SERVICE MANUAL

AEP Model
SLV-474

UK Model
SLV-474UB

West Germany Model
SLV-474VP

Remote commander RMT-V474 is available as a unit, but as individual parts the battery case lid of commander is only available.

For MECHANICAL ADJUSTMENTS, refer to the "VHS MECHANICAL ADJUSTMENT MANUAL II" (9-972-816-11)

SPECIFICATIONS

System

Format	VHS PAL standard
Video recording system	Rotary two-head helical scanning FM system
Video signal	PAL colour (System B and G. SLV-474/474VP, System I. SLV-474UB/474EI) DDR SECAM colour (SLV-474VP) CCIR monochrome signals 625 lines
Tape speed	SP: 23.39 mm/sec. LP: 11.70 mm/sec.
Maximum recording/playback time	SP: 4 hours (with E-240) LP: 8 hours (with E-240)
Fast-forward/rewind time	Approx. 3 min. 20 sec. (with E-180)
High speed rewind time	Approx. 2 min. 20 sec. (with E-180)

Tuner Section

Tuner system (audio)	Intercarrier system
Channel coverage	SLV-474/474VP VHF channels E2 — E12 (A to H only for Italy) CATV channels S01 — S03 CATV channels S1 — S20 HYPER S21 — S41 UHF channels E21 — E69 SLV-474UB UHF channels B21 — B68 SLV-474EI VHF channels A — J UHF channels E21 — E69
RF output signal	SLV-474/474VP UHF channels E30 — E39 (adjustable) SLV-474UB UHF channels B30 — B39 (adjustable)
Aerial out	75-ohms asymmetrical aerial socket

Inputs and Outputs

Video inputs	LINE 2: phono jack EURO-AV: 21-pin (pin 20) 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio inputs	LINE 2: phono jack 47 kilohms, −7.5 dBs (0 dBs = 0.775 V rms) EURO-AV: 21-pin (pins 2 and 6) More than 10 kilohms, −4 dBs

VHS SECAM VHS PAL VHS VIDEO CASSETTE RECORDER

SONY®

MICROFILM

Video output	EURO-AV: 21-pin (pin 19) 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio output	EURO-AV: 21-pin (pins 1 and 3) Output impedance: less than 1 kilohm – 4 dBs with 10 kilohms load
CONTROL L	5 pin DIN (1)
CONTROL S IN/OUT	Minijack (2)
Microphone input	Mini jack – 60dBs, for low impedance microphone

Timer Section

Clock	Quartz locked
Time indication	24-hour cycle
Timer setting	Only for recording 8 programmes in one month at max.
Timer back-up	Built-in self-charging capacitor Back-up duration: Up to an hour at one time

General

Power requirements	240 V AC, 50 Hz (SLV-474UB) 220 V AC, 50 Hz (SLV-474/474VP/474EI)
Power consumption	29 W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	– 20°C to 60°C (– 4°F to 140°F)
Dimensions	430 × 87 × 358 mm (w/h/d) (17 × 3 3/8 × 14 1/4 inches)
Weight	6.0 kg (13 lb 4 oz)

Wireless Commander RMT-V474

Remote control system	Infrared control
Command mode	VTR 1/2/3
Power requirements	3 V DC, two IEC designation R6 batteries
Dimensions	75 × 45 × 235 mm (w/h/d) (3 × 1 3/4 × 9 1/4 inches)
Weight	220 g (8 oz) excluding batteries

Accessories Supplied

Wireless Remote Commander RMT-V474 with two R6 batteries	(1)
75-ohm coaxial cable	(1)
Screwdriver	(1)
AC power cord	(1)

Design and specifications are subject to change without notice.

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

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

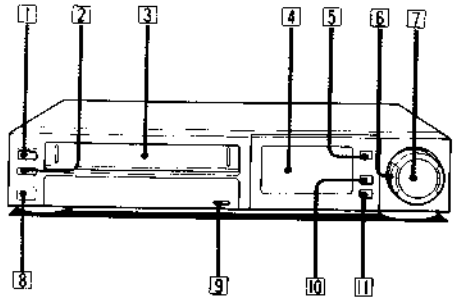
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

TABLE OF CONTENTS

Identifying the Operational Parts



Front

1 ON/STANDBY switch and indicator

2 ⏏ EJECT button
Press to eject the cassette. This button does not function during recording.

3 Cassette compartment

4 Display window and function mode display
See "Indications in the Display Window." (page 70)

5 EDIT MONITOR button
Press to display the picture selected with the INPUT SELECT switch and that being recorded on this unit simultaneously.

6 DUAL MODE SHUTTLE ring

In the stop mode	Turn the ring clockwise (▶▶) to advance the tape rapidly, and counterclockwise (◀◀) to rewind the tape.
In the playback mode	Turn the ring clockwise (FORWARD) to advance and counterclockwise (REVERSE) to reverse the picture in various speeds. When the ring is released a still picture is obtained.

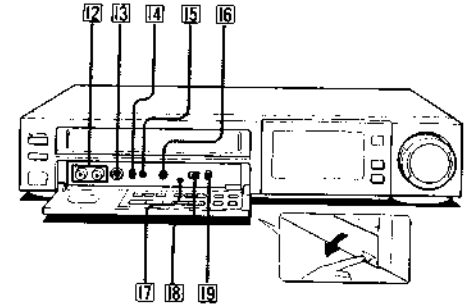
7 ▷ PLAY button

8 REMOTE sensor
Point the Commander here.

9 ▼ OPEN
Press to open the front panel

10 ⏸/▷▷ PAUSE/STILL button
In the playback mode: Press to obtain a still picture.
In the recording mode: Press to pause.

11 ■ STOP button



Front

12 LINE IN 2 VIDEO/AUDIO jacks (phono type)
Connect to the video/audio output jacks of another VTR or a video camera recorder.

13 CONTROL L ⇵ connector (5-pin DIN type)
Connect to the CONTROL L connector of other Sony product for systematic operations such as synchronized editing.

14 LANC mode selector
For synchronized editing by controlling with this VTR, set to M
Set to S when you edit a tape with an editing controller such as the Sony RM-E300.

15 MIC jack (mini type)
Connect a microphone

16 SHARPNESS SOFT/SHARP control
Use to adjust the sharpness of the picture if necessary. Normally set this control at the center position.

17 SYNCHRO EDIT indicator

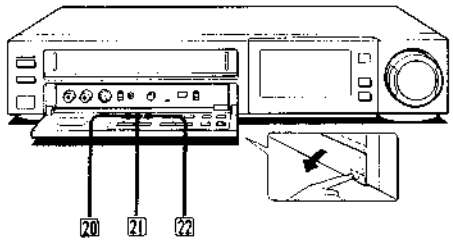
18 VPS (Video Programme System) ON/OFF switch (SLV-474VP only)
(page 51)

19 COMMAND MODE VTR 1/2/3 selector (page 16)
Set to the same position as the COMMAND MODE switch on the Commander

About the ⇵ (LANC)
LANC stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

This section is extracted from instruction manual.

Identifying the Operational Parts

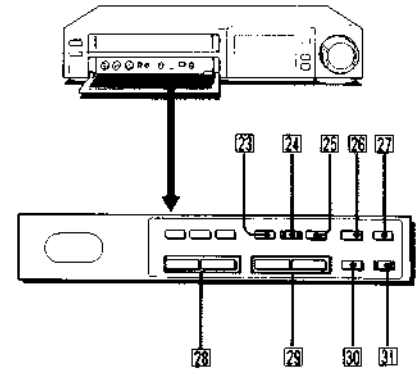


Front

20 TV/VTR button
Press and light the VTR indicator in the display window to view the playback of the VTR or a programme selected on the VTR. Press this button again to turn off the VTR indicator to view a programme selected on the TV. This button is effective only when the VTR is connected to the TV via EURO-AV.

21 INPUT SELECT button
Press to select the signals to be recorded by the VTR. The selected mode will be indicated in the display window as follows:
TUNER: To record TV programmes.
LINE L1: To record the signals from equipment connected to the EURO-AV.
LINE L2: To record the signals from equipment connected to the LINE IN 2 jacks.

22 REC MODE (SP/LP) button
Press to select the recording tape speed SP or LP.



Front

23 SYNCHRO EDIT button (page 65, 66)
Press to perform synchronized editing.

24 TIMER REC ON/OFF button
Press this button to enter the timer recording standby mode. Press it again to release the timer recording standby mode before changing or cancelling a timer recording or to operate the unit before a timer recording starts.

25 QUICK TIMER button (page 53)
Press to activate the quick timer recording function.

26 AUDIO DUB button (page 68)

27 ◄◄◄ HIGH SPEED REWIND button

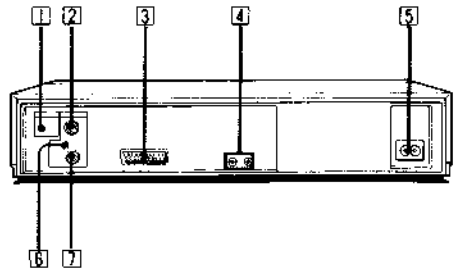
28 PROGRAM +/− buttons
Press to select the programme positions.

29 TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ buttons (page 28)
Press to clear streaks if they appear on the screen in the normal and slow playback. (Manual tracking adjustment)
Press to reduce picture shaking in the still mode. (Still adjustment)

30 TRACKING AUTO/MANUAL button (page 28)
Press to reactivate the automatic tracking function after manual tracking adjustment.

31 ● REC (record) button (page 35)

Identifying the Operational Parts



Rear

1 **RF CHANNEL screw (30 to 39)** (page 19)

2 **AERIAL OUT socket** (page 14)

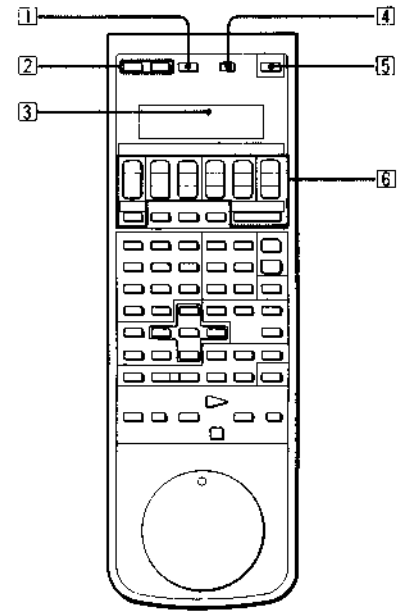
3 **EURO-AV (21-pin)** (page 14)

4 **CONTROL S IN/OUT jacks (mini type)** (page 63, 64)
Connect to the CONTROL S output/input jacks of other SONY products for systematic operations such as synchronized editing or remote control operation.

5 **AC INPUT connector**
Connect the supplied AC power cord.

6 **DX/LOCAL switch**
Normally set to DX. If the TV signal is very strong, set it to LOCAL with the supplied screwdriver.

7 **AERIAL IN socket** (page 14)



Remote Commander RMT-V474

- The buttons on the Commander with the same name or mark as those on the unit have the same function.
- The buttons with a red dot can be used to remotely control Sony TVs with the ■ mark when the TV/VTR remote control selector is set to TV. However, the TV/VTR button and/or the –/– – (10's digit) button cannot operate certain Sony's TVs.

1 **TIMER REC (ON/OFF) button**

2 **TIMER REC CHECK/CLEAR buttons** (page 47)
Press to check, correct, or clear the timer settings.

3 **Liquid-crystal display**

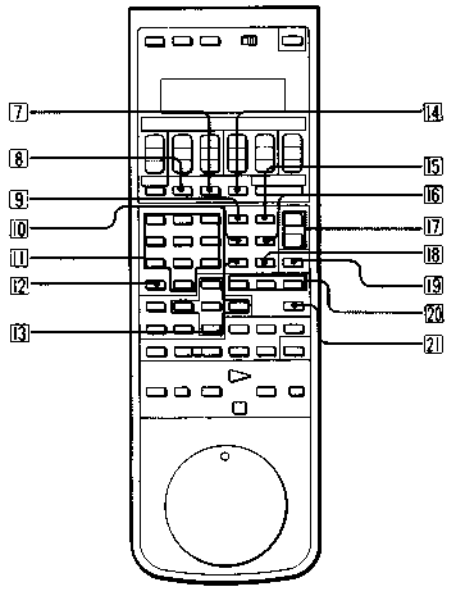
4 **TV / VTR remote control selector** (page 16)
Set to VTR to control this VTR and set to TV to control the TV.

5 **⏻ (on/standby) button**
To turn on the TV from the standby mode, press one of the programme position number buttons.

6 **Timer recording/clock set buttons** (page 17, 43)
- TIMER SET
- DAY
- TURN ON time
- TURN OFF time
- PROG (programme position) + / – *
- TRANSMIT

* You can use the PROG + / – buttons to select the programme positions during VTR or TV operation as well as in the timer setting procedure.

Identifying the Operational Parts



7 **MEMORY button** (page 50)

8 **CLOCK SET (SET/START) button** (page 17)

9 **REC MODE select button** (page 35, 43)

10 **DATA SCREEN button** (page 32)

11 **Programme position number buttons**
Press to select the programme position directly.

12 **–/– – (10's digit) button**
Press to select a programme number over 9. To select 23, press –/– –, then 2 and 3

13 **TIMER ON SCREEN button** (page 46)
Press to display the timer settings.

14 **COMMAND MODE button** (page 16)

15 **TV/VTR button** (page 37)

16 **INPUT SELECT button**
Press to select the source to be recorded. The selected input mode indicator will appear in the display window.

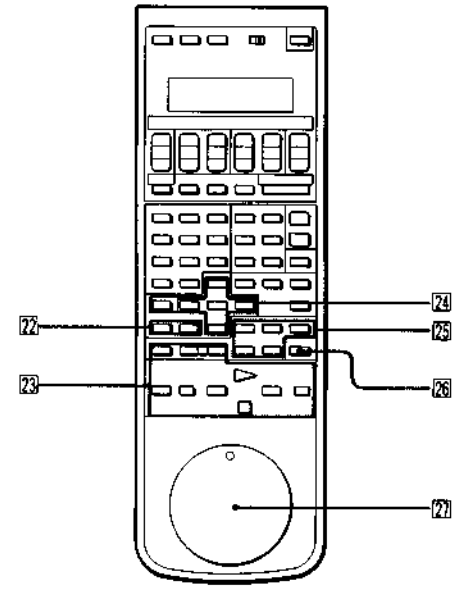
17 **VOL (TV volume) + / – buttons**
Press to control the volume of the TV. Effective only for Sony TVs with the ■ mark.

18 **COUNTER RESET button** (page 40, 41, 68)

19 **INDEX button** (page 56, 57, 58)

20 **P in P (picture in picture) buttons** (page 31, 38)
P in P to display the subsidiary picture.
SHIFT to change the position of the subsidiary picture.
DIGITAL OFF to turn off the subsidiary picture.

21 **EDIT MONITOR button** (page 65, 67)



22 **INDEX MARK and ERASE buttons** (page 55, 58)

23 **Tape transport buttons** (page 27, 29)
II PAUSE
● REC (recording)
▷ PLAY
◀◀◀◀ HIGH SPEED REWIND
⏮/⏭ SEARCH (reverse/forward)
◀◀ REW (rewind)
▶▶ FF (fast-forward)
■ STOP

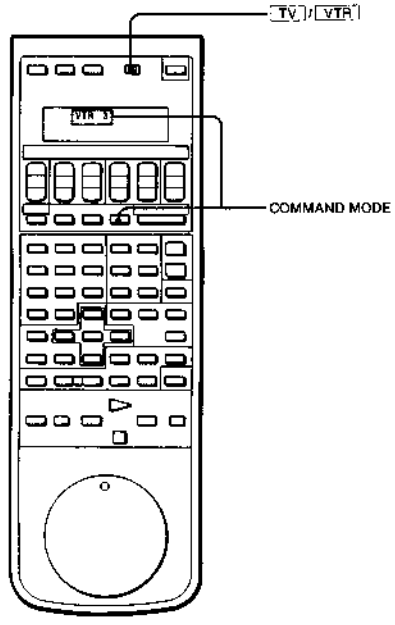
24 **Menu operation buttons**
Press MENU to display or erase the main MENU. Press EXECUTE to store the selected parameters. Press ▲/▼/◀/▶ to move the cursor.

25 **Playback direction set, frame-by-frame, still and SLOW + / – buttons** (page 29)
Press II for a still picture.
Press < ◀II/II▶ > to select the direction for frame-by-frame picture.
Press < ◀II/II▶ > to select the direction for any playback mode.
Press II▶ SLOW + / – for slow playback between 1/5 to 1/30 times normal speed. Press + or – to change the playback speed.

26 **AUDIO DUB button** (page 68)

27 **SWING SHUTTLE dial** (page 30)
Turn and hold it at the position where the desired playback speed is obtained. You can select slow (1/5), normal (1), double (×2) or continuous scan speed (⏭ or ⏮) from any playback mode. Turn the dial clockwise for forward playback, or counterclockwise for reverse playback. When the dial is released, it will return to the still picture position automatically. To resume normal playback, press ▷ PLAY.

Remote Control Operation



Command Mode Setting

Set the COMMAND MODE 1/2/3 selector on the unit to the same number displayed in the LCD display. To change the setting on the Commander, press COMMAND MODE repeatedly. Then, set the TV / VTR remote control selector to VTR.

Remotely Controlling Other Sony Equipment

■Controlling another VTR equipped with a command mode selector

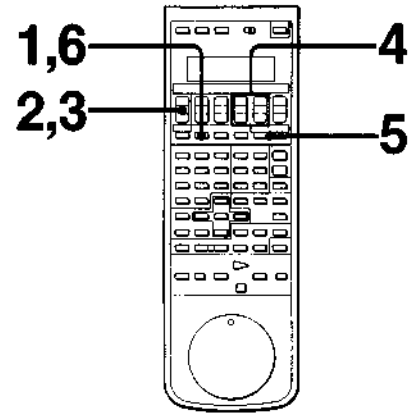
Set different command modes for this VTR (VTR 3, for instance) and the other VTR (VTR 1). Select VTR 1 on the Commander to control the other VTR and VTR 3 to control this VTR.

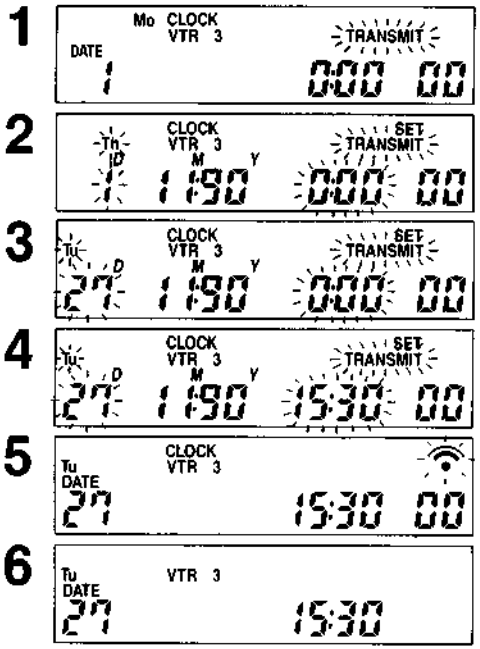
■Controlling equipment without a command mode selector

Change the setting on the Commander as follows to control each type of VTR

VTR 1: Sony Betamax infrared remote control VTRs (Some Betamax VTRs may not be controlled in this mode)
VTR 2: Sony 8 mm format VTRs
VTR 3: Sony VHS format VTRs

Date and Clock Setting





Before You Begin

The time and date between the years 1990 and 2005 can be set with the Commander.

Operation

Example: To set to 15:30, Tuesday, November 27, 1990.

1 **Press CLOCK SET.**

2 **Keep pressing the D (date) button until 11 M 90 Y is displayed.**
The date will be incremented slowly up to 30 days ahead and then the month will be incremented.

3 **Press the + side or – side of the D (date) button until 27 D is displayed.**
The day of the week appears automatically.

4 **Press the H (hour) and M (minute) buttons under TURN OFF to set the current time.**

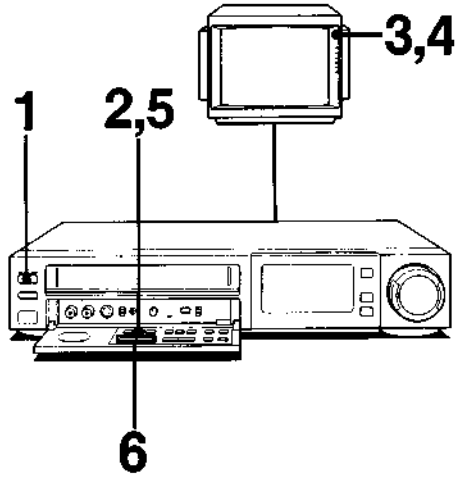
5 **Point the Commander at the VTR and press TRANSMIT.**
A beep sound confirms that the date and clock setting is registered in the VTR as well.

6 **Check the display window on the unit and press CLOCK SET.**

When 0:00 is blinking on the unit
Any time power is interrupted for more than an hour, you will see 0:00 blinking when power is restored. You will have to re-set the date and clock again.

When a short beep sounds repeatedly
The VTR is in the timer recording or quick timer recording modes or standby mode for timer recording and the setting cannot be transmitted.

Adjusting the TV



Before You Begin

If you have connected your VTR and TV using only the aerial sockets, one of the television programme positions must be adjusted to receive the VTR's playback signal. If TV/VTR connection is made via the EURO-AV, skip this step.

Operation

1 **Make connections referring to "Connections" and press ON/STANDBY.**

2 **Press INPUT SELECT to light LINE L2 in the display window.**
Do not connect any equipment to the LINE IN 2 VIDEO jack.

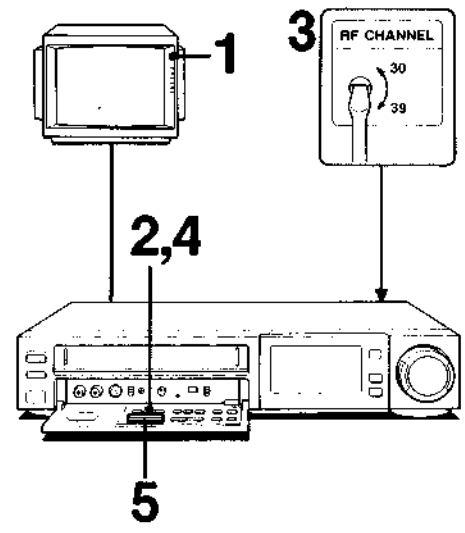
3 **Turn on the TV and select a programme position that is not used to receive a TV station.**

4 **Tune the TV so that a blue screen with tape counter and tape speed indication is clearly displayed on the TV screen.**

5 **Press INPUT SELECT to light TUNER in the display window.**

6 **Press PROGRAM + / – on the VTR and check that the screen changes to a different programme.**

Now your TV is tuned to receive the VTR's playback picture. Whenever playing back a tape, select the programme position you chose in step 3.
If you are not sure how to tune your TV, refer to the TV's instruction manual or consult your dealer.



When the Playback Picture is not Free of Disturbance

1 **Select a programme position on the TV between UHF channels 30 and 39, so that the TV shows no picture and a steady rustling sound or no sound is heard.**

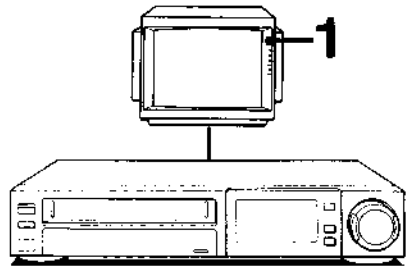
2 **Press INPUT SELECT to light LINE L2 in the display window.**
Do not connect any equipment to the LINE IN 2 VIDEO jack.

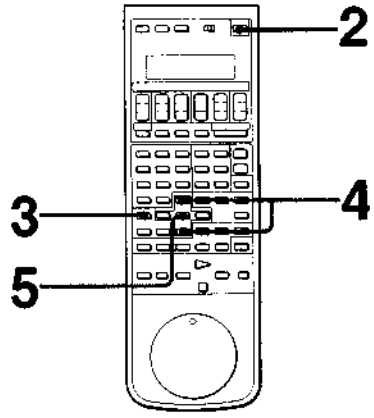
3 **Turn the RF CHANNEL screw with the supplied screwdriver so that a blue screen with tape counter and tape speed indication is clearly displayed on the TV screen.**

4 **Press INPUT SELECT to light TUNER in the display window.**

5 **Press PROGRAM + / – on the VTR and check that the screen changes to a different programme.**

About the MENU Display





This VTR is equipped with a menu display function. Menu display enables you to perform certain operations which are displayed on the TV or the monitor.

First display the main MENU, and select the item to be operated or preset.

How to Display the main MENU

■Before you begin

Check the connections between the VTR and the TV.

■Operation

1 **Turn on the TV.**
Set to the programme position for the VTR if VTR-TV connection is made via the aerial sockets. Select VTR input if VTR-TV connection is made via the EURO-AV.

2 **Press** ⏻.

3 **Press MENU.**
The main MENU will appear on the screen.

4 **Move cursor to the desired menu by** ▲ **or** ▼.

5 **Press EXECUTE.**
The selected menu will appear on the screen.

To erase the main MENU display
Press MENU again.

To display other menu displays
1 Press MENU to erase the present display.
2 Press MENU again to display main MENU.
3 Move cursor to the desired menu.
4 Press EXECUTE.

Details of Each Menu

Here is a list of the menus in the main MENU. For details, refer to the sections indicated.

■AUTO MENU
Use to select an automatic tape operation. See "Assigning a Desired Operation Mode" (page 33).

■MODE SET
Use to select the following mode settings:

TIMER REC-REW ON/OFF
(See "Timer Activated recording" on page 48)

BUZZER ON/OFF
(See "Timer Activated Recording" on page 42)

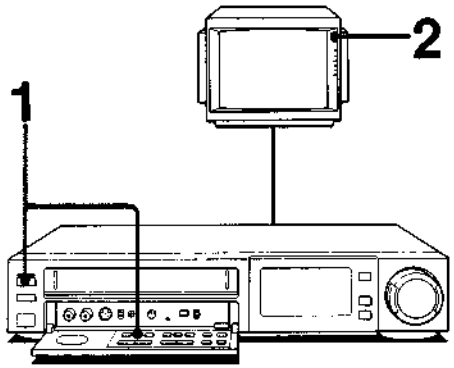
DIMMER ON/OFF
Select ON to dim out the indications in the display window.

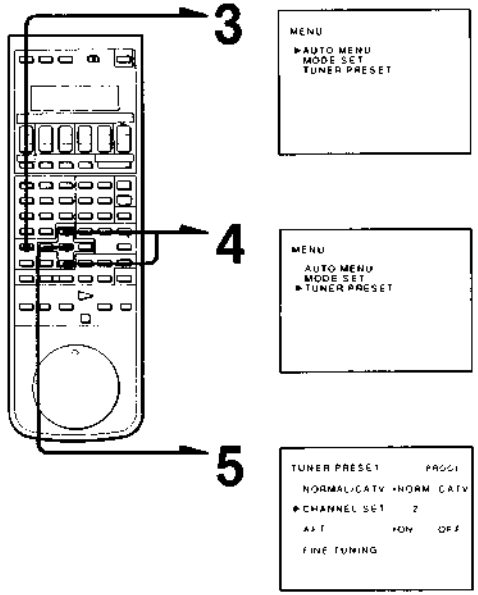
BACK COLOUR BL/GR/PK
Select your favourite back colour of the on-screen display from BL (blue), GR (green) and PK (pink).
Back colour is set to BL at the time of shipment.

■TUNER PRESET
Use to preset the active channels in your area. See "Presetting the Active Channels" (page 22).

Note
The position of the cursor is retained as long as the power cord is connected.

Presetting the Active Channels





Before You Begin

- This VTR is capable of receiving VHF channels E2-E12, UHF channels E21-E69, and cable TV channels S1-S41 and S01-S03
- The receivable channels are governed by the TV broadcasting system in your area
- Up to 60 channels can be allocated to any desired programme position.

To Call Up the TUNER PRESET Menu

1 Turn on the VTR and press INPUT SELECT to light the TUNER indicator and the programme position number in the display window.

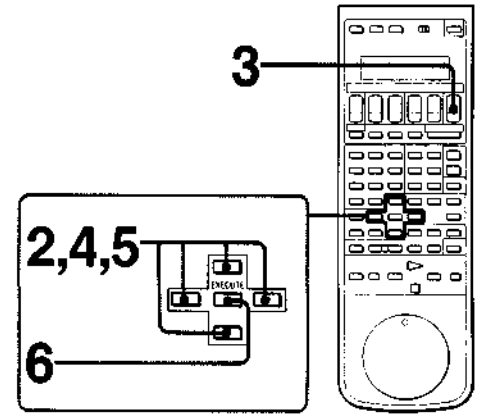
2 Turn on the TV.
Set to the programme position for the VTR if VTR-TV connection is made via the aerial sockets. Select VTR input if VTR-TV connection is made via the EURO-AV.

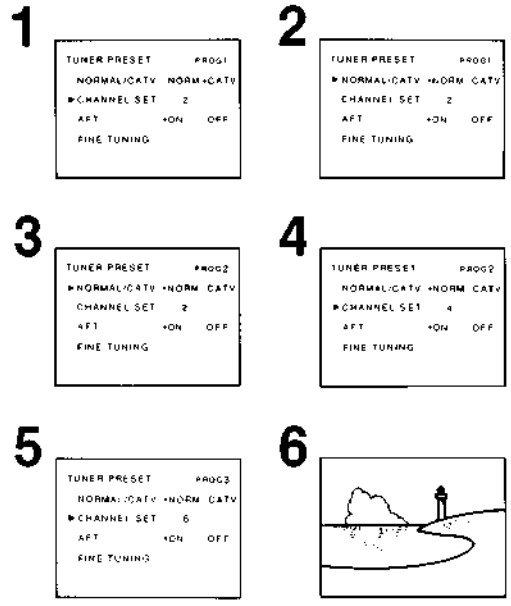
3 Press MENU with the VTR in the stop mode.
The main MENU appears.

4 Move cursor with ▲ or ▼ to TUNER PRESET.

5 Press EXECUTE.
The TUNER PRESET menu appears

Note for the users of SLV-474UB
The TUNER PRESET menu of the SLV-474UB does not have the NORMAL/CATV selection as illustrated.





Tuning a Desired Channel

1 Call up the TUNER PRESET menu.

2 Move cursor to NORMAL/CATV with ▲ and select NORM with ◀ or ▶. (For SLV-474UB, skip this step.)
To tune-in CATV channels first, select CATV

3 Select the desired programme position by pressing PROG +/– on the Commander or PROGRAM +/– on the unit.

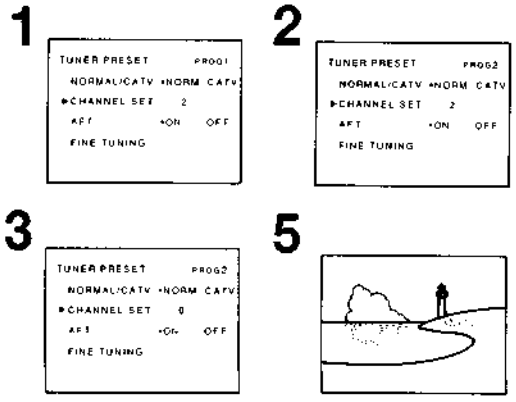
4 Move cursor to CHANNEL SET with ▲ or ▼ and press ◀ or ▶.
The channel number automatically increases with ▶ and decreases with ◀. The number stops changing when the first channel received in your area is detected and the screen returns to the blue background 5 seconds after.

5 To allocate a channel to the next programme position, repeat steps 2 to 4.

6 Press EXECUTE to store the allocated channels and return to the original screen.

Channel scanning on your VTR
- When ▶ is pressed in steps 4 and 5, the channels are scanned in the following order. When ◀ is pressed the scanning order is reversed
  VHF (E2-E12) → UHF (E21-E69) → CATV (S1-S20) → HYPER BAND (S21-S41) → CATV (S01-S03).
- The SLV-474UB only scans UHF channels B21 to B68.
- In Italy, channel numbers 13 to 20 correspond to channels A to H.

Presetting the Active Channels



Erasing Unwanted Programme Positions

The VTR can be preset so that only the desired programme positions will appear when you press PROG +/– or PROGRAM +/–.

1 **Call up the TUNER PRESET menu.**

2 **Press PROG +/– on the Commander or PROGRAM +/– on the unit to call up the unused programme position.**

3 **Press 0 twice or keep pressing ◀ or ▶ until 0 is displayed.**

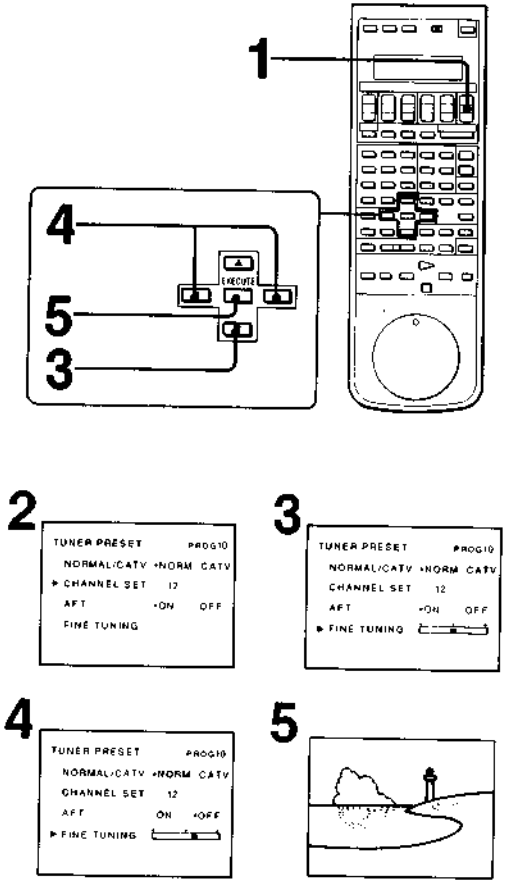
4 **Repeat steps 2 and 3 to erase other programme positions.**

5 **Press EXECUTE.**

■ To enter the erased programme positions again
Follow the operations in "Tuning a Desired Channel."

To Allocate the Channels Directly

After step 3 in "Tuning a Desired Channel," move cursor to CHANNEL SET.
Enter the desired programme numbers using the programme position number buttons. To enter one's digits, press 0 and then the desired number. To enter two digit numbers, press the ten's digit number and then the one's digit number.



Manually Fine-tuning a Weak Station

Normally the AFT (Automatic Fine Tuning) function fine-tunes the picture with the AFT in the TUNER PRESET menu set to ON. (The AFT indicator lights in the display window.) However, when the programme received on the VTR is distorted due to signal interference, manual fine tuning may solve the problem.

1 **Select the distorted programme position by pressing PROG +/– on the Commander or PROGRAM +/– on the unit.**

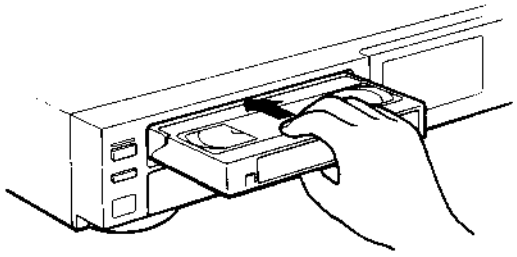
2 **Call up the TUNER PRESET menu.**

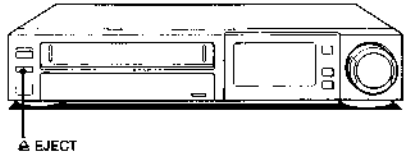
3 **Move cursor to FINE TUNING.**
The fine tuning meter appears.

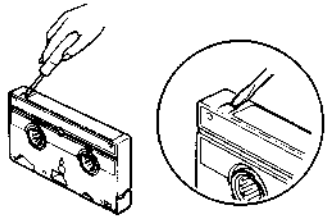
4 **Press ◀ or ▶ to obtain the best picture.**
When ◀ or ▶ is pressed, the dot will move to AFT OFF automatically and the AFT indicator in the display window will be turned off.

5 **Press EXECUTE to store that position and return to the original screen.**

Handling Video Cassettes







Cassette Insertion

Insert the cassette by slowly pressing its center with the arrow indication facing upwards. When a cassette is inserted, the power will be turned on automatically. If the inserted cassette has its safety tab removed, playback starts automatically.

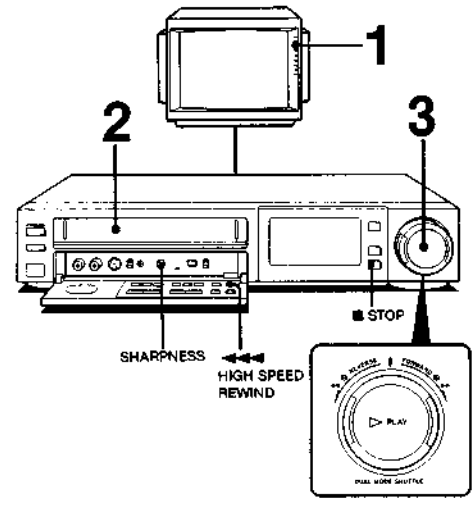
Cassette Ejection

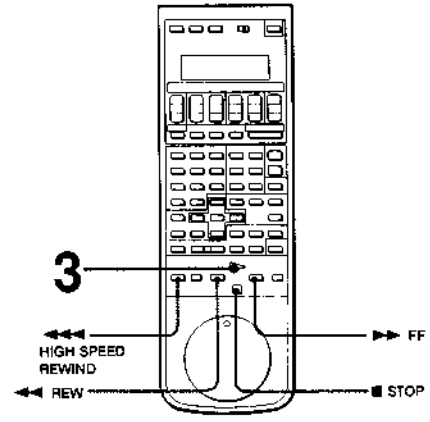
Press ⏏ EJECT on the unit. When the VTR is turned off, pressing the ⏏ EJECT button will turn on the unit, eject the cassette, and turn off the VTR again. Note that ⏏ EJECT will not function during recording.

Erase Protection

When recording is made on a pre-recorded tape, the previous recording will be erased. To avoid this, remove the safety tab with a screwdriver or a similar tool. The cassette will then be ejected when recording is attempted. To record again on a cassette that has no tab, simply cover the safety tab hole with a piece of plastic tape.

Playback





Playing a Tape

1 Turn on the TV and select the programme position for the VTR.
If VTR-TV connection is made via EURO-AV, select the input for the VTR.

2 Insert a cassette.
The VTR will be turned on. If your cassette has its safety tab removed, playback starts automatically.

3 Press ▷ PLAY.
Playback starts.
The VTR automatically rewinds the tape when it reaches the end.

To stop playback
Press ■ STOP.

To advance the tape rapidly
Turn the DUAL MODE SHUTTLE ring clockwise (►►), or press ►► FF on the Commander during stop mode.

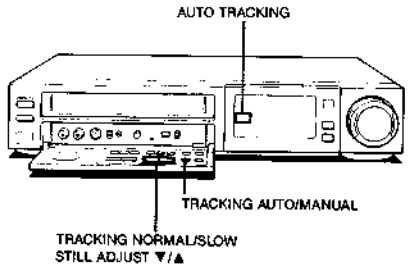
To rewind the tape
Turn the DUAL MODE SHUTTLE ring counterclockwise (◄◄), or press ◄◄ REW on the Commander during stop mode.

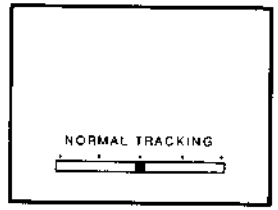
To rewind the tape at high speed
Press ◄◄◄ HIGH SPEED REWIND.

To get a sharper picture
Turn the SHARPNESS control toward SHARP.

To get a softer picture
Turn the SHARPNESS control toward SOFT.

When the tape is played back to the end
The tape will be automatically rewound to the beginning (auto rewind). The power will remain on.





Picture Adjustments

■ Auto tracking function

The tracking condition is automatically adjusted on this VTR. The AUTO TRACKING indicator blinks while the VTR is searching for the best tracking condition and lights when maximum playback picture is obtained. The automatic tracking control is activated in the following conditions:

— when the cassette is inserted and played back.
— when the recording mode on the playback tape is switched between SP and LP.
— when the picture is distorted by scratches etc. on the tape.
— when the AUTO TRACKING indicator is turned on by pressing TRACKING AUTO/MANUAL after the picture is adjusted manually. (See below.)

■ Manual adjustment during normal playback

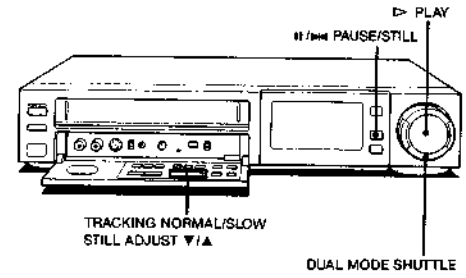
If streaks or snow appear, adjust the picture using the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.

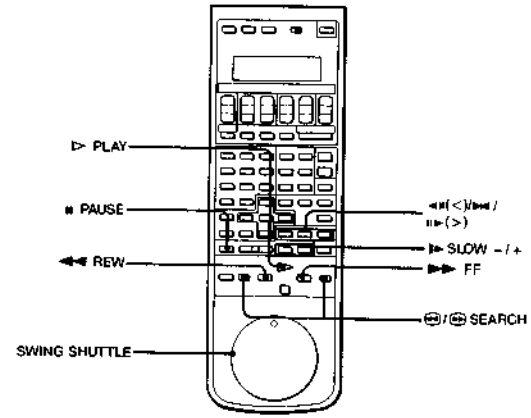
Press either ▼ or ▲ to obtain the best possible picture.

The tracking meter will appear on the TV screen and the AUTO TRACKING indicator will be turned off.

Notes on Automatic Tracking

- When the manual adjustment proves unsatisfactory, press both of the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲. The tracking condition will return to the center position.
- Tracking adjustment may not be possible when the recording condition of the tape is very poor.





Various Playback Modes

■ To obtain a still picture

During playback mode press II /▸II PAUSE/STILL on the unit or II PAUSE or ▸II on the Commander. To resume normal playback, press ▷ PLAY, II /▸II PAUSE/STILL, or II PAUSE. When the pause mode lasts for more than 5 minutes, the unit will re-enter the playback mode automatically.

■ To search for a particular scene — Picture search

During playback mode, press ◀◀ REW or ▶▶ FF.
While the button is pressed, a high speed picture without sound will appear on the TV screen. When the button is released, the unit will return to the previous mode.

■ To watch the picture during fast-forward or rewind mode — Locked picture search

During the playback mode, press ⏮ SEARCH or ⏭ SEARCH on the Commander. A high speed picture in forward or reverse will appear on the screen even when the button is released. To resume normal playback, press ▷ PLAY.

■ To watch slow motion playback

During playback or still mode, press I▸ SLOW on the Commander. Change the slow motion speed with the + or – button. Press + to increase the playback speed, and – to decrease the playback speed.

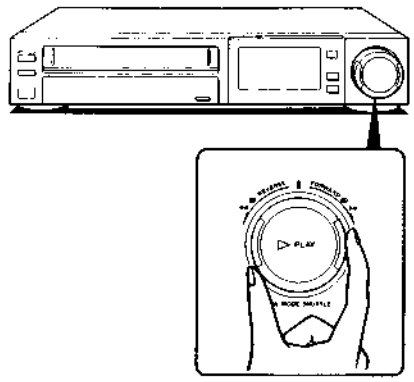
■ To see the picture momentarily while the unit is in the fast-forward or rewind mode without picture on the TV screen

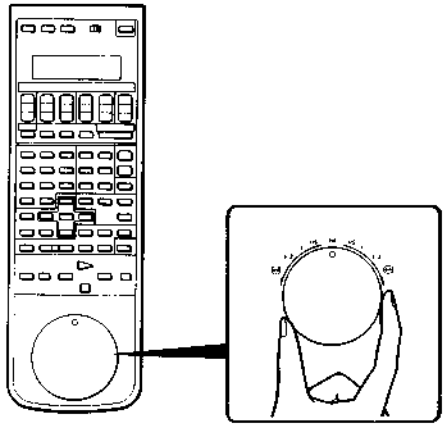
During fast-forward, turn the DUAL MODE SHUTTLE ring clockwise (▶▶) or press ▶▶ FF on the Commander. During rewind, turn the DUAL MODE SHUTTLE ring counterclockwise (◀◀) or press ◀◀ REW on the Commander. The high speed playback picture can be seen as long as the ring is held in that position, or the button is pressed. Release the ring or button to return to the previous mode.

■ To watch a frame-by-frame picture

During still mode, press II▸ to advance the picture one frame. Press ◀II to reverse the picture one frame. Each press of ◀II/II▸ will move the picture one frame. Press ▷ PLAY to resume normal playback.

Playback





■To watch reverse direction playback, and slow picture

During forward playback of the desired mode, press < on the Commander. Press ▷ PLAY or > to resume forward playback.

To eliminate streaks or noise bands during slow motion play
Adjust the picture with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ inside the front panel. The picture can be adjusted easily in faster speed playback.

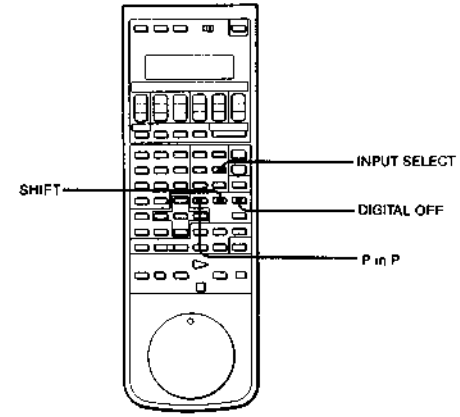
To eliminate the bands on the top or bottom of the screen in still mode
Change to the slow motion play mode and adjust the picture with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.

To eliminate picture shaking during still mode
Adjust the picture with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ inside the front panel.

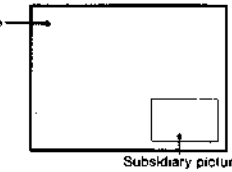
Note on picture search
The picture may turn to a monochrome picture during picture search when playing back tapes recorded in LP mode depending upon the condition of the connected TV.

■To enjoy various playback modes by the DUAL MODE SHUTTLE ring or the SWING SHUTTLE dial

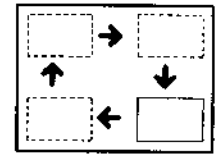
Various playback modes as illustrated can be selected with DUAL MODE SHUTTLE ring on the unit or the SWING SHUTTLE dial on the Commander from any playback mode. The same speed is available in the reverse direction.
Turn the ring or the dial and hold it at the position where the desired playback speed is obtained.
When you release the ring or the dial, the picture will freeze.
To resume normal playback, press ▷ PLAY.



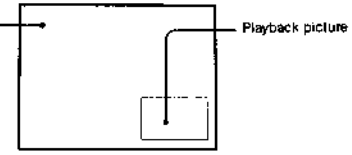
Ⓑ



Ⓓ



Ⓒ



Inserting a Small Picture into the Playback Picture (P in P)

Press P in P during playback. Ⓐ
The subsidiary picture selected with INPUT SELECT will appear on the TV screen.
•If TUNER mode is selected with INPUT SELECT, you can watch the TV picture on the subsidiary screen.

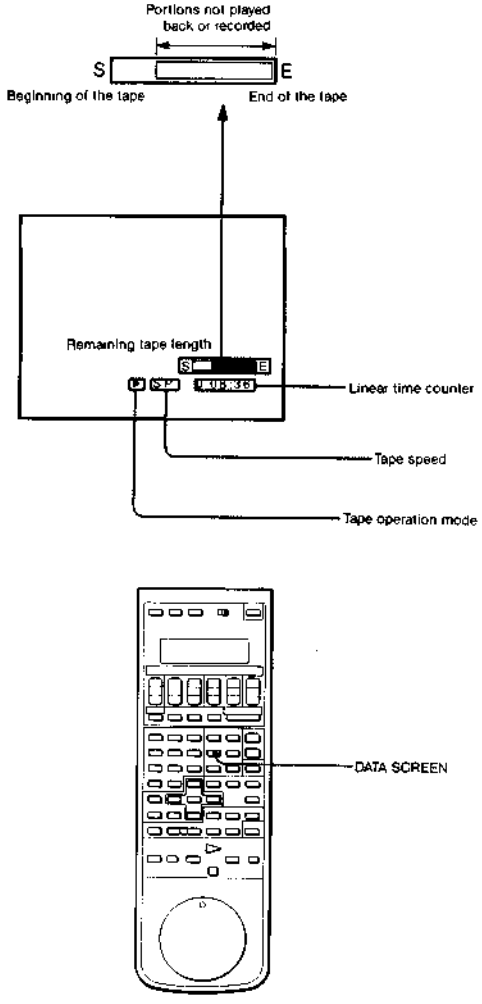
■Changing the position of the subsidiary picture Ⓑ
Press SHIFT repeatedly until the desired position is reached.

■Inverting the subsidiary picture and the main picture Ⓒ
Press P in P again.

■Turning off the subsidiary picture
Press DIGITAL OFF.

Note
If no recorded portion is played back at a speed except the normal one, the subsidiary picture will not be displayed.

Playback



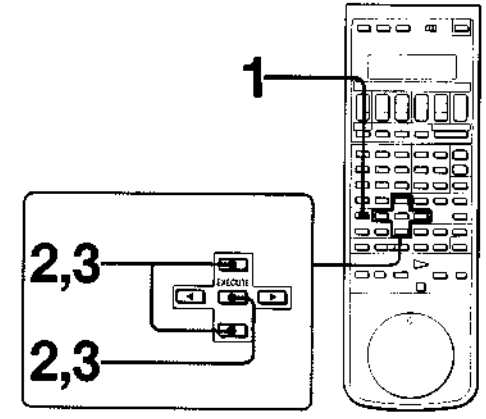
Data Screen

Data screen information illustrated on the left will automatically appear on the screen during playback or recording as a reference. Note, however, that the data screen will not be displayed when the VTR in slow motion or playback pause mode.

■ To erase or display the data screen
Press DATA SCREEN.

Notes on the remaining tape length indicator

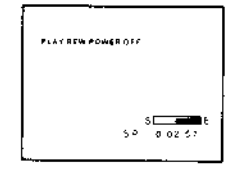
- The remaining tape length indicator only shows the approximate amount of tape left.
- The indication may shift vertically during the fast-forward or rewind mode.
- It may not operate properly when a short tape, such as the E-30 and VHS-C type cassette, or when a non-standardized tape is inserted.



1

2

3



Assigning a Desired Operation Mode

Guided by the AUTO MENU, you can make the VTR enter the desired operational sequence automatically.

1 Press MENU while the VTR is in the stop mode.
The main MENU appears.

2 Move cursor with ▲ or ▼ to AUTO MENU and press EXECUTE.
The AUTO MENU appears.

3 Move cursor with ▲ or ▼ to the desired operational sequence and press EXECUTE.
The selected operation will begin.

The selected operating mode will be superimposed on the TV screen for a few seconds. The AUTO indicator will light in the display window during AUTO MENU operation.

Notes on AUTO MENU operation
AUTO MENU cannot be operated if there is no cassette installed or if the VTR is in modes other than stop mode. A short beep alerts you if the AUTO MENU is not operable.

Note on "GO TO REC START-PLAY"
The recording start point data will be erased from the memory after the following operations and "GO TO REC START-PLAY" will not be operable.

- When COUNTER RESET is pressed.
- When the cassette is ejected and re-inserted.
- When HIGH SPEED REWIND is pressed.

Playback

Auto Menu Modes

■**PLAY — REW — POWER OFF** plays back the tape, rewinds the tape when the end is reached, and turns the power off.

■**GO TO ZERO — STOP** searches for the counter zero point and stops. See page 41.

■**GO TO ZERO — PLAY** searches for the counter zero point and starts playback. See page 41.

■**GO TO REC START — PLAY** searches for the recording start point and starts playback.

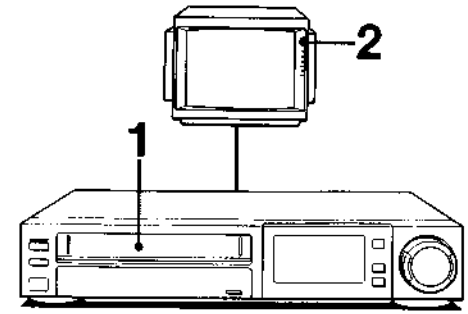
■**REW — POWER OFF** rewinds the tape to the beginning and turns the power off.

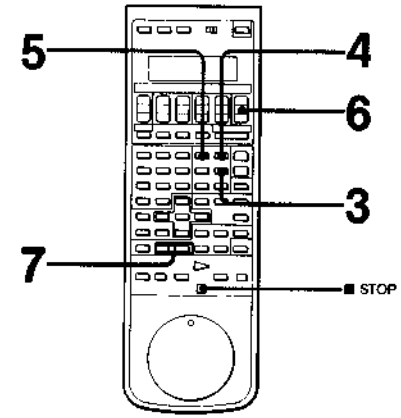
■**REW — EJECT — POWER OFF** rewinds the tape to the beginning, ejects the cassette, and turns off the power.

■**REW — PLAY** rewinds the tape to the beginning and starts playback.

■**REW — TIMER REC** rewinds the tape to the beginning and enters the timer recording standby mode for timer recording when a timer recording is preset. A cassette with its safety tab removed will be ejected.
When the VTR is in the timer recording standby mode, 1) press TIMER REC ON/OFF to cancel the standby mode, 2) turn on the power to the unit, 3) call up the AUTO MENU referring to page 33.

Recording TV Programmes





Before You Begin

- Check that all of the preparations are complete.
- The buttons on the VTR with the same name or mark can be used in the operation below as well.
- Data screen displays will not be recorded on the tape.

Operation

1 **Insert a cassette.**

2 **Turn on the TV.**
Set to the programme position for the VTR playback if VTR-TV connection is made only via the aerial sockets.
Select VTR input if VTR-TV connection is via the EURO-AV.

3 **Press INPUT SELECT so that the TUNER indicator appears in the display window.**

4 **Press TV/VTR so that the VTR indicator lights in the display window.**
(Only when connection is made via EURO-AV.)

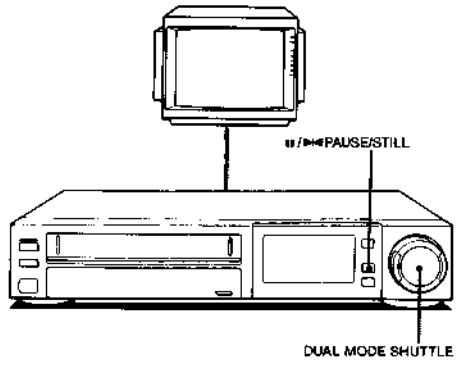
5 **Press REC MODE to select the recording tape speed, SP or LP.**

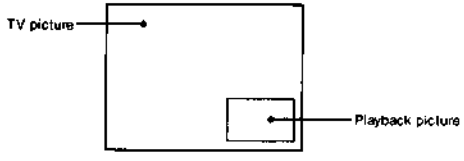
6 **Select the programme position to be recorded with PROG +/−.**

7 **Press the right button while pressing ● REC.**
Recording will begin. When the tape reaches the end, it will be automatically rewound to the beginning. Pressing the ● REC button on the unit also activates the recording.

To stop recording, press ■ STOP.

Recording TV Programmes





To Stop Recording Momentarily at an Unwanted Scene

1 **Press II /▷◁ PAUSE/STILL when an unwanted scene appears.**
Recording is stopped and the VTR enters the recording standby mode.

2 **Press II /▷◁ PAUSE/STILL again to resume recording at the desired point.**

To Cut Out an Unwanted Scene by Recording Over It

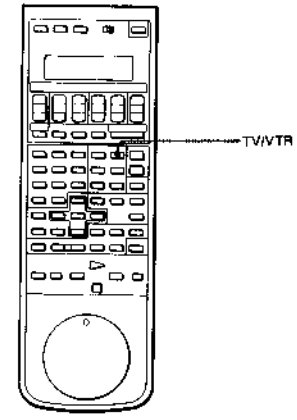
1 **Press II /▷◁ PAUSE/STILL during recording to enter the recording standby mode.**

2 **Locate the point where you wish to continue recording using DUAL MODE SHUTTLE on the VTR.**
The unit will enter the P in P mode and the playback picture will be displayed on the subsidiary screen. (For details on the operation, see below.)

3 **At the desired point, release DUAL MODE SHUTTLE.**

4 **Press II /▷◁ PAUSE/STILL to resume recording.**

■How to use the DUAL MODE SHUTTLE ring
Turn the ring during playback or in the recording pause mode.
The playback speed and the direction can be selected according to the turning angle and direction.
Release the ring to enter the playback pause mode or resume the recording pause mode.
•If the ring is turned in the recording pause mode, the unit enters the P in P mode and the playback picture appears on the subsidiary screen.

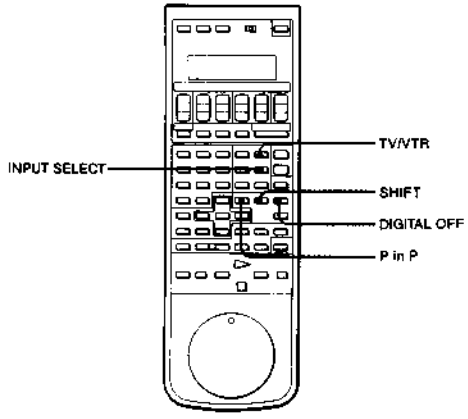


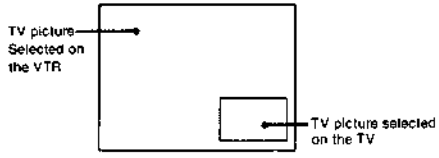
Watching a TV Broadcast While Recording Another

■If VTR-TV connection is made using the EURO-AV
Press TV/VTR to turn off the VTR indicator.
The programme selected on the TV appears on the screen.

■If VTR-TV connection is made using only the aerial sockets
Change the programme position on the TV.

Recording TV Programmes





Watching a TV Broadcast While Watching Another (TV in TV)

You can watch two TV programmes, simultaneously on the screen: One programme selected on the VTR, and the other selected on the TV connected to EURO-AV.

1 **Select TUNER mode with INPUT SELECT.**

2 **Press TV/VTR to turn on the VTR indicator.**
The TV programme selected on the VTR appears on the screen.

3 **Press P in P.**
The programme selected on the TV appears on the subsidiary screen.

■ **Changing the position of the subsidiary picture**
Press SHIFT repeatedly until the desired position is reached.

■ **Turning off the subsidiary picture**
Press DIGITAL OFF.

To change the TV programme of the subsidiary picture

Press TV/VTR to turn off the VTR indicator in the display window and select the desired programme on the TV.
By pressing TV/VTR to turn on the VTR indicator, P in P mode is resumed.

When the input mode is changed

If the input mode is changed with INPUT SELECT, the picture on the main screen and the subsidiary screen change as follows.

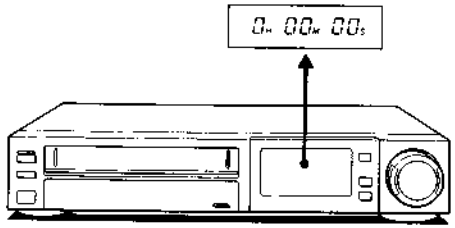
INPUT SELECT	TUNER
Main screen	TV programme selected on the VTR
Subsidiary screen	TV programme selected on the TV

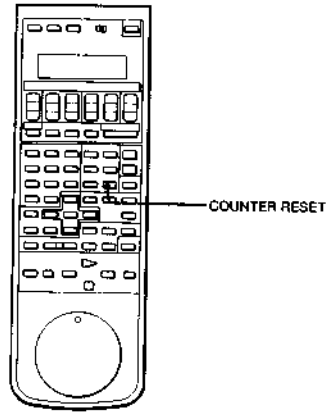
INPUT SELECT	LINE L1 (EURO-AV)
Main screen	TV programme selected on the TV
Subsidiary screen	TV programme selected on the VTR

INPUT SELECT	LINE L2
Main screen	Picture of the equipment connected to LINE IN 2 VIDEO
Subsidiary screen	TV programme selected on the VTR

Notes
- To watch two TV programmes, the tape should be stopped.
- When the TV is not connected to EURO-AV, the subsidiary screen does not appear.

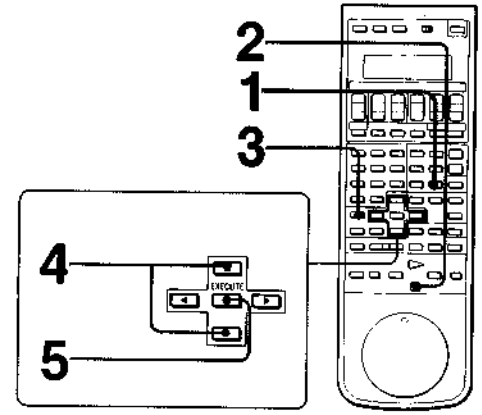
Use of the Tape Counter

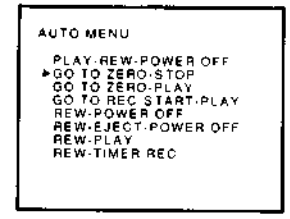


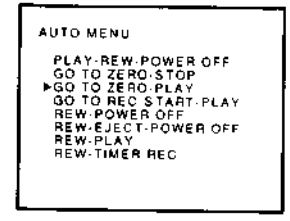


Understanding Counter Zero Position

The tape counter on this VTR can be used as a reference when you wish to locate a certain scene after recording or playback. Press COUNTER RESET to set the counter to "0H00M00S" (counter zero position) before operation. The VTR will keep counting the length of tape being played back or recorded. Note, however, that the tape counter will not count the portions of tape with no signals recorded. This VTR automatically resets the counter to zero whenever a cassette is inserted. Two additional features using COUNTER RESET are available on this VTR.







Tape Return

The VTR can search for the counter zero position and stop. This function is useful for locating a particular scene after recording or playback.

1 **Press COUNTER RESET at the desired scene during recording or playback.**

2 **Press ■ STOP to stop recording or playback.**

3 **Press MENU and select AUTO MENU.** See "Assigning a Desired Operation Mode" for operation.

4 **Move cursor to "GO TO ZERO-STOP."**

5 **Press EXECUTE.**

Tape Return Play

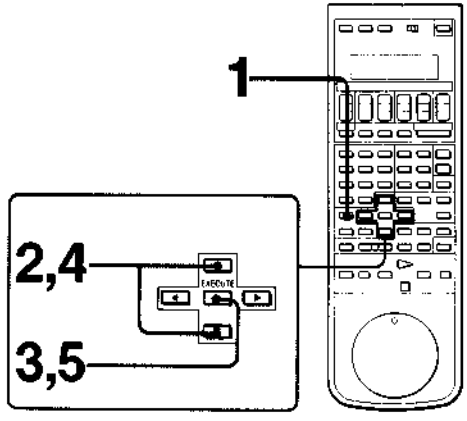
The VTR will even search and start playback from the counter zero position after recording or playback.

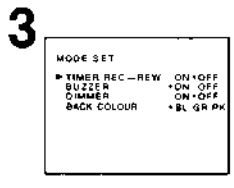
1 **Repeat steps 1 to 3 in the Tape Return operation.**

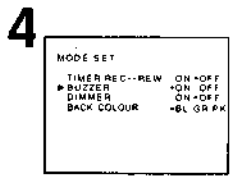
2 **Move cursor to "GO TO ZERO-PLAY."**

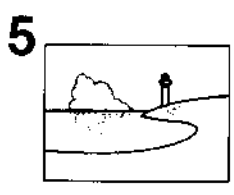
3 **Press EXECUTE.**

Timer Activated Recording









Timer Recording on this VTR

Up to eight preselected programmes can be set on this unit, up to one month in advance.

Before You Begin

- Turn on the TV and adjust it to view the VTR output
- Check to see that the clocks on the Commander and the VTR show the present time.
- To operate the SLV-474VP, read "VPS Function" first

To Turn On/Off the Warning Buzzer

It is possible to turn on or off the beep sound which this VTR will give whenever an illogical operation command is sent from the Commander.

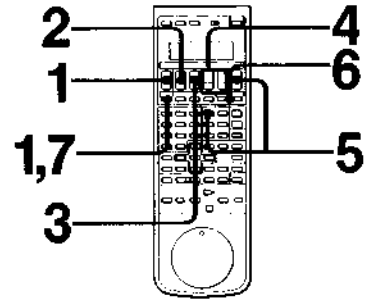
1 Press MENU in the stop mode.
The main MENU appears.

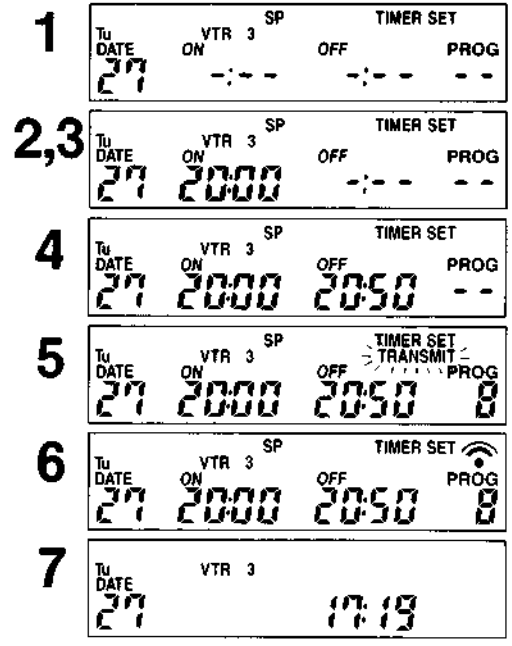
2 Move cursor with ▲ or ▼ to MODE SET.

3 Press EXECUTE.
The MODE SET menu appears.

4 Move cursor with ▲ or ▼ to BUZZER.
Select ON to activate and OFF to deactivate the buzzer by ◀ or ▶.

5 Press EXECUTE to store the setting and return to the original screen.





Operation

Example: To record a programme broadcast from 20:00 to 20:50 on Tuesday, November 27, 1990 on programme position 8.

1 Press TIMER SET first, then press D until 27 appears.
The day of the week, Tu (Tuesday), is automatically set.

2 Set the recording start hour with TURN ON H.

3 Set the recording start minute with TURN ON M.

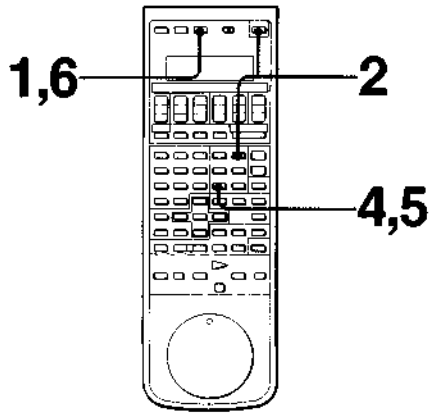
4 Set the recording end hour and minute with TURN OFF H and M referring to step 2 and 3.

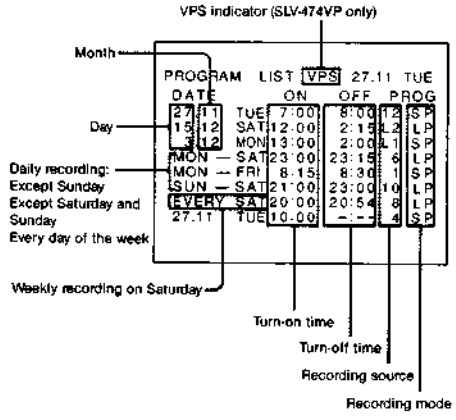
5 Set the programme position with PROG + / −. To select the recording speed LP, press REC MODE so that the LP indicator appears in the display.
The TRANSMIT indicator blinks to indicate that all of the items are entered

6 Point the Commander to the VTR and press TRANSMIT.
With a beep sound, the VTR enters the timer recording standby mode. The PROGRAM LIST appears on the screen for a few seconds.

7 Press TIMER SET so that the present time appears on the LCD display.
The VTR turns on, starts recording at the selected time, and turns off after recording ends.

Timer Activated Recording





Checking the Timer Settings

The timer settings can be checked while the VTR is in the timer standby mode by displaying the programme list on the screen.

1 **Press TIMER REC (ON/OFF) to turn off the TIMER indicator in the display window.**

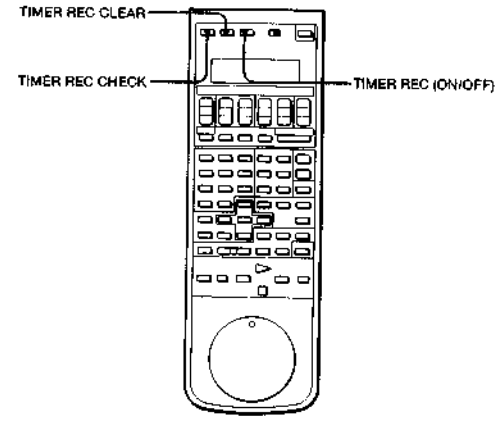
2 **Turn on the VTR and press TV/VTR to light the VTR indicator.**
(Only when connection is made via EURO-AV.)

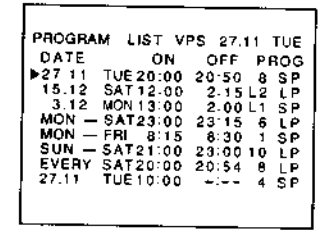
3 **Turn on the TV.**
Set to the programme position for VTR if VTR-TV connection is made via the aerial sockets. Select VTR input on the TV if VTR-TV connection is made via EURO-AV.

