

INNOVATIONS
IN
VIDEO

OPERATION MANUAL

FOR.A®

VTW-400
VIDEO TYPEWRITER

(2nd Edition
SERIAL NO. 1450051~Higher)

FOR.A COMPANY LIMITED

VTW-400 is a highly advanced, user friendly video typewriter that provides many exciting features including smooth, eye-catching characters in a choice of 64 colors. By using an improved mixing circuit, VTW-400 decreases chroma crawl during the mixing of the character signal with the video signal, resulting in remarkably smooth, clear characters that will drastically improve the look of your titles and video information display. 1 x Keyboard, 1 x 3m Cable (up to 30m cable may be used).

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1. Introduction

VTW-400 is a highly advanced, user friendly video typewriter that provides many exciting features including smooth, eye-catching characters in a choice of 64 colors. By using an improved mixing circuit, VTW-400 decreases chroma crawl during the mixing of the character signal with the video signal, resulting in remarkably smooth, clear characters that will dramatically improve the quality of your titles and video information display. VTW-400 consists of 1 x Main Unit, 1 x Keyboard, 1 x 2m Cable (up to 30m cable may be used.)

Features

- * Easy operation.
- * Character-by character size selection.
- * Character-by character color addition.
- * Selectable edge, shadow/normal display.
- * Automatic centering.
- * Two character fonts.
- * Color background divided into 3 different colors.
- * Word correction.
- * Underline.
- * Line-by-line character slant.
- * Page sequencing for automatic display.
- * Cut, fade, roll, crawl and wipe display modes.
- * Built-in smooth mixing circuit.
- * Character by character flash.

2. Specifications

2-1 Video Input

- 1) Level: 1.0Vp-p composite.
- 2) Impedance: 75 Ω or high impedance bridge connection.
- 3) Connectors: BNCs.

2-2 Video Output

- 1) Monitor Output
 - * Level: 1.0Vp-p \pm 1dB, 75 Ω load.
 - * Connector: BNC
 - * Signal: Input Video signal plus character signal.
- 2) Line Output
 - * Level: 1.0Vp-p \pm 1dB, 75 Ω load.
 - * Connector: BNC.
 - * Signal: Input Video signal, or input video signal with character signal superimposed, according to SUPER switch setting.

2-3 Output Signals

1) CHAR OUT

(a) RGB (character output)

* Levels : 0.7Vp-p, 75 Ω load

* Connectors : BNCs

* Signals : RGB character and back color signals.

(b) GATE (character output)

* Level : 0.7Vp-p, 75 Ω load

* Connector : BNC

* Signal : Gate signal of characters and back color signals.

2) BACK COLOR OUT

(a) RGB (background color output)

* Levels : 0.7Vp-p, 75 Ω load

* Connectors : BNCs

* Signals : RGB divided background color signals.

(b) GATE (background color output)

* Level : 0.7Vp-p, 75 Ω load

* Connector : BNC

* Signal : Gate signal of background color.

3) RGB OUT (character output)

* Level : TTL open collector, negative logic.

* Connector : D-Type, 15 pins

* Signal : 2 bits each RGB character signals and independent gate signal of characters.

2-4 Display Characters

1) Standard FOR-A standard English Characters with numbers and punctuations.

2) Composition and sizes

(a) Small

24 x 24 dot matrix

Vertical size : 24H

Horizontal size : Approx. 1.2 μ sec.

(b) Medium

32 x 32 dot matrix

Vertical size : 32H

Horizontal size : Approx. 1.6 μ sec.

(c) Large

40 x 40 dot matrix

Vertical size : 40H

Horizontal size : Approx. 2.0 μ sec.

