Operating Instructions

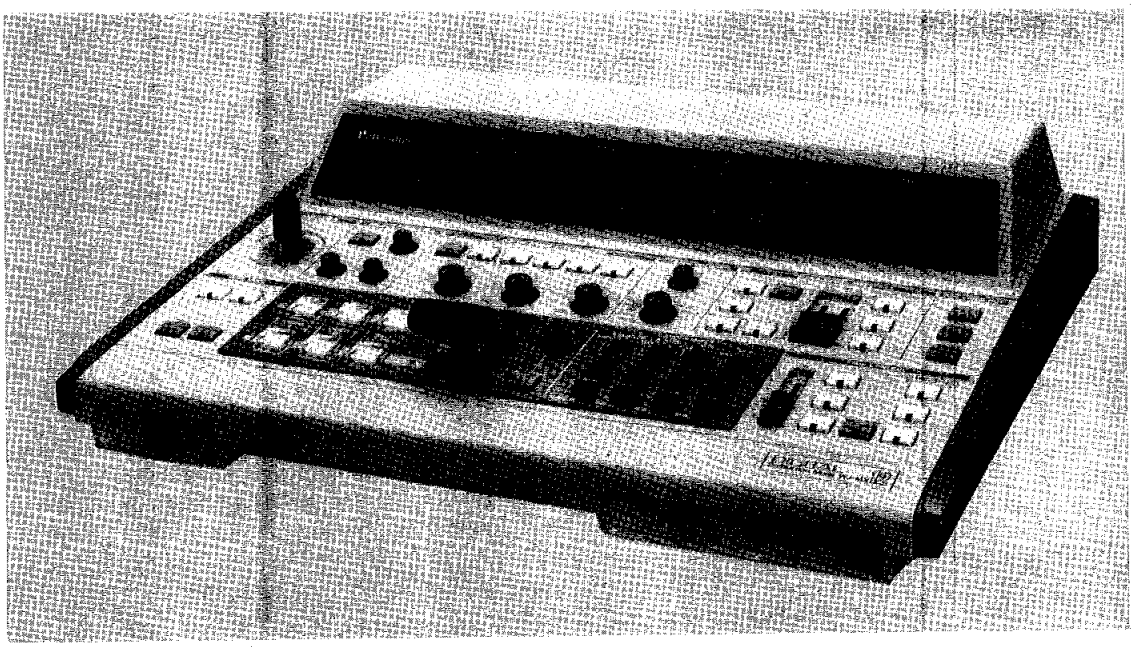
ENGLISH

DEUTSCH

FRANÇAISE

Production Mixer

WJ-MX12



Panasonic

Before attempting to connect or operate this product, please read these instructions completely.

ENGLISH VERSION

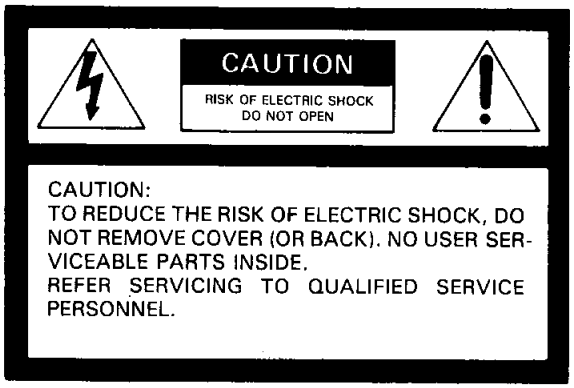
CONTENTS

For WJ-MX12/A ····· For Australia

THIS APPARATUS MUST BE EARTHED.

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For WJ-MX12/B ····· For U.K.

PLEASE READ FOLLOWING INSTRUCTION IF YOUR POWER SOURCE VOLTAGE IS MORE THAN 200V.

WARNING

THIS APPARATUS MUST BE EARTHED.
IMPORTANT

The wires in this mains lead are coloured in accordance with the following code.

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

This model conforms to the EC directive (for radio interference) 87/308/EEC.

This apparatus was produced to BS 800:1987.

The serial number of this product may be found on the bottom of the unit.
You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. WJ-MX12

Serial No. _____

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

PREFACE

The Panasonic WJ-MX12 Production Mixer is designed for reproductionning of the video images using digital processing technology.
This unit includes various functions to do so such as Mixing of the video signals or audio signals, Digital Frame Synchronizer, Superimpose, Colour correction, and much more. A sophisticated audio and video program can be completed using WJ-MX12.

ENGLISH

FEATURES

- **BUILT-IN FRAME SYNCHRONIZER**
  This built-in frame synchronizer allows video mixing of any two PAL-standard video sources.

- **SPECIAL EFFECTS — MOSAIC, PAINT, STILL, STROBE, NEGA**
  Using the built-in frame memory, special video effects are available for maximum variety in video creativity.

- **COLOUR CORRECTION**
  The colour of the VIDEO 1 signal (except STILL) can be changed with the chrominance and the hue.

- **SUPERIMPOSE**
  Input signals from VIDEO 1, VIDEO 2 and EXT CAMERA can be superimposed on the picture.

- **17 WIPE PATTERNS AND JOYSTICK POSITIONER**
  In combination with the wipe pattern buttons, up to wipe patterns are available. The joystick positioner allows free positioning of the circle and square of the wipe patterns. The wipe has two kinds of mode, a Soft Wipe and a Border Wipe.

- **AUTO TAKE**
  A MIX WIPE EFFECT mode can be operated automatically without changing the MIX/WIPE Lever.

- **AUDIO MIXING**
  The built-in audio mixer can mix up to four audio sources, including a microphone. The front panel audio level meters are conveniently used for visual confirmation of the audio level.

- **FADE FUNCTION**
  Fade-in and fade-out of Audio, Video and Video Titles can be accomplished separately or in any combination to meet all requirements in video tape production.

- **VIDEO TITLE**
  The WV-KB12 Keyboard-type Character Generator is an optional title producer designed for connection to this Production Mixer. It will allow quick and easy title setting and features an eight-page memory that will hold titles produced.

- **MEMORY**
  WJ-MX12 has a feature of MEMORY which is a memory for a programmable operating precedure.
  Four kinds of programs can be memorized and this four programs can store up to fifty-five procedures.
  By this function, WJ-MX12 operates a Effect procedure automatically as they are programmed.

PRECAUTIONS

The WJ-MX12 is a sensitive, high quality instrument and should be regarded as such. Because it is an electrical device, the danger of electric shocks exists if it is used carelessly.

DON'T	DO'S
x Do not attempt to disassemble the instrument. In order to prevent electric shock, do not remove screws or covers. There are no user-serviceable parts inside.	• Do refer all servicing to qualified service personnel.
x Do not abuse the instrument. Avoid striking, shaking, etc. It could be damaged by improper handling or storage.	• Do handle the instrument with care.
x Do not use strong or abrasive detergents when cleaning the instrument body.	• Do use a dry cloth to clean the instrument when dirty. In case the dirt is hard to remove, use mild detergent and wipe gently.
x Do not expose the instrument to water or moisture, and do not operate it in wet areas of it is wet.	• Do take immediate action if ever the instrument does become wet. Turn the power off and refer servicing to qualified service personnel. Moisture can damage the instrument and also create the danger of electric shock.
x Do not use the instrument in an extreme environment where high temperature or high humidity exist.	• Use the instrument under conditions where temperatures are within 0°C — 40°C, and humidity is below 90%.

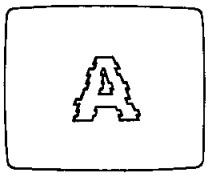
Important Notice for Source 1 and 2 Video Signal:

(1) If the input video signal does not meet with the PAL colour standard or the CCIR B/W standard video signal, this could cause a disturbance of synchronization.

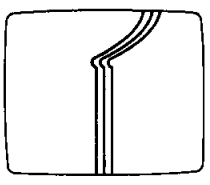
(2) If the signal to noise ratio (S/N) of the input signal is very low, this may be reflected in a low quality picture.

(3) If the input video signal is very jittery, as in the case of poor VTR playback signal, this could cause a disturbance in synchronization or colour. If a VTR playback signal and a camera signal are to be mixed, it is highly recommended that the VTR playback signal be assigned to VIDEO 1 and the more stable camera signal be assigned to VIDEO 2 by the INPUT MODE SELECTION SWITCHES ③.
However, if the input video signal to VIDEO 1 is extremely jittery, disturbance of synchronization or colour may occur even with a camera signal assigned to VIDEO 2.

