1.5) kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
4. To prevent the possibility X-Radiation, it is essential to use the specified picture tube, if service replacement becomes necessary.

Shut Down Circuit Test

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

1. Operates the TV set.
2. Set Controls :
Screen (on FBT) minimum
Contrast minimum
Colour minimum
3. Connect a DC voltmeter to cathode of D543, and confirm that the voltage reading is 24.6 V, or less.
4. Supply 25.72 V DC to cathode of D543 and confirm that the shut down circuit does not operate.
5. Supply 27.94 V DC to cathode of D543, and confirm that the shut down circuit operates.
6. Switch the set off and disconnect the DC supply. Switch the set on and Normalize the contrast and colour.

MX-3 Chassis Block Diagram



The I²C Bus Concept :

A. Features

1. The I²C bus is a 2 – wire serial bus consisting of a clock line (SCL) and a data line (SDA).
2. It allows bi – directional data transfer, between IC's.
3. It consists of a master and one or more slave IC's.
 - The master initiates transfer and generates clock signals.
 - The slave is the IC addressed by a master.

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B. Basic Format of the I²C Data transmission from the microcomputer (IC1101) to the IC601.

1. Transfer Timing

During transmission from the microcomputer to IC601, 12 bytes of each of the following types of information is transferred one at a time:

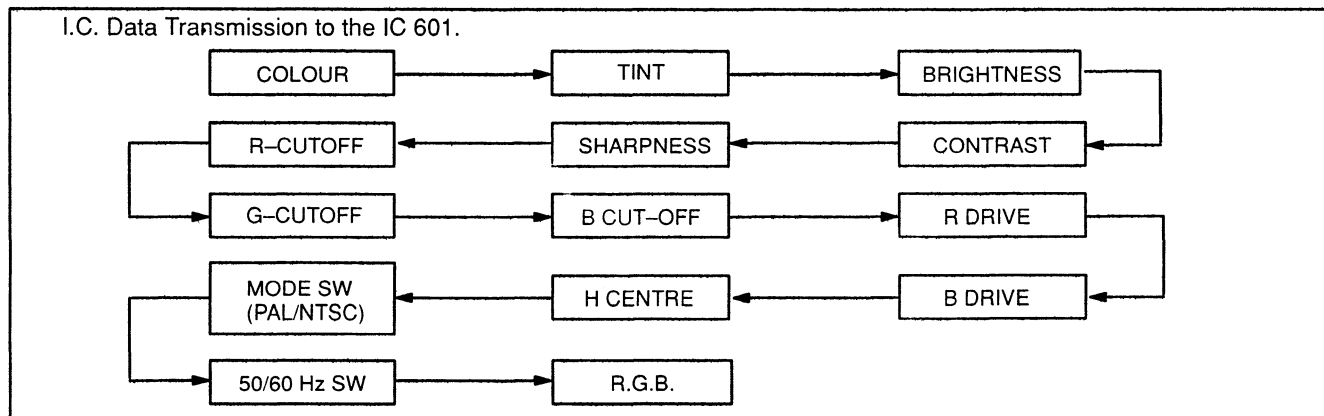


Fig. 4

2. Format

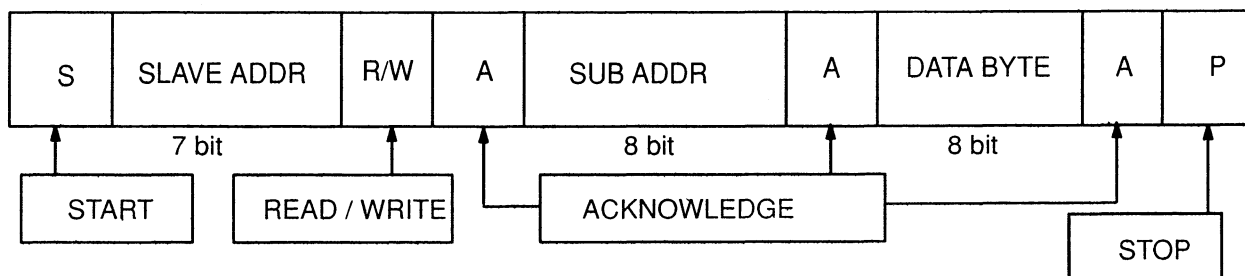


Fig. 5

C. I²C Application in the MX-3 Chassis.

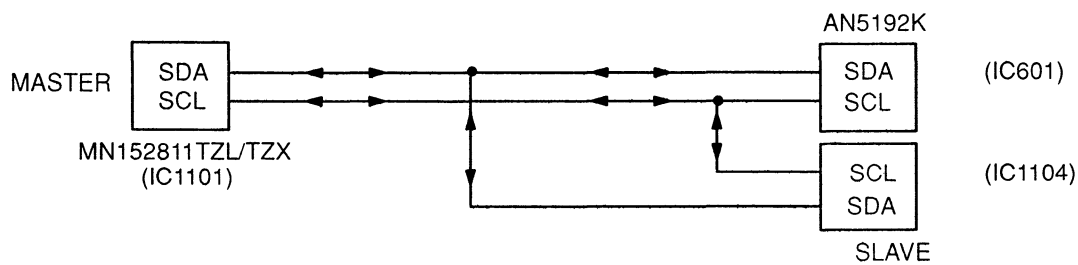


Fig. 6

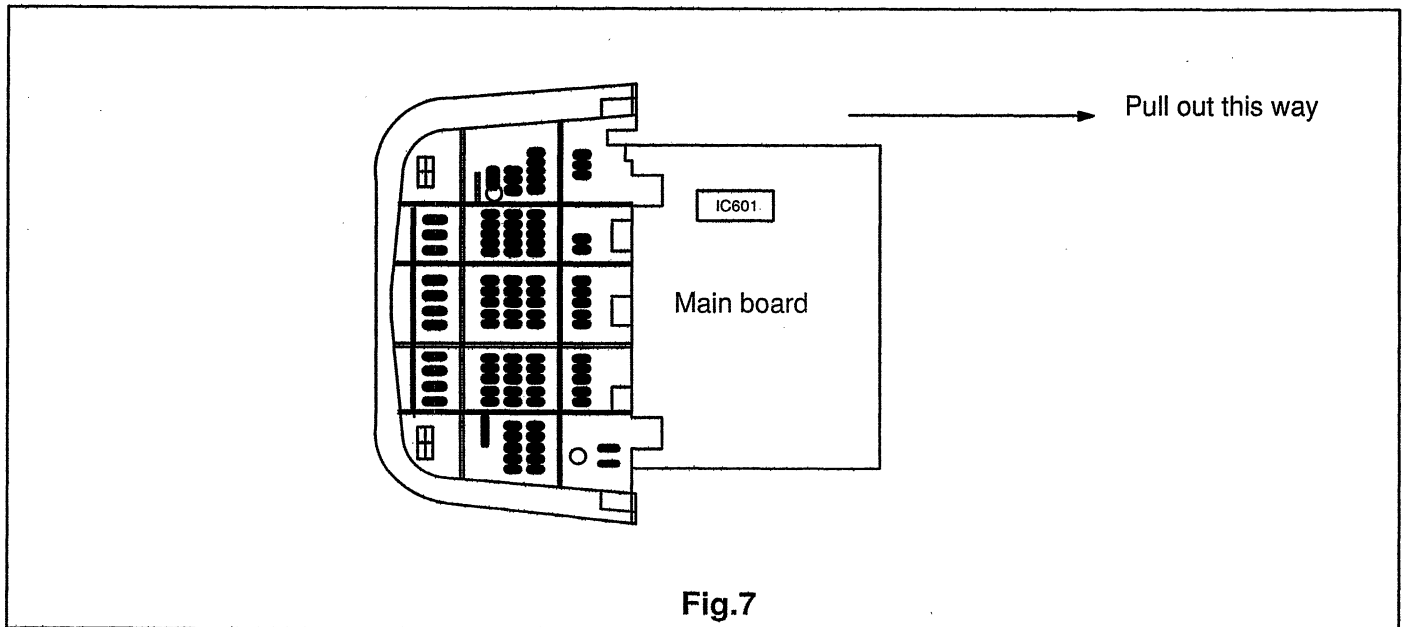
During transfer the microcomputer IC1101 in the TV set is always the master device. IC601 and IC1104 are slave addressed by IC1101.

1. Various control functions are possible via the I²C bus from the microcomputer IC1101 to VCJ IC601, as shown in Fig. 4.
2. Data like position, BT voltage, band, AFC, skip, volume, recall, power and off timer setting, service mode setting, colour setting, function etc, are stored and read out from the EEPROM IC1104 via the I²C bus.

Service Hints.

1. Service Position for E-Board.

1. Remove the back cover.
2. Stand the TV set as shown in fig. 7.
3. Remove the E-Board from the TV set by pulling the main board out as shown in figure 7.

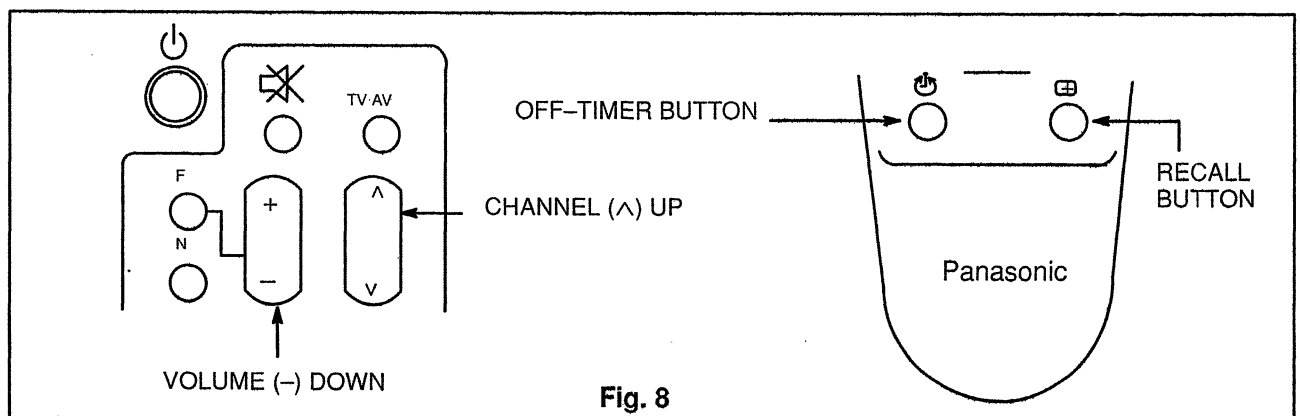


Purpose Of Hotel Mode.

To limit the level of main functions of TV like Volume, Brightness, Tone, Sharpness, Colour and Contrast for hotel use, in order for hotel guest not to manoeuvre TV programme.

How To Set : To set the hotel mode, press CHANNEL (^) UP on the TV and OFF-TIMER on the remote control simultaneously as shown in figure. 8.

How To Cancel : To cancel the hotel mode, press VOLUME (-) DOWN on the TV and OFF-TIMER on the remote control simultaneously as shown in figure. 8.



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2. How to set the Factory Mode for adjustment.

Follow the Steps shown in the block diagram below to set the Factory Mode for sub-colour; sub-bright; sub-contrast; RGB low-light and RGB high-light adjustments and return to Normal mode after adjustment. When the IC601(VCJ) or IC1104 are replaced, these adjustment must be done as below.

The Sub Adjustment mode.

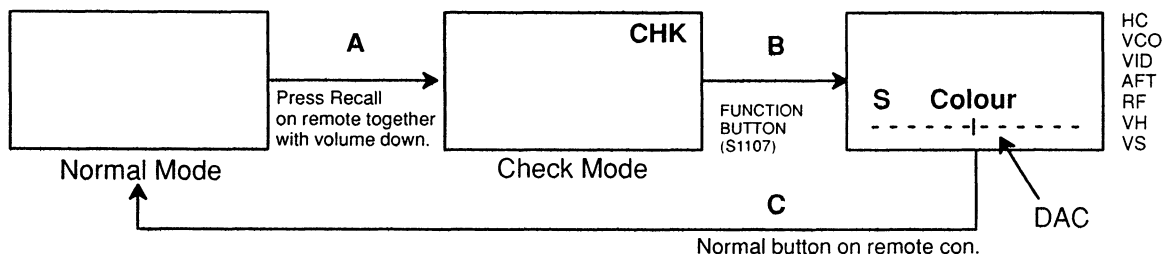


Fig. 9

- A: Press the Recall button together with volume down (S1110).
The TV in the Normal mode changes to check mode. "CHK" will appear on the screen as shown in Fig. 9.
- B: Press the Function button (S1107) to select the required adjustment to be adjusted as shown in Fig. 9.
Press the Volume "up" or "down" button (S1111 & S1110) to change the DAC level.
- C: Press the Normal button on the remote control transmitter twice to return to Normal mode.

The CRT Adjustment mode.

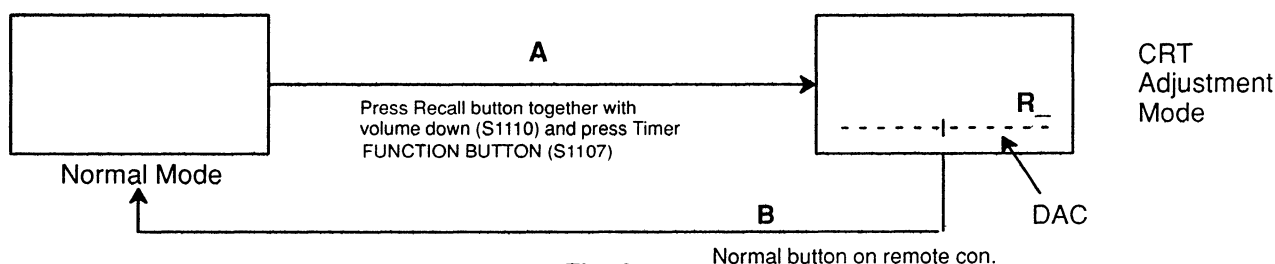


Fig. 9a.

- A: Press the Recall button on the remote control together with volume down (S1110) on the TV. Then press "Timer" on the remote control. The TV in the Normal mode changes to the CRT Adjustment mode.
Press the Function button (S1107) to select the required adjustment to be adjusted as shown in Fig. 9a.
(Please refer to procedure on page 11).
Press the Volume "up" or "down" button (S1111 & S1110) to change the DAC level.
- B: Press the Normal button on the remote control transmitter twice to return to Normal mode.

The White Balance Adjustment mode.

