

XV-A33F

SERVICE MANUAL



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*AEP Model
UK Model
E Model
Australian Model*

Family Studio

SPECIFICATIONS

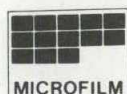
S video input/output	4-pin mini DIN Luminance signal: 1 Vp-p, 75-ohms unbalanced, sync negative Chrominance signal: 300mVp-p, 75-ohms
Video input/output	Phono jack 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input/output	Phono jack Input impedance: more than 47 kilohms Input level: -7.5 dBs (0 dBs = 0.775Vrms) Output level: -7.5 dBs Output impedance: less than 10 kilohms
TAPE/CD INPUT	Phono jack Input impedance: more than 47 kilohms Input level: -7.5 dBs
MIC	Monaural mini jack Input impedance: more than 3 kilohms
PHONES	Stereo mini jack Output impedance: 47-ohms
Power requirement	AC 240 V (for Australia and UK)/220-230 V (for other countries), 50 Hz
Power consumption	8 W
Operating temperature	5°C (41°F) to 40°C (104°F)

Storage temperature	-20°C (-4°F) to 60°C (140°F)
Dimensions	Approx. 265 × 68 × 230mm (w/h/d) (10½ × 2¾ × 9⅛ inches)
Weight	Approx. 1.2kg (2 lb 10 oz)
Supplied accessories	Microphone (1) Microphone stand (1) AV connecting cord (1) Operating instructions (1) "Trying out the sound effector" sheet Quick reference card

Design and specifications are subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.



MICROFILM

VIDEO SOUND EFFECTOR
SONY®

TABLE OF CONTENTS



Section	Title	Page	Section	Title	Page
1. GENERAL			5. ELECTRICAL PARTS LIST		30
Overview	3	Hardware List	.....	38
How to Use This Manual	3			
Identifying the Parts	4	6. ELECTRICAL ADJUSTMENTS		39
Connecting Video Equipment	5	6-1. fsc Adjustment	.....	40
Before You Begin	7	6-2. Y SEP. Level Adjustment	.....	40
Mixing CD or Tape Sound	8	6-3. Y/C SEP. Adjustment	.....	40
Mixing Sound from a Microphone	9	6-4. S Video Chroma Level Adjustment	.....	40
Adding Sound Effects	10	6-5. S Video Y Level Adjustment	.....	40
Fading In and Out	11	6-6. White Level Check	.....	40
			6-7. Burst Phase Adjustment	.....	41
2. DIAGRAM			6-8. Video Out Level Adjustment	.....	41
2-1. Block Diagram	13	and Check	.....	41
			6-9. Audio Level Check	.....	42
3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM			6-9-1. Audio Input	.....	42
3-1. Printed Wiring Boards and Schematic Diagrams	16	6-9-2. TAPE/CD Input	.....	42
VA-63 (Main)	16	6-10. Headphone VR Down Check	.....	42
Semiconductor Lead Layouts	23	6-11. Audio Distortion Check	.....	43
AC-88 (Power), SJ-10 (Jack)	24	6-12. MIC SPEC. Check	.....	43
			6-13. Mixing Check	.....	43
4. EXPLODED VIEW			6-14. Voicechange Check	.....	44
4-1. General	29	6-15. Mono-Stereo Input Change	.....	44
			Check	.....	44
			6-16. Fader (Video) Check	.....	44
			6-17. Adjustments Elements Location	.....	46

SERVICING NOTE

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

This section is extracted from instruction manual.

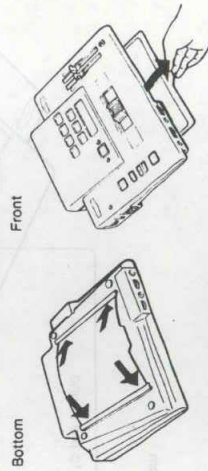
How to Use This Manual

This manual consists of the following four sections.

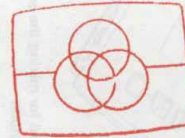
- Introduction** — This section contains the precautions, overview, and identifies the parts and functions of the video sound effector.
- Preparation** — This section describes the connection of video equipment and information you should know before you start operating the video sound effector.
- Editing** — This section describes the operations of the video sound effector.
- Additional information** — This section provides specifications and troubleshooting.

Using the Quick Reference Card

The quick reference card provides the function of the buttons for using the video sound effector. Before using the card, peel off the film. Attach the card to the bottom of the unit, and pull the card out to refer to it whenever necessary.



To attach the card, bend it and insert both ends into the slots.



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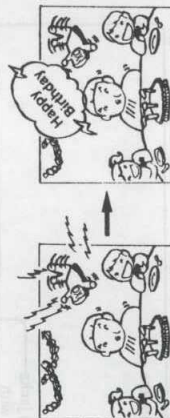
Introduction 5

Overview

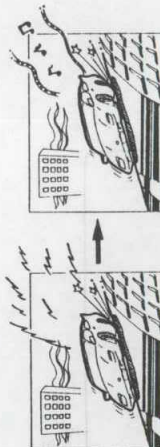
Using a camcorder is always enjoyable when you travel or want to record a special event. But when you later watch the videotape you have recorded, have you ever wished that you could re-record the sound or add some sound effect? The video sound effector (the effector) helps you make your videotape more fun and memorable by adding sound effects to your videotape.



The video sound effector allows you to do the following:



Add narration using a microphone



Add background music to your videotape



Fade in and out both picture and sound
Add echo or change the tone of narrating voice

Add simulated stereo effect to monaural sound



Add sound effects (such as dog barking, or a ringing telephone) to your videotape.



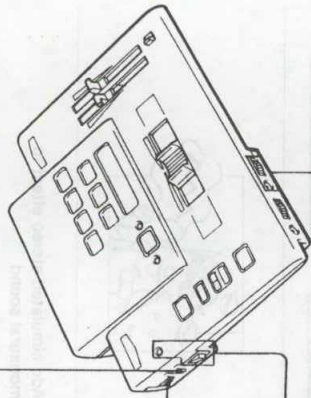
4 Introduction

Identifying the Parts

Familiarize yourself with the parts of the effector before you start the operations.

SIMULATED STEREO (ON/OFF) switch

You can add simulated stereo sound effect to monaural sound. Set to ON for simulated stereo sound.
If the original sound is stereo, you can make the sound more dynamic.
Set to OFF if a noise makes the sound hard to hear.



PLAYER AUDIO LEVEL control

Use this control to adjust the sound input from VCR INPUT jacks.

POWER switch and indicator

Switch on to turn on the power. The indicator lights up when the power goes on.

PHONES jack and PHONE LEVEL control

Connect the headphones to the PHONES jack. You can adjust the volume with the PHONE LEVEL control.

VCR INPUT (AUDIO R, L/VIDEO/S-VIDEO) jacks

Use these jacks to connect to the player with the output jacks.

VCR OUTPUT (AUDIO R, L/VIDEO/S-VIDEO) jacks

Use these jacks to connect to the recorder with the input jacks.

AC power cord

TAPE/CD INPUT (AUDIO R, L) jacks

Use these jacks to connect to the compact disc player or cassette deck so that you can add background music to your videotape.

Parts used for mixing the sound input from a tape or CD

MIXING control

Use this control to adjust the sound balance when you mix the sound from the player and the sound input from TAPE/CD INPUT.

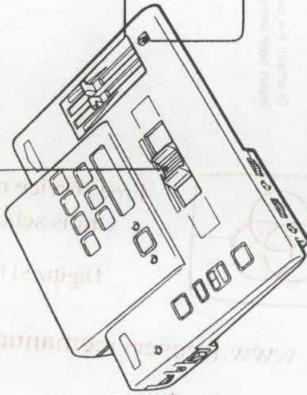
Parts used for fading in/out

FADER (AUDIO/VIDEO) control

Use this control to make the picture and sound fade in or out.

SELECT (B/W) switch

Select black or white colour of the picture fader.



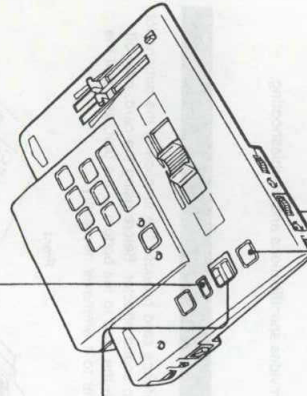
Parts used for mixing the sound from a microphone

ECHO button

Press this button to add echo effect to the sound from a microphone.

VOICECHANGE, +/- button

You can change the tone of your voice into 16 different levels.
Press - button to lower the tone, and press + to raise the tone. The tone changes in 8 stages, about an octave each way.



MIC button

Press this button to input the sound from a microphone.

MIC jack (monaural mini jack) and MIC LEVEL control

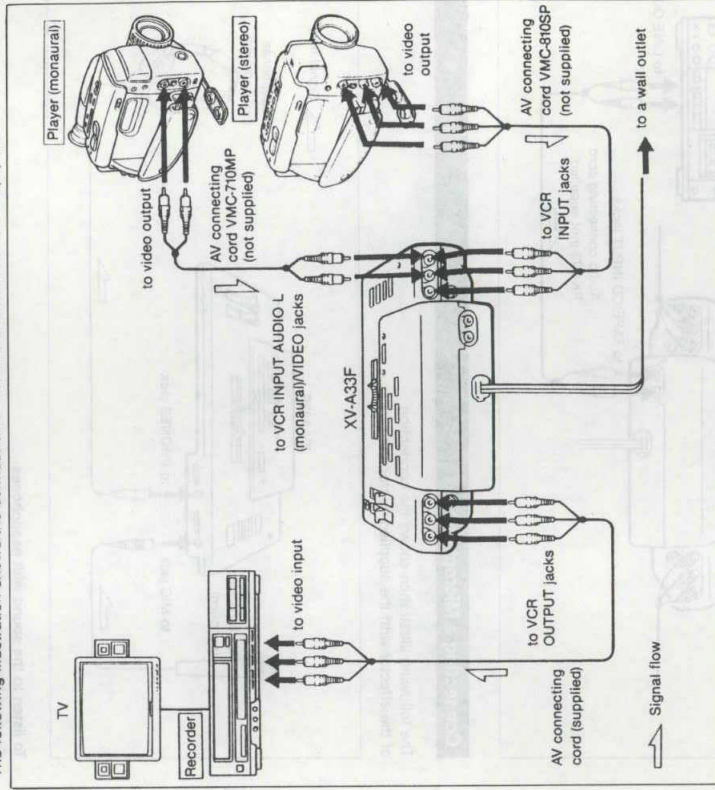
Use the MIC jack to connect a microphone. Adjust the volume level with the MIC LEVEL control.

Connecting Video Equipment

For details about the video equipment, refer to its instruction manual.

Connecting VTRS

The following illustration shows the connection of the effector with the video equipment.



Note
If your VTR has BNC or SCART connector, refer to the table on page 12.

Parts used for adding sound effects

SOUND EFFECT button

Press this button to activate the sound effect buttons.

Sound effect buttons

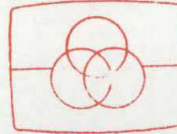
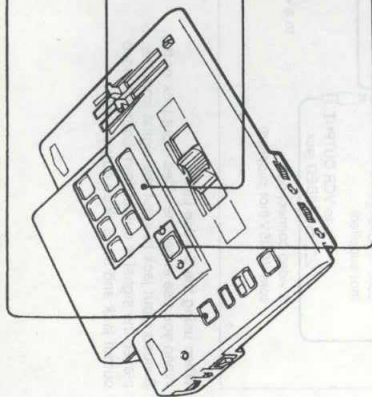
Press these buttons to add various sound effects. There are 14 kinds of sound if you use these buttons with the SHIFT button.

SHIFT button

Use this button to use the sound effect indicated on the lower part of the button. While pressing this button, press the desired sound button.

REPEAT (SLOW/FAST) buttons

Use this button if you want to repeat the sound effect. Use FAST or SLOW buttons to adjust the speed of the interval between the sound. Each time you press the button, the speed changes by one stage (total of 21 stages.)



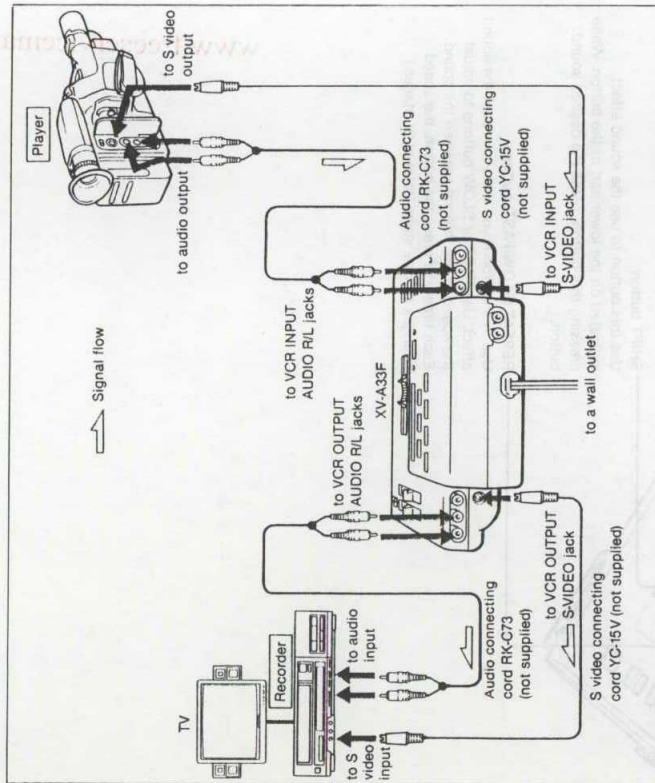
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Connecting VTRs with S Video Jack

The following illustration shows the connection of the effector with video equipment that has the S video jacks.