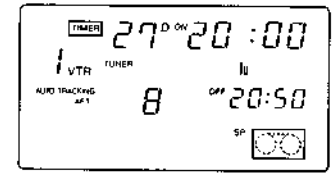
4 **Press TIMER ON SCREEN.**
The programme list appears.

5 **Press TIMER ON SCREEN again to return to the original screen.**

6 **Press TIMER REC (ON/OFF) to return to the timer recording standby mode.**







Clearing/Correcting the Timer Setting

■ Referring to the programme list

1 **Display the programme list referring to steps 1 to 4 in "Checking the Timer Settings."**

2 **Press TIMER REC CHECK to call up and move cursor to the setting you want to correct or clear.**

3 **To clear the setting, press TIMER REC CLEAR.**
If there are other timer settings on the list, press TIMER REC (ON/OFF) return to the timer recording standby mode.
To correct the setting, re-enter all of the items using the Commander. Refer to "Timer Activated Recording — Operation" steps 1 to 5.
The VTR automatically enters the timer recording standby mode.

■ Clearing the setting without the programme list

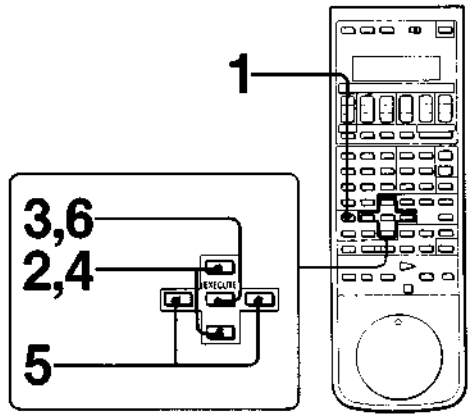
1 **Press TIMER REC (ON/OFF).**

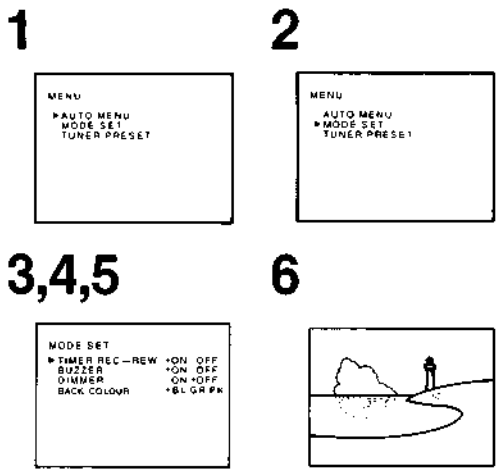
2 **Press TIMER REC CHECK repeatedly until the desired programme appears in the display window.**

3 **Press TIMER REC CLEAR.**

4 **Press TIMER REC (ON/OFF) to return to the timer recording standby mode if there are other programmes set for timer recording.**

Timer Activated Recording





To Automatically Rewind the Tape After Timer Recording

1 Before setting the timer, press MENU.

2 Move cursor with ▲ or ▼ to MODE SET in the main menu.

3 Press EXECUTE.

4 Move cursor with ▲ or ▼ to TIMER REC-REW.

5 Press ◀ or ▶ to move the dot to ON.
To cancel this setting, move the dot to OFF.

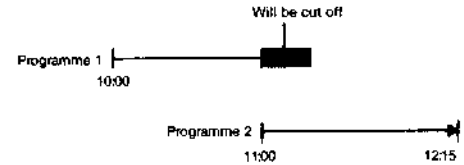
6 Press EXECUTE to store this setting and return to the original screen.

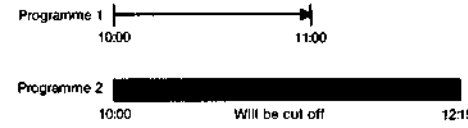
Using the VTR during Timer Recording Standby Mode

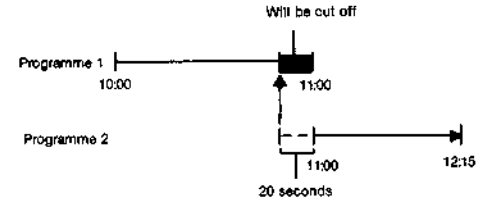
1 Press TIMER (ON/OFF) to turn off the TIMER indicator.

2 Turn on the power of the VTR.
The VTR is ready to be used.

3 After using the VTR, press TIMER REC (ON/OFF) and light the TIMER indicator to re-enter the timer recording standby mode.







When the Timer Settings Overlap

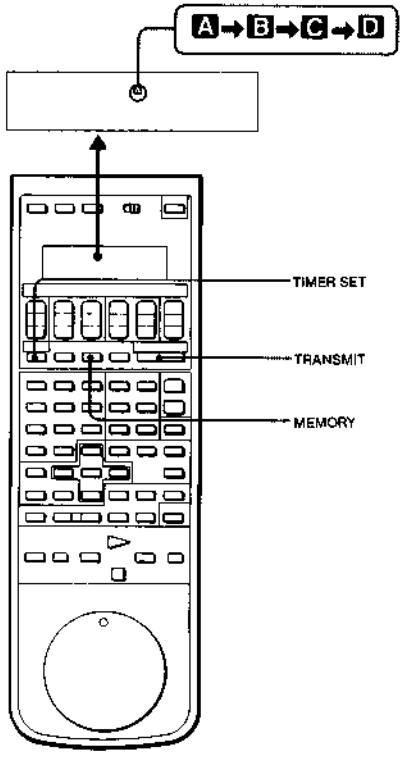
■If the setting of two programmes overlap
The recording of the following programme will begin automatically before the proceeding programme ends.

■If the turn on time of two programmes are the same
The VTR will record the programme with the smaller programme number or listed first on the programme list. The programme with the larger programme number or listed lower in the list will be erased.

■If the recording end time of programme 1 and the recording start time of programme 2 are the same
The last 20 seconds of programme 1 will not be recorded because the VTR will enter the recording pause mode for programme 2 before programme 1 ends.

Power interruption during timer recording standby/timer recording mode
- If the power interruption lasts less than an hour, the VTR will enter the recording standby mode or resume timer recording when the power is recovered.
- If the power interruption exceeds an hour during the recording standby mode, the timer settings will be cleared.
  Reset the clock and re-enter the items for timer recording again. If the power interruption occurred during timer recording, the recording will stop and the VTR will be turned off.

Timer Activated Recording



To Store the Frequently Used Timer Settings in the Commander

The items selected for one timer recording programme will be erased from the LCD when TIMER SET is pressed, and cleared from the programme list as well when recording is over.
However, the turn-on/turn-off time and the programme position of up to four programmes can be stored in the Commander to be recalled later. This enables you to quickly access the most frequently used items, especially your favorite weekly programme, since the recording date will automatically be shifted to the next week after the recording is over.

■Storing the parameters

1 **Press TIMER SET and MEMORY to indicate MEMORY A.**

2 **Set all of the items for timer recording referring to "Timer Activated Recording — Operation."**

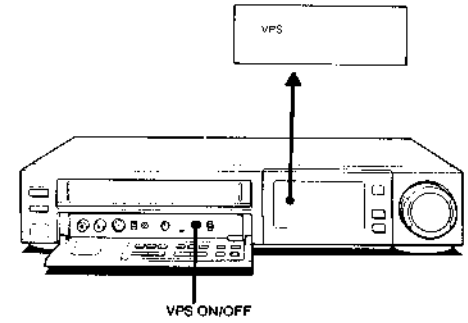
3 **Press MEMORY to change the indication to B, C, or D, and repeat step 2 for other programmes.**
The items set will be kept in the memory even when TIMER SET is pressed.

■Recalling and re-entering the items

1 **Press TIMER SET and MEMORY to call up the desired memory indication (A, B, C, or D).**

2 **Make whatever changes necessary.**

3 **Press TRANSMIT.**
The VTR enters the timer recording standby mode.



VPS (Video Programme System) Function (SLV-474VP only)

The German broadcasting system transmits VPS signals with the TV programmes which assures that your timer recording will be performed without missing any portion of it regardless of any earliness, time delay, extension, or broadcast interruption which might occur during that programme.

■Operation

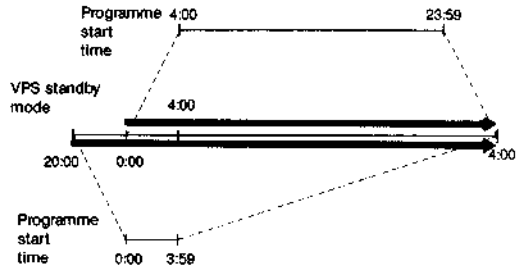
1 **Check whether VPS is transmitted with the programme to be recorded.**

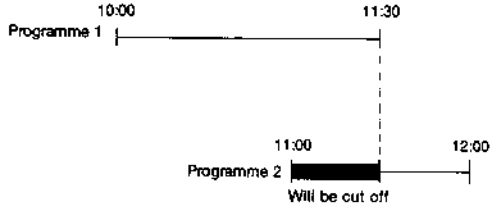
2 **Press VPS ON/OFF so that the VPS indicator lights in the display window.**

3 **Set the timer referring to "Timer Activated Recording — Operation."**

Notes
- The VPS button is effective only when the TIMER indicator is turned off.
- If the VPS signal was not received on the VTR because it was too weak or because the station failed to transmit, timer recording will be performed without the VPS function regardless of the VPS indication.
- The recording will stop when the VTR receives a VPS programme interruption code during recording, for example, when an urgent news bulletin was inserted. As soon as the interrupted programme resumes, recording will continue.

Timer Activated Recording





■VPS standby mode

The VTR will enter the standby mode for VPS recording far before the turn on time and remains in the standby mode passed the preset turn on time until the VPS signal is received to prepare for any change in the actual broadcast time.

When the VPS timer recording is set for a programme which is expected to start between 4:00 and 23:59, the VTR will enter the standby mode at 0:00 that day and will keep on waiting for the VPS signal until 4:00 of the next day.

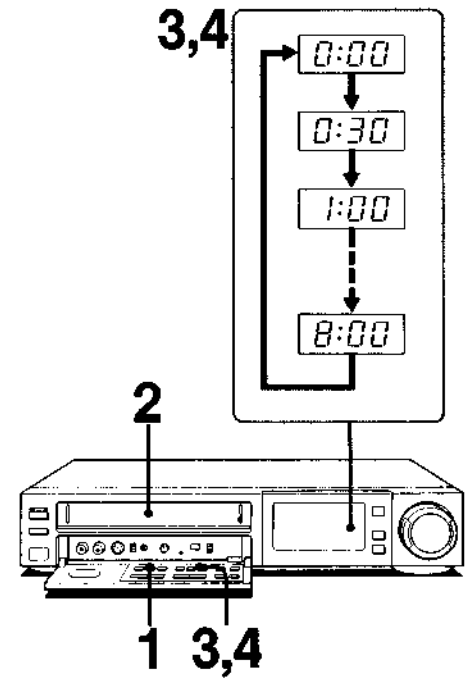
When the VPS timer recording is set for a programme which is expected to start between 0:00 and 3:59, the VTR will enter the standby mode at 20:00 the day before the recording day and will keep on waiting for the VPS signal until 4:00 on the recording day.

Note
When the VTR is in the VPS standby mode, programme position numbers set for timer recording appear in the display window sequentially by few seconds.

■If the actual recording time overlaps with the next timer recording programme

There may be cases when the actual broadcast time of two timer recording programmes overlap owing to the shift made by the VPS signal. In this case, the programme that was broadcast first always has priority. The recording of the second programme will begin only after the first programme is over.

Quick Timer Recording



What is Quick Timer Recording?

The quick timer recording function provides a short cut to enter the timer recording mode or to use the timer to turn off the VTR after recording is over. The timer can be set to operate within 8 hours in units of 30 minutes.

Operation

If you are recording, skip steps 1 to 3.

1 Press INPUT SELECT so that TUNER indicator is turned on.

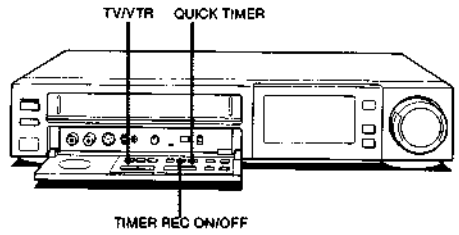
2 Insert a cassette.

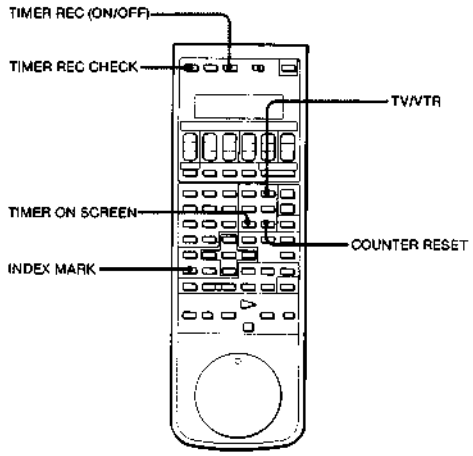
3 Press QUICK TIMER.
TIMER indicator lights in the display window. While 0:00 and programme position number is blinking in the display window, select the desired programme number with PROGRAM +/–.
A cassette with its safety tab removed will be ejected.

4 Press QUICK TIMER again to start recording.
Press QUICK TIMER again to set the recording duration within 30 seconds from step 3, otherwise the power will be turned off. Each press of QUICK TIMER changes the indication in the display window in units of 30 minutes

5 The recording duration will decrease minute by minute until 0:00 when the VTR will be automatically turned off.

Quick Timer Recording





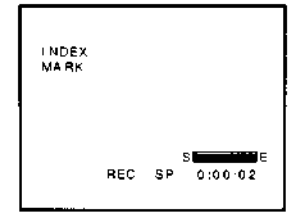
■ Buttons operable during quick timer recording

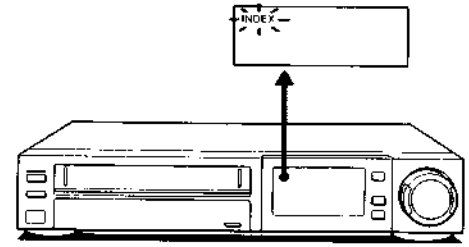
- **TIMER REC (ON/OFF)** stops quick timer recording.
- **QUICK TIMER** changes the recording duration.
- **TIMER ON SCREEN** displays the programme list.
- **TIMER REC CHECK** changes the programme number in the display window.
- **COUNTER RESET** resets the counter to zero.
- **INDEX MARK** marks an index signal.
- **TV/VTR** switches the screen to another programme received on the TV.

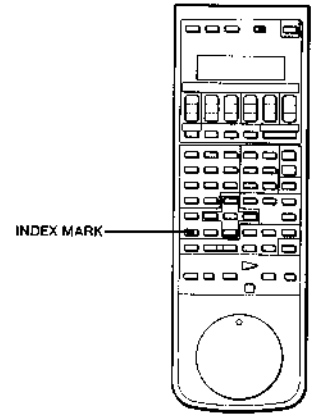
If power interruption occurs during quick timer recording
Recording will stop and the VTR will be turned off. If the power interruption lasted for less than one hour and if the power recovered within the quick timer duration, recording will resume from that instant.

If the unit is in timer recording standby mode
Press TIMER REC (ON/OFF) to turn off the indicator, then follow steps 4 and 5.

Index Function







Marking Index Signals

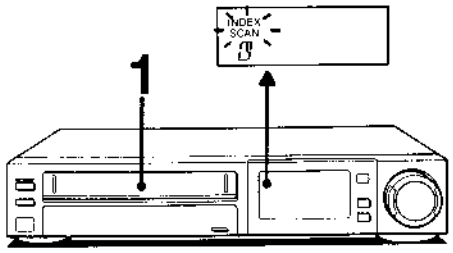
The desired position on a tape can be located easily by detecting the index signals. There are two ways in which to mark index signals: automatic and manual. When the index signal is being marked, INDEX flashes in the display window and the INDEX MARK display will appear on the screen.

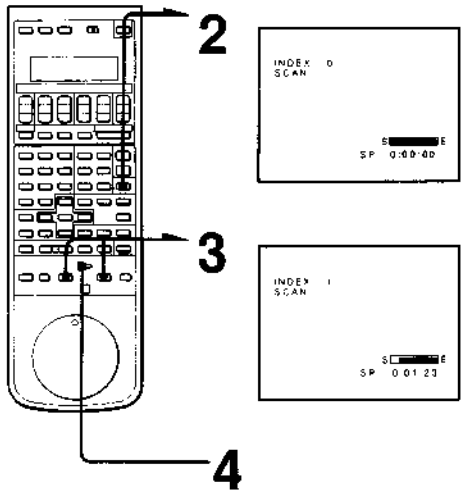
■ Automatic index mark
An index signal is automatically marked on the tape when the VTR starts recording.

■ Manual index mark
Index signals can be marked at desired scenes. Press INDEX MARK to mark an index.

Notes
- Leave an interval of more than 2-minute interval between two index points so that the VTR can detect each INDEX signal accurately.
- The recorded sound will not be heard while marking an index signal. But the signal will not be erased.
- Index signals cannot be marked on a tape whose safety tab is removed or on an unrecorded portion of the tape.

Index Function





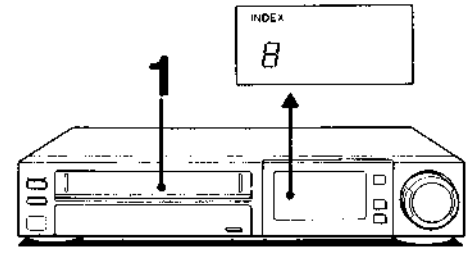
Playing Back from the Index Point — INDEX SCAN

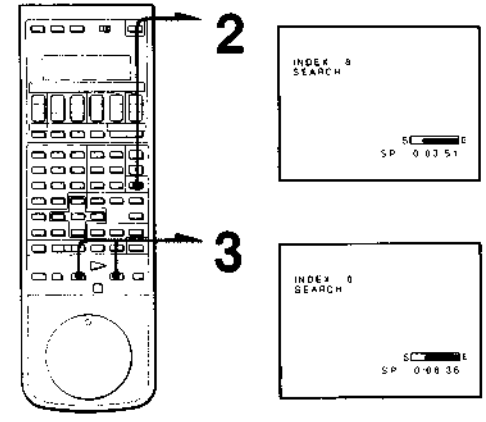
1 **Insert a cassette with index signals.**

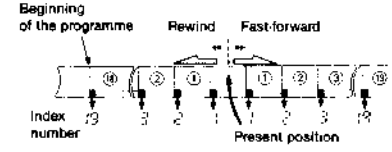
2 **Press INDEX once.**
INDEX or SCAN indicator blinks alternately and 0 (zero) lights in the display window.

3 **Press ◀◀ REW to playback from the previous programme.**
Press ▶▶ FF to playback from the programme ahead.
The VTR will advance to the previous or next index signal. Then the VTR will play the tape for approximately 10 seconds, and then move to the next index in the selected direction. The index number changes one by one.

4 **Press ▷ PLAY when the desired index signal is detected.**







Locating an Index — INDEX SEARCH

Direct search of the desired index point can be performed by entering the number of how many indexes ahead or behind it is from the current tape position. The VTR counts down how many more indexes should be searched for and displays the sequence in the display window. Up to 19 indexes from the present position can be searched.

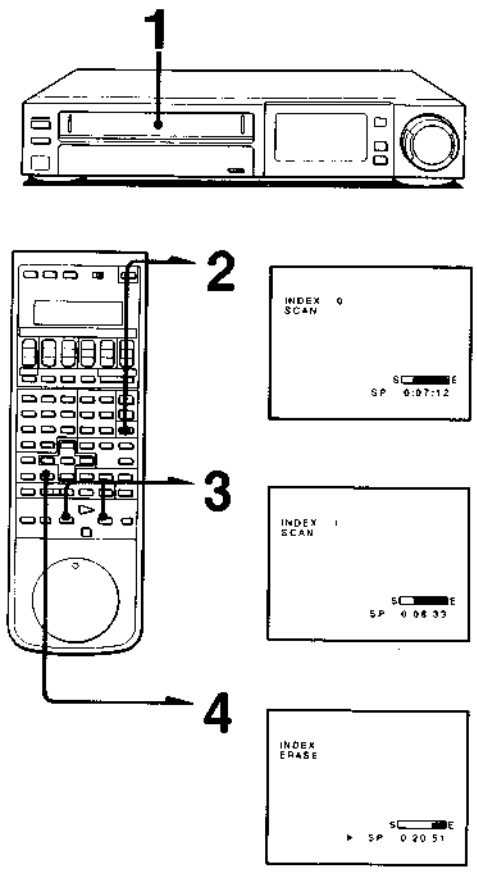
1 **Insert a cassette with index signals.**

2 **Press INDEX to show how many indexes should be counted to reach the desired scene.**

3 **Press ◀◀ REW if the index is behind or ▶▶ FF if the index is ahead of the current tape position.**
The VTR starts searching and the index number will be counted down to zero.

Playback from the desired point starts

Index Function



Erasing an Index

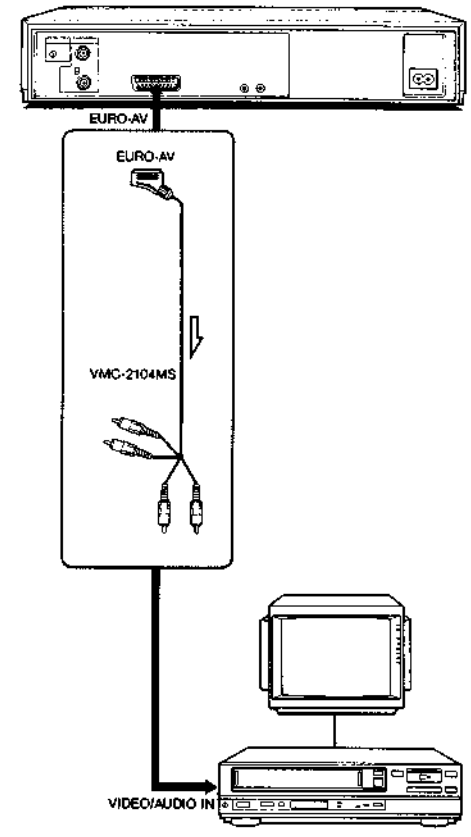
The index marked on the tape can be erased.

1 **Insert a cassette with index signals.**

2 **Press INDEX once.**

3 **Press ◀◀ REW or ▶▶ FF to search for the index signal.**
When the VTR detects an index signal, the VTR will play the tape for approximately 10 seconds from the index. If that is the index you want to erase, go to step 4. If that is not the index you want to erase, wait until the desired index is searched.

4 **Press INDEX ERASE while the VTR is in step 3.**
That index signal will be erased. While the index signal is being erased, the recorded sound will not be heard, but it will not be erased. If INDEX ERASE is not pressed within the 10 seconds of playback, the VTR will return to step 3.



Editing onto Another VTR

Using this VTR as a playback VTR and another VTR as a recording VTR

Before you begin

- Make connections as illustrated. If the other VTR is a stereo type, make connection with the VMC-2106S cable.
- Activate the EDIT function if the other VTR has it.

■Operation

1 Insert a cassette for recording into the recording VTR.

2 Turn on the power of this VTR and insert a source cassette.

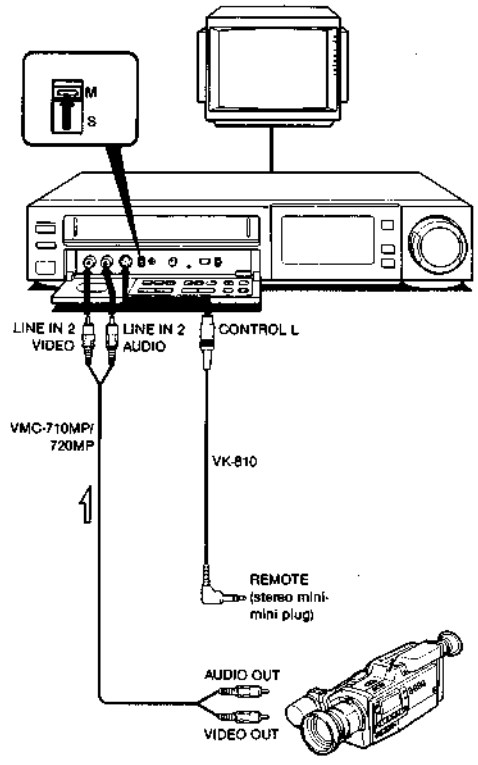
3 Search for the playback start point and set this VTR to the playback pause mode.

4 Search for the recording start point and set the recording VTR to the recording pause mode.

5 Press ■ PAUSE on both VTRs.

Notes
- The cables are not supplied.
- The ⇨ mark indicates the signal flow.

Synchronized Editing — Editing with a VTR Equiped with a Sony Control Terminal



Connecting a VTR equipped with a CONTROL L or REMOTE connector

Using this VTR as a recording VTR and another VTR as a playback VTR.

- If the REMOTE connector of the other VTR is a stereo mini-mini plug, use the VK-810 cable. If it is a 5-pin DIN connector, use the VK-800 cable instead of VK-810.
- If the other VTR is a stereo type, make connection with the VMC-2106S cable.
- Activate the EDIT function if the other VTR has it.
  (The EDIT function of this VTR is automatically activated when SYNCHRO EDIT on this unit is pressed.)

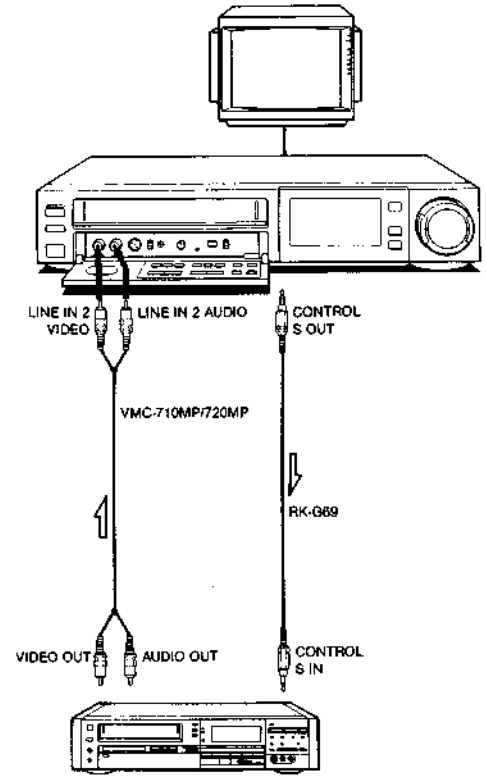
■To set LANC mode

When the other VTR is connected via the CONTROL L connector, you may select the LANC mode which determines if this VTR controls the other VTR via the CONTROL L connector or it is controlled by the other VTR. This is LANC mode. To perform synchronized editing using the SYNCHRO EDIT button on this VTR, set the LANC mode selector to M on the unit.

■Operation

See "Synchronized Editing from Another VTR" on page 65.

Notes
- The cables are not supplied.
- The ⇦ mark indicates the signal flow.



Connecting a VTR Equipped with a CONTROL S Input Jack

Using this VTR as a recording VTR and another VTR as a playback VTR.

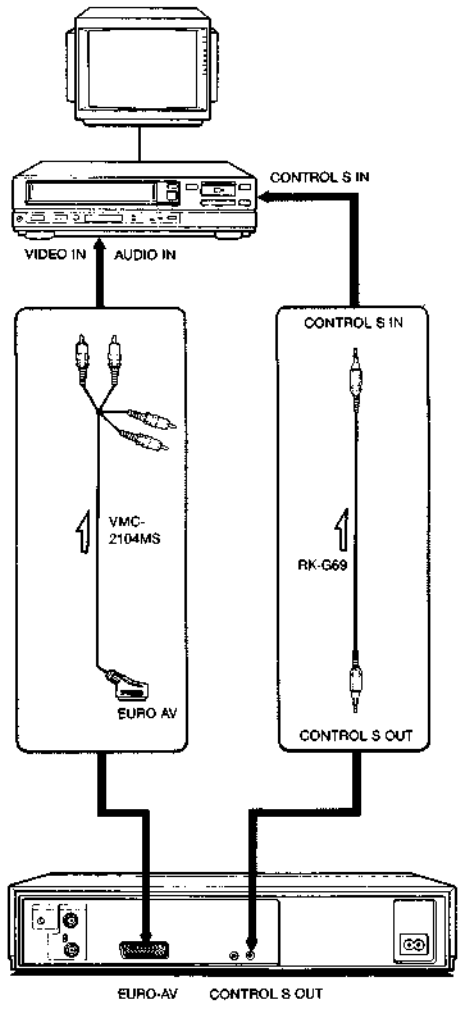
■Before you begin
- Make connections as illustrated. If the other VTR is a stereo type, make connections with the VMC-910MSP/ 920MSP cable.
- Press INPUT SELECT on this VTR to indicate LINE L2.
- Activate the EDIT function if the other VTR has it.
  (The EDIT function of this VTR is automatically activated when SYNCHRO EDIT on this unit is pressed.)
- Select the recording mode, SP or LP.

■Operation

See "Synchronized Editing from Another VTR" on page 65.

Notes
- The cables are not supplied.
- The ⇦ mark indicates the signal flow.

Synchronized Editing — Editing with a VTR Equipped with a Sony Control Terminal



Connecting a VTR Equipped with a Control S Input Jack

Using this VTR as a playback VTR and another VTR as a recording VTR.

■Before you begin

- Make connections as illustrated. If the other VTR is a stereo type, make connection with the VMC-2106S cable.
- Activate the EDIT function if the other VTR has it.

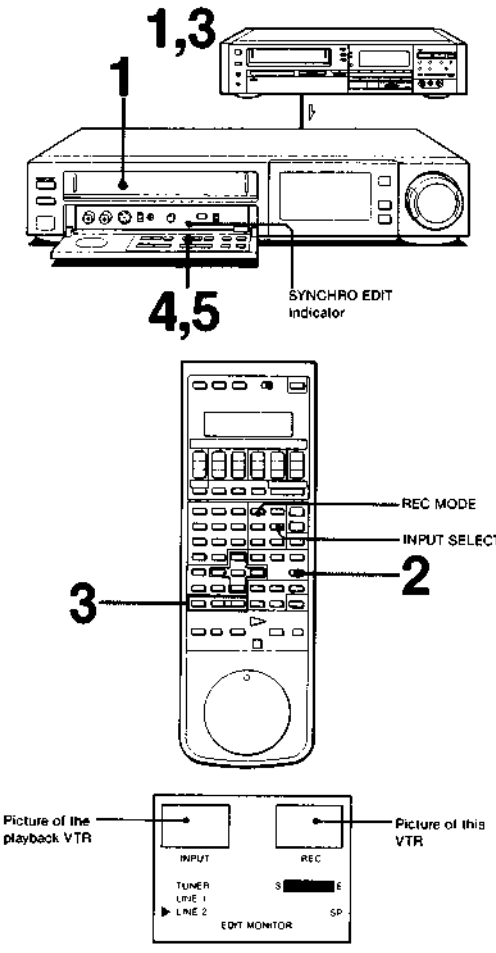
■Operation

See "Synchronized Editing onto Another VTR" on page 66.

Notes

- The cables are not supplied.
- The ⇨ mark indicates the signal flow.

Synchronized Editing — Operation



Synchronized Editing from Another VTR

Using this VTR as a recording VTR and another VTR as a playback VTR.

For connections, see page 62 or 63. The CONTROL L or CONTROL S connection is necessary.

■Before you begin

- Press INPUT SELECT on the Commander to indicate LINE L2.
- Activate the EDIT function if the other VTR has it.
- Select the recording mode, SP or LP.

■Operation

1 **Insert a source tape into the playback VTR. Insert a tape for recording into this VTR.**

2 **Press EDIT MONITOR.**

3 **Search for the playback start point and set the playback VTR to the playback pause mode. Search for the edit start point and set this VTR to the recording pause mode.**

4 **Press SYNCHRO EDIT on this VTR.**
Recording and playback on both VTRs will start.
(The EDIT function will be activated automatically.)

5 **Press SYNCHRO EDIT again.**
Both VTRs will enter the pause mode.

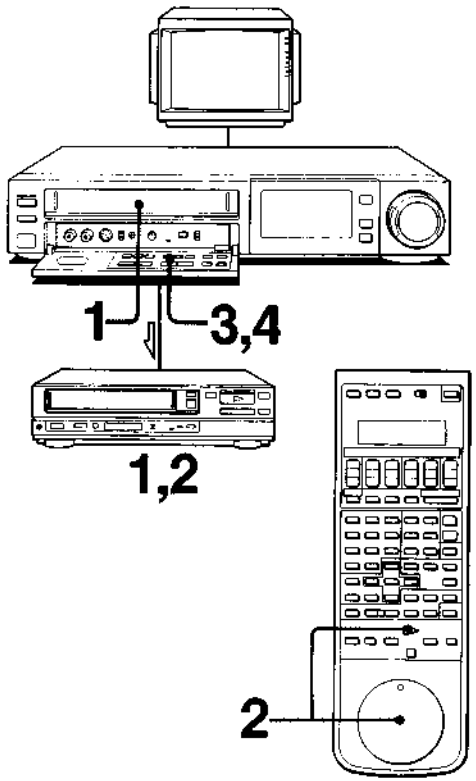
6 **To edit more scenes, repeat steps 3 to 5.**

To stop editing, press ■ STOP on both VTRs.

Notes

- When this unit is used as the recording VTR and the SYNCHRO EDIT indicator lights, if the variable speed picture such as the slow speed or double speed picture is played back on the playback VTR, the variable speed picture will be recorded.
- For considering of the rise time of the playback VTR, the recording will start approximately 1 second after the playback pause mode is released.

Synchronized Editing — Operation



Synchronized Editing onto Another VTR

Using this VTR as a playback VTR and another VTR as a recording VTR.
For connections, see page 64. CONTROL L or CONTROL S connection is necessary.

■Operation

1 **Insert a source tape into this VTR. Insert a tape for recording into the recording VTR.**

2 **Search for the playback start point and set this VTR to the playback pause mode. Search for the edit start point and set the recording VTR to the recording pause mode.**

3 **Press SYNCHRO EDIT on this VTR.**
Recording and playback on both VTRs will start.
(The EDIT function will be activated automatically.)

4 **Press SYNCHRO EDIT again.**
Both VTRs will enter the pause mode.

5 **To edit more scenes, repeat steps 2 to 4.**

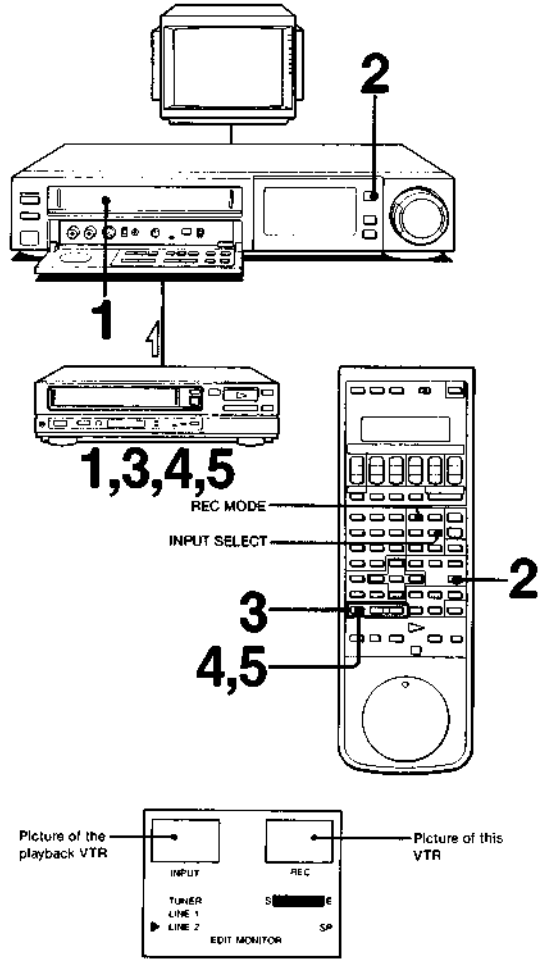
To stop editing, press ■ STOP on both VTRs.

Note
Do not operate the buttons on the VTRs or Commander during editing. Doing so may cause a malfunction.

About the EDIT mode
When SYNCHRO EDIT on this unit is pressed, this VTR is automatically set to the EDIT mode. This enables recording and playback of higher quality pictures during editing.

When using the synchronized editing function of another Sony VTR
When the VTRs are connected via the CONTROL S jacks, set COMMAND MODE of this unit to VTR 1 or VTR 2. With VTR 3 setting, this VTR may not be operated.

Manual Editing — Editing with a VTR not Equipped with a Sony Control Terminal



Using this VTR as a recording VTR and another VTR as a playback VTR.

For connections, see page 60. The CONTROL L or CONTROL S connection is not necessary.

■Before you begin
- Press INPUT SELECT on the Commander to indicate LINE L2.
- Activate the EDIT function if the other VTR has it.
- Select the recording mode, SP or LP.

■Operation

1 **Insert a source tape into the playback VTR. Insert a tape for recording into this VTR.**

2 **Press EDIT MONITOR.**

3 **Search for the playback start point and set the playback VTR to the playback pause mode. Search for the edit start point and set this VTR to the recording pause mode.**

4 **To start editing, press ⏯ PAUSE on both VTRs.**

5 **To stop editing, press ⏯ PAUSE on both VTRs.**

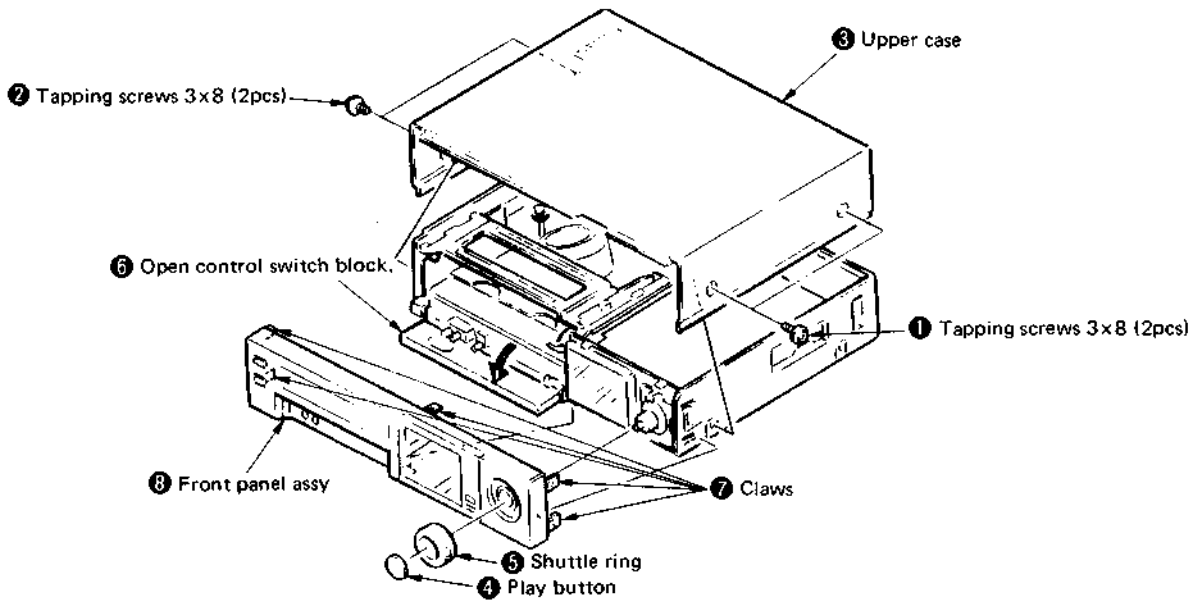
6 **To edit more scenes, repeat steps 3 to 5.**

To stop editing, press ■ STOP on both VTRs.

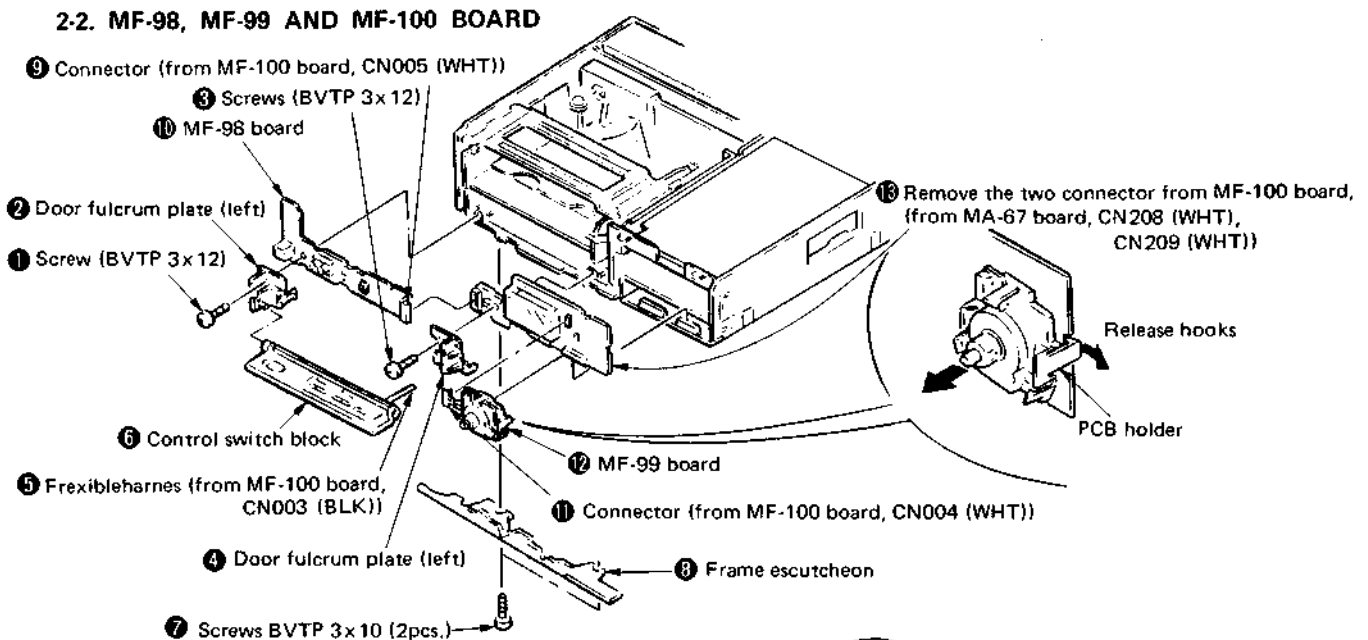
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

