

SHARP 37DM-23H

General Information

Also Covers  
37EM-33H  
CA-1 Chassis

Recommended Safety Parts

Item	Part No.	Description
	VB34EAC0136*N	S CRT Ass'y, 34 cm(14") with Deflection Yoke, Purity Magnet and Wedges
	QEARC0002BMZZ	S Wire, Grounding strap
	RCILG0415BMZZ	S Degaussing Coil
TU201	RTUNH0125BMZZ	S Tuner
IC701	RH-FX0103BMZZ	S Photo Coupler
L701	RCILF0157BMZZ	S Coil
T601	RTRNF2047BMZZ	S H-Volt Transformer
T700	RTRNZ0535BMZZ	S Transformer
C702	RC-FZ0070BMZZ	S 0.1 250V Mylar
C722	RC-KZ0106GEZZ	J 3300p 4kV Ceramic
R240	RR-XZ0100BMZZ	S 11/3W Fuse Resistor
R305	RR-XZ0204BMZZ	S 2.2 1/3W Fuse Resistor
R504	RR-XZ0109BMZZ	S 5.6 1/3W Fuse Resistor
R506	RR-XZ0100BMZZ	S 11/3W Fuse Resistor
R512	RR-XZ0109BMZZ	S 5.6 1/3W Fuse Resistor
R603	RR-XZ0200BMZZ	S 11/2W Fuse Resistor
R611	RR-XZ0242BMZZ	S 3.3k 1/2W Fuse Resistor
R721	VRC-UA2HG825K	R 8.2M 1/2W Solid
R722	VRC-UA2HG825K	R 8.2M 1/2W Solid
P701	QPLGN0304CEZZ	R Plug
P702	QPLGN0207CEZZ	R Plug
F701	QFS-C3226CEZZ	R Fuse T3.15A
S701	QSW-P0588CEZZ	R Power
SC881	QSOCV0842CEZZ	R Socket

Safety Notes

IMPORTANT SERVICE NOTES

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

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove static charge from it by connecting a 10 k ohm 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).

- Picture tube in this receiver employs integral implosion protection.
- Replace with tube of the same type number for continued safety.
- Do not lift picture tube by the neck.
- 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.

- When repairing the circuit, be sure not to increase the high voltage to more than 30.0 kV (1100uA Beam current) for the set.
- To keep the set operating normally, be sure to maintain the high voltage at 24.5kV Plus Minus 1.5kV (at a beam current of 1100uA). The set has been factory adjusted to the above mentioned high voltage. If there is a possibility that the high voltage fluctuates as result of the repairs, never forget to check for such high voltage after the work.
- Do not substitute a picture tube with unauthorized types 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 unit to the user.

- 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.
- Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields: isolation resistor-capacity networks, mechanical insulators, etc.
- Apply test voltage of 3000 volts between live parts and accessible metal parts for 3 seconds.

SERVICE MODE FUNCTION

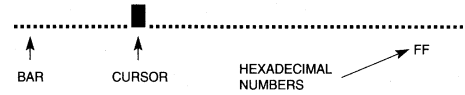
This mode function is provided to assist with the settings of those adjustments that may vary from one Picture Tube to another, or between models.

In order to use the Service Mode

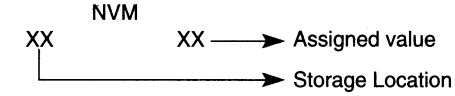
- Press main switch to OFF.
- Connect Test Pattern signal to antenna terminal.
- Press DOWN and CH UP buttons and main switch to ON simultaneously.
- SERV—will appear on screen. Service mode is now entered.
- Select adjustment using buttons UP CH DOWN. To exit service mode, press main switch to OFF or press MENU button on R/C.

	Displayed on Screen	Hexadecimal Range	Function
	-SERV-		Indicates operative Service Mode.
a.	AGC	00 ~ 3F	Auto Gain Control.
b.	AFT	00 ~ 7F	Auto Frequency Control
c.	H-SHFT	00 ~ 3F	Horizontal Position shift
d.	V-SHFT	00 ~ 3F	Vertical Position shift.
e.	V-AMPL	00 ~ 3F	Vertical Amplitude shift.
f.	V-SLOP	00 ~ 3F	Vertical Symmetry alteration.
g.	V-DLY	00 ~ CF	VIDEO Delay.
h.	GAIN R	00 ~ 3F	Red Gain.
i.	GAIN G	00 ~ 3F	Green Gain.
j.	GAIN B	00 ~ 3F	Blue Gain.
k.	NVM		Access to NVM memory.

