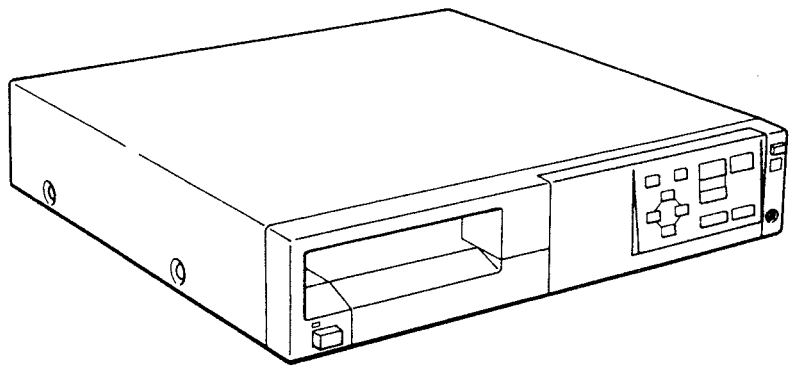
SONY

V03150

COLOR VIDEO PRINTER

UP-1200EPM

SERVICE MANUAL



WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS INDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COPMONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
GENERAL

This section is extracted from instruction manual.

1-1. SPECIFICATIONS

Power requirements
220 to 240 V AC (~), 50/60 Hz
Power consumption
About 1.0 A max. at 25°C, 240 V AC (~)
Operating temperature
5°C to 40°C (41°F to 104°F)
Operating humidity
20 % to 80 % (no condensation allowed)
Storage and transport temperature
-20°C to 60°C (-4°F to 140°F)
Storage and transport humidity
20 % to 90 % (no condensation allowed)
Dimensions
About 424 × 91 × 397 mm (w/h/d)
(16¾ × 3⅝ × 15¾ inches)
Mass
About 8.5 kg (18 lb 12 oz)
Printing system
Sublimination heat transfer printing
Thermal head
6.72 dot/mm (608 dots)
Total gradation
256 levels each for yellow, magenta, and cyan
Frame memory
One frame memory
Printing time
Approximately 60 seconds (normal size color printing)
Approximately 30 seconds (monochrome printing)
TV system
PAL B.G.I. standards
Input connectors
S-VIDEO (Separate luminance (Y) and chrominance (C) signals): DIN 4-pin
Y: 1 Vp-p
C: 0.3 Vp-p color burst
75 ohms (75 ohm termination switch set to ON)
VIDEO (PAL composite video signal): BNC connector
1 Vp-p, 75 ohms (75 ohm termination switch set to ON), sync negative
AC IN (for power input)
Output connectors
S-VIDEO (Separate luminance (Y) and chrominance (C) signals): DIN 4-pin
Y: 1 Vp-p, 75 ohms
C: 0.3 Vp-p color burst, 75 ohms
(75 ohm termination switch set to ON)
VIDEO (PAL composite video signal): BNC connector
1 Vp-p, 75 ohms (75 ohm termination switch set to ON), sync negative
Controls connectors
REMOTE 1 (front panel, for the supplied remote control unit only): Special mini jack
REMOTE 2 (automatic printing connector): Stereo mini jack
For details of the timing pulse to REMOTE 2, see "Using the automatic printing capabilities" on this page.

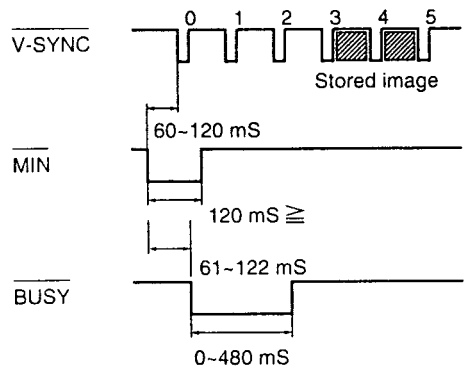
Ink ribbon cassette and printing sheet sets
Color printing pack: UPC-1010 (100 sheets)
B & W printing pack: UPC-1020 (100 sheets)
Self laminating color printing pack: UPC-1040 (75 sheets)
Supplied accessories
Color printing pack UPC-1010 (1)
Paper tray (1)
Paper cover (1)
Remote commander RM-5100 (1)
Connecting cable for the remote commander (1)
Dry battery (R6) (2)
AC power cord (1)
Instructions For Use (1)

Using the automatic printing capabilities (REMOTE 2)

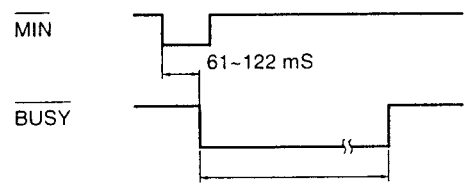
If you send the remote control pulse signals illustrated below through the REMOTE 2 connector, the printer is remotely controlled accoring to the settings of REMOTE 2 from the SET UP menu. (see "Selecting the Operation Mode for Automatic Printing Capabilities" page 52)

To begin, turn on the power and select the input signal. Display the image from the video source, then send a remote control signal shown below.

MEMORY IN timing



Printing timing



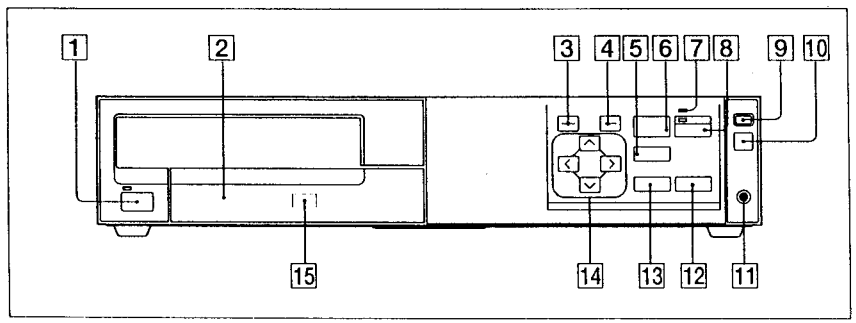
7 to 9 seconds (in field mode)
62 to 78 seconds (in frame mode)

Design and specifications are subject to change without notice.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

For details, see the pages indicated in ( ).

Front



1 **POWER ⏻ switch**
Press to turn the printer on or off.

2 **Paper tray/paper cover (10, 39)**
Paper tray: Load paper into this tray.
Paper cover: The printout is ejected to this tray

3 **MENU button**
This button is used to display menus or to return to the regular screen from the main menu or sub menus.

4 **EXEC button (27, 33, 34, 35, 47)**
Press this button to return to the previous menu. Also, this button is used to enter characters for a caption.

5 **SOURCE/MEMORY button (15, 29, 30, 50)**
Press to select which signal is to be output to the monitor.
The memory image and source image are changed whenever you press this button.

6 **MEMORY IN button (15, 29, 30)**
Press to store an image into memory.

7 **ALARM lamp (62)**
This lamp lights, in orange, when the paper has jammed or any problem occurs.

8 **PRINT button (16, 29, 30)**
Press to make printouts.

9 **PUSH OPEN button (8)**
Press to open the right front panel door when loading an ink ribbon cassette.

10 **Remote sensor (41)**
Aim the head of the remote control unit toward this sensor.

11 **REMOTE 1 connector (39)**
Used to Connect the remote control unit (supplied) when being used as a wired type.

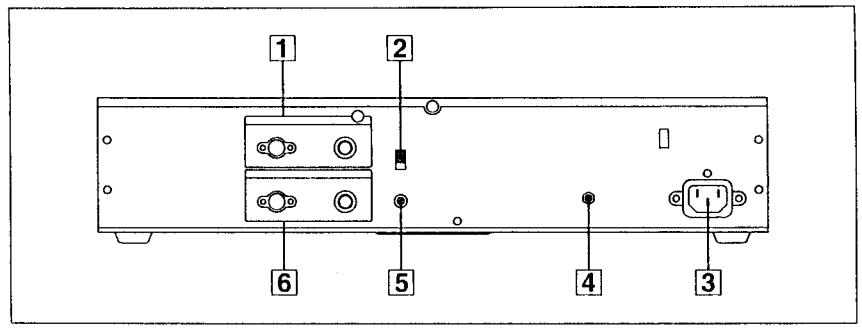
12 **STOP button (16, 29, 54)**
Press to stop printing midway.
Press this button when the message "STOP STOP STOP" appears.

13 **MEMORY PAGE button (23)**
Press to select the memory page.

14 **Cursor keys**
Press to position the cursor. Select a desired item from the menu by pressing the ∧ or ∨ button and set the value by pressing the < or > button.
Also, these keys are used to enter characters for a caption.

15 **PUSH indication (10, 64)**
Press to remove the paper tray.

Rear



1 **INPUT connectors (37)**
Used to connect to the video equipment for source image.

Connector	Connectable equipment
S-VIDEO	Video equipment with a Y/C separated output
VIDEO	Video equipment with a composite video signal output

Refer to "Important safeguards/notices for use in the medical environments on page 2.

2 **75-ohm termination switch (for PAL composite video signal) (37)**
Normally, set this switch to ON. Set it to OFF if the input signal should drop when you connect additional equipment to the video equipment.

3 **~ AC IN connector (37, 38, 39)**
Used to connect to a wall outlet with the supplied power cord.

4 **Equipotential ground terminal ⏚**
Used to connect to the equipotential plug to bring the various parts of a system to the same potential.
Refer to "Important safeguards/notices for use in the medical environments on page 2.

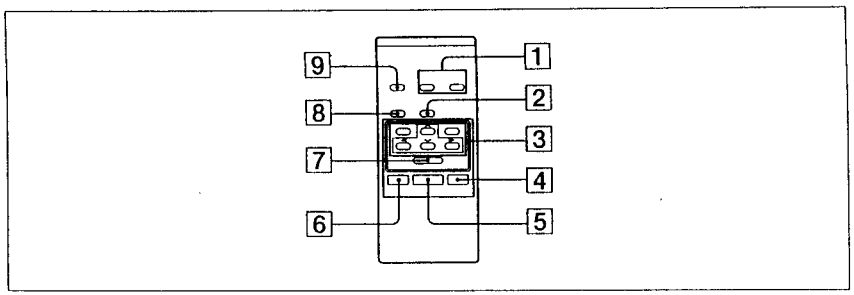
5 **REMOTE 2 connector (39)**
Used to connect the RM-91 remote commandnder (not supplied) or input remote control pulse signals for automatic printing.

6 **OUTPUT connectors (38)**
Used to connect to the video monitor.

Connector	Connectable video monitor
S-VIDEO	Video monitor with a Y/C separated input
VIDEO	Video monitor with a composite video signal input

Refer to "Important safeguards/notices for use in the medical environments on page 2.

Remote Commander RM-5100

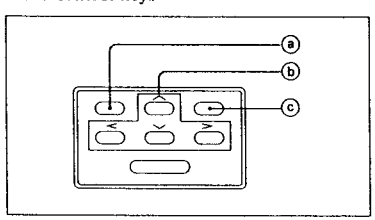


1 PRINT QTY + and – buttons (18)
Used to set the number of copies of one printout (on the regular screen).

Button	Operation
+	Increases the number of copies.
–	Reduces the number of copies.

2 MULTI PICTURE button (26)
Press to access the MULTI PICTURE sub menu directly from the any other screen.

3 Menu control keys



ⓐ MENU button
This button is used to display menus or to return to the regular screen from the main menu or sub menus.

ⓑ Cursor keys
Press to position the cursor. Select a desired item from the menu by pressing the ∧ or ∨ button and set the value by pressing the < or > button.
Also, these keys are used to enter characters for a caption.

ⓒ EXEC button (27, 33, 34, 35, 47)
Press this button to return to the previous menu. Also, this button is used to enter characters for a caption.

4 PRINT button (16, 29, 30)
Press to make printouts.

5 MEMORY IN button (15, 29, 30)
Press to store an image into memory.

6 SOURCE/MEMORY button (15, 29, 30, 50)
Press to select which signal is to be output to the monitor.
The memory image and source image are changed whenever you press this button.

7 STOP button (16, 29, 54)
Press to stop printing midway.
Press this button when the message "STOP STOP STOP" appears.

8 COLOR ADJUST button (43)
Press to access the COLOR ADJUST sub menu directly from any other screen.

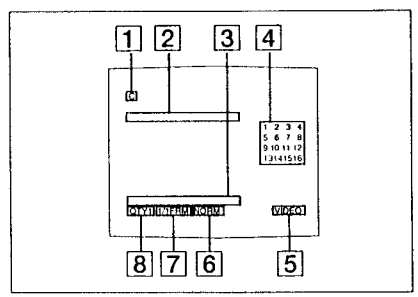
9 MEMORY PAGE button (23)
Press to select the memory page.

Monitor Display

There are two types of screen display; the regular screen display and the menu screen.

Regular screen message

When you first turn on the printer, the regular screen message appears.



1 C (Caption)
C is displayed in white when the printer is set to print a caption.
C is displayed in dark blue when the printer is not set to print a caption.
M is displayed in white when the printer is set to print a mirror caption.
"M" for mirror caption may be displayed when you turn the power on even though the print mode is not set to MIRROR ON. (see page 35)

2 Error message display area
Error messages are displayed.

3 Warning message display area
Warning messages are displayed.

4 Number of four or 16 reduced image
When the printer is set to store multiple reduced images into memory, corresponding numbers appear to indicate the memory status.

5 Image type display
This indicates the type of image shown on the monitor screen.
When the image being played back from print source equipment is displayed on the screen, the corresponding print source (the input signal connector name, for example VIDEO) appears.
When an image stored in memory is displayed on the screen, MEMORY appears.

6 Print mode display
This indicates the selected print mode.
Several examples are shown below:

Display	Print mode
NORM	Makes a printout of one normal image
N2	Makes a printout of two identical normal images
MIR	Makes a printout of one mirror image
M16	Makes a printout of 16 reduced mirror images

7 Memory page display
The memory page you select appears.
The memory page whose image is being printed blinks in green.
The following shows several examples.

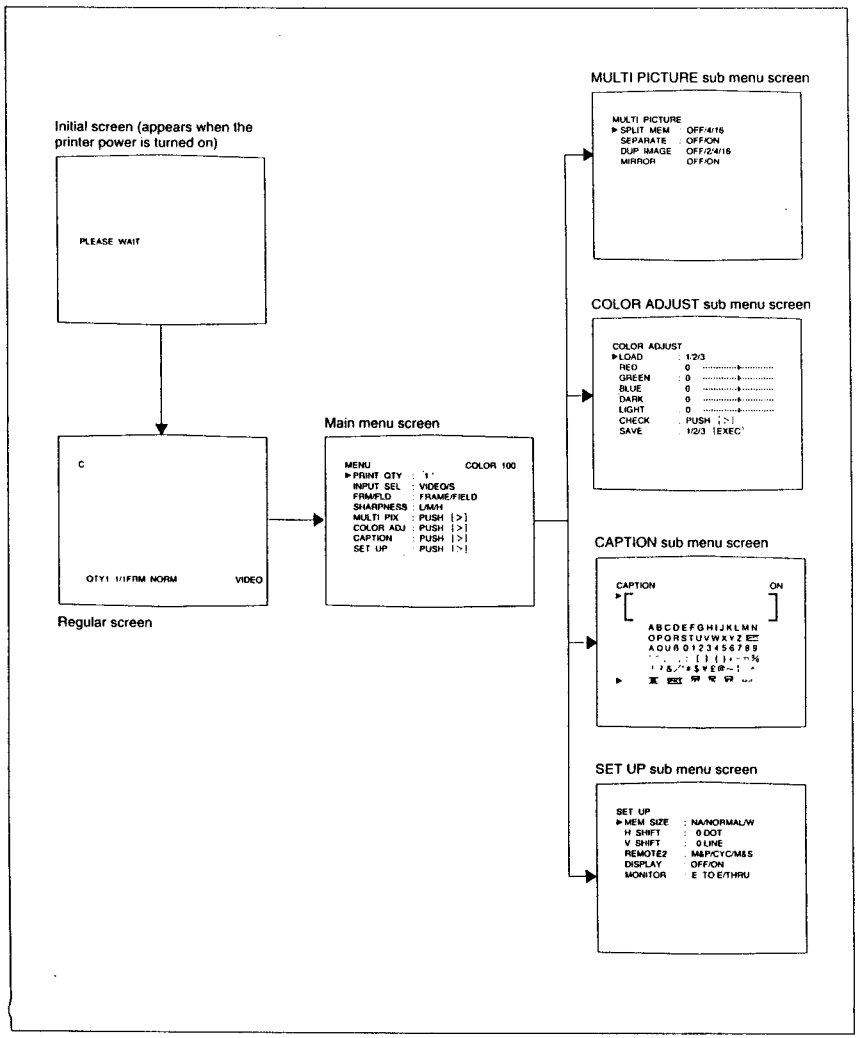
Display	Meaning
1/1FRM	The frame mode is selected.
1/2FLD	The second page is selected in field mode.

8 Number of copies to be printed
Indicates the number of copies to be printed.
This item blinks while the printer is busy. Also, the color changes to indicate the progress while making a color printout, as follows:
Printing start - yellow - magenta - cyan - printing end. When making black and white printouts, this blinks in white.

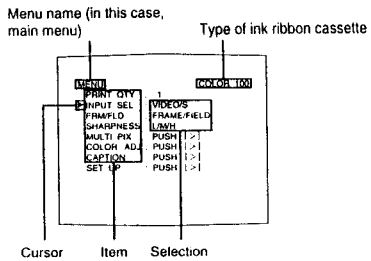
Menu screen

Menu screen tree-chart

The menu screen configuration is shown using the tree-chart.



Menu screen display



Display color

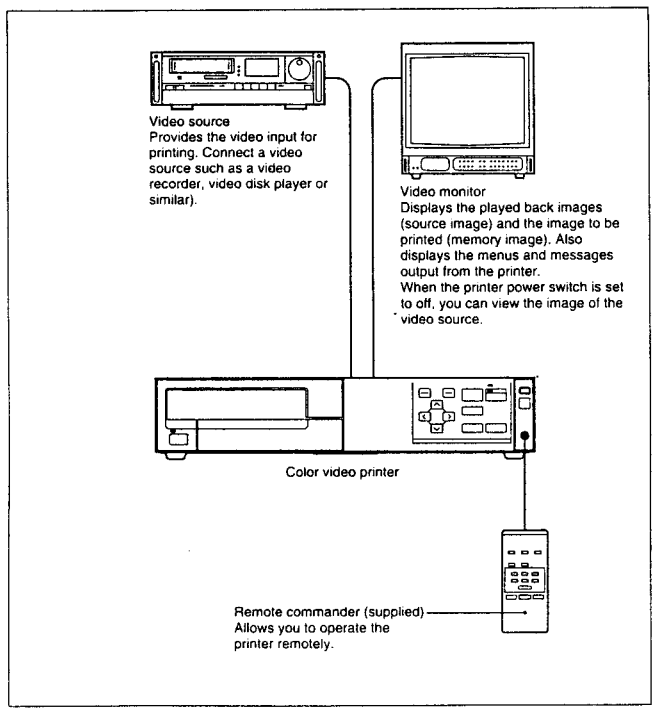
The color indicates the printer status.

Display color	Meaning
Light blue	Indicates the menu name.
Green	In the item column, indicates the selected item. In the selection column, indicates an item that has already been set or one that must be set.
White	In both the item and selection column, indicates that the item has not been selected or has not yet been set.
Dark blue	Indicates that this item or selection cannot be selected. They are functions which become effective depending on another item or selection settings.

1-3. SYSTEM OVERVIEW

System Configuration

The following shows an example printer system configuration.



1-4. BEFORE PRINTING

This section describes the following operations that must be made prior to start printing after installing the printer and making connections.

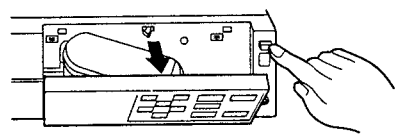
- Loading an ink ribbon cassette (see page 8)
- Loading paper (see page 10)
- Selecting the input signal (see page 12)

Once the above operations are done, there should be no need to subsequently perform in routine printing operations. Perform the above operations, if necessary.

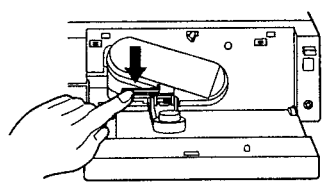
Loading an Ink Ribbon Cassette

To make printouts, an ink ribbon cassette and paper should be loaded. Both of those should be used in correct pairs. (see "Ink Ribbon Cassette and Paper" page 60)

1 Push the PUSH OPEN button.
The front panel opens.

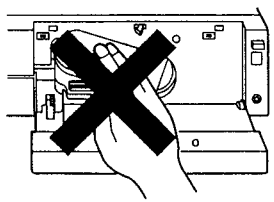


2 Remove the ink ribbon cassette by pulling down the EJECT lever.

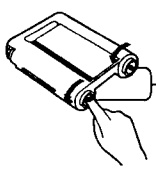


Note

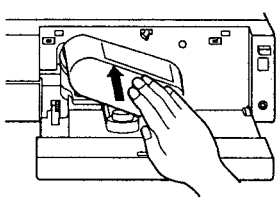
Never put your hand into the ink ribbon cassette dock. The thermal head becomes very hot. You may burn yourself if you touch it.



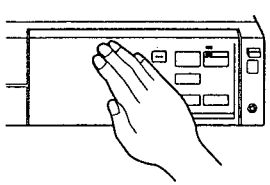
3 Take up any slack in the ink ribbon.
If the ribbon is left slack, it may be crumpled and damaged when inserted.



4 Insert the ink ribbon cassette firmly until it stops.



5 Close the front panel.



Continue to next page →

Notes

When using ink ribbon cassettes:

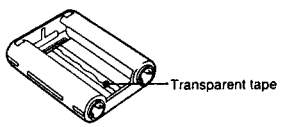
- Once an ink ribbon has been completely used, replace it. Ink ribbon cassettes are not reusable.
- Do not touch the ribbon or place the cassette in a dusty place. Body oils or dust stuck to the ink ribbon will cause imperfect printing.

When storing ink ribbon cassette:

- Avoid placing the ink ribbon cassette in a location subject:
  –high temperatures
  –high humidity
  –excessive dust
  –direct sunlight
- Store a partially used ink ribbon in its original bag.

If your ink ribbon should tear

Repair the tear with transparent tape. There should be no problem in using the remaining portion of the ribbon.



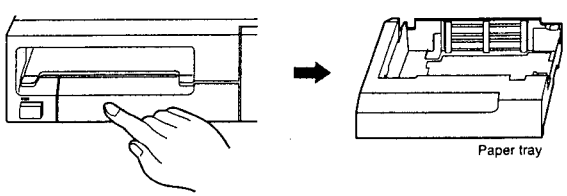
Loading Paper

Follow these steps to load paper in the printer. Use only the ink ribbon cassette and paper packed in the same carton, that is correctly in pairs. Be careful not to touch the printing surface.

Note

When loading the paper while the printer is operating, do not turn off the power. If you turn off the power, the image stored in memory will be lost.

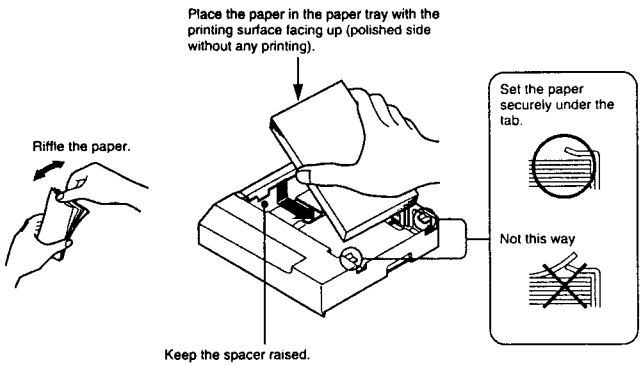
1 Push PUSH on the paper tray.
The paper tray is ejected.



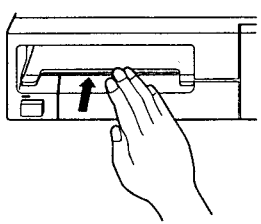
2 Place the paper into the paper tray.

Notes

- The paper tray holds up to 100 sheets. When you add paper to a partly-full tray, be careful that the total number of sheets does not exceed 100. If you exceed this limit, paper jams may occur.
- Load the paper so that it lays flat in the paper tray.
  If the paper is curled, it will overflow the paper tray and the printing position may shift. If this happens, load fewer sheets in the paper tray.



3 Slide the paper tray back into the printer until it clicks into place.



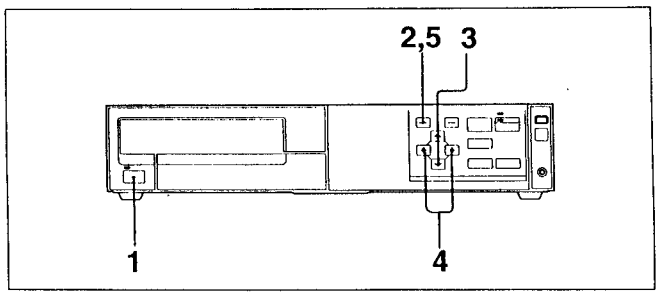
Notes

When storing paper:

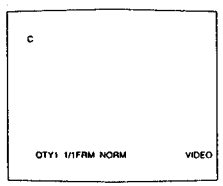
- Avoid placing the paper subject to:
  –high temperatures
  –high humidity
  –excessive dust
  –direct sunlight
- Keep the package for storing unused paper.

Selecting the Input Signal

Before printing, select the input signal. Once you have selected the input signal, this setting remains as is until you select another source.

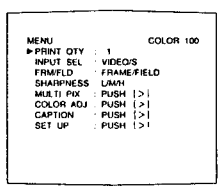


1 Turn on the video monitor and the printer.
The following message appears when the printer is ready to operate.

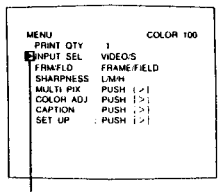


2 Press the MENU button.
The right screen appears.

Main Menu screen

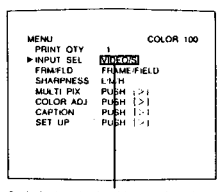


3 Select INPUT SEL by pressing the ∧ or ∨ button.



Move the cursor to INPUT SEL by pressing the ∧ or ∨ button.

4 Select the desired input signal by pressing the < or > button.



Switch the desired input signal to green by pressing the < or > button.
The name of the selected input signal appears in green.

Video monitor (The name of the selected input signal appear on the screen.)	Source signal of the image to be printed
V → VIDEO	Signal from the video equipment connected to the VIDEO INPUT connector
S → S-VIDEO	Signal from the video equipment connected to the S-VIDEO INPUT connector

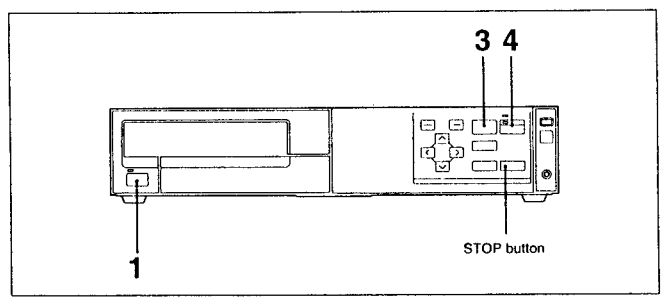
5 Press the MENU button.
The regular screen appears.

1-5. MAKING FULL-SIZE PRINTOUTS

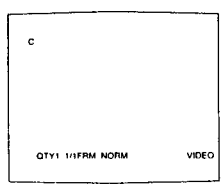
This section explains how to make a full-size printout. The operations described here is the basic procedure for making a printout.

Before making a full-size printout

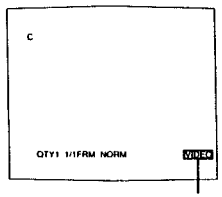
- All connections should have already been made. (see page 37)
- Ensure that the appropriate ink ribbon cassette/paper set is being used and that they are correctly loaded. (see pages 8, 10 and 60)
- Select the input signal to be used to make a printout. (page 12)
- Set the memory mode to store one full-size image into memory. (see page 25)
- Select the appropriate memory page. (see page 23)
- Set the print mode to make a printout of one normal full-size image. (see page 27)



1 Turn on the video monitor and the printer.
The right message appears when the printer is ready to operate.

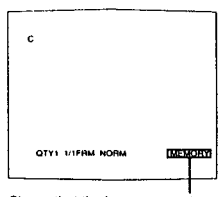


2 Start the video source.
(This operation is done using the controls of the video equipment acting as the source.)



Shows that the image from the video equipment are displayed on the screen.

3 Press the MEMORY IN button at the instant when the image you want to print appears on the screen.
That image is stored into memory.
The memory image (stored into memory) is displayed on the screen.



Shows that the images stored into memory is displayed on the screen.

If the stored image is blurred

A quickly moving image may be blurred when it is printed. If this happens, switch the FRM/FLD (frame/field) mode setting to FLD on the main menu and perform printing again. This should eliminate blur from the printout. However, since printing in field mode has a lower resolution than in the frame mode, the ultimate print quality will be slightly degraded.(see "About Memory" page 21)

To change the stored image

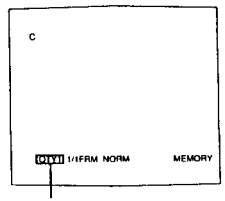
① Press the SOURCE/MEMORY button.
The image from the video source appears.
② Press the MEMORY IN button at the instant when the image you want to print appears.
The previous image is replaced.

Note

If you turn off the power, the image stored into memory will be lost. Thus, store the image into memory again when you turn on the power.

Continue to next page →

4 Press the PRINT button.
It takes about 60 seconds to make a color printout, or 30 seconds to make a black and white printout.



Blinks while printing.
During color printing: Printing start → yellow → magenta → cyan → printing end
During black and white printing: Printing start → white → printing end

Notes

- Do not handle the paper until printing has been completed.
- Do not open the front panel while the printer is printing. Doing so may produce an unsatisfactory printout.

To stop printing before completion

Press the STOP button. Printing is abandoned and the paper is ejected to the print tray.

If the printer does not print

The printer will not print when an error message is displayed on the video monitor. (see "Error Messages" page 62)

If a black line appears on the printout

Sometimes, a black line appears on the printout, although it does not appear on the video monitor. You can eliminate the black line from the printout. (see "Changing the Printout Area" page 50)

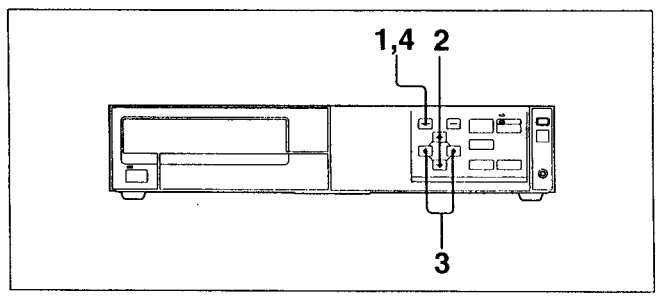
Notes

When preserving your printouts:

- Keep printouts in a dark and cool place.
- Do not to stick plastic tape to the printout. Also avoid leaving plastic eraser on top of the printout or putting the printout between things which contain plasticizer (a desk mat, etc.).
- Do not to pour alcohol or other volatile organic solvents on the printouts.

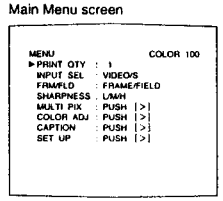
Making Multiple Copies of Identical Image

You can print up to 100 copies of a stored image.
Do the following steps before you start printing or while printing. You can change the designated number of copies any time during printing.

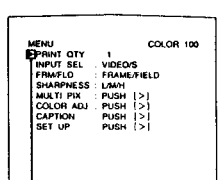


1 Press the MENU button.
The right screen appears.

Main Menu screen



2 Select PRINT QTY by pressing the ∧ or ∨ button.

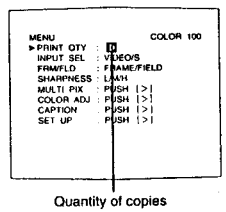


Move the cursor to PRINT QTY by pressing the ∧ or ∨ button.

Continue to next page →

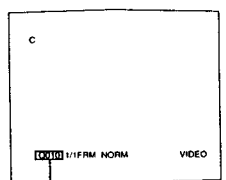
3 Set the number of copies by pressing the < or > button.

When setting	Button
To decrease the quantity	<
To increase the quantity	>



Quantity of copies

4 Press the MENU button.
The regular screen appears.



Quantity of copies set in step 3

When paper runs out during printing

Fill the paper tray with paper and press the PRINT button again. (see "Loading Paper" page 10)

Designating the number of copies by the remote commander (supplied)

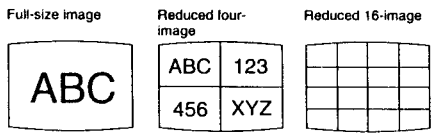
You can designate the number of copies directly on the regular screen by using the supplied remote commander.
To increase the number of copies, press the PRINT QTY + button. To decrease the number of copies, press the PRINT QTY – button.

When setting	Button
To decrease the quantity	PRINT QTY –
To increase the quantity	PRINT QTY +

1-6. MAKING VARIATIONS OF PRINTOUTS

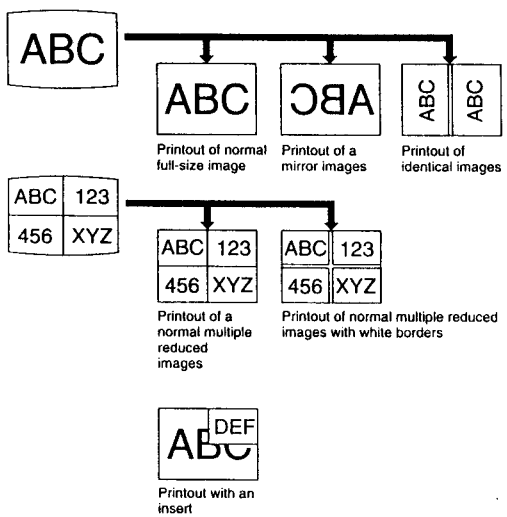
You can store various kinds of images into memory by changing the memory mode and can vary the printout of the stored images by changing the print mode.
This section explains how to set the memory mode and change the print mode.

Types of images that can be stored into memory



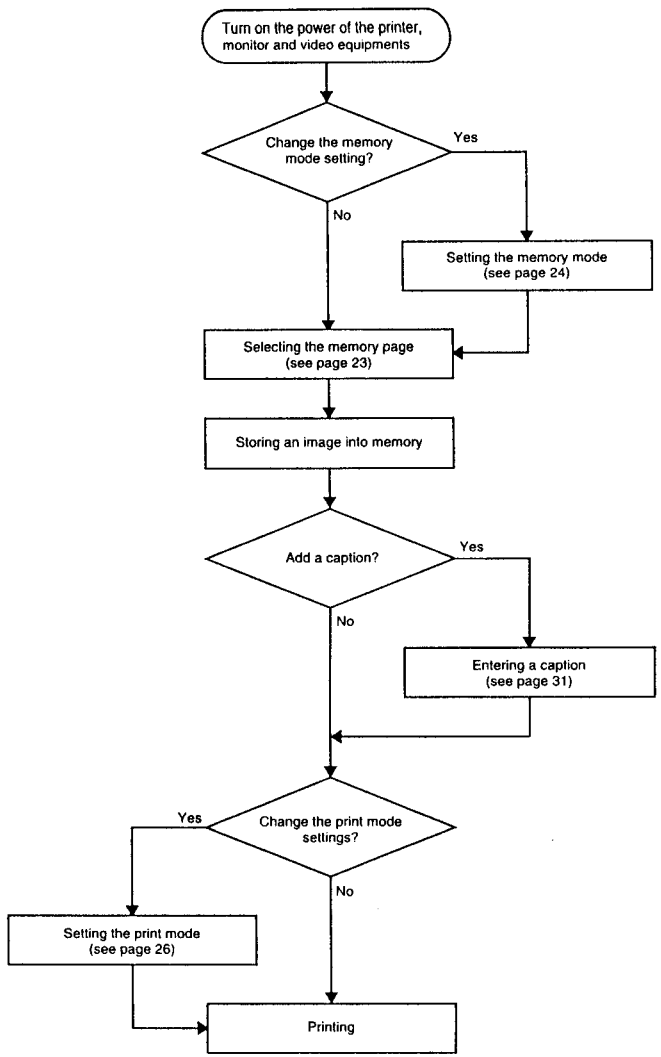
Types of printouts that the printer can produce

By varying the print mode, the following types of printout can be made using images stored in memory.



Printing Operation Flowchart

The following flowchart shows the flow of a printing operation.

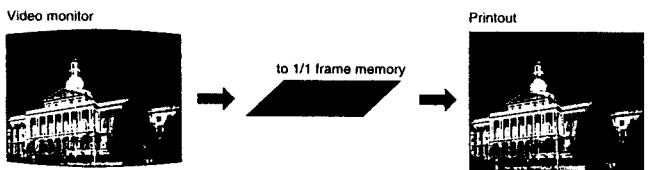


About Memory

To make a printout, it is first necessary to store the desired image into memory. The method of storing images into memory is called memory mode.
By setting memory mode, you can store a full-size image or multiple reduced images into memory.
Also, you have to decide how to use the printer's memory to store images. Two methods of using memory are supported. One is frame mode, while the other is field mode. The number of memory images you can store depends on whether you select frame or field mode.

Frame mode and filed mode

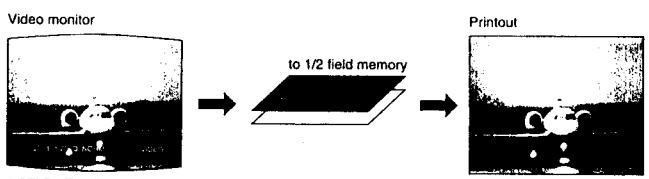
Frame (FRM) mode
One image is stored in one memory.



1/1FRM: Frame-mode memory page

A still subject can be printed with high resolution.

Field (FLD) mode
One memory is divided into two, and images for the two screens are stored to the resulting memory pages.

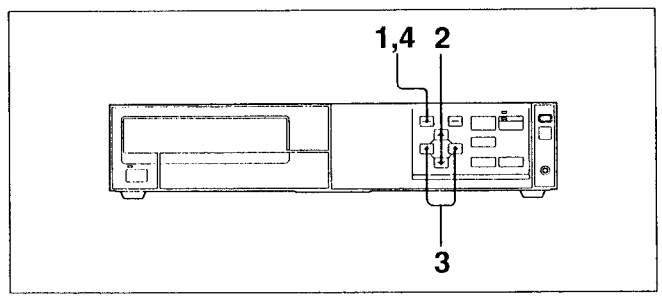


1/2FLD: The first memory page of two field-mode memory pages

A quickly moving subject can be printed without blurring.

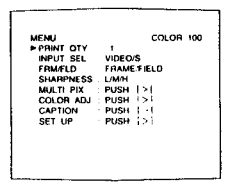
Selecting frame or field mode

Before storing an image, select frame or field mode.

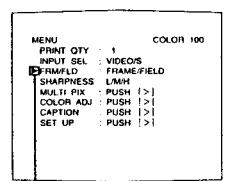


1 Press the MENU button.
The following screen appears.

Main Menu screen



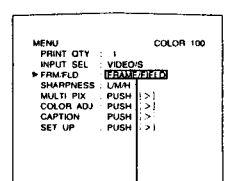
2 Select FRM/FLD by pressing the ∧ or ∨ button.



Move the cursor to FRM/FLD by pressing the ∧ or ∨ button.

3 Select the desired mode by pressing the < or > button.

FRAME: We recommend that, whenever possible, you print in this mode.
FIELD: Select this mode to reduce blurring when you print a quickly moving image.



Switch the desired mode to green by pressing the < or > button.

4 Press the MENU button.
The regular screen appears.

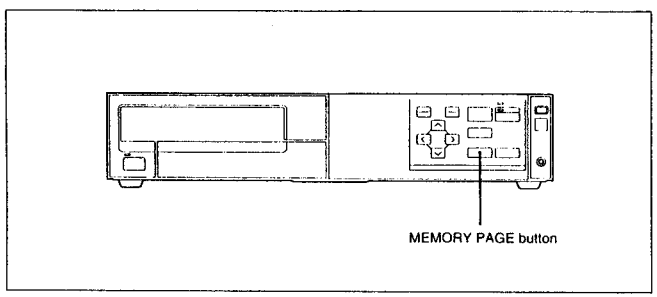
About memory pages

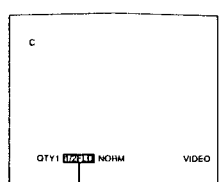
The unit has a single frame memory, enabling the unit to store one image in one memory page when FRM mode is selected, or two images in two memory pages when FLD mode is selected.
The memory used to store one screen image is called a memory page.

Selected memory mode	Number of usable memory pages	Usable memory pages
Frame mode (FRM)	1	1/1FRM
Field mode (FLD)	2	1/2FLD or 2/2FLD

Selecting a memory page

To select a memory page, press the MEMORY PAGE button.





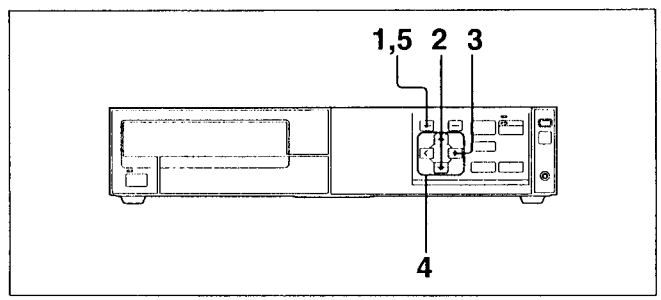
Press the MEMORY PAGE button until the desired memory page appears.

Selecting the Memory Mode

Decide the method for storing images in memory. Once you have selected memory mode, this setting remains as is until reset, even if you turn the power off.

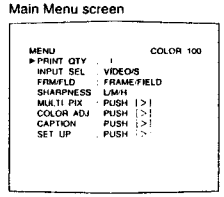
To control the printer remotely by using the remote commander (supplied)

You can access the MULTI PICTURE sub menu by pressing the MULTI PICTURE button on the remote commander. Thus, press the MULTI PICTURE button to display the MULTI PICTURE sub menu. Then, follow the procedure below, starting from step 4.

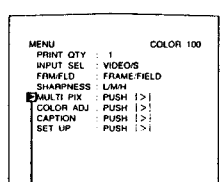


1 Press the MENU button.
The right screen appears.

Main Menu screen



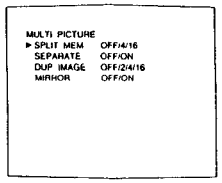
2 Select MULTI PIX by pressing the ∧ or ∨ button.



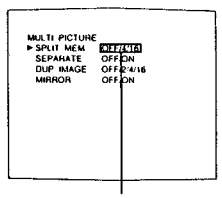
Move the cursor to MULTI PIX by pressing the ∧ or ∨ button.

3 Press the > button.
The right screen appears.

MULTI PICTURE sub menu



4 Set the memory mode.
① Select the item to be set by pressing the ∧ or ∨ button.
② Select the method for storing images by pressing the < or > button.



Switch the desired mode to green by pressing the < or > button.

Item for memory mode	When you select	Settings	Contents of setting
SPLIT MEM	To set the number of images to be stored in one memory page.	OFF	Storing a full-size image
		4	Storing four reduced images
		16	Storing 16 reduced images

5 Press the MENU button.
The regular screen appears.

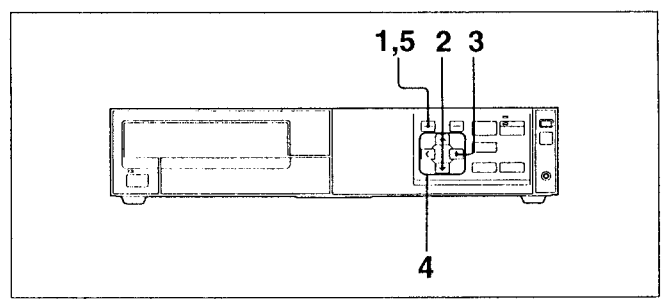
Selecting the Print Mode

You can make variations of printouts from the images stored in memory pages by changing the print mode. (see "Types of printouts that the printer can produce" page 19)
Once you have selected the print mode, this setting remains as is until you reset, even if you turn the power off.

Note
The print mode setting to make printouts without white borders (SEPARATE OFF) dose not remain when you turn the power off. The print mode is automatically set to make printouts with white borders (SEPARATE ON) when you turn the power on the next time.

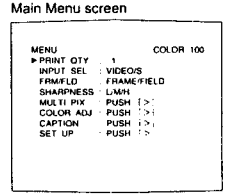
To control the printer remotely by using the remote commander (supplied)

You can access the MULTI PICTURE sub menu by pressing the MULTI PICTURE button on the remote commander. Thus, press the MULTI PICTURE button to display the MULTI PICTURE sub menu. Then, follow the procedure below, starting from step 4.

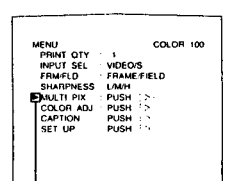


1 Press the MENU button.
The right screen appears.

Main Menu screen



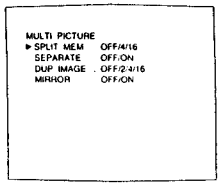
2 Select MULTI PIX by pressing the ∧ or ∨ button.



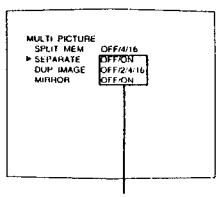
Move the cursor to MULTI PIX by pressing the ∧ or ∨ button.

3 Press the > button.
The right screen appears.

MULTI PICTURE sub menu



4 Set the print mode.
① Select the item to be set by pressing the ∧ or ∨ button.
② Select the method for making a printout by pressing the< or > button.



Switch the desired mode to green by pressing the < or > button.

Item for memory mode	When you select	Settings	Content of settings
SEPARATE	To decide whether the images are printed with white borders	OFF	without white borders
		ON	with white borders
DUP IMAGE	To decide how many times identical images are printed in a single printout.	OFF	Printing a memory image one time
		2	Printing a memory image twice
		4	Printing a memory image four times
		16	Printing a memory image 16 times.
MIRROR	To rotate the image around its vertical axis (to make a mirror image printout)	OFF	Normal image
		ON	Mirror image

5 Press the MENU button.
The regular screen appears.

To return to the main menu from the sub menu screen

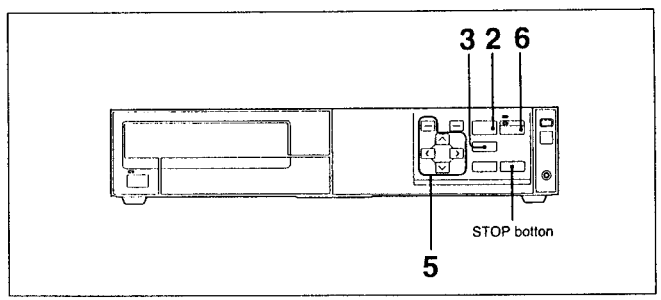
Press the EXEC button except when the SAVE item is selected on the COLOR ADJUST sub menu and when the cursor is positioned in the character entry area on the CAPTION sub menu.

Making Printouts of Multiple Reduced Images

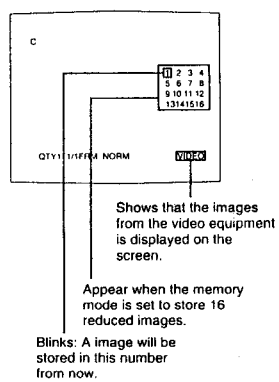
This subsection explains how to make printouts of multiple reduced images taking as an example, making a printout of 16 reduced images. (see "Selecting the Print Mode" page 26)

Before making printouts of 16 reduced images

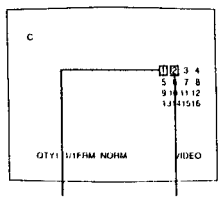
- Set the memory mode to store 16 reduced images into memory. (see page 25)
- Select the appropriate memory page. (see page 23)



1 Start the video source.
(This operation is done using the controls of the video equipment acting as the source.)



2 Press the MEMORY IN button at the instant when the image you want to print appears on the screen.
The image is stored to the position whose the corresponding number blinks on the monitor display.
The cursor moves to the next number, then blinks.



When an image has been stored into this position, the number lights in green.

The cursor moves to the next number.

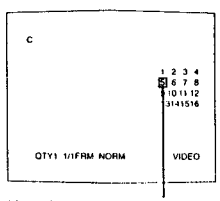
3 Press the SOURCE/MEMORY button.
The image from the video equipment appears on the monitor display.

4 Repeat steps 2 and 3 until you have stored 16 images.

To change a stored image

Example: When you want to change the image stored to the 5th position

① Select 5 by pressing the ∧, ∨, < or > button.
② Press the SOURCE/MEMORY button.
The image from the video source appears.
③ Press the MEMORY IN button at the instant when the image you want to print appears.
The previously stored image is replaced with the newly selected image.



Move the white blinking cursor to 5 by pressing the ∧, ∨, < or > button.

To skip a previously stored image

When an image has already been stored, the previously stored image can be replaced by pressing the MEMORY IN button. Skip the number corresponding to the image to be skipped by pressing the ∧, ∨, < or > button.

5 Set the print mode. (see "Selecting the Print Mode" page 26)

6 Press the PRINT button.
The 16 reduced images are printed on one sheet of paper.

To stop printing midway

Press the STOP button. The printer stops printing and ejects paper to the paper cover.

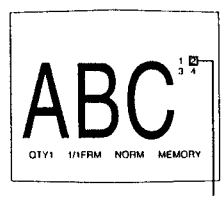
Making Printouts with an Insert

You can make printouts with an insert by using the four- or 16-reduced image memory mode.
To make printouts with an insert, select the memory to FIELD.
Example: To make a printout with one of four reduced images inserted

1 Display the full-size image stored in memory. (Follow steps 1 to 3 of "Making Full-Size Printouts" on page 14)

2 Set the memory mode to store four reduced images. (see "Selecting the Memory Mode" page 24)

3 Move the white blinking cursor to the position where a reduced image is to be inserted, by pressing the ∧, ∨, < or > button.
Example: To insert the image to 2



Move the white blinking cursor to 2.

4 Press the SOURCE/MEMORY button to display the image from the video source, if necessary.

5 Press the MEMORY IN button at the instant when the image you want to print appears.
The image is stored to position 2.

6 Press the PRINT button.
An image with the insert is printed.

Note

If you insert a reduced image into an image stored in a different memory page, the printer can not make a printout of the image with an insert.

1-7. MAKING PRINTOUTS WITH A CAPTION

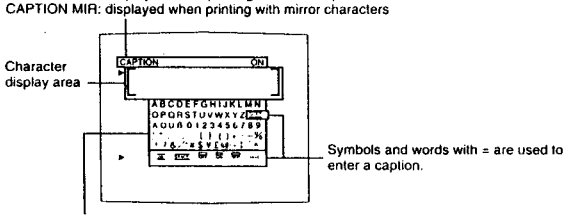
A caption, such as data or comments, can be added to a printout, using small characters below the image.
You can input up to 60 characters in NARROW size mode, NORMAL size mode, in WIDE size mode.

Note
When the printout is printed in field mode, characters may not be printed clearly.

About the CAPTION sub menu

A caption is entered from the CAPTION sub menu. A brief explanation of each item on the CAPTION sub menu, is given below before entering a caption.

CAPTION ON: displayed when printing with a caption
CAPTION OFF: displayed when printing without a caption
CAPTION MIR: displayed when printing with mirror characters



Character entry area
The cursor is positioned at the highlighted character and this highlighted character is to be entered.

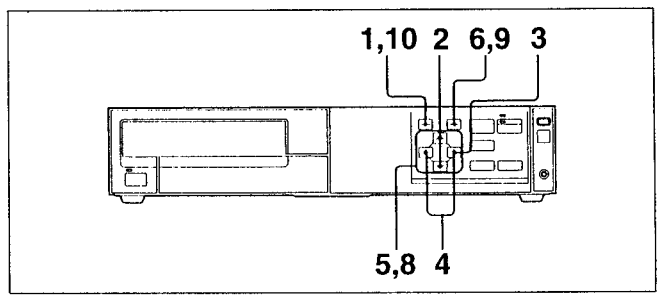
Symbols and words with = used to enter a caption

Monitor display	Function
SPACE	One space
BS	One backspace
OFF	Selecting to print without a caption
ON	Selecting to print with a caption
MIR	Selecting to print with a mirror caption
SHIFT a)	Selecting either capital letters or lower-case letters
SAVE	Storing the entered caption

a) By highlighting SHIFT and pressing the EXEC button, capital letters are changed to lower-case letters, or lower-case letters are changed to capital letters.

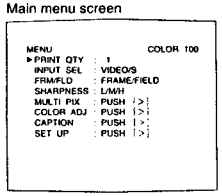
Entering a Caption

Enter a caption as follows. The setting remains valid until you enter a new setting - even if you turn the power off.

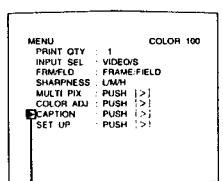


1 Press the MENU button.
The right screen appears.

Main menu screen



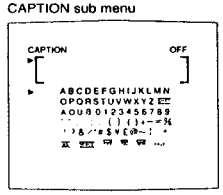
2 Select CAPTION by pressing the ∧ or ∨ button.



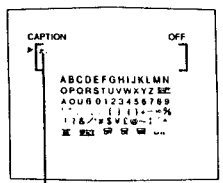
Move the cursor to CAPTION by pressing the ∧ or ∨ button.

3 Press the > button.
The right screen appears.

CAPTION sub menu

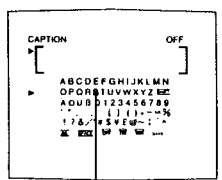


4 Select the position where you want to enter the character in the character display area by pressing the < or > button.



The cursor □ is highlighted at the selected position on the monitor display.

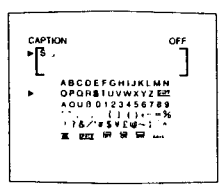
5 Select the character you want to enter by pressing the ∧, ∨, < or > button.
Example: To select S



Highlight S.

6 Press the EXEC button.

The selected character appears at the position highlighted on the character display area, then the highlighted □ moves to the next position.



When you enter a wrong character

Select BS by pressing the ∧, ∨, < or > buttons, then press the EXEC button. The character to the left of highlighted character will be deleted.

7 Repeat steps 4, 5 and 6 to enter the remaining characters of the caption.

To make a space

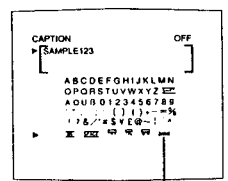
① Move the highlighted □ to the position where you want to make a space.
② Select SPACE by pressing the ∧, ∨, < or > button.
③ Press the EXEC button.
The one space is made and the cursor moves to the next position.

Continue to next page →

To replace a previously entered character without changing the number of characters

You can replace a previously entered character with a new one.
① Move the cursor to the character which you want to replace by the operation in step 4.
② Enter the correct character over the wrong character by the operations in step 5 and 6.
The previously entered character is replaced with the new one.

8 Select SAVE by pressing the ∧, ∨, < or > button.



Highlight SAVE.

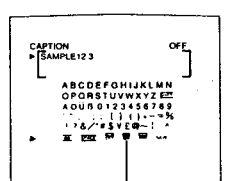
9 Press the EXEC button.
The message "PLEASE WAIT" appears while the entered characters are being stored. Once they have been stored, the message disappears and the CAPTION sub menu appears again.

10 Press the MENU button.
The regular screen appears.

Making printouts with a caption

Display the CAPTION input screen. (see "Entering a Caption" page 32)

1 Select ON by pressing the ∧, ∨, < or > button.



Highlight ON.

2 Press the EXEC button.

Making a printouts without a caption

Select OFF in the above step 1.

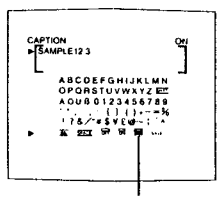
Making a printout with a mirror caption

Display the CAPTION input screen. (see "Entering a Caption" page 32)

Notes

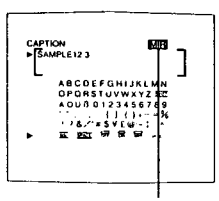
- To select MIR on the CAPTION sub menu, the setting of MIRROR on the MULTI PICTURE sub menu should be set to MIRROR ON. Otherwise, if you select MIR on the CAPTION sub menu with setting to MIRROR OFF on the MULTI PICTURE sub menu, error tone sounds.
- "M" for mirror caption may be displayed when you turn the power on even though the print mode is not set to MIRROR ON. Even if you make a printout in such a setting, caption will not be rotated around its vertical axis. In such a case, modify the setting on the CAPTION sub menu.

1 Select MIR by pressing the ∧, ∨, < or > button.



Highlight MIR.

2 Press the EXEC button.



MIR is displayed.

To return to the print mode with normal caption

① Select ON by pressing the ∧, ∨, < or > button.
② Press the EXEC button.

To return to the regular screen

Press the MENU button.

1-8. CONNECTIONS

To enable printing, video equipment to act as an input signal source, and a video monitor to enable you to view images or menus, must be connected. The following diagrams illustrate how to make the input, output and remote control connections. Use as a guide when connecting the necessary signals to and from the equipment to be used for printing.

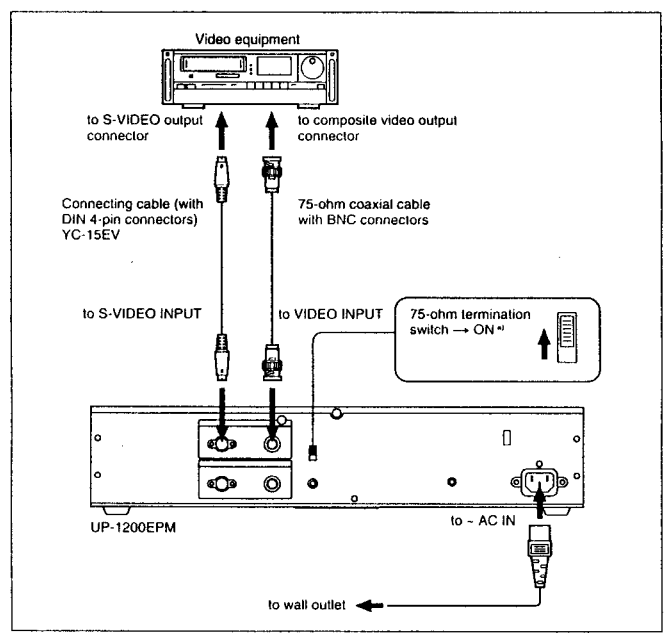
Notes

When connecting:

- Turn off the power of each device before attempting to make any connections.
- Connect the AC power cord last.

Making Connections for Storing Video Images

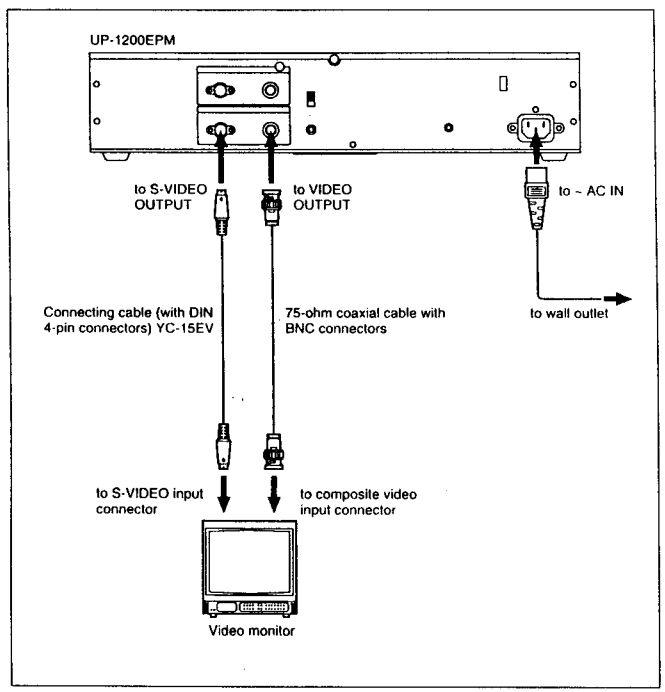
Connect the video equipment for storing the video images to be printed.
Connect the necessary video equipment which will be used in actual printing, using the following diagram as a guide.
Before connecting the video equipment, see "Important safeguards/notices for use in the medical environment" on page 2.



a) Normally, set this switch to ON. Set it to OFF if the level of the input signal drops when you connect additional video equipment.

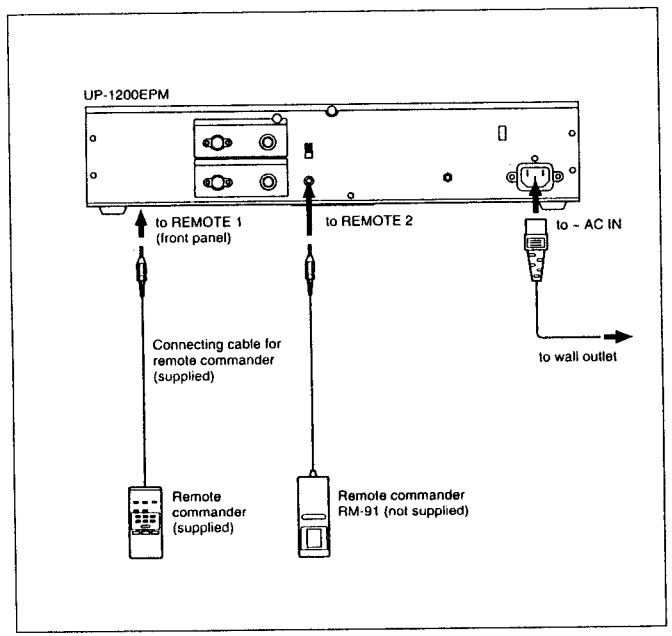
Making Connections for Viewing Images to be Printed on the Video Monitor

Connect a video monitor to view stored images and to check those to be printed. Connect the necessary video monitor which will be used in actual printing, using the following diagram as a guide.
Before connecting the video monitor, see "Important safeguards/notices for use in the medical environment" on page 2.



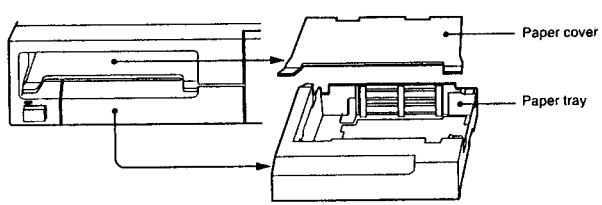
Making Connections to Enable Remote Control

The printer can be controlled remotely by connecting the remote commander (supplied) or the RM-91 remote commander (not supplied) (see "Preparing the Remote Control Units" page 40).



Assembly

Mount the supplied paper tray and paper cover.



1-9. PREPARING THE REMOTE CONTROL UNITS

You can control the printer remotely by using the remote commander (supplied) or the remote commander (not supplied).

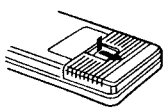
Using the Supplied Remote Commander RM-5100

The remote commander can be used either as a wireless type or wired type. The buttons on the remote commander duplicate those on the front panel of the printer, except for the PRINT QTY button, COLOR ADJUST button and MULTI PICTURE button. (see "Remote Commander RM-5100" page 68)

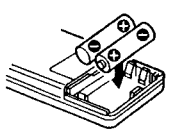
Inserting batteries

Install the batteries in the remote commander before using it as a wireless unit.

1 Remove the battery compartment cover.



2 Insert the two supplied 1.5 V batteries (R6).
Note the polarity. Be careful to insert the batteries correctly.



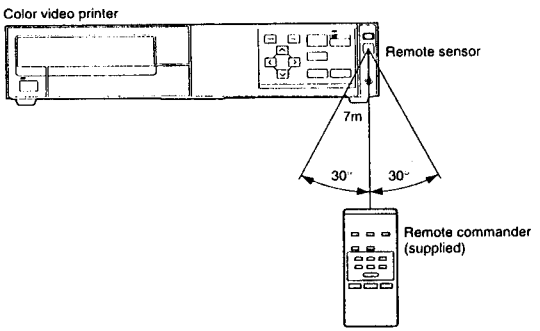
3 Replace the cover.

Battery life
The battery life depends on how much you use the remote commander. On average, batteries last for about 6 months. Install fresh batteries as soon as you notice the unit's range becoming shorter.

Notes
When using the batteries:
- Remove the batteries from the remote commander if you do not intend to use it for an extended period of time. The batteries may leak if you leave them in the remote control unit.
- Should the batteries leak, clean the battery case thoroughly with a soft cloth and install fresh batteries.
- Be careful to insert the batteries correctly. Note the polarity, as indicated inside the battery compartment.
- Replace exhausted batteries with fresh ones. Never mix a fresh battery with a used battery or with a different kind of battery.

Using the supplied remote commander as a wireless unit

When using the remote commander as a wireless unit, aim the head of the remote control unit of the remote sensor on the printer. With fresh batteries, the range of the remote commander is about 7 meters.



Using the Remote Commander (Not Supplied)

The RM-91 remote commander (not supplied) allows you to make printouts remotely.

Operation

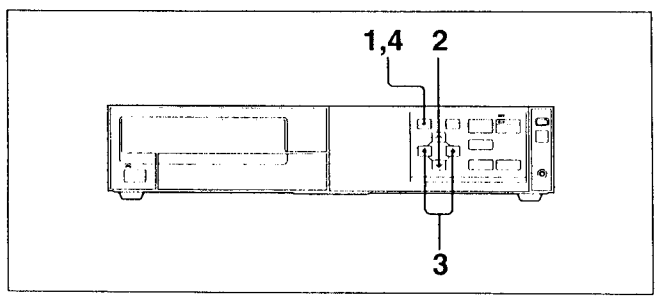
At the instant when the image you want to print is displayed on the monitor, press the switch of the remote commander. The subsequent operation of the printer will depend on the remote operation setting with the corresponding menu. (see "Selecting the Operation Mode for Automatic Printing Capabilities" page 52) The printer operation, also, can be controlled remotely by sending a pulse signal to the REMOTE 2 connector. (see "Specifications" page 61)

1-10. ADJUSTING THE PRINTOUT QUALITY

You can adjust the printout quality, including its sharpness and color (intensity and contrast) and store these settings by using the menu. The setting remains as is until reset - even if you turn off the power.

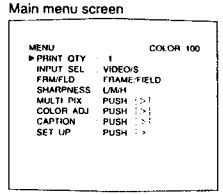
Adjusting the Sharpness

You can set the printout sharpness to one of three levels: L (Low), M (Medium) or H (High). A printout will appear softer or sharper depending on the definition of the subject outline. The image on the monitor is not affected by changing the sharpness setting. This adjustment affects only the quality of the printout. The setting remains as is until reset - even if you turn off the power.

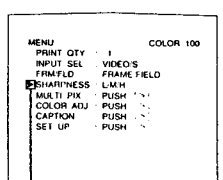


1 Press the MENU button.
The right screen appears.

Main menu screen



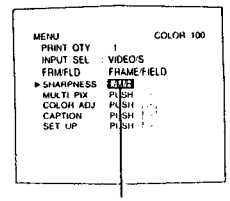
2 Select SHARPNESS by pressing the ∧ or ∨ button.



Move the cursor to SHARPNESS by pressing the ∧ or ∨ button.

3 Select desired sharpness by pressing the < or > button.

Desired sharpness	Content of settings
L (Low)	Soft outline
M (Medium)	Normal outline
H (High)	Sharp outline



Switch the desired sharpness to green by pressing the < or > button.

4 Press the MENU button.
The regular screen appears.

Adjusting the Printout Color

This subsection explains how to adjust the printout color.
You can adjust the color intensity (RED/GREEN/BLUE) and contrast (DARK/LIGHT). The new setting remains as is until reset - even if you turn off the power.

You can store up to three settings. These settings are managed according to a LOAD number. The color intensity and picture contrast of a printout are determined by recalling one of the three settings according to their LOAD numbers. The printer retains these settings even if you turn off the power.
This is useful when you are using more than one video equipment, each of a different quality, and when you want to print images having different color qualities and picture contrasts.
Also, you can make a printout using temporarily set values, without erasing the stored adjustment values.
Perform the adjustments while viewing the images stored in memory.
All values are factory-set to 0 for LOAD numbers 1, 2 and 3.

When you control the printer using the remote commander (supplied)
You can directly access the COLOR ADJUST sub menu from the regular screen by pressing the COLOR ADJUST button on the remote commander. Therefore, press the COLOR ADJUST button first. Then, perform the operation from step 5 of the following procedure.

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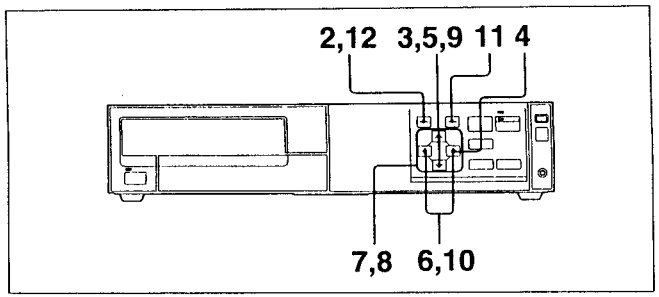
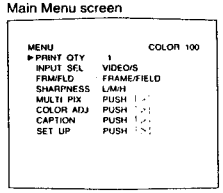


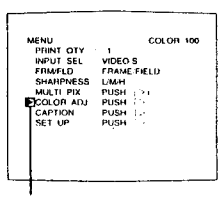
1 Display the image stored in monitor for adjustment.

2 Press the MENU button.
The right screen appears.

Main Menu screen



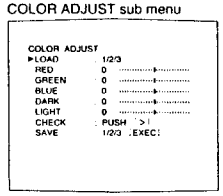
3 Select COLOR ADJ by pressing the ∧ or ∨ button.



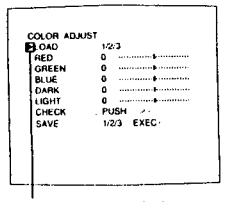
Move the cursor to COLOR ADJ by pressing the ∧ or ∨ button.

4 Press the > button.
The right screen appears.

COLOR ADJUST sub menu



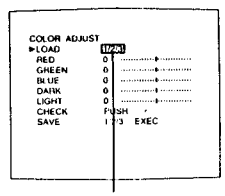
5 Select LOAD by pressing the ∧ or ∨ button.



Move the cursor to LOAD by pressing the ∧ or ∨ button.

6 Select the LOAD number of the value to be adjusted or to be modified by pressing the < or > button.

When modifying, you can preserve the original settings. (see "To preserve the original set value" page 47)



Switch the desired LOAD number to green by pressing the < or > button

7 Adjust the printout color.
① Select the item to be set by pressing the ∧ or ∨ button.
② Perform the adjustment by pressing the < or > button.

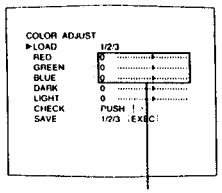
Adjustment item		Contents of setting
Color intensity	RED	Adjusting the red component of the image
	GREEN	Adjusting the green component of the image
	BLUE	Adjusting the blue component of the image
Color contrast	DARK	Adjusting the dark area of the image
	LIGHT	Adjusting the light area of the image

The RED, GREEN and BLUE color components and the contrast are divided into to 15 scales from –7 to +7, as indicated by a value and graph. And the center of the graph corresponds to the standard color.

Note
There is an unusable extra scale at the left end on the COLOR ADJUST sub menu.

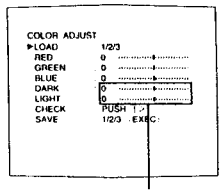
Continue to next page →

When adjusting RED/ GREEN/BLUE



The intensity increases in the + direction by pressing the > button. The intensity decreases in the – direction by pressing the < button.

When adjusting DARK/ LIGHT



The contrast in the dark area or light area is strengthened in the + direction by pressing the > button. The contract in the dark area or light area is weakened in the – direction by pressing the < button.

Once you have changed the value

Once you have changed the value, TEMP (TEMPORARY) appears to the right of the LOAD item. TEMP indicates that the setting is temporary and not stored.

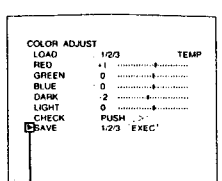
8 After you have made all necessary adjustments, check your presettings.

① Select CHECK by pressing the ∧ or ∨ button.

② Press the > button.
For as long as you keep the > button held down, the display does not appear on the screen.

You can make a printout with the settings made as above. Go to step 12 to make a printout. However, this setting is cleared when you turn the printer off or you select another preset. To store a new setting, go to the next step.

9 Select SAVE by pressing the ∧ or ∨ button.



Move the cursor to SAVE by pressing the ∧ or ∨ button.

10 Select the SAVE number to which new settings are to be stored by pressisng the < or > button.

To preserve the original set value

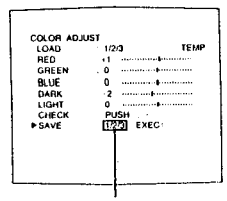
Select the SAVE number which differs from the LOAD number selected in step 6.

11 Press the EXEC button.
The settings have been registered to the SAVE number selected in step 10.
TEMP disappears from the LOAD item.

12 Press the MENU button.
The regular screen appears.

To recall settings

You can recall previously set values by selecting the LOAD number. The values are stored to SAVE numbers in steps 10 and 11. This SAVE number is the LOAD number for this setting.



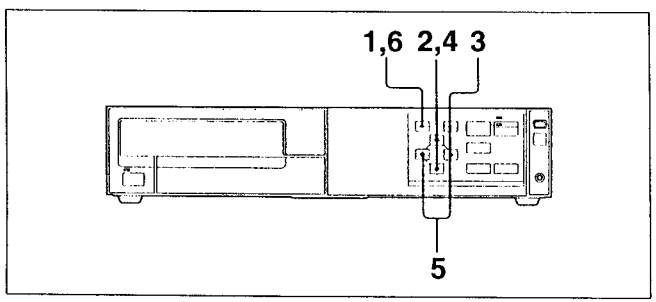
Switch the desired SAVE number to green by pressing the < or > button.

1-11. PRINTER INITIAL SETUP

You can set up the following, using the on-screen menu.
- Setting the printout size (see page 48)
- Changing the printout area (see page 50)
- Selecting the operation mode for automatic printing capabilities (see page 52)
- Erasing the screen display (see page 54)
- Viewing images from connected video equipment on the video monitor (see page 56)

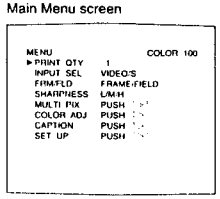
Setting the Printout Size

When you print an image that is narrower or wider than the standard screen size, the black frame may be printed or the image may be partially cut. In such a case, you can change the screen size.
The printer supports the following three sizes, NA (NARROW), NO (NORMAL) and W (WIDE).

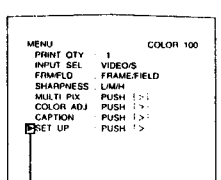


1 Press the MENU button.
The right screen appears.

Main Menu screen



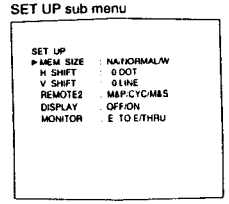
2 Select SET UP by pressing the ∧ or ∨ button.



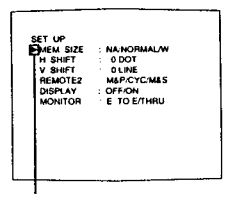
Move the cursor to SET UP by pressing the ∧ or ∨ button.

3 Press the > button.
The right screen appears.

SET UP sub menu

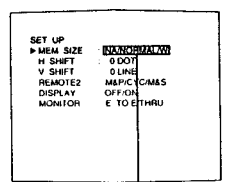


4 Select MEM SIZE by pressing the ∧ or ∨ buttons.



Move the cursor MEM SIZE by pressing the ∧ or ∨ button.

5 Select the desired size by pressing the < or > buttons.



Switch the selected size to green. The selected size appears in green.

When changing	Printout size	Size (dots × line)
When a black frame is printed	NA (NARROW)	708 (H) × 448 (V)
Normal	NO (NORMAL)	720 (H) × 472 (V)
When an image is partially cut	W (WIDE)	772 (H) × 488 (V)

6 Press the MENU button.
The regular screen appears.

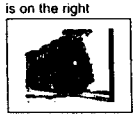
Note
To change the printout size, turn the power off after removing from the SET UP sub menu (after completing step 6 in the above operation procedures). If you keep the power on, the former setting remains.

To check the adjustment result
Any black frame is also stored in memory with the previous image. Thus, store a new image to the memory and print it to check whether the black frame disappears.

Changing the Printout Area

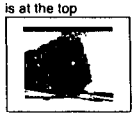
The black line may be printed on the printout although it does not appear on the video monitor. The portion where no video signal exists is printed in black. This may occur when you make printouts after you connect a different video source or play back different video software.
In such a case, you can adjust the printout area by moving the screen horizontally and vertically.

When the black line is on the right

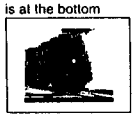


When the black line is on the left

When the black line is at the top

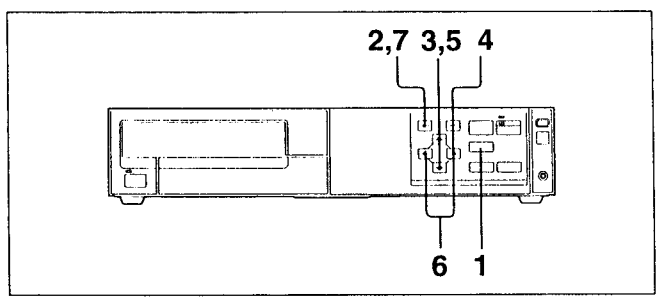


When the black line is at the bottom



Note

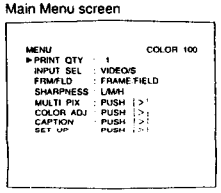
When the printout size is set to WIDE, the screen size cannot be adjusted vertically. (see "Setting the Printout Size" page 48)



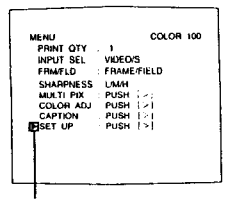
1 When the memory image is displayed on the screen, press the SOURCE/MEMORY button.
The image from the video source appears.

2 Press the MENU button.
The right screen appears.

Main Menu screen



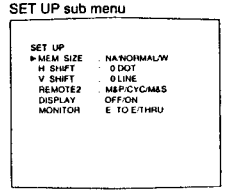
3 Select SET UP by pressing the ∧ or ∨ button.



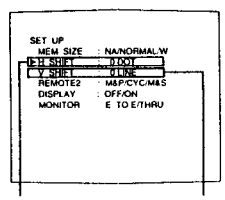
Move the cursor to SET UP by pressing the ∧ or ∨ button.

4 Press the > button.
The right screen appears.

SET UP sub menu



5 Select H SHIFT by pressing the ∧ or ∨ buttons, when the black line appears on the right or left.
Select V SHIFT by pressing the ∧ or ∨ buttons, when the black line is at the top or bottom.



When the black line is on the right or left

When the black line is at the top or at the bottom

6 Adjust the horizontal value or vertical value by pressing the < or > button.

Item selected in step 5	The position where the black line appears	Button to be used	Operation
H SHIFT (horizontal direction)	On the right	> button	Shifting the image to the right by up to 14 dots in step 2 dots
	On the left	< button	Shifting the image to the left by up to 14 dots in step 2 dots
V SHIFT (vertical direction)	At the top	> button	In frame mode, shifting the image up by up to 6 lines in step 2 lines In field mode, shifting the image up by up to 3 lines in step 1 line.
	At the bottom	< button	In frame mode, shifting the image down by up to 6 lines in step 2 lines In field mode, shifting the image down by up to 3 lines in step 1 line.

7 Press the MENU button.
The regular screen appears.

Continue to next page →

To check the adjustment result

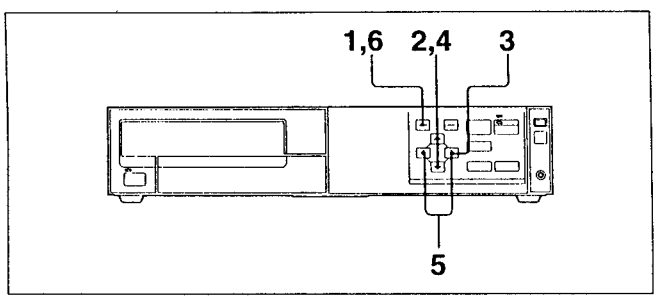
Any black line is also stored in memory with the previous image. Thus, store a new image to the memory and print it to check whether the black line disappears.

Note

When a black line still remains even after adjusting H SHIFT or V SHIFT, change the printout size. (see "Setting the Printout Size" page 48)

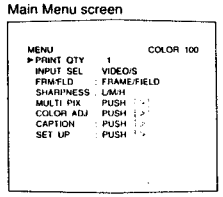
Selecting the Operation Mode for Automatic Printing Capabilities

You can control the printer with the RM-91 remote commander connected to the REMOTE 2 connector on the rear panel.
In addition to the above, the printer can be remotely controlled by the pulse signal input to REMOTE 2. (see page 61)

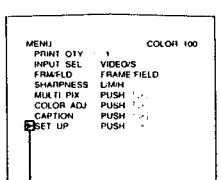


1 Press the MENU button.
The right screen appears.

Main Menu screen



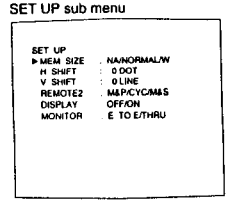
2 Select SET UP by pressing the ∧ or ∨ button.



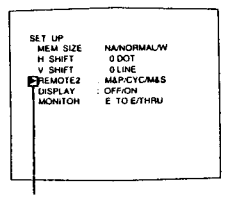
Move the cursor to SET UP by pressing the ∧ or ∨ button.

3 Press the > button.
The right screen appears.

SET UP sub menu

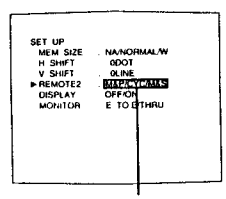


4 Select REMOTE 2 by pressing the ∧ or ∨ button.



Move the cursor to REMOTE 2 by pressing the ∧ or ∨ button.

5 Select the desired operation method by pressing the < or > button.



Switch the desired operation method to green.

Type of control operation	Operation method
M & P (MEMORY & PRINT)	Storing an image into memory page and printing memory image. When the printer starts printing, the memory page is changed when FLD is selected.
CYC (CYCLIC MEMORY)	Storing images to memory page cyclically whenever you press the switch of the remote commander. The printer continues to store images, replacing previously stored images with the new one.
M & S (MEMORY & STOP)	Storing an image to memory page whenever you press the switch of the remote commander. The printer stops storing images to memory page once images have been stored to all memory pages. The Message STOP STOP STOP appears.

6 Press the MENU button.
The regular screen appears.

Continue to next page →

To make the message STOP STOP STOP disappear

When the message STOP STOP STOP is displayed on the video monitor, buttons except the STOP button become disable to operate.
Press the STOP button. The printer is reset to the normal printing mode.

Using the remote commander effectively

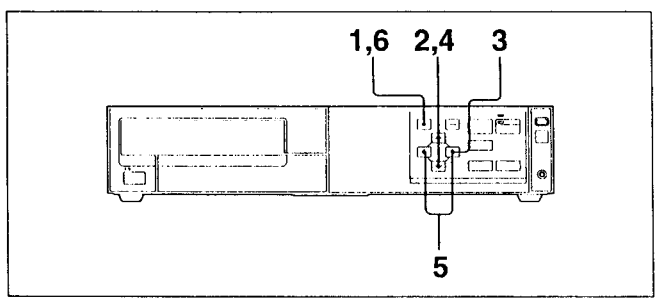
This function is effective when you store four reduced images or 16 reduced images. Whenever you press the switch of the remote commander, the image is stored into each position. For example, when M & P is selected with setting to store four reduced images, the printer stores fourth reduced image and starts to make a printout of four reduced images at fourth time switch pressing.

Note

If frame mode is selected, the printer does not store any image even thou you press the switch of the remote commander when the printer is printing.

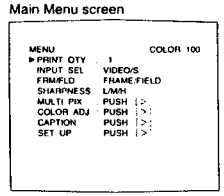
Erasing the Screen Display

You can erase a screen display with the menu, when, for example, it is hard to see the image that is hidden behind the screen display (C, QTY, VIDEO, and others). The printer operation is identical, regardless of whether messages are displayed on the screen.

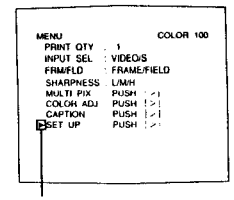


1 Press the MENU button.
The right screen appears.

Main Menu screen



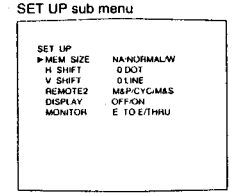
2 Select SET UP by pressing the ∧ or ∨ button.



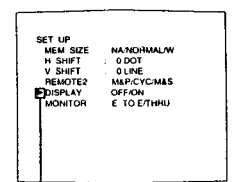
Move the cursor to SET UP by pressing the ∧ or ∨ button.

3 Press the > button.
The right screen appears.

SET UP sub menu

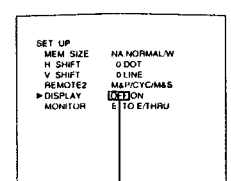


4 Select DISPLAY by pressing the ∧ or ∨ button.



Move the cursor to DISPLAY by pressing the ∧ or ∨ button.

5 Select OFF by pressing the < or > button.



Switch to green.

To display screen message

In step 5, select ON.

Note

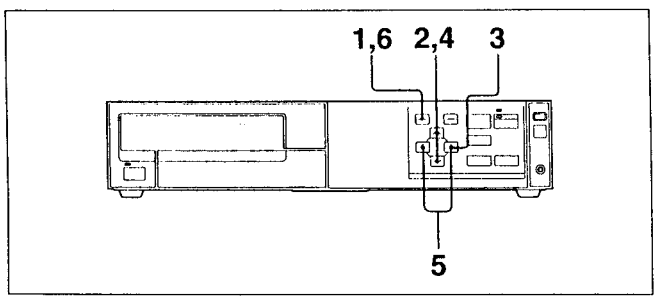
If you set the printer output signal specification to THRU (through), screen display do not appear, even when you switch ON to green.

6 Press the MENU button.
The regular screen appears.

Viewing Images from Connected Video Equipment on the Video Monitor

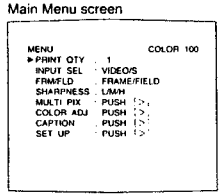
You can view images of the signals from connected video equipment without proccessed in the video printer.
The printer outputs either of two kinds of video signals according to the MONITOR setting of the SET UP menu.
E TO E: Signals are output to the monitor after being processed by the printer's circuitry.
THRU (through): Signals are output to the monitor as is.

At the factory, the printer is set to E TO E. By changing to THRU, you can view the image with good quality without signal-processed in the printer.

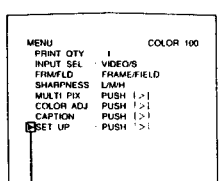


1 Press the MENU button.
The following screen appears.

Main Menu screen



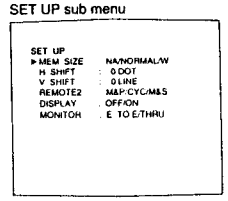
2 Select SET UP by pressing the ∧ or ∨ button.



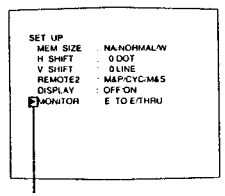
Move the cursor to SET UP by pressing the ∧ or ∨ button.

3 Press the > button.
The right screen appears.

SET UP sub menu

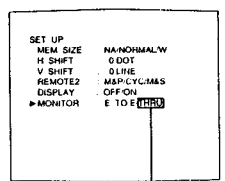


4 Select MONITOR by pressing the ∧ or ∨ button.



Move the cursor to MONITOR by pressing the ∧ or ∨ button.

5 Select THRU by pressing the < or > button.



Switch to green.

6 Press the MENU button.
The regular screen appears.
The image of the signal directly from the signal source (connected video equipment), which does not pass through the printer circuit, is displayed on the video monitor.

Note

When menu or screen display appears on the video monitor, the memory image is displayed on the monitor. Display the image from the video equipment on the video monitor by pressing the SOURCE/MEMORY button.

When the color of the video monitor is not correctly adjusted

Adjust the color of the video monitor by using the video monitor controls.

1-12. ERROR MESSAGES

If a problem occurs, the ALARM lamp lights in orange and an error message and warning message stating the problem appears on the monitor. This section lists messages in alphabetical order, together with their possible causes and remedies. Note the message and act accordingly.

Error/warning message	Possible causes and remedies
CHECK RIBBON SETTING	The front panel (on the right from the user's standpoint) opens accidentally during printing. — Close the front panel. (see page 9)
FEED ERROR	The paper jams as it is being fed into the ribbon area around the paper tray. — Remove the jammed paper from the printer. (see page 63)
HEAD IN COOLING	The thermal head has overheated. — Leave the printer idle and until the head cools and this message disappears.
NO CARTRIDGE	The ink ribbon cassette is not correctly installed. (see page 8) — Insert the ink ribbon cassette correctly.
NO PAPER	The paper has been exhausted. — Load paper. (see page 10)
PREHEATING	The thermal head is preheating. — Leave the printer until the head has preheated and this message disappears.
REMOVE PRINTS	The paper has jammed near the paper cover. — Remove the jammed paper from the printer. (see page 63)
REMOVE STUCK PAPER	The paper has jammed during printing. — Remove the jammed paper from the printer. (see page 63)
RIBBON & PAPER MISMATCH	The ink ribbon cassette and paper are not compatible. — Use a compatible cassette/paper combination. (see page 60)
RIBBON DOOR OPEN	The front panel (on the right from the user's standpoint) is open. — Close the front panel. (see page 9)
RIBBON END	The ink ribbon cassette has been exhausted. — Insert a new ribbon. (The ink ribbon cassette cannot be reused.) (see page 8)
RIBBON ERROR	An ink ribbon cassette that cannot be used with this printer has been loaded. — Insert the appropriate ink ribbon cassette. (see page 60)

If the message is not cleared, even after completing the necessary remedy
If, after completing the remedy given in "Error Messages", the message is not cleared from the video monitor, turn the printer's power off, then back on again. This should allow the printer to again be operated normally.

If ERRORxx appears

If the message "ERROR xx" (xx = error number) appears, perform the following.

1 Turn off the power of the printer.

2 Remove the ink ribbon cassette, paper cover and paper tray, and check for any paper jams inside the printer.
(see "Loading an Ink Ribbon Cassette" page 8 and "Loading Paper" page 10)

If you find any jammed paper, remove it carefully.

If the ink ribbon cassette cannot be removed, or the jammed paper cannot be removed, contact your Sony service facility.

3 Insert the ink ribbon cassette, paper cover and paper tray to the printer.

4 Turn on the power of the printer.

When the message does not appear, you can use the printer as normal. However, the image stored to memory will have been cleared. Store the image to memory again.

If the same message appears again, the printer must not be operated. Turn off the power immediately and contact your Sony service facility.

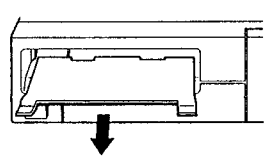
If the Paper Jams

If the paper jams as it is being fed into the ribbon area during printing, or when being fed into the paper cover area, printing stops and a message appears on the monitor, according to where the jam has occurred.

Message	Position where the paper has jammed
FEED ERROR	Before printing and being fed into the ribbon area
REMOVE STUCK PAPER	During printing, inside the printer
REMOVE PRINTS	Instantaneously before completing printing, near the paper cover

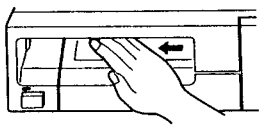
When FEED ERROR appears

1 Remove the paper cover.
When any printouts have been ejected on the paper cover, remove those printouts first before removing the paper cover.

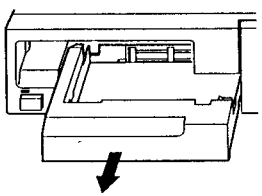


Continue to next page →

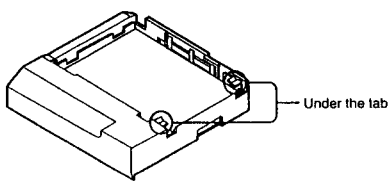
2 Check whether any paper is stuck inside the printer. If you find a jammed sheet, slowly pull it into the paper tray.



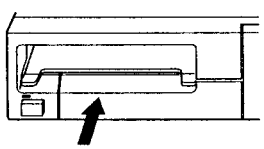
3 Push PUSH on the paper tray to remove it.



4 Load the paper into the paper tray correctly.
Discard the paper removed in step 2.



5 Slide the paper tray and paper cover back into the printer.



When REMOVE STUCK PAPER appears

Perform the same operation as that performed when FEED ERROR appears. When you cannot remove the jammed paper, remove the ink ribbon cassette too. If you find a jammed sheet inside the printer, remove it carefully.

When REMOVE PRINTS appears

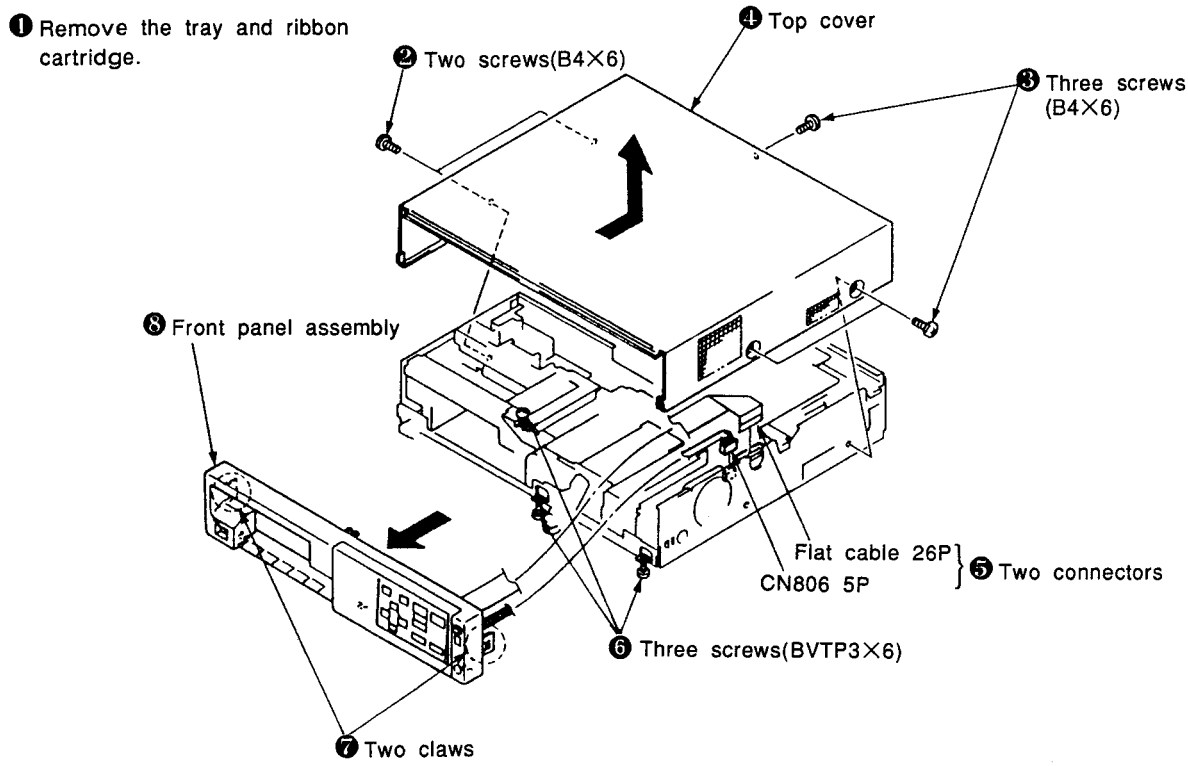
Carefully remove the jammed paper from near the paper cover.

1-13. TROUBLESHOOTING

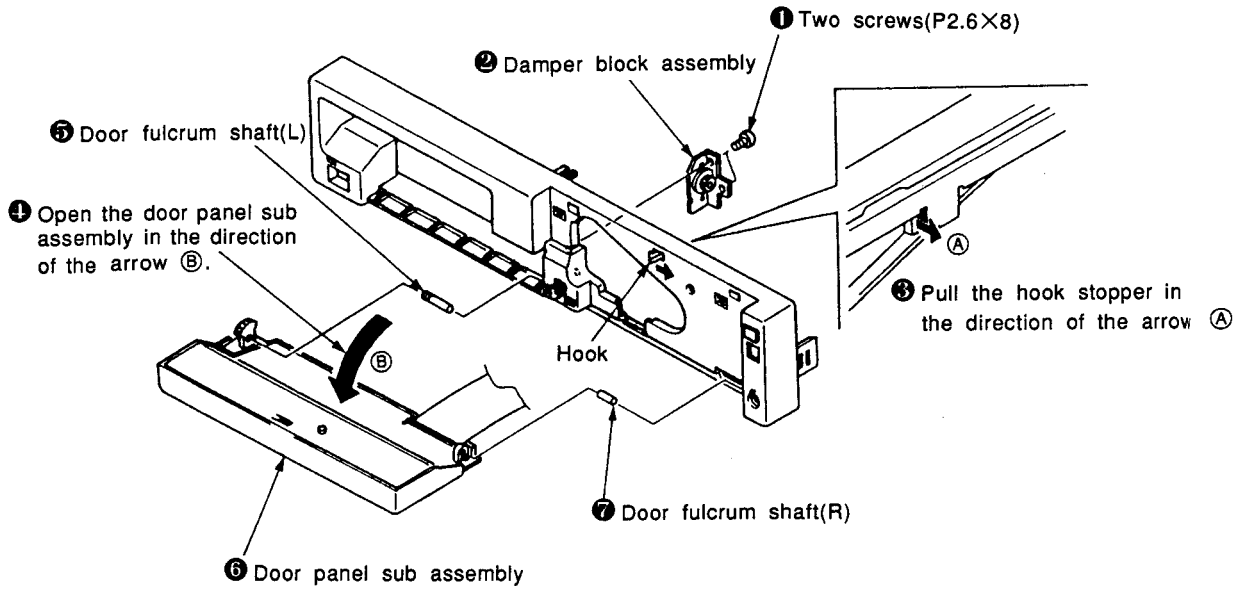
Symptom	Possible causes and remedies
Nothing appears on the monitor	• The POWER switch of the printer is not set to ON. → Set the POWER switch of the printer to ON. • The POWER switch of the video monitor is not set to ON. → Set the POWER switch of the video monitor to ON. • Connections may not be correct. → Make connections correctly. (see page 37)
Any message does not appear on the regular screen.	If an incorrect sync signal is input, nothing may appear on the video monitor. → In this case, check the video monitor first by pressing the SOURCE/MEMORY button to display the image stored in memory. If an image appears, the video monitor is working correctly. Change the INPUT SELECT settings on the menu screen. (see page 12) Or, set the connected video equipment to playback mode, if it is in another mode such as stop mode.
Any message and image do not appear on the regular screen.	If an image stored in memory appears when the SOURCE/MEMORY button is pressed, the MONITOR settings on the SET UP sub menu is set to THRU. Change the MONITOR settings to E TO E. (see page 57)
The printer does not print.	An error message appears on the display. (see page 62)
A black line appears on the printout.	A portion corresponding to there being no signal is printed in black. → Shift the printout area. (see page 50) Store a new image and print it.
The printer makes a printout with black frame.	A portion corresponding to there being no signal is printed in black. → Change the printout size to make it narrow. (see page 48) Store a new image and print it.
The printed image is partially cut out.	Only a part of video signal has been stored. → Change the printout size to make it wide. (see page 48) Store a new image and print it.
A caption is not printed clearly.	Printed in field mode. → Store the image in frame mode and print it in frame mode.
The printout is blurred.	The quickly moving image has been stored in frame mode. → Change the mode to field mode, then print it again.