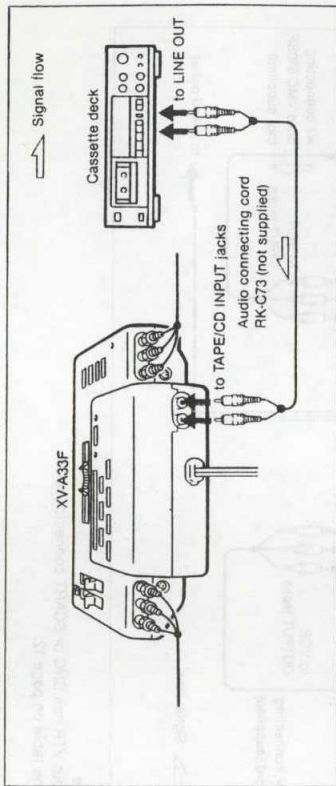
When using the S video jacks

When you use either the video input jack or the S video input jack to input the signal from the player, the signal is output from both the video output jack and the S video output jack.

But to get a clearer picture from the player, we recommend you to use the S video jacks of the player and the recorder when using the S video jacks of the effector, or use the video jacks of the player and the recorder when using the video jacks of the effector.

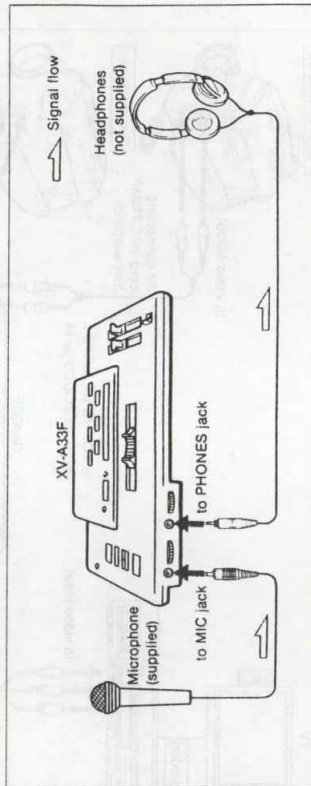
Connecting Audio Equipment for Mixing Sound

The following illustration shows the connection of the effector with audio equipment such as a compact disc player or cassette deck.



Connecting a Microphone

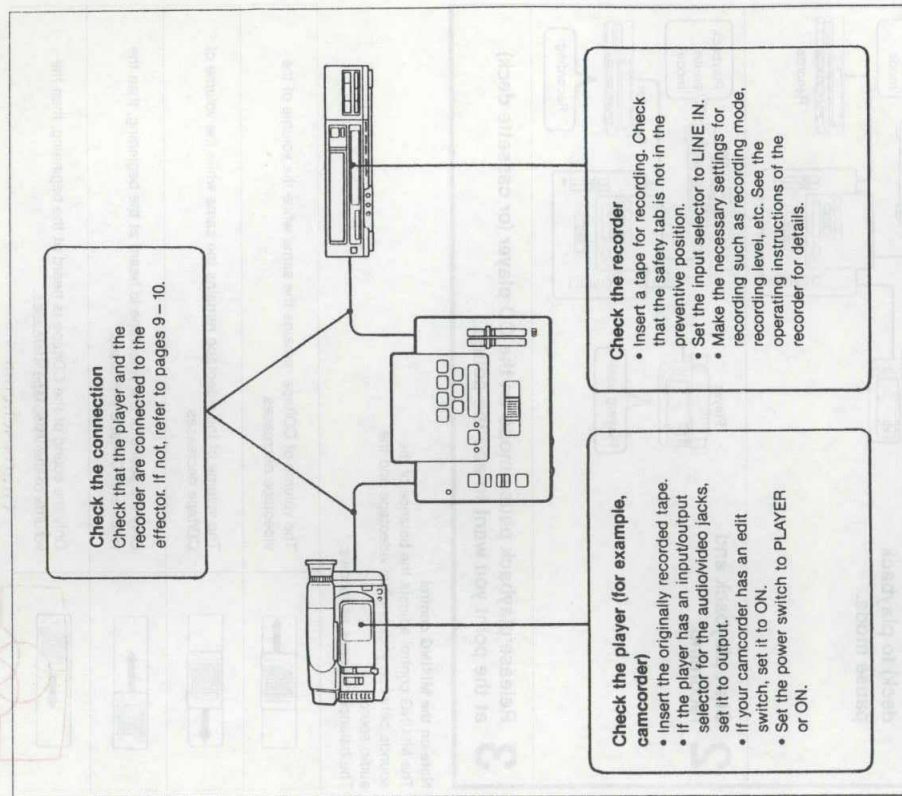
The following illustration shows the connection of the effector with the supplied microphone.



To listen to the sound with headphones
Connect headphones (not supplied) to the PHONES jack. You can adjust the volume with the PHONE LEVEL control.

Before You Begin

Before using the effector, check the connections and prepare the player and the recorder as follows:



Note
Do not place the effector on video equipment as it may cause noise on picture and sound.

Connecting Cards

Select the optional connecting cords according to whether your video equipment is stereo or monaural.

For video/audio connection

Stereo ↔ stereo	Phono × 3 (BNC 1)	Phono × 3 (BNC 1)
VMC-810SP (1m)		
VMC-920SP (2m)		
Monaural ↔ monaural	Phono × 2 (BNC 1)	Phono × 2 (BNC 1)
VMC-710MP (1m)		
VMC-720MP (2m)		
Stereo ↔ monaural	Phono × 3 (BNC 1)	Phono × 2 (BNC 1)
VMC-910MSP (1m)		
VMC-920MSP (2m)		
Monaural ↔ SCART	Phono × 4 (BNC 2)	SCART
VMC-2104		
Stereo ↔ SCART	Phono × 6 (BNC 2)	SCART
VMC-2106		

For audio connection

RK-C73 (1m)	Phono × 2
RK-C74 (1.5m)	Phono × 2

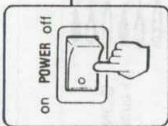
For S video connection

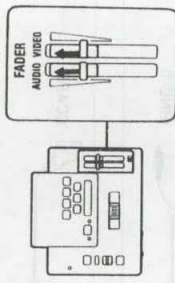
YC-10V (1m)	S video
YC-15V (1.5m)	S video

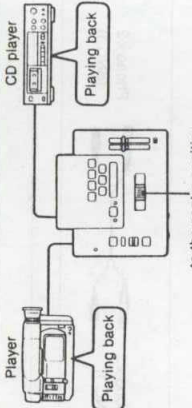
Mixing CD or Tape Sound

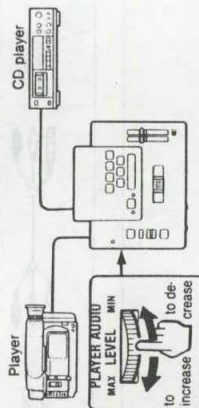
This section explains how to add sound such as music to your videotape. You can also adjust the balance of the music and original sound of your videotape. For example, add the music input from TAPE/CD INPUT to the sound of the videotape input from VCR INPUT.

- 1 Turn on the power.**


- 2 Slide the FADER AUDIO/VIDEO controls upwards.**

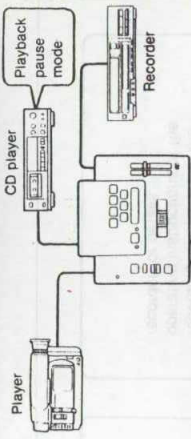

- 3 Set the MIXING control to the centre position, and start playing your videotape and a compact disc (or a music tape.)**

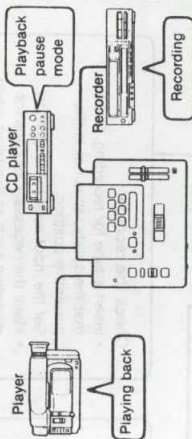

- 4 Adjust the sound volume of your videotape with PLAYER AUDIO LEVEL control.**
Set the volume at about the same level as the music.

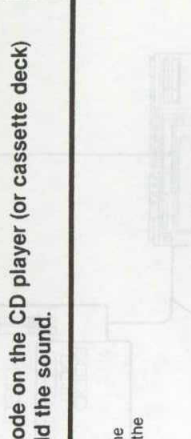


Mixing the Sound

- 1 Set the compact disc player (or cassette deck) to playback pause mode.**


- 2 Start playback and recording.**






- 3 Release playback pause mode on the CD player (or cassette deck) at the point you want to add the sound.**



Note on the MIXING control

The MIXING control adjusts the balance of the sounds between your original videotape and the audio source.

The balance changes as follows:

	The volume of CD/tape remains the same while the volume of the videotape decreases.
	The volume of the videotape remains the same while the volume of CD/tape decreases.
	Only the sound of the videotape is heard at the beginning, then the volume of CD/tape increases.
	Only the sound of the CD/tape is heard at the beginning, then the volume of the videotape increases.

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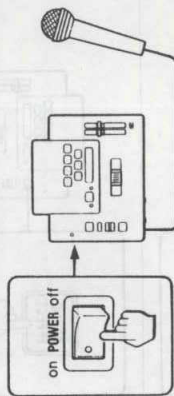
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Mixing Sound from a Microphone

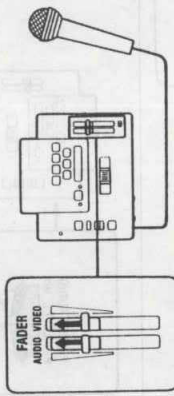
This section explains how to add a narration onto your videotape using a microphone. The sound from a microphone is recorded in monaural.

Preparation

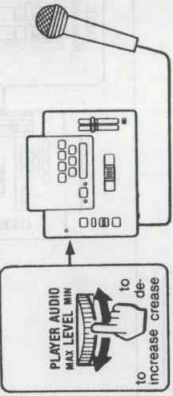
1 Turn on the power.



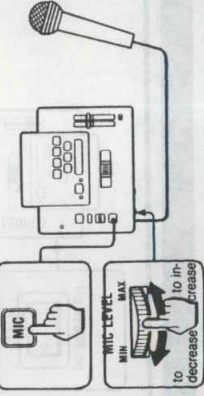
2 Slide the FADER AUDIO/VIDEO controls upwards.



3 Set the PLAYER AUDIO LEVEL control to the centre position.

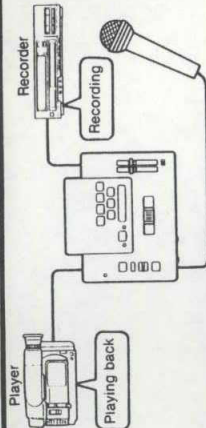


4 Depress MIC. Adjust the volume of the microphone with MIC LEVEL control. After adjusting the volume, press MIC again.



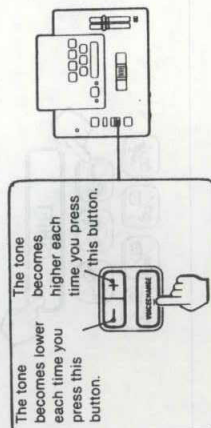
Mixing the Sound

1 Start playback and recording.

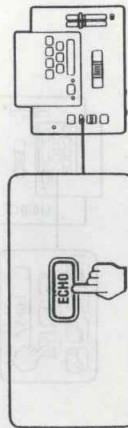


2 Depress MIC at the point you want to add the sound, and start narrating.

To change the tone of the microphone sound
Depress VOICECHANGE.



To add echo effect on the microphone sound
Depress ECHO.



After mixing the sound
Press MIC again.



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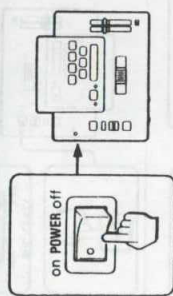
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Adding Sound Effects

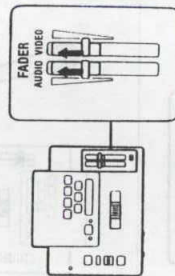
You can add up to 14 kinds of sound effects while editing tapes.

Preparation

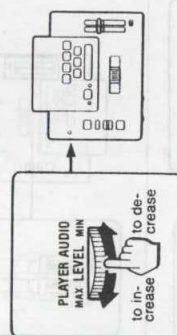
1 Turn on the power.



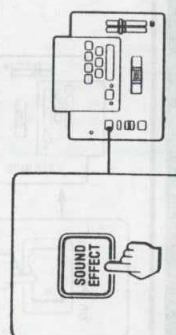
2 Slide the FADER AUDIO/VIDEO controls upwards.



3 Set the PLAYER AUDIO LEVEL control to the centre position.

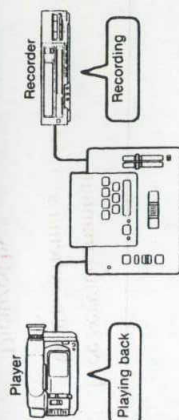


4 Depress SOUND EFFECT.



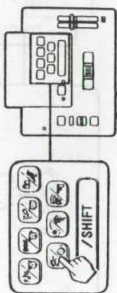
Adding the Sound Effect

1 Start playback and recording.

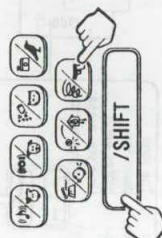


2 Press one of the sound effect buttons at the point you want to add the sound effect.

Each time you press a button, the selected sound is heard once.



To use the sound effect indicated on the lower part of the button, press the button while pressing SHIFT.



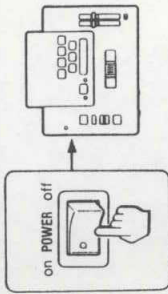
After adding the effect Press SOUND EFFECT again.

Fading In and Out

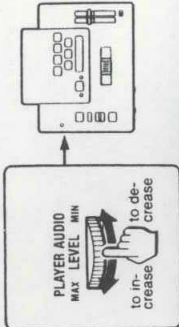
This section explains how to fade in and out both picture and sound.

