

## General Information

1995

Chassis: 5BSA

CRT: 34EAC0136

Also Covers:

Sharp 37AM-12H

Remote Control:

37AM-23H

RRMCG1048BMSA

37AM-12H

RRMCG1050BMSA

Main Power Button:

37AM-23H

JBTN-1023BMSA

37AM-12H

JBTN-1019BMSA

## Specifications

Aerial Input Impedance	75 ohm unbalanced
Convergence	Self converging system
Focus	Bipotential electrostatic
Power Input	240V AC 50 Hz
Power Consumption	38 W
Speaker	8cm round
Voice Coil Impedance	32 ohm
Sweep Deflection	Magnetic
Tuning Ranges	471.25 MHz / 855.25 MHz
Audio Power Output Rating	1.5W (MPO)
Intermediate Frequencies:	
Picture IF	39.5 MHz
Sound IF Carrier	33.5 MHz
Colour Sub-Carrier	35.07 MHz (Nominal)

## Service Adjustments

## Important Service Notes

Maintenance and repair of this receiver should be done by qualified service personnel only.

## Recommended Safety Parts

Item	Part No.	Description
	VB34EAC0136*N	CRT 14"
	RCILG0407BMZZ	Degaussing Coil
C 0722	RC-KZ0156CEZZ	3300p 4KV Ceramic
IC 0701	RH-FX0101BMZZ	Opto Coupler
L 0701	RCILF0111BMZZ	Mains Filter
R 0721	VRC-U2AHG825K	8.2M 1/2 W Solid
S 0701	QSW-P0600BMZZ	Power Switch
T 0601	RTRNF2031BMZZ	F.B.T.
T 0700	RTRNZ0535BMZZ	Chopper

## Servicing of High Voltage and Picture Tube.

When servicing the high voltage system, remove static charge from it by connecting a 10 k  $\Omega$  Resistor in series with an insulated wire (such as a test probe) between picture tube ground tag and high voltage lead (AC line cord should be disconnected from AC outlet).

- 1: Picture tube in this receiver employs integral implosion protection.
- 2: Replace with tube of the same type number for continued safety.
- 3: Do not lift picture tube by the neck.
- 4: Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.

## X-Ray

This receiver is designed so that any X-Ray radiation is kept to an absolute minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range the following precautions should be observed:

- 1: When repairing the circuit, be sure not to increase the high voltage to more than 30.0 kv, (at beam 1000uA) for the set.
- 2: To keep the set in a normal operation, be sure to make it function on 23.5 kv  $\pm$  1.5 kv (at beam 1000 uA) in the case of the set. The set has been factory adjusted to the above-mentioned high voltage. If there is a possibility that the high voltage fluctuates as a result of the repairs, never forget to check for such high voltage after the work.
- 3: Do not substitute a picture tube with unauthorised types and/or brands which may cause excess X-Ray radiation.

## Before Returning the Receiver

In addition to the checks necessary as a result of a repair having been carried out, the following additional safety checks should also be made before returning the units to the user.

- 1: Inspect all lead insulation to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
- 2: Inspect all protective devices such as non-metallic control knobs, insulating fish papers, cabinate backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.
- 3: Apply test voltage of 3000 volts between live parts and accessible metal parts for 3 seconds.

## Service Adjustment

## Service Mode Function

This mode function is provided to assist with the settings of those adjustments that may vary from one Picture Tube to another, or between models.

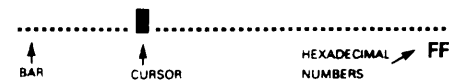
In order to use the Service Mode

- 1: Press main switch to OFF
- 2: Connect Test Pattern signal to antenna terminal
- 3: Press v  $\Delta$  and CH  $\Delta$  buttons and main switch to ON simultaneously.
- 4: —SERV— will appear on screen. Service mode is now entered.
- 5: Select adjustment using buttons v CH  $\Delta$

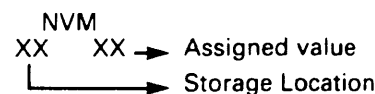
To exit service mode, press main switch to OFF or press MODE button on R/C.