2-5 Character Quantity of Line Output

(a) NTSC 32 characters x 9 lines maximum

(b) PAL 32 characters x 12 lines maximum

3. Panel Description & Functions

3-1 Keyboard Unit - Front Panel

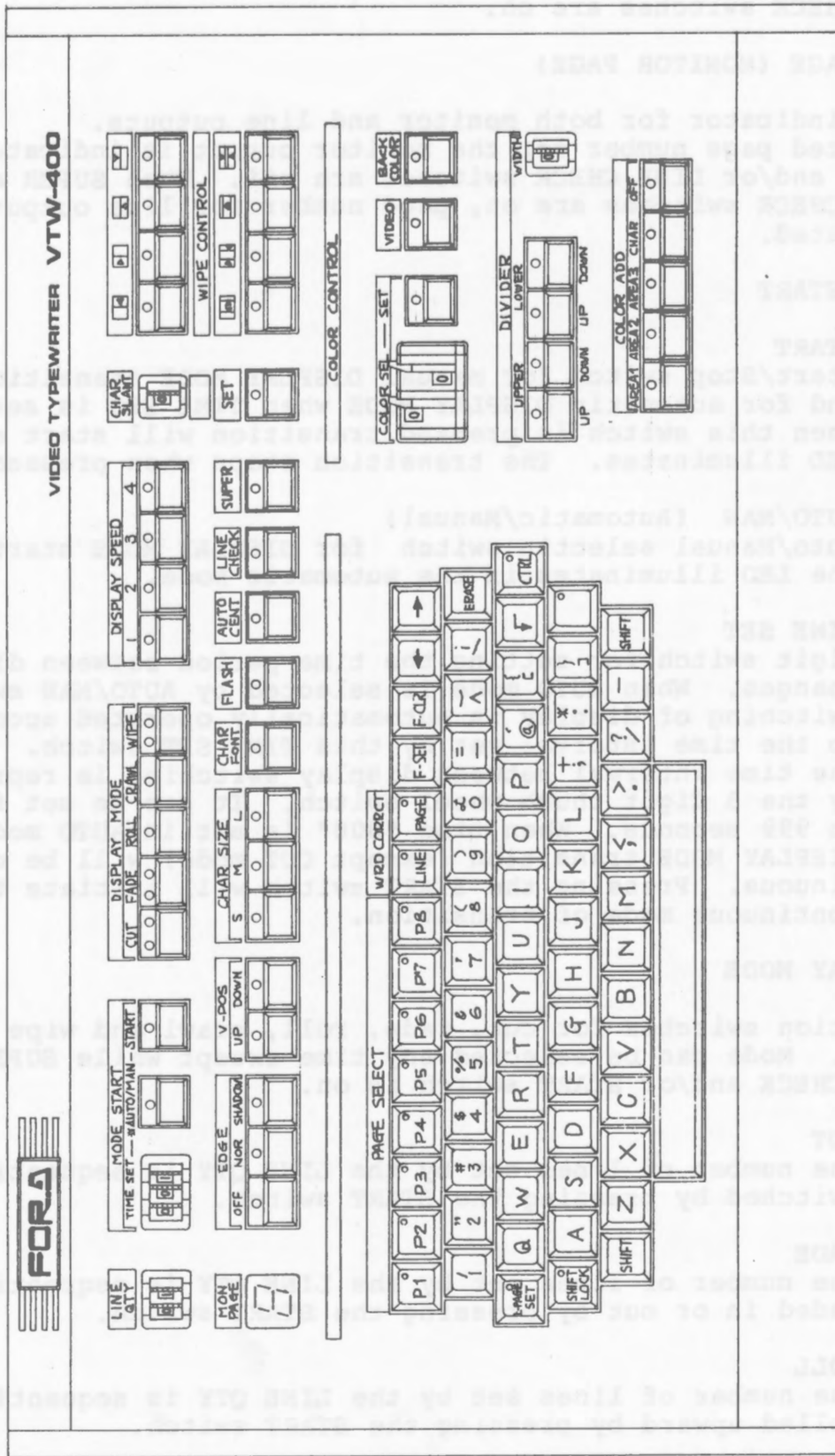


FIG. 1

1) LINE QTY (LINE QUANTITY)

Number of display lines on the LINE output is selectable in the range of 1-9 lines for NTSC and 1-12 lines for PAL. The line quantity cannot be set when the SUPER and/or LINE OUT CHECK switches are on.

2) MON PAGE (MONITOR PAGE)

Page indicator for both monitor and line outputs. Selected page number for the monitor output is indicated when SUPER and/or LINE CHECK switches are off. When SUPER and/or LINE CHECK switches are on, page number for line output is indicated.

3) MODE START

(a) START

Start/Stop switch for manual DISPLAY MODE transition, and for automatic DISPLAY MODE when TIME SET is set to 0. When this switch is pressed transition will start and the LED illuminates. The transition stops when pressed again.

(b) AUTO/MAN (Automatic/Manual)

Auto/Manual selectin switch for DISPLAY MODE start. The LED illuminates in the automatic mode.

(c) TIME SET

Digit switch for setting the time period between display changes. When AUTO mode is selected by AUTO/MAN switch, switching of display is automatically operated according to the time interval set by this TIME SET switch. The time interval between display switching is represented by the 3 digit thumb wheel switch. It can be set from 0 to 999 seconds. When time "000" is set in AUTO mode, DISPLAY MODE transition (except CUT mode) will be continuous. Pressing the START switch will initiate this continuous mode of transition.

4) DISPLAY MODE

Selection switches for cut, fade, roll, crawl and wipe display modes. Mode can be selected any time except while SUPER, LINE-CHECK and/or START switch is on.

(a) CUT

The number of lines set by the LINE QTY is sequentially switched by pressing the START switch.

(b) FADE

The number of lines set by the LINE QTY is sequentially faded in or out by pressing the START switch.

(c) ROLL

The number of lines set by the LINE QTY is sequentially rolled upward by pressing the START switch.

- (d) CRAWL
One line of characters will crawl from right to left on the monitor regardless of the number of lines set by LINE QTY when the START switch is pressed.
- (e) WIPE
The number of lines set by the LINE QTY is sequentially wiped in or out by pressing the START switch.
- (f) Related function with BACK COLOR switch.
On the CUT, FADE and WIPE buttons there are 2 LEDs, one red and one green. When one of these switches is selected, the red or green lamp illuminates alternately each time the button is pressed.
When BACK COLOR switch is on and the red LED is illuminated, the DISPLAY MODE transition is effected for both the display characters and the background color.
When BACK COLOR switch is on and the green LED is illuminated, the DISPLAY MODE transition is performed only for the display characters.

5) DISPLAY SPEED

Speed control for roll, crawl, wipe and fade display modes in 4 steps. The larger the number, the faster the speed. The corresponding LED lamp will illuminate to indicate which speed has been selected.

6) EDGE

Edge selection switches. The LED of the selected edge will illuminate.

- (a) OFF: Characters will be displayed with no edge.
- (b) NOR: Characters will be displayed with border-type edge.
- (c) SHADOW: Characters will be displayed with shadow-type edge on the lower right of the characters.

7) V. POS (UP, DOWN)

Vertical character display position control switches. Adjustable only when LINE CHECK switch is on. LED lamp is extinguished at the point when no further movement is possible.

8) CHAR SIZE (S, M, L)

Character size selection switches. Size is selectable character by character. Three sizes are available: small, medium, large (see 2-4-2)). Press the required size switch prior to typing the characters on the keyboard. The corresponding LED will illuminate to indicate the size of the characters being typed.

9) CHAR FONT

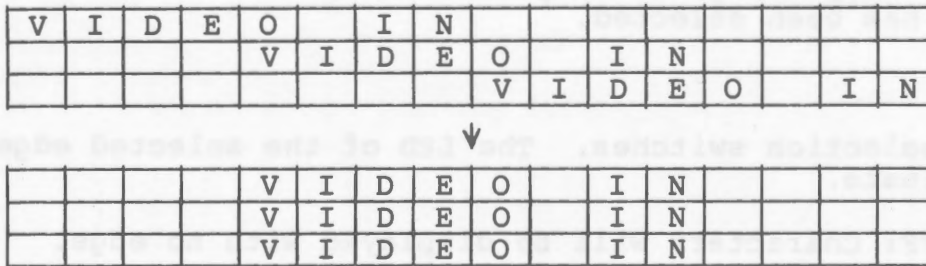
Character font selection switch. Two fonts are available on the standard unit, selectable by this switch. Font size is selectable character by character.

10) FLASH

When the FLASH switch is on (the LED lamp is illuminated), the characters being typed are automatically set to flash. When the FLASH switch is off (the LED lamp is extinguished), the characters being typed are automatically set not to flash.

