

INNOVATIONS
IN
VIDEO

INNOVATION

FOR-A®

VTW-210

VIDEO TYPEWRITER

FOR-A COMPANY LIMITED

SECTION 1 SECTION 2 SECTION 3 SECTION 4 SECTION 5 SECTION 6

TABLE OF CONTENTS

SECTION 1	INTRODUCTION			
SECTION 2	OPERATION MANUAL			
SECTION 3	CIRCUIT DESCRIPTION			
SECTION 4	EXTERNAL DIMENSIONS			
SECTION 5	SYSTEM BLOCK DIAGRAM			
SECTION 6	SCHEMATICS AND PARTS LIST <table> <tr> <td>MIX AMP CARD (A2-3460)</td> </tr> <tr> <td>SYNC GEN CARD (A4-2446)</td> </tr> <tr> <td>MAIN LOGIC CARD (A2-3461)</td> </tr> </table>	MIX AMP CARD (A2-3460)	SYNC GEN CARD (A4-2446)	MAIN LOGIC CARD (A2-3461)
MIX AMP CARD (A2-3460)				
SYNC GEN CARD (A4-2446)				
MAIN LOGIC CARD (A2-3461)				
SECTION 7	REMOVAL PROCEDURES			
SECTION 8	INTERNAL VOLUME ADJUSTMENT			

SECTION 1 . INTRODUCTION

The majority of this unit's functions have been adopted from VTW-300 Video typewriter, but it is smaller and lighter.

The unit is composed mainly of Main Logic Card, Mix Amp Card, Sync generator Card (option), Switch Panel, Keyboard, and Power Supply.

The options are: MU-300 Magnetic Card Memory, MU-600 Floppy disc Memory, MU-250 Solid State Memory, PU-210 Preview Unit, and Sync generator Unit.

SECTION 2 OPERATION

1. OUTLINE.

The VTW-210 is a low-cost, compact Video Typewriter with the majority of its functions adopted from VTW-300 Video Typewriter. This new model also has various other functions such as TITLE, SHADOW EDGE, and H. SIZE variable per word for added convenience.

2. SPECIFICATIONS.

2-1. Video Input

- a) Level 1.0vp-p composite video signal.
- b) Impedance 75Ω. or connect high impedance bridge.
- c) Connector BNC.

2-2. Sync Input

- a) Level 4.0vp-p. or 2.0vp-p composite sync signal.
- b) Impedance 75Ω. or connect high impedance bridge.
- c) Connector BNC.

2-3. Video Output

a) MONITOR OUT

- * Level Within +3dB of Video Input signal.
75Ω load.

- * Connector BNC.

- * Video Input signal with Character signal.

b) LINE OUT

- * Level Within +3dB of Video Input signal.
75Ω load.

- * Connector BNC.

- * Video Input signal with ON/OFF switchable character signal.

2-4. Display Characters.

Standard English alphanumeric characters.

2-5. Character composition.

16 x 20 dot matrix.

2-6. Character Display Capacity

32 characters x 8 lines.

* When SUPER ON, lines can be varied between 1 - 9 lines.

2-7. Size.

H. approx. $1\mu s$ (32 characters), or
approx. $2\mu s$ (16 characters).

V. 20H/field or 40H/field.

2-8. Page Capacity.

1 page: 32 characters x 8 lines

2-9. Page Memory.

4 pages.

2-10. Character Size control.

a) H. SIZE.

Characters can be enlarged individually.

large (16 character size)
small (32 character size)

b) V. SIZE.

All characters on the page are enlarged vertically.

large 40H/field
small 20H/field

2-11. Character Flash.

Characters can be flashed individually.

2-12. Auto Centering.

Characters can be displayed at the center of the screen while either SUPER or L-CHECK key is selected.

2-13. Display Mode.

a) NORMAL.

By flipping the MODE START switch to START, the lines displayed are instantly switched over to the next display lines, according to the number set by the LINE QTY SELECT.

b) ROLL.

Number of display lines set by the LINE QTY SELECT is rolled upward on the monitor screen by the MODE START SWITCH. If the selected display line is changed during this time, the ROLL operation will stop automatically.

However, when AUTO TIME is set at 0 sec, once the MODE START switch is flipped to START, the ROLL operation will not stop until the display returns to page 1.

To stop the ROLL operation when the AUTO TIME is set at 0 sec, return the MODE START switch to MANUAL START.

c) CRAWL.

Regardless of the lines set on LINE QTY SELECT, character lines will be displayed line by line, and once the MODE START is flipped to START, the operation will not stop until the display returns to the page 1.

To stop the CRAWL operation, return the MODE START switch to MANUAL START.

2-14. Character Display Position.

Continuously variable vertically within 80% of the effective picture area. Character Input Mode, ROLL/NORMAL Mode, and CRAWL Mode can each be set individually.

2-15. Character Input Shift Direction.

Character Input proceeds from left to right.

2-16. FLASH.

The character will flash only when it is typed in while the FLASH key is ON. The same character will be FLASH RESET when it is re-typed when the FLASH key is OFF.

2-17. SUPER.

The input character to the Character Input Mode will be generated onto the Main Line. The display style will vary according to the condition of the display Mode or the Auto Centering key.

2-18. LINE OUT CHECK.

The characters typed-in can be displayed on the monitor without being generated to the Main Line. The characters are generated only to the Monitor Output at this time.

2-19. MODE START.

a) When either the SUPER or the LINE OUT CHECK is selected on the 3 step toggle switch, the change-over transformation of the displayed character to the next display character will be done by the MODE START switch.
(change-over variable according to the Display Mode.)

- b) Either AUTO or MANUAL MODE START can be selected. When AUTO START is selected, the display change-over will be done according to the time set on the AUTO TIME SELECT. When MANUAL START is selected, the display change-over will be initiated each time the MODE START switch is depressed.
- c) When the Display Mode is set to either ROLL or CRAWL Mode, the mode of operation can be stopped by depressing the MODE STOP key (the mode switch should be in START at this time). To re-start the operation, the MODE START key should be depressed when it is set to MANUAL START, but the operation will start automatically when it is set to AUTO START. (The interval time in this case will be the same as the time set on AUTO TIME. e.g. operation will re-start 5 secs after it was stopped if the AUTO TIME is set to 5 secs.)
- d) When the AUTO TIME is set to 0 sec, MODE START operation will operate in MANUAL. However, when the display mode is on ROLL MODE, the operation will not stop until it returns to page 1.

2-20. LINE QTY.

The number of lines displayed is determined by the LINE QTY when LINE OUT CHECK and/or SUPER is ON. However, when the START MODE is in the CRAWL mode, the displays will be done line by line, regardless of the quantity set by the LINE QTY.

2-21. VERTICAL POSITION (up/down).

Vertical position is variable in each of the following modes: Typing mode, ROLL/NORMAL mode, and CRAWL mode. However, when SUPER is ON, vertical position can not be varied. Positioning of the ROLL/NORMAL mode and the CRAWL mode will be done by the LINE CHECK.

2-22. TITLE.

When this key is depressed while the typing mode is operating (and both the SUPER and the LINE CHECK are OFF), the whole line where the cursor is set will move to the line 1 of page 1. The details of the cursor-set line will not be altered at this time.

2-23. PAGE SELECT.

When the LED of the L-PAG SET is in the OFF position, the MONI PAGE can be selected on pages 1 through 4. When the LED of the L-PAG SET is in the ON position, the LINE PAGE can be selected on pages 1 through 4.

2-24. DISPLAY SPEED.

Display speed of the ROLL and CRAWL display modes are selectable in four different speeds.

2-25. MATT.

The character level of the superimposed character is continuously variable from Black to White.

2-26. @ MARK JUMP.

By typing the @ mark into the first space of a line on a page (it can be done on any page), everything after the @ mark will not be displayed. Instead, the display will JUMP to the page set on LINE PAGE.

2-27. '^' MARK JUMP.

By typing the '^' mark into the first space of any line on a page (it can be done on any page), the lines with the '^' mark will not be displayed when SUPER and/or L-CHECK is ON, and the line after the '^' marked line will be displayed.

2-28. WORD CORRECTION.

a) LINE.

By depressing the cursor key ' \rightarrow ' when the Word-Correction-Line key is ON, all the characters to the right of the cursor position will shift one space to the right, and a space will be provided above the cursor. The 16th or the 32nd character on the last line of a page will be erased at this time.

When the cursor key ' \leftarrow ' is depressed, the characters to the right of the cursor position will shift one space to the left, and the character which was above the cursor will be erased. There will be a space provided at the 16th or the 32nd character space of the line.

b) PAGE.

By depressing the cursor key ' \rightarrow ' when the Word-Correction-Page key is ON, the whole page will shift one space to the right from the cursor position, and a space will be provided above the cursor. The 16th or the 32nd character on the last line will be erased at this time.

By depressing the cursor key ' \leftarrow ', the whole page will shift one space to the left from the cursor position, and the character above the cursor will be erased. There will be a space provided at the 16th or the 32nd character space of the last line.

Note: If there are both large and small characters on the line when either Word-Correction-Line or Page is operated, the line/page will shift two spaces instead of one.

2-29. Option.

1) Extension Memory Unit	Model MU-250
2) Magnetic Card Memory Unit	MU-300
3) Floppy disc Memory Unit	MU-600
4) Internal Sync Unit	SY-210
5) Preview Unit	PU-210

2-30. Ambient Temperature.

0°C - 40°C.

2-31. Power Supply.

AC 90v - 129v or AC 180v - 264v.
(However, 100v system and 200v system can be selected by the change-over switch.)

2-32. Power Consumption.

AC90 - 129V or AC180 - 264V. 50W 85VA (OPTION).

2-33. External Dimensions.

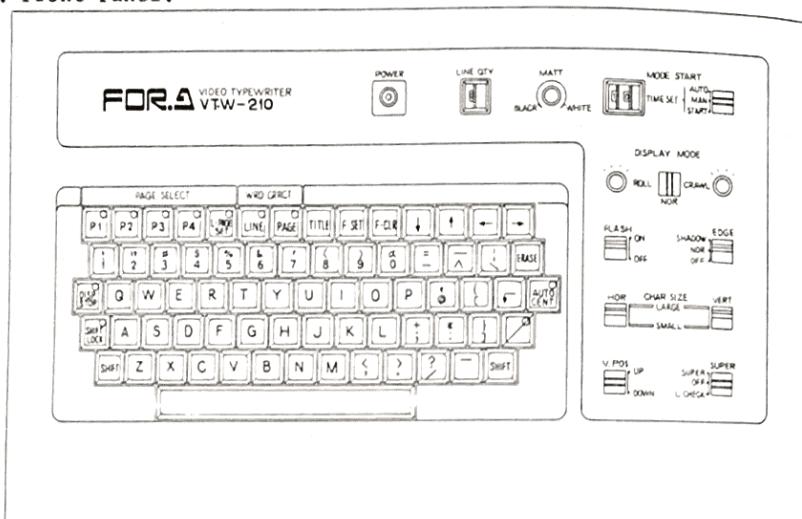
470(W) x 107(H) x 353(D) mm

2-34. Weight

approx. 9.5Kg.

3. PANEL DESCRIPTION AND OPERATION.

3-1. Front Panel.



1) Power.

When the power switch located on the rear of this unit is in the ON position, this LED will illuminate to indicate that power is being supplied.

2) LINE QTY.

Display lines can be set between 1 - 9 lines by this key when SUPER and/or L-CHECK is ON. To set the display lines, turn the L-QTY key either upward or downward.

3) MATT.