SECTION 2
DISASSEMBLY

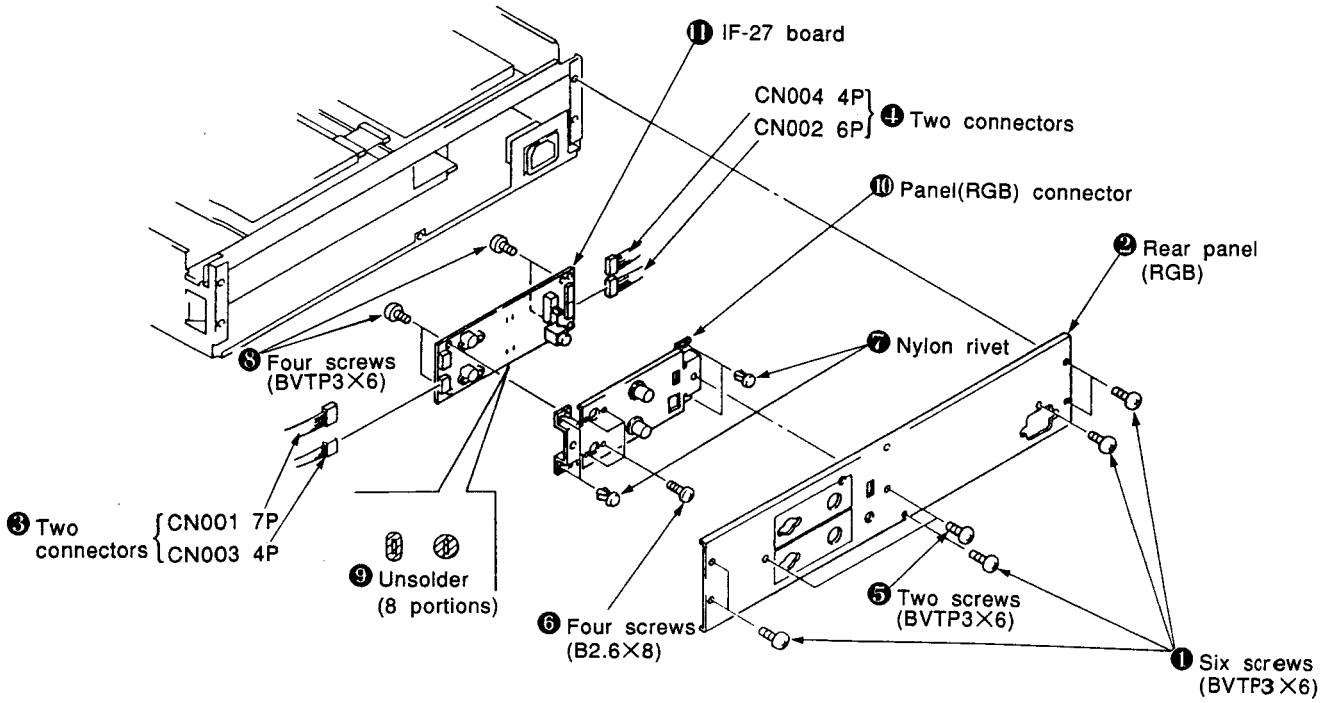
2-1. REMOVAL OF CABINET ASSEMBLY



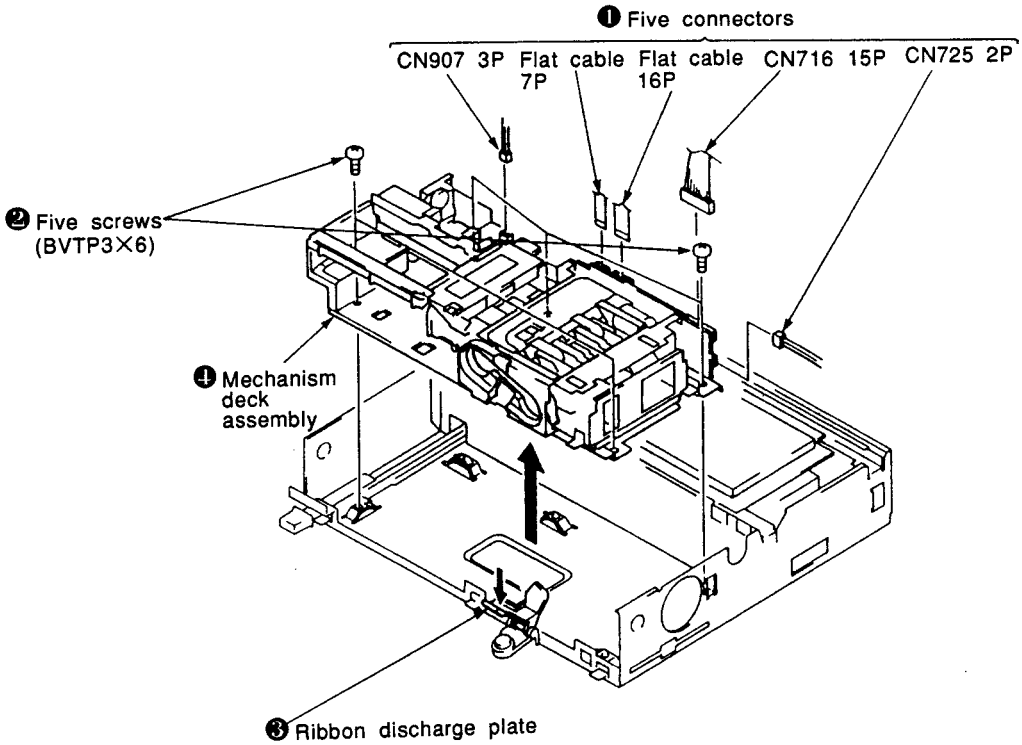
2-2. REMOVAL OF DOOR PANEL SUB ASSEMBLY



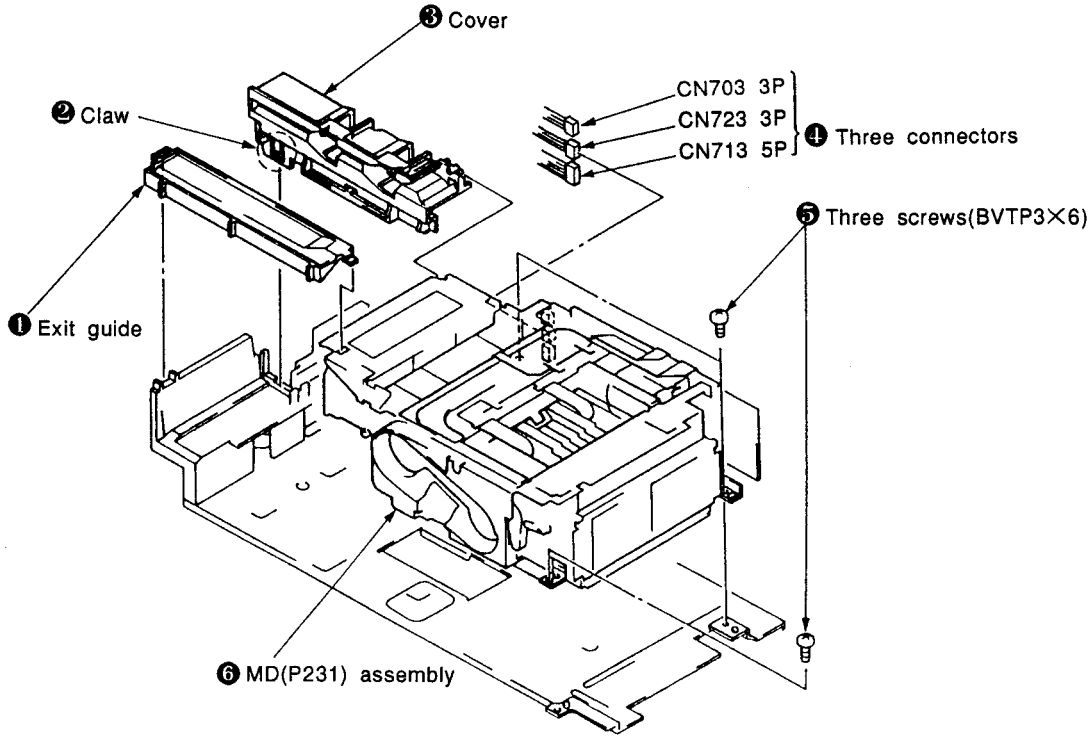
2-3. REMOVAL OF IF-27 BOARD



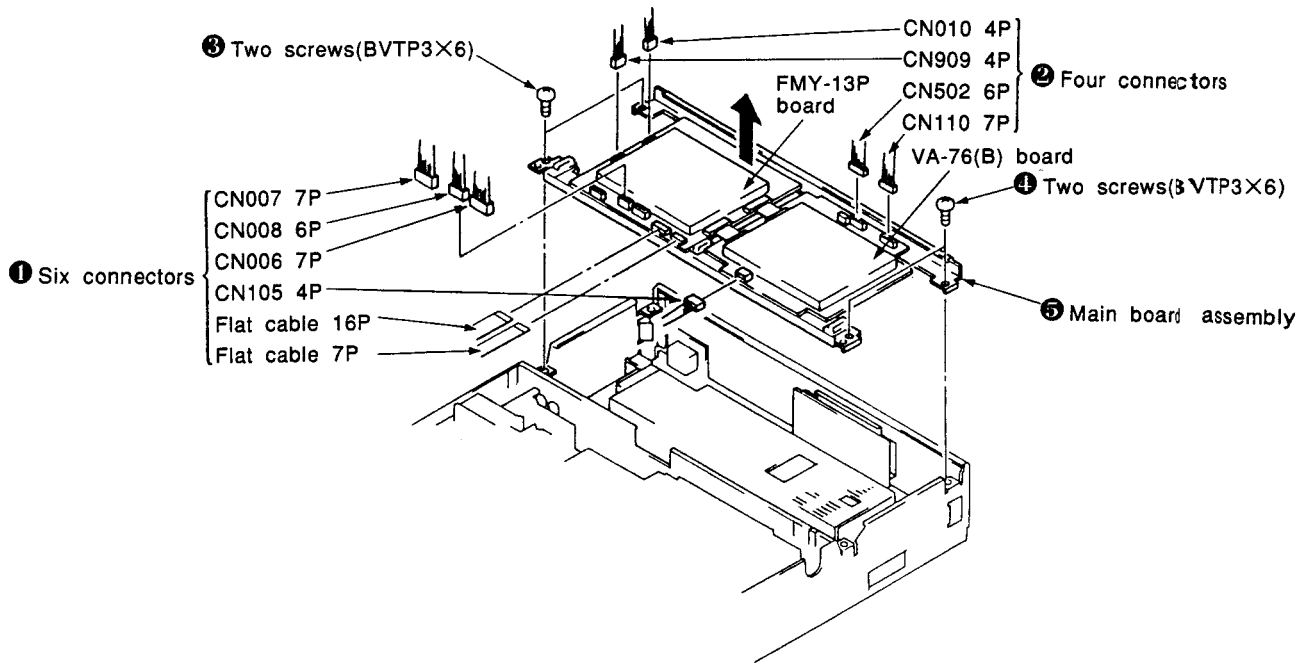
2-4. REMOVAL OF MECHANISM DECK ASSEMBLY



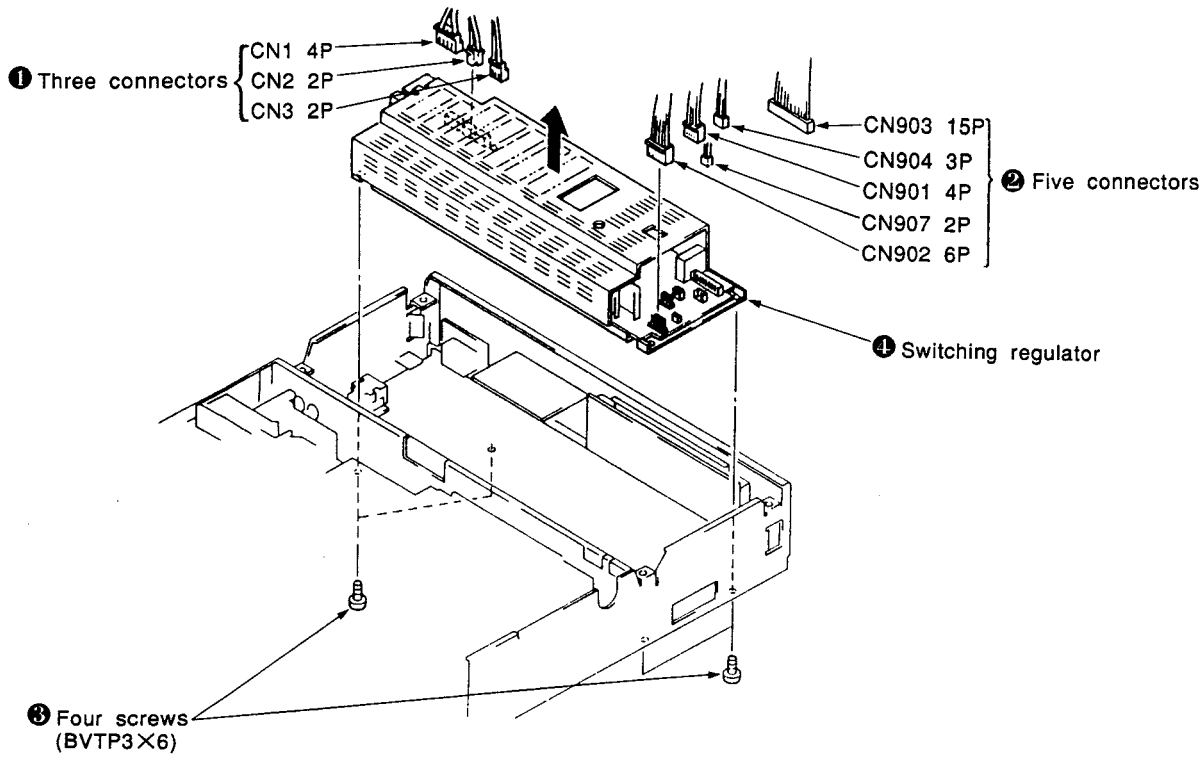
2-5. REMOVAL OF MD (P231) ASSEMBLY



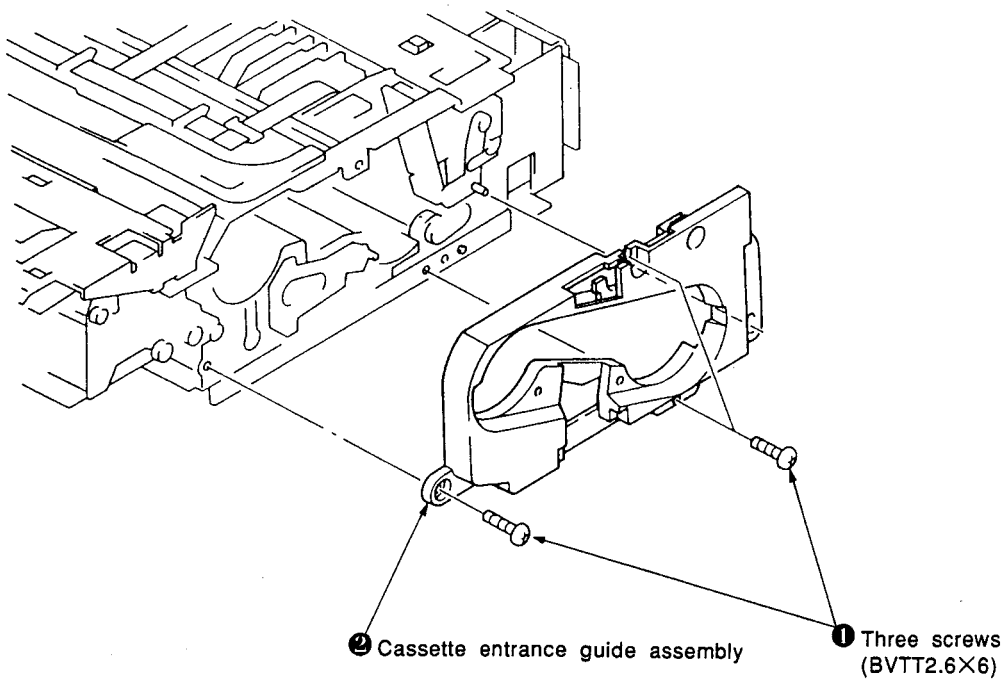
2-6. REMOVAL OF MAIN BOARD (FMY-13P BOARD, VA-76(B) BOARD) ASSEMBLY



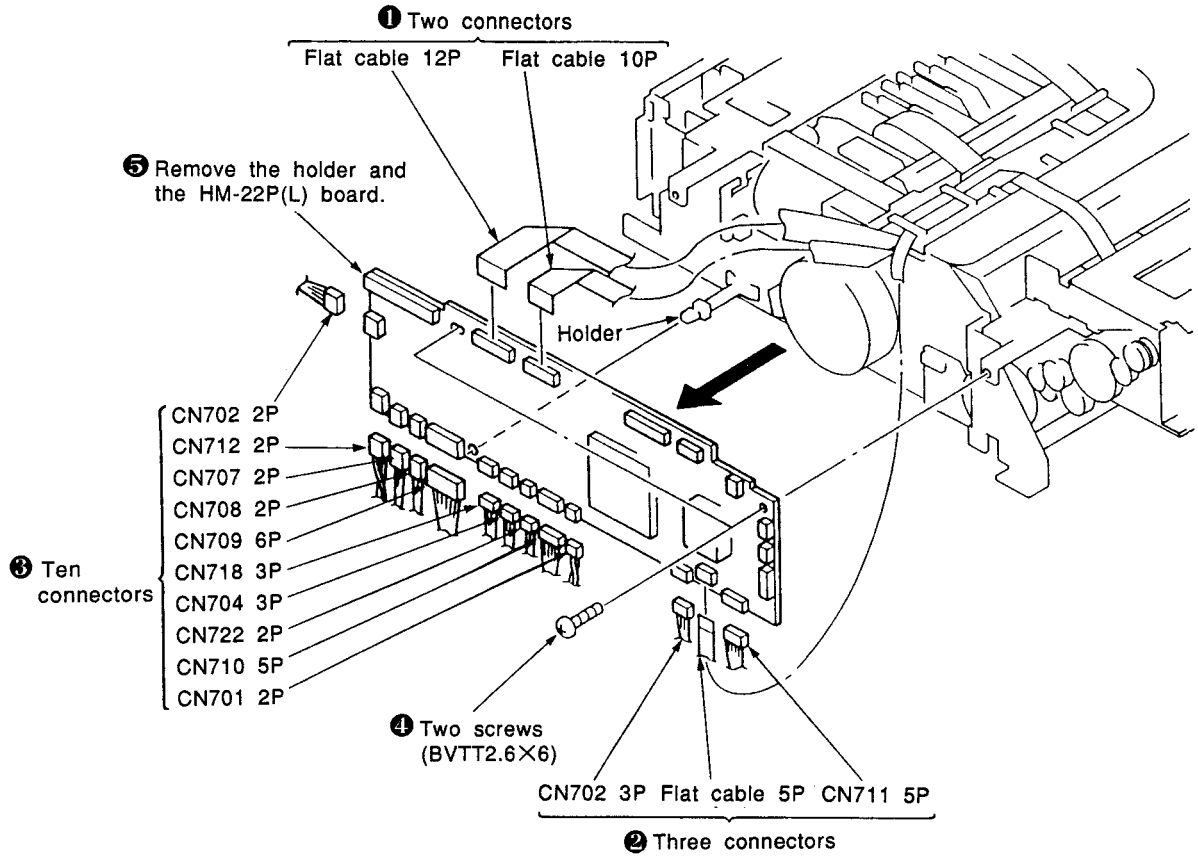
2-7. REMOVAL OF SWITCHING REGULATOR



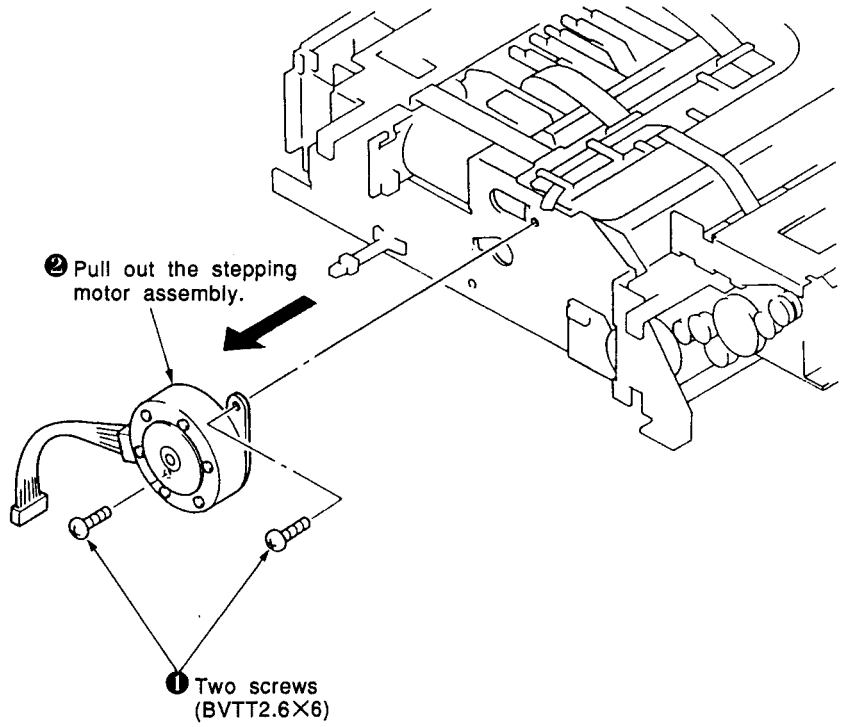
2-8. REMOVAL OF CASSETTE ENTRANCE GUIDE ASSEMBLY



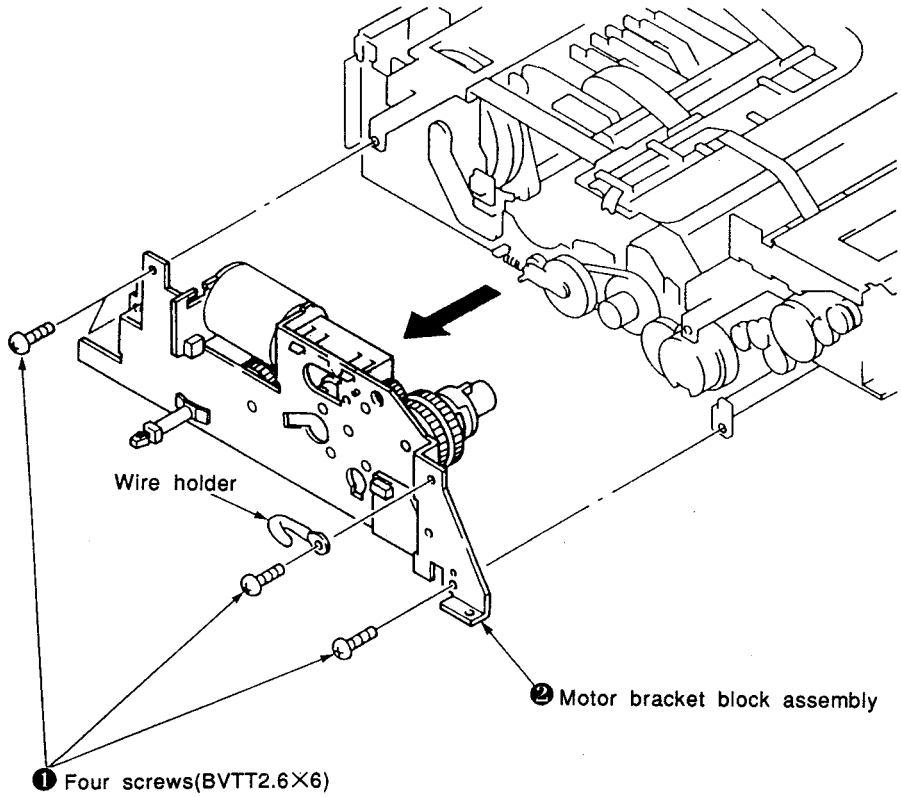
2-9. REMOVAL OF HM-22P(L) BOARD



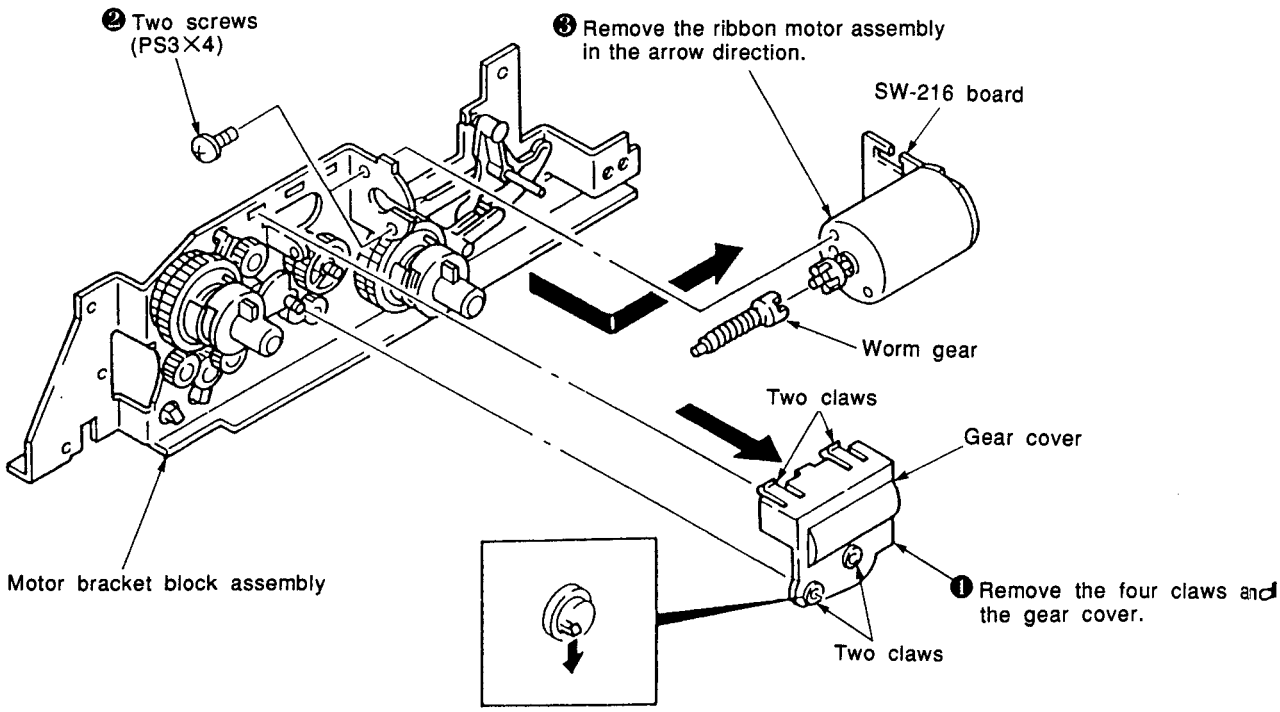
2-10. REMOVAL OF STEPPING MOTOR ASSEMBLY



2-11. REMOVAL OF MOTOR BRACKET BLOCK ASSEMBLY

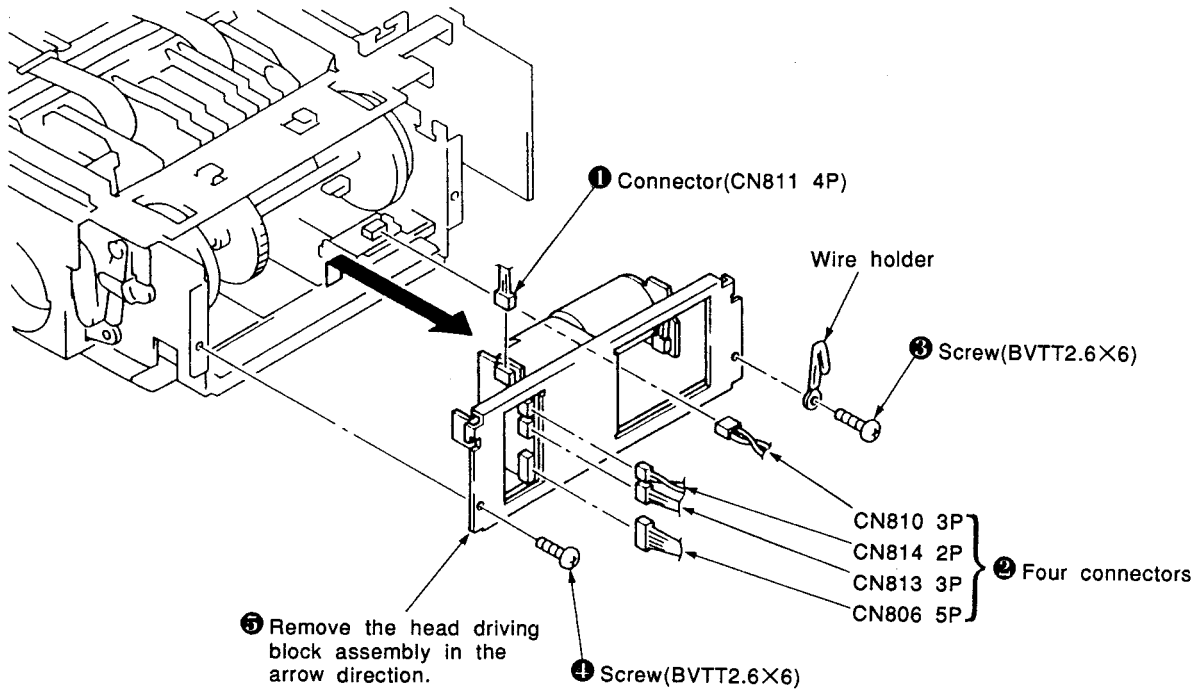


2-12. REMOVAL OF RIBBON MOTOR ASSEMBLY

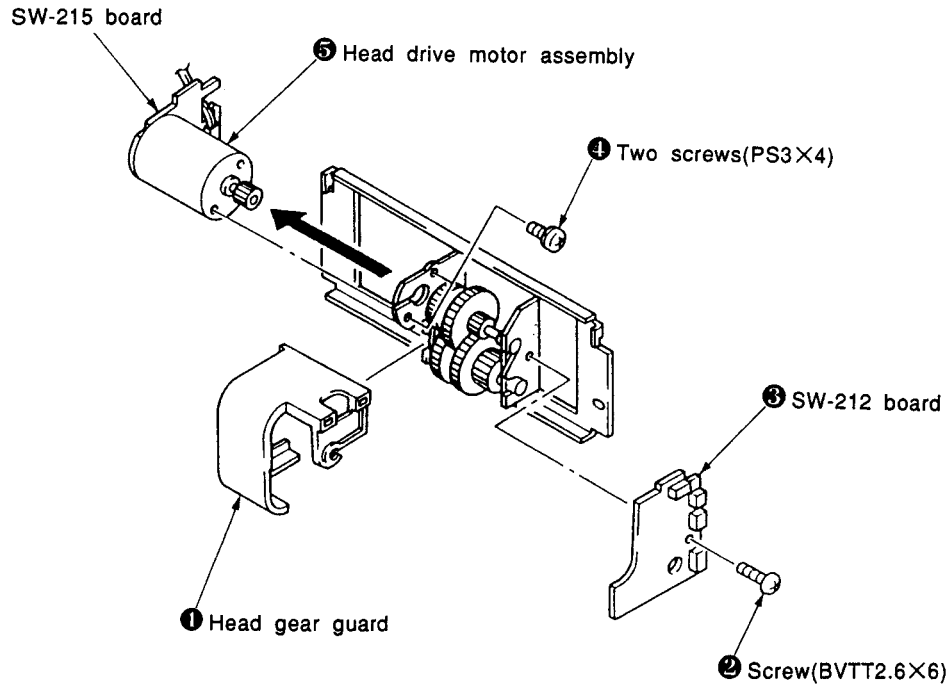


2-13. REMOVAL OF HEAD DRIVING BLOCK ASSEMBLY

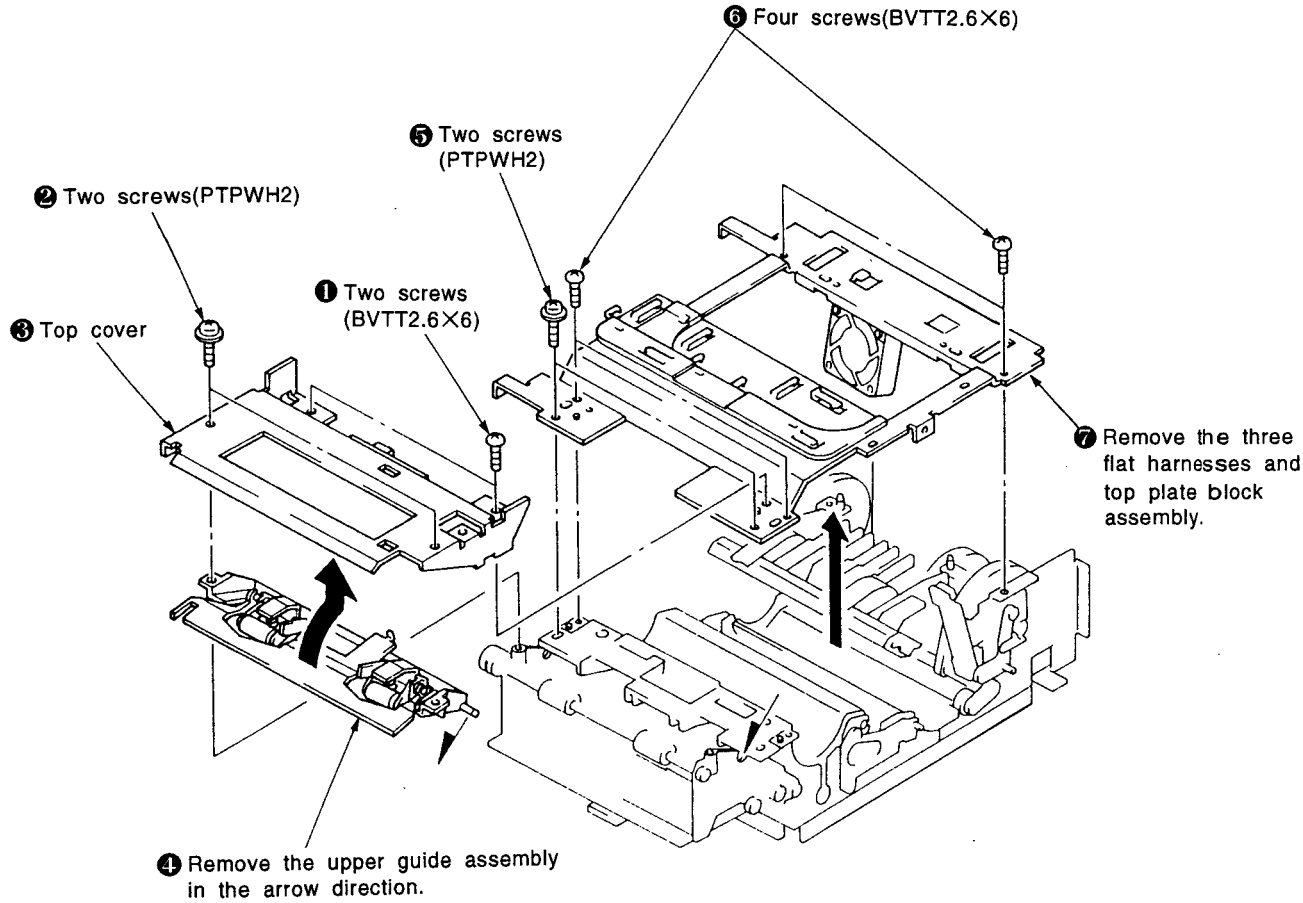
※ Perform this assembly after LARGE FAN BK is removed.



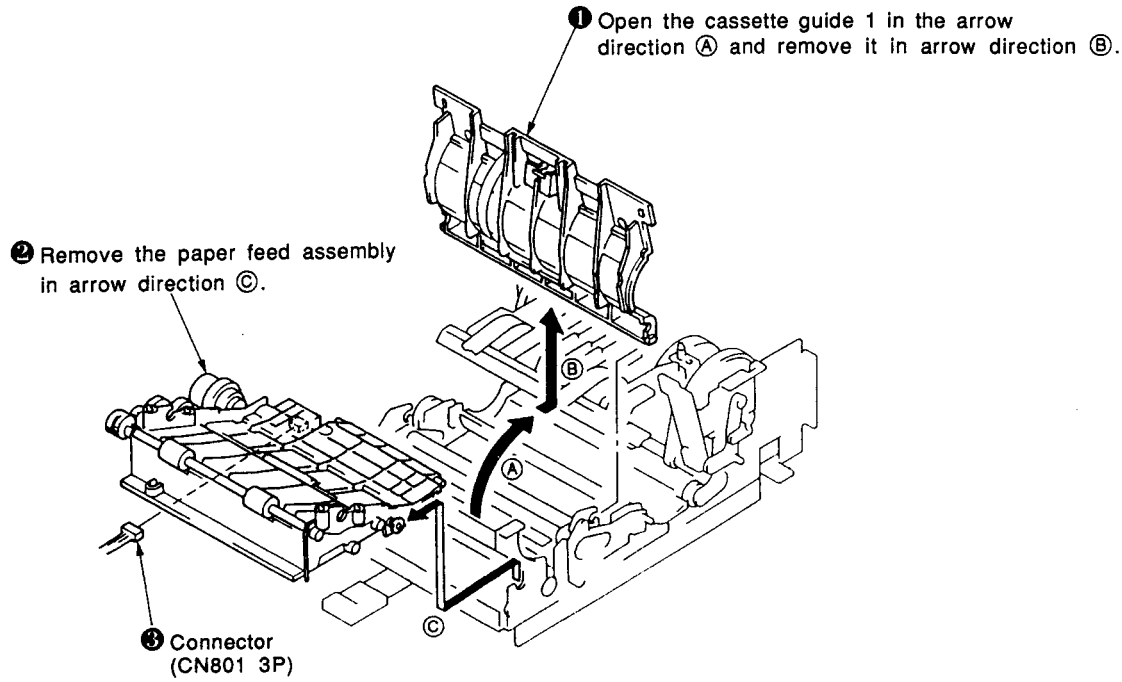
2-14. REMOVAL OF HEAD DRIVE MOTOR ASSEMBLY



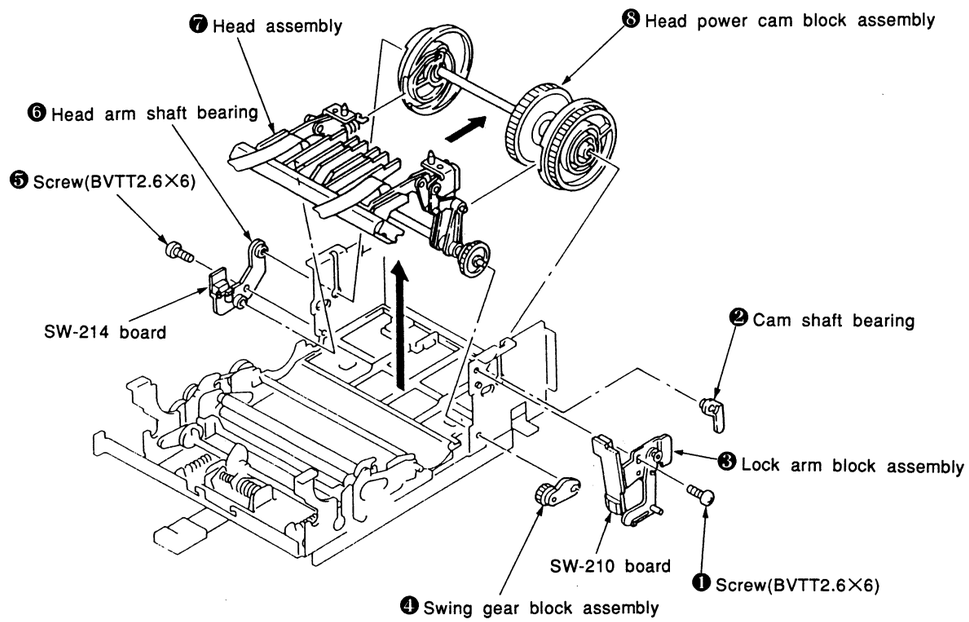
2-15. REMOVAL OF UPPER GUIDE ASSEMBLY AND TOP PLATE BLOCK ASSEMBLY



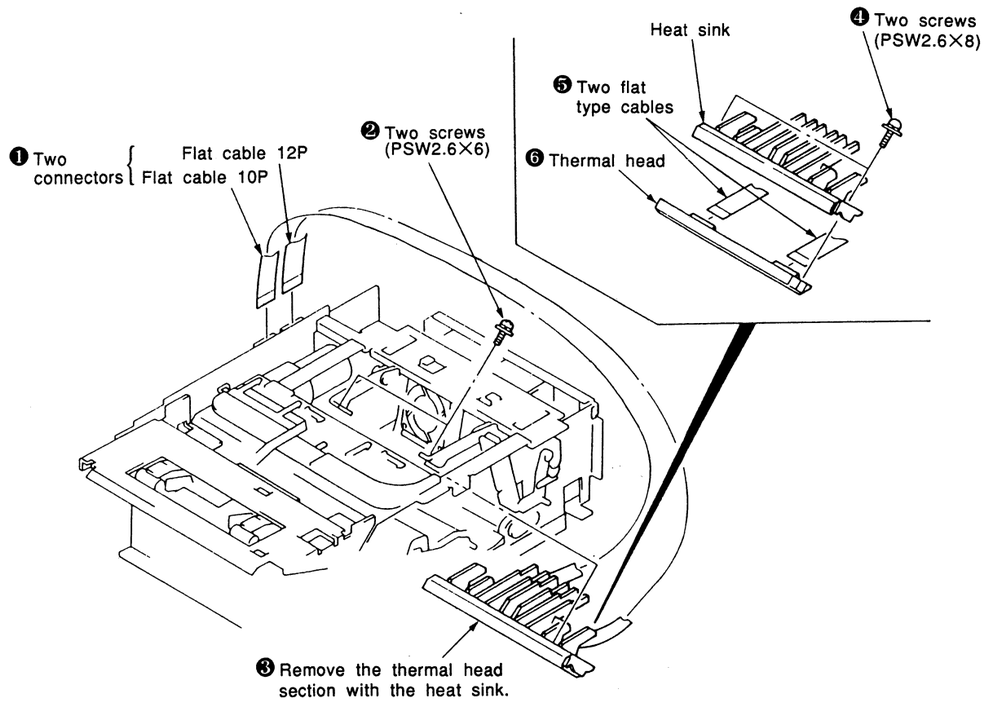
2-16. REMOVAL OF CASSETTE GUIDE 1 AND PAPER FEED ASSEMBLY



2-17. REMOVAL OF HEAD ASSEMBLY AND HEAD POWER CAM BLOCK ASSEMBLY

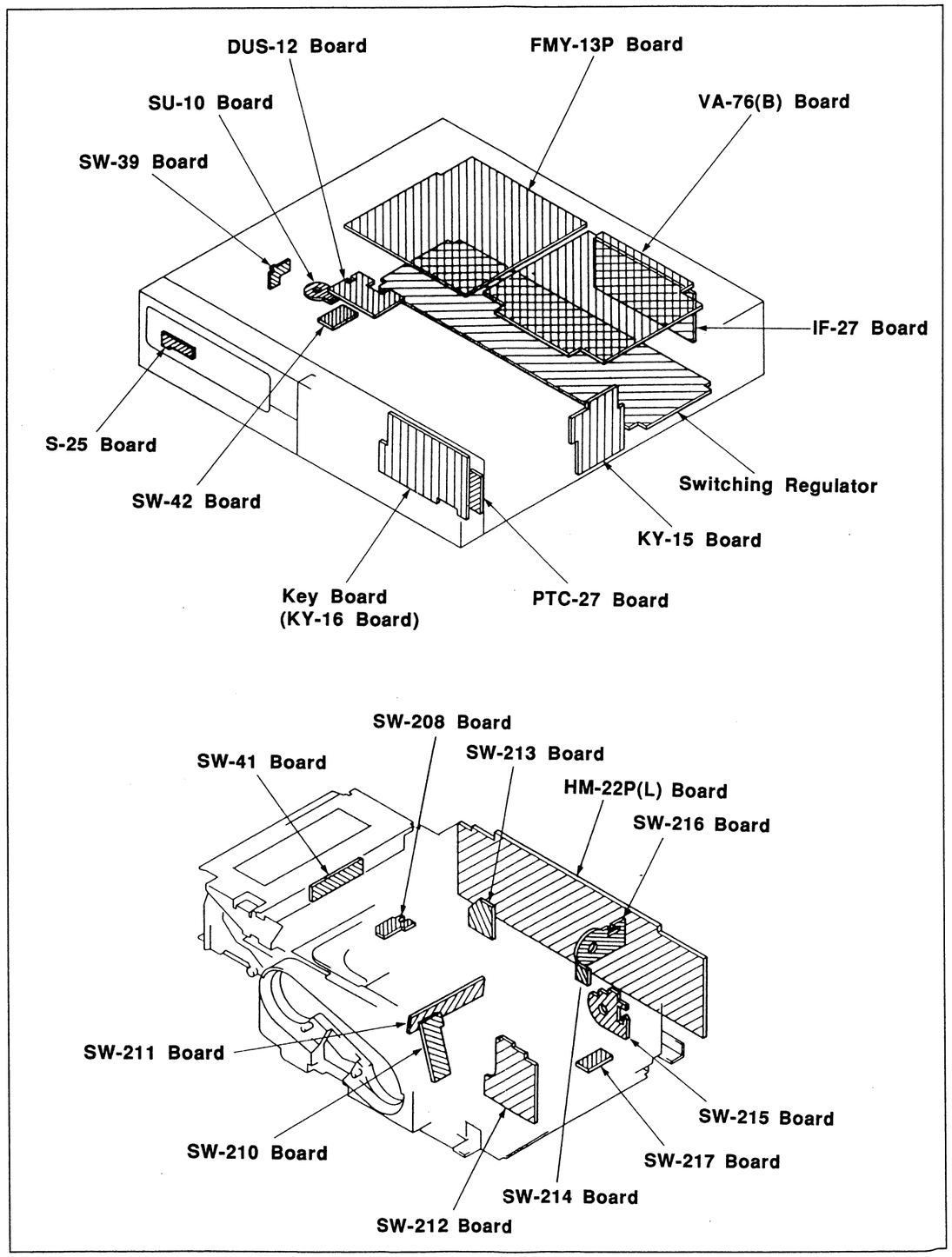


2-18. REMOVAL OF THERMAL HEAD

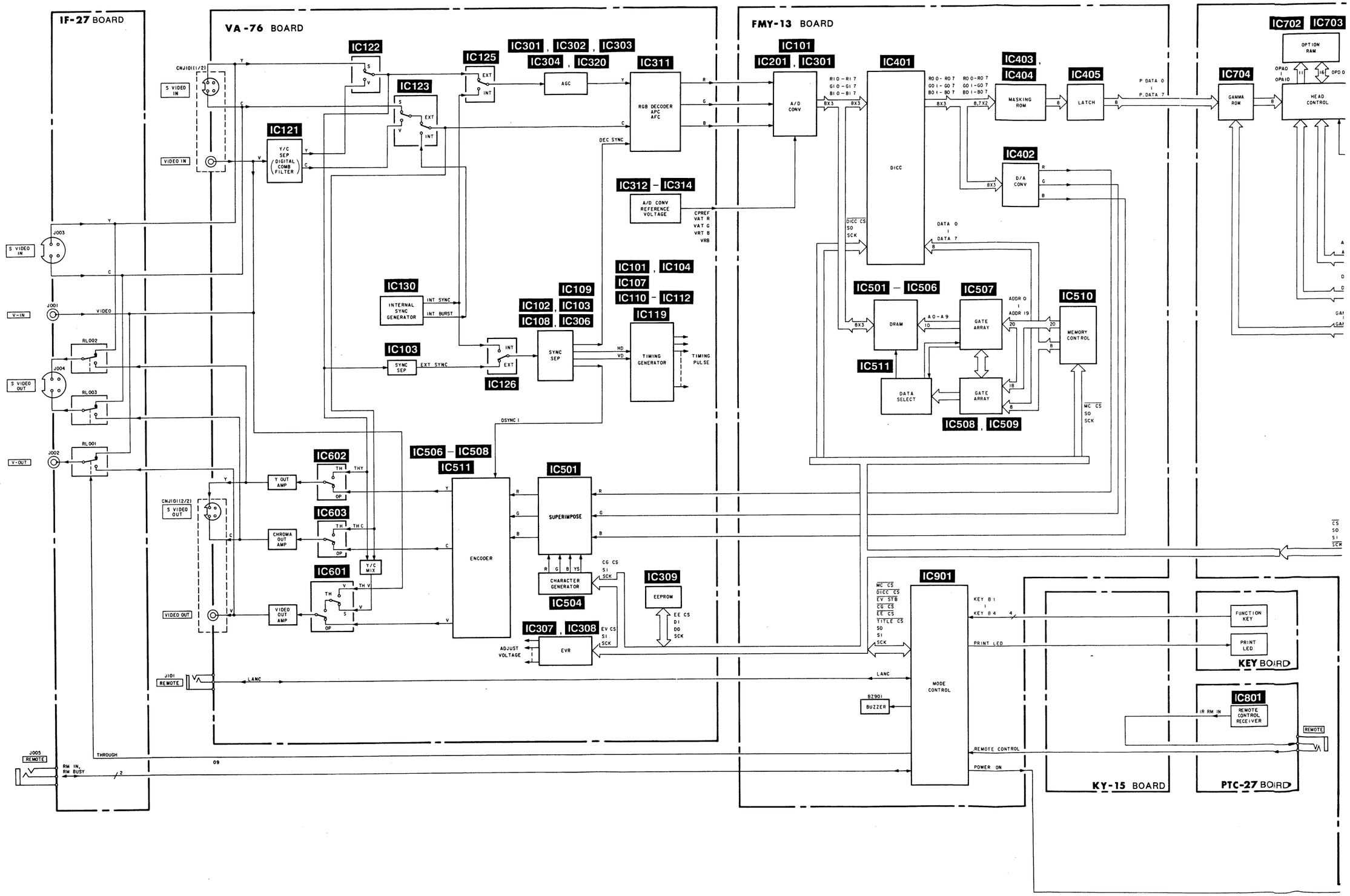


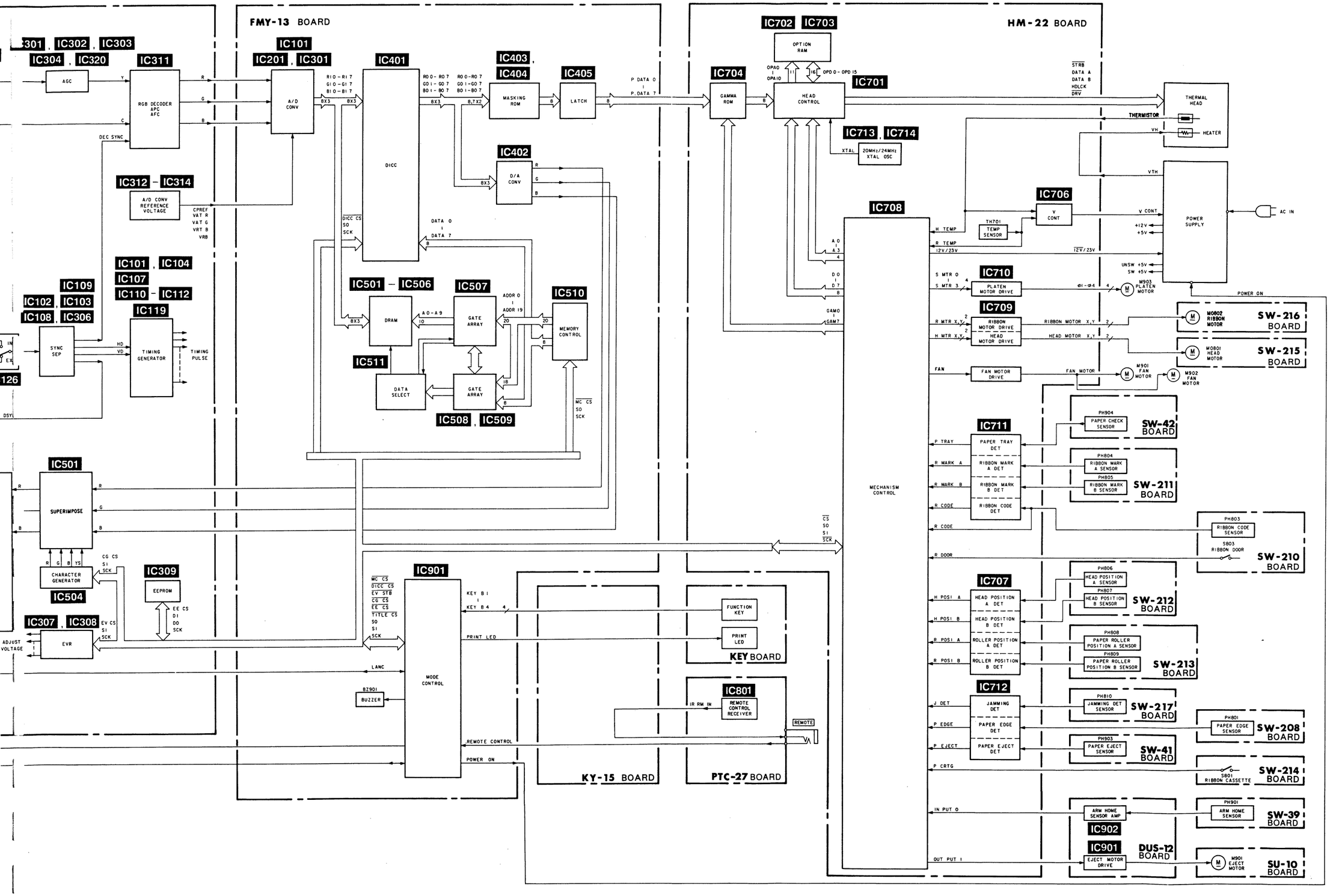
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

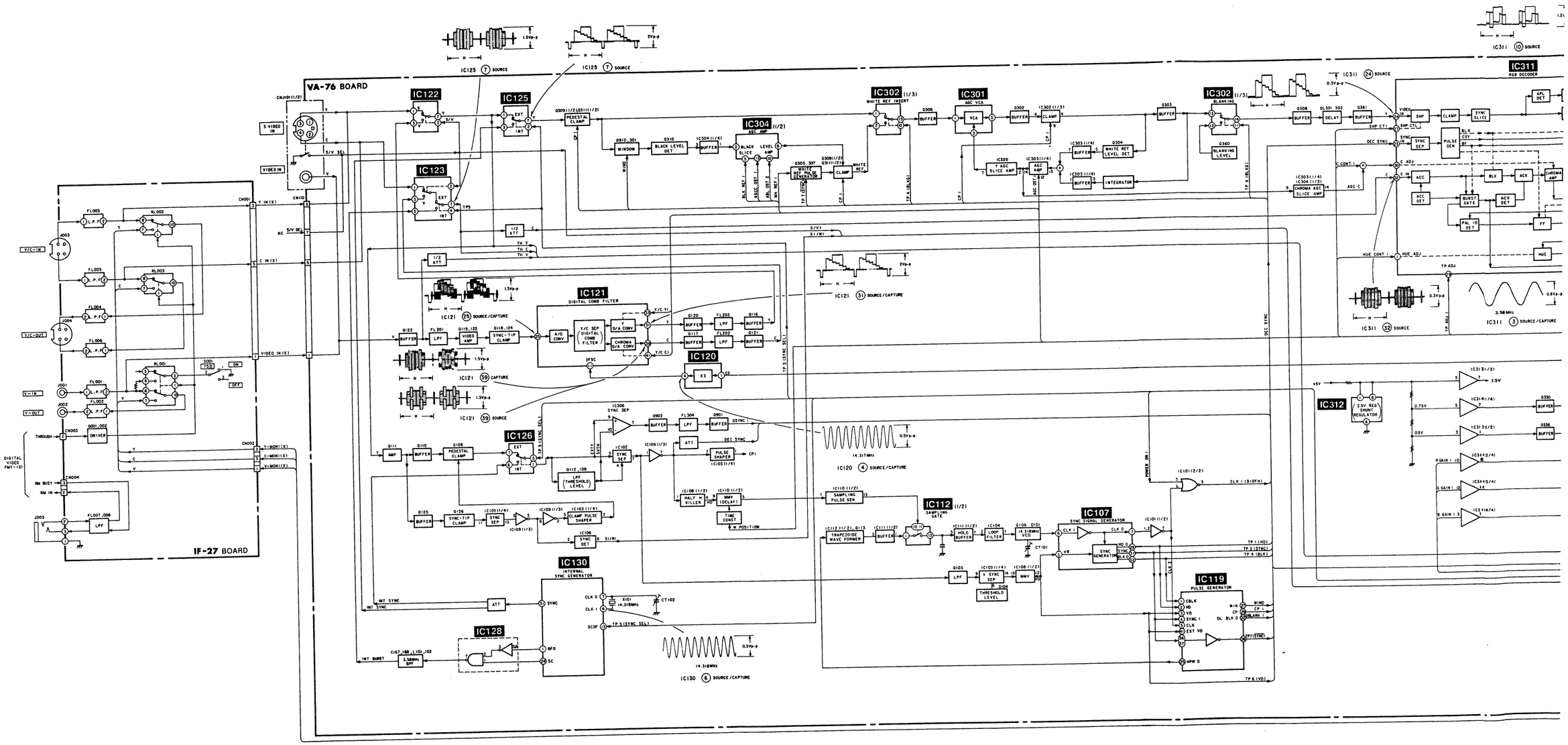


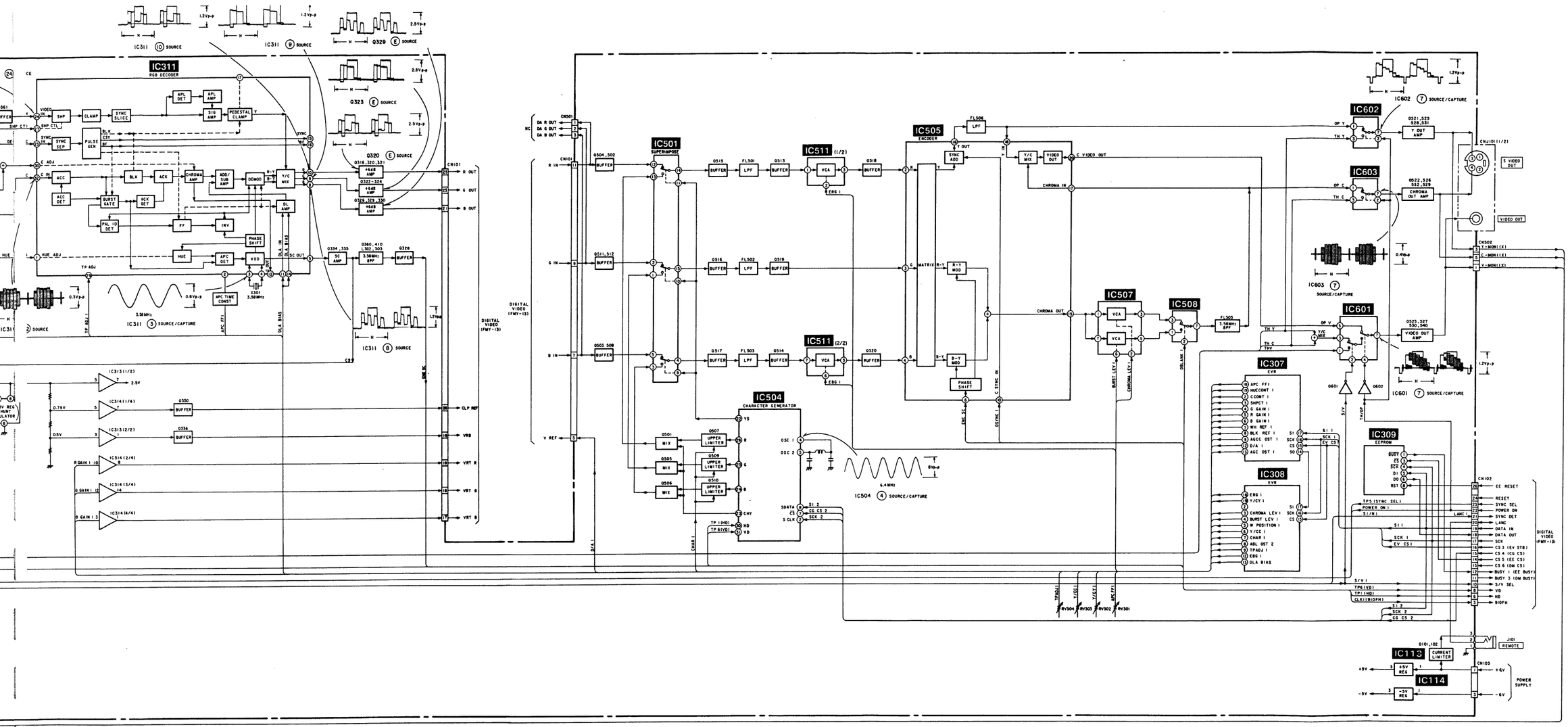
3-2. OVERALL BLOCK DIAGRAM



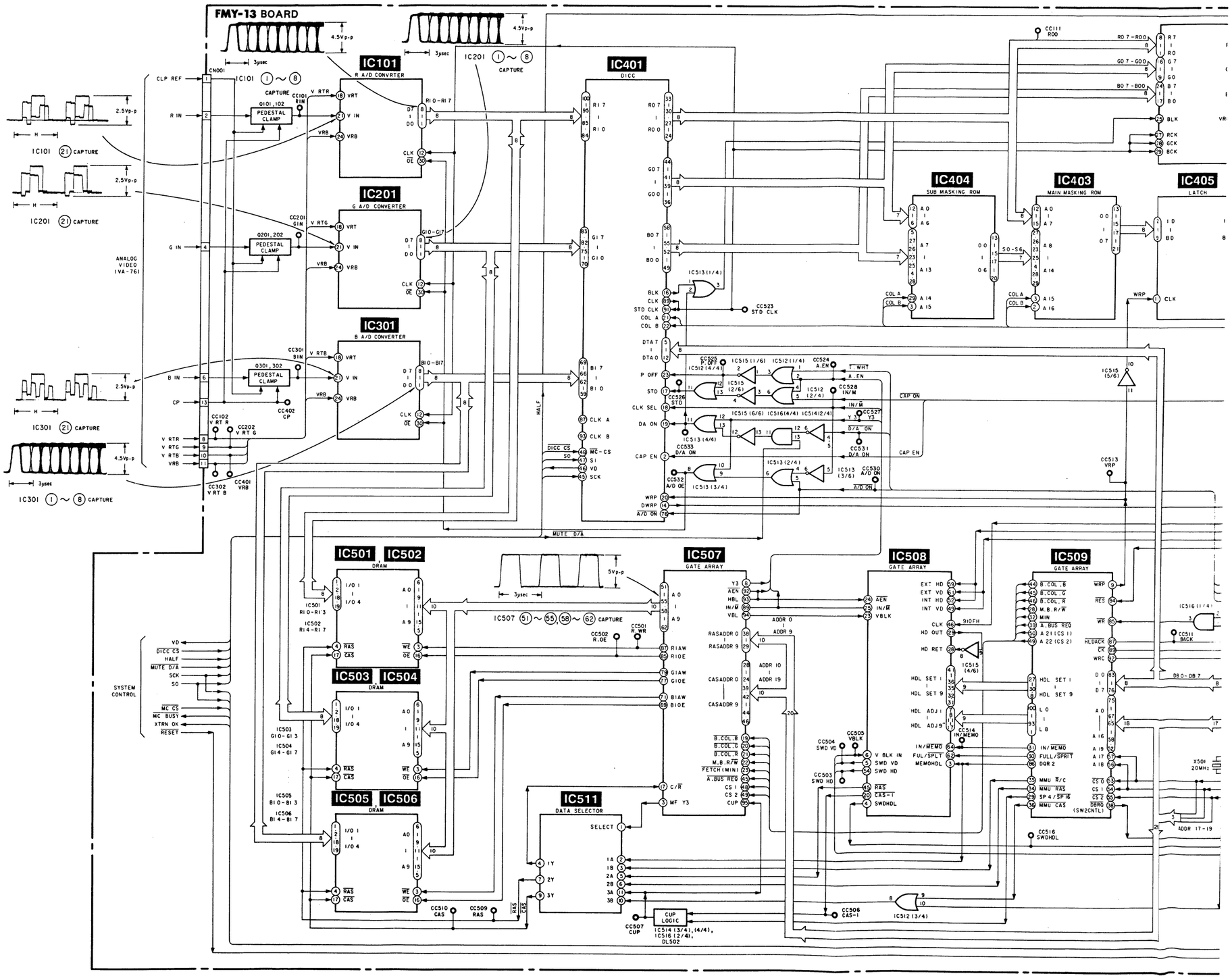

FMY-13 BOARD
HM-22 BOARD
IC301, IC302, IC303
IC304, IC320
IC311
AGC
RGB DECODER APC AFC
DEC SYNC
IC101
IC201, IC301
A/D CONV
IC401
DICC
IC403, IC404
MASKING ROM
IC405
LATCH
P DATA 0 - P DATA 7
IC402
D/A CONV
IC312 - IC314
A/D CONV REFERENCE VOLTAGE
CPREF VAT R VAT G VRT B VRB
IC101, IC104
IC107
IC110 - IC112
IC109
IC102, IC103
IC108, IC306
IC119
SYNC SEP
TIMING GENERATOR
TIMING PULSE
IC501 - IC506
IC507
DRAM
GATE ARRAY
IC510
MEMORY CONTROL
IC511
DATA SELECT
IC508, IC509
IC501
SUPERIMPOSE
CHARACTER GENERATOR
IC504
IC309
EEPROM
IC307, IC308
EVR
ADJUST VOLTAGE
IC901
MODE CONTROL
BZ901
BUZZER
LANC
REMOTE CONTROL
POWER ON
KEY B1 - KEY B4
PRINT LED
FUNCTION KEY
KEY BOARD
IC801
REMOTE CONTROL RECEIVER
IR RM IN
REMOTE
KY-15 BOARD
PTC-27 BOARD
IC702, IC703
OPTION RAM
IC704
GAMMA ROM
IC701
HEAD CONTROL
IC713, IC714
XTAL OSC
20MHz/24MHz
MECHANISM CONTROL
THERMAL HEAD
THERMISTOR
HEATER
IC706
V CONT
POWER SUPPLY
AC IN
TH701 TEMP SENSOR
IC708
IC710
PLATEN MOTOR DRIVE
M903 PLATEN MOTOR
IC709
RIBBON MOTOR DRIVE
HEAD MOTOR DRIVE
M0802 RIBBON MOTOR
SW-216 BOARD
M0801 HEAD MOTOR
SW-215 BOARD
FAN MOTOR DRIVE
M901 FAN MOTOR
M902 FAN MOTOR
IC711
PAPER TRAY DET
RIBBON MARK A DET
RIBBON MARK B DET
RIBBON CODE DET
PH904 PAPER CHECK SENSOR
SW-42 BOARD
PH804 RIBBON MARK A SENSOR
PH805 RIBBON MARK B SENSOR
SW-211 BOARD
PH803 RIBBON CODE SENSOR
S803 RIBBON DOOR
SW-210 BOARD
IC707
HEAD POSITION A DET
HEAD POSITION B DET
ROLLER POSITION A DET
ROLLER POSITION B DET
PH806 HEAD POSITION A SENSOR
PH807 HEAD POSITION B SENSOR
SW-212 BOARD
PH808 PAPER ROLLER POSITION A SENSOR
PH809 PAPER ROLLER POSITION B SENSOR
SW-213 BOARD
IC712
JAMMING DET
PAPER EDGE DET
PAPER EJECT DET
PH810 JAMMING DET SENSOR
SW-217 BOARD
PH801 PAPER EDGE SENSOR
SW-208 BOARD
PH903 PAPER EJECT SENSOR
SW-41 BOARD
S801 RIBBON CASSETTE
SW-214 BOARD
PH901 ARM HOME SENSOR
SW-39 BOARD
ARM HOME SENSOR AMP
IC902
IC901
EJECT MOTOR DRIVE
DUS-12 BOARD
M901 EJECT MOTOR
SU-10 BOARD

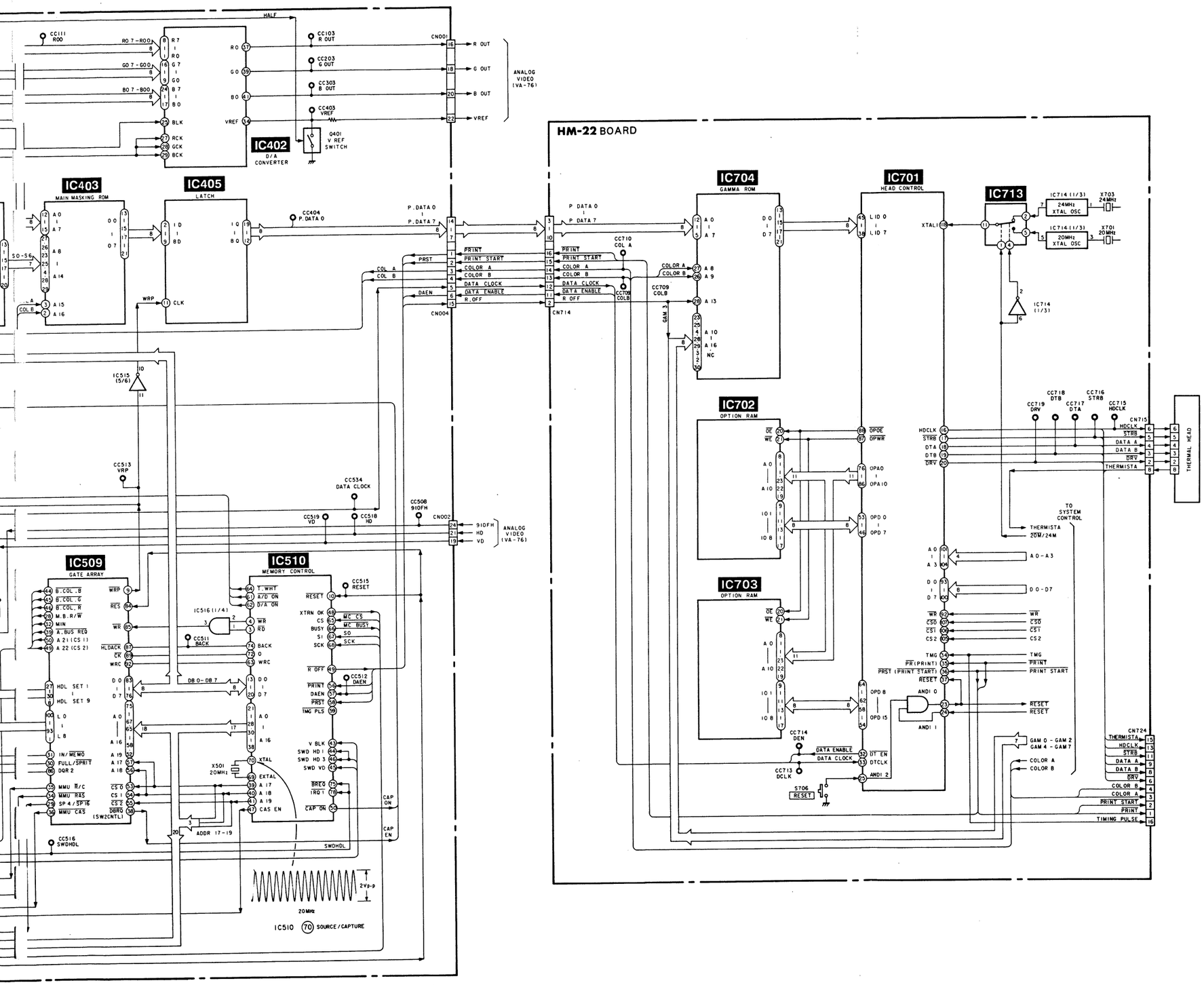
3-3. ANALOG BLOCK DIAGRAM



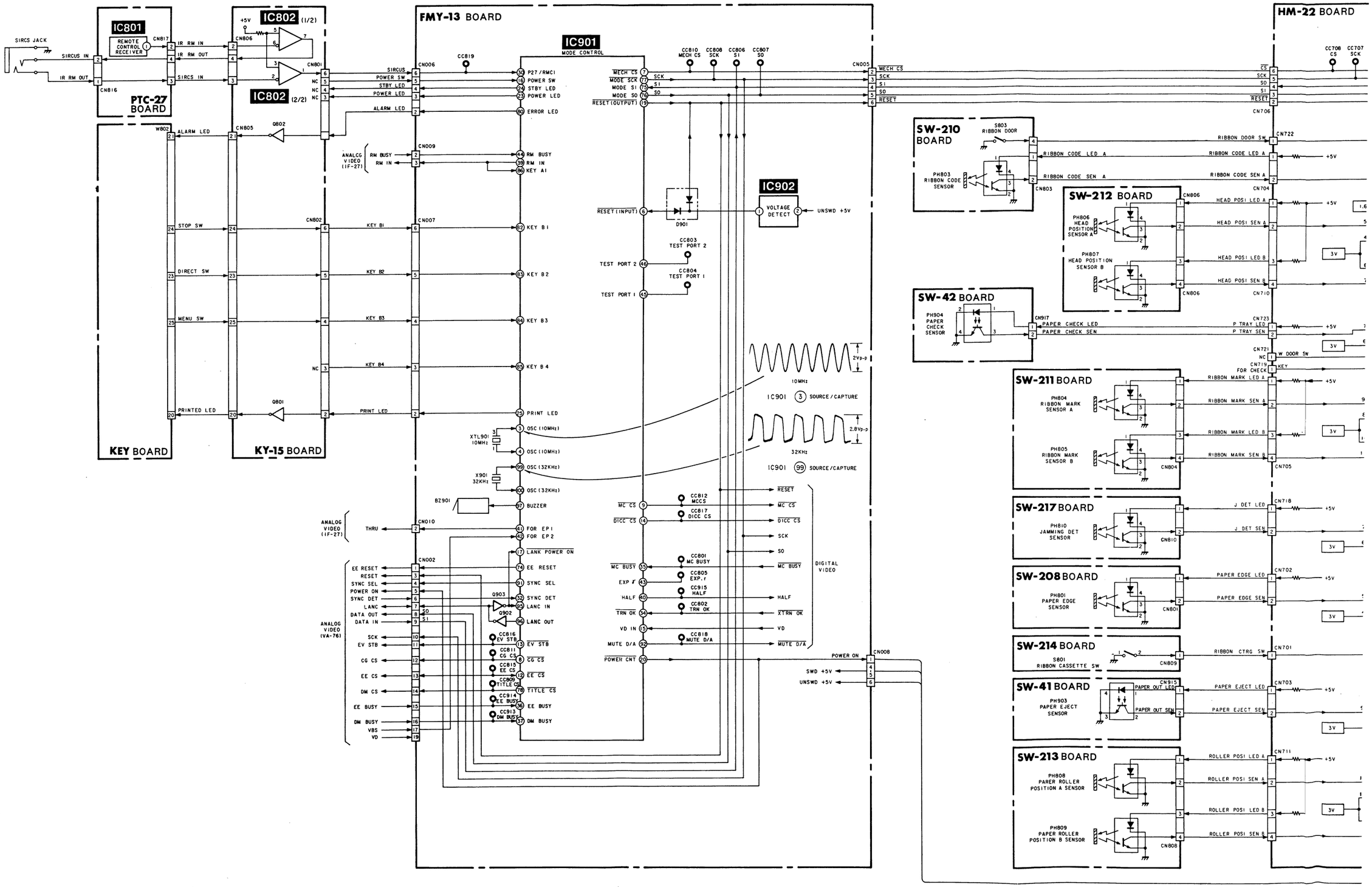

IC311
RGB DECODER
IC501
SUPERIMPOSE
IC505
ENCODER
IC511 (1/2)
IC511 (2/2)
IC504
CHARACTER GENERATOR
IC507
IC508
IC602
IC603
IC601
IC307
IC308
IC309
EEPROM
IC113
CURRENT LIMITER
IC114
CN101
CN102
CN105
CN502
J101
REMOTE
POWER SUPPLY
DIGITAL VIDEO (FMY-13)
R OUT
G OUT
B OUT
CLP REF
VRB
VRT R
VRT G
VRT B
R IN
G IN
B IN
V REF
VIDEO OUT
S VIDEO OUT
CHROMA IN
CHROMA OUT
C VIDEO OUT
Y OUT
6.4MHz
3.58MHz
IC311 (10) SOURCE
IC311 (9) SOURCE
IC311 (8) SOURCE
IC311 (3) SOURCE/CAPTURE
IC504 (4) SOURCE/CAPTURE
IC602 (7) SOURCE/CAPTURE
IC603 (7) SOURCE/CAPTURE
IC601 (7) SOURCE/CAPTURE
0329 (E) SOURCE
0323 (E) SOURCE
0320 (E) SOURCE

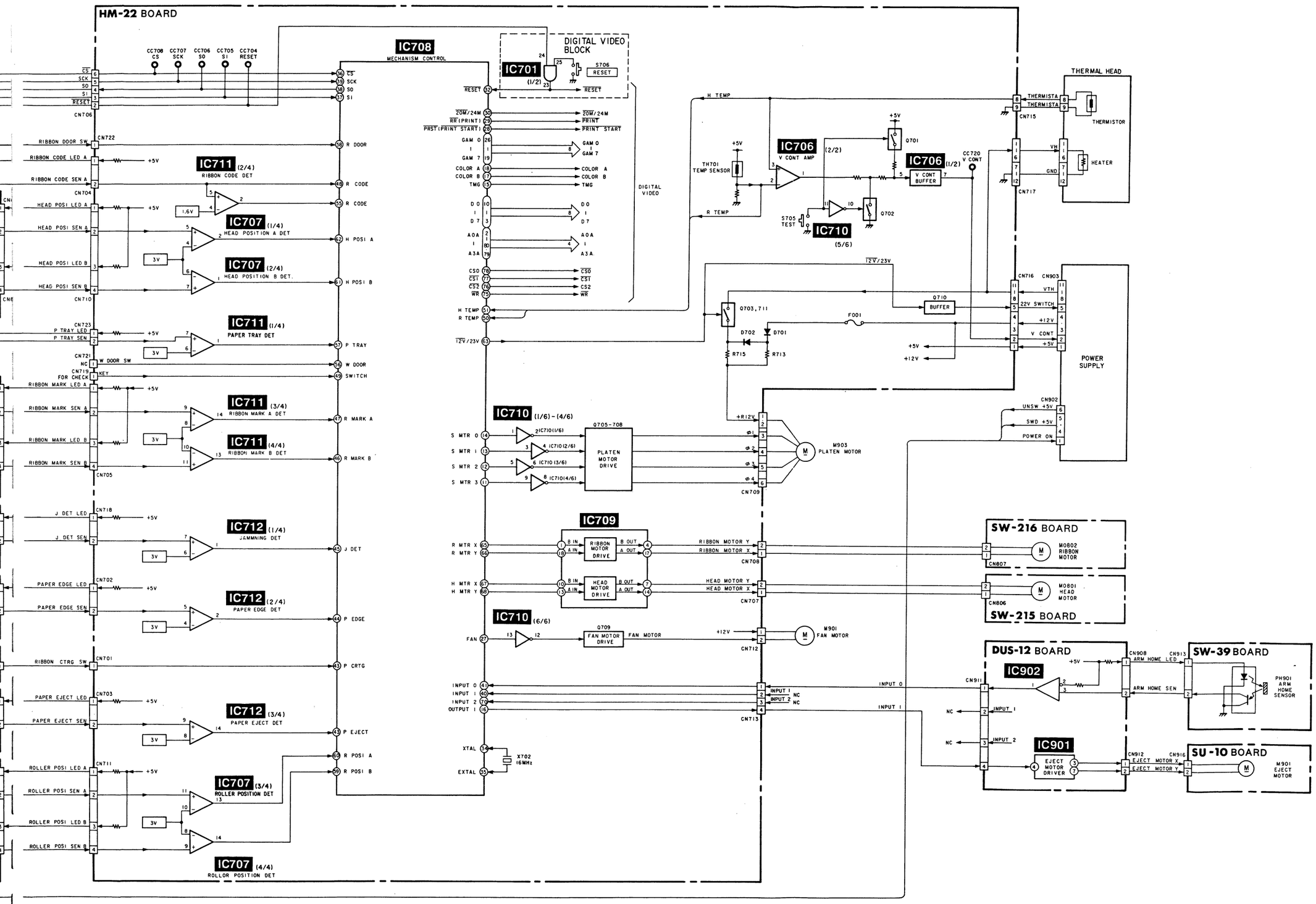
3-4. DIGITAL BLOCK DIAGRAM



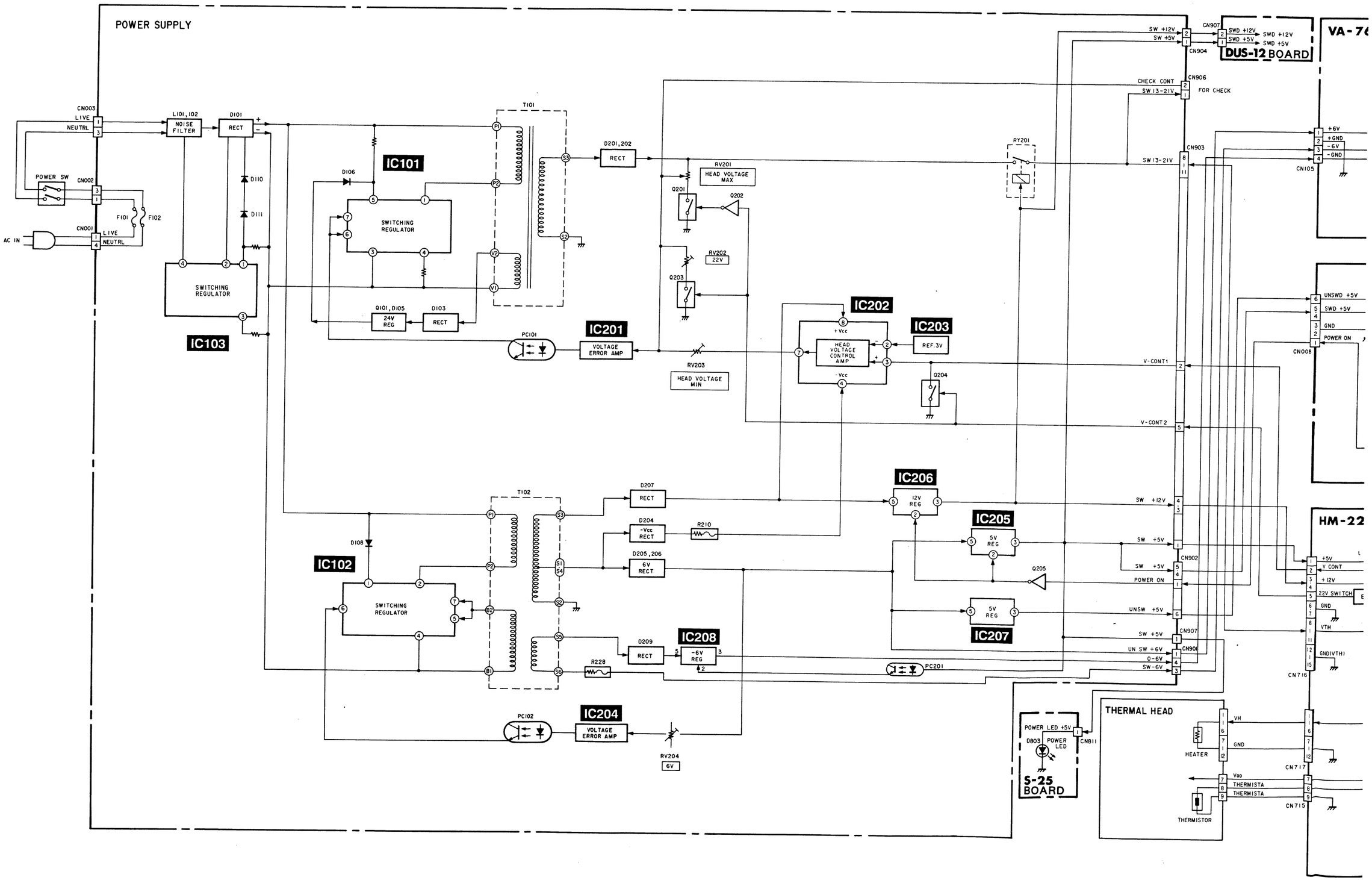

HM-22 BOARD
IC402
D/A CONVERTER
IC403
MAIN MASKING ROM
IC405
LATCH
IC509
GATE ARRAY
IC510
MEMORY CONTROL
IC704
GAMMA ROM
IC701
HEAD CONTROL
IC713
IC702
OPTION RAM
IC703
OPTION RAM
ANALOG VIDEO (VA-76)
THERMAL HEAD
20MHz
IC510 (70) SOURCE/CAPTURE

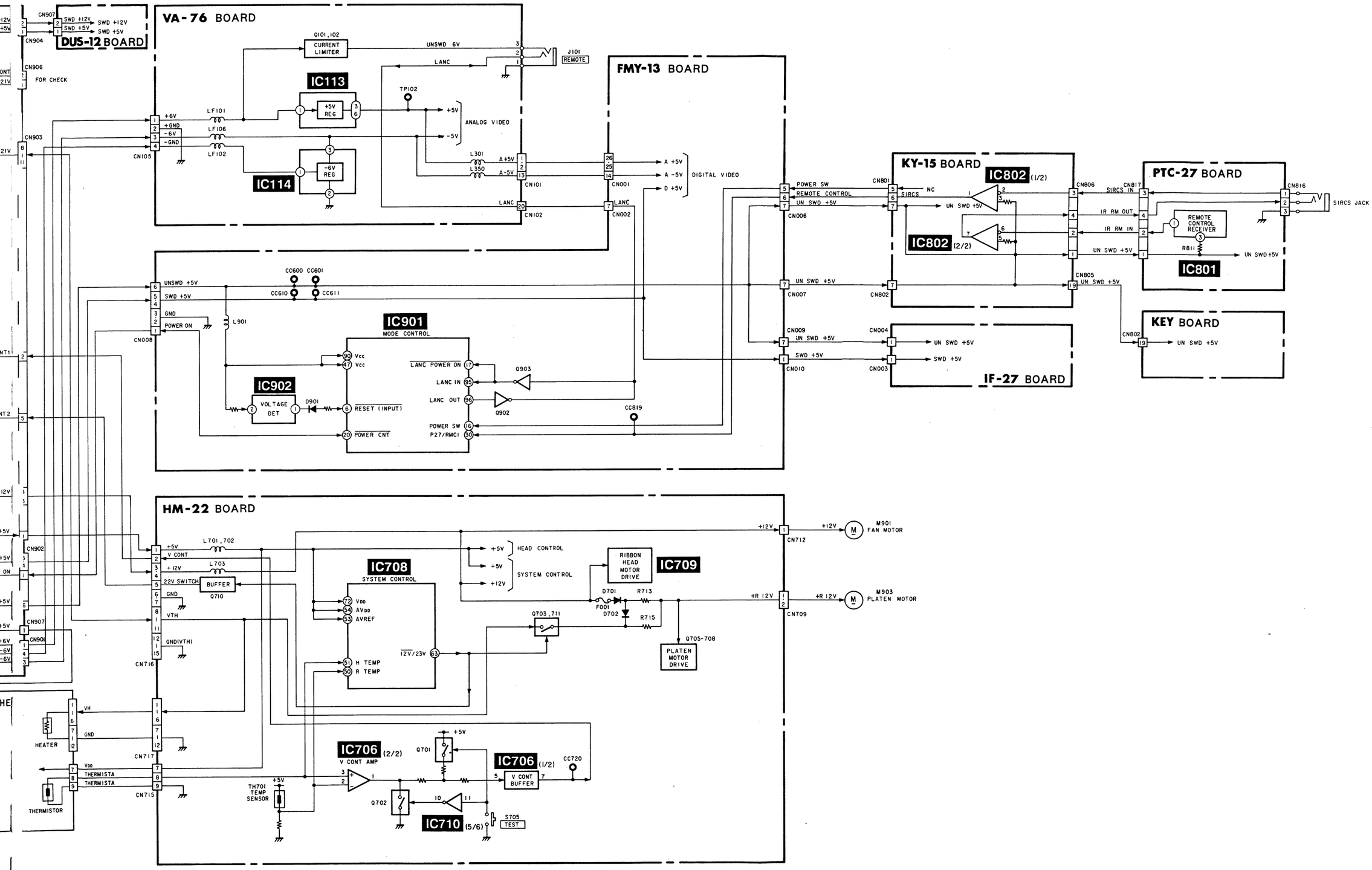
3-5. SYSTEM CONTROL BLOCK DIAGRAM




HM-22 BOARD
IC708
MECHANISM CONTROL
DIGITAL VIDEO BLOCK
IC701 (1/2)
S706 RESET
IC711 (2/4) RIBBON CODE DET
IC707 (1/4) HEAD POSITION A DET
IC707 (2/4) HEAD POSITION B DET.
IC711 (1/4) PAPER TRAY DET
IC711 (3/4) RIBBON MARK A DET
IC711 (4/4) RIBBON MARK B DET
IC712 (1/4) JAMMNING DET
IC712 (2/4) PAPER EDGE DET
IC712 (3/4) PAPER EJECT DET
IC707 (3/4) ROLLER POSITION DET
IC707 (4/4) ROLLOR POSITION DET
IC706 (2/2) V CONT AMP
IC706 (1/2) V CONT BUFFER
IC710 (5/6)
IC710 (1/6)-(4/6)
Q705-708 PLATEN MOTOR DRIVE
M903 PLATEN MOTOR
IC709
RIBBON MOTOR DRIVE
HEAD MOTOR DRIVE
IC710 (6/6)
Q709 FAN MOTOR DRIVE
M901 FAN MOTOR
X702 16MHz
THERMAL HEAD
THERMISTOR
HEATER
TH701 TEMP SENSOR
POWER SUPPLY
SW-216 BOARD
M0802 RIBBON MOTOR
SW-215 BOARD
M0801 HEAD MOTOR
DUS-12 BOARD
IC902
IC901
EJECT MOTOR DRIVER
SW-39 BOARD
PH901 ARM HOME SENSOR
SU-10 BOARD
M901 EJECT MOTOR

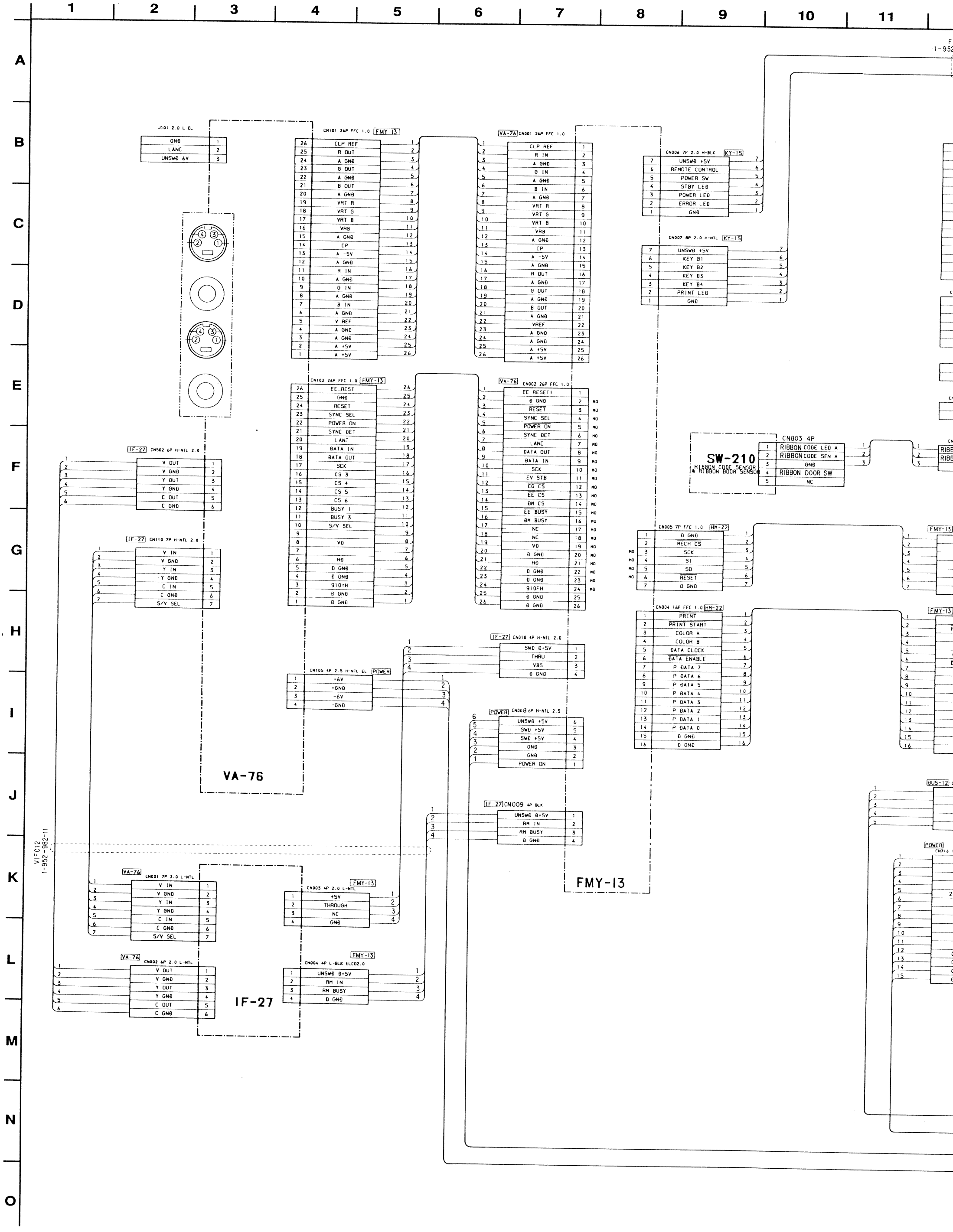
3-6. POWER SUPPLY BLOCK DIAGRAM



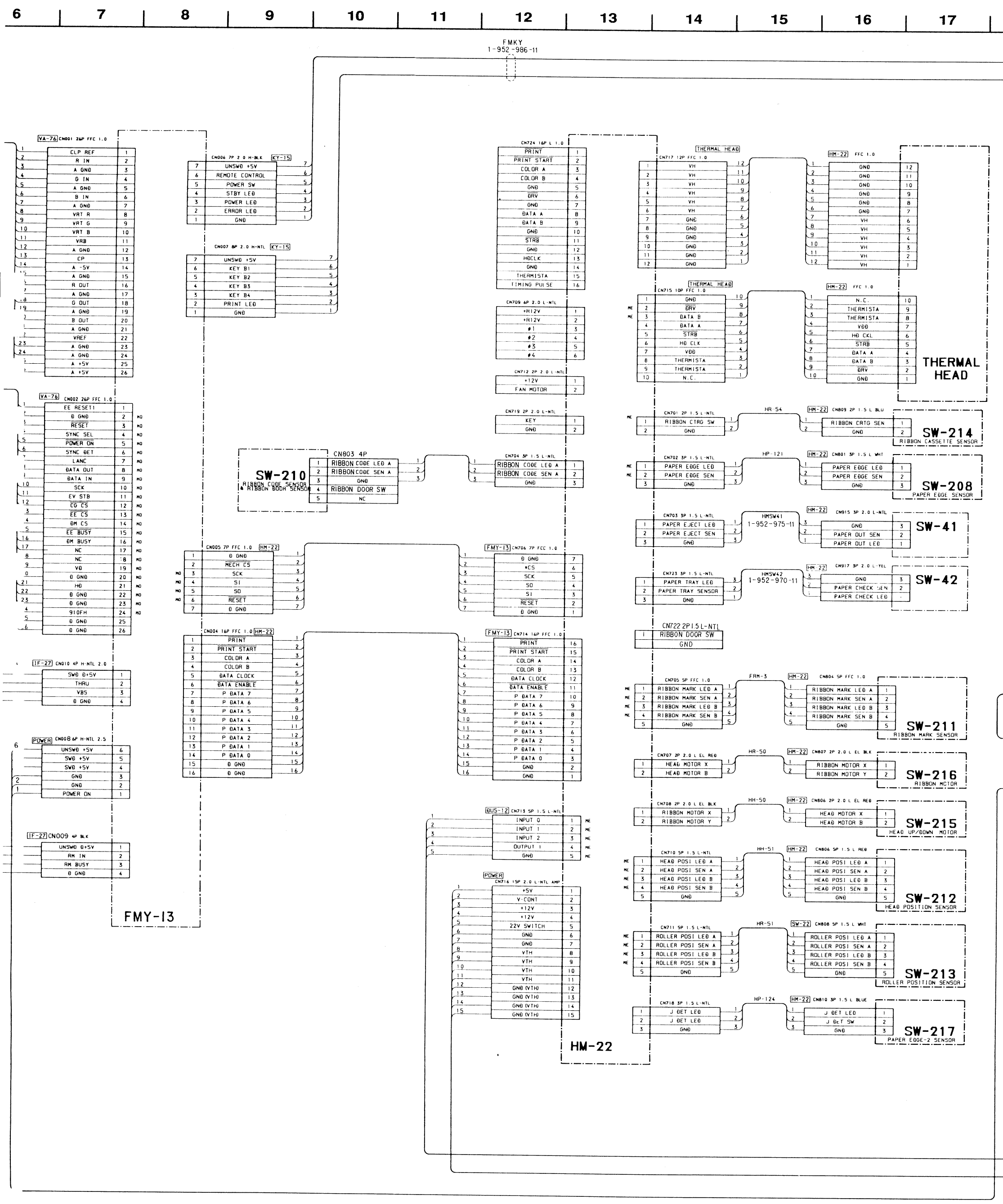

DUS-12 BOARD
VA-76 BOARD
FMY-13 BOARD
KY-15 BOARD
PTC-27 BOARD
KEY BOARD
IF-27 BOARD
HM-22 BOARD
IC113
IC114
IC901
IC902
IC802 (1/2)
IC802 (2/2)
IC801
IC708
IC709
IC706 (2/2)
IC706 (1/2)
IC710 (5/6)
CURRENT LIMITER
+5V REG
-6V REG
ANALOG VIDEO
DIGITAL VIDEO
REMOTE CONTROL RECEIVER
SIRCS JACK
M901 FAN MOTOR
M903 PLATEN MOTOR
RIBBON HEAD MOTOR DRIVE
PLATEN MOTOR DRIVE
SYSTEM CONTROL
HEAD CONTROL
MODE CONTROL
VOLTAGE DET
V CONT AMP
V CONT BUFFER
BUFFER
TH701 TEMP SENSOR
HEATER
THERMISTOR
FOR CHECK
S705 TEST

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



HMPW 1-952-972-11


6
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12
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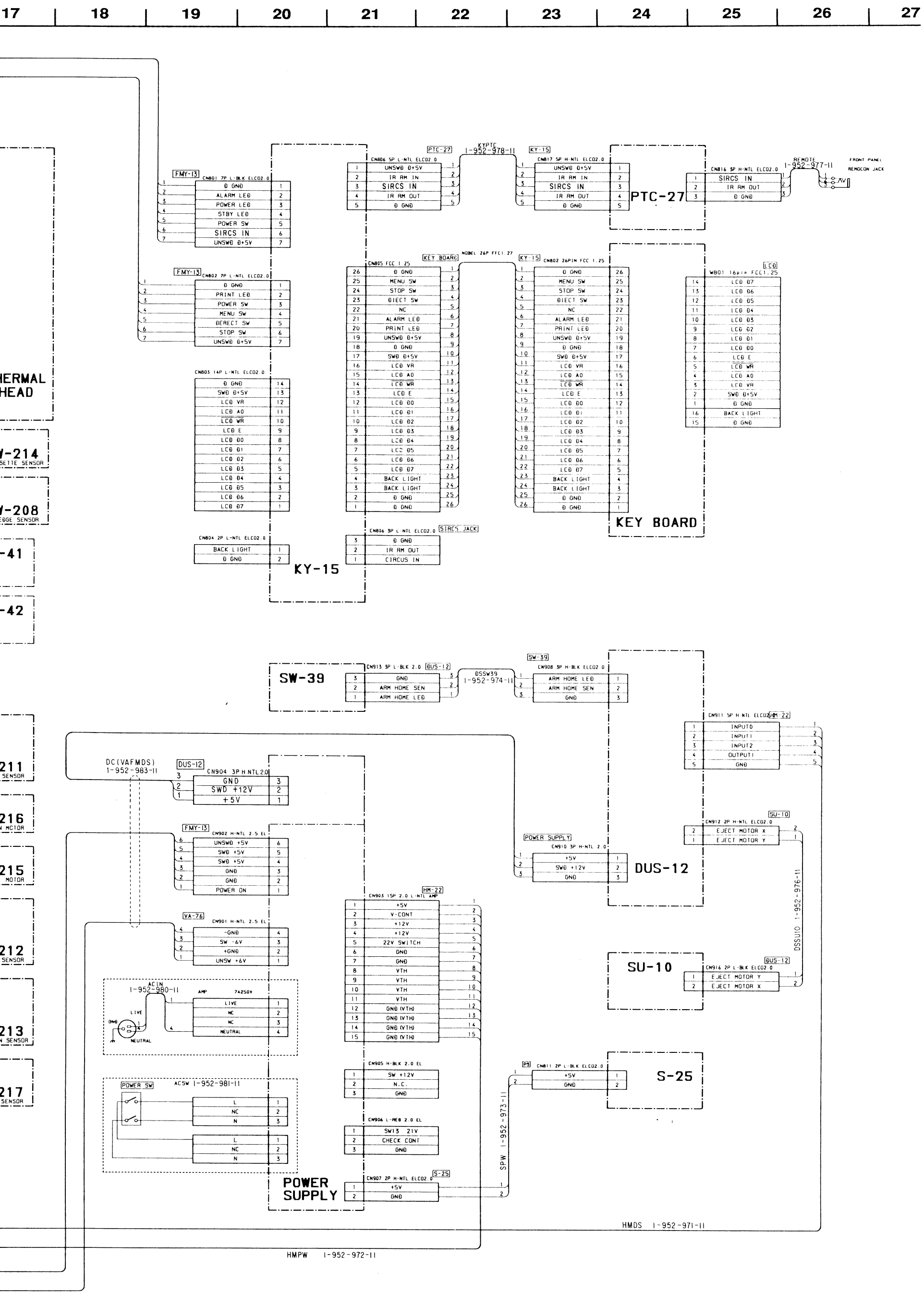
14
15
16
17
FMKY
1-952-986-11
VA-76 CN001 26P FFC 1.0
CLP REF
R IN
A GND
G IN
A GND
B IN
A GND
VRT R
VRT G
VRT B
VRB
A GND
CP
A -5V
A GND
R OUT
A GND
G OUT
A GND
B OUT
A GND
VREF
A GND
A GND
A +5V
A +5V
VA-76 CN002 26P FFC 1.0
EE RESET1
D GND
RESET
SYNC SEL
POWER ON
SYNC DET
LANC
DATA OUT
DATA IN
SCK
EV STB
CG CS
EE CS
DM CS
EE BUSY
DM BUSY
NC
NC
VD
D GND
HD
D GND
D GND
910FH
D GND
D GND
1F-27 CN010 4P H-NTL 2.0
SWD D+5V
THRU
VBS
D GND
POWER CN008 6P H-NTL 2.5
UNSWD +5V
SWD +5V
SWD +5V
GND
GND
POWER ON
1F-27 CN009 4P BLK
UNSWD D+5V
RM IN
RM BUSY
D GND
FMY-13
CN006 7P 2.0 H-BLK KY-15
UNSWD +5V
REMOTE CONTROL
POWER SW
STBY LED
POWER LED
ERROR LED
GND
CN007 8P 2.0 H-NTL KY-15
UNSWD +5V
KEY B1
KEY B2
KEY B3
KEY B4
PRINT LED
GND
SW-210
RIBBON CODE SENSOR
& RIBBON DOOR SENSOR
CN803 4P
RIBBON CODE LED A
RIBBON CODE SEN A
GND
RIBBON DOOR SW
NC
CN704 3P 1.5 L-NTL
RIBBON CODE LED A
RIBBON CODE SEN A
GND
CN005 7P FFC 1.0 HM-22
D GND
MECH CS
SCK
SI
SO
RESET
D GND
FMY-13 CN706 7P FCC 1.0
D GND
*CS
SCK
SO
SI
RESET
D GND
CN004 16P FFC 1.0 HM-22
PRINT
PRINT START
COLOR A
COLOR B
DATA CLOCK
DATA ENABLE
P DATA 7
P DATA 6
P DATA 5
P DATA 4
P DATA 3
P DATA 2
P DATA 1
P DATA 0
D GND
D GND
FMY-13 CN714 16P FFC 1.0
PRINT
PRINT START
COLOR A
COLOR B
DATA CLOCK
DATA ENABLE
P DATA 7
P DATA 6
P DATA 5
P DATA 4
P DATA 3
P DATA 2
P DATA 1
P DATA 0
GND
GND
DUS-12 CN713 5P 1.5 L-NTL
INPUT 0
INPUT 1
INPUT 2
OUTPUT 1
GND
POWER
CN716 15P 2.0 L-NTL AMP
+5V
V-CONT
+12V
+12V
22V SWITCH
GND
GND
VTH
VTH
VTH
VTH
GND (VTH)
GND (VTH)
GND (VTH)
GND (VTH)
HM-22
CN724 16P L 1.0
PRINT
PRINT START
COLOR A
COLOR B
GND
DRV
GND
DATA A
DATA B
GND
STRB
GND
HDCLK
GND
THERMISTA
TIMING PULSE
CN709 6P 2.0 L-NTL
+R12V
+R12V
φ1
φ2
φ3
φ4
CN712 2P 2.0 L-NTL
+12V
FAN MOTOR
CN719 2P 2.0 L-NTL
KEY
GND
THERMAL HEAD
CN717 12P FFC 1.0
VH
VH
VH
VH
VH
VH
GND
GND
GND
GND
GND
GND
HM-22 FFC 1.0
GND
GND
GND
GND
GND
GND
VH
VH
VH
VH
VH
VH
THERMAL HEAD
CN715 10P FFC 1.0
GND
DRV
DATA B
DATA A
STRB
HD CLK
VDD
THERMISTA
THERMISTA
N.C.
HM-22 FFC 1.0
N.C.
THERMISTA
THERMISTA
VDD
HD CKL
STRB
DATA A
DATA B
DRV
GND
THERMAL HEAD
CN701 2P 1.5 L-NTL
RIBBON CTRG SW
GND
HR-54
HM-22 CN809 2P 1.5 L BLU
RIBBON CRTG SEN
GND
SW-214
RIBBON CASSETTE SENSOR
CN702 3P 1.5 L-NTL
PAPER EDGE LED
PAPER EDGE SEN
GND
HP-121
HM-22 CN801 3P 1.5 L WHT
PAPER EDGE LED
PAPER EDGE SEN
GND
SW-208
PAPER EDGE SENSOR
CN703 3P 1.5 L-NTL
PAPER EJECT LED
PAPER EJECT SEN
GND
HMSW41
1-952-975-11
HM-22 CN915 3P 2.0 L-NTL
GND
PAPER OUT SEN
PAPER OUT LED
SW-41
CN723 3P 1.5 L-NTL
PAPER TRAY LED
PAPER TRAY SENSOR
GND
HMSW42
1-952-970-11
HM-22 CN917 3P 2.0 L-YEL
GND
PAPER CHECK SEN
PAPER CHECK LED
SW-42
CN722 2P 1.5 L-NTL
RIBBON DOOR SW
GND
CN705 5P FFC 1.0
RIBBON MARK LED A
RIBBON MARK SEN A
RIBBON MARK LED B
RIBBON MARK SEN B
GND
FRM-3
HM-22 CN804 5P FFC 1.0
RIBBON MARK LED A
RIBBON MARK SEN A
RIBBON MARK LED B
RIBBON MARK SEN B
GND
SW-211
RIBBON MARK SENSOR
CN707 2P 2.0 L EL RED
HEAD MOTOR X
HEAD MOTOR B
HR-50
HM-22 CN807 2P 2.0 L EL BLK
RIBBON MOTOR X
RIBBON MOTOR Y
SW-216
RIBBON MOTOR
CN708 2P 2.0 L EL BLK
RIBBON MOTOR X
RIBBON MOTOR Y
HH-50
HM-22 CN806 2P 2.0 L EL RED
HEAD MOTOR X
HEAD MOTOR B
SW-215
HEAD UP/DOWN MOTOR
CN710 5P 1.5 L-NTL
HEAD POSI LED A
HEAD POSI SEN A
HEAD POSI LED B
HEAD POSI SEN B
GND
HH-51
HM-22 CN806 5P 1.5 L RED
HEAD POSI LED A
HEAD POSI SEN A
HEAD POSI LED B
HEAD POSI SEN B
GND
SW-212
HEAD POSITION SENSOR
CN711 5P 1.5 L-NTL
ROLLER POSI LED A
ROLLER POSI SEN A
ROLLER POSI LED B
ROLLER POSI SEN B
GND
HR-51
SW-22 CN808 5P 1.5 L WHT
ROLLER POSI LED A
ROLLER POSI SEN A
ROLLER POSI LED B
ROLLER POSI SEN B
GND
SW-213
ROLLER POSITION SENSOR
CN718 3P 1.5 L-NTL
J DET LED
J DET LED
GND
HP-124
HM-22 CN810 3P 1.5 L BLUE
J DET LED
J DET SW
GND
SW-217
PAPER EDGE-2 SENSOR


17
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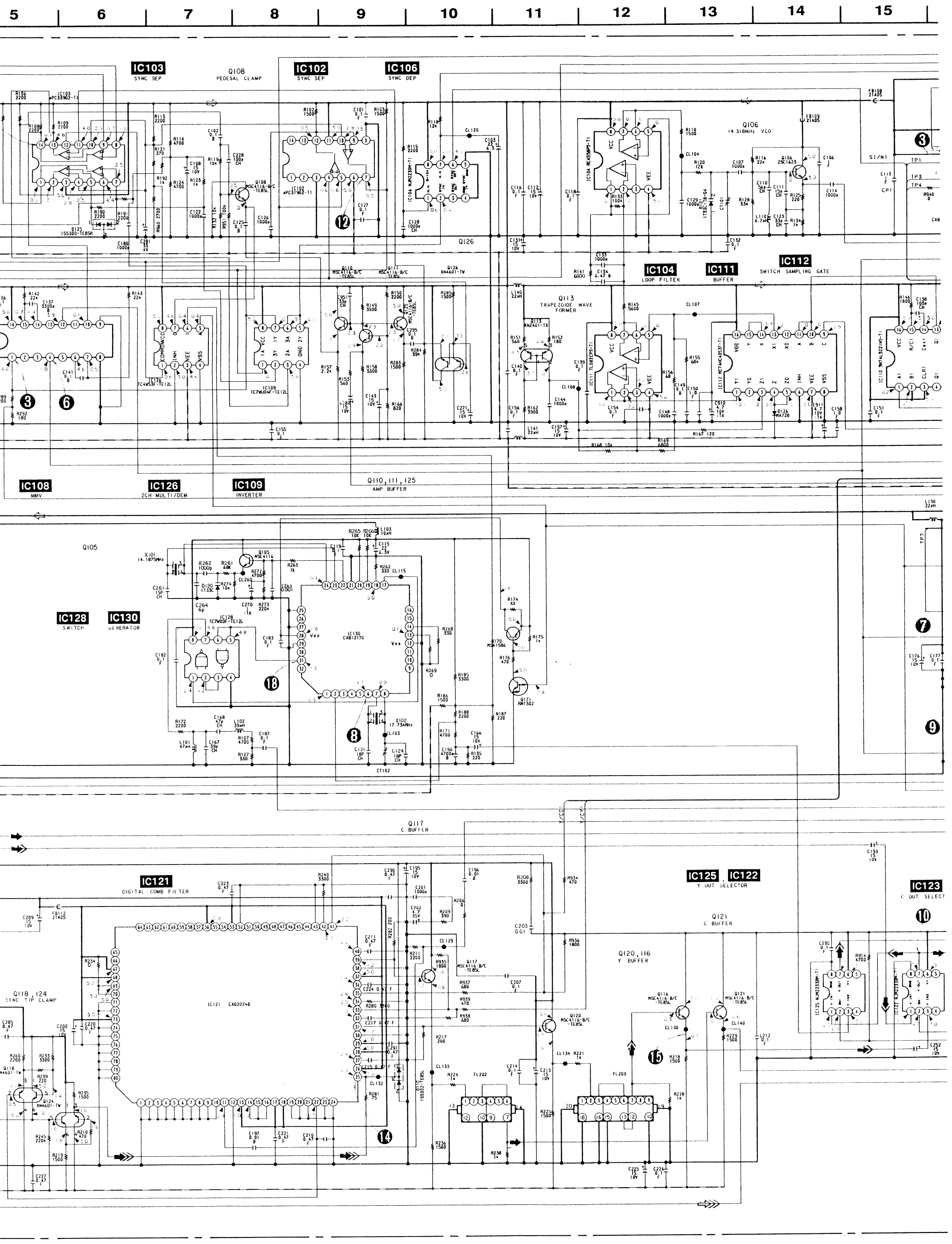
27
HERMAL HEAD
-214 SETTE SENSOR
-208 EDGE SENSOR
-41
-42
211 SENSOR
216 MOTOR
215 MOTOR
212 SENSOR
213 SENSOR
217 SENSOR
FMY-13
CN801 7P L-BLK ELCO2.0
0 GND
ALARM LED
POWER LED
STBY LED
POWER SW
SIRCS IN
UNSW0 0+5V
FMY-13
CN802 7P L-NTL ELCO2.0
0 GND
PRINT LED
POWER SW
MENU SW
DERECT SW
STOP SW
UNSW0 0+5V
CN803 14P L-NTL ELCO2.0
0 GND
SW0 0+5V
LCD VR
LCD A0
LCD WR
LCD E
LCD D0
LCD D1
LCD D2
LCD D3
LCD D4
LCD D5
LCD D6
LCD D7
CN804 2P L-NTL ELCO2.0
BACK LIGHT
0 GND
KY-15
PTC-27
CN806 5P L-NTL ELCO2.0
UNSW0 0+5V
IR RM IN
SIRCS IN
IR RM OUT
0 GND
KYPTC
1-952-978-11
KY-15
CN817 5P H-NTL ELCO2.0
UNSW0 0+5V
IR RM IN
SIRCS IN
IR RM OUT
0 GND
PTC-27
CN816 3P H-NTL ELCO2.0
SIRCS IN
IR RM OUT
0 GND
REMOTE
1-952-977-11
FRONT PANEL
REMOCON JACK
KEY BOARD
CN805 FCC 1.25
KEY BOARD
MOBEL 26P FFC1.27
KY-15
CN802 26PIN FCC 1.25
0 GND
MENU SW
STOP SW
EJECT SW
NC
ALARM LED
PRINT LED
UNSW0 0+5V
0 GND
SW0 0+5V
LCD VR
LCD A0
LCD WR
LCD E
LCD D0
LCD D1
LCD D2
LCD D3
LCD D4
LCD D5
LCD D6
LCD D7
BACK LIGHT
BACK LIGHT
0 GND
0 GND
LCD
W801 16pin FCC1.25
LCD D7
LCD D6
LCD D5
LCD D4
LCD D3
LCD D2
LCD D1
LCD D0
LCD E
LCD WR
LCD A0
LCD VR
SW0 0+5V
0 GND
BACK LIGHT
0 GND
CN806 3P L-NTL ELCO2.0
SIRCS JACK
0 GND
IR RM OUT
CIRCUS IN
SW-39
CN913 3P L-BLK 2.0
DUS-12
GND
ARM HOME SEN
ARM HOME LED
DSSW39
1-952-974-11
SW-39
CN908 3P H-BLK ELCO2.0
ARM HOME LED
ARM HOME SEN
GND
CN911 5P H-NTL ELCO2
HM-22
INPUT0
INPUT1
INPUT2
OUTPUT1
GND
DC(VAFMDS)
1-952-983-11
DUS-12
CN904 3P H NTL2.0
GND
SW0 +12V
+5V
FMY-13
CN902 H-NTL 2.5 EL
UNSW0 +5V
SW0 +5V
SW0 +5V
GND
GND
POWER ON
VA-76
CN901 H-NTL 2.5 EL
-GND
SW -6V
+GND
UNSW +6V
ACIN
1-952-980-11
AMP
7A250V
LIVE
NC
NC
NEUTRAL
LIVE
GND
NEUTRAL
POWER SW
ACSW 1-952-981-11
L
NC
N
L
NC
N
POWER SUPPLY
HM-22
CN903 15P 2.0 L-NTL AMP
+5V
V-CONT
+12V
+12V
22V SWITCH
GND
GND
VTH
VTH
VTH
VTH
GND (VTH)
GND (VTH)
GND (VTH)
GND (VTH)
CN905 H-BLK 2.0 EL
SW +12V
N.C.
GND
CN906 L-REB 2.0 EL
SW13 21V
CHECK CONT
GND
S-25
CN907 2P H-NTL ELCO2.0
+5V
GND
POWER SUPPLY
CN910 3P H-NTL 2.0
+5V
SW0 +12V
GND
DUS-12
SU-10
CN912 2P H-NTL ELCO2.0
EJECT MOTOR X
EJECT MOTOR Y
DSSU10 1-952-976-11
SU-10
CN916 2P L-BLK ELCO2.0
DUS-12
EJECT MOTOR Y
EJECT MOTOR X
S-25
PS
CN811 2P L-BLK ELCO2.0
+5V
GND
SPW 1-952-973-11
HMDS 1-952-971-11
HMPW 1-952-972-11


5
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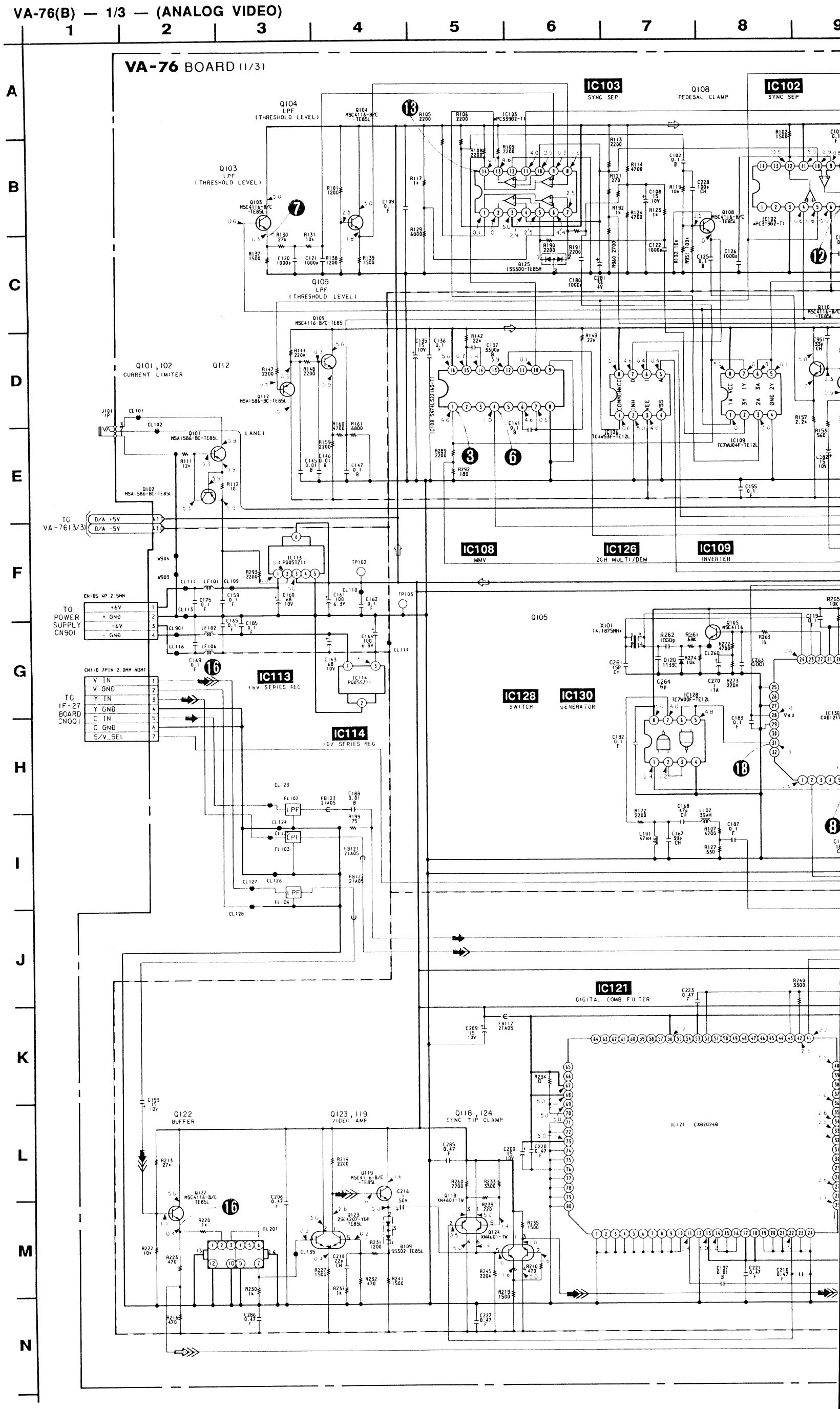
15
IC103
SYNC SEP
Q108
PEDESAL CLAMP
IC102
SYNC SEP
IC106
SYNC DEP
Q106
14.318MHz VCO
Q126
IC104
LOOP FILTER
IC111
BUFFER
IC112
SWITCH SAMPLING GATE
Q113
TRAPEZOIDE WAVE FORMER
IC108
MMV
IC126
2CH MULTI/DEM
IC109
INVERTER
Q110, 111, 125
AMP BUFFER
Q105
IC128
SWITCH
IC130
GENERATOR
Q117
C BUFFER
IC121
DIGITAL COMB FILTER
IC125
IC122
Y OUT SELECTOR
IC123
C OUT SELECT
Q121
C BUFFER
Q120, 116
Y BUFFER
Q118, 124
SYNC TIP CLAMP

DIAGRAMS


VA-76 BOARD (1/3)
IC103
SYNC SEP
IC102
SYNC SEP
Q108
PEDESAL CLAMP
Q104
LPF
(THRESHOLD LEVEL)
Q103
LPF
(THRESHOLD LEVEL)
Q109
LPF
(THRESHOLD LEVEL)
Q101, 102
CURRENT LIMITER
Q112
IC108
MMV
IC126
2CH MULTI/DEM
IC109
INVERTER
IC113
+6V SERIES REG
IC114
+6V SERIES REG
IC128
SWITCH
IC130
GENERATOR
IC121
DIGITAL COMB FILTER
Q122
BUFFER
Q123, 119
VIDEO AMP
Q118, 124
SYNC TIP CLAMP
TO VA-76(3/3)
TO POWER SUPPLY CN901
TO IF-27 BOARD CN001

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

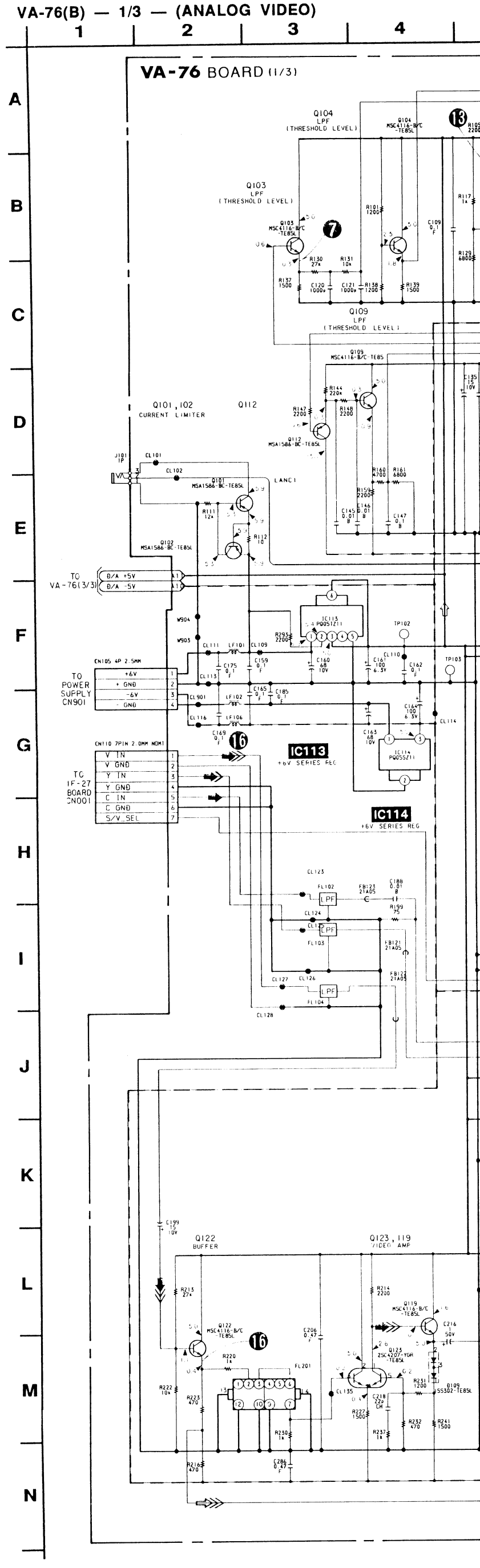
THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

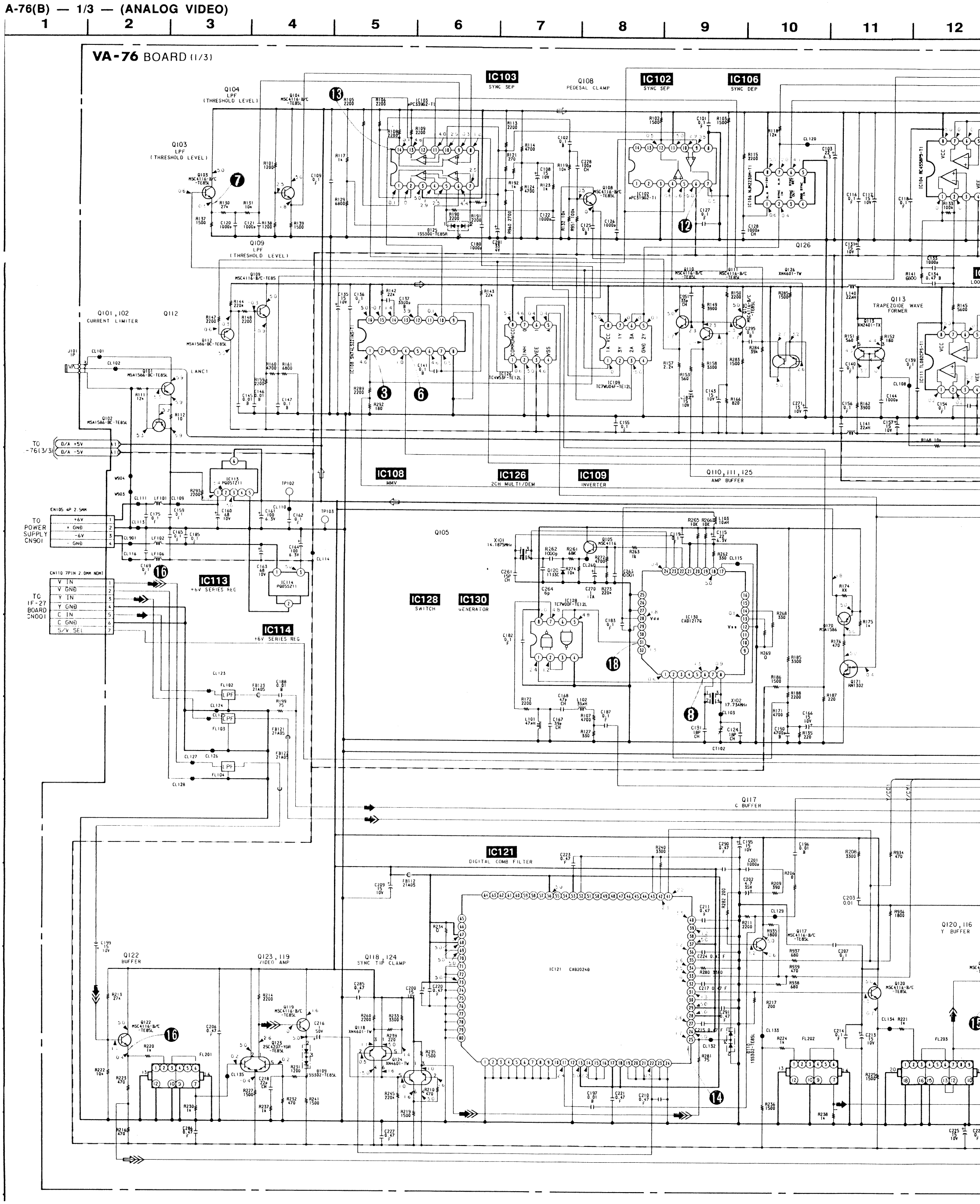
- **For Printed Wiring Boards.**
- ▒▒▒▒ : Soldering Side.
- ▒▒▒▒ : Component Side.

