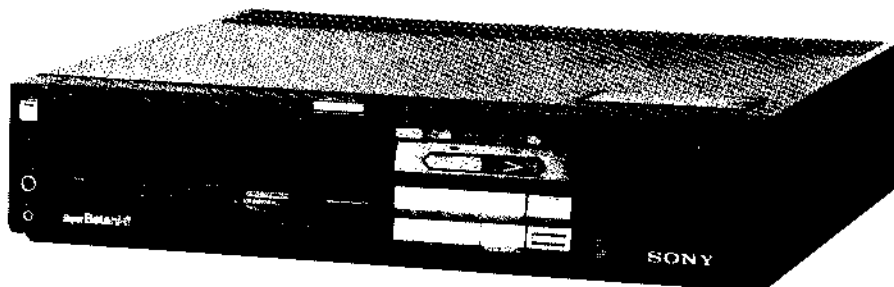


# SL-HF950ES/E

RMT-223

## SERVICE MANUAL

AEP Model  
E Model



**Super Beta hi-fi**

September, 1985

CX CHASSIS

### SPECIFICATIONS

#### System

Video recording system

Rotary two-head helical scanning

Audio recording system

Beta hi-fi PAL system (2 channels)  
(Recording on the conventional audio track is monaural.)

Video signal

**SL-HF950ES**

CCIR standards, PAL and DDR  
SECAM colour

**SL-HF950E**

CCIR standards, PAL colour

Aerial input

75-ohm, asymmetrical aerial socket

Stereo/bilingual system (SL-HF950ES only)

West-German two-carrier system

Channel coverage

**SL-HF950ES**

VHF: Western European channels

E2 - U20

UHF: Western European channels

E21 - E68

(Up to 30 programmes can be preset.)

**SL-HF950E**

VHF: Western European channels

E2 - E12

UHF: Western European channels

E21 - E68

(Up to 30 programmes can be preset.)

RF output signal

UHF channels E30 to E39 (variable)

75 ohms, unbalanced

#### Video

Horizontal resolution

280 lines (Super Beta PRO mode)

#### Beta hi-fi PAL sound

Frequency response

20 Hz to 20 kHz (MPX FILTER OFF)

Wow and flutter

Less than 0.005 % WRMS

Dynamic range

More than 80 dB

#### Inputs and outputs

Video input

VIDEO IN: BNC connector

1.0 V (p-p)  $\pm 0.5$  V (p-p)

75 ohms, unbalanced,

sync negative

Video output

VIDEO OUT: BNC connector

1.0 V (p-p)  $\pm 0.1$  V (p-p)

75 ohms, unbalanced,

sync negative

Audio inputs

AUDIO IN: 2 phono jacks

47 kilohms, -10 dBs

(0 dBs = 0.775 V rms)

Microphone: -60 dBs, for low-impedance microphone

- Continues on page 2 -

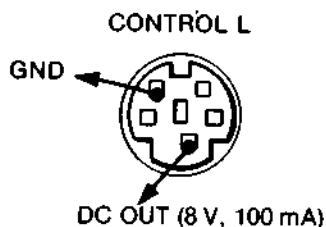
Beta  
**B** VIDEO CASSETTE RECORDER  
**SONY**®

Audio outputs AUDIO OUT: 2 phono jacks  
 Load impedance less than 10 kilohms  
 -10 dBs with 47 kilohms load,  
 unbalanced  
 Headphones: Stereo phone jack  
 -26 dBs, 8 ohms

Video/audio output  
 21-pin EUROCONNECTOR

CONTROL S input  
 Minijack

CONTROL L input/output  
 5-pin connector



**Tape transport**

Tape speed 18.73 mm/sec.  
 Maximum recording time  
 2 hours 10 min. (with Sony L-500 cas-  
 sette)  
 3 hours 15 min. (with L-750)

Fast forward/rewind time  
 Within 5 min. (with L-500)

**Timer**

Clock Crystal lock  
 Time indication  
 24-hour cycle

Timer setting Only for recording  
 6 events/3 weeks, adjustable for any  
 day or for all 7 days of the week or for  
 every week

**General**

Power requirements  
 110 - 240 V AC  $\pm$  10 %, 50/60 Hz

Power consumption  
 SL-HF950ES: 39 W  
 SL-HF950E: 36 W

Storage temperature  
 -20° C to +60° C (-4° F to +140° F)

Operating temperature  
 5° C to 40° C (41° F to 104° F)

Dimensions Approx. 430 x 95 x 405 mm (w/h/d)  
 (17 x 3 3/4 x 16 inches)  
 including projecting parts and controls

Weight Approx. 10.5 kg (23 lbs) net

**Accessories supplied**

Video cassette tape (1)  
 75-ohm coaxial cable for recorder to TV connection (1)  
 Remote Commander RMT-223 with two IEC designation  
 R6 batteries (1)  
 RF channel adjustment screwdriver (1)

Design and specifications subject to change without  
 notice.

**Note**


This appliance conforms with EEC Directives 76/889 and  
 82/499 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.

*MC-Service*

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1.</b>	<b>GENERAL</b>		<b>4.</b>	<b>SCHEMATIC DIAGRAM AND PRINTED WIRING BOARDS</b>	
1-1.	Precautions . . . . .	5	4-1.	Frame Schematic Diagram . . . . .	77
1-2.	Technical Information . . . . .	6	4-2.	ES Model; YC-40, RP-31, TA-36, DH-4 Boards . . . . .	82
1-3.	Location and Function of Controls . . . . .	8	4-3.	E Model; YC-40, RP-31, TA-37, DH-4 Boards . . . . .	92
1-4.	On-Screen Display . . . . .	13	4-4.	SS-50, DR-33, RD-17, LM-17, R STATOR, CAPSTAN MOTOR Boards . . . . .	102
1-5.	Cassette Insertion . . . . .	15	4-5.	SS-50, QV-1, OC-1 US-1, LS-11 Boards . . . . .	110
1-6.	TV Programme Recording (Beta hi-fi recording) . . . . .	16	4-6.	AF-14, PJ-3, FL-8, DH-4, PW-15, DR-33, MC-10, HP-18 Boards . . . . .	118
1-7.	Playback . . . . .	18	4-7.	FL-8, FL-9, FR-20 Boards . . . . .	127
1-8.	Use of the Time Counter . . . . .	21	4-8.	TA-36 Board . . . . .	134
1-9.	Index Function . . . . .	22	4-9.	TA-37 Board . . . . .	140
1-10.	Timer-Activated Recording . . . . .	25	4-10.	M, CN, C, D, F Boards . . . . .	145
1-11.	Tape Editing . . . . .	28	4-11.	Semiconductors . . . . .	149
1-12.	TV Station Programming . . . . .	31			
1-13.	Clock Setting . . . . .	32	<b>5.</b>	<b>EXPLODED VIEWS</b>	
<b>2.</b>	<b>DISASSEMBLY</b>		5-1.	Cabinet Assembly . . . . .	151
2-1.	Disassembly of Cabinet . . . . .	35	5-2.	Front Panel Assembly . . . . .	152
2-2.	Removal of the TA-36/37 Board . . . . .	36	5-3.	Main Board Assembly . . . . .	153
2-3.	Removal of the SS-50 Board . . . . .	36	5-4.	Frame Assembly . . . . .	154
2-4.	Removal of the YC-40 Board . . . . .	37	5-5.	Power Assembly . . . . .	155
2-5.	Removal of the FR-20 Board . . . . .	37	5-6.	LS Assembly . . . . .	156
2-6.	Removal of the FL-8, FL-9 Boards . . . . .	38	5-7.	Chassis Assembly 1 . . . . .	157
2-7.	Removal of the RP-31 Board . . . . .	38	5-8.	Reel Table Assembly . . . . .	158
2-8.	Removal of the Power Block . . . . .	39	5-9.	Chassis Assembly 2 . . . . .	159
2-9.	Removal of the Reel Block Assembly . . . . .	39	5-10.	S Loading Assembly . . . . .	160
2-10.	Removal of the LS Block Assembly (1) . . . . .	40	5-11.	Drum Assembly . . . . .	161
2-11.	Removal of the LS Block Assembly (2) . . . . .	40	5-12.	Hardware List . . . . .	162
2-12.	Internal Views . . . . .	41	<b>6.</b>	<b>ELECTRICAL PARTS LIST . . . . .</b>	<b>163</b>
<b>3.</b>	<b>DIAGRAMS</b>			<b>REMOTE COMMANDER (RMT-223) . . . . .</b>	<b>203</b>
3-1.	Circuit Boards Location . . . . .	42	1.	Remote Control Operation . . . . .	204
3-2.	Overall Block Diagram . . . . .	43	2.	Schematic Diagram . . . . .	206
3-3.	Video Block Diagram . . . . .	46	3.	Printed Wiring Board . . . . .	207
3-4.	Servo Block Diagram . . . . .	49	4.	Exploded View . . . . .	208
3-5.	System Control Block Diagram . . . . .	52	5.	Electrical Parts List . . . . .	209
3-6.	System Control Interface . . . . .	55			
3-7.	Audio Block Diagram . . . . .	61			
3-8.	Audio Level Diagram . . . . .	67			
3-9.	Timer Block Diagram . . . . .	69			
3-10.	Tuner Block Diagram . . . . .	71			
3-11.	Power Block Diagram . . . . .	75			

## SECTION 1 GENERAL

### WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

### NOTE ON THE SL-HF950ES AND SL-HF950E

This instruction manual covers the SL-HF950ES and SL-HF950E.

The principal differences between the models are indicated in the following table. The differences are clearly mentioned in the text required.

	SL-HF950ES	SL-HF950E
Colour system	PAL and SECAM DDR	PAL
TV channel coverage	VHF E2 - U20 UHF E21 - E68	VHF E2 - E12 UHF E21 - E68
Stereo/bilingual TV programme reception	Provided	Not provided

The illustrations used in this manual are of the SL-HF950ES.

### 1-1. PRECAUTIONS

#### On safety

- This unit operates on 110 - 240 V ac, 50/60 Hz.
- Should any solid object or liquid fall into the cabinet, turn off the unit and have it checked by qualified personnel before operating it any further.
- To disconnect the mains lead (ac power cord), pull it out by the plug. Never pull the lead itself.
- The unit is not disconnected from the mains (ac power source) as long as it is connected to the mains outlet, even if the unit itself has been turned off.

#### On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation grille.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, such as a microwave oven, large loudspeakers, etc.

#### On operation

- When the unit is not to be used for a long period, turn the unit off to conserve energy and to extend the useful life of your unit.
- Remove and store video cassettes after recording or playback. Always store the cassette in its case to keep the tape away from dust.

#### On cleaning

Clean the cabinet, panel and controls with a dry soft cloth. Do not use a moistened cloth or any type of solvent, such as alcohol or benzine, which might damage the finish.

#### On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

---

#### On colour broadcasting systems

This machine is designed to record and play back using the PAL colour system (SL-HF950E) or the PAL and DDR SECAM colour systems (SL-HF950ES). Recording and playback of video sources based on other colour systems cannot be guaranteed.

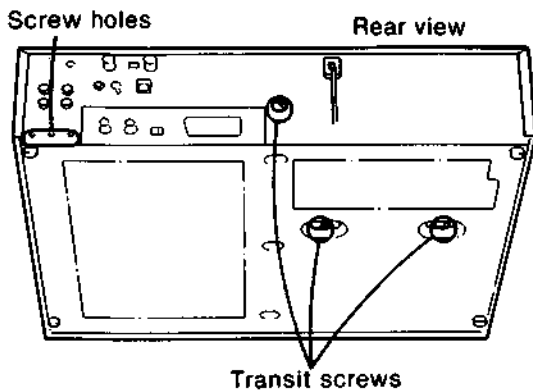
---

If you have any questions about this unit, contact your Sony dealer.

## REMOVAL OF THE TRANSIT SCREWS

The cassette compartment is secured with three transit screws to prevent it from sliding out while the unit is being transported.

**Before operating the unit, be sure to remove the transit screws, using a screwdriver. Store the screws in the screw holes at the rear, and put them back in the original positions when transporting the unit.**



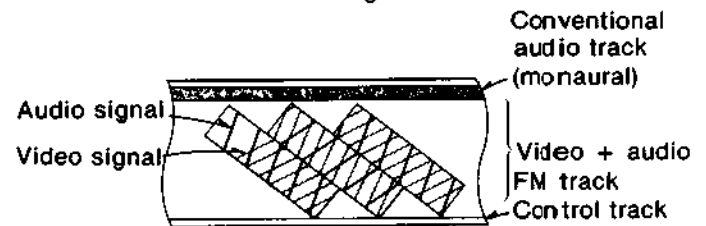
## 1-2. TECHNICAL INFORMATION

### HIGH QUALITY SOUND

#### What is Beta hi-fi PAL recording?

In conventional recording, audio signals are recorded on the audio track and the video signals on the video track. On Beta hi-fi recording, audio signals are recorded on the video track together with the video signals. In this recorder's Beta hi-fi PAL system, audio signals are recorded first, using the 2 audio heads, then video signals are recorded over the audio signals with an azimuth offset, using the 2 video heads.

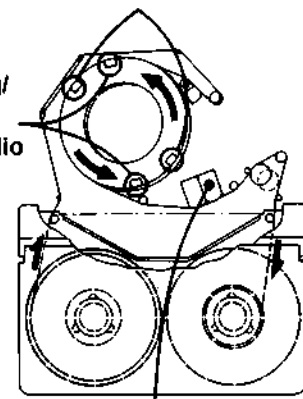
Beta hi-fi audio signals are frequency-modulated and recorded on 2 channels, so you can record a stereo or bilingual programme with sound clearly superior to that of a conventional audio recording.



#### Video heads

For recording/playback of video signals

**Audio heads**  
For recording/  
playback of  
Beta hi-fi audio  
signals



#### Audio/control heads

For recording/playback of conventional audio signals and control signals

#### Beta hi-fi recording on this recorder

This recorder simultaneously records audio signals on the video track (Beta hi-fi recording) and on the conventional audio track (in monaural), so that tapes recorded with this recorder can be played back on an ordinary video cassette recorder without a Beta hi-fi system.

## HIGH QUALITY PICTURE

—Technology behind Super Beta (PAL)

### Super Beta standard mode

Betamax provides a high-resolution picture thanks to its high relative tape-to-head speed produced with the large diameter head drum.

Super Beta standard mode offers even sharper and detailed picture reproduction by improving the emphasis characteristics of video signals in recording and the noise canceller characteristics in playback.

### Super Beta PRO mode

In addition to the technology mentioned above, with the use of the highest-grade tape, the FM carrier frequency of the luminance signal is shifted up by 500 kHz. The results are higher resolution of the picture and improved signal-to-noise ratio of the chrominance signal. (Fig. 1)

### Other technical extras

This SL-HF950ES/E employs a compression circuit for recording current of the chrominance signal for better signal-to-noise ratio. (Fig. 2) In addition, the newly developed "DA (Double Azimuth) PRO 4 HEAD" reduces interference between adjacent video tracks resulting in higher quality picture reproduction. These technologies contribute to overall picture quality of the SL-HF950ES/E.

### Notes

- Super Beta PRO mode must be used with highest-grade tapes such as Sony PRO-X or equivalent tapes from other tape manufacturers.
- The tapes recorded in Super Beta should be played back in Super Beta mode.

Fig. 1 Frequency response

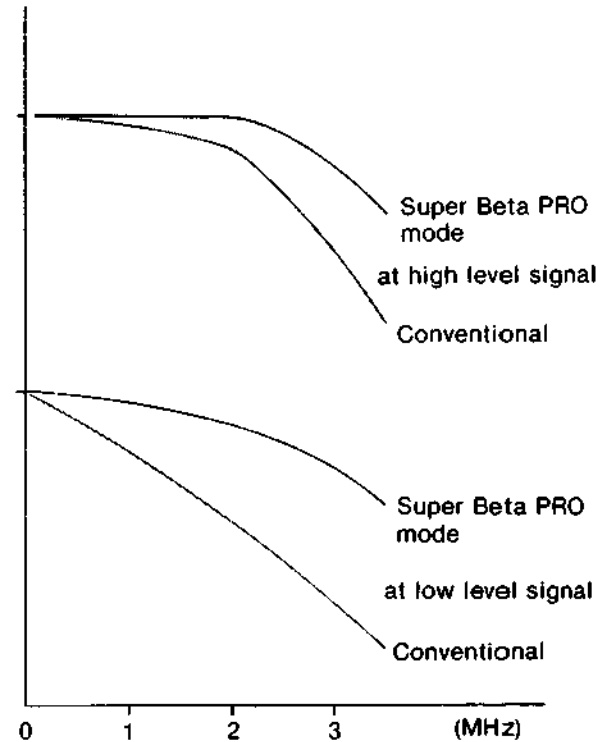
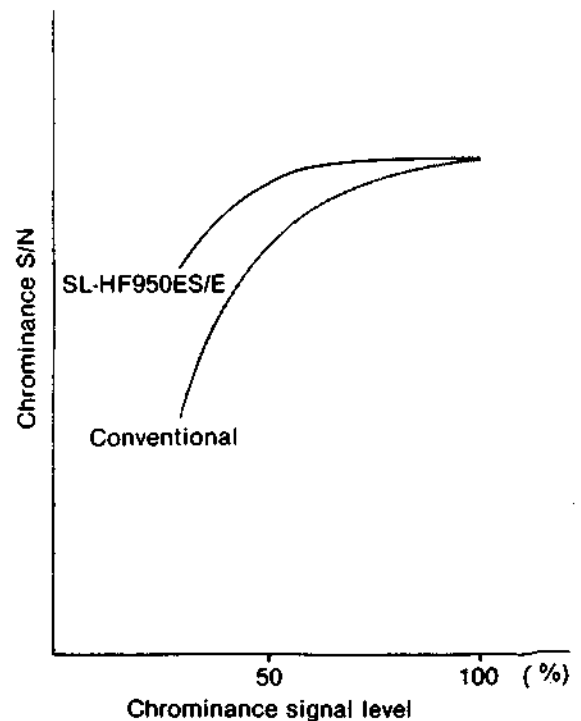
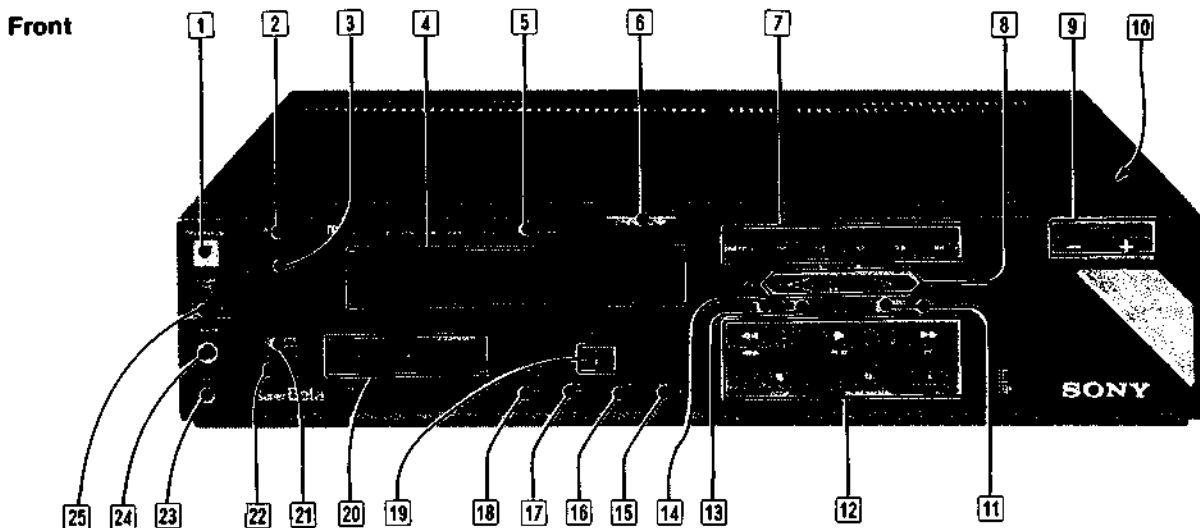


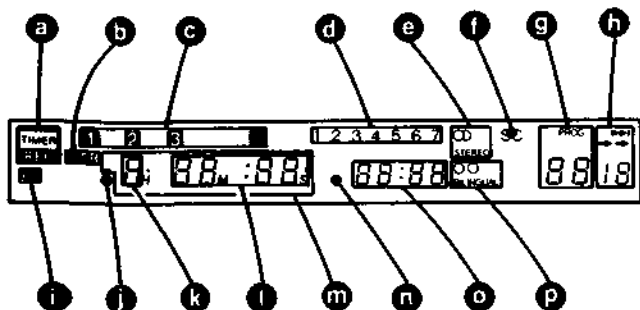
Fig. 2 Chrominance signal-to-noise ratio



### 1.3. LOCATION AND FUNCTION OF CONTROLS



- 1 ON/STANDBY switch and indicator**  
Press to turn on the unit. The indicator will light up. Press again to turn it off. The timer section will continue to operate and the time will be displayed even if the ON/STANDBY switch is off.
- 2 EJECT button**  
Press to remove the cassette. This button does not function when the recorder is turned off.
- 3 REMOTE SENSOR**  
Detects the remote control signal transmitted from the supplied Remote Commander.
- 4 Display window**



- a TIMER REC indicator:** Shows the recorder is in timer standby mode. It is also displayed during timer recording including quick timer recording.
- b VTR indicator:** Shows the recorder is in VTR mode.
- c Week indicators:** Show the week in which the timer recording will take place. See page 25.
- d Day of the week indicators**
- e STEREO indicator (SL-HF950ES only):** Shows a stereo broadcast is being received.

- f SC (simulcast) indicator:** Shows the INPUT SELECT switch is set to SIMUL.
- g PROG (programme) number:** Shows the programme number selected with the PROG +/- buttons. When the INPUT SELECT switch is set to LINE/PCM, the indication will change to "AU".
- h Index indicators:** Appear when the index function is activated. See page 22.
- i Cassette indicator:** Shows a cassette is inserted.
- j Turn-on time setting indicator**
- k Event number**
- l Turn-on time of a timer recording**
- m Time counter:** Shows the approximate tape running time.
- n Turn-off time setting indicator**
- o Clock/turn-off time:** Normally shows the current time. Shows the turn-off time of a timer recording during timer setting and checking.
- p BILINGUAL indicator (SL-HF950ES only):** Shows a bilingual broadcast is being received.

- 5 Cassette compartment**  
The compartment slides out when the EJECT button or the OPEN/CLOSE button is pressed. To slide it in, press the OPEN/CLOSE button.
- 6 OPEN/CLOSE button**  
Press to slide out the cassette compartment regardless of whether the tape is running or not. Press again to slide in the cassette compartment.



### 7 Variable speed playback buttons and indicators

During playback (in normal, still, fast motion or slow motion picture mode), press one of these buttons to select the desired playback speed. The indicator on the button lights. When the indicator of the > FWD FRAME button lights, the picture advances. When the indicator of the REV < FRAME button lights, the picture moves in the reverse direction.

▶◀ **STILL button**: For still picture

**1/10 button**: For slow motion picture at  $\frac{1}{10}$  normal speed

**1/5 button**: For slow motion picture at  $\frac{1}{5}$  normal speed

**x 1 button**: For normal speed picture

**x 2 button**: For double-speed picture

**x 9 button**: For fast motion picture at 9 times normal speed

### 8 FRAME buttons

During normal or variable speed playback, these buttons are used to select the direction of playback. Press the > FWD button for forward picture, or the REV < button for reverse picture.

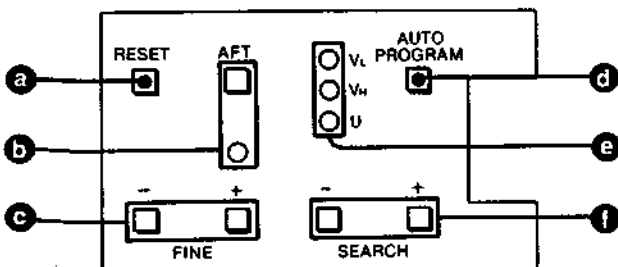
These buttons are also used for frame-by-frame playback. During pause of playback or in still picture mode, press the > FWD button to advance the picture by one frame, or the REV < button to reverse the picture by one frame. If either button is kept depressed, the picture moves frame by frame continuously.

### 9 PROG (programme) +/- buttons

Press + to advance or - to reverse the programme numbers. Also used for clock setting and timer setting.

### 10 Tuning compartment

All the switches and buttons for programming stations are in this compartment.



**a RESET button**: To clear the programmed station, press this button.

**b AFT button and lamp**: The AFT circuit activates automatically after the stations are tuned and memorized with automatic and manual programming. The AFT lamp will illuminate. If you wish to restore the AFT on the station which has been fine-tuned manually with the FINE buttons, press the AFT button.

**c FINE + and - buttons**: Press to fine-tune the station.

**d AUTO PROGRAM (automatic programming) button**: To preset the receivable stations automatically, press this button.

**e Tuning lamps**: Lights to indicate the tuning band.

**f SEARCH + and - buttons**: Press to tune in a station. Press the - button to get a station of lower frequency and the + button to get a station of higher frequency.

### 11 INSERT indicators

The AUDIO indicator lights when the AUDIO INSERT button is pressed, and the VIDEO indicator lights when the VIDEO INSERT button is pressed.

### 12 Function buttons

◀◀ **REW button**: Press to rewind the tape.

▶ **PLAY button**: Press to play the tape back.

▶▶ **FF button**: Press to advance the tape rapidly.

■ **STOP button**: Press to stop the tape.

⏸ **PAUSE/▶◀ STILL button**: Press to stop the tape for a moment during recording or playback. Press again to release the pause mode.

● **RECORD button**: Press to start recording.

### 13 SUPER BETA indicator

This indicator lights when the SUPER BETA selector is set to the SUPER BETA (STD or PRO) position.

### 14 EDIT indicator

This indicator lights when the EDIT switch is set to the lower position.

### 15 INDEX button

This button is used for the index search or index scan operation. See page 23.

### 16 GO TO ZERO button

In stop mode, press this button to advance or rewind the tape to approximately the "0H00M00S" point on the time counter.

### 17 COUNTER RESET button

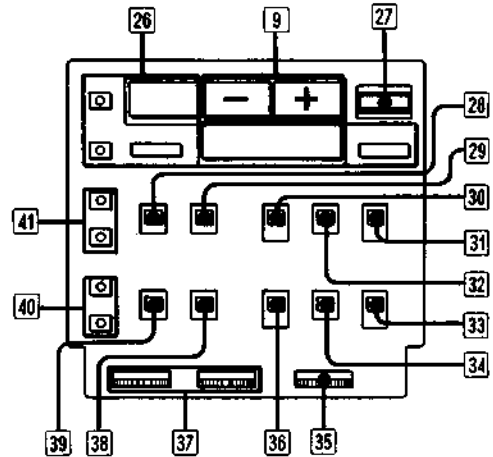
Press to reset the time counter to "0H00M00S".

### 18 TV/VTR select button

This button is operable when a TV is connected to the recorder's 21-pin EUROCONNECTOR.

To view a TV programme selected by the PROG buttons on the recorder or to monitor the picture being recorded, press this button so that the VTR indicator appears in the display window. When the ▶ PLAY button on the recorder is pressed, the recorder is automatically set in the VTR mode. To view a TV programme in the usual manner, press this button so that the indicator goes off. When the recorder is turned off, the recorder is automatically set in the TV mode.

## Inside the front panel



### 19 REC LEVEL (recording level) controls

Used to adjust the audio recording level of Beta hi-fi recording. Normally set these controls to 5 (green position) for recording TV programmes.

### 20 PEAK PROG (programme) METER/BETA HI-FI TRACKING meters

When the LEVEL METER selector is set to ON, these meters show the peak input levels of the left and right channels during Beta hi-fi recording, and recorded levels during playback.

When the LEVEL METER selector is set to BETA HI-FI TRACKING, the meters show the audio tracking adjustment. Adjust the audio tracking for optimum sound reproduction of a tape on which only the sound has been recorded in Beta hi-fi.

### 21 Beta hi-fi lamp

Lights to show Beta hi-fi recording, or playback of a Beta hi-fi recorded tape regardless of the BETA HI-FI selector's position.

### 22 SOUND lamp

When the RECORD mode selector is set to SOUND, this lamp lights to show audio recording. It also lights when a tape with audio signals only is being played back.

### 23 MIC (microphone) jack (minijack)

Connect a microphone to record the sound from it on the conventional audio track.

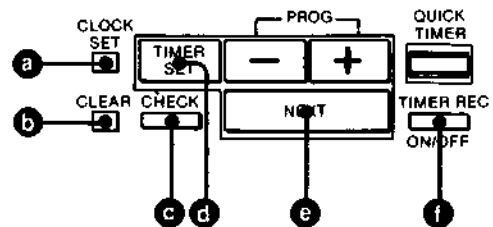
### 24 PHONES jack (stereo phone jack)

Connect headphones to monitor the sound.

### 25 PHONE LEVEL control

Adjust the sound volume of the headphones.

### 26 Buttons for clock and timer setting



- a **CLOCK SET button**: Press to initiate clock setting.
- b **CLEAR button**: Press to erase the memory of the timer setting.
- c **CHECK button**: Press to check timer settings.
- d **TIMER SET button**: Press to initiate timer setting.
- e **NEXT button**: Press to advance to the next item to be set during clock or timer setting.
- f **TIMER REC ON/OFF button**: Press to activate timer recording. Press it again to deactivate timer recording or quick timer recording in timer standby mode or while recording.

### 27 QUICK TIMER button

Press to set the recording duration up to 4 hours in units of 30 minutes.

### 28 TONE selector

Normally set to HIGH. If the high frequencies of the playback sound recorded on the conventional audio track seem exaggerated, set to LOW.

**29 BETA HI-FI selector**

Selects the video track or the conventional audio track for sound playback.

**AUTO:** Normally, set to this position. The recorder will automatically select the video track for Beta hi-fi recorded tapes or the conventional audio track for tapes recorded without the Beta hi-fi system.

**NORMAL:** Set to this position when you wish to listen to the sound recorded on the conventional audio track of a Beta hi-fi recorded tape.

**30 AUDIO MONITOR selector**

When the BETA HI-FI selector is set to AUTO, select the sound to be listened to. See page 18.

When the BETA HI-FI selector is set to NORMAL, the sound being recorded or already recorded on the conventional audio track is heard, regardless of the position of this selector.

**31 LEVEL METER selector**

Set to ON to turn on the PEAK PROG METER.

Set to OFF to turn the meter off. Set to BETA HI-FI TRACKING to adjust the audio tracking of a tape on which the sound only has been recorded in Beta hi-fi.

**32 DISPLAY switch**

Normally set to ON. To turn off the on-screen display on the TV or monitor, set to OFF.

**33 SUPER BETA selector**

Normally keep this selector at NORMAL. To record or play back in Super Beta, set to STD or PRO. See page 16.

**34 EDIT switch**

Normally keep this switch at the upper position. When editing a tape onto another recorder, set to the lower position.

**35 SHARPNESS control**

Used to adjust the sharpness of the playback picture if necessary. Normally set the control at the center detent position.

**36 INPUT SELECT switch**

Select the programme to be recorded.

**TUNER:** For recording TV programmes

**SIMUL:** For recording FM simulcast programmes

**LINE/PCM:** For recording signals connected to the VIDEO IN and AUDIO IN jacks

**37 TRACKING controls**

Normally keep these controls at the center detent position. Turning either of the controls may help clear possible streaks or noise bands on the screen. See "Picture adjustment for variable speed playback" on page 20.

The NORMAL control is also used for Beta hi-fi tracking adjustment.

**38 MPX FILTER (multiplex filter) switch**

Normally set to ON for Beta hi-fi recording. The multiplex filter cuts off the high-frequency signals which sometimes grate on the ear. If you wish to record without cutting the high frequencies, set to OFF.

**39 RECORD mode selector**

**VIDEO:** Normally, set to this position. Sound and picture are recorded in Beta hi-fi.

**SOUND:** Set to this position to record sound only in Beta hi-fi.

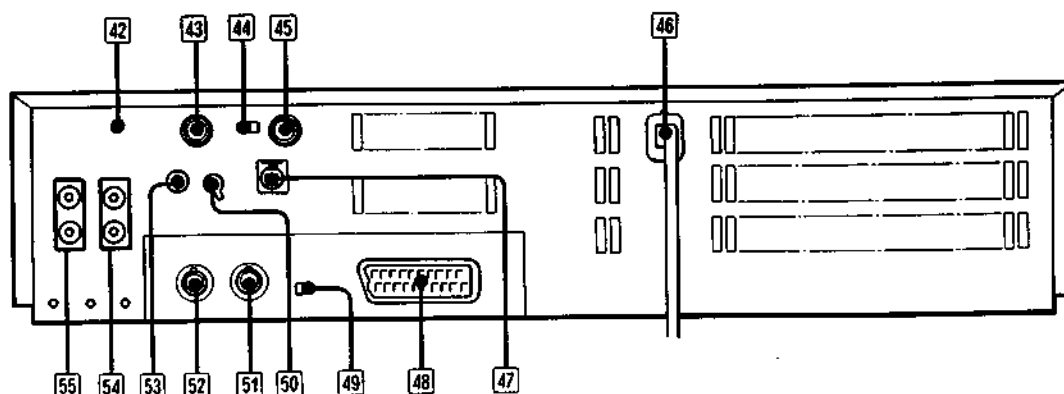
**40 INSERT buttons**

Use these buttons to "insert" a new recording onto a part of a recorded tape. Press the AUDIO button to insert sound on the conventional audio track. Press the VIDEO button to insert picture and/or Beta hi-fi sound on the video track.

**41 INDEX buttons**

Press the MARK button to mark an index signal at the desired point during recording or playback. To erase a prerecorded index signal, locate the index signal and press the ERASE button.

Rear



**42 RF CHANNEL screw**

If there is interference on the factory-preset channel for RF output and the signal of this recorder cannot be displayed clearly on the TV screen, adjust this screw with the supplied screwdriver.

**43 AERIAL OUT socket**

Connect the aerial input of the TV receiver using the supplied cable.

**44 DX/LOCAL switch**

Normally set this switch to DX. If the TV signal is very strong, set the switch to LOCAL.

**45 AERIAL IN socket**

Connect the aerial cable.

**46 AC mains lead**

**47 CONTROL L connector (5 pin)**

Connect to the CONTROL L connector of other Sony products for various system operations.

**48 EUROCONNECTOR (21 pin)**

Connect to the 21-pin EUROCONNECTOR of another recorder, TV or video monitor.

**49 TEST SIGNAL switch**

Set to ON to obtain the test pattern for adjusting the TV so that it can receive the signal from the recorder.

**50 STILL ADJ (still picture adjustment) knob**

If the still or slow motion picture appears to shake, turn this knob until it stabilizes.

**51 VIDEO IN jack (BNC type)**

Connect to the video output of a camera, another video cassette recorder, a PCM digital audio processor, etc.

**52 VIDEO OUT jack (BNC type)**

Connect to the video input of another video cassette recorder, a video monitor or a PCM digital audio processor.

**53 CONTROL S input jack (mini-jack)**

Connect to the CONTROL S output jack of other Sony products for various system operations.

**54 AUDIO IN jacks (phono type)**

Connect to the audio outputs of a camera or another video cassette recorder, or to the recording outputs of a stereo amplifier.

**55 AUDIO OUT jacks (phono type)**

Connect to the audio inputs of a video monitor or another video cassette recorder, or to the auxiliary inputs or tape inputs of a stereo amplifier.

#### 1-4. ON-SCREEN DISPLAY

The various operation modes of this recorder are displayed on the screen of the connected TV or monitor.

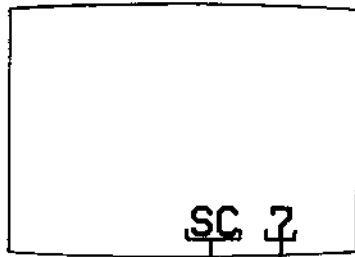
**Note**

The on-screen display does not appear when there is no picture on the screen.

#### WHEN A TV PROGRAMME IS SELECTED

The programme number is displayed when the INPUT SELECT switch is set to TUNER or SIMUL and the +/- PROG button is pressed.

The programme number will be turned off in several seconds.



Simulcast indicator\*      Programme number or AU

\*The SC indicator appears when the INPUT SELECT switch is set to SIMUL.

#### WHEN THE TAPE IS IN OPERATION

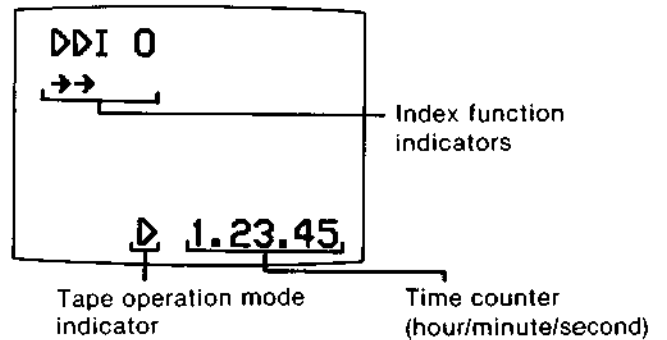
The time counter and the tape operation mode are displayed.

Most of the tape operation mode indicators will be automatically turned off in several seconds.

The time counter normally remains displayed. To turn off the counter, press the COUNTER DISPLAY button on the Remote Commander. To recall the counter display, press the same button again.

**Note**

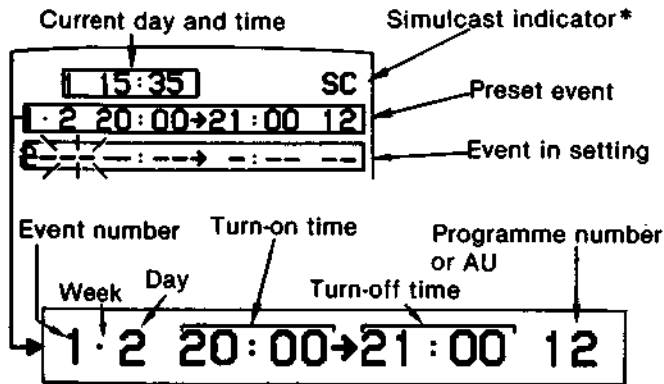
Once the on-screen time counter is turned off with the COUNTER DISPLAY button, it will not appear even when the recorder is turned off and on again.



Tape operation mode indicators			
◀◀	Rewind	DI◀	Still picture
▷	Playback	IID	Forward frame-by-frame picture
DD	Fast-forward	◀II	Reverse frame-by-frame picture
{◀◀}	Reverse picture search	U●	Video insert
{DD}	Forward picture search	U●II	Video insert pause
▷II	Playback pause	A●	Audio insert
○	Recording	A●II	Audio insert pause
○II	Recording pause	A/U●	Audio/video insert
X9 -X9	Variable speed playback	A/U●II	Audio/video insert pause
X2 -X2		-DDI-	Manual index signal mark or erase
X1 -X1		-DDI-	Index scan
1/5 -1/5	"-" indicates the reverse direction.	DDI	Index search
1/10 -1/10			

## DISPLAY FOR TIMER

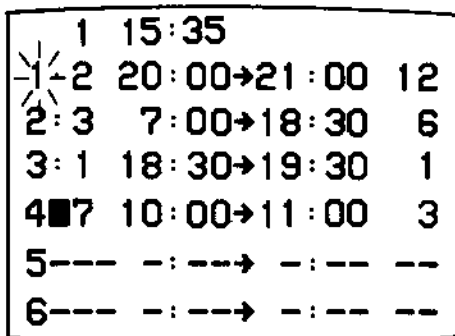
When the **TIMER SET** button is pressed, the preset events and the event in setting are displayed. The blinking item is what you are setting.



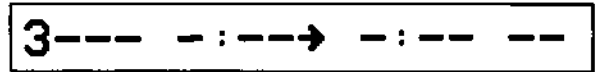
Week indicators	Day indicators
1 → 7 Every day	1 Monday
• This week	2 Tuesday
: Next week	3 Wednesday
: The week after next	4 Thursday
■ Every week	5 Friday
	6 Saturday
	7 Sunday

When the **CHECK** button or the **TIMER DISPLAY** button on the Remote Commander is pressed, the list of all preset events appears.

Every time the **CHECK** button is pressed, the event number blinks in sequence to show that the setting of that particular event can be changed or cleared.



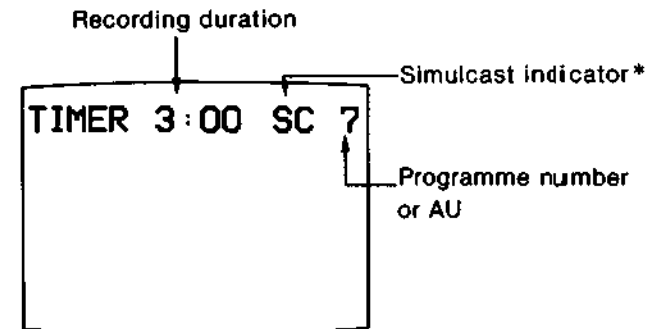
When the **CLEAR** button is pressed, the event will be erased from the memory.



The timer display will be turned off when the **TIMER DISPLAY** button is pressed again or when the **CHECK** button is pressed with the last event number blinking.

## WHEN THE QUICK TIMER IS ACTIVATED

The recording duration and the programme number are displayed. The display will be automatically turned off in several seconds.

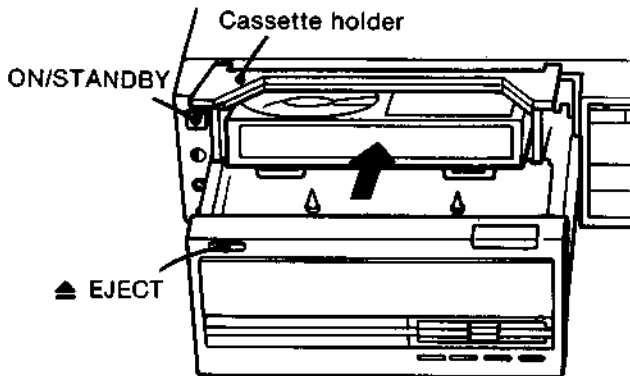



\*The SC indicator appears when the **INPUT SELECT** switch is set to **SIMUL**.

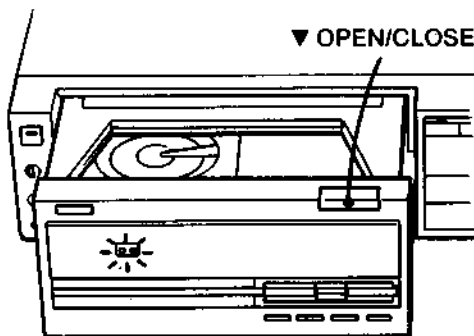
# BASIC OPERATIONS

## 1-5. CASSETTE INSERTION

- 1 Press the ON/STANDBY switch. The indicator on the switch and the Beta hi-fi lamp will light.
- 2 Press the ▲ EJECT button. The cassette compartment slides out and the cassette holder is raised.
- 3 Insert a cassette with the arrow on the cassette towards the front.



- 4 Press the ▼ OPEN/CLOSE button. The cassette compartment slides in and the  indication appears in the display window.



In place of Step 4, you may press any of the function buttons. The cassette compartment slides in and the recorder directly goes into the selected tape operation mode.

### To eject the cassette

Press the ▲ EJECT button. The cassette compartment slides out and the cassette holder is raised. Take out the cassette by hand.

### Note

The ▲ EJECT button does not function when the recorder is turned off or during recording or audio/video inserting.

### To open/close the cassette compartment

By pressing the ▼ OPEN/CLOSE button, the cassette compartment can be slid out or in even while the tape is running, allowing check of the remaining tape amount.

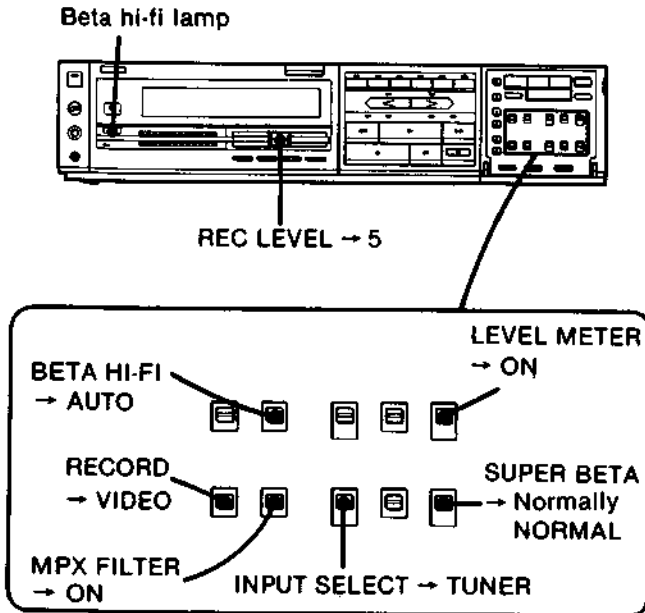
### Notes on the cassette compartment

- Be careful not to trap your hand between the cassette compartment and the cabinet when the compartment is moving. If you should do so, the cassette compartment will automatically stop and move in the opposite direction in several seconds.
- Do not insert anything other than a cassette inside the cassette holder and compartment.
- Do not push down on the cassette holder forcibly when it is raised. If excessive force is applied, the protective device is activated to stop the cassette compartment movement and recorder operation. In this case, press the ▼ OPEN/CLOSE button.
- Frequent moving of the cassette compartment during recording is not recommended, since this may affect the recording.

## 1-6. TV PROGRAMME RECORDING (Beta hi-fi recording)

### Check before recording

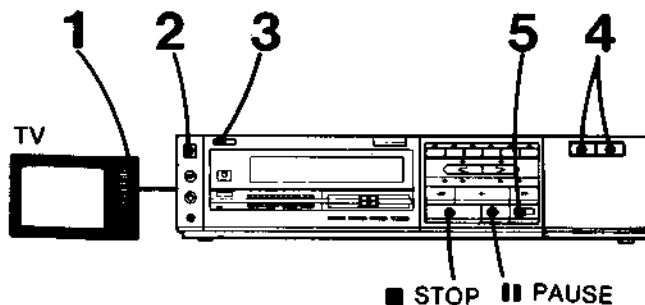
The green position is the standard setting position for Beta hi-fi recording.



Recording will be made both on the video track (Beta hi-fi recording) and on the conventional audio track.

### TO RECORD

Numbers in the illustration show the sequence of operation.



- 1 Turn on the TV and select the programme position for the recorder.
- 2 Press the ON/STANDBY switch. The indicator on the switch and the Beta hi-fi lamp will light up.
- 3 Insert the cassette. See page 15.
- 4 Select the programme to be recorded with the +/- PROG buttons.
- 5 Press the ● RECORD button. The indicator on the button will light and recording will begin.
  - If the inserted cassette does not have the safety tab, the cassette will be automatically ejected.

To stop recording momentarily, press the || PAUSE button. The indicator on the button will light. The TV programme can be seen on the TV, but the picture will not be recorded.

To resume recording, press the || PAUSE button again. To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and recording will stop.

To stop recording, press the ■ STOP button.

To eject the cassette, press the ▲ EJECT button after stopping the recording.

To view another TV programme while recording, simply select the programme you want to view with the TV's programme selector.

When the tape reaches the end during recording, it will be automatically rewound.

### CAUTION

Television programmes, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provision of the copyright laws.

### SUPER BETA selector

**NORMAL position:** Normally keep the selector in this position. When playing back tapes recorded on other non-Super Beta recorders or tapes recorded on this recorder by setting this selector to the NORMAL position, set the selector in this position.

**SUPER BETA STD (standard) position:** In this position, high quality recording and playback picture are obtained.

**SUPER BETA PRO position:** If you use the highest-grade tape such as Sony PRO-X or equivalent tapes from other tape manufacturers, further enhanced picture quality is attained. With lower-grade tapes, however, the picture quality will suffer somewhat.

When the SUPER BETA selector is set to the SUPER BETA STD or PRO position, the SUPER BETA indicator lights.

### Note

The picture quality will suffer somewhat, if a tape recorded in the SUPER BETA PRO or STD position is played back on other non-Super Beta recorders, or on this recorder with this selector set to NORMAL.



**TO KEEP A RECORDED PROGRAMME FROM BEING ACCIDENTALLY ERASED**

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased.

**To avoid erasing a recording**

Break off the safety tab using a screwdriver or similar object.

**To re-record on a cassette which has had the safety tab removed**

Cover the slot with a piece of plastic tape.



If you activate the ● RECORD, TIMER REC ON/OFF, VIDEO INSERT or AUDIO INSERT button with a cassette with its safety tab removed inserted, the cassette will be automatically ejected.

**RECORDING A STEREO OR BILINGUAL TV PROGRAMME (SL-HF950ES only)**

When the Ⓢ STEREO indication appears in the display window, a stereo programme is being received. The recording procedure is the same as in "TV programme recording". The sound is recorded both on the video track (stereo) and on the conventional audio track (monaural).

Conventional audio track	Monaural recording
Video track	Stereo recording

When the Ⓛ BILINGUAL indication appears in the display window, a bilingual programme is being received. The recording procedure is the same as in "TV programme recording".

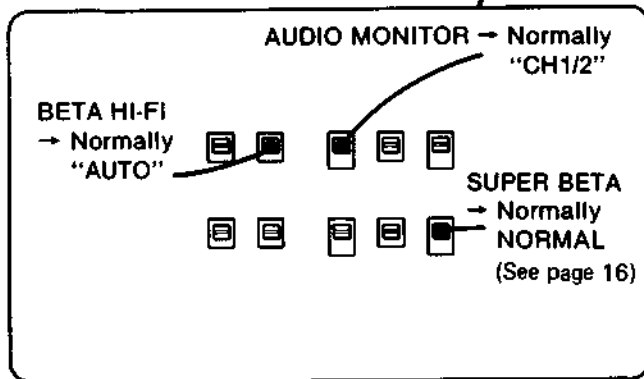
Both the local language (usually broadcast on channel 1) and the original language (usually broadcast on channel 2) are recorded on the video track, and only the language on channel 1 is recorded on the conventional audio track.

Conventional audio track	Language on channel 1
Video track	Languages on channels 1 and 2

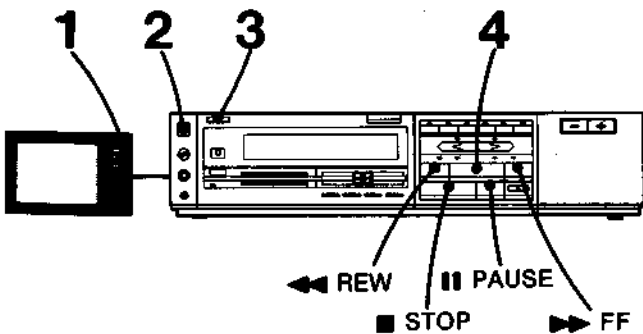
The sound of a stereo or bilingual programme can be monitored by selecting the desired sound with the AUDIO MONITOR selector. See page 18.

## 1-7. PLAYBACK

### Check before playback



Numbers in the illustration show the sequence of operation.



- 1 Turn on the TV and select the programme position for the recorder.
- 2 Press the ON/STANDBY switch. The indicator on the switch and the Beta hi-fi lamp will light up.
- 3 Insert the cassette. See page 15.
- 4 Press the ► PLAY button. The indicator on the button will light and playback will begin.

To stop playback, press the ■ STOP button.

To rewind the tape, press the ◀◀ REW button.

To advance the tape rapidly, press the ▶▶ FF button.

To eject the cassette, press the ▲ EJECT button.

When the tape reaches the end during playback, it will be automatically rewound.

To stop playback momentarily, press the || PAUSE button. A still picture will be seen on the TV screen. To resume playback, press the || PAUSE button again or press the ► PLAY button.

The pause mode will be automatically released after about 8 minutes and the playback will resume.

### SELECTION OF PLAYBACK/RECORDING MONITOR SOUND

#### For Beta hi-fi recorded tapes

Normally set the BETA HI-FI selector to AUTO. The sound on the video track will be heard. To listen to the sound on the conventional audio track, set the selector to NORMAL.

Return the selector to AUTO after playing back the tape.

During normal playback, the Beta hi-fi lamp lights to show that the tape is Beta hi-fi recorded. Therefore, the lamp also lights when the sound on the conventional audio track of a Beta hi-fi recorded tape is being played back.

#### For Beta hi-fi recorded stereo or bilingual tapes

Set the BETA HI-FI selector to AUTO and select the sound to be listened to through the speakers or headphones with the AUDIO MONITOR selector. Set to CH1/2 to listen to the stereo sound or both languages. If you want to listen only to the left or right channel of stereo programmes or either language of bilingual programmes, set to CH1 or CH2, referring to the following table.

AUDIO MONITOR selector	Sound to be listened to through :	
	Left speaker	Right speaker
CH1/2	Left channel (Language on channel 1)	Right channel (Language on channel 2)
CH1	Left channel (Language on channel 1)	
CH2	Right channel (Language on channel 2)	

( ) for bilingual programmes

#### Note

If this recorder is connected to a monaural TV or it is connected to the aerial input of a TV, the sound will be always heard in monaural.

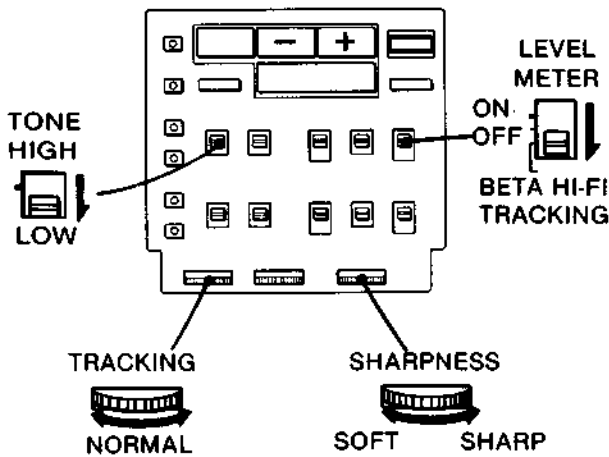
#### For non-Beta hi-fi recorded tapes

A tape recorded on another recorder without Beta hi-fi system is played back in the conventional way, regardless of the position of the BETA HI-FI and AUDIO MONITOR selectors.

## VARIOUS PLAYBACK MODES

### PICTURE AND SOUND ADJUSTMENT

- To adjust the sharpness of the playback picture, turn the SHARPNESS control.
- If streaks or snow appear during playback of a tape recorded on another recorder, adjust the NORMAL TRACKING control for the best possible picture. Return the control to the centre position after playing back that particular tape.
- If the sound of a tape recorded on another Beta hi-fi recorder is noisy or cannot be heard, adjust the NORMAL TRACKING control.
- If the high frequencies of the playback sound recorded on the conventional audio track seem exaggerated, set the TONE selector to LOW. Return it to HIGH after playing back that particular tape.
- When playing back a tape with only the sound recorded in Beta hi-fi (that is, a tape recorded with the RECORD mode selector set to SOUND), set the LEVEL METER selector to BETA HI-FI TRACKING and adjust the NORMAL TRACKING control so that the meters deflect to the right as far as possible.



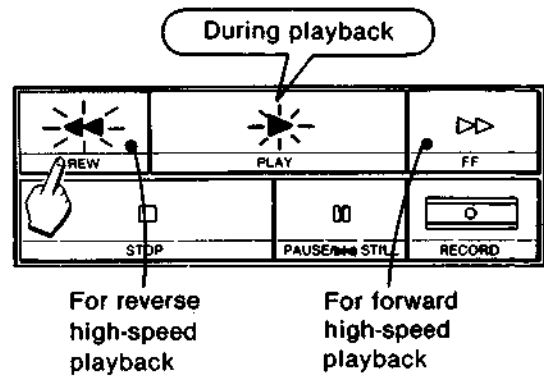
#### Note

The BETA HI-FI TRACKING meters function properly only when a tape recorded with the RECORD mode selector set to SOUND is being played back. For tapes recorded with the selector in the VIDEO position, the meters do not deflect at all or deflect minimally.

### PICTURE SEARCH

—Viewing the picture at high speed to find a particular scene

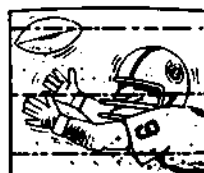
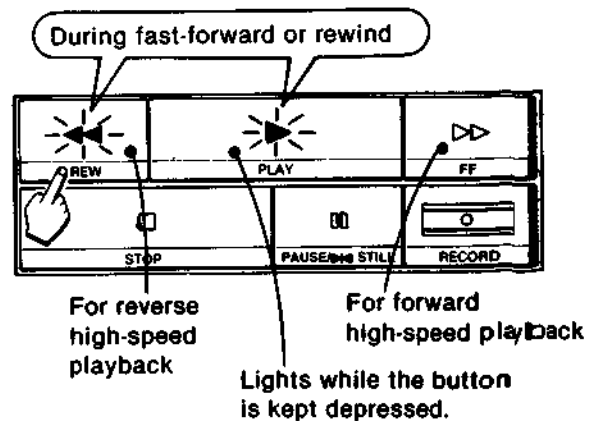
During playback, keep the ◀◀ REW or ▶▶ FF button pressed to reverse or advance the picture at high speed. Release the button at the desired point. Normal playback will resume. The picture search mode can also be assured directly from the pause mode.



### SKIP SCAN

—Viewing the picture momentarily in the fast-forward or rewind mode

During rewind or fast-forward mode, keep the ◀◀ REW button pressed for high-speed picture reverse, or keep the ▶▶ FF button pressed for high-speed picture advance. The picture appears momentarily while either of the buttons is pressed. Release the button at the desired point. Normal rewind or fast forward mode will resume.

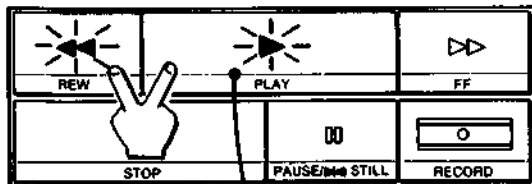


Streaks will appear during the picture search and the skip scan modes.

## AUTO PLAY

—To rewind the tape and automatically play it back

Press the ► PLAY button and ◀◀ REW button simultaneously in stop mode. After the tape is rewound to the beginning, it will be automatically played back.

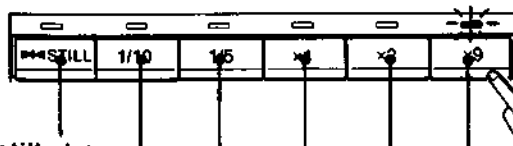


Blinks while rewinding

## VARIABLE SPEED PLAYBACK

During playback or pause of playback, press one of the variable speed playback buttons. The indicator on the button lights.

The sound will be muted during variable speed playback.



For still picture

For slow motion picture at 1/10 normal speed

For slow motion picture at 1/5 normal speed

For normal speed picture

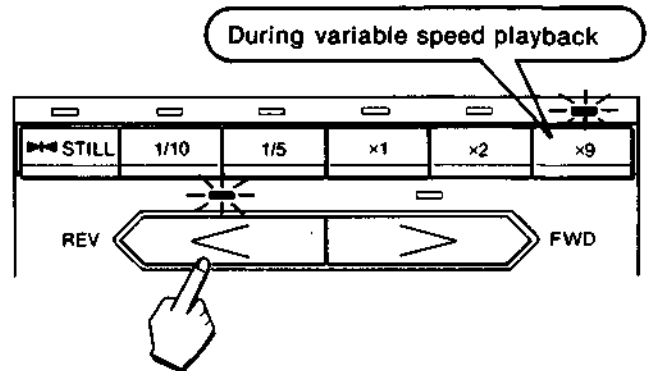
For fast motion picture at 9 times normal speed

For double-speed fast motion picture

To resume normal playback, press the ► PLAY button.

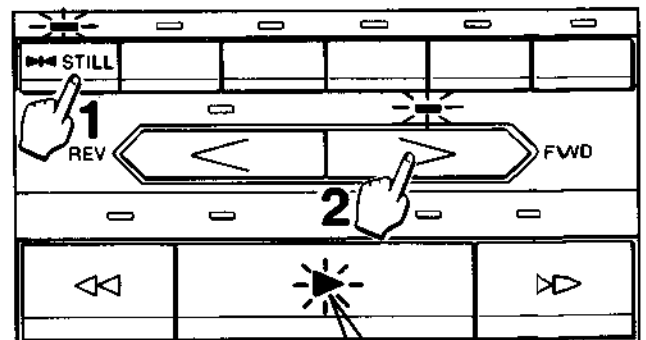
To change the playback speed, simply press the desired variable speed playback button.

To reverse the direction of the variable speed playback, press the REV < button. The indicator on the button lights. To resume forward playback, press the > FWD button.



## Frame-by-frame playback

Play back the tape and press the || PAUSE/◀◀ STILL button or the ►► STILL button. Then press the > FWD or REV < button momentarily. Each time the button is pressed, the picture advances or reverses by one frame. If the > FWD or REV < button is kept depressed, the picture advances or reverses frame by frame continuously.



During playback

## Picture adjustment for variable speed playback

- If the still picture appears to shake, turn the STILL ADJ knob on the rear panel until the picture stabilizes. As long as the same TV is used with this recorder, this adjustment should not be needed so frequently.
- If streaks or noise bands appear in still picture or slow motion (1/5 or 1/10) forward picture or in frame-by-frame playback, adjust the SLOW TRACKING control.
- If streaks or noise bands appear in normal (x1) or double speed (x2) forward picture, adjust the NORMAL TRACKING control.

## Note

The Beta hi-fi lamp and the SOUND lamp do not light during variable speed playback.

## 1-8. USE OF THE TIME COUNTER

The time counter indicates the approximate running time of the tape and the relative position of programmes on the tape.

### TO INDEX THE TAPE CONTENTS

Before starting recording or playback, press the COUNTER RESET button to set the counter to "0H00M00S". By noting the counter reading at the desired point, you can easily find that point later by referring to the counter. Use the label on the cassette to list the programmes and their counter readings.

COUNTER RESET



#### Notes

- The counter reading is automatically reset to zero when a cassette is newly inserted.
- The counter reading will be retained in the memory even after the power is turned off, as long as the cassette is in the cassette compartment.
- The counter will not advance during any portion of a tape that is blank or unrecorded. So the counter can be used to find unrecorded sections on a tape.

### "GO TO ZERO" FUNCTION

—To stop the tape at a particular point or play back from a particular point

- 1 During recording or playback, press the COUNTER RESET button at the point you later want to locate.
- 2 When recording or playback is finished, stop the tape and press the GO TO ZERO button. The tape will be rewound or advance close to the point where the counter reads "0H00M00S". During rewinding or fast-forward mode, the indicator on the ◀◀ REW or ▶▶ FF button lights, depending on the tape movement direction.

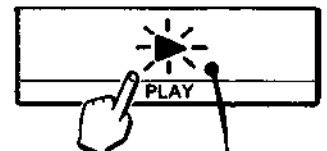
GO TO ZERO



To start playback automatically from the "0H00M00S" point

Press the ▶ PLAY button after pressing the GO TO ZERO button.

GO TO ZERO



Blinks during rewind or fast-forward mode.

#### Note

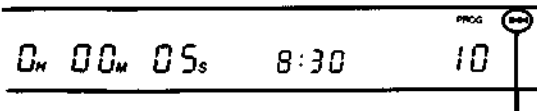
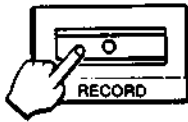
The "go to zero" function cannot be activated when the counter reading is within  $\pm 0H00M10S$ .

## 1-9. INDEX FUNCTION

The desired programme can be easily located by the index signal marked on the tape.

### TO MARK INDEX SIGNALS

An index signal is automatically marked on the tape when the ● RECORD button is pressed or when a timer recording starts.



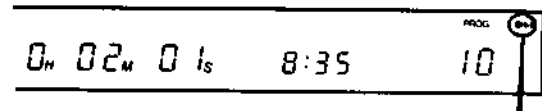
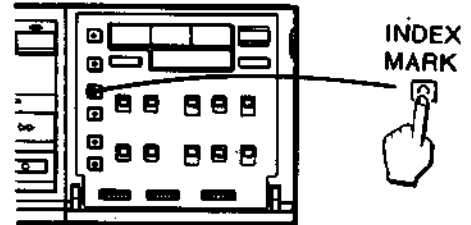
Blinks while the index signal is being marked.

#### Notes

- Index signals will not be marked on the tape when the recording is started by releasing the recording pause mode.
- The index function operates also with the index signals marked using the index function of other recorders.

Index signals can be marked at any desired point on the tape during recording, timer recording or normal playback.

At the point where an index signal is to be marked, press the INDEX MARK button.



Blinks while the index signal is being marked.

#### Notes

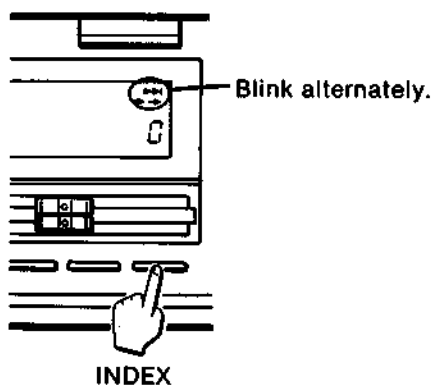
- During playback, the sound recorded on the tape will be muted while the index signal is being marked, but the recording will not be affected.
- Index signals can be marked on cassette tapes without a safety tab (including commercially available pre-recorded video tapes).

*MC-Service*

## INDEX SCAN

—To play back the beginning of each programme in sequence

- 1 Insert a cassette that has index signals marked.
- 2 Press the INDEX button once. The **▶▶** and **→→** indicators will blink alternately, and the index number 0 is displayed.

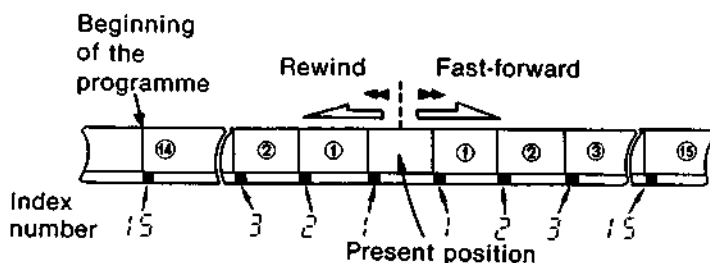


- 3 To scan the previous programmes, press the **◀◀** REW button. To scan the programmes ahead, press the **▶▶** FF button. The **▶▶** and **→→** indicators will blink simultaneously and the tape will be rewound or rapidly advanced to the next index signal marked. Whenever an index signal is detected, the tape will be played back for approximately 10 seconds, and then rewound or rapidly advanced to the next index signal. Every time an index signal is detected and playback begins, the displayed index number increases.
- 4 At the desired programme, press the **▶** PLAY button. Normal playback of that programme will begin.

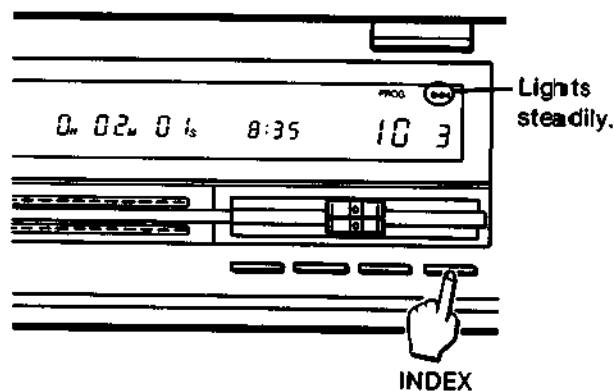
## INDEX SEARCH

—To locate the desired programme

You can locate the desired programme and play it back automatically by designating the number of its index signal. Up to the 15th index signal from the present position on the tape can be located.



- 1 Insert a cassette that has index signals marked.
- 2 Press the INDEX button several times until the index number of the desired programme is displayed. For instance, to locate the second programme ahead, two index signals should be detected, so press the INDEX button until "2" is displayed. On the other hand, to locate the second programme behind, three signals should be detected, so press the button until "3" is displayed.



- If you enter an incorrect index number, press the **■** STOP button to reset the display.
- 3 To locate a previous programme on the tape, press the **◀◀** REW button. To locate a programme ahead, press the **▶▶** FF button.

The tape will be rewound or rapidly advanced. Every time an index signal is detected, the displayed index number will decrease. When the number reaches 0, playback of your desired programme will begin.

### Notes

- The index function can be activated during playback, as well as from stop mode.
- While the index signals are being scanned or located, there will be no picture or sound.
- If the tape is rewound to the beginning during index scan or index search, playback will begin automatically.
- If the tape reaches the end during index scan or index search, the tape will be rewound automatically.

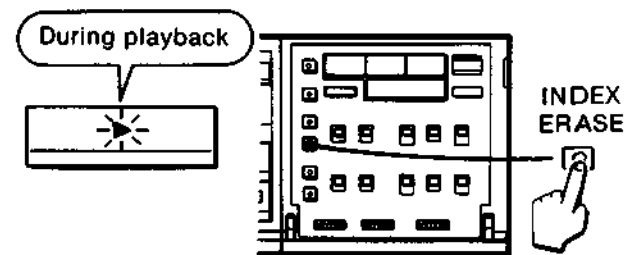
When the desired programme cannot be played back with the index function, check the following :

- The nearest index signal may not have been counted. If the point where you pressed the ◀◀ REW or ▶▶ FF button is fairly close (within 2 minutes of the normal tape-run) to the nearest index signal, that signal will not be counted. In such a case, designate one number less than the actual number.
- Is there a space of more than 2 minutes between two index signals? If there is more than one index signal marked within an interval of 2 minutes of the normal tape-run, the mechanism may not function properly.

### TO ERASE INDEX SIGNALS

**Erasing while index scanning—To erase the index signals in sequence**

- 1 Stop the tape with the ■ STOP button.
- 2 Press the INDEX button once.
- 3 To erase the previous index signals on the tape, press the ◀◀ REW button. To erase the index signals ahead, press the ▶▶ FF button. The tape will be rewound or rapidly advanced to the next index signal and playback will begin.
- 4 With the tape played back for approx. 10 seconds, press the INDEX ERASE button. The → indicator will stop blinking while the ▶▶ indicator continues blinking and the index signal will be erased.



After the erasure, index scan will resume. At each index signal located, press the INDEX ERASE button to erase the signal.

To stop index scanning, press the ■ STOP button.

**Erasing while index searching—To erase a particular index signal**

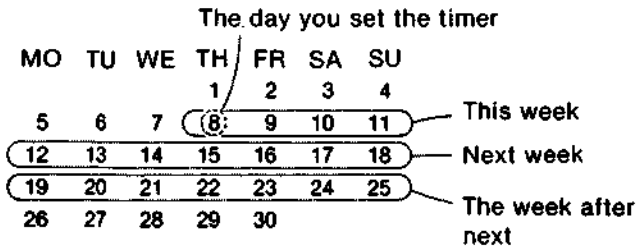
- 1 Stop the tape with the ■ STOP button.
- 2 Press the INDEX button several times until the number of the index signal to be erased is displayed.
- 3 To locate and erase the previous index signal, press the ◀◀ REW button. To locate and erase the index signal ahead, press the ▶▶ FF button.
- 4 With the tape played back for approx. 10 seconds, press the INDEX ERASE button. The ▶▶ indicator will blink and the index signal will be erased.

After the erasure, normal playback will begin.



## 1-10. TIMER-ACTIVATED RECORDING

Using the built-in timer, you can make six recordings on any day or every day, this week, next week or the week after next, or on the same day every week.



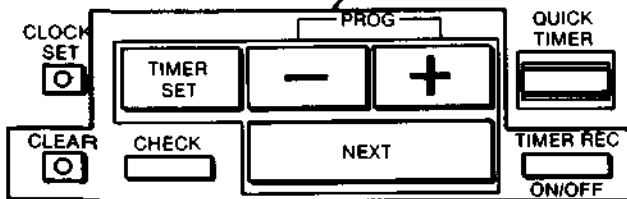
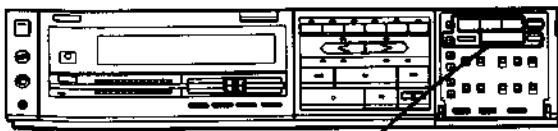
### Check before setting the timer

- Is the clock set to the correct day and correct time?  
Timer setting can only be made after the clock has been set.
- Is a cassette inserted in the recorder?
- Is the cassette long enough to record the programmes?
- Does the cassette have a safety tab on the bottom?
- Is the INPUT SELECT switch set to TUNER for recording TV programmes?

**Note:** The timer cannot be set during playback.

### TO SET THE TIMER

**Example:** To record a PROGRAM 2 broadcast from 9:00 AM to 11:25 AM on Saturday next week.



### NEXT button

Every time you press the NEXT button, the item to be preset will blink and you will be setting the item.

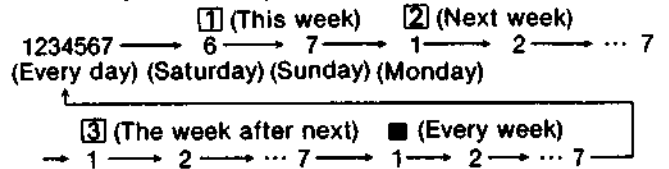
### PROG +/- buttons

To set the day of the week, the time and the programme number, press the + button to advance, and the - button to go back.

### Week and day indicators

By pressing the + PROG button, the week and day indicators change as follows:

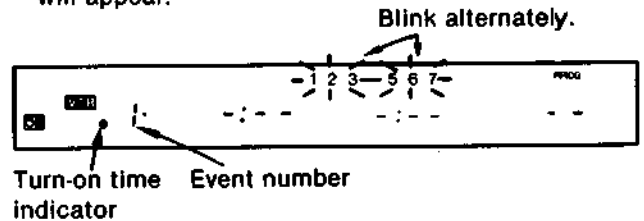
Ex. Today is Saturday.



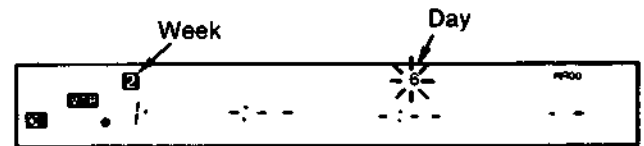
To record at the same time every day, select "1234567".  
To record at the same time and day every week, select the desired day indicator together with "■ (every week)" indicator.

### Setting procedure

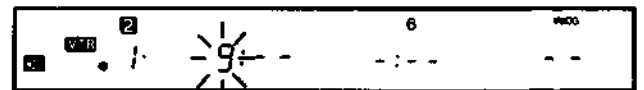
- 1 Press the TIMER SET button. (If the recorder is off, it will be turned on automatically.) An empty event number for which no timer setting has been made will appear.



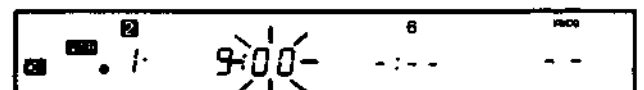
- 2 Set the week and day by pressing the + or - PROG button.



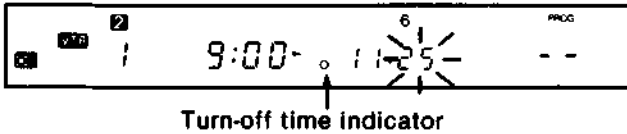
- 3 Press the NEXT button and set the turn-on hour by pressing the + or - PROG button.



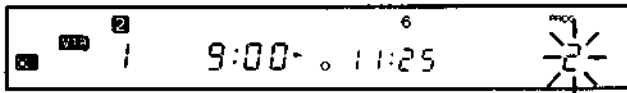
- 4 Press the NEXT button and set the minute by pressing the + or - PROG button.



- 5 Press the NEXT button and set the turn-off hour and minute as in turn-on time setting.



- 6 Press the NEXT button and select the programme to be recorded with the + or - PROG button. To record the signals from the equipment connected to the VIDEO IN and AUDIO IN jacks, set the INPUT SELECT switch to LINE/PCM so that "AU" indication appears.

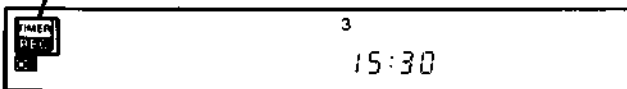


- 7 Press the NEXT button. The display reverts to the time counter and the current time.

To set more events, press the TIMER SET button again to display the next event number. Repeat steps 2 to 7 above.

- 8 Press the TIMER REC ON/OFF button. The TIMER REC indicator appears and the recorder is turned off.

Appears.



At the preset turn-on time, recording will start automatically and will stop at the preset turn-off time.

**Note**

If the inserted cassette does not have the safety tab, the cassette will be automatically ejected when the TIMER REC ON/OFF button is pressed.

ONCE THE TIMER REC INDICATOR HAS BEEN DISPLAYED, NO FUNCTION OF THE RECORDER CAN BE ACTIVATED, except for checking the timer setting. To operate the recorder after setting the timer for recording, press the TIMER REC ON/OFF button so that the TIMER REC indicator goes off. To reactivate the timer recording standby mode, be sure to press the TIMER REC ON/OFF button again.

**WHILE SETTING THE TIMER**

**To change the preset item**

Press the CLEAR button and repeat the timer setting procedure from Step 1.

**To record to the end of the tape**

Set the turn-off time to a time after the tape will reach its end.

**BEFORE OR DURING TIMER RECORDING**

**To check the timer settings**

Press the CHECK button. Each time the CHECK button is pressed, the preset events are displayed in sequence.

**To change the settings**

- 1 Press the TIMER REC ON/OFF button if the TIMER REC indicator is displayed.
- 2 Press the CHECK button sufficient times to display the event to be changed in the display window.
- 3 Press the TIMER SET button.
- 4 Press the NEXT button sufficient times until the item to be changed blinks.
- 5 Change the setting with the + or - PROG button.
- 6 Press the NEXT button until the time counter and the current time appear.
- 7 Press the TIMER REC ON/OFF button again to reactivate the timer.

**To erase the timer setting of an event**

- 1 Press the TIMER REC ON/OFF button if the TIMER REC indicator is displayed.
- 2 Press the CHECK button sufficient times to display the event to be erased.
- 3 Press the CLEAR button. The event will be erased from the memory.
- 4 If other events have been preset for recording, press the TIMER REC ON/OFF button again to reactivate.

**Note:** When the TIMER REC indicator is displayed, the timer setting cannot be erased.

### If the tape reaches the end during timer recording

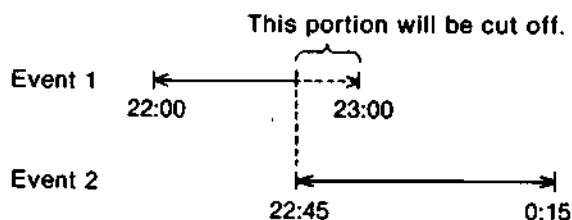
The recording will stop and the tape will be rewound to the beginning. Then after about a second, the recorder will be turned off.

### To stop the on-going timer recording

Press the TIMER REC ON/OFF button so that the TIMER REC indicator goes off. The unit will be turned off automatically after about a second.

### When two timer settings overlap

If two timer settings are preset as in the following example, the recording of the event 2 will begin before the first recording is completely finished. Consequently, the event 1 will be cut off in the middle of its recording.



### AFTER TIMER RECORDING

When a timer recording is finished, the setting (except the everyday or every week setting) will be eliminated and the next timer settings will move up one event position each. For example, if you have preset 4 events, when the first timer recording is finished, the fourth event position will be vacant. If the TIMER SET button is pressed, "4" will appear in the window.

### When a power interruption occurs

If the clock shows "0:00" blinking, the power has been interrupted for more than 30 minutes (when the built-in battery has been charged at least 48 hours) and all the timer settings will have been erased. Reset the clock and the timer settings.

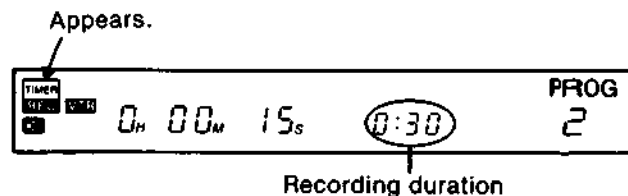
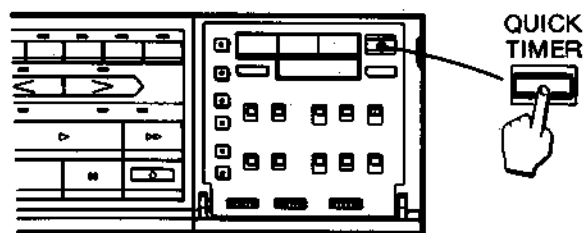
If the power has been interrupted for less than 30 minutes, the timer settings are retained in the memory and the on-going timer recording will resume when the power is resupplied.

## QUICK TIMER RECORDING

—To set the recording duration and to turn off the unit automatically

During recording, you can set the recording duration for up to 4 hours in units of 30 minutes by pressing the QUICK TIMER button. After the preset timer has elapsed, recording stops and recorder is turned off automatically.

- 1 Start recording.
- 2 Press the QUICK TIMER button to set the recording duration.  
The TIMER REC indicator will appear.



Each time you press the QUICK TIMER button, the indication changes:

0:30 → 1:00 → 1:30 → 2:00 → ... 3:30 → 4:00

As the recording continues, the duration indication decreases minute by minute to 0:00 and the recording stops. The recorder is turned off automatically.

### To extend the recording duration

The on-going recording duration can be extended simply by pressing the QUICK TIMER button. The duration will be extended in units of 30 minutes with each pressing.

Example: When 2:25 is indicated,  
2:25 → 2:30 → 3:00

### To cancel the quick timer function

Press the TIMER REC ON/OFF button so that the TIMER REC indicator goes off. The recorder will be turned off automatically after about a second.

### To stop quick timer recording momentarily

Press the PAUSE button. To resume recording, press the same button again.

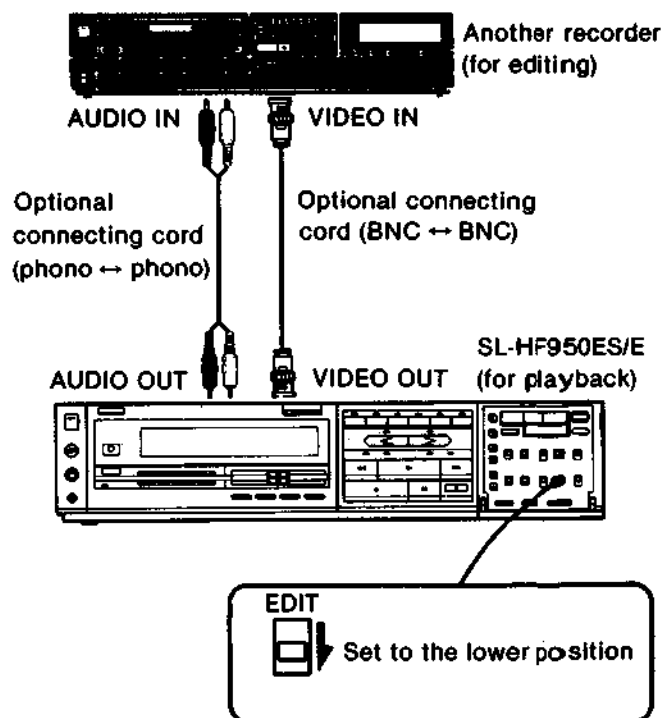
### Note

During quick timer recording, only the QUICK TIMER, PAUSE and TIMER REC ON/OFF buttons can be activated. To activate the other buttons, press the TIMER REC ON/OFF button so that the TIMER REC indicator goes off.

## 1-11. TAPE EDITING

To edit a tape, you will need two video recorders: one is to play back the original tape and the other is to record. To make the most of this unit's excellent editing performance, using this unit for playback is recommended.

### CONNECTIONS



### OPERATION

Set the INPUT SELECT switch of the recorder for editing to LINE (line input), if provided.

Set the recorder for playback to playback mode, and the recorder for editing to record mode.

#### EDIT switch

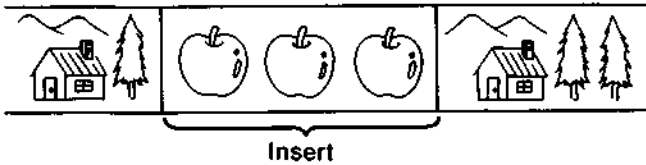
Generally, a recorder electrically rectifies the original signals recorded on a tape for optimum viewing on a TV or monitor. However, this rectification is not needed and even result in over-rectification, when the signal is being recorded onto a tape in another recorder. When the EDIT switch is set to the lower position, the rectification circuit is cancelled. This allows direct recording of the original signal onto the tape in another recorder.

#### CAUTION

Television programmes, films, video tapes and other materials may be copyrighted. Unauthorized duplication of such material may be contrary to the provision of the copyright laws.

## AUDIO AND VIDEO INSERT

By using the INSERT buttons, you can easily "insert" (re-record) new sound or picture onto a pre-recorded tape.

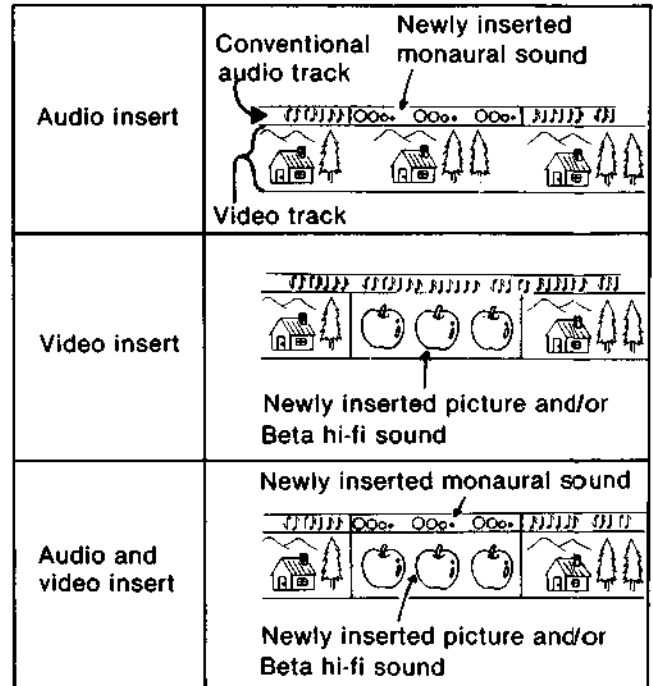


**Audio insert**—Inserting new sound (monaural) on the conventional audio track without erasing the original picture and Beta hi-fi sound on the video track

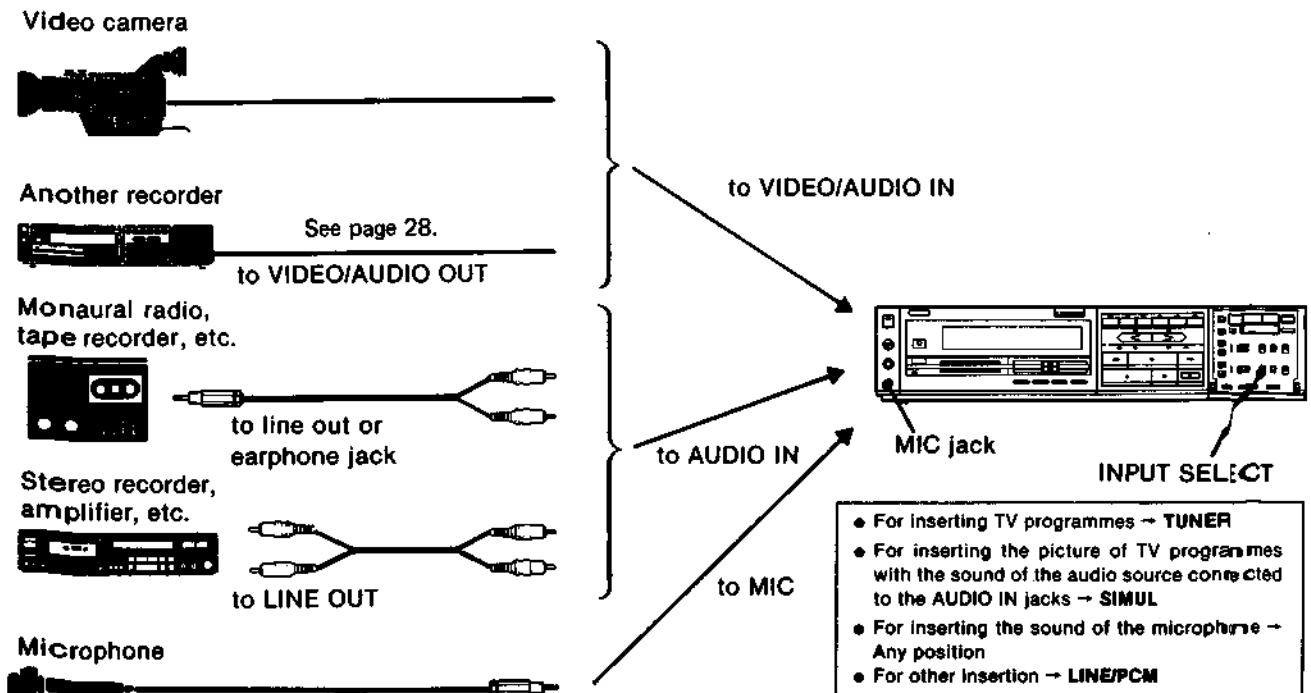
**Video insert**—Inserting new picture and/or Beta hi-fi sound without erasing the original sound on the conventional audio track

**Audio and video insert**—Inserting new sound and picture onto both the video and conventional audio tracks

### The recording after audio, video or audio/video insertion

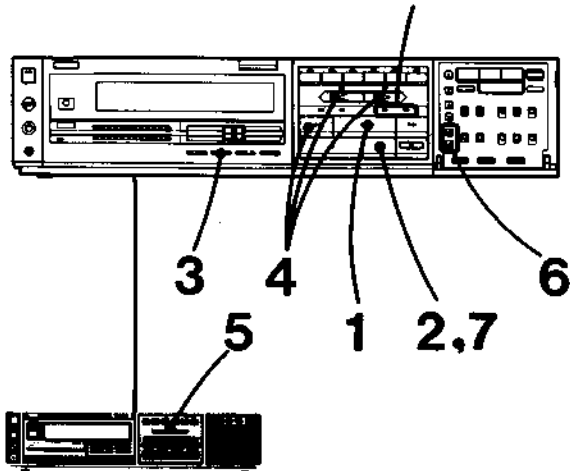


## AUDIO AND VIDEO SOURCE CONNECTION

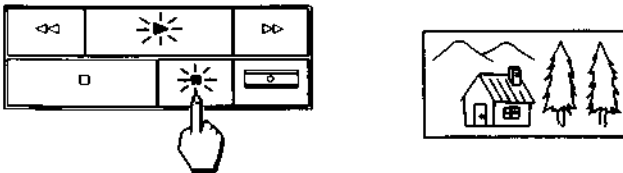


## OPERATION

AUDIO and VIDEO INSERT indicators

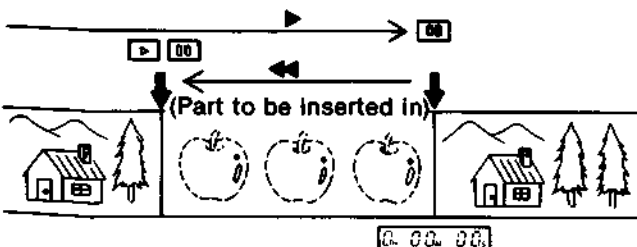


- 1 Play back the original tape on which you want to make insertion.
- 2 At the point where you want to stop the insertion, press the **|| PAUSE** button.



If necessary, press the **> FWD** or **REV <** button to locate the point accurately, then press the **|| PAUSE** button.

- 3 Press the **COUNTER RESET** button. The time counter will be reset to "0H00M00S".
- 4 Using the **◀◀ REW** button and the **> FWD** and **REV <** buttons, locate the point where you want to start the insertion, and set the recorder to playback pause mode.



- 5 Play the audio and/or video source.
- 6 For "Audio insert", press the **AUDIO INSERT** button. For "Video insert", press the **VIDEO INSERT** button. For "Audio and video insert", press the **AUDIO** and **VIDEO INSERT** buttons. The corresponding **AUDIO** and/or **VIDEO INSERT** indicators will light.



- 7 Press the **|| PAUSE** button. The audio and/or video insert will start.

At the "0H00M00s" point on the counter, the insertion will stop.

To stop insertion momentarily, press the **|| PAUSE** button. To resume insertion, press the same button again.

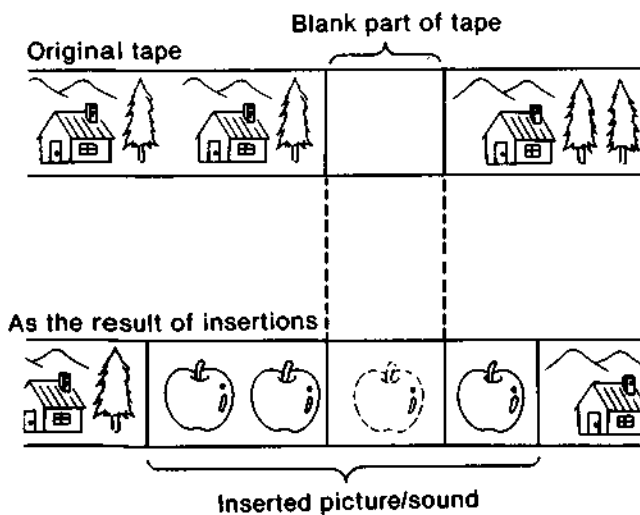
To stop the on-going insertion, press the **■ STOP** button.

### Monitoring the sound being inserted

- During audio/video insertion, the sound to be listened to can be selected by setting the BETA HI-FI selector and the AUDIO MONITOR selector to the desired position.
- For the sound from the microphone, set the BETA HI-FI selector to NORMAL and listen to the sound through headphones.

### Notes

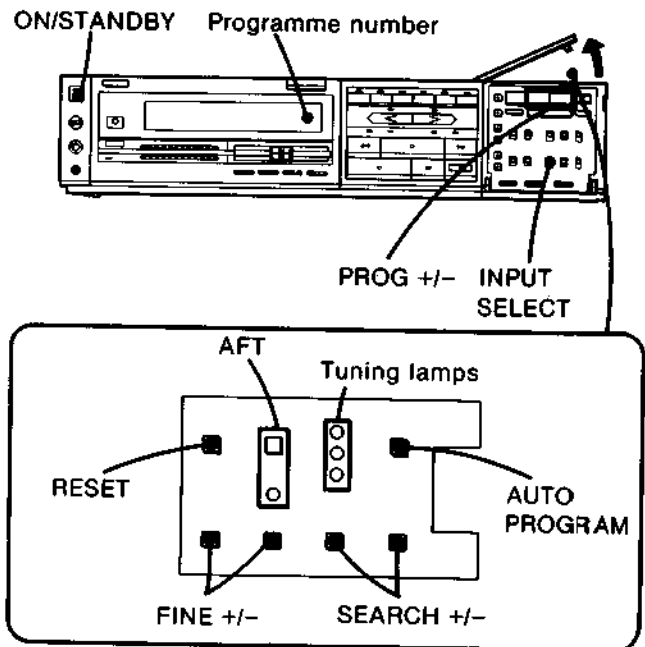
- During insertion, the ● RECORD, ► PLAY, ◀◀ REW, ►► FF, FRAME and variable speed playback buttons will not function.
- If a microphone is connected to the MIC jack, the sound from the microphone will always be recorded on the conventional audio track.
- If the safety tab of the cassette has been removed, the cassette will be ejected automatically when the INSERT button is pressed.
- If the video and/or audio insertions are made on the blank space on the original tape, this part will be muted in normal or double-speed playback mode, as there is no control signal recorded.



## 1-12. TV STATION PROGRAMMING

Automatic and manual programming are available. Automatic programming automatically presets receivable stations from the lowest frequency to the highest. Manual programming is useful for presetting selected stations in any desired sequence.

To start programming, turn on the recorder by pressing the ON/STANDBY switch and set the INPUT SELECT switch to TUNER.



### AUTOMATIC PROGRAMMING

Press the AUTO PROGRAM button. Up to 30 receivable stations will be preset one by one from programme position 1. When no more stations can be located, programme number "1" will light on the programme indicator and automatic programming will stop.

### MANUAL PROGRAMMING

- 1 Press the + or - PROG button to select the programme position.
  - + for a higher-numbered programme position
  - for a lower-numbered programme position
- 2 Press the + SEARCH button to locate a station with higher frequency and the - SEARCH button to locate a station with lower frequency. When a station has been received, the search will stop. Press the + or - SEARCH button again, until the desired station is received.

Repeat these steps for all desired stations.

## FINE TUNING OF A WEAK STATION

If the picture on a particular programme position is not acceptable, keep the + or - FINE button pressed until the picture becomes clearer. When either of the FINE buttons is pressed, the AFT of the selected station is deactivated and the AFT lamp goes off. To view this particular station, keep the AFT deactivated. (Do not press the AFT button.)

When other memorized stations are selected, the AFT automatically activates.

## ELIMINATING NOISE ON UNUSED PROGRAMME POSITIONS

Simply press the RESET button. The annoying noise will be eliminated.

### Tuning lamps

The tuning lamp lights to show the current tuning band.

VL: E2 - E4, E5 - E12 and Cable TV S1 and S2

VH: Cable TV S3, M1 - M10 and U11 - U20 channels

U: E21 - E68 channels

**Note:** Cable TV channels are receivable on the SL-HF950ES only.

## 1-13. CLOCK SETTING

When you connect the mains lead to a mains outlet, the clock indicates "0:00" with the two dots blinking.

### Time indication

AM			
12:00 (midnight)	1:00		11:00
↓	↓	.....	↓
0:00	1:00		11:00

PM					
12:00 (noon)	1:00	2:00		10:00	11:00
↓	↓	↓		↓	↓
12:00	13:00	14:00	.....	22:00	23:00

### Day indication

MO (Monday)	TU (Tuesday)	WE (Wednesday)	TH (Thursday)	FR (Friday)	SA (Saturday)	SU (Sunday)
↓	↓	↓	↓	↓	↓	↓
1	2	3	4	5	6	7

### NEXT button

Each time the NEXT button is pressed, the item to be set blinks to let you know the setting order.

### +/- buttons

The + and - PROG buttons can be pressed in two ways.

#### When you hold a button

down, the digits will advance continuously until the button is released.

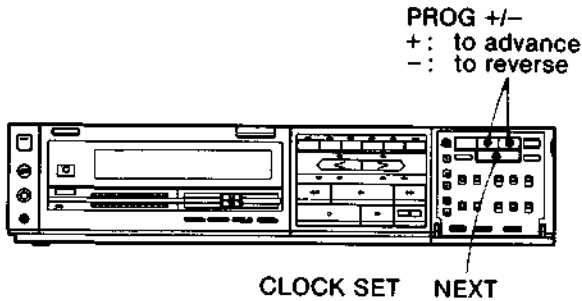
#### When you press and

immediately release a button, the digits will advance by one.

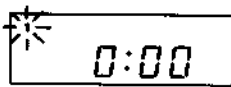




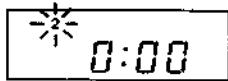
Example: To set the clock to 7:35 p.m. (19:35) on Tuesday



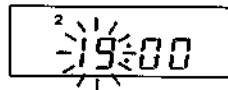
- 1 Press CLOCK SET for more than a second.



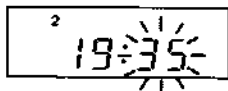
- 2 Set the day by pressing + or - PROG.



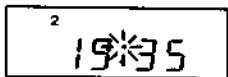
- 3 Press NEXT and set the hour by pressing + or - PROG.



- 4 Press NEXT and set the minute by pressing + or - PROG.



- 5 With an announced time signal, press NEXT. The clock now starts operating, showing the correct time.



The dots of the colon alternately blink every 30 seconds.

#### Zero second adjustment

Press the CLOCK SET button quickly (for less than a second).

While the upper dot is blinking, the clock is set to the time displayed 00 second. For example, if the clock time is 19:35, it is set to 19:35,00 second.

While the lower dot is blinking, the clock advances one minute and is set to the time displayed 00 second. For example, if the clock time is 19:35, it is set to 19:36,00 second.

#### To change the actual clock setting

Press the CLOCK SET button for more than a second and repeat the clock setting procedure from step 1.

#### Note

If you have pressed the CLOCK SET button inadvertently, press the NEXT button enough times until the dots of the colon blink.

**When the power has been interrupted for more than 30 minutes, the time indication "0:00" blinks, showing that the clock must be reset.**

If the power has been interrupted for less than 30 minutes, the displayed time remains correct.

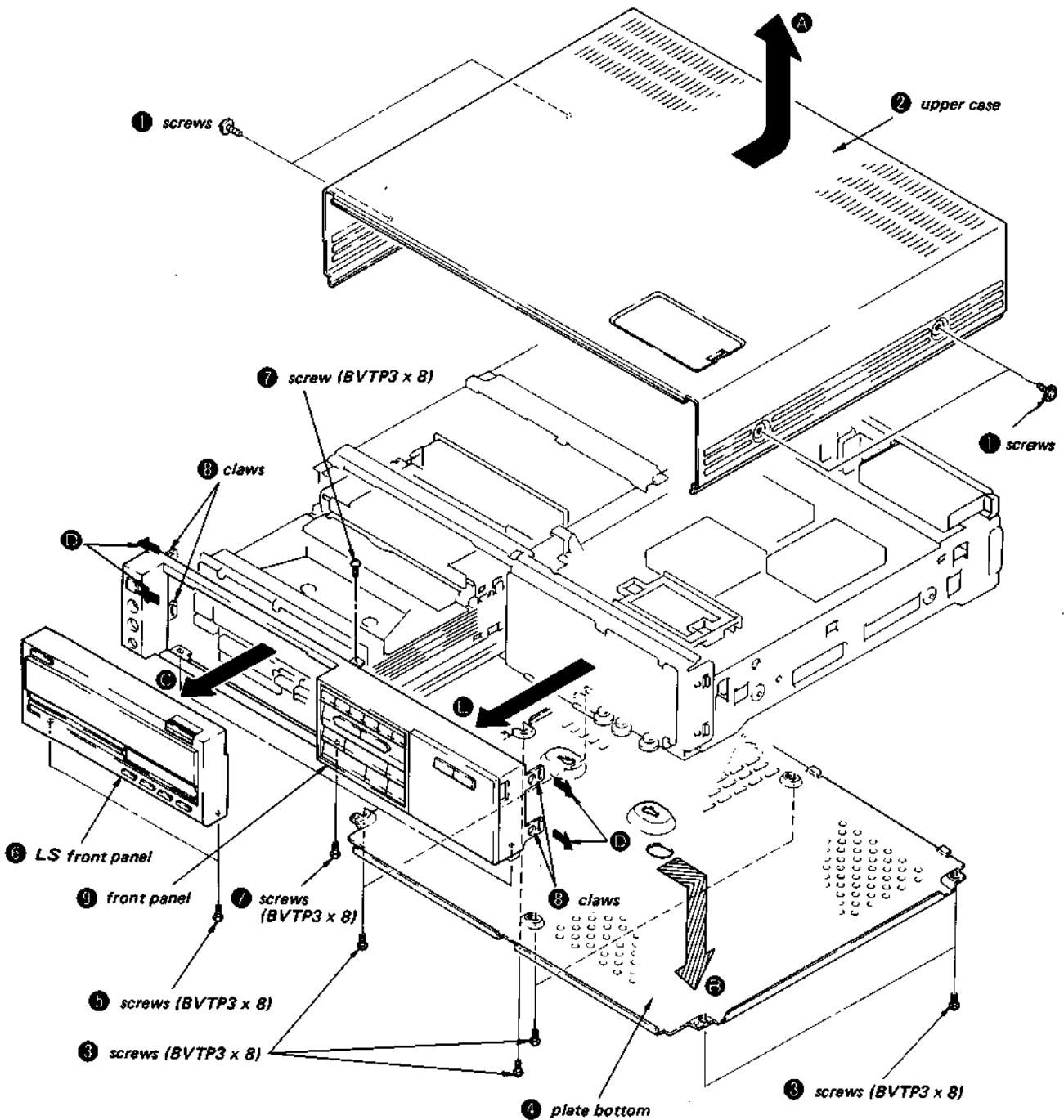
MC-Service

## SECTION 2 DISASSEMBLY

### 2-1. DISASSEMBLY OF CABINET

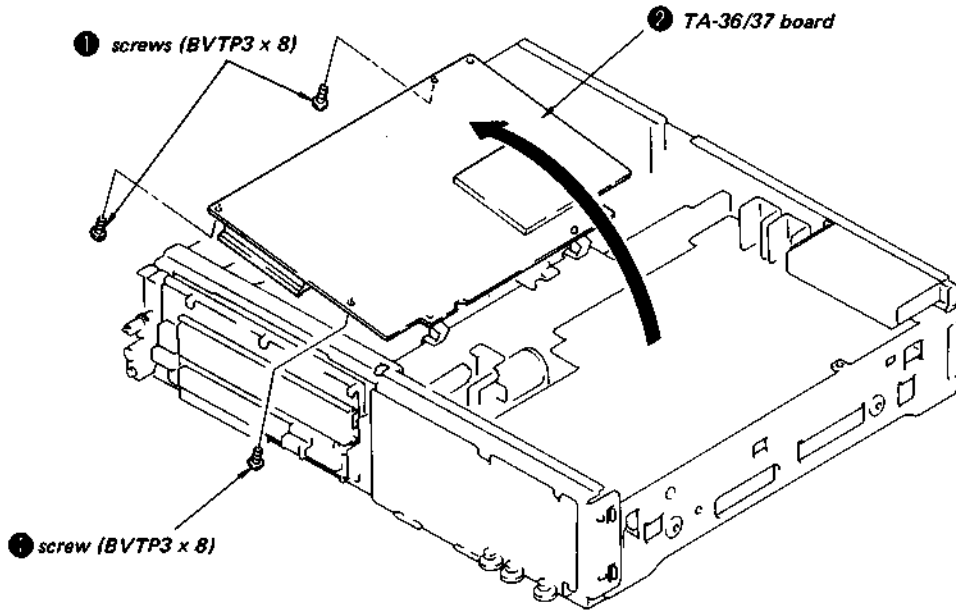
- 1) Remove the four case set screws ①.
- 2) Remove the upper case ② in the direction shown by the arrow ④.
- 3) Loosen the seven screws ③.
- 4) Remove the plate bottom ④ in the direction shown by the arrow ⑤.
- 5) Remove the two screws (BVTP3 x 8) ⑤.
- 6) Remove the LS front panel ⑥ in the direction shown by the arrow ⑥.
- 7) Remove the four screws ⑦.
- 8) Remove the four claws ⑧ in the direction shown by the arrow ⑧, then remove the front panel ⑨ in the direction shown by the arrow ⑨.

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



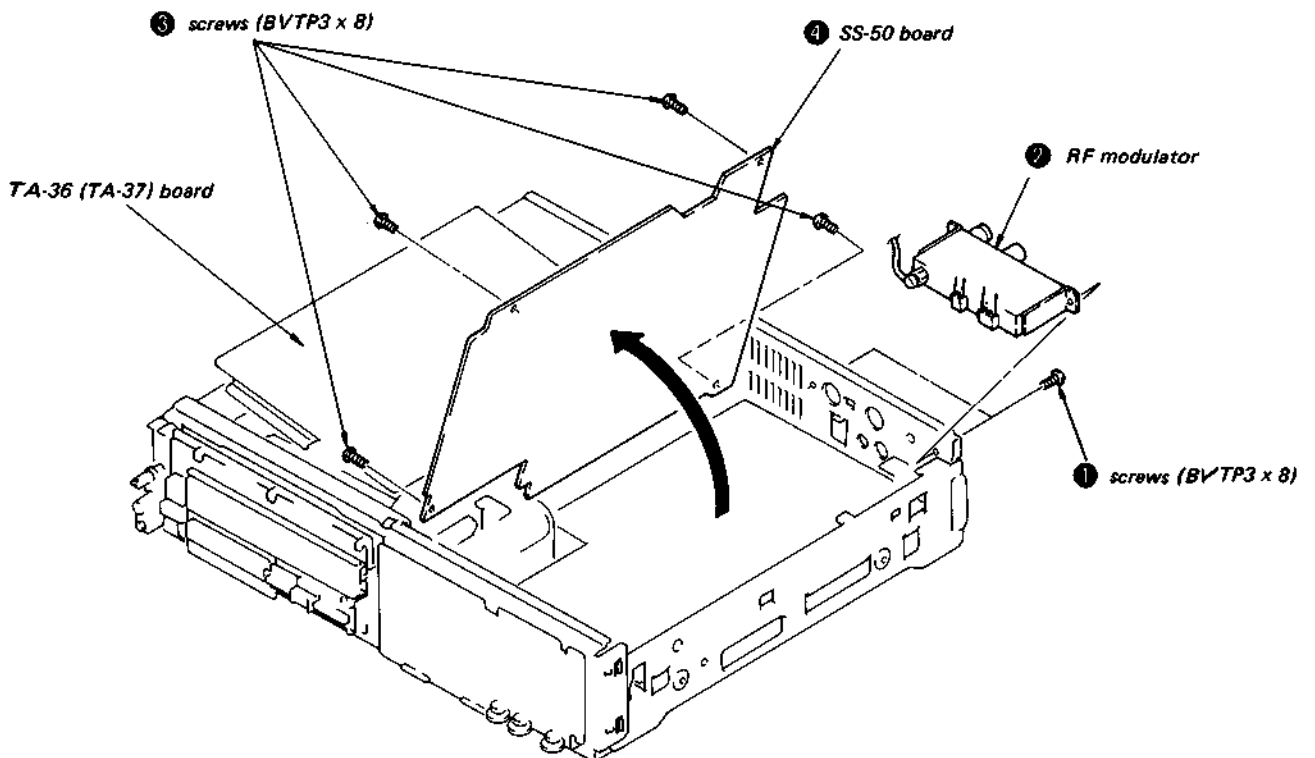
## 2-2. REMOVAL OF THE TA-36/37 BOARD

- 1) Remove the three screws (BVTP3 x 8) ①.
- 2) Remove the TA-36/37 board ② in the direction shown by arrow.



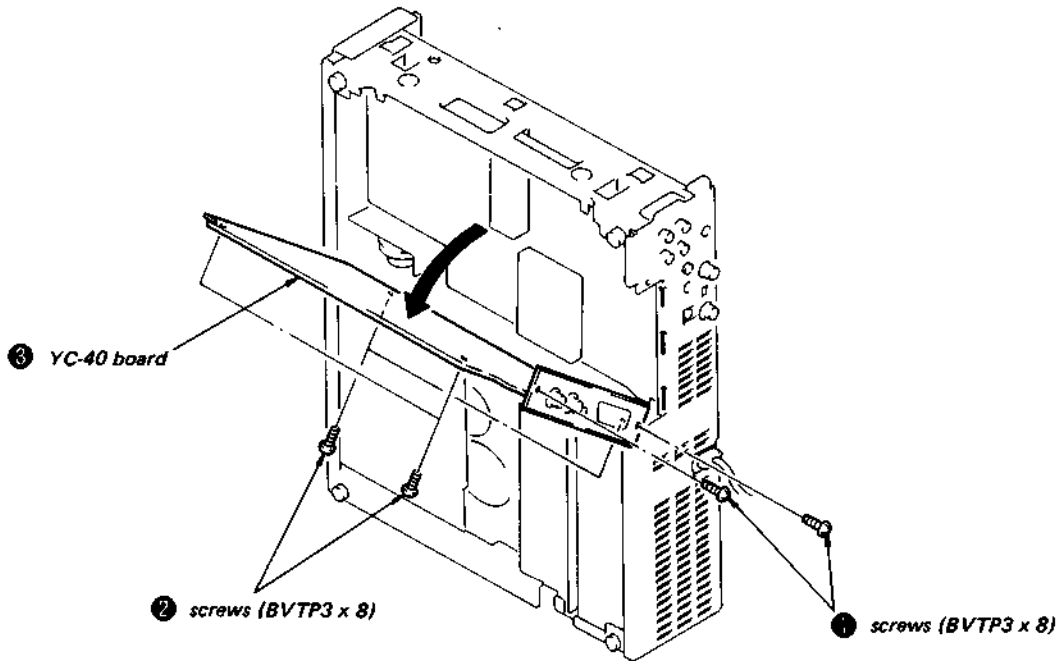
## 2-3. REMOVAL OF THE SS-50 BOARD

- 1) Remove the TA-36/37 board.  
(Refer to section 2-2. REMOVAL OF THE TA-36/37 BOARD.)
- 2) Remove the two screws (BVTP3 x 8) ①.
- 3) Remove the RF modulator ②.
- 4) Remove the four screws ③.
- 5) Remove the SS-50 board ④ in the direction shown by the arrow.



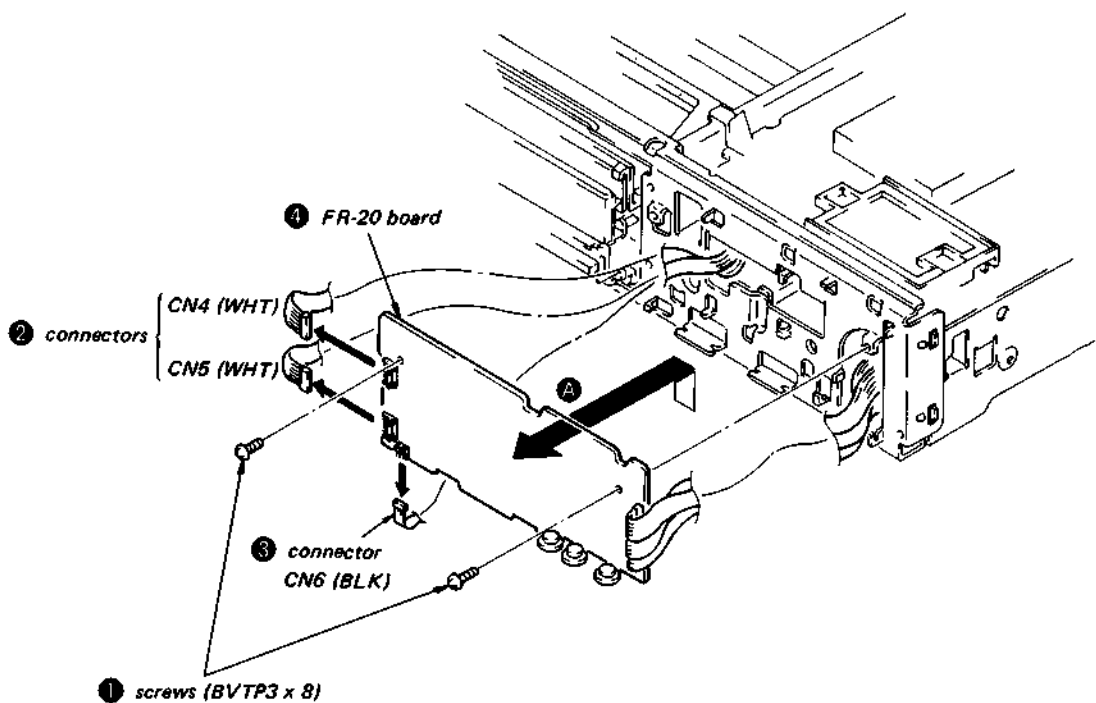
## 2.4. REMOVAL OF THE YC-40 BOARD

- 1) Stand the set with the left side panel on the bottom.
- 2) Remove the two screws (BVTP3 x 8) ①.
- 3) Remove the four screws (BVTP3 x 8) ②.
- 4) Remove the YC-40 board ③ in the direction shown by the arrow.



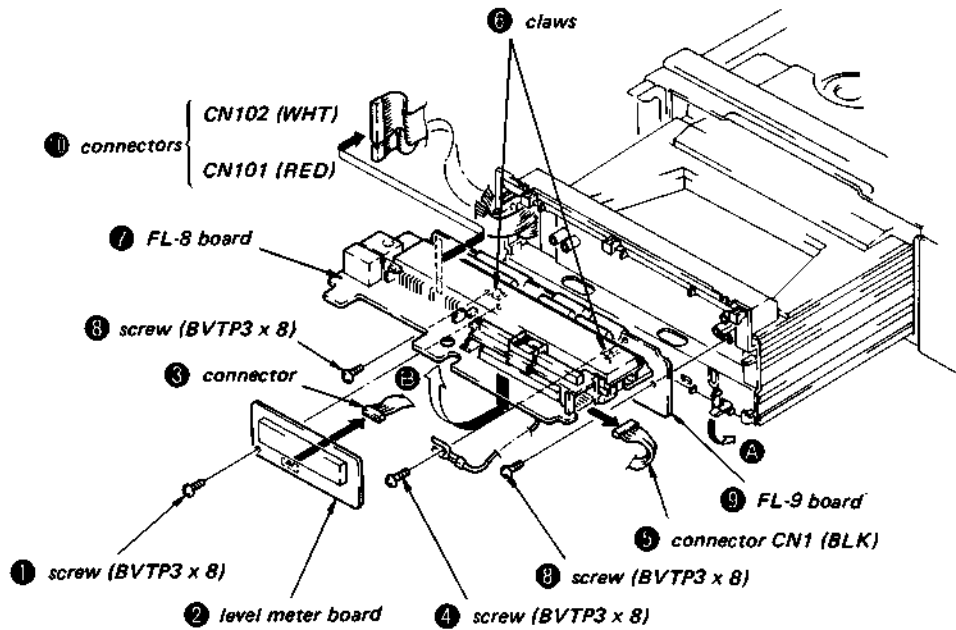
## 2.5. REMOVAL OF THE FR-20 BOARD

- 1) Remove the two screws (BVTP3 x 8) ①.
- 2) Pull out the two connectors ②.
- 3) Pull out the connector ③.
- 4) Remove the FR-20 board ④ in the direction shown by the arrow A.



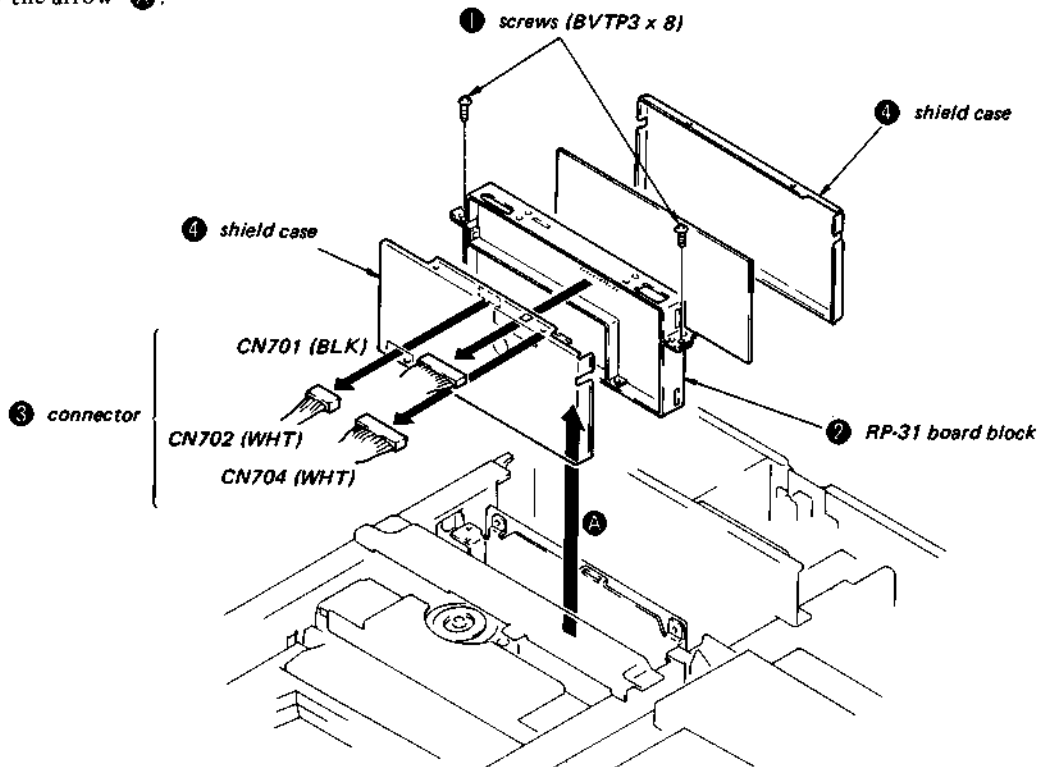
## 2.6. REMOVAL OF THE FL-8, FL-9 BOARD

- 1) Remove the one screw (BVTP3 x 8) ①.
- 2) Remove the level meter board ②.
- 3) Pull out the connector ③.
- 4) Remove the one screw (BVTP3 x 8) ④.
- 5) Pull out the connector ⑤.
- 6) Remove the three claws ⑥ in the direction shown by the arrow A, then remove the FL-8 board ⑦ in the direction shown by the arrow B.
- 7) Remove the two screws (BVTP3 x 8) ⑧.
- 8) Remove the FL-9 board ⑨.
- 9) Pull out the two connectors ⑩.



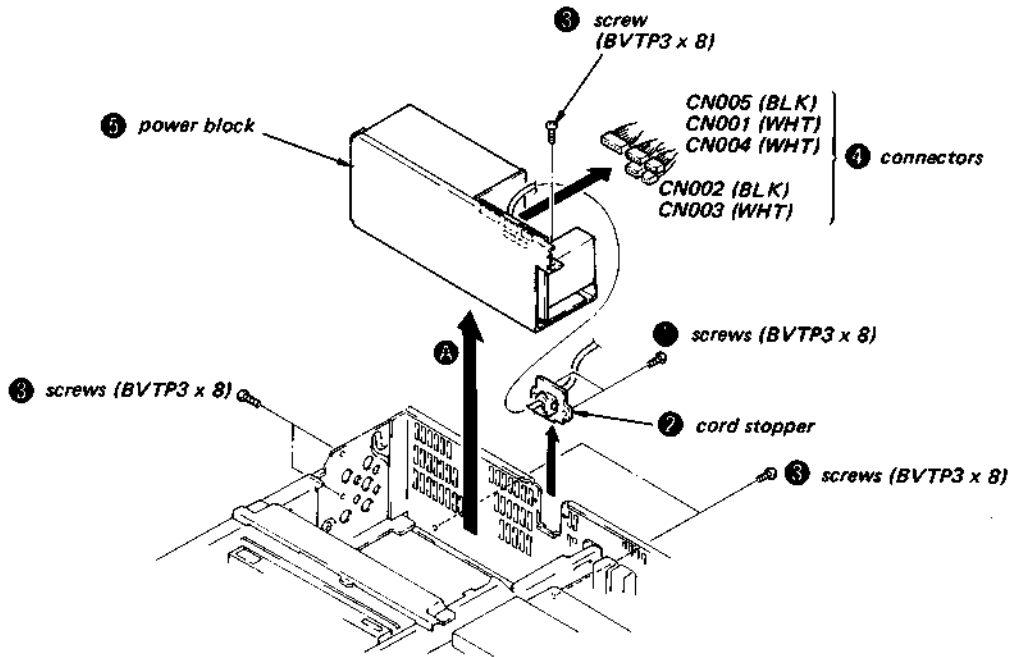
## 2.7. REMOVAL OF THE RP-31 BOARD

- 1) Remove the two screws (BVTP3 x 8) ①.
- 2) Remove the RP-31 board block ② in the direction shown by the arrow A.
- 3) Pull out the three connectors ③.
- 4) Remove the two shield cases ④.



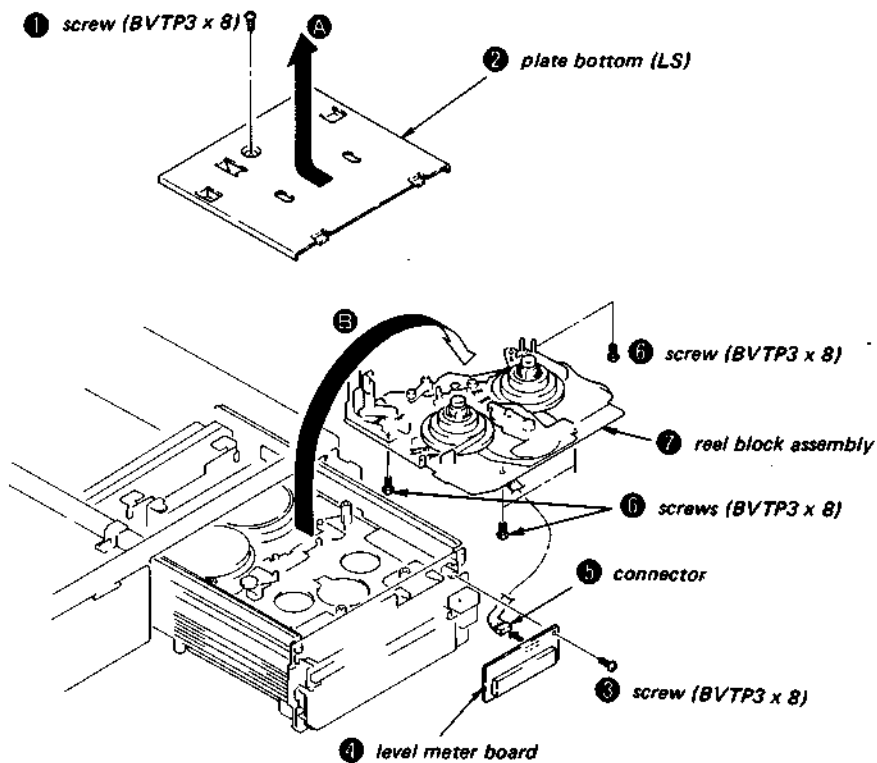
## 2-8. REMOVAL OF THE POWER BLOCK

- 1) Remove the two screws (BVTP3 x 8) ①.
- 2) Remove the cord stopper ②.
- 3) Remove the five screws (BVTP3 x 8) ③.
- 4) Pull out the five connectors ④.
- 5) Remove the power block ⑤ in the direction shown by the arrow ⑥.



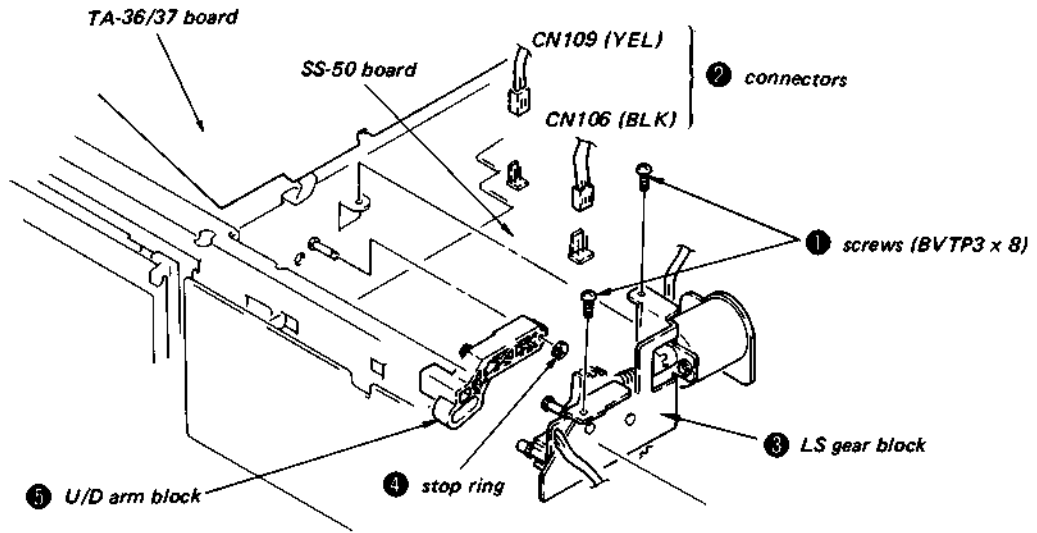
## 2-9. REMOVAL OF THE REEL BLOCK ASSEMBLY

- 1) Place the set upside down.
- 2) Remove the one screw (BVTP3 x 8) ①.
- 3) Remove the plate bottom (LS) ② in the direction shown by the arrow ③.
- 4) Remove the one screw (BVTP3 x 8) ④.
- 5) Remove the level meter board ④.
- 6) Pull out the connector ⑤.
- 7) Remove the four screws (BVTP3 x 8) ⑥.
- 8) Remove the reel block assembly ⑦ in the direction shown by the arrow ⑧.



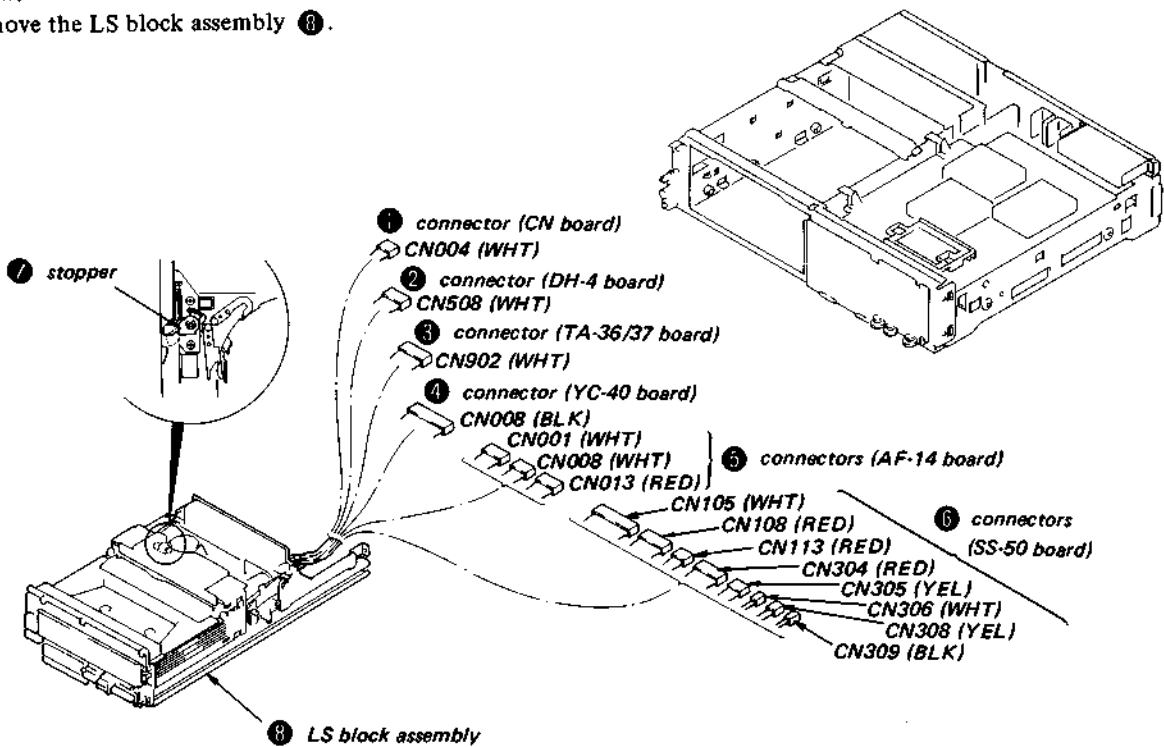
### 2-10. REMOVAL OF THE LS BLOCK ASSEMBLY (1)

- 1) Remove the TA-36/37 board.  
(Refer to section 2-2. REMOVAL OF THE TA36/37 BOARD.)
- 2) Remove the two screws (BVTP3 x 8) ①.
- 3) Pull out the two connectors ② from the SS-50 board.
- 4) Remove the LS gear block ③.
- 5) Remove the stop ring ④.
- 6) Remove the U/D arm block ⑤.



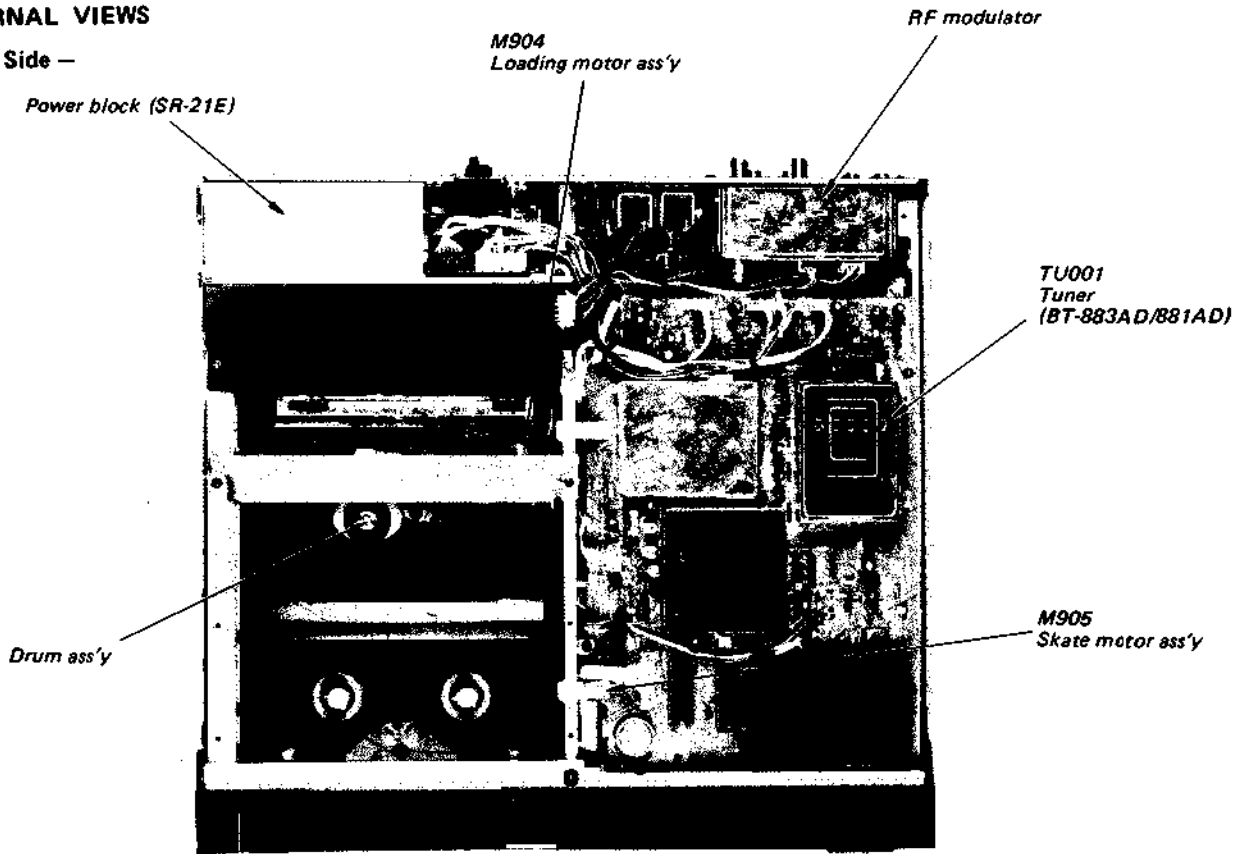
### 2-11. REMOVAL OF THE LS BLOCK ASSEMBLY (2)

- 1) Pull out the fifteen connectors ① ~ ⑤.
- 2) Turn the stopper ⑦ in the direction shown by the arrow.
- 3) Remove the LS block assembly ⑧.

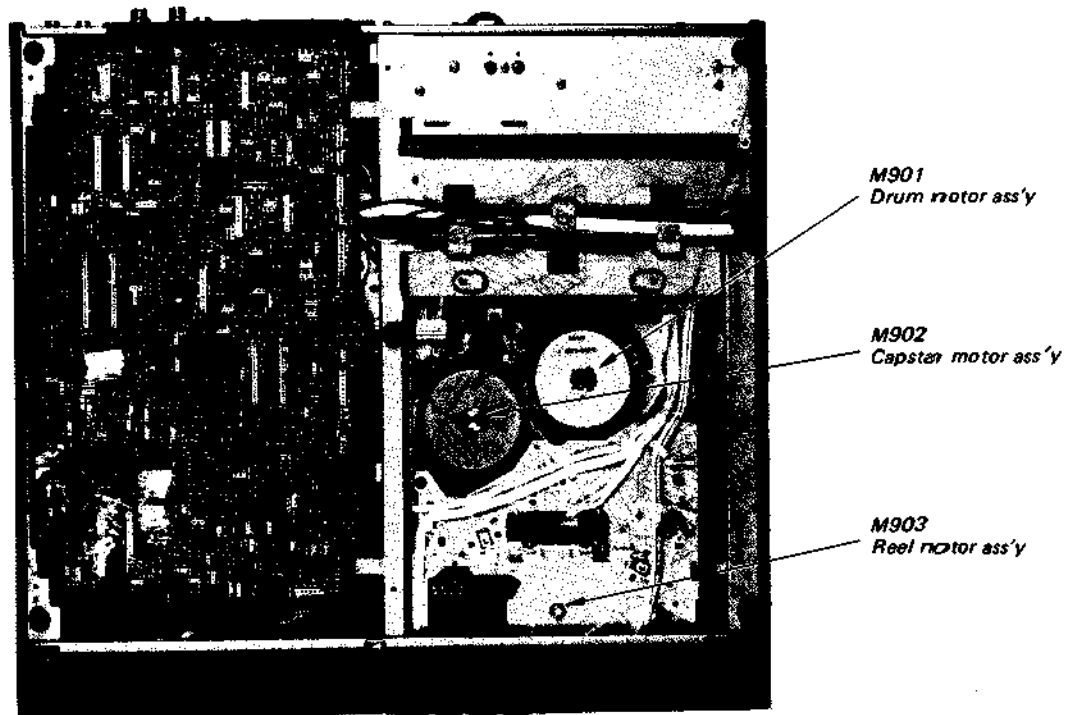


2-12. INTERNAL VIEWS

— Top Side —



— Bottom Side —

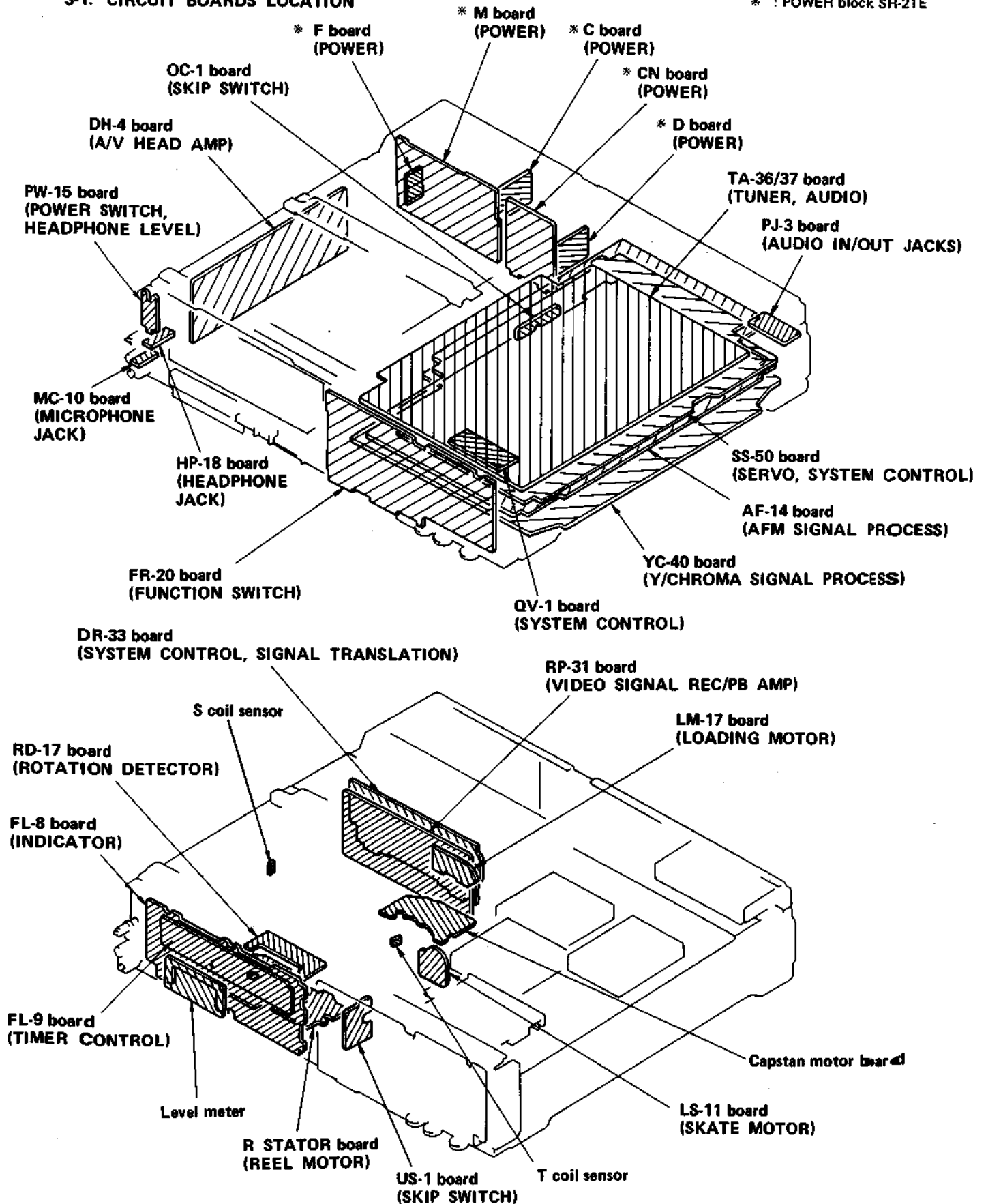




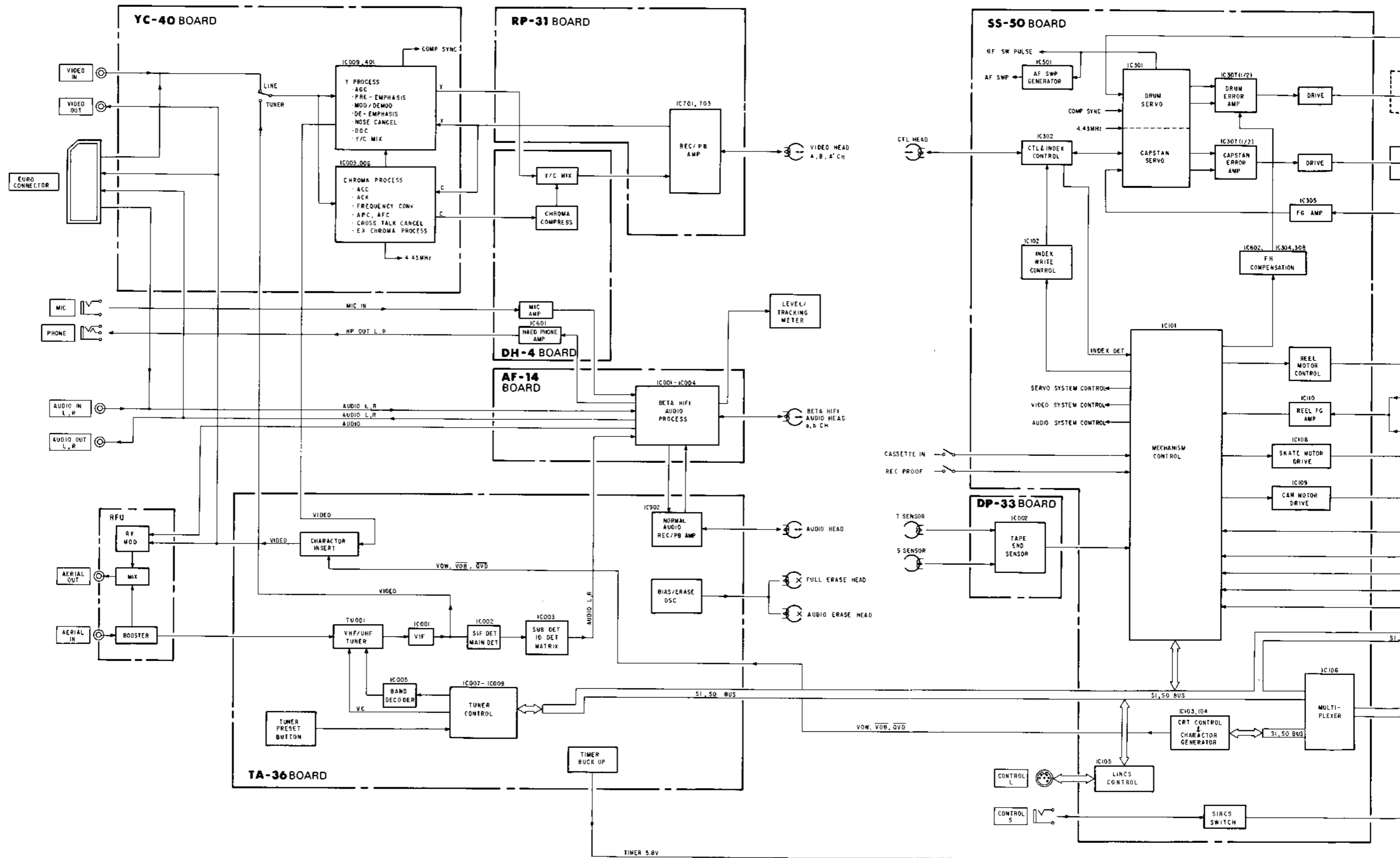
## SECTION 3 DIAGRAMS

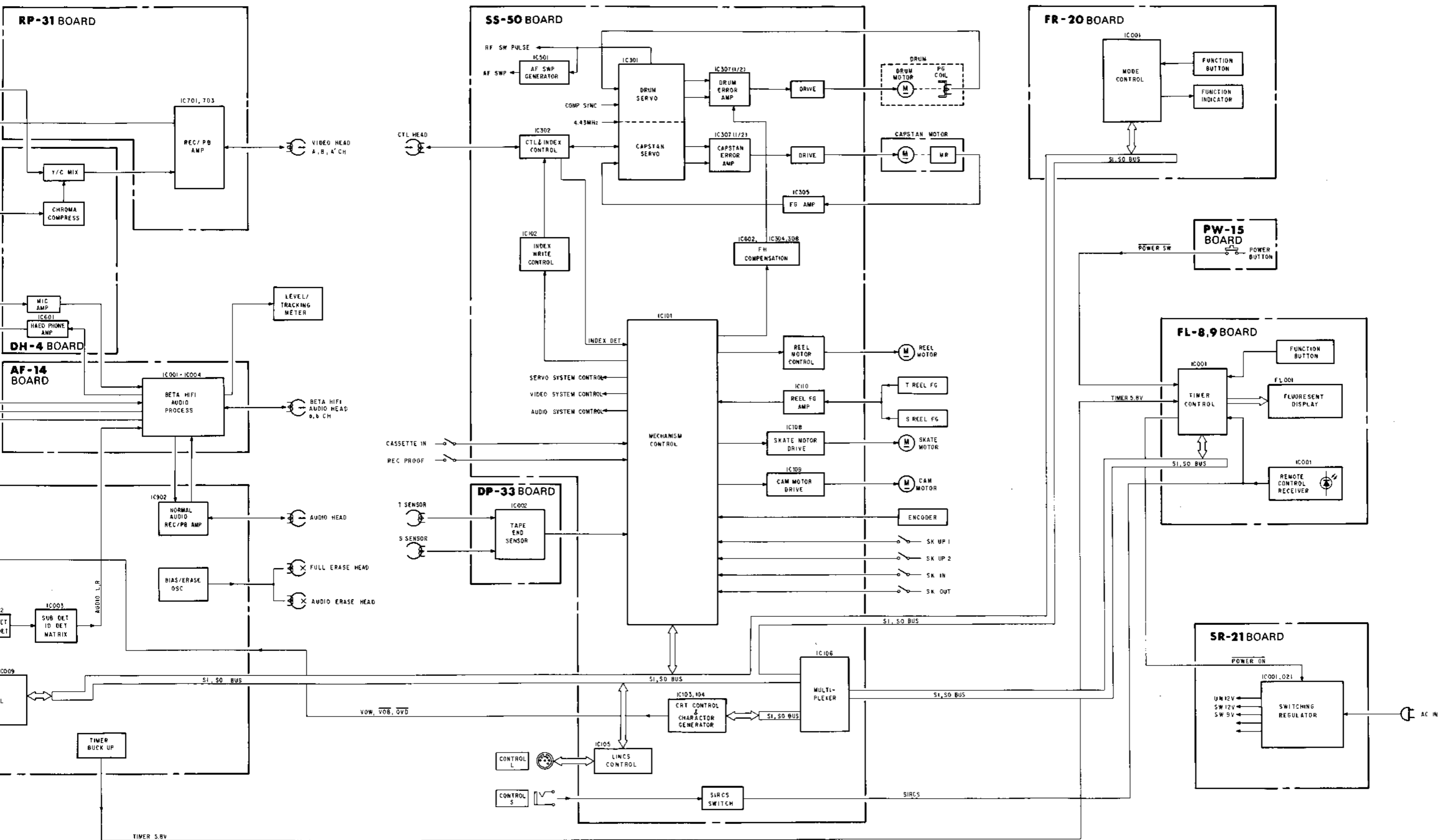
### 3-1. CIRCUIT BOARDS LOCATION

\* : POWER block SR-21E

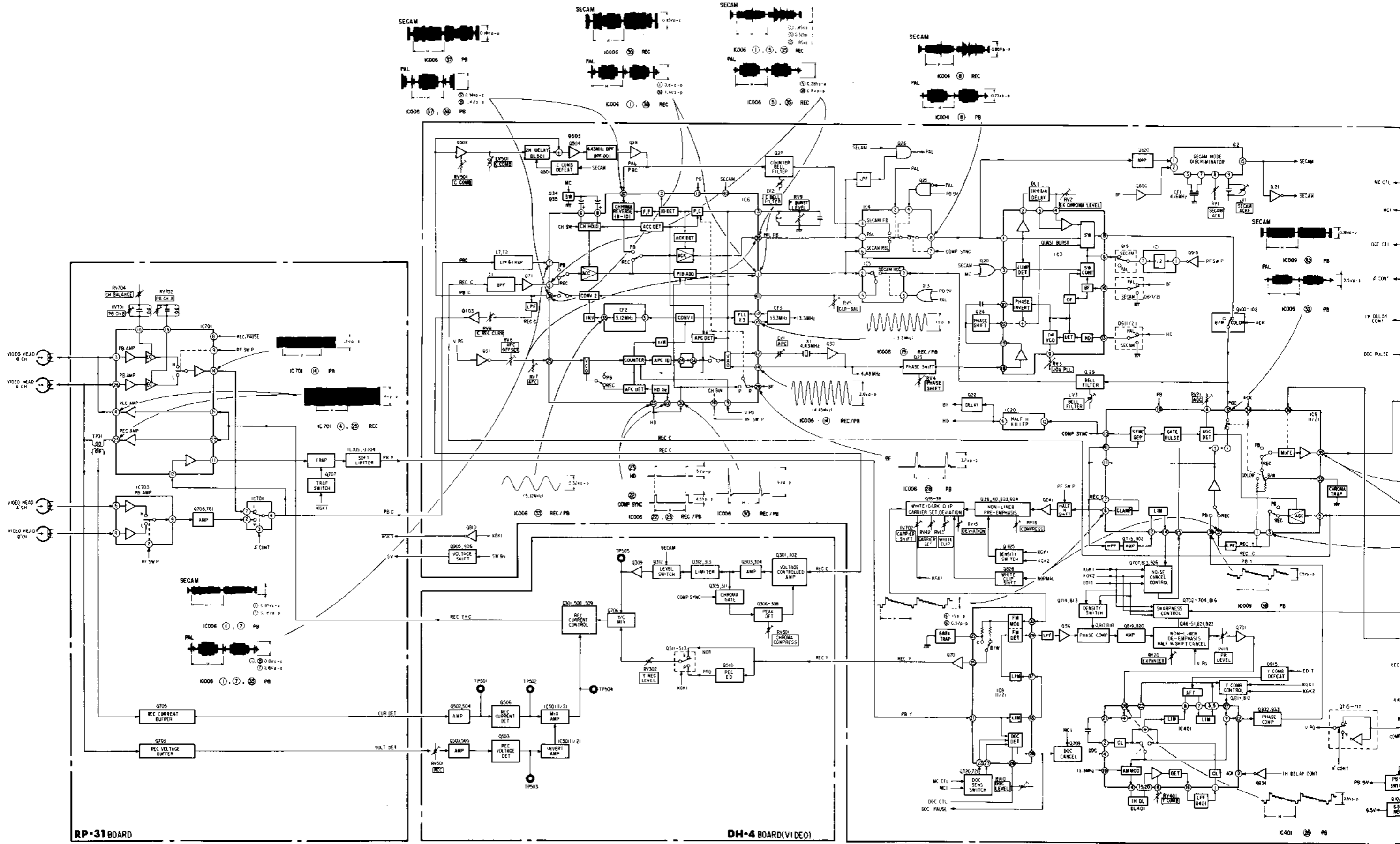


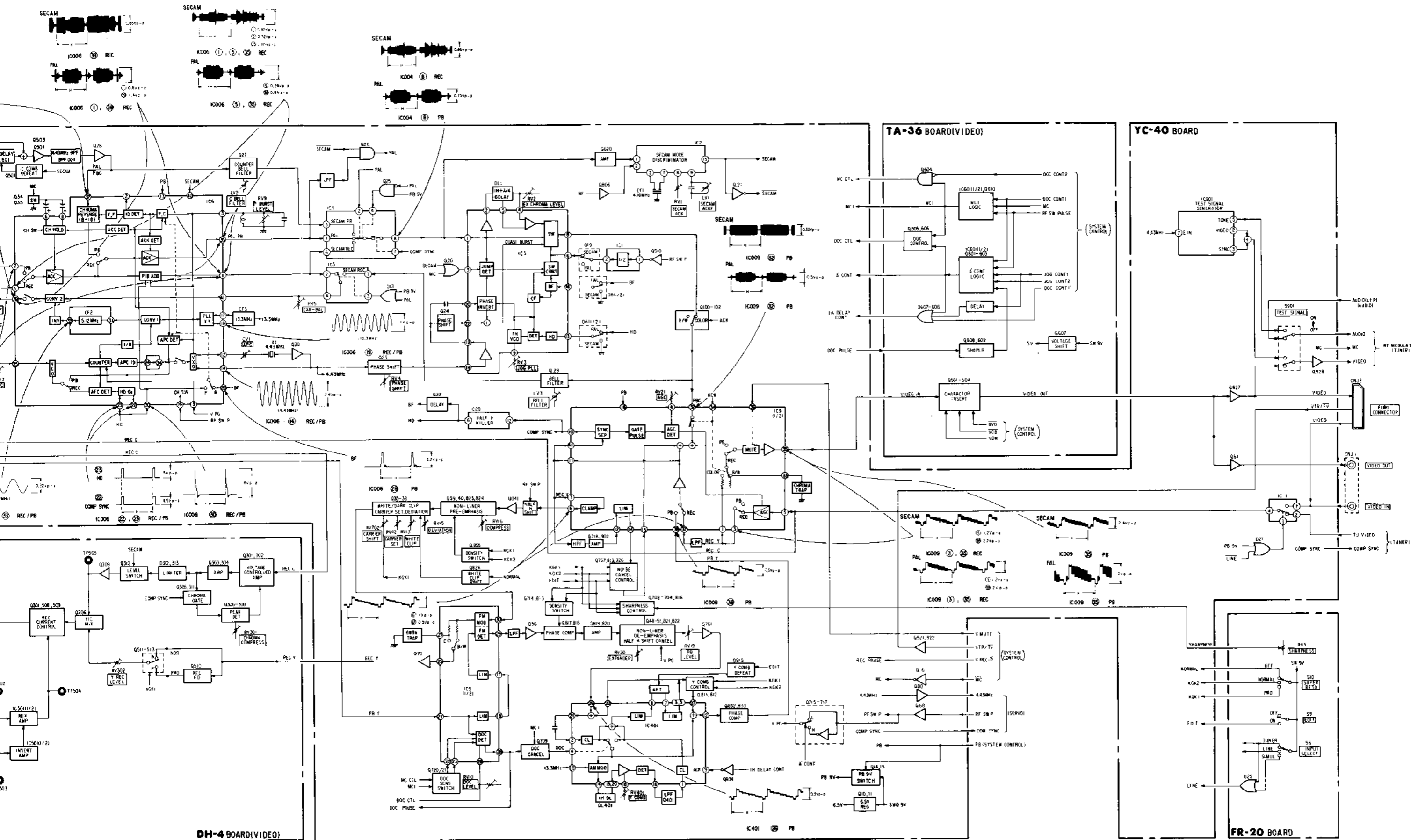
3-2. OVERALL BLOCK DIAGRAM

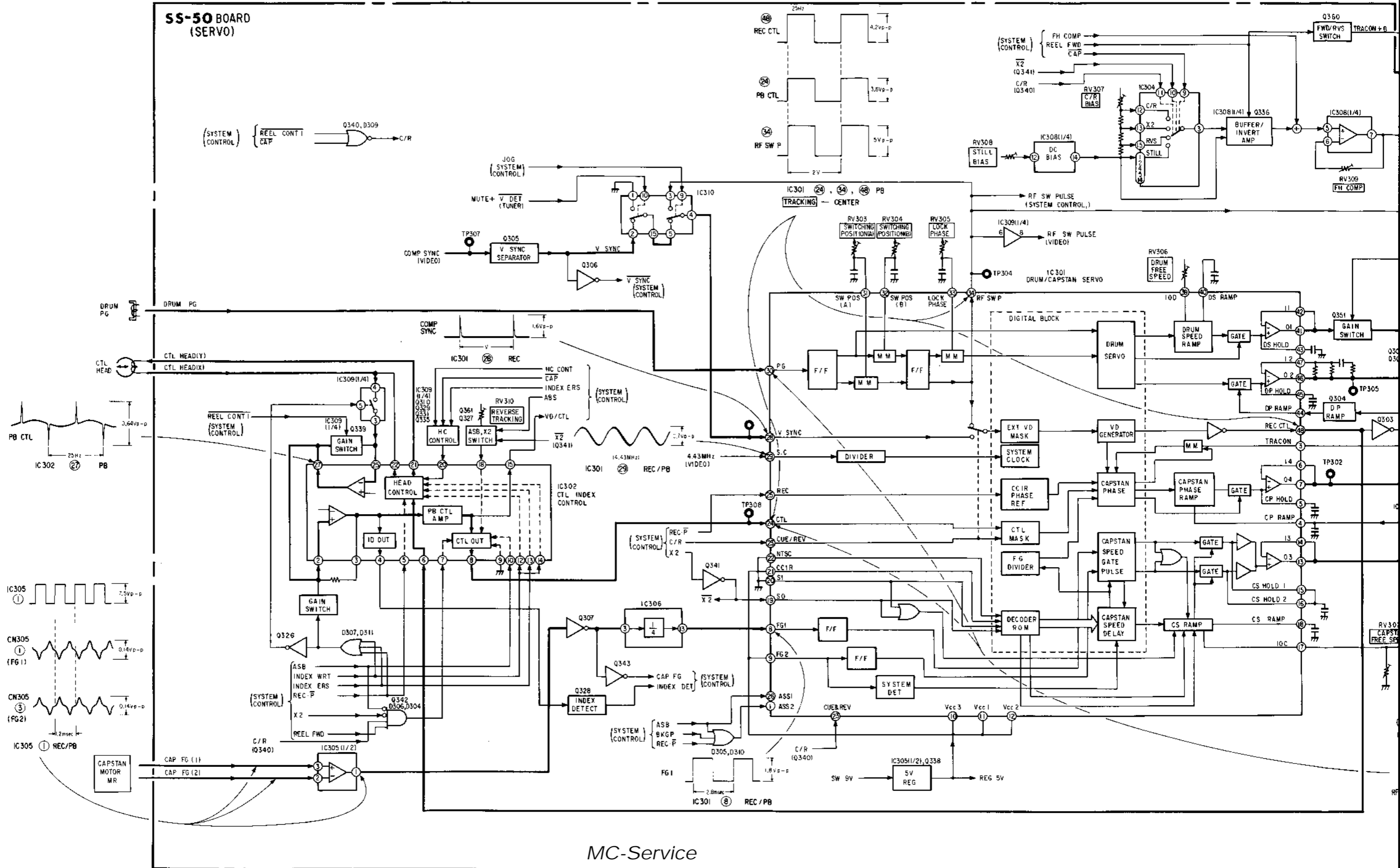


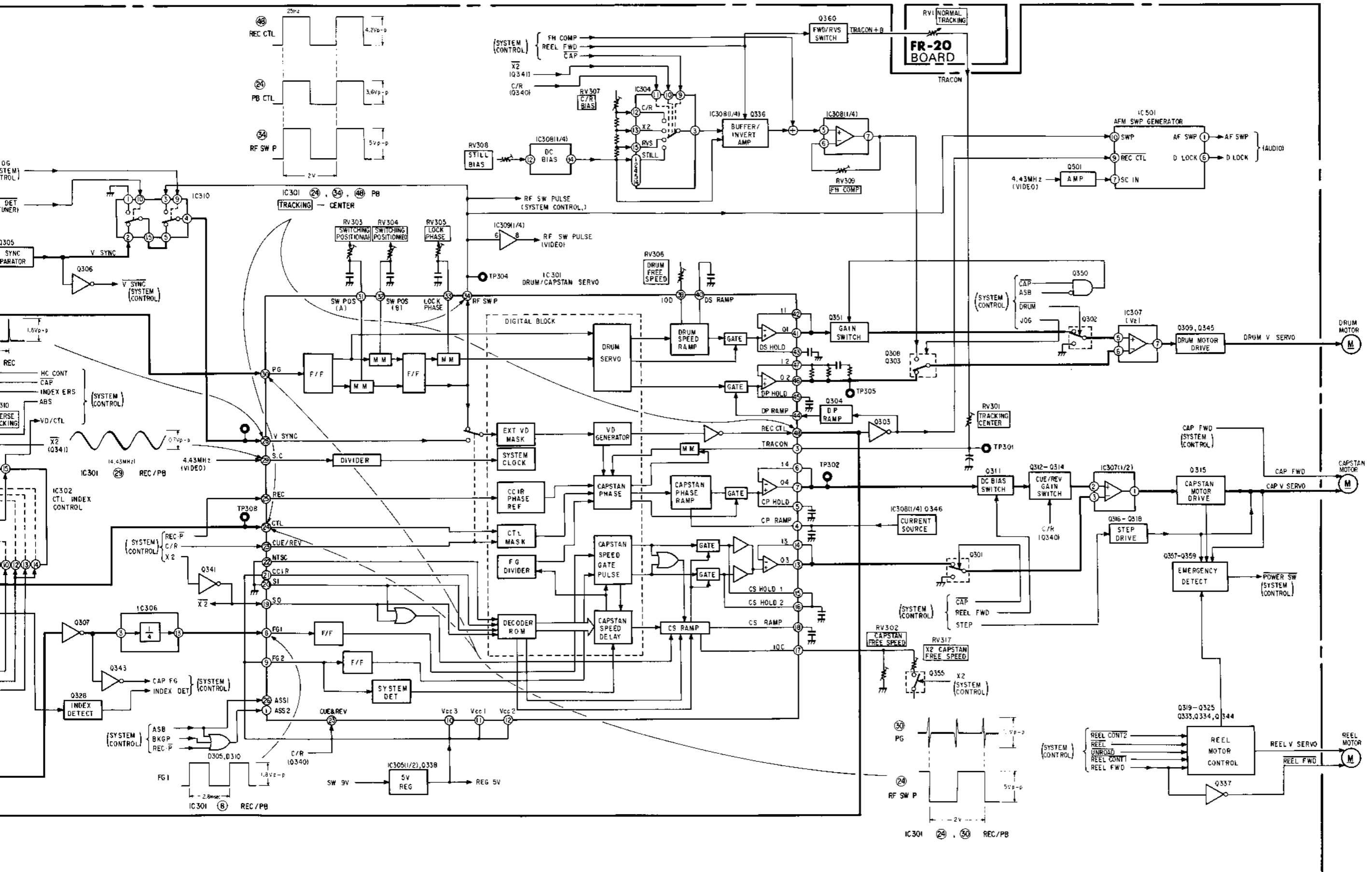


3-3. VIDEO BLOCK DIAGRAM

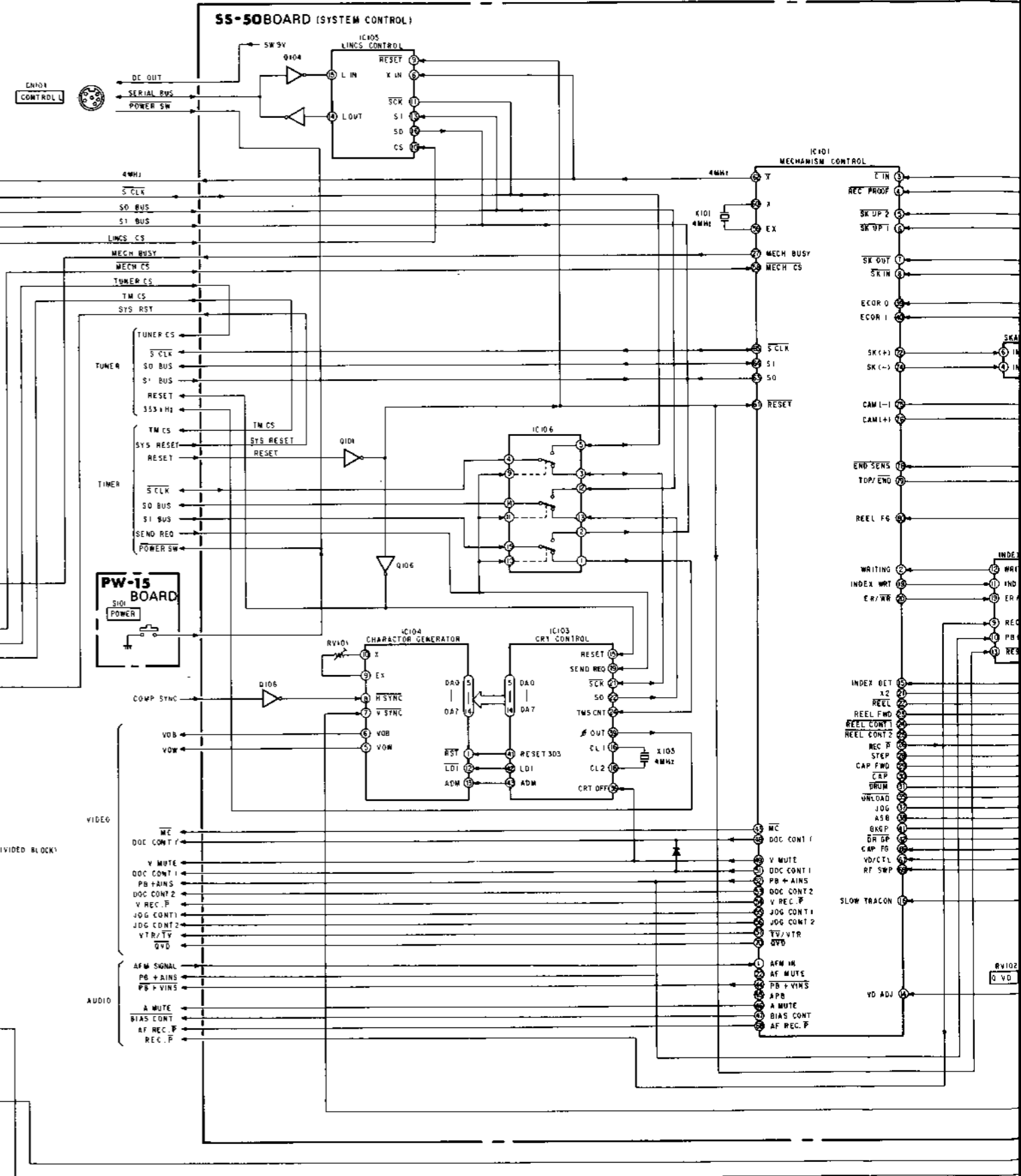
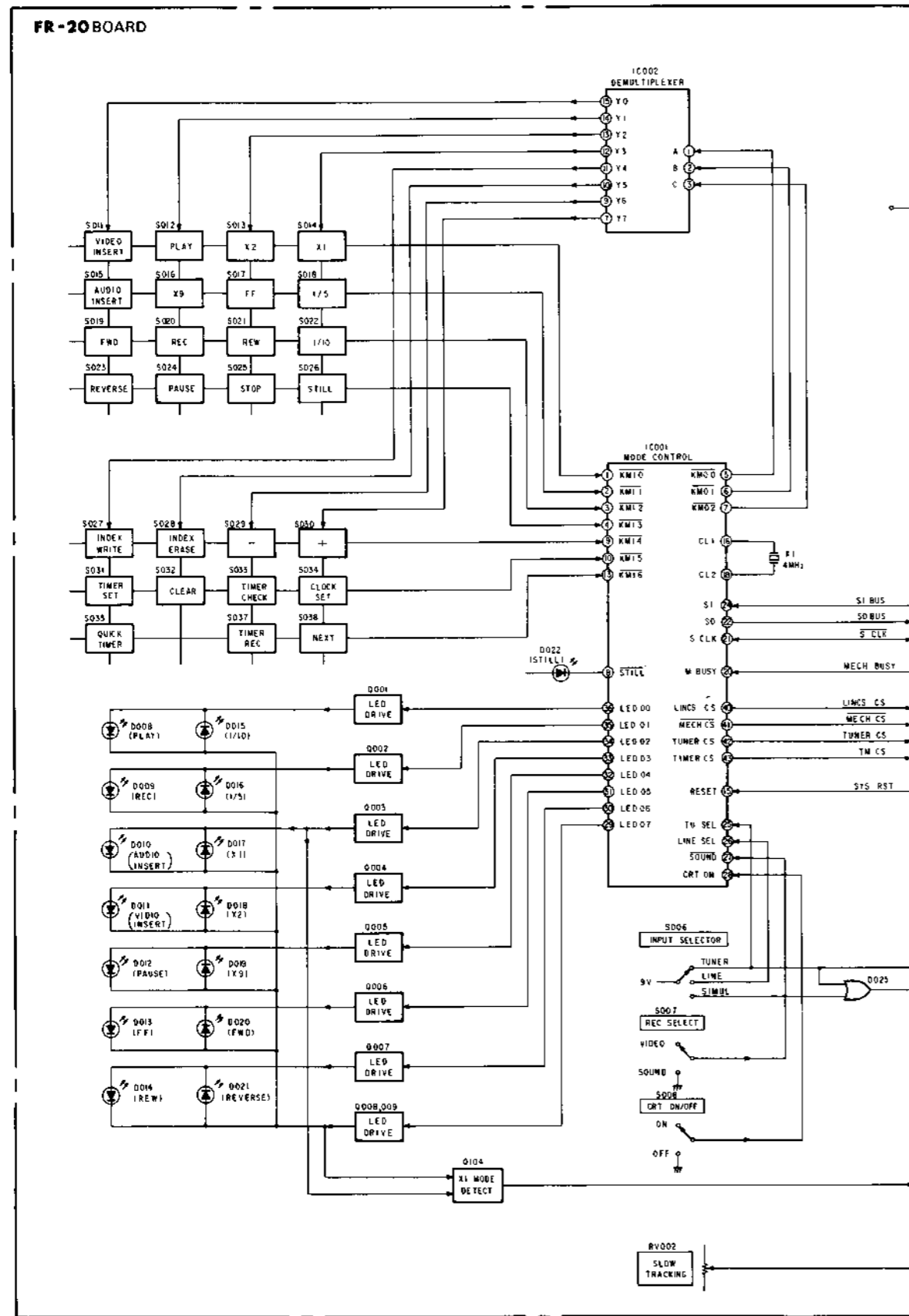




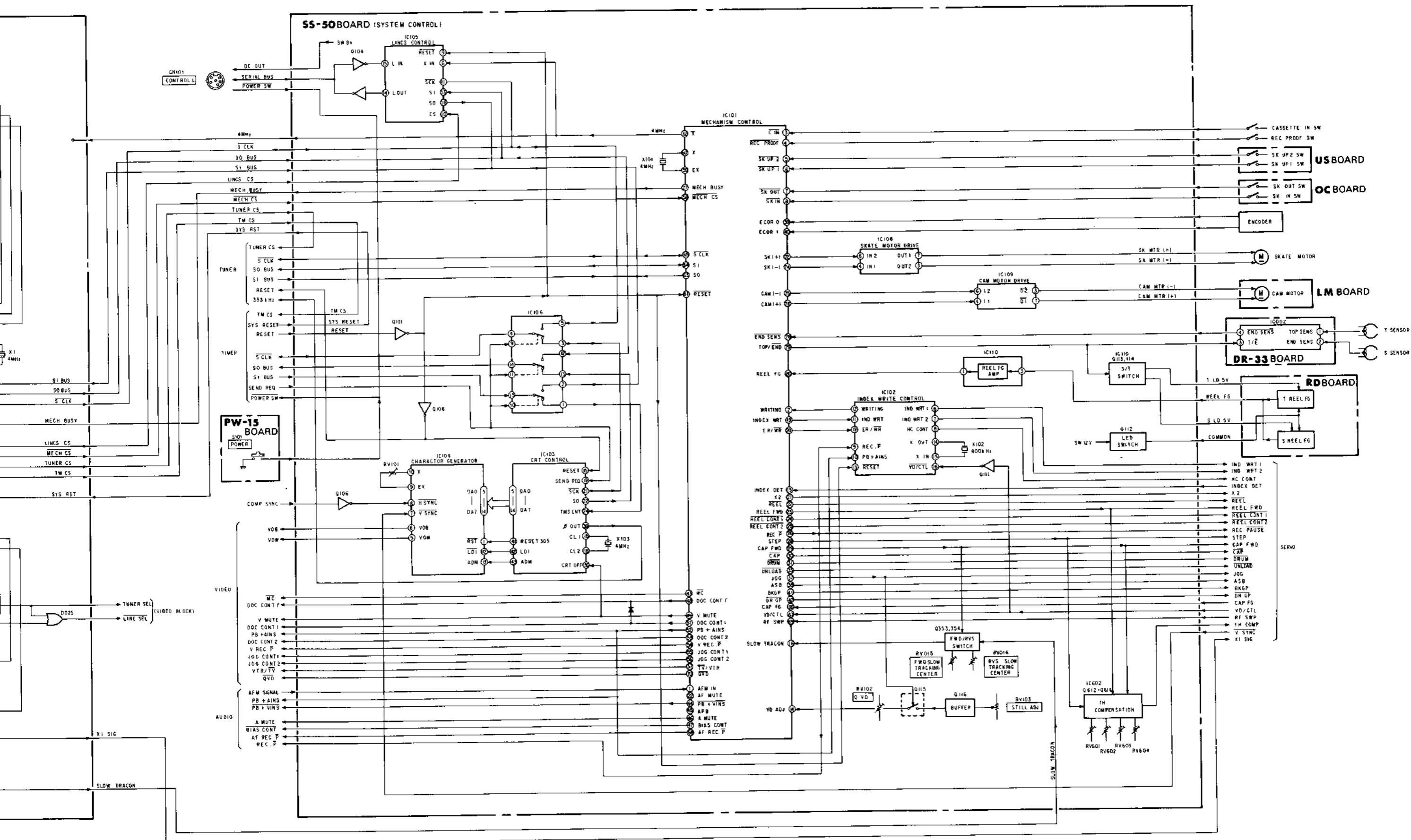




3-5. SYSTEM CONTROL BLOCK DIAGRAM







3-6. SYSTEM CONTROL INTERFACE

[SYSTEM CONTROL - VIDEO BLOCK INTERFACE]

SIGNAL	MODE		STOP	FF	REW	PICTURE SERCH		FR SERCH		PB	PB-P	REC	REC-P	FRAME	-FRAME	MODE JOG									A-IN
	I/O	PIN No.				CUE	REV	CUE	REV							$\times\frac{1}{2}, \frac{1}{10}$	$\times 1$	$\times 2$	$\times 9$	$\times -\frac{1}{2}, -\frac{1}{10}$	$\times 1$	$\times 2$	$\times 9$		
REC P	O	IC101-28	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	
MC	O	IC101-29	H	H	H	L	L	L	L	H	L	H	H	L	L	L	L	L	L	L	L	L	L	H	
PB+V INS	O	IC101-30	H	H	H	L	L	L	L	L	L	H	H	L	L	L	L	L	L	L	L	L	L	H	
V MUTE	O	IC101-31	L	L	L	L	L	L	L	L*	L	L	L	L	L	L	H	H	L	L	H	H	L	H	
DOC CONT 1	O	IC101-32	H	H	H	L	L	L	L	H	H	H	H	H	H	H	H	H	L	Pulse	L	L	L	H	
PB+A INS	O	IC101-33	L	L	L	H	H	H	H	H	H	L	L	H	H	H	H	H	H	H	H	H	H	H	
DOC CONT 2	O	IC101-34	L	L	L	L	L	L	L	L	L	H	L	Pulse	Pulse	Pulse	H	Pulse	L	Pulse	L	L	L	H	
V REC P	O	IC101-35	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	
JOG CNT 1	O	IC101-36	H	H	H	L	L	L	L	H	Pulse	H	H	Pulse	Pulse	H	H	H	L	H	L	L	L	H	
JOG CNT 2	O	IC101-37	H	L	L	H	H	H	H	H	L	H	H	L	L	L	H	L	H	L	L	L	H	H	

[SYSTEM CONTROL - AUDIO BLOCK INTERFACE]

SIGNAL	MODE		STOP	FF	REW	PICTURE SERCH		FR SERCH		PB	PB-P	REC	REC-P	FRAME	-FRAME	MODE JOG									A-IN
	I/O	PIN No.				CUE	REV	CUE	REV							$\times\frac{1}{2}, \frac{1}{10}$	$\times 1$	$\times 2$	$\times 9$	$\times -\frac{1}{2}, -\frac{1}{10}$	$\times -1$	$\times -2$	$\times -9$		
A MUTE	O	IC101-38	L	L	L	H	H	H	H	L*	H	L	L	H	H	H	H	H	H	H	H	H	H	L	
BIAS CONT	O	IC101-39	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	L	
AF REC P	O	IC101-40	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	H	

[SYSTEM CONTROL - REEL MOTOR BLOCK INTERFACE]

SIGNAL	MODE		STOP	FF	REW	PICTURE SERCH		FR SERCH		PB	PB-P	REC	REC-P	FRAME	-FRAME	MODE JOG									A-IN
	I/O	PIN No.				CUE	REV	CUE	REV							$\times\frac{1}{2}, \frac{1}{10}$	$\times 1$	$\times 2$	$\times 9$	$\times -\frac{1}{2}, -\frac{1}{10}$	$\times -1$	$\times -2$	$\times -9$		
REEL	O	IC101-41	H	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	
REEL FWD	O	IC101-42	H	H	L	H	L	H	L	H	H	H	L	H	L	H	H	H	H	L	L	L	L	H	
REEL CONT 1	O	IC101-43	H	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	L	H	H	H	L	H	
REEL CONT 2	O	IC101-44	H	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	H	H	
UN LOAD	O	IC101-45	H*	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	

SERCH		PB	PB·P	REC	REC·P	FRAME	-FRAME	MODE				JOG				A-IN	A-IN·P	V-IN	V-IN·P	AV-IN	AV-IN·P
REV	x $\frac{1}{2}$ , $\frac{3}{2}$							x1	x2	x9	x $-\frac{1}{2}$ , $-\frac{3}{2}$	x-1	x-2	x-9							
L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	
L	H	L	H	H	L	L	L	L	L	L	L	L	L	L	H	L	H	H	H	H	
L	L	L	H	H	L	L	L	L	L	L	L	L	L	L	H	L	H	H	H	H	
L	L*	L	L	L	L	L	L	H	H	L	L	H	H	L	H	L	L	L	L	L	
L	H	H	H	H	H	H	H	H	H	L	Pulse	L	L	L	H	H	H	H	H	H	
H	H	H	L	L	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	L	
L	L	L	H	L	Pulse	Pulse	Pulse	H	Pulse	L	Pulse	L	L	L	H	Pulse	H	L	H	H	
L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	
L	H	Pulse	H	H	Pulse	Pulse	H	H	H	L	H	L	L	L	H	H	H	H	H	H	
H	H	L	H	H	L	L	L	H	L	H	L	L	L	H	L	H	H	H	H	H	

SERCH		PB	PB·P	REC	REC·P	FRAME	-FRAME	JOG							A-IN	A-IN·P	V-IN	V-IN·P	AV-IN	AV-IN·P
REV	x $\frac{1}{2}$ , $\frac{3}{2}$							x1	x2	x9	x $-\frac{1}{2}$ , $-\frac{3}{2}$	x-1	x-2	x-9						
H	L*	H	L	L	H	H	H	H	H	H	H	H	H	H	L	L	L	H	L	L
H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	L	L	L	L	L	L
L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	H	L	H	L	H	L

\*1 "H" when there is no CTL.

SERCH		PB	PB·P	REC	REC·P	FRAME	-FRAME	JOG							A-IN	A-IN·P	V-IN	V-IN·P	AV-IN	AV-IN·P
REV	x $\frac{1}{2}$ , $\frac{3}{2}$							x1	x2	x9	x $-\frac{1}{2}$ , $-\frac{3}{2}$	x-1	x-2	x-9						
L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
L	H	H	H	L	H	L	H	H	H	H	L	L	L	L	H	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	L	H	H	H	L	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	L	L	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

\*2 "L" for EJECT.

[SYSTEM CONTROL – MECHANISM BLOCK INTERFACE]

SIGNAL	MODE		STOP	FF	REW	PICTURE SERCH		FR SERCH		PB	PB·P	REC	REC·P	FRAME	-FRAME	JOG							A-IN	
	I/O	PIN No.				CUE	REV	CUE	REV							$\times \frac{1}{2}, \frac{1}{10}$	$\times 1$	$\times 2$	$\times 9$	$\times -\frac{1}{2}, -\frac{1}{10}$	$\times -1$	$\times -2$		$\times -9$
C IN	I	IC101-③	L*1	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
REC PRF	I	IC101-④	*2	*2	*2	*2	*2	*2	*2	*2	*	L	L	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
SK UP 2	I	IC101-⑤	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
SK UP 1	I	IC101-⑥	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
SK OUT	I	IC101-⑦	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
SK IN	I	IC101-⑧	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
TV/VTR	O	IC101-⑨	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
SK (+)	O	IC101-⑩	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
SK (-)	O	IC101-⑪	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
CAM (-)	O	IC101-⑫	H*8	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAM (+)	O	IC101-⑬	H*9	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
END SENS	O	IC101-⑭	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
TOP/END	O	IC101-⑮	L	L	H	L	H	L	H	L	L	L	L	L	H	L	L	L	L	H	H	H	H	L

[SYSTEM CONTROL – SERVO BLOCK INTERFACE]

SIGNAL	MODE		STOP	FF	REW	PICTURE SERCH		FR SERCH		PB	PB·P	REC	REC·P	FRAME	-FRAME	JOG							A-IN	
	I/O	PIN No.				CUE	REV	CUE	REV							$\times \frac{1}{2}, \frac{1}{10}$	$\times 1$	$\times 2$	$\times 9$	$\times -\frac{1}{2}, -\frac{1}{10}$	$\times -1$	$\times -2$		$\times -9$
X2	O	IC101-⑯	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L
CAP FWD	O	IC101-⑰	H	H	L	H	L	H	L	H	H	H	H	H	H	Pulse	H	H	H	Pulse	L	L	L	L
CAP	O	IC101-⑱	H	H	H	L	L	L	L	L	H	L	H	H	H	H	L	L	L	H	L	L	L	L
DRUM	O	IC101-⑲	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
JOG	O	IC101-⑳	L	L	L	H	H	H	H	L	H	L	L	H	H	H	L	H	H	H	H	H	H	L
ASB	O	IC101-㉑	L	L	L	L	L	L	L	L	L	Pulse	H	L	L	L	L	L	L	L	L	L	L	L

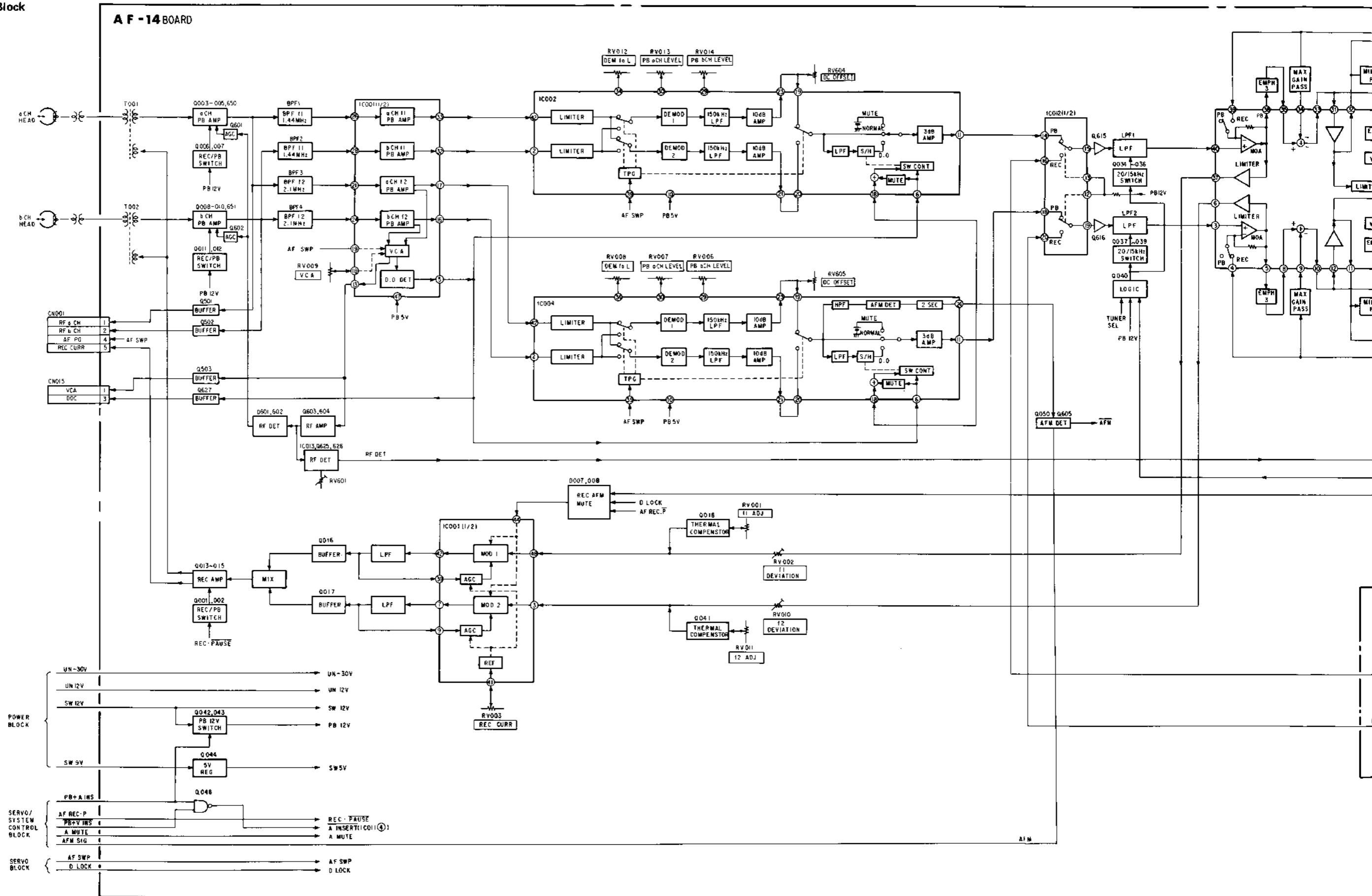
R SERCH		PB	PB-P	REC	REC-P	FRAME	-FRAME	JOG							A-IN	A-IN-P	V-IN	V-IN-P	AV-IN	AV-IN-P
E	REV							X $\frac{1}{2}$ , $\frac{3}{4}$	X1	X2	X9	X $-\frac{1}{2}$ , $-\frac{3}{4}$	X-1	X-2						
	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
	*2	*2	*	L	L	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	H	L	L	L	L	L	H	L	L	L	L	H	H	H	H	L	L	L	L	L

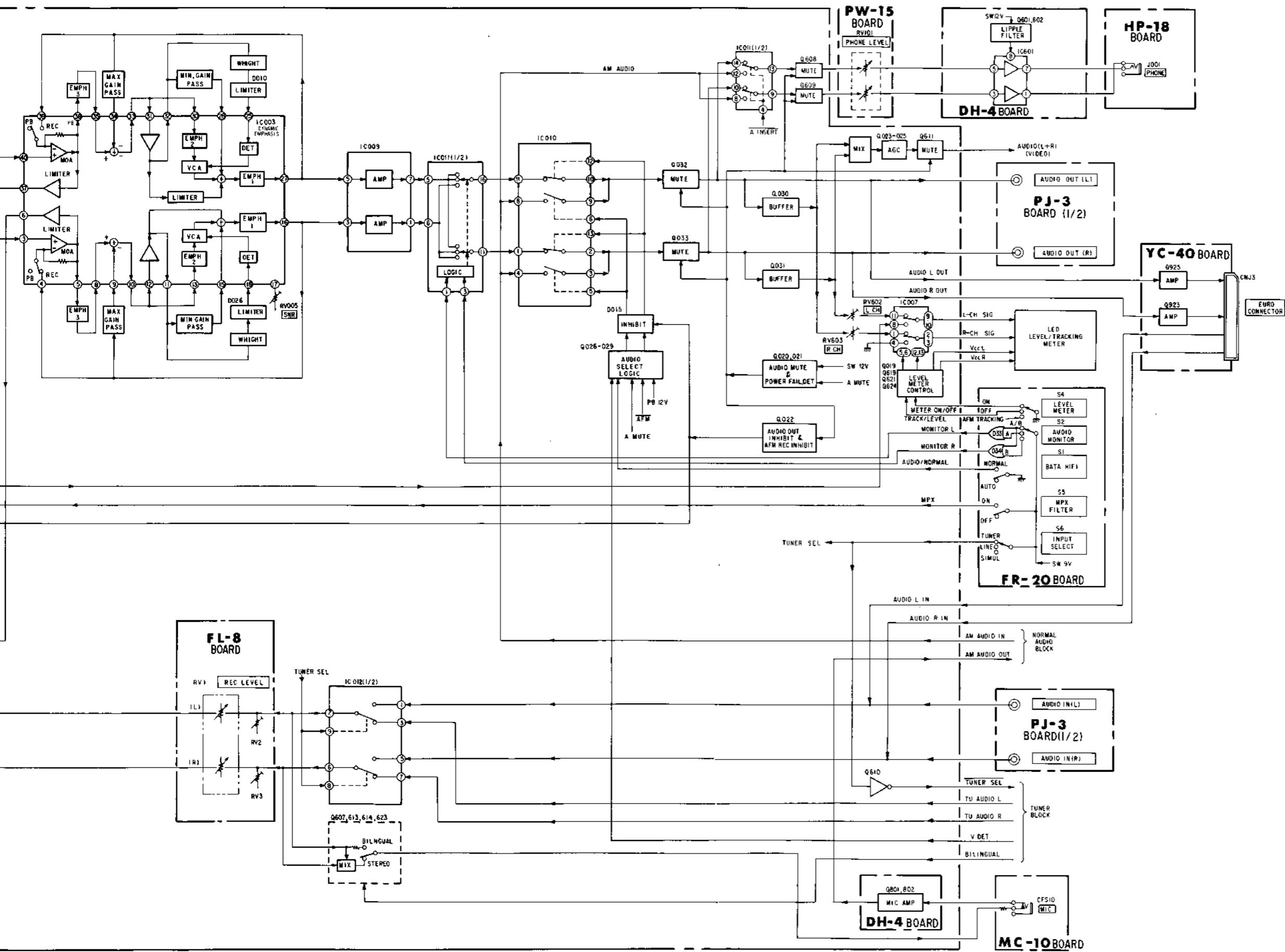
- \*1 "H" when there is a cassette in the cassette compartment and it is down.
- \*2 "L" when cassette erase prevention claw is not broken.
- \*3 "H" when linear skate portion is open.
- \*4 "H" when linear skate portion is closed.
- \*5 "H" for TV, "L" for VTR.
- \*6 "H" when linear skate portion is closed, "L" when open.
- \*7 "H" when linear skate portion is open, "L" when closed.
- \*8 "L" during threading.
- \*9 "L" during unthreading.