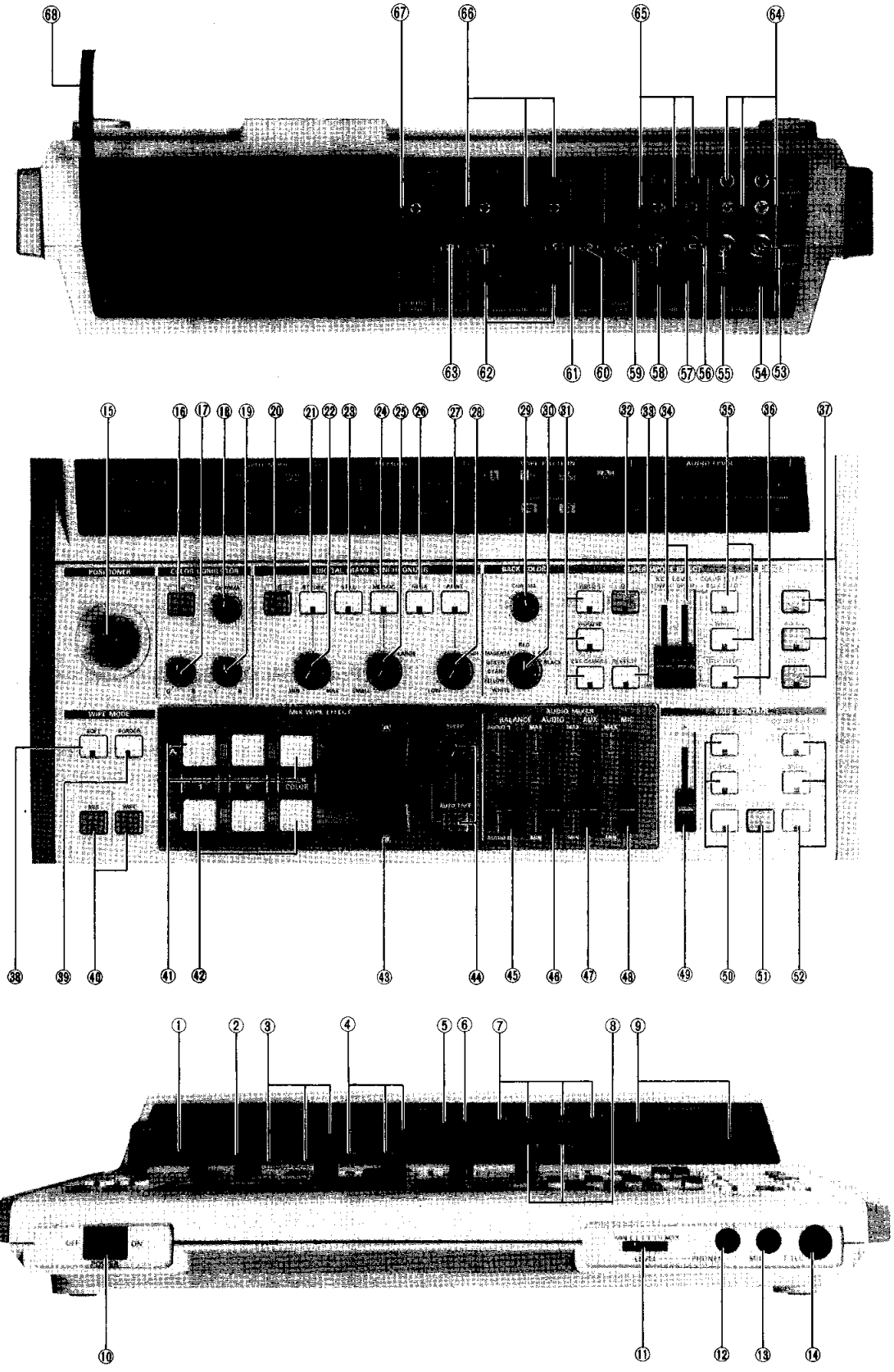
(4) When either a character generator signal (from WV-KB12) or characters from a key camera is supplied, the edge of the character might become rough as shown below under the certain electronic conditions.



(5) Flag waving (top of picture curls) may appear when certain VTR's are used as input signals (due to skew errors) or may appear due to the characteristics of the video monitor (due to AFC time constants).



MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



1. Power Indicator (POWER)

2. Sync Warning Indicator (SYNC WARNING)
This LED indicator shows the sync conditions as follows.

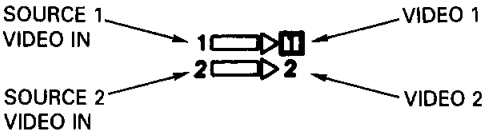
Green: The GEN-LOCK sync mode is selected and the sync generator inside the unit is synchronizing the signal with the VIDEO 2 signal.

Orange (amber): The Internal sync mode is selected and no video signal is supplied to the VIDEO 2 channel.

Red: The synchronization is disturbed or unstable. Even if the VIDEO 2 signal is supplied, the sync generator inside cannot synchronize the signal properly because of noise in the VIDEO 2 signal.

Note: If the indicator colour of the indicator changes, check the SOURCE signal for the VIDEO 2 signal whether the synchronization error still exists.

3. Input Mode Selection Switches (INPUT MODE)
These 4 switches are used to select the input mode as follows:



: The SOURCE 1 video signal is used for the VIDEO 1 signal, being passed through the digital frame synchronizer, and the SOURCE 2 video signal is used for the VIDEO 2 signal.

: The SOURCE 1 video signal is used for the VIDEO 2 signal and the SOURCE 2 video signal is used for the VIDEO 1 signal, the latter being passed through the digital frame synchronizer.

: The SOURCE 1 video signal is used for both the VIDEO 1 and VIDEO 2 signal.

: The SOURCE 2 video signal is used for both the VIDEO 1 and VIDEO 2 signal.

Caution: Do not change the setting of these switches during recording, as this may result in synchronization error.

4. Memory Switches (MEMORY 1, 2, 3, 4)
This switch is used to memorize the program or perform the programmable functions.

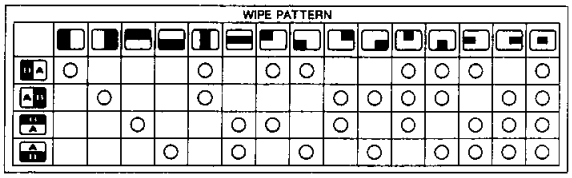
5. Mode Selection Switch (PRG/RUN)
This switch is used for the programmable functions.

PRG: By pressing the MEMORY switch ④, four kinds of programs can be memorized.

RUN: This position is ready to perform the automatic Effect operation.

6. Run Speed Control (RUN SPEED)
Turning this control, the speed of memory effect can be freely adjusted from approx. 0.05 to 1 second.

7. Wipe Pattern Selection Switches (WIPE PATTERN)
The wipe pattern can be selected as follows.



Through combined use of the four switches on the right, the following wipe patterns can be selected. Please note that positioning in this case is not effective by moving of the Joystick Positioner ⑮.

8. Wipe Pattern Selection Switches (POSITIONER)
These two switches are used to permit the wipe at desired position.
Position of square and circle wipe in this case is done through use of the Joystick Positioner ⑮.

9. Audio Level Indicator (AUDIO LEVEL)
These LED indicators show the output level for the left and right channels, respectively.

10. Power ON/OFF Switch (POWER ON/OFF)

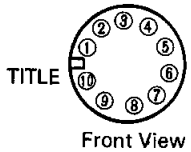
11. Headphone Level Control (LEVEL,MIN/MAX)
This is level control for headphone output.

12. Headphone Jack (PHONES)
This jack is used to connect a headphone and the output level can be adjusted by the Headphone Level Control ⑪.

13. Microphone Input Jack (MIC)
This jack is used to connect a microphone with a tip-ring-sleeve or tip-sleeve type phone plug.

14. Title Input Connector (TITLE)
This connector is used to connect the optional Character Generator WV-KB12.

①: Character IN
②: Not used
③: Ground
④: Not used
⑤: Sync out
⑥: Not used
⑦: Ground
⑧: +9V OUT
⑨: Ground
⑩: Not used



Caution: When WV-KB12 is used with this unit, the following functions of the WV-KB12 are disabled:
1. Stopwatch display
2. Title colour setting
3. Title page display

15. Joystick Positioner (POSITIONER)
The position of the circle and square wipe patterns as selected using the Wipe Pattern Selection switches ⑧ can be freely set using this joystick.

16. Colour Corrector ON/OFF Switch (ON)
This switch is the Master ON/OFF switch for the colour correction.
Note: The colour corrections are available only for VIDEO 1 as indicated in the box, and not for VIDEO 2.

17. Hue Control (G/R)
The hue of VIDEO 1 can be adjusted using this control when the Colour Corrector ON/OFF switch ⑯ is set to ON position.
Note: This control will not effect when STILL effects.

18. Colour Control (CHROMA)
The colour of VIDEO 1 can be adjusted using this control when the Colour Corrector ON/OFF Switch ⑯ is set to ON position.
Note: This control will not effect when STILL effects.

19. Hue Control (B/Y)
The hue of VIDEO 1 can be adjusted using this control when the Colour Correction ON/OFF Switch ⑯ is set to ON position.
Note: This control will not effect then STILL effects.

20. Digital Effect ON/OFF Switch (ON)
This switch is the Master ON/OFF switch for the digital effects, such as STROBE, STILL, MOSAIC, NEGA and PAINT
Note: The digital effects are available only for VIDEO 1 as indicated in the box, and not for VIDEO 2.

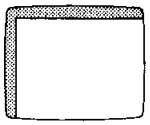
21. Strobe ON/OFF Switch (STROBE)
This switch is used to obtain a strobe effect of the VIDEO 1 picture.
Pressing this switch once, strobe effects are applied to the VIDEO 1 image and the LED indicator in the switch lights. The time interval of the strobe effect can be changed by turning the Strobe Time Interval control ㉒. Adjustment is possible from approx. 0.2 to 2 seconds. To return to a normal picture, press the switch once more. The LED indicator goes out.

22. Strobe Time Interval Control (MIN/MAX)
Turning this control, the time interval of the strobe effect can be freely adjusted from approx. 0.2 to 2 seconds.

23. Still ON/OFF Switch (STILL)
This switch is used to freeze the VIDEO 1 picture.
Pressing this switch once, the VIDEO 1 image will freeze and the LED indicator in the switch lights. To return to a 'live' picture, press the switch once more. The LED indicator goes out.

24. Mosaic ON/OFF Switch (MOSAIC)
This switch is used to obtain a mosaic effect of the VIDEO 1 picture.
Pressing this switch once, a mosaic effect is applied to the VIDEO 1 image and the LED indicator in the switch lights. To return to a normal picture, press the switch once more. The LED indicator goes out.