- **For Schematic Diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted.
  pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusibe resistor.
- : panel designation.
- : adjustment for repeair.
- ▬▬▬ : B+ Line.
- - - - : B− Line.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

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

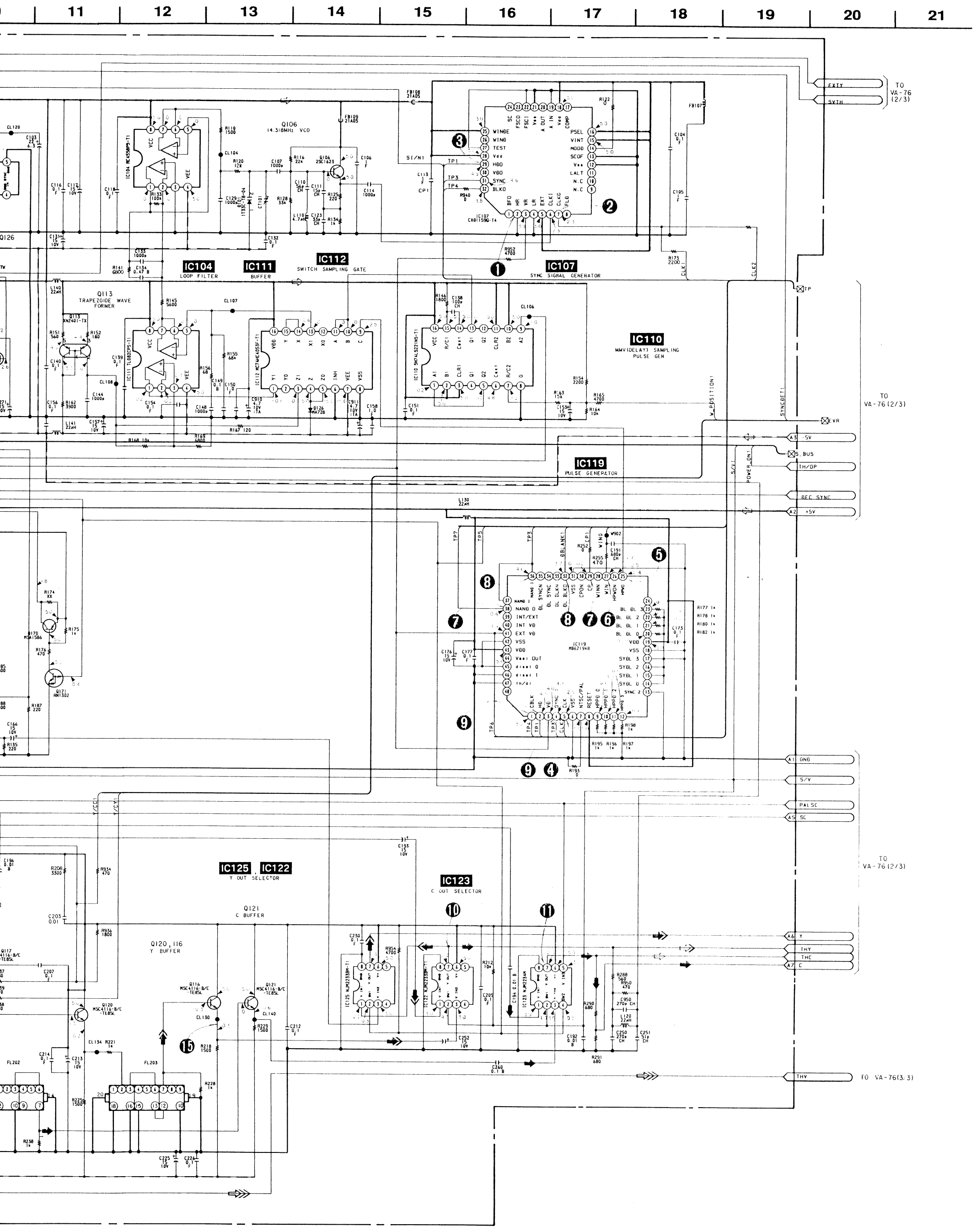
VA-76(B) — 1/3 — (ANALOG VIDEO)



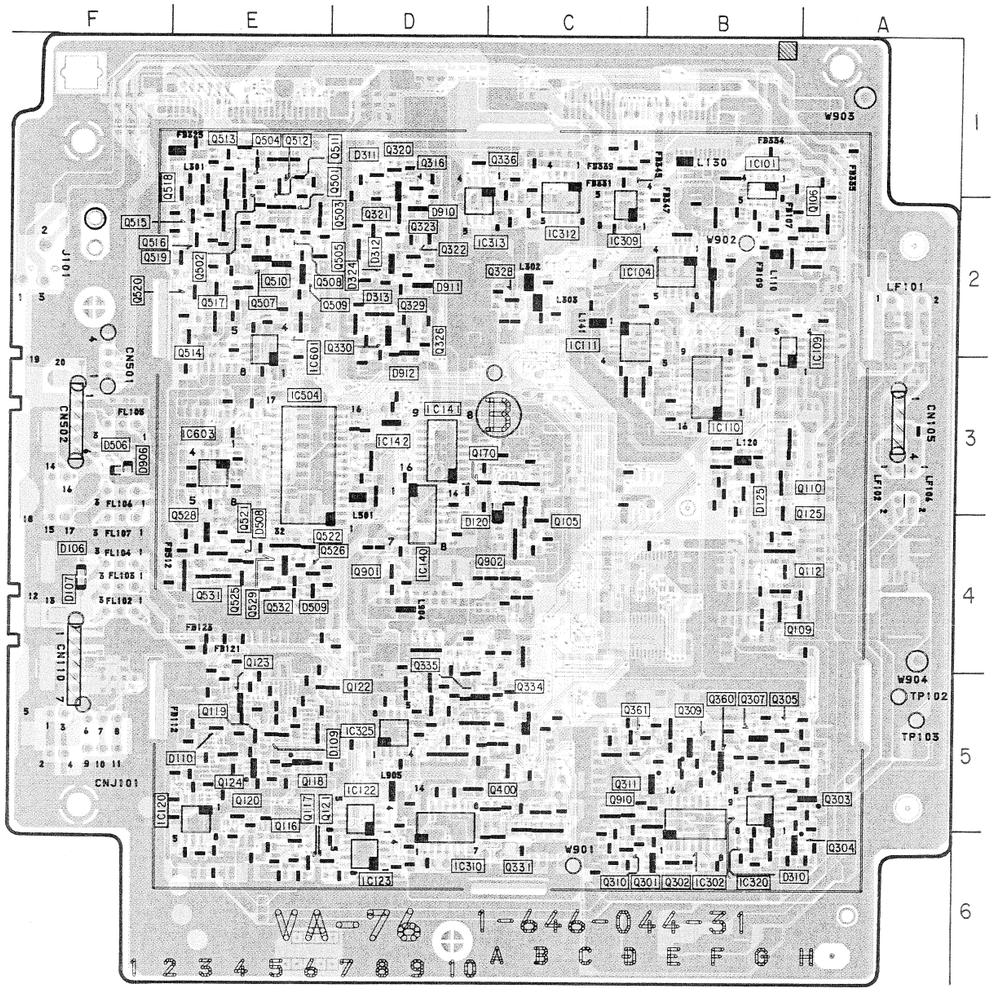

VA-76 BOARD (1/3)
IC103 SYNC SEP
IC102 SYNC SEP
IC106 SYNC DEP
IC108 MMV
IC126 2CH MULTI/DEM
IC109 INVERTER
IC113 +6V SERIES REG
IC114 +6V SERIES REG
IC128 SWITCH
IC130 GENERATOR
IC121 DIGITAL COMB FILTER
Q104 LPF (THRESHOLD LEVEL)
Q103 LPF (THRESHOLD LEVEL)
Q109 LPF (THRESHOLD LEVEL)
Q108 PEDESAL CLAMP
Q101, 102 CURRENT LIMITER
Q112
Q113 TRAPEZOIDE WAVE FORMER
Q110, 111, 125 AMP BUFFER
Q105
Q117 C BUFFER
Q120, 116 Y BUFFER
Q122 BUFFER
Q123, 119 VIDEO AMP
Q118, 124 SYNC TIP CLAMP
TO VA-76(3/3)
TO POWER SUPPLY CN901
TO IF-27 BOARD CN001

• **SIGNAL PATH**

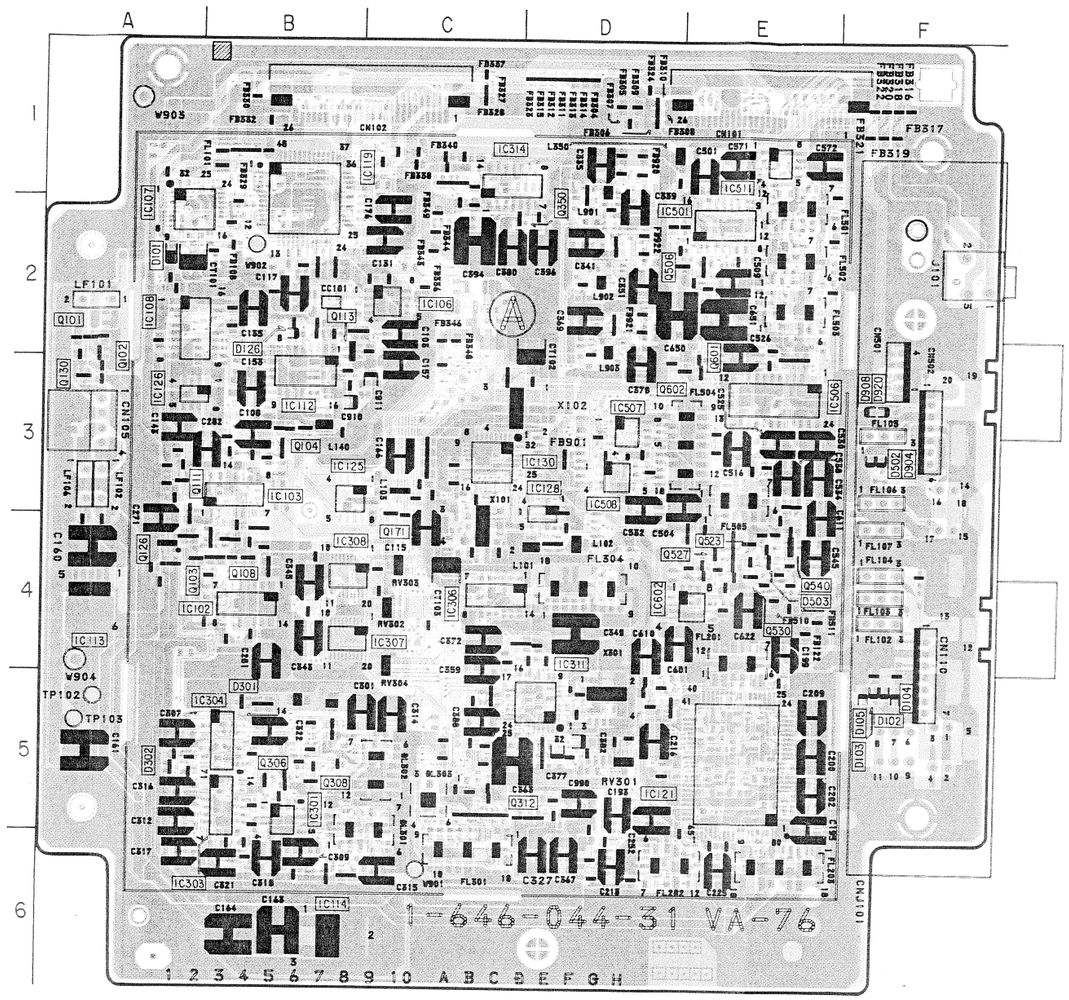
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	➡
PB	⇨	⇨	⇨



VA-76(B) (ANALOG VIDEO)



VA-76(B) -SOLDERING SIDE-
1-646-044-31

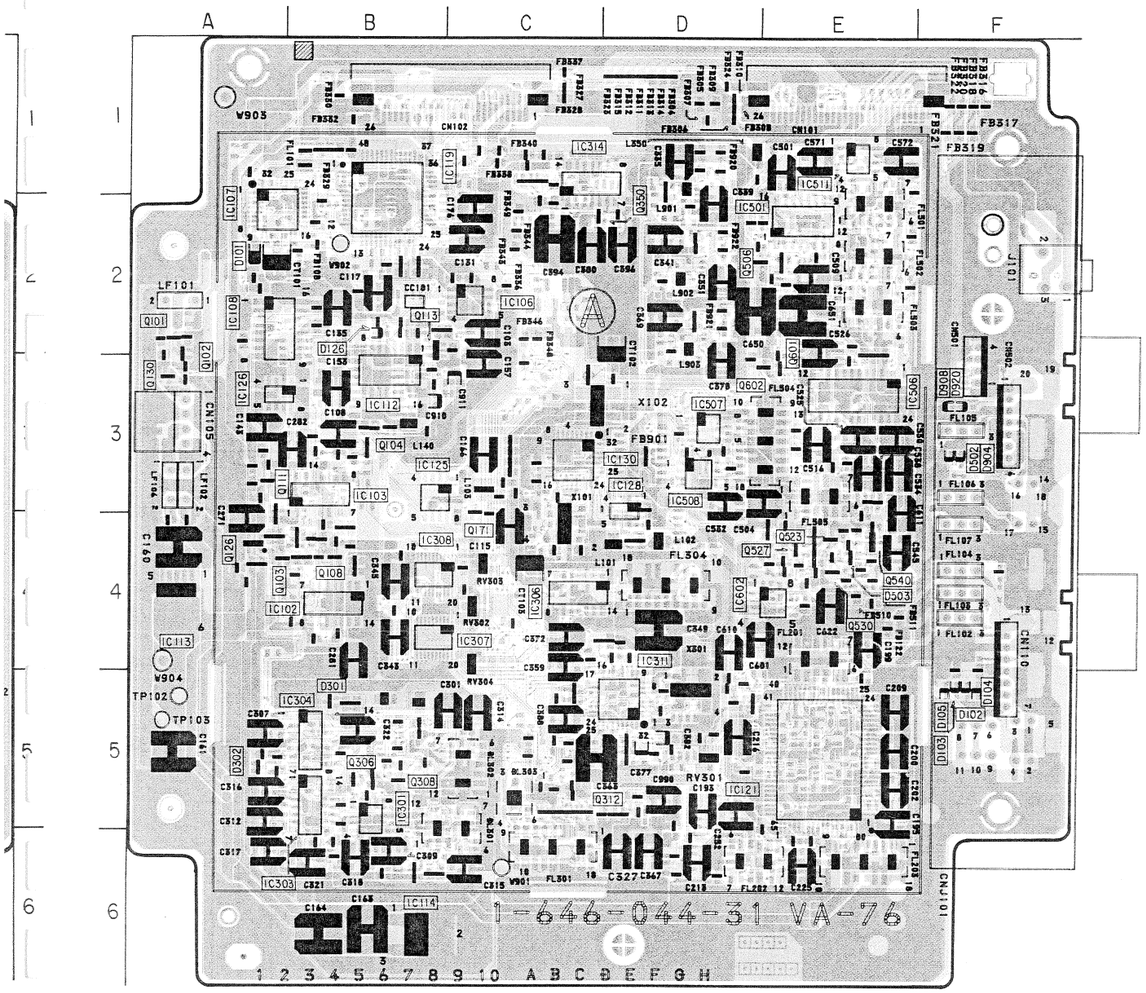


VA-76(B) -COMPONENT SIDE-
1-646-044-31

VA-76(B) BOARD

CN101	E-1	S
CN102	C-1	S
CN105	A-3	S
CN110	F-5	S
CN502	F-3	S
CT101	A-2	S
CT102	D-2	S
D101	A-2	S
D109	E-5	
D110	E-5	
D125	B-3	
D126	B-2	S
D301	B-5	S
D302	A-5	S
D310	B-6	
D311	D-1	
D312	D-2	
D313	D-2	
D503	E-4	S
D508	E-4	
D509	E-4	
D910	D-2	
D911	D-2	
D912	D-3	
DL301	C-6	S
DL302	C-5	S
DL303	C-5	S
FB107	B-2	
FB108	B-2	S
FB109	B-2	
FB112	E-5	
FB121	E-4	
FB122	E-4	S
FB123	E-5	
FB304	D-1	S
FB305	D-1	S
FB306	D-1	S
FB307	D-1	S
FB308	D-1	S
FB309	D-1	S
FB310	D-1	S
FB311	D-1	S
FB312	D-1	S
FB313	D-1	S
FB314	D-1	S
FB315	D-1	S
FB316	F-1	S
FB317	F-1	S
FB318	F-1	S
FB319	F-1	S
FB320	F-1	S
FB321	F-1	S
FB322	F-1	S
FB323	D-1	S
FB324	D-1	S
FB325	E-1	
FB327	C-1	S
FB328	C-1	S
FB329	B-1	S
FB330	B-1	S
FB331	C-1	
FB332	B-1	S
FB334	B-1	
FB335	A-1	
FB336	C-2	S

S:SOLDERING SIDE



VA-76(B) -COMPONENT SIDE-
1-646-044-31

VA-76(B) BOARD

CN101	E-1	S	FB337	C-1	S	IC320	B-5		Q309	B-5	
CN102	C-1	S	FB338	C-1	S	IC501	E-2	S	Q310	C-6	
CN105	A-3	S	FB339	C-1		IC504	E-3		Q311	B-5	
CN110	F-5	S	FB340	C-1	S	IC506	E-3	S	Q312	D-5	S
CN502	F-3	S	FB343	C-2	S	IC507	D-3	S	Q316	D-1	
			FB344	C-2	S	IC508	D-3	S	Q320	D-1	
CT101	A-2	S	FB345	C-1		IC511	E-1	S	Q321	D-2	
CT102	D-2	S	FB346	C-2	S	IC601	E-2		Q322	D-2	
			FB347	B-2		IC602	E-4	S	Q323	D-2	
D101	A-2	S	FB348	C-2	S	IC603	E-3		Q324	D-2	
D109	E-5		FB349	C-2	S				Q326	D-3	
D110	E-5		FB510	E-4	S	J101	F-2	S	Q328	C-2	
D125	B-3		FB511	E-4	S				Q329	D-2	
D126	B-2	S	FB512	E-4		L101	D-4	S	Q330	D-2	
D301	B-5	S	FB901	D-3	S	L102	D-4	S	Q331	C-6	
D302	A-5	S	FB920	D-1	S	L103	C-3	S	Q334	C-5	
D310	B-6		FB921	D-2	S	L110	B-2		Q335	D-5	
D311	D-1		FB922	E-2	S	L120	B-3		Q336	D-1	
D312	D-2					L130	B-1		Q350	C-2	S
D313	D-2		FL102	F-4	S	L140	B-3	S	Q360	B-5	
D503	E-4	S	FL103	F-4	S	L141	C-2		Q361	C-5	
D508	E-4		FL104	F-4	S	L301	E-1		Q501	E-2	
D509	E-4		FL105	F-3	S	L302	C-2		Q502	E-1	
D910	D-2		FL106	F-3	S	L303	C-2		Q503	F-2	
D911	D-2		FL107	F-4	S	L350	D-1	S	Q504	E-1	
D912	D-3		FL201	E-4	S	L501	D-3		Q505	E-2	
			FL202	E-6	S	L901	D-1	S	Q506	E-2	S
DL301	C-6	S	FL203	E-6	S	L902	D-2	S	Q507	E-2	
DL302	C-5	S	FL301	C-6	S	L903	D-2	S	Q508	E-2	
DL303	C-5	S	FL304	D-4	S	L904	D-4		Q509	E-2	
			FL501	E-2	S	L905	D-5		Q510	E-2	
FB107	B-2		FL502	E-2	S				Q511	E-2	
FB108	B-2	S	FL503	E-2	S	LF101	A-2		Q512	E-1	
FB109	B-2		FL504	E-3	S	LF102	A-3		Q513	E-1	
FB112	E-5		FL505	E-3	S	LF106	A-3		Q514	E-2	
FB121	E-4								Q515	E-2	
FB122	E-4	S	IC102	B-4	S	Q101	A-2	S	Q516	E-2	
FB123	E-5		IC103	B-3	S	Q102	A-2	S	Q517	E-2	
FB304	D-1	S	IC104	B-2		Q103	A-4	S	Q518	E-2	
FB305	D-1	S	IC106	C-2	S	Q104	B-3	S	Q519	E-2	
FB306	D-1	S	IC107	A-2	S	Q105	C-4		Q520	E-2	
FB307	D-1	S	IC108	A-2	S	Q106	A-2		Q521	E-4	
FB308	D-1	S	IC109	B-2		Q108	B-4	S	Q522	E-4	
FB309	D-1	S	IC110	B-3		Q109	B-4		Q523	E-4	S
FB310	D-1	S	IC111	C-2		Q110	B-3		Q525	E-4	
FB311	D-1	S	IC112	B-3	S	Q111	A-3	S	Q526	E-4	
FB312	D-1	S	IC113	A-4	S	Q112	B-4		Q527	E-4	S
FB313	D-1	S	IC114	B-6	S	Q113	B-2	S	Q528	E-4	
FB314	D-1	S	IC119	B-2	S	Q116	E-6		Q529	E-4	
FB315	D-1	S	IC121	E-5	S	Q117	E-6		Q530	E-4	S
FB316	F-1	S	IC122	D-5		Q118	E-5		Q531	E-4	
FB317	F-1	S	IC123	D-6		Q119	E-5		Q532	E-4	
FB318	F-1	S	IC125	B-3	S	Q120	D-6		Q540	E-4	S
FB319	F-1	S	IC126	A-3	S	Q121	D-6		Q601	E-3	S
FB320	F-1	S	IC128	D-3	S	Q122	E-5		Q602	E-3	S
FB321	F-1	S	IC130	C-3	S	Q123	E-5		Q901	D-4	
FB322	F-1	S	IC301	B-5	S	Q124	E-5		Q902	C-4	
FB323	D-1	S	IC302	B-5		Q125	B-3		Q910	C-5	
FB324	D-1	S	IC303	B-5	S	Q126	A-4	S			
FB325	E-1		IC304	B-5	S	Q170	C-3		RV301	D-5	S
FB327	C-1	S	IC306	C-4	S	Q171	C-3	S	RV302	C-4	S
FB328	C-1	S	IC307	B-4	S	Q301	B-6		RV303	C-4	S
FB329	B-1	S	IC308	B-4	S	Q302	B-6		RV304	C-4	S
FB330	B-1	S	IC309	C-2		Q303	A-5				
FB331	C-1		IC310	D-6		Q304	A-6		X101	C-4	S
FB332	B-1	S	IC311	D-5	S	Q305	B-5		X102	D-3	S
FB334	B-1		IC312	C-2		Q306	B-5	S	X301	D-5	S
FB335	A-1		IC313	D-2		Q307	B-5				
FB336	C-2	S	IC314	C-1	S	Q308	B-5	S			

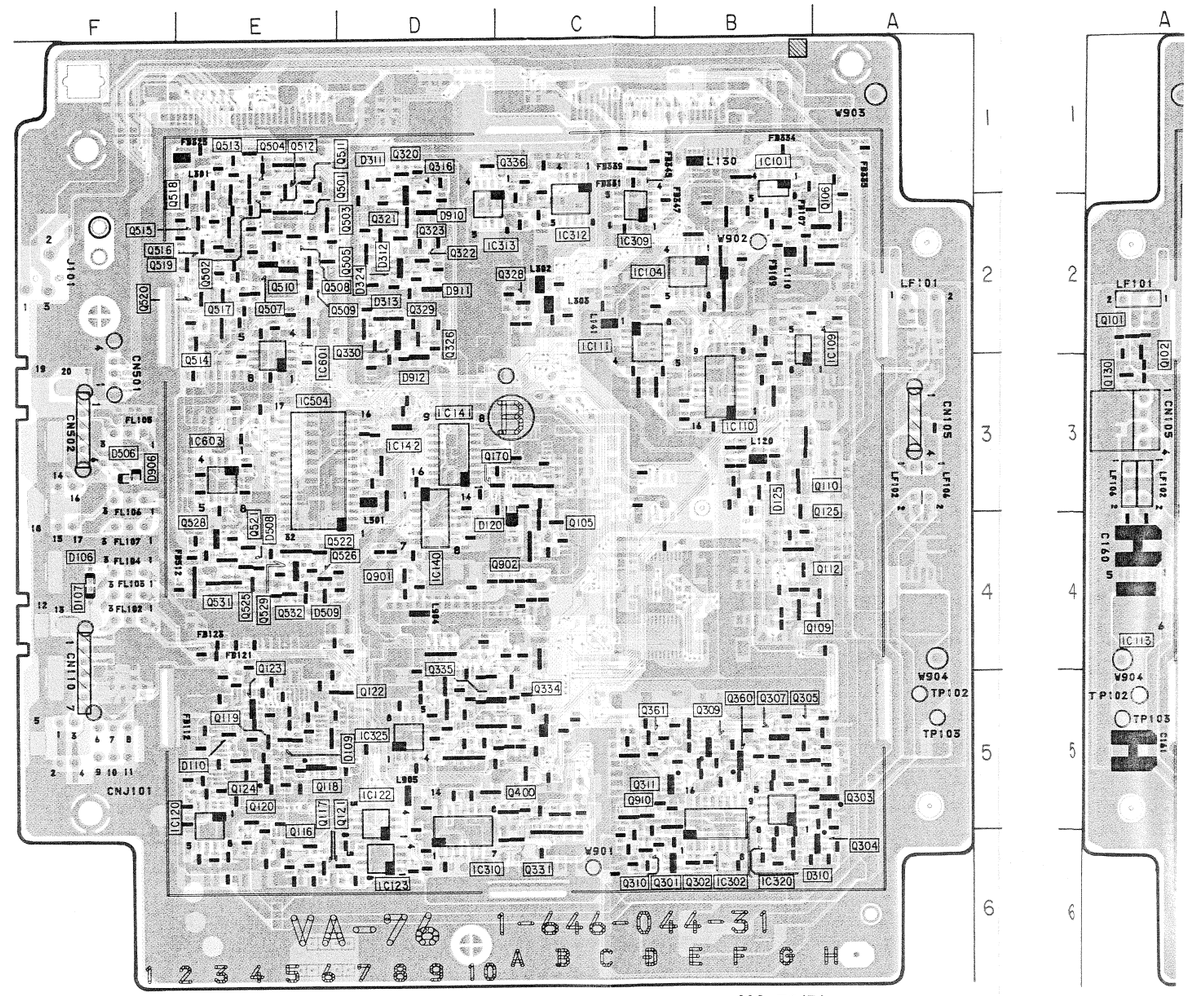
S:SOLDERING SIDE

VA-76(B) (ANALOG VIDEO)

VA-76(B) BOARD

CN101	E-1	S	FB337	C-1	S	IC320	B-5		Q309	B-5	
CN102	C-1	S	FB338	C-1	S	IC501	E-2	S	Q310	C-6	
CN105	A-3	S	FB339	C-1		IC504	E-3		Q311	B-5	
CN110	F-5	S	FB340	C-1	S	IC506	E-3	S	Q312	D-5	S
CN502	F-3	S	FB343	C-2	S	IC507	D-3	S	Q316	D-1	
			FB344	C-2	S	IC508	D-3	S	Q320	D-1	
CT101	A-2	S	FB345	C-1		IC511	E-1	S	Q321	D-2	
CT102	D-2	S	FB346	C-2	S	IC601	E-2		Q322	D-2	
			FB347	B-2		IC602	E-4	S	Q323	D-2	
D101	A-2	S	FB348	C-2	S	IC603	E-3		Q324	D-2	
D109	E-5		FB349	C-2	S				Q326	D-3	
D110	E-5		FB510	E-4	S	J101	F-2	S	Q328	C-2	
D125	B-3		FB511	E-4	S				Q329	D-2	
D126	B-2	S	FB512	E-4		L101	D-4	S	Q330	D-2	
D301	B-5	S	FB901	D-3	S	L102	D-4	S	Q331	C-6	
D302	A-5	S	FB920	D-1	S	L103	C-3	S	Q334	C-5	
D310	B-6		FB921	D-2	S	L110	B-2		Q335	D-5	
D311	D-1		FB922	E-2	S	L120	B-3		Q336	D-1	
D312	D-2					L130	B-1		Q350	C-2	S
D313	D-2		FL102	F-4	S	L140	B-3	S	Q360	B-5	
D503	E-4	S	FL103	F-4	S	L141	C-2		Q361	C-5	
D508	E-4		FL104	F-4	S	L301	E-1		Q501	E-2	
D509	E-4		FL105	F-3	S	L302	C-2		Q502	E-1	
D910	D-2		FL106	F-3	S	L303	C-2		Q503	F-2	
D911	D-2		FL107	F-4	S	L350	D-1	S	Q504	E-1	
D912	D-3		FL201	E-4	S	L501	D-3		Q505	E-2	
			FL202	E-6	S	L901	D-1	S	Q506	E-2	S
DL301	C-6	S	FL203	E-6	S	L902	D-2	S	Q507	E-2	
DL302	C-5	S	FL301	C-6	S	L903	D-2	S	Q508	E-2	
DL303	C-5	S	FL304	D-4	S	L904	D-4		Q509	E-2	
			FL501	E-2	S	L905	D-5		Q510	E-2	
FB107	B-2		FL502	E-2	S				Q511	E-2	
FB108	B-2	S	FL503	E-2	S	LF101	A-2		Q512	E-1	
FB109	B-2		FL504	E-3	S	LF102	A-3		Q513	E-1	
FB112	E-5		FL505	E-3	S	LF106	A-3		Q514	E-2	
FB121	E-4								Q515	E-2	
FB122	E-4	S	IC102	B-4	S	Q101	A-2	S	Q516	E-2	
FB123	E-5		IC103	B-3	S	Q102	A-2	S	Q517	E-2	
FB304	D-1	S	IC104	B-2		Q103	A-4	S	Q518	E-2	
FB305	D-1	S	IC106	C-2	S	Q104	B-3	S	Q519	E-2	
FB306	D-1	S	IC107	A-2	S	Q105	C-4		Q520	E-2	
FB307	D-1	S	IC108	A-2	S	Q106	A-2		Q521	E-4	
FB308	D-1	S	IC109	B-2		Q108	B-4	S	Q522	E-4	
FB309	D-1	S	IC110	B-3		Q109	B-4		Q523	E-4	S
FB310	D-1	S	IC111	C-2		Q110	B-3		Q525	E-4	
FB311	D-1	S	IC112	B-3	S	Q111	A-3	S	Q526	E-4	
FB312	D-1	S	IC113	A-4	S	Q112	B-4		Q527	E-4	S
FB313	D-1	S	IC114	B-6	S	Q113	B-2	S	Q528	E-4	
FB314	D-1	S	IC119	B-2	S	Q116	E-6		Q529	E-4	
FB315	D-1	S	IC121	E-5	S	Q117	E-6		Q530	E-4	S
FB316	F-1	S	IC122	D-5		Q118	E-5		Q531	E-4	
FB317	F-1	S	IC123	D-6		Q119	E-5		Q532	E-4	
FB318	F-1	S	IC125	B-3	S	Q120	D-6		Q540	E-4	S
FB319	F-1	S	IC126	A-3	S	Q121	D-6		Q601	E-3	S
FB320	F-1	S	IC128	D-3	S	Q122	E-5		Q602	E-3	S
FB321	F-1	S	IC130	C-3	S	Q123	E-5		Q901	D-4	
FB322	F-1	S	IC301	B-5	S	Q124	E-5		Q902	C-4	
FB323	D-1	S	IC302	B-5		Q125	B-3		Q910	C-5	
FB324	D-1	S	IC303	B-5	S	Q126	A-4	S			
FB325	E-1		IC304	B-5	S	Q170	C-3		RV301	D-5	S
FB327	C-1	S	IC306	C-4	S	Q171	C-3	S	RV302	C-4	S
FB328	C-1	S	IC307	B-4	S	Q301	B-6		RV303	C-4	S
FB329	B-1	S	IC308	B-4	S	Q302	B-6		RV304	C-4	S
FB330	B-1	S	IC309	C-2		Q303	A-5				
FB331	C-1		IC310	D-6		Q304	A-6		X101	C-4	S
FB332	B-1	S	IC311	D-5	S	Q305	B-5		X102	D-3	S
FB334	B-1		IC312	C-2		Q306	B-5	S	X301	D-5	S
FB335	A-1		IC313	D-2		Q307	B-5				
FB336	C-2	S	IC314	C-1	S	Q308	B-5	S			

S:SOLDERING SIDE



VA-76(B) -SOLDERING SIDE-
1-646-044-31

Q[illegible]9	B-5	
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Q311	B-5	
Q312	D-5	S
Q[illegible]6	D-1	
Q[illegible]0	D-1	
Q[illegible]1	D-2	
Q322	D-2	
Q323	D-2	
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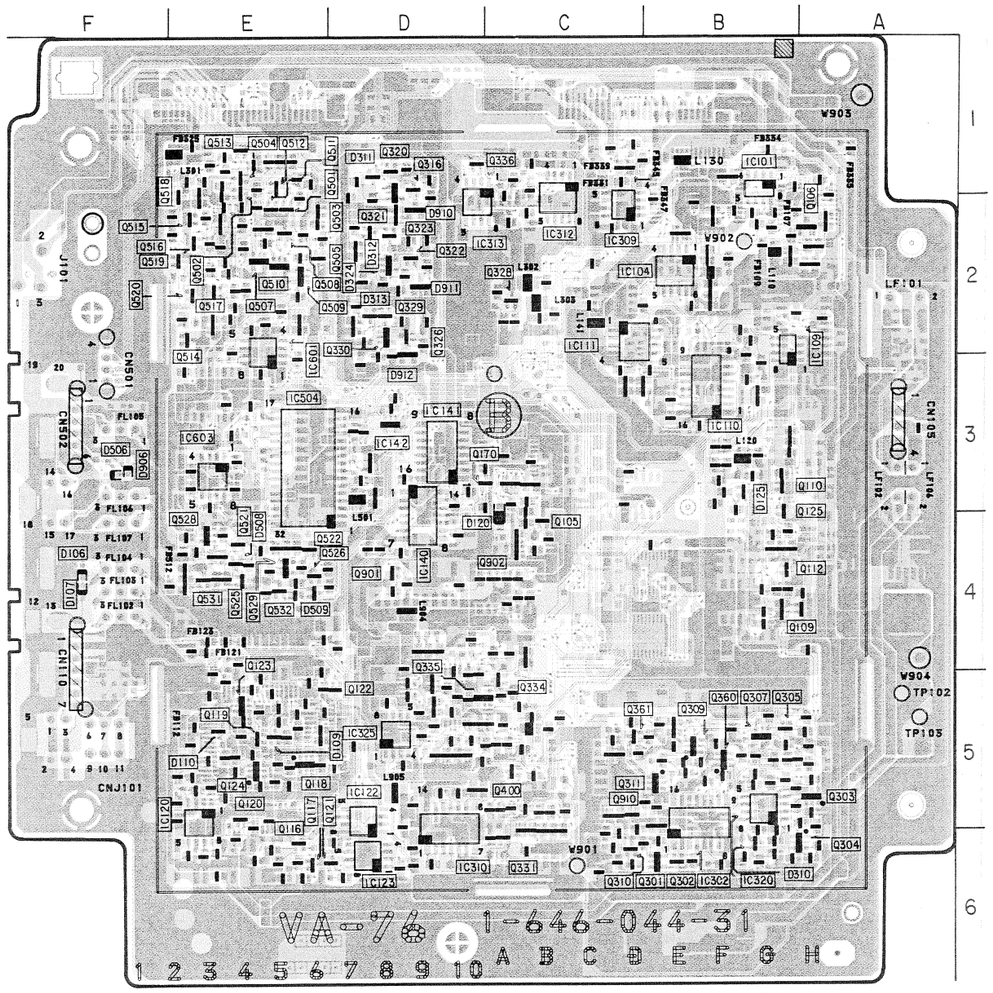
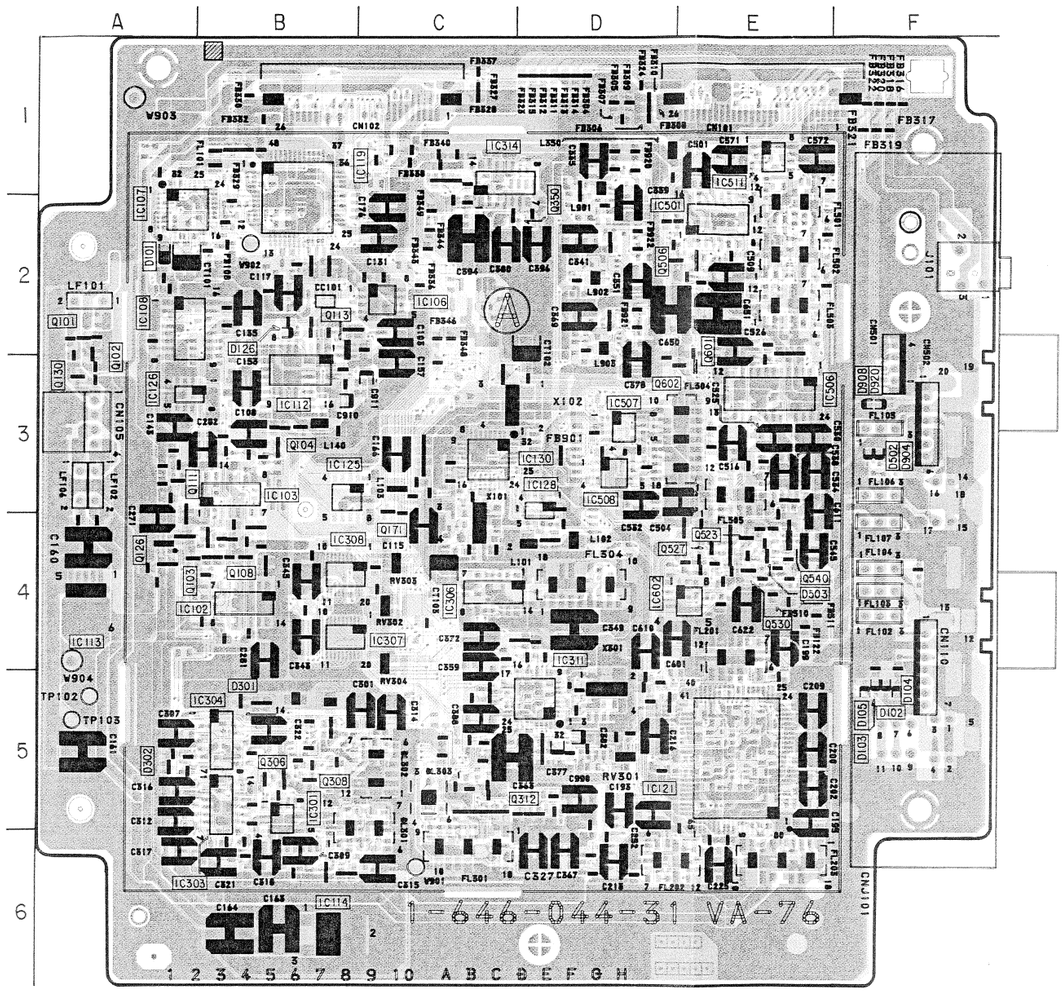
Q[illegible]6	D-3	
Q[illegible]8	C-2	
Q329	D-2	
Q330	D-2	
Q[illegible]1	C-6	
Q[illegible]4	C-5	
Q[illegible]5	D-5	
Q336	D-1	
Q350	C-2	S
Q[illegible]0	B-5	
Q[illegible]1	C-5	
Q[illegible]1	E-2	
Q502	E-1	
Q503	F-2	
Q504	E-1	
Q[illegible]5	E-2	
Q[illegible]6	E-2	S
Q[illegible]7	E-2	
Q508	E-2	
Q509	E-2	
Q[illegible]0	E-2	
Q[illegible]1	E-2	
Q[illegible]2	E-1	
Q513	E-1	
Q514	E-2	
Q[illegible]5	E-2	
Q[illegible]6	E-2	
Q[illegible]7	E-2	
Q518	E-2	
Q519	E-2	
Q[illegible]0	E-2	
Q[illegible]1	E-4	
Q[illegible]2	E-4	
Q523	E-4	S
Q525	E-4	
Q[illegible]6	E-4	
Q[illegible]7	E-4	S
Q[illegible]8	E-4	
Q529	E-4	
Q530	E-4	S
Q[illegible]1	E-4	
Q[illegible]2	E-4	
Q[illegible]0	E-4	S
Q601	E-3	S
Q602	E-3	S
Q[illegible]01	D-4	
Q[illegible]2	C-4	
Q[illegible]0	C-5	
RV301	D-5	S
RV302	C-4	S
R[illegible]03	C-4	S
R[illegible]04	C-4	S
X101	C-4	S
X102	D-3	S
X[illegible]1	D-5	S



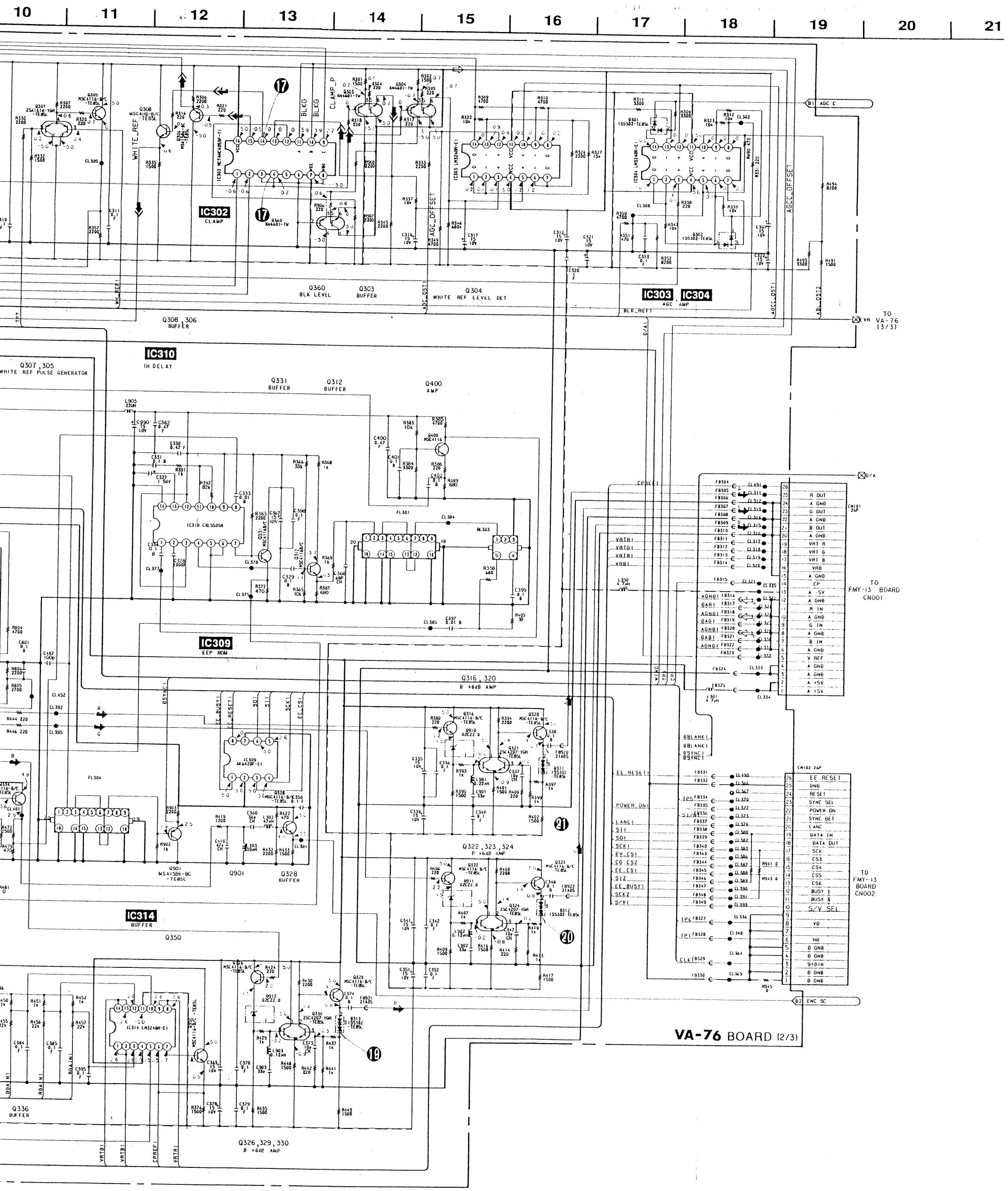
VA-76(B) -SOLDERING SIDE-
1-646-044-31



VA-76(B) -COMPONENT SIDE-
1-646-044-31

NAL PATH

O SIGNAL	REC	PB
ALOG R	R	R
ALOG G	G	G
ALOG B	B	B



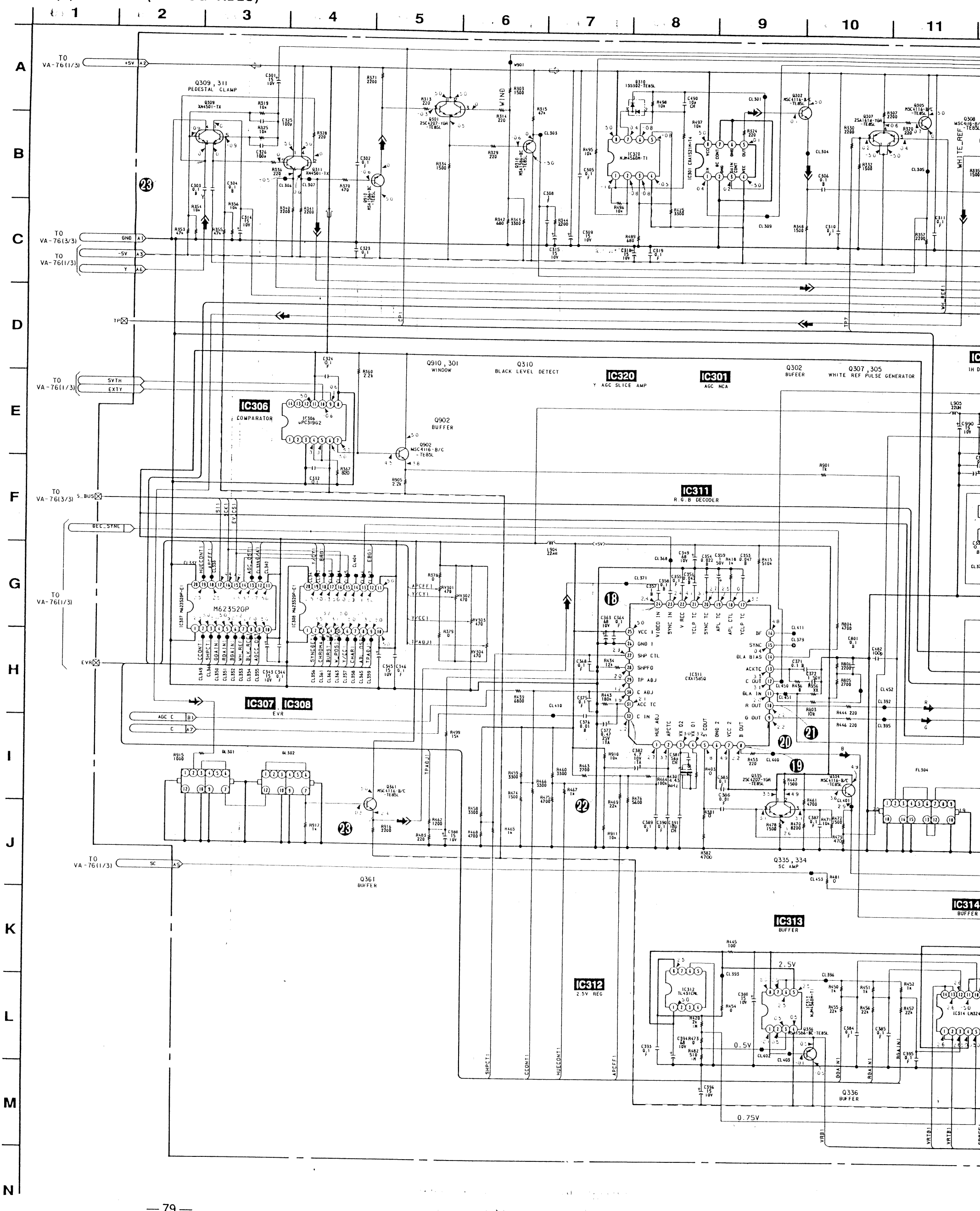
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	
PB			

• SIGNAL PATH

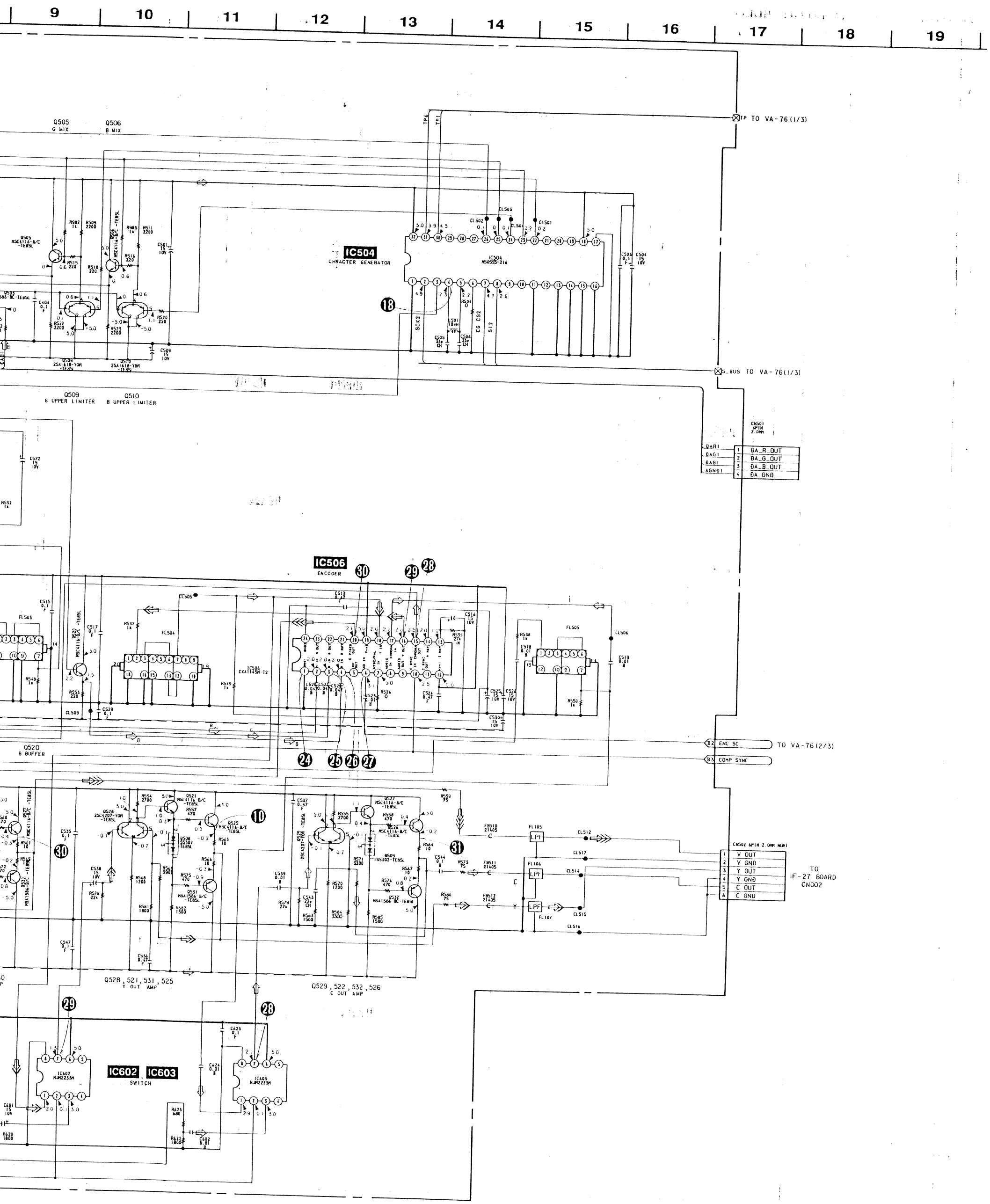
VIDEO SIGNAL	REC	PB
ANALOG R	➡ R	⇨ R
ANALOG G	➡ G	⇨ G
ANALOG B	➡ B	⇨ B

VA-76(B) — 2/3 — (ANALOG VIDEO)



• SIGNAL PATH

VIDEO SIGNAL	REC	PB
ANALOG R		⇨ R
ANALOG G		⇨ G
ANALOG B		⇨ B



ANALOG VIDEO VA-76(B)

ANALOG VIDEO VA-76(B)

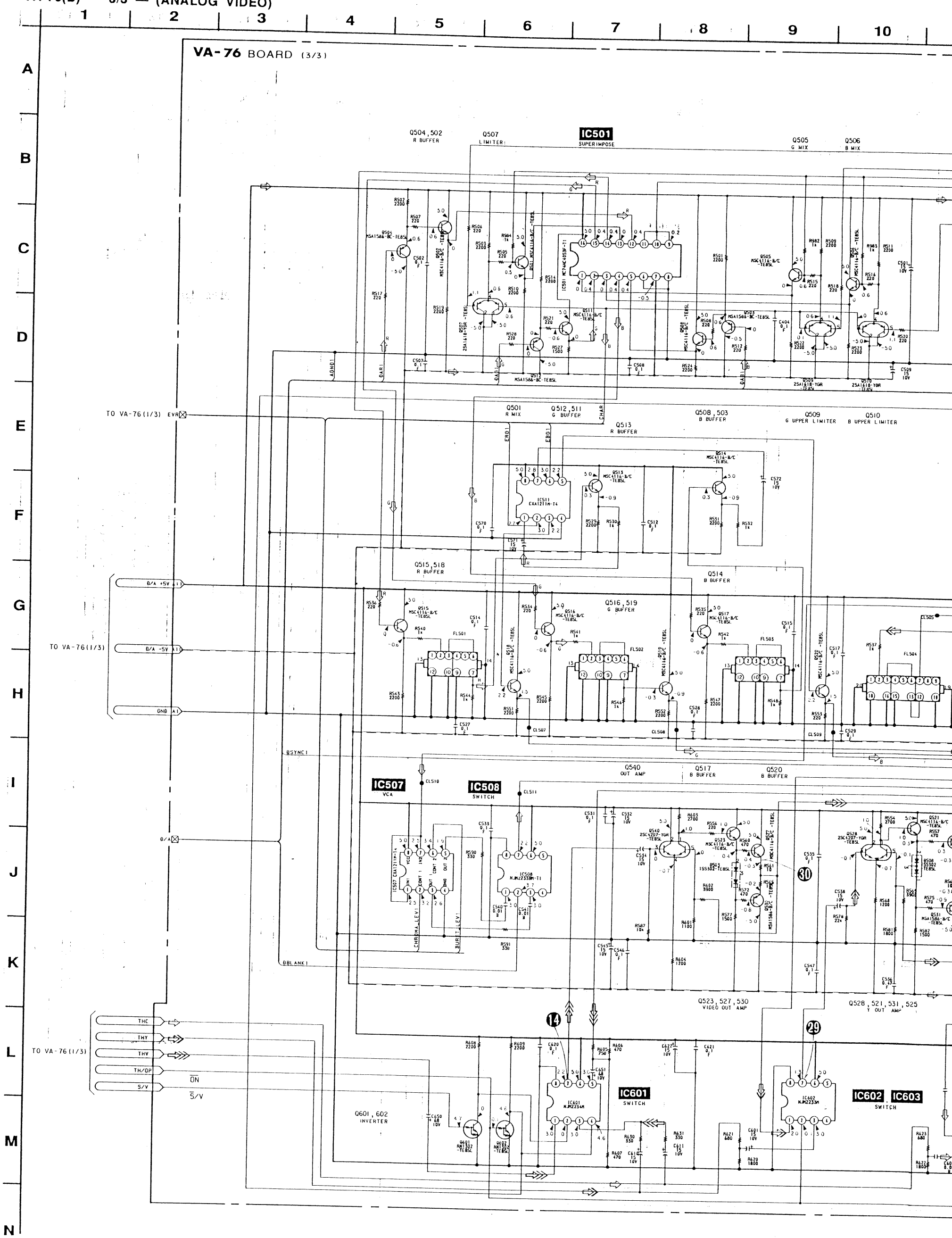
• SIGNAL PATH

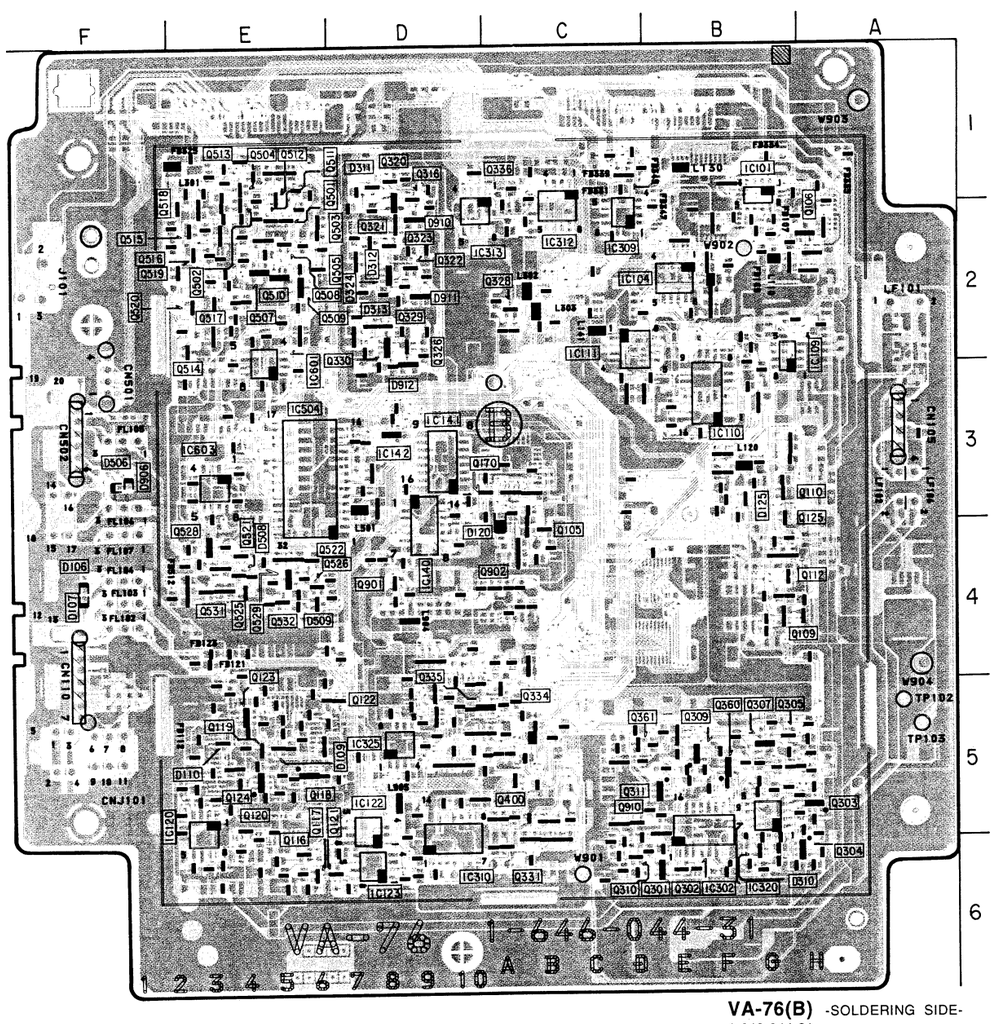
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB	⇨	⇨	⇨

• SIGNAL PATH

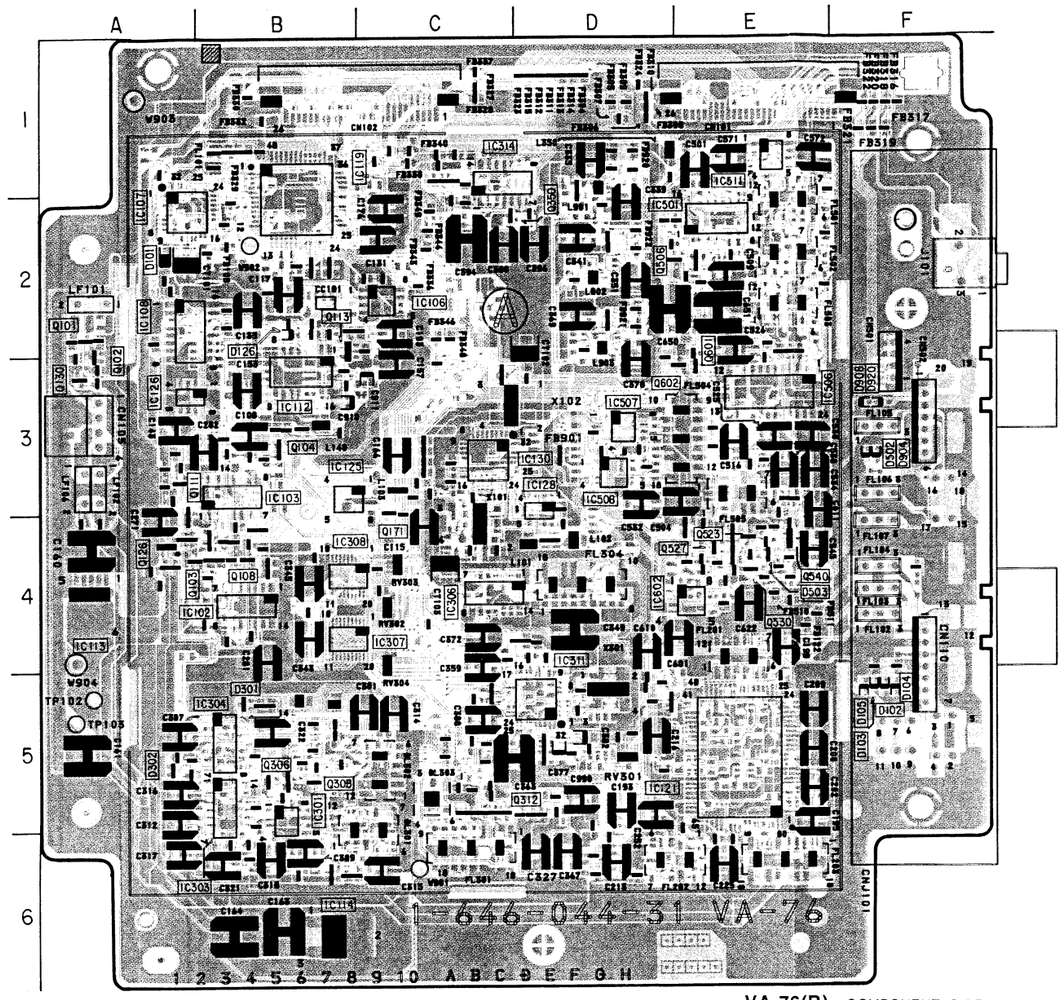
VIDEO SIGNAL	REC	P
ANALOG R		⇨
ANALOG G		⇨
ANALOG B		⇨

VA-76(B) — 3/3 — (ANALOG VIDEO)





VA-76(B) -SOLDERING SIDE-
1-646-044-31

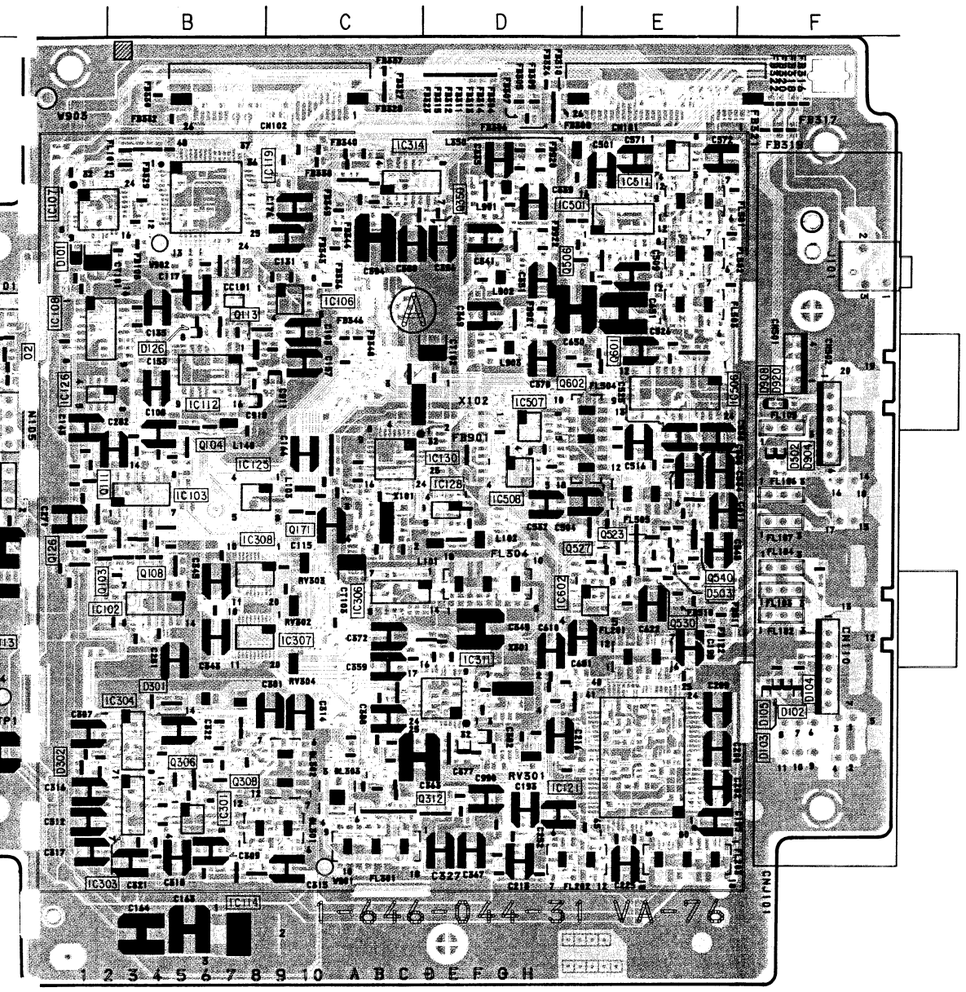


VA-76(B) -COMPONENT SIDE-
1-646-044-31

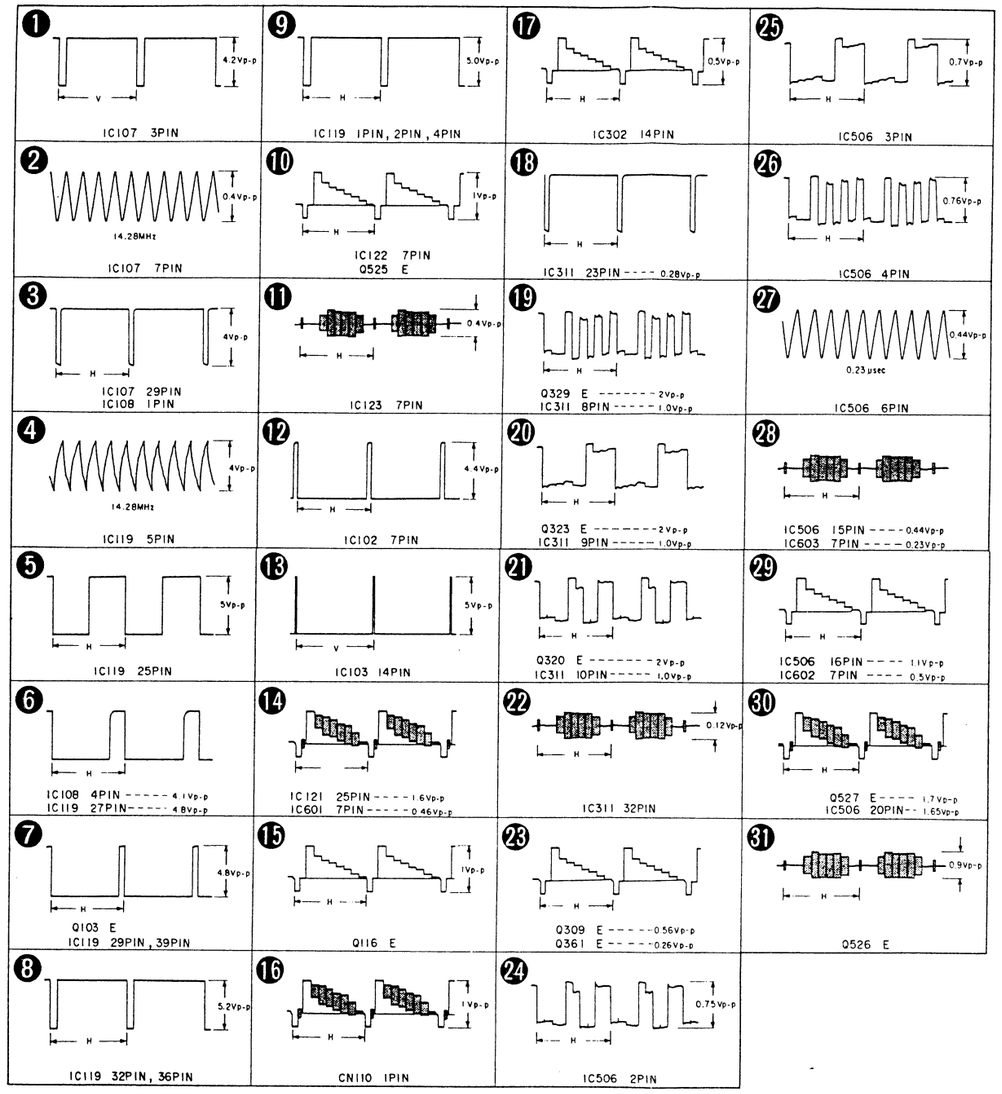
VA-76(B) BOARD

CN101	E-1 S	D508	E-4	FB308	D-1 S	FB330	B-1 S	FB920	D-1 S	IC102	B-4 S	IC302	B-5	J101	F-2 S	LF101	A-2	Q121	D-6	Q320	D-1	Q506	E-2 S	Q528	E-4
CN102	C-1 S	D509	E-4	FB309	D-1 S	FB331	C-1	FB921	D-2 S	IC103	B-3 S	IC303	B-5 S			LF102	A-3	Q122	E-5	Q321	D-2	Q507	E-2	Q529	E-4
CN105	A-3 S	D910	D-2	FB310	D-1 S	FB332	B-1 S	FB922	E-2 S	IC104	B-2	IC304	B-5 S	L101	D-4 S	LF106	A-3	Q123	E-5	Q322	D-2	Q508	E-2	Q530	E-4 S
CN110	F-5 S	D911	D-2	FB311	D-1 S	FB334	B-1			IC106	C-2 S	IC306	C-4 S	L102	D-4 S			Q124	E-5	Q323	D-2	Q509	E-2	Q531	E-4
CN502	F-3 S	D912	D-3	FB312	D-1 S	FB335	A-1	FL102	F-4 S	IC107	A-2 S	IC307	B-4 S	L103	C-3 S	Q101	A-2 S	Q125	B-3	Q324	D-2	Q510	E-2	Q532	E-4
				FB313	D-1 S	FB336	C-2 S	FL103	F-4 S	IC108	A-2 S	IC308	B-4 S	L110	B-2	Q102	A-2 S	Q126	A-4 S	Q326	D-3	Q511	E-2	Q540	E-4 S
CT101	A-2 S	DL301	C-6 S	FB314	D-1 S	FB337	C-1 S	FL104	F-4 S	IC109	B-2	IC309	C-2	L120	B-3	Q103	A-4 S	Q170	C-3	Q328	C-2	Q512	E-1	Q601	E-3 S
CT102	D-2 S	DL302	C-5 S	FB315	D-1 S	FB338	C-1 S	FL105	F-3 S	IC110	B-3	IC310	D-6	L130	B-1	Q104	B-3 S	Q171	C-3 S	Q329	D-2	Q513	E-1	Q602	E-3 S
		DL303	C-5 S	FB316	F-1 S	FB339	C-1	FL106	F-3 S	IC111	C-2	IC311	D-5 S	L140	B-3 S	Q105	C-4	Q301	B-6	Q330	D-2	Q514	E-2	Q901	D-4
D101	A-2 S			FB317	F-1 S	FB340	C-1 S	FL107	F-4 S	IC112	B-3 S	IC312	C-2	L141	C-2	Q106	A-2	Q302	B-6	Q331	C-6	Q515	E-2	Q902	C-4
D109	E-5	FB107	B-2	FB318	F-1 S	FB343	C-2 S	FL201	E-4 S	IC113	A-4 S	IC313	D-2	L301	E-1	Q108	B-4 S	Q303	A-5	Q334	C-5	Q516	E-2	Q910	C-5
D110	E-5	FB108	B-2 S	FB319	F-1 S	FB344	C-2 S	FL202	E-6 S	IC114	B-6 S	IC314	C-1 S	L302	C-2	Q109	B-4	Q304	A-6	Q335	D-5	Q517	E-2		
D125	B-3	FB109	B-2	FB320	F-1 S	FB345	C-1	FL203	E-6 S	IC119	B-2 S	IC320	B-5	L303	C-2	Q110	B-3	Q305	B-5	Q336	D-1	Q518	E-2	RV301	D-5 S
D126	B-2 S	FB112	E-5	FB321	F-1 S	FB346	C-2 S	FL301	C-6 S	IC121	E-5 S	IC501	E-2 S	L350	D-1 S	Q111	A-3 S	Q306	B-5 S	Q350	C-2 S	Q519	E-2	RV302	C-4 S
D301	B-5 S	FB121	E-4	FB322	F-1 S	FB347	B-2	FL304	D-4 S	IC122	D-5	IC504	E-3	L501	D-3	Q112	B-4	Q307	B-5	Q360	B-5	Q520	E-2	RV303	C-4 S
D302	A-5 S	FB122	E-4 S	FB323	D-1 S	FB348	C-2 S	FL501	E-2 S	IC123	D-6	IC506	E-3 S	L901	D-1 S	Q113	B-2 S	Q308	B-5 S	Q361	C-5	Q521	E-4	RV304	C-4 S
D310	B-6	FB123	E-5	FB324	D-1 S	FB349	C-2 S	FL502	E-2 S	IC125	B-3 S	IC507	D-3 S	L902	D-2 S	Q116	E-6	Q309	B-5	Q501	E-2	Q522	E-4		
D311	D-1	FB304	D-1 S	FB325	E-1	FB510	E-4 S	FL503	E-2 S	IC126	A-3 S	IC508	D-3 S	L903	D-2 S	Q117	E-6	Q310	C-6	Q502	E-1	Q523	E-4 S	X101	C-4 S
D312	D-2	FB305	D-1 S	FB327	C-1 S	FB511	E-4 S	FL504	E-3 S	IC128	D-3 S	IC511	E-1 S	L904	D-4	Q118	E-5	Q311	B-5	Q503	F-2	Q525	E-4	X102	D-3 S
D313	D-2	FB306	D-1 S	FB328	C-1 S	FB512	E-4	FL505	E-3 S	IC130	C-3 S	IC601	E-2	L905	D-5	Q119	E-5	Q312	D-5 S	Q504	E-1	Q526	E-4	X301	D-5 S
D503	E-4 S	FB307	D-1 S	FB329	B-1 S	FB901	D-3 S			IC301	B-5 S	IC602	E-4 S			Q120	D-6	Q316	D-1	Q505	E-2	Q527	E-4 S		
												IC603	E-3												

S:SOLDERING SIDE



VA-76(B) -COMPONENT SIDE-
1-646-044-31



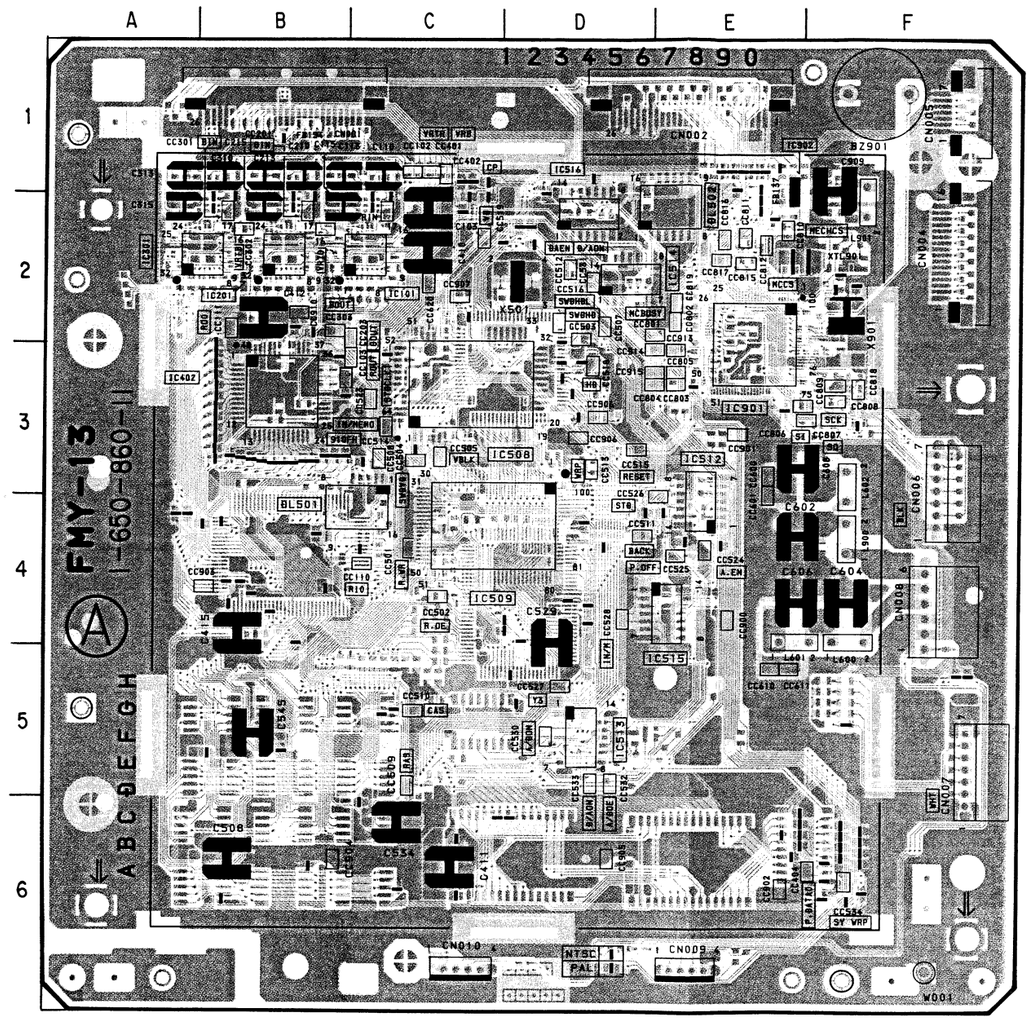
02	B-5		J101	F-2	S	LF101	A-2		Q121	D-6		Q320	D-1		Q506	E-2	S	Q528	E-4
03	B-5	S				LF102	A-3		Q122	E-5		Q321	D-2		Q507	E-2		Q529	E-4
04	B-5	S	L101	D-4	S	LF106	A-3		Q123	E-5		Q322	D-2		Q508	E-2		Q530	E-4 S
06	C-4	S	L102	D-4	S				Q124	E-5		Q323	D-2		Q509	E-2		Q531	E-4
07	B-4	S	L103	C-3	S	Q101	A-2	S	Q125	B-3		Q324	D-2		Q510	E-2		Q532	E-4
08	B-4	S	L110	B-2		Q102	A-2	S	Q126	A-4	S	Q326	D-3		Q511	E-2		Q540	E-4 S
09	C-2		L120	B-3		Q103	A-4	S	Q170	C-3		Q328	C-2		Q512	E-1		Q601	E-3 S
10	D-6		L130	B-1		Q104	B-3	S	Q171	C-3	S	Q329	D-2		Q513	E-1		Q602	E-3 S
11	D-5	S	L140	B-3	S	Q105	C-4		Q301	B-6		Q330	D-2		Q514	E-2		Q901	D-4
12	C-2		L141	C-2		Q106	A-2		Q302	B-6		Q331	C-6		Q515	E-2		Q902	C-4
13	D-2		L301	E-1		Q108	B-4	S	Q303	A-5		Q334	C-5		Q516	E-2		Q910	C-5
14	C-1	S	L302	C-2		Q109	B-4		Q304	A-6		Q335	D-5		Q517	E-2			
20	B-5		L303	C-2		Q110	B-3		Q305	B-5		Q336	D-1		Q518	E-2		RV301	D-5 S
01	E-2	S	L350	D-1	S	Q111	A-3	S	Q306	B-5	S	Q350	C-2	S	Q519	E-2		RV302	C-4 S
04	E-3		L501	D-3		Q112	B-4		Q307	B-5		Q360	B-5		Q520	E-2		RV303	C-4 S
06	E-3	S	L901	D-1	S	Q113	B-2	S	Q308	B-5	S	Q361	C-5		Q521	E-4		RV304	C-4 S
07	D-3	S	L902	D-2	S	Q116	E-6		Q309	B-5		Q501	E-2		Q522	E-4			
08	D-3	S	L903	D-2	S	Q117	E-6		Q310	C-6		Q502	E-1		Q523	E-4	S	X101	C-4 S
11	E-1	S	L904	D-4		Q118	E-5		Q311	B-5		Q503	F-2		Q525	E-4		X102	D-3 S
01	E-2		L905	D-5		Q119	E-5		Q312	D-5	S	Q504	E-1		Q526	E-4		X301	D-5 S
02	E-4	S				Q120	D-6		Q316	D-1		Q505	E-2		Q527	E-4	S		
03	E-3																	S:SOLDERING SIDE	

FMY-13P (FRAME MEMORY)

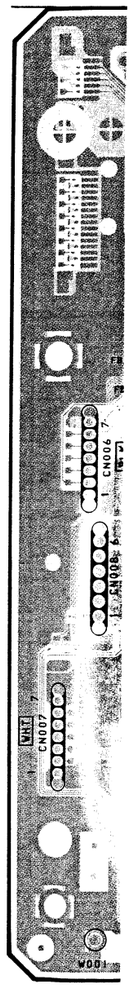
FMY-13P BOARD

BZ901	F-1	
CN001	B-1	
CN002	E-1	
CN004	F-2	
CN005	F-1	
CN006	F-3	
CN007	F-5	
CN008	F-4	
CN009	E-6	
CN010	C-6	
D101	C-2	S
D201	B-2	S
D301	B-2	S
D901	E-1	S
D903	F-2	S
DL501	B-4	
DL502	E-2	
FL001	D-1	
FL002	D-1	
FL003	D-1	
IC501	C-5	S
IC502	C-6	S
IC503	B-5	S
IC504	B-6	S
IC505	B-5	S
IC506	A-6	S
IC507	D-4	S
IC508	C-3	
IC509	C-4	
IC510	D-3	S
IC511	D-5	S
IC512	E-3	
IC513	D-5	
IC514	E-2	
IC515	E-4	
IC516	D-1	
IC901	E-3	
IC902	E-1	
L600	F-5	
L601	E-5	
L602	F-3	
L900	F-4	
L901	F-2	
Q101	C-1	S
Q102	C-2	S
Q201	B-1	S
Q202	B-2	S
Q301	B-1	S
Q302	B-2	S
Q401	C-3	S
Q801		
Q902	F-2	S
X501	D-2	
X901	F-2	
XTL901	F-2	

S:SOLDERING SIDE



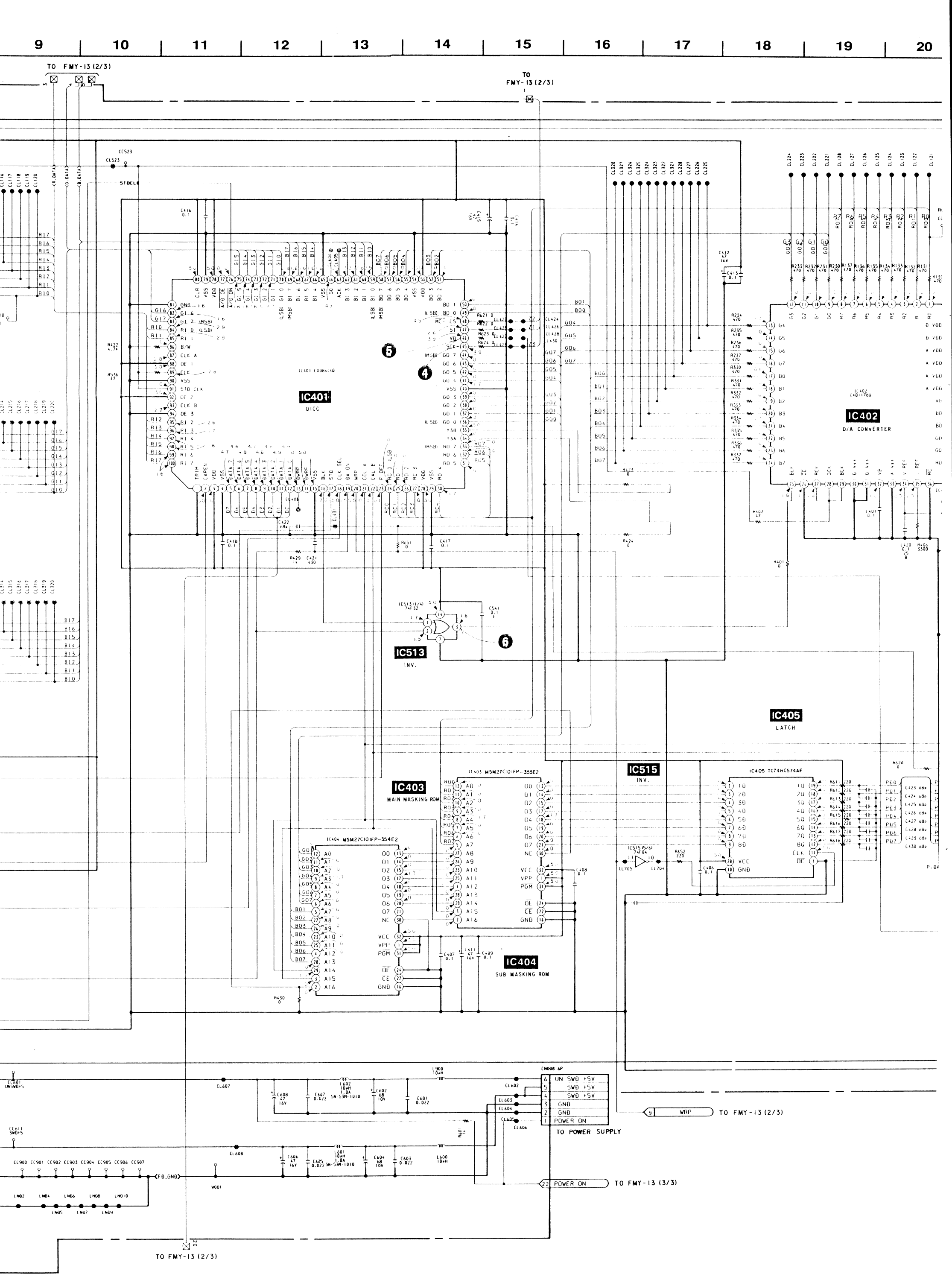
FMY-13 -COMPONENT SIDE-
1-650-858-11



RAME MEMORY)

RD

S
S
S


9
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16
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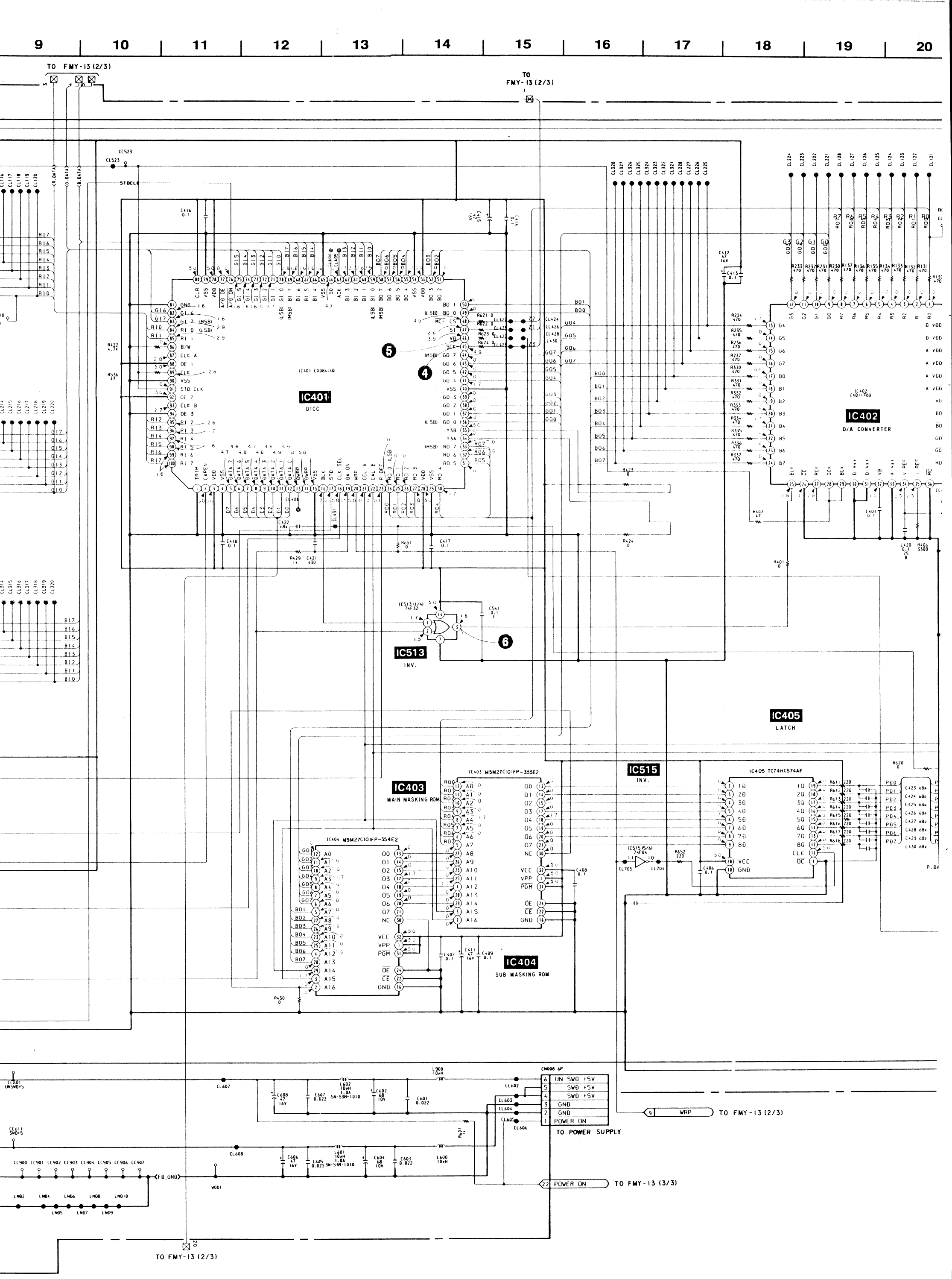
19
20
TO FMY-13 (2/3)
IC401
DICC
IC402
D/A CONVERTER
IC513
INV.
IC405
LATCH
IC515
INV.
IC403
MAIN MASKING ROM
IC404
SUB MASKING ROM
TO POWER SUPPLY
WRP
POWER ON
TO FMY-13 (3/3)