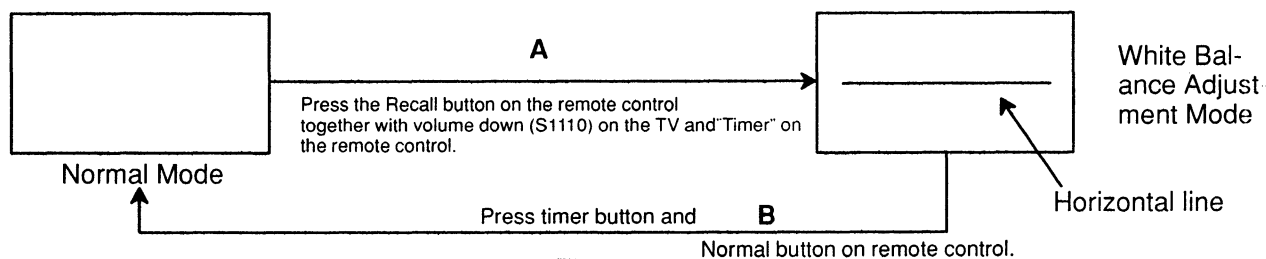


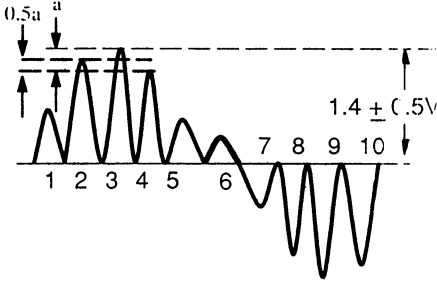
Fig. 9b

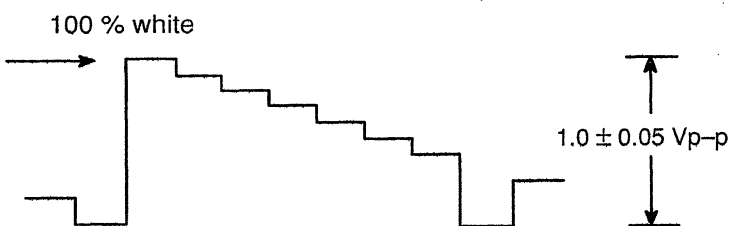
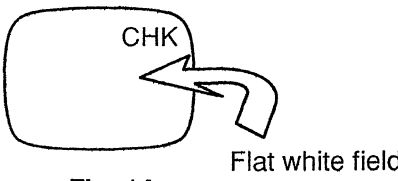
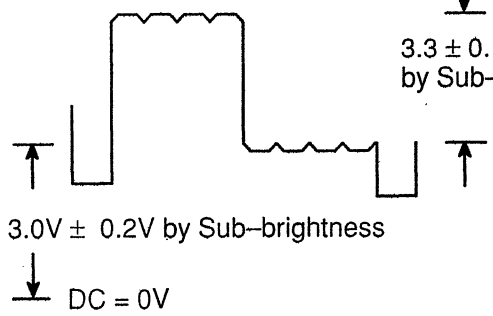
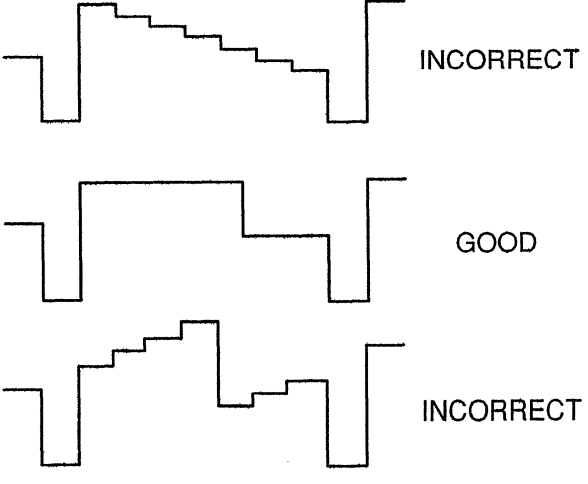
- A: Press the Recall button on the remote control together with volume down (S1110) on the TV.
Then press the Timer button on the remote control transmitter to enter White Balance Adjustment mode.
(Please refer to procedure on page 11).
Press the Volume "up" or "down" button (S1111 & S1110) to change the DAC level.
- B: Press the Normal button on the remote control transmitter twice to return to Normal mode.

Adjustment Procedure

Item / Preparation	Adjustment Procedure
<u>B Voltage</u> 1. Operate the TV set. 2. Set control as follow: Brightness minimum Contrast minimum	Confirm the DC voltages at the indicated test points, as follow: TP1 : 90.0 $\pm$ 2.0 V TPE10 : 5.0 $\pm$ 0.5 V TPE8 : 12.0 $\pm$ 1.0 V D816 Cathode : 22.0 $\pm$ 2.0 V TPE9 : 9.0 $\pm$ 1.0 V D831 Cathode : 42.0 $\pm$ 2.5V E33-1 : 190.0 $\pm$ 15 V
<u>RF AGC</u> <u>A. Workshop</u> 1. Receive a colour bar signal at an RF level of 61 $\pm$ 2dB μ V with 75 Ω loaded. 2. Connect an oscilloscope to TPE 23, set to DC mode. <u>B. Field</u> 1. Receive the television broadcast channel known to have the weakest RF signal strength.	1. Select "RF" indication on screen by using remote control at factory mode. 2. Set RF AGC by using remote control volume (+) or volume (-) but ton until voltage at TPE 23 starts decreasing or until less than 0.2V from max. 3. Increase RF signal strength by 2dB, confirm that TPE 23 voltage drops more than 1V.
<u>High Voltage</u> 1. Operate the TV set. 2. Set control as follow: Brightness minimum Contrast minimum	1. Connect a DC voltage meter to Pin 1 of IC801 and confirm the voltage is 90.0 $\pm$ 2.0 V. 2. Connect a high voltage meter to anode of the picture tube. 3. Confirm that the high voltage is within the range of 28.5 (+ 1.2, -1.5) kV. 4. Normalize the brightness and contrast.

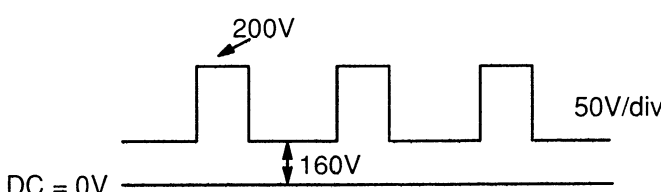
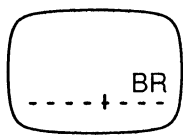
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Item / Preparation	Adjustment Procedure	Waveform
<u>M-NTSC Sub-Tint Adjustment</u> Apply NTSC rainbow pattern. Connect an oscilloscope to TPE28. Connect a short jumper between TPE3 and TPE10. Press S1107 (FUNC.) and set System to NTSC 4.43 . ColourNORMAL or CENTRE Bright NORMAL or CENTRE Contrast.NORMAL or MAX. Tint NORMAL or CENTRE Press RECALL button on remote control, then press S1110 (VOL. DOWN) to Sub-Tint. Confirm CHK display on screen.	Confirm the amplitude of waveform: $1.4 \pm 0.5V$ 1. Adjust Sub-Tint so that waveform level at No. 2, 3 and 4 is similar to Fig.10. 2. Confirm TPE 28 (R-out) is $1.4 \pm 0.5V$. Return to user mode. 3. Confirm phase at Tint is changed more than ± 30 by Tint control. 4. Confirm that colour level is maximum when colour DAC is adjusted to maximum position. Note: Use Remote control only when adjusting User Control.	 Fig.10

Item / Preparation	Waveforms
Video-input, Sub-Contrast, Sub-Brightness and Sub-colour Input a colour bar signal with white at 100% of peak level. Connection can be made via A/V and this may enable adjustment of the pattern generator video output level to obtain the correct black to white amplitude (at TPE 11). Confirm that the Sync tip to white amplitude is 1.0 ± 0.05 Vp-p at Pin 38 (under IC601) as shown in Fig. 13. Receive a colour bar pattern. Connect an oscilloscope to pin 3 of E-32 on the E-board and chassis earth. Set Colour, Brightness and Contrast to Normal (Colour and Brightness at centre, Contrast at max.) Connect a short jumper between TPE3 and TPE10 (chassis). Note that this step disable the ABL, so avoid operation in this condition for long periods at high beam current. Press the RECALL button on remote control together with volume down button. The screen should then show a flat whitish field, with the OSD message " CHK " possibly visible at the top as shown in Fig. 14. Press the Function button (S1107) to select the required function to be adjusted (in this case " Contrast "). Now press either the Volume " up or down " buttons (S1110 or S1111). " S " and " Contrast " will be displayed on the screen, indicating " Sub " Contrast, and the Sub-Contrast level will be changed. Note that the Volume " up or down " buttons must be pressed while the Function (i.e. Contrast) OSD is still on screen. Press the Function button (S1107) to select Brightness and then the Volume " up or down " buttons (S1110 or S1111) will similarly permit Sub-Brightness to be altered and adjusted. Adjust the Sub-Brightness (first) and Sub-Contrast (second) to produce the waveform shown in Fig. 15. Using the Function button (S1107) and Volume " up and down " buttons (S1110 and S1111). Select Sub-colour and adjust to produce the waveform shown in Fig. 16. Cancel the " CHK " mode by pressing the NORMAL button on remote control transmitter and remove the TPE3 to TPE10 jumper.	 Fig. 13  Fig. 14  Fig. 15  Fig. 16

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ADJUSTMENTS PROCEDURE FOR WHITE BALANCE

Item / Preparation	Adjustment Procedure																					
CRT CUT-OFF 1. Input a flat white Field signal, and set Contrast to maximum. 2. Connect an oscilloscope to TPY 1 (Green CRT drive) and TPY 2 (Ground). TPY 1 and TPY 2 are located on the Y-PCB (CRT neck panel). 3. Push the Volume Down (S1110) together with RECALL button to enter factory mode & press "TIMER" button on the remote control to select CRT ADJUSTMENT Mode (shown in Fig. 9a on page 7). " CHK " will appear on the screen. 4. Press the Function button (S1107) FOUR times to select "BR" (meaning " brightness "). Note that repeated pushing of the Function button cycles through the CRT adjustment as shown in Fig. 16. 5. WHILE " BR " IS STILL ON SCREEN, set the screen control to minimum by turning it anti-clockwise, and use the Volume " up " or " down " button – (S1110) and S1111) to set the DC=0V to video level at 140V, as shown in Fig. 17. 6. Advance the screen control sufficiently to see the OSD. WHILE " BR " IS STILL ON SCREEN, (push the Function button to bring it up again if necessary), push the "TIMER" button on the remote control. This will collapse the vertical scan. 7. Slowly adjust the screen control such that one of the R, G or B beams just appears, across the centre of the screen, (Fig. 19). THIS IS THE SETTING POINT FOR THE SCREEN CONTROL. Note which colour appeared, and DO NOT ADJUST THE LOW-LIGHT SETTING FOR THIS PARTICULAR COLOUR IN THE FOLLOWING PROCEDURE.	<table border="1"><thead><tr><th>PRESS S1107</th><th>OSD</th><th>MEANING</th></tr></thead><tbody><tr><td>①</td><td>R₋</td><td>RED LOWLIGHT</td></tr><tr><td>②</td><td>G₋</td><td>GREEN LOWLIGHT</td></tr><tr><td>③</td><td>B₋</td><td>BLUE LOWLIGHT</td></tr><tr><td>④</td><td>BR</td><td>SUB BRIGHTNESS</td></tr><tr><td>⑤</td><td>R₊</td><td>RED HIGHLIGHT</td></tr><tr><td>⑥</td><td>B₊</td><td>BLUE HIGHLIGHT</td></tr></tbody></table> Fig. 16 <u>Operation of the Function Button (S1107) in CRT Adjustment Mode</u>  Fig. 17 <u>Sub – bright adjustment</u>  PUSH "TIMER" BUTTON (S1101) WHILE " BR " IS STILL ON SCREEN TO COLLAPSE THE FRAME SCAN. Fig. 18  Fig. 19	PRESS S1107	OSD	MEANING	①	R ₋	RED LOWLIGHT	②	G ₋	GREEN LOWLIGHT	③	B ₋	BLUE LOWLIGHT	④	BR	SUB BRIGHTNESS	⑤	R ₊	RED HIGHLIGHT	⑥	B ₊	BLUE HIGHLIGHT
PRESS S1107	OSD	MEANING																				
①	R ₋	RED LOWLIGHT																				
②	G ₋	GREEN LOWLIGHT																				
③	B ₋	BLUE LOWLIGHT																				
④	BR	SUB BRIGHTNESS																				
⑤	R ₊	RED HIGHLIGHT																				
⑥	B ₊	BLUE HIGHLIGHT																				

Item / Preparation	Adjustment Procedure
R, G, B LOW LIGHT ADJUSTMENT - Complete steps 1 to 7 of the CRT cut-off procedure, and do not adjust the screen control from here on. - Press the "TIMER" button (S1101) to return to full field scan, and use the Function Switch (S1107) to select the lowlight setting for one of the two colour (R, G or B) that did not appear at step 7. Fig. 16 shows the selection sequence of the Function Switch (S1107). - With the R₋, B₋, or G₋ OSD still on screen, press the "TIMER" button again to collapse the vertical scan. - Use the Volume " up " and " down " buttons (S1110 and S1111) to match the levels of the two colours now on screen. - Repeat Steps 9 to 11 for the remaining colour, to achieve a white line on screen. - Press the "TIMER" button (S1101) to return to full frame scan. R, B HIGH LIGHT ADJUSTMENT - Press the Normal Button on the remote control transmitter twice to return to Normal Mode, after completing the preceding CRT cut-off and lowlight adjustments. - Set Contrast to Normal (max.), and continue using the flat white field input as per Step 1. - Press the RECALL button together with Volume down button. Then press the "TIMER" button. (S1101) TWICE. - Use the Function Button (S1107) to select R (red highlight) and B (blue highlight) as necessary (refer to Fig. 16 for the Function Button sequence). - With R₋ or B₋ STILL ON SCREEN, press the Volume " up " and " down " buttons (S1110 and S1111) as necessary to achieve a uniform white field. - Press the Normal Button on the remote control transmitter twice to return to Normal Mode. - Input a greyscale pattern, and confirm correct lowlight and high-light white balance.	EXAMPLE: If a green line appeared at Step 7. <pre> graph TD Start(()) --> T1[TIMER button S1110] T1 --> FS1[FULL SCAN] FS1 --> F1[Function S1107 to select R-] FS1 --> F2[Function S1107 to select B-] F1 --> R_Box[Diagram: R- with dashed line] F2 --> B_Box[Diagram: B- with dashed line] R_Box --> T2[TIMER button S1101] B_Box --> T2 T2 --> CS[COLLAPSE SCAN] CS --> V[Volume up/down] V --> AL[ADJUST LOWLIGHT] AL --> W_Box[Diagram: White line on screen] W_Box --> T3[TIMER button S1101] T3 --> FS2[FULL SCAN] FS2 --> R2[Repeat for remaining colour] R2 --> D1[Downward arrow] D1 --> R3[Repeat procedure if necessary] R3 --> D2[Downward arrow] D2 --> T4[TIMER button S1101] T4 --> FS3[FULL SCAN] FS3 --> NBTN[Normal button on remote control transmitter] NBTN --> NM[NORMAL MODE] </pre>

Before Colour Purity, Convergence and White Balance adjustments are attempted, V. Height, H. Centre and Focus adjustments must be completed.

Colour Purity

1. Set the Brightness and Contrast controls to their maximum positions.
2. Operate the TV set for 30 minutes.
3. Fully degauss the picture tube by using an external degaussing coil.
4. Apply a crosshatch pattern signal and adjust the static convergence magnets to the approximately correct position.
5. Receive a black and white signal.
6. Set the controls as following :
 Red minimum
 Green maximum
 Blue minimum
 Press the SHIPPING button on the remote control twice to select CRT Adjustment Mode and then the Function button (S1107) as per Fig. 16 to select low lights.
7. Loosen the clamp screw for the deflection yoke A in Fig. 24 and move the deflection yoke as close to the purity magnet as possible.
8. Adjust the purity magnetic rings so that a vertical green field is obtained at the centre of the screen.

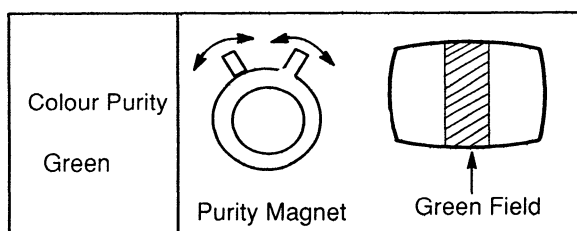


Fig. 20

9. Slowly push the deflection yoke and set it where a uniform green field is obtained.

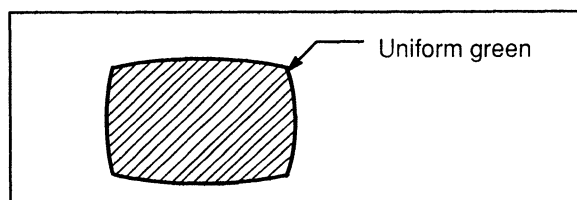


Fig. 21

10. Re-adjust the Low Light controls to their correct settings and make sure that a uniform white field is obtained.
11. Tighten the clamp screw A in Fig. 24.

Convergence

1. Apply a crosshatch pattern signal and Normalize Contrast control to the maximum position.
2. Adjust Brightness until the grey portion of the crosshatch pattern just becomes black.
3. Adjust the Red and Blue line at the centre of the screen by rotating the R-B static convergence magnetic rings.