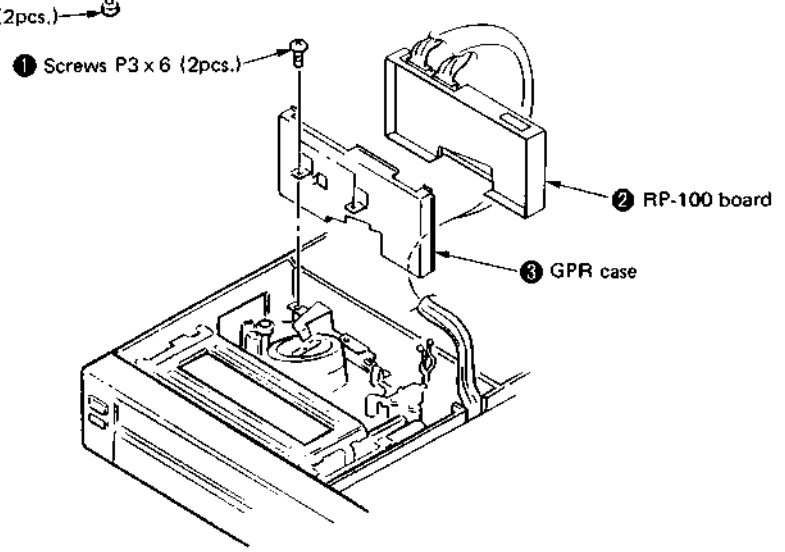
2-1. UPPER CASE, FRONT PANEL ASSY



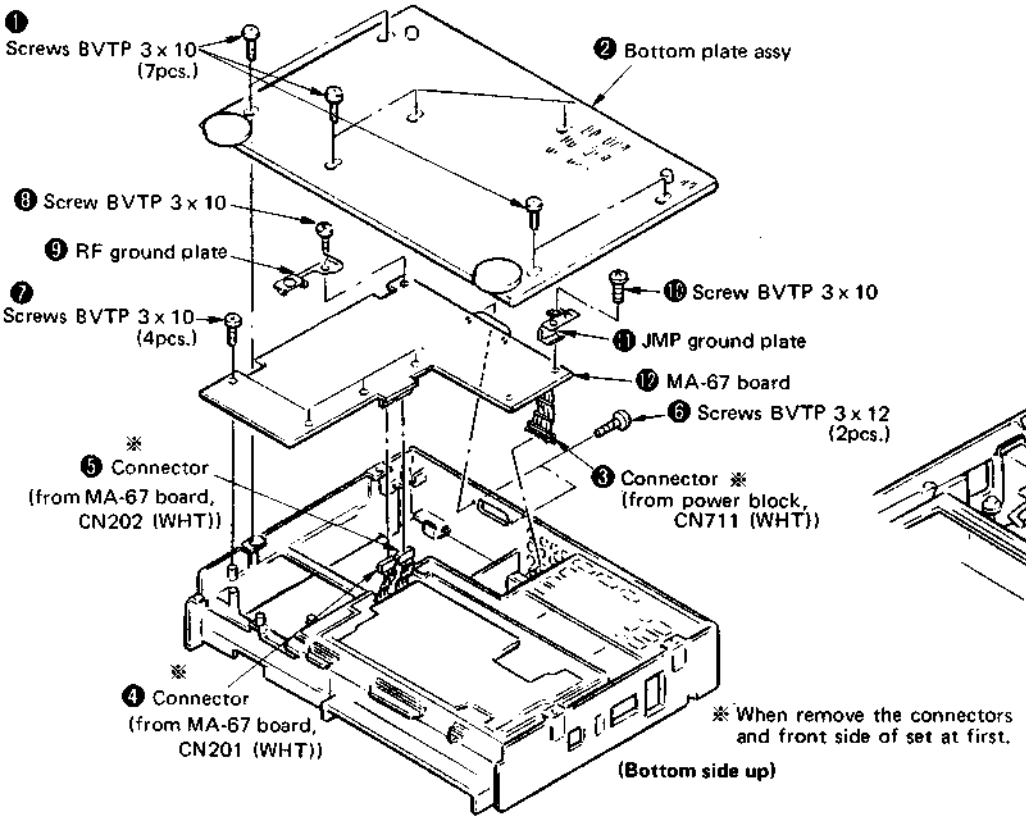
2-2. MF-98, MF-99 AND MF-100 BOARD



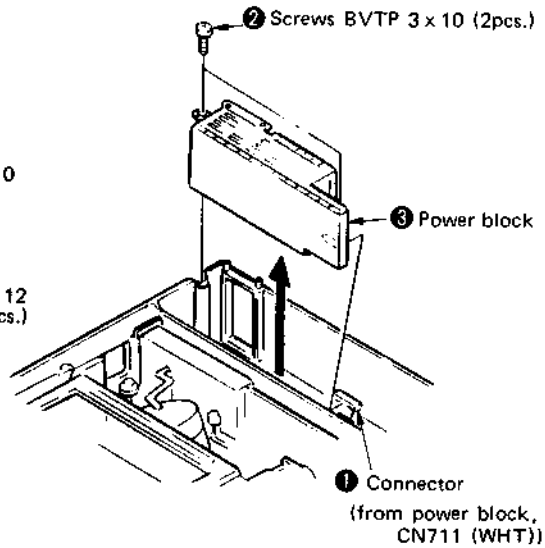
2-3. RP-100 BOARD



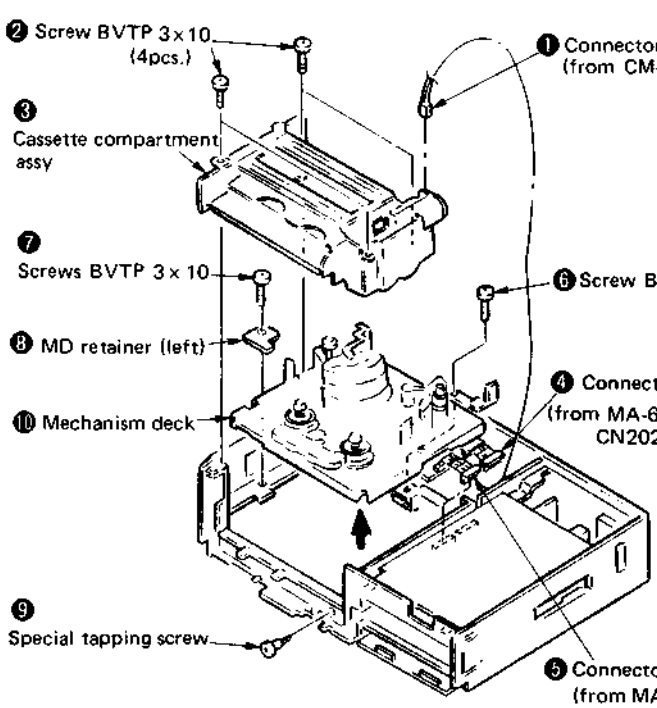
2-4. POWER BLOCK



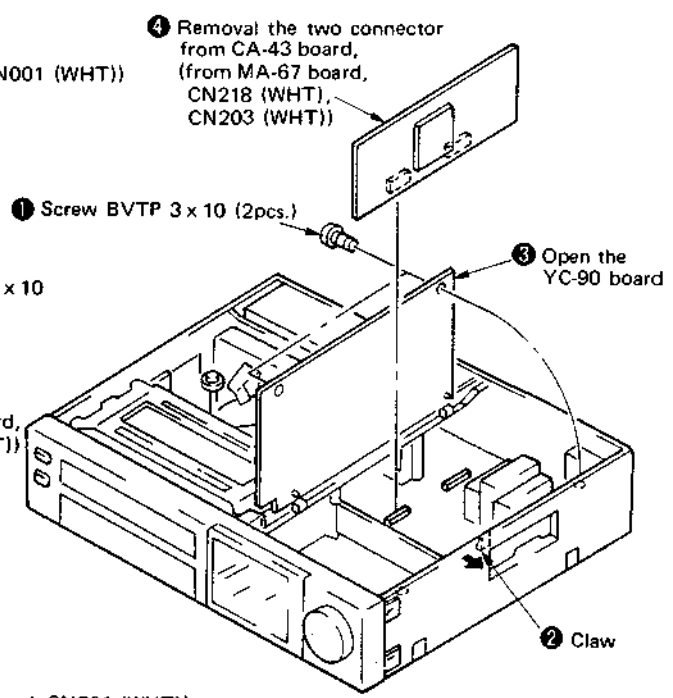
2-5. 2-5. BOTTOM PLATE, MA-67 BOARD



2-6. CASSETTE COMPARTMENT ASSY AND MECHANISM DECK ASSY

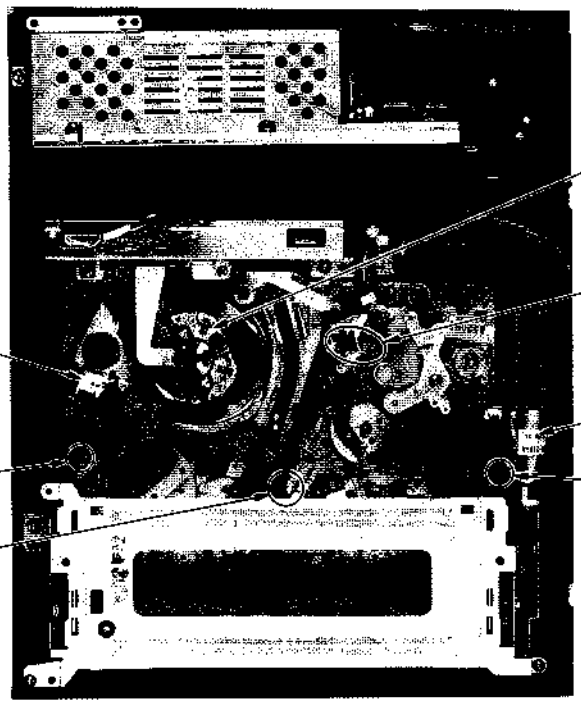


2-7. YC-90 AND CA-43 BOARD

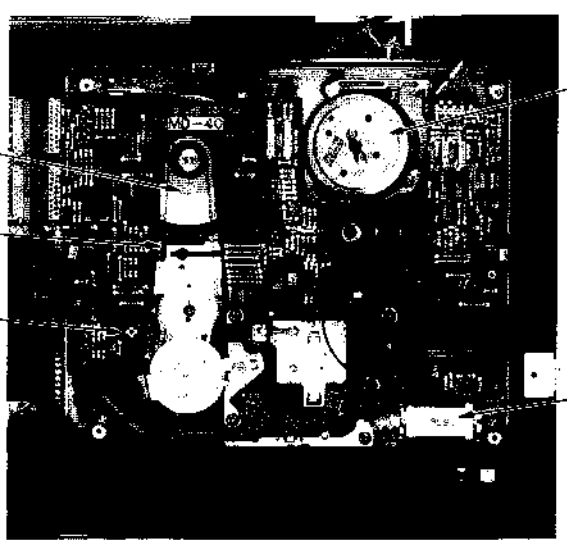


2-8. INTERNAL VIEWS

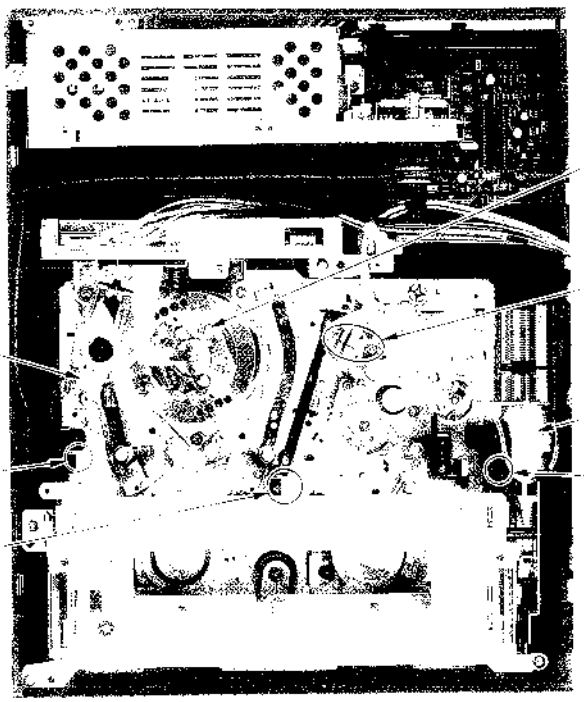
– Top Side –

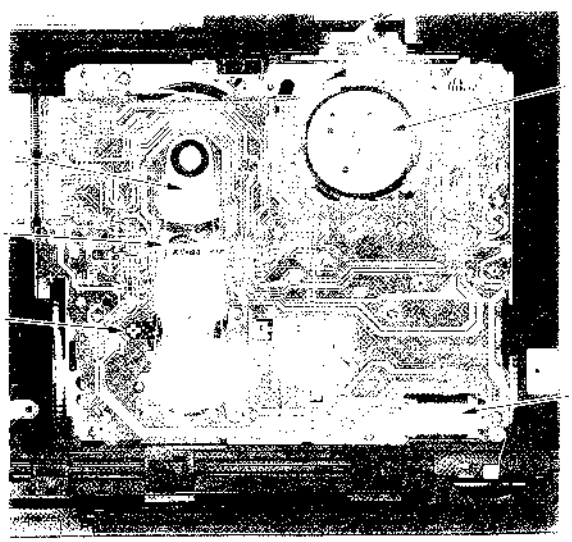


– Bottom Side –



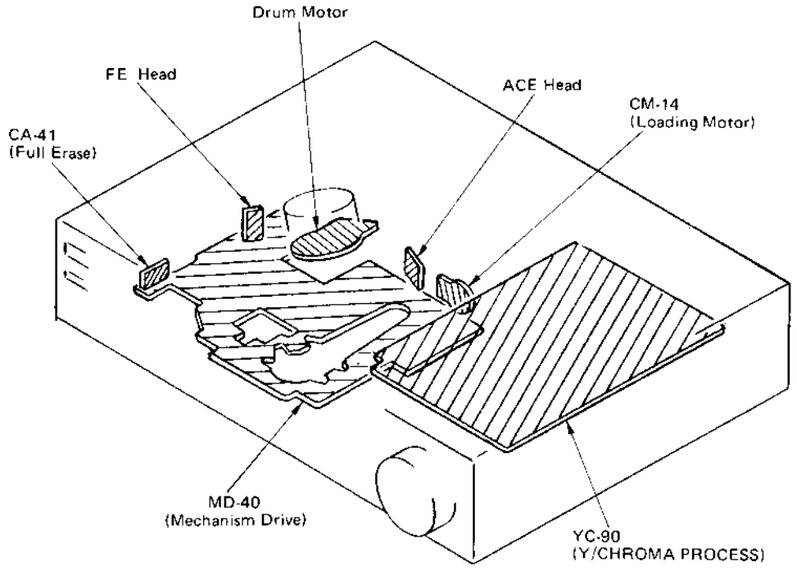
2-8. INTERNAL VIEWS

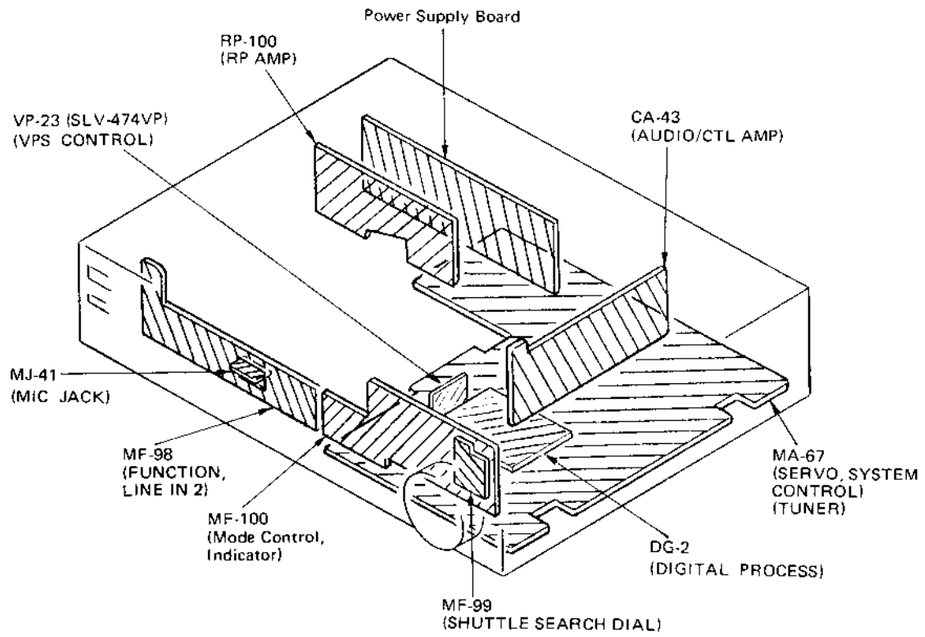




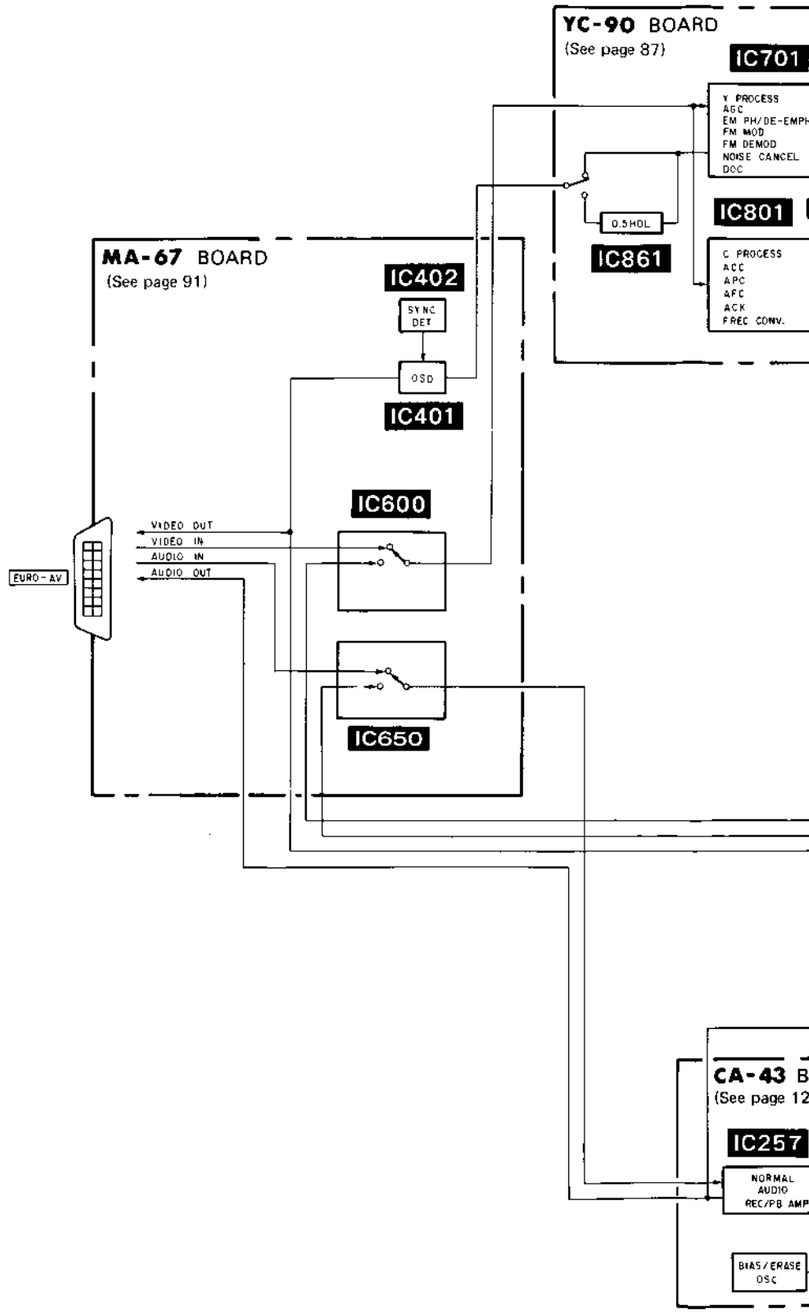
SECTION 3
DIAGRAMS

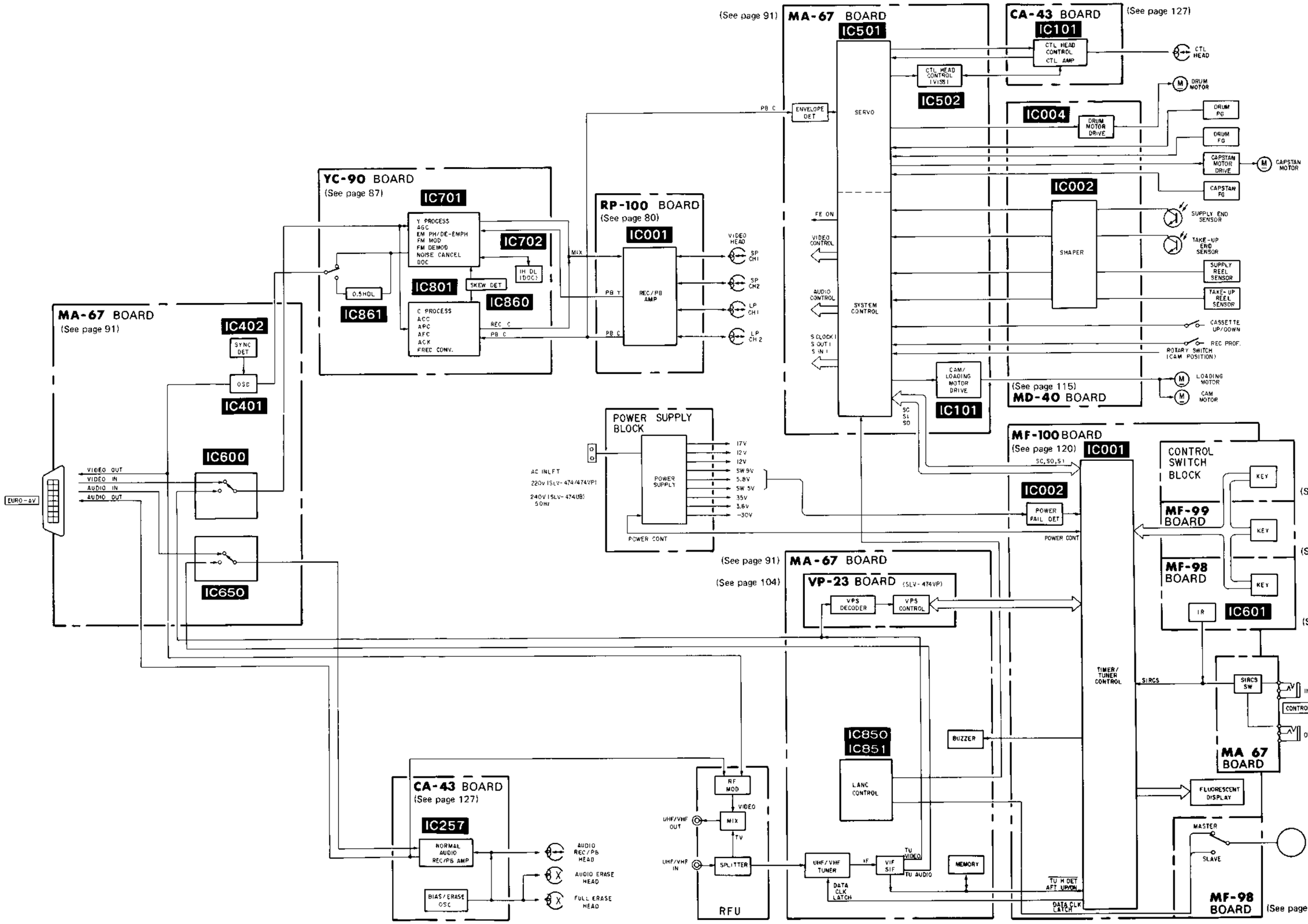
3-1. CIRCUIT BOARDS LOCATION

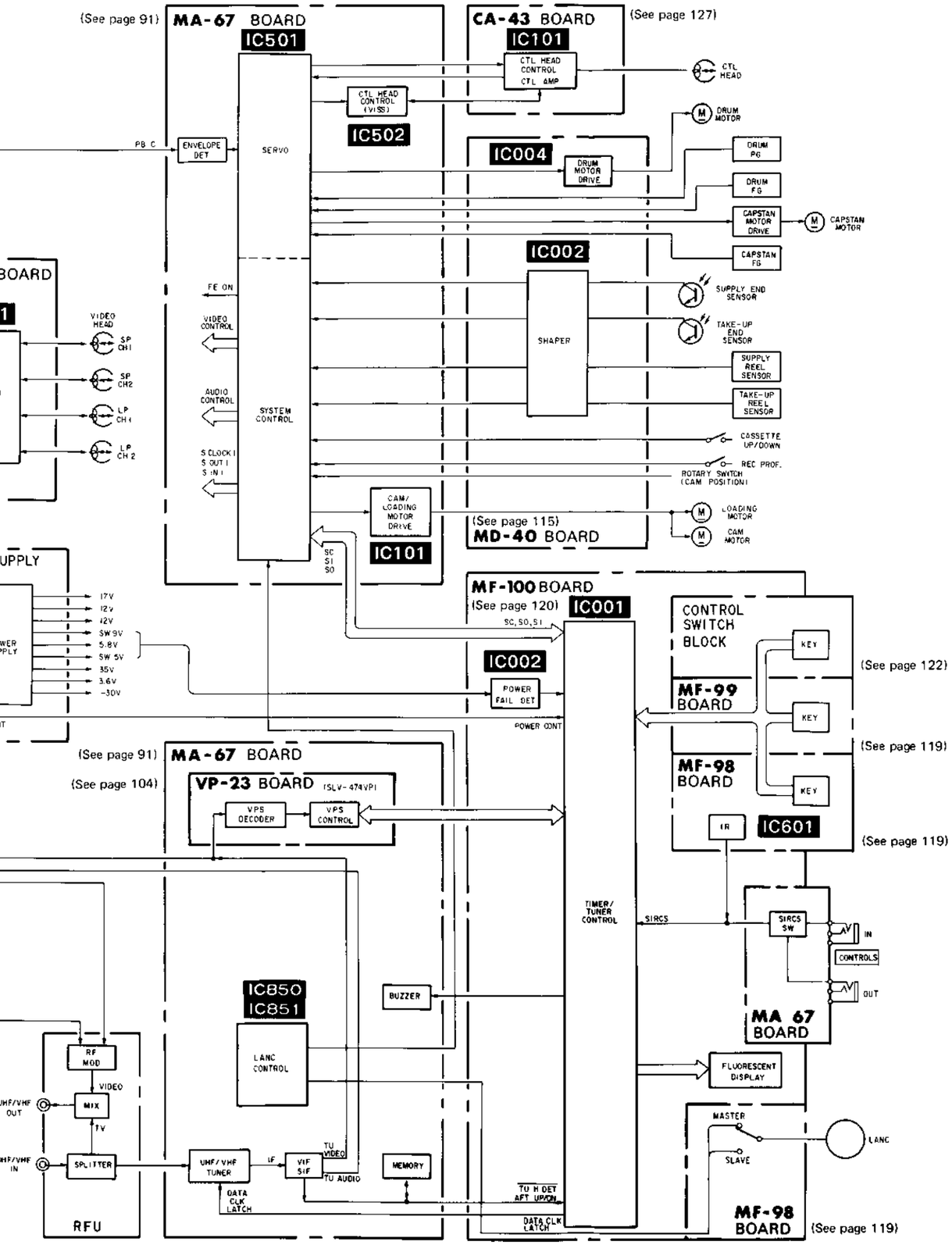




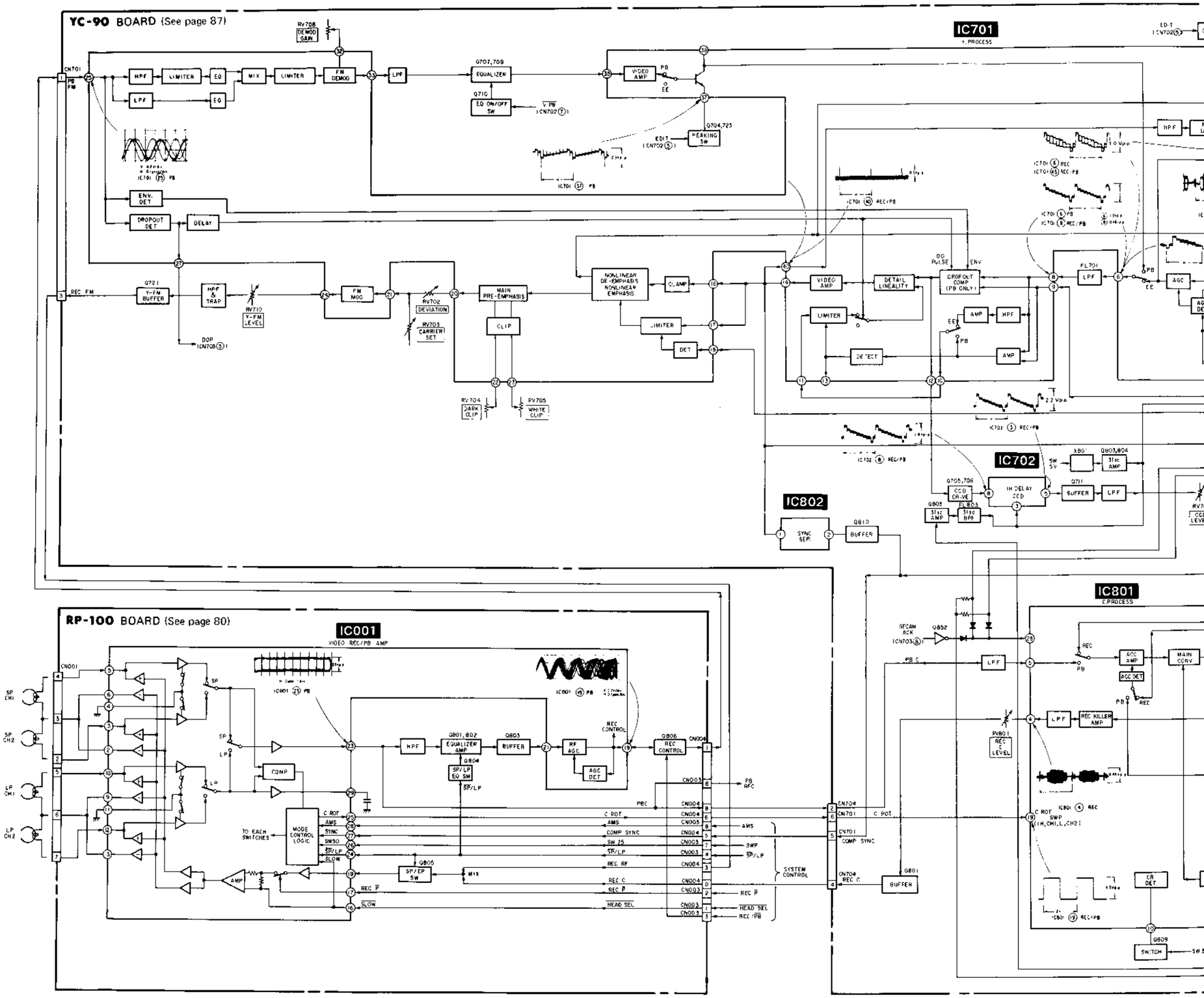
3-2. OVER ALL BLOCK DIAGRAM

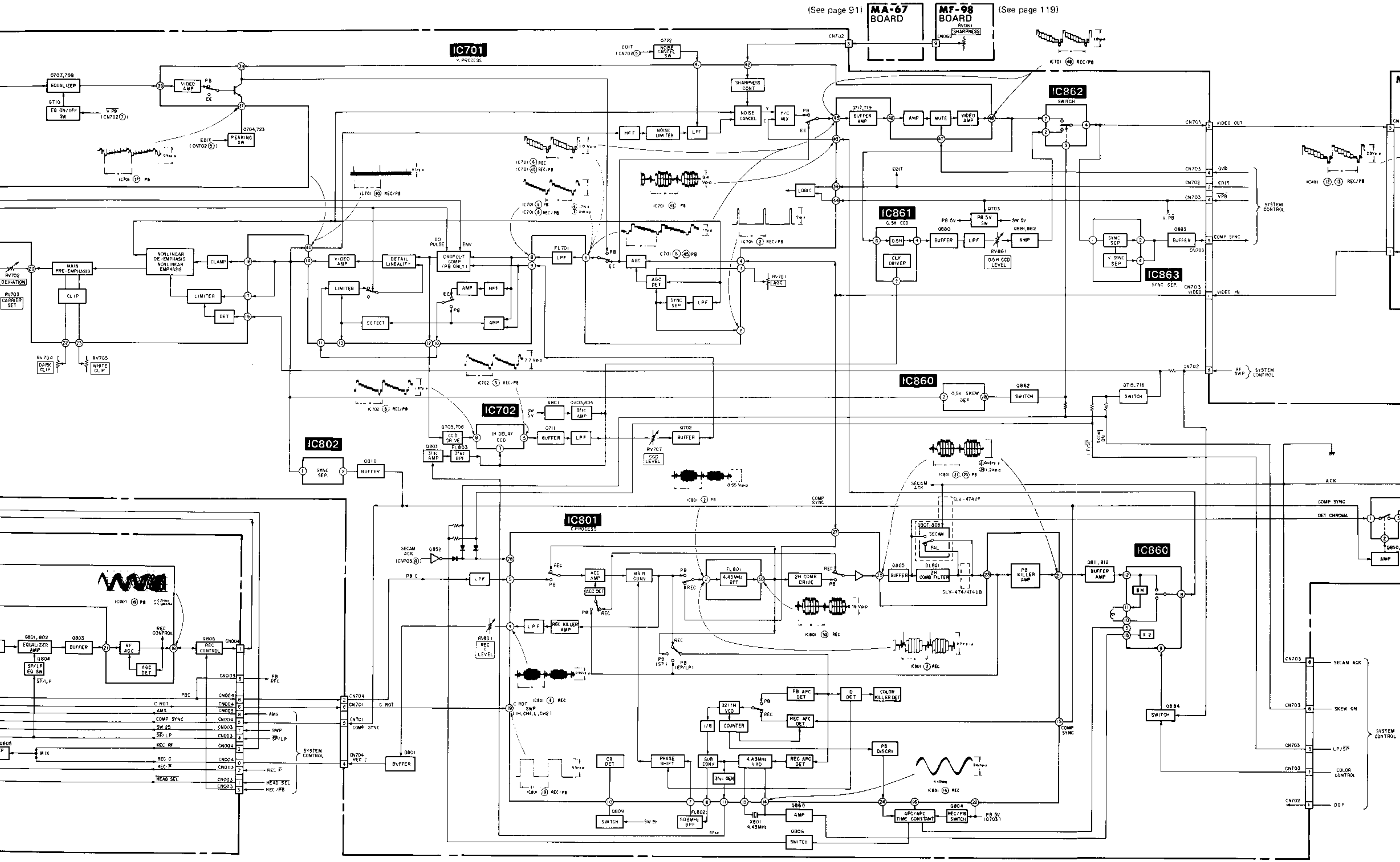


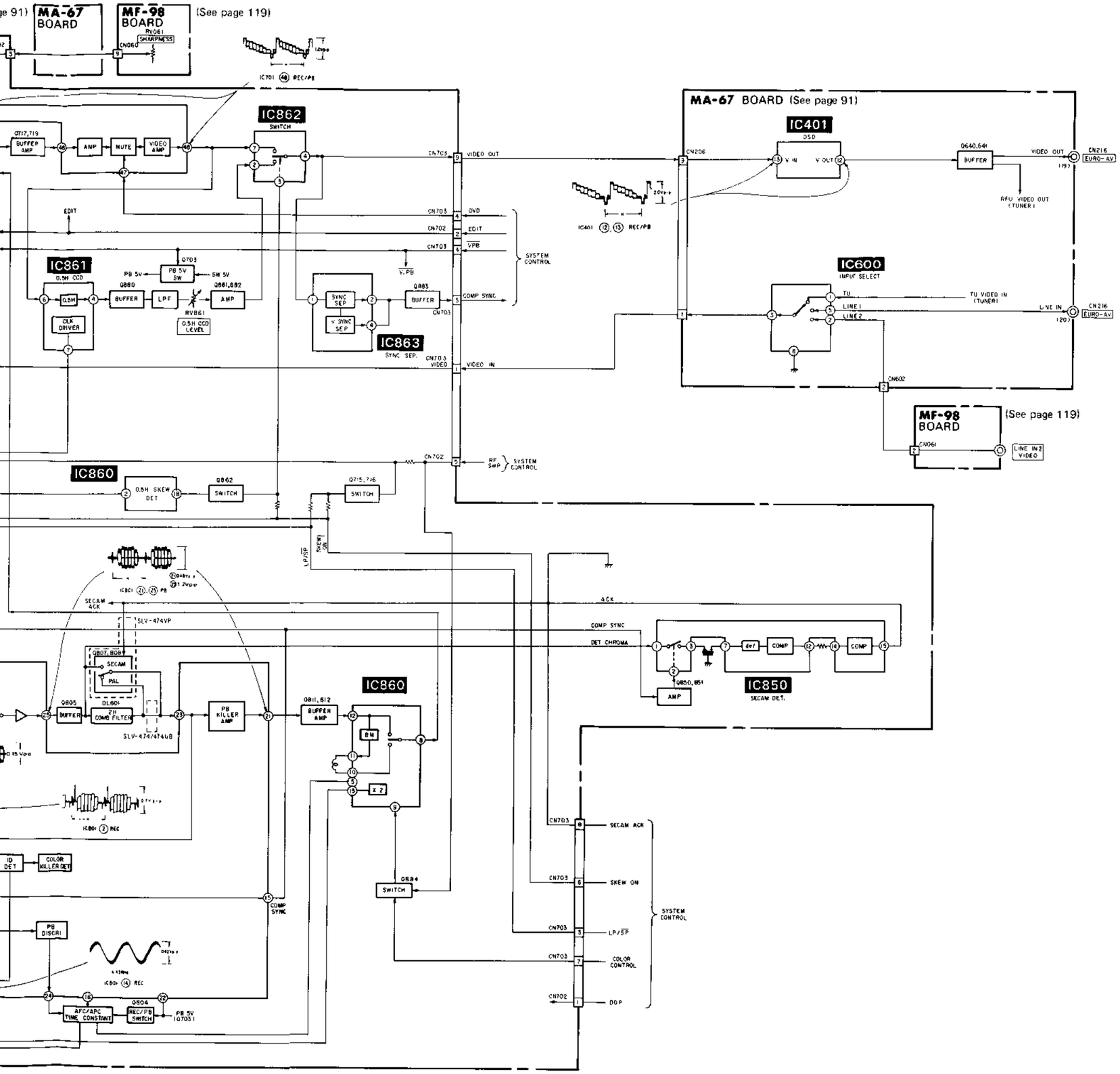

(See page 91)
MA-67 BOARD
IC501
SERVO
SYSTEM CONTROL
CA-43 BOARD
IC101
(See page 127)
CTL HEAD CONTROL CTL AMP
CTL HEAD
DRUM MOTOR
IC004
DRUM MOTOR DRIVE
DRUM PG
DRUM FG
CAPSTAN MOTOR DRIVE
CAPSTAN MOTOR
CAPSTAN FG
IC002
SHAPER
SUPPLY END SENSOR
TAKE-UP END SENSOR
SUPPLY REEL SENSOR
TAKE-UP REEL SENSOR
CASSETTE UP/DOWN
REC PROF.
ROTARY SWITCH (CAM POSITION)
CAM/ LOADING MOTOR DRIVE
LOADING MOTOR
CAM MOTOR
IC101
(See page 115)
MD-40 BOARD
ENVELOPE DET
PB C
FE ON
VIDEO CONTROL
AUDIO CONTROL
S CLOCK
S OUT
S IN
SC
S1
S0
YC-90 BOARD
(See page 87)
IC701
Y PROCESS
AGC
EM PH/DE-EMPH
FM MOD
FM DEMOD
NOISE CANCEL
DOC
IC702
1H DL (DOC)
IC801
SKEW DET
IC860
0.5HDL
IC861
C PROCESS
ACC
APC
AFC
ACK
FREQ CONV.
REC C
PB C
MIX
RP-100 BOARD
(See page 80)
IC001
REC/PB AMP
PB Y
PB C
VIDEO HEAD
SP CH1
SP CH2
LP CH1
LP CH2
MA-67 BOARD
(See page 91)
IC402
SYNC DET
OSC
IC401
IC600
IC650
EURO-AV
VIDEO OUT
VIDEO IN
AUDIO IN
AUDIO OUT
POWER SUPPLY BLOCK
AC IN LET
220V (SLV-474/474VP)
240V (SLV-474UB)
50Hz
POWER SUPPLY
17V
12V
12V
SW 9V
5.8V
SW 5V
35V
3.6V
-30V
POWER CONT
MF-100 BOARD
(See page 120)
IC001
SC, SO, S1
IC002
POWER FAIL DET
POWER CONT
CONTROL SWITCH BLOCK
KEY
MF-99 BOARD
KEY
MF-98 BOARD
KEY
IR
IC601
(See page 91)
(See page 104)
MA-67 BOARD
VP-23 BOARD (SLV-474VP)
VPS DECODER
VPS CONTROL
TIMER/ TUNER CONTROL
SIRCS
SIRCS SW
IN
CONTROLS
OUT
MA 67 BOARD
FLUORESCENT DISPLAY
MASTER
SLAVE
LANC
MF-98 BOARD
(See page 119)
BUZZER
IC850
IC851
LANC CONTROL
MEMORY
TU VIDEO
TU AUDIO
TU H DET
AFT UP/DN
DATA CLK LATCH
CA-43 BOARD
(See page 127)
IC257
NORMAL AUDIO REC/PB AMP
BIAS/ERASE OSC
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
RFU
RF MOD
VIDEO
MIX
TV
UHF/VHF OUT
UHF/VHF IN
SPLITTER
UHF/VHF TUNER
IF
VIF SIF
DATA CLK LATCH


(See page 91)
MA-67 BOARD
IC501
CA-43 BOARD
IC101
(See page 127)
CTL HEAD CONTROL CTL AMP
CTL HEAD
CTL HEAD CONTROL (VISS)
IC502
DRUM MOTOR
PB C
ENVELOPE DET
SERVO
IC004
DRUM MOTOR DRIVE
DRUM PG
DRUM FG
CAPSTAN MOTOR DRIVE
CAPSTAN MOTOR
CAPSTAN FG
IC002
FE ON
VIDEO CONTROL
SHAPER
SUPPLY END SENSOR
TAKE-UP END SENSOR
SUPPLY REEL SENSOR
TAKE-UP REEL SENSOR
AUDIO CONTROL
SYSTEM CONTROL
CASSETTE UP/DOWN
REC PROF.
ROTARY SWITCH (CAM POSITION)
S CLOCK
S OUT
S IN
CAM/ LOADING MOTOR DRIVE
LOADING MOTOR
CAM MOTOR
(See page 115)
MD-40 BOARD
IC101
SC
SI
SO
VIDEO HEAD
SP CH1
SP CH2
LP CH1
LP CH2
BOARD
1
UPPLY
17V
12V
12V
SW 9V
5.8V
SW 5V
35V
3.6V
-30V
WER PPLY
T
MF-100 BOARD
(See page 120)
IC001
SC, SO, SI
IC002
POWER FAIL DET
POWER CONT
CONTROL SWITCH BLOCK
KEY
(See page 122)
MF-99 BOARD
KEY
(See page 119)
MF-98 BOARD
KEY
IR
IC601
(See page 119)
(See page 91)
MA-67 BOARD
(See page 104)
VP-23 BOARD (SLV-474VP)
VPS DECODER
VPS CONTROL
TIMER/ TUNER CONTROL
SIRCS
SIRCS SW
IN
CONTROLS
OUT
MA 67 BOARD
IC850
IC851
BUZZER
LANC CONTROL
FLUORESCENT DISPLAY
RF MOD
VIDEO
MIX
TV
UHF/VHF OUT
UHF/VHF IN
SPLITTER
UHF/VHF TUNER
IF
VIF SIF
TU VIDEO
TU AUDIO
MEMORY
DATA CLK LATCH
TU H DET
AFT UP/DN
DATA CLK LATCH
MASTER
SLAVE
LANC
MF-98 BOARD
(See page 119)
RFU

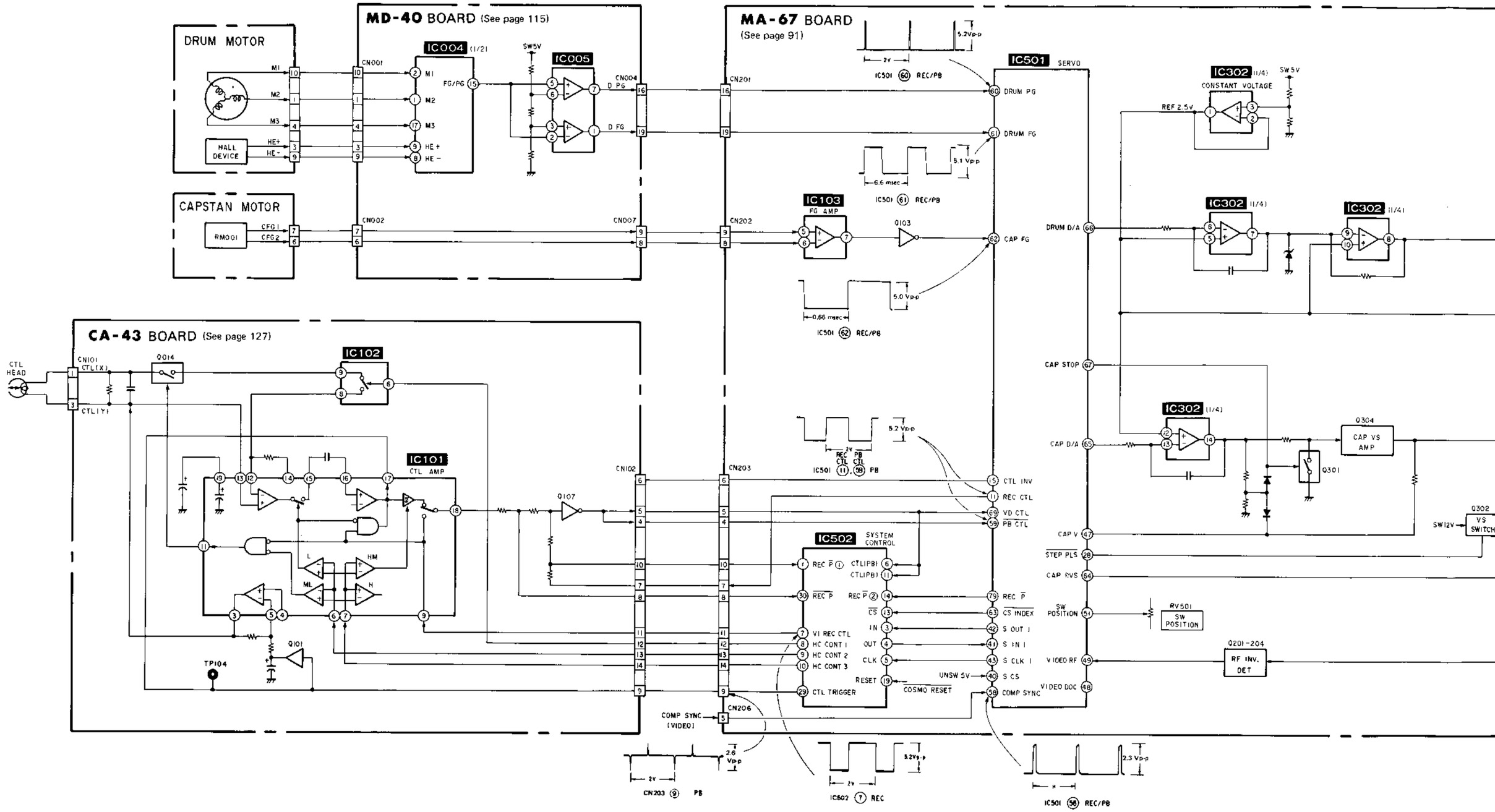
3-3. VIDEO BLOCK DIAGRAM

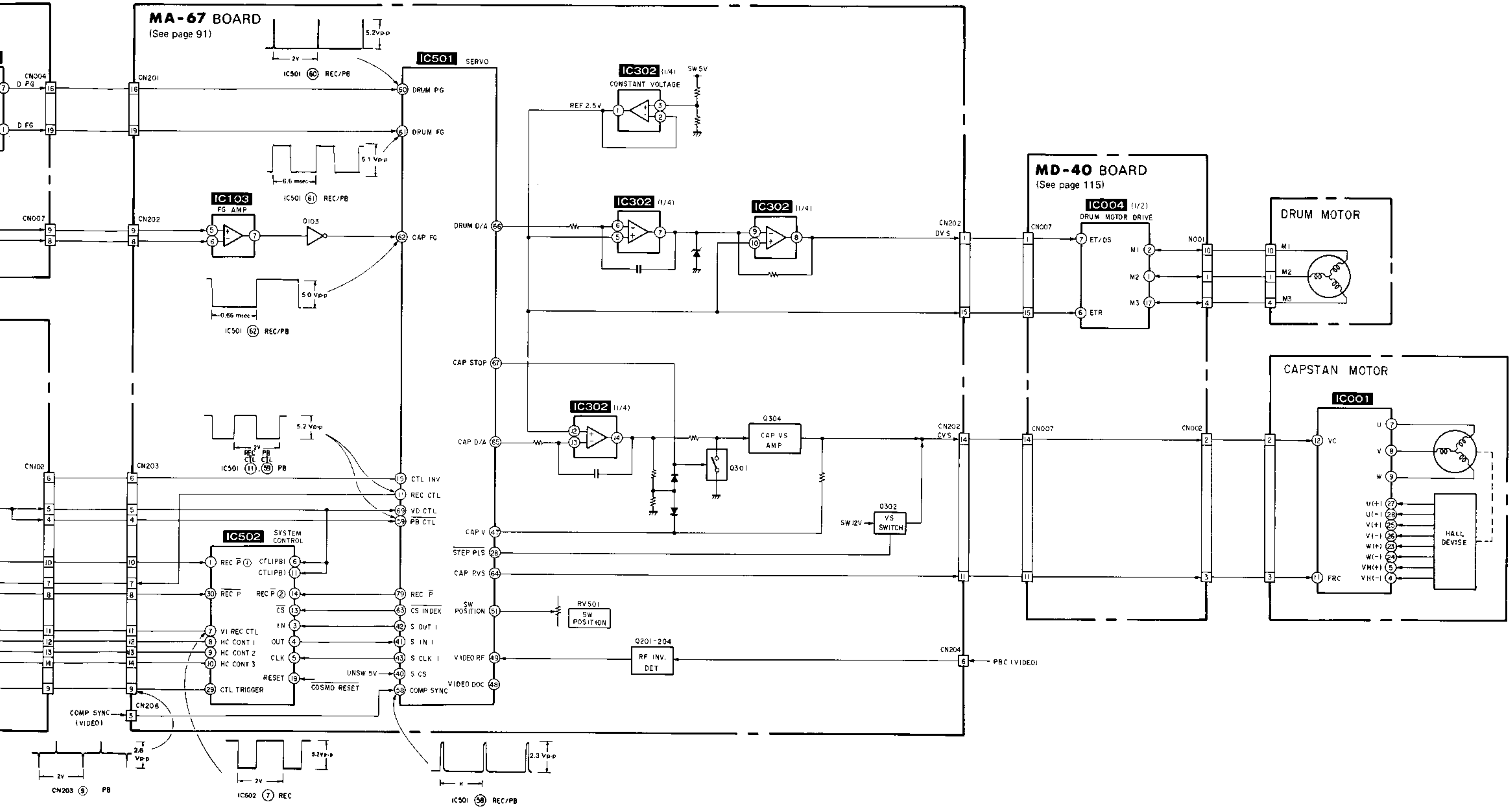



(See page 91)
MA-67 BOARD
MF-98 BOARD
(See page 119)
IC701
V. PROCESS
IC862
SWITCH
IC861
IC863
SYNC SEP.
IC860
IC702
IC802
IC801
C PROCESS
IC860
SYSTEM CONTROL

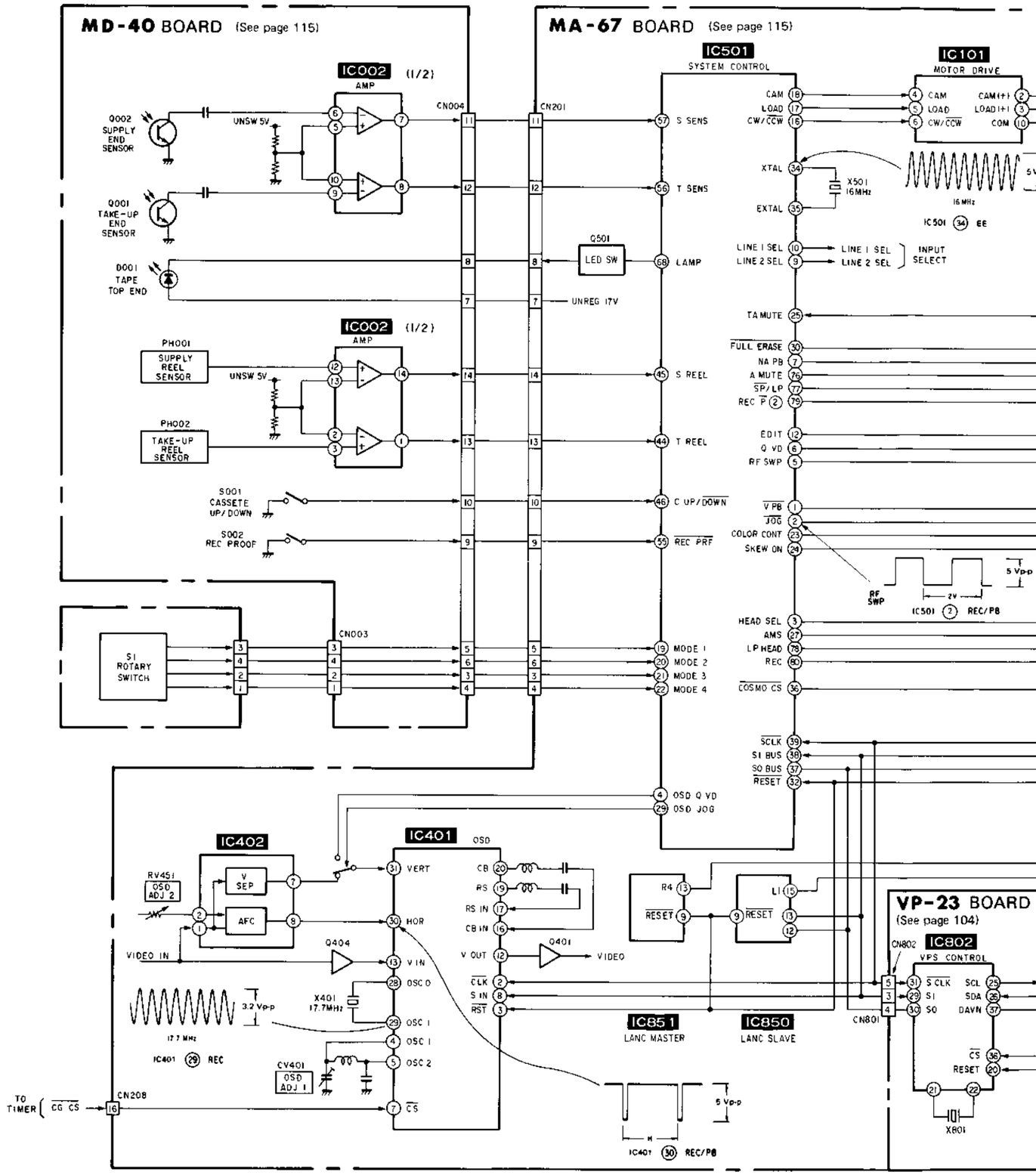

(See page 119)
MA-67 BOARD
MF-98 BOARD
RV061
SHARPNESS
CN060
IC701 (48) REC/PB
IC862
SWITCH
Q717,719
BUFFER AMP
AMP
MUTE
VIDEO AMP
EDIT
IC861
0.5H CCD
CLK DRIVER
Q880
BUFFER
LPF
Q881,882
AMP
RV861
0.5H CCD LEVEL
Q703
PB 5V
SW 5V
PB 5V SW
SYNC SEP
V SYNC SEP
Q883
BUFFER
IC863
SYNC SEP.
CN703
VIDEO OUT
GND
EDIT
VPB
V.PB
SYSTEM CONTROL
COMP SYNC
VIDEO IN
CN702
RF SWP
IC860
0.5H SKEW DET
Q862
SWITCH
Q715,716
SWITCH
LP/SP
SKEW ON
IC801 (21),(25) PB
SECAM ACK
SLV-474VP
Q807,808
SECAM
PAL
DL801
Q805
BUFFER
PB KILLER AMP
SLV-474/474UB
Q811,812
BUFFER AMP
BM
X 2
IC801 (7) REC
ID DET
COLOR KILLER DET
COMP SYNC
Q884
SWITCH
PB DISCRI
IC801 (14) REC
AFC/APC TIME CONSTANT
Q804
REC/PB SWITCH
PB 5V (Q703)
ACK
COMP SYNC
DET CHROMA
def
COMP
Q850,851
AMP
IC850
SECAM DET.
SECAM ACK
SKEW ON
LP/SP
COLOR CONTROL
DOP
MA-67 BOARD (See page 91)
IC401
DSD
CN206
V IN
V OUT
Q640,641
BUFFER
VIDEO OUT
CN216
EURO-AV
RFU VIDEO OUT (TUNER)
IC401 (12),(13) REC/PB
IC600
INPUT SELECT
TU
LINE1
LINE2
TU VIDEO IN (TUNER)
LINE IN
CN602
MF-98 BOARD
CN061
LINE IN2 VIDEO

3-4. SERVO BLOCK DIAGRAM

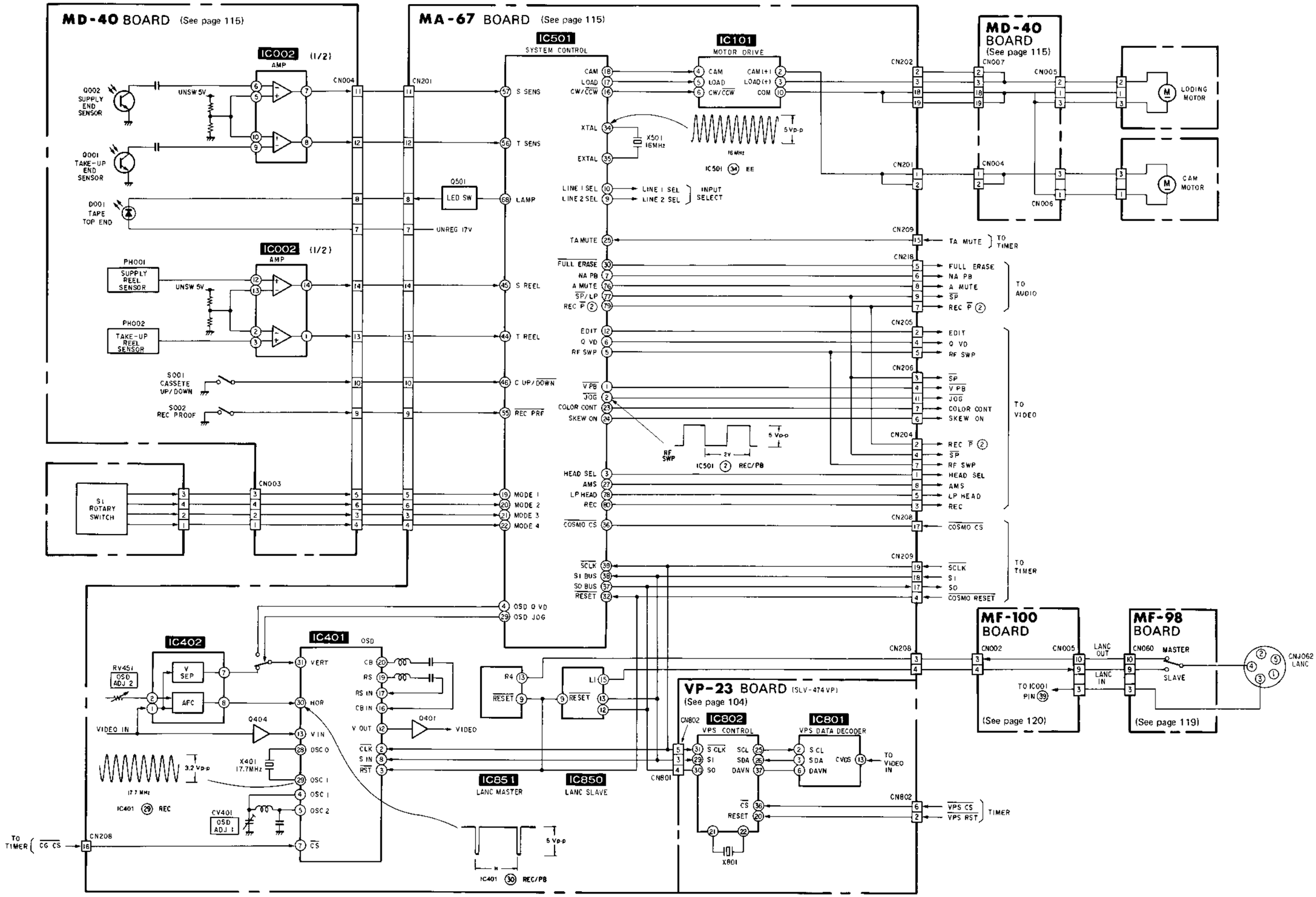



MA-67 BOARD
(See page 91)
IC501 SERVO
DRUM PG
DRUM FG
CAP FG
IC103 FG AMP
D103
IC302 (1/4) CONSTANT VOLTAGE
SW 5V
REF 2.5V
IC302 (1/4)
DRUM D/A
CAP STOP
CAP D/A
Q304 CAP VS AMP
Q301
Q302 VS SWITCH
SW 12V
CAP V
STEP PLS
CAP PVS
SW POSITION
RV501 SW POSITION
VIDEO RF
VIDEO DOC
Q201-204 RF INV. DET
PBC (VIDEO)
CTL INV
REC CTL
VD CTL
PB CTL
IC502 SYSTEM CONTROL
CS INDEX
S OUT 1
S IN 1
S CLK 1
S CS
UNSW 5V
COMP SYNC
COSMO RESET
CTL TRIGGER
VI REC CTL
HC CONT 1
HC CONT 2
HC CONT 3
COMP SYNC (VIDEO)
CN201
CN202
CN203
CN204
CN206
CN004
CN007
CN102
5.2Vp-p
5.1 Vp-p
5.0 Vp-p
2.6 Vp-p
2.3 Vp-p
6.6 msec
0.66 msec
IC501 (60) REC/PB
IC501 (61) REC/PB
IC501 (62) REC/PB
IC501 (11), (59) PB
IC502 (7) REC
IC501 (58) REC/PB
CN203 (9) PB
MD-40 BOARD
(See page 115)
IC004 (1/2) DRUM MOTOR DRIVE
ET/DS
ETR
DRUM MOTOR
CAPSTAN MOTOR
IC001
HALL DEVISE
VC
FRC

3-5. SYSTEM CONTROL BLOCK DIAGRAM



AGRAM


MD-40 BOARD (See page 115)
MA-67 BOARD (See page 115)
IC002 (1/2) AMP
IC501 SYSTEM CONTROL
IC101 MOTOR DRIVE
MD-40 BOARD (See page 115)
Q002 SUPPLY END SENSOR
Q001 TAKE-UP END SENSOR
D001 TAPE TOP END
UNSW 5V
PH001 SUPPLY REEL SENSOR
PH002 TAKE-UP REEL SENSOR
S001 CASSETE UP/DOWN
S002 REC PROOF
S1 ROTARY SWITCH
CN004
CN201
CN003
CN202
CN007
CN005
CN004
CN006
LOADING MOTOR
CAM MOTOR
Q501 LED SW
UNREG 17V
CAM
LOAD
CW/CCW
XTAL
EXTAL
X501 16MHz
5 Vp-p
16MHz
IC501 (34) EE
LINE 1 SEL
LINE 2 SEL
INPUT SELECT
TA MUTE
TO TIMER
FULL ERASE
NA PB
A MUTE
SP/LP
REC P (2)
TO AUDIO
EDIT
Q VD
RF SWP
V PB
JOG
COLOR CONT
SKEW ON
HEAD SEL
AMS
LP HEAD
REC
COSMO CS
SCLK
SI BUS
SO BUS
RESET
TO VIDEO
TO TIMER
OSD Q VD
OSD JOG
MODE 1
MODE 2
MODE 3
MODE 4
S SENS
T SENS
LAMP
S REEL
T REEL
C UP/DOWN
REC PRF
IC402
IC401 OSD
RV451 OSD ADJ 2
V SEP
AFC
VIDEO IN
Q404
Q401
VIDEO
X401 17.7MHz
3.2 Vp-p
17.7 MHz
IC401 (29) REC
CV401 OSD ADJ 1
VERT
HOR
V IN
OSC 0
OSC 1
OSC 1
OSC 2
CS
CB
RS
RS IN
CB IN
V OUT
CLK
S IN
RST
R4
RESET
LI
IC851 LANC MASTER
IC850 LANC SLAVE
5 Vp-p
IC401 (30) REC/PB
TO TIMER CG CS
CN208
VP-23 BOARD (SLV-474VP)
(See page 104)
CN802
IC802 VPS CONTROL
IC801 VPS DATA DECODER
S CLK
SI
SO
SCL
SDA
DAVN
CVDS
CS
RESET
X801
CN801
CN802
VPS CS
VPS RST
TIMER
MF-100 BOARD
CN002
CN005
LANC OUT
LANC IN
TO IC001 PIN (39)
(See page 120)
MF-98 BOARD
CN060
MASTER
SLAVE
(See page 119)
CNJ062 LANC

3-6. SYSTEM CONTROL – VIDEO BLOCK INTERFACE

Signal Name	Pin No.	I/O	STOP/FF/REW	TAPE LOADING	TAPE UNLOADING	PB	PB·PAUSE	SLOW	x2	CUE	REVIEW	REC	REC·PAUSE	−x1	−x2
V PB	MA-67 BOARD IC501 ①	O	H	H	H	L	L	L	L	L	L	H	H	L	L
HEAD SEL	MA-67 BOARD IC501 ③	O	L	L	L	L	H	*1	H	L	L	H	H	L	H
RF SW P	MA-67 BOARD IC501 5	O	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
Q VD/V MUTE	MA-67 BOARD IC501 ⑥	O	L	L	L	*3	*4	*4	*4	*4	*4	L	L	*4	*4
EDIT	MA-67 BOARD IC501 ⑫	O	L	L	L	*5	*5	*5	*5	*5	*5	*5	L	*5	*5
AMS	MA-67 BOARD IC501 ㉗	O	L	L	L	L	L	*6	L	*7	*7	L	L	*7	*7
$\overline{SP}$/LP	MA-67 BOARD IC501 ㉗	O	*8	*8	*8	*9	*9	*9	*9	*9	*9	*8	*8	*9	*9
LP HEAD	MA-67 BOARD IC501 ㉘	O	*8	*8	*8	*9	L	L	L	L	L	*8	*8	L	L
REC/$\overline{P}$	MA-67 BOARD IC501 ㉙	O	L	L	L	L	L	L	L	L	L	H	L	L	L
REC	MA-67 BOARD IC501 ㉚	O	L	L	L	L	L	L	L	L	L	H	H	L	L
COMP SYNC	MA-67 BOARD IC501 ㊽	I	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10
SKEW ON	MA-67 BOARD IC501 ㉔	O	L	L	L	L	L	L	L	*11	*11	L	L	*11	*11
COLOR CONT	MA-67 BOARD IC501 ㉓	O	L	L	L	L	*12	*13	*12	*11	*11	L	L	*11	*11

*1. "H" when the tape stops, and "L" when it runs (for approx. 40 msec).
*2. Synchronized with drum rotation. 25 Hz 50% duty pulse.
*3. Normally "L". "H" when CTL single is not played back.
*4. V-cycle "H" pulse.
*5. Normally "L". "H" during EDIT mode.
*6. HI-Z when the tape runs reverse during SP mode "L" the other conditions.
*7. HI-Z (2.5 V) during SP mode, or "L" during LP mode.
*8. By SP/LP selector, "L" during SP mode, or "H" during LP mode.
*9. By the mode on the recorded tape, "L" when it is SP mode, or "H" when "LP" mode.
*10. Composite sync. signal (positive polarity).
*11. "H" during LP mode.
*12. HI-Z during LP mode.
*13. HI-Z when the tapes STOP during LP mode "L" the other conditions.

3-7. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE

Signal Name	Pin No.	I/O	STOP	FF	REW	TAPE LOADING	TAPE UNLOADING	PB	PB• PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC• PAUSE
REC CTL *1	MA-67 BOARD IC501 ⑪	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
CAP STOP	MA-67 BOARD IC501 ⑰	O	H	L	L	L	L	L	H	H	L	L	L	L	H
$\overline{\text{STEP PLS}}$	MA-67 BOARD IC501 ㉘	O	H	H	H	H	H	H	H	*2	H	H	H	H	H
CAP V *3	MA-67 BOARD IC501 ㊼	I													
SW POSITION *4	MA-67 BOARD IC501 ㊶	I													
$\overline{\text{PB CTL}}$	MA-67 BOARD IC501 ㊾	I	H	*6	*6			*1	H/L	*2	*6	*6	*6	*1	H
VD CTL	MA-67 BOARD IC501 ㊾	I	H	*6	*6			*1	H	*2	*6	*6	*6	*1	H
DRUM PG	MA-67 BOARD IC501 ㊿	I	L	L	L	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7
DRUM FG	MA-67 BOARD IC501 ⑥①	I	L	L	L	*5	*5	*8	*8	*8	*8	*8	*8	*8	*8
CAP FG	MA-67 BOARD IC501 ⑥②	I	H/L	*6	*6	*5	*5	*6	H/L	*9	*6	*6	*6	*6	H/L
INDEX $\overline{\text{CS}}$	MA-67 BOARD IC501 ⑥③	O							*10						
CAP RVS	MA-67 BOARD IC501 ⑥④	O	H	L	H	L	H	L	L	*2	L	L	H	L	L
CAP DA *14	MA-67 BOARD IC501 ⑥⑤	O	*11	L	L	*11	*11	*12	*11	*11	*12	*12	*12	*12	*11
DRUM DA *14	MA-67 BOARD IC501 ⑥⑥	O	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13
REC•$\overline{\text{P}}$	MA-67 BOARD IC501 ⑦⑨	O	L	L	L	L	L	L	L	L	L	L	L	H	L

*1. 25 Hz pulse.
*2. "L"pulse when the tape runs.
*3. Input terminal for capstan constant-voltage drive.
Used in the FF/REW mode and for cassette loading/unloading.
*4. Input terminal for switching position sdjustment.
*5. Indefinite cycle pulse.
*6. Cycle pulse proportional to a tape speed.
*7. 25 Hz "H" pulse.
*8. 300 Hz pulse.
*9. Tape run time pulse.
*10. V-cycle "L" pulse.
*11. "H" or "L" pulse in a cycle of approx. 2 msec.
*12. "H" or "L" pulse in a cycle of approx. 1.5 msec.
*13. "H" or "L" pulse in a cycle of approx. 3 msec.
*14. 3-value output of "H", "L" and HI-Z (2.5V).

3-8. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE

Signal Name	Pin No.	I/O	HI-SPEED REW	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE LOADING	TAPE UNLOADING	STOP	FF	REW	PB	PB-PAUSE	SLOW	×2	CUE	REVIEW	REC	REC PAUSE
CAM *1	MA-67 BOARD IC501 ⑱	O	L	L	L	L	H	H	L	L	L	L	L	L	L	L	L	L	L
LOAD	MA-67 BOARD IC501 ⑰	O	L	L	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L
CW/$\overline{CCW}$	MA-67 BOARD IC501 ⑯	O			H	L	H	L											
MODE 1	MA-67 BOARD IC501 ⑲	I	H	L	L	L	H	H	L	H	H	H	L	L	H	H	H	H	H
MODE2	MA-67 BOARD IC501 ⑳	I	L	H	H	H	H	H	L	L	L	L	H	H	L	L	L	L	H
MODE 3	MA-67 BOARD IC501 ㉑	I	H	H	H	H	L	L	L	L	L	H	H	H	H	H	L	H	H
MODE 4	MA-67 BOARD IC501 ㉒	I	H	H	H	H	H	H	L	H	H	L	L	L	L	L	L	L	L
REC PRF	MA-67 BOARD IC501 ㊺	I	*2	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
C-UP/$\overline{DOWN}$	MA-67 BOARD IC501 ㊻	I	L	H	H→L	H→L	L	L	L	L	L	L	L	L	L	L	L	L	L
T REEL	MA-67 BOARD IC501 ㊹	I	*3	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
S REEL	MA-67 BOARD IC501 ㊺	I	*3	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
LAMP	MA-67 BOARD IC501 ㊽	O	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP V	MA-67 BOARD IC501 ㊼	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
CAP STOP	MA-67 BOARD IC501 ㊼	O	L	H			L	L	H	L	L	L	H	H	L	L	L	L	H
CAP RVS	MA-67 BOARD IC501 ㊾	O	H	H			L	H	H/L	L	H	L	L	L	L	L	H	L	L
CAP DA *8	MA-67 BOARD IC501 ㊿	O																	
T SENS	MA-67 BOARD IC501 ㊻	I	*7	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	MA-67 BOARD IC501 ㊼	I	*7	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. "H" when progressing to the MECHA mode.
*2. "L" when a cassette erasure preventive finger is bent, and "H" when not bent.
*3. Cycle pulse proportional to a reel speed.
*4. "H" pulse in a cycle of approx. 2 msec.
*6. Input terminal for capstant constant-voltage drive.
Used in the FF/REW mode and for cassette loading/unloading.
*7. Narmally "L", "H" pulse in a cycle of 2 msec. when tape top or tape end is detected.
*8. 3-value output of "H", "L" and HI-Z (2.5V).

3-9. SYSTEM CONTROL – SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE

Signal Name	Pin No.	I/O	I/O LEVEL
$\overline{\text{RESET}}$	MA-67 BOARD IC501 ㉜	I	Normally "H". Set to "L" when a power failure is delected or power is restored.
$\overline{\text{COSMO CS}}$	MA-67 BOARD IC501 ㉟	I	Chip select signal from the timer microcomputer (MF-97 board IC001). V-cycle "L" pulse.
SI BUS	MA-67 BOARD IC501 ㊲	I	Serial communication data from the timer microcomputer. V-cycle "L" pulse.
SO BUS	MA-67 BOARD IC501 ㊳	O	Serial communication data to the timer microcomputer. V-cycle "L" pulse.
$\overline{\text{S CLK}}$	MA-67 BOARD IC501 ㊴	O	Serial communication clock to the timer microcomputer. V-cycle "L" pulse.
S IN 1	MA-67 BOARD IC501 ㊶	I	Serial communication data from the INDEX IC (IC502). V-cycle "L" pulse.
S OUT 1	MA-67 BOARD IC501 ㊷	O	Serial communication data to the INDEX IC. V-cycle "L" pulse.
S CLK 1	MA-67 BOARD IC501 ㊸	O	Serial communication clock to the INDEX IC. V-cycle "L" pulse.
$\overline{\text{CS INDEX}}$	MA-67 BOARD IC501 ㊸	O	Chip select signal to the INDEX IC (IC502). V-cycle "L" pulse.

3-10. SYSTEM CONTROL – AUDIO BLOCK INTERFACE

Signal Name	Pin No.	I/O	STOP/ FF/REW	TAPE LOADING	TAPE UNLOADING	PB	PB• PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC PAUSE	− × 1	− × 2
NA•PB	MA-67 BOARD IC501 ⑦	O	L	L	L	H	H	H	H	H	H	L	L		
A MUTE	MA-67 BOARD IC501 ⑯	O	L	L	L	*1	H	H	H	H	H	L	L	H	H
SP/LP	MA-67 BOARD IC501 ⑰	O	*2	*2	*2	*3	*3	*3	*3	*3	*3	*2	*2	L	*3
REC/$\overline{\text{P}}$	MA-67 BOARD IC501 ⑲	O	L	L	L	L	L	L	L	L	L	H	L	H	L

*1. "H" when CTL signal is not played back.
*2. By SP/LP selector, "L" during SP mode, or "H" during LP mode.
*3. By the mode on the recorded tape, "L" when it is SP mode, or "H" when "LP" mode.

3-11. SYSTEM CONTROL MICROCOMPUTER (CXP80116: IC501 on MA-67 Board) PORT FUNCTIONS DESCRIPTION

Port	Pin No.	Signal	I/O	Description
PA0	2	$\overline{\text{JOG}}$	O	L in viariable speed
PA1	1	$\overline{\text{V-PB}}$	O	L in PB mode
PA2	80	REC	O	H in REC or REC-PAUSE mode
PA3	79	REC/$\overline{\text{P}}$	O	H during record
PA4	78	LP HEAD	O	LP head select signal
PA5	77	$\overline{\text{SP}}$/LP	O	L in SP mode
PA6	76	A-MUTE	O	Audio mute signal
PA7	75	$\overline{\text{TV}}$/VTR	O	TV/VTR selection
PB0	10	LINE1	O	Input control 1
PB1	9	LINE2	O	Input control 2
PB2	8	NC	O	
PB3	7	NA-PB	O	Normal audio PB
PB4	6	Q-VD/V MUTE	O	Quasi VD signal/V mute
PB5	5	RF-SWP	O	RF switching pulse
PB6	4	OSD-VD	O	Quasi VD for OSD (This is different logically from the quasi VD.)
PB7	3	HEAD-SEL	O	Head select signal
PC0	18	CAM	O	Cam select signal
PC1	17	LOAD	O	Load select signal
PC2	16	CW/$\overline{\text{CCW}}$	O	Rotation direction set
PC3	15	CTL-INV	O	CTL inversion
PC4	14	NC	O	
PC5	13	NC	O	
PC6	12	EDIT	O	H during edit
PC7	11	REC-CTL	O	REC CTL output

Port	Pin No.	Signal	I/O	Description
PD0	26	NC	O	
PD1	25	TA-MUTE	I	Tuner audio mute signal input
PD2	24	SKEW ON	O	Picture control while SKEW
PD3	23	COLOR CONT	O	Color control while JOG
PD4	22	MODE4	I	MD encoder input (MSB) ↕ (LSB)
PD5	21	MODE3	I	
PD6	20	MODE2	I	
PD7	19	MODE1	I	
PE0	70	$\overline{\text{DEW}}$	I	DEW sensor input
PE1	69	VD-CTL	I	CTL counter input
PE2	68	LAMP	O	End sensor lamp signal
PE3	67	CAPSTOP	O	Capstan ON/OFF
PE4	66	DRM-DA	O	Drum DA output
PE5	65	CAP-DA	O	Capstan DA output
PE6	64	CAP-RVS	O	Capstan inversion
PE7	63	$\overline{\text{CS INDEX}}$	O	INDEX μcom chip select
PF0	47	CAP-V	I	Capstan constant voltage FB input
PF1	46	C-UP/DWN	I	Cassette UP/DOWN
PF2	45	S-REEL	I	S reel FG
PF3	44	T-REEL	I	T reel FG
PH0	30	$\overline{\text{FULL-ERASE}}$	O	Full erase ON
PH1	29	OSD JOG	O	OSD-VD signal select
PH2	28	$\overline{\text{STEP-PLS}}$	O	Step pulse output
PH3	27	AMS	O	AMS control

Port	Pin No.	Signal	I/O	Description
PD0	26	NC	O	
PD1	25	TA-MUTE	I	Tuner audio mute signal input
PD2	24	SKEW ON	O	Picture control while SKEW
PD3	23	COLOR CONT	O	Color control while JOG
PD4	22	MODE4	I	MD encoder input (MSB) ↕ (LSB)
PD5	21	MODE3	I	
PD6	20	MODE2	I	
PD7	19	MODE1	I	
PE0	70	$\overline{\text{DEW}}$	I	DEW sensor input
PE1	69	VD-CTL	I	CTL counter input
PE2	68	LAMP	O	End sensor lamp signal
PE3	67	CAPSTOP	O	Capstan ON/OFF
PE4	66	DRM-DA	O	Drum DA output
PE5	65	CAP-DA	O	Capstan DA output
PE6	64	CAP-RVS	O	Capstan inversion
PE7	63	$\overline{\text{CS INDEX}}$	O	INDEX μcom chip select
PF0	47	CAP-V	I	Capstan constant voltage FB input
PF1	46	C-UP/DWN	I	Cassette UP/DOWN
PF2	45	S-REEL	I	S reel FG
PF3	44	T-REEL	I	T reel FG
PH0	30	$\overline{\text{FULL-ERASE}}$	O	Full erase ON
PH1	29	OSD JOG	O	OSD-VD signal select
PH2	28	$\overline{\text{STEP-PLS}}$	O	Step pulse output
PH3	27	AMS	O	AMS control

Port	Pin No.	Signal	I/O	Description
PG0	62	CAP-FG	I	Capstan FG input
PG1	61	DRM-FG	I	Drum FG input
PG2	60	DRM-PG	I	Drum PG input
PG3	59	PB-CTL	I	PB-CTL input
PG4	58	COMP-SYNC	I	Composite sync input
PG5	57	S-SENS	I	S end sensor
PG6	56	T-SENS	I	T end sensor
PG7	55	$\overline{\text{REC-PRF}}$	I	REC-PROOF switch
AN0	51	SW-POSI	I	Switch position adjustment
AN1	50	NC	I	
AN2	49	VIDEO-RF	I	Video RF input
AN3	48	VIDEO-DOC	I	Video DOC input (Not used)
CS0	36	$\overline{\text{COSMO CS}}$	I	Serial line for TT handshake
SI0	37	SI BUS	I	
SO0	38	SO BUS	O	
SCK0	39	$\overline{\text{S CLK}}$	I	
CS1	40	S CS1	I	Serial line for INDEX handshake
SI1	41	S IN1	I	
SO1	42	S OUT1	O	
SCK1	43	S CLK1	O	
AVDD	54	AVDD	–	A/D converter. Positive power supply terminal
AVREF	53	AVREF	I	A/D converter. Reference voltage input
AVSS	52	AVSS	–	A/D converter. GND
VDD	72	VDD	–	Positive power supply terminal
VSS	33/73	VSS	–	GND
EXTAL	35	EXTAL	I	System clock. 16 MHz crystal
XTAL	34	XTAL	O	
$\overline{\text{PST}}$	32	$\overline{\text{RESET}}$	I	Reset input
MP	31	MP	I	Microprocessor mode input (L always set)
NMI	71	NMI	I	Non-maskable interruption input (H in no use)

3-12. MODE CONTROL MICROCOMPUTER (CXP50116: IC001 on MF-100 Board)
PORT FUNCTION DESCRIPTION

Port	Pin No.	Signal	I/O	Description
VDD	34	VDD	–	Positive power supply terminal
VSS	71	VSS	–	GND
EXTAL	74	EXTAL	I	Clock input (4.194304 MHz)
XTAL	72	XTAL	O	Clock output
TEX	31	TEX	I	Backup clock input (32.768 kHz)
TX	30	TX	O	Backup clock output
PA3	50	C+ DET	I	C+ DETECT input
PA2	49	DIST1	I	Destination setting port (MSB) ↕ (LSB)
PA1	48	DIST0	I	
PA0	47	$\overline{\text{H-DET}}$	I	VIDEO H-sync DETECT input
PC3	70	$\overline{\text{CG-CS}}$	O	OSD CS signal
PC2	69	$\overline{\text{COSMO-CS}}$	O	COSMO CS signal
PC1	68	$\overline{\text{VPS-CS}}$	O	VPS CS signal
PC0	67	$\overline{\text{VPS-RESET}}$	O	VPS RESET signal
PD3	66	MEM-CLK	O	EEP-ROM clock signal
PD2	65	MEM-CS	O	EEP-ROM CHIP-SEL signal
PD1	64	POWER-ON	O	Power control (H when the power is on.)
PD0	63	$\overline{\text{COSMO-RST}}$	O	COSMO reset signal
PE3	58	MEM-DATA	I/O	EEP-ROM data signal
PE2	57	NC	I	
PE1	56	AFT-UP	I	Tuner AFT-UP signal
PE0	55	AFT-DOWN	I	Tuner AFT-DOWN signal
PF3	54	PLL-CLK	O	FS tuner clock output
PF2	53	PLL-LATCH	O	FS tuner latch output
PF1	52	PLL-DATA	O	FS tuner data output
PF0	51	TA-MUTE	O	Tuner audio mute

Port	Pin No.	Signal	I/O	Description
PH3	80	C+ ON	O	C+ ON/OFF
PH2	79	AV CTRL	O	AV control
PH1	78	TUNER SEL	O	TUNER select
PH0	77	TV OUT SEL	O	AV output select
PY3	62	SIRCS-IN	I	Remote control input
PY2	61	POWER-FAIL	I	Service interruption detection
PY1	60	BUZZER	O	Buzzer signal
PY0	59	VH U/$\overline{\text{VL}}$	O	Tuner band select
AD7	42	AD7	OUTPUT	Key input reading A/D (including shuttle switch)
AD6	41	AD6		
AD5	40	AD5		
AD4	39	AD4		
AD3	38	AD3		
AD2	37	AD2		
AD1	36	AD1		
AD0	35	AD0		
T9	19	T9	OUT	FIP grid signal
↕	↕	↕		
T0	28	T0		
S21	18	S17	O	(Not used)
S20	17	S16	OUTPUT	FIP segment signal
↕	↕	↕		
S4	1	S0		
VFDP	76	VFDP	I	Power supply for FDP
VREF	75	VREF	I	Reference voltage for resetting circuit (to Vdd)

Port
$\overline{\text{EC}}$
INT
$\overline{\text{RESET}}$
$\overline{\text{SC}}$
SO
SI

● **A/D PORT**

• The A/D p

AD
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7

• KEY inpu
• Chattering
30 msec.
• Remote co

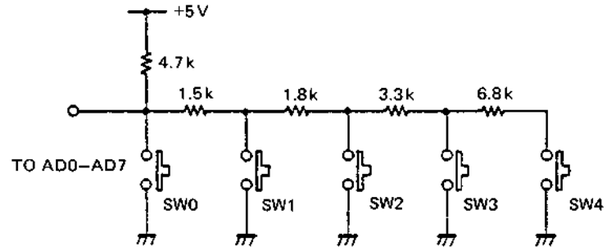
Remote
R.
R.

Port	Pin No.	Signal	I/O	Description
PH3	80	C+ ON	O	C+ ON/OFF
PH2	79	AV CTRL	O	AV control
PH1	78	TUNER SEL	O	TUNER select
PH0	77	TV OUT SEL	O	AV output select
PY3	62	SIRCS-IN	I	Remote control input
PY2	61	POWER-FAIL	I	Service interruption detection
PY1	60	BUZZER	O	Buzzer signal
PY0	59	VH U/$\overline{VL}$	O	Tuner band select
AD7	42	AD7	OUTPUT	Key input reading A/D (including shuttle switch)
AD6	41	AD6		
AD5	40	AD5		
AD4	39	AD4		
AD3	38	AD3		
AD2	37	AD2		
AD1	36	AD1		
AD0	35	AD0		
T9	19	T9	OUT	FIP grid signal
|	|	|		
T0	28	T0		
S21	18	S17	O	(Not used)
S20	17	S16	OUTPUT	FIP segment signal
|	|	|		
S4	1	S0		
VFDP	76	VFDP	I	Power supply for FDP
VREF	75	VREF	I	Reference voltage for resetting circuit (to Vdd)

Port	Pin No.	Signal	I/O	Description
$\overline{EC}$	43		I	Event count input (Not used)
INT	29		I	Interruption from externals (Not used)
$\overline{RESET}$	32	$\overline{RESET}$	I	Reset input
$\overline{SC}$	44	SCLK	O	Serial bus clock output
SO	45	SO (from TT)	O	Serial bus SOUT
SI	46	SI (to TT)	I	Serial bus SIN

● A/D PORT ALLOCATION

- The A/D ports are allocated as shown below.

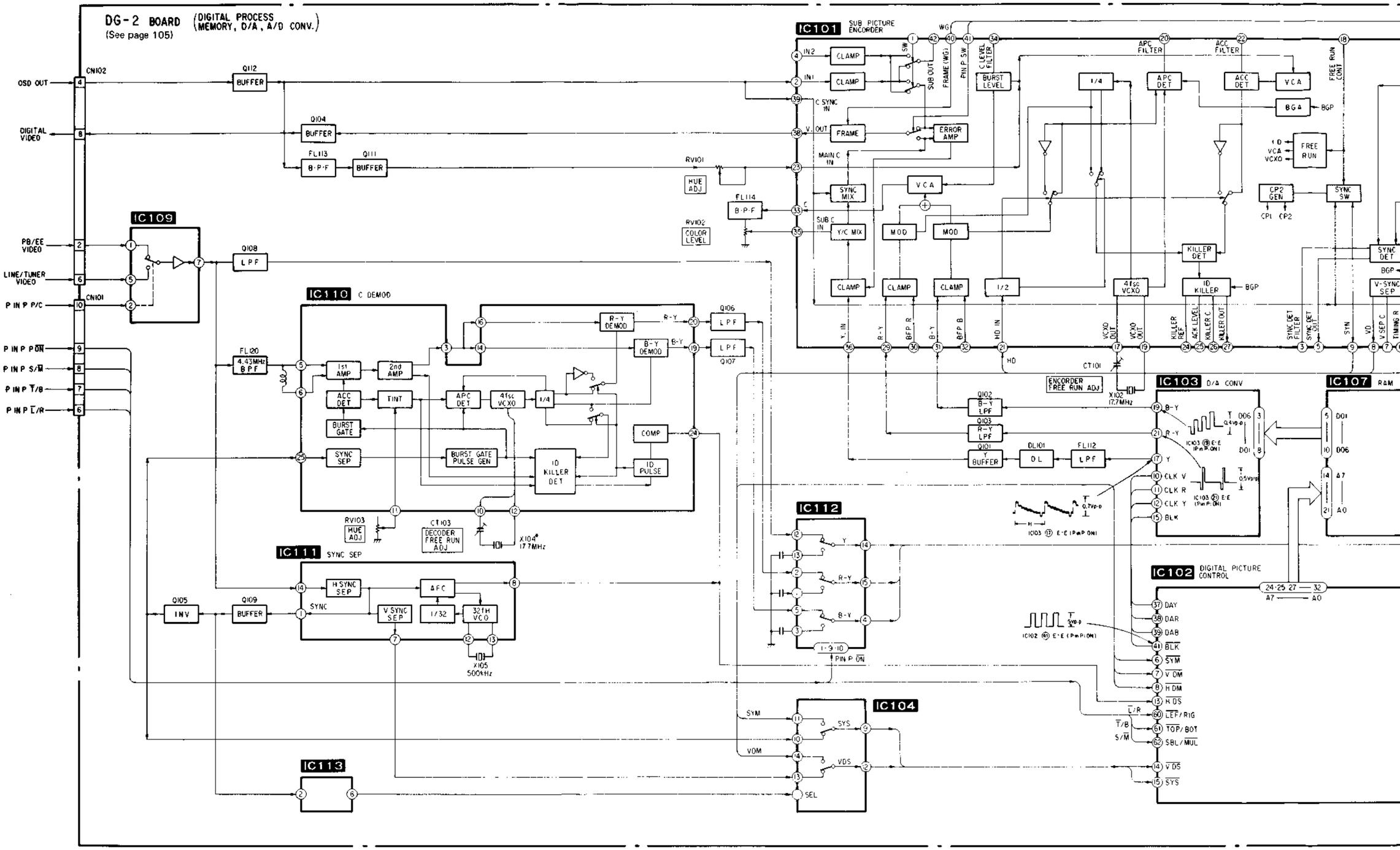


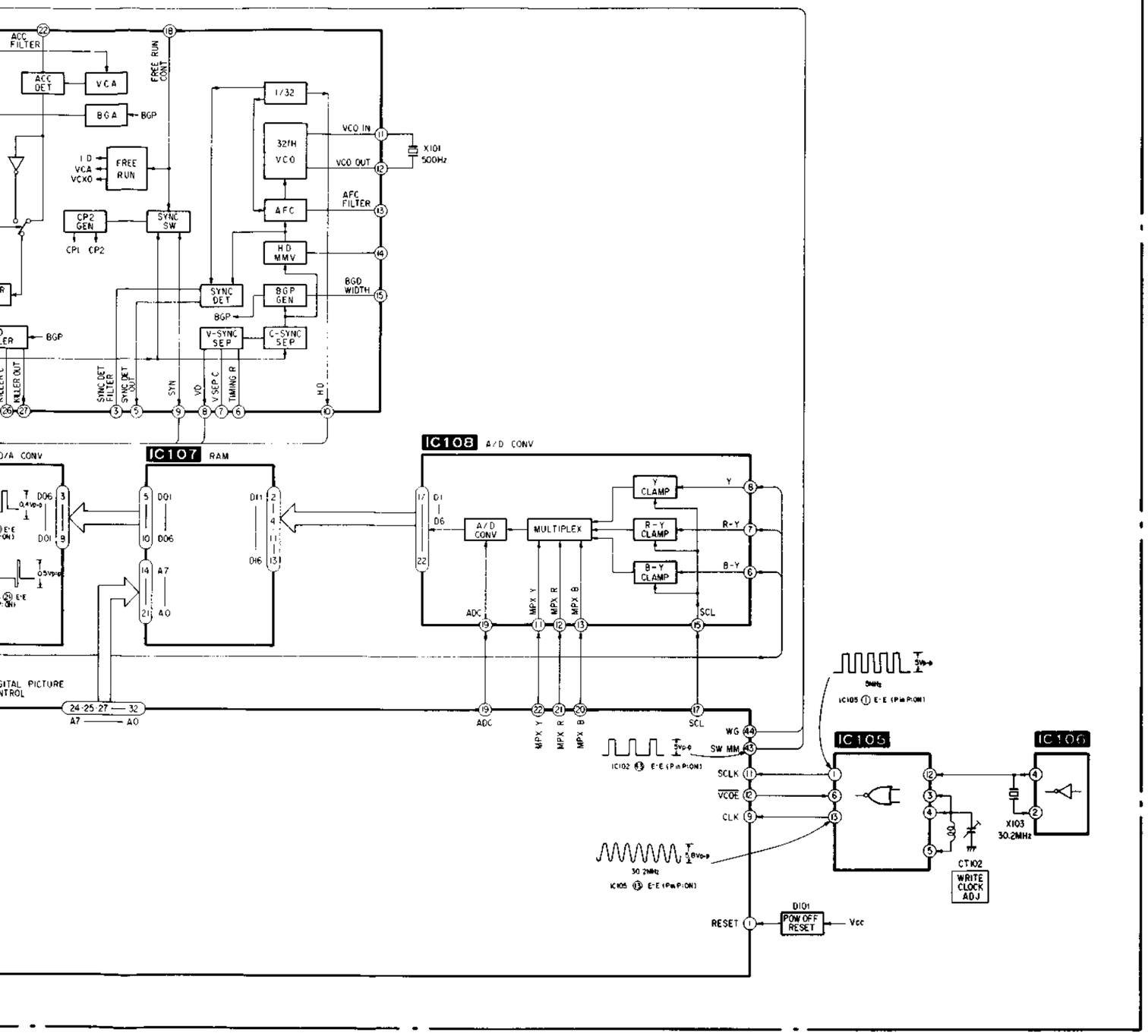
AD \ SW	Pin No.	SW0 0.00 [V]	SW1 1.21 [V]	SW2 2.06 [V]	SW3 2.92 [V]	SW4 3.70 [V]
AD0	35	RING0	VPS	TEST	R. MODE1	R. MODE2
AD1	36	RING1	–	–	–	–
AD2	37	RING2	–	–	–	–
AD3	38	FWD/RVS	PAUSE	–	–	–
AD4	39	STOP	PLAY	POWER	EJECT	–
AD5	40	REC	AUTO/MENU	TRACK (-)	POS (+)	TV/VTR
AD6	41	H. speed REW	QUICK TMR	TRACK (+)	POS (-)	–
AD7	42	–	TMR ON/OFF	INPUT SEL	EDIT	SP/LP

- KEY input signals pass through the A/D ports as shown above.
- Chattering-cancel time is 30 msec. KEY input is assumed when there are two input signals of the same voltage within 30 msec.
- Remote control modes are selected by R. MODE 1/2.