	Displayed on Screen	Hexadecimal Range	Function
	-SERV-		Indicates operative Service Mode
a	AGC	00 - FF	Auto Gain Contr
b	AFT	00 - FF	Auto Frequency Contr
c	BL PHA	00 - 3F	Blanking Pulse shift
d	VER PO	00 - 3F	Vertical Position shift
e	VER AM	00 - 3F	Vertical Amplitude shift
f	VER SM	00 - 3F	Vertical Symmetry alteration
g	LUMA-D	00 - 05	Luma Delay
h	G II		Indication of G2 adjustment
i	V-B-CO	00 - 3F	Vertical Breathing Correction (DO NOT TOUCH)
j	GAIN R	00 - 3F	Red Gain
k	GAIN G	00 - 3F	Green Gain
l	GAIN B	00 - 3F	Blue Gain
m	NVM		Access to NVM memory

- 6: For "a" thru "i" selections. Adjustment to a selection can be made by pressing buttons v  $\Delta$   $\Delta$  (not for GII adjustment). A colour bar is displayed on the OSD to indicate the adjustment position, together with hexadecimal numbers (not for GII adjustment).



For "m" selection.  
NVM storage location settings variants.



In order to have access to the desired storage location, buttons v  $\Delta$   $\Delta$  should be pressed, to obtain a higher or lower location, respectively. Bear in mind that, for storage location indication a hexadecimal numerical system is used, instead of a decimal system.

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, 10, 11, ..... 19, 1A, 1B, 1C, 1D, 1E, 1F, 20, 21, ..... 99, 9A, 9B, 9C, 9D, 9E, 9F, A0, A1, ..... B0, ..... C0, ..... D0, ..... E0, ..... F0, F1, F2, F3, F4, F5, F6, F7, F8, F9, FA, FB, FC, FD, FE, FF.

From this last location FF to the first 00 can be reached by increasing and from first to last by decreasing. Once the storage location to be varied has been selected, its value can be modified by the bits that form part of the storage location numerical buttons, numbers 0 to 7, respectively. This switches its binary number from and between 0 and 1 each time one of the buttons is pressed.

0 = 2<sup>0</sup>, 1 = 2<sup>1</sup>, 2 = 2<sup>2</sup> = 4, .....