By turning this adjuster, the superimposed characters can be varied from black to white. By turning the adjuster to the left, the character becomes darker, and by turning it to the right, the character becomes lighter.

4) TIME SET.

When SUPER and/or L-CHECK is ON, and the MODE START is set to AUTO, the characters will be displayed for the time interval selected by this switch. Time selection is variable between 0 - 999 secs in 1 sec stages. When time is set to 0 sec, and Display Mode is on ROLL, the ROLL operation will not stop until the display returns to page one. The time can be set by turning this key either upward or downward.

5) MODE START.

This switch is for the change-over from one display to another while SUPER and/or L-CHECK is ON, and has two start modes, AUTO and MANUAL. When AUTO START is selected, the display will be changed-over automatically, according to the interval set on TIME SET. When MANUAL START is selected, the change-over of the displays will be done by flipping this key downwards (towards START).

When the TIME SET is set to 0 sec, the change-over of the display should be operated under MANUAL START.

6) DISPLAY MODE.

This switch sets the type of change-over of the display while SUPER and/or L-CHECK is ON, and three modes, NORMAL, ROLL, and CRAWL can be selected.

Note: Do not change the selected mode when SUPER and/or L-CHECK is ON. Since there is no built-in mode selection control in this unit, the displays will be adversely effected.

a) NORMAL

Immediate change-over of the display is effected by the MODE START, according to the number of lines selected by LINE QTY.

The number of display lines set by the LINE QTY is rolled upwards, and the display change-over is performed line by line. The ROLL operation will continue until the display returns to page 1. When the TIME SET is set to 0 sec, operate the MODE START by MANUAL START. The ROLL Speed is variable in four stages.

c) CRAWL.

Regardless of the number of display lines set by the LINE QTY, the lines are displayed singly, and flow from right to left by depressing the MODE START. CRAWL operation will not stop until the display returns to page 1. CRAWL Speed is variable in four stages.

7) FLASH.

The preset word will flash when this key is depressed, and the flashing will stop when this key is OFF (depress one more time to set this key OFF). To preset a word, type the necessary word when FLASH key is ON. Or, a word can also be preset by the F-SET key. To reset the FLASH of a word, depress the FLASH key one more time to turn it OFF, and re-type the word. Or, a word can also be reset by the F-CLR key.

8) EDGE.

This is the change-over switch for edging the displayed word, and has three modes, OFF, NOR, and SHADOW.

a) OFF.

There will be no edging on the displayed word.

b) NOR.

There will be edging on the whole of the displayed word.

c) SHADOW.

There will be edging only on the lower right hand side of the displayed word.

9) CHAR SIZE-HOR.

When this switch is in the 'small' position, the typed words will be displayed in small proportions on the monitor screen. When this switch is in the 'large' position, the typed words will be displayed in large proportions on the monitor screen. One 'large' letter will cover two 'small'

letter spaces, therefore two 'small' letters will be erased when one 'large' letter is to be typed over a 'small' letter.

10) CHAR SIZE-VER.

When this switch is in the 'small' position and SUPER and/or L-CHECK is ON, the V-size will be displayed in small proportions on the monitor screen. When this switch is in the 'large' position and SUPER and/or L-CHECK is ON, the V-size will be displayed in large proportions on the monitor screen. When SUPER and/or L-CHECK is OFF, the V-size will be displayed in small proportions on the monitor screen.

11) V-POS.

In order to move the displayed characters upward, flip this key up. Movement will stop when the character line reaches the highest point set on the screen. In order to move the displayed lines downward, flip this key down. Movement will stop when the character line reaches the lowest point set on the screen.

The position setting of this V-POS will depend on the following mode settings:

1) SUPER and/or L-CHECK is OFF.

2) SUPER and/or L-CHECK is ON, and DISP MODE either NOR/ROLL.

3) SUPER and/or L-CHECK is ON, and DISP MODE is set on CRAWL.

However, the position cannot be set with NOR/ROLL mode, or CRAWL mode, unless the L-CHECK is ON.

12) SUPER.

This is the selection switch for SUPER, L-CHECK, or OFF, and is also the display mode control of LINE OUT and MONI OUT of the Video Output signal.

a) SUPER.

The characters are superimposed on the LINE OUT Signal in this condition, and the characters are displayed according to the selected display mode. The same display is generated to the MONI OUT. Characters cannot be typed onto the monitor in this condition.

b) L-CHECK.

Characters will not be superimposed on LINE OUT, but MONI OUT will be in the same condition as when SUPER is ON.

c) OFF.

Set to this position for selection of the modes and to type in the words.

13) Key Board Operation.

a) P1 - P4.

When the LED of the PAGE SET key of the PAGE SELECTION key is OFF, MONI PAGE can be selected. By depressing the page keys P1 through P4, each page can be displayed on the monitor screen (The page keys will illuminate when depressed, and go off when the next key is depressed. The displayed page change-over will be according to the page key depressed.)

When the LED of the L-PAGE SET key is ON, a page can be selected to be displayed with SUPER and/or L-CHECK ON. The LED of all the depressed page keys are illuminated at the same time. To reset one of the page keys, depress that particular page key one more time, and the LED will be extinguished. (The page displayed while SUPER and/or L-CHECK is ON is the page whose LED is illuminated during this selection.)

b) L-PAGE SET.

The LED of this key will illuminate when the key is depressed, and LINE PAGE can be selected. When depressed one more time, the LED will be extinguished, and MONI PAGE can be selected. This becomes the LINE PAGE MODE when SUPER and/or L-CHECK is ON.

c) WORD CORRECTION-LINE.

By depressing this key, Word Correction-Line mode, is selected, and reset by depressing once more. The mode can also be reset by depressing any key other than ' \rightarrow ' or ' \leftarrow '.

See 2-26 for operating instructions.

d) WORD CORRECTION-PAGE.

By depressing this key once, Word Correction-Page mode is selected, and reset by depressing once more. The mode can also be reset by depressing any key other than ' \rightarrow ' or ' \leftarrow '.

See 2-26 for operating instructions.

e) TITLE.

When the unit is in type-in mode (SUPER and L-CHECK is OFF), a single line of characters, such as a person's name, can be

displayed at random from any one page.

First, set the LINE QTY to 1 line, and depress this key. The whole line where the cursor is set to will transfer to the first line of page 1. (The content of the character line will not be altered at this time.) Then set the L-CHECK and SUPER to superimpose the line.

f) F-SET.

By depressing this key, the FLASH of the word set with the cursor can be pre-set, and the cursor will shift one space towards the right hand side. ON-OFF of the FLASH is controlled by the FLASH key.

g) F-CLR.

By depressing this key, the FLASH of the word set with the cursor will be reset, and the cursor will shift one space to the right. ON-OFF of the FLASH is controlled by the FLASH key.

h) ' \leftarrow ', ' \rightarrow ', ' \downarrow ', ' \uparrow '.

By depressing these keys once, the cursor will shift one space according to the direction of the selected key.

i) ' \swarrow '.

By depressing this key once, the cursor will shift to the first character of the next line.

j) ERASE.

The characters displayed on the screen will be erased completely by depressing this key.

k) AUTO CEN.

By depressing this key once, its LED will illuminate, and the AUTO CENTERING mode will be set. By setting either the SUPER or L-CHECK in this condition, the relative position of the character lines will be moved to the center of the screen. To release the AUTO CEN mode, depress this key one more time. Its LED will be extinguished.

l) KEY MODE.

* SHIFT.

Capital letters can be typed in when this key is also depressed, and where there are two characters on one key, the upper character will be typed in. Small letters can be typed in when this key is not depressed, and where there are two characters on one key, the lower character will be typed in.

* SHIFT LOCK.

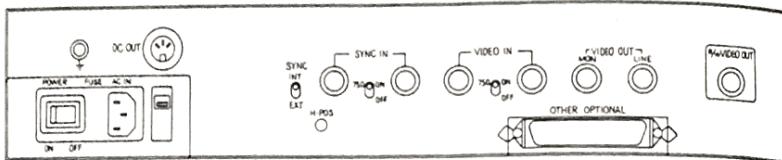
By depressing this key once, its LED will illuminate, and the key board will be locked in SHIFT position. To release this, depress the SHIFT LOCK one more time, or depress the SHIFT key.

DISP STOP

When the ROLL or CRAWL MODE has been selected and the displayed characters are moving on the screen, pushing the DISP STOP key will stop the movement and the characters will remain static on the screen.

After the DISPLAY MODE (ROLL or CRAWL) has been selected, movement of the characters will start according to the position of the MODE START switch(AUTO or MANUAL).

3-2. Rear Panel.



1) AC IN.

AC power is supplied to this unit through this terminal. Use the standard AC Cable for AC power supply.

2) POWER ON/OFF.

This is the ON/OFF switch of the AC power supply to this unit. By depressing the right hand side of this switch, the power will be supplied to the unit, and POWER LED on the front panel will illuminate. By depressing the left hand side of this switch, power will be turned OFF. Confirm that the POWER LED on the front panel is extinguished.

3) FUSE.

This is the AC fuse provided for protection of this unit. When the fuse blows, pull the cover of the fuse holder towards you. The fuse will come out along with the cover. Replace the fuse with a new one. If frequent trouble occurs with the fuse (i.e. the fuse blows too often), please contact the sales office where you purchased the unit. Use the type of fuse indicated on the fuse holder.

4) 100v/200v.

This is the AC Input converting switch of this unit. This switch has been set at the time of shipment, therefore please do not alter.

5)

When malfunctioning of the unit is experienced due to causes such as noise on the screen, connect this with the earth-line of racks, etc. Please contact the sales office before doing so.

6) DC OUT.

When operating with options such as MU-250 External Memory, etc., connect the MU-250 with the DC power supply connector of the same unit. See the operation manual of MU-250 for further information.

7) SYNC.

By flipping this key to the INT side, the sync signal separated from the video input signal supplied to VIDEO IN will be generated.

By flipping this key to the EXT side, the sync signal separated from the video input signal supplied to SYNC IN will be generated.

When there is no sync signal in the video input signal, flip this key to EXT side, and generate the sync signal to SYNC IN.

8) SYNC IN.

When external sync signal is to be utilized, supply a sync signal through this connector, and flip the 75Ω ON/OFF switch to ON.

When the sync input signal is to be utilized with other video systems, supply the sync signal from the other BNC, and flip the 75Ω ON/OFF switch to OFF.

9) VIDEO IN.

Supply the video input signal through this connector, and flip the 75Ω ON/OFF switch to ON. When the video input signal is to be utilized with other video systems, supply the video signal from BNC, and flip the 75Ω ON/OFF switch to OFF.

10) VIDEO OUT MON.

The video input signal with the superimposed character signal will be generated. Type in the characters from the keyboard by observing the video signal.

11) VIDEO OUT LINE.

The character signal will be superimposed onto the video input signal, but the superimpose mode can be turned ON/OFF by the SUPER switch on the front panel.

12) H-POS.

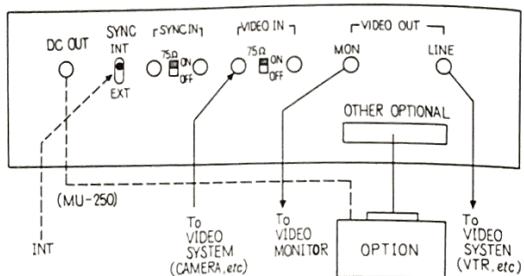
The horizontal position of the superimposed character can be adjusted. Use a small screw driver to adjust after one line of characters has been typed in.

13) OTHER OPTIONS.

Use this connector to connect with other options. See the operation manuals of each option for further information.