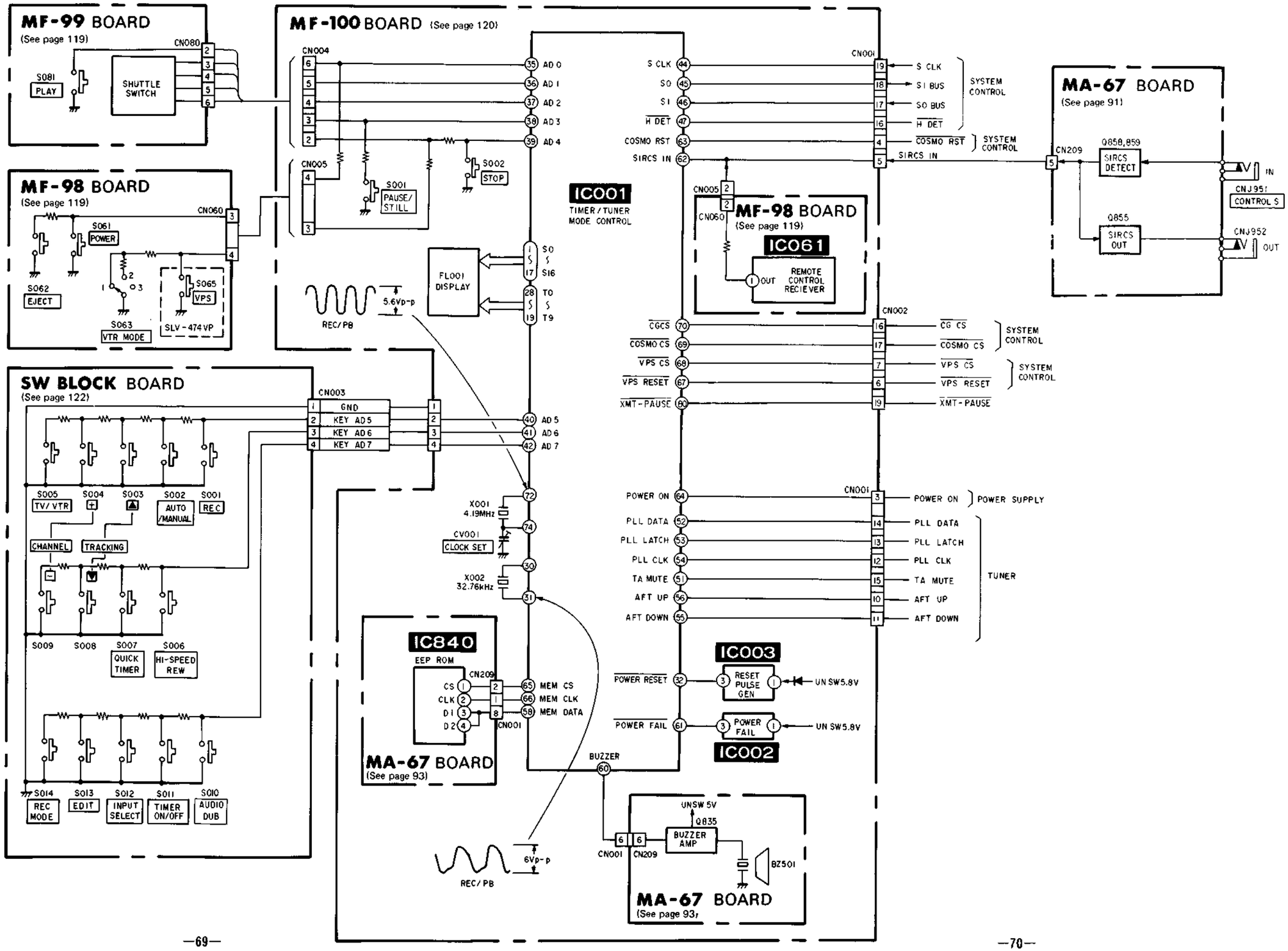
Remote control mode	VTR1	VTR2	VTR3
R. MODE1	make	brake	brake
R. MODE2	brake	make	brake

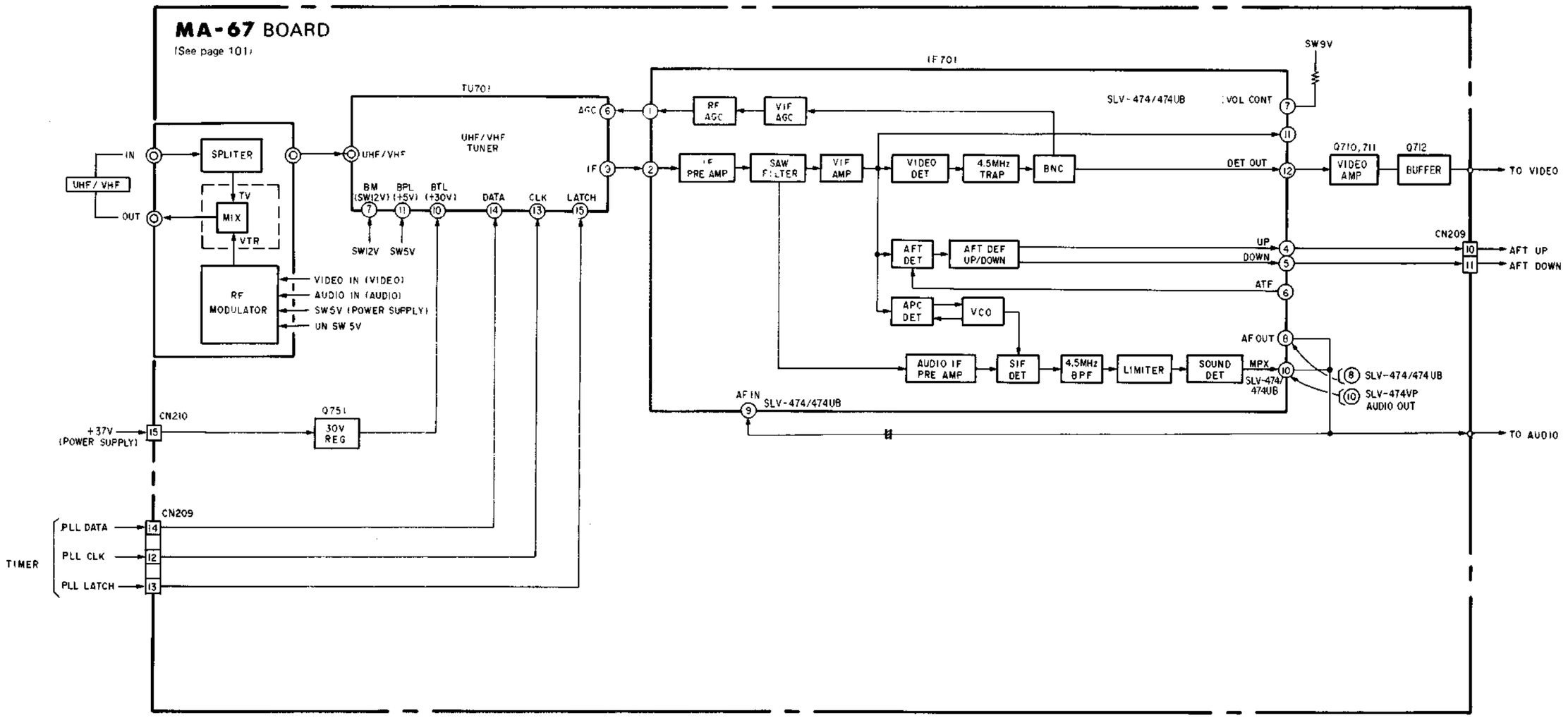
3-13. DIGITAL PROCESS BLOCK DIAGRAM



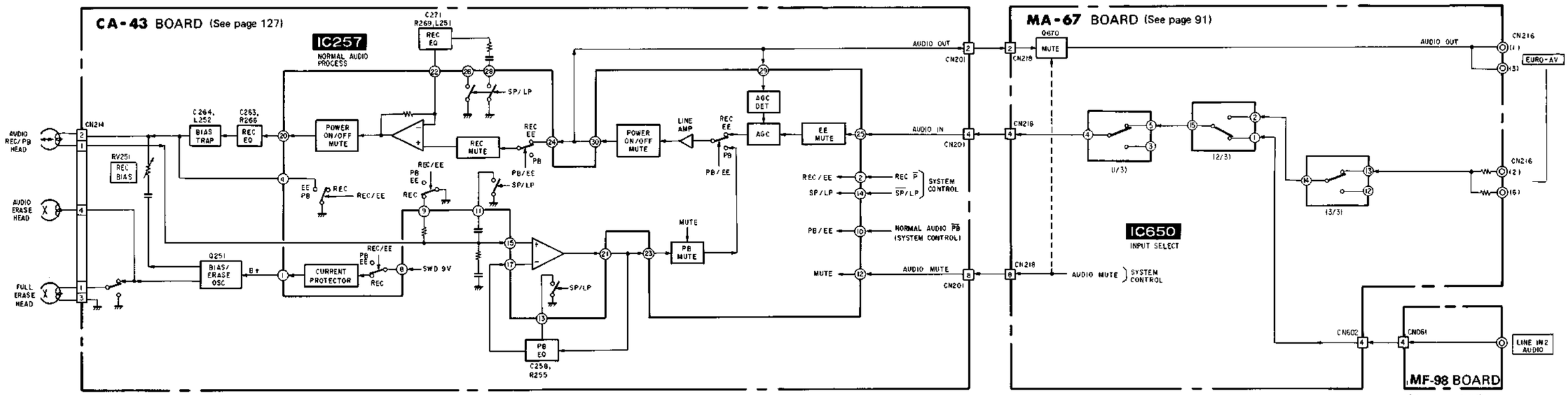

ACC FILTER
ACC DET
VCA
FREE RUN CONT
BGA
BGP
I D
VCA
VCXO
FREE RUN
CP2 GEN
CP1 CP2
SYNC SW
1/32
32fH VCO
VCO IN
VCO OUT
X101 500Hz
AFC
AFC FILTER
HD MMV
SYNC DET
BGP GEN
BGD WIDTH
V-SYNC SEP
C-SYNC SEP
KILLER OUT
SYNC DET FILTER
SYNC DET OUT
SYN
VD
V SEP C
TIMING R
HD
D/A CONV
IC107 RAM
DO6
DO1
DI1
DI6
A7
A0
D1
D6
A/D CONV
MULTIPLEX
Y CLAMP
R-Y CLAMP
B-Y CLAMP
Y
R-Y
B-Y
ADC
MPX Y
MPX R
MPX B
SCL
IC108 A/D CONV
DIGITAL PICTURE CONTROL
24 25 27 — 32
A7 — A0
WG
SW MM
SCLK
VCOE
CLK
RESET
IC102 E-E (P in P:ON)
IC105 E-E (P in P:ON)
IC105
IC106
X103 30.2MHz
CT102 WRITE CLOCK ADJ
DI01 POW OFF RESET
Vcc

3-14. TIMER, MODE CONTROL BLOCK DIAGRAM

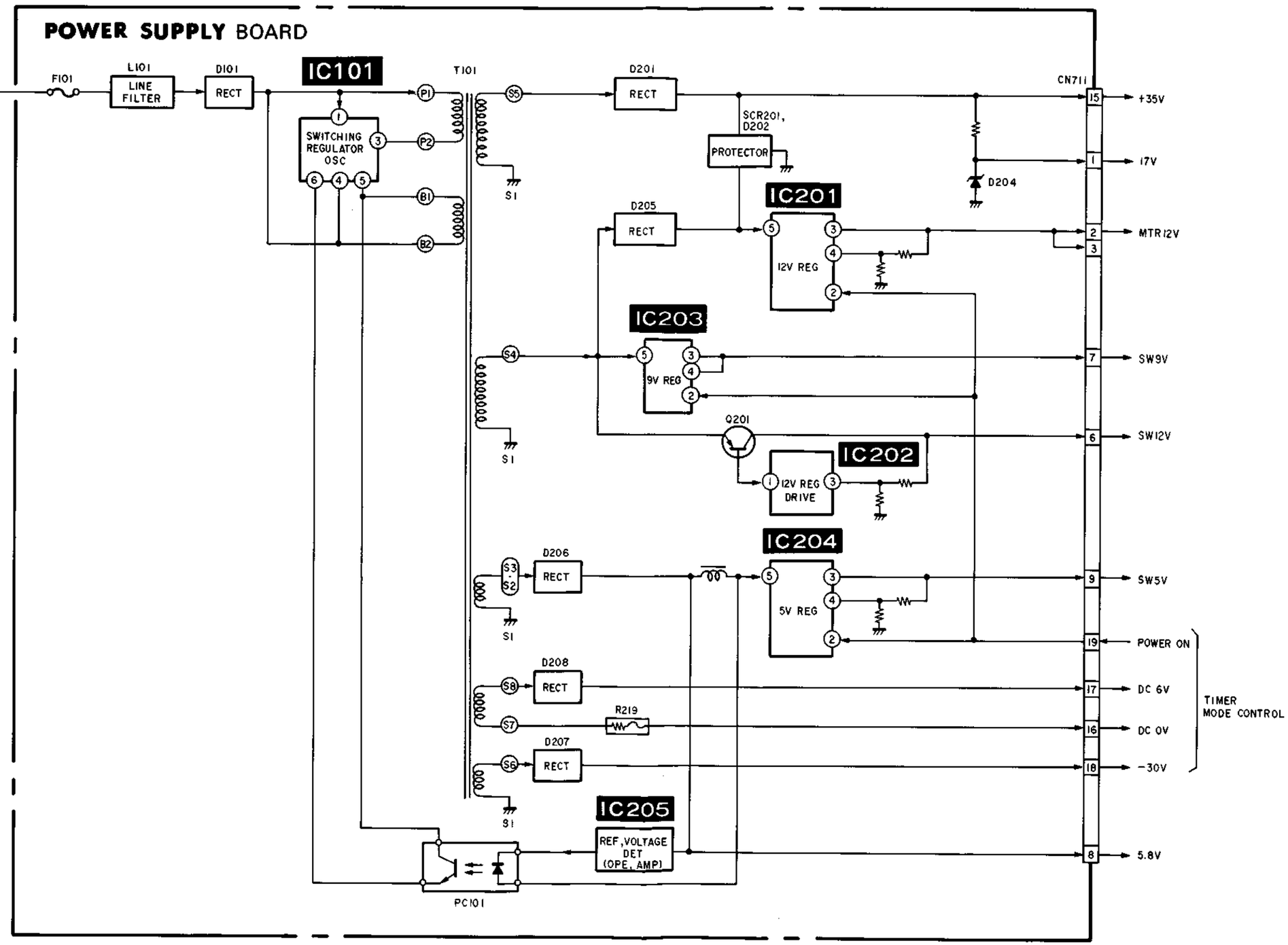



MA-67 BOARD
(See page 101)
IF701
TU701
SW9V
SLV-474/474UB
VOL CONT
UHF/VHF TUNER
AGC
IF
RF AGC
VIF AGC
IF PRE AMP
SAW FILTER
VIF AMP
VIDEO DET
4.5MHz TRAP
BNC
DET OUT
Q710, 711
VIDEO AMP
Q712
BUFFER
TO VIDEO
IN
UHF/VHF
OUT
SPLITER
TV
MIX
VTR
RF MODULATOR
VIDEO IN (VIDEO)
AUDIO IN (AUDIO)
SW5V (POWER SUPPLY)
UN SW 5V
BM (SW12V)
BPL (+5V)
BTL (+30V)
DATA
CLK
LATCH
SW12V
SW5V
AFT DET
AFT DEF UP/DOWN
UP
DOWN
ATF
CN209
AFT UP
AFT DOWN
APC DET
VCO
AF OUT
AUDIO IF PRE AMP
SIF DET
4.5MHz BPF
LIMITER
SOUND DET
MPX
SLV-474/474UB
SLV-474/474UB
SLV-474VP AUDIO OUT
AF IN
SLV-474/474UB
TO AUDIO
+37V (POWER SUPPLY)
CN210
Q751
30V REG
CN209
TIMER
PLL DATA
PLL CLK
PLL LATCH

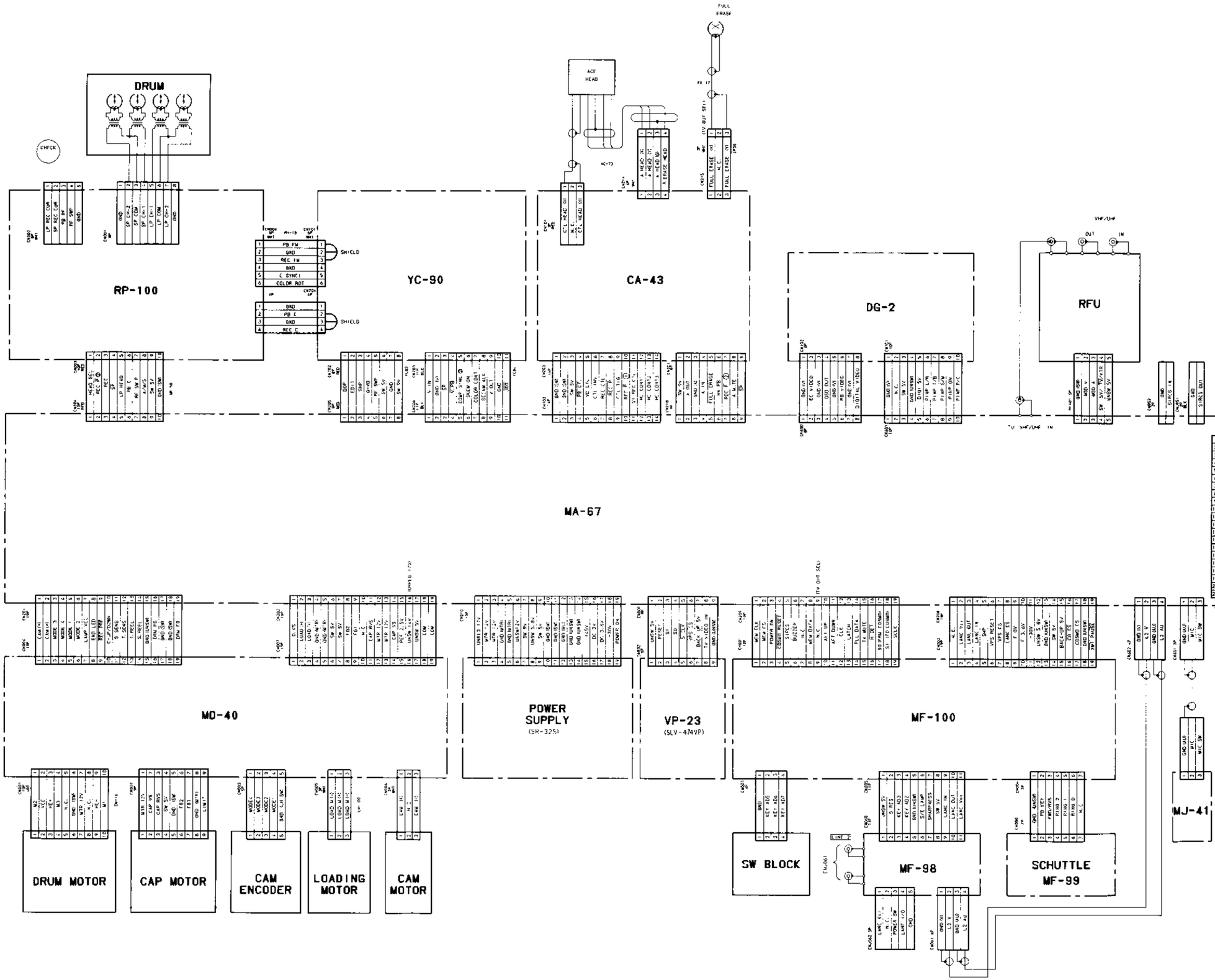
3-16. AUDIO BLOCK DIAGRAM

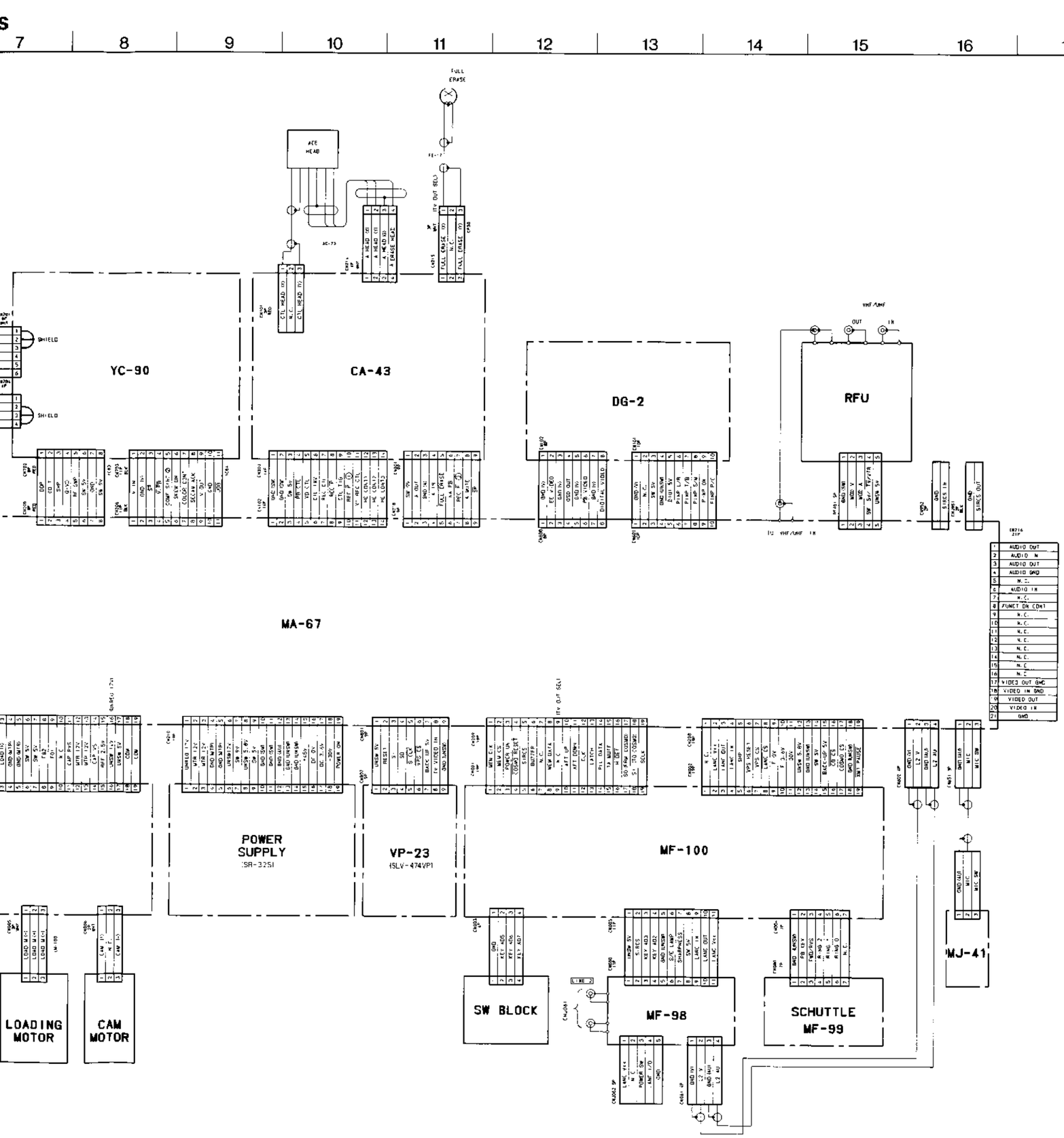


3-17. POWER SUPPLY BLOCK DIAGRAM



4-1. FRAME SCHEMATIC DIAGRAM




7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
FULL ERASE
ACE HEAD
YC-90
CA-43
DG-2
RFU
VHF/UHF
OUT
IN
SHIELD
SHIELD
MA-67
POWER SUPPLY
(SR-325)
VP-23
(SLV-474VP)
MF-100
LOADING MOTOR
CAM MOTOR
SW BLOCK
MF-98
SCHUTTLE MF-99
MJ-41
AUDIO OUT
AUDIO IN
AUDIO GND
N.C.
AUDIO IN
N.C.
FUNCT DN COM
N.C.
N.C.
N.C.
N.C.
N.C.
N.C.
N.C.
VIDEO OUT GND
VIDEO IN GND
VIDEO OUT
VIDEO IN
GND

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

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:

- ○— : indicates a lead wire mounted on the component side.
- ●· : indicates a lead wire mounted on the printed side.
- ⊗ or ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ··· : Pattern of the rear side.

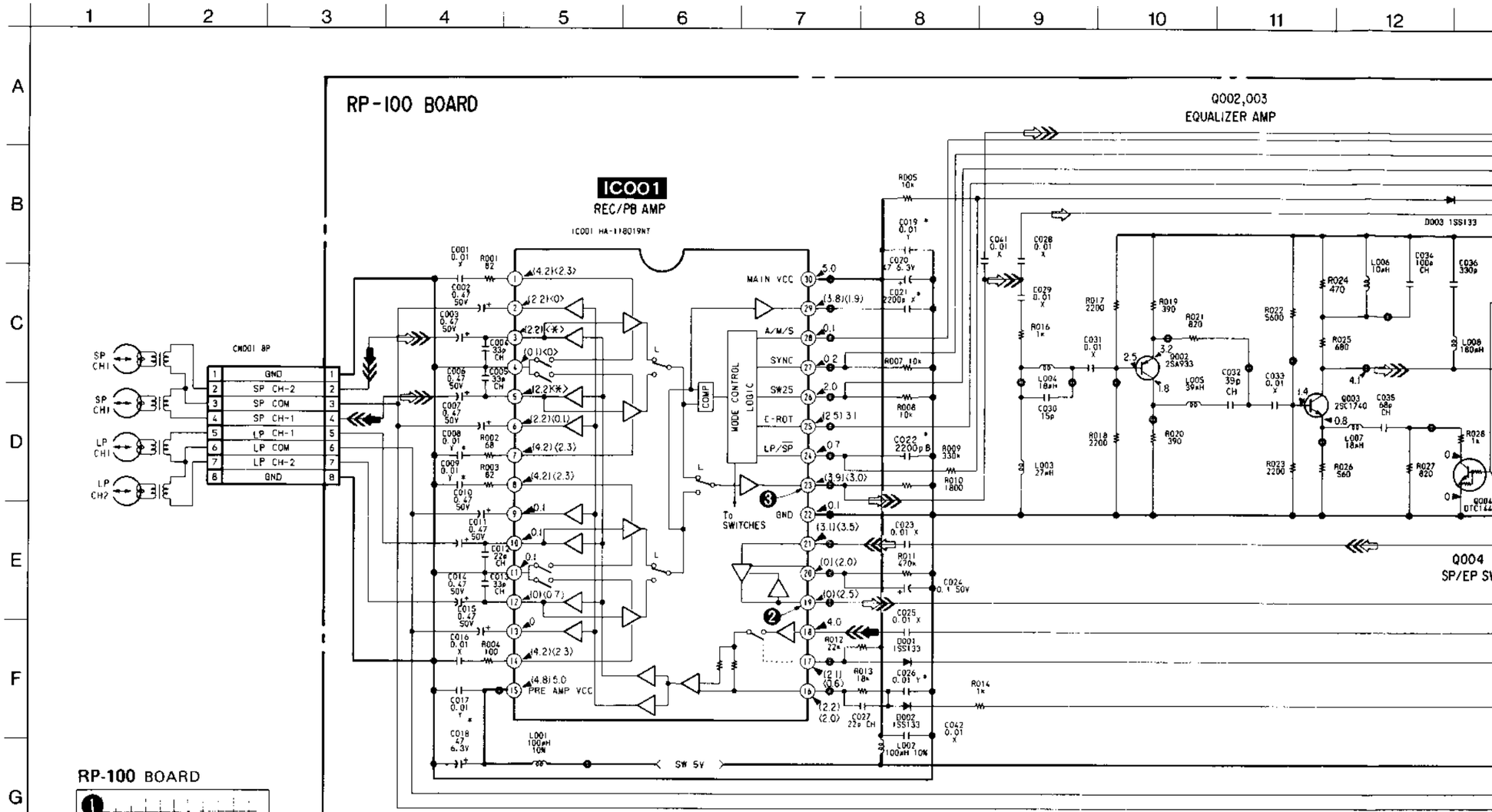
Caution:
Pattern face side: (Conductor Side) Parts on the pattern face side seen from the pattern face are indicated
Parts face side: (Component Side) Parts on the parts face side seen from the parts face are indicated.

For schematic diagram:

- 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, 1/4W (Chip resistors: 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.
- : fusible resistor.
- : panel designation.
- △ : internal component.
- : adjustment for repair.
- : B+ line.
- : B− line.
- Voltages are dc between measurement points and ground unless otherwise noted.
- 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.
- : IN/OUT direction of B line (+, −).
- Circled numbers refer to waveforms.

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

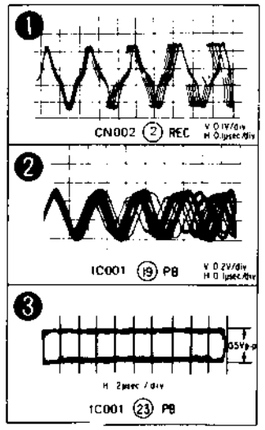
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



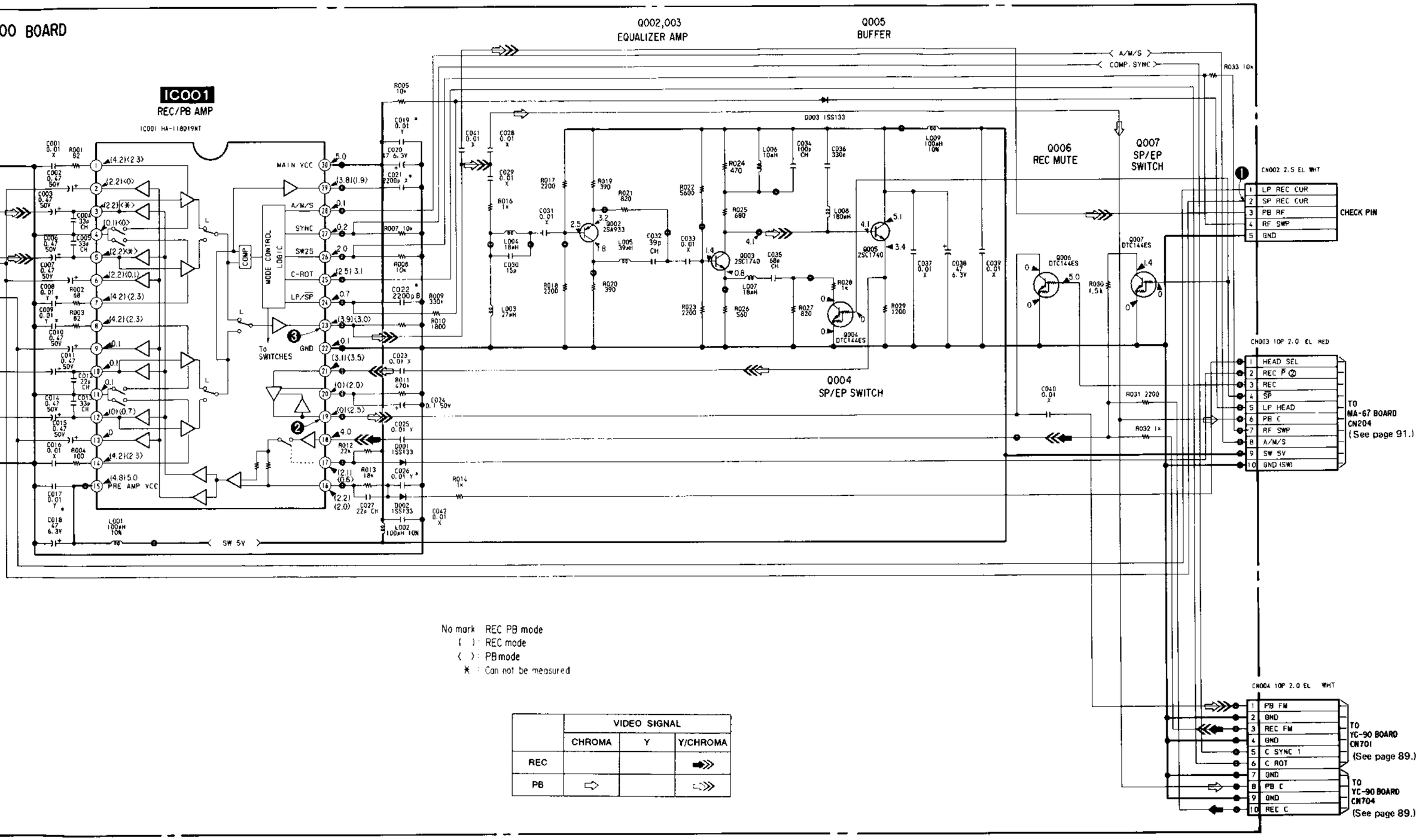
No mark REC PB mode
( ) REC mode
〈 〉: PB mode
✱ : Can not be measured

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

RP-100 BOARD



00 BOARD



No mark : REC PB mode
( ) : REC mode
〈 〉 : PB mode
✱ : Can not be measured

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

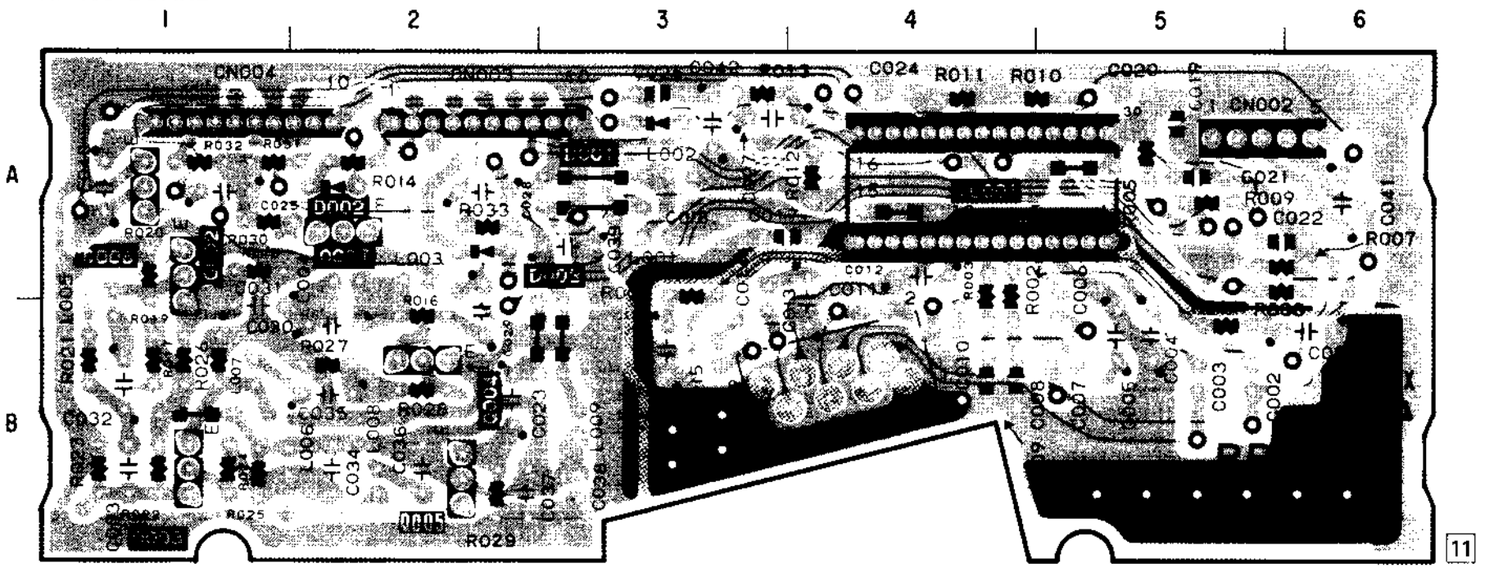
RP-100 (HEAD AMP) PRINTED WIRING BOARD

–Ref. No. RP-100 Board: 1,000 series–

RP-100 BOARD

D001	A-3
D002	A-2
D003	B-3
IC001	A-4
Q002	A-1
Q003	B-1
Q004	B-2
Q005	B-2
Q006	A-1
Q007	A-2

RP-100 BOARD



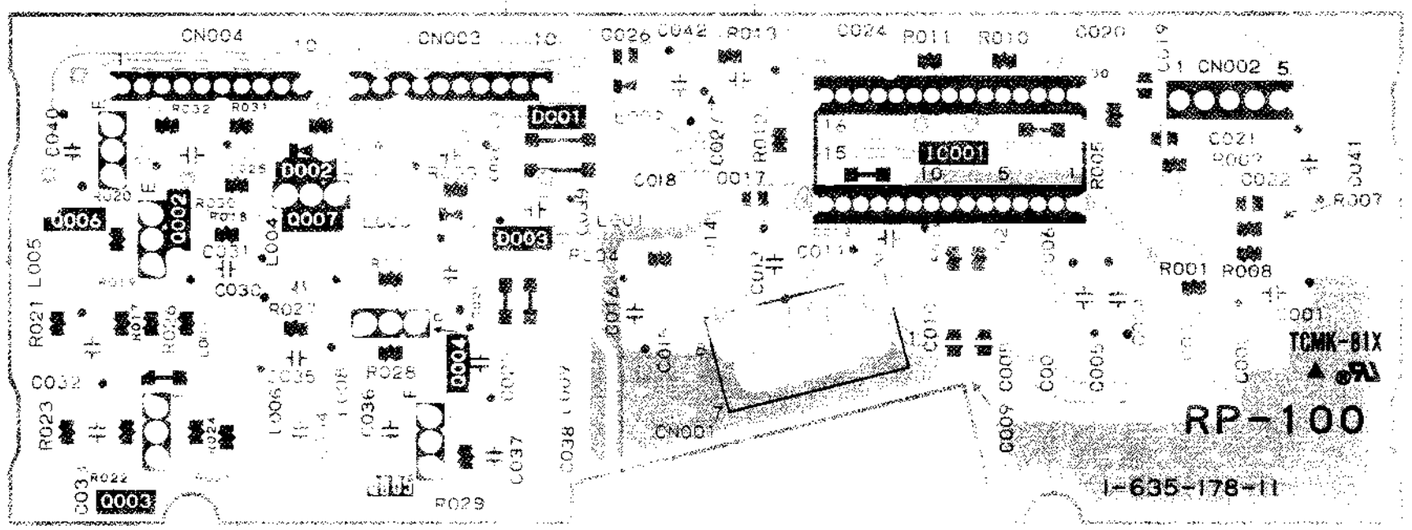
11

HEAD AMP HEAD AMP

RP-100 (HEAD AMP) BOARD

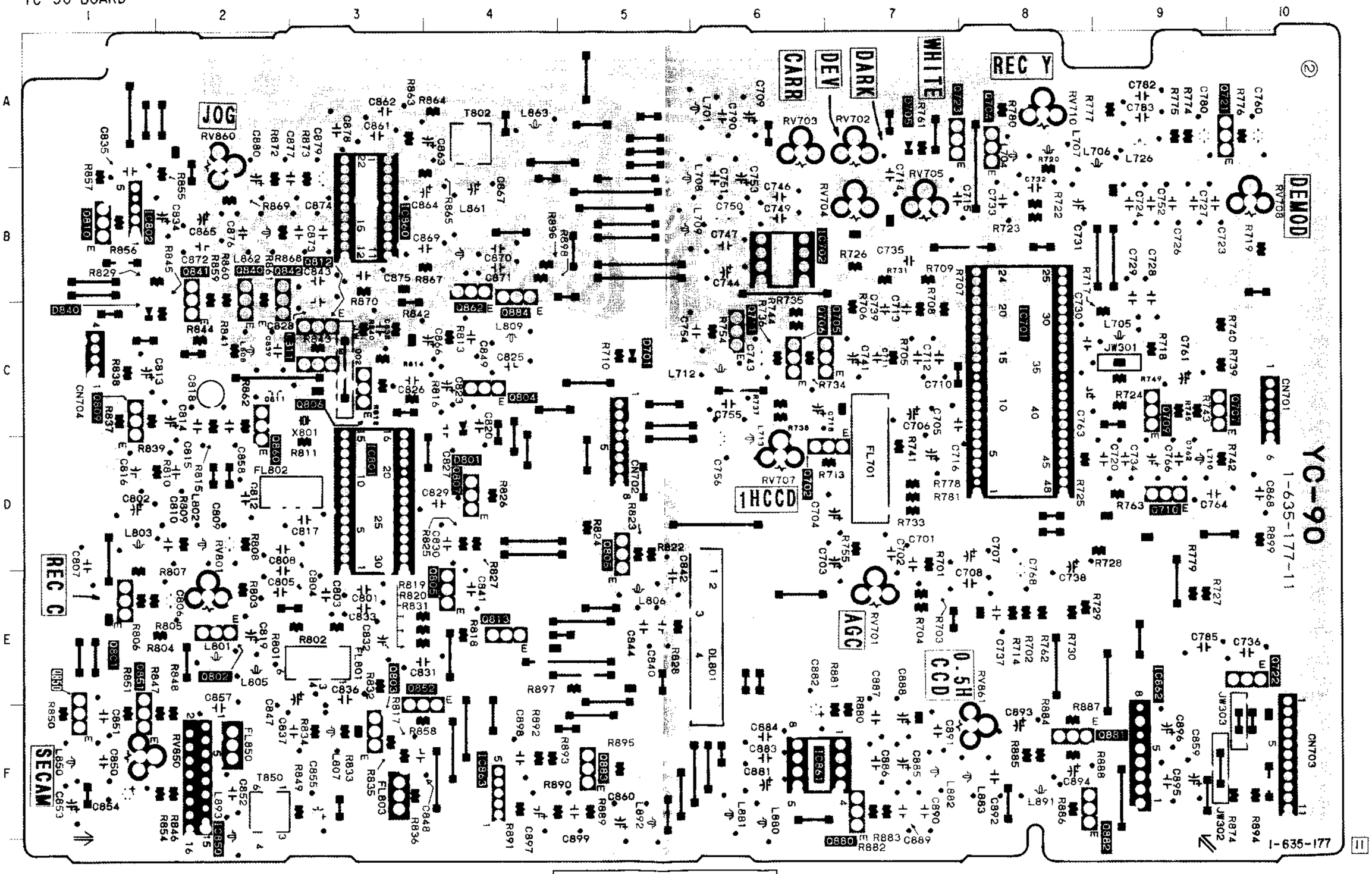
RP-100 BOARD

D001	A-3
D002	A-3
D003	B-3
IC001	A-3
Q001	A-3
Q002	B-3
Q004	B-3
Q005	B-2
Q006	A-3
Q007	A-3



YC-90 (VIDEO) PRINTED WIRING BOARD
–Ref. No. YC-90 Board: 2,000 series–

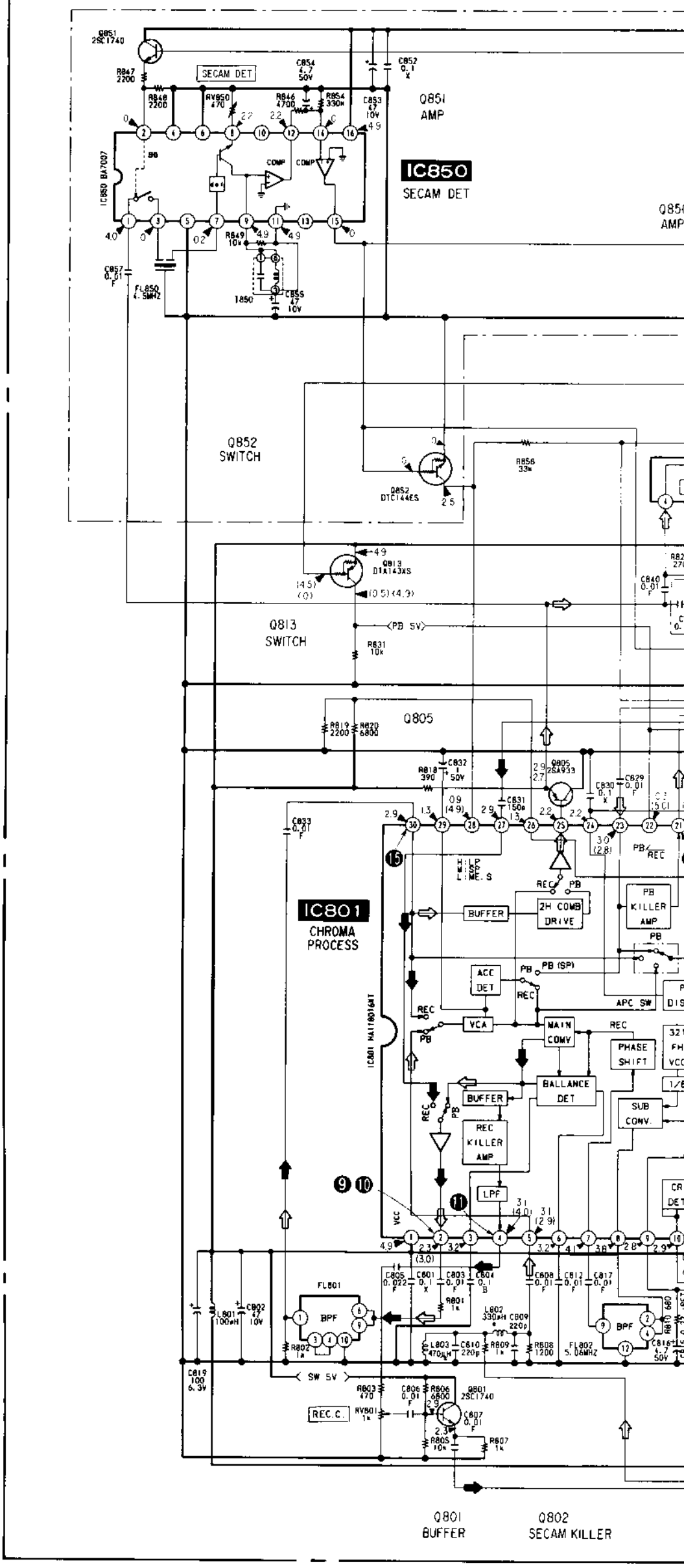
YC-90 BOARD



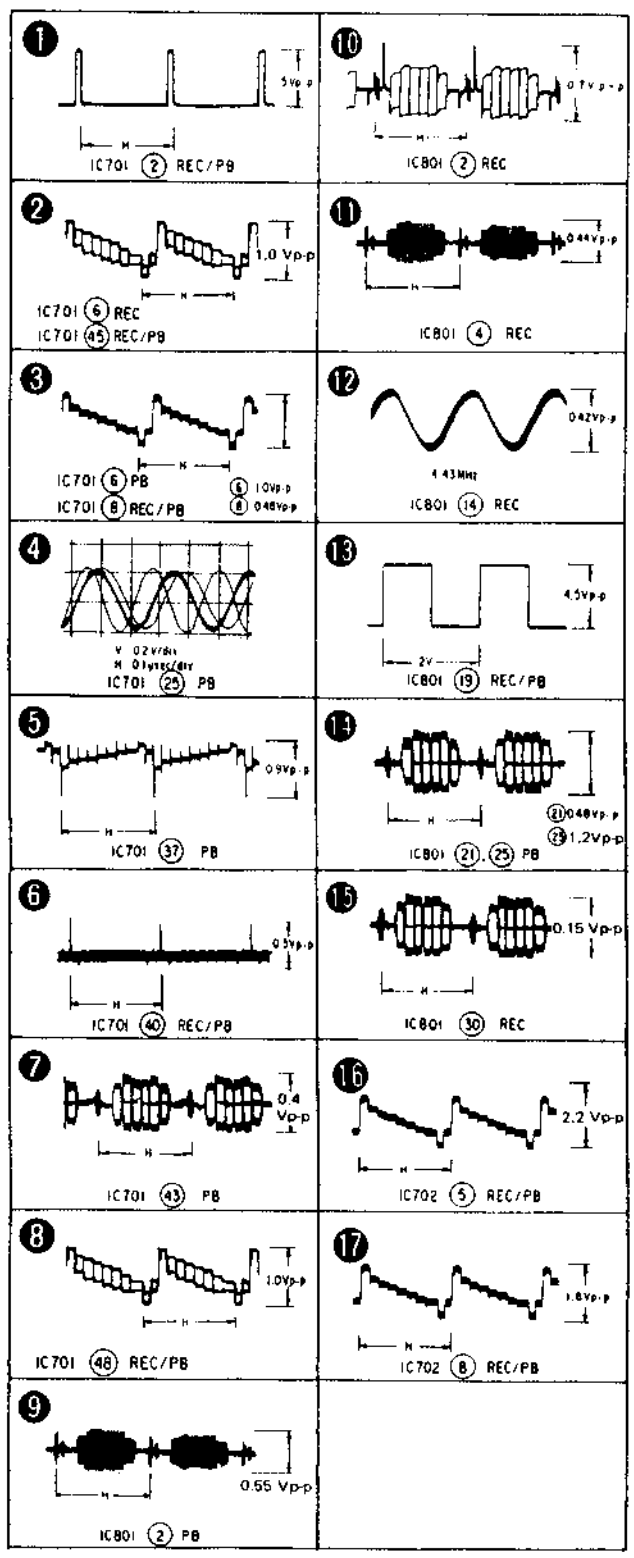
YC-90 (VIDEO) SCHEMATIC DIAGRAM

–Ref. No. YC-90 Board: 2,000 series–

YC-90 BOARD



YC-90 BOARD



YC-90 BOARD

D701	C-5	Q723	A-7
D705	B-7	Q801	E-1
D801	D-4	Q803	E-3
		Q804	C-4
IC701	C-8	Q805	E-4
IC702	B-6	Q806	C-3
IC801	D-3	Q807	D-4
IC802	B-1	Q808	D-5
IC850	F-2	Q809	C-1
IC860	B-3	Q810	D-1
IC861	F-6	Q813	E-4
IC862	F-9	Q850	E-1
IC863	F-4	Q851	E-1
		Q852	E-4
Q702	D-6	Q860	D-2
Q704	A-8	Q862	B-4
Q705	C-7	Q880	F-7
Q706	C-6	Q881	F-9
Q710	D-9	Q882	F-9
Q711	C-6	Q883	F-5
Q721	A-9	Q884	B-4
Q722	E-10		

Q850
AMP

Q807, 808
REC/PB SWITCH

Q880
BUFFER

IC861
0.5H CCD

IC862
SWITCH

Q881, 882
AMP

Q722
NOISE CANCE
SWITCH

Q862

Q883
BUFFER

IC863
SYNC SEP

Q884
C CONT
SWITCH

Q803
3 fsc AMP

IC860
0.5H SKEW
DET

Q804, 806
REC/PB
SWITCH

Q809, 860
BUFFER

IC802
SYNC SEP

Q810
INVERTER

CN704 4P WHT
GND | PB C | GND | REC C

CN701 6P WHT
PB FM | GND | REC FM | GND | C SYNC 1 | COLOR ROT

CN703 11P BLK
V IN | GND (V) | LP/SP | V PB | C SYNC 2 | SKEW ON | COLOR CONT | SECAM ACK | V OUT | GND (V) | JOG

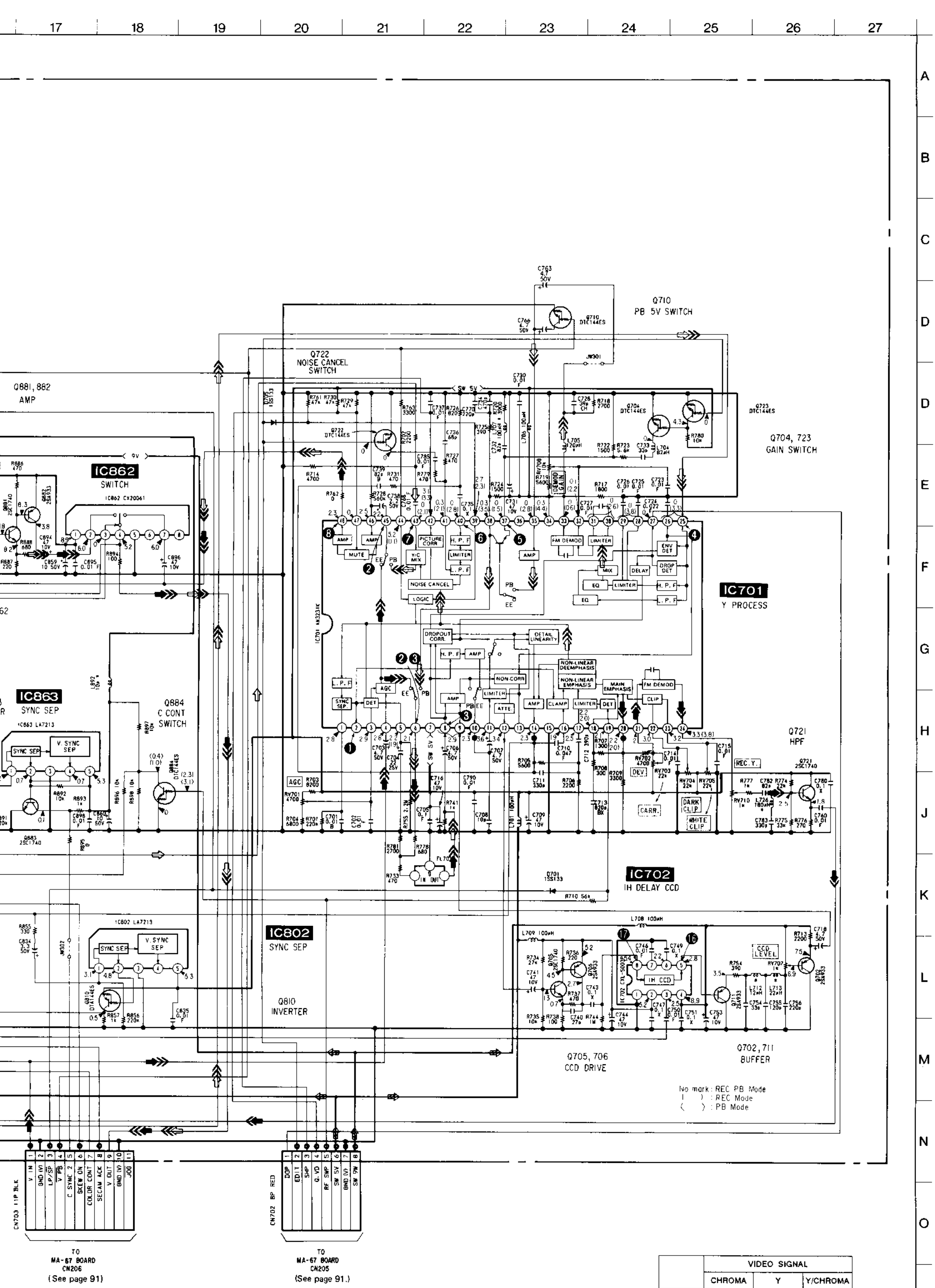
CN702 6P RED
DDP | EDIT | SHP | Q. VD | RF SWP | SW 5V

TO
RP-100 BOARD
CN004
(See page 82.)

TO
RP-100 BOARD
CN004
(See page 82.)

TO
MA-67 BOARD
CN206
(See page 91)

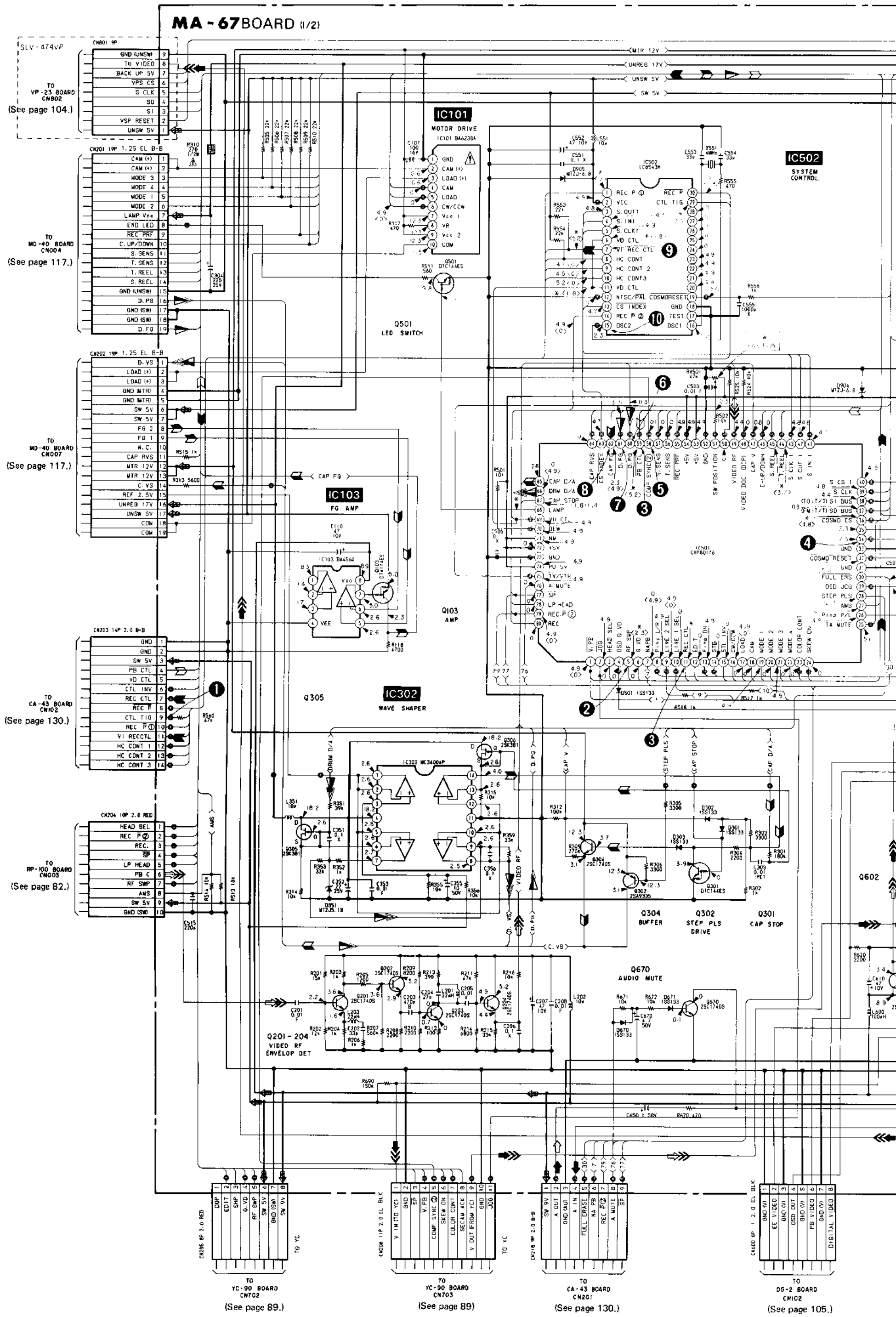
TO
MA-67 BOARD
CN205
(See page 9



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

MA-67 (1/2) (SERVO, SYSTEM CONTROL) SCHEMATIC DIAGRAM

– Ref. No. MA-67 Board: 3,000 series –



SERVO,SYSTEM CONTROL SERVO,SYSTEM CONTROL

MTR 12V
UNREG 17V
UNSW 5V
SW 5V

IC502
SYSTEM CONTROL

IC402
SYNC SEP

IC402 LV45195

SCHMIT
AFC BLOCK

SLV - 474VP

Q401,402
BUFFER

Q403

Q404
VIDEO AMP

Q405

IC503

IC401
CHARACTER GENERATOR

IC401 M50954

Q835
AMP

Q406,407
H SYNC DET

IC501
SYSTEM CONTROL

IC600
INPUT SELECTER

IC602

IC650
INPUT SELECT

IC652
AMP

IC840
EEP ROM

Q600 Q601 Q602 Q603 Q605 Q607

SECAM ACK

TO MA-67 BOARD (2/2)
(See page 101.)

TO MA-67 BOARD (2/2)
(See page 103.)

TO MF-98 BOARD CN061
(See page 119.)

TO DG-2 BOARD CN101
(See page 105.)

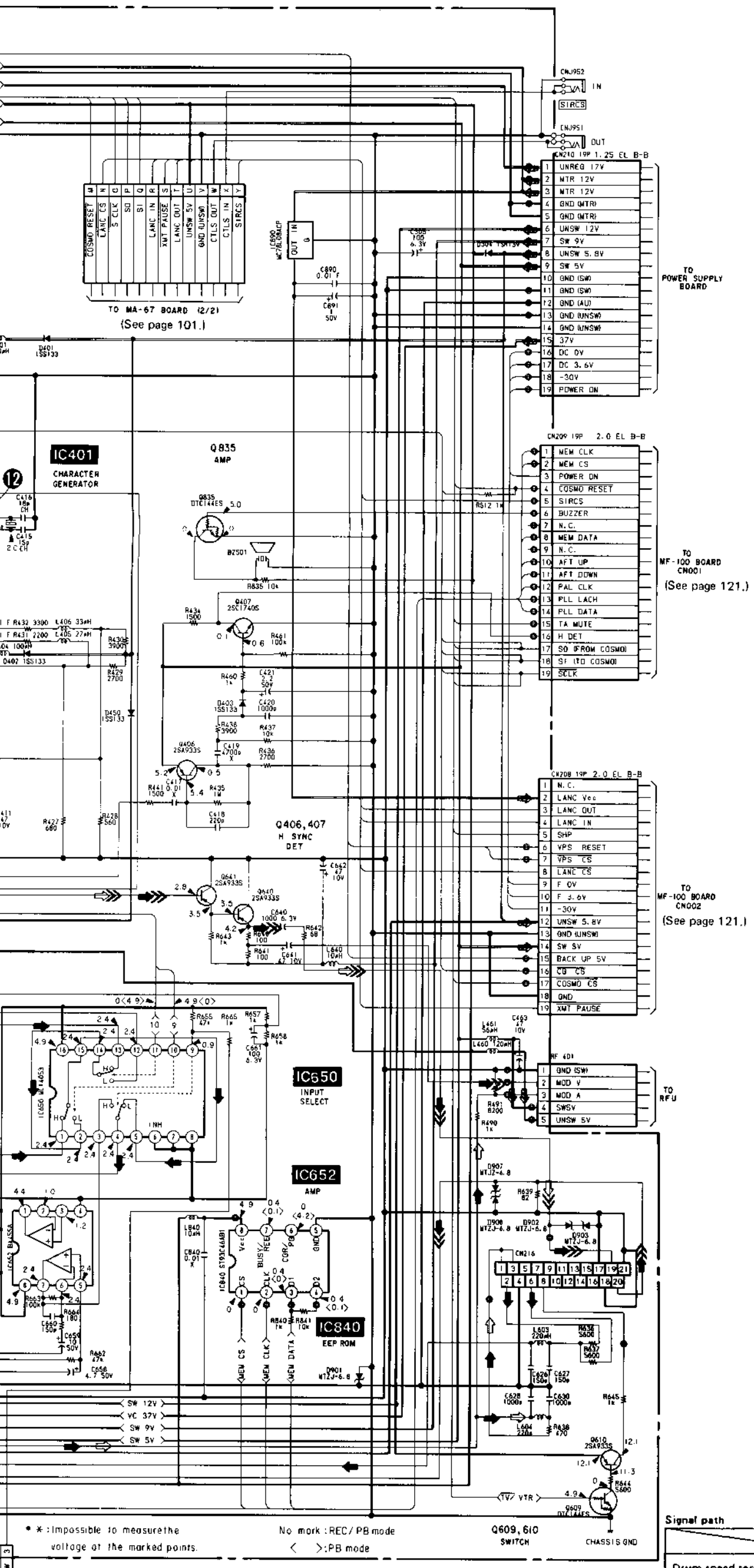
TO MJ-47 BOARD
(See page 119.)

TO 2 BOARD N102
page 105.)

• * : Impossible to measure the voltage at the marked points.

No mark : REC / PB mode
< > : PB mode

	VIDEO	
	CHROMA	
REC		
PB		

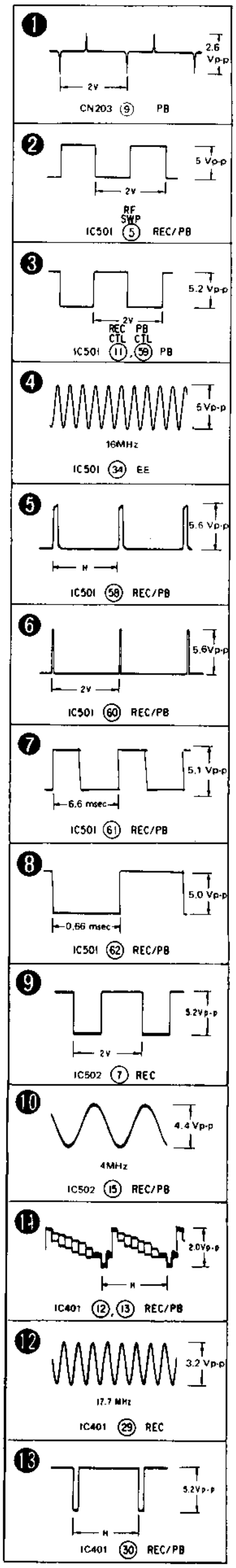


* : Impossible to measure the voltage at the marked points.