Preparation

1 Turn on the power.



2 Set the PLAYER AUDIO LEVEL control to the centre position.

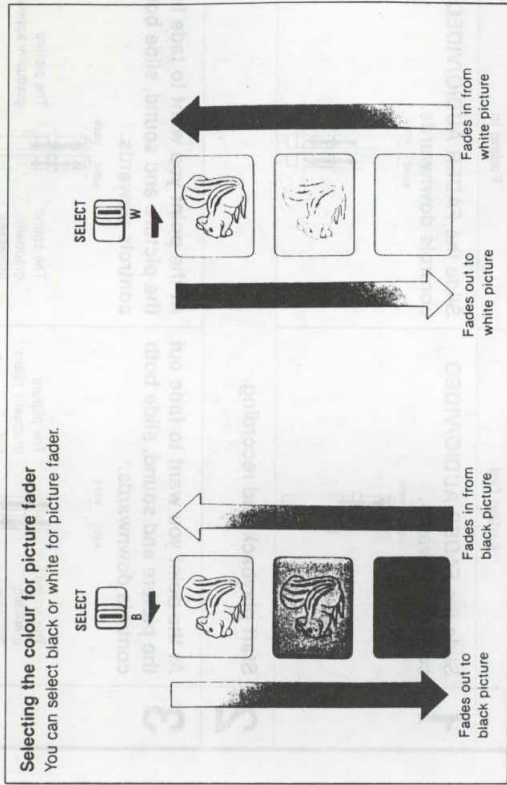


Starting Fading In and Out

	Fading Out	Fading In
1	Slide the FADER AUDIO/VIDEO controls upwards. 	Slide the FADER AUDIO/VIDEO controls downwards.
2	Start playback and recording.	
3	At the point you want to fade out the picture and sound, slide both controls downwards. 	At the point you want to fade in the picture and sound, slide both controls upwards.

<p>To repeat the sound effect</p> <p>Depress REPEAT.</p>	<p>To make the speed between the sound faster</p> <p>Press FAST.</p> <p>Each time you press the button, the speed becomes faster by 1 stage (total of 10 stages). When the interval is shorter than the sound effect, the last part of the sound effect may be missed.</p>
<p>To repeat plural sound effects</p> <p>While repeating a sound effect, press another kind of sound effect button. You can add up to 5 sound effects.</p>	<p>To make the speed between the sound slower</p> <p>Press SLOW.</p> <p>Each time you press the button, the speed becomes slower by 1 stage (total of 10 stages.) The length of the sound effect remains the same.</p>
<p>To stop repeating the sound effect</p> <p>Press REPEAT again.</p>	<p>If you press the button in the middle of a sound effect, the prior sound effect is erased, and the latter is heard.</p>

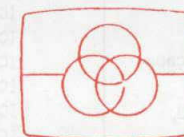
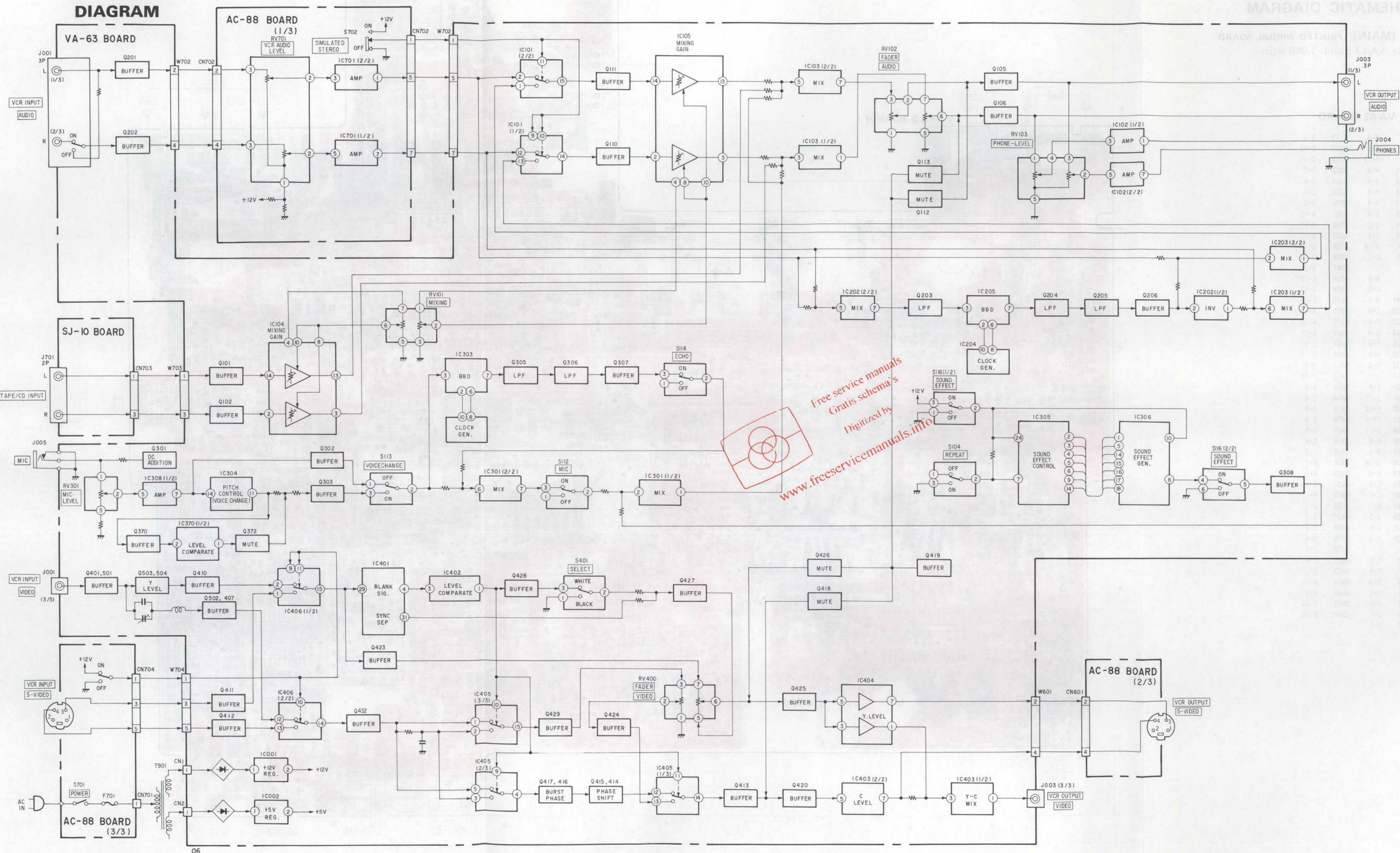
Note
The memorized repeating sound is stored until you press SOUND EFFECT again or turn the power off.



Note
When no signal is input, picture fader does not function.

SECTION 2 DIAGRAM

2-1. BLOCK DIAGRAM



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SECTION 3
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

3-1. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

VA-63 (MAIN) PRINTED WIRING BOARD
—Ref. No. VA-63 Board: 1,000 series—

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- — : indicated a lead wire mounted on the component side.
- — : Through hole.
- ▨ — : Pattern from the side which enables seeing.
- ▨ — : Pattern of the rear side.
- — : Circled numbers refer to waveforms.

Caution:

- Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
- Parts face side: Parts on the parts face side seen from the parts face are indicated.

For schematic diagrams:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
Chip resistor are 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▨ — : nonflammable resistor.
- ▨ — : panel designation.
- ▨ — : adjustment for repair.
- ▨ — : B+ line.
- Circled numbers refer to waveforms.
- Voltage are dc between ground and measurement points.
- Readings are taken with a color-bar signal playback.
- Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage are taken with a VOM (input impedance 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

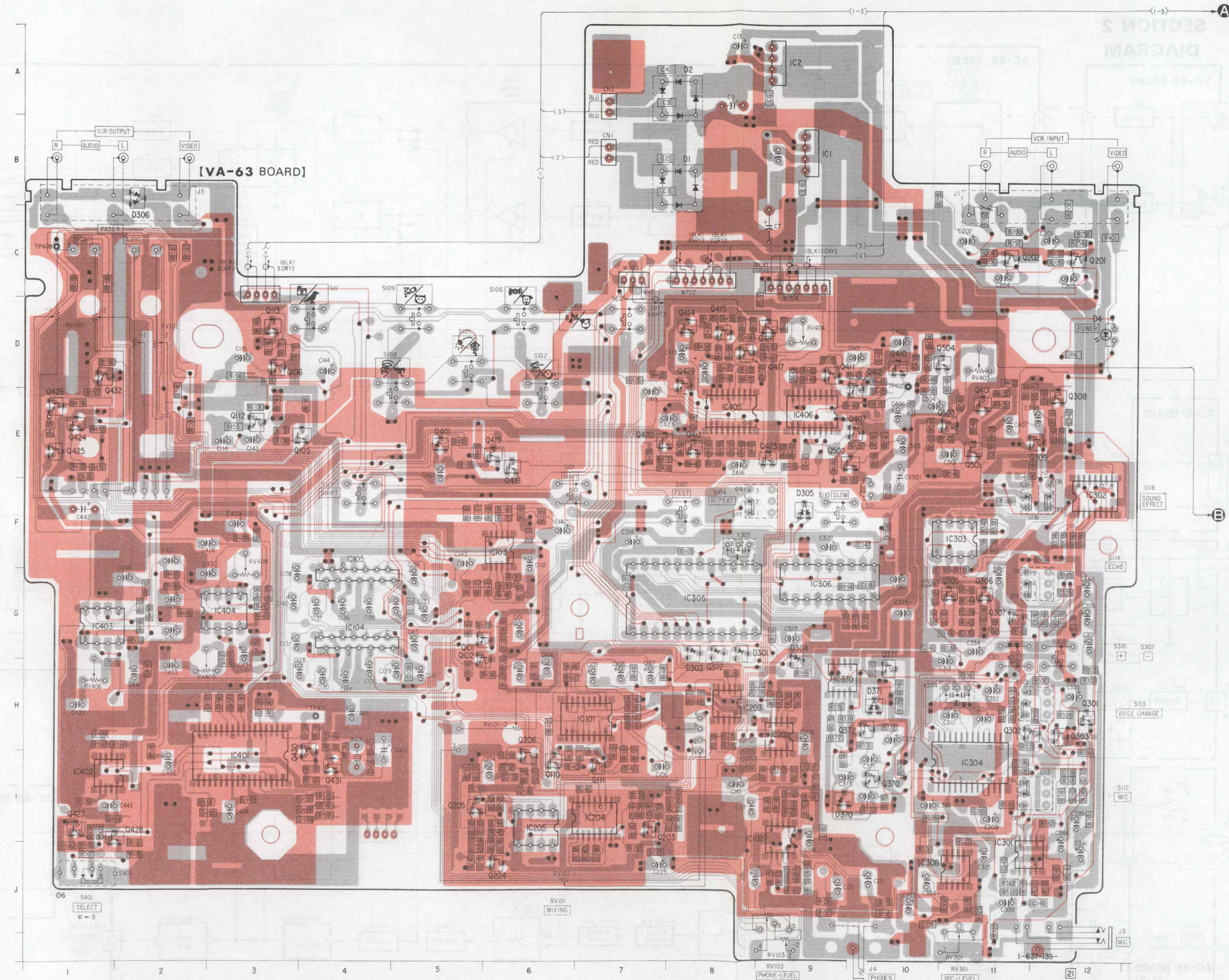
When indicating parts by reference number, please include the board name.

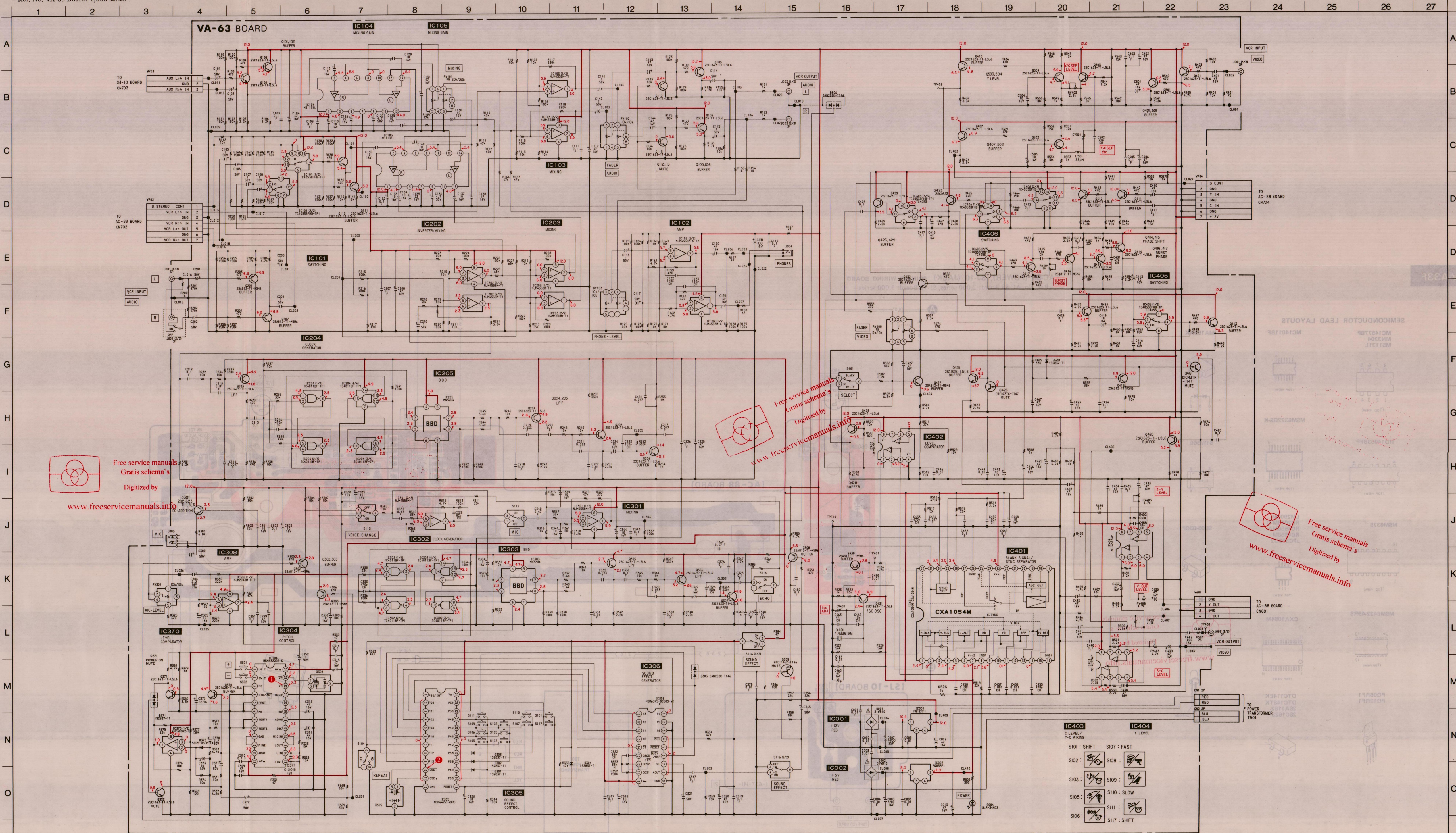
Note:

The components identified by mark A or dotted line with mark A are critical for safety. Replace only with part number specified.