11) AUTO CENTERING

By pressing this switch, the LED lamp is illuminated and the auto centering mode is preset. In this condition, if the SUPER and/or LINE CHECK switches are set to on, all typed lines are automatically positioned proportionally to the center of the monitor screen. This function is inoperative while the SUPER and/or LINE CHECK switches are off. Since this function automatically counts the empty spaces in both front and back of the characters of a line, the auto centering is performed as follows.



12) LINE CHECK

By pressing this switch, the LED lamp is illuminated and the line check monitor will display the selected characters prior to superimposition on the line monitor. By depressing this switch once again, the LED lamp is extinguished and the typing mode is set.

13) SUPER

By pressing this switch, the LED lamp is illuminated and the characters are superimposed onto the line monitor. By pressing once again, the LED lamp is extinguished and character superimposition on line monitor is cancelled. Turning this switch on while LINE CHECK is on, same characters will be displayed on the monitor output as on line check monitor. Turning this switch on while LINE CHECK is off, the lowest number page (which is indicated by LED) is displayed on the line output.

14) CHAR SLANT

Character slant is adjustable in 4 steps by the digit switch (0-3). The larger the number, the greater the slant angle. Slant can be set line by line. Set the cursor to the desired line and press the SET switch. Characters will then slant to the selected angle.

15) WIPE CONTROL

One of eight wipe patterns can be selected for WIPE-DISPLAY MODE. The LED of the selected pattern illuminates. Press the desired switch when both SUPER and LINE CHECK switches are off.

16) COLOR CONTROL

a) COLOR ADD

Selection switches for color display. Color can be added to AREA 1, AREA 2, or AREA 3 of the background, or characters (CHAR). Select anyone of AREA 1, AREA 2, AREA 3 or CHAR by pressing the appropriate switch in the COLOR ADD section and a color palette will appear on the monitor for color selection. In the CHAR (character) mode, characters will be colorized with the selected color as the character is typed. In AREA mode, the selected area will be colorized with the selected color.

b) VIDEO/BACK COLOR

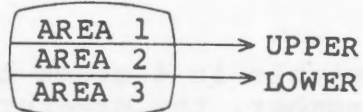
Input video or color background selection switch. When the LED of VIDEO switch is illuminated, the typed characters will be superimposed onto the video input signal. When the LED of BACK COLOR is illuminated, the characters are superimposed onto a color background (the background can be divided into a maximum of 3 separate areas with each area color being independently selectable).

c) COLOR SEL/SET

Color selection and set switches for characters and background. Any one of 64 colors is selectable according to the number on COLOR SEL switch. Each number corresponds to a color on the palette (00 gives no color for BACK COLOR). After selecting the desired number, corresponding to the color on the palette indicated by the flashing cursor, push SET switch and the characters or background will then be colorized in the corresponding color.

d) DIVIDER (UPPER, LOWER)

UP/DOWN position controls for color background divider for 2 or 3 color background display. The upper divider position is adjusted by the UPPER control buttons, and lower divider position is adjusted by the LOWER control buttons.



Both dividers can be moved up or down the monitor screen. The corresponding LED light will illuminate to indicate which divider is being adjusted. For a 2-color background, move the lower divider downward until the LED of LOWER, DOWN switch is extinguished. For 1-color background move both dividers down until their respective LEDs are extinguished. To set background color, SUPER and LINE CHECK switches should be off, and BACK COLOR switch should be on.

e) DIVIDER WIDTH

The width of the divider between the color background areas can be adjusted by the digit switch, with the digit switch values corresponding to the same H width value, in a range of 0 - 9. The divider color is available in black only.

17) Keyboard

a) Gray Keys (Function Keys)

* PAGE SELECT / L-PAGE SET

8 keys (P1 - P8) are page selection keys for both monitor and line output. When L-PAGE SET is pressed (the LED lamp is illuminated), the illuminated LED lamps on P1 - P8 keys represent the pages which will be displayed on both the monitor and line outputs, in order, in SUPER mode, and displayed on the monitor output in LINE CHECK mode. When the L-PAGE SET key is pressed (the LED lamp is extinguished), the illuminated LED lamp of P1 - P8 keys represents the page being displayed on the monitor output for typing. The page number which is being displayed on the monitor and/or the line output appears on MON PAGE.

* WORD CORRECT (Word Correction)

[PAGE]

By pressing this key, the LED lamp is illuminated and the WORD CORRECTION [PAGE] mode is set.

If the WORD CORRECTION [LINE] mode had previously been set, the LED lamp of the WORD CORRECTION [LINE] key is extinguished and its operation mode is released.

If the ' → ' key is pressed once, all the characters on that page from the character under which the cursor is placed are horizontally shifted to the right for one character space. The cursor will not move and one blank space is created above the cursor. (The last character of the page is deleted.)

If the ' ← ' key is pressed once, all the characters on that page from the character under which the cursor is placed are horizontally shifted to the left for one character space. The cursor will not move and the character above which the cursor was placed is deleted. (One empty character space is created at the end of the page.)

[LINE]

By pressing this key, the LED lamp is illuminated and the WORD CORRECTION [LINE] mode is set.

If the WORD CORRECTION [PAGE] mode had previously been set, the LED lamp of the WORD CORRECTION [PAGE] key is extinguished and its operation mode is released.

If the ' → ' key is pressed once, all the characters on the line from the character under which the cursor is placed are horizontally shifted to the right for one character space. The cursor will not move and one blank space is created above the cursor. (The last character of this line is deleted.) If the ' ← ' key is pressed, all the characters on the line from the character under which the cursor is placed are horizontally shifted to the left for one character space. The cursor will not move and the character under which the cursor was placed is deleted. (One blank character space is created at the end of this line.) In order to release the WORD CORRECTION operation, press any key on the keyboard except ' → ' and ' ← ' keys.

* F-SET

By pressing the F-SET key in keyboard SHIFT mode, the character above which the cursor is placed can be preset to flash and the cursor will move to the right. In order to flash the preset characters, set the FLASH switch to on.

* F-CLR

By pressing the F-CLR key in keyboard SHIFT mode when cursor is placed under the flash-preset character, the preset mode is cancelled and the cursor moves to the right.

* ↑ ↓ ← →

By pressing these keys, the cursor moves one step in the direction indicated by the key.