ACD	DESCRIPTION
00	RED COLOUR TEMPERATURE
01	GREEN COLOUR TEMPERATURE
02	BLUE COLOUR TEMPERATURE
03	VERTICAL POSITION
04	HORIZONTAL PHASE CONTROL
05	VERTICAL AMPLITUDE
06	VERTICAL BREATHING CORRECTION
07	VERTICAL LINEARITY
08	LUMA DELAY PAL
09	LUMA DELAY SECAM
0A	AGC
0B	OPTIONS
0C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
0D	AFT ADJUSTMENT VALUE (L SYSTEM)
0E	MAXIMUM VOLUME LIMIT
0F	FIRM
10	RED COLOUR TEMPERATURE
11	GREEN COLOUR TEMPERATURE
12	BLUE COLOUR TEMPERATURE
13	VERTICAL POSITION
14	HORIZONTAL PHASE CONTROL
15	VERTICAL AMPLITUDE
16	VERTICAL BREATHING CORRECTION
17	VERTICAL LINEARITY
18	LUMA DELAY PAL
19	LUMA DELAY SECAM
1A	AGC
1B	OPTIONS
1C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
1D	AFT ADJUSTMENT VALUE (L SYSTEMS)
1E	MAXIMUM VOLUME LIMIT
1F	FIRM
20	RED COLOUR TEMPERATURE
21	GREEN COLOUR TEMPERATURE
22	BLUE COLOUR TEMPERATURE
23	VERTICAL POSITION
24	HORIZONTAL PHASE CONTROL
25	VERTICAL AMPLITUDE
26	VERTICAL BREATHING CORRECTION
27	VERTICAL LINEARITY
28	LUMA DELAY PAL
29	LUMA DELAY SECAM
2A	AGC
2B	OPTIONS
2C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
2D	AFT ADJUSTMENT VALUE (L SYSTEMS)
2E	MAXIMUM VOLUME LIMIT
2F	FIRM
30	RED COLOUR TEMPERATURE
31	GREEN COLOUR TEMPERATURE
32	BLUE COLOUR TEMPERATURE
33	VERTICAL POSITION
34	HORIZONTAL PHASE CONTROL
35	VERTICAL AMPLITUDE
36	VERTICAL BREATHING CORRECTION
37	VERTICAL LINEARITY
38	LUMA DELAY PAL
39	LUMA DELAY SECAM
3A	AGC
3B	OPTIONS
3C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
3D	AFT ADJUSTMENT VALUE (L SYSTEMS)
3E	MAXIMUM VOLUME LIMIT
3F	FIRM
40	RED COLOUR TEMPERATURE
41	GREEN COLOUR TEMPERATURE
42	BLUE COLOUR TEMPERATURE
43	VERTICAL POSITION
44	HORIZONTAL PHASE CONTROL
45	VERTICAL AMPLITUDE
46	VERTICAL BREATHING CORRECTION
47	VERTICAL LINEARITY
48	LUMA DELAY PAL
49	LUMA DELAY SECAM
4A	AGC
4B	OPTIONS
4C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
4D	AFT ADJUSTMENT VALUE (L SYSTEMS)
4E	MAXIMUM VOLUME LIMIT
4F	FIRM
50	RED COLOUR TEMPERATURE
51	GREEN COLOUR TEMPERATURE
52	BLUE COLOUR TEMPERATURE
53	VERTICAL POSITION
54	HORIZONTAL PHASE CONTROL
55	VERTICAL AMPLITUDE
56	VERTICAL BREATHING CORRECTION
57	VERTICAL LINEARITY
58	LUMA DELAY PAL
59	LUMA DELAY SECAM
5A	AGC
5B	OPTIONS
5C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
5D	AFT ADJUSTMENT VALUE (L SYSTEMS)
5E	MAXIMUM VOLUME LIMIT
5F	FIRM
60	RED COLOUR TEMPERATURE
61	GREEN COLOUR TEMPERATURE
62	BLUE COLOUR TEMPERATURE
63	VERTICAL POSITION
64	HORIZONTAL PHASE CONTROL
65	VERTICAL AMPLITUDE
66	VERTICAL BREATHING CORRECTION
67	VERTICAL LINEARITY
68	LUMA DELAY PAL
69	LUMA DELAY SECAM
6A	AGC
6B	OPTIONS
6C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
6D	AFT ADJUSTMENT VALUE (L SYSTEMS)
6E	MAXIMUM VOLUME LIMIT
6F	FIRM
70	RED COLOUR TEMPERATURE
71	GREEN COLOUR TEMPERATURE
72	BLUE COLOUR TEMPERATURE
73	VERTICAL POSITION
74	HORIZONTAL PHASE CONTROL
75	VERTICAL AMPLITUDE
76	VERTICAL BREATHING CORRECTION
77	VERTICAL LINEARITY
78	LUMA DELAY PAL
79	LUMA DELAY SECAM
7A	AGC
7B	OPTIONS
7C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
7D	AFT ADJUSTMENT VALUE (L SYSTEMS)
7E	MAXIMUM VOLUME LIMIT
7F	FIRM
80	RED COLOUR TEMPERATURE
81	GREEN COLOUR TEMPERATURE
82	BLUE COLOUR TEMPERATURE
83	VERTICAL POSITION
84	HORIZONTAL PHASE CONTROL
85	VERTICAL AMPLITUDE
86	VERTICAL BREATHING CORRECTION
87	VERTICAL LINEARITY
88	LUMA DELAY PAL
89	LUMA DELAY SECAM
8A	AGC
8B	OPTIONS
8C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
8D	AFT ADJUSTMENT VALUE (L SYSTEMS)
8E	MAXIMUM VOLUME LIMIT
8F	FIRM
90	RED COLOUR TEMPERATURE
91	GREEN COLOUR TEMPERATURE
92	BLUE COLOUR TEMPERATURE
93	VERTICAL POSITION
94	HORIZONTAL PHASE CONTROL
95	VERTICAL AMPLITUDE
96	VERTICAL BREATHING CORRECTION
97	VERTICAL LINEARITY
98	LUMA DELAY PAL
99	LUMA DELAY SECAM
9A	AGC
9B	OPTIONS
9C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
9D	AFT ADJUSTMENT VALUE (L SYSTEMS)
9E	MAXIMUM VOLUME LIMIT
9F	FIRM
A0	RED COLOUR TEMPERATURE
A1	GREEN COLOUR TEMPERATURE
A2	BLUE COLOUR TEMPERATURE
A3	VERTICAL POSITION
A4	HORIZONTAL PHASE CONTROL
A5	VERTICAL AMPLITUDE
A6	VERTICAL BREATHING CORRECTION
A7	VERTICAL LINEARITY
A8	LUMA DELAY PAL
A9	LUMA DELAY SECAM
AA	AGC
AB	OPTIONS
AC	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
AD	AFT ADJUSTMENT VALUE (L SYSTEMS)
AE	MAXIMUM VOLUME LIMIT
AF	FIRM
B0	RED COLOUR TEMPERATURE
B1	GREEN COLOUR TEMPERATURE
B2	BLUE COLOUR TEMPERATURE
B3	VERTICAL POSITION
B4	HORIZONTAL PHASE CONTROL
B5	VERTICAL AMPLITUDE
B6	VERTICAL BREATHING CORRECTION
B7	VERTICAL LINEARITY
B8	LUMA DELAY PAL
B9	LUMA DELAY SECAM
BA	AGC
BB	OPTIONS
BC	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
BD	AFT ADJUSTMENT VALUE (L SYSTEMS)
BE	MAXIMUM VOLUME LIMIT
BF	FIRM
C0	RED COLOUR TEMPERATURE
C1	GREEN COLOUR TEMPERATURE
C2	BLUE COLOUR TEMPERATURE
C3	VERTICAL POSITION
C4	HORIZONTAL PHASE CONTROL
C5	VERTICAL AMPLITUDE
C6	VERTICAL BREATHING CORRECTION
C7	VERTICAL LINEARITY
C8	LUMA DELAY PAL
C9	LUMA DELAY SECAM
CA	AGC
CB	OPTIONS
CC	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
CD	AFT ADJUSTMENT VALUE (L SYSTEMS)
CE	MAXIMUM VOLUME LIMIT
CF	FIRM
D0	RED COLOUR TEMPERATURE
D1	GREEN COLOUR TEMPERATURE
D2	BLUE COLOUR TEMPERATURE
D3	VERTICAL POSITION
D4	HORIZONTAL PHASE CONTROL
D5	VERTICAL AMPLITUDE
D6	VERTICAL BREATHING CORRECTION
D7	VERTICAL LINEARITY
D8	LUMA DELAY PAL
D9	LUMA DELAY SECAM
DA	AGC
DB	OPTIONS
DC	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
DD	AFT ADJUSTMENT VALUE (L SYSTEMS)
DE	MAXIMUM VOLUME LIMIT
DF	FIRM
E0	RED COLOUR TEMPERATURE
E1	GREEN COLOUR TEMPERATURE
E2	BLUE COLOUR TEMPERATURE
E3	VERTICAL POSITION
E4	HORIZONTAL PHASE CONTROL
E5	VERTICAL AMPLITUDE
E6	VERTICAL BREATHING CORRECTION
E7	VERTICAL LINEARITY
E8	LUMA DELAY PAL
E9	LUMA DELAY SECAM
EA	AGC
EB	OPTIONS
EC	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
ED	AFT ADJUSTMENT VALUE (L SYSTEMS)
EE	MAXIMUM VOLUME LIMIT
EF	FIRM
F0	RED COLOUR TEMPERATURE
F1	GREEN COLOUR TEMPERATURE
F2	BLUE COLOUR TEMPERATURE
F3	VERTICAL POSITION
F4	HORIZONTAL PHASE CONTROL
F5	VERTICAL AMPLITUDE
F6	VERTICAL BREATHING CORRECTION
F7	VERTICAL LINEARITY
F8	LUMA DELAY PAL
F9	LUMA DELAY SECAM
FA	AGC
FB	OPTIONS
FC	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
FD	AFT ADJUSTMENT VALUE (L SYSTEMS)
FE	MAXIMUM VOLUME LIMIT
FF	FIRM