VA-63 BOARD

D1	B-8	Q113	D-3
D2	A-8	Q201	C-12
D4	D-12	Q202	C-11
D301	H-8	Q203	I-7
D302	H-8	Q204	J-6
D303	H-8	Q205	I-5
D304	H-9	Q206	H-6
D305	F-9	Q301	H-12
D306	C-2	Q302	H-11
D370	I-9	Q303	H-12
D371	H-10	Q305	G-11
D401	E-5	Q306	G-11
		Q307	G-11
		Q308	E-12
IC1	B-9	Q309	E-12
IC2	A-9	Q370	I-10
IC101	H-7	Q371	G-10
IC102	I-9	Q372	H-10
IC103	F-8	Q401	E-11
IC104	G-4	Q407	E-9
IC105	H-9	Q410	D-10
IC202	H-8	Q411	D-9
IC203	H-8	Q412	D-10
IC204	I-7	Q413	E-8
IC205	I-8	Q414	D-8
IC301	F-12	Q415	D-8
IC302	F-11	Q416	D-9
IC303	I-11	Q417	D-8
IC304	G-8	Q418	E-6
IC305	G-9	Q419	E-6
IC306	J-10	Q420	E-7
IC370	H-9	Q423	E-9
IC401	I-3	Q424	E-1
IC402	I-1	Q425	E-1
IC403	G-1	Q426	E-1
IC404	G-3	Q427	I-1
IC405	E-8	Q428	I-2
IC406	E-9	Q429	D-8
		Q430	I-3
Q101	G-5	Q431	I-4
Q102	G-5	Q432	E-1
Q105	E-3	Q501	E-11
Q106	D-3	Q502	E-9
Q110	I-6	Q503	E-10
Q111	I-7	Q504	D-10
Q112	E-3		





AC-88 (POWER), SJ-10 (JACK) PRINTED WIRING BOARD
— Ref. No. AC-88 Board: 2,000 series, SJ-10 Board: 3,000 series —

SEMICONDUCTOR LEAD LAYOUTS

MC14577BP
MN3204
M51131L

MC14011BF

MA152WK

MSM6322GS-K

HD14053BFP

LM2903M
RC2043M-D
RC4556MA
RC4558M
μPC393G2

S1WB60

MSM6375

SB05-05CP

MSM6422-49RS

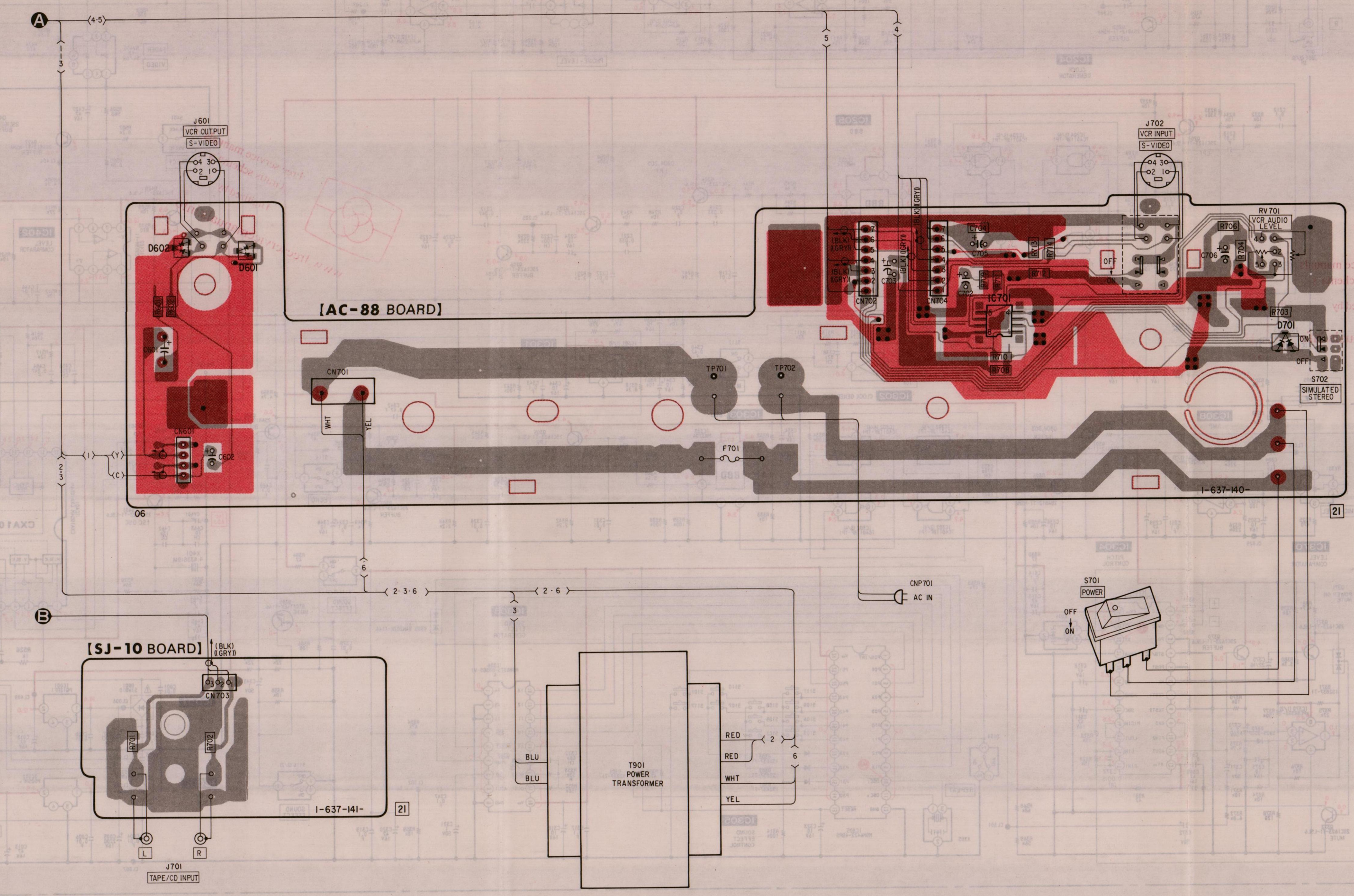
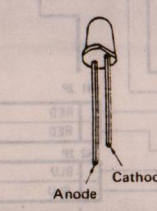
CXA1054M

SLR34MC3

PQ05RF1
PQ12RF1

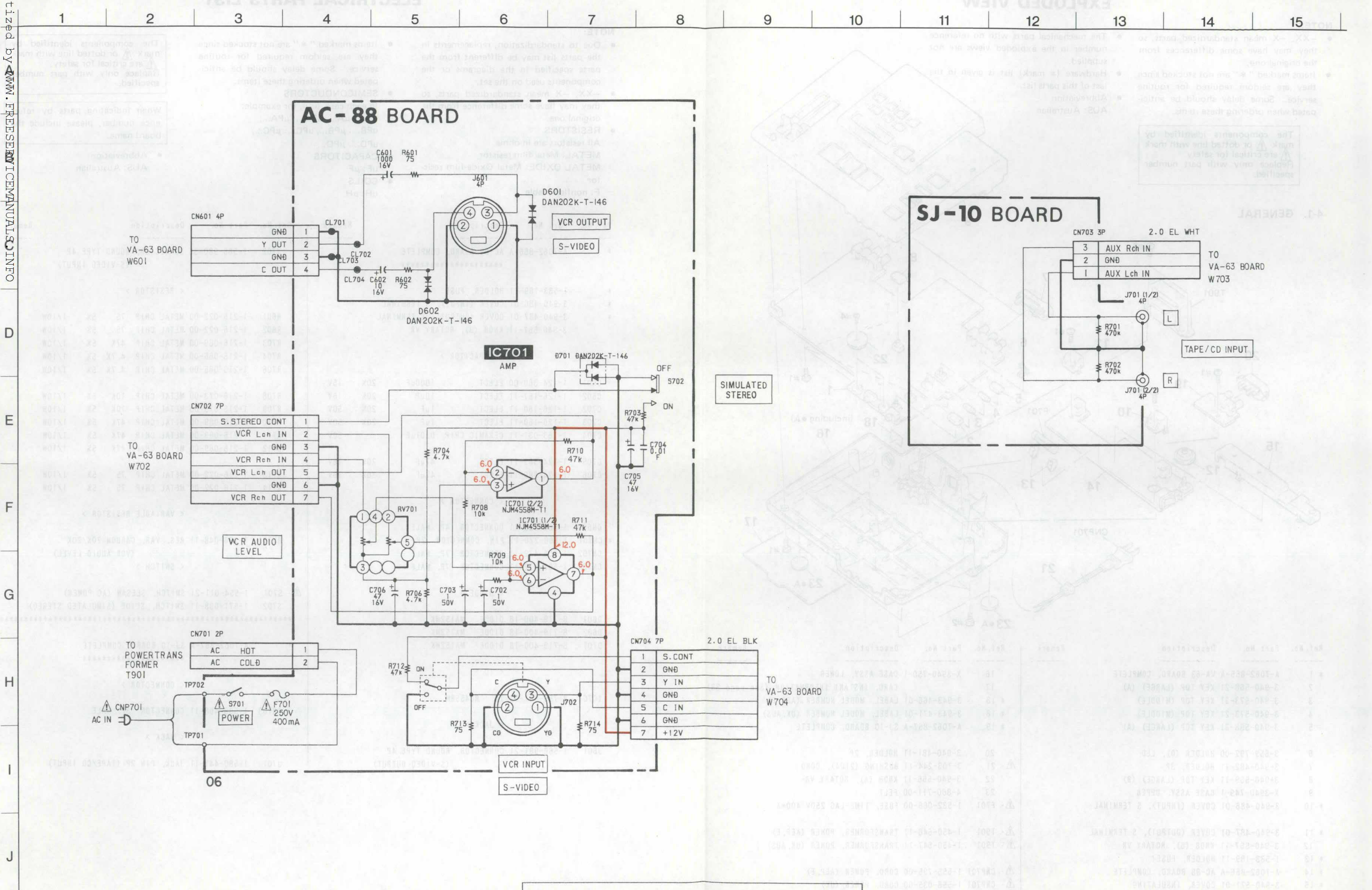
DTC114EK
DTC143TK
2SA1162
2SC1623

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AC-88 (POWER), SJ-10 (JACK) SCHEMATIC DIAGRAM



— Ref. No. AC-88 Board: 2,000 series, SJ-10 Board: 3,000 series —



SECTION 4
EXPLODED VIEW

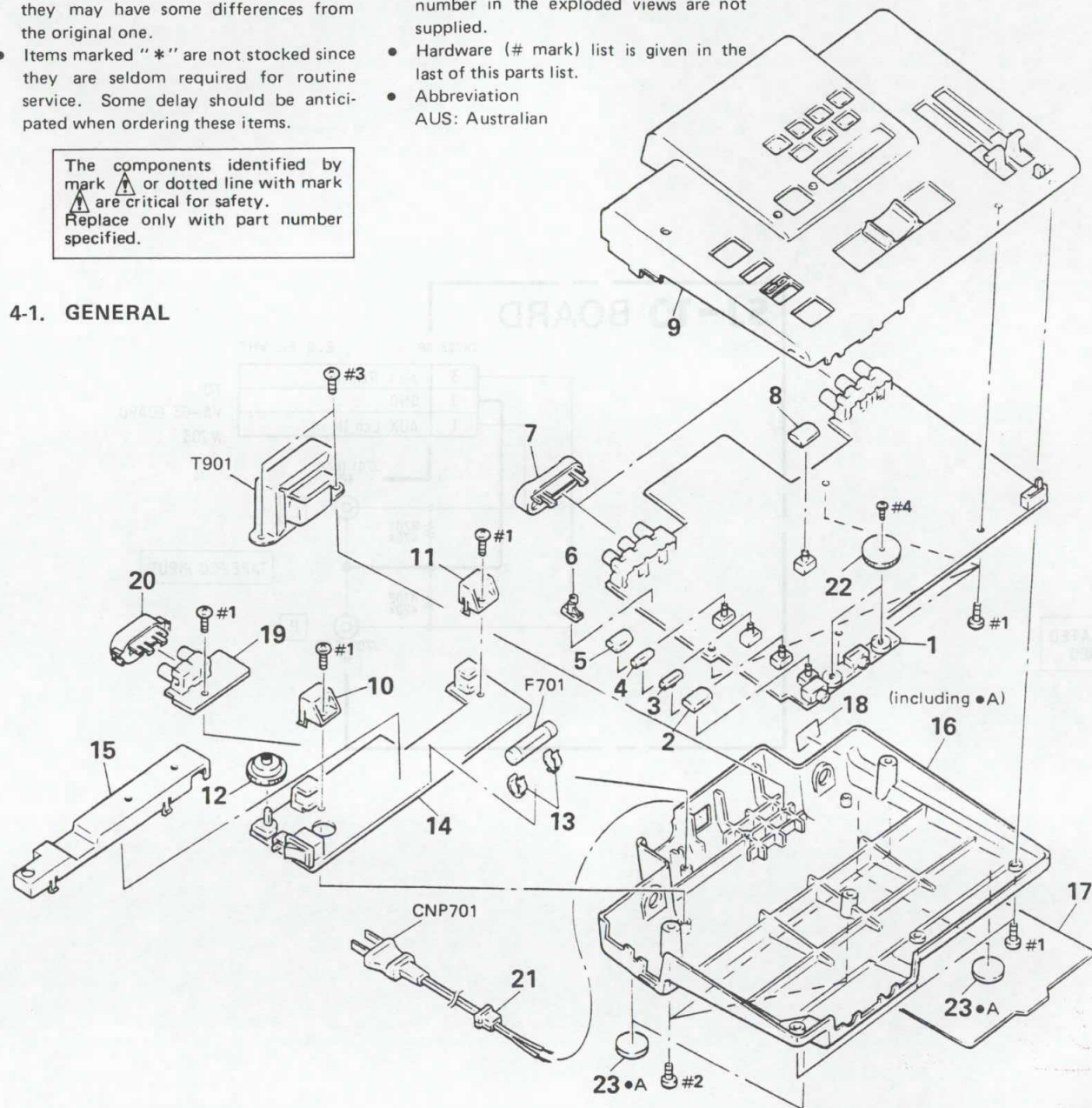
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.