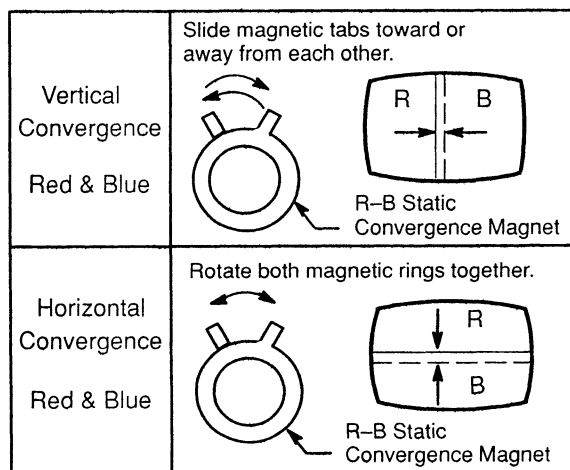


Fig. 22

4. Adjust Red and Blue with the Green line at centre of the screen by rotating (RB) – G static convergence magnetic rings.
5. Lock convergence magnets with silicone sealer.
6. Remove the DY wedges and slightly tilt the deflection yoke vertically and horizontally to obtain the good overall convergence.

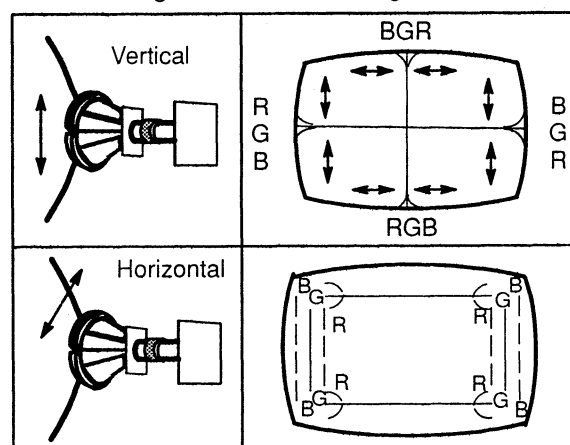


Fig. 23

7. Fix the deflection yoke by re-inserting the DY wedges. Refer to Fig. 24.
8. If purity error is found, repeat "Colour Purity" adjustment.

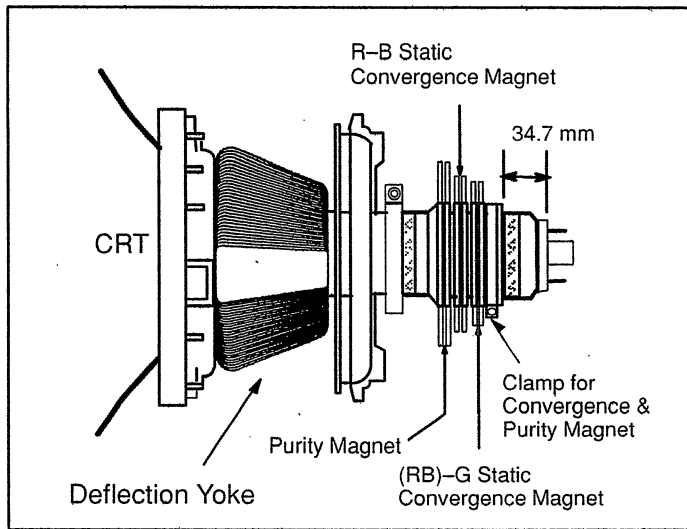


Fig. 24

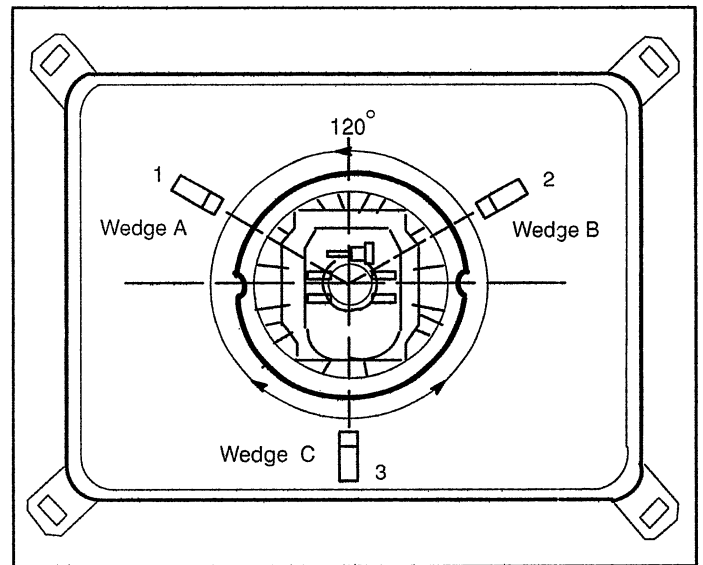


Fig. 25

Notes :

1. Wedge A, B, and C should be inserted following the sequence of 1, 2, and 3 shown in Fig. 25.
2. The wedges should be set 120° apart from each other.
3. Be certain that the four wedges are firmly fixed and the Deflection Yoke is tightly clamped in place. Otherwise the Deflection Yoke may shift its position and cause a loss of convergence and purity.

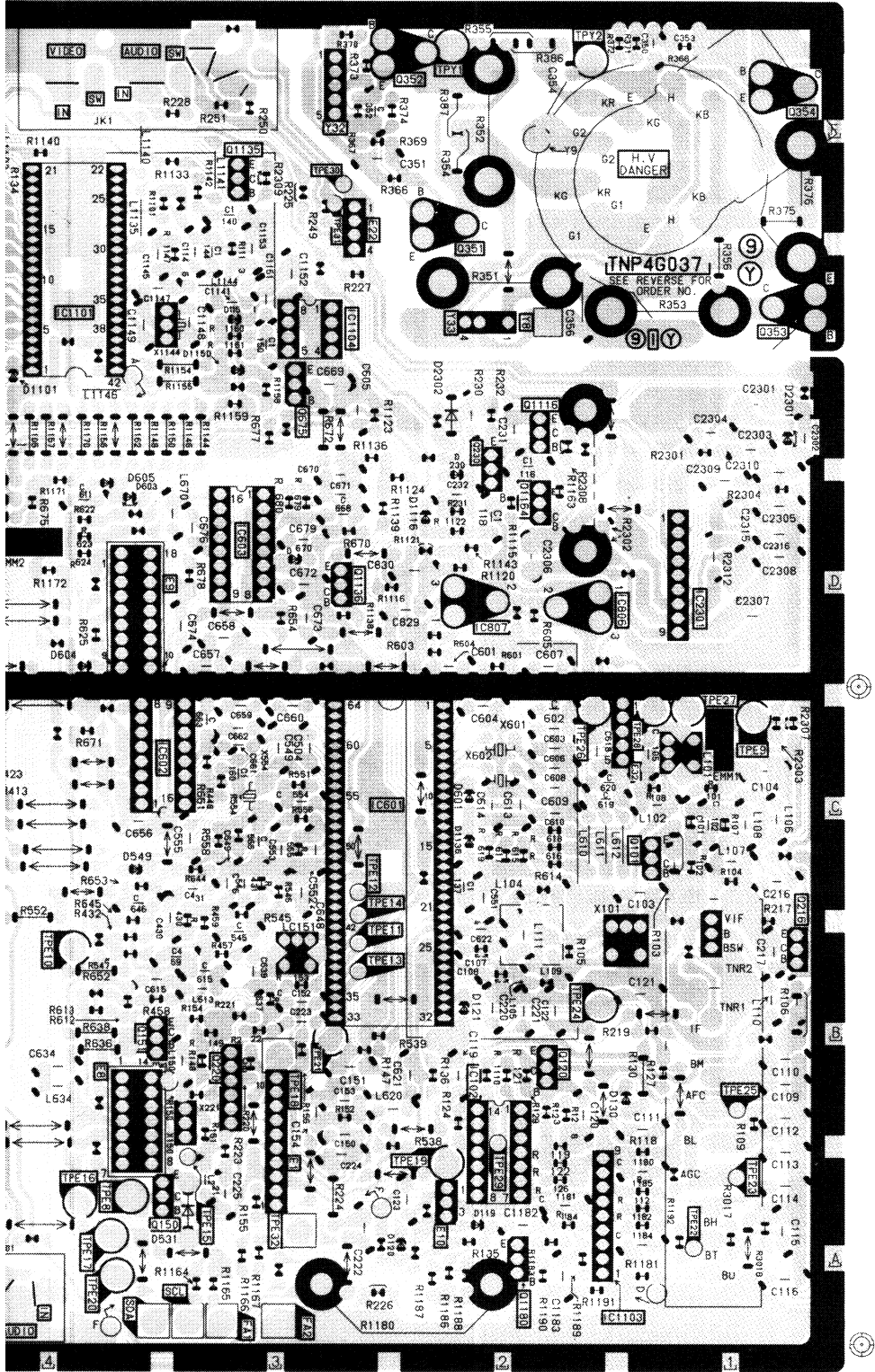
TC-21L10R/2125RT/21F1

Memo:

E-BOARD TNP4G036BU (FOR SINGAPORE, KI
E-BOARD TNP4G036BV (FOR SAUDI A



IEWS
RE, KUWAIT, U.A.E. & CIS)
UDI ARABIA ONLY)



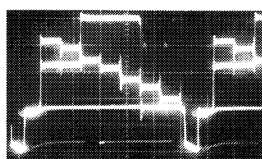
E-BOARD	
INTEGRATED CIRCUITS	
IC801	B3
IC1051	B5
IC802	B5
IC401	D2
IC805	D3
IC1102	D5
IC602	E3
IC1101	E4
IC603	E4
IC1104	E4
IC102	F1
IC601	F2
IC807	F3
IC1103	G1
IC806	G3
IC2301	G3
E-BOARD	
TRANSISTORS	
Q566	A3
Q801	B3
Q802	B4
Q503	C1
Q451	C1
Q805	C4
Q803	C5
Q445	D2
Q446	D2
Q565	D3
Q564	D5
Q3001	D1
Q447	D3
Q150	E1
Q151	E2
Q220	E2
Q675	E4
Q1135	E5
Q1180	F1
Q120	F2
Q1136	F3
Q1164	F4
Q230	F4
Q1116	F4
Q351	F5
Q352	F5
Q216	G2
Q101	G3
Q353	G4
Q354	G5
E-BOARD	
TEST POINTS	
TPE3	B1
TPE20	E1
TP17	E1
TP15	E1
TPE32	E1
TPE16	E1
TPE8	E1
TPE18	E1
TPE10	E2
TPE21	E2
TPE19	F1
TPE24	F2
TPE13	F2
TPE11	F2
TPE14	F2
TPE12	F2
TPE30	F5
TPE31	F5
TPE22	G1
TPE23	G1
TPE25	G2
TPE26	G3
TPE27	G3
TPE29	G3
TPE9	G3

E F G

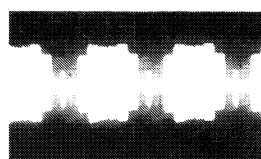
TEST POINT WAVEFORMS



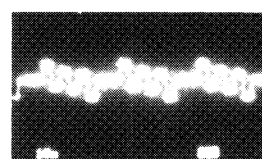
1. TPE 13 (E-PCB)
Composite Video Signal
3.4V, 20 μ s / Div



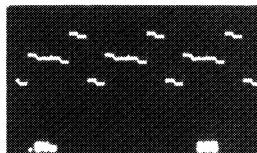
2. IC601 Pin 43 (E-PCB)
Y In
0.74V, 20 μ s / Div



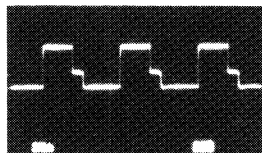
3. IC601 Pin 48 (E-PCB)
Chroma In
1.1V, 20 μ s / Div



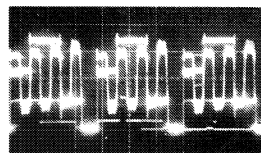
4. IC601 Pin 63 (E-PCB)
B - Y In
1.5V, 20 μ s / Div



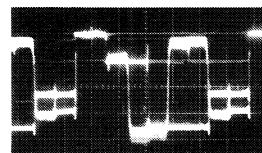
5. IC601 Pin 64 (E-PCB)
R - Y In
1.1V, 20 μ s / Div



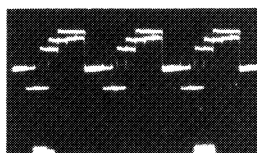
6. IC601 Pin 56 (E-PCB)
Horizontal Out
3.9V, 20 μ s / Div



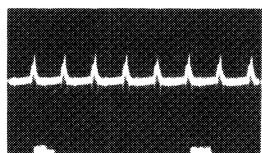
7. TPE 26 (IC601 PIN 17)
(E-PCB)
6.5V, 20 μ s / Div



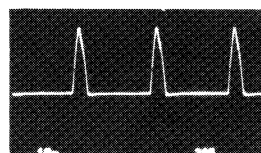
8. TPE 28 (IC601 PIN 15)
(E-PCB)
6.3V, 20 μ s / Div



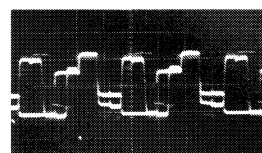
9. E-32 (E-PCB)
Green Output From IC601 Pin 16
5.5V, 20 μ s / Div



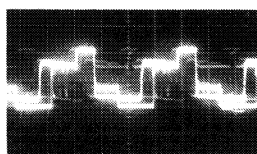
10. FBT Pin 4 (E-PCB)
316V, 50 μ s / Div



11. FBT Pin 6 (E-PCB)
273V, 20 μ s / Div



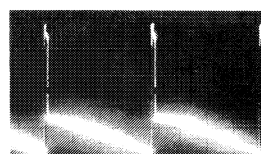
12. Q351 Collector
(Y-PCB)
124V, 20 μ s / Div



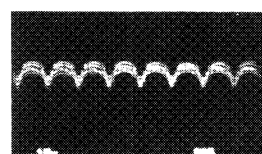
13. Q352 Collector
(Y-PCB)
109V, 20 μ s / Div



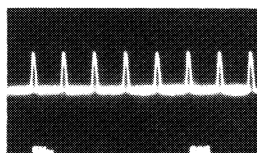
14. Q354 Collector
(Y-PCB)
125V, 20 μ s / Div



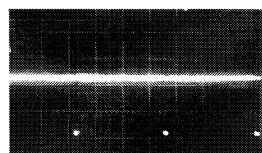
15. IC401 PIN 12 (E-PCB)
Vertical Out
48.2V, 5ms / Div



16. Q566 Base (E-PCB)
Horizontal Out
57V, 50 μ s / Div



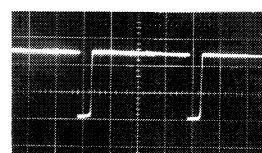
17. Q566 Collector (E-PCB)
Horizontal Out
800V, 50 μ s / Div



18. IC601 Pin 58 (E-PCB)
Vertical Out
4.4V, 5ms / Div



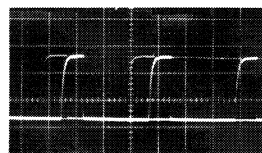
19. Video Output Terminal
(E-PCB)
3.8V, 20 μ s / Div



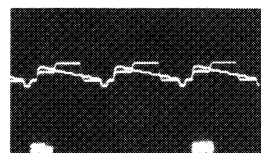
20. IC601 Pin 57 (E-PCB)
50Hz / 60Hz
0.1V, 5ms / Div



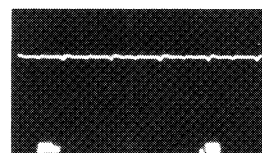
21. IC601 Pin 21 (E-PCB)
S D A
4.8V, 20 μ s / Div



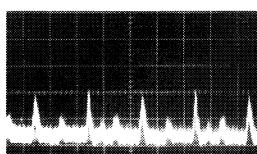
22. IC601 Pin 22 (E-PCB)
S C L
5.0V, 20 μ s / Div



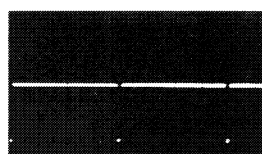
23. IC601 Pin 45 (E-PCB)
Vertical Separator
2.2V, 20 μ s / Div