25. Mosaic Size Selection Control (SMALL/LARGE)
The mosaic size can be changed eight steps by using this control.



When the largest mosaic size is chosen with this switch, the mosaic effect may be not performed in the left and top edges.

Note: The above effects is observed in using the under Scan.Monitor TV.

26. Negative ON/OFF Switch (NEGA)
This switch is used to perform automatically the fad-in and out functions.
Switch is ON, negative effect is applied to the VIDEO 1 image and the LED indicator in the switch lights. To return to a normal picture, press the switch once more. The LED indicator goes out.
Note: This function will not effect when either STILL or STROBE effects.

27. Paint ON/OFF Switch (PAINT)
This switch is used to obtain an oil-paint touch effect for the VIDEO 1 picture.
Pressing this switch once, an oil paint touch effect is applied to the VIDEO 1 image and the LED indicator in the switch lights. To return to a normal picture, press the switch once more. The LED indicator goes out.

28. Paint Graduation Selection Control (LOW/HIGH)
The graduation of paint effect can be changed in 6 steps (1 bit to 6 bits).

29. Chroma Level Control (CHROMA)
This control is used to change chroma level of background colour.

30. Back Colour Selection Switch (BACK COLOUR)

This control is used to select the background colour for MIX, WIPE, SUPERIMPOSE and VIDEO FADER operations.

One out of the following eight background colours can be chosen: White, Yellow, Cyan, Green, Magenta, Red, Blue and Black.

31. Source Selection Switches (SOURCE, VIDEO 1/VIDEO 2/EXT CAMERA)

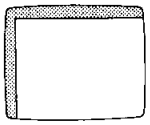
VIDEO 1: The video signal fed to either the SOURCE 1 ㊸ and ㊹ or SOURCE 2 ㊻ and ㊼ connector on the rear panel, as selected by the Input Mode Selection switches ③ and the digital frame synchronizer, is selected.

VIDEO 2: The video signal fed to either the SOURCE 1 ㊸ and ㊹ or SOURCE 2 ㊻ and ㊼ connector on the rear panel, as selected by the Input Mode Selection switches ③, is selected.

EXT CAMERA: The video signal fed to the EXT CAMERA IN connector ㊾ on the rear panel is selected.

32. Superimpose ON/OFF Switch (ON)

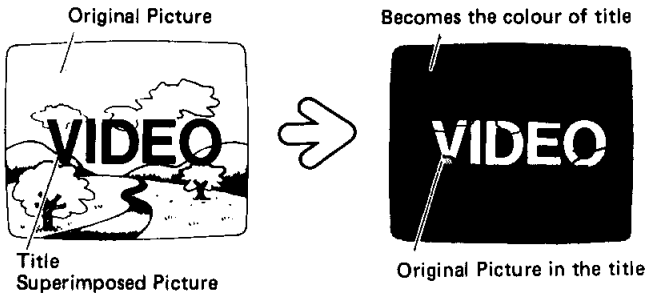
This is the master ON/OFF switch for the superimpose function.



When turn on the superimpose ON/OFF switch, the superimpose effect may be not performed in the left and top edges.

33. Reverse Switch (REVERSE)

This switch is used to select the polarity of the superimposed key signal.



34. Key Level Controls (KEY LEVEL, LOWER, UPPER)

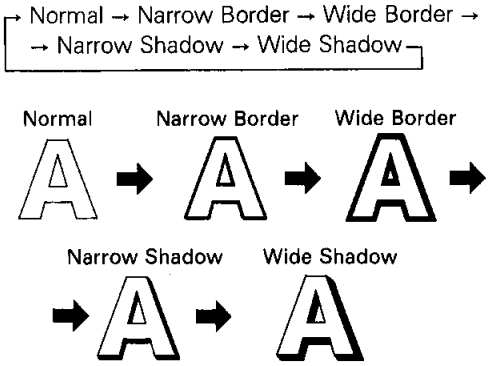
These two controls are used to adjust the luminance level of the key signal for lower level (black) and upper level (white), respectively for clear superimposed pictures.

35. Colour Selection Switches (BACK COLOUR, WHITE)

These 2 switches are used to select the colour of the superimposed titles, either white or the background colour selected by the Back Colour Selection switch ㊵.

36. Title Effect Switch (TITLE EFFECT)

By depressing this switch, the superimposed titles can be changed as follows:



37. Recording Video Output Selection Switches (REC VIDEO OUT, VIDEO 1/VIDEO 2/EFFECT)

These switches are used to select the output video signal of the REC VIDEO OUT connectors ㊶ and ㊷ on the rear panel as follows.

VIDEO 1: The video signal fed to either the SOURCE 1 ㊸ and ㊹ or SOURCE 2 ㊻ and ㊼ connector on the rear panel, as selected by the Input Mode Selection switches ③ and the digital frame synchronizer, is selected

VIDEO 2: The video signal fed to either the SOURCE 1 ㊸ and ㊹ or SOURCE 2 ㊻ and ㊼ connector on the rear panel, as selected by the Input Mode Selection switches ③, is selected.

EFFECT: The special effects video signal (superimpose, wipe/mix or fade) is selected.

38. Soft Wipe Switch (SOFT)

This switch is used for changing from normal wipe to soft wipe.

39. Border Wipe Switch (BORDER)

This switch is used for changing from normal wipe to border wipe.

Pressing this switch once, normal wipe changes to this border wipe and the LED indicator in the switch lights. If press this switch again, this border wipe changes to thick border wipe and the LED indicator in the switch still lights. To return to a normal wipe, press the switch once again. The LED indicator goes out.

Note: The colour on the border is a complementary colour of the back colour setting.

(See page 16.)

40. Mix/Wipe Mode Selection Switches (MIX/WIPE)
These two switches are used to select the Mix or Wipe mode.

41. A-bus Input Selection Switches
These switches are used to select the allocation of the video signal to the A-bus input.

VIDEO 1: The video signal fed to either the SOURCE 1 ㊸ and ㊹ or SOURCE 2 ㊻ and ㊼ connector on the rear panel, as selected by the Input Mode Selection switches ㊸ and the digital frame synchronizer, is selected.

VIDEO 2: The video signal fed to either the SOURCE 1 ㊸ and ㊹ or SOURCE 2 ㊻ and ㊼ connector on the rear panel, as selected by the Input Mode Selection switches ㊸, is selected.

BACK COLOUR: The background colour signal set by the Back Colour Selection switch ㉚ is selected.

42. B-bus Input Selection Switches (B VIDEO 1/VIDEO 2/BACK COLOUR)
These switches are used to select the allocation of the video signal to the B-bus input in addition to the A-bus Input Selection switches ㊶.

43. Mix/Wipe Lever (A, B)
In the wipe mode, moving this lever from A to B will increase the portion of the B input, and vice versa.
In the mix mode, video images are switched between A and B.

44. Auto-Take Start Switch (AUTO TAKE) and Speed Control (SPEED)
Turning this control, the speed of auto-take effect can be freely adjusted from approx. 0.2 to 2 seconds.
Press the Auto-Take Start Switch (AUTO TAKE) to start the auto-take function.

45. Balance Control (BALANCE, AUDIO 1/AUDIO 2)
This control is used to balance the mixed audio signal fed to SOURCE 1 (AUDIO 1) input connector and the signal fed to SOURCE 2 (AUDIO 2) input connector on the rear panel.

46. Audio level Control (AUDIO, MAX/MIN)
This is the overall attenuator for the mixed AUDIO 1 and AUDIO 2 sound.

47. Auxiliary Audio Level Control (AUX, MAX/MIN)
This is the input attenuator for the auxiliary audio signal fed to the AUX AUDIO IN connectors ㊼ on the rear panel.

48. Microphone Level Control (MIC, MAX/MIN)
This is the input attenuator for the microphone signal fed to the MIC input jack ⑬.

49. Fade Lever (IN/OUT)
Moving this lever from OUT to IN, fade-in of the sound takes place. Fade-out is accomplished by moving the lever from IN to OUT.

50. Fade Control Switches (VIDEO, TITLE, AUDIO)
These switches are used to select the fade mode as follows.

	VIDEO	TITLE	AUDIO
VIDEO fade	ON	OFF	OFF
TITLE fade	OFF	ON	OFF
AUDIO fade	OFF	OFF	ON
VIDEO & AUDIO fade	ON	OFF	ON
VIDEO & TITLE fade	ON	ON	OFF
TITLE & AUDIO fade	OFF	ON	ON
VIDEO & TITLE & AUDIO fade	ON	ON	ON

51. Automatic Fade Control Switch (AUTO FADE)
This switch is used to perform automatically the fade-in and out functions.
When the Fade Lever ㊾ is positioned at slightly upper from its center position, the fade in function is automatically performed.
When the fade Lever ㊾ is positioned at slightly under from its center position, the fade-out function is automatically performed.

52. Colour Selection Switches (COLOUR SELECT, BACK COLOUR/WHITE/BLACK)
These switches are used to select the colour for the fade-out mode as follows.

BACK COLOUR: The back colour signal set by the Back Colour Selection switch ㉚ is selected.

WHITE: The image will fade out in white.

BLACK: The image will fade out in black.

53. Source 1 Video Connectors (SOURCE 1, VIDEO IN/OUT)
A 1.0 Vp-p/75 ohm composite video signal should be supplied to the input (IN) connector. Connecting coaxial cables with BNC connectors to the output (OUT) connector, the high impedance video loop is automatically selected. At all other times, the terminals are automatically terminated by 75 ohms.