6. For "a" thru j selections. Adjustment to a selection can be made by pressing buttons UP \* DOWN ). A colour bar is displayed on the OSD to indicate the adjustment position, together with hexadecimal numbers (Not for GII adjustment).



For "k" Selection. NVM storage location settings variants.



In order to have access to the desired storage location, buttons UP \* DOWN should be pressed, as required, 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 the 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, 1 W=2<sup>1</sup>=2, 2=2<sup>2</sup> 4, .....

(See Tables on next page).

PIF/AGC Adjustment

1. VCO + AFT Adjustment

- Connect the output of SSG (Standard Signal Generator) to the tuner IF output terminal.
- SSG output: 38.9 MHz (CW) ±5 kHz).
- SSG output level: approx. 90 dBuV.
- Enter into Service Mode.
- Push CH UP until AFT appears.
- Press  $\square$  button on R/C. Setting is made automatically. During this setting the colour bar shall go from red to yellow. When setting is finished, colour bar disappears and B-STOP (bus stop) is shown on screen.
- Switch set OFF and ON again, setting is now memorized.

2. RF-AGC Out-In Adjustment (12C BUS)

- Receive the "COLOUR BAR" signal (Channel E-12).
- Signal strength: 60 dBuV.
- Enter into Service Mode.
- Push CH UP until AGC appears.
- Press  $\square$  button on R/C. Setting is made automatically. During this setting the colour bar shall go from red to yellow. When setting is finished, colour bar disappears and B-STOP (bus stop) is shown on screen.
- Switch set OFF and ON again, setting is now memorized.

Screen Adjustment

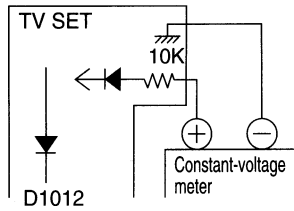
3. Focus Adjustment

- Apply mains voltage of 220 V AC/50 Hz to TV.
- Receive Phillips pattern signal to a level between 60 and 80 dBuV.
- Set contrast to 10/10, brightness to 5/10 and colour 0/10.

- Adjust focus potentiometer to obtain maximum definition.

4. G2 Adjustment

- Apply mains voltage of 220 V AC/50 Hz to TV.
- Receive MONOSCOPE PATTERN signal to a level between 60 and 80 dBuV.
- Apply 10 K\* to the anode of D1012 and DC 5V to it through the diode.
- Press the TEXT key of R/C and set to level.
- Set to the point where the raster disappears on the screen VR of FBT.



GEOMETRY ADJUSTMENT PROCEDURE

1. H-SHFT

- Receive Philips pattern signal.
- When \* UP button is pressed, picture moves to the left.
- When \* DOWN button is pressed, picture moves to the right.
- Adjust the horizontal location to obtain picture centering (fig. 1)

2. V-SHFT

- Receive Philips pattern signal.
- When \* UP button is pressed, picture moves up.
- When \* DOWN button is pressed, picture moves down.
- Adjust the horizontal location to obtain picture centering (fig. 2)

3. V-AMPL

- Receive Philips pattern signal.
- When \* UP button is pressed, vertical size of picture increases.
- When \* DOWN button is pressed, vertical size of picture decreases.
- Adjust the vertical size to obtain overscan (fig. 3).

4. V-SLOP

- Receive Philips pattern signal.
- When \* UP button is pressed, upper picture scanning decreases and lower picture scanning increases.
- When \* DOWN button is pressed, upper picture scanning increases and lower picture scanning decreases.
- Adjust the vertical symmetry to obtain symmetrical scanning between upper and lower picture (fig. 4).

COLOUR ADJUSTMENT

5. V-DLY

- Receive Philips pattern signal.
  - When \* UP button is pressed, luma phase delays.
  - When \* DOWN button is pressed, chroma phase delays.
  - Adjust the chroma-luma delay.
- The following adjustments are only required when the Picture Tube is changed.

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

- Adjust G2.
- Tune in white card.
- Adjust colour to minimum.
- Position colourmeter in the center of screen.
- Using brightness and contrast buttons, select a luminance of 120 nits.
- Operate again in Service Mode and select location GAIN R, GAIN B to obtain colour coordinates:

X= 0.290 ± 0.015  
Y= 0.284 ± 0.015

- Exit Service Mode and check colour coordinates 'X' and 'Y' at 20 and 120 NITS. It may be necessary to repeat procedure

NOTE:

Locations: GAIN R alter 'X' coordinate; GAIN G alter the 'Y' coordinates; GAIN B alter the 'X' and 'Y' coordinates.