24. IC1101 Pin 12 (E-PCB)
Band 1
0.5V, 1 μ s / Div



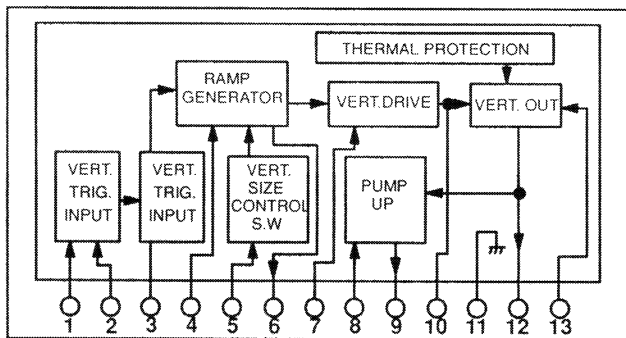
25. IC1101 Pin 10 (E-PCB)
Band 2
0.2V, 1 μ s / Div



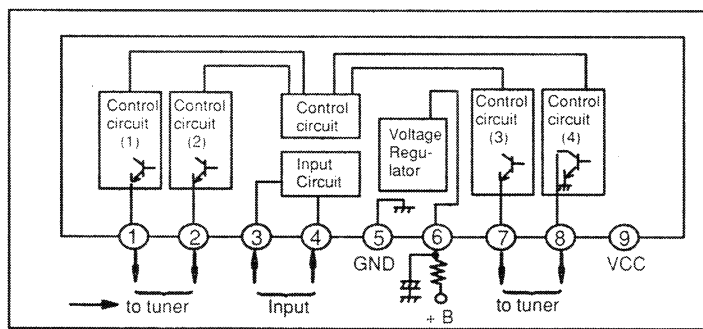
26. IC401 Pin 2 (E-PCB)
Vertical Trigger Input
4.3V, 5ms / Div

TC-21L10R/2125RT/21F1

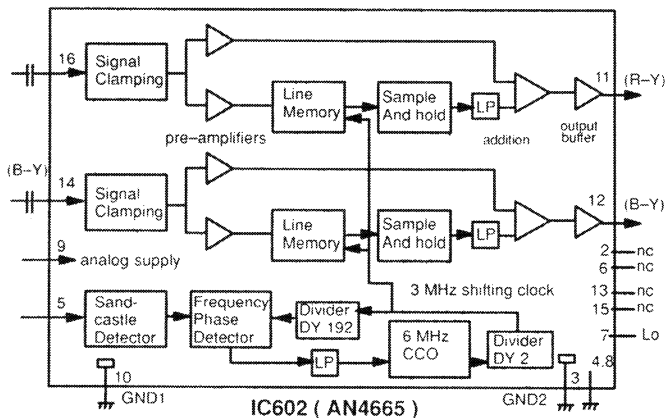
Block Diagram for Integrated Circuits



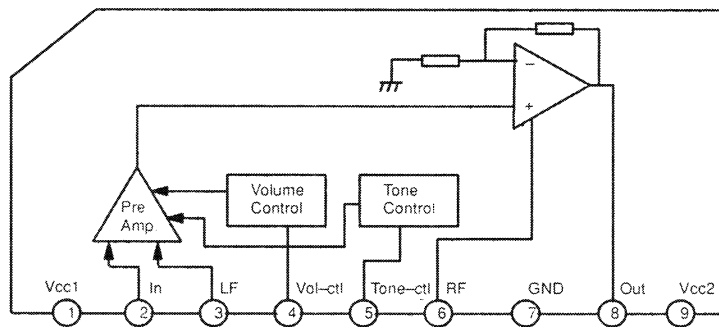
IC401 (LA 7837)



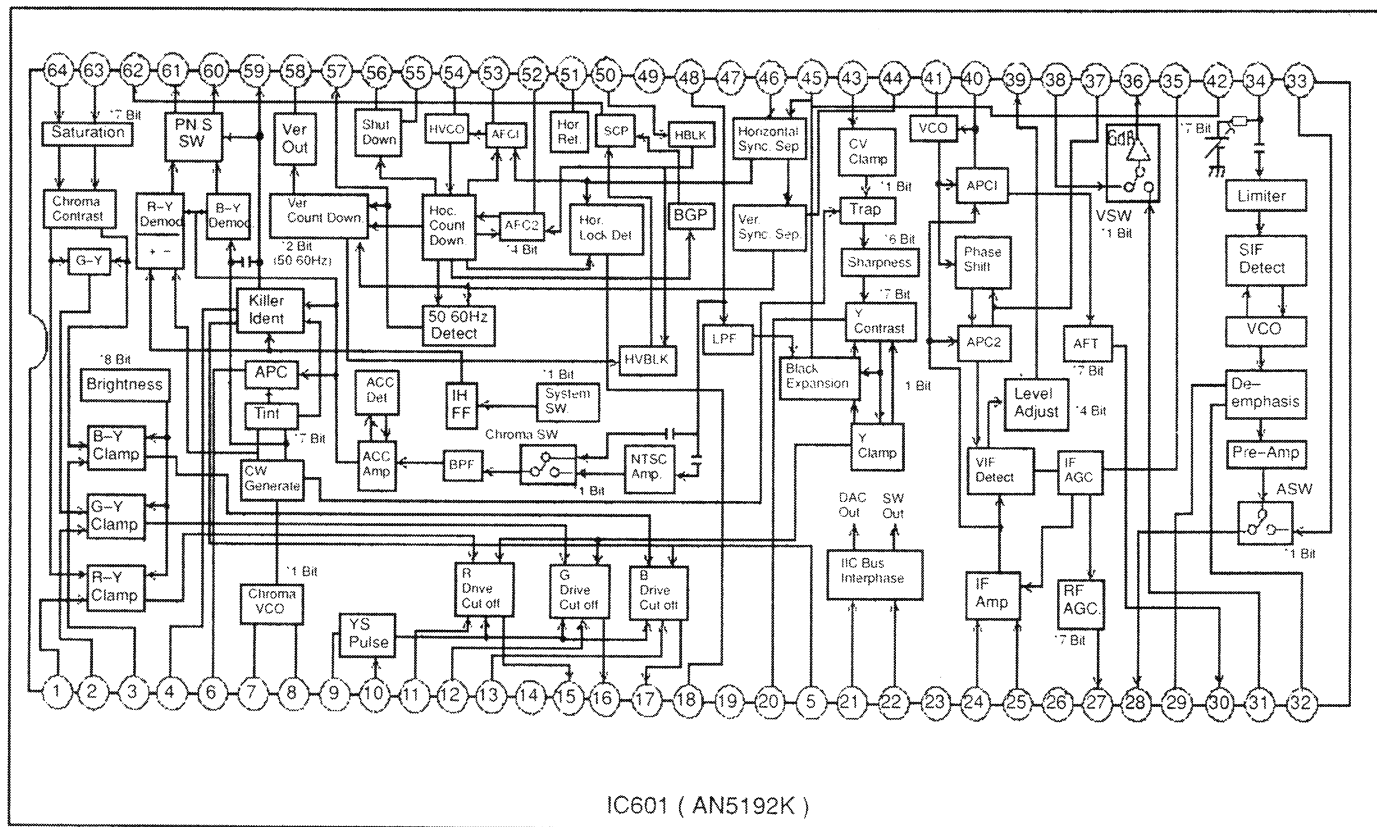
IC1103 (AN5071)



IC602 (AN4665)



IC2301 (AN5270)



IC601 (AN5192K)

Schematic Diagram for models TC-21L10R/2125RT/21F1 (MX-3 Chassis)

Important Safety Notice

Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.

Notes :

9. Resistor

All resistors are carbon 1/4W resistor, unless marked as follows :

Unit of resistance is OHM (Ω) (K=1,000 , M=1,000,000).

-  : Nonflammable
-  : Solid
-  : Wire Wound

-  : Metal Oxide
-  : Metal Film
-  : Fuse

10. Capacitor

All capacitors are ceramic 50V capacitor, unless marked as follows :

Unit of capacitance is μ F, unless otherwise noted.

-  : Temperature Compensation
-  : Polyester
-  : Metalized Polyester
-  : Polypropylene

-  : Electrolytic
-  : Bipolar
-  : Dipped Tantalum
-  : Z-Type

11. Coil

Unit of inductance is μ H, unless otherwise noted.

12. Test Point

-  : Test Point position

13. Earth Symbol

-  : Chassis Earth (Cold)

-  : Line Earth (Hot)

14. Voltage Measurement

Voltage is measured by a DC voltmeter.

Conditions of the measurement are the following :

- Power Source AC 220V, 50Hz
- Receiving Signal Colour Bar signal (RF)
- All customer's controls Maximum positions

15. Number in red circle indicates waveform number.

(See waveform pattern table.)

16. When arrow mark () is found, connection is easily found from the direction of arrow.

17. : Indicates the major signal flow.

18. This schematic diagram is the latest at the time of printing and subject to change without notice.

Remarks :

1. The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection. The circuit is defined by HOT and COLD indications in the schematic diagram. Take the following precautions.

All circuits, except the Power Circuit, are cold.

Precautions

- a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
- b. Do not short-circuit the hot and cold circuits or a fuse may blow and parts may break.
- c. Do not connect an instrument, such as an oscilloscope, to the hot and cold

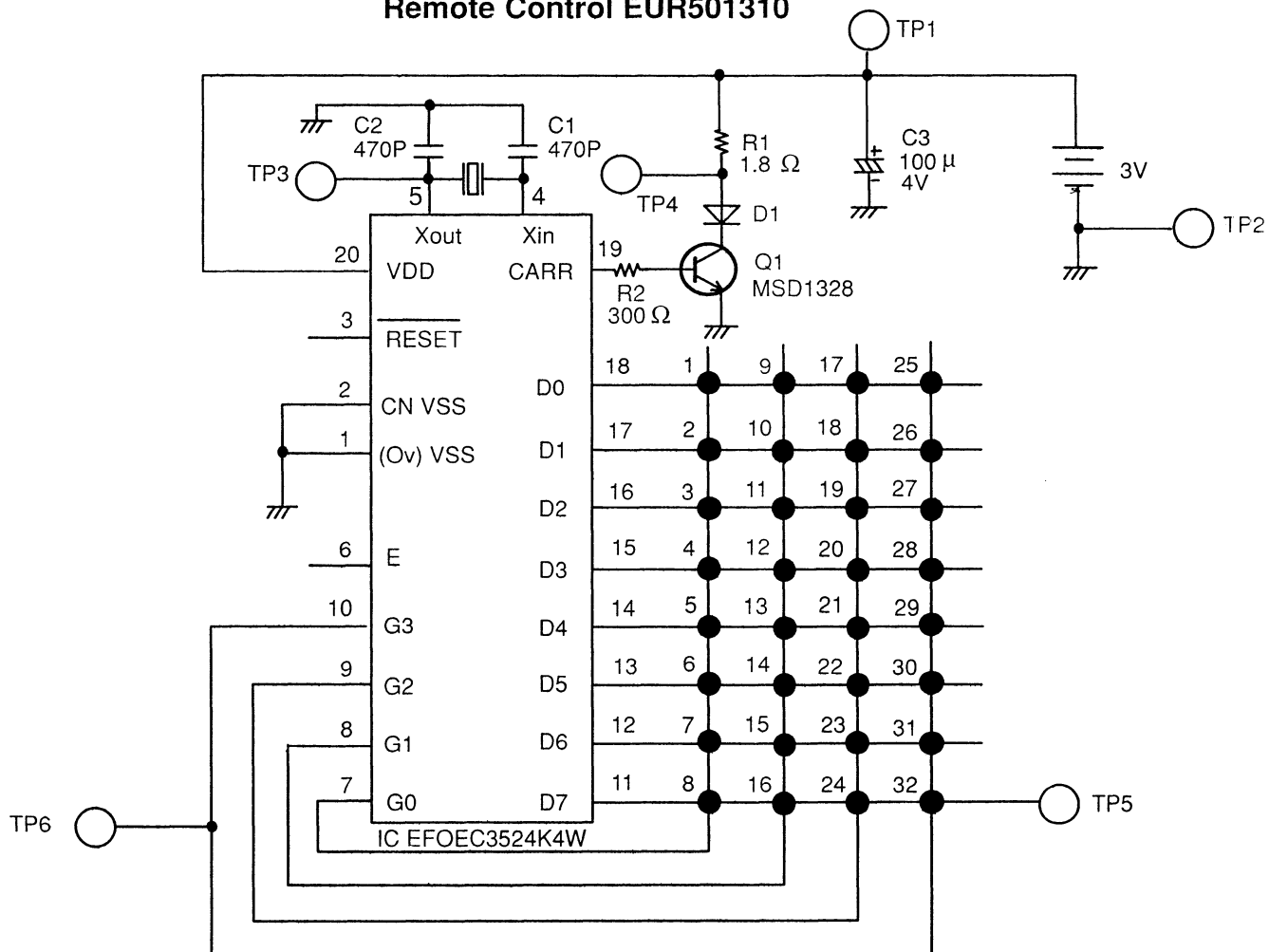
circuits simultaneously or a fuse may blow.
Connect the earth of instruments to the earth connection of the circuit being measured.

- d. Make sure to disconnect the power plug before removing the chassis.