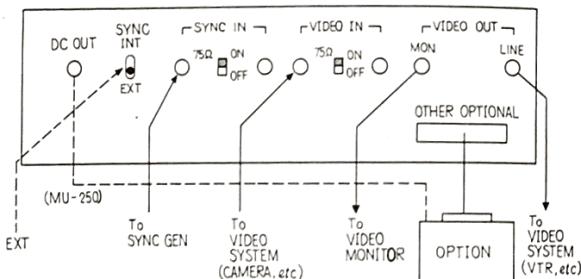
4. Connection.

4-1. INT SYNC.



See 3-2 for connection examples.

4-2. EXT SYNC.



See 3-2 for connection examples.

5. Operation.

- 1) Confirm that all the connectors are correctly connected, then flip the power supply switch to ON.
- 2) Set the MON PAGE SELECT.
- 3) Type in the characters using the keyboard. If the character size needs to be changed, then set the H-SIZE key before typing in. If the character needs to be flashed, depress the FLASH key before typing in.
- 4) When the characters are all typed in, set the LINE PAGE SELECT.
- 5) Depress and set the FLASH key.
- 6) Depress and set the AUTO CENT key.
- 7) Select the display mode.
- 8) Select either AUTO or MAN.
- 9) If AUTO is selected, AUTO TIME SET should also be selected.
- 10) Set the LINE QTY.
- 11) After all the above conditions are set, check the displays on the monitor with L-CHECK set. Select and set the MATT, EDGE ON/OFF, VERT POS, etc., at this time.
- 12) If everything is correct, then depress and set SUPER key, and superimpose the display onto the main line.
- 13) After superimposition onto the main line is complete, depress the SUPER key one more time to reset, and start the next operation from (2).
- 14) When SUPER and L-CHECK is ON, VERT POS, HOR SIZE, DISP MODE, or AUTO CEN cannot be changed.
Note: DISP MODE can be changed in the above condition, however, it should NOT be changed. DISP MODE alteration during this time may lead to malfunctioning.
- 15) When SUPER and/or L-CHECK is ON, the display START will begin with the lowest numbered page.
- 16) When SUPER and/or L-CHECK is ON, LINE PAGE SELECT can be set. The LED of the selected LINE PAGE key will start to flash when depressed, and the selected page will not be included in the display cycle until the flashing stops. Similarly, when a page is to be omitted from the display

cycle, depress the omitting page key and ensure that its LED is flashing. The page will not be omitted from the display cycle until the flashing stops. The flashing of the LED will usually stop from the next complete display cycle following the cycle in which the keys are depressed.

Note: Do not change the display mode while SUPER and/or L-CHECK is ON.

6. Editing Functions.

1) @ mark JUMP.

If @ mark is typed into the first character space of a line in a page, then 8 lines starting from the marked line will not be displayed while SUPER and/or L-CHECK is ON. However, when operated in TYPE-IN mode, everything that is typed in will be displayed on the monitor. The line will not JUMP if the @ mark is not typed in the first character space of the line.

2) ^ mark CLEAR.

If ^ mark is typed into the first character space of the line, the marked line will not be displayed while SUPER and/or L-CHECK is ON. However, everything that is typed in will be displayed when operated in TYPE-IN mode. If the ^ mark is not typed in the first character space of the line, the line will not be cleared.

3) WORD CORRECT.

WORD CORRECT key can be used to correct mistyped words. For example, if you have dropped the 'I' of 'VIDEO' like in 'INNOVATIONS IN VDEO', set the cursor under the 'D' and set the WORD CORRECT mode. Depress '→' key once, then the display will be 'V DEO'. The cursor remains below the provided space, so reset the WORD CORRECT mode to type in the 'I' into the space.

- | | |
|---------------------------------------|-------------------------|
| 1. INNOVATIONS IN VDEO | wrong sentence. |
| 2. INNOVATIONS IN VDEO | cursor set. |
| 3. INNOVATIONS IN V ₁ DEO | '→' key depressed once. |
| 4. INNOVATIONS IN V ₁ IDEO | 'I' typed in. |

If you have typed in one too many 'I' in 'VIDEO' like in 'INNOVATIONS IN VIIDEO', set the cursor below the second 'I'. Set the WORD CORRECT mode, and depress the '←' key once. 'VIIDEO' becomes 'VIDEO'.

- | | |
|--------------------------|-------------------------|
| 1. INNOVATIONS IN VIIDEO | wrong sentence. |
| 2. INNOVATIONS IN VIIDEO | cursor set. |
| 3. INNOVATIONS IN VIDEO | 'I' key depressed once. |

There is PAGE and LINE mode in WORD mode. In LINE mode, only that particular line where the cursor is set will move, but in PAGE mode, 8 lines starting from the line on which the cursor is set will move. PAGE mode will be suitable for paragraph correction. But simple word corrections, as shown above, are done with LINE mode.

4) AUTO CENTERING.

Auto Centering sets the lines on the page relatively to the center point of the monitor. It checks the spaces before and after the typed in line one by one and it sets the center of each line to match the center of the monitor screen.

V	I	D	E	O	I	N						
		V	I	D	E	O	I	N				
			V	I	D	E	O	I	N			

|

		V	I	D	E	O	I	N				
		V	I	D	E	O	I	N				
		V	I	D	E	O	I	N				

7. Operation Note.

- 1) Do not operate in locations subject to extreme high or low temperatures.
- 2) Do not operate in locations subject to extreme humidity.
- 3) Do not operate in locations subject to vibration.
- 4) Ensure there is adequate ventilation.
- 5) Avoid using excess force to depress the keys of the keyboard.
- 6) Ensure the inside of the unit is maintained dust-free.

SECTION 3 CIRCUIT DESCRIPTION

3-1. MIX AMP CARD. (A2-3460)

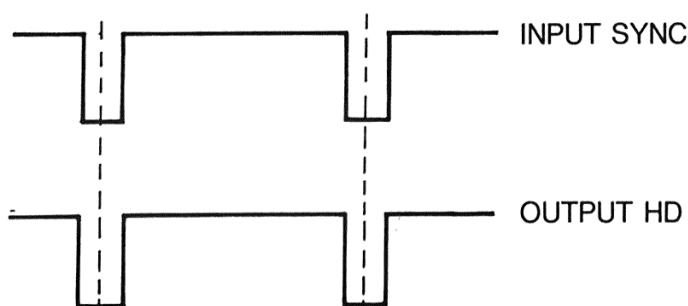
MIX AMP CARD is composed of the following Mix circuits:

- a) A Sync Separate Circuit which separates the sync signal from the input video signal.
- b) Sync Reproducing Circuit which makes the HD, VD frame signal necessary for MAIN LOGIC CARD from the separated sync signal or the input sync signal.
- c) Signal Mix Circuit which mixes the input video signal and the character signal generated from the MAIN LOGIC CARD.

1) Sync Separate Circuit.

The input video signal from the VIDEO IN terminal is amplified to within the range 6dB - 8dB by Q1, Q2, Q3, and is supplied to MIX AMP circuit and the Sync Separate circuit.

The INT/EXT sync change-over switch selects either the output video signal from the AMP or the input sync signal from the EXT sync. The selected signal then suppresses the chroma signal of the video signal by the LOW-PASS filter of Q1 and Q2. Q13 and Q14 are the sync separator. The separated sync signal makes the clamp pulse by IC3 (one-shot multi-vibrator). On the other hand, the separated sync signal is multiplied by IC5, and makes the VD signal. ICL2 is an AFC type HD signal generator, and its phases are shown in fig. 1.



IC6, IC7, IC8, IC9, IC10, and IC11 are the frame signal generator circuit, and they separate the equalizing signal from the input sync by IC7. The separated equalizing pulse is then counted by IC8. In Field 1, the counts are 0 through 12, and in Field 2, the counts are 0 through 11. Counter output can collect the frame pulse by decoding 12. In the frame signal generator flip-flop, VD is input to CK Input, and decode pulse is input to CLR. Therefore, it becomes toggle operated, and the phases are adjusted by the decode pulse.

2) Mix circuit.

The input video signal amplified at Q1, Q2, and Q3 is clamped at Q5 and Q6. The clamp electric potential is varied by VR1. The clamped video signal is supplied to MONI Mix circuit (Q7, IC4, Q8, Q9, Q10) and LINE Mix circuit (Q16, IC2, Q20, Q17, Q18). As these two circuits are composed in the same way, only the MONI Mix circuit will be explained here.

Q7 is a BUFFER AMP. IC4 is the IC for the analogue switch, and it mixes the edge with the first switch, the character with the second, and the sync with the third. (However, the third switch do not normally operate the mixing of the signals. It only mixes the sync when there are no sync signals in the input video signal, or when sync needs to be added as an output signal, by jumping the JPI.)

3-2. SYNC GEN CARD. (A4-2446)

This unit generates the B/W video signal when the main unit is to be operated on its own. The sync and the BLK are made by the IC1 (ZNA-34J) sync generator. This sync generator oscillates the crystal oscillator at 2.5830MHz, and shuts the JPI when operated under NTSC system. Q1 and Q2 are the sync and BLK mix circuit, and the output level is adjusted by VR1 and VR2. IC3 is an output Amp, with the output level of 75Ω. The output B/W video signals connects to the VIDEO IN of the main unit and becomes 75Ω ON.

3-3. MAIN LOGIC CARD. (A2-3461)

This card is composed of the following circuits:

- 1) CPU circuit.
- 2) Display Logic circuit.
- 3) Character Display circuit.
- 4) Edge Display circuit
- 5) Timer circuit.

1) CPU Circuit.

This is the processing control circuit of the unit, and performs the following controls:

- a) Keyboard input.
- b) Interfacing with the external option units.
- c) Internal Display Memory control
- d) Memory and display control of the modes NOR, ROLL, and CRAWL.

1-a) Keyboard input and Display Memory control.

By depressing the character key on the keyboard, the character data and the strobe are generated. The strobe contacts the CPU as an interruption signal. Then the CPU

checks the various operating conditions such as SUPER, etc, and, if conditions are acceptable, it confirms the VD signal, and finally writes the character data into the display RAM. (The CPU can not write the character data into the display RAM during character display period, therefore the VD signal is always checked prior to writing.) Write address is controlled by the output address from the display counter, so the CPU writes the character write address into the Display Start Address Data Latch circuit (this circuit will be explained later). The data is loaded onto the display counter and the count is done within the display area. But between the VD signal and the display area, the data of Display Start Address Data Register is generated, and the address is accessed to the display RAM. Therefore, the character data is written between VD signal and the display area, and when write is complete, the CPU clears the Display Start Address Data Latch circuit and controls the character display so that the display would start from the beginning of a page.

1-b) Interfacing with the external option units.

The interfacing with the options are connected to the I/O connector by the BUFFER IC(IC15B, IC16B, IC16C, IC15C). The interfacing of the data is done through this buffer. Also, a few interruption lines are available for use as input lines for the call-in from the options.

1-c) NOR, ROLL, CRAWL display control.

The display control of the display modes is controlled by the address determined by the calculation of the start address of the display address counter, within the CPU. This address changes the display character area by latching the data to the display start address. Therefore, the displays can be performed by the various display modes by changing the display start address data with a particular VD period.