9
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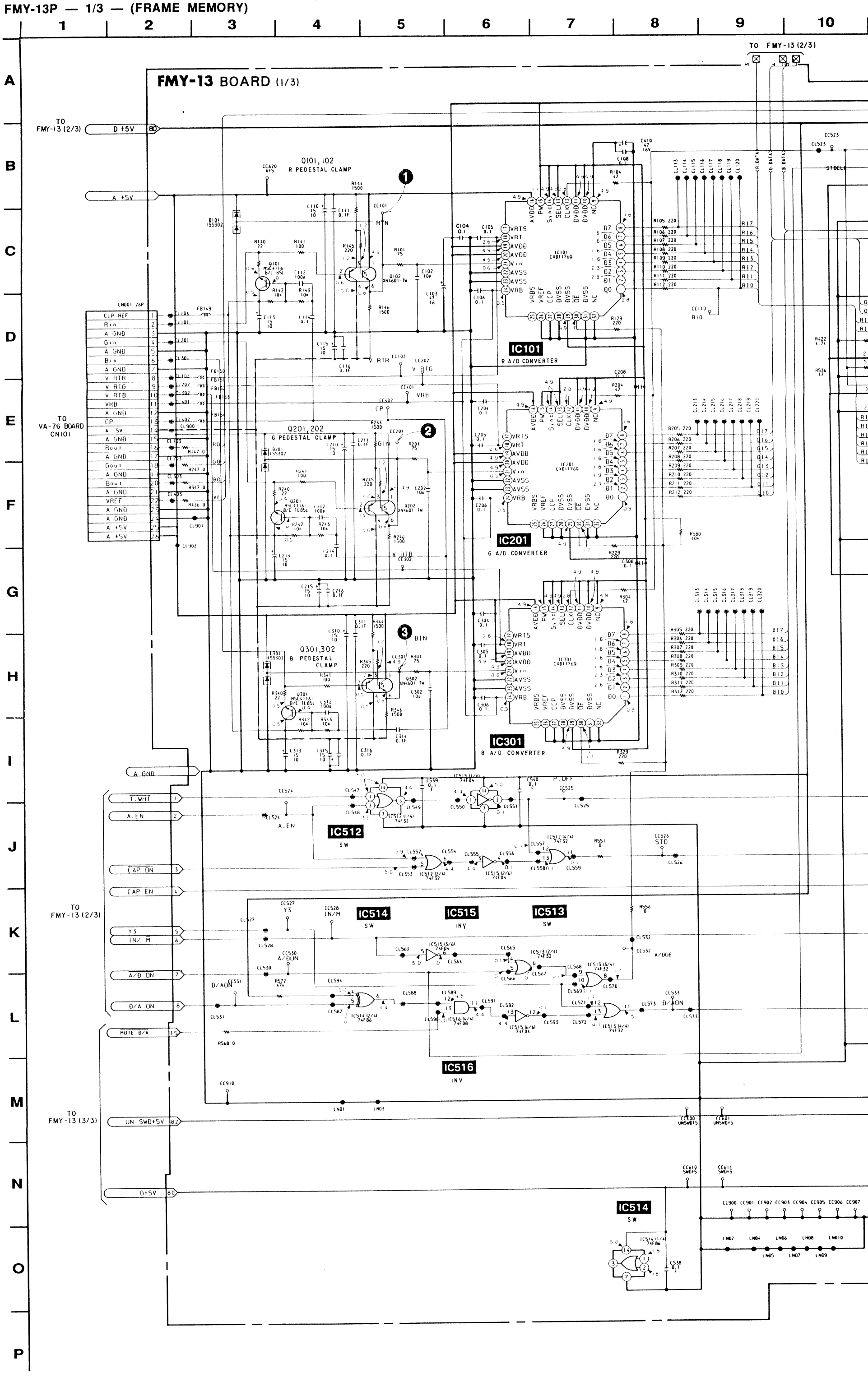
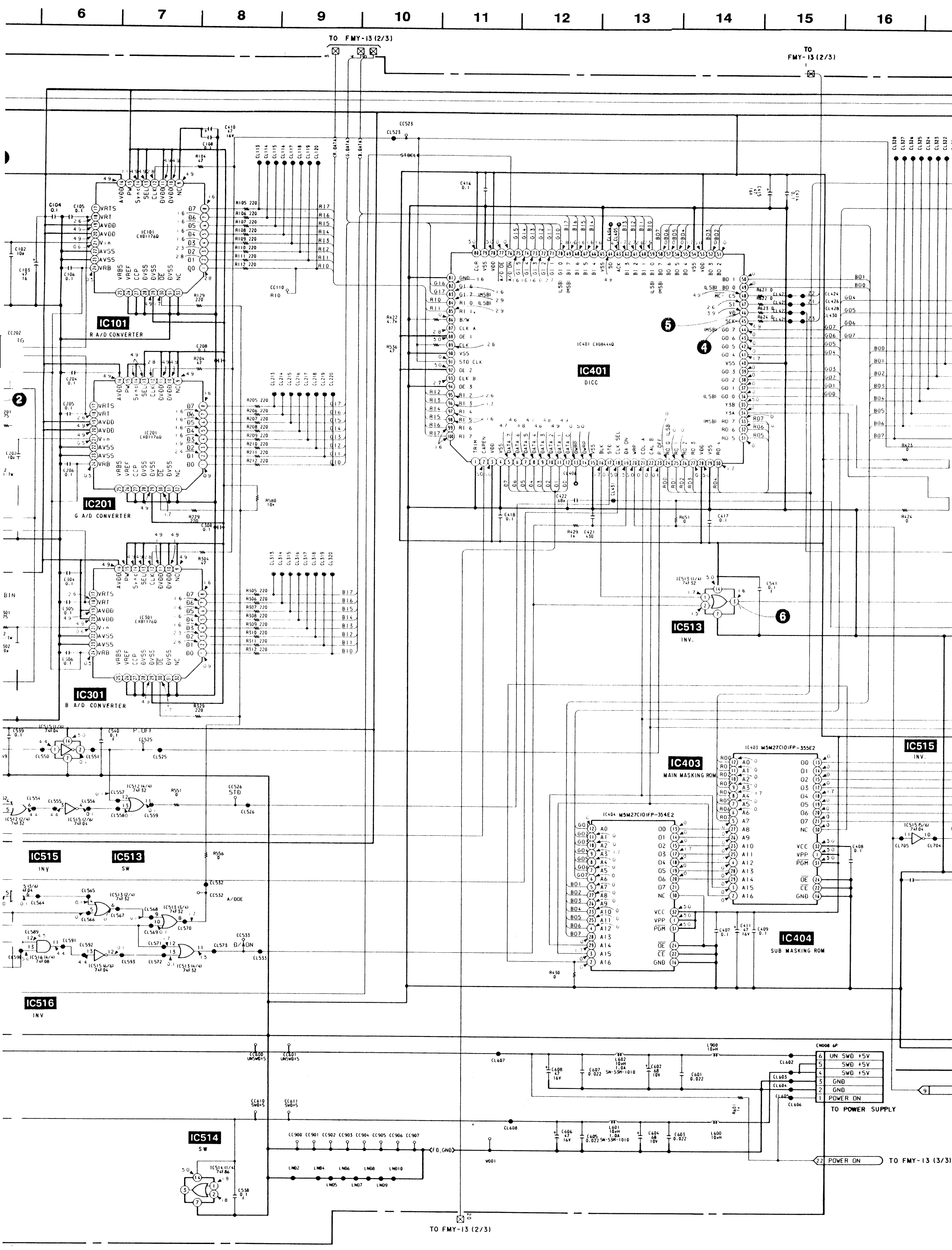
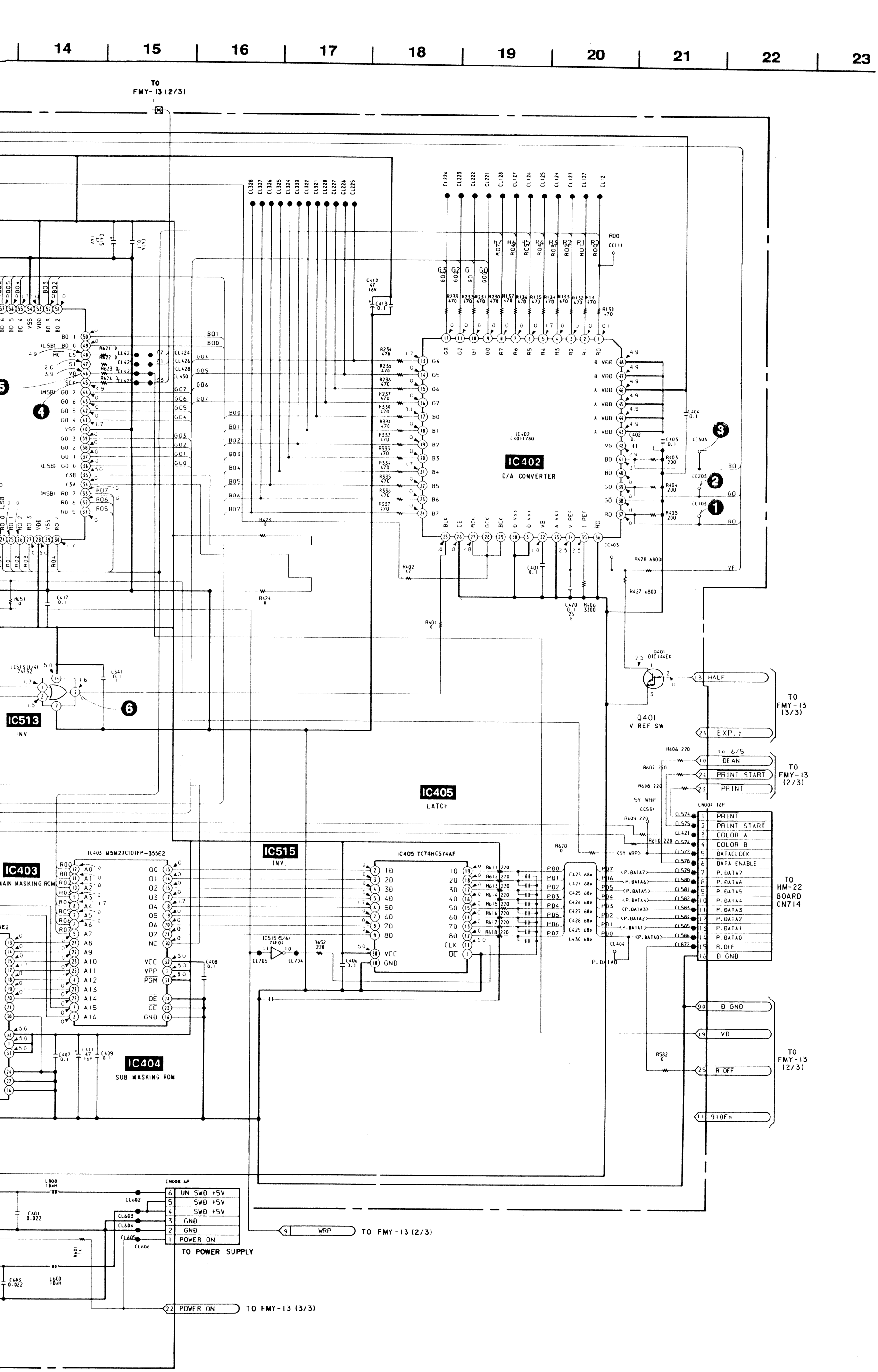
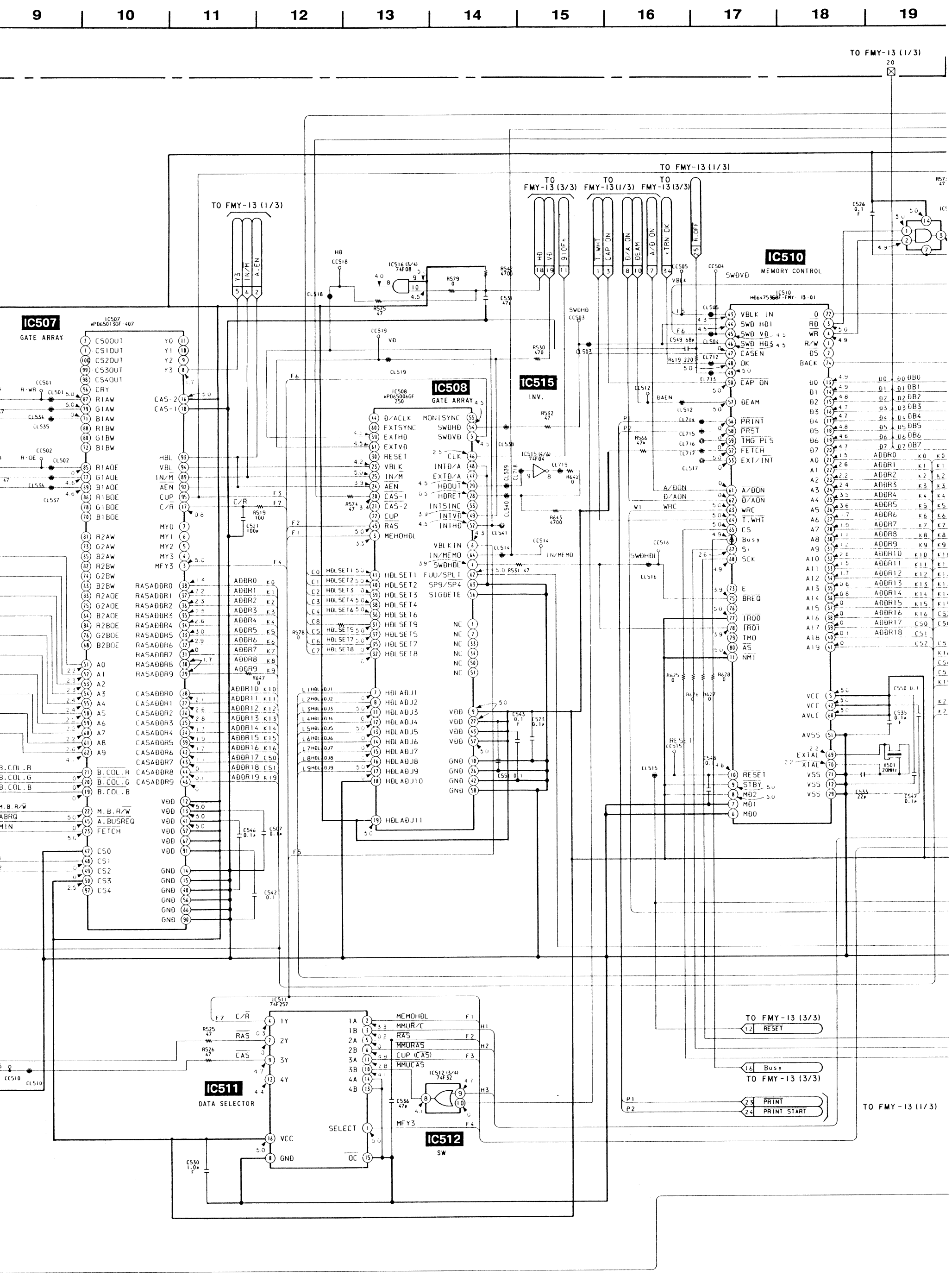
19
20
TO FMY-13 (2/3)
TO FMY-13 (2/3)
IC401
DICC
IC402
D/A CONVERTER
IC513
INV.
IC405
LATCH
IC515
INV.
IC403
MAIN MASKING ROM
IC404
SUB MASKING ROM
TO POWER SUPPLY
TO FMY-13 (2/3)
TO FMY-13 (3/3)
TO FMY-13 (2/3)


FMY-13 BOARD (1/3)
TO FMY-13 (2/3)
D +5V
A +5V
Q101,102
R PEDESTAL CLAMP
Q201,202
G PEDESTAL CLAMP
Q301,302
B PEDESTAL CLAMP
IC101
R A/D CONVERTER
IC201
G A/D CONVERTER
IC301
B A/D CONVERTER
IC512
SW
IC514
SW
IC515
INV
IC513
SW
IC516
INV
TO VA-76 BOARD CN101
TO FMY-13 (2/3)
TO FMY-13 (3/3)
A GND
T.WHT
A.EN
CAP ON
CAP EN
Y3
IN/M
A/D ON
D/A ON
MUTE D/A
UN SWD+5V
D+5V


IC101
R A/D CONVERTER
IC201
G A/D CONVERTER
IC301
B A/D CONVERTER
IC401
DICC
IC403
MAIN MASKING ROM
IC404
SUB MASKING ROM
IC513
INV.
IC515
INV.
IC516
INV
IC515
INV
IC513
SW
IC514
SW
TO FMY-13 (2/3)
TO POWER SUPPLY
TO FMY-13 (3/3)
POWER ON
GND
SWD +5V
UN SWD +5V


14
15
16
17
18
19
20
21
22
23
TO FMY-13 (2/3)
IC402
D/A CONVERTER
IC513
INV.
IC405
LATCH
IC515
INV.
IC403
MAIN MASKING ROM
IC404
SUB MASKING ROM
Q401
V REF SW
HALF
EXP.7
DEAN
PRINT START
PRINT
TO FMY-13 (3/3)
TO FMY-13 (2/3)
PRINT
PRINT START
COLOR A
COLOR B
DATACLOCK
DATA ENABLE
P.DATA7
P.DATA6
P.DATA5
P.DATA4
P.DATA3
P.DATA2
P.DATA1
P.DATA0
R.OFF
D GND
TO HM-22 BOARD CN714
D GND
VD
R.OFF
910Fh
TO FMY-13 (2/3)
UN SWD +5V
SWD +5V
SWD +5V
GND
GND
POWER ON
TO POWER SUPPLY
WRP
TO FMY-13 (2/3)
POWER ON
TO FMY-13 (3/3)


9
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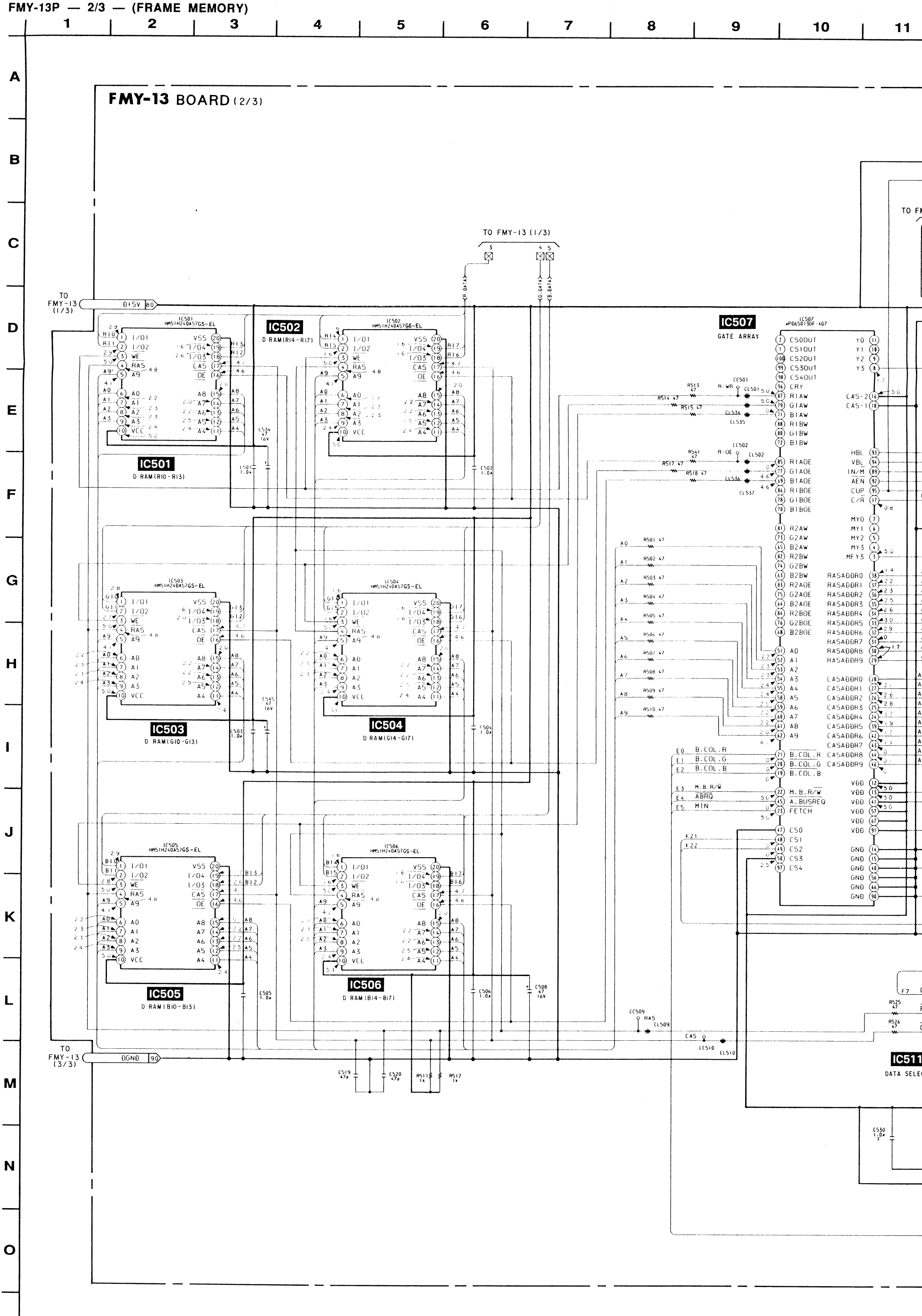
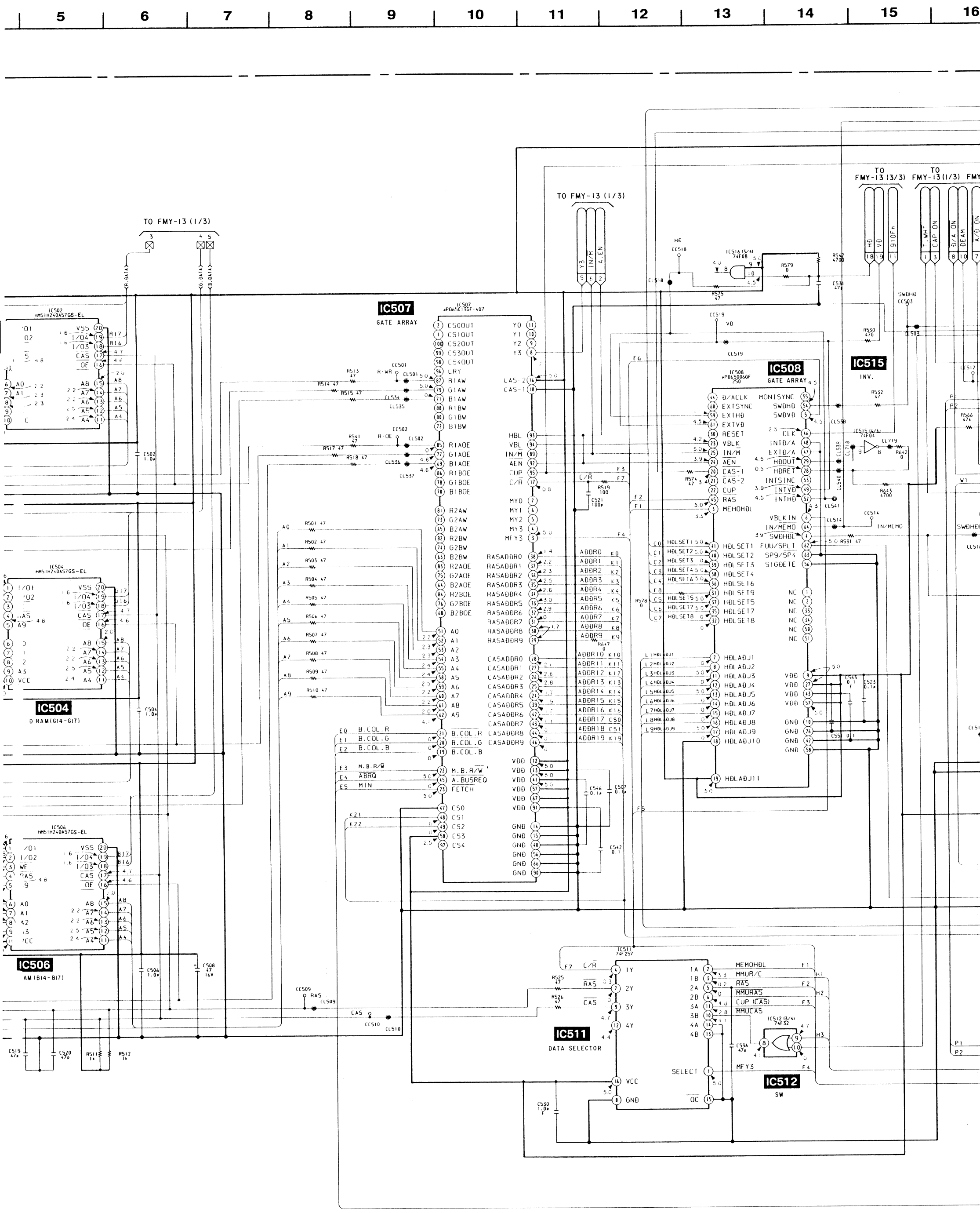
14
15
16
17
18
19
TO FMY-13 (1/3)
IC507
GATE ARRAY
IC508
GATE ARRAY
IC510
MEMORY CONTROL
IC515
INV.
IC511
DATA SELECTOR
IC512
SW
TO FMY-13 (3/3)
RESET
Busy
PRINT
PRINT START



DIGITAL VIDEO
FMY-13P

DIGITAL VIDEO
FMY-13P


5
6
7
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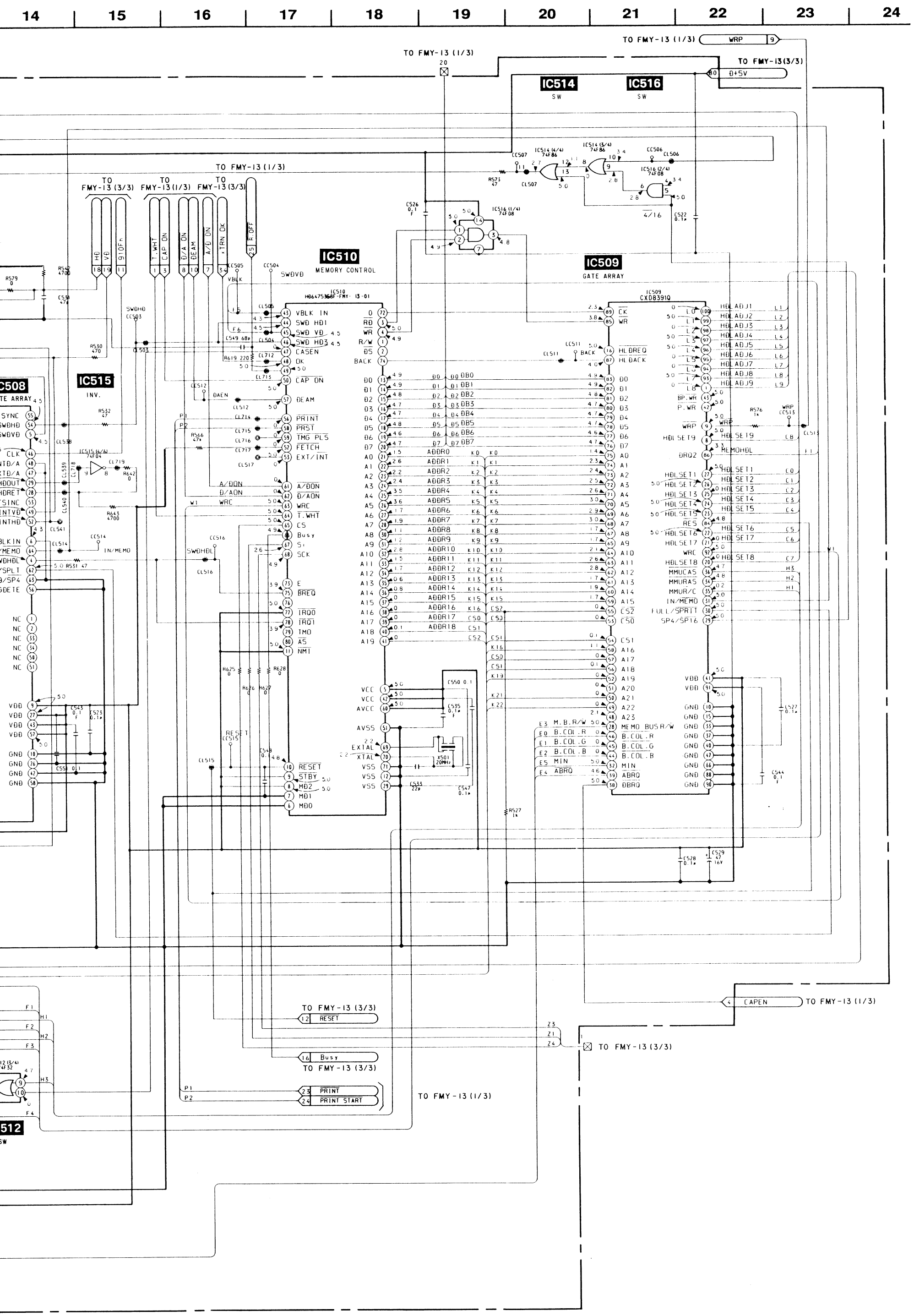
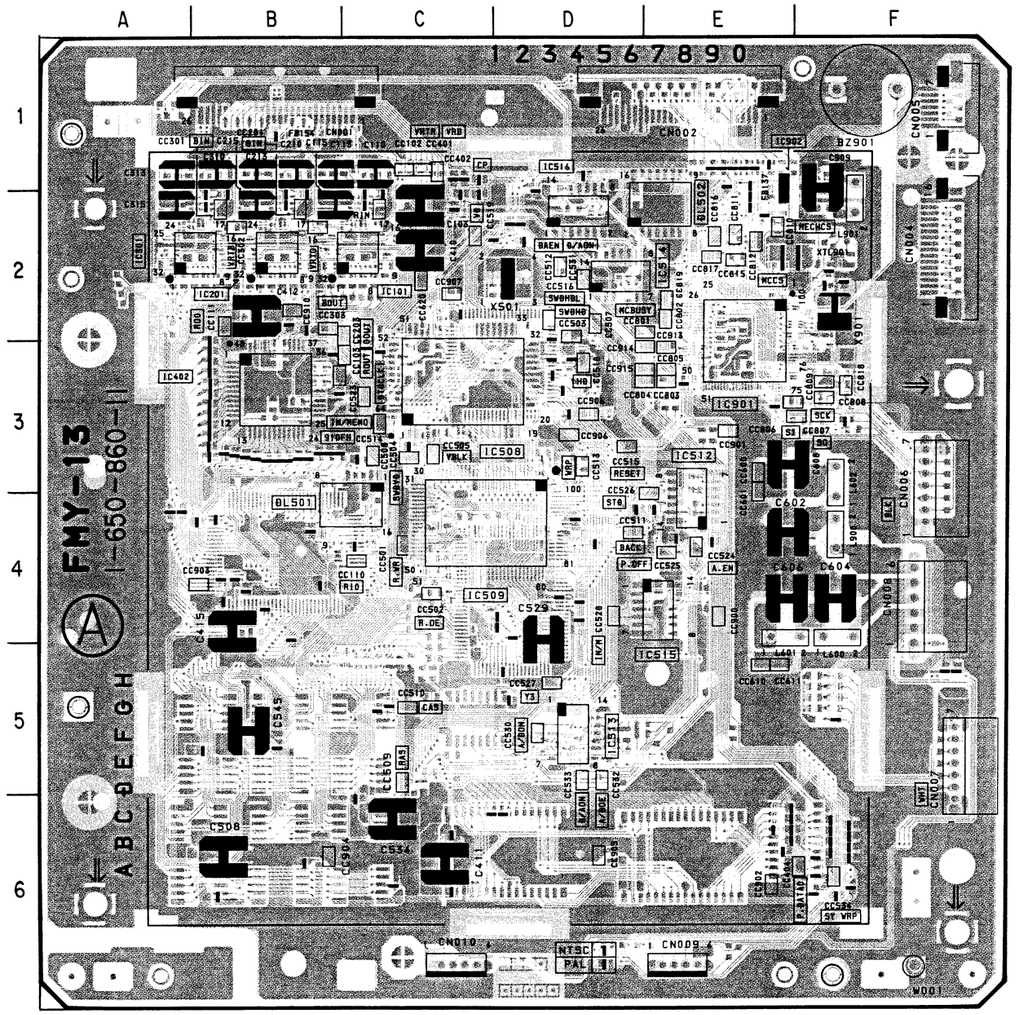
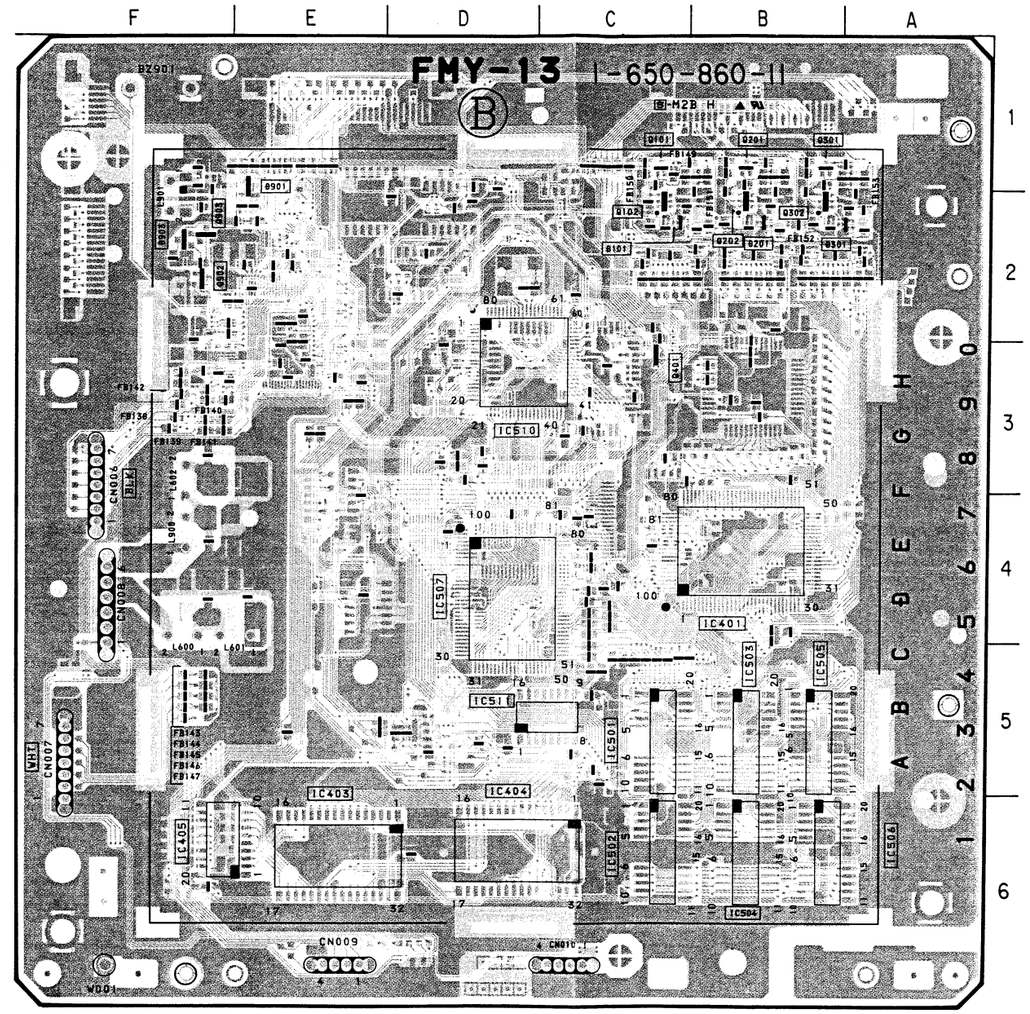
9
10
11
12
13
14
15
16
IC507
GATE ARRAY
IC508
GATE ARRAY
IC515
INV.
IC504
D RAM(G14-G17)
IC506
AM (B14-B17)
IC511
DATA SELECTOR
IC512
SW
TO FMY-13 (1/3)
TO FMY-13 (3/3)
TO FMY-13(1/3)

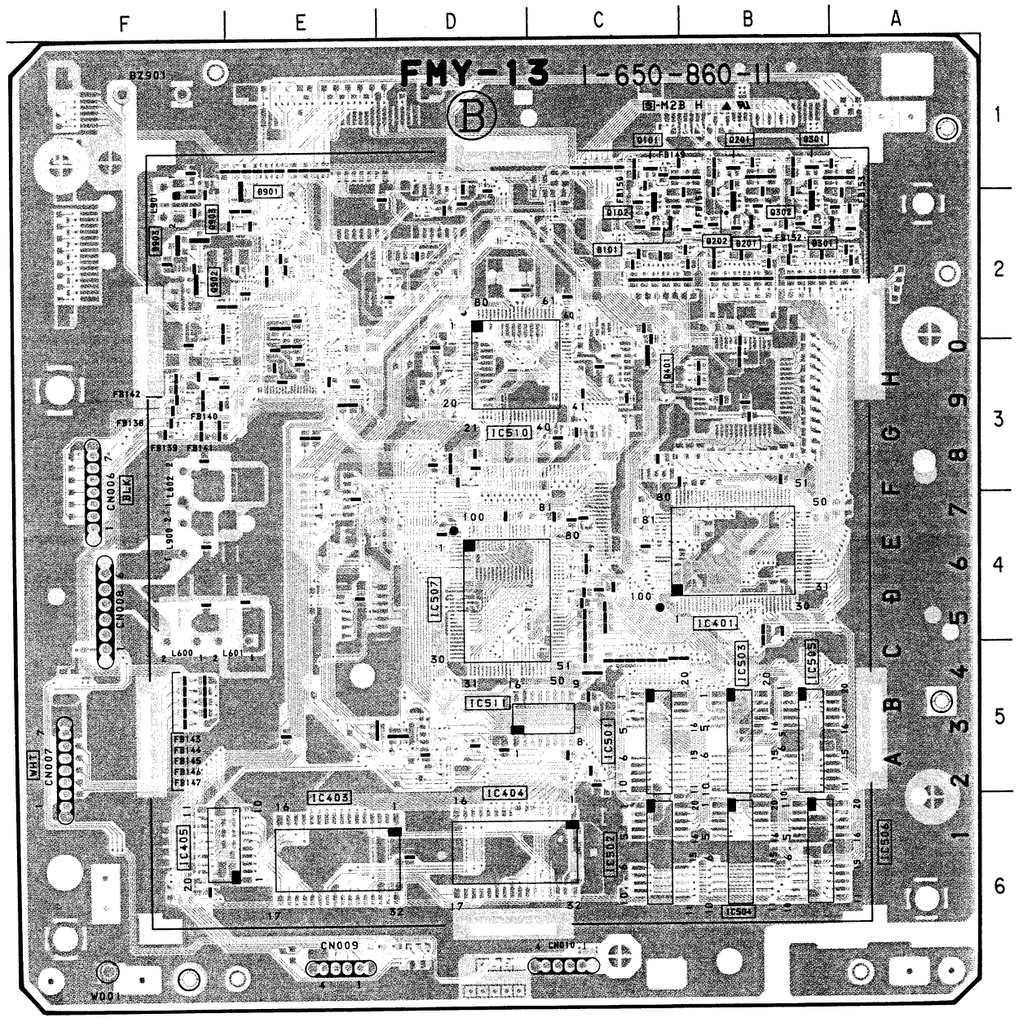

14
15
16
17
18
19
20
21
22
23
24
IC510
MEMORY CONTROL
IC509
GATE ARRAY
IC514
SW
IC516
SW
IC515
INV.
IC512
SW
TO FMY-13 (1/3)
TO FMY-13(3/3)
TO FMY-13 (3/3)
WRP
D+5V
VBLK IN
SWD HD1
SWD VD
SWD HD3
CASEN
OK
CAP ON
DEAM
PRINT
PRST
TMG PLS
FETCH
EXT/INT
A/DON
D/AON
WRC
T.WHT
CS
Busy
SI
SCK
E
BREQ
IRQ0
IRQ1
IMO
AS
NMI
RESET
STBY
MD2
MD1
MD0
CK
WR
HL DREQ
HL DACK
BACK
HDL ADJ1
HDL ADJ2
HDL ADJ3
HDL ADJ4
HDL ADJ5
HDL ADJ6
HDL ADJ7
HDL ADJ8
HDL ADJ9
HDL SET9
MEMOHDL
HDL SET1
HDL SET2
HDL SET3
HDL SET4
HDL SET5
HDL SET6
HDL SET7
HDL SET8
MMUCAS
MMURAS
MMUR/C
IN/MEMO
FULL/SPRIT
SP4/SP16
MEMO BUS R/W
B.COL.R
B.COL.G
B.COL.B
MIN
ABRQ
DBRQ
CAPEN
PRINT
PRINT START
RESET
Busy



FMY-13 -COMPONENT SIDE-
1-650-858-11



FMY-13 -SOLDERING SIDE-
1-650-858-11



FMY-13 -SOLDERING SIDE-
1-650-858-11

FMY-13P BOARD

BZ901	F-1	
CN001	B-1	
CN002	E-1	
CN004	F-2	
CN005	F-1	
CN006	F-3	
CN007	F-5	
CN008	F-4	
CN009	E-6	
CN010	C-6	
D101	C-2	S
D201	B-2	S
D301	B-2	S
D901	E-1	S
D903	F-2	S
DL501	B-4	
DL502	E-2	
FL001	D-1	
FL002	D-1	
FL003	D-1	
IC501	C-5	S
IC502	C-6	S
IC503	B-5	S
IC504	B-6	S
IC505	B-5	S
IC506	A-6	S
IC507	D-4	S
IC508	C-3	
IC509	C-4	
IC510	D-3	S
IC511	D-5	S
IC512	E-3	
IC513	D-5	
IC514	E-2	
IC515	E-4	
IC516	D-1	
IC901	E-3	
IC902	E-1	
L600	F-5	
L601	E-5	
L602	F-3	
L900	F-4	
L901	F-2	
Q101	C-1	S
Q102	C-2	S
Q201	B-1	S
Q202	B-2	S
Q301	B-1	S
Q302	B-2	S
Q401	C-3	S
Q801		
Q902	F-2	S
X501	D-2	
X901	F-2	
XTL901	F-2	

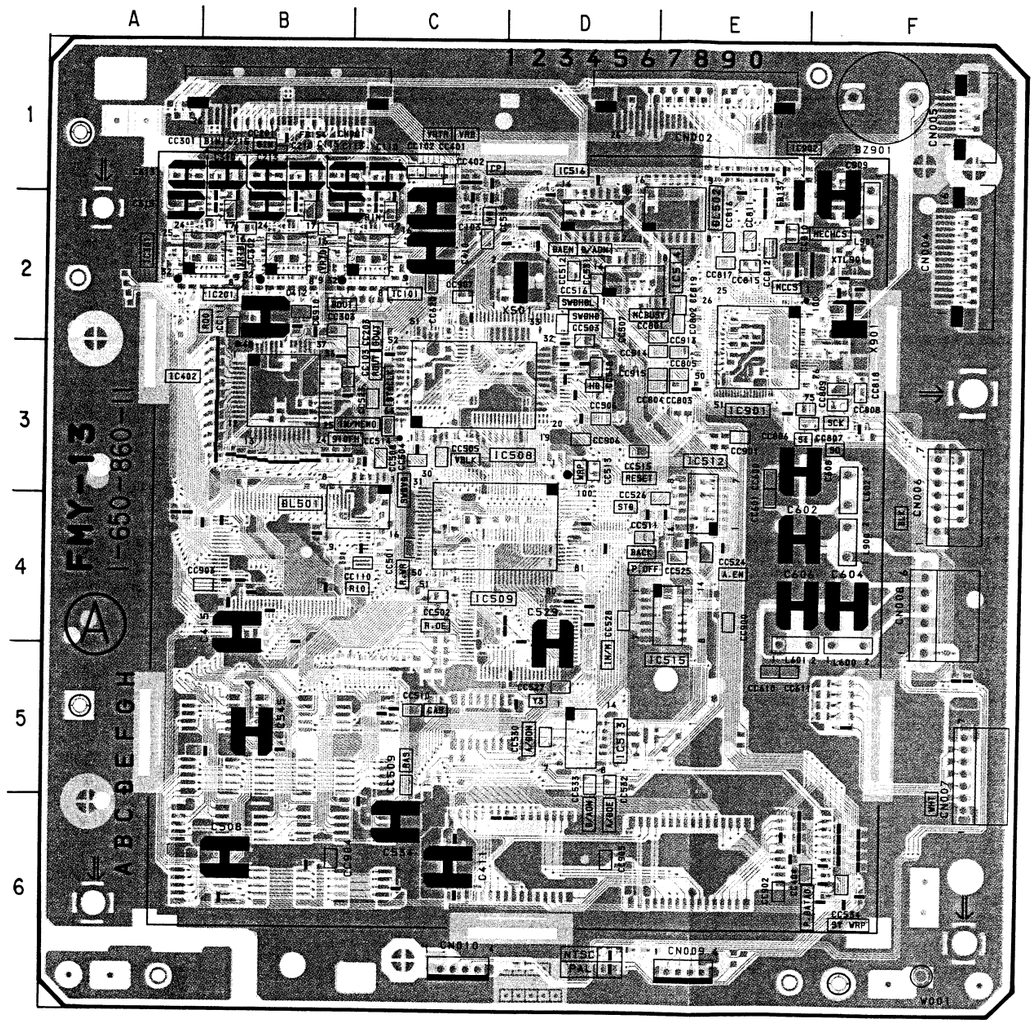
S:SOLDERING SIDE

FMY-13P (FRAME MEMORY)

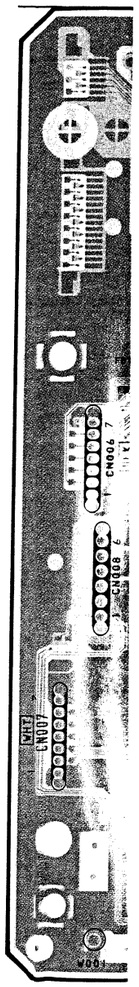
FMY-13P BOARD

BZ901	F-1	
CN001	B-1	
CN002	E-1	
CN004	F-2	
CN005	F-1	
CN006	F-3	
CN007	F-5	
CN008	F-4	
CN009	E-6	
CN010	C-6	
D101	C-2	S
D201	B-2	S
D301	B-2	S
D901	E-1	S
D903	F-2	S
DL501	B-4	
DL502	E-2	
FL001	D-1	
FL002	D-1	
FL003	D-1	
IC501	C-5	S
IC502	C-6	S
IC503	B-5	S
IC504	B-6	S
IC505	B-5	S
IC506	A-6	S
IC507	D-4	S
IC508	C-3	
IC509	C-4	
IC510	D-3	S
IC511	D-5	S
IC512	E-3	
IC513	D-5	
IC514	E-2	
IC515	E-4	
IC516	D-1	
IC901	E-3	
IC902	E-1	
L600	F-5	
L601	E-5	
L602	F-3	
L900	F-4	
L901	F-2	
Q101	C-1	S
Q102	C-2	S
Q201	B-1	S
Q202	B-2	S
Q301	B-1	S
Q302	B-2	S
Q401	C-3	S
Q801		
Q902	F-2	S
X501	D-2	
X901	F-2	
XTL901	F-2	

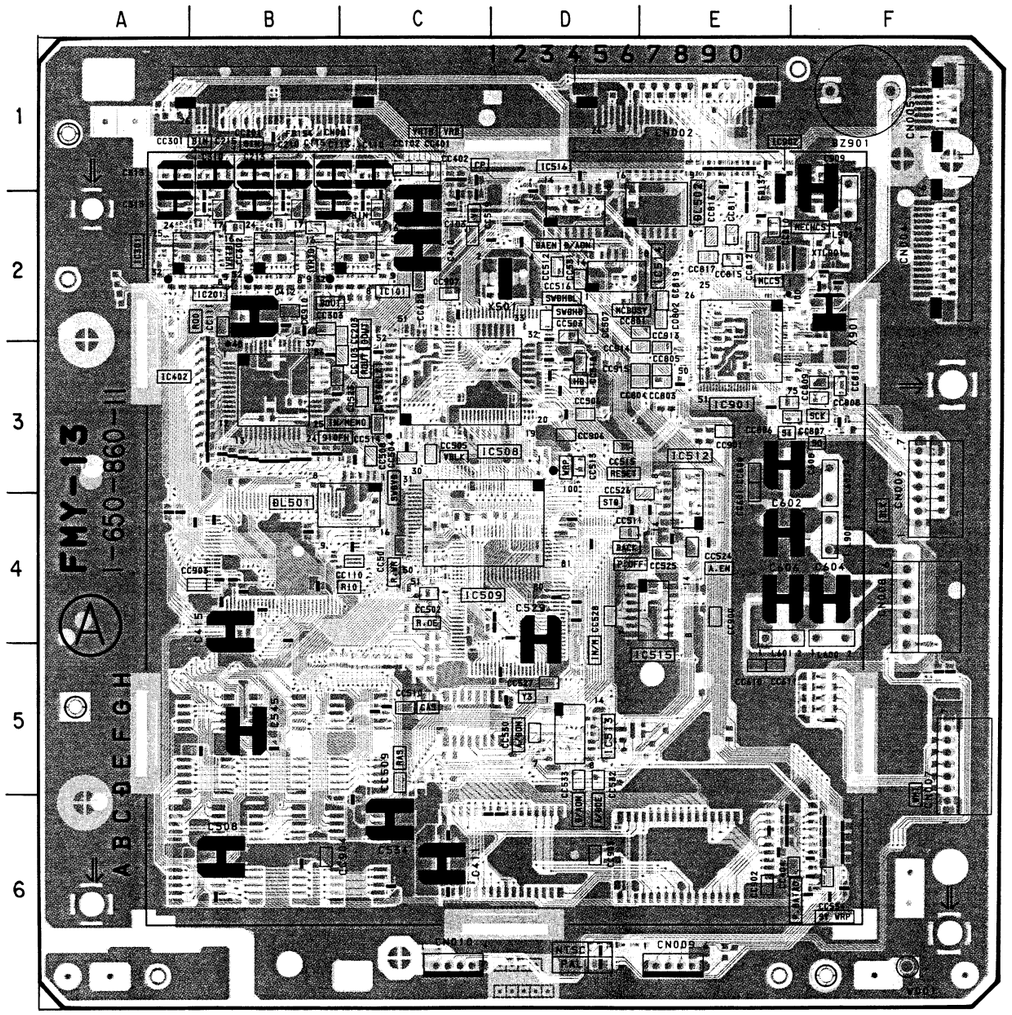
S:SOLDERING SIDE



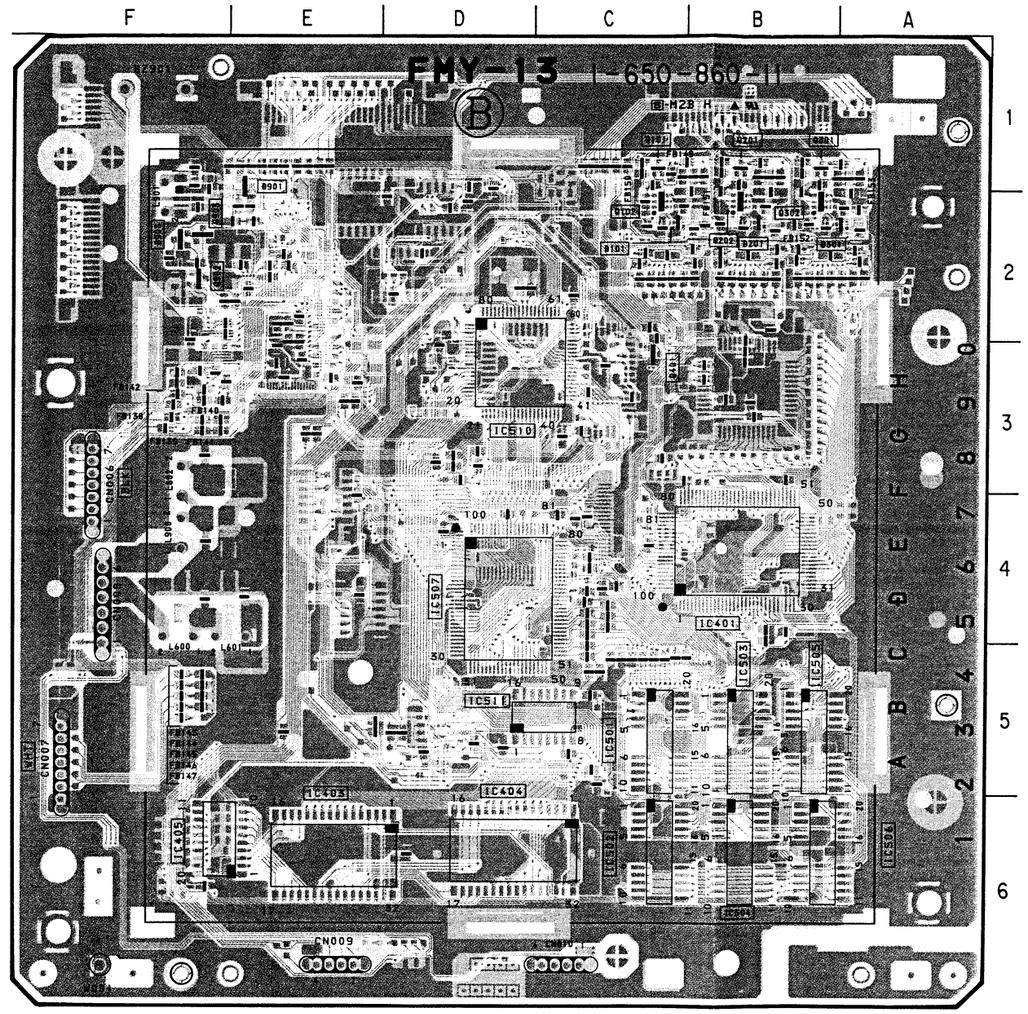
FMY-13 -COMPONENT SIDE-
1-650-858-11



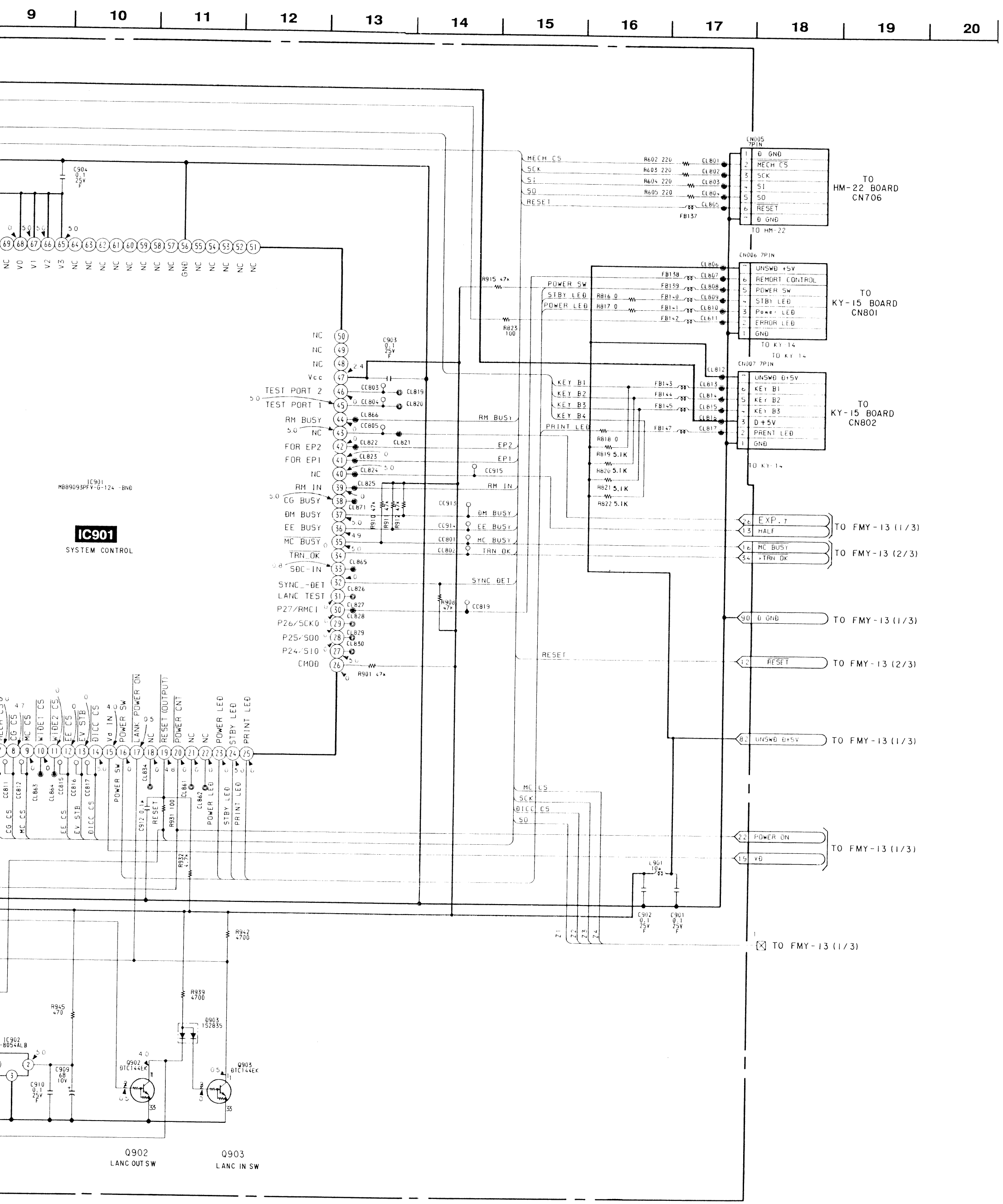
MEMORY)

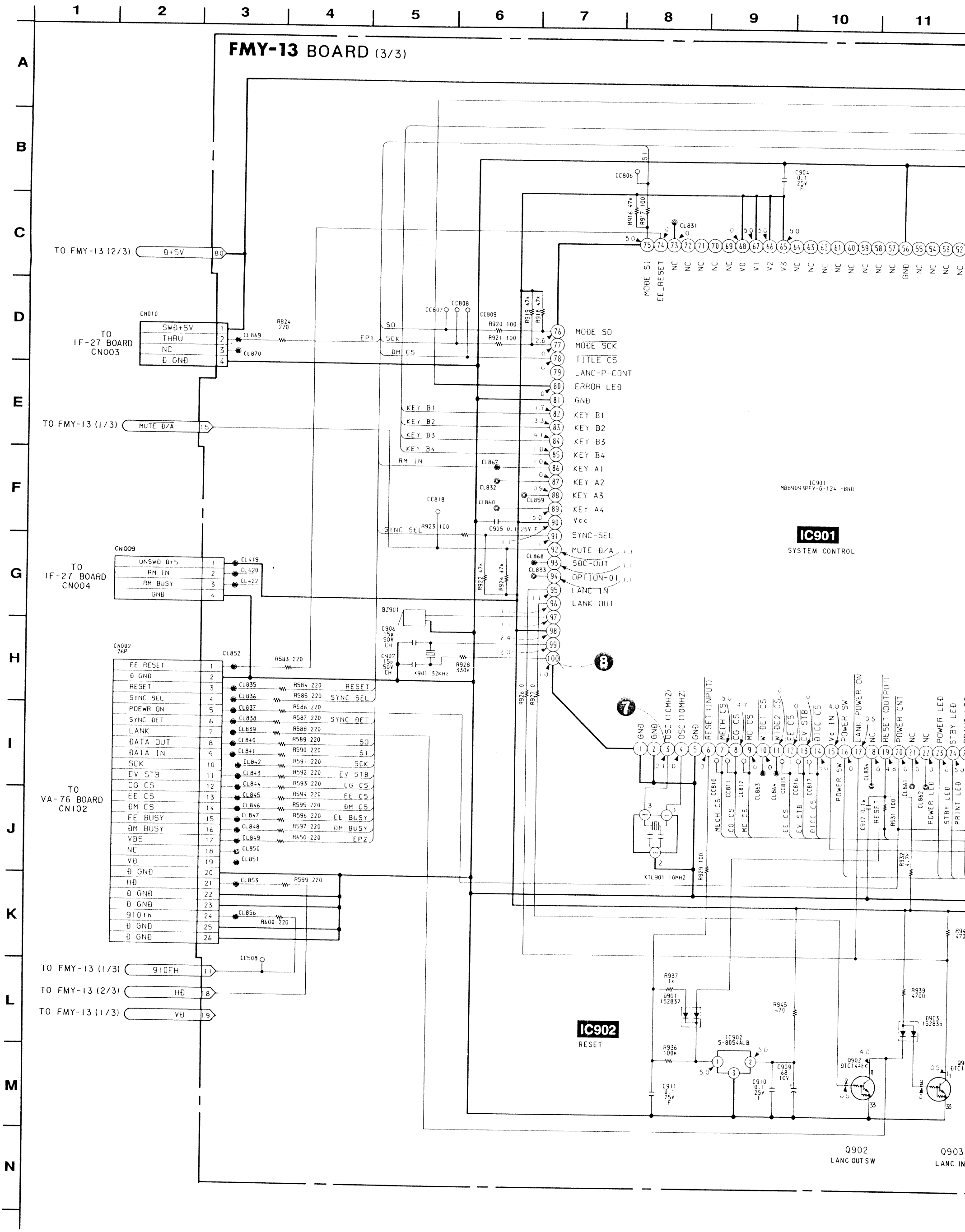


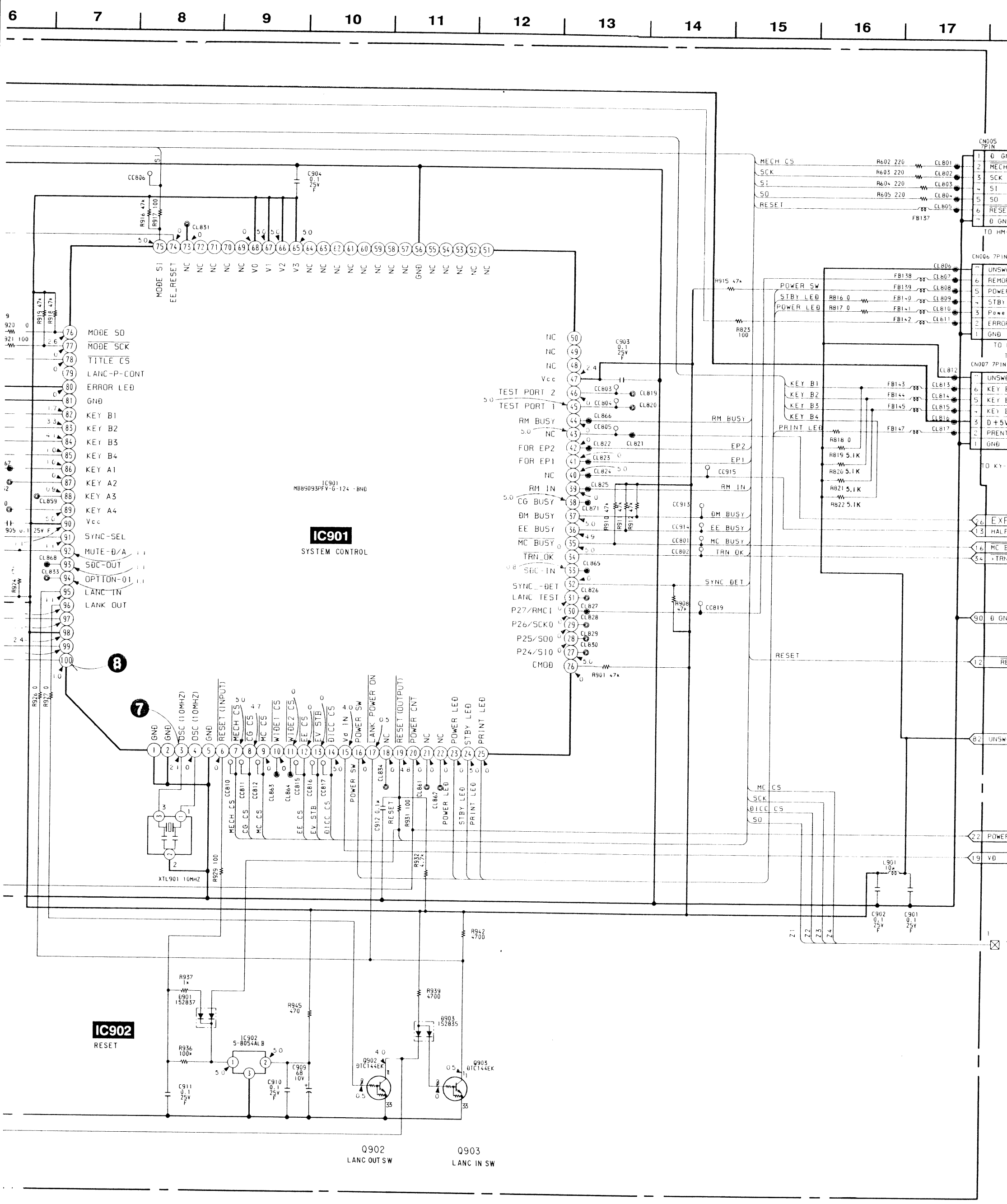
FMY-13 -COMPONENT SIDE-
1-650-858-11

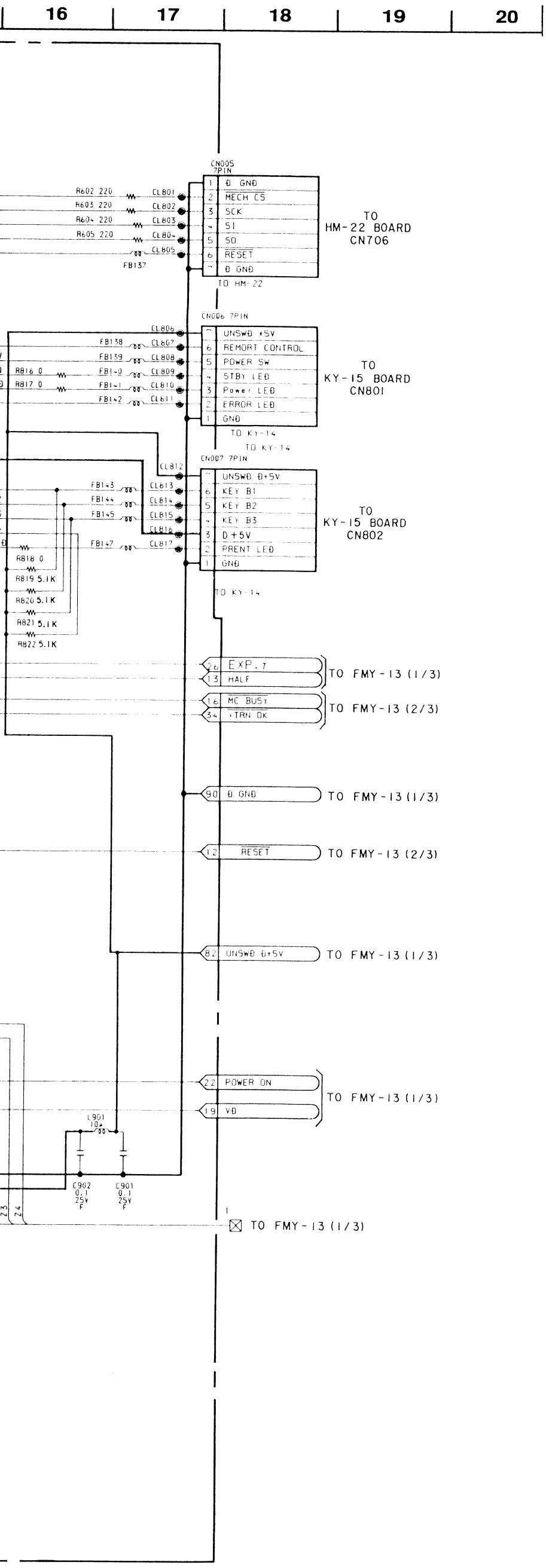


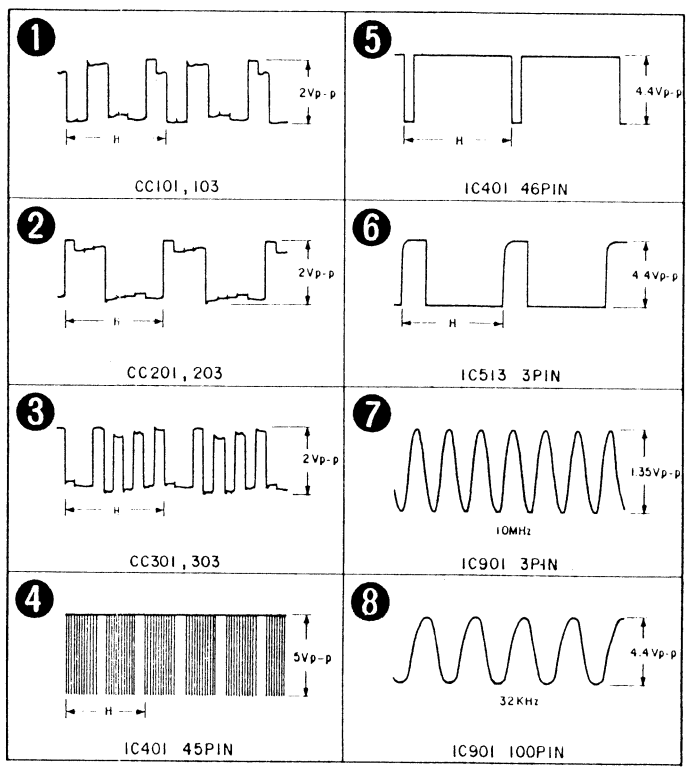
FMY-13 -SOLDERING SIDE-
1-650-858-11

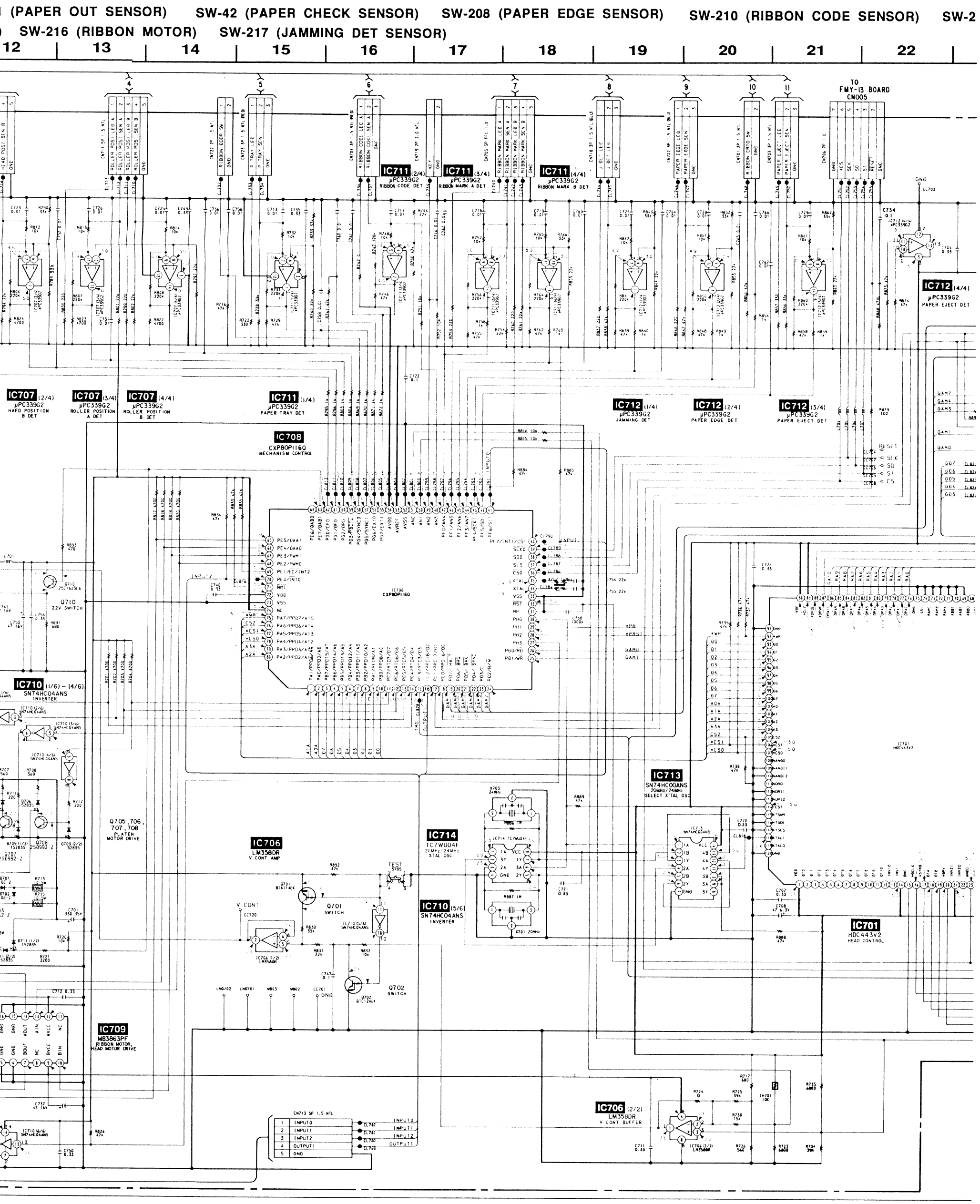

IC901
SYSTEM CONTROL
IC901
MB89093PFV-G-124 -BND
CN005 7PIN
TO HM-22 BOARD CN706
TO HM-22
CN006 7PIN
TO KY-15 BOARD CN801
TO KY-14
CN007 7PIN
TO KY-15 BOARD CN802
TO KY-14
TO FMY-13 (1/3)
TO FMY-13 (2/3)
TO FMY-13 (1/3)
TO FMY-13 (2/3)
TO FMY-13 (1/3)
TO FMY-13 (1/3)
TO FMY-13 (1/3)
TO FMY-13 (1/3)
Q902
LANC OUT SW
Q903
LANC IN SW


FMY-13 BOARD (3/3)
TO FMY-13 (2/3) 0+5V
TO FMY-13 (1/3) MUTE 0/A
TO IF-27 BOARD CN003
CN010
SW0+5V
THRU
NC
0 GND
TO IF-27 BOARD CN004
CN009
UNSW0 0+5
RM IN
RM BUSY
GND
TO VA-76 BOARD CN102
CN002 26P
EE RESET
0 GND
RESET
SYNC SEL
POEWR ON
SYNC DET
LANK
DATA OUT
DATA IN
SCK
EV STB
CG CS
EE CS
DM CS
EE BUSY
DM BUSY
VBS
NC
V0
0 GND
H0
0 GND
0 GND
910 fh
0 GND
0 GND
TO FMY-13 (1/3) 910FH
TO FMY-13 (2/3) H0
TO FMY-13 (1/3) V0
MODE SO
MODE SCK
TITLE CS
LANC-P-CONT
ERROR LED
GND
KEY B1
KEY B2
KEY B3
KEY B4
KEY A1
KEY A2
KEY A3
KEY A4
Vcc
SYNC-SEL
MUTE-0/A
SDC-OUT
OPTION-01
LANC IN
LANK OUT
IC901
MB89093PFV-G-124 -BND
IC901
SYSTEM CONTROL
IC902
RESET
IC902
S-80544ALB
XTL901 10MHZ
Q902
LANC OUT SW
Q903
LANC IN


IC901
MB89093PFV-G-124 -BNB
IC901
SYSTEM CONTROL
IC902
RESET
IC902
S-8054ALB
Q902
LANC OUT SW
Q903
LANC IN SW
XTL901 10MHZ
CN005 7PIN
CN006 7PIN
CN007 7PIN
TO HM-
TO KY-
MODE SO
MODE SCK
TITLE CS
LANC-P-CONT
ERROR LED
GND
KEY B1
KEY B2
KEY B3
KEY B4
KEY A1
KEY A2
KEY A3
KEY A4
Vcc
SYNC-SEL
MUTE-D/A
SDC-OUT
OPTION-01
LANC IN
LANK OUT
TEST PORT 2
TEST PORT 1
RM BUSY
FOR EP2
FOR EP1
RM IN
CG BUSY
DM BUSY
EE BUSY
MC BUSY
TRN OK
SDC-IN
SYNC_-DET
LANC TEST
P27/RMCI
P26/SCKO
P25/SOO
P24/SIO
CMOD
MECH CS
SCK
SI
SO
RESET
POWER SW
STBY LED
POWER LED
PRINT LED
KEY B1
KEY B2
KEY B3
KEY B4
PRINT LED
RM BUSY
EP2
EP1
RM IN
DM BUSY
EE BUSY
MC BUSY
TRN OK
SYNC DET
RESET
MC CS
SCK
DICC CS
SO
MODE S1
EE_RESET
GND
OSC (10MHZ)
RESET (INPUT)
MECH CS
CG CS
MC CS
WIDE1 CS
WIDE2 CS
EE CS
EV STB
DICC CS
Vd IN
POWER SW
LANK POWER ON
RESET (OUTPUT)
POWER CNT
POWER LED
STBY LED
PRINT LED

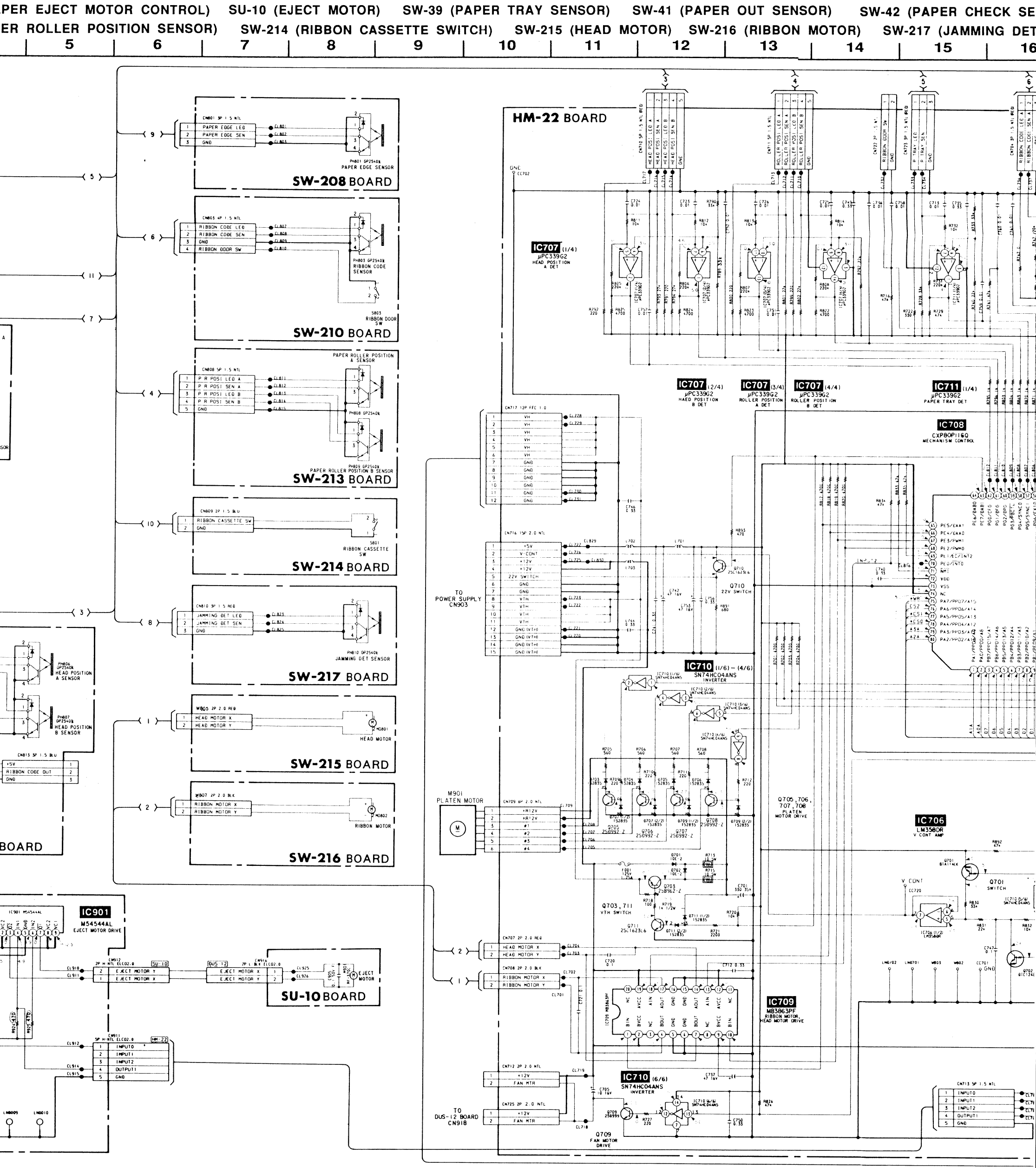

16
17
18
19
20
CN005 7PIN
1 0 GND
2 MECH CS
3 SCK
4 SI
5 SO
6 RESET
7 0 GND
TO HM-22 BOARD CN706
TO HM-22
R602 220
R603 220
R604 220
R605 220
CL801
CL802
CL803
CL804
CL805
FB137
CN006 7PIN
7 UNSWD +5V
6 REMORT CONTROL
5 POWER SW
4 STBY LED
3 Power LED
2 ERROR LED
1 GND
TO KY-15 BOARD CN801
TO KY-14
CN007 7PIN
7 UNSWD 0+5V
6 KEY B1
5 KEY B2
4 KEY B3
3 D+5V
2 PRENT LED
1 GND
TO KY-15 BOARD CN802
TO KY-14
CL806
CL807
CL808
CL809
CL810
CL811
CL812
CL813
CL814
CL815
CL816
CL817
FB138
FB139
FB140
FB141
FB142
FB143
FB144
FB145
FB147
R816 0
R817 0
R818 0
R819 5.1K
R820 5.1K
R821 5.1K
R822 5.1K
26 EXP.7
13 HALF
TO FMY-13 (1/3)
16 MC BUSY
34 TRN OK
TO FMY-13 (2/3)
90 0 GND
TO FMY-13 (1/3)
12 RESET
TO FMY-13 (2/3)
82 UNSWD 0+5V
TO FMY-13 (1/3)
22 POWER ON
19 V0
TO FMY-13 (1/3)
L901 10μ
C902 0.1 25V F
C901 0.1 25V F
23
24
1
TO FMY-13 (1/3)


1
2Vp-p
H
CC101, 103
5
4.4Vp-p
H
IC401 46PIN
2
2Vp-p
H
CC201, 203
6
4.4Vp-p
H
IC513 3PIN
3
2Vp-p
H
CC301, 303
7
1.35Vp-p
10MHz
IC901 3PIN
4
5Vp-p
H
IC401 45PIN
8
4.4Vp-p
32KHz
IC901 100PIN



HEAD CONTROL, SENSOR

HM-22P

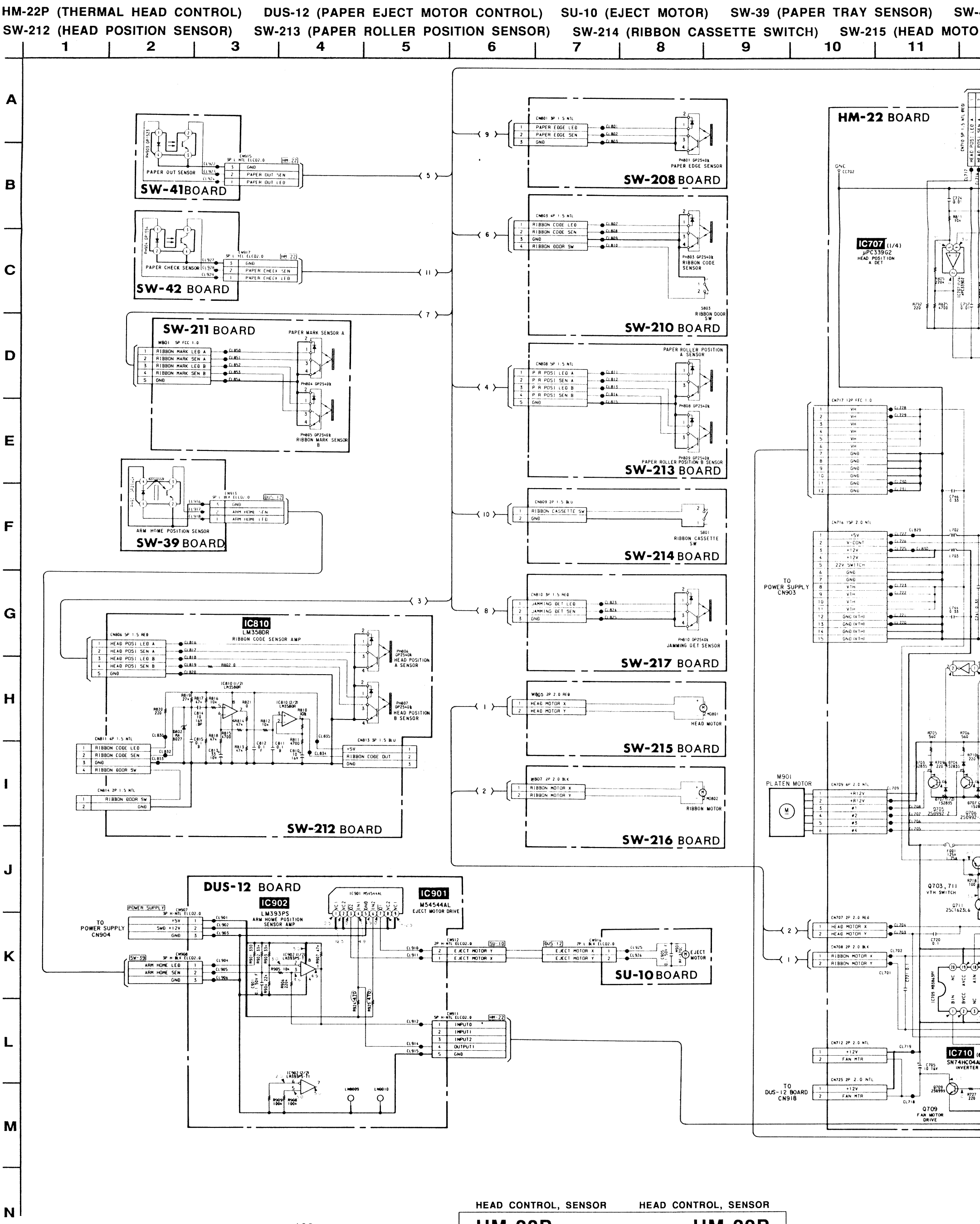


HEAD CONTROL, SENSOR

HM-22P

HEAD CONTROL, SENSOR

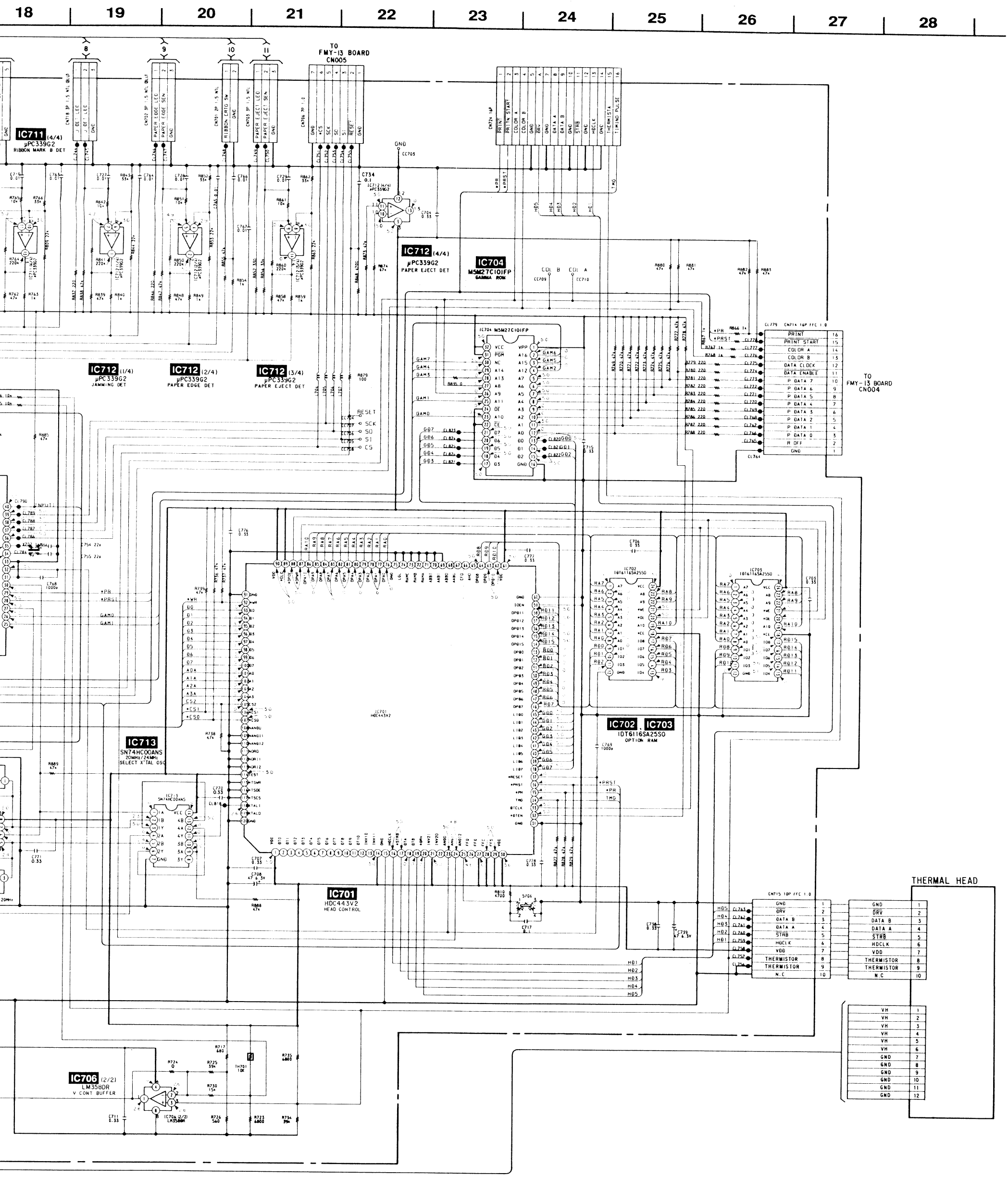
HM-22P



HEAD CONTROL, SENSOR HEAD CONTROL, SENSOR

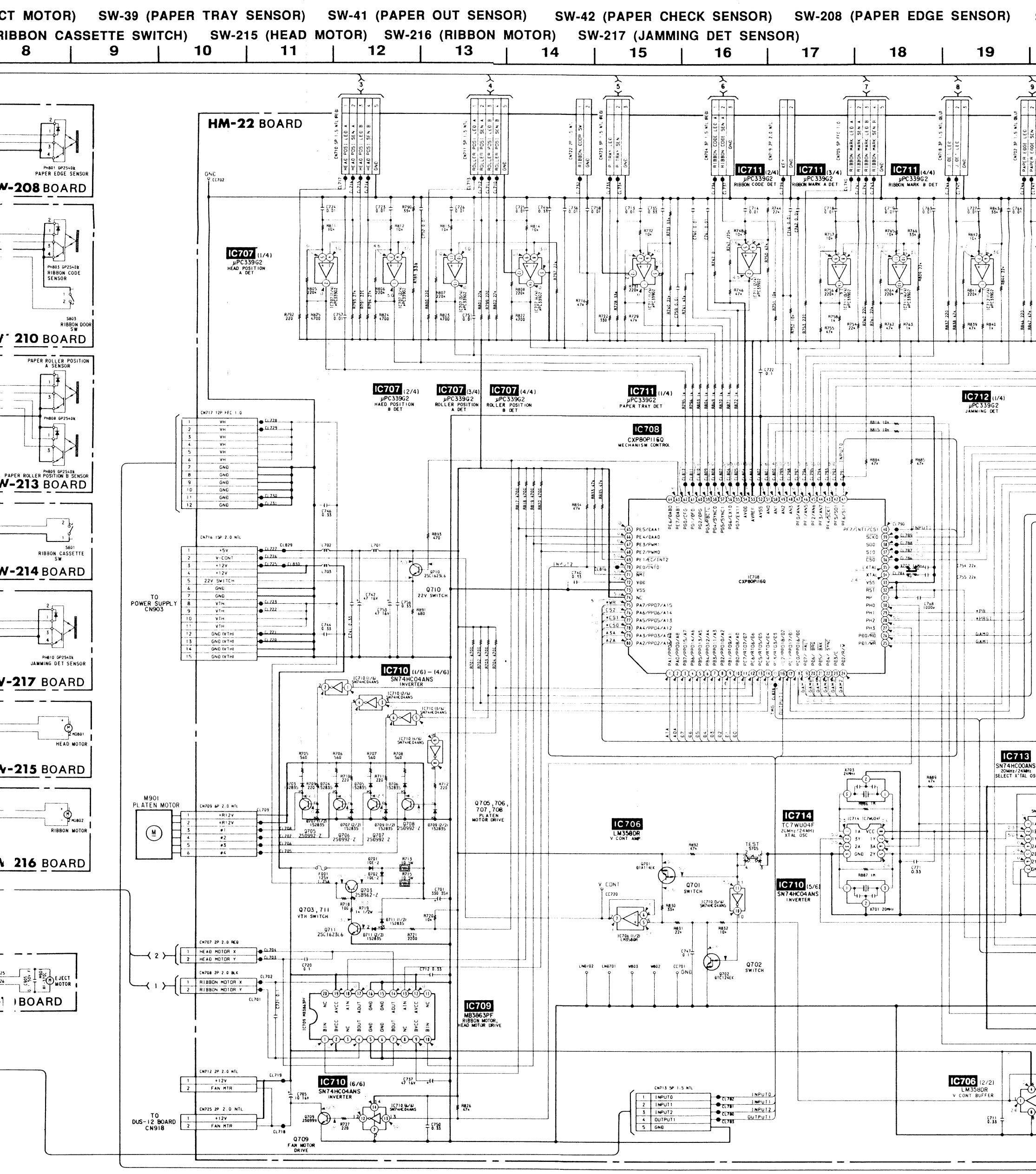
HM-22P **HM-22P**

PER EDGE SENSOR) SW-210 (RIBBON CODE SENSOR) SW-211 (RIBBON MARK SENSOR)



HEAD CONTROL, SENSOR HEAD CONTROL, SENSOR

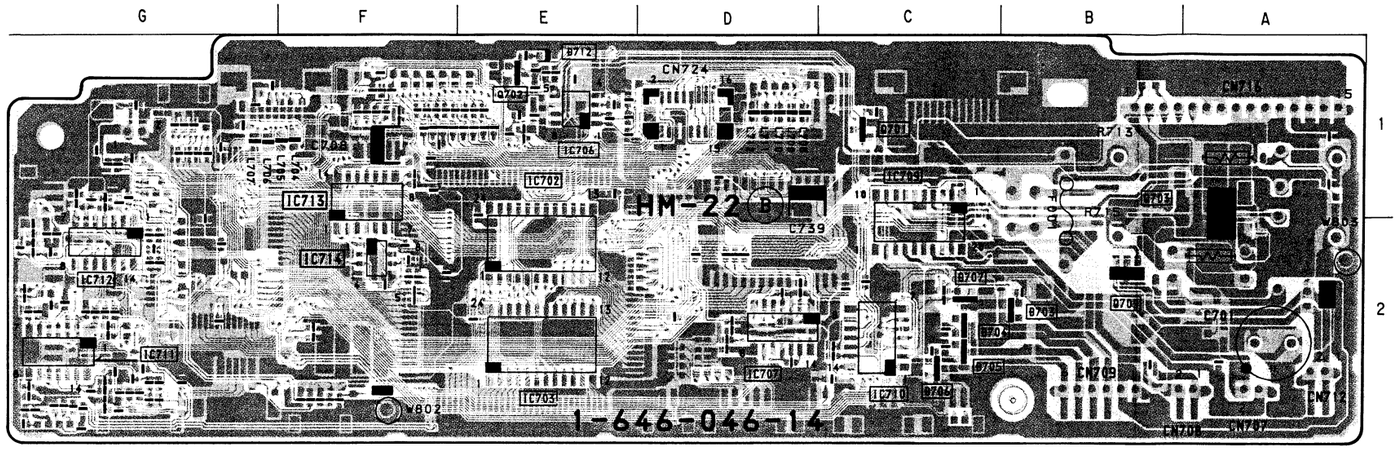
HM-22P **HM-22P**



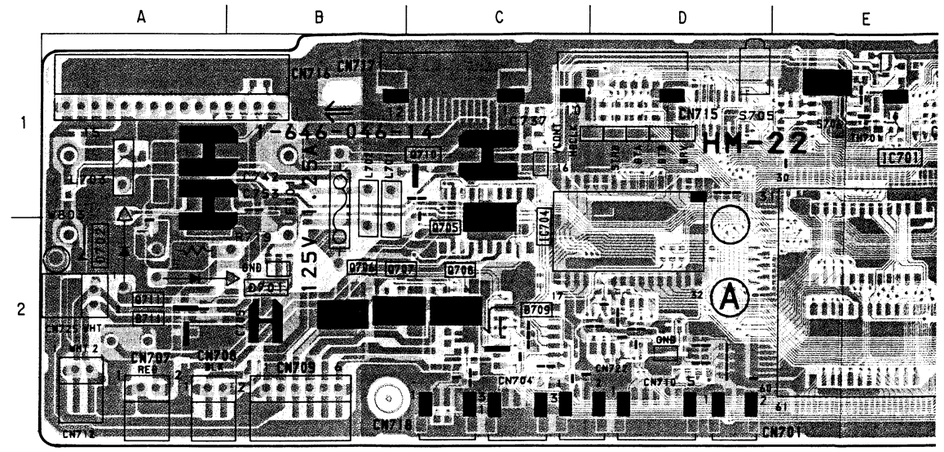
HEAD CONTROL, SENSOR

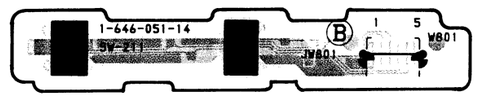
HM-22P

HM-22P (THERMAL HEAD CONTROL) DUS-12 (PAPER EJECT MOTOR CONTROL) SU-10 (EJECT MOTOR) SW-39 (PAPER TRAY SENSOR) SW-41 (PAPER OUT SENSOR) SW-42 (PAPER CHECK SEN
SW-212 (HEAD POSITION SENSOR) SW-213 (PAPER ROLLER POSITION SENSOR) SW-214 (RIBBON CASSETTE SWITCH) SW-215 (HEAD MOTOR) SW-216 (RIBBON MOTOR) SW-217 (JAMMING DET

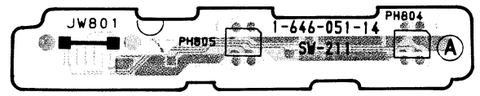


HM-22 -SOLDERING SIDE-
1-646-046-14

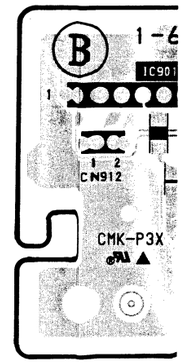


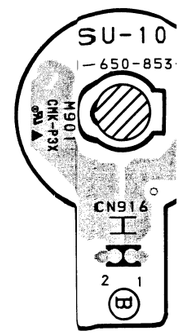


SW-211 -SOLDERING SIDE-
1-646-051-14



SW-211 -COMPONENT SIDE-
1-646-051-14





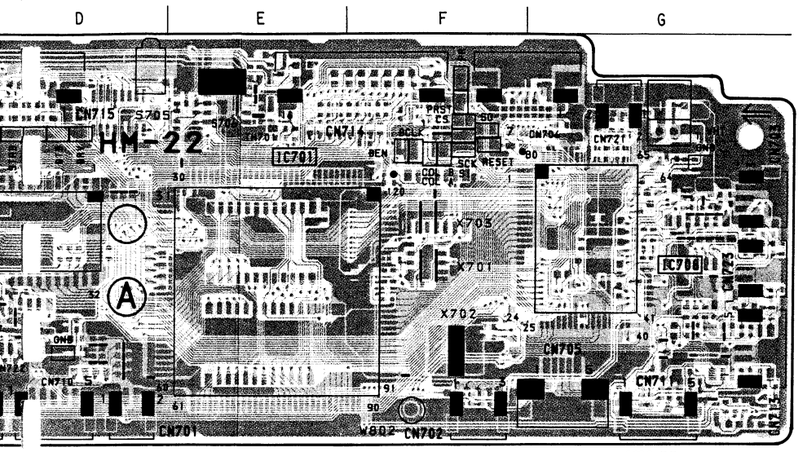
SU-10 -SOLDERING S
1-650-85

HM-22P BOARD

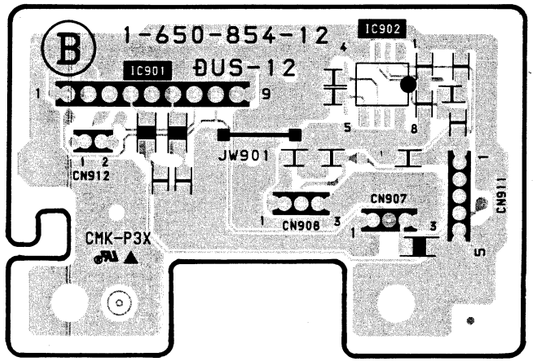
CN701	D-2		IC706	E-1	S
CN702	F-2		IC707	D-2	S
CN703	G-1		IC708	G-2	
CN704	C-2		IC709	C-2	S
CN705	G-2		IC710	D-2	S
CN706	G-1		IC711	G-2	S
CN707	A-2		IC712	G-2	S
CN708	A-2		IC713	F-1	S
CN709	B-2		IC714	F-2	S
CN710	D-2				
CN711	G-2		L701	B-1	
CN712	A-2		L702	B-1	
CN713	G-2		L703	A-1	
CN714	F-1		L704	F-1	S
CN715	D-1		L705	F-1	S
CN716	A-1		L706	G-1	S
CN717	C-1		L707	G-1	S
CN718	C-2		L708	D-1	S
CN719			L709	D-1	S
CN721	G-1		L710	D-1	S
CN722	C-2		L711	D-1	S
CN723	G-2		L712	D-1	S
CN724	D-1	S			
CN725	A-2		Q701	C-1	S
			Q702	E-1	S
D701	A-2		Q703	B-1	S
D702	A-2		Q705	C-2	
D703	B-2	S	Q706	B-2	
D704	C-2	S	Q707	B-2	
D705	C-2	S	Q708	C-2	
D706	C-2	S	Q709	B-2	S
D707	C-2	S	Q710	C-1	
D709	C-2		Q711	A-2	
D711	A-2				
D712	E-1	S	S705	D-1	
			S706	E-1	
F001	B-1	S			
			TH701	E-1	
IC701	E-2				
IC702	E-2	S	X701	F-2	
IC703	E-2	S	X702	F-2	
IC704	D-2		X703	F-2	

S:SOLDERING SIDE

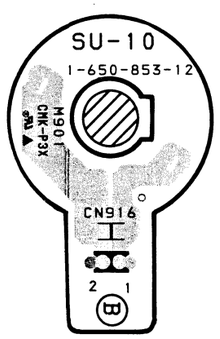
SW-42 (PAPER CHECK SENSOR) SW-208 (PAPER EDGE SENSOR) SW-210 (RIBBON CODE SENSOR) SW-211 (RIBBON MARK SENSOR)
OR) SW-217 (JAMMING DET SENSOR)



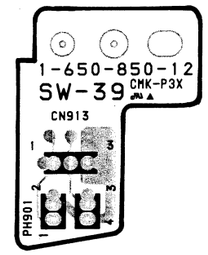
HM-22 -COMPONENT SIDE-
1-646-046-14



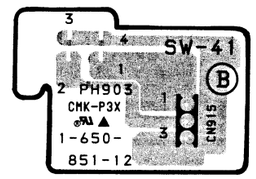
DUS-12 -SOLDERING SIDE-
1-650-854-12



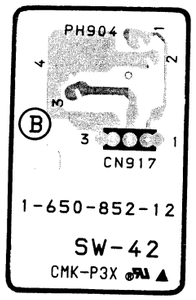
SU-10 -SOLDERING SIDE-
1-650-853-12



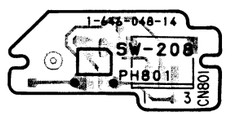
SW-39 -COMPONENT SIDE-
1-650-850-12



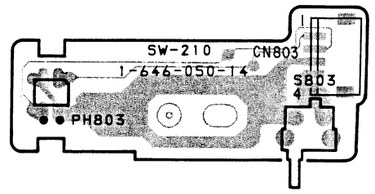
SW-41 -SOLDERING SIDE-
1-650-851-12



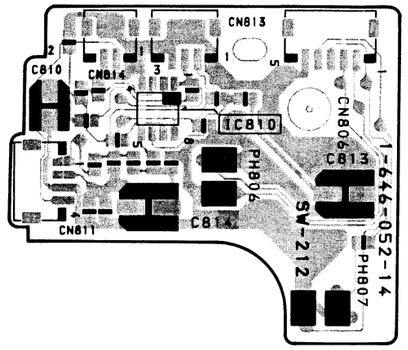
SW-42 -SOLDERING SIDE-
1-650-852-12



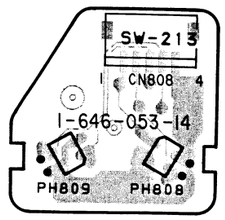
SW-208 -SOLDERING SIDE-
1-646-048-14



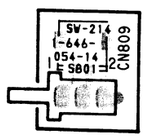
SW-210 -SOLDERING SIDE-
1-646-050-14



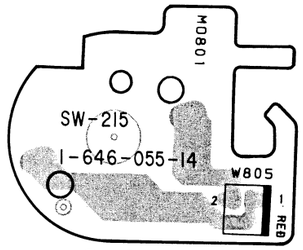
SW-212 -COMPONENT SIDE-
1-646-052-14



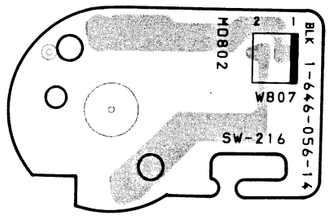
SW-213 -SOLDERING SIDE-
1-646-053-14



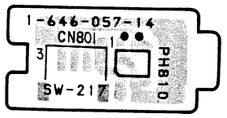
SW-214 -SOLDERING SIDE-
1-646-054-14



SW-215 -SOLDERING SIDE-
1-646-055-14

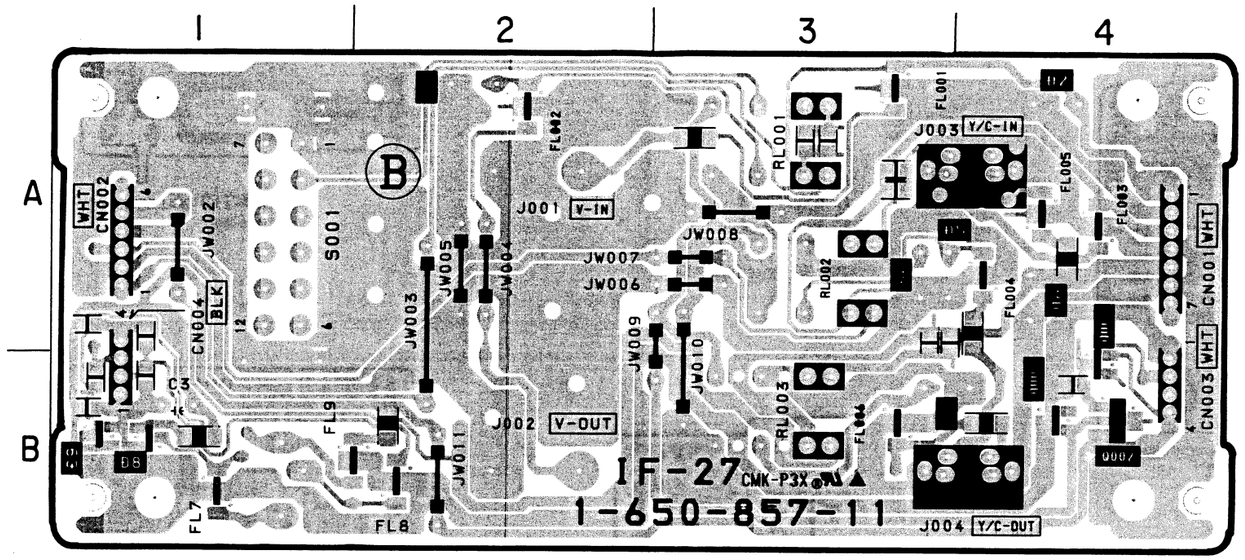


SW-216 -SOLDERING SIDE-
1-646-056-14



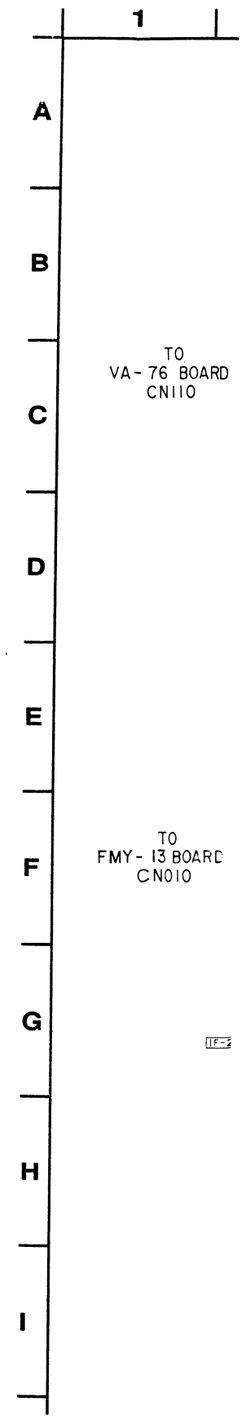
SW-217 -SOLDERING SIDE-
1-646-057-14

IF-27 (IN/OUT TERMINAL)

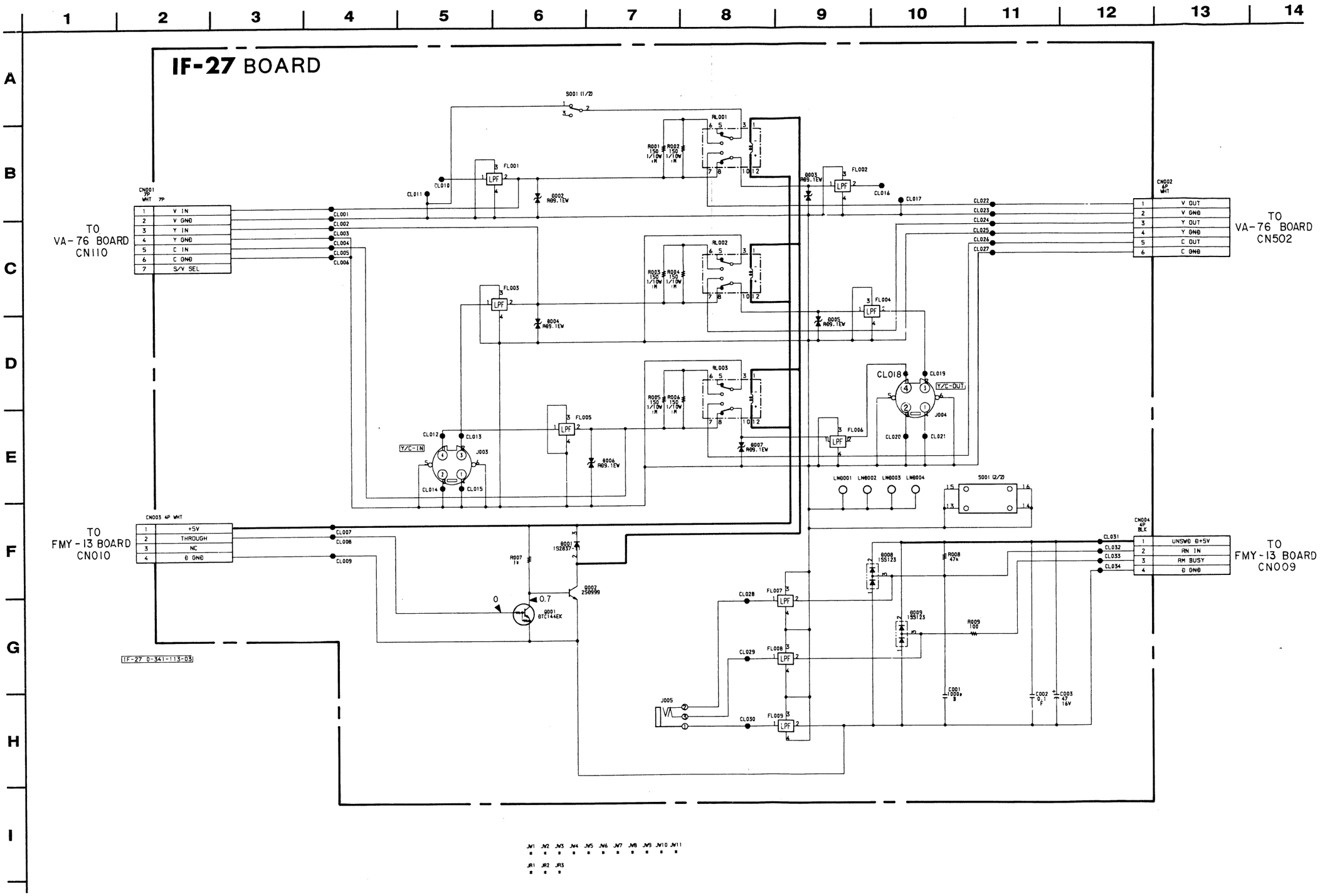


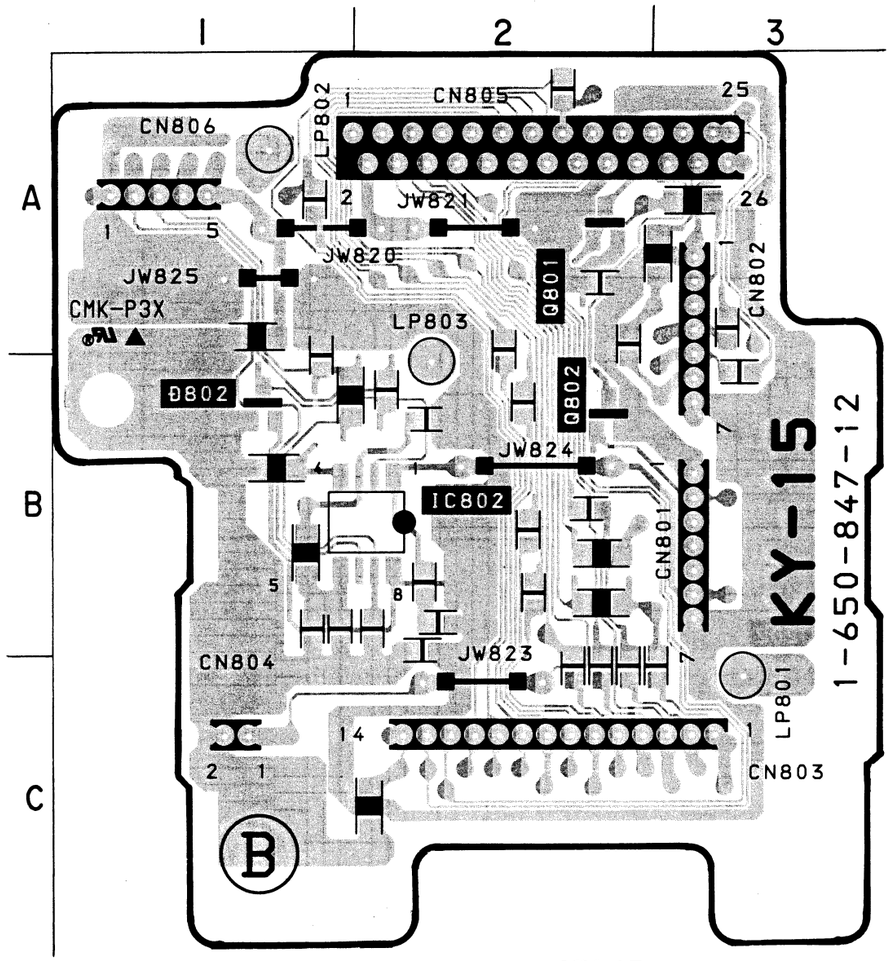
IF-27 -SOLDERING SIDE-
1-650-857-12

IF-27 (IN/OUT T

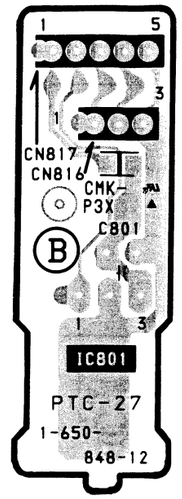


IF-27 (IN/OUT TERMINAL)