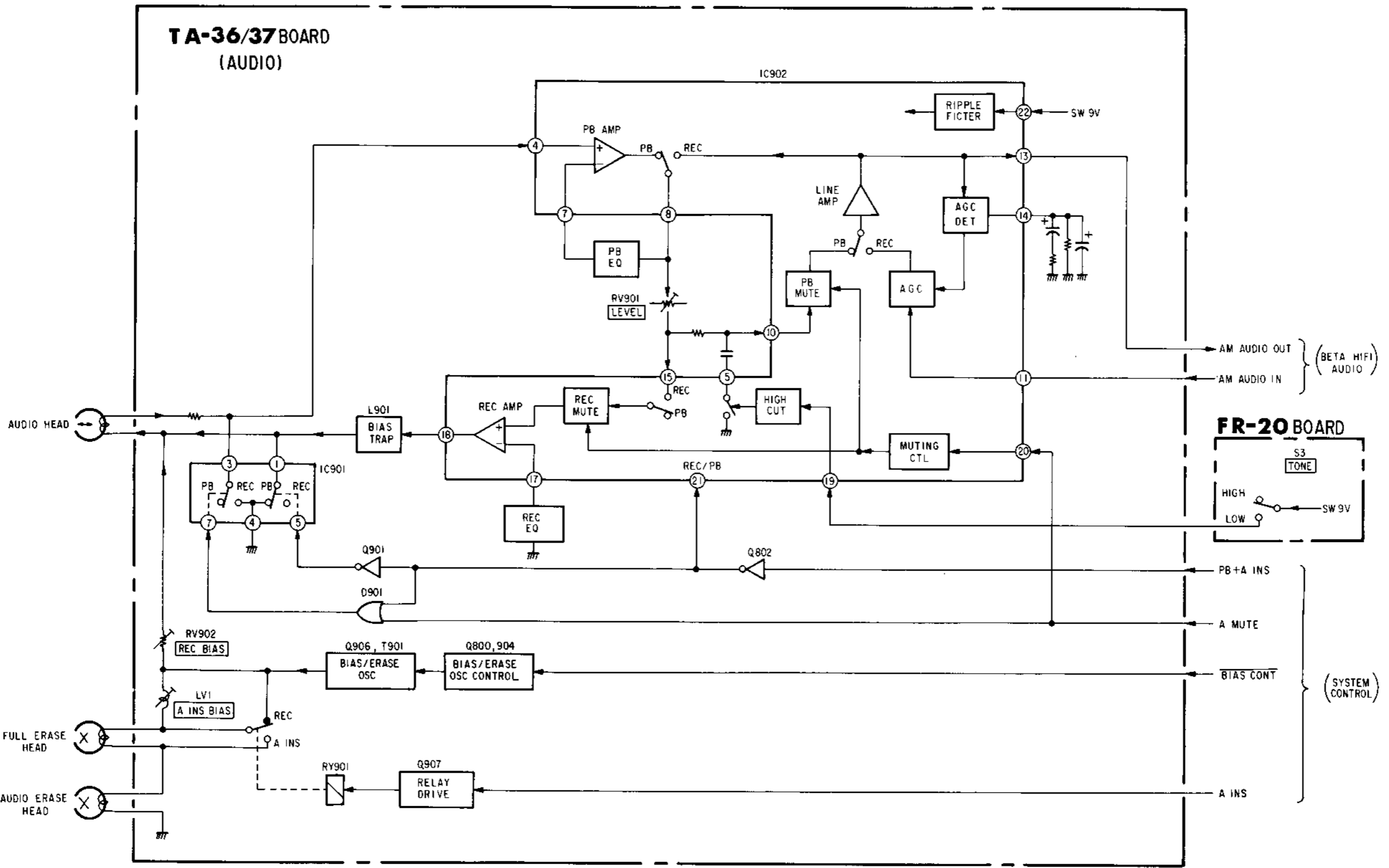
R SERCH		PB	PB-P	REC	REC-P	FRAME	-FRAME	JOG							A-IN	A-IN-P	V-IN	V-IN-P	AV-IN	AV-IN-P
E	REV							X $\frac{1}{2}$ , $\frac{3}{4}$	X1	X2	X9	X $-\frac{1}{2}$ , $-\frac{3}{4}$	X-1	X-2						
	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L
	L	H	H	H	H	H	H	Pulse	H	H	H	Pulse	L	L	L	L	H	L	H	L
	L	L	H	L	H	H	H	H	L	L	L	H	L	L	L	L	H	L	H	L
	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
	H	L	H	L	L	H	H	H	L	H	H	H	H	H	H	L	H	L	L	L
	L	L	L	Pulse	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

3-7. AUDIO BLOCK DIAGRAM

(1) Beta Hi-Fi Audio Block





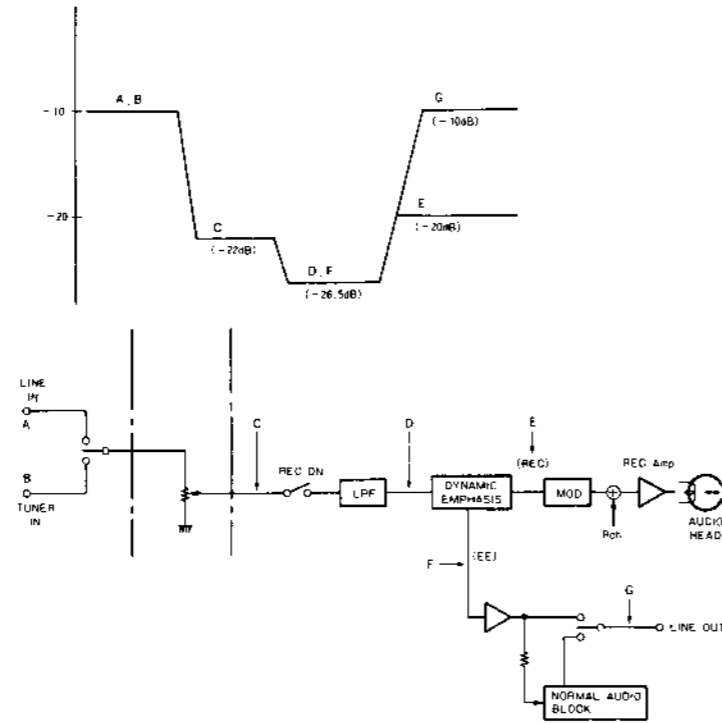




### 3-8. AUDIO LEVEL DIAGRAM

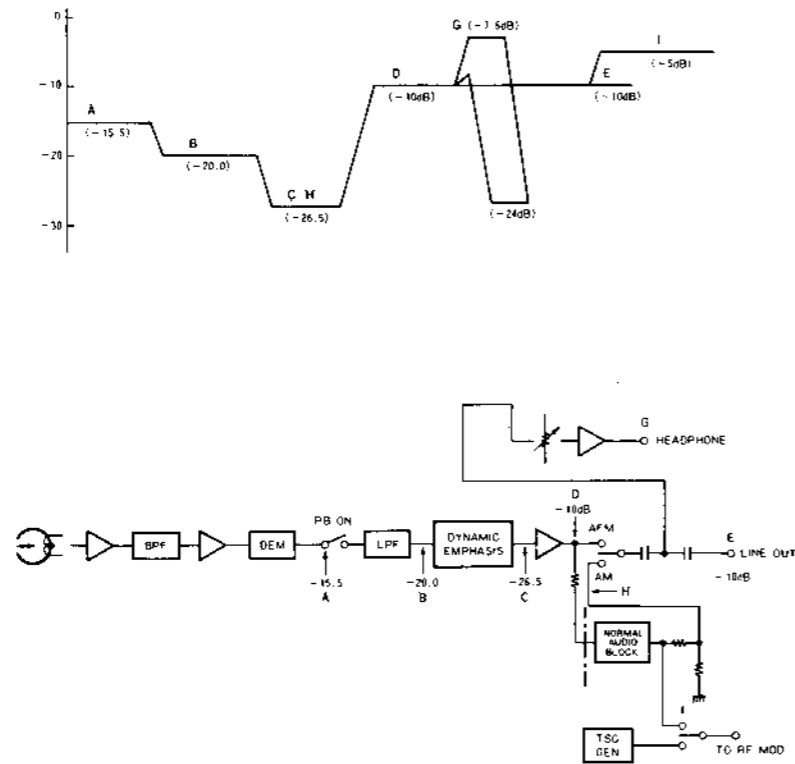
#### (1) AFM Level Diagram (REC, EE)

REC, EE MODE



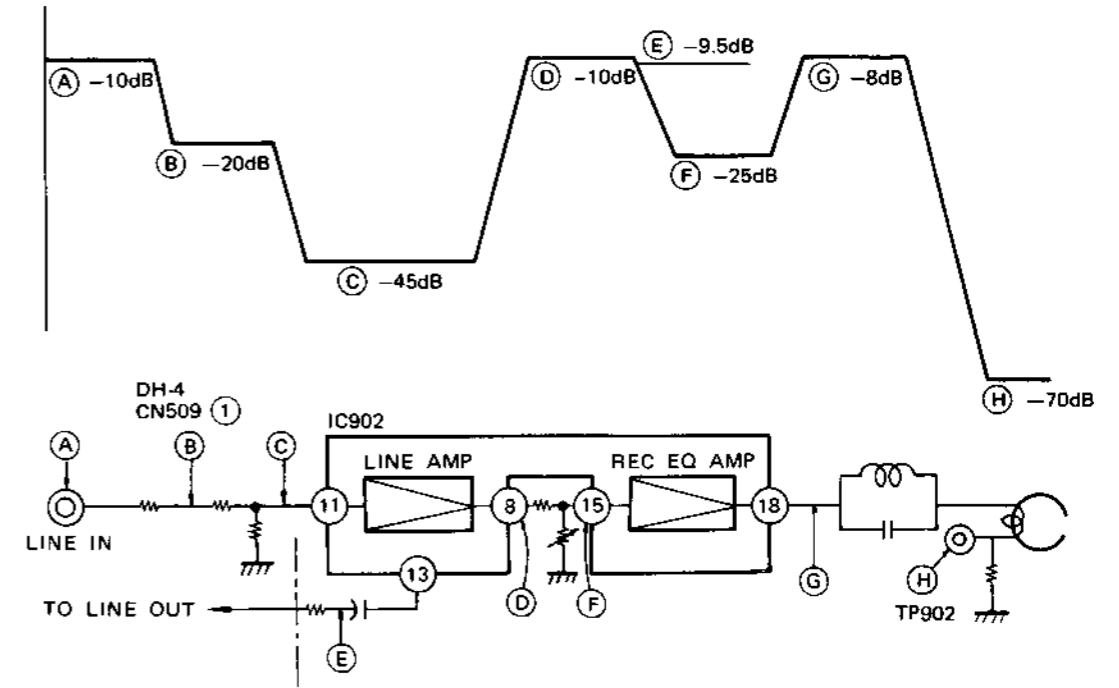
#### (2) AFM Level Diagram (PB)

PB MODE



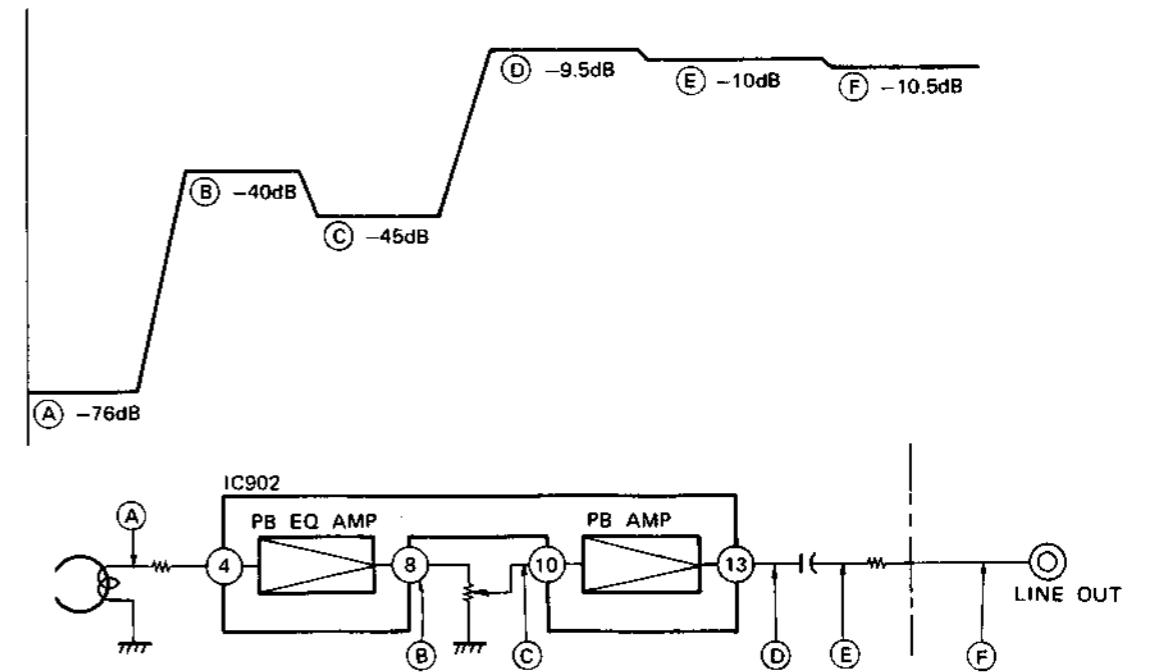
#### (3) Normal Audio Level Diagram (REC, EE)

REC MODE  $0dB = 0.775V_{rms}$   $f = 333Hz$   
BIAS OSC: STOPPED

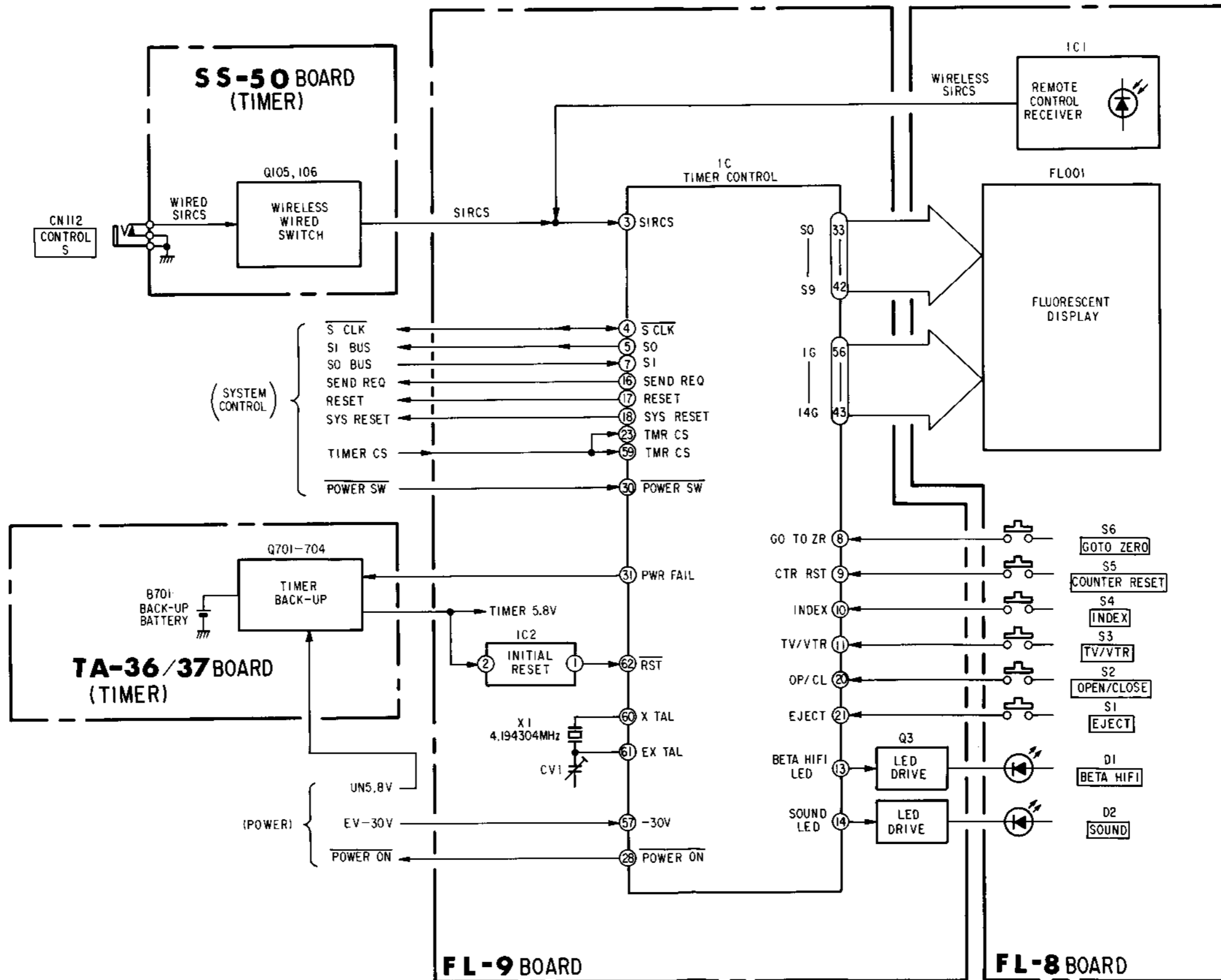


#### (4) Normal Audio Level Diagram (PB)

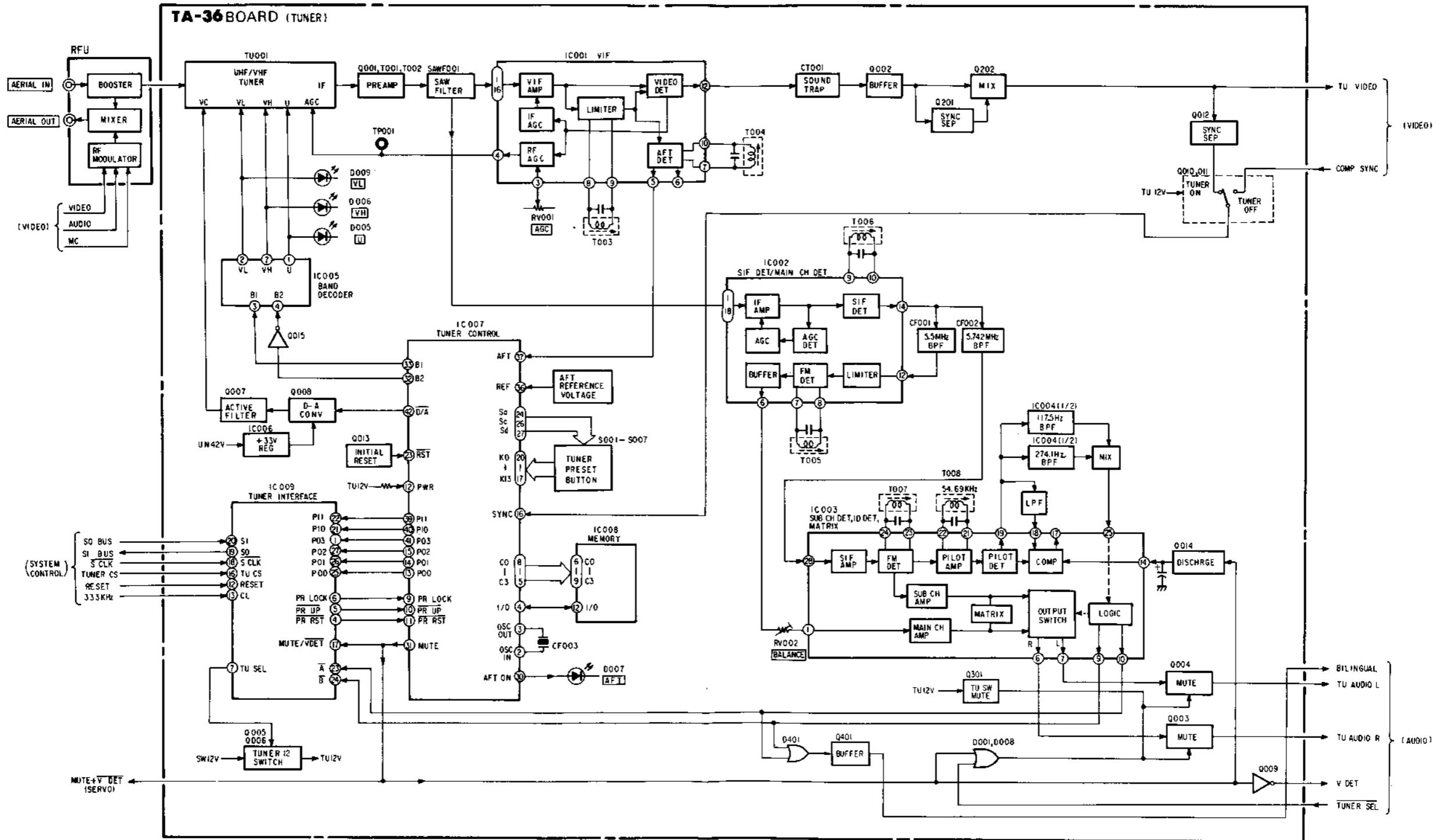
PB MODE  $0dB = 0.775V_{rms}$   $f = 333Hz$



3-9. TIMER BLOCK DIAGRAM

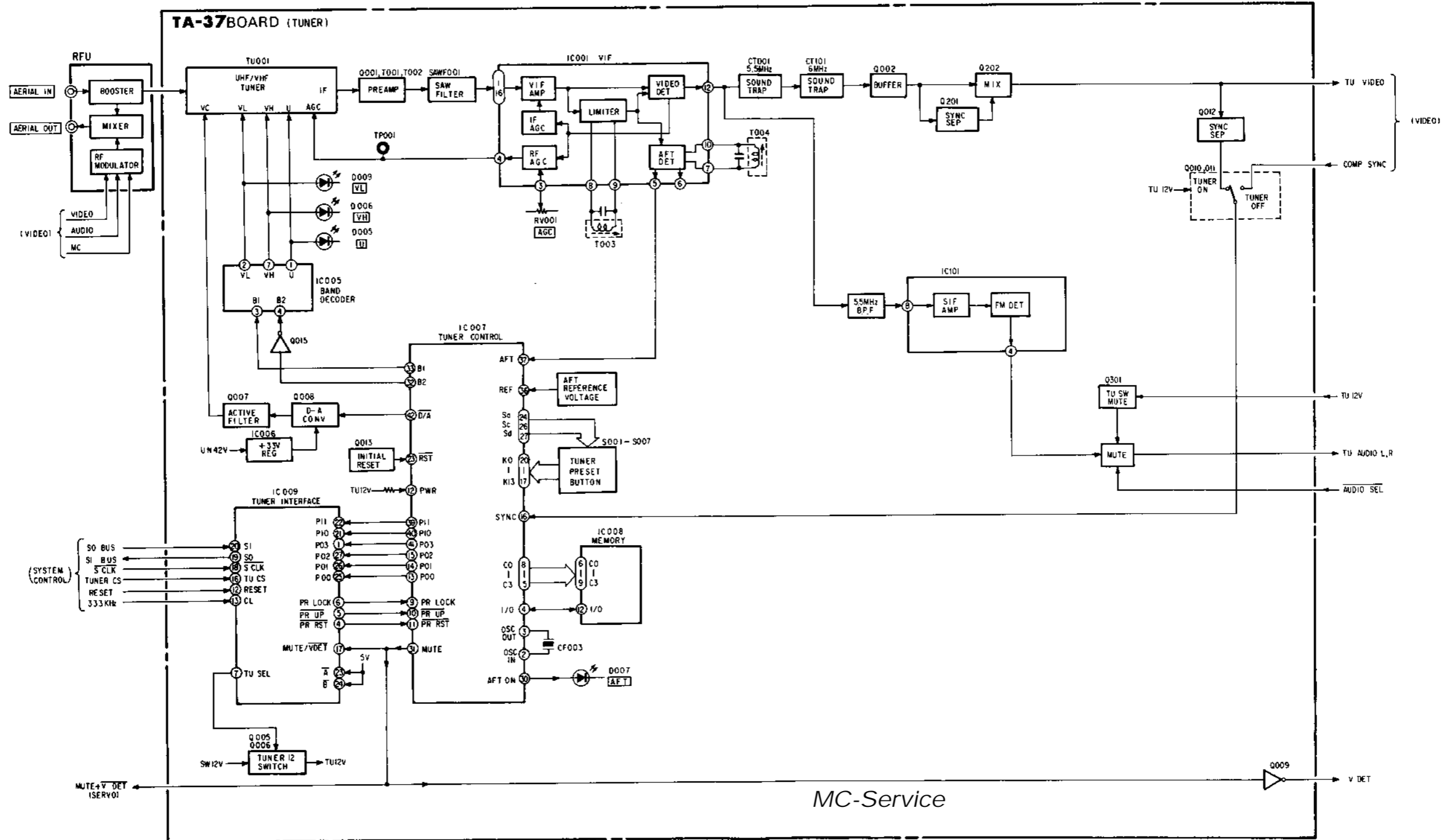


3-10. TUNER BOCK DIAGRAM  
(1) ES MODEL

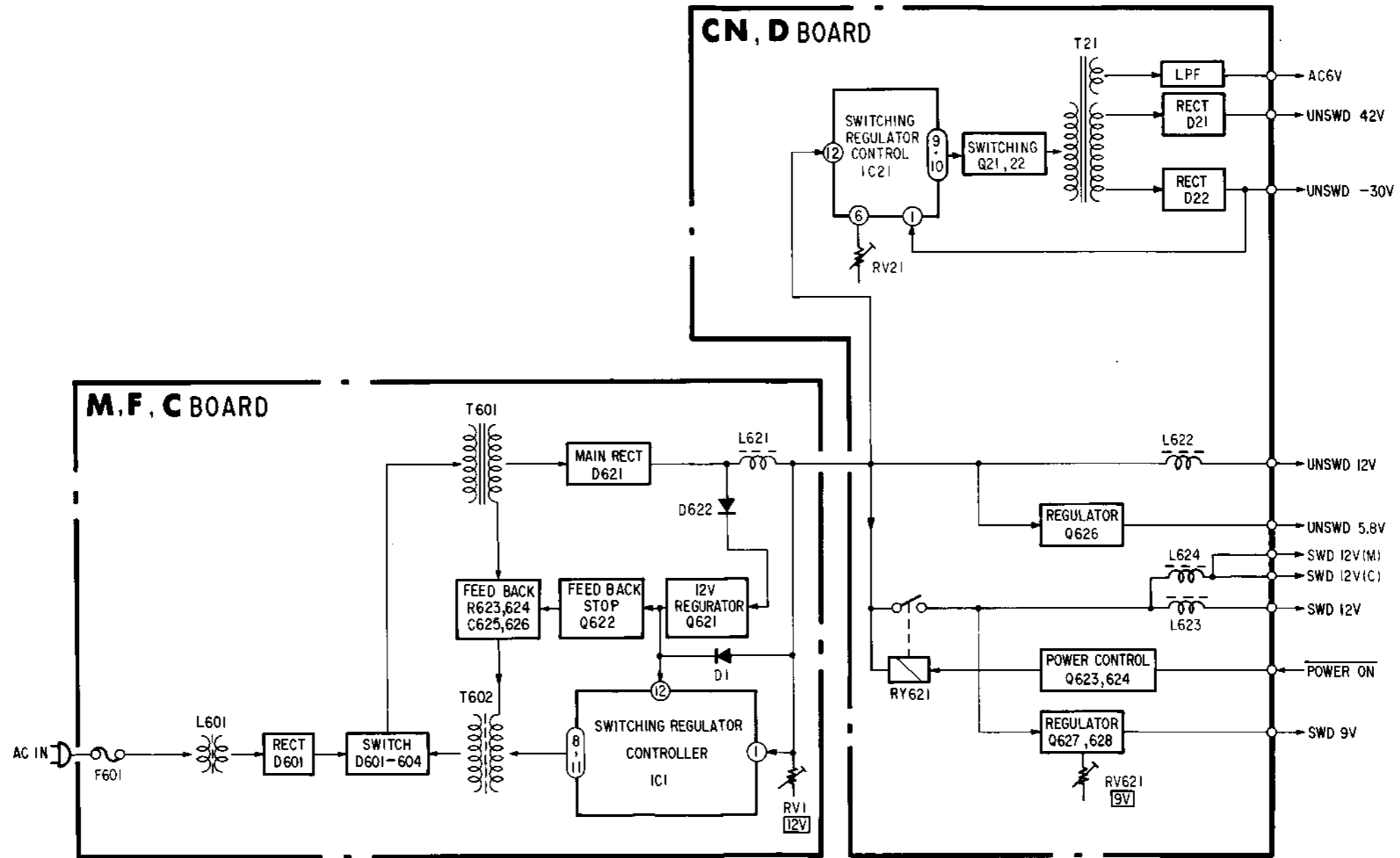


MC-Service

(2) E MODEL



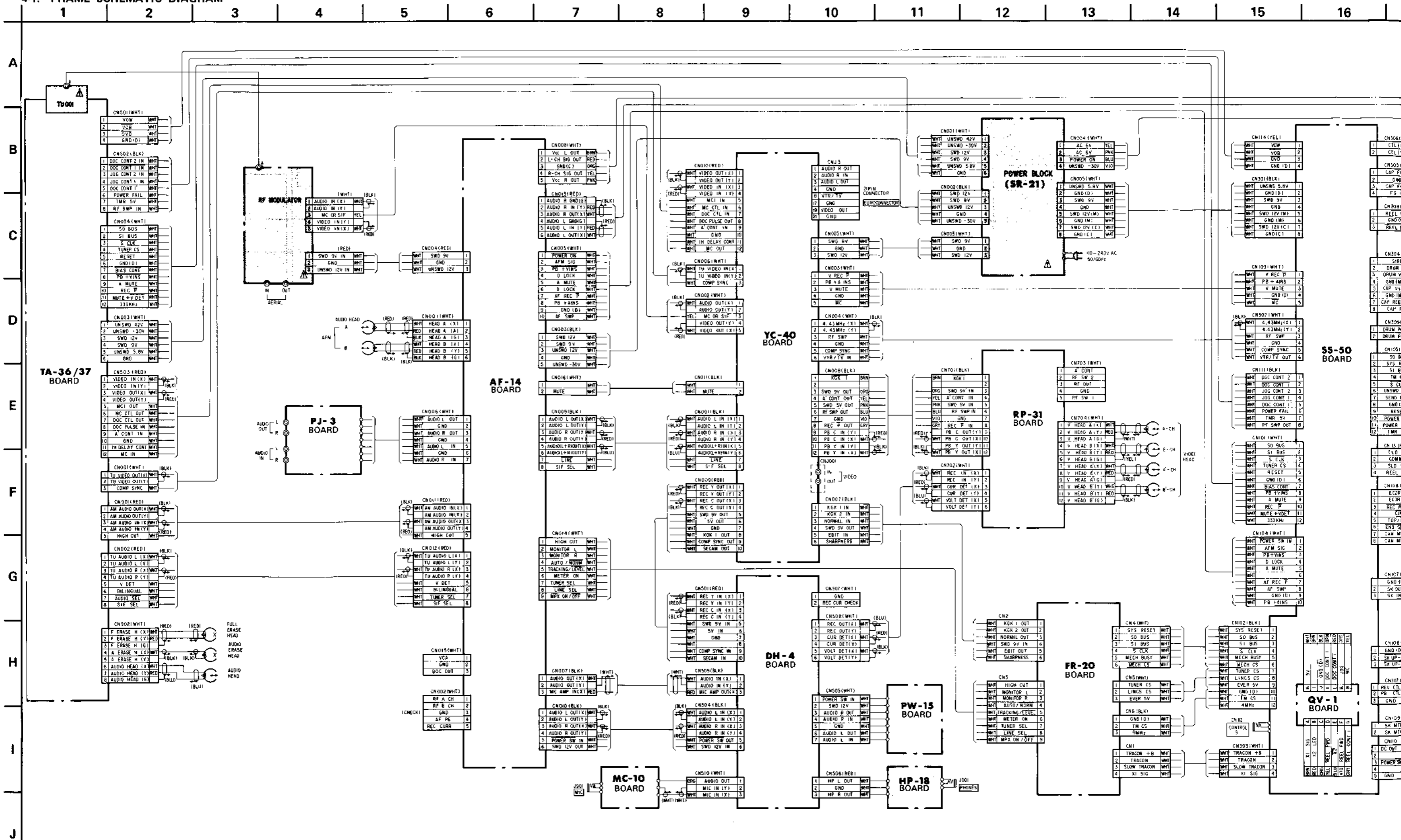
3-11. POWER BLOCK DIAGRAM



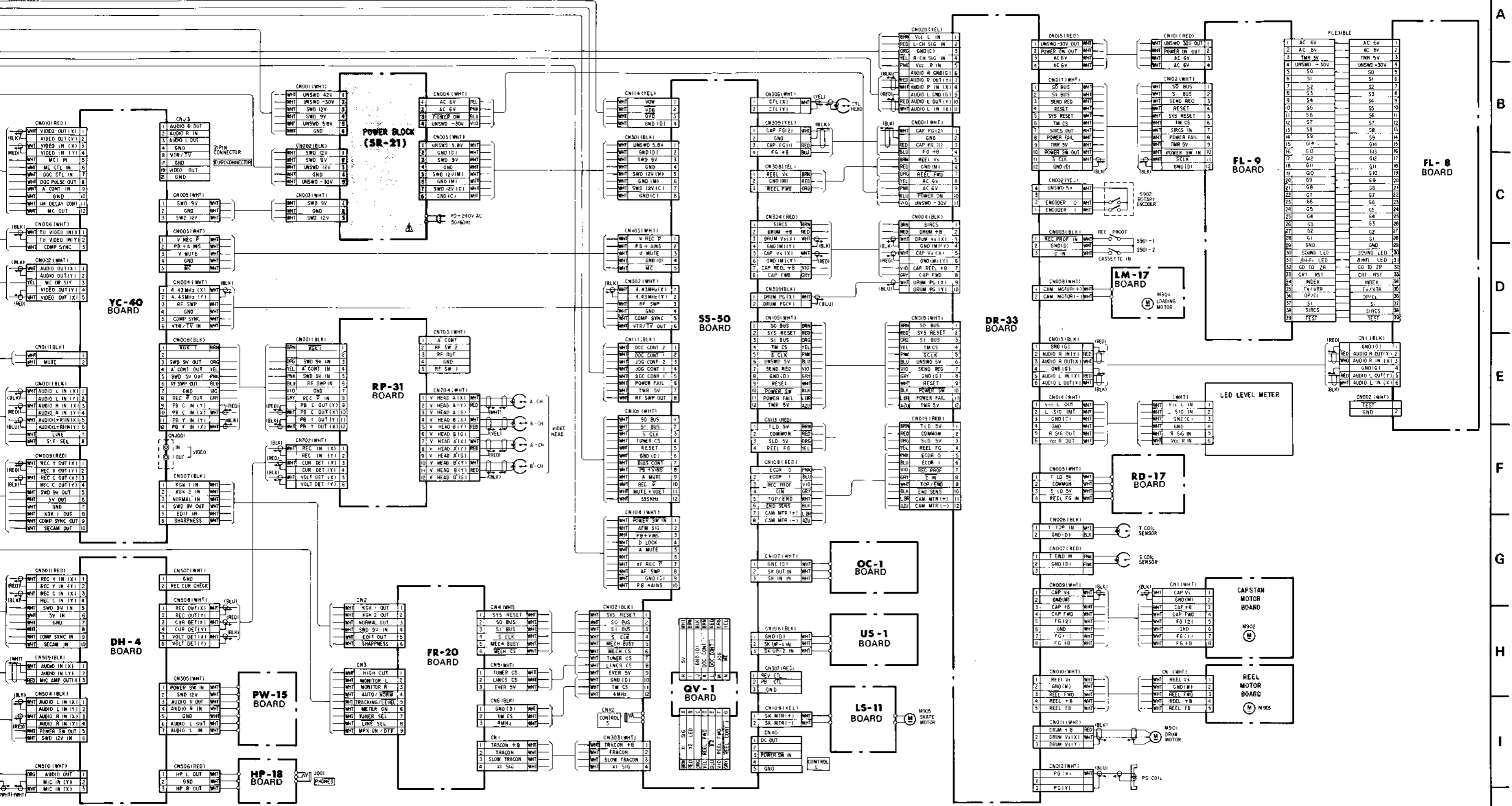
MC-Service

SCHEMATIC DIAGRAM, PRINTED WIRING BOARDS

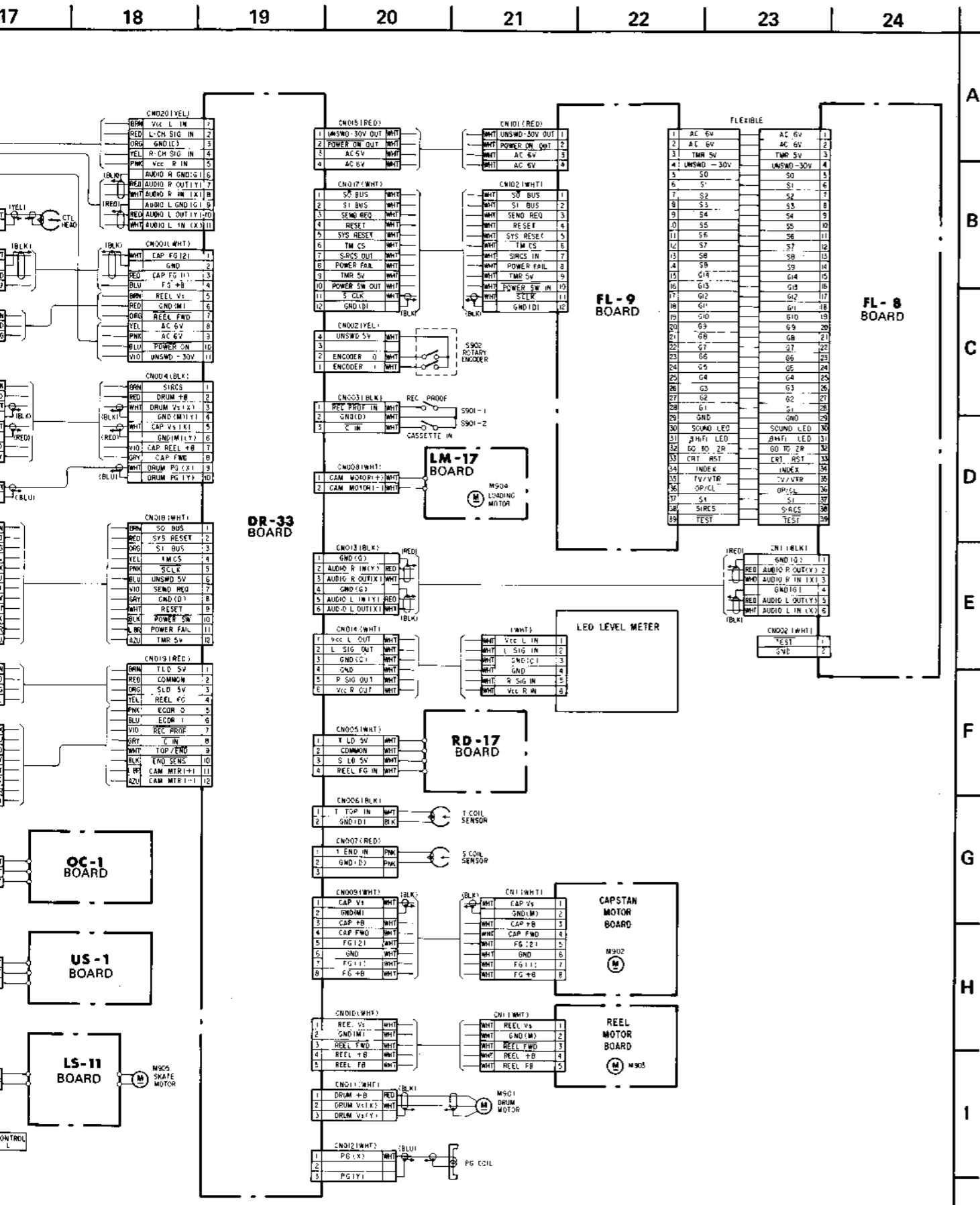
4-1. FRAME SCHEMATIC DIAGRAM



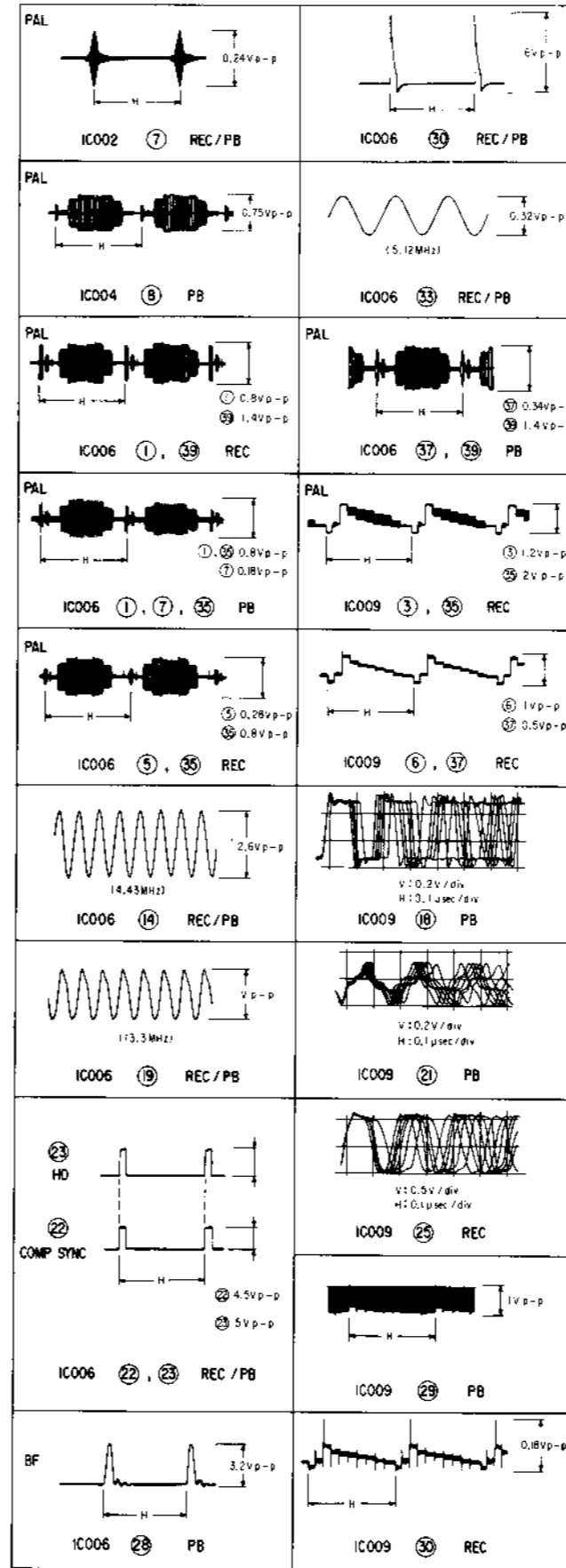
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



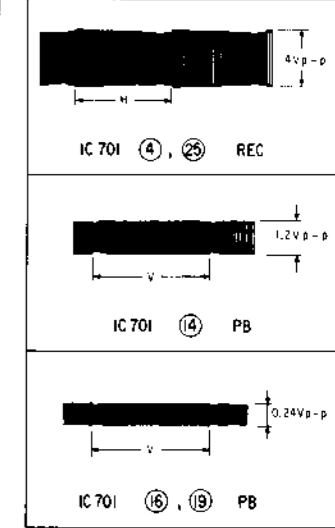
A B C D E F G H I J



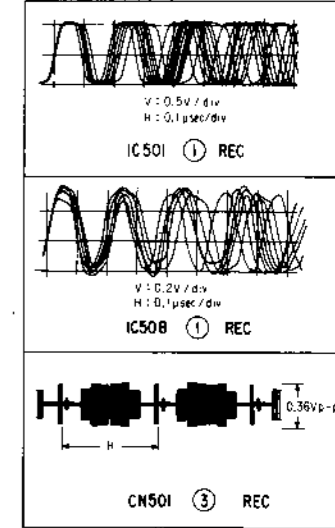
YC-40 BOARD (PAL/SECAM)



RP-31 BOARD



DH-4 BOARD





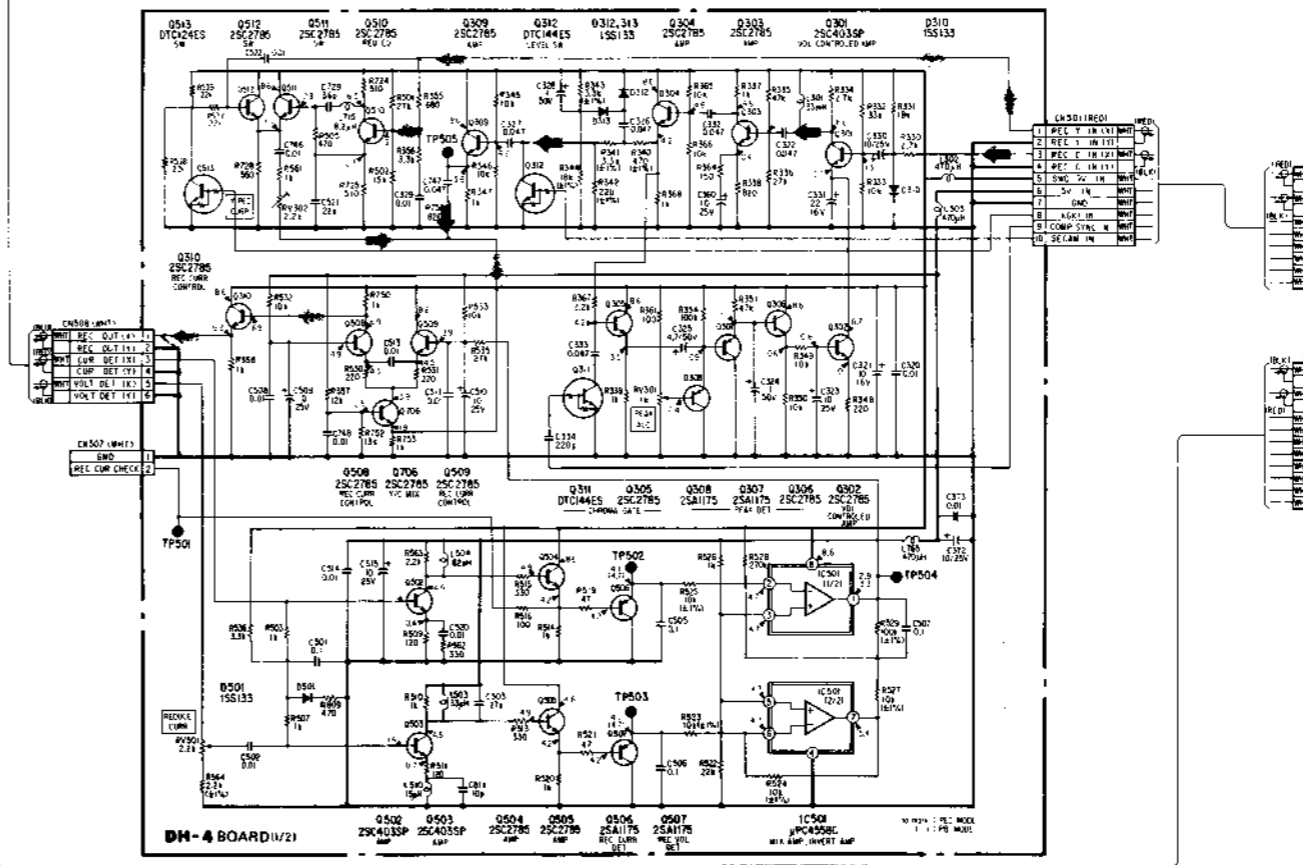
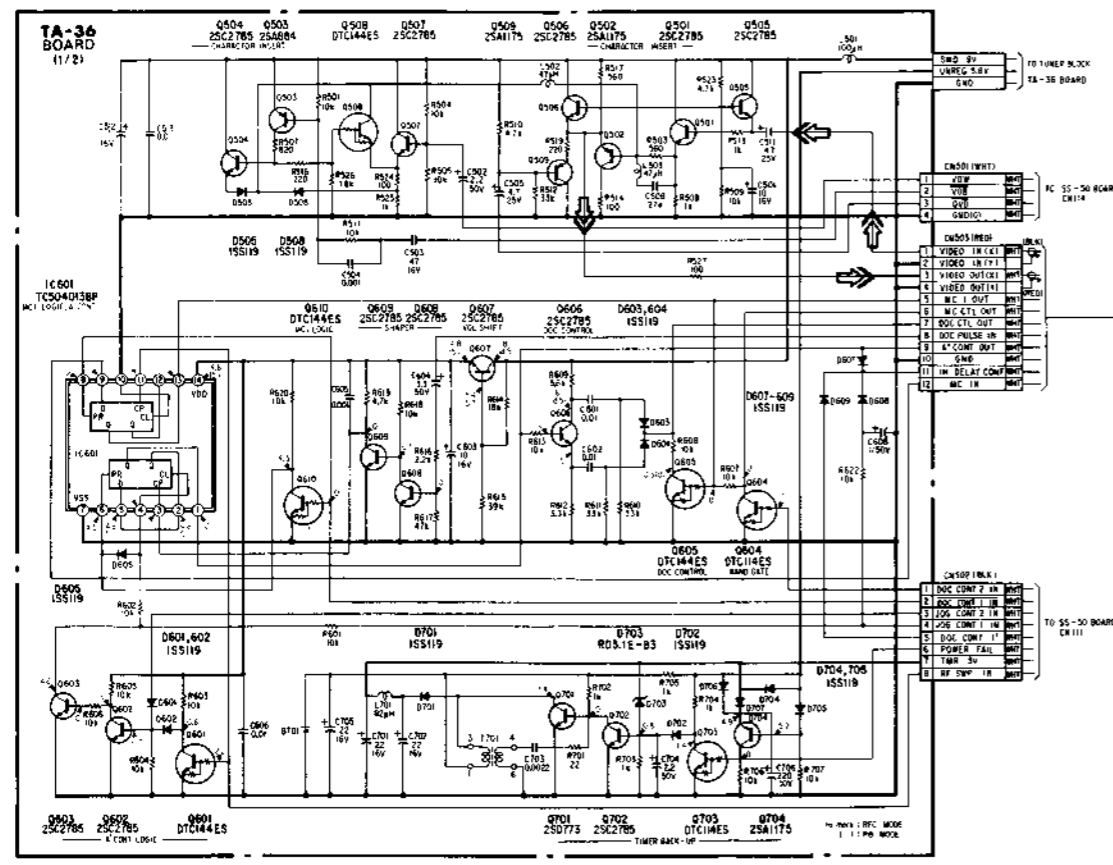
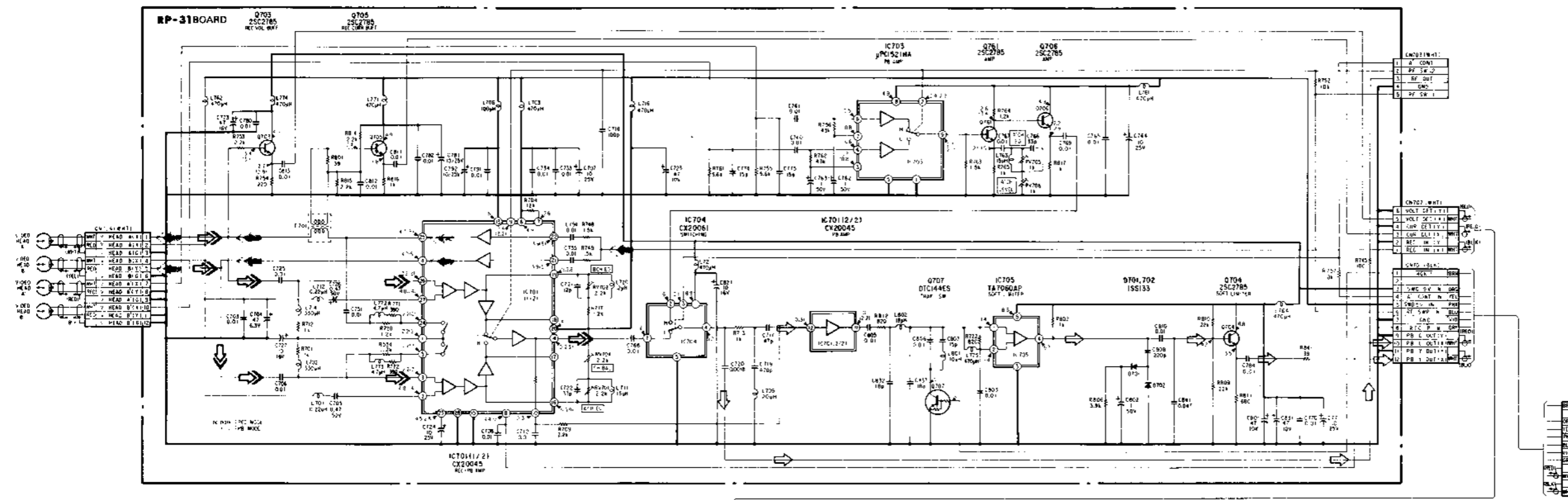
4-2. ES MODEL; YC-40 (Y/CHROMA SIGNAL PROCESS), RP-31 (VIDEO SIGNAL REC/PB AMP), TA-36 (TUNER, AUDIO), DH-4 (A/V HEAD AMP) SCHEMATIC DIAGRAMS

- Ref. No. YC-40 BOARD: 1,000 series, RP-31 BOARD: 6,000 series, TA-36 BOARD: 4,000 series, DH-4 BOARD: 7,000 series -

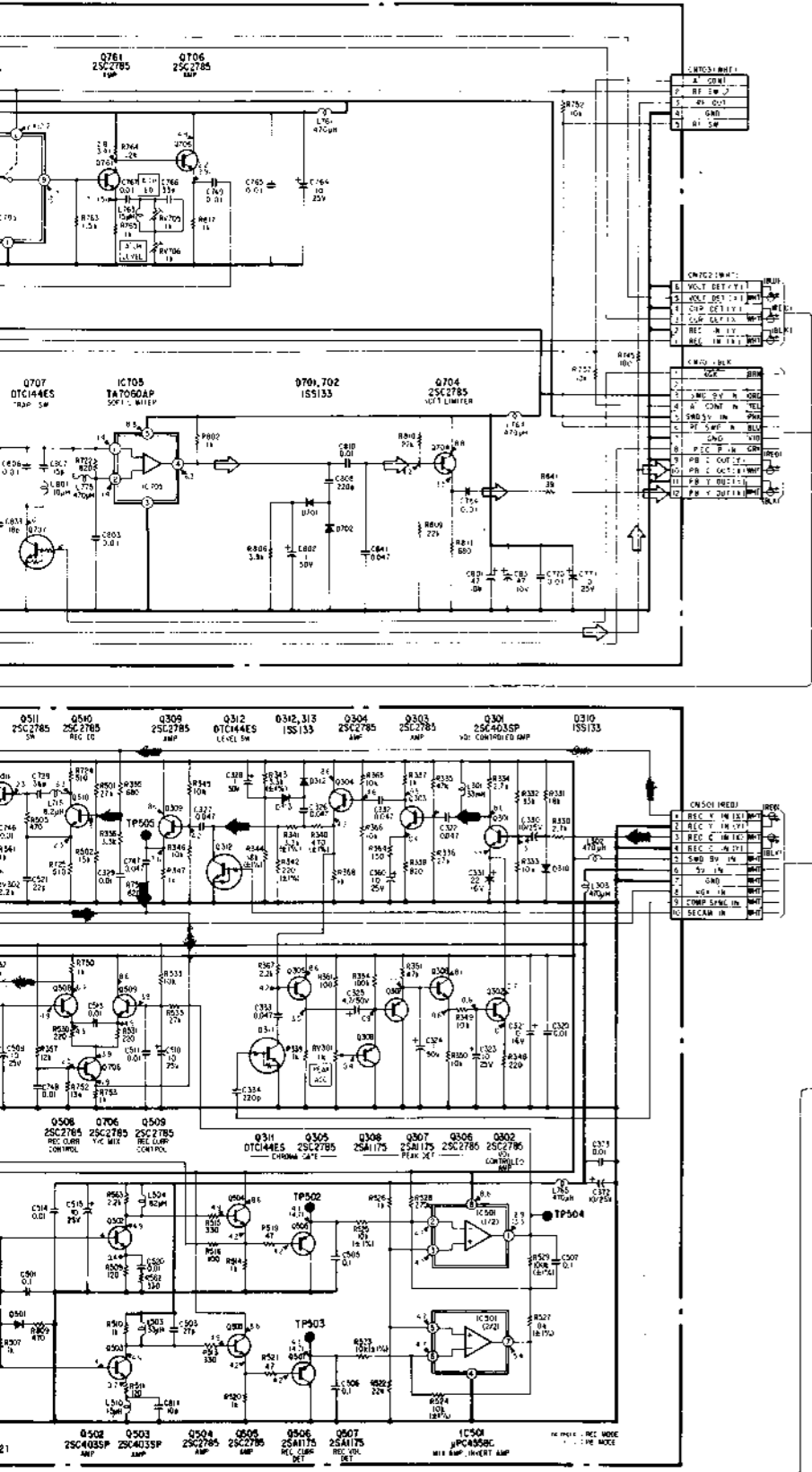
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

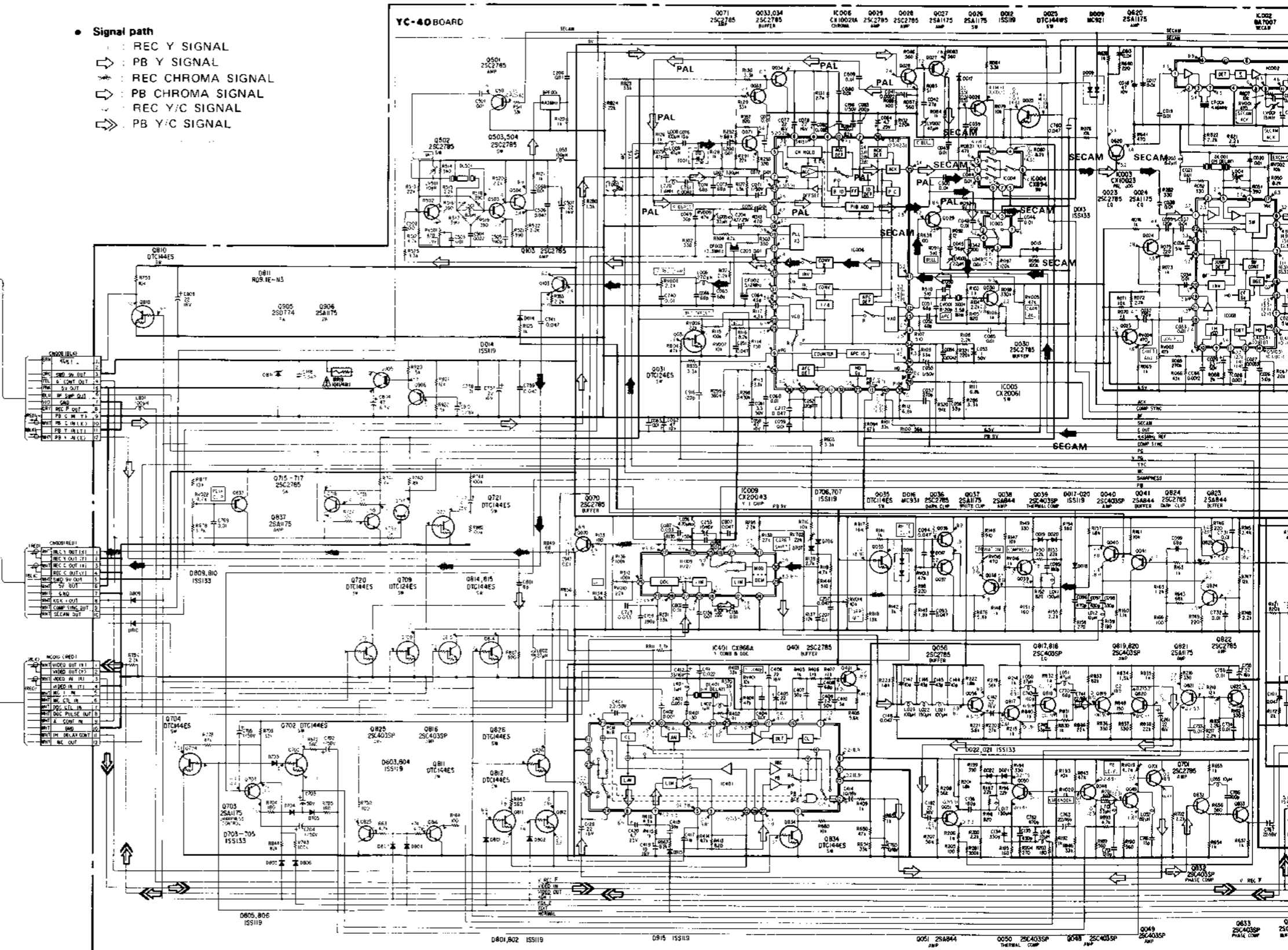
<ES MODEL>



- Signal path
- REC Y SIGNAL
- - - PB Y SIGNAL
- ... REC CHROMA SIGNAL
- · - · PB CHROMA SIGNAL
- — — REC Y/C SIGNAL
- - - - PB Y/C SIGNAL



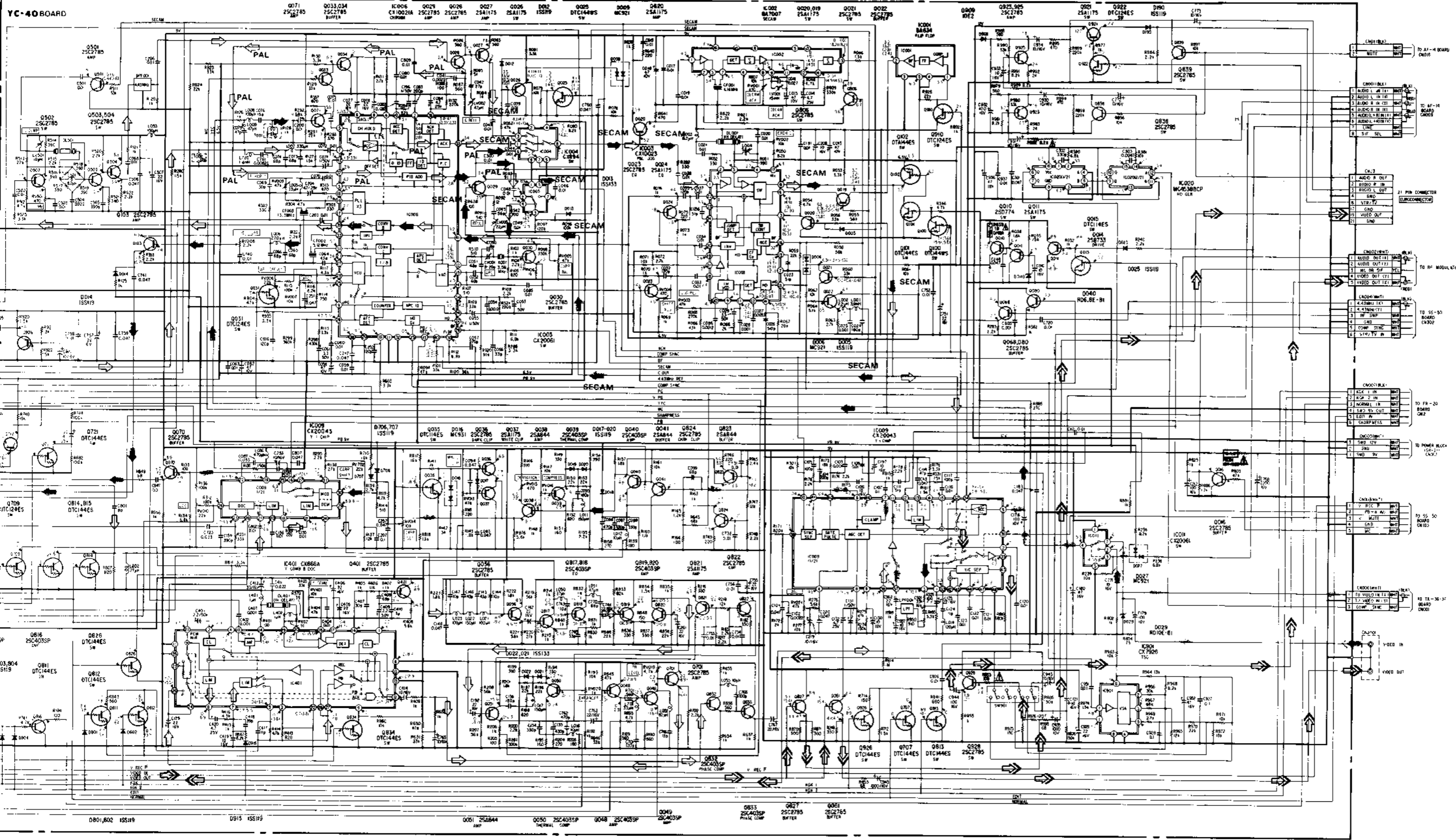
- Signal path
- REC Y SIGNAL
  - PB Y SIGNAL
  - REC CHROMA SIGNAL
  - PB CHROMA SIGNAL
  - REC Y/C SIGNAL
  - PB Y/C SIGNAL



# VIDEO VIDEO

18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

A  
B  
C  
D  
E  
F  
G  
H  
I  
J



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

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

**Note on Schematic Diagram:**

- All resistors are in ohms,  $\frac{1}{4}$  W unless otherwise noted. k $\Omega$ : 1000  $\Omega$ , M $\Omega$ : 1000 k $\Omega$
- All capacitors are in  $\mu$ F unless otherwise noted. p:  $\mu$ F 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 M $\Omega$ ).
- : B+ bus.

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

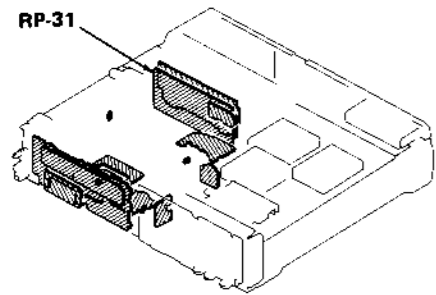
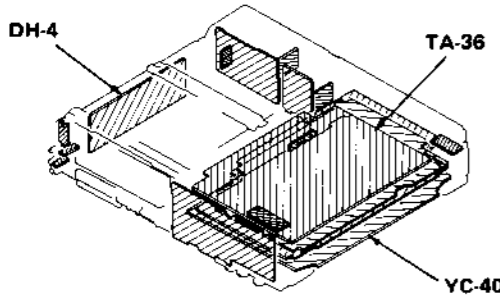
**Note on Printed Wiring Board:**

- : Indicates a leadwire mounted on the component side.
- : Indicates a leadwire mounted on the printed side.
- : soldering side.
- : B+ pattern

- Digital transistor (YC-40: Q15, 25, 31, 35, 100, 101, 102, 702, 704, 707, 709, 720, 721, 810, 811, 812, 813, 814, 815, 826, 834, 910, 922, 926. RP-31: Q707. DH-4: Q311, 312. TA-36: Q003, 004, 006, 013, 014, 015, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors.

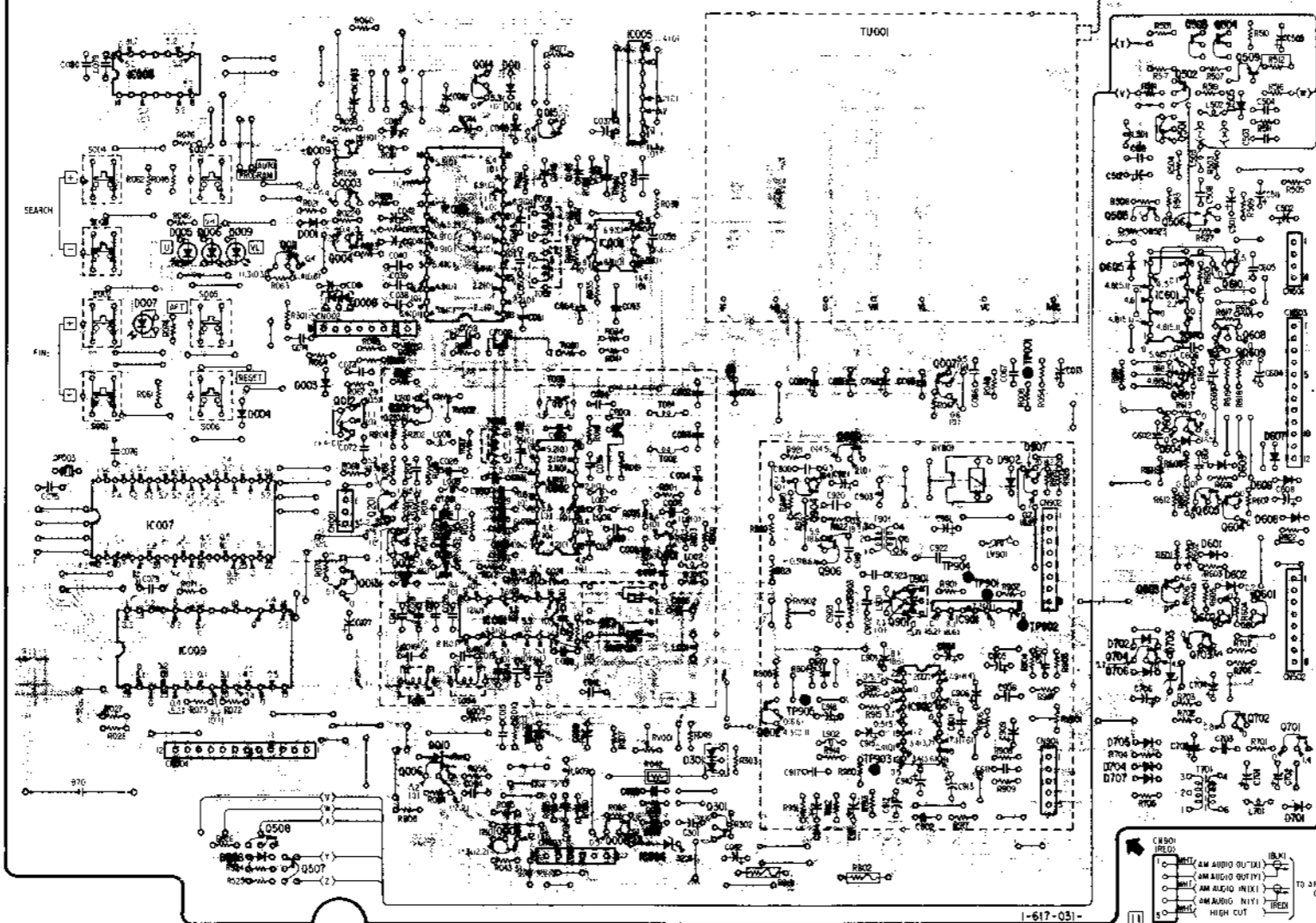
Refer to the YC-40, RP-31, DH-4, TA-36 boards schematic diagram for digital transistor.

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



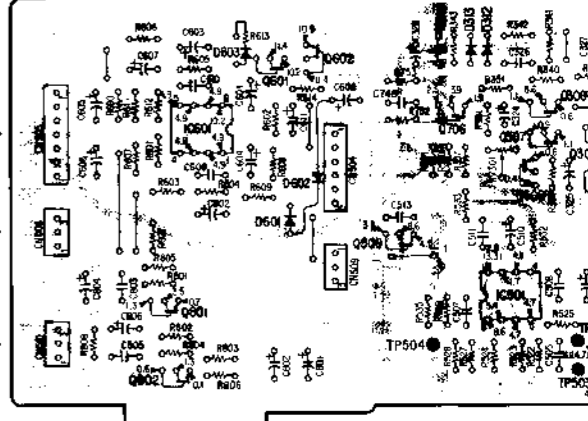
Q	IC	IC008	011	009,003	004	IC003	014	015	IC006	501,502	503,504	509	Q
		IC007	IC009	508,507	013	201,002	006	IC001	005	IC002	008	IC006	IC
D		007	005	006	009	004	001	008	011	902	605	604,603	D
											702,706,703	601,602	607
ADJ				508			D10				705,704,707	701	ADJ
TP							RV002			RV001		RV902	TP
											905	903	
											904	901	
											001	902	

**TA-36 BOARD**

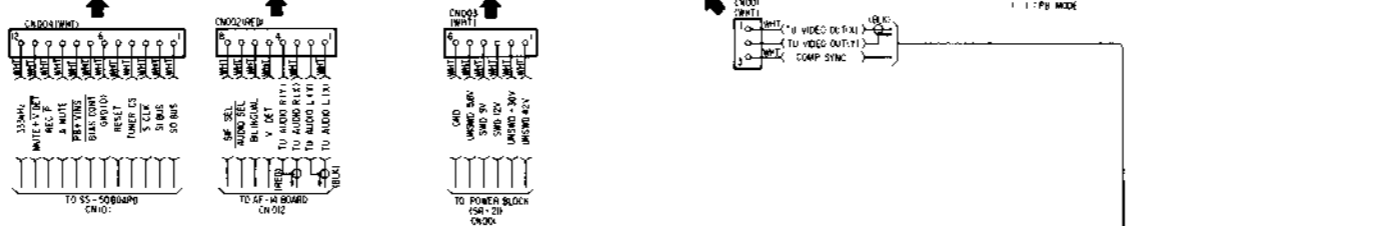
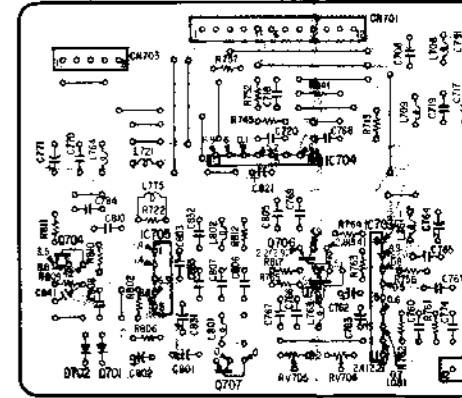


Q	IC	IC601	601	602	706	306	312	305
						IC501	313,312	
D		603	601	602				
ADJ								RV301
TP						504		503

**DH-4 BOARD**



**RP-31 BOARD**

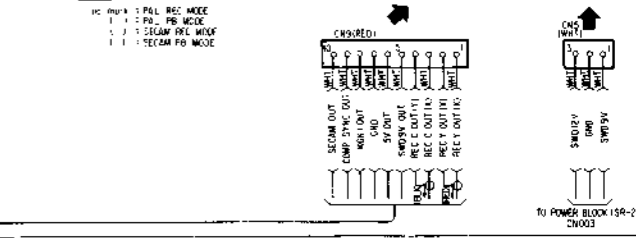
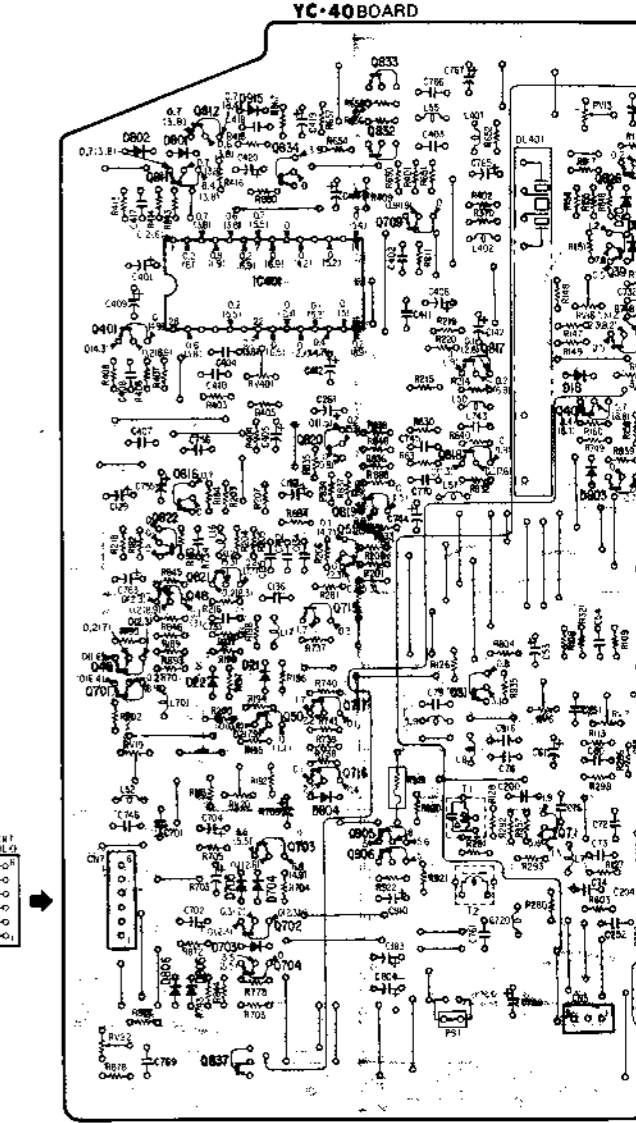
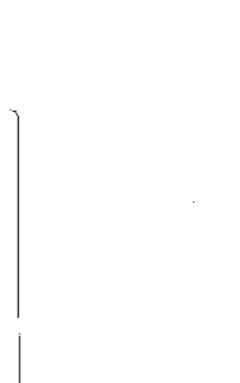
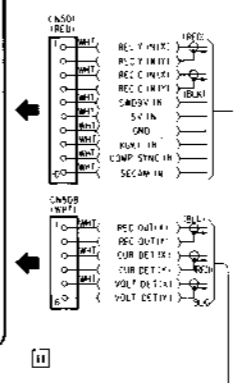
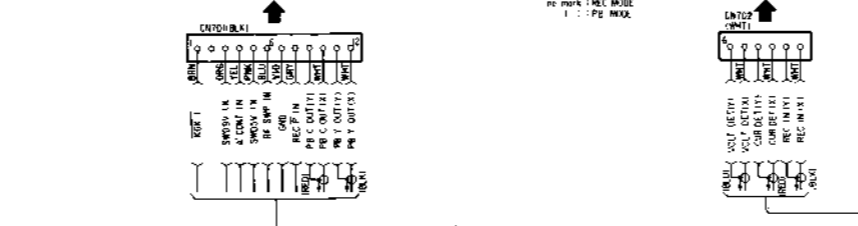
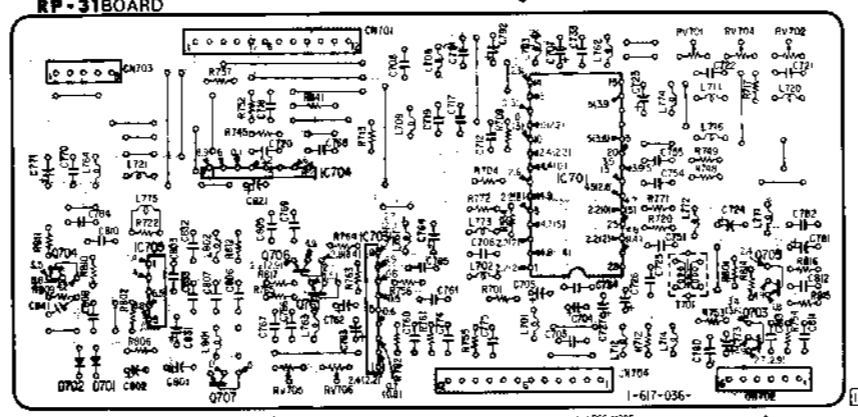
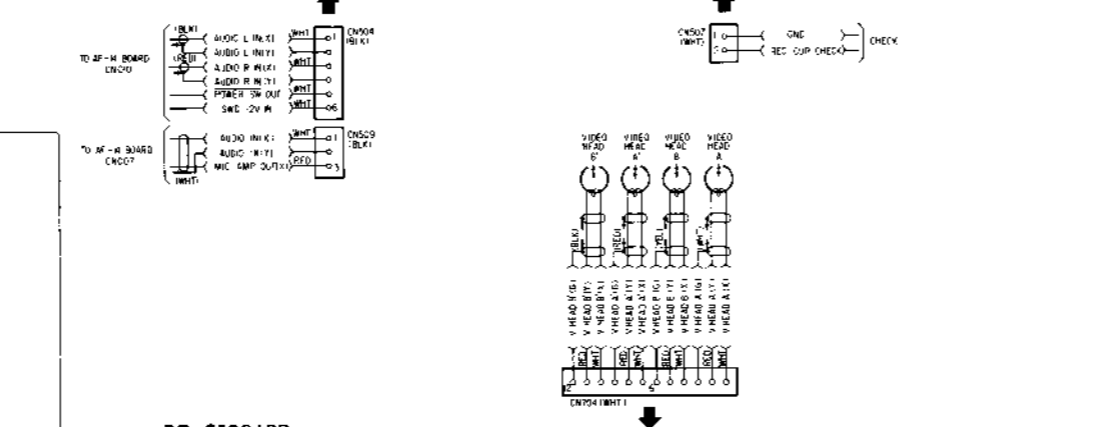
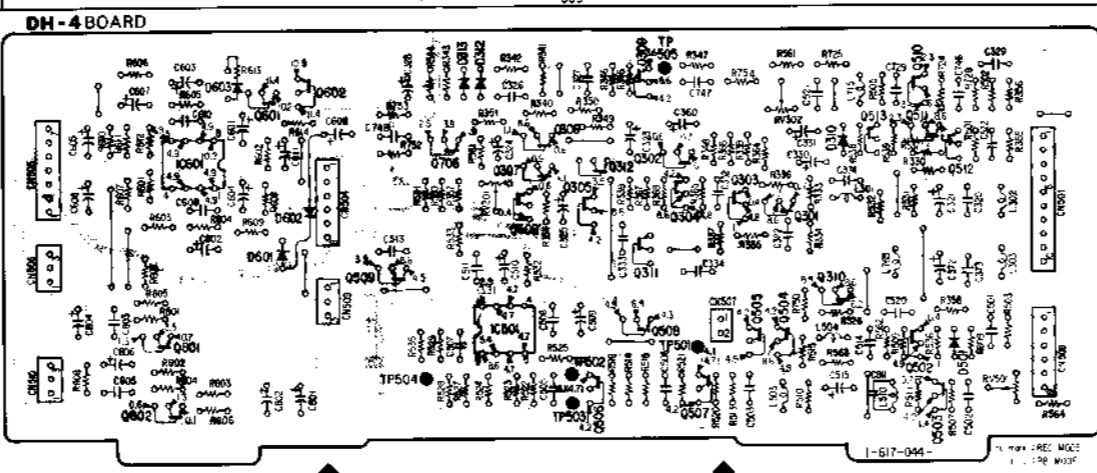
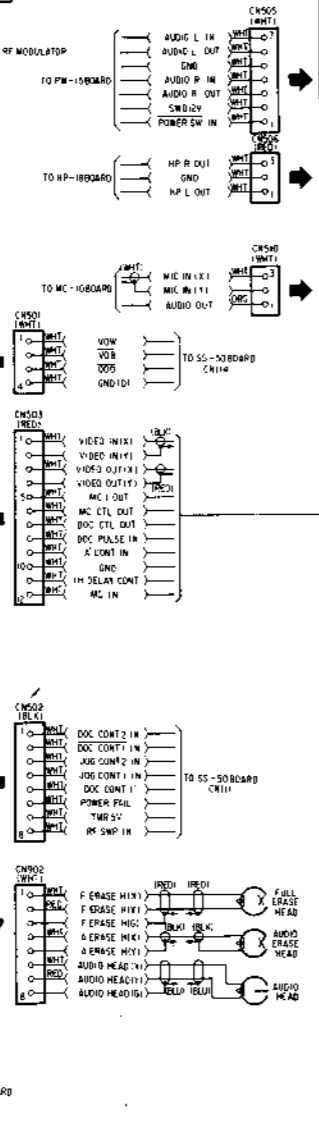
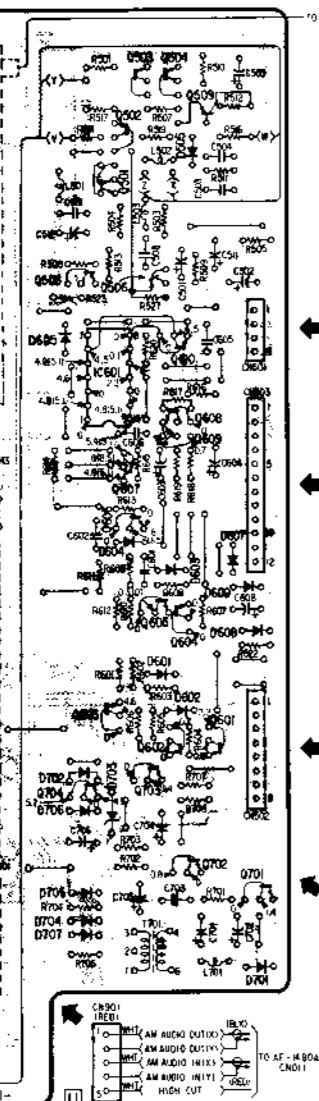
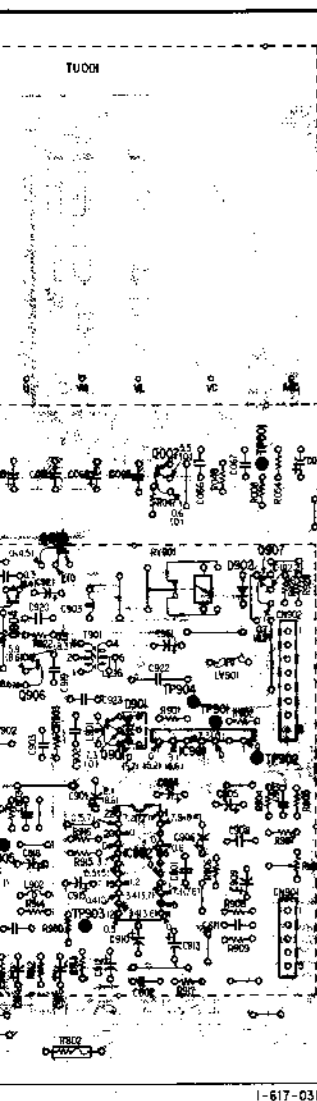


MC-Service

IC	501,502,503,504,509	Q
IC	505,506,510,507,606,608,609,603,605,604,704,703,602,601,702,505,701	IC
D	901,902,605,604,603,607,609,608,702,706,703,601,602,705,704,707	D
ADJ	LV901	ADJ
TP	904,901,902	TP

Q	IC601,601,602,509,706,306,307,309,302,303,301,310,513,510,511,512	Q
IC	509,706,306,307,309,302,303,301,310,513,510,511,512	IC
D	605,601,602,313,312,IC501,305,306,508,507,505,504	D
ADJ	RV301, RV302, RV501	ADJ
TP	504,502,505,501	TP

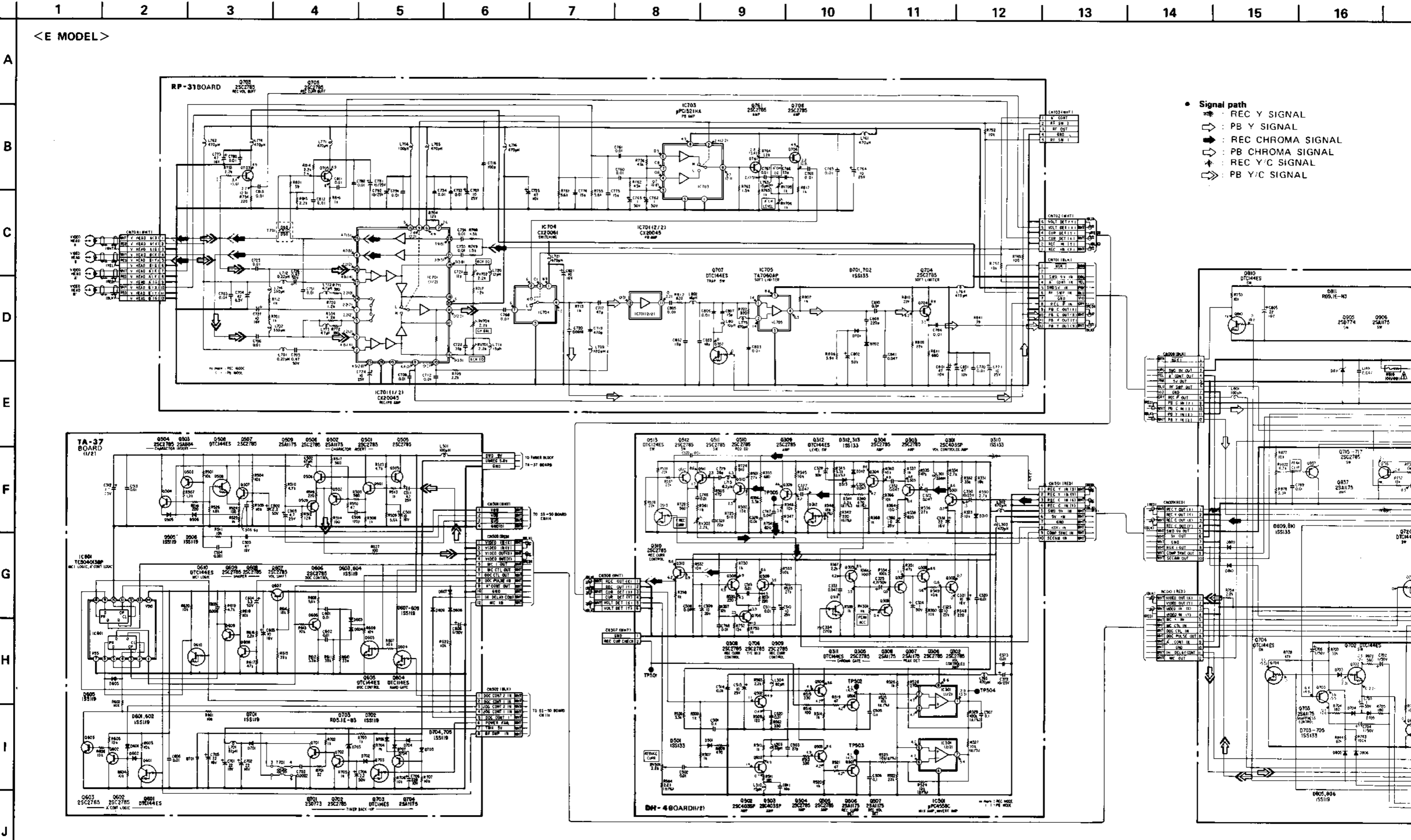
Q	811,812,834,833,832,709,817,818,401,816,821,715,51,819,49,701,50,703,717,716,905,906,702,704,837,802,801,915,22,705,704,904,806,805,703	Q
IC	811,812,834,833,832,709,817,818,401,816,821,715,51,819,49,701,50,703,717,716,905,906,702,704,837,802,801,915,22,705,704,904,806,805,703	IC
D	802,801,915,22,705,704,904,806,805,703	D
ADJ	RV22, RV19, RV20, RV401, RV13, RV16, RV6, RV7	ADJ





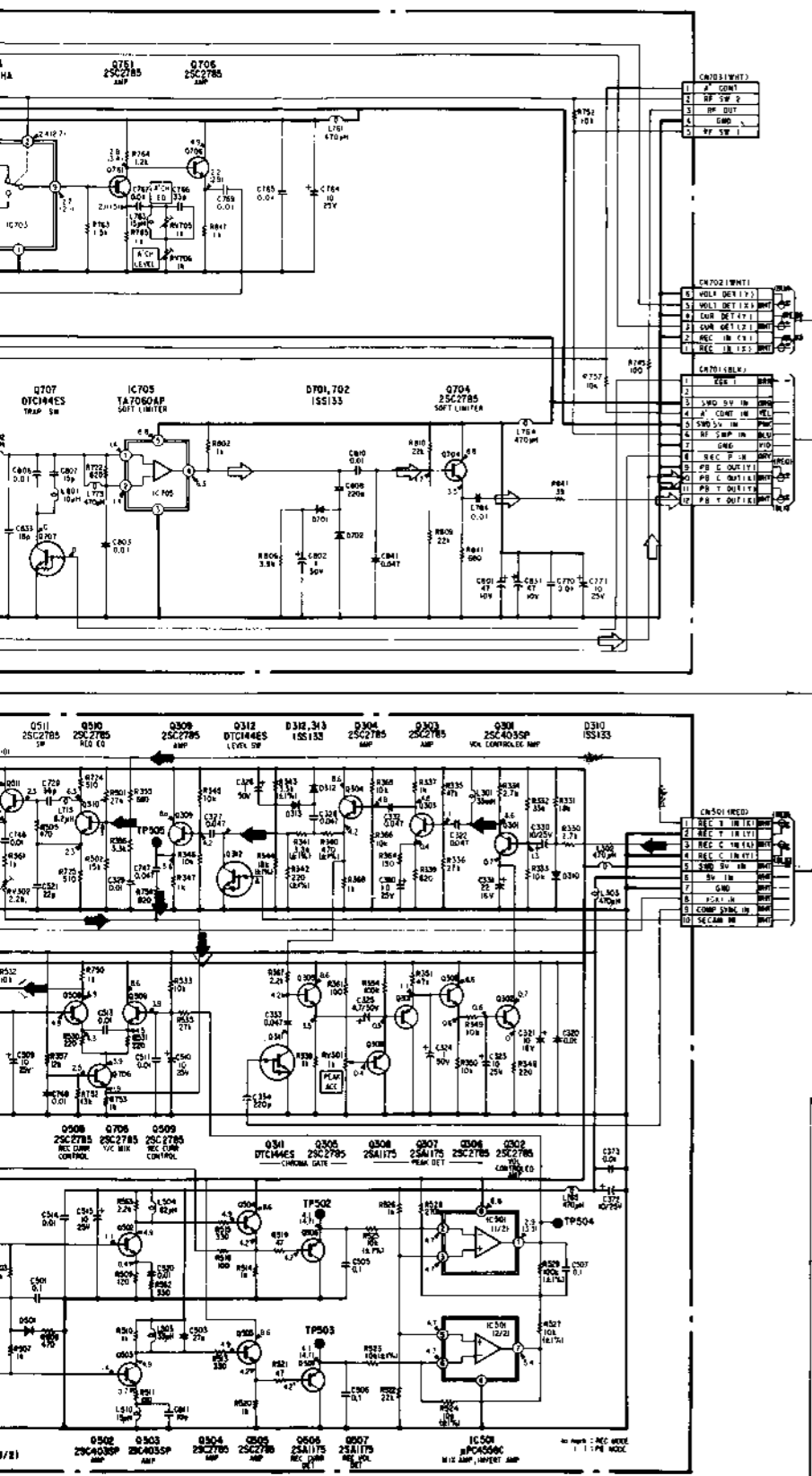
4-3. E MODEL; YC-40 (Y/CHROMA SIGNAL PROCESS), RP-31 (VIDEO SIGNAL REC/PB AMP), TA-37 (TUNER, AUDIO), DH-4 (A/V HEAD AMP) SCHEMATIC DIAGRAMS

- Ref. No. YC-40 BOARD: 1,000 series, RP-31 BOARD: 6,000 series, TA-37 BOARD: 5,000 series, DH-4 BOARD: 7,000 series -

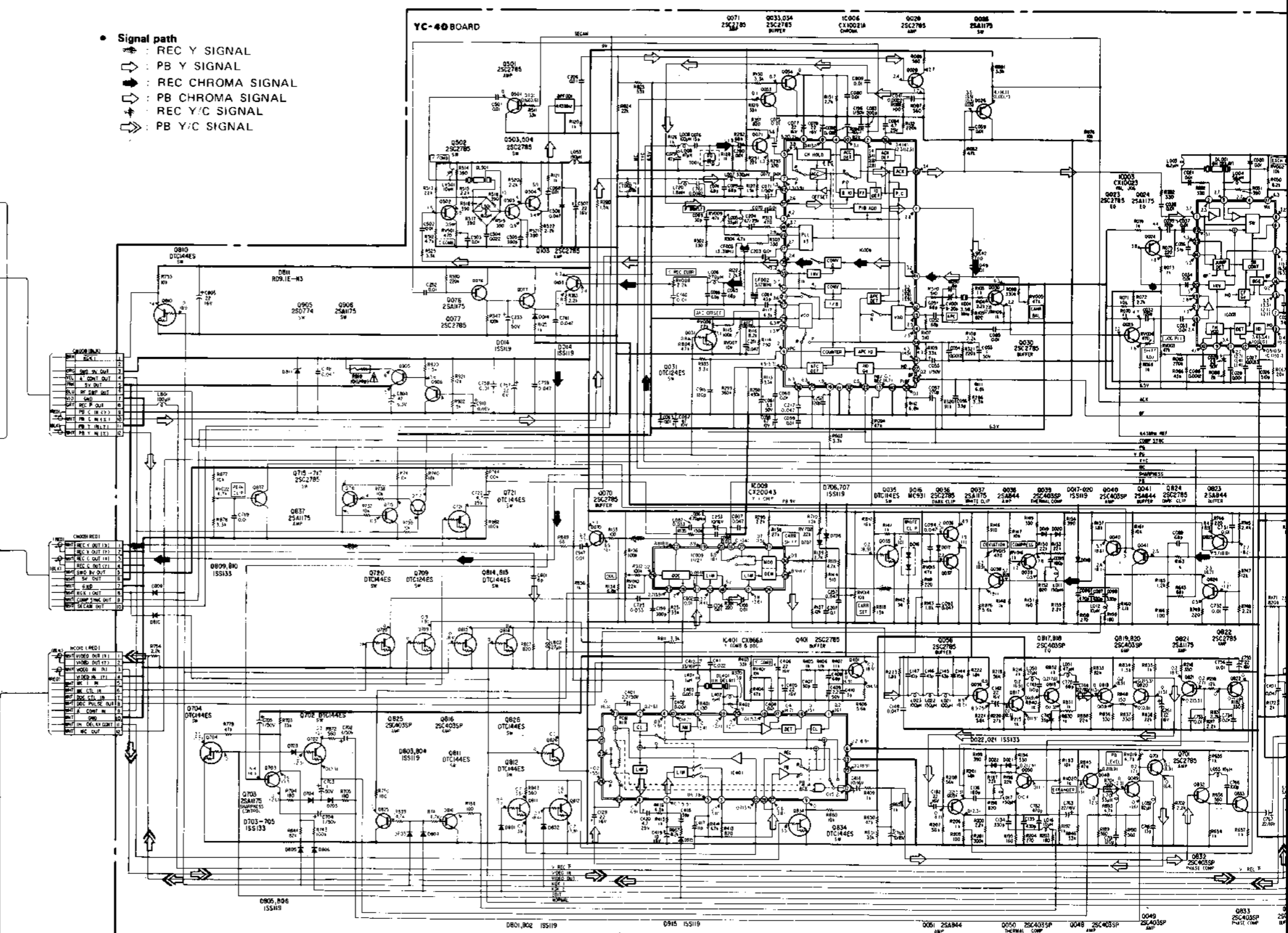


- Signal path
- ▶— REC Y SIGNAL
- - -▶- PB Y SIGNAL
- ▶— REC CHROMA SIGNAL
- - -▶- PB CHROMA SIGNAL
- ▶•— REC Y/C SIGNAL
- - -▶•- PB Y/C SIGNAL

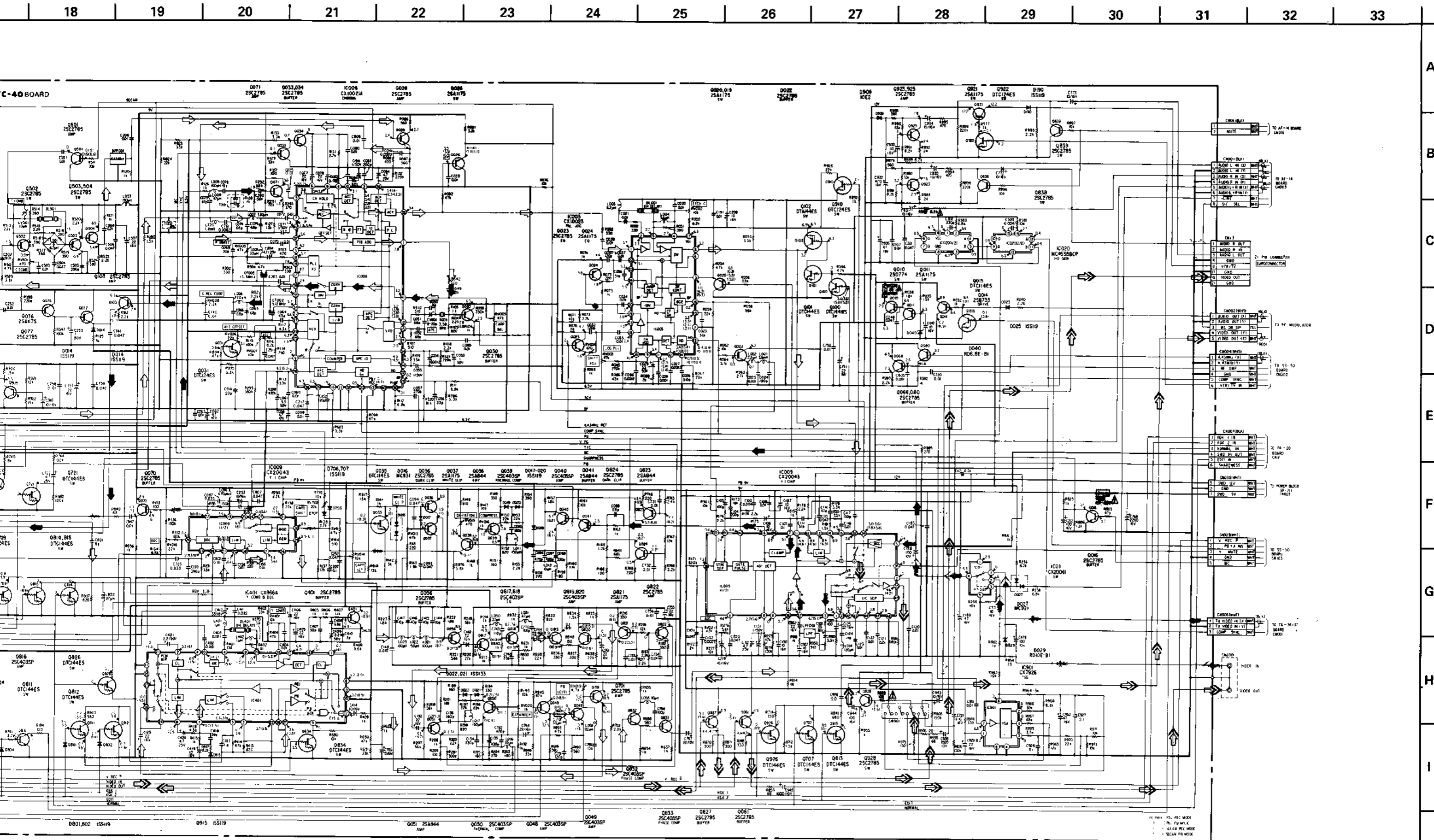
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25



- Signal path
- REC Y SIGNAL
- PB Y SIGNAL
- REC CHROMA SIGNAL
- PB CHROMA SIGNAL
- REC Y/C SIGNAL
- PB Y/C SIGNAL







E MODEL; YC-40 (Y/CHROMA SIGNAL PROCESS), RP-31 (VIDEO SIGNAL REC/PB AMP), TA-37 (TUNER, AUDIO), DH-4 (A/V HEAD AMP) PRINTED WIRING BOARDS

- Ref. No. YC-40 BOARD: 1,000 series, RP-31 BOARD: 6,000 series, TA-37 BOARD: 5,000 series, DH-4 BOARD: 7,000 series -

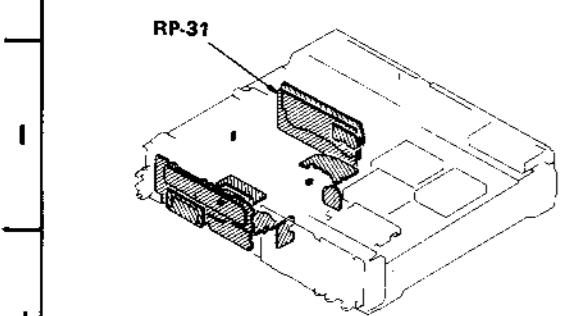
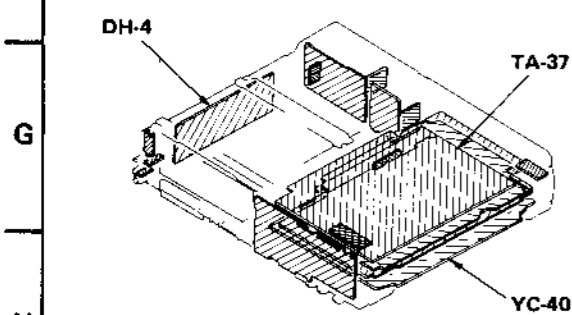
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

- Note on Schematic Diagram:**
- All resistors are in ohms, 1/2 W unless otherwise noted. k $\Omega$ : 1000  $\Omega$ , M $\Omega$ : 1000 k $\Omega$
  - All capacitors are in  $\mu$ F unless otherwise noted. p:  $\mu$ F 50WV or less are not indicated except for electrolytics.
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - : nonflammable resistor.
  - : fusible resistor.
  - The red lines show the main voltages.
  - All voltages are dc measured with a VOM (10 M $\Omega$ ).
  - +—: B+ bus.
  - : B- bus.

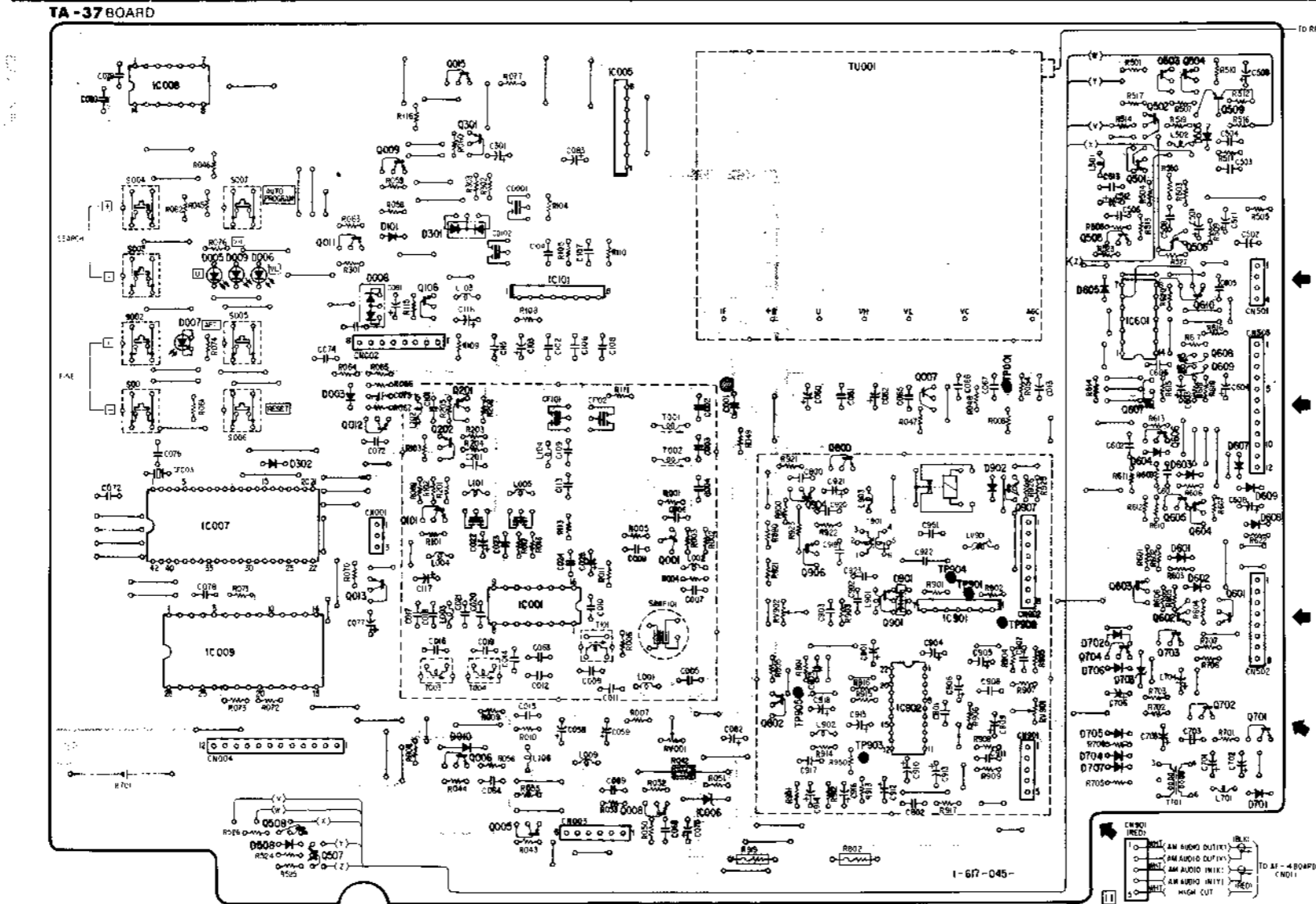
- Note: The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.**

- Note on Printed Wiring Board:**
- : Indicates a leadwire mounted on the component side.
  - : Indicates a leadwire mounted on the printed side.
  - : soldering side.
  - : B+ pattern
  - Digital transistor (YC-40: Q15, 31, 35, 100, 101, 102, 702, 704, 707, 709, 720, 721, 810, 811, 812, 813, 814, 815, 826, 834, 910, 922, 926. RP-31: Q707. DH-4: Q311, 312. TA-36: Q003, 004, 006, 013, 014, 015, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors.
  - Refer to the YC-40, RP-31, DH-4, TA-36 boards schematic diagram for digital transistor.

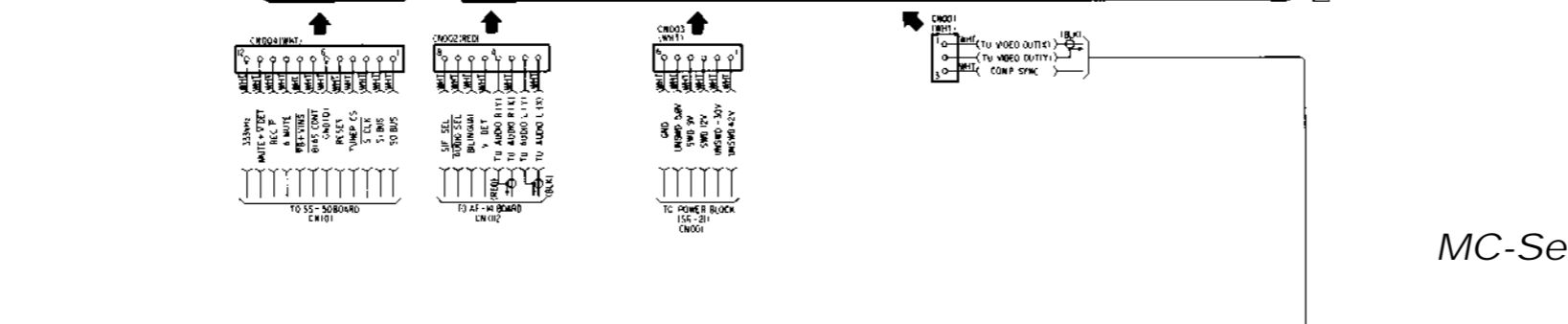
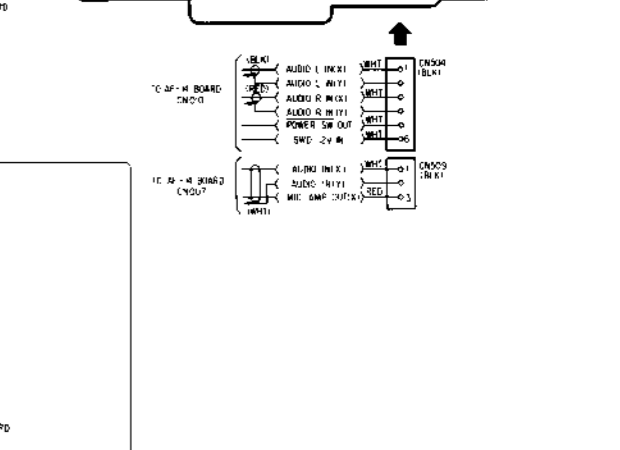
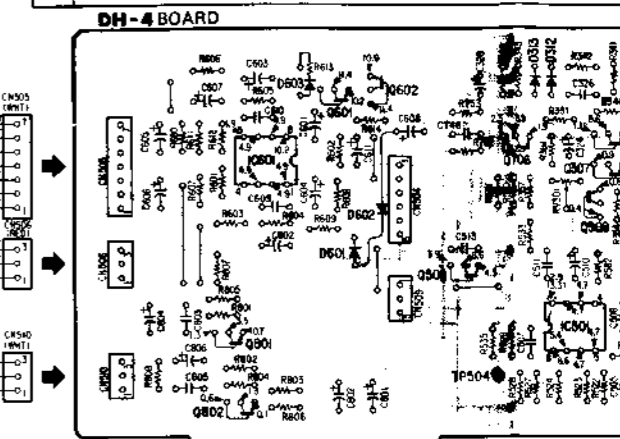
When indicating parts by reference number, please include the board name.



Q	C008		011	009	015	301	IC101	IC103		501, 502, 503, 504	509	Q	
IC	IC007 IC009	508 507	Q12 013	101 102	006 005		008	IC006	802	904 906 900	901 K902	907	Q IC
D	007	005, 009, 006	302 308	003	101 008	301				605 702, 706, 703	604, 603 604, 502	607	D
ADJ								RV001				RV901	ADJ
TP										904 901	004 902		TP



Q	IC601	601	602		509	706	308, 307	312	305
IC		603	601, 602				313, 312		
D									
ADJ								RV301	
TP								504	602, 603



MC-Service

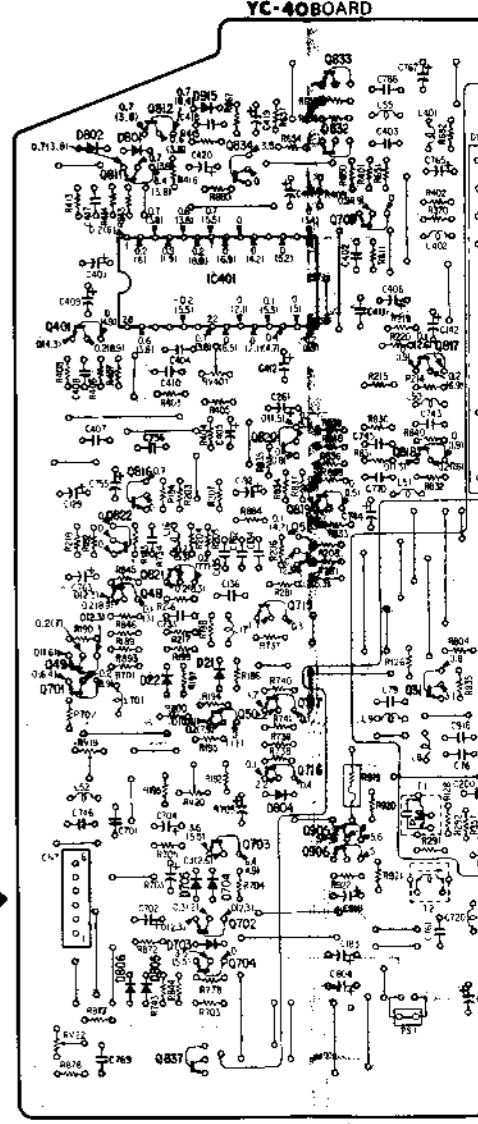
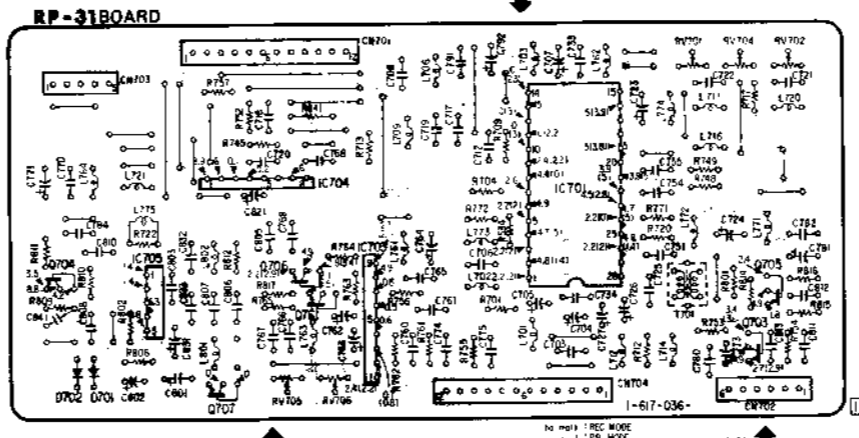
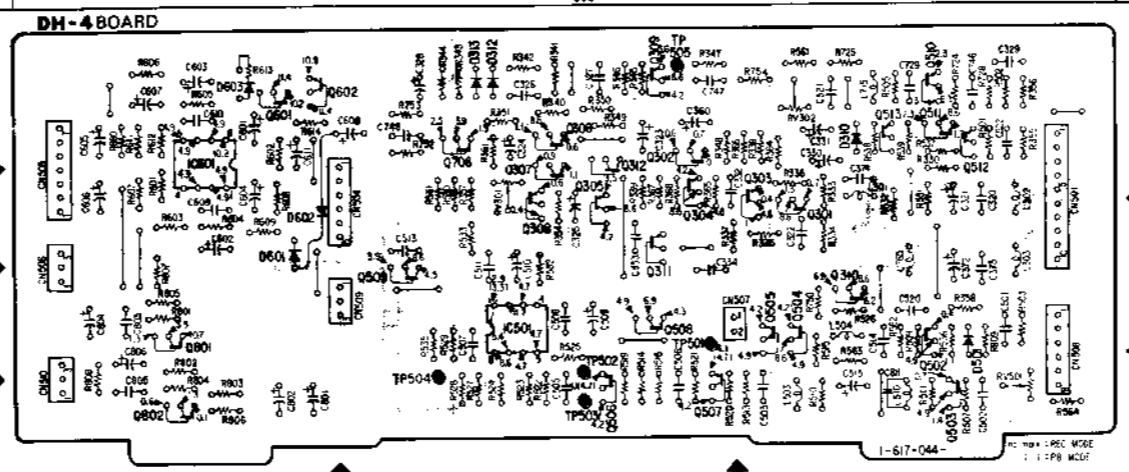
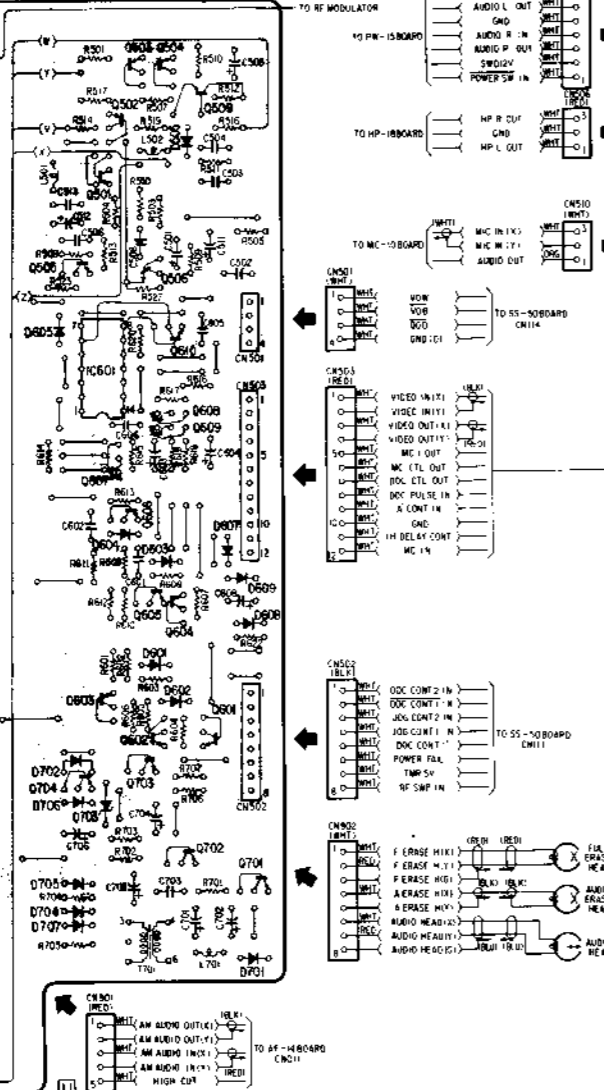
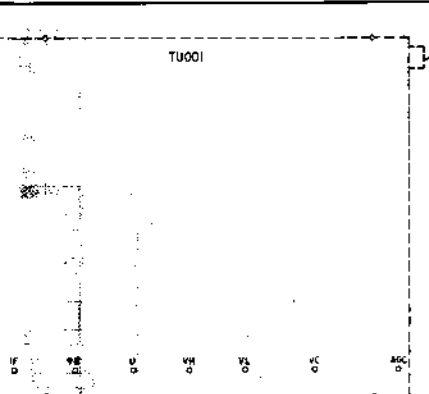
4 (A/V HEAD AMP) PRINTED WIRING BOARDS

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

IC	501, 502, 503, 504, 509	IC	
D	RV502	D	
ADJ	RV501	ADJ	
TP		TP	

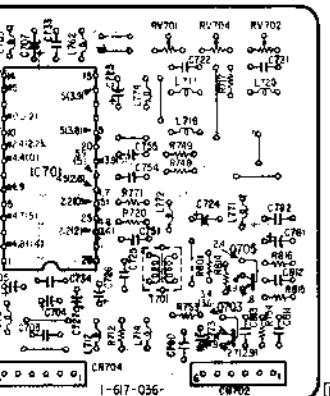
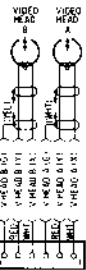
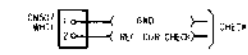
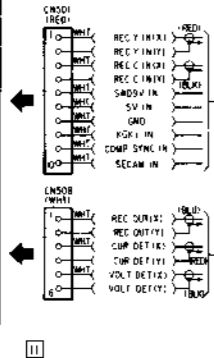
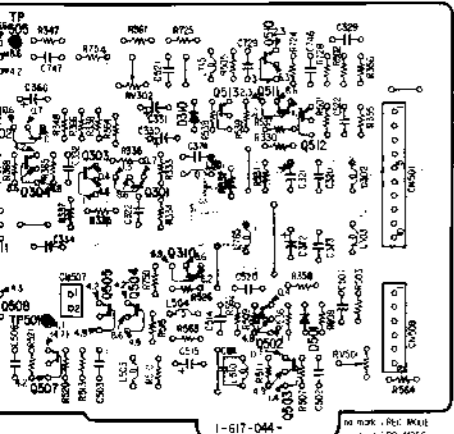
Q	IC	601, 602	706, 709	306, 309	302, 303	301, 310	513, 510, 511, 512	Q
D	D	603, 601, 602	313, 312	308, 307, 305, 306	508, 507, 505, 504	310	502, 503	D
ADJ	ADJ			RV301	RV302		RV501	ADJ
TP	TP			504	505, 501			TP

Q	IC	811, 812, 834, 833, 832, 820, 819, 818, 709, 817, 816, 815	Q
D	D	802, 801, 915, 804	D
ADJ	ADJ	RV22, RV19, RV401, RV20	ADJ

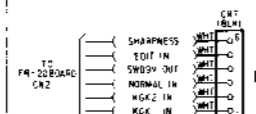
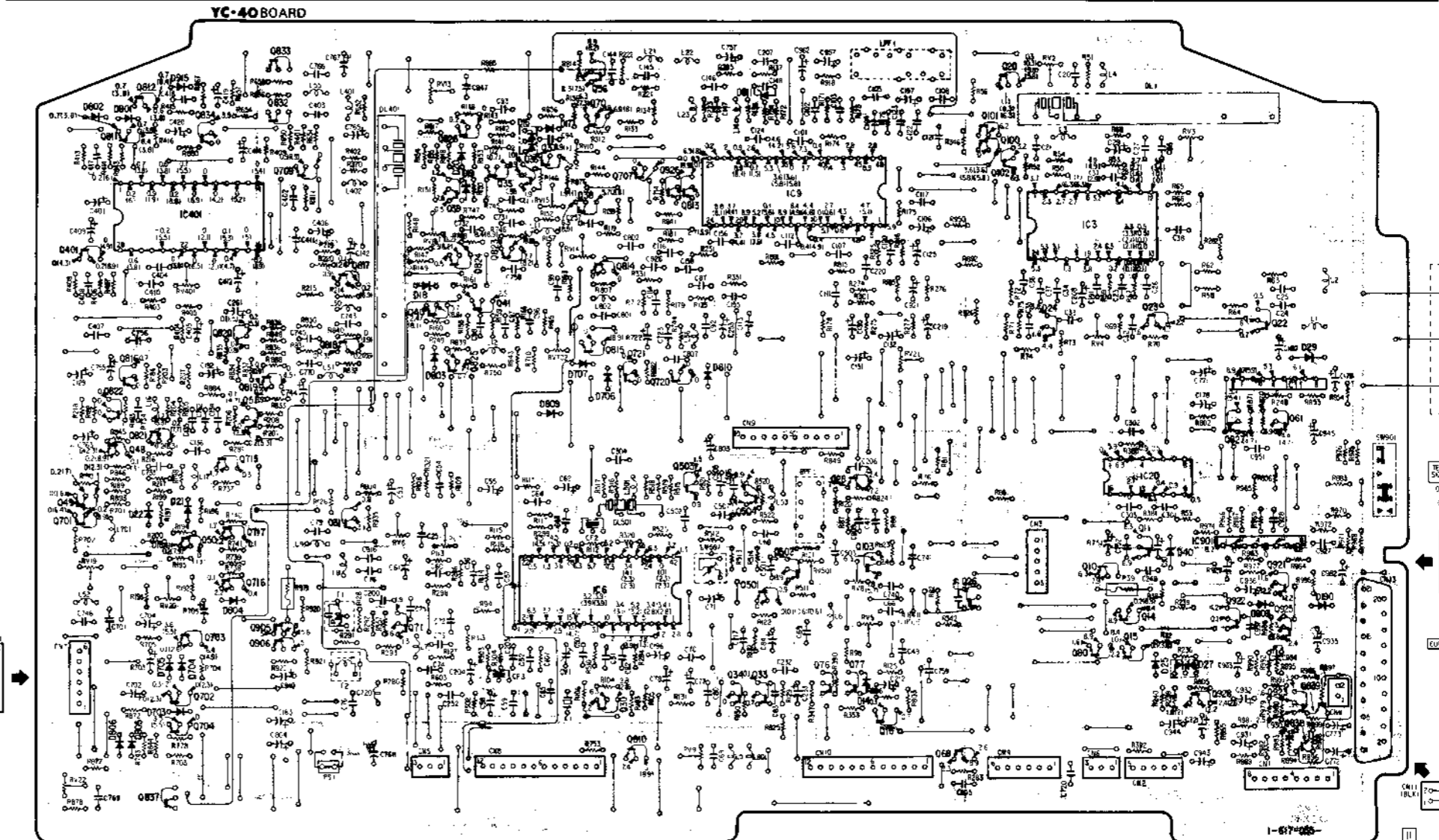


18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

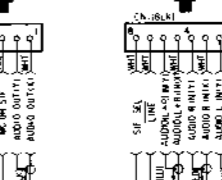
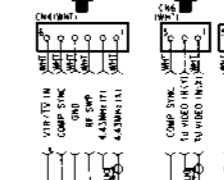
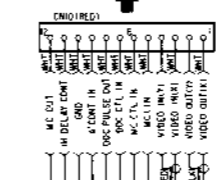
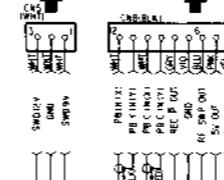
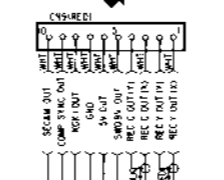
302	303	301	310	513	510	511	512	Q	
507	505	504			502	503		IC	
RV302									D
RV501									ADJ
505 501									TP



811	812	834	833	709	826	35	36	37	56	707	926	813	IC9	20	10	100	102	IC3	23	22							
401	816	821	715	51	819	817	818	40	823	41	815	721	720	24	10	14	11	IC20	827	IC11							
49	701	50	717	716	31	71					503	504	502	28	103	26	80	15	928	922	IC901	925	923	838	639		
802	801	915	804			18	803	19	16	17	810	811		16	68			25	40	27	909	29	190				
ADJ		RV22		RV19		RV20		RV6		RV13		RV15		RV14		RV7		RV10		RV21		RV4		RV3		ADJ	
		RV302		RV501						LV501		RV501		RV8		RV5											



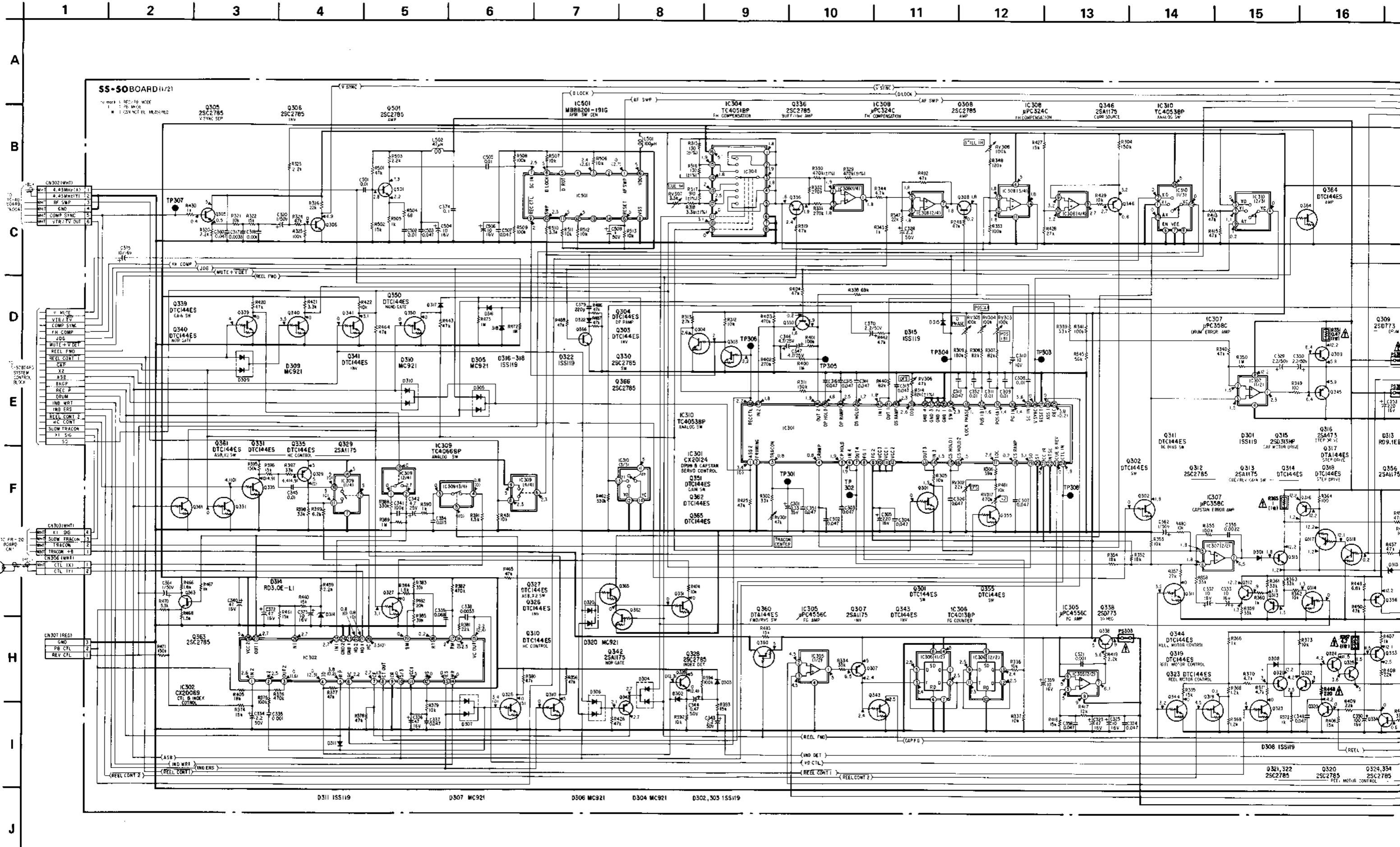
IC 400 - PREC MODE  
 IC 400 - PREC MODE  
 IC 400 - SECAM REC MODE  
 IC 400 - SECAM PRE MODE



A B C D E F G H I J

4-4. SS-50 (SERVO, SYSTEM CONTROL), DR-33 (SYSTEM CONTROL, SIGNAL TRANSLATION), RD-17 (ROTATION DETECTOR), LM-17 (LOADING MOTOR), R STATOR (REEL MOTOR), CAPSTAN MOTOR SCHEMATIC DIAGRAMS

- Ref. No. SS-50 BOARD: 2,000 series, DR-33 BOARD: 9,300 series, RD-17 BOARD: 9,400 series, LM-17 BOARD: 9,400 series, R STATOR BOARD: 9,100 series, CAPSTAN MOTOR BOARD: 9,200 series -



9

10

11

12

13

14

15

16

17

18

19

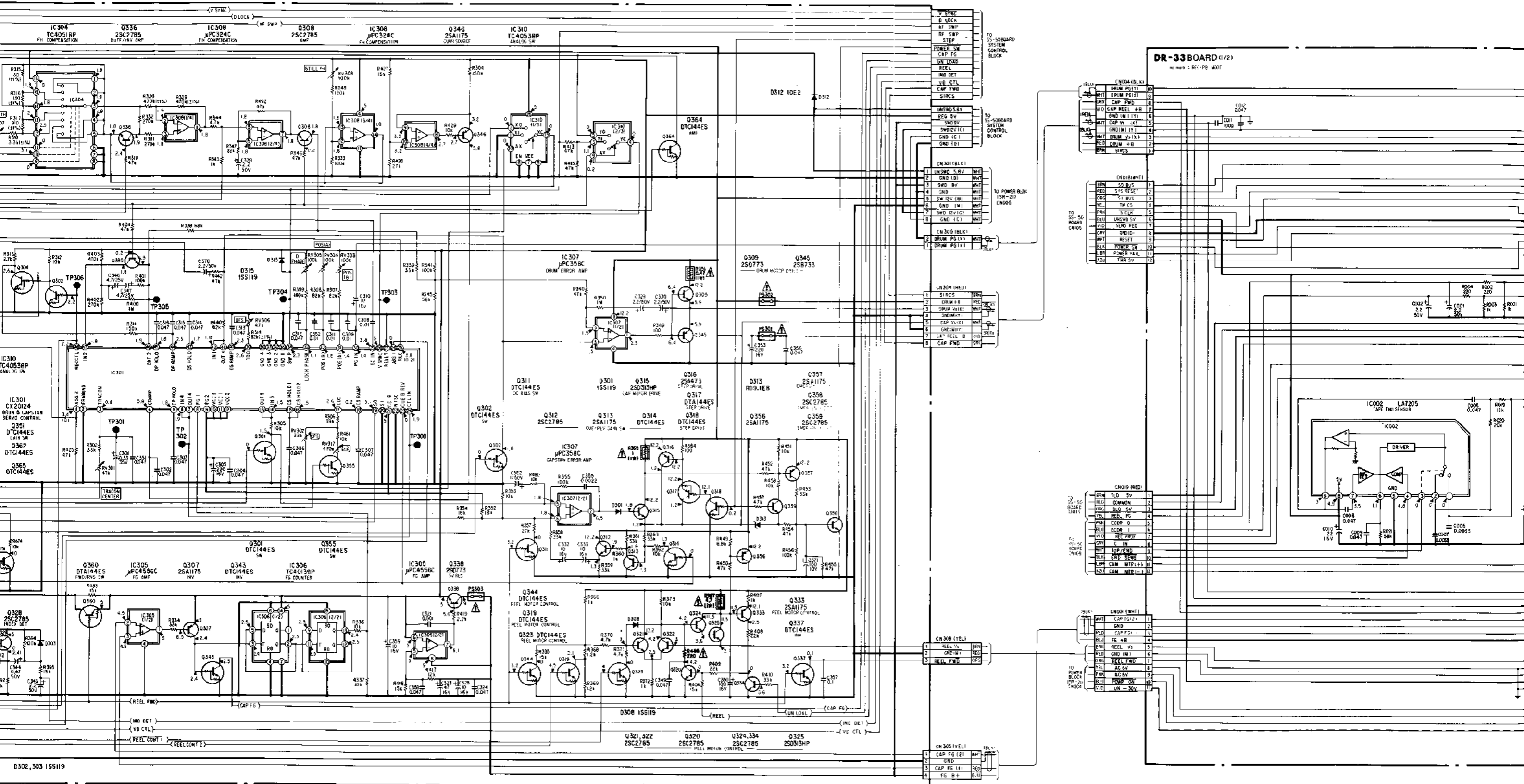
20

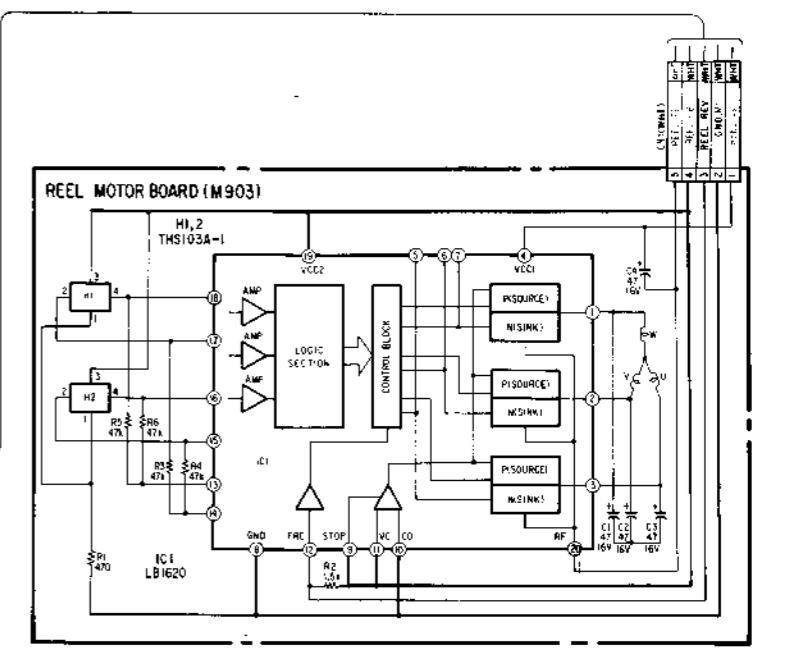
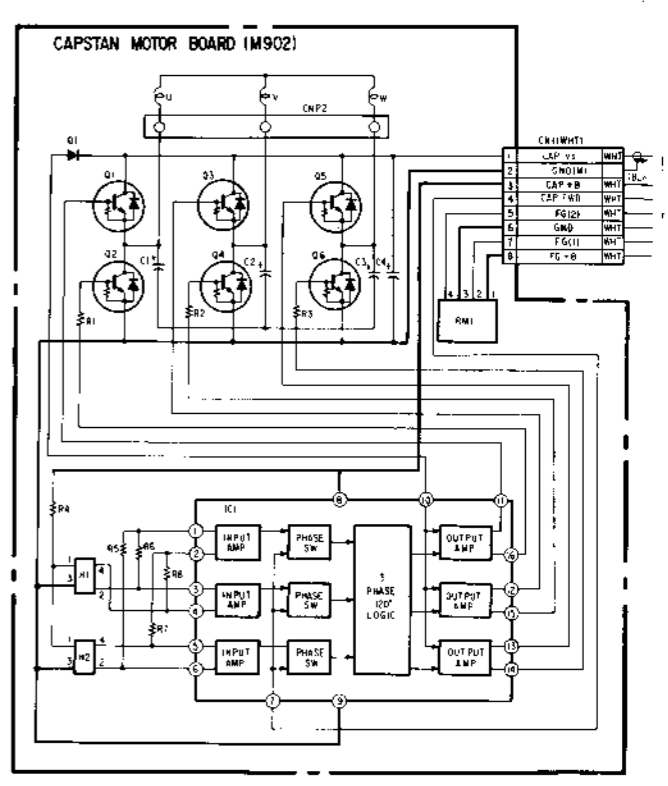
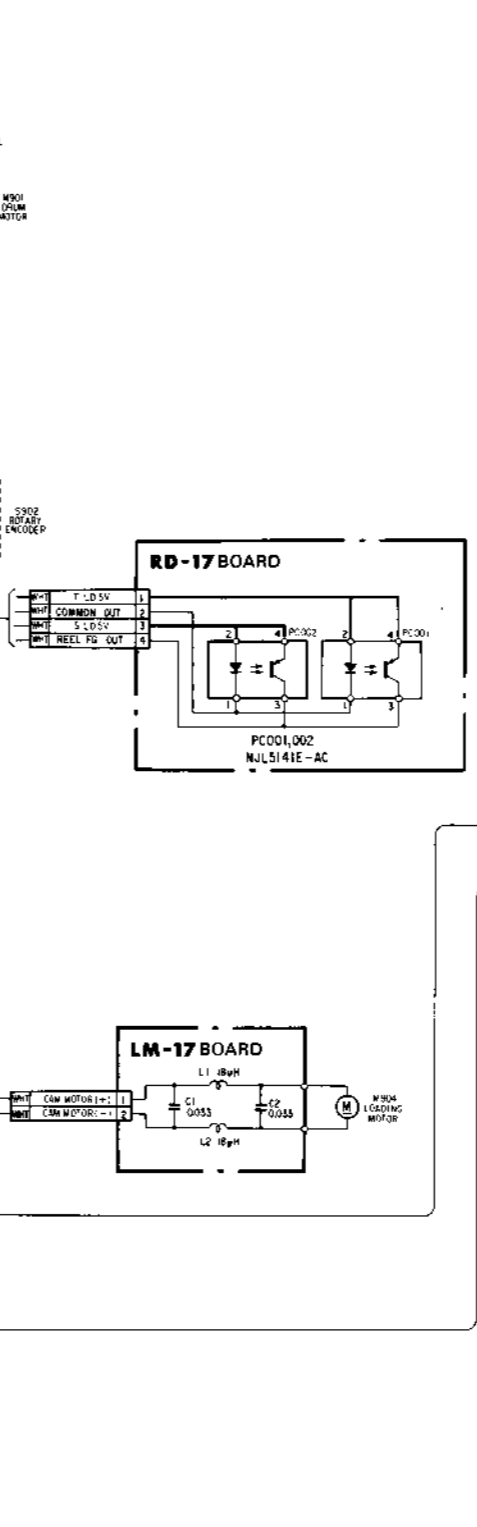
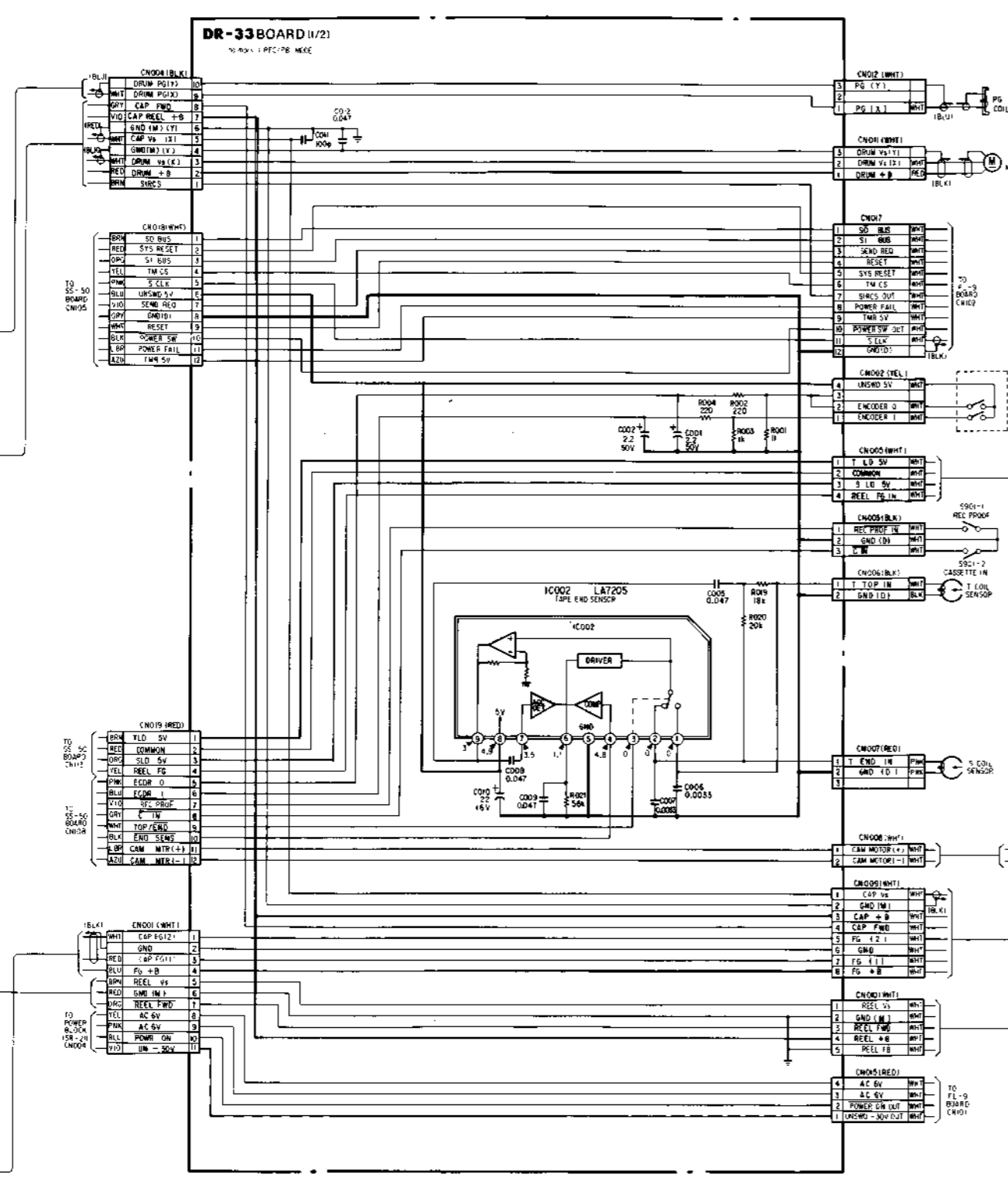
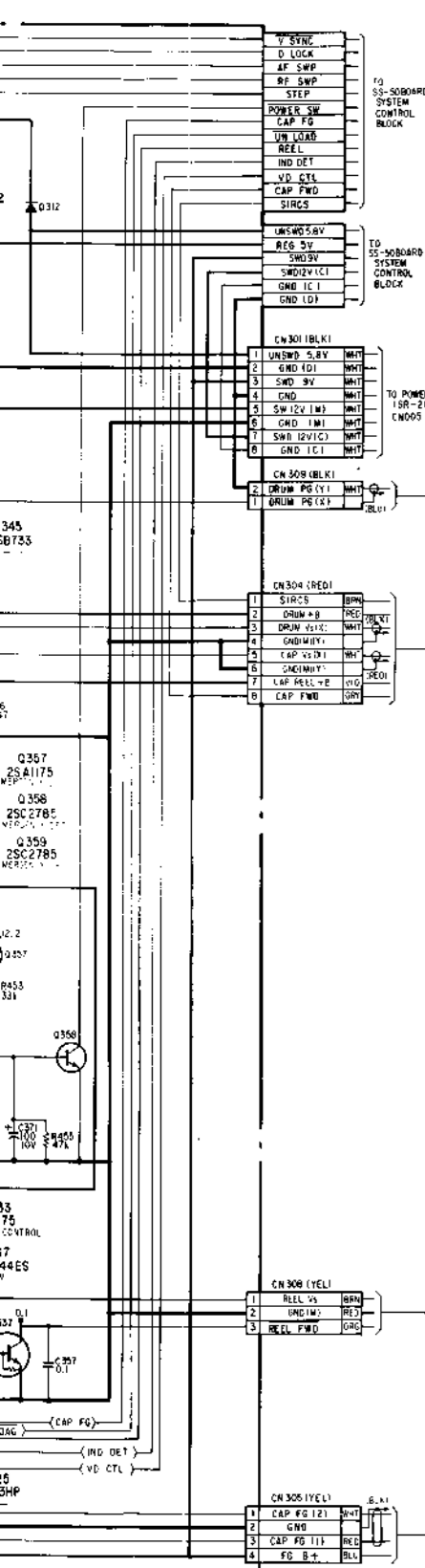
21

22

23

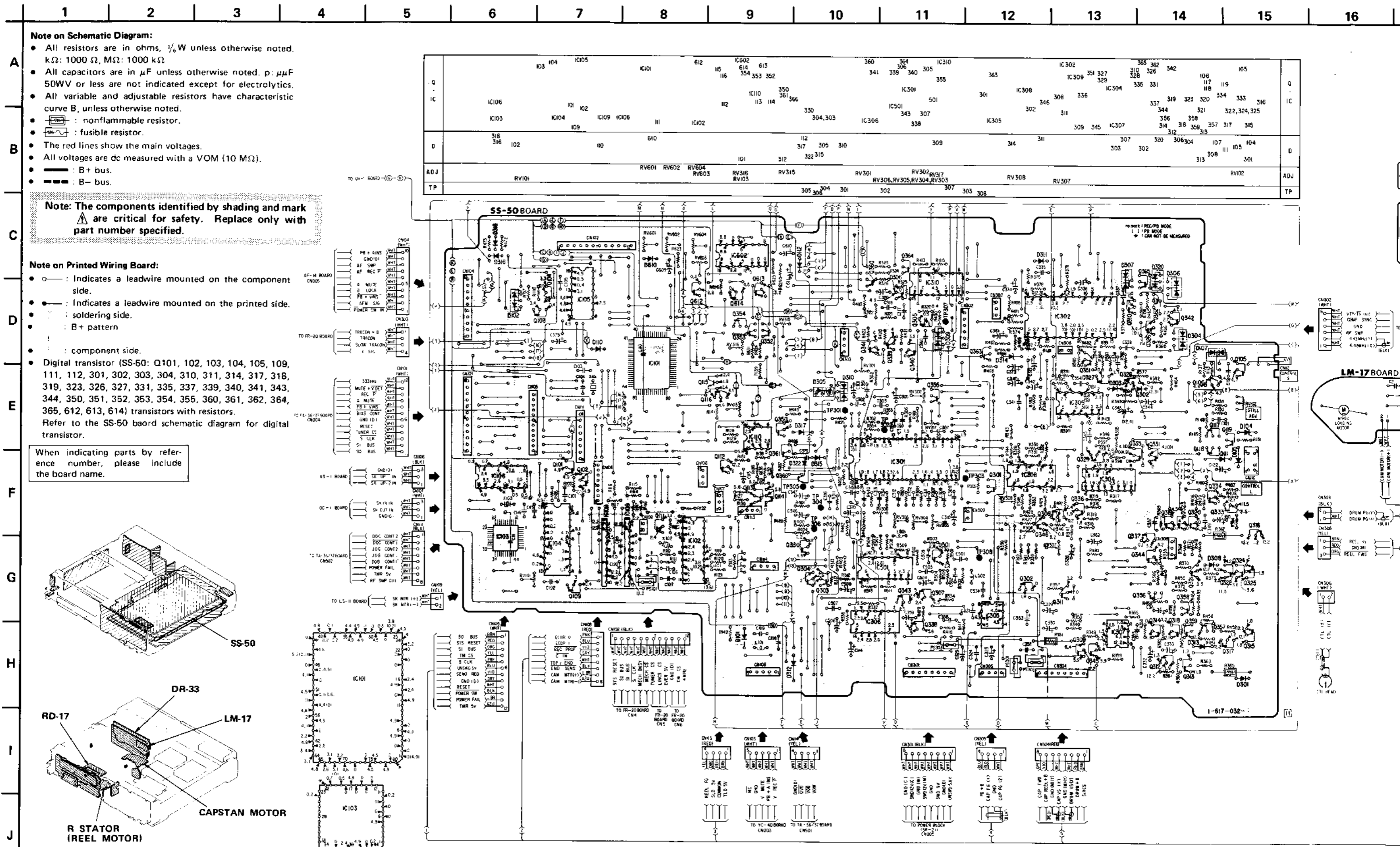
24





SS-50 (SERVO, SYSTEM CONTROL), DR-33 (SYSTEM CONTROL, SIGNAL TRANSLATION), RD-17 (ROTATION DETECTOR), LM-17 (LOADING MOTOR), R STATOR (REEL MOTOR), CAPSTAN MOTOR PRINTED WIRING BOARDS

- Ref. No. SS-50 BOARD: 2,000 series, DR-33 BOARD: 9,300 series, RD-17 BOARD: 9,400 series, LM-17 BOARD: 9,400 series, R STATOR BOARD: 9,100 series, CAPSTAN MOTOR BOARD: 9,200 series -

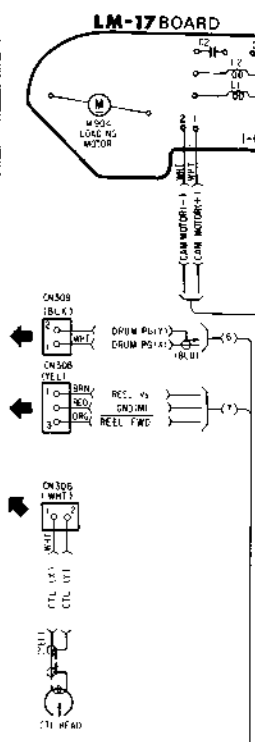
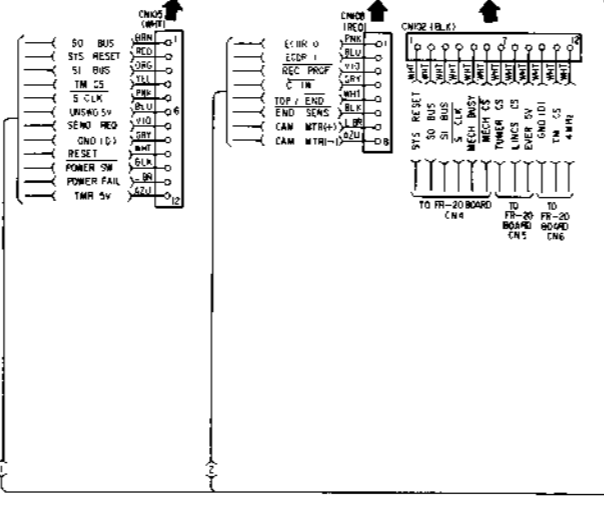
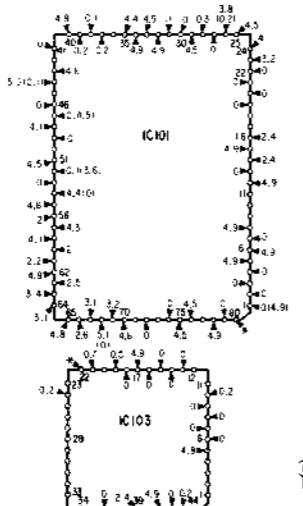
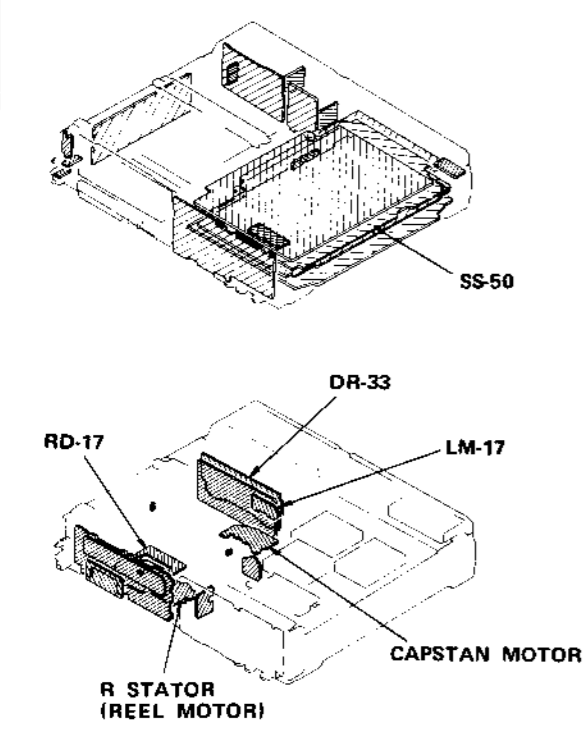


- Note on Schematic Diagram:**
- All resistors are in ohms, 1/8W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
  - All capacitors are in μF unless otherwise noted. p: pμF 50WV or less are not indicated except for electrolytics.
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - : nonflammable resistor.
  - : fusible resistor.
  - The red lines show the main voltages.
  - All voltages are dc measured with a VOM (10 MΩ).
  - : B+ bus.
  - : B- bus.

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

- Note on Printed Wiring Board:**
- : Indicates a leadwire mounted on the component side.
  - : Indicates a leadwire mounted on the printed side.
  - : soldering side.
  - : B+ pattern
  - : component side.
  - Digital transistor (SS-50: Q101, 102, 103, 104, 105, 109, 111, 112, 301, 302, 303, 304, 310, 311, 314, 317, 318, 319, 323, 326, 327, 331, 335, 337, 339, 340, 341, 343, 344, 350, 351, 352, 353, 354, 355, 360, 361, 362, 364, 365, 612, 613, 614) transistors with resistors. Refer to the SS-50 board schematic diagram for digital transistor.

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

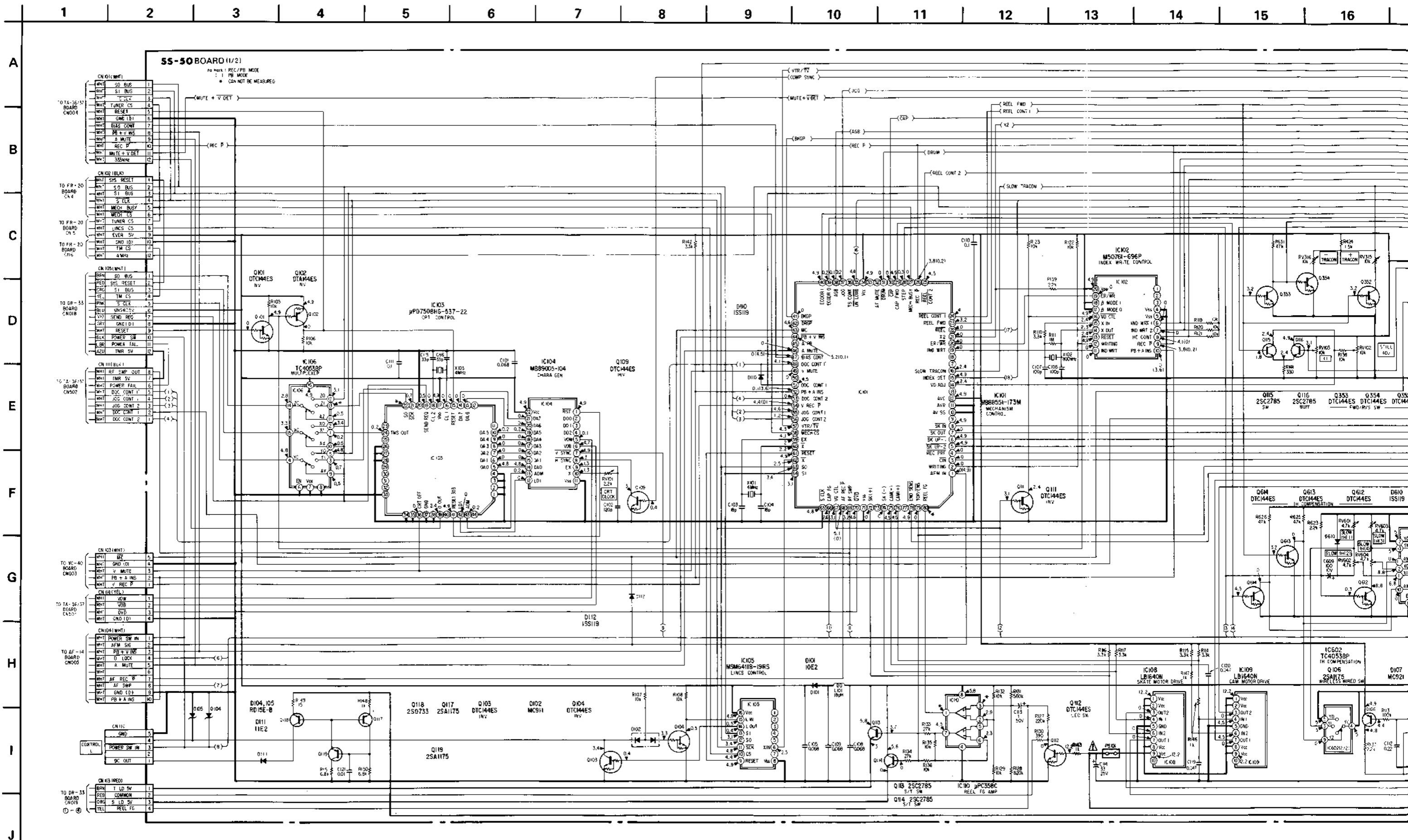






4.5. SS-50 (SERVO, SYSTEM CONTROL), QV-1 (SYSTEM CONTROL), OC-1 (SKIP SWITCH), US-1 (SKIP SWITCH), LS-11 (SKATE MOTOR) SCHEMATIC DIAGRAM

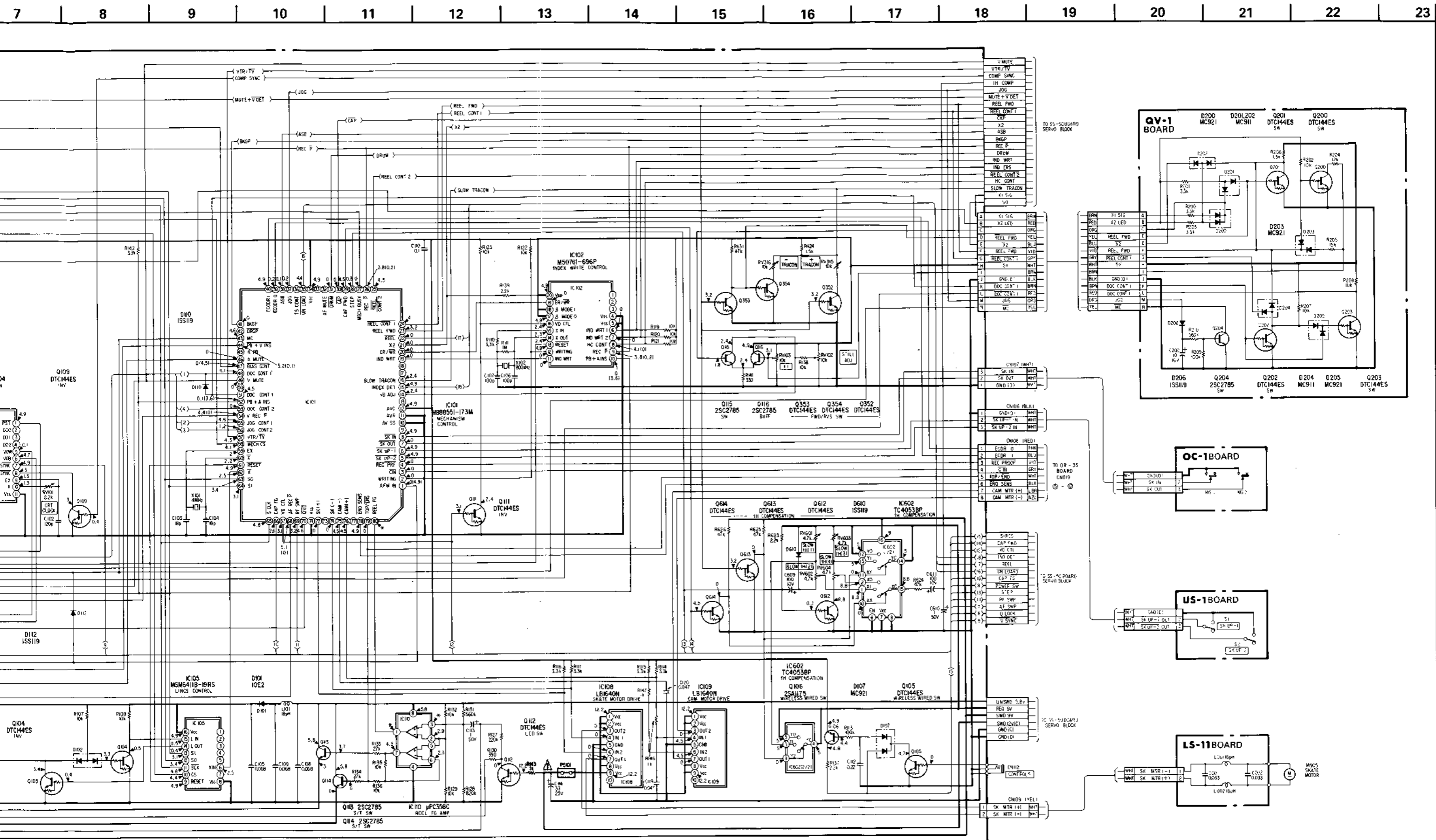
- Ref. No. SS-50 BOARD: 2,000 series, QV-1 BOARD: 8,000 series, OC-1 BOARD: 9,500 series, US-1 BOARD: 9,500 series, LS-11 BOARD: 9,500 series -



# SYSTEM CONTROL SYSTEM CONTROL

KIP SWITCH), LS-11 (SKATE MOTOR) SCHEMATIC DIAGRAM

Series, LS-11 BOARD: 9,500 series -






SS-50 (SERVO, SYSTEM CONTROL), QV-1 (SYSTEM CONTROL), OC-1 (SKIP SWITCH), US-1 (SKIP SWITCH), LS-11 (SKATE MOTOR) PRINTED WIRING BOARDS

— Ref. No. SS-50 BOARD: 2,000 series, QV-1 BOARD: 8,000 series, OC-1 BOARD: 9,500 series, US-1 BOARD: 9,500 series, LS-11 BOARD: 9,500 series —





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

**Note on Schematic Diagram:**

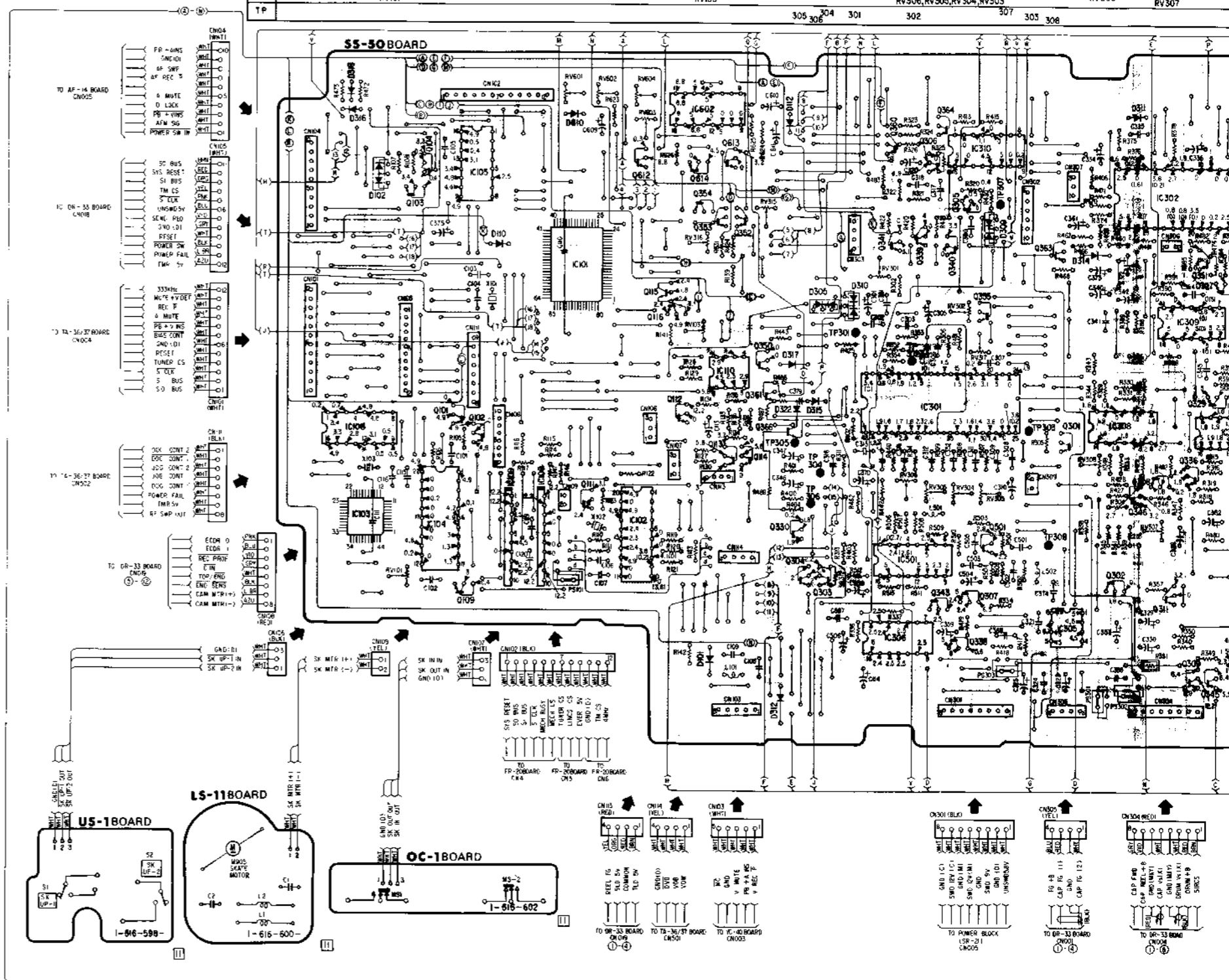
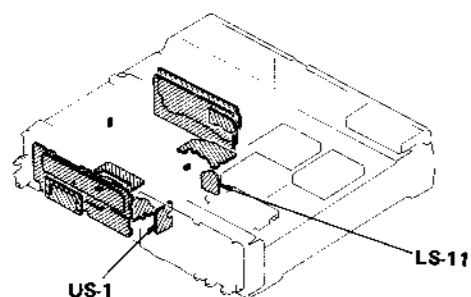
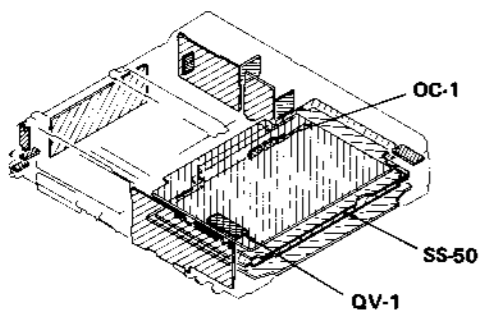
- All resistors are in ohms,  $\frac{1}{2}W$  unless otherwise noted.  $k\Omega$ : 1000  $\Omega$ ,  $M\Omega$ : 1000  $k\Omega$
- All capacitors are in  $\mu F$  unless otherwise noted.  $p$ :  $\mu M F$   
50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : nonflammable resistor.
-  : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10  $M\Omega$ ).
-  : B+ bus.

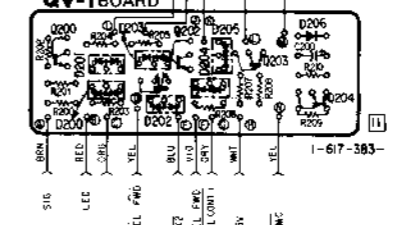
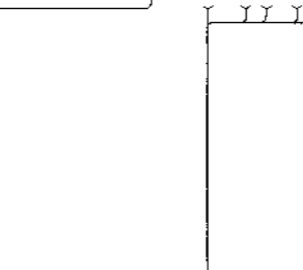
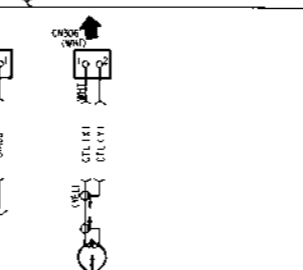
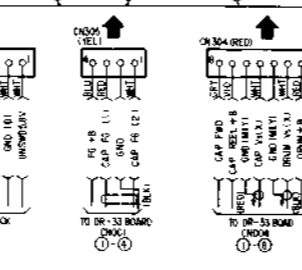
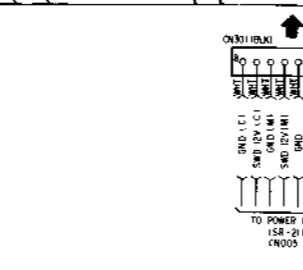
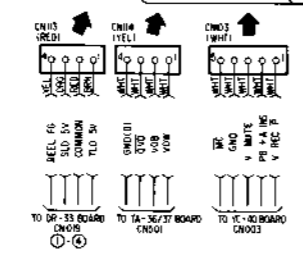
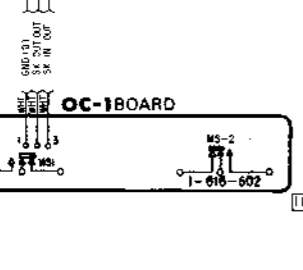
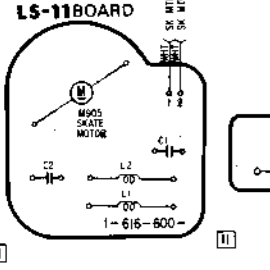
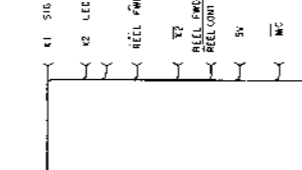
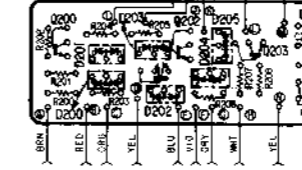
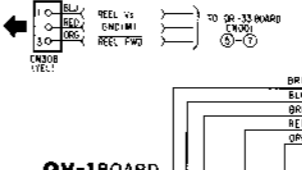
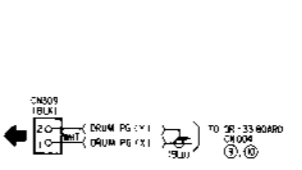
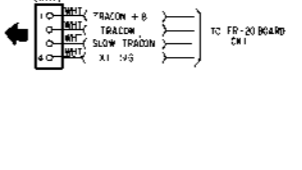
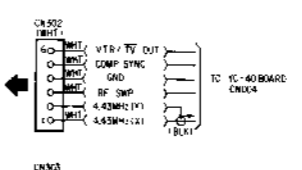
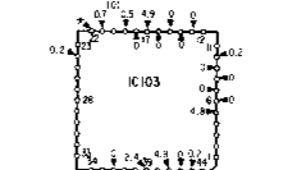
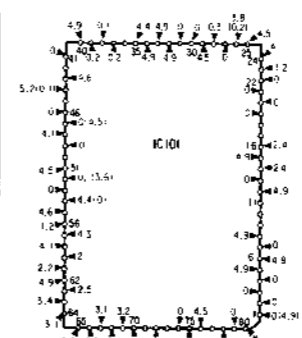
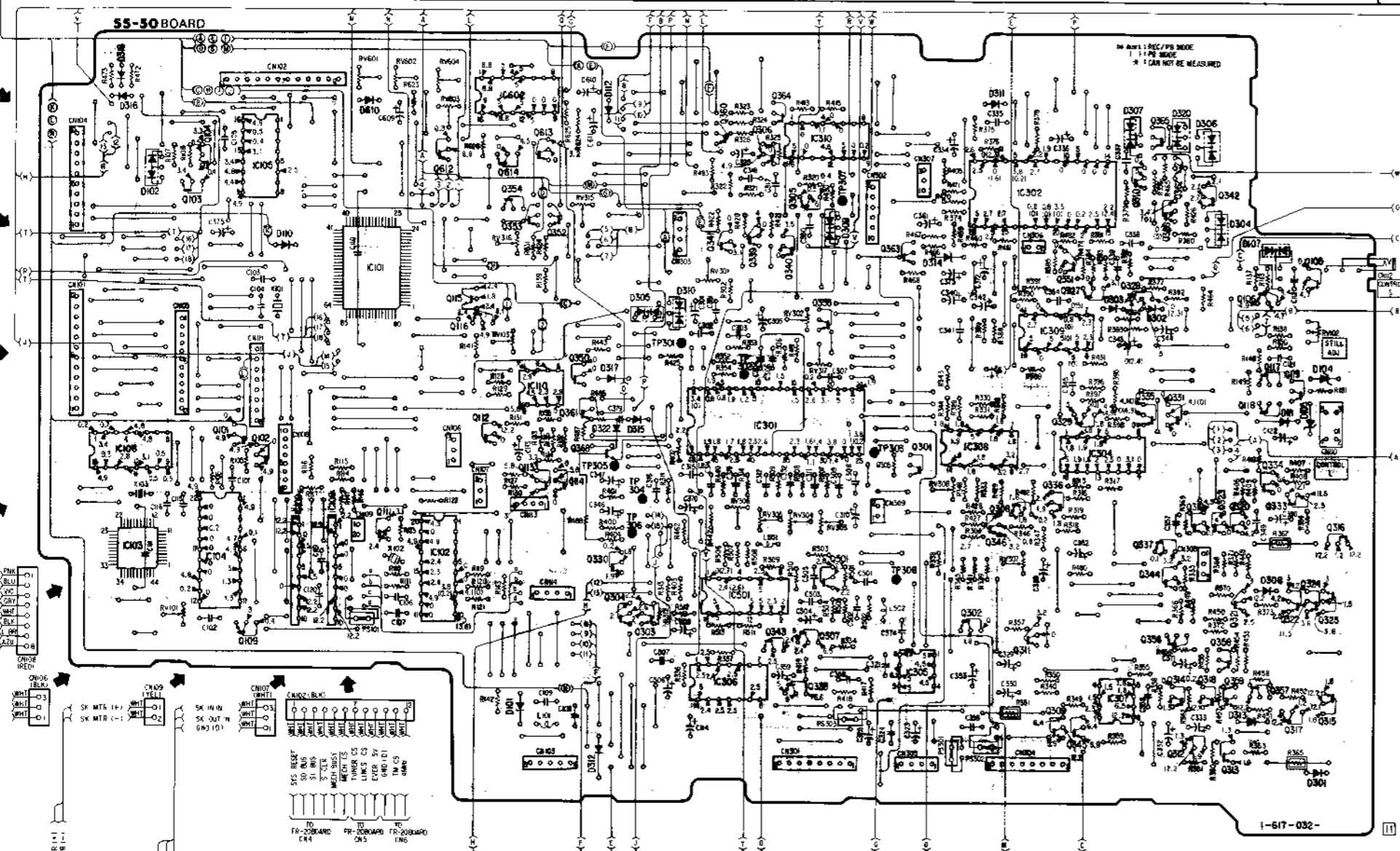
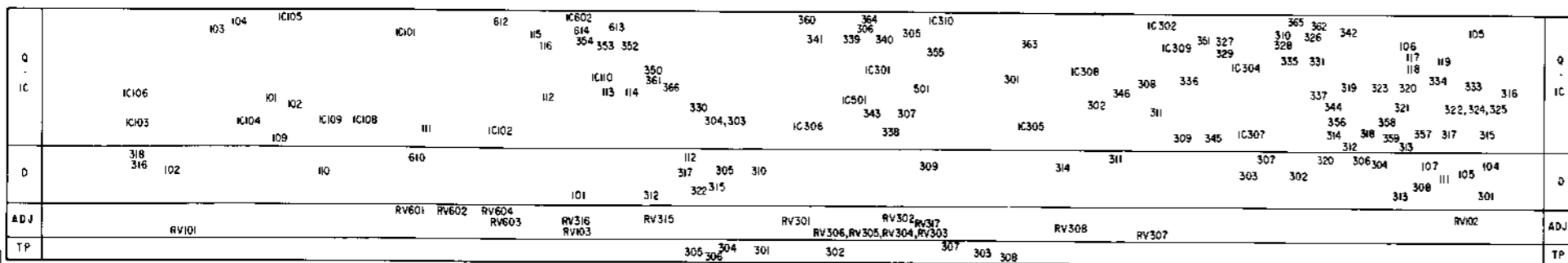
**Note: The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.**

**Note on Printed Wiring Board:**

-  : Indicates a leadwire mounted on the component side.
-  : Indicates a leadwire mounted on the printed side.
-  : soldering side.
-  : B+ pattern
- Digital transistor (SS-50: Q101, 102, 103, 104, 105, 109, 111, 112, 301, 302, 303, 304, 310, 311, 314, 317, 318, 319, 323, 326, 327, 331, 335, 337, 339, 340, 341, 343, 344, 350, 351, 352, 353, 354, 355, 360, 361, 362, 364, 365, 612, 613, 614. QV-1: Q200, 201, 202, 203) transistors with resistors.  
Refer to the SS-50 and QV-1 boards schematic diagram for digital transistor.

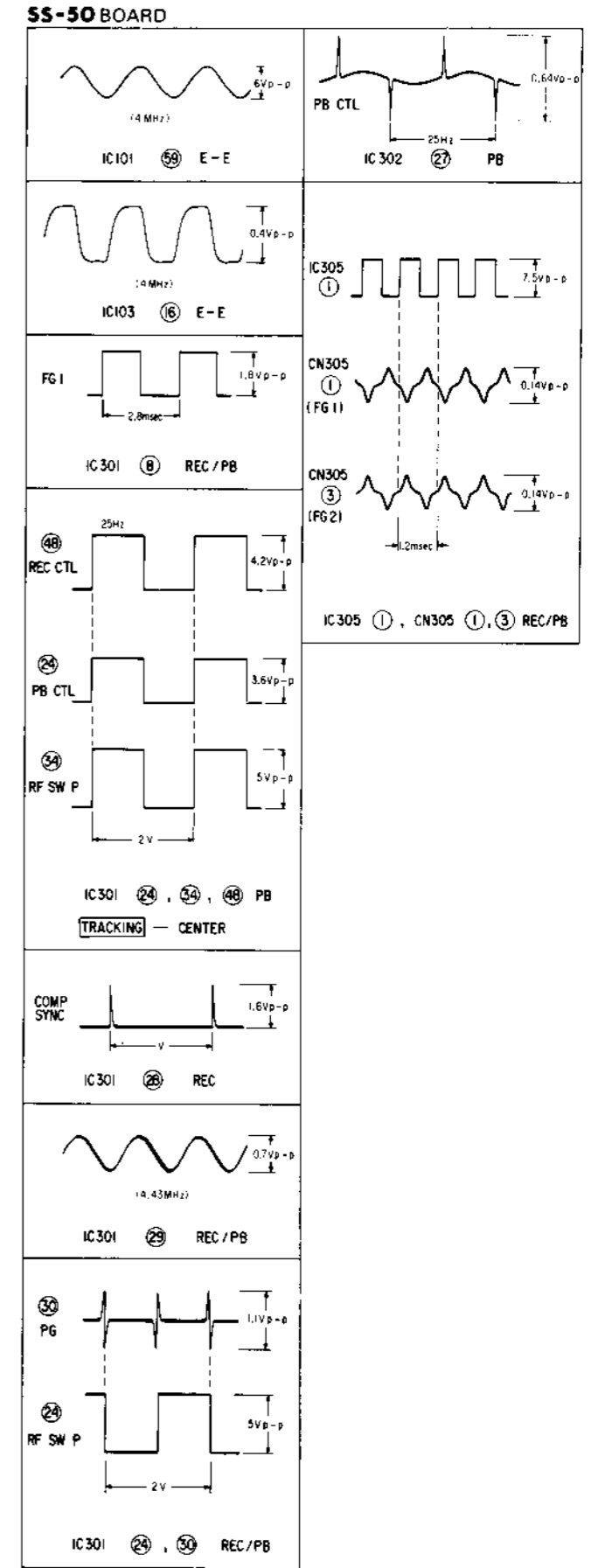
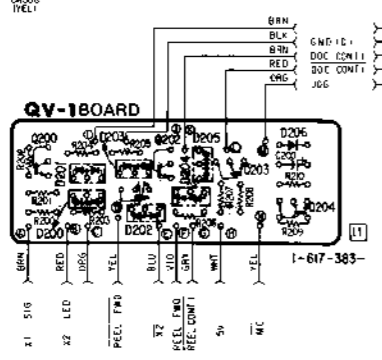
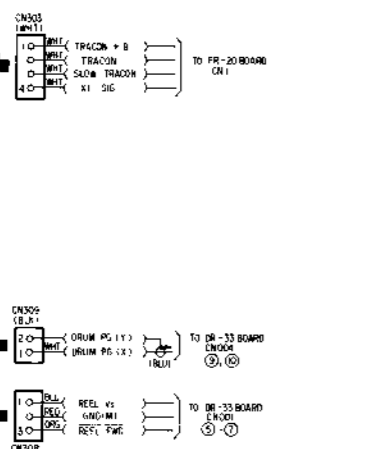
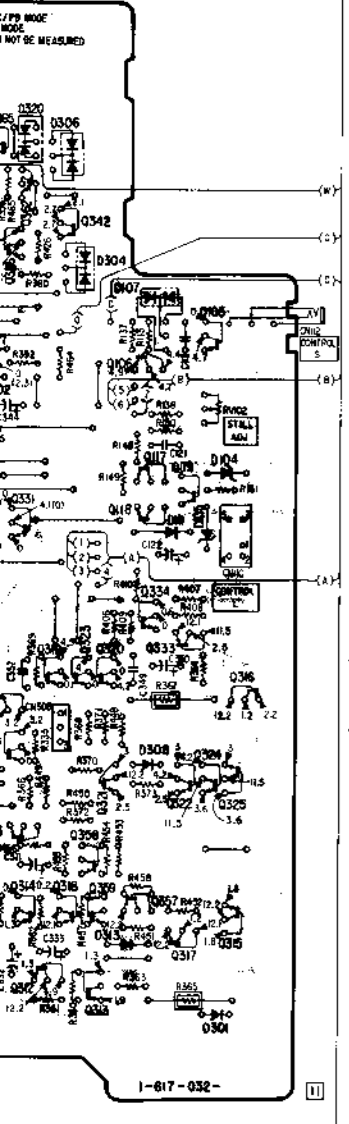
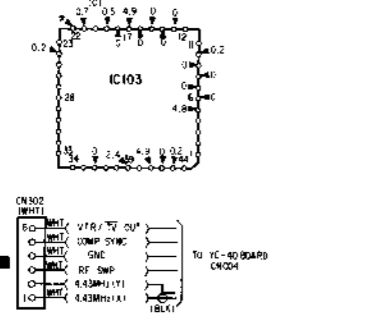
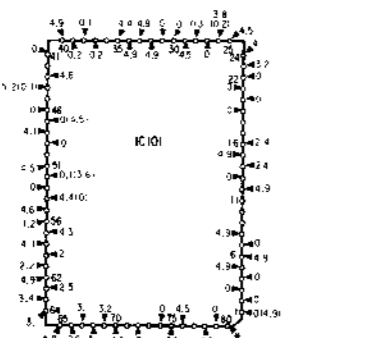
When indicating parts by reference number, please include the board name.