The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.
- Abbreviation
AUS: Australian

4-1. GENERAL



Ref.No.	Part No.	Description	Remark
* 1	A-7062-855-A	VA-63 BOARD, COMPLETE	
2	3-940-568-21	KEY TOP (LARGE) (A)	
3	3-940-573-31	KEY TOP (MIDDLE)	
4	3-940-573-21	KEY TOP (MIDDLE)	
5	3-940-568-31	KEY TOP (LARGE) (A)	
6	3-659-792-00	HOLDER (D), LED	
7	3-940-482-11	HOLDER, 3P	
8	3-940-569-11	KEY TOP (LARGE) (B)	
9	X-3940-749-1	CASE ASSY, UPPER	
* 10	3-940-486-01	COVER (INPUT), S TERMINAL	
* 11	3-940-487-01	COVER (OUTPUT), S TERMINAL	
12	3-940-567-11	KNOB (B), ROTARY VR	
* 13	1-533-189-11	HOLDER, FUSE	
* 14	A-7062-856-A	AC-88 BOARD, COMPLETE	
* 15	3-940-571-01	COVER, INSULATING	

Ref.No.	Part No.	Description	Remark
16	X-3940-750-1	CASE ASSY, LOWER	
17		CARD, INSTANT INFORMATION (See page 38)	
* 18	3-943-466-01	LABEL, MODEL NUMBER (AEP, E)	
* 18	3-943-471-01	LABEL, MODEL NUMBER (UK, AUS)	
* 19	A-7062-857-A	SJ-10 BOARD, COMPLETE	
20	3-940-481-11	HOLDER, 2P	
 21	3-703-244-11	BUSHING (2104), CORD	
22	3-940-566-11	KNOB (A), ROTARY VR	
23	4-860-711-00	FELT	
 F701	1-532-066-00	FUSE, TIME-LAG 250V 400mA	
 T901	1-450-646-11	TRANSFORMER, POWER (AEP, E)	
 T901	1-450-647-11	TRANSFORMER, POWER (UK, AUS)	
 CNP701	1-555-795-00	CORD, POWER (AEP, E)	
 CNP701	1-556-035-00	CORD, POWER (UK)	
 CNP701	1-559-912-11	CORD, POWER (AUS)	

AC-88 SJ-10

NOTE:



- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable

Ref.No.	Part No.	Description	Remark
*	A-7062-856-A	AC-88 BOARD, COMPLETE *****	
*	1-533-189-11	HOLDER, FUSE	
*	3-940-486-01	COVER (INPUT), S TERMINAL	
*	3-940-487-01	COVER (OUTPUT), S TERMINAL	
	3-940-567-11	KNOB (B), ROTARY VR	
< CAPACITOR >			
C601	1-124-360-00	ELECT 1000uF 20% 16V	
C602	1-126-157-11	ELECT 10uF 20% 16V	
C702	1-126-160-11	ELECT 1uF 20% 50V	
C703	1-126-160-11	ELECT 1uF 20% 50V	
C704	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C705	1-124-589-11	ELECT 47uF 20% 16V	
C706	1-124-589-11	ELECT 47uF 20% 16V	
< CONNECTOR >			
CN601	1-506-469-11	CONNECTOR 4P, MALE	
* CN701	1-568-226-11	PIN, CONNECTOR 2P	
CN702	1-506-472-11	CONNECTOR 7P, MALE	
CN704	1-506-472-11	CONNECTOR 7P, MALE	
< DIODE >			
D601	8-719-400-18	DIODE MA152WK	
D602	8-719-400-18	DIODE MA152WK	
D701	8-719-400-18	DIODE MA152WK	

< IC >			
IC701	8-759-981-92	IC RC4558M	
< JACK >			
J601	1-566-981-21	CONNECTOR, ROUND TYPE 4P (S-VIDEO OUTPUT)	


SECTION 5
ELECTRICAL PARTS LIST

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...
- CAPACITORS
uF: μ F
- COILS
uH: μ H

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Abbreviation
AUS: Australian

Ref.No.	Part No.	Description	Remark
J702	1-566-980-31	CONNECTOR, ROUND TYPE 4P (S-VIDEO INPUT)	
< RESISTOR >			
R601	1-216-022-00	METAL CHIP 75 5% 1/10W	
R602	1-216-022-00	METAL CHIP 75 5% 1/10W	
R703	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R704	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R706	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R708	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R709	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R710	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R711	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R712	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R713	1-216-022-00	METAL CHIP 75 5% 1/10W	
R714	1-216-022-00	METAL CHIP 75 5% 1/10W	
< VARIABLE RESISTOR >			
RV701	1-238-048-11	RES, VAR, CARBON 20K/20K (VCR AUDIO LEVEL)	
< SWITCH >			
 S701	1-554-011-21	SWITCH, SEESAW (AC POWER)	
S702	1-571-098-11	SWITCH, SLIDE (SIMULATED STEREO)	

*	A-7062-857-A	SJ-10 BOARD, COMPLETE *****	
< CONNECTOR >			
CN703	1-506-468-11	CONNECTOR 3P, MALE	
< JACK >			
J701	1-580-441-11	JACK, PIN 2P (TAPE/CD INPUT)	

SJ-10

VA-63

Ref.No.	Part No.	Description	Remark
		< RESISTOR >	
R701	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R702	1-216-113-00	METAL CHIP 470K 5% 1/10W	

*	A-7062-855-A	VA-63 BOARD, COMPLETE	

	3-659-792-00	HOLDER (D), LED	
	3-940-566-11	KNOB (A), ROTARY VR	
		< CAPACITOR >	
C1	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C2	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C3	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C4	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C5	1-124-556-11	ELECT 2200uF	20% 16V
C6	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C7	1-124-564-11	ELECT 4700uF	20% 25V
C8	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C12	1-124-589-11	ELECT 47uF	20% 16V
C13	1-124-589-11	ELECT 47uF	20% 16V
C101	1-126-160-11	ELECT 1uF	20% 50V
C102	1-126-160-11	ELECT 1uF	20% 50V
C103	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C104	1-124-589-11	ELECT 47uF	20% 16V
C105	1-126-160-11	ELECT 1uF	20% 50V
C106	1-126-160-11	ELECT 1uF	20% 50V
C107	1-126-160-11	ELECT 1uF	20% 50V
C108	1-126-160-11	ELECT 1uF	20% 50V
C109	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C110	1-126-157-11	ELECT 10uF	20% 16V
C111	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C112	1-124-589-11	ELECT 47uF	20% 16V
C113	1-126-157-11	ELECT 10uF	20% 16V
C114	1-126-160-11	ELECT 1uF	20% 50V
C115	1-126-160-11	ELECT 1uF	20% 50V
C116	1-126-160-11	ELECT 1uF	20% 50V
C117	1-126-160-11	ELECT 1uF	20% 50V
C118	1-126-101-11	ELECT 100uF	20% 16V
C119	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C120	1-124-589-11	ELECT 47uF	20% 16V
C121	1-124-589-11	ELECT 47uF	20% 16V
C122	1-163-253-11	CERAMIC CHIP 120PF	5% 50V
C123	1-163-253-11	CERAMIC CHIP 120PF	5% 50V
C126	1-124-234-00	ELECT 22uF	20% 16V
C127	1-126-163-11	ELECT 4.7uF	20% 50V
C128	1-126-157-11	ELECT 10uF	20% 16V
C129	1-126-157-11	ELECT 10uF	20% 16V

Ref.No.	Part No.	Description	Remark
C130	1-126-157-11	ELECT 10uF	20% 16V
C131	1-124-589-11	ELECT 47uF	20% 16V
C132	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C133	1-126-157-11	ELECT 10uF	20% 16V
C134	1-126-157-11	ELECT 10uF	20% 16V
C135	1-124-234-00	ELECT 22uF	20% 16V
C136	1-126-163-11	ELECT 4.7uF	20% 50V
C137	1-126-157-11	ELECT 10uF	20% 16V
C138	1-124-589-11	ELECT 47uF	20% 16V
C139	1-126-157-11	ELECT 10uF	20% 16V
C140	1-126-157-11	ELECT 10uF	20% 16V
C141	1-126-160-11	ELECT 1uF	20% 50V
C142	1-126-160-11	ELECT 1uF	20% 50V
C143	1-124-589-11	ELECT 47uF	20% 16V
C144	1-124-589-11	ELECT 47uF	20% 16V
C201	1-126-160-11	ELECT 1uF	20% 50V
C202	1-126-160-11	ELECT 1uF	20% 50V
C203	1-126-160-11	ELECT 1uF	20% 50V
C204	1-126-160-11	ELECT 1uF	20% 50V
C207	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C208	1-124-589-11	ELECT 47uF	20% 16V
C210	1-126-160-11	ELECT 1uF	20% 50V
C212	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C213	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C214	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C215	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C216	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C217	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C218	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C219	1-163-034-00	CERAMIC CHIP 0.033uF	50V
C220	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C221	1-163-034-00	CERAMIC CHIP 0.033uF	50V
C222	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C223	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C224	1-126-157-11	ELECT 10uF	20% 16V
C225	1-124-589-11	ELECT 47uF	20% 16V
C226	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C299	1-124-589-11	ELECT 47uF	20% 16V
C300	1-126-160-11	ELECT 1uF	20% 50V
C301	1-126-157-11	ELECT 10uF	20% 16V
C302	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C303	1-126-157-11	ELECT 10uF	20% 16V
C304	1-131-349-00	TANTALUM 2.2uF	10% 35V
C305	1-126-157-11	ELECT 10uF	20% 16V
C309	1-124-589-11	ELECT 47uF	20% 16V
C310	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C311	1-124-589-11	ELECT 47uF	20% 16V
C312	1-124-589-11	ELECT 47uF	20% 16V

VA-63

01-L2



Ref. No.	Part No.	Description	Remark
C313	1-124-589-11	ELECT 47uF 20%	16V
C314	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C317	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C318	1-126-157-11	ELECT 10uF 20%	16V
C319	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C320	1-124-589-11	ELECT 47uF 20%	16V
C321	1-126-160-11	ELECT 1uF 20%	50V
C322	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C323	1-126-157-11	ELECT 10uF 20%	16V
C324	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C325	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C326	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C327	1-126-157-11	ELECT 10uF 20%	16V
C328	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C329	1-163-034-00	CERAMIC CHIP 0.033uF	50V
C330	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C331	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C332	1-163-034-00	CERAMIC CHIP 0.033uF	50V
C333	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C334	1-126-157-11	ELECT 10uF 20%	16V
C335	1-126-157-11	ELECT 10uF 20%	16V
C336	1-126-157-11	ELECT 10uF 20%	16V
C337	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C338	1-163-115-00	CERAMIC CHIP 82PF 5%	50V
C339	1-126-157-11	ELECT 10uF 20%	16V
C340	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C341	1-126-157-11	ELECT 10uF 20%	16V
C342	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C343	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C344	1-126-157-11	ELECT 10uF 20%	16V
C345	1-126-160-11	ELECT 1uF 20%	50V
C347	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C348	1-126-157-11	ELECT 10uF 20%	16V
C351	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C352	1-126-160-11	ELECT 1uF 20%	50V
C370	1-124-257-00	ELECT 2.2uF 20%	50V
C371	1-126-160-11	ELECT 1uF 20%	50V
C372	1-126-160-11	ELECT 1uF 20%	50V
C373	1-126-157-11	ELECT 10uF 20%	16V
C375	1-124-234-00	ELECT 22uF 20%	16V
C376	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C377	1-163-011-11	CERAMIC CHIP 0.0015uF 10%	50V
C378	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C401	1-124-589-11	ELECT 47uF 20%	16V
C402	1-124-589-11	ELECT 47uF 20%	16V
C403	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C405	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C406	1-124-589-11	ELECT 47uF 20%	16V
C410	1-124-589-11	ELECT 47uF 20%	16V

Ref. No.	Part No.	Description	Remark
C411	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C412	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C413	1-126-157-11	ELECT 10uF 20%	16V
C414	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C415	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C416	1-126-157-11	ELECT 10uF 20%	16V
C417	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C418	1-124-589-11	ELECT 47uF 20%	16V
C419	1-126-157-11	ELECT 10uF 20%	16V
C420	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C423	1-126-157-11	ELECT 10uF 20%	16V
C424	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C425	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C426	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C427	1-124-589-11	ELECT 47uF 20%	16V
C428	1-124-589-11	ELECT 47uF 20%	16V
C429	1-124-589-11	ELECT 47uF 20%	16V
C430	1-124-589-11	ELECT 47uF 20%	16V
C431	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C433	1-124-589-11	ELECT 47uF 20%	16V
C434	1-124-589-11	ELECT 47uF 20%	16V
C435	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C436	1-124-589-11	ELECT 47uF 20%	16V
C437	1-124-589-11	ELECT 47uF 20%	16V
C438	1-124-589-11	ELECT 47uF 20%	16V
C439	1-124-589-11	ELECT 47uF 20%	16V
C440	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C441	1-124-589-11	ELECT 47uF 20%	16V
C442	1-124-360-00	ELECT 1000uF 20%	16V
C443	1-126-157-11	ELECT 10uF 20%	16V
C444	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C446	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C448	1-126-157-11	ELECT 10uF 20%	16V
C449	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C450	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C452	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C453	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C454	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C455	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C456	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V
C457	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V
C458	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V
C459	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C462	1-163-096-00	CERAMIC CHIP 13PF 5%	50V
C463	1-163-224-11	CERAMIC CHIP 7PF 0.25PF	50V
C464	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C465	1-124-589-11	ELECT 47uF 20%	16V
C466	1-124-589-11	ELECT 47uF 20%	16V
C467	1-124-589-11	ELECT 47uF 20%	16V