No mark : REC/PB mode

< > : PB mode

MA-67 BOARD



Signal path

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo (speed and phase)		▷▷	
Capstan speed servo		▷	
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	▶		▷

	VIDEO SIGNAL			AUDIO
	CHROMA	Y	Y/CHROMA	
REC		▶	▶	▶
PB		▷	▷	▷

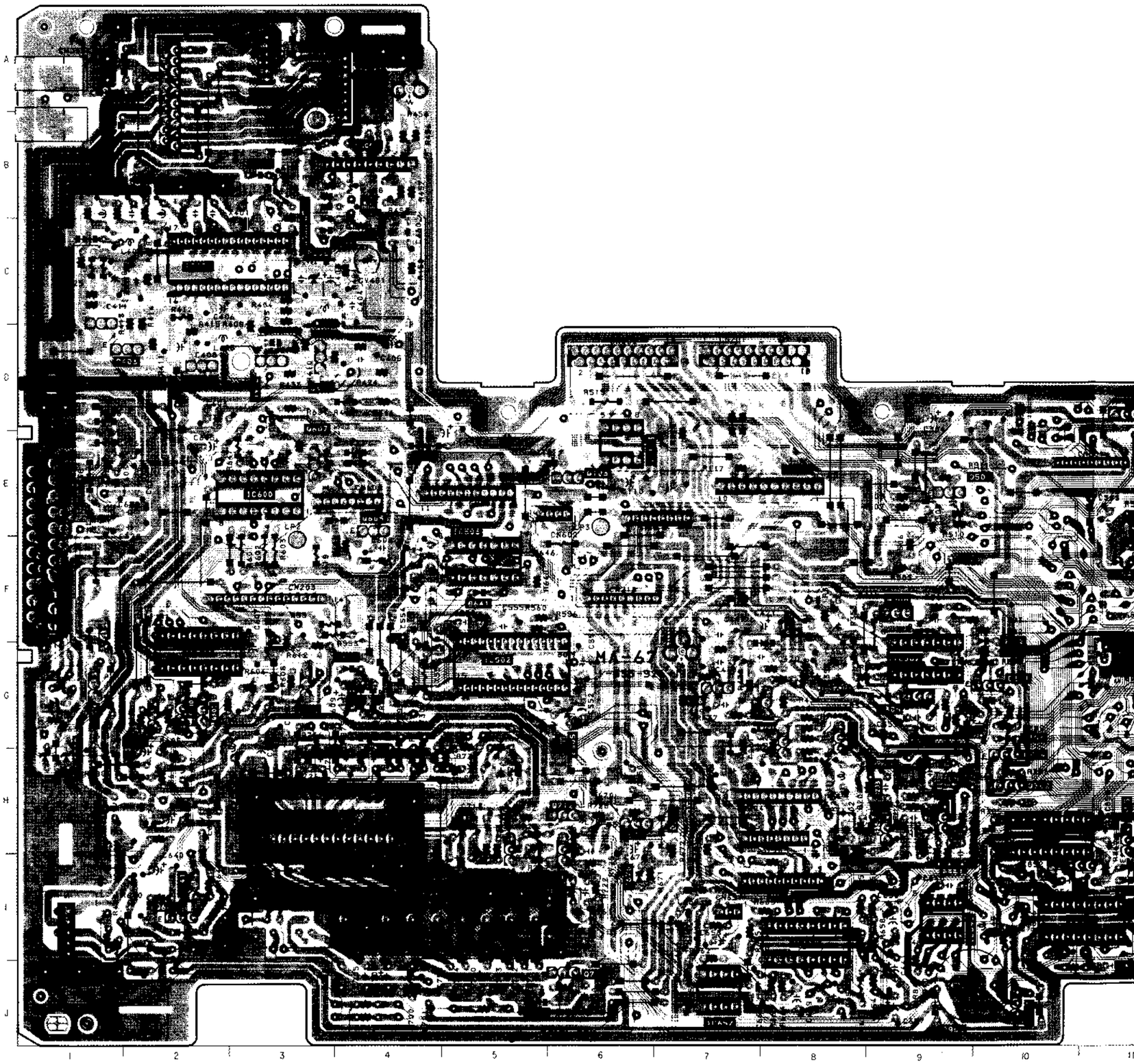
MA-67 (SERVO, SYSTEM CONTROL) PRINTED WIRING BOARD

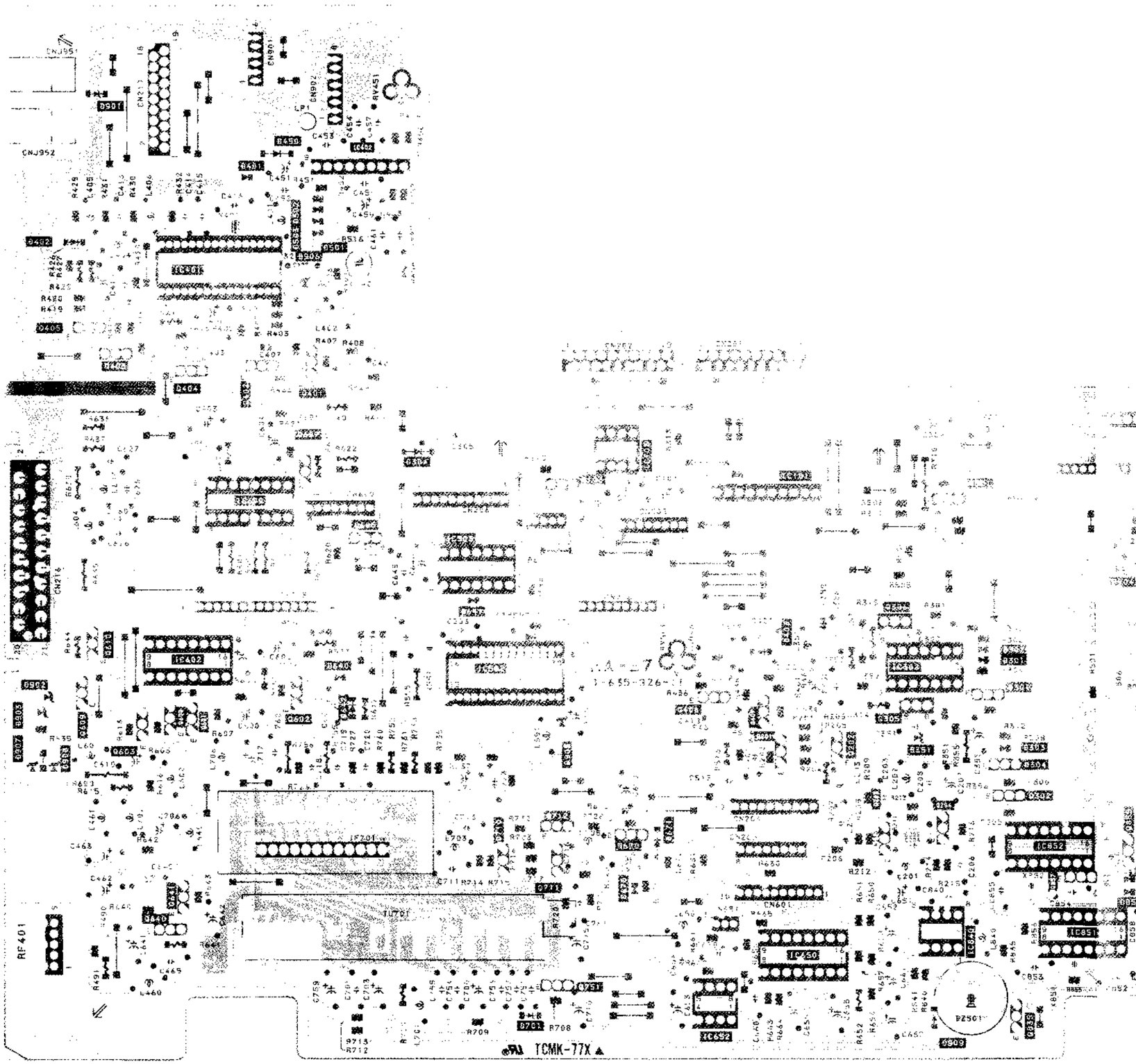
–Ref. No. MA-67 Board: 3,000 series–

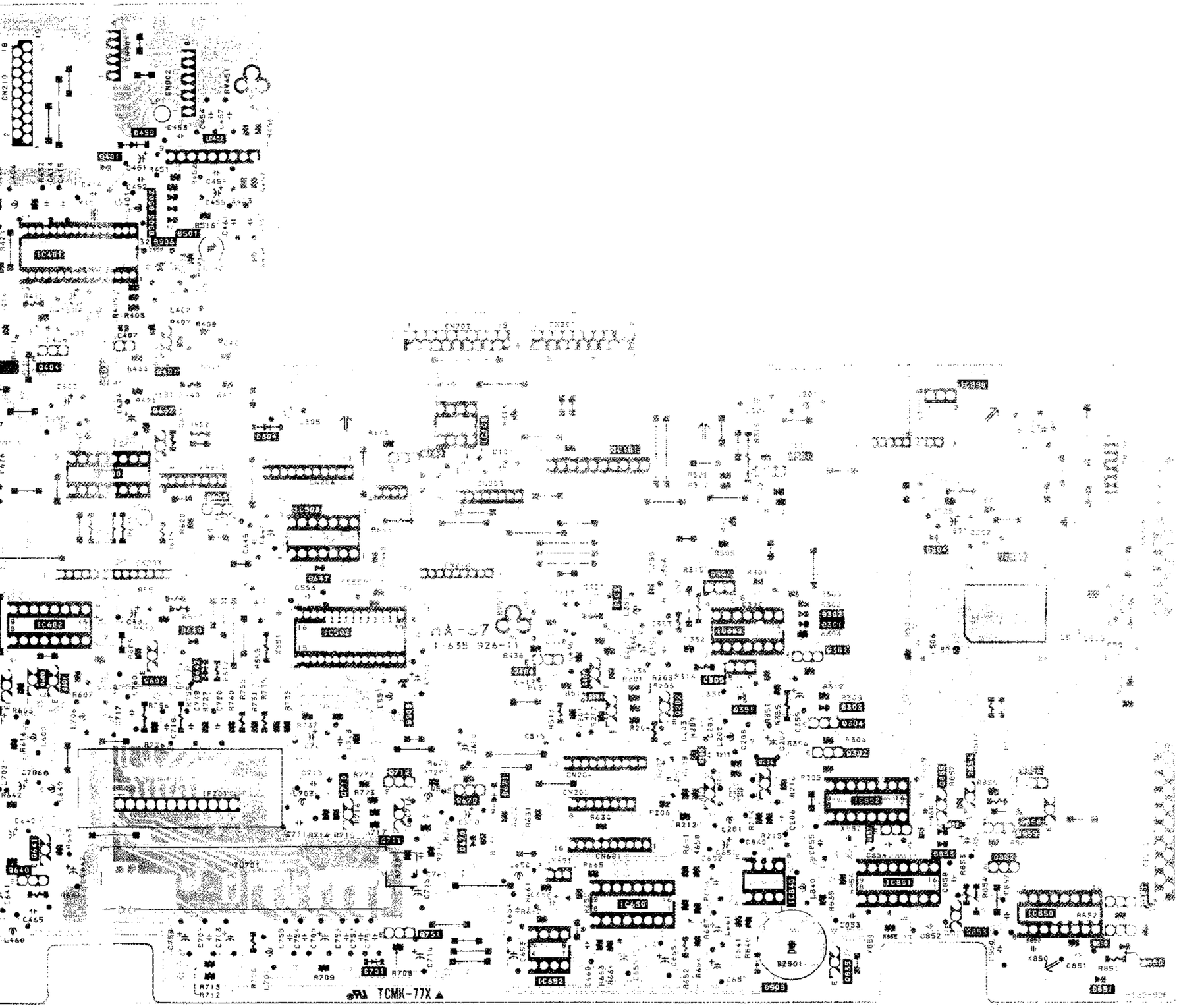
MA-67 BOARD

D301	I-12	IC702	J-12
D302	I-12	IC801	E-12
D303	I-11	IC802	G-12
D304	F-5		
D351	J-11	Q103	E-7
D401	B-3	Q201	I-10
D402	C-1	Q202	I-10
D403	E-3	Q203	J-9
D404	C-3	Q204	J-10
D501	B-3	Q301	I-11
D502	B-3	Q302	I-12
D503	B-3	Q304	H-11
D504	E-11	Q401	D-3
D551	F-4	Q402	E-2
D601	H-9	Q403	D-1
D602	E-1	Q404	D-2
D603	J-8	Q405	D-1
D604	J-9	Q406	E-2
D670	F-6	Q407	F-2
D671	F-5	Q451	H-12
D701	J-6	Q501	E-9
D901	F-1	Q515	H-13
D902	G-1	Q601	H-7
D903	G-1	Q602	H-8
D951	G-2	Q603	H-7
D952	G-1	Q604	I-9
D953	G-1	Q608	H-9
		Q609	I-1
IC101	F-8	Q610	H-2
IC103	E-6	Q670	F-5
IC302	I-11	Q710	G-3
IC401	C-2	Q711	G-4
IC402	H-11	Q712	G-5
IC501	E-10	Q751	J-6
IC502	E-4	Q951	G-1
IC601	J-7	Q952	H-2

MA-67 BOARD




TCMK-77X


MA-67
1-655-926-11
TCMK-77X

MA-67 (2/2) (SERVO, SYSTEM CONTROL), VP-23 (VPS CONTROL) PRINTED WIRING BOARDS

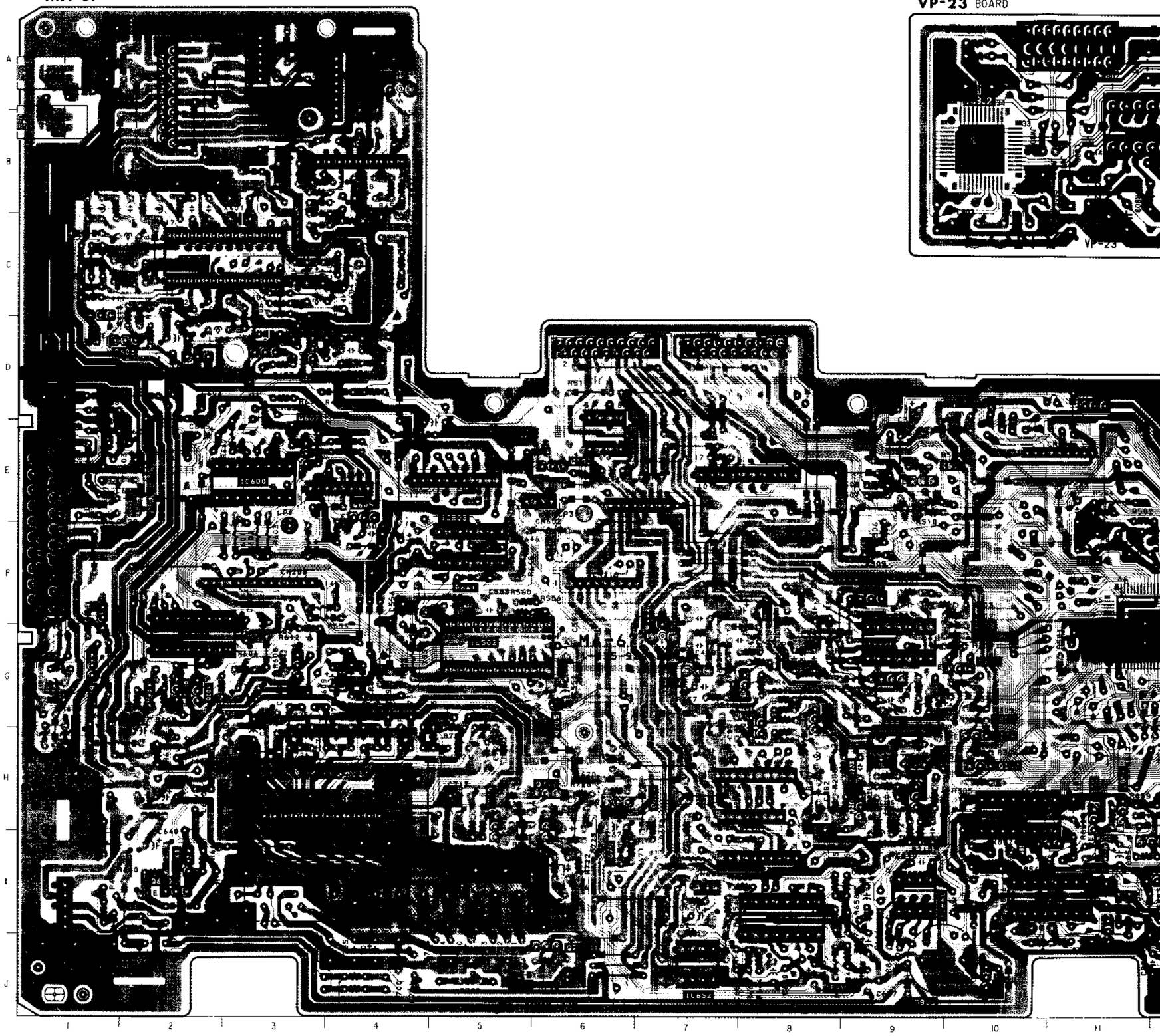
–Ref. No. MA-67 Board: 3,000 series, VP-23 Board: 6,000 series–

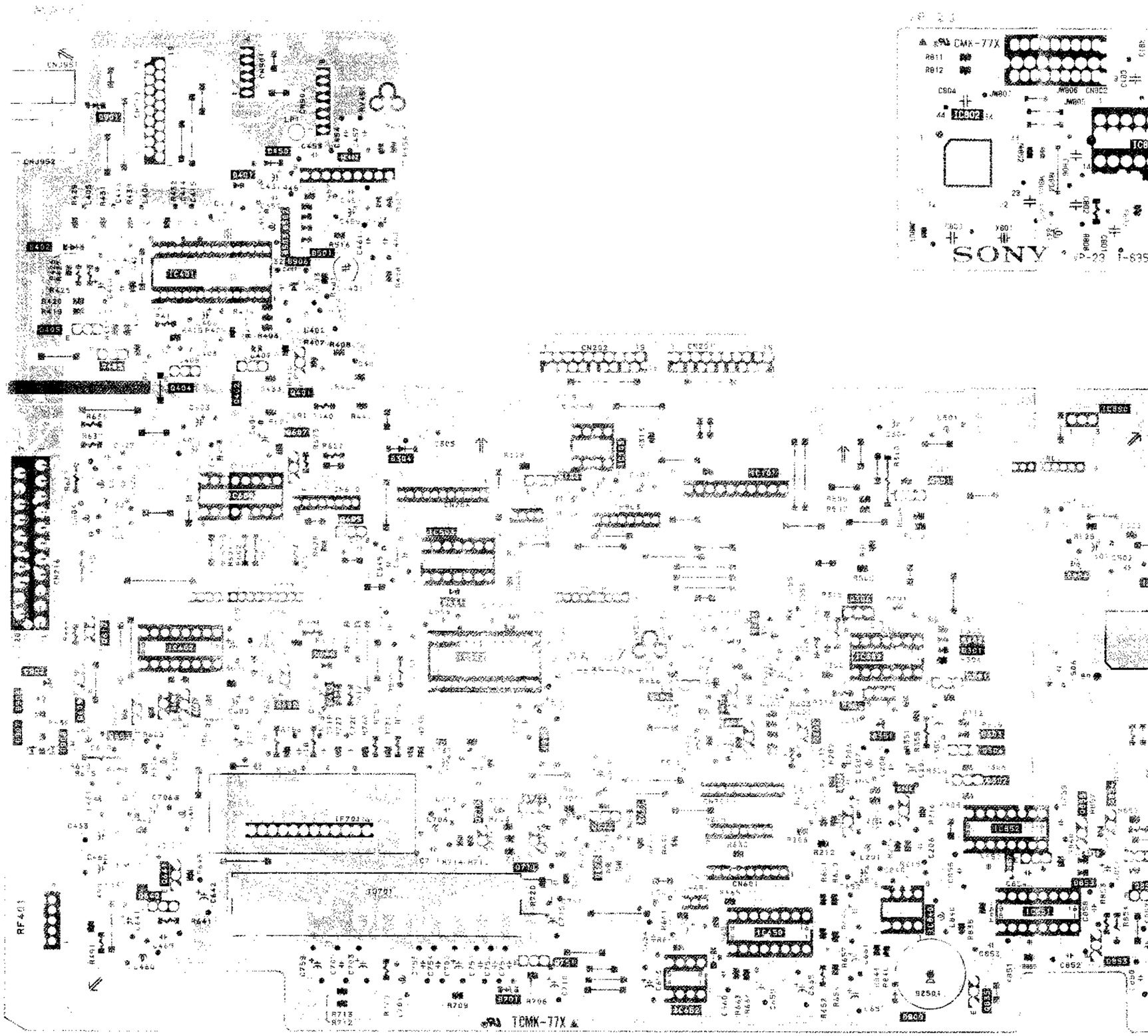
MA-67 BOARD

D301	I-12	IC702	J-12
D302	I-12	IC801	E-12
D303	I-11	IC802	G-12
D304	F-5		
D351	J-11	Q103	E-7
D401	B-3	Q201	I-10
D402	C-1	Q202	I-10
D403	E-3	Q203	J-9
D404	C-3	Q204	J-10
D501	B-3	Q301	I-11
D502	B-3	Q302	I-12
D503	B-3	Q304	H-11
D504	E-11	Q401	D-3
D551	F-4	Q402	E-2
D601	H-9	Q403	D-1
D602	E-1	Q404	D-2
D603	J-8	Q405	D-1
D604	J-9	Q406	E-2
D670	F-6	Q407	F-2
D671	F-5	Q451	H-12
D701	J-6	Q501	E-9
D901	F-1	Q515	H-13
D902	G-1	Q601	H-7
D903	G-1	Q602	H-8
D951	G-2	Q603	H-7
D952	G-1	Q604	I-9
D953	G-1	Q608	H-9
		Q609	I-1
IC101	F-8	Q610	H-2
IC103	E-6	Q670	F-5
IC302	I-11	Q710	G-3
IC401	C-2	Q711	G-4
IC402	H-11	Q712	G-5
IC501	E-10	Q751	J-6
IC502	E-4	Q951	G-1
IC601	J-7	Q952	H-2

MA-67 BOARD

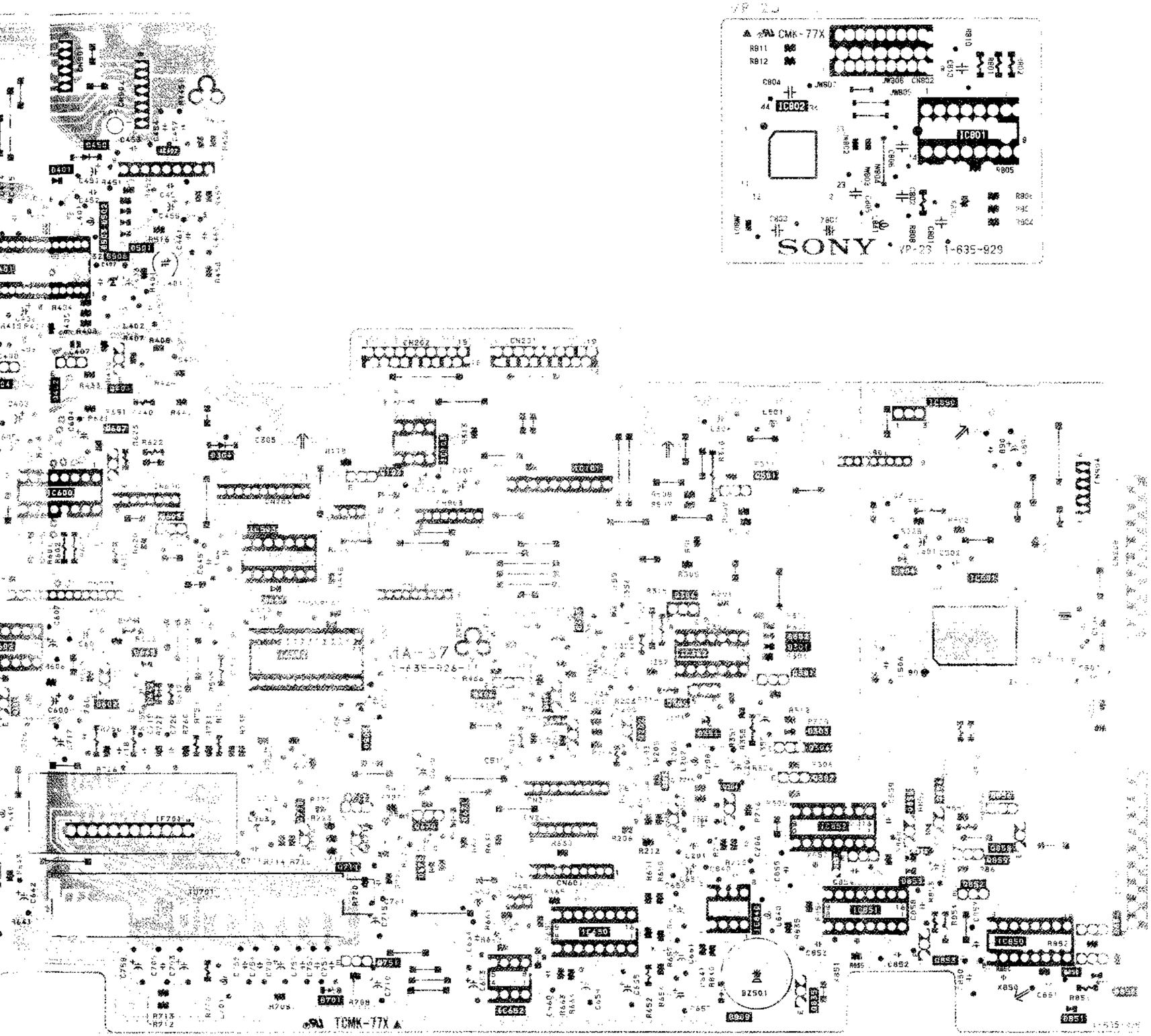
VP-23 BOARD





SERVO.SYSTEM CONTROL

SERVO SYSTEM CONTROL SERVO

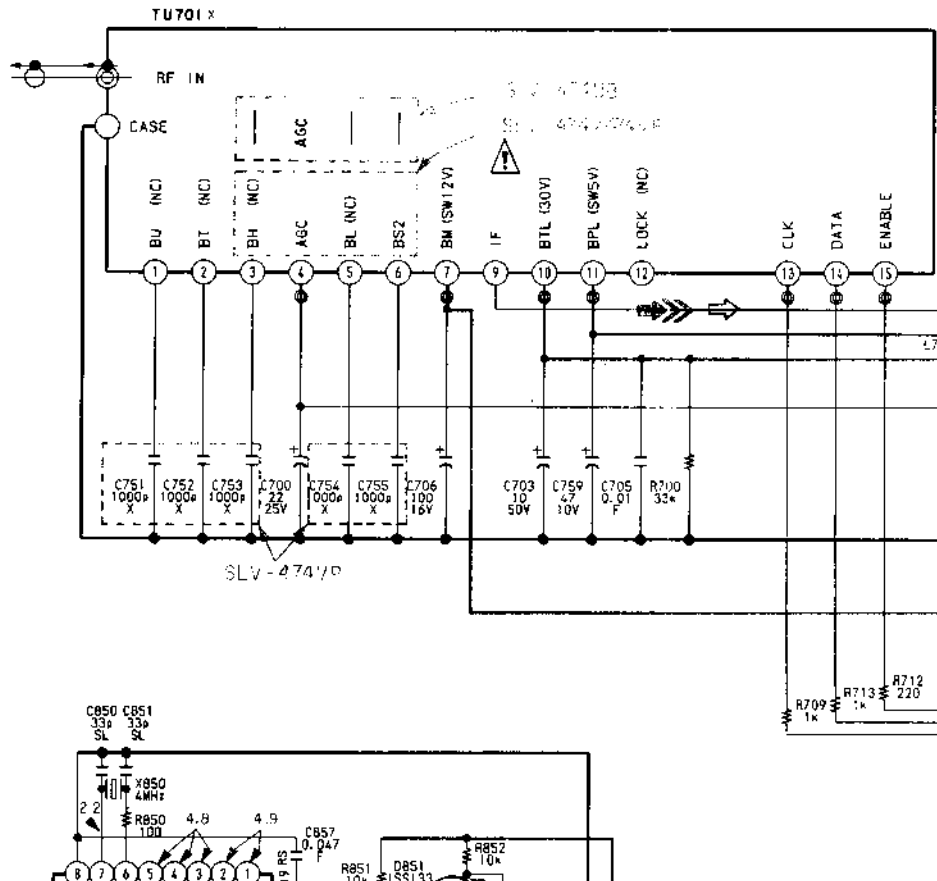


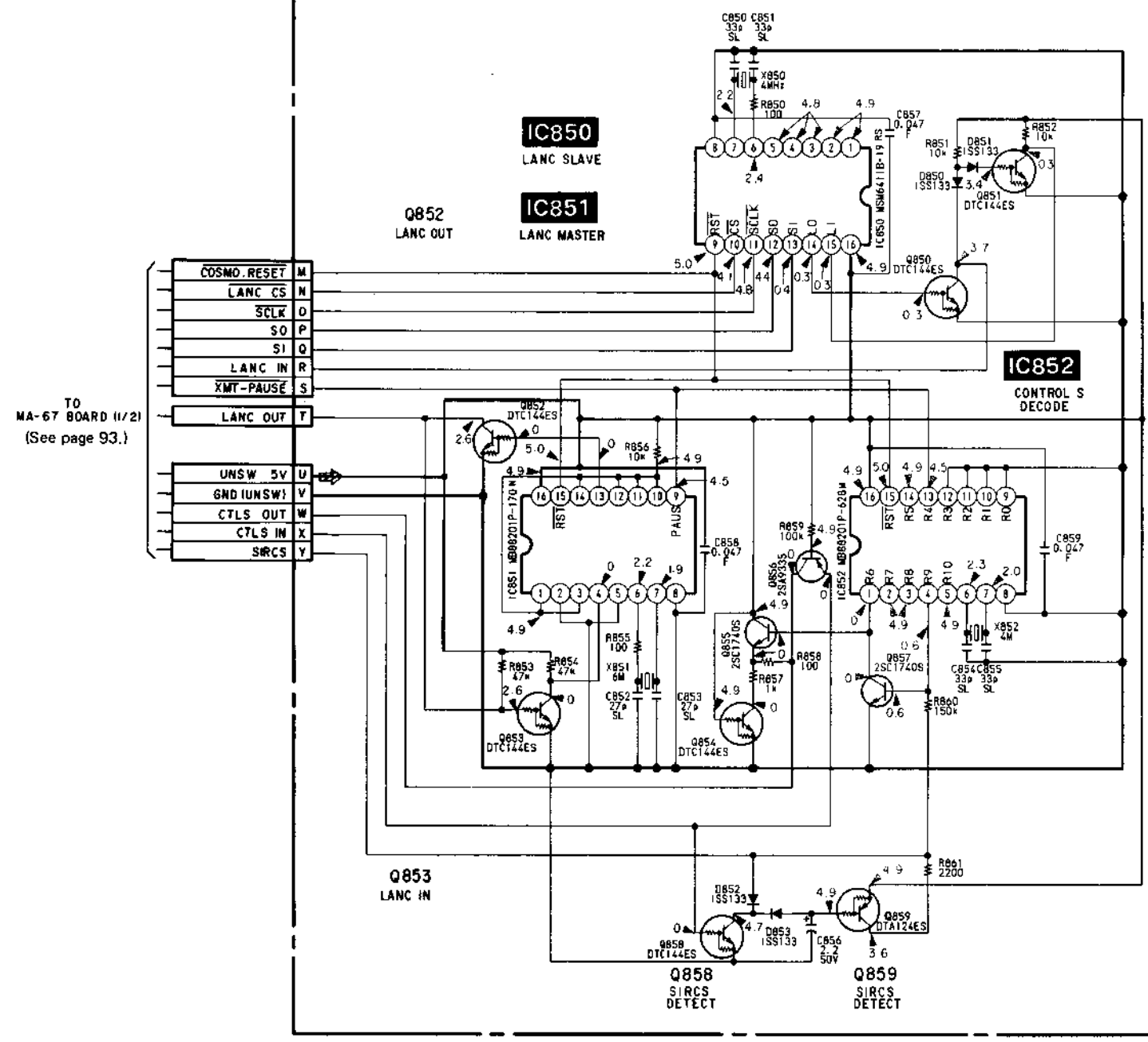
SERVO SYSTEM CONTROL SERVO SYSTEM CONTROL

MA-67 BOARD (2/2)

※ TU701
BTP-2C401 : SLV-474 / 474vP
BTP-2U601 : SLV-474U

※ IF701
IFB-389 : SLV-474
IFB-395 : SLV-474UB
IFB-389A : SLV-474vP





※ IF 701
IFB-389 : SLV-474
IFB-395 : SLV-474UB
IFB-389A : SLV-474VP

SW 5V

L710 22μH

IF 701 ※

SLV-474VP
SLV-474/474UB

RF AGC | IF IN | VCC | AFT UP | AFT DN | AFT OUT | VOL CONT | NC | NC | NC | AUDIO OUT | CASE | DET OUT

Q751

R755 47k
R756 47k
R726 150k
R727 50k
C723 0.1 50V BP
JW701
SLV-474/474UB
R730 3900
R731 10k
C718 0.0022 ※
C719 0.0022 ※
C721 4.7 50V
C760 0.01 F
R708 1k
D701 MTZJ-33
C710 10 50V
R759 56k
R760 56k
C717 100 16V
SLV-474/474UB

L701 10μH
Q751 2SD1292

L702 220μH
L706 10μH

R735 2200
JW
R737 3900
SLV-474VP
SLV-474/474UB
JW702

R709 1k
R713 1k
R712 220

L703 22μH
R715 100
Q710 2SC1740S
C711 27p : SL
R714 2200
C713 ※
R716 1k
R717 1k
Q711 2SC1740S
R720 1k
C715 100 16V
R723 1k
C716 ※
L705 ※
R725 ※
R722 1k
C761 15p
SLV-474UB
R732 1k
Q712 2SA9335
R728 100

Q710 VIDEO AMP
Q711 VIDEO AMP
Q712 BUFFER

TO MA-67 BOARD (1/2)
(See page 93.)

A	SW 5V
B	VC 37V
C	AFT UP
D	AFT ON
E	GND SW
F	SW 9V
G	SW 12V
H	TU AUDIO
I	TU VIDEO
J	PLL CLK
K	PLL LATCH
L	PLL DATA

Q851 LANC IN
Q850 LANC OUT
Q854 Q856 POWER FAILURE
Q855 SIRCS OUT
Q857 BYPASS

※C713
27p : SLV-474/474VP
56p : SLV-474UK

※C716
62p : SLV-474/474VP
82p : SLV-474UK

※L705
33μH : SLV-474/474VP
22μH : SLV-474UB

※R725
1k : SLV-474/474VP
620 : SLV-474UK

No mark : REC/PB mode

	VIDEO SIGNA	
	CHROMA	Y
REC		
PB		

	AUDIO
PB	⇨

A SW 5V
B VC 37V
C AFT UP
D AFT ON
E GND SW
F SW 9V
G SW 12V
H TU AUDIO
I TU VIDEO
J PLL CLK
K PLL LATCH
L PLL DATA

TO MA-67 BOARD (1/2) (See page 93.)

74VP

474UB

(See page 91.)

TO MA-67 BOARD CN801

CN802 9P: 9 GND (UNSW) / 8 TV VIDEO IN / 7 BACK UP 5V / 6 VPS CS / 5 S CLK / 4 SD / 3 SI / 2 RESET / 1 UNSW 5V

VP-23 BOARD (SLV-474 VP ONLY)

IC801 VPS DATA

IC802 VPS CONTROL

R811 10k, R803 100k, R804 820k, R801 10k, R802 10k, C810 150p B, R810 2200, C806 0.033 X, R808 1M, L841 10mH, C802 0.047 X, R805 100, R806 820k, R807 5600, C801 0.1 X, R812 10k, C804 0.047 X, X801, C805 33p, C803 33p

VPS CS, VPS RST, S CLK, SD, SI

IC801 SDA5642: VDD, CVDS, IREF, VCO, PD2, PD1, T1, G, SCL, SDA, CSO, VCS, DAVN, FHE

IC802 μPD75004GB

No mark: Playback mode

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡
PB			

	AUDIO
PB	⇨

DG-2 (DIGITAL PROCESS) SCHEMATIC DIAGRAM

–Ref. No. DG-2 Board: 5,000 series–

DG-2 Board

D101	E-9
D102	D-12
IC101	C-3
IC102	D-5
IC103	B-5
IC104	E-3
IC105	D-6
IC106	E-6
IC107	B-8
IC108	A-5
IC109	C-2
IC110	A-2
IC111	E-2
IC112	A-4
IC113	E-3
Q101	B-9
Q102	C-9
Q103	C-9
Q104	D-12
Q105	E-10
Q106	A-10
Q107	B-10
Q108	C-11
Q109	D-12
Q111	C-10
Q112	C-12

DG-2 BOARD
(REMOTE CONTROL P IN P : ON)

❶ 5Vp-p
IC102 ㊶ E-E (PinP : ON)
IC102 ㊸ E-E (PinP : ON)

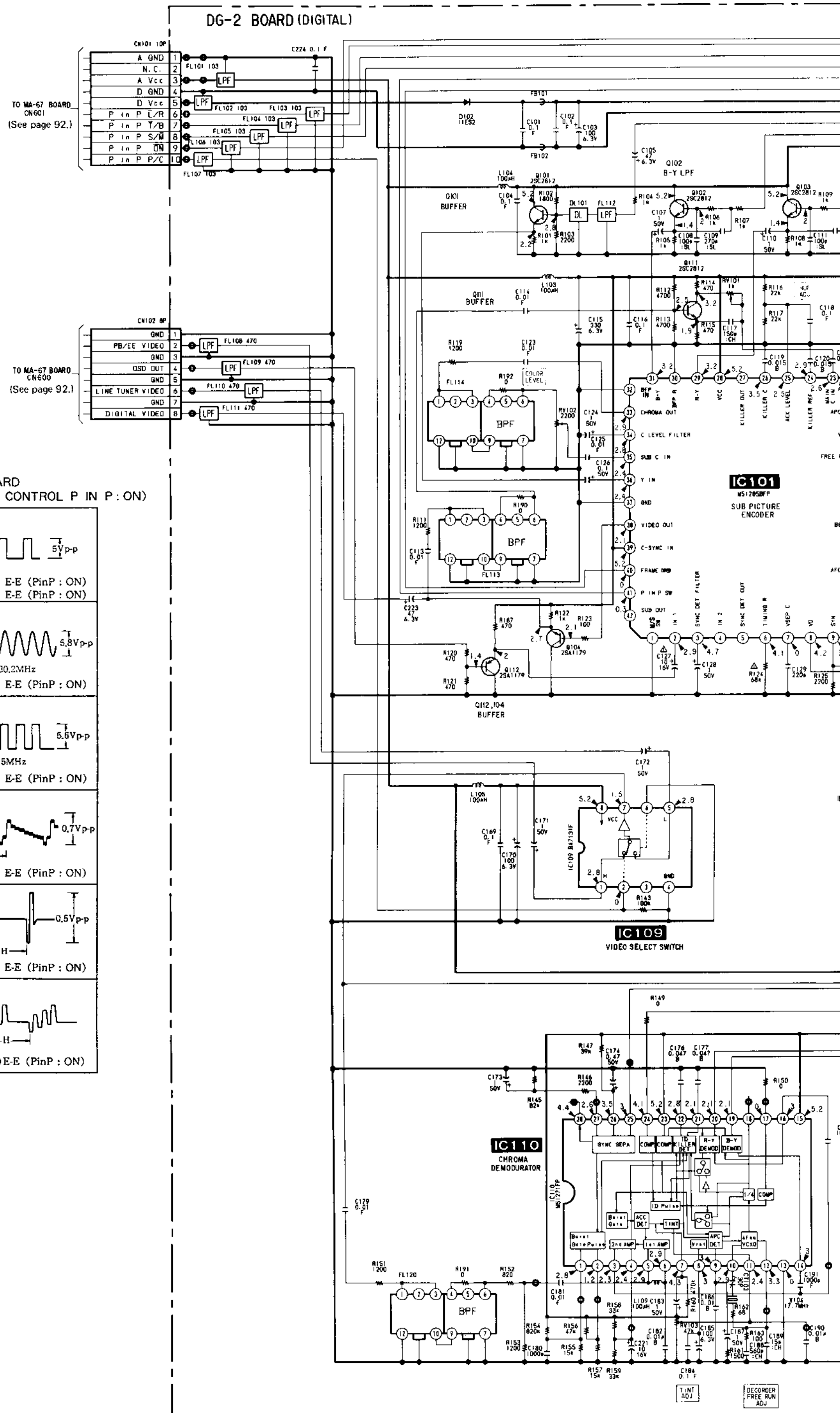
❷ 5.8Vp-p, 30.2MHz
IC105 ⑬ E-E (PinP : ON)

❸ 5.6Vp-p, 5MHz
IC105 ① E-E (PinP : ON)

❹ 0.7Vp-p, H
IC103 ⑰ E-E (PinP : ON)

❺ 0.5Vp-p, H
IC103 ㉑ E-E (PinP : ON)

❻ H
IC103 ⑲ E-E (PinP : ON)



IC103
D/A CONVERTOR

IC102
M50541FP
DIGITAL PICTURE CONTROL

IC106
OSC

IC105

IC104
SWITCH

IC111

IC112
COLOR DIFFRENTIAL SIGNAL SWITCH

IC113

Q105
INVERTER

Q106 - 108
LPF

Q109
BUFFER

IC103
D/A CONVERTOR

IC106
OSC

IC107
RAM

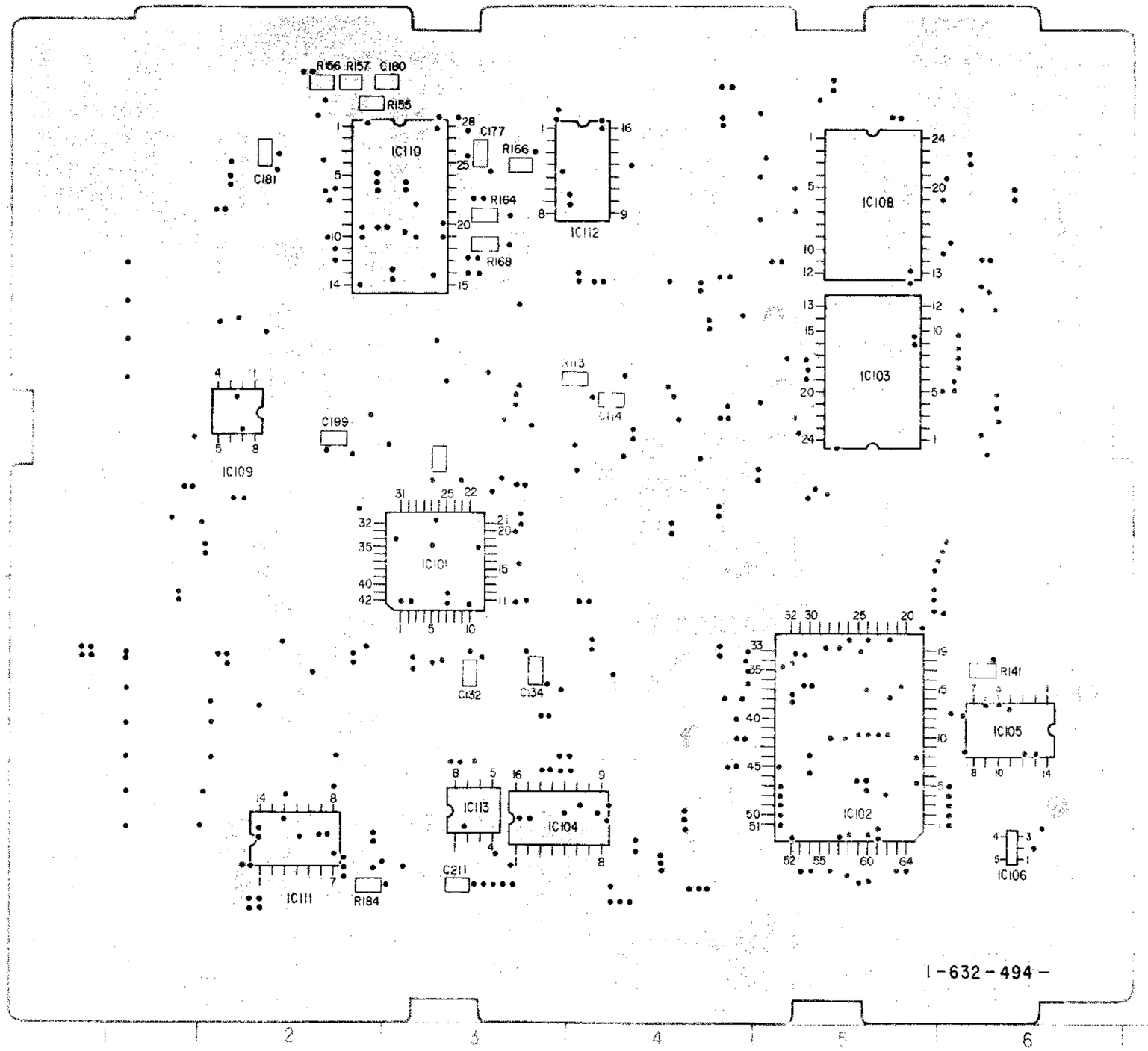
IC108
A/D CONVERTOR

IC112
COLOR DIFFRENTIAL
SIGNAL SWITCH

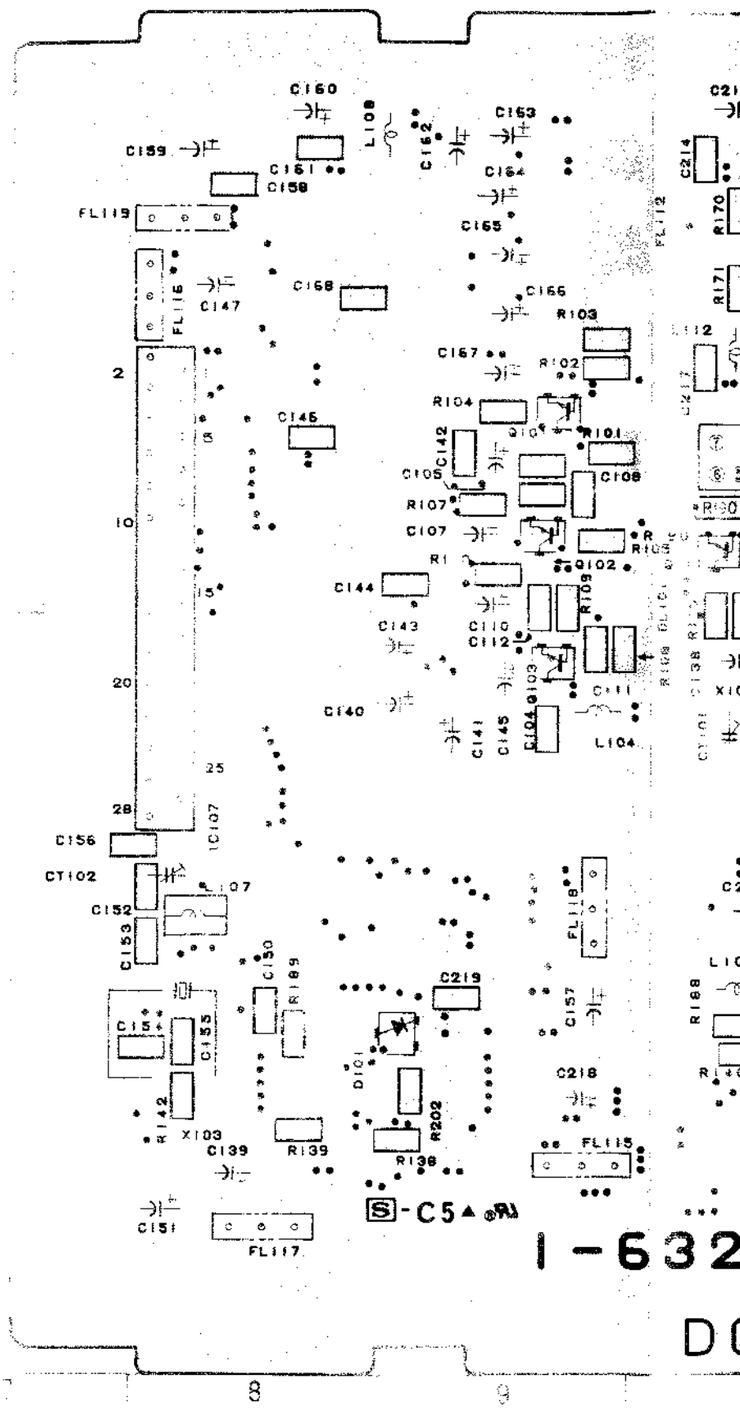
IC113

WRITE CLOCK ADJ

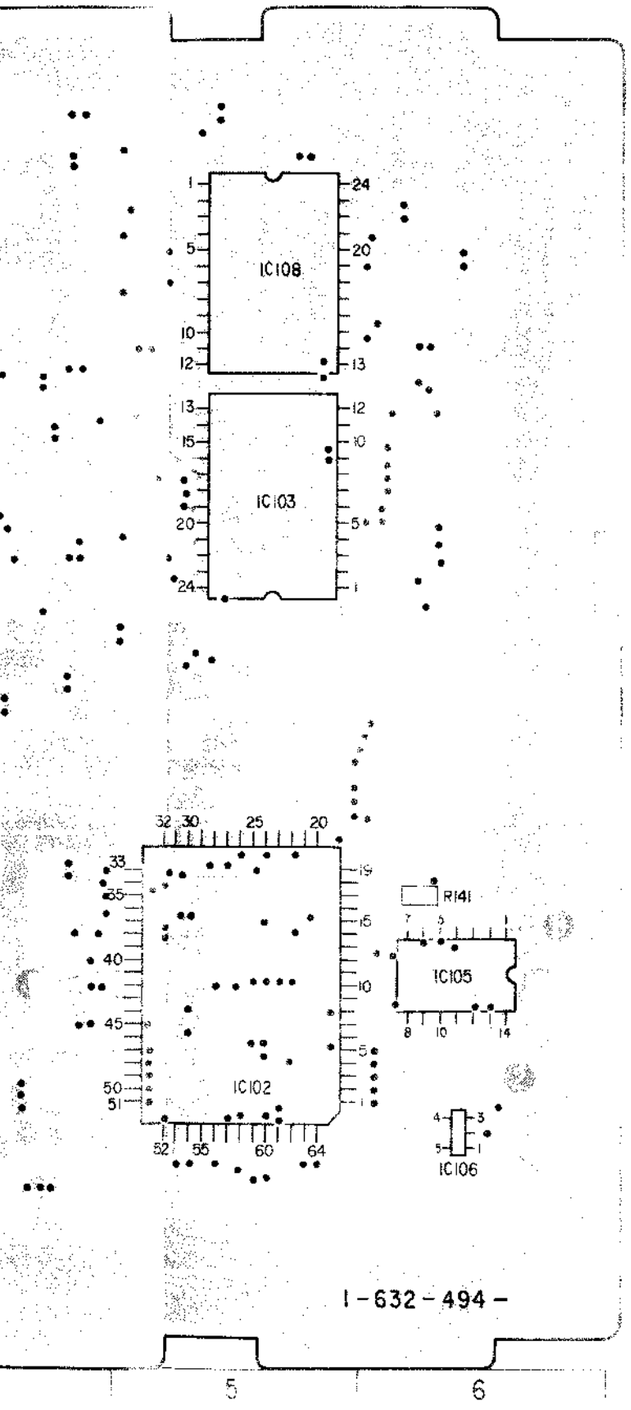
DG-2 BOARD (COMPONENT SIDE)

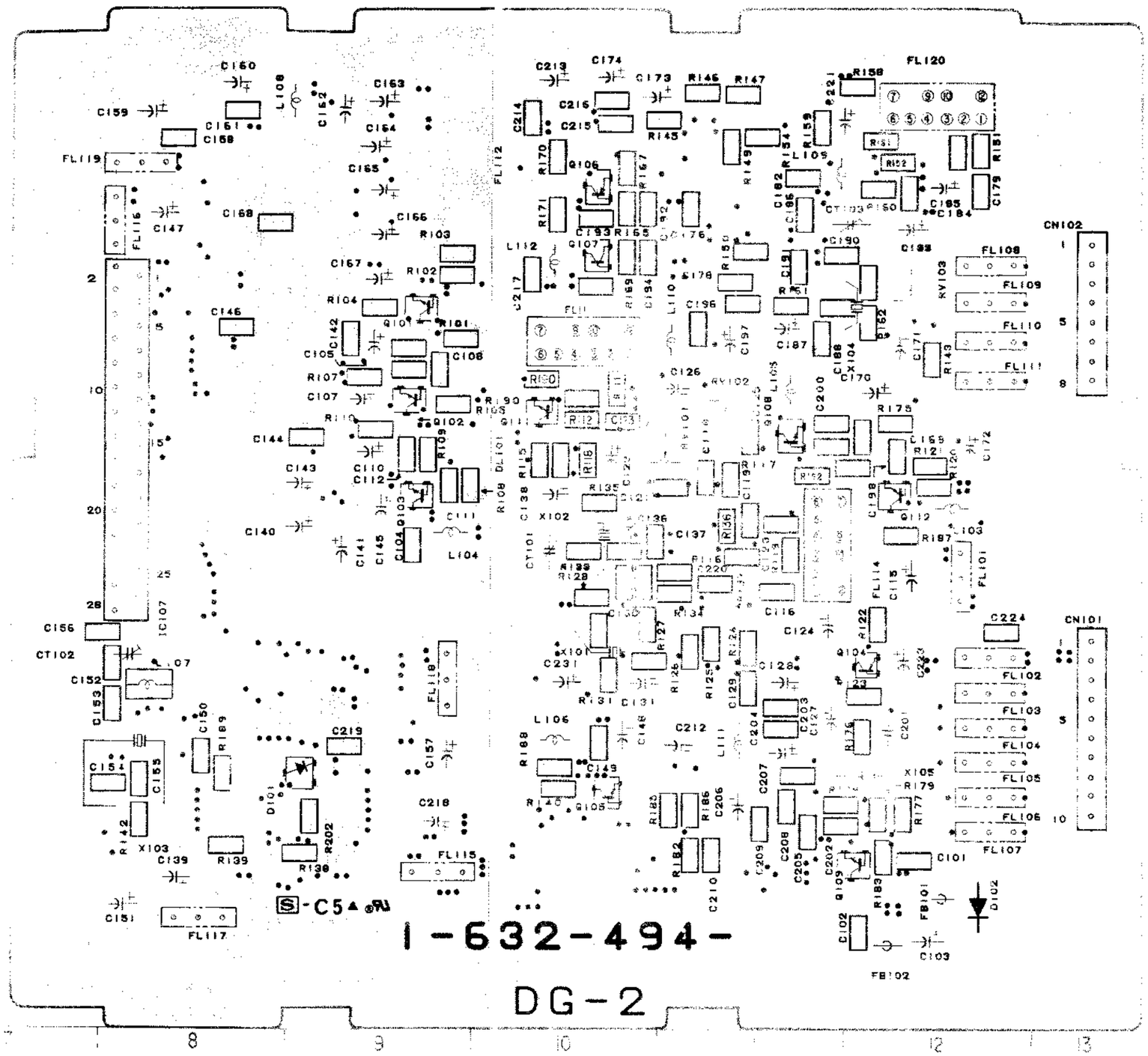


DG-2 BOARD (CONDUCTOR SIDE)



DG-2 BOARD (CONDUCTOR SIDE)



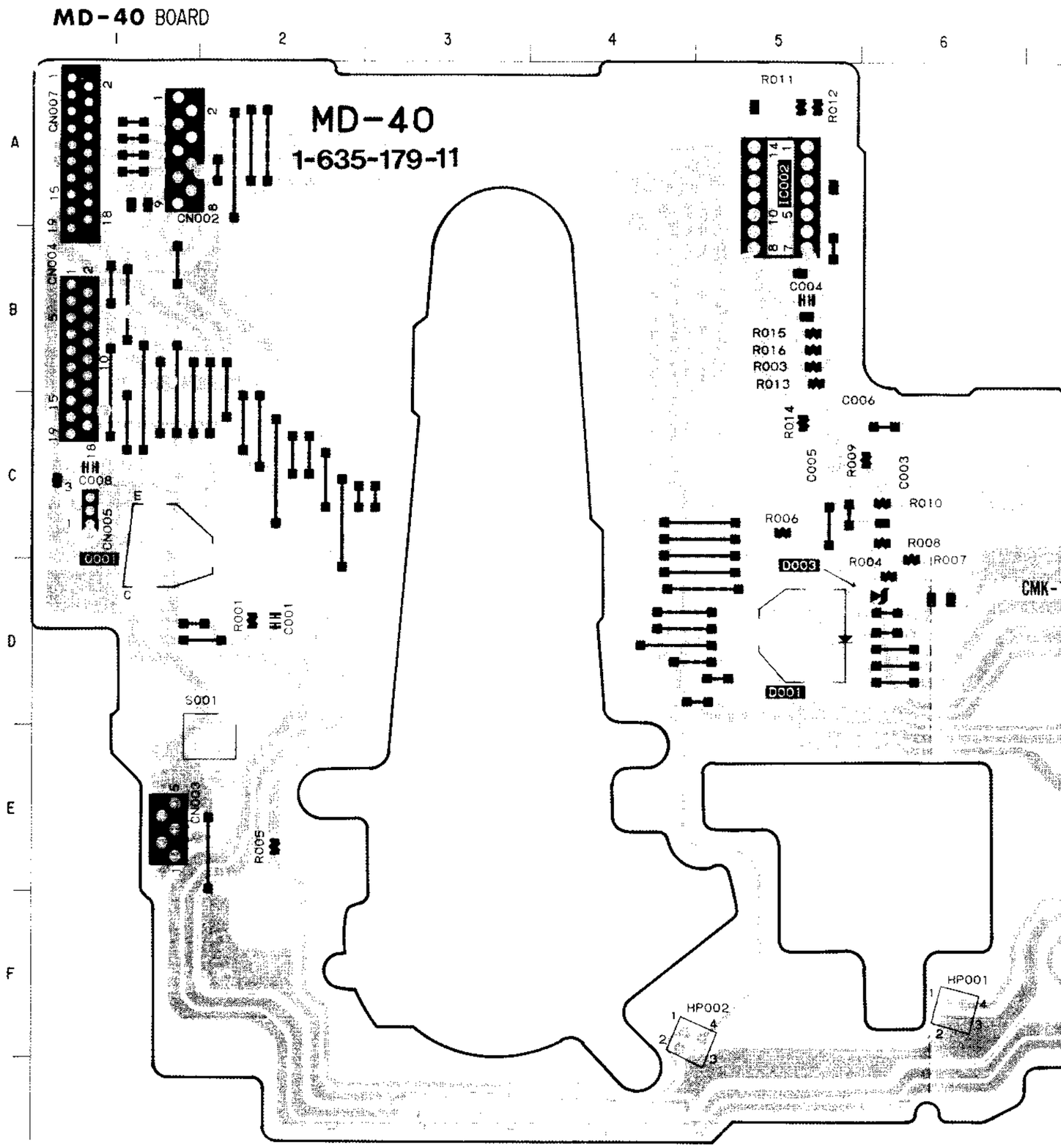


MD-40 (MECHANISM DRIVE) PRINTED WIRING BOARD

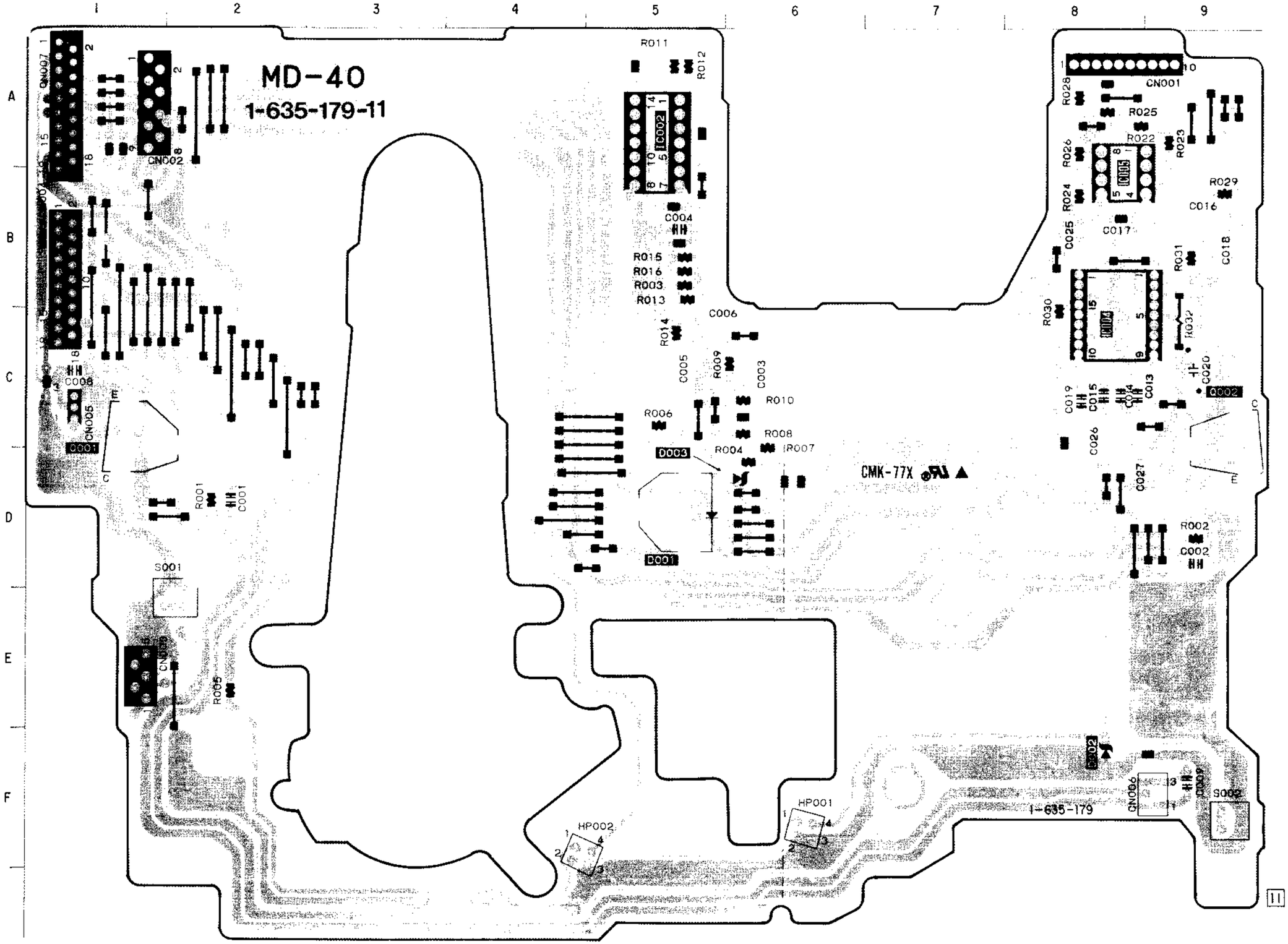
Ref. No. MD-40 Board: 4,000 series

MD-40 BOARD

D001	D-5
D002	F-8
D003	D-6
IC002	B-5
IC004	C-8
IC005	B-8
Q001	C-1
Q002	D-9



MD-40 BOARD

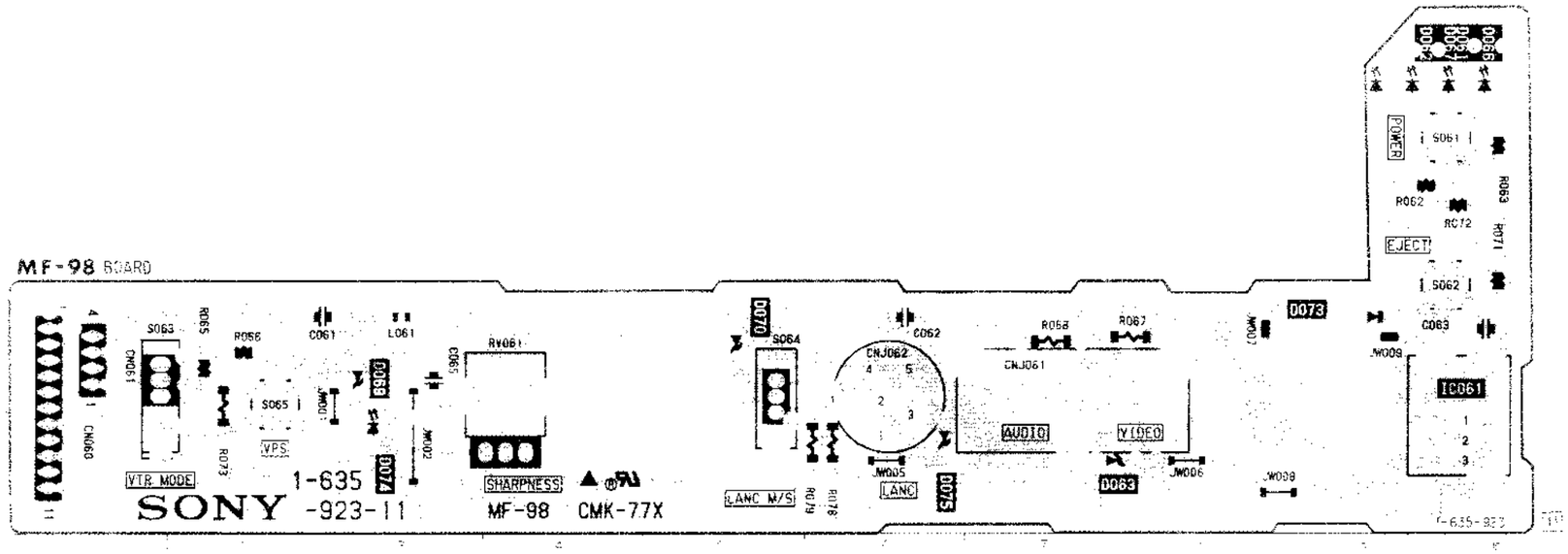


MECHANISM DRIVE MECHANISM DRIVE

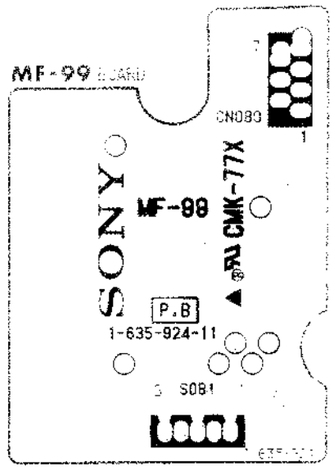
MF-98 (FUNCTION, LINE IN 2), MF-99 (SHUTTLE SEARCH DIAL), MF-100 (MODE CONTROL, INDICATOR), MJ-41 (MIC JACK) PRINTED WIRING BOARDS

Ref. No. MF-98 Board: 8,300 series, MF-99 Board: 8,500 series, MF-100 Board: 8,900 series, MJ-41 Board: 8,700 series