18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

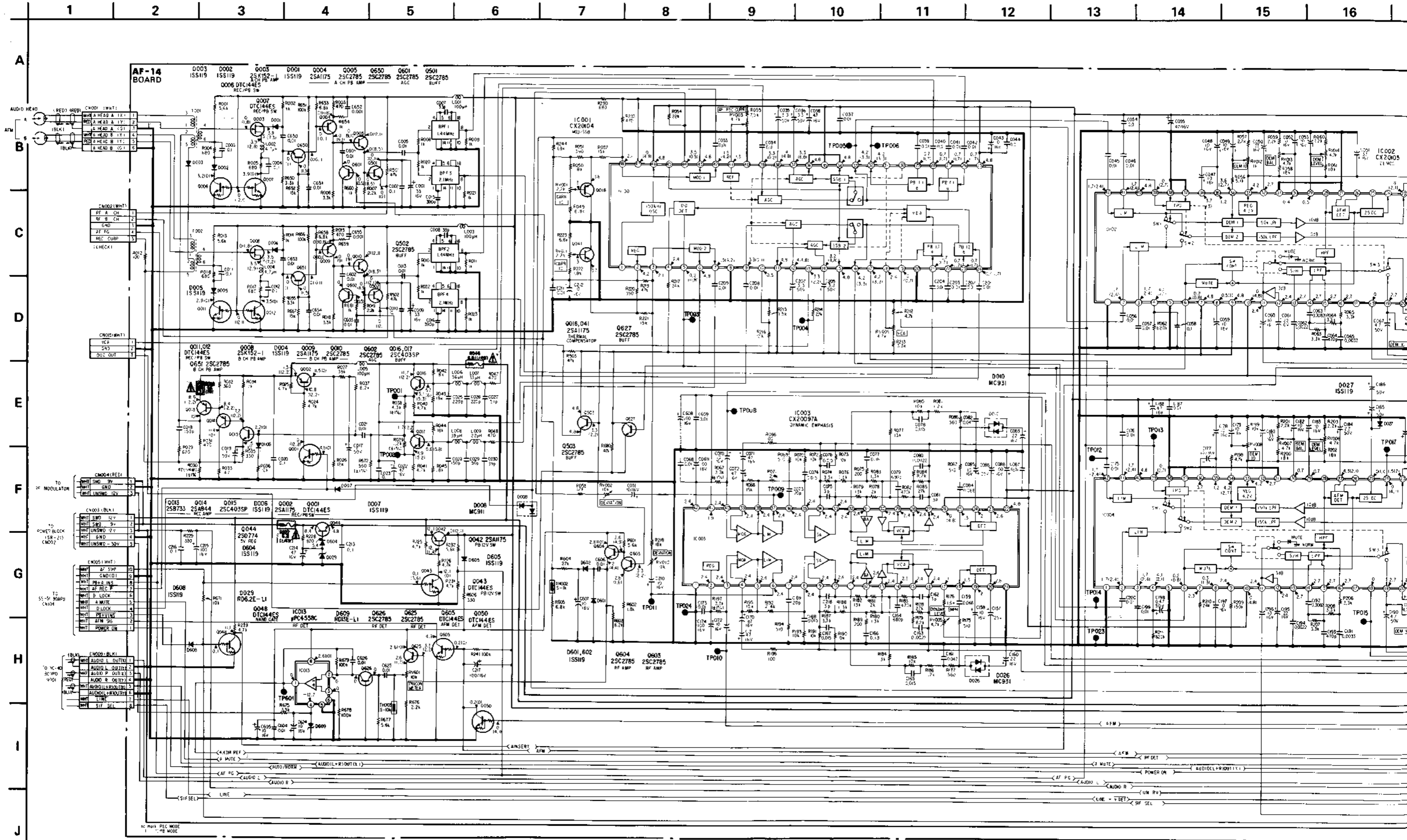
362	342	106	105	0			
326	118	117	119	IC			
331	319	325	320	334	333	316	
344	321	322, 324, 325					
356	358						
314	348	359	357	317	315		
312	313						
320	306, 304	107	105	104			
313	308	301					



A  
B  
C  
D  
E  
F  
G  
H  
I  
J

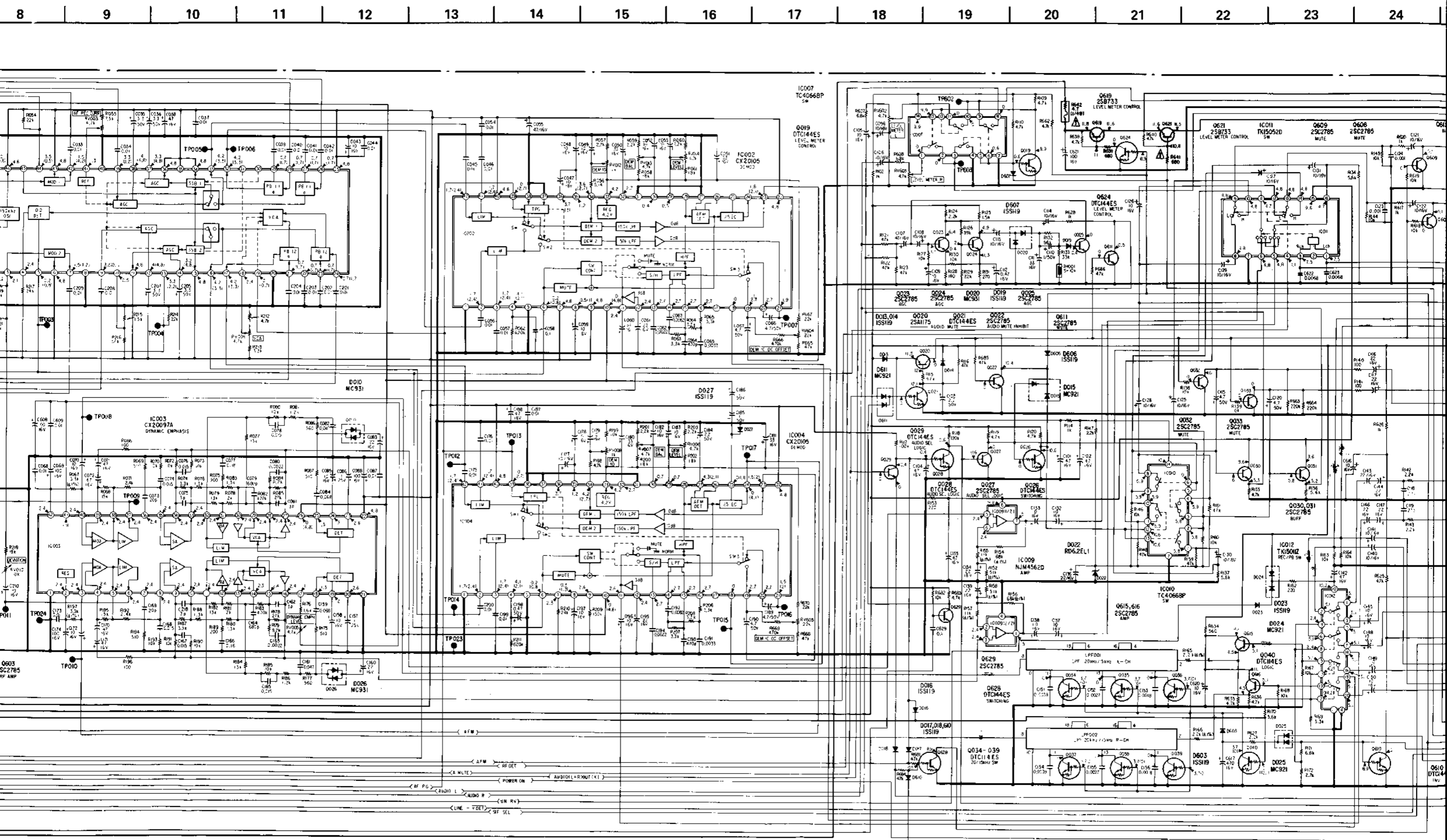
4-6. AF-14 (AFM SIGNAL PROCESS), PJ-3 (AUDIO IN/OUT JACKS), FL-8 (INDICATOR), DH-4 (A/V HEAD AMP), PW-15 (POWER SWITCH, HEADPHONE LEVEL), DR-33 (SYSTEM CONTROL, SIGNAL TRANSLATION), MC-10 (MICROPHONE JACK), HP-18 (HP-18 BOARD)

- Ref. No. AF-14 BOARD: 3,000 series, PJ-3 BOARD: 9,500 series, FL-8 BOARD: 9,600 series, DH-4 BOARD: 7,000 series, PW-15 BOARD: 12,000 series, DR-33 BOARD: 9,300 series, MC-10 BOARD: 13,000 series, HP-18 BOARD: 9,800 series -



PW-15 (POWER SWITCH, HEADPHONE LEVEL), DR-33 (SYSTEM CONTROL, SIGNAL TRANSLATION), MC-10 (MICROPHONE JACK), HP-18 (HEADPHONE JACK) SCHEMATIC DIAGRAMS

D: 12,000 series, DR-33 BOARD: 9,300 series, MC-10 BOARD: 13,000 series, HP-18 BOARD: 9,800 series -

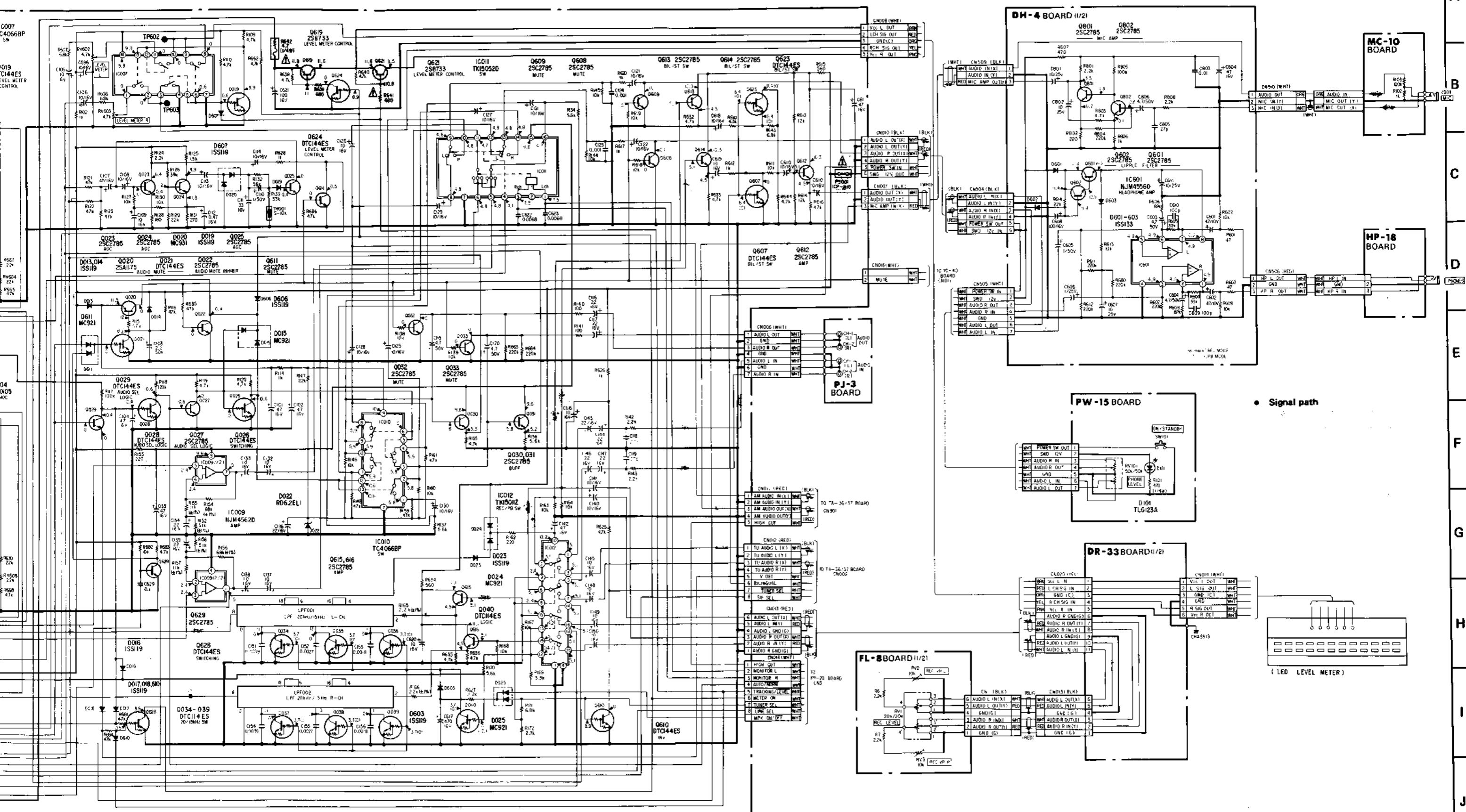




# AUDIO AUDIO

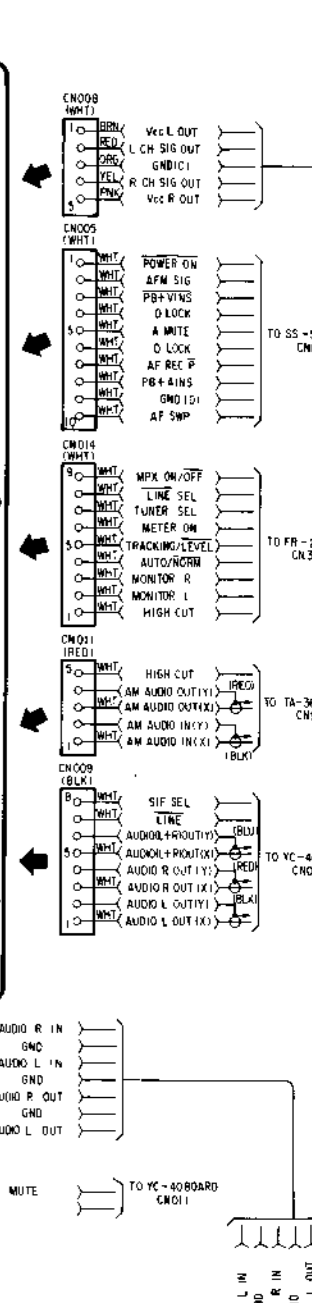
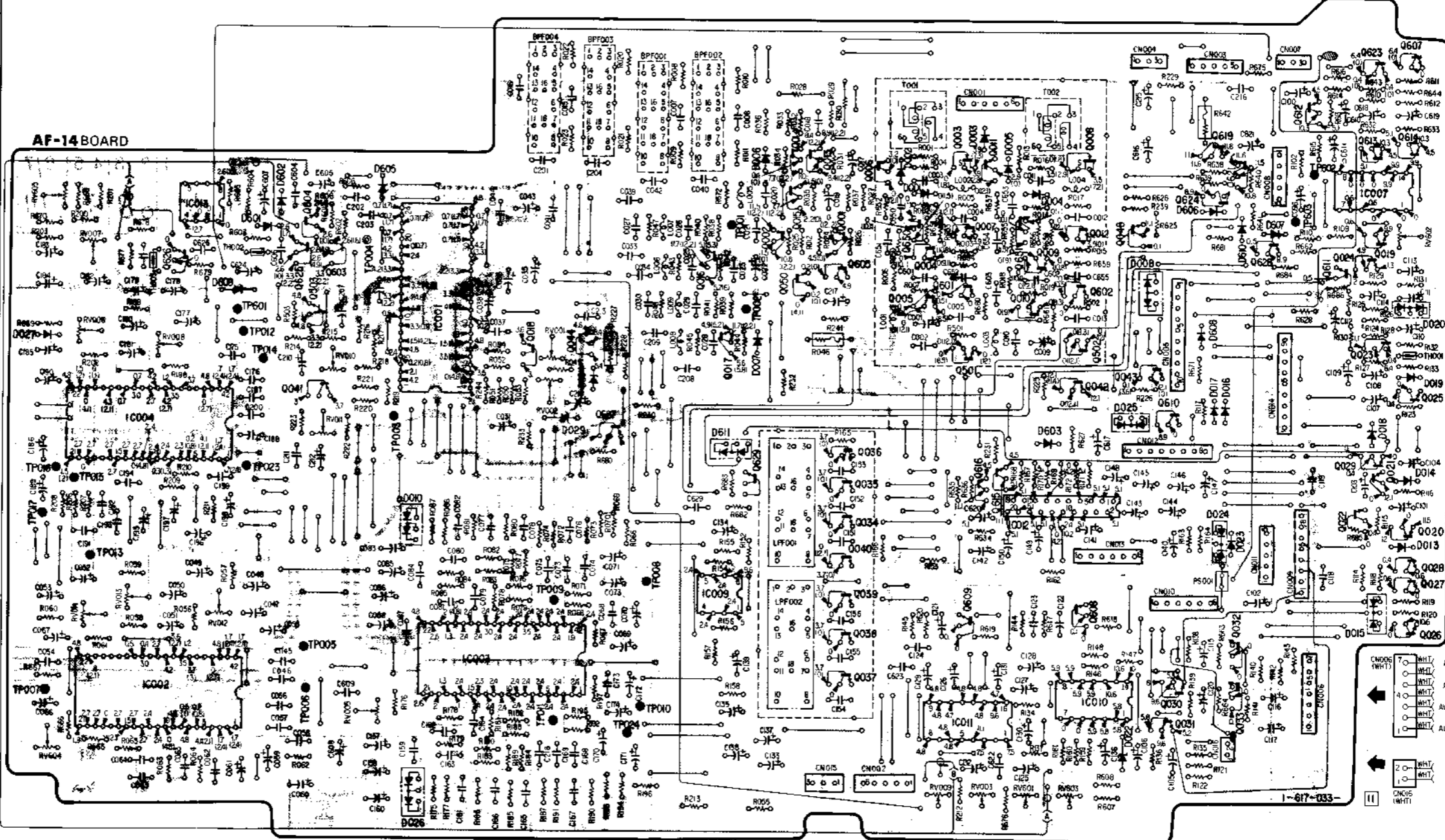
PHONE JACK) SCHEMATIC DIAGRAMS

18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33



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

	Q, IC	D	ADJ	TP
A	607 623			
B	612	003		
C	014, 013, 619, 613 003, 011, 008, 621 006, IC007 IC013, 015, 624	605 001, 004 RV605		602
D	IC001, 650, 651 604, 007, 048 002, 001, 012, 018 625, 603, 004, 628 626, 016, 009, 024 611 605, 501, 602 005	601, 605, 607 RV007 RV602		001 004 603
E	503, 010 017, 502, 023 044, 501 018, 043	609, 008 RV006 RV001 RV008 RV002		601, 002 012 014
F	IC004, 041 042, 025 027, 007 016, 043	RV011 RV002		003 004
G	627, 036, 615, 029 629, 616, 035 035 IC012 034, 022, 020 040, 028 IC009, 027 039, 608 609, 026 038 IC003, 032 IC002, 037, 030, 033 IC010 IC011, 031	RV013 RV012 RV014 RV005 RV604 RV009, RV003 RV601, RV603		016, 023, 015 017 013 008 009 005 007, 010 011, 024 026
H	Q, IC	D	ADJ	TP



**Note on Schematic Diagram:**

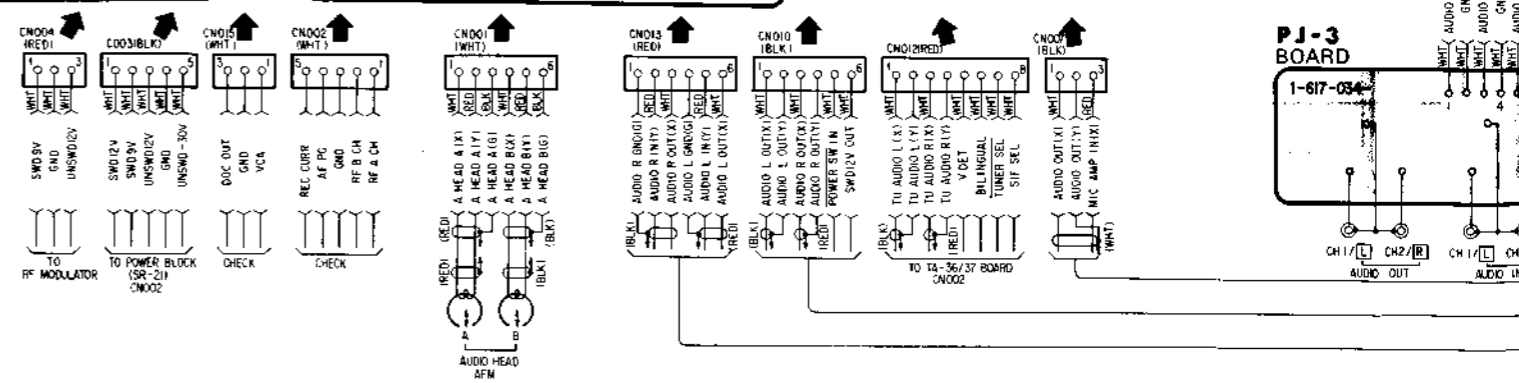
- All resistors are in ohms, 1/8W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: μF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
- : B+ bus.

**Note on Printed Wiring Board:**

- : Indicates a leadwire mounted on the component side.
- : Indicates a leadwire mounted on the printed side.
- : soldering side.
- : B+ pattern
- Digital transistor (AF-14: Q001, 006, 007, 011, 012, 019, 021, 026, 028, 029, 034, 035, 036, 037, 038, 039, 040, 043, 048, 050, 605, 607, 610, 623, 624, 628) transistors with resistors. Refer to the AF-14 board schematic diagram for digital transistor.

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

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

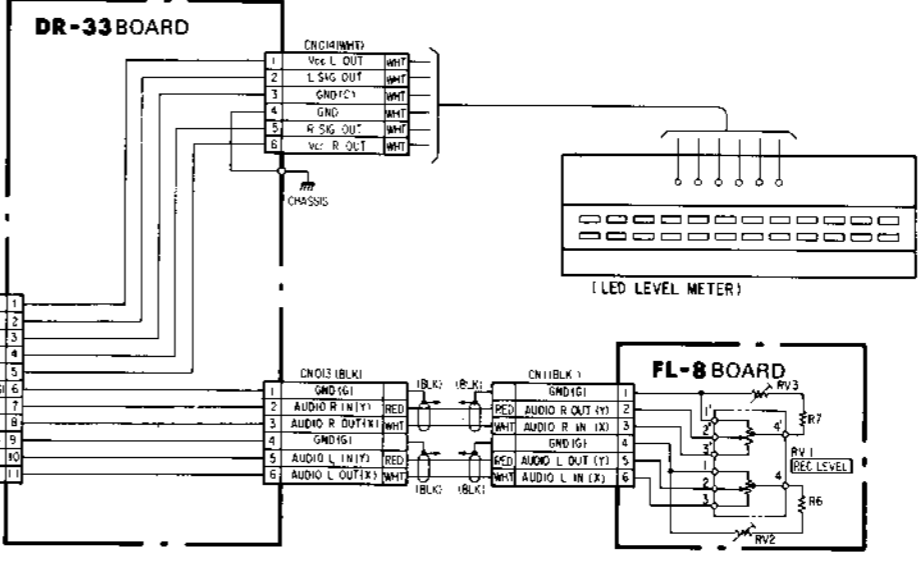
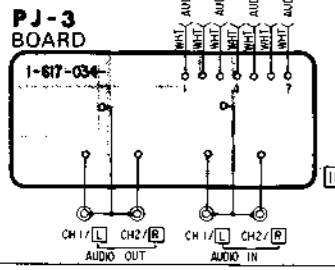
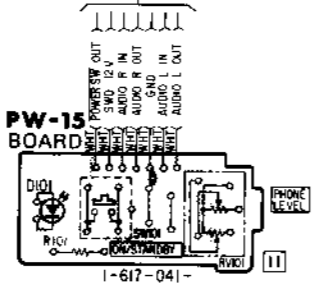
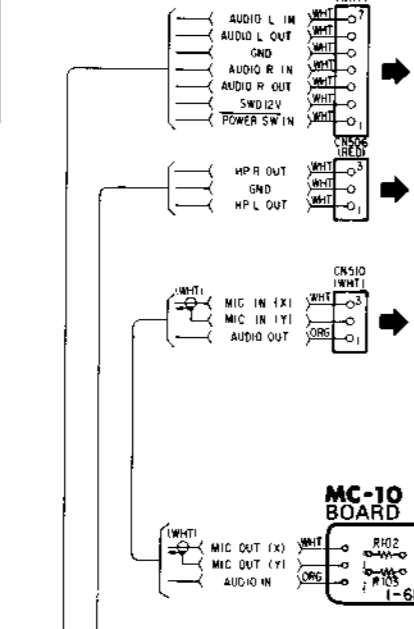
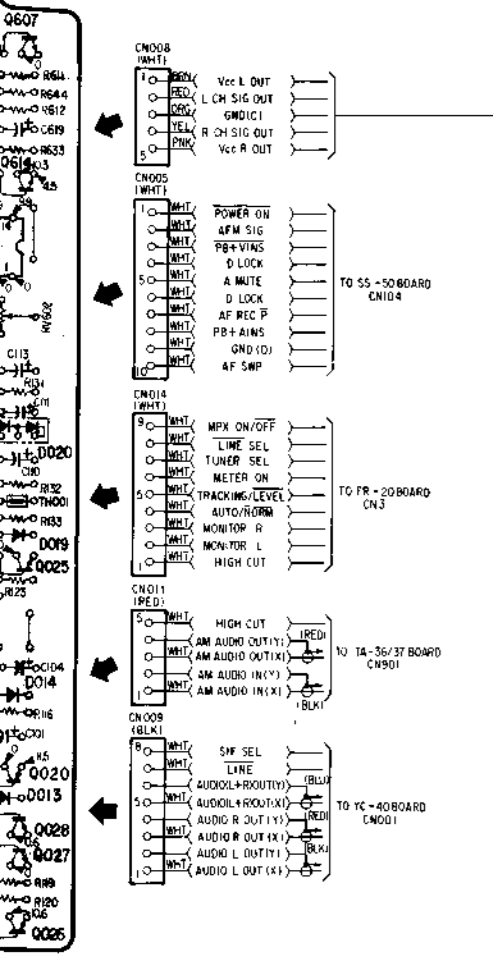
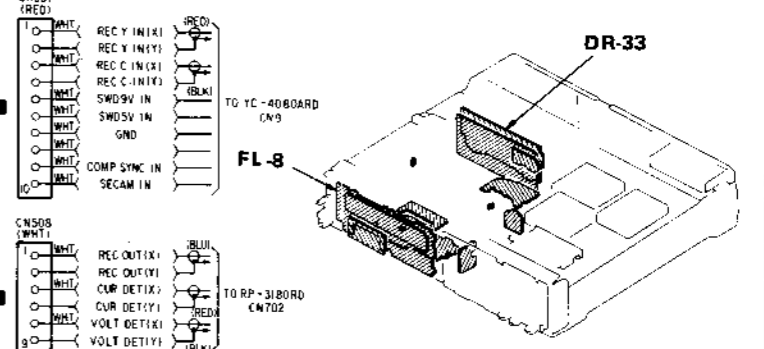
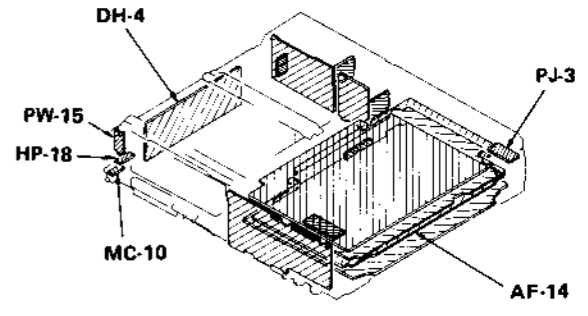
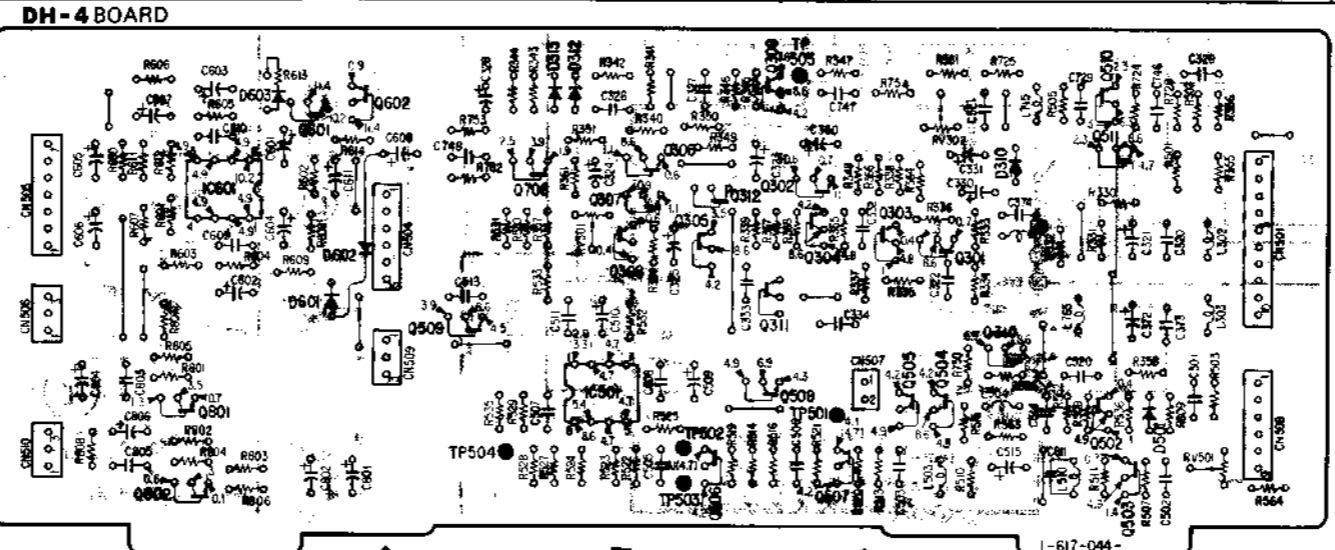


# AUDIO AUDIO

CROPHONE JACK), HP-18 (HEADPHONE JACK) PRINTED WIRING BOARDS

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Q	IC	601	602	509	706	306	309	302	510	511	Q
D		603	601, 602		313, 312	308, 307	311, 310	304	502	503	D
ADJ						IC501	508	507	RV301	RV302	ADJ
TP											TP
						504	502, 503	505			

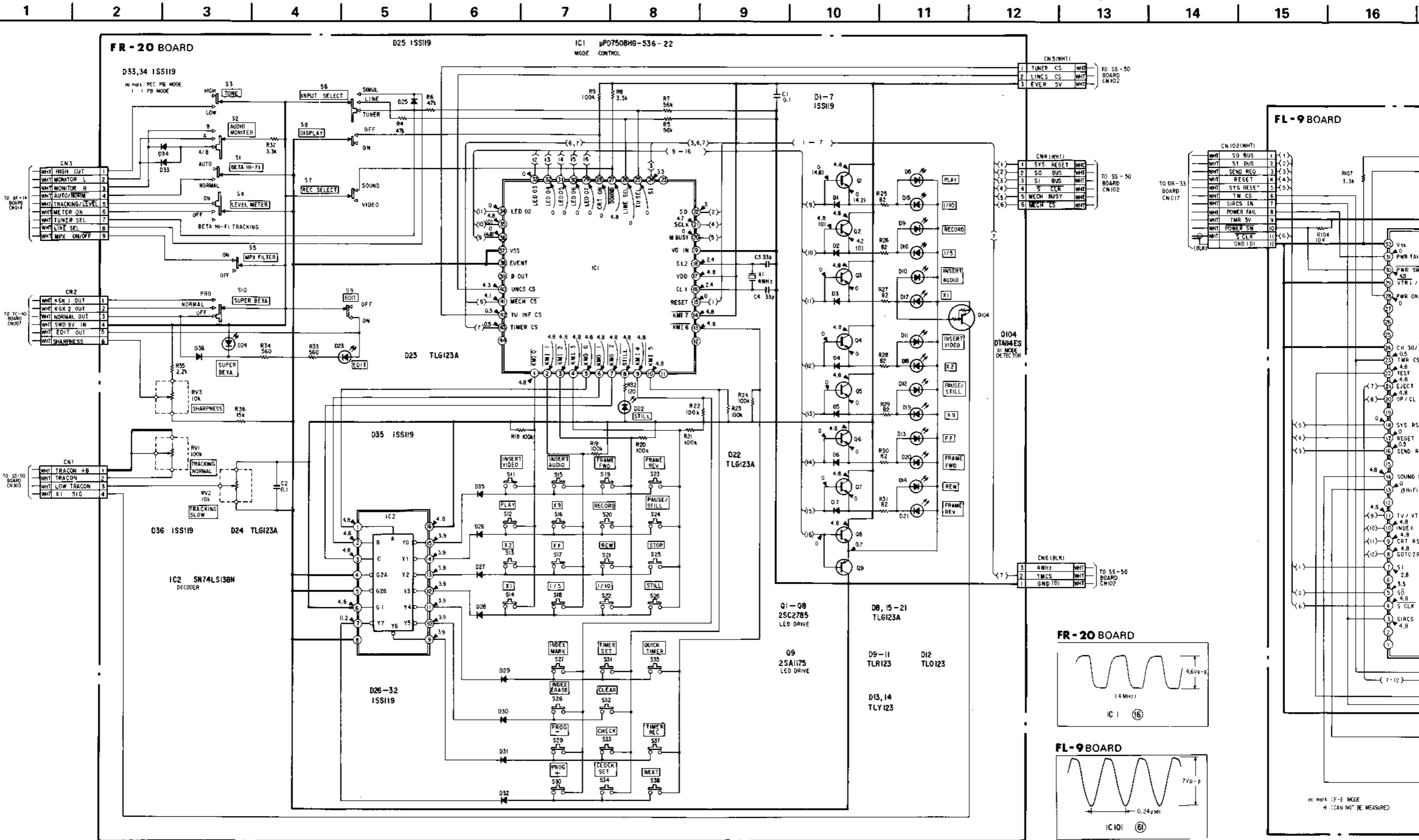


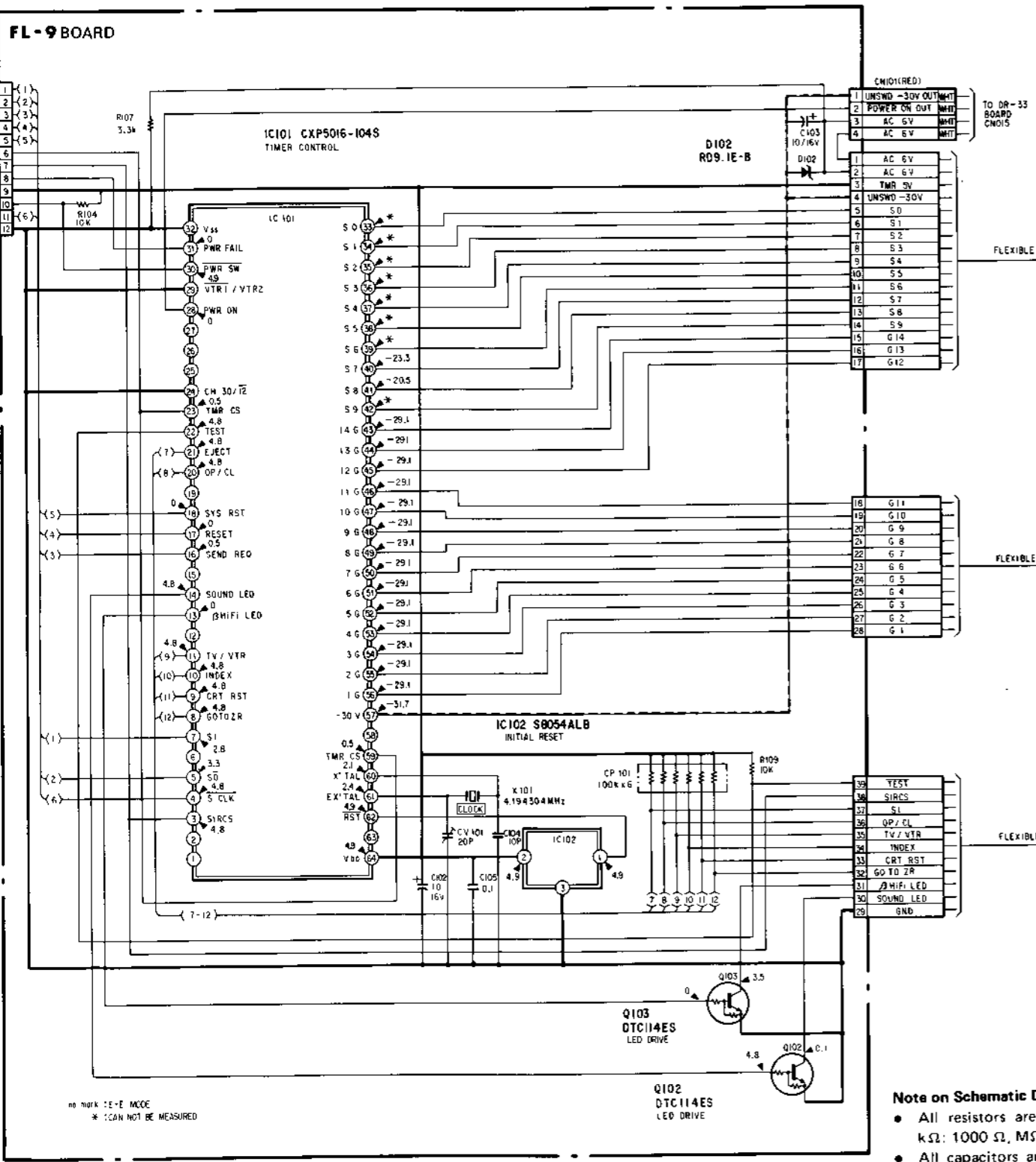
MC-Service

4-7. FL-8 (INDICATOR), FL-9 (TIMER CONTROL), FR-20 (FUNCTION SWITCH) SCHEMATIC DIAGRAMS

**TIMER**

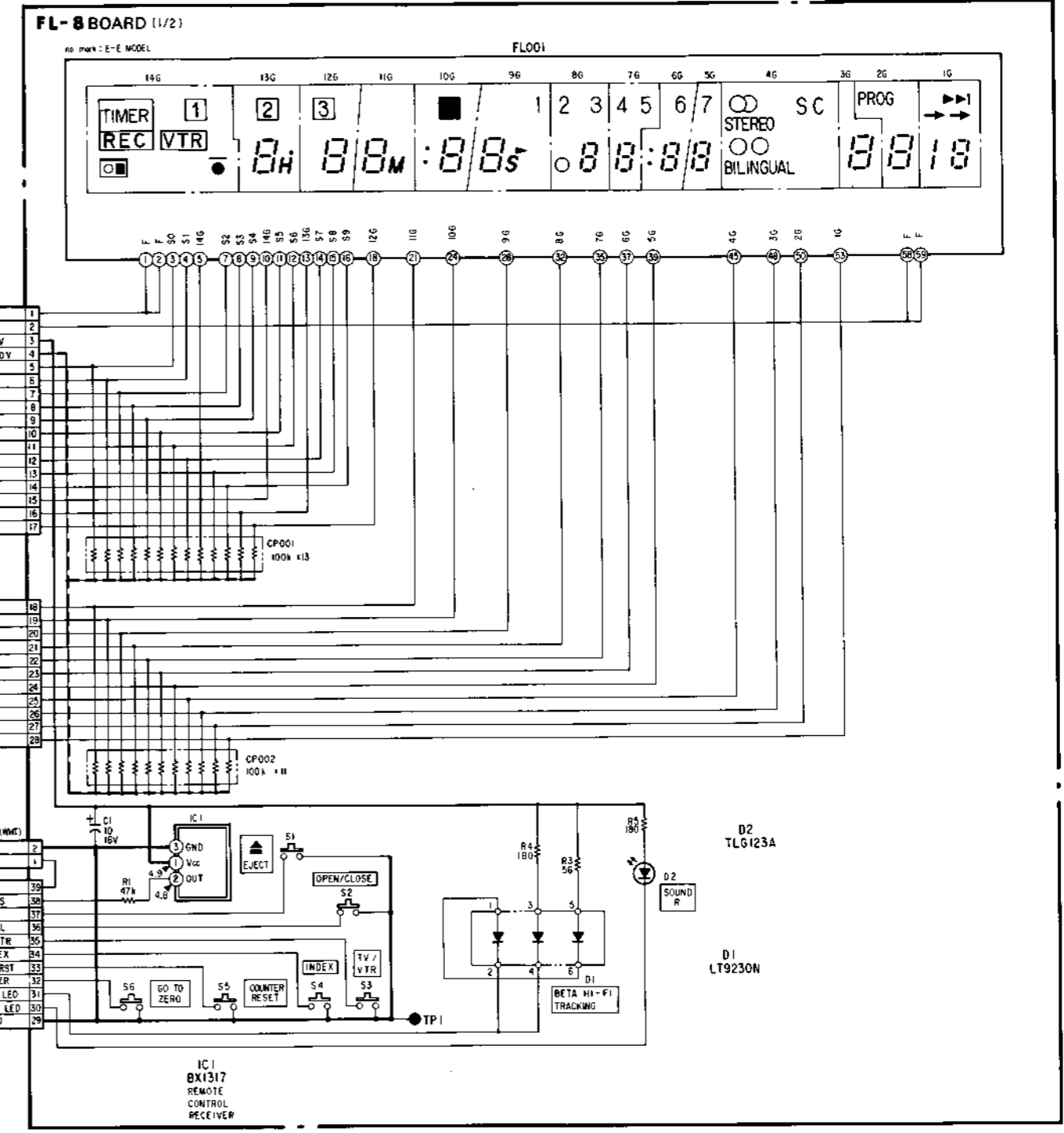
- Ref. No. FL-8 BOARD: 9,600 series, FL-9 BOARD: 9,700 series, FR-20 BOARD: 9,800 series -





NO MARK 1E-E MODE  
\* 1 CAN NOT BE MEASURED

- Note on Schematic Diagram:**
- All resistors are in ohms, 1/8 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
  - All capacitors are in μF unless otherwise noted. p: μF 50WV or less are not indicated except for electrolytics.
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - : nonflammable resistor.
  - : fusible resistor.



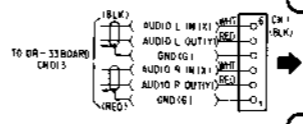
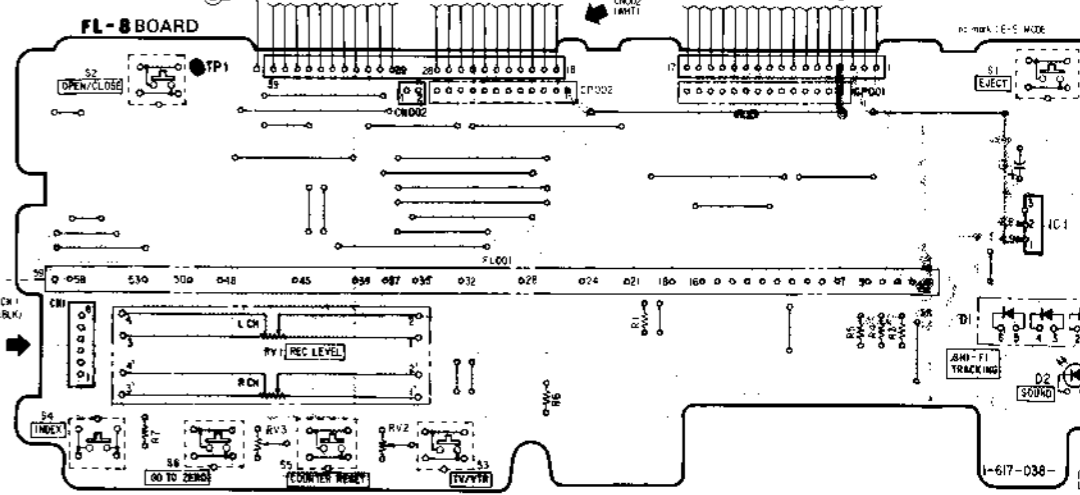
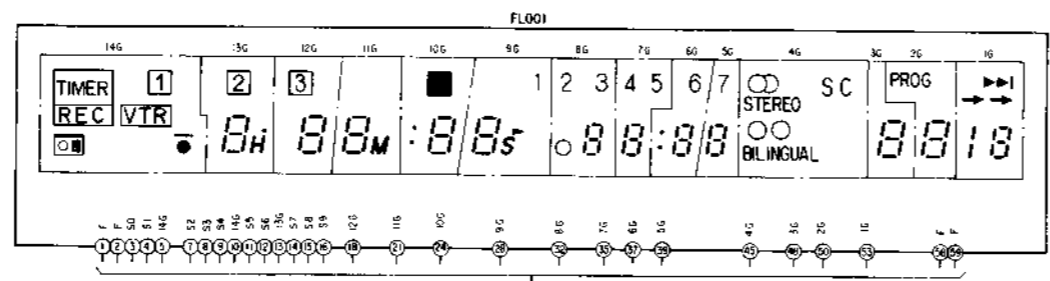
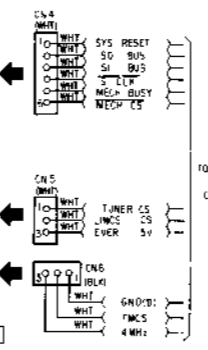
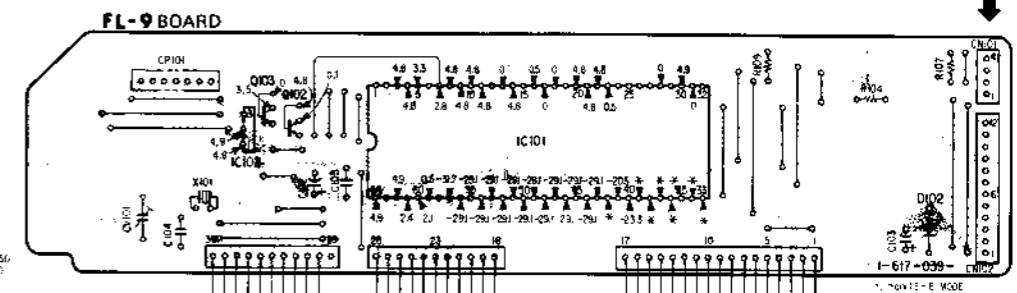
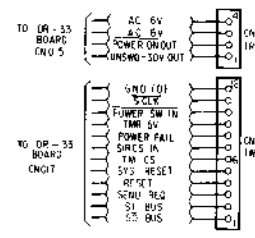
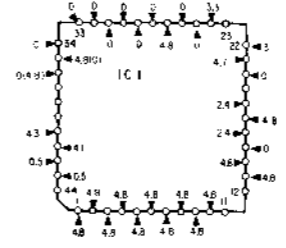
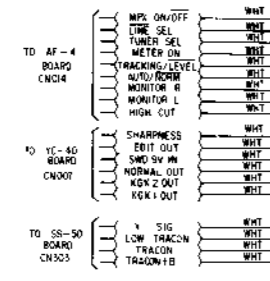
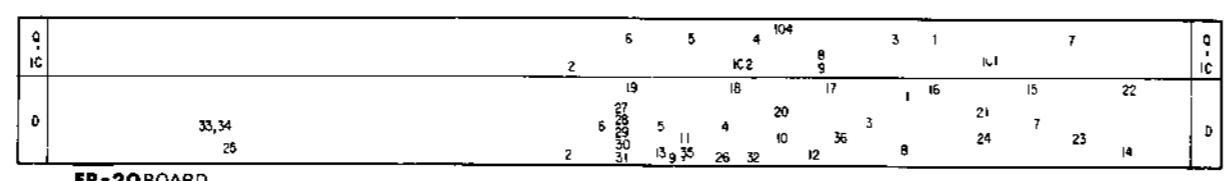
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
- : B+ bus.
- : B- bus.

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

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

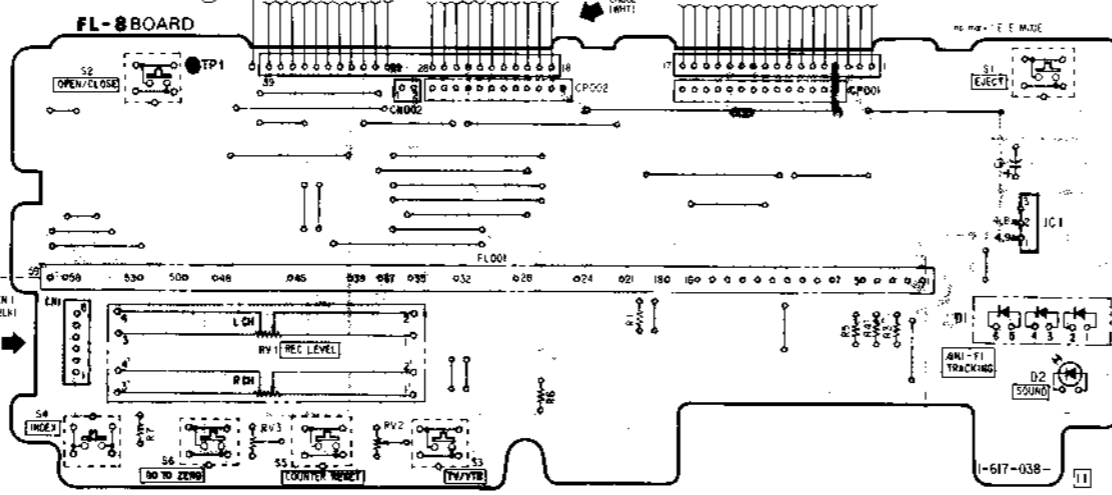
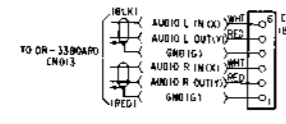
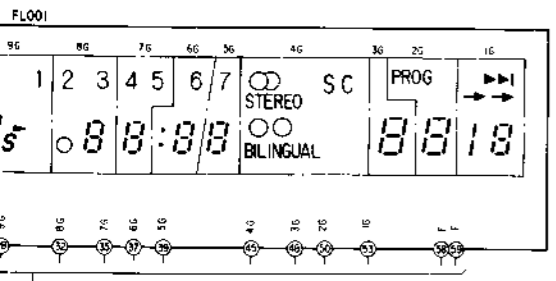
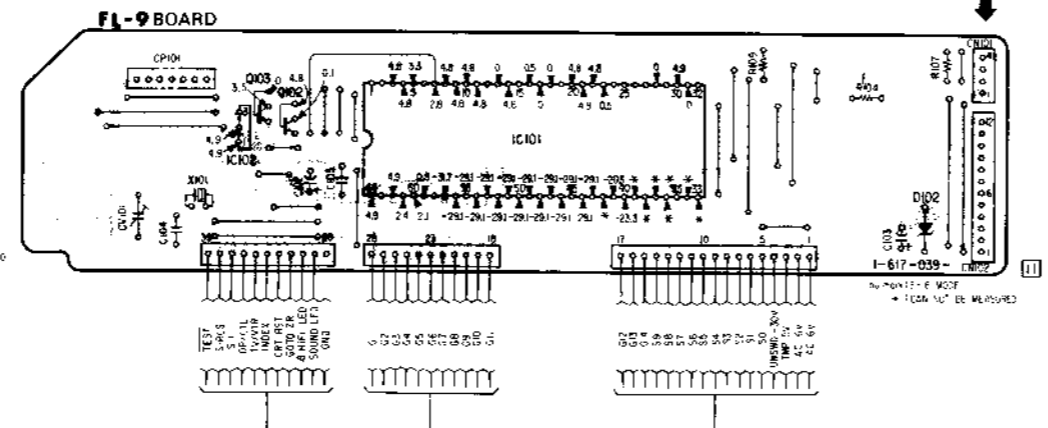
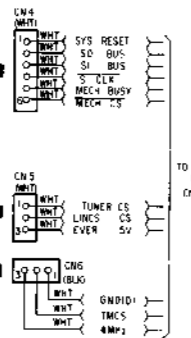
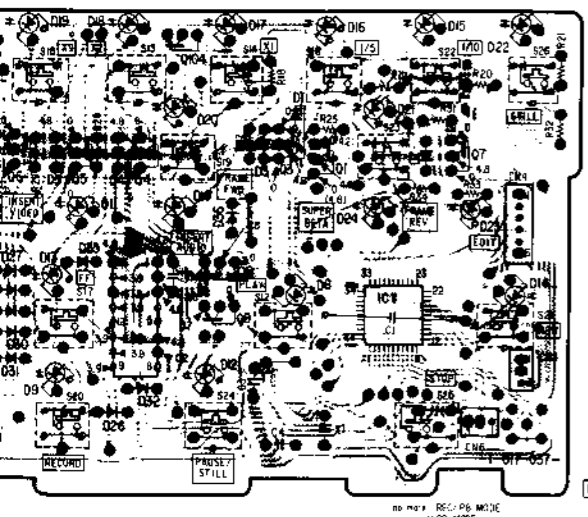
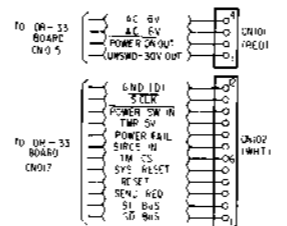
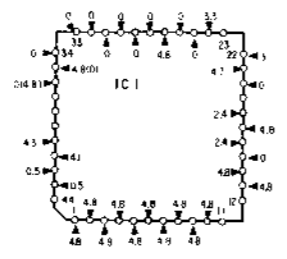
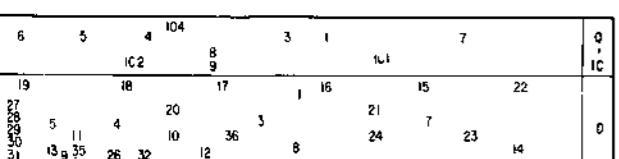
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A  
B  
C  
D  
E  
F  
G  
H  
I  
J



MC-Service

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

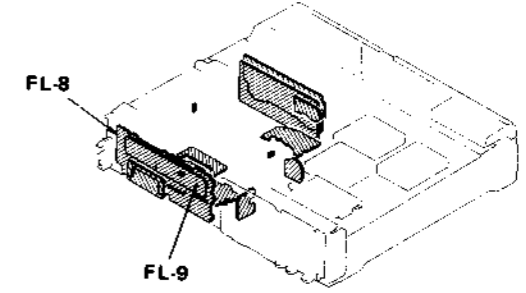
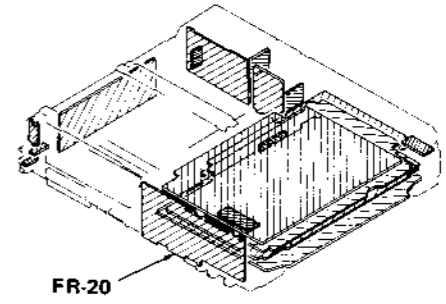


**Note on Printed Wiring Board:**

- — : Indicates a leadwire mounted on the component side.
- — : Indicates a leadwire mounted on the printed side.
- ⊗ : through hole
- ⊙ : soldering side.
- ⊕ : B+ pattern
- : component side.
- Digital transistor (FR-20: Q104, FL-9: Q102, 103) transistors with resistors.

Refer to the FR-20 and FL-9 boards schematic diagrams.

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



A  
B  
C  
D  
E  
F  
G  
H  
I  
J

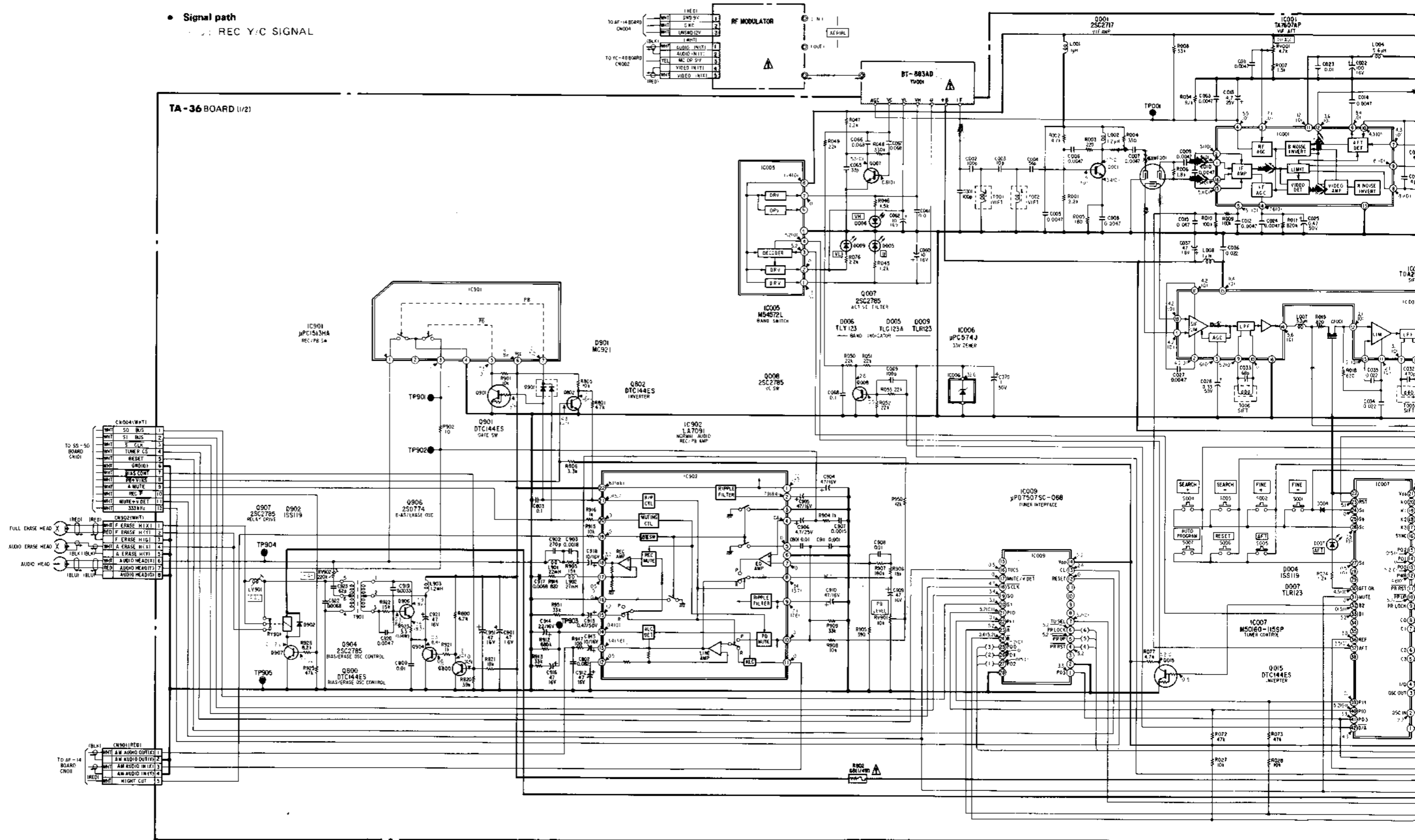
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

< ES MODEL >

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

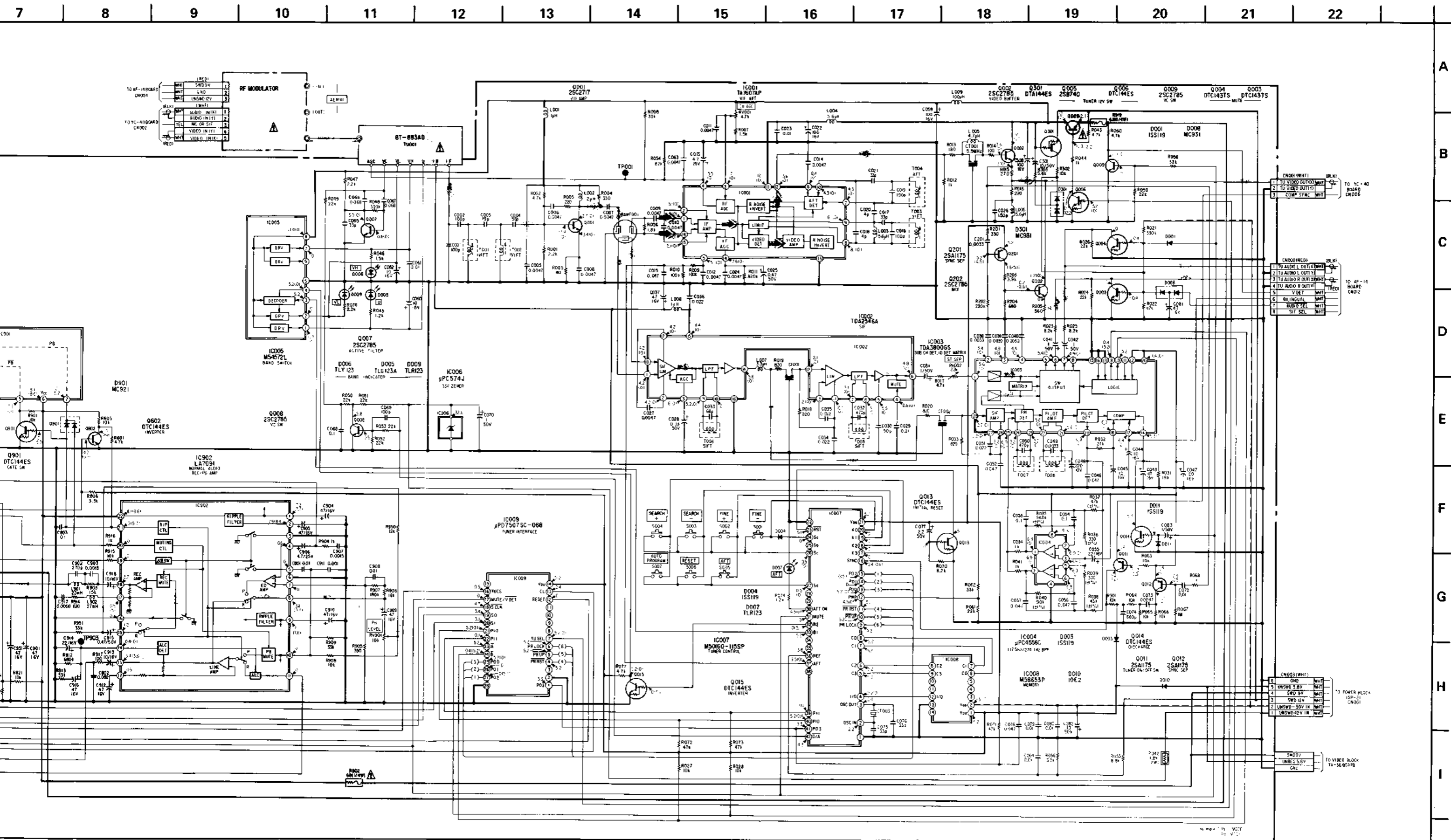
● Signal path  
○ REC Y/C SIGNAL

TA-36 BOARD (1/2)









# TUNER, AUDIO TUNER, AUDIO



# TUNER, AUDIO TUNER, AUDIO

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

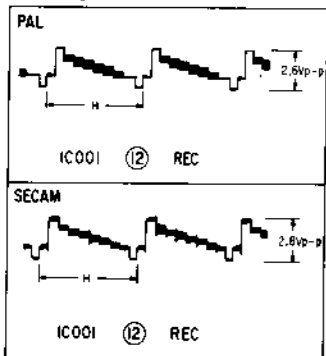
**Note on Schematic Diagram:**

- All resistors are in ohms,  $\frac{1}{2}W$  unless otherwise noted.  $k\Omega$ : 1000  $\Omega$ ,  $M\Omega$ : 1000  $k\Omega$
- All capacitors are in  $\mu F$  unless otherwise noted.  $p$ :  $\mu\mu F$  50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : nonflammable resistor.
-  : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10  $M\Omega$ ).
-  : B+ bus.
-  : B- bus.

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

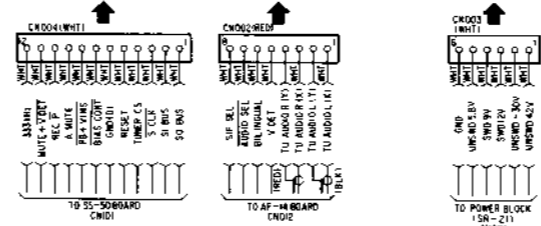
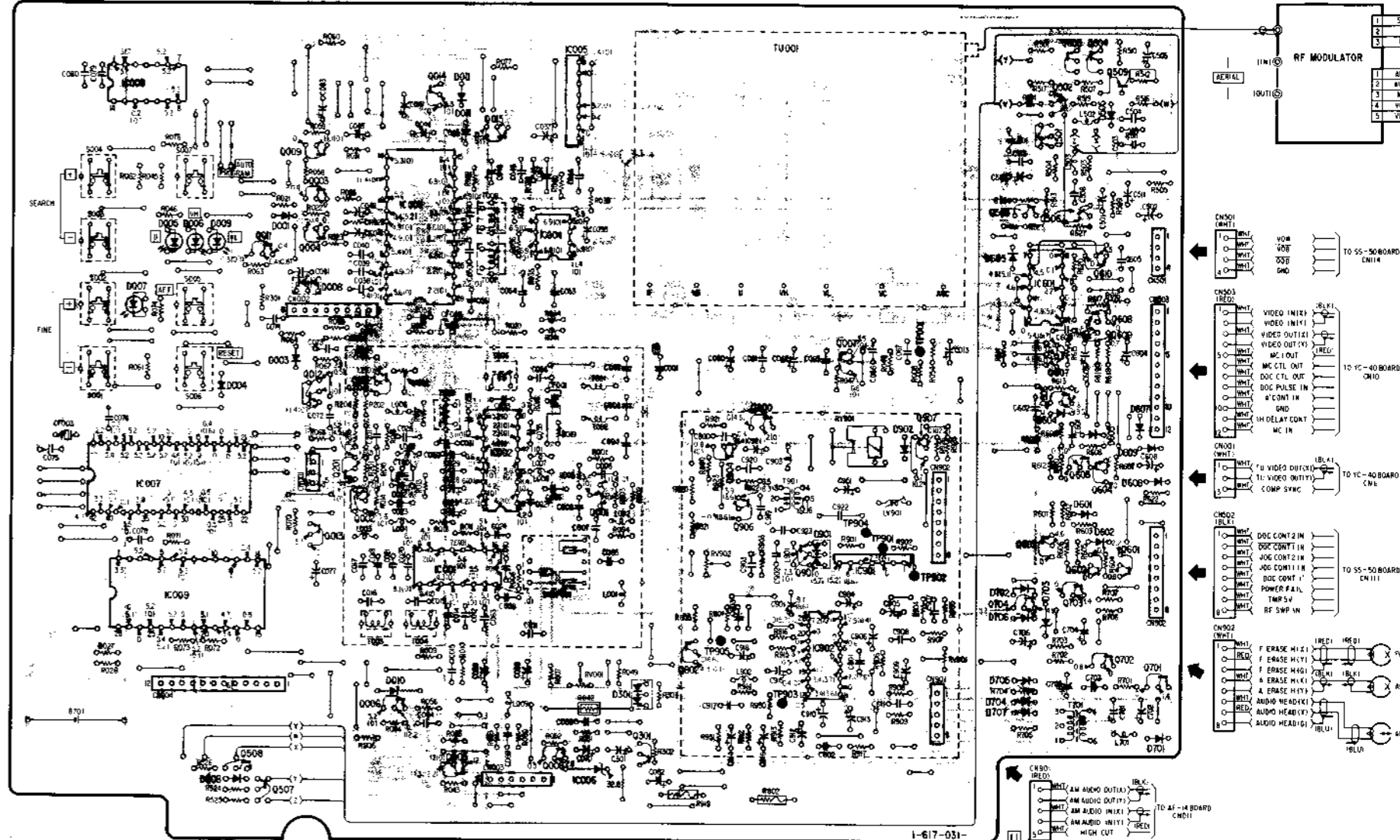
When indicating parts by reference number, please include the board name.

**TA-36 BOARD**



Q	IC008	011	009,003	IC003	014	015	IC005	501,502,503,504,509	Q
IC	IC007	IC009	012	202	IC004	IC002	IC001	505, 506, 507, 508, 509, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	Q
D	007	005	006	009	001	008	010	301	D
ADJ									ADJ
TP									TP

**TA-36 BOARD**



7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

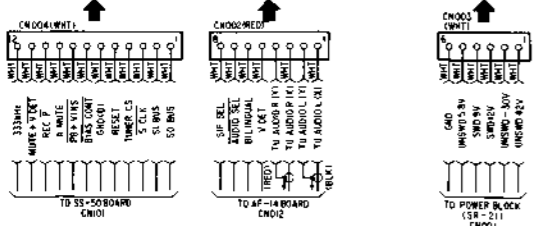
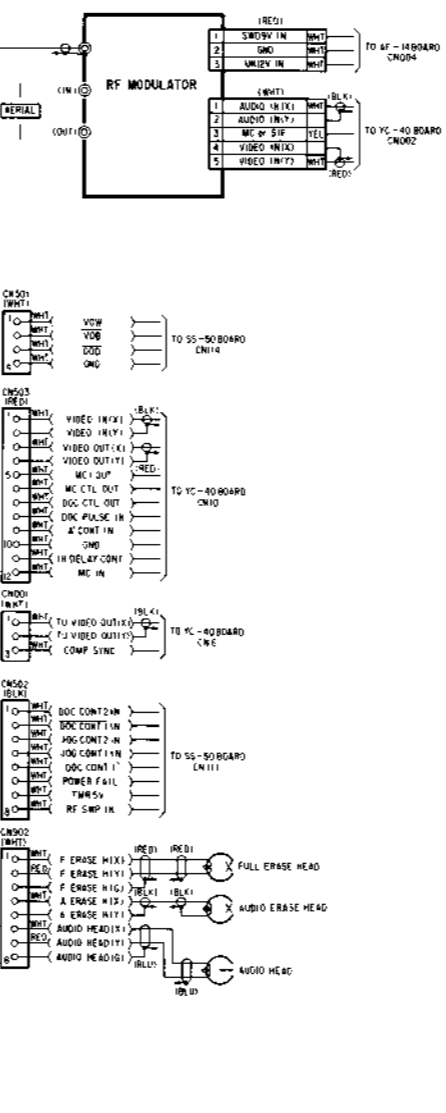
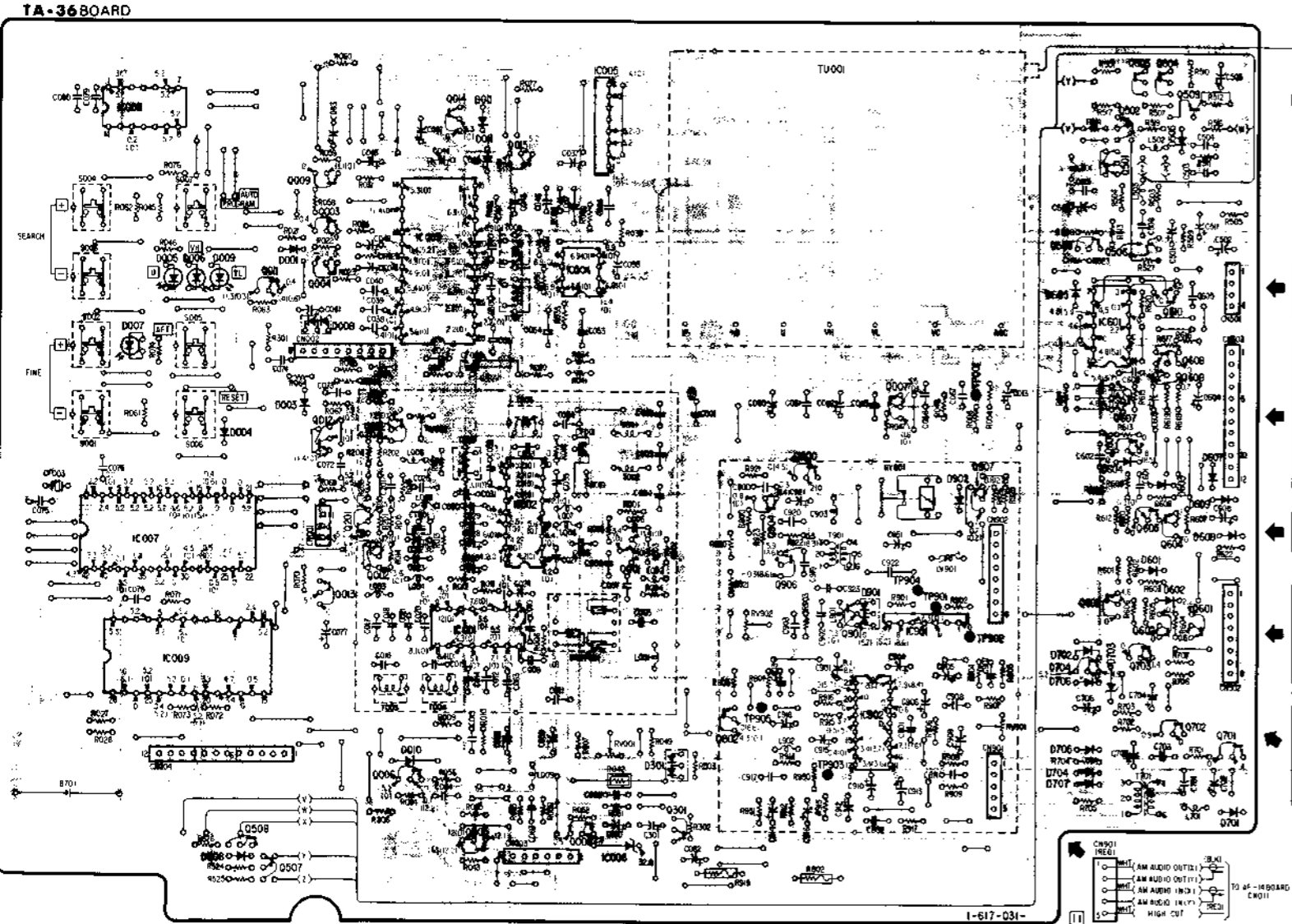
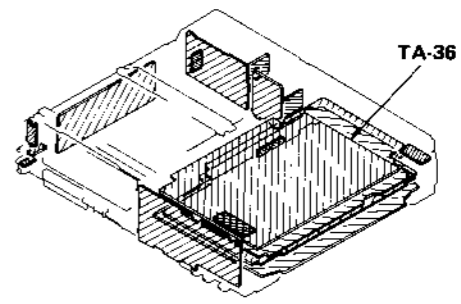
IC008	IC007	IC009	009,003	004	012	IC003	014	015	IC005	IC004	IC002	IC001	008	IC006	301	802	904	906	800	901	IC902	IC901	907	505	501,502	503,504	508	Q
			004	012	202																			505	506,510	607,606	608,609	IC
			005	006	008	004																		603	605,604	602	601	D
			001	003																				704	703	702	701	
																								605	604,603	601,602	607,608,608	
																								702,706,703	705,704,707	701		
																												ADJ
																												TP

**Note on Printed Wiring Board:**

- : Indicates a leadwire mounted on the component side.
- : Indicates a leadwire mounted on the printed side.
- : soldering side.
- : B+ pattern

• Digital transistor (TA-36: Q003, 004, 006, 013, 014, 015, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors.  
Refer to the TA-36 board schematic diagram for digital transistor.

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



MC-Service

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

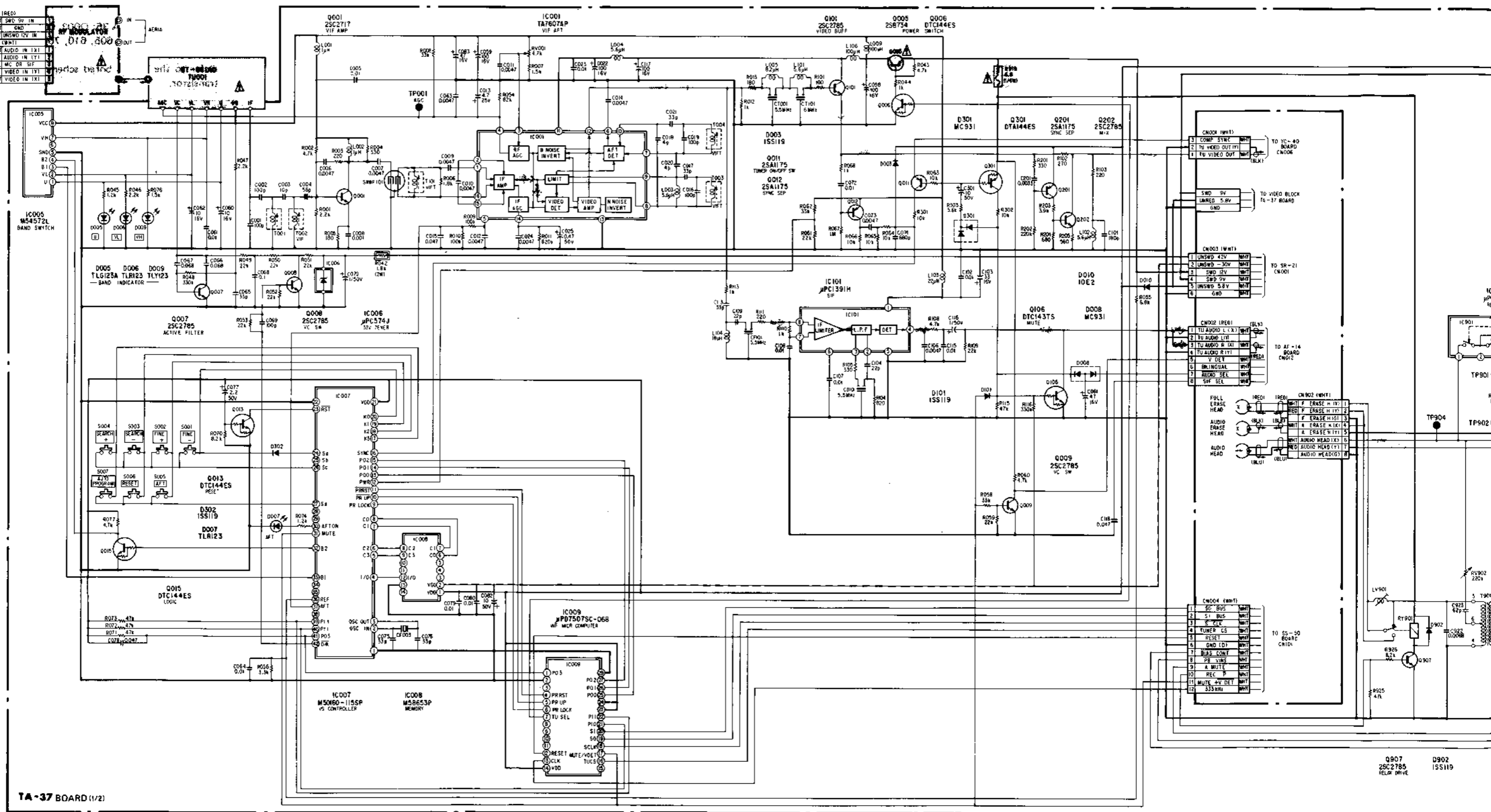
4-9. TA-37 (TUNER, AUDIO) SCHEMATIC DIAGRAM

- Ref. No. TA-37 BOARD: 5,000 series -

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

< E MODEL >

• Signal path  
: REC Y/C SIGNAL



TA-37 BOARD (1/2)





MC-Service


# TUNER, AUDIO TUNER, AUDIO

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

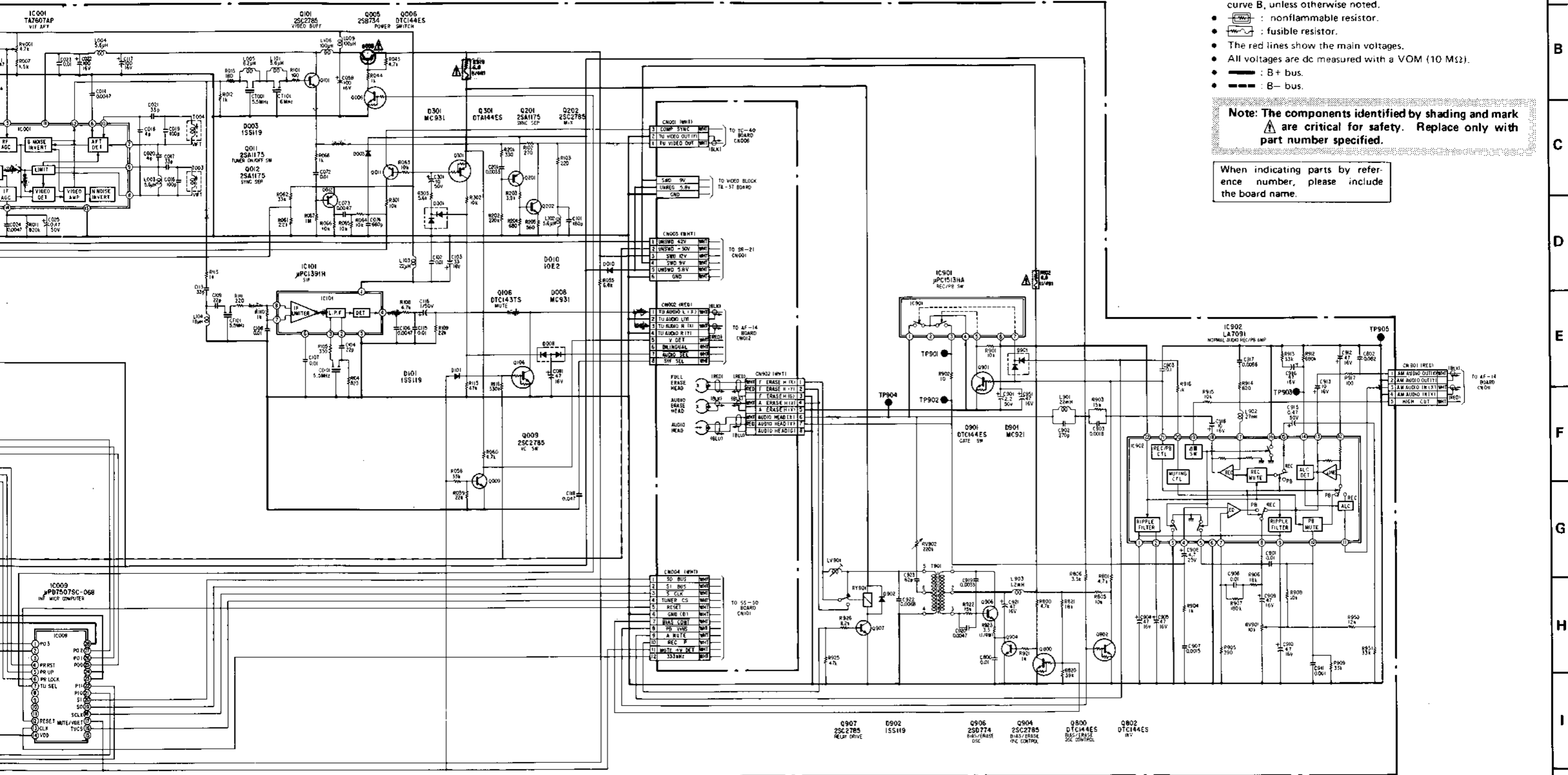
• Signal path  
REC Y C SIGNAL

### Note on Schematic Diagram:

- All resistors are in ohms, 1/8W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: pμF
- 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : nonflammable resistor.
-  : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
-  : B+ bus.
-  : B- bus.

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

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

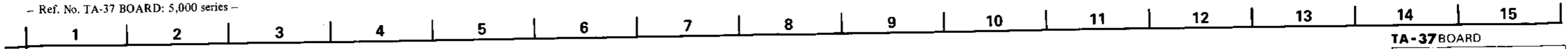


MC-Service

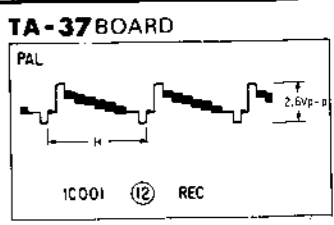
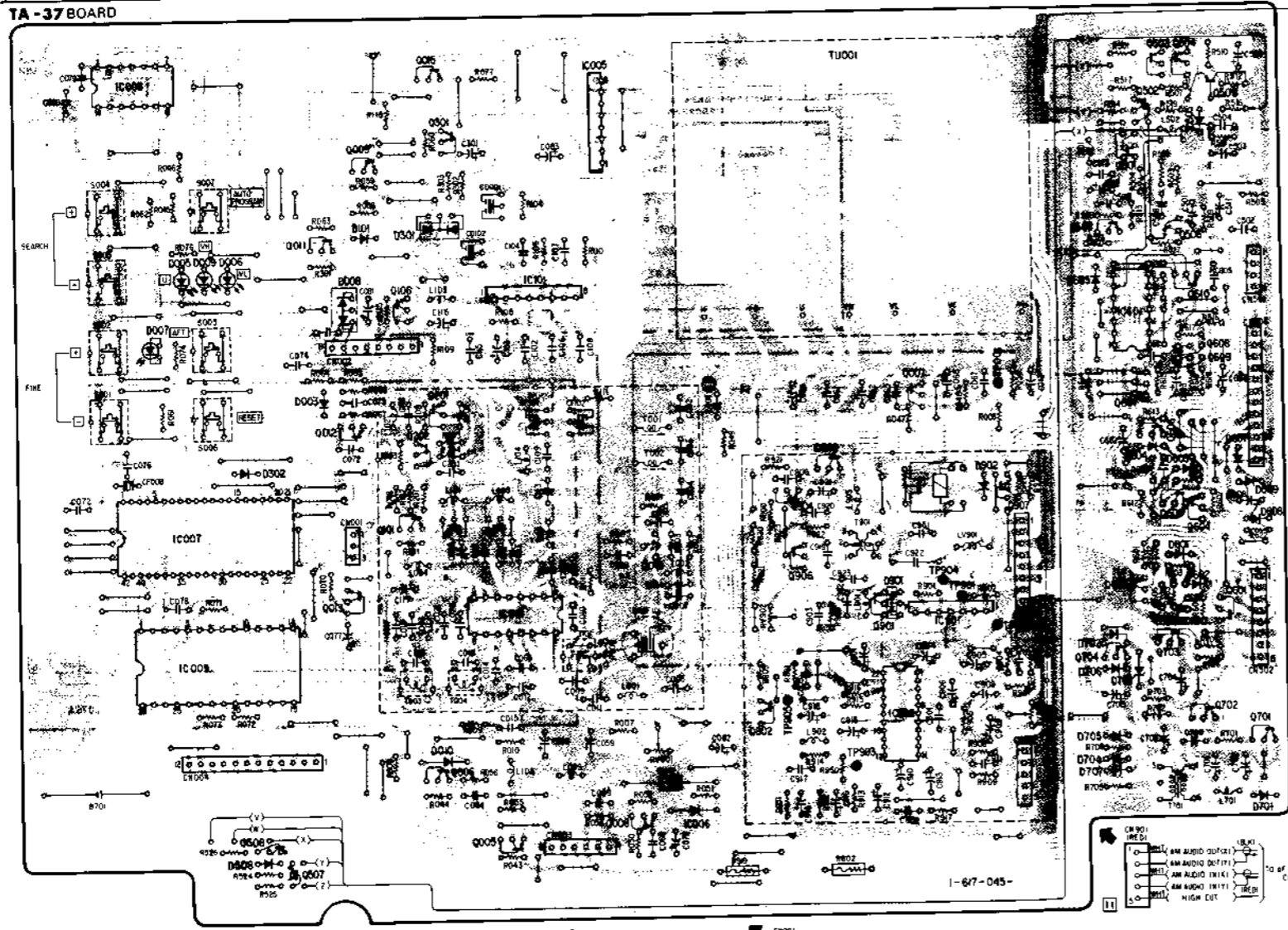
# TUNER, AUDIO TUNER, AUDIO

## TA-37 (TUNER, AUDIO) PRINTED WIRING BOARD

- Ref. No. TA-37 BOARD: 5,000 series -

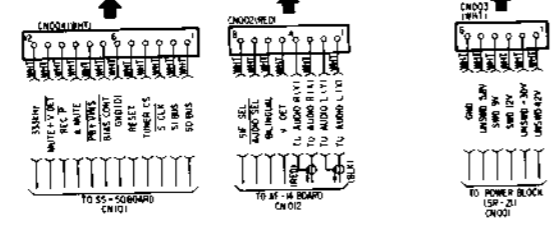
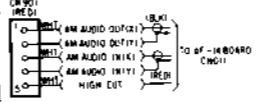
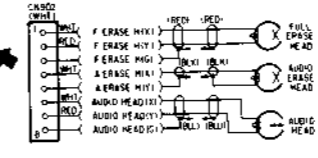
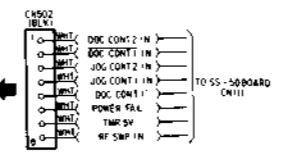
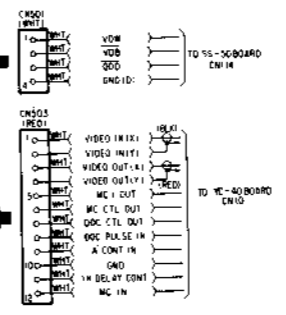
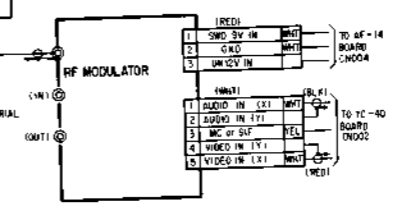
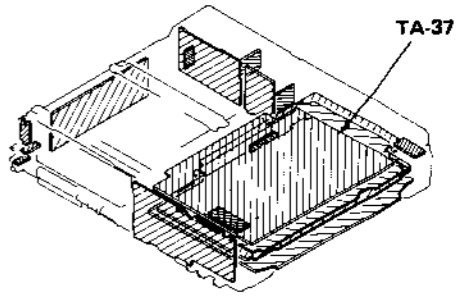


Q	IC008	011	009	016	IC101	IC003	506	501, 502	503, 504	509	Q
IC	IC007	508	507	012	10A	005	001	IC604	505, 610	607, 606, 608, 609	IC
D	005, 009, 006	003	IC1	008	010	901	902	704	703	602, 604, 603	D
ADJ	007	302	508	003	010	901	902	705, 706, 703	701, 601, 602	607, 609, 608	ADJ
TP								905	903	904, 901, 902	TP



- Note on Printed Wiring Board:**
- — : Indicates a leadwire mounted on the component side.
  - — : Indicates a leadwire mounted on the printed side.
  - : soldering side.
  - : B+ pattern
- Digital transistor (TA-37: Q006, 013, 015, 106, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors.  
Refer to TA-37 board schematic diagram for digital transistor.

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



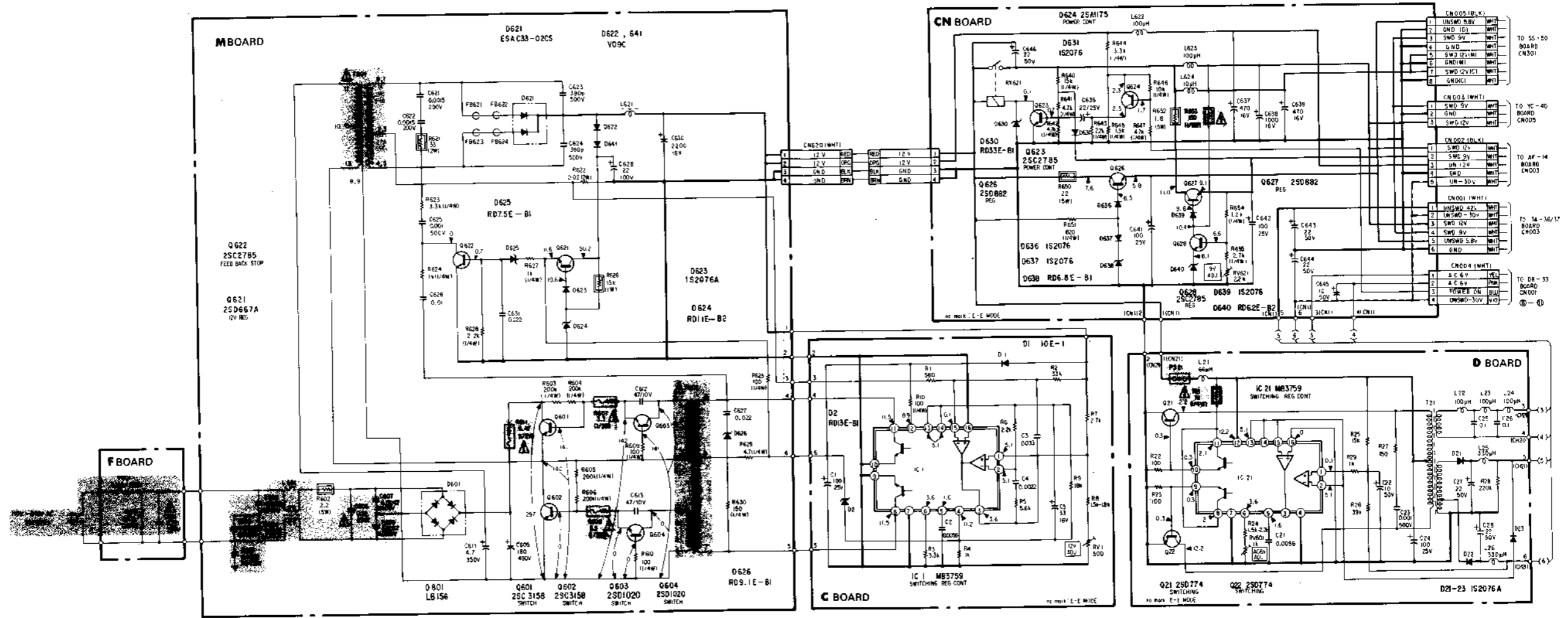
# POWER

## 4-10. M (POWER), CN (POWER), C (POWER), D (POWER), F (POWER) SCHEMATIC DIAGRAMS

- Ref. No. M BOARD: 11,000 series, CN BOARD: 11,000 series, C BOARD: 11,000 series, D BOARD: 11,000 series, F BOARD: 11,000 series -

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

A  
B  
C  
D  
E  
F  
G  
H  
I  
J



### Note on Schematic Diagram:

- All resistors are in ohms, 1/8W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: μF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- The red lines show the main voltages.

- All voltages are dc measured with a VOM (10 MΩ).
- : B+ bus.
- : B- bus.

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

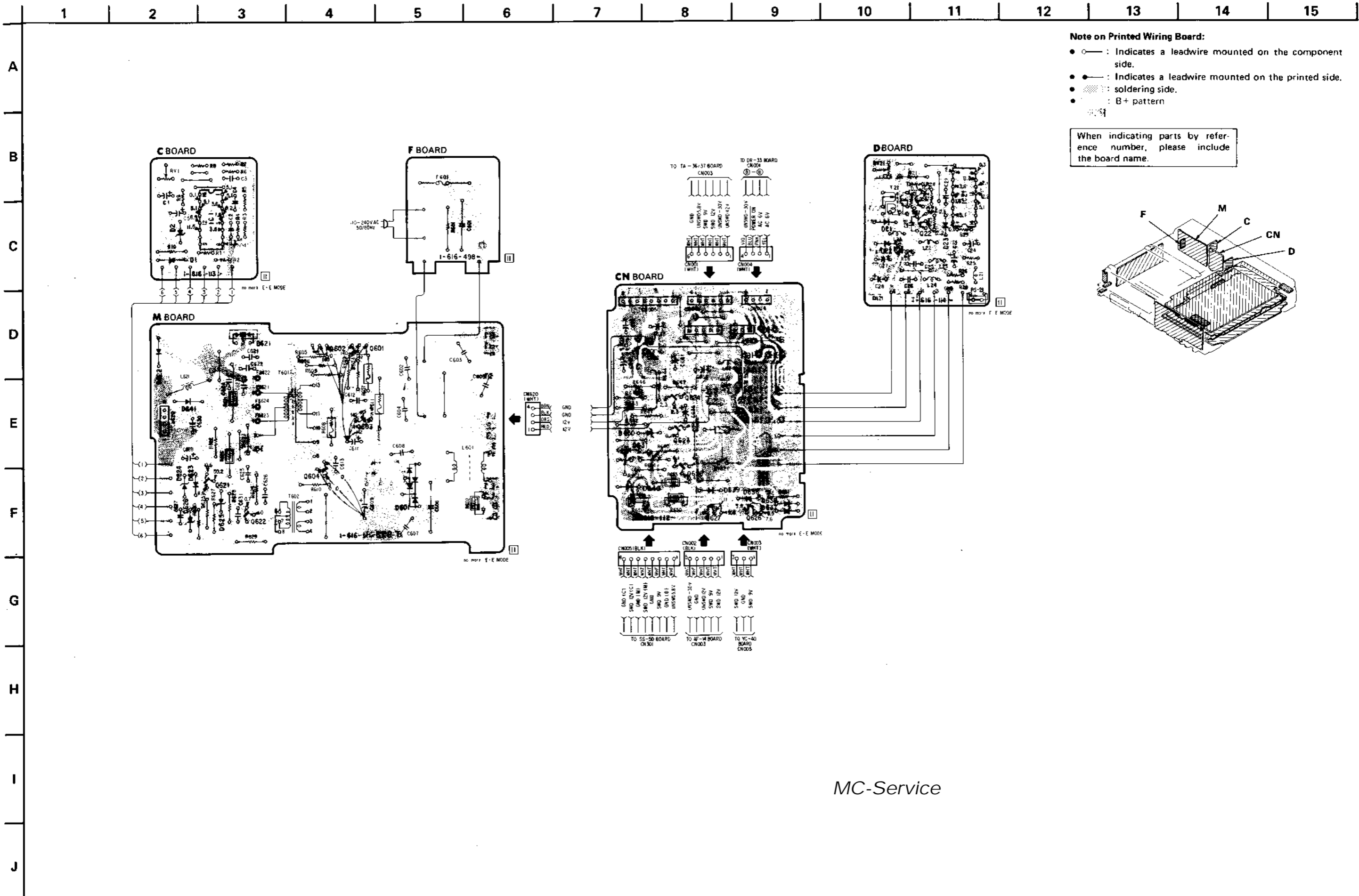
When indicating parts by reference number, please include the board name.

MC-Service

# POWER POWER

M (POWER), CN (POWER), C (POWER), D (POWER), F (POWER) PRINTED WIRING BOARDS

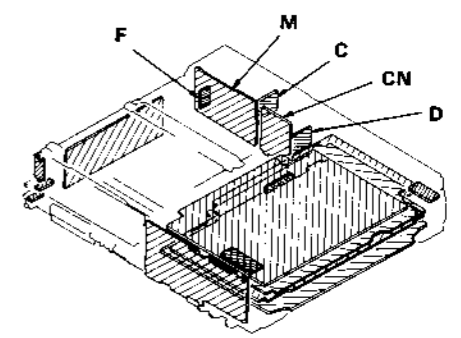
— Ref. No. M BOARD: 11,000 series, CN BOARD: 11,000 series, C BOARD: 11,000 series, D BOARD: 11,000 series, F BOARD: 11,000 series —



**Note on Printed Wiring Board:**

- — : Indicates a leadwire mounted on the component side.
- — : Indicates a leadwire mounted on the printed side.
- ⊙ : soldering side.
- ⊙ : B+ pattern

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

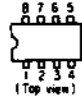


MC-Service



4-11. SEMICONDUCTORS

BA4558  
HA17558  
NJM4556D  
NJM4558D  
NJM4562D  
μPC358C  
μPC456C  
μPC4558



BA634  
TA7060P



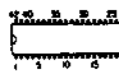
BA7007



BX1317

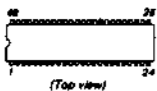


CX10021A-NP  
CX10021A-P  
CX10021B-NP  
CX10021B-P  
CX20097A  
CX20105  
M50160-115SP



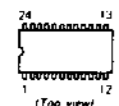
(Top view)

CX20043  
CX20104  
CX20124



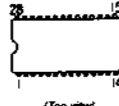
(Top view)

CX10023



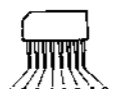
(Top view)

CX20045  
CX20069  
CX866A  
CX866B  
TDA3800GS  
μPD7507SC-068



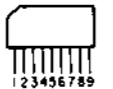
(Top view)

CX20061  
CX7926  
M54572L  
μPC-1391H



(Top view)

CX894  
LA7205



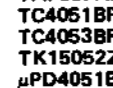
(Top view)

CXP5016-104S

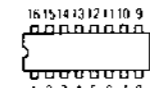


(Top view)

HD14053BP  
M51494P  
MB3759  
MB84051B  
MB84053B  
MB88201-191G  
MC14538BCP  
MSM6411B-19RS  
SN74LS138N  
TA7607AP  
TC4051BP  
TC4053BP  
TK15052Z  
μPD4051BC  
μPD4053BC

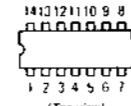


(Top view)



(Top view)

HD14066BP  
1R3702  
M58653P  
MB3614  
MB84013B  
MB84066B  
NJM2902N  
TC4013BP  
TC4066BP  
TC504013BP  
μPC324C  
μPD4066BC



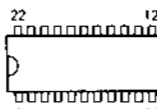
(Top view)

HZT33-02  
μPC574J



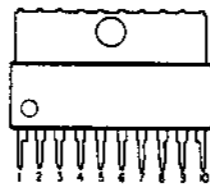
(Top view)

LA7091  
MB89005-104

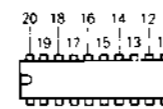


(Top view)

LB1640N

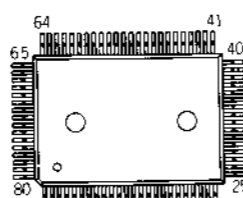


M50761-896P



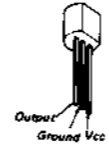
(Top view)

MB88551-173M

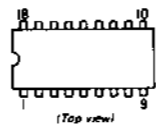


Marking side view

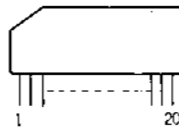
S-8054ALB



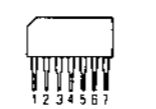
TDA2546A



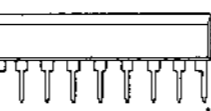
TK16011Z



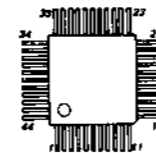
μPC1613HA



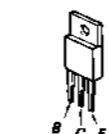
μPC1521HA



μPD7508HG-536-22  
μPD7508HG-537-22



2SA473  
2SB507HP  
2SC1826  
2SC2335  
2SD313HP



2SA844  
2SA933S  
2SA1015  
2SC1740S  
2SC2001



2SA1026



2SA1048  
2SA1115  
2SC403SP  
2SC2468  
2SC2603  
DTA144ES  
DTC114ES  
DTC124ES  
DTC143TS  
DTC144ES  
DTC144WS



2SA1175  
2SC2785  
2SD1020



2SB733  
2SB734  
2SD773  
2SD774



2SB739  
2SB740  
2SC1474  
2SC1475  
2SD667A  
2SD788  
2SD789



2SC1652  
2SC2021  
2SC2673



2SC2216  
2SC2717



2SC3158



2SD882



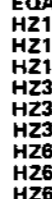
2SK152



10E1  
10E2  
11E2  
ERB12-01RK  
ERB12-02  
ERB12-02RK



1S1555  
1S2076  
1S2076A  
1S2473  
1S2473T  
EQA02-09D  
HZ10E-B1  
HZ11E-B2  
HZ13E-B1  
HZ33E-B1  
HZ33E-B2  
HZ33E-B3  
HZ6C1  
HZ6.2E-B2  
HZ6.8E-B1  
HZ7.5E-B1  
HZ7.5E-B2  
HZ7.5E-B3  
HZ9.1E-B1  
HZ9.1E-B2  
RD10E-B1  
RD11E-B2  
RD13E-L1  
RD13E-L2  
RD13E-L3  
RD15E-B  
RD15E-B1  
RD15E-B2  
RD15E-B3  
RD3.0E-L1  
RD3.0E-L2  
RD33E-B1  
RD33E-B2  
RD33E-B3  
RD5.1E-B3  
RD6.2E-B2  
RD6.2E-L1  
RD6.2E-L2  
RD6.2E-L3  
RD6.2E-N1  
RD6.8E-B1  
RD7.5E-B1  
RD7.5E-B2  
RD7.5E-B3  
RD9.1E-B  
RD9.1E-B1  
RD9.1E-B2  
RD9.1E-B3



LB156



LT-9230N  
LT-9230N2



(Top view)

MC911



1SS119  
1SS133  
1SS148



EM12



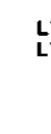
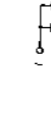
ESAC33-02CS



GP08D



LT-9230N  
LT-9230N2



MC921



MC931



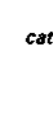
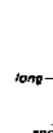
NJL5141E



SIB01-02



TLG123A  
TL0123  
TLR123  
TLY123



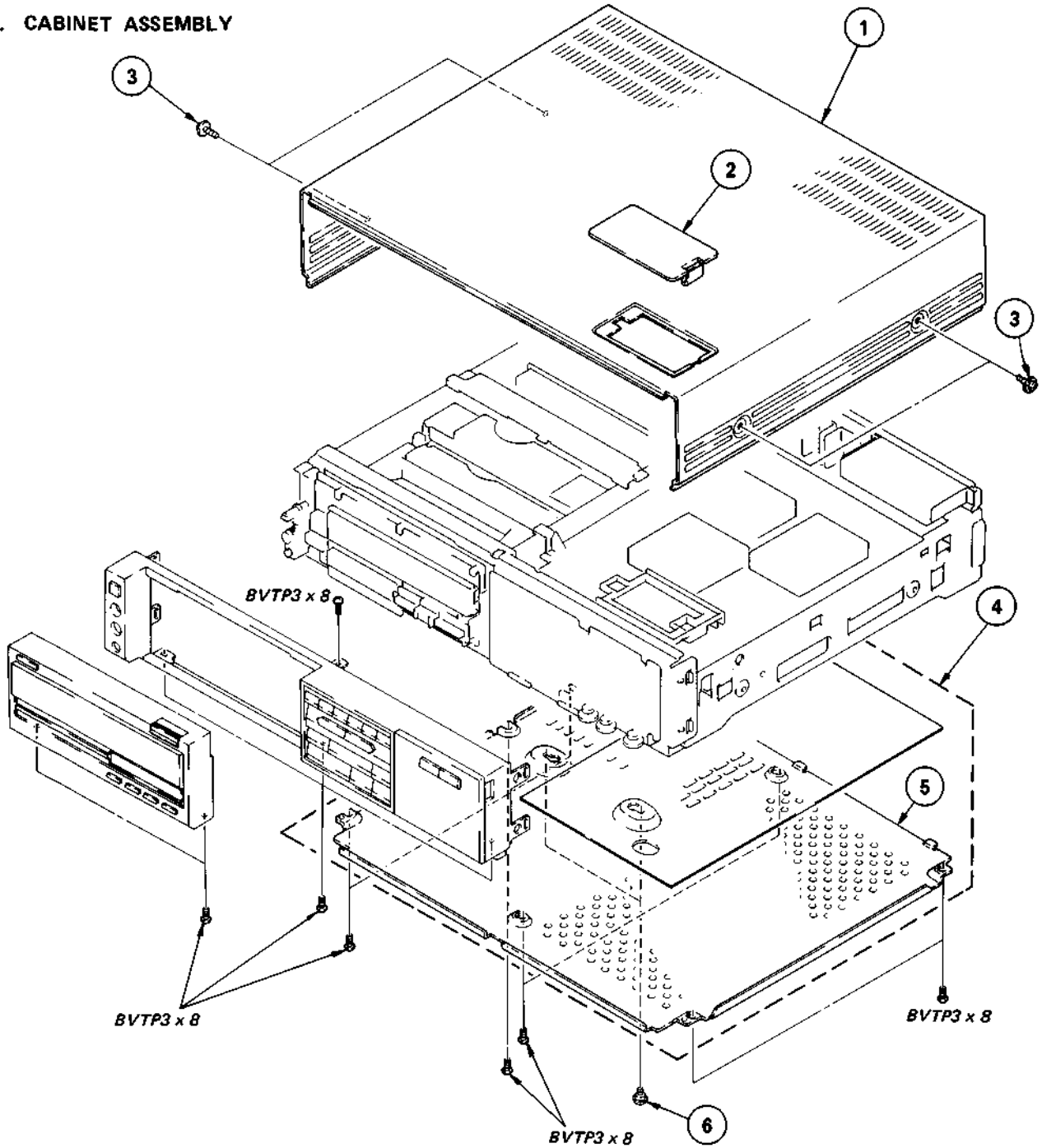
## SECTION 5 EXPLODED VIEWS

**NOTE:**

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- 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.
- The mechanical parts with no reference number in the exploded views are not supplied.

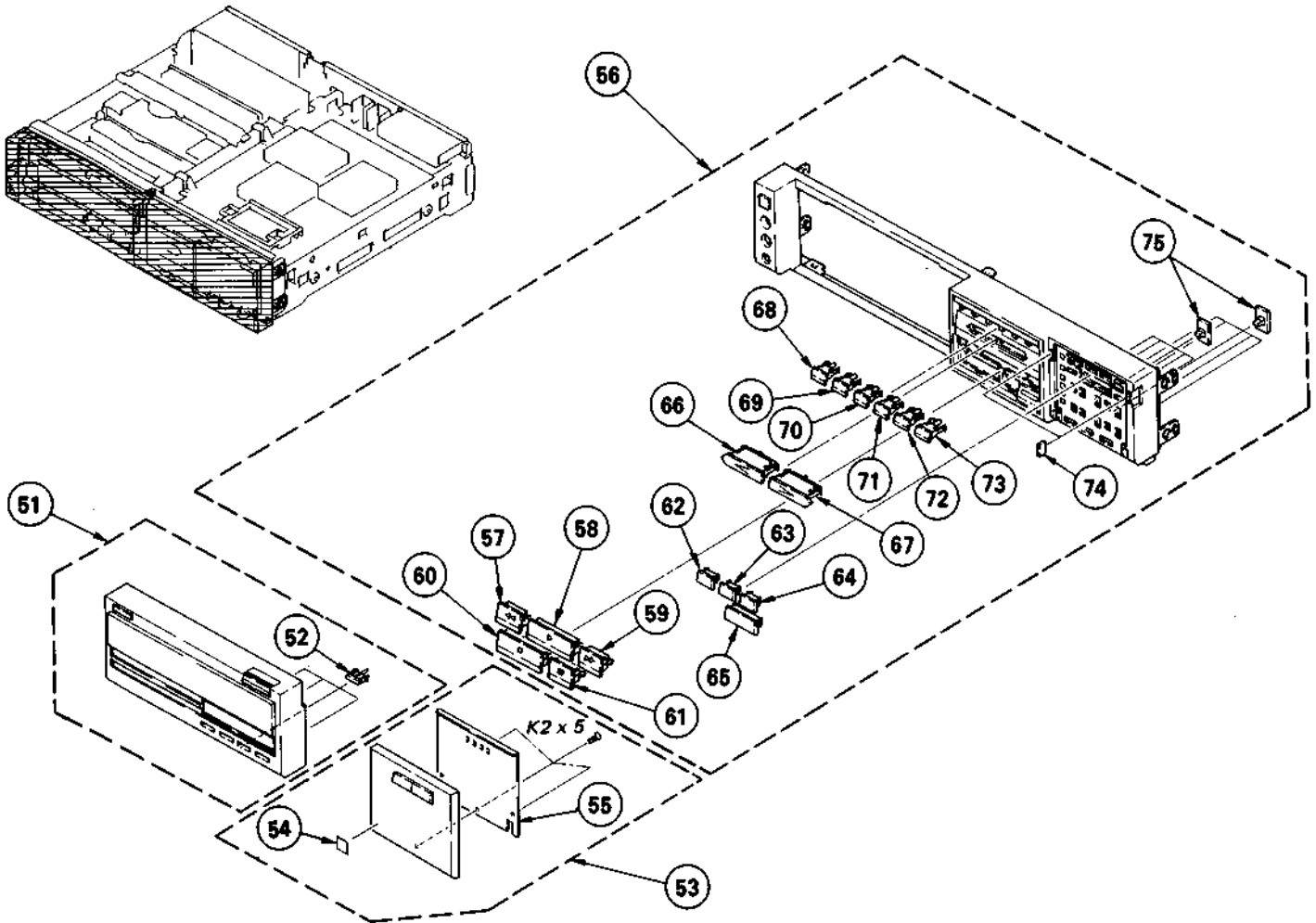
The components identified by shading and mark  $\triangle$  are critical for safety. Replace only with part number specified.

**5-1. CABINET ASSEMBLY**



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	X-3697-617-1	CASE ASSY, UPPER		4	X-3697-618-1	PLATE ASSY, BOTTOM	5
2	3-684-177-51	LID, PRESET		5	*3-697-645-01	PLATE, BOTTOM	
3	4-886-821-01	SCREW, M3 CASE		6	3-696-537-01	SCREW, FIXED, TRANSPORT	

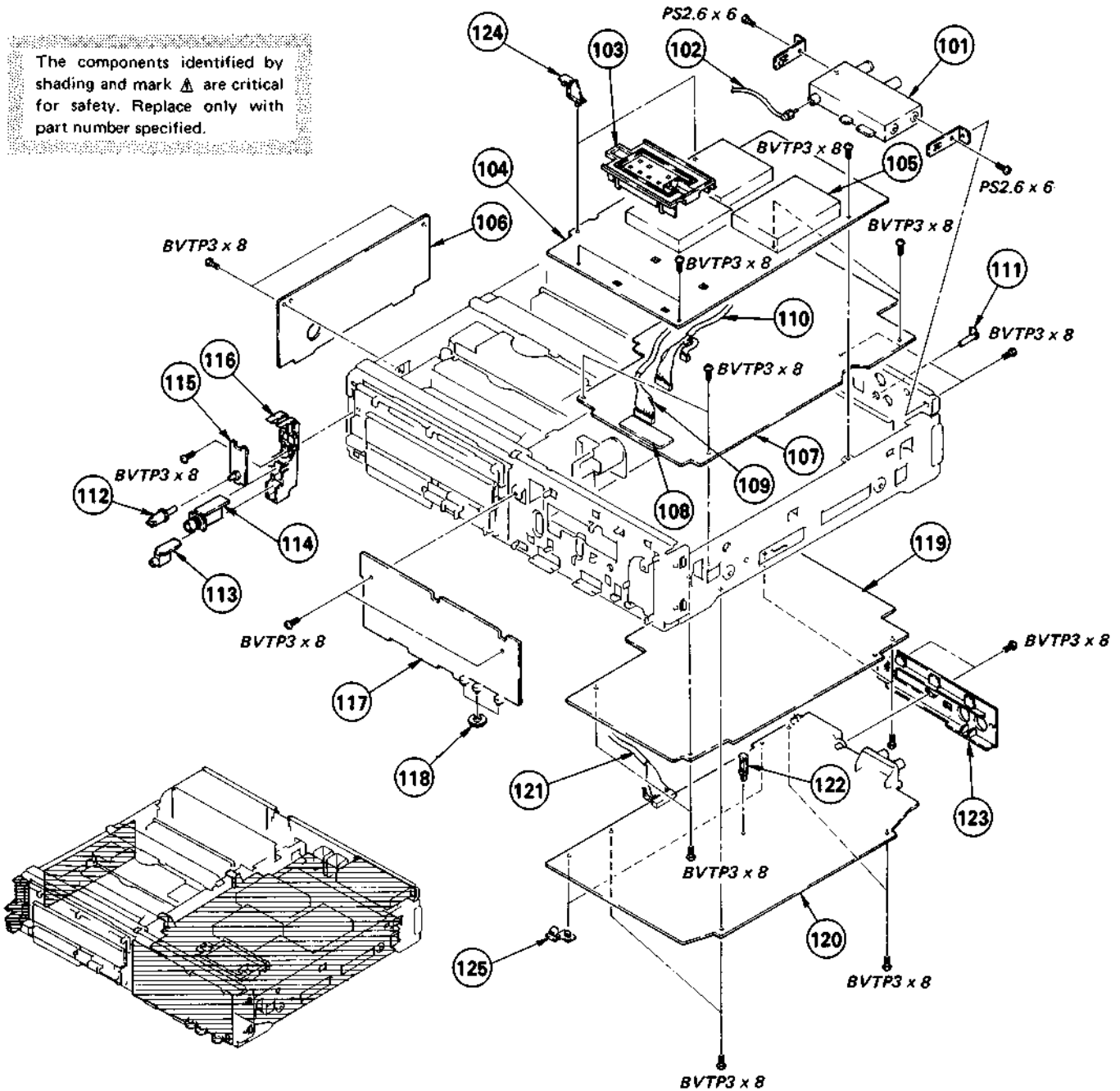
## 5-2. FRONT PANEL ASSEMBLY



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
51	X-3697-607-1	PANEL ASSY, LS FRONT (ES MODEL)	52	63	3-697-618-21	BUTTON, TIMER	
	X-3697-613-1	PANEL ASSY, LS FRONT (E MODEL)	52	64	3-697-618-11	BUTTON, TIMER	
52	3-697-601-01	BUTTON, TV/VTR		65	3-697-617-01	BUTTON, NEXT	
53	X-3697-603-1	DOOR ASSY, FRONT	54, 55	66	3-697-613-01	BUTTON (LEFT)	
54	3-703-713-41	STICKER, SONY SYMBOL (10)		67	3-697-619-01	BUTTON (RIGHT)	
55	3-697-671-01	PLATE, ORNAMENTAL, DOOR		68	3-697-620-01	BUTTON, MODE	
56	X-3697-608-1	PANEL ASSY, FRONT	57-75	69	3-697-620-11	BUTTON, MODE	
57	3-696-454-11	BUTTON (REW), CONTROL		70	3-697-620-21	BUTTON, MODE	
58	3-696-455-11	BUTTON (PLAY), CONTROL		71	3-697-620-31	BUTTON, MODE	
59	3-696-457-11	BUTTON (FF), CONTROL		72	3-697-620-41	BUTTON, MODE	
60	3-696-456-11	BUTTON (STOP), CONTROL		73	3-697-620-51	BUTTON, MODE	
61	3-696-458-11	BUTTON (PAUSE), CONTROL		74	3-684-461-01	MAGNET, POCKET LOCK	
62	3-697-618-01	BUTTON, TIMER		75	3-697-616-01	KNOB (A), SLIDE	

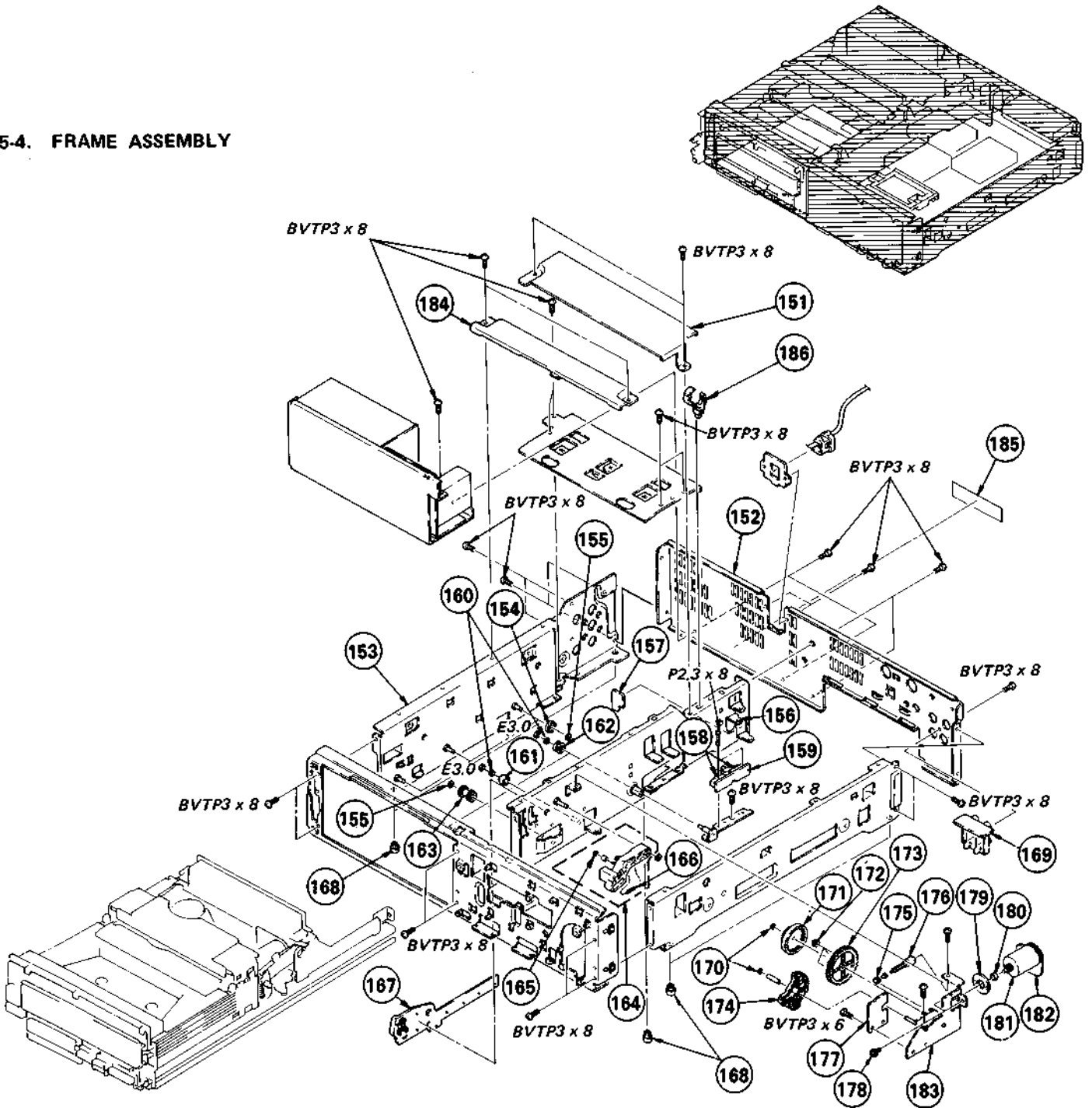
### 5-3. MAIN BOARD ASSEMBLY

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



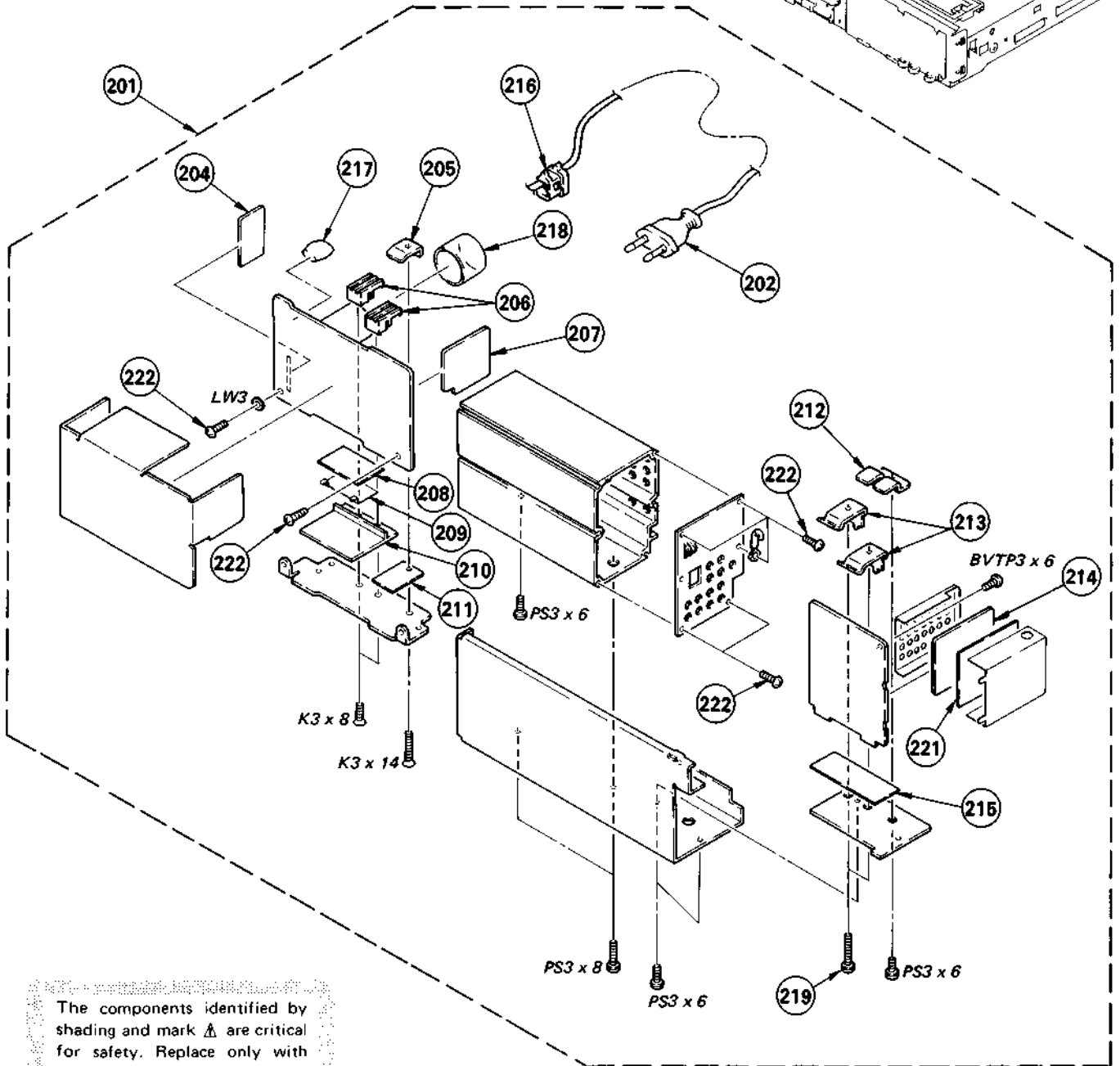
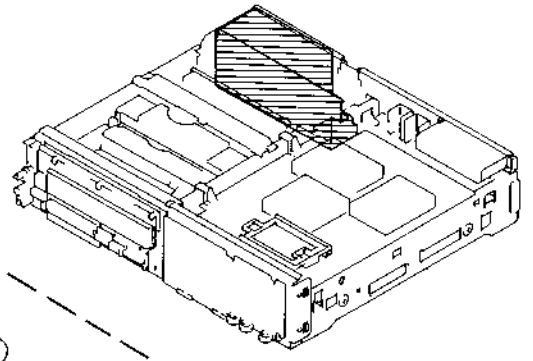
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
102	*1-555-110-00	CABLE, PIN		113	*1-617-043-11	MC-10 BOARD	
103	X-3697-601-1	COVER ASSY, PRESET		114	*1-617-042-11	HP-18 BOARD	
104	*A-6721-248-A	TA-36 BOARD, COMPLETE (ES MODEL)		115	*1-617-041-11	PW-15 BOARD	
	*A-6721-258-A	TA-37 BOARD, COMPLETE (E MODEL)		116	*3-697-653-01	HOLDER, JACK	
106	*A-6711-660-A	DH-4 BOARD, COMPLETE		117	*A-6725-469-A	FR-20 BOARD, COMPLETE	
107	*A-6715-272-A	SS-50 BOARD, COMPLETE		118	*3-697-622-01	KNOB, TRACKING	
108	*1-617-383-11	QV-1 BOARD	108	119	*A-6713-237-A	B-697 BOARD, COMPLETE (AF-14)	
109	*1-936-804-11	HARNESS (SD-13)		120	*A-6711-658-A	YC-40 BOARD, COMPLETE (ES MODEL)	
110	*1-936-805-11	HARNESS (SD-12)			*A-6711-698-A	YC-40 BOARD, COMPLETE (E MODEL)	
111	3-670-149-00	KNOB, V SYNCHRONOUS		121	*1-936-802-11	HARNESS (YP-3)	
112	3-696-103-01	KNOB, HP		122	*3-669-610-00	SPACER	
				123	*3-697-630-01	PANEL, CONNECTOR	
				124	*3-697-709-01	HING, PCB (T)	
				125	*3-697-710-01	HING, PCB (Y)	

5-4. FRAME ASSEMBLY



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
151	*3-697-628-01	RETAINER, HARNESS, MOVABLE		170	3-669-595-00	WASHER (2), STOPPER	
152	*3-697-634-01	FRAME (REAR)		171	3-696-573-01	GEAR (LS) (B), INT TOOTH	
153	*X-3697-605-1	FRAME (LEFT) ASSY		172	*3-696-497-01	GEAR (LS), PLANET	
154	3-696-494-01	ROLLER (LEFT), LS		173	*X-3696-302-3	GEAR ASSY, INPUT	
155	3-696-510-01	WASHER (3), STOPPER		174	X-3697-609-2	GEAR ASSY, U/D	
156	*X-3697-606-1	FRAME (INNER) ASSY		175	*3-696-389-01	BUSHING, RUBBER	
157	*3-697-679-01	CUSHION, LS		176	*3-696-319-01	GEAR (LS), WORM	
158	1-570-424-11	SWITCH, MICRO (MS 1, 2)		177	*1-616-598-11	US-1 BOARD	
159	*1-616-602-11	PC BOARD, OC-1		178	3-696-518-01	SCREW (M2.6X4), W (+) P	
160	3-701-441-11	WASHER		179	3-696-390-01	MOTOR (MOUNT)	
161	3-696-501-01	ROLLER (RIGHT) (B), LS		180	3-696-388-01	RUBBER, JOINT	
162	3-696-492-01	ROLLER (RIGHT), LS		181	X-3696-306-1	MOTOR ASSY, DC (SKATE MOTOR) M905	
163	3-696-574-01	GEAR (8), LS DRIVE		182	*1-616-600-11	LS-11 BOARD	
164	*A-6751-250-A	ARM BLOCK ASSY, U/D	165, 166	183	*X-3696-340-1	BASE ASSY, GEAR	
165	3-669-465-00	WASHER (1.5), STOPPER		184	*3-697-629-01	STAY (UPPER)	
166	3-696-410-01	SPRING, TENSION		185	*3-697-688-01	LABEL, MODEL NUMBER (NO.1) (E MODEL)	
167	*3-696-425-02	GUIDE (LS)		185	*3-697-690-01	LABEL, MODEL NUMBER (NO.1) (E MODEL)	
168	3-670-155-11	LEG		186	*3-697-707-01	CLAMP, HARNESS	
169	*1-617-034-11	PJ-3 BOARD					

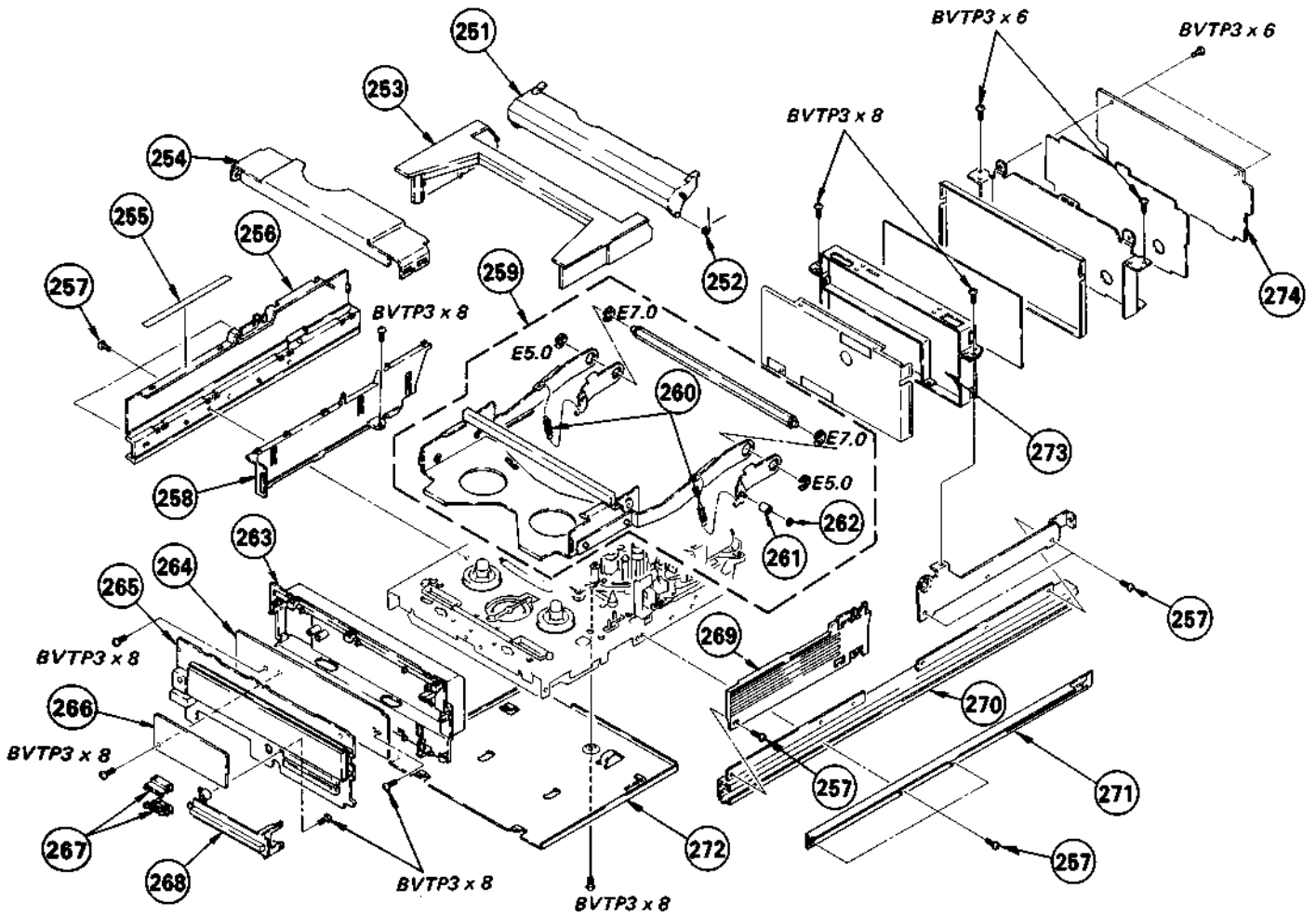
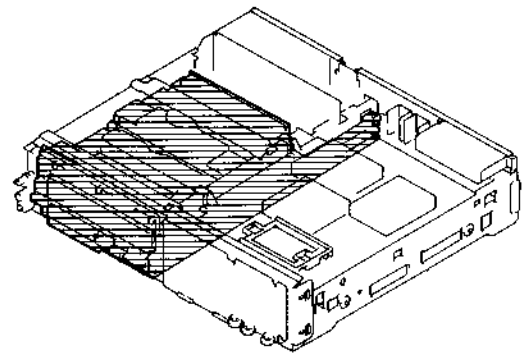
## 5-5. POWER ASSEMBLY



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

No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
201	▲ 1-413-229-11	REGULATOR, SWITCHING (SR-21E)	202-222	212	*2-434-240-01	BRACKET (DP-SR21)	
202	▲ 1-534-817-31	CORD, POWER		213	*2-434-238-01	BRACKET (RP-SR21)	
204	▲ *1-616-498-11	F BOARD		214	*1-616-114-11	D BOARD	
205	*2-434-043-01	RETAINER, DIODE DP-SR17		215	2-431-532-01	RUBBER, INSULATING	
206	▲ *2-431-517-01	RETAINER, TRANSISTOR (TP-CR35)		216	▲ 3-703-244-02	CLAMP, CORD	
207	*1-616-113-11	C BOARD		217	▲ 4-374-846-11	COVER, CAPACITOR, CAP TYPE	
208	▲ 2-431-531-01	RUBBER, INSULATING STB-SR21		218	▲ 2-431-533-01	COVER, CAPACITOR	
209	*2-434-230-01	BRACKET SP-CR35		219	2-434-060-01	SCREW +M 3X18	
210	▲ 2-431-530-01	RUBBER, INSULATING STA-SR21		221	*2-431-535-01	SHEET, INSULATING	
211	2-431-515-01	RUBBER, HEATSHINK STB-CR35		222	2-434-241-01	SCREW +B 3X8	

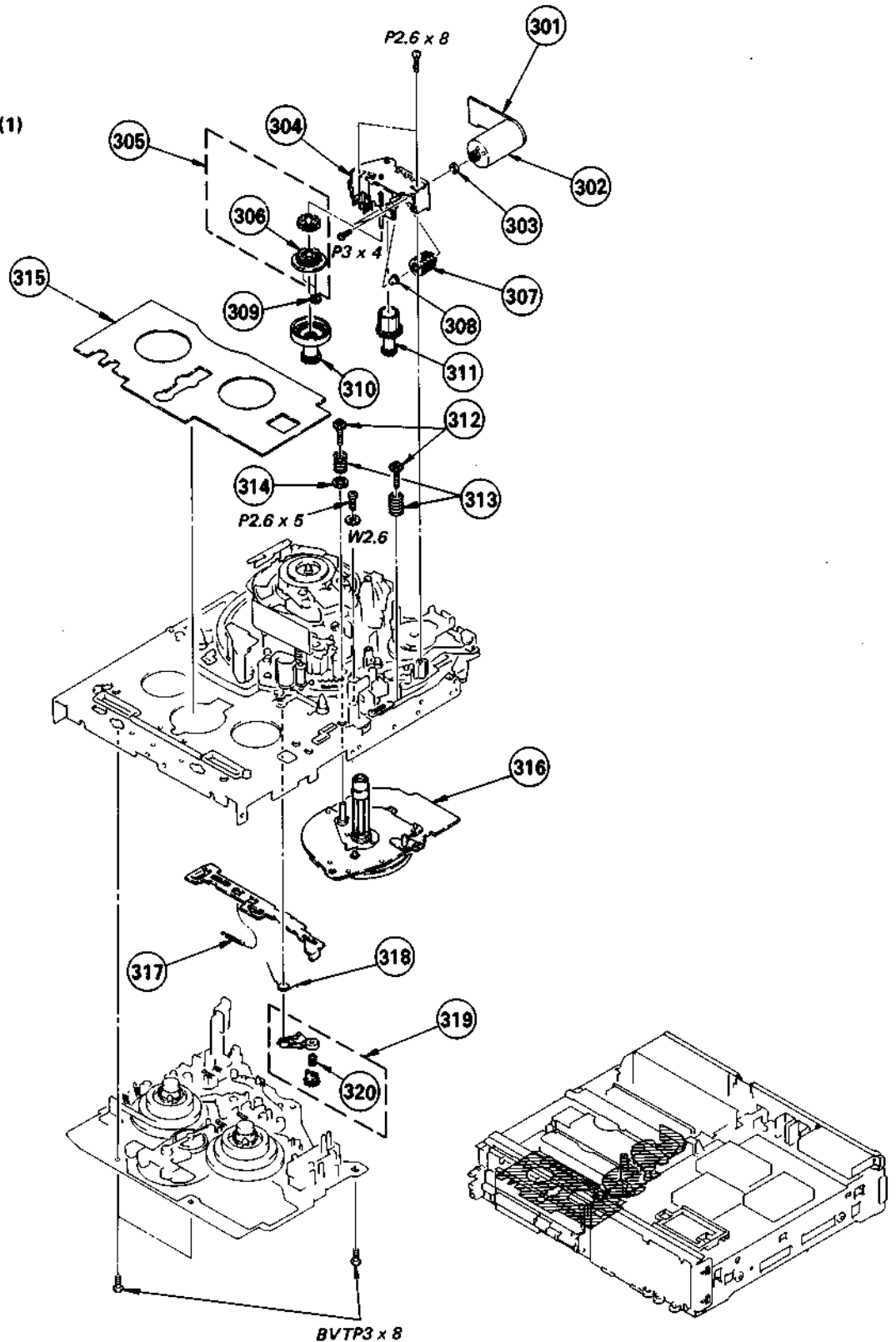
5-6. LS ASSEMBLY



No.	Part No.	Description
251	3-696-418-03	COVER, M, TRAY
252	3-696-362-01	SPRING
253	*3-696-472-01	COVER, TRAY
254	X-3697-602-1	COVER ASSY, DRUM
255	3-696-575-01	COVER, EDGE, RAIL (LEFT)
256	*3-696-461-01	RAIL (LEFT)
257	3-696-519-01	SCREW (3X8), (+) P IT3
258	*3-696-476-01	WALL, INSIDE, LEFT
259	*A-6751-247-A	TRAY BLOCK ASSY
260	3-639-333-01	SPRING, TENSION
261	*3-696-493-01	ROLLER, LOCK
262	3-590-523-00	WASHER, STOPPER

Remark	No.	Part No.	Description	Remark
	263	3-697-635-01	PANEL, REAR, LS	
	264	*A-6724-467-A	FL-9 BOARD, COMPLETE	
	265	*A-6724-466-A	FL-8 BOARD, COMPLETE	
	266	1-520-485-11	METER UNIT, LEVEL	
	267	3-697-625-01	KNOB, REC-VR	
	268	3-697-636-01	SCALE, DIAL, REC VOLUME	
	269	*3-696-473-02	WALL (R), SIDE	
	270	*3-696-462-01	RAIL (RIGHT)	
	271	*3-696-465-02	RACK, LS	
260-262	272	*X-3696-342-1	PLATE ASSY, BOTTOM, LS	
	273	*A-6711-659-A	RP-31 BOARD, COMPLETE	
	274	*A-6717-408-A	DR-33 BOARD, COMPLETE	

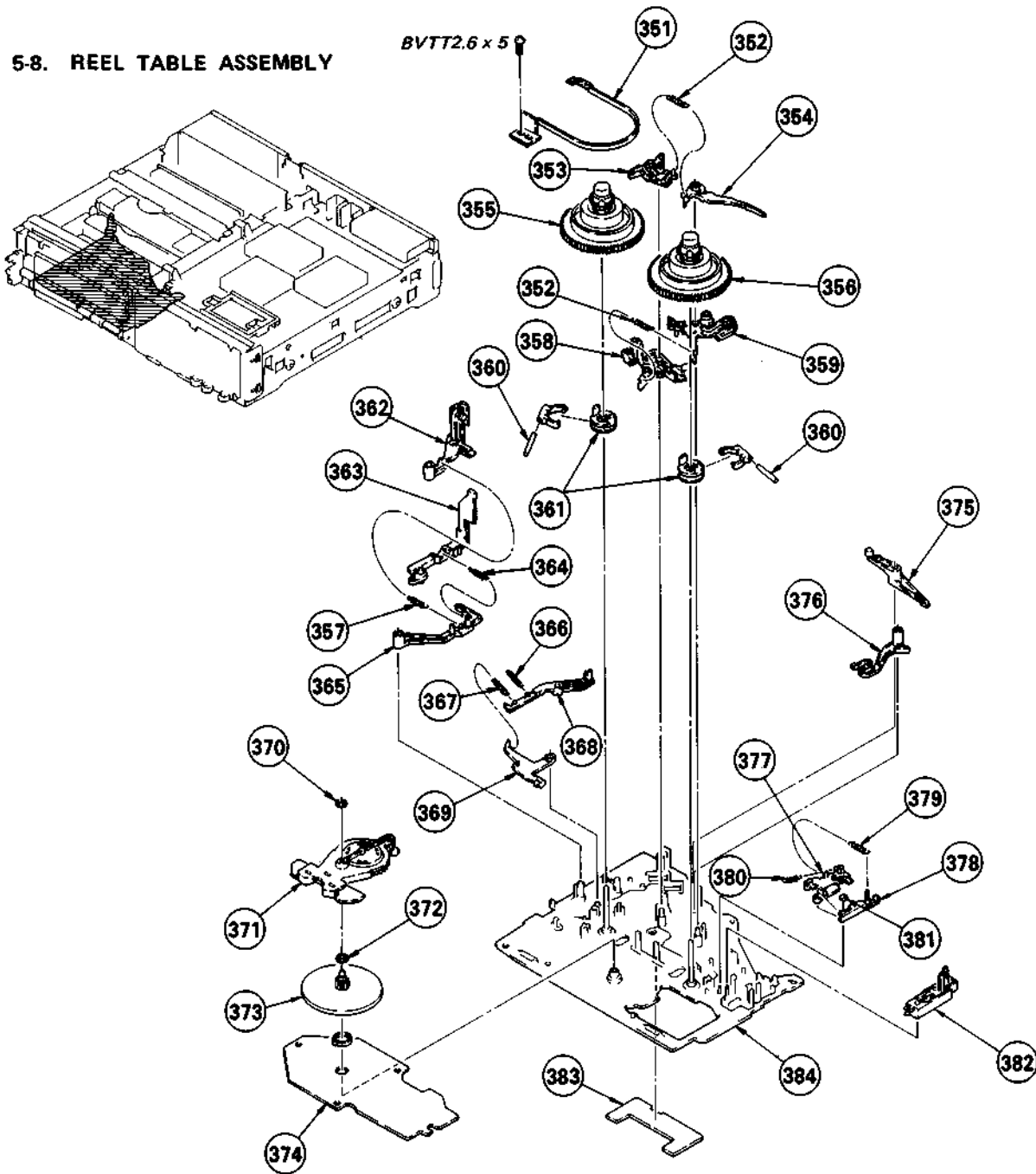
5-7. CHASSIS ASSEMBLY (1)



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
301	*1-616-601-11	LM-17 BOARD		311	X-3696-321-1	GEAR ASSY, RELAY	
302	X-3696-314-1	MOTOR ASSY, L (LOADING MOTOR) M904		312	3-669-633-00	SCREW, + PW2	
303	3-696-388-01	RUBBER, JOINT		313	3-679-359-00	SPRING, COMPRESSION	
304	X-3696-330-3	BRACKET ASSY		314	3-693-831-01	WASHER, GUIDE	
305	X-3696-307-1	WHEEL ASSY, WORM	306	315	3-696-527-01	COVER, MECHANICAL CHASSIS	
306	X-3696-322-1	GEAR ASSY, PLANET		316	8-838-096-01	MOTOR, DC (BHF-1914A)(CAPSTAN MOTOR)M902	
307	3-696-302-01	GEAR, WORM		317	3-696-345-01	SPRING (SLIDE PLATE), TENSION	
308	3-696-304-01	BEARING, WORM		318	3-696-385-01	SPRING, TORSION (REVIEW BRAKE)	
309	3-696-325-01	GEAR, PLANET		319	X-3691-648-1	ARM ASSY (B), REVIEW BRAKE	320
310	X-3696-308-1	GEAR ASSY, INNER		320	3-691-792-01	SPRING, COMPRESSION	

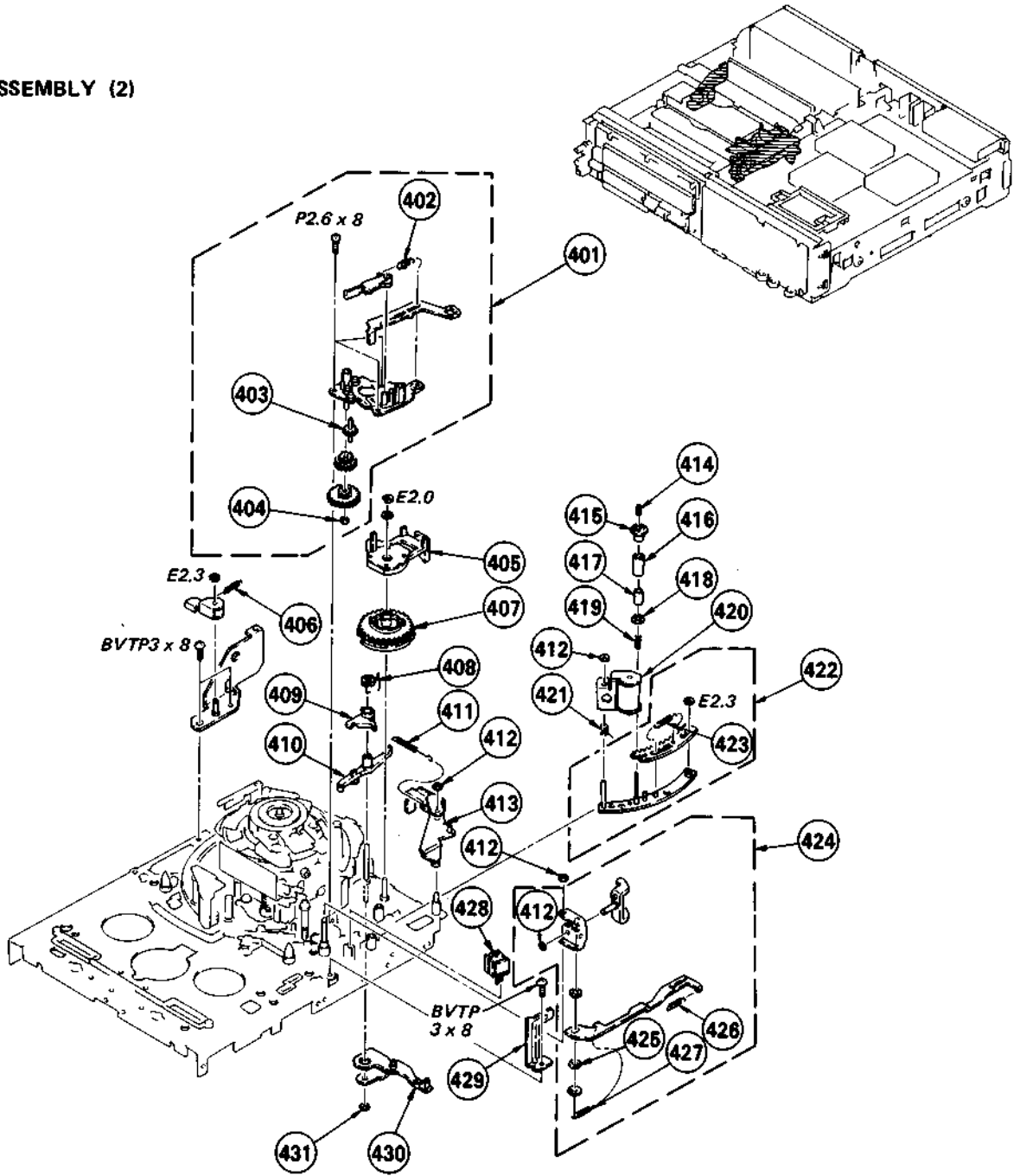


### 5-8. REEL TABLE ASSEMBLY



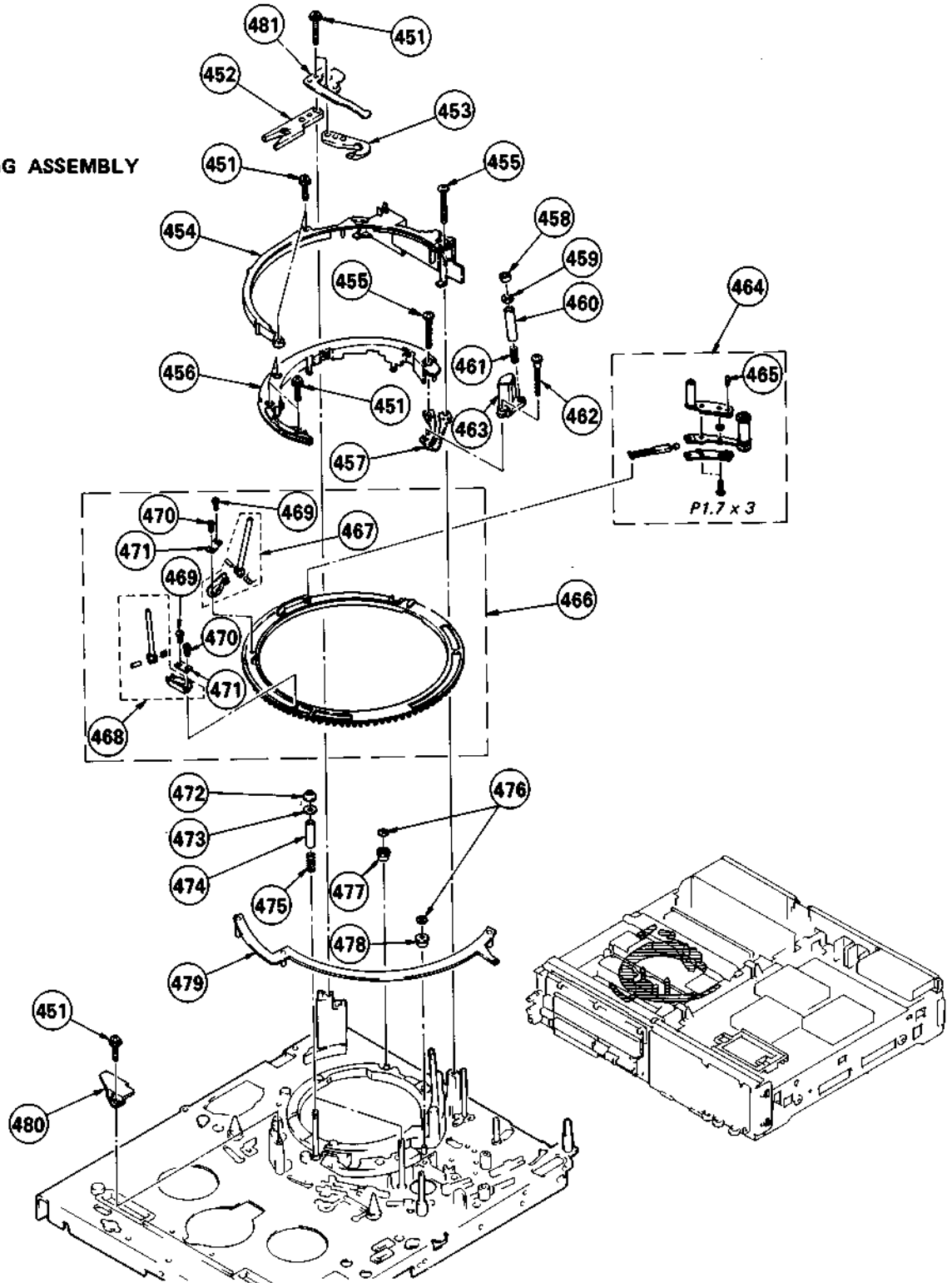
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
351	X-3679-120-0	BAND ASSY, TENSION REGULATOR		369	*3-696-437-01	LEVER, S LIMITER	
352	3-696-395-01	SPRING, TENSION		370	3-669-595-00	WASHER (2), STOPPER	
353	*3-696-436-01	ARM, S SOFT BRAKE		371	A-6759-074-A	ARM BLOCK ASSY, PENDULUM	
354	X-3684-137-1	BRAKE ASSY, T SOFT		372	3-679-318-00	WASHER, PENDULUM ARM	
355	X-3691-627-1	TABLE ASSY, REEL, SUPPLY		373	X-2622-205-1	ROTOR ASSY, R	
356	X-3691-626-1	TABLE ASSY, REEL, TAKE-UP		374	*A-4910-063-A	R STATOR (REEL MOTOR) BOARD, COMPLETE	
357	3-684-235-01	SPRING, TENSION		375	X-3696-315-1	SENSOR ASSY, RING	
358	X-3696-310-1	BRAKE ASSY, S		376	3-696-438-01	ARM, PENDULUM STOPPER	
359	X-3696-311-1	BRAKE ASSY, T		377	*3-691-728-01	LEVER, RD	
360	*3-691-681-01	SHAFT, ARM, UD		378	*X-3691-601-3	ARM ASSY, RD	
361	*3-696-386-01	RING, UD		379	3-696-398-01	SPRING, TENSION	
362	1-464-527-13	S COIL SENSOR		380	3-696-397-01	SPRING, TENSION	
363	X-3696-312-1	LEVER ASSY, TENSION REGULATOR		381	3-691-680-01	WASHER, STOPPER	
364	3-696-396-01	SPRING, TENSION		382	1-554-839-11	SWITCH, LEAF (2 GANG) (REC PROOF, CASSETT IN) S901	
365	*3-696-435-01	LEVER, FUNCTION					
366	3-696-394-01	SPRING, TENSION		383	*1-616-599-11	RD-17 BOARD	
367	3-691-776-01	SPRING, TENSION		384	*X-3696-336-3	CHASSIS ASSY, SUB	
368	*3-696-478-01	DETECTOR, S CLUTCH					

5-9. CHASSIS ASSEMBLY (2)



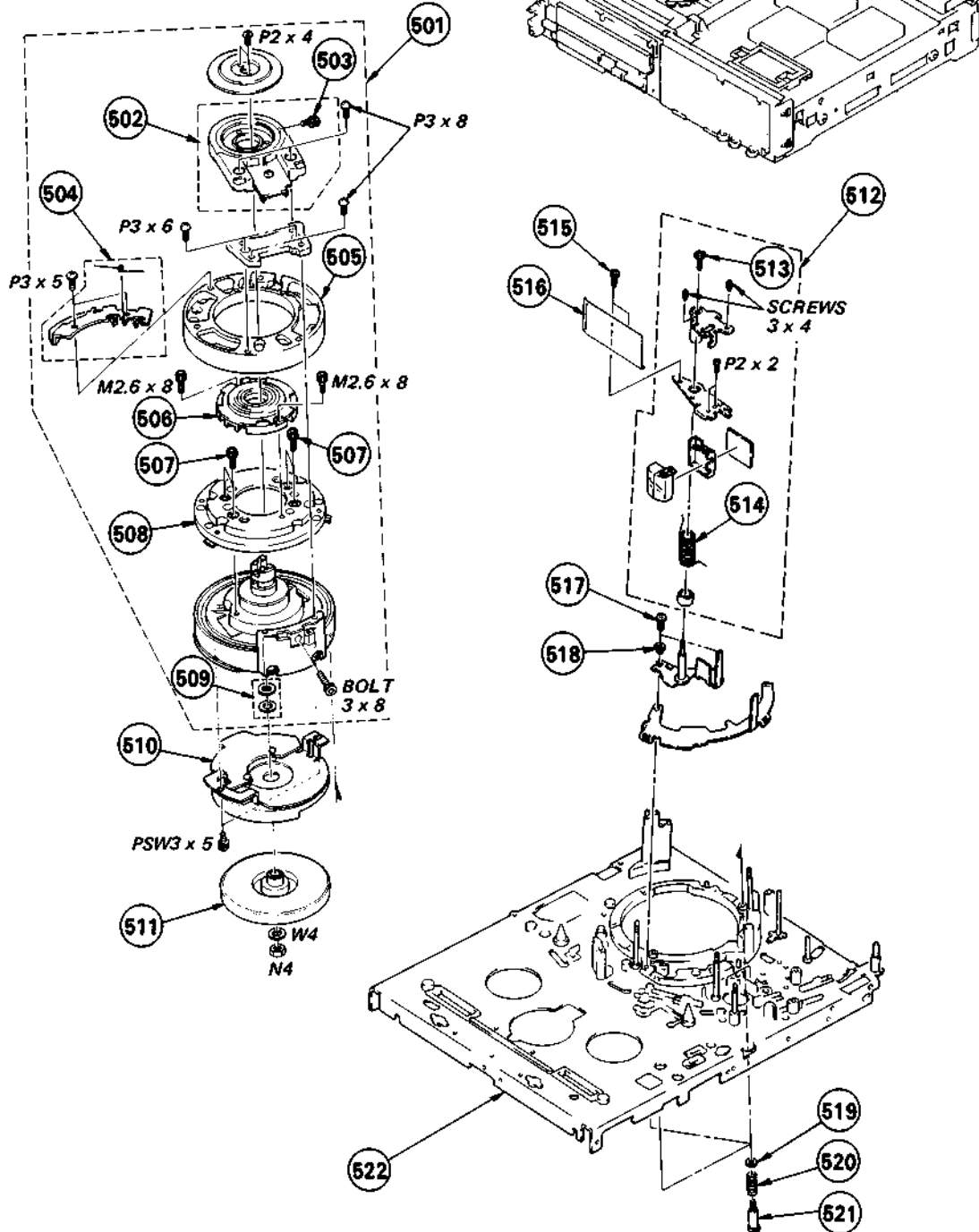
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
401	A-6750-190-A	CHASSIS BLOCK ASSY, GEAR	402-404	417	3-672-559-00	SLEEVE, GUIDE	
402	3-696-376-01	SPRING, TENSION (FLAG)		418	3-669-432-00	FLANGE (LOWER) (#9), GUIDE	
403	X-3679-148-0	GEAR (F) ASSY (D)		419	3-669-452-00	SPRING, COMPRESSION	
404	3-669-465-00	WASHER (1.5), STOPPER		420	X-3691-646-1	ARM ASSY, PINCH ROLLER	
405	1-570-394-21	SWITCH, ROTARY (ROTARY ENCODER) S902		421	3-696-406-01	SPRING (CAM)	
406	3-140-263-XX	SPRING, TENSION		422	X-3696-329-1	GEAR ASSY, SLIDER	423
407	3-696-509-01	CAM (S), FUNCTION		423	3-549-014-00	SPRING, TENSION	
408	3-696-343-01	SPRING		424	A-6759-255-A	ARM BLOCK ASSY, PRESS	412, 425-427
409	3-696-337-01	INVERTOR, LOCK ARM		425	3-679-318-11	WASHER, PENDULUM ARM	
410	X-3696-319-1	ARM ASSY, LOCK		426	3-696-374-01	SPRING, TENSION(F PLATE RETURN)	
411	3-696-344-01	SPRING (EJECT), TENSION		427	3-696-375-01	SPRING, TENSION (PRESS ARM)	
412	3-669-596-00	WASHER (2.3), STOPPER		428	1-464-526-12	T COIL SENSOR	
413	X-3696-328-1	STOPPER ASSY, EJECT		429	*3-696-328-01	PLATE, LID OPEN	
414	3-694-230-01	SCREW (2X2.5), FLANGE		430	*X-3696-309-1	LEVER ASSY, CAM	
415	3-676-650-00	FLANGE (UPPER) (#9), GUIDE		431	3-669-595-00	WASHER (2), STOPPER	
416	3-676-649-11	ROLLER (#9), GUIDE					

5-10. S LOADING ASSEMBLY



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
451	3-669-480-11	+ PTPWH 2		467	*X-3669-430-0	HOLDER BLOCK ASSY, #3 GUIDE	
452	*3-669-618-00	PLATE (2), ADJUST		468	*X-3669-429-0	HOLDER BLOCK ASSY, #2 GUIDE	
453	*3-672-507-00	PLATE (3-1), ADJUSTMENT		469	3-669-478-00	SCREW (1X3), TAPPING	
454	3-684-217-04	GUIDE (2), SHUTTLE		470	3-672-586-00	SCREW (1.4X3), TAPPING	
455	3-669-466-21	SCREW (M 2.6)		471	*3-669-472-02	RETAINER, SPRING, LEAF	
456	*3-679-290-00	GUIDE (1-YA), SHUTTLE		472	3-669-318-21	NUT, ADJUSTMENT, GUIDE	
457	*X-3679-263-1	BASE ASSY, SLANT		473	3-684-135-01	WASHER (UPPER), GUIDE, #7, 8	
458	3-669-446-00	NUT, GUIDE, NO. 6		474	3-684-133-01	SLEEVE, GUIDE, #7, 8	
459	3-679-910-00	FLANGE (S), GUIDE, NUMBER 6		475	3-684-290-01	SPRING, COMPRESSION	
460	3-691-830-01	SLEEVE, GUIDE, #6		476	3-669-465-00	WASHER (1.5), STOPPER	
461	3-669-615-00	SPRING, COMPRESSION		477	3-669-360-00	ROLLER, RING	
462	3-669-606-00	SCREW (2.6)		478	3-669-597-00	ROLLER (B), RING	
463	8-825-508-10	HEAD, FE		479	*X-3696-327-1	PLATE ASSY, FUNCTION	
464	A-6750-108-B	SHUTTLE (2) BLOCK ASSY	465	480	3-669-476-04	PLATE, GUIDE	
465	3-694-230-01	SCREW (2X2.5), FLANGE		481	*3-684-158-01	PLATE, GROUND, TAPE GUIDE	
466	X-3696-337-1	RING (CAM) ASSY, S THREADING	467-470				

5-11. DRUM ASSEMBLY



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
501	A-6050-387-A	DRUM ASSY (DSH-78A-R)		512	A-6761-093-A	ACE ASSY	513, 514
502	A-6050-237-C	GUIDE ARM ASSY	502-509	513	3-696-500-02	SCREW, ADJUSTMENT, HEIGHT	
503	3-681-360-01	SCREW, SPRING WASHER	503	514	3-696-408-01	SPRING, TORSION	
504	A-6760-066-B	SPRING ASSY, TAPE RETAINER		515	3-696-516-01	SCREW (2X4), SM (ISO) (+) P	
505	A-6760-178-A	DRUM SUB ASSY, UPPER		516	3-696-517-02	PROTECTOR	
506	X-3681-312-1	COUPLER ASSY, ROTARY		517	3-693-439-01	SCREW (P2.6X12), (+)	
507	3-669-157-00	BOLT (WASHER) (2.6X8)		518	3-684-247-01	BUSHING, ACE	
508	A-6762-260-A	DISK ASSY (DSR-78-R)		519	3-669-600-11	WASHER, FLAT (3.5)	
509	X-3669-105-0	SPACER BLOCK ASSY		520	3-429-123-00	SPRING	
510	X-2621-204-2	STATOR ASSY, D		521	3-694-212-01	SCREW, FITTING	
511	X-2621-202-1	ROTOR ASSY, D		522	*X-3696-339-4	CHASSIS ASSY, MECHANICAL	

## 5-12. HARDWARE LIST

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
<u>SCREW</u>			
7-621-257-55		SCREW +P 2.3X8	
7-621-770-87		SCREW +P 2.6X5	
7-627-552-38		SCREW, PRECISION +P 1.7X3	
7-627-553-18		SCREW, PRECISION +P 2X2	
7-627-554-07		SCREW, PRECISION +P 2X2.2	
7-628-254-15		SCREW +PS 2.6X6	
7-682-248-09		SCREW +K 3X8	
7-682-251-09		SCREW +K 3X14	
7-682-545-04		SCREW +P 3X4	
7-682-647-01		SCREW +PS 3X6	
7-682-648-01		SCREW +PS 3X8	
7-685-132-11		SCREW +P 2.6X5 TYPE2 NON-SLIT	
7-685-134-14		SCREW +P 2.6X8 TYPE2 NON-SLIT	
7-685-645-71		SCREW +BVTP 3X6 TYPE2 IT-3	
7-685-645-81		SCREW +BVTP 3X6 TYPE2	
7-685-646-71		SCREW +BVTP 3X8 TYPE2 IT-3	
7-685-646-81		SCREW +BVTP 3X8 TYPE2	
7-685-649-71		SCREW +BVTP 3X14 TYPE2 IT-3	
7-685-649-81		SCREW +BVTP 3X14 TYPE2	
7-685-791-04		SCREW +BVTT 2.6X5 (S)	
<u>SET-SCREW</u>			
7-621-712-46		SET-SCREW, SLOT 2.6X5FLAT POINT	
7-683-174-21		SET-SCREW, SLOT 3X4 CONE POINT	
<u>STOP RING</u>			
7-624-104-04		STOP RING 2.0, TYPE -E	
7-624-105-04		STOP RING 2.3, TYPE -E	
7-624-106-04		STOP RING 3.0, TYPE -E	
7-624-109-04		STOP RING 5.0, TYPE -E	
7-624-111-04		STOP RING 7.0, TYPE -E	
<u>WASHER</u>			
7-623-422-07		LW3, TYPE B	
7-688-002-11		W 2.6, MIDDLE	

# SECTION 6

# R STATOR

# YC-40

## ELECTRICAL PARTS LIST

**NOTE:**

The components identified by shading and 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.
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS**
- MF :  $\mu$ F, PF :  $\mu$  $\mu$ F
- COILS**
- MMH : mH, UH :  $\mu$ H

- RESISTORS**
- All resistors are in ohms
  - F : nonflammable

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	A-4910-063-A	R STATOR (REEL MOTOR) BOARD, COMPLETE		C033	1-101-004-00	CERAMIC 0.01MF	50V
		*****		C034	1-101-004-00	CERAMIC 0.01MF	50V
	*1-560-461-00	PIN, CONNECTOR 5P		C035	1-102-816-00	CERAMIC 120PF	5% 50V
		<u>CAPACITOR</u>		C036	1-101-882-00	CERAMIC 51PF	5% 50V
C1	1-123-821-00	ELECT 47MF 20% 16V		C037	1-101-004-00	CERAMIC 0.01MF	50V
C2	1-123-821-00	ELECT 47MF 20% 16V		C038	1-101-004-00	CERAMIC 0.01MF	50V
C3	1-123-821-00	ELECT 47MF 20% 16V		C039	1-101-004-00	CERAMIC 0.01MF	50V
C4	1-123-821-00	ELECT 47MF 20% 16V		C041	1-161-043-00	CERAMIC 0.0022MF	10% 25V
		<u>DIODE</u>		C042	1-102-516-00	CERAMIC 27PF 5%	50V (ES MODEL)
H1	8-719-800-31	DIODE THS103A-1		C043	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)
H2	8-719-800-31	DIODE THS103A-1		C044	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)
		<u>IC</u>		C045	1-102-523-00	CERAMIC 56PF 5%	50V (ES MODEL)
IC1	8-759-801-97	IC LB1615		C046	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)
		<u>RESISTOR</u>		C048	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)
R1	1-247-823-00	CARBON 470 5% 1/6W		C049	1-101-004-00	CERAMIC 0.01MF	50V
R2	1-249-429-11	CARBON 10K 5% 1/6W		C050	1-102-865-00	CERAMIC 8PF	0.5PF 50V
R3	1-249-437-11	CARBON 47K 5% 1/6W		C051	1-102-525-00	CERAMIC 68PF	5% 50V
R4	1-249-437-11	CARBON 47K 5% 1/6W		C052	1-102-525-00	CERAMIC 68PF	5% 50V
R5	1-249-437-11	CARBON 47K 5% 1/6W		C053	1-123-380-00	ELECT 1MF	20% 50V
R6	1-249-437-11	CARBON 47K 5% 1/6W		C054	1-161-040-00	CERAMIC 0.0012MF	10% 25V
		*****		C055	1-123-380-00	ELECT 1MF	20% 50V
	*A-6711-658-A	YC-40 BOARD, COMPLETE		C056	1-102-963-00	CERAMIC 33PF	5% 50V
		*****		C057	1-102-980-00	CERAMIC 270PF	5% 50V
		<u>BAND PASS FILTER</u>		C058	1-123-306-00	ELECT 47MF	20% 10V
BPF001	1-235-098-00	FILTER, BAND PASS		C059	1-101-004-00	CERAMIC 0.01MF	50V
		<u>CAPACITOR</u>		C060	1-108-579-00	MYLAR 0.01MF	5% 50V
C010	1-123-356-00	ELECT 10MF 20% 16V		C061	1-123-382-00	ELECT 3.3MF	20% 50V
C013	1-123-306-00	ELECT 47MF 20% 10V (ES MODEL)		C062	1-123-306-00	ELECT 47MF	20% 10V
C014	1-123-369-00	ELECT 4.7MF 20% 25V (ES MODEL)		C063	1-101-004-00	CERAMIC 0.01MF	50V
C015	1-123-306-00	ELECT 47MF 20% 10V (ES MODEL)		C064	1-102-521-00	CERAMIC 43PF	5% 50V
C016	1-108-589-00	MYLAR 0.027MF 5% 50V (ES MODEL)		C065	1-102-525-00	CERAMIC 68PF	5% 50V
C017	1-101-004-00	CERAMIC 0.01MF 50V (ES MODEL)		C066	1-102-525-00	CERAMIC 68PF	5% 50V
C018	1-123-306-00	ELECT 47MF 20% 10V (ES MODEL)		C068	1-101-004-00	CERAMIC 0.01MF	50V
C019	1-101-004-00	CERAMIC 0.01MF 50V (ES MODEL)		C069	1-102-962-00	CERAMIC 30PF	5% 50V
C020	1-101-004-00	CERAMIC 0.01MF 50V		C070	1-101-004-00	CERAMIC 0.01MF	50V
C021	1-101-004-00	CERAMIC 0.01MF 50V		C071	1-123-380-00	ELECT 1MF	20% 50V
C023	1-101-882-00	CERAMIC 51PF 5% 50V		C072	1-101-004-00	CERAMIC 0.01MF	50V
C024	1-130-047-00	FILM 180PF 5% 50V		C073	1-102-525-00	CERAMIC 68PF	5% 50V
C025	1-106-172-00	MYLAR 0.001MF 5% 50V		C074	1-102-525-00	CERAMIC 68PF	5% 50V
C026	1-101-059-21	CERAMIC 510PF 5% 50V		C075	1-101-004-00	CERAMIC 0.01MF	50V
C027	1-161-045-00	CERAMIC 0.0033MF 10% 25V		C076	1-102-951-00	CERAMIC 15PF	5% 50V
C028	1-106-172-00	MYLAR 0.001MF 5% 50V		C077	1-123-330-00	ELECT 22MF	20% 16V
C029	1-123-382-00	ELECT 3.3MF 20% 50V		C078	1-123-330-00	ELECT 22MF	20% 16V
C032	1-102-816-00	CERAMIC 120PF 5% 50V		C079	1-102-852-00	CERAMIC 47PF	5% 50V
				C080	1-101-004-00	CERAMIC 0.01MF	50V
				C082	1-161-024-00	CERAMIC 0.082MF	10% 25V
				C083	1-102-977-00	CERAMIC 200PF	5% 50V
				C084	1-123-369-00	ELECT 4.7MF	20% 25V
				C085	1-101-004-00	CERAMIC 0.01MF	50V
				C086	1-106-174-00	MYLAR 0.0012MF	5% 50V
				C087	1-161-057-00	CERAMIC 0.033MF	10% 25V
				C092	1-101-004-00	CERAMIC 0.01MF	50V
				C093	1-101-006-00	CERAMIC 0.047MF	50V

# YC-40

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description		Remark
C094	1-101-006-00	CERAMIC	0.047MF	50V	C206	1-101-004-00	CERAMIC	0.01MF	50V
C095	1-102-976-00	CERAMIC	180PF	50V	C207	1-161-025-00	CERAMIC	0.1MF	10% 25V
C096	1-102-824-00	CERAMIC	470PF	50V	C208	1-123-356-00	ELECT	10MF	20% 16V
C097	1-102-823-00	CERAMIC	430PF	50V	C212	1-123-333-00	ELECT	100MF	20% 16V
C098	1-102-820-00	CERAMIC	330PF	50V	C217	1-101-006-00	CERAMIC	0.047MF	50V
C099	1-102-525-00	CERAMIC	68PF	50V	C219	1-123-356-00	ELECT	10MF	20% 16V
C101	1-108-812-91	MYLAR	0.047MF	50V	C220	1-101-006-00	CERAMIC	0.047MF	50V
C102	1-161-043-00	CERAMIC	0.0022MF	10% 25V	C232	1-101-004-00	CERAMIC	0.01MF	50V (E MODEL)
C103	1-106-172-00	MYLAR	0.001MF	50V	C233	1-123-380-00	ELECT	1MF 20%	50V (E MODEL)
C104	1-102-977-00	CERAMIC	200PF	50V	C248	1-101-006-00	CERAMIC	0.047MF	50V
C105	1-102-973-00	CERAMIC	100PF	50V	C251	1-101-006-00	CERAMIC	0.047MF	50V
C106	1-123-356-00	ELECT	10MF	20% 16V	C252	1-102-816-00	CERAMIC	120PF	5% 50V
C107	1-161-025-00	CERAMIC	0.1MF	10% 25V	C253	1-123-356-00	ELECT	10MF	20% 16V
C108	1-101-004-00	CERAMIC	0.01MF	50V	C257	1-101-006-00	CERAMIC	0.047MF	50V
C111	1-101-882-00	CERAMIC	51PF	50V	C261	1-123-330-00	ELECT	22MF	20% 16V
C112	1-101-004-00	CERAMIC	0.01MF	50V	C300	1-101-004-00	CERAMIC	0.01MF	50V (ES MODEL)
C113	1-101-006-00	CERAMIC	0.047MF	50V	C301	1-101-006-00	CERAMIC	0.047MF	50V
C114	1-101-880-00	CERAMIC	47PF	50V	C302	1-102-773-00	CERAMIC	330PF	5% 50V
C116	1-101-004-00	CERAMIC	0.01MF	50V	C303	1-161-047-00	CERAMIC	0.0047MF	10% 25V
C117	1-101-361-00	CERAMIC	150PF	50V	C401	1-123-381-00	ELECT	2.2MF	20% 50V
C120	1-101-004-00	CERAMIC	0.01MF	50V	C402	1-101-001-00	CERAMIC	0.001MF	50V
C121	1-101-004-00	CERAMIC	0.01MF	50V	C403	1-101-001-00	CERAMIC	0.001MF	50V
C122	1-101-004-00	CERAMIC	0.01MF	50V	C404	1-101-004-00	CERAMIC	0.01MF	50V
C123	1-101-004-00	CERAMIC	0.01MF	50V	C405	1-123-330-00	ELECT	22MF	20% 16V
C124	1-102-948-21	CERAMIC	11PF	50V	C406	1-123-330-00	ELECT	22MF	20% 16V
C125	1-123-330-00	ELECT	22MF	20% 16V	C407	1-102-962-00	CERAMIC	30PF	5% 50V
C129	1-123-330-00	ELECT	22MF	20% 16V	C408	1-101-888-00	CERAMIC	68PF	5% 50V
C130	1-123-356-00	ELECT	10MF	20% 16V	C409	1-123-381-00	ELECT	2.2MF	20% 50V
C131	1-123-380-00	ELECT	1MF	20% 50V	C410	1-102-936-00	CERAMIC	3PF	0.25PF 50V
C132	1-123-369-00	ELECT	4.7MF	20% 25V	C411	1-101-005-00	CERAMIC	0.022MF	50V
C134	1-102-820-00	CERAMIC	330PF	50V	C412	1-123-318-00	ELECT	33MF	20% 16V
C135	1-102-823-00	CERAMIC	430PF	50V	C414	1-123-356-00	ELECT	10MF	20% 16V
C136	1-102-976-00	CERAMIC	180PF	50V	C417	1-102-948-00	CERAMIC	11PF	5% 50V
C142	1-123-330-00	ELECT	22MF	20% 16V	C418	1-102-965-00	CERAMIC	39PF	5% 50V
C144	1-102-508-00	CERAMIC	10PF	0.5PF 50V	C419	1-123-356-00	ELECT	10MF	20% 16V
C145	1-102-521-00	CERAMIC	43PF	50V	C420	1-123-369-00	ELECT	4.7MF	20% 25V
C146	1-102-521-00	CERAMIC	43PF	50V	C501	1-101-004-00	CERAMIC	0.01MF	50V
C147	1-102-508-00	CERAMIC	10PF	0.5PF 50V	C502	1-101-004-00	CERAMIC	0.01MF	50V
C148	1-101-006-00	CERAMIC	0.047MF	50V	C503	1-101-004-00	CERAMIC	0.01MF	50V
C155	1-101-004-00	CERAMIC	0.01MF	50V	C504	1-161-055-00	CERAMIC	0.022MF	10% 25V
C156	1-101-004-00	CERAMIC	0.01MF	50V	C505	1-102-822-00	CERAMIC	390PF	5% 50V
C159	1-102-822-00	CERAMIC	390PF	50V	C506	1-101-006-00	CERAMIC	0.047MF	50V
C178	1-123-307-00	ELECT	100MF	20% 10V	C507	1-123-330-00	ELECT	22MF	20% 16V
C179	1-123-307-00	ELECT	100MF	20% 10V	C613	1-101-004-00	CERAMIC	0.01MF	50V (ES MODEL)
C180	1-123-332-00	ELECT	47MF	20% 16V	C701	1-102-530-00	CERAMIC	120PF	5% 50V
C183	1-101-006-00	CERAMIC	0.047MF	50V	C702	1-123-380-00	ELECT	1MF	20% 50V
C191	1-101-004-00	CERAMIC	0.01MF	50V	C703	1-123-380-00	ELECT	1MF	20% 50V
C192	1-123-330-00	ELECT	22MF	20% 16V	C704	1-123-380-00	ELECT	1MF	20% 50V
C196	1-123-380-00	ELECT	1MF	20% 50V	C705	1-123-380-00	ELECT	1MF	20% 50V
C197	1-123-356-00	ELECT	10MF	20% 16V	C720	1-101-004-00	CERAMIC	0.01MF	50V
C200	1-101-004-00	CERAMIC	0.01MF	50V	C721	1-123-356-00	ELECT	10MF	20% 16V
C203	1-101-004-00	CERAMIC	0.01MF	50V	C722	1-123-369-00	ELECT	4.7MF	20% 25V
C204	1-123-369-00	ELECT	4.7MF	20% 25V	C723	1-161-057-00	CERAMIC	0.033MF	10% 25V

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

# YC-40

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C731	1-101-004-00	CERAMIC	0.01MF	50V	C944	1-123-333-00	ELECT 100MF 20% 16V
C732	1-101-004-00	CERAMIC	0.01MF	50V	C945	1-124-473-11	ELECT 1000MF 20% 10V
C733	1-101-004-00	CERAMIC	0.01MF	50V	C947	1-101-004-00	CERAMIC 0.01MF 50V
C740	1-101-004-00	CERAMIC	0.01MF	50V	C951	1-101-004-00	CERAMIC 0.01MF 50V
C741	1-101-006-00	CERAMIC	0.047MF	50V	C952	1-123-332-00	ELECT 47MF 20% 16V
C743	1-102-904-91	CERAMIC	110PF	5% 50V	C957	1-123-356-00	ELECT 10MF 20% 16V
C744	1-123-330-00	ELECT	22MF	20% 16V	C962	1-123-330-00	ELECT 22MF 20% 16V
C745	1-102-518-00	CERAMIC	33PF	5% 50V	<u>FILTER</u>		
C746	1-102-511-00	CERAMIC	13PF	5% 50V	CF001	1-527-998-00	FILTER, CERAMIC (4.16MHz) (ES MODEL)
C751	1-123-330-00	ELECT	22MF	20% 16V	CF002	1-527-875-00	FILTER, CERAMIC (5.12MHz)
C752	1-101-004-00	CERAMIC	0.01MF	50V	CF003	1-527-849-00	FILTER, CERAMIC (13.3MHz)
C755	1-123-330-00	ELECT	22MF	20% 16V	<u>CONNECTOR</u>		
C756	1-101-004-00	CERAMIC	0.01MF	50V	CN001	*1-560-896-00	PIN, CONNECTOR 8P
C757	1-123-330-00	ELECT	22MF	20% 16V	CN002	*1-564-030-00	PIN, CONNECTOR 5P
C758	1-101-004-00	CERAMIC	0.01MF	50V	CN003	*1-560-893-00	PIN, CONNECTOR 5P
C759	1-101-006-00	CERAMIC	0.047MF	50V	CN004	*1-564-031-00	PIN, CONNECTOR 6P
C760	1-101-006-00	CERAMIC	0.047MF	50V (ES MODEL)	CN005	*1-564-028-00	PIN, CONNECTOR 3P
C761	1-102-128-21	CERAMIC	0.0082MF	10% 50V	CN006	*1-564-028-00	PIN, CONNECTOR 3P
C762	1-102-824-00	CERAMIC	470PF	5% 50V	CN007	*1-564-031-00	PIN, CONNECTOR 6P
C763	1-123-330-00	ELECT	22MF	20% 16V	CN008	*1-564-037-21	PIN, CONNECTOR 12P
C765	1-123-356-00	ELECT	10MF	20% 16V	CN009	*1-560-898-00	PIN, CONNECTOR 10P
C766	1-102-973-00	CERAMIC	100PF	5% 50V	CN010	*1-564-037-31	PIN, CONNECTOR 12P
C767	1-123-330-00	ELECT	22MF	20% 16V	CN011	*1-560-890-00	PIN, CONNECTOR 2P
C768	1-124-343-00	ELECT	2200MF	20% 16V	<u>JACK</u>		
C769	1-161-013-00	CERAMIC	0.01MF	10% 25V	CNJ001	1-536-936-21	CONNECTOR BOARD, BNC
C770	1-102-525-00	CERAMIC	68PF	5% 50V	CNJ003	1-561-534-00	SOCKET 21P
C771	1-123-356-00	ELECT	10MF	20% 16V	<u>TRIMMER</u>		
C772	1-123-356-00	ELECT	10MF	20% 16V	CV001	1-141-275-00	CAP, TRIMMER (8-20P)
C773	1-123-356-00	ELECT	10MF	20% 16V	<u>DIODE</u>		
C801	1-102-865-00	CERAMIC	8PF	0.5PF 50V	D005	8-719-911-19	DIODE 1SS119 (ES MODEL)
C802	1-101-004-00	CERAMIC	0.01MF	50V	D006	8-719-000-06	DIODE MC921 (ES MODEL)
C803	1-123-330-00	ELECT	22MF	20% 16V	D009	8-719-000-06	DIODE MC921 (ES MODEL)
C804	1-123-306-00	ELECT	47MF	20% 6.3V	D012	8-719-911-19	DIODE 1SS119 (ES MODEL)
C805	1-101-001-00	CERAMIC	0.001MF	50V	D013	8-719-911-19	DIODE 1SS119
C807	1-101-006-00	CERAMIC	0.047MF	50V	D014	8-719-911-19	DIODE 1SS119
C809	1-101-004-00	CERAMIC	0.01MF	50V	D016	8-719-000-12	DIODE MC931
C910	1-123-356-00	ELECT	10MF	20% 16V	D017	8-719-911-19	DIODE 1SS119
C914	1-123-330-00	ELECT	22MF	20% 16V	D018	8-719-911-19	DIODE 1SS119
C916	1-102-816-00	CERAMIC	120PF	5% 50V	D019	8-719-911-19	DIODE 1SS119
C921	1-123-318-00	ELECT	33MF	20% 16V	D020	8-719-911-19	DIODE 1SS119
C926	1-101-004-00	CERAMIC	0.01MF	50V	D021	8-719-911-19	DIODE 1SS119
C927	1-161-025-00	CERAMIC	0.1MF	10% 25V	D022	8-719-911-19	DIODE 1SS119
C928	1-161-025-00	CERAMIC	0.1MF	10% 25V	D025	8-719-911-19	DIODE 1SS119
C929	1-123-330-00	ELECT	22MF	20% 16V	D027	8-719-000-06	DIODE MC921
C930	1-123-356-00	ELECT	10MF	20% 16V	D029	8-719-100-56	DIODE RD10EB1
C931	1-123-356-00	ELECT	10MF	20% 16V	D040	8-719-100-40	DIODE RD6.8EB1
C932	1-124-475-11	ELECT	470MF	20% 16V	D190	8-719-911-19	DIODE 1SS119
C933	1-123-356-00	ELECT	10MF	20% 16V			
C934	1-123-356-00	ELECT	10MF	20% 16V			
C935	1-124-473-11	ELECT	1000MF	20% 10V			
C936	1-123-332-00	ELECT	47MF	20% 16V			
C937	1-101-004-00	CERAMIC	0.01MF	50V			
C943	1-123-356-00	ELECT	10MF	20% 16V			

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



# YC-40

Ref.No	Part No.	Description
D703	8-719-911-19	DIODE 1SS119
D704	8-719-911-19	DIODE 1SS119
D705	8-719-911-19	DIODE 1SS119
D706	8-719-911-19	DIODE 1SS119
D707	8-719-911-19	DIODE 1SS119
D801	8-719-911-19	DIODE 1SS119
D802	8-719-911-19	DIODE 1SS119
D803	8-719-911-19	DIODE 1SS119
D804	8-719-911-19	DIODE 1SS119
D805	8-719-911-19	DIODE 1SS119
D806	8-719-911-19	DIODE 1SS119
D809	8-719-911-19	DIODE 1SS119
D810	8-719-911-19	DIODE 1SS119
D811	8-719-102-88	DIODE R09.1EN3
D909	8-719-200-02	DIODE 10E-2
D915	8-719-911-19	DIODE 1SS119
<u>DELAY LINE</u>		
DL001	1-415-313-00	DELAY LINE (1M)
DL401	1-415-352-11	DELAY LINE, 1H
DL501	1-415-419-11	DELAY LINE
<u>IC</u>		
IC001	8-759-909-20	IC BA634 (ES MODEL)
IC002	8-759-904-95	IC BA7007 (ES MODEL)
IC003	8-759-202-47	IC CX10023
IC004	8-759-208-94	IC CX-894 (ES MODEL)
IC005	8-752-006-10	IC CX20061 (ES MODEL)
IC006	8-759-203-99	IC CX10021B-NP
IC009	8-759-101-62	IC CX20043
IC011	8-752-006-10	IC CX20061
IC020	8-759-045-38	IC MC145388CP
IC401	8-758-662-00	IC CX-866B
IC901	8-759-979-26	IC CX-7926
<u>COIL</u>		
L001	1-410-450-11	MICRO INDUCTOR 3.9MMH
L002	1-410-411-11	MICRO INDUCTOR 2.2UH
L003	1-408-408-00	MICRO INDUCTOR 8.2UH
L004	1-408-406-00	MICRO INDUCTOR 5.6UH
L005	1-408-415-00	MICRO INDUCTOR 33UH
L006	1-408-426-00	MICRO INDUCTOR 270UH
L007	1-408-427-00	MICRO INDUCTOR 330UH
L008	1-408-421-00	MICRO INDUCTOR 100UH
L009	1-408-417-00	MICRO INDUCTOR 47UH
L011	1-408-423-00	MICRO INDUCTOR 150UH
L012	1-408-409-00	MICRO INDUCTOR 10UH
L014	1-408-422-00	MICRO INDUCTOR 120UH
L016	1-408-409-00	MICRO INDUCTOR 10UH
L017	1-408-423-00	MICRO INDUCTOR 150UH
L021	1-408-421-00	MICRO INDUCTOR 100UH
L022	1-408-423-00	MICRO INDUCTOR 150UH

