WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

CAUTION: The international hazard symbols "\(\triangle \)" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5%

NOTE:

tolerance carbon resistor, unless otherwise noted as the following marks. 1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon compsistion of 1/2 watt 1RF = Fuse resistor of 1 watt 10W = Cement of 10 watt

 $K = \pm 10\%$ $G = \pm 2\%$ $F = \pm 1\%$ 2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μ F, and the values more than 1 in pF.

All capacitors are ceramic 50V, unless otherwise noted as the following marks.

4. Voltages read with DIGITAL MULTI-METER from point indicated to chassing ground, using a color bar signal with all controls at normal, line voltage 220 volts.

21A3R

MAIN/CRT (S1E)

16

CAUTION:
DO NOT USE DIGITAL VOLTMETER FOR
MEASURING COLLECTOR VOLTAGE OF 0404

5. Waveforms are taken receiving color bar signal with enough sensitivity. 6. Voltage reading shown are nominal values and may vary $\pm 20\%$ except H.V.

3. The parts indicated with " \triangle " have special characteristics, and should be replaced with identical parts only. U901 CRT DRIVE BOARD PD0157 U902 MAIN BOARD PD0158 TEXT BLOCK RT02

RT01
100

RT02

RT01
100 XTALI XTALI VSYNC 222222 SSAD-b DC23V
(PEDESTAL LEVEL)

M501

GND 77

GND 77 0610 AN5274 5 PIN MULTI or THAI FOR TAIWAN DE2.1V

CPEDESTAL LEVEL
0 Z103 OTHERS TPS4.5MC2 (4.5) THAI TCF1113(5.5/5.74) * Z102 ₩ RB43 OSC1740S,0 OSC174 * R131 ≱ * L109 ----C165 C164
FOR TAIWAN * ...* 1844 / Best 1 185133 | Best 1 SA02 SW PUSH SA03 SW PUSH SA04 MENU SW PUSH GJ35 SHORT 08304 25C3852 0r2SD1944H C832 16V47 PAL/NTSC ICHIP TB1254AN G883 ISS133 ▼ ISS133 ▼ R831 ₹ RB5.IESAB2 # Clorp Y Pr Secoth Secoth AC Street View Country No. Country No. Country Countr RV03 ≹ 10K +5V-1+5V-1 +5V-1 Q301 TA8403K ≹R227 22K R470 1W0.68 W R479 1/2W82 71/2W300 E472 M0.47 115Vp-p(H) M.C.23UV.10UUF

A. 0862 or TLP721F

DN3171-R or TLP721F

DN3171-R or TLP721F

R891

R891 * KETSU means to open the circuit. * MARK ARE DIFFERENCE POINTS. e - 3 21A3TR 21A3MX 21A3E 116 21A3H 21A3G 21A3VE 21A3M/MJ 21A3T 21A3VX

	14 15 16
Column	MDDEL(JDB) MAIN UNIT LDC. ND. TEXT BLDCK C164 C165 C165 GJ01 GJ02 GJ04
Color Colo	21A3E (LJ256) PD0158 21A3H (LJ) PDXXXX PDXXXX 0.01^ OPEN OPEN 1SV110 SHORT OR SHORT SHORT OR OPEN SHORT OR OPEN
Mathematical Math	21A3M (LJ) PDXXXX 21A3MJ (LJ) PDXXXX 0.01^ OPEN OPEN SHORT OR SHORT SHORT OR SHORT SHORT OR SHORT SHORT OR OPEN
10 전 10 T	21A3TR (LJ) PDXXXX PDXXXX O.01^ OPEN OPEN 16V 47^ 15S110 SHORT OR SHORT OPEN OR SHORT SHORT OR SHORT SHORT OR OPEN
94001 9400	21A3G (LJ) PDXXXX PDXXXXX PDXXXX PDXXXX PDXXXX PDXXXX PDXXXX PDXXXX PDXXXX PDXXXX PDXXXXX PXXXXX PDXXXXX PDXXXXXX PDXXXXXX PDXXXXX PDXXXXX PDXXXXX PDXXXXXX PDXXXXXX PDXXXXX PDXXXXX PDXXXXX PDXXXXXX PDXXXXXX PDXXXXX PDXXX
SHIBRY SHIBRY SHIRRY SHIRRY SHIBRY SH	21A3T (LJ) PDXXXX PDXXXX OPEN OPEN OPEN SHORT OPEN SHORT OPEN
S G G V R 6P R	21A3MX (LJ) PDXXXX 21A3VE (LJ) PDXXXX 0.01^F OPEN ISS110 ISS110 SHORT OR SHORT SHORT OR SHORT SHORT OR SHORT SHORT OR SHORT
Section Sect	21A3VX (LJ) PDXXXX PDXXXX PDXXXX O.01^F O.01^F OPEN SHORT OR SHORT SHORT OR SHORT SHORT OR SHORT SHORT OR OPEN OPEN OR SHORT SHORT OR OPEN
	21A3R (LJ) PDXXXX PDXXXX NOT USED NOT USED 16V 47^ 15S110 SHORT OR SHORT OPEN OR OPEN SHORT OR SHORT SHORT OR OPEN
PINAS SERIES PINAS SERIES * MARKS DIFFERENCEREFER TO MAIN/CRTCIRCUIT DIAGRAM.	21A3E 21A3TR 21A3H 21A3G 21A3M/J 21A3T