**** MEMORY MAP ****

0000 - 3FFF	SYSTEM PROGRAM	(16KB)
4000 - 5FFF	WORK RAM	(1KB)
6000 - 7FFF	PAGE RAM	(2 KB)
8000	DISP CHARA RAM	
A000	DISP COUNT RAM	
C000 - FFFF	NOT USED	

***** INTERRUPT DATA MAP *****

0	KEYBOARD STB
1	MODE STA KEY (MANUAL START)
2	MU-250 SOLID STATE MEMORY UNIT
3	MU-300 MAGNETIC CARD MEMORY UNIT
4	MU-600 FLOPPY DISC MEMORY UNIT
	NOT USED

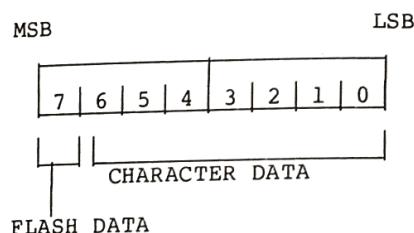
***** I/O MAP (OUT) *****

ADDR	CRAWL START ADDR	1
0	" " "	2
1	ROLL START ADDR	1
2	" " "	2
3	VERT POSITION ADDR	
4	ROLL/CRAWL START ADD DATA CLR	
5	KEYBOARD LED DATA	
6	SUPER CONT BIT	
7		

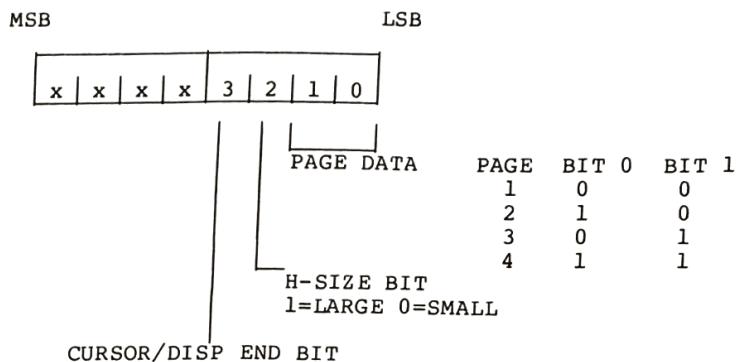
***** I/O MAP (IN) *****

ADDR	INTERRUPT DATA
00	SW-BOARD SENS
10	KEYBOARD DATA
20	LINE QTY DATA
30	ROLL/CRAWL SPEED DATA
40	

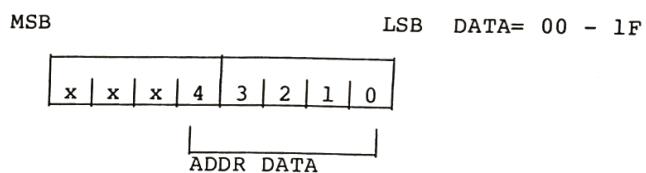
***** DISP RAM BIT LAYOUT *****



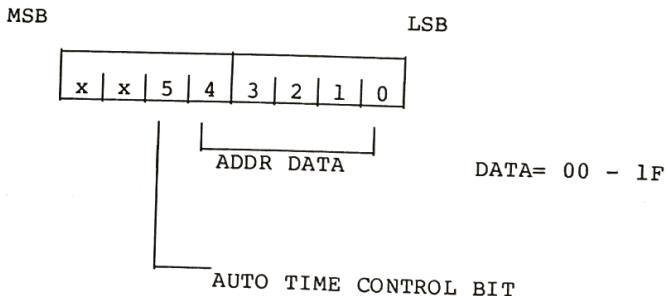
***** CONTROL RAM BIT LAYOUT *****



***** CRAWL START ADDR DATA LAYOUT 1 *****



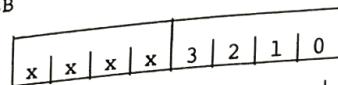
***** CRAWL START ADDR DATA LAYOUT 2 *****



**** ROLL START ADDR DATA LAYOUT ****

LSB

MSB



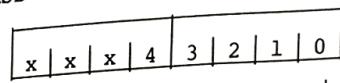
ADDR DATA

DATA= 0 - F

**** ROLL START ADDR DATA LAYOUT ****

LSB

MSB



PAGE ADD

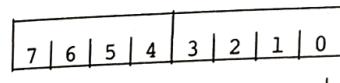
LINE ADD

LINE ADD= 0 - 7
PAGE ADD= 0 - 3

**** VERT POSITION DATA LAYOUT ****

LSB

MSB



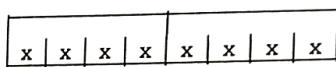
POSITION DATA

DATA= 00 - FF

**** ROLL/CRAWL START ADD CLR DATA LAYOUT ****

LSB

MSB

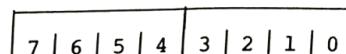


DATA NOT USED

**** KEYBOARD LED DATA LAYOUT ****

MSB

LSB



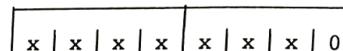
PAGE 1 LED
PAGE 2 LED
PAGE 3 LED
PAGE 4 LED
LINE PAGE SELECT LED
WORD CORRECTION-PAGE LED
WORD CORRECTION-LINE LED

KB LOCK

**** SUPER CONT BIT LAYOUT ****

MSB

LSB

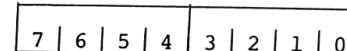


1= SUPER ON
0= SUPER OFF

**** SW-BOARD SENS BIT LAYOUT ****

MSB

LSB

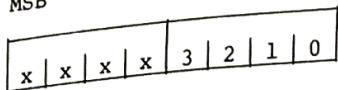


VD SENS
H-SIZE
V-POS UP
V-POS DOWN
ROLL
CRAWL
SUPER/L-CHECK
TIM 00

**** LINE QTY DATA LAYOUT ****

LSB

MSB

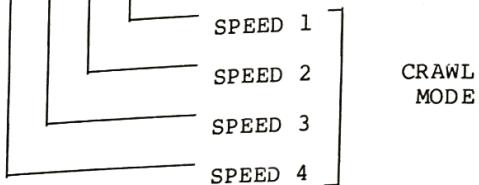
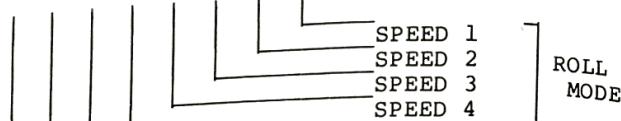
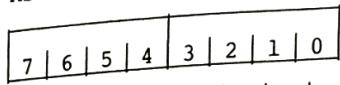


DATA 0 - 9

**** ROLL/CRAWL SPEED DATA LAYOUT ****

LSB

MSB



* KEYBOARD DATA LAYOUT.

b7	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
b6	0	0	0	0	1	1	1	0	0	0	0	1	1	1	1
b5	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
b4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
b3 b2 b1 b0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E F
0 0 0 0 0		P1	(SP)	0					@	P	c	p			
0 0 0 1 1		P4	P2	!	1				A	Q	a	q			
0 0 1 0 2	L-PAG SET	P3	"	2					B	R	b	r			
0 0 1 1 3		↑			3	#			C	S	c	s			
0 1 0 0 4		→			\$	4			D	T	d	t			
0 1 0 1 5		←	F-SET	%	5				E	U	e	u			
0 1 1 0 6	PAGE	F-CLR	&	6					F	V	f	v			
0 1 1 1 7	TITLE		↓	'	7				G	W	g	w			
1 0 0 0 8	AUTO CENT	DISP STOP	(8					H	X	h	x			
1 0 0 1 9)	9					I	Y	i	y			
1 0 1 0 A	←	LINE	*	:					J	Z	j	z			
1 0 1 1 B			+	;					K	[k	{			
1 1 0 0 C			,						L	\	l	:			
1 1 0 1 D			-	=					M]	m	}			
1 1 1 0 E			.						N	^	n	-			
1 1 1 1 F			/	?				ERASE	O	-	o				

2) Display Logic Circuit.

This circuit produces the logic signal necessary for character display, and is composed of vertical position generator, horizontal character address counter, and vertical character address counter. Vertical position is counted up with IC4J, IC3H by the input HD, VD from the Mix Amp Card, but the Start Address of the count will latch the data of IC4H Position Data Register before it counts. Then the selected number of lines will become the character display area from the Count Carry Output Point.

The Position Data Register can easily be varied by the CPU, but the position transfer (data rewrite) is done by flipping the V-POS switch on the front panel either up or down. The IC3J checks the number of lines when display area is turned ON by the L-CHECK Comparator, and after the necessary number of lines are displayed, it generates an equivalent pulse to reset the Display Gate Flip-Flop.

This L-CHECK Comparator is automatically fed a data of 8 lines when SUPER and L-CHECK is OFF, and character display is set to 8 lines.

2-a) Horizontal Character Display Counter.

This is a counter for producing horizontal character display address, and is composed of character dot counter (IC8K, 8J) and character phase address counter (IC6J, 6K). These two counters load the data of count start address register (IC7K, 5J), and the count is determined according to the loaded address. Therefore, by changing the contents of the count start address register, the horizontal character display position can be changed.

The character transfer in CRAWL mode is also possible by changing the contents of the register with the VD synchronized period.

While the counter is loading the data of the count start address, the character will not be displayed.

2-b) Vertical Character Display Counter.

The operation is similar to horizontal character display counter. IC6H is the vertical dot counter, and IC4F, 3F are the vertical character display counter. Like the horizontal character display counter, the count start address register data latched to IC5H, 5F is loaded, and the count is started accordingly. Therfore, by changing the contents of the count start address register in sequence, display can be done by ROLL mode.

The adder of IC7M is for the vertical dot counter, and is usually added '1'. This addition data can be changed by the

Edge control switch on the front panel. When the switch is set to either EDGE OFF or NOR EDGE, '1' is added, and when the switch is set to SHADOW EDGE, '0' is added. therfore, the vertical dot address of 1H (frame 2H) will be shifted.

3) Character Display Circuit.

This circuit is composed of Character Data RAM, Character Generator, Shift Register, Edge Phase Delay Line, and LIN/MON Output Gate.

The character data RAM is accessed by the character address data generated from HOR, VERT counters, and character output is performed according to the address. The output character data accesses the character address of the character generator, and the character dot set by the vertical dot address at the time will be generated. The character dot generated will be converted to a serial dot that matches with the T.V. Scan by the shift register of IC9E, or IC10E, 11E (IC9E when the HOR size is small, and IC10E, 11E when HOR size is large.). The phase of the converted serial dot characters is adjusted with DLL, so that the characters are displayed at the center of the edges. Output character from DL is passed through the output gate of LINE OUT and MON OUT of IC15D, and is generated to MIX AMP.

The Delay Line for character phase (DLL) utilizes the signals that pass through the delay line when the edge switch is set to either OFF or NOR EDGE, but when the switch is set to SHADOW EDGE, DLL will utilize the signals that are not passed through the delay line.

4) Edge Display Circuit.

The operation of this circuit is the same with the character display circuit, and the output character data from the Memory is generated to the Character Edge Generator of IC7D, IC9D, and character dot is generated. (IC7D is the edge generator when the VERT size is small, and IC9D is the edge generator when the VERT size is large.) This character dot is fed into the shift register of IC13C, IC12C, IC11C, and is generated after being matched with the T.V. Scan. (IC13C, IC12C when the HOR size is large, and IC11C when the HOR size os small.)

Output character signal makes the HOR edge with DL2. This edge signal is generated to the MIX AMP card after it is passed through IC12F. IC12F is the character ON/OFF controller of the MONI OUT and LINE OUT.

5) Timer Circuit.

This circuit is a Timer which counts the display period when SUPER and/or L-CHECK is ON, and MODE START is ON.