* √

By pressing this key, the cursor is placed at the first character of the next line.

* ERASE

By pressing this key, all the characters on the page which is presently displayed on the monitor are deleted.

* SHIFT

Capital letters or upper case symbols can be typed after pressing this key, while original small size character are typed normally.

* SHIFT LOCK

By pressing this key, the LED lamp is illuminated and the keyboard is locked in the shift condition. If the SHIFT LOCK or SHIFT keys are pressed again, the SHIFT LOCK operation is released.

* CTRL (CONTROL)

By pressing this key (the LED lamp is illuminated) the CONTROL mode is set. In this mode, edge black/white, underline and flash marker on/off functions can be performed. This mode is released when the key is pressed again.

[Edge black/white]

In the CONTROL mode, when key "E" is pressed, edge can be set to white or black alternately.

Note: If white edge is preferred, after turning on the power switch, set the No. 1 switch of SW2 on the DISP LOGIC card inside the main unit to ON position.

[Underline]

In the CONTROL mode, F-SET (SHIFT) and F-CLR (SHIFT) switches can be operated as underline set and reset switches, and the key "U" (both upper and lower) can be operated as alternate superimposition on/off switch for underline.

The following function can be performed in the CONTROL mode. When the F-SET switch is pressed once, underline is set under the character which is indicated by the cursor, and the cursor moves to the right. When the F-CLR switch is pressed once, underline is cleared (reset) from the underlined character which is indicated by cursor, and the cursor moves to the right.

Repeated pressing of the "U" key will result in alternate superimposition and deletion of the underline.

Underline can be colorized by pressing the following keys.

| Keys | Color |
|------|---------|
| W | White |
| R | Red |
| G | Green |
| B | Blue |
| C | Cyan |
| M | Magenta |
| Y | Yellow |

[Flash Marker]

In the CONTROL mode, when the key "F" is pressed, the flash marker (white line) appears under the characters which have been set to flash.

If both underline and flash have been set under the same character, the flash marker overrides the underline, but half the width of the underline still appears with the flash marker.

Note: Underline can be displayed on the monitor and/or line output when SUPER and/or LINE CHECK are on. The flash marker can be displayed only on the monitor output when both SUPER and LINE CHECK are off.

b) White Keys (Character Keys)

By pressing the appropriate key, the desired character, number or punctuation mark can be typed onto the monitor.

c) Character Editing Functions

* '@' Mark Jump

If the '@' mark is typed in the first space of the line on a page, the characters from this line to the eighth line on that page are not displayed when the SUPER and/or LINE OUT CHECK switches are on. This function is inoperative if the '@' mark is not typed in the first space of the line.

* '^' Mark Skip

If the '^' mark is typed in the first space of the line on a page, this line is not displayed when the SUPER and/or LINE OUT CHECK switches are on. This function is inoperative if the '^' mark is not typed in the first space of the line.

* WORD CORRECTION

This function is used for correcting mistyped words. For example, if the word 'VDEO' was typed instead of 'VIDEO', set the cursor to the 'D', press either the WORD CORRECTION (LINE) or (PAGE) key and press '→' key. 'VDEO' is then reset to 'V DEO'. Then reset the WORD CORRECTION mode (the cursor is automatically set to the empty space) and type 'I'. 'VDEO' will then be corrected to 'VIDEO'.

- | | |
|------------|----------------------|
| i) VDEO | Mistyped word. |
| ii) VDEO | Set the cursor. |
| iii) V DEO | Depress the '→' key. |
| iv) VIDEO | Type 'I'. |

If the word 'VIIDEO' was typed instead of 'VIDEO', set the cursor to the 'I' between the 'I' and the 'D', press either the WORD CORRECTION (LINE) or (PAGE) key and press the '←' key. 'VIIDEO' will then automatically be corrected to 'VIDEO'.

- | | |
|------------|----------------------|
| i) VIIDEO | Mistyped word. |
| ii) VIIDEO | Set the cursor. |
| iii) VIDEO | Depress the '←' key. |

In WORD CORRECTION (LINE), only the set line is horizontally shifted, so it is convenient for correcting the itemized character display. In WORD CORRECTION (PAGE), the set line and all lines below the set line are horizontally shifted, so it is convenient for correcting general sentences on a page.

3-2 Keyboard Unit - Rear Panel

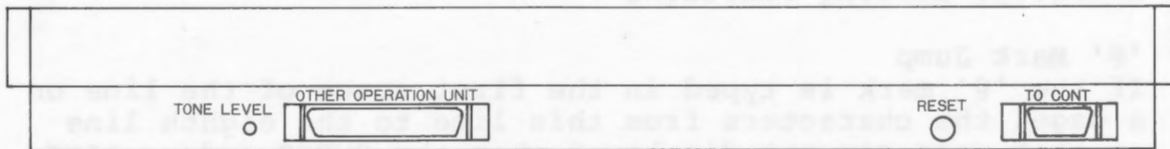


FIG. 2

1) TO CONT

Connection port for main control unit using control cable provided by FOR-A.

2) RESET

By pressing this switch, all functions of the VTW-400 are initialized and all modes return to initialized condition, the same as immediately after switching the power on, without turning off the power switch.

Note: If the VTW-400 cannot be initialized by RESET switch, press the other reset switch on the CPU CARD in the main unit.