CHILD LOCK CANCEL

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

- Switch ON TV set.
- Press button DOWN \* on TV and On on R/C simultaneously.
- Press MENU button on R/C to input menu.
- Using buttons UP CH DOWN move to \* position.
- Press MENU button again.
- Select PIN and input new PIN (Please do not forget it)
- Select EXIT and press MENU button again.

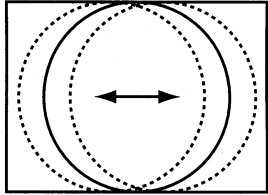


Fig. 1

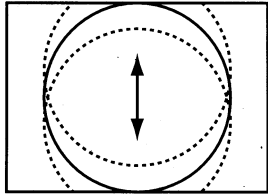


Fig. 2

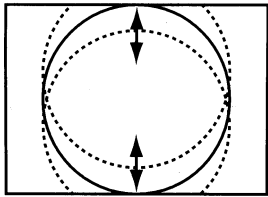


Fig. 3

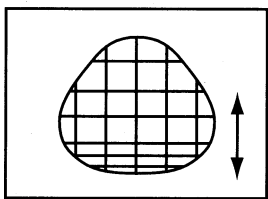


Fig. 4

SHARP 37DM-23H

Service Adjustments Cont'd

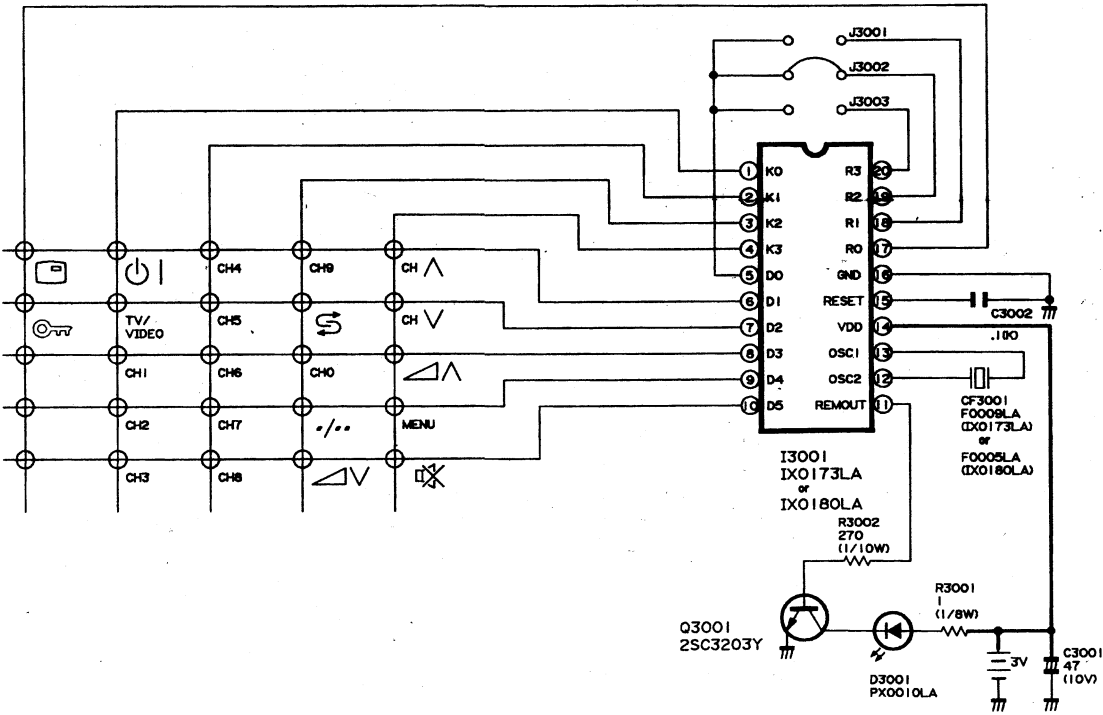
ADD (HEX)	DESCRIPTION																
00	RED COLOUR TEMPERATURE																
01	GREEN COLOUR TEMPERATURE																
02	BLUE COLOUR TEMPERATURE																
03	VERTICAL SHIFT																
04	HORIZONTAL SHIFT																
05	VERTICAL AMPLITUDE																
06	VERTICAL SLOPE																
07	LUMA DELAY PAL																
08	LUMA DELAY SECAM																
09	S-CORRECTION																
0A	AGC																
0B	OPTIONS: <table><tr><td>ING_OSD</td><td>A_F</td><td>CHL</td><td>PAL</td><td>UHF</td><td>T_LOCK</td><td>AV-F</td><td>FP</td></tr><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> <p>0: FP: SYSTEM B/G (0) - B/G+L, MESSAGE RECHERCHE (1) 1: AV FRONTAL: NOT INCLUDED (0) , INCLUDED (1) 2: TUNING LOCK (HOTEL): LOCKED+SWITCH-ON PR1 (1), NO LOCKED (0) 3: UHF-ONLY: BAND UHF (1) - ALL BANDS (0) 4: PAL ONLY (1), PAL+SECAM (0) 5: CHILD LOCK: CHILD LOCK ACTIVE (1) CHILD LOCK NO ACT (0) 6: AUTO FIRST: TUNING FIRST MENU: AUTO (1) MANUAL (0) 7: ING_OSD: OSD_INGLES (1) OSD-SYMBOL (0)      VALUE=F8</p>	ING_OSD	A_F	CHL	PAL	UHF	T_LOCK	AV-F	FP	7	6	5	4	3	2	1	0
ING_OSD	A_F	CHL	PAL	UHF	T_LOCK	AV-F	FP										
7	6	5	4	3	2	1	0										
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 SHIFT																
14	HORIZONTAL SHIFT																
15	VERTICAL AMPLITUDE																
16	VERTICAL SLOPE																
17	LUMA DELAY PAL																
18	LUMA DELAY SECAM																
19	S-CORRECTION																
1A	AGC																