VA-63

Ref. No.	Part No.	Description	Remark
C468	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C480	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C481	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C501	1-124-589-11	ELECT 47uF 20% 16V	
C502	1-163-235-11	CERAMIC CHIP 22PF 5% 50V	
C503	1-126-157-11	ELECT 10uF 20% 16V	
C504	1-126-157-11	ELECT 10uF 20% 16V	
< CONNECTOR >			
* CN001	1-564-027-00	PIN, CONNECTOR 2P	
* CN002	1-564-027-00	PIN, CONNECTOR 2P	
< TRIMMER >			
CV401	1-141-227-00	CAP, TRIMMER 20PF	
CV501	1-141-245-00	CAP, TRIMMER 30PF	
< DIODE >			
D1	8-719-510-06	DIODE 1N4001	
D2	8-719-510-06	DIODE 1N4001	
D4	8-719-940-82	LED SLR34MC3 (POWER)	
D301	8-719-400-18	DIODE MA152WK	
D302	8-719-400-18	DIODE MA152WK	
D303	8-719-400-18	DIODE MA152WK	
D304	8-719-400-18	DIODE MA152WK	
D305	8-719-400-18	DIODE MA152WK	
D306	8-719-400-18	DIODE MA152WK	
D370	8-719-938-75	DIODE SB05-05CP	
D371	8-719-400-18	DIODE MA152WK	
D401	8-719-400-18	DIODE MA152WK	
< IC >			
IC1	8-759-506-12	IC PQ12RF1	
IC2	8-759-504-46	IC PQ05RF1	
IC101	8-759-300-71	IC HD14053BFP	
IC102	8-759-981-88	IC RC4556MA-T2	
IC103	8-759-981-92	IC RC4558M	
IC104	8-759-605-46	IC MS1131L	
IC105	8-759-605-46	IC MS1131L	
IC202	8-759-981-92	IC RC4558M	
IC203	8-759-981-92	IC RC4558M	
IC204	8-759-008-79	IC MC14011BF	
IC205	8-759-400-87	IC MN3204	
IC301	8-759-981-92	IC RC4558M	
IC302	8-759-008-79	IC MC14011BF	
IC303	8-759-400-87	IC MN3204	
IC304	8-759-506-41	IC MSM6322GS-K	
IC305	8-759-505-94	IC MSM6422-49RS	
IC306	8-759-521-55	IC MSM6375-826RS	

Ref. No.	Part No.	Description	Remark
IC308	8-759-981-58	IC RC2043M-D	
IC370	8-759-100-93	IC uPC393G2	
IC401	8-759-605-29	IC CXA1054M	
IC402	8-759-981-65	IC LM2903M	
IC403	8-759-057-39	IC MC14577BP	
IC404	8-759-057-39	IC MC14577BP	
IC405	8-759-300-71	IC HD14053BFP	
IC406	8-759-300-71	IC HD14053BFP	
< JACK >			
J1	1-580-443-11	JACK, PIN 3P (VCR INPUT)	
J3	1-580-442-11	JACK, PIN 3P (VCR OUTPUT)	
J4	1-507-833-00	JACK (PHONE IN)	
J5	1-507-834-31	JACK (MIC IN)	
< COIL >			
L501	1-408-976-21	INDUCTOR 33uH	
< TRANSISTOR >			
Q101	8-729-100-66	TRANSISTOR 2SC1623	
Q102	8-729-100-66	TRANSISTOR 2SC1623	
Q105	8-729-100-66	TRANSISTOR 2SC1623	
Q106	8-729-100-66	TRANSISTOR 2SC1623	
Q110	8-729-100-66	TRANSISTOR 2SC1623	
Q111	8-729-100-66	TRANSISTOR 2SC1623	
Q112	8-729-100-66	TRANSISTOR 2SC1623	
Q113	8-729-100-66	TRANSISTOR 2SC1623	
Q201	8-729-216-22	TRANSISTOR 2SA1162	
Q202	8-729-216-22	TRANSISTOR 2SA1162	
Q203	8-729-100-66	TRANSISTOR 2SC1623	
Q204	8-729-100-66	TRANSISTOR 2SC1623	
Q205	8-729-100-66	TRANSISTOR 2SC1623	
Q206	8-729-100-66	TRANSISTOR 2SC1623	
Q301	8-729-100-66	TRANSISTOR 2SC1623	
Q302	8-729-216-22	TRANSISTOR 2SA1162	
Q303	8-729-216-22	TRANSISTOR 2SA1162	
Q305	8-729-100-66	TRANSISTOR 2SC1623	
Q306	8-729-100-66	TRANSISTOR 2SC1623	
Q307	8-729-100-66	TRANSISTOR 2SC1623	
Q308	8-729-216-22	TRANSISTOR 2SA1162	
Q309	8-729-900-53	TRANSISTOR DTC114EK	
Q370	8-729-100-66	TRANSISTOR 2SC1623	
Q371	8-729-100-66	TRANSISTOR 2SC1623	
Q372	8-729-100-66	TRANSISTOR 2SC1623	
Q401	8-729-100-66	TRANSISTOR 2SC1623	
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q410	8-729-100-66	TRANSISTOR 2SC1623	
Q411	8-729-100-66	TRANSISTOR 2SC1623	
Q412	8-729-100-66	TRANSISTOR 2SC1623	

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

VA-63

Ref. No.	Part No.	Description	Remark
Q413	8-729-100-66	TRANSISTOR 2SC1623	
Q414	8-729-100-66	TRANSISTOR 2SC1623	
Q415	8-729-100-66	TRANSISTOR 2SC1623	
Q416	8-729-216-22	TRANSISTOR 2SA1162	
Q417	8-729-100-66	TRANSISTOR 2SC1623	
Q418	8-729-900-98	TRANSISTOR DTC143TK	
Q419	8-729-216-22	TRANSISTOR 2SA1162	
Q420	8-729-100-66	TRANSISTOR 2SC1623	
Q423	8-729-100-66	TRANSISTOR 2SC1623	
Q424	8-729-100-66	TRANSISTOR 2SC1623	
Q425	8-729-100-66	TRANSISTOR 2SC1623	
Q426	8-729-900-98	TRANSISTOR DTC143TK	
Q427	8-729-216-22	TRANSISTOR 2SA1162	
Q428	8-729-100-66	TRANSISTOR 2SC1623	
Q429	8-729-100-66	TRANSISTOR 2SC1623	
Q430	8-729-216-22	TRANSISTOR 2SA1162	
Q431	8-729-100-66	TRANSISTOR 2SC1623	
Q432	8-729-100-66	TRANSISTOR 2SC1623	
Q501	8-729-100-66	TRANSISTOR 2SC1623	
Q502	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-100-66	TRANSISTOR 2SC1623	
Q504	8-729-100-66	TRANSISTOR 2SC1623	
< RESISTOR >			
R6	1-216-039-00	METAL CHIP 390 5% 1/10W	
R101	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R102	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R103	1-216-041-00	METAL CHIP 470 5% 1/10W	
R104	1-216-041-00	METAL CHIP 470 5% 1/10W	
R105	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R106	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R107	1-216-017-00	METAL CHIP 47 5% 1/10W	
R108	1-216-041-00	METAL CHIP 470 5% 1/10W	
R109	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R110	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R111	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R112	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R113	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R114	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R115	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R116	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R117	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R118	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R119	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R120	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R121	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R122	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R123	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R124	1-216-097-00	METAL CHIP 100K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R125	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R126	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R127	1-216-041-00	METAL CHIP 470 5% 1/10W	
R128	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R129	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R130	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R131	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R132	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R133	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R134	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R135	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R136	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R137	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R138	1-216-041-00	METAL CHIP 470 5% 1/10W	
R139	1-216-041-00	METAL CHIP 470 5% 1/10W	
R140	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R141	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R142	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R146	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R147	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R148	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R149	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R150	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R151	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R152	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R153	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R154	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R155	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R156	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R157	1-216-017-00	METAL CHIP 47 5% 1/10W	
R158	1-216-017-00	METAL CHIP 47 5% 1/10W	
R159	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R160	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R161	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R162	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R163	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R164	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R165	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R166	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R167	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R168	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R169	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R170	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R171	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R173	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R174	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R175	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R176	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R200	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Notes: The components identified by mark Φ or dotted line with mark Φ are critical for safety. Replace only with part number specified.

VA-63

Ref.No.	Part No.	Description	Remark
R201	1-216-113-00	METAL CHIP 470K 5%	1/10W
R202	1-216-113-00	METAL CHIP 470K 5%	1/10W
R203	1-216-041-00	METAL CHIP 470 5%	1/10W
R204	1-216-041-00	METAL CHIP 470 5%	1/10W
R205	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R206	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R210	1-216-077-00	METAL CHIP 15K 5%	1/10W
R211	1-216-077-00	METAL CHIP 15K 5%	1/10W
R212	1-216-077-00	METAL CHIP 15K 5%	1/10W
R213	1-216-077-00	METAL CHIP 15K 5%	1/10W
R215	1-216-097-00	METAL CHIP 100K 5%	1/10W
R216	1-216-097-00	METAL CHIP 100K 5%	1/10W
R217	1-216-089-00	METAL CHIP 47K 5%	1/10W
R218	1-216-748-11	METAL CHIP 39K 1%	1/10W
R219	1-216-097-00	METAL CHIP 100K 5%	1/10W
R220	1-216-097-00	METAL CHIP 100K 5%	1/10W
R221	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R222	1-216-097-00	METAL CHIP 100K 5%	1/10W
R223	1-216-097-00	METAL CHIP 100K 5%	1/10W
R224	1-216-097-00	METAL CHIP 100K 5%	1/10W
R225	1-216-093-00	METAL CHIP 68K 5%	1/10W
R226	1-216-097-00	METAL CHIP 100K 5%	1/10W
R227	1-216-093-00	METAL CHIP 68K 5%	1/10W
R228	1-216-097-00	METAL CHIP 100K 5%	1/10W
R229	1-216-097-00	METAL CHIP 100K 5%	1/10W
R231	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R232	1-216-073-00	METAL CHIP 10K 5%	1/10W
R233	1-216-109-00	METAL CHIP 330K 5%	1/10W
R234	1-216-073-00	METAL CHIP 10K 5%	1/10W
R235	1-216-041-00	METAL CHIP 470 5%	1/10W
R236	1-216-041-00	METAL CHIP 470 5%	1/10W
R237	1-216-073-00	METAL CHIP 10K 5%	1/10W
R238	1-216-073-00	METAL CHIP 10K 5%	1/10W
R239	1-216-085-00	METAL CHIP 33K 5%	1/10W
R240	1-216-089-00	METAL CHIP 47K 5%	1/10W
R241	1-216-097-00	METAL CHIP 100K 5%	1/10W
R242	1-216-097-00	METAL CHIP 100K 5%	1/10W
R243	1-216-097-00	METAL CHIP 100K 5%	1/10W
R244	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R245	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R246	1-216-073-00	METAL CHIP 10K 5%	1/10W
R247	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R248	1-216-073-00	METAL CHIP 10K 5%	1/10W
R249	1-216-073-00	METAL CHIP 10K 5%	1/10W
R250	1-216-109-00	METAL CHIP 330K 5%	1/10W
R251	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R252	1-216-109-00	METAL CHIP 330K 5%	1/10W
R253	1-216-073-00	METAL CHIP 10K 5%	1/10W
R254	1-216-049-00	METAL CHIP 1K 5%	1/10W

Ref.No.	Part No.	Description	Remark
R255	1-216-101-00	METAL CHIP 150K 5%	1/10W
R256	1-216-101-00	METAL CHIP 150K 5%	1/10W
R257	1-216-101-00	METAL CHIP 150K 5%	1/10W
R258	1-216-101-00	METAL CHIP 150K 5%	1/10W
R301	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R302	1-216-748-11	METAL CHIP 39K 1%	1/10W
R303	1-216-077-00	METAL CHIP 15K 5%	1/10W
R304	1-216-073-00	METAL CHIP 10K 5%	1/10W
R305	1-216-041-00	METAL CHIP 470 5%	1/10W
R306	1-216-041-00	METAL CHIP 470 5%	1/10W
R307	1-216-073-00	METAL CHIP 10K 5%	1/10W
R308	1-216-073-00	METAL CHIP 10K 5%	1/10W
R309	1-216-073-00	METAL CHIP 10K 5%	1/10W
R310	1-216-085-00	METAL CHIP 33K 5%	1/10W
R311	1-216-085-00	METAL CHIP 33K 5%	1/10W
R312	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R313	1-216-097-00	METAL CHIP 100K 5%	1/10W
R314	1-216-097-00	METAL CHIP 100K 5%	1/10W
R315	1-216-073-00	METAL CHIP 10K 5%	1/10W
R316	1-216-073-00	METAL CHIP 10K 5%	1/10W
R317	1-216-085-00	METAL CHIP 33K 5%	1/10W
R318	1-216-071-00	METAL CHIP 8.2K 5%	1/10W
R319	1-216-089-00	METAL CHIP 47K 5%	1/10W
R320	1-216-035-00	METAL CHIP 270 5%	1/10W
R321	1-216-089-00	METAL CHIP 47K 5%	1/10W
R322	1-216-097-00	METAL CHIP 100K 5%	1/10W
R323	1-216-077-00	METAL CHIP 15K 5%	1/10W
R325	1-216-041-00	METAL CHIP 470 5%	1/10W
R326	1-216-105-00	METAL CHIP 220K 5%	1/10W
R327	1-216-025-00	METAL CHIP 100 5%	1/10W
R328	1-216-077-00	METAL CHIP 15K 5%	1/10W
R329	1-216-073-00	METAL CHIP 10K 5%	1/10W
R330	1-216-017-00	METAL CHIP 47 5%	1/10W
R331	1-216-017-00	METAL CHIP 47 5%	1/10W
R332	1-216-073-00	METAL CHIP 10K 5%	1/10W
R333	1-216-073-00	METAL CHIP 10K 5%	1/10W
R334	1-216-097-00	METAL CHIP 100K 5%	1/10W
R335	1-216-085-00	METAL CHIP 33K 5%	1/10W
R336	1-216-097-00	METAL CHIP 100K 5%	1/10W
R337	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R338	1-216-097-00	METAL CHIP 100K 5%	1/10W
R339	1-216-097-00	METAL CHIP 100K 5%	1/10W
R340	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R341	1-216-073-00	METAL CHIP 10K 5%	1/10W
R342	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R343	1-216-073-00	METAL CHIP 10K 5%	1/10W
R344	1-216-073-00	METAL CHIP 10K 5%	1/10W
R345	1-216-109-00	METAL CHIP 330K 5%	1/10W
R346	1-216-109-00	METAL CHIP 330K 5%	1/10W