Remark	Ref.No	Part No.	Description	Remark
	L023	1-408-421-00	MICRO INDUCTOR 100UH	
	L036	1-408-429-00	MICRO INDUCTOR 470UH	
	L050	1-408-414-00	MICRO INDUCTOR 27UH	
	L051	1-408-417-00	MICRO INDUCTOR 47UH	
	L052	1-408-420-00	MICRO INDUCTOR 82UH	
	L053	1-408-423-00	MICRO INDUCTOR 150UH	
	L055	1-408-409-00	MICRO INDUCTOR 10UH	
	L401	1-408-397-00	MICRO INDUCTOR 1UH	
	L402	1-408-397-00	MICRO INDUCTOR 1UH	
	L501	1-408-408-00	MICRO INDUCTOR 8.2UH	
	L701	1-408-415-00	MICRO INDUCTOR 33UH	
	L720	1-410-122-11	MICRO INDUCTOR 1.8MMH	
	L801	1-408-421-00	MICRO INDUCTOR 100UH	
	L802	1-408-414-00	MICRO INDUCTOR 27UH	
<u>LOW PASS FILTER</u>				
	LPF001	1-235-097-00	FILTER, LOW PASS	
<u>VARIABLE COIL</u>				
	LV001	1-407-291-00	MICRO INDUCTOR 15MMH (ES MODEL)	
	LV002	1-408-532-00	COIL, VARIABLE (ES MODEL)	
	LV003	1-408-513-00	COIL (VARIABLE) (ES MODEL)	
	LV501	1-408-512-00	COIL (VARIABLE)	
<u>IC LINK</u>				
	<del>LV001 1-407-291-00 MICRO INDUCTOR 15MMH (ES MODEL)</del>			
<u>TRANSISTOR</u>				
	Q010	8-729-177-43	TRANSISTOR 2SD774	
	Q011	8-729-204-83	TRANSISTOR 2SA1048	
	Q014	8-729-113-33	TRANSISTOR 2SB733	
	Q015	8-729-900-80	TRANSISTOR DTC114ES	
	Q016	8-729-245-83	TRANSISTOR 2SC2458	
	Q019	8-729-204-83	TRANSISTOR 2SA1048 (ES MODEL)	
	Q020	8-729-204-83	TRANSISTOR 2SA1048	
	Q021	8-729-245-83	TRANSISTOR 2SC2458 (ES MODEL)	
	Q022	8-729-245-83	TRANSISTOR 2SC2458	
	Q023	8-729-245-83	TRANSISTOR 2SC2458	
	Q024	8-729-204-83	TRANSISTOR 2SA1048	
	Q025	8-729-900-85	TRANSISTOR DTC144MS (ES MODEL)	
	Q026	8-729-204-83	TRANSISTOR 2SA1048	
	Q027	8-729-204-83	TRANSISTOR 2SA1048 (ES MODEL)	
	Q028	8-729-245-83	TRANSISTOR 2SC2458	
	Q029	8-729-245-83	TRANSISTOR 2SC2458 (ES MODEL)	
	Q030	8-729-245-83	TRANSISTOR 2SC2458	
	Q031	8-729-900-36	TRANSISTOR DTC124ES	
	Q033	8-729-245-83	TRANSISTOR 2SC2458	
	Q034	8-729-245-83	TRANSISTOR 2SC2458	
	Q035	8-729-900-80	TRANSISTOR DTC114ES	
	Q036	8-729-178-55	TRANSISTOR 2SC2785E	
	Q037	8-729-117-56	TRANSISTOR 2SA1175-K	
	Q038	8-729-384-46	TRANSISTOR 2SA844-D	
	Q039	8-729-603-30	TRANSISTOR 2SC403SP	

The components identified by shading and 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	Ref.No	Part No.	Description	Remark
Q040	8-729-603-30	TRANSISTOR 2SC403SP		Q827	8-729-245-83	TRANSISTOR 2SC2458	
Q041	8-729-384-46	TRANSISTOR 2SA844		Q832	8-729-603-30	TRANSISTOR 2SC403SP	
Q048	8-729-603-30	TRANSISTOR 2SC403SP		Q833	8-729-603-30	TRANSISTOR 2SC403SP	
Q049	8-729-603-30	TRANSISTOR 2SC403SP		Q834	8-729-900-80	TRANSISTOR DTC114ES	
Q050	8-729-603-30	TRANSISTOR 2SC403SP		Q837	8-729-204-83	TRANSISTOR 2SA1048	
Q051	8-729-384-46	TRANSISTOR 2SA844		Q838	8-729-178-55	TRANSISTOR 2SC2785E	
Q056	8-729-245-83	TRANSISTOR 2SC2458		Q839	8-729-178-55	TRANSISTOR 2SC2785E	
Q061	8-729-245-83	TRANSISTOR 2SC2458		Q905	8-729-177-43	TRANSISTOR 2SD774-3	
Q068	8-729-245-83	TRANSISTOR 2SC2458		Q906	8-729-204-83	TRANSISTOR 2SA1048	
Q070	8-729-245-83	TRANSISTOR 2SC2458		Q910	8-729-900-36	TRANSISTOR DTC124ES	
Q071	8-729-245-83	TRANSISTOR 2SC2458		Q921	8-729-204-83	TRANSISTOR 2SA1048	
Q076	8-729-204-83	TRANSISTOR 2SA1048 (E MODEL)		Q922	8-729-900-36	TRANSISTOR DTC124ES	
Q077	8-729-245-83	TRANSISTOR 2SC2458 (E MODEL)		Q923	8-729-245-83	TRANSISTOR 2SC2458	
Q080	8-729-245-83	TRANSISTOR 2SC2458		Q925	8-729-245-83	TRANSISTOR 2SC2458	
Q100	8-729-900-85	TRANSISTOR DTC144WS		Q926	8-729-900-89	TRANSISTOR DTC144ES	
Q101	8-729-900-89	TRANSISTOR DTC144ES		Q928	8-729-245-83	TRANSISTOR 2SC2458	
Q102	8-729-900-65	TRANSISTOR DTA144ES				RESISTOR	
Q103	8-729-245-83	TRANSISTOR 2SC2458		R032	1-247-831-00	CARBON 1K 5% 1/6W	
Q401	8-729-245-83	TRANSISTOR 2SC2458		R035	1-247-859-00	CARBON 15K 5% 1/6W	
Q501	8-729-245-83	TRANSISTOR 2SC2458		R038	1-247-837-00	CARBON 1.8K 5% 1/6W	
Q502	8-729-245-83	TRANSISTOR 2SC2458		<del>R039</del>	<del>1-247-857-01</del>	<del>RESISTOR 10 5% 1/4W</del>	
Q503	8-729-245-83	TRANSISTOR 2SC2458		R046	1-249-419-11	CARBON 1.5K 5% 1/6W (ES MODEL)	
Q504	8-729-245-83	TRANSISTOR 2SC2458		R048	1-247-847-00	CARBON 4.7K 5% 1/6W (ES MODEL)	
Q620	8-729-204-83	TRANSISTOR 2SA1048 (ES MODEL)		R050	1-247-853-00	CARBON 8.2K 5% 1/6W	
Q701	8-729-245-83	TRANSISTOR 2SC2458		R051	1-247-821-00	CARBON 390 5% 1/6W	
Q702	8-729-900-89	TRANSISTOR DTC144ES		R052	1-247-819-00	CARBON 330 5% 1/6W	
Q703	8-729-204-83	TRANSISTOR 2SA1048		R053	1-247-843-00	CARBON 3.3K 5% 1/6W	
Q704	8-729-900-89	TRANSISTOR DTC144ES		R054	1-247-847-00	CARBON 4.7K 5% 1/6W	
Q707	8-729-900-89	TRANSISTOR DTC144ES		R055	1-247-849-00	CARBON 5.6K 5% 1/6W (ES MODEL)	
Q709	8-729-900-36	TRANSISTOR DTC124ES		R056	1-247-867-00	CARBON 33K 5% 1/6W	
Q715	8-729-245-83	TRANSISTOR 2SC2458		R058	1-247-873-00	CARBON 56K 5% 1/6W	
Q716	8-729-245-83	TRANSISTOR 2SC2458		R059	1-247-863-00	CARBON 22K 5% 1/6W	
Q717	8-729-245-83	TRANSISTOR 2SC2458		R060	1-247-867-00	CARBON 33K 5% 1/6W	
Q720	8-729-900-89	TRANSISTOR DTC144ES		R061	1-249-429-11	CARBON 10K 5% 1/6W	
Q721	8-729-900-89	TRANSISTOR DTC144ES		R062	1-249-429-11	CARBON 10K 5% 1/6W	
Q806	8-729-245-83	TRANSISTOR 2SC2458 (ES MODEL)		R063	1-247-841-00	CARBON 2.7K 5% 1/6W	
Q810	8-729-900-89	TRANSISTOR DTC144ES		R064	1-247-848-00	CARBON 5.1K 5% 1/6W	
Q811	8-729-900-89	TRANSISTOR DTC144ES		R065	1-247-889-00	CARBON 270K 5% 1/6W	
Q812	8-729-900-89	TRANSISTOR DTC144ES		R066	1-247-870-00	CARBON 43K 5% 1/6W	
Q813	8-729-900-89	TRANSISTOR DTC144ES		R067	1-247-862-00	CARBON 20K 5% 1/6W	
Q814	8-729-900-89	TRANSISTOR DTC144ES		R068	1-247-838-00	CARBON 2K 5% 1/6W	
Q815	8-729-900-89	TRANSISTOR DTC144ES		R069	1-247-831-00	CARBON 1K 5% 1/6W	
Q816	8-729-603-30	TRANSISTOR 2SC403SP		R070	1-247-831-00	CARBON 1K 5% 1/6W	
Q817	8-729-603-30	TRANSISTOR 2SC403SP		R071	1-249-429-11	CARBON 10K 5% 1/6W	
Q818	8-729-603-30	TRANSISTOR 2SC403SP		R072	1-247-841-00	CARBON 2.7K 5% 1/6W	
Q819	8-729-603-30	TRANSISTOR 2SC403SP		R073	1-247-831-00	CARBON 1K 5% 1/6W	
Q820	8-729-603-30	TRANSISTOR 2SC403SP		R074	1-247-831-00	CARBON 1K 5% 1/6W	
Q821	8-729-117-56	TRANSISTOR 2SA1175-K		R075	1-247-815-00	CARBON 220 5% 1/6W	
Q822	8-729-178-55	TRANSISTOR 2SC2785E		R076	1-249-429-11	CARBON 10K 5% 1/6W	
Q823	8-729-117-56	TRANSISTOR 2SA1175-K		R079	1-249-429-11	CARBON 10K 5% 1/6W (ES MODEL)	
Q824	8-729-178-55	TRANSISTOR 2SC2785E		R080	1-247-853-00	CARBON 8.2K 5% 1/6W (ES MODEL)	
Q825	8-729-603-30	TRANSISTOR 2SC403SP		R081	1-247-843-00	CARBON 3.3K 5% 1/6W	
Q826	8-729-900-89	TRANSISTOR DTC144ES					

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

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

# YC-40

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R082	1-249-437-11	CARBON	47K 5% 1/6W	R144	1-247-824-00	CARBON	510 5% 1/6W
R083	1-247-825-00	CARBON	560 5% 1/6W (ES MODEL)	R146	1-247-830-00	CARBON	910 5% 1/6W
R084	1-247-831-00	CARBON	1K 5% 1/6W (ES MODEL)	R147	1-249-429-11	CARBON	10K 5% 1/6W
R085	1-247-800-00	CARBON	51 5% 1/6W (ES MODEL)	R148	1-247-831-00	CARBON	1K 5% 1/6W
R086	1-247-825-00	CARBON	560 5% 1/6W	R149	1-247-819-00	CARBON	330 5% 1/6W
R087	1-247-825-00	CARBON	560 5% 1/6W	R150	1-247-863-00	CARBON	22K 5% 1/6W
R088	1-247-807-00	CARBON	100 5% 1/6W	R151	1-247-812-00	CARBON	160 5% 1/6W
R091	1-247-824-00	CARBON	510 5% 1/6W (ES MODEL)	R152	1-247-829-00	CARBON	820 5% 1/6W
R092	1-247-785-00	CARBON	12 5% 1/6W (ES MODEL)	R153	1-247-863-00	CARBON	22K 5% 1/6W
R093	1-247-806-00	CARBON	91 5% 1/6W (ES MODEL)	R154	1-247-821-00	CARBON	390 5% 1/6W
R094	1-249-437-11	CARBON	47K 5% 1/6W	R155	1-249-421-11	CARBON	2.2K 5% 1/6W
R096	1-247-879-00	CARBON	100K 5% 1/6W (ES MODEL)	R157	1-247-837-00	CARBON	1.8K 5% 1/6W
R097	1-247-881-00	CARBON	120K 5% 1/6W (ES MODEL)	R158	1-247-817-00	CARBON	270 5% 1/6W
R098	1-247-891-00	CARBON	330K 5% 1/6W	R159	1-247-813-00	CARBON	180 5% 1/6W
R100	1-247-873-00	CARBON	56K 5% 1/6W (ES MODEL)	R160	1-247-832-00	CARBON	1.1K 5% 1/6W
R101	1-247-867-00	CARBON	33K 5% 1/6W (ES MODEL)	R161	1-249-429-11	CARBON	10K 5% 1/6W
R103	1-247-831-00	CARBON	1K 5% 1/6W	R163	1-247-831-00	CARBON	1K 5% 1/6W
R104	1-249-421-11	CARBON	2.2K 5% 1/6W	R165	1-247-833-00	CARBON	1.2K 5% 1/6W
R105	1-247-829-00	CARBON	820 5% 1/6W	R166	1-247-807-00	CARBON	100 5% 1/6W
R106	1-247-831-00	CARBON	1K 5% 1/6W	R171	1-247-901-00	CARBON	820K 5% 1/6W
R107	1-247-824-00	CARBON	510 5% 1/6W	R172	1-247-838-00	CARBON	2K 5% 1/6W
R108	1-249-421-11	CARBON	2.2K 5% 1/6W	R173	1-247-861-00	CARBON	18K 5% 1/6W
R109	1-247-867-00	CARBON	33K 5% 1/6W	R174	1-249-421-11	CARBON	2.2K 5% 1/6W
R111	1-247-851-00	CARBON	6.8K 5% 1/6W	R175	1-247-831-00	CARBON	1K 5% 1/6W
R112	1-247-851-00	CARBON	6.8K 5% 1/6W	R176	1-249-421-11	CARBON	2.2K 5% 1/6W
R113	1-247-843-00	CARBON	3.3K 5% 1/6W	R178	1-249-421-11	CARBON	2.2K 5% 1/6W
R114	1-247-828-00	CARBON	750 5% 1/6W	R179	1-247-843-00	CARBON	3.3K 5% 1/6W
R115	1-247-879-00	CARBON	100K 5% 1/6W	R181	1-249-419-11	CARBON	1.5K 5% 1/6W
R116	1-247-853-00	CARBON	8.2K 5% 1/6W	R182	1-247-819-00	CARBON	330 5% 1/6W
R117	1-247-846-00	CARBON	4.3K 5% 1/6W	R183	1-249-421-11	CARBON	2.2K 5% 1/6W
R118	1-247-815-00	CARBON	220 5% 1/6W	R184	1-247-807-00	CARBON	100 5% 1/6W
R119	1-247-847-00	CARBON	4.7K 5% 1/6W	R185	1-247-843-00	CARBON	3.3K 5% 1/6W
R120	1-247-831-00	CARBON	1K 5% 1/6W	R189	1-247-825-00	CARBON	560 5% 1/6W
R121	1-247-831-00	CARBON	1K 5% 1/6W	R190	1-247-825-00	CARBON	560 5% 1/6W
R122	1-249-421-11	CARBON	2.2K 5% 1/6W	R192	1-247-831-00	CARBON	1K 5% 1/6W
R125	1-247-831-00	CARBON	1K 5% 1/6W	R193	1-249-429-11	CARBON	10K 5% 1/6W
R126	1-247-831-00	CARBON	1K 5% 1/6W	R194	1-247-819-00	CARBON	330 5% 1/6W
R127	1-249-419-11	CARBON	1.5K 5% 1/6W	R195	1-247-812-00	CARBON	160 5% 1/6W
R128	1-247-831-00	CARBON	1K 5% 1/6W	R196	1-247-863-00	CARBON	22K 5% 1/6W
R129	1-247-867-00	CARBON	33K 5% 1/6W	R197	1-247-863-00	CARBON	22K 5% 1/6W
R130	1-247-843-00	CARBON	3.3K 5% 1/6W	R198	1-247-829-00	CARBON	820 5% 1/6W
R131	1-247-841-00	CARBON	2.7K 5% 1/6W	R199	1-247-821-00	CARBON	390 5% 1/6W
R132	1-247-887-00	CARBON	220K 5% 1/6W	R200	1-249-421-11	CARBON	2.2K 5% 1/6W
R133	1-247-807-00	CARBON	100 5% 1/6W	R201	1-247-837-00	CARBON	1.8K 5% 1/6W
R134	1-247-851-00	CARBON	6.8K 5% 1/6W	R203	1-247-813-00	CARBON	180 5% 1/6W
R135	1-247-883-00	CARBON	150K 5% 1/6W	R204	1-247-817-00	CARBON	270 5% 1/6W
R136	1-247-879-00	CARBON	100K 5% 1/6W	R205	1-247-807-00	CARBON	100 5% 1/6W
R137	1-247-857-00	CARBON	12K 5% 1/6W	R206	1-247-831-00	CARBON	1K 5% 1/6W
R138	1-249-434-11	CARBON	27K 5% 1/6W	R207	1-247-873-00	CARBON	56K 5% 1/6W
R139	1-247-841-00	CARBON	2.7K 5% 1/6W	R208	1-247-873-00	CARBON	56K 5% 1/6W
R141	1-247-831-00	CARBON	1K 5% 1/6W	R214	1-247-831-00	CARBON	1K 5% 1/6W
R142	1-247-842-00	CARBON	3K 5% 1/6W	R215	1-247-831-00	CARBON	1K 5% 1/6W
R143	1-247-837-00	CARBON	1.8K 5% 1/6W	R216	1-247-819-00	CARBON	330 5% 1/6W

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

# YC-40

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R217	1-249-421-11	CARBON	2.2K 5% 1/6W	R404	1-249-437-11	CARBON	47K 5% 1/6W
R218	1-247-857-00	CARBON	12K 5% 1/6W	R405	1-247-831-00	CARBON	1K 5% 1/6W
R219	1-247-873-00	CARBON	56K 5% 1/6W	R406	1-247-832-00	CARBON	1.1K 5% 1/6W
R220	1-249-434-11	CARBON	27K 5% 1/6W	R407	1-247-832-00	CARBON	1.1K 5% 1/6W
R221	1-247-849-00	CARBON	5.6K 5% 1/6W	R408	1-247-849-00	CARBON	5.6K 5% 1/6W
R222	1-247-837-00	CARBON	1.8K 5% 1/6W	R409	1-247-831-00	CARBON	1K 5% 1/6W
R223	1-247-837-00	CARBON	1.8K 5% 1/6W	R413	1-247-829-00	CARBON	820 5% 1/6W
R231	1-247-867-00	CARBON	33K 5% 1/6W	R414	1-247-847-00	CARBON	4.7K 5% 1/6W
R236	1-247-853-00	CARBON	8.2K 5% 1/6W	R415	1-247-831-00	CARBON	1K 5% 1/6W
R238	1-247-851-00	CARBON	6.8K 5% 1/6W	R416	1-247-846-00	CARBON	4.3K 5% 1/6W
R239	1-249-429-11	CARBON	10K 5% 1/6W	R510	1-247-824-00	CARBON	510 5% 1/6W
R240	1-249-421-11	CARBON	2.2K 5% 1/6W	R511	1-247-867-00	CARBON	33K 5% 1/6W
R248	1-247-819-00	CARBON	330 5% 1/6W	R512	1-247-847-00	CARBON	4.7K 5% 1/6W
R274	1-247-883-00	CARBON	150K 5% 1/6W	R513	1-247-863-00	CARBON	22K 5% 1/6W
R275	1-249-437-11	CARBON	47K 5% 1/6W	R514	1-247-821-00	CARBON	390 5% 1/6W
R276	1-247-849-00	CARBON	5.6K 5% 1/6W	R515	1-249-421-11	CARBON	2.2K 5% 1/6W
R277	1-249-429-11	CARBON	10K 5% 1/6W	R516	1-247-821-00	CARBON	390 5% 1/6W
R280	1-249-419-11	CARBON	1.5K 5% 1/6W	R517	1-247-821-00	CARBON	390 5% 1/6W
R281	1-247-890-00	CARBON	300K 5% 1/6W	R518	1-247-821-00	CARBON	390 5% 1/6W
R282	1-247-819-00	CARBON	330 5% 1/6W	R519	1-247-821-00	CARBON	390 5% 1/6W
R283	1-249-421-11	CARBON	2.2K 5% 1/6W	R520	1-249-421-11	CARBON	2.2K 5% 1/6W
R284	1-247-877-00	CARBON	82K 5% 1/6W	R521	1-247-821-00	CARBON	390 5% 1/6W
R286	1-247-843-00	CARBON	3.3K 5% 1/6W	R522	1-249-421-11	CARBON	2.2K 5% 1/6W
R291	1-247-863-00	CARBON	22K 5% 1/6W	R525	1-247-843-00	CARBON	3.3K 5% 1/6W
R292	1-247-875-00	CARBON	68K 5% 1/6W	R603	1-247-843-00	CARBON	3.3K 5% 1/6W
R293	1-247-819-00	CARBON	330 5% 1/6W	R607	1-249-429-11	CARBON	10K 5% 1/6W (ES MODEL)
R295	1-249-421-11	CARBON	2.2K 5% 1/6W	R638	1-247-807-00	CARBON	100 5% 1/6W (ES MODEL)
R298	1-247-894-00	CARBON	430K 5% 1/6W	R639	1-247-831-00	CARBON	1K 5% 1/6W (ES MODEL)
R299	1-247-892-00	CARBON	360K 5% 1/6W	R640	1-247-815-00	CARBON	220 5% 1/6W (ES MODEL)
R301	1-249-429-11	CARBON	10K 5% 1/6W	R641	1-247-823-00	CARBON	470 5% 1/6W (ES MODEL)
R302	1-247-819-00	CARBON	330 5% 1/6W	R643	1-247-875-00	CARBON	68K 5% 1/6W
R303	1-247-819-00	CARBON	330 5% 1/6W	R650	1-249-437-11	CARBON	47K 5% 1/6W
R304	1-247-847-00	CARBON	4.7K 5% 1/6W	R651	1-247-867-00	CARBON	33K 5% 1/6W
R312	1-247-879-00	CARBON	100K 5% 1/6W	R652	1-247-831-00	CARBON	1K 5% 1/6W
R313	1-247-823-00	CARBON	470 5% 1/6W	R654	1-247-831-00	CARBON	1K 5% 1/6W
R320	1-247-878-00	CARBON	91K 5% 1/6W	R655	1-247-831-00	CARBON	1K 5% 1/6W
R321	1-247-887-00	CARBON	220K 5% 1/6W	R656	1-247-825-00	CARBON	560 5% 1/6W
R325	1-247-807-00	CARBON	100 5% 1/6W	R657	1-247-831-00	CARBON	1K 5% 1/6W
R331	1-247-852-00	CARBON	7.5K 5% 1/6W	R701	1-247-825-00	CARBON	560 5% 1/6W
R342	1-247-807-00	CARBON	100 5% 1/6W	R702	1-249-421-11	CARBON	2.2K 5% 1/6W
R346	1-247-847-00	CARBON	4.7K 5% 1/6W	R703	1-247-867-00	CARBON	33K 5% 1/6W
R347	1-247-879-00	CARBON	100K 5% 1/6W (E MODEL)	R704	1-247-813-00	CARBON	180 5% 1/6W
R351	1-247-815-00	CARBON	220 5% 1/6W	R705	1-247-813-00	CARBON	180 5% 1/6W
R353	1-249-421-11	CARBON	2.2K 5% 1/6W	R710	1-249-429-11	CARBON	10K 5% 1/6W
R357	1-247-829-00	CARBON	820 5% 1/6W	R712	1-249-419-11	CARBON	1.5K 5% 1/6W
R370	1-247-797-00	CARBON	39 5% 1/6W	R714	1-247-811-00	CARBON	150 5% 1/6W
R380	1-247-851-00	CARBON	6.8K 5% 1/6W	R737	1-249-429-11	CARBON	10K 5% 1/6W
R381	1-249-429-11	CARBON	10K 5% 1/6W	R738	1-249-429-11	CARBON	10K 5% 1/6W
R382	1-247-831-00	CARBON	1K 5% 1/6W	R739	1-249-429-11	CARBON	10K 5% 1/6W
R390	1-247-887-00	CARBON	220K 5% 1/6W (E MODEL)	R740	1-247-861-00	CARBON	18K 5% 1/6W
R401	1-247-810-00	CARBON	130 5% 1/6W	R741	1-249-429-11	CARBON	10K 5% 1/6W
R402	1-247-806-00	CARBON	91 5% 1/6W	R743	1-247-879-00	CARBON	100K 5% 1/6W
R403	1-247-867-00	CARBON	33K 5% 1/6W	R744	1-247-879-00	CARBON	100K 5% 1/6W

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

# YC-40

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R745	1-247-840-00	CARBON	2.4K 5% 1/6W	R876	1-247-849-00	CARBON	5.6K 5% 1/6W
R746	1-247-815-00	CARBON	220 5% 1/6W	R877	1-215-445-00	METAL	10K 1% 1/6W
R747	1-247-857-00	CARBON	12K 5% 1/6W	R878	1-215-433-00	METAL	3.3K 1% 1/6W
R748	1-249-421-11	CARBON	2.2K 5% 1/6W	R880	1-249-429-11	CARBON	10K 5% 1/6W
R749	1-247-815-00	CARBON	220 5% 1/6W	R881	1-247-831-00	CARBON	1K 5% 1/6W
R750	1-247-807-00	CARBON	100 5% 1/6W	R882	1-247-879-00	CARBON	100K 5% 1/6W
R753	1-249-429-11	CARBON	10K 5% 1/6W	<del>R883</del>	<del>1-247-807-00</del>	<del>CARBON</del>	<del>100 5% 1/6W</del>
R754	1-249-421-11	CARBON	2.2K 5% 1/6W	R884	1-247-847-00	CARBON	4.7K 5% 1/6W
R778	1-249-437-11	CARBON	47K 5% 1/6W	R885	1-247-817-00	CARBON	270 5% 1/6W
R802	1-247-831-00	CARBON	1K 5% 1/6W	R886	1-247-833-00	CARBON	1.2K 5% 1/6W
R803	1-249-437-11	CARBON	47K 5% 1/6W	R888	1-247-863-00	CARBON	22K 5% 1/6W
R804	1-249-437-11	CARBON	47K 5% 1/6W	<del>R889</del>	<del>1-247-831-00</del>	<del>CARBON</del>	<del>1K 5% 1/6W</del>
R805	1-247-883-00	CARBON	150K 5% 1/6W	R893	1-247-847-00	CARBON	4.7K 5% 1/6W
R806	1-247-883-00	CARBON	150K 5% 1/6W	R894	1-247-823-00	CARBON	470 5% 1/6W
R807	1-247-829-00	CARBON	820 5% 1/6W	R895	1-247-823-00	CARBON	470 5% 1/6W
R809	1-247-891-00	CARBON	330K 5% 1/6W (ES MODEL)	R896	1-249-429-11	CARBON	10K 5% 1/6W
R811	1-247-843-00	CARBON	3.3K 5% 1/6W	R897	1-249-429-11	CARBON	10K 5% 1/6W
R814	1-247-903-00	CARBON	1M 5% 1/6W	R898	1-247-887-00	CARBON	220K 5% 1/6W
R815	1-247-831-00	CARBON	1K 5% 1/6W	R899	1-247-887-00	CARBON	220K 5% 1/6W
R816	1-247-899-00	CARBON	680K 5% 1/6W	R918	1-247-831-00	CARBON	1K 5% 1/6W
R817	1-215-450-00	METAL	16K 1% 1/6W	<del>R919</del>	<del>1-212-857-00</del>	<del>FUSIBLE</del>	<del>10 5% 1/6W</del>
R818	1-215-448-91	METAL	13K 1% 1/6W	R920	1-249-419-11	CARBON	1.5K 5% 1/6W
R821	1-249-421-11	CARBON	2.2K 5% 1/6W (ES MODEL)	R921	1-247-857-00	CARBON	12K 5% 1/6W
R822	1-249-421-11	CARBON	2.2K 5% 1/6W (ES MODEL)	R922	1-247-859-00	CARBON	15K 5% 1/6W
R823	1-247-867-00	CARBON	33K 5% 1/6W	R926	1-247-863-00	CARBON	22K 5% 1/6W
R824	1-247-863-00	CARBON	22K 5% 1/6W	R935	1-247-843-00	CARBON	3.3K 5% 1/6W
R825	1-247-831-00	CARBON	1K 5% 1/6W	R950	1-247-830-00	CARBON	910 5% 1/6W
R830	1-247-831-00	CARBON	1K 5% 1/6W	R963	1-249-429-11	CARBON	10K 5% 1/6W
R831	1-247-831-00	CARBON	1K 5% 1/6W	R964	1-247-858-00	CARBON	13K 5% 1/6W
R832	1-247-831-00	CARBON	1K 5% 1/6W	R965	1-247-857-00	CARBON	12K 5% 1/6W
R833	1-247-877-00	CARBON	82K 5% 1/6W	R966	1-247-866-00	CARBON	30K 5% 1/6W
R834	1-249-419-11	CARBON	1.5K 5% 1/6W	R967	1-247-875-00	CARBON	68K 5% 1/6W
R835	1-247-831-00	CARBON	1K 5% 1/6W	R968	1-247-853-00	CARBON	8.2K 5% 1/6W
R836	1-247-819-00	CARBON	330 5% 1/6W	R969	1-247-841-00	CARBON	2.7K 5% 1/6W
R837	1-247-819-00	CARBON	330 5% 1/6W	R970	1-247-863-00	CARBON	22K 5% 1/6W
R838	1-247-863-00	CARBON	22K 5% 1/6W	R971	1-249-429-11	CARBON	10K 5% 1/6W
R839	1-247-847-00	CARBON	4.7K 5% 1/6W	R972	1-249-429-11	CARBON	10K 5% 1/6W
R840	1-247-831-00	CARBON	1K 5% 1/6W	R974	1-249-419-11	CARBON	1.5K 5% 1/6W
R841	1-247-827-00	CARBON	680 5% 1/6W	R975	1-247-811-00	CARBON	150 5% 1/6W
R843	1-247-825-00	CARBON	560 5% 1/6W	R976	1-247-809-00	CARBON	120 5% 1/6W
R844	1-247-877-00	CARBON	82K 5% 1/6W	R977	1-247-831-00	CARBON	1K 5% 1/6W
R845	1-249-437-11	CARBON	47K 5% 1/6W	R979	1-247-825-00	CARBON	560 5% 1/6W
R846	1-247-867-00	CARBON	33K 5% 1/6W	R980	1-247-867-00	CARBON	33K 5% 1/6W
R848	1-247-811-00	CARBON	150 5% 1/6W	R981	1-247-853-00	CARBON	8.2K 5% 1/6W
R849	1-247-803-00	CARBON	68 5% 1/6W	R982	1-247-853-00	CARBON	8.2K 5% 1/6W
R853	1-247-803-00	CARBON	68 5% 1/6W	R983	1-247-792-00	CARBON	0 5% 1/6W
R854	1-247-804-00	CARBON	75 5% 1/6W	R986	1-249-421-11	CARBON	2.2K 5% 1/6W
R855	1-247-831-00	CARBON	1K 5% 1/6W	R988	1-247-825-00	CARBON	560 5% 1/6W
R856	1-247-831-00	CARBON	1K 5% 1/6W	R989	1-247-853-00	CARBON	8.2K 5% 1/6W
R867	1-247-853-00	CARBON	8.2K 5% 1/6W	R990	1-247-867-00	CARBON	33K 5% 1/6W
R870	1-247-818-00	CARBON	300 5% 1/6W	R991	1-247-853-00	CARBON	8.2K 5% 1/6W
R871	1-247-818-00	CARBON	300 5% 1/6W	R992	1-247-792-00	CARBON	0 5% 1/6W
R872	1-247-825-00	CARBON	560 5% 1/6W	R995	1-247-803-00	CARBON	68 5% 1/6W

The components identified by shading and mark **A** 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	Ref.No	Part No.	Description	Remark
<u>VARIABLE RESISTOR</u>							
RV001	1-228-989-00	RES, ADJ, METAL GLAZE 470 (ES MODEL)		C723	1-123-822-00	ELECT 47MF 20% 10V	
RV002	1-228-994-00	RES, ADJ, CARBON 10K		C724	1-123-620-00	ELECT 10MF 20% 25V	
RV003	1-228-996-00	RES, ADJ, CARBON 47K		C725	1-130-483-00	MYLAR 0.01MF 5% 50V	
RV004	1-228-989-00	RES, ADJ, METAL GLAZE 470		C726	1-123-610-00	ELECT 0.47MF 20% 50V	
RV005	1-228-996-00	RES, ADJ, CARBON 47K		C727	1-123-617-00	ELECT 10MF 20% 16V	
RV006	1-228-995-00	RES, ADJ, CARBON 22K		C733	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV007	1-228-994-00	RES, ADJ, CARBON 10K		C734	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV008	1-228-991-00	RES, ADJ, CARBON 2.2K		C751	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV009	1-228-996-00	RES, ADJ, CARBON 47K		C754	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV010	1-228-995-00	RES, ADJ, CARBON 22K		C755	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV013	1-228-996-00	RES, ADJ, CARBON 47K		C760	1-130-013-00	CERAMIC 0.01MF 10% 25V	
RV014	1-228-994-00	RES, ADJ, CARBON 10K		C761	1-130-013-00	CERAMIC 0.01MF 10% 25V	
RV015	1-228-989-00	RES, ADJ, METAL GLAZE 470		C762	1-123-611-00	ELECT 1MF 20% 50V	
RV016	1-228-990-00	RES, ADJ, CARBON 1K		C763	1-123-611-00	ELECT 1MF 20% 50V	
RV019	1-228-993-00	RES, ADJ, METAL GLAZE 4.7K		C764	1-123-620-00	ELECT 10MF 20% 25V	
RV020	1-228-990-00	RES, ADJ, CARBON 1K		C765	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV021	1-228-996-00	RES, ADJ, CARBON 47K		C766	1-102-518-00	CERAMIC 33PF 5% 50V	
RV022	1-228-993-00	RES, ADJ, METAL GLAZE 4.7K		C767	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV401	1-228-994-00	RES, ADJ, METAL GLAZE 10K		C768	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV501	1-228-989-00	RES, ADJ, CARBON 470		C769	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV702	1-228-995-00	RES, ADJ, CARBON 22K		C770	1-161-013-00	CERAMIC 0.01MF 10% 25V	
<u>SWITCH</u>				C771	1-123-620-00	ELECT 10MF 20% 25V	
SW901	1-570-283-11	SWITCH, SLIDE		C773	1-123-617-00	ELECT 10MF 20% 16V	
<u>TRANSFORMER</u>				C774	1-102-851-00	CERAMIC 15PF 5% 50V	
T001	1-426-093-00	COIL, REC C BPT		C775	1-102-851-00	CERAMIC 15PF 5% 50V	
T002	1-409-353-00	COIL, TRAP		C780	1-161-013-00	CERAMIC 0.01MF 10% 25V	
<u>CRYSTAL</u>				C781	1-123-620-00	ELECT 10MF 20% 25V	
X001	1-527-345-00	CRYSTAL, OSC (3.58MHz)		C782	1-161-013-00	CERAMIC 0.01MF 10% 25V	
*****				C784	1-161-013-00	CERAMIC 0.01MF 10% 25V	
*A-6711-659-A RP-31 BOARD, COMPLETE				C791	1-161-013-00	CERAMIC 0.01MF 10% 25V	
*****				C792	1-123-620-00	ELECT 10MF 20% 25V	
<u>CAPACITOR</u>				C801	1-123-822-00	ELECT 47MF 20% 10V	
C703	1-161-013-00	CERAMIC 0.01MF 10% 25V		C802	1-123-611-00	ELECT 1MF 20% 50V	
C704	1-123-647-00	ELECT 47MF 20% 6.3V		C803	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C705	1-123-610-00	ELECT 0.47MF 20% 50V		C805	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C706	1-130-483-00	MYLAR 0.01MF 5% 50V		C806	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C707	1-123-620-00	ELECT 10MF 20% 25V		C807	1-102-851-00	CERAMIC 15PF 5% 50V	
C708	1-161-013-00	CERAMIC 0.01MF 10% 25V		C808	1-102-978-00	CERAMIC 220PF 5% 50V	
C712	1-161-013-00	CERAMIC 0.01MF 10% 25V		C810	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C717	1-102-529-00	CERAMIC 100PF 5% 50V		C811	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C718	1-102-973-00	CERAMIC 100PF 5% 50V		C812	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C719	1-102-824-21	CERAMIC 470PF 5% 50V		C813	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C720	1-102-120-00	CERAMIC 0.0018MF 10% 50V		C821	1-123-617-00	ELECT 10MF 20% 16V	
C721	1-102-510-00	CERAMIC 12PF 5% 50V		C831	1-123-822-00	ELECT 47MF 20% 10V	
C722	1-102-518-00	CERAMIC 33PF 5% 50V		C832	1-102-513-00	CERAMIC 18PF 5% 50V	
				C833	1-102-513-00	CERAMIC 18PF 5% 50V	
				C841	1-161-059-00	CERAMIC 0.047MF 10% 25V	
<u>CONNECTOR</u>							
				CN701	*1-560-900-00	PIN, CONNECTOR 12P	
				CN702	*1-560-894-00	PIN, CONNECTOR 6P	
				CN703	*1-564-030-00	PIN, CONNECTOR 5P	
				CN704	*1-560-900-00	PIN, CONNECTOR 12P	

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

**RP-31****DH-4**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>DIODE</u>							
D701	8-719-911-19	DIODE 1SS119		R745	1-247-807-00	CARBON 100 5% 1/6W	
D702	8-719-911-19	DIODE 1SS119		R748	1-249-419-11	CARBON 1.5K 5% 1/6W	
<u>IC</u>							
IC701	8-752-004-50	IC CX20045		R749	1-249-419-11	CARBON 1.5K 5% 1/6W	
IC703	8-759-103-17	IC UPC1521MA		R752	1-249-429-11	CARBON 10K 5% 1/6W	
IC704	8-752-006-10	IC CX20061		R753	1-249-421-11	CARBON 2.2K 5% 1/6W	
IC705	8-759-200-60	IC TA706DAP		R754	1-247-815-00	CARBON 220 5% 1/6W	
<u>COIL</u>							
L701	1-408-877-00	MICRO INDUCTOR 0.22UH		R755	1-247-849-00	CARBON 5.6K 5% 1/6W	
L702	1-408-621-00	MICRO INDUCTOR 330UH		R756	1-247-870-00	CARBON 43K 5% 1/6W	
L703	1-408-623-00	MICRO INDUCTOR 470UH		R757	1-249-429-11	CARBON 10K 5% 1/6W	
L706	1-408-421-00	MICRO INDUCTOR 100UH		R761	1-247-849-00	CARBON 5.6K 5% 1/6W	
L709	1-408-616-21	MICRO INDUCTOR 120UH		R762	1-247-870-00	CARBON 43K 5% 1/6W	
L711	1-408-605-00	MICRO INDUCTOR 15UH		R763	1-249-419-11	CARBON 1.5K 5% 1/6W	
L712	1-408-877-00	MICRO INDUCTOR 0.22UH		R764	1-247-833-00	CARBON 1.2K 5% 1/6W	
L714	1-408-621-00	MICRO INDUCTOR 330UH		R765	1-247-831-00	CARBON 1K 5% 1/6W	
L716	1-408-623-00	MICRO INDUCTOR 470UH		R771	1-247-821-00	CARBON 390 5% 1/6W	
L720	1-408-604-00	MICRO INDUCTOR 12UH		R772	1-247-821-00	CARBON 390 5% 1/6W	
L721	1-408-623-00	MICRO INDUCTOR 470UH		R801	1-247-797-00	CARBON 39 5% 1/6W	
L761	1-408-623-00	MICRO INDUCTOR 470UH		R802	1-247-831-00	CARBON 1K 5% 1/6W	
L762	1-408-623-00	MICRO INDUCTOR 470UH		R806	1-247-845-00	CARBON 3.9K 5% 1/6W	
L763	1-408-605-00	MICRO INDUCTOR 15UH		R809	1-247-863-00	CARBON 22K 5% 1/6W	
L764	1-408-623-00	MICRO INDUCTOR 470UH		R810	1-247-863-00	CARBON 22K 5% 1/6W	
L771	1-408-623-00	MICRO INDUCTOR 470UH		R811	1-247-827-00	CARBON 680 5% 1/6W	
L772	1-408-599-11	MICRO INDUCTOR 4.7UH		R812	1-247-829-00	CARBON 820 5% 1/6W	
L773	1-408-599-11	MICRO INDUCTOR 4.7UH		R814	1-249-421-11	CARBON 2.2K 5% 1/6W	
L774	1-408-623-00	MICRO INDUCTOR 470UH		R815	1-249-421-11	CARBON 2.2K 5% 1/6W	
L775	1-410-162-11	MICRO INDUCTOR 470UH		R816	1-247-831-00	CARBON 1K 5% 1/6W	
L801	1-408-607-21	MICRO INDUCTOR 22UH		R817	1-247-831-00	CARBON 1K 5% 1/6W	
L802	1-408-606-00	MICRO INDUCTOR 18UH		R841	1-247-797-00	CARBON 39 5% 1/6W	
<u>TRANSISTOR</u>				<u>VARIABLE RESISTOR</u>			
Q703	8-729-245-83	TRANSISTOR 2SC2458		RV701	1-228-920-00	RES, ADJ, CARBON 2.2K	
Q704	8-729-245-83	TRANSISTOR 2SC2458		RV702	1-228-920-00	RES, ADJ, CARBON 2.2K	
Q705	8-729-245-83	TRANSISTOR 2SC2458		RV704	1-228-920-00	RES, ADJ, CARBON 2.2K	
Q706	8-729-245-83	TRANSISTOR 2SC2458		RV705	1-228-919-00	RES, ADJ, CARBON 1K	
Q707	8-729-900-89	TRANSISTOR DTC144ES		RV706	1-228-919-00	RES, ADJ, CARBON 1K	
Q761	8-729-245-83	TRANSISTOR 2SC2458		<u>TRANSFORMER</u>			
				T701	1-448-300-11	TRANSFORMER, STEP UP	
				*****			
				*A-6711-660-A DH-4 BOARD, COMPLETE			
				*****			
<u>RESISTOR</u>				<u>CAPACITOR</u>			
R534	1-247-833-00	CARBON 1.2K 5% 1/6W		C320	1-161-013-00	CERAMIC 0.01MF 10% 25V	
R701	1-247-831-00	CARBON 1K 5% 1/6W		C321	1-123-620-00	ELECT 10MF 20% 25V	
R704	1-247-857-00	CARBON 12K 5% 1/6W		C322	1-161-059-00	CERAMIC 0.047MF 10% 25V	
R709	1-247-839-00	CARBON 2.2K 5% 1/6W		C323	1-123-620-00	ELECT 10MF 20% 25V	
R712	1-247-831-00	CARBON 1K 5% 1/6W		C324	1-123-611-00	ELECT 1MF 20% 50V	
R713	1-247-831-00	CARBON 1K 5% 1/6W		C325	1-123-619-00	ELECT 4.7MF 20% 50V	
R717	1-247-833-00	CARBON 1.2K 5% 1/6W		C326	1-161-059-00	CERAMIC 0.047MF 10% 25V	
R720	1-247-833-00	CARBON 1.2K 5% 1/6W		C327	1-161-059-00	CERAMIC 0.047MF 10% 25V	
R722	1-247-829-00	CARBON 820 5% 1/6W		C328	1-123-611-00	ELECT 1MF 20% 50V	

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

Ref.No	Part No.	Description		Remark
C329	1-161-013-00	CERAMIC	0.01MF	10% 25V
C330	1-123-620-00	ELECT	10MF	20% 25V
C331	1-123-622-00	ELECT	22MF	20% 16V
C332	1-161-059-00	CERAMIC	0.047MF	10% 25V
C333	1-161-059-00	CERAMIC	0.047MF	10% 25V
C334	1-102-978-00	CERAMIC	220PF	5% 50V
C360	1-123-620-00	ELECT	10MF	20% 25V
C372	1-123-620-00	ELECT	10MF	20% 25V
C373	1-161-013-00	CERAMIC	0.01MF	10% 25V
C501	1-161-025-00	CERAMIC	0.1MF	10% 25V
C502	1-161-013-00	CERAMIC	0.01MF	10% 25V
C503	1-102-516-00	CERAMIC	27PF	5% 50V
C505	1-161-025-00	CERAMIC	0.1MF	10% 25V
C506	1-161-025-00	CERAMIC	0.1MF	10% 25V
C507	1-161-025-00	CERAMIC	0.1MF	10% 25V
C508	1-161-013-00	CERAMIC	0.01MF	10% 25V
C509	1-123-620-00	ELECT	10MF	20% 25V
C510	1-123-620-00	ELECT	10MF	20% 25V
C511	1-161-013-00	CERAMIC	0.01MF	10% 25V
C513	1-161-025-00	CERAMIC	0.1MF	10% 25V
C514	1-161-013-00	CERAMIC	0.01MF	10% 25V
C515	1-123-620-00	ELECT	10MF	20% 25V
C520	1-161-013-00	CERAMIC	0.01MF	10% 25V
C521	1-102-959-00	CERAMIC	22PF	5% 50V
C522	1-161-013-00	CERAMIC	0.01MF	10% 25V
C601	1-123-822-00	ELECT	47MF	20% 10V
C602	1-123-822-00	ELECT	47MF	20% 10V
C603	1-123-619-00	ELECT	4.7MF	20% 50V
C604	1-123-619-00	ELECT	4.7MF	20% 50V
C605	1-123-611-00	ELECT	1MF	20% 50V
C606	1-123-611-00	ELECT	1MF	20% 50V
C607	1-123-620-00	ELECT	10MF	20% 25V
C608	1-123-333-00	ELECT	100MF	20% 16V
C609	1-102-973-00	CERAMIC	100PF	5% 50V
C610	1-102-973-00	CERAMIC	100PF	5% 50V
C611	1-123-620-00	ELECT	10MF	20% 25V
C729	1-102-519-00	CERAMIC	36PF	5% 50V
C746	1-161-013-00	CERAMIC	0.01MF	10% 25V
C747	1-161-059-00	CERAMIC	0.047MF	10% 25V
C748	1-161-013-00	CERAMIC	0.01MF	10% 25V
C801	1-123-621-00	ELECT	10MF	20% 25V
C802	1-123-620-00	ELECT	10MF	20% 25V
C803	1-161-013-00	CERAMIC	0.01MF	10% 25V
C804	1-123-821-00	ELECT	47MF	20% 16V
C805	1-102-961-00	CERAMIC	27PF	5% 50V
C806	1-123-619-00	ELECT	4.7MF	20% 50V
C811	1-102-508-00	CERAMIC	10PF	0.5PF 50V

CONNECTOR

CN501	*1-564-035-31	PIN, CONNECTOR	10P
CN504	*1-564-031-00	PIN, CONNECTOR	6P
CN505	*1-560-895-00	PIN, CONNECTOR	7P
CN506	*1-560-891-00	PIN, CONNECTOR	3P
CN507	*1-560-890-00	PIN, CONNECTOR	2P

Ref.No	Part No.	Description	Remark
CN508	*1-564-031-00	PIN, CONNECTOR	6P
CN509	*1-564-028-00	PIN, CONNECTOR	3P
CN510	*1-560-891-00	PIN, CONNECTOR	3P

DIODE

D310	8-719-911-19	DIODE	1SS119
D312	8-719-911-19	DIODE	1SS119
D313	8-719-911-19	DIODE	1SS119
D501	8-719-911-19	DIODE	1SS119
D601	8-719-911-19	DIODE	1SS119

D602	8-719-901-33	DIODE	1SS133
D603	8-719-901-33	DIODE	1SS133

IC

IC501	8-759-145-58	IC	UPC4558C
IC601	8-759-745-56	IC	NJMA556D

COIL

L301	1-407-510-00	MICRO INDUCTOR	33MMH
L302	1-408-429-00	MICRO INDUCTOR	470UH
L303	1-408-429-00	MICRO INDUCTOR	470UH
L503	1-408-415-00	MICRO INDUCTOR	33UH
L504	1-408-420-00	MICRO INDUCTOR	82UH
L510	1-408-411-00	MICRO INDUCTOR	15UH
L715	1-408-408-00	MICRO INDUCTOR	8.2UH
L765	1-408-429-00	MICRO INDUCTOR	470UH

TRANSISTOR

Q301	8-729-603-30	TRANSISTOR	2SC403SP
Q302	8-729-245-83	TRANSISTOR	2SC2458
Q303	8-729-245-83	TRANSISTOR	2SC2458
Q304	8-729-245-83	TRANSISTOR	2SC2458
Q305	8-729-245-83	TRANSISTOR	2SC2458

Q306	8-729-245-83	TRANSISTOR	2SC2458
Q307	8-729-204-83	TRANSISTOR	2SA1048
Q308	8-729-204-83	TRANSISTOR	2SA1048
Q309	8-729-245-83	TRANSISTOR	2SC2458
Q310	8-729-245-83	TRANSISTOR	2SC2458

Q311	8-729-900-89	TRANSISTOR	DTC144ES
Q312	8-729-900-89	TRANSISTOR	DTC144ES
Q502	8-729-603-30	TRANSISTOR	2SC403SP
Q503	8-729-603-30	TRANSISTOR	2SC403SP
Q504	8-729-245-83	TRANSISTOR	2SC2458
Q505	8-729-245-83	TRANSISTOR	2SC2458
Q506	8-729-204-83	TRANSISTOR	2SA1048
Q507	8-729-204-83	TRANSISTOR	2SA1048
Q508	8-729-245-83	TRANSISTOR	2SC2458
Q509	8-729-245-83	TRANSISTOR	2SC2458

Q510	8-729-245-83	TRANSISTOR	2SC2458
Q511	8-729-245-83	TRANSISTOR	2SC2458
Q512	8-729-178-54	TRANSISTOR	2SC2785
Q513	8-729-900-36	TRANSISTOR	DTC124ES
Q601	8-729-245-83	TRANSISTOR	2SC2458
Q602	8-729-245-83	TRANSISTOR	2SC2458
Q706	8-729-245-83	TRANSISTOR	2SC2458

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



# DH-4

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q801	8-729-245-83	TRANSISTOR 2SC2458		R523	1-215-445-00	METAL 10K 1% 1/6W	
Q802	8-729-245-83	TRANSISTOR 2SC2458		R524	1-215-445-00	METAL 10K 1% 1/6W	
<b>RESISTOR</b>				R525	1-215-445-00	METAL 10K 1% 1/6W	
R330	1-247-841-00	CARBON 2.7K 5% 1/6W		R526	1-247-831-00	CARBON 1K 5% 1/6W	
R331	1-247-861-00	CARBON 18K 5% 1/6W		R527	1-215-445-00	METAL 10K 1% 1/6W	
R332	1-247-867-00	CARBON 33K 5% 1/6W		R528	1-247-889-00	CARBON 270K 5% 1/6W	
R333	1-249-429-11	CARBON 10K 5% 1/6W		R529	1-215-469-00	METAL 100K 1% 1/6W	
R334	1-247-841-00	CARBON 2.7K 5% 1/6W		R530	1-247-815-00	CARBON 220 5% 1/6W	
R335	1-249-437-11	CARBON 47K 5% 1/6W		R531	1-247-815-00	CARBON 220 5% 1/6W	
R336	1-249-434-11	CARBON 27K 5% 1/6W		R532	1-249-429-11	CARBON 10K 5% 1/6W	
R337	1-247-831-00	CARBON 1K 5% 1/6W		R533	1-249-429-11	CARBON 10K 5% 1/6W	
R338	1-247-829-00	CARBON 820 5% 1/6W		R535	1-249-434-11	CARBON 27K 5% 1/6W	
R339	1-247-831-00	CARBON 1K 5% 1/6W		R536	1-247-843-00	CARBON 3.3K 5% 1/6W	
R340	1-215-413-00	METAL 470 1% 1/6W		R537	1-247-863-00	CARBON 22K 5% 1/6W	
R341	1-215-433-00	METAL 3.3K 1% 1/6W		R538	1-247-863-00	CARBON 22K 5% 1/6W	
R342	1-215-405-00	METAL 220 1% 1/6W		R539	1-247-863-00	CARBON 22K 5% 1/6W	
R343	1-215-433-00	METAL 3.3K 1% 1/6W		R561	1-247-831-00	CARBON 1K 5% 1/6W	
R344	1-215-451-00	METAL 18K 1% 1/6W		R562	1-247-819-00	CARBON 330 5% 1/6W	
R345	1-249-429-11	CARBON 10K 5% 1/6W		R563	1-249-421-11	CARBON 2.2K 5% 1/6W	
R346	1-249-429-11	CARBON 10K 5% 1/6W		R564	1-215-429-00	METAL 2.2K 1% 1/6W	
R347	1-247-831-00	CARBON 1K 5% 1/6W		R601	1-247-799-00	CARBON 47 5% 1/6W	
R348	1-247-815-00	CARBON 220 5% 1/6W		R602	1-249-429-11	CARBON 10K 5% 1/6W	
R349	1-249-429-11	CARBON 10K 5% 1/6W		R603	1-247-799-00	CARBON 47 5% 1/6W	
R350	1-249-429-11	CARBON 10K 5% 1/6W		R604	1-247-867-00	CARBON 33K 5% 1/6W	
R351	1-249-437-11	CARBON 47K 5% 1/6W		R605	1-247-867-00	CARBON 33K 5% 1/6W	
R354	1-247-879-00	CARBON 100K 5% 1/6W		R606	1-247-877-00	CARBON 82K 5% 1/6W	
R355	1-247-827-00	CARBON 680K 5% 1/6W		R607	1-247-887-00	CARBON 220K 5% 1/6W	
R356	1-247-843-00	CARBON 3.3K 5% 1/6W		R608	1-247-877-00	CARBON 82K 5% 1/6W	
R357	1-247-857-00	CARBON 12K 5% 1/6W		R609	1-249-429-11	CARBON 10K 5% 1/6W	
R358	1-247-831-00	CARBON 1K 5% 1/6W		R611	1-247-887-00	CARBON 220K 5% 1/6W	
R361	1-247-807-00	CARBON 100 5% 1/6W		R612	1-247-887-00	CARBON 220K 5% 1/6W	
R364	1-247-811-00	CARBON 150 5% 1/6W		R613	1-249-429-11	CARBON 10K 5% 1/6W	
R365	1-249-429-11	CARBON 10K 5% 1/6W		R614	1-247-863-00	CARBON 22K 5% 1/6W	
R366	1-249-429-11	CARBON 10K 5% 1/6W		R680	1-247-887-00	CARBON 220K 5% 1/6W	
R367	1-249-421-11	CARBON 2.2K 5% 1/6W		R724	1-247-824-00	CARBON 510 5% 1/6W	
R368	1-247-831-00	CARBON 1K 5% 1/6W		R725	1-247-824-00	CARBON 510 5% 1/6W	
R501	1-249-434-11	CARBON 27K 5% 1/6W		R728	1-247-825-00	CARBON 560 5% 1/6W	
R502	1-247-859-00	CARBON 15K 5% 1/6W		R750	1-247-831-00	CARBON 1K 5% 1/6W	
R503	1-247-831-00	CARBON 1K 5% 1/6W		R752	1-247-858-00	CARBON 13K 5% 1/6W	
R505	1-247-823-00	CARBON 470 5% 1/6W		R753	1-247-831-00	CARBON 1K 5% 1/6W	
R507	1-247-831-00	CARBON 1K 5% 1/6W		R754	1-247-829-00	CARBON 820 5% 1/6W	
R509	1-247-809-00	CARBON 120 5% 1/6W		R801	1-249-421-11	CARBON 2.2K 5% 1/6W	
R510	1-247-831-00	CARBON 1K 5% 1/6W		R802	1-247-815-00	CARBON 220 5% 1/6W	
R511	1-247-809-00	CARBON 120 5% 1/6W		R803	1-247-847-00	CARBON 4.7K 5% 1/6W	
R513	1-247-819-00	CARBON 330 5% 1/6W		R804	1-247-887-00	CARBON 220K 5% 1/6W	
R514	1-247-831-00	CARBON 1K 5% 1/6W		R805	1-247-879-00	CARBON 100K 5% 1/6W	
R515	1-247-819-00	CARBON 330 5% 1/6W		R806	1-247-831-00	CARBON 1K 5% 1/6W	
R516	1-247-807-00	CARBON 100 5% 1/6W		R807	1-247-823-00	CARBON 470 5% 1/6W	
R519	1-247-799-00	CARBON 47 5% 1/6W		R808	1-249-421-11	CARBON 2.2K 5% 1/6W	
R520	1-247-831-00	CARBON 1K 5% 1/6W		R809	1-247-823-00	CARBON 470 5% 1/6W	
R521	1-247-799-00	CARBON 47 5% 1/6W		<b>VARIABLE RESISTOR</b>			
R522	1-247-863-00	CARBON 22K 5% 1/6W		RV301	1-228-990-00	RES, ADJ, CARBON 1K	
				RV302	1-228-991-00	RES, ADJ, CARBON 2.2K	
				RV501	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	

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

# AF-14

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	AF-14 BOARD *****						
	*A-6713-237-A B-697 BOARD, COMPLETE *****						
	*3-684-072-01 LID, BOTTOM, AF SHIELD CASE(S)						
	*3-684-087-01 CASE (S) (MAIN), SHIELD, AF						
	3-697-657-01 LID, BOTTOM, AF SHIELD CASE						
	BAND PASS FILTER						
BPF001	1-235-367-11	B.P.F		C042	1-101-004-00	CERAMIC 0.01MF	50V
BPF002	1-235-367-11	B.P.F		C043	1-123-356-00	ELECT 10MF	20% 16V
BPF003	1-235-366-11	B.P.F		C044	1-101-004-00	CERAMIC 0.01MF	50V
BPF004	1-235-366-11	B.P.F		C045	1-101-004-00	CERAMIC 0.01MF	50V
	CAPACITOR						
C001	1-123-318-00	ELECT 33MF	20% 16V	C046	1-101-004-00	CERAMIC 0.01MF	50V
C002	1-161-025-00	CERAMIC 0.1MF	10% 25V	C047	1-123-356-00	ELECT 10MF	20% 16V
C003	1-161-025-00	CERAMIC 0.1MF	10% 25V	C048	1-123-356-00	ELECT 10MF	20% 16V
C004	1-161-025-00	CERAMIC 0.1MF	10% 25V	C049	1-123-356-00	ELECT 10MF	20% 16V
C005	1-101-004-00	CERAMIC 0.01MF	50V	C050	1-123-318-00	ELECT 33MF	20% 16V
				C051	1-123-318-00	ELECT 33MF	20% 16V
C007	1-102-518-00	CERAMIC 33PF	5% 50V	C052	1-123-356-00	ELECT 10MF	20% 16V
C008	1-102-518-00	CERAMIC 33PF	5% 50V	C053	1-123-356-00	ELECT 10MF	20% 16V
C009	1-123-318-00	ELECT 33MF	20% 16V	C054	1-101-004-00	CERAMIC 0.01MF	50V
C010	1-161-025-00	CERAMIC 0.1MF	10% 25V	C055	1-123-332-00	ELECT 47MF	20% 16V
C011	1-161-025-00	CERAMIC 0.1MF	10% 25V	C056	1-101-004-00	CERAMIC 0.01MF	50V
				C057	1-101-004-00	CERAMIC 0.01MF	50V
C012	1-161-025-00	CERAMIC 0.1MF	10% 25V	C058	1-161-025-00	CERAMIC 0.1MF	10% 25V
C013	1-101-004-00	CERAMIC 0.01MF	50V	C059	1-123-356-00	ELECT 10MF	20% 16V
C015	1-102-822-00	CERAMIC 390PF	5% 50V	C060	1-123-356-00	ELECT 10MF	20% 16V
C016	1-102-822-00	CERAMIC 390PF	5% 50V	C061	1-123-330-00	ELECT 22MF	20% 16V
C017	1-123-380-00	ELECT 1MF	20% 50V				
				C062	1-130-475-00	MYLAR 0.0022MF	5% 50V
C018	1-101-361-00	CERAMIC 150PF	10% 50V	C063	1-130-482-00	MYLAR 0.0082MF	5% 50V
C019	1-123-380-00	ELECT 1MF	20% 50V	C064	1-102-824-21	CERAMIC 470PF	5% 50V
C020	1-161-025-00	CERAMIC 0.1MF	10% 25V	C065	1-130-477-00	MYLAR 0.0033MF	5% 50V
C021	1-101-004-00	CERAMIC 0.01MF	50V	C066	1-123-369-00	ELECT 4.7MF	20% 50V
C022	1-123-332-00	ELECT 47MF	20% 16V				
				C067	1-123-369-00	ELECT 4.7MF	20% 50V
C023	1-161-025-00	CERAMIC 0.1MF	10% 25V	C068	1-101-004-00	CERAMIC 0.01MF	50V
C025	1-102-978-00	CERAMIC 220PF	5% 50V	C069	1-123-333-00	ELECT 100MF	20% 16V
C026	1-102-978-00	CERAMIC 220PF	5% 50V	C070	1-123-356-00	ELECT 10MF	20% 16V
C027	1-102-522-00	CERAMIC 51PF	5% 50V	C071	1-123-332-00	ELECT 47MF	20% 16V
C028	1-102-531-00	CERAMIC 150PF	5% 50V				
				C072	1-123-332-00	ELECT 47MF	20% 16V
C029	1-102-531-00	CERAMIC 150PF	5% 50V	C073	1-102-958-00	CERAMIC 20PF	5% 50V
C030	1-102-520-00	CERAMIC 39PF	5% 50V	C074	1-130-485-00	MYLAR 0.015MF	5% 50V
C031	1-123-356-00	ELECT 10MF	20% 16V	C075	1-102-936-00	CERAMIC 3PF	0.25PF 50V
C033	1-101-004-00	CERAMIC 0.01MF	50V	C076	1-130-485-00	MYLAR 0.015MF	5% 50V
C034	1-101-004-00	CERAMIC 0.01MF	50V				
				C077	1-130-498-00	MYLAR 0.18MF	5% 50V
C035	1-123-382-00	ELECT 3.3MF	20% 50V	C078	1-130-485-00	MYLAR 0.015MF	5% 50V
C036	1-123-382-00	ELECT 3.3MF	20% 50V	C079	1-130-469-00	MYLAR 680PF	5% 50V
C037	1-101-004-00	CERAMIC 0.01MF	50V	C080	1-130-475-00	MYLAR 0.0022MF	5% 50V
C038	1-123-332-00	ELECT 47MF	20% 16V	C081	1-102-936-00	CERAMIC 3PF	0.25PF 50V
C039	1-101-004-00	CERAMIC 0.01MF	50V				
				C082	1-130-491-00	MYLAR 0.047MF	5% 50V
C040	1-101-004-00	CERAMIC 0.01MF	50V	C083	1-123-330-00	ELECT 22MF	20% 16V
C041	1-101-004-00	CERAMIC 0.01MF	50V	C084	1-130-493-00	MYLAR 0.068MF	5% 50V
				C085	1-131-371-00	TANTALUM 10MF	10% 16V
				C086	1-131-408-00	TANTALUM 1MF	10% 25V
				C087	1-101-004-00	CERAMIC 0.01MF	50V
				C088	1-123-333-00	ELECT 100MF	20% 16V
				C096	1-123-356-00	ELECT 10MF	20% 16V
				C100	1-123-356-00	ELECT 10MF	20% 16V
				C101	1-123-332-00	ELECT 47MF	20% 16V
				C102	1-123-332-00	ELECT 47MF	20% 16V
				C103	1-123-381-00	ELECT 2.2MF	20% 50V
				C104	1-123-332-00	ELECT 47MF	20% 16V

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

# AF-14

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
C105	1-123-356-00	ELECT	10MF	20%	16V	C158	1-131-371-00	TANTALUM	10MF	10%	16V
C106	1-123-356-00	ELECT	10MF	20%	16V	C159	1-130-493-00	MYLAR	0.068MF	5%	50V
C107	1-123-332-00	ELECT	47MF	20%	16V	C160	1-123-330-00	ELECT	22MF	20%	16V
C108	1-123-356-00	ELECT	10MF	20%	16V	C161	1-130-491-00	MYLAR	0.047MF	5%	50V
C109	1-123-356-00	ELECT	10MF	20%	16V	C162	1-102-936-00	CERAMIC	3PF	0.25PF	50V
C110	1-123-380-00	ELECT	1MF	20%	50V	C163	1-130-475-00	MYLAR	0.0022MF	5%	50V
C111	1-123-318-00	ELECT	33MF	20%	16V	C164	1-130-469-00	MYLAR	680PF	5%	50V
C112	1-123-379-00	ELECT	0.47MF	20%	50V	C165	1-130-485-00	MYLAR	0.015MF	5%	50V
C113	1-123-356-00	ELECT	10MF	20%	16V	C166	1-130-498-00	MYLAR	0.18MF	5%	50V
C114	1-123-356-00	ELECT	10MF	20%	16V	C167	1-130-485-00	MYLAR	0.015MF	5%	50V
C115	1-123-369-00	ELECT	4.7MF	20%	50V	C168	1-130-485-00	MYLAR	0.015MF	5%	50V
C116	1-123-330-00	ELECT	22MF	20%	16V	C169	1-102-958-00	CERAMIC	20PF	5%	50V
C117	1-123-330-00	ELECT	22MF	20%	16V	C170	1-123-332-00	ELECT	47MF	20%	16V
C118	1-102-961-00	CERAMIC	27PF	10%	50V	C171	1-123-332-00	ELECT	47MF	20%	16V
C119	1-102-961-00	CERAMIC	27PF	10%	50V	C172	1-123-356-00	ELECT	10MF	20%	16V
C120	1-123-369-00	ELECT	4.7MF	20%	50V	C173	1-101-004-00	CERAMIC	0.01MF		50V
C121	1-123-356-00	ELECT	10MF	20%	16V	C174	1-123-333-00	ELECT	100MF	20%	16V
C122	1-123-356-00	ELECT	10MF	20%	16V	C175	1-101-004-00	CERAMIC	0.01MF		50V
C123	1-130-471-00	MYLAR	0.001MF	5%	50V	C176	1-101-004-00	CERAMIC	0.01MF		50V
C124	1-130-471-00	MYLAR	0.001MF	5%	50V	C177	1-123-356-00	ELECT	10MF	20%	16V
C125	1-123-356-00	ELECT	10MF	20%	16V	C178	1-123-356-00	ELECT	10MF	20%	16V
C126	1-123-356-00	ELECT	10MF	20%	16V	C179	1-123-356-00	ELECT	10MF	20%	16V
C127	1-123-356-00	ELECT	10MF	20%	16V	C180	1-123-318-00	ELECT	33MF	20%	16V
C128	1-123-356-00	ELECT	10MF	20%	16V	C181	1-123-318-00	ELECT	33MF	20%	16V
C129	1-123-356-00	ELECT	10MF	20%	16V	C182	1-123-356-00	ELECT	10MF	20%	16V
C130	1-123-356-00	ELECT	10MF	20%	16V	C183	1-123-356-00	ELECT	10MF	20%	16V
C131	1-123-356-00	ELECT	10MF	20%	16V	C184	1-123-381-00	ELECT	2.2MF	20%	50V
C132	1-123-356-00	ELECT	10MF	20%	16V	C185	1-123-380-00	ELECT	1MF	20%	50V
C133	1-123-356-00	ELECT	10MF	20%	16V	C186	1-123-380-00	ELECT	1MF	20%	50V
C134	1-123-330-00	ELECT	22MF	20%	16V	C187	1-101-004-00	CERAMIC	0.01MF		50V
C135	1-123-332-00	ELECT	47MF	20%	16V	C188	1-123-332-00	ELECT	47MF	20%	16V
C136	1-123-330-00	ELECT	22MF	20%	16V	C189	1-123-369-00	ELECT	4.7MF	20%	50V
C137	1-123-356-00	ELECT	10MF	20%	16V	C190	1-123-369-00	ELECT	4.7MF	20%	50V
C138	1-123-356-00	ELECT	10MF	20%	16V	C191	1-130-477-00	MYLAR	0.0033MF	5%	50V
C139	1-123-330-00	ELECT	22MF	20%	16V	C192	1-130-482-00	MYLAR	0.0082MF	5%	50V
C140	1-123-356-00	ELECT	10MF	20%	16V	C193	1-102-824-21	CERAMIC	470PF	5%	50V
C141	1-123-356-00	ELECT	10MF	20%	16V	C194	1-130-475-00	MYLAR	0.0022MF	5%	50V
C142	1-123-332-00	ELECT	47MF	20%	16V	C195	1-123-330-00	ELECT	22MF	20%	16V
C143	1-123-330-00	ELECT	22MF	20%	16V	C196	1-123-356-00	ELECT	10MF	20%	16V
C144	1-123-330-00	ELECT	22MF	20%	16V	C197	1-123-356-00	ELECT	10MF	20%	16V
C145	1-123-356-00	ELECT	10MF	20%	16V	C198	1-123-379-00	ELECT	0.47MF	20%	50V
C146	1-123-330-00	ELECT	22MF	20%	16V	C199	1-101-004-00	CERAMIC	0.01MF		50V
C147	1-123-330-00	ELECT	22MF	20%	16V	C200	1-101-004-00	CERAMIC	0.01MF		50V
C148	1-123-356-00	ELECT	10MF	20%	16V	C201	1-101-004-00	CERAMIC	0.01MF		50V
C149	1-123-356-00	ELECT	10MF	20%	16V	C202	1-101-004-00	CERAMIC	0.01MF		50V
C150	1-123-356-00	ELECT	10MF	20%	16V	C203	1-101-004-00	CERAMIC	0.01MF		50V
C151	1-130-478-00	MYLAR	0.0039MF	5%	50V	C204	1-101-004-00	CERAMIC	0.01MF		50V
C152	1-130-476-00	MYLAR	0.0027MF	5%	50V	C205	1-123-382-00	ELECT	3.3MF	20%	50V
C153	1-130-474-00	MYLAR	0.0018MF	5%	50V	C207	1-123-382-00	ELECT	3.3MF	20%	50V
C154	1-130-478-00	MYLAR	0.0039MF	5%	50V	C208	1-101-004-00	CERAMIC	0.01MF		50V
C155	1-130-476-00	MYLAR	0.0027MF	5%	50V	C209	1-101-004-00	CERAMIC	0.01MF		50V
C156	1-130-474-00	MYLAR	0.0018MF	5%	50V	C210	1-123-356-00	ELECT	10MF	20%	16V
C157	1-131-408-00	TANTALUM	1MF	10%	25V	C211	1-101-004-00	CERAMIC	0.01MF		50V

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

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C212	1-123-356-00	ELECT	10MF 20% 16V	CN016	*1-560-890-00	PIN, CONNECTOR 2P	
C213	1-161-025-00	CERAMIC	0.1MF 10% 25V			<u>DIODE</u>	
C214	1-123-332-00	ELECT	47MF 20% 16V	D001	8-719-911-19	DIODE 1SS119	
C215	1-123-333-00	ELECT	100MF 20% 16V	D002	8-719-911-19	DIODE 1SS119	
C216	1-161-025-00	CERAMIC	0.1MF 10% 25V	D003	8-719-911-19	DIODE 1SS119	
C217	1-123-333-00	ELECT	100MF 20% 16V	D004	8-719-911-19	DIODE 1SS119	
C218	1-102-936-00	CERAMIC	3PF 0.25PF 50V	D005	8-719-911-19	DIODE 1SS119	
C601	1-101-004-00	CERAMIC	0.01MF 50V	D006	8-719-911-19	DIODE 1SS119	
C602	1-101-004-00	CERAMIC	0.01MF 50V	D007	8-719-911-19	DIODE 1SS119	
C603	1-101-004-00	CERAMIC	0.01MF 50V	D008	8-719-000-04	DIODE MC911	
C604	1-101-004-00	CERAMIC	0.01MF 50V	D010	8-719-000-12	DIODE MC931	
C605	1-123-356-00	ELECT	10MF 20% 16V	D013	8-719-911-19	DIODE 1SS119	
C606	1-101-004-00	CERAMIC	0.01MF 50V	D014	8-719-911-19	DIODE 1SS119	
C607	1-123-356-00	ELECT	10MF 20% 16V	D015	8-719-000-06	DIODE MC921	
C608	1-123-333-00	ELECT	100MF 20% 16V	D016	8-719-911-19	DIODE 1SS119	
C609	1-101-004-00	CERAMIC	0.01MF 50V	D017	8-719-911-19	DIODE 1SS119	
C610	1-123-356-00	ELECT	10MF 20% 16V	D018	8-719-911-19	DIODE 1SS119	
C611	1-123-332-00	ELECT	47MF 20% 16V	D019	8-719-911-19	DIODE 1SS119	
C616	1-123-356-00	ELECT	10MF 20% 16V	D020	8-719-000-12	DIODE MC931	
C617	1-123-323-00	ELECT	470MF 20% 16V	D022	8-719-101-61	DIODE RD6.2EL2	
C618	1-123-356-00	ELECT	10MF 20% 16V	D023	8-719-911-19	DIODE 1SS119	
C619	1-123-356-00	ELECT	10MF 20% 16V	D024	8-719-000-06	DIODE MC921	
C620	1-123-356-00	ELECT	10MF 20% 16V	D025	8-719-000-06	DIODE MC921	
C621	1-123-333-00	ELECT	100MF 20% 16V	D026	8-719-000-12	DIODE MC931	
C622	1-102-127-21	CERAMIC	0.0068MF 10% 50V	D027	8-719-911-19	DIODE 1SS119	
C623	1-102-127-21	CERAMIC	0.0068MF 10% 50V	D029	8-719-102-73	DIODE RD6.2EN1	
C624	1-123-356-00	ELECT	10MF 20% 16V	D601	8-719-911-19	DIODE 1SS119	
C625	1-101-004-00	CERAMIC	0.01MF 50V	D602	8-719-911-19	DIODE 1SS119	
C626	1-101-004-00	CERAMIC	0.01MF 50V	D603	8-719-911-19	DIODE 1SS119	
C629	1-130-495-00	MYLAR	0.1MF 5% 50V	D604	8-719-911-19	DIODE 1SS119	
C650	1-101-004-00	CERAMIC	0.01MF 50V	D605	8-719-911-19	DIODE 1SS119	
C651	1-101-004-00	CERAMIC	0.01MF 50V	D606	8-719-911-19	DIODE 1SS119	
C652	1-102-074-00	CERAMIC	0.001MF 10% 50V	D607	8-719-911-19	DIODE 1SS119	
C653	1-101-004-00	CERAMIC	0.01MF 50V	D608	8-719-911-19	DIODE 1SS119	
C654	1-101-004-00	CERAMIC	0.01MF 50V	D609	8-719-101-86	DIODE RD13EL2	
C655	1-102-074-00	CERAMIC	0.001MF 10% 50V	D610	8-719-911-19	DIODE 1SS119	
		<u>CONNECTOR</u>		D611	8-719-000-06	DIODE MC921	
CN001	*1-564-031-00	PIN, CONNECTOR 6P				<u>IC</u>	
CN002	*1-564-030-00	PIN, CONNECTOR 5P		IC001	8-752-010-40	IC CX20104	
CN003	*1-560-893-00	PIN, CONNECTOR 5P		IC002	8-752-010-50	IC CX20105	
CN004	*1-560-891-00	PIN, CONNECTOR 3P		IC003	8-752-009-71	IC CX20097A	
CN005	*1-560-898-00	PIN, CONNECTOR 10P		IC004	8-752-010-50	IC CX20105	
CN006	*1-560-895-00	PIN, CONNECTOR 7P		IC007	8-759-240-66	IC TC40668P	
CN007	*1-560-891-00	PIN, CONNECTOR 3P		IC009	8-759-700-62	IC NJM4562D	
CN008	*1-560-893-00	PIN, CONNECTOR 5P		IC010	8-759-240-66	IC TC40668P	
CN009	*1-560-896-00	PIN, CONNECTOR 8P		IC011	8-759-922-43	IC TK15052D	
CN010	*1-560-894-00	PIN, CONNECTOR 6P		IC012	8-759-915-48	IC TK15011Z	
CN011	*1-560-893-00	PIN, CONNECTOR 5P		IC013	8-759-145-58	IC UPC4558C	
CN012	*1-560-896-00	PIN, CONNECTOR 8P				<u>COIL</u>	
CN013	*1-560-894-00	PIN, CONNECTOR 6P		L001	1-408-421-00	MICRO INDUCTOR 100UH	
CN014	*1-560-897-00	PIN, CONNECTOR 9P					
CN015	*1-564-028-00	PIN, CONNECTOR 3P					

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

# AF-14

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
L002	1-408-405-00	MICRO INDUCTOR 4.7UH		Q036	8-729-900-80	TRANSISTOR DTC114ES	
L003	1-408-421-00	MICRO INDUCTOR 100UH		Q037	8-729-900-80	TRANSISTOR DTC114ES	
L004	1-408-405-00	MICRO INDUCTOR 4.7UH		Q038	8-729-900-80	TRANSISTOR DTC114ES	
L005	1-408-421-00	MICRO INDUCTOR 100UH		Q039	8-729-900-80	TRANSISTOR DTC114ES	
L006	1-408-418-00	MICRO INDUCTOR 56UH		Q040	8-729-900-89	TRANSISTOR DTC114ES	
L007	1-408-609-41	MICRO INDUCTOR 33UH		Q041	8-729-204-83	TRANSISTOR 2SA1048	
L008	1-408-416-00	MICRO INDUCTOR 39UH		Q042	8-729-204-83	TRANSISTOR 2SA1048	
L009	1-408-413-00	MICRO INDUCTOR 22UH		Q043	8-729-900-89	TRANSISTOR DTC144ES	
<u>L.P.F</u>				Q044	8-729-177-43	TRANSISTOR 2SD774	
LPF001	1-235-365-11	L.P.F		Q048	8-729-900-89	TRANSISTOR DTC144ES	
LPF002	1-235-365-11	L.P.F		Q050	8-729-900-89	TRANSISTOR DTC144ES	
<u>IC LINK</u>				Q501	8-729-245-83	TRANSISTOR 2SC2458	
PSD01A	1-532-605-11	LINK IC		Q502	8-729-245-83	TRANSISTOR 2SC2458	
<u>TRANSISTOR</u>				Q503	8-729-245-83	TRANSISTOR 2SC2458	
Q001	8-729-900-89	TRANSISTOR DTC144ES		Q601	8-729-245-83	TRANSISTOR 2SC2458	
Q002	8-729-204-83	TRANSISTOR 2SA1048		Q602	8-729-245-83	TRANSISTOR 2SC2458	
Q003	8-729-800-42	TRANSISTOR 2SK152		Q603	8-729-245-83	TRANSISTOR 2SC2458	
Q004	8-729-204-83	TRANSISTOR 2SA1048		Q604	8-729-245-83	TRANSISTOR 2SC2458	
Q005	8-729-245-83	TRANSISTOR 2SC2458		Q605	8-729-900-89	TRANSISTOR DTC144ES	
Q006	8-729-900-89	TRANSISTOR DTC144ES		Q607	8-729-900-89	TRANSISTOR DTC144ES	
Q007	8-729-900-89	TRANSISTOR DTC144ES		Q608	8-729-245-83	TRANSISTOR 2SC2458	
Q008	8-729-800-42	TRANSISTOR 2SK152		Q609	8-729-245-83	TRANSISTOR 2SC2458	
Q009	8-729-204-83	TRANSISTOR 2SA1048		Q610	8-729-900-89	TRANSISTOR DTC144ES	
Q010	8-729-245-83	TRANSISTOR 2SC2458		Q611	8-729-178-54	TRANSISTOR 2SC2785	
Q011	8-729-900-89	TRANSISTOR DTC144ES		Q612	8-729-245-83	TRANSISTOR 2SC2458	
Q012	8-729-900-89	TRANSISTOR DTC144ES		Q613	8-729-245-83	TRANSISTOR 2SC2458	
Q013	8-729-113-33	TRANSISTOR 2SB733		Q614	8-729-245-83	TRANSISTOR 2SC2458	
Q014	8-729-117-54	TRANSISTOR 2SA1175		Q615	8-729-245-83	TRANSISTOR 2SC2458	
Q015	8-729-603-30	TRANSISTOR 2SC403SP		Q616	8-729-245-83	TRANSISTOR 2SC2458	
Q016	8-729-603-30	TRANSISTOR 2SC403SP		<del>Q619 8-729-113-33 TRANSISTOR 2SB733</del>			
Q017	8-729-603-30	TRANSISTOR 2SC403SP		<del>Q621 8-729-113-33 TRANSISTOR 2SB733</del>			
Q018	8-729-204-83	TRANSISTOR 2SA1048		Q623	8-729-900-89	TRANSISTOR DTC144ES	
Q019	8-729-900-89	TRANSISTOR DTC144ES		Q624	8-729-900-89	TRANSISTOR DTC144ES	
Q020	8-729-204-83	TRANSISTOR 2SA1048		Q625	8-729-245-83	TRANSISTOR 2SC2458	
Q021	8-729-900-89	TRANSISTOR DTC144ES		Q626	8-729-245-83	TRANSISTOR 2SC2458	
Q022	8-729-178-54	TRANSISTOR 2SC2785		Q627	8-729-245-83	TRANSISTOR 2SC2458	
Q023	8-729-245-83	TRANSISTOR 2SC2458		Q628	8-729-900-89	TRANSISTOR DTC144ES	
Q024	8-729-245-83	TRANSISTOR 2SC2458		Q629	8-729-245-83	TRANSISTOR 2SC2458	
Q025	8-729-245-83	TRANSISTOR 2SC2458		Q650	8-729-245-83	TRANSISTOR 2SC2458	
Q026	8-729-900-89	TRANSISTOR DTC144ES		Q651	8-729-245-83	TRANSISTOR 2SC2458	
Q027	8-729-245-83	TRANSISTOR 2SC2458		<u>RESISTOR</u>			
Q028	8-729-900-89	TRANSISTOR DTC144ES		R001	1-247-849-00	CARBON	5.6K 5% 1/6W
Q029	8-729-900-89	TRANSISTOR DTC144ES		R002	1-247-831-00	CARBON	1K 5% 1/6W
Q030	8-729-245-83	TRANSISTOR 2SC2458		R003	1-247-832-00	CARBON	470 5% 1/6W
Q031	8-729-245-83	TRANSISTOR 2SC2458		R004	1-247-827-00	CARBON	680 5% 1/6W
Q032	8-729-245-83	TRANSISTOR 2SC2458		R005	1-247-827-00	CARBON	680 5% 1/6W
Q033	8-729-245-83	TRANSISTOR 2SC2458		R006	1-247-843-00	CARBON	3.3K 5% 1/6W
Q034	8-729-900-80	TRANSISTOR DTC114ES		R007	1-249-421-11	CARBON	2.2K 5% 1/6W
Q035	8-729-900-80	TRANSISTOR DTC114ES		R008	1-247-831-00	CARBON	1K 5% 1/6W
				R009	1-247-831-00	CARBON	1K 5% 1/6W
				R010	1-247-831-00	CARBON	1K 5% 1/6W
				R011	1-247-831-00	CARBON	1K 5% 1/6W

The components identified by shading and mark **A** 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	Ref.No	Part No.	Description	Remark
R012	1-247-807-00	CARBON	100 5% 1/6W	R065	1-247-843-00	CARBON	3.3K 5% 1/6W
R013	1-247-849-00	CARBON	5.6K 5% 1/6W	R066	1-247-807-00	CARBON	100 5% 1/6W
R014	1-247-831-00	CARBON	1K 5% 1/6W	R067	1-215-433-00	METAL	3.3K 1% 1/6W
R015	1-247-831-00	CARBON	1K 5% 1/6W	R068	1-247-859-00	CARBON	15K 5% 1/6W
R016	1-247-827-00	CARBON	680 5% 1/6W	R069	1-247-824-00	CARBON	510 5% 1/6W
R017	1-247-827-00	CARBON	680 5% 1/6W	R070	1-249-429-11	CARBON	10K 5% 1/6W
R018	1-247-843-00	CARBON	3.3K 5% 1/6W	R071	1-247-840-00	CARBON	2.4K 5% 1/6W
R019	1-249-421-11	CARBON	2.2K 5% 1/6W	R072	1-249-429-11	CARBON	10K 5% 1/6W
R020	1-247-831-00	CARBON	1K 5% 1/6W	R073	1-249-429-11	CARBON	10K 5% 1/6W
R021	1-247-831-00	CARBON	1K 5% 1/6W	R074	1-247-843-00	CARBON	3.3K 5% 1/6W
R022	1-247-831-00	CARBON	1K 5% 1/6W	R075	1-247-814-00	CARBON	200 5% 1/6W
R023	1-247-831-00	CARBON	1K 5% 1/6W	R076	1-247-834-00	CARBON	1.3K 5% 1/6W
R024	1-247-847-00	CARBON	4.7K 5% 1/6W	R077	1-247-858-00	CARBON	13K 5% 1/6W
R025	1-247-847-00	CARBON	4.7K 5% 1/6W	R078	1-247-838-00	CARBON	2K 5% 1/6W
R026	1-247-857-00	CARBON	12K 5% 1/6W	R079	1-247-858-00	CARBON	13K 5% 1/6W
R027	1-247-869-00	CARBON	39K 5% 1/6W	R080	1-249-429-11	CARBON	10K 5% 1/6W
<del>R028</del>	<del>1-213-128-61</del>	<del>METAL OXIDE</del>	<del>55 5% 1/6W</del>	R081	1-247-833-00	CARBON	1.2K 5% 1/6W
R029	1-247-826-00	CARBON	620 5% 1/6W	R082	1-247-895-00	CARBON	470K 5% 1/6W
R030	1-214-673-00	METAL	4.7 1% 1/4W	R083	1-247-834-00	CARBON	1.3K 5% 1/6W
R031	1-247-823-00	CARBON	470 5% 1/6W	R084	1-247-853-00	CARBON	8.2K 5% 1/6W
R032	1-247-820-00	CARBON	360 5% 1/6W	R085	1-249-434-11	CARBON	27K 5% 1/6W
R033	1-247-799-00	CARBON	47 5% 1/6W	R086	1-247-825-00	CARBON	560 5% 1/6W
R034	1-247-831-00	CARBON	1K 5% 1/6W	R087	1-247-824-00	CARBON	510 5% 1/6W
R035	1-247-819-00	CARBON	330 5% 1/6W	R102	1-247-831-00	CARBON	1K 5% 1/6W
R036	1-249-429-11	CARBON	10K 5% 1/6W	R109	1-247-847-00	CARBON	4.7K 5% 1/6W
R037	1-247-853-00	CARBON	8.2K 5% 1/6W	R110	1-247-847-00	CARBON	4.7K 5% 1/6W
R038	1-215-436-00	METAL	4.3K 1% 1/6W	R114	1-247-831-00	CARBON	1K 5% 1/6W
R039	1-215-423-00	METAL	1.2K 1% 1/6W	R115	1-249-437-11	CARBON	47K 5% 1/6W
R040	1-247-847-00	CARBON	4.7K 5% 1/6W	R116	1-249-437-11	CARBON	47K 5% 1/6W
R041	1-247-847-00	CARBON	4.7K 5% 1/6W	R117	1-247-879-00	CARBON	100K 5% 1/6W
R042	1-247-861-00	CARBON	18K 5% 1/6W	R118	1-247-881-00	CARBON	120K 5% 1/6W
R043	1-247-861-00	CARBON	18K 5% 1/6W	R119	1-247-847-00	CARBON	4.7K 5% 1/6W
R044	1-247-861-00	CARBON	18K 5% 1/6W	R120	1-247-847-00	CARBON	4.7K 5% 1/6W
R045	1-247-861-00	CARBON	18K 5% 1/6W	R121	1-249-437-11	CARBON	47K 5% 1/6W
<del>R046</del>	<del>1-212-861-51</del>	<del>FUSIBLE</del>	<del>6.8 5% 1/6W</del>	R122	1-249-437-11	CARBON	47K 5% 1/6W
R047	1-247-823-00	CARBON	470 5% 1/6W	R123	1-249-437-11	CARBON	47K 5% 1/6W
R048	1-247-823-00	CARBON	470 5% 1/6W	R124	1-249-421-11	CARBON	2.2K 5% 1/6W
R049	1-247-851-00	CARBON	6.8K 5% 1/6W	R125	1-249-419-11	CARBON	1.5K 5% 1/6W
R050	1-247-837-00	CARBON	1.8K 5% 1/6W	R126	1-247-869-00	CARBON	39K 5% 1/6W
R051	1-247-821-00	CARBON	390 5% 1/6W	R127	1-249-429-11	CARBON	10K 5% 1/6W
R052	1-247-859-00	CARBON	15K 5% 1/6W	R128	1-247-813-00	CARBON	180 5% 1/6W
R053	1-247-857-00	CARBON	12K 5% 1/6W	R129	1-247-863-00	CARBON	22K 5% 1/6W
R054	1-247-863-00	CARBON	22K 5% 1/6W	R130	1-249-429-11	CARBON	10K 5% 1/6W
R055	1-247-852-00	CARBON	7.5K 5% 1/6W	R131	1-247-817-00	CARBON	270 5% 1/6W
R056	1-247-848-00	CARBON	5.1K 5% 1/6W	R132	1-247-873-00	CARBON	56K 5% 1/6W
R057	1-249-421-11	CARBON	2.2K 5% 1/6W	R133	1-247-867-00	CARBON	33K 5% 1/6W
R058	1-247-861-00	CARBON	18K 5% 1/6W	R134	1-247-849-00	CARBON	5.6K 5% 1/6W
R059	1-249-421-11	CARBON	2.2K 5% 1/6W	R135	1-247-847-00	CARBON	4.7K 5% 1/6W
R060	1-249-421-11	CARBON	2.2K 5% 1/6W	R136	1-247-847-00	CARBON	4.7K 5% 1/6W
R061	1-247-861-00	CARBON	18K 5% 1/6W	R137	1-247-849-00	CARBON	5.6K 5% 1/6W
R062	1-247-898-00	CARBON	620K 5% 1/6W	R138	1-249-429-11	CARBON	10K 5% 1/6W
R063	1-247-843-00	CARBON	3.3K 5% 1/6W	R139	1-249-429-11	CARBON	10K 5% 1/6W
R064	1-247-843-00	CARBON	3.3K 5% 1/6W	R140	1-247-807-00	CARBON	100 5% 1/6W

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

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

# AF-14

Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
R141	1-247-807-00	CARBON	100	5%	1/6W	R199	1-249-429-11	CARBON	10K	5%	1/6W
R142	1-249-421-11	CARBON	2.2K	5%	1/6W	R200	1-247-861-00	CARBON	18K	5%	1/6W
R143	1-249-421-11	CARBON	2.2K	5%	1/6W	R201	1-249-421-11	CARBON	2.2K	5%	1/6W
R144	1-249-429-11	CARBON	10K	5%	1/6W	R202	1-247-861-00	CARBON	18K	5%	1/6W
R145	1-249-429-11	CARBON	10K	5%	1/6W	R203	1-249-421-11	CARBON	2.2K	5%	1/6W
R146	1-249-429-11	CARBON	10K	5%	1/6W	R206	1-247-843-00	CARBON	3.3K	5%	1/6W
R147	1-249-421-11	CARBON	2.2K	5%	1/6W	R207	1-247-843-00	CARBON	3.3K	5%	1/6W
R148	1-249-437-11	CARBON	47K	5%	1/6W	R208	1-247-843-00	CARBON	3.3K	5%	1/6W
R152	1-215-462-00	METAL	51K	1%	1/6W	R209	1-247-883-00	CARBON	150K	5%	1/6W
R153	1-247-815-00	CARBON	220	5%	1/6W	R210	1-247-864-00	CARBON	24K	5%	1/6W
R154	1-215-465-00	METAL	68K	1%	1/6W	R211	1-247-898-00	CARBON	620K	5%	1/6W
R155	1-215-446-00	METAL	11K	1%	1/6W	R212	1-247-847-00	CARBON	4.7K	5%	1/6W
R156	1-215-465-00	METAL	68K	1%	1/6W	R213	1-247-843-00	CARBON	3.3K	5%	1/6W
R157	1-215-446-00	METAL	11K	1%	1/6W	R214	1-247-841-00	CARBON	2.7K	5%	1/6W
R158	1-215-462-00	METAL	51K	1%	1/6W	R215	1-249-419-11	CARBON	1.5K	5%	1/6W
R159	1-249-437-11	CARBON	47K	5%	1/6W	R216	1-247-857-00	CARBON	12K	5%	1/6W
R160	1-249-429-11	CARBON	10K	5%	1/6W	R217	1-247-864-00	CARBON	24K	5%	1/6W
R161	1-249-437-11	CARBON	47K	5%	1/6W	R218	1-247-861-00	CARBON	18K	5%	1/6W
R162	1-247-815-00	CARBON	220	5%	1/6W	R219	1-249-437-11	CARBON	47K	5%	1/6W
R163	1-249-429-11	CARBON	10K	5%	1/6W	R220	1-247-821-00	CARBON	390	5%	1/6W
R164	1-249-429-11	CARBON	10K	5%	1/6W	R221	1-247-859-00	CARBON	15K	5%	1/6W
R165	1-215-429-00	METAL	2.2K	1%	1/6W	R222	1-247-837-00	CARBON	1.8K	5%	1/6W
R166	1-215-429-00	METAL	2.2K	1%	1/6W	R223	1-247-851-00	CARBON	6.8K	5%	1/6W
R167	1-249-429-11	CARBON	10K	5%	1/6W	R225	1-247-847-00	CARBON	4.7K	5%	1/6W
R168	1-249-429-11	CARBON	10K	5%	1/6W	R226	1-247-847-00	CARBON	4.7K	5%	1/6W
R169	1-247-843-00	CARBON	3.3K	5%	1/6W	<del>R227</del>	<del>1-215-853-01</del>	<del>FUSIBLE</del>	<del>4.0</del>	<del>5%</del>	<del>1/6W</del>
R170	1-247-849-00	CARBON	5.6K	5%	1/6W	R228	1-247-829-00	CARBON	820	5%	1/6W
R171	1-247-851-00	CARBON	6.8K	5%	1/6W	R229	1-247-819-00	CARBON	330	5%	1/6W
R172	1-247-841-00	CARBON	2.7K	5%	1/6W	R230	1-247-827-00	CARBON	680	5%	1/6W
R175	1-247-824-00	CARBON	510	5%	1/6W	R231	1-247-847-00	CARBON	4.7K	5%	1/6W
R176	1-247-836-00	CARBON	1.6K	5%	1/6W	R232	1-247-849-00	CARBON	5.6K	5%	1/6W
R177	1-247-825-00	CARBON	560	5%	1/6W	R233	1-247-823-00	CARBON	470	5%	1/6W
R178	1-249-434-11	CARBON	27K	5%	1/6W	R239	1-247-847-00	CARBON	4.7K	5%	1/6W
R179	1-247-853-00	CARBON	8.2K	5%	1/6W	R241	1-247-879-00	CARBON	100K	5%	1/6W
R180	1-247-834-00	CARBON	1.3K	5%	1/6W	R244	1-247-875-00	CARBON	68K	5%	1/6W
R181	1-247-838-00	CARBON	2K	5%	1/6W	R501	1-249-437-11	CARBON	47K	5%	1/6W
R182	1-247-858-00	CARBON	13K	5%	1/6W	R502	1-249-437-11	CARBON	47K	5%	1/6W
R183	1-247-895-00	CARBON	470K	5%	1/6W	R503	1-249-437-11	CARBON	47K	5%	1/6W
R184	1-247-858-00	CARBON	13K	5%	1/6W	R601	1-247-849-00	CARBON	5.6K	5%	1/6W
R185	1-249-429-11	CARBON	10K	5%	1/6W	R602	1-247-837-00	CARBON	1.8K	5%	1/6W
R186	1-247-833-00	CARBON	1.2K	5%	1/6W	R603	1-247-850-00	CARBON	6.2K	5%	1/6W
R187	1-247-843-00	CARBON	3.3K	5%	1/6W	R604	1-249-434-11	CARBON	27K	5%	1/6W
R188	1-247-834-00	CARBON	1.3K	5%	1/6W	R605	1-247-851-00	CARBON	6.8K	5%	1/6W
R189	1-247-814-00	CARBON	200	5%	1/6W	R606	1-247-819-00	CARBON	330	5%	1/6W
R190	1-249-429-11	CARBON	10K	5%	1/6W	R607	1-247-851-00	CARBON	6.8K	5%	1/6W
R191	1-249-429-11	CARBON	10K	5%	1/6W	R608	1-247-851-00	CARBON	6.8K	5%	1/6W
R192	1-247-840-00	CARBON	2.4K	5%	1/6W	R610	1-247-846-00	CARBON	4.3K	5%	1/6W
R193	1-249-429-11	CARBON	10K	5%	1/6W	R611	1-249-429-11	CARBON	10K	5%	1/6W
R194	1-247-824-00	CARBON	510	5%	1/6W	R612	1-247-831-00	CARBON	1K	5%	1/6W
R195	1-247-859-00	CARBON	15K	5%	1/6W	R613	1-247-857-00	CARBON	12K	5%	1/6W
R196	1-247-807-00	CARBON	100	5%	1/6W	R614	1-247-857-00	CARBON	12K	5%	1/6W
R197	1-215-433-00	METAL	3.3K	1%	1/6W	R615	1-247-825-00	CARBON	560	5%	1/6W
R198	1-247-848-00	CARBON	5.1K	5%	1/6W	R616	1-247-847-00	CARBON	4.7K	5%	1/6W

The components identified by shading and mark **A** 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
R617	1-247-831-00	CARBON	1K 5% 1/6W
R618	1-249-429-11	CARBON	10K 5% 1/6W
R619	1-249-429-11	CARBON	10K 5% 1/6W
R620	1-247-831-00	CARBON	1K 5% 1/6W
R625	1-247-847-00	CARBON	4.7K 5% 1/6W
R626	1-247-831-00	CARBON	1K 5% 1/6W
R627	1-249-421-11	CARBON	2.2K 5% 1/6W
R628	1-247-831-00	CARBON	1K 5% 1/6W
R632	1-247-847-00	CARBON	4.7K 5% 1/6W
R633	1-247-847-00	CARBON	4.7K 5% 1/6W
R634	1-247-825-00	CARBON	560 5% 1/6W
R635	1-247-847-00	CARBON	4.7K 5% 1/6W
R636	1-247-847-00	CARBON	4.7K 5% 1/6W
R638	1-247-847-00	CARBON	4.7K 5% 1/6W
R639	1-247-827-01	CARBON	500 5% 1/6W
R640	1-247-847-00	CARBON	4.7K 5% 1/6W
R641	1-247-847-00	CARBON	4.7K 5% 1/6W
R642	1-247-847-00	CARBON	4.7K 5% 1/6W
R643	1-247-851-00	CARBON	6.8K 5% 1/6W
R644	1-247-847-00	CARBON	4.7K 5% 1/6W
R650	1-247-843-00	CARBON	3.3K 5% 1/6W
R651	1-247-879-00	CARBON	100K 5% 1/6W
R652	1-247-859-00	CARBON	15K 5% 1/6W
R653	1-247-851-00	CARBON	6.8K 5% 1/6W
R654	1-247-831-00	CARBON	1K 5% 1/6W
R655	1-247-843-00	CARBON	3.3K 5% 1/6W
R656	1-247-879-00	CARBON	100K 5% 1/6W
R657	1-247-859-00	CARBON	15K 5% 1/6W
R658	1-247-851-00	CARBON	6.8K 5% 1/6W
R659	1-247-831-00	CARBON	1K 5% 1/6W
R660	1-247-831-00	CARBON	1K 5% 1/6W
R661	1-247-831-00	CARBON	1K 5% 1/6W
R662	1-247-847-00	CARBON	4.7K 5% 1/6W
R663	1-247-887-00	CARBON	220K 5% 1/6W
R664	1-247-887-00	CARBON	220K 5% 1/6W
R665	1-249-437-11	CARBON	47K 5% 1/6W
R666	1-247-895-00	CARBON	470K 5% 1/6W
R667	1-247-863-00	CARBON	22K 5% 1/6W
R668	1-249-437-11	CARBON	47K 5% 1/6W
R669	1-247-895-00	CARBON	470K 5% 1/6W
R670	1-247-863-00	CARBON	22K 5% 1/6W
R671	1-249-429-11	CARBON	10K 5% 1/6W
R672	1-215-415-00	METAL	560 1% 1/6W
R675	1-247-843-00	CARBON	3.3K 5% 1/6W
R676	1-249-421-11	CARBON	2.2K 5% 1/6W
R677	1-247-849-00	CARBON	5.6K 5% 1/6W
R678	1-247-879-00	CARBON	100K 5% 1/6W
R679	1-247-879-00	CARBON	100K 5% 1/6W
R680	1-249-437-11	CARBON	47K 5% 1/6W
R681	1-249-437-11	CARBON	47K 5% 1/6W
R682	1-247-879-00	CARBON	100K 5% 1/6W
R683	1-247-847-00	CARBON	4.7K 5% 1/6W
R684	1-249-437-11	CARBON	47K 5% 1/6W

Ref.No	Part No.	Description	Remark
R685	1-249-437-11	CARBON	47K 5% 1/6W
R686	1-249-437-11	CARBON	47K 5% 1/6W
VARIABLE RESISTOR			
RV001	1-228-991-00	RES, ADJ, CARBON	2.2K
RV002	1-228-994-00	RES, ADJ, CARBON	10K
RV003	1-228-993-00	RES, ADJ, CARBON	4.7K
RV005	1-228-993-00	RES, ADJ, CARBON	4.7K
RV006	1-228-993-00	RES, ADJ, CARBON	4.7K
RV007	1-228-993-00	RES, ADJ, CARBON	4.7K
RV008	1-228-990-00	RES, ADJ, CARBON	1K
RV009	1-228-921-00	RES, ADJ, CARBON	4.7K
RV010	1-228-994-00	RES, ADJ, CARBON	10K
RV011	1-228-991-00	RES, ADJ, CARBON	2.2K
RV012	1-228-990-00	RES, ADJ, CARBON	1K
RV013	1-228-993-00	RES, ADJ, CARBON	4.7K
RV014	1-228-993-00	RES, ADJ, CARBON	4.7K
RV601	1-230-496-11	RES, ADJ, METAL GLAZE	10K
RV602	1-228-921-00	RES, ADJ, CARBON	4.7K
RV603	1-228-921-00	RES, ADJ, CARBON	4.7K
RV604	1-228-995-00	RES, ADJ, METAL GLAZE	22K
RV605	1-228-995-00	RES, ADJ, METAL GLAZE	22K
TRANSFORMER			
TO01	1-427-546-11	TRANSFORMER, I/O	
TO02	1-427-546-11	TRANSFORMER, I/O	
THERMISTOR			
TH001	1-800-202-XX	THERMISTOR S-10K	
TH002	1-800-198-XX	THERMISTOR S-1K	
*****			
		*A-6715-272-A	SS-50 BOARD, COMPLETE
*****			
		*3-681-170-00	HEAT SINK, S
		7-621-770-87	SCREW +B 2.6X5
CAPACITOR			
C101	1-161-023-00	CERAMIC	0.068MF 10% 25V
C102	1-102-816-00	CERAMIC	120PF 10% 50V
C103	1-102-513-00	CERAMIC	18PF 5% 50V
C104	1-102-513-00	CERAMIC	18PF 5% 50V
C105	1-161-023-00	CERAMIC	0.068MF 10% 25V
C106	1-102-529-00	CERAMIC	100PF 5% 50V
C107	1-102-529-00	CERAMIC	100PF 5% 50V
C108	1-161-023-00	CERAMIC	0.068MF 10% 25V
C109	1-161-023-00	CERAMIC	0.068MF 10% 25V
C110	1-161-025-00	CERAMIC	0.1MF 10% 25V
C111	1-161-025-00	CERAMIC	0.1MF 10% 25V
C112	1-130-499-00	NYLAR	0.22MF 5% 50V
C113	1-123-380-00	ELECT	1MF 20% 50V
C114	1-123-343-00	ELECT	33MF 20% 25V

The components identified by shading and 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	Ref.No	Part No.	Description	Remark
<u>DIODE</u>				<u>COIL</u>			
D101	8-719-200-02	DIODE 10E-2		L101	1-408-412-00	MICRO INDUCTOR 18UH	
D102	8-719-000-04	DIODE MC911		L501	1-408-421-00	MICRO INDUCTOR 100UH	
D104	8-719-100-71	DIODE RD15E-B2		L502	1-408-417-00	MICRO INDUCTOR 47UH	
D105	8-719-100-71	DIODE RD15E-B2		<u>IC LINK</u>			
D107	8-719-000-06	DIODE MC921		<del>MS301 A1-532-637-11 100K 10</del> <del>MS301 A1-532-727-11 100K 10</del> <del>MS301 A1-532-727-11 100K 10</del> <del>MS303 A1-532-727-11 100K 10</del>			
D110	8-719-911-19	DIODE 1SS119		<u>TRANSISTOR</u>			
D111	8-719-200-23	DIODE 11E2		Q101	8-729-900-89	TRANSISTOR DTC144ES	
D112	8-719-911-19	DIODE 1SS119		Q102	8-729-900-65	TRANSISTOR DTA144ES	
D301	8-719-911-19	DIODE 1SS119		Q103	8-729-900-89	TRANSISTOR DTC144ES	
D302	8-719-911-19	DIODE 1SS119		Q104	8-729-900-89	TRANSISTOR DTC144ES	
D303	8-719-911-19	DIODE 1SS119		Q105	8-729-900-89	TRANSISTOR DTC144ES	
D304	8-719-000-06	DIODE MC921		Q106	8-729-204-83	TRANSISTOR 2SA1048	
D305	8-719-000-06	DIODE MC921		Q109	8-729-900-89	TRANSISTOR DTC144ES	
D306	8-719-000-06	DIODE MC921		Q111	8-729-900-89	TRANSISTOR DTC144ES	
D307	8-719-000-06	DIODE MC921		Q112	8-729-900-89	TRANSISTOR DTC144ES	
D308	8-719-911-19	DIODE 1SS119		Q113	8-729-245-83	TRANSISTOR 2SC2458	
D309	8-719-000-06	DIODE MC921		Q114	8-729-245-83	TRANSISTOR 2SC2458	
D310	8-719-000-06	DIODE MC921		Q115	8-729-245-83	TRANSISTOR 2SC2458	
D311	8-719-911-19	DIODE 1SS119		Q116	8-729-245-83	TRANSISTOR 2SC2458	
D312	8-719-200-02	DIODE 10E-2		Q117	8-729-204-83	TRANSISTOR 2SA1048	
D313	8-719-191-07	DIODE RD9.1E-B		Q118	8-729-113-32	TRANSISTOR 2SB733-3	
D314	8-719-101-34	DIODE RD3.0EL1		Q119	8-729-204-83	TRANSISTOR 2SA1048	
D315	8-719-911-19	DIODE 1SS119		Q301	8-729-900-89	TRANSISTOR DTC144ES	
D316	8-719-911-19	DIODE 1SS119		Q302	8-729-900-89	TRANSISTOR DTC144ES	
D317	8-719-911-19	DIODE 1SS119		Q303	8-729-900-89	TRANSISTOR DTC144ES	
D318	8-719-911-19	DIODE 1SS119		Q304	8-729-900-89	TRANSISTOR DTC144ES	
D320	8-719-000-06	DIODE MC921		Q305	8-729-245-83	TRANSISTOR 2SC2458	
D322	8-719-911-19	DIODE 1SS119		Q306	8-729-245-83	TRANSISTOR 2SC2458	
D610	8-719-911-19	DIODE 1SS119		Q307	8-729-204-83	TRANSISTOR 2SA1048	
<u>IC</u>				Q308	8-729-245-83	TRANSISTOR 2SC2458	
IC101	8-759-921-44	IC MB88551-173M		Q309	8-729-177-32	TRANSISTOR 2SD773-3	
IC102	8-759-602-75	IC MS0761-696P		Q310	8-729-900-89	TRANSISTOR DTC144ES	
IC103	8-759-105-55	IC UPD7508HG-537-22		Q311	8-729-900-89	TRANSISTOR DTC144ES	
IC104	8-759-921-02	IC MB89005-104		Q312	8-729-245-83	TRANSISTOR 2SC2458	
IC105	8-759-920-94	IC MSM6411B-19RS		Q313	8-729-204-83	TRANSISTOR 2SA1048	
IC106	8-759-240-53	IC TC4053BP		Q314	8-729-900-89	TRANSISTOR DTC144ES	
IC108	8-759-801-60	IC LB1640N		Q315	8-729-831-33	TRANSISTOR 2SD313HP	
IC109	8-759-801-60	IC LB1640N		Q316	8-729-247-33	TRANSISTOR 2SA473	
IC110	8-759-135-80	IC UPC358C		Q317	8-729-900-65	TRANSISTOR DTA144ES	
IC301	8-752-012-40	IC CX20124		Q318	8-729-900-89	TRANSISTOR DTC144ES	
IC302	8-752-006-90	IC CX20069		Q319	8-729-900-89	TRANSISTOR DTC144ES	
IC304	8-759-240-51	IC TC4051BP		Q320	8-729-245-83	TRANSISTOR 2SC2458	
IC305	8-759-100-06	IC UPC4556C		Q321	8-729-245-83	TRANSISTOR 2SC2458	
IC306	8-759-240-13	IC TC4013BP		Q322	8-729-245-83	TRANSISTOR 2SC2458	
IC307	8-759-135-80	IC UPC358C		Q323	8-729-900-89	TRANSISTOR DTC144ES	
IC308	8-759-132-40	IC UPC324C		Q324	8-729-245-83	TRANSISTOR 2SC2458	
IC309	8-759-240-66	IC TC4066BP					
IC310	8-759-240-53	IC TC4053BP					
IC501	8-759-918-61	IC MB88201-191G					
IC602	8-759-240-53	IC TC4053BP					

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

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

# SS-50

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q325	8-729-831-33	TRANSISTOR 2SD313HP		R116	1-247-843-00	CARBON	3.3K 5% 1/6W
Q326	8-729-900-89	TRANSISTOR DTC144ES		R117	1-247-843-00	CARBON	3.3K 5% 1/6W
Q327	8-729-900-89	TRANSISTOR DTC144ES		R119	1-249-429-11	CARBON	10K 5% 1/6W
Q328	8-729-245-83	TRANSISTOR 2SC2458		R120	1-249-429-11	CARBON	10K 5% 1/6W
Q329	8-729-204-83	TRANSISTOR 2SA1048		R121	1-249-429-11	CARBON	10K 5% 1/6W
Q330	8-729-245-83	TRANSISTOR 2SC2458		R122	1-249-429-11	CARBON	10K 5% 1/6W
Q331	8-729-900-89	TRANSISTOR DTC144ES		R123	1-249-429-11	CARBON	10K 5% 1/6W
Q333	8-729-204-83	TRANSISTOR 2SA1048		R127	1-247-887-00	CARBON	220K 5% 1/6W
Q334	8-729-245-83	TRANSISTOR 2SC2458		R128	1-247-901-00	CARBON	820K 5% 1/6W
Q335	8-729-900-89	TRANSISTOR DTC144ES		R129	1-249-429-11	CARBON	10K 5% 1/6W
Q336	8-729-245-83	TRANSISTOR 2SC2458		R130	1-247-821-00	CARBON	390 5% 1/6W
Q337	8-729-900-89	TRANSISTOR DTC144ES		R131	1-247-897-00	CARBON	560K 5% 1/6W
Q338	8-729-177-32	TRANSISTOR 2SD773		R132	1-249-429-11	CARBON	10K 5% 1/6W
Q339	8-729-900-89	TRANSISTOR DTC144ES		R133	1-249-434-11	CARBON	27K 5% 1/6W
Q340	8-729-900-89	TRANSISTOR DTC144ES		R134	1-249-434-11	CARBON	27K 5% 1/6W
Q341	8-729-900-89	TRANSISTOR DTC144ES		R135	1-249-429-11	CARBON	10K 5% 1/6W
Q342	8-729-204-83	TRANSISTOR 2SA1048		R136	1-249-429-11	CARBON	10K 5% 1/6W
Q343	8-729-900-89	TRANSISTOR DTC144ES		R137	1-249-421-11	CARBON	2.2K 5% 1/6W
Q344	8-729-900-89	TRANSISTOR DTC144ES		R138	1-249-429-11	CARBON	10K 5% 1/6W
Q345	8-729-113-32	TRANSISTOR 2SB733-3		R139	1-249-421-11	CARBON	2.2K 5% 1/6W
Q346	8-729-204-83	TRANSISTOR 2SA1048		R141	1-247-819-00	CARBON	330 5% 1/6W
Q350	8-729-900-89	TRANSISTOR DTC144ES		R142	1-247-843-00	CARBON	3.3K 5% 1/6W
Q351	8-729-900-89	TRANSISTOR DTC144ES		R143	1-247-819-00	CARBON	3.3K 5% 1/6W
Q352	8-729-900-89	TRANSISTOR DTC144ES		R144	1-247-819-00	CARBON	3.3K 5% 1/6W
Q353	8-729-900-89	TRANSISTOR DTC144ES		R146	1-247-831-00	CARBON	1K 5% 1/6W
Q354	8-729-900-89	TRANSISTOR DTC144ES		R147	1-247-831-00	CARBON	1K 5% 1/6W
Q355	8-729-900-89	TRANSISTOR DTC144ES		R148	1-247-831-00	CARBON	1K 5% 1/6W
Q356	8-729-204-83	TRANSISTOR 2SA1048		R149	1-247-787-00	CARBON	15 5% 1/6W
Q357	8-729-204-83	TRANSISTOR 2SA1048		R150	1-247-851-00	CARBON	6.8K 5% 1/6W
Q358	8-729-245-83	TRANSISTOR 2SC2458		R151	1-247-851-00	CARBON	6.8K 5% 1/6W
Q359	8-729-245-83	TRANSISTOR 2SC2458		R302	1-247-867-00	CARBON	33K 5% 1/6W
Q360	8-729-900-65	TRANSISTOR DTA144ES		R304	1-247-883-00	CARBON	150K 5% 1/6W
Q361	8-729-900-89	TRANSISTOR DTC144ES		R305	1-249-429-11	CARBON	10K 5% 1/6W
Q362	8-729-900-89	TRANSISTOR DTC144ES		R306	1-247-869-00	CARBON	39K 5% 1/6W
Q363	8-729-245-83	TRANSISTOR 2SC2458		R307	1-247-877-00	CARBON	82K 5% 1/6W
Q364	8-729-900-89	TRANSISTOR DTC144ES		R308	1-247-877-00	CARBON	82K 5% 1/6W
Q365	8-729-900-89	TRANSISTOR DTC144ES		R309	1-247-885-00	CARBON	180K 5% 1/6W
Q366	8-729-178-54	TRANSISTOR 2SC2785		R311	1-247-883-00	CARBON	150K 5% 1/6W
Q501	8-729-245-83	TRANSISTOR 2SC2458		R312	1-249-429-11	CARBON	10K 5% 1/6W
Q612	8-729-900-89	TRANSISTOR DTC144ES		R313	1-247-841-00	CARBON	2.7K 5% 1/6W
Q613	8-729-900-89	TRANSISTOR DTC144ES		R314	1-215-467-00	METAL	82K 1% 1/6W
Q614	8-729-900-89	TRANSISTOR DTC144ES		R315	1-215-400-91	METAL	130 1% 1/6W
				R316	1-215-400-91	METAL	130 1% 1/6W
				R317	1-215-420-00	METAL	910 1% 1/6W
				R318	1-215-433-00	METAL	3.3K 1% 1/6W
				R319	1-249-437-11	CARBON	47K 5% 1/6W
				R320	1-249-421-11	CARBON	2.2K 5% 1/6W
				R321	1-249-429-11	CARBON	10K 5% 1/6W
				R322	1-247-859-00	CARBON	15K 5% 1/6W
				R323	1-249-437-11	CARBON	47K 5% 1/6W
				R324	1-249-437-11	CARBON	47K 5% 1/6W
				R325	1-247-879-00	CARBON	100K 5% 1/6W
				R326	1-247-863-00	CARBON	22K 5% 1/6W
				R329	1-215-485-00	METAL	470K 1% 1/6W

RESISTOR							
R105	1-249-429-11	CARBON	10K	5%	1/6W		
R106	1-249-429-11	CARBON	10K	5%	1/6W		
R107	1-249-429-11	CARBON	10K	5%	1/6W		
R108	1-249-429-11	CARBON	10K	5%	1/6W		
R110	1-247-843-00	CARBON	3.3K	5%	1/6W		
R111	1-247-903-00	CARBON	1M	5%	1/6W		
R113	1-247-879-00	CARBON	100K	5%	1/6W		
R114	1-247-843-00	CARBON	3.3K	5%	1/6W		
R115	1-247-843-00	CARBON	3.3K	5%	1/6W		

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

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

# SS-50

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R330	1-215-485-00	METAL	470K 1% 1/6W	R384	1-247-837-00	CARBON	1.8K 5% 1/6W
R331	1-247-889-00	CARBON	270K 5% 1/6W	R385	1-247-869-00	CARBON	39K 5% 1/6W
R332	1-247-889-00	CARBON	270K 5% 1/6W	R388	1-247-891-00	CARBON	330K 5% 1/6W
R333	1-247-879-00	CARBON	100K 5% 1/6W	R389	1-247-903-00	CARBON	1M 5% 1/6W
R334	1-247-867-00	CARBON	33K 5% 1/6W	R390	1-247-831-00	CARBON	1K 5% 1/6W
R335	1-247-859-00	CARBON	15K 5% 1/6W	R391	1-249-419-11	CARBON	1.5K 5% 1/6W
R336	1-249-429-11	CARBON	10K 5% 1/6W	R392	1-249-429-11	CARBON	10K 5% 1/6W
R337	1-249-429-11	CARBON	10K 5% 1/6W	R393	1-247-859-00	CARBON	15K 5% 1/6W
R338	1-247-875-00	CARBON	68K 5% 1/6W	R394	1-247-879-00	CARBON	100K 5% 1/6W
R339	1-247-867-00	CARBON	33K 5% 1/6W	R395	1-247-883-00	CARBON	150K 5% 1/6W
R340	1-249-437-11	CARBON	47K 5% 1/6W	R396	1-247-859-00	CARBON	15K 5% 1/6W
R341	1-247-879-00	CARBON	100K 5% 1/6W	R397	1-247-867-00	CARBON	33K 5% 1/6W
R343	1-247-831-00	CARBON	1K 5% 1/6W	R398	1-247-867-00	CARBON	33K 5% 1/6W
R344	1-247-847-00	CARBON	4.7K 5% 1/6W	R399	1-247-850-00	CARBON	6.2K 5% 1/6W
R345	1-247-873-00	CARBON	56K 5% 1/6W	R400	1-247-903-00	CARBON	1M 5% 1/6W
R346	1-249-437-11	CARBON	47K 5% 1/6W	R401	1-247-879-00	CARBON	100K 5% 1/6W
R347	1-247-863-00	CARBON	22K 5% 1/6W	R402	1-247-889-00	CARBON	270K 5% 1/6W
R348	1-247-881-00	CARBON	120K 5% 1/6W	R403	1-247-895-00	CARBON	470K 5% 1/6W
R349	1-247-807-00	CARBON	100 5% 1/6W	R404	1-249-437-11	CARBON	47K 5% 1/6W
R350	1-247-903-00	CARBON	1M 5% 1/6W	R405	1-247-861-00	CARBON	18K 5% 1/6W
<del>R351</del>	<del>1-215-485-00</del>	<del>METAL</del>	<del>470K 1% 1/6W</del>	R406	1-247-859-00	CARBON	15K 5% 1/6W
R352	1-247-861-00	CARBON	18K 5% 1/6W	R407	1-247-831-00	CARBON	1K 5% 1/6W
R353	1-249-429-11	CARBON	10K 5% 1/6W	R408	1-247-863-00	CARBON	22K 5% 1/6W
R354	1-247-861-00	CARBON	18K 5% 1/6W	R409	1-247-863-00	CARBON	22K 5% 1/6W
R355	1-247-879-00	CARBON	100K 5% 1/6W	R410	1-247-867-00	CARBON	33K 5% 1/6W
R356	1-249-437-11	CARBON	47K 5% 1/6W	R413	1-249-437-11	CARBON	47K 5% 1/6W
R357	1-249-434-11	CARBON	27K 5% 1/6W	R415	1-249-437-11	CARBON	47K 5% 1/6W
R358	1-247-867-00	CARBON	33K 5% 1/6W	R417	1-247-857-00	CARBON	12K 5% 1/6W
R359	1-247-867-00	CARBON	33K 5% 1/6W	R418	1-247-859-00	CARBON	15K 5% 1/6W
R360	1-247-831-00	CARBON	1K 5% 1/6W	R419	1-249-421-11	CARBON	2.2K 5% 1/6W
R361	1-247-867-00	CARBON	33K 5% 1/6W	R420	1-249-437-11	CARBON	47K 5% 1/6W
R362	1-249-429-11	CARBON	10K 5% 1/6W	R421	1-247-843-00	CARBON	3.3K 5% 1/6W
R363	1-247-867-00	CARBON	33K 5% 1/6W	R422	1-249-429-11	CARBON	10K 5% 1/6W
R364	1-247-807-00	CARBON	100 5% 1/6W	R424	1-249-419-11	CARBON	1.5K 5% 1/6W
<del>R365</del>	<del>1-212-350-01</del>	<del>METAL</del>	<del>470K 1% 1/6W</del>	R425	1-249-437-11	CARBON	47K 5% 1/6W
R366	1-247-831-00	CARBON	1K 5% 1/6W	R426	1-249-437-11	CARBON	47K 5% 1/6W
<del>R367</del>	<del>1-212-368-01</del>	<del>METAL</del>	<del>470K 1% 1/6W</del>	R427	1-247-859-00	CARBON	15K 5% 1/6W
R368	1-247-833-00	CARBON	1.2K 5% 1/6W	R428	1-249-434-11	CARBON	27K 5% 1/6W
R369	1-247-833-00	CARBON	1.2K 5% 1/6W	R429	1-249-429-11	CARBON	10K 5% 1/6W
R370	1-247-847-00	CARBON	4.7K 5% 1/6W	R430	1-247-831-00	CARBON	1K 5% 1/6W
R371	1-247-847-00	CARBON	4.7K 5% 1/6W	R431	1-249-429-11	CARBON	10K 5% 1/6W
R372	1-247-831-00	CARBON	1K 5% 1/6W	R440	1-247-877-00	CARBON	82K 5% 1/6W
R373	1-249-429-11	CARBON	10K 5% 1/6W	R442	1-249-437-11	CARBON	47K 5% 1/6W
R374	1-247-859-00	CARBON	15K 5% 1/6W	R443	1-249-437-11	CARBON	47K 5% 1/6W
R375	1-247-879-00	CARBON	100K 5% 1/6W	<del>R444</del>	<del>1-247-815-01</del>	<del>CARBON</del>	<del>22K 5% 1/6W</del>
R376	1-247-895-00	CARBON	470K 5% 1/6W	R449	1-247-851-00	CARBON	6.8K 5% 1/6W
R377	1-249-437-11	CARBON	47K 5% 1/6W	R450	1-249-437-11	CARBON	47K 5% 1/6W
R378	1-249-437-11	CARBON	47K 5% 1/6W	R451	1-249-429-11	CARBON	10K 5% 1/6W
R379	1-249-429-11	CARBON	10K 5% 1/6W	R452	1-249-437-11	CARBON	47K 5% 1/6W
R380	1-249-437-11	CARBON	47K 5% 1/6W	R453	1-247-867-00	CARBON	33K 5% 1/6W
R381	1-247-863-00	CARBON	22K 5% 1/6W	R454	1-249-437-11	CARBON	47K 5% 1/6W
R382	1-247-895-00	CARBON	470K 5% 1/6W	R455	1-249-437-11	CARBON	47K 5% 1/6W
R383	1-247-867-00	CARBON	33K 5% 1/6W	R456	1-247-879-00	CARBON	100K 5% 1/6W

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

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

**SS-50**

**QV-1**

Ref.No	Part No.	Description				Remark
R457	1-249-437-11	CARBON	47K	5%	1/6W	
R458	1-249-429-11	CARBON	10K	5%	1/6W	
R459	1-249-421-11	CARBON	2.2K	5%	1/6W	
R460	1-247-859-00	CARBON	15K	5%	1/6W	
R461	1-247-863-00	CARBON	22K	5%	1/6W	
R462	1-247-891-00	CARBON	330K	5%	1/6W	
R464	1-249-437-11	CARBON	47K	5%	1/6W	
R465	1-249-437-11	CARBON	47K	5%	1/6W	
R466	1-247-837-00	CARBON	1.8K	5%	1/6W	
R467	1-247-831-00	CARBON	1K	5%	1/6W	
R468	1-249-419-11	CARBON	1.5K	5%	1/6W	
R470	1-247-843-00	CARBON	3.3K	5%	1/6W	
R471	1-247-883-00	CARBON	150K	5%	1/6W	
R472	1-247-903-00	CARBON	1M	5%	1/6W	
R473	1-247-903-00	CARBON	1M	5%	1/6W	
R474	1-247-849-00	CARBON	5.6K	5%	1/6W	
R480	1-249-429-11	CARBON	10K	5%	1/6W	
R481	1-247-879-00	CARBON	100K	5%	1/6W	
R482	1-247-862-00	CARBON	20K	5%	1/6W	
R483	1-247-859-00	CARBON	15K	5%	1/6W	
R486	1-249-437-11	CARBON	47K	5%	1/6W	
R487	1-249-437-11	CARBON	47K	5%	1/6W	
R488	1-247-871-00	CARBON	47K	5%	1/6W	
R492	1-249-437-11	CARBON	47K	5%	1/6W	
R501	1-249-437-11	CARBON	47K	5%	1/6W	
R502	1-247-859-00	CARBON	15K	5%	1/6W	
R503	1-249-421-11	CARBON	2.2K	5%	1/6W	
R504	1-247-803-00	CARBON	68	5%	1/6W	
R505	1-247-831-00	CARBON	1K	5%	1/6W	
R506	1-249-429-11	CARBON	10K	5%	1/6W	
R507	1-249-429-11	CARBON	10K	5%	1/6W	
R508	1-247-879-00	CARBON	100K	5%	1/6W	
R509	1-247-879-00	CARBON	100K	5%	1/6W	
R510	1-247-843-00	CARBON	3.3K	5%	1/6W	
R511	1-249-429-11	CARBON	10K	5%	1/6W	
R512	1-249-429-11	CARBON	10K	5%	1/6W	
R513	1-249-429-11	CARBON	10K	5%	1/6W	
R623	1-249-421-11	CARBON	2.2K	5%	1/6W	
R624	1-249-437-11	CARBON	47K	5%	1/6W	
R625	1-249-437-11	CARBON	47K	5%	1/6W	
R626	1-249-437-11	CARBON	47K	5%	1/6W	
R631	1-249-437-11	CARBON	47K	5%	1/6W	
<u>VARIABLE RESISTOR</u>						
RV101	1-228-991-00	RES, ADJ, CARBON	2.2K			
RV102	1-228-270-00	RES, VAR, CARBON	10K			
RV103	1-228-994-00	RES, ADJ, CARBON	10K			
RV301	1-228-750-00	RES, ADJ, CARBON	47K			
RV302	1-228-995-00	RES, ADJ, CARBON	22K			
RV303	1-228-997-00	RES, ADJ, CARBON	100K			
RV304	1-228-997-00	RES, ADJ, CARBON	100K			
RV305	1-228-997-00	RES, ADJ, METAL GLAZE	100K			
RV306	1-228-996-00	RES, ADJ, METAL GLAZE	47K			

Ref.No	Part No.	Description				Remark
RV307	1-228-992-11	RES, ADJ, METAL GLAZE	3.3K			
RV308	1-228-997-00	RES, ADJ, METAL GLAZE	100K			
RV315	1-228-994-00	RES, ADJ, CARBON	10K			
RV316	1-228-994-00	RES, ADJ, CARBON	10K			
RV317	1-228-753-00	RES, ADJ, CARBON	470K			
RV601	1-228-993-00	RES, ADJ, CARBON	4.7K			
RV602	1-228-993-00	RES, ADJ, CARBON	4.7K			
RV603	1-228-993-00	RES, ADJ, CARBON	4.7K			
RV604	1-228-993-00	RES, ADJ, CARBON	4.7K			
<u>CRYSTAL</u>						
X101	1-527-726-00	VIBRATOR, CRYSTAL	(4MHz)			
X102	1-527-965-00	OSCILLATOR, CERAMIC	(800KHz)			
X103	1-527-822-00	OSCILLATOR, CERAMIC	(4MHz)			
*****						
*1-617-383-11 QV-1 BOARD *****						
<u>CAPACITOR</u>						
C200	1-123-617-00	ELECT	10MF	20%	16V	
<u>DIODE</u>						
D200	8-719-000-06	DIODE	MC921			
D201	8-719-000-04	DIODE	MC911			
D202	8-719-000-04	DIODE	MC911			
D203	8-719-000-06	DIODE	MC921			
D204	8-719-000-04	DIODE	MC911			
D205	8-719-000-06	DIODE	MC921			
D206	8-719-911-19	DIODE	1S119			
<u>TRANSISTOR</u>						
Q200	8-729-900-89	TRANSISTOR	DTC144ES			
Q201	8-729-900-89	TRANSISTOR	DTC144ES			
Q202	8-729-900-89	TRANSISTOR	DTC144ES			
Q203	8-729-900-89	TRANSISTOR	DTC144ES			
Q204	8-729-178-54	TRANSISTOR	2SC2785			
<u>RESISTOR</u>						
R200	1-247-843-00	CARBON	3.3K	5%	1/6W	
R201	1-247-843-00	CARBON	3.3K	5%	1/6W	
R202	1-249-429-11	CARBON	10K	5%	1/6W	
R203	1-247-843-00	CARBON	3.3K	5%	1/6W	
R204	1-247-857-00	CARBON	12K	5%	1/6W	
R205	1-247-859-00	CARBON	15K	5%	1/6W	
R206	1-249-419-11	CARBON	1.5K	5%	1/6W	
R207	1-249-429-11	CARBON	10K	5%	1/6W	
R208	1-249-429-11	CARBON	10K	5%	1/6W	
R209	1-247-879-00	CARBON	100K	5%	1/6W	
R210	1-247-897-00	CARBON	560K	5%	1/6W	
*****						

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

Ref.No	Part No.	Description	Remark
*A-6717-408-A DR-33 BOARD, COMPLETE *****			
<u>CAPACITOR</u>			
C001	1-123-381-00	ELECT 2.2MF	20% 50V
C002	1-123-381-00	ELECT 2.2MF	20% 50V
C005	1-161-059-00	CERAMIC 0.047MF	10% 25V
C006	1-129-794-00	FILM 0.0033MF	5% 100V
C007	1-129-794-00	FILM 0.0033MF	5% 100V
C008	1-161-059-00	CERAMIC 0.047MF	10% 25V
C009	1-161-059-00	CERAMIC 0.047MF	10% 25V
C010	1-123-330-00	ELECT 22MF	20% 16V
C011	1-102-973-00	CERAMIC 100PF	5% 50V
C012	1-161-059-00	CERAMIC 0.047MF	10% 25V
<u>CONNECTOR</u>			
CN001	*1-564-010-11	PIN, CONNECTOR 11P	
CN002	*1-560-892-00	PIN, CONNECTOR 4P	
CN003	*1-560-891-00	PIN, CONNECTOR 3P	
CN004	*1-564-009-00	PIN, CONNECTOR 10P	
CN005	*1-560-892-00	PIN, CONNECTOR 4P	
CN006	*1-560-890-00	PIN, CONNECTOR 2P	
CN007	*1-560-891-00	PIN, CONNECTOR 3P	
CN008	*1-560-890-00	PIN, CONNECTOR 2P	
CN010	*1-560-468-00	PIN, CONNECTOR 5P	
CN011	*1-560-466-00	PIN, CONNECTOR 3P	
CN012	*1-560-891-00	PIN, CONNECTOR 3P	
CN013	*1-564-005-00	PIN, CONNECTOR 6P	
CN014	*1-564-005-00	PIN, CONNECTOR 6P	
CN015	*1-564-003-00	PIN, CONNECTOR 4P	
CN017	*1-560-900-00	PIN, CONNECTOR 12P	
CN018	*1-564-011-11	PIN, CONNECTOR 12P	
CN019	*1-564-011-11	PIN, CONNECTOR 12P	
CN020	*1-564-010-41	PIN, CONNECTOR 11P	
<u>IC</u>			
IC002	8-759-800-72	IC LA7205	
<u>RESISTOR</u>			
RO01	1-247-831-00	CARBON 1K 5%	1/6W
RO02	1-247-815-00	CARBON 220 5%	1/6W
RO03	1-247-831-00	CARBON 1K 5%	1/6W
RO04	1-247-815-00	CARBON 220 5%	1/6W
RO19	1-247-861-00	CARBON 18K 5%	1/6W
RO20	1-247-862-00	CARBON 20K 5%	1/6W
RO21	1-247-873-00	CARBON 56K 5%	1/6W
*****			
*A-6721-248-A TA-36 BOARD, COMPLETE (ES MODEL) *****			
	*3-662-227-00	HOLDER (R-3), LED	
	*3-674-390-00	HOLDER (B), LED	

Ref.No	Part No.	Description	Remark
<u>STORAGE BATTERY</u>			
B701	1-528-175-11	BATTERY, STORAGE	
<u>CAPACITOR</u>			
C001	1-102-529-00	CERAMIC 100PF	5% 50V
C002	1-102-529-00	CERAMIC 100PF	5% 50V
C003	1-102-947-00	CERAMIC 10PF	5% 50V
C004	1-102-523-00	CERAMIC 56PF	5% 50V
C005	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C006	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C007	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C008	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C009	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C010	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C011	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C012	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C013	1-123-369-00	ELECT 4.7MF	20% 25V
C014	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C015	1-161-059-00	CERAMIC 0.047MF	10% 25V
C016	1-102-529-00	CERAMIC 100PF	5% 50V
C017	1-102-963-00	CERAMIC 33PF	5% 50V
C018	1-102-504-00	CERAMIC 4PF	0.25PF 50V
C019	1-102-529-00	CERAMIC 100PF	5% 50V
C020	1-102-504-00	CERAMIC 4PF	0.25PF 50V
C021	1-102-963-00	CERAMIC 33PF	5% 50V
C022	1-123-333-00	ELECT 100MF	20% 16V
C023	1-161-013-00	CERAMIC 0.01MF	10% 25V
C024	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C025	1-123-379-00	ELECT 0.47MF	20% 50V
C026	1-101-361-00	CERAMIC 150PF	5% 50V
C027	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C028	1-123-286-00	ELECT 0.33MF	20% 50V
C029	1-161-013-00	CERAMIC 0.01MF	10% 25V
C030	1-101-361-00	CERAMIC 150PF	5% 50V
C031	1-123-380-00	ELECT 1MF	20% 50V
C032	1-130-014-00	FILM 470PF	5% 50V
C033	1-102-525-00	CERAMIC 68PF	5% 50V
C034	1-161-055-00	CERAMIC 0.022MF	10% 25V
C035	1-161-055-00	CERAMIC 0.022MF	10% 25V
C036	1-161-055-00	CERAMIC 0.022MF	10% 25V
C037	1-123-332-00	ELECT 47MF	20% 16V
C038	1-130-478-00	MYLAR 0.0039MF	5% 50V
C039	1-130-478-00	MYLAR 0.0039MF	5% 50V
C040	1-130-478-00	MYLAR 0.0039MF	5% 50V
C041	1-123-380-00	ELECT 1MF	20% 50V
C042	1-123-380-00	ELECT 1MF	20% 50V
C043	1-123-332-00	ELECT 47MF	20% 16V
C044	1-123-356-00	ELECT 10MF	20% 16V
C045	1-123-356-00	ELECT 10MF	20% 16V
C046	1-161-059-00	CERAMIC 0.047MF	10% 25V
C047	1-123-333-00	ELECT 100MF	20% 16V
C048	1-123-308-00	ELECT 220MF	20% 10V

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

# TA-36

Ref.No	Part No.	Description			Remark
C049	1-136-147-00	FILM	0.0033MF	5%	50V
C050	1-130-014-00	FILM	470PF	5%	50V
C051	1-161-055-00	CERAMIC	0.022MF	10%	25V
C052	1-161-059-00	CERAMIC	0.047MF	10%	25V
C053	1-136-244-11	FILM	0.1MF	2%	50V
C054	1-136-244-11	FILM	0.1MF	2%	50V
C055	1-123-330-00	ELECT	22MF	20%	16V
C056	1-136-243-11	FILM	0.047MF	2%	50V
C057	1-136-243-11	FILM	0.047MF	2%	50V
C058	1-123-333-00	ELECT	100MF	20%	16V
C059	1-123-333-00	ELECT	100MF	20%	16V
C060	1-123-356-00	ELECT	10MF	20%	16V
C061	1-161-013-00	CERAMIC	0.01MF	10%	25V
C062	1-123-356-00	ELECT	10MF	20%	16V
C063	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C064	1-161-013-00	CERAMIC	0.01MF	10%	25V
C065	1-102-963-00	CERAMIC	33PF	5%	50V
C066	1-130-493-00	MYLAR	0.068MF	5%	50V
C067	1-130-493-00	MYLAR	0.068MF	5%	50V
C068	1-130-495-00	MYLAR	0.1MF	5%	50V
C069	1-102-973-00	CERAMIC	100PF	5%	50V
C070	1-123-380-00	ELECT	1MF	20%	50V
C072	1-161-013-00	CERAMIC	0.01MF	10%	25V
C073	1-161-047-00	CERAMIC	0.0047MF	20%	25V
C074	1-102-116-00	CERAMIC	680PF	10%	50V
C075	1-102-963-00	CERAMIC	33PF	5%	50V
C076	1-102-963-00	CERAMIC	33PF	5%	50V
C077	1-123-381-00	ELECT	2.2MF	20%	50V
C078	1-161-059-00	CERAMIC	0.047MF	10%	25V
C079	1-161-013-00	CERAMIC	0.01MF	10%	25V
C080	1-161-013-00	CERAMIC	0.01MF	10%	25V
C081	1-123-332-00	ELECT	47MF	20%	16V
C082	1-123-356-00	ELECT	10MF	20%	50V
C083	1-123-380-00	ELECT	1MF	20%	50V
C201	1-102-123-00	CERAMIC	0.0033MF	10%	50V
C301	1-123-356-00	ELECT	10MF	20%	50V
C501	1-123-356-00	ELECT	10MF	20%	16V
C502	1-123-381-00	ELECT	2.2MF	20%	50V
C503	1-123-332-00	ELECT	47MF	20%	16V
C504	2-203-074-91	CERAMIC	0.001MF		
C505	1-123-369-00	ELECT	4.7MF	20%	25V
C508	1-102-961-00	CERAMIC	27PF	5%	50V
C511	1-123-369-00	ELECT	4.7MF	20%	25V
C512	1-123-332-00	ELECT	47MF	20%	16V
C513	1-161-013-00	CERAMIC	0.01MF	10%	25V
C601	1-101-004-00	CERAMIC	0.01MF		50V
C602	1-101-004-00	CERAMIC	0.01MF		50V
C603	1-123-356-00	ELECT	10MF	20%	16V
C604	1-123-382-00	ELECT	3.3MF	20%	50V
C605	1-101-001-00	CERAMIC	0.001MF		50V
C606	1-101-004-00	CERAMIC	0.01MF		50V
C608	1-123-380-00	ELECT	1MF	20%	50V
C701	1-123-330-00	ELECT	22MF	20%	16V

Ref.No	Part No.	Description			Remark
C702	1-123-330-00	ELECT	22MF	20%	16V
C703	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C704	1-123-381-00	ELECT	2.2MF	20%	50V
C705	1-123-330-00	ELECT	22MF	20%	16V
C706	1-123-308-00	ELECT	220MF	20%	10V
C800	1-101-004-00	CERAMIC	0.01MF		50V
C801	1-130-483-00	MYLAR	0.01MF	5%	50V
C802	1-136-164-00	MYLAR	0.082MF	5%	50V
C803	1-161-025-00	CERAMIC	0.1MF	10%	25V
C901	1-123-332-00	ELECT	47MF	20%	16V
C902	1-102-111-00	CERAMIC	270PF	10%	50V
C903	1-130-474-00	MYLAR	0.0018MF	5%	50V
C904	1-123-332-00	ELECT	47MF	20%	16V
C905	1-123-332-00	ELECT	47MF	20%	16V
C906	1-123-369-00	ELECT	4.7MF	20%	25V
C907	1-130-473-00	MYLAR	0.0015MF	5%	50V
C908	1-130-483-00	MYLAR	0.01MF	5%	50V
C909	1-123-332-00	ELECT	47MF	20%	16V
C910	1-123-332-00	ELECT	47MF	20%	16V
C911	1-130-471-00	MYLAR	0.001MF	5%	50V
C912	1-123-332-00	ELECT	47MF	20%	16V
C913	1-123-356-00	ELECT	10MF	20%	16V
C914	1-123-330-00	ELECT	22MF	20%	16V
C915	1-123-379-00	ELECT	0.47MF	20%	50V
C916	1-123-332-00	ELECT	47MF	20%	16V
C917	1-130-481-00	MYLAR	0.0068MF	5%	50V
C918	1-123-356-00	ELECT	10MF	20%	16V
C919	1-130-477-00	MYLAR	0.0033MF	5%	50V
C920	1-130-479-00	MYLAR	0.0047MF	5%	50V
C921	1-123-332-00	ELECT	47MF	20%	16V
C922	1-136-215-51	FILM	0.0068MF		400V
C923	1-107-080-00	MICA	62PF	5%	50V
C951	1-123-332-00	ELECT	47MF	20%	16V
<u>FILTER</u>					
CF001	1-527-840-00	FILTER, CERAMIC			
CF002	1-527-839-00	FILTER, CERAMIC			
CF003	1-527-822-00	OSCILLATOR, CERAMIC			
<u>CONNECTOR</u>					
CN001	*1-560-891-00	PIN, CONNECTOR 3P			
CN002	*1-560-896-00	PIN, CONNECTOR 8P			
CN003	*1-560-894-00	PIN, CONNECTOR 6P			
CN004	*1-560-900-00	PIN, CONNECTOR 12P			
CN501	*1-560-892-00	PIN, CONNECTOR 4P			
CN502	*1-560-896-00	PIN, CONNECTOR 8P			
CN901	*1-564-030-00	PIN, CONNECTOR 5P			
CN902	*1-564-033-00	PIN, CONNECTOR 8P			
<u>TRIMMER</u>					
CT001	1-404-134-00	TRAP, CERAMIC (.55MHZ)			

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

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>DIODE</u>							
D001	8-719-911-19	DIODE 1SS119		L006	1-408-406-00	MICRO INDUCTOR 5.6UH	
D003	8-719-911-19	DIODE 1SS119		L007	1-408-403-00	MICRO INDUCTOR 3.3UH	
D004	8-719-911-19	DIODE 1SS119		L008	1-408-397-00	MICRO INDUCTOR 1UH	
D005	*8-719-812-33	DIODE TLG123A		L009	1-408-421-00	MICRO INDUCTOR 100UH	
D006	8-719-812-32	DIODE TLY123		L501	1-408-421-00	MICRO INDUCTOR 100UH	
D007	8-719-812-31	DIODE TLR123		L502	1-408-417-00	MICRO INDUCTOR 47UH	
D008	8-719-000-12	DIODE MC931		L503	1-408-417-00	MICRO INDUCTOR 47UH	
D009	8-719-812-31	DIODE TLR123		L701	1-407-168-XX	MICRO INDUCTOR 82UH	
D010	8-719-200-02	DIODE 10E-2		L901	1-407-508-00	MICRO INDUCTOR 22MMH	
D011	8-719-911-19	DIODE 1SS119		L902	1-407-510-00	MICRO INDUCTOR 27MMH	
D301	8-719-000-12	DIODE MC931		L903	1-410-120-11	MICRO INDUCTOR 1.2MMH	
D505	8-719-911-19	DIODE 1SS119		<u>VARIABLE COIL</u>			
D508	8-719-911-19	DIODE 1SS119		LV901	1-408-713-00	VARIABLE INDUCTOR	
D601	8-719-911-19	DIODE 1SS119		<u>TRANSISTOR</u>			
D602	8-719-911-19	DIODE 1SS119		Q001	8-729-203-28	TRANSISTOR 2SC2216	
D603	8-719-911-19	DIODE 1SS119		Q002	8-729-245-83	TRANSISTOR 2SC2458	
D604	8-719-911-19	DIODE 1SS119		Q003	8-729-900-74	TRANSISTOR DTC143TS	
D605	8-719-911-19	DIODE 1SS119		Q004	8-729-900-74	TRANSISTOR DTC143TS	
D607	8-719-911-19	DIODE 1SS119		<del>Q005 8-729-900-74 TRANSISTOR 2SC2458</del>			
D608	8-719-911-19	DIODE 1SS119		Q006	8-729-900-89	TRANSISTOR DTC144ES	
D609	8-719-911-19	DIODE 1SS119		Q007	8-729-245-83	TRANSISTOR 2SC2458	
D701	8-719-911-19	DIODE 1SS119		Q008	8-729-245-83	TRANSISTOR 2SC2458	
D702	8-719-911-19	DIODE 1SS119		Q009	8-729-245-83	TRANSISTOR 2SC2458	
D703	8-719-100-31	DIODE RD5.1EB3		Q011	8-729-204-83	TRANSISTOR 2SA1048	
D704	8-719-911-19	DIODE 1SS119		Q012	8-729-204-83	TRANSISTOR 2SA1048	
D705	8-719-911-19	DIODE 1SS119		Q013	8-729-900-89	TRANSISTOR DTC144ES	
D706	8-719-911-19	DIODE 1SS119		Q014	8-729-900-89	TRANSISTOR DTC144ES	
D707	8-719-911-19	DIODE 1SS119		Q015	8-729-900-89	TRANSISTOR DTC144ES	
D901	8-719-000-06	DIODE MC921		Q201	8-729-204-83	TRANSISTOR 2SA1048	
D902	8-719-911-19	DIODE 1SS119		Q202	8-729-245-83	TRANSISTOR 2SC2458	
<u>IC</u>				Q301	8-729-900-65	TRANSISTOR DTA144ES	
IC001	8-759-276-07	IC TA7607AP		Q501	8-729-245-83	TRANSISTOR 2SC2458	
IC002	8-759-909-54	IC TDA2546A		Q502	8-729-204-83	TRANSISTOR 2SA1048	
IC003	6-066-721-70	IC TDA3800ES		Q503	8-729-384-48	TRANSISTOR 2SA844	
IC004	8-759-145-58	IC UPC4558C		Q504	8-729-245-83	TRANSISTOR 2SC2458	
IC005	8-759-602-16	IC M54572L		Q505	8-729-245-83	TRANSISTOR 2SC2458	
IC006	8-759-157-40	IC UPC574J		Q506	8-729-245-83	TRANSISTOR 2SC2458	
IC007	8-759-603-11	IC M50160-115SP		Q507	8-729-178-54	TRANSISTOR 2SC2785	
IC008	8-759-600-66	IC M58653P		Q508	8-729-900-89	TRANSISTOR DTC144ES	
IC009	8-759-105-50	IC UP07507SC-068		Q509	8-729-117-52	TRANSISTOR 2SA1175	
IC601	8-759-205-76	IC TC504013BP		Q601	8-729-900-89	TRANSISTOR DTC144ES	
IC901	8-759-101-73	IC UPC1513HA		Q602	8-729-245-83	TRANSISTOR 2SC2458	
IC902	8-759-802-11	IC LA7091		Q603	8-729-245-83	TRANSISTOR 2SC2458	
<u>COIL</u>				Q604	8-729-900-89	TRANSISTOR DTC144ES	
L001	1-408-397-00	MICRO INDUCTOR 1UH		Q605	8-729-900-89	TRANSISTOR DTC144ES	
L002	1-408-592-41	MICRO INDUCTOR 1.2UH		Q606	8-729-245-83	TRANSISTOR 2SC2458	
L003	1-408-406-00	MICRO INDUCTOR 5.6UH		Q607	8-729-245-83	TRANSISTOR 2SC2458	
L004	1-408-406-00	MICRO INDUCTOR 5.6UH		Q608	8-729-245-83	TRANSISTOR 2SC2458	
L005	1-408-405-00	MICRO INDUCTOR 4.7UH		Q609	8-729-245-83	TRANSISTOR 2SC2458	
				Q610	8-729-900-89	TRANSISTOR DTC144ES	

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

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



# TA-36

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q701	8-729-177-32	TRANSISTOR 2SD773		R044	1-247-831-00	CARBON 1K 5% 1/6W	
Q702	8-729-245-83	TRANSISTOR 2SC2458		R045	1-247-833-00	CARBON 1.2K 5% 1/6W	
Q703	8-729-900-80	TRANSISTOR DTC114ES		R046	1-249-419-11	CARBON 1.5K 5% 1/6W	
Q704	8-729-204-83	TRANSISTOR 2SA1048		R047	1-249-421-11	CARBON 2.2K 5% 1/6W	
Q800	8-729-900-89	TRANSISTOR DTC144ES		R048	1-247-891-00	CARBON 330K 5% 1/6W	
Q802	8-729-900-89	TRANSISTOR DTC144ES		R049	1-247-863-00	CARBON 22K 5% 1/6W	
Q901	8-729-900-89	TRANSISTOR DTC144ES		R050	1-247-863-00	CARBON 22K 5% 1/6W	
Q904	8-729-245-83	TRANSISTOR 2SC2458		R051	1-247-863-00	CARBON 22K 5% 1/6W	
Q906	8-729-177-43	TRANSISTOR 2SD774		R052	1-247-863-00	CARBON 22K 5% 1/6W	
Q907	8-729-245-83	TRANSISTOR 2SC2458		R053	1-247-863-00	CARBON 22K 5% 1/6W	
<b>RESISTOR</b>				R054	1-247-877-00	CARBON 82K 5% 1/6W	
R001	1-249-421-11	CARBON 2.2K 5% 1/6W		R055	1-247-851-00	CARBON 6.8K 5% 1/6W	
R002	1-247-847-00	CARBON 4.7K 5% 1/6W		R056	1-247-843-00	CARBON 3.3K 5% 1/6W	
R003	1-247-815-00	CARBON 220 5% 1/6W		R058	1-247-867-00	CARBON 33K 5% 1/6W	
R004	1-247-819-00	CARBON 330 5% 1/6W		R059	1-247-863-00	CARBON 22K 5% 1/6W	
R005	1-247-813-00	CARBON 180 5% 1/6W		R060	1-247-847-00	CARBON 4.7K 5% 1/6W	
R006	1-247-837-00	CARBON 1.8K 5% 1/6W		R061	1-247-863-00	CARBON 22K 5% 1/6W	
R007	1-249-419-11	CARBON 1.5K 5% 1/6W		R062	1-247-867-00	CARBON 33K 5% 1/6W	
R008	1-247-867-00	CARBON 33K 5% 1/6W		R063	1-249-429-11	CARBON 10K 5% 1/6W	
R009	1-247-879-00	CARBON 100K 5% 1/6W		R064	1-249-429-11	CARBON 10K 5% 1/6W	
R010	1-247-879-00	CARBON 100K 5% 1/6W		R065	1-249-429-11	CARBON 10K 5% 1/6W	
R011	1-247-901-00	CARBON 820K 5% 1/6W		R066	1-249-429-11	CARBON 10K 5% 1/6W	
R012	1-247-831-00	CARBON 1K 5% 1/6W		R067	1-247-903-00	CARBON 1M 5% 1/6W	
R013	1-247-813-00	CARBON 180 5% 1/6W		R068	1-247-831-00	CARBON 1K 5% 1/6W	
R014	1-247-807-00	CARBON 100 5% 1/6W		R070	1-247-853-00	CARBON 8.2K 5% 1/6W	
R015	1-247-817-00	CARBON 270 5% 1/6W		R071	1-249-437-11	CARBON 47K 5% 1/6W	
R016	1-247-815-00	CARBON 220 5% 1/6W		R072	1-249-437-11	CARBON 47K 5% 1/6W	
R017	1-247-847-00	CARBON 4.7K 5% 1/6W		R073	1-249-437-11	CARBON 47K 5% 1/6W	
R018	1-247-829-00	CARBON 820 5% 1/6W		R074	1-247-833-00	CARBON 1.2K 5% 1/6W	
R019	1-247-829-00	CARBON 820 5% 1/6W		R076	1-249-421-11	CARBON 2.2K 5% 1/6W	
R020	1-247-829-00	CARBON 820 5% 1/6W		R077	1-247-847-00	CARBON 4.7K 5% 1/6W	
R021	1-247-891-00	CARBON 330K 5% 1/6W		R201	1-247-819-00	CARBON 330 5% 1/6W	
R022	1-249-437-11	CARBON 47K 5% 1/6W		R202	1-247-887-00	CARBON 220K 5% 1/6W	
R023	1-247-853-00	CARBON 8.2K 5% 1/6W		R203	1-247-845-00	CARBON 3.9K 5% 1/6W	
R024	1-247-863-00	CARBON 22K 5% 1/6W		R204	1-247-827-00	CARBON 680 5% 1/6W	
R025	1-247-853-00	CARBON 8.2K 5% 1/6W		R205	1-247-825-00	CARBON 560 5% 1/6W	
R026	1-247-863-00	CARBON 22K 5% 1/6W		R301	1-249-429-11	CARBON 10K 5% 1/6W	
R027	1-249-429-11	CARBON 10K 5% 1/6W		R302	1-249-429-11	CARBON 10K 5% 1/6W	
R028	1-249-429-11	CARBON 10K 5% 1/6W		R303	1-247-849-00	CARBON 5.6K 5% 1/6W	
R031	1-247-861-00	CARBON 18K 5% 1/6W		R501	1-249-429-11	CARBON 10K 5% 1/6W	
R032	1-249-434-11	CARBON 27K 5% 1/6W		R503	1-247-825-00	CARBON 560 5% 1/6W	
R033	1-247-829-00	CARBON 820 5% 1/6W		R504	1-249-429-11	CARBON 10K 5% 1/6W	
R034	1-247-831-00	CARBON 1K 5% 1/6W		R505	1-249-429-11	CARBON 10K 5% 1/6W	
R035	1-215-487-00	METAL 560K 1% 1/6W		R507	1-247-823-00	CARBON 470 5% 1/6W	
R036	1-215-409-00	METAL 330 1% 1/6W		R508	1-247-831-00	CARBON 1K 5% 1/6W	
R037	1-215-461-00	METAL 47K 1% 1/6W		R509	1-249-429-11	CARBON 10K 5% 1/6W	
R038	1-215-460-00	METAL 43K 1% 1/6W		R510	1-247-847-00	CARBON 4.7K 5% 1/6W	
R039	1-215-408-00	METAL 300 1% 1/6W		R511	1-249-429-11	CARBON 10K 5% 1/6W	
R040	1-215-486-00	METAL 510K 1% 1/6W		R512	1-247-867-00	CARBON 33K 5% 1/6W	
R041	1-247-831-00	CARBON 1K 5% 1/6W		R513	1-247-831-00	CARBON 1K 5% 1/6W	
R042	1-206-670-00	METAL OXIDE 1.8K 5% 2W F		R514	1-247-807-00	CARBON 100 5% 1/6W	
R043	1-247-847-00	CARBON 4.7K 5% 1/6W		R516	1-247-815-00	CARBON 220 5% 1/6W	
				R517	1-247-825-00	CARBON 560 5% 1/6W	

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

Ref.No	Part No.	Description	Remark
R519	1-247-815-00	CARBON 220 5%	1/6W
R523	1-247-847-00	CARBON 4.7K 5%	1/6W
R524	1-247-807-00	CARBON 100 5%	1/6W
R525	1-247-831-00	CARBON 1K 5%	1/6W
R526	1-247-837-00	CARBON 1.8K 5%	1/6W
R527	1-247-807-00	CARBON 100 5%	1/6W
R601	1-249-429-11	CARBON 10K 5%	1/6W
R602	1-249-429-11	CARBON 10K 5%	1/6W
R603	1-249-429-11	CARBON 10K 5%	1/6W
R604	1-249-429-11	CARBON 10K 5%	1/6W
R605	1-249-429-11	CARBON 10K 5%	1/6W
R606	1-249-429-11	CARBON 10K 5%	1/6W
R607	1-249-429-11	CARBON 10K 5%	1/6W
R608	1-249-429-11	CARBON 10K 5%	1/6W
R609	1-247-849-00	CARBON 5.6K 5%	1/6W
R610	1-247-867-00	CARBON 33K 5%	1/6W
R611	1-247-867-00	CARBON 33K 5%	1/6W
R612	1-247-843-00	CARBON 3.3K 5%	1/6W
R613	1-249-429-11	CARBON 10K 5%	1/6W
R614	1-247-861-00	CARBON 18K 5%	1/6W
R615	1-247-869-00	CARBON 39K 5%	1/6W
R616	1-249-421-11	CARBON 2.2K 5%	1/6W
R617	1-249-437-11	CARBON 47K 5%	1/6W
R618	1-249-429-11	CARBON 10K 5%	1/6W
R619	1-247-847-00	CARBON 4.7K 5%	1/6W
R620	1-249-429-11	CARBON 10K 5%	1/6W
R622	1-249-429-11	CARBON 10K 5%	1/6W
R701	1-247-791-00	CARBON 22 5%	1/6W
R702	1-247-831-00	CARBON 1K 5%	1/6W
R703	1-247-831-00	CARBON 1K 5%	1/6W
R704	1-247-831-00	CARBON 1K 5%	1/6W
R705	1-247-831-00	CARBON 1K 5%	1/6W
R706	1-249-429-11	CARBON 10K 5%	1/6W
R707	1-249-429-11	CARBON 10K 5%	1/6W
R800	1-247-847-00	CARBON 4.7K 5%	1/6W
R801	1-247-847-00	CARBON 4.7K 5%	1/6W
<del>R802</del>	<del>1-212-853-51</del>	<del>FUSIBLE</del>	<del>6.0 5% 1/6W</del>
R805	1-249-429-11	CARBON 10K 5%	1/6W
R806	1-247-843-00	CARBON 3.3K 5%	1/6W
R820	1-247-869-00	CARBON 39K 5%	1/6W
R821	1-247-861-00	CARBON 18K 5%	1/6W
R901	1-249-429-11	CARBON 10K 5%	1/6W
R902	1-247-783-00	CARBON 10 5%	1/6W
R903	1-247-859-00	CARBON 15K 5%	1/6W
R904	1-247-831-00	CARBON 1K 5%	1/6W
R905	1-247-821-00	CARBON 390 5%	1/6W
R906	1-247-861-00	CARBON 18K 5%	1/6W
R907	1-247-885-00	CARBON 180K 5%	1/6W
R908	1-249-429-11	CARBON 10K 5%	1/6W
R909	1-247-867-00	CARBON 33K 5%	1/6W
R912	1-247-899-00	CARBON 680K 5%	1/6W
R913	1-247-867-00	CARBON 33K 5%	1/6W
R914	1-247-829-00	CARBON 820 5%	1/6W

Ref.No	Part No.	Description	Remark
R915	1-249-429-11	CARBON 10K 5%	1/6W
R916	1-247-831-00	CARBON 1K 5%	1/6W
R917	1-247-807-00	CARBON 100 5%	1/6W
<del>R919</del>	<del>1-212-853-51</del>	<del>FUSIBLE</del>	<del>6.0 5% 1/6W</del>
R921	1-247-831-00	CARBON 1K 5%	1/6W
R922	1-247-859-00	CARBON 15K 5%	1/6W
R923	1-247-077-00	CARBON 3.3 5%	1/4W
R925	1-249-437-11	CARBON 47K 5%	1/6W
R926	1-247-853-00	CARBON 8.2K 5%	1/6W
R950	1-247-857-00	CARBON 12K 5%	1/6W
R951	1-247-867-00	CARBON 33K 5%	1/6W
<u>VARIABLE RESISTOR</u>			
RV001	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV002	1-228-995-00	RES, ADJ, CARBON 22K	
RV901	1-228-994-00	RES, ADJ, CARBON 10K	
RV902	1-228-998-00	RES, ADJ, METAL GLAZE 220K	
<u>RELAY</u>			
RY901	1-515-418-00	RELAY	
<u>SWITCH</u>			
S001	1-553-997-00	SWITCH, KEY BOARD	
S002	1-553-997-00	SWITCH, KEY BOARD	
S003	1-553-997-00	SWITCH, KEY BOARD	
S004	1-553-997-00	SWITCH, KEY BOARD	
S005	1-553-997-00	SWITCH, KEY BOARD	
S006	1-553-997-00	SWITCH, KEY BOARD	
S007	1-553-997-00	SWITCH, KEY BOARD	
<u>FILTER</u>			
SAWF0011-404-438-00		FILTER, SAW	
<u>TRANSFORMER</u>			
T001	1-404-068-00	COIL, VIF	
T002	1-404-068-00	COIL, VIF	
T003	1-404-427-00	VIFT	
T004	1-404-427-00	VIFT	
T005	1-404-477-00	COIL, IF	
T006	1-404-465-00	COIL, VIF (MOLD TYPE)	
T007	1-404-477-00	COIL, IF	
T008	1-404-619-11	COIL, IF	
T701	1-446-571-00	TRANSFORMER, CONVERTOR	
T901	1-433-275-00	TRANSFORMER, BIAS OSCILLATOR	
<u>TUNER</u>			
<del>TU001</del>	<del>1-463-577-31</del>	<del>TUNER, ET (BT-883AD)</del>	

\*\*\*\*\*

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

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

# TA-37

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
*A-6721-258-A	TA-37	BOARD, COMPLETE (E MODEL)		C077	1-123-381-00	ELECT	2.2MF 20% 50V
		*****		C078	1-161-059-00	CERAMIC	0.047MF 10% 25V
*3-662-227-00	HOLDER (R-3),	LED		C079	1-161-013-00	CERAMIC	0.01MF 10% 25V
*3-674-390-00	HOLDER (B),	LED		C080	1-161-013-00	CERAMIC	0.01MF 10% 25V
	<u>STORAGE BATTERY</u>			C081	1-123-332-00	ELECT	47MF 20% 16V
B701	1-528-175-11	BATTERY, STORAGE		C082	1-123-356-00	ELECT	10MF 20% 50V
	<u>CAPACITOR</u>			C083	1-123-332-00	ELECT	47MF 20% 16V
C001	1-102-529-00	CERAMIC	100PF 5% 50V	C101	1-102-976-00	CERAMIC	180PF 5% 50V
C002	1-102-529-00	CERAMIC	100PF 5% 50V	C102	1-161-013-00	CERAMIC	0.01MF 10% 25V
C003	1-102-947-00	CERAMIC	10PF 5% 50V	C103	1-123-318-00	ELECT	33MF 20% 16V
C004	1-102-523-00	CERAMIC	56PF 5% 50V	C104	1-102-959-00	CERAMIC	22PF 5% 50V
C005	1-161-013-00	CERAMIC	0.01MF 10% 25V	C106	1-102-125-00	CERAMIC	0.0047MF 10% 50V
C006	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C107	1-161-013-00	CERAMIC	0.01MF 10% 25V
C007	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C108	1-161-013-00	CERAMIC	0.01MF 10% 25V
C008	1-102-074-00	CERAMIC	0.001MF 10% 50V	C109	1-102-959-00	CERAMIC	22PF 5% 50V
C009	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C111	1-161-013-00	CERAMIC	0.01MF 10% 25V
C010	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C112	1-161-013-00	CERAMIC	0.01MF 10% 25V
C011	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C113	1-102-959-00	CERAMIC	22PF 5% 50V
C012	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C115	1-161-013-00	CERAMIC	0.01MF 10% 25V
C013	1-123-369-00	ELECT	4.7MF 20% 25V	C116	1-123-380-00	ELECT	1MF 20% 50V
C014	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C117	1-123-333-00	ELECT	100MF 20% 16V
C015	1-161-059-00	CERAMIC	0.047MF 10% 25V	C118	1-161-059-00	CERAMIC	0.047MF 10% 25V
C016	1-102-529-00	CERAMIC	100PF 5% 50V	C201	1-102-123-00	CERAMIC	0.0033MF 10% 50V
C017	1-102-963-00	CERAMIC	33PF 5% 50V	C301	1-123-356-00	ELECT	10MF 20% 50V
C018	1-102-504-00	CERAMIC	4PF 0.25PF 50V	C501	1-123-356-00	ELECT	10MF 20% 16V
C019	1-102-529-00	CERAMIC	100PF 5% 50V	C502	1-123-381-00	ELECT	2.2MF 20% 50V
C020	1-102-504-00	CERAMIC	4PF 0.25PF 50V	C503	1-123-332-00	ELECT	47MF 20% 16V
C021	1-102-963-00	CERAMIC	33PF 5% 50V	C504	1-102-074-00	CERAMIC	0.001MF 10% 50V
C022	1-123-333-00	ELECT	100MF 20% 16V	C505	1-123-369-00	ELECT	4.7MF 20% 25V
C023	1-161-013-00	CERAMIC	0.01MF 10% 25V	C506	1-102-808-00	CERAMIC	6PF 50V
C024	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C508	1-102-816-00	CERAMIC	120PF 5% 50V
C025	1-123-379-00	ELECT	0.47MF 20% 50V	C511	1-123-369-00	ELECT	4.7MF 20% 25V
C058	1-123-333-00	ELECT	100MF 20% 16V	C512	1-123-369-00	ELECT	4.7MF 20% 25V
C059	1-123-333-00	ELECT	100MF 20% 16V	C513	1-161-013-00	CERAMIC	0.01MF 10% 25V
C060	1-123-356-00	ELECT	10MF 20% 16V	C601	1-101-004-00	CERAMIC	0.01MF 50V
C061	1-161-013-00	CERAMIC	0.01MF 10% 25V	C602	1-101-004-00	CERAMIC	0.01MF 50V
C062	1-123-356-00	ELECT	10MF 20% 16V	C603	1-123-356-00	ELECT	10MF 20% 16V
C063	1-102-125-00	CERAMIC	0.0047MF 10% 50V	C604	1-123-382-00	ELECT	3.3MF 20% 50V
C064	1-161-013-00	CERAMIC	0.01MF 10% 25V	G605	1-101-001-00	CERAMIC	0.001MF 50V
C065	1-102-963-00	CERAMIC	33PF 5% 50V	C606	1-101-004-00	CERAMIC	0.01MF 50V
C066	1-130-493-00	MYLAR	0.068MF 5% 50V	C608	1-123-380-00	ELECT	1MF 20% 50V
C067	1-130-493-00	MYLAR	0.068MF 5% 50V	C701	1-123-330-00	ELECT	22MF 20% 16V
C068	1-130-495-00	MYLAR	0.1MF 5% 50V	C702	1-123-330-00	ELECT	22MF 20% 16V
C069	1-102-973-00	CERAMIC	100PF 5% 50V	C703	1-102-121-00	CERAMIC	0.0022MF 10% 50V
C070	1-123-380-00	ELECT	1MF 20% 50V	C704	1-123-381-00	ELECT	2.2MF 20% 50V
C072	1-161-013-00	CERAMIC	0.01MF 10% 25V	C705	1-123-330-00	ELECT	22MF 20% 16V
C073	1-161-047-00	CERAMIC	0.0047MF 20% 25V	C706	1-123-308-00	ELECT	220MF 20% 10V
C074	1-102-116-00	CERAMIC	680PF 10% 50V	C800	1-101-004-00	CERAMIC	0.01MF 50V
C075	1-102-963-00	CERAMIC	33PF 5% 50V	C801	1-130-483-00	MYLAR	0.01MF 5% 50V
C076	1-102-963-00	CERAMIC	33PF 5% 50V	C802	1-136-164-00	MYLAR	0.082MF 5% 50V
				C803	1-161-025-00	CERAMIC	0.1MF 10% 25V
				C901	1-123-332-00	ELECT	47MF 20% 16V
				C902	1-102-111-00	CERAMIC	270PF 10% 50V

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

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>		<u>Remark</u>	<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
C903	1-130-474-00	MYLAR	0.0018MF	5%	50V	D101	8-719-911-19	DIODE 1SS119
C904	1-123-332-00	ELECT	47MF	20%	16V	D301	8-719-000-12	DIODE MC931
C905	1-123-332-00	ELECT	47MF	20%	16V	D302	8-719-911-19	DIODE 1SS119
C906	1-123-369-00	ELECT	4.7MF	20%	25V	D505	8-719-911-19	DIODE 1SS119
C907	1-130-473-00	MYLAR	0.0015MF	5%	50V	D508	8-719-911-19	DIODE 1SS119
C908	1-130-483-00	MYLAR	0.01MF	5%	50V	D601	8-719-911-19	DIODE 1SS119
C909	1-123-332-00	ELECT	47MF	20%	16V	D602	8-719-911-19	DIODE 1SS119
C910	1-123-332-00	ELECT	47MF	20%	16V	D603	8-719-911-19	DIODE 1SS119
C911	1-130-471-00	MYLAR	0.001MF	5%	50V	D604	8-719-911-19	DIODE 1SS119
C912	1-123-332-00	ELECT	47MF	20%	16V	D605	8-719-911-19	DIODE 1SS119
C913	1-123-356-00	ELECT	10MF	20%	16V	D607	8-719-911-19	DIODE 1SS119
C915	1-123-379-00	ELECT	0.47MF	20%	50V	D608	8-719-911-19	DIODE 1SS119
C916	1-123-332-00	ELECT	47MF	20%	16V	D609	8-719-911-19	DIODE 1SS119
C917	1-130-481-00	MYLAR	0.0068MF	5%	50V	D701	8-719-911-19	DIODE 1SS119
C918	1-123-356-00	ELECT	10MF	20%	16V	D702	8-719-911-19	DIODE 1SS119
C919	1-130-477-00	MYLAR	0.0033MF	5%	50V	D703	8-719-100-31	DIODE RD5.1EB3
C920	1-130-479-00	MYLAR	0.0047MF	5%	50V	D704	8-719-911-19	DIODE 1SS119
C921	1-123-332-00	ELECT	47MF	20%	16V	D705	8-719-911-19	DIODE 1SS119
C922	1-130-336-00	FILM	0.0068MF	10%	630V	D706	8-719-911-19	DIODE 1SS119
C923	1-107-080-00	MICA	62PF	5%	50V	D707	8-719-911-19	DIODE 1SS119
C951	1-123-332-00	ELECT	47MF	20%	16V	D901	8-719-000-06	DIODE MC921
<u>DISCRIMINATOR</u>					D902	8-719-911-19	DIODE 1SS119	
CD101	1-404-380-00	DISCRIMINATOR, CERAMIC 5.5MHZ			<u>IC</u>			
<u>FILTER</u>					IC001	8-759-276-07	IC TA7607AP	
CFO03	1-527-822-00	OSCILLATOR, CERAMIC			IC005	8-759-602-16	IC M54572L	
CF101	1-527-263-00	CERAMIC FILTER (5.5MHZ)			IC006	8-759-157-40	IC UPC574J	
<u>CONNECTOR</u>					IC007	8-759-603-11	IC M50160-115SP	
CN001	*1-560-891-00	PIN, CONNECTOR 3P			IC008	8-759-600-66	IC M58653P	
CN002	*1-560-896-00	PIN, CONNECTOR 8P			IC009	8-759-105-50	IC UPD7507SC-D68	
CN003	*1-560-894-00	PIN, CONNECTOR 6P			IC101	8-759-103-70	IC UPC1391HA	
CN004	*1-560-900-00	PIN, CONNECTOR 12P			IC601	8-759-205-76	IC TC504013BP	
CN501	*1-560-892-00	PIN, CONNECTOR 4P			IC901	8-759-101-73	IC UPC1513HA	
CN502	*1-560-896-00	PIN, CONNECTOR 8P			IC902	8-759-802-11	IC LA7091	
CN901	*1-564-030-00	PIN, CONNECTOR 5P			<u>COIL</u>			
CN902	*1-564-033-00	PIN, CONNECTOR 8P			L001	1-408-397-00	MICRO INDUCTOR 10H	
<u>TRIMMER</u>					L002	1-408-397-00	MICRO INDUCTOR 10H	
CT001	1-404-134-00	TRAP, CERAMIC (5.5MHZ)			L003	1-408-406-00	MICRO INDUCTOR 5.6UH	
CT101	1-409-333-00	TRAP, CERAMIC (6.0MHZ)			L004	1-408-406-00	MICRO INDUCTOR 5.6UH	
<u>DIODE</u>					L005	1-408-408-00	MICRO INDUCTOR 8.2UH	
D003	8-719-911-19	DIODE 1SS119			L009	1-408-421-00	MICRO INDUCTOR 100UH	
D004	8-719-911-19	DIODE 1SS119			L101	1-408-406-00	MICRO INDUCTOR 5.6UH	
D005	*8-719-812-33	DIODE TLG123A			L102	1-408-406-00	MICRO INDUCTOR 5.6UH	
D006	8-719-812-31	DIODE TLR123			L103	1-408-413-00	MICRO INDUCTOR 22UH	
D007	8-719-812-31	DIODE TLR123			L104	1-408-412-00	MICRO INDUCTOR 18UH	
D008	8-719-000-12	DIODE MC931			L106	1-408-421-00	MICRO INDUCTOR 100UH	
D009	8-719-812-32	DIODE TLY123			L501	1-408-421-00	MICRO INDUCTOR 100UH	
D010	8-719-200-02	DIODE 10E-2			L502	1-408-417-00	MICRO INDUCTOR 47UH	
					L701	1-407-168-XX	MICRO INDUCTOR 82UH	
					L901	1-407-508-00	MICRO INDUCTOR 22MMH	
					L902	1-407-510-00	MICRO INDUCTOR 27MMH	
					L903	1-410-120-11	MICRO INDUCTOR 1.2MMH	

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

# TA-37

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>VARIABLE INDUCTOR</u>							
LV901	1-408-713-00	VARIABLE INDUCTOR		R003	1-247-815-00	CARBON 220 5% 1/6W	
<u>TRANSISTOR</u>							
Q001	8-729-203-28	TRANSISTOR 2SC2216		R004	1-247-819-00	CARBON 330 5% 1/6W	
<del>Q005</del>	<del>8-729-374-02</del>	<del>TRANSISTOR 2SC2458</del>		R005	1-247-813-00	CARBON 180 5% 1/6W	
Q006	8-729-900-89	TRANSISTOR DTC144ES		R006	1-247-837-00	CARBON 1.8K 5% 1/6W	
Q007	8-729-245-83	TRANSISTOR 2SC2458		R007	1-249-419-11	CARBON 1.5K 5% 1/6W	
Q008	8-729-245-83	TRANSISTOR 2SC2458		R008	1-247-867-00	CARBON 33K 5% 1/6W	
Q009	8-729-245-83	TRANSISTOR 2SC2458		R009	1-247-879-00	CARBON 100K 5% 1/6W	
Q011	8-729-204-83	TRANSISTOR 2SA1048		R010	1-247-879-00	CARBON 100K 5% 1/6W	
Q012	8-729-204-83	TRANSISTOR 2SA1048		R011	1-247-901-00	CARBON 820K 5% 1/6W	
Q013	8-729-900-89	TRANSISTOR DTC144ES		R012	1-247-831-00	CARBON 1K 5% 1/6W	
Q015	8-729-900-89	TRANSISTOR DTC144ES		R013	1-247-813-00	CARBON 180 5% 1/6W	
Q101	8-729-245-83	TRANSISTOR 2SC2458		R042	1-206-670-00	METAL OXIDE 1.8K 5% 2W F	
Q106	8-729-900-74	TRANSISTOR DTC143TS		R043	1-247-847-00	CARBON 4.7K 5% 1/6W	
Q201	8-729-204-83	TRANSISTOR 2SA1048		R044	1-247-831-00	CARBON 1K 5% 1/6W	
Q202	8-729-245-83	TRANSISTOR 2SC2458		R045	1-247-833-00	CARBON 1.2K 5% 1/6W	
Q301	8-729-900-65	TRANSISTOR DTA144ES		R046	1-249-421-11	CARBON 2.2K 5% 1/6W	
Q501	8-729-245-83	TRANSISTOR 2SC2458		R047	1-249-421-11	CARBON 2.2K 5% 1/6W	
Q502	8-729-204-83	TRANSISTOR 2SA1048		R048	1-247-891-00	CARBON 330K 5% 1/6W	
Q503	8-729-117-54	TRANSISTOR 2SA1175		R049	1-247-863-00	CARBON 22K 5% 1/6W	
Q504	8-729-245-83	TRANSISTOR 2SC2458		R050	1-247-863-00	CARBON 22K 5% 1/6W	
Q505	8-729-245-83	TRANSISTOR 2SC2458		R051	1-247-863-00	CARBON 22K 5% 1/6W	
Q506	8-729-245-83	TRANSISTOR 2SC2458		R052	1-247-863-00	CARBON 22K 5% 1/6W	
Q507	8-729-245-83	TRANSISTOR 2SC2458		R053	1-247-863-00	CARBON 22K 5% 1/6W	
Q508	8-729-900-89	TRANSISTOR DTC114ES		R054	1-247-877-00	CARBON 82K 5% 1/6W	
Q509	8-729-204-83	TRANSISTOR 2SA1048		R055	1-247-851-00	CARBON 6.8K 5% 1/6W	
Q601	8-729-900-89	TRANSISTOR DTC144ES		R056	1-247-843-00	CARBON 3.3K 5% 1/6W	
Q602	8-729-245-83	TRANSISTOR 2SC2458		R058	1-247-867-00	CARBON 33K 5% 1/6W	
Q603	8-729-245-83	TRANSISTOR 2SC2458		R059	1-247-863-00	CARBON 22K 5% 1/6W	
Q604	8-729-900-89	TRANSISTOR DTC144ES		R060	1-247-847-00	CARBON 4.7K 5% 1/6W	
Q605	8-729-900-89	TRANSISTOR DTC144ES		R061	1-247-863-00	CARBON 22K 5% 1/6W	
Q606	8-729-245-83	TRANSISTOR 2SC2458		R062	1-247-867-00	CARBON 33K 5% 1/6W	
Q607	8-729-245-83	TRANSISTOR 2SC2458		R063	1-249-429-11	CARBON 10K 5% 1/6W	
Q608	8-729-245-83	TRANSISTOR 2SC2458		R064	1-249-429-11	CARBON 10K 5% 1/6W	
Q609	8-729-245-83	TRANSISTOR 2SC2458		R065	1-249-429-11	CARBON 10K 5% 1/6W	
Q610	8-729-900-89	TRANSISTOR DTC144ES		R066	1-249-429-11	CARBON 10K 5% 1/6W	
Q701	8-729-177-32	TRANSISTOR 2SD773		R067	1-247-903-00	CARBON 1M 5% 1/6W	
Q702	8-729-245-83	TRANSISTOR 2SC2458		R068	1-247-831-00	CARBON 1K 5% 1/6W	
Q703	8-729-900-80	TRANSISTOR DTC114ES		R070	1-247-853-00	CARBON 8.2K 5% 1/6W	
Q704	8-729-204-83	TRANSISTOR 2SA1048		R071	1-249-437-11	CARBON 47K 5% 1/6W	
Q800	8-729-900-89	TRANSISTOR DTC144ES		R072	1-249-437-11	CARBON 47K 5% 1/6W	
Q802	8-729-900-89	TRANSISTOR DTC144ES		R073	1-249-437-11	CARBON 47K 5% 1/6W	
Q901	8-729-900-89	TRANSISTOR DTC144ES		R074	1-247-833-00	CARBON 1.2K 5% 1/6W	
Q904	8-729-245-83	TRANSISTOR 2SC2458		R076	1-249-419-11	CARBON 1.5K 5% 1/6W	
Q906	8-729-177-43	TRANSISTOR 2SD774		R077	1-247-847-00	CARBON 4.7K 5% 1/6W	
Q907	8-729-245-83	TRANSISTOR 2SC2458		R101	1-247-807-00	CARBON 100 5% 1/6W	
<u>RESISTOR</u>							
R001	1-249-421-11	CARBON 2.2K 5%	1/6W	R102	1-247-817-00	CARBON 270 5% 1/6W	
R002	1-247-847-00	CARBON 4.7K 5%	1/6W	R103	1-247-815-00	CARBON 220 5% 1/6W	
				R104	1-247-829-00	CARBON 820 5% 1/6W	
				R105	1-247-819-00	CARBON 330 5% 1/6W	
				R108	1-247-847-00	CARBON 4.7K 5% 1/6W	
				R109	1-247-863-00	CARBON 22K 5% 1/6W	
				R110	1-247-831-00	CARBON 1K 5% 1/6W	
				R111	1-247-815-00	CARBON 220 5% 1/6W	

The components identified by shading and mark  $\Delta$  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	Ref.No	Part No.	Description	Remark
R113	1-247-831-00	CARBON	1K 5% 1/6W	R701	1-247-791-00	CARBON	22 5% 1/6W
R115	1-249-437-11	CARBON	47K 5% 1/6W	R702	1-247-831-00	CARBON	1K 5% 1/6W
R116	1-247-891-00	CARBON	330K 5% 1/6W	R703	1-247-831-00	CARBON	1K 5% 1/6W
R201	1-247-819-00	CARBON	330 5% 1/6W	R704	1-247-831-00	CARBON	1K 5% 1/6W
R202	1-247-887-00	CARBON	220K 5% 1/6W	R705	1-247-831-00	CARBON	1K 5% 1/6W
R203	1-247-845-00	CARBON	3.9K 5% 1/6W	R706	1-249-429-11	CARBON	10K 5% 1/6W
R204	1-247-827-00	CARBON	680 5% 1/6W	R707	1-249-429-11	CARBON	10K 5% 1/6W
R205	1-247-825-00	CARBON	560 5% 1/6W	R800	1-247-847-00	CARBON	4.7K 5% 1/6W
R301	1-249-429-11	CARBON	10K 5% 1/6W	R801	1-247-847-00	CARBON	4.7K 5% 1/6W
R302	1-249-429-11	CARBON	10K 5% 1/6W	R802	1-247-853-51	FUSIBLE	6.0 5% 1/4W F
R303	1-247-849-00	CARBON	5.6K 5% 1/6W	R805	1-249-429-11	CARBON	10K 5% 1/6W
R501	1-249-429-11	CARBON	10K 5% 1/6W	R806	1-247-843-00	CARBON	3.3K 5% 1/6W
R503	1-247-825-00	CARBON	560 5% 1/6W	R820	1-247-869-00	CARBON	39K 5% 1/6W
R504	1-249-429-11	CARBON	10K 5% 1/6W	R821	1-247-861-00	CARBON	18K 5% 1/6W
R505	1-247-847-00	CARBON	4.7K 5% 1/6W	R901	1-249-429-11	CARBON	10K 5% 1/6W
R507	1-247-833-00	CARBON	1.2K 5% 1/6W	R902	1-247-783-00	CARBON	10 5% 1/6W
R508	1-247-831-00	CARBON	1K 5% 1/6W	R903	1-247-859-00	CARBON	15K 5% 1/6W
R509	1-247-849-00	CARBON	5.6K 5% 1/6W	R904	1-247-831-00	CARBON	1K 5% 1/6W
R510	1-247-847-00	CARBON	4.7K 5% 1/6W	R905	1-247-821-00	CARBON	390 5% 1/6W
R511	1-249-429-11	CARBON	10K 5% 1/6W	R906	1-247-861-00	CARBON	18K 5% 1/6W
R512	1-247-857-00	CARBON	12K 5% 1/6W	R907	1-247-885-00	CARBON	180K 5% 1/6W
R513	1-247-831-00	CARBON	1K 5% 1/6W	R908	1-249-429-11	CARBON	10K 5% 1/6W
R514	1-247-807-00	CARBON	100 5% 1/6W	R909	1-247-867-00	CARBON	33K 5% 1/6W
R516	1-247-815-00	CARBON	220 5% 1/6W	R912	1-247-899-00	CARBON	680K 5% 1/6W
R517	1-247-825-00	CARBON	560 5% 1/6W	R913	1-247-867-00	CARBON	33K 5% 1/6W
R519	1-247-815-00	CARBON	220 5% 1/6W	R914	1-247-829-00	CARBON	820 5% 1/6W
R523	1-247-847-00	CARBON	4.7K 5% 1/6W	R915	1-249-429-11	CARBON	10K 5% 1/6W
R524	1-247-807-00	CARBON	100 5% 1/6W	R916	1-247-831-00	CARBON	1K 5% 1/6W
R525	1-247-831-00	CARBON	1K 5% 1/6W	R917	1-247-807-00	CARBON	100 5% 1/6W
R526	1-247-837-00	CARBON	1.8K 5% 1/6W	R919	1-212-853-51	FUSIBLE	6.0 5% 1/4W F
R527	1-247-807-00	CARBON	100 5% 1/6W	R921	1-247-831-00	CARBON	1K 5% 1/6W
R550	1-247-799-00	CARBON	47 5% 1/6W	R922	1-247-859-00	CARBON	15K 5% 1/6W
R601	1-249-429-11	CARBON	10K 5% 1/6W	R923	1-247-077-00	CARBON	3.3 5% 1/4W
R602	1-249-429-11	CARBON	10K 5% 1/6W	R925	1-249-437-11	CARBON	47K 5% 1/6W
R603	1-249-429-11	CARBON	10K 5% 1/6W	R926	1-247-853-00	CARBON	8.2K 5% 1/6W
R604	1-249-429-11	CARBON	10K 5% 1/6W	R950	1-247-857-00	CARBON	12K 5% 1/6W
R605	1-249-429-11	CARBON	10K 5% 1/6W	R951	1-247-867-00	CARBON	33K 5% 1/6W
R606	1-249-429-11	CARBON	10K 5% 1/6W				
R607	1-249-429-11	CARBON	10K 5% 1/6W				
R608	1-249-429-11	CARBON	10K 5% 1/6W				
R609	1-247-849-00	CARBON	5.6K 5% 1/6W				
R610	1-247-867-00	CARBON	33K 5% 1/6W				
R611	1-247-867-00	CARBON	33K 5% 1/6W				
R612	1-247-843-00	CARBON	3.3K 5% 1/6W				
R613	1-249-429-11	CARBON	10K 5% 1/6W				
R614	1-247-861-00	CARBON	18K 5% 1/6W				
R615	1-247-869-00	CARBON	39K 5% 1/6W				
R616	1-249-421-11	CARBON	2.2K 5% 1/6W				
R617	1-249-437-11	CARBON	47K 5% 1/6W				
R618	1-249-429-11	CARBON	10K 5% 1/6W				
R619	1-247-847-00	CARBON	4.7K 5% 1/6W				
R620	1-249-429-11	CARBON	10K 5% 1/6W				
R622	1-249-429-11	CARBON	10K 5% 1/6W				

**VARIABLE RESISTOR**

- RV001 1-228-993-00 RES, ADJ, CARBON 4.7K
- RV901 1-228-994-00 RES, ADJ, CARBON 10K
- RV902 1-228-998-00 RES, ADJ, METAL GLAZE 220K

**RELAY**

- RV901 1-515-418-00 RELAY

**SWITCH**

- S001 1-553-997-00 SWITCH, KEY BOARD
- S002 1-553-997-00 SWITCH, KEY BOARD
- S003 1-553-997-00 SWITCH, KEY BOARD
- S004 1-553-997-00 SWITCH, KEY BOARD
- S005 1-553-997-00 SWITCH, KEY BOARD

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

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

# TA-37

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
S006	1-553-997-00	SWITCH, KEY BOARD	
S007	1-553-997-00	SWITCH, KEY BOARD	
<u>SAWF</u>			
SAWF1011	404-563-11	SAWF	
<u>TRANSFORMER</u>			
T001	1-404-068-00	COIL, VIF	
T002	1-404-068-00	COIL, VIF	
T003	1-404-427-00	VIFT	
T004	1-404-427-00	VIFT	
T101	1-404-428-00	VIFT	
T701	1-446-571-00	TRANSFORMER, CONVERTOR	
T901	1-433-275-00	TRANSFORMER, BIAS OSCILLATOR	
<u>TUNER</u>			
<del>TU001</del>	<del>1-404-584-01</del>	<del>TUNER, CT (0720040)</del>	

\*\*\*\*\*

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

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

**LM-17****PW-15****US-1****LS-11****FL-8****FL-9**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	*1-616-601-11	LM-17 BOARD *****					
		<u>CAPACITOR</u>					
C1	1-161-057-00	CERAMIC 0.033MF	20% 25V	C001	1-123-356-00	ELECT 10MF	20% 16V
C2	1-161-057-00	CERAMIC 0.033MF	20% 25V			<u>CONNECTOR</u>	
		<u>COIL</u>		CN001	*1-564-016-00	PIN, CONNECTOR 6P	
L1	1-408-120-00	MICRO INDUCTOR 18UH		CN002	*1-564-001-11	PIN, CONNECTOR 2P	
L2	1-408-120-00	MICRO INDUCTOR 18UH				<u>COMPOSITION CIRCUIT BLOCK</u>	
*****				CP001	1-232-957-11	COMPOSITION CIRCUIT BLOCK	
	*1-617-041-11	PW-15 BOARD *****		CP002	1-232-816-11	COMPOSITION CIRCUIT BLOCK	
	*3-697-646-01	HOLDER (PW), LED				<u>DIODE</u>	
		<u>DIODE</u>		D001	8-719-906-49	DIODE LT-9230N	
D101	*8-719-812-33	DIODE TLG123A		D002	*8-719-812-33	DIODE TLG123A	
		<u>RESISTOR</u>				<u>INDICATOR TUBE</u>	
R101	1-246-465-00	CARBON 470 5% 1/4W		FL001	1-519-366-11	INDICATOR TUBE, FLUORESCENT	
		<u>VARIABLE RESISTOR</u>				<u>IC</u>	
RV101	1-230-856-11	RES, VAR, CARBON 50K/50K		IC001	8-741-131-70	IC BX-1317	
		<u>SWITCH</u>				<u>RESISTOR</u>	
SW101	1-554-174-00	SWITCH, KEY BOARD		R001	1-249-437-11	CARBON 47K 5% 1/6W	
*****				R003	1-247-801-00	CARBON 56 5% 1/6W	
	*1-616-598-11	US-1 BOARD *****		R004	1-247-813-00	CARBON 180 5% 1/6W	
*****				R005	1-247-813-00	CARBON 180 5% 1/6W	
	*1-616-600-11	LS-11 BOARD *****		R006	1-249-421-11	CARBON 2.2K 5% 1/6W	
		<u>CAPACITOR</u>		R007	1-249-421-11	CARBON 2.2K 5% 1/6W	
C001	1-161-057-00	CERAMIC 0.033MF	20% 25V			<u>VARIABLE RESISTOR</u>	
C002	1-161-057-00	CERAMIC 0.033MF	20% 25V	RV001	1-230-986-11	RES, VAR, SLIDE 20K/20K	
		<u>COIL</u>		RV002	1-228-994-00	RES, ADJ, CARBON 10K	
L001	1-408-120-00	MICRO INDUCTOR 18UH		RV003	1-228-994-00	RES, ADJ, CARBON 10K	
L002	1-408-120-00	MICRO INDUCTOR 18UH				<u>SWITCH</u>	
*****				S001	1-554-174-00	SWITCH, KEY BOARD	
	*A-6724-466-A	FL-8 BOARD, COMPLETE *****		S002	1-554-174-00	SWITCH, KEY BOARD	
	*3-697-607-01	HOLDER (SU), LED		S003	1-554-174-00	SWITCH, KEY BOARD	
	*3-697-648-01	HOLDER, INDICATION TUBE		S004	1-554-174-00	SWITCH, KEY BOARD	
				S005	1-554-174-00	SWITCH, KEY BOARD	
				S006	1-554-174-00	SWITCH, KEY BOARD	
*****							
				*A-6724-467-A	FL-9 BOARD, COMPLETE *****		
						<u>CAPACITOR</u>	
				C102	1-123-617-00	ELECT 10MF	20% 16V
				C103	1-123-617-00	ELECT 10MF	20% 16V
				C104	1-102-508-00	CERAMIC 10PF	0.5PF 50V

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



**FL-9****FR-20**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C105	1-161-025-00	CERAMIC 0.1MF 10%	25V	D002	8-719-911-19	DIODE 1SS119	
<u>CONNECTOR</u>				D003	8-719-911-19	DIODE 1SS119	
CN101	*1-564-003-00	PIN, CONNECTOR 4P		D004	8-719-911-19	DIODE 1SS119	
CN102	*1-564-011-11	PIN, CONNECTOR 12P		D005	8-719-911-19	DIODE 1SS119	
<u>COMPOSITION CIRCUIT BLOCK</u>				D006	8-719-911-19	DIODE 1SS119	
CP101	1-232-967-11	COMPOSITION CIRCUIT BLOCK		D007	8-719-911-19	DIODE 1SS119	
<u>TRIMMER</u>				D008	*8-719-812-33	DIODE TLG123A	
CV101	1-141-022-11	CAP, TRIMMER, CERAMIC		D009	8-719-812-31	DIODE TLR123	
<u>DIODE</u>				D010	8-719-812-31	DIODE TLR123	
D102	8-719-100-54	DIODE RD9.1E-B2		D011	8-719-812-31	DIODE TLR123	
<u>IC</u>				D012	8-719-812-30	DIODE TL0123	
IC101	8-752-800-26	IC CXP5016-104S		D013	8-719-812-32	DIODE TLY123	
IC102	8-759-913-41	IC S-8054ALB		D014	8-719-812-32	DIODE TLY123	
<u>TRANSISTOR</u>				D015	*8-719-812-33	DIODE TLG123A	
Q102	8-729-900-80	TRANSISTOR DTC114ES		D016	*8-719-812-33	DIODE TLG123A	
Q103	8-729-900-80	TRANSISTOR DTC114ES		D017	*8-719-812-33	DIODE TLG123A	
<u>RESISTOR</u>				D018	*8-719-812-33	DIODE TLG123A	
R104	1-249-429-11	CARBON 10K 5% 1/6W		D019	*8-719-812-33	DIODE TLG123A	
R107	1-247-843-00	CARBON 3.3K 5% 1/6W		D020	*8-719-812-33	DIODE TLG123A	
R109	1-247-879-00	CARBON 100K 5% 1/6W		D021	*8-719-812-33	DIODE TLG123A	
<u>CRYSTAL</u>				D022	*8-719-812-33	DIODE TLG123A	
X101	1-567-519-11	VIBRATOR, CRYSTAL (4.194304MHZ)		D023	*8-719-812-33	DIODE TLG123A	
*****				D024	*8-719-812-33	DIODE TLG123A	
*A-6725-469-A	FR-20 BOARD, COMPLETE	*****		D025	8-719-911-19	DIODE 1SS119	
*3-684-005-01	HOLDER (S), LED			D026	8-719-911-19	DIODE 1SS119	
*3-697-663-01	HOLDER (FR), LED			D027	8-719-911-19	DIODE 1SS119	
<u>CAPACITOR</u>				D028	8-719-911-19	DIODE 1SS119	
C001	1-161-025-00	CERAMIC 0.1MF 10%	25V	D029	8-719-911-19	DIODE 1SS119	
C002	1-161-025-00	CERAMIC 0.1MF 10%	25V	D030	8-719-911-19	DIODE 1SS119	
C003	1-102-518-00	CERAMIC 33PF 5%	50V	D031	8-719-911-19	DIODE 1SS119	
C004	1-102-518-00	CERAMIC 33PF 5%	50V	D032	8-719-911-19	DIODE 1SS119	
<u>CONNECTOR</u>				D033	8-719-911-19	DIODE 1SS119	
CN004	*1-564-016-00	PIN, CONNECTOR 6P		D034	8-719-911-19	DIODE 1SS119	
CN005	*1-564-013-00	PIN, CONNECTOR 3P		D035	8-719-911-19	DIODE 1SS119	
CN006	*1-564-013-00	PIN, CONNECTOR 3P		D036	8-719-911-19	DIODE 1SS119	
<u>DIODE</u>				<u>IC</u>			
D001	8-719-911-19	DIODE 1SS119		IC001	8-759-105-54	IC UPD7508HG-536-22	
				IC002	8-759-901-38	IC SN74LS138N	
				<u>TRANSISTOR</u>			
				Q001	8-729-245-83	TRANSISTOR 2SC2458	
				Q002	8-729-245-83	TRANSISTOR 2SC2458	
				Q003	8-729-902-11	TRANSISTOR 2SC2021	
				Q004	8-729-902-11	TRANSISTOR 2SC2021	
				Q005	8-729-245-83	TRANSISTOR 2SC2458	
				Q006	8-729-245-83	TRANSISTOR 2SC2458	
				Q007	8-729-245-83	TRANSISTOR 2SC2458	
				Q008	8-729-245-83	TRANSISTOR 2SC2458	
				Q009	8-729-117-54	TRANSISTOR 2SA1175-F	
				Q104	8-729-900-61	TRANSISTOR DTA114ES	

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

FR-20

RD-17

HP-18

MC-10

PJ-3

OC-1

Ref.No	Part No.	Description	Remark
<u>RESISTOR</u>			
R004	1-249-437-11	CARBON 47K 5% 1/6W	
R005	1-247-873-00	CARBON 56K 5% 1/6W	
R006	1-249-437-11	CARBON 47K 5% 1/6W	
R007	1-247-873-00	CARBON 56K 5% 1/6W	
R008	1-247-843-00	CARBON 3.3K 5% 1/6W	
R009	1-247-879-00	CARBON 100K 5% 1/6W	
R018	1-247-879-00	CARBON 100K 5% 1/6W	
R019	1-247-879-00	CARBON 100K 5% 1/6W	
R020	1-247-879-00	CARBON 100K 5% 1/6W	
R021	1-247-879-00	CARBON 100K 5% 1/6W	
R022	1-247-879-00	CARBON 100K 5% 1/6W	
R023	1-247-879-00	CARBON 100K 5% 1/6W	
R024	1-247-879-00	CARBON 100K 5% 1/6W	
R025	1-247-805-00	CARBON 82 5% 1/6W	
R026	1-247-805-00	CARBON 82 5% 1/6W	
R027	1-247-805-00	CARBON 82 5% 1/6W	
R028	1-247-805-00	CARBON 82 5% 1/6W	
R029	1-247-805-00	CARBON 82 5% 1/6W	
R030	1-247-805-00	CARBON 82 5% 1/6W	
R031	1-247-805-00	CARBON 82 5% 1/6W	
R032	1-247-809-00	CARBON 120 5% 1/6W	
R033	1-247-825-00	CARBON 560 5% 1/6W	
R034	1-247-825-00	CARBON 560 5% 1/6W	
R035	1-249-421-11	CARBON 2.2K 5% 1/6W	
R036	1-247-859-00	CARBON 15K 5% 1/6W	
R037	1-247-843-00	CARBON 3.3K 5% 1/6W	
<u>VARIABLE RESISTOR</u>			
RV001	1-230-431-11	RES, VAR, CARBON 100K	
RV002	1-230-430-11	RES, VAR, CARBON 10K	
RV003	1-230-430-11	RES, VAR, CARBON 10K	
<u>SWITCH</u>			
S001	1-553-716-00	SWITCH, SLIDE	
S002	1-553-754-00	SWITCH, SLIDE	
S003	1-553-716-00	SWITCH, SLIDE	
S004	1-553-754-00	SWITCH, SLIDE	
S005	1-553-716-00	SWITCH, SLIDE	
S006	1-553-754-00	SWITCH, SLIDE	
S007	1-553-716-00	SWITCH, SLIDE	
S008	1-553-716-00	SWITCH, SLIDE	
S009	1-553-716-00	SWITCH, SLIDE	
S010	1-553-754-00	SWITCH, SLIDE	
S011	1-554-174-00	SWITCH, KEY BOARD	
S012	1-554-174-00	SWITCH, KEY BOARD	
S013	1-554-174-00	SWITCH, KEY BOARD	
S014	1-554-174-00	SWITCH, KEY BOARD	
S015	1-554-174-00	SWITCH, KEY BOARD	
S016	1-554-174-00	SWITCH, KEY BOARD	
S017	1-554-174-00	SWITCH, KEY BOARD	
S018	1-554-174-00	SWITCH, KEY BOARD	
S019	1-554-174-00	SWITCH, KEY BOARD	
S020	1-554-174-00	SWITCH, KEY BOARD	
S021	1-554-174-00	SWITCH, KEY BOARD	
S022	1-554-174-00	SWITCH, KEY BOARD	
S023	1-554-174-00	SWITCH, KEY BOARD	
S024	1-554-174-00	SWITCH, KEY BOARD	
S025	1-554-174-00	SWITCH, KEY BOARD	
S026	1-554-174-00	SWITCH, KEY BOARD	
S027	1-554-174-00	SWITCH, KEY BOARD	
S028	1-554-174-00	SWITCH, KEY BOARD	

Ref.No	Part No.	Description	Remark
S029	1-554-174-00	SWITCH, KEY BOARD	
S030	1-554-174-00	SWITCH, KEY BOARD	
S031	1-554-174-00	SWITCH, KEY BOARD	
S032	1-554-174-00	SWITCH, KEY BOARD	
S033	1-554-174-00	SWITCH, KEY BOARD	
S034	1-554-174-00	SWITCH, KEY BOARD	
S035	1-554-174-00	SWITCH, KEY BOARD	
S037	1-554-174-00	SWITCH, KEY BOARD	
S038	1-554-174-00	SWITCH, KEY BOARD	
<u>CRYSTAL</u>			
X001	1-527-822-00	OSCILLATOR, CERAMIC (4MHz)	
*****			
	*1-616-599-11	RD-17 BOARD	*****
	*3-696-392-01	HOLDER, PI	
<u>DIODE</u>			
PC001	8-719-751-42	DIODE NJL5141E	
PC002	8-719-751-42	DIODE NJL5141E	
*****			
	*1-617-042-11	HP-18 BOARD	*****
<u>JACK</u>			
J001	1-507-796-21	JACK	
*****			
	*1-617-043-11	MC-10 BOARD	*****
<u>JACK</u>			
J901	1-507-678-00	JACK	
<u>RESISTOR</u>			
R102	1-247-831-00	CARBON 1K 5% 1/6W	
R103	1-247-879-00	CARBON 100K 5% 1/6W	
*****			
	*1-617-034-11	PJ-3 BOARD	*****
	1-507-907-11	JACK, PIN 4P	
*****			
	*1-616-602-11	OC-1 BOARD	*****
<u>MICRO SWITCH</u>			
MS-1	1-570-424-11	SWITCH, MICRO	
MS-2	1-570-424-11	SWITCH, MICRO	
*****			

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

# POWER BLOCK

Ref. No.	Part No.	Description	Remark
*****			
M BOARD, COMPLETE *****			
*****			
CAPACITOR			
*****			
C609	1-125-352-00	ELECT	180MF 400V
C611	1-124-023-00	ELECT	4.7MF 350V
C612	1-124-162-00	ELECT	47MF 10V
C613	1-124-162-00	ELECT	47MF 10V
C621	1-106-347-00	FILM	0.0015MF 200V
C622	1-106-347-00	FILM	0.0015MF 200V
C623	1-161-910-00	CERAMIC	390PF 500V
C624	1-161-910-00	CERAMIC	390PF 500V
C625	1-161-915-00	CERAMIC	0.001MF 500V
C626	1-136-153-00	FILM	0.01MF 50V
C627	1-136-157-00	FILM	0.022MF 50V
C628	1-123-385-00	ELECT	22MF 100V
C630	1-124-597-11	ELECT	2200MF 16V
C631	1-136-157-00	FILM	0.022MF 50V
CONNECTOR			
CN620	1-508-847-00	PIN, CONNECTOR 4P	
DIODE			
D601	8-719-300-63	DIODE LB156	
D621	8-719-908-00	DIODE ESAC33-02C5	
D622	8-719-900-93	DIODE V09C	
D623	8-719-815-85	DIODE 1S1585	
D624	8-719-100-61	DIODE RD11EB2	
D625	8-719-100-44	DIODE RD7.5EB2	
D626	8-719-100-50	DIODE RD9.1EB1	
D641	8-719-900-93	DIODE V09C	
FERRITE BEAD			
FB621	1-543-060-00	BEAD, FERRITE	
FB622	1-543-060-00	BEAD, FERRITE	
FB623	1-543-060-00	BEAD, FERRITE	
FB624	1-543-060-00	BEAD, FERRITE	

Ref. No.	Part No.	Description	Remark
COIL			
*****			
L621	1-421-791-11	COIL, CHOKE 2MH	
TRANSISTOR			
Q601	8-729-104-66	TRANSISTOR 2SC3158	
Q602	8-729-104-66	TRANSISTOR 2SC3158	
Q603	8-729-100-13	TRANSISTOR 2SC2001	
Q604	8-729-100-13	TRANSISTOR 2SC2001	
Q621	8-729-306-72	TRANSISTOR 2SD667A	
Q622	8-729-245-83	TRANSISTOR 2SC2458	
RESISTOR			
R602	1-205-783-11	WIRE WOUND	2.2 5W F
R603	1-246-528-00	CARBON	200K 1/4W
R604	1-246-528-00	CARBON	200K 1/4W
R605	1-246-528-00	CARBON	200K 1/4W
R606	1-246-528-00	CARBON	200K 1/4W
*****			
R609	1-247-700-11	CARBON	100 1/4W
R610	1-247-700-11	CARBON	100 1/4W
*****			
R621	1-206-475-11	METAL OXIDE	33 2W F
R622	1-535-363-00	SHUNT	0.02 2W
R623	1-247-143-00	CARBON	3.3K 1/4W
R624	1-247-713-11	CARBON	1K 1/4W
R625	1-247-700-11	CARBON	100 1/4W
*****			
R626	1-213-157-11	METAL OXIDE	15K 1W F
R627	1-247-713-11	CARBON	1K 1/4W
R628	1-247-717-11	CARBON	2.2K 1/4W
R629	1-249-455-11	CARBON	4.7 1/4W
R630	1-247-702-11	CARBON	150 1/4W
TRANSFORMER			
*****			
CN BOARD, COMPLETE *****			
*****			
CAPACITOR			
C636	1-123-330-00	ELECT	22MF 25V
C637	1-123-323-00	ELECT	470MF 16V
C638	1-124-555-00	ELECT	1000MF 16V
C639	1-123-323-00	ELECT	470MF 16V
C641	1-123-333-00	ELECT	100MF 25V
C642	1-123-333-00	ELECT	100MF 25V
C643	1-123-357-00	ELECT	22MF 50V
C644	1-123-357-00	ELECT	22MF 50V
C645	1-123-356-00	ELECT	10MF 50V
C646	1-123-357-00	ELECT	22MF 50V

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

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

# POWER BLOCK

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
<u>CONNECTOR</u>							
CN1	*1-564-163-00	PIN, CONNECTOR 6P		<u>C BOARD</u> *****			
CN001	*1-560-894-00	PIN, CONNECTOR 6P		<u>CAPACITOR</u>			
CN002	*1-560-893-00	PIN, CONNECTOR 5P		C1	1-123-333-00	ELECT 100MF 25V	
CN003	*1-560-891-00	PIN, CONNECTOR 3P		C2	1-130-150-00	FILM 0.0056MF 50V	
CN004	*1-560-892-00	PIN, CONNECTOR 4P		C3	1-136-159-00	FILM 0.033MF 50V	
CN005	*1-560-896-00	PIN, CONNECTOR 8P		C4	1-136-145-00	FILM 0.0022MF 50V	
<u>DIODE</u>				C5	1-123-318-00	ELECT 33MF 16V	
D630	8-719-101-04	DIODE RD33EB2		<u>DIODE</u>			
D631	8-719-911-19	DIODE 1SS119		D1	8-719-200-02	DIODE 10E-2	
D636	8-719-911-19	DIODE 1SS119		D2	8-719-100-67	DIODE RD13EB1	
D637	8-719-911-19	DIODE 1SS119		<u>IC</u>			
D638	8-719-100-40	DIODE RD6.8EB1		IC1	8-759-937-59	IC MB-3759	
D639	8-719-911-19	DIODE 1SS119		<u>RESISTOR</u>			
D640	8-719-100-38	DIODE RD6.2EB2		R1	1-247-825-00	CARBON 560 1/6W	
<u>COIL</u>				R2	1-247-867-00	CARBON 33K 1/6W	
L622	1-421-421-00	COIL, CHOKE 100μH		R3	1-247-843-00	CARBON 3.3K 1/6W	
L623	1-421-421-00	COIL, CHOKE 100μH		R4	1-247-831-00	CARBON 1K 1/6W	
L624	1-408-933-00	COIL, CHOKE 10μH		R5	1-247-849-00	CARBON 5.6K 1/6W	
<u>TRANSISTOR</u>				R6	1-249-421-11	CARBON 2.2K 1/6W	
Q623	8-729-245-83	TRANSISTOR 2SC2458-GR		R7	1-247-841-00	CARBON 2.7K 1/6W	
Q624	8-729-204-83	TRANSISTOR 2SA1048-GR		R8	1-247-836-00	CARBON 1.6K 1/6W (STANDARD)	
Q626	8-729-188-23	TRANSISTOR 2SD882			1-249-419-11	CARBON 1.5K 1/6W (ADJUST)	
Q627	8-729-188-23	TRANSISTOR 2SD882			1-247-837-00	CARBON 1.8K 1/6W (ADJUST)	
Q628	8-729-245-83	TRANSISTOR 2SC2458-GR		R9	1-247-861-00	CARBON 18K 1/6W	
<u>RESISTOR</u>				R10	1-247-700-11	CARBON 100 1/4W	
R640	1-247-159-00	CARBON 15K 1/4W		<u>VARIABLE RESISTOR</u>			
R641	1-247-147-00	CARBON 4.7K 1/4W		RV1	1-228-141-00	RES, ADJ, METAL GLAZE 500	
R642	1-247-147-00	CARBON 4.7K 1/4W		*****			
R643	1-247-141-00	CARBON 2.7K 1/4W		*1-616-114-11 D BOARD *****			
R644	1-247-143-00	CARBON 3.3K 1/4W		<u>CAPACITOR</u>			
R645	1-247-134-00	CARBON 1.3K 1/4W		C21	1-136-150-00	FILM 0.0056MF 50V	
R646	1-247-155-00	CARBON 10K 1/4W		C22	1-123-356-00	ELECT 10MF 50V	
R647	1-247-147-00	CARBON 4.7K 1/4W		C23	1-161-915-00	CERAMIC 0.001MF 500V	
R650	1-205-724-11	CEMENT-COATED 22 5W	F	C24	1-123-333-00	ELECT 100MF 25V	
R651	1-247-129-00	CARBON 820 1/4W		C25	1-136-165-00	FILM 0.1MF 50V	
R652	1-205-789-11	CEMENT-COATED 1.8 5W	F	C26	1-136-165-00	FILM 0.1MF 50V	
R654	1-247-133-00	CARBON 1.2K 1/4W		C27	1-123-357-00	ELECT 22MF 50V	
R655	1-247-141-00	CARBON 2.7K 1/4W		C28	1-123-357-00	ELECT 22MF 50V	
R6				<u>CONNECTOR</u>			
<u>VARIABLE RESISTOR</u>				CN21	1-564-163-00	PIN, CONNECTOR 6P	
RV621	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K		<u>DIODE</u>			
<u>RELAY</u>				D21	8-719-815-85	DIODE 1S1585	
RY621	1-515-462-00	RELAY		D22	8-719-815-85	DIODE 1S1585	
*****				D23	8-719-815-85	DIODE 1S1585	

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

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

# POWER BLOCK

Ref. No.	Part No.	Description	Remark
<u>IC</u>			
IC21	8-759-937-59	IC MB3759	
<u>COIL</u>			
L21	1-421-550-00	COIL, CHOKE 66 $\mu$ H	
L22	1-421-421-00	COIL, CHOKE 100 $\mu$ H	
L23	1-408-421-00	MICRO INDUCTOR 100 $\mu$ H	
L24	1-408-421-00	MICRO INDUCTOR 100 $\mu$ H	
L25	1-408-427-00	MICRO INDUCTOR 330 $\mu$ H	
L26	1-408-427-00	MICRO INDUCTOR 330 $\mu$ H	
<u>IC LINK</u>			

~~PS21 A1-832-671-11 LINK IC~~

<u>TRANSISTOR</u>			
Q21	8-729-177-43	TRANSISTOR 2SD774	
Q22	8-729-177-43	TRANSISTOR 2SD774	

<u>RESISTOR</u>				
<del>R21</del>	<del>A1-247-813-61</del>	<del>CARBON</del>	<del>100</del>	<del>1/6W</del>
R22	1-247-807-00	CARBON	100	1/6W
R23	1-247-807-00	CARBON	100	1/6W
R24	1-247-837-00	CARBON	1.8K	1/6W (STANDARD)
	1-249-419-11	CARBON	1.5K	1/6W (ADJUST)
	1-249-421-11	CARBON	2.2K	1/6W (ADJUST)
R25	1-247-859-00	CARBON	15K	1/6W
R26	1-247-869-00	CARBON	39K	1/6W
R27	1-247-811-00	CARBON	150	1/6W
R28	1-247-887-00	CARBON	220K	1/6W
R29	1-247-831-00	CARBON	1K	1/6W

<u>VARIABLE RESISTOR</u>		
RV21	1-228-644-00	RES. ADJ, METAL GLAZE 1K

<u>TRANSFORMER</u>		
T21	1-448-269-11	TRANSFORMER, DC-DC CONVERTER

~~A1-616-498-11 P BOARD~~  
\*\*\*\*\*

~~A1-545-176-11 WELDER FUSE~~  
~~A1-533-343-11 TERMINAL, PIN, AC CORD~~

<u>CAPACITOR</u>			
<del>CG01</del>	<del>A1-138-416-11</del>	<del>SIEM</del>	<del>0.22MF 250V</del>

<u>FUSE</u>			
<del>FG01</del>	<del>A1-532-237-11</del>	<del>FUSE, TIME LAG, T3, 15A</del>	<del>250V</del>

<u>RESISTOR</u>			
<del>RG01</del>	<del>A1-211-347-21</del>	<del>METAL</del>	<del>2.7M 1/2W</del>

The components identified by shading and mark **A** 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
MISCELLANEOUS *****			
		<del>A1-421-550-00</del>	
		<del>A1-421-421-00</del>	
		<del>A1-408-421-00</del>	
		<del>A1-408-421-00</del>	
		<del>A1-408-427-00</del>	
		<del>A1-408-427-00</del>	
		1-464-526-12	T COIL SENSOR
		1-464-527-13	S COIL SENSOR
		*1-555-110-00	CABLE, PIN
		8-825-508-10	HEAD, FE
M902	8-838-096-01	MOTOR, DC (BHF-1914A) (CAPSTAN MOTOR)	
M904	X-3696-314-1	MOTOR ASSY, L (LOADING MOTOR)	
M905	X-3696-306-1	MOTOR ASSY, DC (SKATE MOTOR)	
S901	1-554-839-11	SWITCH, LEAF (2 GANG)	
S902	1-570-394-21	SWITCH, ROTARY (ROTARY ENCODER)	

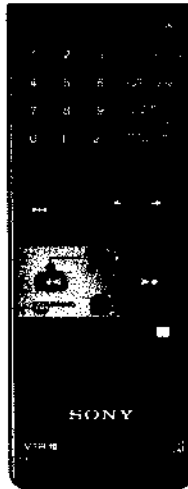
\*\*\*\*\*

ACCESSORIES AND PACKING MATERIALS *****			
Part No.	Description	Remark	
A-6765-943-A	COMMANDER ASSY (RMT-223)		
1-551-513-00	CORD ASSY, COAXIAL		
*3-677-503-00	SHEET, PROTECTION		
*3-681-287-01	LID, ACCESSORY CASE		
3-694-484-01	DRIVER, VOLUME		
*3-697-649-01	CASE, ACCESSORY		
*3-697-650-01	CUSHION (UPPER)		
*3-697-651-01	CUSHION (LOWER)		
*3-697-684-01	INDIVIDUAL CARTON		
3-760-837-11	MANUAL, INSTRUCTION		
3-760-837-41	MANUAL, INSTRUCTION (ES MODEL)		
3-760-837-51	MANUAL, INSTRUCTION		

\*\*\*\*\*

# RMT-223

## SERVICE MANUAL



### SPECIFICATIONS

<b>Remote Commander RMT-223</b>	
Remote control system	Infrared control
Power requirements	3 V DC, 2 IEC designation R6 batteries (size AA)
Dimensions	Approx. 66 × 20 × 175 mm (w/h/d) (2 1/2 × 3/4 × 7 inches) incl. projecting parts and controls
Weight	Approx. 165 g (5.8 oz) incl. batteries

*MC-Service*

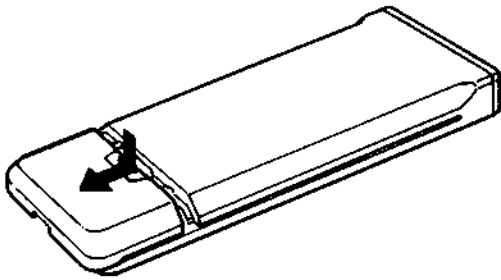
REMOTE COMMANDER  
**SONY**®

## 1. REMOTE CONTROL OPERATION

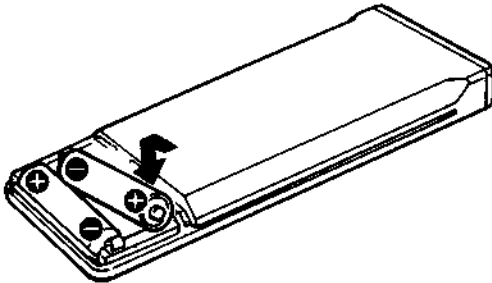
You can control almost all the functions of this video cassette recorder from your armchair using the supplied Remote Commander.