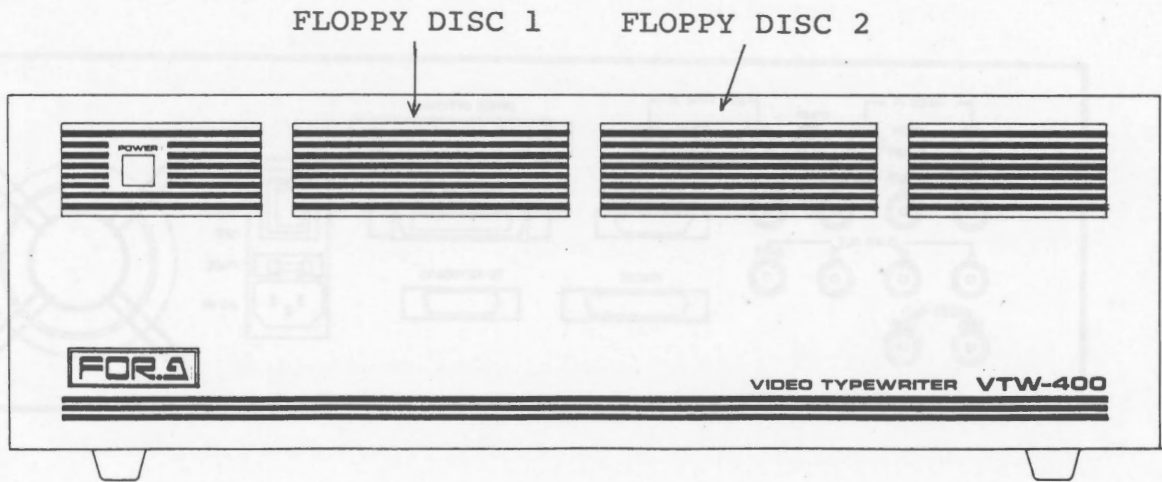
3) OTHER OPTIONAL UNIT

Connection port for optional units. This can be connected to FOR-A MU-400 FLOPPY DISC MEMORY UNIT.

4) TONE LEVEL

Volume adjustor for the internal warning buzzer in the event of misoperation.

3-3 Main Unit - Front Panel



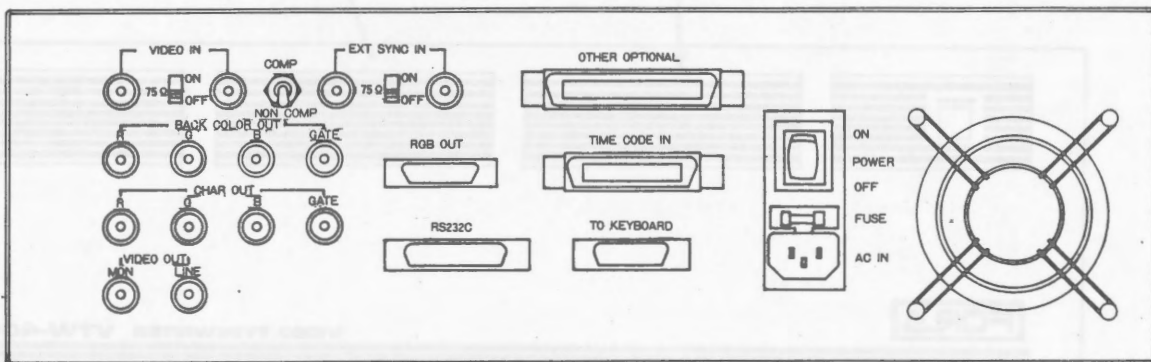
1) POWER

Power switch indicator. When the POWER switch is turned on, this green lamp illuminates.

2) Floppy Disc 1 and 2

Optional floppy disc drive locations.

3-4 Main Unit - Rear Panel



1) AC IN

AC INLET for AC power. AC cable must be connected.

2) FUSE

AC fuse. For fuse replacement, use same capacity fuse indicated on the fuse case. Contact your FOR-A agent if fuses below frequently.

3) POWER ON/OFF

AC power ON/OFF switch. By turning this switch to ON, AC power is supplied to the VTW-400.

4) \perp (Ground)

Terminal for ground connection.

5) VIDEO IN

Video input bridge connectors. When signal is supplied into one input and another connector is not used for any other equipment, set the 75Ω switch to ON position. When input signal is used to other equipment through another connector, set the 75Ω switch to OFF position.

6) COMP/NON COMP

When composite video signal is supplied to VIDEO IN, set this switch to COMP position.

When non-composite video signal (without sync signal) is supplied to VIDEO IN, set this switch to NON-COMP position, and supply separated sync signal to EXT SYNC IN.

7) EXT SYNC IN

External sync input bridge connectors.

When sync signal is supplied to one input and the other connector is not used for other equipment, set the 75 switch to ON position. When input sync signal is used for other equipment through the other connector, set the 75 switch to OFF position.

8) BACK COLOR OUT [Background color signal output
: See FIG.5 (b), FIG.6 (b)]

(a) R (Red), G (Green), B (Blue)
RGB divided background colors are produced.

(b) GATE (Edge signal output)
Gate (key) signal of mixed character and background edge signals is produced.

9) CHAR OUT [Character output: See FIG.5 (a), FIG.6 (a)]

(a) R (Red), G (Green), B (Blue)
RGB divided character and background signals are produced.

(b) GATE (Edge signal output)
Gate (key) signal of mixed character and background edge signals is produced.

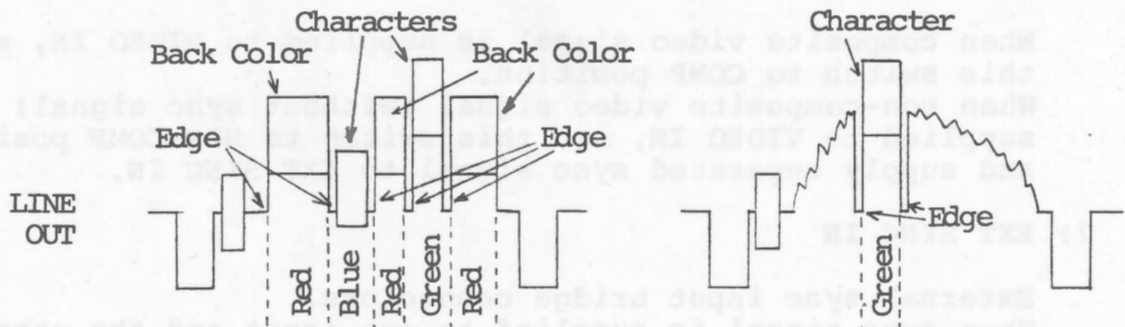
10) RGB OUT

RGB multi-connector output. Pin assignments of the connector are shown in FIG. 7. Two bits each RGB character and background color are produced.