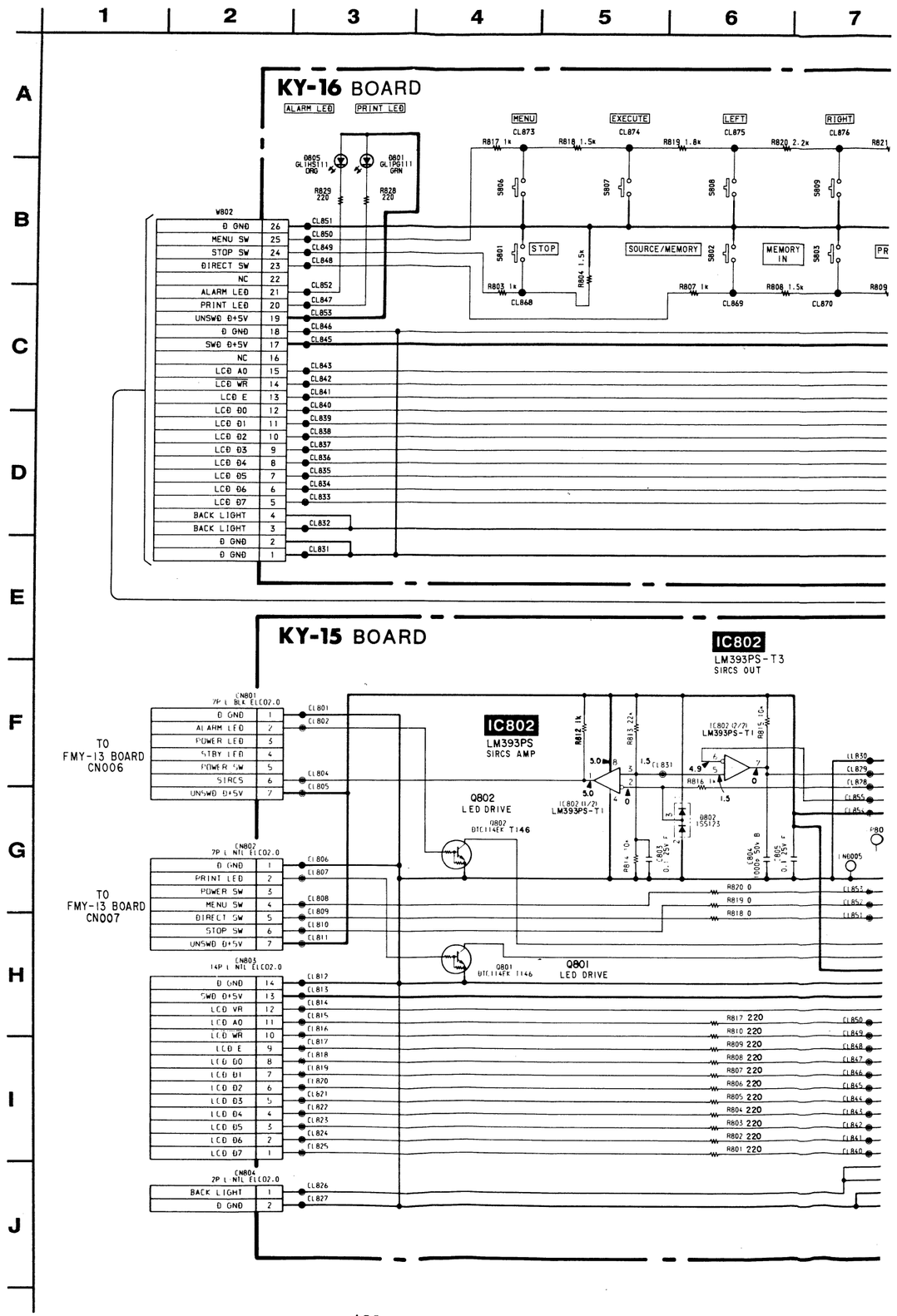




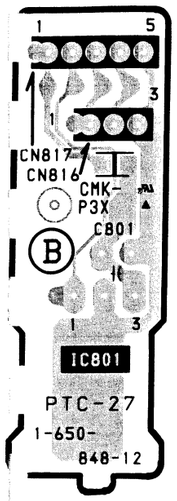
KY-15 -SOLDERING SIDE-
1-650-847-12



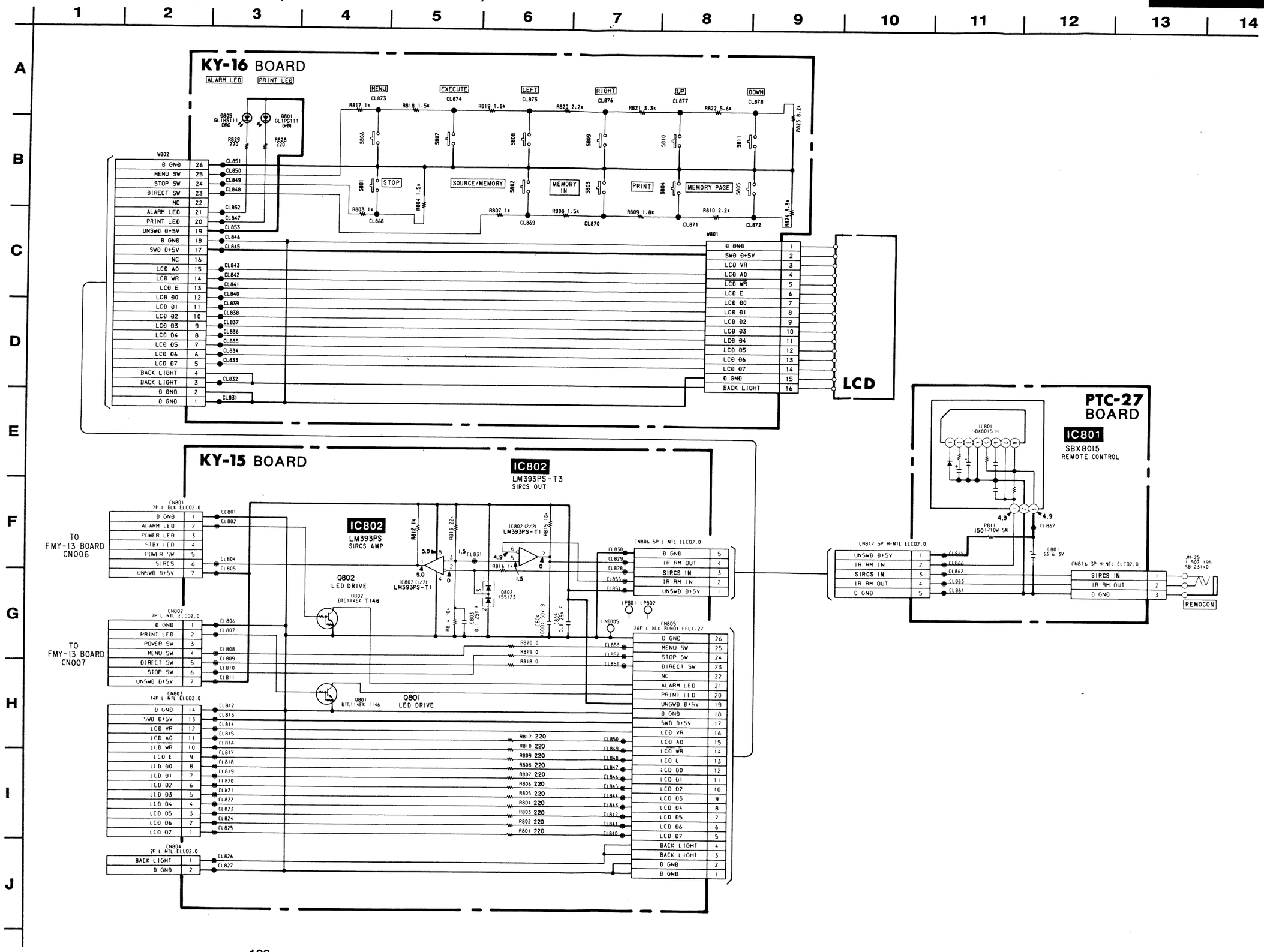
PTC-27 -SOLDERING SIDE-
1-650-848-12



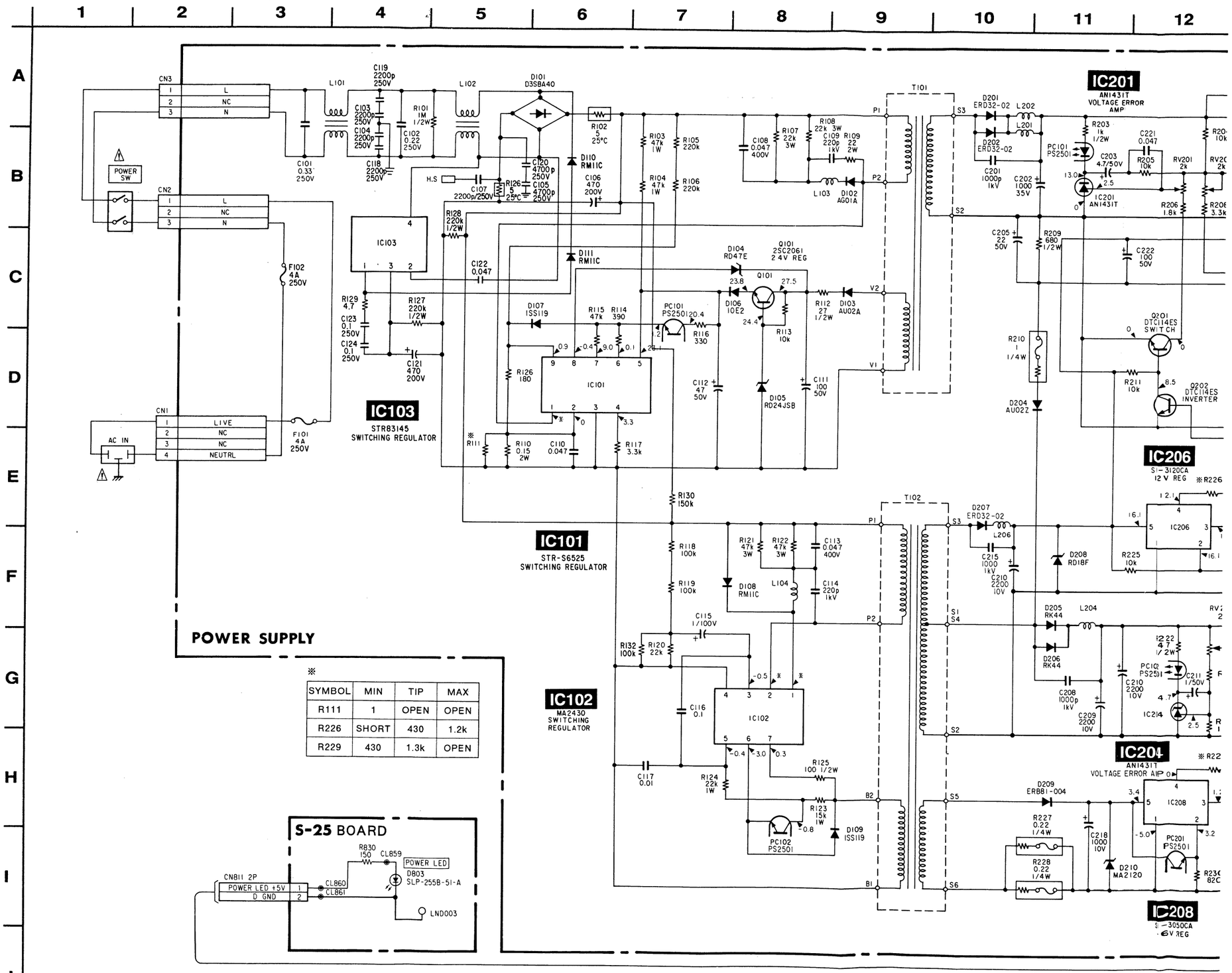
KY-15 (FUNCTION SWITCH) PTC-27 (REMOTE CONTROL SENSOR)



PTC-27 -SOLDERING SIDE-
1-650-848-12



SWITCHING REGULATOR S-25 (POWER SUPPLY)



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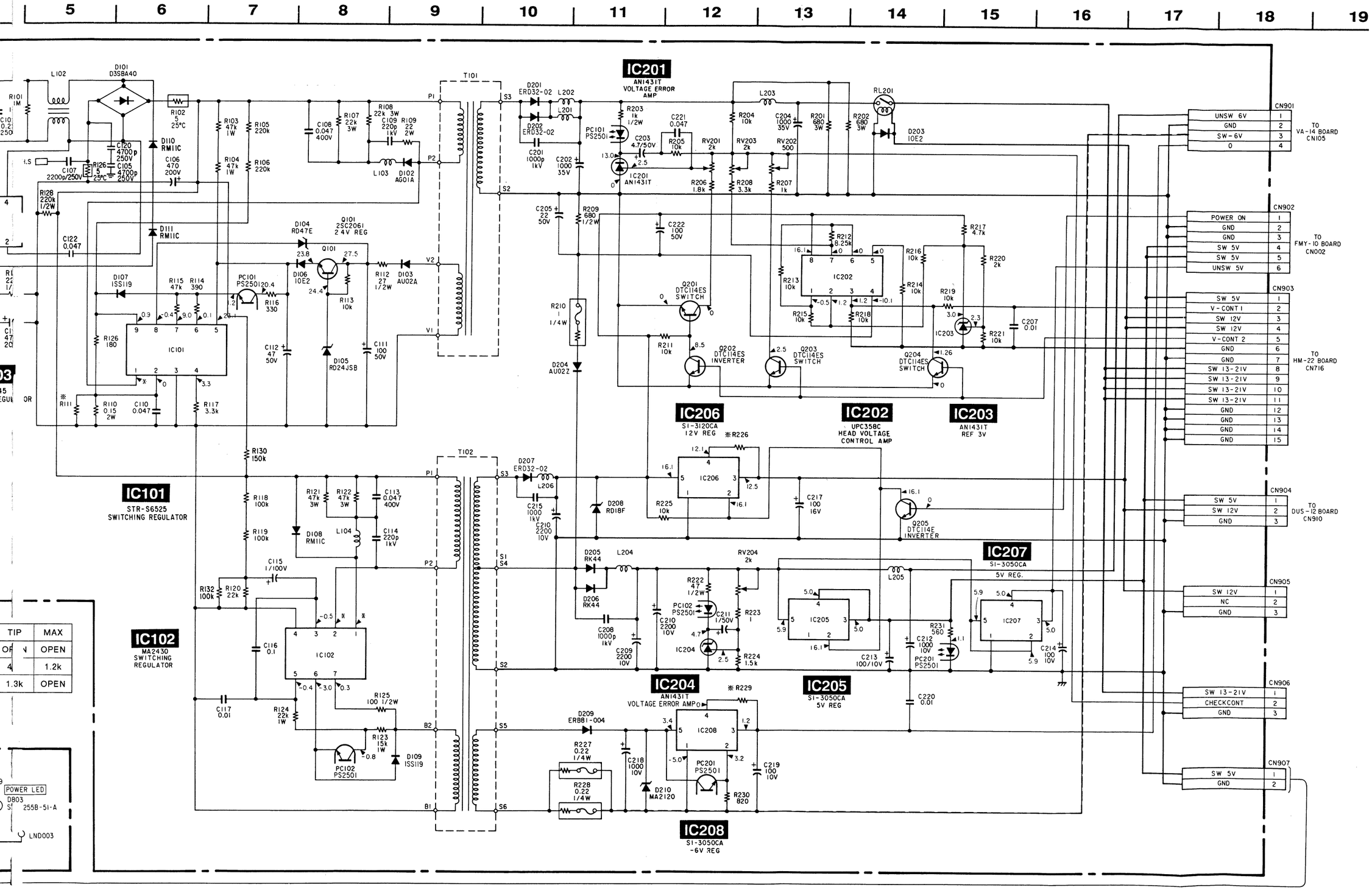
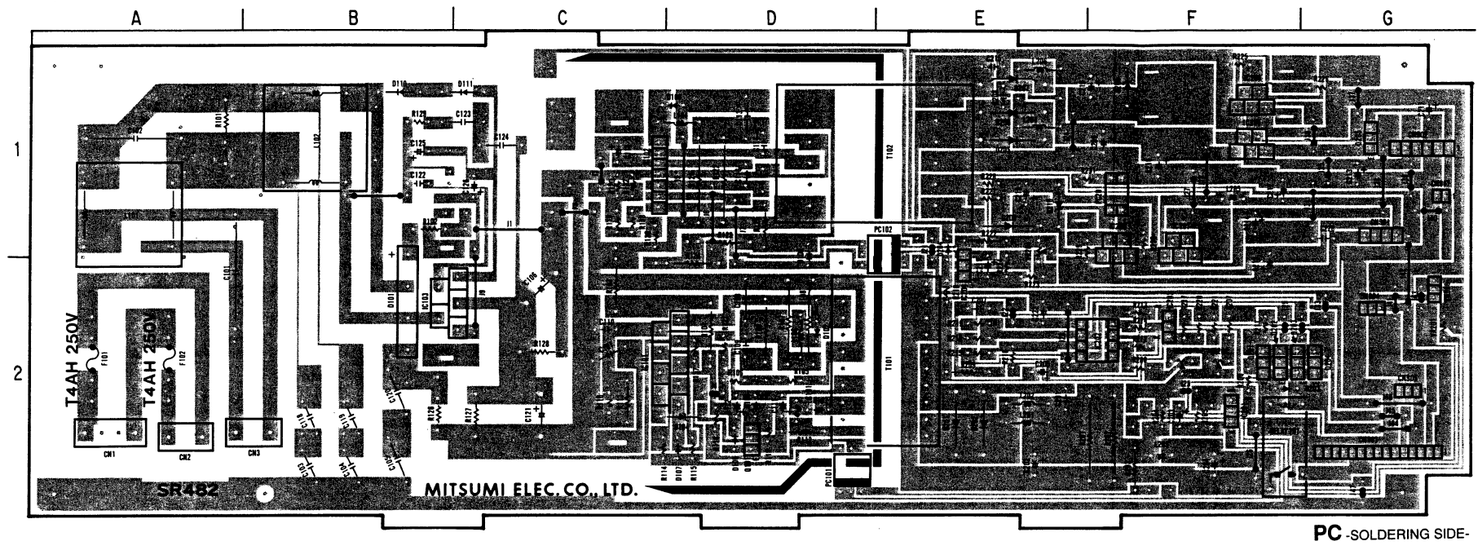
SYMBOL	MIN	TIP	MAX
R111	1	OPEN	OPEN
R226	SHORT	430	1.2k
R229	430	1.3k	OPEN


IC101
STR-S6525
SWITCHING REGULATOR
IC102
MA2430
SWITCHING
REGULATOR
IC201
AN1431T
VOLTAGE ERROR
AMP
IC202
UPC358C
HEAD VOLTAGE
CONTROL AMP
IC203
AN1431T
REF 3V
IC204
AN1431T
VOLTAGE ERROR AMP
IC205
SI-3050CA
5V REG
IC206
SI-3120CA
12V REG
IC207
SI-3050CA
5V REG.
IC208
SI-3050CA
-6V REG
CN901
UNSW 6V
GND
SW-6V
0
TO VA-14 BOARD CN105
CN902
POWER ON
GND
GND
SW 5V
SW 5V
UNSW 5V
TO FMY-10 BOARD CN002
CN903
SW 5V
V-CONT 1
SW 12V
SW 12V
V-CONT 2
GND
GND
SW 13-21V
SW 13-21V
SW 13-21V
SW 13-21V
GND
GND
GND
GND
TO HM-22 BOARD CN716
CN904
SW 5V
SW 12V
GND
TO DUS-12 BOARD CN910
CN905
SW 12V
NC
GND
CN906
SW 13-21V
CHECKCONT
GND
CN907
SW 5V
GND
POWER LED
DB03
255B-51-A
LND003

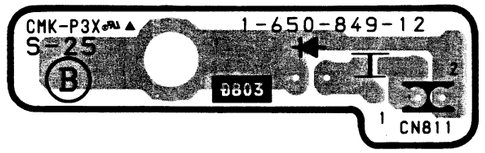
SWITCHING REGULATOR S-25 (POWER SUPPLY)



PC -SOLDERING SIDE-
9-907-119-01

SWITCHING REGULATOR

CN1	A-2	L101	A-1
CN2	A-2	L102	B-1
CN3	B-2	L103	D-1
CN901	G-1	L104	D-1
CN902	G-1	L201	E-2
CN903	G-2	L202	E-2
CN904	G-2	L203	F-1
CN905	G-2	L204	E-1
CN906	G-2	L205	F-1
CN907	G-1	L206	E-1
D101	B-2	PC101	D-2
D102	D-2	PC102	E-1
D103	D-2	PC201	F-1
D104	D-2		
D105	D-2	Q101	D-2
D106	D-2	Q202	F-2
D107	D-2	Q202	F-2
D108	D-1	Q203	F-2
D109	D-1	Q204	G-2
D201	E-2	Q205	G-1
D202	E-2		
D203	F-2	RL201	F-2
D204	E-1		
D205	E-1	T101	E-2
D206	E-1	T102	E-1
D207	E-1		
D208	F-1	RV201	G-2
D209	E-1	RV202	F-1
D210	E-1	RV203	F-1
		RV204	E-1
F101			
IC101	C-2		
IC102	C-1		
IC201	F-2		
IC202	F-2		
IC203	F-2		
IC204	E-2		
IC205	F-1		
IC206	F-1		
IC207	F-1		
IC208	F-1		



S-25 -SOLDERING SIDE-

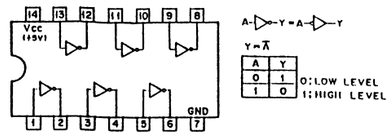
4-3. SEMICONDUCTORS

The chart in this section may sometimes show diodes, transistors, and ICs that are not interchangeable. When replacing a component, be sure to refer to the parts list. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE
02CZ2.0	146
1S2835	146
1S2836	146
1S2837	146
1SS226	146
1SS300	146
1SS302	146
1T33C-01	146
10E-2	146
2SA1618	146
2SB962	146
2SC1623	146
2SC4207	146
2SD992	146
2SD999-CLCK	146
DTA114EK	146
DTC114EK	146
DTC124EK	146
DTC144EK	146
GP1S23	146
GP1S54	146
GP2S40K	146
MA152WK	146
MA728	146
MA8027-L	146
MSA1586	146
MSC4116	146
RD9.1EW	146
RN1302-TE85L	146
SBX8015-H	146
SLP-255B	147
XN2401	147
XN4501	147
XN4601	147
74F04SJ	130
74F08SJ	130
74F257ASJ	130
74F32SJ	130
74F86SJ	130
AK6420F	130
CXA1145M	131
CXA1211M	131
CXA1521M	131
CXA1585Q	131
CXD1159Q	132
CXD1176Q	133
CXD1178Q	133
CXD1217Q	134
CXD2024Q	135
CXD8391Q	136
CXD8444Q	136
CXL5505M	136
CXP80P116Q-1	137
CXP80P116Q-1-UP1800E	137
DS1000S-50	137
DS1000S-75	137
HDC443V2	137
HD6475368F-FMY13-01	138
HM514400AS7GS-EL	139
IDT6116SA25S0	139
LM358D	139
LM324D	139
M54544AL	140
M5M27C101FP-UP12G-E2	140
M5M27C101FP-UP12M-E2	140
M5M27C101FP-UP12S-E2	140
M62352GP	140
MB3863PF-G-BND	141
MB621948	141
MB89093PFV-G-125-BND	142
MC74HC4053F	141
MC74HC574AF	141
NJM2230M	142
NJM2233BM	142
NJM2234M	143
NJM2460M	143
NJM4560M	143
PQ05SZ1U	143
PQ05TZ1U	143
RC4558PS	143
S-8054ALB-LM-S	143
SN74HC00ANS	143
SN74HC04ANS	143
SN74LS221NS	143
TC4W53F	144
TC7W00F	144
TC7W02F	144
TC7WU04F	144
TL082CPS	144
TL431CM	144
UPC319G2	144
UPC393G2	145
UPD65006GF-250-3B8	145
UPD65013GF-407-3BA	145
LM358D	139
LM324D	139

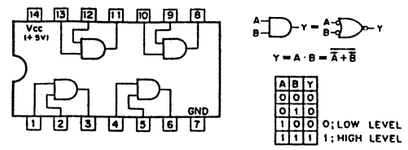
74F04SJ (NS) FLAT PACKAGE

TTL INVERTER
– TOP VIEW –



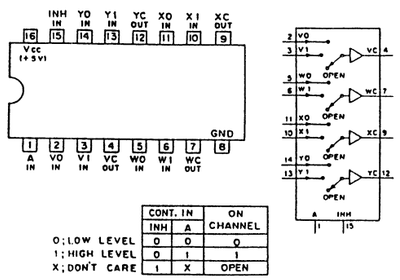
74F08SJ (NS) FLAT PACKAGE

TTL 2-INPUT POSITIVE-AND GATE
– TOP VIEW –



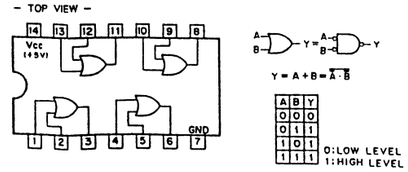
74F257ASJ (NS) FLAT PACKAGE

TTL 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
– TOP VIEW –



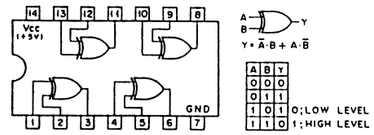
74F32SJ (NS) FLAT PACKAGE

TTL 2-INPUT POSITIVE-OR GATE
– TOP VIEW –



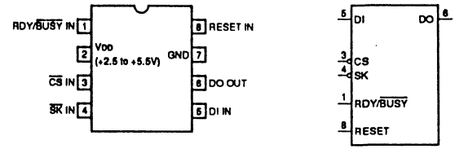
74F86SJ (NS) FLAT PACKAGE

TTL EXCLUSIVE OR GATE
– TOP VIEW –

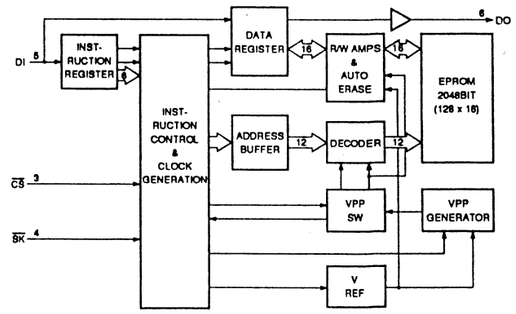


AK6420F (ASAHIKASEI ELECT) FLAT PACKAGE

C-MOS 2048 (128 x 16) · BIT ERASABLE MEMORY
·TOP VIEW·



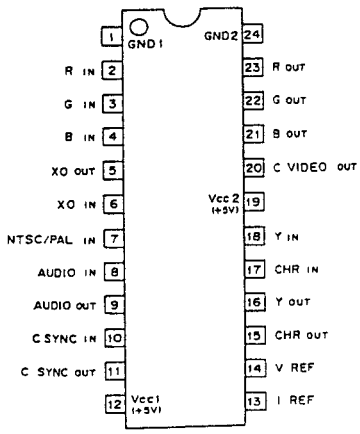
$\overline{CS}$; CHIP SELECT INPUT
DI ; SERIAL DATA INPUT
DO ; SERIAL DATA OUTPUT
RDY/$\overline{BUSY}$; READY/$\overline{BUSY}$ INPUT
RESET ; RESET INPUT
$\overline{SK}$; SERIAL DATA CLOCK INPUT

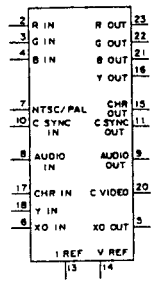


CXA1145M (SONY) FLAT PACKAGE

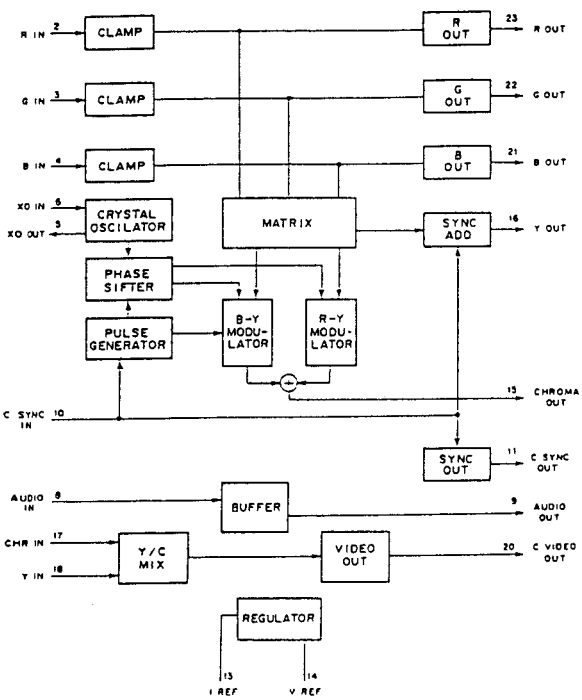
RGB COMPOSITE ENCODER

– TOP VIEW –





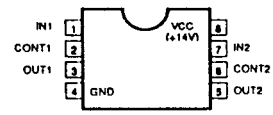
AUDIO ; AUDIO INPUT/OUTPUT
B ; BLUE OUTPUT
CHR ; CHROMA SIGNAL INPUT/OUTPUT
C SYNC ; CHROMA SYNC INPUT/OUTPUT
C VIDEO ; CHROMA VIDEO OUTPUT
G ; GREEN OUTPUT
I REF ; REFERENCE CURRENT
NTSC/PAL ; NTSC/PAL SELECT INPUT
R ; RED OUTPUT
V REF ; REFERENCE VOLTAGE
XO ; CRYSTAL OSCILLATOR INPUT/OUTPUT
Y ; Y-SIGNAL INPUT/OUTPUT

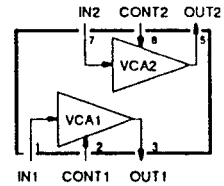


CXA1211M (SONY)

ELECTRONIC VOLUME

– TOP VIEW –

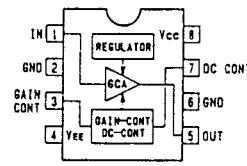




CXA1521M (SONY)

GAIN CONTROL AMP

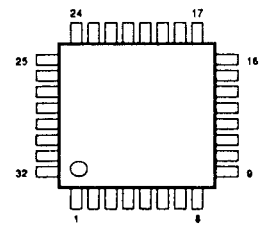
– TOP VIEW –



CXA1585Q (SONY)

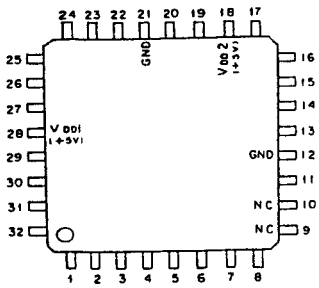
C-MOS R.G.B DECODER

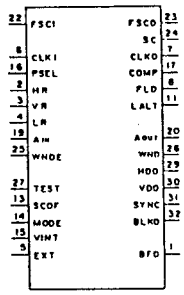
– TOP VIEW –



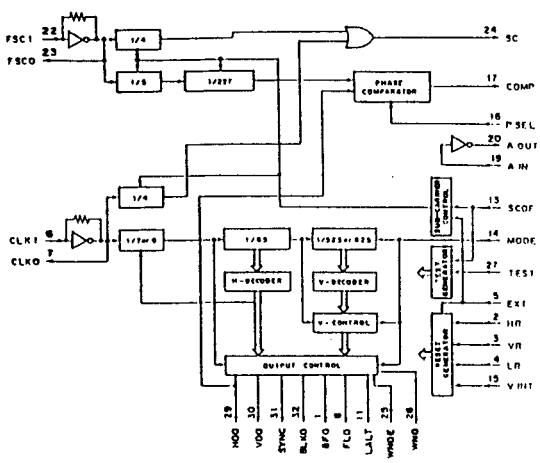
CXD1159Q (SONY)

C-MOS SYNC GENERATOR
– TOP VIEW –





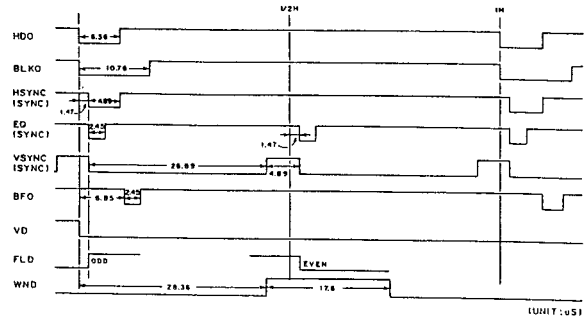
PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	O	BFO	9	–	NC	17	O	COMP	25	I	WNDE
2	I	HR	10	–	NC	18	–	VDD2(+5V)	26	O	WND
3	I	VR	11	O	LALT	19	I	AIN	27	I	TEST
4	I	LR	12	–	GND	20	O	AOUT	28	–	VDD1(+5V)
5	I	EXT	13	I	SCOF	21	–	GND	29	O	HDO
6	I	CLKI	14	I	MODE	22	I	FSCI	30	O	VDO
7	O	CLKO	15	I	VINT	23	O	FSCO	31	O	SYNC
8	O	FLD	16	I	PSEL	24	O	SC	32	O	BLKO



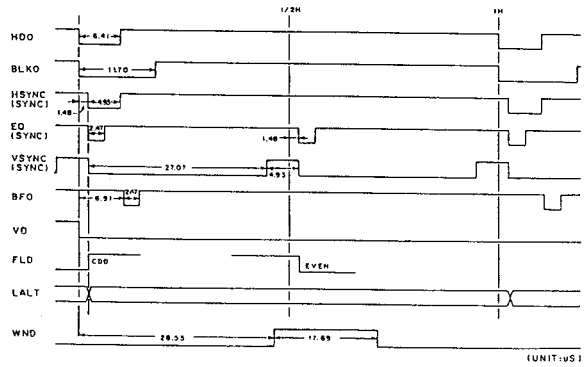
INPUT
AIN : FILTER INVERTER INPUT
CLKI : CLOCK INPUT (NTSC : 14.31818MHz /PAL : 14.1875MHz)
EXT : INT/EXT (L : INT)
FSCI : 4FSC CLOCK INPUT
HR : H RESET
LR : LALT RESET
MODE : NTSC/PAL (L : NTSC)
PSEL : POLARITY SELECT FOR PHASE COMP
SCOF : SUBCARRIER OFF (L : OFF)
TEST : TEST INPUT
VINT : INITIALIZE
VR : V RESET
WNDE : WINDOW ENABLE

OUTPUT
AOUT : FILTER INVERTER OUTPUT
BFO : BURST FLAG PULSE
BLKO : COMPOSITE BLANKING PULSE
CLKO : CLOCK OUTPUT
COMP : PHASE COMP
FLD : FIELD PULSE
FSCO : 4FSC CLOCK OUTPUT
HDO : H DRIVE PULSE
LALT : LINE ALTERNATE PULSE
SC : SUBCARRIER
SYNC : COMPOSITE SYNC PULSE
VDO : V DRIVE PULSE
WND : WINDOW

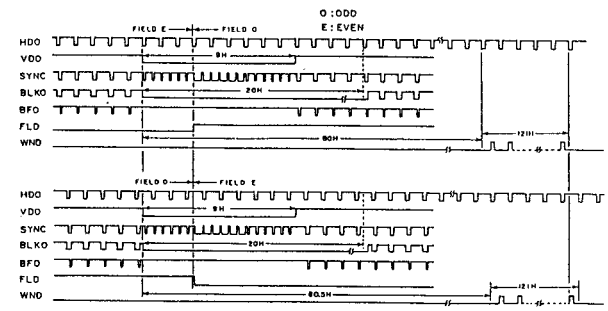
TIMING CHART H (NTSC)



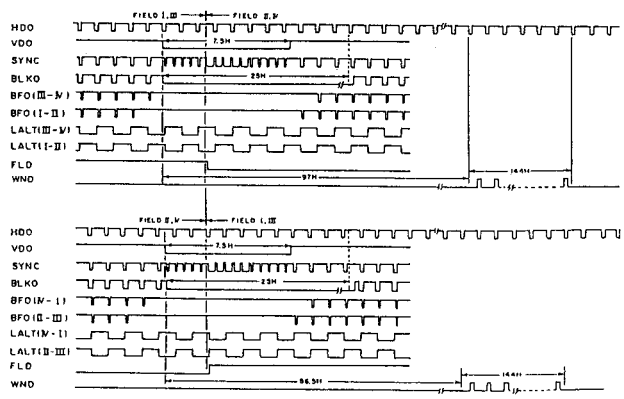
TIMING CHART H (PAL)



TIMING CHART V (NTSC)

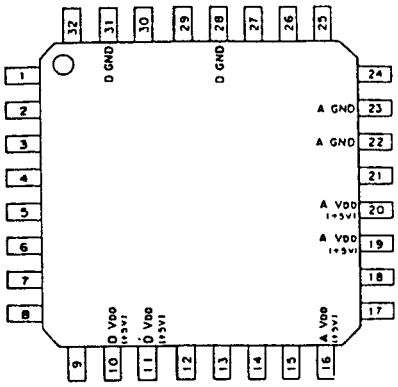


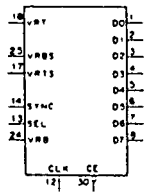
TIMING CHART V (PAL)



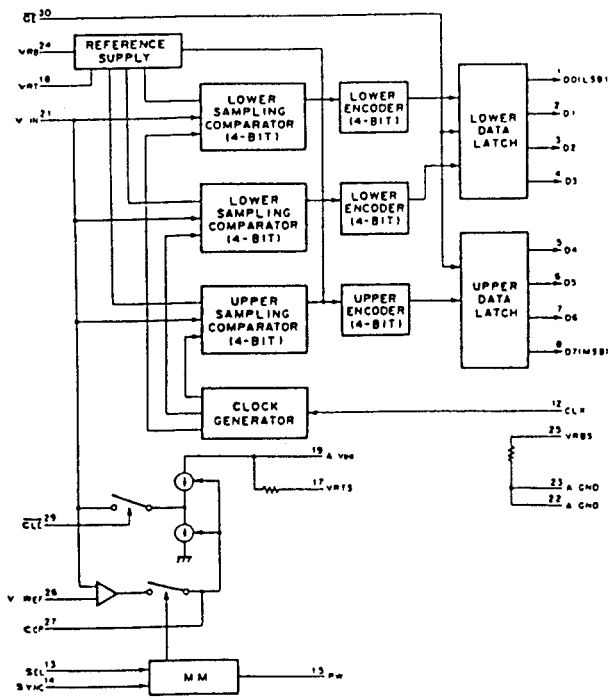
CXD1176Q (SONY)

C-MOS 8-BIT 20MSPS VIDEO A/D CONVERTER WITH CLAMP FUNCTION
- TOP VIEW -



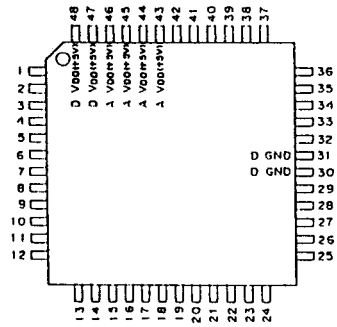


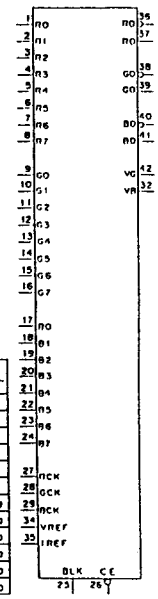
No	I/O	SIGNAL	No	I/O	SIGNAL	No	I/O	SIGNAL	No	I/O	SIGNAL
1	O	D0(LSB)	9	–	N.C.	17	O	VRTS	25	O	VRBS
2	O	D1	10	–	D VDD	18	O	VRT	26	I	VREF
3	O	D2	11	–	D VDD	19	–	A VDD	27	I/O	CCP
4	O	D3	12	I	CLK	20	–	A VDD	28	–	D GND
5	O	D4	13	I	SEL	21	I	V IN	29	I	CLE
6	O	D5	14	I	SYNC	22	–	A GND	30	O	OE
7	O	D6	15	I/O	PW	23	–	A GND	31	–	D GND
8	O	D7(MSB)	16	–	A VDD	24	O	VRB	32	–	N.C.



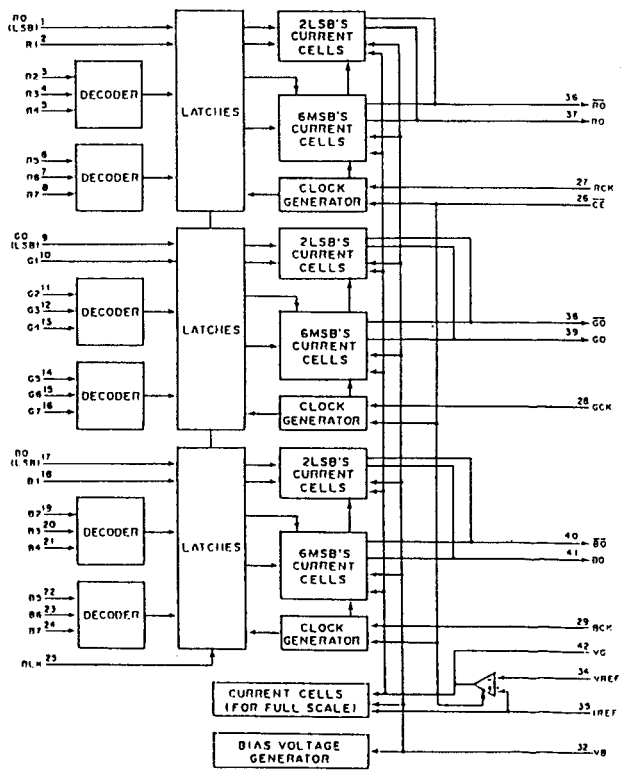
CXD1178Q (SONY) FLAT PACKAGE

C-MOS 3CH 8BIT 40MHz D/A CONVERTER
- TOP VIEW -

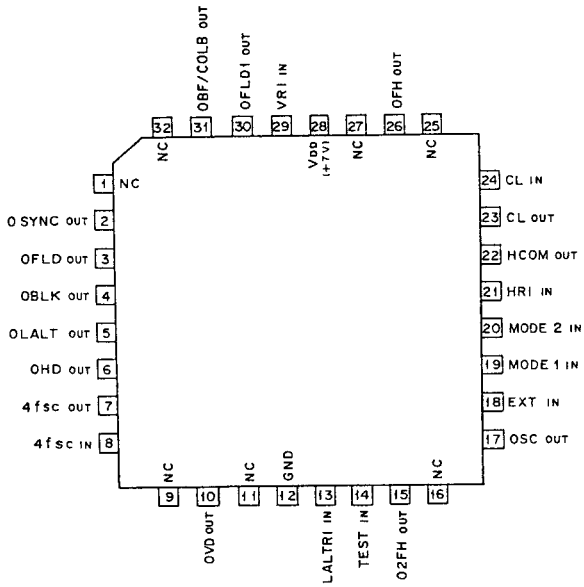


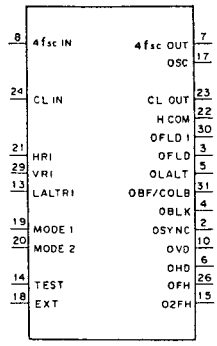


No	I/O	SIGNAL	No	I/O	SIGNAL	No	I/O	SIGNAL	No.	I/O	SIGNAL
1	I	R0(LSB)	13	I	G4	25	I	BLK	37	O	R0
2	I	R1	14	I	G5	26	I	CE	38	O	G0
3	I	R2	15	I	G6	27	I	RCK	39	O	G0
4	I	R3	16	I	G7	28	I	GCK	40	O	B0
5	I	R4	17	I	B0(LSB)	29	I	BCK	41	O	B0
6	I	R5	18	I	B1	30	–	D GND	42	I	VC
7	I	R6	19	I	B2	31	–	D GND	43	–	A Vcc
8	I	R7	20	I	B3	32	I	VB	44	–	A Vcc
9	I	G0(LSB)	21	I	B4	33	–	A GND	45	–	A Vcc
10	I	G1	22	I	B5	34	I	VREF	46	–	A Vcc
11	I	G2	23	I	B6	35	I	IREF	47	–	A Vcc
12	I	G3	24	I	B7	36	O	R0	48	–	A Vcc



CXD1217Q (SONY) FLAT PACKAGE
C-MOS SYNC GENERATOR
– TOP VIEW –





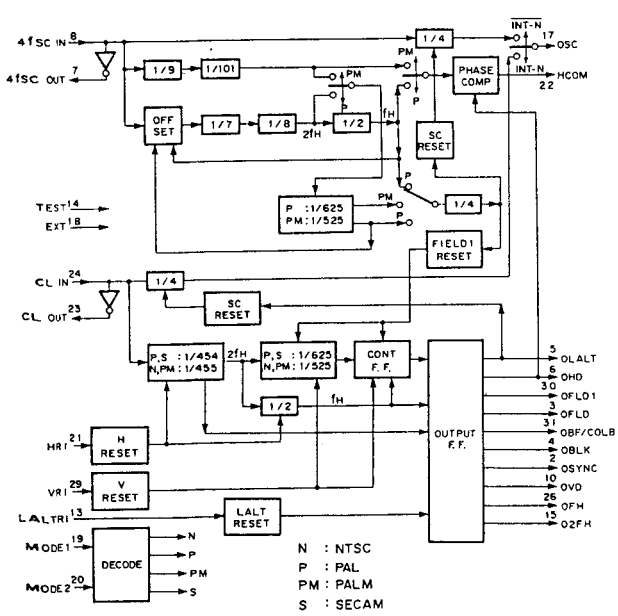
SYSTEM	4fsc	CLOCK
NTSC	910fH	910fH
PAL	1135fH + 2fv	908fH
PALM	909fH	910fH
SECAM	—	908fH

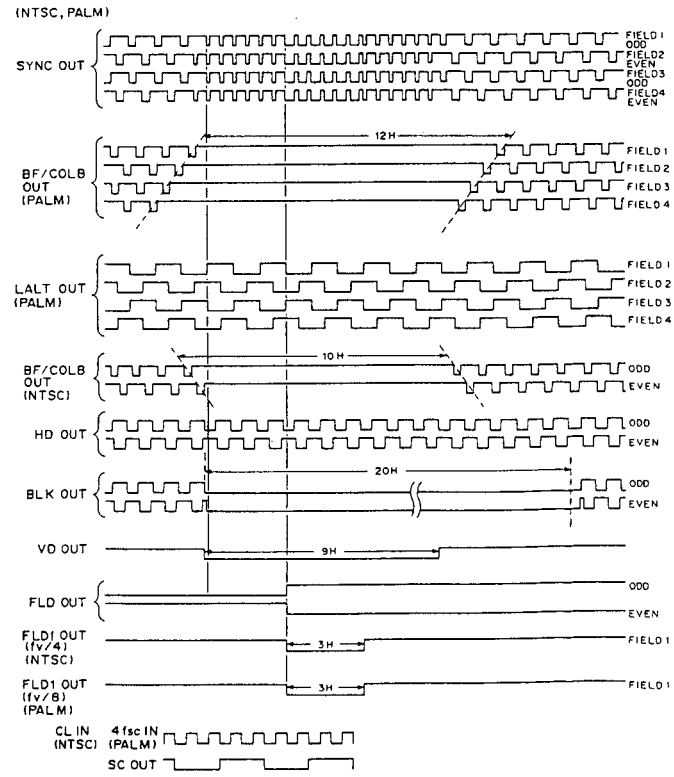
INPUT		SYSTEM
MODE1	MODE2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

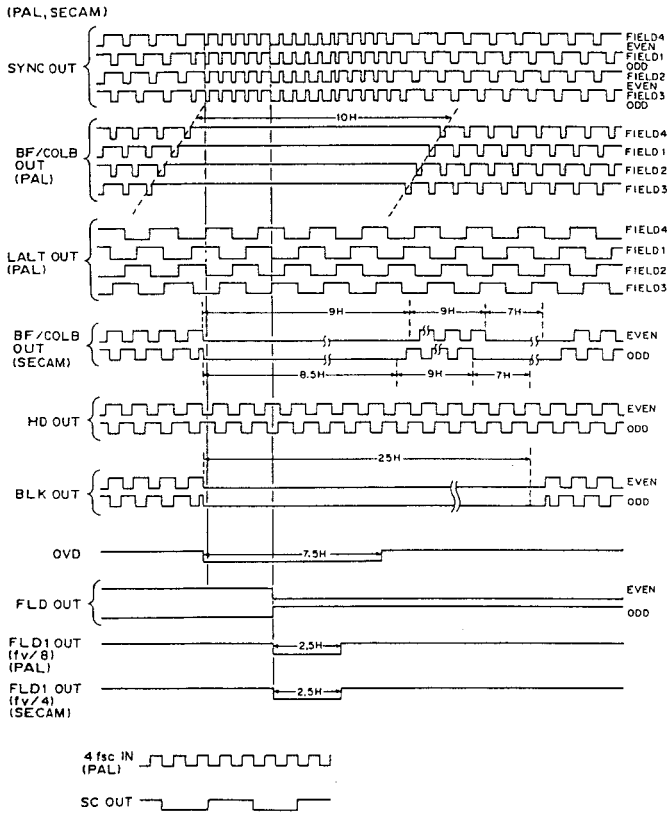
0 ; LOW LEVEL
1 ; HIGH LEVEL

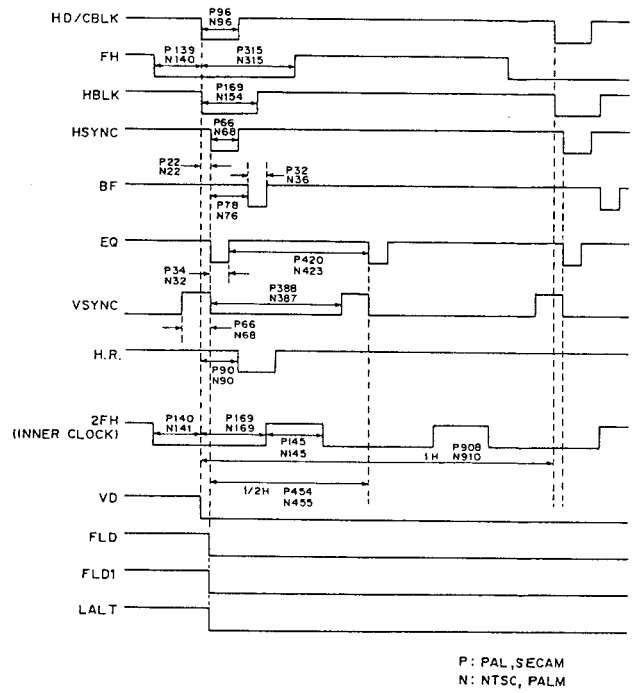
INPUT
4fsc IN ; 4fsc
CL IN ; CLOCK
EXT ; SYNC MODE SELECT
(L : INTERNAL/H : EXTERNAL)
HRI ; HORIZONTAL RESET
LALTRI ; LINE ALTERNATE RESET
MODE1,2 ; SYSTEM SELECT
VRI ; VERTICAL RESET

OUTPUT
4fsc OUT ; 4fsc
CL OUT ; CLOCK
HCOM ; PHASE COMPARATOR
O2FH ; 2fH
OBF/COLB ; BURST FLAG/COLOR BLANKING
OBLK ; COMPOSITE BLANKING
OFH ; fH
OFLD ; FIELD PULSE
OFLD1 ; FIELD1
OHD ; HORIZONTAL DRIVE
OLALT ; LINE ALTERNATE
OSC ; SUBCARRIER
OSYNC ; COMPOSITE SYNC
OVD ; VERTICAL DRIVE





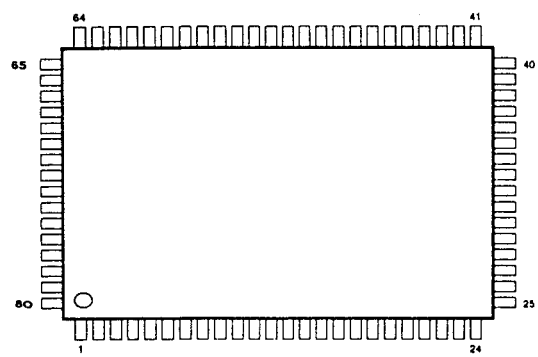


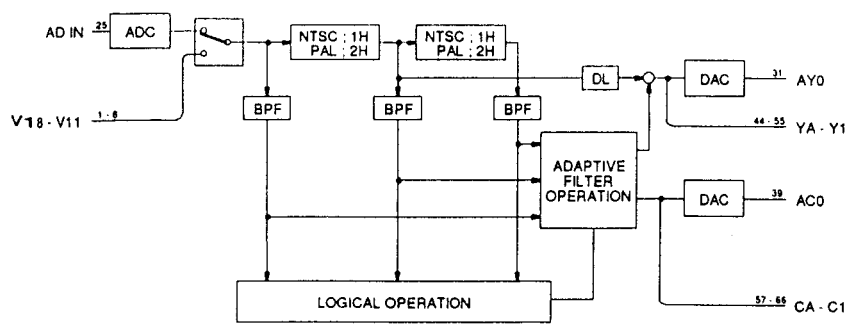


CXD2024Q (SONY)

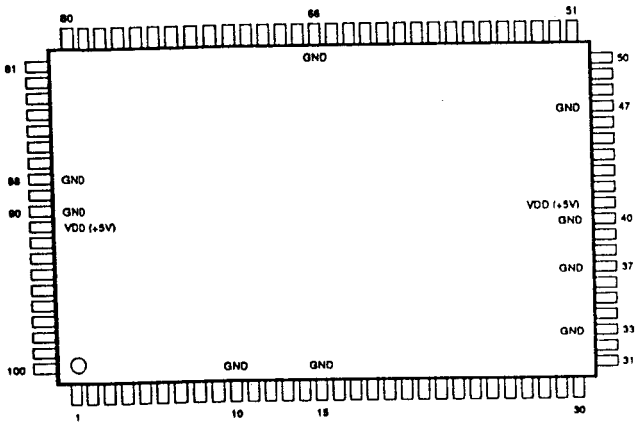
C-MOS DIGITAL COMB FILTER (NTSC/PAL)

— TOP VIEW —



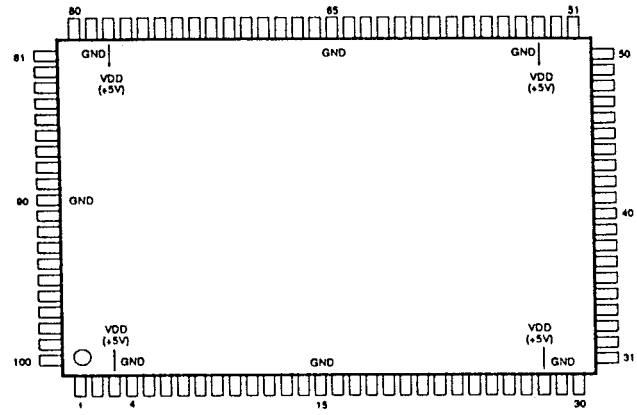


CXD8391Q (SONY)
C-MOS GATE ARRAY
— TOP VIEW —



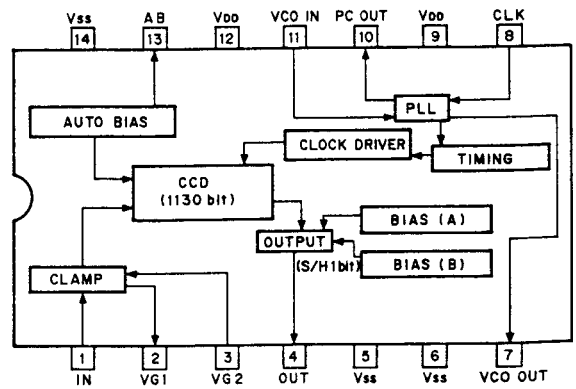
PIN No.	SIGNAL	PIN No.	SIGNAL	PIN No.	SIGNAL	PIN No.	SIGNAL
1	P47	26	P21	51	A20	76	D07
2	P46	27	P20	52	A19	77	D06
3	P45	28	P17	53	CS0	78	D05
4	P44	29	P16	54	CS1	79	D04
5	P43	30	P15	55	CS2	80	D03
6	P42	31	P14	56	A18	81	D02
7	P41	32	P13	57	A17	82	D01
8	P40	33	GND	58	A16	83	D00
9	WRP	34	RAS	59	A15	84	RES
10	GND	35	RC	60	A14	85	WR
11	P37	36	CAS	61	A13	86	DRQ2
12	P36	37	GND	62	A12	87	DRQ1
13	P35	38	DBRQ	63	A11	88	GND
14	P34	39	ABRQ	64	A10	89	CK
15	GND	40	GND	65	A09	90	GND
16	P33	41	VDD (+5V)	66	GND	91	VDD (+5V)
17	P32	42	PWR	67	A08	92	WRC
18	P31	43	BPWR	68	A07	93	P57
19	P30	44	P12	69	A06	94	P56
20	P27	45	P11	70	A05	95	P55
21	P26	46	P10	71	A04	96	P54
22	P25	47	GND	72	A03	97	P53
23	P24	48	A23	73	A02	98	P52
24	P23	49	A22	74	A01	99	P51
25	P22	50	A21	75	A00	100	P50

CXD8444Q (SONY)
C-MOS GATE ARRAY
— TOP VIEW —

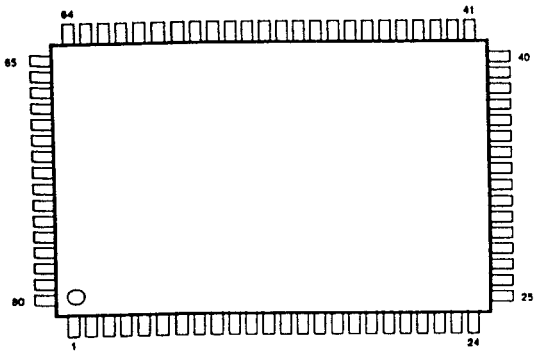


PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	TRIM	26	O	RO2	51	O	BO2	76	I	ADON
2	I	CAPEN	27	O	RO3	52	O	BO3	77	O	ADOE
3	-	VDD (+5V)	28	-	VDD (+5V)	53	-	VDD (+5V)	78	-	VDD (+5V)
4	-	VSS	29	-	VSS	54	-	VSS	79	-	VSS
5	I/O	DBUS7	30	O	RO4	55	O	BO4	80	I	CLR
6	I/O	DBUS6	31	O	RO5	56	O	BO5	81	-	N.C
7	I/O	DBUS5	32	O	RO6	57	O	BO6	82	I/O	GBUS6
8	I/O	DBUS4	33	O	RO7	58	O	BO7	83	I/O	GBUS7
9	I/O	DBUS3	34	I	Y3A	59	I/O	BBUS0	84	I/O	RBUS0
10	I/O	DBUS2	35	I	Y3B	60	I/O	BBUS1	85	I/O	RBUS1
11	I/O	DBUS1	36	O	GO0	61	I/O	BBUS2	86	I	BXW
12	I/O	DBUS0	37	O	GO1	62	I/O	BBUS3	87	I	CLKA
13	O	XWRPD	38	O	GO2	63	O	ACK	88	I	OE1
14	O	WRPD	39	O	GO3	64	O	SO	89	I	CLK
15	-	VSS	40	-	VSS	65	-	VSS	90	-	VSS
16	O	BLK	41	O	GO4	66	I/O	BBUS4	91	O	STDCLK
17	I	STD	42	O	GO5	67	I/O	BBUS5	92	I	OE2
18	I	CLKSEL	43	O	GO6	68	I/O	BBUS6	93	I	CLKB
19	I	DAON	44	O	GO7	69	I/O	BBUS7	94	I	OE3
20	I	WRP	45	I	SCK	70	I/O	GBUS0	95	I/O	RBUS2
21	I	COLA	46	I	VD	71	I/O	GBUS1	96	I/O	RBUS3
22	I	COLB	47	I	SI	72	I/O	GBUS2	97	I/O	RBUS4
23	I	POFF	48	I	CS	73	I/O	GBUS3	98	I/O	RBUS5
24	O	RO0	49	O	BO0	74	I/O	GBUS4	99	I/O	RBUS6
25	O	RO1	50	O	BO1	75	I/O	GBUS5	100	I/O	RBUS7

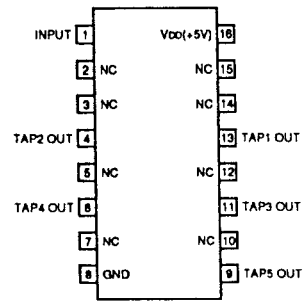
CXL5505M (SONY)
CMOS-CCD 1H DELAY LINE
— TOP VIEW —

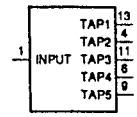


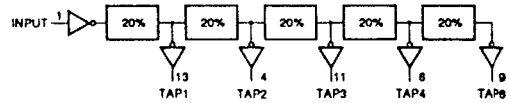
CXP80P116Q-1
CXP80P116Q-1-UP1800E
C-MOS 8-BIT MICRO PROCESSING UNIT
— TOP VIEW —



DS1000S-75 (DALLAS SEMICONDUCTOR)(DELAY TIME=75 nS)
C-MOS DELAY LINE
-TOP VIEW-

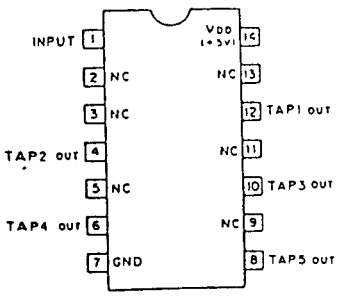


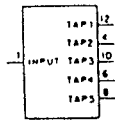


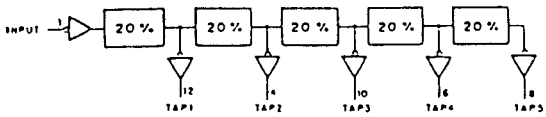


DELAY TIME (nS)				
TAP1	TAP2	TAP3	TAP4	TAP5
15	30	45	60	75

DS1000S-50 (DALLAS SEMICONDUCTOR)(DELAY TIME=50 nS)
C-MOS DELAY LINE
— TOP VIEW —

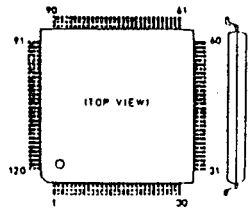






TYPE. NO.	DELAY TIME (ns)				
	TAP1	TAP2	TAP3	TAP4	TAP5
DS1000-50	10	20	30	40	50
DS1000-60	12	24	36	48	60
DS1000-75	15	30	45	60	75
DS1000-100	20	40	60	80	100
DS1000-125	25	50	75	100	125
DS1000-150	30	60	90	120	150
DS1000-175	35	70	105	140	175
DS1000-200	40	80	120	160	200
DS1000-250	50	100	150	200	250
DS1000-500	100	200	300	400	500

HDC443V2 (HITACHI)
— TOP VIEW —

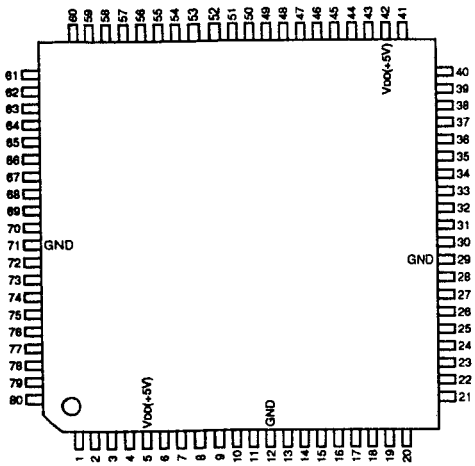


No.	I/O	Name	No.	I/O	Name	No.	I/O	Name	No.	I/O	Name
1	-	VDD	31	-	GND	61	-	VDD	91	-	GND
2	O	DTT0	32	O	DTE	62	I/O	DAA	92	I	WR
3	O	DTT1	33	I	DCK	63	I/O	DA9	93	I	DDD0
4	O	DTT2	34	I	TMGP	64	I/O	DA8	94	I	DDD1
5	O	DTT3	35	I	PRIN	65	O	CHOO	95	I	DDD2
6	O	DTT4	36	I	PRNS	66	O	AFOO	96	I	DDD3
7	O	DTT5	37	I	RESE	67	O	AAAB	97	I	DDD4
8	O	DTT6	38	I	LI7	68	O	ABBB	98	I	DDD5
9	O	DTT7	39	I	LI6	69	I	TSA	99	I	DDD6
10	O	DTT8	40	I	LI5	70	I	TSB	100	I	DDD7
11	O	DTT9	41	I	LI4	71	I	RWA	101	I	A0A
12	O	DTTA	42	I	LI3	72	I	RWB	102	I	A1A
13	I	TI07	43	I	LI2	73	I	RWC	103	I	A2A
14	O	TO04	44	I	LI1	74	I	LG	104	I	A3A
15	-	GND	45	I	LI0	75	-	GND	105	I	CS2
16	O	HDC	46	I/O	DA7	76	I/O	AD0	106	I	CS1
17	O	STOB	47	I/O	DA6	77	I/O	AD1	107	I	CS0
18	O	DATA	48	I/O	DA5	78	I/O	AD2	108	O	TO02
19	O	DATB	49	I/O	DA4	79	I/O	AD3	109	I	TI03
20	O	DRV	50	I/O	DA3	80	I/O	AD4	110	I	TI04
21	I	TI08	51	I/O	DA2	81	I/O	AD5	111	O	TO03
22	O	TO05	52	I/O	DA1	82	I/O	AD6	112	I	TI05
23	O	TO01	53	I/O	DA0	83	I/O	AD7	113	I	TI06
24	I	TI01	54	I/O	DAF	84	I/O	AD8	114	I	TSNR
25	I	TI02	55	I/O	DAE	85	I/O	AD9	115	I	TWEB
26	O	TO06	56	I/O	DAD	86	I/O	ADA	116	I	TTOE
27	I	TI10	57	I/O	DAC	87	O	OPTW	117	I	TTCS
28	I	TI11	58	I/O	DAB	88	O	OPTO	118	I	CLOK
29	I	TI09	59	I	IOEN	89	I	OLD	119	O	OSO
30	-	VDD	60	-	GND	90	-	VDD	120	-	GND

HD6475368F-FMY13-01 (HITACHI) FLAT PACKAGE

C-MOS MICRO COMPUTER UNIT

-TOP VIEW-



(VDD = +5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{W}$	21	I/O	P40/A0	41	I/O	P63/A19	61	I/O	P90/FTOA2
2	I/O	P22/$\overline{DS}$	22	I/O	P41/A1	42	—	VDD	62	I/O	P91/FTOA3
3	I/O	P23/$\overline{RD}$	23	I/O	P42/A2	43	I/O	P70/TMC1	63	I/O	P92/PW1
4	I/O	P24/$\overline{WR}$	24	I/O	P43/A3	44	I/O	P71/FTI1	64	I/O	P93/PW2
5	—	VDD	25	I/O	P44/A4	45	I/O	P72/FTI2	65	I/O	P94/PW3
6	I	MD0	26	I/O	P45/A5	46	I/O	P73/FTI3/TMRI	66	I/O	P95/TXD
7	I	MD1	27	I/O	P46/A6	47	I/O	P74/FTOB1/FTCI1	67	I/O	P96/RXD
8	I	MD2	28	I/O	P47/A7	48	I/O	P75/FTOB2/FTCI2	68	I/O	P97/SCK
9	I	$\overline{STBY}$	29	—	GND	49	I/O	P76/FTOB3/FTCI3	69	I	EXTAL
10	I	$\overline{RES}$	30	I/O	P50/A8	50	I/O	P77/FTOA1	70	I	XTAL
11	I	NMI	31	I/O	P51/A9	51	I	AGND	71	—	GND
12	—	GND	32	I/O	P52/A10	52	I	P80/AN0	72	I/O	P10/ϕ
13	I/O	P30/D0	33	I/O	P53/A11	53	I	P81/AN1	73	I/O	P11/E
14	I/O	P31/D1	34	I/O	P54/A12	54	I	P82/AN2	74	I/O	P12/$\overline{BACK}$
15	I/O	P32/D2	35	I/O	P55/A13	55	I	P83/AN3	75	I/O	P13/$\overline{BREQ}$
16	I/O	P33/D3	36	I/O	P56/A14	56	I	P84/AN4	76	I/O	P14/$\overline{WAIT}$
17	I/O	P34/D4	37	I/O	P57/A15	57	I	P85/AN5	77	I/O	P15/$\overline{IRQ0}$
18	I/O	P35/D5	38	I/O	P60/A16	58	I	P86/AN6	78	I/O	P16/$\overline{IRQ1}$
19	I/O	P36/D6	39	I/O	P61/A17	59	I	P87/AN7	79	I/O	P17/TMO
20	I/O	P37/D7	40	I/O	P62/A18	60	I	AVDD	80	I/O	P20/$\overline{AS}$

INPUT

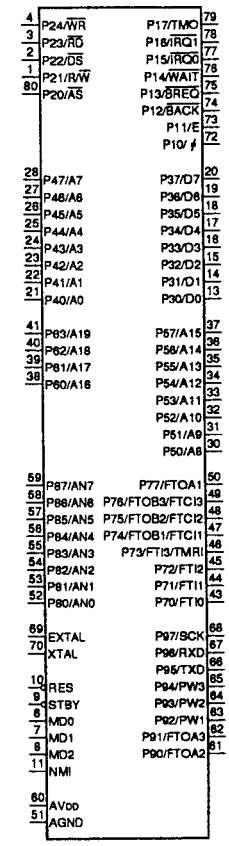
AGND	;	GND FOR A/D CONVERTER
AN0-AN7	;	ANALOG
AVDD	;	REFERENCE VOLTAGE FOR A/D CONVERTER
$\overline{BREQ}$	;	BAS REQUEST
EXTAL	;	CRYSTAL OSCILLATOR & EXTERNAL CLOCK (ϕ CLOCK x 2)
FTCI1-FTCI3	;	FRT COUNTER CLOCK
FTI1-FTI3	;	FRT INPUT CAPTURE
$\overline{IRQ0}$,$\overline{IRQ1}$	;	INTERRUPT REQUEST
MD0-MD2	;	MODE SETTING
NMI	;	NON-MASKABLE INTERRUPT
P80-P87	;	PORT 8
$\overline{RES}$	;	RESET
RXD	;	RECEIVE DATA
$\overline{STBY}$	;	STANDBY
TMCI	;	8-BIT TIMER CLOCK
TMRI	;	8-BIT TIMER COUNTER RESET
$\overline{WAIT}$	;	WAIT
XTAL	;	CRYSTAL OSCILLATOR (ϕ CLOCK x 2)

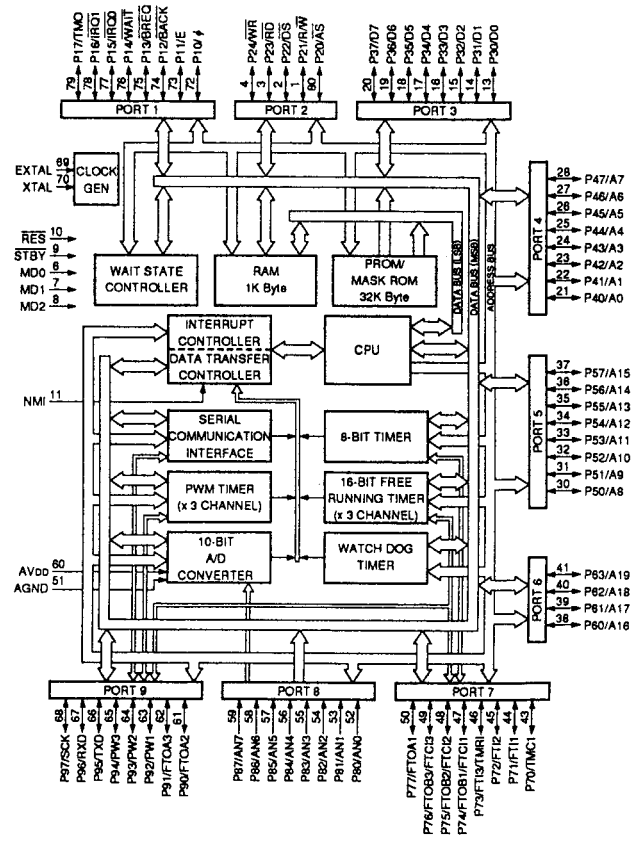
OUTPUT

ϕ	;	SYSTEM CLOCK
A0-A19	;	ADDRESS BUS
$\overline{AS}$	;	ADDRESS STROBE
$\overline{BACK}$	;	BAS REQUEST ACKNOWLEDGE
$\overline{DS}$	;	DATA STROBE
E	;	ENABLE CLOCK
FTOA1-FTOA3	;	FRT OUTPUT COMPEA A
FTOB1-FTOB3	;	FRT OUTPUT COMPEA B
PW1-PW3	;	PWM TIME
$\overline{RD}$	;	READ
R/$\overline{W}$	;	READ/$\overline{WRITE}$
TMO	;	8-BIT TIMER
TXD	;	TRANSCEIVE DATA
$\overline{WR}$	;	WRITE

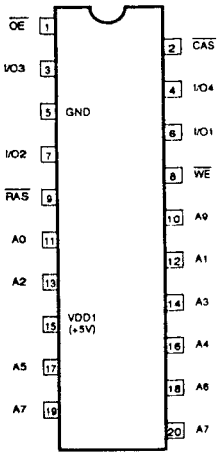
INPUT/OUTPUT

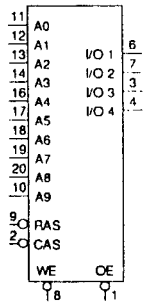
D0-D7	;	DATA BUS
P10-P17	;	PORT 1
P20-P24	;	PORT 2
P30-P37	;	PORT 3
P40-P47	;	PORT 4
P50-P57	;	PORT 5
P60-P63	;	PORT 6
P70-P77	;	PORT 7
P90-P97	;	PORT 9
SCK	;	SERIAL CLOCK



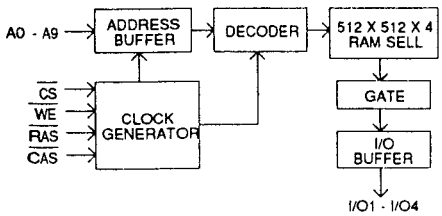


HM514400AS7GS-EL (HITACHI)
C-MOS 4 BIT DYNAMIC RAM
— TOP VIEW —

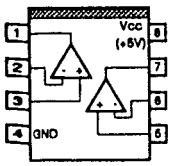




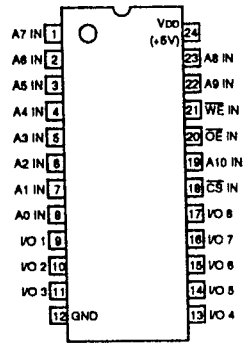
A0 - A9 ; ADDRESS INPUT
CAS ; COLUMN ADDRESS STROBE
I/O 1 - I/O 4 ; DATA INPUT/OUTPUT
RAS ; ROW ADDRES STROBE
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

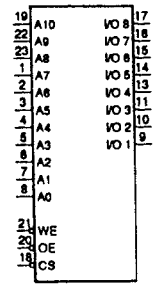


LM358D (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIERS
-TOP VIEW-



IDT6116SA25S0 (IDT) FLAT PACKAGE
C-MOS 16K (2K x 8) · BIT STATIC RAM
-TOP VIEW-

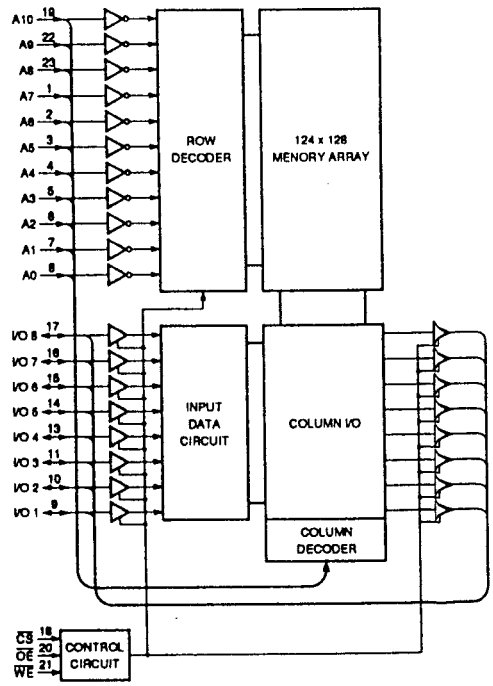




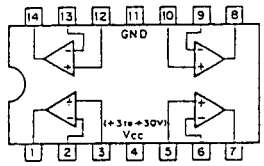
A0-A10 ; ADDRESS INPUTS
CS ; CHIP SELECT INPUT
I/O1-I/O8 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

MODE	CS	OE	WE	I/O
STANDBY	1	X	X	HI-Z
READ	0	0	1	DATA OUT
READ	0	1	1	HI-Z
WRITE	0	X	0	DATA IN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

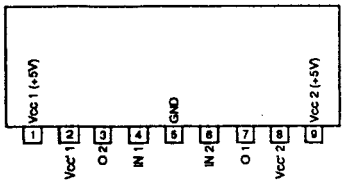


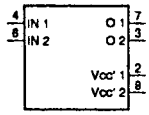
LM324D (TI)
QUAD OPERATIOAL AMPLIFIERS
- TOP VIEW - LM324



M54544AL (MITSUBISHI)

BI-DIRECTIONAL MOTOR DRIVER WITH THERMAL SHUT DOWN FUNOTION
-PRINTED SIDE VIEW-

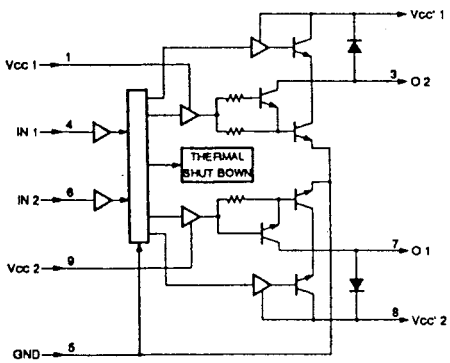




Vcc' 1,Vcc' 2 ; POWER SOURCE OUTPUT

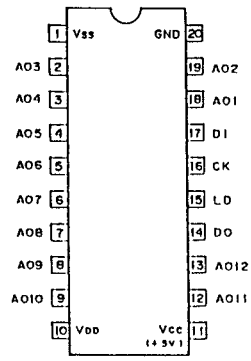
INPUT		OUTPUT		FUNCTION
IN 1	IN 2	O 1	O 2	
0	0	"OFF" STATE	"OFF" STATE	IC PASSIVITY
1	0	1	0	POSITIVE ROTATING
0	1	0	1	NEGATIVE ROTATING
1	1	0	0	BRAKE

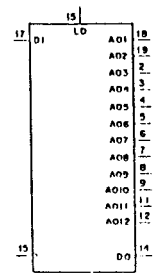
0 ; LOW LEVEL
1 ; HIGH LEVEL



M62352GP (MITSUBISHI) FLAT PACKAGE

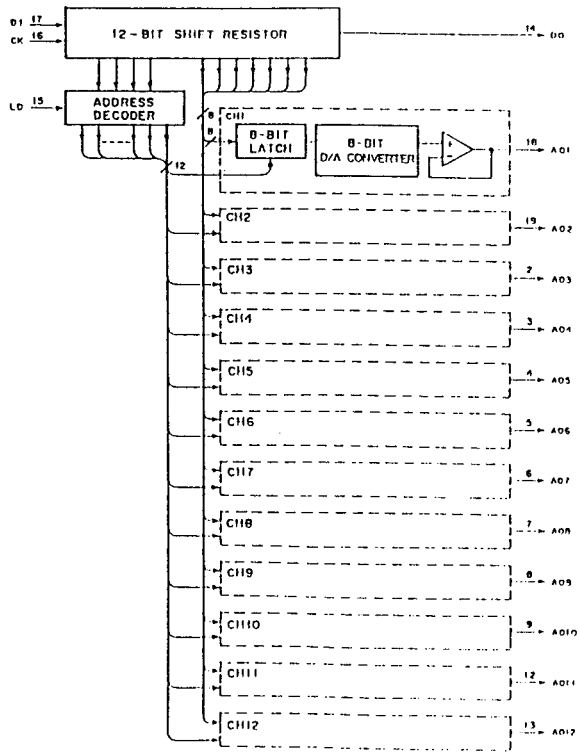
C-MOS 8-BITx12 CHANNEL D/A CONVERTER
(WITH BUFFER OPERATIONAL AMPLIFIER)
- TOP VIEW -





A01 - A012 ; 8 BIT D/A OUTPUT
CK ; CLOCK INPUT
DI ; SERIAL DATA INPUT
DO ; DATA OUTPUT

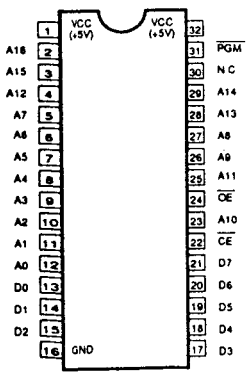
NOTE :
3.5V < Vdd < Vcc
- 3.5V < Vss < Vcc

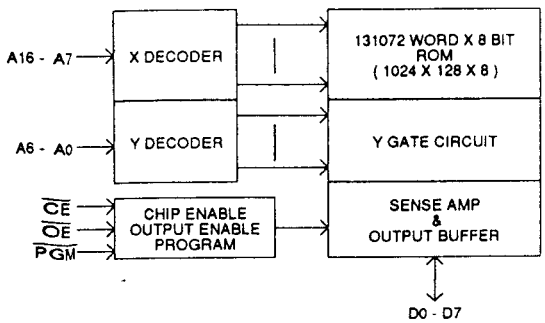


M5M27C101FP-UP12G-E2
M5M27C101FP-UP12M-E2
M5M27C101FP-UP12S-E2

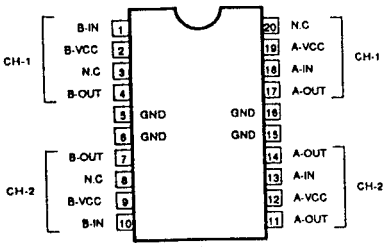
C-MOS ONE TIME PROGRAMMABLE ROM

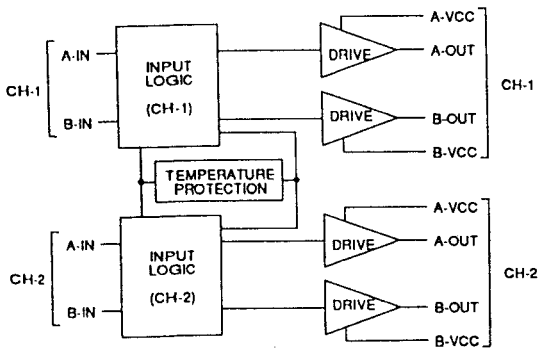
— TOP VIEW —



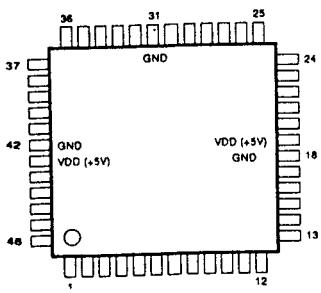


MB3863PF-G-BND
DUAL MODE MOTOR DRIVER
— TOP VIEW —



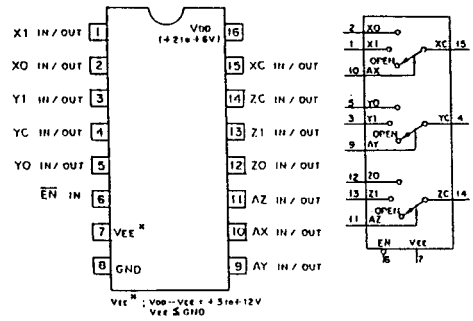


MB621948
C-MOS GATE ARRAY
— TOP VIEW —



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	CBLANK	13	I	SYNC2	25	O	HPWO	37	I	NANDI2
2	I	HD	14	I	SYDL0	26	O	HPWON	38	O	NANDO
3	I	VD	15	I	SYDL1	27	O	WIN	39	I	VDSEL
4	I	SYNC1	16	I	SYDL2	28	O	WINN	40	I	INTVD
5	I	CLK	17	I	SYDL3	29	O	CP	41	I	EXTVD
6	-	GND	18	-	GND	30	O	CPON	42	-	GND
7	I	NTSCPAL	19	-	VDD (+5V)	31	-	GND	43	-	VDD (+5V)
8	I	RESET	20	I	BLDL0	32	O	DLBLKO	44	O	VSELOUT
9	I	HPPD0	21	I	BLDL1	33	O	DLBLON	45	I	DLSEL0
10	I	HPPD1	22	I	BLDL2	34	O	DLSYO	46	I	DLSEL1
11	I	HPPD2	23	I	BLDL3	35	O	DLSYON	47	I	THDL
12	I	HPPD3	24	I	TEST	36	I	NANDI1	48	I	TESTHPWO

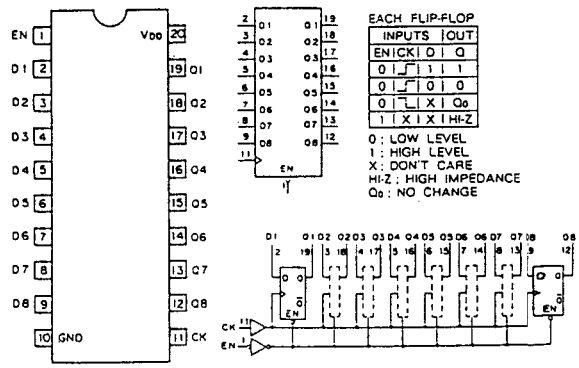
MC74HC4053F (MOTOROLA) FLAT PACKAGE
CMOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
- TOP VIEW -



0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

MC74HC574AF (MOTOROLA) FLAT PACKAGE
- TOP VIEW -



EACH FLIP-FLOP

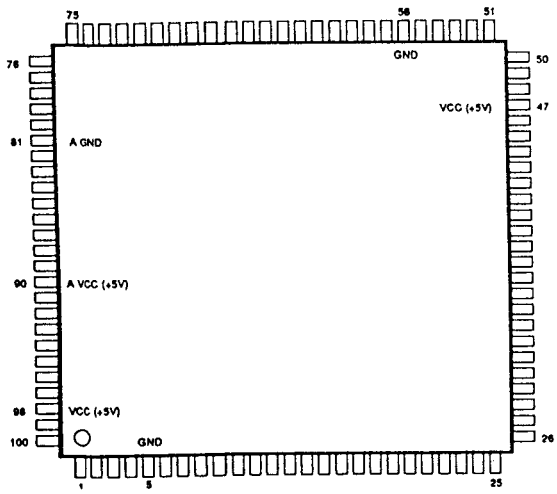
INPUTS			OUT
EN	CK	D	Q
0	↑	1	1
0	↑	0	0
0	↓	X	Q0
1	X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
Q0 ; NO CHANGE

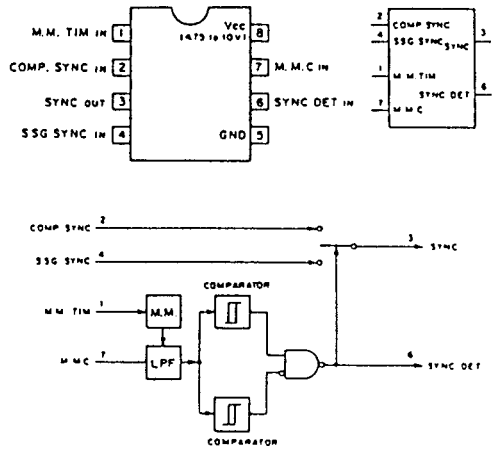
NOTE :

TYPE	Vcc
74AC/74HC	+2 to +6V
74ACT/74FCT /74HCT	+5V
TC74ACS74F TC74VHCS74	+2 to +5.5V

MB89093PFV-G-125-BND
C-MOS 8 BIT MICROCOMPUTER
— TOP VIEW —

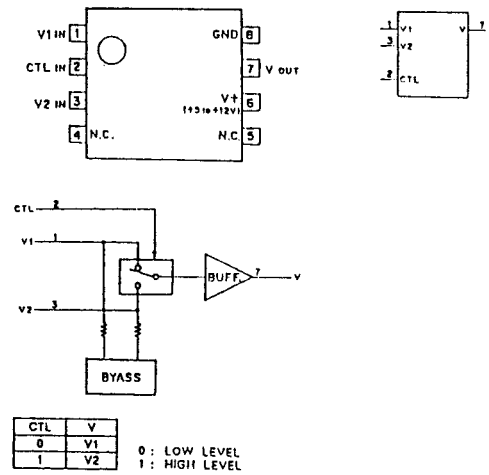


NJM2230M (JRC) FLAT PACKAGE
VIDEO SIGNAL DETECTOR
— TOP VIEW —



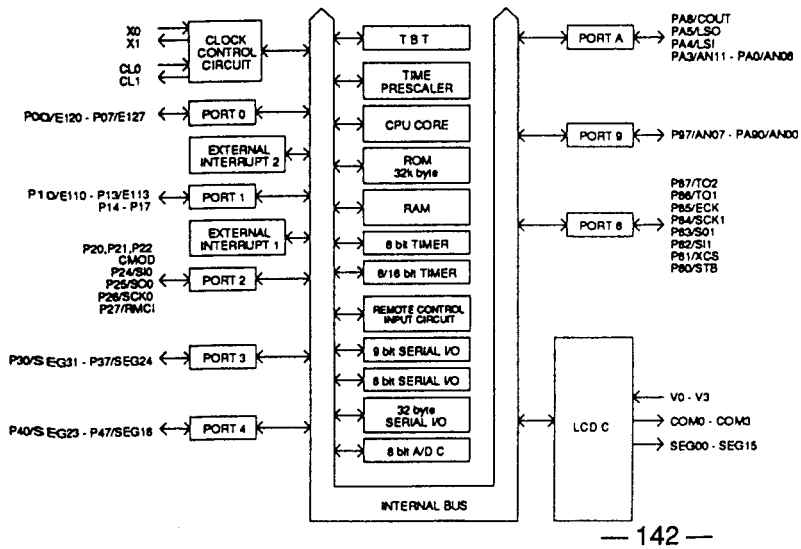
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	MOD0	26	I/O	CMOD	51	O	SEG12	76	I/O	P83/SO1
2	I	MOD1	27	I/O	P24/SI0	52	O	SEG11	77	I/O	P84/SCK1
3	I	X0	28	I/O	P25/SO0	53	O	SEG10	78	I/O	P85/ECK
4	O	X1	29	I/O	P26/SCK0	54	O	SEG09	79	I/O	P86/T01
5	-	VSS	30	I/O	P27/RMCI	55	O	SEG08	80	I/O	P87/T02
6	I	XRST	31	I/O	P30/SEG31	56	-	VSS	81	-	A VSS
7	I/O	P00/E120	32	I/O	P31/SEG30	57	O	SEG07	82	I/O	P90/AN00
8	I/O	P01/E121	33	I/O	P32/SEG29	58	O	SEG06	83	I/O	P91/AN01
9	I/O	P02/E122	34	I/O	P33/SEG28	59	O	SEG05	84	I/O	P92/AN02
10	I/O	P03/E123	35	I/O	P34/SEG27	60	O	SEG04	85	I/O	P93/AN03
11	I/O	P04/E124	36	I/O	P35/SEG26	61	O	SEG03	86	I/O	P94/AN04
12	I/O	P05/E125	37	I/O	P36/SEG25	62	O	SEG02	87	I/O	P95/AN05
13	I/O	P06/E126	38	I/O	P37/SEG24	63	O	SEG01	88	I/O	P96/AN06
14	I/O	P07/E127	39	I/O	P40/SEG23	64	O	SEG00	89	I/O	P97/AN07
15	I/O	P10/E110	40	I/O	P41/SEG22	65	I	V3	90	-	VCC (+5V)
16	I/O	P11/E111	41	I/O	P42/SEG21	66	I	V2	91	I/O	PA0/AN08
17	I/O	P12/E112	42	I/O	P43/SEG20	67	I	V1	92	I/O	PA1/AN09
18	I/O	P13/E113	43	I/O	P44/SEG19	68	I	V0	93	I/O	PA2/AN10
19	I/O	P14	44	I/O	P45/SEG18	69	O	COM0	94	I/O	PA3/AN11
20	I/O	P15	45	I/O	P46/SEG17	70	O	COM1	95	I/O	PA4/LSI
21	I/O	P16	46	I/O	P47/SEG16	71	O	COM2	96	I/O	PA5/LSO
22	I/O	P17	47	-	VCC (+5V)	72	O	COM3	97	I/O	PA6/COUT
23	I/O	P20	48	O	SEG15	73	I/O	P80/STB	98	-	VCC (+5V)
24	I/O	P21	49	O	SEG14	74	I/O	P81/XCS	99	O	CL1
25	I/O	P22	50	O	SEG13	75	I/O	P82/SI1	100	I	CL0

NJM2233BM (JRC) FLAT PACKAGE
2-INPUT SIGNAL VIDEO SWITCH
— TOP VIEW —



CTL	V
0	V1
1	V2

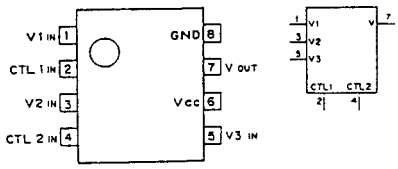
0 : LOW LEVEL
1 : HIGH LEVEL

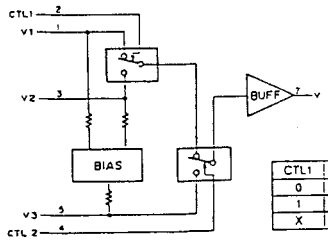


NJM2234M (JRC) FLAT PACKAGE

3-INPUT VIDEO SIGNAL SWITCH

– TOP VIEW –





CTL1	CTL2	V
0	0	V1
1	0	V2
X	1	V3

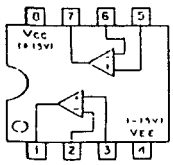
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

TYPE	GAIN	Vcc
NJM2234M	0 dB	+5 to +12V
NJM2245M	+6 dB	+8.5 to +13V

NJM4560M (JRC) FLAT PACKAGE

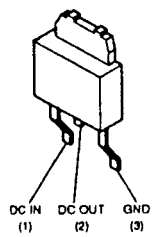
DUAL OPERATIONAL AMPLIFIER

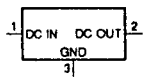
– TOP VIEW –



PQ05SZ1U (SHARP)

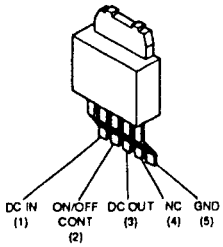
SERIES REGURATOR

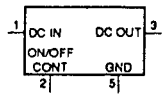




PQ05TZ1U (SHARP)

SERIES REGURATOR

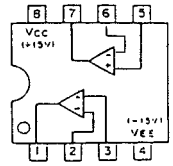




RC4558PS (TI) FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIER

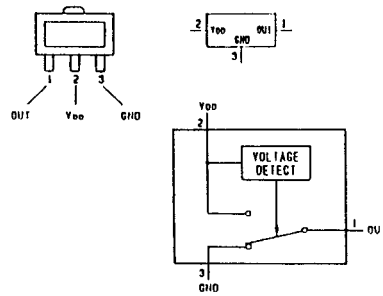
– TOP VIEW –



S-8054ALB-LM-S (SEKIO I AND E) 4.00-4.30V

C-MOS VOLTAGE DETECTOR

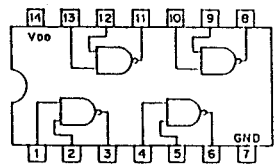
– TOP VIEW –

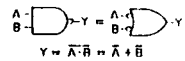


SN74HC00ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATE

– TOP VIEW –





$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 : LOW LEVEL
1 : HIGH LEVEL

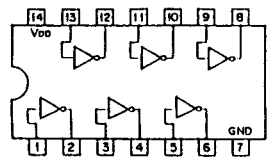
NOTE :

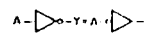
TYPE	Vdd
TC74AC00P TC74AC00F	+2 to +5.5V
MC74HCT00N 74ACT00PC	+5V
OTHER TYPES	+2 to +6V

SN74HC04ANS (TI) FLAT PACKAGE

C-MOS HEX INVERTERS

– TOP VIEW –





$Y = \overline{A}$

A	Y
0	1
1	0

0 : LOW LEVEL
1 : HIGH LEVEL

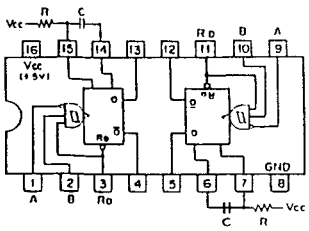
NOTE :

TYPE	Vdd
74HCT04 TYPE	+5V
74VHC TC74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74LS221NS (TI) FLAT PACKAGE

TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT

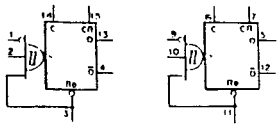
— TOP VIEW —



INPUTS			OUTPUTS	
RD	A	B	Q	$\bar{Q}$
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	↑	↓
1	1	↑	↑	↓
1	0	1	↑	↓

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

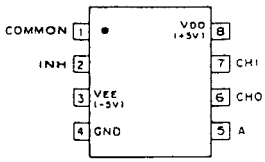
OUTPUT PULSE WIDTH = 0.7CR

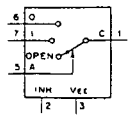


TC4W53F (TOSHIBA) FLAT PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER

- TOP VIEW -





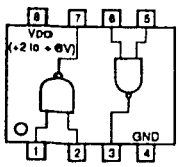
CONT. INPUT		ON CHANNEL
INH.	A	
0	0	0
0	1	1
1	X	OPEN

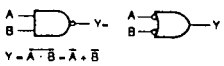
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

TC7W00F (TOSHIBA) FLAT PACKAGE

C-MOS DUAL 2-INPUT NAND GATE

-TOP VIEW-





$Y = \overline{A \cdot B} = \bar{A} + \bar{B}$

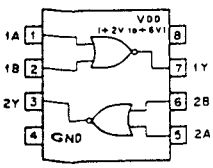
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

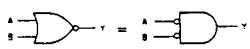
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W02F (TOSHIBA) FLAT PACKAGE

C-MOS DUAL 2-INPUT NOR GATE

- TOP VIEW -





$Y = \overline{A + B} = \bar{A} \cdot \bar{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

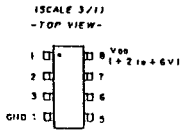
0 ; LOW LEVEL
1 ; HIGH LEVEL

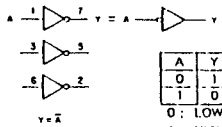
TC7WU04F (TOSHIBA) CHIP PACKAGE

C-MOS HEX INVERTERS

(SCALE 3/1)

-TOP VIEW-





A	Y
0	1
1	0

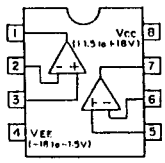
0 ; LOW LEVEL
1 ; HIGH LEVEL

TL082CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER

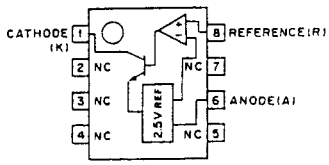
(JFET INPUT)

- TOP VIEW -



TL431CM (TI) FLAT PACKAGE

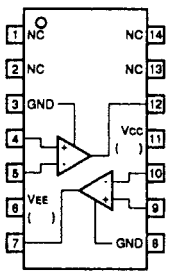
PROGRAMMABLE SHUNT REGULATOR DIODE



UPC319G2 (NEC) FLAT PACKAGE

DUAL VOLTAGE COMPARATOR

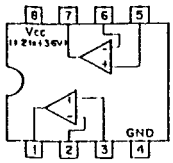
-TOP VIEW-



UPC393G2 (NEC) FLAT PACKAGE

DUAL VOLTAGE COMPARATORS

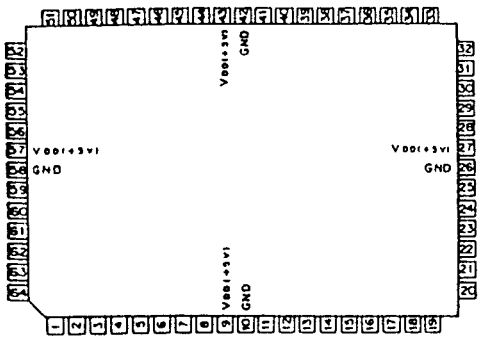
– TOP VIEW –



UPD65006GF-250-3B8 (NEC)

C-MOS

— TOP VIEW —

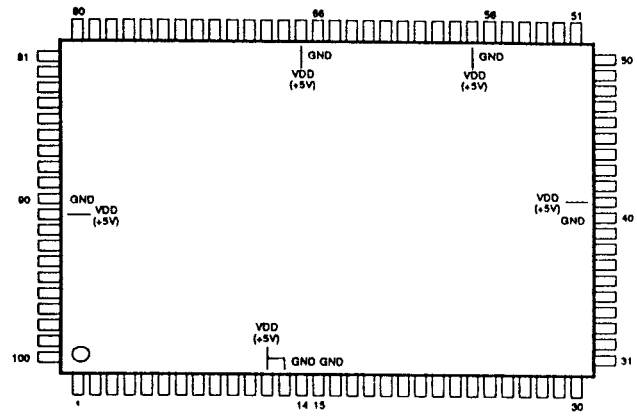


PIN NO	PIN NAME	PIN NO.	PIN NAME	PIN NO.	PIN NAME	PIN NO.	PIN NAME
1		17	P8	33		49	INT VD
2		18	P9	34		50	
3	MENU HOL	19	P10	35	HOL7	51	
4	SWD HOL	20	CAS1	36	HOL6	52	INT HD
5	SWD VD	21	CAS2	37	HOL5	53	INT SYNC
6	VBLK	22	CUP	38	HOL4	54	SWD HD
7	P0	23	VBLK	39	HOL3	55	MENU SYNC
8	P1	24	$\overline{AEN}$	40	HOL2	56	SYS DET
9	VDD	25	IN/M	41	HOL1	57	VDD
10	GND	26	GND	42	GND	58	GND
11	P2	27	VDD	43	VDD	59	HD
12	P3	28	HD RET	44	D/A CK	60	SYNC
13	P4	29	HD OUT	45	$\overline{RAS}$	61	VD
14	P5	30	RES	46	CK	62	$\overline{SYNC}$ / $\overline{CUT}$
15	P6	31	HOL9	47	EXT D/A	63	SP0/SP4
16	P7	32	HOL8	48	INT D/A	64	IN/MENU

UPD65013GF-407-3BA

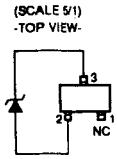
C-MOS GATE ARRAY

— TOP VIEW —



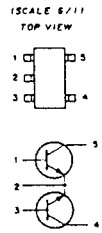
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1		CS1O	26		CAS2	51		A0	76		G2BE
2		CS0O	27		CAS1	52		A1	77		G1AE
3		MFY3	28		CAS0	53		A2	78		G1BE
4		MY3	29		RAS9	54		A3	79		G1AW
5		MY2	30		RAS8	55		A4	80		G1BW
6		MY1	31		RAS7	56		GND	81		R2AW
7		MY0	32		RAS6	57		VDD (+5V)	82		R2BW
8		Y3	33		RAS5	58		A5	83		R2AE
9		Y2	34		RAS4	59		A6	84		R2BE
10		Y1	35		RAS3	60		A7	85		R1AE
11		Y0	36		RAS2	61		A8	86		R1BE
12		VDD (+5V)	37		RAS1	62		A9	87		R1AW
13		VDD (+5V)	38		RAS0	63		B2BW	88		R1BW
14		GND	39		CAS5	64		B2AE	89		INMB
15		GND	40		GND	65		B2AW	90		GND
16		CS2B	41		VDD (+5V)	66		GND	91		VDD (+5V)
17		CRB	42		CAS6	67		VDD (+5V)	92		AEN
18		CS1B	43		CAS7	68		B2BE	93		HBL
19		BCBB	44		CAS8	69		B1AE	94		VBL
20		BCGB	45		ABRB	70		B1BE	95		CUP
21		BCRB	46		CAS9	71		B1AW	96		CRY
22		MBRW	47		CS0	72		B1BW	97		CS4
23		FTHB	48		CS1	73		G2AW	98		CS4O
24		CAS4	49		CS2	74		G2BW	99		CS3O
25		CAS3	50		CS3	75		G2AE	100		CS2O

02CZ2.0



1T33C-01

2SC4207



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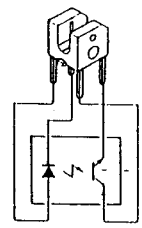
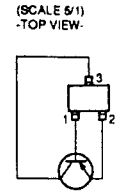
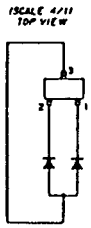


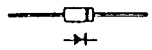
MAS1586



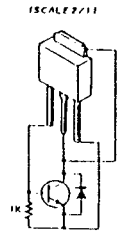
1S2836



10E-2



2SD992



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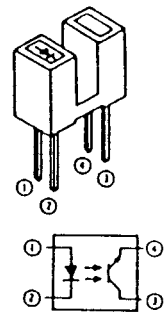
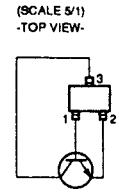
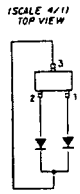


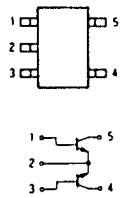
MSC4116



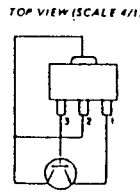
1S2837
1SS302
MA152WK



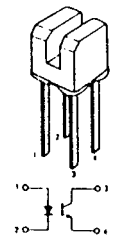
2SA1618



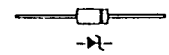
2SD999-CLCK



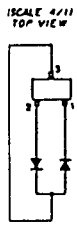
GP2S40K



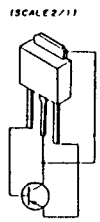
RD9.1EW



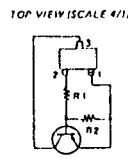
1SS226



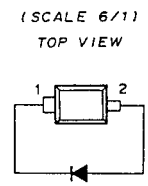
2SB962



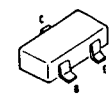
DTA114EK



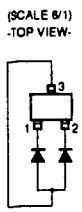
MA728



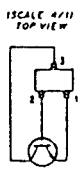
RN1302-TE85L



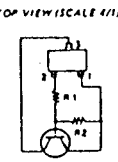
1SS300



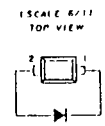
2SC1623



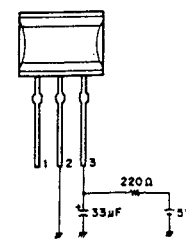
DTC114EK
DTC124EK
DTC144EK



MA8027-L

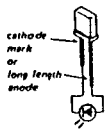


SBX8015-H

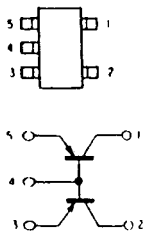


1 : Rout
2 : GND
3 : Vcc

SLP-255B

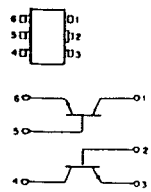


XN2401

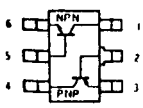


XN4501

(SCALE 6/1)
TOP VIEW



XN4601

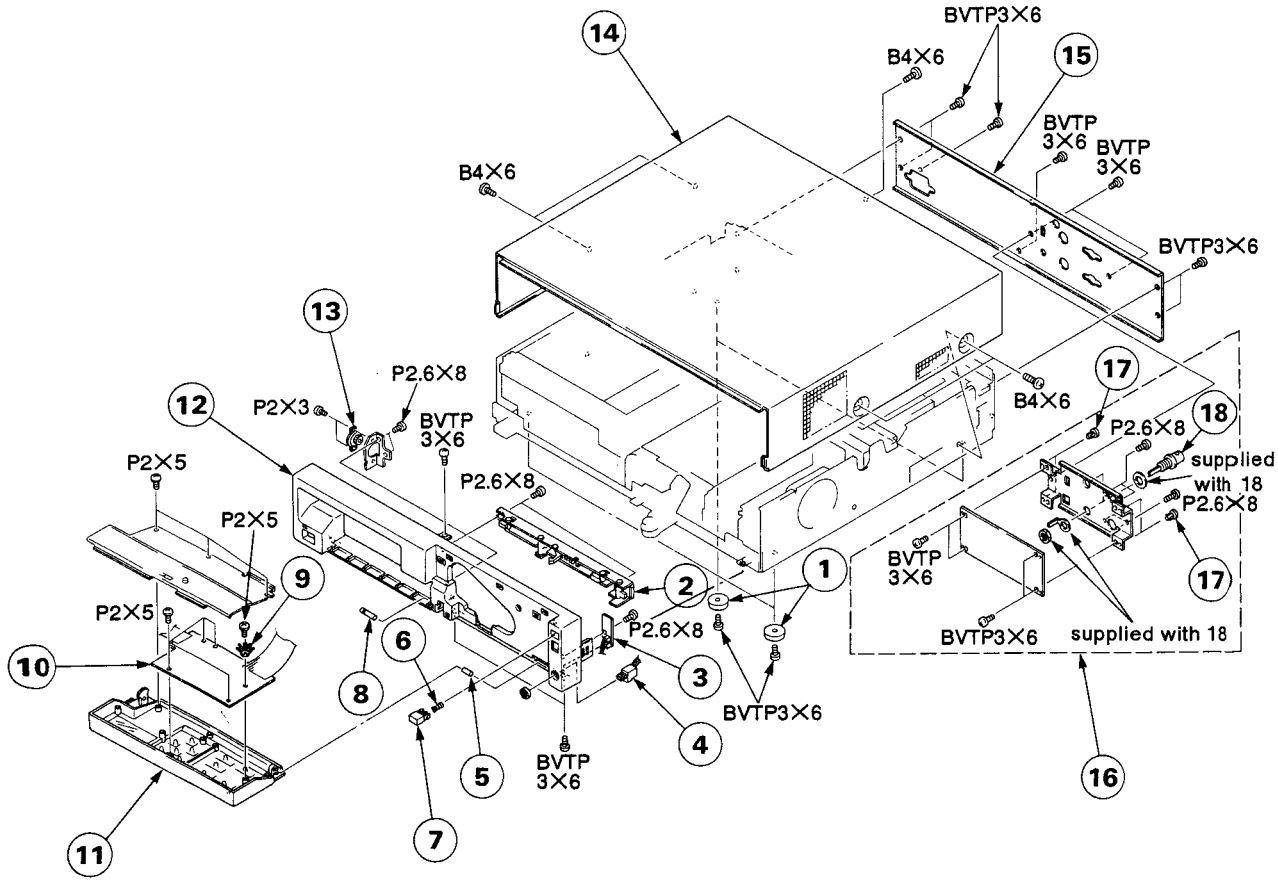


SECTION 5
EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " * " are not stocked because they are seldom required for routine servicing.Some delay should be expected when ordering these items.