VA-63

Ref. No.	Part No.	Description	Remark
R347	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R348	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R349	1-216-049-00	METAL CHIP 1K 5%	1/10W
R350	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R351	1-216-041-00	METAL CHIP 470 5%	1/10W
R352	1-216-101-00	METAL CHIP 150K 5%	1/10W
R353	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R354	1-216-089-00	METAL CHIP 47K 5%	1/10W
R355	1-216-089-00	METAL CHIP 47K 5%	1/10W
R356	1-216-081-00	METAL CHIP 22K 5%	1/10W
R357	1-216-081-00	METAL CHIP 22K 5%	1/10W
R358	1-216-073-00	METAL CHIP 10K 5%	1/10W
R359	1-216-073-00	METAL CHIP 10K 5%	1/10W
R360	1-216-105-00	METAL CHIP 220K 5%	1/10W
R361	1-216-073-00	METAL CHIP 10K 5%	1/10W
R362	1-216-073-00	METAL CHIP 10K 5%	1/10W
R363	1-216-089-00	METAL CHIP 47K 5%	1/10W
R364	1-216-017-00	METAL CHIP 47 5%	1/10W
R365	1-216-073-00	METAL CHIP 10K 5%	1/10W
R368	1-216-093-00	METAL CHIP 68K 5%	1/10W
R369	1-216-091-00	METAL CHIP 56K 5%	1/10W
R370	1-216-073-00	METAL CHIP 10K 5%	1/10W
R371	1-216-073-00	METAL CHIP 10K 5%	1/10W
R372	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R373	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R374	1-216-073-00	METAL CHIP 10K 5%	1/10W
R375	1-216-081-00	METAL CHIP 22K 5%	1/10W
R376	1-216-073-00	METAL CHIP 10K 5%	1/10W
R377	1-216-101-00	METAL CHIP 150K 5%	1/10W
R378	1-216-027-00	METAL CHIP 120 5%	1/10W
R379	1-216-079-00	METAL CHIP 18K 5%	1/10W
R380	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R381	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R384	1-216-017-00	METAL CHIP 47 5%	1/10W
R385	1-216-121-00	METAL CHIP 1M 5%	1/10W
R386	1-216-025-00	METAL CHIP 100 5%	1/10W
R401	1-216-022-00	METAL CHIP 75 5%	1/10W
R402	1-216-073-00	METAL CHIP 10K 5%	1/10W
R403	1-216-041-00	METAL CHIP 470 5%	1/10W
R404	1-216-077-00	METAL CHIP 15K 5%	1/10W
R405	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R421	1-216-041-00	METAL CHIP 470 5%	1/10W
R424	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R434	1-216-041-00	METAL CHIP 470 5%	1/10W
R437	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R438	1-216-049-00	METAL CHIP 1K 5%	1/10W
R440	1-216-041-00	METAL CHIP 470 5%	1/10W
R441	1-216-073-00	METAL CHIP 10K 5%	1/10W
R442	1-216-041-00	METAL CHIP 470 5%	1/10W

Ref. No.	Part No.	Description	Remark
R443	1-216-077-00	METAL CHIP 15K 5%	1/10W
R444	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R445	1-216-077-00	METAL CHIP 15K 5%	1/10W
R446	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R447	1-216-041-00	METAL CHIP 470 5%	1/10W
R448	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R449	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R450	1-216-073-00	METAL CHIP 10K 5%	1/10W
R451	1-216-073-00	METAL CHIP 10K 5%	1/10W
R452	1-216-073-00	METAL CHIP 10K 5%	1/10W
R453	1-216-073-00	METAL CHIP 10K 5%	1/10W
R454	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R455	1-216-049-00	METAL CHIP 1K 5%	1/10W
R456	1-216-049-00	METAL CHIP 1K 5%	1/10W
R457	1-216-081-00	METAL CHIP 22K 5%	1/10W
R458	1-216-073-00	METAL CHIP 10K 5%	1/10W
R459	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R460	1-216-041-00	METAL CHIP 470 5%	1/10W
R461	1-216-041-00	METAL CHIP 470 5%	1/10W
R462	1-216-041-00	METAL CHIP 470 5%	1/10W
R463	1-216-041-00	METAL CHIP 470 5%	1/10W
R464	1-216-077-00	METAL CHIP 15K 5%	1/10W
R465	1-216-041-00	METAL CHIP 470 5%	1/10W
R466	1-216-073-00	METAL CHIP 10K 5%	1/10W
R467	1-216-041-00	METAL CHIP 470 5%	1/10W
R468	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R469	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R470	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R471	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R472	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R473	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R474	1-216-041-00	METAL CHIP 470 5%	1/10W
R475	1-216-073-00	METAL CHIP 10K 5%	1/10W
R476	1-216-073-00	METAL CHIP 10K 5%	1/10W
R477	1-216-073-00	METAL CHIP 10K 5%	1/10W
R478	1-216-049-00	METAL CHIP 1K 5%	1/10W
R485	1-216-085-00	METAL CHIP 33K 5%	1/10W
R486	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R487	1-216-073-00	METAL CHIP 10K 5%	1/10W
R488	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R489	1-216-049-00	METAL CHIP 1K 5%	1/10W
R490	1-216-049-00	METAL CHIP 1K 5%	1/10W
R491	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R492	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R495	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R496	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R497	1-216-073-00	METAL CHIP 10K 5%	1/10W
R498	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R499	1-216-057-00	METAL CHIP 2.2K 5%	1/10W

VA-63

Ref. No.	Part No.	Description	Remark
R500	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R501	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R502	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R503	1-216-022-00	METAL CHIP 75 5%	1/10W
R504	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R505	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R506	1-216-043-00	METAL CHIP 560 5%	1/10W
R507	1-216-071-00	METAL CHIP 8.2K 5%	1/10W
R508	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R509	1-216-073-00	METAL CHIP 10K 5%	1/10W
R510	1-216-047-00	METAL CHIP 820 5%	1/10W
R511	1-216-083-00	METAL CHIP 27K 5%	1/10W
R512	1-216-073-00	METAL CHIP 10K 5%	1/10W
R514	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R515	1-216-099-00	METAL CHIP 120K 5%	1/10W
R516	1-216-113-00	METAL CHIP 470K 5%	1/10W
R517	1-216-075-00	METAL CHIP 12K 5%	1/10W
R518	1-216-049-00	METAL CHIP 1K 5%	1/10W
R519	1-216-081-00	METAL CHIP 22K 5%	1/10W
R520	1-216-091-00	METAL CHIP 56K 5%	1/10W
R521	1-216-091-00	METAL CHIP 56K 5%	1/10W
R522	1-216-073-00	METAL CHIP 10K 5%	1/10W
R523	1-216-049-00	METAL CHIP 1K 5%	1/10W
R524	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R526	1-216-049-00	METAL CHIP 1K 5%	1/10W
R527	1-216-073-00	METAL CHIP 10K 5%	1/10W
R528	1-216-073-00	METAL CHIP 10K 5%	1/10W
R529	1-216-073-00	METAL CHIP 10K 5%	1/10W
R530	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R540	1-216-041-00	METAL CHIP 470 5%	1/10W
R541	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R542	1-216-073-00	METAL CHIP 10K 5%	1/10W
R543	1-216-077-00	METAL CHIP 15K 5%	1/10W
R544	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R545	1-216-049-00	METAL CHIP 1K 5%	1/10W
R547	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R548	1-216-077-00	METAL CHIP 15K 5%	1/10W
R549	1-216-049-00	METAL CHIP 1K 5%	1/10W
R550	1-216-073-00	METAL CHIP 10K 5%	1/10W
R551	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R552	1-216-077-00	METAL CHIP 15K 5%	1/10W
R553	1-216-049-00	METAL CHIP 1K 5%	1/10W
R554	1-216-073-00	METAL CHIP 10K 5%	1/10W
R555	1-216-085-00	METAL CHIP 33K 5%	1/10W
R556	1-216-041-00	METAL CHIP 470 5%	1/10W
R557	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R558	1-216-035-00	METAL CHIP 270 5%	1/10W

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV101	1-241-314-11	RES, VAR, SLIDE 20K/20K (MIXING)	
RV102	1-241-313-11	RES, VAR, SLIDE 10K/10K (FADER/AUDIO)	
RV103	1-241-322-11	RES, VAR, CARBON 10K/10K (PHONE-LEVEL)	
RV301	1-241-322-11	RES, VAR, CARBON 10K/10K (MIC-LEVEL)	
RV400	1-241-315-11	RES, VAR, SLIDE 5K/5K (FADER/VIDEO)	
RV403	1-228-991-00	RES, ADJ, METAL 2.2K	
RV404	1-228-990-00	RES, ADJ, METAL 1K	
RV405	1-228-993-00	RES, ADJ, METAL 4.7K	
RV406	1-228-993-00	RES, ADJ, METAL 4.7K	
RV408	1-228-993-00	RES, ADJ, METAL 4.7K	
		< SWITCH >	
S101	1-554-303-21	SWITCH, TACTILE (SHIFT)	
S102	1-554-303-21	SWITCH, TACTILE 	
S103	1-554-303-21	SWITCH, TACTILE 	
S104	1-571-758-11	SWITCH, PUSH (1 KEY) (REPEAT)	
S105	1-554-303-21	SWITCH, TACTILE 	
S106	1-554-303-21	SWITCH, TACTILE 	
S107	1-554-303-21	SWITCH, TACTILE (SLOW)	
S108	1-554-303-21	SWITCH, TACTILE 	
S109	1-554-303-21	SWITCH, TACTILE 	
S110	1-554-303-21	SWITCH, TACTILE (FAST)	
S111	1-554-303-21	SWITCH, TACTILE 	
S112	1-571-758-11	SWITCH, PUSH (1 KEY) (MIC)	
S113	1-571-758-11	SWITCH, PUSH (1 KEY) (VOICECHANGE)	
S114	1-571-758-11	SWITCH, PUSH (1 KEY) (ECHO)	
S116	1-571-758-11	SWITCH, PUSH (1 KEY) (SOUND EFFECT)	
S117	1-554-303-21	SWITCH, TACTILE (SHIFT)	
S301	1-554-303-21	SWITCH, TACTILE (+)	
S302	1-554-303-21	SWITCH, TACTILE (-)	
S401	1-554-377-00	SWITCH, SLIDE (SELECT)	
		< CRYSTAL >	
X304	1-577-082-11	VIBRATOR, CERAMIC	
X305	1-567-772-11	VIBRATOR, CERAMIC	
X401	1-567-504-81	OSCILLATOR, CRYSTAL 4.433619MHz	

Note: The components identified by mark  are critical for safety.
Replace only with part number specified.



83-AV

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	

△	CNP701	1-555-795-00 CORD, POWER (AEP, E)	
△	CNP701	1-556-035-00 CORD, POWER (UK)	
△	CNP701	1-559-912-11 CORD, POWER (AUS)	
△	F701	1-532-066-00 FUSE, TIME-LAG 250V 400mA	
△	T901	1-450-646-11 TRANSFORMER, POWER (AEP, E)	
△	T901	1-450-647-11 TRANSFORMER, POWER (UK, AUS)	

		ACCESSORIES & PACKING MATERIALS	

		1-575-334-11 CORD, CONNECTION	
	3-752-511-41	MANUAL, INSTRUCTIONS (ENGLISH)	(ENGLISH)
	3-752-511-51	MANUAL, INSTRUCTIONS (FRENCH, GERMAN, ITALIAN, SPANISH) (AEP)	
	3-752-511-61	MANUAL, INSTRUCTIONS (DUTCH, SWEDISH, FINNISH, DANISH, PORTUGUESE) (AEP)	
	3-752-511-71	MANUAL, INSTRUCTION (CHINESE, ARABIC) (AEP, E)	
	3-752-692-11	INSTRUCTION (ENGLISH)	
	3-752-692-41	INSTRUCTION (FRENCH, GERMAN) (AEP)	
	3-752-692-51	INSTRUCTION (ITALIAN, SPANISH) (AEP)	
	3-752-692-61	INSTRUCTION (DUTCH, SWEDISH) (AEP)	
	3-752-692-71	INSTRUCTION (FINNISH, DANISH) (AEP)	
	3-752-692-81	INSTRUCTION (PORTUGUESE) (AEP)	
	3-752-692-91	INSTRUCTION (CHINESE, ARABIC) (AEP, E)	
	3-940-572-01	STAND, MICROPHONE	
17	3-940-577-11	CARD, INSTANT INFORMATION (ENGLISH)	(ENGLISH)
17	3-940-577-41	CARD, INSTANT INFORMATION (FRENCH, GERMAN) (AEP)	(AEP)
17	3-940-577-51	CARD, INSTANT INFORMATION (ITALIAN, SPANISH) (AEP)	(AEP)
17	3-940-577-61	CARD, INSTANT INFORMATION (DUTCH, SWEDISH) (AEP)	(AEP)
17	3-940-577-71	CARD, INSTANT INFORMATION (FINNISH, DANISH) (AEP)	(AEP)
17	3-940-577-81	CARD, INSTANT INFORMATION (PORTUGUESE) (AEP)	(AEP)
17	3-940-577-91	CARD, INSTANT INFORMATION (CHINESE, ARABIC) (E)	(E)
*	3-940-703-41	INDIVIDUAL CARTON	
*	3-944-043-01	CUSHION (UPPER)	
*	3-944-044-01	CUSHION (LOWER)	
	8-812-042-90	MICROPHONE F-VJ3(SET)	

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		HARDWARE LIST	

#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#2	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#3	7-685-659-79	SCREW +BVTP 4X8 TYPE2 IT-3	
#4	7-627-551-38	SCREW, PRECISION +P 1.4X5	

SECTION 6

ELECTRICAL ADJUSTMENTS

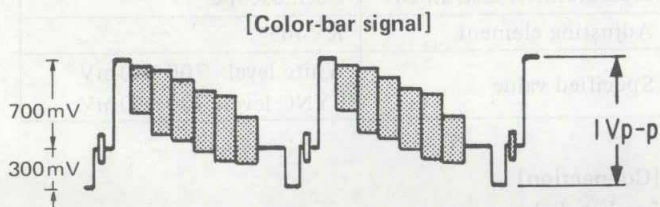
During the adjustment, see the parts location diagram for adjustments on page 46.