Note:

(1) If the input video signal does not meet with the PAL colour standard or the CCIR B/W standard video signal, this could cause a disturbance of synchronization.

(2) In case the S/N ratio of the input signal is very low, this may be reflected in a low- quality picture.

(3) If the input video signal is very jittery, such as in case of the VTR playback picture, this could cause a disturbance of synchronization or colour.
In case the video signal from the VTR and that of the camera is to be mixed, it is recomended to select the camera signal for the VIDEO 2 signal by the Input Mode Selection switches ⑧.

54. Source 1 S-VHS Video Input Connector (SOURCE 1, Y/C IN)

The luminance (Y) and chroma (C) signals from S-VHS VTR or colour TV are supplied to this connector.

55. Source 1 Y/C-Composite Selection Switch (SOURCE 1, Y/C-COMP)

This switch selects either Y/C or composite signal to be supplied to source 1.

56. Source 2 Video Connectors (SOURCE 2, VIDEO IN/OUT)

The IN connector accepts a 1.0 Vp-p/75 ohm composite video signal.
Connecting coaxial cable with a BNC connector to the OUT connector, the high impedance video loop is automatically selected. At all other times, the terminals are automatically terminated by 75 ohms.

Note:

(1) If the input video signal does not meet the PAL colour standard or the CCIR B/W standard, this could cause synchronization error.

(2) In case the S/N ratio of the input signal is very low, this may be reflected in a low-quality picture.

(3) If the input video signal is very jittery, such as a picture played back on a VTR, synchronization or colour error may appear.
In case the video signal from the VTR and that of the camera is to be mixed, it is recomended to select the camera signal for the VIDEO 2 signal by the Input Mode Selection switches ⑧.

57. Source 2 S-VHS Video Input Connector (SOURCE 2, Y/C IN)

The luminance (Y) and chroma (C) signals from S-VHS VTR or colour TV are supplied to this connector.

58. Source 2 Y/C-Composite Selection Switch (SOURCE 2, Y/C-COMP)

This switch selects either Y/C or composite signal to be supplied to source 2.

59. External Camera Input Connector (EXT CAMERA IN)

For the key signal in the superimpose mode, this connector accepts a 1.0 Vp-p/75 ohm composite video signal, which is synchronized with the sync output signal provided at the SYNC OUT connector ⑥⓪ .

60. Sync Output Connector (SYNC OUT)

A 1.0 Vp-p/75 ohm negative polarity composite sync signal is provided at this connector for synchronization of an external camera.

61. Recording Video Output Connectors (REC VIDEO OUT 1/2)

A 1.0 Vp-p/75 ohm composite video signal, as selected by the Recording Video Output Selector switches ㊲, is provided at these connectors.

62. Y/C REC Video Output Connector

The luminance (Y) and chroma (C) signals are obtained from these connectors 1 and 2 when composite or Y/C signal is supplied to source 1 or 2.

63. Preview Output Connector (PREVIEW OUT)

A 1.0 Vp-p/75 ohm composite video signal of the EFFECT (all effect) image is provided at this connector.

64. Source 1 Audio Connectors (SOURCE 1, AUDIO L/R)

−10 dBV/15 kohms audio signals for the SOURCE 1 should be supplied to these input (IN) connectors. The input audio signals can be taken out from the output (OUT) connectors with a high impedance loop.

65. SOURCE 2 Audio Connectors (SOURCE 2, AUDIO L/R)

The IN connectors accepts a −10 dBV/15 kohms audio signal.
The input audio signals can be taken out from the output (OUT) connectors with a high impedance loop.

66. Recording Audio Output Connectors

−8 dBV/1 kohms audio signals for recording are supplied at these connectors.

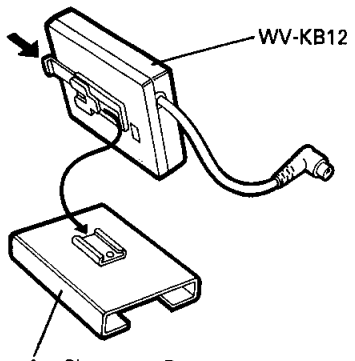
67. Auxiliary Audio Input Connectors (AUX AUDIO IN)

Accept –10 dBV/15 kohms audio signals from an external audio source.

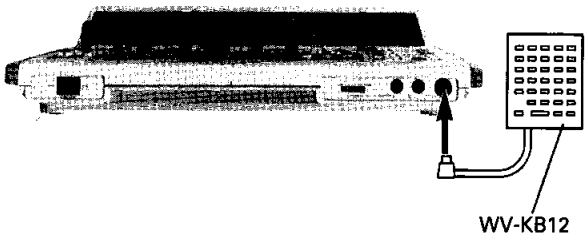
68. Power Cord

Preparing the Character Generator (optional)

- Mount the optional Character Generator WV-KB12 onto the Character Generator mounting base.



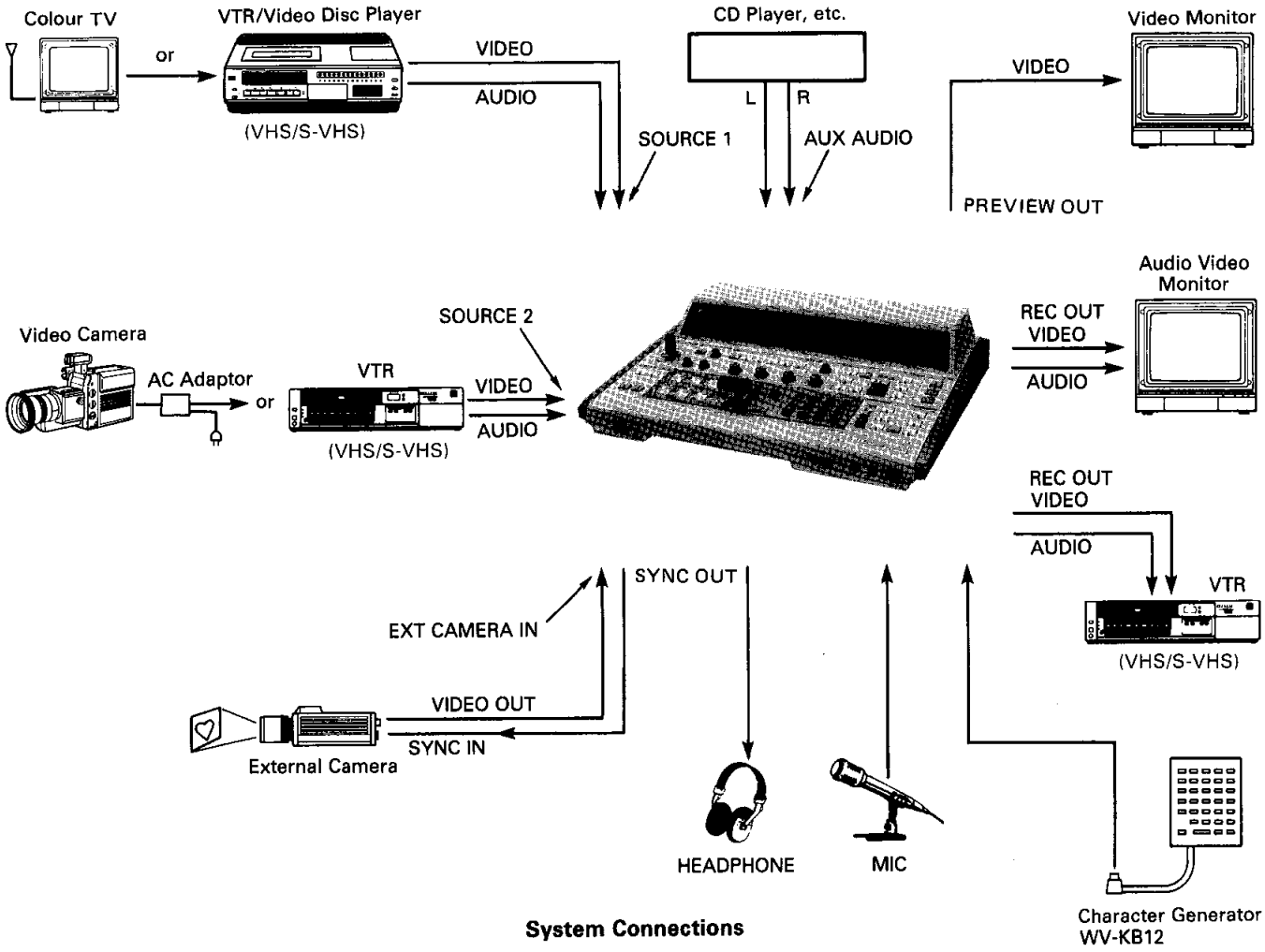
- Connect the cable of the WV-KB12 to the Title Input Connector ⑭.



SYSTEM CONNECTION

Caution: Keep the POWER ON/OFF switch turned OFF while making the connections.