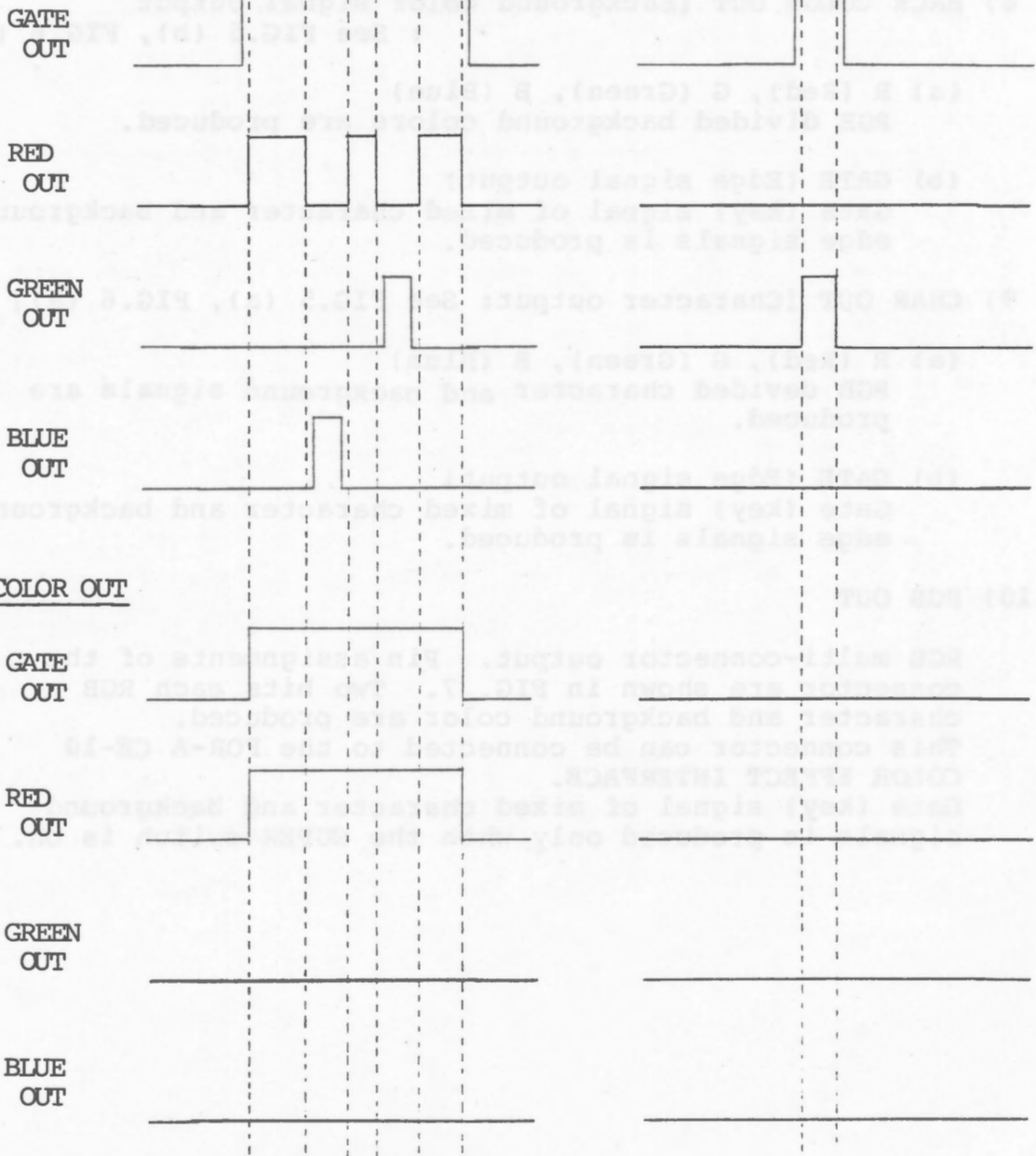
This connector can be connected to the FOR-A CE-10 COLOR EFFECT INTERFACE.

Gate (key) signal of mixed character and background signals is produced only when the SUPER switch is on.

FIG. 5



(a) CHARACTER OUT

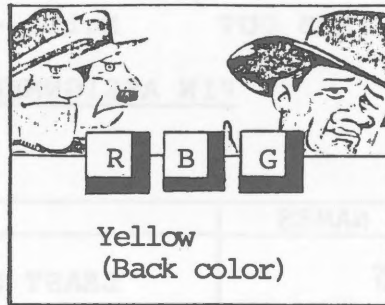


(b) BACK COLOR OUT

Edge: Normal Edge

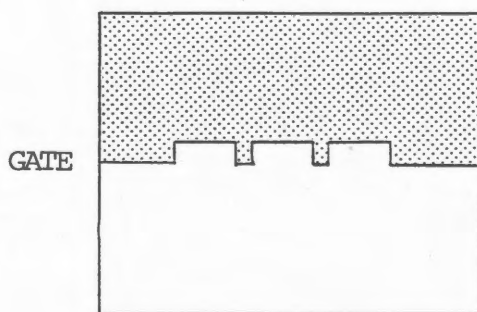
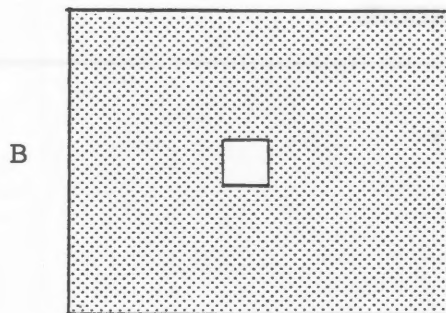
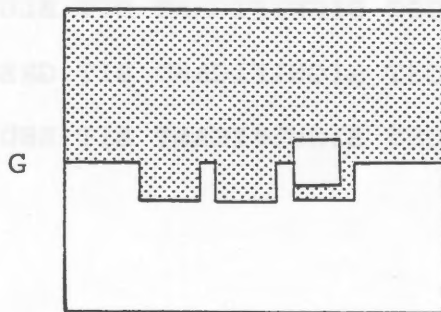
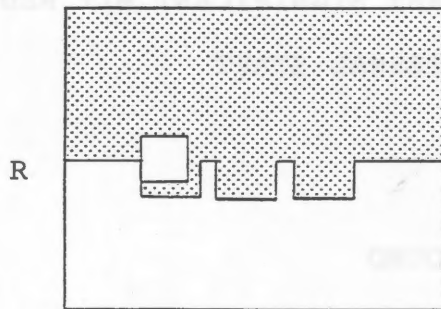
FIG. 6