SERVICE MODE

1. ENTERING TO SERVICE MODE

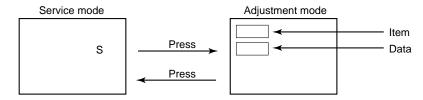
 While pressing the 或 button, press MENU button on TV set.



(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

A single horizontal line ON/OFF: -/-- button (on Remote) or → button (on TV)

Test signal selection :

⊕ button (on Remote)

Selection of the adjustment items : Channel ▲/▼ (on TV or Remote)
Change of the data value : Volume ∠ +/- (on TV or Remote)

Adjustment menu mode ON/OFF: MENU button (on TV)

Initialization of the memory (QA02): CALL + Channel button on TV (▲)

Reset the count of operating protect

circuit to "00": CALL + Channel button on TV (▼)

"RCUT" selection: 1 button
"GCUT" selection: 2 button
"BCUT" selection: 3 button
"CNTX" (or "SCNT") selection: 4 button

"COLC" selection: 5 button - - - - Color thickness correction

"TNTC" selection : 6 button note: Displayed differently as shown below, de-Test audio signal ON/OFF (1kHz) : 8 button pending on the setting of the receiving color

Self diagnostic display ON/OFF: 9 button system.

COLP (PAL) COLC (NTSC) COLS (SECAM)

CAUTION: Never try to perform initialization unless you have changed the memory IC.

4. SELECTING THE ADJUSTING ITEMS

Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2.
 (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode. (See SETTING & ADJUSTING DATA on page 16)

5. ADJUSTING THE DATA

6. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

After replacing QA02, the following initialization is required.

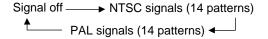
- 1. Enter the service mode, then select any register item.
- 2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been complated.
- 3. Check the picture carefully. If necessary, adjust any adjustment item above.

Perform "Auto search Memory" on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. TEST SIGNAL SELECTION

 Every pressing of ← button on the Remote Control changes the built-in test patterns on screen as described below in SERVICE MODE.



Signals	Picture
Red raster Green raster Blue raster All Black All White	
Black & White	
Black cross-bar White cross-bar Black cross-bar on green raster	
Black cross-hatch White cross-hatch	
Black cross-dot White cross-dot	
H signal (white) H signal (black)	

^{*} The signals marked with are not usable to display in the Test signal for some model.

8. SELF DIAGNOSTIC FUNCTION

- 1) Press "9" button on Remote Control during display of adjustment menu in the service mode. The diagnosis will begin to check if interface among IC's are executed properly.
- 2) During diagnosis, the following displays are shown.

1) Part number of microcomputer (QA01)

② Operation number of protecting circuit ----"00" is normal.

When indication is other than "00", overcurrent apts to flow, and circuit parts may possibly be damaged.

③ BUS LINE CHECK ----"OK" is normal.

"SDA1-GND" -------- SDA-GND short circuit.

"SCL1-GND" ------- SCL-GND short circuit.

"SCL1-SDA1" ------ SCL-SDA short circuit.

④ BUS CONT ---- "OK" is normal. When indication shows "Q ○○○ NG", the device with the number may possibly be damaged.

(5) BLOCK

UV: TV reception mode

V1 : VIDEO 1 input mode (-€1) V2 : VIDEO 2 input mode (-€2) Indicated color of mode now selected: Green and Red Indicated color of other modes: White

Green: Normal

Red: The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.

QV01: In case of indication green ---Normal In case of indication red with input signal---- Failure may exist in output line including QV01.

NOTE: Component which controls character display on screen is QT01 (TELETEXT IC.). If this display function fails to operate due to damage in QT01, self diagnosis procedure is as follows.

- (1) In case that power indicator is blinking with interval of 0.5 seconds; it means protecting circuit (Current limiter) is operating, and circuit components may possibly be damaged. Check related components.
- (2) In case that power indicator is blinking with interval of 1 second; Protecting circuit does not operate, but a part of Bus line does not operate normally. Check Bus line.

^{*} The items marked with are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.