1. Connect the coaxial cable with BNC connectors between the video output of the VTR, Video Disc Player, TV Tuner Output or Video Camera and the SOURCE 1 VIDEO IN connector on the rear panel of the Production Mixer or connect S-video cable (4 pin) between S-VHS VTR and the SOURCE 1 S-VHS Video Input Connector on the rear panel of the Production Mixer. When S-VHS VTR is connected Y/C-composite Selection Switch should be set to Y/C position.
2. Connect the audio cable with pin plugs between the audio output of the VTR (S-VHS VTR), Video Disc Player, TV Tuner Output or Video Camera and the SOURCE 1 AUDIO IN connectors on the rear panel of the Production Mixer.
3. Connect the coaxial cable or S-video cable (4 pin) and audio cable for the SOURCE 2 inputs of the Production Mixer in the same manner as steps 1 and 2 above.
4. Connect the coaxial cable with BNC connectors between the video output of the external camera (B/W or colour camera for superimposing) and the EXT CAMERA IN connector of the Production Mixer.
5. Connect the coaxial cable with BNC connectors between the SYNC IN (GEN LOCK IN) connector on the external camera and the SYNC OUT connector of the Production Mixer.
6. If the Character Generator WV-KB12 (sold separately) is used, connect the 10-pin cable connector of the Character Generator to the TITLE connector of the Production Mixer.
7. If an auxiliary audio source is required, connect the audio cable with pin plugs between the audio output of the audio source (CD Player, Tape Recorder or Record Player) and the AUX IN connectors of the Production Mixer.
8. If necessary, connect the microphone cable with a tip-ring-sleeve type or tip-sleeve type phono plug to the MIC input connector of the Production Mixer.
9. For previewing the image, connect the coaxial cable with BNC connectors between the PREVIEW OUT connector of the Production Mixer and the VIDEO IN connector of a video monitor.
10. For recording, connect the coaxial cables with BNC connectors (S-video cable) between the REC VIDEO OUT connectors of the Production Mixer and the VIDEO IN (S-VHS VIDEO IN) connectors of the VTR (S-VHS) and Video Monitor.
11. For recording, connect the audio cable with pin plugs between the REC AUDIO OUT connectors of the production Mixer and the AUDIO IN connectors of the VTR (S-VHS VTR) and Video Monitor.



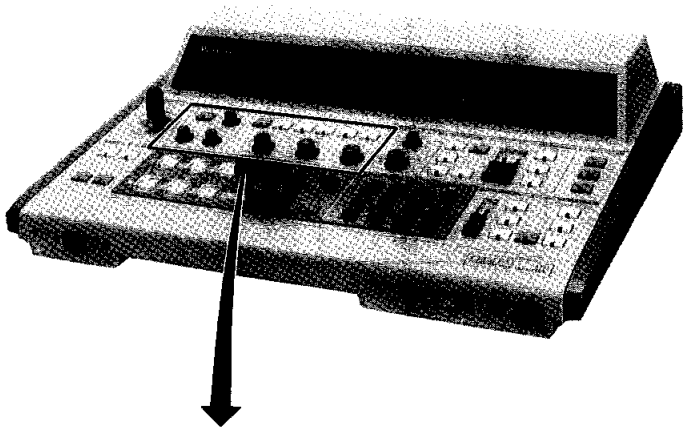
System Connections

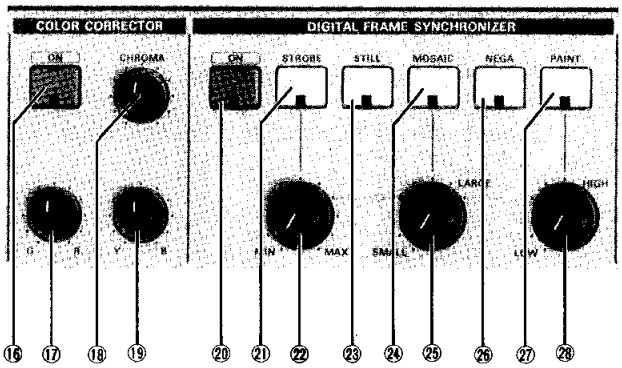
OPERATING PROCEDURE

1. Make all necessary connections.
2. Turn ON the Production Mixer and all other equipment connected.
3. Prepare the script of the program.
4. Prepare all necessary title cards.
   Note: Either the title cards with black letters on white or white on black can be used for the superimpose function.

5. Store all titles to be superimposed in the Character Generator WV-KB12 while referring to the operating instructions of the WV-KB12.

A. DIGITAL FRAME SYNCHRONIZER & COLOUR CORRECTION





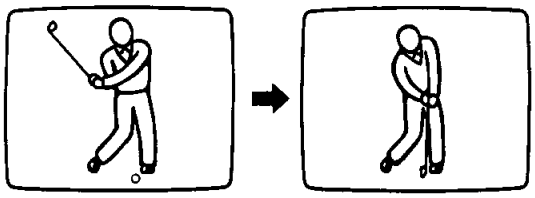
1) Set the Input Mode Selection switch ③ to  or .

   Note: In case you want to process the SOURCE 1 video signal with digital effects (e.g., Mosaic, Paint), select . Select for the SOURCE 2 video signal.

2) Press the EFFECT switch of the Recording Video Output Selection switches ㊲.

1. STILL

- Press the Digital Effect ON/OFF switch ⑳.
- Press the Still ON/OFF switch ㉓ once to freeze the picture.



LIVE STILL

- To return to a live picture, press the Still ON/OFF switch ㉓ again.

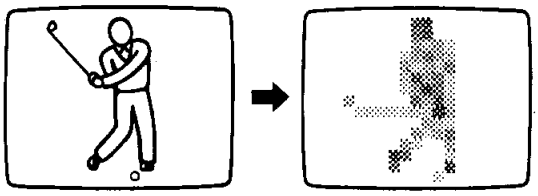
2. STROBE

- Press the Strobe ON/OFF switch ㉑ once to obtain strobe effects. (This function can be much likened with still pictures played in slow motion of 0.2 to 2 second intervals.)
- Adjust the Strobe Time Interval control ㉒ by turning it clockwise (MAX — slower) or counterclockwise (MIN — faster).

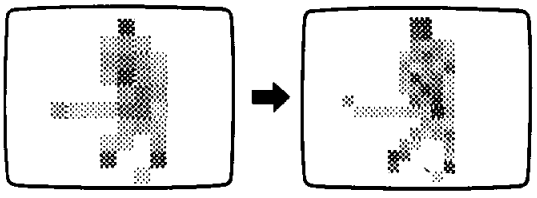
- To return to a normal, live picture, press the Strobe ON/OFF switch ㉒ again.

3. MOSAIC

- Press the Mosaic ON/OFF switch ㉔ once to obtain a mosaic effect of the picture.



- The Size of the rectangles can be changed by turning the Mosaic Size Selection switch ㉕.



LARGE SMALL

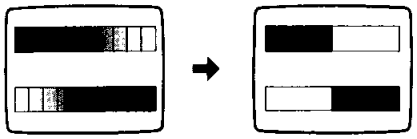
- To return to a normal picture, press the Mosaic ON/OFF switch ㉔ again.

4. NEGA

- Press the NEGA ON/OFF switch ㉖ once to obtain a negative picture. It will not function when either STROBE or STILL mode is selected.
- To return to a normal (positive) picture, press NEGA ON/OFF switch ㉖ again.

5. PAINT

- Press the Paint ON/OFF switch ㉗ once to obtain an oil-paint touch effect on the picture.



PAINT OFF

PAINT ON
(PAINT LEVEL: HIGH)

- Select paint effect graduation by turning the Paint Graduation Selection control ㉘ clockwise (HIGH) or counterclockwise (LOW)

LOW

HIGH

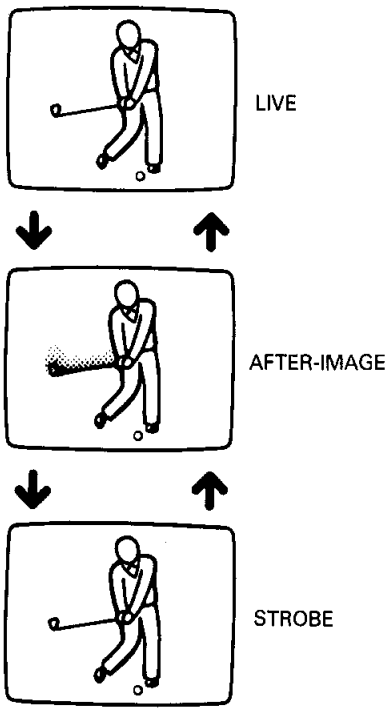
- To return to a normal picture, press the Paint ON/OFF switch ㉘ again.

6. COLOUR CORRECTOR

- Press the COLOUR CORRECTOR ON/OFF switch ⑯ to obtain colour correction.
- The Colour and the Hue can be adjusted using these controls of ⑰, ⑱ and ⑲.
- Those controls will not function when the STILL mode ㉓ is selected.
- To return to a previous picture, press ON/OFF switch ⑯ again.

7. Applications

- Press the Digital Effect ON/OFF switch ⑳.
- Press the MIX switch of the Mix/Wipe Selection switches ㊵.
- Select VIDEO 1 and VIDEO 2 for the A-bus and B-bus in the Mix/Wipe Effect section.
- Press the Strobe ON/OFF switch ㉑ and adjust the Strobe Timer Interval control ㉒.
- Move the Mix/Wipe lever ㊸ to the center position to obtain an after-image effect.