2. Following diodes are interchangeable.
MA150 - MA162 (Replacement part)

TC-21L10R/2125RT/21F1

Remote Control EUR501310

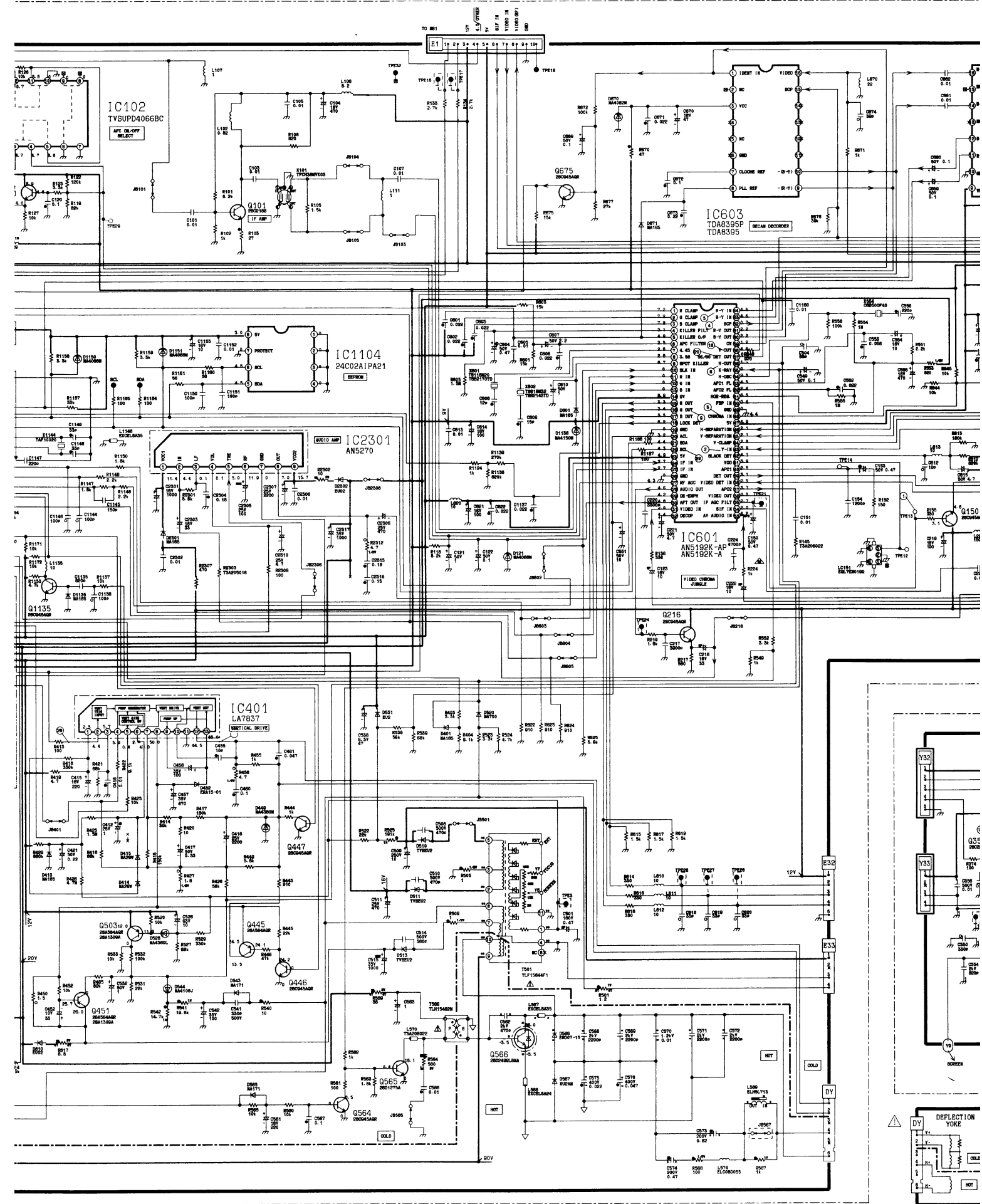


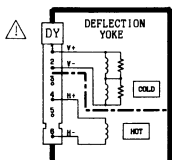
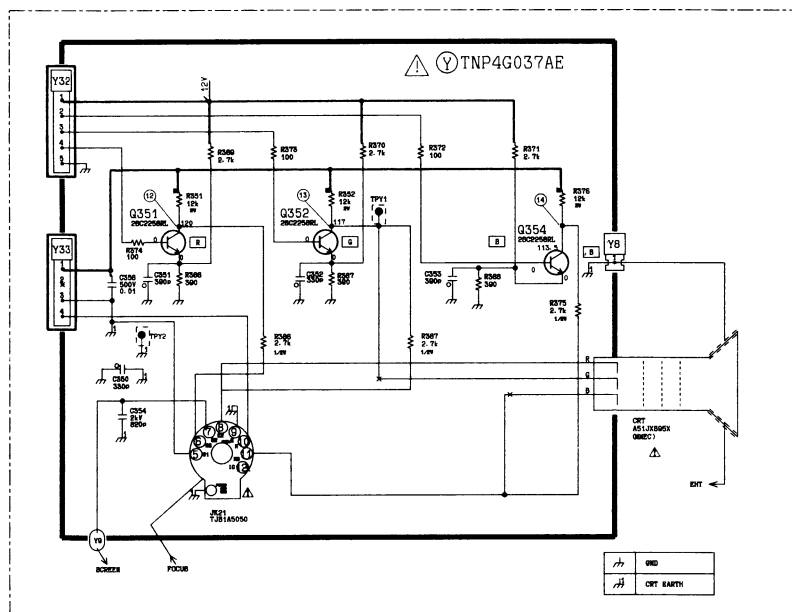
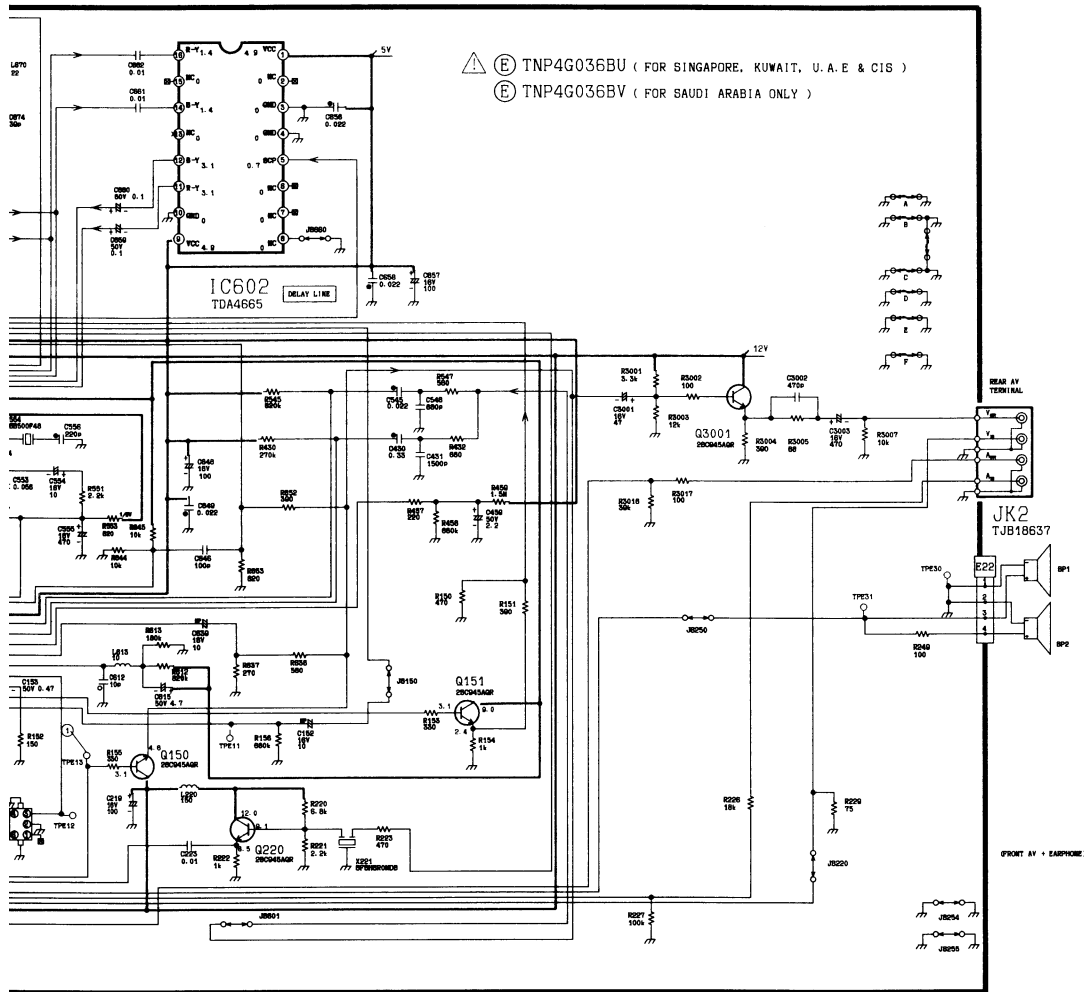
* Parts listed here are not suppliable.

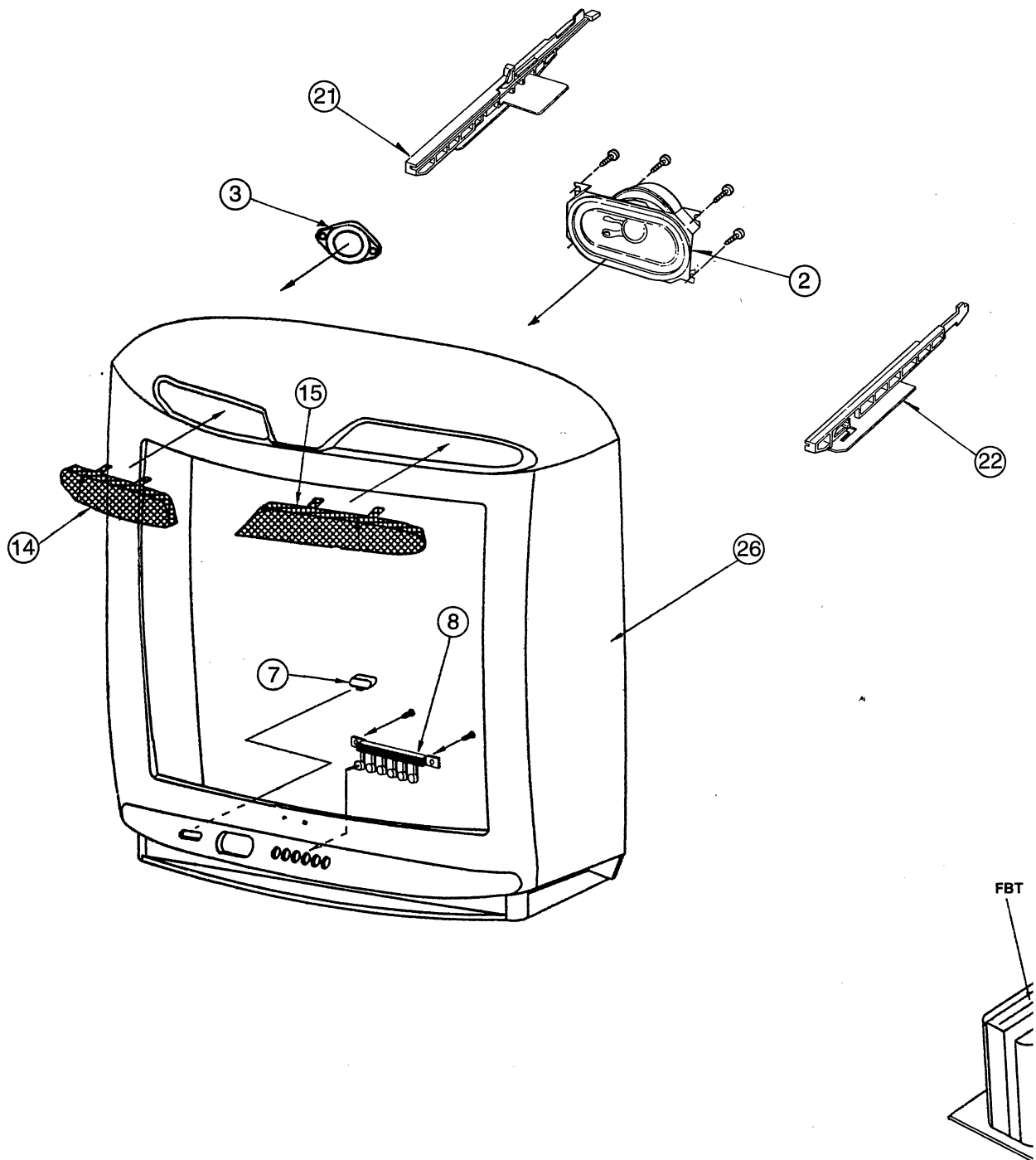
Fig.26

Shows user key 

KEY NO.	FUNCTION	DATA CODE		KEY NO.	FUNCTION	DATA CODE	
		ON	OFF			ON	OFF
1	TV/VIDEO	05		12	CH 8	17	
2	FUNCTION	06		13	CH 9	18	
3	NORMAL	0C		14	CH 0	19	
4	OFF TIMER	0F		15	VOLUME UP	20	
5	CH 1	10		16	VOLUME DOWN	21	
6	CH 2	11		17	MUTE	32	
7	CH 3	12		18	CH UP	34	
8	CH 4	13		19	CH DOWN	35	
9	CH 5	14		20	RECALL (STATUS)	39	
10	CH 6	15		21	2 DIGIT	3B	
11	CH 7	16		22	TV POWER	3D	



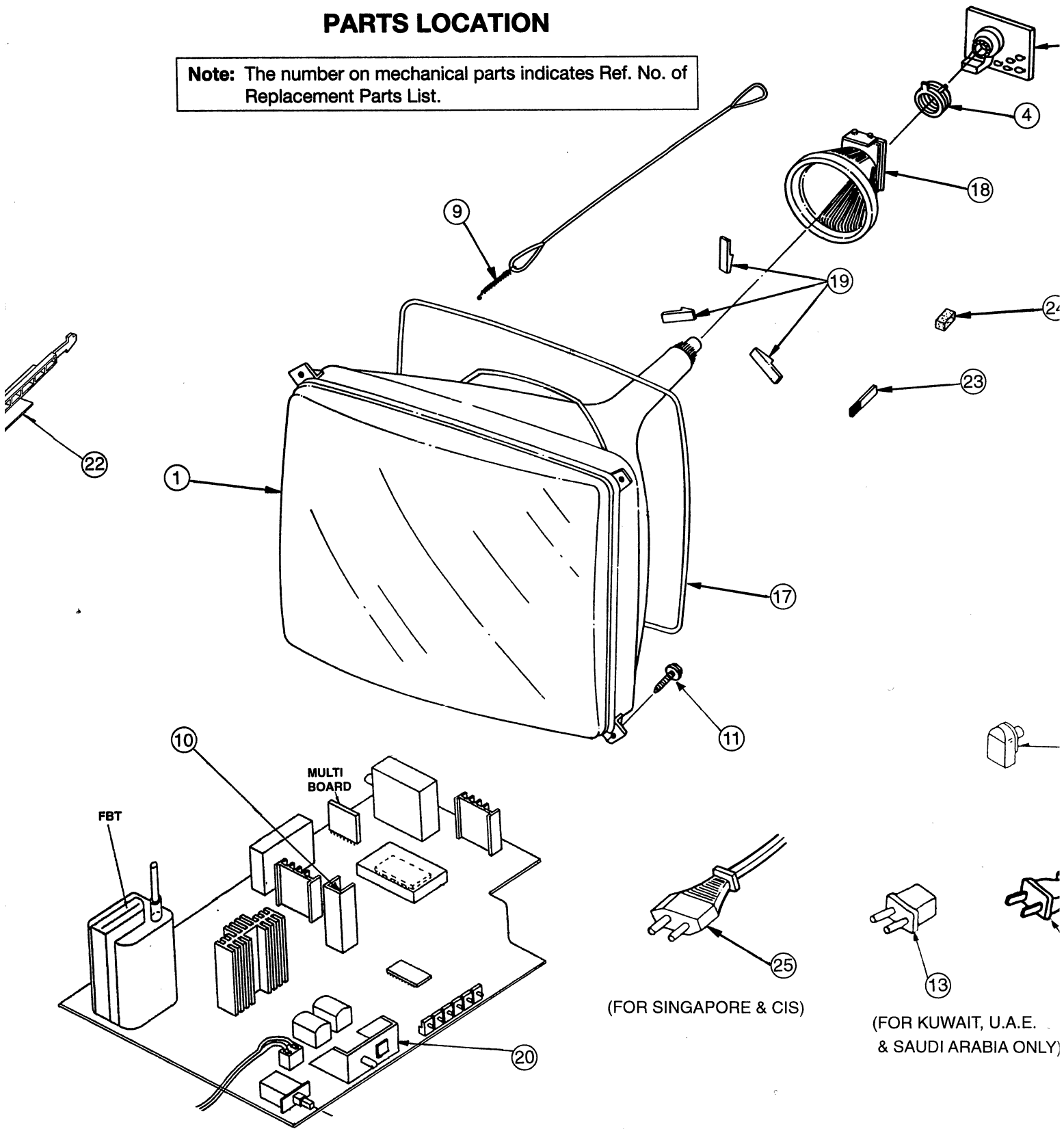




TC-21L10R/2125RT/21F1

PARTS LOCATION

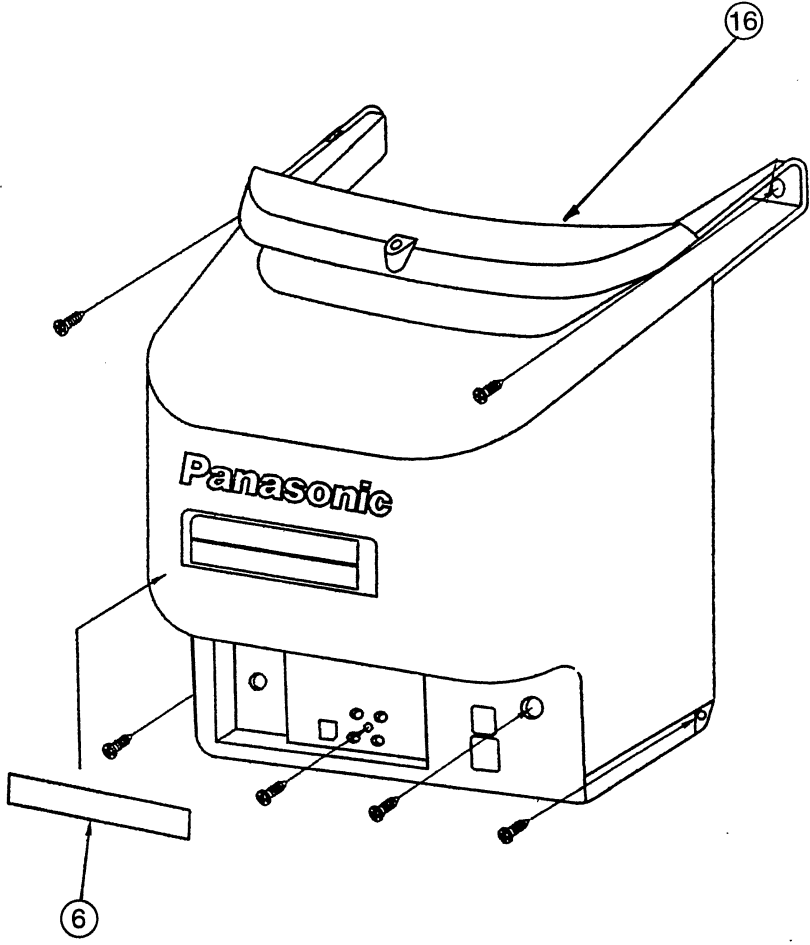
Note: The number on mechanical parts indicates Ref. No. of Replacement Parts List.