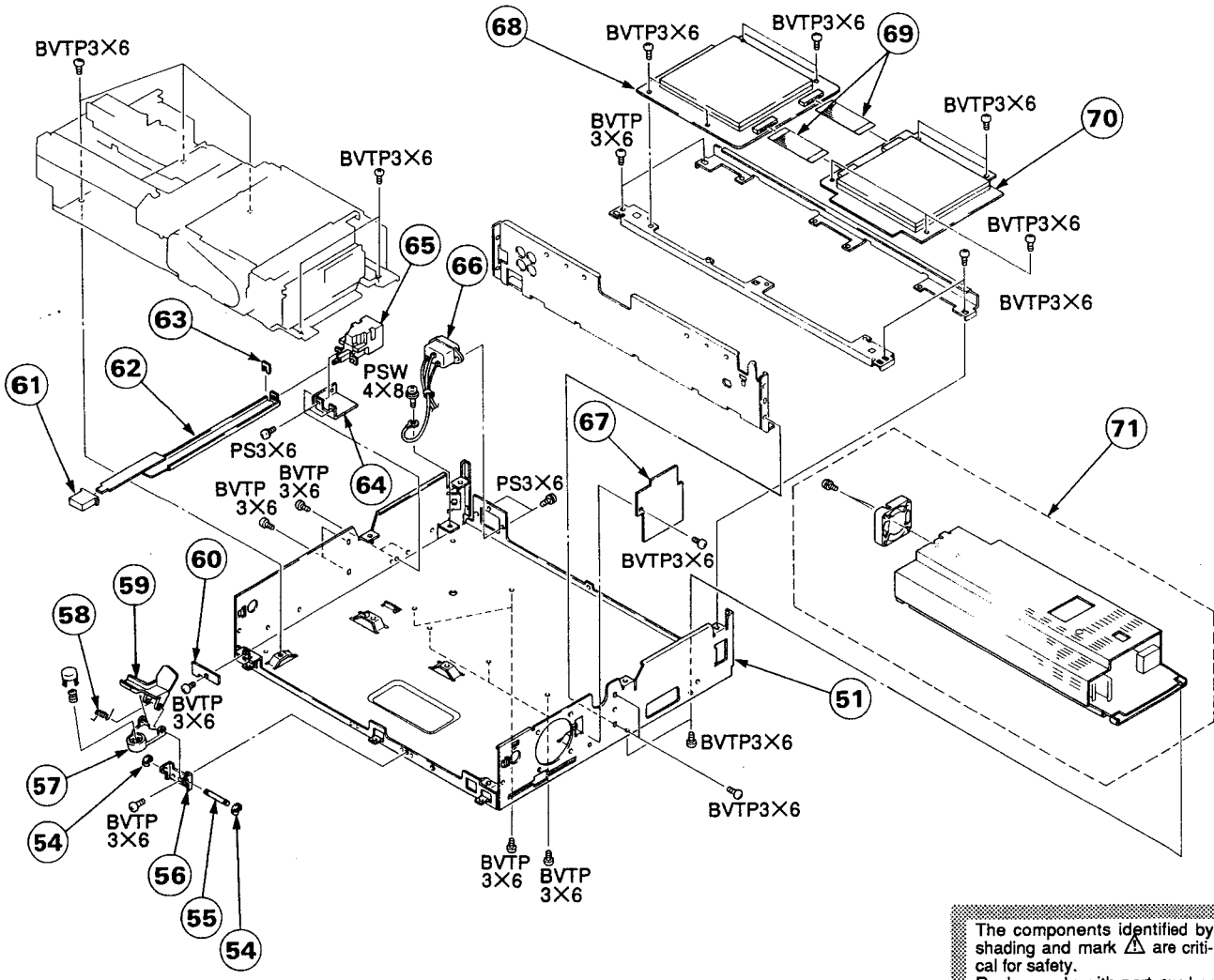
The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET ASSEMBLY



Ref. No	Part No.	Description	Remark
1	X-4816-109-1	FOOT ASSY, MINI	
2	A-8267-875-C	CLOSE ASSY, DOOR OPEN	
3	*A-8275-451-A	PTC-27 BOARD, COMPLETE	
4	1-507-195-21	SPECIAL REMOTE CONTROL JACK	
5	3-183-189-01	SHAFT (R), DOOR FULCRUM	
6	3-183-581-02	SPRING, COMPRESSION COIL	
7	3-183-186-03	BUTTON, OPEN	
8	3-183-188-01	SHAFT (L), DOOR FULCRUM	
9	3-183-656-01	SPRING (KY), PLATE	
10	1-692-855-21	KEYBOARD, FFC WITH	
11	X-3167-408-1	PANEL SUB ASSY, DOOR	
12	X-3167-373-2	PANEL SUB ASSY, FRONT	
13	3-712-786-21	DUMPER, OIL	
14	*3-183-254-01	COVER, TOP	
15	*3-183-247-11	PANEL, REAR (VIDEO)	
16	*A-8275-446-A	IF-27 BOARD, COMPLETE	
17	3-531-576-11	RIVET, NYLON	
18	1-562-261-41	CONNECTOR, COAXIAL (BNC)	

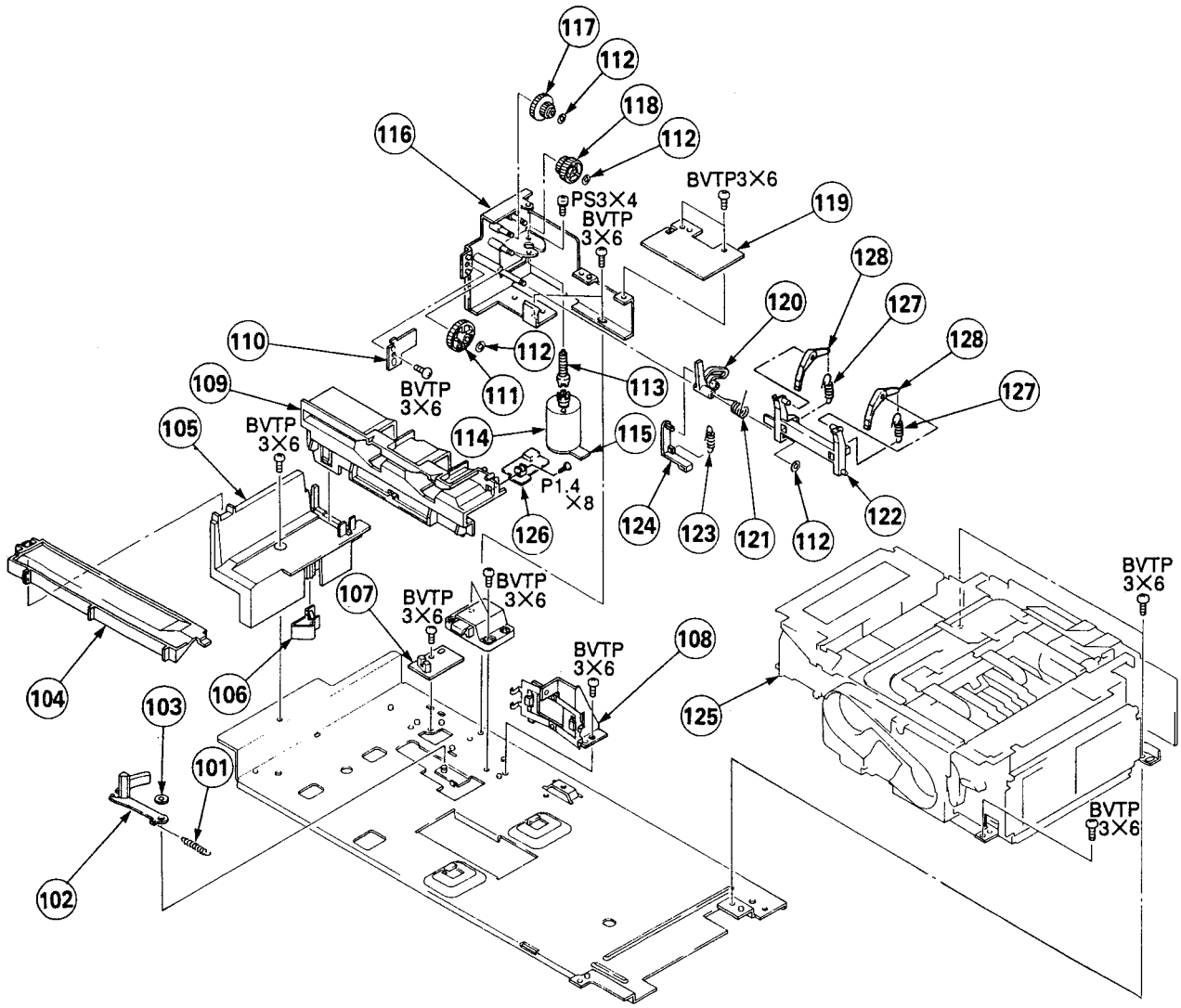
5-2. CHASSIS ASSEMBLY(1)



The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark
51	*3-183-255-01	CHASSIS	
54	4-926-219-02	RING (DIA.2.3), RETAINING	
55	3-183-200-01	SHAFT, RIBBON PUSH	
56	3-183-187-01	PLATE, FULCRUM	
57	3-183-239-01	PLATE PUSH RIBBON	
58	3-183-183-02	SPRING, TORSION	
59	3-183-238-01	DISCHARGE PLATE, RIBBON	
60	*A-8275-437-A	S-25 BOARD, COMPLETE	
61	2-431-568-31	BUTTON, POWER	
62	*3-183-226-01	ROD, SWITCH	
63	3-725-616-01	STOPPER, ROD	
64	*3-183-178-01	BRACKET, SWITCH	
65	⚠1-554-880-11	SWITCH, PUSH (AC POWER)(1 KEY)	
66	⚠1-580-375-11	INLET 3P	
67	*A-8275-438-A	KY-15 BOARD, COMPLETE	
68	*A-8275-599-A	FMY-13P BOARD, COMPLETE	
69	1-751-235-11	CABLE, FLAT (FVM-2)	
70	*A-8275-600-A	VA-76(B) BOARD, COMPLETE	
71	⚠*1-413-946-11	SWITCHING REGULATOR	

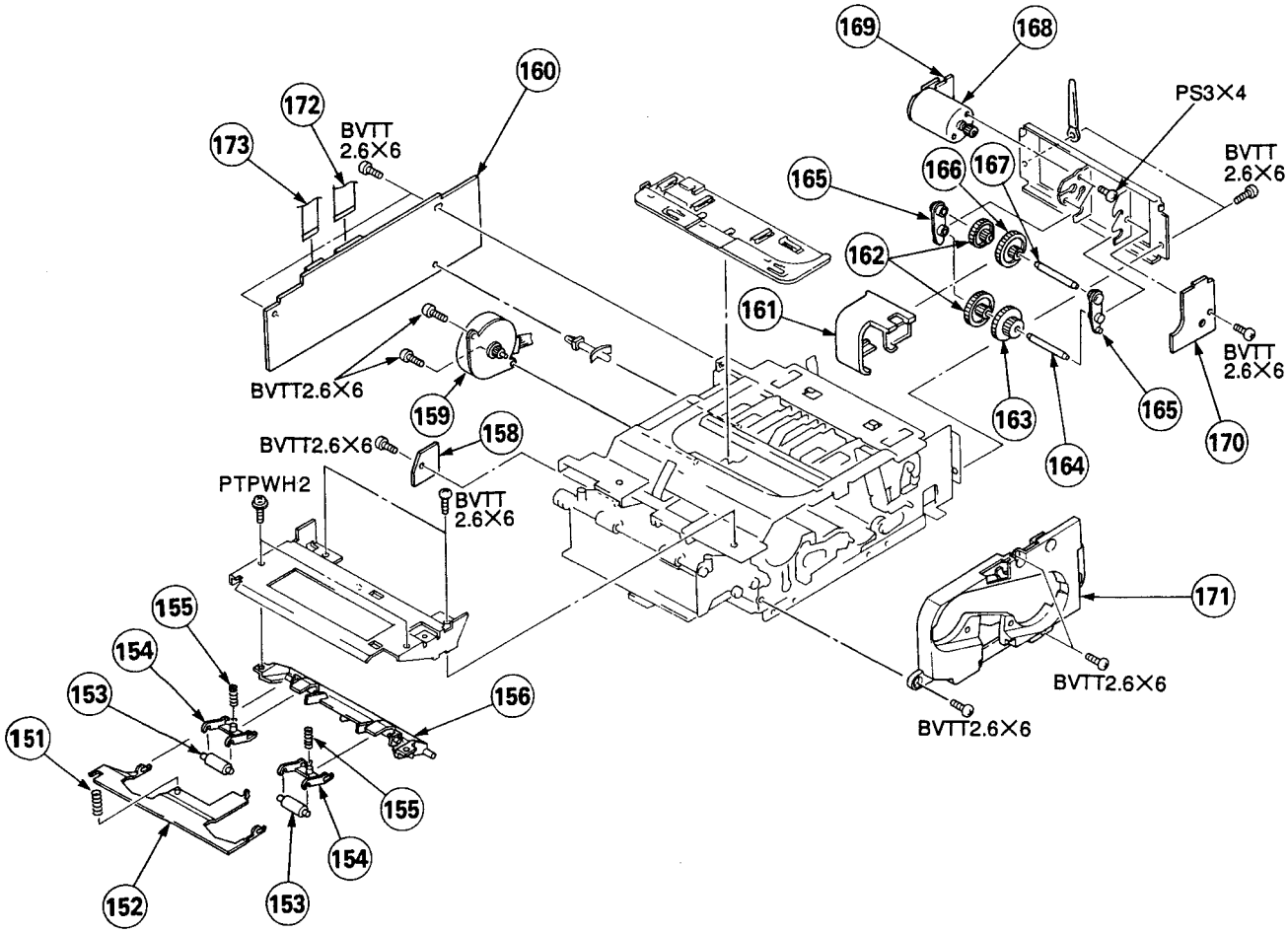
5-3. CHASSIS ASSEMBLY(2)



Ref. No	Part No.	Description	Remark
101	3-183-184-01	SPRING, EXTENSION	
102	3-183-185-02	LEVER, PAPER SENSOR	
103	3-325-697-01	WASHER	
104	3-183-240-01	GUIDE, EXIT	
105	3-183-253-01	GUIDE, TRAY	
106	3-183-181-01	SPRING, TRAY	
107	*A-8275-444-A	SW-42 BOARD, COMPLETE	
108	X-3167-310-1	COUNTREMEASURE ASSY	
109	3-183-610-01	COVER	
110	*A-8275-443-A	SW-39 BOARD, COMPLETE	
111	X-3167-307-1	SUB GEAR ASSY, BOSS	
112	4-926-219-02	RING (DIA.2.3), RETAINING	
113	3-950-038-01	GEAR, WORM	
114	X-3942-172-1	MOTOR ASSY, RIBBON	

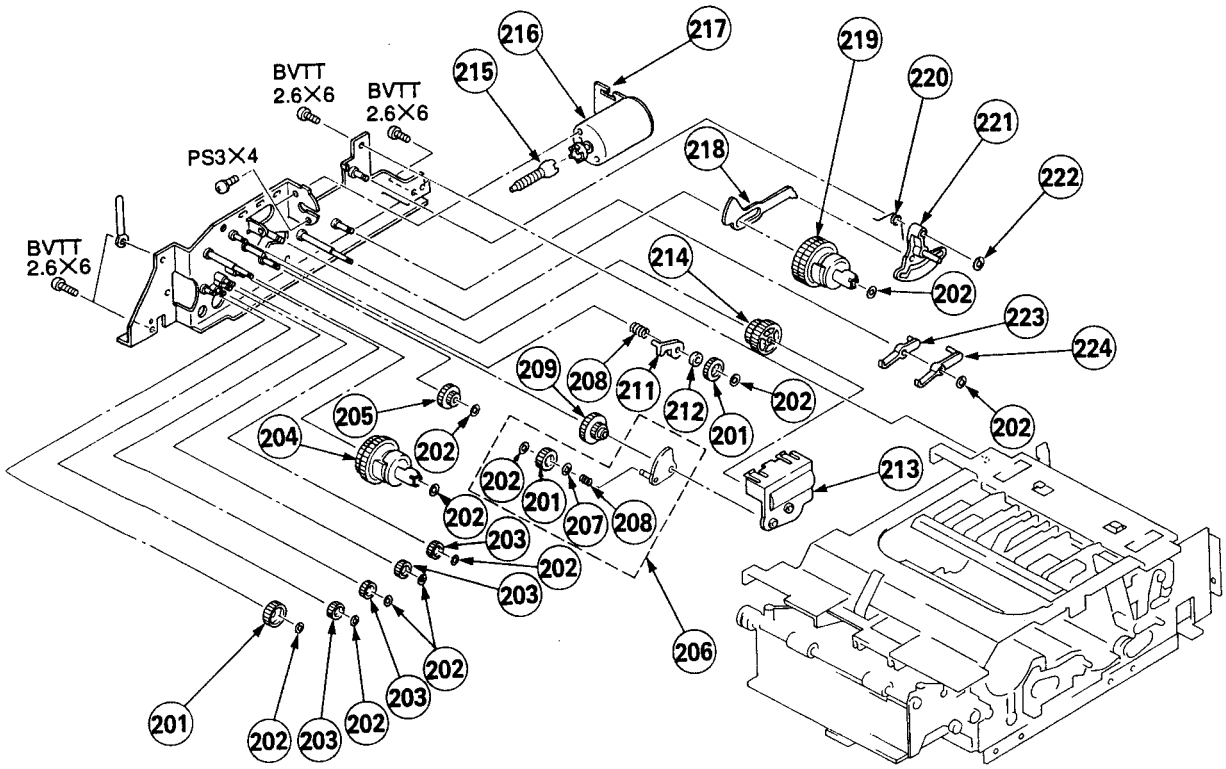
Ref.No	Part No.	Description	Remark
115	*1-650-853-12	SU-10 BOARD	
116	X-3167-308-2	SUB ASSY, MOTOR BRACKET	
117	3-950-040-01	GEAR (2), RD	
118	3-950-039-01	GEAR (1), RD	
119	*A-8275-445-A	DUS-12 BOARD, COMPLETE	
120	3-183-228-02	LINK	
121	3-183-218-02	SPRING, TORSION	
122	3-183-251-02	ARM	
123	3-183-176-01	SPRING, EXTENSION	
124	3-183-229-02	LEVER, TRAY LOCK	
125	*A-8267-804-A	MD (P231) ASSY	
126	*A-8275-442-A	SW-41 BOARD, COMPLETE	
127	3-183-602-01	SPRING, TENSION COIL	
128	3-183-603-02	LEVER, SUPPORT	

5-4. MECHANISM DECK ASSEMBLY(1)



Ref.No	Part No.	Description	Remark
151	3-183-629-01	SPRING, COMPRESSION (PAPER A)	
152	3-183-605-01	SENSOR LEVER	
153	3-950-009-01	ROLLER, PAPER	
154	3-950-010-01	ARM, PAPER ROLLER	
155	3-950-013-01	SPRING, COMPRESSION	
156	3-183-609-02	GUIDE, UPPER	
158	*A-8275-441-A	SW-213 BOARD, COMPLETE	
159	X-3167-368-1	MOTOR ASSY, STEPPING	
160	*A-8275-598-A	HM-22P(L) BOARD, COMPLETE	
161	*3-952-505-01	GUARD, HEAD GEAR	
162	3-950-019-01	GEAR (A), HEAD DRIVE	
163	3-950-015-01	GEAR (B), HEAD DRIVE	
164	*3-950-020-01	SHAFT, HEAD DRIVE GEAR	
165	*3-950-017-01	HOLDER, HEAD DRIVE GEAR	
166	3-956-727-01	GEAR (E), HEAD DRIVE	
167	*3-950-214-01	SHAFT (S), HEAD DRIVE GEAR	
168	X-3942-122-1	MOTOR, HEAD DRIVE GEAR ASSY	
169	*A-8275-435-A	SW-215 BOARD, COMPLETE	
170	*A-8275-436-A	SW-212 BOARD, COMPLETE	
171	X-3167-377-1	GUIDE ASSY, CASSETTE ENTRANCE	
172	1-765-052-11	WIRE, FLAT TYPE (16 CORE)	
173	1-765-051-11	WIRE, FLAT TYPE (7 CORE)	

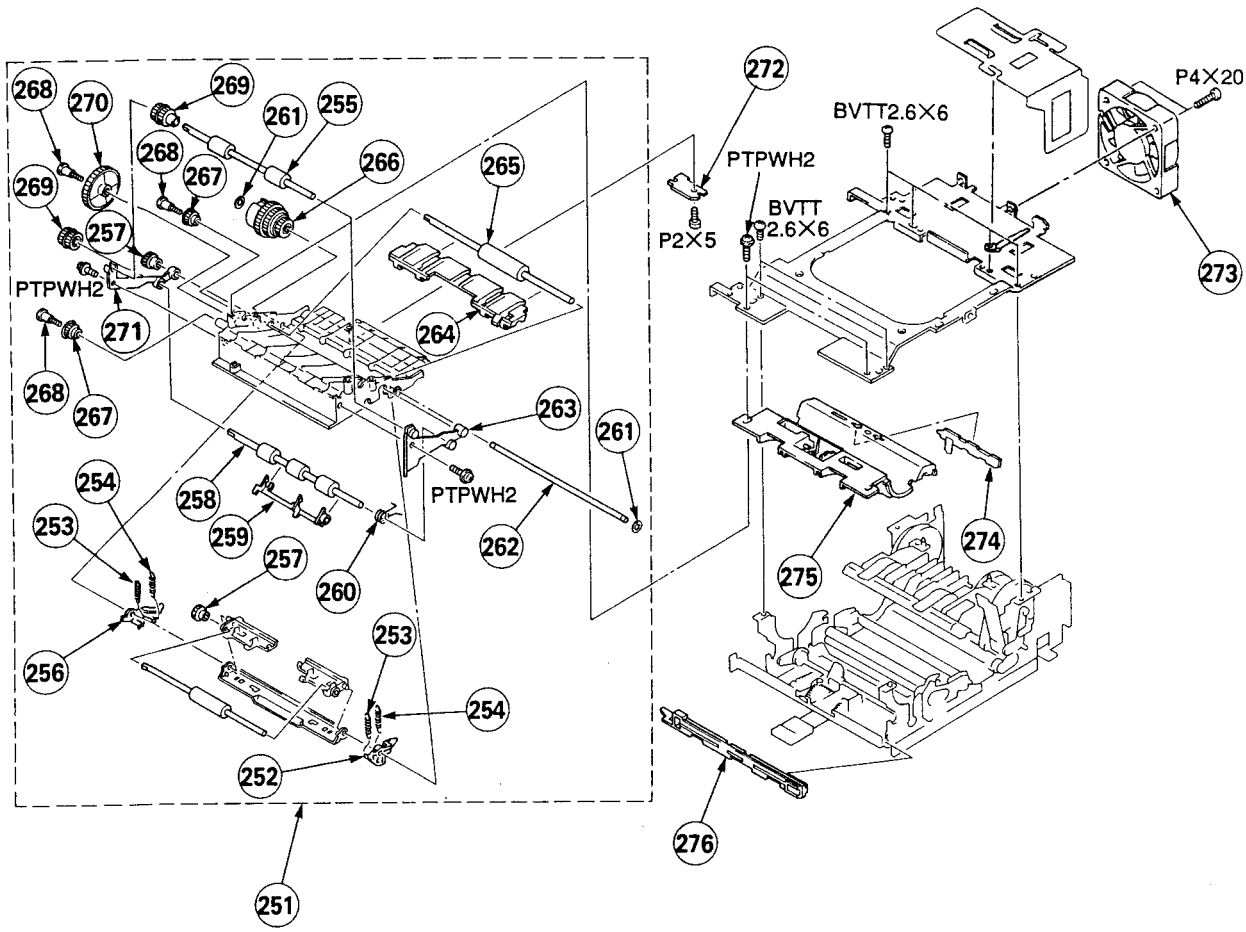
5-5. MECHANISM DECK ASSEMBLY(2)



Ref.No	Part No.	Description	Remark
201	3-950-045-01	GEAR (20)	
202	3-681-678-00	WASHER, STOPPER	
203	3-949-935-01	GEAR (16)	
204	A-7018-137-A	REEL (T) BLOCK ASSY, RIBBON	
205	3-950-048-01	GEAR, SPM IDLER	
206	*A-7018-136-A	ARM BLOCK ASSY, PENDULUM	
207	3-701-441-01	WASHER	
208	3-949-933-01	SPRING (PENDULUM), COMPRESSION	
209	3-950-040-01	GEAR (2), RD	
211	*3-950-046-01	ARM, T LOCK	
212	3-950-051-01	FELT, T LOCK	

Ref.No	Part No.	Description	Remark
213	3-950-049-01	COVER, GEAR	
214	3-950-039-01	GEAR (1), RD	
215	3-183-992-01	GEAR, WORM	
216	X-3942-172-1	MOTOR ASSY, RIBBON	
217	*A-8275-440-A	SW-216 BOARD, COMPLETE	
218	*3-950-035-01	BOARD, SLIDE	
219	A-7018-138-A	REEL (S) BLOCK ASSY, RIBBON	
220	3-950-050-01	SPRING, TORSION	
221	*X-3942-127-1	ARM ASSY, SLIDE	
222	4-926-219-02	RING (DIA.2.3), RETAINING	
223	*3-950-037-01	CLAW, RIBBON BRAKE	
224	*3-950-036-01	CLAW, RIBBON LOCK	

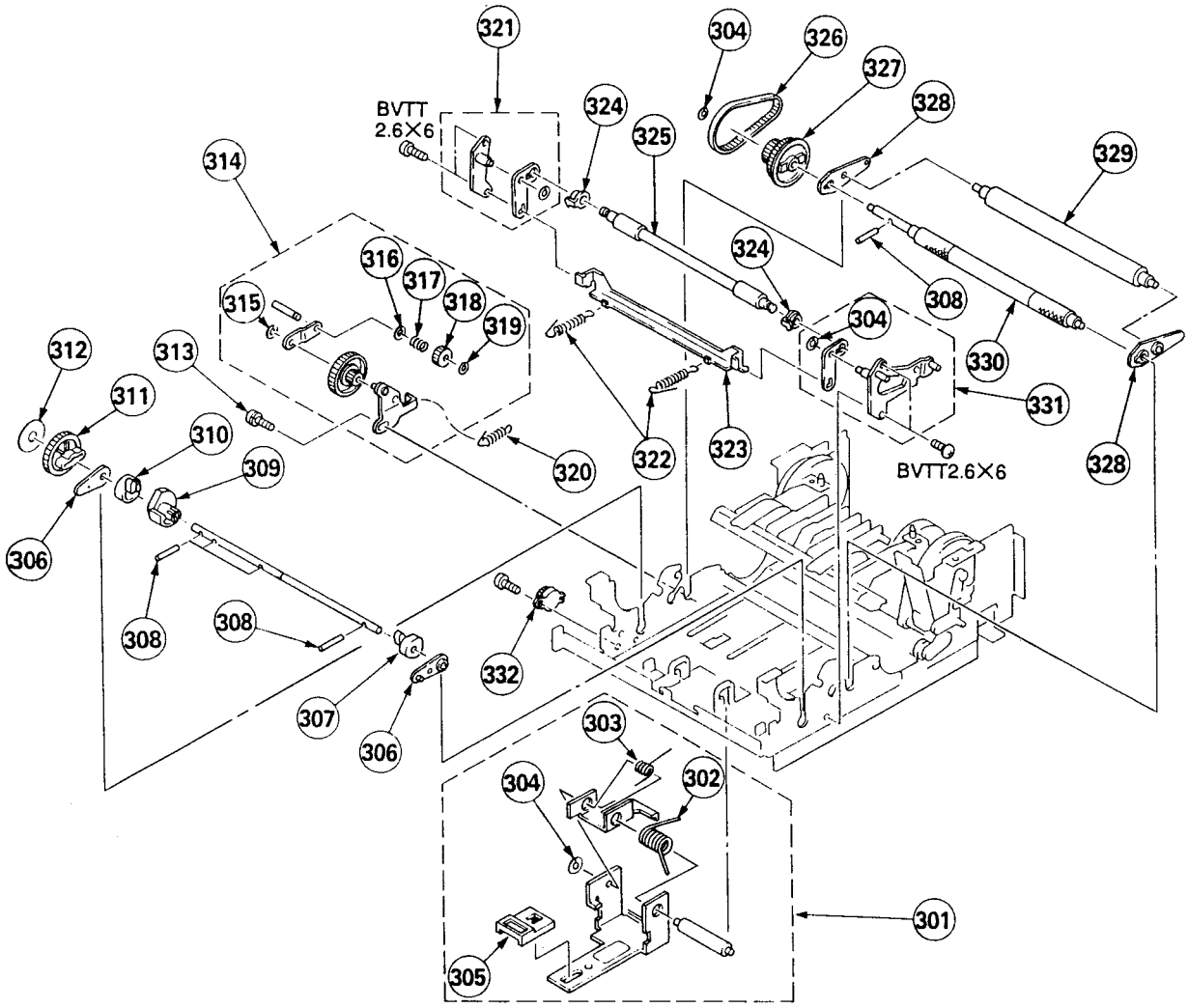
5-6. MECHANISM DECK ASSEMBLY(3)



Ref.No	Part No.	Description	Remark
251	*A-8267-975-B	PAPER ASSY	
252	*3-949-984-11	LEVER (R), RELEASE	
253	3-949-994-01	SPRING, TENSION	
254	3-949-996-01	SPRING (RELEASE LEVER),TENSION	
255	3-183-205-01	ROLLER	
256	*3-949-983-11	LEVER (L), RELEASE	
257	3-949-987-01	GEAR (16D)	
258	3-183-607-01	ROLLER K	
259	*3-949-986-01	RETAINER, PAPER	
260	3-183-204-01	SP (EP), RETAINER	
261	4-926-219-02	RING (DIA.2.3), RETAINING	
262	*3-949-990-01	SHAFT, LIMITER	
263	3-183-230-01	SHAFT RETAINER R (EP)	

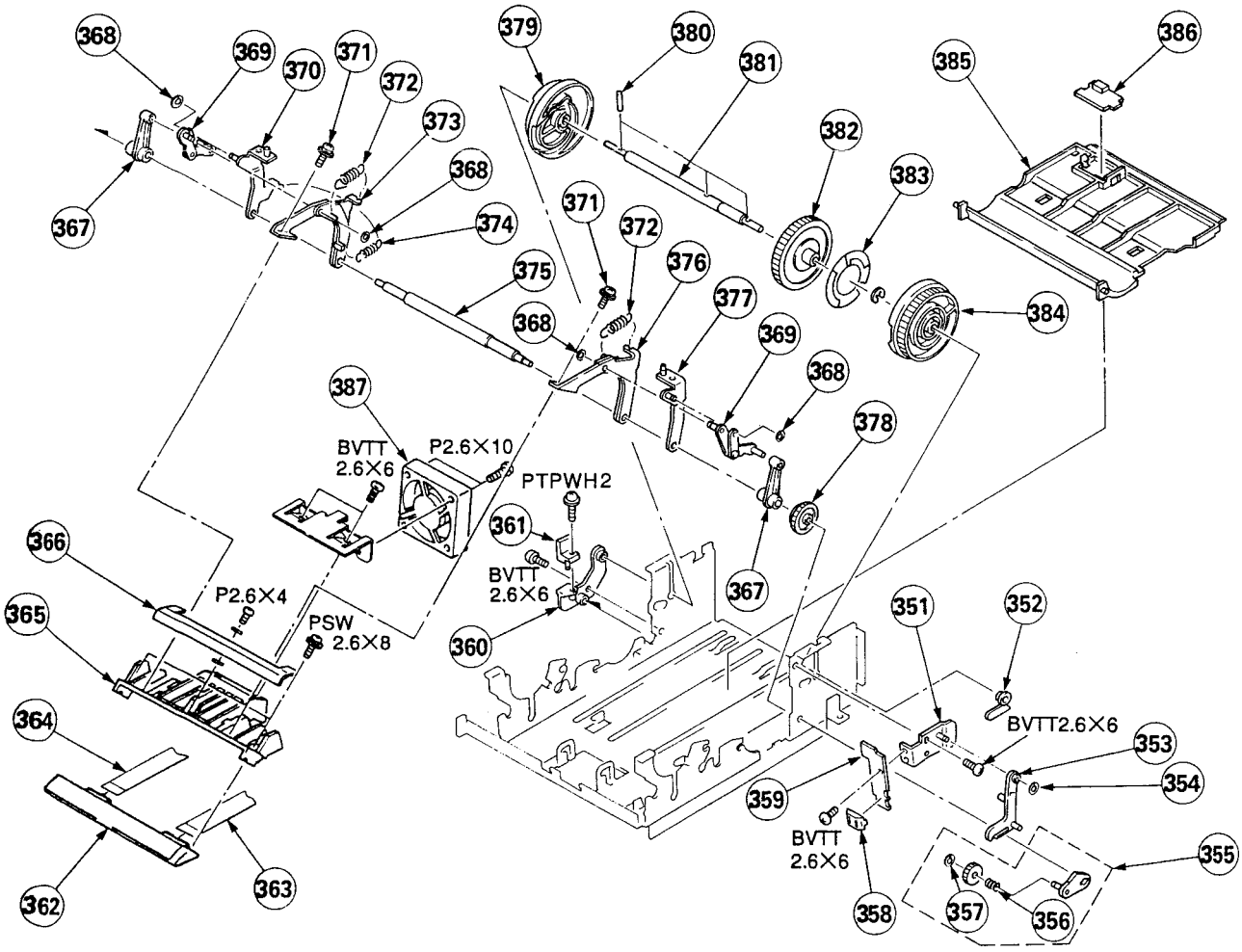
Ref.No	Part No.	Description	Remark
264	*3-949-985-01	SHUTTER, PAPER	
265	3-949-982-01	ROLLER (F)	
266	A-7018-141-A	LIMITER BLOCK ASSY	
267	3-949-989-01	GEAR (16F)	
268	3-950-001-01	SCREW, STEP	
269	3-949-988-01	GEAR (20-21)	
270	3-183-206-01	GEAR	
271	3-183-231-01	SHAFT RETAINER L (EP)	
272	*A-8275-433-A	SW-208 BOARD, COMPLETE	
273	1-541-684-41	MOTOR, DC	
274	*A-8275-434-A	SW-211 BOARD, COMPLETE	
275	*3-950-003-01	GUIDE (1), CASSETTE	
276	3-183-232-01	GUIDE, TRAY	

5-7. MECHANISM DECK ASSEMBLY(4)



Ref.No	Part No.	Description	Remark
301	*A-8267-878-C	ARM ASSY	
302	3-183-212-02	TORSION SPRING	
303	3-183-213-03	TORSION SPRING	
304	4-926-219-02	RING (DIA.2.3), RETAINING	
305	3-183-209-02	LEVER	
306	*3-949-912-01	BEARING, PRESS	
307	*3-950-308-01	CAM (R), RETAINER ROLLER PRESS	
308	3-949-911-01	PIN	
309	3-183-216-02	CAM	
310	*3-949-948-01	CAM (L), RETAINER ROLLER PRESS	
311	3-949-951-01	GEAR, P DRIVING	
312	3-949-952-01	REFLECTOR, P SENSOR	
313	3-951-872-01	SCREW (2.6X6)	
314	A-7018-148-A	ARM BLOCK ASSY, TENSION	
315	3-669-596-01	WASHER (2.3), STOPPER	
316	3-701-441-01	WASHER	
317	3-949-933-01	SPRING (PENDULUM), COMPRESSION	
318	3-949-935-01	GEAR (16)	
319	3-681-678-00	WASHER, STOPPER	
320	3-954-567-01	SPRING (TENSION PLATE),TENSION	
321	*A-7018-157-A	ARM (L) BLOCK ASSY, ROLLER	
322	3-955-157-01	SPRING, TENSION	
323	*3-949-939-01	PRESSURE, CAP	
324	3-949-937-01	BEARING, RETAINER ROLLER	
325	3-183-606-01	ROLLER, RETAINER	
326	3-949-915-01	BELT	
327	3-949-918-01	GEAR, CAPSTAN	
328	3-949-910-01	BEARING, PLATEN	
329	*3-949-908-01	ROLLER, PLATEN	
330	*3-949-907-01	ROLLER, CAPSTAN	
331	*A-7018-156-A	ARM (R) BLOCK ASSY, ROLLER	
332	4-036-880-01	DAMPER	

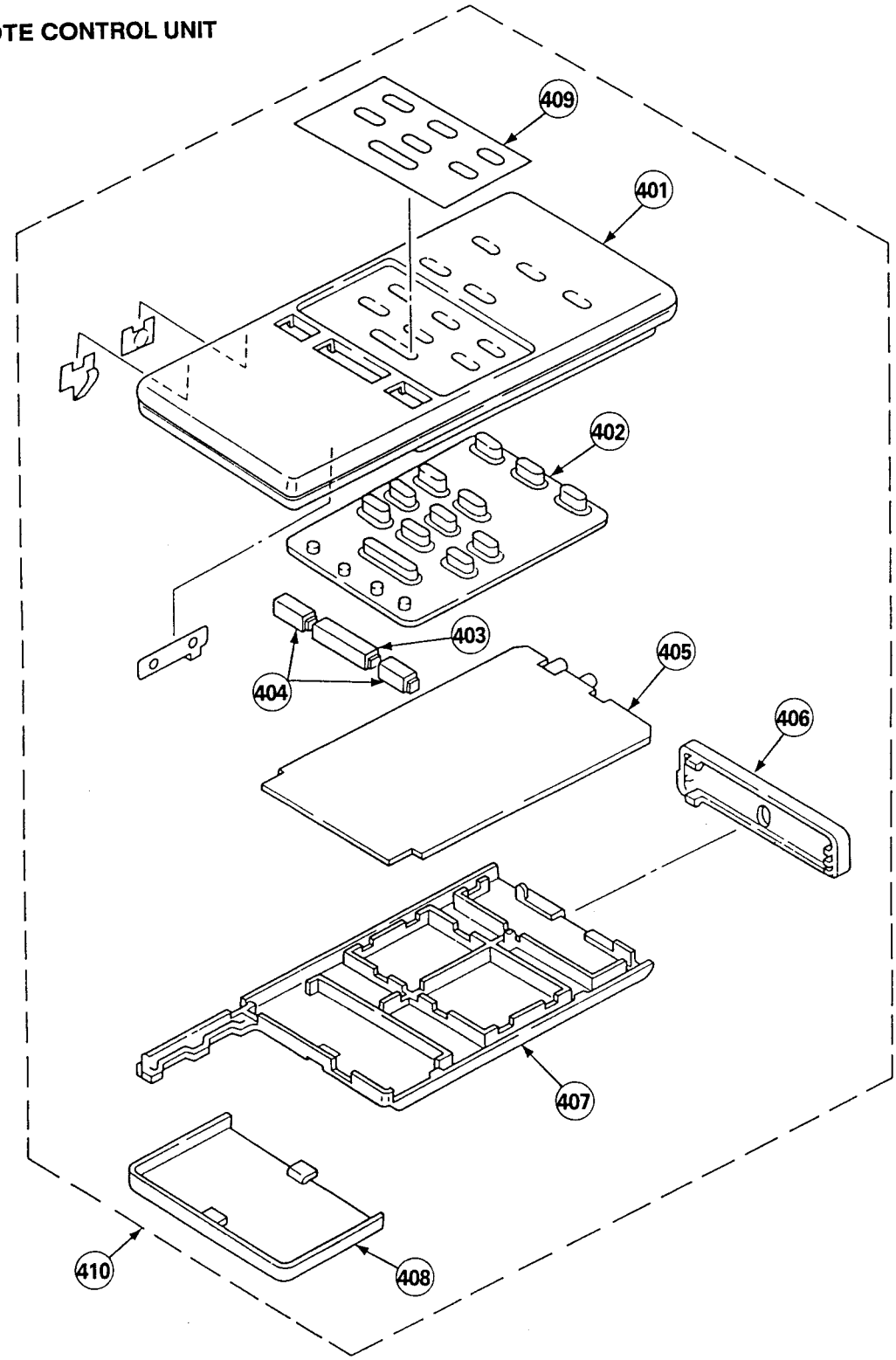
5-8. MECHANISM DECK ASSEMBLY(5)



Ref.No	Part No.	Description	Remark
351	*X-3942-121-1	ARM ASSY, LOCK	
352	3-949-916-01	BEARING, CAM SHAFT	
353	3-950-022-01	ARM, LOCK	
354	3-669-596-01	WASHER (2.3), STOPPER	
355	A-7018-146-A	GEAR BLOCK ASSY, SWING	
356	3-949-933-01	SPRING (PENDULUM), COMPRESSION	
357	3-681-678-00	WASHER, STOPPER	
358	*3-952-169-01	COVER, SENSOR	
359	*A-8275-439-A	SW-210 BOARD, COMPLETE	
360	*3-949-974-01	BEARING, HEAD ARM SHAFT	
361	*A-8275-453-A	SW-214 BOARD, COMPLETE	
362	1-543-987-11	HEAD, THERMAL	
363	1-751-238-11	CABLE, FLAT (FHH-1)	
364	1-751-239-11	CABLE, FLAT (FHH-2)	
365	*3-183-612-01	HEAT SINK	
366	*3-950-142-01	GUIDE, RIBBON	
367	3-949-917-01	LEVER, POWER	
368	4-926-219-02	RING (DIA.2.3), RETAINING	

Ref.No	Part No.	Description	Remark
369	*X-3942-117-1	LINK ASSY	
370	*X-3942-119-1	FULCRUM (L) ASSY, LINK	
371	3-669-607-11	+PSW (SMALL ROUND) (2.6)	
372	3-954-605-01	SPRING (HEAD), TENSION	
373	*X-3942-160-1	ARM ASSY (L), POWER	
374	3-949-973-01	SPRING, TENSION	
375	*3-949-950-01	SHAFT, POWER ARM	
376	*X-3942-159-1	ARM ASSY (R), POWER	
377	*X-3942-118-1	FULCRUM (R) ASSY, LINK	
378	3-950-077-01	GEAR (A), RING SWING	
379	3-949-971-01	CAM (L), HEAD POWER	
380	3-949-911-01	PIN	
381	*3-949-968-01	SHAFT, CAM	
382	3-949-969-01	GEAR (C), HEAD DRIVE	
383	3-949-972-01	PLATE, POSITION, HEAD	
384	3-949-970-01	CAM (R), HEAD POWER	
385	*3-949-909-01	GUIDE (2), CASSETTE	
386	*A-8275-452-A	SW-217 BOARD, COMPLETE	
387	1-698-019-31	MOTOR, DC (FAN)	

5-9. REMOTE CONTROL UNIT



Ref. No	Part No.	Description	Remark
401	9-901-744-01	ORNAMENTAL, PANEL	
402	9-901-745-01	SHEET, RUBBER	
403	2-290-632-00	BUTTON, PUSH (L)	
404	2-290-633-01	BUTTON, PUSH (R)	
405	9-997-457-01	SR-W2 BOARD	
406	9-997-453-01	PANEL, FRONT	
407	2-290-611-00	CASE, BOTTOM	
408	2-290-606-51	COVER, BATTERY	
409	9-997-456-01	LABEL, MODEL NUMBER	
410	1-465-508-21	COMMANDER, REMOTE	

SECTION 6
ELECTRICAL PARTS LIST

VA-76(B)

NOTE:
- Items marked "*" are not stocked because they are seldom required for routine servicing. Some delay should be expected when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise stated.

RESISTORS
- All resistors are in ohms.
- F:non-flammable

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

CAPACITORS
- MF: μF, PF: μμF

COILS
- MMH: mH, UH: μH

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description			Remark
	*A-8275-600-A	VA-76(B) BOARD, COMPLETE			
		**********			
		<CAPACITOR>			
C101	1-163-038-00	CERAMIC	0.1uF		25V
C102	1-164-004-11	CERAMIC	0.1uF	10%	25V
C103	1-124-778-00	ELECT	22uF	20%	6.3V
C104	1-163-038-00	CERAMIC	0.1uF		25V
C105	1-164-346-11	CERAMIC	1uF		16V
C106	1-164-346-11	CERAMIC	1uF		16V
C107	1-163-275-11	CERAMIC	0.001uF	5%	50V
C108	1-126-217-11	ELECT	15uF	20%	10V
C109	1-163-038-00	CERAMIC	0.1uF		25V
C110	1-163-245-11	CERAMIC	56PF	5%	50V
C111	1-163-097-00	CERAMIC	15PF	5%	50V
C113	1-164-346-11	CERAMIC	1uF		16V
C114	1-163-275-11	CERAMIC	0.001uF	5%	50V
C115	1-124-778-00	ELECT	22uF	20%	6.3V
C116	1-163-038-00	CERAMIC	0.1uF		25V
C117	1-126-217-11	ELECT	15uF	20%	10V
C118	1-163-038-00	CERAMIC	0.1uF		25V
C119	1-163-038-00	CERAMIC	0.1uF		25V
C120	1-163-141-00	CERAMIC	0.001uF	5%	50V
C121	1-163-141-00	CERAMIC	0.001uF	5%	50V
C122	1-163-141-00	CERAMIC	0.001uF	5%	50V
C123	1-163-239-11	CERAMIC	33PF	5%	50V
C124	1-163-099-00	CERAMIC	18PF	5%	50V
C125	1-164-004-11	CERAMIC	0.1uF	10%	25V
C126	1-163-141-00	CERAMIC	0.001uF	5%	50V
C127	1-163-038-00	CERAMIC	0.1uF		25V
C128	1-163-275-11	CERAMIC	0.001uF	5%	50V
C129	1-163-275-11	CERAMIC	0.001uF	5%	50V
C131	1-126-217-11	ELECT	15uF	20%	10V
C132	1-163-038-00	CERAMIC	0.1uF		25V
C133	1-163-275-11	CERAMIC	0.001uF	5%	50V
C134	1-165-320-11	CERAMIC	0.47uF	10%	16V
C135	1-126-217-11	ELECT	15uF	20%	10V
C136	1-163-038-00	CERAMIC	0.1uF		25V
C137	1-164-182-11	CERAMIC	0.0033uF	10%	50V
C138	1-163-251-11	CERAMIC	100PF	5%	50V
C139	1-163-038-00	CERAMIC	0.1uF		25V
C140	1-163-038-00	CERAMIC	0.1uF		25V
C141	1-164-004-11	CERAMIC	0.1uF	10%	25V
C143	1-126-217-11	ELECT	15uF	20%	10V
C144	1-163-275-11	CERAMIC	0.001uF	5%	50V
C145	1-164-232-11	CERAMIC	0.01uF	10%	50V
C146	1-164-232-11	CERAMIC	0.01uF	10%	50V
C147	1-164-004-11	CERAMIC	0.1uF	10%	25V
C148	1-163-275-11	CERAMIC	0.001uF	5%	50V
C149	1-164-004-11	CERAMIC	0.1uF	10%	25V
C150	1-164-346-11	CERAMIC	1uF		16V
C151	1-163-038-00	CERAMIC	0.1uF		25V
C153	1-126-217-11	ELECT	15uF	20%	10V
C154	1-163-038-00	CERAMIC	0.1uF		25V
C155	1-163-038-00	CERAMIC	0.1uF		25V
C156	1-163-038-00	CERAMIC	0.1uF		25V
C157	1-126-217-11	ELECT	15uF	20%	10V
C158	1-164-346-11	CERAMIC	1uF		16V
C159	1-163-038-00	CERAMIC	0.1uF		25V
C160	1-128-065-11	ELECT	68uF	20%	10V
C161	1-126-206-11	ELECT	100uF	20%	6.3V
C162	1-163-038-00	CERAMIC	0.1uF		25V
C163	1-128-065-11	ELECT	68uF	20%	10V
C164	1-126-206-11	ELECT	100uF	20%	6.3V
C165	1-163-038-00	CERAMIC	0.1uF		25V
C166	1-126-217-11	ELECT	15uF	20%	10V
C167	1-163-241-11	CERAMIC	39PF	5%	50V
C168	1-163-243-11	CERAMIC	47PF	5%	50V
C169	1-163-038-00	CERAMIC	0.1uF		25V
C173	1-163-038-00	CERAMIC	0.1uF		25V
C175	1-163-038-00	CERAMIC	0.1uF		25V
C176	1-126-217-11	ELECT	15uF	20%	10V
C177	1-163-038-00	CERAMIC	0.1uF		25V
C180	1-163-141-00	CERAMIC	0.001uF	5%	50V
C181	1-163-099-00	CERAMIC	18PF	5%	50V
C182	1-163-038-00	CERAMIC	0.1uF		25V
C183	1-163-038-00	CERAMIC	0.1uF		25V
C185	1-163-038-00	CERAMIC	0.1uF		25V
C187	1-163-038-00	CERAMIC	0.1uF		25V
C188	1-164-232-11	CERAMIC	0.01uF	10%	50V
C190	1-163-017-00	CERAMIC	0.0047uF	10%	50V
C191	1-163-137-00	CERAMIC	680PF	5%	50V
C192	1-164-232-11	CERAMIC	0.01uF	10%	50V
C193	1-126-217-11	ELECT	15uF	20%	10V
C194	1-164-232-11	CERAMIC	0.01uF	10%	50V
C195	1-126-217-11	ELECT	15uF	20%	10V
C196	1-164-232-11	CERAMIC	0.01uF	10%	50V
C197	1-164-232-11	CERAMIC	0.01uF	10%	50V
C199	1-126-217-11	ELECT	15uF	20%	10V
C200	1-126-217-11	ELECT	15uF	20%	10V
C201	1-163-141-00	CERAMIC	0.001uF	5%	50V
C202	1-126-603-11	ELECT	4.7uF	20%	35V
C203	1-164-232-11	CERAMIC	0.01uF	10%	50V
C204	1-163-222-11	CERAMIC	5PF		50V
C205	1-163-038-00	CERAMIC	0.1uF		25V
C206	1-164-005-11	CERAMIC	0.47uF		25V
C207	1-163-038-00	CERAMIC	0.1uF		25V
C209	1-126-217-11	ELECT	15uF	20%	10V
C210	1-164-005-11	CERAMIC	0.47uF		25V

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Ref.No	Part No.	Description			Remark
C211	1-164-005-11	CERAMIC	0.47uF		25V
C212	1-163-038-00	CERAMIC	0.1uF		25V
C213	1-126-217-11	ELECT	15uF	20%	10V
C214	1-163-038-00	CERAMIC	0.1uF		25V
C215	1-164-005-11	CERAMIC	0.47uF		25V
C216	1-126-193-11	ELECT	1uF	20%	50V
C217	1-164-005-11	CERAMIC	0.47uF		25V
C218	1-163-235-11	CERAMIC	22PF	5%	50V
C220	1-164-005-11	CERAMIC	0.47uF		25V
C221	1-164-005-11	CERAMIC	0.47uF		25V
C223	1-164-005-11	CERAMIC	0.47uF		25V
C224	1-164-005-11	CERAMIC	0.47uF		25V
C225	1-126-217-11	ELECT	15uF	20%	10V
C226	1-163-038-00	CERAMIC	0.1uF		25V
C227	1-164-005-11	CERAMIC	0.47uF		25V
C228	1-163-251-11	CERAMIC	100PF	5%	50V
C230	1-163-038-00	CERAMIC	0.1uF		25V
C250	1-163-127-00	CERAMIC	270PF	5%	50V
C251	1-163-110-00	CERAMIC	51PF	5%	50V
C252	1-126-217-11	ELECT	15uF	20%	10V
C260	1-164-004-11	CERAMIC	0.1uF	10%	25V
C261	1-163-097-00	CERAMIC	15PF	5%	50V
C262	1-163-141-00	CERAMIC	0.001uF	5%	50V
C263	1-163-141-00	CERAMIC	0.001uF	5%	50V
C264			10P		
C270	1-135-337-11	TANTAL	1uF	10%	6.3V
C271	1-126-217-11	ELECT	15uF	20%	10V
C281	1-126-207-11	ELECT	33uF	20%	4V
C282	1-126-217-11	ELECT	15uF	20%	10V
C285	1-164-005-11	CERAMIC	0.47uF		25V
C286	1-164-005-11	CERAMIC	0.47uF		25V
C290	1-164-005-11	CERAMIC	0.47uF		25V
C291	1-164-005-11	CERAMIC	0.47uF		25V
C295	1-164-004-11	CERAMIC	0.1uF	10%	25V
C301	1-126-217-11	ELECT	15uF	20%	10V
C302	1-163-038-00	CERAMIC	0.1uF		25V
C303	1-163-077-00	CERAMIC	0.1uF	10%	25V
C304	1-163-038-00	CERAMIC	0.1uF		25V
C305	1-163-038-00	CERAMIC	0.1uF		25V
C306	1-164-004-11	CERAMIC	0.1uF	10%	25V
C307	1-126-217-11	ELECT	15uF	20%	10V
C308	1-164-346-11	CERAMIC	1uF		16V
C309	1-126-217-11	ELECT	15uF	20%	10V
C310	1-163-038-00	CERAMIC	0.1uF		25V
C311	1-163-038-00	CERAMIC	0.1uF		25V
C312	1-126-217-11	ELECT	15uF	20%	10V
C313	1-163-038-00	CERAMIC	0.1uF		25V
C314	1-126-217-11	ELECT	15uF	20%	10V
C315	1-126-217-11	ELECT	15uF	20%	10V
C316	1-126-217-11	ELECT	15uF	20%	10V
C317	1-126-217-11	ELECT	15uF	20%	10V
C318	1-126-217-11	ELECT	15uF	20%	10V
C319	1-163-038-00	CERAMIC	0.1uF		25V
C320			1uF		
C321	1-126-217-11	ELECT	15uF	20%	10V
C322	1-126-217-11	ELECT	15uF	20%	10V
C323	1-163-038-00	CERAMIC	0.1uF		25V
C324	1-163-038-00	CERAMIC	0.1uF		25V
C325	1-163-117-00	CERAMIC	100PF	5%	50V
C326	1-163-117-00	CERAMIC	100PF	5%	50V
C327	1-126-193-11	ELECT	1uF	20%	50V
C328	1-163-141-00	CERAMIC	0.001uF	5%	50V
C329	1-164-004-11	CERAMIC	0.1uF	10%	25V
C330	1-164-005-11	CERAMIC	0.47uF		25V
C331	1-164-004-11	CERAMIC	0.1uF	10%	25V

Ref.No	Part No.	Description			Remark
C332	1-163-038-00	CERAMIC	0.1uF		25V
C333	1-164-232-11	CERAMIC	0.01uF	10%	50V
C334	1-164-004-11	CERAMIC	0.1uF	10%	25V
C335	1-126-217-11	ELECT	15uF	20%	10V
C336	1-163-038-00	CERAMIC	0.1uF		25V
C337	1-163-227-11	CERAMIC	10PF		50V
C338	1-164-004-11	CERAMIC	0.1uF	10%	25V
C339	1-126-217-11	ELECT	15uF	20%	10V
C340	1-163-038-00	CERAMIC	0.1uF		25V
C341	1-126-217-11	ELECT	15uF	20%	10V
C342	1-163-038-00	CERAMIC	0.1uF		25V
C343	1-126-217-11	ELECT	15uF	20%	10V
C344	1-163-038-00	CERAMIC	0.1uF		25V
C345	1-126-217-11	ELECT	15uF	20%	10V
C346	1-163-038-00	CERAMIC	0.1uF		25V
C347	1-163-227-11	CERAMIC	10PF		50V
C348	1-164-004-11	CERAMIC	0.1uF	10%	25V
C349	1-128-065-11	ELECT	68uF	20%	10V
C350	1-163-038-00	CERAMIC	0.1uF		25V
C351	1-126-217-11	ELECT	15uF	20%	10V
C352	1-163-038-00	CERAMIC	0.1uF		25V
C353	1-163-809-11	CERAMIC	0.047uF	10%	25V
C354	1-163-037-11	CERAMIC	0.022uF	10%	25V
C355	1-163-038-00	CERAMIC	0.1uF		25V
C356	1-163-809-11	CERAMIC	0.047uF	10%	25V
C357	1-135-091-00	CERAMIC	1uF	10%	16V
C358	1-164-004-11	CERAMIC	0.1uF	10%	25V
C359	1-126-193-11	ELECT	1uF	20%	50V
C360	1-163-106-00	CERAMIC	36PF	5%	50V
C362	1-164-005-11	CERAMIC	0.47uF		25V
C363	1-128-065-11	ELECT	68uF	20%	10V
C364	1-163-038-00	CERAMIC	0.1uF		25V
C366	1-163-113-00	CERAMIC	68PF	5%	50V
C367	1-126-217-11	ELECT	15uF	20%	10V
C368	1-163-038-00	CERAMIC	0.1uF		25V
C369	1-126-217-11	ELECT	15uF	20%	10V
C370	1-163-038-00	CERAMIC	0.1uF		25V
C371	1-164-004-11	CERAMIC	0.1uF	10%	25V
C372	1-126-193-11	ELECT	1uF	20%	50V
C373	1-163-227-11	CERAMIC	10PF		50V
C374	1-164-004-11	CERAMIC	0.1uF	10%	25V
C375	1-163-038-00	CERAMIC	0.1uF		25V
C376	1-164-232-11	CERAMIC	0.01uF	10%	50V
C377	1-135-145-11	TANTAL	0.47uF	20%	25V
C378	1-126-217-11	ELECT	15uF	20%	10V
C379	1-163-038-00	CERAMIC	0.1uF		25V
C380	1-126-217-11	ELECT	15uF	20%	10V
C381	1-163-245-11	CERAMIC	56PF	5%	50V
C382	1-135-210-11	TANTAL	4.7uF	10%	10V
C383	1-163-038-00	CERAMIC	0.1uF		25V
C384	1-163-038-00	CERAMIC	0.1uF		25V
C385	1-163-038-00	CERAMIC	0.1uF		25V
C386	1-164-232-11	CERAMIC	0.01uF	10%	50V
C387	1-163-038-00	CERAMIC	0.1uF		25V
C388	1-126-217-11	ELECT	15uF	20%	10V
C389	1-163-038-00	CERAMIC	0.1uF		25V
C390	1-163-038-00	CERAMIC	0.1uF		25V
C391	1-163-229-11	CERAMIC	18PF	5%	50V
C393	1-163-038-00	CERAMIC	0.1uF		25V
C394	1-128-065-11	ELECT	68uF	20%	10V
C395	1-163-038-00	CERAMIC	0.1uF		25V
C396	1-126-217-11	ELECT	15uF	20%	10V
C397	1-164-232-11	CERAMIC	0.01uF	10%	50V
C398	1-163-038-00	CERAMIC	0.1uF		25V
C399	1-164-004-11	CERAMIC	0.1uF	10%	25V

Ref.No	Part No.	Description			Remark
C400	1-164-005-11	CERAMIC	0.47uF		25V
C401	1-164-004-11	CERAMIC	0.1uF	10%	25V
C402	1-163-038-00	CERAMIC	0.1uF		25V
C404	1-163-038-00	CERAMIC	0.1uF		25V
C410	1-163-243-11	CERAMIC	47PF	5%	50V
C482			100P		
C501	1-126-217-11	ELECT	15uF	20%	10V
C502	1-163-038-00	CERAMIC	0.1uF		25V
C503	1-163-038-00	CERAMIC	0.1uF		25V
C504	1-126-217-11	ELECT	15uF	20%	10V
C505	1-163-239-11	CERAMIC	33PF	5%	50V
C506	1-163-239-11	CERAMIC	33PF	5%	50V
C507	1-163-038-00	CERAMIC	0.1uF		25V
C508	1-163-038-00	CERAMIC	0.1uF		25V
C509	1-126-217-11	ELECT	15uF	20%	10V
C512	1-163-038-00	CERAMIC	0.1uF		25V
C513	1-164-005-11	CERAMIC	0.47uF		25V
C514	1-163-038-00	CERAMIC	0.1uF		25V
C515	1-163-038-00	CERAMIC	0.1uF		25V
C516	1-126-217-11	ELECT	15uF	20%	10V
C517	1-163-038-00	CERAMIC	0.1uF		25V
C518	1-164-232-11	CERAMIC	0.01uF	10%	50V
C519	1-164-232-11	CERAMIC	0.01uF	10%	50V
C520	1-163-809-11	CERAMIC	0.047uF	10%	25V
C521	1-163-809-11	CERAMIC	0.047uF	10%	25V
C522	1-163-809-11	CERAMIC	0.047uF	10%	25V
C523	1-164-232-11	CERAMIC	0.01uF	10%	50V
C524	1-164-005-11	CERAMIC	0.47uF		25V
C525	1-126-217-11	ELECT	15uF	20%	10V
C526	1-126-217-11	ELECT	15uF	20%	10V
C527	1-163-038-00	CERAMIC	0.1uF		25V
C528	1-163-038-00	CERAMIC	0.1uF		25V
C529	1-163-038-00	CERAMIC	0.1uF		25V
C530	1-126-217-11	ELECT	15uF	20%	10V
C531	1-163-038-00	CERAMIC	0.1uF		25V
C532	1-126-217-11	ELECT	15uF	20%	10V
C533	1-163-038-00	CERAMIC	0.1uF		25V
C534	1-126-217-11	ELECT	15uF	20%	10V
C535	1-163-038-00	CERAMIC	0.1uF		25V
C536	1-164-005-11	CERAMIC	0.47uF		25V
C537	1-164-005-11	CERAMIC	0.47uF		25V
C538	1-126-217-11	ELECT	15uF	20%	10V
C539	1-164-232-11	CERAMIC	0.01uF	10%	50V
C540	1-164-232-11	CERAMIC	0.01uF	10%	50V
C541	1-164-232-11	CERAMIC	0.01uF	10%	50V
C543	1-163-235-11	CERAMIC	22PF	5%	50V
C544	1-164-004-11	CERAMIC	0.1uF	10%	25V
C545	1-126-217-11	ELECT	15uF	20%	10V
C546	1-163-038-00	CERAMIC	0.1uF		25V
C547	1-163-038-00	CERAMIC	0.1uF		25V
C570	1-163-038-00	CERAMIC	0.1uF		25V
C571	1-126-217-11	ELECT	15uF	20%	10V
C572	1-126-217-11	ELECT	15uF	20%	10V
C601	1-126-217-11	ELECT	15uF	20%	10V
C602	1-164-232-11	CERAMIC	0.01uF	10%	50V
C610	1-126-217-11	ELECT	15uF	20%	10V
C611	1-126-217-11	ELECT	15uF	20%	10V
C620	1-163-038-00	CERAMIC	0.1uF		25V
C621	1-163-038-00	CERAMIC	0.1uF		25V
C622	1-126-217-11	ELECT	15uF	20%	10V
C623	1-163-038-00	CERAMIC	0.1uF		25V
C624	1-164-232-11	CERAMIC	0.01uF	10%	50V
C650	1-128-065-11	ELECT	68uF	20%	10V
C651	1-128-065-11	ELECT	68uF	20%	10V
C801	1-164-004-11	CERAMIC	0.1uF	10%	25V

Ref.No	Part No.	Description			Remark
C901	1-163-239-11	CERAMIC	33PF	5%	50V
C902	1-163-239-11	CERAMIC	33PF	5%	50V
C903	1-163-239-11	CERAMIC	33PF	5%	50V
C910	1-135-210-11	TANTAL	4.7uF	10%	10V
C911	1-135-210-11	TANTAL	4.7uF	10%	10V
C950	1-163-127-00	CERAMIC	270PF	5%	50V
C951	1-163-239-11	CERAMIC	33PF	5%	50V
C990	1-126-217-11	ELECT	15uF	20%	10V
		<CONNECTOR>			
CN101	1-565-212-11	CONNECTOR, FPC (ZIF) 26P			
CN102	1-565-212-11	CONNECTOR, FPC (ZIF) 26P			
CN105	*1-560-892-00	PIN, CONNECTOR 4P			
CN110	1-506-472-11	PIN, CONNECTOR 7P			
CN502	1-506-471-11	PIN, CONNECTOR 6P			
CT101	1-141-311-11	CAP, VAR, TRIMMER (CHIP)			
CT102	1-141-311-11	CAP, VAR, TRIMMER (CHIP)			
		<DIODE>			
D101	8-713-300-88	DIODE 1T33C-T8-04			
D109	8-719-820-41	DIODE 1SS302			
D110	8-719-820-41	DIODE 1SS302			
D120	8-713-300-88	DIODE 1T33C-T8-04			
D125	8-719-024-82	DIODE 1SS300-TE85R			
D126	8-719-421-27	DIODE MA728-TX			
D301	8-719-820-41	DIODE 1SS302			
D302	8-719-820-41	DIODE 1SS302			
D310	8-719-820-41	DIODE 1SS302			
D311	8-719-820-41	DIODE 1SS302			
D312	8-719-820-41	DIODE 1SS302			
D313	8-719-820-41	DIODE 1SS302			
D503	8-719-820-41	DIODE 1SS302			
D508	8-719-820-41	DIODE 1SS302			
D509	8-719-820-41	DIODE 1SS302			
D910	8-719-025-18	DIODE 02CZ2.0-TE85L			
D911	8-719-025-18	DIODE 02CZ2.0-TE85L			
D912	8-719-025-18	DIODE 02CZ2.0-TE85L			
		<DELAY LINE>			
DL301	1-406-516-11	DELAY LINE, LC (140NS) (EQ)			
DL302	1-239-565-11	FILTER, LOW PASS			
DL303	1-403-694-11	COIL			
		<FERRITE, BEAD>			
FB107	1-412-390-21	INDUCTOR CHIP 0UH			
FB108	1-412-390-21	INDUCTOR CHIP 0UH			
FB109	1-412-390-21	INDUCTOR CHIP 0UH			
FB112	1-412-390-21	INDUCTOR CHIP 0UH			
FB121	1-412-390-21	INDUCTOR CHIP 0UH			
FB122	1-412-390-21	INDUCTOR CHIP 0UH			
FB123	1-412-390-21	INDUCTOR CHIP 0UH			
FB304	1-412-390-21	INDUCTOR CHIP 0UH			
FB305	1-412-390-21	INDUCTOR CHIP 0UH			
FB306	1-412-390-21	INDUCTOR CHIP 0UH			
FB307	1-412-390-21	INDUCTOR CHIP 0UH			
FB308	1-412-390-21	INDUCTOR CHIP 0UH			
FB309	1-412-390-21	INDUCTOR CHIP 0UH			
FB310	1-412-390-21	INDUCTOR CHIP 0UH			
FB311	1-412-390-21	INDUCTOR CHIP 0UH			
FB312	1-412-390-21	INDUCTOR CHIP 0UH			
FB313	1-412-390-21	INDUCTOR CHIP 0UH			
FB314	1-412-390-21	INDUCTOR CHIP 0UH			
FB315	1-412-390-21	INDUCTOR CHIP 0UH			
FB316	1-412-390-21	INDUCTOR CHIP 0UH			

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Ref.No	Part No.	Description	Remark
FB317	1-412-390-21	INDUCTOR CHIP 0UH	
FB318	1-412-390-21	INDUCTOR CHIP 0UH	
FB319	1-412-390-21	INDUCTOR CHIP 0UH	
FB320	1-412-390-21	INDUCTOR CHIP 0UH	
FB321	1-412-390-21	INDUCTOR CHIP 0UH	
FB322	1-412-390-21	INDUCTOR CHIP 0UH	
FB323	1-412-390-21	INDUCTOR CHIP 0UH	
FB324	1-412-390-21	INDUCTOR CHIP 0UH	
FB325	1-412-390-21	INDUCTOR CHIP 0UH	
FB327	1-412-390-21	INDUCTOR CHIP 0UH	
FB328	1-412-390-21	INDUCTOR CHIP 0UH	
FB329	1-412-390-21	INDUCTOR CHIP 0UH	
FB330	1-412-390-21	INDUCTOR CHIP 0UH	
FB331	1-412-390-21	INDUCTOR CHIP 0UH	
FB332	1-412-390-21	INDUCTOR CHIP 0UH	
FB334	1-412-390-21	INDUCTOR CHIP 0UH	
FB335	1-412-390-21	INDUCTOR CHIP 0UH	
FB336	1-412-390-21	INDUCTOR CHIP 0UH	
FB337	1-412-390-21	INDUCTOR CHIP 0UH	
FB338	1-412-390-21	INDUCTOR CHIP 0UH	
FB339	1-412-390-21	INDUCTOR CHIP 0UH	
FB340	1-412-390-21	INDUCTOR CHIP 0UH	
FB343	1-412-390-21	INDUCTOR CHIP 0UH	
FB344	1-412-390-21	INDUCTOR CHIP 0UH	
FB345	1-412-390-21	INDUCTOR CHIP 0UH	
FB346	1-412-390-21	INDUCTOR CHIP 0UH	
FB347	1-412-390-21	INDUCTOR CHIP 0UH	
FB348	1-412-390-21	INDUCTOR CHIP 0UH	
FB349	1-412-390-21	INDUCTOR CHIP 0UH	
FB510	1-412-390-21	INDUCTOR CHIP 0UH	
FB511	1-412-390-21	INDUCTOR CHIP 0UH	
FB512	1-412-390-21	INDUCTOR CHIP 0UH	
FB920	1-412-390-21	INDUCTOR CHIP 0UH	
FB921	1-412-390-21	INDUCTOR CHIP 0UH	
FB922	1-412-390-21	INDUCTOR CHIP 0UH	
		<FILTER>	
FL102	1-236-388-11	FILTER, EMI	
FL103	1-236-388-11	FILTER, EMI	
FL104	1-236-388-11	FILTER, EMI	
FL105	1-236-388-11	FILTER, EMI	
FL106	1-236-388-11	FILTER, EMI	
FL107	1-236-388-11	FILTER, EMI	
FL201	1-239-839-11	FILTER, LOW PASS	
FL202	1-236-265-11	FILTER, BAND PASS	
FL203	1-239-564-11	FILTER, LOW PASS	
FL301	1-239-564-11	FILTER, LOW PASS	
FL304	1-406-515-11	DELAY LINE, LC	
FL501	1-239-563-11	FILTER, LOW PASS	
FL502	1-239-563-11	FILTER, LOW PASS	
FL503	1-239-563-11	FILTER, LOW PASS	
FL504	1-239-564-11	FILTER, LOW PASS	
FL505	1-236-265-11	FILTER, BAND PASS	
		<IC>	
IC102	8-759-105-49	IC UPC319G2	
IC103	8-759-100-97	IC UPC339G2	
IC104	8-759-996-43	IC RC4558PS	
IC106	8-759-710-12	IC NJM2230M	
IC107	8-752-326-08	IC CXD1159Q	
IC108	8-759-907-81	IC SN74LS221NS	
IC109	8-759-242-70	IC TC7WU04F	
IC110	8-759-907-81	IC SN74LS221NS	
IC111	8-759-981-48	IC TL082M	
IC112	8-759-011-65	IC MC74HC4053F	

Ref.No	Part No.	Description	Remark
IC113	8-759-157-22	IC PQ05TZ1U	
IC114	8-759-157-17	IC PQ05SZ1U	
IC119	8-759-097-87	IC MB621948	
IC121	8-752-352-21	IC CXD2024Q	
IC122	8-759-710-86	IC NJM2233BM	
IC123	8-759-710-07	IC NJM2234M	
IC125	8-759-710-86	IC NJM2233BM	
IC126	8-759-242-64	IC TC4W53F	
IC128	8-759-242-72	IC TC7W00F	
IC130	8-752-341-58	IC CXD1217Q	
IC301	8-752-054-80	IC CXA1521M	
IC302	8-759-011-65	IC MC74HC4053F	
IC303	8-759-998-96	IC LM324D	
IC304	8-759-998-96	IC LM324D	
IC306	8-759-105-49	IC UPC319G2	
IC307	8-759-635-27	IC M62352GP	
IC308	8-759-635-27	IC M62352GP	
IC309	8-759-044-78	IC AK6420F	
IC310	8-752-340-25	IC CXL5505M	
IC311	8-752-058-96	IC CXA1585Q	
IC312	8-759-030-61	IC TL431CM	
IC313	8-759-745-64	IC NJM4560M	
IC314	8-759-998-96	IC LM324D	
IC320	8-759-745-64	IC NJM4560M	
IC501	8-759-011-65	IC MC74HC4053F	
IC504	8-759-248-84	IC M50555-216FP-TE2	
IC506	8-752-033-07	IC CXA1145M	
IC507	8-752-053-21	IC CXA1211M	
IC508	8-759-710-86	IC NJM2233BM	
IC511	8-752-053-21	IC CXA1211M	
IC601	8-759-710-07	IC NJM2234M	
IC602	8-759-710-86	IC NJM2233BM	
IC603	8-759-710-86	IC NJM2233BM	
		<JACK>	
J101	1-565-276-21	JACK, ULTRA SMALL 1P	
		<INDUCTOR>	
L101	1-410-389-31	INDUCTOR CHIP 47UH	
L102	1-410-388-31	INDUCTOR CHIP 39UH	
L103	1-412-137-11	INDUCTOR 10UH	
L110	1-410-200-31	INDUCTOR CHIP 4.7UH	
L120	1-410-385-11	INDUCTOR CHIP 22UH	
L130	1-410-385-11	INDUCTOR CHIP 22UH	
L140	1-410-385-11	INDUCTOR CHIP 22UH	
L141	1-410-385-11	INDUCTOR CHIP 22UH	
L301	1-410-377-31	INDUCTOR CHIP 4.7UH	
L302	1-410-389-31	INDUCTOR CHIP 47UH	
L303	1-410-388-31	INDUCTOR CHIP 39UH	
L350	1-410-377-31	INDUCTOR CHIP 4.7UH	
L501	1-410-384-31	INDUCTOR CHIP 18UH	
L600	1-424-090-11	COIL, LINE FILTER	
L601	1-424-090-11	COIL, LINE FILTER	
L602	1-424-090-11	COIL, LINE FILTER	
L900	1-424-090-11	COIL, LINE FILTER	
L901	1-410-730-11	INDUCTOR 0.12UH	
L902	1-410-730-11	INDUCTOR 0.12UH	
L903	1-410-730-11	INDUCTOR 0.12UH	
L904	1-412-188-11	INDUCTOR 22UH	
L905	1-412-188-11	INDUCTOR 22UH	

Ref.No	Part No.	Description	Remark
		<FILTER>	
LF101	1-424-090-11	COIL, LINE FILTER	
LF102	1-424-090-11	COIL, LINE FILTER	
LF106	1-424-090-11	COIL, LINE FILTER	
		<TRANSISTOR>	
Q101	8-729-010-60	TRANSISTOR MSA1586-BC	
Q102	8-729-010-60	TRANSISTOR MSA1586-BC	
Q103	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q104	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q105	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q106	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q108	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q109	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q110	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q111	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q112	8-729-010-60	TRANSISTOR MSA1586-BC	
Q113	8-729-402-87	TRANSISTOR XN2401	
Q116	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q117	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q118	8-729-402-84	TRANSISTOR XN4601	
Q119	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q120	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q121	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q122	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q123	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q124	8-729-402-84	TRANSISTOR XN4601	
Q125	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q126	8-729-402-84	TRANSISTOR XN4601	
Q170	8-729-010-60	TRANSISTOR MSA1586-BC	
Q171	8-729-013-88	TRANSISTOR RN1302-TE85L	
Q301	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q302	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q303	8-729-402-84	TRANSISTOR XN4601	
Q304	8-729-402-84	TRANSISTOR XN4601	
Q305	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q306	8-729-010-60	TRANSISTOR MSA1586-BC	
Q307	8-729-232-66	TRANSISTOR 2SA1618Y	
Q308	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q309	8-729-402-81	TRANSISTOR XN4501	
Q310	8-729-010-60	TRANSISTOR MSA1586-BC	
Q311	8-729-402-81	TRANSISTOR XN4501	
Q312	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q316	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q320	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q321	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q322	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q323	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q324	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q326	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q328	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q329	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q330	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q331	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q334	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q335	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q336	8-729-010-60	TRANSISTOR MSA1586-BC	
Q350	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q360	8-729-402-84	TRANSISTOR XN4601	
Q361	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q501	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q502	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q503	8-729-010-60	TRANSISTOR MSA1586-BC	
Q504	8-729-010-60	TRANSISTOR MSA1586-BC	
Q505	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q506	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q507	8-729-232-66	TRANSISTOR 2SA1618Y	
Q508	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q509	8-729-232-66	TRANSISTOR 2SA1618Y	
Q510	8-729-232-66	TRANSISTOR 2SA1618Y	
Q511	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q512	8-729-010-60	TRANSISTOR MSA1586-BC	
Q513	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q514	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q515	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q516	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q517	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q518	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q519	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q520	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q521	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q522	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q523	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q525	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q526	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q527	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q528	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q529	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q530	8-729-010-60	TRANSISTOR MSA1586-BC	
Q531	8-729-010-60	TRANSISTOR MSA1586-BC	
Q532	8-729-010-60	TRANSISTOR MSA1586-BC	
Q540	8-729-014-86	TRANSISTOR 2SC4207-YGRTE85L	
Q601	8-729-013-88	TRANSISTOR RN1302-TE85L	
Q602	8-729-013-88	TRANSISTOR RN1302-TE85L	
Q901	8-729-010-60	TRANSISTOR MSA1586-BC	
Q902	8-729-010-75	TRANSISTOR MSC4116-B/C	
Q910	8-729-010-60	TRANSISTOR MSA1586-BC	
		<RESISTOR>	
R101	1-216-051-00	METAL 1.2K 5% 1/10W	
R102	1-216-053-00	METAL 1.5K 5% 1/10W	
R103	1-216-053-00	METAL 1.5K 5% 1/10W	
R105	1-216-057-00	METAL 2.2K 5% 1/10W	
R106	1-216-057-00	METAL 2.2K 5% 1/10W	
R107	1-216-065-00	METAL 4.7K 5% 1/10W	
R108	1-216-057-00	METAL 2.2K 5% 1/10W	
R109	1-216-057-00	METAL 2.2K 5% 1/10W	
R110	1-216-053-00	METAL 1.5K 5% 1/10W	
R111	1-216-075-00	METAL 12K 5% 1/10W	
R112	1-216-001-00	METAL 10 5% 1/10W	
R113	1-216-057-00	METAL 2.2K 5% 1/10W	
R114	1-216-065-00	METAL 4.7K 5% 1/10W	
R115	1-216-057-00	METAL 2.2K 5% 1/10W	
R116	1-216-081-00	METAL 22K 5% 1/10W	
R117	1-216-049-00	METAL 1K 5% 1/10W	
R118	1-216-075-00	METAL 12K 5% 1/10W	
R119	1-216-073-00	METAL 10K 5% 1/10W	
R120	1-216-075-00	METAL 12K 5% 1/10W	
R121	1-216-035-00	METAL 270 5% 1/10W	
R122	1-216-295-00	METAL 0 5% 1/10W	
R123	1-216-049-00	METAL 1K 5% 1/10W	
R124	1-216-065-00	METAL 4.7K 5% 1/10W	
R125	1-216-033-00	METAL 220 5% 1/10W	
R127	1-216-037-00	METAL 330 5% 1/10W	
R128	1-216-085-00	METAL 33K 5% 1/10W	
R129	1-216-069-00	METAL 6.8K 5% 1/10W	
R130	1-216-083-00	METAL 27K 5% 1/10W	
R131	1-216-073-00	METAL 10K 5% 1/10W	

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Ref.No	Part No.	Description			Remark
R132	1-216-073-00	METAL	10K	5%	1/10W
R133	1-216-097-00	METAL	100K	5%	1/10W
R134	1-216-049-00	METAL	1K	5%	1/10W
R135	1-216-033-00	METAL	220	5%	1/10W
R137	1-216-053-00	METAL	1.5K	5%	1/10W
R138	1-216-051-00	METAL	1.2K	5%	1/10W
R139	1-216-053-00	METAL	1.5K	5%	1/10W
R140	1-216-073-00	METAL	10K	5%	1/10W
R141	1-216-069-00	METAL	6.8K	5%	1/10W
R142	1-216-081-00	METAL	22K	5%	1/10W
R143	1-216-081-00	METAL	22K	5%	1/10W
R144	1-216-105-00	METAL	220K	5%	1/10W
R145	1-216-067-00	METAL	5.6K	5%	1/10W
R146	1-216-055-00	METAL	1.8K	5%	1/10W
R147	1-216-057-00	METAL	2.2K	5%	1/10W
R148	1-216-057-00	METAL	2.2K	5%	1/10W
R149	1-216-063-00	METAL	3.9K	5%	1/10W
R150	1-216-057-00	METAL	2.2K	5%	1/10W
R151	1-216-043-00	METAL	560	5%	1/10W
R152	1-216-031-00	METAL	180	5%	1/10W
R153	1-216-043-00	METAL	560	5%	1/10W
R154	1-216-057-00	METAL	2.2K	5%	1/10W
R155	1-216-093-00	METAL	68K	5%	1/10W
R156	1-216-021-00	METAL	68	5%	1/10W
R157	1-216-057-00	METAL	2.2K	5%	1/10W
R158	1-216-061-00	METAL	3.3K	5%	1/10W
R159	1-216-057-00	METAL	2.2K	5%	1/10W
R160	1-216-065-00	METAL	4.7K	5%	1/10W
R161	1-216-069-00	METAL	6.8K	5%	1/10W
R162	1-216-665-11	METAL	3.9K	0.50%	1/10W
R163	1-216-053-00	METAL	1.5K	5%	1/10W
R164	1-216-073-00	METAL	10K	5%	1/10W
R165	1-216-065-00	METAL	4.7K	5%	1/10W
R166	1-216-047-00	METAL	820	5%	1/10W
R167	1-216-027-00	METAL	120	5%	1/10W
R168	1-216-073-00	METAL	10K	5%	1/10W
R169	1-216-069-00	METAL	6.8K	5%	1/10W
R171	1-216-065-00	METAL	4.7K	5%	1/10W
R172	1-216-057-00	METAL	2.2K	5%	1/10W
R175	1-216-049-00	METAL	1K	5%	1/10W
R176	1-216-041-00	METAL	470	5%	1/10W
R177	1-216-049-00	METAL	1K	5%	1/10W
R178	1-216-049-00	METAL	1K	5%	1/10W
R180	1-216-049-00	METAL	1K	5%	1/10W
R182	1-216-049-00	METAL	1K	5%	1/10W
R185	1-216-061-00	METAL	3.3K	5%	1/10W
R186	1-216-053-00	METAL	1.5K	5%	1/10W
R187	1-216-033-00	METAL	220	5%	1/10W
R190	1-216-057-00	METAL	2.2K	5%	1/10W
R191	1-216-057-00	METAL	2.2K	5%	1/10W
R192	1-216-049-00	METAL	1K	5%	1/10W
R193	1-216-295-00	METAL	0	5%	1/10W
R195	1-216-049-00	METAL	1K	5%	1/10W
R196	1-216-049-00	METAL	1K	5%	1/10W
R197	1-216-049-00	METAL	1K	5%	1/10W
R198	1-216-049-00	METAL	1K	5%	1/10W
R208	1-216-061-00	METAL	3.3K	5%	1/10W
R209	1-216-039-00	METAL	390	5%	1/10W
R210	1-216-041-00	METAL	470	5%	1/10W
R211	1-216-057-00	METAL	2.2K	5%	1/10W
R212	1-216-073-00	METAL	10K	5%	1/10W
R213	1-216-083-00	METAL	27K	5%	1/10W
R214	1-216-057-00	METAL	2.2K	5%	1/10W
R216	1-216-041-00	METAL	470	5%	1/10W
R217	1-216-032-00	METAL	200	5%	1/10W
R218	1-216-053-00	METAL	1.5K	5%	1/10W
R219	1-216-053-00	METAL	1.5K	5%	1/10W
R220	1-216-049-00	METAL	1K	5%	1/10W
R221	1-216-049-00	METAL	1K	5%	1/10W
R222	1-216-073-00	METAL	10K	5%	1/10W
R223	1-216-041-00	METAL	470	5%	1/10W
R224	1-216-049-00	METAL	1K	5%	1/10W
R225	1-216-053-00	METAL	1.5K	5%	1/10W
R227	1-216-053-00	METAL	1.5K	5%	1/10W
R228	1-216-049-00	METAL	1K	5%	1/10W
R229	1-216-053-00	METAL	1.5K	5%	1/10W
R230	1-216-049-00	METAL	1K	5%	1/10W
R231	1-216-051-00	METAL	1.2K	5%	1/10W
R232	1-216-041-00	METAL	470	5%	1/10W
R233	1-216-061-00	METAL	3.3K	5%	1/10W
R234	1-216-295-00	METAL	0	5%	1/10W
R235	1-216-053-00	METAL	1.5K	5%	1/10W
R236	1-216-053-00	METAL	1.5K	5%	1/10W
R237	1-216-049-00	METAL	1K	5%	1/10W
R238	1-216-049-00	METAL	1K	5%	1/10W
R239	1-216-033-00	METAL	220	5%	1/10W
R240	1-216-061-00	METAL	3.3K	5%	1/10W
R241	1-216-053-00	METAL	1.5K	5%	1/10W
R245	1-216-105-00	METAL	220K	5%	1/10W
R252	1-216-295-00	METAL	0	5%	1/10W
R255	1-216-041-00	METAL	470	5%	1/10W
R260	1-216-057-00	METAL	2.2K	5%	1/10W
R261	1-216-093-00	METAL	68K	5%	1/10W
R262	1-216-037-00	METAL	330	5%	1/10W
R263	1-216-073-00	METAL	10K	5%	1/10W
R265	1-216-073-00	METAL	10K	5%	1/10W
R266	1-216-073-00	METAL	10K	5%	1/10W
R268	1-216-037-00	METAL	330	5%	1/10W
R269	1-216-295-00	METAL	0	5%	1/10W
R272	1-216-065-00	METAL	4.7K	5%	1/10W
R273	1-216-105-00	METAL	220K	5%	1/10W
R274	1-216-073-00	METAL	10K	5%	1/10W
R280	1-216-061-00	METAL	3.3K	5%	1/10W
R282	1-216-032-00	METAL	200	5%	1/10W
R283	1-216-053-00	METAL	1.5K	5%	1/10W
R284	1-216-689-11	METAL	39K	5%	1/10W
R285	1-216-053-00	METAL	1.5K	5%	1/10W
R288	1-216-043-00	METAL	560	5%	1/10W
R289	1-216-057-00	METAL	2.2K	5%	1/10W
R290	1-216-045-00	METAL	680	5%	1/10W
R291	1-216-045-00	METAL	680	5%	1/10W
R292	1-216-031-00	METAL	180	5%	1/10W
R293	1-216-057-00	METAL	2.2K	5%	1/10W
R301	1-216-053-00	METAL	1.5K	5%	1/10W
R302	1-216-053-00	METAL	1.5K	5%	1/10W
R303	1-216-053-00	METAL	1.5K	5%	1/10W
R304	1-216-033-00	METAL	220	5%	1/10W
R305	1-216-033-00	METAL	220	5%	1/10W
R306	1-216-057-00	METAL	2.2K	5%	1/10W
R307	1-216-057-00	METAL	2.2K	5%	1/10W
R308	1-216-061-00	METAL	3.3K	5%	1/10W
R309	1-216-065-00	METAL	4.7K	5%	1/10W
R310	1-216-065-00	METAL	4.7K	5%	1/10W
R311	1-216-061-00	METAL	3.3K	5%	1/10W
R312	1-216-073-00	METAL	10K	5%	1/10W
R313	1-216-033-00	METAL	220	5%	1/10W

Ref.No	Part No.	Description			Remark
R314	1-216-033-00	METAL	220	5%	1/10W
R315	1-216-089-91	METAL	47K	5%	1/10W
R316	1-216-033-00	METAL	220	5%	1/10W
R317	1-216-033-00	METAL	220	5%	1/10W
R318	1-216-033-00	METAL	220	5%	1/10W
R319	1-216-073-00	METAL	10K	5%	1/10W
R320	1-216-033-00	METAL	220	5%	1/10W
R321	1-216-033-00	METAL	220	5%	1/10W
R322	1-216-073-00	METAL	10K	5%	1/10W
R323	1-216-073-00	METAL	10K	5%	1/10W
R324	1-216-033-00	METAL	220	5%	1/10W
R325	1-216-073-00	METAL	10K	5%	1/10W
R326	1-216-057-00	METAL	2.2K	5%	1/10W
R327	1-216-077-00	METAL	15K	5%	1/10W
R328	1-216-033-00	METAL	220	5%	1/10W
R329	1-216-033-00	METAL	220	5%	1/10W
R330	1-216-057-00	METAL	2.2K	5%	1/10W
R331	1-216-033-00	METAL	220	5%	1/10W
R332	1-216-053-00	METAL	1.5K	5%	1/10W
R333	1-216-057-00	METAL	2.2K	5%	1/10W
R334	1-216-053-00	METAL	1.5K	5%	1/10W
R335	1-216-053-00	METAL	1.5K	5%	1/10W
R336	1-216-033-00	METAL	220	5%	1/10W
R337	1-216-073-00	METAL	10K	5%	1/10W
R338	1-216-033-00	METAL	220	5%	1/10W
R339	1-216-073-00	METAL	10K	5%	1/10W
R340	1-216-057-00	METAL	2.2K	5%	1/10W
R341	1-216-057-00	METAL	2.2K	5%	1/10W
R342	1-216-045-00	METAL	680	5%	1/10W
R343	1-216-061-00	METAL	3.3K	5%	1/10W
R344	1-216-057-00	METAL	2.2K	5%	1/10W
R345	1-216-057-00	METAL	2.2K	5%	1/10W
R346	1-216-117-00	METAL	680K	5%	1/10W
R347	1-216-073-00	METAL	10K	5%	1/10W
R348	1-216-053-00	METAL	1.5K	5%	1/10W
R349	1-216-065-00	METAL	4.7K	5%	1/10W
R350	1-216-065-00	METAL	4.7K	5%	1/10W
R351	1-216-041-00	METAL	470	5%	1/10W
R352	1-216-071-00	METAL	8.2K	5%	1/10W
R353	1-216-089-91	METAL	47K	5%	1/10W
R354	1-216-073-00	METAL	10K	5%	1/10W
R355	1-216-089-91	METAL	47K	5%	1/10W
R356	1-216-073-00	METAL	10K	5%	1/10W
R357	1-216-057-00	METAL	2.2K	5%	1/10W
R358	1-216-045-00	METAL	680	5%	1/10W
R360	1-216-057-00	METAL	2.2K	5%	1/10W
R363	1-216-057-00	METAL	2.2K	5%	1/10W
R365	1-216-073-00	METAL	10K	5%	1/10W
R366	1-216-085-00	METAL	33K	5%	1/10W
R367	1-216-047-00	METAL	820	5%	1/10W
R368	1-216-049-00	METAL	1K	5%	1/10W
R369	1-216-049-00	METAL	1K	5%	1/10W
R370	1-216-041-00	METAL	470	5%	1/10W
R371	1-216-057-00	METAL	2.2K	5%	1/10W
R372	1-216-041-00	METAL	470	5%	1/10W
R376	1-216-053-00	METAL	1.5K	5%	1/10W
R378	1-216-295-00	METAL	0	5%	1/10W
R379	1-216-295-00	METAL	0	5%	1/10W
R380	1-216-033-00	METAL	220	5%	1/10W
R381	1-216-295-00	METAL	0	5%	1/10W
R382	1-216-065-00	METAL	4.7K	5%	1/10W
R383	1-216-073-00	METAL	10K	5%	1/10W
R384	1-216-061-00	METAL	3.3K	5%	1/10W
R385	1-216-065-00	METAL	4.7K	5%	1/10W
R386	1-216-033-00	METAL	220	5%	1/10W

Ref.No	Part No.	Description			Remark
R387	1-216-045-00	METAL	680	5%	1/10W
R389	1-216-045-00	METAL	680	5%	1/10W
R391	1-216-049-00	METAL	1K	5%	1/10W
R392	1-216-095-00	METAL	82K	5%	1/10W
R393	1-216-049-00	METAL	1K	5%	1/10W
R394	1-216-057-00	METAL	2.2K	5%	1/10W
R395	1-216-053-00	METAL	1.5K	5%	1/10W
R397	1-216-049-00	METAL	1K	5%	1/10W
R399	1-216-049-00	METAL	1K	5%	1/10W
R400	1-216-033-00	METAL	220	5%	1/10W
R401	1-216-053-00	METAL	1.5K	5%	1/10W
R402	1-216-053-00	METAL	1.5K	5%	1/10W
R403	1-216-295-00	METAL	0	5%	1/10W
R405	1-216-015-00	METAL	39	5%	1/10W
R406	1-216-033-00	METAL	220	5%	1/10W
R407	1-216-049-00	METAL	1K	5%	1/10W
R408	1-216-057-00	METAL	2.2K	5%	1/10W
R409	1-216-053-00	METAL	1.5K	5%	1/10W
R410	1-216-049-00	METAL	1K	5%	1/10W
R413	1-216-049-00	METAL	1K	5%	1/10W
R414	1-216-033-00	METAL	220	5%	1/10W
R415	1-216-114-00	METAL	510K	5%	1/10W
R416	1-216-053-00	METAL	1.5K	5%	1/10W
R417	1-216-053-00	METAL	1.5K	5%	1/10W
R418	1-216-049-00	METAL	1K	5%	1/10W
R419	1-216-051-00	METAL	1.2K	5%	1/10W
R420	1-216-658-11	METAL	2K	0.50%	1/10W
R422	1-216-041-00	METAL	470	5%	1/10W
R424	1-216-033-00	METAL	220	5%	1/10W
R425	1-216-061-00	METAL	3.3K	5%	1/10W
R430	1-216-057-00	METAL	2.2K	5%	1/10W
R432	1-216-057-00	METAL	2.2K	5%	1/10W
R433	1-216-053-00	METAL	1.5K	5%	1/10W
R434	1-216-075-00	METAL	12K	5%	1/10W
R435	1-216-053-00	METAL	1.5K	5%	1/10W
R436	1-216-295-00	METAL	0	5%	1/10W
R437	1-216-049-00	METAL	1K	5%	1/10W
R439	1-216-069-00	METAL	6.8K	5%	1/10W
R440	1-216-295-00	METAL	0	5%	1/10W
R441	1-216-049-00	METAL	1K	5%	1/10W
R442	1-216-033-00	METAL	220	5%	1/10W
R443	1-216-103-91	METAL	180K	5%	1/10W
R444	1-216-033-00	METAL	220	5%	1/10W
R445	1-216-025-00	METAL	100	5%	1/10W
R446	1-216-033-00	METAL	220	5%	1/10W
R447	1-216-053-00	METAL	1.5K	5%	1/10W
R448	1-216-053-00	METAL	1.5K	5%	1/10W
R449	1-216-053-00	METAL	1.5K	5%	1/10W
R450	1-216-049-00	METAL	1K	5%	1/10W
R451	1-216-049-00	METAL	1K	5%	1/10W
R452	1-216-049-00	METAL	1K	5%	1/10W
R453	1-216-033-00	METAL	220	5%	1/10W
R454	1-216-295-00	METAL	0	5%	1/10W
R455	1-216-081-00	METAL	22K	5%	1/10W
R456	1-216-081-00	METAL	22K	5%	1/10W
R457	1-216-081-00	METAL	22K	5%	1/10W
R458	1-216-061-00	METAL	3.3K	5%	1/10W
R459	1-216-061-00	METAL	3.3K	5%	1/10W
R460	1-216-061-00	METAL	3.3K	5%	1/10W
R461	1-216-065-00	METAL	4.7K	5%	1/10W
R462	1-216-051-00	METAL	1.2K	5%	1/10W
R463	1-216-059-00	METAL	2.7K	5%	1/10W
R464	1-216-097-00	METAL	100K	5%	1/10W
R465	1-216-049-00	METAL	1K	5%	1/10W
R466	1-216-061-00	METAL	3.3K	5%	1/10W

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Ref.No	Part No.	Description			Remark
R467	1-216-049-00	METAL	1K	5%	1/10W
R468	1-216-065-00	METAL	4.7K	5%	1/10W
R469	1-216-081-00	METAL	22K	5%	1/10W
R470	1-216-071-00	METAL	8.2K	5%	1/10W
R471	1-216-073-00	METAL	10K	5%	1/10W
R472	1-216-053-00	METAL	1.5K	5%	1/10W
R473	1-216-295-00	METAL	0	5%	1/10W
R474	1-216-053-00	METAL	1.5K	5%	1/10W
R475	1-216-065-00	METAL	4.7K	5%	1/10W
R476	1-216-067-00	METAL	5.6K	5%	1/10W
R478	1-216-053-00	METAL	1.5K	5%	1/10W
R479	1-216-041-00	METAL	470	5%	1/10W
R481	1-216-295-00	METAL	0	5%	1/10W
R482	1-216-644-11	METAL	510	0.50%	1/10W
R483	1-216-033-00	METAL	220	5%	1/10W
R489	1-216-045-00	METAL	680	5%	1/10W
R490	1-216-041-00	METAL	470	5%	1/10W
R491	1-216-053-00	METAL	1.5K	5%	1/10W
R493	1-216-061-00	METAL	3.3K	5%	1/10W
R494	1-216-071-00	METAL	8.2K	5%	1/10W
R495	1-216-073-00	METAL	10K	5%	1/10W
R496	1-216-073-00	METAL	10K	5%	1/10W
R497	1-216-073-00	METAL	10K	5%	1/10W
R498	1-216-073-00	METAL	10K	5%	1/10W
R499	1-216-077-00	METAL	15K	5%	1/10W
R501	1-216-057-00	METAL	2.2K	5%	1/10W
R502	1-216-057-00	METAL	2.2K	5%	1/10W
R503	1-216-057-00	METAL	2.2K	5%	1/10W
R504	1-216-295-00	METAL	0	5%	1/10W
R505	1-216-033-00	METAL	220	5%	1/10W
R506	1-216-033-00	METAL	220	5%	1/10W
R507	1-216-033-00	METAL	220	5%	1/10W
R508	1-216-033-00	METAL	220	5%	1/10W
R509	1-216-057-00	METAL	2.2K	5%	1/10W
R510	1-216-057-00	METAL	2.2K	5%	1/10W
R511	1-216-057-00	METAL	2.2K	5%	1/10W
R512	1-216-033-00	METAL	220	5%	1/10W
R514	1-216-057-00	METAL	2.2K	5%	1/10W
R515	1-216-033-00	METAL	220	5%	1/10W
R516	1-216-033-00	METAL	220	5%	1/10W
R517	1-216-033-00	METAL	220	5%	1/10W
R518	1-216-033-00	METAL	220	5%	1/10W
R519	1-216-057-00	METAL	2.2K	5%	1/10W
R520	1-216-033-00	METAL	220	5%	1/10W
R521	1-216-033-00	METAL	220	5%	1/10W
R522	1-216-057-00	METAL	2.2K	5%	1/10W
R523	1-216-057-00	METAL	2.2K	5%	1/10W
R524	1-216-057-00	METAL	2.2K	5%	1/10W
R526	1-216-295-00	METAL	0	5%	1/10W
R527	1-216-053-00	METAL	1.5K	5%	1/10W
R528	1-216-033-00	METAL	220	5%	1/10W
R529	1-216-057-00	METAL	2.2K	5%	1/10W
R530	1-216-049-00	METAL	1K	5%	1/10W
R531	1-216-057-00	METAL	2.2K	5%	1/10W
R532	1-216-049-00	METAL	1K	5%	1/10W
R534	1-216-033-00	METAL	220	5%	1/10W
R535	1-216-033-00	METAL	220	5%	1/10W
R536	1-216-033-00	METAL	220	5%	1/10W
R537	1-216-049-00	METAL	1K	5%	1/10W
R538	1-216-049-00	METAL	1K	5%	1/10W
R539	1-216-685-11	METAL	27K	0.50%	1/10W
R540	1-216-049-00	METAL	1K	5%	1/10W
R541	1-216-049-00	METAL	1K	5%	1/10W
R542	1-216-049-00	METAL	1K	5%	1/10W
R543	1-216-057-00	METAL	2.2K	5%	1/10W
R544	1-216-049-00	METAL	1K	5%	1/10W
R545	1-216-057-00	METAL	2.2K	5%	1/10W
R546	1-216-049-00	METAL	1K	5%	1/10W
R547	1-216-057-00	METAL	2.2K	5%	1/10W
R548	1-216-049-00	METAL	1K	5%	1/10W
R549	1-216-049-00	METAL	1K	5%	1/10W
R550	1-216-049-00	METAL	1K	5%	1/10W
R551	1-216-057-00	METAL	2.2K	5%	1/10W
R552	1-216-057-00	METAL	2.2K	5%	1/10W
R553	1-216-033-00	METAL	220	5%	1/10W
R554	1-216-059-00	METAL	2.7K	5%	1/10W
R555	1-216-059-00	METAL	2.7K	5%	1/10W
R556	1-216-033-00	METAL	220	5%	1/10W
R557	1-216-041-00	METAL	470	5%	1/10W
R558	1-216-041-00	METAL	470	5%	1/10W
R560	1-216-041-00	METAL	470	5%	1/10W
R561	1-216-001-00	METAL	10	5%	1/10W
R563	1-216-001-00	METAL	10	5%	1/10W
R564	1-216-001-00	METAL	10	5%	1/10W
R565	1-216-001-00	METAL	10	5%	1/10W
R566	1-216-001-00	METAL	10	5%	1/10W
R567	1-216-001-00	METAL	10	5%	1/10W
R568	1-216-051-00	METAL	1.2K	5%	1/10W
R569	1-216-063-00	METAL	3.9K	5%	1/10W
R570	1-216-051-00	METAL	1.2K	5%	1/10W
R571	1-216-061-00	METAL	3.3K	5%	1/10W
R572	1-216-041-00	METAL	470	5%	1/10W
R575	1-216-041-00	METAL	470	5%	1/10W
R576	1-216-041-00	METAL	470	5%	1/10W
R577	1-216-053-00	METAL	1.5K	5%	1/10W
R578	1-216-081-00	METAL	22K	5%	1/10W
R579	1-216-081-00	METAL	22K	5%	1/10W
R581	1-216-055-00	METAL	1.8K	5%	1/10W
R582	1-216-053-00	METAL	1.5K	5%	1/10W
R583	1-216-053-00	METAL	1.5K	5%	1/10W
R584	1-216-061-00	METAL	3.3K	5%	1/10W
R585	1-216-053-00	METAL	1.5K	5%	1/10W
R587	1-216-073-00	METAL	10K	5%	1/10W
R589	1-216-033-00	METAL	220	5%	1/10W
R590	1-216-033-00	METAL	220	5%	1/10W
R591	1-216-033-00	METAL	220	5%	1/10W
R601	1-216-050-00	METAL	1.1K	5%	1/10W
R602	1-216-063-00	METAL	3.9K	5%	1/10W
R603	1-216-059-00	METAL	2.7K	5%	1/10W
R604	1-216-051-00	METAL	1.2K	5%	1/10W
R605	1-216-046-00	METAL	750	5%	1/10W
R606	1-216-041-00	METAL	470	5%	1/10W
R607	1-216-041-00	METAL	470	5%	1/10W
R608	1-216-057-00	METAL	2.2K	5%	1/10W
R609	1-216-057-00	METAL	2.2K	5%	1/10W
R620	1-216-055-00	METAL	1.8K	5%	1/10W
R621	1-216-045-00	METAL	680	5%	1/10W
R622	1-216-055-00	METAL	1.8K	5%	1/10W
R623	1-216-045-00	METAL	680	5%	1/10W
R630	1-216-037-00	METAL	330	5%	1/10W
R631	1-216-037-00	METAL	330	5%	1/10W
R901	1-216-049-00	METAL	1K	5%	1/10W
R902	1-216-049-00	METAL	1K	5%	1/10W
R903	1-216-057-00	METAL	2.2K	5%	1/10W
R905	1-216-057-00	METAL	2.2K	5%	1/10W
R906	1-216-033-00	METAL	220	5%	1/10W
R907	1-216-057-00	METAL	2.2K	5%	1/10W
R908	1-216-057-00	METAL	2.2K	5%	1/10W
R910	1-216-073-00	METAL	10K	5%	1/10W
R911	1-216-073-00	METAL	10K	5%	1/10W

Ref.No	Part No.	Description				Remark
R915	1-216-049-00	METAL	1K	5%	1/10W	
R916	1-216-057-00	METAL	2.2K	5%	1/10W	
R917	1-216-049-00	METAL	1K	5%	1/10W	
R931	1-216-025-00	METAL	100	5%	1/10W	
R932	1-216-065-00	METAL	4.7K	5%	1/10W	
R934	1-216-041-00	METAL	470	5%	1/10W	
R936	1-216-055-00	METAL	1.8K	5%	1/10W	
R937	1-216-045-00	METAL	680	5%	1/10W	
R938	1-216-045-00	METAL	680	5%	1/10W	
R939	1-216-041-00	METAL	470	5%	1/10W	
R940	1-216-295-00	METAL	0	5%	1/10W	
R941	1-216-295-00	METAL	0	5%	1/10W	
R943	1-216-295-00	METAL	0	5%	1/10W	
R945	1-216-295-00	METAL	0	5%	1/10W	
R950	1-216-041-00	METAL	470	5%	1/10W	
R951	1-216-097-00	METAL	100K	5%	1/10W	
R952	1-216-065-00	METAL	4.7K	5%	1/10W	
R954	1-216-065-00	METAL	4.7K	5%	1/10W	
R960	1-216-059-00	METAL	2.7K	5%	1/10W	
R982	1-216-049-00	METAL	1K	5%	1/10W	
R983	1-216-049-00	METAL	1K	5%	1/10W	
R984	1-216-049-00	METAL	1K	5%	1/10W	
		<VARIABLE RESISTOR>				
RV301	1-238-852-11	RES, ADJ, CERMET 470				
RV302	1-238-852-11	RES, ADJ, CERMET 470				
RV303	1-238-852-11	RES, ADJ, CERMET 470				
RV304	1-238-852-11	RES, ADJ, CERMET 470				
		<CRYSTAL>				
X101	1-760-193-11	VIBRATOR, CRYSTAL				
X102	1-579-780-21	VIBRATOR, CRYSTAL				
X301	1-579-661-21	OSCILLATOR, CRYSTAL				