### BATTERY INSERTION

- 1 Open the lid.



- 2 Insert two IEC designation R6 batteries with correct polarity.



- 3 Close the lid firmly.

### Battery life

In normal operation, batteries will last for about six months. If the range of the Remote Commander becomes noticeably short, replace the batteries with new ones. When the batteries are exhausted, the remote function indicator on the Commander will not light when the buttons on the Commander are pressed.

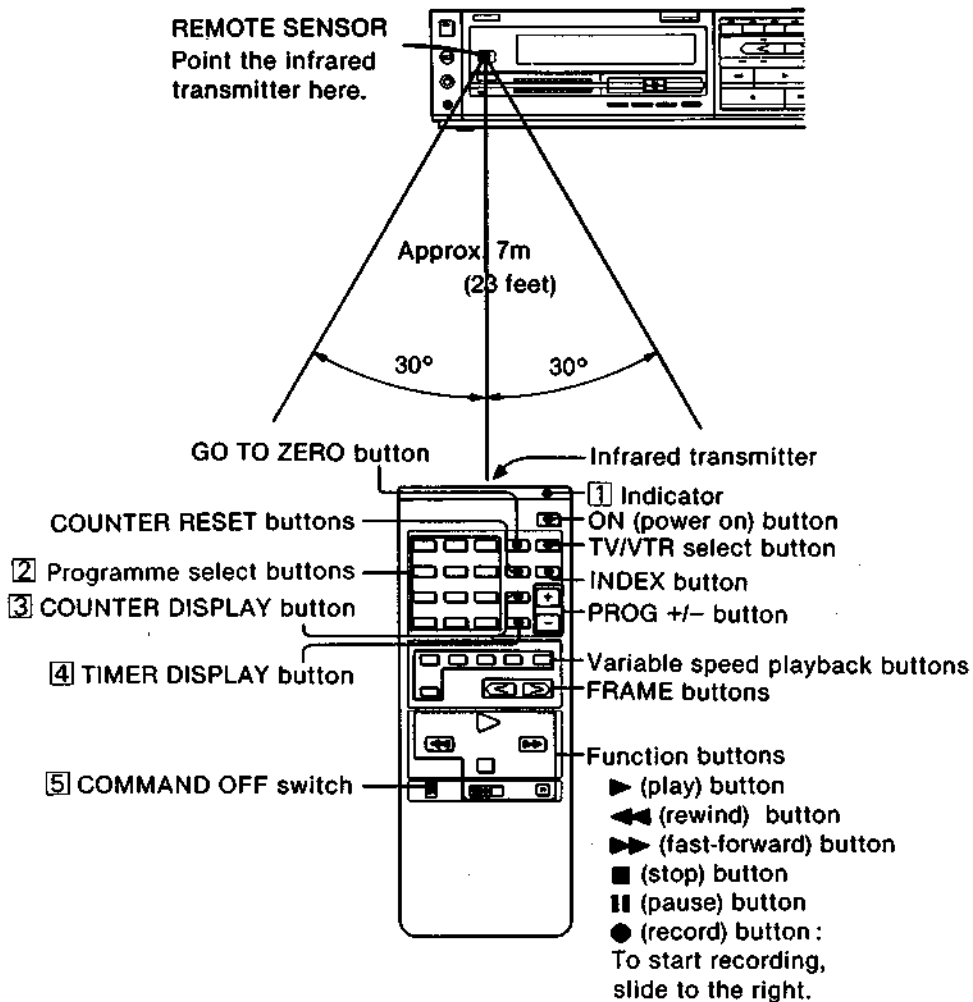
**If the Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.**

### Notes

- There should be no obstacles between the Commander and the REMOTE SENSOR of the recorder.
- The shorter the distance between the Commander and the recorder, the wider the angle within which the recorder can be controlled.
- The Remote Commander does not function when equipment connected to the CONTROL S jack on the rear is in operation.

*MC-Service*

## OPERATION



### **1** Indicator

Lights when any of the buttons on the Commander is pressed.

### **2** Programme select buttons

Select the programme position directly. For programmes 1 through 9, press the corresponding single-digit button. For programmes 10 through 29, press "1-" or "2-" for the tens-digit and then the corresponding single-digit button. For programme 30, press "0".

### **3** COUNTER DISPLAY button

To turn off the time counter displayed on the screen, press this button. To turn it on again, press the button again.

### **4** TIMER DISPLAY button

To display the timer settings on the screen, press this button. To turn them off, press the button again.

### **5** COMMAND OFF switch

Set to the upper position to turn on the Commander. Set to OFF when the Commander is not in use.

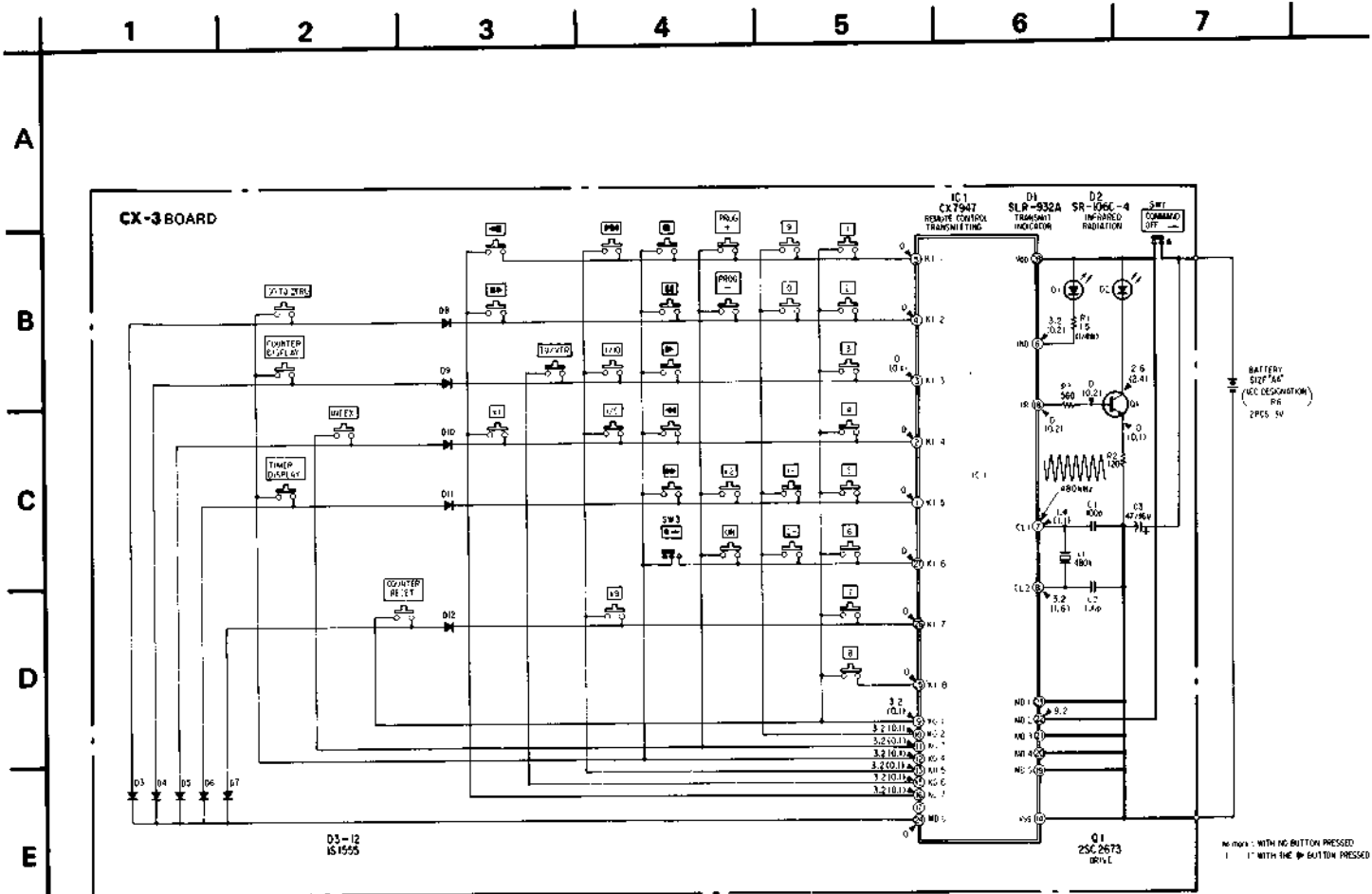
The other buttons have the same functions as the buttons with the same name on the recorder.

### Note

Auto play cannot be activated by the Remote Commander.



## 2. SCHEMATIC DIAGRAM



### Note on Schematic Diagram:

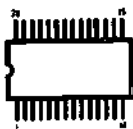
- All resistors are in ohms,  $\frac{1}{6}W$  unless otherwise noted. k $\Omega$ : 1000  $\Omega$ , M $\Omega$ : 1000 k $\Omega$
- All capacitors are in  $\mu F$  unless otherwise noted. p:  $\mu\mu F$
- 50WV or less are not indicated except for electrolytics.

- All voltages are dc measured with a VOM (10 M $\Omega$ ).
- **—**: B+ bus.

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

### • SEMICONDUCTORS

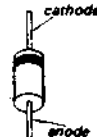
CX7947



2SC2673



1S1555



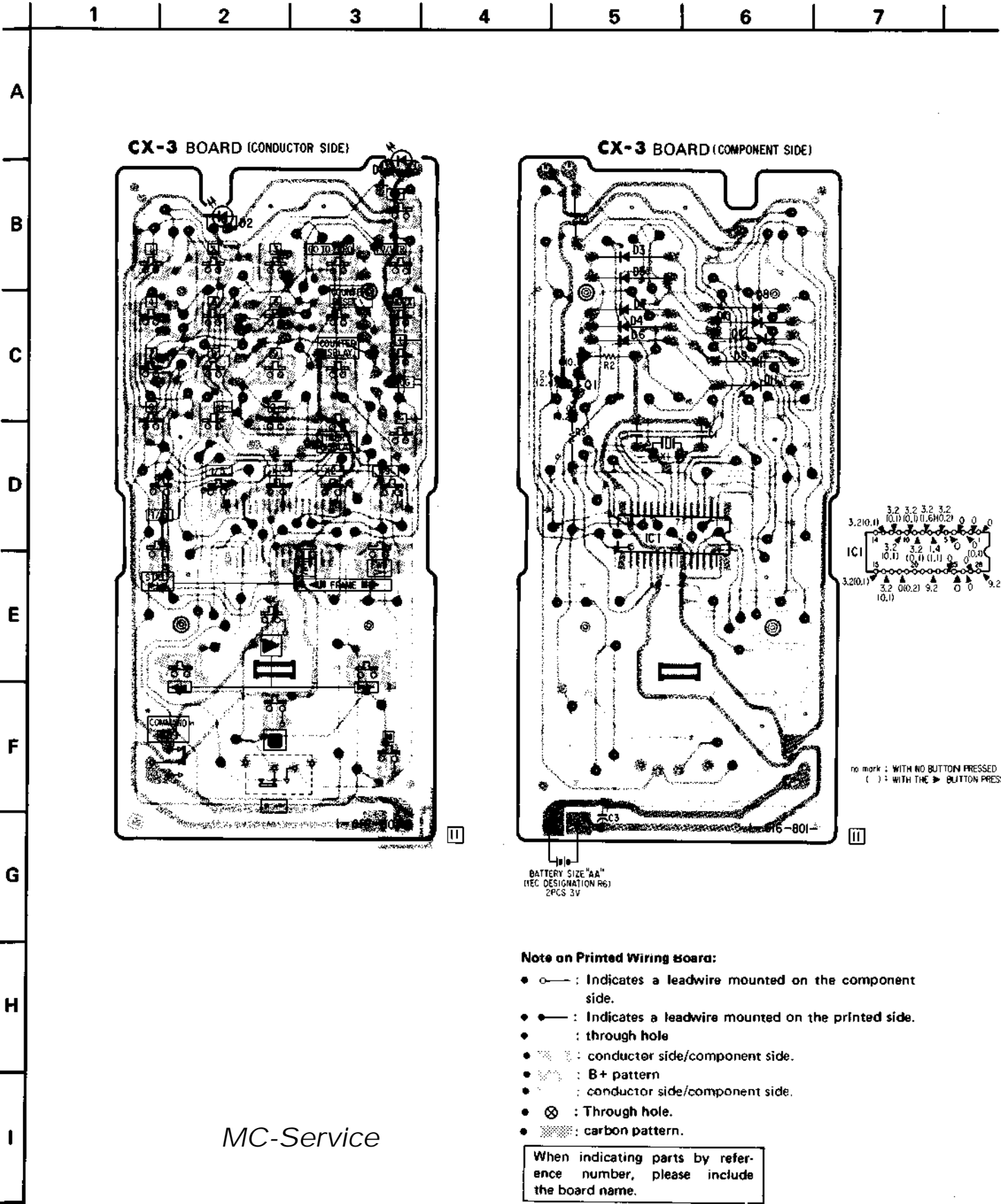
SLR-932A



SR106C



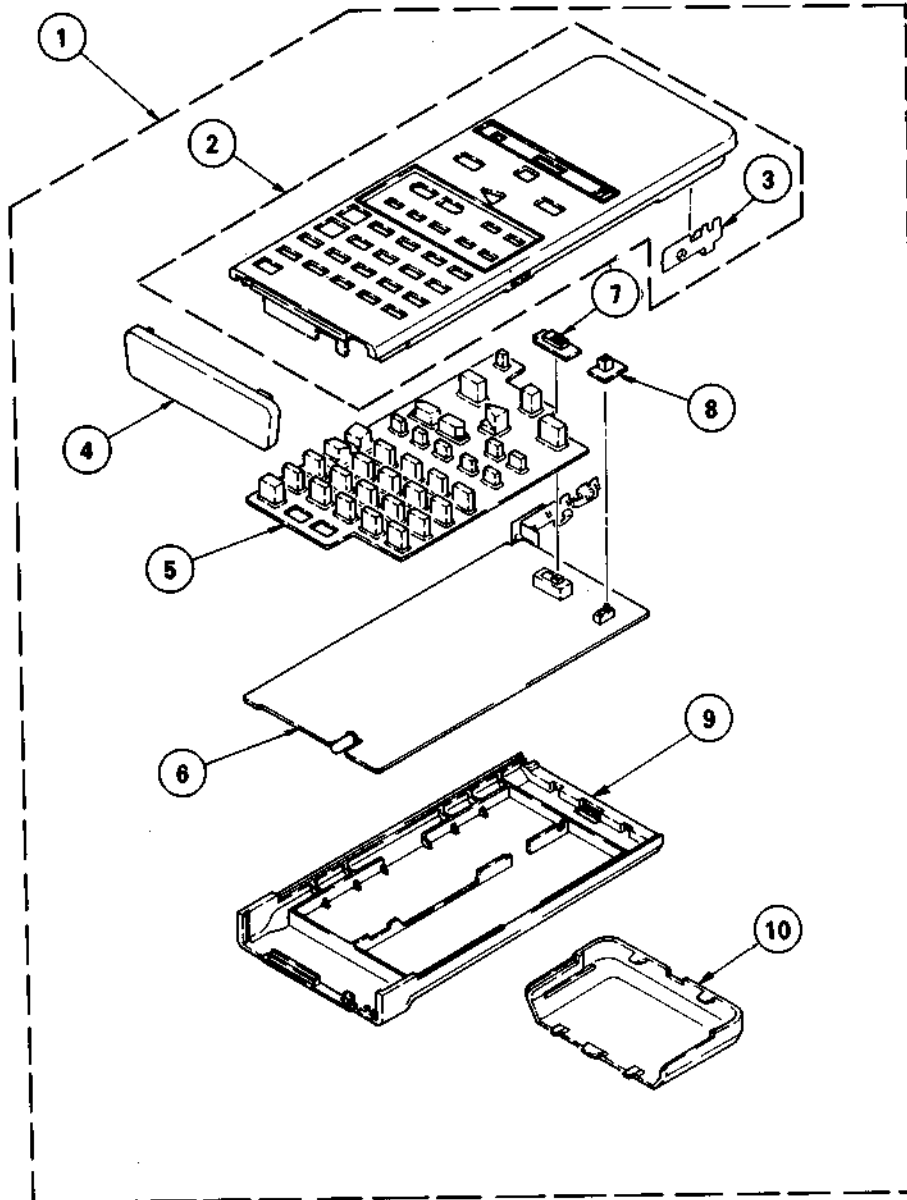
### 3. PRINTED WIRING BOARD



#### 4. EXPLODED VIEW

**NOTE:**

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- 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.
- The mechanical parts with no reference number in the exploded views are not supplied.



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	A-6765-943-A	COMMANDER ASSY	2-10	6	*1-616-801-11	CX-3 BOARD	
2	X-2394-107-1	CASE ASSY, UPPER	3	7	2-394-119-01	BUTTON, RECORD	
3	*2-394-113-01	TERMINAL (C), BATTERY		8	2-394-118-11	BUTTON (COMMAND), SLIDE	
4	2-394-117-01	FILTER		9	2-394-125-11	CASE, LOWER	
5	2-394-129-01	RUBBER, CONTACT		10	2-394-123-01	COVER, BATTERY	

**5. ELECTRICAL PARTS LIST**

**NOTE:**

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.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

**RESISTORS**

- All resistors are in ohms
- F : nonflammable

**CAPACITORS**

- MF :  $\mu$ F, PF :  $\mu$  $\mu$ F

**COILS**

- MMH : mH, UH :  $\mu$ H

Ref.No	Part No.	Description	Remark
	*1-616-801-11	CX-3 BOARD *****	
	*2-394-115-01	TERMINAL (B), BATTERY	
	*2-394-116-01	TERMINAL (A), BATTERY	
<u>CAPACITOR</u>			
C001	1-102-973-00	CERAMIC 100PF 10% 50V	
C002	1-102-973-00	CERAMIC 100PF 10% 50V	
C003	1-124-236-00	ELECT 47MF 20% 16V	
<u>DIODE</u>			
D001	8-719-912-39	DIODE SLR-932A	
D002	8-719-107-95	DIODE SR106C	
D003	8-719-815-55	DIODE 1S1555	
D004	8-719-815-55	DIODE 1S1555	
D005	8-719-815-55	DIODE 1S1555	
D006	8-719-815-55	DIODE 1S1555	
D007	8-719-815-55	DIODE 1S1555	
D008	8-719-815-55	DIODE 1S1555	
D009	8-719-815-55	DIODE 1S1555	
D010	8-719-815-55	DIODE 1S1555	
D011	8-719-815-55	DIODE 1S1555	
D012	8-719-815-55	DIODE 1S1555	
<u>IC</u>			
IC001	8-759-902-22	IC CX-7947	
<u>TRANSISTOR</u>			
Q001	8-729-967-32	TRANSISTOR 2SC2673	
<u>RESISTOR</u>			
R001	1-247-073-00	CARBON 1.5 5% 1/4W	
R002	1-247-809-00	CARBON 120 5% 1/6W	
R003	1-247-825-00	CARBON 560 5% 1/6W	
<u>SWITCH</u>			
SW001	1-553-997-00	SWITCH, KEY BOARD	
SW003	1-554-364-00	SWITCH, SLIDE	
<u>CRYSTAL</u>			
X001	1-527-476-00	OSCILLATOR, CERAMIC	

\*\*\*\*\*

**SL-HF950ES/E**  
**RMT-223**

9-972-428-01

**Sony Corporation**

**English**  
8510564-1  
Printed in Japan  
© 1985

# SL-HF950ES/E

RMT-223

**SONY**  
**SERVICE MANUAL**

*AEP Model*  
*E Model*  
*November, 1985*

## **SUPPLEMENT-1**

File this supplement with the service manual.

**SUBJECT : ADJUSTMENT**

*MC-Service*

# SECTION 7

## ADJUSTMENTS

### TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1.</b>	<b>PREPARATION FOR MECHANICAL SECTION CHECK, ADJUSTMENT AND REPLACEMENT</b>		<b>3-9.</b>	<b>Replacement and Adjustment of the S Threading Ring</b>	<b>20</b>
1-1.	Disassembly of Cabinet	3	3-9-1.	Preparation to Remove the S Threading Ring, Removal of the ACE Assembly, FE Head	20
1-2.	Removal of the TA-36/37 Board	3	3-9-2.	Removal of the S Threading Ring	22
1-3.	Removal of the SS-50 Board	3	3-9-3.	S Threading Ring Mounting and Position Adjustment	23
1-4.	Removal of the YC-40 Board	3	<b>3-10.</b>	<b>Removal and Adjustment of the Reel Block Assembly</b>	<b>24</b>
1-5.	Removal of the FR-20 Board	3	3-10-1.	Removal of the Reel Block Assembly	24
1-6.	Removal of the FL-8, FL-9 Boards	3	3-10-2.	Removal and Refitting of the Tension Regulating Lever	24
1-7.	Removal of the RP-31 Board	3	3-10-3.	S Coil Sensor Harness Treatment and Operation Check	25
1-8.	Removal of the Power Block	3	3-10-4.	Adjustment of the Position of Tension Regulating Lever	25
1-9.	Removal of the Reel Block Assembly	3	<b>3-11.</b>	<b>Removal and Installation of LS Gear</b>	<b>26</b>
1-10.	Removal of the LS Block Assembly (1)	3	3-11-1.	Removing LS Gear	26
1-11.	Removal of the LS Block Assembly (2)	3	3-11-2.	Refitting of the U/D Arm Assembly	27
1-12.	Removal of the Upper Stay and the Drum Cover	3	3-11-3.	Adjusting of the Position of the LS Gear Assembly	27
1-13.	Removal of the Tray Cover and the Tray M Cover	4	3-11-4.	Installation of LS Gear Assembly	28
1-14.	Mechanical Operation Without Cassette	4	<b>3-12.</b>	<b>Adjustment of the Forward Back Tension</b>	<b>29</b>
1-14-1.	Threading Method Without Cassette	4			
1-14-2.	Playback Method Without Cassette	4	<b>4.</b>	<b>TAPE PATH ADJUSTMENT</b>	
1-14-3.	Setting Picture Recording Mode Without Cassette	4	4-1.	Tracking Adjustment	30
1-15.	Unthreading, Unskating, and Ejecting when Power is Off	5	4-1-1.	Preparation	31
1-15-1.	Unthreading Method (I)	5	4-1-2.	Entrance Side Adjustment	32
1-15-2.	Unthreading Method (II)	5	4-1-3.	Exit Side Adjustment	34
1-15-3.	Unskating and Ejecting Methods	6	4-2.	Adjustment after Replacement of the ACE Assembly	35
1-16.	Tools and Fixtures Required for Servicing	7	4-2-1.	Tracking Adjustment	35
<b>2.</b>	<b>PERIODIC CHECK AND MAINTENANCE</b>		4-2-2.	Audio Head (ACE Assembly) Azimuth Adjustment	35
2-1.	Post-Repair Maintenance	8	4-2-3.	CTL Head (ACE Assembly) Position Adjustment	36
2-1-1.	Cleaning of Rotating Head Disk Assembly	8	4-2-4.	Audio Head (ACE Assembly) Height Adjustment	36
2-1-2.	Cleaning of the Tape Movement System	8	4-3.	Adjustment after Replacement of the Capstan Motor	37
2-1-3.	Cleaning the Drive System	8	4-4.	Thin Tape Movement Check Method During Tape Path Adjustment	38
2-2.	Periodic Check Items	9	4-5.	BETA Hi-Fi RF Output Waveform Check	38
<b>3.</b>	<b>CHECK, ADJUSTMENT, AND REPLACEMENT PROCEDURES</b>		<b>5.</b>	<b>ELECTRICAL ADJUSTMENTS</b>	
3-1.	State of Wear of Video Heads Check	10	5-1.	Power Supply Check (CN Board (SR-21))	41
3-2.	Replacing Rotary Head Disk Assembly	11	5-2.	System Control Check (SS-50 Board)	41
3-2-1.	Removing Rotary Head Disk Assembly	11	5-2-1.	Clock Frequency Check	41
3-2-2.	Refitting Rotary Head Disk Assembly	12	5-2-2.	Character Generator Clock Frequency Check	41
3-2-3.	Adjusting AFM Rotary Transformer Gap	13	5-3.	Servo System Adjustment	42
3-3.	Replacing Upper Drum	13	5-3-1.	Drum Servo System Adjustment	42
3-3-1.	How to Remove Upper Drum	13	5-3-2.	Capstan Servo System Adjustment	43
3-3-2.	How to Refit Upper Drum	14	5-4.	PAL Video System Adjustment	45
3-3-3.	Centering Adjustment	14	5-4-1.	Record System Adjustment	46
3-4.	Caution when Changing Rotary Coupler Ass'y and Guide Arm Ass'y	14	5-4-2.	Playback System Adjustment	50
3-5.	Video Head Dihedral Check and Adjustment	15	5-5.	SECAM Video System Adjustment (ES Model)	53
3-6.	Replacement and Adjustment of the Drum Assembly	16	5-6.	Audio System Adjustment	55
3-6-1.	Replacement of the Drum Assembly	16	5-6-1.	Normal Audio System Adjustment (TA-36/37 Board)	55
3-6-2.	Adjustment of the Motor Gap when Replacing the Drum Assembly	17	5-6-2.	BETA Hi-Fi Audio System Adjustment (FL-8, AF-14 Boards)	56
3-7.	Replacement of the Capstan Motor	17	5-7.	Tuner System Adjustment (TA-36/37 Board)	59
3-7-1.	Removal of the Capstan Motor	17			
3-7-2.	Capstan Shaft Verticality Adjustment	18			
3-8.	Removal of the No.2 and No.3 Guides	19			
3-8-1.	Removal of the No.2 Guide	19			
3-8-2.	Removal of the No.3 Guide	19			

# 1. PREPARATION FOR MECHANICAL SECTION CHECK, ADJUSTMENT AND REPLACEMENT

The 11 items of the disassembly procedure mentioned below are detailed on the SL-HF950ES/E SERVICE MANUAL page 35 – 40.

## 1-1. DISASSEMBLY OF CABINET

## 1-2. REMOVAL OF THE TA-36/37 BOARD

## 1-3. REMOVAL OF THE SS-50 BOARD

## 1-4. REMOVAL OF THE YC-40 BOARD

## 1-5. REMOVAL OF THE FR-20 BOARD

## 1-6. REMOVAL OF THE FL-8, FL-9 BOARDS

## 1-7. REMOVAL OF THE RP-31 BOARD

## 1-8. REMOVAL OF THE POWER BLOCK

## 1-9. REMOVAL OF THE REEL BLOCK ASSEMBLY

## 1-10. REMOVAL OF THE LS BLOCK ASSEMBLY (1)

## 1-11. REMOVAL OF THE LS BLOCK ASSEMBLY (2)

## 1-12. REMOVAL OF THE UPPER STAY AND THE DRUM COVER

- 1) Remove two screws (BVTP3 x 6) ① and then remove drum cover ④.
- 2) Push both claws ③ outward, and remove drum cover ④ in the arrow ② direction.

### Note:

When drum cover ④ is installed, make sure to tilt protector ⑤ backward until it comes under drum cover ④.

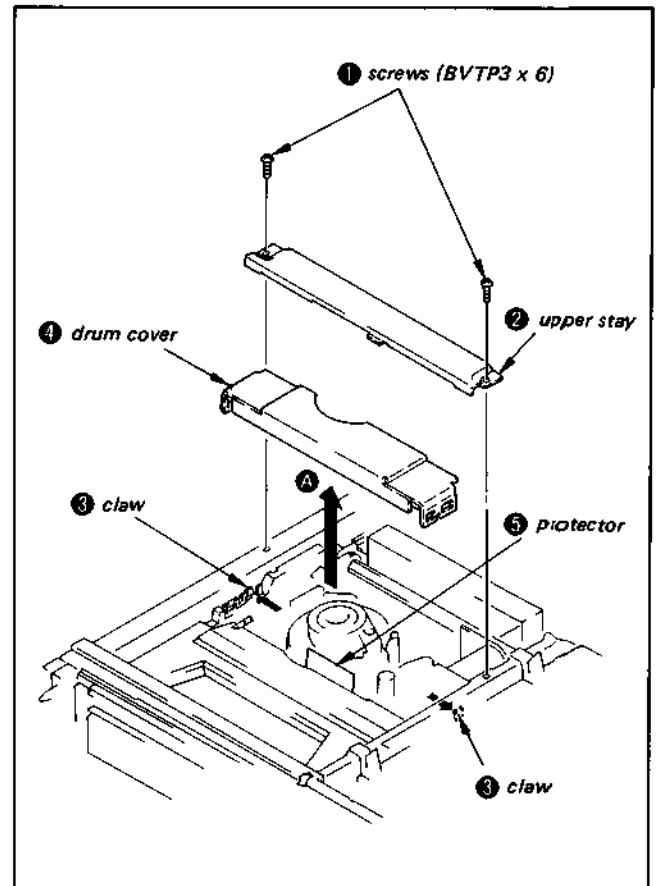


Fig. 1-1



### 1-13. REMOVAL OF THE TRAY COVER AND THE TRAY M COVER

- 1) Eject the lid by pressing EJECT button or using the procedure of 1-15-3.
- 2) Remove tray cover ① upward by bending its both side outward.
- 3) Remove tray M cover ② downward by bending its both side outward.

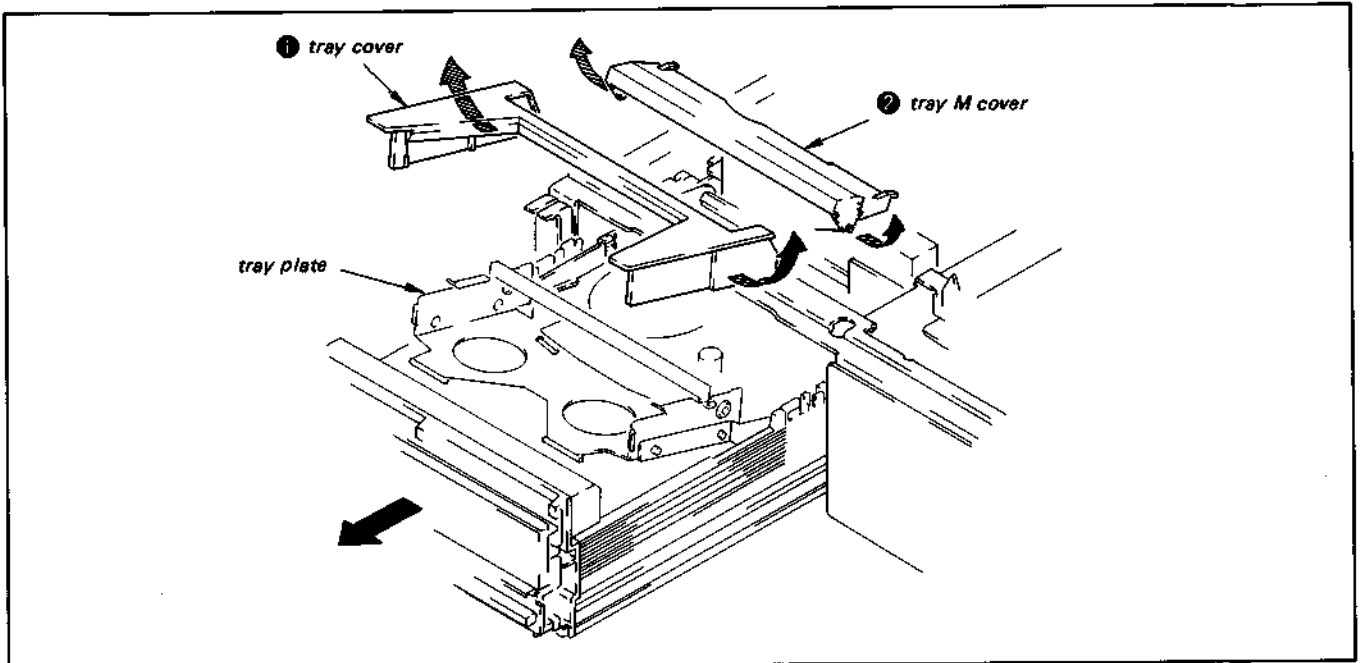


Fig. 1-2

### 1-14. MECHANICAL OPERATION WITHOUT CASSETTE

#### 1-14-1. Threading Method Without Cassette

- 1) Turn POWER switch on.
- 2) Press the cassette down switch ① to on. Then, threading occurs.

#### 1-14-2. Playback Method Without Cassette

Complete the threading with the procedure of 1-14-1, then press the playback button.

#### 1-14-3. Setting Picture Recording Mode Without Cassette

Complete the threading with the procedure of 1-14-1, then press the accidental erasure prevention switch ②, followed by the picture-recording button.

**Note:**

If the picture-recording button is pressed without pressing the accidental erasure prevention switch ②, unthreading occurs, and the lid is ejected.

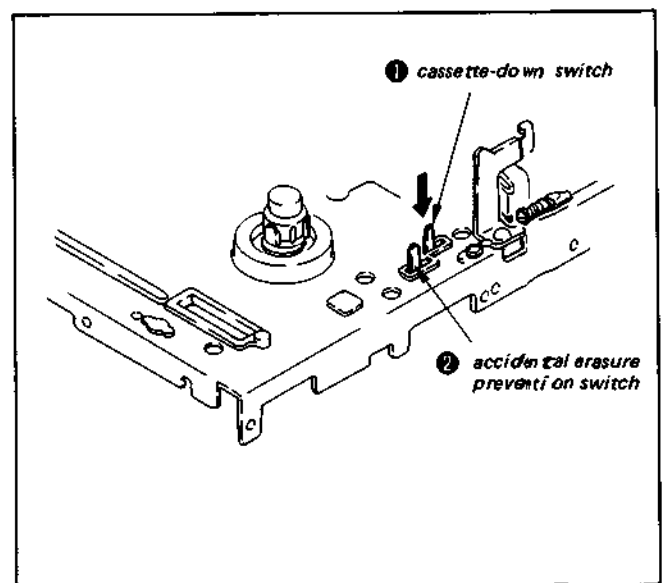


Fig. 1-3

## 1-15. UNTHREADING, UNSKATING, AND EJECTING WHEN POWER IS OFF

### 1-15-1. Unthreading Method (I)

From the stabilized DC power supply, apply 7 to 10 V in the polarity reverse to the silk-screened +/- indication (as shown Fig. 1-4) to the legs of the L motor on the LM-17 board.

If the voltage is applied in the same polarity as the silk-screened +/- indication, threading occurs.

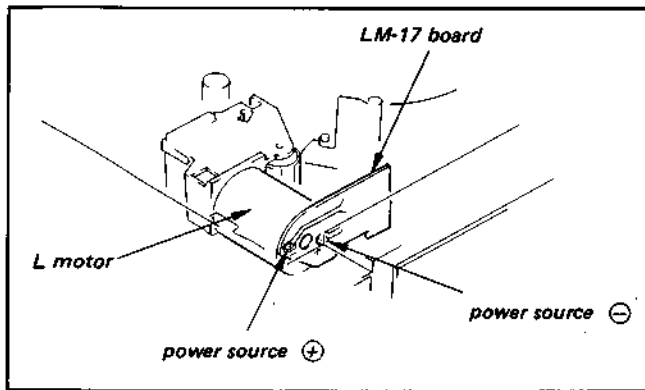


Fig. 1-4

### 1-15-2. Unthreading Method (II)

- 1) Remove screw (PTP2.6 x 8) ① and remove L motor assembly ② upward (Fig. 1-5).
- 2) Push arm lock ③ in arrow ④ direction, and release the lock (Fig. 1-6).
- 3) Turn gear ⑤ of the gear chassis block assembly clockwise (Fig. 1-6).  
When gear ⑤ is turned counterclockwise, threading occurs.

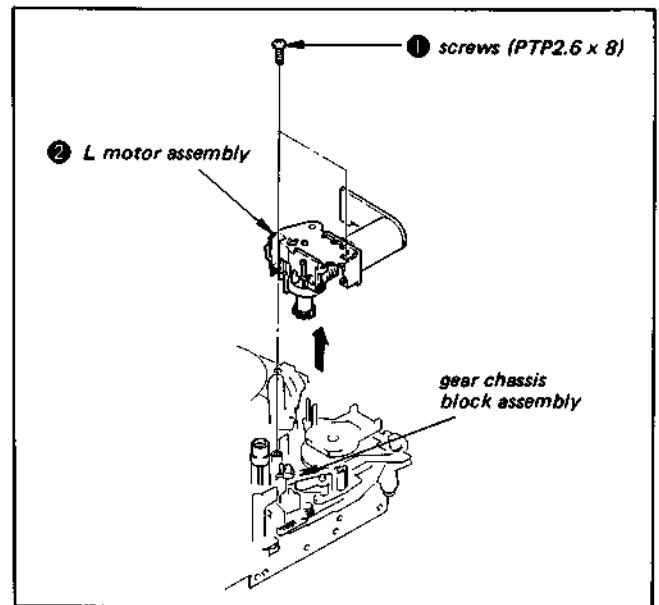


Fig. 1-5

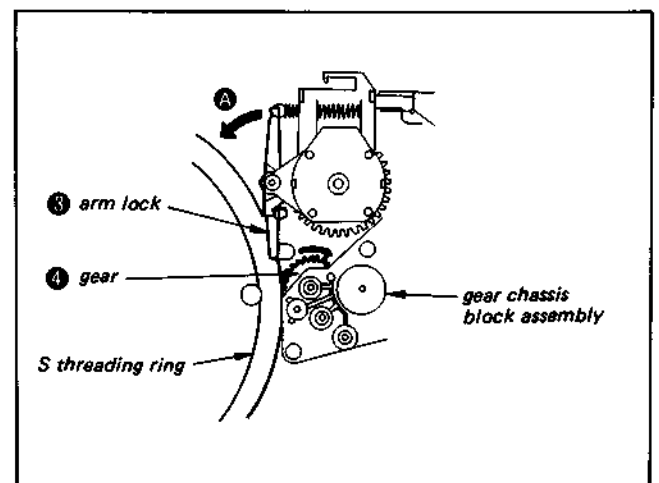


Fig. 1-6

### 1-15-3. Unskating and Ejecting Methods

- 1) Complete the threading with the procedure of 1-15-1 or 1-15-2.
- 2) Slowly pull LS assembly ① in arrow ④ direction with the hand, until the lefthand stopper functions.
- 3) Slowly lift tray ② in arrow ③ direction with the hand.

**Note:**

Complete the unthreading, because if insufficient, the righthand eject stopper functions, and the LS assembly cannot fully be pulled out.

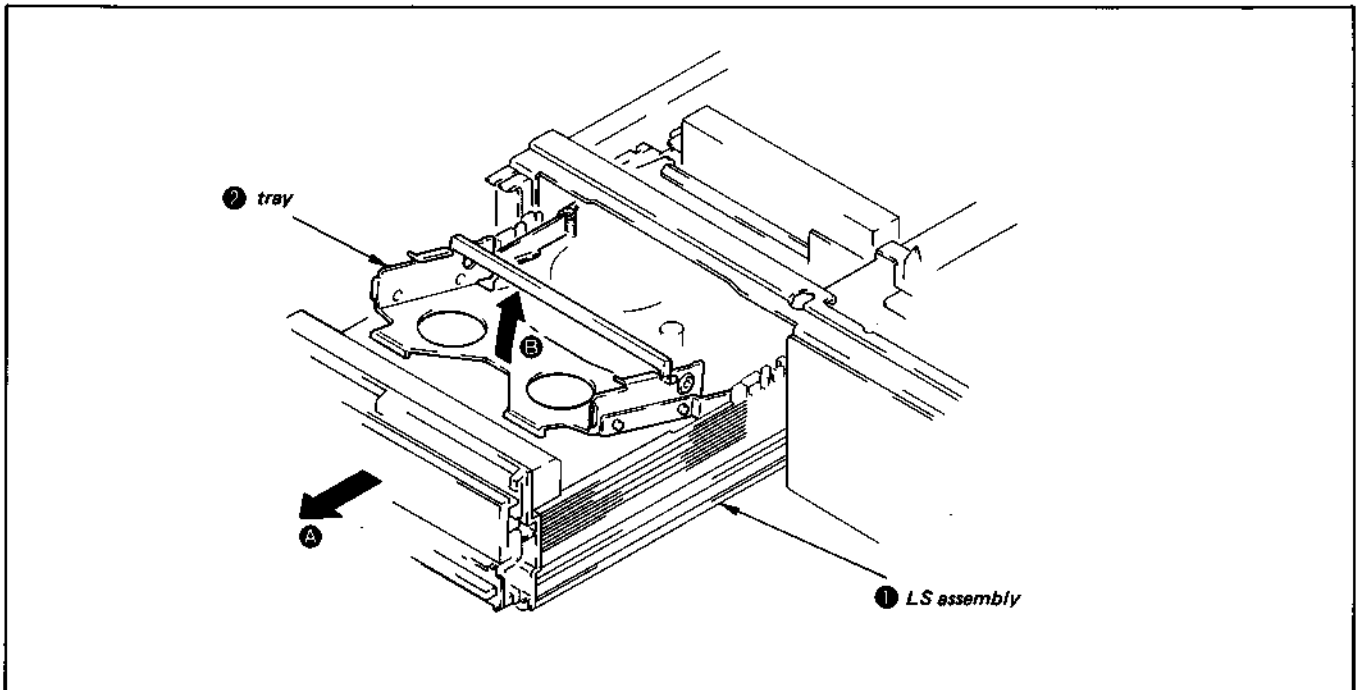


Fig. 1-7

**1-16. TOOLS AND FIXTURES REQUIRED FOR SERVICING**

Ref. No.	Name	Part Code	Carved Jig No.	Use and Remarks
J-1	Torque Measurement Tape	J-6080-003-C	SL-0003C	forward torque and back tension measurement
J-2	Parallel Plate	J-6086-750-A	SL-0657	audio/CTL head lateral adjustment capstan shaft vertical adjustment
J-3	Dental Mirror (handle) Dental Mirror (mirror)	J-6080-029-A J-6080-030-1	SL-5052	tape path and tape traveling adjustment check
J-4	Alignment Tape (KR5-2H) Alignment Tape (KR5-10C)	8-969-995-52 8-192-508-01	—	tracking, overall adjustment of picture quality, etc.
J-5	Cleaning Fluid	Y-2031-001-0	—	
J-6	Thickness Gauge	9-911-053-00	—	
J-7	Chamois Cloth	2-034-697-00	—	cleaning
J-8	Head Demagnetizer	widely available	—	demagnetization of video head and audio head
J-9	Cleaning Cassette Tape	8-888-004-00	—	video head cleaning
J-10	Dihedral Adjustment Screw	J-6080-013-A	SL-0013	video dihedral adjustment
J-11	Video Head Checker	7-732-080-01	SL-5151	video head check

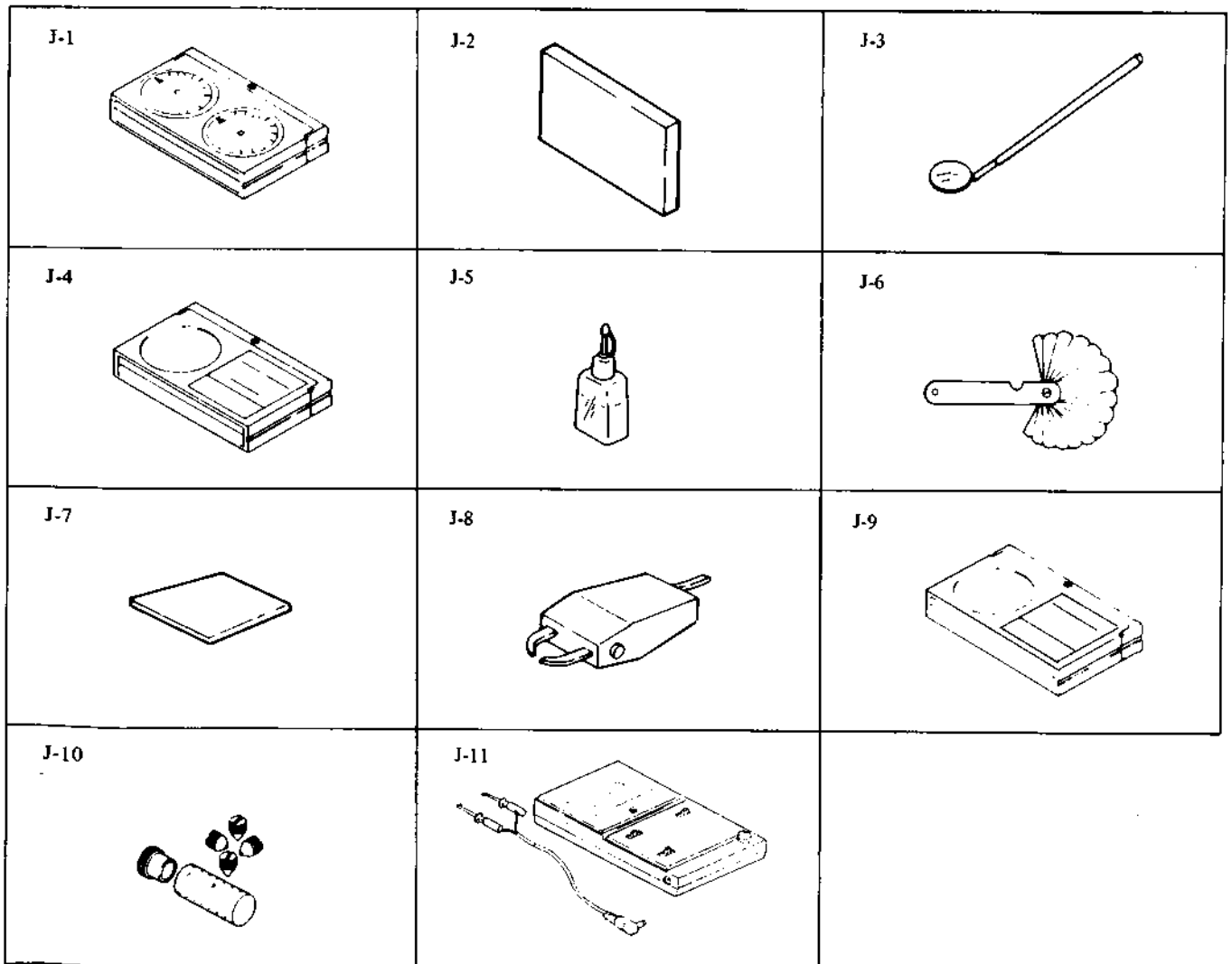


Fig. 1-8 Tools and fixtures required for servicing

## 2. PERIODIC CHECK AND MAINTENANCE

In order to obtain the best performance from this unit and make full use of its capabilities, and to extend the life of the unit and tapes, it is recommended that the following periodic checks and maintenance be performed.

### 2-1. POST-REPAIR MAINTENANCE

The following must be done after every repair regardless of how many hours the user has operated the machine.

#### 2-1-1. Cleaning of Rotating Head Disk Assembly

- 1) Press a chamois cloth (Jig Ref. No. J-7) which has been dipped in cleaning fluid (Jig Ref. No. J-5) lightly against the rotating drum assembly, then do the cleaning by slowly rotating the rotating head disk by hand. (Never try to clean by using the motor to turn it.)
- 2) Never try to clean by moving the chamois cloth at a right angle to the head tip. There is a very great danger of damaging the head tip if this is done.

#### 2-1-2. Cleaning of the Tape Movement System

- 1) Clean the surfaces which the tape contacts during its movement (tape guide, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth that has been dipped in cleaning fluid.

#### 2-1-3. Cleaning the Drive System

- 1) Clean the driving parts with a cloth that has been dipped in cleaning fluid.

#### parts requiring cleaning

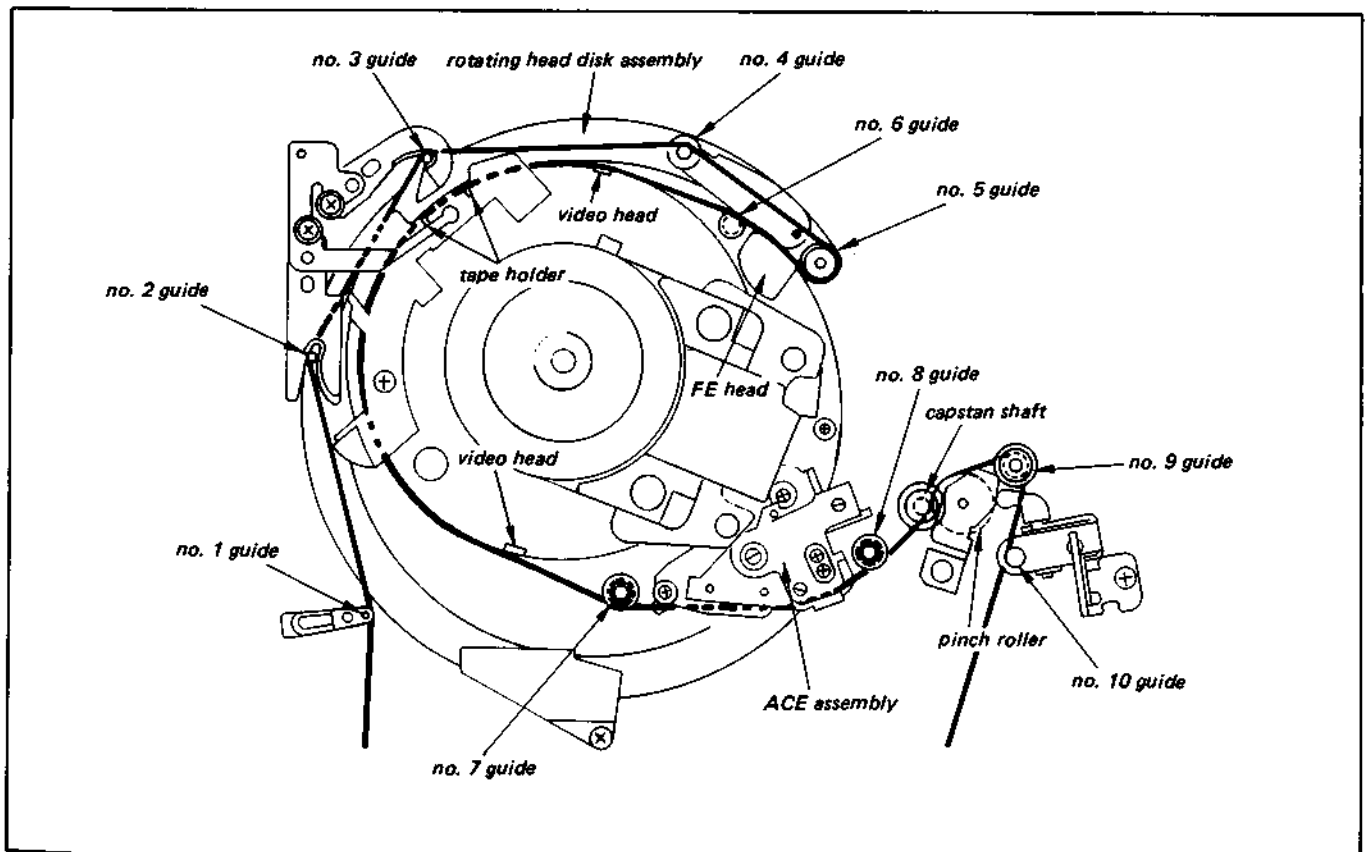


Fig. 2-1 Parts requiring cleaning

## 2-2. PERIODIC CHECK ITEMS

Perform the maintenance and check listed on the table below, according to user's operating hours.

Maintenance & Check		Replacement Part No.	Operating Hours (H)										Remarks
			500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Trans Portation System	Cleaning of tape transportation system	—	○	○	○	○	○	○	○	○	○	○	This cleaning must be done whenever a repair is made.
	Cleaning and degaussing of ACE ass'y	—	○	○	○	○	○	○	○	○	○	○	
	Cleaning & degaussing of video disk ass'y	—	○	○	○	○	○	○	○	○	○	○	The life of the head varies, depending on operational conditions and method.
Performance Confirmation	Abnormal sound		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the section which causes abnormal sound.
	Measurement of FWD back tension		-	☆	-	☆	-	☆	-	☆	-	☆	Confirmation must be made according to 3-12. Specified value: adjust to 44 ±4 g·cm (When measured with torque cassette tape.)
	Confirmation of brake system		-	☆	-	☆	-	☆	-	☆	-	☆	
	Confirmation of record & playback functions		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform the confirmation whenever repair is made.
	Confirmation of forward torque		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	45 - 90 g·cm (SL-0003C)

○ Cleaning ☆ Replacement ☆ Confirmation

**Note:**

**On overhaul**

When overhauling the unit, replace parts as indicated in the above table.

### 3. CHECK, ADJUSTMENT, AND REPLACEMENT PROCEDURES

#### 3-1. STATE OF WEAR OF VIDEO HEADS CHECK

As the accuracy of the check depends on the state of the heads and precision of the checker, the results should be taken only as an indication of the state of wear.

##### [Adjustment of video head checker]

- 1) **Mechanical zero**  
Verify that the pointer of the video head checker is at the mechanical zero position. If it is not at this position, adjust the mechanical zero control.
- 2) **Battery voltage check**  
Set the MODE switch to "BATT" and set the POWER switch to "ON". The deflection of the pointer should be within the range marked "BATT". If not, replace the battery (use a 6F22 battery) as follows.
- 3) **Calibration check**  
Set the POWER switch to "ON" and the MODE switch to "CAL", then adjust the CAL control so that the pointer is on the CAL mark.

**Note 1:** Be sure to carry out this adjustment whenever the RANGE switch is changed.

**Note 2:** Be sure to check CAL before measuring the head and proceed the measurement after adjusting CAL, if CAL is not properly set.

##### [Method of measurement]

- 1) Remove the two screws (+PTPWH2) ① that hold the tape guide ground plate in place, then remove the tape guide ground plate.
- 2) Remove the two screws (P2 x 3) ② that hold the damper assembly in place, then remove the damper assembly.
- 3) Remove the hexagonal socket head bolt (3 x 8) ③ using a hexagonal wrench (2.5 mm) and the two screws (P3 x 8) ④. Then remove the upper drum assembly.
- 4) Unsolder the four connection pins ⑤ for the two AFM (AUDIO) heads from the rotary coupler assembly.
- 5) Remove the two hexagonal socket head bolts (2.6 x 8) ⑥ that hold the rotary coupler assembly in place using a hexagonal wrench (2.0 mm), then remove the rotary coupler assembly.

**Note:** Be sure to check the positions of the two AFM (AUDIO) heads for A-CH and B-CH before refitting the rotary coupler assembly.

On the disk assembly, "A" and "B" are marked, and on the rotary coupler assembly, "a" and "b" are marked.

Fit and solder the rotary coupler assembly matching a for A, b for B.

- 6) Unsolder the six lead wires and two connection pins for the four video heads. (Don't care that unsolder only one lead wire for each four video heads.)
- 7) Attach the measuring clips to the head leads.  
Be sure to separated the leads by at least 1.5 cm.
- 8) Set RANGE switch to "A" and MODE switch to "MEAS". The pointer will deflect to indicate the state of wear of the heads.

**Note:** The deflection for the 4 video heads may be different, so be sure to measure both.

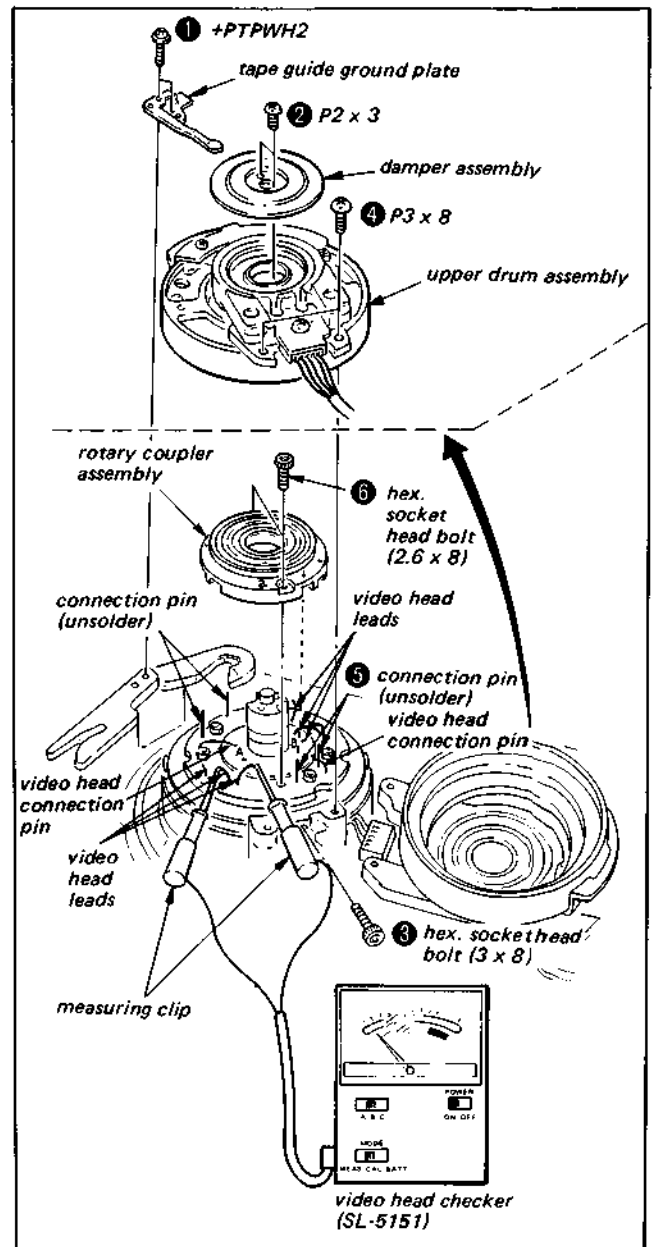


Fig. 3-1

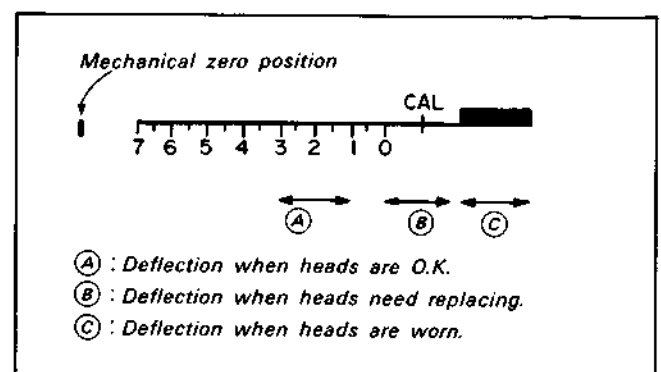


Fig. 3-2 Measured value

### 3-2. REPLACING ROTARY HEAD DISK ASSEMBLY

Accessory adjusting jig: Feeler gauge 1, feeler gauge 2

**Note:**

Keep them after replacing the rotary head disk, since they will be needed when replacing the guide arm assembly and the rotary coupler assembly. (They are not delivered with the guide arm assembly or the rotary coupler assembly.)

#### 3-2-1. Removing Rotary Head Disk Assembly (See Fig. 3-3)

**Note:**

While removing the rotary head disk assembly, never move screws ⑧ clamping the guide arm assembly. If they are moved, a centering adjustment will be required later. (Refer to Paragraph 3-3-3.)

- 1) Unscrew two screws ① clamping the damper assembly, and remove the damper assembly.
- 2) Unscrew hex. socket head bolt ② with an Allen wrench.

- 3) Unscrew two screws ③, and remove the upper drum assembly.

**Note:**

Remove while turning the upper drum assembly, taking care not to move the adjust plate. If the adjust plate is moved, the tape pass is badly influenced (See Fig. 3-13).

- 4) Unsolder the four connection pins ④ from the coupler disk.
- 5) Unscrew two hex. socket head bolts ⑤, and remove the rotary coupler assembly.

**Note:**

To be able to refit the rotary coupler in the correct relative position, memorize the position relative to connection pins 4.

- 6) Unsolder the red, white, blue and black leads at six positions, and unsolder the two connection pins ⑥ from the intermediary board of the rotary head disk.
- 7) Unscrew four hex. socket head bolts with washers ⑦, and remove the rotary head disk assembly.

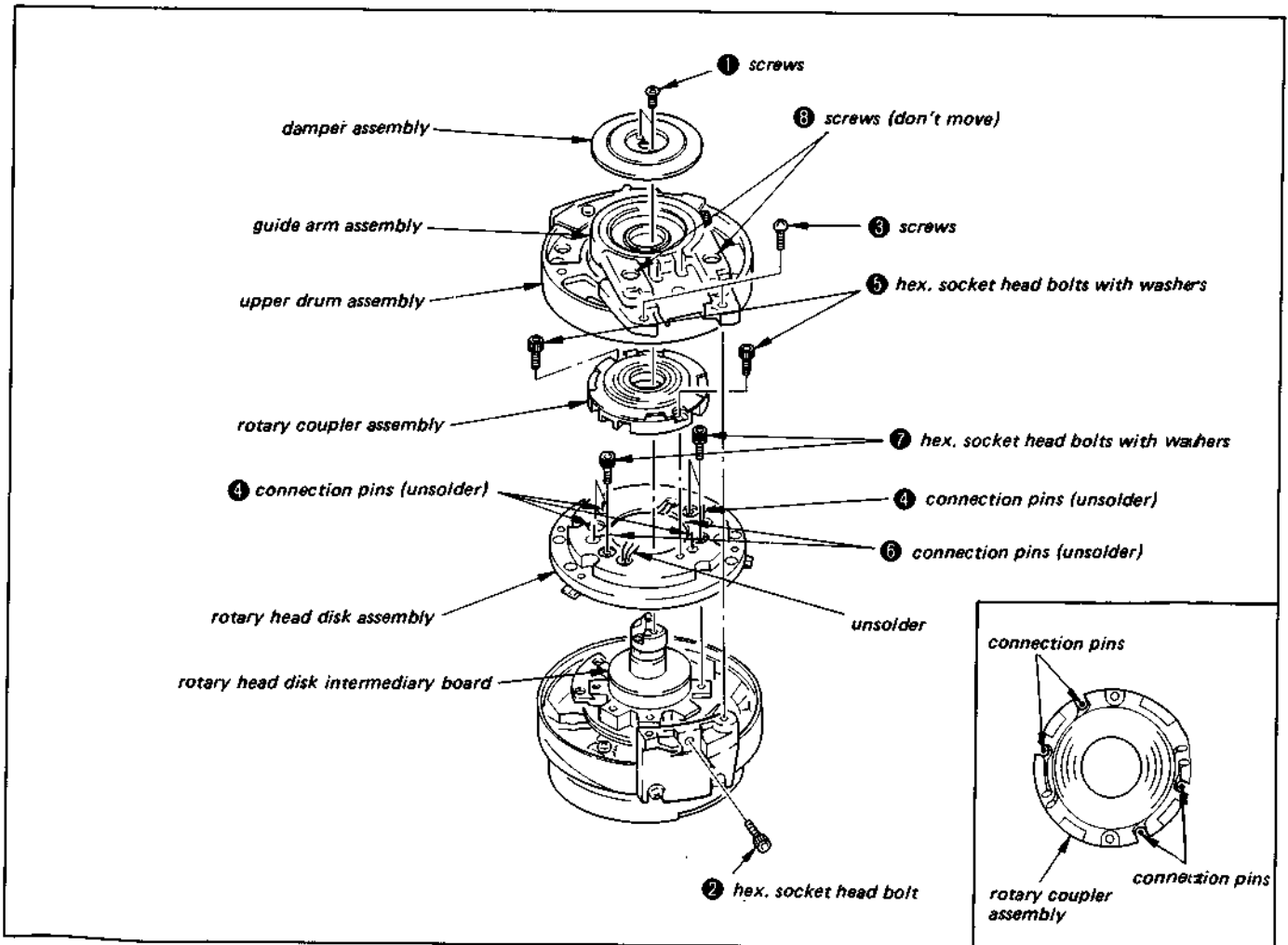


Fig. 3-3 How to remove rotary head disk



### 3-2-2. Refitting Rotary Head Disk Assembly

**Note:**

Be extremely careful not to damage the head chip by touching or fouling it.

- 1) Solder the six leads to the video head of the rotary head disk assembly. (Caution on correct orientation of the magnet.) Thread the leads through the holes (See Fig. 3-4).
- 2) Refit the four connection pins to the rotary head disk assembly (See Fig. 3-5).
- 3) Bend the connection pins and solder them to the AFM heads (See Fig. 3-5).  
Bend one connection pin for each AFM heads.
- 4) Refit the rotary head disk assembly, paying attention to the positions of the red, white, blue and black leads, and to the orientation of the connection pins. (White on Ach side.)
- 5) Tighten four hex. socket head bolts ⑦ (see Fig. 3-3), and solder the leads to the head intermediary board of rotary head disk (See Fig. 3-6-a).
- 6) Refit the rotary coupler assembly, and tighten two hex. socket head bolts ⑤ (See Fig. 3-3).
- 7) Solder the four connection pins to the rotary coupler assembly (See Fig. 3-6-b).
- 8) Refit the upper drum assembly without moving the adjust plate, and lightly tighten screws ③. Tighten hex. socket head bolt ②, and then, tighten screws ④ firmly (See Fig. 3-3).

**Note:**

While refitting the upper drum assembly, take care not to foul the head chip.

- 9) Check the AFM rotary transformer gap with the feeler gauges (See Fig. 3-7). Feeler 1 must go in and feeler 2 must not go in. If the gap is incorrect, readjust the gap. (Refer to Paragraph 3-2-3).
- 10) Refit the damper assembly, and tighten screw ① (See Fig. 3-3).

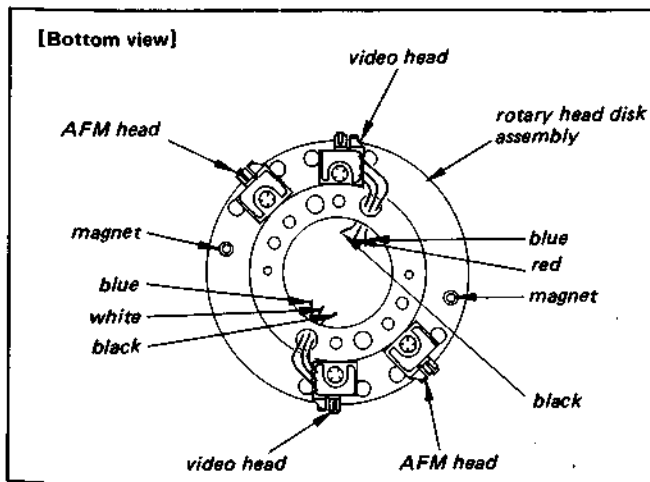


Fig. 3-4 How to refit rotary head disk (1)

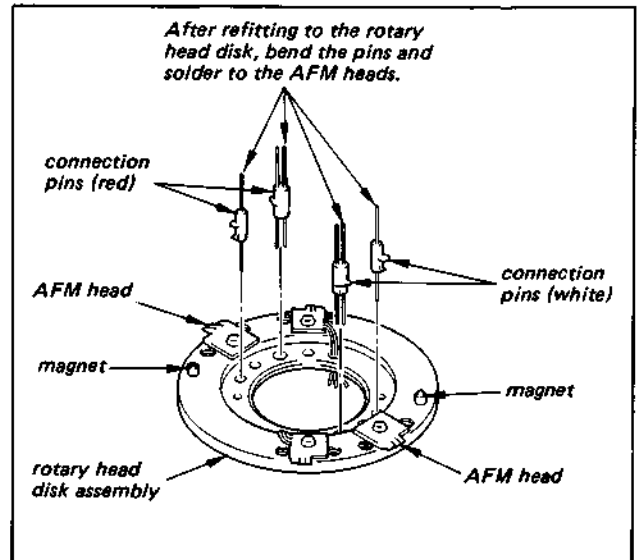


Fig. 3-5 How to refit rotary head disk (2)

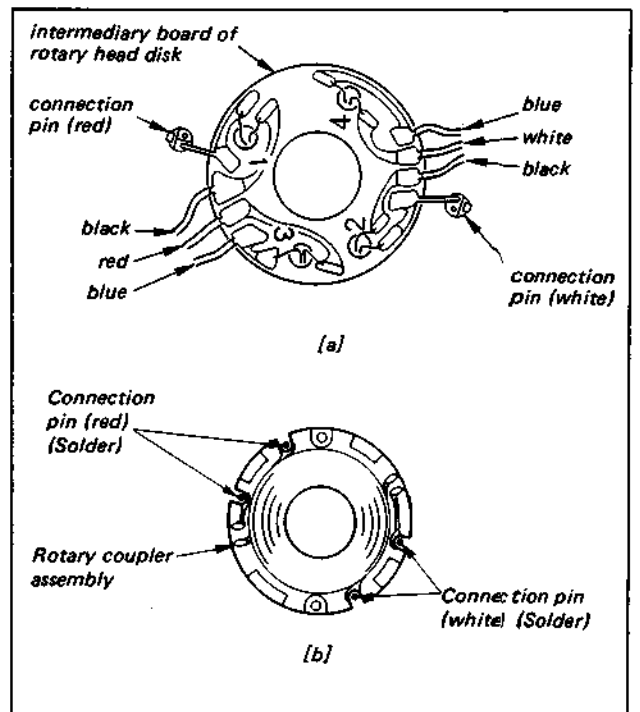


Fig. 3-6 How to refit rotary head disk (3)

### 3-2-3. Adjusting AFM Rotary Transformer Gap (See Fig. 3-7)

- 1) Loosen hex. socket head bolt ① for the guide arm assembly without unscrewing, and lift the upper ring assembly slightly.
- 2) Insert feeler gauge 1 into the gap in the rotary transformer, and push the upper ring assembly downward.  
**Note:** Take care not to tilt the upper ring assembly.
- 3) Tighten the hex. socket head bolt ① while holding the upper ring assembly down.  
**Note:** Take care not to move the upper ring assembly while tightening the bolt.
- 4) Remove feeler gauge 1, and ascertain that feeler gauge 2 does not enter the gap. If it enters, start readjusting from process 1) on.

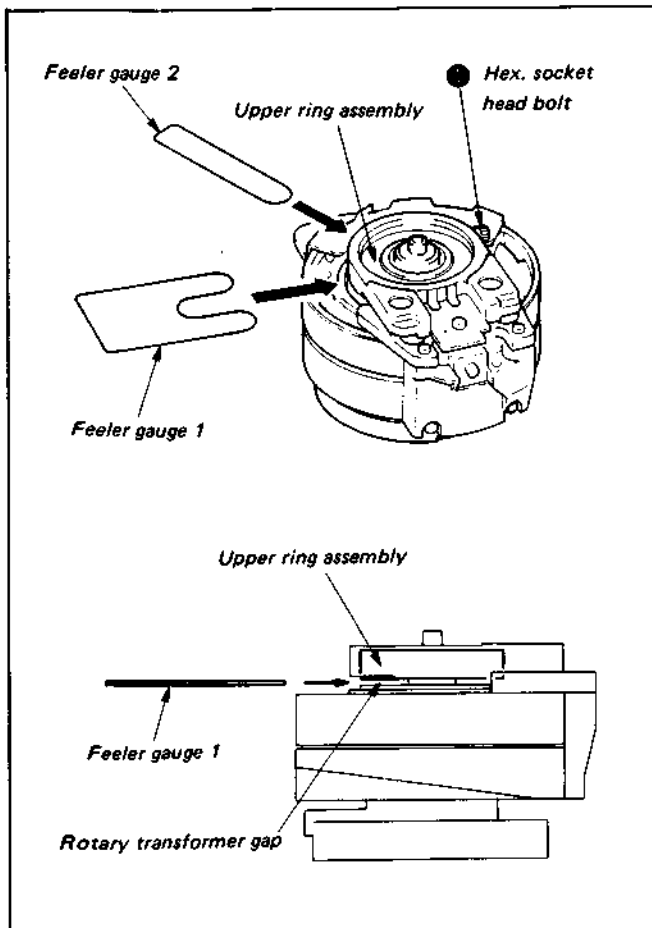


Fig. 3-7 Adjusting AFM rotary transformer gap

### 3-3. REPLACING UPPER DRUM

Accessory adjusting jig: Centering jig

**Note:**

Keep it carefully after replacing the upper drum, as it will be used again when replacing the guide arm assembly. (It does not accompany the guide arm assembly.)

#### 3-3-1. How to Remove Upper Drum (See Fig. 3-8)

**Note:**

While removing the upper drum, never move hex. socket head bolt ⑦. If it is moved, the gap in the rotary transformer must be adjusted later. (Refer to Paragraph 3-2-3.)

- 1) Unscrew two screws ① and remove the damper assembly.
- 2) Unscrew two screws ②, and remove the guide arm assembly.
- 3) Unscrew hex. socket head bolt ③ with an Allen key.
- 4) Unscrew two screws ④, and remove the upper drum together with the upper drum mounting plate.  
**Note:** Be extremely careful not to touch parts around the drum.
- 5) Unscrew two screws ⑤, and remove the upper drum mounting plate from the upper drum.
- 6) Unscrew two screws ⑥, and remove the tape retainer spring assembly.

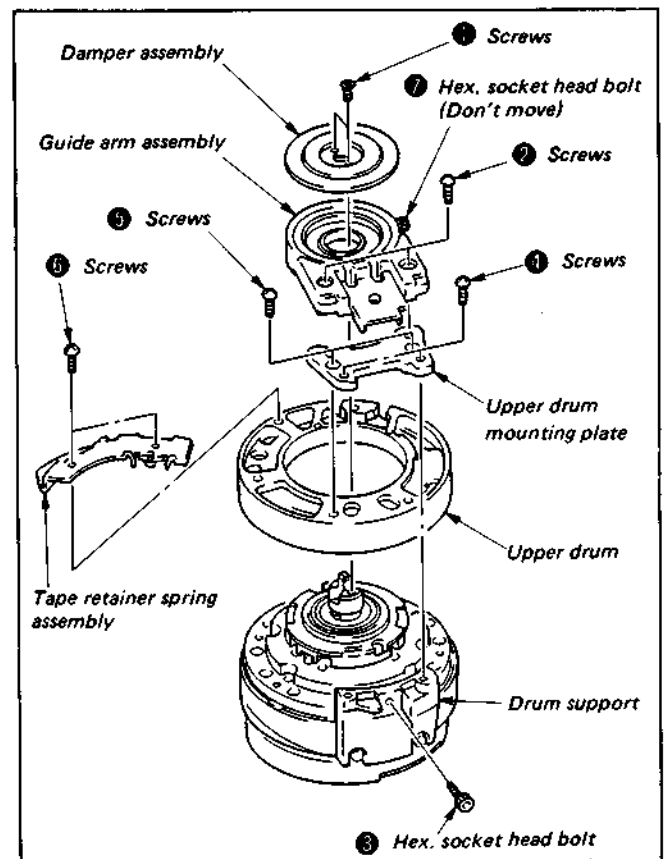


Fig. 3-8 How to remove upper drum

### 3-3-2. How to Refit Upper Drum (See Fig. 3-8)

- 1) Fit the tape retainer spring assembly to the replacement upper drum with two screws ⑥.
- 2) Refit the upper drum mounting plate with two screws ⑤.
- 3) Lightly clamp the upper drum mounting plate installed to the upper drum to the drum support with two screws ④.
- 4) Tighten hex. socket head bolt ③ while holding the upper drum and the upper drum mounting plate tightly onto the drum support by hand.
- 5) Firmly tighten two screws ①.
- 6) Refit the guide arm assembly with two screws ②.

**Note:**

Don't firmly tighten screws 2, but allow the guide arm assembly to move horizontally.

- 7) Insert the centering jig found in the box of the replacement upper drum between the guide arm assembly and the damper holder, and tighten screws ② firmly. Remove the centering jig, and check the clearance between the guide arm assembly and the damper holder for uniform distribution (See Fig. 3-8, 3-9).
- 8) Refit the damper assembly with two screws ①.

### 3-3-3. Centering Adjustment (See Fig. 3-9)

- 1) Loosen the screw ② fastening the guide arm assy without removing the screw, enabling the guide arm assy to move horizontally.
- 2) Insert the centering jig supplied as an accessory in the gap between the guide arm assy and damper holder on the change upper drum.
- 3) Tighten the screw ② holding the centering jig.
- 4) Remove the centering jig and check that the gap between the guide arm assy and damper holder is uniform. Readjust starting 1) if the gap is not even.

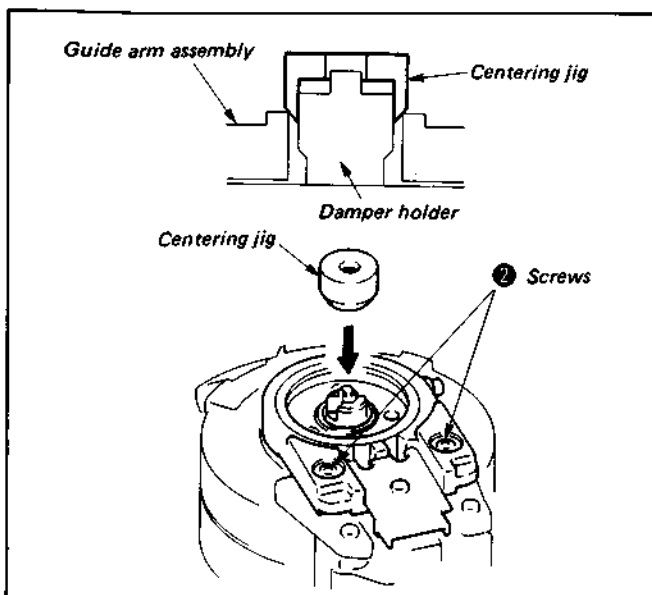


Fig. 3-9 Centering adjustment

### 3-4. CAUTION WHEN CHANGING ROTARY COUPLER ASSY AND GUIDE ARM ASSY

- 1) Make sure to adjust the gap (refer to Paragraph 3-2-3) after changing the rotary coupler assy. The adjust jigs (spacers 1 and 2) can be found with the rotary head disk assy for repair (A-6762-226-A).
- 2) Make sure to adjust centering (refer to Paragraph 3-3-3) and gap (refer to Paragraph 3-2-3) after changing the guide arm assy. The adjust jigs (centering jig, feeler gauge 1 and 2) can be found with the upper drum for repair (A-6760-178-A) and rotary head disk assy for repair (A-6762-226-A). (Refer to Section 1-9)

### 3-5. VIDEO HEAD DIHEDRAL CHECK AND ADJUSTMENT

This adjustment is generally unnecessary, but it is sometimes necessary when the video head disk is replaced. (The video head disk used for maintenance has been precision adjusted at the factory using a microscope and almost never needs to be readjusted.)

When judging whether the video head dihedral angle is correct, the alignment tape is played back. When this is done the tracking control knob must be in the centering position. If the check is done with this knob in other than the center click position (if the tracking is off-center), even if the dihedral angle is correct the picture will be reproduced as if it were off.

Before this adjustment is performed, the ACE assembly position adjustment (refer to the section where the tape path adjustment is described) must be completed.

#### [Method of checking]

With the tracking control knob set to the center click position, play back the monoscope section of the alignment tape. Check to see if any of the vertical monoscope lines immediately below the switching pulse are reproduced double. If not, the dihedral angle is correct and does not have to be adjustment. If so, perform the adjustment as explained below.

#### [Adjusting method]

- 1) Insert the two dihedral adjusting screws (Jig Ref. No. J-10) into the adjusting screw holes on both sides of the video head - Ach (see Fig. 3-11) so that the tops of the adjusting screws flush with the upper face of the video head disk as shown in Fig. 3-10. (If screwing in is not sufficient, the video head disk does not rotate as the heads of the adjusting screws ram the upper drum. Conversely, if screwed in more than necessary, the head base is moved, and video head dihedral adjustment becomes very inaccurate.)

#### Note:

Be most careful the head under the part on the coupler board that is marked with white silk is the video head - Ach. The side marked b with white silk is the reference side. Never move it. (See Fig. 3-11.)

- 2) Of the two adjusting screws, screw in farther either one of them until resistance is felt. Screwing in the screw farther, the video head moves, and dihedral adjustment can be made. (See Fig. 3-12)
- 3) Play back the monoscope signal part of the alignment tape with the adjusting screw on and check the signal. Rotate the screwed in adjusting screw counterclockwise to loosen it, then screw in the adjusting screw on the other side if the dihedral quantity of the vertical line has become larger than before making the adjustment.
- 4) Remove the adjusting screws and recheck after completing the adjustment.

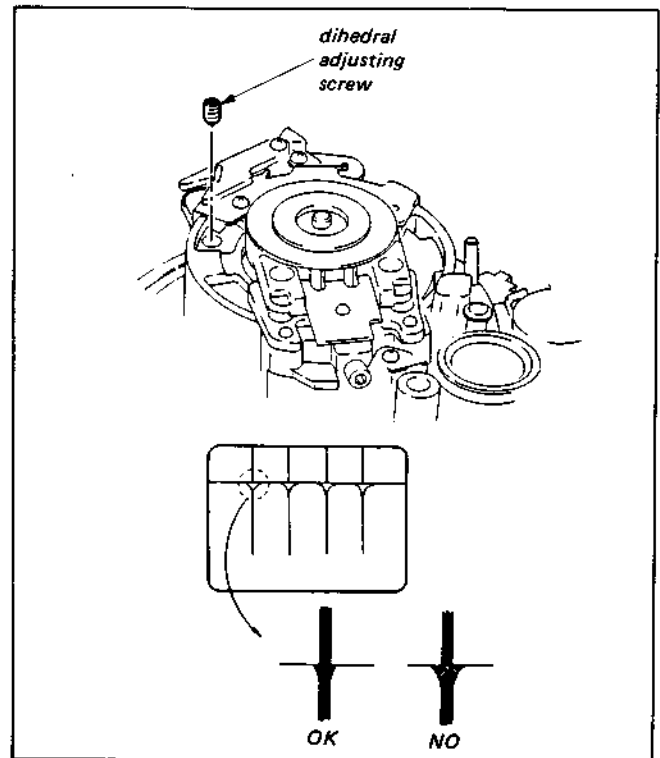


Fig. 3-10 Video head dihedral adjustment (1)

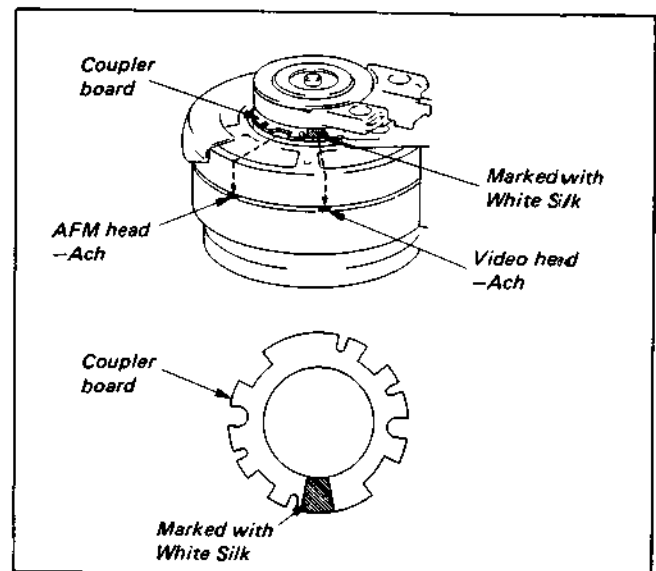


Fig. 3-11 Video head dihedral adjustment (2)

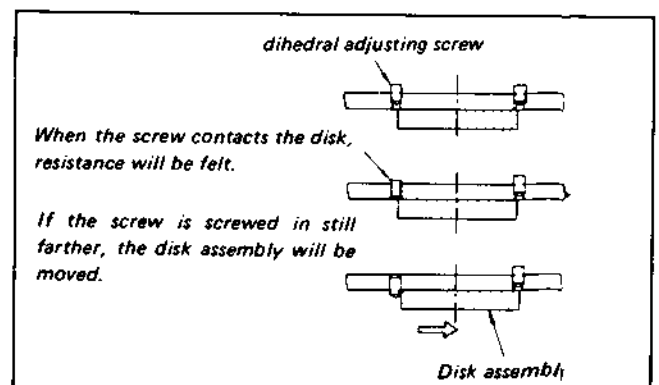


Fig. 3-12 Video head dihedral adjustment (3)

### 3-6. REPLACEMENT AND ADJUSTMENT OF THE DRUM ASSEMBLY

#### 3-6-1. Replacement of the Drum Assembly

- 1) Measure gap **A** between adjusting plate 2 **1** and the upperdrum holder section and record the measurement.  
**Note:**  
 The position where the adjusting plate is mounted has a large effect on the tape path, so this measurement must be performed.
- 2) Measure gap **B** between adjusting plate 3-1 **2** and the upper drum holder section, and record the measurement.  
**Note:**  
 The position where the adjusting plate is mounted has a large effect on the tape path, so this measurement must be performed.
- 3) Remove the screws **3** shown in Fig. 3-13, then remove the tape guide ground plate and adjusting plates 2 and 3-1.
- 4) Remove the 3 connectors **4** from the rear of the chassis as shown in Fig. 3-14.
- 5) Remove the 3 drum mounting screws **5** from the rear of the chassis, then remove the main body of the drum assembly. After the replacement has been completed, adjust the drum path.

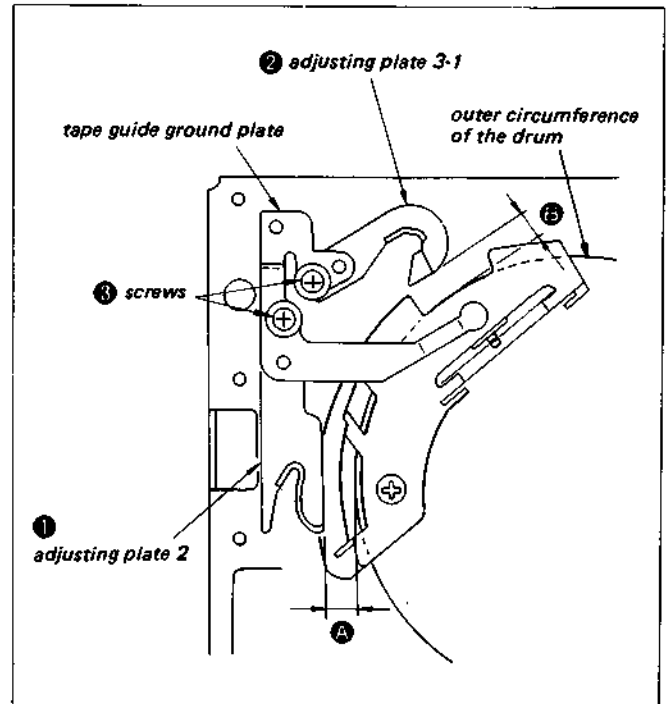


Fig. 3-13 Measurement of the position of adjusting plates 2 and 3-1

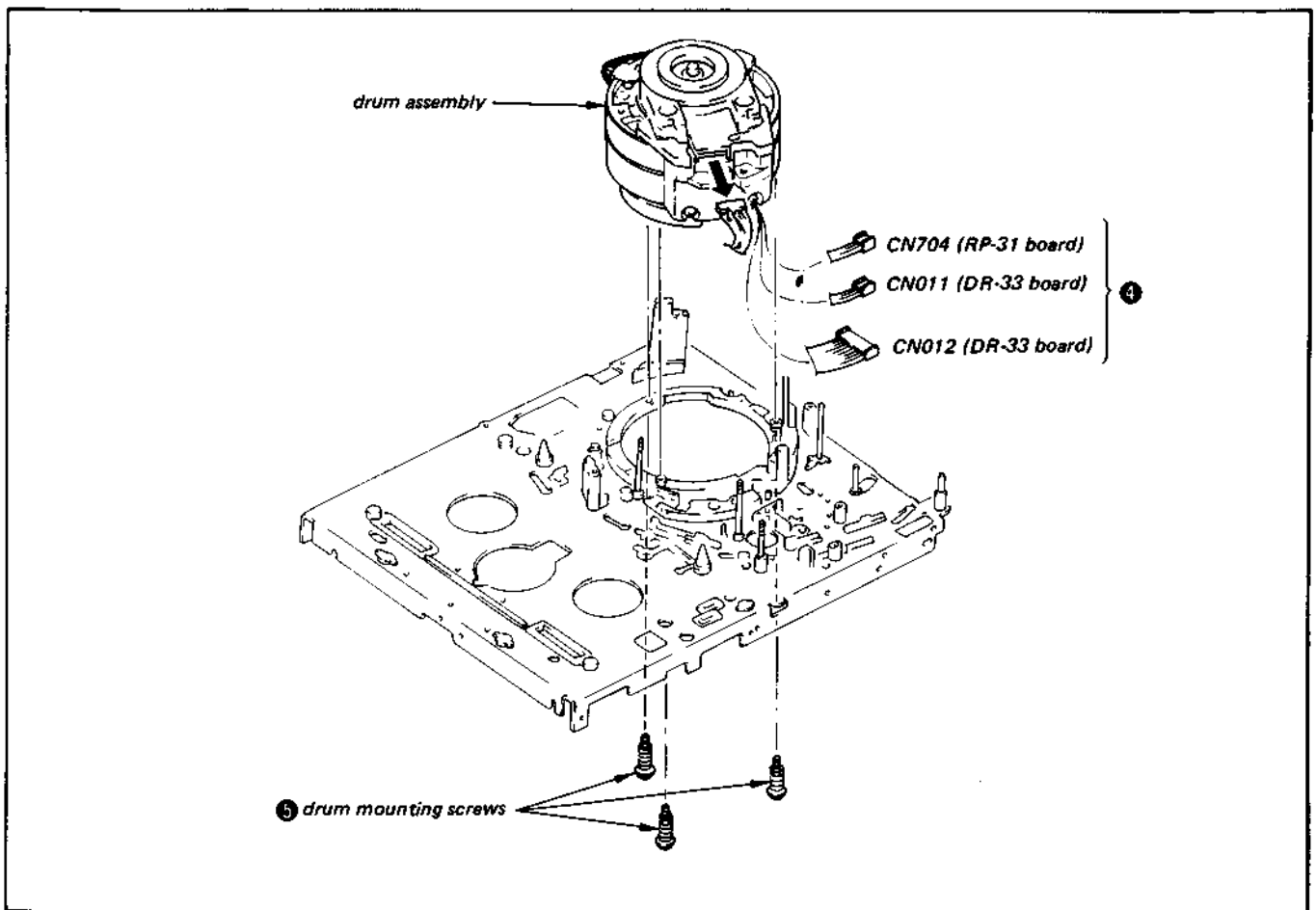


Fig. 3-14 Removal of the drum assembly

### 3-6-2. Adjustment of the Motor Gap when Replacing the Drum Assembly

After replacing the drum assembly, adjust the gap between the motor rotor and the coil to 0.3 mm to 0.6 mm (Fig. 3-15).

#### [Procedure]

- 1) When re-assembling the drum, use the spacers which were removed to produce a gap of between 0.3 mm and 0.6 mm. Measure the gap using the gauge. If the gap is adjusted correctly, the 0.3 mm side should fit in and the 0.6 mm side should not.
- 2) If this fails to give the correct gap width, do not use the spacers which were removed; instead, use a combination of the 4 0.3 mm accessory spacers to obtain the correct width.

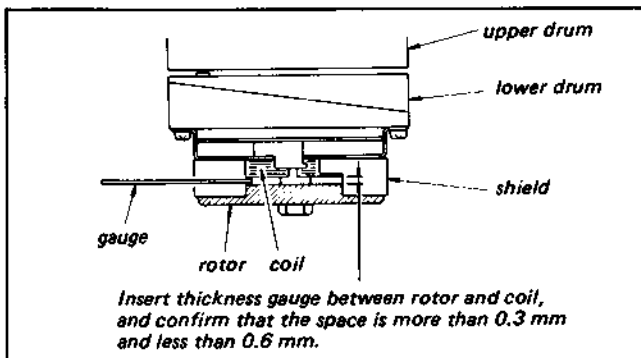


Fig. 3-15 Checking the motor gap width after replacing the drum assembly

#### Removal of the stator and rotor when replacing the drum

- 1) Remove the nut ① and washer ②.
- 2) Remove the rotor ③ from the stator ④.
- 3) Remove the ② screws ⑤, then remove the stator from the main body of the drum.

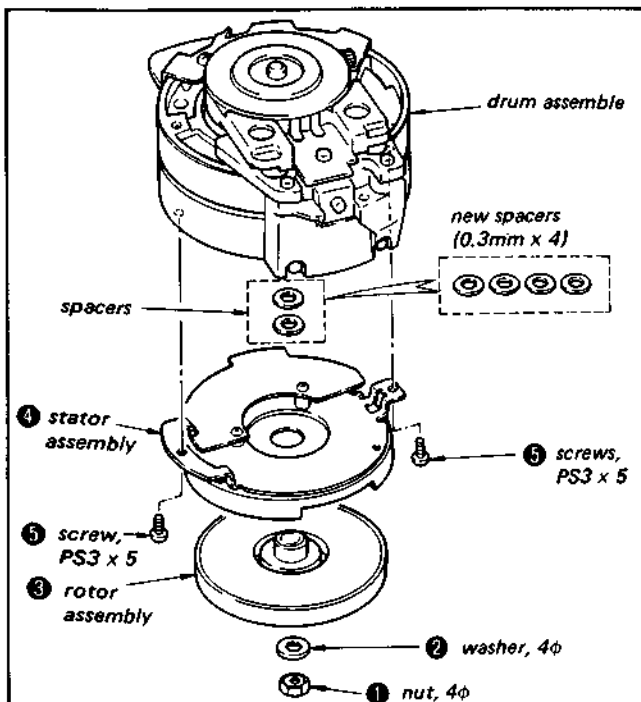


Fig. 3-16 Removal of the stator and rotor when replacing the drum

### 3-7. REPLACEMENT OF THE CAPSTAN MOTOR

#### 3-7-1. Removal of the Capstan Motor (Fig. 3-17)

- 1) Remove the two screws (+PW2 x 6) ① and the screw (+P2.6 x 5) ②.
- 2) Remove the capstan motor ③ from the rear of the mechanical chassis.

#### Note:

When the capstan motor has been removed or replaced, check the tape path once.

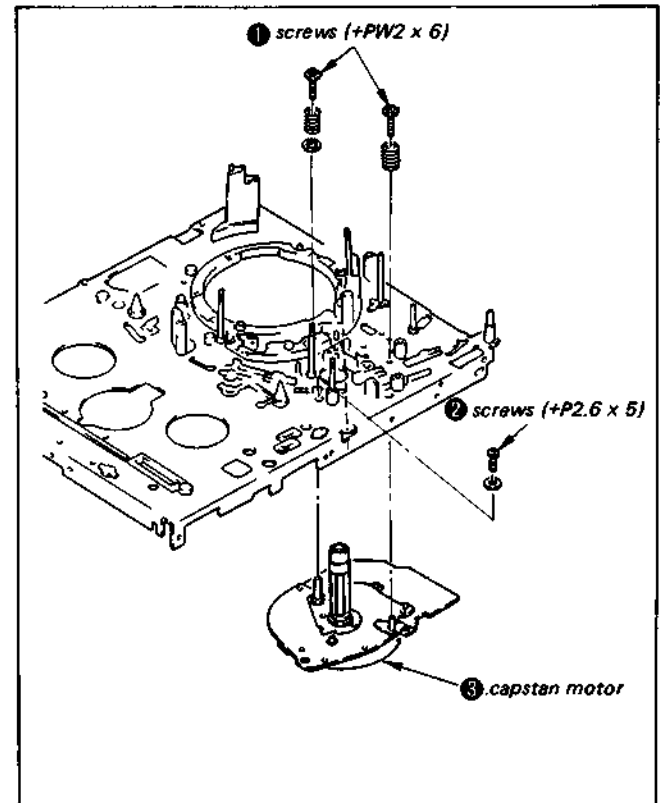


Fig. 3-17 Removal of the capstan motor

### 3-7-2. Capstan Shaft Verticality Adjustment

When the capstan motor has been replaced or removed, be sure to make the following adjustment.

- 1) Loosen clamping screws **B** and **C**.
- 2) Apply jig (J-2) vertically to the capstan motor shaft and the no. 8 guide sleeve, as shown in Fig. 3-10.
- 3) Turn adjust screw **A** until the capstan motor shaft becomes vertical.
- 4) Apply the jig to the capstan motor shaft and the no. 10 guide shaft of the pinch arm assembly in the vertical attitude as shown in Fig. 3-11.
- 5) Turn adjust screw **C** until the capstan motor shaft becomes vertical, and clamp the capstan motor.
- 6) Apply the jig again as shown in Fig. 3-10, and check the verticality of the capstan motor shaft. If it is not accurately vertical, repeat the processes from 3).
- 7) Tighten clamping screw **B** to clamp the capstan motor.
- 8) Make adjustment following the described tape path adjustment processes.

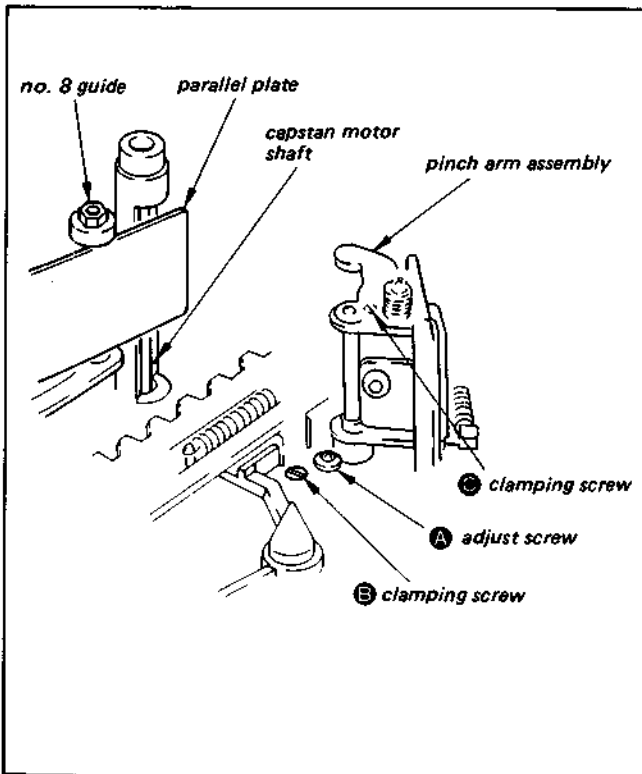


Fig. 3-18

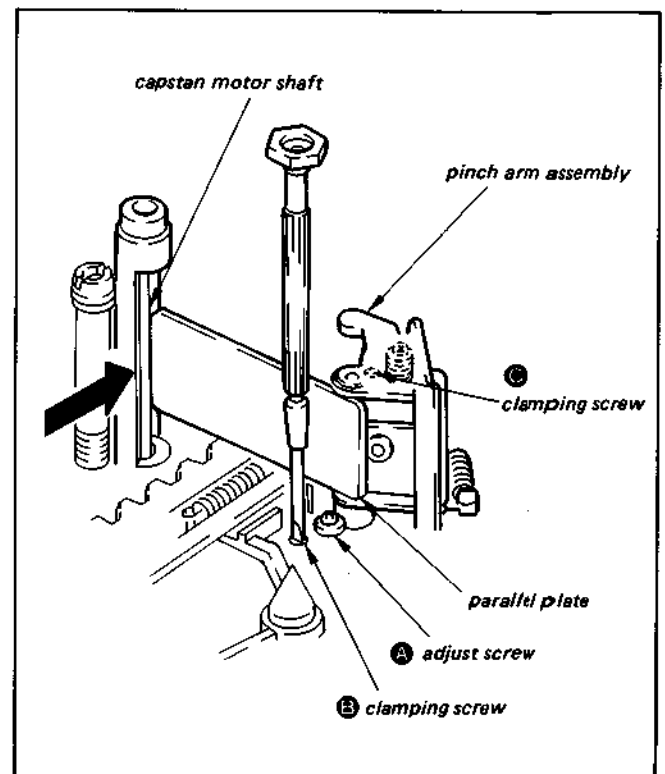


Fig. 3-19

### 3-8. REMOVAL OF THE No. 2 AND No. 3 GUIDES

#### 3-8-1. Removal of the No. 2 Guide

- ① Remove the 1x3 tap-in screw.
- ② Remove the 1.4x3 tap-in screw.
- ③ Remove the No. 2 guide assembly.

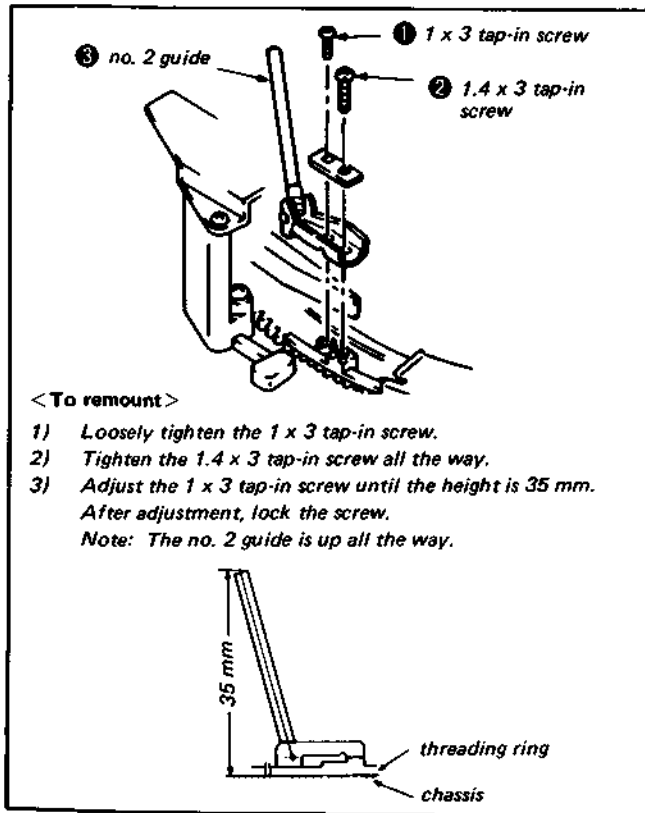


Fig. 3-20 Removal of the no. 2 guide

#### 3-8-2. Removal of the No. 3 Guide

- ① Remove the 1x3 tap-in screw.
- ② Remove the 1.4x3.5 tap-in screw
- ③ Remove the No. 3 guide assembly.

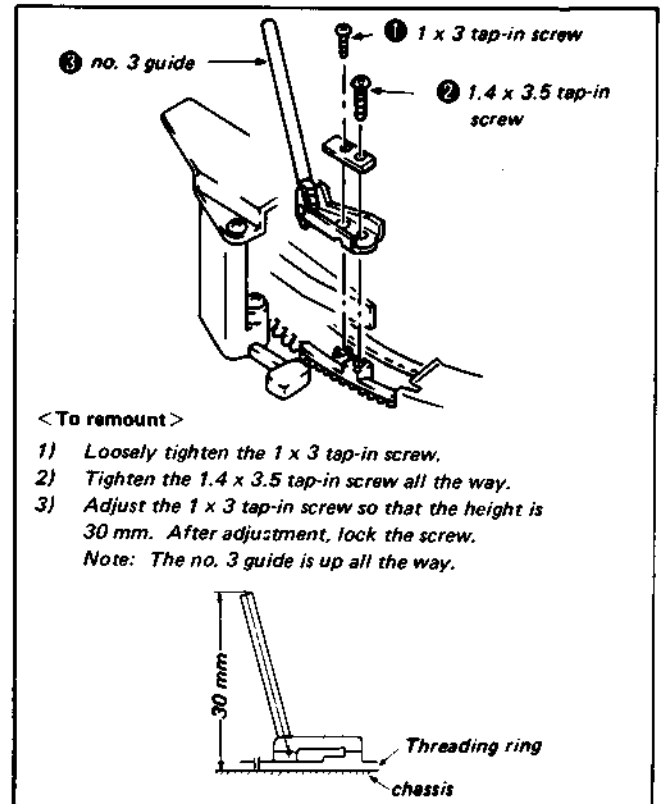


Fig. 3-21 Removal of the no. 3 guide



### 3-9. REPLACEMENT AND ADJUSTMENT OF THE S THREADING RING

#### 3-9-1. Preparation to Remove the S Threading Ring, Removal of the ACE Assembly, FE Head (Fig. 3-22)

- ① Remove the cross-recessed head screw.
- ② Remove the No. 6 guide nut.
- ③ Remove the No. 6 washer.
- ④ Remove the No. 6 guide spacer.
- ⑤ Remove the compression coil spring.
- ⑥ Remove the 2 guide adjustment screws, then remove the ACE assembly and the FE head.

**Note:**

Since the ACE assembly and the FE head are connected by a lead wire, be careful when removing them. It is not necessary to remove the compression coil spring below the ACE assembly, but be careful not to use it.

- ⑦ Remove the L motor assembly, refer to 1) of "SECTION 1-15-2" Unthreading Method (II).

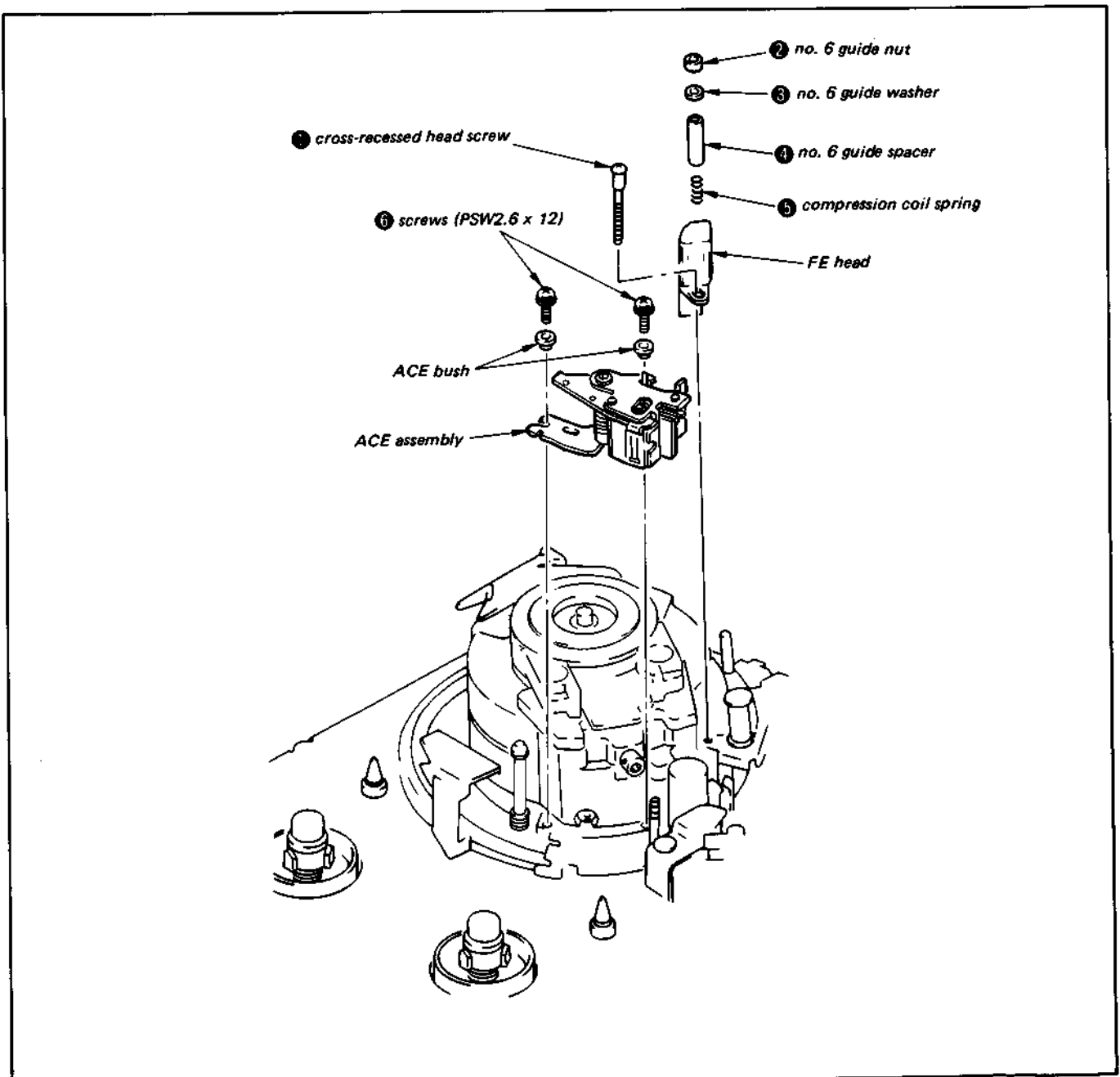


Fig. 3-22 Removal of the ACE assembly, FE head

**Removal of Miscellaneous Parts (Fig. 3-23)**

Proceeding in the same manner as in replacement of the drum assembly, measure the width of the gap between the upper drum and the adjusting plates (Fig. 3-13).

- ① Remove the screw, then remove the tape guide ground plate and adjusting plates 3-1 and 2.
- ② Remove the two screws, then remove the tape holder assembly.
- ③ Remove the screw, then remove the guide plate.
- ④ Remove the 2 PTPWH2x8 screws and the M2.6 screw, then remove shuttle guide 2.

- ⑤ Remove the 3 PTPWH2x8 screws and the M2.6 screw. Then remove the 2 claws holding shuttle guide 1-YA in place, and finally remove shuttle guide 1-YA.
- ⑥ Remove the slant base assembly.
- ⑦ Remove the BVTT2.6x6 screw, then remove the pinch liner link.

**Note:**  
After removing the guide plate, do not thread or unthread a tape with the shuttle guide mounted.

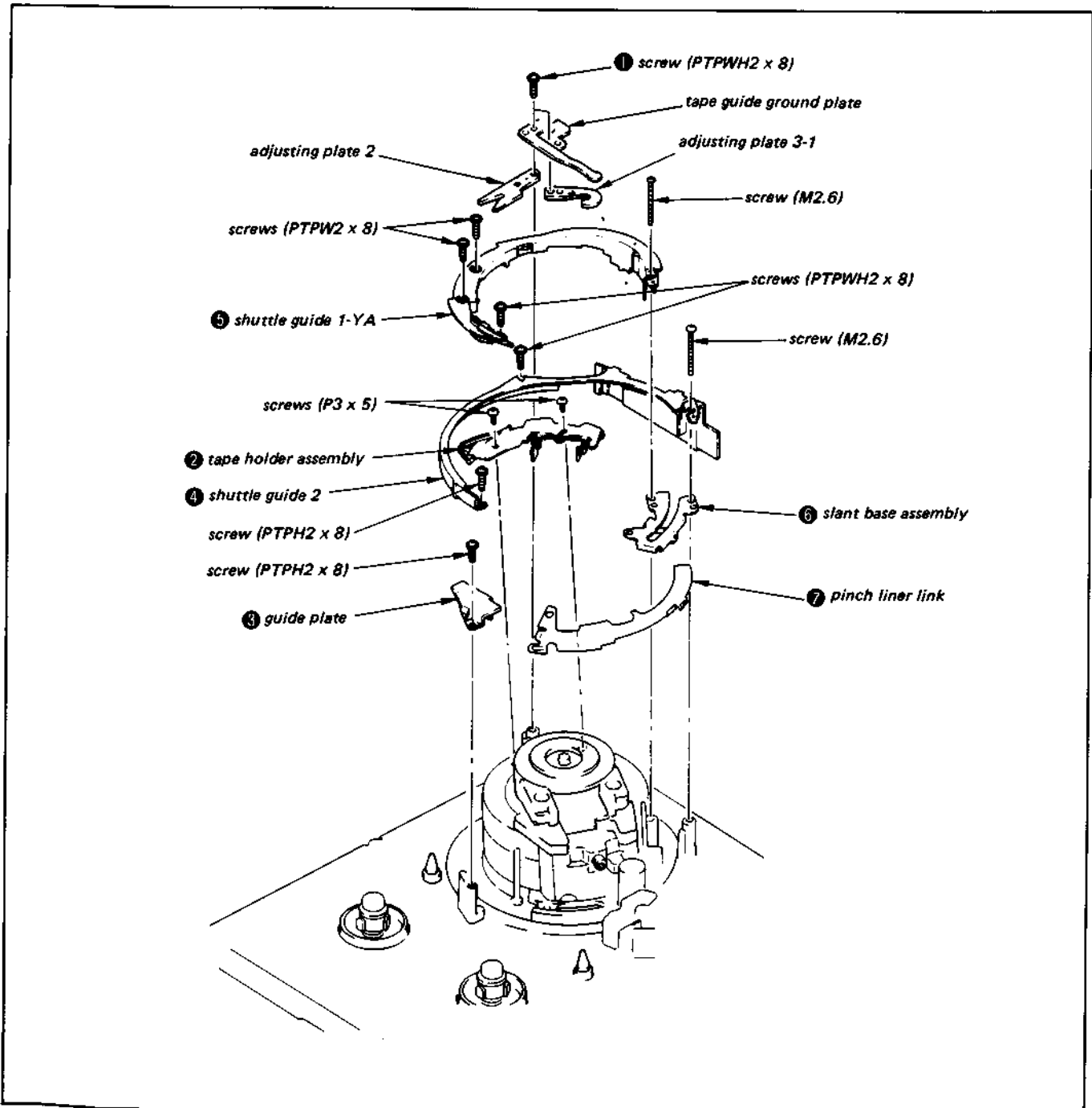
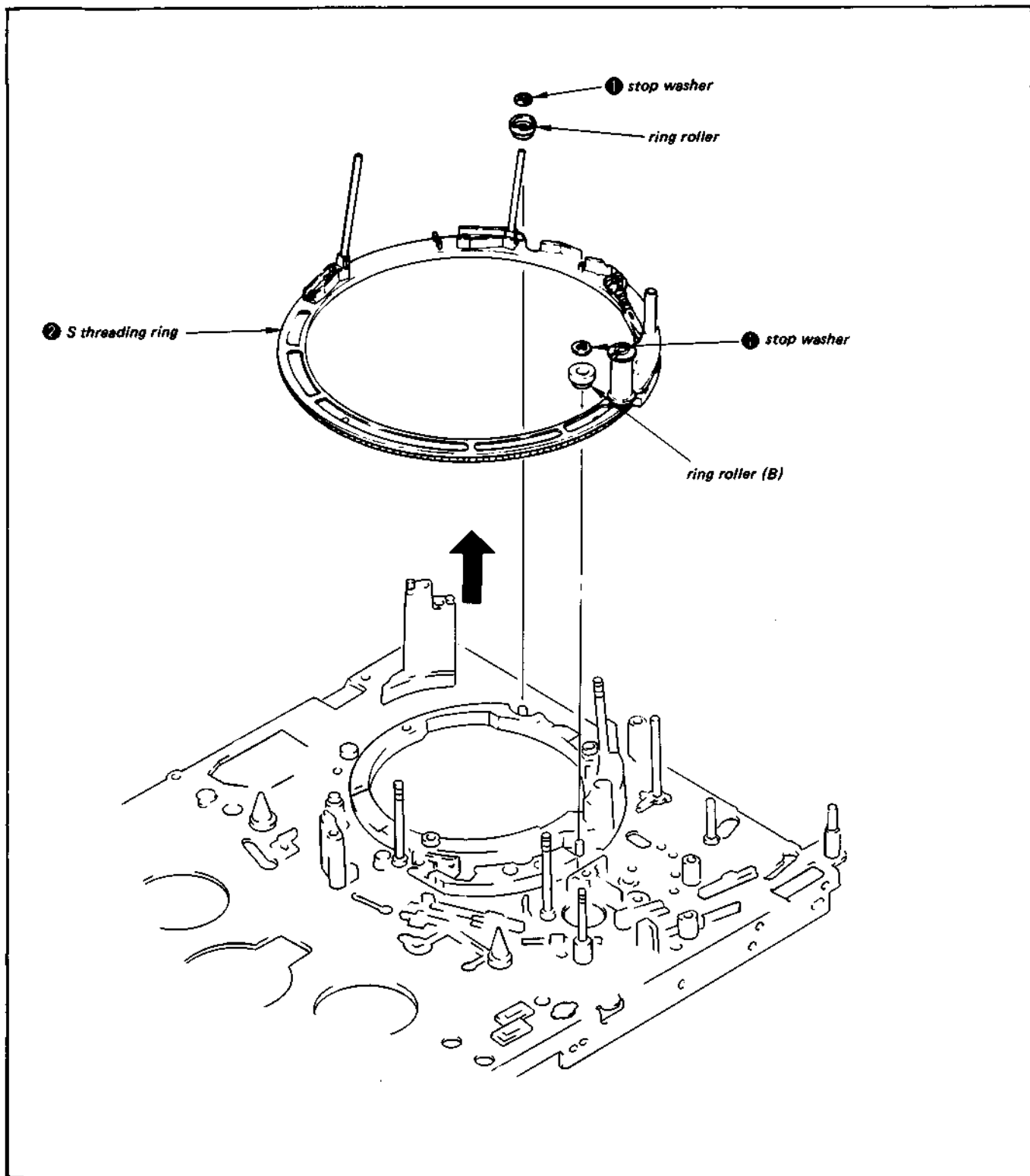


Fig. 3-23 Removal of miscellaneous parts

**3-9-2. Removal of the S Threading Ring (Fig. 3-24)**

- ① Turn the stop washer and remove the ring roller.
- ② Remove the S threading ring.

**Note:**  
Once a stop washer has been removed, do not use it again.



**Fig. 3-24** Removal of the S threading ring

**3-9-3. S Threading Ring Mounting and Position Adjustment**

- 1) Keep T slider assembly ① at the position where the unthreading has been complete (the state where flag assembly ② completely covers T coil sensor ③).
- 2) Mesh S threading ring ④ with gear chassis block assembly ⑤ so that the mechanical chassis hole comes to the longhole center.  
(If the mechanical chassis hole does not come to the center, turn the S threading ring in clockwise.)
- 3) Install ring roller (B) ⑥, and fix with the retaining washer.

**Note:**  
After replacement and installation, adjust the ACE assembly according to the tape pass adjustment procedure.

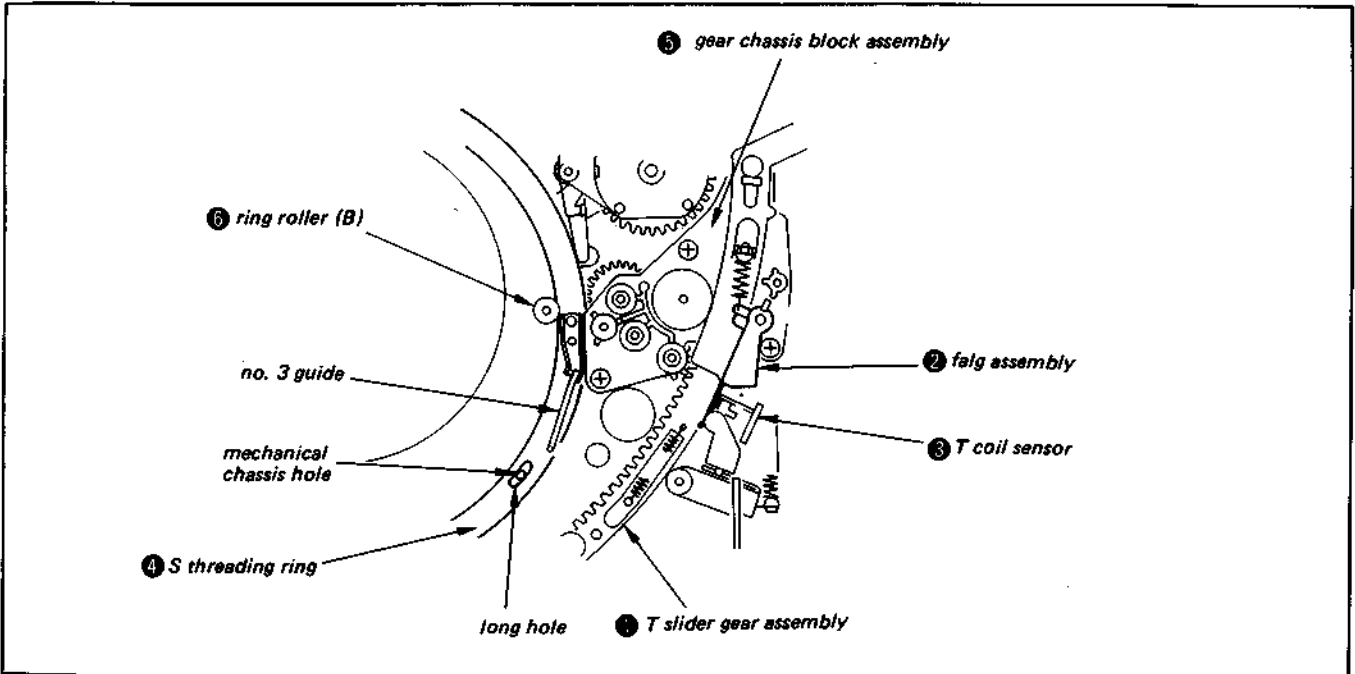


Fig. 3-25

### 3-10. REMOVAL AND ADJUSTMENT OF THE REEL BLOCK ASSEMBLY

#### 3-10-1. Removal of the Reel Block Assembly

Refer to SECTION 2 DISASSEMBLY, 2-9 REMOVAL OF THE REEL BLOCK ASSEMBLY. (SERVICE MANUAL)

#### 3-10-2. Removal and Refitting of the Tension Regulating Lever

##### [Removal]

- 1) Remove spring ① and remove S coil sensor ②.
- 2) Remove tension regulating band ③.
- 3) Remove spring ④.
- 4) Unlock claw ⑤ and remove tension regulating lever assembly ⑥.

##### [Installation]

- 1) Insert tension regulating lever assembly ⑥ until claw ⑤ locks to shaft ⑦.
- 2) Set spring ④ across the claw of function lever ⑧ and the fourth place from the left of the tension regulating lever assembly ⑥ in section A.
- 3) Push tension regulating lever assembly ⑥ in arrow B direction, and check it returns correctly.
- 4) Push tension regulating band ③ until its hole is locked with the protrusion of tension regulating lever assembly ⑥.
- 5) Insert shaft ⑨ into the hole of S coil sensor ②, and set spring ① across the claws of S coil sensor ② and the claw of function lever ⑧.

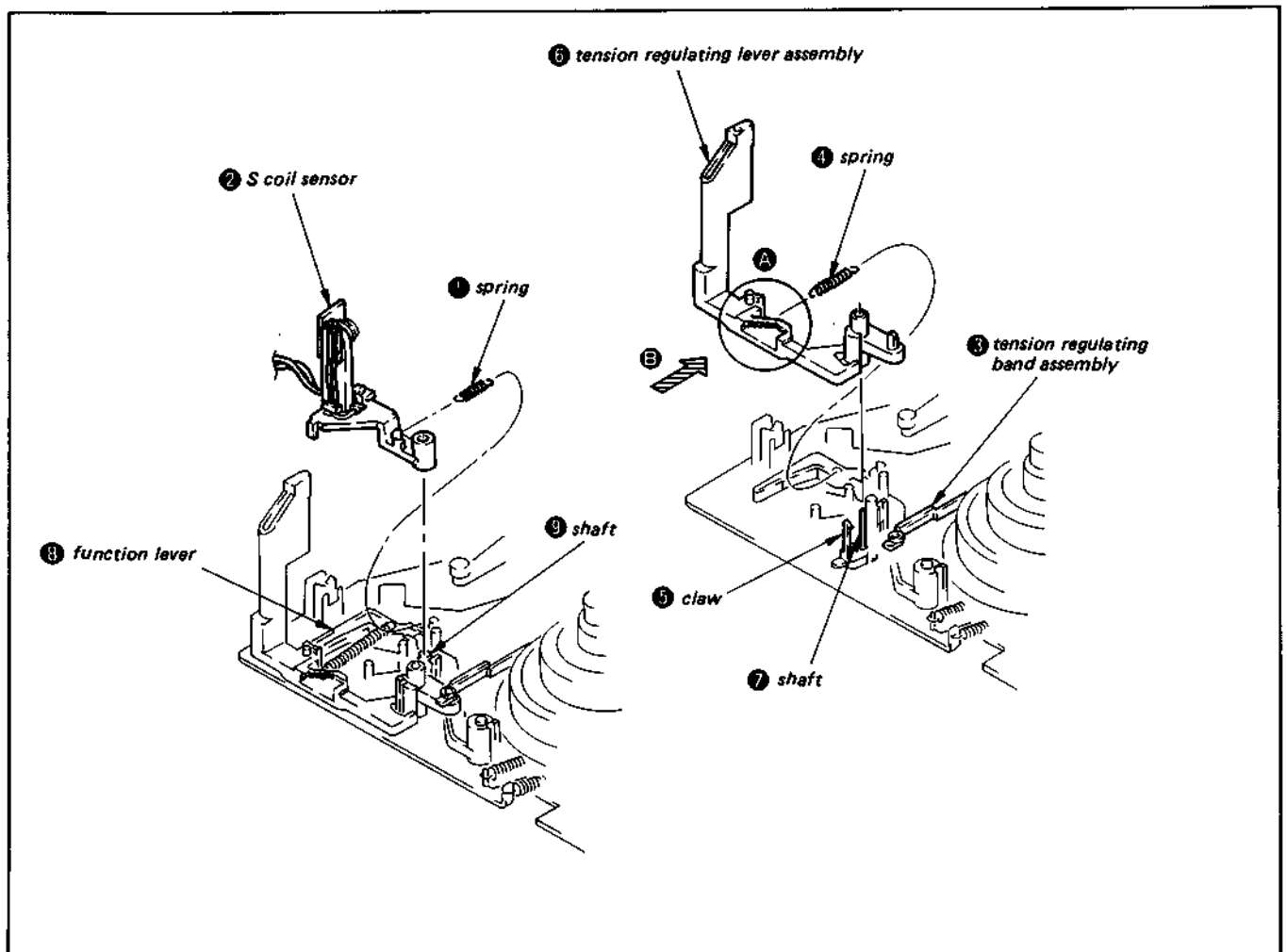


Fig. 3-26

### 3-10-3. S Coil Sensor, Harness Treatment and Operation Check

- 1) Thread harness ② from S coil sensor ① through claws ④ avoiding subchassis hole ③ and wind the harness around subchassis protrusion ⑤.
- 2) While keeping tension regulating lever assembly ⑥ pushed in arrow A direction, slightly push S coil sensor ① in arrow B direction. Release the hand and check that it is sprung back until it hits the subchassis protrusion ⑦.

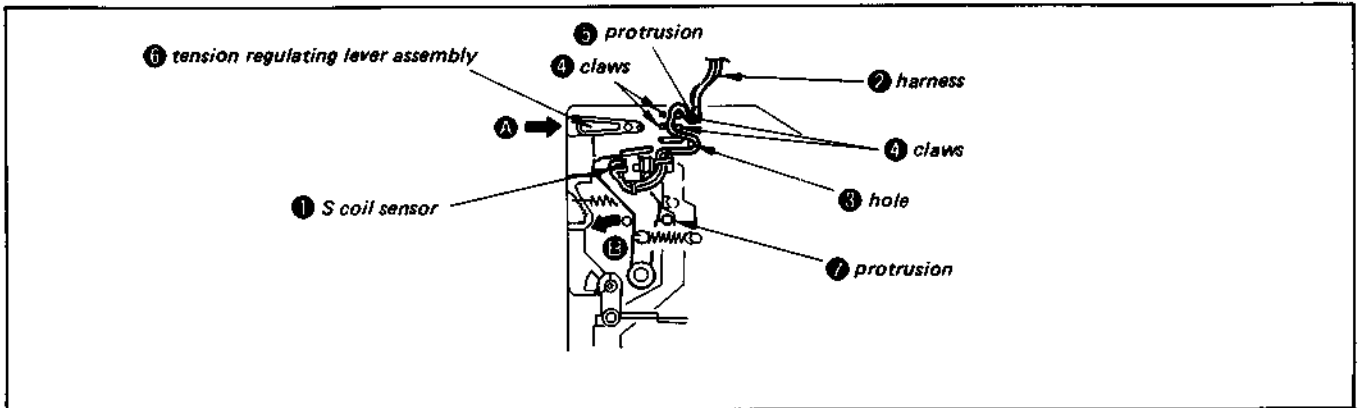


Fig. 3-27

### 3-10-4. Adjustment of the Position of Tension Regulating Lever

#### [Method of adjustment]

- 1) Set a cassette and enter a playback mode.
- 2) Check that the tension regulating lever assembly's tape guide pin is between shuttle guide 2 and shuttle guide 1-YA, as shown in Fig. 3-21.
- 3) If not positioned as step 2), press EJECT button and take out the cassette, loosen the adjusting screw, and adjust by moving the tension regulating lever assembly in arrow A direction.
- 4) After the adjustment, tighten the adjusting screw while keeping the tension regulating lever assembly in the position.
- 5) Repeat steps 1) and 2).

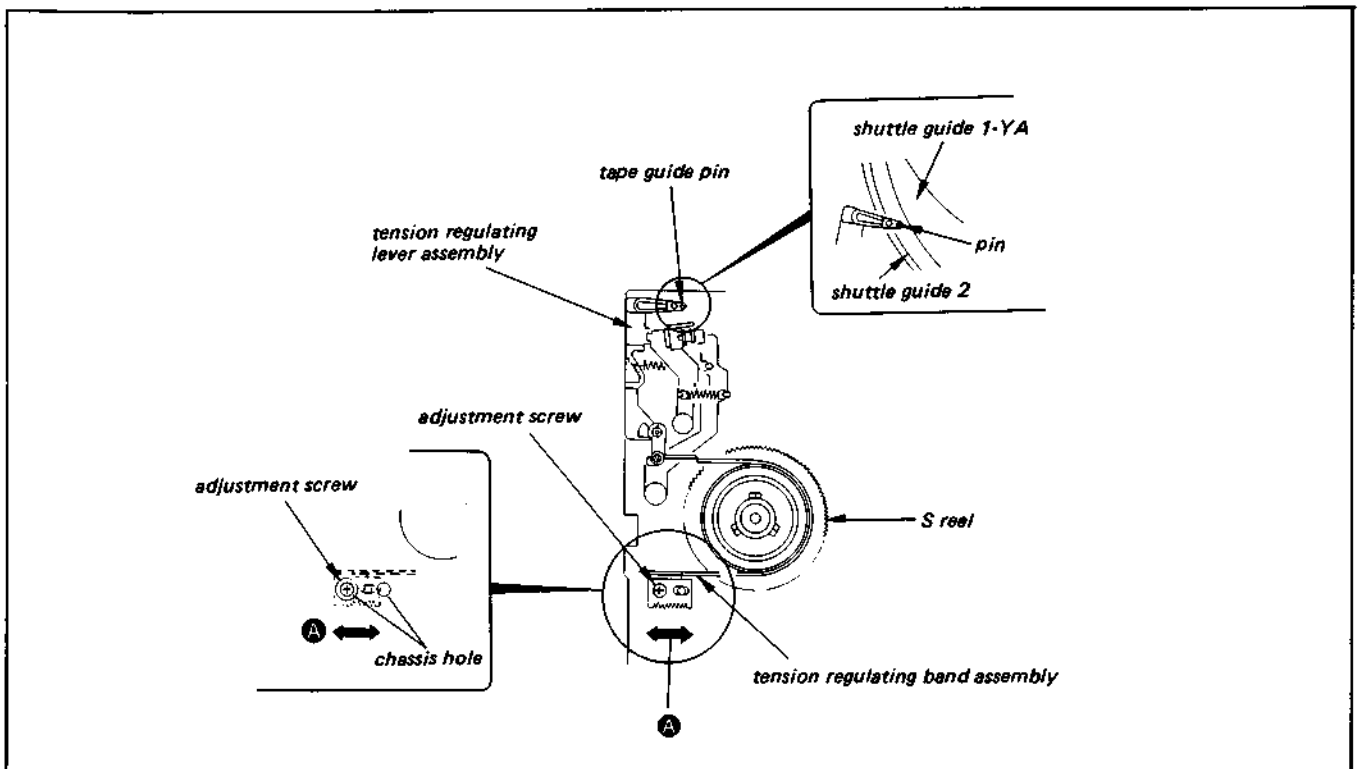


Fig. 3-28

### 3-11. REMOVAL AND INSTALLATION OF LS GEAR

#### 3-11-1. Removing LS Gear

- 1) Open the TA-36/37 board.
- 2) Remove two connectors (CN106 and CN109).
- 3) Remove two screws (BVTP3 x 8) ① and remove U/D arm guide ②.
- 4) Remove one screw (BVTP3 x 8) ③.
- 5) Hold LS gear assembly ④ at part ⑤, with forefinger

and part ⑥ with thumb.

- 6) Move LS gear assembly ④ in arrow ⑦ direction and pull two shafts of LS gear assembly ④ from inner frame ⑤.
- 7) Pull the leading end ⑧ of LS gear assembly ④ from the notch ⑨ of front frame ⑥, and remove roller ⑩ from U/D arm assembly ⑦.
- 8) Lift LS gear assembly ④ while pulling in arrow ⑪ direction.

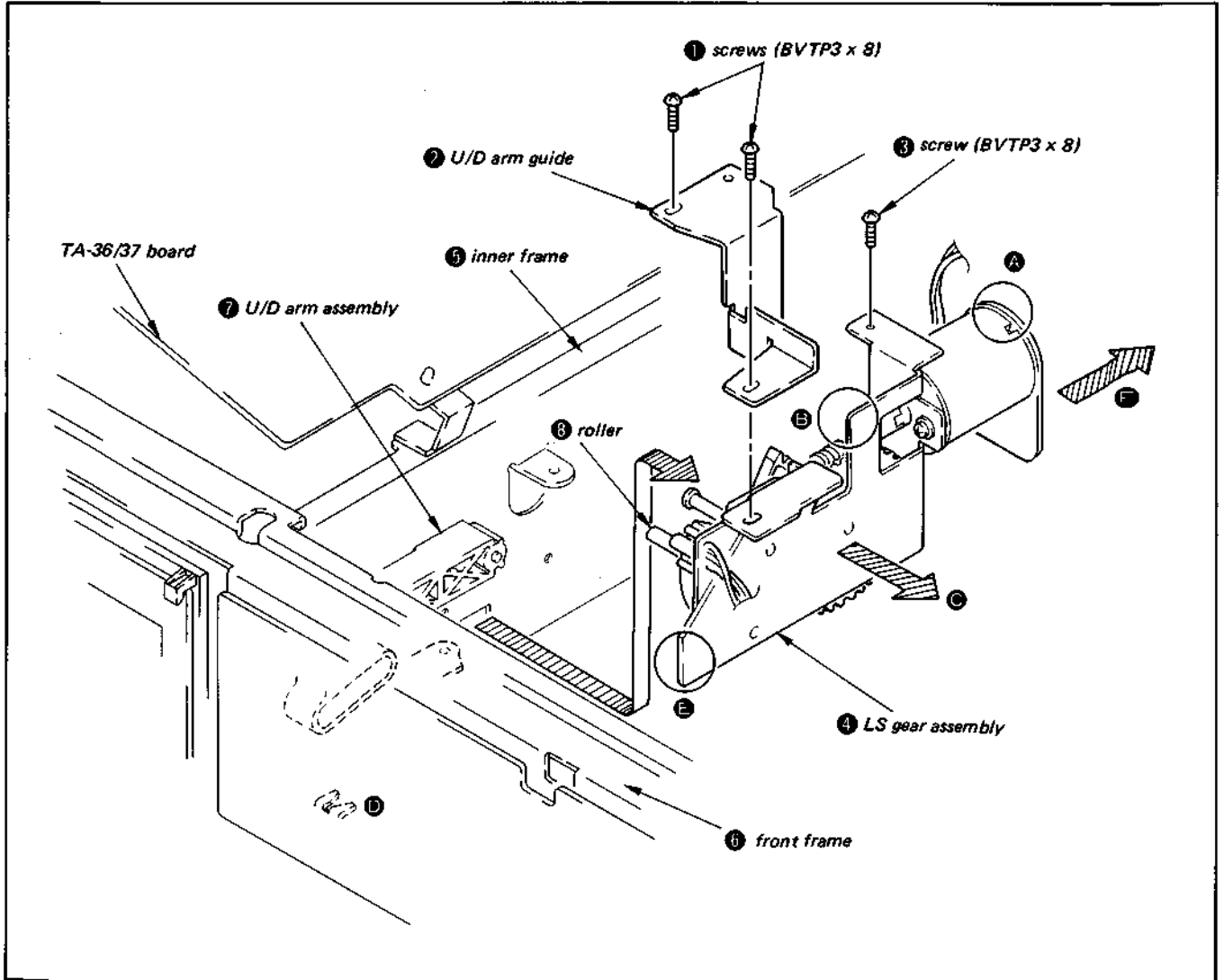


Fig. 3-29

### 3-11-2. Refitting of the U/D Arm Assembly

- 1) Insert inner frame shaft ② in the hole of U/D arm assembly ①.
- 2) Push U/D arm assembly ① in arrow A direction until its roller ③ and protrusion ④ are inserted into two holes of the inner frame.

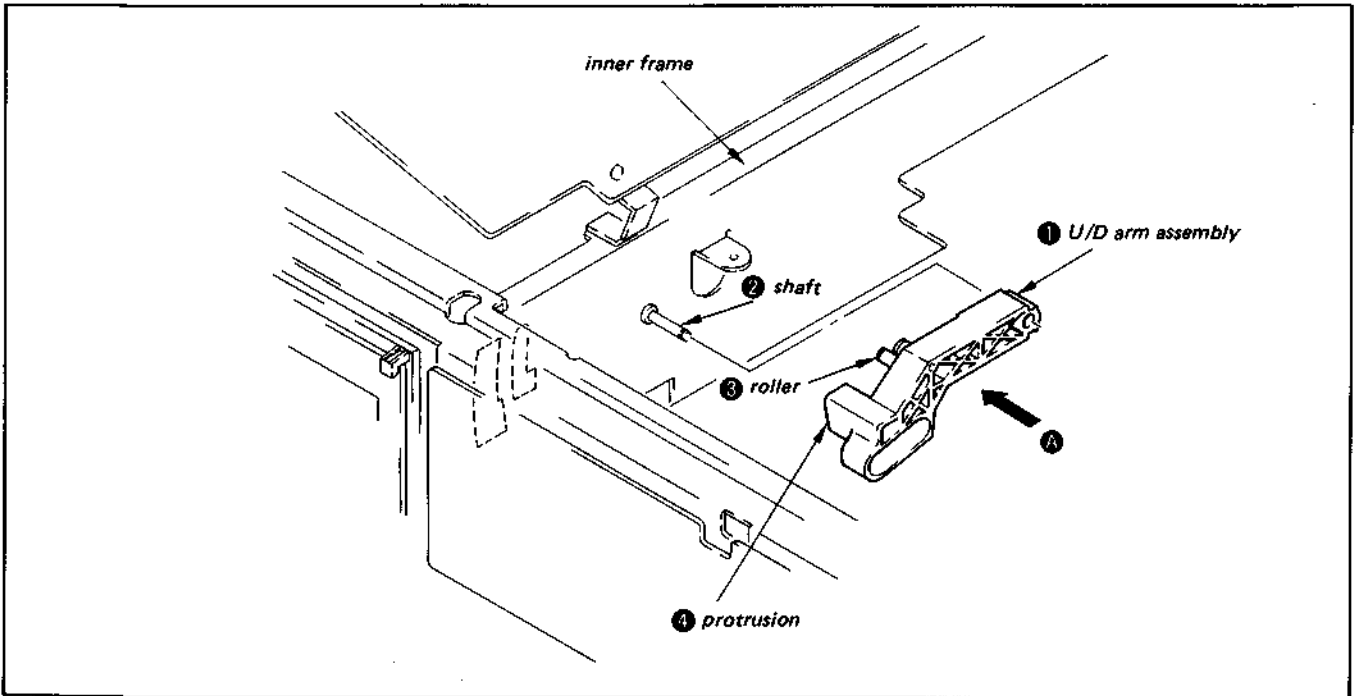


Fig. 3-30

### 3-11-3. Adjustment of the Position of the LS Gear Assembly

Set the protrusion ② of LS gear assembly ① to the lowest pattern of US-1 board ③.

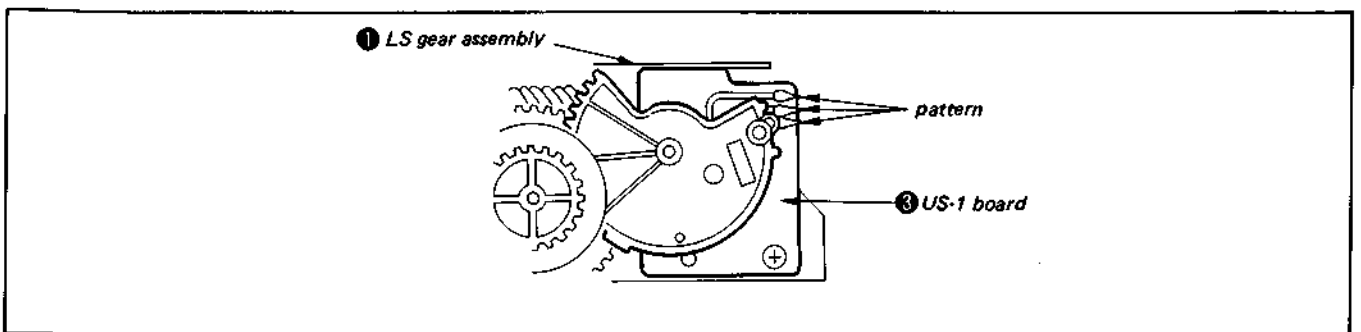


Fig. 3-31



### 3-11-4. Installation of LS Gear Assembly

- 1) Hold LS gear assembly ① at parts A and B, and place it in arrow C direction into the set, avoiding the SS-50 board, rise ④ and U/D arm assembly ③.
- 2) Place part D of LS gear assembly ① on the rise ④ of the front frame, and place part E of LS gear assembly ① on the rise ② of the middle frame.
- 3) Insert roller ⑤ into the long hole of U/D arm assembly ③, and insert part F of LS gear assembly ① into notch ⑥ of the front frame.
- 4) Insert shaft ⑦ and the gear center shaft ⑧ into the holes of the middle frame respectively, and install LS gear assembly ① by pushing in arrow C direction.

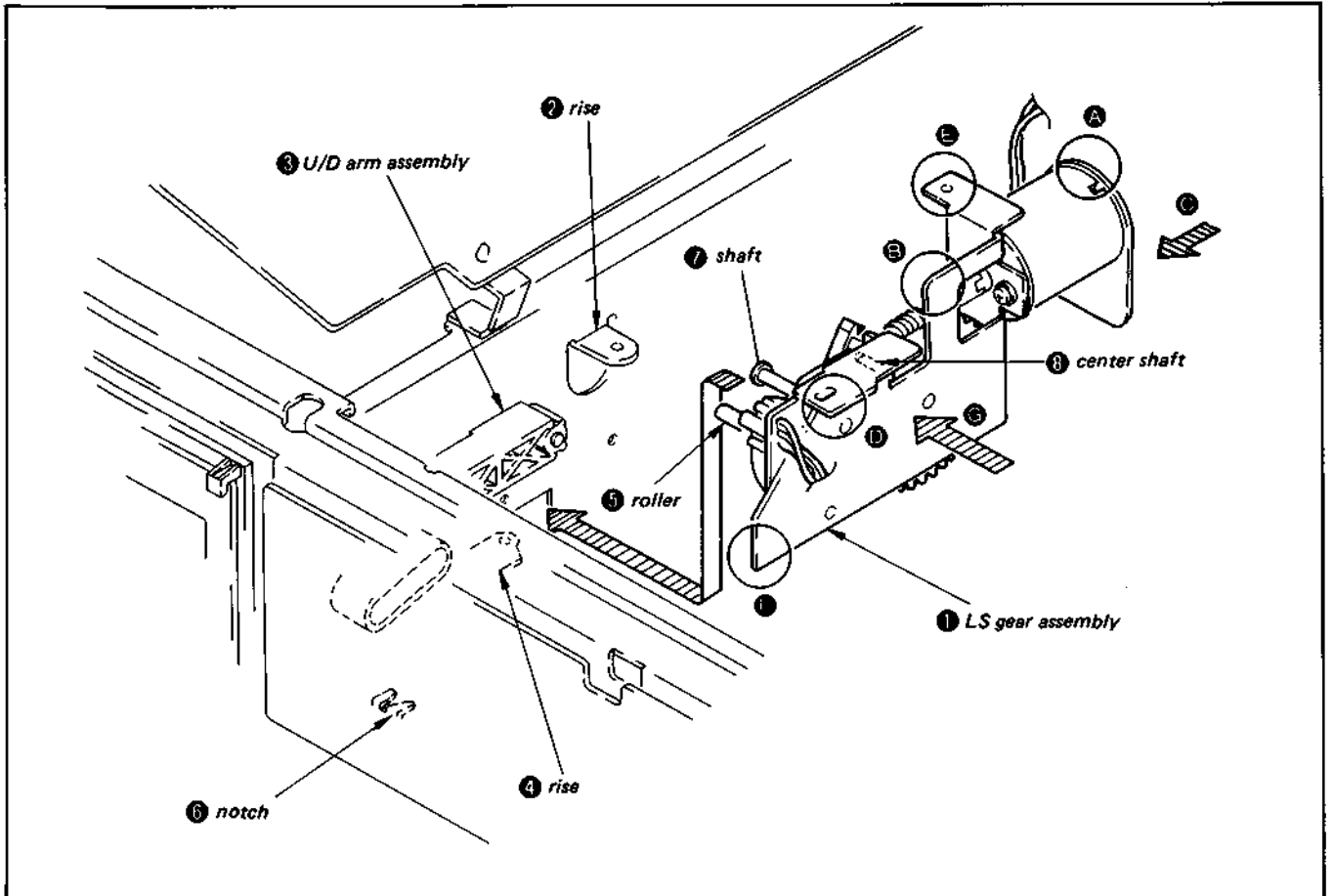


Fig. 3-32

### 3-12. ADJUSTMENT OF THE FORWARD BACK TENSION

#### [Method of measurement]

- 1) Insert the torque cassette (SL-0003C) and put the unit in playback mode.
- 2) Read the value on the meter on the S reel side after the needle has gone around about once.  
The correct value is  $44 \pm 4$  g-cm.

#### Notes:

- i) The set must be perfectly level during this measurement.
- ii) After the measurement, the tape can become slack when the stop button is pressed. If this happens set the unit in forward mode to take up the slack before removing the tape.

#### [Method of adjustment]

Move the position of the tension coil spring that is hooked on the tension regulating lever assembly in the direction of arrow **A** until the measured value falls within the correct range.

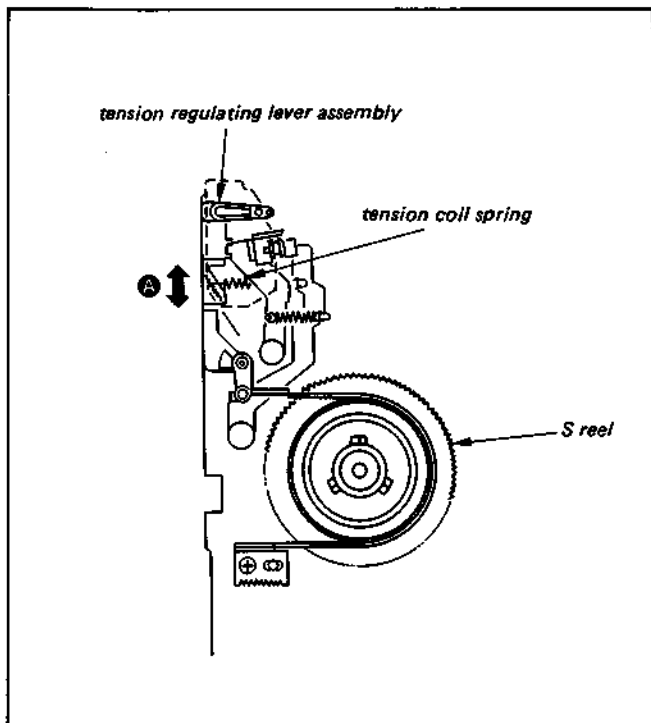


Fig. 3-33 Adjustment of the back tension

## 4. TAPE PATH ADJUSTMENT

### 4-1. TRACKING ADJUSTMENT

This adjustment has significant effect on picture quality in each mode and tape interchangeability, so please perform it very carefully.

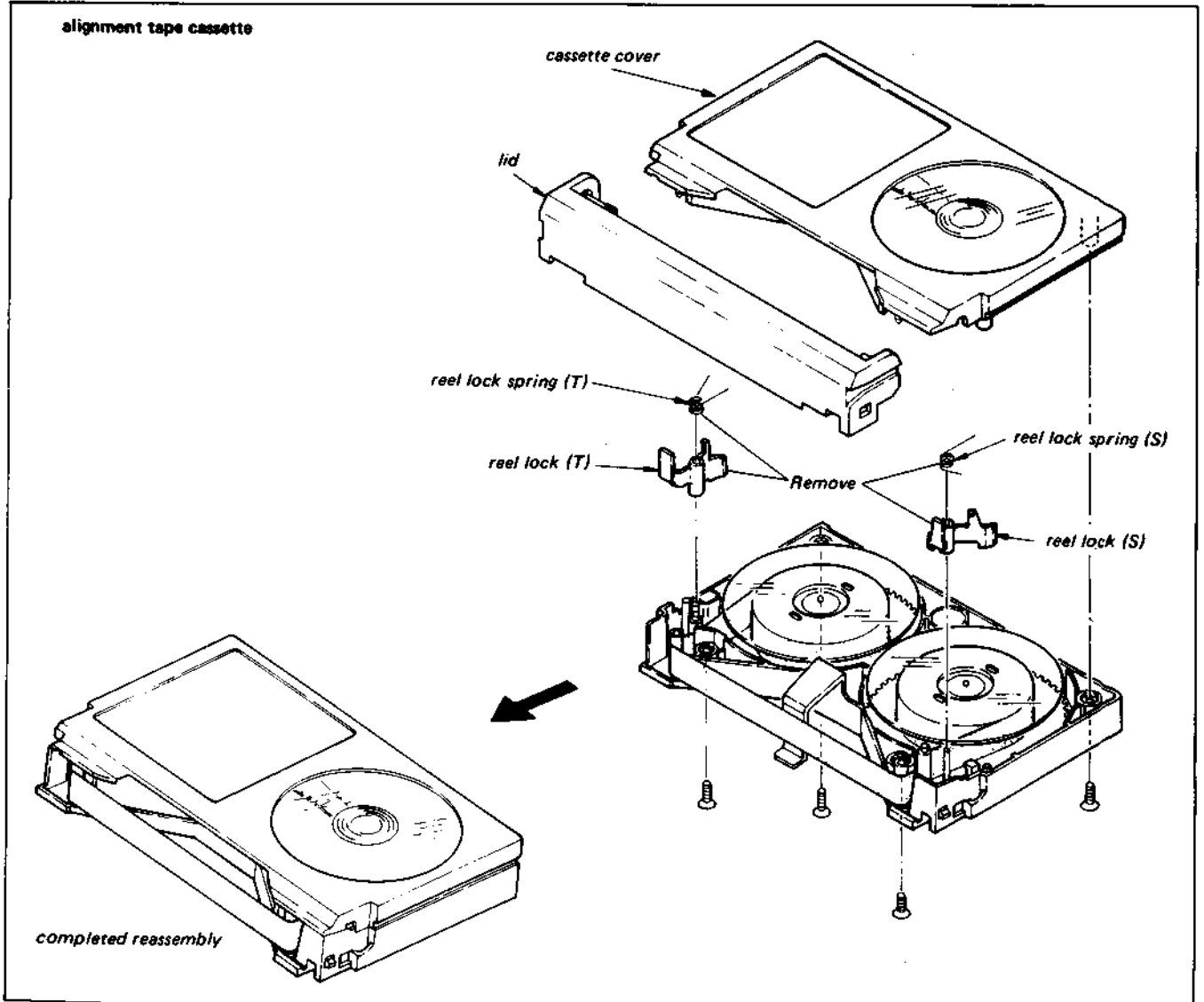


Fig. 4-1 Cassette Holder Remodeling

### 4-1-1. Preparation

- 1) When modifying alignment tape KR5-2H, use caution not to dislodge the tape reels from their correct position. Refer to Fig. 4-1 and remove the four screws that secure the upper cover to the lower cover.  
Remove the upper cover and lid. Separate the lid and lid tension spring from the upper cover. Remove the two reel lock springs (T and S) and the two reel locks (T and S). Remount only the upper cover, being certain that it is properly mated with the lower cover. Secure the covers with four screws. NOTE — If the reel locks, and related springs are not removed from the cassette, the tape will load but will not thread. In this case the cassette will be ejected from the VTR approximately eight seconds after being loaded into the VTR.
- 2) Clean the tape contact surfaces (tape guides, drum, capstan shaft, pinch roller, ACE FE head surface) with chamois dampened with methanol.
- 3) Oscilloscope connections:
  - 1ch: CN703 . . . 3 pin (RP-31 board)
  - 2ch: CN703 . . . 2 pin (RP-31 board)
- 4) Play back the tracking portion of the modified alignment tape.
- 5) Confirm that the RF output waveform is flat, with maximum amplitude. (The waveform should increase and decrease, remaining flat, when the tracking control knob is turned back and forth.) Also, when the waveform is maximum, confirm that the RF output waveform variation and contact satisfy the specifications shown in Fig. 4-2. If they do not, follow the instructions in 6).
- 6) If the tracking control knob is turned and the entrance waveform does not flatten as shown in Fig. 4-3(a), perform the entrance side adjustment in 4-1-2. If the exit waveform does not flatten as shown in Fig. 4-3(b), perform the exit side adjustment in 4-1-3.

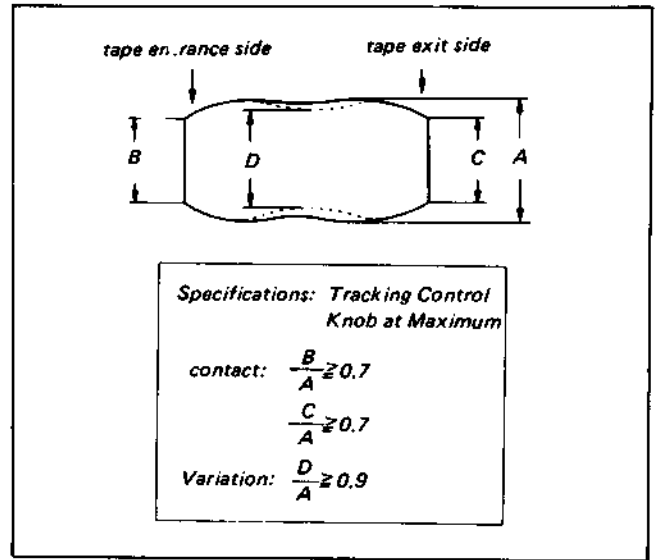
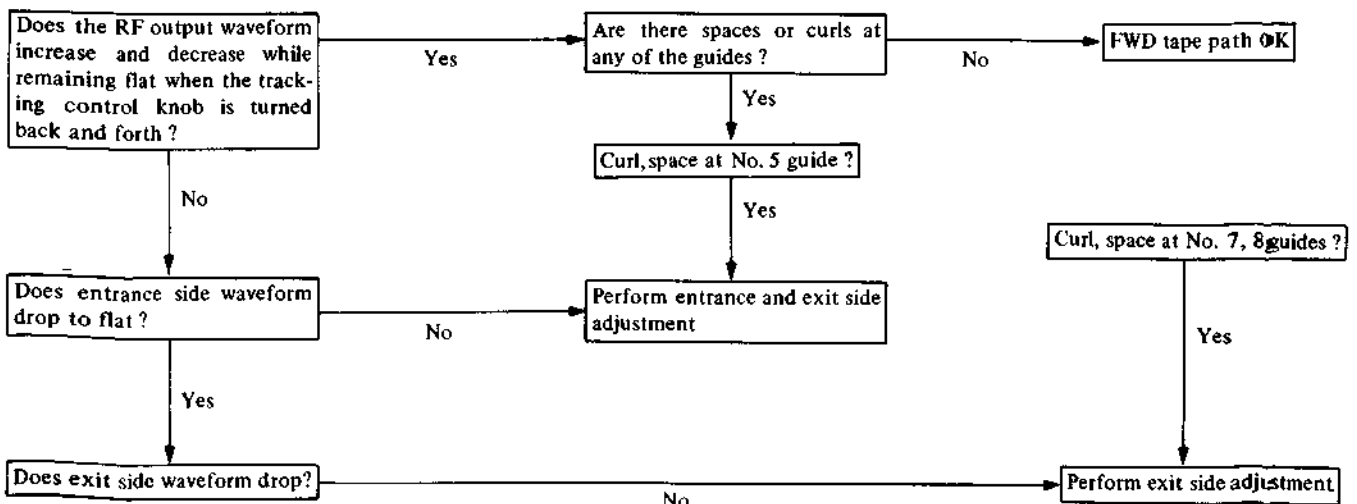


Fig. 4-2

	BOARD	CONNECTOR & PIN NO.
RF Output Waveform	RP-31	CN703 . . . 3
External Trigger	RP-31	CN703 . . . 2
Audio Out	TA-36/37	CN901 . . . 1
Video Out	YC-40	VIDEO OUT

### Waveform Confirmation



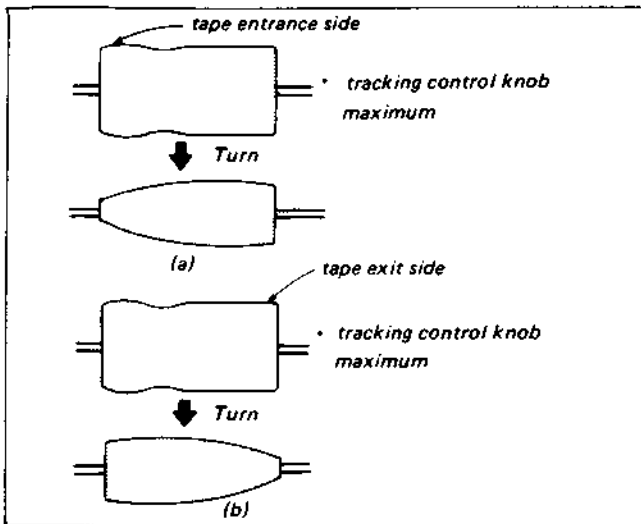


Fig. 4-3

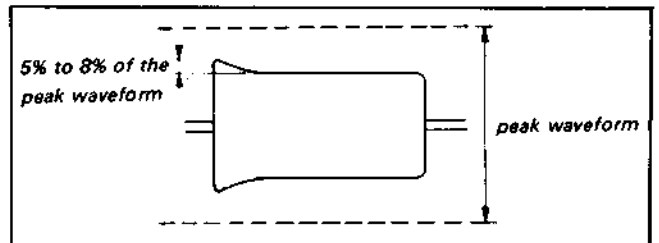
**Note:**

After the indicated tape path adjustments that follow have been successfully completed using normal playback speed, operate the VTR in the Speed Search mode and look for curl at the tape guides. Readjust them if necessary. Then finally, playback a regulator L830 tape as a check-up. See Section 4-4.

**4-1-2. Entrance Side Adjustment**

Always perform the exit side adjustment as well as the entrance side adjustment, Fig. 4-4 illustrates the guides and adjustment locations.

- 1) Turn tracking control knob counterclockwise to drop RF output waveform to about 60% of maximum
- 2) Turn no. 6 guide counterclockwise to free tape transportation to the drum. Use a special notched screwdriver. (See section 1-8. Tools and Fixtures Required.)
- 3) Loosen no. 5 guide lock screw ①, turn no. 5 guide so that the entrance side waveform is almost flat, as shown in the figure below, and tighten lock screw ①. (See Fig. 4-5)



**Note:**

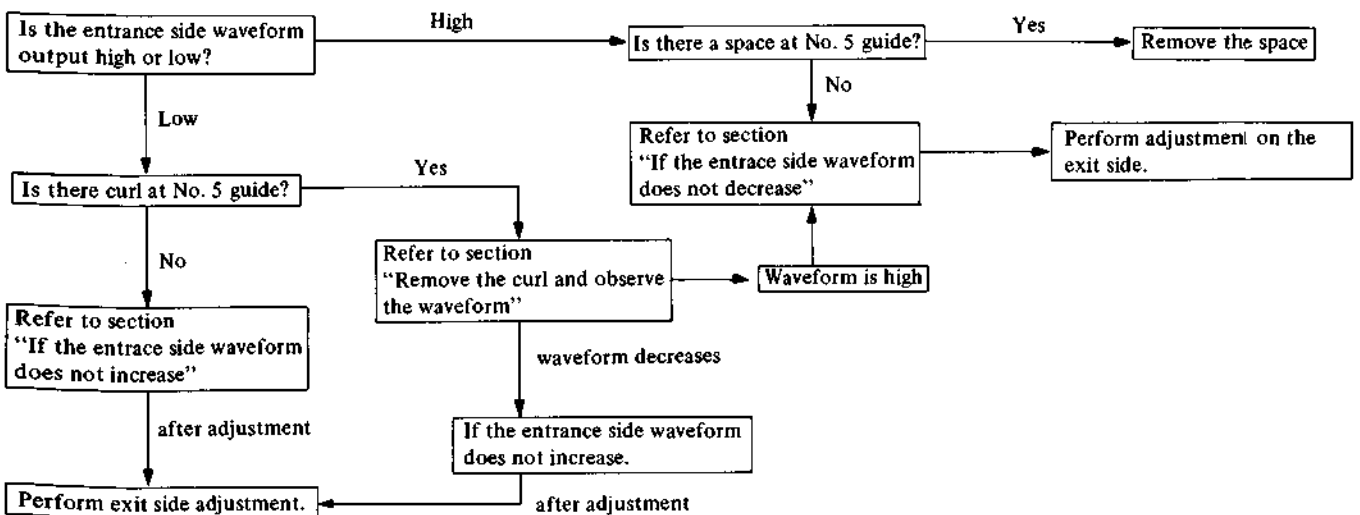
Be sure that the waveform remains as shown in the figure after tightening the lock screw ①.

- 4) Next lower no. 6 guide and flatten the waveform.
- 5) Push the tape down between no. 4 and no. 5 guides by hand, and confirm that the entrance side RF waveform returns to the original state after being lowered. If the waveform is not as illustrated, or if the waveform does not flatten, or takes too much time to flatten after the entrance side tape is pushed down, follow the procedure below to adjust.
- 6) Check no. 5 guide for space and curl. If space or curl exists, follow the appropriate adjustment procedure.