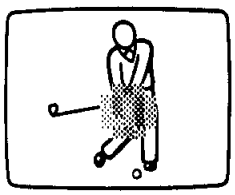


LIVE

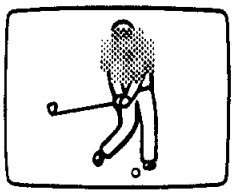
AFTER-IMAGE

STROBE

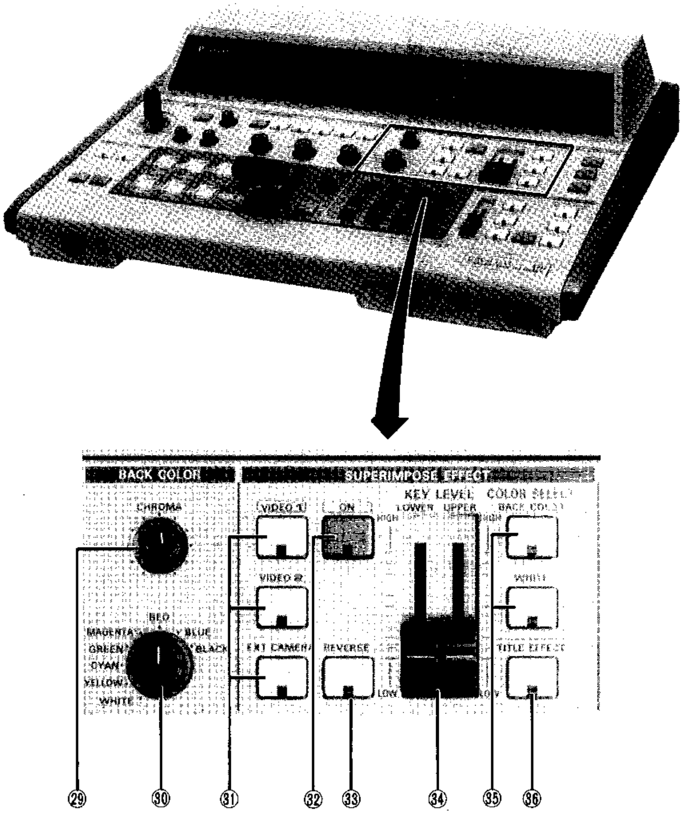
- Press the Mosaic ON/OFF switch ㉔ and adjust the size of the rectangles using the Mosaic Size Selection control ㉕.
- Press the WIPE switch of the Mix/Wipe Mode Selection switches ㊵.
- Select Circle or Square wipe ⑧.
- Operate the Mix/Wipe lever ㊸ for desired wipe size.



- Operate the Joystick Positioner ⑮ to position the wipe position on the screen.



B. SUPERIMPOSE EFFECT & BACK COLOUR



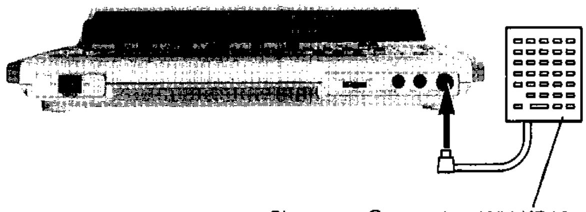
1) Set the Input Mode Selection switch (3) to [symbol] or [symbol].
Note: In case you want to process the SOURCE 1 video signal with digital effects (e.g., Mosaic, Paint), select [symbol]. Select [symbol] for the SOURCE 2 video signal.

2) Press the EFFECT switch of the Recording Video Output Selection switch (37).

3) Press either the MIX or the WIPE switch of the Mix/Wipe Mode Selection switches (40).

4) Select the background image. Set Wipe/Mix lever to lower position (B) for B-bus image as background or upper position (A) for A-bus image as background. The source can be selected from the VIDEO 1, VIDEO 2 or BACK COLOUR for either position, (41) (42).

5) Select the key image source (the one to be superimposed) by pressing one of the Source Selection switches (31): VIDEO 1, VIDEO 2 or EXT CAMERA.
Note: In case the Character Generator is to be used, connect it to the Title Input connector (14).



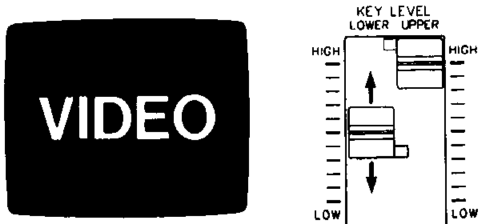
Character Genenator WV-KB12

6) In case BACK COLOUR is selected, set the Back Colour Selection switch (35) to the desired colour or white picture (35).
Select the colour using BACK Colour Selection switch (30) and adjust the colour level using Chroma control (29).
Caution: Do not simultaneously press the BACK COLOUR switch for the A-bus (B-bus) and the BACK COLOUR switch for the superimpose function.

7) Press the Superimpose ON/OFF switch (32) once to enter the function.

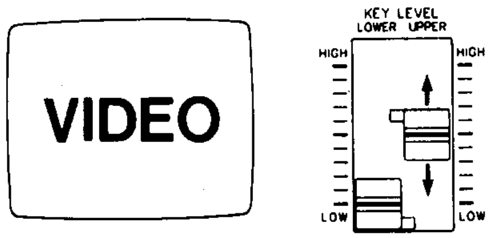
1. Superimpose by Camera

- Connect the camera to EXT CAMERA input (59) and connect the sync signal from SYNC OUT (60) to the camera as well.
- Direct the camera at a picture or a panel.
- Press EXT CAMERA switch (31).
- While observing the image on a video monitor, which is connected to the Preview Output connector (63), adjust the Key Level control (LOWER/UPPER) (34) until a clear superimposed image is obtained.
In case the title card is written with white letters on black, set the UPPER lever of the Key Level control to the HIGH end, and adjust the LOWER lever for a clear superimposed picture.



TITLE CARD

In case the title card is written with black on white, set the LOWER lever to the LOW end and adjust the UPPER lever for a clear superimposed picture.

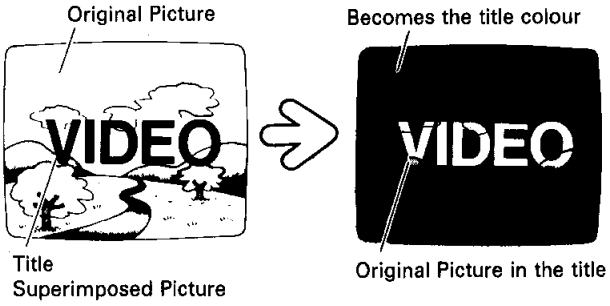


TITLE CARD

Note: When the optional Character Generator WV-KB12 is only used for the superimpose, set both levers to the LOW end.

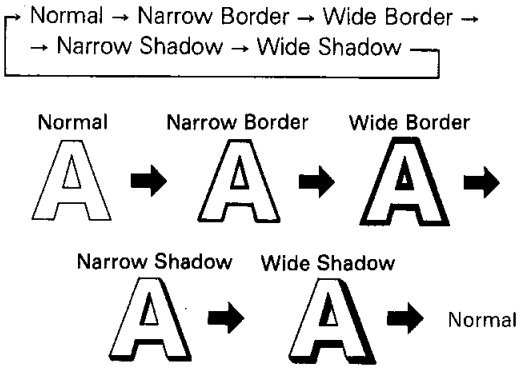
2. Reverse Effect

- Select the polarity of the key signal to be superimposed by pressing the Reverse switch ㉝.

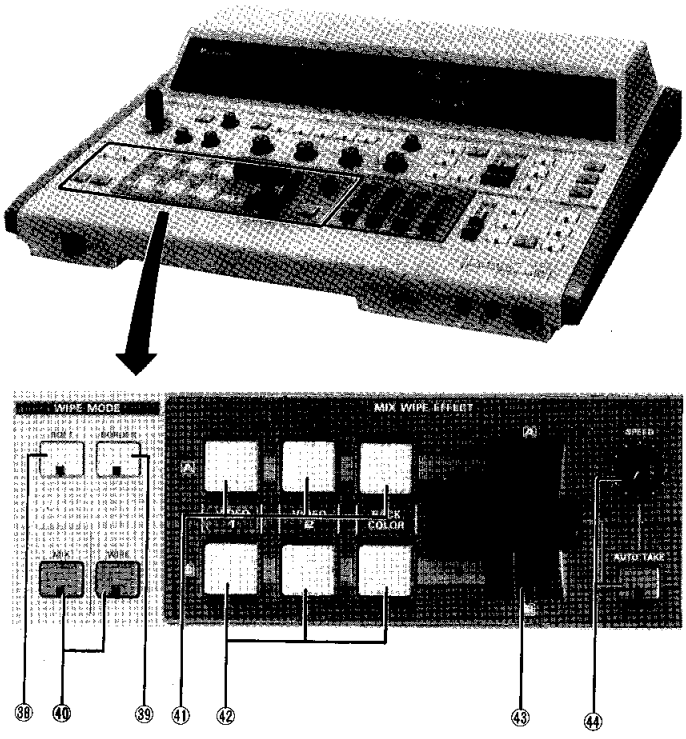


3. Title Effect

- If desired, the edge enhancement of the title can be obtained by pressing the TITLE EFFECT switch ㊱ repeatedly.
  The effected picture will be as follows.



C. MIX/WIPE EFFECT, WIPE MODE & AUTO TAKE



1) Set the Input Mode Selection switch ③ to 1 2 or 1 2.

   Note: In case you want to process the SOURCE 1 video signal with digital effects (e.g., Mosaic, Paint), select 1 2. Select 1 2 for the SOURCE 2 video signal.

2) Press the Effect Switch of the Recording Video Output Selection switches ㊲.

3) If the Mix/Wipe Lever ㊸ is turned fully to the A-bus position, the LED on A-bus lights up. However, in case that the Lever ㊸ is turned half-way down to the A-bus position, the LED on A-bus blinks.