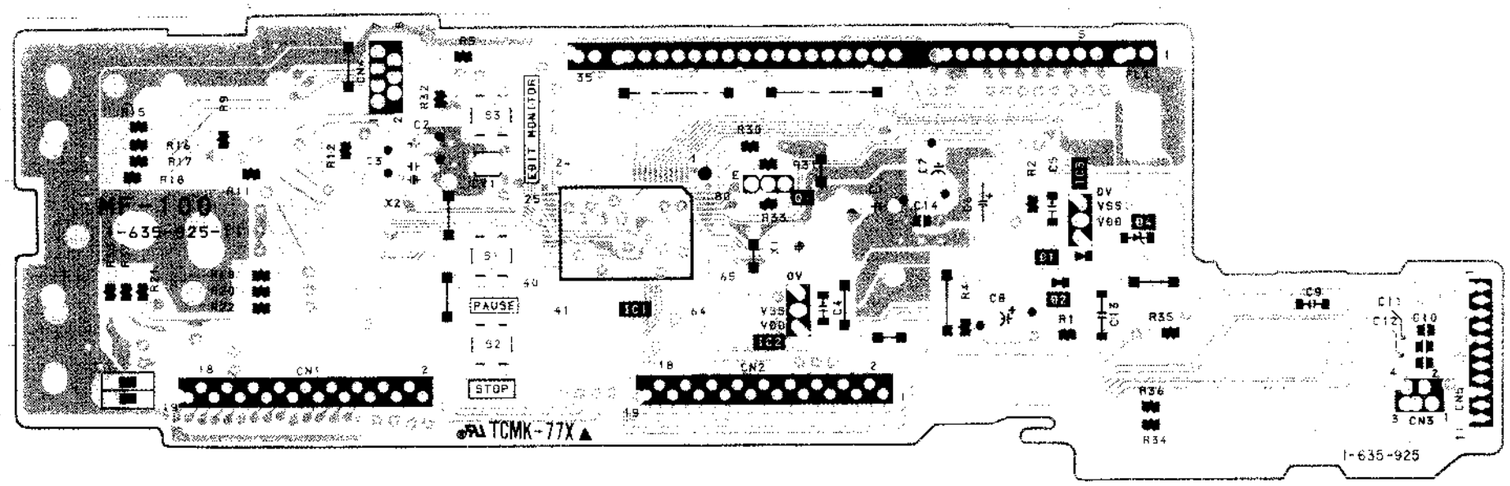
MF-98 BOARD



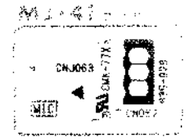
MF-99 BOARD



MF-100 BOARD



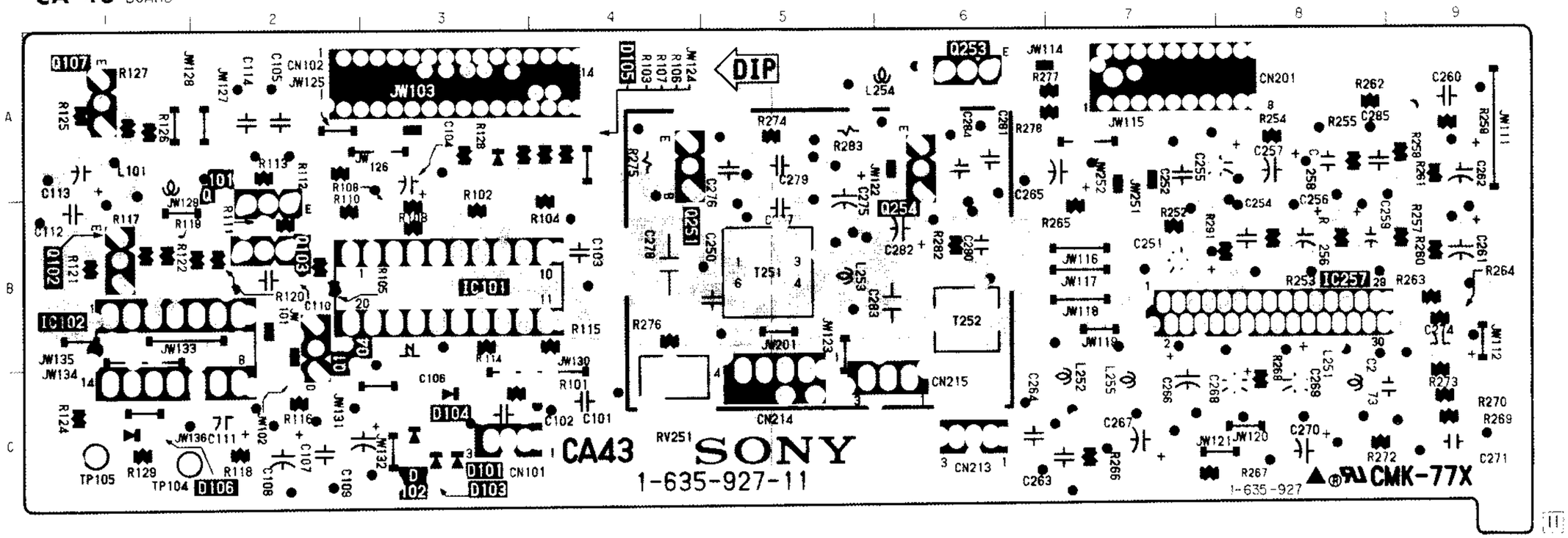
MJ-41 BOARD



CA-43 (CTL AMP/AUDIO) PRINTED WIRING BOARD

– Ref. No. CA-43 Board: 7,000 series

CA-43 BOARD

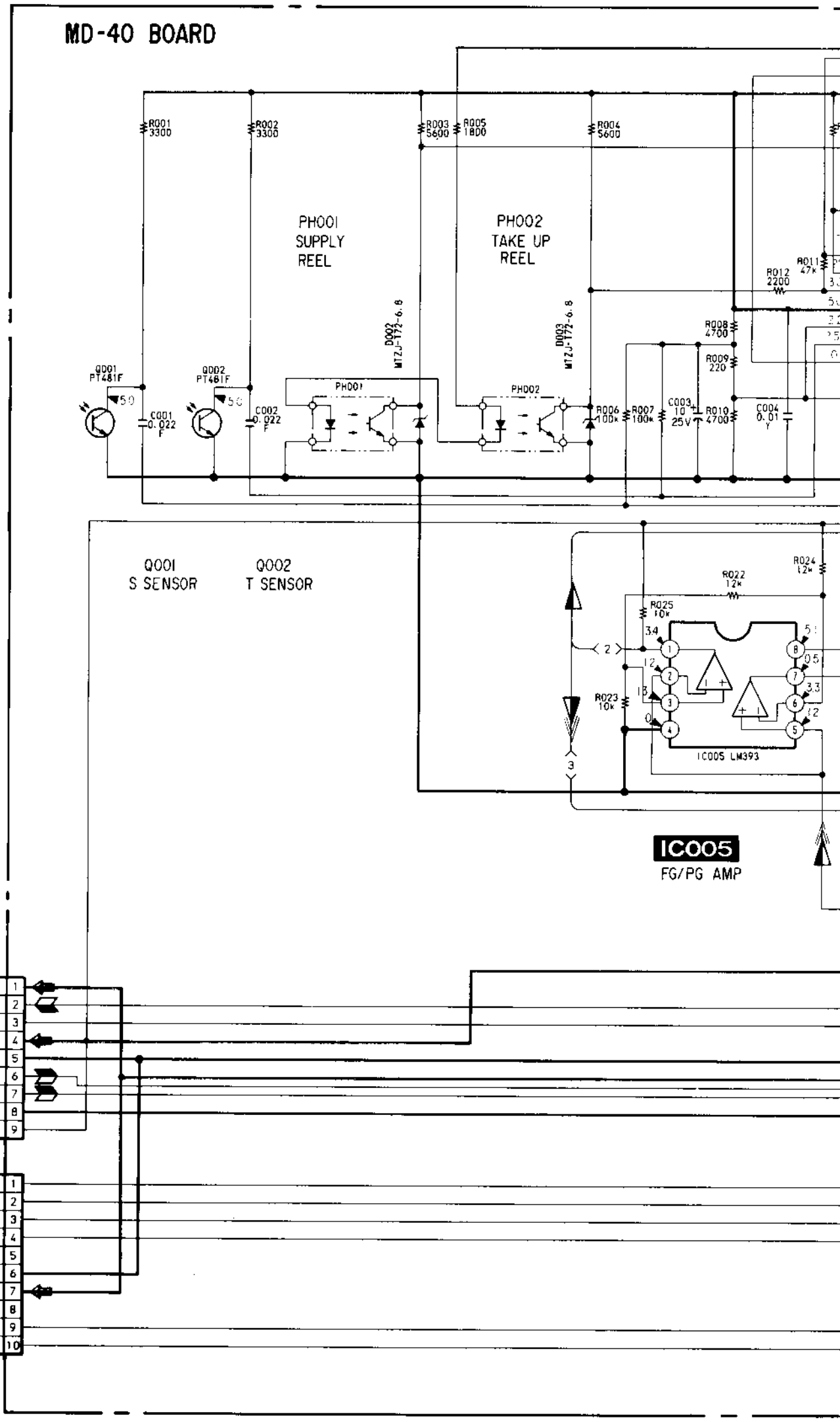


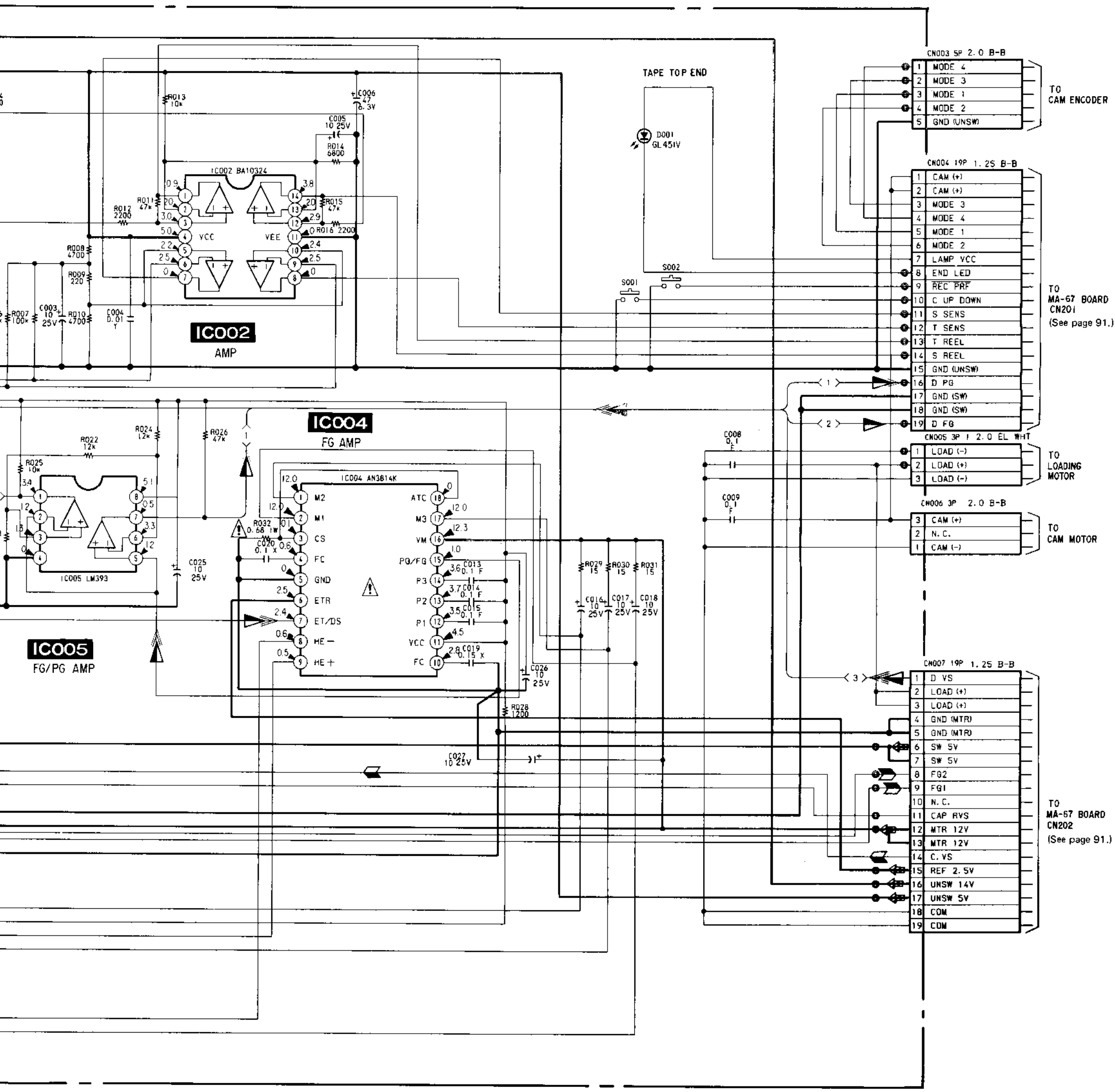
CA-43 BOARD

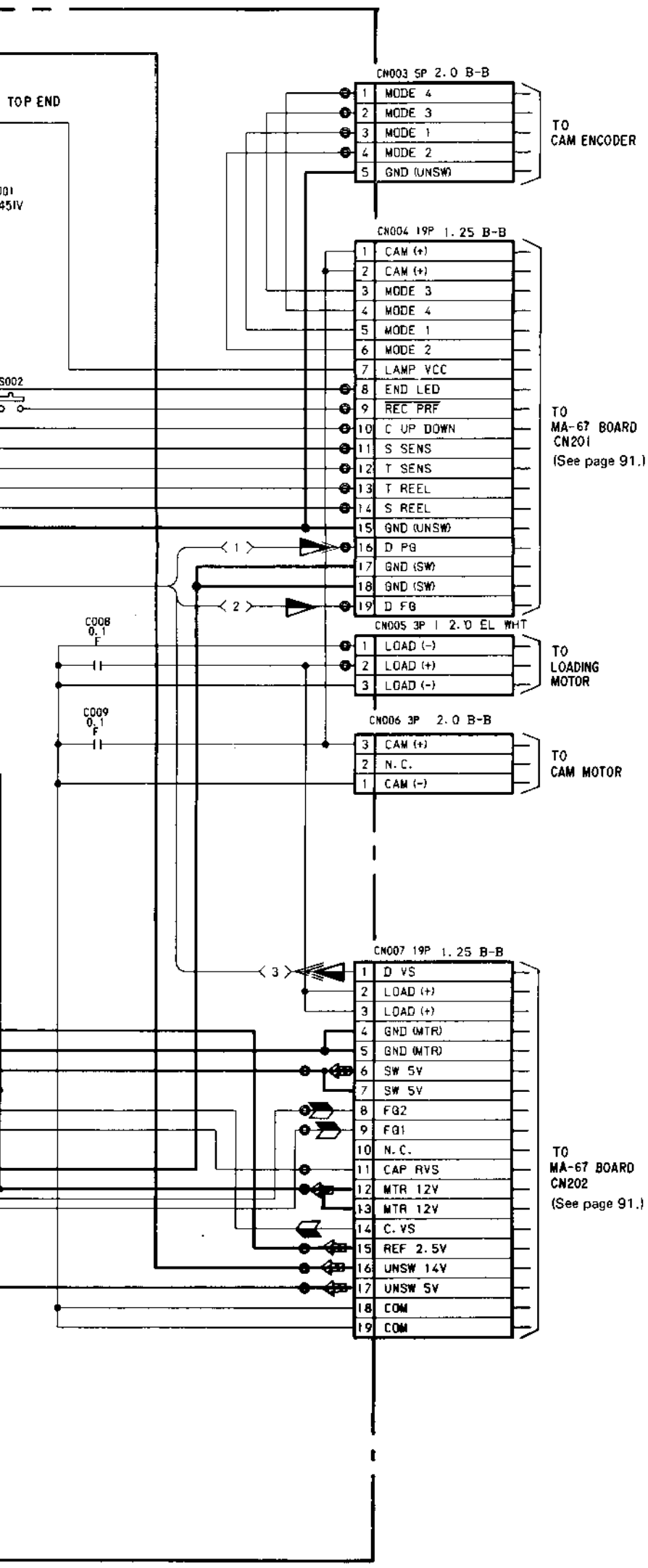
D101	B-2
D102	B-2
D103	B-2
D104	B-3
D105	A-3
D106	B-1
IC101	B-2
IC102	B-1
IC257	B-6
Q101	A-2
Q102	B-1
Q103	B-2
Q104	B-2
Q107	A-1
Q251	A-4

MD-40 (MECHANISM DRIVE) SCHEMATIC DIAGRAM

–Ref. No. MD-40 Board: 4,000 series–




IC002
AMP
IC002 BA10324
VCC
VEE
R013 10k
C006 47 6.3V
C005 10 25V
R014 6800
R011 47k
R012 2200
R015 47k
R016 2200
R008 4700
R009 220
R007 100k
C003 10 25V
R010 4700
C004 0.01
IC004
FG AMP
IC004 AN3814K
M2
M1
CS
FC
GND
ETR
ET/DS
HE−
HE+
ATC
M3
VM
PG/FG
P3
P2
P1
VCC
FC
R032 0.68 1W
C020 0.1
C013 0.1
C014 0.1
C015 0.1
C019 0.15
R022 12k
R024 12k
R026 47k
R025 10k
IC005 LM393
C025 10 25V
IC005
FG/PG AMP
R029 15
R030 15
R031 15
C016 10 25V
C017 10 25V
C018 10 25V
C026 10 25V
R028 1200
C027 10 25V
TAPE TOP END
D001 GL451V
S001
S002
C008 0.1
C009 0.1
CN003 5P 2.0 B-B
1 MODE 4
2 MODE 3
3 MODE 1
4 MODE 2
5 GND (UNSW)
TO CAM ENCODER
CN004 19P 1.25 B-B
1 CAM (+)
2 CAM (+)
3 MODE 3
4 MODE 4
5 MODE 1
6 MODE 2
7 LAMP VCC
8 END LED
9 REC PRF
10 C UP DOWN
11 S SENS
12 T SENS
13 T REEL
14 S REEL
15 GND (UNSW)
16 D PG
17 GND (SW)
18 GND (SW)
19 D FG
TO MA-67 BOARD CN201
(See page 91.)
CN005 3P 1 2.0 EL WHT
1 LOAD (−)
2 LOAD (+)
3 LOAD (−)
TO LOADING MOTOR
CN006 3P 2.0 B-B
3 CAM (+)
2 N. C.
1 CAM (−)
TO CAM MOTOR
CN007 19P 1.25 B-B
1 D VS
2 LOAD (+)
3 LOAD (+)
4 GND (MTR)
5 GND (MTR)
6 SW 5V
7 SW 5V
8 FG2
9 FG1
10 N. C.
11 CAP RVS
12 MTR 12V
13 MTR 12V
14 C. VS
15 REF 2.5V
16 UNSW 14V
17 UNSW 5V
18 COM
19 COM
TO MA-67 BOARD CN202
(See page 91.)



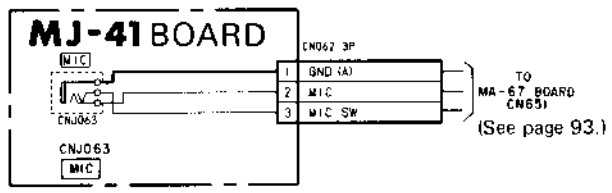
Signal path

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo (speed and phase)		▷▷	
Capstan speed servo		▷	
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			

MF-98 (FUNCTION, LINE IN 2), MF-99 (SHUTTLE SEARCH DIAL), MF-100 (MODE CONTROL, INDICATOR), MJ-41 (MIC JACK) SCHEMATIC DIAGRAMS

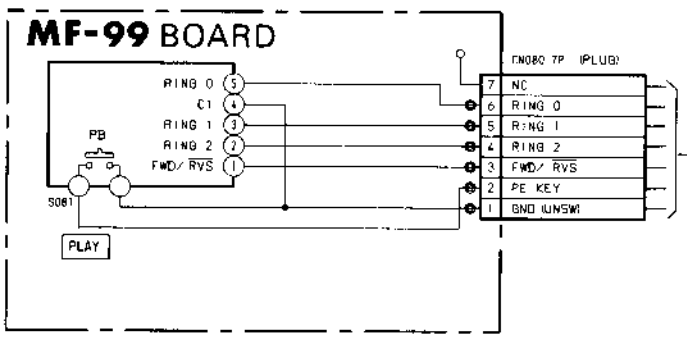
–Ref. No. MF-98 Board: 8,300 series, MF-99 Board: 8,500 series, MF-100 Board: 8,000 series, MJ-41 Board: 8,700 series–

MJ-41 BOARD

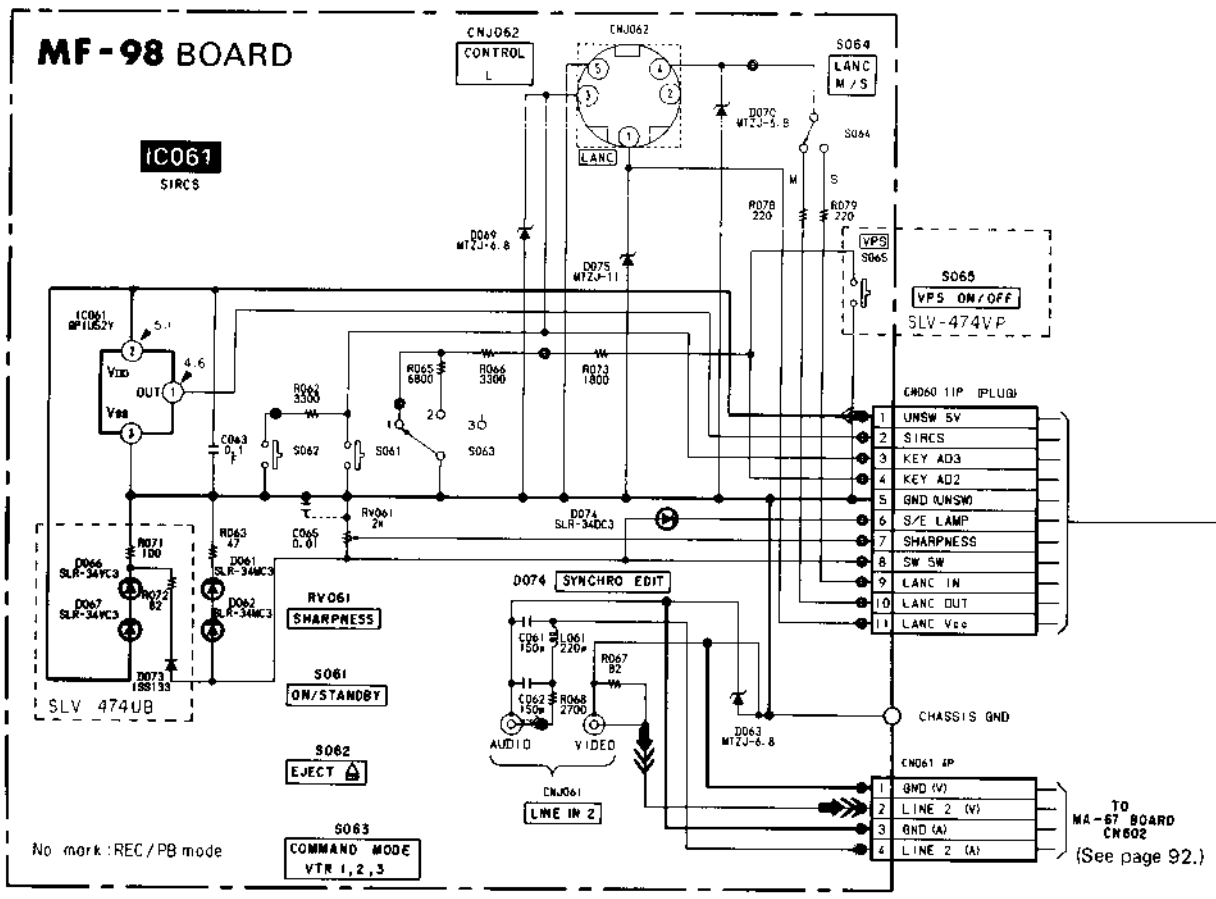


(See page 93.)

MF-99 BOARD

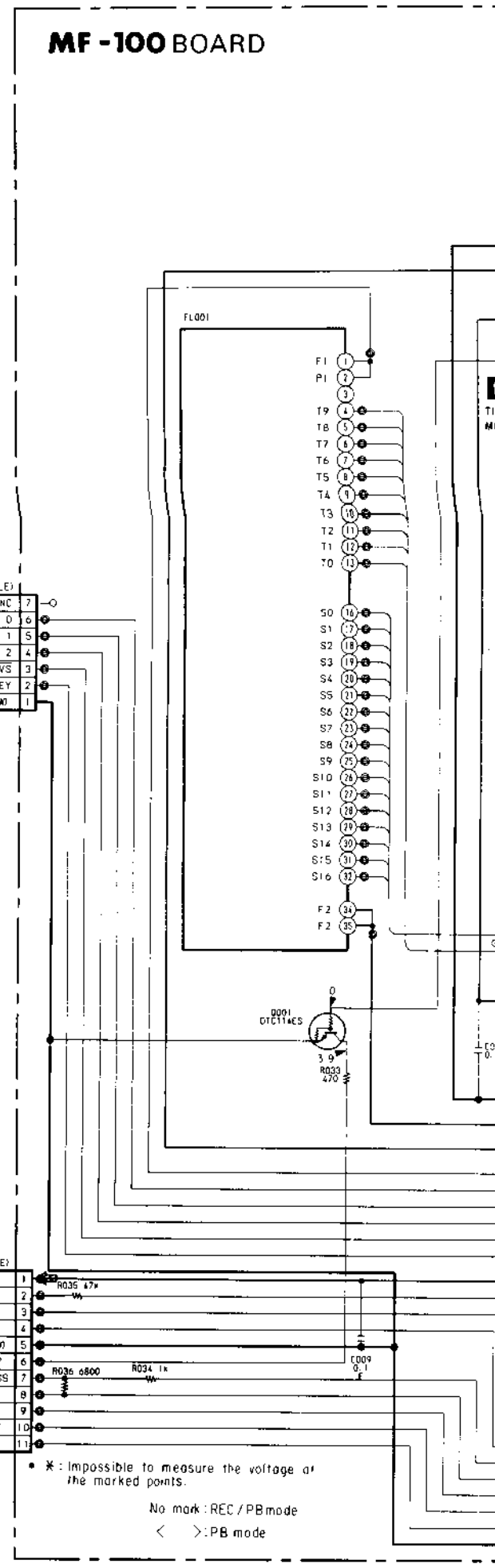


MF-98 BOARD



(See page 92.)

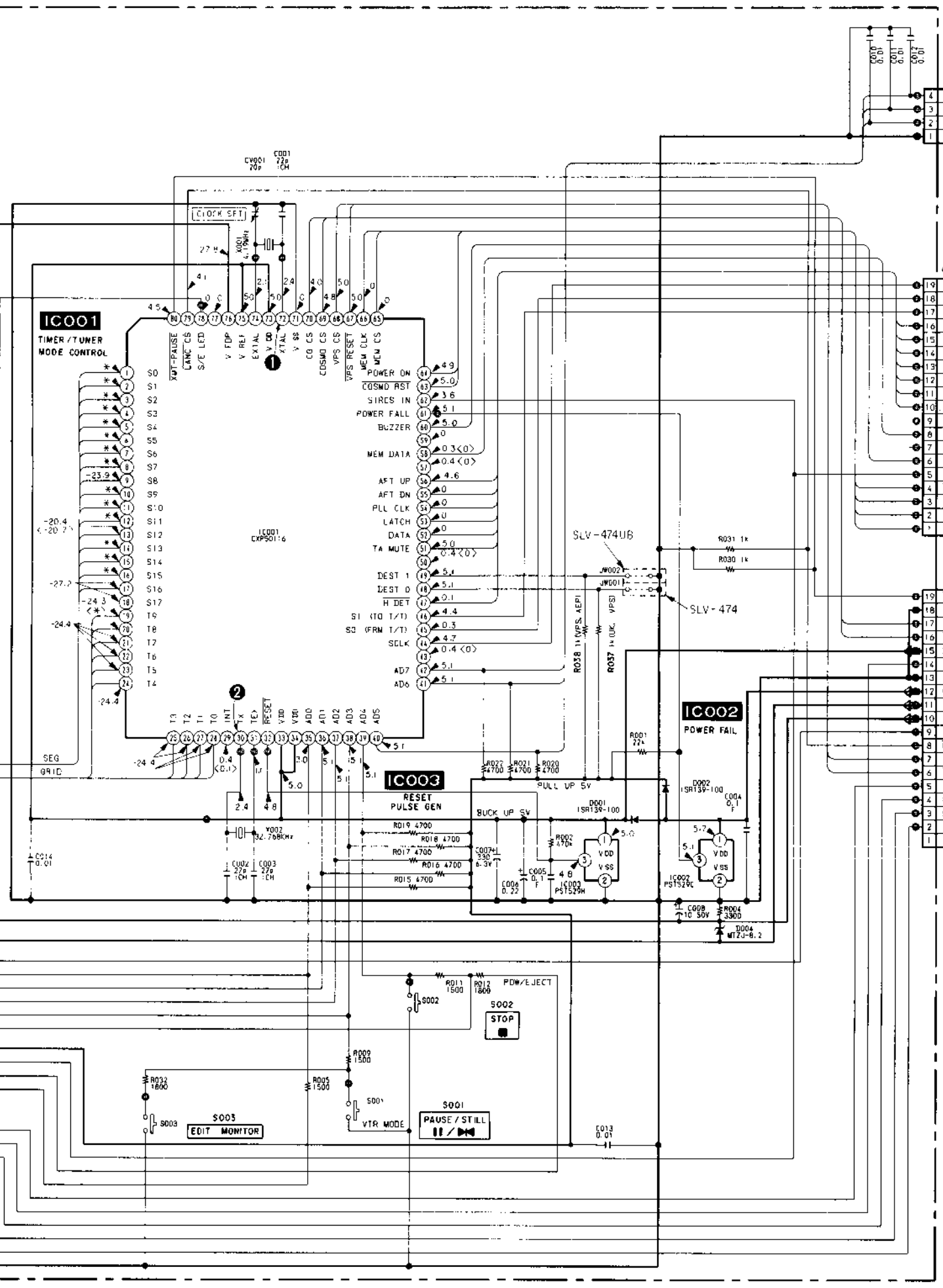
MF-100 BOARD



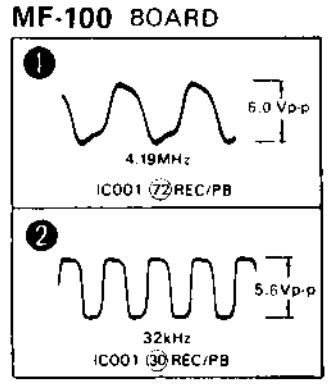
• ✳ Impossible to measure the voltage a points

	VIDEO SIGNAL	AU
	Y/CHROMA	
REC	➡⋙	■

MODE CONTROL FUNCTION

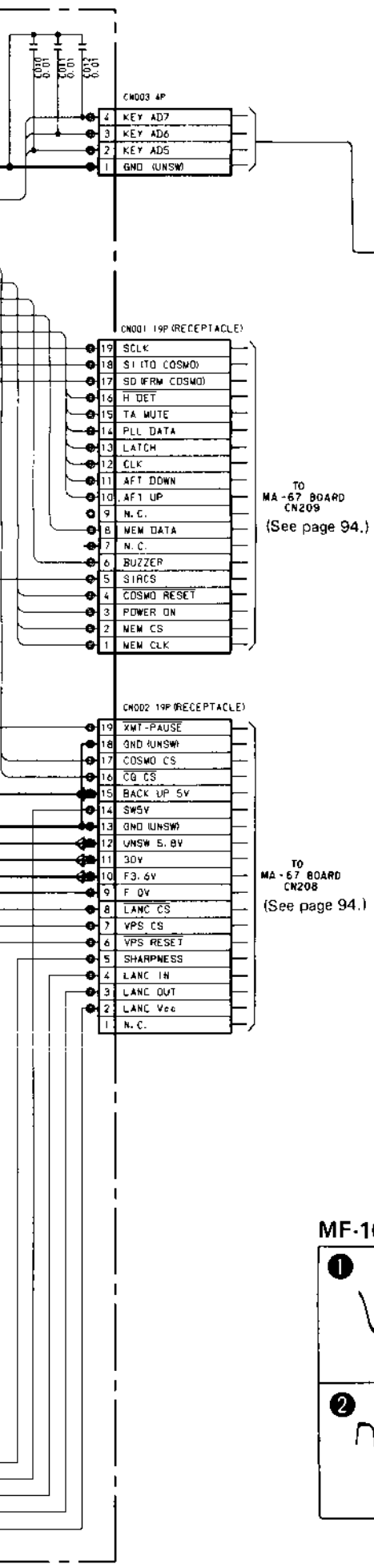


MF-100 BOARD

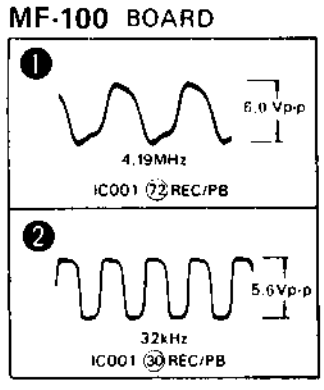


voltage at the marked

AUDIO



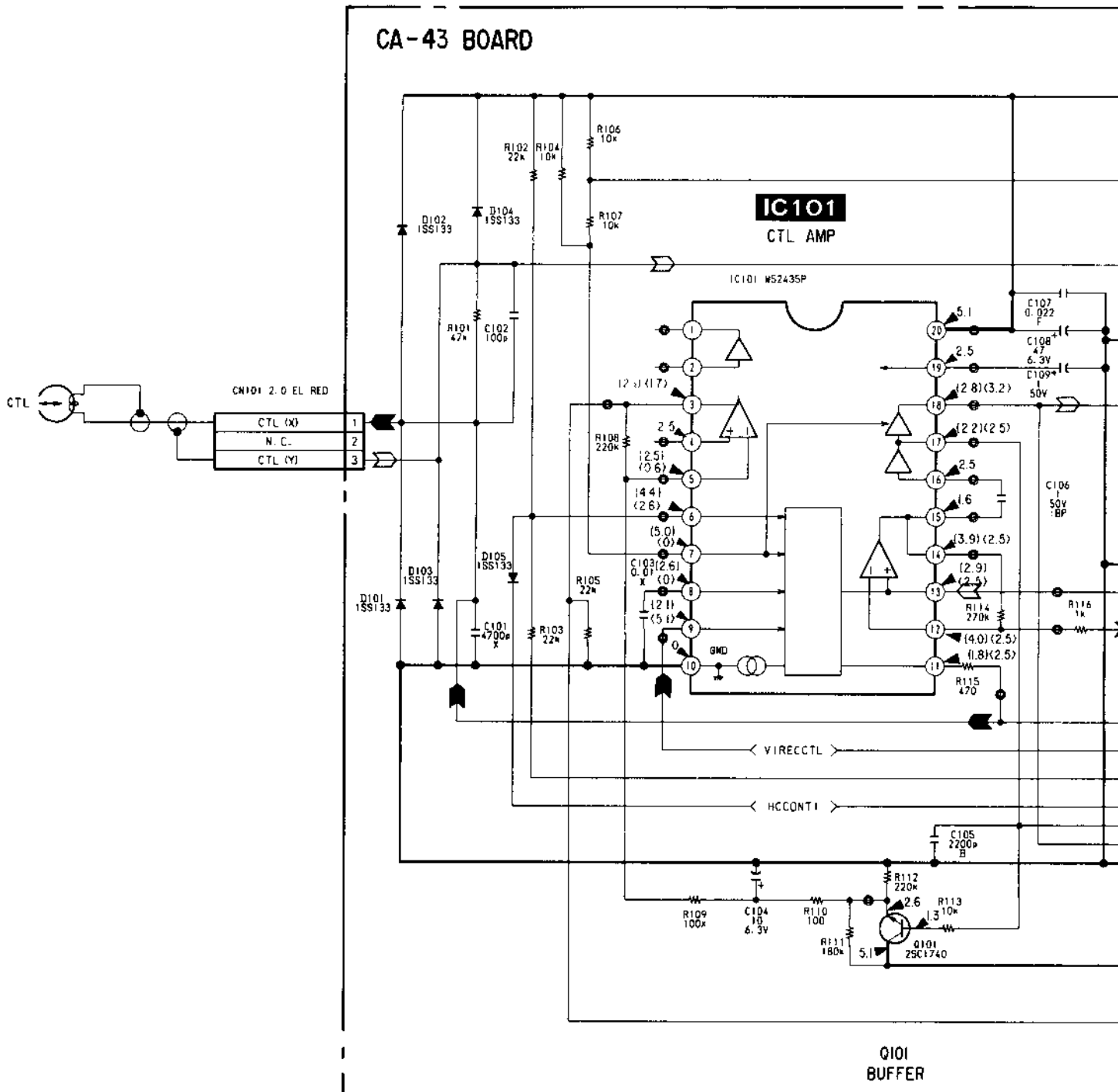
MF-100 BOARD



MODE CONTROL FUNCTION

CA-43 (CTL AMP/AUDIO) SCHEMATIC DIAGRAMS

– Ref. No. CA-43 Board: 7,000 series –



• Signal path

	AUDIO Signal
REC	➡
PB	⇨

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	➡		⇨

Q102
INVERTER

IC102
SWITCH

Q103
SWITCH

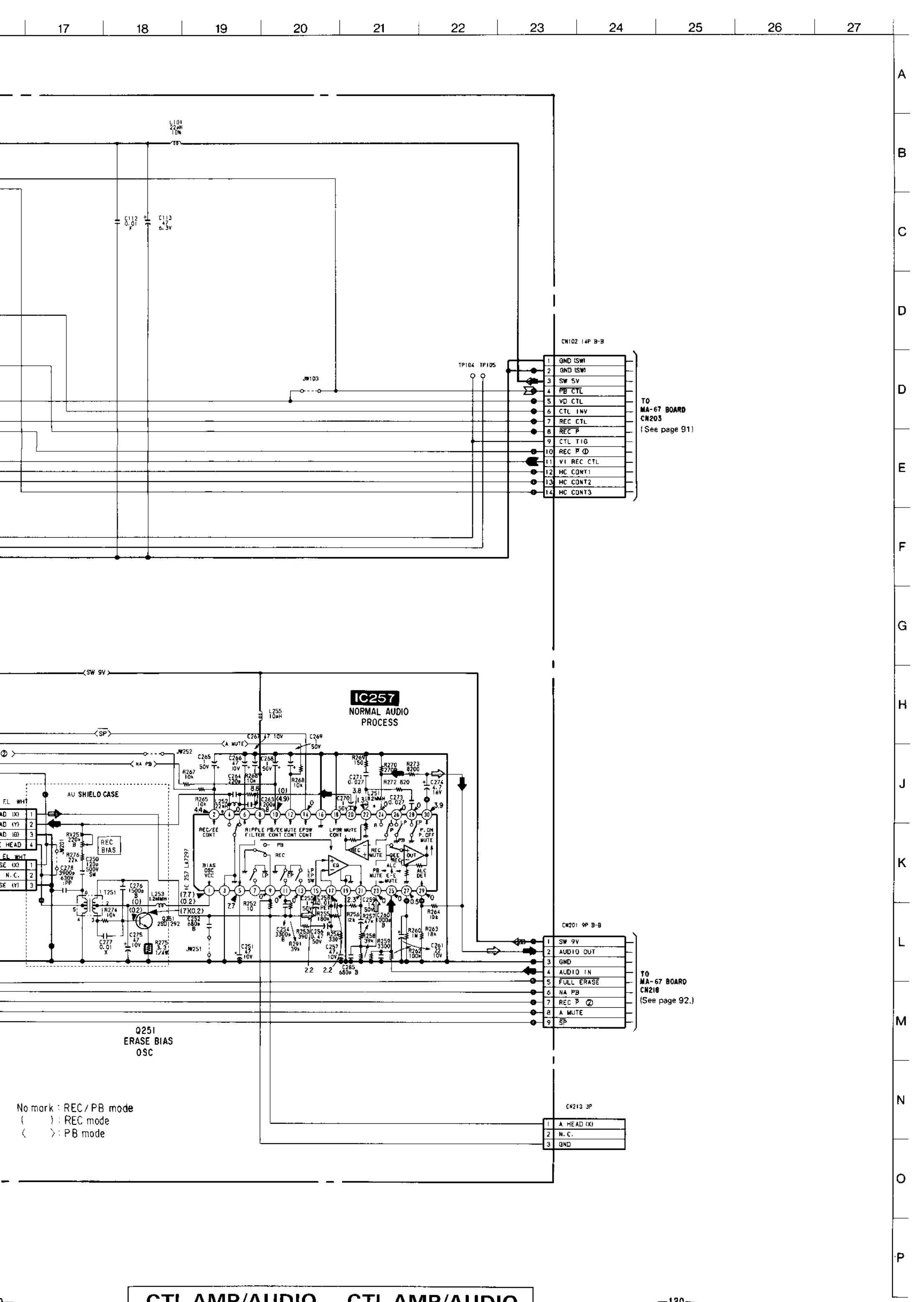
Q104

Q107
SWITCH

Q254 Q253

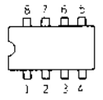
Q251
ERASE BIAS
OSC

No mark : REC / PB mode
( ) : REC mode
〈 〉 : PB mode


17
18
19
20
21
22
23
24
25
26
27
A
B
C
D
D
E
F
G
H
J
K
L
M
N
O
P
L101
22μH
10%
C112
0.01
F
C113
47
6.3V
JW103
TP104
TP105
CN102 14P B-B
1 GND (SW)
2 GND (SW)
3 SW 5V
4 PB CTL
5 VD CTL
6 CTL INV
7 REC CTL
8 REC P
9 CTL TIG
10 REC P ⓓ
11 V1 REC CTL
12 HC CONT1
13 HC CONT2
14 HC CONT3
TO
MA-67 BOARD
CN203
(See page 91)
SW 9V
IC257
NORMAL AUDIO
PROCESS
L255
10μH
SP
A MUTE
NA PB
JW252
C265
50V
C266
47
10V
C267
47 10V
C268
1
50V
C269
50V
R267
10k
R268
10k
C264
220p
R269
150
R270
270Ω
R273
8200
C271
0.027
R272 820
C274
4.7
16V
C270
1
50V
C273
0.027
L251
82mH
L252
22μH
R265
10k
C263
200p
AU SHIELD CASE
E.L WHT
AD (X) 1
AD (Y) 2
AD (G) 3
E HEAD 4
SE (X) 1
N.C. 2
SE (Y) 3
RV251
220k
B
REC
BIAS
JW201
R276
22k
C250
120p
500V
SM
C278
3900p
630V
PP
T251
C276
1500p
B
L253
1.2MH
C275
47
10V
R274
10k
R275
3.3
1/4W
Q251
2SD1292
C252
680p
B
JW251
C277
0.01
X
C251
47
10V
R252
10
C254
3300p
B
R253
390
C256
0.47
50V
R254
330
C257
47
10V
C285
680p B
R255
180k
C258
0.01
PE
R256
12k
R257
47k
C259
1
50V
C260
1000p
B
R258
39k
R259
3300
R260
1M
R262
100k
C261
22
10V
R263
18k
R264
10k
R291
39k
REC/EE
CONT
RIPPLE FB/EE
FILTER CONT
MUTE
CONT
EPSW
CONT
LPSW MUTE
CONT
P. ON
P. OFF
MUTE
PB
REC
EQ
REC
MUTE
REC
OUT
ALC
DET
BIAS
OSC
VCC
IC 257 LA7297
CN201 9P B-B
1 SW 9V
2 AUDIO OUT
3 GND
4 AUDIO IN
5 FULL ERASE
6 NA PB
7 REC P ②
8 A MUTE
9 SP
TO
MA-67 BOARD
CN218
(See page 92.)
CN213 3P
1 A HEAD (X)
2 N.C.
3 GND
Q251
ERASE BIAS
OSC
No mark : REC / PB mode
( ) : REC mode
〈 〉 : PB mode

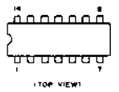
4-3. SEMICONDUCTOR LEAD LAYOUTS

BA4560
CXL5003P
LM393N
MSM6989RS
ST93C46AB1



(Top view)

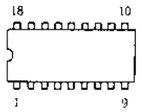
BA10324
LM324N
MC14066BCP
SDA5642


(TOP VIEW)

TC4052BPHB

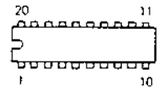

(TOP VIEW)

AN3814K



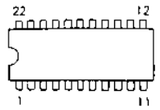
(Top view)

M52435P



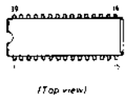
(Top view)

AN3592K



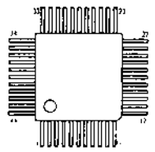
(Top view)

HA118016NT
HA118019NT
LC6543H-4374


(Top view)

AN3231K

UPD75004GB-VSX182



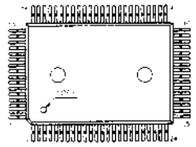
LA7213

CX20061

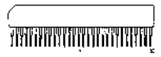
LVA519S

BA7007

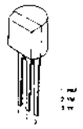
CXP50116-VSX350



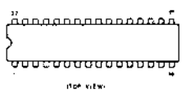
LA7297



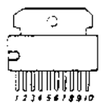
PST529C
PST529H



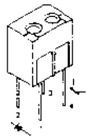
M50554-182SP



BA6238A



PS6002



2SK105A-10

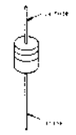
2SA922S-QR

DTA114ES
DTA124ES
DTA144ES
DTC114ES
DTC144ES
2SC1740S-QR
2SD1292

DTA143XS

PT483F1

RD5.1ES-B2
RD6.8ES-B2
RD8.2ES-B2
RD13ES-B2
RD33ES-B2
1SR139-100
1SS119



SLR-34MC3

GL451V

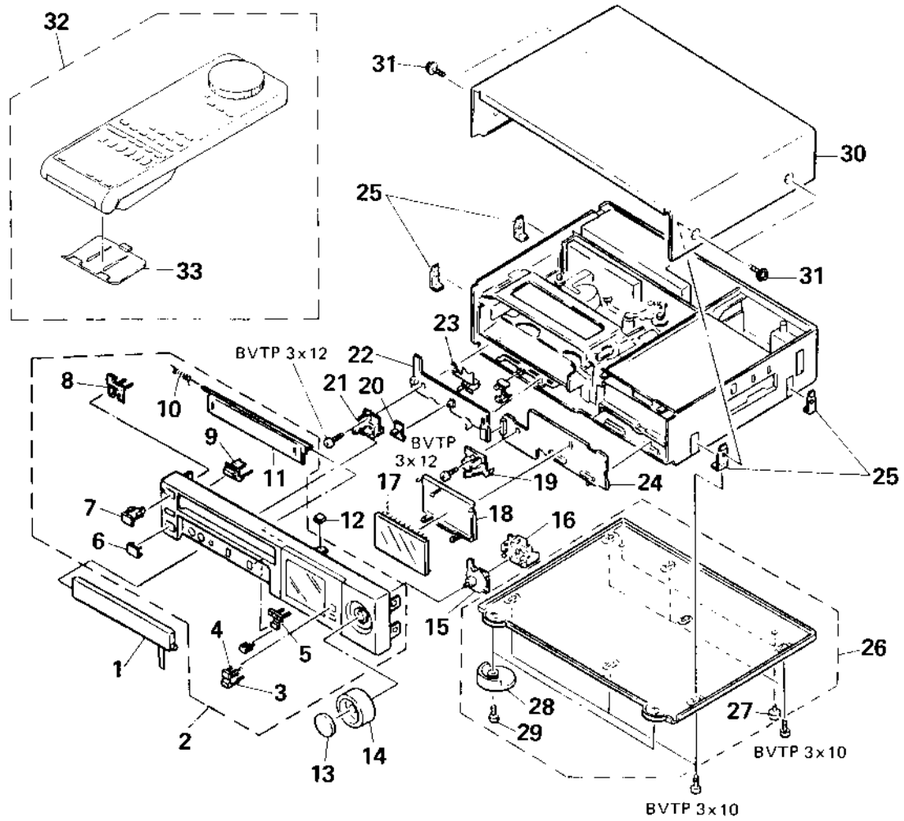
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

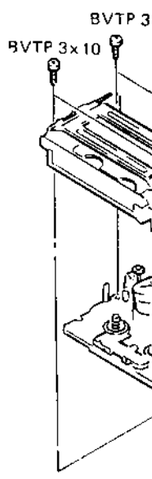
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. FRONT PANEL, CABINET ASSEMBLIES



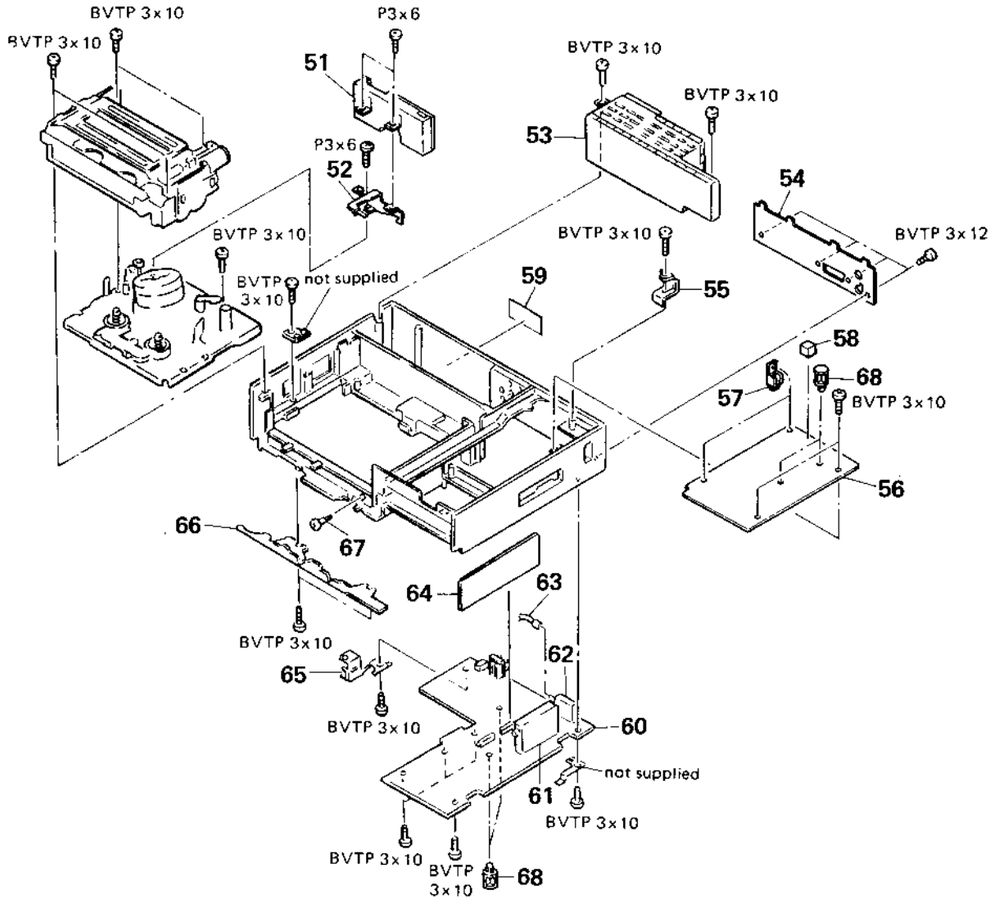
No.	Part No.	Description	Remark
1	1-413-563-11	SWITCH BLOCK, CONTROL (SLV-474UB)	
	1-413-562-11	SWITCH BLOCK, CONTROL (SLV-474)	
	1-413-562-11	SWITCH BLOCK, CONTROL (SLV-474VP)	
2	X-3746-013-1	PANEL ASSY, FRONT (SLV-474VP)	3-11
	X-3746-011-1	PANEL ASSY, FRONT (SLV-474/474UB)	3-11
3	3-741-971-21	BUTTON, STOP (■)	
4	3-741-978-21	BUTTON, STOP (■/⏏)	
5	3-746-046-01	BUTTON, VPS (SLV-373VP)	
6	3-741-981-31	WINDOW, LAY CATCHER BLOCK	
7	3-741-973-01	BUTTON, POWER (ON/STANDBY)	
8	3-741-975-01	TIP, POWER BUTTON	
9	3-741-974-01	BUTTON, EJECT (⏏ EJECT)	
10	3-741-977-01	SPRING (FL), TORSION	
11	3-746-028-01	DOOR (E), CASSETTE	
12	9-911-841-XX	CUSHION (B)	
13	3-741-951-21	BUTTON, PLAY (▷ PLAY)	
14	3-741-952-01	RING, SHUTTLE	
15	*1-635-924-11	MF-99 BOARD	
16	*3-741-965-01	HOLDER, PC BOARD	
17	1-519-580-11	INDICATOR TUBE, FLUORESCENT	
18	*3-744-220-01	HOLDER, FL	
19	3-741-967-01	PLATE (RIGHT), FULCRUM, DOOR	
20	3-744-217-01	KNOB, SELECTION (COMMAND MODE)	
21	3-741-966-01	PLATE (LEFT), FULCRUM, DOOR	
22	1-635-923-11	MF-98 BOARD	
23	3-741-968-01	PLATE, GROUND, MF	
24	*A-6721-350-A	MF-100 BOARD, COMPLETE (SLV-474UB)	
	*A-6721-351-A	MF-100 BOARD, COMPLETE (SLV-474VP)	
24	*A-6721-349-A	MF-100 BOARD, COMPLETE (SLV-474)	
25	*3-741-992-01	STOPPER, UPPER CASE	
26	X-3733-346-2	PLATE ASSY, BOTTOM	27-29
27	3-670-155-11	LEG	
28	X-3733-345-1	INSULATOR ASSY	
29	3-721-343-01	SCREW, FIXED, M4X7	
30	3-746-051-01	CASE, UPPER	
31	3-710-901-11	SCREW (3X8), TAPPING	
32	1-465-557-11	REMOTE COMMANDER ASSY (RMT-V474)	33
33	3-746-029-01	COVER, BATTERY	

5-2. CHASSIS ASSE



No.	Part No.
51	*A-6727-189-A
52	X-3746-004-1
53	⚠1-413-563-11
	⚠1-413-562-11
54	3-746-011-01
55	*3-741-963-01
56	*A-6727-187-A
57	3-736-704-01
58	9-911-843-XX
59	*3-749-480-01
	*3-749-482-01
	*3-749-485-01

5-2. CHASSIS ASSEMBLY

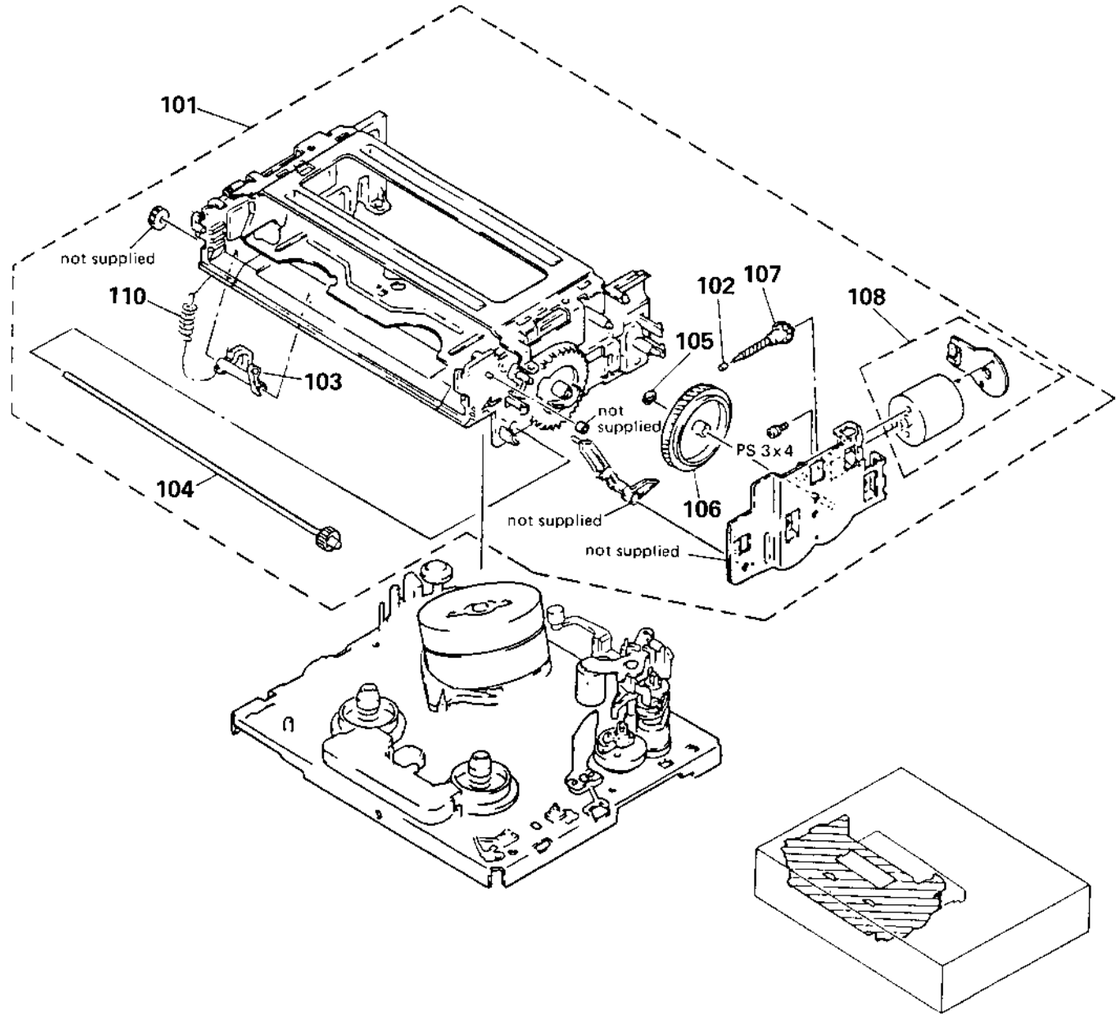


No.	Part No.	Description	Remark
51	*A-6727-189-A	RP-100 BOARD, COMPLETE	
52	X-3746-004-1	GROUND ASSY, SHAFT	
53	⚠1-413-563-11	BLOCK, POWER (SLV-474UB)	
	⚠1-413-562-11	BLOCK, POWER (SLV-474/474VP)	
54	3-746-011-01	PLATE, ORNAMENTAL, JACK	
55	*3-741-963-01	BRACKET, RF	
56	*A-6727-187-A	YC-90 BOARD, COMPLETE	
57	3-736-704-01	HINGE, PC BOARD	
58	9-911-843-XX	CUSHION	
59	*3-749 480-01	LABEL, MODEL NUMBER (NO.2) (SLV 474UB)	
	*3-749-482-01	LABEL, MODEL NUMBER (NO.2) (SLV-474)	
	*3-749-485-01	LABEL, MODEL NUMBER (NO.2) (SLV 474VP)	

No.	Part No.	Description	Remark
60	*A-6724-868-A	MA-67 BOARD, COMPLETE (SLV-474UB)	
	*A-6724-869-A	MA-67 BOARD, COMPLETE (SLV-474VP)	
	*A-6724-867-A	MA-67 BOARD, COMPLETE (SLV-474)	
61	⚠.1-465-260-11	TUNER, ET (BTP-2C401) (SLV-474/474VP)	
	⚠.1-465-262-11	TUNER, ET (SLB-474UB)	
62	⚠.1-466-328-11	MODULATOR, RF (RFU-2017) (SLV-474/474VP)	
	⚠.1-466-347-11	MODULATOR, RF (RFU-2024) (SLV-474UB)	
63	1-558-924-41	CABLE, PIN	
64	*A-6713-390-A	CA-43 BOARD, COMPLETE	
65	*3-741-962-01	PLATE, GROUND, JMP	
66	3-741-953-03	ESCUTCHEON, FRAME	
67	3-741-948-11	SCREW (3), SPECIAL (+) TAPPING	
68	3-682-057-11	SPACER (SMALL)	

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

5-3. FL CASSETTE COMPARTMENT



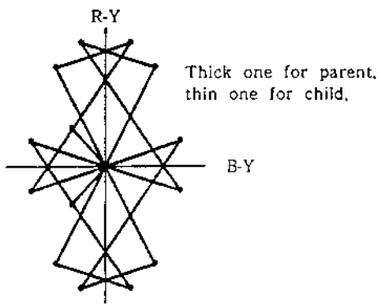
No.	Part No.	Description	Remark
101	A-6751-421-A	FL BLOCK ASSY (M2)	102-110
102	3-716-144-02	RETAINER, WORM	
103	3-736-163-01	LEVER, ERASING PROTECTION	
104	X-3727-775-2	GEAR (RIGHT) ASSY, MIDWAY	
105	3-696-510-01	WASHER (3), STOPPER	
106	3-736-164-01	WHEEL (FL), WORM	
107	3-736-100-01	GEAR (FL), WORM	
108	X-3727-784-1	MOTOR ASSY (LOADING) (M904)	
110	3-739-687-01	SPRING, TENSION	

7-5-5. Hue Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IO-20 board (EURO-AV OUT)
Measurement equipment	Vectorscope
Adjustment element	RV101
Specified value	Hue of parent screen= that of child screen

[Adjustment Method]

1) With RV101, match the phases of the parent and child screens.



Thick one for parent, thin one for child.

Fig. 7-24.

7-5-6. Write Clock Adjustment (DB-2 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC105 pin ①
Measurement equipment	Frequency counter
Adjustment element	CT102
Specified value	5.00±0.05MHz

[Connection]

1) Connect the IC105 pin⑥ and GND with a jumper wire.

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) of high input impedance (10MΩ or more) and low capacity (10pF or less).

Fig. 7-25.

7-6. AUDIO SYSTEM ADJUSTMENT

- Adjust the audio system in the SP mode, unless otherwise specified.
  Use the alignment tape.

[Connection]

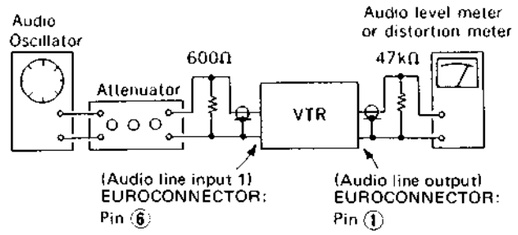


Fig. 7-26.

7-6-1. Normal Audio System Adjustment

- Make adjustment in the SP mode, unless otherwise specified Use a normal VHS cassette for an adjustment tape.
- Make adjustment with the switches set to the following positions:
  INPUT SELECT ····· LINE 2

[Adjustment Sequence]

1. **ACE Head Adjustment ···· See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅱ".**
2. **E-E Output Level Check**
3. **Recording Bias Adjustment**
4. **Overall Level Characteristic and Distortion Factor Check**
5. **Overall S/N Check**

1. ACE Head Adjustment
See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅱ".

2. E-E Output Level Check

Mode	E-E
Signal	400Hz, − 7.5dBs
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter
Specified value	− 7.5 ± 2dBs

[Confirmation Method]

1) Input a signal of 400Hz, −7.5dBs to Audio Line Input (EUROCONNECTOR: Pin ⑥).
2) Confirm that the audio output level is −7.5±2dBs.

3. Recording Bias Adjustment (CA-43 Board)

Mode	REC and PB
Signal	400Hz, − 30dBs 7kHz, − 30dBs
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter
Adjustment element	RV251
Specified value	0 ± 1dB

[Adjustment Method]

1) Supply a signal of 400Hz, −30dBs to Audio Line Input.
2) Connect the audio level meter to the Audio Line Output (EUROCONNECTOR: Pin ①).
3) Adjust the attenuator so that the audio level meter will indicate −30dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7kHz and make recording.
6) Play back a recorded portion, and measure output levels at 400Hz and 7kHz.
7) Confirm that the 7kHz playback output level is within a range of the 400Hz playback output level 0 ± 1dB. When it is out of this range, adjust RV251 and repeat the steps 1) through 7) above.

4. Overall Level Characteristic and Distortion Factor Check

Mode	REC and PB
Signal	400Hz, − 7.5dBs
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter and distortion factor meter
Specified value	Playback level: − 7.5 ± 2dBs Distortion factor: 4% or less

[Confirmation Method]

1) Supply an audio signal of 400Hz, − 7.5dBs Audio Line Input (EUROCONNECTOR: Pin ⑥).
2) Make recording.
3) Play back a recorded portion.
4) Confirm that a playback level is − 7.5 ± 2dBs.
5) Confirm that a distortion factor is within 4%.

5. Overall S/N Check

Mode	REC and PB
Signal	400Hz, − 7.5dBs, and no signal
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter
Specified value	35dB or more

[Confirmation Method]

1) Supply a signal of 400Hz to Audio Line Input. Adjust the attenuator so that the audio line output level will be − 7.5dBs.
2) Make recording.
3) With the REC mode held, make the no-signal state. (Short an input.)
4) Play back a recorded portion, and confirm that there is a level difference of 35dB or more between 400Hz portion and no-signal portion (immediately after a 400Hz signal).

7-7. TUNER SYSTEM ADJUSTMENT

7-7-1. RF AGC Adjustment (IF701 Unit/MA-67 Board)

Signal	Broadcast TV signal
Adjustment element	VR of IF701 unit

[Adjustment Method]

1) Adjust the monitor TV to a maximum contrast.
2) Turn the VR to make snow noise visible.
3) Turn the VR in an opposite direction and set it to the point where the snow noise disappears.
4) Receive each channel and that there are no beat picture corruption snow noises due to cross modulation.

[Adjustment Method]

1) Adjust with the volume of IF701 so that the tuner AGC terminal voltage becomes to the adjustment valve.

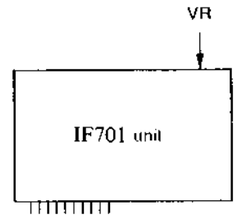


Fig. 7-27.

7-8. MODE CONTROL SYSTEM ADJUSTMENT

7-8-1. Clock Adjustment (MF-100 Board)

Mode	E-E
Measurement point	IC001 pin ⑥1 (PWR FAIL)
Measurement equipment	Frequency counter
Adjustment element	CV001
Adjusting value	2,097,152±4Hz

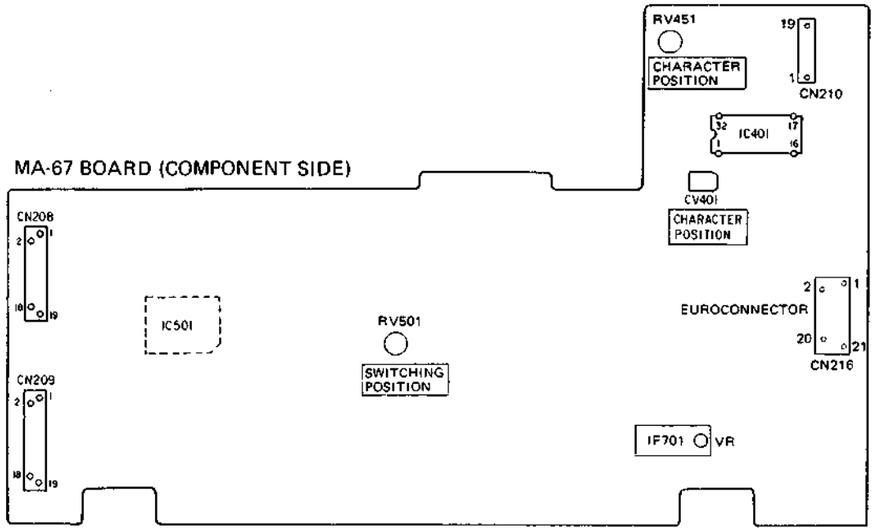
Note: Connect the following two points with jumpers.
- Pin ⑥ of CN001 (BUZZER) − GND.
- Pin ③ of IC003 (RESET) − GND.

[Adjustment Method]

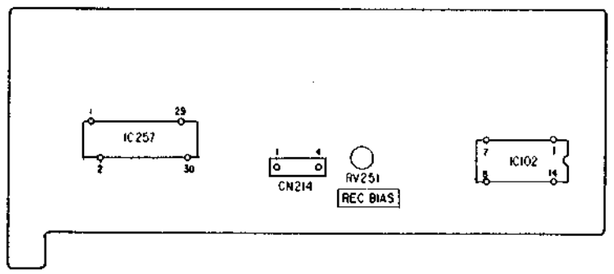
1) Adjust with CV001 so that the reading on the frequency counter becomes 2,097,152±4Hz.