**Note:**

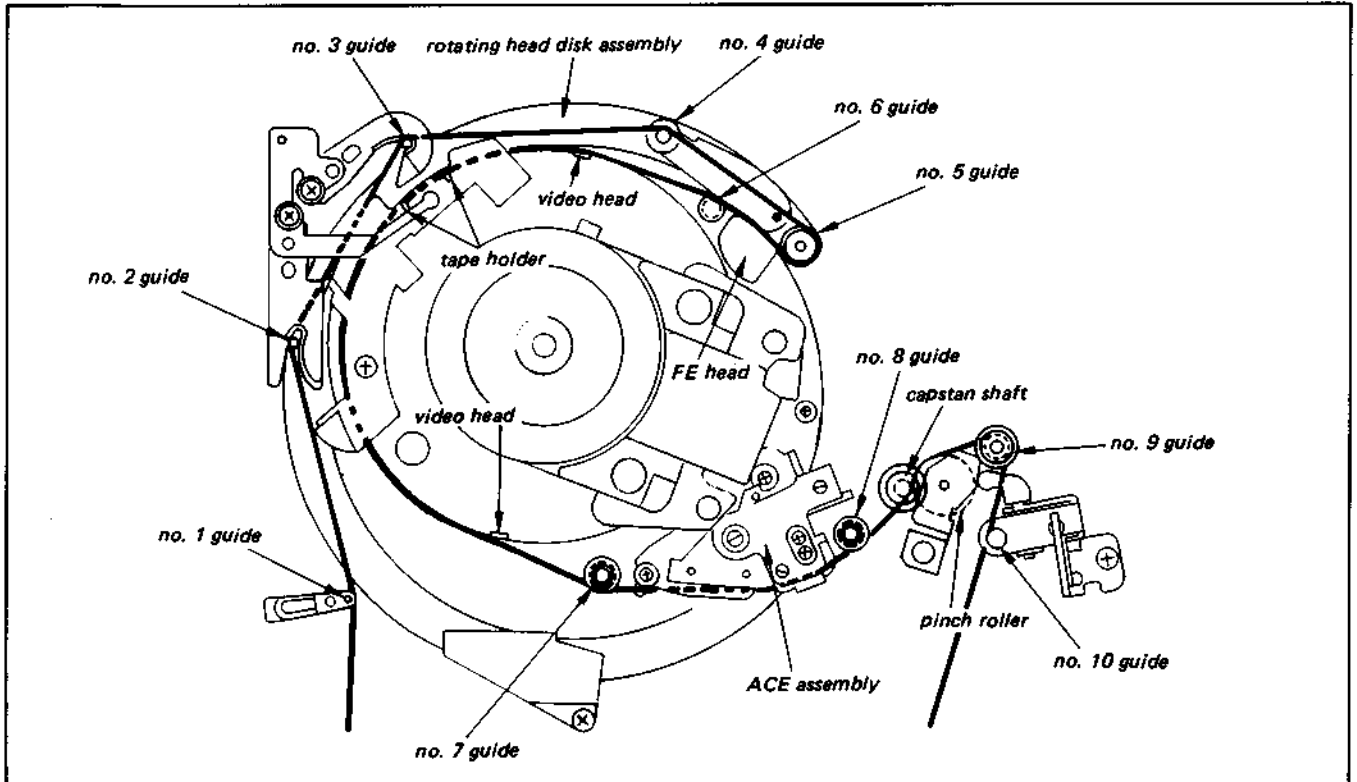
Be sure that there is tape tension upper and lower balance between no. 3 – no. 4 – no. 5 guides. Perform no. 3 or no. 5 guide lateral adjustment if necessary.

**Entrance Side Flow Chart**



**Note:**

Upon failing to obtain the waveforms shown above, press down the tape at the entrance side, adjust as indicated below when a long time is needed for the waveform to return to the horizontal, or when it does not return at all.



**Fig. 4-4** Tape Guide Layout

**[If the waveform entrance output does not increase]**

- 1) Check to make sure tape upper and lower tension is equal between no. 3 – no. 4 – no. 5 guides. If it is not, perform no. 3 or no. 5 guide lateral adjustment.

**Note:**

Be sure there is no space at no. 4 guide lower flange.

- 2) Raise no. 4 guide lower flange to raise entrance output.

**Note:**

No. 4 guide lower flange may be raised 0.4 mm from its lowest position.

- 3) If the waveform does not increase in step 2), turn no. 5 lateral adjustment screw slightly (less than 360°) counterclockwise.

**[If the waveform entrance output does not decrease]**

- 1) Move the no. 3 guide adjust plate away from the drum, and tighten screw ② at the point just before the lower tension of the tape loosens.
- 2) If the tape is touching no. 4 guide lower flange, lower the flange. If it is floating, adjust no. 5 guide laterally.

**[If there is space at no. 5 guide]**

Turn no. 4 guide counterclockwise to raise the tape and remove the space at no. 5 guide.

**Note:**

Be careful not to create a large space at the bottom of no. 4 guide.

**[If there is curl]**

- 1) When there is a space at the bottom of no. 4 guide:  
Lean the adjust plate of no. 3 guide toward the outside until the point just before the lower tape tension loosens.
- 2) When there is curl but no space at the bottom of no. 4 guide:
  - i) Confirm that no. 4 guide is not raised too high. Turn clockwise to lower if necessary.
  - ii) If this does not solve the problem, tighten no. 5 guide lateral adjustment screw by turning clockwise until the curl disappears.

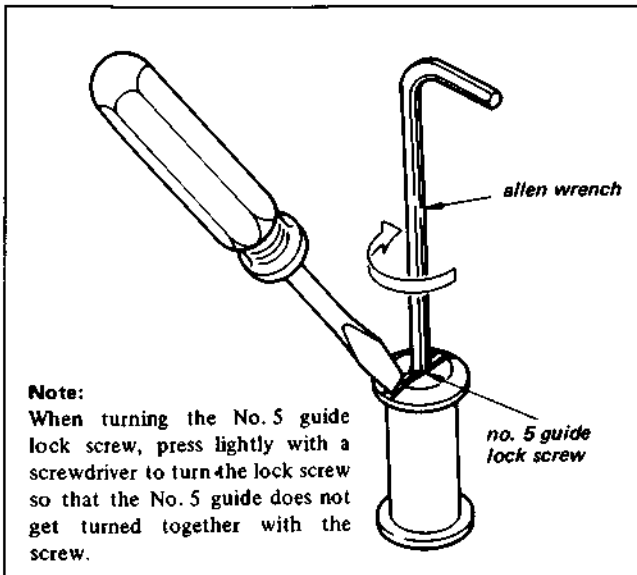


Fig. 4-5

**4-1-3. Exit Side Adjustment**

- 1) Turn the tracking control knob counterclockwise to lower the RF output waveform to about 60% of the maximum.
- 2) Raise no. 7, 8 guides to free the tape transportation, and check the waveform. (This waveform is called "exit free waveform".)

**Note:**

Be careful not to raise the guides too much. They should be raised about 0.3 mm, and also, the tape should not touch the ACE head bottom flange. (Fig. 4-6)

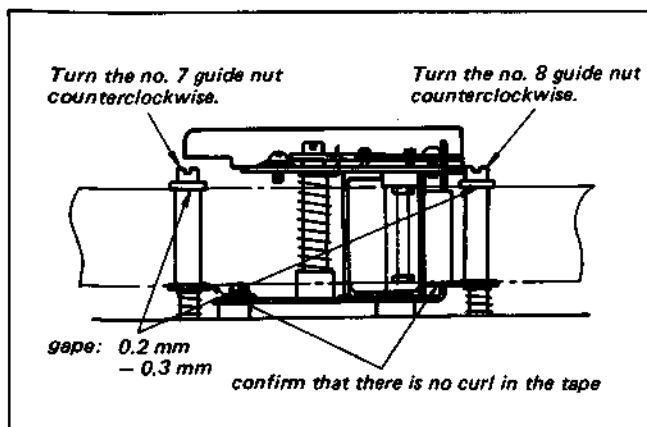


Fig. 4-6

- i) If the exit free waveform is within the range illustrated in Fig. 4-7 (a), (b), proceed with exit side adjustment.
- ii) If it is not within the specified range, follow the adjustment procedure in 4-3.

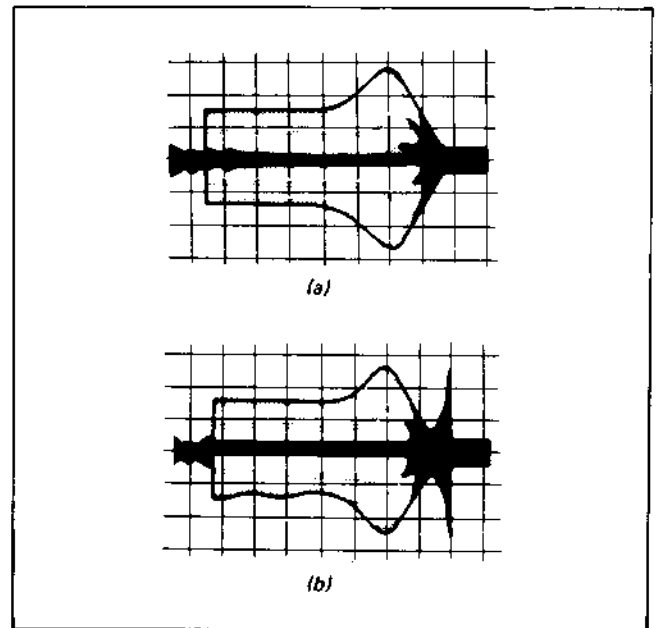


Fig. 4-7

- 3) Flatten the waveform with no. 7 guide, and match no. 8 guide to the tape. (Lower the guide to the point just before the waveform changes, and where there is no curl.) At this time, the exit side waveform may rise slightly, so lower no. 7 guide again to flatten it, and match no. 8 guide to the tape.
- 4) Confirm that there is no curl at no. 7, 8 guides in forward mode.
- 5) Confirm that curl and space do not appear at no. 8 guide in reverse mode. If curl or space appears, adjust with no. 9 guide.

## 4-2. ADJUSTMENT AFTER REPLACEMENT OF THE ACE ASSEMBLY

Perform the following adjustments after removing or replacing the ACE assembly.

### 4-2-1. Tracking Adjustment

- 1) Position the parallel plate (Fixture, SL-0657) at shown in Fig. 4-8, and turn audio head lateral adjustment screw ● to adjust the audio head vertically.

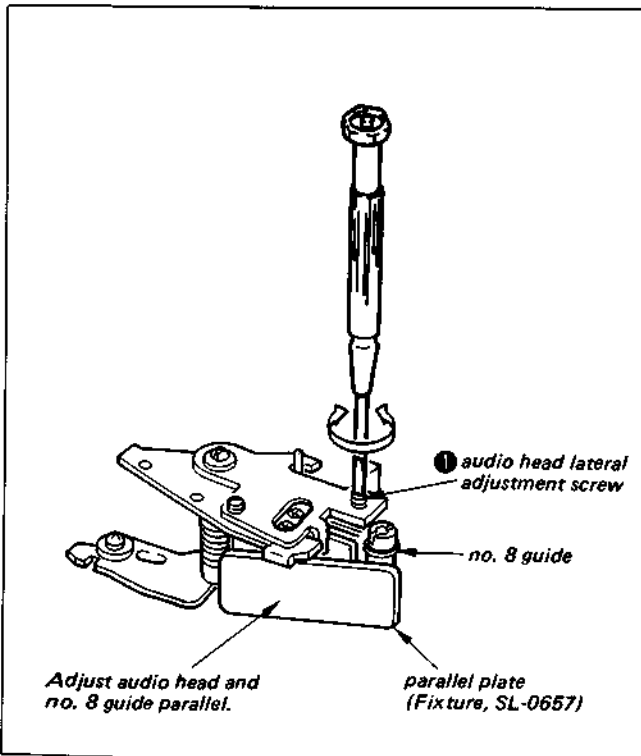


Fig. 4-8

- 2) Turn the tracking control knob counterclockwise to lower the RF output waveform to about 60% of the maximum.
- 3) Play back the tracking portion of the alignment tape raise no. 7, 8 guides about 0.3 mm and check the exit free waveform of the RF output waveform.

**Note:**

Be sure that the tape does not touch the bottom flange of the ACE assembly.

- i) If the waveform is within the range illustrated in Fig. 4-7 (a), (b), proceed with the adjustment.
- ii) If the exit free waveform appears as shown in Fig. 4-9, turn the ACE lateral adjustment screw clockwise until the waveform is within the range illustrated in Fig. 4-7 (a), (b).
- iii) If the exit free waveform appears as shown in Fig. 4-10, turn the ACE lateral adjustment screw counterclockwise to obtain the waveform shown in Fig. 4-9, then turn clockwise again until the waveform is within the range shown in Fig. 4-7.

- 4) Turn the no. 7 guide to flatten the waveform, and match the no. 8 guide to the tape. (Lower the guide until the point just before curl appears at no. 8 guide flange.)
- 5) If the RF output waveform is as shown if Fig. 4-9, where the exit side is not flat, lower no. 7, no. 8 guides again to flatten it.

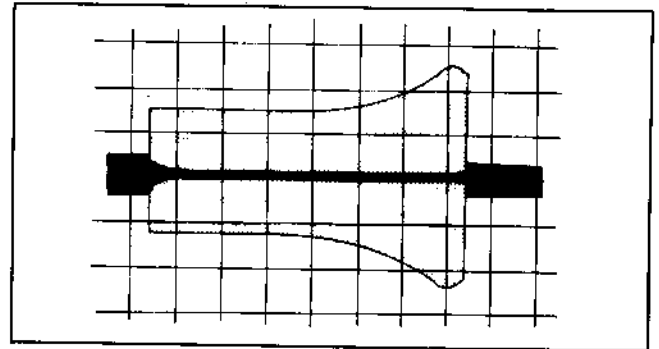


Fig. 4-9

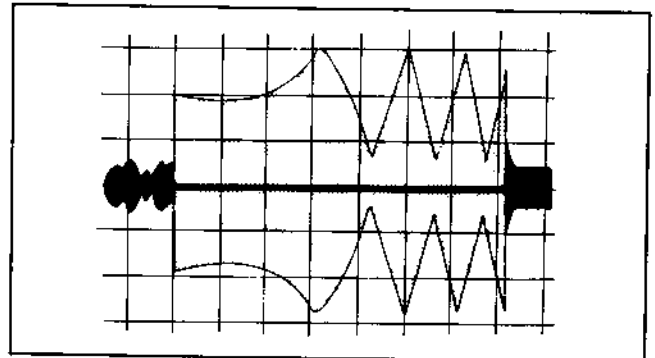


Fig. 4-10

### 4-2-2. Audio Head (ACE Assembly) Azimuth Adjustment

- 1) Connect the oscilloscope as follows:  
CN901 . . . 1 pin (TA-36/37 board)  
Play back the 5 kHz portion of the alignment tape.
- 2) Turn the azimuth adjustment screw (Fig. 4-11) so that the amplitude of the 5 kHz waveform is maximum.

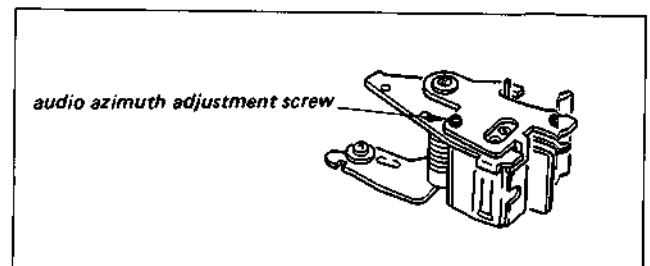


Fig. 4-11



#### 4-2-3. CTL Head (ACE Assembly) Position Adjustment

This adjustment is both mechanical and electric: mechanically, it is the adjustment of the CTL head position, and electrically, it is the tracking control center adjustment. The procedure involves performing the electrical adjustment first, then the head position adjustment.

- 1) Connect the oscilloscope as follows:
    - 1ch CN703 . . . 3 pin (RP-31 board)
    - 2ch CN901 . . . 1 pin (TA-36/37 board)
    - External trigger: CN703 . . . 2 pin (RP-31 board)
  - 2) Play back the tracking portion of the alignment tape.
  - 3) Turn the tracking control knob back and forth, and confirm that the output waveform level is maximum at the center click position, and that the 0 level of the audio signal is at the point where the RF output waveform Bch waveform appears, as shown in Fig. 4-12.
- If adjustment is necessary, proceed as follows.

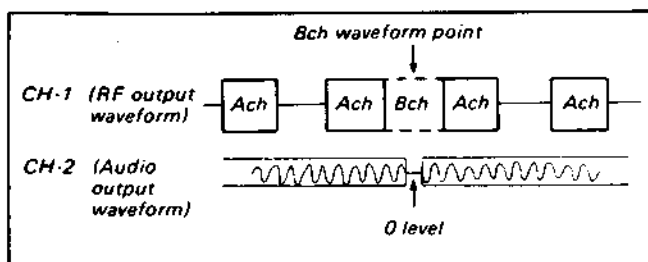


Fig. 4-12

- 4) Tracking Control Center Adjustment
- 5) CTL Head Position Adjustment
 

Set the tracking control knob at the center detent position and loosen the two ACE assembly position adjustment screws ①. As shown in Fig. 4-13 slide the ACE assembly with a screwdriver until it is in the position shown in Fig. 4-12 and the RF output waveform is maximum. Tighten the screws ① when this position is obtained.
- 6) Replay the color bars of the alignment tape and check the picture quality.

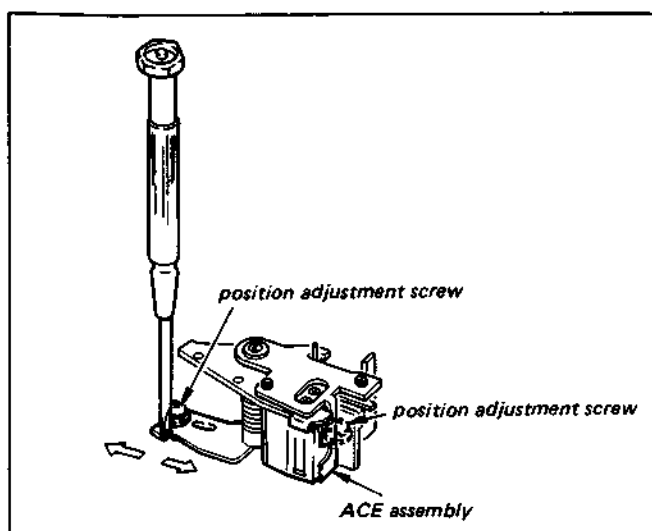


Fig. 4-13

#### 4-2-4. Audio Head (ACE Assembly) Height Adjustment

Perform this adjustment only after completing the exit side tracking adjustment.

- 1) Oscilloscope connection:
  - 1ch: CN901 . . . 1 pin (TA-36/37 board)

Replay the 5 kHz portion of the alignment tape.
- 2) Turn the audio head height adjustment screw ① and the lateral adjustment screw ② (Fig. 4-14) until the audio output waveform amplitude is maximum.

**Note:**

Both of these adjustment screws should be turned in the same direction at the same angle, less than 30°.

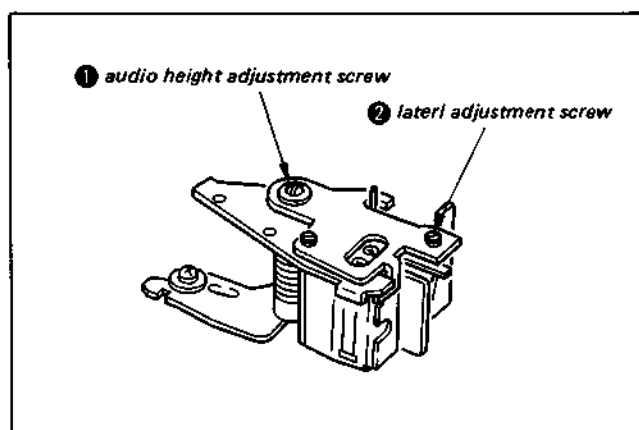


Fig. 4-14

### 4-3. ADJUSTMENT AFTER REPLACEMENT OF THE CAPSTAN MOTOR

- 1) Perform the vertical adjustment of the capstan shaft according to 3-6. Replacement and Adjustment of Capstan Motor.
- 2) Play back the tracking portion of the alignment tape.  
Connect the oscilloscope as follows:  
1ch: CN703 . . . 3 pin (RP-31 board)  
2ch: CN703 . . . 2 pin (RP-31 board)
- 3) Turn the tracking control knob clockwise to lower the RF output waveform to about 60% of the maximum.
- 4) Raise No. 7, 8 guides a little, and check the exit free waveform.
  - i) If the exit free waveform is within the range indicated in Fig. 4-15(a), (b), proceed from step 5).

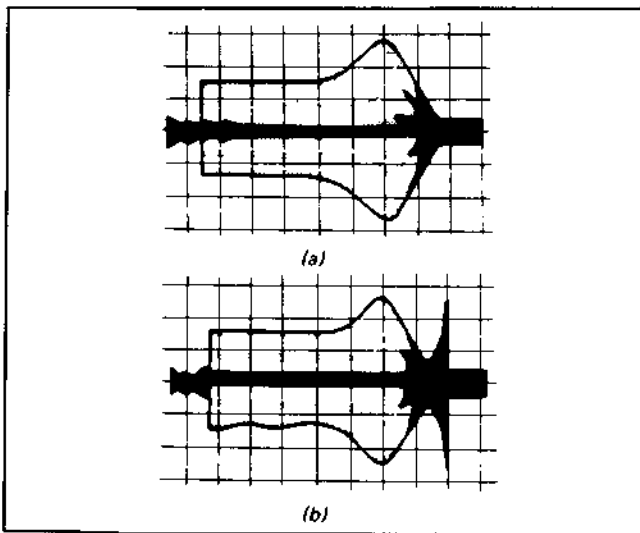


Fig. 4-15

- ii) If the peak of the exit free waveform is smaller than that illustrated in Fig. 4-15(a) (e.g. Fig. 4-16), loosen the lock screw, then turn the capstan adjustment screw until the waveform is within the specified range.

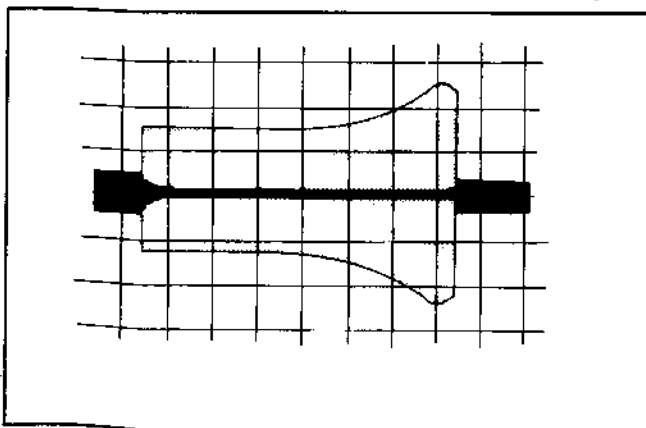


Fig. 4-16

- iii) If the peak shape of the exit free waveform differs from that shown in Fig. 4-15(b) (e.g. Fig. 4-17), loosen the lock screw, then turn the capstan adjustment screw clockwise until the waveform is within the specified range.

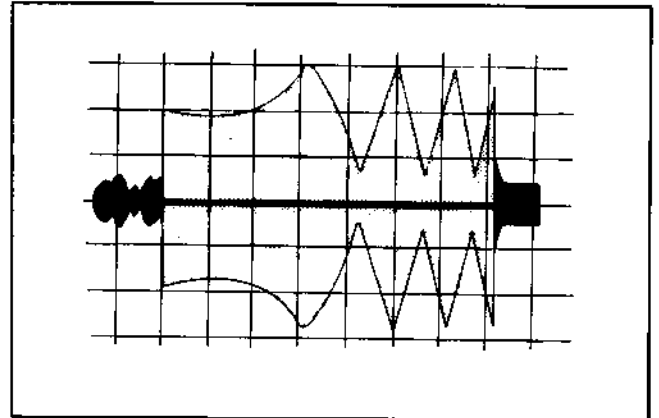


Fig. 4-17

**Note:**

After turning the capstan adjustment screw wait until the waveform stabilized (about 10 – 15 seconds) before continuing with the adjustment.

- 5) Lock the capstan lock screw. (Turn clockwise until it stops, then turn about 30° more. At this point, the exit free waveform will change slightly, and if it goes out of the range shown in Fig. 4-15(a), (b) return to step 4) and re-adjust.
- 6) Flatten the waveform with No. 7 guide, and match No. 8 guide to the tape. If the exit waveform rises, flatten it again with No. 7 guide and match No. 8 guide to the tape again.
- 7) Confirm and adjust according to 4-1-3, exit side adjustment procedure items 4), 5).

**Note:**

Check with L830 tape.

#### 4-4. THIN TAPE MOVEMENT CHECK METHOD DURING TAPE PATH ADJUSTMENT

After confirming the tape path by using the procedures of section 4-1 through 4-3, check the thin tape movement by the procedure given below.

- 1) Prepare one reel of the commercial L-830. Remove the cassette lid with reference to Fig. 4-1.
- 2) Run L-830 prepared in the procedure 1 in the PLAY mode and check the following points;

i) Entrance side

Check if the tape bends and is damaged on the no. 4 guide bottom flange, the no. 5 guide top flange and the no. 6 guide top flange. (The curl of the tape is allowed), but the bend of the tape is not allowed.) (Fig. 4-18)

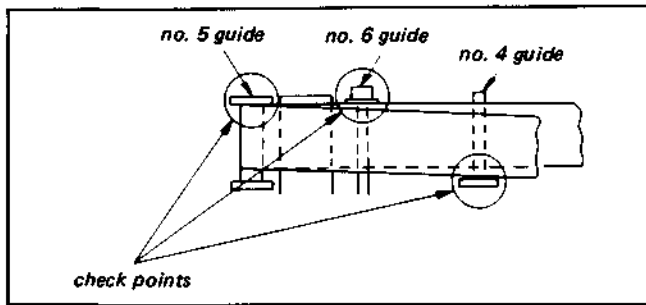


Fig. 4-18

ii) Exit side

Check if the tape bends and is damaged on the no. 7 guide top flange, the no. 8 guide top flange and the no. 10 guide top and bottom flanges. (The curl of the tape is allowed, but the bend of the tape is not allowed.) (Fig. 4-19)

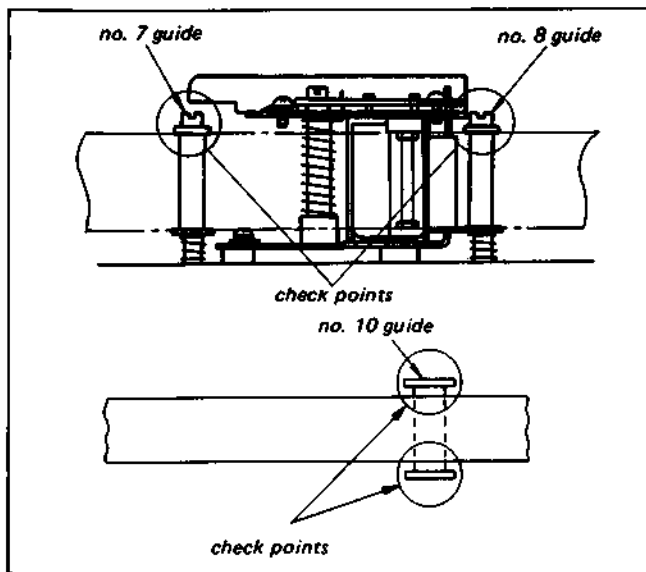


Fig. 4-19

- 3) If the tape did not run normally in step 2, readjust the tape path by using.
  - a) The tape did not run normally on the entrance side, refer to 4-1-2.
  - b) The tape did not run normally on the exit side, refer to 4-1-3.

#### 4-5. BETA HI-FI RF OUTPUT WAVEFORM CHECK

- 1) Set the BETA HI-FI RECORD button inside the front door to the SOUND side.
- 2) Set both REC slide knobs L and R of the REC level meter to "0".
- 3) Record in a no-signal state.
- 4) Play back the recorded part and check that the RF output satisfies the conditions described in Fig. 4-20. (Operate this procedure for both Ach and Bch)

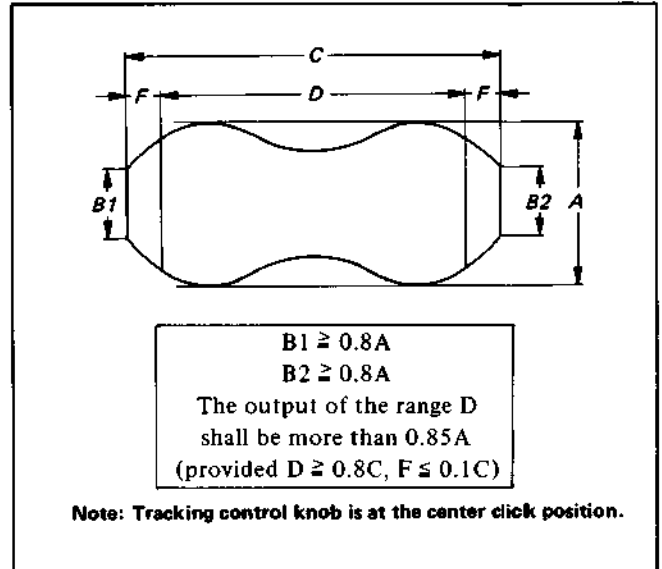


Fig. 4-20

	BOARD	CONNECTOR, TP & PIN No.
RF Output Waveform (Ach)	AF-14	CN002 . . . 1P
RF Output Waveform (Bch)	AF-14	CN002 . . . 2P
External Trigger	AF-14	CN002 . . . 4P

## 5. ELECTRICAL ADJUSTMENTS

All the electrical adjustment can be performed by using the equipment mentioned below, the alignment tape, and the PAL colour-bar signal (100%).

### [Equipment Required]

- (1) PAL Colour Monitor TV
- (2) Oscilloscope, Dual-trace, Bandwidth . . . more than 10 MHz with delay mode
- (3) Frequency Counter
- (4) PAL Colour-Bar Generator
- (5) Digital voltmeter
- (6) VOM (20 k $\Omega$ /V)
- (7) Audio Signal Generator
- (8) Audio level meter (VTVM)
- (9) Attenuator
- (10) Spectrum analyzer
- (11) Alignment Tape, type: KR5-2H, Code No. 8-969-995-52  
KR5-10C, Code No. 8-192-508-01
- (12) Alignment Tool (Adjusting screwdriver for semi-fixed resistors and coils)  
Jig No. SL-0001, Code No. J-6080-001-A

### [Setup for Adjustment]

The antenna should be connected correctly to the antenna input terminal of the videocassette recorder.

It is important that the video output signal satisfies the specification because the telecast signal received by the incorporated tuner of the videocassette recorder is utilized as the adjustment signal of the machine. The incorporated tuner should be set to the channel with the best reception. The video signal should be checked with an oscilloscope connected to VIDEO OUT (BNC connector). Verify that the sync signal amplitude is approx. 0.3 Vp-p and the video signal amplitude is approx. 0.7 Vp-p at peak. Adjust the fine tuning while observing the signal and the TV screen so that the burst signal amplitude becomes approx. 0.3V  $\pm$  0.1 Vp-p. Also confirm that there is not spikes observed at the sync signal portion. (See Fig. 5-1.)

The video (colour-bar) signal for the adjustment is shown in Fig. 5-1.

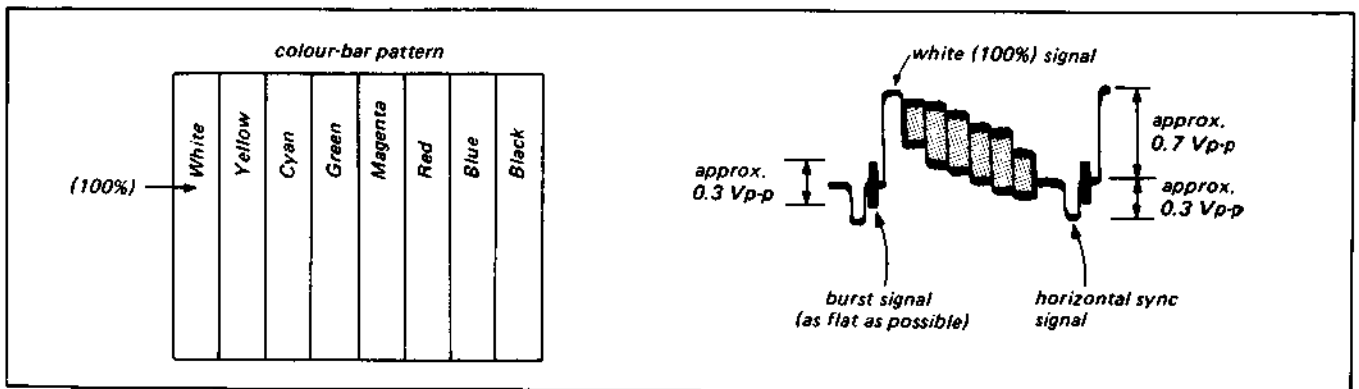


Fig. 5-1. Video (colour-bar) signal

### [Alignment Tape]

#### KR5-2H

	Video signal	Audio signal	Playing time	Use for
1.	Colour-bars	3 kHz - 5 dB	5 min	General performance, tape speed checks, switching position adjustment.
2.	Monoscope	333 Hz - 25 dB	5 min	Video head dihedral, audio level adjustment.
3.	RF sweep	5 kHz - 25 dB	5 min	Video, audio frequency characteristics, audio azimuth adjustment. marker: 1, 2, 3.58, 4.5, 5.2 MHz
4.	Tracking 1 MHz (CH-B) *1 (Channel B is inserted in every 3 frames.)	1 kHz - 5 dB *2 (Signal is dropped out in the positions where channel B is inserted.)	5 min	Tracking, Audio height adjustment; CTL Position check. (Check if *1 and *2 are the same position.)

#### KR5-10C (Beta hi-fi Audio)

	Video signal	Audio signal	Playing time	Use for
	Colour-bars	Beta hi-fi 400 Hz $\pm$ 66.7 kHz DEV	30 min	Beta hi-fi Audio level, balance adjustment.

**[Alignment Tool for Semi-fixed Variable Resistors and Coils]**

Semi-fixed variable resistors and inductances should be adjusted with the alignment tool exclusively prepared for the adjustment of the components. A common screwdriver is too large for adjusting the components from the conductor side of a printed circuit board.

The metal blade of the alignment tool is used for variable resistors and trimmer capacitors and the plastic tip is used for variable inductances.

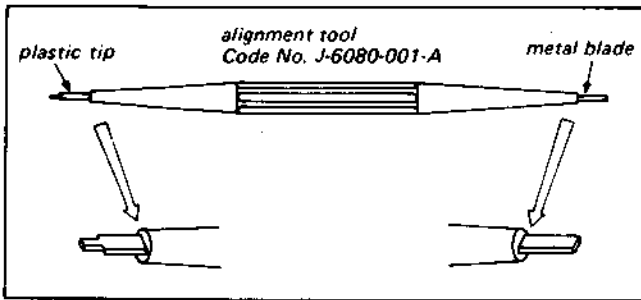


Fig. 5-2. Alignment tool

**[Required Levels and Impedances of Input and Output]**

**Video**

**Input** VIDEO IN: BNC connector  
 1.0 V (p-p)  $\pm 1.0$  V (p-p)  
 75 ohms, unbalanced,  
 sync negative

**Output** VIDEO OUT: BNC connector  
 1.0 V (p-p)  $\pm 0.1$  V (p-p)  
 75 ohms, unbalanced,  
 sync negative

**Audio**

**Inputs** AUDIO IN: 2 phono jacks  
 47 kilohms, -10 dBs  
 (0 dBs = 0.775 V rms)

Microphone: -60 dBs, for low-impedance microphone

**Outputs** AUDIO OUT: 2 phono jacks  
 Load impedance less than 10 kilohms  
 -10 dBs with 47 kilohms load, unbalanced  
 Headphones: Stereo phone jack  
 -26 dBs, 8 ohms

**[Colour-Bar Signal]**

The 100% colour-bar signal recorded on the Alignment tape is shown in Fig. 5-3.

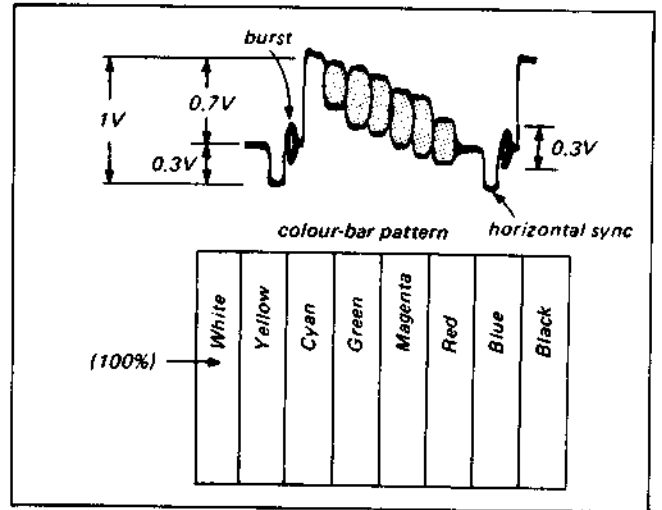


Fig. 5-3. Colour-bar signal recorded on the alignment tape

**[75 Ω Terminating Method]**

To terminate the video output terminal follow the steps shown in Fig. 5-4.

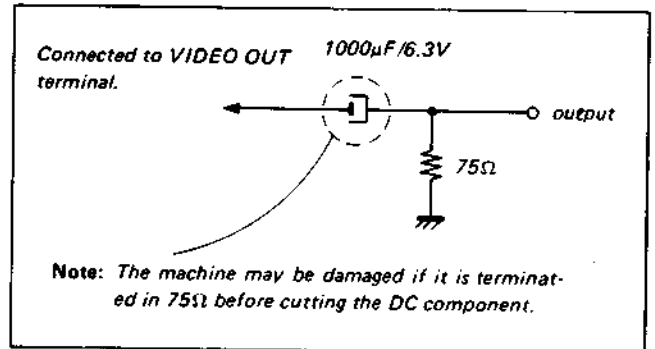
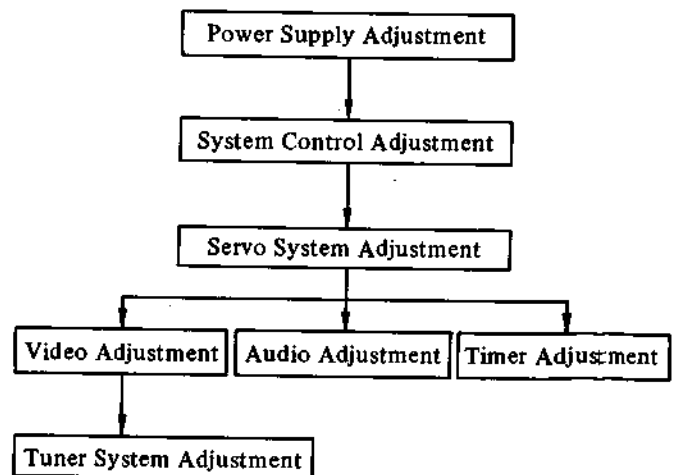


Fig. 5-4. 75Ω terminating circuit

**[Adjustment procedure]**

Adjust in the order given below.



**5-1. POWER SUPPLY CHECK (CN Board (SR-21))**

Measure in E-E mode (power supply switch ON)

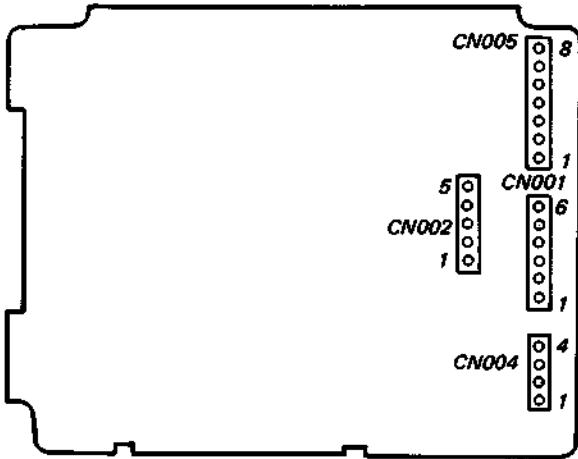


Fig. 5-5. Component layout

1. AC 6 V Check  
Pin ① of CN004 shall be  $6 \pm 0.5$  V ac
2. Switched 12 V Check  
Pin ① of CN005 shall be  $12.2 \pm 0.2$  V dc
3. Switched 12 V (M) Check  
Pin ⑤ of CN005 shall be  $12.2 \pm 0.2$  V dc
4. Switched 12 V (C) Check  
Pin ⑦ of CN005 shall be  $12.2 \pm 0.2$  V dc
5. Switched 9 V Check  
Pin ③ of CN005 shall be  $9.0 \pm 0.2$  V dc
6. Unswitched 42 V Check  
Pin ① of CN001 shall be  $42 \pm 3$  V dc
7. Unswitched 12 V Check  
Pin ③ of CN002 shall be  $12.2 \pm 0.5$  V dc
8. Unswitched 5.8 V Check  
Pin ① of CN005 shall be  $5.8 \pm 0.3$  V dc
9. Unswitched -30 V Check  
Pin ④ of CN004 shall be  $-30 \pm 3$  V dc

**5-2. SYSTEM CONTROL CHECK (SS-50 Board)**

**5-2-1. Clock Frequency Check**

Mode: E-E  
Signal: None  
Frequency counter: Pin ⑥② of IC101  
Check: f: 4 MHz

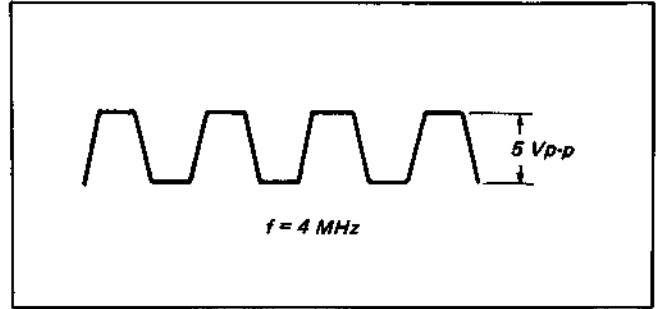


Fig. 5-6. Clock frequency check

**5-2-2. Character Generator Clock Frequency Check**

Mode: E-E  
Signal: (1) monoscope, (2) colour-bar  
Note: Make this adjustment more than 3 minute after turning on the power switch.

**(1) Adjustment Method for Monoscope Pattern**

While the counter displays a signal, adjust RV101 so that the right end of the counter display blanking part is aligned with the fifth line from the central vertical line of the monoscope picture.  
(See Fig. 5-7.)

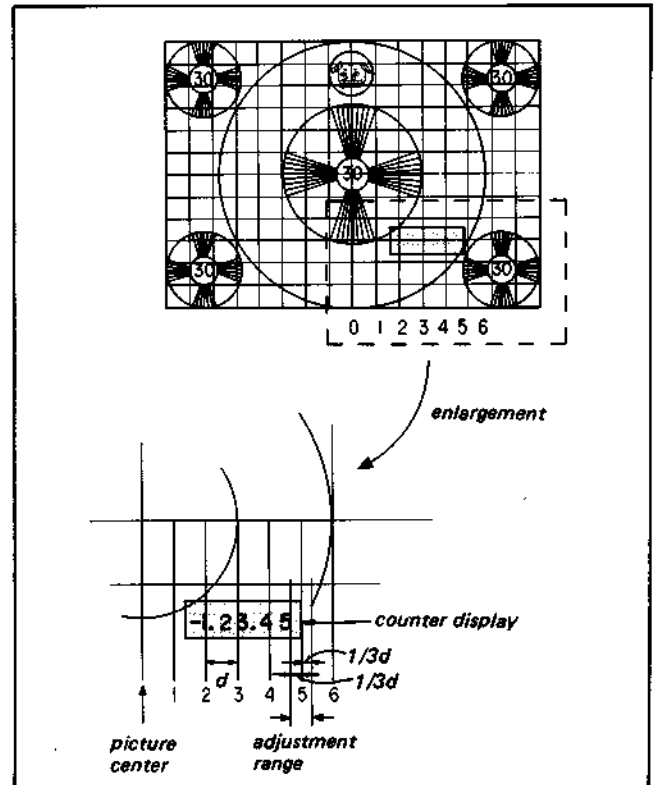


Fig. 5-7. Character generated clock frequency

Adjust the right end so that it comes within  $\pm 1/3$  division from the fifth line.

**(2) Adjustment Method for Color-bar Pattern**

While the counter displays a signal, adjust RV101 so that the center of the second digit from the right end of the counter display blanking part aligns with the boundary line between RED and BLUE of the color-bar. (See Fig. 5-8.)

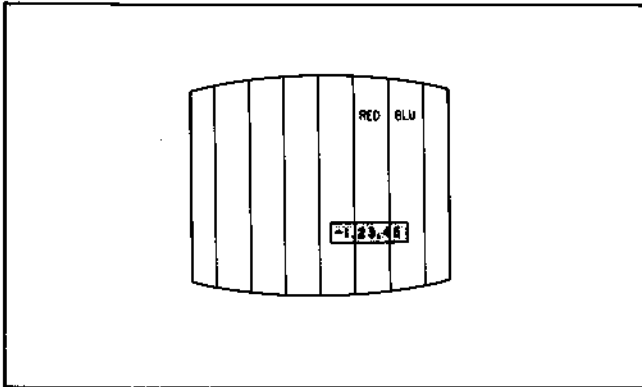


Fig. 5-8. Character generator clock frequency check

**5.3. SERVO SYSTEM ADJUSTMENT**

**Adjustment Sequence**

1. Drum servo system adjustment
2. Capstan servo system adjustment

**5-3-1. Drum Servo System Adjustment**

**1) Drum Free Speed Adjustment (SS-50 Board)**

Mode: Record

Oscilloscope: TP305 (Pin 46) of IC301)

**[Adjustment method]**

Adjust to  $1.8 \pm 0.1$  V with RV306. (See Fig. 5-9.)

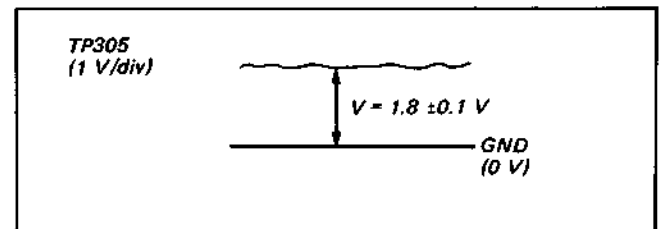


Fig. 5-9. Drum free speed adjustment

**2) LOCK Phase Adjustment (SS-50 Board)**

Mode: Record

Oscilloscope: CH-1 TP304 (RF SW PULSE)

CH-2 TP307 (COMP SYNC)

**[Adjustment method]**

Adjust to  $T = 7.0 \pm 0.5$  H ( $448 \pm 32$   $\mu$ sec) with RV305. (See Fig. 5-10.)

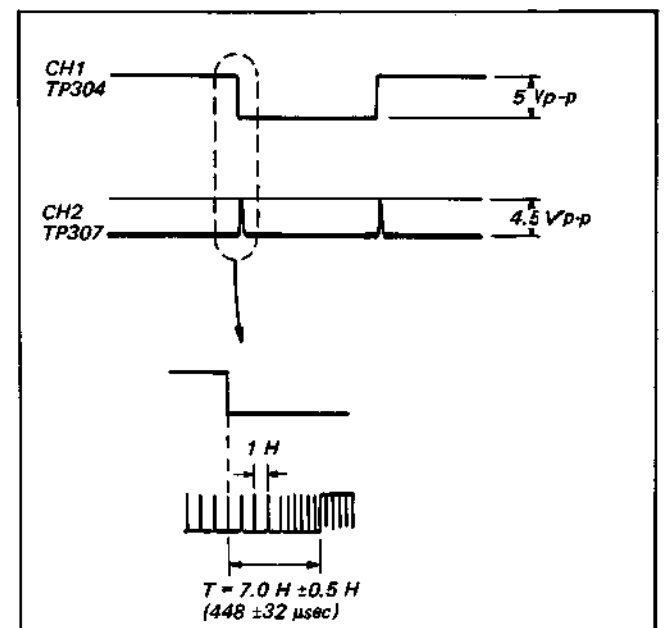


Fig. 5-10. LOCK phase adjustment

### 3) RF Switching Position Adjustment (SS-50 Board)

Mode: Record  
 Signal: Alignment tape colour-bar or monoscope  
 Oscilloscope: CH-1 TP304 (Pin 34 of IC301)  
 (RF SW PULSE)  
 CH-2 Pin 1 of CN309 (DRUM PG)

#### [Adjustment method]

- i) PG (A) Edge  
 Adjust to  $900 \pm 30 \mu\text{sec}$  with RV303.  
 (See Fig. 5-11 (a))
- ii) PG (B) Edge  
 Adjust the duty cycle of RF SW PULSE to 50%  
 $\pm 5 \mu\text{sec}$ .

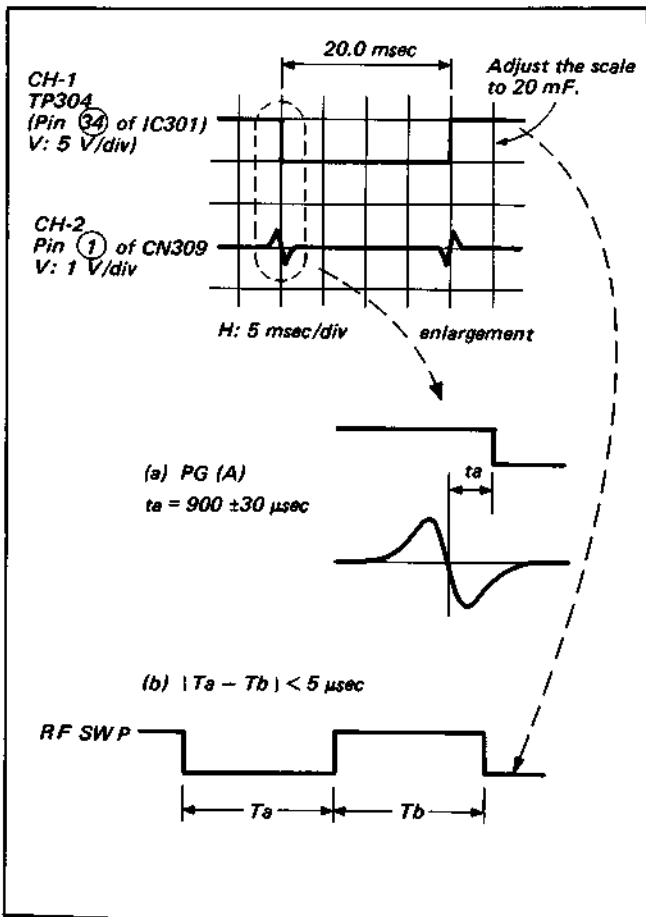


Fig. 5-11. RF switching position adjustment

### 5-3-2. Capstan Servo System Adjustment

#### 1) Capstan Free Speed Adjustment (SS-50 Board)

Mode: Recrod  
 Oscilloscope: TP302

#### [Adjustment method]

Adjust to  $1.8 \pm 0.1 \text{ V}$  with RV302. (See Fig. 5-12.)

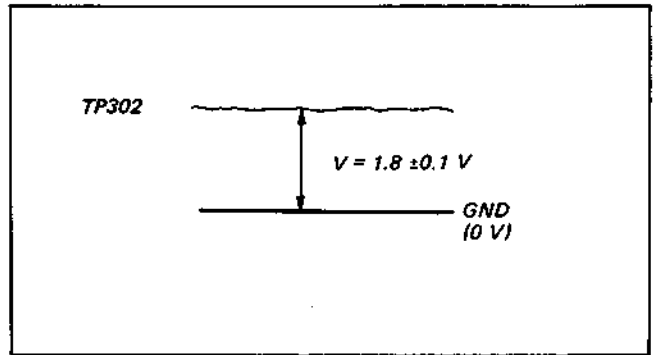


Fig. 5-12. Capstan free speed adjustment

#### 2) Tracking Center Adjustment (SS-50 Board)

Mode: Record  
 Signal: Colour-bar  
 Oscilloscope: CH-1 TP306 (REC CTL)  
 CH-2 TP301 (TRACON)

#### [Adjustment method]

- i) Set the TRACKING knob to the center click position.
- ii) Adjust to  $7.2 \pm 0.05 \text{ msec}$  with RV301.  
 (See Fig. 5-13.)

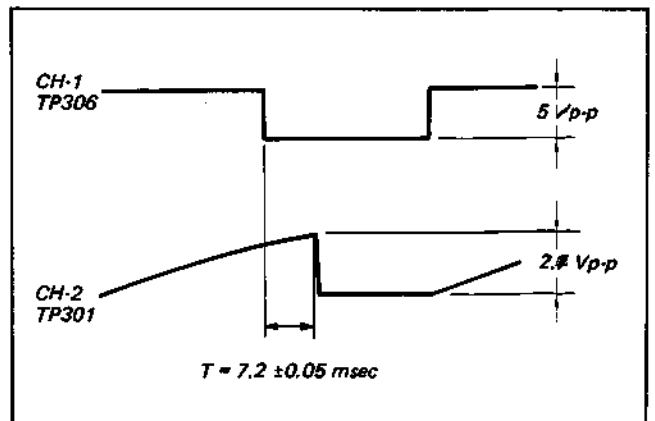


Fig. 5-13. Tracking center adjustment



### 3) STILL fH Correction Adjustment (SS-50 Board)

Mode: Playback - PAUSE  
 Signal: Alignment tape colour-bar or monoscope  
 Oscilloscope: TP307 (COMPOSITE SYNC)

#### [Adjustment method]

Adjust to  $63.95 \pm 0.05 \mu\text{sec}$  with RV308.  
 (See Fig. 5-14.)

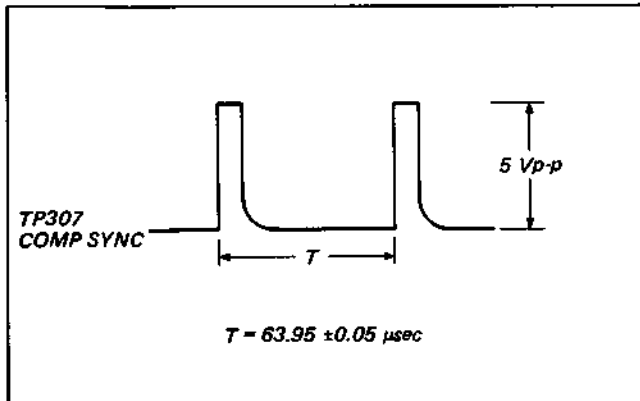


Fig. 5-14. STILL fH correction adjustment

### 4) CUE fH Correction Adjustment (SS-50 Board)

Mode: PB x 9 or CUE  
 Signal: Alignment tape colour-bar or monoscope  
 Oscilloscope: TP307 (COMPOSITE SYNC)

#### [Adjustment method]

Adjust to  $63.95 \pm 0.05 \mu\text{sec}$  with RV307.  
 (See Fig. 5-15.)

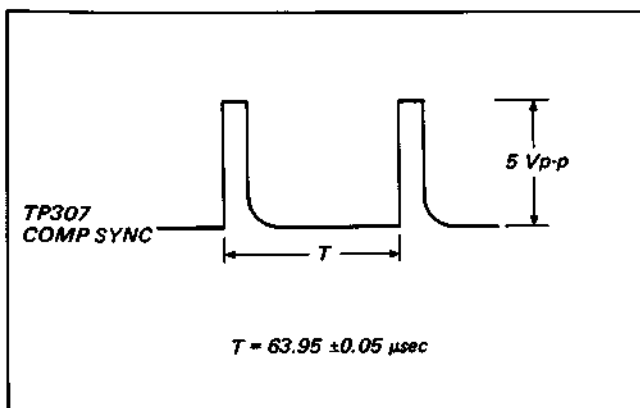


Fig. 5-15. CUE fH correction adjustment

### 5) Slow fH Correction Adjustment (SS-50 Board)

Mode: a) 1/5 SLOW (REV)  
 b) 1/5 SLOW (FWD)  
 Signal: Alignment tape colour-bar or monoscope  
 Oscilloscope: TP307 (COMP SYNC)

#### [Adjustment method]

Adjust the COMP SYNC signal fluctuation width so that it is minimized by alternately operating RV602 and RV604 for a) and RV601 and RV603 for b).  
 (See Fig. 5-16.)

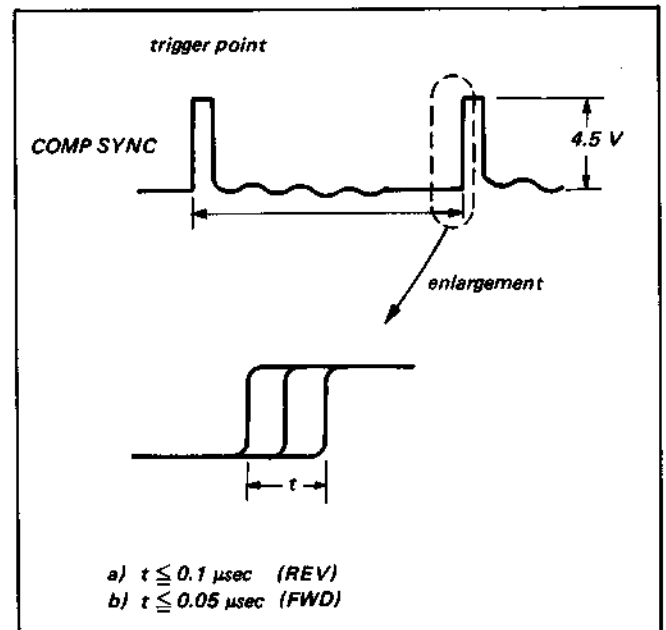


Fig. 5-16. Slow fH correction adjustment

### 6) Slow Tracking Control Adjustment (SS-50 Board)

Mode: a) 1/5 Slow Tracking Control (FWD)  
 b) 1/5 Slow Tracking Control (REV)  
 Signal: None  
 Oscilloscope: CH-1 Pin ③ of CN703.  
 RP-31 BOARD (RF OUT)  
 CH-2 Pin ② of CN703.  
 RP-31 BOARD (RF SW PULSE)

#### [Adjustment method]

- Set the TRACKING knob to the center click position.
- Set up the RECORD mode, then playback the recorded part at 1/5 Slow (FWD) and 1/5 Slow (REV).
- Adjust mode a) by RV315 and mode b) by RV316 so that the CH-1 waveform peak comes to the center of A CH.

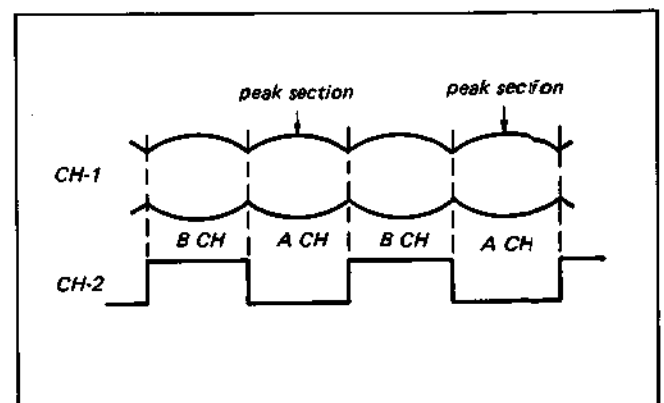


Fig. 5-17. Slow tracking control adjustment

### 7) QVD Adjustment (SS-50 Board)

Mode: PB × 1  
Signal: Alignment tape colour-bar or monoscope  
Oscilloscope: CH-1 Pin ④ of CN114  
CH-2 TP304 (RF SW PULSE)

#### [Adjustment method]

Adjust  $T_2$  by RV103 so that  $T_2$  is equal to  $T_1$ .  
(See Fig. 5-18.)

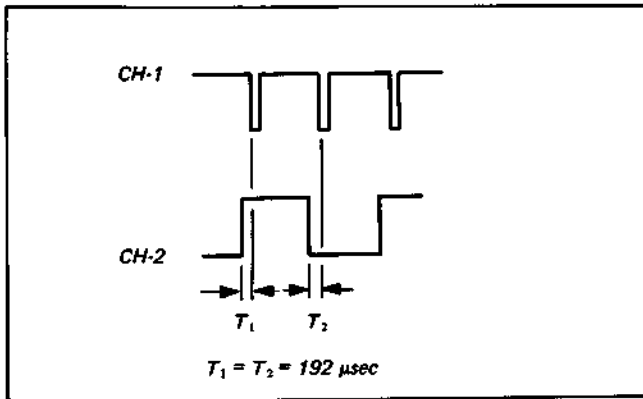


Fig. 5-18. QVD adjustment

### 5-4. PAL VIDEO SYSTEM ADJUSTMENT

As a rule, first the playback system is adjusted with an alignment tape to check that it operates normally, then the recording system is adjusted.

The adjustment sequence is shown below. The Y signal and chroma signal systems are adjusted for both playback and recording systems.

Colour video signal supplied by the PAL colour-bar generator is used as video input signal for video system adjustment in the record mode. Check that the sync and colour burst signals conform to the specifications designated in "Set-up for Adjustment" in Fig. 5-1.

#### [Record System Adjustment]

- 1) AGC adjustment
- 2) Carrier set adjustment
- 3) Deviation adjustment
- 4) Compress adjustment
- 5) Peak clip adjustment
- 6) Carrier shift adjustment
- 7) White clip adjustment
- 8) Dark clip adjustment
- 9) Current reducing adjustment
- 10) Y record current adjustment
- 11) 4.43 MHz REF adjustment
- 12) AFC adjustment
- 13) AFC offset adjustment
- 14) Pilot burst signal level adjustment
- 15) Peak Acc adjustment
- 16) Chroma record current adjustment

#### [Playback System Adjustment]

- 1) Playback frequency characteristic adjustment
- 2) Expand adjustment
- 3) Playback video level adjustment
- 4) Y-comb adjustment
- 5) Dropout compensator adjustment
- 6) Carrier balance adjustment
- 7) Chroma comb filter adjustment
- 8) JOG PLL adjustment
- 9) JOG exchange chroma level adjustment
- 10) Shift adjustment

### 5-4-1. Record System Adjustment

#### 1) AGC Adjustment (YC-40 Board)

Mode: E-E  
Oscilloscope: VIDEO OUT  
Signal: GRAY SCALE

##### [Adjustment method]

Adjust to  $1 \pm 0.05$  Vp-p with RV021.

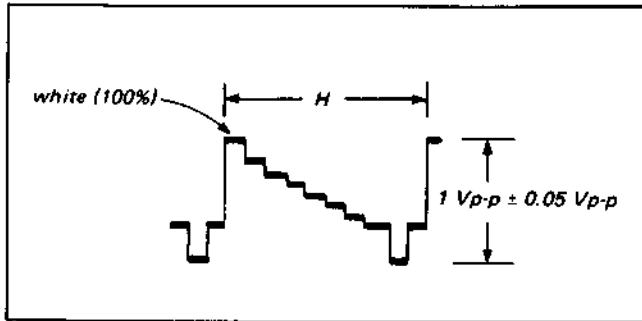


Fig. 5-19. Peak AGC adjustment

#### 2) Carrier Set Adjustment (YC-40 Board)

Mode: E-E  
Signal: None  
Oscilloscope: Pin (25) of IC009

##### [Adjustment method]

- Set up the input select to LINE/PCM mode.
- Adjust to  $3.8 \pm 0.038$  MHz with RV014.

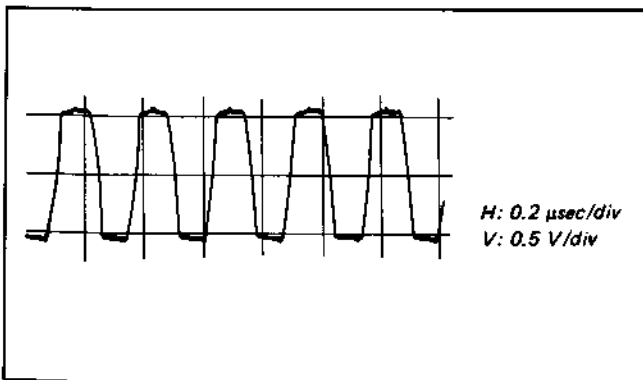


Fig. 5-20. Carrier set adjustment

#### 3) Deviation Adjustment (YC-40 Board)

- The playback system adjustment and the carrier set adjustment in Paragraph 2) above must be completed before making this adjustment.

Mode: Self-recording and playback  
Signal: Colour-bar  
Oscilloscope: VIDEO OUT

##### [Adjustment method]

- Supply the colour-bar signal and set up E-E mode.
- Connect the oscilloscope to VIDEO OUT.
- Set up RECORD mode.
- Playback the recorded section of the tape.
- Check that the video signal level is  $1.0 \text{ Vp-p} \pm 0.05 \text{ Vp-p}$ , if the level is outside of this range, repeat Steps iii) through iv) above adjusting with RV015 until the standard value is obtained.

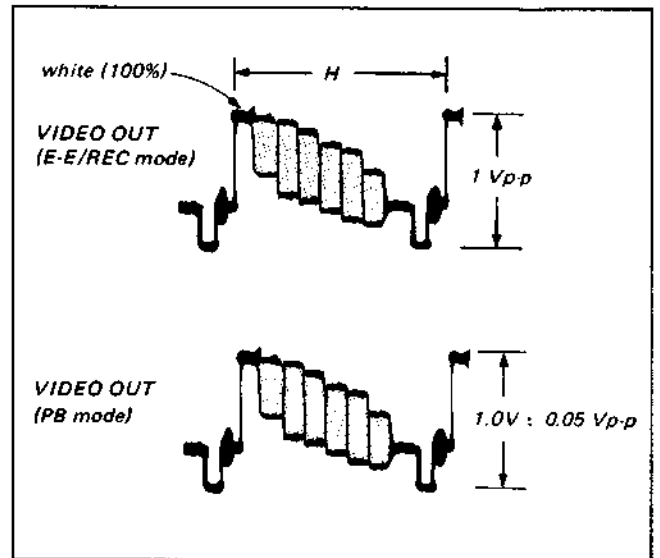


Fig. 5-21. Deviation adjustment

#### 4) Compress Adjustment (YC-40 Board)

Mode: E-E  
Signal: None  
Digital voltmeter: See Fig. 5-22.

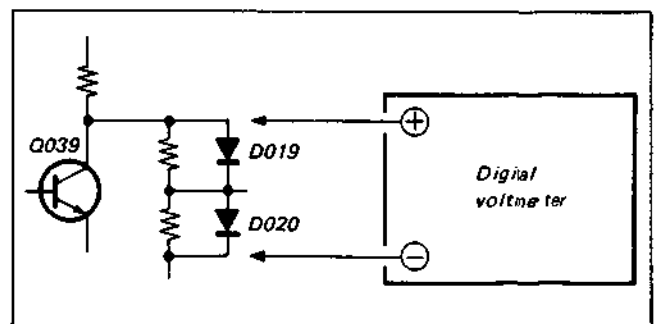


Fig. 5-22.

##### [Adjustment method]

- Rotate RV013 counterclockwise full seen from the pattern side.
- Adjust to  $0.30 \pm 0.01$  V dc using RV016.

##### Note:

Make this adjustment more than 30 sec after turning on the power switch. Make sure to adjust 7)WHITE CLIP adjustment.

**5) Peak Clip Adjustment (YC-40 Board)**

Mode: E-E  
 Signal: White (100%)  
 Digital voltmeter: Base of Q837

**[Adjustment method]**

In the Q041 base, the DC level of 100% white is considered as  $V_p$ . Adjust the Q837 base DC level by RV022 so that it is equal to  $V_p + 0.5 \pm 0.05$  V dc. (See Fig. 5-23.)

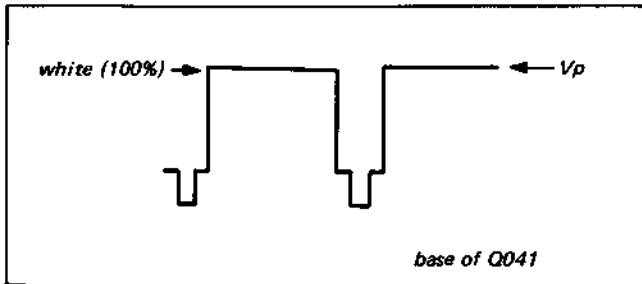


Fig. 5-23. Peak clip adjustment

**6) Carrier Shift Adjustment (YC-40 Board)**

Mode: E-E  
 Signal: None  
 Oscilloscope: Pin 25 of IC009

**[Adjustment method]**

- i) Set up the input select to LINE/PCM and Super Beta PRO mode.
- ii) Adjust to  $4.3 \pm 0.04$  MHz with RV702.

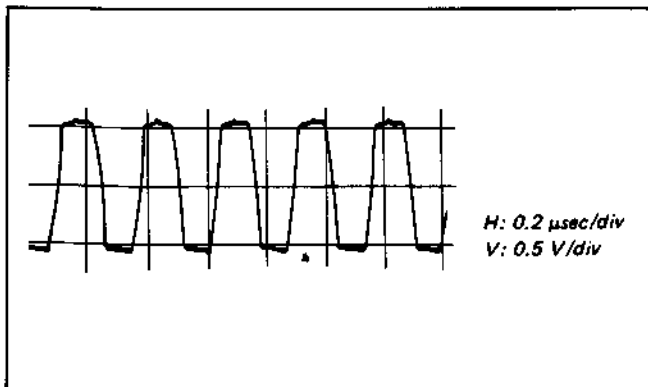


Fig. 5-24. Carrier shift adjustment

**7) White Clip Adjustment (YC-40 Board)**

Mode: E-E  
 Signal: Colour-bar  
 Oscilloscope: Collector of Q038

**[Adjustment method]**

Set up the PRO mode and adjust to white peak  $240 \pm 10\%$  with RV013. (See Fig. 5-25.)

**8) Dark Clip Adjustment (YC-40 Board)**

Mode: E-E  
 Signal: Colour-bar  
 Oscilloscope: Collector of Q038

**[Adjustment method]**

Set up the Super Beta PRO mode and adjust to Sync peak  $110 \pm 10\%$  with RV024. (See Fig. 5-25.)

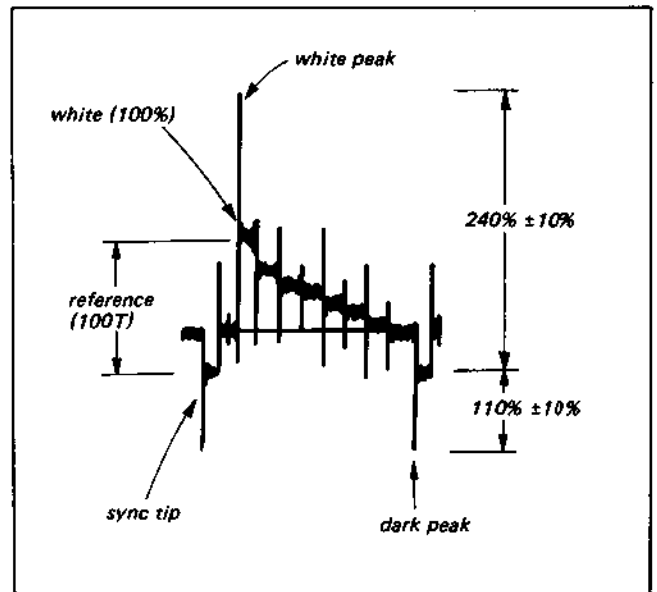


Fig. 5-25. Dark clip and white clip adjustment

**9) Current Reducing Adjustment (DH-4 Board)**

Mode: Record (PRO mode)  
Signal: None  
Oscilloscope: TP504

**[Adjustment method]**

In TP504, adjust the difference in value between E-E mode and RECORD mode by RV501 so that it is equal to  $0 \pm 0.1$  Vp-p.

**10) Y Record Current Adjustment (DH-4 Board)**

Mode: Record  
Signal: None  
Oscilloscope: TP501 (Pin ② of CN507)

**[Adjustment method]**

Adjust to  $2.05 \pm 0.1$  Vp-p with RV302.  
(See Fig. 5-26.)

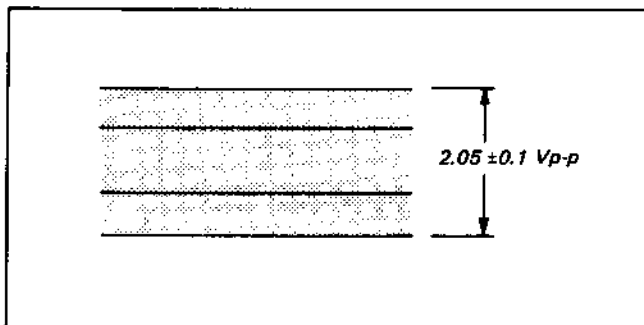


Fig. 5-26. Y record current adjustment

**Note:**

Repeat items 9) and 10) until each of them complies with its standard.

**11) APC Adjustment (YC-40 Board)**

Mode: Playback  
Signal: Colour-bar  
Frequency counter: Pin ⑭ of IC006

**[Adjustment method]**

Adjust to  $4.433619$  MHz  $\pm 5$  Hz with CV001.

**12) AFC Adjustment (YC-40 Board)**

Mode: E-E  
Signal: None  
When Pin ③ of CN004 is 5 V, apply 4.5 V dc to Pin ⑳ of IC006.  
Frequency counter: Pin ㉑ of IC006

**[Adjustment method]**

- i) Adjust the counter by RV007 to  $5.515$  MHz  $\pm 0.02$  MHz.
- ii) Confirm item 13).

**13) AFC Offset Adjustment (YC-40 Board)**

Mode: Record  
Signal: Colour-bar  
Oscilloscope: Pin ㉒ of IC006

**[Adjustment method]**

- i) Adjust RV006 so that the fluctuation of DC level is minimum. (See Fig. 5-27.)
- ii) Confirm item 12).

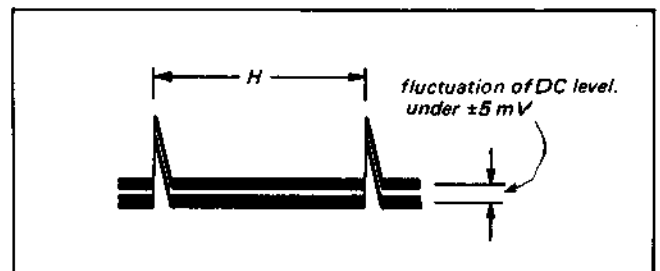


Fig. 5-27. AFC offset adjustment

**Note:**

Repeat items 12) and 13) until each of them complies with its standard.

**14) Pilot Burst Signal Level Adjustment (YC-40 Board)**

Mode: E-E  
Signal: Colour-bar  
Oscilloscope: Pin ① of IC006

**[Adjustment method]**

Adjust the pilot burst signal with the chroma signal level using RV009.

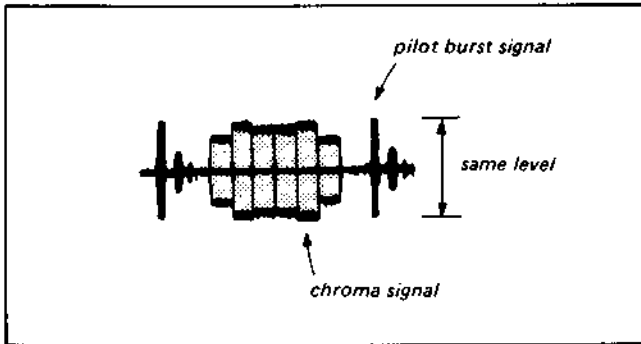


Fig. 5-28. Pilot burst signal level adjustment

**15) Peak Acc Adjustment (DH-4 Board)**

Mode: E-E  
Signal: Colour-bar  
Oscilloscope: Emitter of Q304

**[Adjustment method]**

Adjust to  $2.0 \pm 0.1$  Vp-p with RV301. (See Fig. 5-29.)

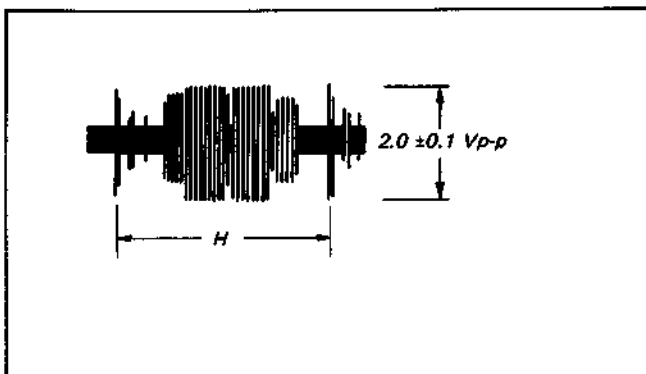


Fig. 5-29. Peak Acc adjustment

**16) Chroma Record Current Adjustment (YC-40 Board)**

Mode: Record (PRO mode)  
Signal: Colour-bar  
Oscilloscope: Emitter of Q310 on DH-4 board.

**[Adjustment method]**

Adjust to  $130 \pm 10$  mVp-p with RV008.

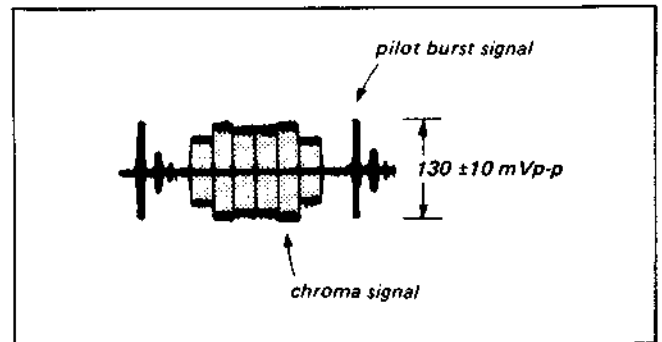


Fig. 5-30. Chroma record current adjustment

**Note:**

Make sure to adjust 9) Current Reducing Adjustment and 15) Peak Acc Adjustment.

## 5-4-2. Playback System Adjustment

### 1) Playback Frequency Characteristic Adjustment (RP-31 Board)

- Adjust both the A and B channels.  
The B channel indicated by ( ).
- Mode: Playback
- Signal: RF sweep
- Oscilloscope: Pin (3) of CN703
- External trigger: Pin (5) of CN703

#### [Adjustment method]

- i) Rotate the tracking knob to make 2 MHz to be maximum.
- ii) Rotate RV704 to adjust the 2 MHz level of B-ch to be less than  $\pm 20$  mV to the 2 MHz level of A-ch.
- iii) Set the trigger slope to  $- (+)$ .
- iv) Adjust the 5.2 MHz amplitude to 52 – 59% of the 2 MHz amplitude with RV702 (RV701).

- Adjust the A' channels.  
Mode: Playback
- Signal: RF sweep
- Oscilloscope: Pin (3) of CN703
- External trigger: Pin (5) of CN703

#### Note:

Apply 5 V dc to Pin (1) of CN703.

Short between Pin (1) and (2) of CN307.

#### [Adjustment method]

- i) Rotate the tracking knob to make 2 MHz to be maximum.
- ii) Adjust 2 MHz level of A'-ch by RV705 so that it is  $75 \pm 5\%$  of that of A-ch.

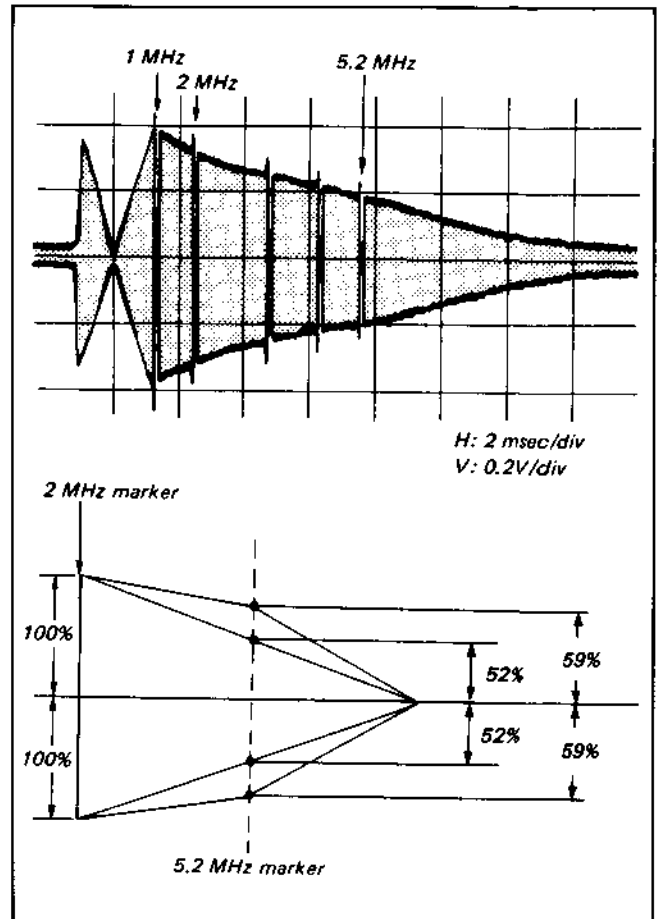


Fig. 5-31. Playback amplifier frequency characteristic adjustment

### 2) Expand Adjustment (YC-40 Board)

- Mode: Playback
- Signal: Colour-bar
- Digital voltmeter: See Fig. 5-32.

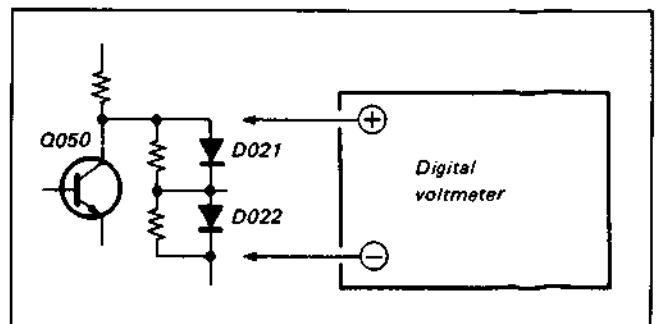


Fig. 5-32.

#### [Adjustment method]

Adjust to  $0.3 \pm 0.01$  V dc using RV020.

#### Note:

Adjust more than 30 sec after playback.

**3) Playback Video Level Adjustment (YC-40 Board)**

Mode: Playback  
Signal: Colour-bar  
Oscilloscope: VIDEO OUT

**[Adjustment method]**

Adjust to  $1.0\text{ V} \pm 0.05\text{ V}_{p-p}$  with RV019.

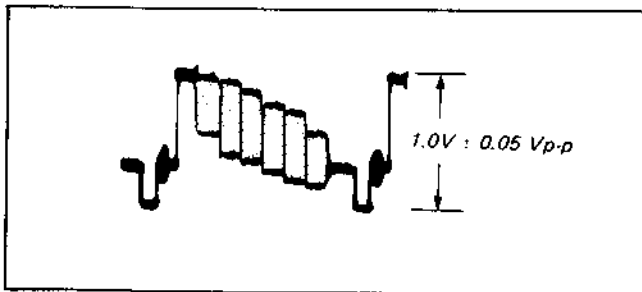


Fig. 5-33. Playback video level adjustment

**4) Y-Comb Adjustment (YC-40 Board)**

Mode: Playback  
Signal: Colour-bar  
Oscilloscope: Pin ⑧ of IC401

**[Adjustment method]**

Rotate RV401 to adjust so that the limiter works vertically symmetrically. (See Fig. 5-34.)

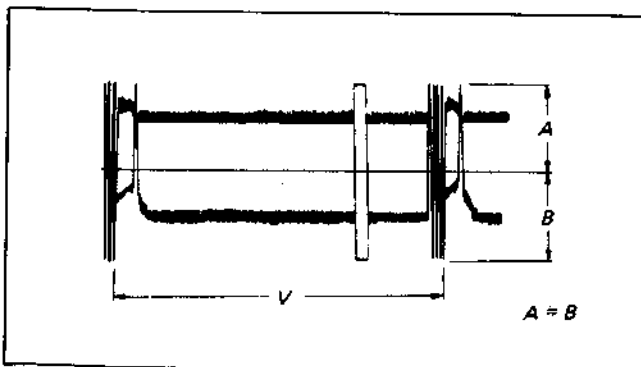


Fig. 5-34. Y-comb adjustment

**5) Dropout Compensator Threshold Adjustment (YC-40 Board)**

Mode: Playback  
Signal: Colour-bar  
Digital voltmeter: Pin ⑳ of IC009

**[Adjustment method]**

Adjust to  $0.26 \pm 0.02\text{ V dc}$  with RV010.

**6) Carrier Balance Adjustment (YC-40 Board)**

Mode: Playback  
Signal: Colour-bar  
Adjust while observing the monitor TV screen.

**[Adjustment method]**

Minimize beats with RV005.

**7) Chroma Comb Filter Adjustment (YC-40 Board)**

Mode: Playback  
Signal: Colour-bar  
Adjust while observing the monitor TV screen.

**[Adjustment method]**

Minimize beats with RV501 and LV501.

**8) JOG PLL Adjustment (YC-40 Board)**

Mode: E-E  
Signal: Colour-bar  
Oscilloscope: Pin ⑩ of IC003

**[Adjustment method]**

Adjust to  $20 \pm 1\ \mu\text{sec}$  with RV003.  
(See Fig. 5-35.)

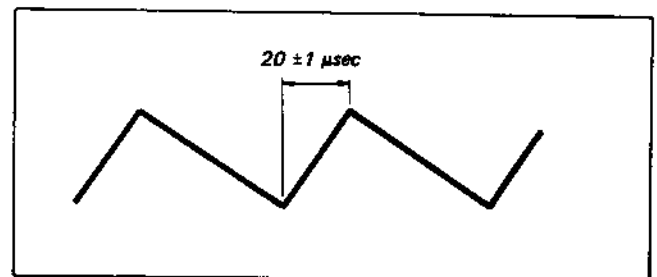


Fig. 5-35. JOG PLL adjustment



**9) JOG Exchange Chroma Level Adjustment (YC-40 Board)**

Mode: Playback – PAUSE (STILL)

Signal: Colour-bar

Oscilloscope: Pin ⑧ of IC003

**[Adjustment method]**

Adjust RV002 so that the fluctuation of level is minimum. (See Fig. 5-36.)

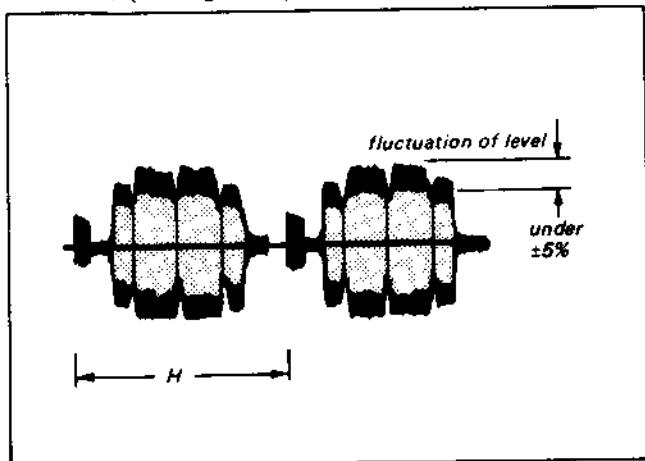


Fig. 5-36. JOG EXCH. C. level adjustment

**10) Shift Adjustment (YC-40 Board)**

Mode: Playback – PAUSE (STILL)

Signal: Alignment tape colour-bar

Oscilloscope: Pin ⑳ and ㉑ of IC003

**[Adjustment method]**

Adjust to the signal level (per 1H) with RV004.

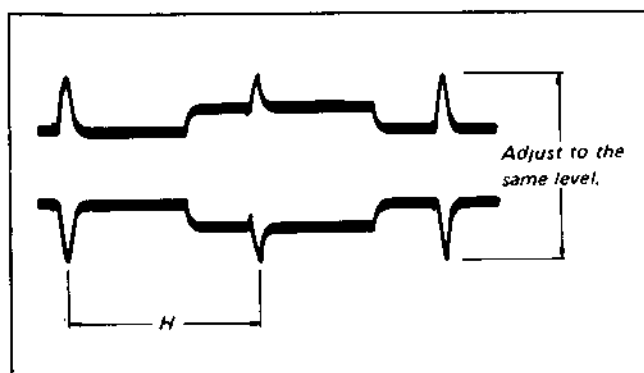


Fig. 5-37. Shift adjustment

### 5-5. SECAM VIDEO SYSTEM ADJUSTMENT (ES MODEL)

- Make this adjustment after adjusting the PAL video system.
- For this adjustment, use the equipment listed below in conjunction with an alignment tape and SECAM colour-bar signals.

**[Equipment Required]**

- (1) SECAM Colour Monitor TV
- (2) Oscilloscope, Dual-trace, Bandwidth . . . more than 10 MHz with delay mode
- (3) SECAM Colour-Bar Generator
- (4) Alignment Tape, Type: KR5-1J, Code No. 8-969-996-03

**[Setup for Adjustment]**

In this adjustment, video signals obtained from the pattern generator will be used as adjustment signals. Therefore, the video output signals should be within the specifications. Verify video signals by connecting an oscilloscope to VIDEO OUT connector (75 Ω terminated). Check that the video signals are flat when the amplitude of the horizontal sync signal is about 0.3 Vp-p, the amplitude of the video portion is about 0.7 Vp-p, and the amplitude of the burst signal is about 0.3 Vp-p.

The video signal (colour-bar signal) used in this adjustment is shown in Fig. 5-38.

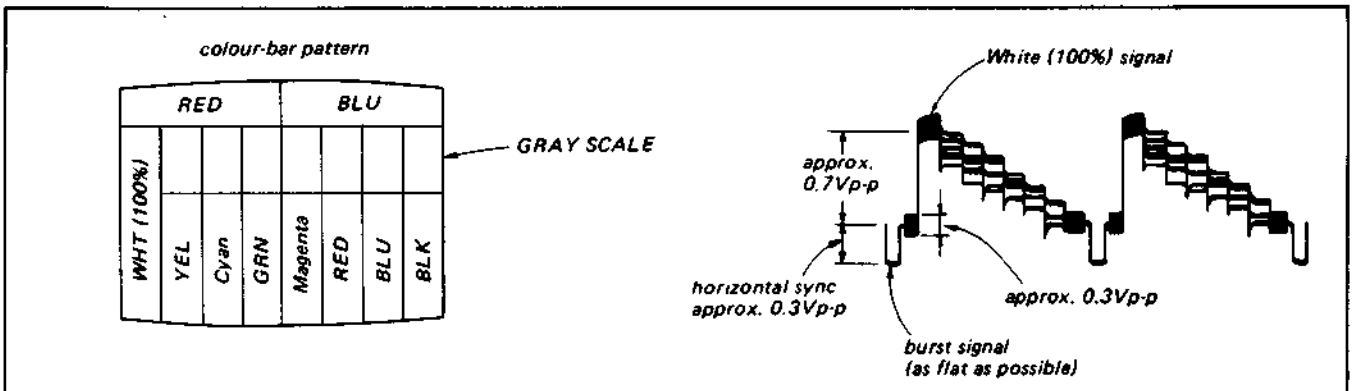


Fig. 5-38. SECAM video (colour-bar) signal

**[Alignment Tape]**

**KR5-1J**

	Video signal	Audio signal	Playing time	Use for
1.	Colour-bars	3 kHz – 5 dB	5 min	General performance, tape speed checks, switching position adjustment.
2.	Monoscope	333 Hz – 25 dB	5 min	Video head dihedral, audio level adjustment.
3.	RF sweep	5 kHz – 25 dB	5 min	Video, audio frequency characteristics, audio azimuth adjustment. marker: 1, 2, 3.58, 4.5, 5.2 MHz
4.	Tracking 1 MHz (CH-B) *1 (Channel B is inserted in every 3 frames.)	1 kHz – 5 dB *2 (Signal is dropped out in the positions where channel B is inserted.)	5 min	Tracking, Audio height adjustments CTL Position check. (Check if *1 and *2 are the same position.)

**[Colour-Bar Signal]**

The 100% colour-bar signal recorded on the Alignment tape is shown in Fig. 5-39.

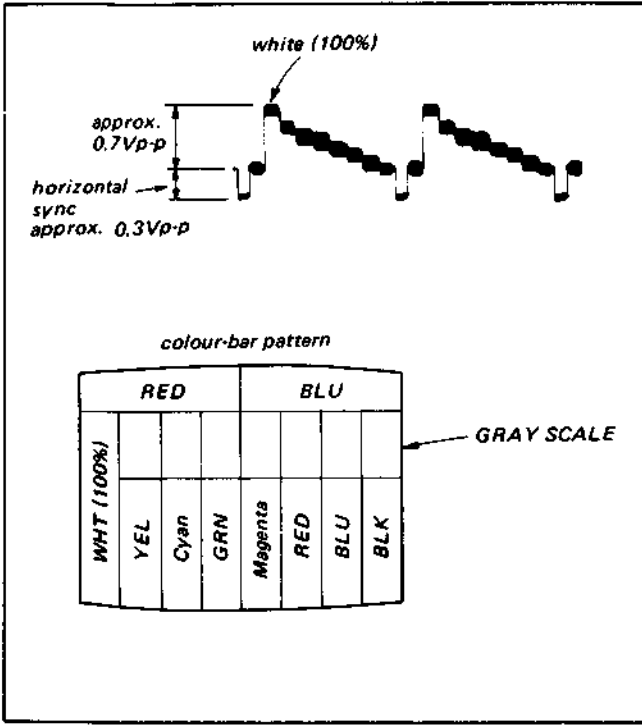


Fig. 5-39. Colour-bar signal recorded on the alignment tape

**1) Bell Filter Adjustment (YC-40 Board)**

Mode: E-E  
Signal: SECAM colour-bar  
Oscilloscope: Pin ⑦ of IC005

**[Adjustment method]**

Adjust LV003 until the waveform is flat.  
(See Fig. 5-40.)

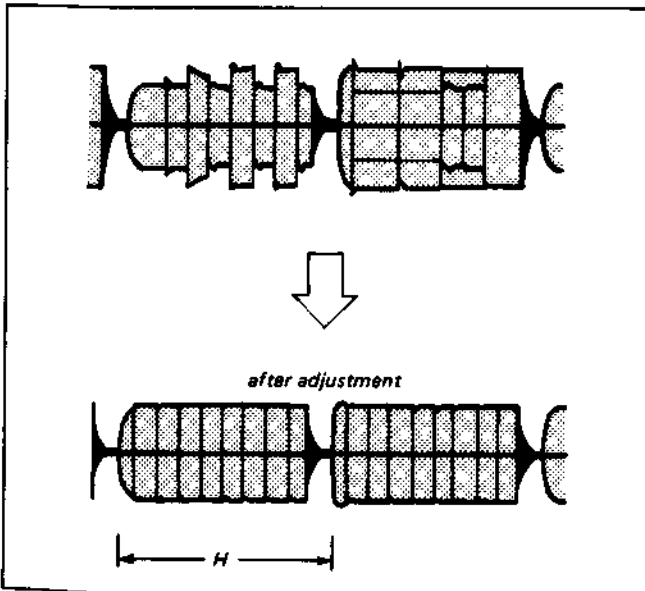


Fig. 5-40. Bell filter adjustment

**2) SECAM ACK Adjustment (YC-40 Board)**

Mode: E-E  
Signal: SECAM colour-bar  
Oscilloscope: Pin ⑨ of IC002

**[Adjustment method]**

- i) Rotate LV001 to make the waveform amplitude to be maximum.
- ii) Adjust RV001 to  $5.8 \pm 0.2$  Vp-p.

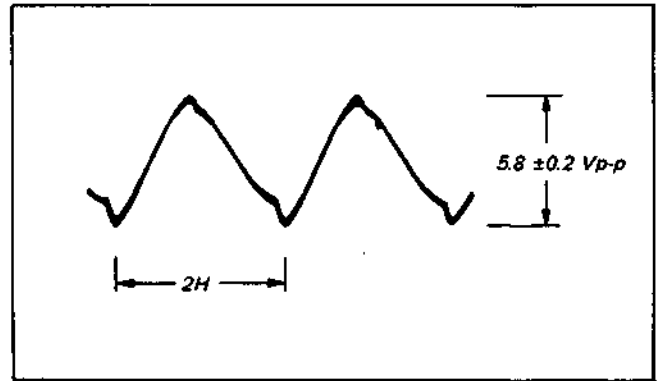


Fig. 5-41. SECAM ACK adjustment

**3) Counter Bell Filter Adjustment (YC-40 Board)**

Mode: Self-recording and playback  
Signal: SECAM colour-bar  
Adjust while observing the monitor TV screen.

**[Adjustment method]**

- i) Record SECAM colour-bar signals.
- ii) Playback the recorded signals.
- iii) While observing the monitor TV screen, adjust LV002 until the border between the red and blue areas is at its cleanest (minimum beats).

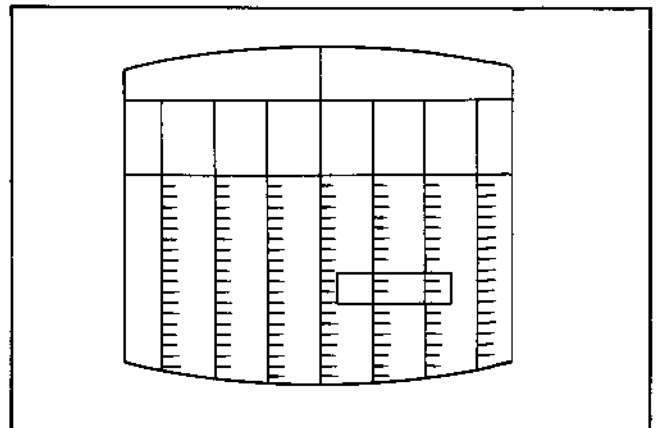


Fig. 5-42. Counter bell filter adjustment

## 5-6. AUDIO SYSTEM ADJUSTMENT

Use a Dynamicron tape for adjustments.

### [Connection of Related Equipment]

#### Note:

Set the INPUT SELECT switch to LINE/PCM.

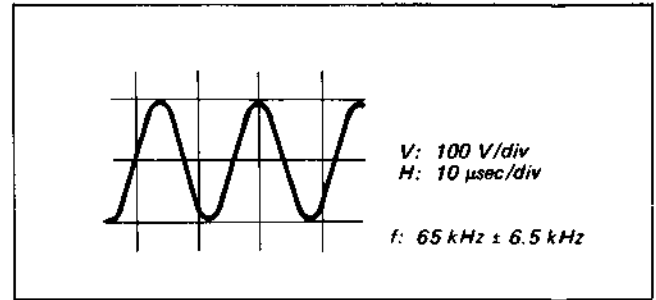
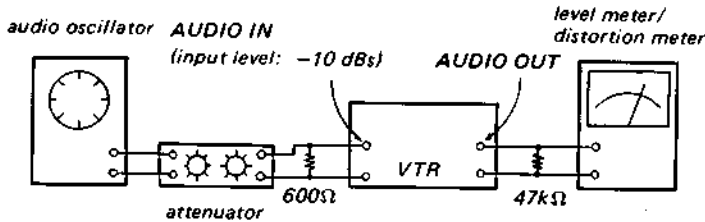


Fig. 5-43. Bias oscillator check

### 5-6-1. Normal Audio System Adjustment (TA-36/37 Board)

#### Note:

Set the BETA HI-Fi switch to NORM.

#### [Adjustment method]

1. ACE head adjustment . . . . See "Mechanical Adjustment"
2. Playback frequency characteristic check
3. Playback output level adjustment
4. Bias oscillator check
5. Record bias adjustment
6. Overall S/N check
7. Overall distortion check
8. Audio insert adjustment

#### 1. ACE Head Adjustment

Refer to "Mechanical Adjustment"

#### 2. Playback Frequency Characteristic Check

Playback 333 Hz and 7 kHz from the alignment tape and check so that the level difference between 333 Hz and 7 kHz is within  $-4 \pm 5$  dB.

#### 3. Playback Output Level Adjustment

Playback 333 Hz from the alignment tape and adjust so that the output level is  $-10$  dBs  $\pm 0.5$  dB with RV901.

#### 4. Bias Oscillator Check

- (1) Set the input signal level to zero and set up the RECORD mode.
- (2) Connect a frequency counter to Pin ① of CN902. The reading should be  $65$  kHz  $\pm 6.5$  kHz. (See Fig. 5-43.)

#### 5. Record Bias Adjustment

Check that "Playback frequency characteristic adjustment" has been made.

- (1) Connect TP903 and GND with a jumper wire so as to turn off the AGC operation. Connect Pin ⑤ of CN901 and GND with a jumper wire so as to turn off the HI CUT operation.
- (2) Supply a 333 Hz signal.
- (3) Set up the E-E mode and adjust the oscillator output level so that the level meter reading is  $-30$  dBs.
- (4) Record signals.
- (5) Supply a frequency of 7 kHz and perform Steps (3) and (4) above.
- (6) Play back the recorded section of the tape and check that the output level at 7 kHz is  $-4 \pm 5$  dB relative to the output level at 333 Hz. If the level is outside this range, repeat Steps (2) through (5) adjusting with RV902 until the standard is met.
- (7) Remove the jumper wire after making the adjustment.

#### 6. Overall S/N Check

- (1) Supply a 333 Hz signal at  $-10$  dBs.
- (2) Record signals.
- (3) Set the input signal level to zero and record signals.
- (4) Play back the recorded section of the tape and check that the output level difference is greater than 38 dB.

#### 7. Overall Distortion Check

- (1) Supply a 333 Hz signal at  $-10$  dBs.
- (2) Record signals.
- (3) Play back the recorded section of the tape and verify that the distortion is below 4%.

#### 8. Audio Insert Adjustment

- (1) Set the input signal level to zero and set up the RECORD mode.
- (2) Read TP904 value (F Hz) at the frequency counter.
- (3) Adjust TP904 value by LV901 so that it is F  $\pm 0.6$  kHz at audio insert mode.

## 5-6-2. BETA Hi-Fi Audio System Adjustment (FL-8, AF-14 Boards)

### Note:

Set the RECORD switch to VIDEO.

Set the MPX FILTER switch to OFF.

Set the BETA Hi-Fi switch to AUTO.

( ) is R-CH.

### [Adjustment method]

1. REC VR adjustment
2. E-E input level check
3. Dynamic emphasis adjustment
4. AFM carrier frequency adjustment
5. AFM deviation adjustment
6. AFM record current adjustment
7. Level meter adjustment
8. RF input level adjustment
9. Tracking meter adjustment
10. Demodulator  $f_0$  adjustment
11. Demodulator DC offset preset adjustment
12. Level and level balance adjustment
13. Overall frequency characteristic check
14. Overall distortion check
15. Overall S/N check

### 1. REC VR Adjustment (FL-8 Board)

- (1) Input at 400 Hz and  $-10$  dB signal to the audio line input to set up a RECORD state. [Adjust the REC level volume control to the center click.]
- (2) Adjust the level of Pin ⑤ (Pin ②) of CN1 to be  $-22 \pm 0.5$  dBs with RV2 (RV3) on FL-8 board.

### 2. E-E Input Level Check

- (1) Input at 400 Hz and  $-10$  dB signal to the audio line input to set up a RECORD state. [Adjust the REC level volume control to the center click.]
- (2) Check the level of TP008 (TP010) to be  $-26.5 \pm 0.5$  dB.

### 3. Dynamic Emphasis Adjustment

- (1) Input a 400 Hz and  $-10$  dB signal to the audio line input to set up a RECORD state. [Adjust the REC level volume control to the center click.]
- (2) Connect TP009 and 011 to the VTVM puls side. Adjust RV005 so that  $\frac{A+B}{2} = -20.0 \pm 0.1$  dBs,  $A = -20.0 \pm 0.3$  dBs and  $B = -20.0 \pm 0.3$  dBs where TP009 level is A dBs and TP011 level is B dBs.

### 4. AFM Carrier Frequency Adjustment

- (1) Connect a frequency counter to TP001 [Emitter of Q016] (TP002 [Emitter of Q017]) in a no-signal state (shorted between the audio line input and GND) to set up a RECORD state.
- (2) Adjust to  $1.44 \pm 1$  kHz ( $2.1 \pm 1$  kHz) using RV001 (RV011).
- (3) Restore the shorting between the line input and GND after completing the adjustment.

### 5. AFM Deviation Adjustment

- (1) Input and record a 400 Hz and  $-10$  dB signal to the audio line input and play back the recorded part. (Adjust the REC level volume control to the center click.)
- (2) Playback BETA Hi-Fi alignment tape (KR5-10C), and measure the line-out level.
- (3) Adjust RV002 (RV010) so that the value of (1) and (2) becomes same.

### 6. AFM Record Current Adjustment

- (1) Short between the audio line input and GND to set up a no-signal state.
- (2) Connect an oscilloscope to Pin ⑤ of CN002.
- (3) Adjust  $f_2$  to  $160 \pm 5$  mVp-p using RV003 and check that  $f_1$  is inside  $45 \pm 5$  mVp-p.
- (4) Restore the shorting between the line input and GND after completing the adjustment.

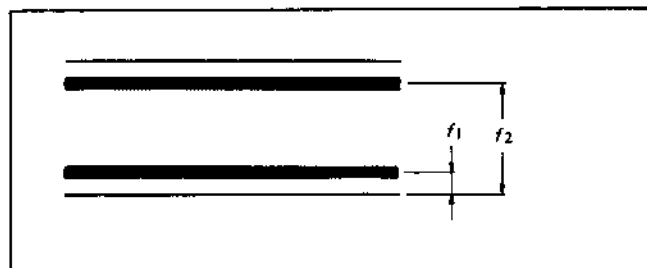


Fig. 5-44. AFM record current

### 7. Level Meter Adjustment

- (1) Input a 400 Hz and  $-10$  dB signal to the audio line input. [Adjust the REC level volume control to the center click.] [Level meter sw to ON.]
- (2) Adjust the level meter by RV602 (RV603) so that lamps up to the seventh one come on.
- (3) Operate the REC level volume control and check that the level meter lamps come on in conjunction with operation of the control.
- (4) Check that the lamps go off when turning off the level meter switch.

## 8. RF Input Level Adjustment

### Note:

Make this adjustment after checking that the AFM record current has been adjusted. Rotate and adjust the tracking control knob so that the Pin ① of CN015 output waveform becomes maximum.

- (1) Connect the  $1500\ \Omega$  resistor between Pin ① and ② of CN015.
- (2) Record a picture by placing the RECORD mode switch in the VIDEO position, then playback the picture.
- (3) Connect an oscilloscope to Pin ① of CN015 and adjust to  $1.9\ \text{Vp-p} \pm 0.2\ \text{Vp-p}$  with RV009.
- (4) After the adjustment, disconnect the  $1500\ \Omega$  resistor between Pin ① and ② of CN015.

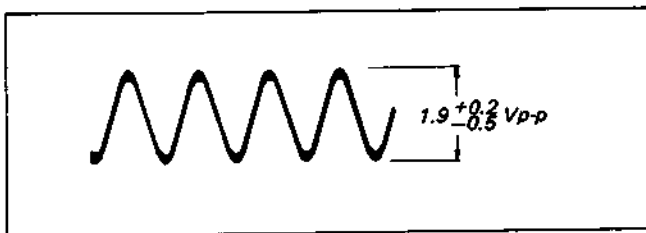


Fig. 5-45. RF input level adjustment

## 9. Tracking Meter Adjustment

- (1) Record a picture by placing the RECORD mode switch in the SOUND position, then playback the picture (placing the level meter switch in the TRACKING position).
- (2) While placing the tracking VR in the center click position, adjust RV601 so that level meter lamps up to the seventh one come on (only L-CH lamps must come on).
- (3) Record colour-bar, monoscope and other pictures by placing the RECORD mode switch in the VIDEO position, then playback them and check that level meter lamps do not come on.

## 10. Demodulator $f_0$ Adjustment

### • L-CH

- (1) Input a 1.34 MHz 300 mVp-p signal into TP005 and 006, then record a picture.
- (2) Playback the picture. Connect a digital voltmeter to TP007 and adjust it by RV012 to  $2.0 \pm 0.1\ \text{V dc}$ .

### • R-CH

- (1) Short between the audio line input and GND, and record.
- (2) Playback the recorded part. Connect an digital voltmeter to TP016 and adjust to  $2.0 \pm 0.1\ \text{V dc}$  with RV008.

## 11. Demodulator DC Offset Preset Adjustment

- (1) Input a 10 kHz and  $-10\ \text{dB}$  signal to the audio line input.
- (2) Record the signal and play back the recorded part. Check the waveform from the audio line output, and adjust to make the DC difference in grade minimum with RV604 (L-CH) and RV605 (R-CH).

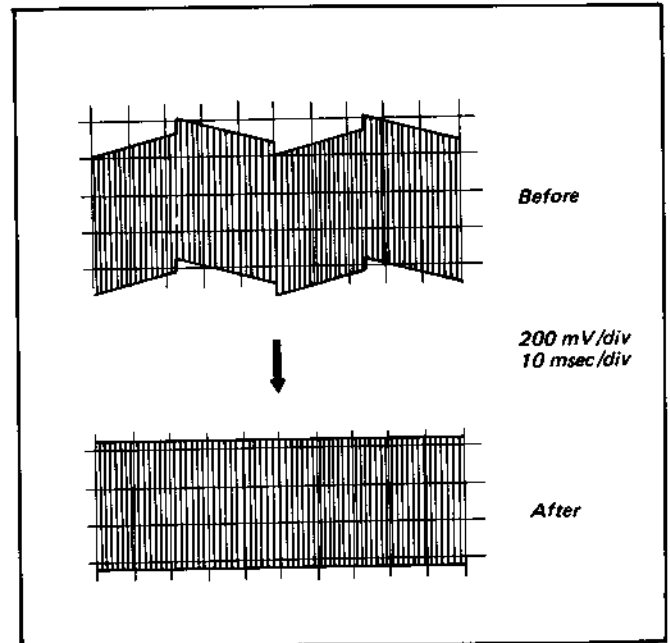


Fig. 5-46. Demodulator DC offset adjustment

- (3) Carry out the level and level balance adjustment of item 12).
- (4) Repeat (1) and (2) above.

**12. Level and Level Balance Adjustment**

- (1) Play back the BETA Hi-Fi alignment tape (KR5-10C).
- (2) Connect an oscilloscope to TP008 (TP010) and adjust to  $-20 \pm 0.1$  dB with RV014 and RV013 (RV006 and RV007), and to eliminate the level difference. (See Fig. 5-47.)
- (3) Restore the shorting between the audio line input and GND.

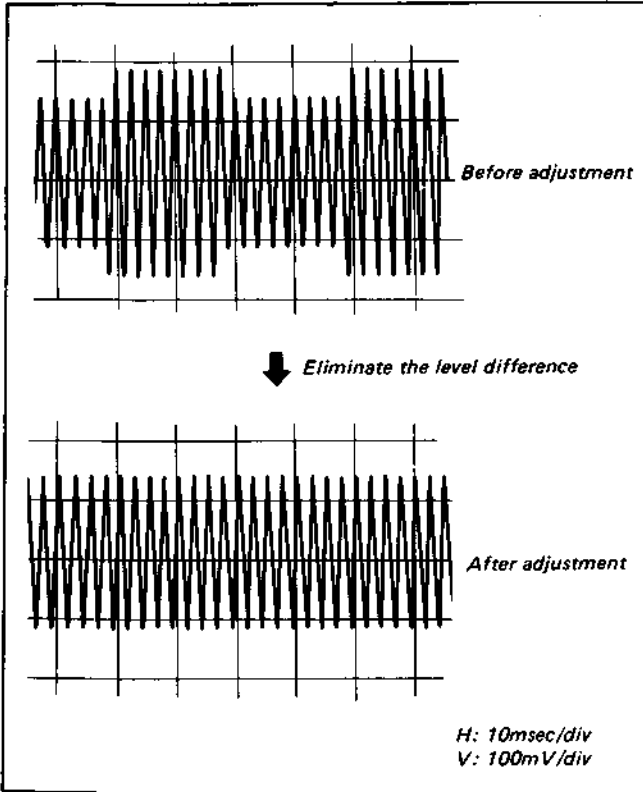


Fig. 5-47. Playback level balance adjustment

**13. Overall Frequency Characteristic Check**

- (1) Feed a 400 Hz signal to the audio line input. Set up the E-E mode and adjust the attenuator so that the audio line output level becomes  $-10$  dB.
- (2) Record the signal.
- (3) Change the frequency to 20, 100, and 400 Hz, as well as to 10 kHz and 20 kHz, then repeat Steps (1) and (2).
- (4) Play back the recorded part and check that the output levels are inside the standard. (See Fig. 5-48.)

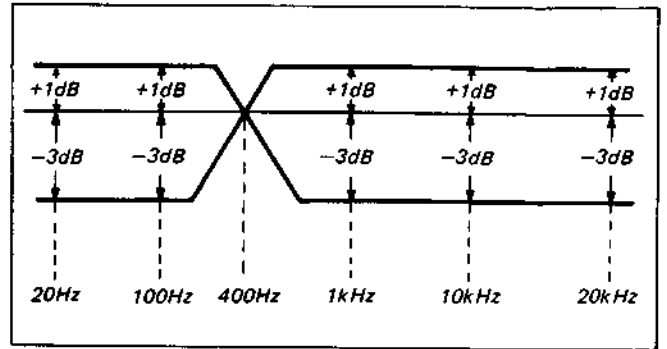


Fig. 5-48. Overall frequency characteristic check

**14. Overall Distortion Check**

- (1) Supply a 400 Hz signal at 6.5 dB.
- (2) Record the signal.
- (3) Play back the recorded part of the tape and verify that the distortion is below 0.5%.

**15. Overall S/N Check**

- (1) Supply a 400 Hz signal at  $-10$  dBs.
- (2) Record signals.
- (3) Set the input signal level to zero and record signals.
- (4) Playback the recorded section of the tape and check that the output level difference is greater than 65 dB. (Measure at IHF-A wating curve.)

## **5-7. TUNER SYSTEM ADJUSTMENT (TA-36/37 Board)**

### **1. Tuner AGC Adjustment**

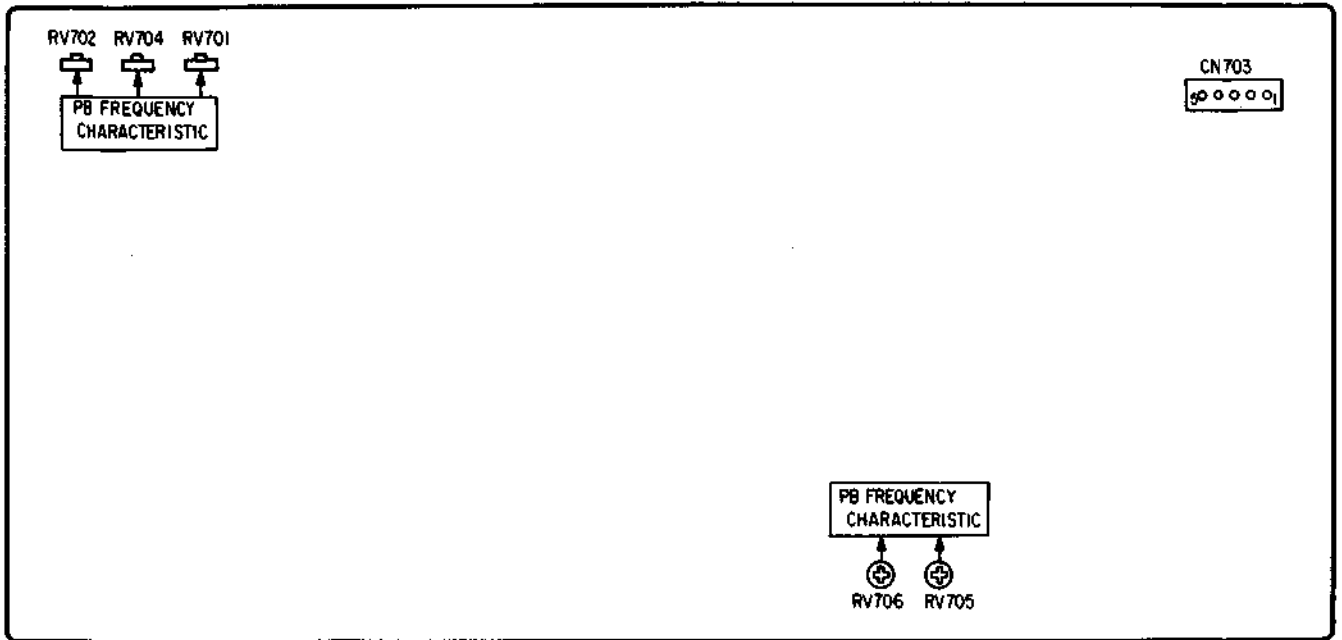
- (1) Receive broadcast TV signals in the highest contrast.
- (2) Turn RV001 until snow (intensity-modulated display) noise appears on the TV screen.
- (3) Turn RV001 backward until the snow (intensity-modulated display) noise disappears.
- (4) Receive signals of all channels in turn, and ensure that there is no cross modulation beat, image deformation nor snow noise effect.

### **2. Stereo Separation Adjustment (TA-36 Board Only)**

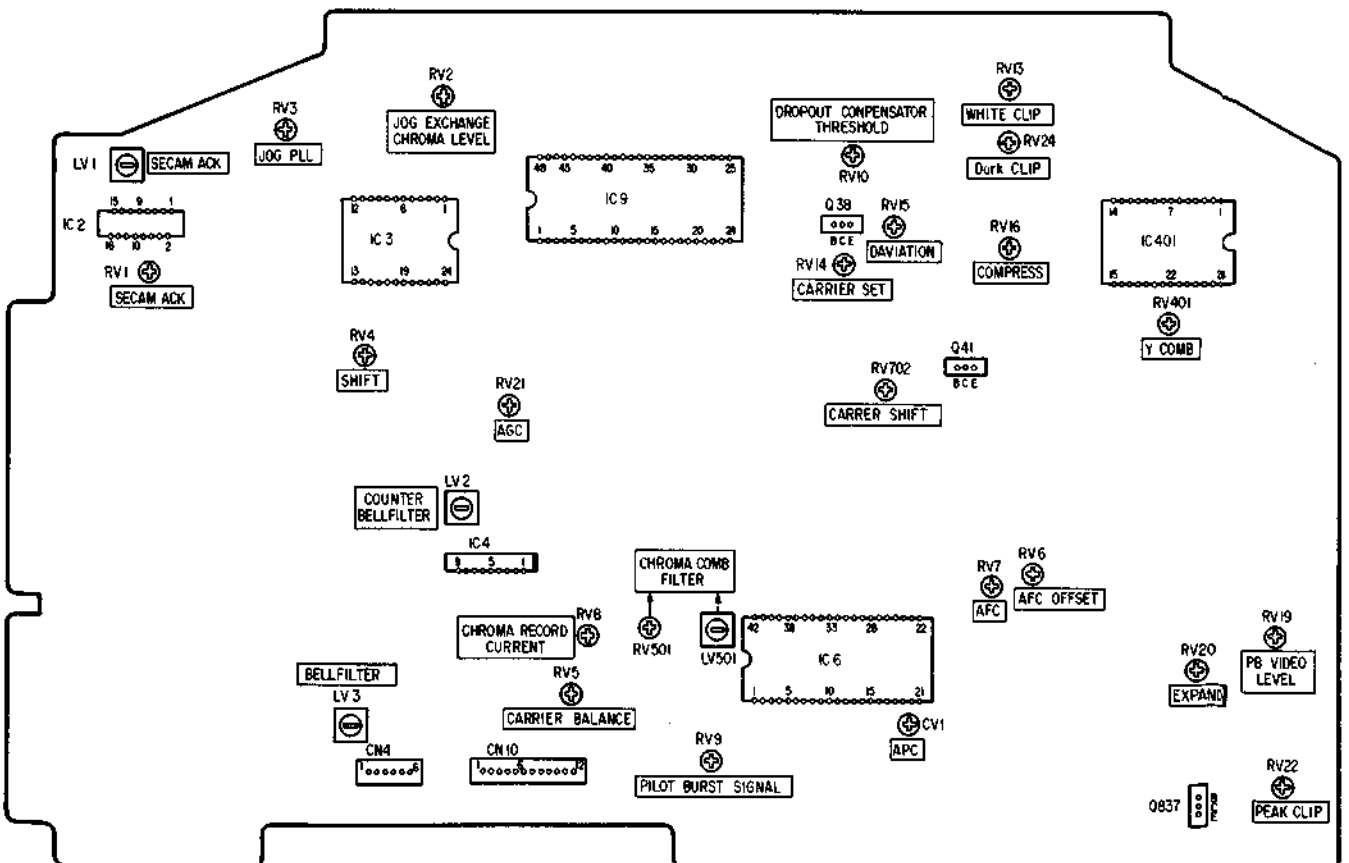
- (1) L-CH and R-CH receive 400 Hz and 1 kHz stereo signals respectively from the signal generator.
- (2) Connect an oscilloscope to Pin ① of CN002 and adjust RV002 so that the shaking by 1 kHz of the 400 Hz waveform becomes smallest.



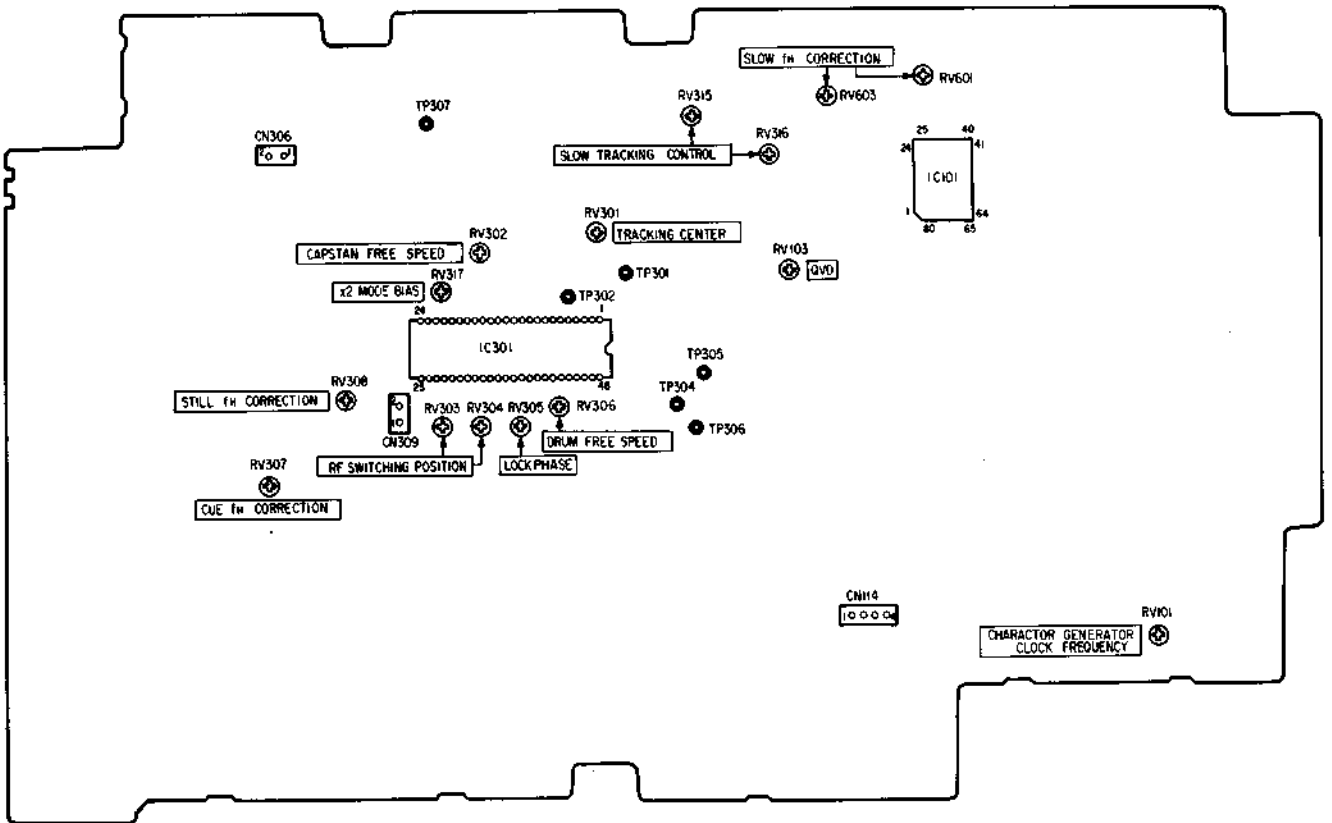
**RP-31 board  
(Component side)**



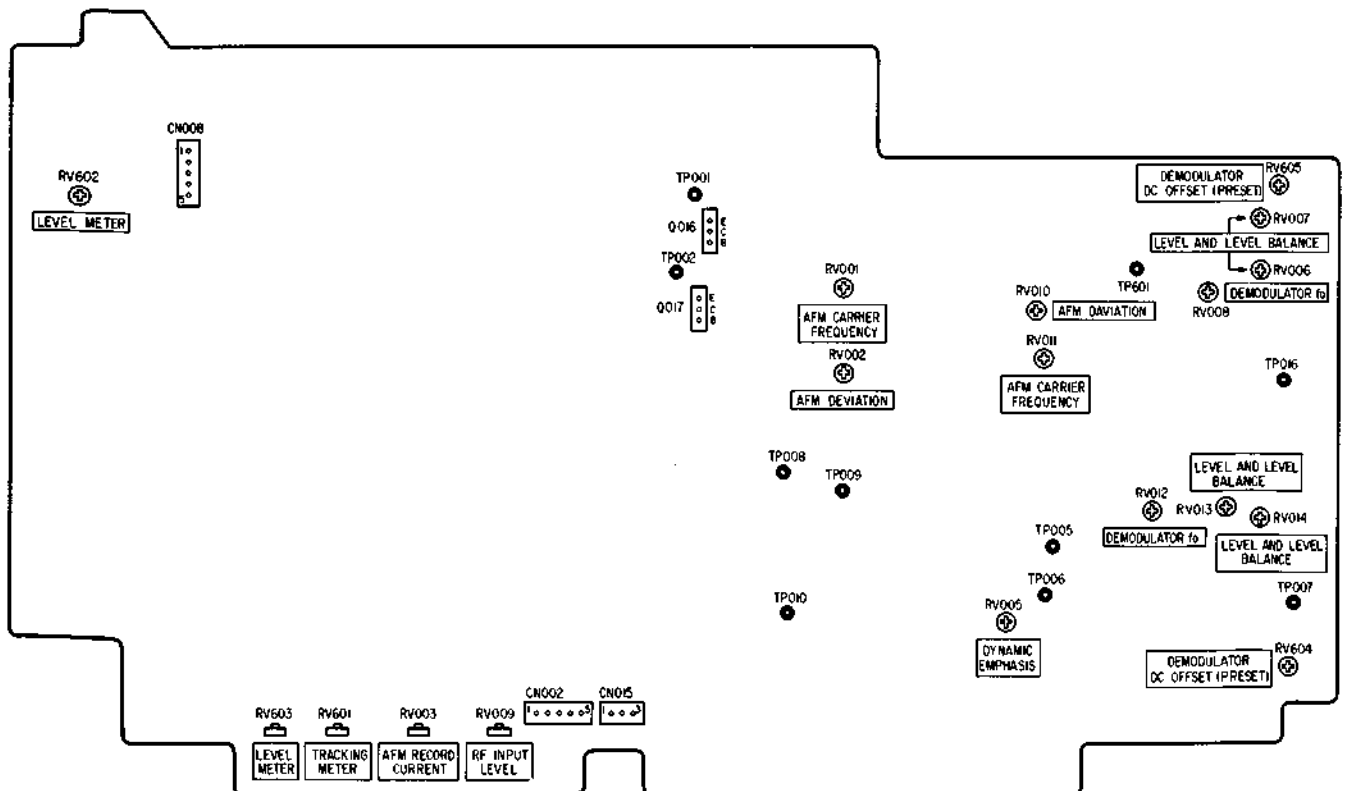
**YC-40 board  
(Component side)**



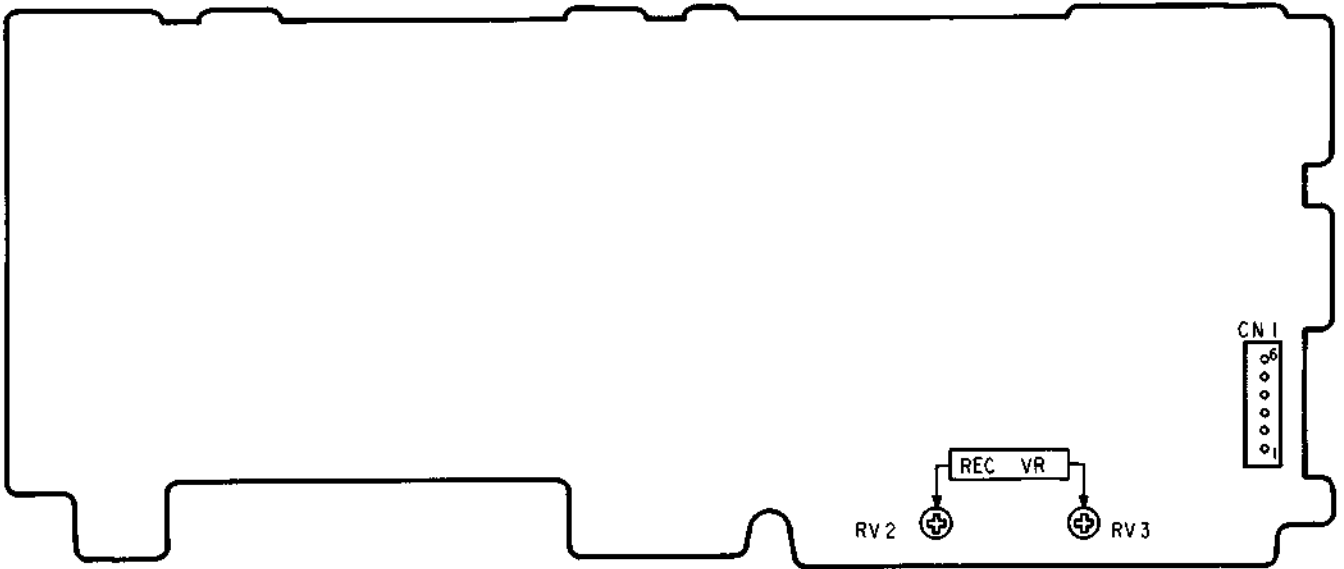
**SS-50 board  
(Component side)**



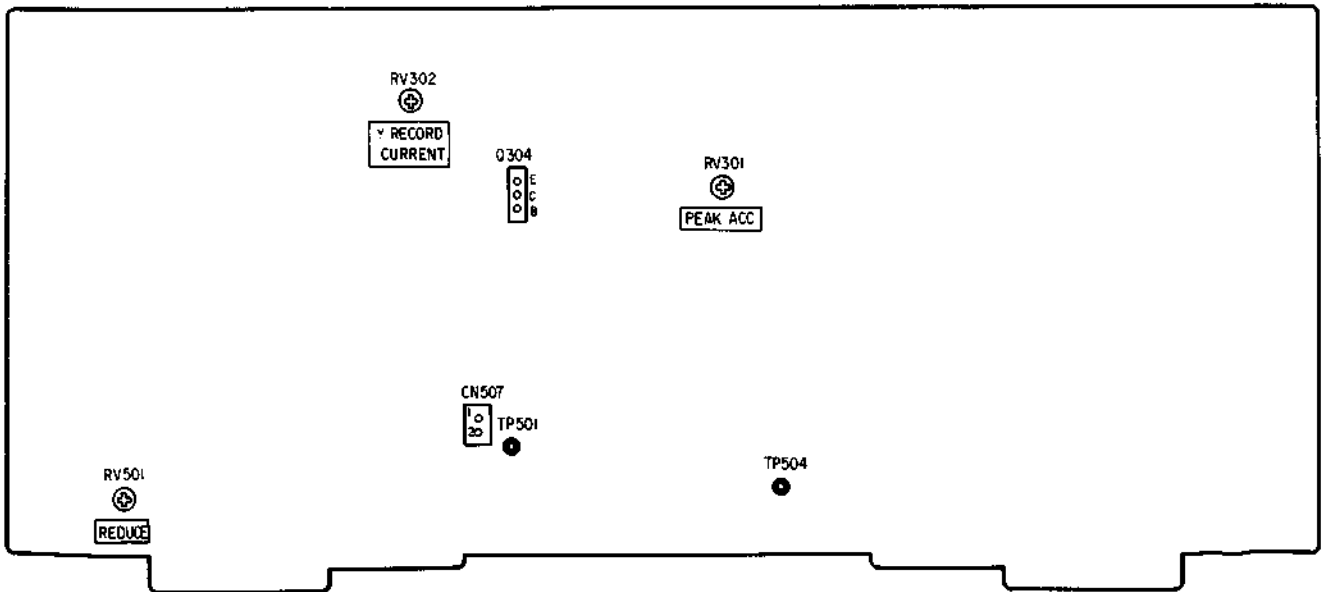
**AF-14 board  
(Component side)**



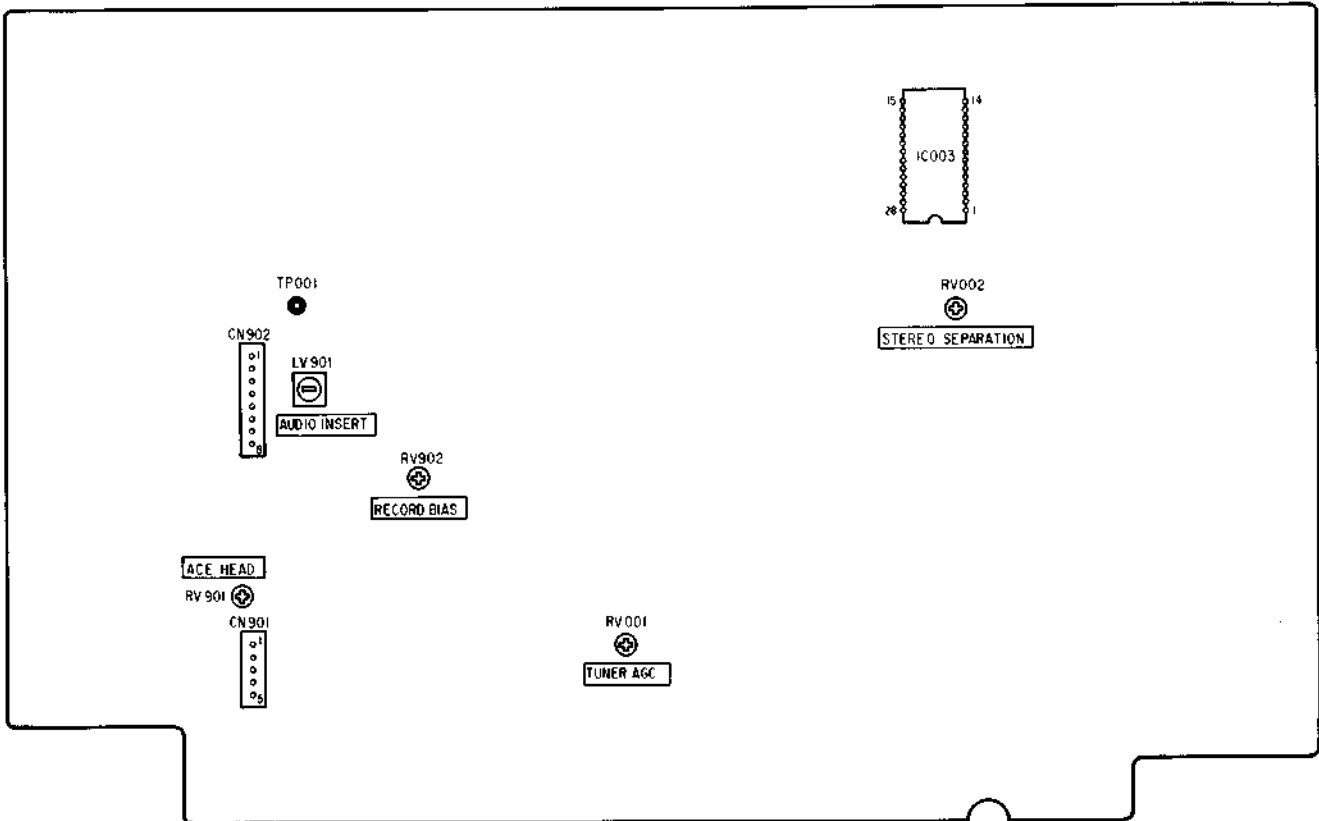
**FL-8 board  
(Component side)**



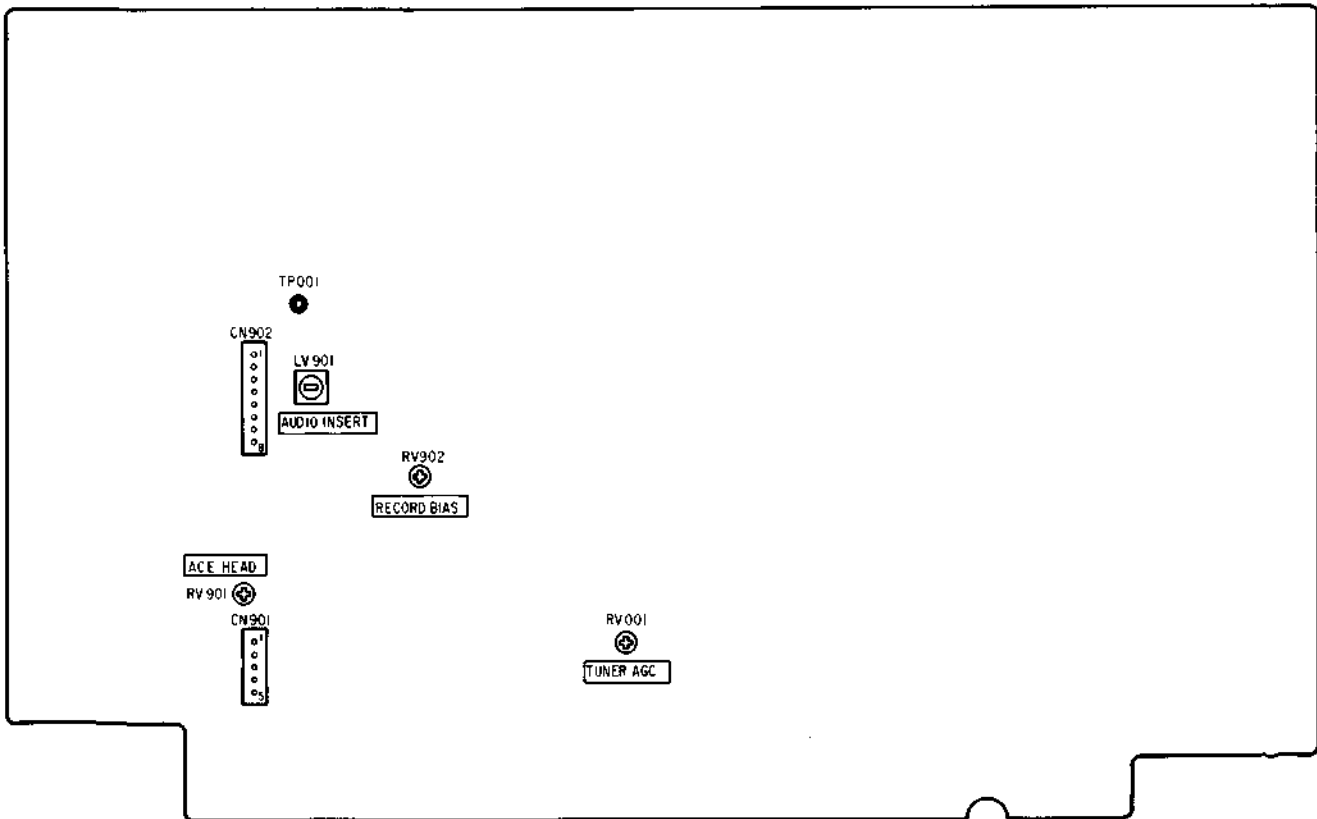
**DH-4 board  
(Component side)**



**TA-36 board (ES model)**  
**(Component side)**



**TA-37 board (E model)**  
**(Component side)**



**SL-HF950ES/E**  
**RMT-223**

9-972-428-81

**Sony Corporation**

English  
8K 0567-1  
Printed in Japan  
© 1985

# SL-HF950ES / E

RMT-223

## SONY<sup>®</sup> SERVICE MANUAL

*AEP Model  
E Model  
February, 1986*

## SUPPLEMENT-2

**Subject:**

This supplement updates the service manual to include the revised schematic diagrams, printed wiring boards and electrical parts list.

File this supplement with the service manual.

**Correction:**

There are some incorrect portions on the service manual.

Please correct the disassembly (Section 2-2, 2-3 and 2-6) and adjustment.

**[Contents to be modified]**

- The pattern has been changed.
- The end of part No. has been changed to 12/13.  
[ -12: YC-40 board, SS-50 board, FL-8/9 board ]  
[ -13: AF-14 board, PJ-3 board, TA-36/37 board ]

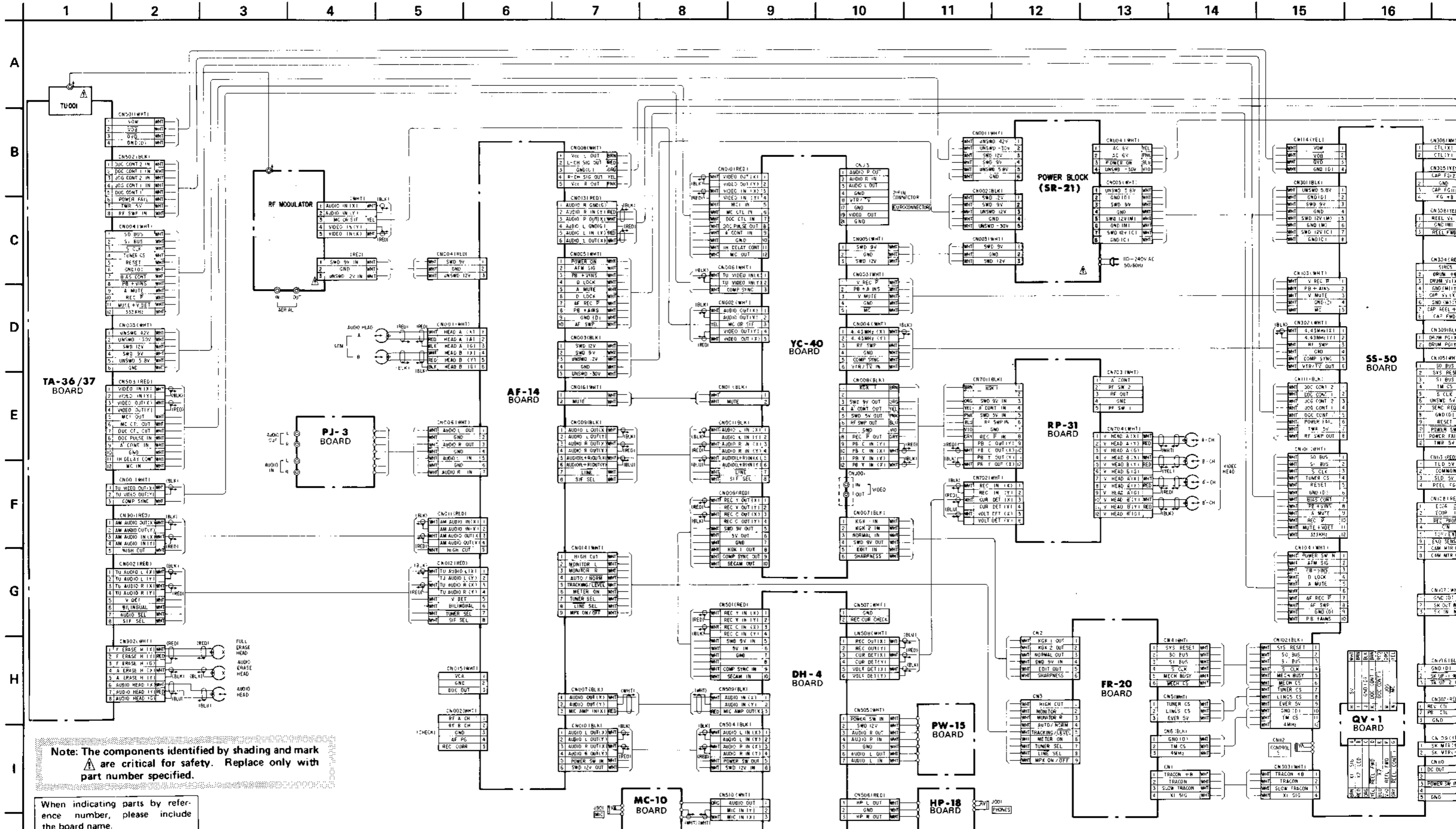
*MC-Service*

## TABLE OF CONTENTS

<i>Section</i>	<i>Title</i>	<i>Page</i>
<b>1.</b>	<b>PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS</b>	
1-1.	Frame Schematic Diagram . . . . .	3
1-2.	AEP (ES) Model; YC-40, RP-31, TA-36, DH-4 Boards . . . . .	8
1-3.	E Model; YC-40, RP-31, TA-37, DH-4 Boards . . . . .	18
1-4.	SS-50, DR-33, RD-17, LM-17, R STATOR, CAPSTAN MOTOR Boards . . . . .	30
1-5.	SS-50, QV-1, OC-1, US-1, LS-11 Boards . . . . .	40
1-6.	AF-14, PJ-3, FL-8, DH-4, PW-15, DR-33, MC-10, HP-18 Boards . . . . .	48
1-7.	FL-8, FL-9, FR-20 Boards . . . . .	60
1-8.	TA-36 Board . . . . .	68
1-9.	TA-37 Board . . . . .	73
1-10.	M, CN, C, D, F Boards . . . . .	78
<b>2.</b>	<b>ELECTRICAL PARTS LIST . . . . .</b>	<b>83</b>
<b>3.</b>	<b>CORRECTION</b>	
	<b>DISASSEMBLY</b>	
2-2.	Removal of the TA-36/37 Board . . . . .	123
2-3.	Removal of the SS-50 Board . . . . .	123
2-6.	Removal of the FL-8, FL-9 Board . . . . .	124
	<b>ADJUSTMENT</b>	
3)	RF Switching Position Adjustment (SS-50 Board) . . . . .	125
16)	Chroma Record Current Adjustment (YC-40 Board) . . . . .	125

1. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

1-1. FRAME SCHEMATIC DIAGRAM



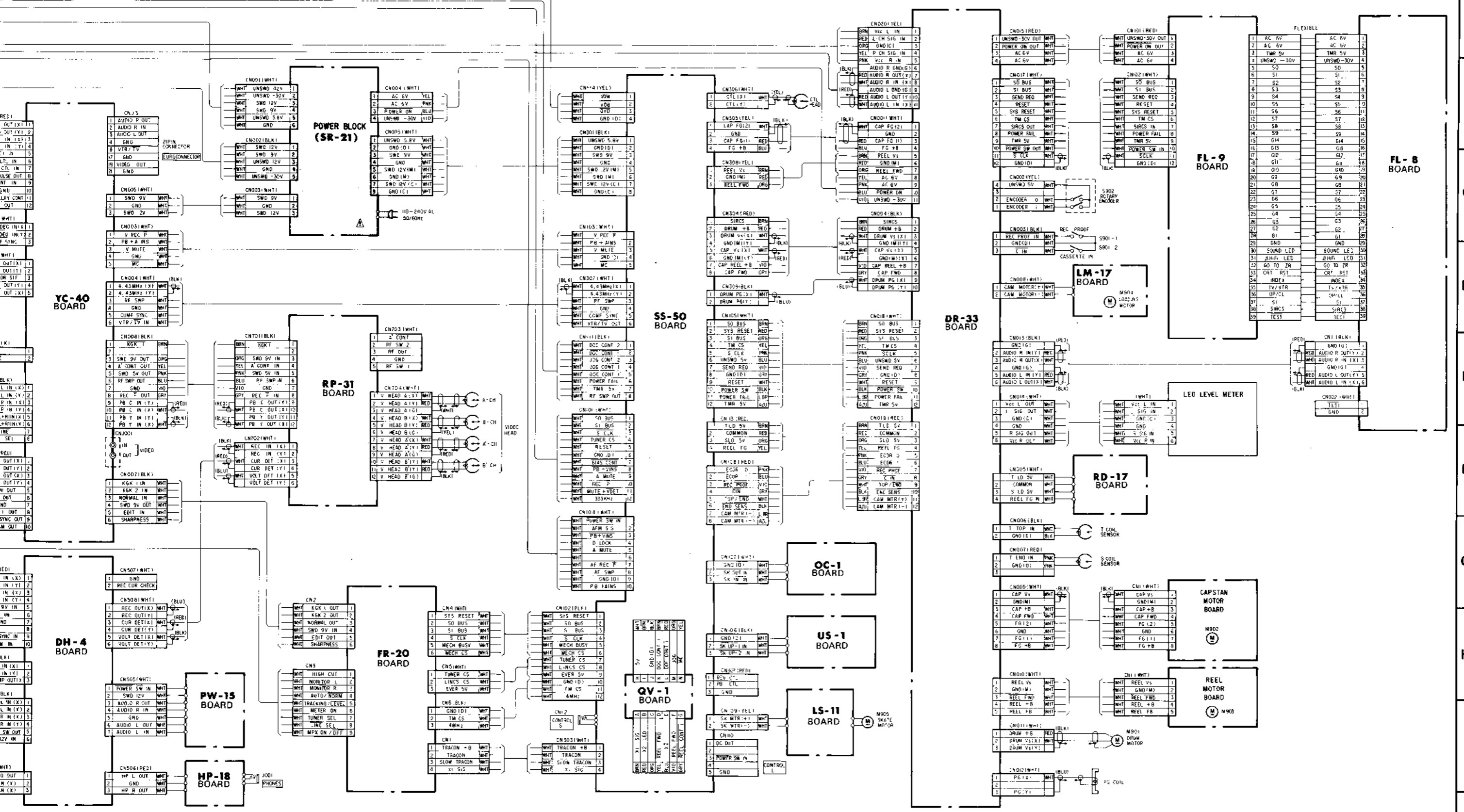
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

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



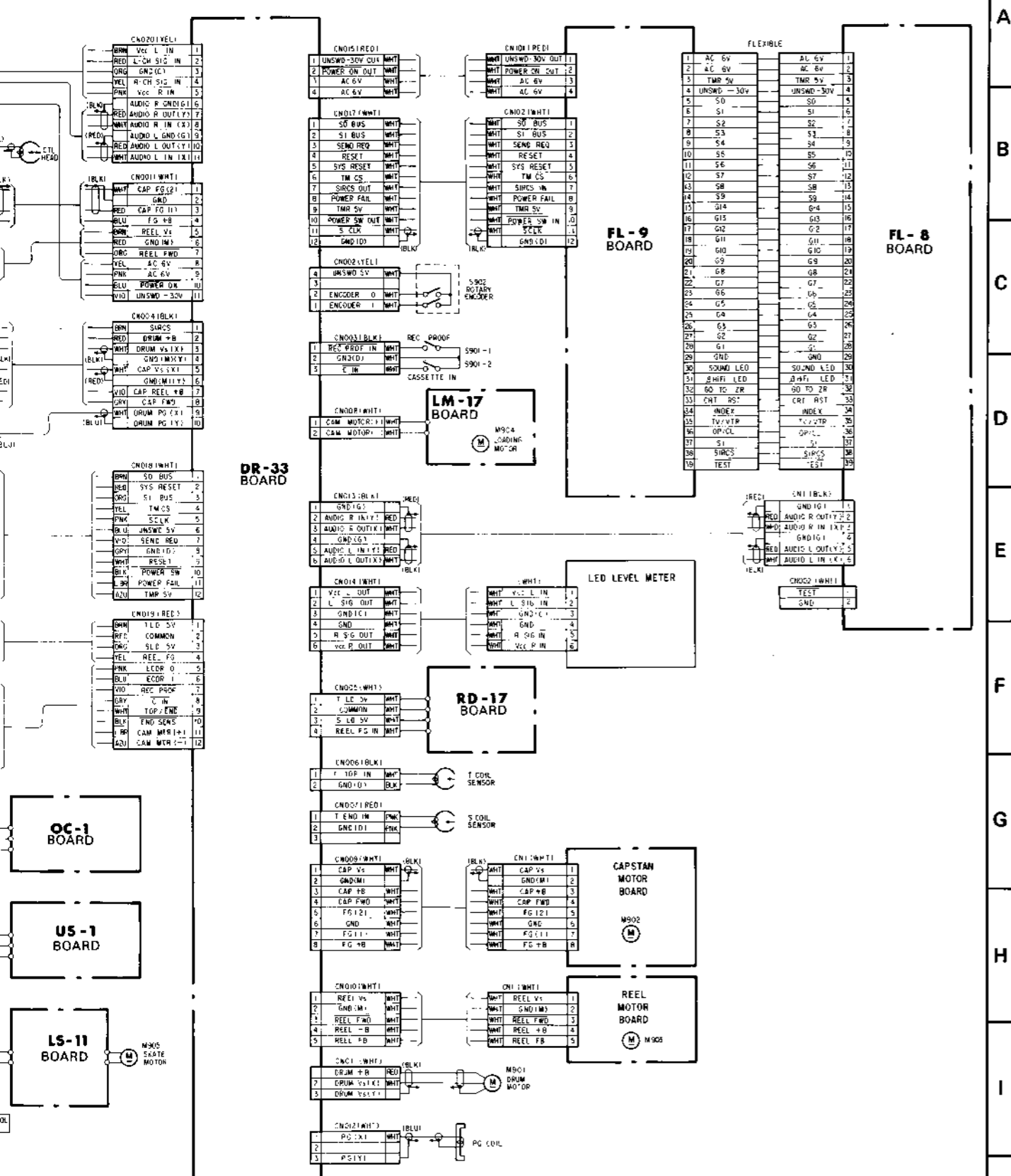
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

A B C D E F G H I J

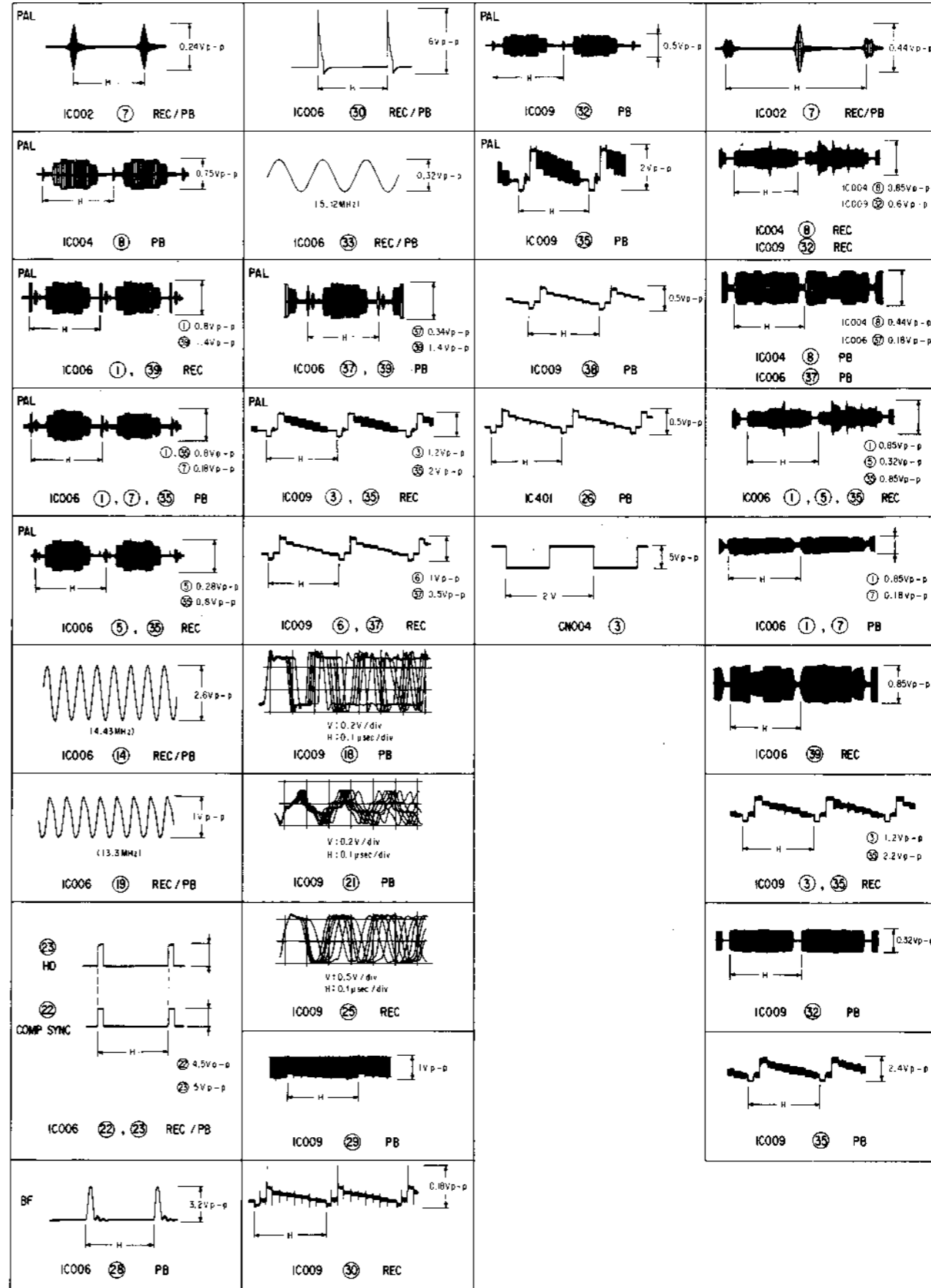


YC-40 BOARD, PAL, COMP S, BF

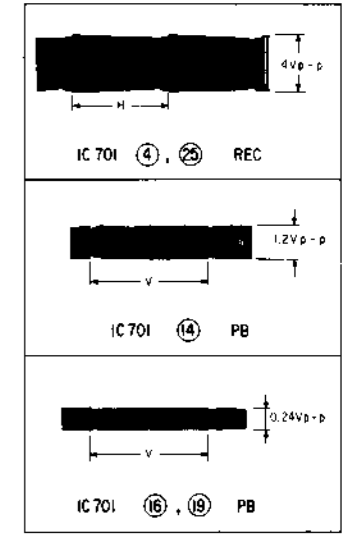
18 19 20 21 22 23 24



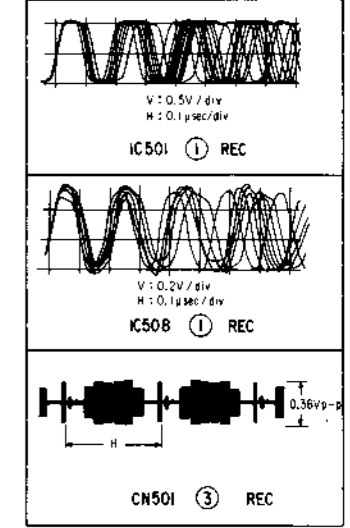
YC-40 BOARD (PAL / SECAM)



RP-31 BOARD

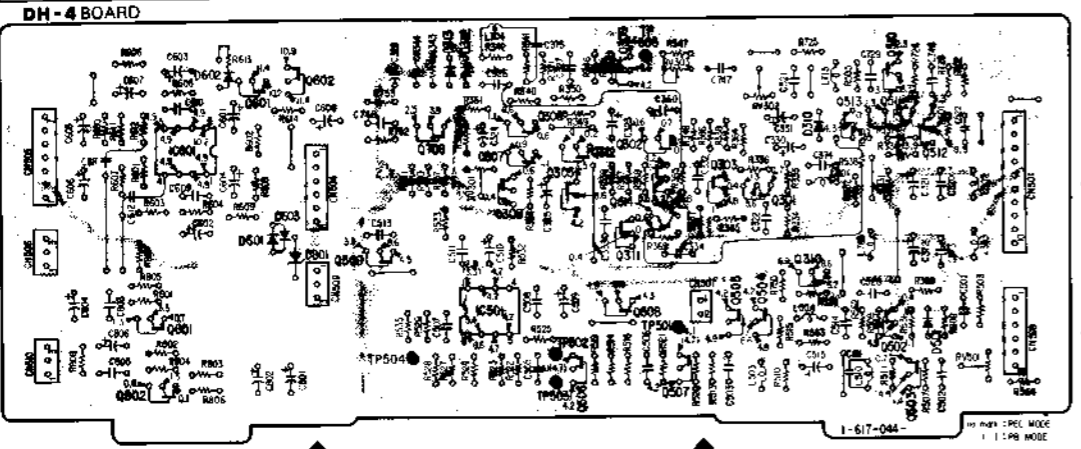


DH-4 BOARD

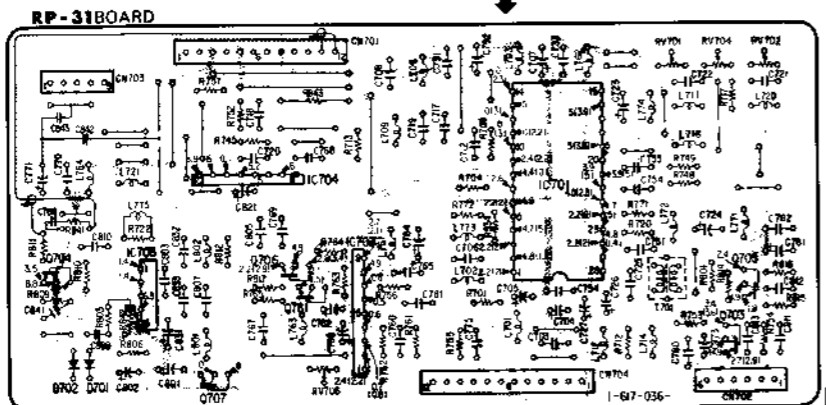
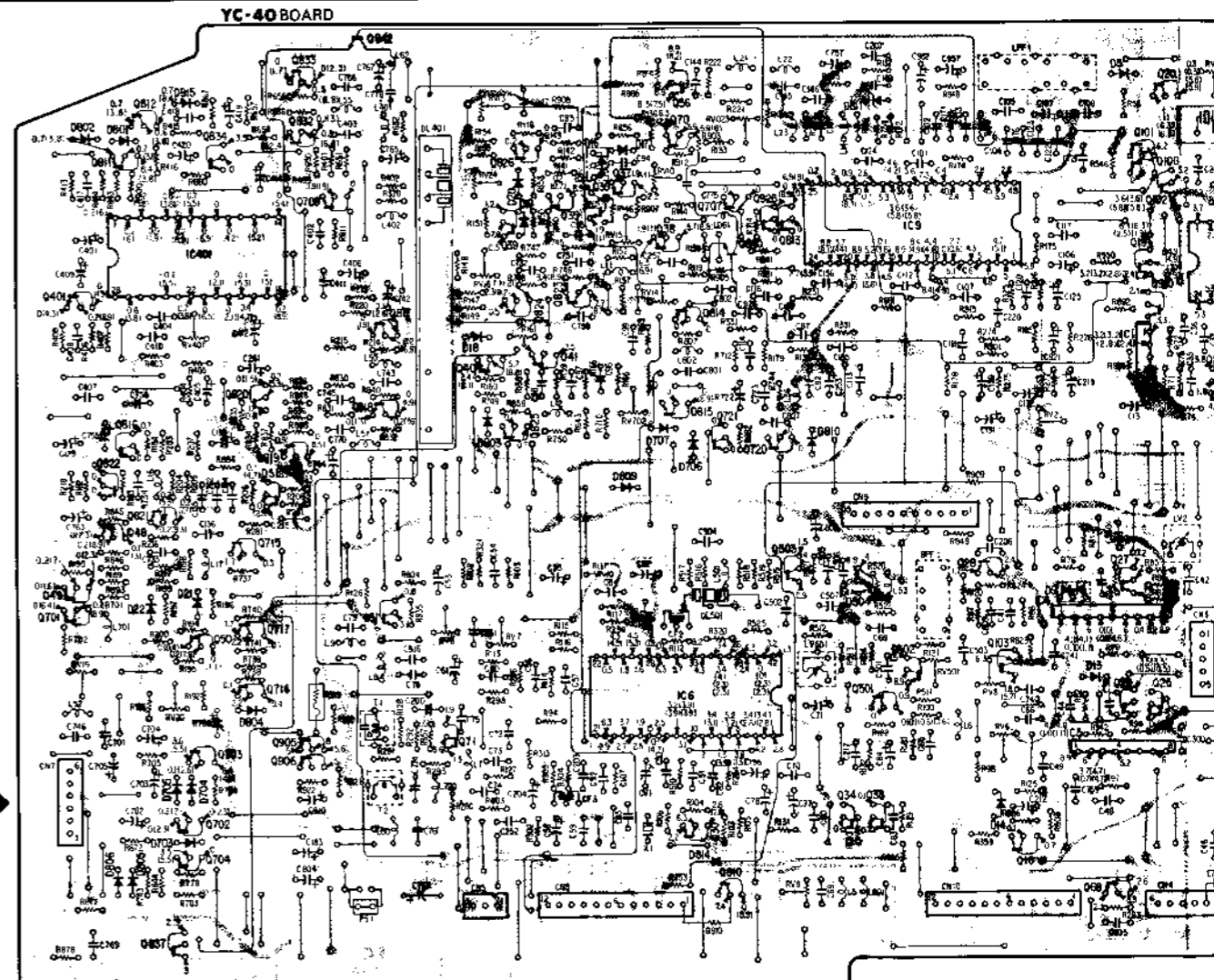




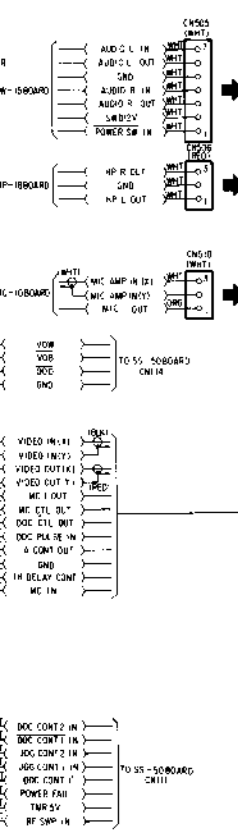
Q	IC601	601	602		706	306	309	302	303	304	310	513	510	511	512	Q	
IC				509		IC501	308	307	312	305	508	507	505	504	502	503	IC
D	602	603	801		313, 312						310					D	
ADJ					RV301				RV303	RV302						ADJ	
TP					504	503	505	501								TP	

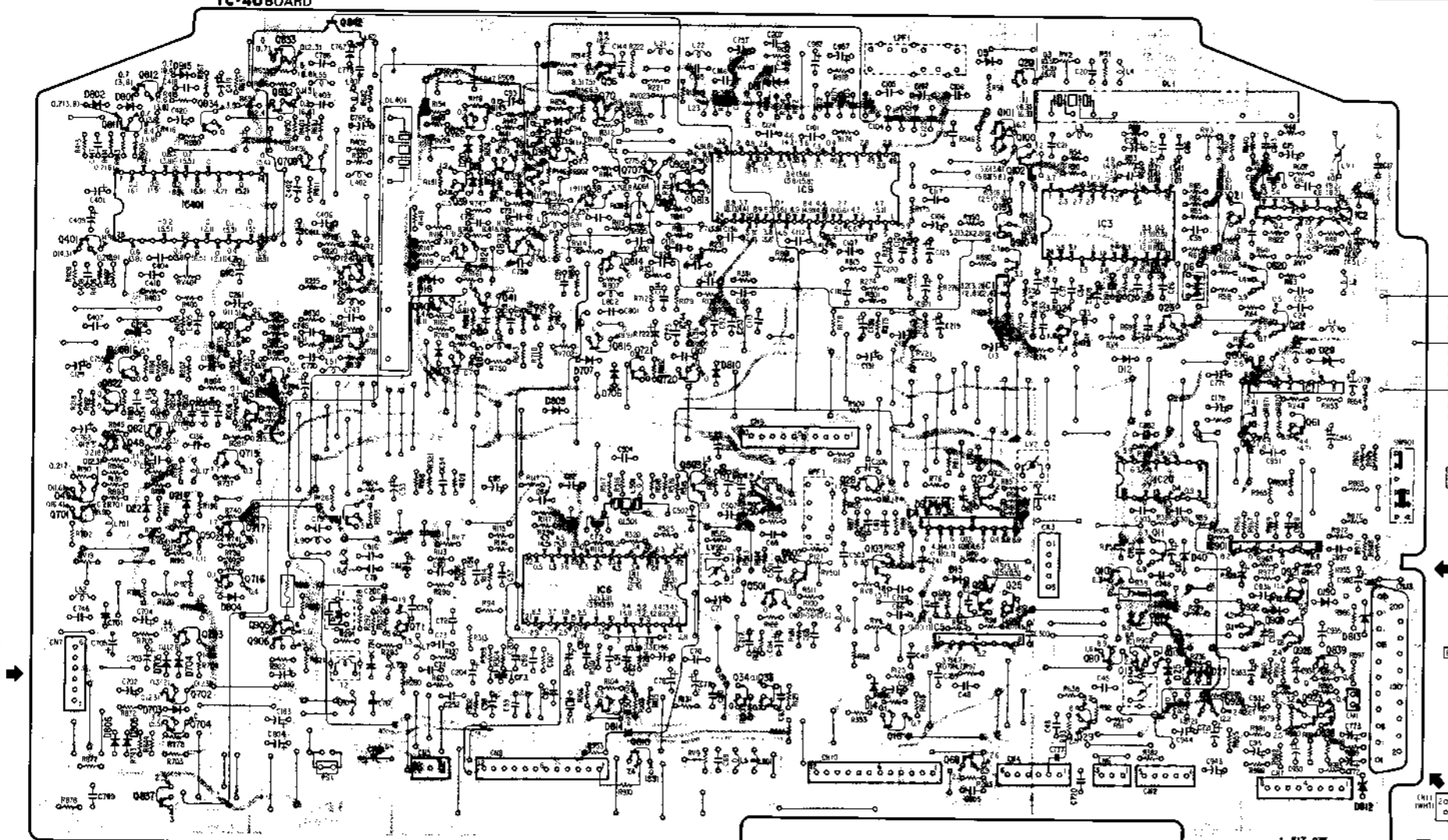
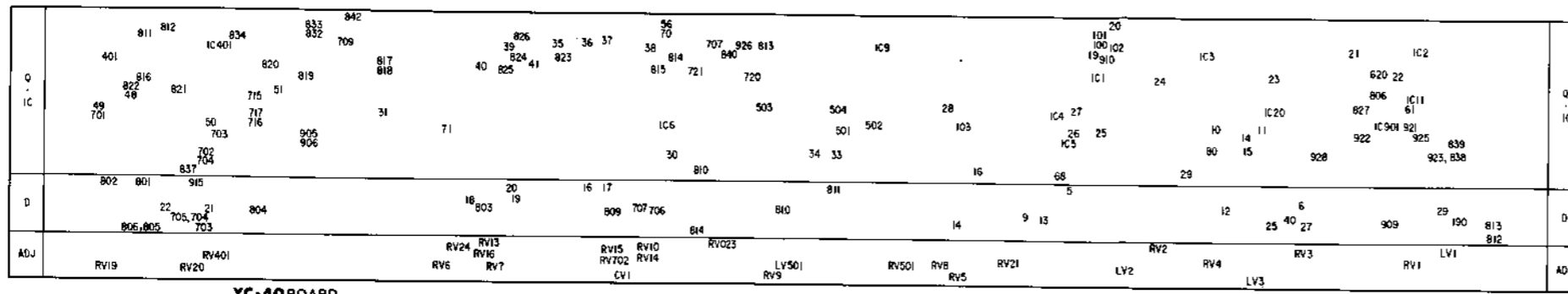


Q	811	812	834	833	842		826	35	36	37	38	56	70	707	826	813	IC9	20
IC	401	816	821	820	819	817	825	41	823		814	815	721	720				IC1
D	802	801	837	822	818	816	824											IC4
ADJ																		IC5



MC-Service





**Note on Schematic Diagram:**

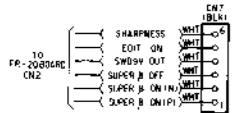
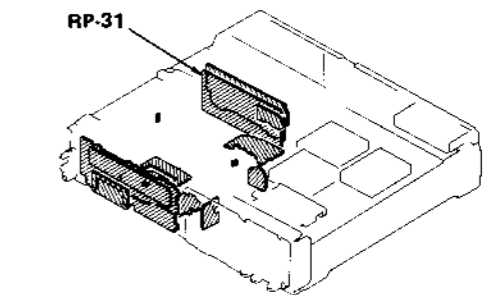
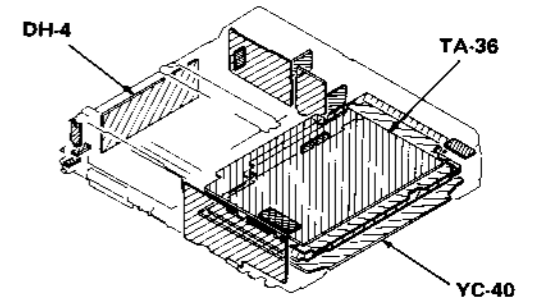
- All resistors are in ohms,  $\frac{1}{2}$ W unless otherwise noted. k $\Omega$ : 1000  $\Omega$ , M $\Omega$ : 1000 k $\Omega$
- All capacitors are in  $\mu$ F unless otherwise noted. p:  $\mu$ F 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 M $\Omega$ ).
- : B+ bus.

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

**Note on Printed Wiring Board:**

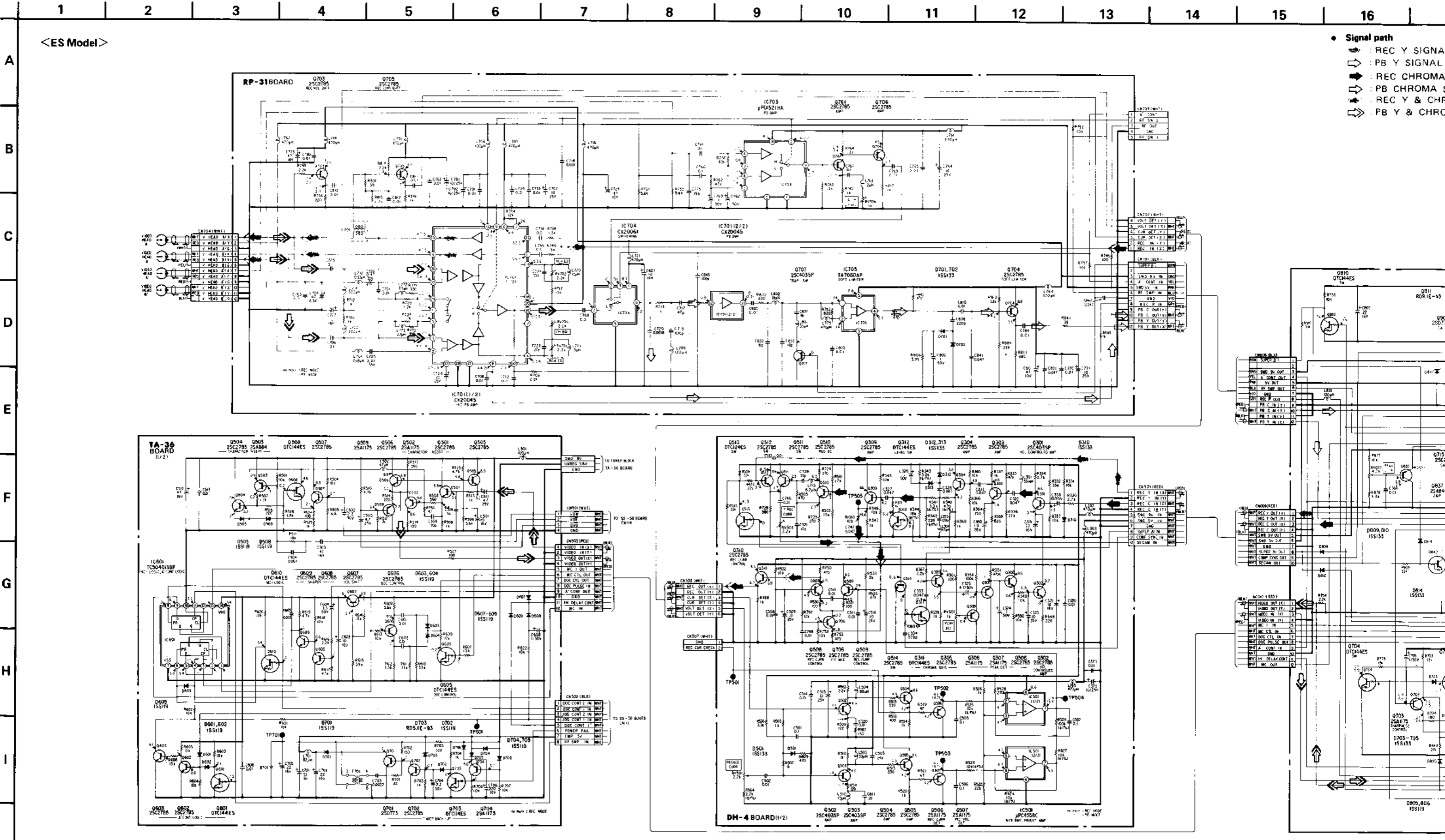
- : Indicates a leadwire mounted on the component side.
  - : Indicates a leadwire mounted on the printed side.
  - : soldering side.
  - : B+ pattern
- Digital transistor (YC-40: Q15, 25, 31, 35, 100, 101, 102, 702, 704, 707, 709, 720, 721, 810, 811, 812, 813, 814, 815, 826, 834, 910, 922, 926. RP-31: Q707. DH-4: Q311, 312. TA-36: Q003, 004, 006, 013, 014, 015, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors. Refer to the YC-40, RP-31, DH-4, TA-36 boards schematic diagram for digital transistor.