VIDEO OUT
(LINE OUT)

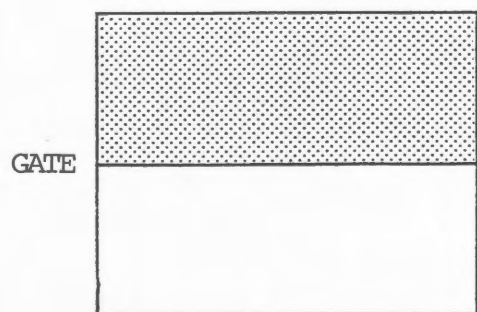
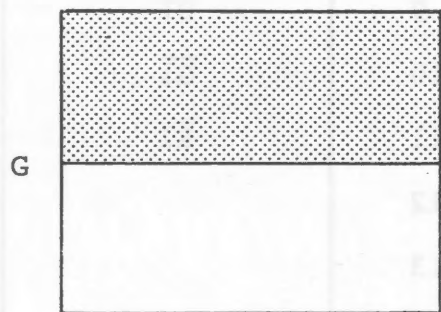
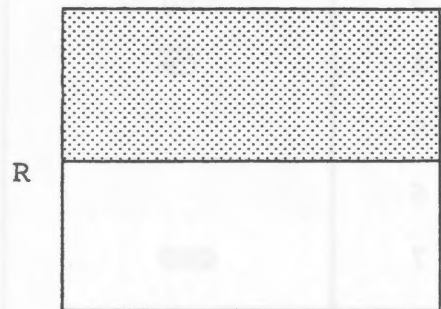


R: Red character
B: Blue character
G: Green character

(a) CHARACTER OUT



(b) BACK COLOR OUT



RGB OUT Multi - connector

PIN ASSIGNMENTS

| PIN NO. | SIGNAL NAMES | DESCRIPTIONS |
|---------|-----------------|-----------------------------|
| 1 | $\overline{B0}$ | LEAST SIGNIFICANT BIT BLUE |
| 2 | $\overline{G0}$ | LEAST SIGNIFICANT BIT GREEN |
| 3 | $\overline{R0}$ | LEAST SIGNIFICANT BIT RED |
| 4 | \overline{CP} | EXTERNAL START |
| 5 | | |
| 6 | | |
| 7 | GND | GROUND |
| 8 | | |
| 9 | $\overline{B1}$ | MOST SIGNIFICANT BIT BLUE |
| 10 | $\overline{G1}$ | MOST SIGNIFICANT BIT GREEN |
| 11 | $\overline{R1}$ | MOST SIGNIFICANT BIT RED |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | GND | GROUND |

FIG. 7

11) VIDEO OUT

(a) MON (Monitor output)

Video signal with character signal is displayed. When LINE CHECK and/or SUPER switch is on, the same display signal as LINE output is generated from this output.

(b) LINE

Video signal or video signal with character signal is generated. When SUPER switch is on, the character signal which has been typed using monitor output is superimposed onto the video signal.

12) OTHER OPTIONAL

Connection port for optional units. This can be connected to FOR-A MU-400 FLOPPY DISC MEMORY UNIT.

13) TO KEYBOARD

Connection port for connection to keyboard unit using control cable provided.

14) TIME CODE IN

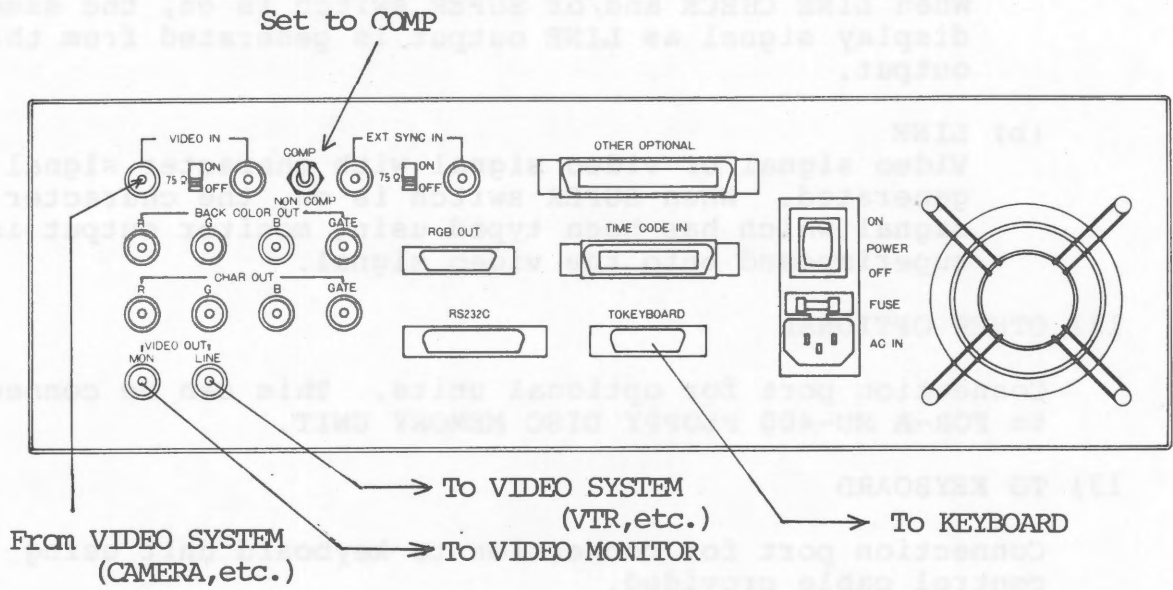
Connection port for external time data display. Please ask FOR-A representative or authorized agent for further information.