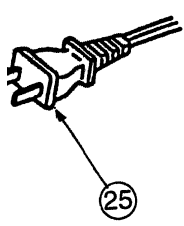
Y-BOARD

④

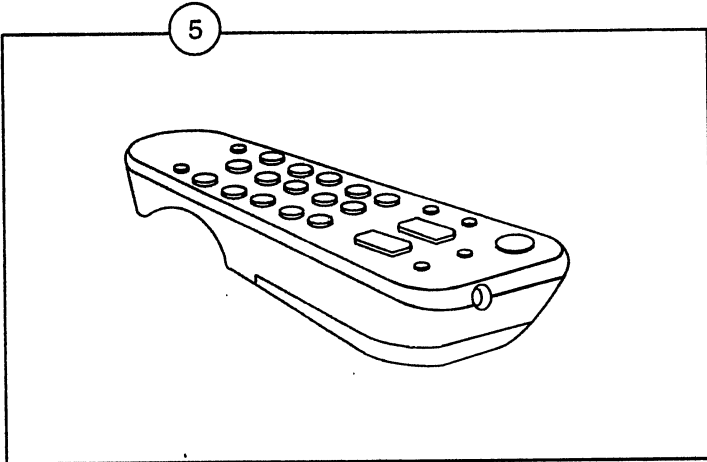
②④



⑫



.E.
ONLY)



Components identified by mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

Abbreviation of part name and description

2. Capacitor

Example :

ECKF1H103ZF C 0.01UF, Z, 50V
Type Allowance

Type	Allowance
C : Carbon	F : $\pm 1\%$
F : Fuse	G : $\pm 2\%$
M : Metal Oxide	J : $\pm 5\%$
Metal Film	K : $\pm 10\%$
S : Solid	M : $\pm 20\%$
W : Wire Wound	

Type	Allowance
C : Ceramic	C: $\pm 0.25\text{pF}$
E : Electrolytic	D: $\pm 0.5\text{pF}$
P : Polyester	F: $\pm 1\text{pF}$
Polypropylene	G: $\pm 3\%$
T : Tantalum	J: $\pm 5\%$
	K: $\pm 10\%$
	L: $\pm 15\%$
	M: $\pm 20\%$
	P: $+ 100\%, - 0\%$
	Z: $+ 80\%, - 20\%$

TC-21L10R/2125RT/21F1

Replacement Parts List

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
MECHANICAL PARTS			26	TXFKY01BE2P	CABINET ASSY (FOR KUWAIT. U.A.E & S.ARABIA ONLY)
1	A51JXS95X	PICTURE TUBE	RESISTORS		
2	EAG1217A2	SPEAKER	R101	ERDS2TJ822	C 8.2KOHM. J.1 4W
3	EASG4FP10C2	TWEETER	R102	ERDS2TJ102	C 1KOHM. J. 1 4W
4	ETC33X8NA	CONVERGENCE YOKE	R103	ERQ14AJ270P	F 270OHM. J. 1 4W
5	EUR501310	REMOTE CTRL TRANSMITTER	R105	ERDS2TJ152	C 1.5KOHM. J.1 4W
6	TBM4G0197	MODEL NAME PLATE (FOR SINGAPORE ONLY)	R106	ERQ14AJ100P	F 100OHM. J. 1 4W
6	TBM4G0199	MODEL NAME PLATE (FOR CIS ONLY)	R108	ERDS2TJ821	C 820OHM. J.1 4W
6	TBM4G0198	MODEL NAME PLATE (FOR KUWAIT. U.A.E & S.ARABIA ONLY)	R109	ERDS2TJ222	C 2.2KOHM. J.1 4W
7	TBX4G81600	POWER BUTTON	R110	ERJ6GEYJ101	M 100OHM.J.1 10W
8	TBX4G81700	6 KEY BUTTON	R112	ERDS2TJ223	C 22KOHM. J.1 4W
9	TES4223	SPRING	R113	ERJ6GEYJ331	M 330OHM.J.1 10W
10	TES4537	SPRING	R114	ERJ6GEYJ331	M 330OHM.J.1 10W
11	THT1060	SCREW (CRT)	R115	ERJ6GEYJ221	M 220OHM.J.1 10W
12	TJB1726400	ANTENNA PLUG (FOR KUWAIT. U.A.E & S.ARABIA ONLY)	R116	ERJ6GEYJ562	M 5.6KOHM.J.1 10W
13	TJS2A8420	AC PLUG ADAPTOR (FOR KUWAIT. U.A.E & S.ARABIA ONLY)	R117	ERJ6GEYJ101	M 100OHM.J.1 10W
14	TKP4G50061	SP PUNCHING PANEL	R118	ERDS2TJ822	C 8.2KOHM. J.1 4W
15	TKP4G50071	SP PUNCHING PANEL	R119	ERDS2TJ823	C 82KOHM. J.1 4W
16	TKU4G3000-1	BACK COVER	R121	ERDS2TJ273	C 27KOHM. J.1 4W
17	TLK259078S1	DEGAUSSING COIL	R122	ERDS2TJ124	C 120KOHM. J.1 4W
18	TLY4G307F	DEFLECTION YOKE	R123	ERDS2TJ332	C 3.3KOHM. J.1 4W
19	TMM27523	DY WEDGE	R124	ERDS2TJ103	C 10KOHM. J.1 4W
20	TMW15947	BRACKET	R126	ERDS2TJ103	C 10KOHM. J.1 4W
21	TMZ4G9805	CHASSIS RAIL (L)	R127	ERDS2TJ103	C 10KOHM. J.1 4W
22	TMZ4G9806	CHASSIS RAIL (R)	R128	ERDS2CKF1102	M 11KOHM. F.1 4W
NLA	TNP4G008AG	MS BOARD	R129	ERDS2CKF1002	M 10KOHM. F.1 4W
NLA	TNP4G036BU	E BOARD (FOR SINGAPORE. KUWAIT. U.A.E & CIS)	R133	ERDS2TJ272	C 2.7KOHM. J.1 4W
NLA	TNP4G036BV	E BOARD (FOR SAUDI ARABIA ONLY)	R134	ERDS2TJ272	C 2.7KOHM. J.1 4W
NLA	TNP4G037AE	Y BOARD	R135	ERDS2TJ153	C 15KOHM. J.1 4W
	TPC4G41304	CARTON (FOR SINGAPORE & CIS ONLY)	R136	ERDS2TJ331	C 330OHM. J.1 4W
	TPC4G41305	CARTON (FOR KUWAIT. U.A.E & S.ARABIA ONLY)	R147	ERDS2TJ564	C 560KOHM. J.1 4W
	TPD4G1014	CUSHION (TOP)	R150	ERDS2TJ471	C 470OHM. J.1 4W
	TPD4G2013	CUSHION (BOTTOM)	R151	ERDS2TJ391	C 390OHM. J.1 4W
	TPE4G14002	SET COVER	R152	ERDS2TJ151	C 150OHM. J.1 4W
	TPE4G14003	LAMI BAG	R153	ERDS2TJ331	C 330OHM. J.1 4W
	TOB4G1164	FAN BAG (FOR SINGAPORE ONLY)	R154	ERDS2TJ102	C 1KOHM. J.1 4W
	TOB4G1165	FAN BAG (FOR CIS ONLY)	R155	ERDS2TJ331	C 330OHM. J.1 4W
	TOB4G1166	FAN BAG (FOR KUWAIT & U.A.E ONLY)	R156	ERDS2TJ684	C 680KOHM. J.1 4W
	TOB4G1167	FAN BAG (FOR S.ARABIA ONLY)	R157	ERJ6GEYJ271	M 270OHM.J.1 10W
23	TSM10032-2	MAGNET	R180	ERJ6GEYJ123	M 12KOHM.J.1 10W
24	TSN63115-4	PURITY MAGNET	R181	ERJ6GEYJ123	M 12KOHM.J.1 10W
25	TSX4G111H	AC POWER CORD (FOR SINGAPORE & CIS ONLY)	R184	ERJ6GEYJ472	M 4.7KOHM.J.1 10W
25	TSX4G112F	AC POWER CORD (FOR KUWAIT. U.A.E & S.ARABIA ONLY)	R185	ERJ6GEYJ101	M 100OHM.J.1 10W
26	TXFKY01BE2S	CABINET ASSY (FOR SINGAPORE & CIS ONLY)	R186	ERJ6GEYJ101	M 100OHM.J.1 10W
			R207	ERJ6GEYJ471	M 470OHM.J.1 10W
			R208	ERJ6GEYJ471	M 470OHM.J.1 10W
			R209	ERJ6GEYJ471	M 470OHM.J.1 10W
			R210	ERJ6GEYJ471	M 470OHM.J.1 10W
			R217	ERDS2TJ561	C 560OHM. J.1 4W
			R219	ERDS2TJ182	C 1.8KOHM. J.1 4W
			R220	ERDS2TJ682	C 6.8KOHM. J.1 4W
			R221	ERDS2TJ222	C 2.2KOHM. J.1 4W
			R222	ERDS2TJ102	C 1KOHM. J.1 4W
			R223	ERDS2TJ471	C 470OHM. J.1 4W

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Ref.No.	Part No.	Description
R224	ERD25TJ102	C 1KOHM. J.1.4W
R226	ERDS2TJ183	C 18KOHM. J.1.4W
R227	ERDS2TJ104	C 100KOHM. J.1.4W
R229	ERDS2TJ750	C 75OHM. J.1.4W
R230	ERQ14AJ101P	F 100OHM. J.1.4W
R231	ERDS2TJ104	C 100KOHM. J.1.4W
R232	ERDS2TJ103	C 10KOHM. J.1.4W
R238	ERJ6GEYJ102	M 1KOHM. J.1.10W
R249	ERDS2TJ101	C 100OHM. J.1.4W
R351	ERG2ANJ123	M 12KOHM. J. 2W
R352	ERG2ANJ123	M 12KOHM. J. 2W
R366	ERDS2TJ391	C 390OHM. J.1.4W
R367	ERDS2TJ391	C 390OHM. J.1.4W
R368	ERDS2TJ391	C 390OHM. J.1.4W
R369	ERDS2TJ272	C 2.7KOHM. J.1.4W
R370	ERDS2TJ272	C 2.7KOHM. J.1.4W
R371	ERDS2TJ272	C 2.7KOHM. J.1.4W
R372	ERDS2TJ101	C 100OHM. J.1.4W
R373	ERDS2TJ101	C 100OHM. J.1.4W
R374	ERDS2TJ101	C 100OHM. J.1.4W
R375	ERDS1TJ272	C 2.7KOHM. J.1.2W
R376	ERG2ANJ123	M 12KOHM. J. 2W
R386	ERDS1TJ272	C 2.7KOHM. J.1.2W
R387	ERDS1TJ272	C 2.7KOHM. J.1.2W
R403	ERD25TJ332	C 3.3KOHM. J.1.4W
R404	ERDS2TJ912	C 9.1KOHM. J.1.4W
R413	ERDS2TJ101	C 100OHM. J.1.4W
R414	ERDS2TJ393	C 39KOHM. J.1.4W
R415	ERDS2TJ154	C 150KOHM. J.1.4W
R416	ERDS2TJ683	C 68KOHM. J.1.4W
R417	ERDS2TJ154	C 150KOHM. J.1.4W
R418	ERDS2TJ334	C 330KOHM. J.1.4W
R419	ERDS2TJ4R7	C 4.7OHM. J.1.4W
R420	ERDS2TJ100	C 10OHM. J.1.4W
R421	ERDS2TJ683	C 68KOHM. J.1.4W
R422	ERDS2TJ912	C 9.1KOHM. J.1.4W
R423	ERDS2TJ103	C 10KOHM. J.1.4W
R425	ERDS2TJ155	C 1.5MOHM. J.1.4W
R426	ERDS2TJ475	C 4.7MOHM. J.1.4W
R427	ERDS1FJ1R8	C 1.8OHM. J.1.2W
R428	ERDS2TJ563	C 56KOHM. J.1.4W
R429	ERDS2TJ684	C 680KOHM. J.1.4W
R430	ERDS2TJ274	C 270KOHM. J.1.4W
R432	ERDS2TJ681	C 680OHM. J.1.4W
R443	ERDS2TJ911	C 910OHM. J.1.4W
R444	ERDS2TJ102	C 1KOHM. J.1.4W
R445	ERDS2TJ223	C 22KOHM. J.1.4W
R446	ERDS2TJ473	C 47KOHM. J.1.4W
R448	ERDS2TJ271	C 270OHM. J.1.4W
R449	ERDS2TJ562	C 5.6KOHM. J.1.4W
R450	ERD2FAVJ1R5T	C 1.5OHM. J.1.4W
R452	ERD25TJ103	C 10KOHM. J.1.4W
R455	ERDS2TJ102	C 1KOHM. J.1.4W
R456	ERDS1FJ4R7	C 4.7OHM. J.1.2W
R457	ERDS2TJ221	C 220OHM. J.1.4W
R458	ERDS2TJ684	C 680KOHM. J.1.4W

Ref.No.	Part No.	Description
R459	ERDS2TJ155	C 1.5MOHM. J.1.4W
R465	ERD25TJ823	C 82KOHM. J.1.4W
R501	ERQ1CJP1R2S	F 1.2OHM. J. 1W
R505	ERQ12HJ1R0	F 1OHM. J.1.2W
R509	ERQ12AJ1R0E	F 1OHM. J.1.2W
R520	ERDS2TJ103	C 10KOHM. J.1.4W
R522	ERDS2TJ223	C 22KOHM. J.1.4W
R523	ERD25TJ332	C 3.3KOHM. J.1.4W
R524	ERDS2TJ472	C 4.7KOHM. J.1.4W
R525	ER025CKF1913	M 191KOHM. F.1.4W
R527	ERDS2TJ683	C 68KOHM. J.1.4W
R529	ERDS2TJ334	C 330KOHM. J.1.4W
R531	ERDS2TJ223	C 22KOHM. J.1.4W
R532	ERDS2TJ104	C 100KOHM. J.1.4W
R533	ERDS2TJ103	C 10KOHM. J.1.4W
R538	ERDS2TJ563	C 56KOHM. J.1.4W
R539	ERDS2TJ683	C 68KOHM. J.1.4W
R540	ERQ14AJ100P	F 10OHM. J.1.4W
R541	ER0S2CKF1962	M19.6KOHM. F.1.4W
R542	ER0S2CKF1472	M14.7KOHM. F.1.4W
R545	ERDS2TJ824	C 820KOHM. J.1.4W
R547	ERDS2TJ561	C 560OHM. J.1.4W
R549	ERDS2TJ102	C 1KOHM. J.1.4W
R551	ERDS2TJ222	C 2.2KOHM. J.1.4W
R552	ERD25TJ332	C 3.3KOHM. J.1.4W
R553	ERDS1TJ821	C 820OHM. J.1.2W
R554	ERDS2TJ105	C 1MOHM. J.1.4W
R555	ERDS2TJ105	C 1MOHM. J.1.4W
R558	ERDS2TJ104	C 100KOHM. J.1.4W
R560	ERDS2TJ103	C 10KOHM. J.1.4W
R561	ERDS2TJ101	C 100OHM. J.1.4W
R562	ERD25TJ102	C 1KOHM. J.1.4W
R563	ERDS2TJ182	C 1.8KOHM. J.1.4W
R564	ERG2ANJ561	M 560OHM. J. 2W
R565	ERD25TJ103	C 10KOHM. J.1.4W
R567	ERQ1CJP102S	F 1KOHM. J. 1W
R568	ERQ12AJ101E	F 100OHM. J.1.2W
R569	ERG2ANJ360	M 36OHM. J. 2W
R601	ERDS2TJ153	C 15KOHM. J.1.4W
R603	ERDS2TJ153	C 15KOHM. J.1.4W
R605	ERDS2TJ155	C 1.5MOHM. J.1.4W
R612	ERDS2TJ824	C 820KOHM. J.1.4W
R613	ERDS2TJ184	C 180KOHM. J.1.4W
R614	ERDS2TJ331	C 330OHM. J.1.4W
R615	ERDS2TJ152	C 1.5KOHM. J.1.4W
R616	ERDS2TJ331	C 330OHM. J.1.4W
R617	ERDS2TJ152	C 1.5KOHM. J.1.4W
R618	ERDS2TJ331	C 330OHM. J.1.4W
R619	ERDS2TJ152	C 1.5KOHM. J.1.4W
R622	ERDS2TJ911	C 910OHM. J.1.4W
R623	ERDS2TJ911	C 910OHM. J.1.4W
R624	ERDS2TJ911	C 910OHM. J.1.4W
R625	ERDS2TJ562	C 5.6KOHM. J.1.4W
R637	ERDS2TJ271	C 270OHM. J.1.4W
R638	ERD25TJ561	C 560OHM. J.1.4W