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



ES MODEL; YC-40 (Y/CHROMA SIGNAL PROCESS), RP-31 (VIDEO SIGNAL REC/PB AMP), TA-36 (TUNER, AUDIO), DH-4 (A/V HEAD AMP) SCHEMATIC DIAGRAMS

- Ref. No. YC-40 BOARD: 1,000 series, RP-31 BOARD: 6,000 series, TA-36 BOARD: 4,000 series, DH-4 BOARD: 7,000 series -

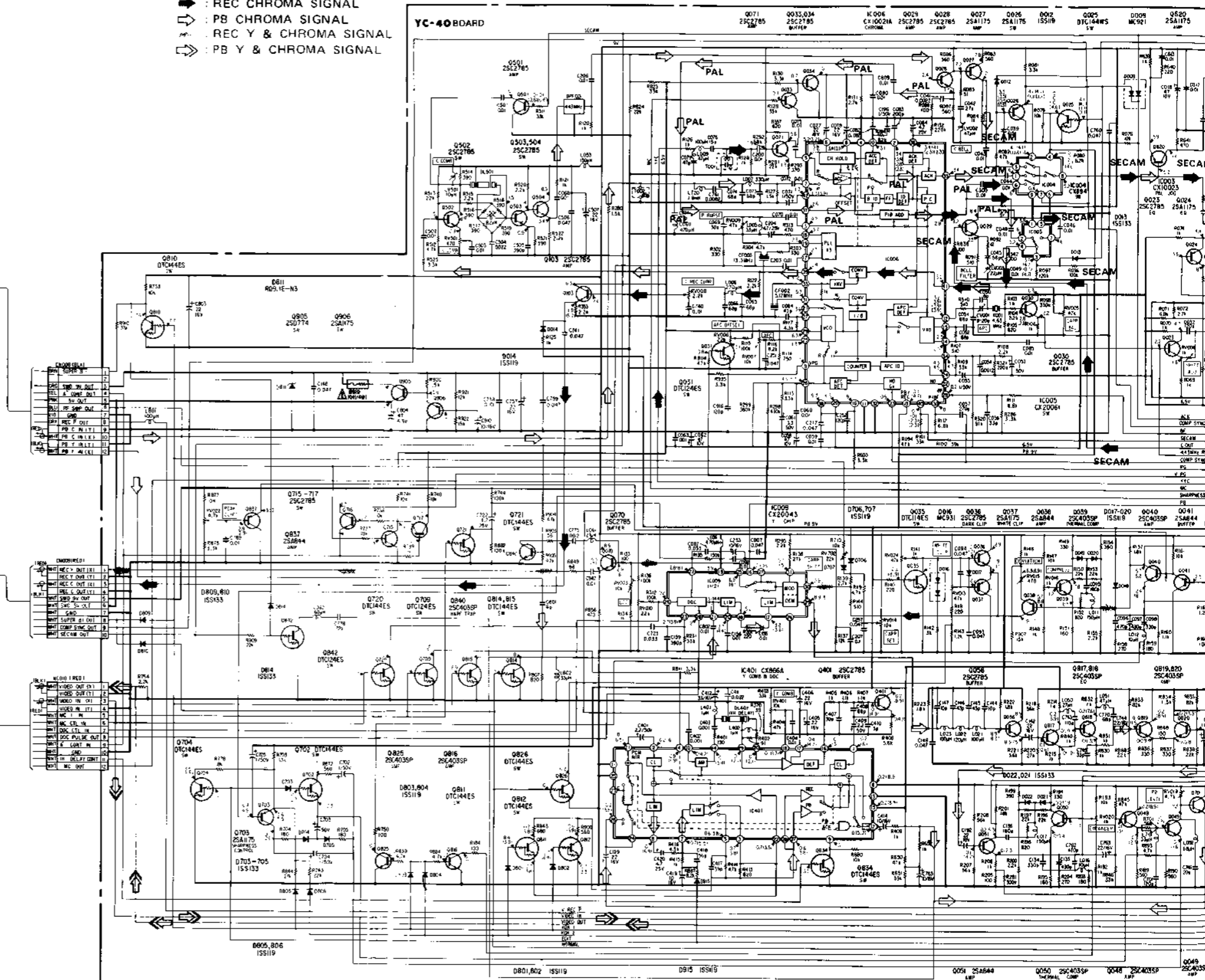
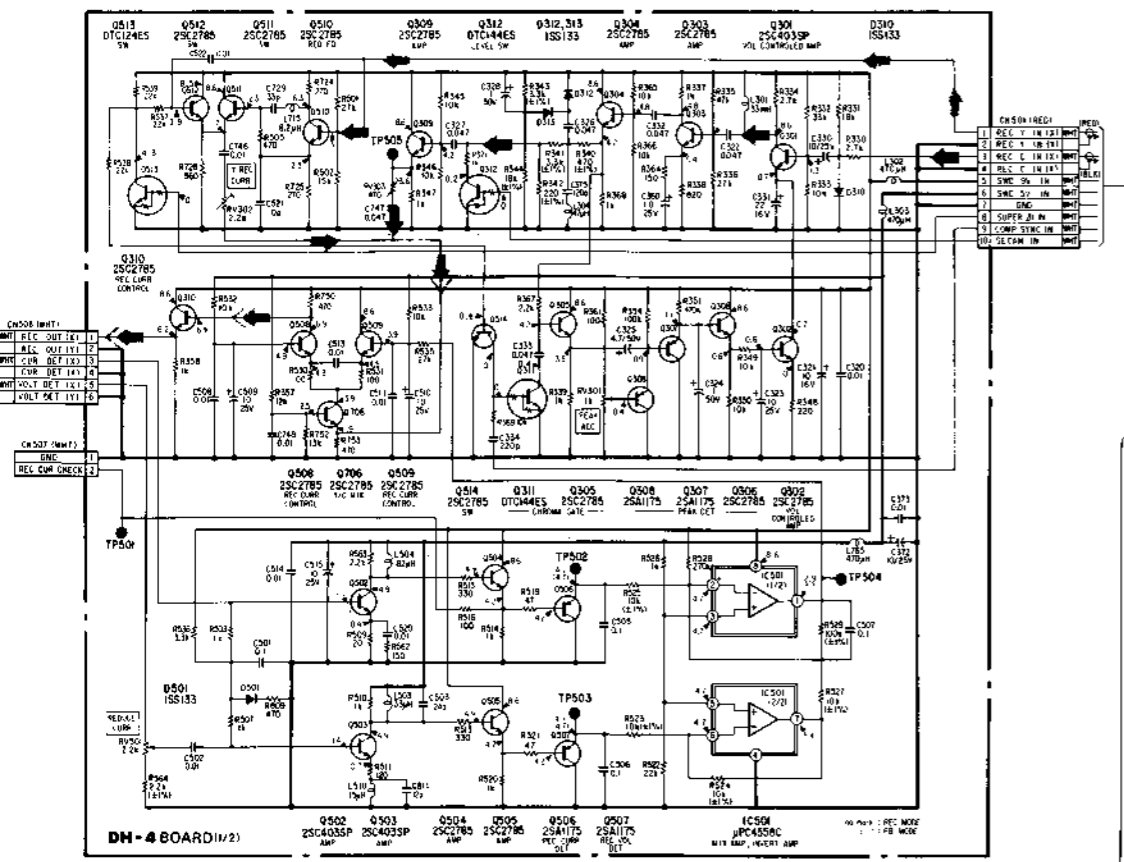
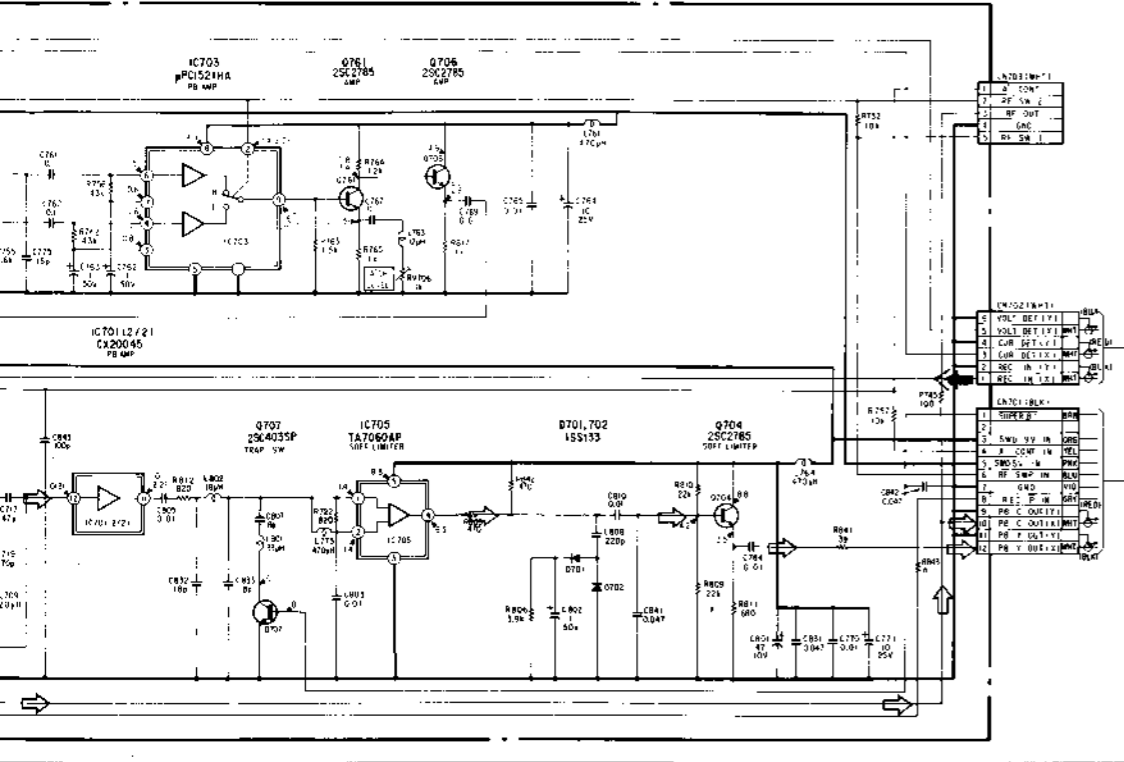


- Signal path
- ▶ : REC Y SIGNAL
- ◀ : PB Y SIGNAL
- ▶ : REC CHROMA
- ◀ : PB CHROMA
- ▶ : REC Y & CHROMA
- ◀ : PB Y & CHROMA

MC-Service

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

- Signal path
- : REC Y SIGNAL
  - ◇ : PB Y SIGNAL
  - ▶ : REC CHROMA SIGNAL
  - ▷ : PB CHROMA SIGNAL
  - ↗ : REC Y & CHROMA SIGNAL
  - ↘ : PB Y & CHROMA SIGNAL



18

19

20

21

22

23

24

25

26

27

28

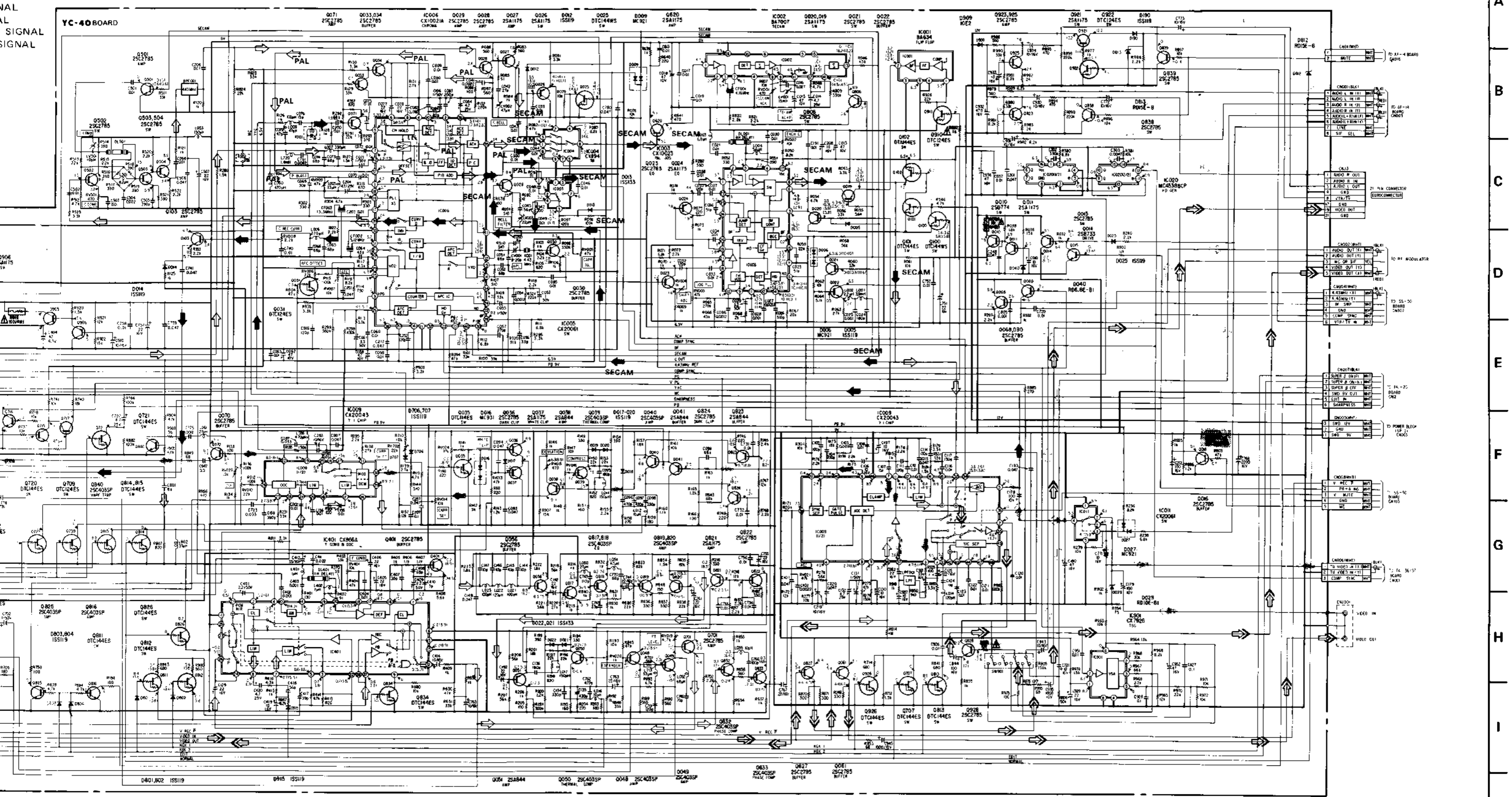
29

30

31

32

33





1-3. E MODEL; YC-40 (Y/CHROMA SIGNAL PROCESS), RP-31 (VIDEO SIGNAL REC/PB AMP), TA-37 (TUNER, AUDIO), DH-4 (A/V HEAD AMP) PRINTED WIRING BOARDS

- Ref. No. YC-40 BOARD: 1,000 series, RP-31 BOARD: 6,000 series, TA-37 BOARD: 5,000 series, DH-4 BOARD: 7,000 series -

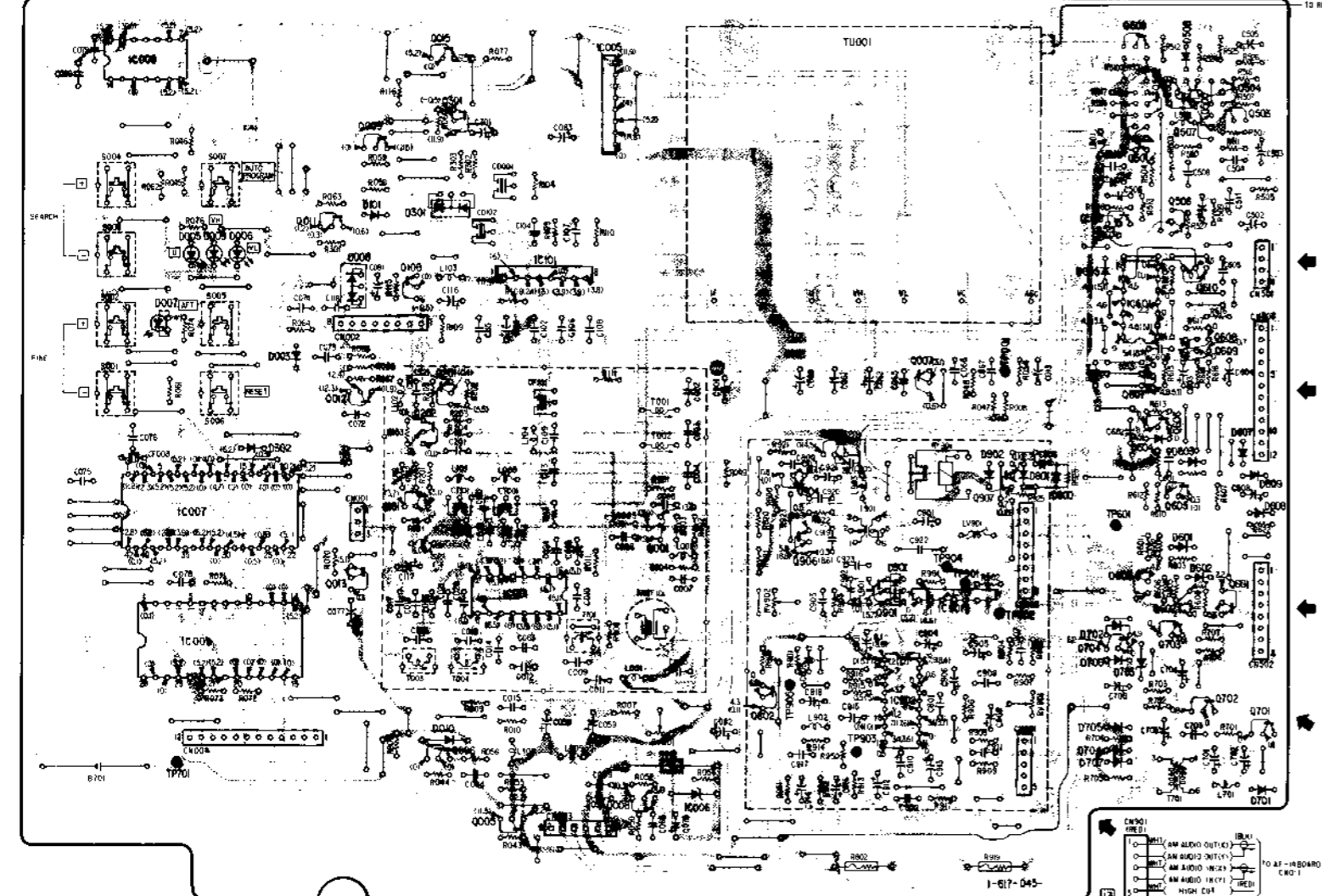
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----

<E Model>

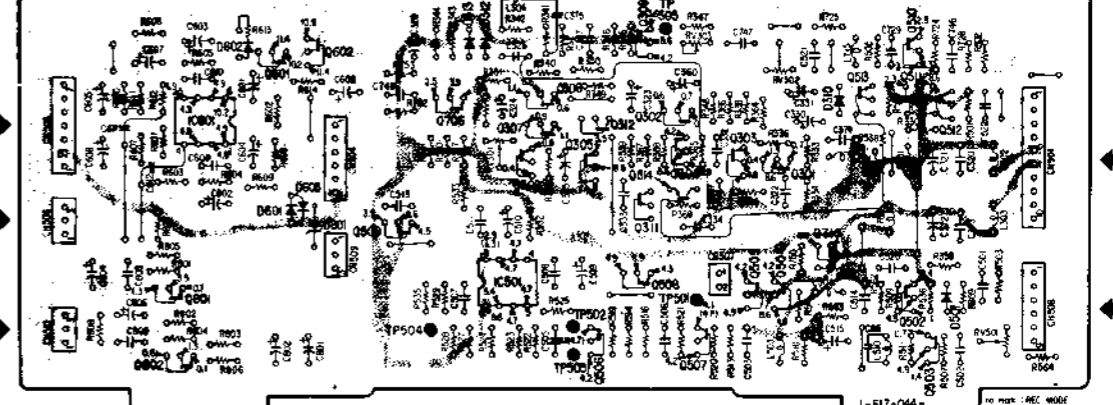
Q		IC008																
IC		IC007 IC009	011	009	005	301	IC001	IC003		509	501,502	508,507,504	503					
D		005,009,006		101		301												
ADJ		007	302	003	008	010			901	902	801	800	605	604,603	607	609,608		
TP													701,706,703	705,704,707				

Q		IC601	601	602														
IC					509	706				309	302	303	301	310	510	511	512	
D																		
ADJ										RV301	RV303	RV302						
TP														504	505	501		

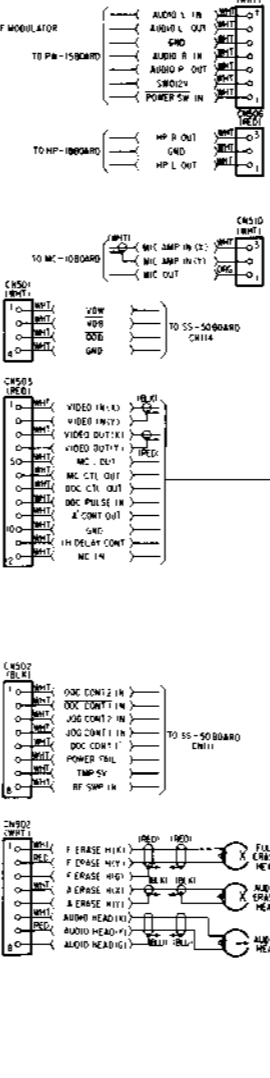
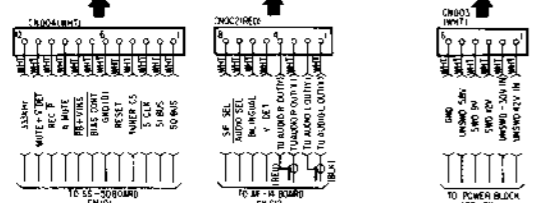
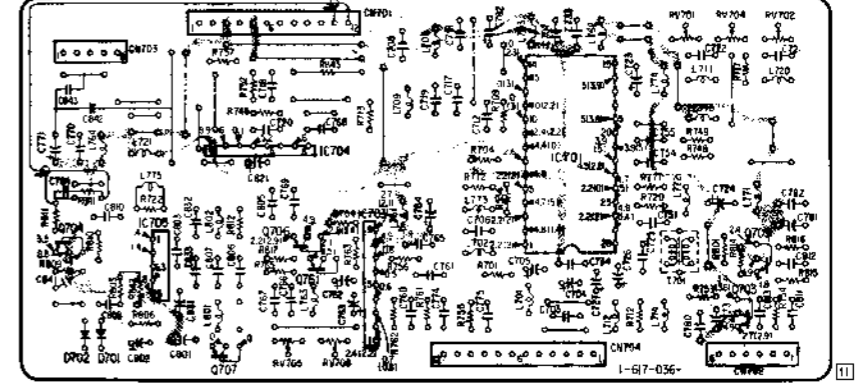
TA-37 BOARD



DH-4 BOARD



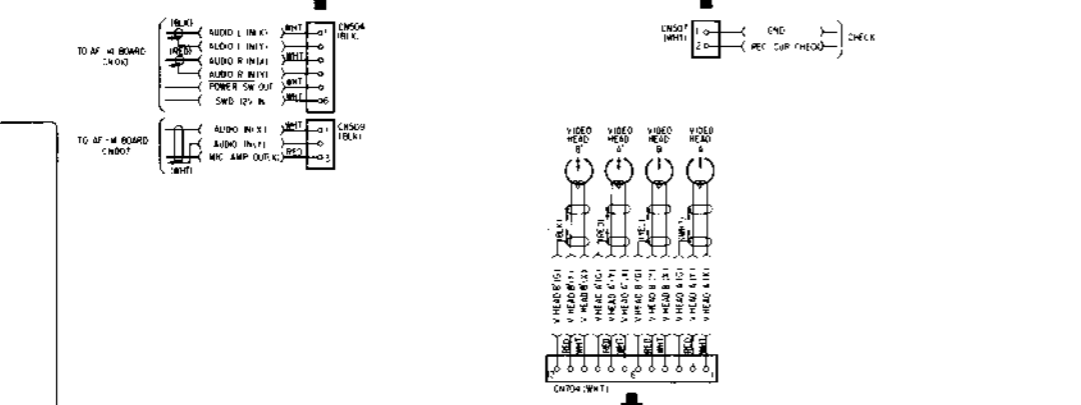
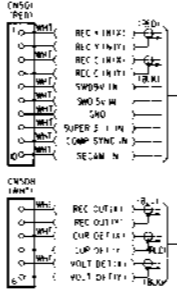
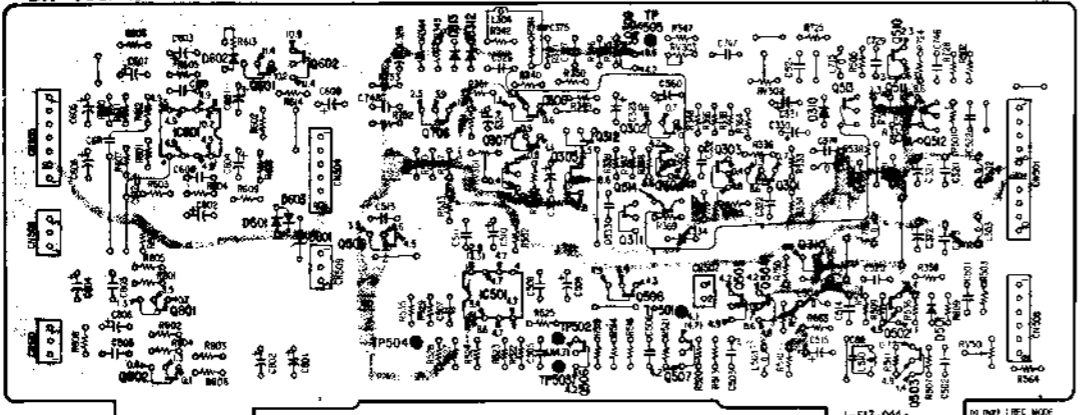
RP-31 BOARD



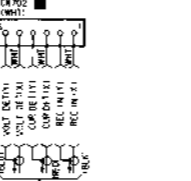
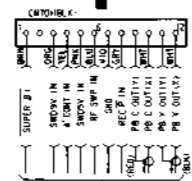
MC-Service

D	IC601	601	602	706	306	307	312	308	309	302	303	301	310	513	510	511	512	Q
IC			509		IC501		506	508	511	504	505	504	310		502	503		IC
D		602	601/601	601	313, 312								310		501			D
ADJ					RV301				RV303	RV302								ADJ
TP				504		503		505	501									TP

DM-4 BOARD

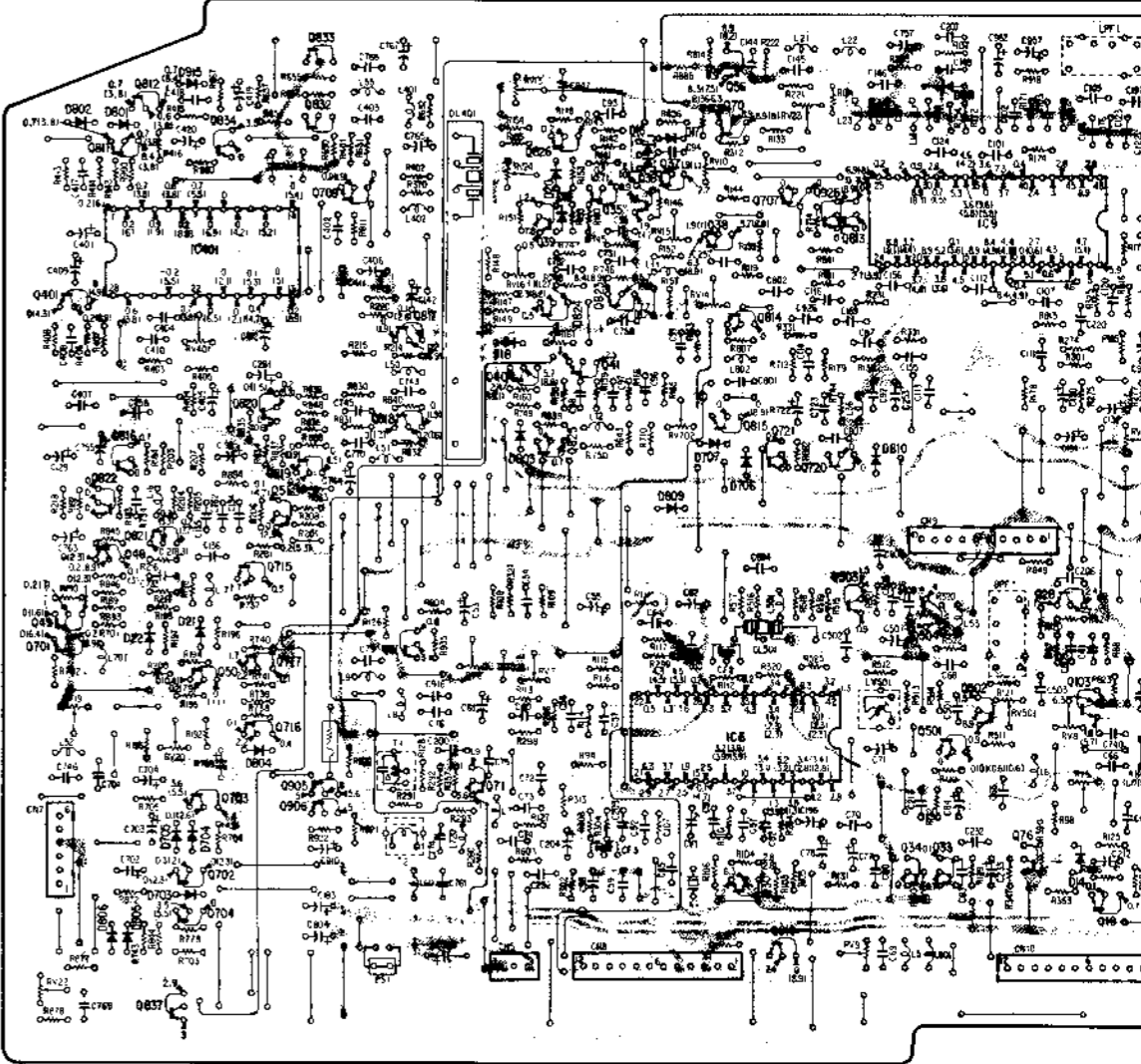


RP-31 BOARD

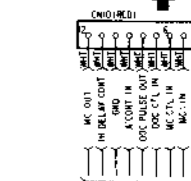
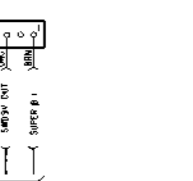
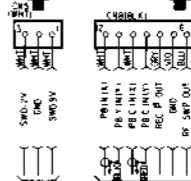
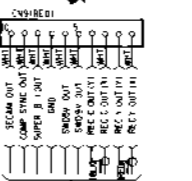


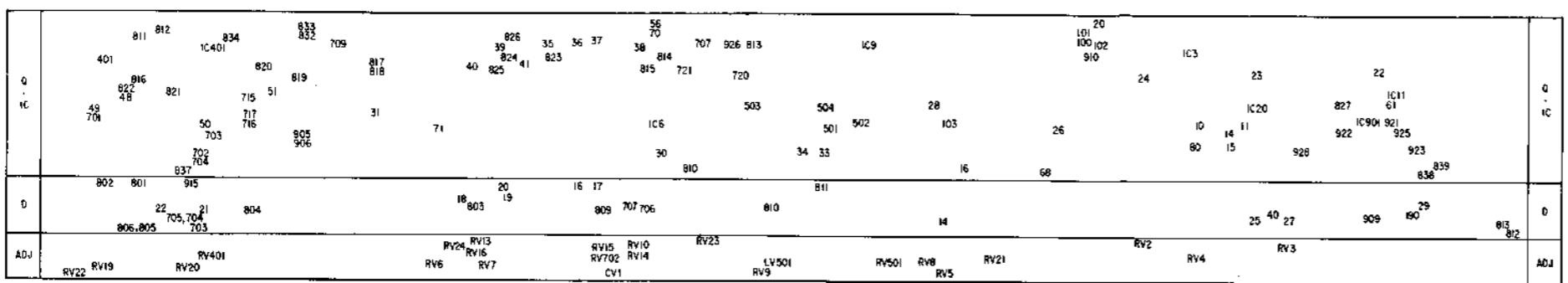
D	811	812	IC401	834	832	832	709	817	818	40	826	35	36	37	38	814	707	926	813	IC9	
IC	401	822	816	821	820	819															
D		49	701		50	703	716	717	716	805	805	71			16	17	16	17	809	707	706
ADJ																					
TP																					

YC-40 BOARD

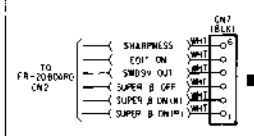
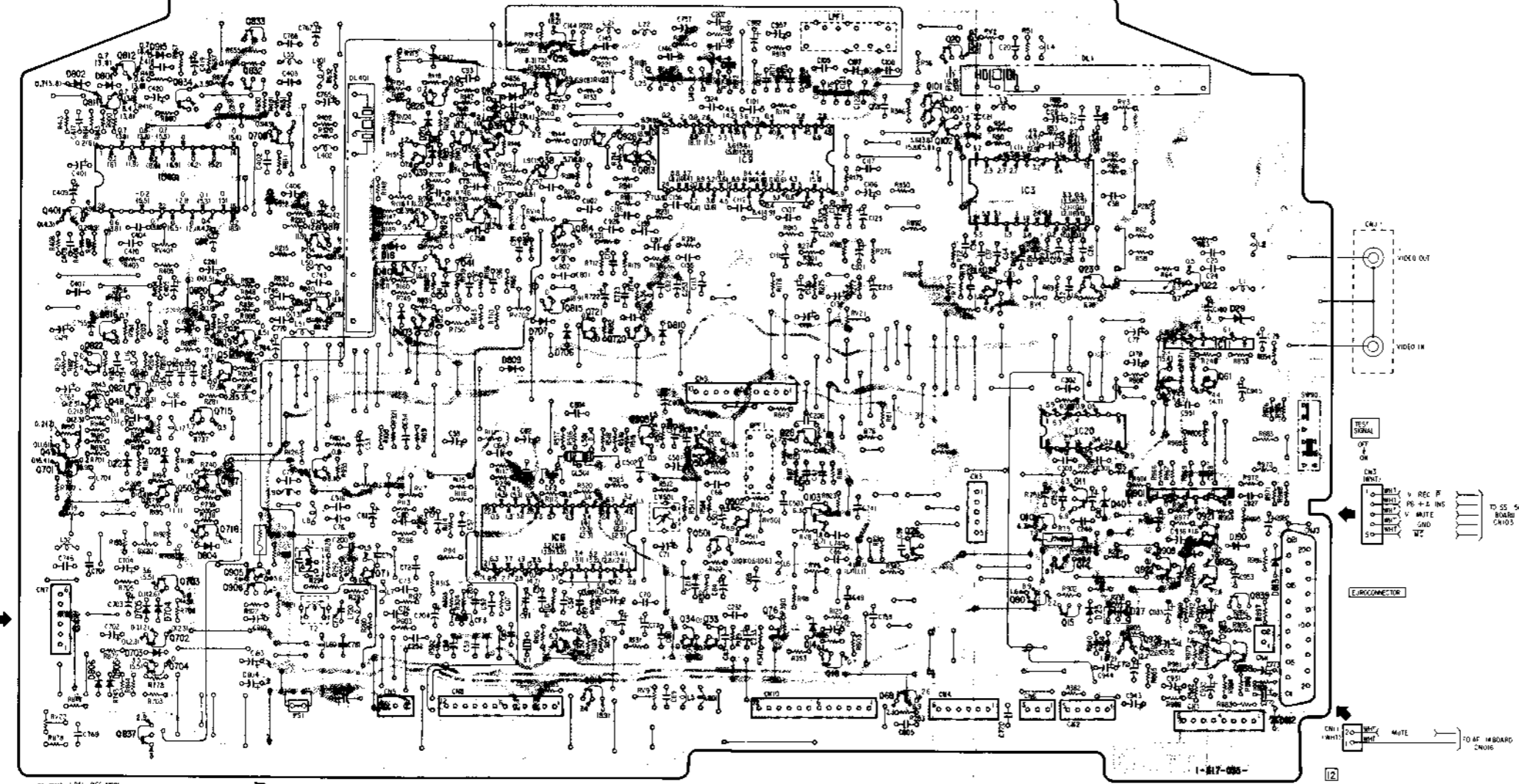


- PAL REC MODE
- PAL PRG MODE
- SECAM REC MODE
- SECAM PRG MODE

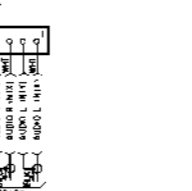
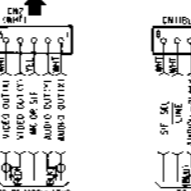
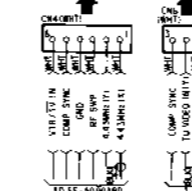
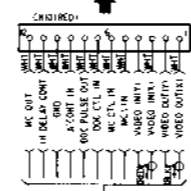
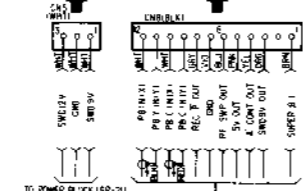
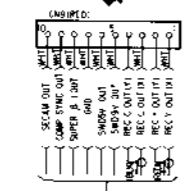




YC-40 BOARD



IC: 80001: PAL REC MODE  
80002: PAL PB MODE  
80003: SCAM REC MODE  
80004: SCAM PB MODE

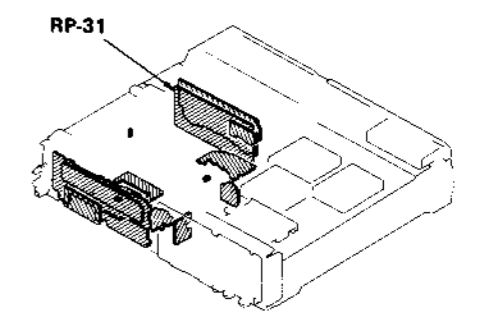
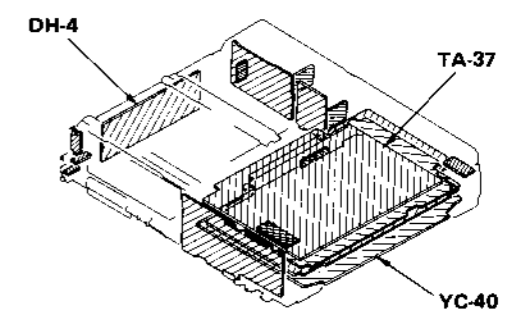


- Note on Schematic Diagram:**
- All resistors are in ohms, 1/10 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
  - All capacitors are in μF unless otherwise noted. p: pF
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - [Symbol] : nonflammable resistor.
  - [Symbol] : fusible resistor.
  - The red lines show the main voltages.
  - All voltages are dc measured with a VOM (10 MΩ).
  - [Symbol] : B+ bus.
  - [Symbol] : B- bus.

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

- Note on Printed Wiring Board:**
- [Symbol] : Indicates a leadwire mounted on the component side.
  - [Symbol] : Indicates a leadwire mounted on the printed side.
  - [Symbol] : soldering side.
  - [Symbol] : B+ pattern
- Digital transistor (YC-40: Q15, 31, 35, 100, 101, 102, 702, 704, 707, 709, 720, 721, 810, 811, 812, 813, 814, 815, 826, 834, 910, 922, 926. RP-31: Q707. DH-4: Q311, 312. TA-36: Q003, 004, 006, 013, 014, 015, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors. Refer to the YC-40, RP-31, DH-4, TA-36 boards schematic diagram for digital transistor.

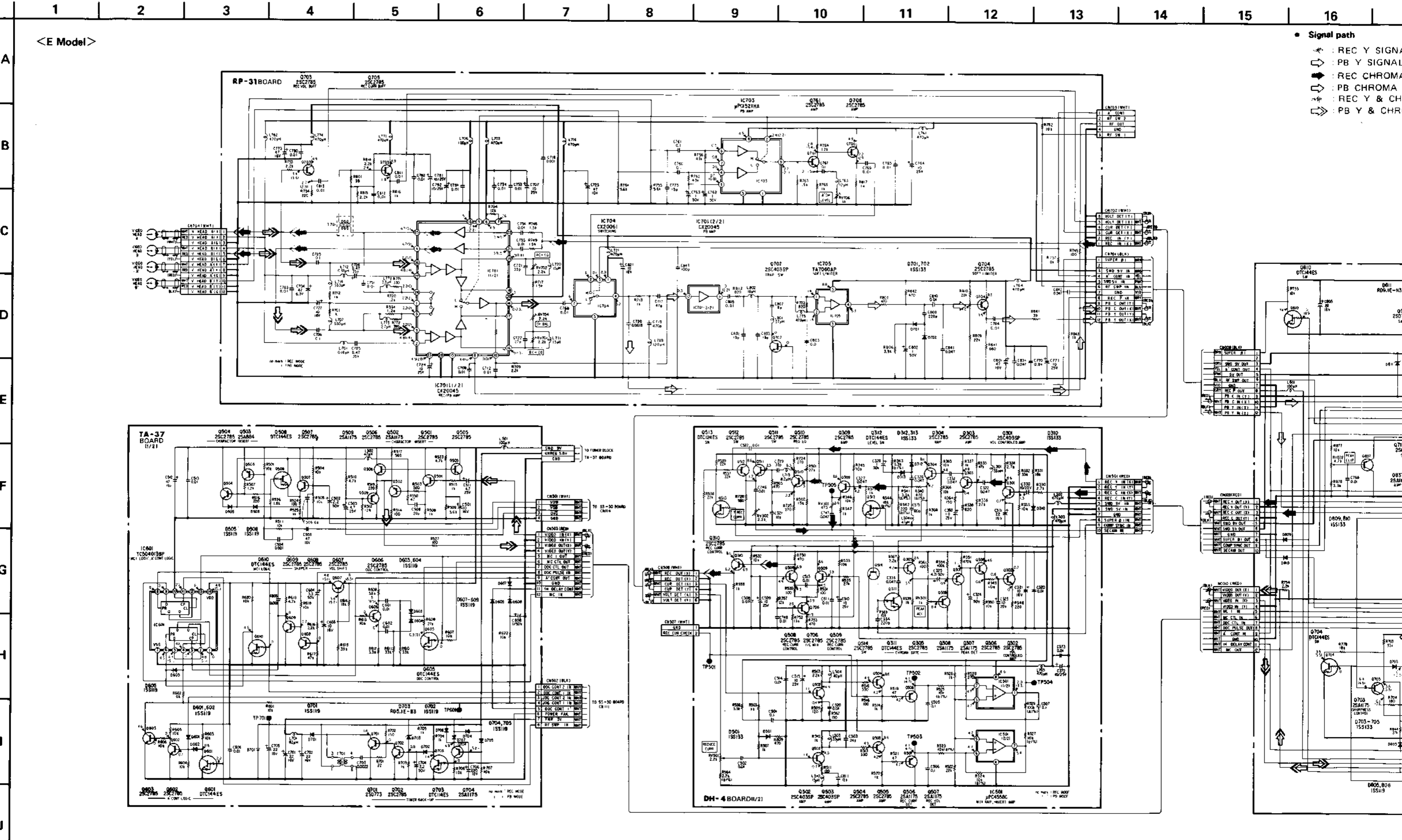
When indicating parts by reference number, please include the board name.



A  
B  
C  
D  
E  
F  
G  
H  
I  
J

E MODEL; YC-40 (Y/CHROMA SIGNAL PROCESS), RP-31 (VIDEO SIGNAL REC/PB AMP), TA-37 (TUNER, AUDIO), DH-4 (A/V HEAD AMP) SCHEMATIC DIAGRAMS

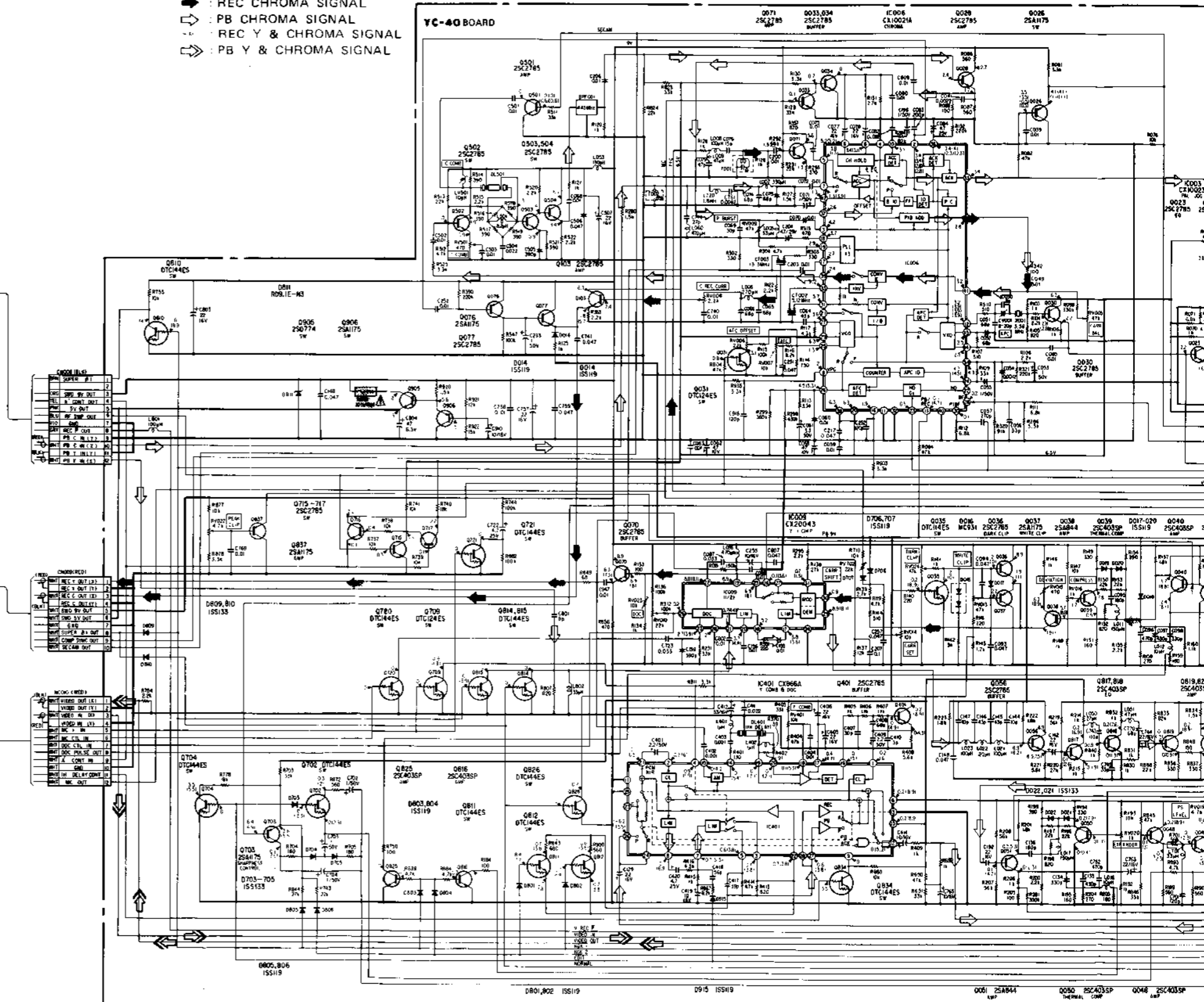
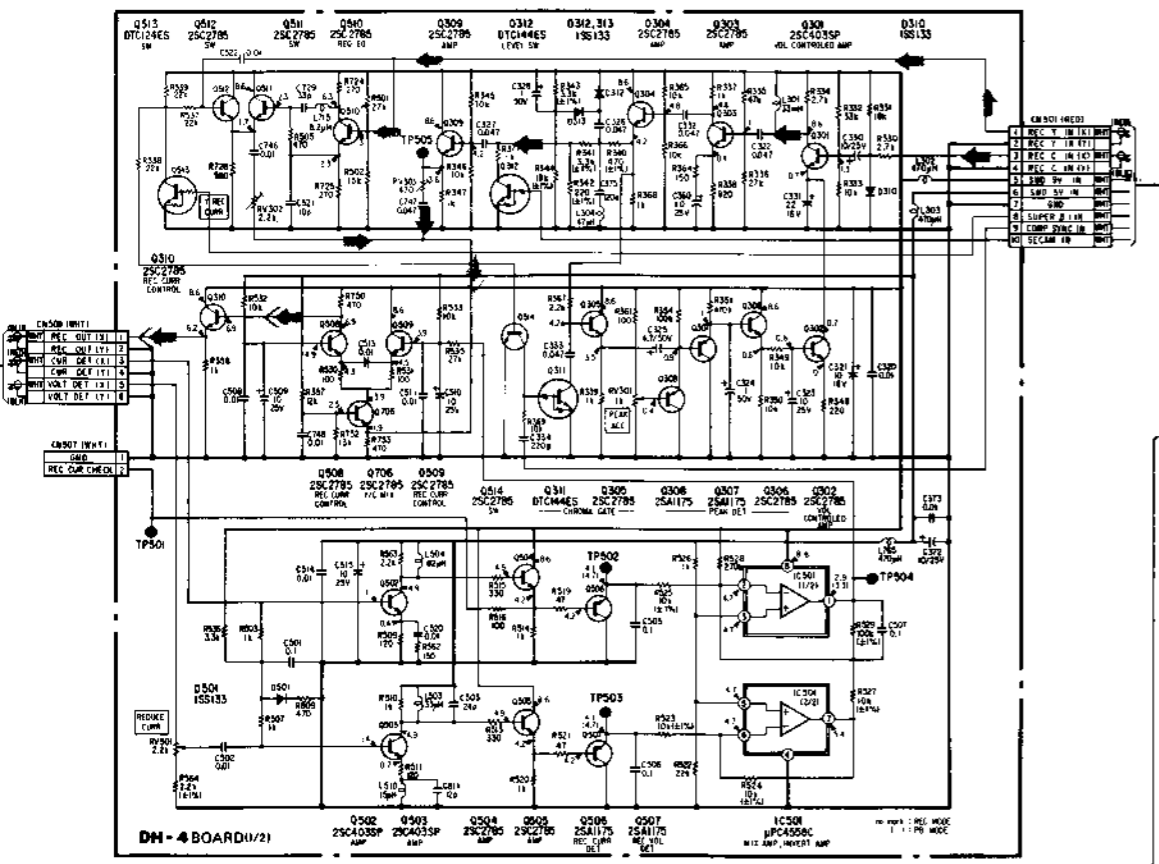
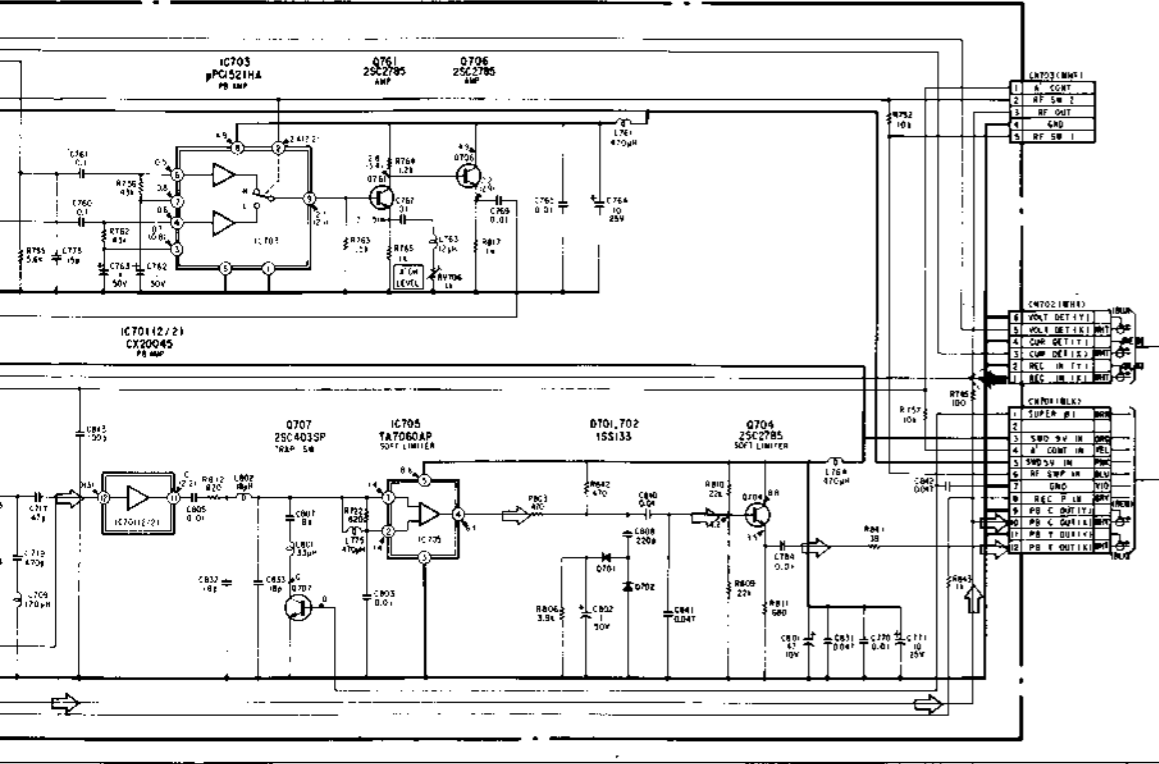
- Ref. No. YC-40 BOARD: 1,000 series, RP-31 BOARD: 6,000 series, TA-37 BOARD: 5,000 series, DH-4 BOARD: 7,000 series -

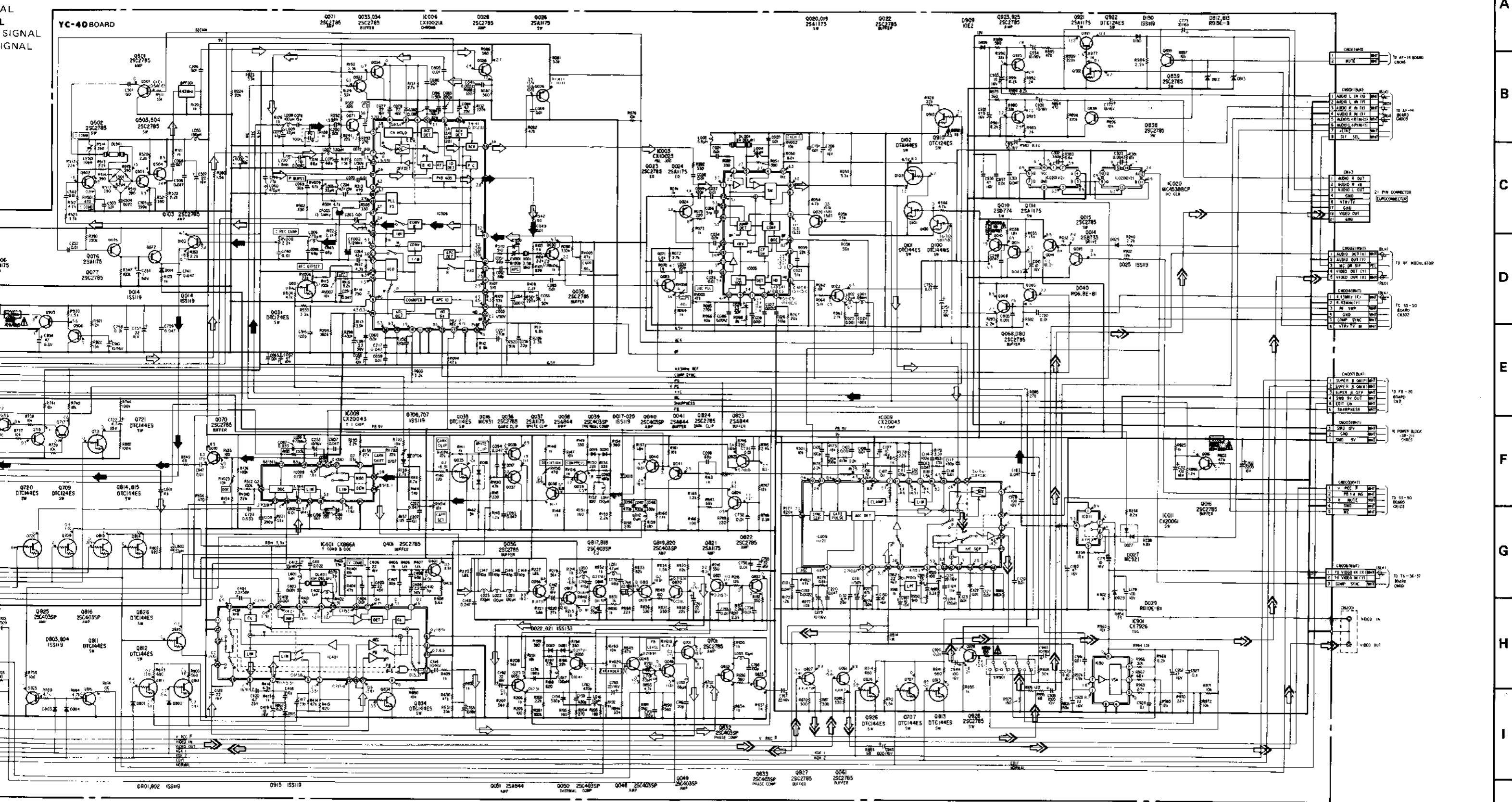


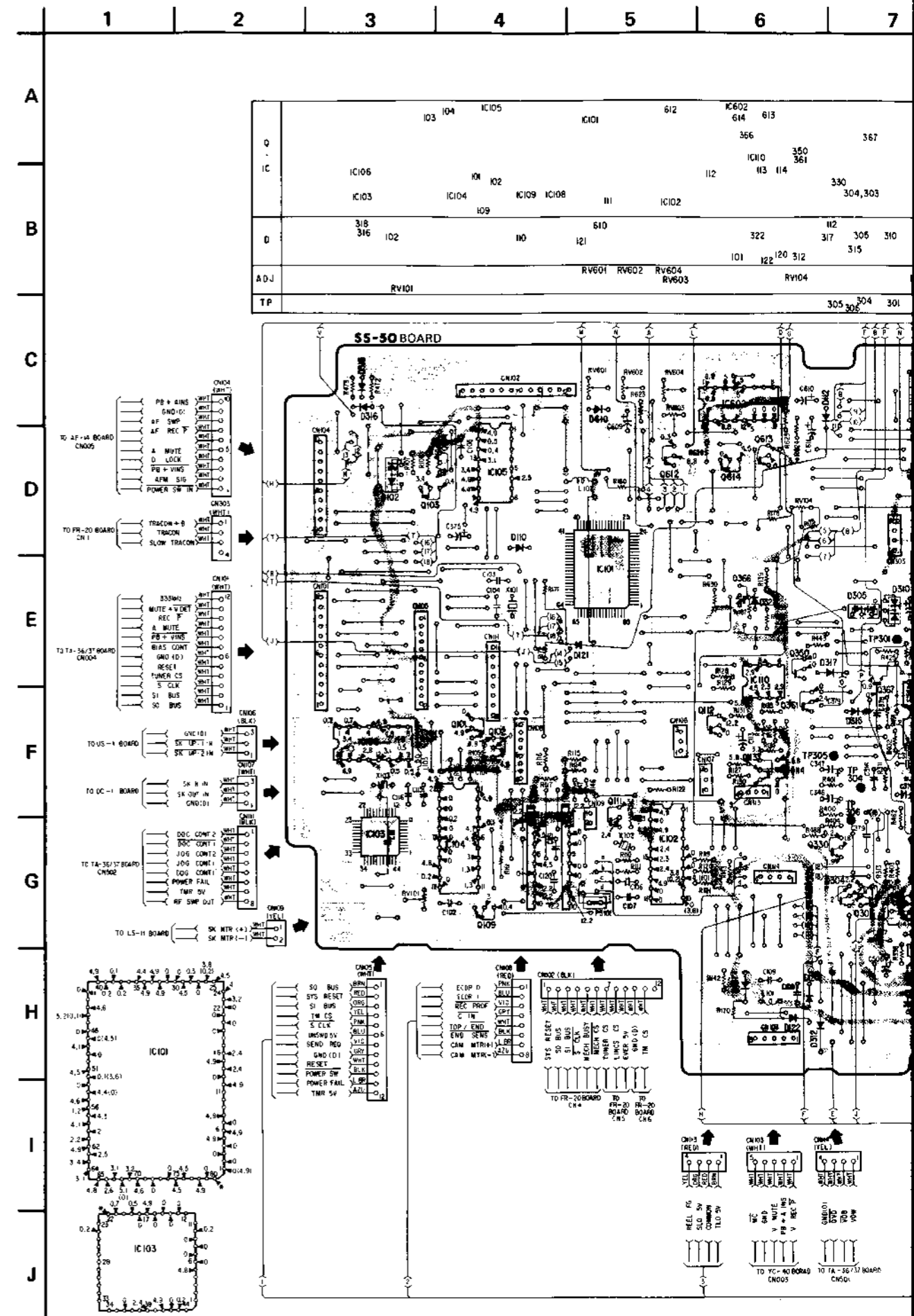
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

• Signal path

- REC Y SIGNAL
- ◻ PB Y SIGNAL
- REC CHROMA SIGNAL
- ◻ PB CHROMA SIGNAL
- REC Y & CHROMA SIGNAL
- ◻ PB Y & CHROMA SIGNAL



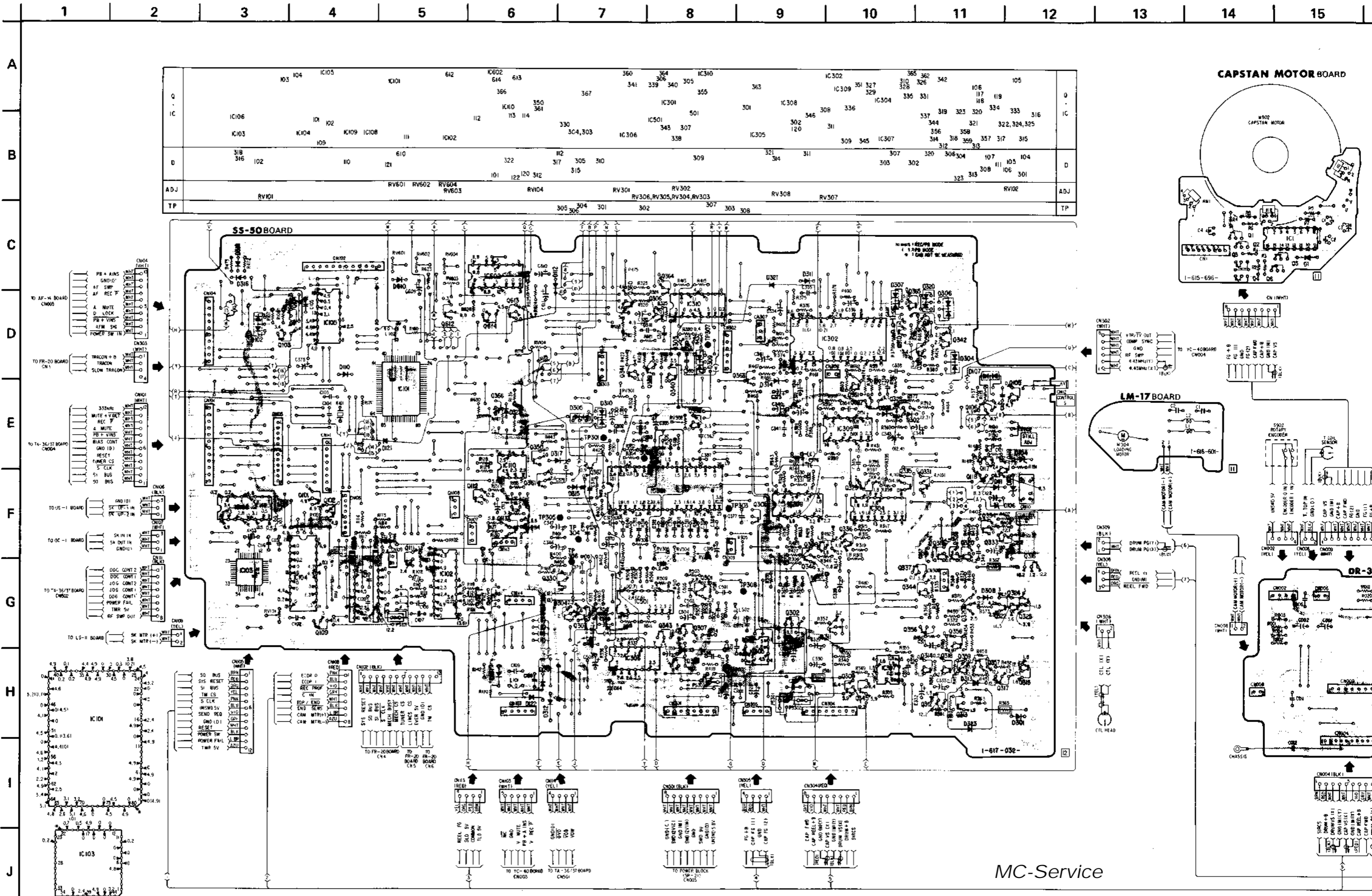




MC-Service

1-4. SS-50 (SERVO, SYSTEM CONTROL), DR-33 (SYSTEM CONTROL, SIGNAL TRANSLATION), RD-17 (ROTATION DETECTOR), LM-17 (LOADING MOTOR), R STATOR (REEL MOTOR), CAPSTAN MOTOR PRINTED WIRING BOARDS

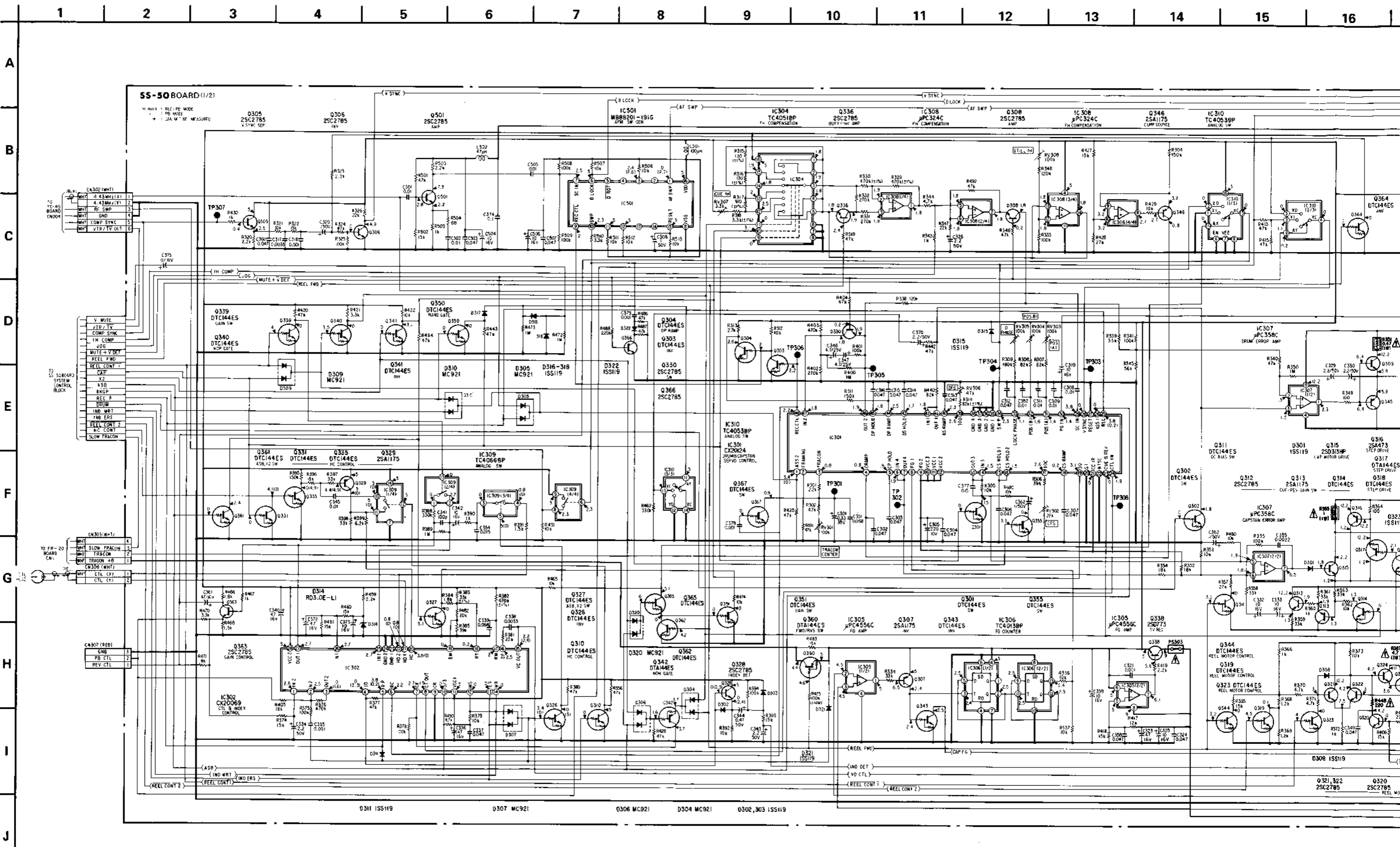
- Ref. No. SS-50 BOARD: 2,000 series, DR-33 BOARD: 9,300 series, RD-17 BOARD: 9,400 series, LM-17 BOARD: 9,400 series, R STATOR BOARD: 9,100 series, CAPSTAN MOTOR BOARD: 9,200 series -

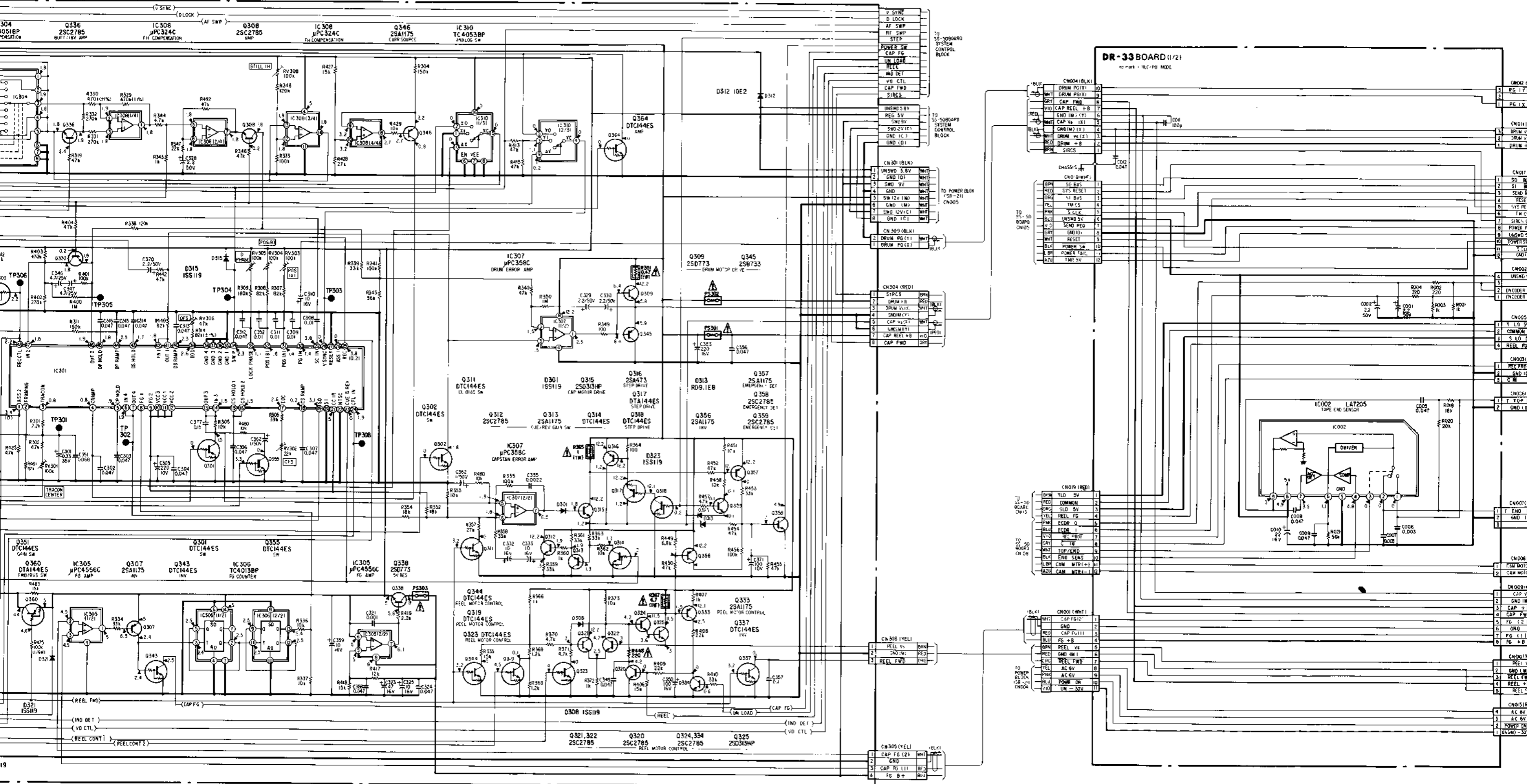


MC-Service

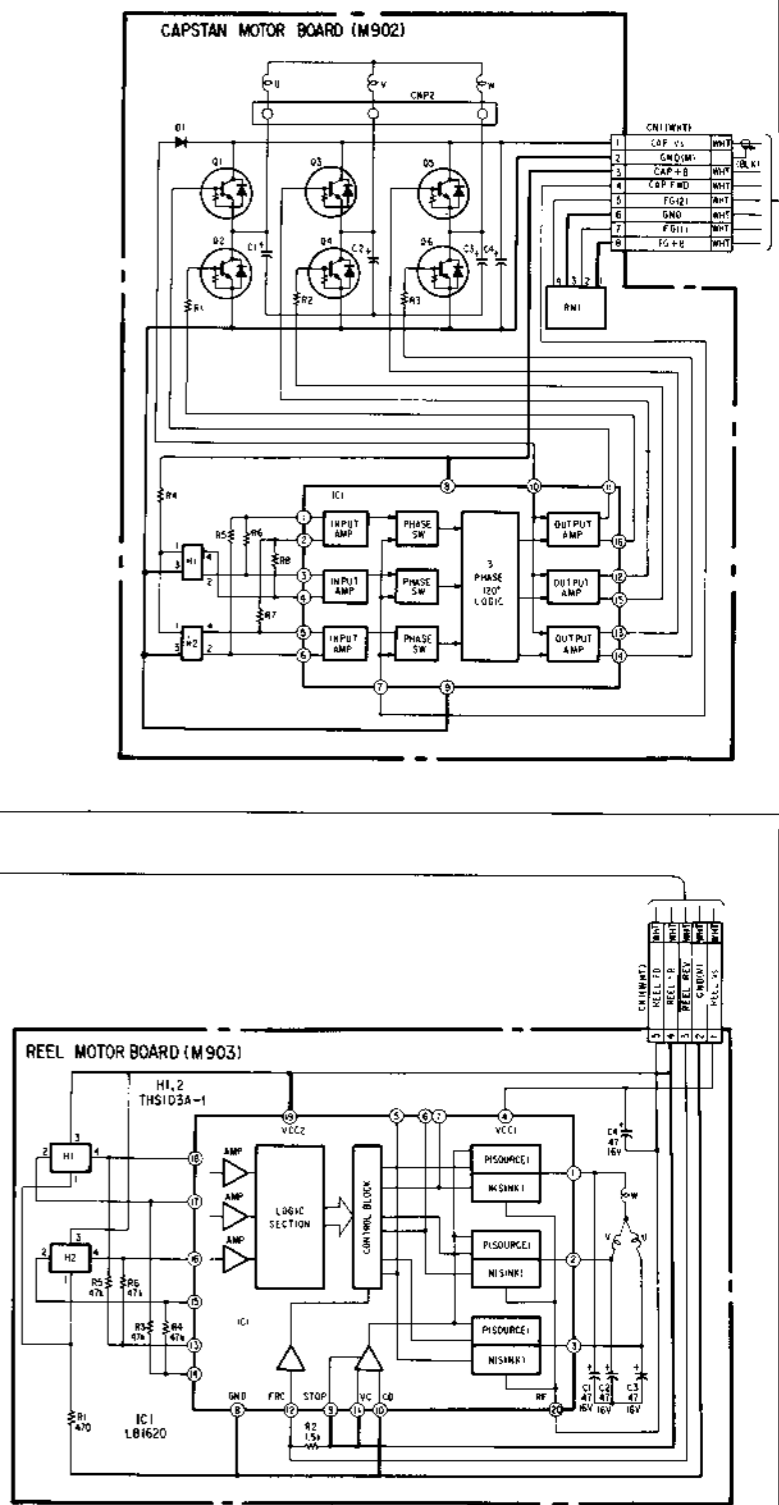
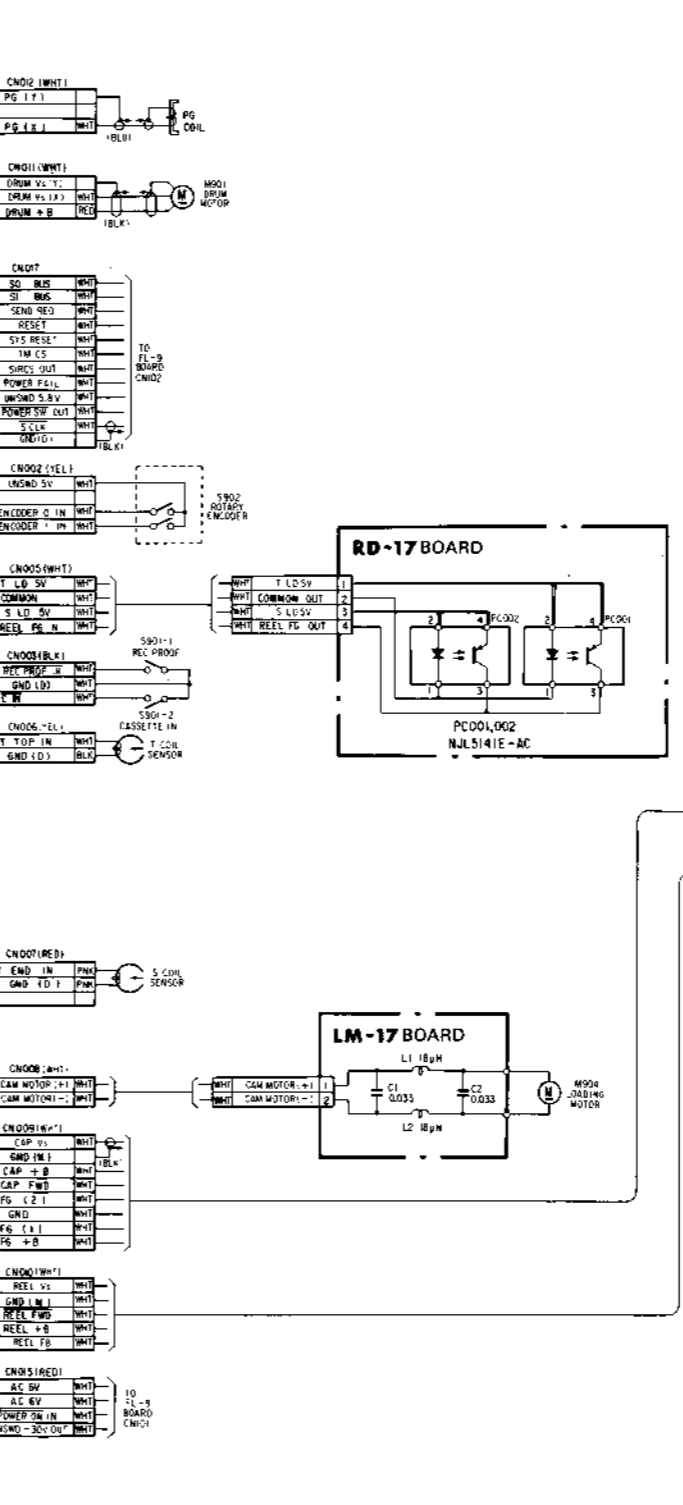
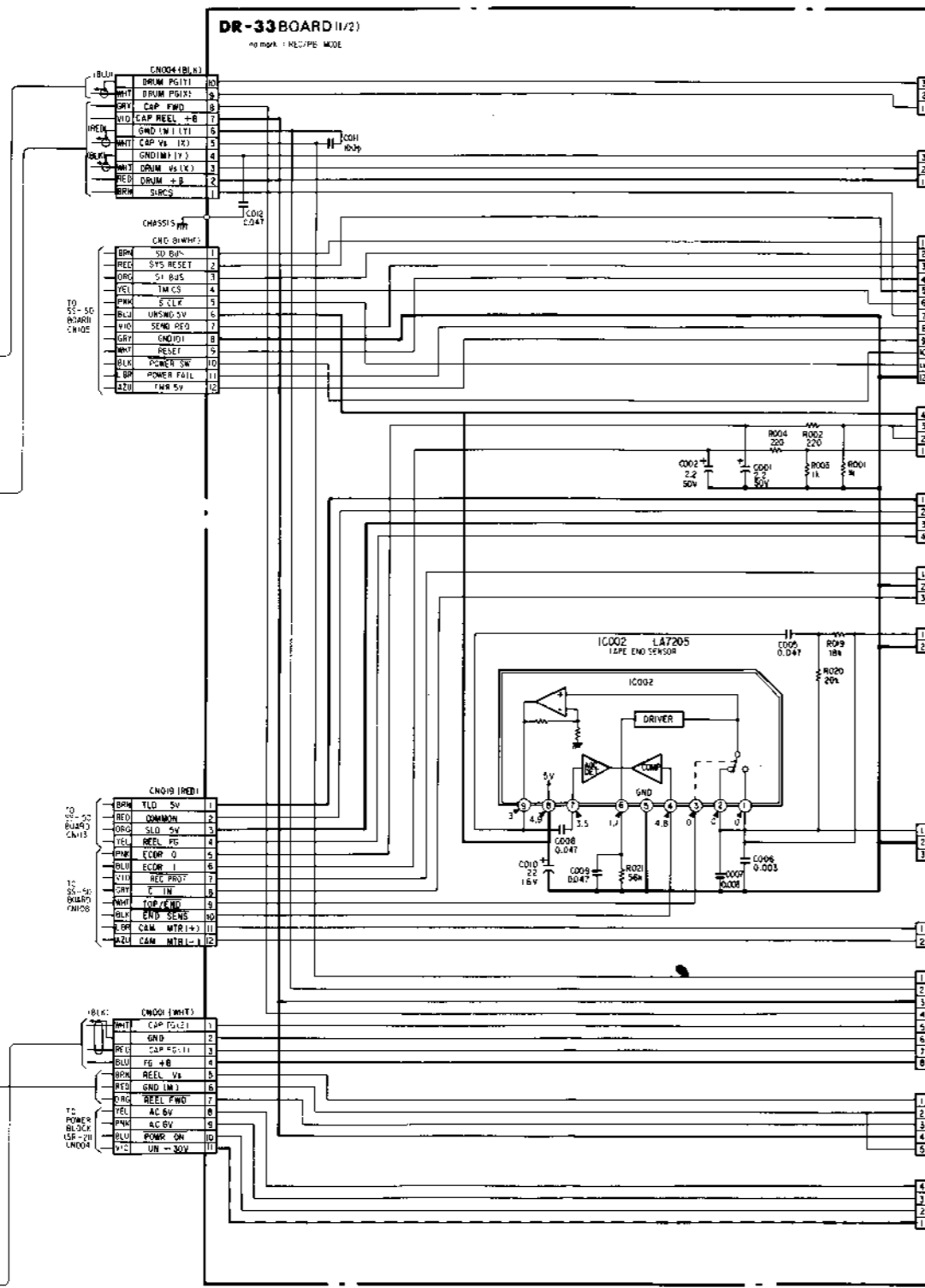
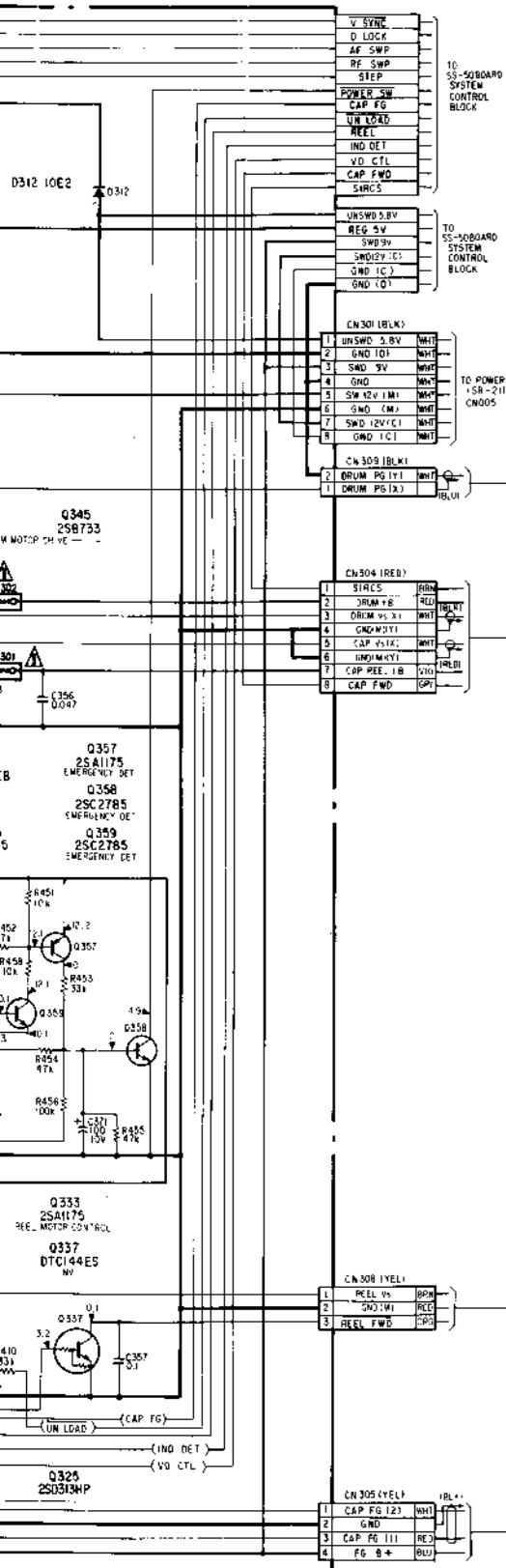


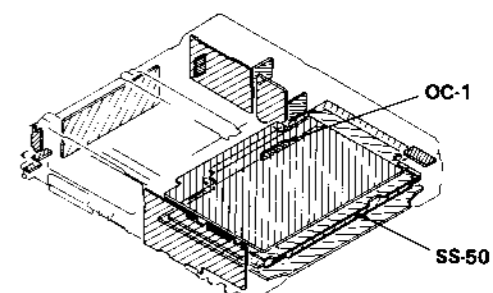
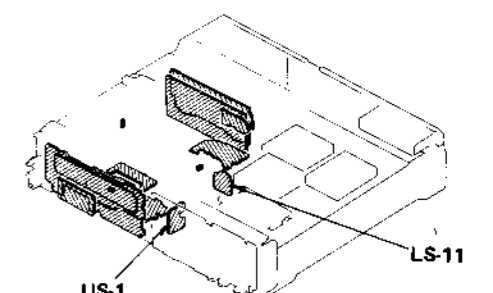




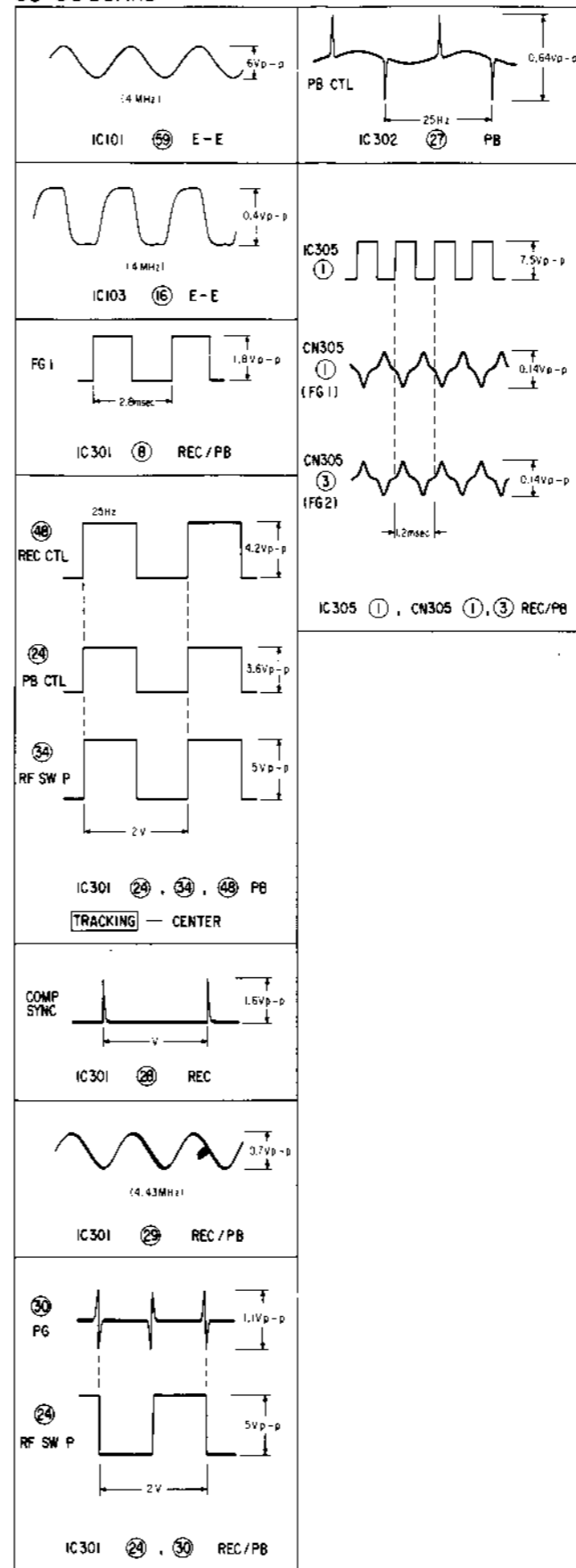


18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33



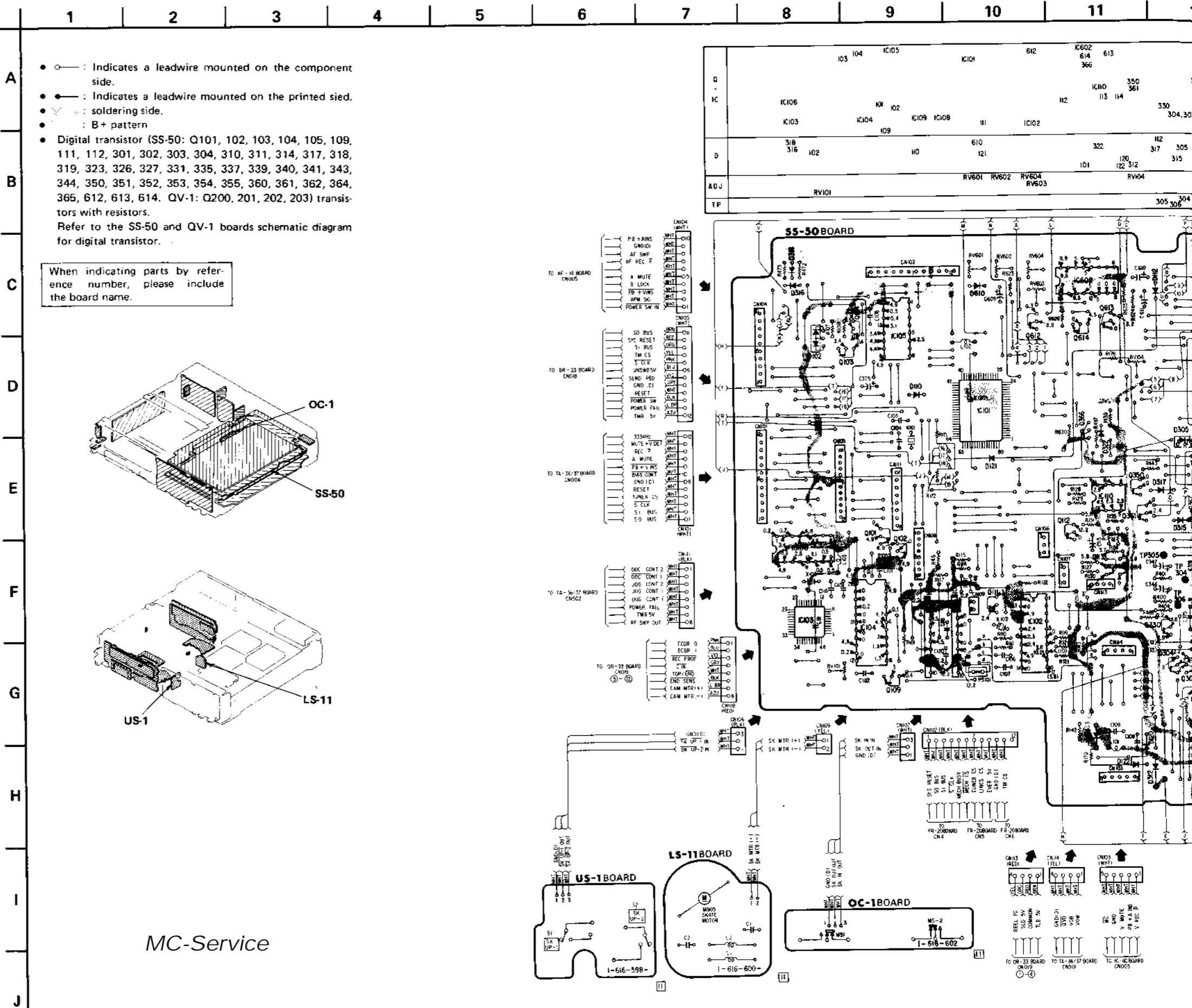
	1	2	3	4
A	<ul style="list-style-type: none"> <li>○—: Indicates a leadwire mounted on the component side.</li> <li>●—: Indicates a leadwire mounted on the printed side.</li> <li>○: soldering side.</li> <li>○: B+ pattern</li> <li>Digital transistor (SS-50: Q101, 102, 103, 104, 105, 109, 111, 112, 301, 302, 303, 304, 310, 311, 314, 317, 318, 319, 323, 326, 327, 331, 335, 337, 339, 340, 341, 343, 344, 350, 351, 352, 353, 354, 355, 360, 361, 362, 364, 365, 612, 613, 614. QV-1: Q200, 201, 202, 203) transistors with resistors. Refer to the SS-50 and QV-1 boards schematic diagram for digital transistor.</li> </ul>			
B	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">                     When indicating parts by reference number, please include the board name.                 </div>			
C				
D				
E				
F				
G				
H				
I				
J				

SS-50 BOARD



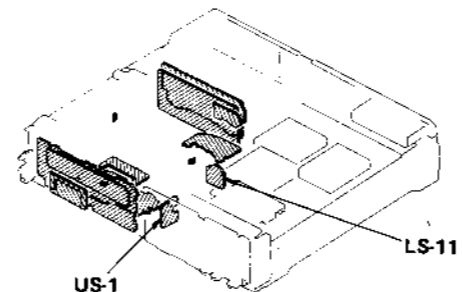
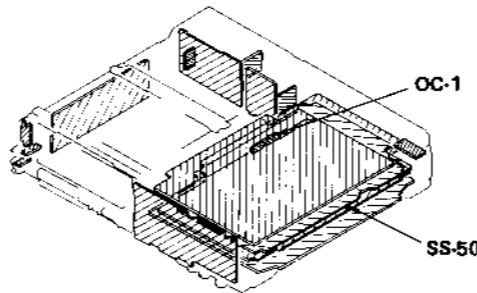
MC-Service

1-5. SS-50 (SERVO, SYSTEM CONTROL), OC-1 (SKIP SWITCH), US-1 (SKIP SWITCH), LS-11 (SKATE MOTOR) PRINTED WIRING BOARDS  
 - Ref. No. SS-50 BOARD: 2,000 series, OC-1 BOARD: 9,500 series, US-1 BOARD: 9,500 series, LS-11 BOARD: 9,500 series -



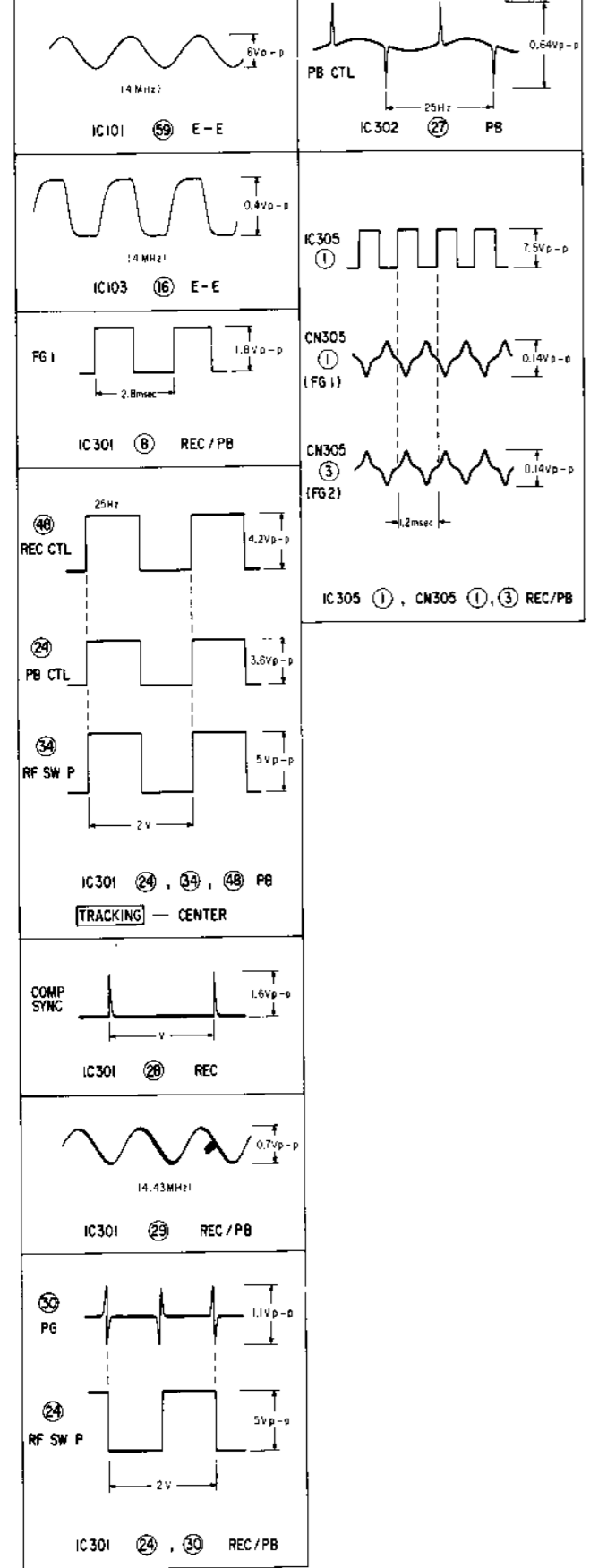
- — : Indicates a leadwire mounted on the component side.
- — : Indicates a leadwire mounted on the printed side.
- ∇ : soldering side.
- ⊕ : B+ pattern
- Digital transistor (SS-50: Q101, 102, 103, 104, 105, 109, 111, 112, 301, 302, 303, 304, 310, 311, 314, 317, 318, 319, 323, 326, 327, 331, 335, 337, 339, 340, 341, 343, 344, 350, 351, 352, 353, 354, 355, 360, 361, 362, 364, 365, 612, 613, 614. QV-1: Q200, 201, 202, 203) transistors with resistors. Refer to the SS-50 and QV-1 boards schematic diagram for digital transistor.

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



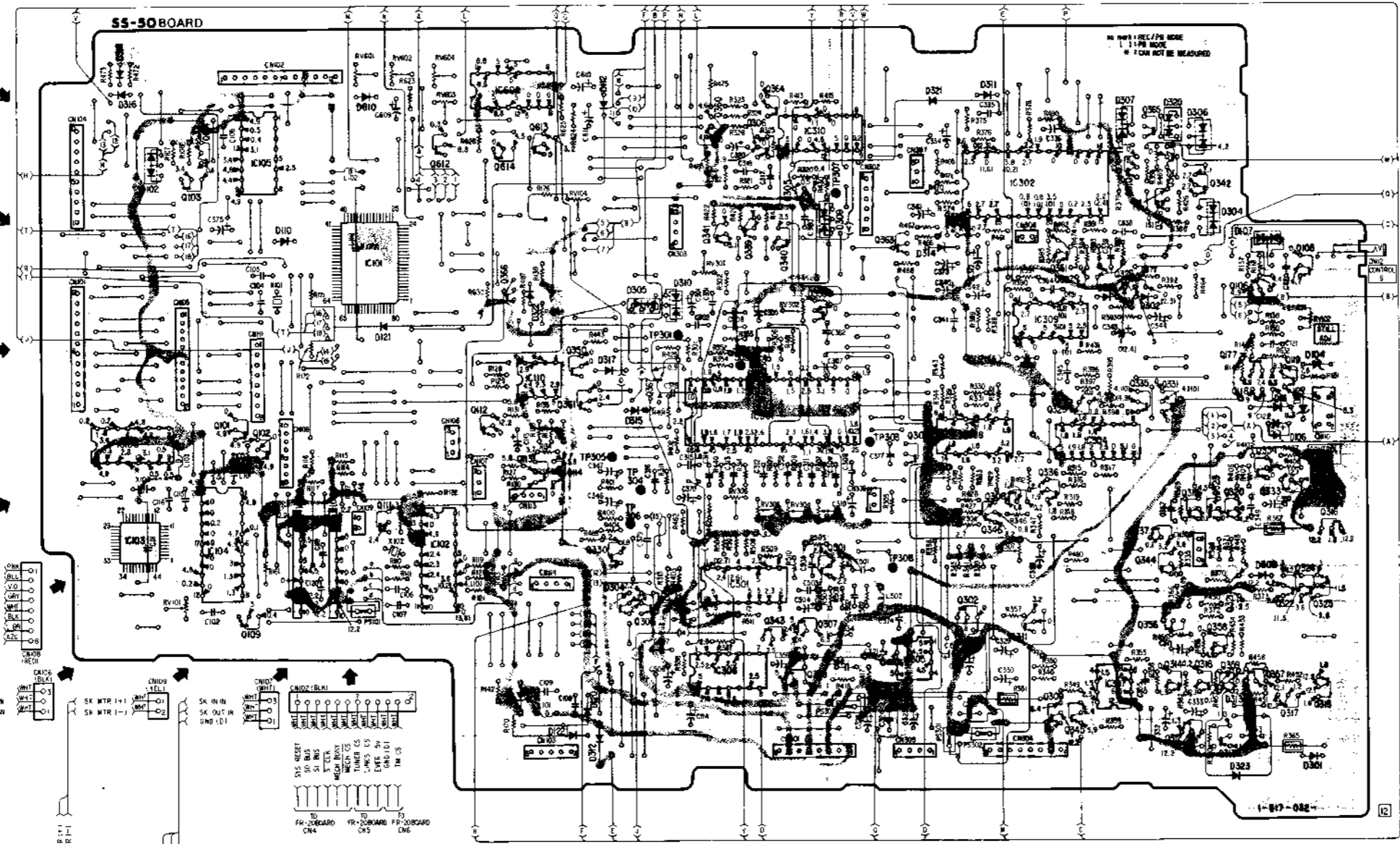
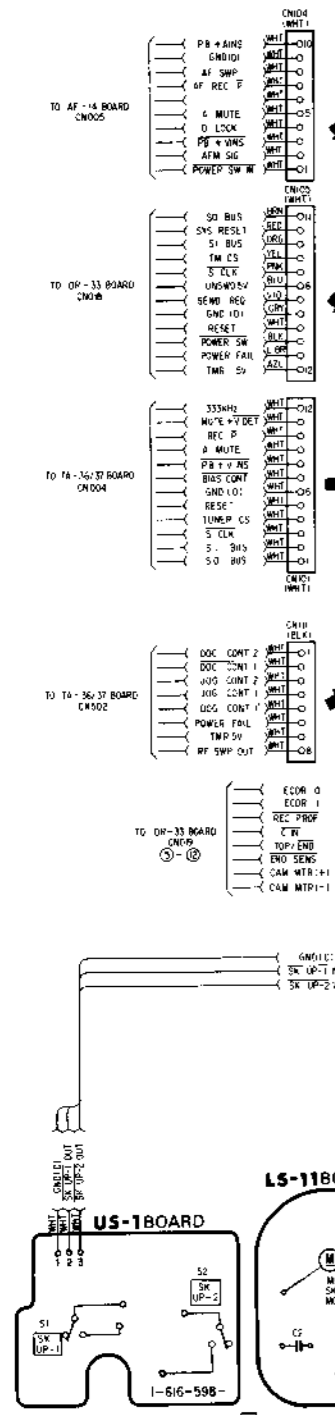
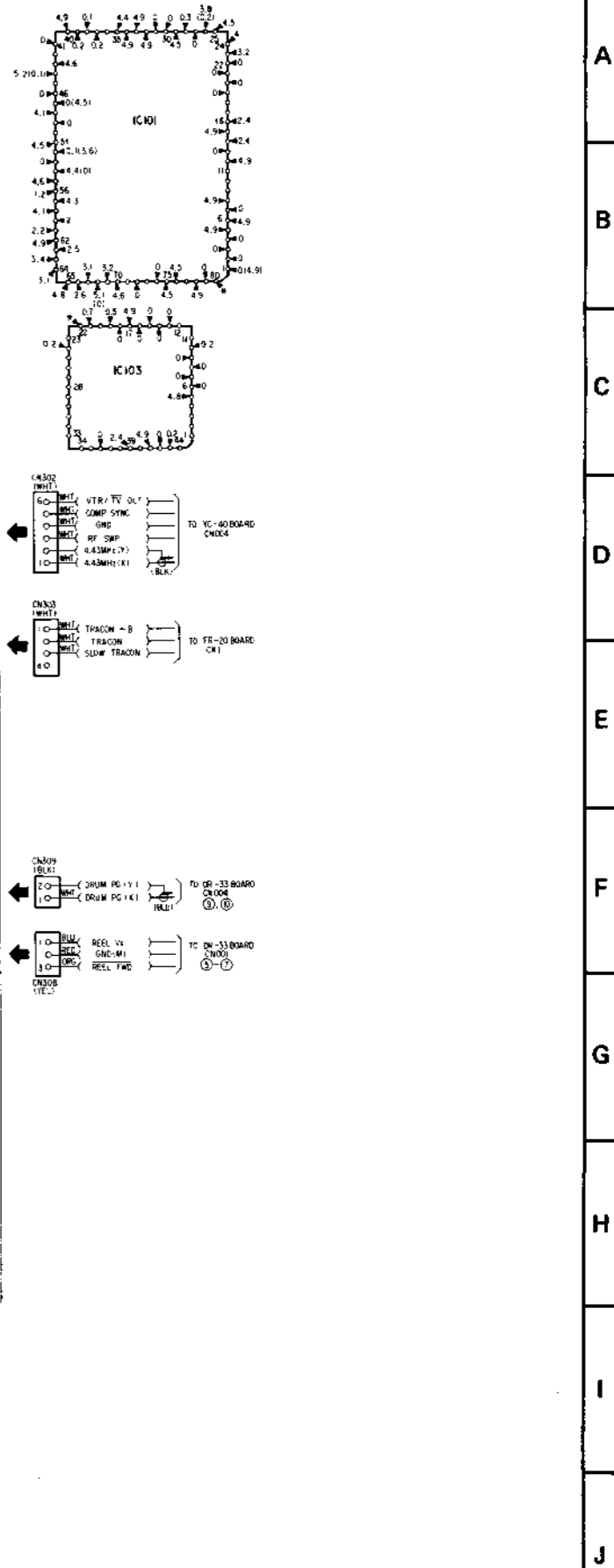
MC-Service

**SS-50 BOARD**



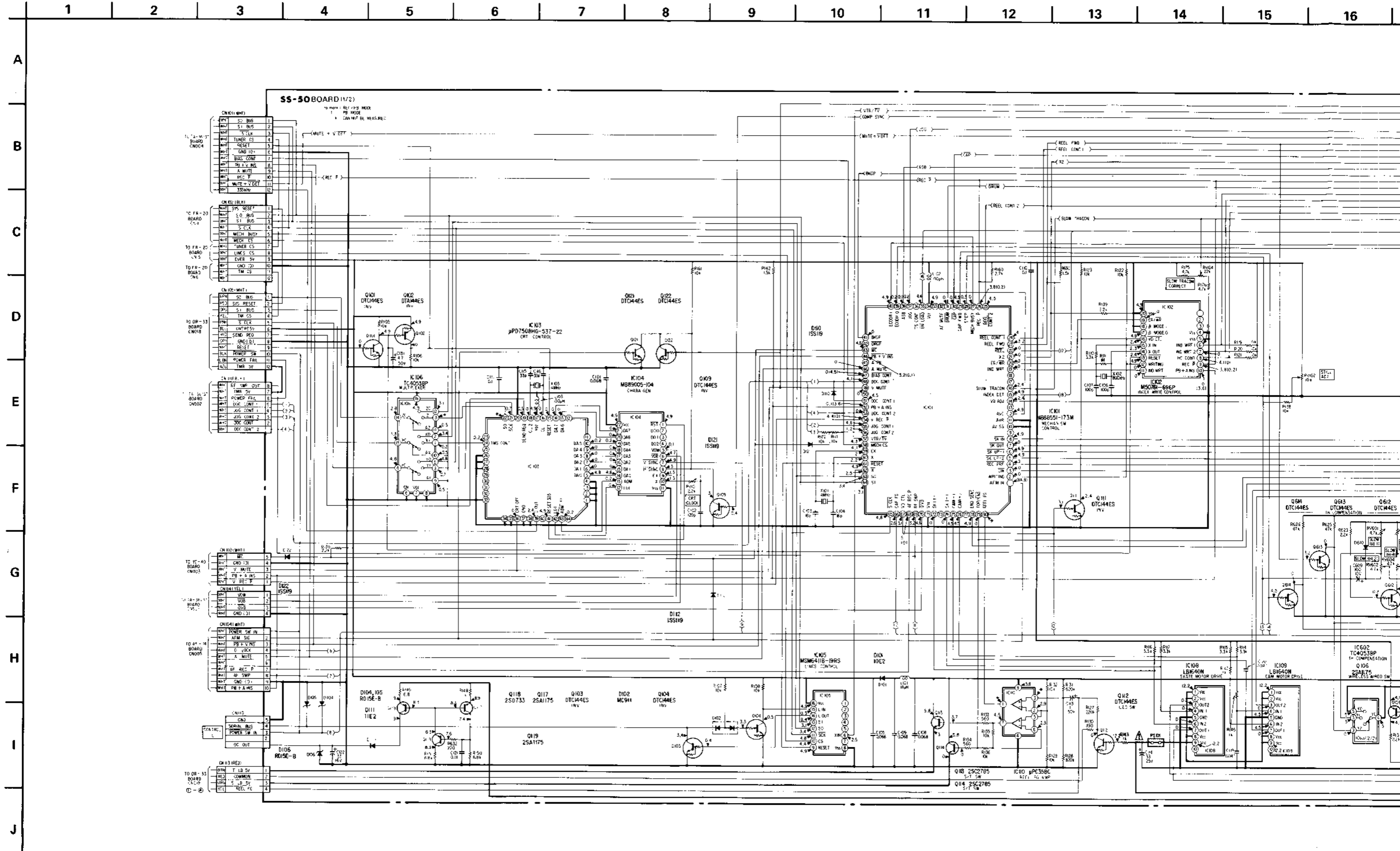
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Q	103	104	K105	K101	612	IC602	614	613	360	364	306	IC310	IC302	365	362	342	106	105	Q
IC	IC106	IC107	IC102	IC109	IC108	IC110	IC113	IC114	367	IC301	501	IC308	IC309	327	329	335	331	107	IC
D	318	316	102	109	110	610	121	322	112	317	305	310	309	321	314	311	307	320	D
ADJ																			ADJ
TP																			TP

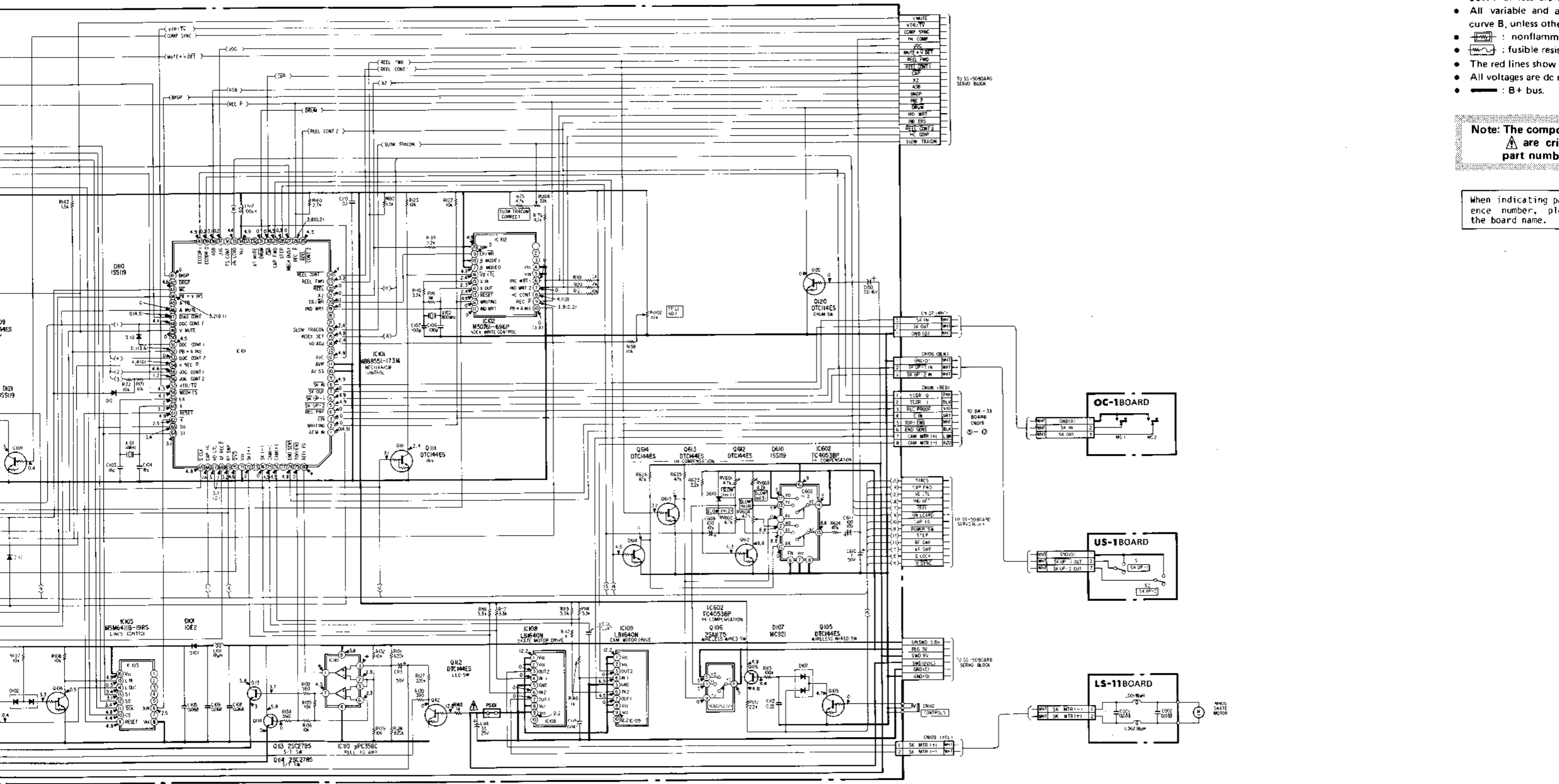


SS-50 (SERVO, SYSTEM CONTROL), OC-1 (SKIP SWITCH), US-1 (SKIP SWITCH), LS-11 (SKATE MOTOR) SCHEMATIC DIAGRAMS

- Ref. No. SS-50 BOARD: 2,000 series, OC-1 BOARD: 9,500 series, US-1 BOARD: 9,500 series, LS-11 BOARD: 9,500 series -





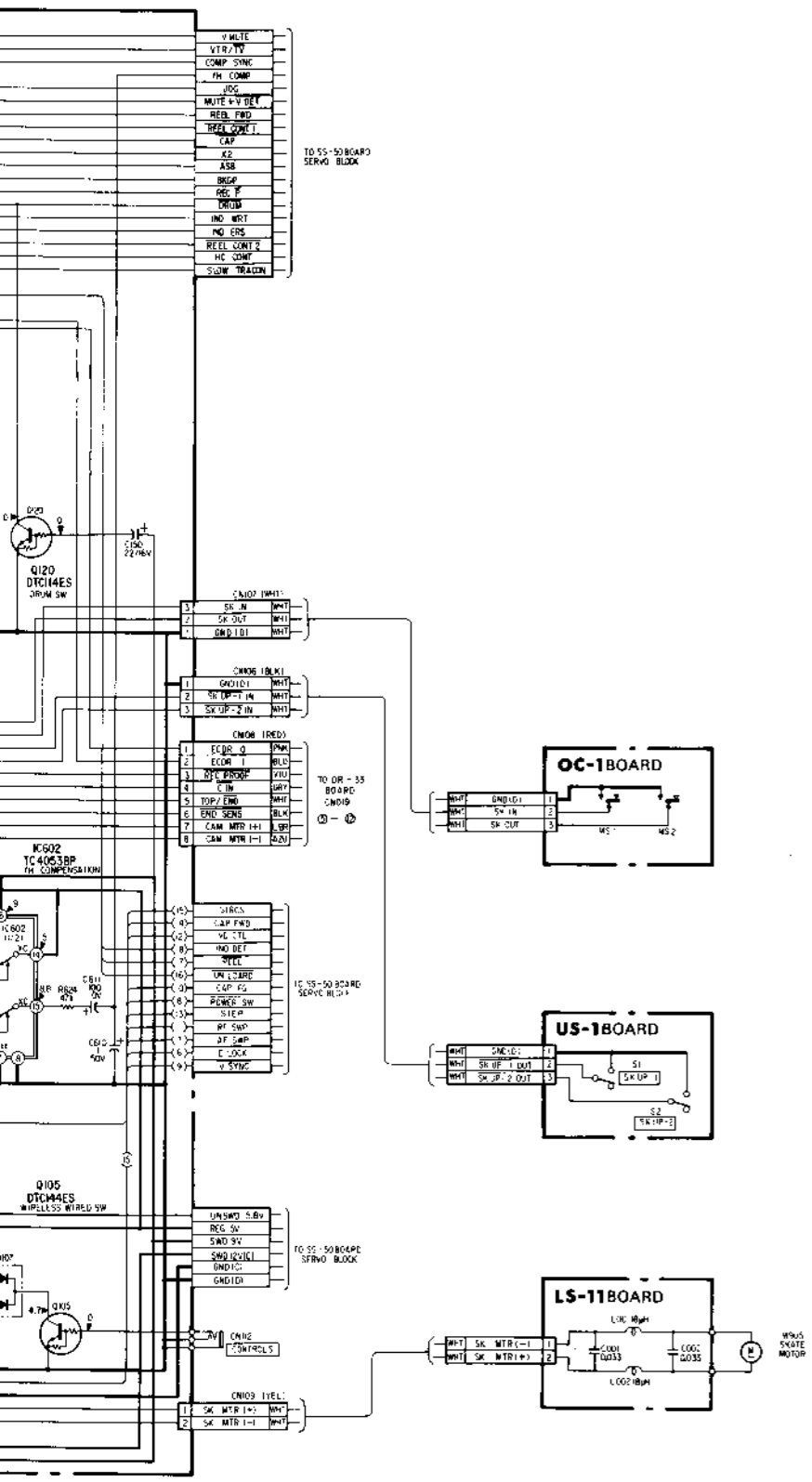


- All resistors are in kΩ: 1000 Ω, MΩ: 1000000 Ω
- All capacitors are in μF: 1000 nF, 10000 nF, 100000 nF, 1000000 nF
- All variable and a.c. components are shown with a 'V' or 'A.C.' label, unless otherwise specified.
- : non-flammable
- : fusible resistor
- The red lines show the B+ bus.
- All voltages are d.c. unless otherwise specified.
- : B+ bus.

Note: The component numbers are critical part numbers.

When indicating part numbers, please include the board name.

18 19 20 21 22 23 24 25 26 27



- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ.
- All capacitors are in μF unless otherwise noted. p: pμF. 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
- : B+ bus.

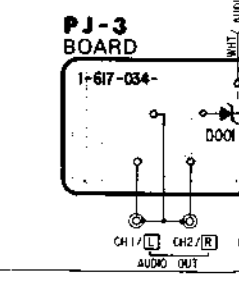
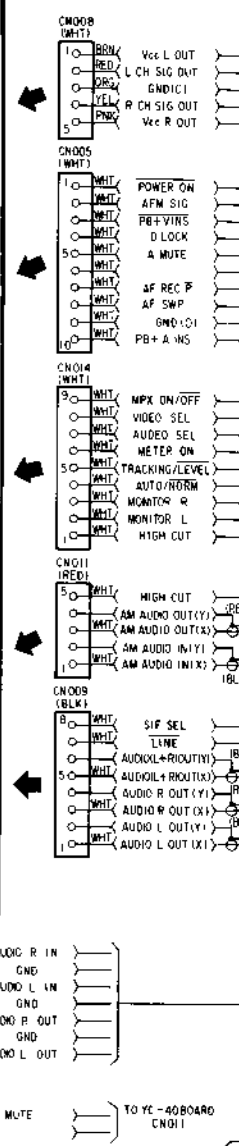
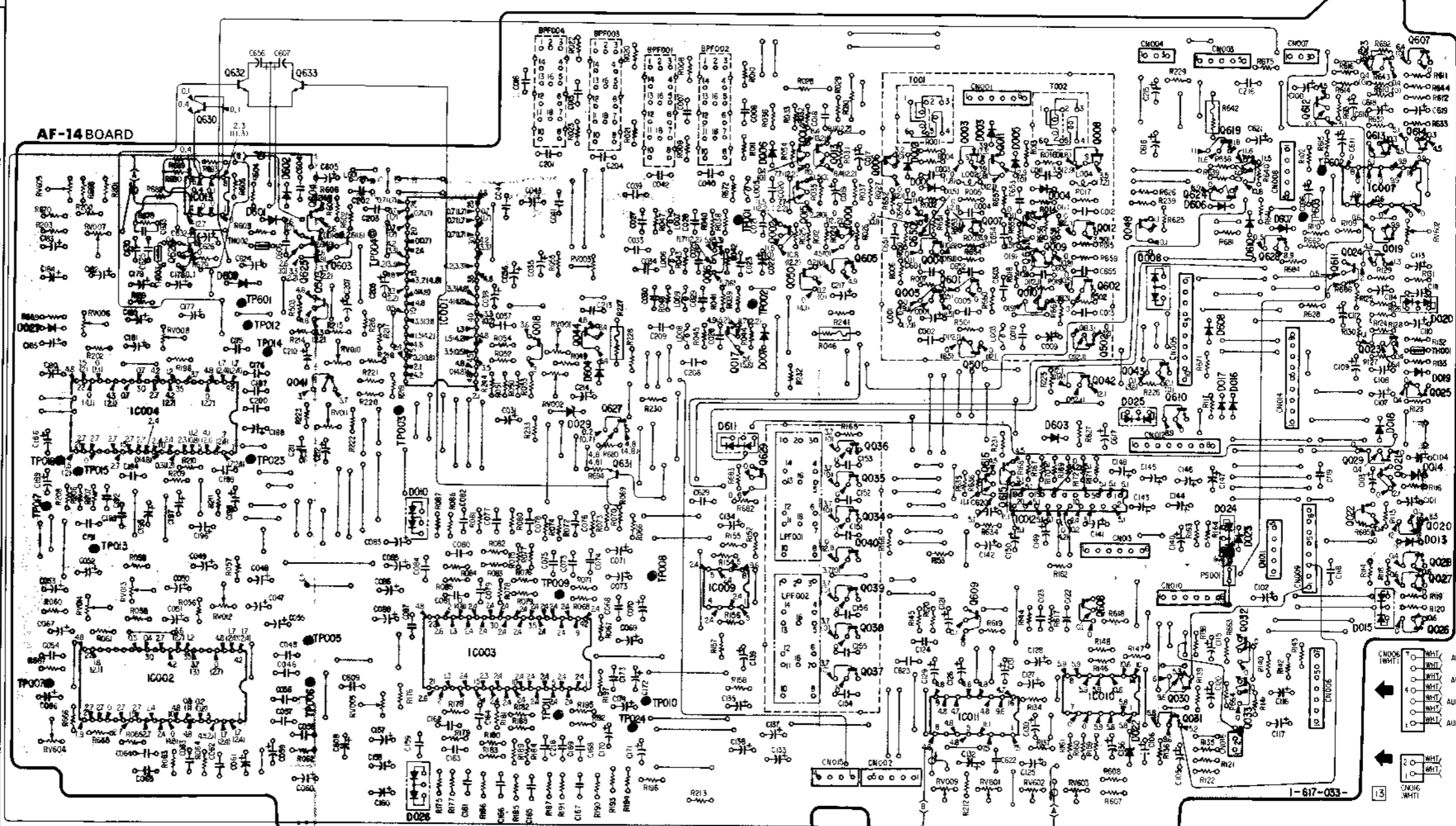
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

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

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

MC-Service

Q, IC	D	ADJ	TP
607 623			
632,633			
630	612		
014,013 619 613	003		
003 011 008 621	006 002 005		
006 IC007			
IC003 015 624	001 004	RV605	
IC001 650 651	602 606		
002,001 007 012 019	601 610,607	RV602	001
625,603 004 628		RV007	004
016 009 024		RV003	603
605 601 602	008		
005	609		
503 010	020		601 002
017 502 023	027 608	RV006 RV001	012
044 501	007	RV008	
018 043	604 019	RV010	014
042 025	017,016	RV002	
IC004 610	029 025		003
627	611 018	RV011	
036 615 029	603		016 023
629 616 021	014		015
631 035			
IC012	010		017
034 022	024,023		013
020	013		008
IC009 027	015	RV013	009
039 608		RV012	
609 026		RV014	005
IC003 032			007 006
037 030 033		RV005	011 024
IC010 031			
	022	RV604	
	026	RV009, RV601	
		RV602, RV603	
Q, IC	D	ADJ	TP

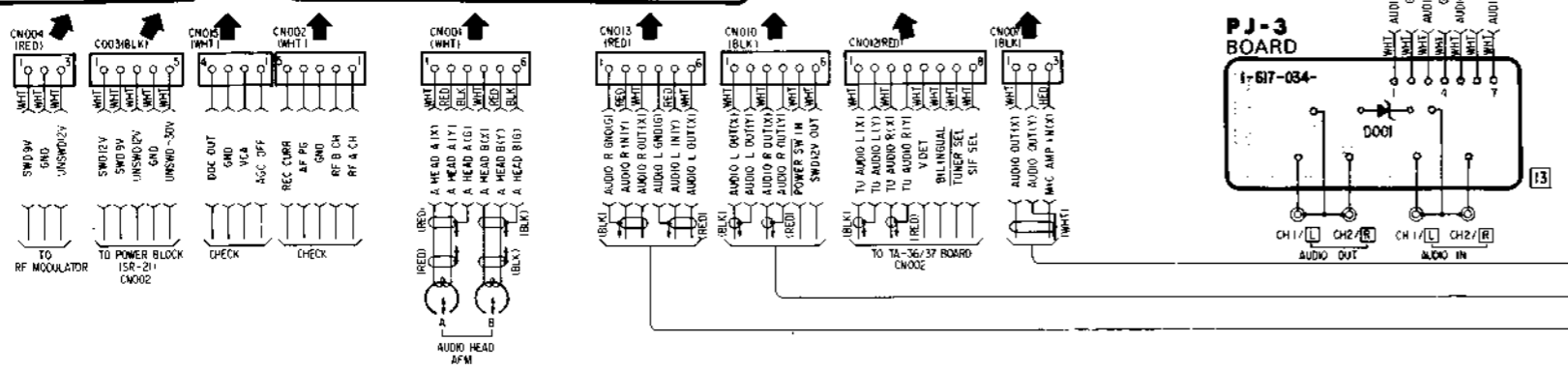
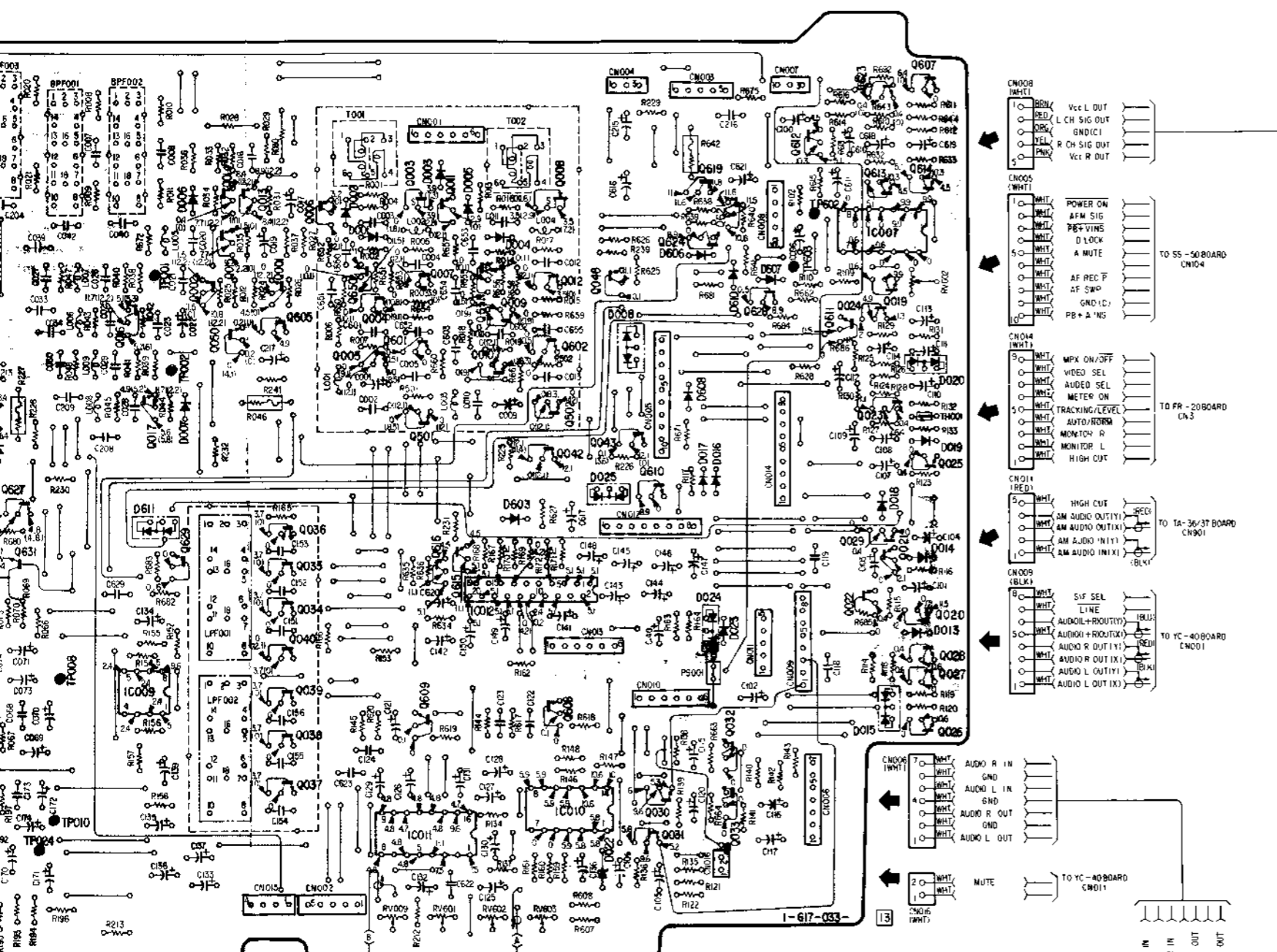


MC-Service

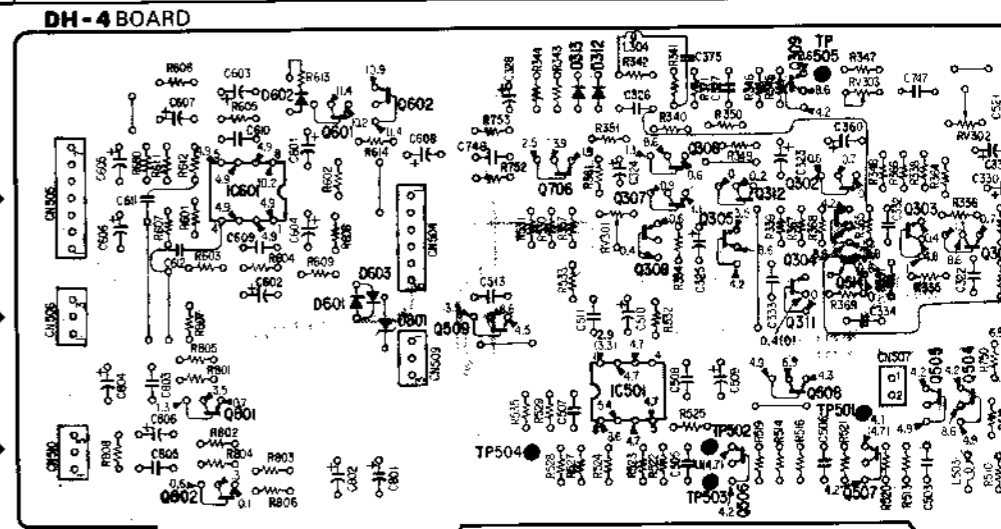
SWITCH, HEADPHONE LEVEL), DR-33 (SYSTEM CONTROL, SIGNAL TRANSLATION), MC-10 (MICROPHONE JACK), HP-18 (HEADPHONE JACK) PRINTED WIRING BOARDS

DR-33 BOARD: 9,300 series, MC-10 BOARD: 13,000 series, HP-18 BOARD: 9,800 series -

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

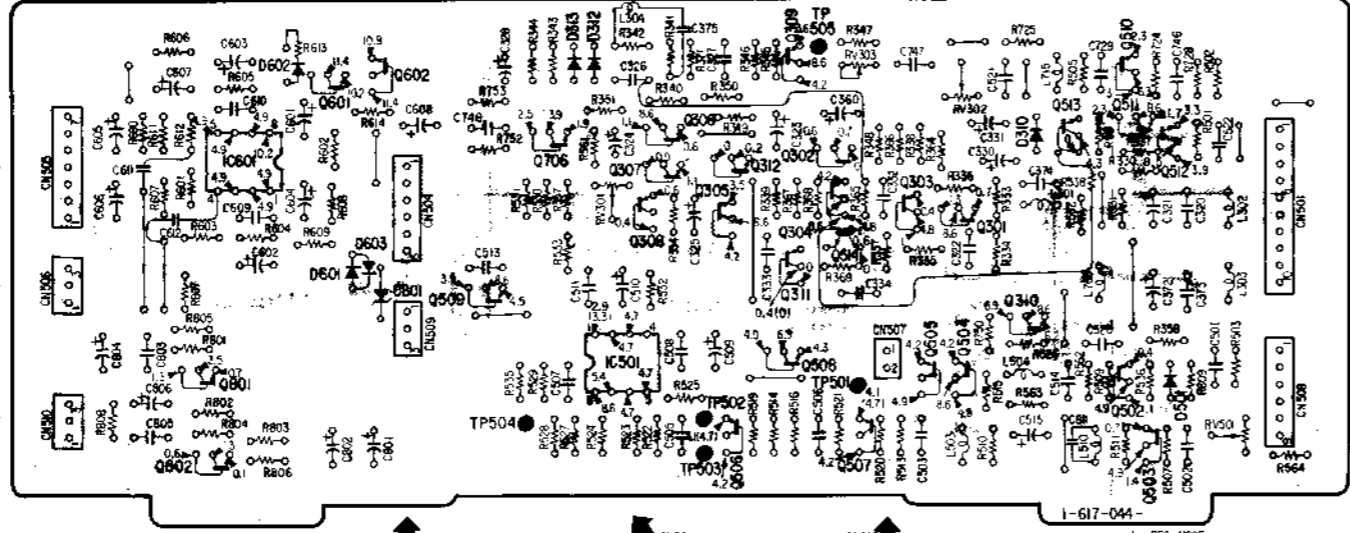


Q	IC601	601	602	509	706	306	309	302	303	301
IC						IC501				
D		602	601	603	801					
ADJ								RV301	RV303	RV302
TP					504			502	505	501



Q	IC	IC601	601	602	509	706	306	309	302	510	Q
D		602	603	801	313,312		308	307	311	511	IC
ADJ						RV301			RV303	RV302	
TP						504	502	505	501		TP

**DH-4 BOARD**

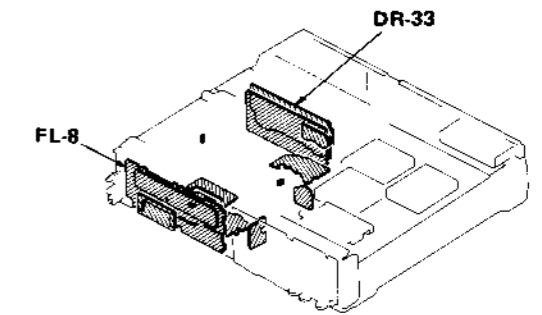
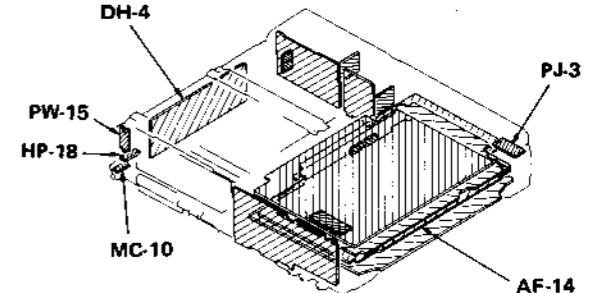


**Note on Printed Wiring Board:**

- : Indicates a leadwire mounted on the component side.
- : Indicates a leadwire mounted on the printed side.
- ⊙ : soldering side.
- ⊙ : B+ pattern
- Digital transistor (AF-14: Q001, 006, 007, 011, 012, 019, 021, 026, 028, 029, 034, 035, 036, 037, 038, 039, 040, 043, 048, 050, 605, 607, 610, 623, 624, 628) transistors with resistors.

Refer to the AF-14 board schematic diagram for digital transistor.

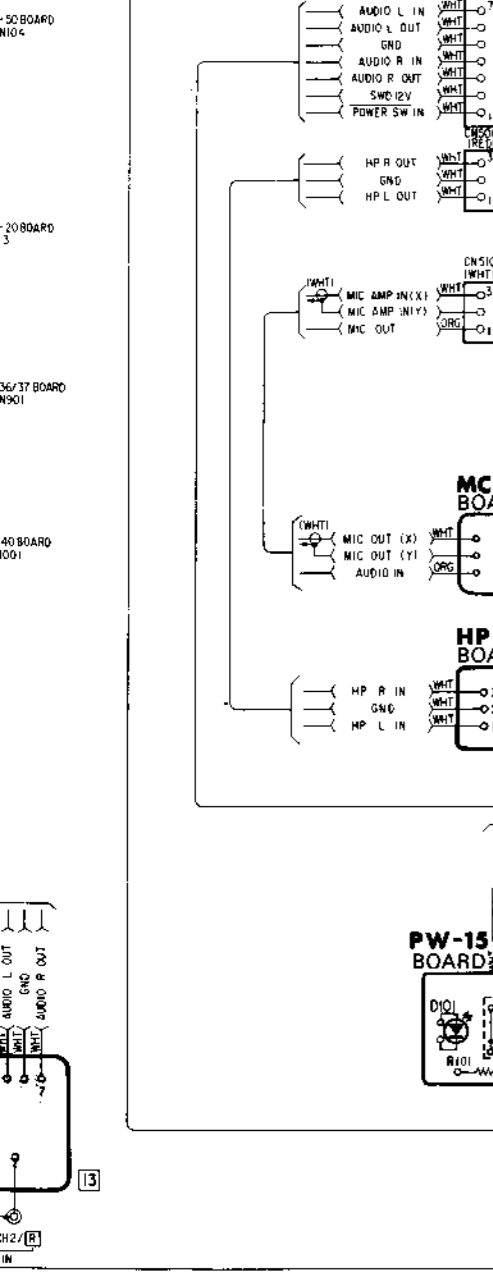
When indicating parts by reference number, please include the board name.



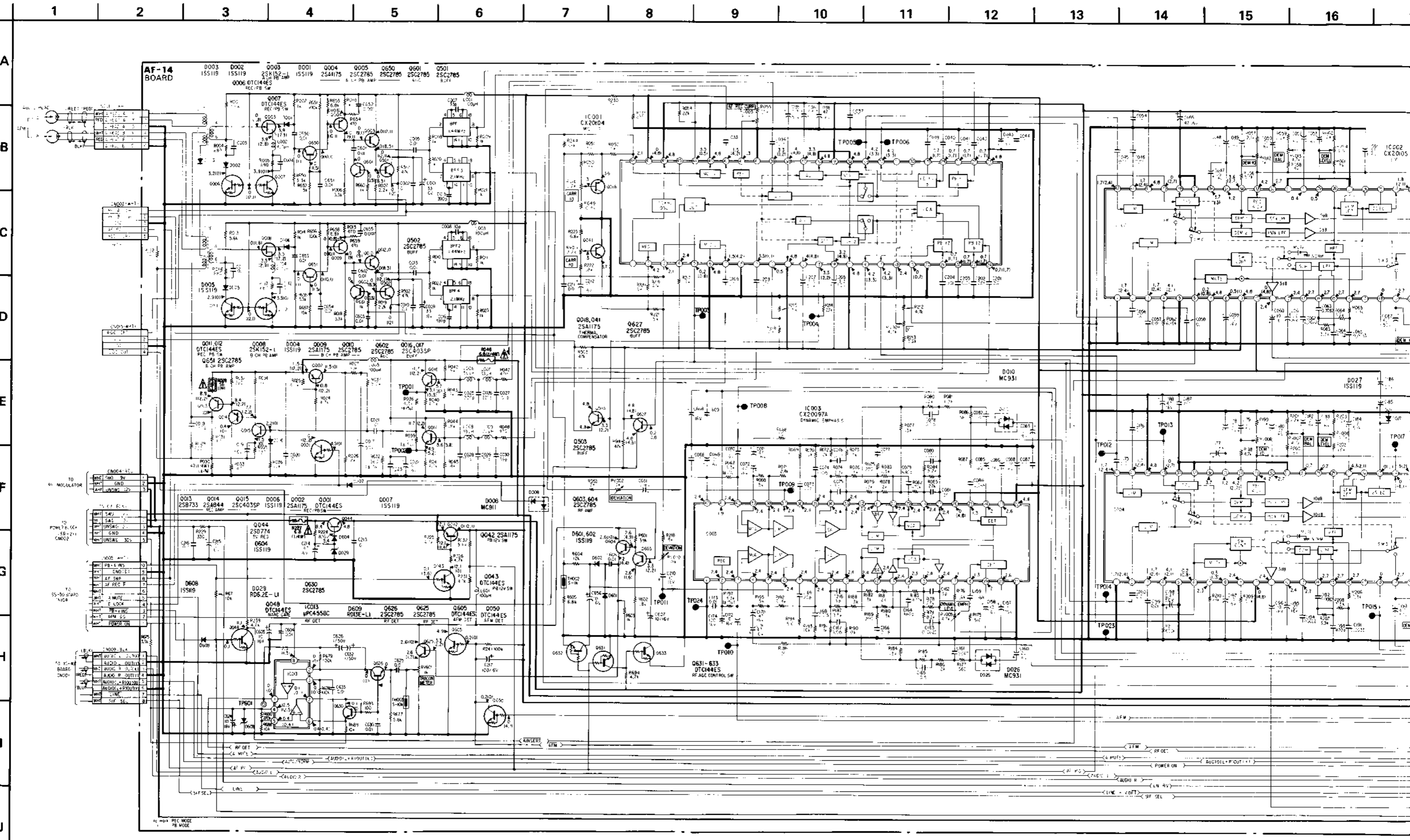
**Note on Schematic Diagram:**

- All resistors are in ohms, 1/8 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: μF
- 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊞ : nonflammable resistor.
- ⊞ : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
- : B+ bus.

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



A  
B  
C  
D  
E  
F  
G  
H  
I  
J



9

10

11

12

13

14

15

16

17

18

19

20

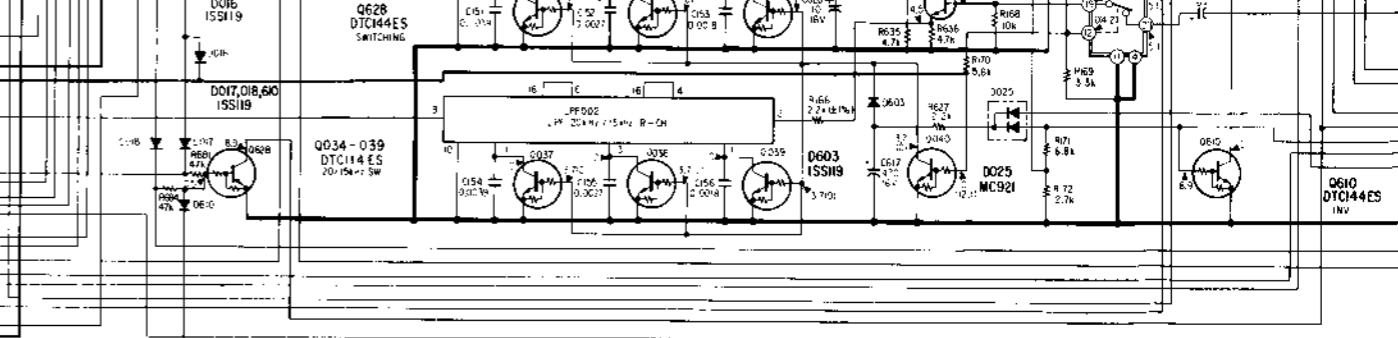
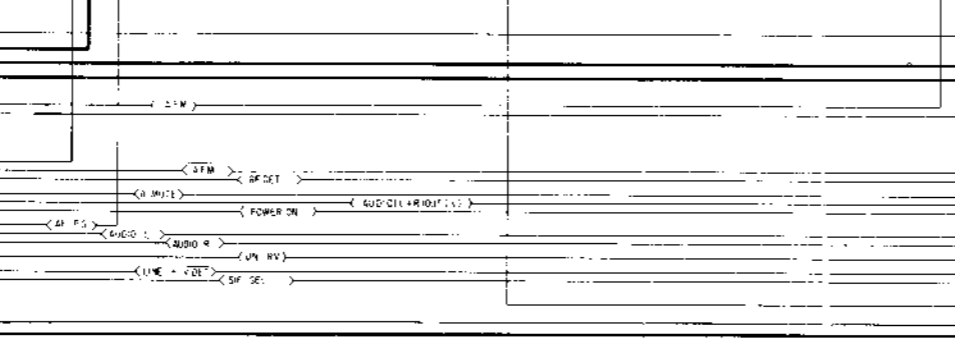
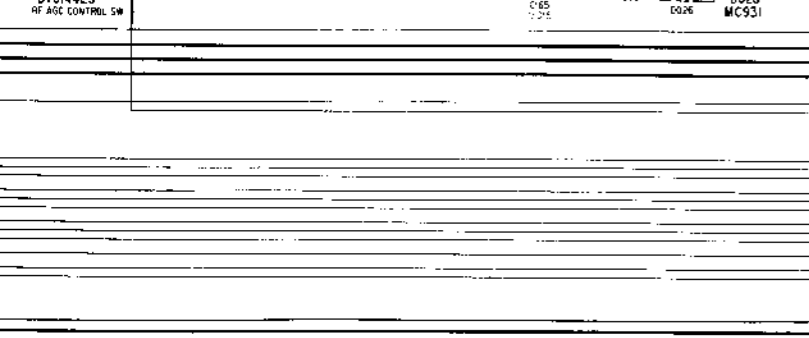
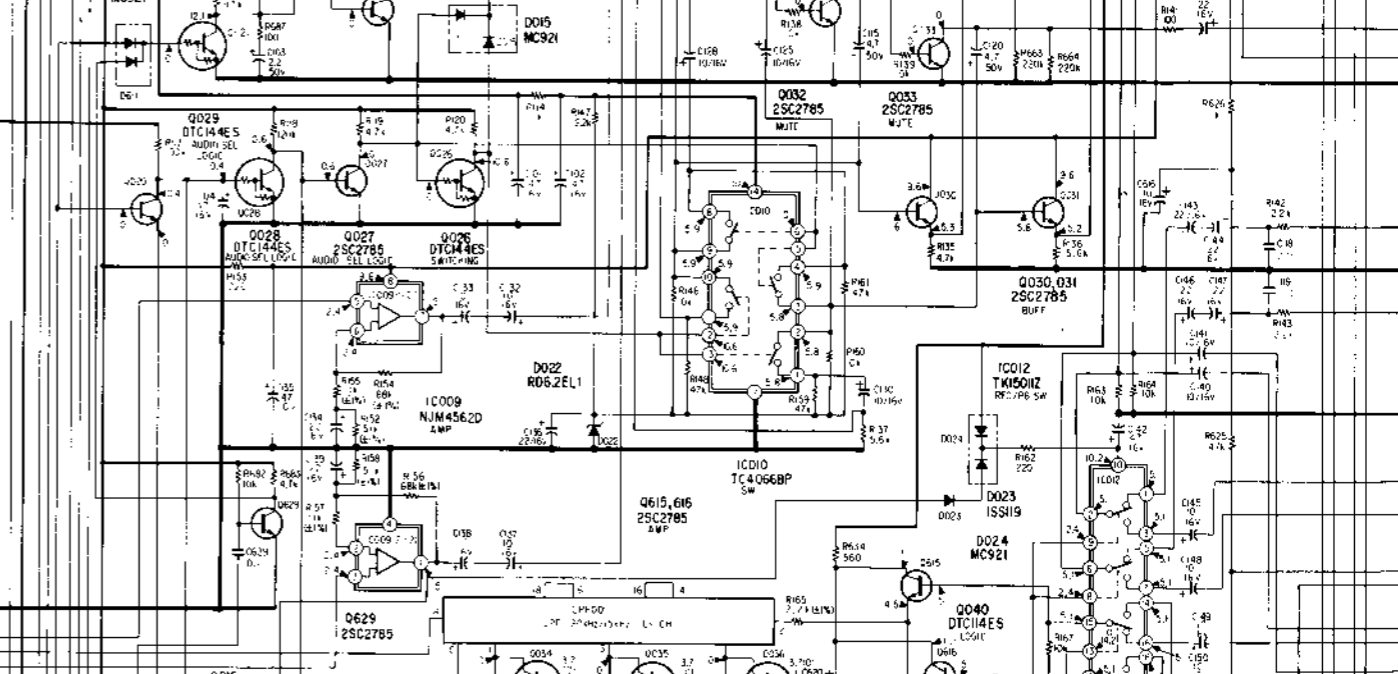
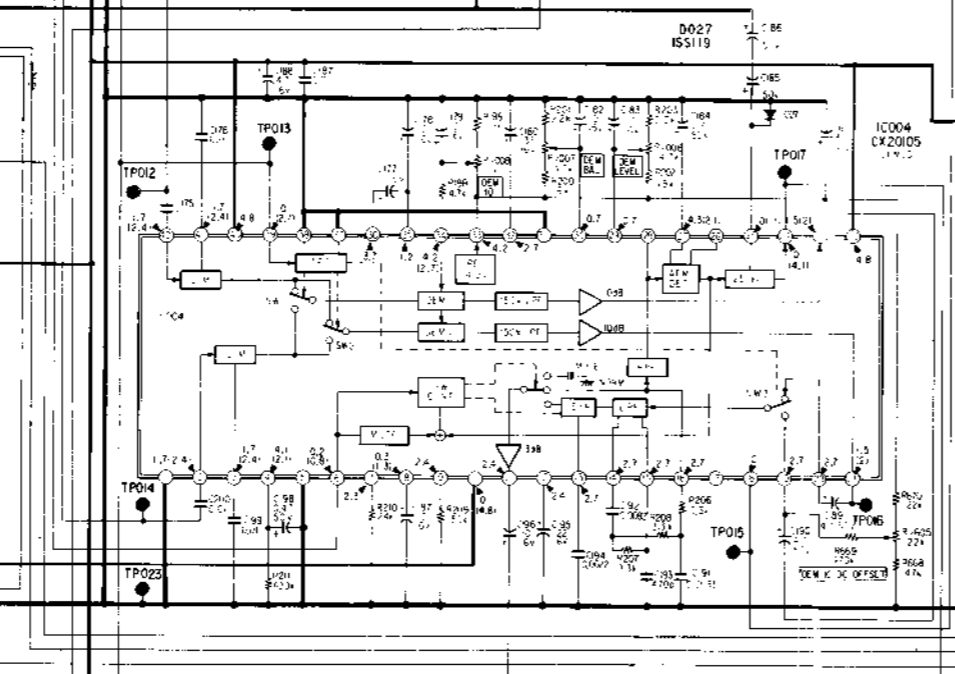
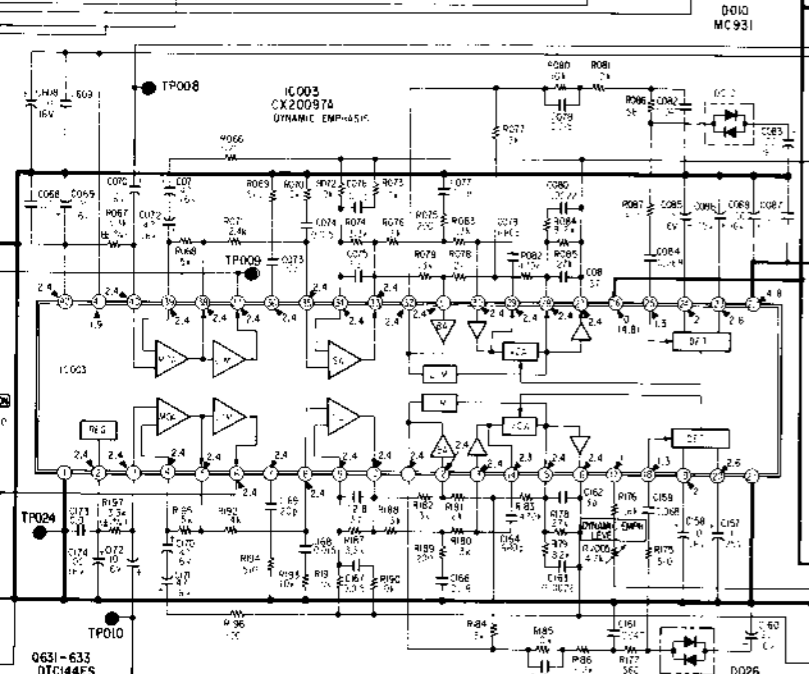
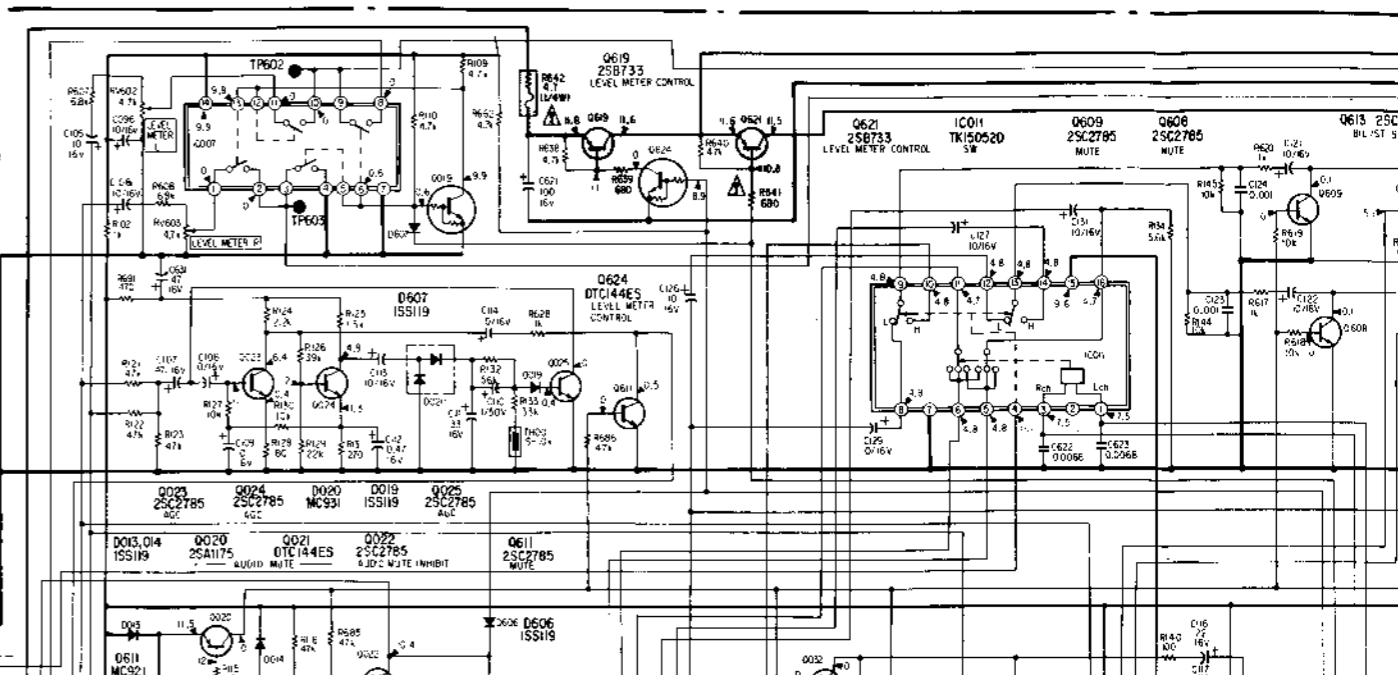
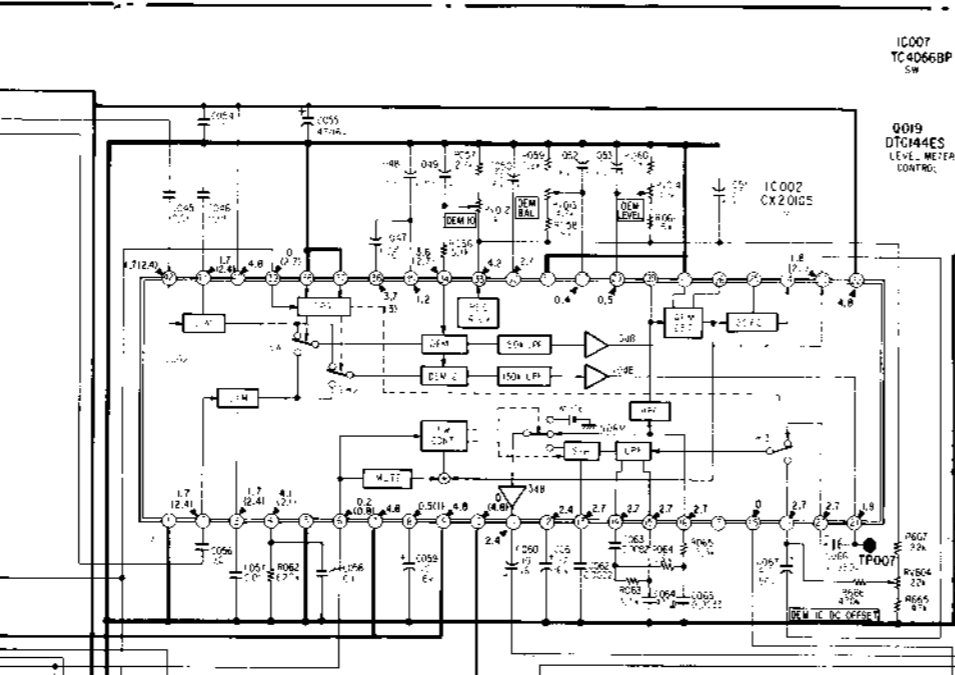
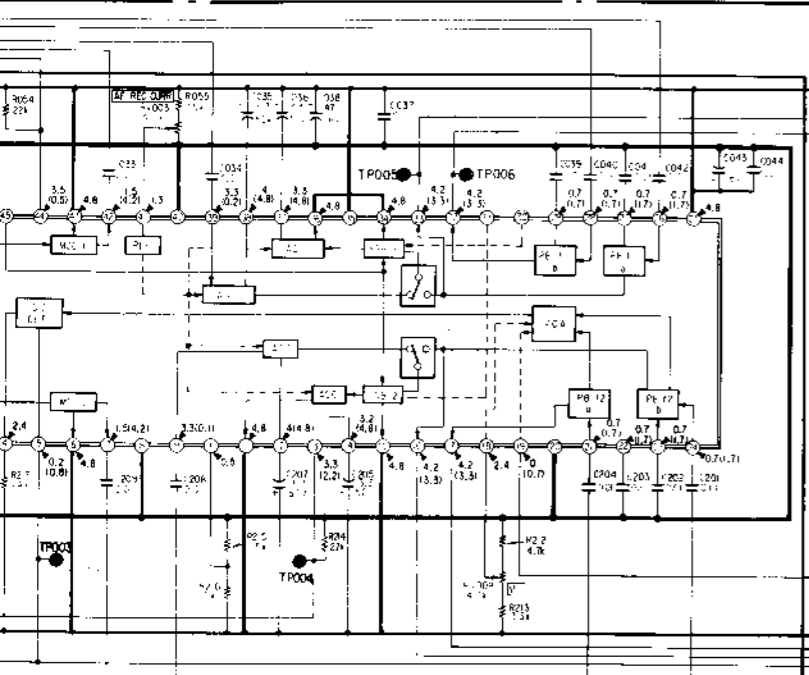
21

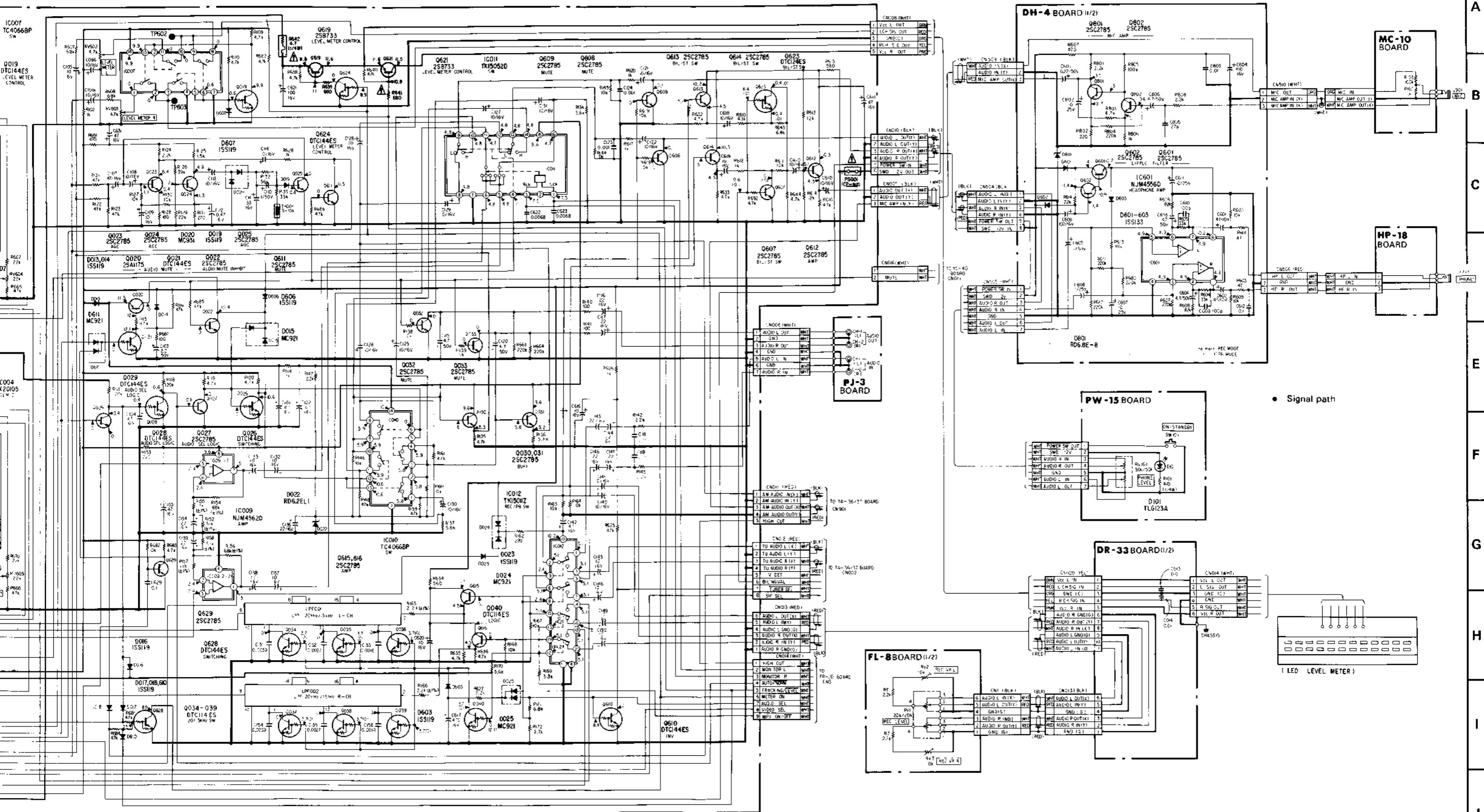
22

23

24

25



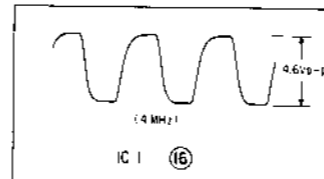


A  
B  
C  
E  
F  
G  
H  
J

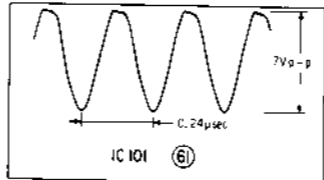
• Signal path



FR-20 BOARD



FL-9 BOARD



1.7. FL-8 (INDICATOR), FL-9 (TIMER CONTROL), FR-20 (FUNCTION SWITCH) PRINTED WIRING BOARD

- Ref. No. FL-8 BOARD: 9,600 series, FL-9 BOARD: 9,700 series, FR-20 BOARD: 9,800 series -

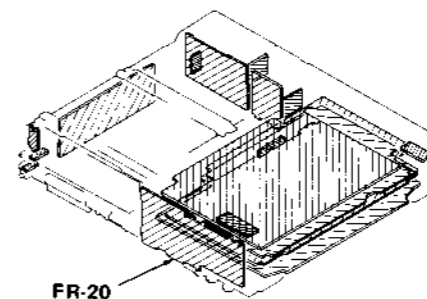
1 2 3 4 5 6

A

- — : Indicates a leadwire mounted on the component side.
  - — : Indicates a leadwire mounted on the printed side.
  - ⊗ : through hole
  - ⊙ : soldering side.
  - ⊕ : B+ pattern
  - ⊖ : component side.
  - : Digital transistor (FR-20: Q104, FL-9: Q102, 103) transistors with resistors.
- Refer to the FR-20 and FL-9 boards schematic diagrams.

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

C



D

E

F

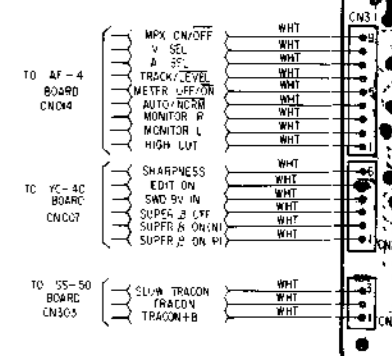
F

G

H

I

J



FR-20

FL-8

FL-9

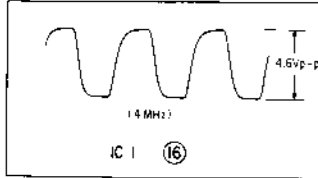
MC-Service

# TIMER

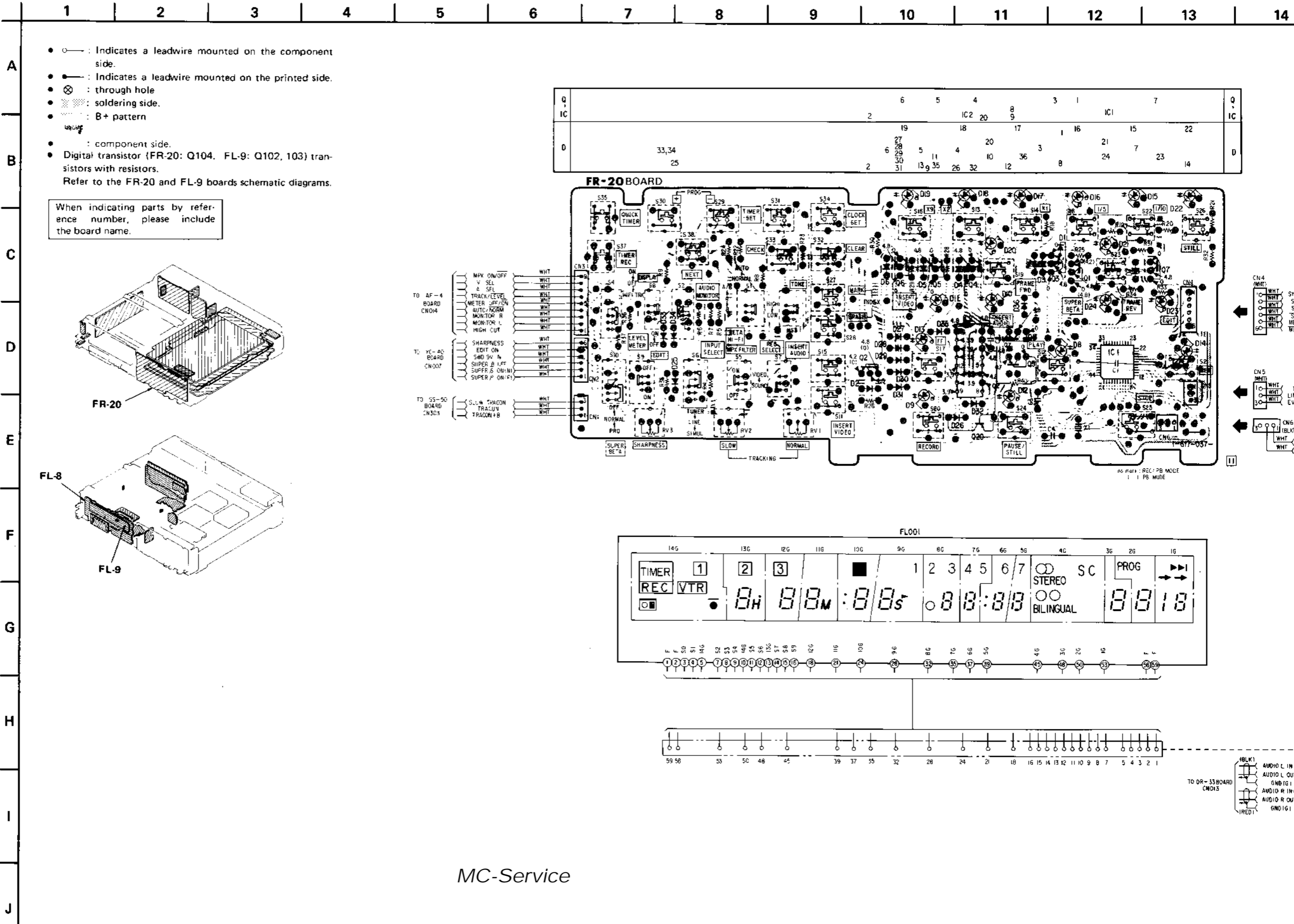
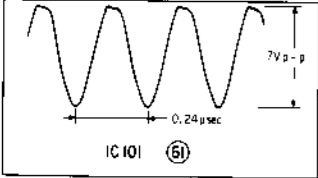
## 1-7. FL-8 (INDICATOR), FL-9 (TIMER CONTROL), FR-20 (FUNCTION SWITCH) PRINTED WIRING BOARDS

- Ref. No. FL-8 BOARD: 9,600 series, FL-9 BOARD: 9,700 series, FR-20 BOARD: 9,800 series -

FR-20 BOARD

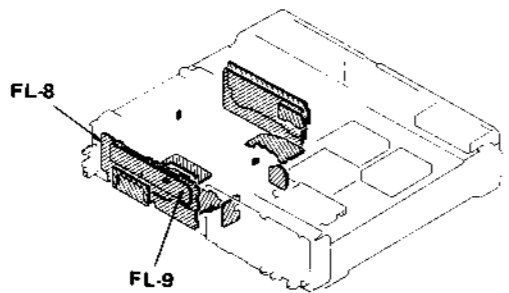
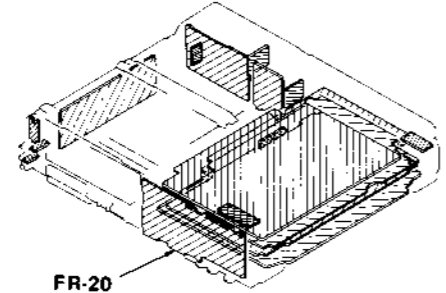


FL-9 BOARD



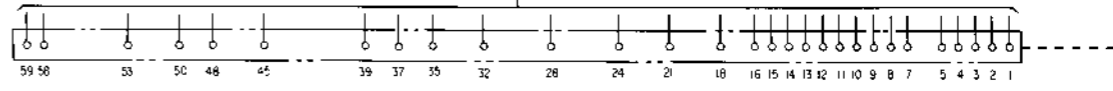
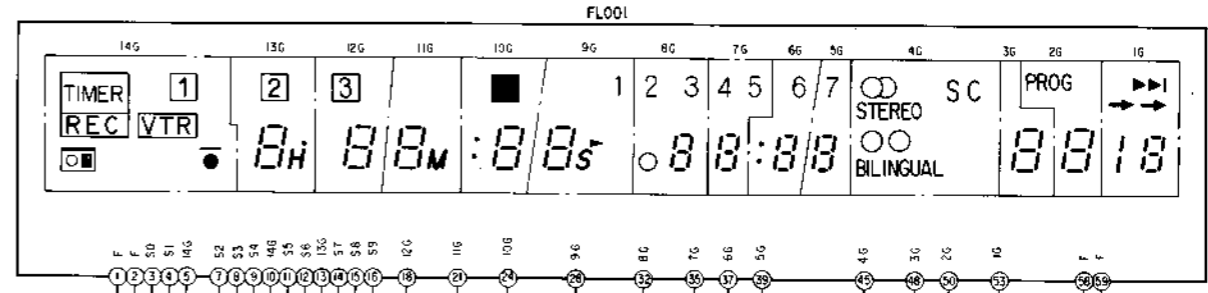
- — : Indicates a leadwire mounted on the component side.
- — : Indicates a leadwire mounted on the printed side.
- ⊗ : through hole
- ⊙ : soldering side.
- ⋯ : B+ pattern
- ⋯ : component side.
- : Digital transistor (FR-20: Q104, FL-9: Q102, 103) transistors with resistors.

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



- TO AF-4 BOARD CN014
- MPX ON/OFF
- V SEL
- & SPL
- TRACK/LEVEL
- METER OFF/ON
- AUTO-NORM
- MONITOR R
- MONITOR L
- HIGH CUT
- SHARPNESS
- EDIT ON
- SND PH
- SUPER B LFF
- SUPER S ON/NI
- SUPER P ON/FI
- TO YC-AC BOARD CN007
- SLOW TRACON
- TRACON V
- TRACON B
- TO SS-50 BOARD CN303

- CN4
- 10 WHT SYS RESET
- 11 WHT SO BUS
- 12 WHT SI BUS
- 13 WHT ST CLK
- 14 WHT MECH BUSY
- 15 WHT MECH CS
- CN5
- 10 WHT TUNER CS
- 11 WHT LINES CS
- 12 WHT EVER CS
- 13 WHT CN6
- 14 WHT (BLK)
- 15 WHT GND(D)
- 16 WHT TMS



- TO DR-33 BOARD CN013
- 10LK1
- AUDIO L IN(X)
- AUDIO L OUT(Y)
- GND IG1
- AUDIO R IN(X)
- AUDIO R OUT(Y)
- GND IG1

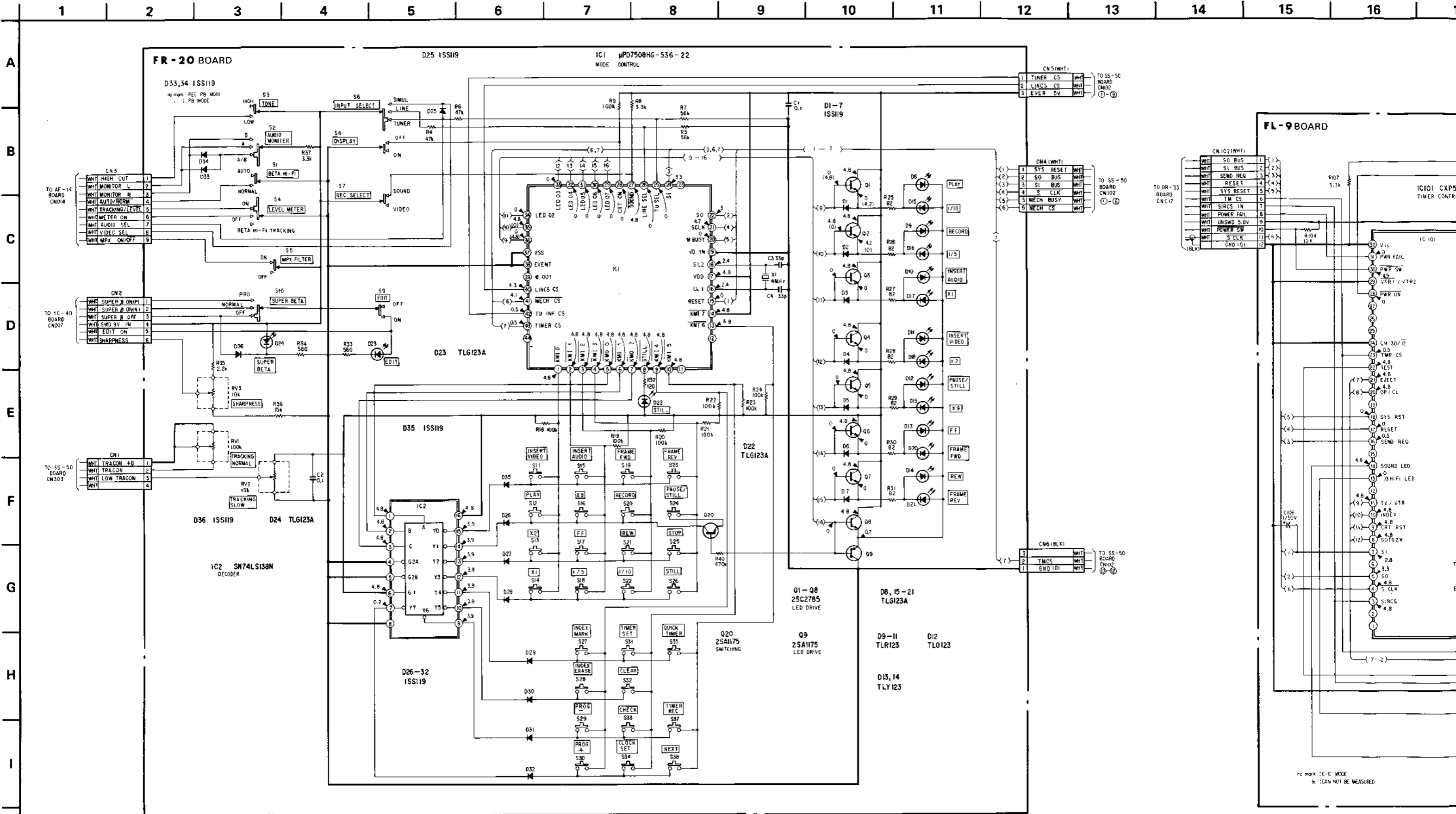
MC-Service



# TIMER TIMER

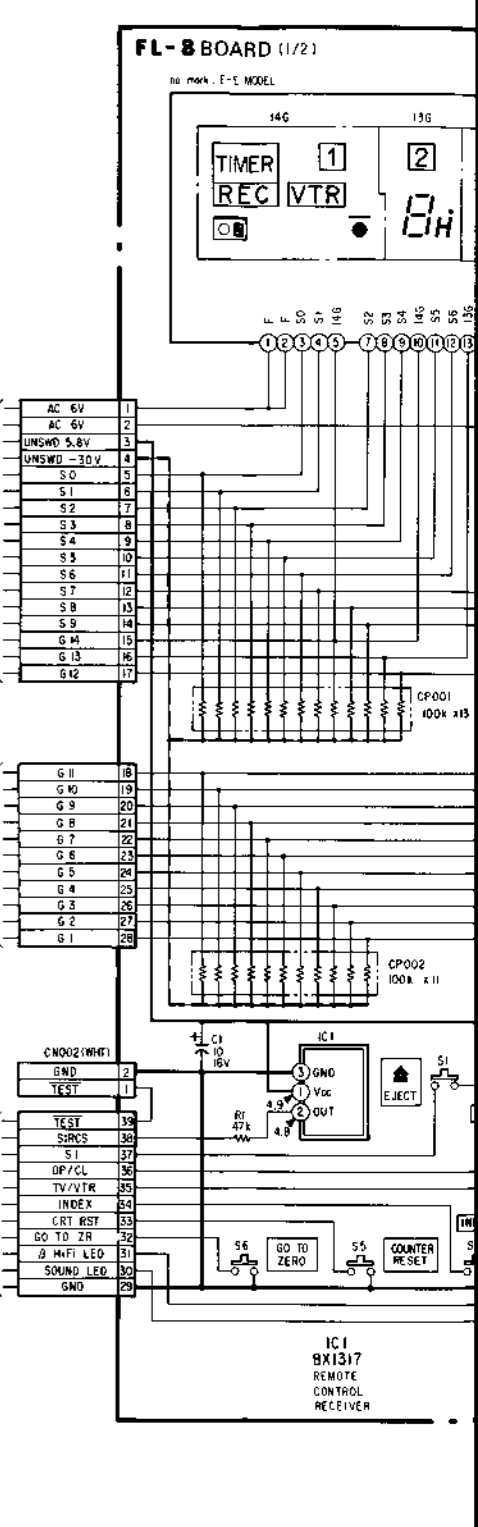
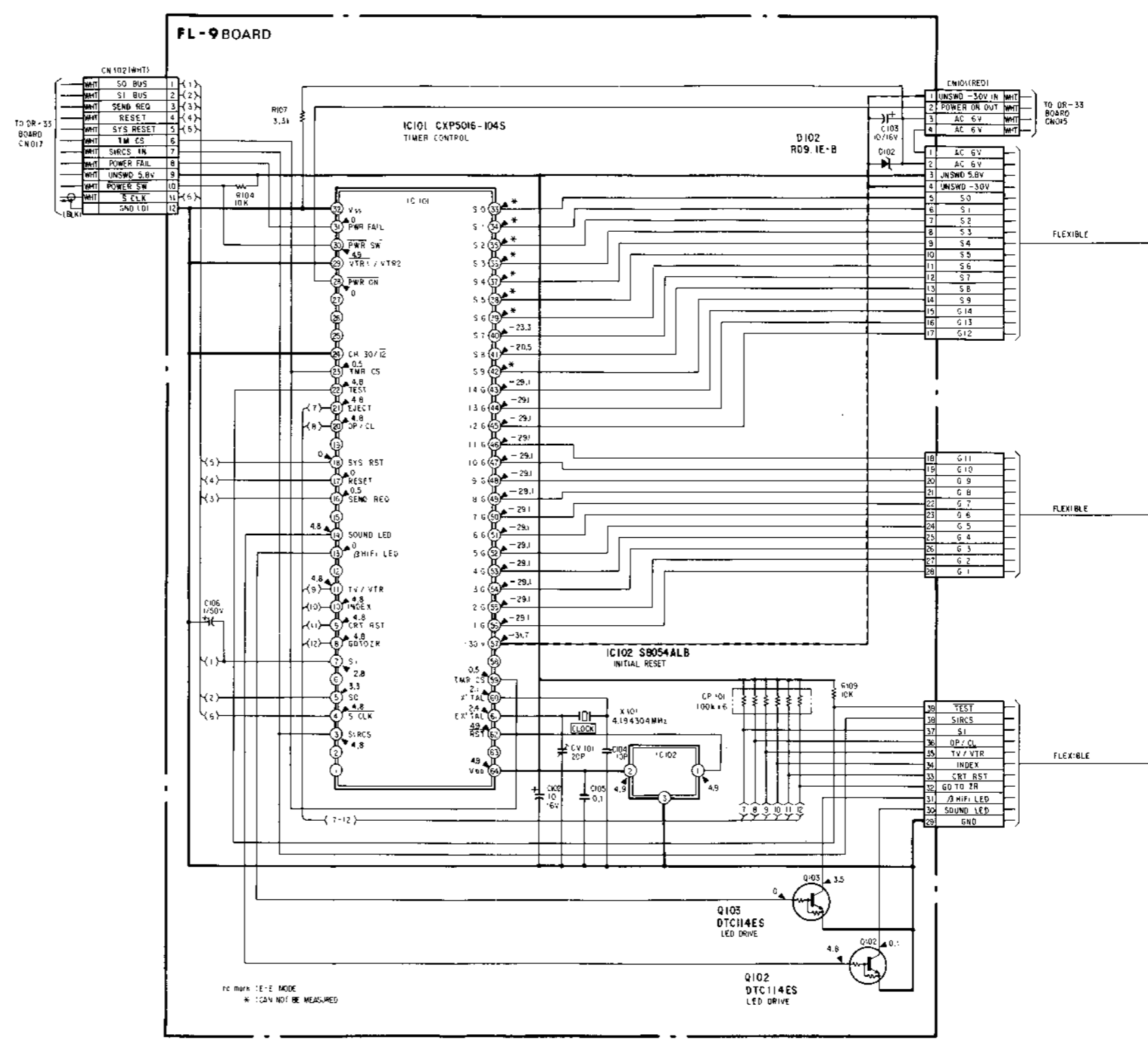
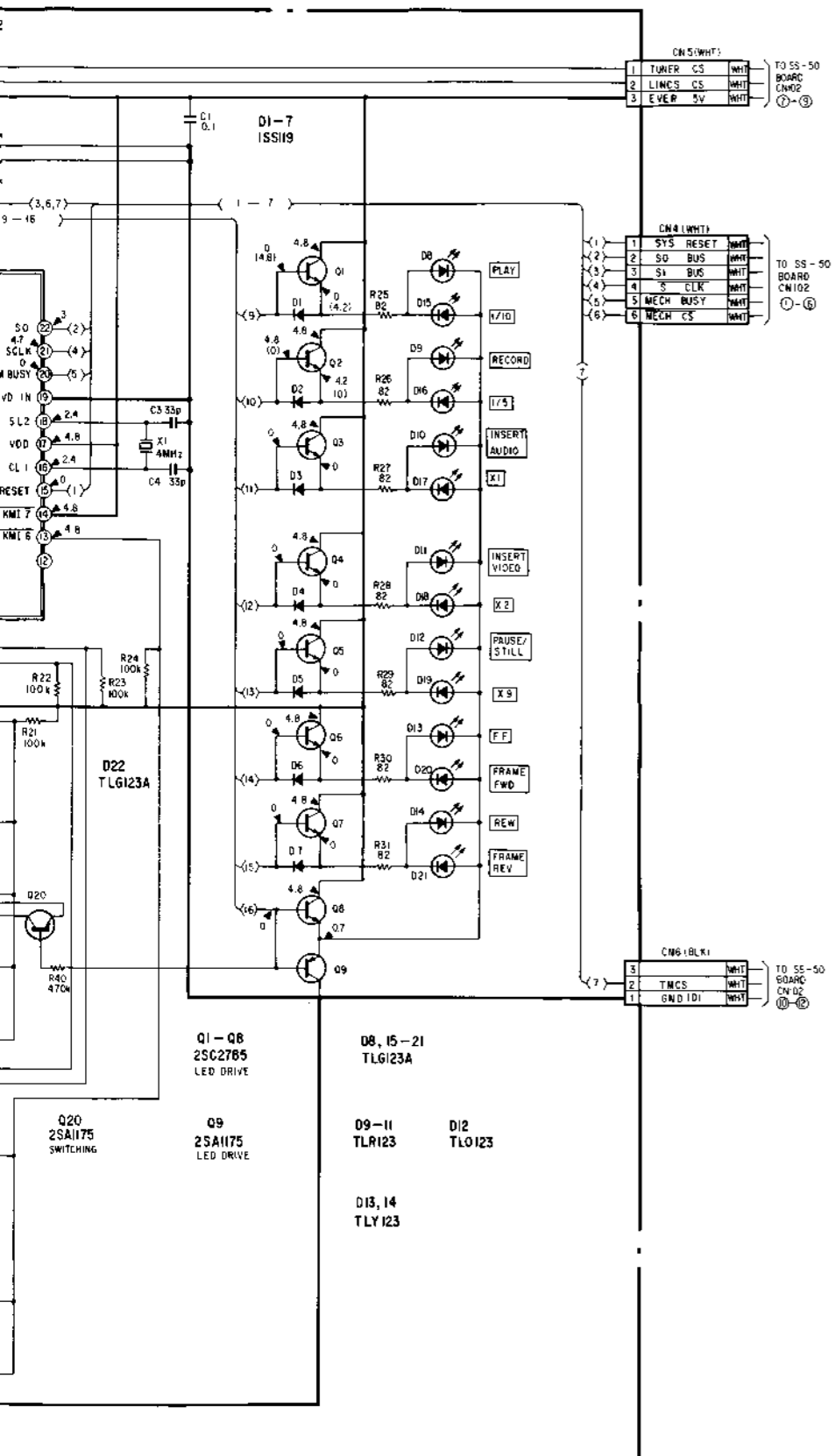
FL-8 (INDICATOR), FL-9 (TIMER CONTROL), FR-20 (FUNCTION SWITCH) SCHEMATIC DIAGRAMS

- Ref. No. FL-8 BOARD: 9,600 series, FL-9 BOARD: 9,700 series, FR-20 BOARD: 9,800 series -

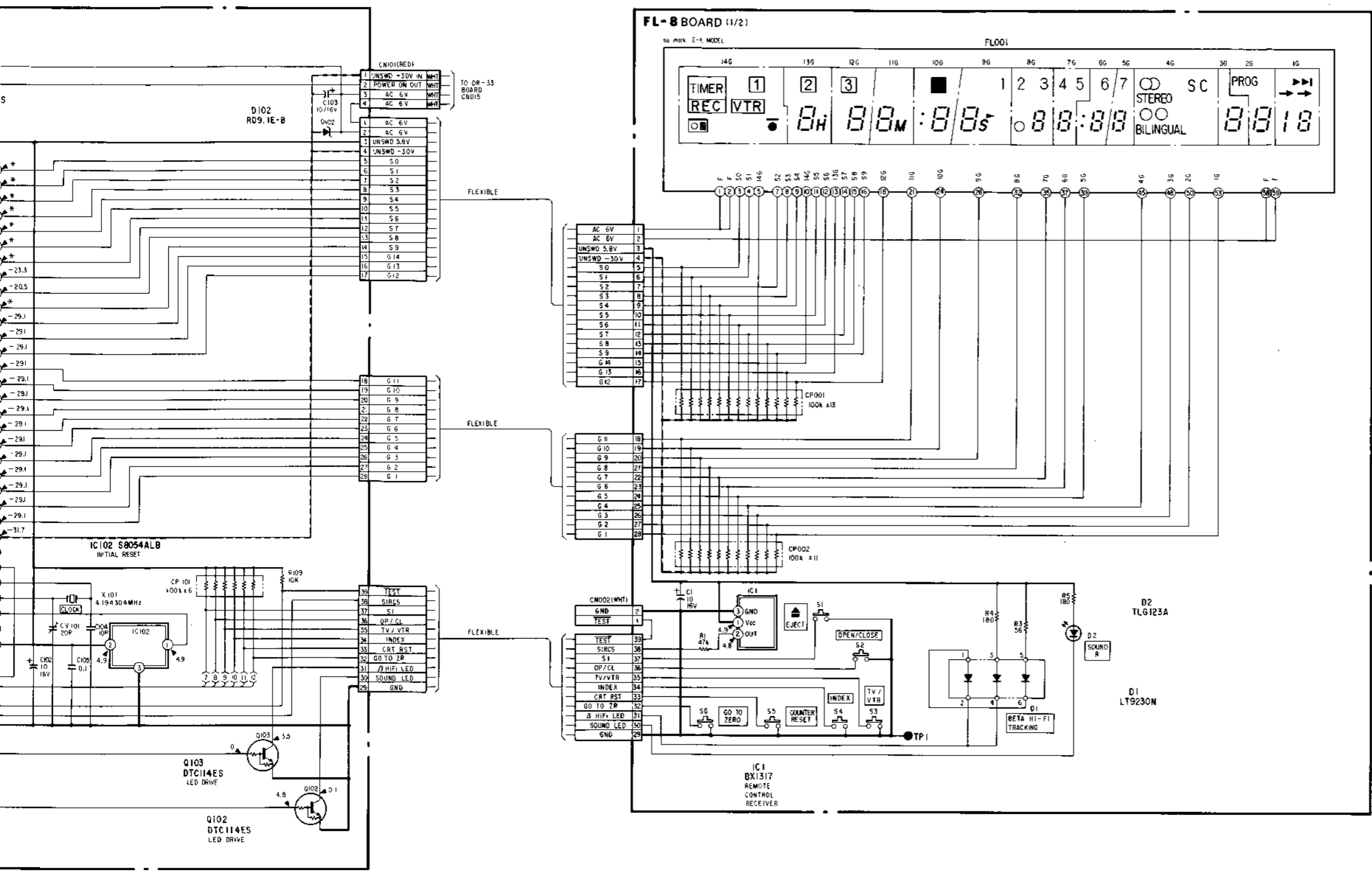


MC-Service

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33



- All resistors are in ohms, 1/8W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: pμF
- 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
- : B+ bus.
- : B- bus.

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

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

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

1-8. TA-36 (TUNER, AUDIO) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

— Ref. No. TA-36 BOARD: 4,000 series —

TUNER, AUDIO TUNER, AUDIO

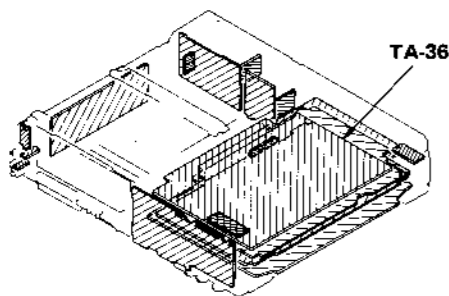
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Note on Printed Wiring Board:

- — Indicates a leadwire mounted on the component side.
- — Indicates a leadwire mounted on the printed side.
- indicates soldering side.
- B+ pattern
- Digital transistor (TA-36: Q003, 004, 006, 013, 014, 015, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors. Refer to the TA-36 board schematic diagram for digital transistor.

<ES Model>

Q	401	IC008	009,003	IC003	014	015	IC005	508,504,502,508	504-503	Q
IC			004	012	202		IC004	505,506,507,508		IC
		IC007, IC009	013	201,002	006	IC001	IC002	603,605	602,604,606,608	
D	401	007	005,006,009	402	001	008		704,703,602,601	702	D
			004	003				508,505	507	
ADJ					010	301		702,706,705	601,602	ADJ
								703,704,707	701	
TP										TP



TA-36

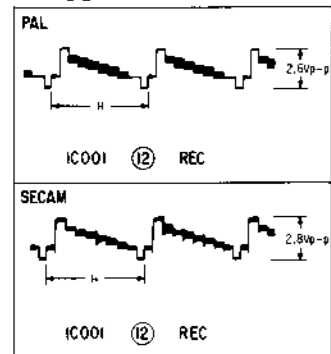
Note on Schematic Diagram:

- All resistors are in ohms, 1/10 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: μF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
- : B+ bus.
- : B- bus.