1. MIX EFFECT

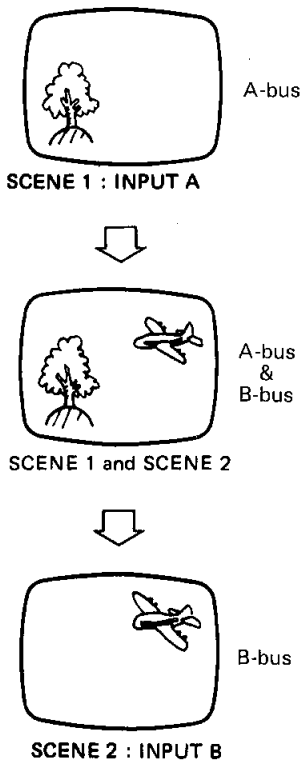
- Press the MIX switch of the Mix/Wipe Selection switches ㊵.

- Select the source signal for A-bus and B-bus from the VIDEO 1, VIDEO 2 or BACK COLOUR.

  In case back colour is selected, set the Back Colour Selection switch ㊵ to the desired colour.

- Confirm that the LED indicator of the VIDEO switch of the Fade Control switches ㊿ is off.

- Operate the Mix/Wipe Lever ㊸ from A to B, or vice versa.



2. WIPE EFFECT

- Set the Input Mode Selection switch ③ to 1 or 2.

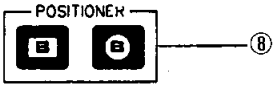
  Note: In case you want to process the SOURCE 1 video signal with digital effects (e.g., Mosaic, Paint), select 1. Select 2 for the SOURCE 2 video signal.

- Press the Effect Switch of the Recording Video Output Selector switches ㊲.

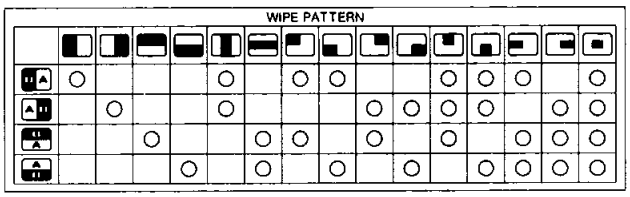
- Press the WIPE switch of the Mix/Wipe Selection switches ㊵.

- Select the desired wipe mode by pressing one of the Wipe Pattern Selection switches ⑦.

  If Circle (◘) or Square (◘) with positioner control is desired, press one of these switches ⑧.



If another wipe pattern is desired, refer to the Pattern table shown below for combination of the switches ⑦.



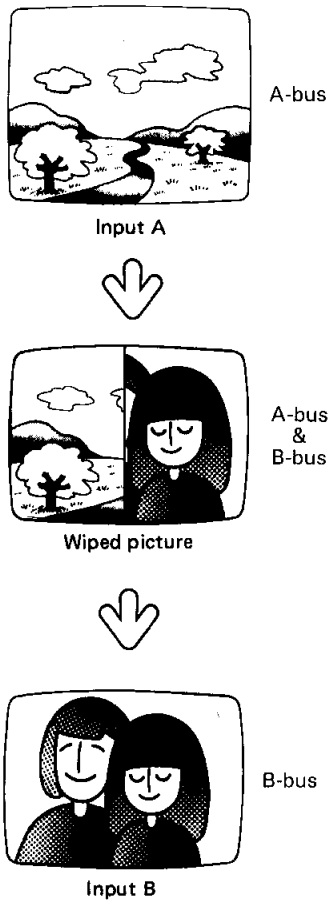
(E.g., for the ◧ pattern, press switches A and B)

- Select the source signal for A-bus and B-bus from the VIDEO 1, VIDEO 2 or BACK COLOUR.

  In case back colour is selected, set the Back Colour Selection switch ㊵ to the desired colour.

- Confirm that the LED indicator of the VIDEO switch of the Fade Control switches ㊿ is off.

- Operate the Mix/Wipe Lever ㊸ from A to B, or vice versa.



3. WIPE MODE

There is a choice of Wipe mode from SOFT wipe or BORDER wipe.

- Press the SOFT mode ㊳ to obtain a dimmed wiping edge.
- Press the BORDER mode ㊴ once to obtain a clear/narrow wiping edge. If press it again, the wiping edge changes to clear/wide. To cancel the BORDER mode, press it ㊴ one more time.
- The colour of BORDER is a complementary colour of the Back Colour (See Back Colour Selection Switch ㊵.)

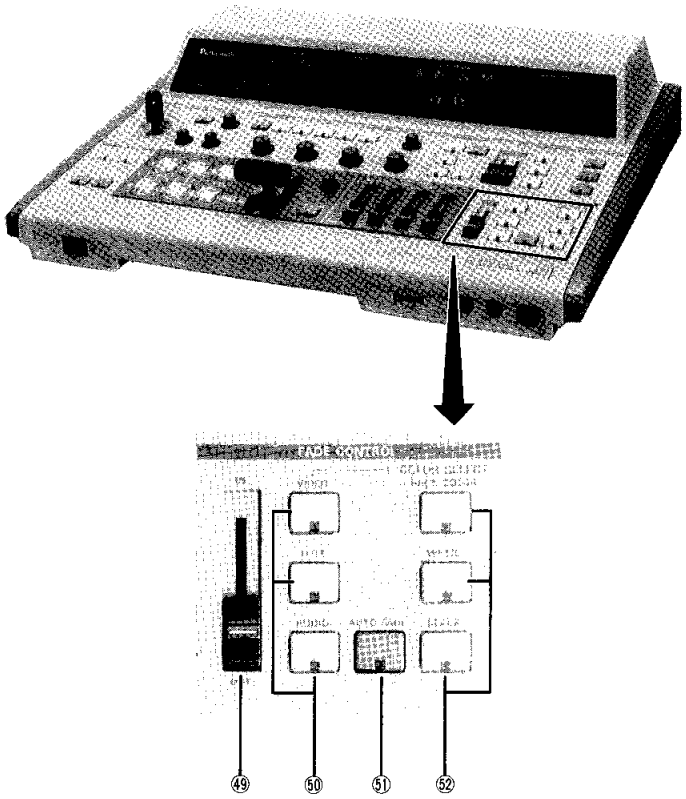
Back Colour	White	Yellow	Cyan	Green	Magenta	Red	Blue	Black
Border Colour	Black	Blue	Red	Magenta	Green	Cyan	Yellow	White

4. AUTO TAKE

In stead of the lever controlled Mix & Wipe using the Mix/Wipe Lever ㊸, automatic Mix & Wipe control can be made by AUTO TAKE function.

- Turn the Mix/Wipe Lever ㊸ to A-bus position. The LED lights up or blinks. (Depends on the position of lever)
- Press AUTO TAKE switch ㊹, then the Mix/Wipe will be performed automatically from A-bus to B-bus.
- The speed can be adjusted by SPEED control ㊹ from 0.2 sec. to 2 sec. approximately.

D. FADE CONTROL



1) Set the Input Mode Selection switch ③ to 1 2 or 1 2.

Note: In case you want to process the SOURCE 1 video signal with digital effects (e.g., Mosaic, Paint), select 1 2. Select 1 2 for the SOURCE 2 video signal.

2) Press the Effect Switch of the Recording Video Output Selector switches ㊲.

3) Press the WIPE or MIX switch of the Mix/Wipe Selection switches ㊵.

4) Select the source signal for A-bus and B-bus from the VIDEO 1, VIDEO 2 or BACK COLOUR.

In case back colour is selected, set the Back Colour Selection switch ㉚ to the desired colour.

Fading Operation

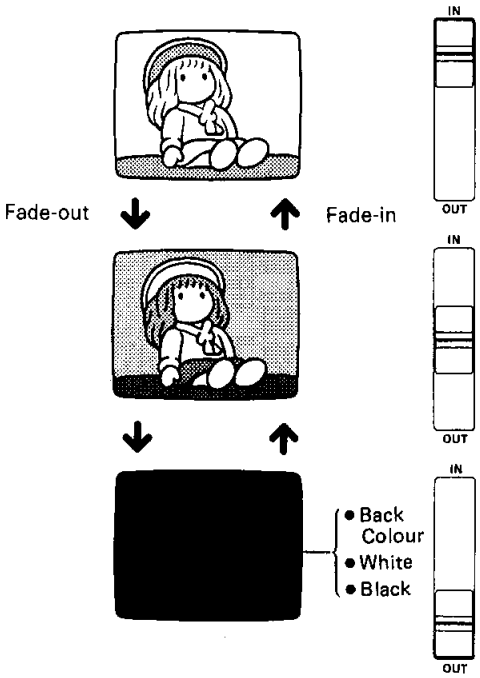
The Fading Operation

- Select the combination of the switches ㊿ whether picture and title and sound are to be faded in and out or only picture or only title or only sound. The following table shows which buttons must be pressed.

	VIDEO	TITLE	AUDIO
VIDEO fade	ON	OFF	OFF
TITLE fade	OFF	ON	OFF
AUDIO fade	OFF	OFF	ON
VIDEO & AUDIO fade	ON	OFF	ON
VIDEO & TITLE fade	ON	ON	OFF
TITLE & AUDIO fade	OFF	ON	ON
VIDEO & TITLE & AUDIO fade	ON	ON	ON

- When the VIDEO ㊿ is faded out, the display monitor has a choice from BACK COLOUR, WHITE or BLACK ㊷.
  If BACK COLOUR is selected, use BACK COLOUR switch ㉚ to decide the colour.