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	*A-8275-445-A	DUS-12 BOARD, COMPLETE				
		**********				
		<CAPACITOR>				
C901	1-165-319-11	CERAMIC	0.1uF			50V
		<CONNECTOR>				
CN907	1-506-468-11	PIN, CONNECTOR 3P				
CN908	1-506-468-11	PIN, CONNECTOR 3P				
CN911	1-506-470-11	PIN, CONNECTOR 5P				
CN912	1-506-467-11	PIN, CONNECTOR 2P				
		<IC>				
IC901	8-759-633-10	IC M54544AL				
IC902	8-759-100-93	IC UPC393G2				
		<REGISTOR>				
R901	1-216-037-00	METAL	330	5%	1/10W	
R902	1-216-085-00	METAL	33K	5%	1/10W	
R903	1-216-085-00	METAL	33K	5%	1/10W	
R904	1-216-081-00	METAL	22K	5%	1/10W	
R905	1-216-073-00	METAL	10K	5%	1/10W	
R906	1-216-105-00	METAL	220K	5%	1/10W	
R907	1-216-089-91	METAL	47K	5%	1/10W	
R908	1-216-097-00	METAL	100K	5%	1/10W	
R909	1-216-097-00	METAL	100K	5%	1/10W	
R924	1-216-041-00	METAL	470	5%	1/10W	
R925	1-216-041-00	METAL	470	5%	1/10W	

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Ref.No	Part No.	Description				Remark
	*A-8275-599-A	FMY-13P BOARD, COMPLETE				
		**********				
		<BUZZER>				
BZ901	1-529-069-11	BUZZER, PIEZOELECTRIC				
		<CAPACITOR>				
C102	1-163-227-11	CERAMIC	10PF			50V
C103	1-126-204-11	ELECT	47uF	20%		16V
C104	1-163-038-00	CERAMIC	0.1uF			25V
C105	1-163-038-00	CERAMIC	0.1uF			25V
C106	1-163-038-00	CERAMIC	0.1uF			25V
C108	1-163-038-00	CERAMIC	0.1uF			25V
C110	1-126-217-11	ELECT	15uF	20%		10V
C111	1-163-038-00	CERAMIC	0.1uF			25V
C112	1-163-117-00	CERAMIC	100PF	5%		50V
C113	1-126-217-11	ELECT	15uF	20%		10V
C114	1-163-038-00	CERAMIC	0.1uF			25V
C115	1-126-217-11	ELECT	15uF	20%		10V
C116	1-163-038-00	CERAMIC	0.1uF			25V
C202	1-163-227-11	CERAMIC	10PF			50V
C204	1-163-038-00	CERAMIC	0.1uF			25V
C205	1-163-038-00	CERAMIC	0.1uF			25V
C206	1-163-038-00	CERAMIC	0.1uF			25V
C208	1-163-038-00	CERAMIC	0.1uF			25V
C210	1-126-217-11	ELECT	15uF	20%		10V
C211	1-163-038-00	CERAMIC	0.1uF			25V
C212	1-163-117-00	CERAMIC	100PF	5%		50V
C213	1-126-217-11	ELECT	15uF	20%		10V
C214	1-163-038-00	CERAMIC	0.1uF			25V
C215	1-126-217-11	ELECT	15uF	20%		10V
C216	1-163-038-00	CERAMIC	0.1uF			25V
C302	1-163-227-11	CERAMIC	10PF			50V
C304	1-163-077-00	CERAMIC	0.1uF	10%		25V
C305	1-163-038-00	CERAMIC	0.1uF			25V
C306	1-163-038-00	CERAMIC	0.1uF			25V
C308	1-163-038-00	CERAMIC	0.1uF			25V
C310	1-126-217-11	ELECT	15uF	20%		10V
C311	1-163-038-00	CERAMIC	0.1uF			25V
C312	1-163-117-00	CERAMIC	100PF	5%		50V
C313	1-126-217-11	ELECT	15uF	20%		10V
C314	1-163-038-00	CERAMIC	0.1uF			25V
C315	1-126-217-11	ELECT	15uF	20%		10V
C316	1-163-038-00	CERAMIC	0.1uF			25V
C401	1-163-038-00	CERAMIC	0.1uF			25V
C402	1-164-004-11	CERAMIC	0.1uF	10%		25V
C403	1-163-038-00	CERAMIC	0.1uF			25V
C404	1-163-038-00	CERAMIC	0.1uF			25V
C406	1-163-038-00	CERAMIC	0.1uF			25V
C407	1-163-038-00	CERAMIC	0.1uF			25V
C408	1-163-038-00	CERAMIC	0.1uF			25V
C409	1-163-038-00	CERAMIC	0.1uF			25V
C410	1-126-204-11	ELECT	47uF	20%		16V
C411	1-126-204-11	ELECT	47uF	20%		16V
C412	1-126-204-11	ELECT	47uF	20%		16V
C413	1-163-038-00	CERAMIC	0.1uF			25V
C414	1-163-038-00	CERAMIC	0.1uF			25V
C415	1-126-204-11	ELECT	47uF	20%		16V
C416	1-163-038-00	CERAMIC	0.1uF			25V
C417	1-163-038-00	CERAMIC	0.1uF			25V
C418	1-163-038-00	CERAMIC	0.1uF			25V
C420	1-164-004-11	CERAMIC	0.1uF	10%		25V
C421	1-163-132-00	CERAMIC	430PF	5%		50V
C422	1-163-113-00	CERAMIC	68PF	5%		50V
C423	1-163-113-00	CERAMIC	68PF	5%		50V

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Ref.No	Part No.	Description			Remark
C424	1-163-113-00	CERAMIC	68PF	5%	50V
C425	1-163-113-00	CERAMIC	68PF	5%	50V
C426	1-163-113-00	CERAMIC	68PF	5%	50V
C427	1-163-113-00	CERAMIC	68PF	5%	50V
C428	1-163-113-00	CERAMIC	68PF	5%	50V
C429	1-163-113-00	CERAMIC	68PF	5%	50V
C430	1-163-113-00	CERAMIC	68PF	5%	50V
C501	1-164-346-11	CERAMIC	1uF		16V
C502	1-164-346-11	CERAMIC	1uF		16V
C503	1-164-346-11	CERAMIC	1uF		16V
C504	1-164-346-11	CERAMIC	1uF		16V
C505	1-164-346-11	CERAMIC	1uF		16V
C506	1-164-346-11	CERAMIC	1uF		16V
C507	1-163-038-00	CERAMIC	0.1uF		25V
C508	1-126-204-11	ELECT	47uF	20%	16V
C519	1-163-109-00	CERAMIC	47PF	5%	50V
C520	1-163-109-00	CERAMIC	47PF	5%	50V
C521	1-163-117-00	CERAMIC	100PF	5%	50V
C522	1-163-038-00	CERAMIC	0.1uF		25V
C523	1-163-038-00	CERAMIC	0.1uF		25V
C526	1-163-038-00	CERAMIC	0.1uF		25V
C527	1-163-038-00	CERAMIC	0.1uF		25V
C528	1-163-038-00	CERAMIC	0.1uF		25V
C529	1-126-204-11	ELECT	47uF	20%	16V
C530	1-164-346-11	CERAMIC	1uF		16V
C531	1-163-109-00	CERAMIC	47PF	5%	50V
C532	1-163-235-11	CERAMIC	22PF	5%	50V
C533	1-163-235-11	CERAMIC	22PF	5%	50V
C534	1-126-204-11	ELECT	47uF	20%	16V
C535	1-163-038-00	CERAMIC	0.1uF		25V
C536	1-163-109-00	CERAMIC	47PF	5%	50V
C537	1-163-038-00	CERAMIC	0.1uF		25V
C538	1-163-038-00	CERAMIC	0.1uF		25V
C539	1-163-038-00	CERAMIC	0.1uF		25V
C540	1-163-038-00	CERAMIC	0.1uF		25V
C541	1-163-038-00	CERAMIC	0.1uF		25V
C542	1-163-038-00	CERAMIC	0.1uF		25V
C543	1-163-038-00	CERAMIC	0.1uF		25V
C544	1-163-038-00	CERAMIC	0.1uF		25V
C545	1-126-204-11	ELECT	47uF	20%	16V
C546	1-163-038-00	CERAMIC	0.1uF		25V
C547	1-163-038-00	CERAMIC	0.1uF		25V
C548	1-163-038-00	CERAMIC	0.1uF		25V
C549	1-163-113-00	CERAMIC	68PF	5%	50V
C550	1-163-038-00	CERAMIC	0.1uF		25V
C551	1-163-038-00	CERAMIC	0.1uF		25V
C601	1-163-037-11	CERAMIC	0.022uF	10%	25V
C602	1-128-065-11	ELECT	68uF	20%	10V
C603	1-163-037-11	CERAMIC	0.022uF	10%	25V
C604	1-128-065-11	ELECT	68uF	20%	10V
C605	1-163-037-11	CERAMIC	0.022uF	10%	25V
C606	1-126-204-11	ELECT	47uF	20%	16V
C607	1-163-037-11	CERAMIC	0.022uF	10%	25V
C608	1-126-204-11	ELECT	47uF	20%	16V
C901	1-163-038-00	CERAMIC	0.1uF		25V
C902	1-163-038-00	CERAMIC	0.1uF		25V
C903	1-163-038-00	CERAMIC	0.1uF		25V
C904	1-163-038-00	CERAMIC	0.1uF		25V
C905	1-163-038-00	CERAMIC	0.1uF		25V
C906	1-163-097-00	CERAMIC	15PF	5%	50V
C907	1-163-097-00	CERAMIC	15PF	5%	50V
C909	1-128-065-11	ELECT	68uF	20%	10V
C910	1-163-038-00	CERAMIC	0.1uF		25V
C911	1-163-038-00	CERAMIC	0.1uF		25V
C912	1-163-038-00	CERAMIC	0.1uF		25V

Ref.No	Part No.	Description	Remark
		<CONNECTOR>	
CN1	1-565-212-11	CONNECTOR, FPC (ZIF) 26P	
CN2	1-565-212-11	CONNECTOR, FPC (ZIF) 26P	
CN4	1-566-532-11	CONNECTOR, FPC (ZIF) 16P	
CN5	1-566-523-11	CONNECTOR, FPC (ZIF) 7P	
CN6	*1-506-472-11	PIN, CONNECTOR 7P	
CN7	*1-506-472-11	PIN, CONNECTOR 7P	
CN8	*1-560-894-00	PIN, CONNECTOR 6P	
CN9	1-506-469-11	PIN, CONNECTOR 4P	
CN10	1-506-469-11	PIN, CONNECTOR 4P	
		<DIODE>	
D101	8-719-820-41	DIODE 1SS302	
D201	8-719-820-41	DIODE 1SS302	
D301	8-719-820-41	DIODE 1SS302	
D901	8-719-801-78	DIODE 1SS184	
D903	8-719-104-34	DIODE 1S2836	
		<FERRITE BEAD>	
FB137	1-412-390-21	INDUCTOR CHIP 0UH	
FB138	1-412-390-21	INDUCTOR CHIP 0UH	
FB139	1-412-390-21	INDUCTOR CHIP 0UH	
FB140	1-412-390-21	INDUCTOR CHIP 0UH	
FB141	1-412-390-21	INDUCTOR CHIP 0UH	
FB142	1-412-390-21	INDUCTOR CHIP 0UH	
FB143	1-412-390-21	INDUCTOR CHIP 0UH	
FB144	1-412-390-21	INDUCTOR CHIP 0UH	
FB145	1-412-390-21	INDUCTOR CHIP 0UH	
FB147	1-412-390-21	INDUCTOR CHIP 0UH	
FB149	1-412-390-21	INDUCTOR CHIP 0UH	
FB150	1-412-390-21	INDUCTOR CHIP 0UH	
FB151	1-412-390-21	INDUCTOR CHIP 0UH	
FB152	1-412-390-21	INDUCTOR CHIP 0UH	
FB153	1-412-390-21	INDUCTOR CHIP 0UH	
FB154	1-412-390-21	INDUCTOR CHIP 0UH	
		<IC>	
IC101	8-752-337-04	IC CXD1176	
IC201	8-752-337-04	IC CXD1176	
IC301	8-752-337-04	IC CXD1176	
IC401	8-759-093-19	IC CXD8444Q	
IC402	8-752-338-46	IC CXD1178Q	
IC403	*8-759-258-60	IC M5M27C101FP-UP12M-E2	
IC404	*8-759-258-61	IC M5M27C101FP-UP12S-E2	
IC405	8-759-038-00	IC MC74HC574AF	
IC501	8-759-255-89	IC HM514400AS7GS-EL	
IC502	8-759-255-89	IC HM514400AS7GS-EL	
IC503	8-759-255-89	IC HM514400AS7GS-EL	
IC504	8-759-255-89	IC HM514400AS7GS-EL	
IC505	8-759-255-89	IC HM514400AS7GS-EL	
IC506	8-759-255-89	IC HM514400AS7GS-EL	
IC507	8-759-114-07	IC UPD65013GF-407-3BA	
IC508	8-759-114-09	IC UPD65006GF-250-3B8	
IC509	8-759-084-15	IC CXD8391Q	
IC510	*8-759-262-39	IC HD6475368F-FMY13-01	
IC511	8-759-992-78	IC 74F257ASJ-T5L	
IC512	8-759-989-03	IC 74F32SJ	
IC513	8-759-989-03	IC 74F32SJ	
IC514	8-759-948-02	IC 74F86SJ	
IC515	8-759-948-01	IC 74F04SJ	
IC516	8-759-989-01	IC 74F08SJ	
IC901	8-759-265-37	IC MB89093PFV-G-125-BND	
IC902	8-759-937-56	IC S-8054ALB-LM-S	

Ref.No	Part No.	Description				Remark
		<INDUCTOR>				
L904	1-412-188-11	INDUCTOR 22UH				
		<TRANSISTOR>				
Q101	8-729-010-75	TRANSISTOR MSC4116-B/C				
Q102	8-729-402-84	TRANSISTOR XN4601				
Q201	8-729-010-75	TRANSISTOR MSC4116-B/C				
Q202	8-729-402-84	TRANSISTOR XN4601				
Q301	8-729-010-75	TRANSISTOR MSC4116-B/C				
Q302	8-729-402-84	TRANSISTOR XN4601				
Q401	8-729-901-01	TRANSISTOR DTC144EK				
Q902	8-729-901-01	TRANSISTOR DTC144EK				
Q903	8-729-901-01	TRANSISTOR DTC144EK				
		<RESISTOR>				
R104	1-216-017-00	METAL	47	5%	1/10W	
R105	1-216-033-00	METAL	220	5%	1/10W	
R106	1-216-033-00	METAL	220	5%	1/10W	
R107	1-216-033-00	METAL	220	5%	1/10W	
R108	1-216-033-00	METAL	220	5%	1/10W	
R109	1-216-033-00	METAL	220	5%	1/10W	
R110	1-216-033-00	METAL	220	5%	1/10W	
R111	1-216-033-00	METAL	220	5%	1/10W	
R112	1-216-033-00	METAL	220	5%	1/10W	
R129	1-216-033-00	METAL	220	5%	1/10W	
R130	1-216-041-00	METAL	470	5%	1/10W	
R131	1-216-041-00	METAL	470	5%	1/10W	
R132	1-216-041-00	METAL	470	5%	1/10W	
R133	1-216-041-00	METAL	470	5%	1/10W	
R134	1-216-041-00	METAL	470	5%	1/10W	
R135	1-216-041-00	METAL	470	5%	1/10W	
R136	1-216-041-00	METAL	470	5%	1/10W	
R137	1-216-041-00	METAL	470	5%	1/10W	
R140	1-216-009-00	METAL	22	5%	1/10W	
R141	1-216-025-00	METAL	100	5%	1/10W	
R142	1-216-073-00	METAL	10K	5%	1/10W	
R143	1-216-073-00	METAL	10K	5%	1/10W	
R144	1-216-053-00	METAL	1.5K	5%	1/10W	
R145	1-216-033-00	METAL	220	5%	1/10W	
R146	1-216-053-00	METAL	1.5K	5%	1/10W	
R147	1-216-295-00	METAL	0	5%	1/10W	
R204	1-216-017-00	METAL	47	5%	1/10W	
R205	1-216-033-00	METAL	220	5%	1/10W	
R206	1-216-033-00	METAL	220	5%	1/10W	
R206	1-216-295-00	METAL	0	5%	1/10W	
R207	1-216-033-00	METAL	220	5%	1/10W	
R208	1-216-033-00	METAL	220	5%	1/10W	
R209	1-216-033-00	METAL	220	5%	1/10W	
R210	1-216-033-00	METAL	220	5%	1/10W	
R211	1-216-033-00	METAL	220	5%	1/10W	
R212	1-216-033-00	METAL	220	5%	1/10W	
R229	1-216-033-00	METAL	220	5%	1/10W	
R230	1-216-041-00	METAL	470	5%	1/10W	
R231	1-216-041-00	METAL	470	5%	1/10W	
R232	1-216-041-00	METAL	470	5%	1/10W	
R233	1-216-041-00	METAL	470	5%	1/10W	
R234	1-216-041-00	METAL	470	5%	1/10W	
R235	1-216-041-00	METAL	470	5%	1/10W	
R236	1-216-041-00	METAL	470	5%	1/10W	
R237	1-216-041-00	METAL	470	5%	1/10W	
R240	1-216-009-00	METAL	22	5%	1/10W	
R241	1-216-025-00	METAL	100	5%	1/10W	
R242	1-216-073-00	METAL	10K	5%	1/10W	
R243	1-216-073-00	METAL	10K	5%	1/10W	
R244	1-216-053-00	METAL	1.5K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R245	1-216-033-00	METAL	220	5%	1/10W	
R246	1-216-053-00	METAL	1.5K	5%	1/10W	
R247	1-216-295-00	METAL	0	5%	1/10W	
R304	1-216-017-00	METAL	47	5%	1/10W	
R305	1-216-033-00	METAL	220	5%	1/10W	
R306	1-216-033-00	METAL	220	5%	1/10W	
R307	1-216-033-00	METAL	220	5%	1/10W	
R308	1-216-033-00	METAL	220	5%	1/10W	
R309	1-216-033-00	METAL	220	5%	1/10W	
R310	1-216-033-00	METAL	220	5%	1/10W	
R311	1-216-033-00	METAL	220	5%	1/10W	
R312	1-216-033-00	METAL	220	5%	1/10W	
R329	1-216-033-00	METAL	220	5%	1/10W	
R330	1-216-041-00	METAL	470	5%	1/10W	
R331	1-216-041-00	METAL	470	5%	1/10W	
R332	1-216-041-00	METAL	470	5%	1/10W	
R333	1-216-041-00	METAL	470	5%	1/10W	
R334	1-216-041-00	METAL	470	5%	1/10W	
R335	1-216-041-00	METAL	470	5%	1/10W	
R336	1-216-041-00	METAL	470	5%	1/10W	
R337	1-216-041-00	METAL	470	5%	1/10W	
R340	1-216-009-00	METAL	22	5%	1/10W	
R341	1-216-025-00	METAL	100	5%	1/10W	
R342	1-216-073-00	METAL	10K	5%	1/10W	
R343	1-216-073-00	METAL	10K	5%	1/10W	
R344	1-216-053-00	METAL	1.5K	5%	1/10W	
R345	1-216-033-00	METAL	220	5%	1/10W	
R346	1-216-053-00	METAL	1.5K	5%	1/10W	
R347	1-216-295-00	METAL	0	5%	1/10W	
R401	1-216-295-00	METAL	0	5%	1/10W	
R402	1-216-017-00	METAL	47	5%	1/10W	
R403	1-216-032-00	METAL	200	5%	1/10W	
R404	1-216-032-00	METAL	200	5%	1/10W	
R405	1-216-032-00	METAL	200	5%	1/10W	
R406	1-216-061-00	METAL	3.3K	5%	1/10W	
R422	1-216-065-00	METAL	4.7K	5%	1/10W	
R423	1-216-295-00	METAL	0	5%	1/10W	
R424	1-216-295-00	METAL	0	5%	1/10W	
R426	1-216-295-00	METAL	0	5%	1/10W	
R427	1-216-069-00	METAL	6.8K	5%	1/10W	
R428	1-216-069-00	METAL	6.8K	5%	1/10W	
R429	1-216-049-00	METAL	1K	5%	1/10W	
R429	1-216-049-00	METAL	1K	5%	1/10W	
R430	1-216-295-00	METAL	0	5%	1/10W	
R441	1-216-295-00	METAL	0	5%	1/10W	
R442	1-216-073-00	METAL	10K	5%	1/10W	
R443	1-216-063-00	METAL	3.9K	5%	1/10W	
R444	1-216-037-00	METAL	330	5%	1/10W	
R445	1-216-025-00	METAL	100	5%	1/10W	
R446	1-216-077-00	METAL	15K	5%	1/10W	
R447	1-216-073-00	METAL	10K	5%	1/10W	
R448	1-216-033-00	METAL	220	5%	1/10W	
R449	1-216-037-00	METAL	330	5%	1/10W	
R450	1-216-033-00	METAL	220	5%	1/10W	
R451	1-216-077-00	METAL	15K	5%	1/10W	
R452	1-216-073-00	METAL	10K	5%	1/10W	
R453	1-216-033-00	METAL	220	5%	1/10W	
R454	1-216-037-00	METAL	330	5%	1/10W	
R455	1-216-033-00	METAL	220	5%	1/10W	
R456	1-216-121-00	METAL	1M	5%	1/10W	
R457	1-216-121-00	METAL	1M	5%	1/10W	
R458	1-216-121-00	METAL	1M	5%	1/10W	
R459	1-216-295-00	METAL	0	5%	1/10W	
R471	1-216-295-00	METAL	0	5%	1/10W	
R474	1-216-295-00	METAL	0	5%	1/10W	

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Ref.No	Part No.	Description			Remark
R476	1-216-295-00	METAL	0	5%	1/10W
R478	1-216-121-00	METAL	1M	5%	1/10W
R501	1-216-017-00	METAL	47	5%	1/10W
R502	1-216-017-00	METAL	47	5%	1/10W
R503	1-216-017-00	METAL	47	5%	1/10W
R504	1-216-017-00	METAL	47	5%	1/10W
R505	1-216-017-00	METAL	47	5%	1/10W
R506	1-216-017-00	METAL	47	5%	1/10W
R507	1-216-017-00	METAL	47	5%	1/10W
R508	1-216-017-00	METAL	47	5%	1/10W
R509	1-216-017-00	METAL	47	5%	1/10W
R510	1-216-017-00	METAL	47	5%	1/10W
R511	1-216-049-00	METAL	1K	5%	1/10W
R512	1-216-049-00	METAL	1K	5%	1/10W
R513	1-216-017-00	METAL	47	5%	1/10W
R514	1-216-017-00	METAL	47	5%	1/10W
R515	1-216-017-00	METAL	47	5%	1/10W
R517	1-216-017-00	METAL	47	5%	1/10W
R518	1-216-017-00	METAL	47	5%	1/10W
R519	1-216-025-00	METAL	100	5%	1/10W
R525	1-216-017-00	METAL	47	5%	1/10W
R526	1-216-017-00	METAL	47	5%	1/10W
R527	1-216-049-00	METAL	1K	5%	1/10W
R530	1-216-041-00	METAL	470	5%	1/10W
R531	1-216-017-00	METAL	47	5%	1/10W
R532	1-216-017-00	METAL	47	5%	1/10W
R536	1-216-017-00	METAL	47	5%	1/10W
R541	1-216-017-00	METAL	47	5%	1/10W
R542	1-216-065-00	METAL	4.7K	5%	1/10W
R551	1-216-295-00	METAL	0	5%	1/10W
R556	1-216-295-00	METAL	0	5%	1/10W
R564	1-216-033-00	METAL	220	5%	1/10W
R565	1-216-033-00	METAL	220	5%	1/10W
R566	1-216-089-91	METAL	47K	5%	1/10W
R568	1-216-295-00	METAL	0	5%	1/10W
R572	1-216-089-91	METAL	47K	5%	1/10W
R573	1-216-017-00	METAL	47	5%	1/10W
R574	1-216-017-00	METAL	47	5%	1/10W
R575	1-216-017-00	METAL	47	5%	1/10W
R576	1-216-049-00	METAL	1K	5%	1/10W
R578	1-216-295-00	METAL	0	5%	1/10W
R579	1-216-295-00	METAL	0	5%	1/10W
R580	1-216-073-00	METAL	10K	5%	1/10W
R582	1-216-295-00	METAL	0	5%	1/10W
R583	1-216-033-00	METAL	220	5%	1/10W
R584	1-216-033-00	METAL	220	5%	1/10W
R585	1-216-033-00	METAL	220	5%	1/10W
R586	1-216-033-00	METAL	220	5%	1/10W
R587	1-216-033-00	METAL	220	5%	1/10W
R588	1-216-033-00	METAL	220	5%	1/10W
R590	1-216-037-00	METAL	330	5%	1/10W
R591	1-216-037-00	METAL	330	5%	1/10W
R592	1-216-033-00	METAL	220	5%	1/10W
R593	1-216-033-00	METAL	220	5%	1/10W
R594	1-216-033-00	METAL	220	5%	1/10W
R595	1-216-033-00	METAL	220	5%	1/10W
R596	1-216-033-00	METAL	220	5%	1/10W
R597	1-216-033-00	METAL	220	5%	1/10W
R599	1-216-033-00	METAL	220	5%	1/10W
R600	1-216-033-00	METAL	220	5%	1/10W
R601	1-216-049-00	METAL	1K	5%	1/10W
R602	1-216-033-00	METAL	220	5%	1/10W
R603	1-216-033-00	METAL	220	5%	1/10W
R604	1-216-033-00	METAL	220	5%	1/10W
R605	1-216-033-00	METAL	220	5%	1/10W
R606	1-216-033-00	METAL	220	5%	1/10W
R607	1-216-033-00	METAL	220	5%	1/10W
R608	1-216-033-00	METAL	220	5%	1/10W
R609	1-216-033-00	METAL	220	5%	1/10W
R610	1-216-033-00	METAL	220	5%	1/10W
R611	1-216-033-00	METAL	220	5%	1/10W
R612	1-216-033-00	METAL	220	5%	1/10W
R613	1-216-033-00	METAL	220	5%	1/10W
R614	1-216-033-00	METAL	220	5%	1/10W
R615	1-216-033-00	METAL	220	5%	1/10W
R616	1-216-033-00	METAL	220	5%	1/10W
R617	1-216-033-00	METAL	220	5%	1/10W
R618	1-216-033-00	METAL	220	5%	1/10W
R619	1-216-033-00	METAL	220	5%	1/10W
R620	1-216-295-00	METAL	0	5%	1/10W
R621	1-216-295-00	METAL	0	5%	1/10W
R622	1-216-295-00	METAL	0	5%	1/10W
R623	1-216-295-00	METAL	0	5%	1/10W
R624	1-216-295-00	METAL	0	5%	1/10W
R625	1-216-295-00	METAL	0	5%	1/10W
R626	1-216-295-00	METAL	0	5%	1/10W
R627	1-216-295-00	METAL	0	5%	1/10W
R628	1-216-295-00	METAL	0	5%	1/10W
R642	1-216-295-00	METAL	0	5%	1/10W
R643	1-216-065-00	METAL	4.7K	5%	1/10W
R647	1-216-295-00	METAL	0	5%	1/10W
R650	1-216-033-00	METAL	220	5%	1/10W
R651	1-216-295-00	METAL	0	5%	1/10W
R652	1-216-033-00	METAL	220	5%	1/10W
R816	1-216-295-00	METAL	0	5%	1/10W
R817	1-216-295-00	METAL	0	5%	1/10W
R818	1-216-295-00	METAL	0	5%	1/10W
R819	1-216-066-00	METAL	5.1K	5%	1/10W
R820	1-216-066-00	METAL	5.1K	5%	1/10W
R821	1-216-066-00	METAL	5.1K	5%	1/10W
R822	1-216-066-00	METAL	5.1K	5%	1/10W
R823	1-216-025-00	METAL	100	5%	1/10W
R824	1-216-033-00	METAL	220	5%	1/10W
R901	1-216-089-91	METAL	47K	5%	1/10W
R908	1-216-089-91	METAL	47K	5%	1/10W
R910	1-216-089-91	METAL	47K	5%	1/10W
R911	1-216-089-91	METAL	47K	5%	1/10W
R912	1-216-089-91	METAL	47K	5%	1/10W
R915	1-216-089-91	METAL	47K	5%	1/10W
R916	1-216-089-91	METAL	47K	5%	1/10W
R917	1-216-025-00	METAL	100	5%	1/10W
R918	1-216-089-91	METAL	47K	5%	1/10W
R919	1-216-089-91	METAL	47K	5%	1/10W
R920	1-216-025-00	METAL	100	5%	1/10W
R921	1-216-025-00	METAL	100	5%	1/10W
R922	1-216-089-91	METAL	47K	5%	1/10W
R923	1-216-025-00	METAL	100	5%	1/10W
R924	1-216-089-91	METAL	47K	5%	1/10W
R926	1-216-295-00	METAL	0	5%	1/10W
R927	1-216-295-00	METAL	0	5%	1/10W
R928	1-216-109-00	METAL	330K	5%	1/10W
R929	1-216-025-00	METAL	100	5%	1/10W
R935	1-216-055-00	METAL	1.8K	5%	1/10W
R936	1-216-097-00	METAL	100K	5%	1/10W
R937	1-216-049-00	METAL	1K	5%	1/10W
R939	1-216-065-00	METAL	4.7K	5%	1/10W
R942	1-216-065-00	METAL	4.7K	5%	1/10W
R945	1-216-041-00	METAL	470	5%	1/10W

Ref.No	Part No.	Description			Remark
		<CRYSTAL>			
X501	1-579-868-11	VIBRATOR, CRYSTAL			
X901	1-579-550-11	VIBRATOR, CRYSTAL			
XTL901	1-579-369-21	VIBRATOR			

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*A-8275-598-A HM-22P(L) BOARD, COMPLETE
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		<CAPACITOR>			
C701	1-126-950-11	ELECT	330uF	20%	35V
C703	1-165-112-11	CERAMIC	0.33uF		16V
C704	1-165-112-11	CERAMIC	0.33uF		16V
C705	1-124-779-00	ELECT	10uF	20%	16V
C706	1-165-112-11	CERAMIC	0.33uF		16V
C707	1-165-112-11	CERAMIC	0.33uF		16V
C708	1-135-166-21	TANTAL	47uF	20%	6.3V
C711	1-165-112-11	CERAMIC	0.33uF		16V
C712	1-165-112-11	CERAMIC	0.33uF		16V
C713	1-162-970-11	CERAMIC	0.01uF	10%	25V
C714	1-162-970-11	CERAMIC	0.01uF	10%	25V
C715	1-165-112-11	CERAMIC	0.33uF		16V
C716	1-162-970-11	CERAMIC	0.01uF	10%	25V
C717	1-164-360-11	CERAMIC	0.1uF		16V
C718	1-162-970-11	CERAMIC	0.01uF	10%	25V
C719	1-162-970-11	CERAMIC	0.01uF	10%	25V
C720	1-164-360-11	CERAMIC	0.1uF		16V
C721	1-164-360-11	CERAMIC	0.1uF		16V
C722	1-164-360-11	CERAMIC	0.1uF		16V
C723	1-162-970-11	CERAMIC	0.01uF	10%	25V
C724	1-162-970-11	CERAMIC	0.01uF	10%	25V
C725	1-162-970-11	CERAMIC	0.01uF	10%	25V
C726	1-162-970-11	CERAMIC	0.01uF	10%	25V
C727	1-162-970-11	CERAMIC	0.01uF	10%	25V
C728	1-162-970-11	CERAMIC	0.01uF	10%	25V
C729	1-162-970-11	CERAMIC	0.01uF	10%	25V
C734	1-164-360-11	CERAMIC	0.1uF		16V
C735	1-165-112-11	CERAMIC	0.33uF		16V
C736	1-162-970-11	CERAMIC	0.01uF	10%	25V
C737	1-126-204-11	ELECT	47uF	20%	16V
C738	1-165-112-11	CERAMIC	0.33uF		16V
C739	1-135-166-21	TANTAL	47uF	20%	6.3V
C740	1-165-112-11	CERAMIC	0.33uF		16V
C741	1-165-112-11	CERAMIC	0.33uF		16V
C742	1-126-204-11	ELECT	47uF	20%	16V
C744	1-165-112-11	CERAMIC	0.33uF		16V
C746	1-165-112-11	CERAMIC	0.33uF		16V
C747	1-164-360-11	CERAMIC	0.1uF		16V
C749	1-165-112-11	CERAMIC	0.33uF		16V
C750	1-165-112-11	CERAMIC	0.33uF		16V
C751	1-162-970-11	CERAMIC	0.01uF	10%	25V
C752	1-162-970-11	CERAMIC	0.01uF	10%	25V
C753	1-126-204-11	ELECT	47uF	20%	16V
C754	1-162-945-11	CERAMIC	22PF	5%	50V
C755	1-162-945-11	CERAMIC	22PF	5%	50V
C756	1-165-112-11	CERAMIC	0.33uF		16V
C757	1-162-970-11	CERAMIC	0.01uF	10%	25V
C758	1-162-970-11	CERAMIC	0.01uF	10%	25V
C759	1-162-970-11	CERAMIC	0.01uF	10%	25V
C760	1-162-970-11	CERAMIC	0.01uF	10%	25V
C761	1-162-970-11	CERAMIC	0.01uF	10%	25V
C762	1-162-970-11	CERAMIC	0.01uF	10%	25V
C763	1-162-970-11	CERAMIC	0.01uF	10%	25V
C764	1-162-970-11	CERAMIC	0.01uF	10%	25V
C765	1-162-970-11	CERAMIC	0.01uF	10%	25V
C766	1-162-970-11	CERAMIC	0.01uF	10%	25V
C767	1-162-970-11	CERAMIC	0.01uF	10%	25V
C768	1-164-357-11	CERAMIC	1000PF	5%	50V
C769	1-164-357-11	CERAMIC	1000PF	5%	50V
C770	1-165-112-11	CERAMIC	0.33uF		16V
C771	1-165-112-11	CERAMIC	0.33uF		16V
C776	1-165-112-11	CERAMIC	0.33uF		16V
C777	1-165-112-11	CERAMIC	0.33uF		16V
C778	1-165-112-11	CERAMIC	0.33uF		16V
C779	1-162-939-11	CERAMIC	8PF		50V
C780	1-162-939-11	CERAMIC	8PF		50V
C781	1-162-951-11	CERAMIC	68PF	5%	50V
C782	1-162-951-11	CERAMIC	68PF	5%	50V
C783	1-162-951-11	CERAMIC	68PF	5%	50V
C784	1-162-951-11	CERAMIC	68PF	5%	50V
C785	1-162-951-11	CERAMIC	68PF	5%	50V
		<CONNECTOR>			
CN701	*1-580-055-21	PIN, CONNECTOR 2P			
CN702	*1-580-056-21	PIN, CONNECTOR 3P			
CN703	*1-580-056-21	PIN, CONNECTOR 3P			
CN704	*1-580-056-21	PIN, CONNECTOR 3P			
CN705	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P			
CN706	1-566-523-11	CONNECTOR, FPC (ZIF) 7P			
CN707	1-506-481-11	PIN, CONNECTOR 2P			
CN708	1-506-481-11	PIN, CONNECTOR 2P			
CN709	1-506-485-11	PIN, CONNECTOR 6P			
CN710	1-569-775-21	PIN, CONNECTOR 5P			
CN711	1-569-775-21	PIN, CONNECTOR 5P			
CN712	1-506-481-11	PIN, CONNECTOR 2P			
CN713	1-569-775-21	PIN, CONNECTOR 5P			
CN714	1-566-532-11	CONNECTOR, FPC (ZIF) 16P			
CN715	1-566-526-11	CONNECTOR, FPC (ZIF) 10P			
CN716	1-506-494-11	PIN, CONNECTOR 15P			
CN717	1-566-528-21	CONNECTOR, FPC (ZIF) 12P			
CN718	*1-580-056-21	PIN, CONNECTOR 3P			
CN719	1-506-481-11	PIN, CONNECTOR 2P			
CN722	*1-580-055-21	PIN, CONNECTOR 2P			
CN723	*1-580-056-21	PIN, CONNECTOR 3P			
CN724	1-580-265-11	CONNECTOR, BOARD TO BOARD 16P			
CN725	1-506-481-11	PIN, CONNECTOR 2P			
		<DIODE>			
D701	8-719-200-02	DIODE 10E2			
D702	8-719-200-02	DIODE 10E2			
D703	8-719-104-34	DIODE 1S2836			
D704	8-719-104-34	DIODE 1S2836			
D705	8-719-104-34	DIODE 1S2836			
D706	8-719-104-34	DIODE 1S2836			
D707	8-719-104-34	DIODE 1S2836			
D709	8-719-104-34	DIODE 1S2836			
D711	8-719-104-34	DIODE 1S2836			
		<FUSE>			
F1	1-532-777-21	FUSE, MICRO (SECONDARY)			
		<IC>			
IC701	8-759-154-84	IC HDC443V2			
IC702	8-759-053-58	IC IDT6116SA25S0			
IC703	8-759-053-58	IC IDT6116SA25S0			
IC704	*8-759-258-59	IC M5M27C101FP-UP12G-E2			
IC706	8-759-998-98	IC LM358D			
IC707	8-759-100-97	IC UPC339G2			
IC708	*8-752-838-97	IC CXP80P116Q-1-UP1800E			
IC709	8-759-157-19	IC MB3863PF-G-BND			

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

HM-22P(L)

Ref.No	Part No.	Description			Remark
IC710	8-759-925-74	IC SN74HC04ANS			
IC711	8-759-100-97	IC UPC339G2			
IC712	8-759-100-97	IC UPC339G2			
IC713	8-759-927-46	IC SN74HC00ANS			
IC714	8-759-242-70	IC TC7WU04F			
		<INDUCTOR>			
L701	1-424-090-11	COIL, LINE FILTER			
L702	1-424-090-11	COIL, LINE FILTER			
L703	1-424-090-11	COIL, LINE FILTER			
L704	1-412-390-21	INDUCTOR CHIP 0UH			
L705	1-412-390-21	INDUCTOR CHIP 0UH			
L706	1-412-390-21	INDUCTOR CHIP 0UH			
L707	1-412-390-21	INDUCTOR CHIP 0UH			
		<TRANSISTOR>			
Q701	8-729-901-04	TRANSISTOR DTA114EK			
Q702	8-729-901-00	TRANSISTOR DTC124EK			
Q703	8-729-114-48	TRANSISTOR 2SB962-Z-P			
Q705	8-729-017-80	TRANSISTOR 2SD992-Z			
Q706	8-729-017-80	TRANSISTOR 2SD992-Z			
Q707	8-729-017-80	TRANSISTOR 2SD992-Z			
Q708	8-729-017-80	TRANSISTOR 2SD992-Z			
Q709	8-729-140-75	TRANSISTOR 2SD999-CLCK			
Q710	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q711	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
		<RESISTOR>			
R701	1-216-829-11	METAL	4.7K	5%	1/16W
R702	1-216-829-11	METAL	4.7K	5%	1/16W
R703	1-216-829-11	METAL	4.7K	5%	1/16W
R704	1-216-829-11	METAL	4.7K	5%	1/16W
R705	1-216-818-11	METAL	560	5%	1/16W
R706	1-216-818-11	METAL	560	5%	1/16W
R707	1-216-818-11	METAL	560	5%	1/16W
R708	1-216-818-11	METAL	560	5%	1/16W
R709	1-216-813-11	METAL	220	5%	1/16W
R710	1-216-813-11	METAL	220	5%	1/16W
R711	1-216-813-11	METAL	220	5%	1/16W
R712	1-216-813-11	METAL	220	5%	1/16W
R713	⚠1-215-930-11	METAL	10	5%	5W
R715	⚠1-215-930-11	METAL	10	5%	5W
R716	1-216-841-11	METAL	47K	5%	1/16W
R717	1-216-819-11	METAL	680	5%	1/16W
R718	1-216-809-11	METAL	100	5%	1/16W
R719	1-260-099-11	CARBON	1K	5%	1/2W
R720	1-216-833-11	METAL	10K	5%	1/16W
R721	1-216-825-11	METAL	2.2K	5%	1/16W
R722	1-216-815-11	METAL	330	5%	1/16W
R723	1-216-831-11	METAL	6.8K	5%	1/16W
R724	1-216-864-11	METAL	0	5%	1/16W
R725	1-216-840-11	METAL	39K	5%	1/16W
R726	1-216-818-11	METAL	560	5%	1/16W
R727	1-216-813-11	METAL	220	5%	1/16W
R728	1-216-839-11	METAL	33K	5%	1/16W
R729	1-216-841-11	METAL	47K	5%	1/16W
R730	1-216-835-11	METAL	15K	5%	1/16W
R731	1-216-849-11	METAL	220K	5%	1/16W
R732	1-216-833-11	METAL	10K	5%	1/16W
R733	1-216-839-11	METAL	33K	5%	1/16W
R734	1-216-840-11	METAL	39K	5%	1/16W
R735	1-216-831-11	METAL	6.8K	5%	1/16W
R736	1-216-841-11	METAL	47K	5%	1/16W

Ref.No	Part No.	Description			Remark
R737	1-216-841-11	METAL	47K	5%	1/16W
R738	1-216-841-11	METAL	47K	5%	1/16W
R739	1-216-841-11	METAL	47K	5%	1/16W
R740	1-216-837-11	METAL	22K	5%	1/16W
R741	1-216-841-11	METAL	47K	5%	1/16W
R742	1-216-864-11	METAL	0	5%	1/16W
R744	1-216-837-11	METAL	22K	5%	1/16W
R746	1-216-841-11	METAL	47K	5%	1/16W
R747	1-216-849-11	METAL	220K	5%	1/16W
R748	1-216-833-11	METAL	10K	5%	1/16W
R750	1-216-841-11	METAL	47K	5%	1/16W
R751	1-216-833-11	METAL	10K	5%	1/16W
R752	1-216-833-11	METAL	10K	5%	1/16W
R753	1-216-813-11	METAL	220	5%	1/16W
R754	1-216-837-11	METAL	22K	5%	1/16W
R755	1-216-841-11	METAL	47K	5%	1/16W
R756	1-216-849-11	METAL	220K	5%	1/16W
R757	1-216-833-11	METAL	10K	5%	1/16W
R758	1-216-821-11	METAL	1K	5%	1/16W
R760	1-216-813-11	METAL	220	5%	1/16W
R761	1-216-837-11	METAL	22K	5%	1/16W
R762	1-216-841-11	METAL	47K	5%	1/16W
R763	1-216-821-11	METAL	1K	5%	1/16W
R764	1-216-849-11	METAL	220K	5%	1/16W
R765	1-216-833-11	METAL	10K	5%	1/16W
R766	1-216-839-11	METAL	33K	5%	1/16W
R767	1-216-821-11	METAL	1K	5%	1/16W
R768	1-216-821-11	METAL	1K	5%	1/16W
R769	1-216-841-11	METAL	47K	5%	1/16W
R770	1-216-841-11	METAL	47K	5%	1/16W
R771	1-216-841-11	METAL	47K	5%	1/16W
R772	1-216-841-11	METAL	47K	5%	1/16W
R773	1-216-841-11	METAL	47K	5%	1/16W
R774	1-216-841-11	METAL	47K	5%	1/16W
R775	1-216-841-11	METAL	47K	5%	1/16W
R776	1-216-841-11	METAL	47K	5%	1/16W
R777	1-216-841-11	METAL	47K	5%	1/16W
R778	1-216-841-11	METAL	47K	5%	1/16W
R779	1-216-813-11	METAL	220	5%	1/16W
R780	1-216-813-11	METAL	220	5%	1/16W
R781	1-216-813-11	METAL	220	5%	1/16W
R782	1-216-813-11	METAL	220	5%	1/16W
R783	1-216-813-11	METAL	220	5%	1/16W
R784	1-216-813-11	METAL	220	5%	1/16W
R785	1-216-813-11	METAL	220	5%	1/16W
R786	1-216-813-11	METAL	220	5%	1/16W
R787	1-216-813-11	METAL	220	5%	1/16W
R788	1-216-813-11	METAL	220	5%	1/16W
R789	1-216-837-11	METAL	22K	5%	1/16W
R789	1-216-839-11	METAL	33K	5%	1/16W
R790	1-216-839-11	METAL	33K	5%	1/16W
R791	1-216-813-11	METAL	220	5%	1/16W
R792	1-216-813-11	METAL	220	5%	1/16W
R793	1-216-838-11	METAL	27K	5%	1/16W
R794	1-216-838-11	METAL	27K	5%	1/16W
R795	1-216-821-11	METAL	1K	5%	1/16W
R796	1-216-821-11	METAL	1K	5%	1/16W
R797	1-216-837-11	METAL	22K	5%	1/16W
R799	1-216-813-11	METAL	220	5%	1/16W
R800	1-216-813-11	METAL	220	5%	1/16W
R801	1-216-838-11	METAL	27K	5%	1/16W
R802	1-216-838-11	METAL	27K	5%	1/16W
R803	1-216-821-11	METAL	1K	5%	1/16W
R804	1-216-821-11	METAL	1K	5%	1/16W
R805	1-216-849-11	METAL	220K	5%	1/16W

Ref.No	Part No.	Description			Remark
R806	1-216-849-11	METAL	220K	5%	1/16W
R807	1-216-849-11	METAL	220K	5%	1/16W
R808	1-216-849-11	METAL	220K	5%	1/16W
R809	1-216-837-11	METAL	22K	5%	1/16W
R810	1-216-829-11	METAL	4.7K	5%	1/16W
R811	1-216-833-11	METAL	10K	5%	1/16W
R812	1-216-833-11	METAL	10K	5%	1/16W
R813	1-216-833-11	METAL	10K	5%	1/16W
R814	1-216-833-11	METAL	10K	5%	1/16W
R815	1-216-833-11	METAL	10K	5%	1/16W
R816	1-216-833-11	METAL	10K	5%	1/16W
R817	1-216-829-11	METAL	4.7K	5%	1/16W
R818	1-216-829-11	METAL	4.7K	5%	1/16W
R819	1-216-829-11	METAL	4.7K	5%	1/16W
R820	1-216-829-11	METAL	4.7K	5%	1/16W
R822	1-216-829-11	METAL	4.7K	5%	1/16W
R823	1-216-829-11	METAL	4.7K	5%	1/16W
R824	1-216-829-11	METAL	4.7K	5%	1/16W
R825	1-216-829-11	METAL	4.7K	5%	1/16W
R826	1-216-841-11	METAL	47K	5%	1/16W
R827	1-216-841-11	METAL	47K	5%	1/16W
R828	1-216-841-11	METAL	47K	5%	1/16W
R829	1-216-841-11	METAL	47K	5%	1/16W
R830	1-216-839-11	METAL	33K	5%	1/16W
R831	1-216-837-11	METAL	22K	5%	1/16W
R832	1-216-833-11	METAL	10K	5%	1/16W
R833	1-216-841-11	METAL	47K	5%	1/16W
R834	1-216-841-11	METAL	47K	5%	1/16W
R835	1-216-841-11	METAL	47K	5%	1/16W
R837	1-216-813-11	METAL	220	5%	1/16W
R838	1-216-841-11	METAL	47K	5%	1/16W
R839	1-216-841-11	METAL	47K	5%	1/16W
R840	1-216-821-11	METAL	1K	5%	1/16W
R841	1-216-849-11	METAL	220K	5%	1/16W
R842	1-216-833-11	METAL	10K	5%	1/16W
R843	1-216-839-11	METAL	33K	5%	1/16W
R844	1-216-837-11	METAL	22K	5%	1/16W
R846	1-216-813-11	METAL	220	5%	1/16W
R847	1-216-841-11	METAL	47K	5%	1/16W
R848	1-216-841-11	METAL	47K	5%	1/16W
R849	1-216-821-11	METAL	1K	5%	1/16W
R850	1-216-849-11	METAL	220K	5%	1/16W
R851	1-216-833-11	METAL	10K	5%	1/16W
R852	1-216-839-11	METAL	33K	5%	1/16W
R853	1-216-837-11	METAL	22K	5%	1/16W
R854	1-216-821-11	METAL	1K	5%	1/16W
R855	1-216-841-11	METAL	47K	5%	1/16W
R856	1-216-839-11	METAL	33K	5%	1/16W
R857	1-216-815-11	METAL	330	5%	1/16W
R858	1-216-841-11	METAL	47K	5%	1/16W
R859	1-216-821-11	METAL	1K	5%	1/16W
R860	1-216-849-11	METAL	220K	5%	1/16W
R861	1-216-833-11	METAL	10K	5%	1/16W
R862	1-216-839-11	METAL	33K	5%	1/16W
R863	1-216-837-11	METAL	22K	5%	1/16W
R866	1-216-821-11	METAL	1K	5%	1/16W
R867	1-216-821-11	METAL	1K	5%	1/16W
R868	1-216-829-11	METAL	4.7K	5%	1/16W
R869	1-216-821-11	METAL	1K	5%	1/16W
R870	1-216-821-11	METAL	1K	5%	1/16W
R871	1-216-821-11	METAL	1K	5%	1/16W
R872	1-216-821-11	METAL	1K	5%	1/16W
R873	1-216-841-11	METAL	47K	5%	1/16W
R874	1-216-841-11	METAL	47K	5%	1/16W
R879	1-216-809-11	METAL	100	5%	1/16W
R880	1-216-841-11	METAL	47K	5%	1/16W
R881	1-216-841-11	METAL	47K	5%	1/16W
R882	1-216-841-11	METAL	47K	5%	1/16W
R883	1-216-841-11	METAL	47K	5%	1/16W
R884	1-216-841-11	METAL	47K	5%	1/16W
R885	1-216-841-11	METAL	47K	5%	1/16W
R886	1-216-857-11	METAL	1M	5%	1/16W
R887	1-216-857-11	METAL	1M	5%	1/16W
R888	1-216-841-11	METAL	47K	5%	1/16W
R889	1-216-841-11	METAL	47K	5%	1/16W
R891	1-216-819-11	METAL	680	5%	1/16W
R892	1-216-841-11	METAL	47K	5%	1/16W
R893	1-216-817-11	METAL	470	5%	1/16W
R895	1-216-864-11	METAL	0	5%	1/16W
R896	1-216-813-11	METAL	220	5%	1/16W
R897	1-216-813-11	METAL	220	5%	1/16W
R898	1-216-813-11	METAL	220	5%	1/16W
R899	1-216-813-11	METAL	220	5%	1/16W
R900	1-216-813-11	METAL	220	5%	1/16W
R901	1-216-813-11	METAL	220	5%	1/16W
R902	1-216-813-11	METAL	220	5%	1/16W
		<SWITCH>			
S705	1-692-088-41	SWITCH, TACTILE			
S706	1-571-684-11	SWITCH, TACTIL			
		<THERMISTOR>			
TH701	1-809-357-21	THERMISTOR, NTC (2125)			
		<CRYSTAL>			
X701	1-579-906-21	VIBRATOR, CERAMIC			
X702	1-579-070-41	VIBRATOR, CRYSTAL			
X703	1-579-905-21	VIBRATOR, CERAMIC			

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	*A-8275-446-A	IF-27 BOARD, COMPLETE			
		**********			
	1-562-261-41	CONNECTOR, COAXIAL (BNC)			
	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S			
	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3			
	3-531-576-11	RIVET			
		<CAPACITOR>			
C1	1-163-009-11	CERAMIC	0.001uF	10%	50V
C2	1-163-038-00	CERAMIC	0.1uF		25V
C3	1-124-589-11	ELECT	47uF	20%	16V
		<CONNECTOR>			
CN1	1-506-486-11	PIN, CONNECTOR 7P			
CN2	1-506-485-11	PIN, CONNECTOR 6P			
CN3	1-564-014-11	PIN, CONNECTOR 4P			
CN4	1-506-483-21	PIN, CONNECTOR 4P			
		<DIODE>			
D1	8-719-801-78	DIODE 1SS184			
D2	8-719-108-12	DIODE RD9.1E-W			
D3	8-719-108-12	DIODE RD9.1E-W			
D4	8-719-108-12	DIODE RD9.1E-W			
D5	8-719-108-12	DIODE RD9.1E-W			
D6	8-719-108-12	DIODE RD9.1E-W			
D7	8-719-108-12	DIODE RD9.1E-W			
D8	8-719-800-76	DIODE 1SS226			
D9	8-719-800-76	DIODE 1SS226			

IF-27 KY-15 PTC-27 SU-10

Ref.No	Part No.	Description			Remark
		<FILTER>			
FL1	1-236-738-11	FILTER, EMI			
FL2	1-236-738-11	FILTER, EMI			
FL3	1-236-738-11	FILTER, EMI			
FL4	1-236-738-11	FILTER, EMI			
FL5	1-236-738-11	FILTER, EMI			
FL6	1-236-738-11	FILTER, EMI			
FL7	1-236-738-11	FILTER, EMI			
FL8	1-236-738-11	FILTER, EMI			
FL9	1-236-738-11	FILTER, EMI			
		<JACK>			
J3	1-569-803-11	CONNECTOR, (S) TERMINAL 4P			
J4	1-569-803-11	CONNECTOR, (S) TERMINAL 4P			
J5	1-507-792-00	JACK			
		<JUMPER>			
JR4	1-216-295-00	METAL GLAZE	0	5%	1/10W
		<TRANSISTOR>			
Q1	8-729-901-01	TRANSISTOR DTC144EK			
Q2	8-729-140-75	TRANSISTOR 2SD999-CLCK			
		<RESISTOR>			
R1	1-216-631-11	METAL	150	0.50%	1/10W
R2	1-216-631-11	METAL	150	0.50%	1/10W
R3	1-216-631-11	METAL	150	0.50%	1/10W
R4	1-216-631-11	METAL	150	0.50%	1/10W
R5	1-216-631-11	METAL	150	0.50%	1/10W
R6	1-216-631-11	METAL	150	0.50%	1/10W
R7	1-216-049-00	METAL	1K	5%	1/10W
R8	1-216-089-91	METAL	47K	5%	1/10W
R9	1-216-025-00	METAL	100	5%	1/10W
		<RELAY>			
RL1	1-515-622-11	RELAY			
RL2	1-515-622-11	RELAY			
RL3	1-515-622-11	RELAY			
		<SWITCH>			
S1	1-572-084-11	SWITCH, SLIDE			

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	*A-8275-438-A	KY-15 BOARD, COMPLETE **********			
		<CAPACITOR>			
C803	1-163-038-00	CERAMIC	0.1uF		25V
C804	1-163-009-11	CERAMIC	0.001uF	10%	50V
C805	1-163-038-00	CERAMIC	0.1uF		25V
C807	1-163-031-11	CERAMIC	0.01uF		50V
		<CONNECTOR>			
CN801	*1-506-486-11	PIN, CONNECTOR 7P			
CN802	*1-506-486-11	PIN, CONNECTOR 7P			
CN803	1-506-493-11	PIN, CONNECTOR 14P			
CN804	1-506-481-11	PIN, CONNECTOR 2P			
CN805	*1-563-863-21	SOCKET, CONNECTOR 26P			
CN806	1-506-484-11	PIN, CONNECTOR 5P			
		<DIODE>			
D802	8-719-800-76	DIODE 1SS226			
		<IC>			
IC802	8-759-100-93	IC UPC393G2			
		<JUMPER>			
JR822	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR829	1-216-295-00	METAL GLAZE	0	5%	1/10W
		<TRANSISTOR>			
Q801	8-729-900-53	TRANSISTOR DTC114EK			
Q802	8-729-900-53	TRANSISTOR DTC114EK			
		<RESISTOR>			
R801	1-216-033-00	METAL	220	5%	1/10W
R802	1-216-033-00	METAL	220	5%	1/10W
R803	1-216-033-00	METAL	220	5%	1/10W
R804	1-216-033-00	METAL	220	5%	1/10W
R805	1-216-033-00	METAL	220	5%	1/10W
R806	1-216-033-00	METAL	220	5%	1/10W
R807	1-216-033-00	METAL	220	5%	1/10W
R808	1-216-033-00	METAL	220	5%	1/10W
R809	1-216-033-00	METAL	220	5%	1/10W
R810	1-216-033-00	METAL	220	5%	1/10W
R812	1-216-049-00	METAL	1K	5%	1/10W
R813	1-216-081-00	METAL	22K	5%	1/10W
R814	1-216-073-00	METAL	10K	5%	1/10W
R815	1-216-073-00	METAL	10K	5%	1/10W
R816	1-216-049-00	METAL	1K	5%	1/10W
R817	1-216-033-00	METAL	220	5%	1/10W
R818	1-216-295-00	METAL	0	5%	1/10W
R819	1-216-295-00	METAL	0	5%	1/10W
R820	1-216-295-00	METAL	0	5%	1/10W
R821	1-216-295-00	METAL	0	5%	1/10W

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	*A-8275-451-A	PTC-27 BOARD, COMPLETE **********			
		<CAPACITOR>			
C801	1-124-229-00	ELECT	33uF	20%	6.3
		<CONNECTOR>			
CN816	1-506-468-11	PIN, CONNECTOR 3P			
CN817	1-506-470-11	PIN, CONNECTOR 5P			
		<IC>			
IC801	8-748-015-08	RAY CATCHER ELEMENT SBX8015-H			
		<RESISTOR>			
R811	1-216-029-00	METAL	150	5%	1/10W

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	*1-650-853-13	SU-10 BOARD **********			
		<CAPACITOR>			
C905	1-165-319-11	CERAMIC	0.1uF		50V
		<CONNECTOR>			
CN916	*1-506-481-11	PIN, CONNECTOR 2P			

****

S-25 | SW-39 | SW-41 | SW-42 | SW-208 | SW-210 | SW-211 | SW-212

Ref.No	Part No.	Description				Remark
	*A-8275-437-A	S-25 BOARD, COMPLETE **********				
		<CONNECTOR>				
CN811	1-506-481-11	PIN, CONNECTOR 2P				
		<DIODE>				
D803	8-719-975-79	DIODE SLP255B-51-A				
		<RESISTOR>				
R830	1-216-029-00	METAL	150	5%	1/10W	
**********						
	*A-8275-443-A	SW-39 BOARD, COMPLETE **********				
		<CONNECTOR>				
CN913	1-506-482-11	PIN, CONNECTOR 3P				
		<PHOTO INTERRUPTER>				
PH901	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
**********						
	*A-8275-442-A	SW-41 BOARD, COMPLETE **********				
		<CONNECTOR>				
CN915	1-506-482-11	PIN, CONNECTOR 3P				
		<PHOTO INTERRUPTER>				
PH903	8-719-991-24	PHOTO TRANSISTOR GP1S23				
**********						
	*A-8275-444-A	SW-42 BOARD, COMPLETE **********				
		<CONNECTOR>				
CN917	1-506-482-11	PIN, CONNECTOR 3P				
		<PHOTO INTERRUPTER>				
PH904	8-719-939-05	PHOTO INTERRUPTER GP1S54				
**********						
	*A-8275-433-A	SW-208 BOARD, COMPLETE **********				
		<CONNECTOR>				
CN801	*1-580-056-21	PIN, CONNECTOR 3P				
		<PHOTO INTERRUPTER				
PH801	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
**********						
	*A-8275-439-A	SW-210 BOARD, COMPLETE **********				
		<CONNECTOR>				
CN803	1-580-057-11	PIN, CONNECTOR 4P				
		<PHOTO INTERRUPTER>				
PH803	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
		<SWITCH>				
S803	1-572-126-21	SWITCH, PUSH (1 KEY)				
**********						
	*A-8275-434-A	SW-211 BOARD, COMPLETE **********				
		<PHOTO INTERRUPTER>				
PH804	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
PH805	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
		<HARNESS>				
W801	1-648-128-11	PC BOARD, FP-38 FLEXIBLE				
**********						
	*A-8275-436-A	SW-212 BOARD, COMPLETE **********				
		<CAPACITOR>				
C810	1-124-779-00	ELECT	10uF	20%	16V	
C811	1-164-004-11	CERAMIC	0.1uF	10%	25V	
C812	1-163-038-00	CERAMIC	0.1uF		25V	
C813	1-128-530-11	ELECT	33uF	20%	10V	
C814	1-126-200-11	ELECT	10uF	20%	16V	
C815	1-164-004-11	CERAMIC	0.1uF	10%	25V	
		<CONNECTOR>				
CN806	1-569-775-11	PIN, CONNECTOR (SMD) 5P				
CN811	1-580-057-11	PIN, CONNECTOR 4P				
CN813	*1-580-056-21	PIN, CONNECTOR (SMD) 3P				
CN814	*1-580-055-21	PIN, CONNECTOR 2P				
		<DIODE>				
D802	8-719-421-15	DIODE MA8027-L				
		<IC>				
IC810	8-759-998-98	IC LM358D				
		<PHOTO INTERRUPTER>				
PH806	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
PH807	8-749-923-97	PHOTO INTERRUPTER GP2S40K				
		<RESISTOR>				
R802	1-216-295-00	METAL	0	5%	1/10W	
R810	1-216-073-00	METAL	10K	5%	1/10W	
R811	1-216-065-00	METAL	4.7K	5%	1/10W	
R812	1-216-073-00	METAL	10K	5%	1/10W	
R813	1-216-089-91	METAL	47K	5%	1/10W	
R814	1-216-089-91	METAL	47K	5%	1/10W	
R815	1-216-065-00	METAL	4.7K	5%	1/10W	
R816	1-216-073-00	METAL	10K	5%	1/10W	
R817	1-216-089-91	METAL	47K	5%	1/10W	
R818	1-216-089-91	METAL	47K	5%	1/10W	
R819	1-216-083-00	METAL	27K	5%	1/10W	
R820	1-216-033-00	METAL	220	5%	1/10W	
R821	1-216-295-00	METAL	0	5%	1/10W	
**********						

SW-213 SW-214 SW-215 SW-216 SW-217 SWITCHING REGULATOR

Ref.No	Part No.	Description		Remark
	*A-8275-441-A	SW-213 BOARD, COMPLETE **********		
	*3-949-924-01	HOLDER, P SENSOR		
		<CONNECTOR>		
CN808	1-569-775-21	PIN, CONNECTOR 5P		
		<PHOTO INTERRUPTER>		
PH808	8-749-923-97	PHOTO INTERRUPTER GP2S40K		
PH809	8-749-923-97	PHOTO INTERRUPTER GP2S40K		
**********				
	*A-8275-453-A	SW-214 BOARD **********		
		<CONNECTOR>		
CN809	1-580-055-21	PIN, CONNECTOR 2P		
		<SWITCH>		
S801	1-570-407-11	SWITCH, SLIDE		
**********				
	*A-8275-435-A	SW-215 BOARD **********		
**********				
	*A-8275-440-A	SW-216 BOARD **********		
**********				
	*A-8275-452-A	SW-217 BOARD, COMPLETE **********		
		<CONNECTOR>		
CN810	*1-580-056-21	PIN, CONNECTOR (SMD) 3P		
		<PHOTO INTERRUPTER>		
PH810	8-749-923-97	PHOTO INTERRUPTER GP2S40K		
**********				
	⚠*1-413-946-11	SWITCHING, REGULATOR **********		
	9-904-821-01	FUSE CLIP		
	*9-907-116-01	HEAT SINK (IC101, IC102)		
	*9-907-117-01	HEAT SINK (IC103)		
	*9-907-118-01	HEAT SINK (IC205-IC208)		
	*9-907-119-01	PC BOARD		
	9-907-120-01	SPACER		
	*9-907-121-01	SHEET, INSULATING		
	*9-907-122-01	SHEET, INSULATING		
		<CAPACITOR>		
C101	1-136-192-11	CERAMIC	0.33MF	250V
C102	9-902-038-01	CERAMIC	0.22MF	250V
C103	9-907-095-01	CERAMIC	2200PF	2500
C104	9-907-095-01	CERAMIC	2200PF	2500
C105	9-907-096-01	CERAMIC	4700PF	250V
C106	9-907-097-01	ELECT	470MF	200V
C107	9-900-522-01	CERAMIC	2200PF	250V
C108	9-900-525-01	CERAMIC	0.047MF	400V
C109	9-907-098-01	CERAMIC	220PF	1KV
C110	1-130-491-00	CERAMIC	0.047MF	50V
C111	1-124-122-11	ELECT	100MF	50V
C112	1-126-967-11	ELECT	47MF	50V
C113	9-900-525-01	CERAMIC	0.047MF	400V
C114	9-907-098-01	CERAMIC	220PF	1KV
C115	1-128-578-91	ELECT	1MF	100V
C116	1-130-495-00	FILM	0.1MF	50V
C118	9-907-095-01	CERAMIC	2200PF	250V
C119	9-907-095-01	CERAMIC	2200PF	250V
C120	9-907-096-01	CERAMIC	4700PF	250V
C121	9-907-097-01	ELECT	470MF	200V
C122	1-130-491-00	CERAMIC	0.047MF	50V
C123	1-136-189-00	CERAMIC	0.1MF	250V
C124	1-136-189-00	CERAMIC	0.1MF	250V
C125	9-907-099-01	ELECT	4.7MF	400V
C126	1-124-903-11	ELECT	1MF	50V
C201	9-907-113-01	CERAMIC	1000PF	1KV
C202	9-907-114-01	ELECT	1000MF	35V
C203	1-124-906-11	ELECT	4.7MF	50V
C204	9-907-114-01	ELECT	1000MF	35V
C205	1-126-965-51	ELECT	22MF	50V
C207	1-130-483-00	FILM	0.01MF	50V
C208	9-907-113-01	CERAMIC	1000PF	1KV
C209	1-126-927-11	ELECT	2200MF	10V
C210	1-126-927-11	ELECT	2200MF	10V
C211	1-124-903-11	ELECT	1MF	50V
C212	1-126-926-11	ELECT	1000MF	10V
C213	1-126-933-11	ELECT	100MF	10V
C214	1-126-933-11	ELECT	100MF	10V
C215	9-907-113-01	CERAMIC	1000PF	1KV
C216	1-124-557-11	ELECT	1000MF	25V
C217	1-216-933-11	ELECT	100MF	16V
C218	1-126-926-11	ELECT	1000MF	10V
C219	1-126-933-11	ELECT	100MF	10V
C220	1-130-483-00	FILM	0.01MF	50V
C222	1-124-122-11	ELECT	100MF	50V
		<CONNECTOR>		
CN1	9-907-104-01	CONNECTOR 4P		
CN2	9-907-105-01	CONNECTOR 2P		
CN3	9-907-105-01	CONNECTOR 2P		
CN901	1-560-892-00	CONNECTOR 4P		
CN902	1-560-894-00	CONNECTOR 6P		
CN903	1-568-792-11	CONNECTOR 15P		
CN904	1-506-468-11	CONNECTOR 3P		
CN905	1-506-468-11	CONNECTOR 3P		
CN906	1-564-013-31	CONNECTOR 3P		
CN907	1-568-779-11	CONNECTOR 2P		
		<DIODE>		
D101	8-719-500-58	DIODE D3SBA60		
D102	8-719-030-25	DIODE AG01A		
D103	9-904-898-01	DIODE AU02A		
D104	9-907-090-01	DIODE RD47E		
D105	8-719-116-86	DIODE RD24JSB		
D106	8-719-200-02	DIODE 10E-2		
D107	9-900-514-01	DIODE MA165		
D108	9-902-050-01	DIODE ERA15-16		
D109	9-900-514-01	DIODE MA165		
D110	9-902-050-01	DIODE ERA15-16		

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

SWITCHING REGULATOR

Ref.No	Part No.	Description		Remark
D111	9-902-050-01	DIODE ERA15-16		
D201	8-719-501-34	DIODE S3VC40R		
D202	8-719-501-34	DIODE S3VC40R		
D203	8-719-200-02	DIODE 10E-2		
D204	9-900-535-01	DIODE AU02Z		
D205	9-904-797-01	DIODE RK44		
D206	9-904-797-01	DIODE RK44		
D207	8-719-501-34	DIODE S3VC40R		
D208	8-719-160-68	DIODE RD18F		
D209	8-719-982-04	DIODE ERB81-004		
D210	9-904-799-01	DIODE MA2120		
		<FUSE>		
F101	9-907-103-01	FUSE 4A 250V		
F102	9-907-103-01	FUSE 4A 250V		
		<IC>		
IC101	9-904-782-01	IC STR-S6525		
IC102	8-759-977-63	IC MA2830		
IC103	8-749-923-66	IC STR83145		
IC201	8-759-420-19	IC AN1431T		
IC202	8-759-135-80	IC UPC358C		
IC203	8-759-420-19	IC AN1431T		
IC204	8-759-420-19	IC AN1431T		
IC205	8-749-920-43	IC SI-3050CA		
IC206	8-749-921-21	IC SI-3120C		
IC207	8-749-920-43	IC SI-3050CA		
IC208	8-749-920-43	IC SI-3050CA		
		<COIL>		
L101	9-907-102-01	FILTER		
L102	9-907-102-01	FILTER		
L103	9-904-796-01	BEAD CORE		
L104	9-904-796-01	BEAD CORE		
L201	9-902-553-01	BEAD CORE		
L202	9-902-553-01	BEAD CORE		
L203	9-907-112-01	CHOKE COIL		
L204	9-902-553-01	BEAD CORE		
L205	9-907-112-01	CHOKE COIL		
L206	9-902-553-01	BEAD CORE		
		<PHOTO COUPLER>		
PC101	9-907-091-01	PHOTO COUPLER PC111		
PC102	9-907-091-01	PHOTO COUPLER PC111		
PC201	8-719-161-00	PHOTO COUPLER PS2501		
		<TRANSISTOR>		
Q101	9-904-781-01	TRANSISTOR 2SC2061		
Q201	8-729-900-80	TRANSISTOR DTC114ES		
Q202	8-729-900-80	TRANSISTOR DTC114ES		
Q203	8-729-900-80	TRANSISTOR DTC114ES		
Q204	8-729-900-80	TRANSISTOR DTC114ES		
Q205	8-729-900-80	TRANSISTOR DTC114ES		
		<RESISTOR>		
R101	1-202-719-00	SOLID	1M	1/2W
R102	9-904-783-01	THERMISTOR	5	25℃
R103	1-218-642-11	FILM	100K	1W
R104	1-218-642-11	FILM	100K	1W
R105	1-260-127-11	CARBON	220K	1/2W
R106	1-260-127-11	CARBON	220K	1/2W
R107	1-215-925-11	FILM	22K	3W
R108	1-215-925-11	FILM	22K	3W
R109	1-215-882-00	FILM	22	2W
R110	9-907-093-01	CEMENT	0.15	2W
R111	9-907-094-01	CARBON	1	1/2W
R112	1-260-080-11	CARBON	27	1/2W
R113	1-247-855-31	CARBON	10K	1/4W
R114	1-249-412-11	CARBON	390	1/4W
R115	1-249-437-11	CARBON	47K	1/4W
R116	1-249-411-11	CARBON	330	1/4W
R117	1-249-423-11	CARBON	3.3K	1/4W
R118	1-247-883-00	CARBON	150K	1/4W
R119	1-247-883-00	CARBON	150K	1/4W
R120	1-249-441-11	CARBON	100K	1/4W
R121	1-215-928-11	FILM	68K	3W
R122	1-215-928-11	FILM	68K	3W
R123	1-215-863-11	CARBON	100	1W
R124	1-215-863-11	CARBON	100	1W
R125	1-260-091-11	CARBON	220	1/2W
R126	9-904-783-01	THERMISTOR	5	25℃
R127	1-260-127-11	CARBON	220K	1/2W
R128	1-260-127-11	CARBON	220K	1/2W
R129	1-249-389-11	CARBON	4.7	1/4W
R130	1-247-883-00	CARBON	150K	1/4W
R131	1-249-408-11	CARBON	180	1/4W
R132	1-249-441-11	CARBON	100K	1/4W
R201	1-215-916-00	FILM	680	3W
R202	1-215-916-00	FILM	680	3W
R203	1-260-099-11	CARBON	1K	1/2W
R204	1-247-855-31	CARBON	10K	1/4W
R205	1-247-855-31	CARBON	10K	1/4W
R206	1-249-420-11	CARBON	1.8K	1/4W
R207	1-244-417-11	CARBON	1K	1/4W
R208	1-249-423-11	CARBON	3.3K	1/4W
R209	1-249-415-11	CARBON	680	1/2W
R210	9-902-556-01	METAL	1	1/4W
R211	1-247-855-31	CARBON	10K	1/4W
R212	9-904-801-01	FILM	8.25K	1/4W
R213	1-247-855-31	CARBON	10K	1/4W
R214	1-247-855-31	CARBON	10K	1/4W
R215	1-247-855-31	CARBON	10K	1/4W
R216	1-247-855-31	CARBON	10K	1/4W
R217	1-249-425-11	CARBON	4.7K	1/4W
R218	1-247-855-31	CARBON	10K	1/4W
R219	1-247-855-31	CARBON	10K	1/4W
R220	1-214-736-00	FILM	2K	1/4W
R221	1-214-753-00	FILM	10K	1/4W
R222	1-260-083-11	CARBON	47	1/2W
R223	1-244-417-11	CARBON	1K	1/4W
R224	1-249-419-11	CARBON	1.5K	1/4W
R225	1-247-855-31	CARBON	10K	1/4W
R226	(9-907-107-01	METAL OXIDE	430	1/4W
	9-907-094-01	METAL OXIDE	1.2K	1/4W
R227	9-907-108-01	CARBON	0.22	1/4W
R228	9-907-108-01	CARBON	0.22	1/4W
R229	(9-907-109-01	METAL OXIDE	1.3K	1/4W
	9-907-107-01	METAL OXIDE	430	1/4W
R230	1-249-416-11	CARBON	820	1/4W
R231	1-249-414-11	CARBON	560	1/4W
		<RELAY>		
RL201	9-907-115-01	RELAY		
		<TRANSFORMER>		
T101	9-907-100-01	SWITCHING		
T102	9-907-101-01	SWITCHING		

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

SWITCHING REGULATOR

Ref.No	Part No.	Description	Remark
		<VARIABLE RESISTOR>	
VR201	9-907-110-01	RES, VER, CARBON 2K	
VR202	9-907-111-01	RES, VER, CARBON 500	
VR203	1-238-570-11	RES, VER, CARBON 2K	
VR204	1-238-570-11	RES, VER, CARBON 2K	
		<MISCELLANEOUS>	
TC101	9-907-092-01	THERMAL CUT OFF	

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		MISCELLANEOUS	
		**********	
⚠	*1-413-946-11	SWITCHING REGULATOR	
	1-500-015-11	CORE	
	1-500-114-11	HEAD, THERMAL	
	1-507-195-21	SPECIAL REMOTE CONTROL JACK	
	1-541-684-42	MOTOR, DC	
⚠	1-554-880-11	SWITCH, PUSH (AC POWER)(1 KEY)	
⚠	1-580-375-11	INLET 3P	
	1-692-855-21	KEYBOARD, FFC WITH	
	1-698-019-31	MOTOR, DC (FAN)	
	1-751-235-11	CABLE, FLAT (FVM-2)	
	1-751-238-11	CABLE, FLAT (FHH-1)	
	1-751-239-11	CABLE, FLAT (FHH-2)	
	1-765-051-11	WIRE (FLAT TYPE) (7 CORE)	
	1-765-052-11	WIRE (FLAT TYPE) (16 CORE)	
	*1-952-970-11	HARNESS, SUB (HMSW42)	
	*1-952-971-11	HARNESS, SUB (HMDS)	
	*1-952-972-11	HARNESS, SUB (HMPW)	
	*1-952-973-11	HARNESS, SUB (SPW)	
	*1-952-974-11	HARNESS, SUB (DSSW39)	
	*1-952-975-12	HARNESS, SUB (HMSW41)	
	*1-952-976-11	HARNESS, SUB (DSSU10)	
	*1-952-977-11	HARNESS, SUB (REMOTE)	
	*1-952-978-11	HARNESS, SUB (KYPTC)	
	1-952-981-11	HARNESS, SUB (AC(SW))	
	*1-952-982-11	HARNESS (VIF012)	
	*1-952-986-12	HARNESS (FMKY)	
	1-953-202-12	HARNESS, SUB (AC(IN)E)	
	*1-953-203-11	HARNESS (DC(012))	

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		ACCESSORY & PACKING MATERIALS	
		**********	
	1-465-508-21	COMMANDER, REMOTE	
⚠	1-551-631-41	CORD, POWER	
	1-557-637-11	CABLE, COMMANDER	
	*3-183-227-02	TRAY	
	*3-183-922-02	INDIVIDUAL CARTON	
	*3-183-929-01	CUSHION (TOP)	
	*3-183-930-01	CUSHION (BOTTOM)	
	*3-694-922-01	SHEET, PROTECTION	
	3-758-132-11	MANUAL, INSTRUCTION	
	3-758-769-11	CARD, QUICK REFERENCE	

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Ref.No	Part No.	Description	Remark
		HARDWARE LIST	
		**********	
	7-621-255-15	SCREW +P 2X3	
	7-621-259-35	SCREW +P 2.6X5	
	7-621-284-40	SCREW +P 2.6X10	
	7-621-759-75	+PSW, 2.6X10	
	7-624-102-04	STOP RING 1.5, TYPE -E	
	7-682-166-01	SCREW +P 4X20	
	7-682-645-01	SCREW +PS 3X4	
	7-682-647-09	SCREW +PS 3X6	
	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
	7-685-852-01	SCREW +BVTT 2X5 (S)	
	7-685-862-01	SCREW +BVTT 2.6X6 (S)	

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SECTION 7
ELECTRICAL ADJUSTMENT

7-1. PREPARATION BEFORE ADJUSTMENT

The measurement equipment below is used for adjustment.

7-1-1. Equipment Required

1) Monitor television
2) Dual-trace oscilloscope with band of more than 30 MHz and delay mode
   (Use a 10:1 probe unless otherwise specified.)
3) Frequency counter
4) Signal generator video output terminals (TSG-131, TSG-131A, TSG-1411 or SG-408P)
5) Digital voltmeter
6) Video print paper
7) Video print cartridge

7-1-2. Connection of the Equipment

As shown in Fig. 7-1, each measurement equipment is connected according to instructions from the input terminal (S video or video) to perform the adjustment. Each input terminal is specified in a signal column by parentheses. If not specified, either input terminal can be used.

Note: For the adjustment specified as an S video input terminal, the product specifications of this unit may not be satisfied when the adjustment is performed by a video input terminal. Be sure to perform the adjustment according to instructions.
When the adjustment is performed using the VTR with an S video output terminal as a signal source, the performance of this unit varies depending on the VTR. Use the pattern generator with a Y/C separation output terminal as far as possible.

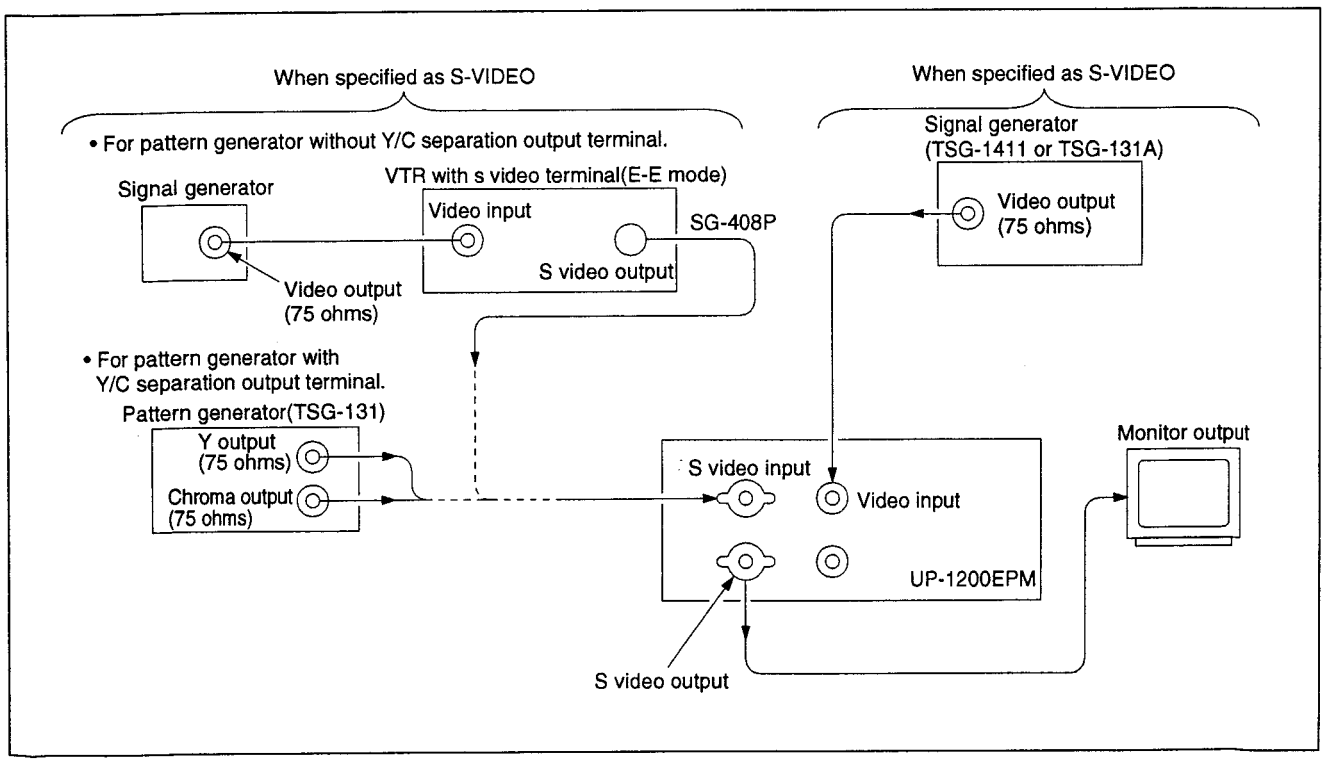


Fig. 7-1.

7-1-3. Confirmation of the Input Signal

The video signal generated from a pattern generator is used for video circuit adjustment as an adjustment signal. Therefore, it is necessary that this video output signal satisfies the required specification.

1. During S video (S VIDEO) input

Connect an oscilloscope to the Y signal terminal of the S video input terminal, and confirm that the sync signal of a Y signal is 286 mV, the amplitude of the video portion is 714 mV, and the setup level is 0 mV. (When the VTR with an S video output terminal is used, confirm that no chroma signal and burst signal remain.) Moreover, connect an oscilloscope to the chroma signal terminal of the S video input terminal, and confirm that the burst signal amplitude of a chroma signal is flat (286 mV) and that the amplitude ratio of a burst signal to a chroma signal is 0.30 : 0.66. The Y signal and chroma signal used for the adjustment are shown in Fig. 7-2.

The setup level is the potential difference between the black and pedestal levels.

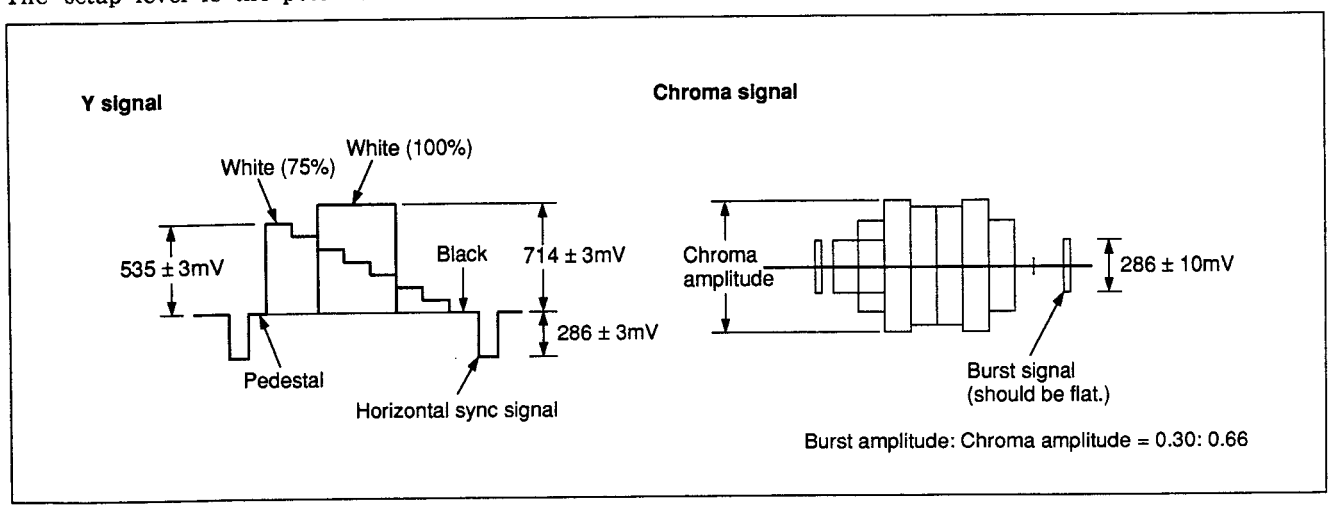


Fig. 7-2. Color-Bar Signal in Pattern Generator (during 75-ohm Termination)

2. During video (VIDEO) input

Connect an oscilloscope to the video input terminal, and confirm that the sync signal amplitude of a video signal is 286 mV, the amplitude of the video portion is 714 mV, the setup level is 0 mV, the amplitude of a burst signal is flat (286 mV), and the level ratio of a burst signal to a "red" signal is 0.30 : 0.66.

The video signal (color-bar) used for the adjustment is shown in Fig. 7-3.

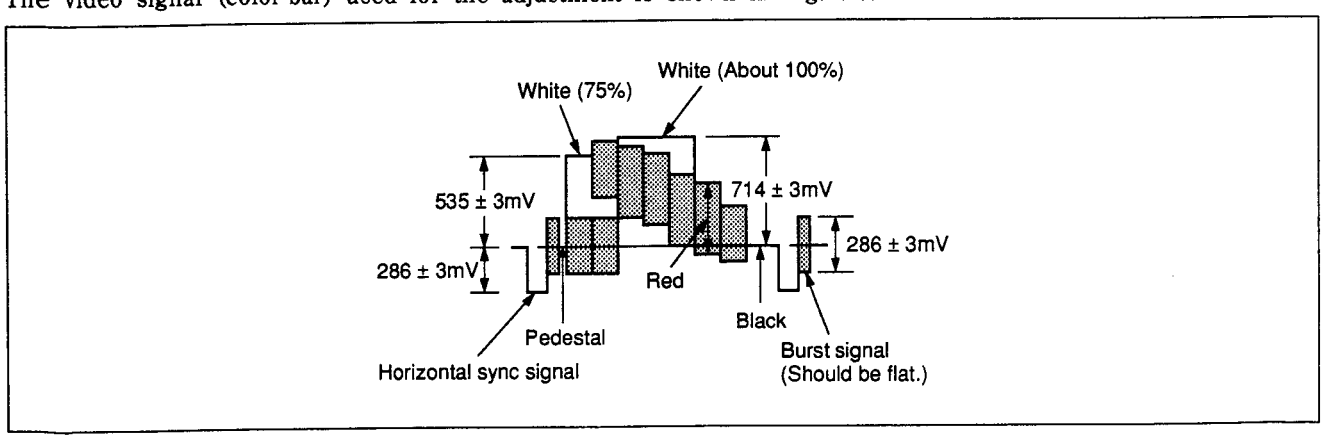


Fig. 7-3. Color-Bar Signal in Pattern Generator (during 75-ohm Termination)

7-1-4. How to Operate Adjustment Remote Controller RM-95 (J-6082-053-A)

For the connection of adjustment remote controller RM-95, insert the RM-95 terminal into J101 LANC jack on the VA-76 board in the UP-1200 series.

Before performing each adjustment, reset the corresponding protector as shown in the table below.

Page	6	Data	80	Address	00

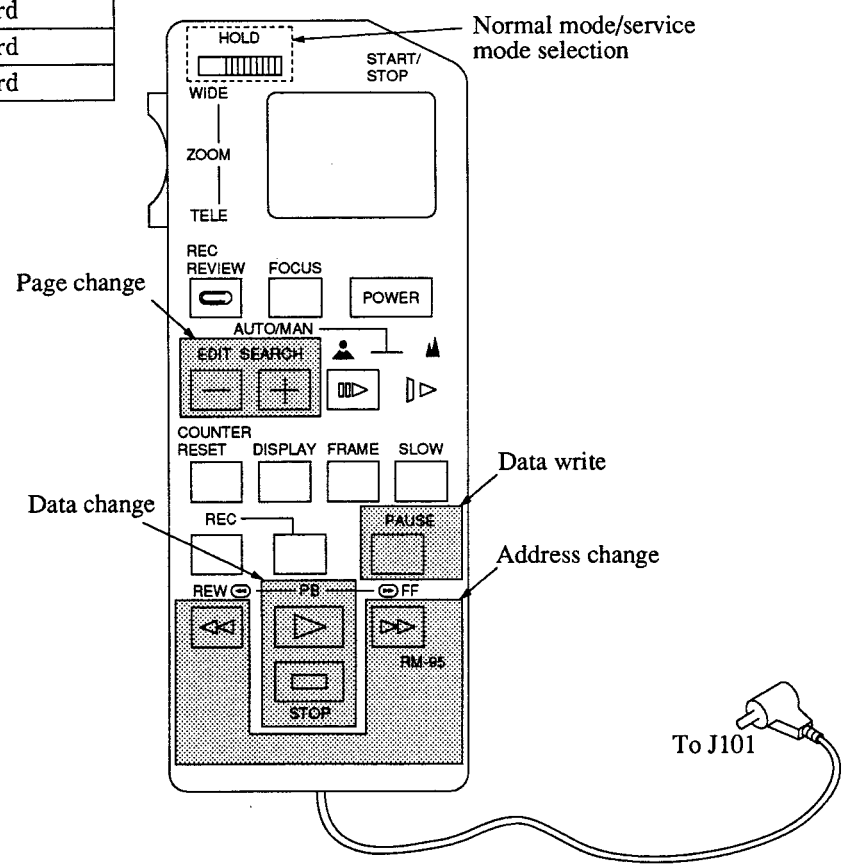
However, any reset is not required during continuous adjustment. Press the PAUSE button for every adjustment item and write each data.

1. Menu setting

The menu is set in the initial state (refer to the table below).

Number of prints	1
Memo	No memo print
Memory setting	Standard
Print setting	Standard
Picture quality setting	Standard

Adjustment remote controller RM-95 (J-6082-053-A)



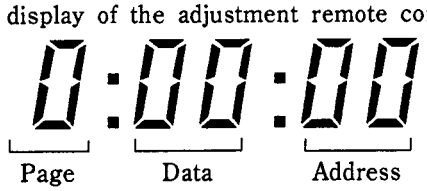
7-1-5. Service Mode

1. Setting the service mode

The service mode is classified into an adjustment mode that adjusts the EVR and a test mode that displays the state of the unit.

The test mode and adjustment mode are entered if the adjustment remote controller (with the HOLD switch set to HOLD) is connected.

LCD display of the adjustment remote controller



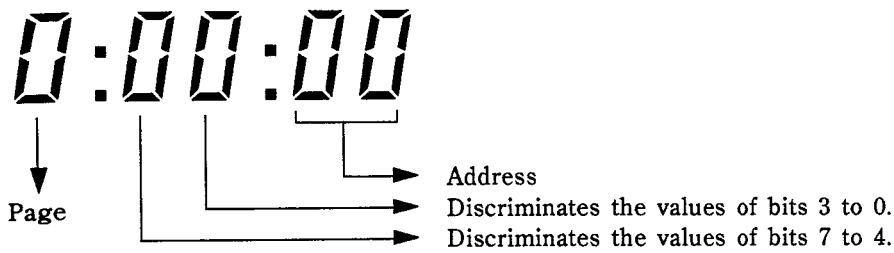
2. Video circuit adjustment

When F page data was erased during EE-PROM (IC309 on the VA-76 board) replacement, enter the initial value of the F page and adjust the video circuit.
For details of the initial value, refer to the "F Page Address Book" in "Service Man Mode".

3. Discrimination of the bit value

In subsequent items, it is necessary to discriminate the bit value by the display data of an adjustment remote controller. On whether the bit value is "1" or "0", discriminate according to the data shown in the table below.

Adjustment remote controller display



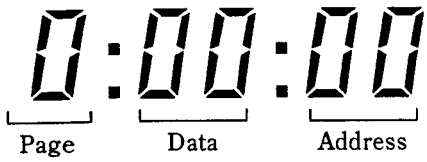
	Remote controller display	Bit value			
		Bit 3 or 7	Bit 2 or 6	Bit 1 or 5	Bit 0 or 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A(*A*)	1	0	1	0
	B(*b*)	1	0	1	1
	C(*c*)	1	1	0	0
	D(*d*)	1	1	0	1
Ⓑ→	E(*E*)	1	1	1	0
	F(*F*)	1	1	1	1

(Example) When the display data of the remote controller is "8E", the values of bits 7 to 4 can be discriminated by column Ⓐ, and the values of bits 3 to can be discriminated by column Ⓑ.

Command name	Function	Command button
Page Up	Increments the page by one.	Edit Search (+)
Page Down	Decrements the page by one.	Edit Search (−)
Address Up	Increments the address by one.	Fast Forward (▷▷)
Address Down	Decrements the address by one.	Rewind (◁◁)
Data Up	Increments the data by one.	Play Back (▷)
Data Down	Decrements the data by one.	Stop (□)
Store	Writes data in an EE-PROM RAM.	Pause (II)

4. Entering the test signal (Transmission to memory control)

LCD display of the adjustment remote controller



1) Insert the RM-95 into the control terminal (J-1 on the VA-14 board).
2) Set the HOLD switch of the RM-95 to the service mode. (Usually set to the service mode.)
3) Turn on the power of the UP-1200EPM and set each signal as shown below.
※ The input signal is a non-signal.

[Color-bar signal]

Page	7	Data	2b	Address	20

[Stairstep signal(H)]

Page	7	Data	27	Address	20

[Stairstep signal(V)]

Page	7	Data	28	Address	20

[Ramp signal(H)]

Page	7	Data	29	Address	20
Page	7	Data	2C	Address	20

[Ramp signal(V)]

Page	7	Data	2A	Address	20

5. Infrared remote controller check

Page	7	Data		Address	07

※ The reception-time state of an infrared remote controller can be confirmed by the number of display data items.

Data	Reception-time state	Data	Reception-time state
01	Power supply	42	MENU
10	SOURCE/MEMORY	43	EXEC
11	Memory IN	14	STOP
13	Print	1C	MEMORY PAGE
30	UP	5D	Print quantity +
31	DOWN	5E	Print quantity −
32	LEFT	3C	Color adjustment
33	RIGHT	4B	MULTI PICTURE

6. Key input check

Page	7	Data		Address	11

Data	Key input	Data	Key input
09	SOURCE/MEMORY	14	RIGHT
0A	MEMORY IN	11	MENU
0B	PRINT	12	EXEC
15	UP	01	STOP
16	DOWN	0C	MEMORY/PAGE
13	LEFT		

※ The status of each key can be confirmed in real time.

7. Key input check (edge)

Page	7	Data		Address	12

※ Write the data below and press the PAUSE button. The state obtained when the key was pressed is then entered.

Data	Key input	Data	Key input
10	SOURCE/MEMORY	33	RIGHT
11	MEMORY IN	42	MENU
13	PRINT	43	EXEC
30	UP	14	STOP
31	DOWN	1C	MEMORY/PAGE
32	LEFT		

8. LED control check

Page	7	Data		Address	14

※ The LED is made turned on forcibly.

Data	Operation
00	Normal
01	Only the error LED ( ) lights.
02	Only the print LED ( ) lights.

9. Buzzer sound check

Page	7	Data		Address	16

※ Write any data and press the PAUSE button. The "buzzer" then sounds.

10. Sharpness adjustment

Page	7	Data		Address	40

Data	Level position
F9	MIN
00	CENTER
07	MAX

※ Write the above data and press the PAUSE button. The sharpness data is then changed.

11. Picture quality set check

Page	7	Data		Address	

Address		
45	B	Offset level
46	G	
47	R	
48	B	GAIN
49	G	
4A	R	

Offset data	Level position	Gain data
08	MIN	3F
00	CENTER	80
38	MAX	E3

12. [Mode control: ROM Ver]

Page	7	Data		Address	01

※ Indicates the ROM version during mode control.

13. THRU/EE check

Page	7	Data		Address	72

Data	
01	EE
02	THRU

14. Test pattern memory write check

Page	7	Data		Address	20

Data	Text pattern
27	Stairstep (H)
28	Stairstep (V)
29	Ramp (H)
2A	Ramp (V)
2B	Color-bar (false)

15. Input signal selection check

Page	7	Data		Address	71

Data	Input signal
01	VIDEO
02	S VIDEO

16. Motor single-drive check

(1) Head motor

Page	8	Data		Address	1A

Data	
00	Stop
01※1	Head position UP
02※2	Head position DOWN
08	Home position

※1 The head position changes by one step every time the PAUSE button of the RM-95 is pressed.

※2 Do not perform the DOWN operation in head position-1. This may destroy the unit. If so, turn off the AC power immediately.

(2) Ribbon motor (Roller motor)

Page	8	Data		Addres	1A

Data	
00	Stop
03※1	Roller position UP
04※2	Ribbon winding (continuous)

※1 The roller position changes by one step every time the PAUSE button of the RM-95 is pressed.

※2 Data 04 is continuously driven when the PAUSE button is pressed.

(3) Stepping motor, fan motor, delivery arm position

Page	8	Data		Address	1A

Data	
00	Stop
05	Stepping motor rotation (continuous)
06	Stepping motor reverse-rotation (continuous)
09	Fan motor rotation
0B	Delivery arm position UP※

※ The delivery arm position changes by one step every time the PAUSE button is pressed.

17. Roller position data

Page	8	Data		Address	04

Data	Position
E0	NULL
00	P0 position
02	P1 position
04	P2 position

18. Paper delivery arm position data

Page	8	Data		Address	05

Data	Position
0E	NULL
00	Home position
01	Print position

19. Mechanical control ROM version check

Page	8	Data		Address	01

※ Indicates the ROM version during mechanical control.

20. F page address book

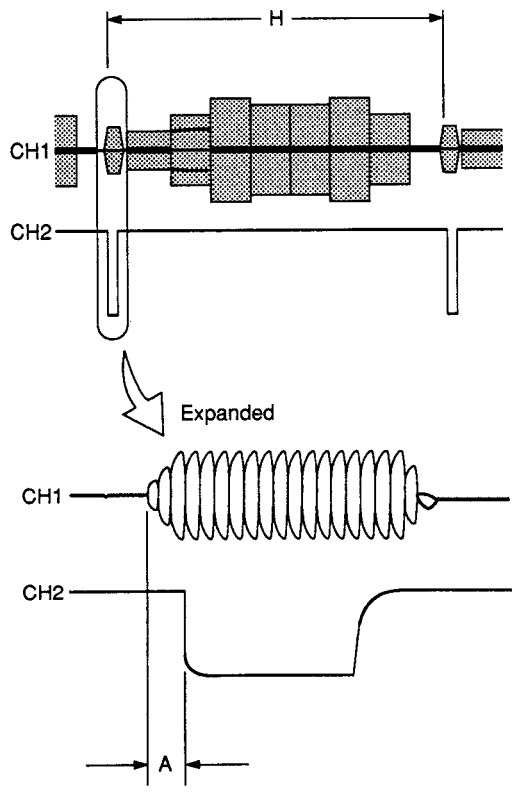
Adjustment address	Name	Function ( ) is the adjustment voltage output terminal.	
00			
01			
02			
03			
04			
05			
06			
07			
08			
09			
0A			
0B			
0C			
0D			
0E			
0F			
10			
11	HUECONT	Decoder hue adjustment	[CN502 ⑤]
12	CCONT	Decoder color adjustments	[CN101 ㉑]
13	SHPCT	Decoder sharpness adjustment	[IC301 ⑨, CN101 ㉑]
14	G-GAIN	Green gain adjustment	
15	R-GAIN	Red gain adjustment	
16	B-GAIN	Blue gain adjustment	
17	WH-REF	AGC gain level adjustment	[R340, 341]
18	BLACK-REF	Auto pedestal limiter adjustment	[Q323-E]
19	AGCC-OST	Chroma Y AGC Offset	
1A	D/A	D/A REF adjustment	
1B	AGC OST	Y AGC level adjustment	[CN103 ㉓]
1C			
1D			
1E			
1F			
20	ERG	Encoder white balance adjustment	
21	DM-LEV		
22	COLOR	INT/EXT detection level adjustment	[IC106 ⑦]
23	CHROMA LEV	Encoder chroma level adjustment	
24	BURST LEV	Encoder burst level adjustment	
25	W-POSIT	AFC phase adjustment	
26			
27			
28	ABL OST	ABL offset adjustment 1	[Q302-E]
29	TPADJ	Timing pulse adjustment	
2A	EBG	Encoder white balance adjustment	
2B	HUE	Encoder hue adjustment	
2C			
2D			
2E			
2F			

7-2. VIDEO CIRCUIT ADJUSTMENT (VA-76 BOARD)

7-2-1. INT/EXT Detection Level Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Color-bar (VIDEO) · Measurement equipment: Digital voltmeter	Measurement point: Pin ⑦ of IC106 or positive ("+") side of C103 2.0 ± 0.05 V DC	Adjustment page	F
		Adjustment address	22

7-2-2. BGP Phase Adjustment

Conditions for adjustment	Spec.	Adjustment
· Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: Pin ㉛ of C376 or IC311 (CH1) Pin ⑯ of IC311 (CH2)  A = 0.77 ± 0.07 μ sec	◐ RV304

7-2-3. APC Free-Running Frequency Adjustment

Conditions for adjustment	Spec.	Adjustment
· Input signal: Non-signal (with the input cable removed) · Measurement equipment: Frequency counter	Measurement point: Emitter of Q334 or Q328 Shortcircuit IC311 ㉓ pin to ground and IC311 ㉛ pin to ground. f = 4.433619 MHz ± 20Hz	◐RV301

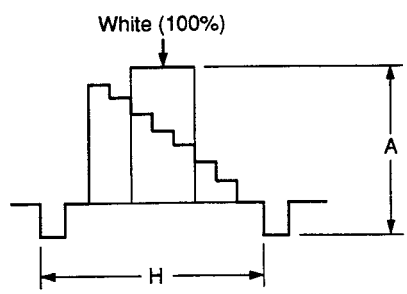
7-2-4. INT Sync Generator Frequency Adjustment

Conditions for adjustment	Spec.	Adjustment
· Input signal: Non-signal (with all the input cables removed) · Measurement equipment: Frequency counter	Measurement point: Pin ㉔ of IC130 or pin ① of IC128 f = 4.433619 MHz ± 20 Hz	◐CT102

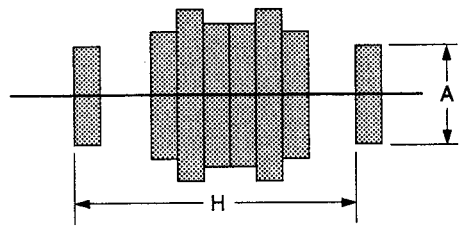
7-2-5. AFC Error Voltage Adjustment

Conditions for adjustment	Spec.	Adjustment
· Input signal: Non-signal (with all the input cables removed) · Measurement equipment: Digital voltmeter	Measurement point: CC101 − 0.5 ± 0.2 V DC	◐CT101

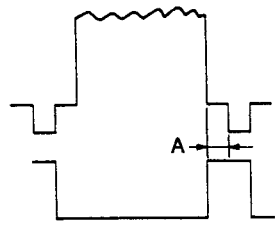
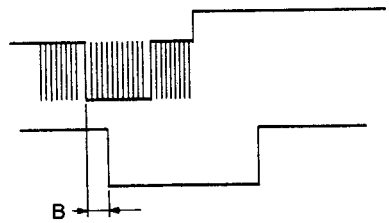
7-2-6. Y/C Separation Y-Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Input signal: Color-bar (VIDEO) · Measurement equipment: Oscilloscope	Measurement point: Emitter of Q116 or Q218  A = 1.00 ± 0.03 V p-p	◐RV302

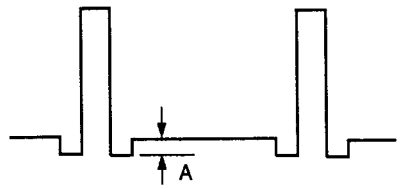
7-2-7. Y/C Separation Chroma-Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Input signal: Color-bar (VIDEO) · Measurement equipment: Oscilloscope	Measurement point: Emitter of Q121  A = 300 ± 30 mV p-p	◐ RV303

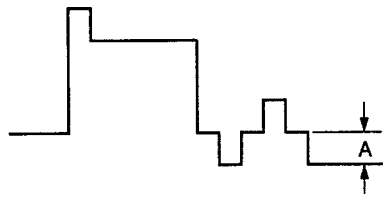
7-2-8. SYNC SEPA Phase Check

Conditions for adjustment	Spec.	Adjustment
· Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: IC110 ⑨ pin (Phase check of H SYNC and HD PULSE)  A = 11.5 ± 1.00 μ sec Measurement point: CN102 ⑧ pin (Phase check of V SYNC and VD PULSE)  B = 49.0 ± 3.0 μ sec	

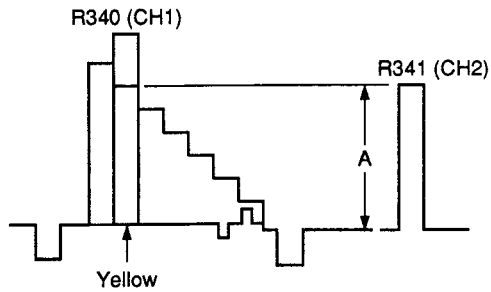
7-2-9. ABL Adjustment (1)

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Black burst (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: Emitter of Q302  A = 0 ± 20 mV	Adjustment page Adjustment address	F 28

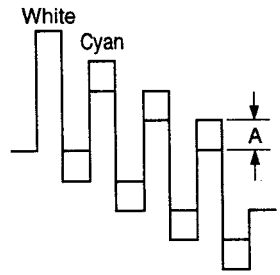
7-2-10. ABL Adjustment (2)

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CN101 ㉓ pin or C348  A = 0 ± 20 mV	Adjustment page Adjustment address	F 18

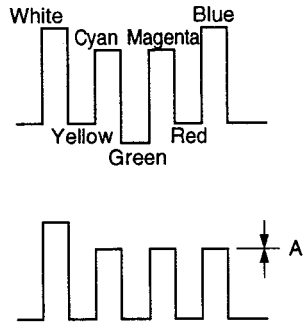
7-2-11. White REF Level Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Color-bar (only Y) (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: R340 (yellow) (CH1) R341 (white) (CH2)  Adjust so that the yellow (R340) of a Y signal component coincides with the peak level of a white REF pulse (R341). A = Within 20 mV	Adjustment page Adjustment address	F 17

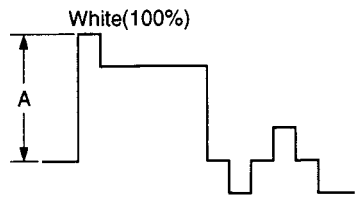
7-2-12. Decoder DL AMP DAT Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CN101 ㉑ pin  A = 0 ± 100 mV Adjust address 2B and DL303 alternatly.	Adjustment page Adjustment address :DL303	F 2B

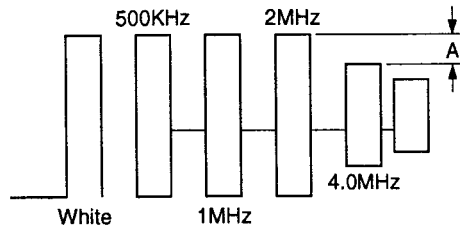
7-2-13. Decoder Color Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Color-bar 75% (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CN101 ㉑ pin  A = 0 ± 50 mV (Adjust so that the difference in level of each color is zero ("0").) If the difference in level exists in each color, readjust the hue.	Adjustment page Adjustment address	F 12

7-2-14. AGC Level Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CN103 ㉓ pin (G OUT)  A = 1.95 ± 0.05 V p-p	Adjustment page Adjustment address	F 1B

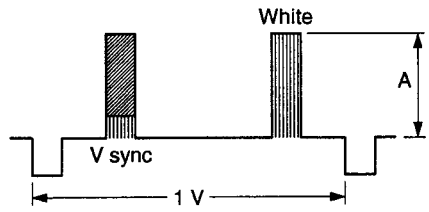
7-2-15. Decoder Sharpness Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Multi-burst (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: IC301 ⑨ pin (The levels of 1 MHz and 4 MHz should be the same.  A = Within 0.1 V	Adjustment page Adjustment address	F 13

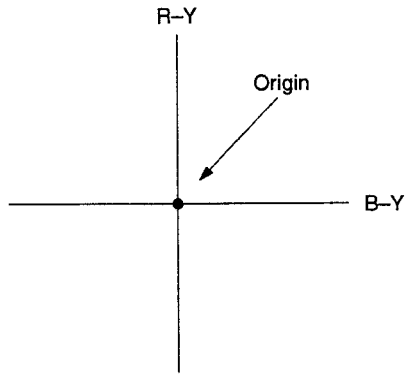
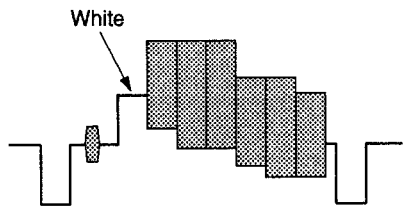
7-2-16. VRB CLP Reference Check

Conditions for adjustment	Spec.	Adjustment
· Input signal: No signal input · Measurement equipment: Digital multimeter	Measurement point: CN101 ㉖ pin (CLP REF) : 0.5 ± 0.1 V Measurement point: CN101 ⑯ pin (V RB) : 0.5 ± 0.1 V	

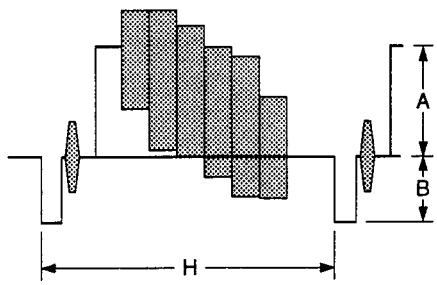
7-2-17. OSD Level Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: No signal input · Measurement equipment: Oscilloscope	Measurement point: VIDEO OUT (75-ohm termination)  A = 500 ± 30 mV (Y component of white character.)	Adjustment page Adjustment address	F 27

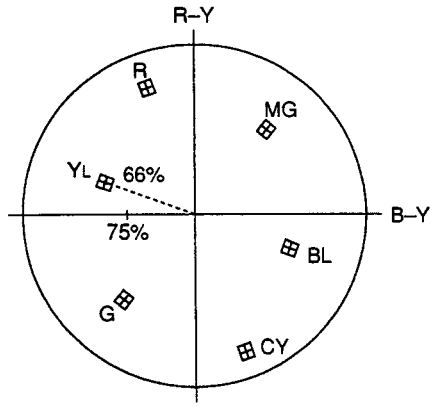
7-2-18. Encoder White Balance Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Mode: Input picture · Input signal: Multi-burst (S VIDEO) · Measurement equipment: Oscilloscope Vectorscope 75-ohm termination	Measurement point: Video output terminal · For vectorscope  The white luminescent spot should coincide with the origin. · For oscilloscope  Adjust so that the chroma signal component (3.58 MHz) that leaks to the white portion of an output waveform is minimum.	Adjustment page	F
		Adjustment address	20(ERG) 2A(EBG)
		※Perform address 20 and 2A alternately.	