7-9. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

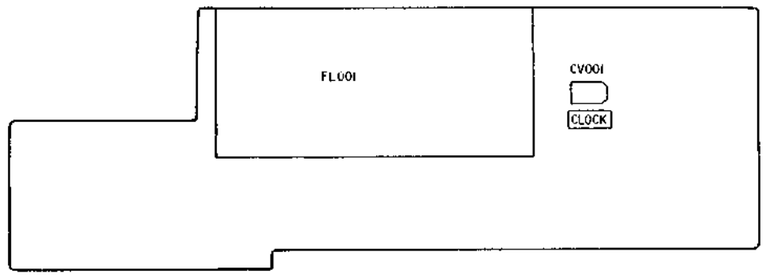
MA-67 BOARD (COMPONENT SIDE)



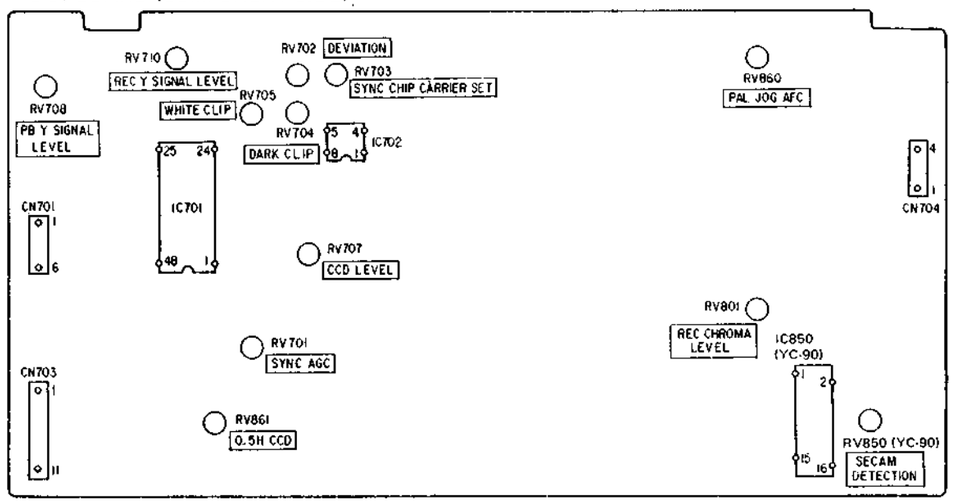
CA-43 BOARD (COMPONENT SIDE)



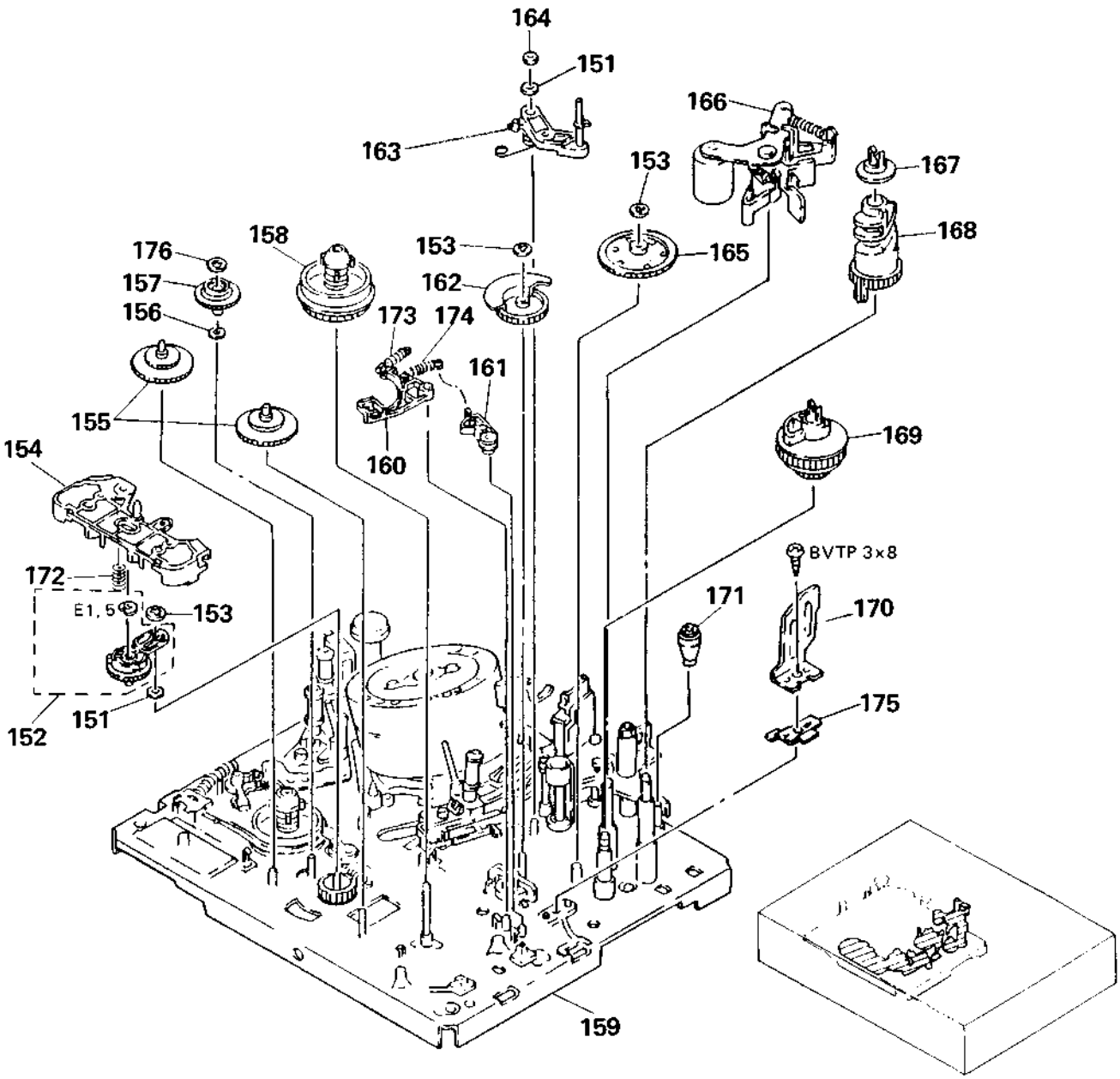
MF-100 BOARD (COMPONENT SIDE)



YC-90 BOARD (COMPONENT SIDE)



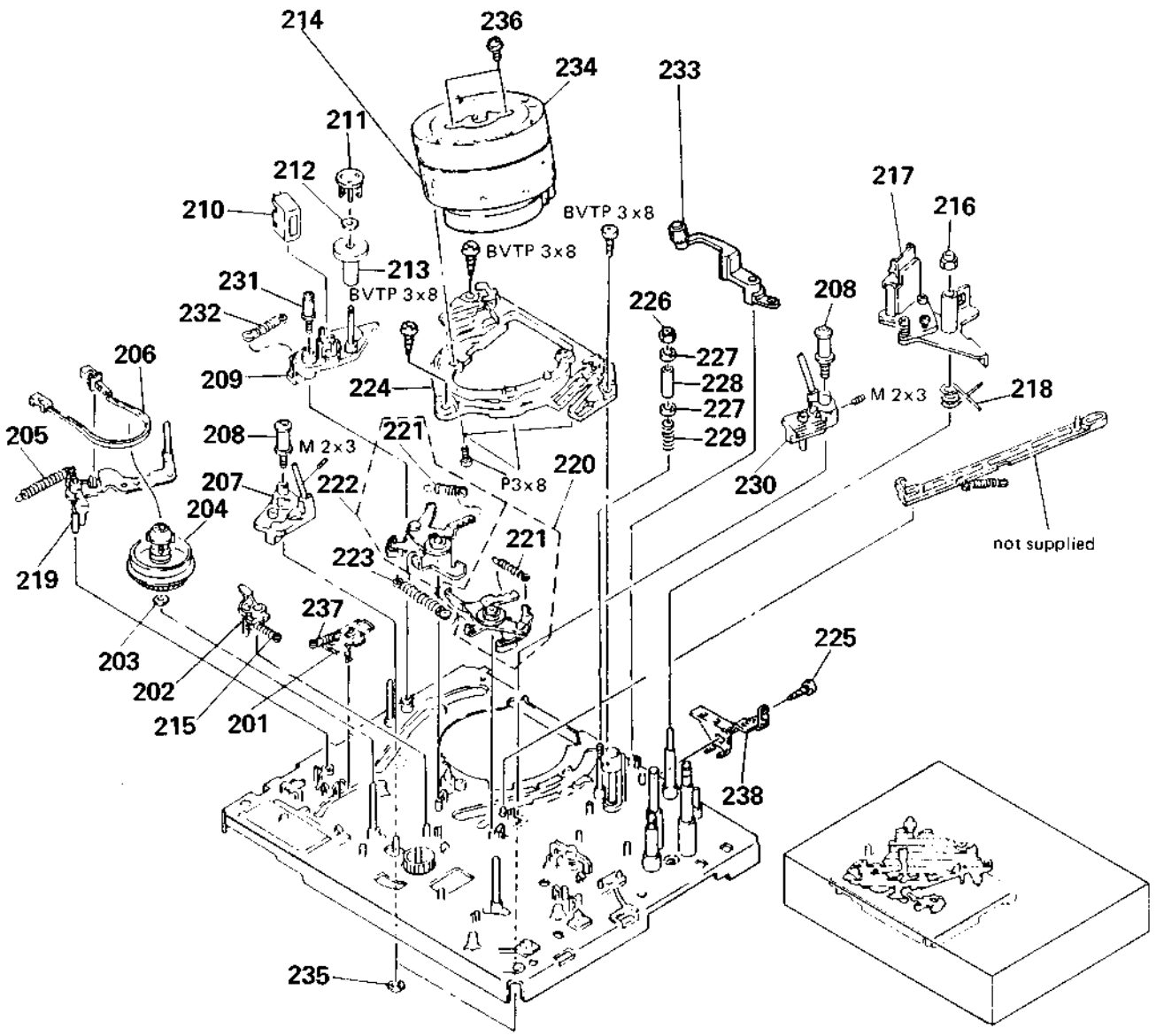
5-4. MECHANISM DECK 1



No.	Part No.	Description	Remark
151	3-701-438-11	WASHER, 2.5	
152	X-3727-776-1	ARM ASSY, PENDULUM	
153	3-669-595-00	WASHER (2), STOPPER	
154	3-736-172-02	RELEASE, LOCK, REEL	
155	X-3727-795-1	GEAR ASSY, RELAY	
156	3-736-074-01	RETAINER (SMALL), THRUST	
157	3-736-037-01	GEAR, REW	
158	X-3727-798-1	TABLE ASSY, REEL	
159	*A-6773-084-A	MD BLOCK ASSY 151-157,160-172,175,176 201-203,205-208,216,218,219,226-230 235,237,251-260,262,267-277,280-285 287-289,291,292,297	
160	X-3733-335-1	BRAKE ASSY (AT), T SOFT	
161	3-736-105-01	ARM, REV BRAKE	
162	3-736-143-01	GEAR, RVS CAM	

No.	Part No.	Description	Remark
163	X-3729-911-1	ARM ASSY, RVS	
164	3-736-740-01	NUT (M2X0.25), NYLON	
165	3-736-116-01	GEAR, COMMUNICATION	
166	X-3727-770-1	PINCH ROLLER BLOCK ASSY	
167	3-736-111-01	STOPPER	
168	3-736-136-01	CAM, ELEVATOR	
169	3-736-135-01	GEAR, PRESS CAM	
170	3-736-109-01	PLATE, OPEN, LID	
171	3-738-250-01	SCREW, AC ADJUSTMENT	
172	3-736-020-11	SPRING, COMPRESSION	
173	3-736-024-01	SPRING, TENSION	
174	3-736-025-01	SPRING (REV BRAKE), TENSION	
175	3-744-227-01	SPRING (ATOM), FL GROUND	
176	3-736-069-01	RETAINER, SPRING	

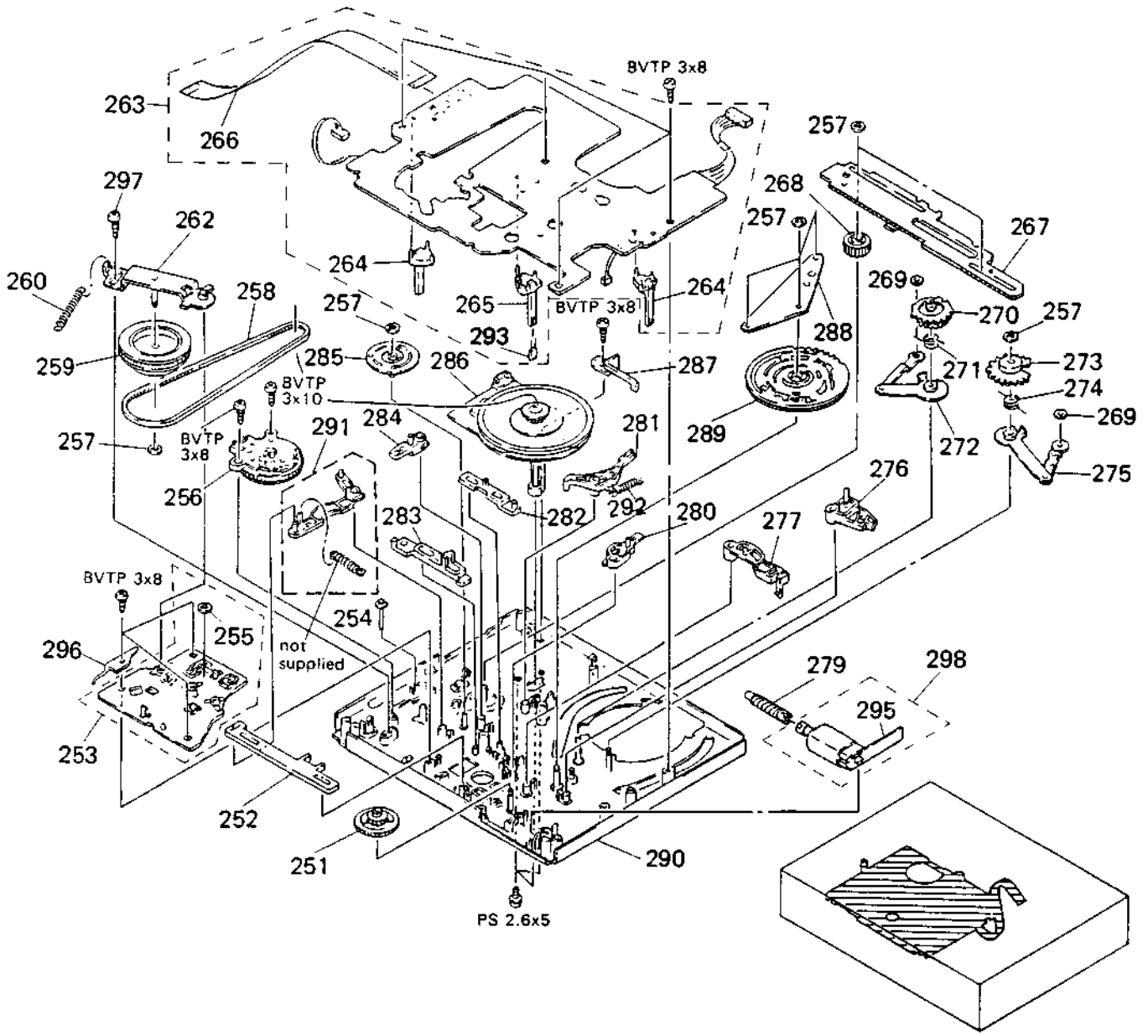
5-5. MECHANISM DECK 2



No.	Part No.	Description	Remark
201	A-6759-483-A	TAKE-UP BLOCK ASSY (AT), S	
202	3-736-075-01	BRAKE, S SOFT	
203	3-738-212-21	RETAINER, THRUST, REEL TABLE	
204	X-3729-935-3	TABLE ASSY, REEL, SUPPLY	
205	3-733-389-11	SPRING, TENSION	
206	X-3727-797-1	BAND ASSY, TENSION REGULATOR	
207	X-3727-786-1	SHUTTLE (LEFT) ASSY	
208	X-3733-301-1	ROLLER ASSY, GUIDE	
209	X-3727-767-1	BASE ASSY, STABILIZER	
210	1-543-647-11	HEAD, FE	
211	3-736-082-01	RETAINER, TS THRUST	
212	3-741-925-01	RING, RETAINING	
213	X-3727-771-1	STABLILIZER ASSY, TAPE	
214	1-550-574-11	DRUM ASSY (DZL-22A-R) (M901)	234, 236
215	3-736-047-01	SPRING (S SOFT), TENSION	
216	3-736-041-01	NUT (N3), NYLON	
217	A-6761-129-A	HEAD BLOCK ASSY, ACE	
218	3-736-042-01	SPRING, TORSION	
219	3-736-151-11	ARM (POM), TENSION REGULATOR	

No.	Part No.	Description	Remark
220	X-3729-926-1	BRAKE ASSY (2), T	221
221	3-738-220-01	SPRING (MAIN BRAKE 2), TENSION	
222	X-3733-336-2	BRAKE ASSY (2) (AT), S	221
223	3-738-221-01	SPRING (MAIN BRAKE 1), TENSION	
224	*X-3746-005-1	BASE ASSY (G), DRUM	
225	3-736-055-01	SCREW (3X8), TAPPING	
226	3-736-740-01	NUT (M2X0.25), NYLON	
227	3-736-733-01	FLANGE, 7 GUIDE	
228	3-736-730-01	SLEEVE, #7 GUIDE	
229	3-739-621-01	SPRING, COMPRESSION	
230	X-3727-787-1	SHUTTLE (RIGHT) ASSY	
231	X-3727-788-1	ROLLER ASSY, GUIDE, #2	
232	3-736-745-01	SPRING	
233	A-6747-267-C	ARM BLOCK ASSY (S), C ROLLER	
234	1-550-573-11	UPPER DRUM ASSY (DZR-22R)	
235	3-736-073-01	SLIDER, POLYETHYLENE	
236	2-643-205-01	SCREW, FITTING +PW 3X8, UPPER DRUM	
237	3-738-284-01	SPRING, TENSION	
238	*3-738-249-01	PLATE, FIXED, MD	

5-6. MECHANISM DECK 3



No.	Part No.	Description	Remark
251	3-736-015-01	WHEEL (CAM), WORM	
252	3-736-158-01	PLATE, SLIDE, PENDULUM	
253	A-6739-084-A	CHASSIS BLOCK ASSY, SUB	255
254	3-736-091-01	PIN, SWITCH	
255	3-669-465-00	WASHER (1.5), STOPPER	
256	1-571-920-11	SWITCH, ROTARY (S1)	
257	3-669-595-00	WASHER (2), STOPPER	
258	3-736-013-01	BELT, TIMING	
259	X-3727-782-1	PULLEY ASSY	
260	3-736-089-01	SPRING, TENSION	
262	X-3727-761-1	ARM ASSY, ADJUSTMENT	
263	*A-6754-055-A	MD-40 BOARD, COMPLETE	264, 265, 293
264	3-736-149-01	HOLDER, ST SENSOR	
265	*3-736-144-01	HOLDER, LED	
267	3-736-177-01	PLATE, SLIDE, MODE	
268	3-733-394-01	GEAR, RVS RELAY	
269	3-736-073-01	SLIDER, POLYETHYLENE	
270	3-736-148-01	GEAR (RIGHT), THREADING	
271	3-736-092-01	SPRING (RIGHT), TORSION	
272	X-3727-777-1	ARM (RIGHT) ASSY, THREADING	
273	3-736-147-01	GEAR (LEFT), THREADING	
274	3-736-040-01	SPRING (LEFT), TORSION	

No.	Part No.	Description	Remark
275	X-3727-778-1	ARM (LEFT) ASSY, THREADING	
276	3-736-142-01	ARM, TENSION REGULATOR FUNCTION	
277	3-736-140-03	ARM, S TAKE-UP	
278	X-3733-302-1	MOTOR ASSY, CAM (M903)	295
279	3-733-395-01	GEAR (CAM), WORM	
280	3-733-397-01	ARM, BRAKE FUNCTION	
281	X-3733-338-1	BRAKE ASSY (AT), CAP	
282	3-733-398-04	PLATE, SLIDE, BRAKE	
283	3-736-103-03	PLATE, SLIDE, LIMITER	
284	3-736-016-01	ARM, LIMITER FUNCTION	
285	3-736-170-01	GEAR, RKB CAM	
286	8-835-382-01	MOTOR, DC U-26B (CAPSTAN) (M902)	
287	3-736-744-01	RETAINER, ROTOR	
288	3-733-396-01	HOLDER, CAM GEAR	
289	3-736-176-01	GEAR, CAM	
291	3-736-139-03	ARM, PENDULUM FUNCTION	
292	3-738-237-01	SPRING (CAP BRAKE), TENSION	
293	8-719-974-65	DIODE GL451Y (D001)	
295	*1-633-460-11	CA-41 BOARD	
296	3-741-950-01	SPRING (AT), LEAF, SC GROUND	
297	3-733-386-01	SCREW (3X8), WASHER	

MF-100

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

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

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

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- SEMICONDUCTORS
  In each case, U: μ , for example:
  UA...: μA..., UPA...: μPA..., UPB...: μPB..., UPC...: μPC..., UPD...: μPD...
- CAPACITORS
  MF : μF, PF : μμF
- COILS
  MMH : mH, UH : μH

Ref.No.	Part No.	Description			Remark
*A-6721-349-A		MF-100 BOARD, COMPLETE (SLV-474)			
		**********			
*A-6721-350-A		MF-100 BOARD, COMPLETE (SLV-474UB)			
		**********			
*A-6721-351-A		MF-100 BOARD, COMPLETE (SLV-474VP)			
		**********			
*3-744-220-01		HOLDER, FL			
		CAPACITOR			
C001	1-164-027-11	CERAMIC	22PF	5% 50V	
C002	1-164-056-11	CERAMIC	27PF	5% 50V	
C003	1-164-056-11	CERAMIC	27PF	5% 50V	
C004	1-164-159-11	CERAMIC	0.1MF	50V	
C005	1-164-159-11	CERAMIC	0.1MF	50V	
C006	1-125-486-11	ELECT	0.22F	5.5V	
C007	1-124-442-00	ELECT	330MF	20% 6.3V	
C008	1-126-096-11	ELECT	10MF	20% 35V	
C009	1-164-159-11	CERAMIC	0.1MF	50V	
C010	1-161-379-00	CERAMIC	0.01MF	30% 16V	
C011	1-161-379-00	CERAMIC	0.01MF	30% 16V	
C012	1-161-379-00	CERAMIC	0.01MF	30% 16V	
C013	1-161-379-00	CERAMIC	0.01MF	30% 16V	
C014	1-161-379-00	CERAMIC	0.01MF	30% 16V	
		CONNECTOR			
CN001	1-569-342-11	CONNECTOR, BOARD TO BOARD 19P			
CN002	1-569-342-11	CONNECTOR, BOARD TO BOARD 19P			
CN003	1-565-309-11	CONNECTOR, FLEXIBLE 4P			
CN004	1-569-339-11	CONNECTOR, BOARD TO BOARD 7P			
CN005	1-568-671-11	CONNECTOR, BOARD TO BOARD 11P			
		TRIMMER CAPACITOR			
CV001	1-141-291-11	CAP, TRIMMER 20P			
		DIODE			
D001	8-719-974-59	DIODE 1SR139-100			
D002	8-719-974-59	DIODE 1SR139-100			
D004	8-719-110-08	DIODE RD8.2ES-B2			
D008	8-719-109-97	DIODE RD6.8ES-B2			
		INDICATOR TUBE			
FL001	1-519-580-11	INDICATOR TUBE, FLUORESCENT			
		IC			
IC001	8-752-815-19	IC CXP50116-080Q			
IC002	8-759-995-76	IC PST529C			
IC003	8-759-971-15	IC PST529H			
		TRANSISTOR			
Q001	8-729-900-89	TRANSISTOR DTC144ES			
		RESISTOR			
R001	1-249-433-11	CARBON	22K	5% 1/4W	
R002	1-247-895-00	CARBON	470K	5% 1/4W	
R004	1-249-423-11	CARBON	3.3K	5% 1/4W	
R005	1-249-419-11	CARBON	1.5K	5% 1/4W	
R009	1-249-419-11	CARBON	1.5K	5% 1/4W	
R011	1-249-419-11	CARBON	1.5K	5% 1/4W	
R012	1-249-420-11	CARBON	1.8K	5% 1/4W	
R015	1-249-425-11	CARBON	4.7K	5% 1/4W	
R016	1-249-425-11	CARBON	4.7K	5% 1/4W	
R017	1-249-425-11	CARBON	4.7K	5% 1/4W	
R018	1-249-425-11	CARBON	4.7K	5% 1/4W	
R019	1-249-425-11	CARBON	4.7K	5% 1/4W	
R020	1-249-425-11	CARBON	4.7K	5% 1/4W	
R021	1-249-425-11	CARBON	4.7K	5% 1/4W	
R022	1-249-425-11	CARBON	4.7K	5% 1/4W	
R030	1-249-417-11	CARBON	1K	5% 1/4W	
R031	1-249-417-11	CARBON	1K	5% 1/4W	
R032	1-249-420-11	CARBON	1.8K	5% 1/4W	
R033	1-249-413-11	CARBON	470	5% 1/4W	
R034	1-249-417-11	CARBON	1K	5% 1/4W	
R035	1-249-437-11	CARBON	47K	5% 1/4W	
R036	1-249-427-11	CARBON	6.8K	5% 1/4W	
R037	1-249-417-11	CARBON (SLV-474/474VP)	1K	5% 1/4W	
R038	1-249-417-11	CARBON (SLV-474VP/474UB)	1K	5% 1/4W	
		SWITCH			
S001	1-571-977-11	SWITCH, TACTIL (PAUSE)			
S002	1-571-977-11	SWITCH, TACTIL (STOP)			
S003	1-571-977-11	SWITCH, TACTIL (EDIT MONITOR)			
		CRYSTAL			
X001	1-567-519-11	VIBRATOR, CRYSTAL 4.19MHz			
X002	1-567-098-00	VIBRATOR, CRYSTAL 32.768KHz			

****

Ref.No.	Part No.	Description				Remark
	*A-6725-867-A	MA-67 BOARD, COMPLETE (SLV-474) **********				
	*A-6724-868-A	MA-67 BOARD, COMPLETE (SLV-474UB) **********				
	*A-6724-869-A	MA-67 BOARD, COMPLETE (SLV-474VP) **********				
	1-555-110-00	CABLE, PIN				
		BUZZER				
BZ501	1-529-070-11	BUZZER				
		CAPACITOR				
C107	1-126-101-11	ELECT	100MF	20%	16V	
C110	1-124-446-11	ELECT	47MF	20%	10V	
C201	1-164-096-11	CERAMIC	0.01MF		50V	
C202	1-164-058-11	CERAMIC	33PF	5%	50V	
C203	1-164-081-11	CERAMIC	470PF	10%	50V	
C204	1-164-056-11	CERAMIC	27PF	5%	50V	
C205	1-164-096-11	CERAMIC	0.01MF		50V	
C206	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C207	1-124-446-11	ELECT	47MF	20%	10V	
C208	1-164-096-11	CERAMIC	0.01MF		50V	
C303	1-130-483-00	MYLAR	0.01MF	5%	50V	
C304	1-124-120-11	ELECT	220MF	20%	25V	
C305	1-124-443-00	ELECT	100MF	20%	6.3V	
C351	1-164-159-11	CERAMIC	0.1MF		50V	
C352	1-126-233-11	ELECT	22MF	20%	25V	
C353	1-164-096-11	CERAMIC	0.01MF		50V	
C355	1-123-875-11	ELECT	10MF	20%	50V	
C356	1-164-159-11	CERAMIC	0.1MF		50V	
C402	1-164-098-11	CERAMIC	0.047MF		12V	
C403	1-124-446-11	ELECT	47MF	20%	10V	
C404	1-162-209-31	CERAMIC	27PF	5%	50V	
C405	1-164-060-11	CERAMIC	39PF	5%	50V	
C406	1-124-446-11	ELECT	47MF	20%	10V	
C407	1-164-058-11	CERAMIC (SLV-474VP)	33PF	5%	50V	
C408	1-123-875-11	ELECT	10MF	20%	50V	
C410	1-164-096-11	CERAMIC	0.01MF		50V	
C411	1-124-446-11	ELECT	47MF	20%	10V	
C413	1-164-096-11	CERAMIC	0.01MF		50V	
C414	1-164-096-11	CERAMIC	0.01MF		50V	
C415	1-164-023-11	CERAMIC	15PF	5%	50V	
C416	1-164-052-11	CERAMIC	18PF	5%	50V	
C417	1-162-835-11	CERAMIC	0.01MF	20%	16V	
C418	1-164-077-11	CERAMIC	220PF	10%	50V	
C419	1-162-835-11	CERAMIC	0.0047MF	20%	16V	
C420	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C421	1-124-925-11	ELECT	2.2MF	20%	50V	
C451	1-124-446-11	ELECT	47MF	20%	10V	
C452	1-164-096-11	CERAMIC	0.01MF		50V	
C453	1-102-980-00	CERAMIC	270PF	5%	50V	
C454	1-102-980-00	CERAMIC	270PF	5%	50V	
C457	1-102-122-00	CERAMIC	0.0027MF	10%	50V	
C458	1-162-843-11	CERAMIC	0.022MF	20%	16V	
C459	1-124-791-11	ELECT	1MF	20%	50V	
C460	1-164-159-11	CERAMIC	0.1MF		50V	
C461	1-164-082-11	CERAMIC	560PF	10%	50V	
C463	1-124-446-11	ELECT	47MF	20%	10V	
C501	1-124-443-00	ELECT	100MF	20%	6.3V	
C502	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C503	1-164-096-11	CERAMIC	0.01MF		50V	
C504	1-164-049-11	CERAMIC	13PF	5%	50V	
C505	1-164-049-11	CERAMIC	13PF	5%	50V	
C506	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C507	1-161-374-11	CERAMIC	0.0015MF	20%	16V	
C515	1-164-077-11	CERAMIC	220PF	10%	50V	
C551	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C552	1-124-446-11	ELECT	47MF	20%	10V	
C553	1-164-058-11	CERAMIC	33PF	5%	50V	
C554	1-164-058-11	CERAMIC	33PF	5%	50V	
C555	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C600	1-124-443-00	ELECT	100MF	20%	6.3V	
C603	1-126-233-11	ELECT	22MF	20%	25V	
C604	1-126-233-11	ELECT	22MF	20%	25V	
C605	1-126-233-11	ELECT	22MF	20%	25V	
C606	1-126-233-11	ELECT	22MF	20%	25V	
C607	1-124-443-00	ELECT	100MF	20%	6.3V	
C608	1-164-098-11	CERAMIC	0.047MF		12V	
C609	1-124-927-11	ELECT	4.7MF	20%	50V	
C610	1-124-446-11	ELECT	47MF	20%	10V	
C626	1-164-075-11	CERAMIC	150PF	10%	50V	
C627	1-164-075-11	CERAMIC	150PF	10%	50V	
C628	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C630	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C640	1-124-471-00	ELECT	1000MF	20%	6.3V	
C641	1-124-446-11	ELECT	47MF	20%	10V	
C642	1-124-446-11	ELECT	47MF	20%	10V	
C645	1-161-043-00	CERAMIC	0.0022MF	20%	16V	
C646	1-124-927-11	ELECT	4.7MF	20%	50V	
C650	1-124-791-11	ELECT	1MF	20%	50V	
C651	1-124-927-11	ELECT	4.7MF	20%	50V	
C652	1-124-927-11	ELECT	4.7MF	20%	50V	
C653	1-124-446-11	ELECT	47MF	20%	10V	
C654	1-164-096-11	CERAMIC	0.01MF		50V	
C655	1-124-927-11	ELECT	4.7MF	20%	50V	
C657	1-124-927-11	ELECT	4.7MF	20%	50V	
C658	1-124-927-11	ELECT	4.7MF	20%	50V	
C659	1-123-875-11	ELECT	10MF	20%	50V	
C660	1-164-075-11	CERAMIC	150PF	10%	50V	
C661	1-124-443-00	ELECT	100MF	20%	6.3V	
C670	1-124-927-11	ELECT	4.7MF	20%	50V	
C700	1-126-233-11	ELECT	22MF	20%	25V	

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

Ref.No.	Part No.	Description				Remark
C703	1-123-875-11	ELECT	10MF	20%	50V	
C705	1-164-096-11	CERAMIC	0.01MF		50V	
C706	1-126-101-11	ELECT	100MF	20%	16V	
C710	1-123-875-11	ELECT	10MF	20%	50V	
C711	1-164-056-11	CERAMIC	27PF	5%	50V	
C713	1-164-056-11	CERAMIC (SLV-474/474VP)	27PF	5%	50V	
C713	1-164-064-11	CERAMIC (SLV-474UB)	56PF	5%	50V	
C715	1-126-101-11	ELECT	100MF	20%	16V	
C716	1-101-886-00	CERAMIC (SLV-474/474VP)	62PF	5%	50V	
C716	1-164-068-11	CERAMIC (SLV-474UB)	82PF	5%	50V	
C717	1-126-101-11	ELECT	100MF	20%	16V	
C718	1-164-089-11	CERAMIC	0.0022MF		50V	
C719	1-164-089-11	CERAMIC	0.0022MF		50V	
C721	1-124-927-11	ELECT	4.7MF	20%	50V	
C723	1-124-499-11	ELECT (SLV-474/474UB)	1MF	20%	50V	
C751	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C752	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C753	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C754	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C755	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C759	1-124-446-11	ELECT	47MF	20%	10V	
C760	1-164-096-11	CERAMIC	0.01MF		50V	
C761	1-164-023-11	CERAMIC (SLV-474UB)	15PF	5%	50V	
C840	1-164-096-11	CERAMIC	0.01MF		50V	
C850	1-162-211-31	CERAMIC	33PF	5%	50V	
C851	1-164-058-11	CERAMIC	33PF	5%	50V	
C852	1-162-209-31	CERAMIC	27PF	5%	50V	
C853	1-164-056-11	CERAMIC	27PF	5%	50V	
C854	1-164-058-11	CERAMIC	33PF	5%	50V	
C855	1-164-058-11	CERAMIC	33PF	5%	50V	
C856	1-124-925-11	ELECT	2.2MF	20%	50V	
C857	1-164-098-11	CERAMIC	0.047MF		12V	
C858	1-164-098-11	CERAMIC	0.047MF		12V	
C859	1-164-098-11	CERAMIC	0.047MF		12V	
C890	1-164-096-11	CERAMIC	0.01MF		50V	
C891	1-124-791-11	ELECT	1MF	20%	50V	

CONNECTOR

CN201	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN202	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN203	1-506-982-11	PIN, CONNECTOR 14P	
CN204	1-506-475-11	PIN, CONNECTOR 10P	
CN205	1-506-473-11	PIN, CONNECTOR 8P	
CN206	1-506-476-11	PIN, CONNECTOR 11P	
CN208	1-569-344-11	CONNECTOR, BOARD TO BOARD 19P	
CN209	1-569-344-11	CONNECTOR, BOARD TO BOARD 19P	
CN210	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN216	1-561-534-00	SOCKET 21P	
CN218	*1-566-249-11	PIN, CONNECTOR 9P	
CN600	1-506-473-11	PIN, CONNECTOR 8P	
CN601	1-506-475-11	PIN, CONNECTOR 10P	
CN602	1-506-469-11	PIN, CONNECTOR 4P	
CN651	1-506-468-11	PIN, CONNECTOR 3P	
CN801	*1-566-249-11	PIN, CONNECTOR 9P (SLV-474VP)	

JACK

CNJ951	1-507-562-00	JACK (SIRCS OUT)	
CNJ952	1-507-562-00	JACK (SIRCS IN)	

TRIMMER CAPACITOR

CV401	1-141-227-00	CAP, CERAMIC TRIMMER	

DIODE

D301	8-719-911-19	DIODE 1SS119	
D302	8-719-911-19	DIODE 1SS119	
D303	8-719-911-19	DIODE 1SS119	
D304	8-719-974-59	DIODE 1SR139-100	
D351	8-719-109-85	DIODE RD5.1ES-B2	
D401	8-719-911-19	DIODE 1SS119	
D402	8-719-911-19	DIODE 1SS119	
D403	8-719-911-19	DIODE 1SS119	
D450	8-719-911-19	DIODE 1SS119	
D501	8-719-911-19	DIODE 1SS119	
D502	8-719-911-19	DIODE 1SS119	
D503	8-719-911-19	DIODE 1SS119	
D640	8-719-911-19	DIODE 1SS119	
D641	8-719-911-19	DIODE 1SS119	
D642	8-719-911-19	DIODE 1SS119	
D670	8-719-911-19	DIODE 1SS119	
D671	8-719-911-19	DIODE 1SS119	
D701	8-719-110-78	DIODE RD33ES-B2	
D850	8-719-911-19	DIODE 1SS119	
D851	8-719-911-19	DIODE 1SS119	
D852	8-719-911-19	DIODE 1SS119	
D853	8-719-911-19	DIODE 1SS119	
D901	8-719-109-97	DIODE RD6.8ES-B2	
D902	8-719-109-97	DIODE RD6.8ES-B2	
D903	8-719-109-97	DIODE RD6.8ES-B2	

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

Ref.No.	Part No.	Description	Remark
D904	8-719-109-97	DIODE RD6.8ES-B2	
D905	8-719-109-97	DIODE RD6.8ES-B2	
D906	8-719-109-97	DIODE RD6.8ES-B2	
D907	8-719-109-97	DIODE RD6.8ES-B2	
D908	8-719-109-97	DIODE RD6.8ES-B2	
D909	8-719-109-97	DIODE RD6.8ES-B2	
		IC	
IC101 ⚠	8-759-983-45	IC BA6238A	
IC103	8-759-923-90	IC BA4560	
IC302	8-759-038-19	IC MC34004P	
IC401	8-759-634-22	IC M50554-182SP	
IC402	8-759-996-03	IC LVA519S	
IC501	8-752-816-59	IC CXP80116-691Q	
IC502	8-759-822-65	IC LC6543H-4374	
IC503	8-759-916-29	IC SN74HC74N	
IC600	8-759-007-20	IC MC74HC4052N	
IC602	8-759-007-21	IC MC74HC4053N	
IC650	8-759-040-53	IC MC14053BCP	
IC652	8-759-945-58	IC RC4558P	
IC840	8-759-501-99	IC ST93C46AB1	
IC850	8-759-920-94	IC MSM6411B-19RS	
IC851	8-759-502-06	IC MB88201P-170N	
IC852	8-759-502-07	IC MB88201P-628N	
IC890	8-759-037-45	IC MC78L08ACPRP	
		IF BLOCK	
IF701 ⚠	1-464-553-21	IF BLOCK (IFB-389) (SLV-474)	
IF701 ⚠	1-464-583-21	IF BLOCK (IFB-395) (SLV-474UB)	
IF701 ⚠	1-466-034-11	IF BLOCK (IFV-389A) (SLV-474VP)	
		COIL	
L201	1-408-413-00	INDUCTOR 22UH	
L202	1-408-409-00	INDUCTOR 10UH	
L203	1-410-513-11	INDUCTOR 22UH	
L351	1-408-409-00	INDUCTOR 10UH	
L401	1-408-421-00	INDUCTOR 100UH	
L402	1-410-423-11	INDUCTOR 22UH	
L403	1-408-415-00	INDUCTOR 33UH (SLV-474VP)	
L404	1-408-421-00	INDUCTOR 100UH	
L405	1-408-414-00	INDUCTOR 27UH	
L406	1-408-415-00	INDUCTOR 33UH	
L460	1-410-522-11	INDUCTOR 120UH	
L461	1-408-418-00	INDUCTOR 56UH	
L501	1-408-409-00	INDUCTOR 10UH	
L551	1-408-409-00	INDUCTOR 10UH	
L600	1-408-421-00	INDUCTOR 100UH	
L601	1-408-421-00	INDUCTOR 100UH	

Ref.No.	Part No.	Description	Remark
L603	1-408-425-00	INDUCTOR 220UH	
L604	1-408-425-00	INDUCTOR 220UH	
L640	1-408-409-00	INDUCTOR 10UH	
L650	1-408-421-00	INDUCTOR 100UH	
L701	1-408-409-00	INDUCTOR 10UH	
L702	1-408-425-00	INDUCTOR 220UH	
L703	1-408-413-00	INDUCTOR 22UH	
L705	1-408-415-00	INDUCTOR 33UH (SLV-474/474VP)	
L705	1-408-413-00	INDUCTOR 22UH (SLV-474UB)	
L706	1-408-409-00	INDUCTOR 10UH	
L710	1-410-513-11	INDUCTOR 22UH	
L840	1-408-409-00	INDUCTOR 10UH	
		TRANSISTOR	
Q103	8-729-900-61	TRANSISTOR DTA114ES	
Q201	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q202	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q203	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q204	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q301	8-729-900-89	TRANSISTOR DTC144ES	
Q302	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q304	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q401	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q402	8-729-920-70	TRANSISTOR 2SC1740S-QR (SLV-474VP)	
Q403	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q404	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q405	8-729-900-89	TRANSISTOR DTC144ES	
Q406	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q407	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q501	8-729-900-89	TRANSISTOR DTC144ES	
Q600	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q601	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q602	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q603	8-729-900-89	TRANSISTOR DTC144ES	
Q605	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q607	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q609	8-729-900-89	TRANSISTOR DTC144ES	
Q610	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q640	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q641	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q670	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q710	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q711	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q712	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q751	8-729-926-14	TRANSISTOR 2SD1292	
Q835	8-729-900-89	TRANSISTOR DTC144ES	
Q850	8-729-900-89	TRANSISTOR DTC144ES	
Q851	8-729-900-89	TRANSISTOR DTC144ES	
Q852	8-729-900-89	TRANSISTOR DTC144ES	
Q853	8-729-900-89	TRANSISTOR DTC144ES	

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

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

Ref.No.	Part No.	Description	Remark
D904	8-719-109-97	DIODE RD6.8ES-B2	
D905	8-719-109-97	DIODE RD6.8ES-B2	
D906	8-719-109-97	DIODE RD6.8ES-B2	
D907	8-719-109-97	DIODE RD6.8ES-B2	
D908	8-719-109-97	DIODE RD6.8ES-B2	
D909	8-719-109-97	DIODE RD6.8ES-B2	

IC

IC101⚠	8-759-983-45	IC BA6238A	
IC103	8-759-923-90	IC BA4560	
IC302	8-759-038-19	IC MC34004P	
IC401	8-759-634-22	IC M50554-182SP	
IC402	8-759-996-03	IC LVA519S	
IC501	8-752-816-59	IC CXP80116-691Q	
IC502	8-759-822-65	IC LC6543H-4374	
IC503	8-759-916-29	IC SN74HC74N	
IC600	8-759-007-20	IC MC74HC4052N	
IC602	8-759-007-21	IC MC74HC4053N	
IC650	8-759-040-53	IC MC14053BCP	
IC652	8-759-945-58	IC RC4558P	
IC840	8-759-501-99	IC ST93C46AB1	
IC850	8-759-920-94	IC MSM6411B-19RS	
IC851	8-759-502-06	IC MB88201P-170N	
IC852	8-759-502-07	IC MB88201P-628N	
IC890	8-759-037-45	IC MC78L08ACPRP	

IF BLOCK

IF701⚠	1-464-553-21	IF BLOCK (IFB-389)	(SLV-474)
IF701⚠	1-464-583-21	IF BLOCK (IFB-395)	(SLV-474UB)
IF701⚠	1-466-034-11	IF BLOCK (IFV-389A)	(SLV-474VP)

COIL

L201	1-408-413-00	INDUCTOR	22UH	
L202	1-408-409-00	INDUCTOR	10UH	
L203	1-410-513-11	INDUCTOR	22UH	
L351	1-408-409-00	INDUCTOR	10UH	
L401	1-408-421-00	INDUCTOR	100UH	
L402	1-410-423-11	INDUCTOR	22UH	
L403	1-408-415-00	INDUCTOR	33UH	(SLV-474VP)
L404	1-408-421-00	INDUCTOR	100UH	
L405	1-408-414-00	INDUCTOR	27UH	
L406	1-408-415-00	INDUCTOR	33UH	
L460	1-410-522-11	INDUCTOR	120UH	
L461	1-408-418-00	INDUCTOR	56UH	
L501	1-408-409-00	INDUCTOR	10UH	
L551	1-408-409-00	INDUCTOR	10UH	
L600	1-408-421-00	INDUCTOR	100UH	
L601	1-408-421-00	INDUCTOR	100UH	
L603	1-408-425-00	INDUCTOR	220UH	
L604	1-408-425-00	INDUCTOR	220UH	
L640	1-408-409-00	INDUCTOR	10UH	
L650	1-408-421-00	INDUCTOR	100UH	
L701	1-408-409-00	INDUCTOR	10UH	
L702	1-408-425-00	INDUCTOR	220UH	
L703	1-408-413-00	INDUCTOR	22UH	
L705	1-408-415-00	INDUCTOR	33UH	(SLV-474/474VP)
L705	1-408-413-00	INDUCTOR	22UH	(SLV-474UB)
L706	1-408-409-00	INDUCTOR	10UH	
L710	1-410-513-11	INDUCTOR	22UH	
L840	1-408-409-00	INDUCTOR	10UH	

TRANSISTOR

Q103	8-729-900-61	TRANSISTOR DTA114ES	
Q201	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q202	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q203	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q204	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q301	8-729-900-89	TRANSISTOR DTC144ES	
Q302	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q304	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q401	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q402	8-729-920-70	TRANSISTOR 2SC1740S-QR	(SLV-474VP)
Q403	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q404	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q405	8-729-900-89	TRANSISTOR DTC144ES	
Q406	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q407	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q501	8-729-900-89	TRANSISTOR DTC144ES	
Q600	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q601	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q602	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q603	8-729-900-89	TRANSISTOR DTC144ES	
Q605	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q607	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q609	8-729-900-89	TRANSISTOR DTC144ES	
Q610	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q640	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q641	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q670	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q710	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q711	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q712	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q751	8-729-926-14	TRANSISTOR 2SD1292	
Q835	8-729-900-89	TRANSISTOR DTC144ES	
Q850	8-729-900-89	TRANSISTOR DTC144ES	
Q851	8-729-900-89	TRANSISTOR DTC144ES	
Q852	8-729-900-89	TRANSISTOR DTC144ES	
Q853	8-729-900-89	TRANSISTOR DTC144ES	

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

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

Ref.No.	Part No.	Description				Remark
Q854	8-729-900-89	TRANSISTOR DTC144ES				
Q855	8-729-920-70	TRANSISTOR 2SC1740S-QR				
Q856	8-729-920-68	TRANSISTOR 2SA933S-QR				
Q857	8-729-920-70	TRANSISTOR 2SC1740S-QR				
Q858	8-729-900-89	TRANSISTOR DTC144ES				
Q859	8-729-900-63	TRANSISTOR DTA124ES				
		RESISTOR				
R117	1-249-413-11	CARBON	470	5%	1/4W	
R118	1-249-425-11	CARBON	4.7K	5%	1/4W	
R201	1-249-431-11	CARBON	15K	5%	1/4W	
R202	1-249-430-11	CARBON	12K	5%	1/4W	
R203	1-249-417-11	CARBON	1K	5%	1/4W	
R204	1-249-417-11	CARBON	1K	5%	1/4W	
R205	1-249-418-11	CARBON	1.2K	5%	1/4W	
R206	1-249-417-11	CARBON	1K	5%	1/4W	
R207	1-247-897-11	CARBON	560K	5%	1/4W	
R208	1-249-421-11	CARBON	2.2K	5%	1/4W	
R209	1-249-428-11	CARBON	8.2K	5%	1/4W	
R210	1-249-421-11	CARBON	2.2K	5%	1/4W	
R211	1-249-437-11	CARBON	47K	5%	1/4W	
R212	1-249-405-11	CARBON	100	5%	1/4W	
R213	1-249-412-11	CARBON	390	5%	1/4W	
R214	1-249-427-11	CARBON	6.8K	5%	1/4W	
R215	1-249-435-11	CARBON	33K	5%	1/4W	
R216	1-249-429-11	CARBON	10K	5%	1/4W	
R301	1-247-885-00	CARBON	180K	5%	1/4W	
R302	1-249-417-11	CARBON	1K	5%	1/4W	
R303	1-249-423-11	CARBON	3.3K	5%	1/4W	
R304	1-249-421-11	CARBON	2.2K	5%	1/4W	
R305	1-249-423-11	CARBON	3.3K	5%	1/4W	
R306	1-249-423-11	CARBON	3.3K	5%	1/4W	
R309	1-247-889-00	CARBON	270K	5%	1/4W	
R310	⚠1-247-744-11	CARBON	270	5%	1/2W	F
R312	1-249-441-11	CARBON	100K	5%	1/4W	
R313	1-249-426-11	CARBON	5.6K	5%	1/4W	
R351	1-249-436-11	CARBON	39K	5%	1/4W	
R352	1-249-417-11	CARBON	1K	5%	1/4W	
R353	1-249-435-11	CARBON	33K	5%	1/4W	
R355	1-249-429-11	CARBON	10K	5%	1/4W	
R356	1-249-429-11	CARBON	10K	5%	1/4W	
R359	1-249-435-11	CARBON	33K	5%	1/4W	
R401	1-249-429-11	CARBON	10K	5%	1/4W	
R403	1-249-421-11	CARBON	2.2K	5%	1/4W	
R404	1-249-413-11	CARBON	470	5%	1/4W	
R405	1-249-413-11	CARBON	470	5%	1/4W	
R407	1-249-431-11	CARBON	15K	5%	1/4W	
R408	1-249-435-11	CARBON	33K	5%	1/4W	
R409	1-249-403-11	CARBON	68	5%	1/4W	
R410	1-249-429-11	CARBON	10K	5%	1/4W	(SLV-474VP)

Ref.No.	Part No.	Description				Remark
R411	1-249-423-11	CARBON	10K	5%	1/4W	
R412	1-249-405-11	CARBON	100	5%	1/4W	
R413	1-249-414-11	CARBON	560	5%	1/4W	
R414	1-249-433-11	CARBON	22K	5%	1/4W	
R415	1-249-409-11	CARBON	220	5%	1/4W	
R419	1-249-414-11	CARBON	560	5%	1/4W	
R420	1-249-420-11	CARBON	1.8K	5%	1/4W	
R424	1-249-425-11	CARBON	4.7K	5%	1/4W	
R425	1-249-422-11	CARBON	2.7K	5%	1/4W	
R426	1-249-421-11	CARBON	2.2K	5%	1/4W	
R427	1-249-415-11	CARBON	680	5%	1/4W	
R428	1-249-414-11	CARBON	560	5%	1/4W	
R429	1-249-422-11	CARBON	2.7K	5%	1/4W	
R430	1-249-424-11	CARBON	3.9K	5%	1/4W	
R431	1-249-421-11	CARBON	2.2K	5%	1/4W	
R432	1-249-423-11	CARBON	3.3K	5%	1/4W	
R433	1-249-429-11	CARBON	10K	5%	1/4W	(SLV-474VP)
R434	1-249-419-11	CARBON	1.5K	5%	1/4W	
R435	1-247-903-00	CARBON	1M	5%	1/4W	
R436	1-249-422-11	CARBON	2.7K	5%	1/4W	
R437	1-249-429-11	CARBON	10K	5%	1/4W	
R438	1-249-424-11	CARBON	3.9K	5%	1/4W	
R440	1-249-417-11	CARBON	1K	5%	1/4W	
R441	1-249-419-11	CARBON	1.5K	5%	1/4W	
R451	1-249-429-11	CARBON	10K	5%	1/4W	
R452	1-249-429-11	CARBON	10K	5%	1/4W	
R453	1-249-422-11	CARBON	2.7K	5%	1/4W	
R454	1-249-434-11	CARBON	27K	5%	1/4W	
R456	1-249-429-11	CARBON	10K	5%	1/4W	
R457	1-247-903-00	CARBON	1M	5%	1/4W	
R458	1-249-414-11	CARBON	560	5%	1/4W	
R460	1-249-417-11	CARBON	1K	5%	1/4W	
R461	1-249-441-11	CARBON	100K	5%	1/4W	
R490	1-249-417-11	CARBON	1K	5%	1/4W	
R491	1-249-428-11	CARBON	8.2K	5%	1/4W	
R501	1-249-429-11	CARBON	10K	5%	1/4W	
R502	1-249-429-11	CARBON	10K	5%	1/4W	
R503	1-249-429-11	CARBON	10K	5%	1/4W	
R504	1-249-417-11	CARBON	1K	5%	1/4W	
R505	1-249-433-11	CARBON	22K	5%	1/4W	
R506	1-249-433-11	CARBON	22K	5%	1/4W	
R507	1-249-433-11	CARBON	22K	5%	1/4W	
R508	1-249-433-11	CARBON	22K	5%	1/4W	
R509	1-249-433-11	CARBON	22K	5%	1/4W	
R510	1-249-433-11	CARBON	22K	5%	1/4W	
R511	1-249-414-11	CARBON	560	5%	1/4W	
R512	1-249-417-11	CARBON	1K	5%	1/4W	
R513	1-249-429-11	CARBON	10K	5%	1/4W	
R514	1-249-429-11	CARBON	10K	5%	1/4W	
R515	1-249-417-11	CARBON	1K	5%	1/4W	
R516	1-249-441-11	CARBON	100K	5%	1/4W	

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Replace only with part number specified.

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

Ref.No.	Part No.	Description				Remark
R517	1-249-417-11	CARBON	1K	5%	1/4W	
R518	1-249-417-11	CARBON	1K	5%	1/4W	
R524	1-249-429-11	CARBON	10K	5%	1/4W	
R525	1-249-429-11	CARBON	10K	5%	1/4W	
R553	1-249-433-11	CARBON	22K	5%	1/4W	
R554	1-249-433-11	CARBON	22K	5%	1/4W	
R555	1-249-413-11	CARBON	470	5%	1/4W	
R556	1-249-417-11	CARBON	1K	5%	1/4W	
R560	1-249-437-11	CARBON	47K	5%	1/4W	
R601	1-249-433-11	CARBON	22K	5%	1/4W	
R602	1-249-433-11	CARBON	22K	5%	1/4W	
R603	1-249-433-11	CARBON	22K	5%	1/4W	
R605	1-249-421-11	CARBON	2.2K	5%	1/4W	
R606	1-249-413-11	CARBON	470	5%	1/4W	
R607	1-249-413-11	CARBON	470	5%	1/4W	
R608	1-249-414-11	CARBON	560	5%	1/4W	
R612	1-249-433-11	CARBON	22K	5%	1/4W	
R613	1-249-437-11	CARBON	47K	5%	1/4W	
R615	1-249-417-11	CARBON	1K	5%	1/4W	
R616	1-249-417-11	CARBON	1K	5%	1/4W	
R617	1-249-421-11	CARBON	2.2K	5%	1/4W	
R619	1-249-433-11	CARBON	22K	5%	1/4W	
R620	1-249-421-11	CARBON	2.2K	5%	1/4W	
R621	1-249-421-11	CARBON	2.2K	5%	1/4W	
R622	1-249-421-11	CARBON	2.2K	5%	1/4W	
R623	1-249-417-11	CARBON	1K	5%	1/4W	
R630	1-249-417-11	CARBON	1K	5%	1/4W	
R631	1-249-417-11	CARBON	1K	5%	1/4W	
R636	1-249-426-11	CARBON	5.6K	5%	1/4W	
R637	1-249-426-11	CARBON	5.6K	5%	1/4W	
R638	1-249-413-11	CARBON	470	5%	1/4W	
R639	1-249-404-00	CARBON	82	5%	1/4W	
R640	1-249-405-11	CARBON	100	5%	1/4W	
R641	1-249-405-11	CARBON	100	5%	1/4W	
R642	1-249-403-11	CARBON	68	5%	1/4W	
R643	1-249-417-11	CARBON	1K	5%	1/4W	
R644	1-249-426-11	CARBON	5.6K	5%	1/4W	
R645	1-249-417-11	CARBON	1K	5%	1/4W	
R646	1-249-429-11	CARBON	10K	5%	1/4W	
R647	1-249-405-11	CARBON	100	5%	1/4W	
R648	1-249-421-11	CARBON	2.2K	5%	1/4W	
R650	1-249-437-11	CARBON	47K	5%	1/4W	
R651	1-249-437-11	CARBON	47K	5%	1/4W	
R652	1-249-441-11	CARBON	100K	5%	1/4W	
R655	1-249-437-11	CARBON	47K	5%	1/4W	
R657	1-249-417-11	CARBON	1K	5%	1/4W	
R658	1-249-417-11	CARBON	1K	5%	1/4W	
R661	1-249-429-11	CARBON	10K	5%	1/4W	
R662	1-249-437-11	CARBON	47K	5%	1/4W	
R663	1-249-441-11	CARBON	100K	5%	1/4W	
R664	1-249-408-11	CARBON	180	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R665	1-249-417-11	CARBON	1K	5%	1/4W	
R670	1-249-413-11	CARBON	470	5%	1/4W	
R671	1-249-429-11	CARBON	10K	5%	1/4W	
R672	1-249-429-11	CARBON	10K	5%	1/4W	
R690	1-247-883-00	CARBON	150K	5%	1/4W	
R691	1-249-405-11	CARBON	100	5%	1/4W	
R700	1-249-435-11	CARBON	33K	5%	1/4W	
R708	1-249-417-11	CARBON	1K	5%	1/4W	
R709	1-249-417-11	CARBON	1K	5%	1/4W	
R712	1-249-409-11	CARBON	220	5%	1/4W	
R713	1-249-417-11	CARBON	1K	5%	1/4W	
R714	1-249-421-11	CARBON	2.2K	5%	1/4W	
R715	1-249-405-11	CARBON	100	5%	1/4W	
R716	1-249-417-11	CARBON	1K	5%	1/4W	
R717	1-249-417-11	CARBON	1K	5%	1/4W	
R720	1-249-417-11	CARBON	1K	5%	1/4W	
R722	1-249-417-11	CARBON	1K	5%	1/4W	
R723	1-249-417-11	CARBON	1K	5%	1/4W	
R725	1-249-417-11	CARBON (SLV-474/474VP)	1K	5%	1/4W	
R725	1-247-826-00	CARBON	620	5%	1/4W	(SLV-474UB)
R726	1-247-883-00	CARBON	150K	5%	1/4W	
R727	1-247-883-00	CARBON	150K	5%	1/4W	
R728	1-249-405-11	CARBON	100	5%	1/4W	
R730	1-249-424-11	CARBON (SLV-474/474UB)	3.9K	5%	1/4W	
R731	1-249-429-11	CARBON (SLV-474/474UB)	10K	5%	1/4W	
R732	1-249-417-11	CARBON	1K	5%	1/4W	
R735	1-249-421-11	CARBON	2.2K	5%	1/4W	(SLV-474VP)
R737	1-249-424-11	CARBON	3.9K	5%	1/4W	(SLV-474VP)
R755	1-249-437-11	CARBON	47K	5%	1/4W	
R756	1-249-437-11	CARBON	47K	5%	1/4W	
R759	1-249-438-11	CARBON (SLV-474/474UB)	56K	5%	1/4W	
R760	1-249-438-11	CARBON (SLV-474/474UB)	56K	5%	1/4W	
R835	1-249-429-11	CARBON	10K	5%	1/4W	
R840	1-249-417-11	CARBON	1K	5%	1/4W	
R841	1-249-429-11	CARBON	10K	5%	1/4W	
R850	1-249-405-11	CARBON	100	5%	1/4W	
R851	1-249-429-11	CARBON	10K	5%	1/4W	
R852	1-249-429-11	CARBON	10K	5%	1/4W	
R853	1-249-437-11	CARBON	47K	5%	1/4W	
R854	1-249-437-11	CARBON	47K	5%	1/4W	
R855	1-249-405-11	CARBON	100	5%	1/4W	
R856	1-249-429-11	CARBON	10K	5%	1/4W	
R857	1-249-417-11	CARBON	1K	5%	1/4W	
R858	1-249-405-11	CARBON	100	5%	1/4W	
R859	1-249-441-11	CARBON	100K	5%	1/4W	
R860	1-247-883-00	CARBON	150K	5%	1/4W	

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

MA-67 VP-23 DG-2

Ref.No.	Part No.	Description	Remark
R861	1-249-421-11	CARBON 2.2K 5% 1/4W	
		RF MODULATOR	
RF401⚠	1-466-328-11	MODULATOR, RF (RFU-2017) (SLV-474/474VP)	
RF401⚠	1-466-347-11	MODULATOR, RF (RFU-2024) (SLV-474UB)	
		VARIABLE RESISTOR	
RV451	1-238-015-11	RES, ADJ, CARBON 4.7K	
RV501	1-238-019-11	RES, ADJ, CARBON 47K	
		TUNER	
TU701⚠	1-465-260-11	TUNER, ET (BTP-2C401) (SLV-474/474VP)	
TU701⚠	1-465-262-11	TUNER, ET (BTP-2U601) (SLV-474UB)	
		CRYSTAL	
X401	1-577-289-11	VIBRATOR, CRYSTAL 17.7MHZ	
X501	1-577-383-11	VIBRATOR, CRYSTAL 16MHZ	
X551	1-567-192-11	OSCILLATOR, CERAMIC 4MHZ	
X850	1-567-192-11	OSCILLATOR, CERAMIC 4MHZ	
X851	1-567-143-00	OSCILLATOR, CERAMIC 6MHZ	
X852	1-567-192-11	OSCILLATOR, CERAMIC 4MHZ	
**********			
*1-635-929-11		VP-23 BOARD (SLV-474VP)	
		**********	
		CAPACITOR	
C801	1-161-772-11	CERAMIC 0.1MF 20% 16V	
C802	1-164-098-11	CERAMIC 0.047MF 12V	
C803	1-164-058-11	CERAMIC 33PF 5% 50V	
C804	1-164-098-11	CERAMIC 0.047MF 12V	
C805	1-164-058-11	CERAMIC 33PF 5% 50V	
C806	1-161-057-00	CERAMIC 0.033MF 20% 16V	
C810	1-164-075-11	CERAMIC 150PF 10% 50V	
		CONNECTOR	
CN802 *1-563-676-11		SOCKET, CONNECTOR 9P	
		IC	
IC801	8-759-030-60	IC SDA5642	
IC802	8-759-143-10	IC UPD75004GB	

Ref.No.	Part No.	Description	Remark
		COIL	
L841	1-408-409-00	INDUCTOR 10UH	
		RESISTOR	
R801	1-249-429-11	CARBON 10K 5% 1/4W	
R802	1-249-429-11	CARBON 10K 5% 1/4W	
R803	1-249-441-11	CARBON 100K 5% 1/4W	
R804	1-247-901-11	CARBON 820K 5% 1/4W	
R805	1-249-405-11	CARBON 100 5% 1/4W	
R806	1-247-901-11	CARBON 820K 5% 1/4W	
R807	1-249-426-11	CARBON 5.6K 5% 1/4W	
R808	1-247-903-11	CARBON 1M 5% 1/4W	
R810	1-249-421-11	CARBON 2.2K 5% 1/4W	
R811	1-249-429-11	CARBON 10K 5% 1/4W	
R812	1-249-429-11	CARBON 10K 5% 1/4W	
		CRYSTAL	
X801	1-567-160-21	OSCILLATOR, CERAMIC	
**********			
*A-6727-250-A		DG-2 BOARD, COMPLETE	
		**********	
		CAPACITOR	
C101	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C102	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C103	1-126-177-11	ELECT 100MF 20% 6.3V	
C104	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C105	1-126-154-11	ELECT 47MF 20% 6.3V	
C107	1-124-438-00	ELECT 1MF 20% 50V	
C108	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C109	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C110	1-124-438-00	ELECT 1MF 20% 50V	
C111	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C112	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C113	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C114	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C115	1-124-442-00	ELECT 330MF 20% 6.3V	
C116	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C117	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C118	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C119	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C120	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C121	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C122	1-124-465-00	ELECT 0.47MF 20% 50V	
C123	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C124	1-124-438-00	ELECT 1MF 20% 50V	

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Ref.No.	Part No.	Description			Remark
C125	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C126	1-124-463-00	ELECT	0.1MF	20%	50V
C127	1-126-157-11	ELECT	10MF	20%	16V
C128	1-124-438-00	ELECT	1MF	20%	50V
C129	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C130	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C131	1-124-438-00	ELECT	1MF	20%	50V
C132	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C134	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C135	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C136	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C137	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C138	1-124-257-00	ELECT	2.2MF	20%	50V
C139	1-124-438-00	ELECT	1MF	20%	50V
C140	1-124-438-00	ELECT	1MF	20%	50V
C141	1-124-438-00	ELECT	1MF	20%	50V
C142	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C143	1-124-438-00	ELECT	1MF	20%	50V
C144	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C145	1-126-177-11	ELECT	100MF	20%	6.3V
C146	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C147	1-126-177-11	ELECT	100MF	20%	6.3V
C148	1-126-177-11	ELECT	100MF	20%	6.3V
C149	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C150	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C151	1-126-177-11	ELECT	100MF	20%	6.3V
C152	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C153	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C154	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C155	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C156	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C157	1-126-177-11	ELECT	100MF	20%	6.3V
C158	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C159	1-126-177-11	ELECT	100MF	20%	6.3V
C160	1-126-177-11	ELECT	100MF	20%	6.3V
C161	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C162	1-124-438-00	ELECT	1MF	20%	50V
C163	1-124-438-00	ELECT	1MF	20%	50V
C164	1-124-438-00	ELECT	1MF	20%	50V
C165	1-124-438-00	ELECT	1MF	20%	50V
C166	1-124-438-00	ELECT	1MF	20%	50V
C167	1-124-438-00	ELECT	1MF	20%	50V
C168	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C169	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C170	1-126-177-11	ELECT	100MF	20%	6.3V
C171	1-124-438-00	ELECT	1MF	20%	50V
C172	1-124-438-00	ELECT	1MF	20%	50V
C173	1-124-438-00	ELECT	1MF	20%	50V
C174	1-124-465-00	ELECT	0.47MF	20%	50V
C176	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C177	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V

Ref.No.	Part No.	Description			Remark
C178	1-163-009-11	CERAMIC CHIP	0.001MF		50V
C179	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C180	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C181	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C182	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C183	1-124-438-00	ELECT	1MF	20%	50V
C184	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C185	1-126-177-11	ELECT	100MF	20%	6.3V
C186	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C187	1-124-438-00	ELECT	1MF	20%	50V
C188	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C189	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C190	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C191	1-163-009-11	CERAMIC CHIP	0.001MF		50V
C192	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C193	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C194	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C195	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C196	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C197	1-126-177-11	ELECT	100MF	20%	6.3V
C198	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C199	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C200	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C201	1-124-279-11	ELECT	3.3MF	20%	25V
C202	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C203	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C204	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C205	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C206	1-124-442-00	ELECT	330MF	20%	6.3V
C207	1-124-438-00	ELECT	1MF	20%	50V
C208	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C209	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C210	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C211	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C212	1-126-162-11	ELECT	3.3MF	20%	35V
C213	1-126-177-11	ELECT	100MF	20%	6.3V
C214	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C215	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C216	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C217	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C218	1-126-177-11	ELECT	100MF	20%	6.3V
C219	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C220	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C221	1-126-157-11	ELECT	10MF	20%	16V
C223	1-126-154-11	ELECT	47MF	20%	6.3V
C224	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C231	1-126-154-11	ELECT	47MF	20%	6.3V

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

DG-2

Ref.No.	Part No.	Description	Remark
		TRIMMER CAPACITOR	
CT101	1-141-298-11	CAP, TRIMMER 30PF	
CT102	1-141-260-00	TRIMMER, CERAMIC 50PF	
CT103	1-141-298-11	CAP, TRIMMER 30PF	
		DIODE	
D101	8-719-400-18	DIODE MA152WK	
D102	8-719-200-82	DIODE 1ES2	
		DELAY LINE	
DL101	1-415-440-11	DELAY LINE, LC (444NS)	
		FERRITE BEAD	
FB101	1-543-309-12	BEAD, FERRITE	
FB102	1-543-309-12	BEAD, FERRITE	
		FILTER	
FL101	1-421-927-21	FILTER, NOISE	
FL102	1-421-927-21	FILTER, NOISE	
FL103	1-421-927-21	FILTER, NOISE	
FL104	1-421-927-21	FILTER, NOISE	
FL105	1-421-927-21	FILTER, NOISE	
FL106	1-421-927-21	FILTER, NOISE	
FL107	1-421-927-21	FILTER, NOISE	
FL108	1-421-928-11	FILTER, NOISE	
FL109	1-421-928-11	FILTER, NOISE	
FL110	1-421-928-11	FILTER, NOISE	
FL111	1-421-928-11	FILTER, NOISE	
FL112	1-236-054-11	FILTER, LC (LOW PASS)	
FL113	1-236-360-11	BPF, C	
FL114	1-236-360-11	BPF, C	
FL115	1-421-927-21	FILTER, NOISE	
FL116	1-421-927-21	FILTER, NOISE	
FL117	1-421-927-21	FILTER, NOISE	
FL118	1-421-927-21	FILTER, NOISE	
FL119	1-421-927-21	FILTER, NOISE	
FL120	1-236-360-11	BPF, C	
		IC	
IC101	8-759-633-99	IC M51285BFP-V	
IC102	8-759-631-06	IC M50541FP	
IC103	8-759-633-96	IC M52682FP	
IC104	8-759-926-18	IC SN74HC157NS	
IC105	8-759-925-72	IC MC74HC02NS	
IC106	8-759-031-84	IC SC7S04F	
IC107	8-759-605-15	IC M5M4C500L-10	
IC108	8-759-633-04	IC M52686AFP	
IC109	8-759-941-68	IC BA7131F	
IC110	8-759-603-54	IC M51271FP	
IC111	8-759-631-10	IC M52684AFP	
IC112	8-759-009-07	IC MC14053BF	
IC113	8-759-710-12	IC NJM2230M	
		COIL	
L103	1-407-169-99	INDUCTOR 100UH	
L104	1-407-169-99	INDUCTOR 100UH	
L105	1-407-169-99	INDUCTOR 100UH	
L106	1-407-169-99	INDUCTOR 100UH	
L107	1-410-389-31	INDUCTOR CHIP 47UH	
L108	1-407-169-99	INDUCTOR 100UH	
L109	1-407-169-99	INDUCTOR 100UH	
L110	1-407-169-99	INDUCTOR 100UH	
L111	1-407-169-99	INDUCTOR 100UH	
L112	1-407-169-99	INDUCTOR 100UH	
		TRANSISTOR	
Q101	8-729-271-23	TRANSISTOR 2SC2712	
Q102	8-729-271-23	TRANSISTOR 2SC2712	
Q103	8-729-271-23	TRANSISTOR 2SC2712	
Q104	8-729-216-22	TRANSISTOR 2SA1162	
Q105	8-729-901-03	TRANSISTOR DTC144WK	
Q106	8-729-216-22	TRANSISTOR 2SA1162	
Q107	8-729-216-22	TRANSISTOR 2SA1162	
Q108	8-729-216-22	TRANSISTOR 2SA1162	
Q109	8-729-271-23	TRANSISTOR 2SC2712	
Q111	8-729-271-23	TRANSISTOR 2SC2712	
Q112	8-729-216-22	TRANSISTOR 2SA1162	
		RESISTOR	
R101	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R102	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R103	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R104	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R105	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R106	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R107	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R108	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R109	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R110	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R111	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R112	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R113	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R114	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R115	1-216-041-00	METAL GLAZE 470 5% 1/10W	

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

Ref.No.	Part No.	Description				Remark
R116	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R117	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R118	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R119	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R120	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R121	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R122	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R123	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R124	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R125	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R126	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R127	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R128	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R129	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R131	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R132	1-216-034-00	METAL GLAZE	240	5%	1/10W	
R133	1-216-018-00	METAL GLAZE	51	5%	1/10W	
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R135	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R136	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R137	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R138	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R139	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R140	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R141	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R142	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R143	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R145	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R146	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R147	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R149	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R150	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R151	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R152	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R153	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R154	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R155	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R156	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R157	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R158	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R159	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R160	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R161	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R162	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R163	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R164	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R165	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R166	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R167	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R168	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R169	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R170	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R171	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R172	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R173	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R174	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R175	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R176	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R177	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R178	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R179	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R180	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R182	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R183	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R184	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R185	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R186	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R187	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R188	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R189	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R190	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R191	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R192	1-216-295-00	METAL GLAZE	0	5%	1/10W	

VARIABLE RESISTOR

RV101	1-230-520-11	RES, ADJ, SOLID 1K
RV102	1-230-521-11	RES, ADJ, SOLID 2.2K
RV103	1-230-526-11	RES, ADJ, SOLID 47K

CRYSTAL

X101	1-577-165-11	VIBLATOR, CERAMIC 500KHZ
X102	1-567-733-11	VIBRATOR, CRYSTAL 17.7MHZ
X103	1-577-164-11	VIBLATOR, CERAMIC 30.2MHZ
X104	1-567-733-11	VIBRATOR, CRYSTAL 17.7MHZ
X105	1-577-165-11	VIBLATOR, CERAMIC 500KHZ

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

MJ-41 MF-98 MF-99

Ref.No.	Part No.	Description			Remark
	*1-635-928-11	MJ-41 BOARD			
		**********			
		CONNECTOR			
CN062	1-506-468-11	PIN, CONNECTOR 3P			
CN062	1-506-468-11	PIN, CONNECTOR 3P			
		JACK			
CNJ063	1-565-457-11	JACK (MIC)			
**********					
	*1-635-923-11	MF-98 BOARD			
		**********			
		CAPACITOR			
C061	1-162-284-31	CERAMIC	150PF	10% 50V	
C062	1-162-284-31	CERAMIC	150PF	10% 50V	
C063	1-164-159-11	CERAMIC	0.1MF	50V	
C065	1-161-379-00	CERAMIC	0.01MF	30% 16V	
		CONNECTOR			
CN060	1-568-665-11	CONNECTOR, BOARD TO BOARD 11P			
CN061	1-506-469-11	PIN, CONNECTOR 4P			
		JACK			
CNJ061	1-569-444-11	JACK, PIN 2P (AUDIO/VIDEO)			
CNJ062	1-563-467-11	SOCKET, SMALL TYPE 5P (LANC)			
		DIODE			
D061	8-719-940-82	DIODE SLR-34MC3			
D062	8-719-940-82	DIODE SLR-34MC3			
D063	8-719-109-97	DIODE RD6.8ES-B2			
D066	8-719-940-99	SLR-34VC3 (SLV-474UB)			
D067	8-719-940-99	SLR-34VC3 (SLV-474UB)			
D069	8-719-109-97	DIODE RD6.8ES-B2			
D070	8-719-109-97	DIODE RD6.8ES-B2			
D073	8-719-911-19	DIODE 1SS119 (SLV-474TUB)			
D074	8-719-946-30	DIODE SLR-34DC3			
D075	8-719-110-22	DIODE RD11ES-B2			
		IC			
IC061	1-466-131-11	CATCHER RAY BLOCK (GP1U52X)			