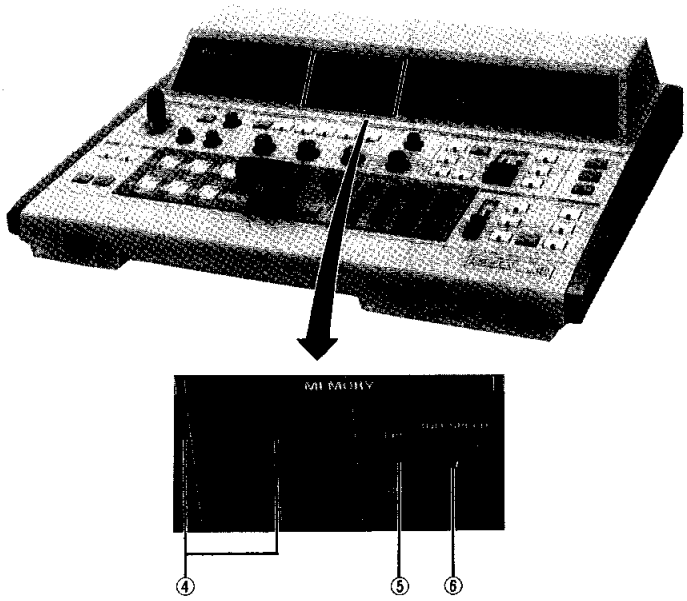
- Slide the Fade lever ㊾ from IN to OUT, or vice versa.



- Press the AUTO FADE switch ㊶ in order to perform the Fading automatically without Sliding the Lever ㊾.
- Slide up the Lever ㊾ to IN position, then press AUTO FADE switch ㊶. The picture will fade out automatically.

E. MEMORY

WJ-MX12 has a feature of MEMORY which is a memory for a programmable operating precedure.
Four kinds of programs can be memorized and this four programs can store up to fifty-five procedures. By this function, WJ-MX12 operates a Effect procedure automatically as they are programmed.

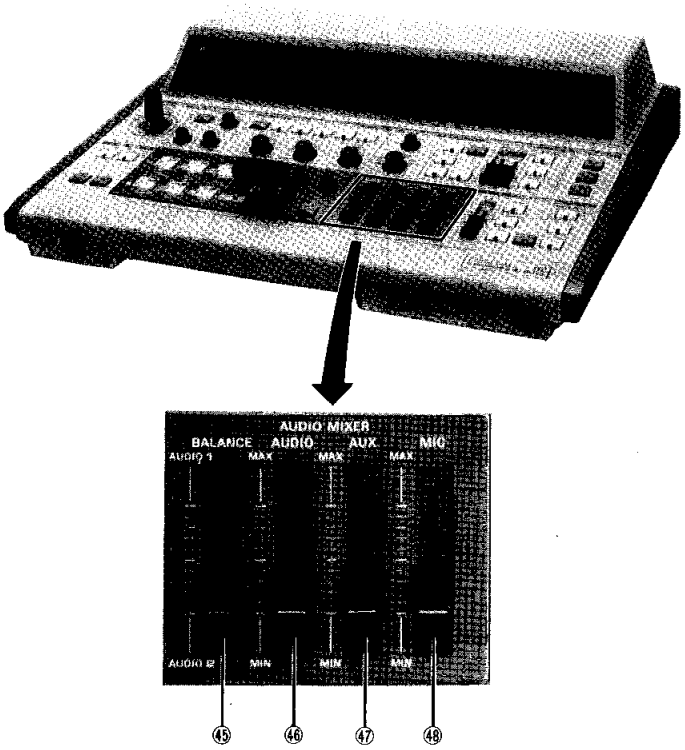


- Set the mode switch ⑤ to PRG position.
- Select and press the function button, for example press STROBE ㉑, then push No.1 switch of the MEMORY ④. The letter of "1" will light up one second.
- Select and press the next function button, for example press BACK COLOUR ㊷, then push No.1 switch of the MEMORY ④. The letter of "1" will light up one second.
- Repeat above precedures.
- After all desired procedures have been memorized, set the mode switch ⑤ to RUN position. It is now ready to perform the automatic Effect operation.
- Adjust RUN SPEED control ⑥ as desired.
  The Run Speed for each procedure can be adjusted from 0.05 sec. (Min.) to 1 sec. (Max.).
- Press No.1 button ④ once. The letter of "1" will blinking.
- Press No.1 button ④ again to start the operation.
- After the RUN finished, the light of "1" turns off and WJ-MX12 becomes manual operational status.

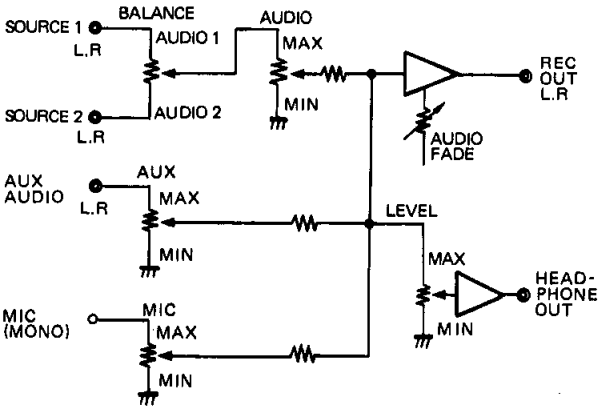
Remarks:

1. The programmable switches are all push-switches (except MEMORY ④) and the select switches of STROBE ㉒, MOSAIC ㉕, PAINT ㉘ and BACK COLOUR ㉝.
2. When the capacity of the memory becomes short, all numbers (1, 2, 3, 4) start blinking.
3. In case of memorizing a AUTO TAKE ㊹ function, press this switch first than memorize it after completing the auto-take function.
4. Once the mode switch ⑤ is set to PRG position, the present program is ready to be overwritten by new program.
5. The MEMORY can be programmed 55 procedures in total.

F. AUDIO MIXER



The following is a block diagram depicting the circuitry of the audio section.



- To record the SOURCE 1 audio signal, set the Balance control ㊺ to the end position "AUDIO 1", and adjust the audio level by operating the Audio Level control ㊻.
- To mix the SOURCE 1 and SOURCE 2 audio signals, adjust the Balance control ㊺.
- To mix the auxiliary audio signal for recording, adjust the AUX Level control ㊼.
- To mix the microphone signal for recording, adjust the MIC Level control ㊽.
- To fade in or fade out the audio signal, press the AUDIO switch of the Fade Selection switches ㊿ and operate the Fade Lever ㊾.
- To adjust the headphone output level, operate the Headphone Level control ⑪.

SPECIFICATIONS

Source Input:	×2 (SOURCE 1 and SOURCE 2)
Video Input:	1.0 Vp-p/75 ohms or high impedance loop-through, PAL composite signal, BNC connectors
S-Video Input:	Y signal; 1 Vp-p, C signal; 0.3 Vp-p, 75 ohms, Mini DIN 4 pin connector
Audio Input:	−10 dBV/15 kohms, pin jacks (Left and Right)
External Camera Input:	1.0 Vp-p/75 ohms CCIR or PAL composite signal, BNC connector × 1
Sync Output:	1.0 Vp-p/75 ohms, composite sync, BNC connector × 1
Recording Output:	×2 (REC OUT 1 and REC OUT 2)
Video Output:	1.0 Vp-p/75 ohms, PAL composite signal, BNC connectors
S-Video Output:	Y signal; 1 Vp-p, C signal; 0.3 Vp-p, 75 ohms, Mini DIN 4 pin connector
Audio Output	−8 dBV/1 kohms, pin jacks (Left and Right)
Preview Video Output:	1.0 Vp-p/75 ohms, PAL composite signal, BNC connector × 1
External Sound Input:	
MIC Input (mono):	−60dB/600 ohms, unbalanced, tip-ring-sleeve type phono jack × 1
AUX Input:	−10 dBV/15 kohms, pin jacks (Left and Right)
Headphone Output:	−30 dB/8 ohms, (8 ohms — 100 ohms), tip-ring-sleeve type phono jack × 1
Character (TITLE) Input:	10-pin connector × 1 for optional Character Generator WV-KB12
Effects	
Video:	Still, Strobe, Mosaic, Nega, Paint, Mix, Wipe, Superimpose, Fade-in/out
Audio:	Mix, Fade
Back Colours:	White, Yellow, Cyan, Green, Magenta, Red, Blue, Black
Wipe Patterns:	Circle and Square with positioning, and 15 additional patterns without positioning
Wipe Positioner:	Built-in Joystick Positioner
Others:	Auto Take, Auto Fade, Memory
Input Video Frequency Range:	Sync: 15,625 kHz ±300 Hz, SC: 4.433619 MHz ±40 Hz
Frequency Response:	5 MHz (−3 dB) (Y/C in − Y/C out), 20 − 20 kHz (−3 dB) (Audio)
Resolution:	S-Video Input/Output; Typical 500 TV lines, Composite Video Input/Output; 300 TV lines, Composite Video Input/S-Video Output; 400 TV lines, S-Video Input/Composite Video Output; 300 TV lines
Gain:	Unity (Video)
Signal-to-noise Ratio:	Video 1: 46 dB (Composite), 48 dB (S-Video) Video 2: 48 dB (Composite), 55 dB (S-Video) Audio: 56 dB
Differential Gain:	±5% (S-Video)
Differential Phase:	±5° (S-Video)
Power Source:	240V AC, 50 Hz for WJ-MX12/A and WJ-MX12/B; 220V AC 50 Hz for WJ-MX12/C and WJ-MX12/G
Power Consumption:	38 W
Ambient Temperature:	0° — 40° C
Ambient Humidity:	Less than 90%
Dimensions:	446 (W) x 115 (H) x 357 (D) mm
Weight:	5.5kg

Weight and dimensions indicated are approximate.
Specifications are subject to change without notice.

STANDARD ACCESSORIES

- Mounting Base for Character Generator WV-KB12

OPTIONAL ACCESSORIES

- Character Generator WV-KB12