20	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
21	AFT ADJUSTMENT VALUE (L SYSTEMS)
22	MAXIMUM VOLUME LIMIT
23	FIRM
24	RED COLOUR TEMPERATURE
25	GREEN COLOUR TEMPERATURE
26	BLUE COLOUR TEMPERATURE
27	VERTICAL POSITION
28	HORIZONTAL PHASE CONTROL
29	VERTICAL AMPLITUDE
30	VERTICAL BREATHING CORRECTION
31	VERTICAL LINEARITY
32	LUMA DELAY PAL
33	LUMA DELAY SECAM
34	AGC
35	OPTIONS
36	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
37	AFT ADJUSTMENT VALUE (L SYSTEMS)
38	MAXIMUM VOLUME LIMIT
39	FIRM
40	RED COLOUR TEMPERATURE
41	GREEN COLOUR TEMPERATURE
42	BLUE COLOUR TEMPERATURE
43	VERTICAL POSITION
44	HORIZONTAL PHASE CONTROL
45	VERTICAL AMPLITUDE
46	VERTICAL BREATHING CORRECTION
47	VERTICAL LINEARITY
48	LUMA DELAY PAL
49	LUMA DELAY SECAM
4A	AGC
4B	OPTIONS
4C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
4D	AFT ADJUSTMENT VALUE (L SYSTEMS)
4E	MAXIMUM VOLUME LIMIT
4F	FIRM
50	RED COLOUR TEMPERATURE
51	GREEN COLOUR TEMPERATURE
52	BLUE COLOUR TEMPERATURE
53	VERTICAL POSITION
54	HORIZONTAL PHASE CONTROL
55	VERTICAL AMPLITUDE
56	VERTICAL BREATHING CORRECTION
57	VERTICAL LINEARITY
58	LUMA DELAY PAL
59	LUMA DELAY SECAM
5A	AGC
5B	OPTIONS
5C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
5D	AFT ADJUSTMENT VALUE (L SYSTEMS)
5E	MAXIMUM VOLUME LIMIT
5F	FIRM
60	RED COLOUR TEMPERATURE
61	GREEN COLOUR TEMPERATURE
62	BLUE COLOUR TEMPERATURE
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65	VERTICAL AMPLITUDE
66	VERTICAL BREATHING CORRECTION
67	VERTICAL LINEARITY
68	LUMA DELAY PAL
69	LUMA DELAY SECAM
6A	AGC
6B	OPTIONS
6C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
6D	AFT ADJUSTMENT VALUE (L SYSTEMS)
6E	MAXIMUM VOLUME LIMIT
6F	FIRM
70	RED COLOUR TEMPERATURE
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75	VERTICAL AMPLITUDE
76	VERTICAL BREATHING CORRECTION
77	VERTICAL LINEARITY
78	LUMA DELAY PAL
79	LUMA DELAY SECAM
7A	AGC
7B	OPTIONS
7C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
7D	AFT ADJUSTMENT VALUE (L SYSTEMS)
7E	MAXIMUM VOLUME LIMIT
7F	FIRM
80	RED COLOUR TEMPERATURE
81	GREEN COLOUR TEMPERATURE
82	BLUE COLOUR TEMPERATURE
83	VERTICAL POSITION
84	HORIZONTAL PHASE CONTROL
85	VERTICAL AMPLITUDE
86	VERTICAL BREATHING CORRECTION
87	VERTICAL LINEARITY
88	LUMA DELAY PAL
89	LUMA DELAY SECAM
8A	AGC
8B	OPTIONS
8C	AFT ADJUSTMENT VALUE (B/G L SYSTEMS)
8D	AFT ADJUSTMENT VALUE (L SYSTEMS)
8E	MAXIMUM VOLUME LIMIT
8F	FIRM
90	RED COLOUR TEMPERATURE