This timer utilizes the VD of input video signal as the clock for counting. IC12J is the counter which makes the Sec pulses from VD, and IC12K is the timer that counts the display period by the Sec pulse. The output from this timer is input to the comparator of IC11K, IC11J. Another input of the comparator is the data of the Time Set (digital switch) which is located on the front panel. These two data are compared, and when they coincide, a coincidence pulse is generated. The interruption to CPU is done by this coincidence pulse to change the displays. This pulse also resets the counter of this circuit, and the CPU resets this timer until the next display is set.

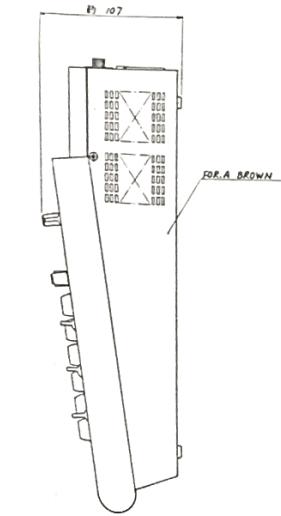
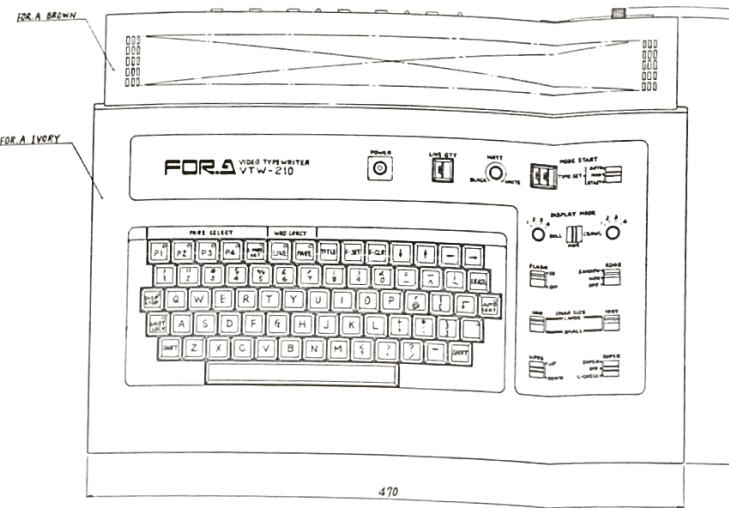
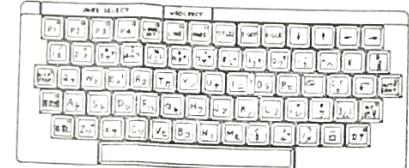
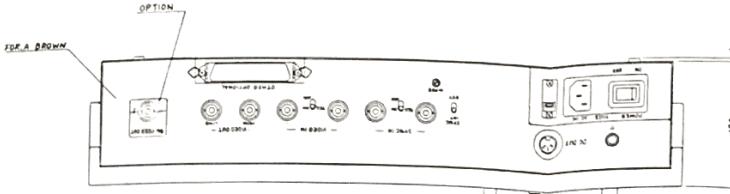
3-4. Keyboard and Switch Panel.

This circuit is connected to the MAIN LOGIC card and comprises the switches for operating this unit.

3-5. Power Supply.

The power supply of this unit is composed of Switching Power supply, and is small and lightweight.

07228-2W3



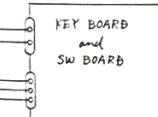
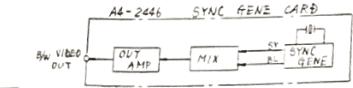
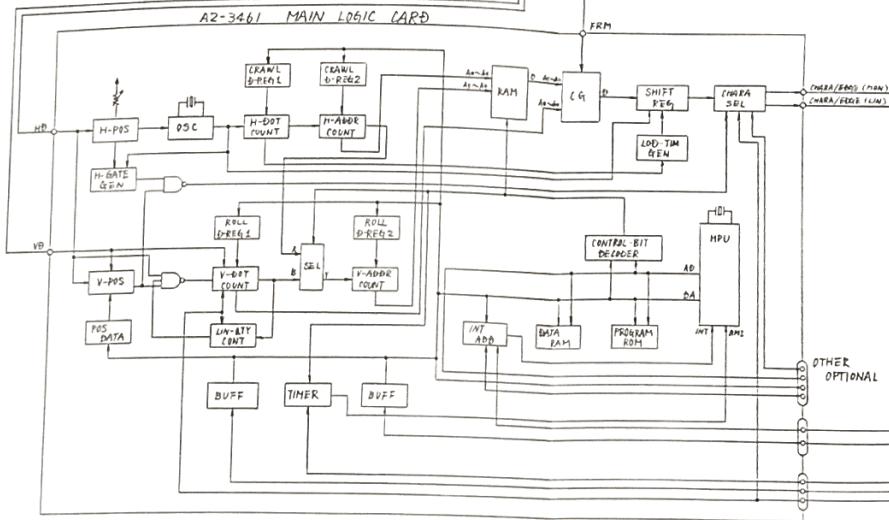
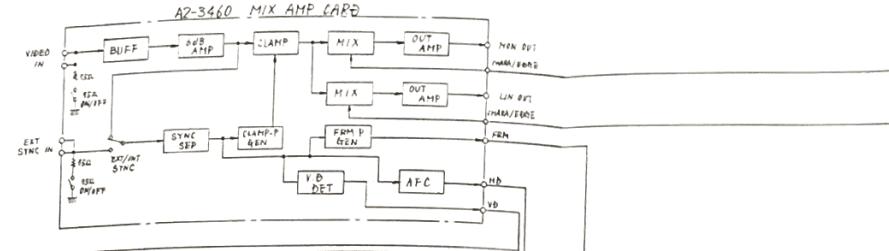
NOTE
COLOR : FOR.A STANDARD.
WEIGHT : APPROX 7.0 Kgs

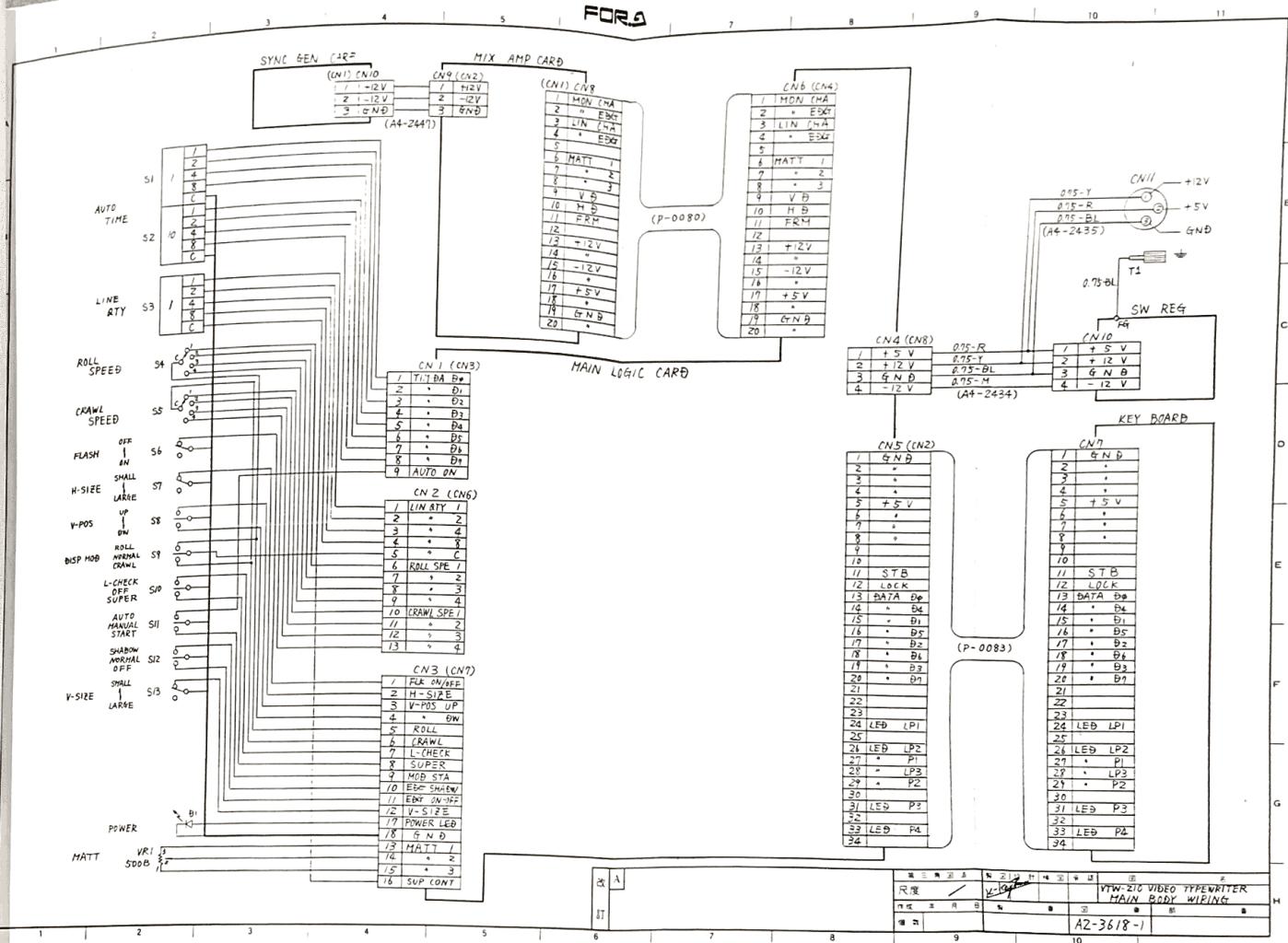
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

VTW-210
VIDEO TYPEWRITER
EXTERNAL DIMENSIONS

FM2-8224-01

MODEL VTW-210 VIDEO TYPEWRITER BLOCK DIAGRAM

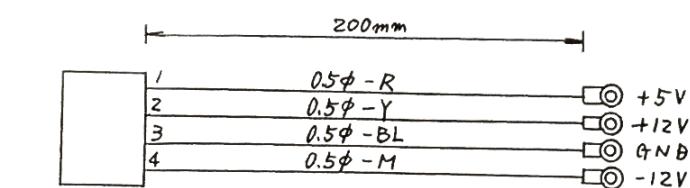




84-6211

*** PARTS LIST

PAGE 8



(TN-5DH-4P-A1)

(170780-1)

改
訂

A

第三角図法	製図	設計	検査	承認	図名
尺度	<i>Y-kayama</i>				MAIN BODY WIRING(CABLE I)
作成年月日	製番			図番	部番
個数				A4-2434	

84- 6-11

*** PARTS LIST ***

PAGE 9

(MODEL) : UTW-210

(010420)

(UNIT) : CABLE(1)

(A42434)

CODE DESCRIPTIONS

MANUFACTURER {----- 1 2 3 4 ----- N 0 ----- 7 8 9 ----- 10 -----}

G3TN50H4PA CONNECTOR TN-50H-4P-A1

9

(1)

G3004T4100 CONNECTOR 004T-4100

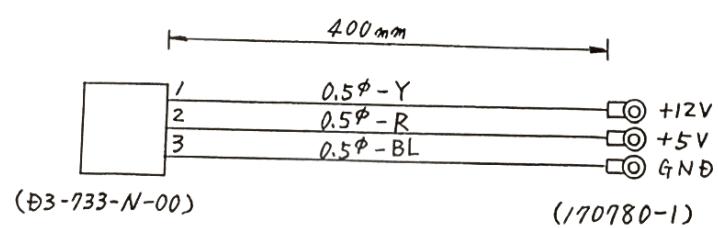
9 9 9 9

(4)

H4A1707801 SUPPLEMENT AMP PIN 170780-1

9 9 9 9

(4)