15) RS-232C

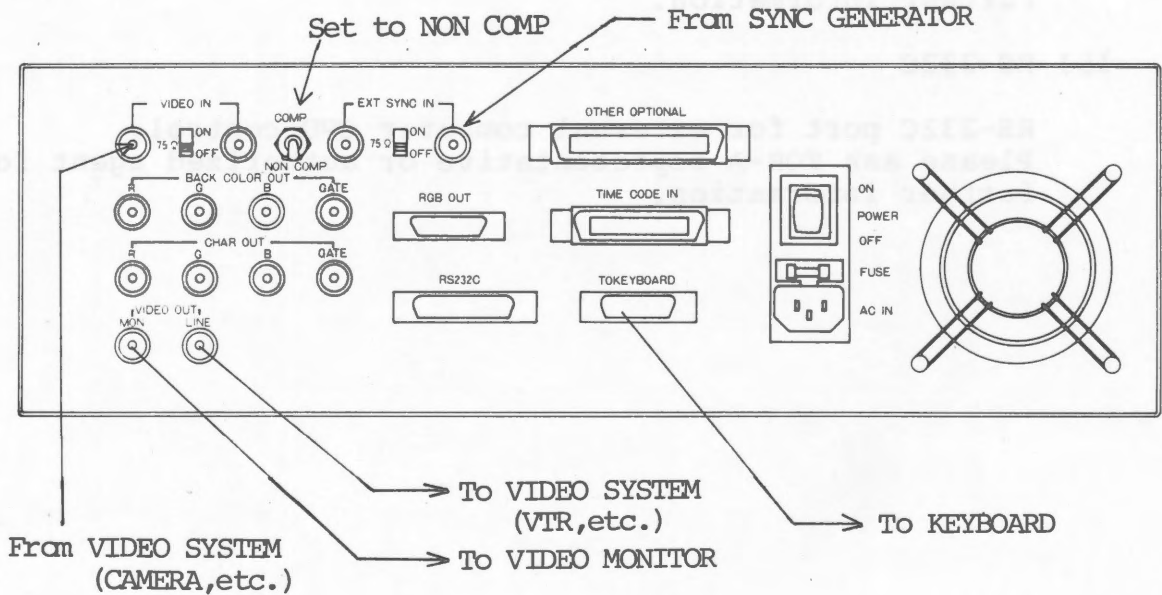
RS-232C port for external computer CPU control. Please ask FOR-A representative or authorized agent for further information.

4. Connections

4-1 Internal Sync Operation



4-2 External Sync Operation



5. Operation

5-1 Start

- 1) Turn POWER switch to ON.
- 2) Items 1 - 3 shown below will appear on the monitor.
4 will appear when a battery backup error occurs indicating a change in memorized data. 5 will appear when the keyboard is not connected correctly.

| | | |
|----------------------|-------|---|
| MODEL VTW-400 | - - - | 1 |
| VIDEO TYPEWRITER | - - - | 2 |
| FOR-A CO., LTD. | | |
| WARM START? | - - - | 3 |
| BATTERY BACKUP ERROR | - - - | 4 |
| KEYBOARD? | - - - | 5 |

- 3) Type either 'Y' (yes) or 'N' (no). 'Y' is for warm start, preserving all page data memorized before power was switched off previously. 'N' is for cold start deleting all page data.

5-2 Character Display

- 1) Check that SUPER and LINE CHECK switches are off.
- 2) Confirm that all page keys are off.
- 3) Select a page by pressing the desired number key from P1 - P8.
- 4) Select character size.
- 5) Designate flash on/off.
- 6) Select and set a color.
- 7) Type desired characters on to the TV screen using the white keys.
- 8) After completing the text on the selected page, select the next page and continue typing.
- 9) If character size, flash on/off, character color, etc., need to be changed, set each mode before starting to type again.

5-3 Color Set For Character

- 1) Check that SUPER and LINE CHECK switches are off.
- 2) Push CHAR switch of COLOR ADD. A color palette will appear on the monitor.
- 3) Select color by moving the cursor to the required point on the palette using the COLOR SEL switch.
- 4) Press SET button. Typed characters will appear in the selected color.
- 5) Press OFF switch of COLOR ADD.

5-4 Color Set For Background

- 1) Check that SUPER and LINE CHECK switches are off.
 - 2) Set BACK COLOR switch to on.
 - 3) Set position of upper and lower dividers.
 - 4) Set divider width.
 - 5) Press AREA 1, 2 or 3 switch of COLOR ADD. A color palette with flashing cursor will appear on the monitor.
 - 6) Select color by moving the cursor to the required point on the palette using the COLOR SEL switch. Press SET key and designated area will appear on the monitor in the selected color.
- Note: When the number 00 is selected, background video appears instead of a color.
- 7) Follow the same procedure for other areas.
 - 8) Press OFF switch of COLOR ADD.

5-5 Color Palette

Each color in the palette has a number from 00-64 which can be determined by adding the horizontal and vertical numbers as shown in the diagram below. For example, a color '*' is number 37 (4+33) and can be selected by setting the COLOR SEL to 37.

| | 0 | 1 | 2 | 3 | 4 | 5 |
|----|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 49 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

5-6 Character Slant

- 1) Check that SUPER and LINE CHECK switches are off.
- 2) Set cursor to required line.
- 3) Select angle using CHAR SLANT controls from 0 to 3.
(4 to 9 will not work.)
- 4) Press SET button. Characters will slant to the right when SUPER or LINE CHECK switch is on.

5-7 Underline Set

- 1) Set cursor to the desired character.
- 2) Set CTRL key switch on the keyboard to on.
- 3) Press 'U' key for underline display.
- 4) Press F-SET key for underline set.
- 5) Press F-CLR key to cancel underline set.

5-8 SUPER/LINE CHECK

- 1) Set display mode, CUT, FADE, etc.
- 2) Set L-PAGE SET key to on, and select pages for line output display.
- 3) Select display line quantity. (LINE QTY)
- 4) Select flash on/off. (FLASH)
- 5) Select automatic centering on/off. (AUTO CENT)
- 6) Select video/backcolor.
- 7) Set either SUPER or LINE CHECK switch to on.
- 8) Select either manual or automatic sequential page switch mode, (AUTO/MAN) then press START button.
- 9) When switching only characters without color background, press the same display mode switch again. Red LED turns to green. (Not necessary for the roll and crawl modes.)
- 10) If necessary to change to another display mode during superimposition, press required display mode switch after completion of previously selected display operation. It is not possible to change from crawl mode to any other, or vice versa.

[NOTE]

If it is necessary to turn off the SUPER and/or LINE CHECK during the FADE mode, make sure that the characters are completely faded out from the display, before turning off. When the green LED on the DISPLAY MODE switch is illuminated, press the switch again to light up the red LED, then press the MODE START to fade out all the characters, before turning SUPER and/or LINE CHECK off.

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