Service Adjustments Cont'd.

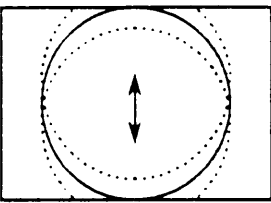


Fig 2

3: "VER AM"

- 1: Receive Philips pattern signal.
- 2: When  $\Delta \wedge$  button is pressed, vertical size of picture increases.
- 3: When  $\Delta \vee$  button is pressed, vertical size of picture decreases.
- 4: Adjust the vertical size to obtain overscan (fig. 3).

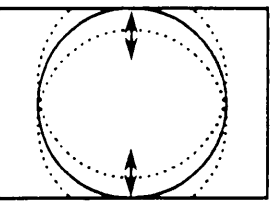


Fig 3.

4: "VER SM"

- 1: Receive Philips pattern signal.
- 2: When  $\Delta \wedge$  button is pressed, upper picture scanning decreases and lower picture scanning increases.
- 3: When  $\Delta \vee$  button is pressed, upper picture scanning increases and lower picture scanning decreases.
- 4: Adjust the vertical symmetry to obtain symmetrical scanning between upper and lower picture (fig. 4).

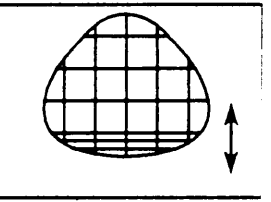


Fig 4.