改 訂	A	第三角図法	製図	設計	検図	承認	図 名
		尺度 /	X-kayma				MAIN BODY WIRING (CABLE II)
		作成年月日	製番		図番	部番	
		個数					A4-2435

84- 6-11

(MODEL) : UTW-210

(UNIT) : CABLE(2)

CODE DESCRIPTIONS

G2D3733N00 CONNECTOR D3-733N-00 1M/M

H4A1707801 SUPPLEMENT AMP PIN 170780-1

*** PARTS LIST ***

PAGE 10

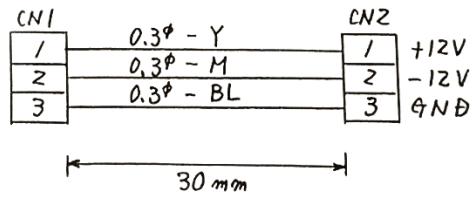
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(A42435)

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	1	2	3	4	5	6	7	8	9	10
9										
9	9	9								

(1)

(3)



改 訂	A	第三角図法	製図	設計	検図	承認	図名
		尺度	/	<i>1.0φ 2.0d</i>			CABLE 1
		作成年月日	製番		図番	部番	
		個数			A4-2447		

84-2-7

(MODEL) : SY-210
(UNIT) : CABLE 1
CODE DESCRIPTIONS
G3PIO113F CONNECTOR PIO11 3F

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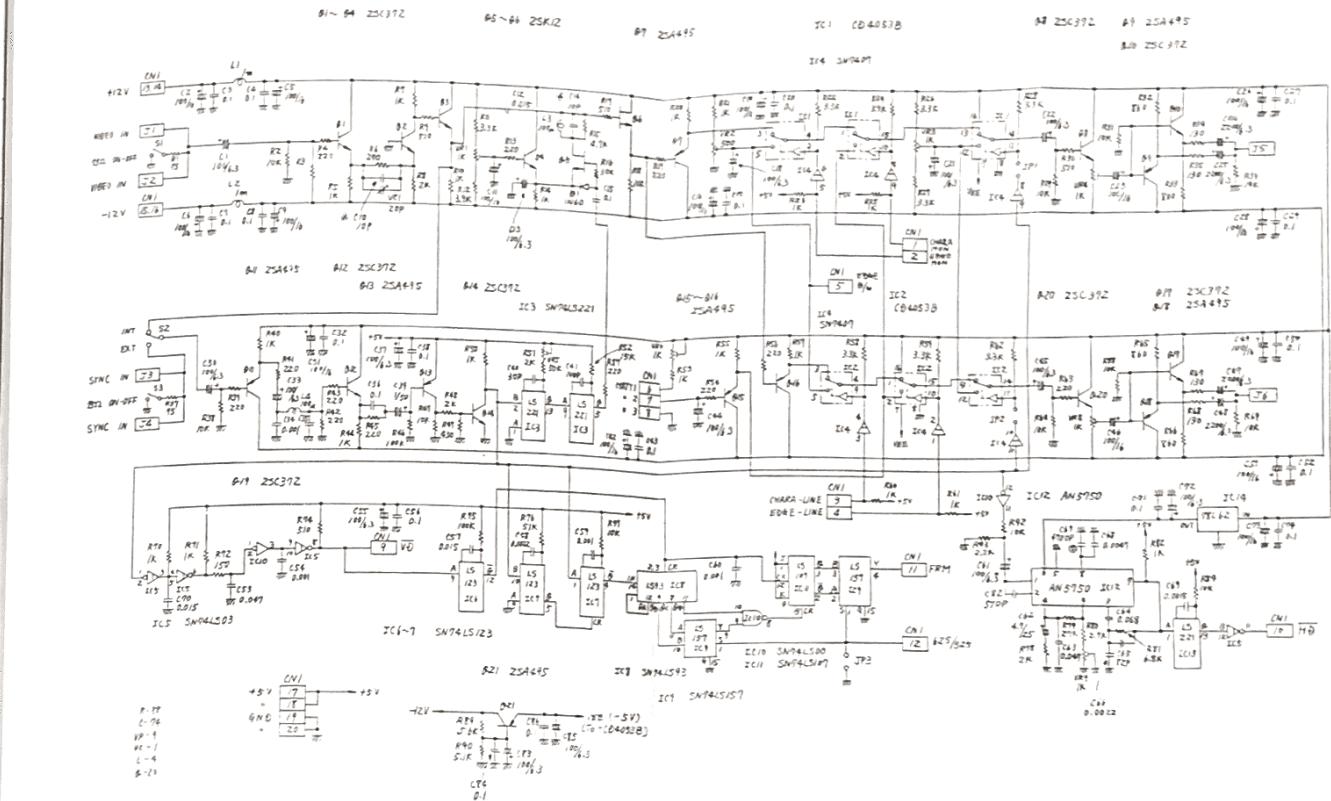
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(FFFA42447)

MANUFACTURER 1 2 3 4 5 N O 7 8 9 10
CN1 CN2

PAGE 2

(2)



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1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
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*** PARTS LIST ***										PAGE 1			
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A1LS000	I C	SN74LS00			IC10						(1)		
A1LS003	I C	SN74LS03			IC5						(1)		
A1LS093	I C	SN74LS93			IC8						(1)		
A1LS107	I C	SN74LS107A			IC11						(1)		
A1LS123	I C	SN74LS123			IC6	IC7					(1)		
A1LS157	I C	SN74LS157			IC9						(2)		
A1LS221	I C	SN74LS221			IC3	IC13					(1)		
ASCD4053	I C	CD4053B			IC1	IC2					(2)		
A6ZAN5750	I C	AN5750			IC12						(2)		
A62UA78L62	I C	UA78L62AWC			IC14						(1)		
A62UA7805	I C	UA7805UC			IC15						(1)		
B0A495GTM	TRANSISTOR	2SA495GTM		Q7	Q9	Q11	Q13	Q15	Q16	Q18	Q21	(1)	
BOC372GTM	TRANSISTOR	2SC372GTM		Q1	Q2	Q3	Q4	Q8	Q10	Q12	Q14	Q17	Q19 (8)
B12K12Y	FET	2SK12Y		Q5	Q6							(11)	
B21N60	DIODE	1N60			D1							(2)	
C0DM2AC100	C MICA	DM10 100 10 PFJ			C14							(1)	
C0DM2AC300	C MICA	DM10 100 30 PFJ			C41							(1)	
C0DM2AC390	C MICA	DM10 100 39 PFJ			C10							(1)	
C0DM2AC820	C MICA	DM10 100 82 PFJ			C65							(1)	
C0DM2AD101	C MICA	DM10 100 100 PFJ			C40							(1)	
C0DM2AD151	C MICA	DM10 100 150 PFJ			C69							(1)	
C1ECQP1472	C PLASTIC	ECQ-P1472JZ			C67							(1)	
C1MC1HX102	C PLASTIC	CQP921HO.001U		C34	C35	C59	C60					(4)	
C1MC1HX222	C PLASTIC	CQP921HO.0022U		C58	C66							(2)	

84- 6-11

(MODEL) : UTM-210

(UNIT) : MIX AMP

CODE DESCRIPTIONS

C1MC1HX472	C PLASTIC	CQP921HO.0047U
C1MC1HY103	C PLASTIC	CQP921HO.01U
C1MC1HY153	C PLASTIC	CQP921HO.015U
C1MC1HY473	C PLASTIC	CQP921HO.047U
C1MC1HY683	C PLASTIC	CQP921HO.068U
C2CC1EG104	C CERAMIC	SC45F1E104Z
C4EC0JD101	C AL ELYC	ECEAOJS101
C4EC1CD101	C AL ELYC	ECEA1CS101
C4EC1EB4R7	C AL ELYC	ECEA1ES4R7
C4EC1HB1R0	C AL ELYC	ECEA1HS010
C4ESOJE222	C AL ELYC	ECEAOJSS222
CS1ZW2053	C VARIABLE	ECU-1ZW20X53T
DOCR4JB1R0	R CARBON	CR25J1R0
DOCR4JC750	R CARBON	CR25J750
DOCR4JD131	R CARBON	CR25J131
DOCR4JD151	R CARBON	CR25J151
DOCR4JD221	R CARBON	CR25J221
DOCR4JD271	R CARBON	CR25J271
DOCR4JD431	R CARBON	CR25J431
DOCR4JD511	R CARBON	CR25J511
DOCR4JD821	R CARBON	CR25J821
DOCR4JE102	R CARBON	CR25J102

*** PARTS LIST ***

(010420)

(A23460)

MANUFACTURER (-----) 1 2 3 4 5 N O 6 (----)

C68											(1)	
C54											(1)	
C12 C57 C70											(3)	
C53 C63											(2)	
C64											(1)	
C3 C4 C7 C8 C15 C17 C20 C27 C29 C32	C78 C38 C43 C50 C52 C56 C71 C74 C76 C77										(26)	
C1 C18 C21 C22 C30 C33 C37 C44 C45 C55	C61 C72 C83 C85 C87										(15)	
C2 C5 C6 C9 C11 C13 C16 C19 C23 C26	C28 C31 C42 C46 C49 C51 C73 C81										(18)	
C62											(1)	
C39											(1)	
C24 C25 C47 C48											(4)	
UC1											(1)	
R87											(1)	
R1 R37											(2)	
R34 R35 R67 R68											(4)	
R72											(1)	
R4 R13 R19 R39 R41 R42 R43 R45 R54 R56	R63										(11)	
R6											(1)	
R49											(1)	
R9 R17 R30 R74	R32 R33 R65 R66										(4)	
R5 R7 R10 R14 R20 R21 R23 R25 R40 R44	R90 R89 R93 R80 R11 R22 R24 R26 R27 R28 R58 R59 R62	R12 R81										(47)
R15											(1)	
R90											(1)	
R89											(1)	
R2 R18 R29 R31 R36 R38 R47 R64 R69 R73	R77 R88 R91 R92										(14)	
R51											(1)	
R79											(1)	
R16 R84											(2)	
R76											(1)	
R46 R75											(1)	
UR2											(2)	
UR1 UR3 UR4 UR6 UR8 UR9											(1)	
UR5											(1)	
L3 L4											(2)	
L1 L2											(2)	
S1 S2 S3											(3)	
J1 J2 J3 J4 J5 J6											(6)	
CN2											(1)	
CN1											(1)	
IC1 IC2											(2)	
9											(1)	

PAGE 2

84- 6-11

(MODEL) : UTM-210

(UNIT) : MIX AMP

CODE DESCRIPTIONS

DOCR4JE222	R CARBON	CR25J222
DOCR4JE272	R CARBON	CR25J272
DOCR4JE332	R CARBON	CR25J332
DOCR4JE392	R CARBON	CR25J392
DOCR4JE472	R CARBON	CR25J472
DOCR4JE512	R CARBON	CR25J512
DOCR4JE562	R CARBON	CR25J562
DOCR4JF103	R CARBON	CR25J103
DOCR4JF153	R CARBON	CR25J153
DOCR4JF273	R CARBON	CR25J273
DOCR4JF303	R CARBON	CR25J303
DOCR4JF513	R CARBON	CR25J513
DOCR4JG104	R CARBON	CR25J104
D4GPMDS01	R VARIABLE	GFP06B501
D4GPME102	R VARIABLE	GFP06B102
D4GPMF503	R VARIABLE	GFP06B503
E2FL7HD101	INDUCTOR	FL-7H 101K
E2FL9HE102	INDUCTOR	L-9H 102K
F3A12AU	SWITCH	A-12AU
G11821K083	CONNECTOR	1821K083
G3P10113M	CONNECTOR	P1011 3M
G334285NC	CONNECTOR	3428-5002NCSC
G66412623	IC SOCKET	641262-3
I23460	P C B	A2-3460-4