1B	OPTIONS:							
	ING_OSD	A_F	CHL	PAL	UHF	T_LOCK	AV_F	FP
	7	6	5	4	3	2	1	0
	0: FP: SYSTEM B/G (0) - B/G+L, MESSAGE RECHERCHE (1)							
	1: AV FRONTAL: NOT INCLUDED (0), INCLUDED (1)							
	2: TUNING LOCK (HOTEL): LOCKED+SWITCH-ON PR1 (1), NO LOCKED (0)							
	3: UHF-ONLY: BAND UHF (1) - ALL BANDS (0)							
	4: PAL ONLY (1), PAL+SECAM (0)							
	5: CHILD LOCK: CHILD LOCK ACTIVE (1) CHILD LOCK NO ACT (0)							
	6: AUTO FIRST: TUNING FIRST MENU: AUTO (1) MANUAL (0)							
	7: ING_OSD: OSD_INGLES (1) OSD_SYMBOL (0)							VALUE=F8
1C	AFT ADJUSTMENT VALUE (B/G, L SYSTEMS)							
1D	AFT ADJUSTMENT VALUE (L' SYSTEM)							
1E	MAXIMUM VOLUME LIMIT							
1F	FIRM							
20	RED COLOUR TEMPERATURE							
21	GREEN COLOUR TEMPERATURE							
22	BLUE COLOUR TEMPERATURE							
23	VERTICAL SHIFT							
24	HORIZONTAL SHIFT							
25	VERTICAL AMPLITUDE							
26	VERTICAL SLOPE							
27	LUMA DELAY PAL							
28	LUMA DELAY SECAM							
29	S-CORRECTION							
2A	AGC							
2B	OPTIONS:							
	ING_OSD	A_F	CHL	PAL	UHF	T_LOCK	AV_F	FP
	7	6	5	4	3	2	1	0
	0: FP: SYSTEM B/G (0) - B/G+L, MESSAGE RECHERCHE (1)							
	1: AV FRONTAL: NOT INCLUDED (0), INCLUDED (1)							
	2: TUNING LOCK (HOTEL): LOCKED+SWITCH-ON PR1 (1), NO LOCKED (0)							
	3: UHF-ONLY: BAND UHF (1) - ALL BANDS (0)							
	4: PAL ONLY (1), PAL+SECAM (0)							
	5: CHILD LOCK: CHILD LOCK ACTIVE (1) CHILD LOCK NO ACT (0)							
	6: AUTO FIRST: TUNING FIRST MENU: AUTO (1) MANUAL (0)							
	7: ING_OSD: OSD_INGLES (1) OSD_SYMBOL (0)							VALUE=F8
2C	AFT ADJUSTMENT VALUE (B/G, L SYSTEMS)							
2D	AFT ADJUSTMENT VALUE (L' SYSTEM)							
2E	MAXIMUM VOLUME LIMIT							
2F	FIRM							
30	TABLE LONG							
31	FIRM							
32	AGING ON. AUTOMATIC SWITCH ON.							
33	SWITCH ON DELAY TIME							