Colour Adjustment

5: "LUMA D"

- 1: Receive Philips pattern signal.
- 2: When  $\Delta \wedge$  button is pressed, luma phase delays.
- 3: When  $\Delta \vee$  button is pressed, chroma phase delays.
- 4: Adjust the chroma-luma delay.

The following adjustments are only required when the Picture Tube is changed.

6: "GAIN R", "GAIN G", "GAIN B".

- 1: Adjust G2.
- 2: Tune in white card.
- 3: Adjust colour to minimum.
- 4: Position colourmetre in the centre of screen.
- 5: Using brightness and contrast buttons, select a luminance of  $\approx 120$  nits.
- 6: Operate again in Service Mode and select location GAIN R, GAIN G, GAIN B to obtain colour co-ordinates:  
 $X = 0.290 \pm 0.015$   
 $Y = 0.284 \pm 0.015$
- 7: Exit Service Mode and check colour co-ordinates 'X' and 'Y' at 20 and 120

NITS. It may be necessary to repeat procedure.

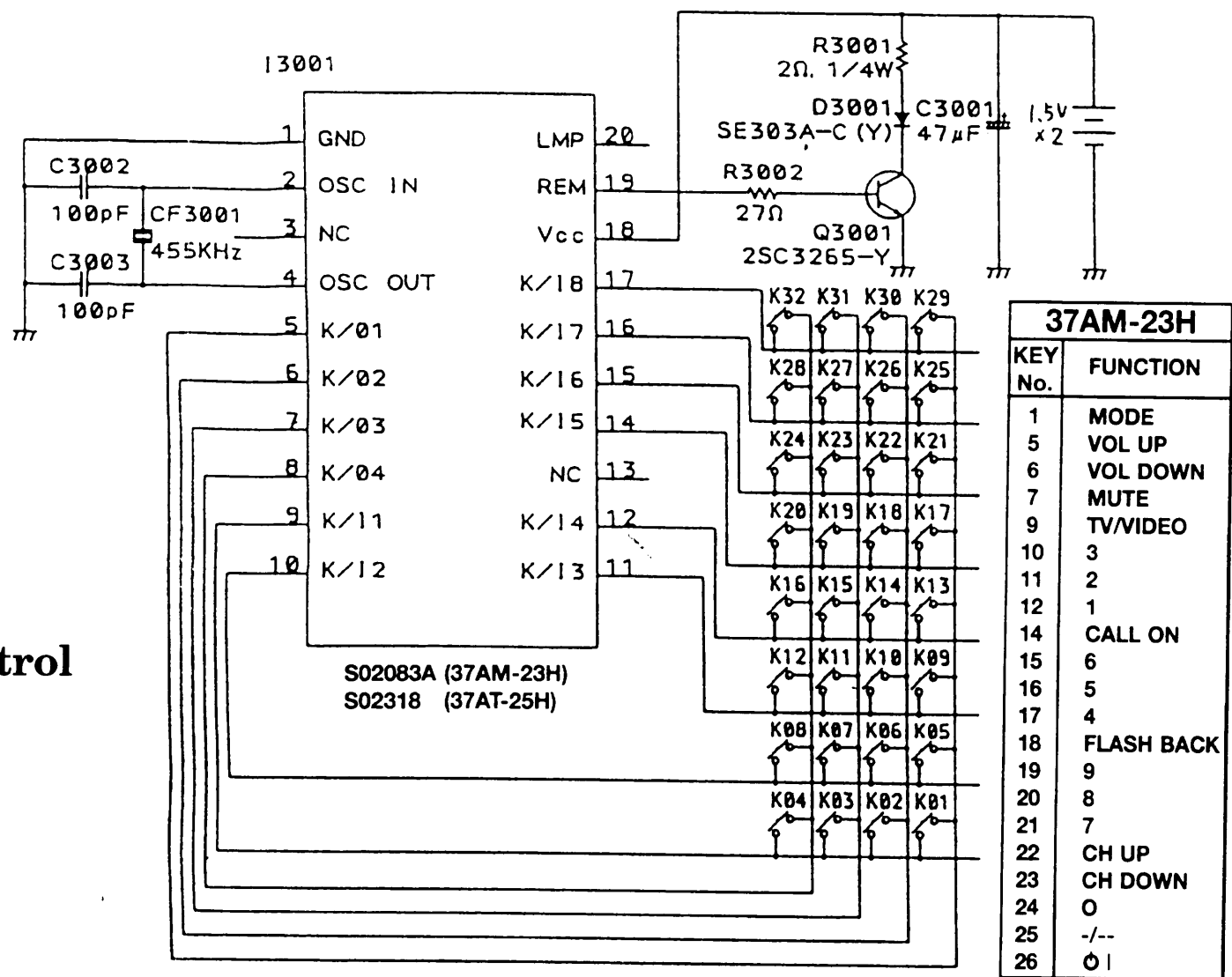
Note:  
Locations: GAIN R alter 'X' co-ordinate;  
GAIN G alter the 'Y' co-ordinates; GAIN B alter the 'X' and 'Y' co-ordinates.