*** PARTS LIST ***

(010420)

(A23460)

MANUFACTURER (-----) 1 2 3 4 5 N O 6 (----)

R93											(1)
R80											(1)
R11 R22 R24 R26 R27 R28 R58 R59 R62										(9)	
R12 R81											(2)
R15											(1)
R90											(1)
R89											(1)
R2 R18 R29 R31 R36 R38 R47 R64 R69 R73	R77 R88 R91 R92										(14)
R51											(1)
R79											(1)
R16 R84											(2)
R76											(1)
R46 R75											(1)
UR2											(2)
UR1 UR3 UR4 UR6 UR8 UR9											(1)
UR5											(1)
L3 L4											(2)
L1 L2											(2)
S1 S2 S3											(3)
J1 J2 J3 J4 J5 J6											(6)
CN2											(1)
CN1											(1)
IC1 IC2											(2)
9											(1)

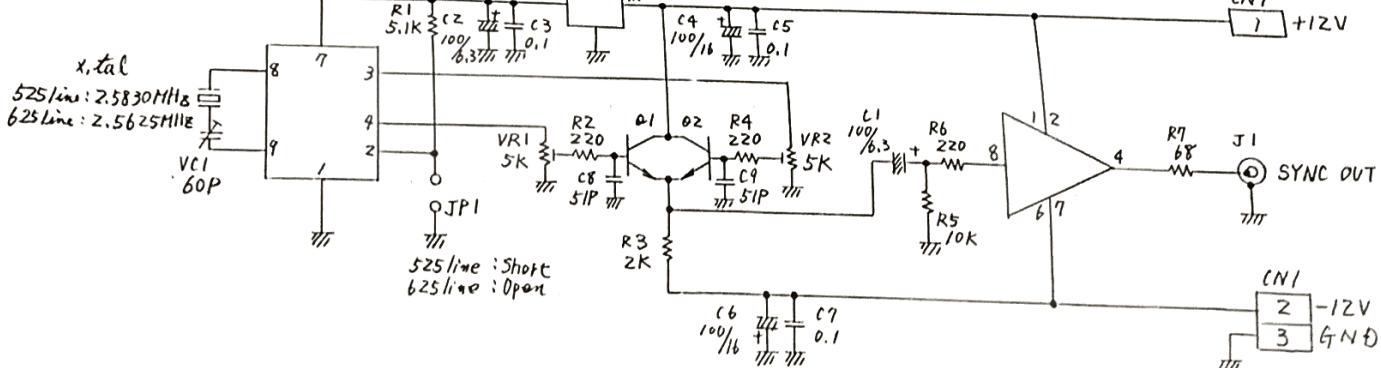
PAGE 3

A 1 2 3 4 5 A

IC1 ZNA134J

IC2 μA17805UC 01.02 2SC372

IC3 LH-0002



改 A

訂

	第三角図法	製図	設計	検図	承認	回	名
尺度	/	X-Ka				VTW-210 VIDEO TYPEWRITER	
作成年月日		番		番		SYNC GEN CARD	
個数					A4-2446		

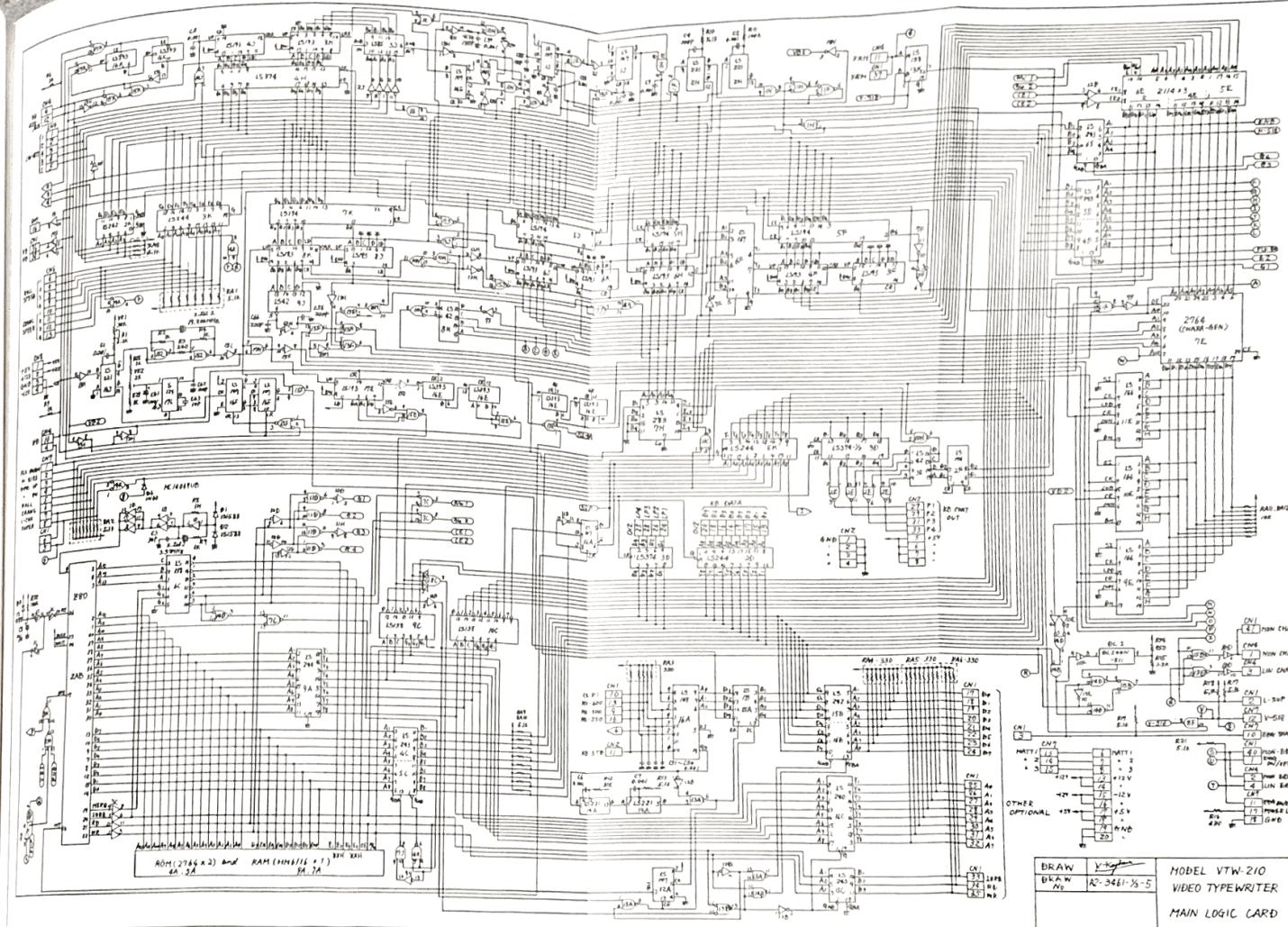
84- 2- 7

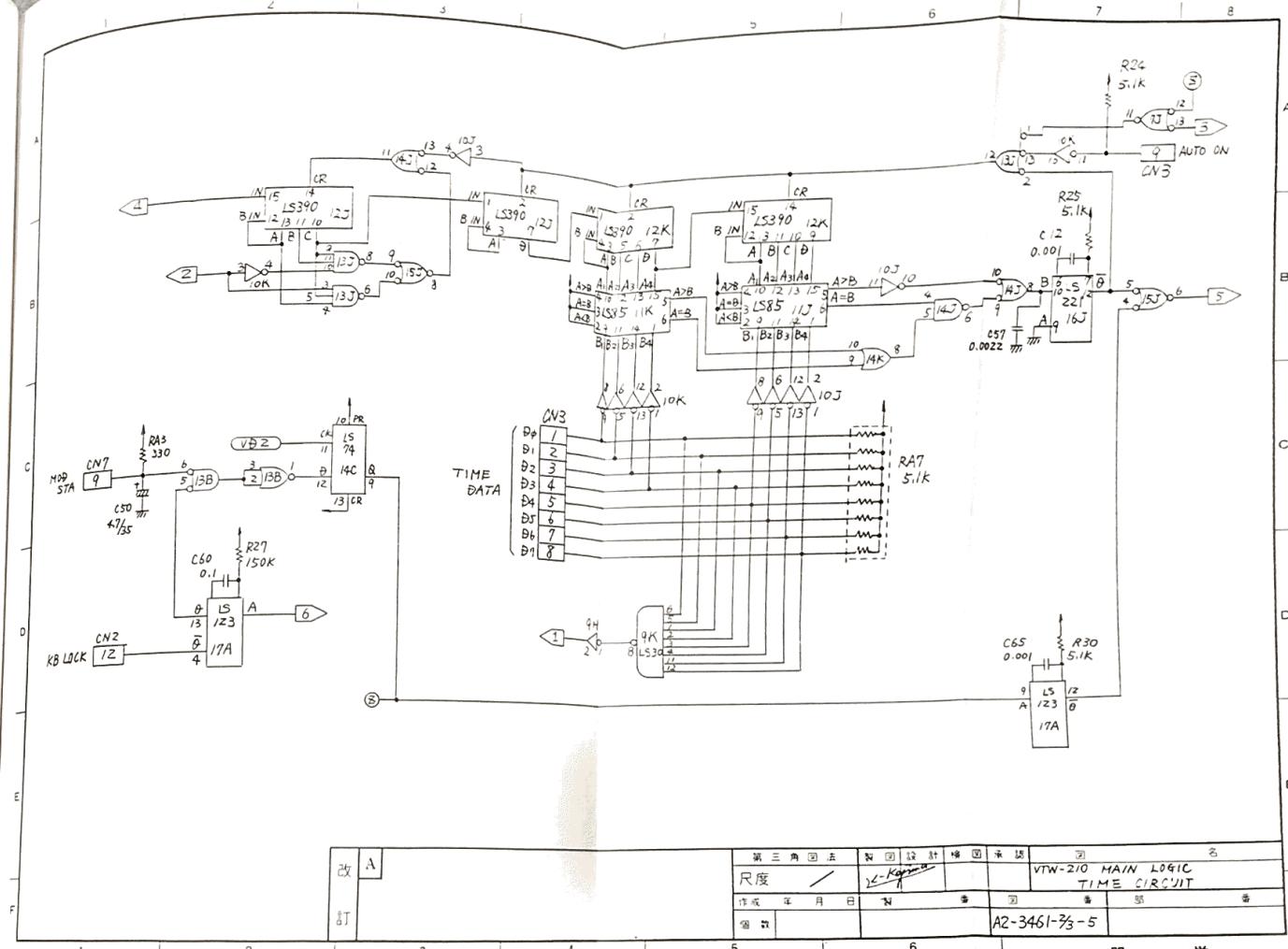
(MODEL) : SY-210

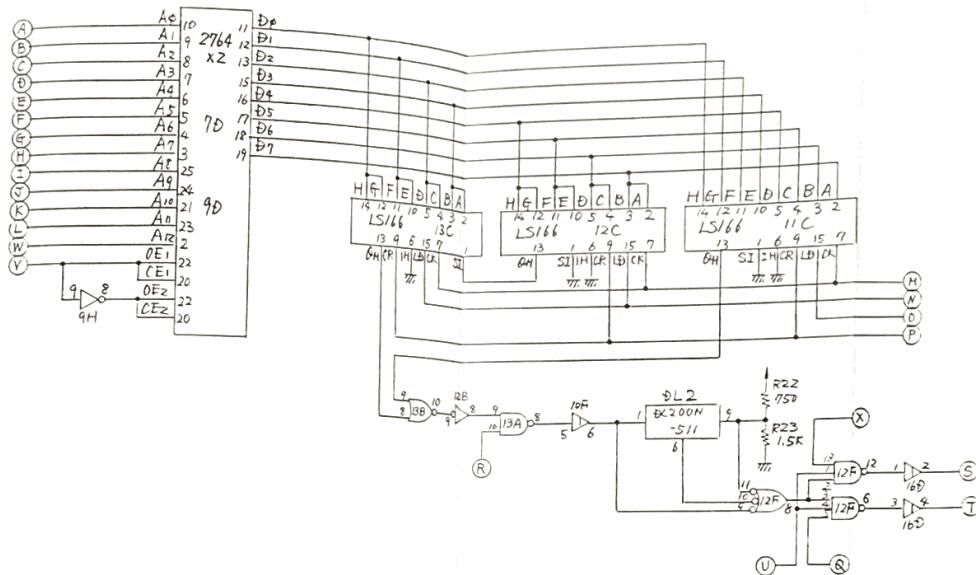
(UNIT) : SYNC GEN

*** PARTS LIST ***

PAGE 1







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A

BT

第三角図法		斜視図		横図		表示	
尺度		Y-Kojima		VTR-210 MAIN LOGIC		EDGE DISP CIRCUIT	
作成	年月日	監査	審査	監査	審査	監査	審査
名前						A2-3461-3-5	