34	VOLUME
35	CONTRAST
36	COLOUR
37	BRIGHTNESS
38	PEAKING (RANGE: 0-3FH)
39	ACTUAL PROGRAMM
3A	TV STATE ON/OFF
3B	HUE
3C	CONTRAST (FACTORY PRESET)
3D	COLOUR (FACTORY PRESET)
3E	BRIGHTNESS (FACTORY PRESET)
3F	PEAKING (RANGE: 0-3FH)(FACTORY PRESET)
40	ON TIMER LAST VALUE
41	OFF TIMER LAST VALUE
42	OSD STATE <div>BIT 0: PICTURE NORM ON/OFF</div> <div>BIT 1: SCART/AV LOCKED</div> <div>BIT 2: FRONTAL LOCKED</div> <div>BIT 3: ROW 8/30 PERM.(RESERVED-PROG, INTERNALLY)</div> <div>BIT 4: PIN NUMBER OPTION (0-NOT APPEAR, 1-APPEAR)</div> <div>BIT 5: CLOCK STATE (PROGRAMMED INTERNALLY)</div> <div>BIT 6: ELIMINATE VERTICAL WHITE BARS IN MENUS</div> <div>BIT 7: (1) REAL_TIMER + ALARM / ( 0 ) ON_TIMER VALUE=48H</div>
43	BKGD USER'S CORRECTION (NOT USED IN THIS MODEL)
44	BKGD USER'S CORRECTION PRESET VALUE (NORMALIZED) (*)
45	VOLTAGE LIMIT BETWEEN L'-L SYSTEM (MSB)
46	VOLTAGE LIMIT BETWEEN L'-L SYSTEM (LSB)
47	HORIZONTAL OSD OFFSET <div>BIT 7: DIRECTION SIGN: (0) INCREASE (1) DECREASE</div> <div>BIT 6: DON'T CARE</div> <div>BIT 5 - BIT 0: OFFSET VALUE</div>
48	PROG SEARCH SPEED ALL BAND -HIGH NIBBLE CPLEMENTED-
49	PROG SEARCH SPEED (VHL BAND) -HIGH NIBBLE CPLEMENTED-
4A	PROG SEARCH SPEED (VHL BAND) -HIGH NIBBLE CPLEMENTED-
4B	PROG SEARCH SPEED (VHH BAND) -HIGH NIBBLE CPLEMENTED-
4C	CHANNEL RANGE IN FACTORY AUTOINSTALL
4D	PASSWORD ON (1)/OFF (0)
4E	PASSWORD FIRST DIGIT
4F	PASSWORD SECOND DIGIT
50	PASSWORD THIRD DIGIT
51	PASSWORD FOURTH DIGIT
52	FREE

53	OSD WORD 1: BIT 0:OSD PROG SIZE. 0= LARGE (14") 1= SHORT (21") <div>BIT 1:OSD PROG DISPLAYED TIME.</div> <div>0=SHORT TIME / 1= LONG TIME</div>
54	RED REFERENCE FOR AUTO BKGD ADJUSTMENT
55	GREEN REFERENCE FOR AUTO BKGD ADJUSTMENT
56	BLUE REFERENCE FOR AUTO BKGD ADJUSTMENT
57	CONTROL_2: OSO, VSD, CB, BLS, BKS, CS1, CS0, BB VALUE+ 09AH
58	CONTROL_3: HOB, BPS, ACL, CMB, AST, CL2, CL1, CL0 VALUE= 024H
59	VERTICAL ZOOM APPROX. VALUE= 0DH
5A	VERTIVAL SCROLL APPROX. VALUE= 020H
5B	CONTROL_0: INA, INB, INC, CCC-D, FOA, FOB, XA, XB VALUE=01AH
5C	CONTROL_1: FORF, FORS, DL, STB, POC, CM2, CM1, CM0 VALUE=0C0H
5D	CONTROL_5: EVG, HCO, LBM, VID, STM, NCIN, VIM, AKB VALUE=026H
5E	CONTROL_6: IFS, AFW, IE1, COR, RBL, MAT, PRD, SBL VALUE=03CH
5F	CONTROL_7: EVSINC, EBS, FFI, HBL, GAI, IE2, DS, DSA VALUE=0H
60	NOT USED
61-FF	PROGRAMS (0-52)
100-18Dh	PROGRAMS (53-99)

Remote Control Diagram



# SHARP 37DM-23H

## Main Diagram