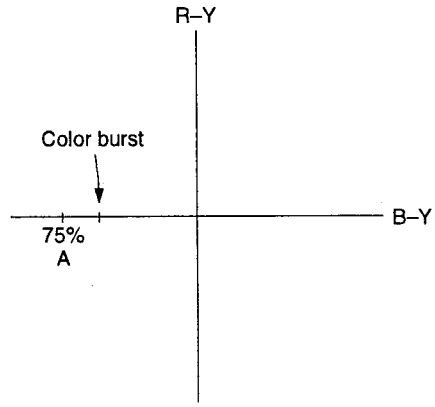
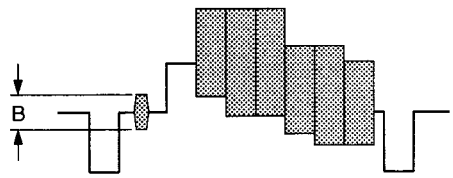
7-2-19. D/A REF Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Mode: Input picture · Input signal: Color-bar (VIDEO) · Measurement equipment: Oscilloscope	Measurement point: Video output terminal (75-ohm termination)  A = 485 ± 20 mV B = 300 ± 30 mV	Adjustment page	F
		Adjustment address	1A

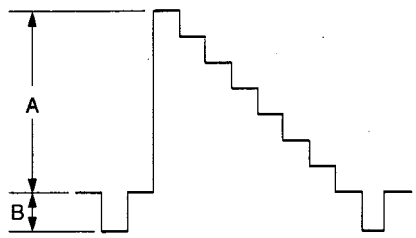
7-2-20. Encoder Chroma Level Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Mode: Input picture · Input signal: Color-bar (VIDEO) · Measurement equipment: Vectorscope · Video output terminal in 75-ohm termination	Measurement point: Video output terminal (Adjust the saturation level of yellow to 66%) · For Vectorscope  · 87% of length between center of yellow "⊞" and cross point of R—Y and B—Y axes. · For Oscilloscope Yellow, Blue: 430 ± 20 mV p-p Cyan, Red: 610 ± 20 mV p-p Magenta, Green: 566 ± 20 mV p-p	Adjustment page Adjustment address	F 23

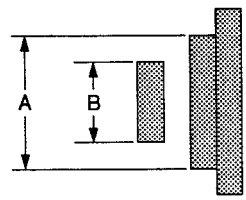
7-2-21. Encoder Color Burst Level Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Mode: Input picture · Input signal: Non-signal · Measurement equipment: Vectorscope	Measurement point: Video output (in 75-ohm termination) · For Vectorscope  A: Saturation point one piece · For Oscilloscope  B = 300 ± 10 mV p-p	Adjustment page	F
		Adjustment address	24

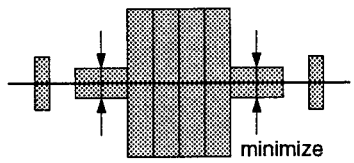
7-2-22. S Video Output Y Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (VIDEO) · Measurement equipment: Oscilloscope · S video output Y terminal in 75-ohm termination	Measurement point: S VIDEO OUT. CN502 ③ pin(Y)  A = 485 ± 20 mV B = 300 ± 30 mV	

7-2-23. S Video Output Chroma Level Adjustment

Conditions for adjustment	Spec.	Adjustment
· Mode: Input picture · Input signal: Color-bar (VIDEO) · Measurement equipment: Oscilloscope · S video output C terminal in 75-ohm termination	Measurement point: S VIDEO OUT. CN502 ⑤ pin(C)  A = 430 ± 30 mV B = 300 ± 30 mV	

7-2-24. Decoder Hue Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Unti PAL signal (SG-408P) (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CN502 ⑤ pin (S VIDEO OUT)  	Adjustment page Adjustment address	F 11

7-2-25. Decoder DL AMP DAT Adjustment

Conditions for adjustment	Spec.	Adjustment	
· Input signal: Color-bar (S VIDEO) · Measurement equipment: Oscilloscope	Measurement point: CN101 ㉑ pin(B OUT) A = Within ± 20 mV	Adjustment page Adjustment address DL303 ※ DL303 and address should be adjusted alternately.	F 28

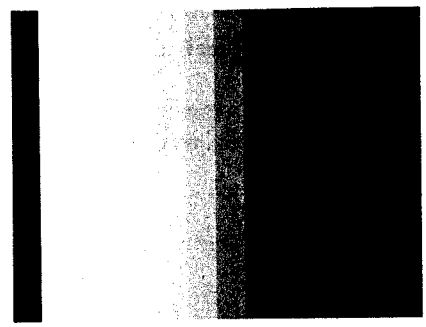
7-3. HEAD REPLACEMENT

7-3-1. Adjustment

1) Mechanical block

Thermal head replacement (Refer to "Printing the Test Signal by RM-95*".)

(1) Print two sheets of paper via the defective head using a stairstep signal (H) before replacing the thermal head. Use the second sheet of paper for comparison of uneven image density.
After the thermal head was replaced, print two sheets of paper using a stairstep signal(H). Adjust so that the second sheet of printed paper is equal in density to the second sheet of paper printed before replacement.

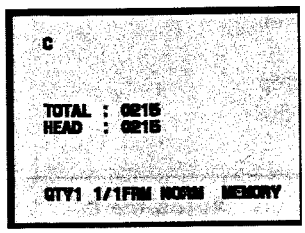
Conditions for adjustment	Spec.	Adjustment
· Mode: Memory picture※1 · Input signal: Stairstep signal (H)※2	Should be equal to the sample image. 	◐ VR201※3

※1 Press the MEMORY IN or SOURCE/MEMORY button of the unit.
※2 Refer to the stairstep signal (H) in "Entering the Test Signal".
※3 Adjust using VR201 on the power board while pressing switch S705 on the HM board.
[Voltage ⊕(thick); voltage ⊖(thin)]

SECTION 8
SERVICE MODE

8-1. ENTERING THE SERVICE MODE

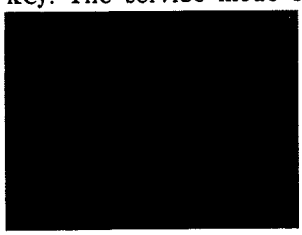
1) Turn on the power [⏻] while pressing the [STOP] and [MEMORY IN] keys simultaneously.
   ※ Press the STOP and MEMORY IN keys until the "COLOR VIDEO PRINTER" display blinks on the monitor and until the loading motor stops.
   (The standard screen below is displayed. The unit then enters the service mode.)



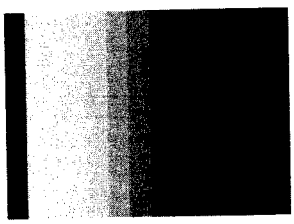
8-2. PRINTING THE TEST PATTERN

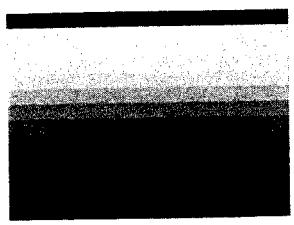
※ Perform the procedure below with the standard screen displayed on the monitor.

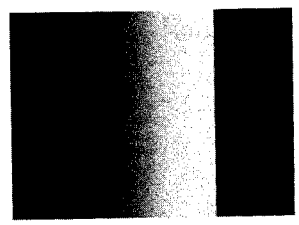
1) Press the [SOURCE/MEMORY] key to display the memory screen and press the [EXEC] key. The service mode standard screen is then displayed.

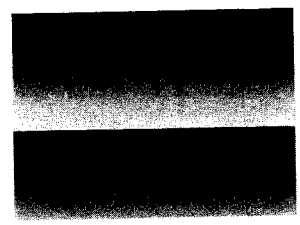


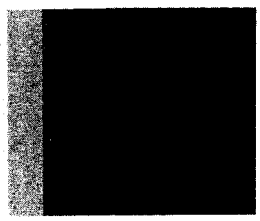
2) Move the cursor to ▷ PATTERN using [∧] and [∨] keys and select one of the eight pattern signals below using [<] and [>] keys.

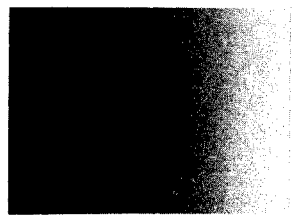

STAIRSTEP H


STAIRSTEP V


RAMP H


RAMP V


COLOR BAR H


ADJUST RAMP

ADJUST 8081

ADJUST AA55

3) Press the [EXEC] key. The screen then becomes black and the "PLEASE WAIT" display blinks. Pattern signals are displayed on the screen after a few seconds. Press the [PRINT] key to output a print.
   ※ To change the pattern signal, repeat step 2) above. Next, press the [EXEC] key, then the [PRINT] key for a print output.

8-3. RESETTING THE PRINT COUNT DISPLAY DURING HEAD REPLACEMENT

Set F page addresses EEH and EFH to "00H" by RM-95 (remodeled kit for adjustment).

SONY

COLOR VIDEO PRINTER

UP-1200EPM

SERVICE MANUAL

SUPPLEMENT-1

Please add and replace your manual with this SUPPLEMENT-1.

SUBJECT

- FMY-13P board change (Suffix -11 → -21)
- Service mode
- Correction

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS INDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COPMONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CONTENTS

Section *Page*

1. FMY-13P BOARD CHANGE
1-1. Added Parts of FMY-13P Board 4
1-2. Printed Wiring Boards 6
1-3. Schematic Diagrams 9
1-4. Electrical Parts List 17

2. SERVICE MODE
2-1. Entering the Service Mode 21
2-2. Entering the Print Operation of Pattern Signal 21
2-3. Resetting the Print Number Counter 22
2-4. Replacing the Head 22

CORRECTION 25

1. FMY-13P BOARD CHANGE

1-1. ADDED PARTS OF FMY-13P BOARD (SUFFIX -21)

Ref.No	Part No.	Description			Remark
		<CAPACITOR>			
C440	1-163-275-11	CERAMIC	0.001uF	5%	50V
C441	1-163-275-11	CERAMIC	0.001uF	5%	50V
C442	1-163-231-11	CERAMIC	15PF	5%	50V
C443	1-163-275-11	CERAMIC	0.001uF	5%	50V
C444	1-163-243-11	CERAMIC	47PF	5%	50V
C445	1-163-275-11	CERAMIC	0.001uF	5%	50V
C446	1-163-275-11	CERAMIC	0.001uF	5%	50V
C447	1-163-275-11	CERAMIC	0.001uF	5%	50V
C706	1-163-038-00	CERAMIC	0.1uF		25V
		<IC>			
IC410	8-759-927-29	IC SN74HCU04ANS			
IC411	8-759-033-16	IC MC74F74M			
		<TRANSISTOR>			
Q440	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q441	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q442	8-729-010-75	TRANSISTOR MSC4116-B/C			
		<RESISTOR>			
R440	1-216-295-00	METAL	0	5%	1/10W
R441	1-216-295-00	METAL	0	5%	1/10W
R442	1-216-073-00	METAL	10K	5%	1/10W
R443	1-216-063-00	METAL	3.9K	5%	1/10W
R444	1-216-037-00	METAL	330	5%	1/10W
R445	1-216-025-00	METAL	100	5%	1/10W
R446	1-216-077-00	METAL	15K	5%	1/10W
R447	1-216-073-00	METAL	10K	5%	1/10W
R448	1-216-033-00	METAL	220	5%	1/10W
R449	1-216-037-00	METAL	330	5%	1/10W
R450	1-216-033-00	METAL	220	5%	1/10W
R451	1-216-077-00	METAL	15K	5%	1/10W
R452	1-216-073-00	METAL	10K	5%	1/10W
R453	1-216-033-00	METAL	220	5%	1/10W
R454	1-216-037-00	METAL	330	5%	1/10W
R455	1-216-033-00	METAL	220	5%	1/10W
R456	1-216-121-00	METAL	1M	5%	1/10W
R457	1-216-121-00	METAL	1M	5%	1/10W
R458	1-216-121-00	METAL	1M	5%	1/10W
R459	1-216-295-00	METAL	0	5%	1/10W

1-2. PRINTED WIRING BOARDS

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

- **For Printed Wiring Boards.**
- : Soldering Side.
- : Component Side.

- **For Schematic Diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted.
  pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusibe resistor.
- : panel designation.
- : adjustment for repeair.
- : B+ Line.
- : B− Line.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

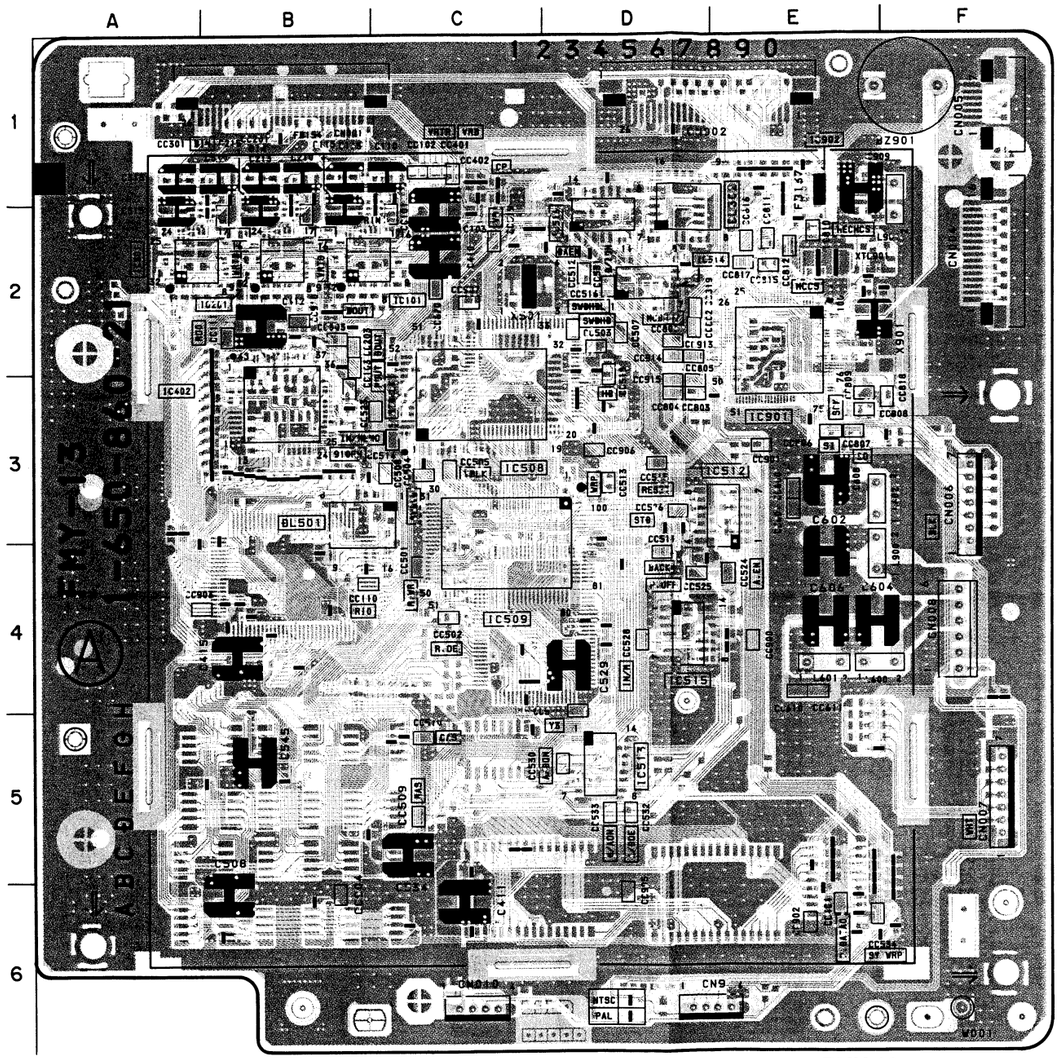
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

FMY-13P (FRAME MEMORY)

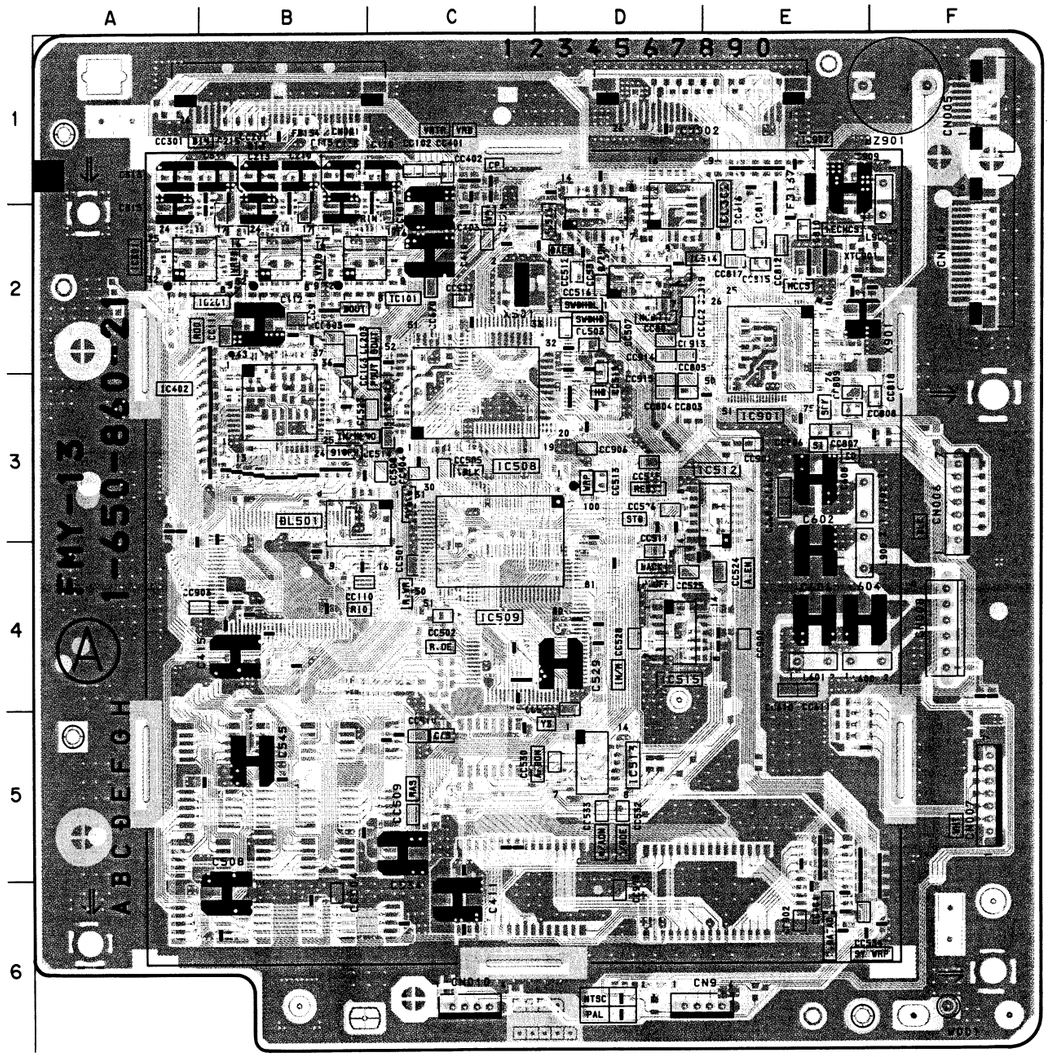
FMY-13P BOARD

BZ901	F-1		IC503	B-5	S
			IC504	B-6	S
CN001	B-1		IC505	B-5	S
CN002	E-1		IC506	A-6	S
CN004	F-2		IC507	D-4	S
CN005	F-1		IC508	C-3	
CN006	F-3		IC509	C-4	
CN007	F-5		IC510	D-3	S
CN008	F-4		IC511	D-5	S
CN009	E-6		IC512	E-3	
CN010	C-6		IC513	D-5	
			IC514	E-2	
D101	C-2	S	IC515	E-4	
D201	B-2	S	IC516	D-1	
D301	B-2	S	IC901	E-3	
D901	E-1	S	IC902	E-1	
D903	F-2	S			
			L600	F-5	
DL501	B-4		L601	E-5	
DL502	E-2		L602	F-3	
			L900	F-4	
FB137	E-2		L901	F-2	
FB138	F-3	S			
FB139	F-3	S	Q101	C-1	S
FB140	E-3	S	Q102	C-2	S
FB141	E-3	S	Q201	B-1	S
FB142	F-3	S	Q202	B-2	S
FB143	E-5	S	Q301	B-1	S
FB144	E-5	S	Q302	B-2	S
FB145	E-5	S	Q401	C-3	S
FB146	E-5	S	Q440	B-2	S
FB147	E-5	S	Q441	B-2	S
FB149	B-1	S	Q442	B-2	S
FB150	C-1	S	Q902	F-2	S
FB151	B-1	S	Q903	E-2	
FB152	B-2	S			
FB153	A-1	S	X501	D-2	
FB154	B-2		X901	F-2	
FL001	D-1		XTL901	F-2	
FL002	D-1				
FL003	D-1				
IC101	C-2				
IC201	B-2				
IC301	A-2				
IC401	B-4	S			
IC402	A-3				
IC403	D-6	S			
IC404	C-6	S			
IC405	E-6	S			
IC410	B-3	S			
IC411	D-1				
IC501	C-5	S			
IC502	C-6	S			

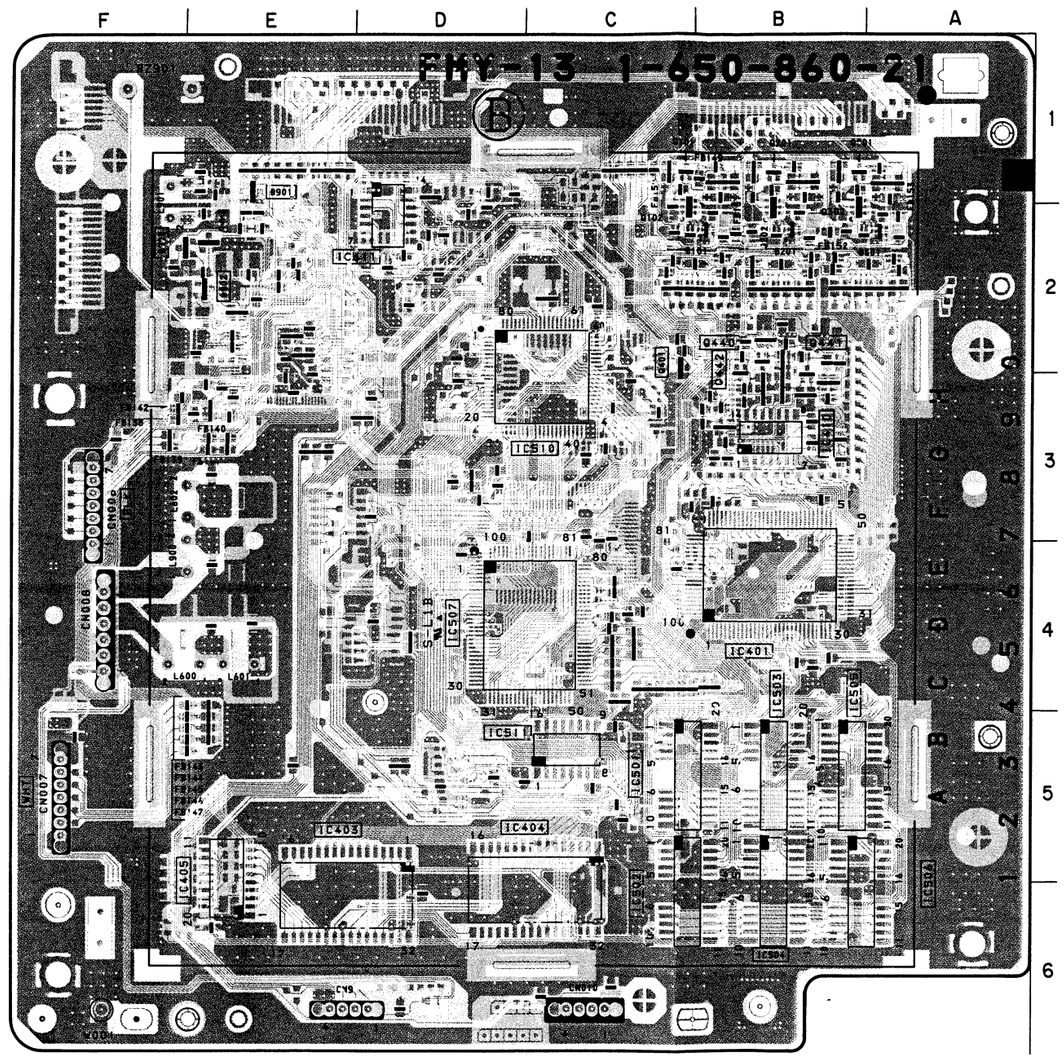
S:SOLDERING SIDE



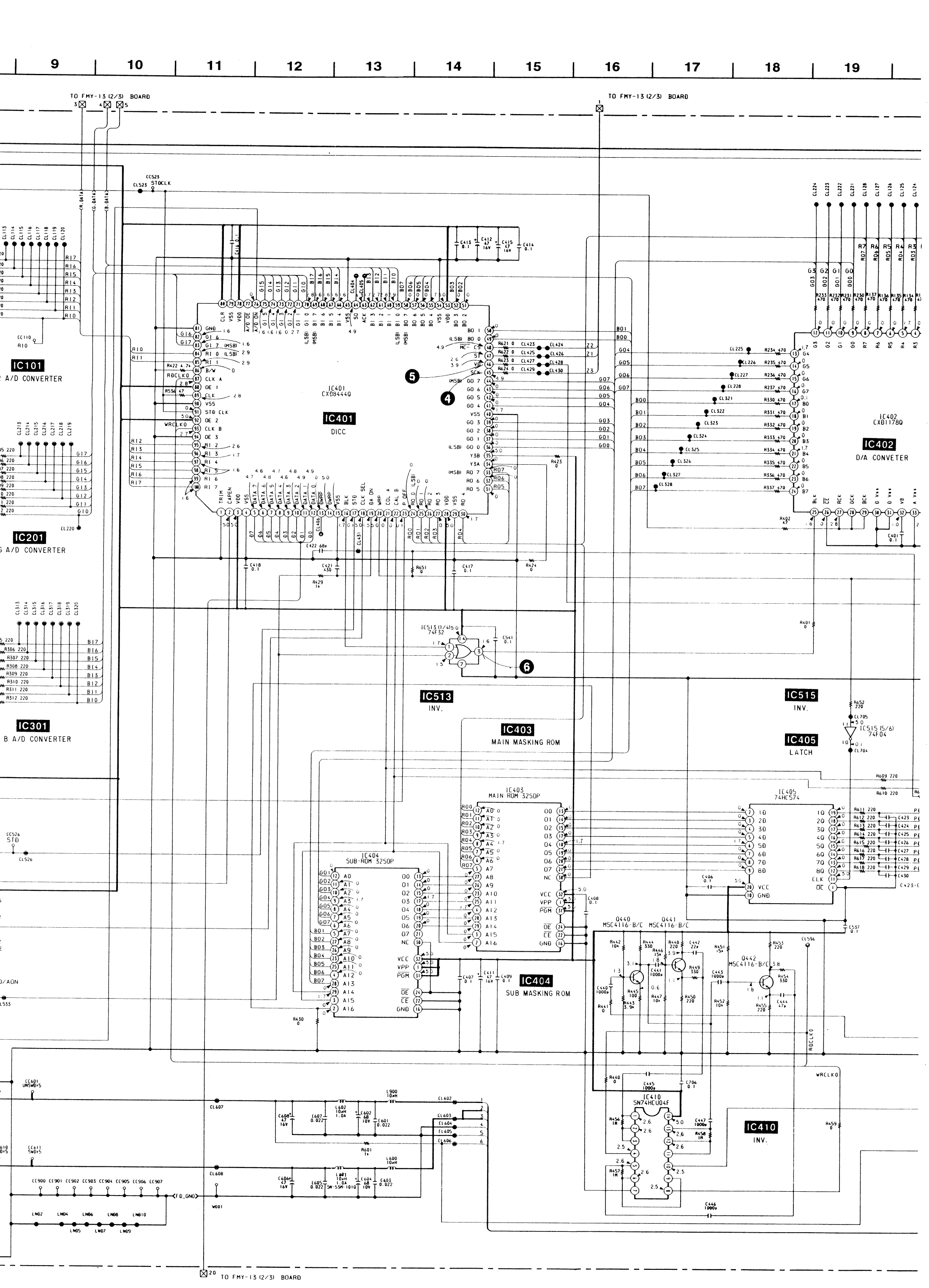
FMY-13 -COMPONENT SIDE-
1-650-860-21

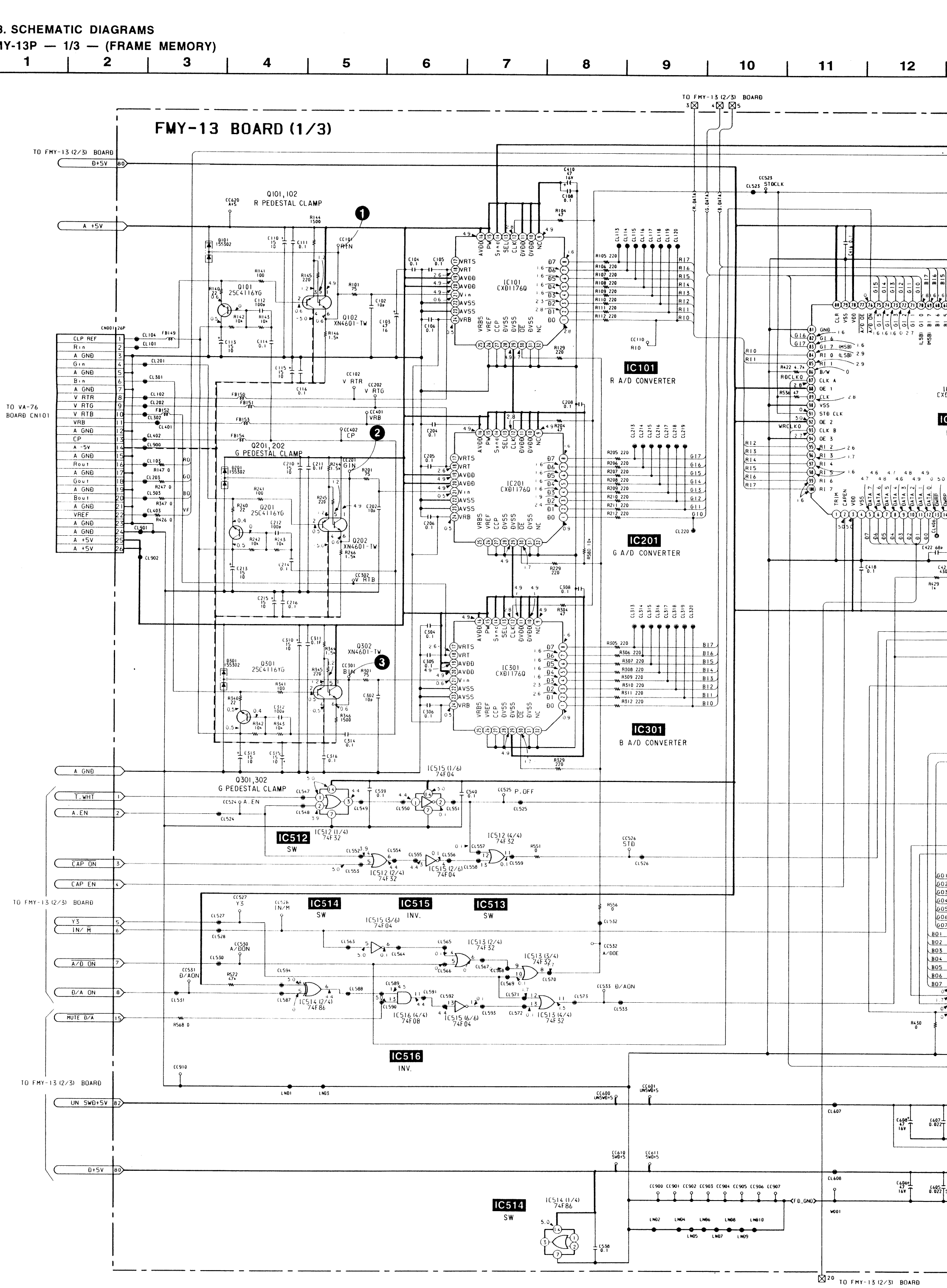


FMY-13 -COMPONENT SIDE-
1-650-860-21



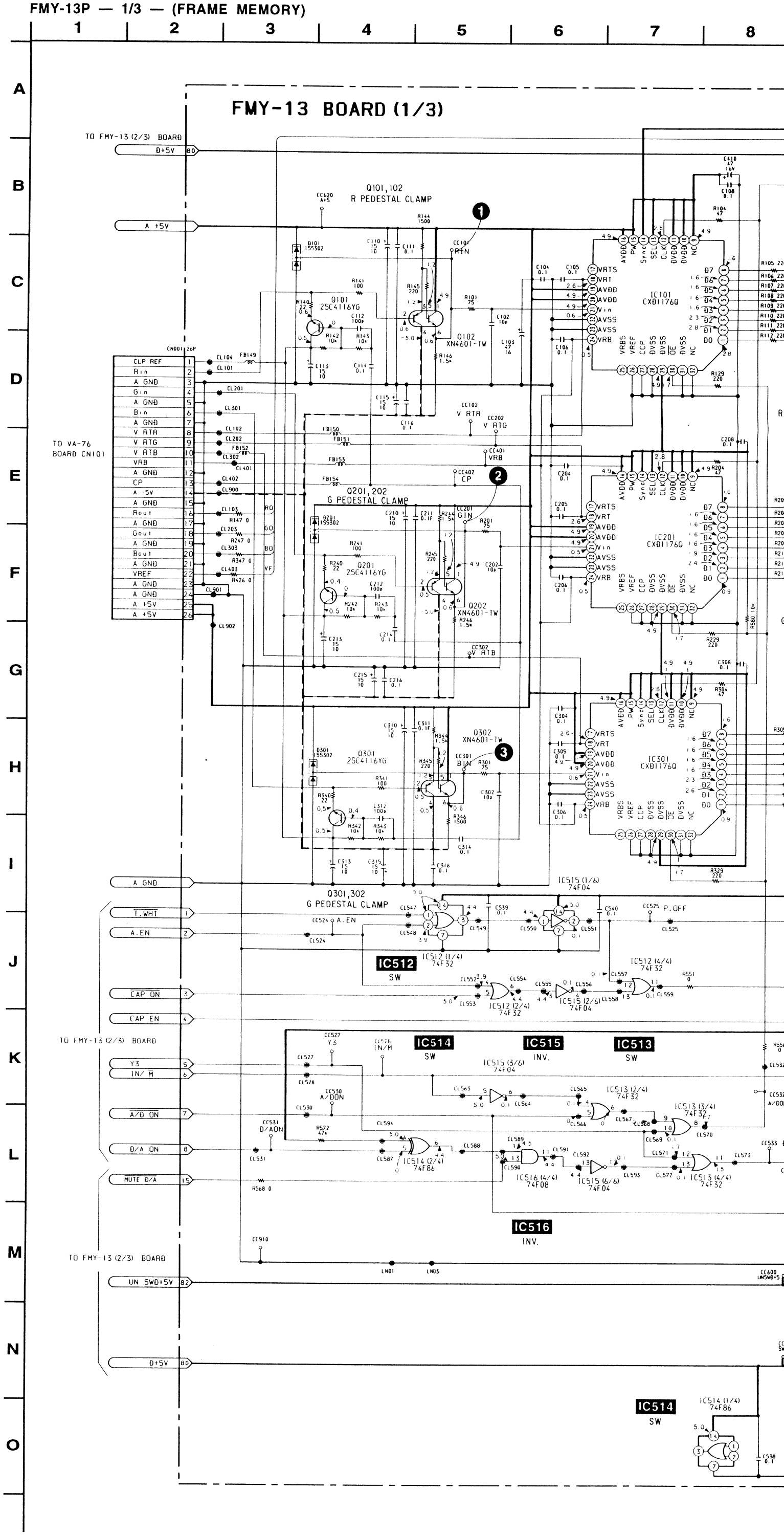
FMY-13 -SOLDERING SIDE-
1-650-860-21


9
10
11
12
13
14
15
16
17
18
19
TO FMY-13 (2/3) BOARD
IC101
A/D CONVERTER
IC201
A/D CONVERTER
IC301
B A/D CONVERTER
IC401
DICC
IC402
D/A CONVETER
IC513
INV.
IC515
INV.
IC403
MAIN MASKING ROM
IC404
SUB MASKING ROM
IC405
LATCH
IC410
INV.
IC403
MAIN ROM 32SOP
IC404
SUB-ROM 32SOP
IC405
74HC574
IC410
SN74HCU04F
IC513 (1/4)
74F32
IC515 (5/6)
74F04
Q440
MSC4116-B/C
Q441
MSC4116-B/C
Q442
MSC4116-B/C
TO FMY-13 (2/3) BOARD


FMY-13 BOARD (1/3)
TO FMY-13 (2/3) BOARD
D+5V
A +5V
Q101,102
R PEDESTAL CLAMP
Q101
2SC4116YG
Q102
XN4601-TW
IC101
CXD1176Q
IC101
R A/D CONVERTER
IC201
G A/D CONVERTER
IC301
B A/D CONVERTER
Q201,202
G PEDESTAL CLAMP
Q201
2SC4116YG
Q202
XN4601-TW
Q301,302
G PEDESTAL CLAMP
Q301
2SC4116YG
Q302
XN4601-TW
IC512
SW
IC514
SW
IC515
INV.
IC513
SW
IC516
INV.
IC514
SW
TO VA-76
BOARD CN101
CN001 26P
CLP REF
Rin
A GND
Gin
Bin
V RTR
V RTG
V RTB
VRB
CP
A -5V
Rout
Gout
Bout
VREF
A +5V
T.WHT
A.EN
CAP ON
CAP EN
Y3
IN/M
A/D ON
D/A ON
MUTE D/A
UN SWD+5V
D+5V
STDCLK
P.OFF
STD
A/DON
D/AON
A/DOE
FD_GND

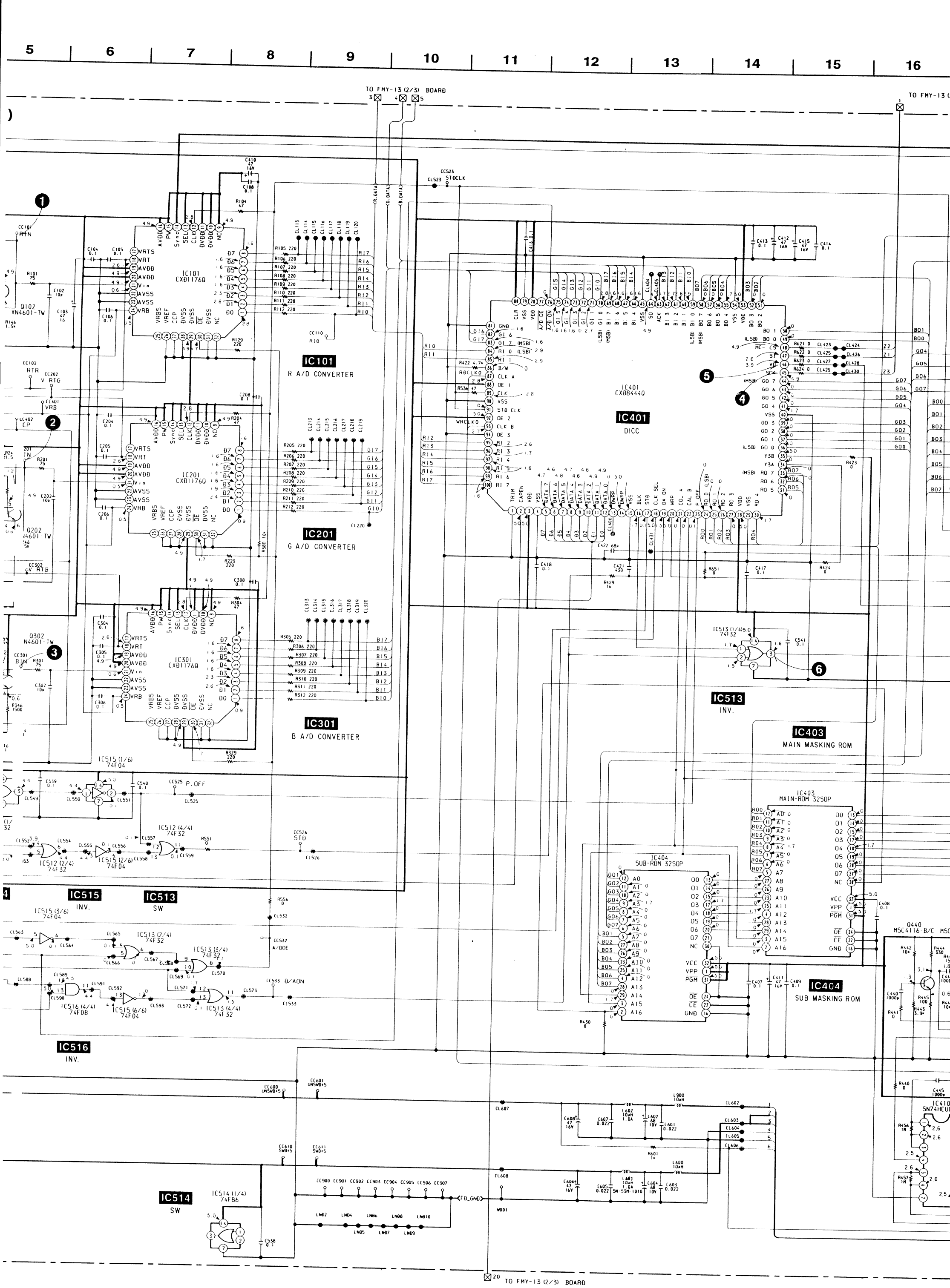
1-3. SCHEMATIC DIAGRAMS

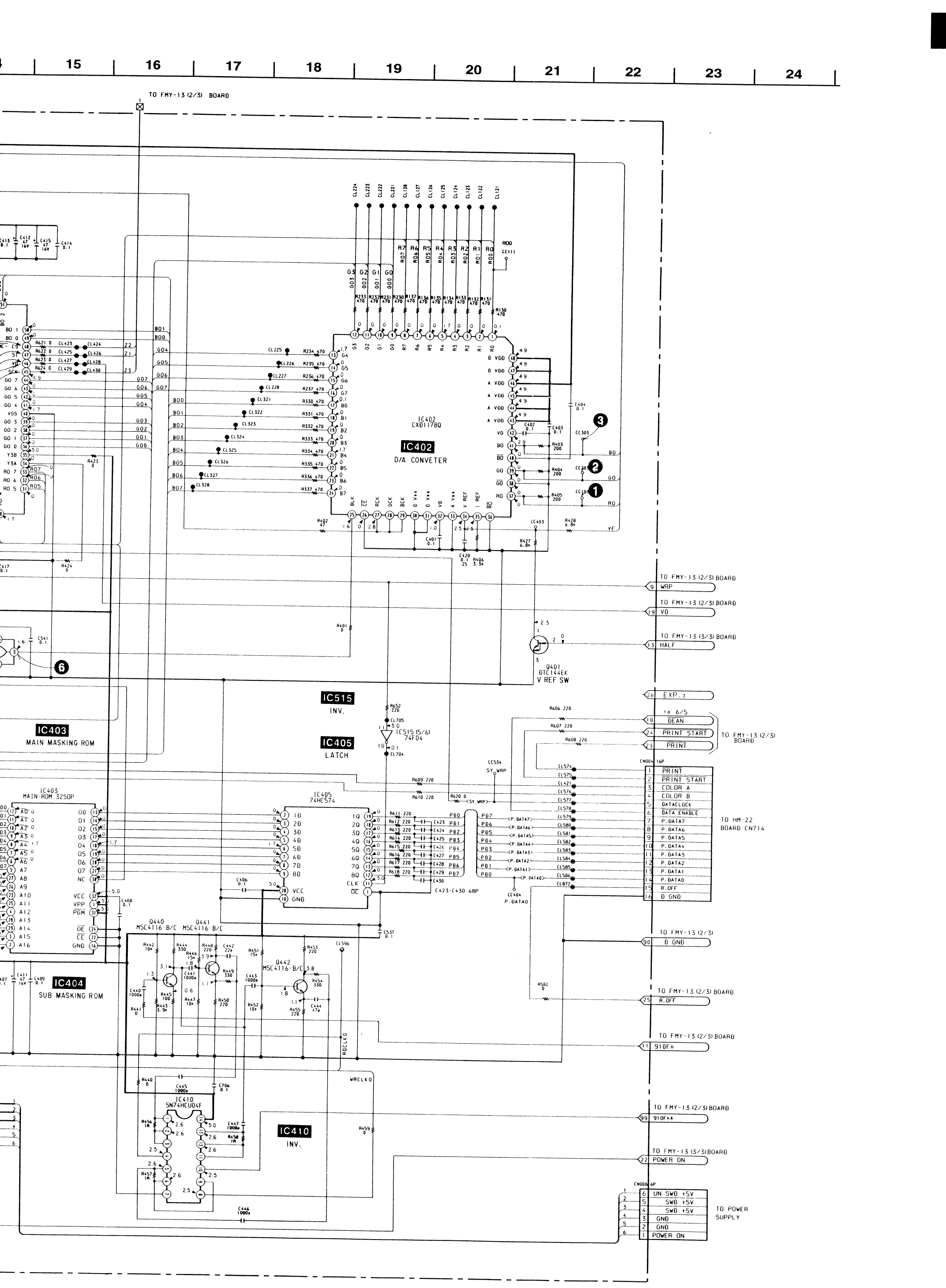
FMY-13P — 1/3 — (FRAME MEMORY)

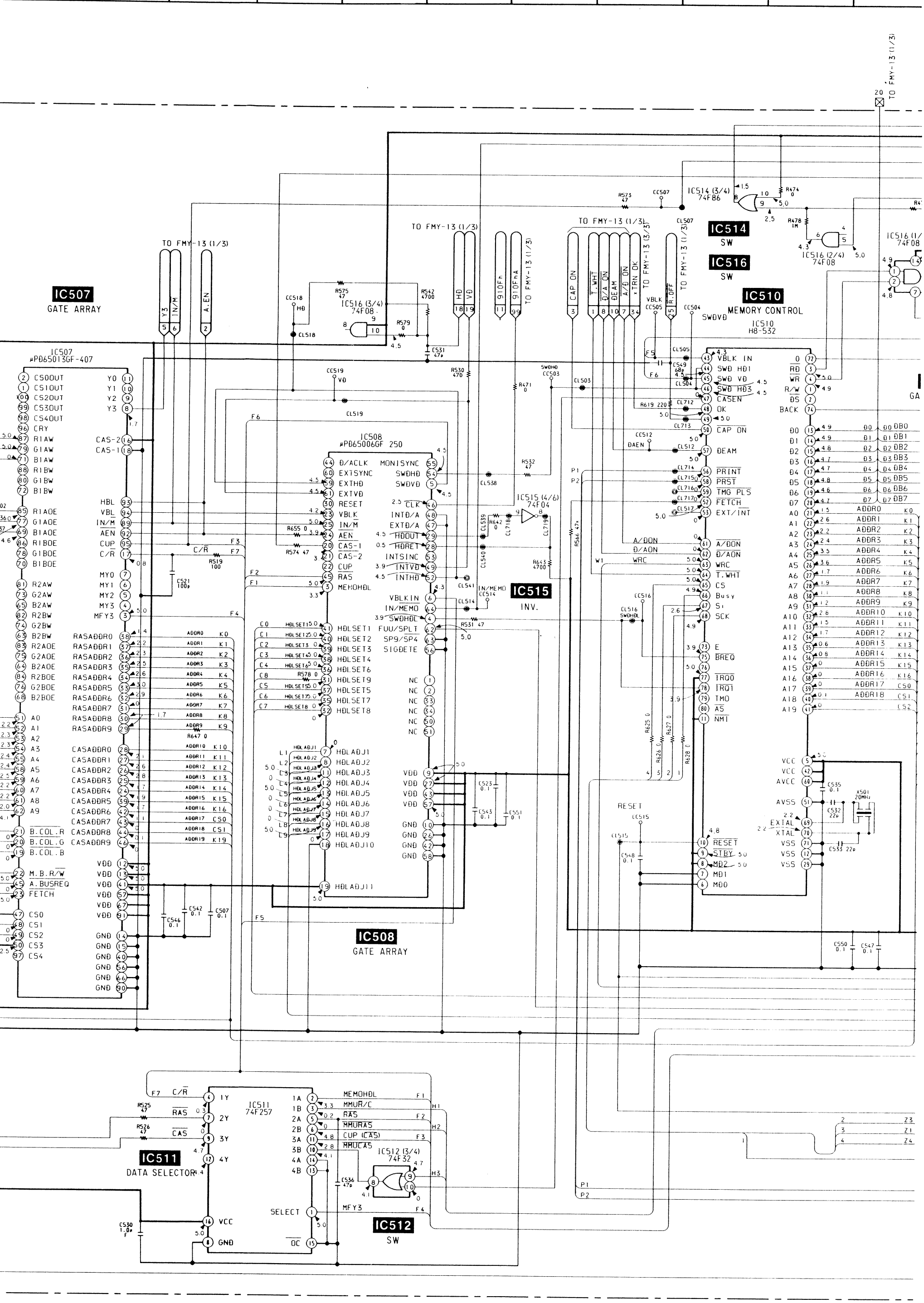


Note :

3/3 of schematic diagram is the same as its on the service manual.
Therefore, this supplement-1 dose not have 3/3 of schematic diagram.
Please refer to UP-1200EPM service manual on page 105 to 109.


IC101
R A/D CONVERTER
IC201
G A/D CONVERTER
IC301
B A/D CONVERTER
IC401
DICC
IC403
MAIN MASKING ROM
IC404
SUB MASKING ROM
IC513
INV.
IC515
INV.
IC513
SW
IC516
INV.
IC514
SW
TO FMY-13 (2/3) BOARD

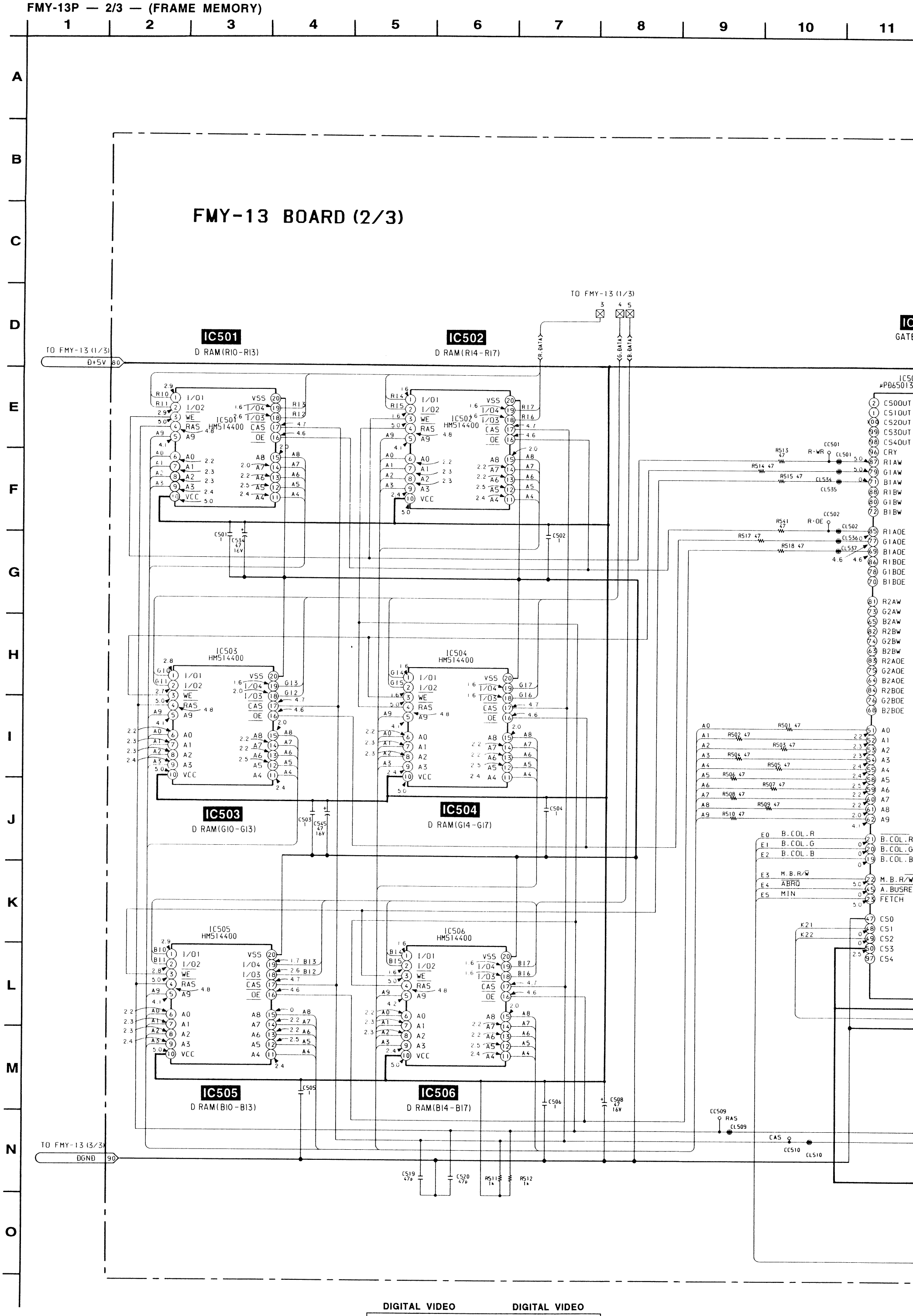

TO FMY-13 (2/3) BOARD
IC402
CX01178Q
D/A CONVETER
IC403
MAIN MASKING ROM
IC404
SUB MASKING ROM
IC405
LATCH
IC515
INV.
IC410
INV.
IC403
MAIN-ROM 32SOP
IC405
74HC574
IC410
SN74HCU04F
IC515 (5/6)
74F04
Q401
DTC144EK
V REF SW
Q440
MSC4116-B/C
Q441
MSC4116-B/C
Q442
MSC4116-B/C
TO FMY-13 (2/3) BOARD
WRP
VD
TO FMY-13 (3/3) BOARD
HALF
EXP.7
DEAN
PRINT START
PRINT
TO FMY-13 (2/3) BOARD
CN004 16P
PRINT
PRINT START
COLOR A
COLOR B
DATACLOCK
DATA ENABLE
P.DATA7
P.DATA6
P.DATA5
P.DATA4
P.DATA3
P.DATA2
P.DATA1
P.DATA0
R.OFF
D GND
TO HM-22
BOARD CN714
TO FMY-13 (2/3)
D GND
TO FMY-13 (2/3) BOARD
R.OFF
TO FMY-13 (2/3) BOARD
910Fn
TO FMY-13 (2/3) BOARD
910FnA
TO FMY-13 (3/3) BOARD
POWER ON
CN008 6P
UN SWD +5V
SWD +5V
SWD +5V
GND
GND
POWER ON
TO POWER
SUPPLY



DIGITAL VIDEO

FMY-13P

FMY-13P — 2/3 — (FRAME MEMORY)

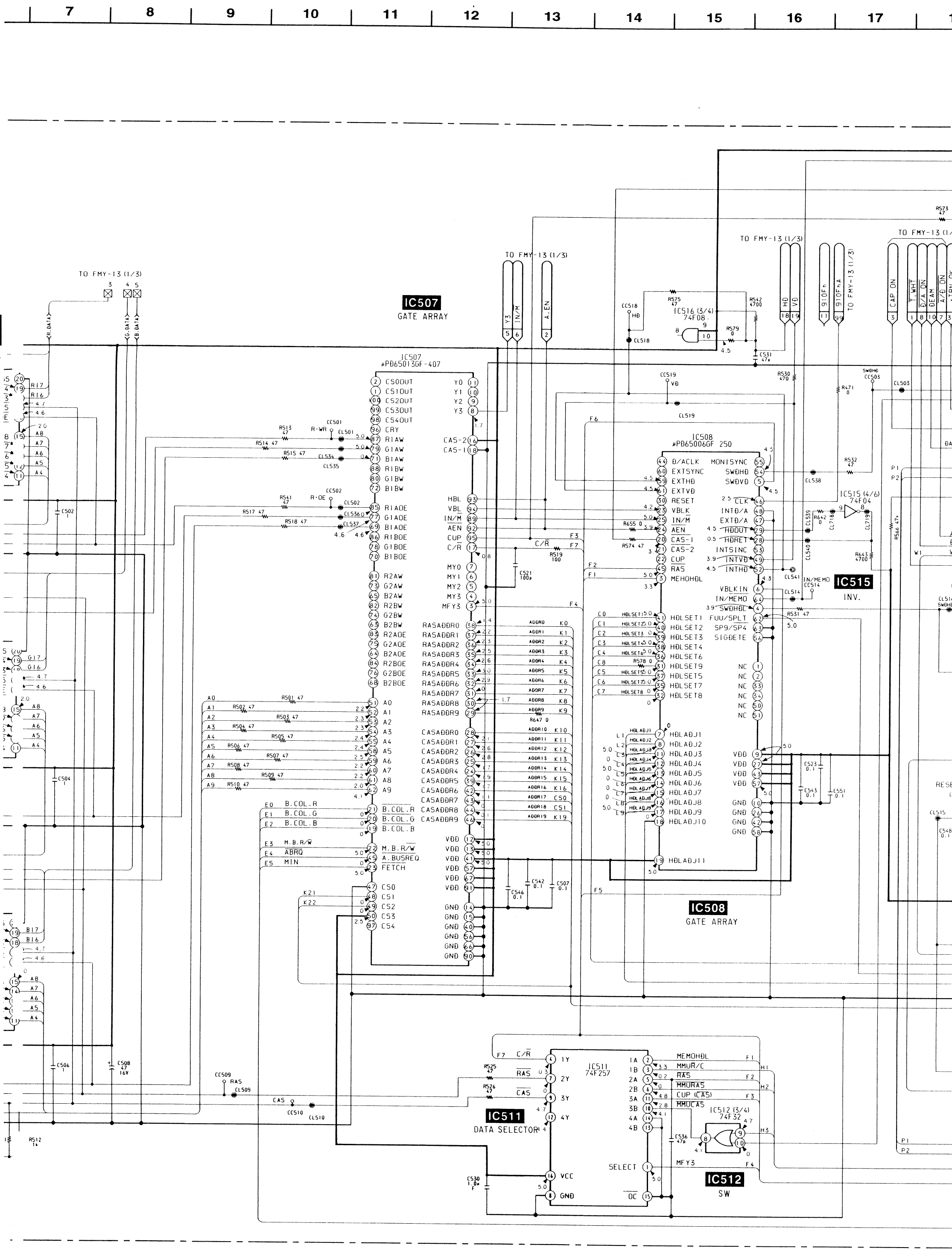


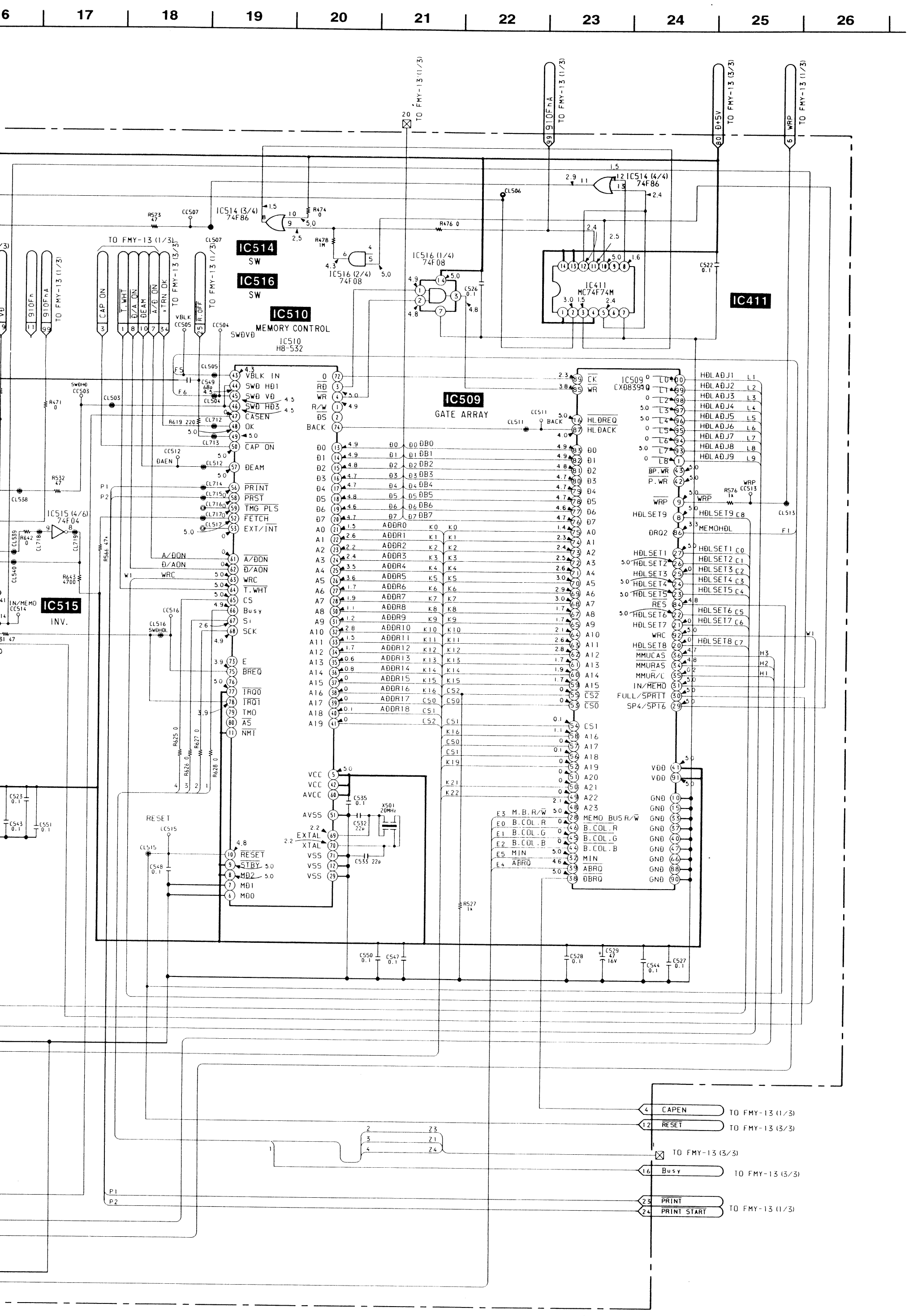
DIGITAL VIDEO

FMY-13P

DIGITAL VIDEO

FMY-13P


7
8
9
10
11
12
13
14
15
16
17
IC507
GATE ARRAY
IC507
μPD65013GF-407
IC508
μPD65006GF 250
IC508
GATE ARRAY
IC515 (4/6)
74F04
IC515
INV.
IC511
74F257
IC511
DATA SELECTOR
IC512 (3/4)
74F32
IC512
SW
IC516 (3/4)
74F08
TO FMY-13 (1/3)
R.DATA
G.DATA
B.DATA
CS0OUT
CS1OUT
CS2OUT
CS3OUT
CS4OUT
CRY
R1AW
G1AW
B1AW
R1BW
G1BW
B1BW
R1AOE
G1AOE
B1AOE
R1BOE
G1BOE
B1BOE
R2AW
G2AW
B2AW
R2BW
G2BW
B2BW
R2AOE
G2AOE
B2AOE
R2BOE
G2BOE
B2BOE
B.COL.R
B.COL.G
B.COL.B
M.B.R/W
A.BUSREQ
FETCH
MONISYNC
SWDHD
SWDVD
CLK
INTD/A
EXTD/A
HDOUT
HDRET
INTSINC
INTVD
INTHD
VBLKIN
IN/MEMO
SWDHDL
FUU/SPLT
SP9/SP4
SIGDETE
MEMOHDL
MMUR/C
RAS
MMURAS
CUP (CAS)
MMUCAS
MFY3
SELECT
OC
VCC
GND
CAP ON
T.WHT
D/A ON
BEAM
A/D ON
910FH
910FHA



DIGITAL VIDEO
FMY-13P

DIGITAL VIDEO
FMY-13P

1-4. ELECTRICAL PARTS LIST

NOTE:

- Items marked "*" are not stocked because they are seldom required for routine servicing. Some delay should be expected when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise stated.

RESISTORS
- All resistors are in ohms.
- F:non-flammable

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

CAPACITORS
- MF: μF, PF: μμF

COILS
- MMH: mH, UH: μH

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

Ref.No	Part No.	Description			Remark
	*A-8275-599-A	FMY-13P BOARD, COMPLETE **********			
		<BUZZER>			
BZ901	1-529-069-11	BUZZER, PIEZOELECTRIC			
		<CAPACITOR>			
C102	1-163-227-11	CERAMIC	10PF		50V
C103	1-126-204-11	ELECT	47uF	20%	16V
C104	1-163-038-00	CERAMIC	0.1uF		25V
C105	1-163-038-00	CERAMIC	0.1uF		25V
C106	1-163-038-00	CERAMIC	0.1uF		25V
C108	1-163-038-00	CERAMIC	0.1uF		25V
C110	1-126-217-11	ELECT	15uF	20%	10V
C111	1-163-038-00	CERAMIC	0.1uF		25V
C112	1-163-117-00	CERAMIC	100PF	5%	50V
C113	1-126-217-11	ELECT	15uF	20%	10V
C114	1-163-038-00	CERAMIC	0.1uF		25V
C115	1-126-217-11	ELECT	15uF	20%	10V
C116	1-163-038-00	CERAMIC	0.1uF		25V
C202	1-163-227-11	CERAMIC	10PF		50V
C204	1-163-038-00	CERAMIC	0.1uF		25V
C205	1-163-038-00	CERAMIC	0.1uF		25V
C206	1-163-038-00	CERAMIC	0.1uF		25V
C208	1-163-038-00	CERAMIC	0.1uF		25V
C210	1-126-217-11	ELECT	15uF	20%	10V
C211	1-163-038-00	CERAMIC	0.1uF		25V
C212	1-163-117-00	CERAMIC	100PF	5%	50V
C213	1-126-217-11	ELECT	15uF	20%	10V
C214	1-163-038-00	CERAMIC	0.1uF		25V
C215	1-126-217-11	ELECT	15uF	20%	10V
C216	1-163-038-00	CERAMIC	0.1uF		25V
C302	1-163-227-11	CERAMIC	10PF		50V
C304	1-163-077-00	CERAMIC	0.1uF	10%	25V
C305	1-163-038-00	CERAMIC	0.1uF		25V
C306	1-163-038-00	CERAMIC	0.1uF		25V
C308	1-163-038-00	CERAMIC	0.1uF		25V
C310	1-126-217-11	ELECT	15uF	20%	10V
C311	1-163-038-00	CERAMIC	0.1uF		25V
C312	1-163-117-00	CERAMIC	100PF	5%	50V
C313	1-126-217-11	ELECT	15uF	20%	10V
C314	1-163-038-00	CERAMIC	0.1uF		25V
C315	1-126-217-11	ELECT	15uF	20%	10V
C316	1-163-038-00	CERAMIC	0.1uF		25V
C401	1-163-038-00	CERAMIC	0.1uF		25V
C402	1-164-004-11	CERAMIC	0.1uF	10%	25V
C403	1-163-038-00	CERAMIC	0.1uF		25V
C404	1-163-038-00	CERAMIC	0.1uF		25V
C406	1-163-038-00	CERAMIC	0.1uF		25V
C407	1-163-038-00	CERAMIC	0.1uF		25V
C408	1-163-038-00	CERAMIC	0.1uF		25V
C409	1-163-038-00	CERAMIC	0.1uF		25V
C410	1-126-204-11	ELECT	47uF	20%	16V
C411	1-126-204-11	ELECT	47uF	20%	16V
C412	1-126-204-11	ELECT	47uF	20%	16V
C413	1-163-038-00	CERAMIC	0.1uF		25V
C414	1-163-038-00	CERAMIC	0.1uF		25V
C415	1-126-204-11	ELECT	47uF	20%	16V
C416	1-163-038-00	CERAMIC	0.1uF		25V
C417	1-163-038-00	CERAMIC	0.1uF		25V
C418	1-163-038-00	CERAMIC	0.1uF		25V
C420	1-164-004-11	CERAMIC	0.1uF	10%	25V
C421	1-163-132-00	CERAMIC	430PF	5%	50V
C422	1-163-113-00	CERAMIC	68PF	5%	50V
C423	1-163-113-00	CERAMIC	68PF	5%	50V
C424	1-163-113-00	CERAMIC	68PF	5%	50V
C425	1-163-113-00	CERAMIC	68PF	5%	50V
C426	1-163-113-00	CERAMIC	68PF	5%	50V
C427	1-163-113-00	CERAMIC	68PF	5%	50V
C428	1-163-113-00	CERAMIC	68PF	5%	50V
C429	1-163-113-00	CERAMIC	68PF	5%	50V
C430	1-163-113-00	CERAMIC	68PF	5%	50V
C440	1-163-275-11	CERAMIC	0.001uF	5%	50V
C441	1-163-275-11	CERAMIC	0.001uF	5%	50V
C442	1-163-231-11	CERAMIC	15PF	5%	50V
C443	1-163-275-11	CERAMIC	0.001uF	5%	50V
C444	1-163-243-11	CERAMIC	47PF	5%	50V
C445	1-163-275-11	CERAMIC	0.001uF	5%	50V
C446	1-163-275-11	CERAMIC	0.001uF	5%	50V
C447	1-163-275-11	CERAMIC	0.001uF	5%	50V
C501	1-164-346-11	CERAMIC	1uF		16V
C502	1-164-346-11	CERAMIC	1uF		16V
C503	1-164-346-11	CERAMIC	1uF		16V
C504	1-164-346-11	CERAMIC	1uF		16V
C505	1-164-346-11	CERAMIC	1uF		16V
C506	1-164-346-11	CERAMIC	1uF		16V
C507	1-163-038-00	CERAMIC	0.1uF		25V
C508	1-126-204-11	ELECT	47uF	20%	16V
C519	1-163-109-00	CERAMIC	47PF	5%	50V
C520	1-163-109-00	CERAMIC	47PF	5%	50V
C521	1-163-117-00	CERAMIC	100PF	5%	50V
C522	1-163-038-00	CERAMIC	0.1uF		25V
C523	1-163-038-00	CERAMIC	0.1uF		25V
C526	1-163-038-00	CERAMIC	0.1uF		25V
C527	1-163-038-00	CERAMIC	0.1uF		25V
C528	1-163-038-00	CERAMIC	0.1uF		25V
C529	1-126-204-11	ELECT	47uF	20%	16V
C530	1-164-346-11	CERAMIC	1uF		16V
C531	1-163-109-00	CERAMIC	47PF	5%	50V
C532	1-163-235-11	CERAMIC	22PF	5%	50V
C533	1-163-235-11	CERAMIC	22PF	5%	50V
C534	1-126-204-11	ELECT	47uF	20%	16V

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Ref.No	Part No.	Description			Remark
C535	1-163-038-00	CERAMIC	0.1uF		25V
C536	1-163-109-00	CERAMIC	47PF	5%	50V
C537	1-163-038-00	CERAMIC	0.1uF		25V
C538	1-163-038-00	CERAMIC	0.1uF		25V
C539	1-163-038-00	CERAMIC	0.1uF		25V
C540	1-163-038-00	CERAMIC	0.1uF		25V
C541	1-163-038-00	CERAMIC	0.1uF		25V
C542	1-163-038-00	CERAMIC	0.1uF		25V
C543	1-163-038-00	CERAMIC	0.1uF		25V
C544	1-163-038-00	CERAMIC	0.1uF		25V
C545	1-126-204-11	ELECT	47uF	20%	16V
C546	1-163-038-00	CERAMIC	0.1uF		25V
C547	1-163-038-00	CERAMIC	0.1uF		25V
C548	1-163-038-00	CERAMIC	0.1uF		25V
C549	1-163-113-00	CERAMIC	68PF	5%	50V
C550	1-163-038-00	CERAMIC	0.1uF		25V
C551	1-163-038-00	CERAMIC	0.1uF		25V
C601	1-163-037-11	CERAMIC	0.022uF	10%	25V
C602	1-128-065-11	ELECT	68uF	20%	10V
C603	1-163-037-11	CERAMIC	0.022uF	10%	25V
C604	1-128-065-11	ELECT	68uF	20%	10V
C605	1-163-037-11	CERAMIC	0.022uF	10%	25V
C606	1-126-204-11	ELECT	47uF	20%	16V
C607	1-163-037-11	CERAMIC	0.022uF	10%	25V
C608	1-126-204-11	ELECT	47uF	20%	16V
C706	1-163-038-00	CERAMIC	0.1uF		25V
C901	1-163-038-00	CERAMIC	0.1uF		25V
C902	1-163-038-00	CERAMIC	0.1uF		25V
C903	1-163-038-00	CERAMIC	0.1uF		25V
C904	1-163-038-00	CERAMIC	0.1uF		25V
C905	1-163-038-00	CERAMIC	0.1uF		25V
C906	1-163-097-00	CERAMIC	15PF	5%	50V
C907	1-163-097-00	CERAMIC	15PF	5%	50V
C909	1-128-065-11	ELECT	68uF	20%	10V
C910	1-163-038-00	CERAMIC	0.1uF		25V
C911	1-163-038-00	CERAMIC	0.1uF		25V
C912	1-163-038-00	CERAMIC	0.1uF		25V
		<CONNECTOR>			
CN1	1-565-212-11	CONNECTOR, FPC (ZIF) 26P			
CN2	1-565-212-11	CONNECTOR, FPC (ZIF) 26P			
CN4	1-566-532-11	CONNECTOR, FPC (ZIF) 16P			
CN5	1-566-523-11	CONNECTOR, FPC (ZIF) 7P			
CN6	*1-506-472-11	PIN, CONNECTOR 7P			
CN7	*1-506-472-11	PIN, CONNECTOR 7P			
CN8	*1-560-894-00	PIN, CONNECTOR 6P			
CN9	1-506-469-11	PIN, CONNECTOR 4P			
CN10	1-506-469-11	PIN, CONNECTOR 4P			
		<DIODE>			
D101	8-719-820-41	DIODE 1SS302			
D201	8-719-820-41	DIODE 1SS302			
D301	8-719-820-41	DIODE 1SS302			
D901	8-719-801-78	DIODE 1SS184			
D903	8-719-104-34	DIODE 1S2836			
		<FERRITE BEAD>			
FB137	1-412-390-21	INDUCTOR CHIP 0UH			
FB138	1-412-390-21	INDUCTOR CHIP 0UH			
FB139	1-412-390-21	INDUCTOR CHIP 0UH			
FB140	1-412-390-21	INDUCTOR CHIP 0UH			
FB141	1-412-390-21	INDUCTOR CHIP 0UH			
FB142	1-412-390-21	INDUCTOR CHIP 0UH			
FB143	1-412-390-21	INDUCTOR CHIP 0UH			
FB144	1-412-390-21	INDUCTOR CHIP 0UH			
FB145	1-412-390-21	INDUCTOR CHIP 0UH			
FB147	1-412-390-21	INDUCTOR CHIP 0UH			
FB149	1-412-390-21	INDUCTOR CHIP 0UH			
FB150	1-412-390-21	INDUCTOR CHIP 0UH			
FB151	1-412-390-21	INDUCTOR CHIP 0UH			
FB152	1-412-390-21	INDUCTOR CHIP 0UH			
FB153	1-412-390-21	INDUCTOR CHIP 0UH			
FB154	1-412-390-21	INDUCTOR CHIP 0UH			
		<IC>			
IC101	8-752-337-04	IC CXD1176			
IC201	8-752-337-04	IC CXD1176			
IC301	8-752-337-04	IC CXD1176			
IC401	8-759-093-19	IC CXD8444Q			
IC402	8-752-338-46	IC CXD1178Q			
IC403	*8-759-258-60	IC M5M27C101FP-UP12M-E2			
IC404	*8-759-258-61	IC M5M27C101FP-UP12S-E2			
IC405	8-759-038-00	IC MC74HC574AF			
IC410	8-759-927-29	IC SN74HCU04ANS			
IC411	8-759-033-16	IC MC74F74M			
IC501	8-759-255-89	IC HM514400AS7GS-EL			
IC502	8-759-255-89	IC HM514400AS7GS-EL			
IC503	8-759-255-89	IC HM514400AS7GS-EL			
IC504	8-759-255-89	IC HM514400AS7GS-EL			
IC505	8-759-255-89	IC HM514400AS7GS-EL			
IC506	8-759-255-89	IC HM514400AS7GS-EL			
IC507	8-759-114-07	IC UPD65013GF-407-3BA			
IC508	8-759-114-09	IC UPD65006GF-250-3B8			
IC509	8-759-084-15	IC CXD8391Q			
IC510	*8-759-262-39	IC HD6475368F-FMY13-01			
IC511	8-759-992-78	IC 74F257ASJ-T5L			
IC512	8-759-989-03	IC 74F32SJ			
IC513	8-759-989-03	IC 74F32SJ			
IC514	8-759-948-02	IC 74F86SJ			
IC515	8-759-948-01	IC 74F04SJ			
IC516	8-759-989-01	IC 74F08SJ			
IC901	8-759-265-37	IC MB89093PFV-G-125-BND			
IC902	8-759-937-56	IC S-8054ALB-LM-S			
		<INDUCTOR>			
L600	1-424-090-11	COIL, LINE FILTER			
L601	1-424-090-11	COIL, LINE FILTER			
L602	1-424-090-11	COIL, LINE FILTER			
L900	1-424-090-11	COIL, LINE FILTER			
L901	1-424-090-11	COIL, LINE FILTER			
		<TRANSISTOR>			
Q101	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q102	8-729-402-84	TRANSISTOR XN4601			
Q201	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q202	8-729-402-84	TRANSISTOR XN4601			
Q301	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q302	8-729-402-84	TRANSISTOR XN4601			
Q401	8-729-901-01	TRANSISTOR DTC144EK			
Q440	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q441	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q442	8-729-010-75	TRANSISTOR MSC4116-B/C			
Q902	8-729-901-01	TRANSISTOR DTC144EK			
Q903	8-729-901-01	TRANSISTOR DTC144EK			
		<RESISTOR>			
R101	1-216-022-00	METAL	75	5%	1/10W
R104	1-216-017-00	METAL	47	5%	1/10W
R105	1-216-033-00	METAL	220	5%	1/10W

Ref.No	Part No.	Description			Remark
R106	1-216-033-00	METAL	220	5%	1/10W
R107	1-216-033-00	METAL	220	5%	1/10W
R108	1-216-033-00	METAL	220	5%	1/10W
R109	1-216-033-00	METAL	220	5%	1/10W
R110	1-216-033-00	METAL	220	5%	1/10W
R111	1-216-033-00	METAL	220	5%	1/10W
R112	1-216-033-00	METAL	220	5%	1/10W
R129	1-216-033-00	METAL	220	5%	1/10W
R130	1-216-041-00	METAL	470	5%	1/10W
R131	1-216-041-00	METAL	470	5%	1/10W
R132	1-216-041-00	METAL	470	5%	1/10W
R133	1-216-041-00	METAL	470	5%	1/10W
R134	1-216-041-00	METAL	470	5%	1/10W
R135	1-216-041-00	METAL	470	5%	1/10W
R136	1-216-041-00	METAL	470	5%	1/10W
R137	1-216-041-00	METAL	470	5%	1/10W
R140	1-216-009-00	METAL	22	5%	1/10W
R141	1-216-025-00	METAL	100	5%	1/10W
R142	1-216-073-00	METAL	10K	5%	1/10W
R143	1-216-073-00	METAL	10K	5%	1/10W
R144	1-216-053-00	METAL	1.5K	5%	1/10W
R145	1-216-033-00	METAL	220	5%	1/10W
R146	1-216-053-00	METAL	1.5K	5%	1/10W
R147	1-216-295-00	METAL	0	5%	1/10W
R201	1-216-022-00	METAL	75	5%	1/10W
R204	1-216-017-00	METAL	47	5%	1/10W
R205	1-216-033-00	METAL	220	5%	1/10W
R206	1-216-033-00	METAL	220	5%	1/10W
R207	1-216-033-00	METAL	220	5%	1/10W
R208	1-216-033-00	METAL	220	5%	1/10W
R209	1-216-033-00	METAL	220	5%	1/10W
R210	1-216-033-00	METAL	220	5%	1/10W
R211	1-216-033-00	METAL	220	5%	1/10W
R212	1-216-033-00	METAL	220	5%	1/10W
R229	1-216-033-00	METAL	220	5%	1/10W
R230	1-216-041-00	METAL	470	5%	1/10W
R231	1-216-041-00	METAL	470	5%	1/10W
R232	1-216-041-00	METAL	470	5%	1/10W
R233	1-216-041-00	METAL	470	5%	1/10W
R234	1-216-041-00	METAL	470	5%	1/10W
R235	1-216-041-00	METAL	470	5%	1/10W
R236	1-216-041-00	METAL	470	5%	1/10W
R237	1-216-041-00	METAL	470	5%	1/10W
R240	1-216-009-00	METAL	22	5%	1/10W
R241	1-216-025-00	METAL	100	5%	1/10W
R242	1-216-073-00	METAL	10K	5%	1/10W
R243	1-216-073-00	METAL	10K	5%	1/10W
R244	1-216-053-00	METAL	1.5K	5%	1/10W
R245	1-216-033-00	METAL	220	5%	1/10W
R246	1-216-053-00	METAL	1.5K	5%	1/10W
R247	1-216-295-00	METAL	0	5%	1/10W
R301	1-216-022-00	METAL	75	5%	1/10W
R304	1-216-017-00	METAL	47	5%	1/10W
R305	1-216-033-00	METAL	220	5%	1/10W
R306	1-216-033-00	METAL	220	5%	1/10W
R307	1-216-033-00	METAL	220	5%	1/10W
R308	1-216-033-00	METAL	220	5%	1/10W
R309	1-216-033-00	METAL	220	5%	1/10W
R310	1-216-033-00	METAL	220	5%	1/10W
R311	1-216-033-00	METAL	220	5%	1/10W
R312	1-216-033-00	METAL	220	5%	1/10W
R329	1-216-033-00	METAL	220	5%	1/10W
R330	1-216-041-00	METAL	470	5%	1/10W
R331	1-216-041-00	METAL	470	5%	1/10W
R332	1-216-041-00	METAL	470	5%	1/10W
R333	1-216-041-00	METAL	470	5%	1/10W
R334	1-216-041-00	METAL	470	5%	1/10W
R335	1-216-041-00	METAL	470	5%	1/10W
R336	1-216-041-00	METAL	470	5%	1/10W
R337	1-216-041-00	METAL	470	5%	1/10W
R340	1-216-009-00	METAL	22	5%	1/10W
R341	1-216-025-00	METAL	100	5%	1/10W
R342	1-216-073-00	METAL	10K	5%	1/10W
R343	1-216-073-00	METAL	10K	5%	1/10W
R344	1-216-053-00	METAL	1.5K	5%	1/10W
R345	1-216-033-00	METAL	220	5%	1/10W
R346	1-216-053-00	METAL	1.5K	5%	1/10W
R347	1-216-295-00	METAL	0	5%	1/10W
R401	1-216-295-00	METAL	0	5%	1/10W
R402	1-216-017-00	METAL	47	5%	1/10W
R403	1-216-032-00	METAL	200	5%	1/10W
R404	1-216-032-00	METAL	200	5%	1/10W
R405	1-216-032-00	METAL	200	5%	1/10W
R406	1-216-061-00	METAL	3.3K	5%	1/10W
R422	1-216-065-00	METAL	4.7K	5%	1/10W
R423	1-216-295-00	METAL	0	5%	1/10W
R424	1-216-295-00	METAL	0	5%	1/10W
R426	1-216-295-00	METAL	0	5%	1/10W
R427	1-216-069-00	METAL	6.8K	5%	1/10W
R428	1-216-069-00	METAL	6.8K	5%	1/10W
R429	1-216-049-00	METAL	1K	5%	1/10W
R429	1-216-049-00	METAL	1K	5%	1/10W
R430	1-216-295-00	METAL	0	5%	1/10W
R440	1-216-295-00	METAL	0	5%	1/10W
R441	1-216-295-00	METAL	0	5%	1/10W
R442	1-216-073-00	METAL	10K	5%	1/10W
R443	1-216-063-00	METAL	3.9K	5%	1/10W
R444	1-216-037-00	METAL	330	5%	1/10W
R445	1-216-025-00	METAL	100	5%	1/10W
R446	1-216-077-00	METAL	15K	5%	1/10W
R447	1-216-073-00	METAL	10K	5%	1/10W
R448	1-216-033-00	METAL	220	5%	1/10W
R449	1-216-037-00	METAL	330	5%	1/10W
R450	1-216-033-00	METAL	220	5%	1/10W
R451	1-216-077-00	METAL	15K	5%	1/10W
R452	1-216-073-00	METAL	10K	5%	1/10W
R453	1-216-033-00	METAL	220	5%	1/10W
R454	1-216-037-00	METAL	330	5%	1/10W
R455	1-216-033-00	METAL	220	5%	1/10W
R456	1-216-121-00	METAL	1M	5%	1/10W
R457	1-216-121-00	METAL	1M	5%	1/10W
R458	1-216-121-00	METAL	1M	5%	1/10W
R459	1-216-295-00	METAL	0	5%	1/10W
R471	1-216-295-00	METAL	0	5%	1/10W
R474	1-216-295-00	METAL	0	5%	1/10W
R476	1-216-295-00	METAL	0	5%	1/10W
R478	1-216-121-00	METAL	1M	5%	1/10W
R501	1-216-017-00	METAL	47	5%	1/10W
R502	1-216-017-00	METAL	47	5%	1/10W
R503	1-216-017-00	METAL	47	5%	1/10W
R504	1-216-017-00	METAL	47	5%	1/10W
R505	1-216-017-00	METAL	47	5%	1/10W
R506	1-216-017-00	METAL	47	5%	1/10W
R507	1-216-017-00	METAL	47	5%	1/10W
R508	1-216-017-00	METAL	47	5%	1/10W
R509	1-216-017-00	METAL	47	5%	1/10W
R510	1-216-017-00	METAL	47	5%	1/10W
R511	1-216-049-00	METAL	1K	5%	1/10W

FMY-13P

Ref.No	Part No.	Description			Remark
R512	1-216-049-00	METAL	1K	5%	1/10W
R513	1-216-017-00	METAL	47	5%	1/10W
R514	1-216-017-00	METAL	47	5%	1/10W
R515	1-216-017-00	METAL	47	5%	1/10W
R517	1-216-017-00	METAL	47	5%	1/10W
R518	1-216-017-00	METAL	47	5%	1/10W
R519	1-216-025-00	METAL	100	5%	1/10W
R525	1-216-017-00	METAL	47	5%	1/10W
R526	1-216-017-00	METAL	47	5%	1/10W
R527	1-216-049-00	METAL	1K	5%	1/10W
R530	1-216-041-00	METAL	470	5%	1/10W
R531	1-216-017-00	METAL	47	5%	1/10W
R532	1-216-017-00	METAL	47	5%	1/10W
R536	1-216-017-00	METAL	47	5%	1/10W
R541	1-216-017-00	METAL	47	5%	1/10W
R542	1-216-065-00	METAL	4.7K	5%	1/10W
R551	1-216-295-00	METAL	0	5%	1/10W
R556	1-216-295-00	METAL	0	5%	1/10W
R564	1-216-033-00	METAL	220	5%	1/10W
R565	1-216-033-00	METAL	220	5%	1/10W
R566	1-216-089-91	METAL	47K	5%	1/10W
R568	1-216-295-00	METAL	0	5%	1/10W
R572	1-216-089-91	METAL	47K	5%	1/10W
R573	1-216-017-00	METAL	47	5%	1/10W
R574	1-216-017-00	METAL	47	5%	1/10W
R575	1-216-017-00	METAL	47	5%	1/10W
R576	1-216-049-00	METAL	1K	5%	1/10W
R578	1-216-295-00	METAL	0	5%	1/10W
R579	1-216-295-00	METAL	0	5%	1/10W
R580	1-216-073-00	METAL	10K	5%	1/10W
R582	1-216-295-00	METAL	0	5%	1/10W
R583	1-216-033-00	METAL	220	5%	1/10W
R584	1-216-033-00	METAL	220	5%	1/10W
R585	1-216-033-00	METAL	220	5%	1/10W
R586	1-216-033-00	METAL	220	5%	1/10W
R587	1-216-033-00	METAL	220	5%	1/10W
R588	1-216-033-00	METAL	220	5%	1/10W
R589	1-216-033-00	METAL	220	5%	1/10W
R590	1-216-037-00	METAL	330	5%	1/10W
R591	1-216-037-00	METAL	330	5%	1/10W
R592	1-216-033-00	METAL	220	5%	1/10W
R593	1-216-033-00	METAL	220	5%	1/10W
R594	1-216-033-00	METAL	220	5%	1/10W
R595	1-216-033-00	METAL	220	5%	1/10W
R596	1-216-033-00	METAL	220	5%	1/10W
R597	1-216-033-00	METAL	220	5%	1/10W
R599	1-216-033-00	METAL	220	5%	1/10W
R600	1-216-033-00	METAL	220	5%	1/10W
R601	1-216-049-00	METAL	1K	5%	1/10W
R602	1-216-033-00	METAL	220	5%	1/10W
R603	1-216-033-00	METAL	220	5%	1/10W
R604	1-216-033-00	METAL	220	5%	1/10W
R605	1-216-033-00	METAL	220	5%	1/10W
R606	1-216-033-00	METAL	220	5%	1/10W
R607	1-216-033-00	METAL	220	5%	1/10W
R608	1-216-033-00	METAL	220	5%	1/10W
R609	1-216-033-00	METAL	220	5%	1/10W
R610	1-216-033-00	METAL	220	5%	1/10W
R611	1-216-033-00	METAL	220	5%	1/10W
R612	1-216-033-00	METAL	220	5%	1/10W
R613	1-216-033-00	METAL	220	5%	1/10W
R614	1-216-033-00	METAL	220	5%	1/10W
R615	1-216-033-00	METAL	220	5%	1/10W
R616	1-216-033-00	METAL	220	5%	1/10W
R617	1-216-033-00	METAL	220	5%	1/10W
R618	1-216-033-00	METAL	220	5%	1/10W
R619	1-216-033-00	METAL	220	5%	1/10W
R620	1-216-295-00	METAL	0	5%	1/10W
R621	1-216-295-00	METAL	0	5%	1/10W
R622	1-216-295-00	METAL	0	5%	1/10W
R623	1-216-295-00	METAL	0	5%	1/10W
R624	1-216-295-00	METAL	0	5%	1/10W
R625	1-216-295-00	METAL	0	5%	1/10W
R626	1-216-295-00	METAL	0	5%	1/10W
R627	1-216-295-00	METAL	0	5%	1/10W
R628	1-216-295-00	METAL	0	5%	1/10W
R642	1-216-295-00	METAL	0	5%	1/10W
R643	1-216-065-00	METAL	4.7K	5%	1/10W
R647	1-216-295-00	METAL	0	5%	1/10W
R650	1-216-033-00	METAL	220	5%	1/10W
R651	1-216-295-00	METAL	0	5%	1/10W
R652	1-216-033-00	METAL	220	5%	1/10W
R655	1-216-033-00	METAL	220	5%	1/10W
R816	1-216-295-00	METAL	0	5%	1/10W
R817	1-216-295-00	METAL	0	5%	1/10W
R818	1-216-295-00	METAL	0	5%	1/10W
R819	1-216-066-00	METAL	5.1K	5%	1/10W
R820	1-216-066-00	METAL	5.1K	5%	1/10W
R821	1-216-066-00	METAL	5.1K	5%	1/10W
R822	1-216-066-00	METAL	5.1K	5%	1/10W
R823	1-216-025-00	METAL	100	5%	1/10W
R824	1-216-033-00	METAL	220	5%	1/10W
R901	1-216-089-91	METAL	47K	5%	1/10W
R908	1-216-089-91	METAL	47K	5%	1/10W
R910	1-216-089-91	METAL	47K	5%	1/10W
R911	1-216-089-91	METAL	47K	5%	1/10W
R912	1-216-089-91	METAL	47K	5%	1/10W
R915	1-216-089-91	METAL	47K	5%	1/10W
R916	1-216-089-91	METAL	47K	5%	1/10W
R917	1-216-025-00	METAL	100	5%	1/10W
R918	1-216-089-91	METAL	47K	5%	1/10W
R919	1-216-089-91	METAL	47K	5%	1/10W
R920	1-216-025-00	METAL	100	5%	1/10W
R921	1-216-025-00	METAL	100	5%	1/10W
R922	1-216-089-91	METAL	47K	5%	1/10W
R923	1-216-025-00	METAL	100	5%	1/10W
R924	1-216-089-91	METAL	47K	5%	1/10W
R926	1-216-295-00	METAL	0	5%	1/10W
R927	1-216-295-00	METAL	0	5%	1/10W
R928	1-216-109-00	METAL	330K	5%	1/10W
R929	1-216-025-00	METAL	100	5%	1/10W
R931	1-216-025-00	METAL	100	5%	1/10W
R932	1-216-065-00	METAL	4.7K	5%	1/10W
R936	1-216-097-00	METAL	100K	5%	1/10W
R937	1-216-049-00	METAL	1K	5%	1/10W
R939	1-216-065-00	METAL	4.7K	5%	1/10W
R942	1-216-065-00	METAL	4.7K	5%	1/10W
R945	1-216-041-00	METAL	470	5%	1/10W
		<CRYSTAL>			
X501	1-579-868-11	VIBRATOR, CRYSTAL			
X901	1-579-550-11	VIBRATOR, CRYSTAL			
XTL901	1-579-369-21	VIBRATOR			

****

2. SERVICE MODE

2-1. ENTERING THE SERVICE MODE

* Test signal

1. Turn on the power switch of the main unit while pressing the STOP and MEMORY IN keys simultaneously.

* The "COLOR VIDEO PRINTER" display blinks on the monitor screen. Press these keys until the motor is loaded and stopped in the meantime, then release them. The screen below then appears.

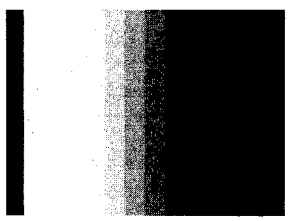
```
C

TOTAL : 04B4
HEAD  : 0007

QTY1 1/1FRM NORM  MEMORY
```

2-2. ENTERING THE PRINT OPERATION OF PATTERN SIGNAL

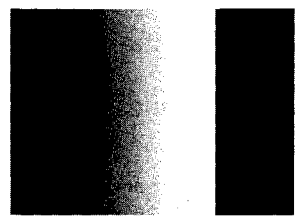
1) Press the SOURCE/MEMORY key on the above screen to display the memory screen and press the menu key. The screen below then appears.

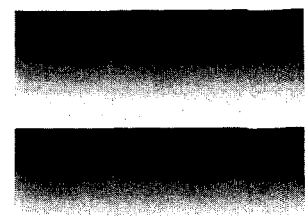
```
MENU          NO RIBBON
▷PRINT QTY:    1
 INPUT SEL: VIDEO/S
 FRM/FLD  : FRAME/FIELD
 SHARPNESS: L/M/H
 MULTI PIX: PUSH [>]
 COLOR ADJ: PUSH [>]
 CAPTION  : PUSH [>]
 SET UP   : PUSH [>]
 TEST PTN : 1 [EXEC]
```

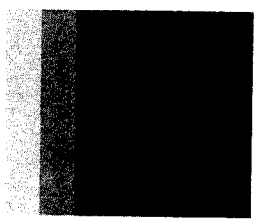
2) Move the cursor to TEST PTN by cursor keys (△ and ▽) and select the desired pattern from among the eight patterns below by cursor keys (◁ and ▷).

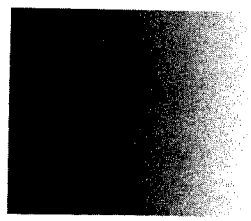

STAIRSTEP H

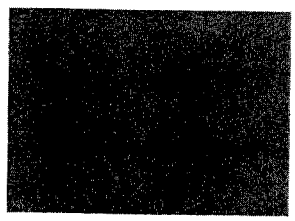
STAIRSTEP V

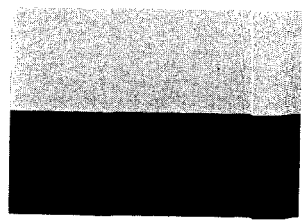

RAMP H


RAMP V


COLOR BAR H


ADJUST RAMP


ADJUST 8081


ADJUST AA55

3) The screen becomes black when the EXEC key is pressed. (The PLEASE WAIT display then blinks.)

4) Press the PRINT key to print and output a pattern.

5) To change the pattern, execute step (2) and press the EXEC key. Then, print and output the pattern using a PRINT key.

2-3. RESETTING THE PRINT NUMBER COUNTER

* Use the counter during head replacement.

1) Insert an adjustment tool RM-95 (J-6082-053-A) remote controller into J-101 on the VA-76 board (with the power turned on).

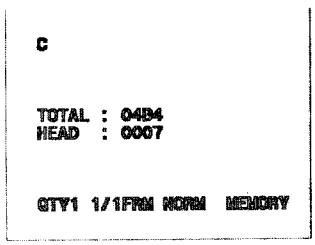
2) To cancel a protector by RM-95, set as shown below.

Page	6	Data	80	Address	00

3) Turn off the power, then turn on the power again. After that, set as shown below by a remote controller.

Page	F	Data	00 H	Address	EE

* Press the PAUSE key and turn off the power. The counter is then reset.



HEAD : 0000
Total : Accumulated total
*The accumulated total cannot be reset.

2-4. REPLACING THE HEAD

Head position adjustment tool handling (J-9000-250-A)

1. Print two sheets of stair step signals (H) before head replacement (for comparison of each density).
2. Disconnect 10-pin and 12-pin flat cables from the HM board. (Fig. 1)

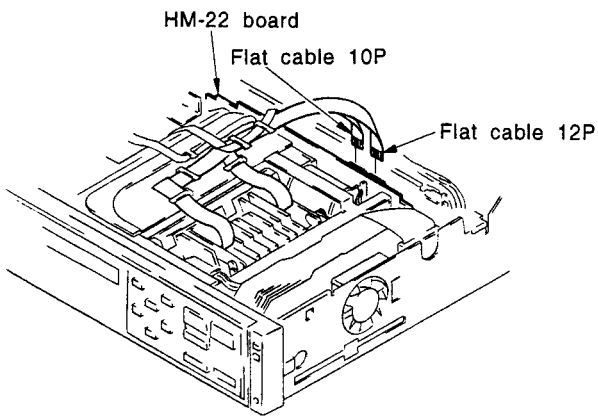


Fig. 1

3. Remove the ribbon guide from the head. (Fig. 2)

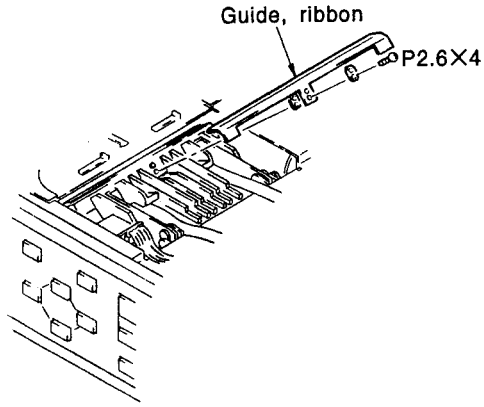


Fig. 2

4. Attach portion R of the tool to the shaft of a platen roller. (Fig. 3)
5. Insert RM-95 (J-6082-053-A) into the unit.

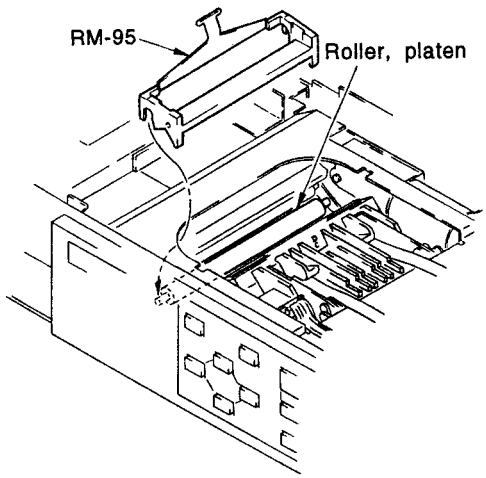


Fig. 3

6. Loosen the two screws, set as shown below by RM-95, and press the PAUSE button.

Page	8	Data	01	Address	10

7. Move the head position upward and set as shown below.

Page	8	Data	01	Address	1A

The head position moves upward every time the PAUSE button is pressed. Move the head upward from the home position by three steps. (Fig. 4)

(Head has five positions. 0 → 1 → 2 → 3 → 4)

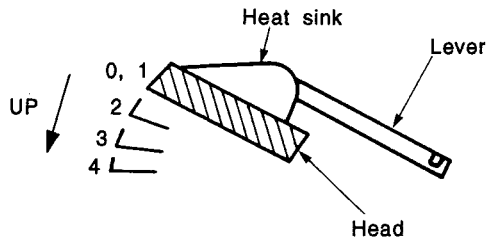


Fig. 4 Five Positions of the Head

8. Tighten the two screws and return the head to the home position. Remove the tool.

Page	8	Data	08	Address	10

9. Attach the ribbon guide and flat cables.
10. Print two sheets of stair step signals (H) and compare the second sheet with the sheet printed before head replacement to adjust the density.
(For more details, refer to the electrical adjustment and head replacement in Service Manual.)

CORRECTION

Correct the 7-1-3. confirmation of the Input Signal as shown below. (UP-1200EPM Service manual Page 178)

7-1-3. Confirmation of the Input Signal

The video signal generated from a pattern generator is used for video circuit adjustment as an adjustment signal. Therefore, it is necessary that this video output signal satisfies the required specification.

1. During S video (S VIDEO) input
Connect an oscilloscope to the Y signal terminal of the S video input terminal, and confirm that the sync signal of a Y signal is 300 mV, the amplitude of the video portion is 700 mV, and the setup level is 0 mV. (When the VTR with an S video output terminal is used, confirm that no chroma signal and burst signal remain.) Moreover, connect an oscilloscope to the chroma signal terminal of the S video input terminal, and confirm that the burst signal amplitude of a chroma signal is flat (300 mV) and that the amplitude ratio of a burst signal to a chroma signal is 0.30 : 0.66. The Y signal and chroma signal used for the adjustment are shown in Fig. 7-2.
The setup level is the potential difference between the black and pedestal levels.

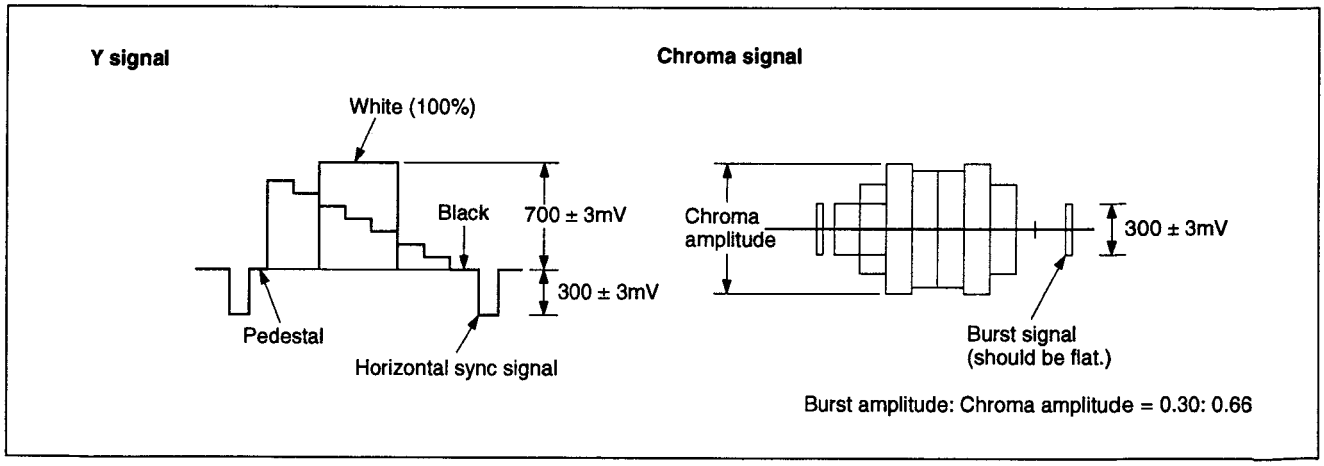


Fig. 7-2. Color-Bar Signal in Pattern Generator (during 75-ohm Termination)

2. During video (VIDEO) input
Connect an oscilloscope to the video input terminal, and confirm that the sync signal amplitude of a video signal is 300 mV, the amplitude of the video portion is 700 mV, the setup level is 0 mV, the amplitude of a burst signal is flat (300 mV), and the level ratio of a burst signal to a "red" signal is 0.30 : 0.66.
The video signal (color-bar) used for the adjustment is shown in Fig. 7-3.

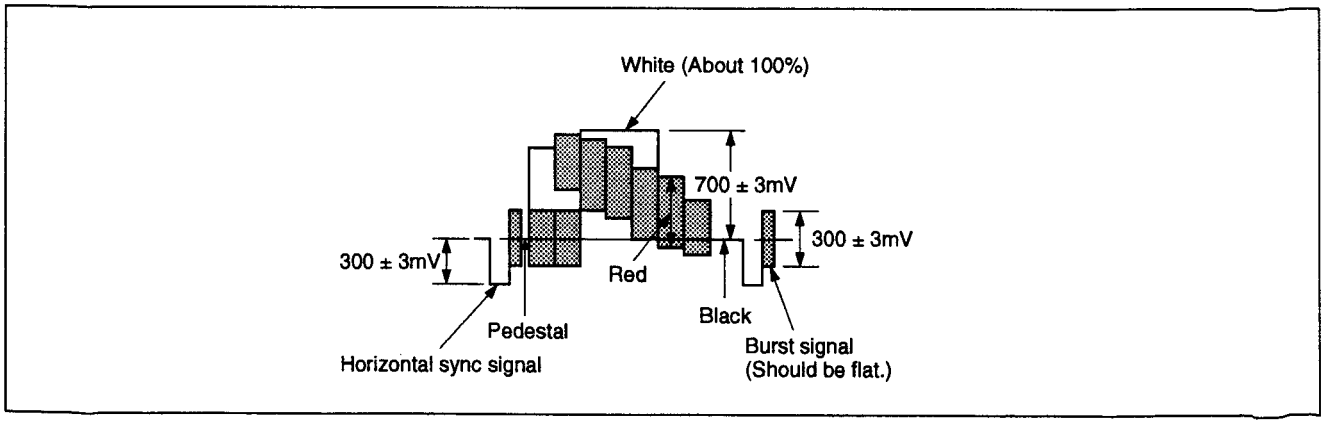


Fig. 7-3. Color-Bar Signal in Pattern Generator (during 75-ohm Termination)