卷之三

(MODEL) : 07W-210

(UNIT) : main logic

*** PARTS LIST

PAGE 5

CODE	DESCRIPTIONS
A1LS242	I C SN74LS242
A1LS243	I C SN74LS243
A1LS244	I C SN74LS244
A1LS283	I C SN74LS283
A1LS374	I C SN74LS374
A1LS390	I C SN74LS390
A1LS393	I C SN74LS393
A2S124	I C SN74S124
A3F0193	I C 74F193
ATC40H004	I C TC40H004P
7HM2114P2	I C HM472114P-2
7HM6116P3	I C HM6116P-3
712764	I C 12764A-35
21N60	DIODE IN60
21S1588	DIODE 1S1588
CDM2AC100	C MICA DM10 100 10
CDM2AC300	C MICA DM10 100 30
CDM2AD101	C MICA DM10 100 100
CDM2A0221	C MICA DM10 100 220
CIMC1HX102	C PLASTIC CQP921HO.00
CIMC1HX222	C PLASTIC CQP921HO.00
CZCC1EG104	C CERAMIC SC45F1E104Z
C4EC0JD101	C AL ELYC ECEAQJS101
C4EC1CC100	C AL ELYC ECEAQJS100

84- 6-11

(MODEL) : UTM-210

(UNIT) : MAIN LOGIC

CODE DESCRIPTIONS

*** PARTS LIST ***

PAGE 4

C4EC1UB4R7	C AL ELYC	ECEA1US4R7
DOCR4JD151	R CARBON	CR25J151
DOCR4JD431	R CARBON	CR25J431
DOCR4JD751	R CARBON	CR25J751
DOCR4JE102	R CARBON	CR25J102
DOCR4JE152	R CARBON	CR25J152
DOCR4JE512	R CARBON	CR25J512
DOCR4JF303	R CARBON	CR25J303
DOCR4JG104	R CARBON	CR25J104
DOCR4JG154	R CARBON	CR25J154
DOCR4JH105	R CARBON	CR25J105
D3AU4JD331	R ARRAY	RA8-3314J
D3AU4JE512	R ARRAY	RA8-5124J
D3AU4JF103	R ARRAY	RA8-1034J
D3AU8JD331	R ARRAY	RA8-3318J
D3AU8JE512	R ARRAY	RA8-5128J
D4GPME202	R VARIABLE	GFP06B202
D4GUMF303B	R VARIABLE	GFP06B303
E4S400N501	DELAY LINE	SDL 400N501
G25745000	CONNECTOR	S7-40500-D39
G3PI011:13M	CONNECTOR	PI011 13M
G3PI011:9M	CONNECTOR	PI011 9M
G3PI061:18M	CONNECTOR	PI061 18M
I3TN50P4PV	CONNECTOR	TN-50P-4P-U1
4P0080	CONNECTOR	P-0080
4P0083	CONNECTOR	P-0083

84- 6-11

(MODEL) : UTW-210

(UNIT) : MAIN LOGIC

CODE DESCRIPTIONS

G66412673	IC SOCKET	641267-3
G66412683	IC SOCKET	641268-3
12341	P C B	A2-3461-5
2635795	CRYSTAL	HC/18U 3.579545MHZ

*** PARTS LIST ***

(010420)

(A23461)

MANUFACTURER	1-----5 N O ----->						<----- 10		
	1	2	3	4	5	6			
4A	5A	7D	7E	9D					
2A									
9									
X2									

PAGE 7

(5)

(1)

(1)

(1)

SECTION 7 REMOVAL PROCEDURES

7-1. Front Panel.

This panel can be removed by unscrewing the 3 screws on the front, 3 on the back, and 1 on either sides. Remove with care since the panel is connected with the MAIN LOGIC card. Place the removed panel in front of the unit.

7-2. Keyboard.

The keyboard can be detached by unscrewing the 4 screws on the back of the front panel. The cable can be detached by pushing the lever open on both sides.

7-3. SW Panel.

The switches of the Switch Panel are built into an auxiliary panel, and, by unscrewing the 3 screws on the auxiliary panel, the switch panel can be dismantled. Connectors CN1, CN2 are locked with a pawl. Push pawl inward and pull up. Connector CN3 is not locked, simply pull up.

7-4. Removal of the Cards.

The card unit is composed of 3 cards, of which 2 are connected to the MAIN LOGIC card.

1) MIX AMP card removal.

This card is fastened by 6 screws. Unscrew all 6 of them. Then disconnect the connectors to the MAIN LOGIC card and the Sync Gen. (OPTION). Lift up and pull toward you.

2) Sync Gen. card removal.

This card is fastened by 4 screws. Unscrew all 4 of them. Disconnect the connectors to the MIX AMP card. Lift up and pull toward you.

3) MAIN LOGIC card removal. (1)

After both the MIX AMP card and the Sync Gen. cards have been detached, unscrew all screws except the spacers. Disconnect the connectors to the power supply unit (pull upward when doing this).

4) MAIN LOGIC card removal. (2)

To remove the whole card unit (with both the MIX AMP and Sync Gen. cards connected), unscrew the 9 screws shown in the figure below. Disconnect the connectors to both the

Switch Panel and to the Power Supply unit. The card unit can be removed by lifting up and pulling toward you.

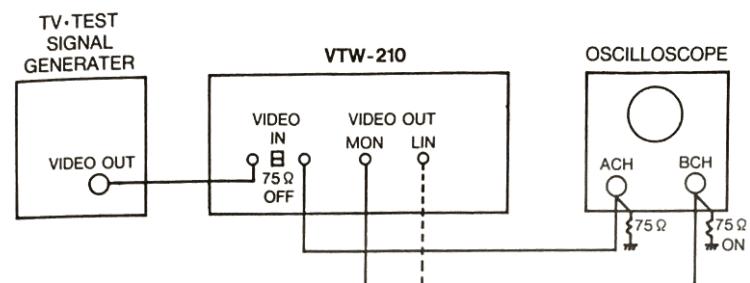
5) Power Supply removal.

This Power Supply unit is fastened by four 4mm screws from the rear of the main unit. Unscrew all four screws, and pull out towards the rear panel.

SECTION 8 INTERNAL VOLUME ADJUSTMENT

8-1. MIX AMP card (A2-3460)

Connect as shown below.



* EXT/INT Sync switch should be flipped to INT.

1) Output level Adjustment.

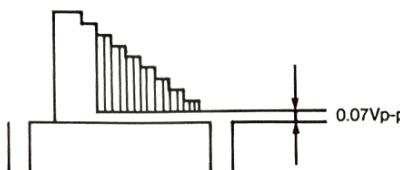
- By observing the MONI OUT with an oscilloscope, adjust VR4 so that the output level becomes equal to the input video signal.
- By observing the LINE OUT with an oscilloscope, adjust VR8 so that the output level becomes equal to the input video signal.

2) MATT Adjustment.

- Observe MONI OUT with an oscilloscope.
- Type-in the characters with the keyboard.
- Adjust the MATT volume on the front panel and VR6 so that the character level becomes $0.7V_{p-p}$ variable. EDGE should be OFF at this time.



- d) Then turn the MATT volume all the way to Black level (turn all the way to the left), and adjust VR1 until MATT level becomes 0.7Vp-p from the video signal Black level.

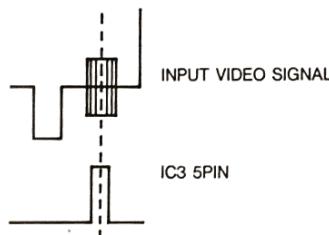


3) EDGE Adjustment.

- After the MATT adjustment, turn MATT volume to Black level.
- Turn EDGE to ON.
- Adjust VR2 to match the edge to the character signal Black level.

4) Clamp Pulse Adjustment.

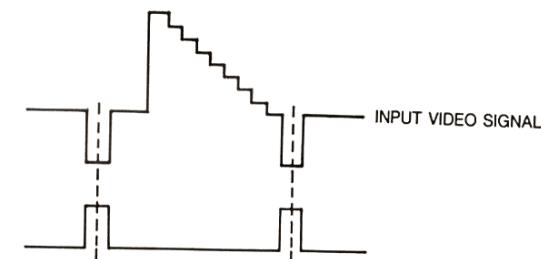
- By observing the IC3 5pin with an oscilloscope, adjust VR5 so that the center of the clamp pulse matches the center of the burst position of the input video signal.



5) H-AFC Adjustment.

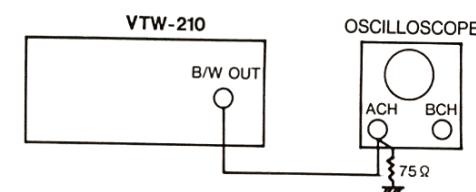
- Trigger oscilloscope by the input video signal.
- By observing the IC3 13pin with an oscilloscope, adjust VR9 so that the waveform becomes still. The Lock position will vary within a wide range at this time, therefore adjust to the center position.

The phase of the two waves when locked is shown in the diagram below.

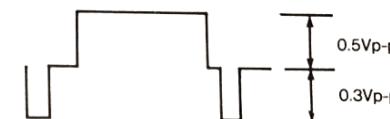


8-2. Sync Gen. card (A4-2440)

Connect as shown in the figure below.



- Adjust the video level with VR1, and sync level with VR2 so that the waveform will be as shown in the figure below.



FOR.A®

FOR-A COMPANY LIMITED

Head Office:

3-2-5, Nishi-Shinjuku, Shinjuku-ku, Tokyo 160 Japan.

Phone: Tokyo (03) 346-0591 Telex: J28696 Cable: FORAGROUP

Factory:

5-6 Yagi-cho, Hachiojishi, Tokyo 192 Japan.

Phone: (0426) 25-9671

Branch Office:

Osaka, Fukuoka

FOR-A CORPORATION OF AMERICA

Boston Office:

49, Lexington Street, West Newton, Mass. 02165 U.S.A.

Phone: (617) 244-3223 Telex: 230 922407 FOR ACO NEW

Los Angeles Office:

11060-E Artesia Blvd. Cerritos, Ca. 90701 U.S.A.

Phone: (213) 402-5391