[Set up]

POWER : ON
 SIMULATED STEREO : OFF
 VCR AUDIO LEVEL : CENTER CLICK
 SOUND EFFECT : OFF
 ECHO : OFF
 VOICE CHANGE : OFF
 MIC : OFF
 MIXING : PLAYER
 FADER : MAX
 SELECT : W
 MIC LEVEL : MAX
 PHONE LEVEL : MAX

[Using instruments]

- 1) Monitor TV
- 2) Oscilloscope dual-trace, Band width more than 50MHz with delay mode. (Use a probe of 10:1, unless otherwise specified.)
- 3) Frequency counter
- 4) PAL pattern generator with video output terminal.
- 5) Digital voltmeter
- 6) PAL vectorscope



White level : $700 \pm 20 \text{ mV}$
 SYNC level : $300 \pm 10 \text{ mV}$
 Burst level : $300 \pm 10 \text{ mV}$
 Chroma level : $300 \pm 10 \text{ mV}$
 Chroma phase : $0 \pm 1^\circ$
 DG : $0 \pm 2^\circ$
 DP : $0 \pm 1^\circ$

6-1. fsc ADJUSTMENT

Measurement point	TP401 (Q430 E)
Measurement instrument	Frequency counter
Adjusting element	CV401
Specified value	4,433,619±30Hz

6-2. Y SEP. LEVEL ADJUSTMENT

Signal	Color-bar
Measurement point	TP402 (Q410 E)
Measurement instrument	Oscilloscope
Adjusting element	RV403
Specified value	1±0.05 Vp-p

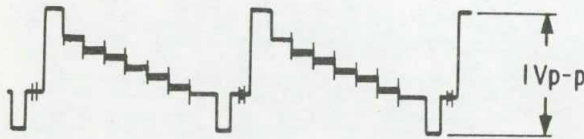


Fig. 6-1

6-3. Y/C SEP. ADJUSTMENT

Signal	Color-bar
Measurement point	J601 (S VIDEO) or TP402
Measurement instrument	Oscilloscope
Adjusting element	CV501
Specified value	Residual chroma level: 0±30 mVp-p

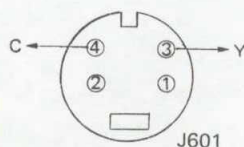
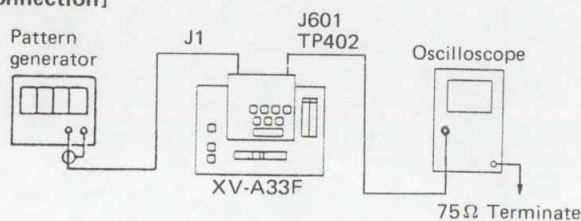
[Connection]

Fig. 6-2

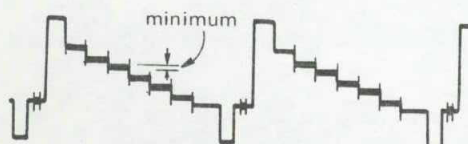


Fig. 6-3

6-4. S VIDEO CHROMA LEVEL ADJUSTMENT

Signal	Color-bar
Measurement point	J601 (S VIDEO)
Measurement instrument	Oscilloscope
Adjusting element	RV406
Specified value	Burst level: 300±40 mV

[Connection]

See Fig. 6-2.

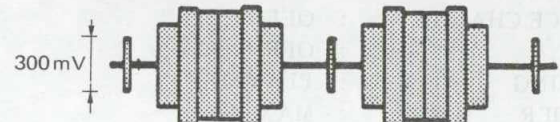


Fig. 6-4

6-5. S VIDEO Y LEVEL ADJUSTMENT

Signal	Color-bar
Measurement point	J601 (S VIDEO)
Measurement instrument	Oscilloscope
Adjusting element	RV405
Specified value	White level: 700±40 mV SYNC level: 300±30 mV

[Connection]

See Fig. 6-2.

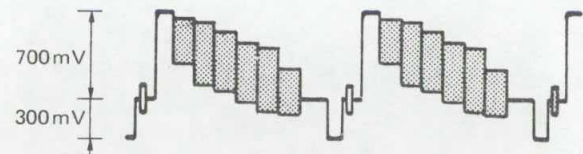


Fig. 6-5

6-6. WHITE LEVEL CHECK

Signal	Color-bar
Measurement point	J601 (S VIDEO)
Measurement instrument	Oscilloscope
Specified value	White level check: 630±70 mV SYNC level check: 300±50 mV
Setting	FADER (VIDEO): min SELECT: W

[Connection]

See Fig. 6-2.

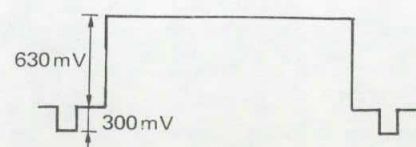


Fig. 6-6

6-7. BURST PHASE ADJUSTMENT

Signal	Color-bar
Measurement point	J3 (VIDEO)
Measurement instrument	Vector scope
Adjusting element	RV404

[Connection]

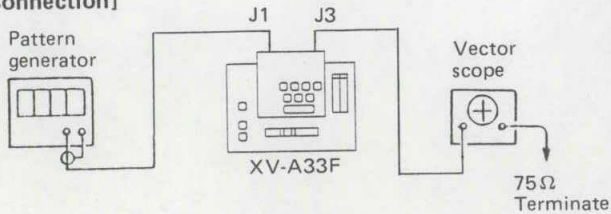


Fig. 6-7

Adjusting method:

Adjust with VR404 so that each color point becomes within the standard frames in Fig. 6-8.

(Vector $\pm 3\%$, $\pm 3^\circ$)

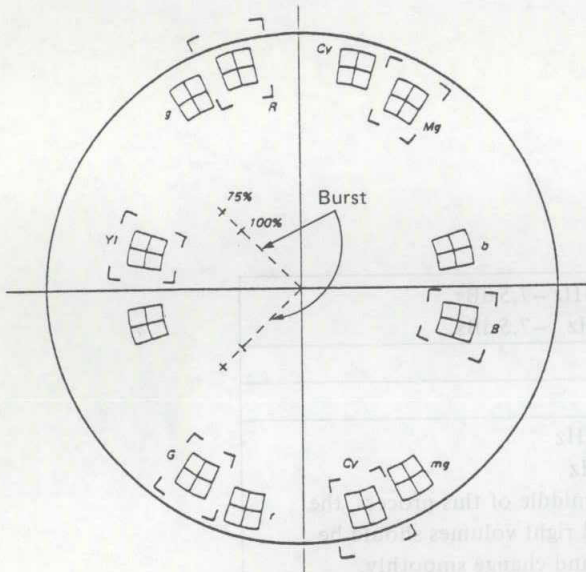


Fig. 6-8

6-8. VIDEO OUT LEVEL ADJUSTMENT AND CHECK

Signal	Color-bar
Measurement point	J3 (VIDEO) or TP408
Measurement instrument	Oscilloscope
Adjusting element	RV408
Specified value	White level: 700 ± 30 mV SYNC level: 300 ± 30 mV Burst level: 300 ± 50 mV

[Connection]

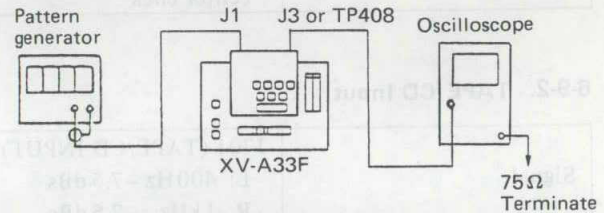


Fig. 6-9

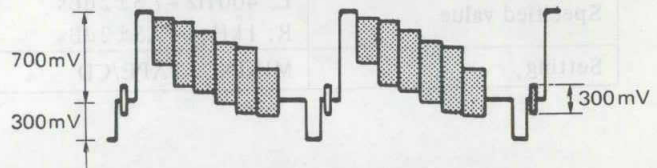


Fig. 6-10

6-9. AUDIO LEVEL CHECK**6-9-1. Audio Input**

Signal	J1 (AUDIO) L: 1 kHz -7.5 dBs R: 400Hz -7.5 dBs
Measurement point	J3 (AUDIO)
Measurement instrument	Audio level meter
Specified value	L: 1 kHz -7.5^{+3}_{-2} dBs R: 400Hz -7.5^{+3}_{-2} dBs
Setting	MIXING: PLAYER VCR AUDIO LEVEL: center click

6-9-2. TAPE/CD Input

Signal	J701 (TAPE/CD INPUT) L: 400Hz -7.5 dBs R: 1 kHz -7.5 dBs
Measurement point	J3 (AUDIO)
Measurement instrument	Audio level meter
Specified value	L: 400Hz -7.5 ± 2 dBs R: 1 kHz -7.5 ± 2 dBs
Setting	MIXING: TAPE/CD

6-10. HEADPHONE VR DOWN CHECK

Signal	J701 (TAPE/CD INPUT) L: 400Hz -7.5 dBs R: 1 kHz -7.5 dBs
Measurement point	J4 (PHONES)
Adjusting element	RV103 (PHONE-LEVEL)
Check	PHONE-LEVEL (max) L: 400Hz R: 1 kHz In the middle of this process, the left and right volumes should be equal, and change smoothly. ↓ PHONE-LEVEL (min) Sounds can hardly be heard.

6-11. AUDIO DISTORTION CHECK

Signal	1) J1 (AUDIO) 400Hz -7.5 dBs 2) J701 (TAPE/CD INPUT) 400Hz -7.5 dBs
Measurement point	J3 (AUDIO)
Measurement instrument	Distortion meter
Specified value	Below 0.3% (High harmonic wave distortion)
Setting	1) FADER (AUDIO): max MIXING: PLAYER VCR AUDIO LEVEL: center click SIMULATED STEREO: OFF 2) FADER (AUDIO): max MIXING: TAPE/CD

6-12. MIC SPEC. CHECK

Signal	J5 (MIC) -66 dBs, 400Hz
Measurement point	J3 (AUDIO)
Measurement instrument	Audio level meter Distortion meter
Specified value	Level: -7.5 ± 3 dBs (L and R level difference should be $R=L \pm 2$ dB.) Distortion rate: below 1% Noise check
Setting	MIC-LEVEL: max MIC: on

6-13. MIXING CHECK

Signal	J1 (AUDIO) 400Hz -7.5 dBs J701 (TAPE/CD INPUT) 1 kHz -7.5 dBs
Measurement instrument	Speaker
Adjusting element	MIXING PLAYER 400Hz -7.5 ± 2 dB 1 kHz should increase and decrease smoothly. (400Hz does not change.) Center 400Hz -7.5 ± 4 dB 1 kHz -7.5 ± 4 dB 400Hz should increase and decrease smoothly. (1 kHz does not change.) TAPE/CD 1 kHz -7.5 ± 2 dB
Setting	VCR AUDIO LEVEL: center click

6-14. VOICECHANGE CHECK

Signal	J5 (MIC) -66 dBs, 1 kHz
Measurement instrument	Speaker
Check	When the +(S301) switch of the voice changer is pressed, the sound should become higher. Repeat this, and at the ninth press, the sound should become lower. In reverse, the sound should become lower when the -(S302) switch is pressed. Repeat this, and at the eighteenth press, the sound should become higher.
Setting	VOICECHANGE: on MIC: on

6-15. MONO-STEREO INPUT CHANGE CHECK

Signal	J1 (AUDIO) 1) L: 1 kHz -7.5 dBs R: N.C. 2) L: 1 kHz -7.5 dBs R: 400 Hz -7.5 dBs 3) L: N.C. R: 400 Hz -7.5 dBs
Measurement point	J3 (AUDIO)
Measurement instrument	Audio level meter Speaker
Check	1) L, R: 1 kHz -7.5 dBs 2) L: 1 kHz -7.5 dBs R: 400 kHz -7.5 dBs 3) L: No output R: 400 Hz -7.5 dBs

6-16. FADER (VIDEO) CHECK

Signal	Color-bar
Measurement point	VCR OUTPUT J3 (VIDEO) J601 (S VIDEO)
Measurement instrument	Monitor
Check	<div> <p>1) SELECT: B FADER: max ↑ (The lever should move smoothly.) FADER: min</p> <p>Color-bar ↑ (The picture should change smoothly.) Black screen (The picture input should not contain sections of the picture before.)</p> <p>2) SELECT: W FADER: max ↑ (The lever should move smoothly.) FADER: min</p> <p>Color-bar ↑ (The picture should change smoothly.) White screen (The picture input should not contain sections of the picture before.)</p> </div>

6-17. ADJUSTMENTS ELEMENTS LOCATION