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Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R644	ERDS2TJ103	C 10KOHM. J.1 4W	R1130	ERDS2TJ332	C 3.3KOHM. J.1 4W
R645	ERDS2TJ103	C 10KOHM. J.1 4W	R1131	ERDS2TJ512	C 5.1KOHM. J.1 4W
R652	ERD25TJ391	C 390OHM. J.1 4W	R1132	ER025CKF1002	M 10KOHM. F.1 4W
R653	ERDS2TJ821	C 820OHM. J.1 4W	R1133	ERDS2TJ472	C 4.7KOHM. J.1 4W
R670	ERQ14AJ470P	F 470HM. J.1/4W	R1134	ERDS2TJ332	C 3.3KOHM. J.1 4W
R671	ERDS2TJ102	C 1KOHM. J.1 4W	R1135	ERDS2TJ392	C 3.9KOHM. J.1 4W (FOR SAUDI ARABIA ONLY)
R672	ERD25TJ104	C 100KOHM. J.1 4W	R1135	ERDS2TJ682	C 6.8KOHM. J.1 4W (FOR SINGAPORE. CIS. KUWAIT & U.A.E ONLY)
R675	ERDS2TJ153	C 15KOHM. J.1 4W	R1136	ERDS2TJ824	C 820KOHM. J.1 4W
R677	ERDS2TJ273	C 27KOHM. J.1 4W	R1137	ERDS2TJ103	C 10KOHM. J.1 4W
R678	ERDS2TJ393	C 39KOHM. J.1 4W	R1139	ERDS2TJ274	C 270KOHM. J.1 4W
R801	ERF7ZK2R7	W 2.7OHM. K. 7W	R1140	ERDS2TJ562	C 5.6KOHM. J.1 4W
R802	ERDS1FJ474	C 470KOHM. J.1 2W	R1141	ERDS2TJ103	C 10KOHM. J.1 4W
R803	ERDS1FJ474	C 470KOHM. J.1 2W	R1142	ERDS2TJ183	C 18KOHM. J.1 4W
R805	ERDS2TJ333	C 33KOHM. J.1 4W	R1143	ERDS2TJ123	C 12KOHM. J.1 4W
R806	ERG2ANJ101H	M 100OHM. J. 2W	R1144	ERD25TJ222	C 2.2KOHM. J.1 4W
R810	ERDS2TJ103	C 10KOHM. J.1 4W	R1145	ERDS2TJ101	C 100OHM. J.1 4W
R814	ERD25TJ332	C 3.3KOHM. J.1 4W	R1146	ERD25TJ222	C 2.2KOHM. J.1 4W
R816	ERDS2TJ223	C 22KOHM. J.1 4W	R1147	ERDS2TJ182	C 1.8KOHM. J.1 4W
R817	ERG2ANJ6R8	M 10OHM. J. 2W	R1148	ERD25TJ222	C 2.2KOHM. J.1 4W
R818	ERQ12AJ1R0E	F 10HM. J.1 2W	R1150	ERD25TJ182	C 1.8KOHM. J.1 4W
R819	ERC12ZGK335	S 3.3MOHM. K.1 2W	R1152	ERDS2TJ183	C 18KOHM. J.1 4W
R820	ERW2PKR47	W 0.47OHM. 2W	R1154	ERD25TJ101	C 100OHM. J.1 4W
R821	ERD25TJ470	C 470HM. J.1 4W	R1155	ERD25TJ101	C 100OHM. J.1 4W
R822	ERG12SJ221	M 220OHM. J.1 2W	R1156	ERD25TJ101	C 100OHM. J.1 4W
R823	ERG12SJ122	C 1.2KOHM. J.1 4W	R1157	ERD25TJ333	C 33KOHM. J.1 4W
R825	ERD75TAJ825	C 8.2MOHM. J.3 4W	R1158	ERDS2TJ332	C 3.3KOHM. J.1 4W
R826	ERQ14AJ220P	F 220HM. J.1 4W	R1159	ERDS2TJ332	C 3.3KOHM. J.1 4W
R827	ERX1SJ3R3P	M 3.3OHM. J. 1W	R1160	ERDS2TJ560	C 56OHM. J.1 4W
R828	ERX2ANJ6R2	M 6.2OHM. J. 1W	R1161	ERDS2TJ560	C 56OHM. J.1 4W
R829	ERG2ANJ471H	M 470OHM. J. 2W	R1162	ERD25TJ101	C 100OHM. J.1 4W
R832	ERDS2TJ562	C 5.6KOHM. J.1 4W	R1163	ERDS2TJ333	C 33KOHM. J.1 4W
R834	ERDS2TJ221	C 220OHM. J.1 4W	R1164	ERDS2TJ101	C 100OHM. J.1 4W
R835	ERD25TJ121	C 120OHM. J.1 4W	R1165	ERDS2TJ101	C 100OHM. J.1 4W
R836	ERDS2TJ101	C 100OHM. J.1 4W	R1166	ERDS2TJ101	C 100OHM. J.1 4W
R837	ERDS2TJ102	C 1KOHM. J.1 4W	R1167	ERDS2TJ101	C 100OHM. J.1 4W
R1051	ERD25TJ102	C 1KOHM. J.1 4W	R1168	ERDS2TJ821	C 820OHM. J.1 4W
R1101	ERDS2TJ101	C 100OHM. J.1 4W	R1170	ERD25TJ101	C 100OHM. J.1 4W
R1102	ERDS2TJ222	C 2.2KOHM. J.1 4W	R1171	ERDS2TJ103	C 10KOHM. J.1 4W
R1103	ERD25TJ101	C 100OHM. J.1 4W	R1172	ERDS2TJ103	C 10KOHM. J.1 4W
R1105	ERD25TJ101	C 100OHM. J.1 4W	R1174	ERD25TJ123	C 12KOHM. J.1 4W
R1106	ERD25TJ122	C 1.2KOHM. J.1 4W	R1175	ERDS2TJ683	C 68KOHM. J.1 4W
R1107	ERD25TJ152	C 1.5KOHM. J.1 4W	R1180	ERG3ANJ821H	M 820OHM. J. 3W
R1108	ERD25TJ152	C 1.5KOHM. J.1 4W	R1181	ERDS2TJ100	C 10OHM. J.1 4W
R1109	ERD25TJ101	C 100OHM. J.1 4W	R1182	ERDS2TJ100	C 10OHM. J.1 4W
R1110	ERDS2TJ273	C 27KOHM. J.1 4W	R1183	ERDS2TJ101	C 100OHM. J.1 4W
R1112	ERDS2TJ123	C 12KOHM. J.1 4W	R1184	ERDS2TJ101	C 100OHM. J.1 4W
R1113	ERDS2TJ562	C 5.6KOHM. J.1 4W	R1185	ERDS2TJ100	C 10OHM. J.1 4W
R1115	ERDS2TJ123	C 12KOHM. J.1 4W	R1187	ERDS2TJ101	C 100OHM. J.1 4W
R1116	ERDS2TJ333	C 33KOHM. J.1 4W	R1188	ERDS2TJ153	C 15KOHM. J.1 4W
R1122	ERDS2TJ183	C 18KOHM. J.1 4W	R1189	ERDS2TJ123	C 12KOHM. J.1 4W
R1124	ERDS2TJ102	C 1KOHM. J.1 4W	R1190	ERDS2TJ103	C 10KOHM. J.1 4W
R1125	ERDS2TJ222	C 2.2KOHM. J.1 4W	R1191	ERDS2TJ103	C 10KOHM. J.1 4W
R1126	ERDS2TJ393	C 39KOHM. J.1 4W	R1192	ERDS2TJ103	C 10KOHM. J.1 4W
R1127	ERD25TJ103	C 10KOHM. J.1 4W	R2301	ERDS2TJ562	C 5.6KOHM. J.1 4W
R1128	ERDS2TJ222	C 2.2KOHM. J.1 4W	R2302	ERG2ANJ100	F 6.8OHM. J. 2W
R1129	ERDS2TJ222	C 2.2KOHM. J.1 4W			

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Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R2307	ERDS2TJ471	C 470OHM. J.1.4W	C412	ECSF1EE105V	T 1UF. 25V MTV
R2308	ERDS2TJ101	C 100OHM. J.1.4W	C415	ECEA1CU221	E 220UF. 16V
R2312	ERDS1FJ4R7	C 4.7OHM. J.1.2W	C416	ECEA1EU222	E 2200UF. 25V
R3001	ERDS2TJ332	C 3.3KOHM. J.1.4W	C417	ECEA1HUR33	E 0.33UF. 50V
R3002	ERDS2TJ101	C 100OHM. J.1.4W	C418	ECQB1H103KF	P 0.01UF. K. 50V
R3003	ERDS2TJ123	C 12KOHM. J.1.4W	C421	ECEA1HUR22	E 0.22UF. 50V
R3004	ERDS2TJ391	C 390OHM. J.1.4W	C430	ECQV1H334JZ	P 0.33UF. J. 50V
R3005	ERDS2TJ680	C 68OHM. J.1.4W	C431	ECKF1H152KB	C 1500PF. K. 50V
R3007	ERDS2TJ103	C 10KOHM. J.1.4W	C452	ECEA1AU330	E 33UF. 10V
R3017	ERDS2TJ101	C 100OHM. J.1.4W	C455	ECCF1H100FC	C 10PF. F. 50V MTV
R3018	ERDS2TJ393	C 39KOHM. J.1.4W	C456	ECEA1VU101	E 100UF. 35V
CAPACITORS			C457	ECEA1VU471	E 470UF. 35V
C101	ECKF1H103ZF	C 0.01UF. Z. 50V	C459	ECEA1HU2R2	E 2.2UF. 50V
C103	ECKF1H103ZF	C 0.01UF. Z. 50V	C460	ECQV1H104JZ	P 0.1UF. J. 50V
C104	ECEA1CU471	E 470UF. 16V	C461	ECQB1H473KF	P 0.047UF. K. 50V
C105	ECKF1H103ZF	C 0.01UF. Z. 50V	C501	ECEA2CNR47S	E 0.47UF. 160V
C107	ECKF1H103ZF	C 0.01UF. Z. 50V	C504	ECCF1H680J	C 68PF. J. 50V
C109	ECEA1CU100	E 10UF. 16V	C508	ECKD2H471KB2	C 470PF. K.500V
C110	ECKF1H103ZF	C 0.01UF. Z. 50V	C509	ECEA2EU100	E 10UF. 250V
C111	ECEA1HFSR47	E 0.47UF. 50V	C510	ECKD2H471KB2	C 470PF. K.500V
C112	ECEA1CU470	E 47UF. 16V	C511	ECEA1EU471	E 470UF. 25V
C113	ECEA1HU3R3	E 3.3UF. 50V	C514	ECKD2H561KB2	C 560PF. K.500V
C114	ECEA1VFS100	E 10UF. 35V	C515	ECEA1VGE102	E 1000UF. 35V
C115	ECQV1H334JZ	P 0.33UF. J. 50V	C526	ECEA1JU100	E 10UF. 63V
C116	ECA1CM101	E 100UF. 16V	C532	ECEA1HU010	E 1UF. 50V
C119	ECEA1CU100	E 10UF. 16V	C538	ECEA1AU470	E 47UF. 10V
C120	ECQV1H104JZ	P 0.1UF. J. 50V	C541	ECKD2H331KB2	C 330PF. K.500V
C121	ECEA1HU010	E 1UF. 50V	C542	ECEA1VU101	E 100UF. 35V
C122	ECEA1HU0R1	E 0.1UF. 50V	C545	ECQB1H223KF	P 0.022UF. K. 50V
C123	ECEA1CN100S	E 10UF. 16V	C546	ECKF1H681KB	C 680PF. K. 50V
C125	ECUX1H103ZFX	C 0.01UF. Z. 50V MTV	C549	ECEA1HU0R1	E 0.1UF. 50V
C141	ECUX1H151JX	C 150PF. J. 50V MTV	C551	ECEA1HU100	E 10UF. 50V
C150	ECEA1HFSR47	E 0.47UF. 50V	C552	ECQB1H223KF	P 0.022UF. K. 50V
C151	ECKF1H103ZF	C 0.01UF. Z. 50V	C553	ECQB1H563JF	P 0.056UF. J. 50V
C152	ECEA1CN100S	E 10UF. 16V	C554	ECEA1CU100	E 10UF. 16V
C153	ECEA50ZR47	E 0.47UF. 50V	C555	ECEA1CU471	E 470UF. 16V
C154	ECKF1H122KB	C 1200PF. K. 50V	C556	ECCF1H221JU	C 220PF. J. 50V
C160	ECUX1H103ZFX	C 0.01UF. Z. 50V MTV	C561	ECEA1CU221	E 220UF. 16V
C163	ECUX1H103ZFX	C 0.01UF. Z. 50V MTV	C562	ECKD3D471JBN	C 470PF. J. 2KV
C214	ECCF1H180JC	C 18PF. J. 50V	C563	ECEA1HU010	E 1UF. 50V
C216	ECEA1CN330S	E 33UF. 16V	C566	ECQB1H103JF	P 0.01UF. 50V
C217	ECKF1H392KB	C 3900PF. K. 50V	C567	ECQV1H104JZ	P 0.1UF. J. 50V
C219	ECA1CM101	E 100UF. 16V	C568	ECKD3D222JBN	C 2200PF. J. 2KV
C220	ECKF1H332KB	C 3300PF. K. 50V	C569	ECKD3D222JBN	C 2200PF. J. 2KV
C221	ECEA1HU4R7	E 4.7UF. 50V	C570	TAC4R6B103JC	P 0.01UF. J.1.2KV MTV
C222	ECEA1CN100S	E 10UF. 16V	C571	ECKD3D222JBN	C 2200PF. J. 2KV
C223	ECKF1H103ZF	C 0.01UF. Z. 50V	C572	ECKD3D222JBN	C 2200PF. J. 2KV
C224	ECKF1H472KB	C 4700PF. K. 50V	C573	7A2D824JSF	P 0.82UF. J.200V MTV
C231	ECEA1EU221	E 220UF. 25V	C574	7A2D474JSF	P 0.47UF. J.200V MTV
C232	ECKF1H103ZF	C 0.01UF. Z. 50V	C575	ECQM4223JZ	P 0.022UF. J.400V
C350	ECCF1H331J	C 330PF. J. 50V	C576	ECQM4473JZ	P 0.047UF. J.400V
C351	ECCF1H391J	C 390PF. J. 50V	C601	ECQB1H223JF	P 0.022UF. J. 50V
C352	ECCF1H331J	C 330PF. J. 50V	C602	ECQB1H223JF	P 0.022UF. J. 50V
C353	ECCF1H391J	C 390PF. J. 50V	C603	ECQB1H223JF	P 0.022UF. J. 50V
C354	ECKD3D821KBN	C 820PF. K. 2KV	C604	ECEA50ZR47	E 0.47UF. 50V
C356	ECKD2H103PU	C 0.01UF. P.500V	C605	ECKF1H103ZF	C 0.01UF. Z. 50V