Child Lock Cancel

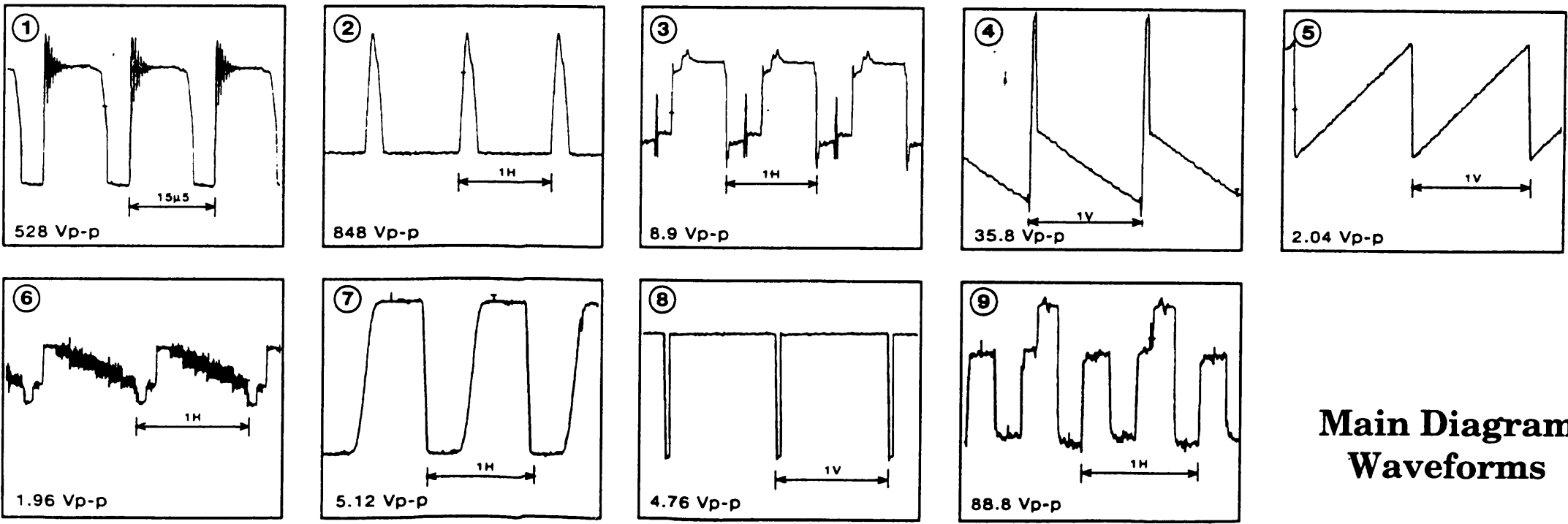
The following process describes how to cancel actual password (PIN) when the customer forgets the code.

- 1: Switch ON TV set.
- 2: Press buttons  $\vee \Delta$  on TV and  $\square / \rightarrow$  on R/C simultaneously.
- 3: Press MODE button on R/C to input menu.
- 4: Using buttons  $\Delta$  CH  $\vee$  move to  $\rightarrow$  position.
- 5: Press MODE button again.
- 6: Select PIN and input new PIN (please do not forget it).
- 7: Select EXIT and press MODE button again.

Remote Control Diagram



37AM-23H	
KEY No.	FUNCTION
1	MODE
5	VOL UP
6	VOL DOWN
7	MUTE
9	TV/VIDEO
10	3
11	2
12	1
14	CALL ON
15	6
16	5
17	4
18	FLASH BACK
19	9
20	8
21	7
22	CH UP
23	CH DOWN
24	0
25	-/--
26	01



Main Diagram Waveforms

Main  
Diagram