Ref.No.	Part No.	Description			Remark
		COIL			
L061	1-410-336-11	INDUCTOR	220UH		
		RESISTOR			
R062	1-249-423-11	CARBON	3.3K	5% 1/4W	
R063	1-249-401-11	CARBON	47	5% 1/4W	
R065	1-249-427-11	CARBON	6.8K	5% 1/4W	
R066	1-249-423-11	CARBON	3.3K	5% 1/4W	
R067	1-249-404-00	CARBON	82	5% 1/4W	
R068	1-249-422-11	CARBON	2.7K	5% 1/4W	
R071	1-249-405-11	CARBON	100	5% 1/4W	(SLV-474UB)
R072	1-249-404-00	CARBON	82	5% 1/4W	
R073	1-249-420-11	CARBON	1.8K	5% 1/4W	
R078	1-249-409-11	CARBON	220	5% 1/4W	
R079	1-249-409-11	CARBON	220	5% 1/4W	
		VARIABLE RESISTOR			
RV061	1-230-819-11	RES, VAR, CARBON 2K (SHARPNESS)			
		SWITCH			
S061	1-571-977-11	SWITCH, TACTIL (POWER)			
S062	1-571-977-11	SWITCH, TACTIL (EJECT)			
S063	1-570-854-11	SWITCH, SLIDE (VTR MODE)			
S064	1-570-865-11	SWITCH, SLIDE (LANC M/S)			
S065	1-571-977-11	SWITCH, TACTIL (VPS) (SLV-474VP)			
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	*1-635-924-11	MF-99 BOARD			
		**********			
	*3-741-965-01	HOLDER, PC BOARD			
		CONNECTOR			
CN080	1-569-336-11	CONNECTOR, BOARD TO BOARD 7P			
		SWITCH			
S081	1-466-302-11	SWITCH, ROTARY (PB)			
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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
	*A-6727-189-A	RP-100 BOARD, COMPLETE			
		**********			
	*3-746-014-01	CASE (MAIN), GRP			
	*3-746-015-01	CASE (UPPER), GRP			
		CAPACITOR			
C001	1-162-839-11	CERAMIC	0.01MF	10%	16V
C002	1-124-465-00	ELECT	0.47MF	20%	50V
C003	1-124-465-00	ELECT	0.47MF	20%	50V
C004	1-164-031-11	CERAMIC	33PF	5%	50V
C005	1-164-031-11	CERAMIC	33PF	5%	50V
C006	1-124-465-00	ELECT	0.47MF	20%	50V
C007	1-124-465-00	ELECT	0.47MF	20%	50V
C008	1-162-306-11	CERAMIC	0.01MF	20%	16V
C009	1-162-306-11	CERAMIC	0.01MF	20%	16V
C010	1-124-465-00	ELECT	0.47MF	20%	50V
C011	1-124-465-00	ELECT	0.47MF	20%	50V
C012	1-164-027-11	CERAMIC	22PF	5%	50V
C013	1-164-031-11	CERAMIC	33PF	5%	50V
C014	1-124-465-00	ELECT	0.47MF	20%	50V
C015	1-124-465-00	ELECT	0.47MF	20%	50V
C016	1-162-839-11	CERAMIC	0.01MF	10%	16V
C017	1-162-306-11	CERAMIC	0.01MF	20%	16V
C018	1-126-154-11	ELECT	47MF	20%	6.3V
C019	1-162-306-11	CERAMIC	0.01MF	20%	16V
C020	1-126-154-11	ELECT	47MF	20%	6.3V
C021	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C022	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C023	1-162-839-11	CERAMIC	0.01MF	10%	16V
C024	1-124-463-00	ELECT	0.1MF	20%	50V
C025	1-162-839-11	CERAMIC	0.01MF	10%	16V
C026	1-162-306-11	CERAMIC	0.01MF	20%	16V
C027	1-164-027-11	CERAMIC	22PF	5%	50V
C028	1-162-839-11	CERAMIC	0.01MF	10%	16V
C029	1-162-839-11	CERAMIC	0.01MF	10%	16V
C030	1-164-023-11	CERAMIC	15PF	5%	50V
C031	1-162-839-11	CERAMIC	0.01MF	10%	16V
C032	1-164-033-11	CERAMIC	39PF	5%	50V
C033	1-162-839-11	CERAMIC	0.01MF	10%	16V
C034	1-102-973-00	CERAMIC	100PF	5%	50V
C035	1-101-888-00	CERAMIC	68PF	5%	50V
C036	1-102-820-00	CERAMIC	330PF	5%	50V
C037	1-162-839-11	CERAMIC	0.01MF	10%	16V
C038	1-126-154-11	ELECT	47MF	20%	6.3V
C039	1-162-839-11	CERAMIC	0.01MF	10%	16V
C040	1-162-839-11	CERAMIC	0.01MF	10%	16V
C041	1-162-839-11	CERAMIC	0.01MF	10%	16V
C042	1-162-839-11	CERAMIC	0.01MF	10%	16V
		CONNECTOR			
CN001	1-569-709-11	SOCKET, CONNECTOR 8P			
CN002	*1-564-030-00	PIN, CONNECTOR 5P			
CN003	1-506-489-11	PIN, CONNECTOR 10P			
CN004	1-506-489-11	PIN, CONNECTOR 10P			
		DIODE			
D001	8-719-911-19	DIODE 1SS119			
D002	8-719-911-19	DIODE 1SS119			
D003	8-719-911-19	DIODE 1SS119			

Ref.No	Part No.	Description			Remark
		IC			
IC001	8-759-320-52	IC HA118019NT			
		COIL			
L001	1-407-169-XX	INDUCTOR	100UH		
L002	1-407-169-XX	INDUCTOR	100UH		
L003	1-408-975-21	INDUCTOR	27UH		
L004	1-408-973-21	INDUCTOR	18UH		
L005	1-408-977-21	INDUCTOR	39UH		
L006	1-408-970-21	INDUCTOR	10UH		
L007	1-408-973-21	INDUCTOR	18UH		
L008	1-408-985-21	INDUCTOR	180UH		
L009	1-407-169-XX	INDUCTOR	100UH		
		TRANSISTOR			
Q002	8-729-920-68	TRANSISTOR 2SA933S-QR			
Q003	8-729-920-70	TRANSISTOR 2SC1740S-QR			
Q004	8-729-900-89	TRANSISTOR DTC144ES			
Q005	8-729-920-70	TRANSISTOR 2SC1740S-QR			
Q006	8-729-900-89	TRANSISTOR DTC144ES			
Q007	8-729-900-89	TRANSISTOR DTC144ES			
		RESISTOR			
R001	1-249-404-00	CARBON	82	5%	1/4W
R002	1-249-403-11	CARBON	68	5%	1/4W
R003	1-249-404-00	CARBON	82	5%	1/4W
R004	1-249-405-11	CARBON	100	5%	1/4W
R005	1-249-429-11	CARBON	10K	5%	1/4W
R007	1-249-429-11	CARBON	10K	5%	1/4W
R008	1-249-429-11	CARBON	10K	5%	1/4W
R009	1-247-891-00	CARBON	330K	5%	1/4W
R010	1-249-420-11	CARBON	1.8K	5%	1/4W
R011	1-247-895-00	CARBON	470K	5%	1/4W
R012	1-249-433-11	CARBON	22K	5%	1/4W
R013	1-249-432-11	CARBON	18K	5%	1/4W
R014	1-249-417-11	CARBON	1K	5%	1/4W
R016	1-249-417-11	CARBON	1K	5%	1/4W
R017	1-249-421-11	CARBON	2.2K	5%	1/4W
R018	1-249-421-11	CARBON	2.2K	5%	1/4W
R019	1-249-412-11	CARBON	390	5%	1/4W
R020	1-249-412-11	CARBON	390	5%	1/4W
R021	1-249-416-11	CARBON	820	5%	1/4W
R022	1-249-426-11	CARBON	5.6K	5%	1/4W
R023	1-249-421-11	CARBON	2.2K	5%	1/4W
R024	1-249-413-11	CARBON	470	5%	1/4W
R025	1-249-415-11	CARBON	680	5%	1/4W
R026	1-249-414-11	CARBON	560	5%	1/4W
R027	1-249-416-11	CARBON	820	5%	1/4W
R028	1-249-417-11	CARBON	1K	5%	1/4W
R029	1-249-418-11	CARBON	1.2K	5%	1/4W
R030	1-249-419-11	CARBON	1.5K	5%	1/4W
R031	1-249-421-11	CARBON	2.2K	5%	1/4W
R032	1-249-417-11	CARBON	1K	5%	1/4W
R033	1-249-429-11	CARBON	10K	5%	1/4W

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

YC-90

Ref.No	Part No.	Description			Remark
	*A-6727-187-A	YC-90 BOARD, COMPLETE **********			
	*3-738-015-01	COVER, (DIA. 6) CARBON VR			
	*3-746-013-01	HOLDER (Y), PC BOARD			
		CAPACITOR			
C701	1-164-095-11	CERAMIC	0.01MF	10%	16V
C702	1-164-096-11	CERAMIC	0.01MF		50V
C703	1-124-927-11	ELECT	4.7MF	20%	50V
C704	1-126-233-11	ELECT	22MF	20%	25V
C705	1-162-851-11	CERAMIC	0.1MF	10%	16V
C706	1-124-927-11	ELECT	4.7MF	20%	50V
C707	1-124-927-11	ELECT	4.7MF	20%	50V
C708	1-164-046-11	CERAMIC	10PF	0.5PF	50V
C709	1-124-446-11	ELECT	47MF	20%	10V
C710	1-164-098-11	CERAMIC	0.047MF		12V
C711	1-102-820-00	CERAMIC	330PF	5%	50V
C712	1-102-822-00	CERAMIC	390PF	5%	50V
C713	1-162-293-31	CERAMIC	820PF	10%	50V
C714	1-164-096-11	CERAMIC	0.01MF		50V
C715	1-164-096-11	CERAMIC	0.01MF		50V
C716	1-124-446-11	ELECT	47MF	20%	10V
C718	1-124-927-11	ELECT	4.7MF	20%	50V
C723	1-164-096-11	CERAMIC	0.01MF		50V
C724	1-164-097-11	CERAMIC	0.022MF		50V
C725	1-164-096-11	CERAMIC	0.01MF		50V
C726	1-164-096-11	CERAMIC	0.01MF		50V
C727	1-164-096-11	CERAMIC	0.01MF		50V
C728	1-164-060-11	CERAMIC	39PF	5%	50V
C730	1-164-096-11	CERAMIC	0.01MF		50V
C731	1-124-446-11	ELECT	47MF	20%	10V
C732	1-164-068-11	CERAMIC	82PF	5%	50V
C733	1-164-058-11	CERAMIC	33PF	5%	50V
C734	1-102-824-00	CERAMIC	470PF	5%	50V
C735	1-162-851-11	CERAMIC	0.1MF	10%	16V
C736	1-164-066-11	CERAMIC	68PF	5%	50V
C737	1-164-096-11	CERAMIC	0.01MF		50V
C738	1-124-925-11	ELECT	2.2MF	20%	50V
C739	1-162-280-31	CERAMIC	82PF	10%	50V
C740	1-164-056-11	CERAMIC	27PF	5%	50V
C741	1-124-446-11	ELECT	47MF	20%	10V
C743	1-162-851-11	CERAMIC	0.1MF	10%	16V
C744	1-124-446-11	ELECT	47MF	20%	10V
C746	1-164-096-11	CERAMIC	0.01MF		50V
C747	1-162-851-11	CERAMIC	0.1MF	10%	16V
C749	1-162-851-11	CERAMIC	0.1MF	10%	16V
C750	1-164-096-11	CERAMIC	0.01MF		50V
C751	1-162-851-11	CERAMIC	0.1MF	10%	16V
C753	1-124-446-11	ELECT	47MF	20%	10V
C754	1-164-058-11	CERAMIC	33PF	5%	50V
C755	1-164-072-11	CERAMIC	120PF	5%	50V
C756	1-102-978-00	CERAMIC	220PF	5%	50V

Ref.No	Part No.	Description			Remark
C760	1-164-096-11	CERAMIC	0.01MF		50V
C763	1-124-927-11	ELECT	4.7MF	20%	50V
C766	1-124-927-11	ELECT	4.7MF	20%	50V
C768	1-164-096-11	CERAMIC	0.01MF		50V
C770	1-102-978-00	CERAMIC	220PF	5%	50V
C780	1-162-851-11	CERAMIC	0.1MF	10%	16V
C782	1-164-068-11	CERAMIC	82PF	5%	50V
C783	1-102-820-00	CERAMIC	330PF	5%	50V
C785	1-164-096-11	CERAMIC	0.01MF		50V
C790	1-164-096-11	CERAMIC	0.01MF		50V
C801	1-162-851-11	CERAMIC	0.1MF	10%	16V
C802	1-124-446-11	ELECT	47MF	20%	10V
C803	1-164-096-11	CERAMIC	0.01MF		50V
C804	1-162-851-11	CERAMIC	0.1MF	10%	16V
C805	1-164-097-11	CERAMIC	0.022MF		50V
C806	1-164-096-11	CERAMIC	0.01MF		50V
C807	1-164-096-11	CERAMIC	0.01MF		50V
C808	1-164-096-11	CERAMIC	0.01MF		50V
C809	1-102-978-00	CERAMIC	220PF	5%	50V
C810	1-102-978-00	CERAMIC	220PF	5%	50V
C811	1-164-031-11	CERAMIC	33PF	5%	50V
C812	1-164-096-11	CERAMIC	0.01MF		50V
C813	1-124-443-00	ELECT	100MF	20%	6.3V
C814	1-124-443-00	ELECT	100MF	20%	6.3V
C815	1-136-169-00	MYLAR	0.22MF	5%	50V
C816	1-124-927-11	ELECT	4.7MF	20%	50V
C817	1-164-096-11	CERAMIC	0.01MF		50V
C818	1-161-061-11	CERAMIC	0.068MF	10%	25V
C819	1-124-443-00	ELECT	100MF	20%	6.3V
C820	1-164-070-11	CERAMIC	100PF	5%	50V
C823	1-124-927-11	ELECT	4.7MF	20%	50V
C825	1-162-851-11	CERAMIC	0.1MF	10%	16V
C826	1-164-098-11	CERAMIC	0.047MF		12V
C827	1-162-851-11	CERAMIC	0.1MF	10%	16V
C828	1-164-096-11	CERAMIC	0.01MF		50V
C829	1-164-096-11	CERAMIC	0.01MF		50V
C830	1-162-851-11	CERAMIC	0.1MF	10%	16V
C831	1-101-361-00	CERAMIC	150PF	5%	50V
C832	1-124-791-11	ELECT	1MF	20%	50V
C833	1-164-096-11	CERAMIC	0.01MF		50V
C834	1-123-382-00	ELECT	3.3MF	20%	50V
C835	1-164-096-11	CERAMIC	0.01MF		50V
C836	1-162-851-11	CERAMIC	0.1MF	10%	16V
C837	1-164-052-11	CERAMIC	10PF	5%	50V
C840	1-164-096-11	CERAMIC	0.01MF		50V
C841	1-164-096-11	CERAMIC	0.01MF		50V
C842	1-164-096-11	CERAMIC	0.01MF		50V
C844	1-164-096-11	CERAMIC	0.01MF		50V
C847	1-124-446-11	ELECT	47MF	20%	10V
C848	1-164-096-11	CERAMIC	0.01MF		50V
C849	1-130-495-00	MYLAR	0.1MF	5%	50V
C850	1-164-091-11	CERAMIC	0.0022MF	10%	50V
C851	1-102-978-00	CERAMIC	220PF	5%	50V

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

Ref.No	Part No.	Description			Remark
C852	1-162-851-11	CERAMIC	0.1MF	10%	16V
C853	1-124-446-11	ELECT	47MF	20%	10V
C854	1-124-927-11	ELECT	4.7MF	20%	50V
C855	1-124-446-11	ELECT	47MF	20%	10V
C857	1-164-096-11	CERAMIC	0.01MF		50V
C858	1-164-072-11	CERAMIC	120PF	5%	50V
C859	1-123-875-11	ELECT	10MF	20%	50V
C860	1-123-875-11	ELECT	10MF	20%	50V
C861	1-164-092-11	CERAMIC	0.0033MF	10%	25V
C862	1-101-361-00	CERAMIC	150PF	5%	50V
C863	1-124-791-11	ELECT	1MF	20%	50V
C864	1-124-446-11	ELECT	47MF	20%	10V
C865	1-124-446-11	ELECT	47MF	20%	10V
C866	1-124-791-11	ELECT	1MF	20%	50V
C867	1-123-875-11	ELECT	10MF	20%	50V
C868	1-164-077-11	CERAMIC	220PF	10%	50V
C869	1-164-096-11	CERAMIC	0.01MF		50V
C870	1-164-056-11	CERAMIC	27PF	5%	50V
C871	1-164-056-11	CERAMIC	27PF	5%	50V
C872	1-164-096-11	CERAMIC	0.01MF		50V
C873	1-164-054-11	CERAMIC	22PF	5%	50V
C874	1-164-096-11	CERAMIC	0.01MF		50V
C875	1-162-851-11	CERAMIC	0.1MF	10%	16V
C876	1-130-475-00	MYLAR	0.0022MF	5%	50V
C877	1-164-096-11	CERAMIC	0.01MF		50V
C878	1-130-475-00	MYLAR	0.0022MF	5%	50V
C879	1-164-098-11	CERAMIC	0.047MF		12V
C880	1-124-791-11	ELECT	1MF	20%	50V
C881	1-123-875-11	ELECT	10MF	20%	50V
C882	1-123-382-00	ELECT	3.3MF	20%	50V
C883	1-164-096-11	CERAMIC	0.01MF		50V
C884	1-164-096-11	CERAMIC	0.01MF		50V
C885	1-123-875-11	ELECT	10MF	20%	50V
C886	1-162-851-11	CERAMIC	0.1MF	10%	16V
C887	1-162-851-11	CERAMIC	0.1MF	10%	16V
C888	1-123-875-11	ELECT	10MF	20%	50V
C889	1-164-062-11	CERAMIC	47PF	5%	50V
C890	1-164-050-11	CERAMIC	15PF	5%	50V
C891	1-164-066-11	CERAMIC	68PF	5%	50V
C892	1-164-066-11	CERAMIC	68PF	5%	50V
C893	1-124-446-11	ELECT	47MF	20%	10V
C894	1-124-446-11	ELECT	47MF	20%	10V
C895	1-164-096-11	CERAMIC	0.01MF		50V
C896	1-124-446-11	ELECT	47MF	20%	10V
C897	1-124-927-11	ELECT	4.7MF	20%	50V
C898	1-164-096-11	CERAMIC	0.01MF		50V
C899	1-164-085-11	CERAMIC	0.001MF	10%	50V

CONNECTOR

CN701	1-506-471-11	PIN, CONNECTOR 6P
CN702	1-506-473-11	PIN, CONNECTOR 8P
CN703	1-506-476-11	PIN, CONNECTOR 11P
CN704	1-506-469-11	PIN, CONNECTOR 4P

Ref.No	Part No.	Description	Remark
		DIODE	
D701	8-719-911-19	DIODE 1SS119	
D705	8-719-911-19	DIODE 1SS119	
D801	8-719-911-19	DIODE 1SS119	
		DELAY LINE	
DL801	1-415-602-11	DELAY LINE, GLASS	
		FILTER	
FL701	1-236-312-11	FILTER, BAND PASS	
FL801	1-239-915-11	FILTER, BAND PASS	
FL802	1-236-311-11	FILTER, BAND PASS (5.06MHz)	
FL803	1-527-849-00	FILTER, CERAMIC	
FL850	1-527-943-00	FILTER, CERAMIC (4.5MHz)	
		IC	
IC701	8-759-420-07	IC AN3231K	
IC702	8-752-321-89	IC CXL5003P	
IC801	8-759-320-78	IC HA118016NT	
IC802	8-759-822-05	IC LA7213	
IC850	8-759-904-95	IC BA7007	
IC860	8-759-420-53	IC AN3592K	
IC861	8-759-991-54	IC MSM6989RS	
IC862	8-752-006-12	IC CX20061	
IC863	8-759-822-05	IC LA7213	
		COIL	
L701	1-408-421-00	INDUCTOR 100UH	
L704	1-408-420-00	INDUCTOR 82UH	
L705	1-408-422-00	INDUCTOR 120UH	
L706	1-408-421-00	INDUCTOR 100UH	
L707	1-408-421-00	INDUCTOR 100UH	
L708	1-408-421-00	INDUCTOR 100UH	
L709	1-408-421-00	INDUCTOR 100UH	
L712	1-408-410-00	INDUCTOR 12UH	
L713	1-408-413-00	INDUCTOR 22UH	
L726	1-408-424-00	INDUCTOR 180UH	
L801	1-408-421-00	INDUCTOR 100UH	
L802	1-408-427-00	INDUCTOR 330UH	
L803	1-408-429-00	INDUCTOR 470UH	
L805	1-408-409-00	INDUCTOR 10UH	
L806	1-408-408-00	INDUCTOR 8.2UH	
L807	1-408-408-00	INDUCTOR 8.2UH	
L809	1-407-499-00	INDUCTOR 3.9MMH	
L850	1-407-499-00	INDUCTOR 3.9MMH	
L861	1-408-415-00	INDUCTOR 33UH	
L862	1-408-409-00	INDUCTOR 10UH	
L863	1-408-409-00	INDUCTOR 10UH	
L880	1-408-421-00	INDUCTOR 100UH	
L881	1-408-421-00	INDUCTOR 100UH	
L882	1-408-411-00	INDUCTOR 15UH	
L883	1-408-414-00	INDUCTOR 27UH	

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

YC-90

Ref.No	Part No.	Description	Remark
L891	1-408-409-00	INDUCTOR 10UH	
L892	1-408-409-00	INDUCTOR 10UH	
L893	1-408-409-00	INDUCTOR 10UH	
		TRANSISTOR	
Q702	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q704	8-729-900-89	TRANSISTOR DTC144ES	
Q705	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q706	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q710	8-729-900-89	TRANSISTOR DTC144ES	
Q711	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q721	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q722	8-729-900-89	TRANSISTOR DTC144ES	
Q723	8-729-900-89	TRANSISTOR DTC144ES	
Q801	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q803	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q804	8-729-900-80	TRANSISTOR DTC114ES	
Q805	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q806	8-729-900-89	TRANSISTOR DTC144ES	
Q807	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q808	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q809	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q810	8-729-900-65	TRANSISTOR DTA144ES	
Q813	8-729-903-02	TRANSISTOR DTA143XS	
Q850	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q851	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q852	8-729-900-89	TRANSISTOR DTC144ES	
Q860	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q862	8-729-900-89	TRANSISTOR DTC144ES	
Q880	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q881	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q882	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q883	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q884	8-729-900-89	TRANSISTOR DTC144ES	
		RESISTOR	
R701	1-247-887-00	CARBON 220K 5% 1/4W	
R702	1-249-421-11	CARBON 2.2K 5% 1/4W	
R703	1-249-428-11	CARBON 8.2K 5% 1/4W	
R704	1-249-427-11	CARBON 6.8K 5% 1/4W	
R705	1-249-426-11	CARBON 5.6K 5% 1/4W	
R706	1-249-421-11	CARBON 2.2K 5% 1/4W	
R707	1-247-834-11	CARBON 1.3K 5% 1/4W	
R708	1-247-818-11	CARBON 300 5% 1/4W	
R709	1-249-423-11	CARBON 3.3K 5% 1/4W	
R710	1-249-438-11	CARBON 56K 5% 1/4W	
R713	1-249-421-11	CARBON 2.2K 5% 1/4W	
R714	1-249-425-11	CARBON 4.7K 5% 1/4W	
R717	1-249-420-11	CARBON 1.8K 5% 1/4W	
R718	1-249-422-11	CARBON 2.7K 5% 1/4W	
R719	1-249-426-11	CARBON 5.6K 5% 1/4W	
R720	1-249-424-11	CARBON 3.9K 5% 1/4W	
R722	1-249-419-11	CARBON 1.5K 5% 1/4W	

Ref.No	Part No.	Description	Remark
R723	1-249-426-11	CARBON 5.6K 5% 1/4W	
R724	1-249-419-11	CARBON 1.5K 5% 1/4W	
R725	1-249-412-11	CARBON 390 5% 1/4W	
R726	1-249-416-11	CARBON 820 5% 1/4W	
R727	1-249-413-11	CARBON 470 5% 1/4W	
R728	1-247-897-11	CARBON 560K 5% 1/4W	
R729	1-249-437-11	CARBON 47K 5% 1/4W	
R730	1-249-437-11	CARBON 47K 5% 1/4W	
R731	1-249-413-11	CARBON 470 5% 1/4W	
R733	1-249-413-11	CARBON 470 5% 1/4W	
R734	1-249-434-11	CARBON 27K 5% 1/4W	
R735	1-249-429-11	CARBON 10K 5% 1/4W	
R736	1-249-409-11	CARBON 220 5% 1/4W	
R737	1-249-413-11	CARBON 470 5% 1/4W	
R738	1-249-405-11	CARBON 100 5% 1/4W	
R741	1-249-417-11	CARBON 1K 5% 1/4W	
R744	1-247-903-00	CARBON 1M 5% 1/4W	
R754	1-249-412-11	CARBON 390 5% 1/4W	
R755	1-259-880-11	CARBON 2.2M 5% 1/4W	
R761	1-249-437-11	CARBON 47K 5% 1/4W	
R763	1-249-423-11	CARBON 3.3K 5% 1/4W	
R774	1-249-433-11	CARBON 22K 5% 1/4W	
R775	1-249-435-11	CARBON 33K 5% 1/4W	
R776	1-249-410-11	CARBON 270 5% 1/4W	
R777	1-249-417-11	CARBON 1K 5% 1/4W	
R778	1-249-415-11	CARBON 680 5% 1/4W	
R779	1-249-413-11	CARBON 470 5% 1/4W	
R780	1-249-429-11	CARBON 10K 5% 1/4W	
R781	1-249-422-11	CARBON 2.7K 5% 1/4W	
R801	1-249-417-11	CARBON 1K 5% 1/4W	
R802	1-249-417-11	CARBON 1K 5% 1/4W	
R803	1-249-413-11	CARBON 470 5% 1/4W	
R805	1-249-429-11	CARBON 10K 5% 1/4W	
R806	1-249-427-11	CARBON 6.8K 5% 1/4W	
R807	1-249-417-11	CARBON 1K 5% 1/4W	
R808	1-249-418-11	CARBON 1.2K 5% 1/4W	
R809	1-249-417-11	CARBON 1K 5% 1/4W	
R810	1-249-415-11	CARBON 680 5% 1/4W	
R811	1-249-417-11	CARBON 1K 5% 1/4W	
R812	1-249-423-11	CARBON 3.3K 5% 1/4W	
R813	1-249-416-11	CARBON 820 5% 1/4W	
R814	1-249-415-11	CARBON 680 5% 1/4W	
R815	1-249-429-11	CARBON 10K 5% 1/4W	
R816	1-249-441-11	CARBON 100K 5% 1/4W	
R817	1-249-405-11	CARBON 100 5% 1/4W	
R818	1-249-412-11	CARBON 390 5% 1/4W	
R819	1-249-421-11	CARBON 2.2K 5% 1/4W	
R820	1-249-427-11	CARBON 6.8K 5% 1/4W	
R822	1-249-420-11	CARBON 1.8K 5% 1/4W	
R823	1-249-423-11	CARBON 3.3K 5% 1/4W	
R824	1-249-417-11	CARBON 1K 5% 1/4W	
R825	1-249-422-11	CARBON 2.7K 5% 1/4W	
R826	1-249-427-11	CARBON 6.8K 5% 1/4W	

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

Ref.No	Part No.	Description				Remark
R827	1-249-424-11	CARBON	3.9K	5%	1/4W	
R828	1-249-410-11	CARBON	270	5%	1/4W	
R831	1-249-429-11	CARBON	10K	5%	1/4W	
R832	1-249-409-11	CARBON	220	5%	1/4W	
R833	1-249-411-11	CARBON	330	5%	1/4W	
R834	1-249-422-11	CARBON	2.7K	5%	1/4W	
R835	1-249-411-11	CARBON	330	5%	1/4W	
R836	1-249-411-11	CARBON	330	5%	1/4W	
R837	1-249-425-11	CARBON	4.7K	5%	1/4W	
R838	1-249-437-11	CARBON	47K	5%	1/4W	
R839	1-249-417-11	CARBON	1K	5%	1/4W	
R846	1-249-425-11	CARBON	4.7K	5%	1/4W	
R847	1-249-421-11	CARBON	2.2K	5%	1/4W	
R848	1-249-421-11	CARBON	2.2K	5%	1/4W	
R849	1-249-429-11	CARBON	10K	5%	1/4W	
R850	1-249-421-11	CARBON	2.2K	5%	1/4W	
R851	1-249-434-11	CARBON	27K	5%	1/4W	
R854	1-247-891-00	CARBON	330K	5%	1/4W	
R855	1-249-411-11	CARBON	330	5%	1/4W	
R856	1-247-887-00	CARBON	220K	5%	1/4W	
R857	1-249-417-11	CARBON	1K	5%	1/4W	
R858	1-249-435-11	CARBON	33K	5%	1/4W	
R862	1-249-423-11	CARBON	3.3K	5%	1/4W	
R863	1-249-430-11	CARBON	12K	5%	1/4W	
R864	1-249-425-11	CARBON	4.7K	5%	1/4W	
R865	1-249-441-11	CARBON	100K	5%	1/4W	
R867	1-249-417-11	CARBON	1K	5%	1/4W	
R868	1-249-421-11	CARBON	2.2K	5%	1/4W	
R869	1-249-433-11	CARBON	22K	5%	1/4W	
R870	1-249-435-11	CARBON	33K	5%	1/4W	
R872	1-249-409-11	CARBON	220	5%	1/4W	
R873	1-247-885-00	CARBON	180K	5%	1/4W	
R874	1-249-429-11	CARBON	10K	5%	1/4W	
R880	1-249-417-11	CARBON	1K	5%	1/4W	
R881	1-249-411-11	CARBON	330	5%	1/4W	
R882	1-249-417-11	CARBON	1K	5%	1/4W	
R883	1-249-419-11	CARBON	1.5K	5%	1/4W	
R884	1-249-436-11	CARBON	39K	5%	1/4W	
R885	1-249-429-11	CARBON	10K	5%	1/4W	
R886	1-249-413-11	CARBON	470	5%	1/4W	
R887	1-249-409-11	CARBON	220	5%	1/4W	
R888	1-249-415-11	CARBON	680	5%	1/4W	
R889	1-249-417-11	CARBON	1K	5%	1/4W	
R890	1-249-417-11	CARBON	1K	5%	1/4W	
R891	1-247-887-00	CARBON	220K	5%	1/4W	
R892	1-249-429-11	CARBON	10K	5%	1/4W	
R893	1-249-417-11	CARBON	1K	5%	1/4W	
R894	1-249-405-11	CARBON	100	5%	1/4W	
R895	1-249-413-11	CARBON	470	5%	1/4W	
R896	1-249-429-11	CARBON	10K	5%	1/4W	
R897	1-249-429-11	CARBON	10K	5%	1/4W	
R898	1-249-429-11	CARBON	10K	5%	1/4W	
R899	1-249-429-11	CARBON	10K	5%	1/4W	

Ref.No	Part No.	Description				Remark
		VARIABLE RESISTOR				
RV701	1-238-015-11	RES, ADJ, CARBON 4.7K (AGC)				
RV702	1-238-015-11	RES, ADJ, CARBON 4.7K (DEV)				
RV703	1-238-017-11	RES, ADJ, CARBON 22K (CARR)				
RV704	1-238-017-11	RES, ADJ, CARBON 22K (DARK CLIP)				
RV705	1-238-017-11	RES, ADJ, CARBON 22K (WHITE CLIP)				
RV707	1-238-012-11	RES, ADJ, CARBON 1K (CCD LEVEL)				
RV708	1-238-016-11	RES, ADJ, CARBON 10K (DEMOD GAIN)				
RV710	1-238-012-11	RES, ADJ, CARBON 1K (REC Y)				
RV801	1-238-012-11	RES, ADJ, CARBON 1K (REC C)				
RV850	1-238-011-11	RES, ADJ, CARBON 470 (SECAM DET)				
RV860	1-238-020-11	RES, ADJ, CARBON 100K (PLAY J O G AFC)				
RV861	1-238-012-11	RES, ADJ, CARBON 1K (0.5H CCD LEVEL)				
		COIL				
T802	1-409-467-11	COIL (TRAP 7.8K)				
T850	1-409-467-11	COIL (TRAP 7.8K)				
		CRYSTAL				
X801	1-577-651-11	VIBRATOR, CRYSTAL (4.433619MHz)				
**********						
	*A-6754-055-A	MD-40 BOARD, COMPLETE **********				
	*3-736-144-01	HOLDER, LED				
	3-736-149-01	HOLDER, ST SENSOR				
		CAPACITOR				
C001	1-161-494-00	CERAMIC	0.022MF		25V	
C002	1-161-494-00	CERAMIC	0.022MF		25V	
C003	1-124-240-71	ELECT	10MF	20%	25V	
C004	1-161-379-00	CERAMIC	0.01MF	30%	16V	
C005	1-124-240-71	ELECT	10MF	20%	25V	
C006	1-126-154-11	ELECT	47MF	20%	6.3V	
C008	1-164-159-11	CERAMIC	0.1MF		50V	
C009	1-164-159-11	CERAMIC	0.1MF		50V	
C013	1-164-159-11	CERAMIC	0.1MF		50V	
C014	1-164-159-11	CERAMIC	0.1MF		50V	
C015	1-164-159-11	CERAMIC	0.1MF		50V	
C016	1-124-240-71	ELECT	10MF	20%	25V	
C017	1-124-240-71	ELECT	10MF	20%	25V	
C018	1-124-240-71	ELECT	10MF	20%	25V	
C019	1-162-852-11	CERAMIC	0.15MF	10%	16V	
C020	1-162-851-11	CERAMIC	0.1MF	10%	16V	
C025	1-124-240-71	ELECT	10MF	20%	25V	
C026	1-124-240-71	ELECT	10MF	20%	25V	
C027	1-124-240-71	ELECT	10MF	20%	25V	

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

MD-40

Ref.No	Part No.	Description				Remark
		CONNECTOR				
CN001	*1-564-201-11	PIN HEADER, ANGLE 10P				
CN002	1-569-335-11	CONNECTOR, BOARD TO BOARD 9P				
CN003	1-569-334-11	CONNECTOR, BOARD TO BOARD 5P				
CN004	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P				
CN005	1-506-468-11	PIN, CONNECTOR 3P				
CN006	1-569-333-11	CONNECTOR, BOARD TO BOARD 3P				
CN007	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P				
		DIODE				
D001	8-719-974-65	DIODE GL451V (LED)				
D002	8-719-109-97	DIODE RD6.8ES-B2				
D003	8-719-109-97	DIODE RD6.8ES-B2				
		IC				
IC002	8-759-938-12	IC BA10324				
IC004⚠	8-759-420-83	IC AN3814K				
IC005	8-759-008-72	IC LM393N				
		PHOTO SENSOR				
PH001	8-759-144-33	PHOTO SENSOR PS6002				
PH002	8-759-144-33	PHOTO SENSOR PS6002				
		TRANSISTOR				
Q001	8-729-921-53	PHOTO TRANSISTOR PT483F1				
Q002	8-729-921-53	PHOTO TRANSISTOR PT483F1				
		RESISTOR				
R001	1-249-423-11	CARBON	3.3K	5%	1/4W	
R002	1-249-423-11	CARBON	3.3K	5%	1/4W	
R003	1-249-426-11	CARBON	5.6K	5%	1/4W	
R004	1-249-426-11	CARBON	5.6K	5%	1/4W	
R005	1-249-420-11	CARBON	1.8K	5%	1/4W	
R006	1-249-441-11	CARBON	100K	5%	1/4W	
R007	1-249-441-11	CARBON	100K	5%	1/4W	
R008	1-249-425-11	CARBON	4.7K	5%	1/4W	
R009	1-249-409-11	CARBON	220	5%	1/4W	
R010	1-249-425-11	CARBON	4.7K	5%	1/4W	
R011	1-249-437-11	CARBON	47K	5%	1/4W	
R012	1-249-421-11	CARBON	2.2K	5%	1/4W	
R013	1-249-429-11	CARBON	10K	5%	1/4W	
R014	1-249-427-11	CARBON	6.8K	5%	1/4W	
R015	1-249-437-11	CARBON	47K	5%	1/4W	
R016	1-249-421-11	CARBON	2.2K	5%	1/4W	
R022	1-249-430-11	CARBON	12K	5%	1/4W	
R023	1-249-429-11	CARBON	10K	5%	1/4W	
R024	1-249-430-11	CARBON	12K	5%	1/4W	
R025	1-249-429-11	CARBON	10K	5%	1/4W	
R026	1-249-437-11	CARBON	47K	5%	1/4W	
R028	1-249-418-11	CARBON	1.2K	5%	1/4W	
R029	1-249-395-11	CARBON	15	5%	1/4W	
R030	1-249-395-11	CARBON	15	5%	1/4W	
R031	1-249-395-11	CARBON	15	5%	1/4W	
R032 ⚠	1-216-347-11	METAL OXIDE	0.68	5%	1W	F
		SWITCH				
S001	1-570-953-11	SWITCH, PUSH (1 KEY)				
S002	1-570-953-11	SWITCH, PUSH (1 KEY)				

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

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

Ref.No	Part No.	Description			Remark
	*A-6713-390-A	CA-43 BOARD, COMPLETE **********			
	*3-746-017-01	CASE (LOWER), AU			
	*3-749-703-01	CASE (M3)(MAIN), AU			
		CAPACITOR			
C101	1-161-047-00	CERAMIC	0.0047MF	10%	25V
C102	1-164-070-11	CERAMIC	100PF	5%	50V
C103	1-162-839-11	CERAMIC	0.01MF	10%	16V
C104	1-126-157-11	ELECT	1MF	20%	6.3V
C105	1-164-091-11	CERAMIC	0.0022MF	10%	50V
C106	1-124-499-11	ELECT	1MF	20%	50V
C107	1-164-097-11	CERAMIC	0.022MF		50V
C108	1-126-154-11	ELECT	47MF	20%	6.3V
C109	1-126-160-11	ELECT	1MF	20%	50V
C110	1-164-046-11	CERAMIC	10PF	0.5PF	50V
C111	1-126-154-11	ELECT	47MF	20%	6.3V
C112	1-164-096-11	CERAMIC	0.01MF		50V
C113	1-126-154-11	ELECT	47MF	20%	6.3V
C250	1-109-675-11	MICA	120PF	5%	500V
C251	1-124-589-11	ELECT	47MF	20%	10V
C252	1-164-083-11	CERAMIC	680PF	10%	50V
C254	1-164-092-11	CERAMIC	0.0033MF	10%	25V
C255	1-126-160-11	ELECT	1MF	20%	50V
C256	1-124-465-00	ELECT	0.47MF	20%	50V
C257	1-124-589-11	ELECT	47MF	20%	10V
C258	1-130-483-00	MYLAR	0.01MF	5%	50V
C259	1-126-160-11	ELECT	1MF	20%	50V
C260	1-164-085-11	CERAMIC	0.001MF	10%	50V
C261	1-124-234-00	ELECT	22MF	20%	10V
C263	1-164-086-11	CERAMIC	0.0012MF	10%	50V
C264	1-102-978-00	CERAMIC	220PF	5%	50V
C265	1-126-160-11	ELECT	1MF	20%	50V
C266	1-124-589-11	ELECT	47MF	20%	10V
C267	1-124-589-11	ELECT	47MF	20%	10V
C268	1-126-160-11	ELECT	1MF	20%	50V
C269	1-126-160-11	ELECT	1MF	20%	50V
C270	1-126-160-11	ELECT	1MF	20%	50V
C271	1-130-488-00	MYLAR	0.027MF	5%	50V
C273	1-130-488-00	MYLAR	0.027MF	5%	50V
C274	1-126-094-11	ELECT	4.7MF	20%	16V
C275	1-124-589-11	ELECT	47MF	20%	10V
C276	1-164-087-11	CERAMIC	0.0015MF	10%	50V
C277	1-162-839-11	CERAMIC	0.01MF	10%	16V
C278	1-136-561-11	FILM	0.0068MF	10%	630V
C280	1-130-483-00	MYLAR	0.01MF	5%	50V
C281	1-162-844-11	CERAMIC	0.027MF	10%	16V
C282	1-124-589-11	ELECT	47MF	20%	10V
C283	1-137-075-11	FILM	0.068MF	5%	100V
C284	1-164-087-11	CERAMIC	0.0015MF	10%	50V
C285	1-164-084-11	CERAMIC	820PF	10%	50V
		CONNECTOR			
CN101	1-506-482-11	PIN, CONNECTOR 3P			
CN102	*1-563-465-11	SOCKET, CONNECTOR 14P			
CN201	*1-563-676-11	SOCKET, CONNECTOR 9P			
CN213	1-506-482-11	PIN, CONNECTOR 3P			
CN214	1-506-469-11	PIN, CONNECTOR 4P			

Ref.No	Part No.	Description			Remark
CN215	1-506-468-11	PIN, CONNECTOR 3P			
		DIODE			
D101	8-719-911-19	DIODE 1SS19			
D102	8-719-991-19	DIODE 1SS19			
D103	8-719-991-19	DIODE 1SS19			
D104	8-719-991-19	DIODE 1SS19			
D105	8-719-991-19	DIODE 1SS19			
D106	8-719-991-19	DIODE 1SS19			
		IC			
IC101	8-759-632-58	IC M52435P			
IC102	8-759-000-49	IC MC14066BCP			
IC257	8-759-805-20	IC LA7297			
		COIL			
L101	1-408-413-00	INDUCTOR	22UH		
L251	1-410-070-21	INDUCTOR	8.2MMH		
L252	1-412-092-11	INDUCTOR, SMALL TYPE	22MMH		
L253	1-410-687-11	INDUCTOR	1.2MMH		
L254	1-408-426-00	INDUCTOR	270UH		
L255	1-408-409-00	INDUCTOR	10UH		
		TRANSISTOR			
Q101	8-729-920-70	TRANSISTOR 2SC1740S-QR			
Q102	8-729-900-89	TRANSISTOR DTC144ES			
Q103	8-729-900-89	TRANSISTOR DTC144ES			
Q104	8-729-115-10	TRANSISTOR 2SK105A-10			
Q107	8-729-920-70	TRANSISTOR 2SC1740S-QR			
Q251	8-729-926-14	TRANSISTOR 2SD1292			
Q253	8-729-802-24	TRANSISTOR 2SB1014-4			
Q254	8-729-926-14	TRANSISTOR 2SD1292			
		RESISTOR			
R101	1-249-437-11	CARBON	47K	5%	1/4W
R102	1-249-433-11	CARBON	22K	5%	1/4W
R103	1-249-433-11	CARBON	22K	5%	1/4W
R104	1-249-429-11	CARBON	10K	5%	1/4W
R105	1-249-433-11	CARBON	22K	5%	1/4W
R106	1-249-429-11	CARBON	10K	5%	1/4W
R107	1-249-429-11	CARBON	10K	5%	1/4W
R108	1-247-887-00	CARBON	220K	5%	1/4W
R109	1-249-441-11	CARBON	100K	5%	1/4W
R110	1-249-405-11	CARBON	100	5%	1/4W
R111	1-247-885-00	CARBON	180K	5%	1/4W
R112	1-247-887-00	CARBON	220K	5%	1/4W
R113	1-249-429-11	CARBON	10K	5%	1/4W
R114	1-247-889-00	CARBON	270K	5%	1/4W
R115	1-249-413-11	CARBON	470	5%	1/4W
R116	1-249-417-11	CARBON	1K	5%	1/4W
R117	1-249-429-11	CARBON	10K	5%	1/4W
R118	1-249-437-11	CARBON	47K	5%	1/4W
R119	1-249-429-11	CARBON	10K	5%	1/4W
R120	1-249-429-11	CARBON	10K	5%	1/4W
R121	1-249-433-11	CARBON	22K	5%	1/4W

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

CA-43

Ref.No	Part No.	Description				Remark
R122	1-249-427-11	CARBON	6.8K	5%	1/4W	
R124	1-249-433-11	CARBON	22K	5%	1/4W	
R125	1-249-437-11	CARBON	47K	5%	1/4W	
R126	1-249-437-11	CARBON	47K	5%	1/4W	
R127	1-249-429-11	CARBON	10K	5%	1/4W	
R128	1-249-433-11	CARBON	22K	5%	1/4W	
R129	1-249-437-11	CARBON	47K	5%	1/4W	
R252	1-249-393-11	CARBON	10	5%	1/4W	
R253	1-249-412-11	CARBON	390	5%	1/4W	
R254	1-249-411-11	CARBON	330	5%	1/4W	
R255	1-247-885-00	CARBON	180K	5%	1/4W	
R256	1-249-429-11	CARBON	10K	5%	1/4W	
R257	1-249-437-11	CARBON	47K	5%	1/4W	
R258	1-249-436-11	CARBON	39K	5%	1/4W	
R259	1-249-423-11	CARBON	3.3K	5%	1/4W	
R260	1-247-903-00	CARBON	1M	5%	1/4W	
R262	1-249-441-11	CARBON	100K	5%	1/4W	
R263	1-249-432-11	CARBON	18K	5%	1/4W	
R264	1-249-428-11	CARBON	8.2K	5%	1/4W	
R265	1-249-429-11	CARBON	10K	5%	1/4W	
R266	1-249-429-11	CARBON	10K	5%	1/4W	
R267	1-249-429-11	CARBON	10K	5%	1/4W	
R268	1-249-429-11	CARBON	10K	5%	1/4W	
R269	1-249-407-11	CARBON	150	5%	1/4W	
R270	1-249-422-11	CARBON	2.7K	5%	1/4W	
R272	1-249-416-11	CARBON	820	5%	1/4W	
R273	1-249-428-11	CARBON	8.2K	5%	1/4W	
R274	1-249-434-11	CARBON	27K	5%	1/4W	
R275	1-249-387-11	CARBON	3.3	5%	1/4W	F
R277	1-249-429-11	CARBON	10K	5%	1/4W	
R278	1-249-433-11	CARBON	22K	5%	1/4W	
R282	1-249-429-11	CARBON	10K	5%	1/4W	
R283	1-249-387-11	CARBON	3.3	5%	1/4W	F
R291	1-249-436-11	CARBON	39K	5%	1/4W	
		VARIABLE RESISTOR				
RV251	1-230-500-11	RES, ADJ, CARBON 220K				
		TRANSFORMER				
T251	1-433-330-11	TRANSFORMER, BIAS OSCILLATION				
T252	1-406-349-11	TRANSISTOR OSCILLATION				

****

Ref.No	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
	A-6761-129-A	HEAD BLOCK ASSY, ACE	
⚠	1-413-562-11	SWITCHING BLOCK (SLV-474/474VP)	
⚠	1-413-563-11	SWITCHING BLOCK (SLV-474UB)	
	1-466-315-51	SWITCH BLOCK, CONTROL (SLV-474UB)	
	1-466-315-61	SWITCH BLOCK, CONTROL (SLV-474)	
	1-466-315-71	SWITCH BLOCK, CONTROL (SLV-474VP)	
	1-543-647-11	HEAD, FE	
M903	X-3733-302-1	MOTOR ASSY, CAM	
M904	X-3727-784-1	MOTOR ASSY	
S001	1-571-920-11	SWITCH, ROTARY	

****

ACCESSORIES AND PACKING MATERIALS

****

Part No.	Description	Remark
1-465-557-11	REMOTE COMMANDER (RMT-V474)	
1-551-513-00	CABLE, COAXAL ASSY	
⚠1-558-032-11	CORD, POWER (SLV-474UB)	
⚠1-575-131-11	CORD, POWER (SLV-474)	
⚠1-575-132-11	CORD, POWER (SLV-474VP)	
*3-744-232-01	CUSHION (UPPER)	
*3-744-233-01	CUSHION (LOWER)	
*3-746-027-71	INDIVIDUAL CARTON (SLV-474)	
*3-746-027-81	INDIVIDUAL CARTON (SLV-474UB)	
*3-746-027-91	INDIVIDUAL CARTON (SLV-474VP)	
3-752-073-11	MANUAL, INSTRUCTION (ENGLISH :SLV-474UB)	
3-752-073-41	MANUAL, INSTRUCTION (FRENCH/GERMAN/DUTCH/ITALY :SLV-474)	
3-752-073-51	MANUAL, INSTRUCTION (SWEDSH/ITALIAN/PORTGUESE/SPANISH :SLV-474VP)	

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

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

SECTION 7
ELECTRICAL ADJUSTMENTS

During the Adjustment, See the Parts Arrangement Diagram for the Adjustments on Page 167–168.

Necessary items and indications for total adjustment of electric circuit of this machine will be described in this chapter.

[Using Instruments]

1) Color TV
2) Osicilloscope 1 or 2 phenomera, band 15MHz min, delay mode, as provided.
3) Frequency counter (min. 8 digits)
4) PAL pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion factor meter
10) Alignment tape
    Part Code: PAL; H7099052H (MH-2)
11) RF sweep signal generator
12) Vectorscope

[Connection]

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

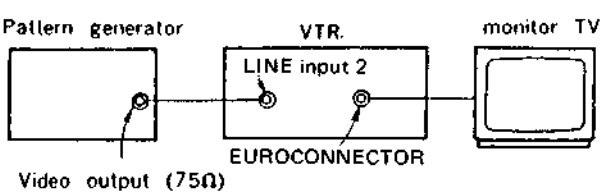


Fig. 7-1.

[Set-up Adjustment]

Video signals output by a pattern generator are used as adjustment signals when marking the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope CN208 pin ① (LINE IN VIDEO) on the MA-67 Board. Check that the amplitudes of video SYNC signals, picture portions, and burst signals are flat at approximately 0.3, 0.7, and 0.3 V, respectively, and the level ratio of the burst signal and "red" signal is 0.30 : 0.66 (PAL). Fig. 2-2. shows video signals (color bars) used in marking the electrical adjustment.

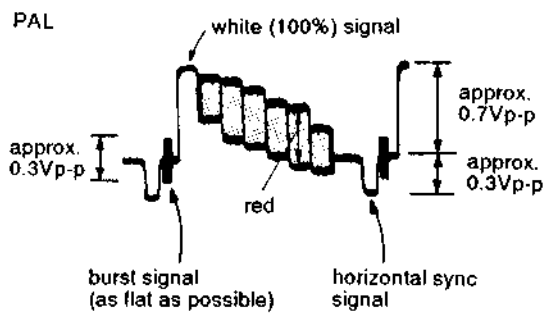


Fig. 7-2.

[PAL Alignment Tape (MH-2)]

	Mode	Time	Video signal	Audio signal
1	SP	10 minutes	Stair-step	6 kHz
2		5 minutes	–	3 kHz
3		10 minutes	Color bar	1 kHz
4		3 minutes	RF sweep	–

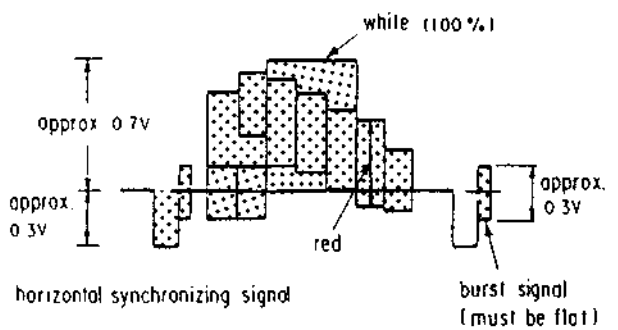


Fig. 7-3.

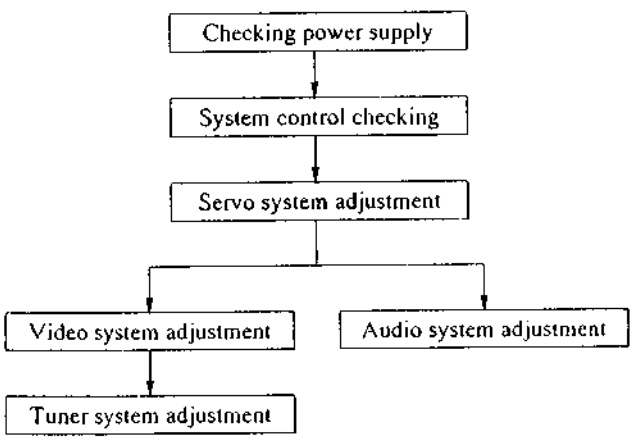
[Standard input/output level and impedance]

Input/output terminal

Video inputs	LINE IN 2: phono jacks EUROCONNECTOR: 21-pin (pin 20) 1Vp-p, 75ohms, unbalanced, sync negative
Audio inputs	LINE IN 2: phono jacks 47kilohms, – 7.5dBs (0dBs=0.775Vrms) EUROCONNECTOR: 21-pin (pins 2 and 6) More than 10kilohms, – 4dBs
Video outputs	EUROCONNECTOR: 21-pin (pin 19) 1Vp-p, 75ohms, unbalanced sync negative
Audio outputs	EUROCONNECTOR: 21-pin (pins 1 and 3) Output impedance: less than 1kilohm – 4dBs with 10kilohms load
CONTROL S IN	Minijack (1)
CONTROL S OUT	Minijack (1)
CONTROL L	5P – DIN (1)

[Adjusting Sequence]

Make the electrical adjustment in the following sequence.



7-1. POWER SUPPLY CHECK (MA-67 Board)

Mode	E-E
Measurement equipment	Digital voltmeter
MTR 12V check	
Measurement point	CN210 pins ②, ③
Specified value	12.0±0.3V dc
UNREG 17V check	
Measurement point	CN210 pin ①
Specified value	17.0±0.3V dc
SWD 5V check	
Measurement point	CN210 pin ⑨
Specified value	5.2±0.1V dc
UNSWD 5.8V check	
Measurement point	CN210 pin ⑧
Specified value	5.8±0.2V dc
UNREG 45V check	
Measurement point	CN210 pin ⑮
Specified value	45.0±3.0V dc
UNREG –30V check	
Measurement point	CN210 pin ⑱
Specified value	–30.0±2.0V dc
DC 3.6V check	
Measurement point	CN210 pin ⑰
Specified value	3.6±0.2V dc
UNSW 12V check	
Measurement point	CN210 pin ⑥
Specified value	12.0±0.3V dc
SW 9V check	
Measurement point	CN210 pin ⑦
Specified value	9.0±0.0V dc

[Checking Method]

1) Confirm that each voltage satisfies its specified value.

7-2. SYSTEM CONTROL CHECK

7-2-1. Clock Oscillation Frequency Check (MA-67 Board)

Mode	E-E
Signal	None
Measurement point	IC401 pin ㉘
Measurement equipment	Frequency counter
Specified value	17,734,475 ± 100Hz

Note: Connect a 10KΩ resistor to the frequency counter.

[Checking Method]

1) Confirm that the frequency at the IC401 pin ㉘ is 17,734,475 ± 100Hz.

Fig. 7-4.

7-3. SERVO SYSTEM ADJUSTMENT

[Adjustment Sequence]

7-3-1. Character Position Adjustment 1
7-3-2. Character Position Adjustment 2
7-3-3. Switching Position Adjustment

7-3-1. Character Position Adjustment 1 (MA-67 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC401 pin ㉚
Measurement equipment	Oscilloscope
Adjustment element	RV451
Specified value	64 ± 0.5 μsec

[Adjustment Method]

1) Adjust to 64±0.5μsec.

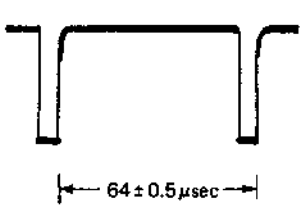


Fig. 7-5.

7-3-2. Character Position Adjustment 2 (MA-67 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC401 pin ⑤
Measurement equipment	Frequency counter
Adjustment element	CV401
Specified value	6,900 ± 200kHz

Note 1: Connect a 10KΩ resistor to the frequency counter.

Note 2: Connect the frequency counter through a prove of high input impedance (about 10MΩ) and low capacity (10pF or less).

[Adjustment Method]

1) Adjust to 6,980±200kHz with CV401.

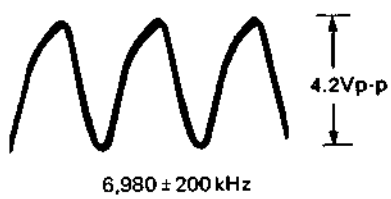


Fig. 7-6.

7-3-3. Switching Position Adjustment (MA-67 Board)

Mode	PB
Signal	Alignment tape SP stair-step
Measurement point	CH1: CN216 pin ⑲ (VIDEO) CH2: CN204 pin ⑦ (RFSWP)
Measurement equipment	Oscilloscope
Adjustment element	RV501
Specified value	6.5 ± 0.5H (410 ± 30 μsec)

[Adjustment Method]

1) Press the tracking adjustment buttons ▲ and ▼ at the same time so that the tracking condition is the center portion.
(AUTO TRACKING indicator is turns off.)
2) Adjust to 6.5±0.5H (410±30μsec) with RV501.

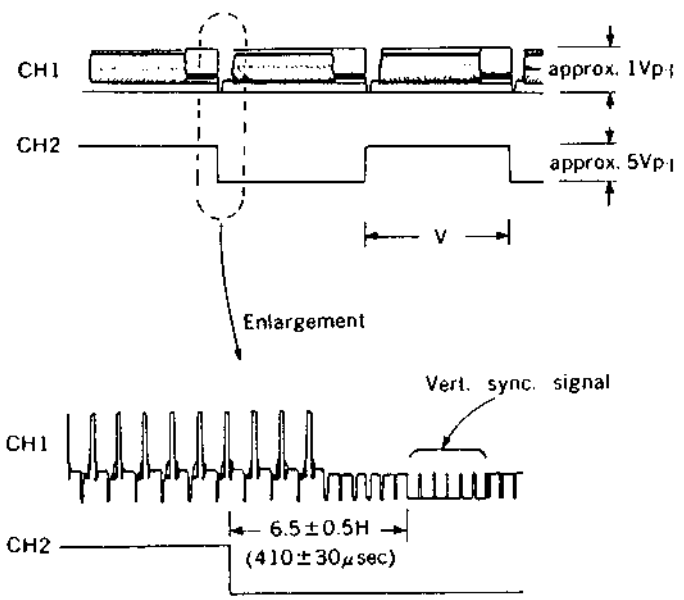


Fig. 7-7.

7-4. VIDEO SYSTEM ADJUSTMENT

Adjust the video system in the following sequence as a rule. The color video signal supplied from the pattern generator is used as a video input signal for video system sdjustment in the recording mode.

Make sure that sync. and color burst signals meet requirements specified at set up of adjustment shown in Fig.8-1.

[Adjustment Sequence]

7-4-1. X'tal Oscillation Frequency Check
7-4-2. Sync. AGC Adjustment
7-4-3. CCD Level Adjustment
7-4-4. Sync. Chip Carrier Set and Deviation Adjustment
7-4-5. White Clip, Dark Clip Adjustment
7-4-6. Recording Y Signal Level Adjustment
7-4-7. Recording Chroma Level Adjustment
7-4-8. Playback Y Signal Level Adjustment
7-4-9. PAL Jog AFC Adjustment
7-4-10. 0.5H CCD Level Adjustment
7-4-11. SECAM Detection Adjustment

7-4-1. X'tal Oscillation Frequency Check (YC-90 Board)

Mode	PB
Signal	Alignment tape SP color bar
Measurement point	IC702 pin ③
Measurement equipment	Frequency counter, Oscilloscope
Specified value	13,300,857 ± 200Hz

Note: Connect the frequency counter through a probe of high input impedance (about 10MΩ) and low capacity (10pF or less).

[Adjustment Method]

1) Confirm the frequency of IC702 pin ③ 13,300,857 ± 200Hz.
2) At the same time confirm the level is 400 ± 10mVp-p.

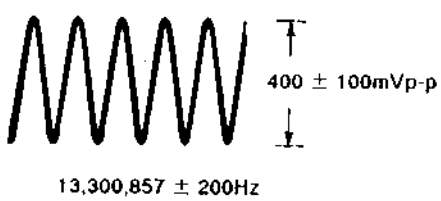


Fig. 7-8.

7-4-2. Sync. AGC Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	EUROCONNECTOR: 21 pin (Pin ⑲)
Measurement equipment	Oscilloscope
Adjustment element	RV701
Specified value	1.00 ± 0.05Vp-p

[Adjustment Method]

1) Adjust to 1.00 ± 0.05Vp-p with RV701.

YC-90 BOARD:

Fig. 7-9.

7-4-3. CCD Level Adjustment (YC-90 Board)

Mode	PB
Signal	Alignment tape SP color bar
Measurement point	IC701 pin ⑩
Measurement equipment	Oscilloscope
Adjustment element	RV707
Specified value	Minimum (within 150mVp-p)

[Adjustment Method]

1) Adjust the level to the minimum (within 150mVp-p) with RV707.

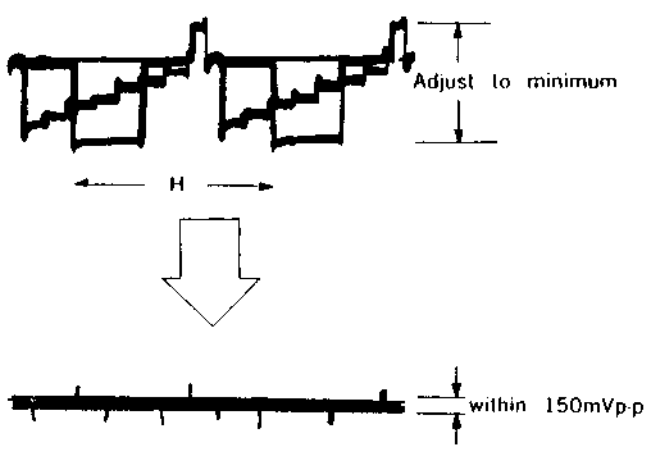


Fig. 7-10.

7-4-4. Sync. Chip Carrier Set and Deviation Adjustment (YC-90 Board)

Sync chip carrier set	
Mode	E-E
Signal	None (Note 2)
Measurement point	IC701 pin ㉔
Measurement equipment	Frequency counter
Adjustment element	RV703
Specified value	3.80 ± 0.05MHz
Deviation adjustment	
Mode	REC and PB
Signal	Color bar
Measurement point	EUROCONNECTOR: 21 pin (Pin ⑲)
Measurement equipment	Oscilloscope
Adjustment element	RV702
Specified value	1.00 ± 0.05Vp-p

Note 1: Video output terminal must be terminated at 75Ω.

Note 2: To make no signal input, insert a shorting plug into a LINE INPUT terminal.

[Adjustment Method]

1) Input the color bar signal to place the system in the E-E mode.
2) Make a no-signal state and select the E-E mode. (Note 2)
3) Connect the frequency counter to the IC701 pin ㉔ and adjust to 3.80 ± 0.05MHz with RV703.
4) Input the color bar signal to make recording.
5) Play back a recorded tape portion and check the playback Y signal level of VIDEO OUT terminal.
   Specified value: 1.00 ± 0.05Vp-p.
6) When the specified value is not met, input the color bar signal to select the E-E mode. Adjust RV702 to correct a play back Y signal level error, and then, repeat the steps 2) through 5) above.

PB Y Level

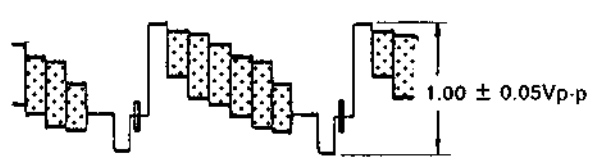


Fig. 7-11.

7-4-5. White Clip, Dark Clip Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC701 pin ⑳
Measurement equipment	Oscilloscope
Adjustment element	White clip: RV705 Dark clip: RV704
Specified value	White clip: 185±10% Dark clip: 45±10%

[Adjustment Method]

1) Adjust with RV705 so that the white clip level becomes to 185±10% of the white level (100%).
2) Adjust with RV704 so that the dark clip level becomes to 45 ± 10% of the white level (100%).

Fig. 7-12.

7-4-6. Recording Y Signal Level Adjustment (YC-90 Board)

Mode	E-E
Signal	None
Measurement point	CN002 pin ② (RP-100 Board)
Measurement equipment	Oscilloscope
Adjusting element	RV710
Specified value	2.2±0.1 Vp-p

[Adjustment Method]

1) Adjust with RV710 so that the waveform on CN002 pin ② becomes 2.2 ± 0.1 Vp-p.

Fig. 7-13.

7-4-7. Recording Chroma Level Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	CN704 pin ④
Measurement equipment	Oscilloscope
Adjustment element	RV801
Specified value	PAL: 165±10mVp-p

[Adjustment Method]

1) Adjust to the specified value with RV801.

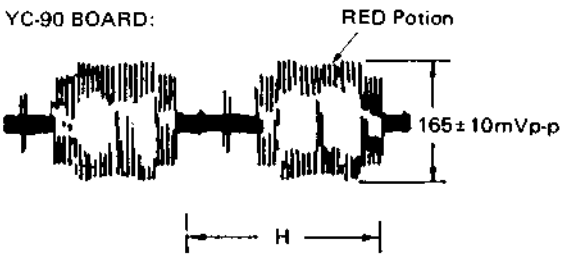


Fig. 7-14.

7-4-8. Playback Y Signal Level Adjustment (YC-90 Board)

Mode	PB
Signal	Alignment tape SP color bar
Measurement point	EUROCONNECTOR: 21 pin (Pin ⑲)
Measurement equipment	Oscilloscope
Adjustment element	RV708
Specified value	1.00 ± 0.05Vp-p

Note: Make this adjustment with the EDIT switch turned off.

[Adjustment Method]

1) Adjust to 1.00 ± 0.05Vp-p with RV708.

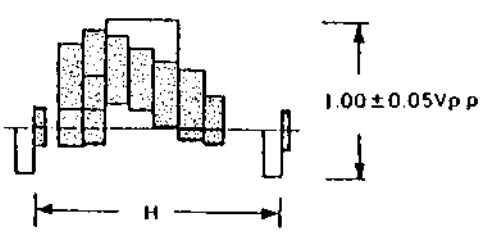


Fig. 7-15.

7-4-9. PAL Jog AFC Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC860 pin ⑲ and ⑳
Measurement equipment	Digital voltmeter Oscilloscope
Adjustment element	RV860
Specified value	2.50 ± 0.05Vdc

[Adjustment Method]

1) Adjust with RV860 so that the voltage on IC860 pin ⑲ becomes 2.50 ± 0.05Vdc.
2) At the same time, confirm the waveform on IC860 pin ⑳ becomes to as following figure.

IC860 ⑲

IC860 ⑳

Fig. 7-16.

7-4-10. 0.5H CCD Level Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC862 pin ② and ⑦
Measurement equipment	Oscilloscope
Adjustment element	RV861
Specified value	Following

[Adjustment Method]

1) Adjust with RV861 so that the level of the waveform on IC862 pin ② becomes the same level as on pin ⑦

YC-90 BOARD:

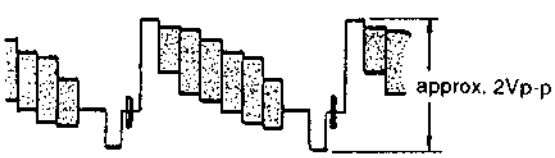


Fig. 7-17.

7-4-11. SECAM Detection Adjustment (SLV-474VP) (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC850 pin ⑨
Measurement equipment	Oscilloscope
Adjustment element	RV850
Specified value	4.0 ± 0.1Vp-p

[Adjustment Method]

1) Adjust with RV850 so that the waveform on IC850 pin ⑨ becomes to the specified value.

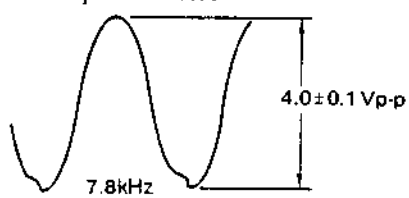


Fig. 7-18.

7-5. DIGITAL ADJUSTMENTS

[Adjustment Sequence]

7-5-1. Decoder-oscillated Free Run Frequency Adjustment
7-5-2. Encoder-oscillated Free Run Frequency Adjustment
7-5-3. TINT Adjustment
7-5-4. Color Level Adjustment
7-5-5. Hue Adjustment
7-5-6. Write Clock Adjustment

7-5-1. Decoder-oscillated Free Run Frequency Adjustment (DG-2 Board)

Mode	E-E
Signal	Alignment tape SP monoscope
Measurement point	IC110 pin ⑪
Measurement equipment	Frequency counter
Adjustment element	CT103
Specified value	4,433,619±20Hz

[Connection]

1) Connect IC110 pin ⑰ and VCC with a jumper wire.

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc).of high input impedance (10MΩ or more) and low capacity (10pF or less).

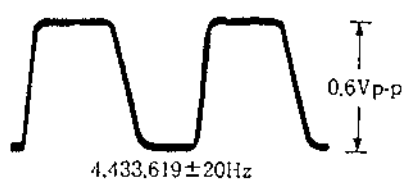


Fig. 7-19.

7-5-2. Encoder-oscillated Free Run Frequency Adjustment (DG-2 Board)

Mode	E-E
Signal	Alignment tape SP monoscope
Measurement point	IC101 pin ⑲
Measurement equipment	Frequency counter
Adjustment element	CT101
Specified value	17,734,476±80Hz

[Connection]

1) Connect IC101 pin ⑱ and VCC with a jumper wire.

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc).of high input impedance (10MΩ or more) and low capacity (10pF or less).

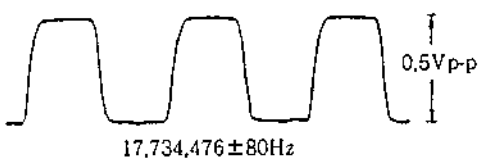


Fig. 7-20.

7-5-3. (a) TINT Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IC112 pin ⑤
Measurement equipment	Oscilloscope
Adjustment element	RV103
Specified value	A=B

Fig. 7-21.

7-5-3. (b) TINT Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IO-20 board (EURO-AV)
Measurement equipment	Vectorscope
Adjustment element	RV103
Specified value	Adjust the vector phase of the small image so that the double waveforms become one clear waveform.

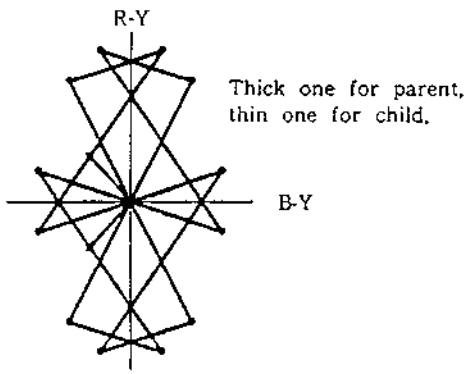


Fig. 7-22.

7-5-4. Color Level Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IO-20 board (EURO-AV OUT)
Measurement equipment	Vectorscope
Adjustment element	RV102
Specified value	The phases of the parent and child screens should be the same.

[Adjustment Method]

1) With RV102, match the phases of the parent and child screens.

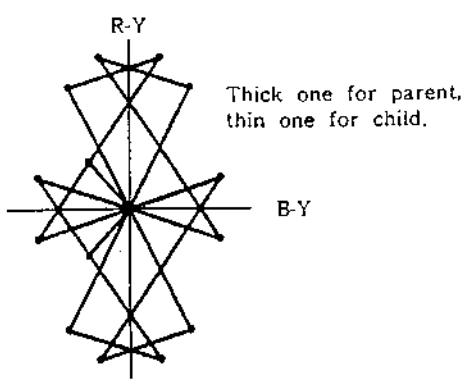


Fig. 7-23.