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Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C606	ECQB1H223JF	P 0.022UF. J. 50V	C830	ECEA0JU101	E 100UF. 6.3V
C607	ECEA1HU2R2	E 2.2UF. 50V	C831	ECEA1HU221	E 220UF. 50V
C608	ECCF1H120JU	C 12PF. J. 50V	C832	ECKDNS471MBJ	C 470PF. M.
C609	ECCF1H150JU	C 15PF. J. 50V	C833	ECKD2H821KB2	C 820PF. K.500V
C610	ECEA1HU100	E 10UF. 50V	C838	ECQV1H224JZ	P 0.22UF. J. 50V
C612	ECCF1H100D	C 10PF. D. 50V	C847	ECKD2H472PU	C 4700PF. P.500V
C613	ECKF1H103ZF	C 0.01UF. Z. 50V	C1051	ECKF1H103ZF	C 0.01UF. Z. 50V
C614	ECA1CM101	E 100UF. 16V	C1052	ECEA1HU470	E 47UF. 50V
C615	ECEA1HU4R7	E 4.7UF. 50V	C1053	ECCF1H101J	C 100PF. J. 50V
C618	ECCF1H330J	C 33PF. J. 50V	C1101	ECKF1H103ZF	C 0.01UF. Z. 50V
C619	ECCF1H330J	C 33PF. J. 50V	C1102	ECEA0JU101	E 100UF. 6.3V
C620	ECCF1H330J	C 33PF. J. 50V	C1103	ECKF1H221KB	C 220PF. K. 50V
C621	ECA1CM101	E 100UF. 16V	C1104	ECKF1H103ZF	C 0.01UF. Z. 50V
C622	ECQB1H223KF	P 0.022UF. K. 50V	C1105	ECKF1H103ZF	C 0.01UF. Z. 50V
C639	ECEA1CN100S	E 10UF. 16V	C1106	ECEA1CU220	E 22UF. 16V
C646	ECKF1H101KB	C 100PF. K. 50V	C1107	ECKF1H103ZF	C 0.01UF. Z. 50V
C648	ECA1CM101	E 100UF. 16V	C1108	ECCF1H820J	C 82PF. J. 50V
C649	ECQB1H223KF	P 0.022UF. K. 50V	C1116	ECEA1HU010	E 1UF. 50V
C656	ECQB1H223KF	P 0.022UF. K. 50V	C1118	ECEA1HU2R2	E 2.2UF. 50V
C657	ECA1CM101	E 100UF. 16V	C1130	ECKF1H103ZF	C 0.01UF. Z. 50V
C658	ECQB1H223KF	P 0.022UF. K. 50V	C1135	ECKF1H821KB	C 820PF. K. 50V
C659	ECEA1HU0R1	E 0.1UF. 50V	C1136	ECCF1H101J	C 100PF. J. 50V
C660	ECEA1HU0R1	E 0.1UF. 50V	C1137	ECQB1H223KF	P 0.022UF. K. 50V
C661	ECKF1H103ZF	C 0.01UF. Z. 50V	C1140	ECEA1HU2R2	E 2.2UF. 50V
C662	ECKF1H103ZF	C 0.01UF. Z. 50V	C1141	ECCF1H561J	C 560PF. J. 50V
C669	ECEA1HU0R1	E 0.1UF. 50V	C1144	ECCF1H101J	C 100PF. J. 50V
C670	ECEA1CU470	E 47UF. 16V	C1145	ECKF1H151KB	C 150PF. K. 50V
C671	ECQB1H223KF	P 0.022UF. K. 50V	C1146	ECCF1H101J	C 100PF. J. 50V
C672	ECQV1H104JZ	P 0.1UF. J. 50V	C1147	ECKF1H221KB	C 220PF. K. 50V
C673	ECQV1H224JZ	P 0.22UF. J. 50V	C1148	ECCF1H330JP	C 33PF. J. 50V
C674	ECCF1H390J	C 39PF. J. 50V	C1149	ECCF1H330JP	C 33PF. J. 50V
C801	ECQU2A333MN	P 0.033UF. M.250V	C1150	ECKF1H101KB	C 100PF. K. 50V
C802	ECKD2H472KB2	C 4700PF. K.500V	C1151	ECKF1H101KB	C 100PF. K. 50V
C803	ECKD2H472KB2	C 4700PF. K.500V	C1152	ECKF1H103ZF	C 0.01UF. Z. 50V
C804	EC0S2GP331DB	E 330UF. 400V	C1153	ECEA1CU100	E 10UF. 16V
C805	ECEA1VU470	E 47UF. 35V	C1160	ECKF1H103ZF	C 0.01UF. Z. 50V
C807	ECHS1H104JZ	P 0.1UF. J. 50V	C1174	ECEA1HU2R2	E 2.2UF. 50V
C808	EC0S2DG221E	E 220UF. 200V	C1180	ECEA50ZR33	E 0.33UF. 50V
C809	ECQB1H103JF	P 0.01UF. 50V	C1181	ECKF1H103ZF	C 0.01UF. Z. 50V
C810	ECKD3D222JBN	C 2200PF. J. 2KV	C1182	ECEA1HU330	E 33UF. 50V
C811	ECQV1H224JZ	P 0.22UF. J. 50V	C1183	ECEA50ZR33	E 0.33UF. 50V
C812	ECEA1EGE222	E 2200UF. 25V	C1184	ECEA50ZR47	E 0.47UF. 50V
C813	ECA1CM101	E 100UF. 16V	C2301	ECA1CM102G	E 1000UF. 16V
C814	ECKD3D821KBP	C 820PF. K. 2KV	C2302	ECKF1H103ZF	C 0.01UF. Z. 50V
C815	ECKD2H222KB2	C 2200PF. K.500V	C2303	ECEA1CU330	E 33UF. 16V
C816	ECQU2A333MN	P 0.033UF. M.250V	C2304	ECQV1H184JZ	P 0.18UF. J. 50V
C817	ECKD2H472KB2	C 4700PF. K.500V	C2305	ECEA1EGE101	E 100UF. 25V
C818	ECKD2H472KB2	C 4700PF. K.500V	C2306	ECEA1EU471	E 470UF. 25V
C819	ECKD2H681KB2	C 680PF. K.500V	C2307	ECA1EM222G	E 2200UF. 25V
C820	ECKDNS222MEJ	C 2200PF. M.	C2308	ECKF1H103ZF	C 0.01UF. Z. 50V
C823	ECKD2H561KB2	C 560PF. K.500V	C2310	ECEA1EU4R7	E 4.7UF. 25V
C824	ECQB1H223JF	P 0.022UF. J. 50V	C2315	ECQV1H184JZ	P 0.18UF. J. 50V
C825	ECEA1HU470	E 47UF. 50V	C2316	ECQV1H154JZ	P 0.15UF. J. 50V
C827	ECEA1EU101	E 100UF. 25V	C2317	ECEA1VU102	P 1000UF. J. 50V
C828	ECA1CM101	E 100UF. 16V	C3001	ECEA1CU470	E 47UF. 16V
C829	ECA1CM101	E 100UF. 16V	C3002	ECKF1H471KB	C 470PF. K. 50V

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Ref.No.	Part No.	Description
C3003	ECEA1CU471	E 470UF, 16V
COILS		
L102	TLTACTR82K	PEAKING COIL MTV
L106	TLTACC8R2K	PEAKING COIL 8.2U
L107	TLTACC1R0K	PEAKING COIL
L110	EXCELD25V	CORE
L111	TLTACC1R0K	PEAKING COIL
L125	TLTACC151K	PEAKING COIL
L140	TLTACC180K	PEAKING COIL 18U
L142	TLTACC180K	PEAKING COIL 18U
L143	TLTACC180K	PEAKING COIL 18U
L145	TLTACC100K	PEAKING COIL 10U
L147	TLTACC150K	PEAKING COIL 15U
L220	TLTACC151K	PEAKING COIL
L567	EXCELSA35T	BEADS CORE MTV
L568	TSK1002	COIL
L569	ELH5L713	COIL MTV
L574	ELC08D055	COIL
L610	TLUABTA100	PEAKING COIL MTV
L611	TLUABTA100	PEAKING COIL MTV
L612	TLUABTA100	PEAKING COIL MTV
L613	TLTACC100K	PEAKING COIL 10U
L620	TLTACC100K	PEAKING COIL 10U
L670	TLTACC220K	PEAKING COIL 22U
L801	ELF18D650L	LINE FILTER
L803	EXCELSA35T	BEADS CORE MTV
L804	ELIE100KA	PEAKING COIL
L805	EXCELSA35T	BEADS CORE MTV
L806	TSC930-4	CHOKE COIL
L807	TSC930-4	CHOKE COIL
L808	EXCELSA35T	BEADS CORE MTV
L1051	ERDS1TJ470	C 470HM, J.1.2W
L1101	EXCELSA35T	BEADS CORE MTV
L1102	TLUABTA100	PEAKING COIL MTV
L1103	TLUABTA100	PEAKING COIL MTV
L1104	TLUABTA100	PEAKING COIL MTV
L1106	TSK1002	COIL
L1107	TLUABTA100	PEAKING COIL MTV
L1108	TLUABTA100	PEAKING COIL MTV
L1109	TLUABTA100	PEAKING COIL MTV
L1110	TSC930-4	CHOKE COIL
L1135	TLUABTA100	PEAKING COIL MTV
L1140	TLUABTA100	PEAKING COIL MTV
L1141	TLUABTA100	PEAKING COIL MTV
L1146	EXCELSA35T	BEADS CORE MTV
LC151	EQL7EN019P	COIL
TRANSFORMERS		
T501	TLF15644F1	FLYBACK TRANSFORMER MTV ⚠
T566	TLH15462M	COIL
T801	TLP15954M	INDUCTOR COIL
T802	ETS29AC1C6AC	SWITCHING TRANSFORMER MTV ⚠
DIODES		
D119	MA165	DIODE
D120	MA4051M	DIODE
D121	MA4068M	DIODE
D230	MA165	DIODE

Ref.No.	Part No.	Description
D401	MA165	DIODE
D413	MA165	DIODE
D414	MA29WA	DIODE
D415	MA29WA	DIODE
D449	MA4360M	DIODE
D452	ERA15-01	DIODE
D510	TVSEU2	DIODE
D511	TVSEU2	DIODE
D513	TVSEU2	DIODE
D520	MA700	DIODE
D528	MA4360L	DIODE
D531	TVSEU2	DIODE
D543	MA171	DIODE
D544	MA4108J	DIODE
D565	MA171	DIODE
D566	ERD07-15	DIODE
D567	TVSRU2AM	DIODE
D601	MA165	DIODE
D670	MA4082M	DIODE
D671	MA165	DIODE
D802	MA162	DIODE
D806	MA4068L	ZENER DIODE
D807	D1NL20UV70	DIODE MTV
D808	S2L60V61	DIODE MTV
D809	D1NL20UV70	DIODE MTV
D810	EU02	DIODE
D811	D1NL20UV70	DIODE MTV
D813	D4SB80Z	DIODE
D814	TRPW5B0N120D	POSISTOR MTV
D815	ENC621D-10A	RESISTOR MODULATOR MTV
D816	D1NL20UV70	DIODE MTV
D817	TVSTFD315M	THYRISTOR 50M
D818	D1NL20UV70	DIODE MTV
D819	D1NL20UV70	DIODE MTV
D820	PS2501-1	PHOTO COUPLER
D831	EU02	DIODE
D835	MA2560	DIODE
D836	D1NL20UV70	DIODE MTV
D837	D1NL20UV70	DIODE MTV
D1101	MA4056L	DIODE
D1111	EL333ID-F45R	LED MTV
D1116	MA165	DIODE
D1135	MA165	DIODE
D1136	MA4150M	DIODE
D1150	MA4068M	DIODE
D1151	MA4068M	DIODE
D2301	MA165	DIODE
D2302	EU02	DIODE
INTEGRATED CIRCUITS		
IC102	TVSUPD4066BC	C-MOS LOGIC IC
IC203	M52317SP	LINEAR IC MTV
IC401	LA7837	LINEAR IC MTV
IC601	AN5192K-A	LINEAR IC MTV
IC602	TDA4665	LINEAR IC
IC603	TDA8395P	LINEAR IC MTV
IC801	SE090N	IC
IC802	AN78M05LB	LINEAR IC

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Ref.No.	Part No.	Description
IC805	UPC7812AHF	IC MTV
IC806	AN7809	LINEAR IC
IC807	AN7805	LINEAR IC
IC1051	RPM-637CBRS	REMOTE CONTROL RECEIVER
IC1101	MN152811TZX	IC (MICRO PROCESSOR) MTV
IC1102	MN1280R	IC (MOS IC)
IC1103	AN5071	LINEAR IC
IC1104	24C02AIPA21	IC MTV
IC2301	AN5270	LINEAR IC
TRANSISTORS		
Q101	2SC2188	TRANSISTOR
Q115	2SB709ATX	TRANSISTOR MTV
Q117	2SD601ATX	TRANSISTOR MTV
Q120	2SC945AQR-T	TRANSISTOR MTV
Q150	2SC945AQR-T	TRANSISTOR MTV
Q151	2SC945AQR-T	TRANSISTOR MTV
Q216	2SC945AQR-T	TRANSISTOR MTV
Q220	2SC945AQR-T	TRANSISTOR MTV
Q230	2SA564A-R	TRANSISTOR
Q351	2SC2258	TRANSISTOR
Q352	2SC2258	TRANSISTOR
Q354	2SC2258	TRANSISTOR
Q445	2SA564A-R	TRANSISTOR
Q446	2SC945AQR-T	TRANSISTOR MTV
Q447	2SC945AQR-T	TRANSISTOR MTV
Q451	2SA564A-R	TRANSISTOR
Q503	2SA564A-R	TRANSISTOR
Q564	2SC945AQR-T	TRANSISTOR MTV
Q565	2SD1275A	TRANSISTOR
Q566	2SD2499	TRANSISTOR MTV
Q675	2SC945AQR-T	TRANSISTOR MTV
Q801	2SC4804ARL	TRANSISTOR MTV
Q802	2SC3940A	TRANSISTOR
Q803	2SD1010	TRANSISTOR
Q805	2SA1512	TRANSISTOR
Q1116	UN4212	TRANSISTOR
Q1135	2SC945AQR-T	TRANSISTOR MTV
Q1164	2SC945AQR-T	TRANSISTOR MTV
Q1180	2SC945AQR-T	TRANSISTOR MTV
Q3001	2SC945AQR-T	TRANSISTOR MTV
OTHERS		
E.22	TJS118610	4P CONNECTOR
E.32	TJS118620	5P CONNECTOR
E.33	TJS118610	4P CONNECTOR
F801	XBA2C31TR0	FUSE 250V 3.15A
JA.1	ERJ6GEY0R00	M 00HM.J.1.10W
JA.2	ERJ6GEY0R00	M 00HM.J.1.10W
JA.3	ERJ6GEY0R00	M 00HM.J.1.10W
JA.4	ERJ6GEY0R00	M 00HM.J.1.10W
JA.5	ERJ6GEY0R00	M 00HM.J.1.10W
JA.6	ERJ6GEY0R00	M 00HM.J.1.10W
JA.7	ERJ6GEY0R00	M 00HM.J.1.10W
JA.8	ERJ6GEY0R00	M 00HM.J.1.10W
JK.2	TJB18637	AV TERMINAL
JK.21	TJS1A5050	CRT SOCKET 
RL801	AJW42123	RELAY
S801	ESB91232A	SWITCH

Ref.No.	Part No.	Description
S1107	EVQPB105K	SWITCH
S1108	EVQPB105K	SWITCH
S1109	EVQPB105K	SWITCH
S1110	EVQPB105K	SWITCH
S1111	EVQPB105K	SWITCH
S1112	EVQPB105K	SWITCH
TNR2	ENV598D1F2	TUNER 
X101	TFCH38MVK03	SAW FILTER
X103	EFCS6R0MW5	CERAMIC FILTER
X105	EFCS4R5MW5	CERAMIC FILTER
X120	EFCS6R5MW5	CERAMIC FILTER
X136	EFCS5R5MW3	CERAMIC TRAP
X208	EFCS5R5MS5	CERAMIC FILTER
X209	EFCS4R5MS5	FILTER
X210	EFCS6R5MS5	CERAMIC FILTER
X212	CSB1000J527	CRYSTAL OSC MTV
X221	SFSH6R0MDB	CERAMIC FILTER MTV
X554	CSB500F48	CRYSTAL OSC MTV
X601	TS116M20	CRYSTAL OSC MTV
X602	TS816M32	CRYSTAL OSC MTV
X1144	TAF10020	CERAMIC FILTER MTV