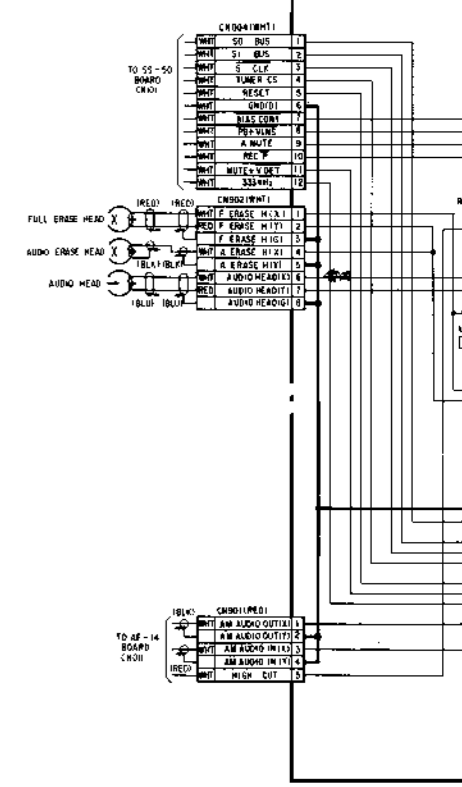
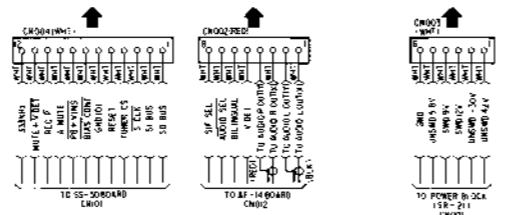
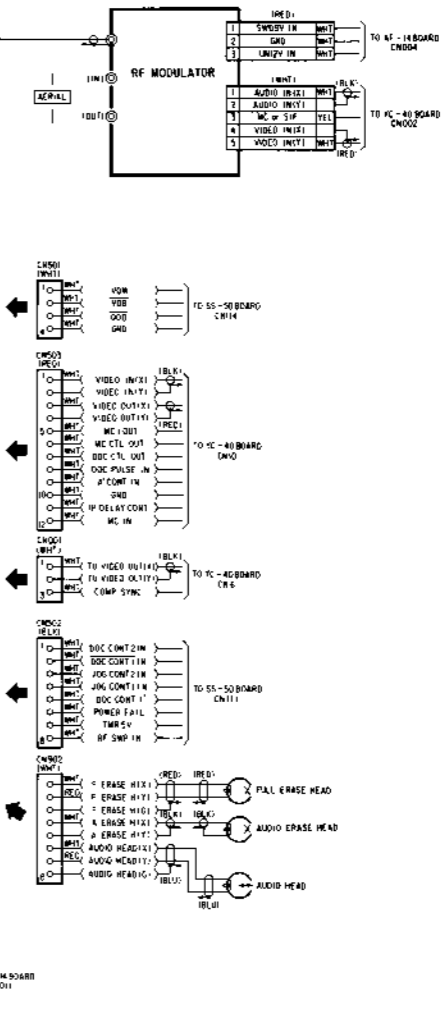
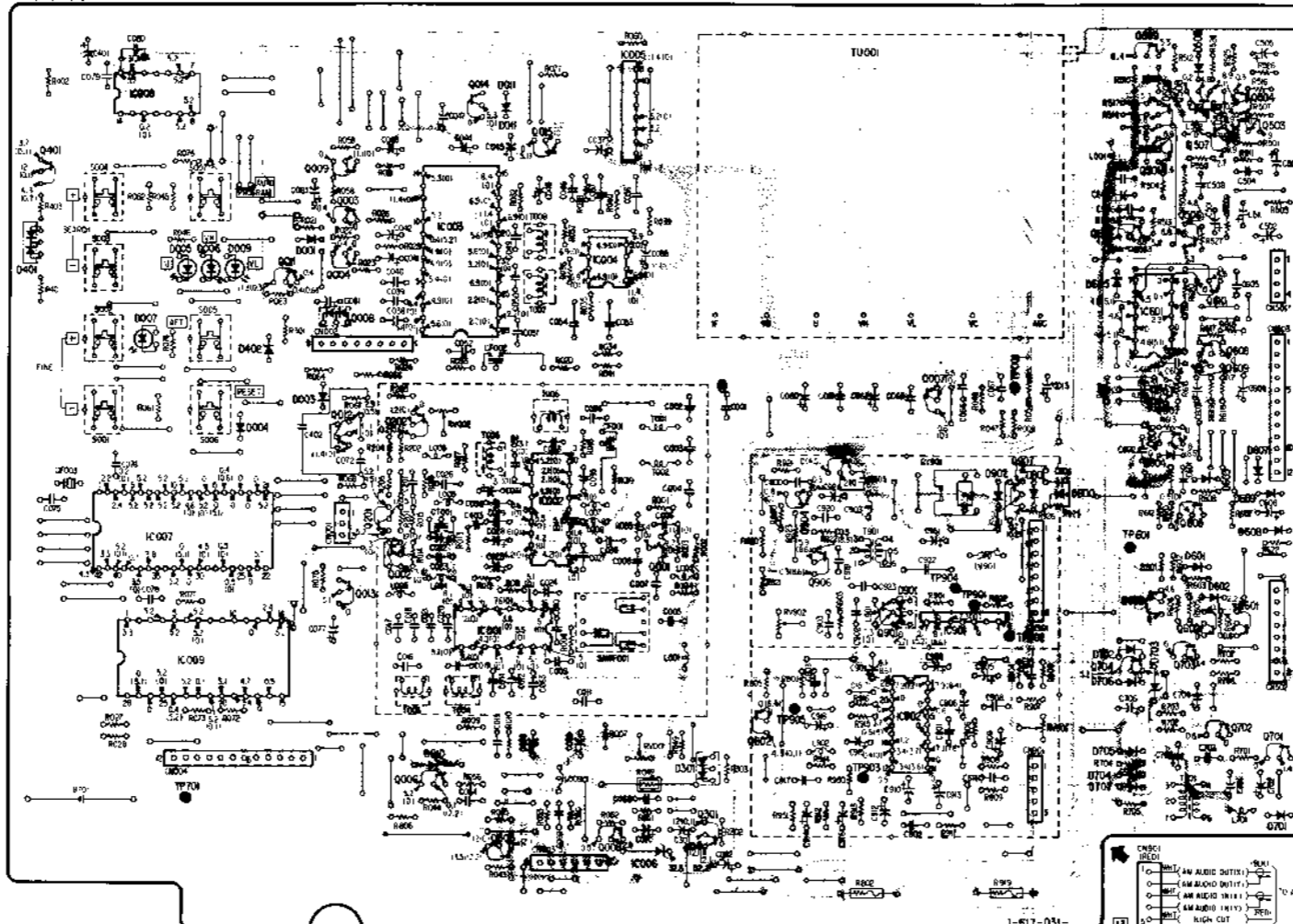
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

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

TA-36 BOARD



TA-36 BOARD



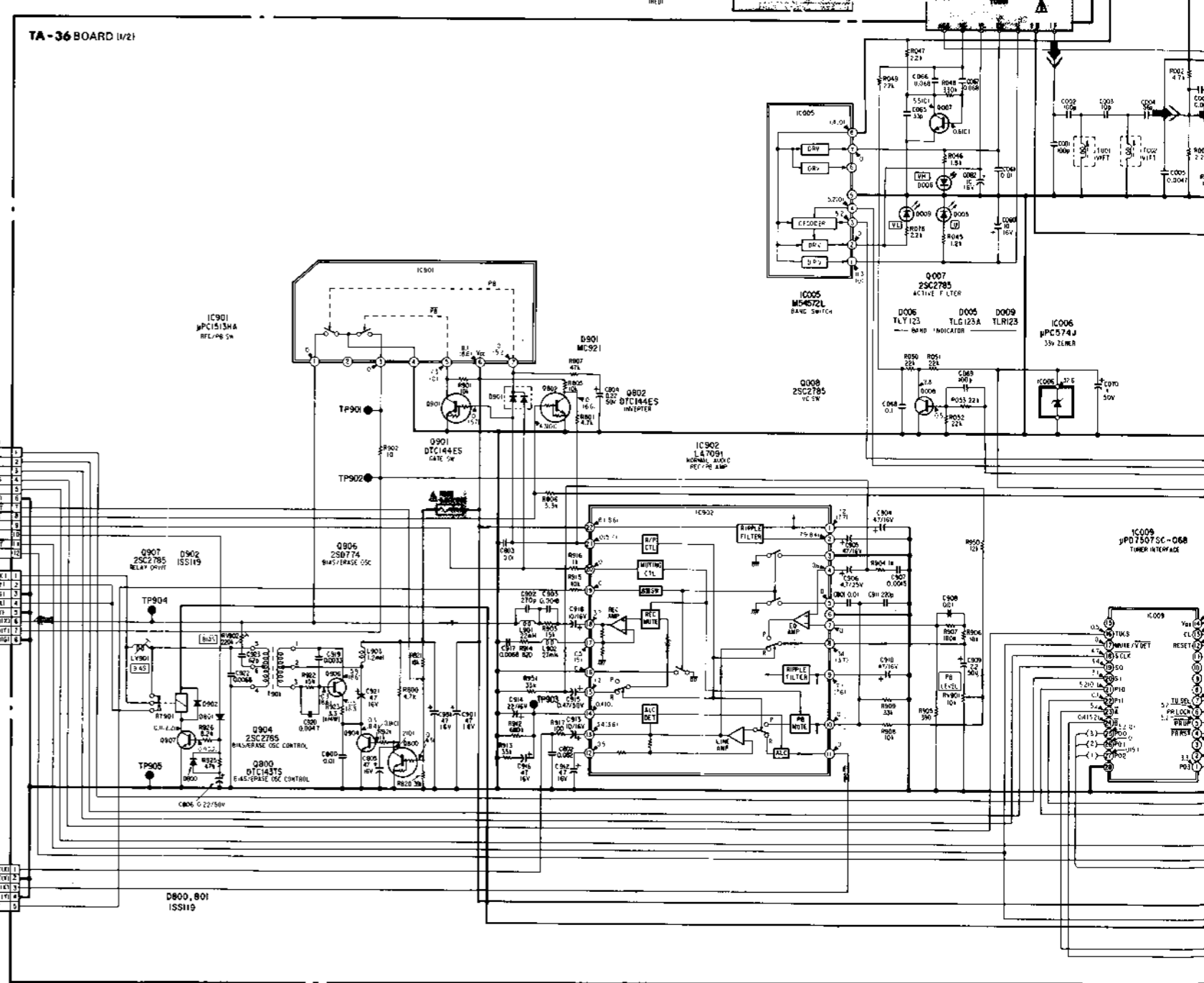
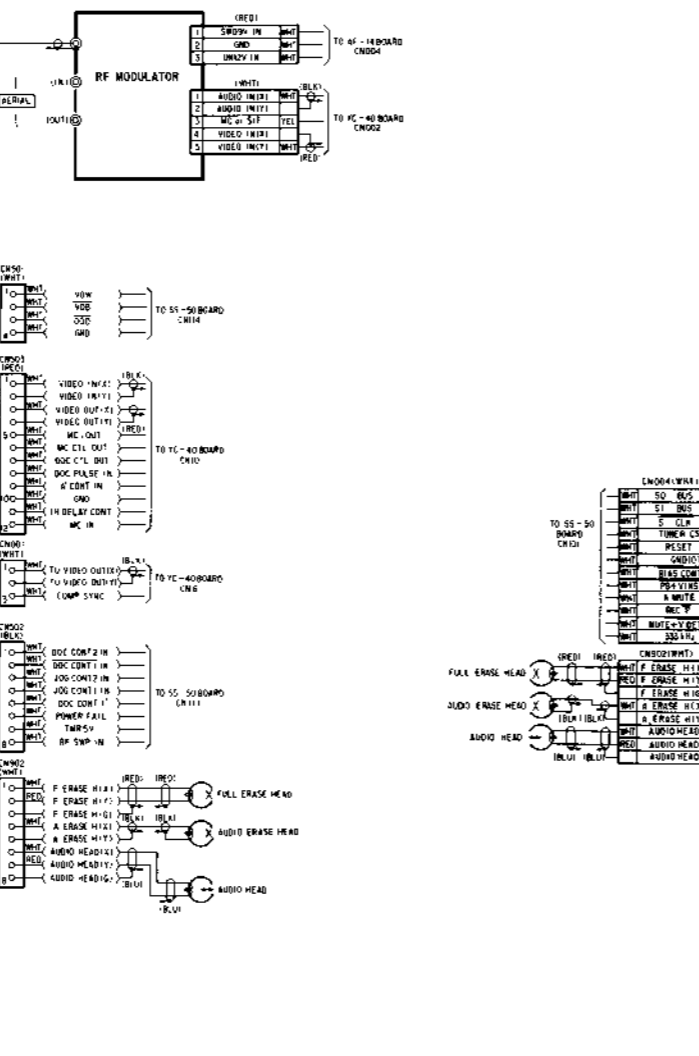
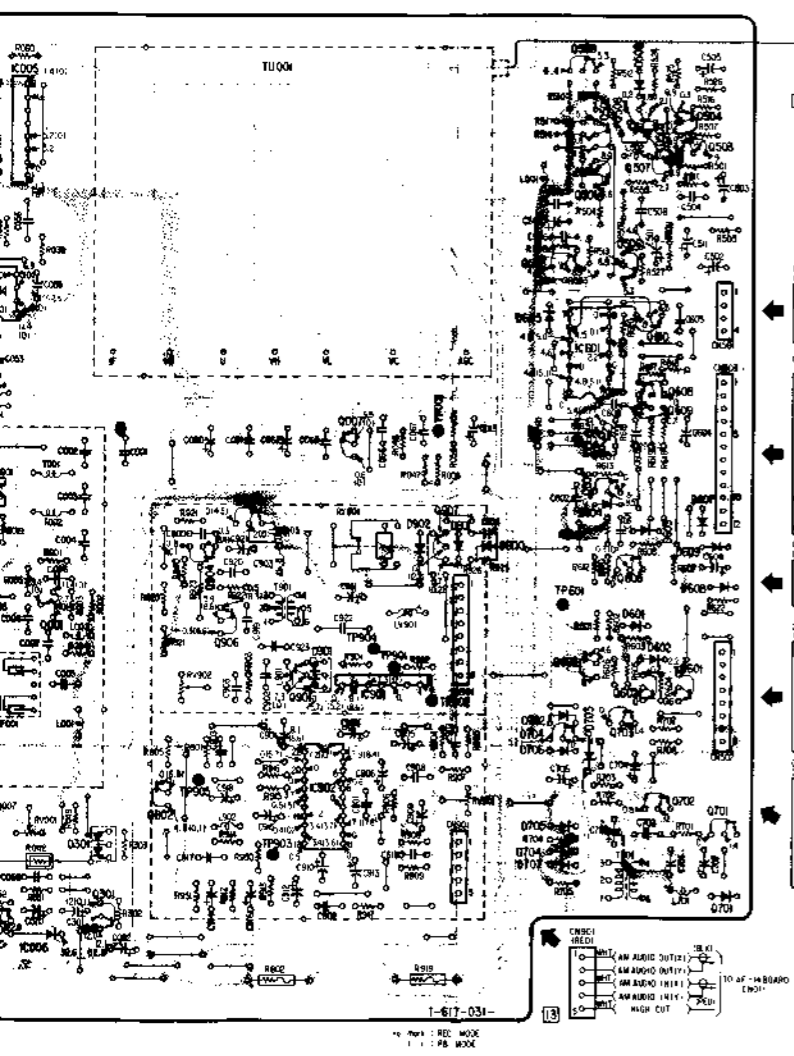
Signal path → REC Y

TA-36 BOARD (1/2)

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

• Signal path  
 ➡ : REC Y & CHROMA SIGNAL

K005	509	501,502	508	507,504,503	Q
D4	505	601	610	606,609	IC
DB	IC006	301	802	704	703
		901	IC902	IC901	701
				605	604,603
				702,706,703	601,602
				705,704,707	702
				800	800
				901	901
				902	902
				903	903
				904	904
				905	905
				906	906
				907	907
				908	908
				909	909
				910	910
				911	911
				912	912
				913	913
				914	914
				915	915
				916	916
				917	917
				918	918
				919	919
				920	920
				921	921
				922	922
				923	923
				924	924
				925	925
				926	926
				927	927
				928	928
				929	929
				930	930
				931	931
				932	932
				933	933
				934	934
				935	935
				936	936
				937	937
				938	938
				939	939
				940	940
				941	941
				942	942
				943	943
				944	944
				945	945
				946	946
				947	947
				948	948
				949	949
				950	950
				951	951
				952	952
				953	953
				954	954
				955	955
				956	956
				957	957
				958	958
				959	959
				960	960
				961	961
				962	962
				963	963
				964	964
				965	965
				966	966
				967	967
				968	968
				969	969
				970	970
				971	971
				972	972
				973	973
				974	974
				975	975
				976	976
				977	977
				978	978
				979	979
				980	980
				981	981
				982	982
				983	983
				984	984
				985	985
				986	986
				987	987
				988	988
				989	989
				990	990
				991	991
				992	992
				993	993
				994	994
				995	995
				996	996
				997	997
				998	998
				999	999
				1000	1000



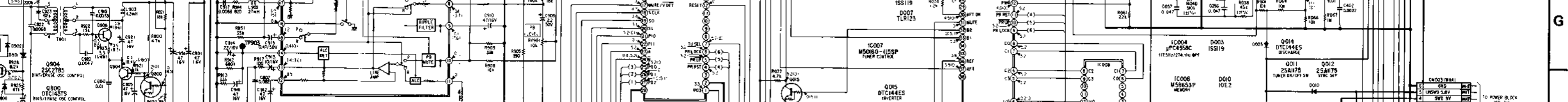
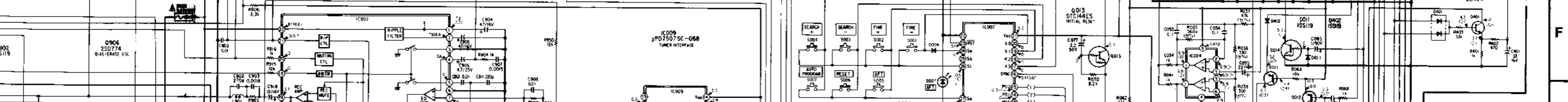
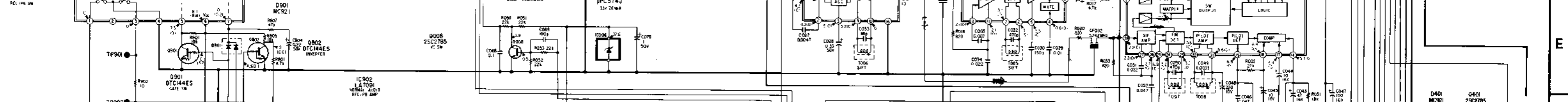
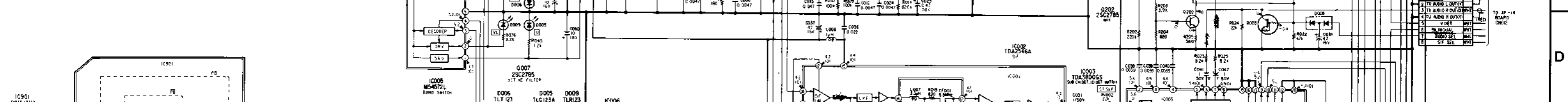
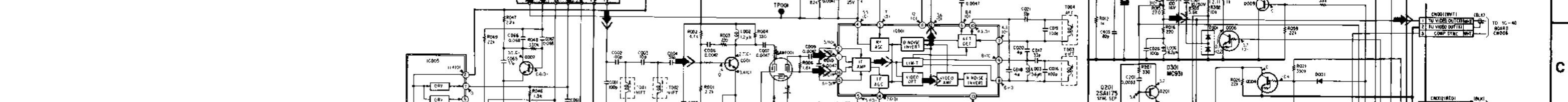
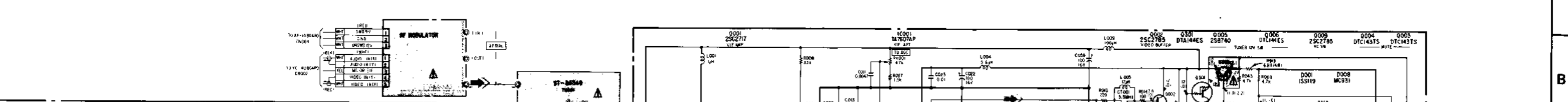


# TUNER, AUDIO TUNER, AUDIO

18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

ROMA SIGNAL

A



I

J

MC-Service

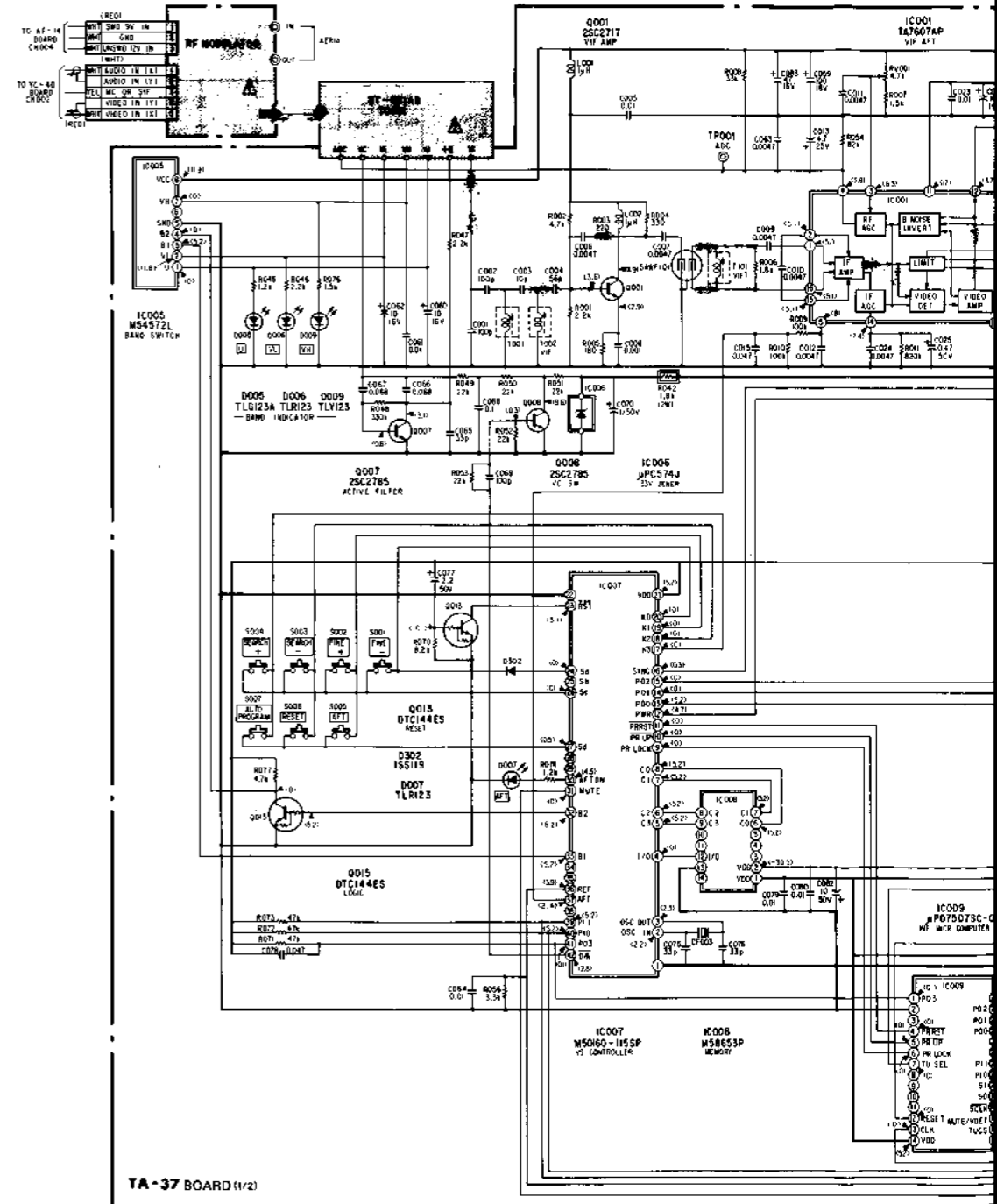
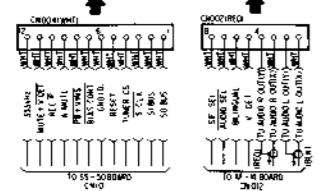
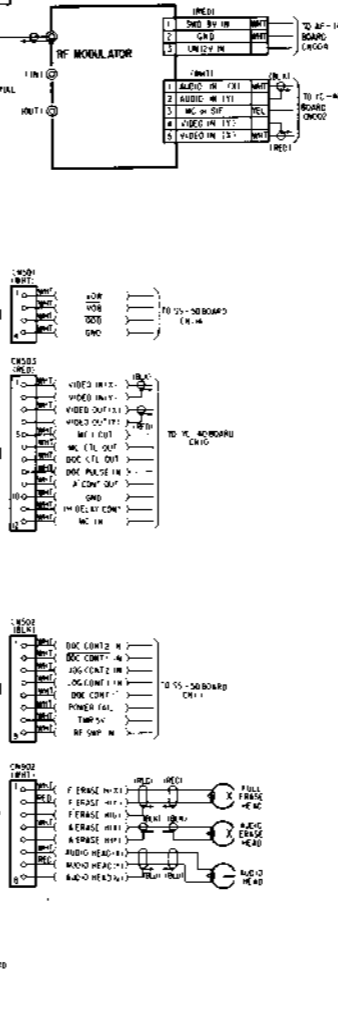
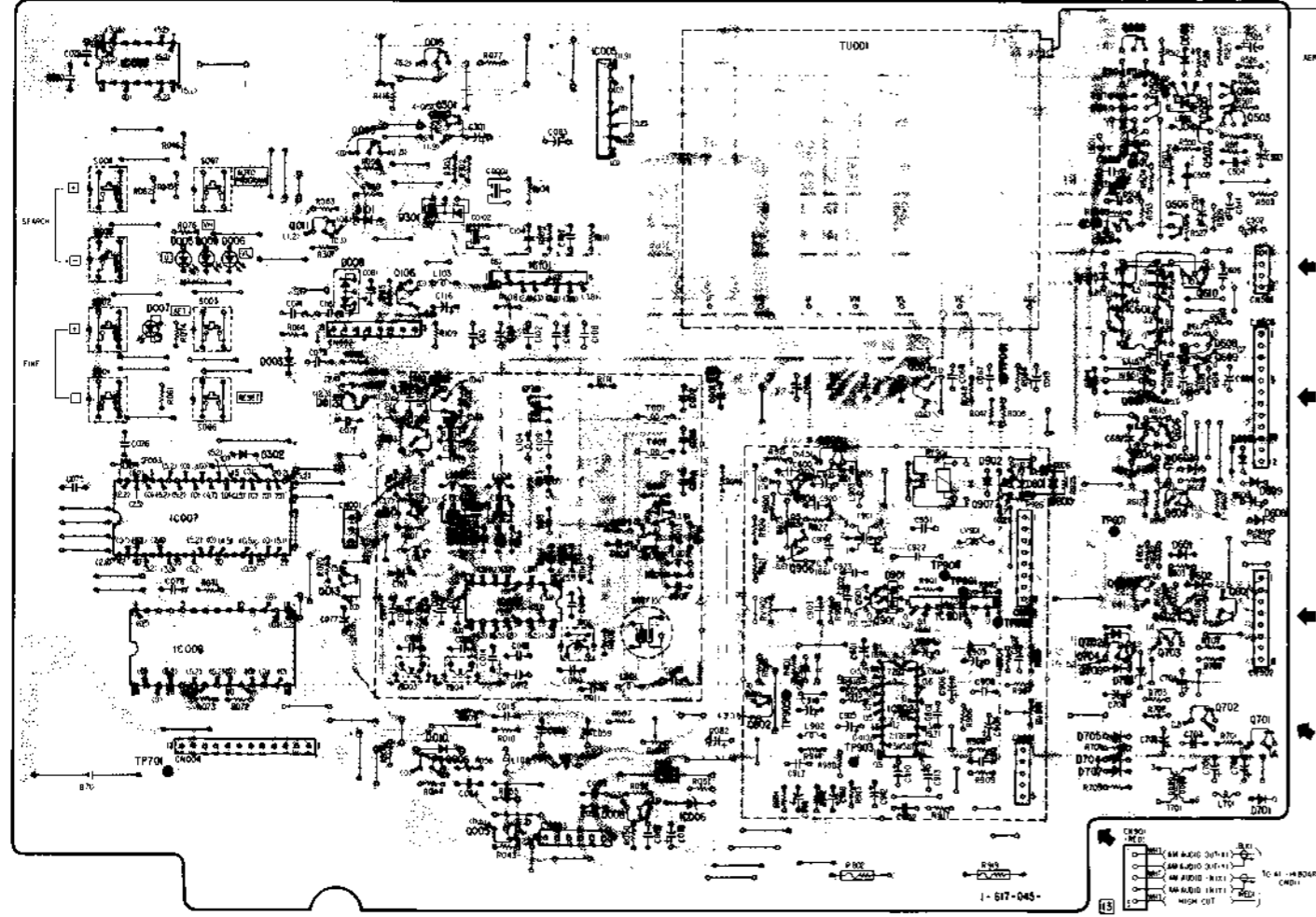
- Ref. No. TA-37 BOARD: 5,000 series -

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

< E Model >

Q	IC008		011	009	005	IC101	IC003	509	504, 502	508, 504, 503	Q
IC	IC007		002	003	001	001	001	508	508	508, 509	IC
	IC005		003	003	006	005	008	IC006	802	904	906
D	005	009	006	003	001	008	000	904	906	800	901
ADJ	007	302	003	008	000			IC901	907	IC902	
TP	701							RV001	RV902	LV901	RV901
								905	903	904	901
										902	801
										605	604
										702, 706, 703	601, 502
										700, 704, 707	701

TA-37 BOARD



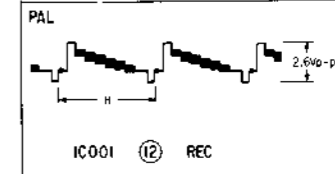
TA-37 BOARD (1/2)

MC-Service



• Signal path  
REC Y & CHROMA SIGNAL

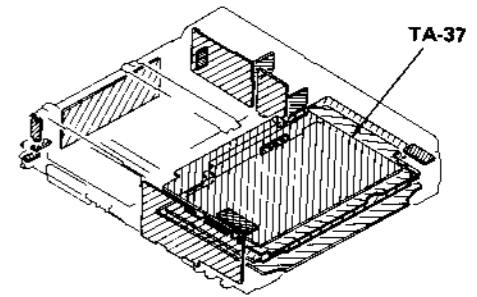
TA-37 BOARD



Note on Printed Wiring Board:

- — : Indicates a leadwire mounted on the component side.
  - — : Indicates a leadwire mounted on the printed side.
  - ⊙ : Soldering side.
  - ⊙ : B+ pattern
  - Digital transistor (TA-37: Q006, 013, 015, 106, 301, 508, 601, 604, 605, 610, 703, 800, 802, 901) transistors with resistors.
- Refer to TA-37 board schematic diagram for digital transistor.

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

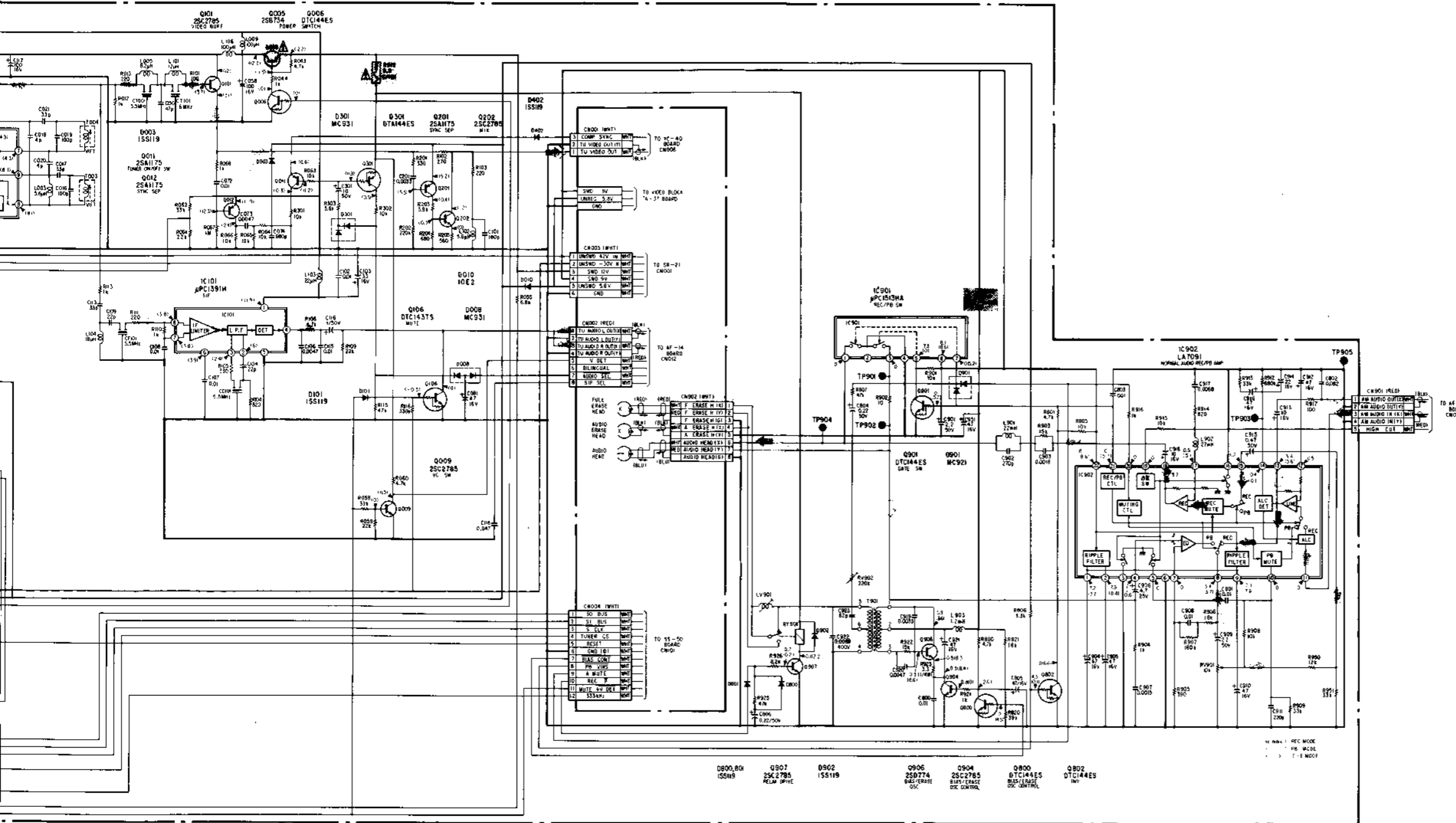


Note on Schematic Diagram:

- All resistors are in ohms, 1/8 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: pF
- 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ (with diagonal lines): nonflammable resistor.
- ▭ (with wavy lines): fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
- (with red lines): B+ bus.
- (with black lines): B- bus.

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

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



- Q800, B01 1S5119
- Q907 2SC2785 RELAY DRIVE
- Q902 1S5119
- Q906 2SC2774 BIAS/ERASE OSC
- Q904 2SC2785 BIAS/ERASE OSC CONTROL
- Q800 DTIC144ES BIAS/ERASE OSC CONTROL
- Q802 DTIC144ES SW

MC-Service

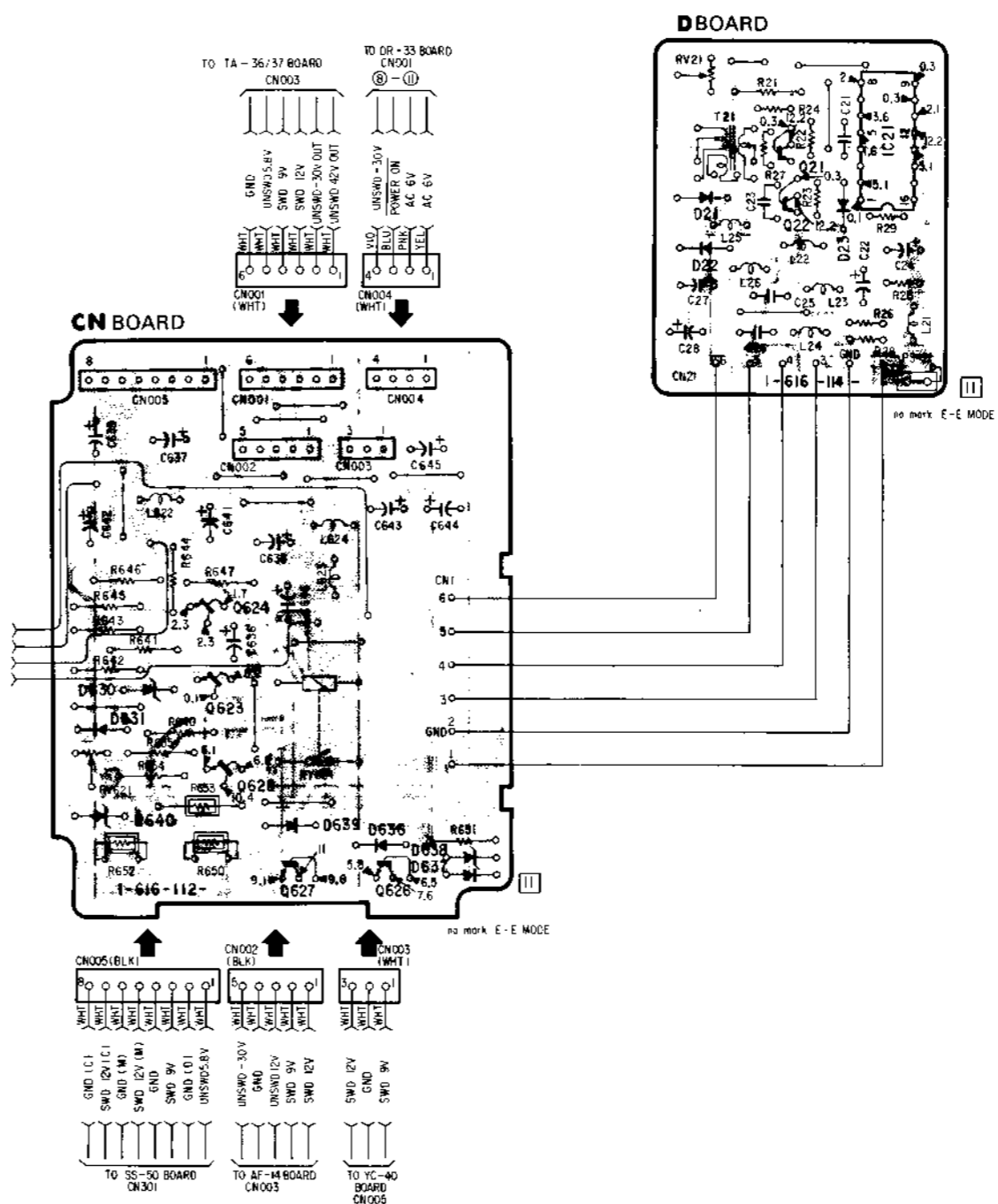
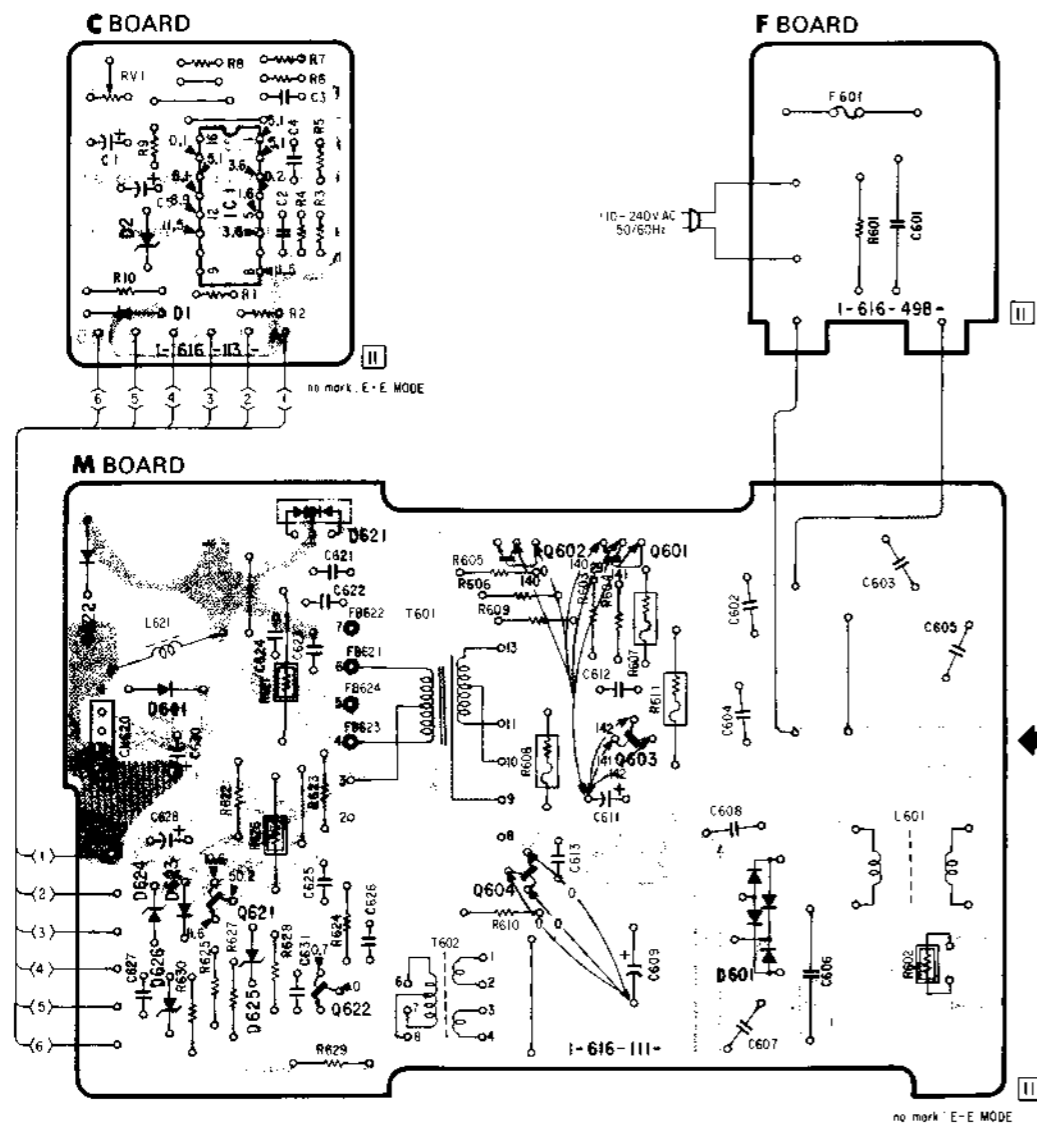
1-10. M (POWER), CN (POWER), C (POWER), D (POWER), F (POWER) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

- Ref. No. M BOARD: 11,000 series, CN BOARD: 11,000 series, C BOARD: 11,000 series, D BOARD: 11,000 series, F BOARD: 11,000 series -

POWER POWER

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

A  
B  
C  
D  
E  
F  
G  
H  
I  
J



Note on Printed Wiring Board:

- — : Indicates a leadwire mounted on the component side.
- — : Indicates a leadwire mounted on the printed side.
- — : soldering side.
- — : B+ pattern

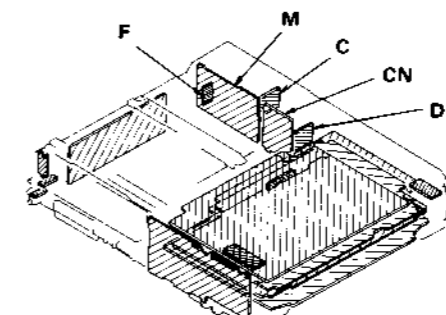
When indicating parts by reference number, please include the board name.

Note on Schematic Diagram:

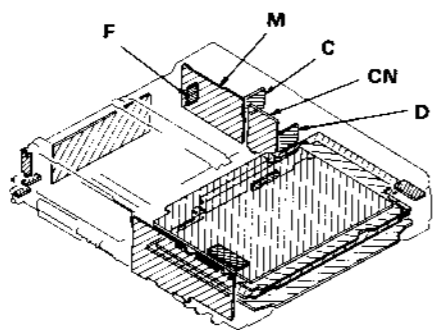
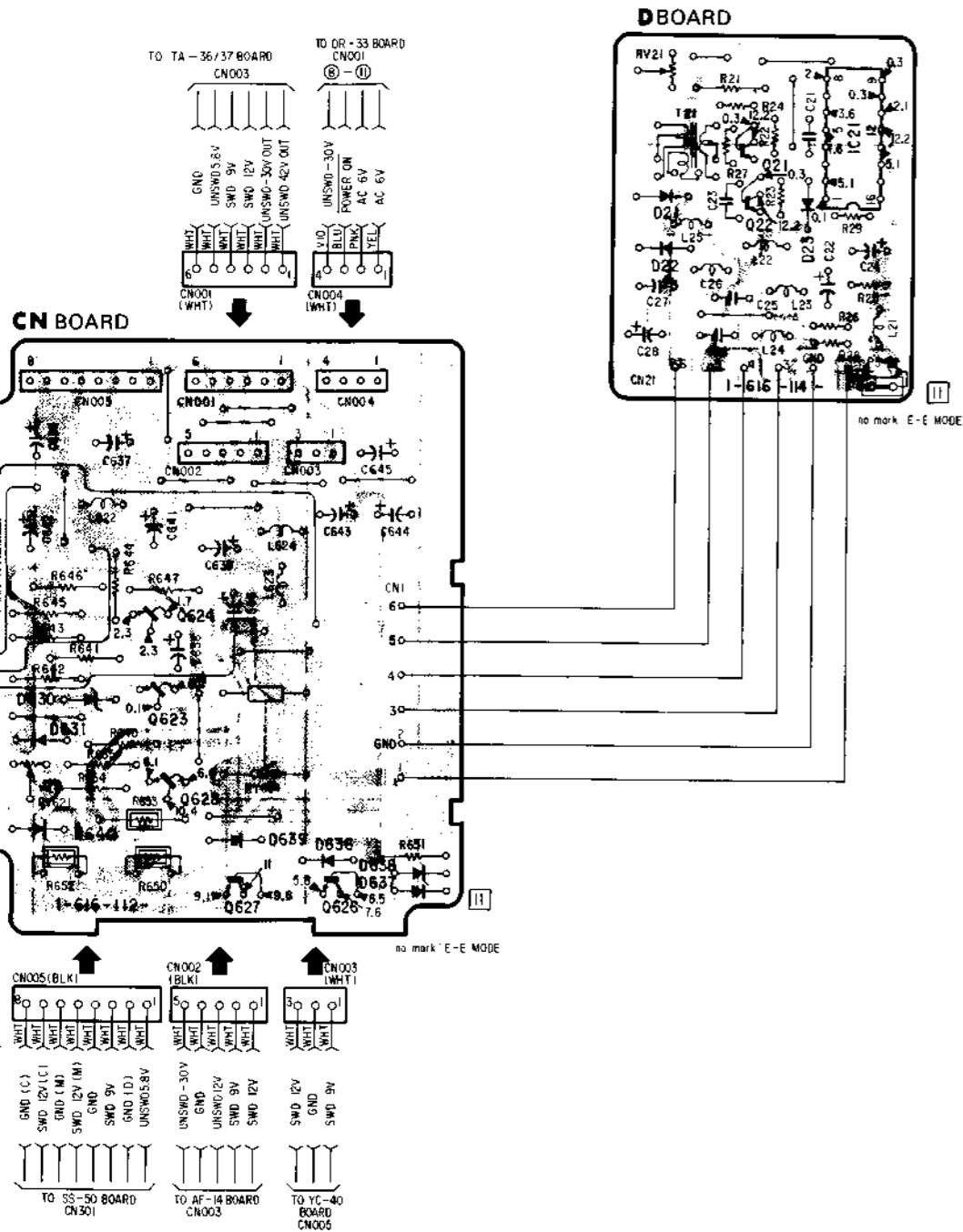
- All resistors are in ohms, 1/8 W unless otherwise noted.
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.
- 50WV or less are not indicated except for electrolytic capacitors.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Ⓜ : nonflammable resistor.
- Ⓡ : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 M $\Omega$  input impedance).
- : B+ bus.
- - - : B- bus.

Note: The components identified by shaded triangles are critical for safety. Replace with the part number specified.





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




MC-Service

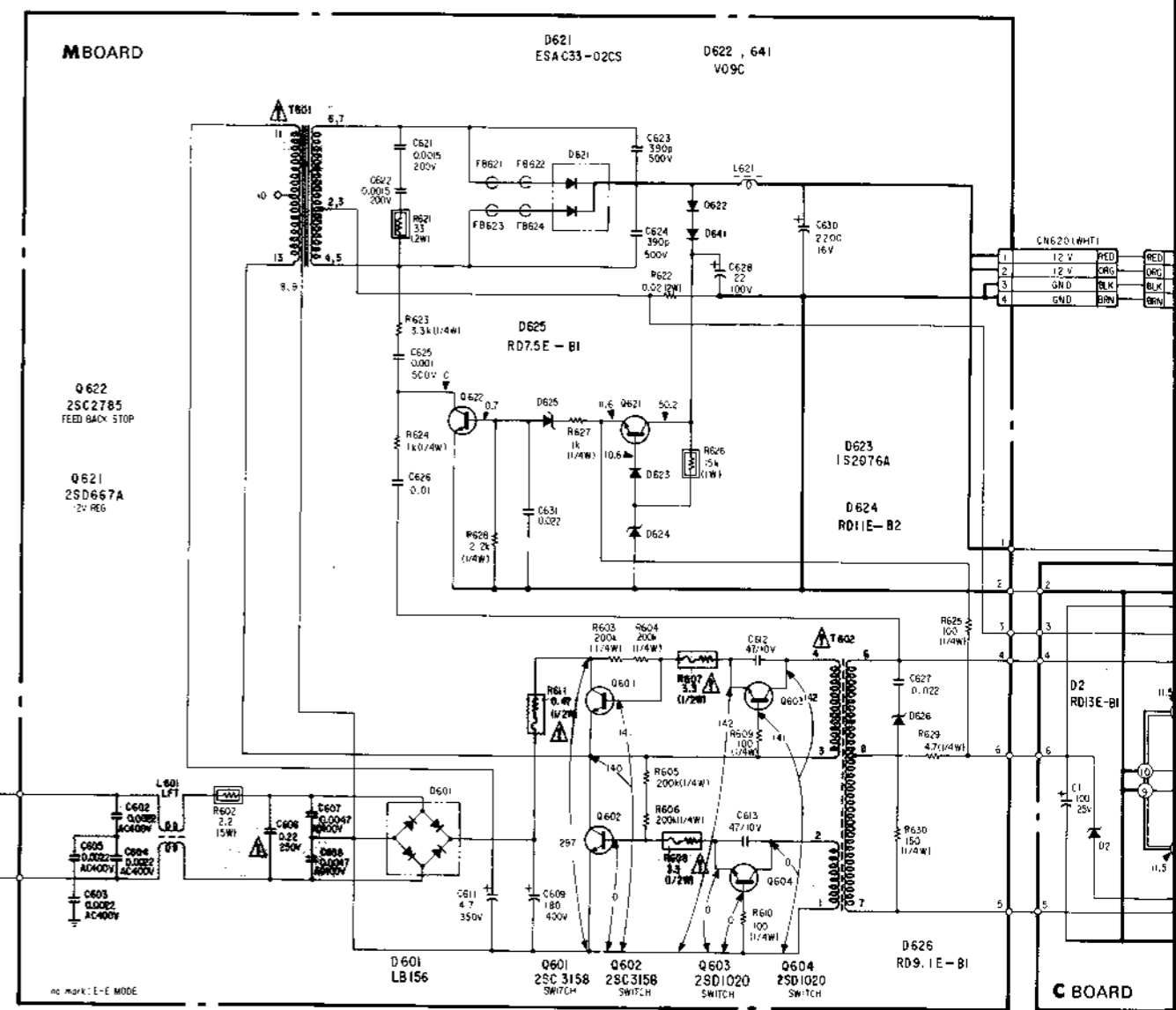


**Note on Schematic Diagram:**

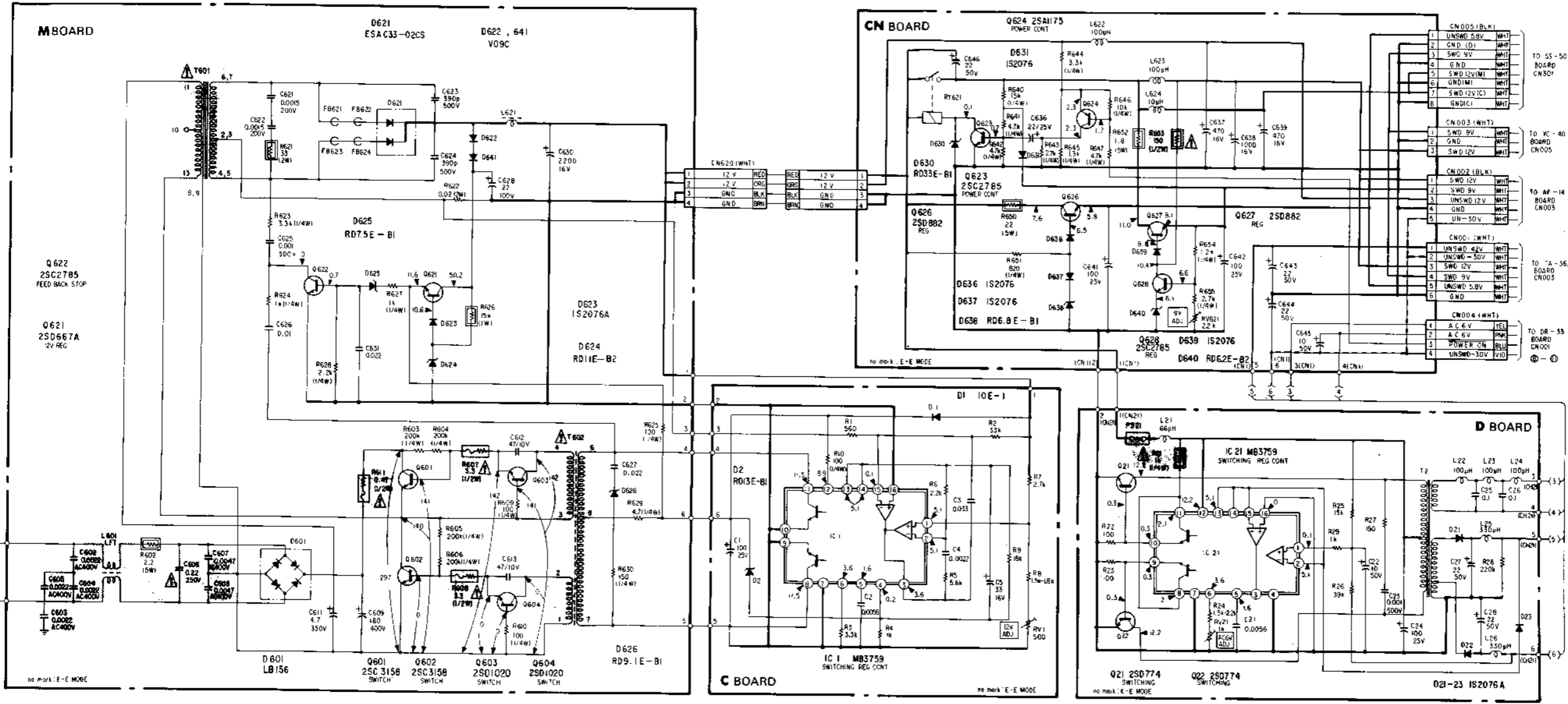
- All resistors are in ohms, 1/8W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : nonflammable resistor.
-  : fusible resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (10 MΩ).
-  : B+ bus.
-  : B- bus.

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

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



MC-Service



noted.  
 : μF  
 lytics.  
 istic

and mark  
 ly with

MC-Service

## 2. ELECTRICAL PARTS LIST

### NOTE:

The components identified by shading and mark **A** 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.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All resistors are in ohms
- F : nonflammable
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

#### CAPACITORS

- MF :  $\mu$ F, PF :  $\mu$  $\mu$ F

#### COILS

- MMH : mH, UH :  $\mu$ H

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	A-4910-063-A	R STATOR (REEL MOTOR) BOARD, COMPLETE *****		C027	1-161-045-00	CERAMIC 0.0033MF	10% 25V
	*1-560-461-00	PIN, CONNECTOR 5P		C028	1-106-172-00	MYLAR 0.001MF	5% 50V
	<u>CAPACITOR</u>			C029	1-123-382-00	ELECT 3.3MF	20% 50V
C1	1-123-821-00	ELECT 47MF	20% 16V	C032	1-102-816-00	CERAMIC 120PF	5% 50V
C2	1-123-821-00	ELECT 47MF	20% 16V	C033	1-101-004-00	CERAMIC 0.01MF	50V
C3	1-123-821-00	ELECT 47MF	20% 16V	C034	1-101-004-00	CERAMIC 0.01MF	50V
C4	1-123-821-00	ELECT 47MF	20% 16V	C035	1-102-816-00	CERAMIC 120PF	5% 50V
	<u>DIODE</u>			C036	1-101-882-00	CERAMIC 51PF	5% 50V
H1	8-719-800-31	DIODE THS103A-1		C037	1-101-004-00	CERAMIC 0.01MF	50V
H2	8-719-800-31	DIODE THS103A-1		C038	1-101-004-00	CERAMIC 0.01MF	50V
	<u>IC</u>			C039	1-101-004-00	CERAMIC 0.01MF	50V
IC1	8-759-801-97	IC LB1615		C041	1-161-043-00	CERAMIC 0.0022MF	10% 25V
	<u>RESISTOR</u>			C042	1-102-516-00	CERAMIC 27PF	5% 50V
R1	1-247-823-00	CARBON 470	5% 1/6W	C043	1-101-004-00	CERAMIC 0.01MF	50V
R2	1-249-429-11	CARBON 10K	5% 1/6W	C044	1-101-004-00	CERAMIC 0.01MF	50V
R3	1-249-437-11	CARBON 47K	5% 1/6W	C045	1-102-523-00	CERAMIC 56PF	5% 50V
R4	1-249-437-11	CARBON 47K	5% 1/6W	C046	1-101-004-00	CERAMIC 0.01MF	50V
R5	1-249-437-11	CARBON 47K	5% 1/6W	C048	1-101-004-00	CERAMIC 0.01MF	50V
R6	1-249-437-11	CARBON 47K	5% 1/6W	C049	1-101-004-00	CERAMIC 0.01MF	50V
*****				C050	1-102-865-00	CERAMIC 8PF	0.5PF 50V
	*A-6711-658-A	YC-40 BOARD, COMPLETE (ES MODEL) *****		C051	1-102-525-00	CERAMIC 68PF	5% 50V
	*A-6711-698-A	YC-40 BOARD, COMPLETE (E MODEL) *****		C052	1-102-525-00	CERAMIC 68PF	5% 50V
	3-683-631-01	CLAMP		C053	1-123-380-00	ELECT 1MF	20% 50V
	<u>BAND PASS FILTER</u>			C054	1-161-040-00	CERAMIC 0.0012MF	10% 25V
BPFO01	1-235-098-00	FILTER, BAND PASS		C055	1-123-380-00	ELECT 1MF	20% 50V
	<u>CAPACITOR</u>			C056	1-102-963-00	CERAMIC 33PF	5% 50V
C010	1-123-356-00	ELECT 10MF	20% 16V	C057	1-102-980-00	CERAMIC 270PF	5% 50V
C013	1-123-306-00	ELECT 47MF	20% 10V (ES MODEL)	C058	1-123-306-00	ELECT 47MF	20% 10V
C014	1-123-369-00	ELECT 4.7MF	20% 25V (ES MODEL)	C059	1-101-004-00	CERAMIC 0.01MF	50V
C015	1-123-306-00	ELECT 47MF	20% 10V (ES MODEL)	C060	1-108-579-00	MYLAR 0.01MF	5% 50V
C016	1-108-589-00	MYLAR 0.027MF	5% 50V (ES MODEL)	C061	1-123-382-00	ELECT 3.3MF	20% 50V
C017	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)	C062	1-123-306-00	ELECT 47MF	20% 10V
C018	1-123-306-00	ELECT 47MF	20% 10V (ES MODEL)	C063	1-101-004-00	CERAMIC 0.01MF	50V
C019	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)	C064	1-102-521-00	CERAMIC 43PF	5% 50V
C020	1-101-004-00	CERAMIC 0.01MF	50V	C065	1-102-525-00	CERAMIC 68PF	5% 50V
C021	1-101-004-00	CERAMIC 0.01MF	50V	C066	1-102-525-00	CERAMIC 68PF	5% 50V
C023	1-101-882-00	CERAMIC 51PF	5% 50V	C068	1-101-004-00	CERAMIC 0.01MF	50V
C024	1-130-047-00	FILM 180PF	5% 50V	C069	1-102-962-00	CERAMIC 30PF	5% 50V
C025	1-106-172-00	MYLAR 0.001MF	5% 50V	C070	1-101-004-00	CERAMIC 0.01MF	50V
C026	1-101-059-21	CERAMIC 510PF	5% 50V	C071	1-123-380-00	ELECT 1MF	20% 50V
				C072	1-101-004-00	CERAMIC 0.01MF	50V
				C073	1-102-525-00	CERAMIC 68PF	5% 50V
				C074	1-102-525-00	CERAMIC 68PF	5% 50V
				C075	1-101-004-00	CERAMIC 0.01MF	50V
				C076	1-102-951-00	CERAMIC 15PF	5% 50V
				C077	1-123-330-00	ELECT 22MF	20% 16V
				C078	1-123-330-00	ELECT 22MF	20% 16V
				C079	1-102-852-00	CERAMIC 47PF	5% 50V
				C080	1-101-004-00	CERAMIC 0.01MF	50V
				C082	1-161-024-00	CERAMIC 0.082MF	10% 25V
				C083	1-102-977-00	CERAMIC 200PF	5% 50V
				C084	1-123-369-00	ELECT 4.7MF	20% 25V
				C085	1-101-004-00	CERAMIC 0.01MF	50V



# YC-40

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C086	1-106-174-00	MYLAR 0.0012MF	5% 50V	C197	1-123-356-00	ELECT 10MF	20% 16V
C087	1-161-057-00	CERAMIC 0.033MF	10% 25V	C200	1-101-004-00	CERAMIC 0.01MF	50V
C092	1-101-004-00	CERAMIC 0.01MF	50V	C203	1-101-004-00	CERAMIC 0.01MF	50V
C093	1-101-006-00	CERAMIC 0.047MF	50V	C204	1-123-369-00	ELECT 4.7MF	20% 25V
C094	1-101-006-00	CERAMIC 0.047MF	50V	C206	1-101-004-00	CERAMIC 0.01MF	50V
C095	1-102-976-00	CERAMIC 180PF	5% 50V	C207	1-161-025-00	CERAMIC 0.1MF	10% 25V
C096	1-102-824-00	CERAMIC 470PF	5% 50V	C208	1-123-356-00	ELECT 10MF	20% 16V
C097	1-102-823-00	CERAMIC 430PF	5% 50V	C212	1-123-333-00	ELECT 100MF	20% 16V
C098	1-102-820-00	CERAMIC 330PF	5% 50V	C217	1-101-006-00	CERAMIC 0.047MF	50V
C099	1-102-525-00	CERAMIC 68PF	5% 50V	C219	1-123-356-00	ELECT 10MF	20% 16V
C101	1-108-595-00	MYLAR 0.047MF	5% 50V	C220	1-101-006-00	CERAMIC 0.047MF	50V
C102	1-161-043-00	CERAMIC 0.0022MF	10% 25V	C232	1-101-004-00	CERAMIC 0.01MF	50V (E MODEL)
C103	1-106-172-00	MYLAR 0.001MF	5% 50V	C233	1-123-380-00	ELECT 1MF	20% 50V (E MODEL)
C104	1-102-977-00	CERAMIC 200PF	5% 50V	C248	1-101-006-00	CERAMIC 0.047MF	50V
C105	1-102-973-00	CERAMIC 100PF	5% 50V	C251	1-101-006-00	CERAMIC 0.047MF	50V
C106	1-123-356-00	ELECT 10MF	20% 16V	C252	1-102-816-00	CERAMIC 120PF	5% 50V
C107	1-161-025-00	CERAMIC 0.1MF	10% 25V	C253	1-123-356-00	ELECT 10MF	20% 16V
C108	1-101-004-00	CERAMIC 0.01MF	50V	C257	1-101-006-00	CERAMIC 0.047MF	50V
C111	1-102-816-00	CERAMIC 120PF	5% 50V	C261	1-123-330-00	ELECT 22MF	20% 16V
C112	1-101-004-00	CERAMIC 0.01MF	50V	C300	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)
C113	1-101-006-00	CERAMIC 0.047MF	50V	C301	1-101-006-00	CERAMIC 0.047MF	50V
C114	1-102-973-00	CERAMIC 100PF	5% 50V	C302	1-102-773-00	CERAMIC 330PF	5% 50V
C116	1-101-004-00	CERAMIC 0.01MF	50V	C303	1-161-047-00	CERAMIC 0.0047MF	10% 25V
C120	1-101-004-00	CERAMIC 0.01MF	50V	C401	1-123-381-00	ELECT 2.2MF	20% 50V
C121	1-101-004-00	CERAMIC 0.01MF	50V	C402	1-101-001-00	CERAMIC 0.001MF	50V
C122	1-101-004-00	CERAMIC 0.01MF	50V	C403	1-101-001-00	CERAMIC 0.001MF	50V
C123	1-101-004-00	CERAMIC 0.01MF	50V	C404	1-101-004-00	CERAMIC 0.01MF	50V
C124	1-102-948-21	CERAMIC 11PF	5% 50V	C405	1-123-330-00	ELECT 22MF	20% 16V
C125	1-123-330-00	ELECT 22MF	20% 16V	C406	1-123-330-00	ELECT 22MF	20% 16V
C129	1-123-330-00	ELECT 22MF	20% 16V	C407	1-102-962-00	CERAMIC 30PF	5% 50V
C130	1-123-356-00	ELECT 10MF	20% 16V	C408	1-101-888-00	CERAMIC 68PF	5% 50V
C131	1-123-380-00	ELECT 1MF	20% 50V	C409	1-123-381-00	ELECT 2.2MF	20% 50V
C132	1-123-369-00	ELECT 4.7MF	20% 25V	C410	1-102-936-00	CERAMIC 3PF	0.25PF 50V
C134	1-102-820-00	CERAMIC 330PF	5% 50V	C411	1-101-005-00	CERAMIC 0.022MF	50V
C135	1-102-823-00	CERAMIC 430PF	5% 50V	C412	1-123-318-00	ELECT 33MF	20% 16V
C136	1-102-976-00	CERAMIC 180PF	5% 50V	C414	1-123-356-00	ELECT 10MF	20% 16V
C142	1-123-330-00	ELECT 22MF	20% 16V	C417	1-102-965-00	CERAMIC 39PF	5% 50V
C144	1-102-508-00	CERAMIC 10PF	0.5PF 50V	C418	1-101-884-00	CERAMIC 56PF	5% 50V
C145	1-102-521-00	CERAMIC 43PF	5% 50V	C419	1-123-356-00	ELECT 10MF	20% 16V
C146	1-102-521-00	CERAMIC 43PF	5% 50V	C420	1-123-369-00	ELECT 4.7MF	20% 25V
C147	1-102-508-00	CERAMIC 10PF	0.5PF 50V	C501	1-101-004-00	CERAMIC 0.01MF	50V
C148	1-101-006-00	CERAMIC 0.047MF	50V	C502	1-101-004-00	CERAMIC 0.01MF	50V
C155	1-101-004-00	CERAMIC 0.01MF	50V	C503	1-101-004-00	CERAMIC 0.01MF	50V
C156	1-101-004-00	CERAMIC 0.01MF	50V	C504	1-161-055-00	CERAMIC 0.022MF	10% 25V
C159	1-102-822-00	CERAMIC 390PF	5% 50V	C505	1-102-822-00	CERAMIC 390PF	5% 50V
C177	1-101-361-00	CERAMIC 150PF	5% 50V	C506	1-101-006-00	CERAMIC 0.047MF	50V
C178	1-123-307-00	ELECT 100MF	20% 10V	C507	1-123-330-00	ELECT 22MF	20% 16V
C179	1-123-307-00	ELECT 100MF	20% 10V	C613	1-101-004-00	CERAMIC 0.01MF	50V (ES MODEL)
C180	1-123-332-00	ELECT 47MF	20% 16V	C701	1-102-530-00	CERAMIC 120PF	5% 50V
C183	1-101-006-00	CERAMIC 0.047MF	50V	C702	1-123-380-00	ELECT 1MF	20% 50V
C191	1-101-004-00	CERAMIC 0.01MF	50V	C703	1-123-380-00	ELECT 1MF	20% 50V
C192	1-123-330-00	ELECT 22MF	20% 16V	C704	1-123-380-00	ELECT 1MF	20% 50V
C196	1-123-380-00	ELECT 1MF	20% 50V	C705	1-123-380-00	ELECT 1MF	20% 50V

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

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
C720	1-101-004-00	CERAMIC	0.01MF	50V	C931	1-123-356-00	ELECT	10MF	20%	16V	
C721	1-123-356-00	ELECT	10MF	20%	16V	C932	1-124-475-11	ELECT	470MF	20%	16V
C722	1-123-369-00	ELECT	4.7MF	20%	25V	C933	1-123-356-00	ELECT	10MF	20%	16V
C723	1-161-057-00	CERAMIC	0.033MF	10%	25V	C934	1-123-356-00	ELECT	10MF	20%	16V
C731	1-101-004-00	CERAMIC	0.01MF	50V	C935	1-124-473-11	ELECT	1000MF	20%	10V	
C732	1-101-004-00	CERAMIC	0.01MF	50V	C936	1-123-332-00	ELECT	47MF	20%	16V	
C733	1-101-004-00	CERAMIC	0.01MF	50V	C937	1-101-004-00	CERAMIC	0.01MF	50V		
C734	1-101-004-00	CERAMIC	0.01MF	50V	C943	1-123-356-00	ELECT	10MF	20%	16V	
C740	1-101-004-00	CERAMIC	0.01MF	50V	C944	1-123-333-00	ELECT	100MF	20%	16V	
C741	1-101-006-00	CERAMIC	0.047MF	50V	C945	1-124-473-11	ELECT	1000MF	20%	10V	
C743	1-102-904-00	CERAMIC	110PF	5%	50V	C947	1-101-004-00	CERAMIC	0.01MF	50V	
C744	1-123-330-00	ELECT	22MF	20%	16V	C951	1-101-004-00	CERAMIC	0.01MF	50V	
C745	1-102-518-00	CERAMIC	33PF	5%	50V	C952	1-123-332-00	ELECT	47MF	20%	16V
C746	1-101-974-00	CERAMIC	20PF	5%	50V	C957	1-123-356-00	ELECT	10MF	20%	16V
C751	1-123-330-00	ELECT	22MF	20%	16V	C962	1-123-330-00	ELECT	22MF	20%	16V
C752	1-101-004-00	CERAMIC	0.01MF	50V	<u>FILTER</u>						
C755	1-123-330-00	ELECT	22MF	20%	16V	CF001	1-527-998-00	FILTER, CERAMIC	(ES MODEL)		
C756	1-101-004-00	CERAMIC	0.01MF	50V	CF002	1-527-875-00	FILTER, CERAMIC				
C757	1-123-330-00	ELECT	22MF	20%	16V	CF003	1-527-849-00	FILTER, CERAMIC			
C758	1-101-004-00	CERAMIC	0.01MF	50V	<u>CONNECTOR</u>						
C759	1-101-006-00	CERAMIC	0.047MF	50V	CN001	*1-560-896-00	PIN, CONNECTOR	8P			
C760	1-101-006-00	CERAMIC	0.047MF	50V	CN002	*1-564-030-00	PIN, CONNECTOR	5P			
C761	1-102-128-21	CERAMIC	0.0082MF	10%	50V	CN003	*1-560-893-00	PIN, CONNECTOR	5P		
C762	1-102-824-00	CERAMIC	470PF	5%	50V	CN004	*1-564-031-00	PIN, CONNECTOR	6P		
C763	1-123-330-00	ELECT	22MF	20%	16V	CN005	*1-564-028-00	PIN, CONNECTOR	3P		
C765	1-123-356-00	ELECT	10MF	20%	16V	CN006	*1-564-028-00	PIN, CONNECTOR	3P		
C766	1-102-973-00	CERAMIC	100PF	5%	50V	CN007	*1-564-031-00	PIN, CONNECTOR	6P		
C767	1-123-330-00	ELECT	22MF	20%	16V	CN008	*1-564-037-11	PIN, CONNECTOR	12P		
C768	1-124-343-00	ELECT	2200MF	20%	16V	CN009	*1-560-898-00	PIN, CONNECTOR	10P		
C769	1-161-013-00	CERAMIC	0.01MF	10%	25V	CN010	*1-564-037-11	PIN, CONNECTOR	12P		
C770	1-102-525-00	CERAMIC	68PF	5%	50V	CN011	*1-560-890-00	PIN, CONNECTOR	2P		
C771	1-123-356-00	ELECT	10MF	20%	16V	<u>JACK</u>					
C772	1-123-356-00	ELECT	10MF	20%	16V	CNJ001	1-536-936-21	CONNECTOR BOARD, BNC			
C773	1-123-356-00	ELECT	10MF	20%	16V	CNJ003	1-561-534-00	SOCKET 21P			
C774	1-102-516-00	CERAMIC	27PF	5%	50V	<u>TRIMMER</u>					
C775	1-102-118-00	CERAMIC	0.0012MF	10%	50V	CV001	1-141-275-00	CAP, TRIMMER			
C777	1-161-025-00	CERAMIC	0.1MF	10%	25V	<u>DIODE</u>					
C778	1-102-516-00	CERAMIC	27PF	5%	50V	D005	8-719-911-19	DIODE 1SS119	(ES MODEL)		
C801	1-102-865-00	CERAMIC	8PF	0.5PF	50V	D006	8-719-000-06	DIODE MC921	(ES MODEL)		
C802	1-101-004-00	CERAMIC	0.01MF	50V	D009	8-719-000-06	DIODE MC921	(ES MODEL)			
C803	1-123-330-00	ELECT	22MF	20%	16V	D012	8-719-911-19	DIODE 1SS119	(ES MODEL)		
C804	1-123-306-00	ELECT	47MF	20%	6.3V	D013	8-719-911-19	DIODE 1SS119			
C805	1-101-001-00	CERAMIC	0.001MF	50V	D014	8-719-911-19	DIODE 1SS119				
C807	1-101-006-00	CERAMIC	0.047MF	50V	D016	8-719-000-12	DIODE MC931				
C809	1-101-004-00	CERAMIC	0.01MF	50V	D017	8-719-911-19	DIODE 1SS119				
C910	1-123-356-00	ELECT	10MF	20%	16V	D018	8-719-911-19	DIODE 1SS119			
C916	1-102-816-00	CERAMIC	120PF	5%	50V	D019	8-719-911-19	DIODE 1SS119			
C921	1-123-318-00	ELECT	33MF	20%	16V						
C926	1-101-004-00	CERAMIC	0.01MF	50V							
C927	1-161-025-00	CERAMIC	0.1MF	10%	25V						
C928	1-161-025-00	CERAMIC	0.1MF	10%	25V						
C929	1-123-330-00	ELECT	22MF	20%	16V						
C930	1-123-356-00	ELECT	10MF	20%	16V						

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

# YC-40

Ref.No	Part No.	Description
D020	8-719-911-19	DIODE 1SS119
D021	8-719-911-19	DIODE 1SS119
D022	8-719-911-19	DIODE 1SS119
D025	8-719-911-19	DIODE 1SS119
D027	8-719-000-06	DIODE MC921
D029	8-719-100-56	DIODE RD10EB1
D040	8-719-100-40	DIODE RD6.8EB1
D190	8-719-911-19	DIODE 1SS119
D703	8-719-911-19	DIODE 1SS119
D704	8-719-911-19	DIODE 1SS119
D705	8-719-911-19	DIODE 1SS119
D706	8-719-911-19	DIODE 1SS119
D707	8-719-911-19	DIODE 1SS119
D801	8-719-911-19	DIODE 1SS119
D802	8-719-911-19	DIODE 1SS119
D803	8-719-911-19	DIODE 1SS119
D804	8-719-911-19	DIODE 1SS119
D805	8-719-911-19	DIODE 1SS119
D806	8-719-911-19	DIODE 1SS119
D809	8-719-911-19	DIODE 1SS119
D810	8-719-911-19	DIODE 1SS119
D811	8-719-102-88	DIODE RD9.1EN3
D812	8-719-115-07	DIODE RD15E-8
D813	8-719-100-71	DIODE RD15E-82
D814	8-719-911-19	DIODE 1SS119 (ES MODEL)
D909	8-719-200-02	DIODE 10E-2
D915	8-719-901-33	DIODE 1SS133
<u>DELAY LINE</u>		
DL001	1-415-313-00	DELAY LINE (1H)
DL401	1-415-352-11	DELAY LINE, 1H
DL501	1-415-419-21	DELAY LINE
<u>IC</u>		
IC001	8-759-909-20	IC BA634
IC002	8-759-904-95	IC BA7007
IC003	8-759-202-47	IC CX10023
IC004	8-759-208-94	IC CX894
IC005	8-752-006-10	IC CX20061
IC006	8-759-203-99	IC CX10021B-NP
IC009	8-759-101-62	IC CX20043
IC011	8-752-006-10	IC CX20061
IC020	8-759-045-38	IC MCL4538BCP
IC401	8-758-662-00	IC CX8668
IC901	8-759-979-26	IC CX7926
<u>COIL</u>		
L001	1-410-450-11	MICRO INDUCTOR 3.9MMH
L002	1-410-411-11	MICRO INDUCTOR 2.2UH
L003	1-408-407-00	MICRO INDUCTOR 6.8UH
L004	1-408-406-00	MICRO INDUCTOR 5.6UH
L005	1-408-415-00	MICRO INDUCTOR 33UH

Ref.No	Part No.	Description	Remark
L006	1-408-426-00	MICRO INDUCTOR 270UH	
L007	1-408-427-00	MICRO INDUCTOR 330UH	
L008	1-408-421-00	MICRO INDUCTOR 100UH	
L009	1-408-417-00	MICRO INDUCTOR 47UH	
L011	1-408-423-00	MICRO INDUCTOR 150UH	
L012	1-408-409-00	MICRO INDUCTOR 10UH	
L014	1-408-422-00	MICRO INDUCTOR 120UH	
L016	1-408-409-00	MICRO INDUCTOR 10UH	
L017	1-408-423-00	MICRO INDUCTOR 150UH	
L021	1-408-421-00	MICRO INDUCTOR 100UH	
L022	1-408-422-00	MICRO INDUCTOR 120UH	
L023	1-408-421-00	MICRO INDUCTOR 100UH	
L036	1-408-429-00	MICRO INDUCTOR 470UH	
L050	1-408-414-00	MICRO INDUCTOR 27UH	
L051	1-408-417-00	MICRO INDUCTOR 47UH	
L052	1-408-419-00	MICRO INDUCTOR 68UH	
L053	1-408-423-00	MICRO INDUCTOR 150UH	
L055	1-408-409-00	MICRO INDUCTOR 10UH	
L060	1-408-429-00	MICRO INDUCTOR 470UH	
L061	1-408-414-00	MICRO INDUCTOR 27UH	
L062	1-408-419-00	MICRO INDUCTOR 68UH	
L401	1-408-397-00	MICRO INDUCTOR 1UH	
L402	1-408-397-00	MICRO INDUCTOR 1UH	
L501	1-408-408-00	MICRO INDUCTOR 8.2UH	
L701	1-408-415-00	MICRO INDUCTOR 33UH	
L720	1-410-122-11	MICRO INDUCTOR 1.8MMH	
L801	1-408-421-00	MICRO INDUCTOR 100UH	
L802	1-408-415-00	MICRO INDUCTOR 33UH	
<u>FILTER</u>			
LPF001	1-235-097-00	FILTER, LOW PASS	
<u>VARIABLE COIL</u>			
LV001	1-407-291-00	MICRO INDUCTOR 15MMH (ES MODEL)	
LV002	1-408-532-00	COIL, VARIABLE (ES MODEL)	
LV003	1-408-513-00	COIL (VARIABLE) (ES MODEL)	
LV501	1-408-512-00	COIL (VARIABLE)	
<u>IC LINK</u>			
PS001A	1-532-685-00	LINK, IC	
<u>TRANSISTOR</u>			
Q010	8-729-177-43	TRANSISTOR 2SD774	
Q011	8-729-204-83	TRANSISTOR 2SA1048	
Q014	8-729-113-33	TRANSISTOR 2SB733	
Q015	8-729-245-83	TRANSISTOR 2SC2458	
Q016	8-729-245-83	TRANSISTOR 2SC2458	
Q019	8-729-204-83	TRANSISTOR 2SA1048 (ES MODEL)	
Q020	8-729-204-83	TRANSISTOR 2SA1048	
Q021	8-729-245-83	TRANSISTOR 2SC2458 (ES MODEL)	
Q022	8-729-245-83	TRANSISTOR 2SC2458	
Q023	8-729-245-83	TRANSISTOR 2SC2458	

The components identified by shading and mark **A** 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	Ref.No	Part No.	Description	Remark
Q024	8-729-204-83	TRANSISTOR 2SA1048		Q812	8-729-900-89	TRANSISTOR DTC144ES	
Q025	8-729-900-85	TRANSISTOR DTC144WS (ES MODEL)		Q813	8-729-900-89	TRANSISTOR DTC144ES	
Q026	8-729-204-83	TRANSISTOR 2SA1048		Q814	8-729-900-89	TRANSISTOR DTC144ES	
Q027	8-729-204-83	TRANSISTOR 2SA1048 (ES MODEL)		Q815	8-729-900-89	TRANSISTOR DTC144ES	
Q028	8-729-245-83	TRANSISTOR 2SC2458		Q816	8-729-603-30	TRANSISTOR 2SC403SP	
Q029	8-729-245-83	TRANSISTOR 2SC2458 (ES MODEL)		Q817	8-729-603-30	TRANSISTOR 2SC403SP	
Q030	8-729-245-83	TRANSISTOR 2SC2458		Q818	8-729-603-30	TRANSISTOR 2SC403SP	
Q031	8-729-900-36	TRANSISTOR DTC124ES		Q819	8-729-603-30	TRANSISTOR 2SC403SP	
Q033	8-729-245-83	TRANSISTOR 2SC2458		Q820	8-729-603-30	TRANSISTOR 2SC403SP	
Q034	8-729-245-83	TRANSISTOR 2SC2458		Q821	8-729-204-83	TRANSISTOR 2SA1048	
Q035	8-729-900-80	TRANSISTOR DTC114ES		Q822	8-729-245-83	TRANSISTOR 2SC2458	
Q036	8-729-245-83	TRANSISTOR 2SC2458		Q823	8-729-204-83	TRANSISTOR 2SA1048	
Q037	8-729-204-83	TRANSISTOR 2SA1048		Q824	8-729-245-83	TRANSISTOR 2SC2458	
Q038	8-729-384-46	TRANSISTOR 2SA844		Q825	8-729-603-30	TRANSISTOR 2SC403SP	
Q039	8-729-603-30	TRANSISTOR 2SC403SP		Q826	8-729-900-89	TRANSISTOR DTC144ES	
Q040	8-729-603-30	TRANSISTOR 2SC403SP		Q827	8-729-245-83	TRANSISTOR 2SC2458	
Q041	8-729-384-46	TRANSISTOR 2SA844		Q832	8-729-603-30	TRANSISTOR 2SC403SP	
Q048	8-729-603-30	TRANSISTOR 2SC403SP		Q833	8-729-603-30	TRANSISTOR 2SC403SP	
Q049	8-729-603-30	TRANSISTOR 2SC403SP		Q834	8-729-900-80	TRANSISTOR DTC114ES	
Q050	8-729-603-30	TRANSISTOR 2SC403SP		Q837	8-729-384-46	TRANSISTOR 2SA844	
Q051	8-729-384-46	TRANSISTOR 2SA844		Q838	8-729-245-83	TRANSISTOR 2SC2458	
Q056	8-729-245-83	TRANSISTOR 2SC2458		Q839	8-729-245-83	TRANSISTOR 2SC2458	
Q061	8-729-245-83	TRANSISTOR 2SC2458		Q840	8-729-603-30	TRANSISTOR 2SC403SP	
Q068	8-729-245-83	TRANSISTOR 2SC2458		Q842	8-729-900-36	TRANSISTOR DTC124ES	
Q070	8-729-245-83	TRANSISTOR 2SC2458		Q905	8-729-177-43	TRANSISTOR 2SD774	
Q071	8-729-245-83	TRANSISTOR 2SC2458		Q906	8-729-204-83	TRANSISTOR 2SA1048	
Q076	8-729-204-83	TRANSISTOR 2SA1048 (E MODEL)		Q910	8-729-900-36	TRANSISTOR DTC124ES	
Q077	8-729-245-83	TRANSISTOR 2SC2458 (E MODEL)		Q921	8-729-204-83	TRANSISTOR 2SA1048	
Q080	8-729-245-83	TRANSISTOR 2SC2458		Q922	8-729-900-36	TRANSISTOR DTC124ES	
Q100	8-729-900-85	TRANSISTOR DTC144WS		Q923	8-729-245-83	TRANSISTOR 2SC2458	
Q101	8-729-900-89	TRANSISTOR DTC144ES		Q925	8-729-245-83	TRANSISTOR 2SC2458	
Q102	8-729-900-65	TRANSISTOR DTA144ES		Q926	8-729-900-89	TRANSISTOR DTC144ES	
Q103	8-729-245-83	TRANSISTOR 2SC2458		Q928	8-729-245-83	TRANSISTOR 2SC2458	
Q401	8-729-245-83	TRANSISTOR 2SC2458		<b>RESISTOR</b>			
Q501	8-729-245-83	TRANSISTOR 2SC2458		R032	1-247-831-00	CARBON 1K 5% 1/6W	
Q502	8-729-245-83	TRANSISTOR 2SC2458		R035	1-247-859-00	CARBON 15K 5% 1/6W	
Q503	8-729-245-83	TRANSISTOR 2SC2458		R038	1-247-837-00	CARBON 1.8K 5% 1/6W	
Q504	8-729-245-83	TRANSISTOR 2SC2458		<del>R039</del>	<del>1-247-857-00</del>	<del>TRANSISTOR 10 5% 1/6W F</del>	
Q620	8-729-204-83	TRANSISTOR 2SA1048 (ES MODEL)		R046	1-249-419-11	CARBON 1.5K 5% 1/6W(ES MODEL)	
Q701	8-729-245-83	TRANSISTOR 2SC2458		R048	1-247-847-00	CARBON 4.7K 5% 1/6W(ES MODEL)	
Q702	8-729-900-89	TRANSISTOR DTC144ES		R050	1-247-853-00	CARBON 8.2K 5% 1/6W	
Q703	8-729-204-83	TRANSISTOR 2SA1048		R051	1-247-821-00	CARBON 390 5% 1/6W	
Q704	8-729-900-89	TRANSISTOR DTC144ES		R052	1-247-819-00	CARBON 330 5% 1/6W	
Q707	8-729-900-89	TRANSISTOR DTC144ES		R053	1-247-843-00	CARBON 3.3K 5% 1/6W	
Q709	8-729-900-36	TRANSISTOR DTC124ES		R054	1-247-847-00	CARBON 4.7K 5% 1/6W	
Q715	8-729-245-83	TRANSISTOR 2SC2458		R055	1-247-849-00	CARBON 5.6K 5% 1/6W(ES MODEL)	
Q716	8-729-245-83	TRANSISTOR 2SC2458		R056	1-247-867-00	CARBON 33K 5% 1/6W	
Q717	8-729-245-83	TRANSISTOR 2SC2458		R058	1-247-873-00	CARBON 56K 5% 1/6W	
Q720	8-729-900-89	TRANSISTOR DTC144ES		R059	1-247-863-00	CARBON 22K 5% 1/6W	
Q721	8-729-900-89	TRANSISTOR DTC144ES		R060	1-247-867-00	CARBON 33K 5% 1/6W	
Q806	8-729-245-83	TRANSISTOR 2SC2458 (ES MODEL)		R061	1-249-429-11	CARBON 10K 5% 1/6W	
Q810	8-729-900-89	TRANSISTOR DTC144ES		R062	1-249-429-11	CARBON 10K 5% 1/6W	
Q811	8-729-900-89	TRANSISTOR DTC144ES					

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

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

# YC-40

Ref.No	Part No.	Description				Remark	Ref.No	Part No.	Description				Remark
R063	1-247-841-00	CARBON	2.7K	5%	1/6W		R126	1-247-831-00	CARBON	1K	5%	1/6W	
R064	1-247-848-00	CARBON	5.1K	5%	1/6W		R127	1-249-419-11	CARBON	1.5K	5%	1/6W	
R065	1-247-889-00	CARBON	270K	5%	1/6W		R128	1-247-831-00	CARBON	1K	5%	1/6W	
R066	1-247-870-00	CARBON	43K	5%	1/6W		R129	1-247-867-00	CARBON	33K	5%	1/6W	
R067	1-247-862-00	CARBON	20K	5%	1/6W		R130	1-247-843-00	CARBON	3.3K	5%	1/6W	
R068	1-247-838-00	CARBON	2K	5%	1/6W		R131	1-247-841-00	CARBON	2.7K	5%	1/6W	
R069	1-247-831-00	CARBON	1K	5%	1/6W		R132	1-247-887-00	CARBON	220K	5%	1/6W	
R070	1-247-831-00	CARBON	1K	5%	1/6W		R133	1-247-807-00	CARBON	100	5%	1/6W	
R071	1-247-851-00	CARBON	6.8K	5%	1/6W		R134	1-247-831-00	CARBON	1K	5%	1/6W	
R072	1-247-841-00	CARBON	2.7K	5%	1/6W		R135	1-247-883-00	CARBON	150K	5%	1/6W	
R073	1-247-831-00	CARBON	1K	5%	1/6W		R136	1-247-879-00	CARBON	100K	5%	1/6W	
R074	1-247-831-00	CARBON	1K	5%	1/6W		R137	1-247-857-00	CARBON	12K	5%	1/6W	
R075	1-247-815-00	CARBON	220	5%	1/6W		R138	1-249-434-11	CARBON	27K	5%	1/6W	
R076	1-249-429-11	CARBON	10K	5%	1/6W		R139	1-247-841-00	CARBON	2.7K	5%	1/6W	
R079	1-249-429-11	CARBON	10K	5%	1/6W(ES MODEL)		R140	1-247-815-00	CARBON	220	5%	1/6W	
R080	1-247-853-00	CARBON	8.2K	5%	1/6W(ES MODEL)		R141	1-247-831-00	CARBON	1K	5%	1/6W	
R081	1-247-843-00	CARBON	3.3K	5%	1/6W		R142	1-247-842-00	CARBON	3K	5%	1/6W	
R082	1-249-437-11	CARBON	47K	5%	1/6W		R143	1-247-833-00	CARBON	1.2K	5%	1/6W	
R083	1-249-414-11	CARBON	560	5%	1/6W(ES MODEL)		R144	1-247-824-00	CARBON	510	5%	1/6W	
R084	1-247-831-00	CARBON	1K	5%	1/6W(ES MODEL)		R146	1-247-831-00	CARBON	1K	5%	1/6W	
R085	1-247-800-00	CARBON	51	5%	1/6W(ES MODEL)		R147	1-249-429-11	CARBON	10K	5%	1/6W	
R086	1-249-414-11	CARBON	560	5%	1/6W		R148	1-247-831-00	CARBON	1K	5%	1/6W	
R087	1-249-414-11	CARBON	560	5%	1/6W		R149	1-247-819-00	CARBON	330	5%	1/6W	
R088	1-247-807-00	CARBON	100	5%	1/6W		R150	1-247-863-00	CARBON	22K	5%	1/6W	
R091	1-247-824-00	CARBON	510	5%	1/6W(ES MODEL)		R151	1-247-812-00	CARBON	160	5%	1/6W	
R092	1-247-785-00	CARBON	12	5%	1/6W(ES MODEL)		R152	1-247-829-00	CARBON	820	5%	1/6W	
R093	1-247-806-00	CARBON	91	5%	1/6W(ES MODEL)		R153	1-247-863-00	CARBON	22K	5%	1/6W	
R094	1-249-437-11	CARBON	47K	5%	1/6W		R154	1-247-821-00	CARBON	390	5%	1/6W	
R096	1-247-879-00	CARBON	100K	5%	1/6W(ES MODEL)		R155	1-249-421-11	CARBON	2.2K	5%	1/6W	
R097	1-247-881-00	CARBON	120K	5%	1/6W(ES MODEL)		R157	1-247-837-00	CARBON	1.8K	5%	1/6W	
R098	1-247-891-00	CARBON	330K	5%	1/6W		R158	1-247-817-00	CARBON	270	5%	1/6W	
R100	1-247-869-00	CARBON	39K	5%	1/6W(ES MODEL)		R159	1-247-813-00	CARBON	180	5%	1/6W	
R101	1-247-867-00	CARBON	33K	5%	1/6W(ES MODEL)		R160	1-247-832-00	CARBON	1.1K	5%	1/6W	
R103	1-247-831-00	CARBON	1K	5%	1/6W		R161	1-249-429-11	CARBON	10K	5%	1/6W	
R104	1-249-421-11	CARBON	2.2K	5%	1/6W		R163	1-247-831-00	CARBON	1K	5%	1/6W	
R105	1-247-829-00	CARBON	820	5%	1/6W		R165	1-247-833-00	CARBON	1.2K	5%	1/6W	
R106	1-247-831-00	CARBON	1K	5%	1/6W		R166	1-247-807-00	CARBON	100	5%	1/6W	
R107	1-247-824-00	CARBON	510	5%	1/6W		R171	1-247-901-00	CARBON	820K	5%	1/6W	
R108	1-249-421-11	CARBON	2.2K	5%	1/6W		R172	1-247-857-00	CARBON	12K	5%	1/6W	
R109	1-247-867-00	CARBON	33K	5%	1/6W		R173	1-247-861-00	CARBON	18K	5%	1/6W	
R111	1-247-851-00	CARBON	6.8K	5%	1/6W		R174	1-249-421-11	CARBON	2.2K	5%	1/6W	
R112	1-247-851-00	CARBON	6.8K	5%	1/6W		R175	1-247-831-00	CARBON	1K	5%	1/6W	
R113	1-247-843-00	CARBON	3.3K	5%	1/6W		R176	1-249-421-11	CARBON	2.2K	5%	1/6W	
R114	1-247-828-00	CARBON	750	5%	1/6W		R178	1-249-421-11	CARBON	2.2K	5%	1/6W	
R115	1-247-879-00	CARBON	100K	5%	1/6W		R179	1-247-843-00	CARBON	3.3K	5%	1/6W	
R116	1-247-853-00	CARBON	8.2K	5%	1/6W		R181	1-249-419-11	CARBON	1.5K	5%	1/6W	
R117	1-247-846-00	CARBON	4.3K	5%	1/6W		R182	1-247-819-00	CARBON	330	5%	1/6W	
R118	1-247-815-00	CARBON	220	5%	1/6W		R183	1-249-421-11	CARBON	2.2K	5%	1/6W	
R119	1-247-847-00	CARBON	4.7K	5%	1/6W		R184	1-247-807-00	CARBON	100	5%	1/6W	
R120	1-247-831-00	CARBON	1K	5%	1/6W		R185	1-247-843-00	CARBON	3.3K	5%	1/6W	
R121	1-247-831-00	CARBON	1K	5%	1/6W		R189	1-249-414-11	CARBON	560	5%	1/6W	
R122	1-249-421-11	CARBON	2.2K	5%	1/6W		R190	1-249-414-11	CARBON	560	5%	1/6W	
R125	1-247-831-00	CARBON	1K	5%	1/6W		R192	1-247-831-00	CARBON	1K	5%	1/6W	

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

# YC-40

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R193	1-249-429-11	CARBON	10K 5% 1/6W	R320	1-247-878-00	CARBON	91K 5% 1/6W
R194	1-247-819-00	CARBON	330 5% 1/6W	R321	1-247-887-00	CARBON	220K 5% 1/6W
R195	1-247-812-00	CARBON	160 5% 1/6W	R325	1-247-807-00	CARBON	100 5% 1/6W
R196	1-247-863-00	CARBON	22K 5% 1/6W	R331	1-247-852-00	CARBON	7.5K 5% 1/6W
R197	1-247-863-00	CARBON	22K 5% 1/6W	R342	1-247-807-00	CARBON	100 5% 1/6W
R198	1-247-829-00	CARBON	820 5% 1/6W	R346	1-247-847-00	CARBON	4.7K 5% 1/6W
R199	1-247-821-00	CARBON	390 5% 1/6W	R347	1-247-879-00	CARBON	100K 5% 1/6W (E MODEL)
R200	1-249-421-11	CARBON	2.2K 5% 1/6W	R351	1-247-815-00	CARBON	220 5% 1/6W
R201	1-247-837-00	CARBON	1.8K 5% 1/6W	R353	1-249-421-11	CARBON	2.2K 5% 1/6W
R203	1-247-813-00	CARBON	180 5% 1/6W	R357	1-247-829-00	CARBON	820 5% 1/6W
R204	1-247-817-00	CARBON	270 5% 1/6W	R370	1-247-797-00	CARBON	39 5% 1/6W
R205	1-247-807-00	CARBON	100 5% 1/6W	R380	1-247-851-00	CARBON	6.8K 5% 1/6W
R206	1-247-831-00	CARBON	1K 5% 1/6W	R381	1-249-429-11	CARBON	10K 5% 1/6W
R207	1-247-873-00	CARBON	56K 5% 1/6W	R382	1-247-831-00	CARBON	1K 5% 1/6W
R208	1-247-873-00	CARBON	56K 5% 1/6W	R390	1-247-887-00	CARBON	220K 5% 1/6W (E MODEL)
R214	1-247-831-00	CARBON	1K 5% 1/6W	R401	1-247-810-00	CARBON	130 5% 1/6W
R215	1-247-831-00	CARBON	1K 5% 1/6W	R402	1-247-806-00	CARBON	91 5% 1/6W
R216	1-247-819-00	CARBON	330 5% 1/6W	R403	1-247-867-00	CARBON	33K 5% 1/6W
R217	1-249-421-11	CARBON	2.2K 5% 1/6W	R404	1-249-437-11	CARBON	47K 5% 1/6W
R218	1-247-857-00	CARBON	12K 5% 1/6W	R405	1-247-831-00	CARBON	1K 5% 1/6W
R219	1-247-873-00	CARBON	56K 5% 1/6W	R406	1-247-832-00	CARBON	1.1K 5% 1/6W
R220	1-249-434-11	CARBON	27K 5% 1/6W	R407	1-247-832-00	CARBON	1.1K 5% 1/6W
R221	1-247-849-00	CARBON	5.6K 5% 1/6W	R408	1-247-849-00	CARBON	5.6K 5% 1/6W
R222	1-247-837-00	CARBON	1.8K 5% 1/6W	R409	1-247-831-00	CARBON	1K 5% 1/6W
R223	1-247-837-00	CARBON	1.8K 5% 1/6W	R413	1-247-829-00	CARBON	820 5% 1/6W
R231	1-247-867-00	CARBON	33K 5% 1/6W	R414	1-247-847-00	CARBON	4.7K 5% 1/6W
R236	1-247-853-00	CARBON	8.2K 5% 1/6W	R415	1-247-831-00	CARBON	1K 5% 1/6W
R238	1-247-851-00	CARBON	6.8K 5% 1/6W	R416	1-247-846-00	CARBON	4.3K 5% 1/6W
R239	1-249-429-11	CARBON	10K 5% 1/6W	R510	1-247-824-00	CARBON	510 5% 1/6W
R240	1-249-421-11	CARBON	2.2K 5% 1/6W	R511	1-247-867-00	CARBON	33K 5% 1/6W
R248	1-247-819-00	CARBON	330 5% 1/6W	R512	1-247-847-00	CARBON	4.7K 5% 1/6W
R274	1-247-883-00	CARBON	150K 5% 1/6W	R513	1-247-863-00	CARBON	22K 5% 1/6W
R275	1-249-437-11	CARBON	47K 5% 1/6W	R514	1-247-821-00	CARBON	390 5% 1/6W
R276	1-247-849-00	CARBON	5.6K 5% 1/6W	R515	1-249-421-11	CARBON	2.2K 5% 1/6W
R277	1-249-429-11	CARBON	10K 5% 1/6W	R516	1-247-821-00	CARBON	390 5% 1/6W
R280	1-249-419-11	CARBON	1.5K 5% 1/6W	R517	1-247-821-00	CARBON	390 5% 1/6W
R281	1-247-890-00	CARBON	300K 5% 1/6W	R518	1-247-821-00	CARBON	390 5% 1/6W
R282	1-247-819-00	CARBON	330 5% 1/6W	R519	1-247-821-00	CARBON	390 5% 1/6W
R283	1-249-421-11	CARBON	2.2K 5% 1/6W	R520	1-249-421-11	CARBON	2.2K 5% 1/6W
R284	1-247-877-00	CARBON	82K 5% 1/6W	R521	1-247-821-00	CARBON	390 5% 1/6W
R286	1-247-843-00	CARBON	3.3K 5% 1/6W	R522	1-249-421-11	CARBON	2.2K 5% 1/6W
R291	1-247-863-00	CARBON	22K 5% 1/6W	R525	1-247-843-00	CARBON	3.3K 5% 1/6W
R292	1-247-875-00	CARBON	68K 5% 1/6W	R603	1-247-843-00	CARBON	3.3K 5% 1/6W
R293	1-247-819-00	CARBON	330 5% 1/6W	R607	1-249-429-11	CARBON	10K 5% 1/6W(ES MODEL)
R295	1-249-421-11	CARBON	2.2K 5% 1/6W	R638	1-247-807-00	CARBON	100 5% 1/6W(ES MODEL)
R298	1-247-894-00	CARBON	430K 5% 1/6W	R639	1-247-831-00	CARBON	1K 5% 1/6W(ES MODEL)
R299	1-247-892-00	CARBON	360K 5% 1/6W	R640	1-247-815-00	CARBON	220 5% 1/6W(ES MODEL)
R301	1-249-429-11	CARBON	10K 5% 1/6W	R641	1-247-823-00	CARBON	470 5% 1/6W(ES MODEL)
R302	1-247-819-00	CARBON	330 5% 1/6W	R643	1-247-875-00	CARBON	68K 5% 1/6W
R303	1-247-819-00	CARBON	330 5% 1/6W	R650	1-249-437-11	CARBON	47K 5% 1/6W
R304	1-247-847-00	CARBON	4.7K 5% 1/6W	R651	1-247-867-00	CARBON	33K 5% 1/6W
R312	1-247-879-00	CARBON	100K 5% 1/6W	R652	1-247-831-00	CARBON	1K 5% 1/6W
R313	1-247-823-00	CARBON	470 5% 1/6W	R654	1-247-831-00	CARBON	1K 5% 1/6W

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

# YC-40

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R655	1-247-831-00	CARBON	1K 5% 1/6W	R840	1-247-831-00	CARBON	1K 5% 1/6W
R656	1-249-414-11	CARBON	560 5% 1/6W	R841	1-247-827-00	CARBON	680 5% 1/6W
R657	1-247-831-00	CARBON	1K 5% 1/6W	R843	1-247-827-00	CARBON	680 5% 1/6W
R701	1-249-414-11	CARBON	560 5% 1/6W	R844	1-249-434-11	CARBON	27K 5% 1/6W
R702	1-249-421-11	CARBON	2.2K 5% 1/6W	R845	1-249-437-11	CARBON	47K 5% 1/6W
R703	1-247-867-00	CARBON	33K 5% 1/6W	R846	1-247-867-00	CARBON	33K 5% 1/6W
R704	1-247-813-00	CARBON	180 5% 1/6W	R848	1-247-811-00	CARBON	150 5% 1/6W
R705	1-247-813-00	CARBON	180 5% 1/6W	R849	1-247-803-00	CARBON	68 5% 1/6W
R710	1-249-429-11	CARBON	10K 5% 1/6W	R853	1-247-803-00	CARBON	68 5% 1/6W
R712	1-249-419-11	CARBON	1.5K 5% 1/6W	R854	1-247-804-00	CARBON	75 5% 1/6W
R714	1-247-827-00	CARBON	680 5% 1/6W	R855	1-247-831-00	CARBON	1K 5% 1/6W
R737	1-249-429-11	CARBON	10K 5% 1/6W	R856	1-247-823-00	CARBON	470 5% 1/6W
R738	1-249-429-11	CARBON	10K 5% 1/6W	R867	1-247-853-00	CARBON	8.2K 5% 1/6W
R739	1-249-429-11	CARBON	10K 5% 1/6W	R870	1-247-818-00	CARBON	300 5% 1/6W
R740	1-247-861-00	CARBON	18K 5% 1/6W	R871	1-247-818-00	CARBON	300 5% 1/6W
R741	1-249-429-11	CARBON	10K 5% 1/6W	R872	1-249-414-11	CARBON	560 5% 1/6W
R743	1-247-863-00	CARBON	22K 5% 1/6W	R877	1-215-445-00	METAL	10K 1% 1/6W
R744	1-247-879-00	CARBON	100K 5% 1/6W	R878	1-215-433-00	METAL	3.3K 1% 1/6W
R745	1-247-840-00	CARBON	2.4K 5% 1/6W	R880	1-249-429-11	CARBON	10K 5% 1/6W
R746	1-247-815-00	CARBON	220 5% 1/6W	R882	1-247-879-00	CARBON	100K 5% 1/6W
R747	1-247-857-00	CARBON	12K 5% 1/6W	<del>R883 Δ 1-247-807-00</del>	<del>CARBON</del>	<del>100 5% 1/6W</del>	
R748	1-249-421-11	CARBON	2.2K 5% 1/6W	R884	1-247-847-00	CARBON	4.7K 5% 1/6W
R749	1-247-815-00	CARBON	220 5% 1/6W	R885	1-247-817-00	CARBON	270 5% 1/6W
R750	1-247-807-00	CARBON	100 5% 1/6W	R886	1-247-833-00	CARBON	1.2K 5% 1/6W
R753	1-249-429-11	CARBON	10K 5% 1/6W	R888	1-247-863-00	CARBON	22K 5% 1/6W
R754	1-249-421-11	CARBON	2.2K 5% 1/6W	<del>R892 Δ 1-247-831-00</del>	<del>CARBON</del>	<del>1K 5% 1/6W</del>	
R778	1-247-861-00	CARBON	18K 5% 1/6W	R893	1-247-847-00	CARBON	4.7K 5% 1/6W
R802	1-247-831-00	CARBON	1K 5% 1/6W	R894	1-247-823-00	CARBON	470 5% 1/6W
R803	1-249-437-11	CARBON	47K 5% 1/6W	R895	1-247-823-00	CARBON	470 5% 1/6W
R804	1-249-437-11	CARBON	47K 5% 1/6W	R896	1-249-429-11	CARBON	10K 5% 1/6W
R805	1-247-883-00	CARBON	150K 5% 1/6W	R897	1-249-429-11	CARBON	10K 5% 1/6W
R806	1-247-883-00	CARBON	150K 5% 1/6W	R898	1-247-887-00	CARBON	220K 5% 1/6W
R807	1-247-829-00	CARBON	820 5% 1/6W	R899	1-247-887-00	CARBON	220K 5% 1/6W
R809	1-247-891-00	CARBON	330K 5% 1/6W(ES MODEL)	R900	1-249-414-11	CARBON	560 5% 1/6W
R811	1-247-843-00	CARBON	3.3K 5% 1/6W	R902	1-247-857-00	CARBON	12K 5% 1/6W
R814	1-247-903-00	CARBON	1M 5% 1/6W	R903	1-247-801-00	CARBON	56 5% 1/6W
R815	1-247-831-00	CARBON	1K 5% 1/6W	R904	1-249-425-11	CARBON	4.7K 5% 1/6W
R816	1-247-899-00	CARBON	680K 5% 1/6W	R905	1-249-425-11	CARBON	4.7K 5% 1/6W
R821	1-249-421-11	CARBON	2.2K 5% 1/6W(ES MODEL)	R907	1-247-859-00	CARBON	15K 5% 1/6W
R822	1-249-421-11	CARBON	2.2K 5% 1/6W(ES MODEL)	R908	1-249-425-11	CARBON	4.7K 5% 1/6W
R823	1-247-867-00	CARBON	33K 5% 1/6W	R909	1-249-433-11	CARBON	22K 5% 1/6W
R824	1-247-863-00	CARBON	22K 5% 1/6W	R910	1-247-867-00	CARBON	33K 5% 1/6W
R825	1-247-831-00	CARBON	1K 5% 1/6W	R918	1-247-831-00	CARBON	1K 5% 1/6W
R830	1-247-831-00	CARBON	1K 5% 1/6W	<del>R919 Δ 1-212-857-00</del>	<del>FUSIBLE</del>	<del>10 5% 1/6W</del>	
R831	1-247-831-00	CARBON	1K 5% 1/6W	R920	1-249-419-11	CARBON	1.5K 5% 1/6W
R832	1-247-831-00	CARBON	1K 5% 1/6W	R921	1-247-857-00	CARBON	12K 5% 1/6W
R833	1-247-877-00	CARBON	82K 5% 1/6W	R922	1-247-859-00	CARBON	15K 5% 1/6W
R834	1-249-419-11	CARBON	1.5K 5% 1/6W	R926	1-247-863-00	CARBON	22K 5% 1/6W
R835	1-247-877-00	CARBON	82K 5% 1/6W	R935	1-247-843-00	CARBON	3.3K 5% 1/6W
R836	1-247-819-00	CARBON	330 5% 1/6W	R950	1-247-830-00	CARBON	910 5% 1/6W
R837	1-247-819-00	CARBON	330 5% 1/6W	R963	1-249-429-11	CARBON	10K 5% 1/6W
R838	1-247-863-00	CARBON	22K 5% 1/6W	R964	1-247-858-00	CARBON	13K 5% 1/6W
R839	1-247-847-00	CARBON	4.7K 5% 1/6W	R965	1-247-857-00	CARBON	12K 5% 1/6W

The components identified by shading and mark Δ 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
R966	1-247-866-00	CARBON 30K 5% 1/6W	
R967	1-247-875-00	CARBON 68K 5% 1/6W	
R968	1-247-853-00	CARBON 8.2K 5% 1/6W	
R969	1-247-841-00	CARBON 2.7K 5% 1/6W	
R970	1-247-863-00	CARBON 22K 5% 1/6W	
R971	1-249-429-11	CARBON 10K 5% 1/6W	
R972	1-249-429-11	CARBON 10K 5% 1/6W	
R974	1-249-419-11	CARBON 1.5K 5% 1/6W	
R975	1-247-811-00	CARBON 150 5% 1/6W	
R976	1-247-809-00	CARBON 120 5% 1/6W	
R977	1-247-831-00	CARBON 1K 5% 1/6W	
R979	1-249-414-11	CARBON 560 5% 1/6W	
R980	1-247-867-00	CARBON 33K 5% 1/6W	
R981	1-247-853-00	CARBON 8.2K 5% 1/6W	
R982	1-247-853-00	CARBON 8.2K 5% 1/6W	
R983	1-247-792-00	CARBON 0 5% 1/6W	
R986	1-249-421-11	CARBON 2.2K 5% 1/6W	
R989	1-247-853-00	CARBON 8.2K 5% 1/6W	
R990	1-247-867-00	CARBON 33K 5% 1/6W	
R991	1-247-853-00	CARBON 8.2K 5% 1/6W	
R992	1-247-792-00	CARBON 0 5% 1/6W	
R995	1-247-803-00	CARBON 68 5% 1/6W	
R998	1-249-414-11	CARBON 560 5% 1/6W	

VARIABLE RESISTOR

RV001	1-228-989-00	RES, ADJ, METAL GLAZE 470 (ES MODEL)
RV002	1-228-994-00	RES, ADJ, CARBON 10K
RV003	1-228-996-00	RES, ADJ, CARBON 47K
RV004	1-228-990-00	RES, ADJ, METAL GLAZE 1K
RV005	1-228-996-00	RES, ADJ, CARBON 47K
RV006	1-228-995-00	RES, ADJ, CARBON 22K
RV007	1-228-994-00	RES, ADJ, CARBON 10K
RV008	1-228-991-00	RES, ADJ, CARBON 2.2K
RV009	1-228-996-00	RES, ADJ, CARBON 47K
RV010	1-228-995-00	RES, ADJ, CARBON 22K
RV013	1-228-996-00	RES, ADJ, CARBON 47K
RV014	1-228-994-00	RES, ADJ, CARBON 10K
RV015	1-228-989-00	RES, ADJ, METAL GLAZE 470
RV016	1-228-990-00	RES, ADJ, CARBON 1K
RV019	1-228-993-00	RES, ADJ, METAL GLAZE 4.7K
RV020	1-228-990-00	RES, ADJ, CARBON 1K
RV021	1-228-996-00	RES, ADJ, CARBON 47K
RV023	1-228-994-00	RES, ADJ, CARBON 10K
RV024	1-228-996-00	RES, ADJ, CARBON 47K
RV401	1-228-994-00	RES, ADJ, METAL GLAZE 10K
RV501	1-228-989-00	RES, ADJ, CARBON 470
RV702	1-228-995-00	RES, ADJ, CARBON 22K

SWITCH

SW901	1-570-283-11	SWITCH, SLIDE
-------	--------------	---------------

Ref.No	Part No.	Description	Remark
TRANSFORMER			
T001	1-426-093-00	COIL, REC C BPT	
T002	1-409-353-00	COIL, TRAP	
CRYSTAL			
X001	1-527-345-00	CRYSTAL, OSC	
*****			
*A-6711-659-A RP-31 BOARD, COMPLETE *****			
CAPACITOR			
C703	1-161-013-00	CERAMIC 0.01MF	10% 25V
C704	1-123-647-00	ELECT 47MF	20% 6.3V
C705	1-131-345-00	TANTALUM 0.47MF	20% 35V
C706	1-130-495-00	MYLAR 0.1MF	5% 50V
C707	1-123-620-00	ELECT 10MF	20% 25V
C708	1-161-013-00	CERAMIC 0.01MF	10% 25V
C712	1-161-013-00	CERAMIC 0.01MF	10% 25V
C717	1-102-529-00	CERAMIC 100PF	5% 50V
C718	1-102-074-00	CERAMIC 0.001MF	10% 50V
C719	1-102-824-21	CERAMIC 470PF	5% 50V
C720	1-102-120-00	CERAMIC 0.0018MF	10% 50V
C721	1-102-518-00	CERAMIC 33PF	5% 50V
C722	1-102-516-00	CERAMIC 27PF	5% 50V
C723	1-123-822-00	ELECT 47MF	20% 10V
C724	1-123-620-00	ELECT 10MF	20% 25V
C725	1-130-495-00	MYLAR 0.1MF	5% 50V
C726	1-131-345-00	TANTALUM 0.47MF	20% 35V
C727	1-123-617-00	ELECT 10MF	20% 16V
C733	1-161-013-00	CERAMIC 0.01MF	10% 25V
C734	1-161-013-00	CERAMIC 0.01MF	10% 25V
C744	1-102-516-00	CERAMIC 27PF	5% 50V
C749	1-161-013-00	CERAMIC 0.01MF	10% 25V
C751	1-161-013-00	CERAMIC 0.01MF	10% 25V
C754	1-161-013-00	CERAMIC 0.01MF	10% 25V
C755	1-161-013-00	CERAMIC 0.01MF	10% 25V
C760	1-161-025-00	CERAMIC 0.1MF	10% 25V
C761	1-161-025-00	CERAMIC 0.1MF	10% 25V
C762	1-123-611-00	ELECT 1MF	20% 50V
C763	1-123-611-00	ELECT 1MF	20% 50V
C764	1-123-620-00	ELECT 10MF	20% 25V
C765	1-161-013-00	CERAMIC 0.01MF	10% 25V
C767	1-161-025-00	CERAMIC 0.1MF	10% 25V
C768	1-161-013-00	CERAMIC 0.01MF	10% 25V
C769	1-161-013-00	CERAMIC 0.01MF	10% 25V
C770	1-161-013-00	CERAMIC 0.01MF	10% 25V
C771	1-123-620-00	ELECT 10MF	20% 25V
C773	1-123-617-00	ELECT 10MF	20% 16V
C775	1-102-851-00	CERAMIC 15PF	5% 50V
C780	1-161-013-00	CERAMIC 0.01MF	10% 25V
C781	1-123-620-00	ELECT 10MF	20% 25V

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



# RP-31

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C782	1-161-013-00	CERAMIC 0.01MF 10%	25V	L764	1-408-429-00	MICRO INDUCTOR 470UH	
C784	1-161-013-00	CERAMIC 0.01MF 10%	25V	L771	1-408-429-00	MICRO INDUCTOR 470UH	
C791	1-161-013-00	CERAMIC 0.01MF 10%	25V	L772	1-408-403-00	MICRO INDUCTOR 3.3UH	
C792	1-123-620-00	ELECT 10MF 20%	25V	L773	1-408-402-00	MICRO INDUCTOR 2.7UH	
C801	1-123-822-00	ELECT 47MF 20%	10V	L774	1-408-429-00	MICRO INDUCTOR 470UH	
C802	1-123-611-00	ELECT 1MF 20%	50V	L775	1-410-162-11	MICRO INDUCTOR 470UH	
C803	1-161-013-00	CERAMIC 0.01MF 10%	25V	L801	1-408-415-00	MICRO INDUCTOR 33UH	
C805	1-161-013-00	CERAMIC 0.01MF 10%	25V	L802	1-408-412-00	MICRO INDUCTOR 18UH	
C807	1-102-865-00	CERAMIC 8PF 0.5PF	50V	<u>TRANSISTOR</u>			
C808	1-102-978-00	CERAMIC 220PF 5%	50V	Q703	8-729-245-83	TRANSISTOR 2SC2458	
C810	1-161-013-00	CERAMIC 0.01MF 10%	25V	Q704	8-729-245-83	TRANSISTOR 2SC2458	
C811	1-161-013-00	CERAMIC 0.01MF 10%	25V	Q705	8-729-245-83	TRANSISTOR 2SC2458	
C812	1-161-013-00	CERAMIC 0.01MF 10%	25V	Q706	8-729-245-83	TRANSISTOR 2SC2458	
C813	1-161-013-00	CERAMIC 0.01MF 10%	25V	Q707	8-729-603-30	TRANSISTOR 2SC403SP	
C821	1-123-617-00	ELECT 10MF 20%	16V	Q761	8-729-245-83	TRANSISTOR 2SC2458	
C831	1-161-059-00	CERAMIC 0.047MF 10%	25V	<u>RESISTOR</u>			
C832	1-102-513-00	CERAMIC 18PF 5%	50V	R534	1-247-833-00	CARBON 1.2K 5%	1/6W
C833	1-102-513-00	CERAMIC 18PF 5%	50V	R701	1-247-831-00	CARBON 1K 5%	1/6W
C841	1-161-059-00	CERAMIC 0.047MF 10%	25V	R704	1-247-857-00	CARBON 12K 5%	1/6W
C842	1-161-059-00	CERAMIC 0.047MF 10%	25V	R709	1-247-831-00	CARBON 1K 5%	1/6W
C843	1-102-973-00	CERAMIC 100PF 5%	50V	R712	1-247-831-00	CARBON 1K 5%	1/6W
<u>CONNECTOR</u>				R713	1-247-831-00	CARBON 1K 5%	1/6W
CN701	*1-560-900-00	PIN, CONNECTOR 12P		R717	1-249-419-11	CARBON 1.5K 5%	1/6W
CN702	*1-560-894-00	PIN, CONNECTOR 6P		R720	1-247-833-00	CARBON 1.2K 5%	1/6W
CN703	*1-564-030-00	PIN, CONNECTOR 5P		R722	1-247-829-00	CARBON 820 5%	1/6W
CN704	*1-560-900-00	PIN, CONNECTOR 12P		R745	1-247-807-00	CARBON 100 5%	1/6W
<u>DIODE</u>				R748	1-249-419-11	CARBON 1.5K 5%	1/6W
D701	8-719-911-19	DIODE 1SS119		R749	1-249-419-11	CARBON 1.5K 5%	1/6W
D702	8-719-911-19	DIODE 1SS119		R752	1-249-429-11	CARBON 10K 5%	1/6W
<u>IC</u>				R753	1-249-421-11	CARBON 2.2K 5%	1/6W
IC701	8-752-004-50	IC CX20045		R754	1-247-815-00	CARBON 220 5%	1/6W
IC703	8-759-103-17	IC UPC1521HA		R755	1-247-849-00	CARBON 5.6K 5%	1/6W
IC704	8-752-006-10	IC CX20061		R756	1-247-870-00	CARBON 43K 5%	1/6W
IC705	8-759-200-60	IC TA7060AP		R757	1-249-429-11	CARBON 10K 5%	1/6W
<u>COIL</u>				R761	1-247-849-00	CARBON 5.6K 5%	1/6W
L701	1-408-876-00	MICRO INDUCTOR 0.18UH		R762	1-247-870-00	CARBON 43K 5%	1/6W
L702	1-408-621-00	MICRO INDUCTOR 330UH		R763	1-249-419-11	CARBON 1.5K 5%	1/6W
L703	1-408-429-00	MICRO INDUCTOR 470UH		R764	1-247-833-00	CARBON 1.2K 5%	1/6W
L706	1-408-421-00	MICRO INDUCTOR 100UH		R765	1-247-831-00	CARBON 1K 5%	1/6W
L709	1-408-616-21	MICRO INDUCTOR 120UH		R771	1-247-819-00	CARBON 330 5%	1/6W
L711	1-408-411-00	MICRO INDUCTOR 15UH		R772	1-247-821-00	CARBON 390 5%	1/6W
L712	1-408-878-00	MICRO INDUCTOR 0.33UH		R801	1-247-797-00	CARBON 39 5%	1/6W
L714	1-408-621-00	MICRO INDUCTOR 330UH		R803	1-247-823-00	CARBON 470 5%	1/6W
L716	1-408-429-00	MICRO INDUCTOR 470UH		R806	1-247-845-00	CARBON 3.9K 5%	1/6W
L720	1-408-411-00	MICRO INDUCTOR 15UH		R809	1-247-863-00	CARBON 22K 5%	1/6W
L721	1-408-429-00	MICRO INDUCTOR 470UH		R810	1-247-863-00	CARBON 22K 5%	1/6W
L761	1-408-429-00	MICRO INDUCTOR 470UH		R811	1-247-827-00	CARBON 680 5%	1/6W
L762	1-408-429-00	MICRO INDUCTOR 470UH		R812	1-247-829-00	CARBON 820 5%	1/6W
L763	1-408-410-00	MICRO INDUCTOR 12UH		R814	1-249-421-11	CARBON 2.2K 5%	1/6W
				R815	1-249-421-11	CARBON 2.2K 5%	1/6W
				R816	1-247-831-00	CARBON 1K 5%	1/6W

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

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R817	1-247-831-00	CARBON 1K 5%	1/6W	C521	1-102-947-00	CERAMIC 10PF 5%	50V
R841	1-247-797-00	CARBON 39 5%	1/6W	C522	1-161-013-00	CERAMIC 0.01MF 10%	25V
R842	1-247-823-00	CARBON 470 5%	1/6W	C601	1-123-822-00	ELECT 47MF 20%	10V
R843	1-247-831-00	CARBON 1K 5%	1/6W	C602	1-123-822-00	ELECT 47MF 20%	10V
<u>VARIABLE RESISTOR</u>				C603	1-123-619-00	ELECT 4.7MF 20%	50V
RV701	1-228-920-00	RES, ADJ, CARBON 2.2K		C604	1-123-619-00	ELECT 4.7MF 20%	50V
RV702	1-228-920-00	RES, ADJ, CARBON 2.2K		C605	1-123-611-00	ELECT 1MF 20%	50V
RV704	1-228-920-00	RES, ADJ, CARBON 2.2K		C606	1-123-611-00	ELECT 1MF 20%	50V
RV706	1-228-919-00	RES, ADJ, CARBON 1K		C607	1-123-620-00	ELECT 10MF 20%	25V
<u>TRANSFORMER</u>				C608	1-123-333-00	ELECT 100MF 20%	16V
T701	1-448-300-11	TRANSFORMER, STEP UP		C609	1-102-973-00	CERAMIC 100PF 5%	50V
*****				C610	1-102-973-00	CERAMIC 100PF 5%	50V
*A-6711-660-A DH-4 BOARD, COMPLETE				C611	1-123-620-00	ELECT 10MF 20%	25V
*****				C612	1-161-025-00	CERAMIC 0.1MF 10%	25V
*3-683-631-01 CLAMP				C729	1-102-518-00	CERAMIC 33PF 5%	50V
<u>CAPACITOR</u>				C746	1-161-013-00	CERAMIC 0.01MF 10%	25V
C320	1-161-013-00	CERAMIC 0.01MF 10%	25V	C747	1-161-059-00	CERAMIC 0.047MF 10%	25V
C321	1-123-620-00	ELECT 10MF 20%	25V	C748	1-161-013-00	CERAMIC 0.01MF 10%	25V
C322	1-161-059-00	CERAMIC 0.047MF 10%	25V	C801	1-123-608-00	ELECT 0.22MF 20%	50V
C323	1-123-620-00	ELECT 10MF 20%	25V	C802	1-123-620-00	ELECT 10MF 20%	25V
C324	1-123-611-00	ELECT 1MF 20%	50V	C803	1-161-013-00	CERAMIC 0.01MF 10%	25V
C325	1-123-619-00	ELECT 4.7MF 20%	50V	C804	1-123-333-00	ELECT 100MF 20%	16V
C326	1-161-059-00	CERAMIC 0.047MF 10%	25V	C805	1-102-961-00	CERAMIC 27PF 5%	50V
C327	1-161-059-00	CERAMIC 0.047MF 10%	25V	C806	1-123-619-00	ELECT 4.7MF 20%	50V
C328	1-123-611-00	ELECT 1MF 20%	50V	C811	1-102-510-00	CERAMIC 12PF 5%	50V
C330	1-123-620-00	ELECT 10MF 20%	25V	<u>CONNECTOR</u>			
C331	1-123-622-00	ELECT 22MF 20%	16V	CN501	*1-564-035-11	PIN, CONNECTOR 10P	
C332	1-161-059-00	CERAMIC 0.047MF 10%	25V	CN504	*1-564-031-00	PIN, CONNECTOR 6P	
C333	1-161-059-00	CERAMIC 0.047MF 10%	25V	CN505	*1-560-895-00	PIN, CONNECTOR 7P	
C334	1-102-978-00	CERAMIC 220PF 5%	50V	CN506	*1-560-891-00	PIN, CONNECTOR 3P	
C360	1-123-620-00	ELECT 10MF 20%	25V	CN507	*1-560-890-00	PIN, CONNECTOR 2P	
C372	1-123-620-00	ELECT 10MF 20%	25V	CN508	*1-564-031-00	PIN, CONNECTOR 6P	
C373	1-161-013-00	CERAMIC 0.01MF 10%	25V	CN509	*1-564-028-00	PIN, CONNECTOR 3P	
C375	1-102-530-00	CERAMIC 120PF 5%	50V	CN510	*1-560-891-00	PIN, CONNECTOR 3P	
C501	1-161-025-00	CERAMIC 0.1MF 10%	25V	<u>DIODE</u>			
C502	1-161-013-00	CERAMIC 0.01MF 10%	25V	D310	8-719-911-19	DIODE 1SS119	
C503	1-102-515-00	CERAMIC 24PF 5%	50V	D312	8-719-911-19	DIODE 1SS119	
C505	1-161-025-00	CERAMIC 0.1MF 10%	25V	D313	8-719-911-19	DIODE 1SS119	
C506	1-161-025-00	CERAMIC 0.1MF 10%	25V	D501	8-719-911-19	DIODE 1SS119	
C507	1-161-025-00	CERAMIC 0.1MF 10%	25V	D601	8-719-911-19	DIODE 1SS119	
C508	1-161-013-00	CERAMIC 0.01MF 10%	25V	D602	8-719-911-19	DIODE 1SS119	
C509	1-123-620-00	ELECT 10MF 20%	25V	D603	8-719-911-19	DIODE 1SS119	
C510	1-123-620-00	ELECT 10MF 20%	25V	D801	8-719-168-07	DIODE RD6.8E-B	
C511	1-161-013-00	CERAMIC 0.01MF 10%	25V	<u>IC</u>			
C513	1-161-025-00	CERAMIC 0.1MF 10%	25V	IC501	8-759-145-58	IC UPC4558C	
C514	1-161-013-00	CERAMIC 0.01MF 10%	25V	IC601	8-759-745-56	IC NJM4556D	
C515	1-123-620-00	ELECT 10MF 20%	25V	<u>COIL</u>			
C520	1-161-013-00	CERAMIC 0.01MF 10%	25V	L301	1-407-510-00	MICRO INDUCTOR 33MMH	
				L302	1-408-429-00	MICRO INDUCTOR 470UH	

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

Ref.No	Part No.	Description
L303	1-408-429-00	MICRO INDUCTOR 470UH
L304	1-408-417-00	MICRO INDUCTOR 47UH
L503	1-408-415-00	MICRO INDUCTOR 33UH
L504	1-408-420-00	MICRO INDUCTOR 82UH
L510	1-408-411-00	MICRO INDUCTOR 15UH
L715	1-408-408-00	MICRO INDUCTOR 8.2UH
L765	1-408-429-00	MICRO INDUCTOR 470UH

TRANSISTOR

Q301	8-729-603-30	TRANSISTOR 2SC403SP
Q302	8-729-245-83	TRANSISTOR 2SC2458
Q303	8-729-245-83	TRANSISTOR 2SC2458
Q304	8-729-245-83	TRANSISTOR 2SC2458
Q305	8-729-245-83	TRANSISTOR 2SC2458
Q306	8-729-245-83	TRANSISTOR 2SC2458
Q307	8-729-204-83	TRANSISTOR 2SA1048
Q308	8-729-204-83	TRANSISTOR 2SA1048
Q309	8-729-245-83	TRANSISTOR 2SC2458
Q310	8-729-245-83	TRANSISTOR 2SC2458
Q311	8-729-900-80	TRANSISTOR DTC114ES
Q312	8-729-900-89	TRANSISTOR DTC144ES
Q502	8-729-603-30	TRANSISTOR 2SC403SP
Q503	8-729-603-30	TRANSISTOR 2SC403SP
Q504	8-729-245-83	TRANSISTOR 2SC2458
Q505	8-729-245-83	TRANSISTOR 2SC2458
Q506	8-729-204-83	TRANSISTOR 2SA1048
Q507	8-729-204-83	TRANSISTOR 2SA1048
Q508	8-729-245-83	TRANSISTOR 2SC2458
Q509	8-729-245-83	TRANSISTOR 2SC2458
Q510	8-729-245-83	TRANSISTOR 2SC2458
Q511	8-729-245-83	TRANSISTOR 2SC2458
Q512	8-729-245-83	TRANSISTOR 2SC2458
Q513	8-729-900-36	TRANSISTOR DTC124ES
Q514	8-729-245-83	TRANSISTOR 2SC2458
Q601	8-729-245-83	TRANSISTOR 2SC2458
Q602	8-729-245-83	TRANSISTOR 2SC2458
Q706	8-729-245-83	TRANSISTOR 2SC2458
Q801	8-729-245-83	TRANSISTOR 2SC2458
Q802	8-729-245-83	TRANSISTOR 2SC2458

RESISTOR

R330	1-247-841-00	CARBON	2.7K	5%	1/6W
R331	1-247-861-00	CARBON	18K	5%	1/6W
R332	1-247-867-00	CARBON	33K	5%	1/6W
R333	1-249-429-11	CARBON	10K	5%	1/6W
R334	1-247-841-00	CARBON	2.7K	5%	1/6W
R335	1-249-437-11	CARBON	47K	5%	1/6W
R336	1-249-434-11	CARBON	27K	5%	1/6W
R337	1-247-831-00	CARBON	1K	5%	1/6W
R338	1-247-829-00	CARBON	820	5%	1/6W
R339	1-247-831-00	CARBON	1K	5%	1/6W
R340	1-215-413-00	METAL	470	1%	1/6W
R341	1-215-433-00	METAL	3.3K	1%	1/6W

Ref.No	Part No.	Description	Value	Tolerance	Power	Remark
R342	1-215-405-00	METAL	220	1%	1/6W	
R343	1-215-433-00	METAL	3.3K	1%	1/6W	
R344	1-215-451-00	METAL	18K	1%	1/6W	
R345	1-249-429-11	CARBON	10K	5%	1/6W	
R346	1-249-429-11	CARBON	10K	5%	1/6W	
R347	1-247-831-00	CARBON	1K	5%	1/6W	
R348	1-247-815-00	CARBON	220	5%	1/6W	
R349	1-249-429-11	CARBON	10K	5%	1/6W	
R350	1-249-429-11	CARBON	10K	5%	1/6W	
R351	1-247-895-00	CARBON	470K	5%	1/6W	
R354	1-247-879-00	CARBON	100K	5%	1/6W	
R357	1-247-857-00	CARBON	12K	5%	1/6W	
R358	1-247-831-00	CARBON	1K	5%	1/6W	
R361	1-247-807-00	CARBON	100	5%	1/6W	
R364	1-247-811-00	CARBON	150	5%	1/6W	
R365	1-249-429-11	CARBON	10K	5%	1/6W	
R366	1-249-429-11	CARBON	10K	5%	1/6W	
R367	1-249-421-11	CARBON	2.2K	5%	1/6W	
R368	1-247-831-00	CARBON	1K	5%	1/6W	
R369	1-249-429-11	CARBON	10K	5%	1/6W	
R371	1-247-831-00	CARBON	1K	5%	1/6W	
R501	1-249-434-11	CARBON	27K	5%	1/6W	
R502	1-247-859-00	CARBON	15K	5%	1/6W	
R503	1-247-831-00	CARBON	1K	5%	1/6W	
R505	1-247-823-00	CARBON	470	5%	1/6W	
R507	1-247-831-00	CARBON	1K	5%	1/6W	
R509	1-247-809-00	CARBON	120	5%	1/6W	
R510	1-247-831-00	CARBON	1K	5%	1/6W	
R511	1-247-809-00	CARBON	120	5%	1/6W	
R513	1-247-819-00	CARBON	330	5%	1/6W	
R514	1-247-831-00	CARBON	1K	5%	1/6W	
R515	1-247-819-00	CARBON	330	5%	1/6W	
R516	1-247-807-00	CARBON	100	5%	1/6W	
R519	1-247-799-00	CARBON	47	5%	1/6W	
R520	1-247-831-00	CARBON	1K	5%	1/6W	
R521	1-247-799-00	CARBON	47	5%	1/6W	
R522	1-247-863-00	CARBON	22K	5%	1/6W	
R523	1-215-445-00	METAL	10K	1%	1/6W	
R524	1-215-445-00	METAL	10K	1%	1/6W	
R525	1-215-445-00	METAL	10K	1%	1/6W	
R526	1-247-831-00	CARBON	1K	5%	1/6W	
R527	1-215-445-00	METAL	10K	1%	1/6W	
R528	1-247-889-00	CARBON	270K	5%	1/6W	
R529	1-215-469-00	METAL	100K	1%	1/6W	
R530	1-247-807-00	CARBON	100	5%	1/6W	
R531	1-247-807-00	CARBON	100	5%	1/6W	
R532	1-249-429-11	CARBON	10K	5%	1/6W	
R533	1-249-429-11	CARBON	10K	5%	1/6W	
R535	1-249-434-11	CARBON	27K	5%	1/6W	
R536	1-247-843-00	CARBON	3.3K	5%	1/6W	
R537	1-247-863-00	CARBON	22K	5%	1/6W	
R538	1-247-863-00	CARBON	22K	5%	1/6W	
R539	1-247-863-00	CARBON	22K	5%	1/6W	

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

Ref.No	Part No.	Description	Remark
R562	1-247-811-00	CARBON 150 5% 1/6W	
R563	1-249-421-11	CARBON 2.2K 5% 1/6W	
R564	1-215-429-00	METAL 2.2K 1% 1/6W	
R601	1-247-799-00	CARBON 47 5% 1/6W	
R602	1-249-429-11	CARBON 10K 5% 1/6W	
R603	1-247-799-00	CARBON 47 5% 1/6W	
R604	1-247-867-00	CARBON 33K 5% 1/6W	
R605	1-247-867-00	CARBON 33K 5% 1/6W	
R606	1-247-877-00	CARBON 82K 5% 1/6W	
R607	1-247-887-00	CARBON 220K 5% 1/6W	
R608	1-247-877-00	CARBON 82K 5% 1/6W	
R609	1-249-429-11	CARBON 10K 5% 1/6W	
R611	1-247-887-00	CARBON 220K 5% 1/6W	
R612	1-247-887-00	CARBON 220K 5% 1/6W	
R613	1-249-429-11	CARBON 10K 5% 1/6W	
R614	1-247-863-00	CARBON 22K 5% 1/6W	
R680	1-247-887-00	CARBON 220K 5% 1/6W	
R724	1-247-817-00	CARBON 270 5% 1/6W	
R725	1-247-817-00	CARBON 270 5% 1/6W	
R728	1-249-414-11	CARBON 560 5% 1/6W	
R750	1-247-823-00	CARBON 470 5% 1/6W	
R752	1-247-858-00	CARBON 13K 5% 1/6W	
R753	1-247-823-00	CARBON 470 5% 1/6W	
R801	1-249-421-11	CARBON 2.2K 5% 1/6W	
R802	1-247-815-00	CARBON 220 5% 1/6W	
R803	1-247-847-00	CARBON 4.7K 5% 1/6W	
R804	1-247-887-00	CARBON 220K 5% 1/6W	
R805	1-247-879-00	CARBON 100K 5% 1/6W	
R806	1-247-831-00	CARBON 1K 5% 1/6W	
R807	1-247-823-00	CARBON 470 5% 1/6W	
R808	1-249-421-11	CARBON 2.2K 5% 1/6W	
R809	1-247-823-00	CARBON 470 5% 1/6W	

VARIABLE RESISTOR

RV301	1-228-990-00	RES, ADJ, CARBON 1K
RV302	1-228-991-00	RES, ADJ, CARBON 2.2K
RV303	1-228-989-00	RES, ADJ, CARBON 470
RV501	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K

\*\*\*\*\*

AF-14 BOARD

\*A-6713-237-A B-697 BOARD, COMPLETE

- \*3-683-631-01 CLAMP
- \*3-684-072-01 LID, BOTTOM, AF SHIELD CASE(S)
- \*3-684-087-01 CASE (S) (MAIN), SHIELD, AF

B.P.F

BPF001	1-235-367-11	B.P.F
BPF002	1-235-367-11	B.P.F
BPF003	1-235-366-11	B.P.F

Ref.No	Part No.	Description	Remark
BPF004	1-235-366-11	B.P.F	
CAPACITOR			
C001	1-123-318-00	ELECT 33MF 20% 16V	
C002	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C003	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C004	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C005	1-101-004-00	CERAMIC 0.01MF 50V	
C007	1-102-518-00	CERAMIC 33PF 5% 50V	
C008	1-102-518-00	CERAMIC 33PF 5% 50V	
C009	1-123-318-00	ELECT 33MF 20% 16V	
C010	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C011	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C012	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C013	1-101-004-00	CERAMIC 0.01MF 50V	
C015	1-102-822-00	CERAMIC 390PF 5% 50V	
C016	1-102-822-00	CERAMIC 390PF 5% 50V	
C017	1-123-380-00	ELECT 1MF 20% 50V	
C018	1-101-361-00	CERAMIC 150PF 10% 50V	
C019	1-123-380-00	ELECT 1MF 20% 50V	
C020	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C021	1-101-004-00	CERAMIC 0.01MF 50V	
C022	1-123-332-00	ELECT 47MF 20% 16V	
C023	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C025	1-102-978-00	CERAMIC 220PF 5% 50V	
C026	1-102-978-00	CERAMIC 220PF 5% 50V	
C027	1-102-522-00	CERAMIC 51PF 5% 50V	
C028	1-102-531-00	CERAMIC 150PF 5% 50V	
C029	1-102-531-00	CERAMIC 150PF 5% 50V	
C030	1-102-520-00	CERAMIC 39PF 5% 50V	
C031	1-123-356-00	ELECT 10MF 20% 16V	
C033	1-101-004-00	CERAMIC 0.01MF 50V	
C034	1-101-004-00	CERAMIC 0.01MF 50V	
C035	1-123-382-00	ELECT 3.3MF 20% 50V	
C036	1-123-382-00	ELECT 3.3MF 20% 50V	
C037	1-101-004-00	CERAMIC 0.01MF 50V	
C038	1-123-332-00	ELECT 47MF 20% 16V	
C039	1-101-004-00	CERAMIC 0.01MF 50V	
C040	1-101-004-00	CERAMIC 0.01MF 50V	
C041	1-101-004-00	CERAMIC 0.01MF 50V	
C042	1-101-004-00	CERAMIC 0.01MF 50V	
C043	1-123-356-00	ELECT 10MF 20% 16V	
C044	1-101-004-00	CERAMIC 0.01MF 50V	
C045	1-101-004-00	CERAMIC 0.01MF 50V	
C046	1-101-004-00	CERAMIC 0.01MF 50V	
C047	1-123-356-00	ELECT 10MF 20% 16V	
C048	1-123-356-00	ELECT 10MF 20% 16V	
C049	1-123-356-00	ELECT 10MF 20% 16V	
C050	1-123-318-00	ELECT 33MF 20% 16V	
C051	1-123-318-00	ELECT 33MF 20% 16V	
C052	1-123-356-00	ELECT 10MF 20% 16V	
C053	1-123-356-00	ELECT 10MF 20% 16V	
C054	1-101-004-00	CERAMIC 0.01MF 50V	

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

# AF-14

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
C055	1-123-332-00	ELECT	47MF 20%	16V	C118	1-102-961-00	CERAMIC 27PF 10%	50V			
C056	1-101-004-00	CERAMIC	0.01MF	50V	C119	1-102-961-00	CERAMIC	27PF 10%	50V		
C057	1-101-004-00	CERAMIC	0.01MF	50V	C120	1-123-369-00	ELECT	4.7MF 20%	50V		
C058	1-161-025-00	CERAMIC	0.1MF	10%	25V	C121	1-123-356-00	ELECT	10MF 20%	16V	
C059	1-123-356-00	ELECT	10MF 20%	16V	C122	1-123-356-00	ELECT	10MF 20%	16V		
C060	1-123-356-00	ELECT	10MF 20%	16V	C123	1-130-471-00	MYLAR	0.001MF	5%	50V	
C061	1-123-330-00	ELECT	22MF 20%	16V	C124	1-130-471-00	MYLAR	0.001MF	5%	50V	
C062	1-130-475-00	MYLAR	0.0022MF	5%	50V	C125	1-123-356-00	ELECT	10MF 20%	16V	
C063	1-130-482-00	MYLAR	0.0082MF	5%	50V	C126	1-123-356-00	ELECT	10MF 20%	16V	
C064	1-102-824-21	CERAMIC	470PF	5%	50V	C127	1-123-356-00	ELECT	10MF 20%	16V	
C065	1-130-477-00	MYLAR	0.0033MF	5%	50V	C128	1-123-356-00	ELECT	10MF 20%	16V	
C066	1-123-369-00	ELECT	4.7MF 20%	50V	C129	1-123-356-00	ELECT	10MF 20%	16V		
C067	1-123-369-00	ELECT	4.7MF 20%	50V	C130	1-123-356-00	ELECT	10MF 20%	16V		
C068	1-101-004-00	CERAMIC	0.01MF	50V	C131	1-123-356-00	ELECT	10MF 20%	16V		
C069	1-123-333-00	ELECT	100MF	20%	16V	C132	1-123-356-00	ELECT	10MF 20%	16V	
C070	1-123-356-00	ELECT	10MF 20%	16V	C133	1-123-356-00	ELECT	10MF 20%	16V		
C071	1-123-332-00	ELECT	47MF 20%	16V	C134	1-123-330-00	ELECT	22MF 20%	16V		
C072	1-123-332-00	ELECT	47MF 20%	16V	C135	1-123-332-00	ELECT	47MF 20%	16V		
C073	1-102-958-00	CERAMIC	20PF	5%	50V	C136	1-123-330-00	ELECT	22MF 20%	16V	
C074	1-130-485-00	MYLAR	0.015MF	5%	50V	C137	1-123-356-00	ELECT	10MF 20%	16V	
C075	1-102-936-00	CERAMIC	3PF	0.25PF	50V	C138	1-123-356-00	ELECT	10MF 20%	16V	
C076	1-130-485-00	MYLAR	0.015MF	5%	50V	C139	1-123-330-00	ELECT	22MF 20%	16V	
C077	1-130-498-00	MYLAR	0.18MF	5%	50V	C140	1-123-356-00	ELECT	10MF 20%	16V	
C078	1-130-485-00	MYLAR	0.015MF	5%	50V	C141	1-123-356-00	ELECT	10MF 20%	16V	
C079	1-130-469-00	MYLAR	680PF	5%	50V	C142	1-123-332-00	ELECT	47MF 20%	16V	
C080	1-130-475-00	MYLAR	0.0022MF	5%	50V	C143	1-123-330-00	ELECT	22MF 20%	16V	
C081	1-102-936-00	CERAMIC	3PF	0.25PF	50V	C144	1-123-330-00	ELECT	22MF 20%	16V	
C082	1-130-491-00	MYLAR	0.047MF	5%	50V	C145	1-123-356-00	ELECT	10MF 20%	16V	
C083	1-123-330-00	ELECT	22MF	20%	16V	C146	1-123-330-00	ELECT	22MF 20%	16V	
C084	1-130-493-00	MYLAR	0.068MF	5%	50V	C147	1-123-330-00	ELECT	22MF 20%	16V	
C085	1-131-371-00	TANTALUM	10MF	10%	16V	C148	1-123-356-00	ELECT	10MF 20%	16V	
C086	1-131-347-00	TANTALUM	1MF	10%	25V	C149	1-123-356-00	ELECT	10MF 20%	16V	
C087	1-101-004-00	CERAMIC	0.01MF	50V	C150	1-123-356-00	ELECT	10MF 20%	16V		
C088	1-123-333-00	ELECT	100MF	20%	16V	C151	1-130-478-00	MYLAR	0.0039MF	5%	50V
C096	1-123-356-00	ELECT	10MF	20%	16V	C152	1-130-476-00	MYLAR	0.0027MF	5%	50V
C100	1-123-356-00	ELECT	10MF	20%	16V	C153	1-130-474-00	MYLAR	0.0018MF	5%	50V
C101	1-123-332-00	ELECT	47MF	20%	16V	C154	1-130-478-00	MYLAR	0.0039MF	5%	50V
C102	1-123-332-00	ELECT	47MF	20%	16V	C155	1-130-476-00	MYLAR	0.0027MF	5%	50V
C103	1-123-381-00	ELECT	2.2MF	20%	50V	C156	1-130-474-00	MYLAR	0.0018MF	5%	50V
C104	1-123-332-00	ELECT	47MF	20%	16V	C157	1-131-347-00	TANTALUM	1MF	10%	25V
C105	1-123-356-00	ELECT	10MF	20%	16V	C158	1-131-371-00	TANTALUM	10MF	10%	16V
C106	1-123-356-00	ELECT	10MF	20%	16V	C159	1-130-493-00	MYLAR	0.068MF	5%	50V
C107	1-123-332-00	ELECT	47MF	20%	16V	C160	1-123-330-00	ELECT	22MF 20%	16V	
C108	1-123-356-00	ELECT	10MF	20%	16V	C161	1-130-491-00	MYLAR	0.047MF	5%	50V
C109	1-123-356-00	ELECT	10MF	20%	16V	C162	1-102-936-00	CERAMIC	3PF	0.25PF	50V
C110	1-123-380-00	ELECT	1MF	20%	50V	C163	1-130-475-00	MYLAR	0.0022MF	5%	50V
C111	1-123-318-00	ELECT	33MF	20%	16V	C164	1-130-469-00	MYLAR	680PF	5%	50V
C112	1-123-379-00	ELECT	0.47MF	20%	50V	C165	1-130-485-00	MYLAR	0.015MF	5%	50V
C113	1-123-356-00	ELECT	10MF	20%	16V	C166	1-130-498-00	MYLAR	0.18MF	5%	50V
C114	1-123-356-00	ELECT	10MF	20%	16V	C167	1-130-485-00	MYLAR	0.015MF	5%	50V
C115	1-123-369-00	ELECT	4.7MF	20%	50V	C168	1-130-485-00	MYLAR	0.015MF	5%	50V
C116	1-123-330-00	ELECT	22MF	20%	16V	C169	1-102-958-00	CERAMIC	20PF	5%	50V
C117	1-123-330-00	ELECT	22MF	20%	16V	C170	1-123-332-00	ELECT	47MF	20%	16V

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

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark	
C171	1-123-332-00	ELECT	47MF 20%	16V	C607	1-123-617-00	ELECT 10MF 20%	16V
C172	1-123-356-00	ELECT	10MF 20%	16V	C608	1-123-333-00	ELECT 100MF 20%	16V
C173	1-101-004-00	CERAMIC	0.01MF	50V	C609	1-101-004-00	CERAMIC 0.01MF	50V
C174	1-123-333-00	ELECT	100MF 20%	16V	C610	1-123-356-00	ELECT 10MF 20%	16V
C175	1-101-004-00	CERAMIC	0.01MF	50V	C611	1-123-332-00	ELECT 47MF 20%	16V
C176	1-101-004-00	CERAMIC	0.01MF	50V	C616	1-123-356-00	ELECT 10MF 20%	16V
C177	1-123-356-00	ELECT	10MF 20%	16V	C617	1-123-323-00	ELECT 470MF 20%	16V
C178	1-123-356-00	ELECT	10MF 20%	16V	C618	1-123-356-00	ELECT 10MF 20%	16V
C179	1-123-356-00	ELECT	10MF 20%	16V	C619	1-123-356-00	ELECT 10MF 20%	16V
C180	1-123-318-00	ELECT	33MF 20%	16V	C620	1-123-356-00	ELECT 10MF 20%	16V
C181	1-123-318-00	ELECT	33MF 20%	16V	C621	1-123-333-00	ELECT 100MF 20%	16V
C182	1-123-356-00	ELECT	10MF 20%	16V	C622	1-102-127-21	CERAMIC 0.0068MF	10% 50V
C183	1-123-356-00	ELECT	10MF 20%	16V	C623	1-102-127-21	CERAMIC 0.0068MF	10% 50V
C184	1-123-381-00	ELECT	2.2MF 20%	50V	C624	1-123-356-00	ELECT 10MF 20%	16V
C185	1-123-380-00	ELECT	1MF 20%	50V	C625	1-101-004-00	CERAMIC 0.01MF	50V
C186	1-123-380-00	ELECT	1MF 20%	50V	C626	1-123-380-00	ELECT 1MF 20%	50V
C187	1-101-004-00	CERAMIC	0.01MF	50V	C629	1-130-495-00	MYLAR 0.1MF	5% 50V
C188	1-123-332-00	ELECT	47MF 20%	16V	C630	1-101-004-00	CERAMIC 0.01MF	50V
C189	1-123-369-00	ELECT	4.7MF 20%	50V	C631	1-123-332-00	ELECT 47MF 20%	16V
C190	1-123-369-00	ELECT	4.7MF 20%	50V	C632	1-123-380-00	ELECT 1MF 20%	50V
C191	1-130-477-00	MYLAR	0.0033MF	5% 50V	C633	1-101-004-00	CERAMIC 0.01MF	50V
C192	1-130-482-00	MYLAR	0.0082MF	5% 50V	C650	1-101-004-00	CERAMIC 0.01MF	50V
C193	1-102-824-21	CERAMIC	470PF	5% 50V	C651	1-101-004-00	CERAMIC 0.01MF	50V
C194	1-130-475-00	MYLAR	0.0022MF	5% 50V	C652	1-102-074-00	CERAMIC 0.001MF	10% 50V
C195	1-123-330-00	ELECT	22MF 20%	16V	C653	1-101-004-00	CERAMIC 0.01MF	50V
C196	1-123-356-00	ELECT	10MF 20%	16V	C654	1-101-004-00	CERAMIC 0.01MF	50V
C197	1-123-356-00	ELECT	10MF 20%	16V	C655	1-102-074-00	CERAMIC 0.001MF	10% 50V
C198	1-123-379-00	ELECT	0.47MF 20%	50V	C656	1-123-617-00	ELECT 10MF 20%	16V
C199	1-101-004-00	CERAMIC	0.01MF	50V				
C200	1-101-004-00	CERAMIC	0.01MF	50V				
					<u>CONNECTOR</u>			
C201	1-101-004-00	CERAMIC	0.01MF	50V	CN001	*1-564-031-00	PIN, CONNECTOR 6P	
C202	1-101-004-00	CERAMIC	0.01MF	50V	CN002	*1-564-030-00	PIN, CONNECTOR 5P	
C203	1-101-004-00	CERAMIC	0.01MF	50V	CN003	*1-560-893-00	PIN, CONNECTOR 5P	
C204	1-101-004-00	CERAMIC	0.01MF	50V	CN004	*1-560-891-00	PIN, CONNECTOR 3P	
C205	1-123-382-00	ELECT	3.3MF 20%	50V	CN005	*1-560-898-00	PIN, CONNECTOR 10P	
C207	1-123-382-00	ELECT	3.3MF 20%	50V	CN006	*1-560-895-00	PIN, CONNECTOR 7P	
C208	1-101-004-00	CERAMIC	0.01MF	50V	CN007	*1-560-891-00	PIN, CONNECTOR 3P	
C209	1-101-004-00	CERAMIC	0.01MF	50V	CN008	*1-560-893-00	PIN, CONNECTOR 5P	
C210	1-123-356-00	ELECT	10MF 20%	16V	CN009	*1-560-896-00	PIN, CONNECTOR 8P	
C211	1-101-004-00	CERAMIC	0.01MF	50V	CN010	*1-560-894-00	PIN, CONNECTOR 6P	
C212	1-123-356-00	ELECT	10MF 20%	16V	CN011	*1-560-893-00	PIN, CONNECTOR 5P	
C213	1-161-025-00	CERAMIC	0.1MF 10%	25V	CN012	*1-560-896-00	PIN, CONNECTOR 8P	
C214	1-123-332-00	ELECT	47MF 20%	16V	CN013	*1-560-894-00	PIN, CONNECTOR 6P	
C215	1-123-333-00	ELECT	100MF 20%	16V	CN014	*1-560-897-00	PIN, CONNECTOR 9P	
C216	1-161-025-00	CERAMIC	0.1MF 10%	25V	CN015	*1-564-029-00	PIN, CONNECTOR 4P	
C217	1-123-333-00	ELECT	100MF 20%	16V	CN016	*1-560-890-00	PIN, CONNECTOR 2P	
C218	1-102-936-00	CERAMIC	3PF 0.25PF	50V				
C601	1-101-004-00	CERAMIC	0.01MF	50V				
C602	1-101-004-00	CERAMIC	0.01MF	50V				
C603	1-101-004-00	CERAMIC	0.01MF	50V				
					<u>DIODE</u>			
C604	1-101-004-00	CERAMIC	0.01MF	50V	D001	8-719-911-19	DIODE 1SS119	
C605	1-123-356-00	ELECT	10MF 20%	16V	D002	8-719-911-19	DIODE 1SS119	
C606	1-101-004-00	CERAMIC	0.01MF	50V	D003	8-719-911-19	DIODE 1SS119	
					D004	8-719-911-19	DIODE 1SS119	
					D005	8-719-911-19	DIODE 1SS119	

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

# AF-14

Ref.No	Part No.	Description
D006	8-719-911-19	DIODE 1SS119
D007	8-719-911-19	DIODE 1SS119
D008	8-719-000-04	DIODE MC911
D010	8-719-000-12	DIODE MC931
D013	8-719-911-19	DIODE 1SS119
D014	8-719-911-19	DIODE 1SS119
D015	8-719-000-06	DIODE MC921
D016	8-719-911-19	DIODE 1SS119
D017	8-719-911-19	DIODE 1SS119
D018	8-719-911-19	DIODE 1SS119
D019	8-719-911-19	DIODE 1SS119
D020	8-719-000-12	DIODE MC931
D022	8-719-101-61	DIODE RD6.2EL2
D023	8-719-911-19	DIODE 1SS119
D024	8-719-000-06	DIODE MC921
D025	8-719-000-06	DIODE MC921
D026	8-719-000-12	DIODE MC931
D027	8-719-911-19	DIODE 1SS119
D029	8-719-102-73	DIODE RD6.2EN1
D601	8-719-911-19	DIODE 1SS119
D602	8-719-911-19	DIODE 1SS119
D603	8-719-911-19	DIODE 1SS119
D604	8-719-911-19	DIODE 1SS119
D606	8-719-911-19	DIODE 1SS119
D607	8-719-911-19	DIODE 1SS119
D608	8-719-911-19	DIODE 1SS119
D609	8-719-101-86	DIODE RD13EL2
D610	8-719-911-19	DIODE 1SS119
D611	8-719-000-06	DIODE MC921

### IC

IC001	8-752-010-40	IC CX20104
IC002	8-752-010-50	IC CX20105
IC003	8-752-009-71	IC CX20097A
IC004	8-752-010-50	IC CX20105
IC007	8-759-240-66	IC TC4066BP
IC009	8-759-700-62	IC NJM4562D
IC010	8-759-240-66	IC TC4066BP
IC011	8-759-922-43	IC TK15052D
IC012	8-759-915-48	IC TK15011Z
IC013	8-759-145-58	IC UPC4558C

### COIL

L001	1-408-421-00	MICRO INDUCTOR 100UH
L002	1-408-405-00	MICRO INDUCTOR 4.7UH
L003	1-408-421-00	MICRO INDUCTOR 100UH
L004	1-408-405-00	MICRO INDUCTOR 4.7UH
L005	1-408-421-00	MICRO INDUCTOR 100UH
L006	1-408-418-00	MICRO INDUCTOR 56UH
L007	1-408-609-41	MICRO INDUCTOR 33UH
L008	1-408-416-00	MICRO INDUCTOR 39UH
L009	1-408-413-00	MICRO INDUCTOR 22UH
L601	1-408-421-00	MICRO INDUCTOR 100UH

The components identified by shading and mark **A** 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
<u>FILTER</u>			
LPF001	1-235-365-11	L.P.F	
LPF002	1-235-365-11	L.P.F	
<u>IC LINK</u>			
<del>PS001A-1-532-605-00 LINK ID</del>			
<u>TRANSISTOR</u>			
Q001	8-729-900-89	TRANSISTOR DTC144ES	
Q002	8-729-204-83	TRANSISTOR 2SA1048	
Q003	8-729-800-42	TRANSISTOR 2SK152	
Q004	8-729-204-83	TRANSISTOR 2SA1048	
Q005	8-729-245-83	TRANSISTOR 2SC2458	
Q006	8-729-900-89	TRANSISTOR DTC144ES	
Q007	8-729-900-89	TRANSISTOR DTC144ES	
Q008	8-729-800-42	TRANSISTOR 2SK152	
Q009	8-729-204-83	TRANSISTOR 2SA1048	
Q010	8-729-245-83	TRANSISTOR 2SC2458	
Q011	8-729-900-89	TRANSISTOR DTC144ES	
Q012	8-729-900-89	TRANSISTOR DTC144ES	
Q013	8-729-113-33	TRANSISTOR 2SB733	
Q014	8-729-117-54	TRANSISTOR 2SA1175	
Q015	8-729-603-30	TRANSISTOR 2SC403SP	
Q016	8-729-603-30	TRANSISTOR 2SC403SP	
Q017	8-729-603-30	TRANSISTOR 2SC403SP	
Q018	8-729-204-83	TRANSISTOR 2SA1048	
Q019	8-729-900-89	TRANSISTOR DTC144ES	
Q020	8-729-204-83	TRANSISTOR 2SA1048	
Q021	8-729-900-89	TRANSISTOR DTC144ES	
Q022	8-729-245-83	TRANSISTOR 2SC2458	
Q023	8-729-245-83	TRANSISTOR 2SC2458	
Q024	8-729-245-83	TRANSISTOR 2SC2458	
Q025	8-729-245-83	TRANSISTOR 2SC2458	
Q026	8-729-900-89	TRANSISTOR DTC144ES	
Q027	8-729-245-83	TRANSISTOR 2SC2458	
Q028	8-729-900-89	TRANSISTOR DTC144ES	
Q029	8-729-900-89	TRANSISTOR DTC144ES	
Q030	8-729-245-83	TRANSISTOR 2SC2458	
Q031	8-729-245-83	TRANSISTOR 2SC2458	
Q032	8-729-245-83	TRANSISTOR 2SC2458	
Q033	8-729-245-83	TRANSISTOR 2SC2458	
Q034	8-729-900-80	TRANSISTOR DTC114ES	
Q035	8-729-900-80	TRANSISTOR DTC114ES	
Q036	8-729-900-80	TRANSISTOR DTC114ES	
Q037	8-729-900-80	TRANSISTOR DTC114ES	
Q038	8-729-900-80	TRANSISTOR DTC114ES	
Q039	8-729-900-80	TRANSISTOR DTC114ES	
Q040	8-729-900-89	TRANSISTOR DTC144ES	
Q041	8-729-204-83	TRANSISTOR 2SA1048	
Q042	8-729-204-83	TRANSISTOR 2SA1048	
Q043	8-729-900-89	TRANSISTOR DTC144ES	
Q044	8-729-177-43	TRANSISTOR 2SD774	

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q048	8-729-900-89	TRANSISTOR DTC144ES		R017	1-247-827-00	CARBON 680 5%	1/6W
Q050	8-729-900-89	TRANSISTOR DTC144ES		R018	1-247-843-00	CARBON 3.3K 5%	1/6W
Q501	8-729-245-83	TRANSISTOR 2SC2458		R019	1-249-421-11	CARBON 2.2K 5%	1/6W
Q502	8-729-245-83	TRANSISTOR 2SC2458		R020	1-247-831-00	CARBON 1K 5%	1/6W
Q503	8-729-245-83	TRANSISTOR 2SC2458		R021	1-247-831-00	CARBON 1K 5%	1/6W
Q601	8-729-245-83	TRANSISTOR 2SC2458		R022	1-247-831-00	CARBON 1K 5%	1/6W
Q602	8-729-245-83	TRANSISTOR 2SC2458		R023	1-247-831-00	CARBON 1K 5%	1/6W
Q603	8-729-245-83	TRANSISTOR 2SC2458		R024	1-247-847-00	CARBON 4.7K 5%	1/6W
Q604	8-729-245-83	TRANSISTOR 2SC2458		R025	1-247-847-00	CARBON 4.7K 5%	1/6W
Q605	8-729-900-89	TRANSISTOR DTC144ES		R026	1-247-857-00	CARBON 12K 5%	1/6W
Q607	8-729-245-83	TRANSISTOR 2SC2458		R027	1-247-869-00	CARBON 39K 5%	1/6W
Q608	8-729-245-83	TRANSISTOR 2SC2458		<del>R028</del>	<del>1-247-826-00</del>	<del>CARBON 620 5%</del>	<del>1/6W</del>
Q609	8-729-245-83	TRANSISTOR 2SC2458		R029	1-247-826-00	CARBON 620 5%	1/6W
Q610	8-729-900-89	TRANSISTOR DTC144ES		R030	1-214-673-00	METAL 4.7 1%	1/4W
Q611	8-729-245-83	TRANSISTOR 2SC2458		R031	1-247-823-00	CARBON 470 5%	1/6W
Q612	8-729-245-83	TRANSISTOR 2SC2458		R032	1-247-820-00	CARBON 360 5%	1/6W
Q613	8-729-245-83	TRANSISTOR 2SC2458		R033	1-247-799-00	CARBON 47 5%	1/6W
Q614	8-729-245-83	TRANSISTOR 2SC2458		R034	1-247-831-00	CARBON 1K 5%	1/6W
Q615	8-729-245-83	TRANSISTOR 2SC2458		R035	1-247-819-00	CARBON 330 5%	1/6W
Q616	8-729-245-83	TRANSISTOR 2SC2458		R036	1-249-429-11	CARBON 10K 5%	1/6W
<del>Q620</del>	<del>8-729-900-89</del>	<del>TRANSISTOR DTC144ES</del>		R037	1-247-853-00	CARBON 8.2K 5%	1/6W
<del>Q621</del>	<del>8-729-900-89</del>	<del>TRANSISTOR DTC144ES</del>		R038	1-215-436-00	METAL 4.3K 1%	1/6W
Q623	8-729-900-36	TRANSISTOR DTC124ES		R039	1-215-423-00	METAL 1.2K 1%	1/6W
Q624	8-729-900-89	TRANSISTOR DTC144ES		R040	1-247-847-00	CARBON 4.7K 5%	1/6W
Q625	8-729-245-83	TRANSISTOR 2SC2458		R041	1-247-847-00	CARBON 4.7K 5%	1/6W
Q626	8-729-245-83	TRANSISTOR 2SC2458		R042	1-247-861-00	CARBON 18K 5%	1/6W
Q627	8-729-245-83	TRANSISTOR 2SC2458		R043	1-247-861-00	CARBON 18K 5%	1/6W
Q628	8-729-900-89	TRANSISTOR DTC144ES		R044	1-247-861-00	CARBON 18K 5%	1/6W
Q629	8-729-245-83	TRANSISTOR 2SC2458		R045	1-247-861-00	CARBON 18K 5%	1/6W
Q630	8-729-245-83	TRANSISTOR 2SC2458		<del>R046</del>	<del>1-247-857-00</del>	<del>CARBON 680 5%</del>	<del>1/6W</del>
Q631	8-729-900-89	TRANSISTOR DTC144ES		R047	1-247-823-00	CARBON 470 5%	1/6W
Q632	8-729-900-89	TRANSISTOR DTC144ES		R048	1-247-823-00	CARBON 470 5%	1/6W
Q633	8-729-900-89	TRANSISTOR DTC144ES		R049	1-247-851-00	CARBON 6.8K 5%	1/6W
Q650	8-729-245-83	TRANSISTOR 2SC2458		R050	1-247-837-00	CARBON 1.8K 5%	1/6W
Q651	8-729-245-83	TRANSISTOR 2SC2458		R051	1-247-821-00	CARBON 390 5%	1/6W
<u>RESISTOR</u>				R052	1-247-859-00	CARBON 15K 5%	1/6W
R001	1-247-849-00	CARBON 5.6K 5%	1/6W	R053	1-247-857-00	CARBON 12K 5%	1/6W
R002	1-247-831-00	CARBON 1K 5%	1/6W	R054	1-247-863-00	CARBON 22K 5%	1/6W
R003	1-247-831-00	CARBON 1K 5%	1/6W	R055	1-247-852-00	CARBON 7.5K 5%	1/6W
R004	1-247-827-00	CARBON 680 5%	1/6W	R056	1-247-848-00	CARBON 5.1K 5%	1/6W
R005	1-247-827-00	CARBON 680 5%	1/6W	R057	1-249-421-11	CARBON 2.2K 5%	1/6W
R006	1-247-843-00	CARBON 3.3K 5%	1/6W	R058	1-247-861-00	CARBON 18K 5%	1/6W
R007	1-249-421-11	CARBON 2.2K 5%	1/6W	R059	1-249-421-11	CARBON 2.2K 5%	1/6W
R008	1-247-831-00	CARBON 1K 5%	1/6W	R060	1-249-421-11	CARBON 2.2K 5%	1/6W
R009	1-247-831-00	CARBON 1K 5%	1/6W	R061	1-247-861-00	CARBON 18K 5%	1/6W
R010	1-247-831-00	CARBON 1K 5%	1/6W	R062	1-247-898-00	CARBON 620K 5%	1/6W
R011	1-247-831-00	CARBON 1K 5%	1/6W	R063	1-247-843-00	CARBON 3.3K 5%	1/6W
R012	1-247-807-00	CARBON 100 5%	1/6W	R064	1-247-843-00	CARBON 3.3K 5%	1/6W
R013	1-247-849-00	CARBON 5.6K 5%	1/6W	R065	1-247-843-00	CARBON 3.3K 5%	1/6W
R014	1-247-831-00	CARBON 1K 5%	1/6W	R066	1-247-807-00	CARBON 100 5%	1/6W
R015	1-247-831-00	CARBON 1K 5%	1/6W	R067	1-215-433-00	METAL 3.3K 1%	1/6W
R016	1-247-827-00	CARBON 680 5%	1/6W	R068	1-247-859-00	CARBON 15K 5%	1/6W
				R069	1-247-824-00	CARBON 510 5%	1/6W

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

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



# AF-14

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R070	1-249-429-11	CARBON	10K 5% 1/6W	R146	1-249-429-11	CARBON	10K 5% 1/6W
R071	1-247-840-00	CARBON	2.4K 5% 1/6W	R147	1-249-421-11	CARBON	2.2K 5% 1/6W
R072	1-249-429-11	CARBON	10K 5% 1/6W	R148	1-249-437-11	CARBON	47K 5% 1/6W
R073	1-249-429-11	CARBON	10K 5% 1/6W	R152	1-215-462-00	METAL	51K 1% 1/6W
R074	1-247-843-00	CARBON	3.3K 5% 1/6W	R153	1-247-815-00	CARBON	220 5% 1/6W
R075	1-247-814-00	CARBON	200 5% 1/6W	R154	1-215-465-00	METAL	68K 1% 1/6W
R076	1-247-834-00	CARBON	1.3K 5% 1/6W	R155	1-215-446-00	METAL	11K 1% 1/6W
R077	1-247-858-00	CARBON	13K 5% 1/6W	R156	1-215-465-00	METAL	68K 1% 1/6W
R078	1-247-838-00	CARBON	2K 5% 1/6W	R157	1-215-446-00	METAL	11K 1% 1/6W
R079	1-247-858-00	CARBON	13K 5% 1/6W	R158	1-215-462-00	METAL	51K 1% 1/6W
R080	1-249-429-11	CARBON	10K 5% 1/6W	R159	1-249-437-11	CARBON	47K 5% 1/6W
R081	1-247-833-00	CARBON	1.2K 5% 1/6W	R160	1-249-429-11	CARBON	10K 5% 1/6W
R082	1-247-895-00	CARBON	470K 5% 1/6W	R161	1-249-437-11	CARBON	47K 5% 1/6W
R083	1-247-834-00	CARBON	1.3K 5% 1/6W	R162	1-247-815-00	CARBON	220 5% 1/6W
R084	1-247-853-00	CARBON	8.2K 5% 1/6W	R163	1-249-429-11	CARBON	10K 5% 1/6W
R085	1-249-434-11	CARBON	27K 5% 1/6W	R164	1-249-429-11	CARBON	10K 5% 1/6W
R086	1-249-414-11	CARBON	560 5% 1/6W	R165	1-215-429-00	METAL	2.2K 1% 1/6W
R087	1-247-824-00	CARBON	510 5% 1/6W	R166	1-215-429-00	METAL	2.2K 1% 1/6W
R102	1-247-831-00	CARBON	1K 5% 1/6W	R167	1-249-429-11	CARBON	10K 5% 1/6W
R109	1-247-847-00	CARBON	4.7K 5% 1/6W	R168	1-249-429-11	CARBON	10K 5% 1/6W
R110	1-247-847-00	CARBON	4.7K 5% 1/6W	R169	1-247-843-00	CARBON	3.3K 5% 1/6W
R114	1-247-831-00	CARBON	1K 5% 1/6W	R170	1-247-849-00	CARBON	5.6K 5% 1/6W
R115	1-249-437-11	CARBON	47K 5% 1/6W	R171	1-247-851-00	CARBON	6.8K 5% 1/6W
R116	1-249-437-11	CARBON	47K 5% 1/6W	R172	1-247-841-00	CARBON	2.7K 5% 1/6W
R117	1-247-879-00	CARBON	100K 5% 1/6W	R175	1-247-824-00	CARBON	510 5% 1/6W
R118	1-247-881-00	CARBON	120K 5% 1/6W	R176	1-247-836-00	CARBON	1.6K 5% 1/6W
R119	1-247-847-00	CARBON	4.7K 5% 1/6W	R177	1-249-414-11	CARBON	560 5% 1/6W
R120	1-247-847-00	CARBON	4.7K 5% 1/6W	R178	1-249-434-11	CARBON	27K 5% 1/6W
R121	1-249-437-11	CARBON	47K 5% 1/6W	R179	1-247-853-00	CARBON	8.2K 5% 1/6W
R122	1-249-437-11	CARBON	47K 5% 1/6W	R180	1-247-834-00	CARBON	1.3K 5% 1/6W
R123	1-249-437-11	CARBON	47K 5% 1/6W	R181	1-247-838-00	CARBON	2K 5% 1/6W
R124	1-249-421-11	CARBON	2.2K 5% 1/6W	R182	1-247-858-00	CARBON	13K 5% 1/6W
R125	1-249-419-11	CARBON	1.5K 5% 1/6W	R183	1-247-895-00	CARBON	470K 5% 1/6W
R126	1-247-869-00	CARBON	39K 5% 1/6W	R184	1-247-858-00	CARBON	13K 5% 1/6W
R127	1-249-429-11	CARBON	10K 5% 1/6W	R185	1-249-429-11	CARBON	10K 5% 1/6W
R128	1-247-813-00	CARBON	180 5% 1/6W	R186	1-247-833-00	CARBON	1.2K 5% 1/6W
R129	1-247-863-00	CARBON	22K 5% 1/6W	R187	1-247-843-00	CARBON	3.3K 5% 1/6W
R130	1-249-429-11	CARBON	10K 5% 1/6W	R188	1-247-834-00	CARBON	1.3K 5% 1/6W
R131	1-247-817-00	CARBON	270 5% 1/6W	R189	1-247-814-00	CARBON	200 5% 1/6W
R132	1-247-873-00	CARBON	56K 5% 1/6W	R190	1-249-429-11	CARBON	10K 5% 1/6W
R133	1-247-867-00	CARBON	33K 5% 1/6W	R191	1-249-429-11	CARBON	10K 5% 1/6W
R134	1-247-849-00	CARBON	5.6K 5% 1/6W	R192	1-247-840-00	CARBON	2.4K 5% 1/6W
R135	1-247-847-00	CARBON	4.7K 5% 1/6W	R193	1-249-429-11	CARBON	10K 5% 1/6W
R136	1-247-847-00	CARBON	4.7K 5% 1/6W	R194	1-247-824-00	CARBON	510 5% 1/6W
R137	1-247-849-00	CARBON	5.6K 5% 1/6W	R195	1-247-859-00	CARBON	15K 5% 1/6W
R138	1-249-429-11	CARBON	10K 5% 1/6W	R196	1-247-807-00	CARBON	100 5% 1/6W
R139	1-249-429-11	CARBON	10K 5% 1/6W	R197	1-215-433-00	METAL	3.3K 1% 1/6W
R140	1-247-807-00	CARBON	100 5% 1/6W	R198	1-247-848-00	CARBON	5.1K 5% 1/6W
R141	1-247-807-00	CARBON	100 5% 1/6W	R199	1-249-429-11	CARBON	10K 5% 1/6W
R142	1-249-421-11	CARBON	2.2K 5% 1/6W	R200	1-247-861-00	CARBON	18K 5% 1/6W
R143	1-249-421-11	CARBON	2.2K 5% 1/6W	R201	1-249-421-11	CARBON	2.2K 5% 1/6W
R144	1-249-429-11	CARBON	10K 5% 1/6W	R202	1-247-861-00	CARBON	18K 5% 1/6W
R145	1-249-429-11	CARBON	10K 5% 1/6W	R203	1-249-421-11	CARBON	2.2K 5% 1/6W

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

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R206	1-247-843-00	CARBON	3.3K 5% 1/6W	R627	1-249-421-11	CARBON	2.2K 5% 1/6W
R207	1-247-843-00	CARBON	3.3K 5% 1/6W	R628	1-247-831-00	CARBON	1K 5% 1/6W
R208	1-247-843-00	CARBON	3.3K 5% 1/6W	R632	1-247-847-00	CARBON	4.7K 5% 1/6W
R209	1-247-883-00	CARBON	150K 5% 1/6W	R633	1-247-847-00	CARBON	4.7K 5% 1/6W
R210	1-247-864-00	CARBON	24K 5% 1/6W	R634	1-249-414-11	CARBON	560 5% 1/6W
R211	1-247-898-00	CARBON	620K 5% 1/6W	R635	1-247-847-00	CARBON	4.7K 5% 1/6W
R212	1-247-847-00	CARBON	4.7K 5% 1/6W	R636	1-247-847-00	CARBON	4.7K 5% 1/6W
R213	1-247-843-00	CARBON	3.3K 5% 1/6W	R638	1-247-847-00	CARBON	4.7K 5% 1/6W
R214	1-247-841-00	CARBON	2.7K 5% 1/6W	<del>R639</del>	<del>1-247-827-00</del>	<del>CARBON</del>	<del>4.7K 5% 1/6W</del>
R215	1-249-419-11	CARBON	1.5K 5% 1/6W	R640	1-247-847-00	CARBON	4.7K 5% 1/6W
R216	1-247-857-00	CARBON	12K 5% 1/6W	<del>R641</del>	<del>1-247-827-00</del>	<del>CARBON</del>	<del>4.7K 5% 1/6W</del>
R217	1-247-864-00	CARBON	24K 5% 1/6W	<del>R642</del>	<del>1-247-847-00</del>	<del>CARBON</del>	<del>4.7K 5% 1/6W</del>
R218	1-247-861-00	CARBON	18K 5% 1/6W	R643	1-247-851-00	CARBON	6.8K 5% 1/6W
R219	1-249-437-11	CARBON	47K 5% 1/6W	R644	1-247-847-00	CARBON	4.7K 5% 1/6W
R220	1-247-821-00	CARBON	390 5% 1/6W	R650	1-247-843-00	CARBON	3.3K 5% 1/6W
R221	1-247-859-00	CARBON	15K 5% 1/6W	R651	1-247-879-00	CARBON	100K 5% 1/6W
R222	1-247-837-00	CARBON	1.8K 5% 1/6W	R652	1-247-859-00	CARBON	15K 5% 1/6W
R223	1-247-851-00	CARBON	6.8K 5% 1/6W	R653	1-247-851-00	CARBON	6.8K 5% 1/6W
R225	1-247-847-00	CARBON	4.7K 5% 1/6W	R654	1-247-823-00	CARBON	470 5% 1/6W
R226	1-247-847-00	CARBON	4.7K 5% 1/6W	R655	1-247-843-00	CARBON	3.3K 5% 1/6W
<del>R227</del>	<del>1-247-851-00</del>	<del>CARBON</del>	<del>6.8K 5% 1/6W</del>	R656	1-247-879-00	CARBON	100K 5% 1/6W
R228	1-247-829-00	CARBON	820 5% 1/6W	R657	1-247-859-00	CARBON	15K 5% 1/6W
R229	1-247-819-00	CARBON	330 5% 1/6W	R658	1-247-851-00	CARBON	6.8K 5% 1/6W
R230	1-247-827-00	CARBON	680 5% 1/6W	R659	1-247-823-00	CARBON	470 5% 1/6W
R231	1-247-847-00	CARBON	4.7K 5% 1/6W	R660	1-247-831-00	CARBON	1K 5% 1/6W
R232	1-247-849-00	CARBON	5.6K 5% 1/6W	R661	1-247-831-00	CARBON	1K 5% 1/6W
R233	1-247-823-00	CARBON	470 5% 1/6W	R662	1-247-847-00	CARBON	4.7K 5% 1/6W
R239	1-247-847-00	CARBON	4.7K 5% 1/6W	R663	1-247-887-00	CARBON	220K 5% 1/6W
R241	1-247-879-00	CARBON	100K 5% 1/6W	R664	1-247-887-00	CARBON	220K 5% 1/6W
R244	1-247-875-00	CARBON	68K 5% 1/6W	R665	1-249-437-11	CARBON	47K 5% 1/6W
R501	1-249-437-11	CARBON	47K 5% 1/6W	R666	1-247-895-00	CARBON	470K 5% 1/6W
R502	1-249-437-11	CARBON	47K 5% 1/6W	R667	1-247-863-00	CARBON	22K 5% 1/6W
R503	1-249-437-11	CARBON	47K 5% 1/6W	R668	1-249-437-11	CARBON	47K 5% 1/6W
R601	1-247-845-00	CARBON	3.9K 5% 1/6W	R669	1-247-895-00	CARBON	470K 5% 1/6W
R602	1-247-837-00	CARBON	1.8K 5% 1/6W	R670	1-247-863-00	CARBON	22K 5% 1/6W
R603	1-247-831-00	CARBON	1K 5% 1/6W	R671	1-249-429-11	CARBON	10K 5% 1/6W
R604	1-247-857-00	CARBON	12K 5% 1/6W	R672	1-215-415-00	METAL	560 1% 1/6W
R605	1-247-851-00	CARBON	6.8K 5% 1/6W	R675	1-247-843-00	CARBON	3.3K 5% 1/6W
R607	1-247-851-00	CARBON	6.8K 5% 1/6W	R677	1-247-849-00	CARBON	5.6K 5% 1/6W
R608	1-247-851-00	CARBON	6.8K 5% 1/6W	R678	1-247-879-00	CARBON	100K 5% 1/6W
R610	1-247-846-00	CARBON	4.3K 5% 1/6W	R679	1-247-879-00	CARBON	100K 5% 1/6W
R611	1-249-429-11	CARBON	10K 5% 1/6W	R680	1-249-437-11	CARBON	47K 5% 1/6W
R612	1-247-831-00	CARBON	1K 5% 1/6W	R681	1-249-437-11	CARBON	47K 5% 1/6W
R613	1-247-857-00	CARBON	12K 5% 1/6W	R682	1-247-879-00	CARBON	100K 5% 1/6W
R614	1-247-857-00	CARBON	12K 5% 1/6W	R683	1-247-847-00	CARBON	4.7K 5% 1/6W
R615	1-249-414-11	CARBON	560 5% 1/6W	R684	1-249-437-11	CARBON	47K 5% 1/6W
R616	1-247-847-00	CARBON	4.7K 5% 1/6W	R685	1-249-437-11	CARBON	47K 5% 1/6W
R617	1-247-831-00	CARBON	1K 5% 1/6W	R686	1-249-437-11	CARBON	47K 5% 1/6W
R618	1-249-429-11	CARBON	10K 5% 1/6W	R687	1-247-807-00	CARBON	100 5% 1/6W
R619	1-249-429-11	CARBON	10K 5% 1/6W	R688	1-249-429-11	CARBON	10K 5% 1/6W
R620	1-247-831-00	CARBON	1K 5% 1/6W	R689	1-247-879-00	CARBON	100K 5% 1/6W
R625	1-247-847-00	CARBON	4.7K 5% 1/6W	R690	1-247-889-00	CARBON	270K 5% 1/6W
R626	1-247-831-00	CARBON	1K 5% 1/6W	R691	1-247-823-00	CARBON	470 5% 1/6W

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

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

**AF-14****PJ-3****SS-50**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R692	1-247-847-00	CARBON 4.7K 5% 1/6W		C107	1-102-529-00	CERAMIC 100PF 5% 50V	
R693	1-247-807-00	CARBON 100 5% 1/6W		C108	1-161-023-00	CERAMIC 0.068MF 10% 25V	
R693	1-247-807-00	CARBON 100 5% 1/6W		C109	1-161-023-00	CERAMIC 0.068MF 10% 25V	
R694	1-249-425-11	CARBON 4.7K 5% 1/6W		C110	1-161-025-00	CERAMIC 0.1MF 10% 25V	
		<u>VARIABLE RESISTOR</u>		C111	1-161-025-00	CERAMIC 0.1MF 10% 25V	
RV001	1-228-991-00	RES, ADJ, CARBON 2.2K		C112	1-130-499-00	MYLAR 0.22MF 5% 50V	
RV002	1-228-994-00	RES, ADJ, CARBON 10K		C113	1-123-380-00	ELECT 1MF 20% 50V	
RV003	1-228-993-00	RES, ADJ, CARBON 4.7K		C114	1-123-343-00	ELECT 33MF 20% 25V	
RV005	1-228-993-00	RES, ADJ, CARBON 4.7K		C115	1-102-518-00	CERAMIC 33PF 5% 50V	
RV006	1-228-993-00	RES, ADJ, CARBON 4.7K		C116	1-102-518-00	CERAMIC 33PF 5% 50V	
RV007	1-228-993-00	RES, ADJ, CARBON 4.7K		C119	1-161-059-00	CERAMIC 0.047MF 10% 25V	
RV008	1-228-990-00	RES, ADJ, CARBON 1K		C120	1-161-059-00	CERAMIC 0.047MF 10% 25V	
RV009	1-228-921-00	RES, ADJ, CARBON 4.7K		C121	1-161-013-00	CERAMIC 0.01MF 10% 25V	
RV010	1-228-994-00	RES, ADJ, CARBON 10K		C122	1-123-318-00	ELECT 33MF 20% 16V	
RV011	1-228-991-00	RES, ADJ, CARBON 2.2K		C150	1-123-330-00	ELECT 22MF 20% 16V	
RV012	1-228-990-00	RES, ADJ, CARBON 1K		C301	1-131-344-00	TANTALUM 0.33MF 10% 35V	
RV013	1-228-993-00	RES, ADJ, CARBON 4.7K		C302	1-130-491-00	MYLAR 0.047MF 5% 50V	
RV014	1-228-993-00	RES, ADJ, CARBON 4.7K		C303	1-130-491-00	MYLAR 0.047MF 5% 50V	
RV601	1-228-919-00	RES, ADJ, CARBON 1K		C304	1-161-059-00	CERAMIC 0.047MF 10% 25V	
RV602	1-228-921-00	RES, ADJ, CARBON 4.7K		C305	1-123-308-00	ELECT 220MF 20% 10V	
RV603	1-228-921-00	RES, ADJ, CARBON 4.7K		C306	1-130-491-00	MYLAR 0.047MF 5% 50V	
RV604	1-228-995-00	RES, ADJ, METAL GLAZE 22K		C307	1-130-491-00	MYLAR 0.047MF 5% 50V	
RV605	1-228-995-00	RES, ADJ, METAL GLAZE 22K		C308	1-161-013-00	CERAMIC 0.01MF 10% 25V	
		<u>TRANSFORMER</u>		C309	1-161-013-00	CERAMIC 0.01MF 10% 25V	
T001	1-427-546-11	TRANSFORMER, I/O		C310	1-123-356-00	ELECT 10MF 20% 16V	
T002	1-427-546-11	TRANSFORMER, I/O		C311	1-130-483-00	MYLAR 0.01MF 5% 50V	
		<u>THERMISTOR</u>		C312	1-130-491-00	MYLAR 0.047MF 5% 50V	
TH001	1-800-202-XX	THERMISTOR S-10K		C313	1-130-491-00	MYLAR 0.047MF 5% 50V	
TH002	1-800-198-XX	THERMISTOR S-1K		C314	1-130-491-00	MYLAR 0.047MF 5% 50V	
		*****		C315	1-130-491-00	MYLAR 0.047MF 5% 50V	
		*1-617-034-13 PJ-3 BOARD		C316	1-130-491-00	MYLAR 0.047MF 5% 50V	
		*****		C317	1-161-045-00	CERAMIC 0.0033MF 10% 25V	
		1-507-907-11 JACK, PIN 4P		C318	1-161-039-00	CERAMIC 0.001MF 10% 25V	
		*****		C320	1-123-380-00	ELECT 1MF 20% 50V	
		*A-6715-272-A SS-50 BOARD, COMPLETE		C321	1-161-039-00	CERAMIC 0.001MF 10% 25V	
		*****		C323	1-123-332-00	ELECT 47MF 20% 16V	
		*3-681-170-00 HEAT SINK, S		C324	1-161-059-00	CERAMIC 0.047MF 10% 25V	
		*3-683-631-01 CLAMP		C325	1-123-356-00	ELECT 10MF 20% 16V	
		*****		C328	1-123-381-00	ELECT 2.2MF 20% 50V	
		<u>CAPACITOR</u>		C329	1-123-381-00	ELECT 2.2MF 20% 50V	
C101	1-161-023-00	CERAMIC 0.068MF 10% 25V		C330	1-123-381-00	ELECT 2.2MF 20% 50V	
C102	1-102-816-00	CERAMIC 120PF 10% 50V		C332	1-123-356-00	ELECT 10MF 20% 16V	
C103	1-102-513-00	CERAMIC 18PF 5% 50V		C333	1-123-356-00	ELECT 10MF 20% 16V	
C104	1-102-513-00	CERAMIC 18PF 5% 50V		C334	1-123-381-00	ELECT 2.2MF 20% 50V	
C105	1-161-023-00	CERAMIC 0.068MF 10% 25V		C335	1-161-039-00	CERAMIC 0.001MF 10% 25V	
C106	1-102-529-00	CERAMIC 100PF 5% 50V		C336	1-123-332-00	ELECT 47MF 20% 16V	
				C337	1-161-059-00	CERAMIC 0.047MF 10% 25V	
				C338	1-161-045-00	CERAMIC 0.0033MF 10% 25V	
				C339	1-130-493-00	MYLAR 0.068MF 5% 50V	
				C340	1-123-332-00	ELECT 47MF 20% 16V	
				C341	1-102-973-00	CERAMIC 100PF 5% 50V	
				C342	1-123-356-00	ELECT 10MF 20% 16V	
				C343	1-123-381-00	ELECT 2.2MF 20% 50V	

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

Ref.No	Part No.	Description		Remark	Ref.No	Part No.	Description	Remark
C344	1-123-379-00	ELECT	0.47MF	20%	50V	CN113	*1-564-003-00	PIN, CONNECTOR 4P
C345	1-130-483-00	MYLAR	0.01MF	5%	50V	CN114	*1-560-892-00	PIN, CONNECTOR 4P
C346	1-123-369-00	ELECT	4.7MF	20%	25V	CN301	*1-560-896-00	PIN, CONNECTOR 8P
C347	1-123-369-00	ELECT	4.7MF	20%	25V	CN302	*1-560-894-00	PIN, CONNECTOR 6P
C349	1-161-059-00	CERAMIC	0.047MF	10%	25V	CN303	*1-560-892-00	PIN, CONNECTOR 4P
C350	1-123-333-00	ELECT	100MF	20%	16V	CN304	*1-560-896-00	PIN, CONNECTOR 8P
C351	1-130-493-00	MYLAR	0.068MF	5%	50V	CN305	*1-560-892-00	PIN, CONNECTOR 4P
C352	1-130-483-00	MYLAR	0.01MF	5%	50V	CN306	*1-560-890-00	PIN, CONNECTOR 2P
C353	1-123-321-00	ELECT	220MF	20%	16V	CN307	*1-560-891-00	PIN, CONNECTOR 3P
C354	1-161-053-00	CERAMIC	0.015MF	10%	25V	CN308	*1-560-891-00	PIN, CONNECTOR 3P
C355	1-161-043-00	CERAMIC	0.0022MF	10%	25V	CN309	*1-560-890-00	PIN, CONNECTOR 2P
C356	1-161-059-00	CERAMIC	0.047MF	10%	25V	<u>DIODE</u>		
C357	1-161-025-00	CERAMIC	0.1MF	10%	25V	D101	8-719-200-02	DIODE 10E-2
C358	1-161-059-00	CERAMIC	0.047MF	10%	25V	D102	8-719-000-04	DIODE MC911
C359	1-123-356-00	ELECT	10MF	20%	16V	D104	8-719-100-71	DIODE RD15E-B2
C360	1-161-059-00	CERAMIC	0.047MF	10%	25V	D105	8-719-100-71	DIODE RD15E-B2
C361	1-123-332-00	ELECT	47MF	20%	16V	D106	8-719-100-71	DIODE RD15E-B2
C362	1-123-380-00	ELECT	1MF	20%	50V	D107	8-719-000-06	DIODE MC921
C370	1-123-381-00	ELECT	2.2MF	20%	50V	D110	8-719-911-19	DIODE 1SS119
C371	1-123-307-00	ELECT	100MF	20%	10V	D111	8-719-200-23	DIODE 11E2
C372	1-123-332-00	ELECT	47MF	20%	16V	D112	8-719-911-19	DIODE 1SS119
C373	1-123-356-00	ELECT	10MF	20%	16V	D120	8-719-911-19	DIODE 1SS119
C374	1-161-025-00	CERAMIC	0.1MF	10%	25V	D121	8-719-911-19	DIODE 1SS119
C375	1-123-356-00	ELECT	10MF	20%	16V	D122	8-719-911-19	DIODE 1SS119
C376	1-123-318-00	ELECT	33MF	20%	10V	D301	8-719-911-19	DIODE 1SS119
C377	1-130-497-00	MYLAR	0.15MF	5%	50V	D302	8-719-911-19	DIODE 1SS119
C378	1-161-039-00	CERAMIC	0.001MF	10%	25V	D303	8-719-911-19	DIODE 1SS119
C379	1-161-039-00	CERAMIC	0.001MF	10%	25V	D304	8-719-000-06	DIODE MC921
C501	1-161-013-00	CERAMIC	0.01MF	10%	25V	D305	8-719-000-06	DIODE MC921
C502	1-161-013-00	CERAMIC	0.01MF	10%	25V	D306	8-719-000-06	DIODE MC921
C503	1-161-059-00	CERAMIC	0.047MF	10%	25V	D307	8-719-000-06	DIODE MC921
C504	1-123-356-00	ELECT	10MF	20%	16V	D308	8-719-911-19	DIODE 1SS119
C505	1-161-013-00	CERAMIC	0.01MF	10%	25V	D309	8-719-000-06	DIODE MC921
C506	1-123-356-00	ELECT	10MF	20%	16V	D310	8-719-000-06	DIODE MC921
C507	1-161-059-00	CERAMIC	0.047MF	10%	25V	D311	8-719-911-19	DIODE 1SS119
C508	1-123-380-00	ELECT	1MF	20%	50V	D312	8-719-200-02	DIODE 10E-2
C609	1-123-307-00	ELECT	100MF	20%	10V	D313	8-719-191-07	DIODE RD9.1E-B
C610	1-123-380-00	ELECT	1MF	20%	50V	D314	8-719-101-34	DIODE RD3.0EL1
C611	1-123-307-00	ELECT	100MF	20%	10V	D315	8-719-911-19	DIODE 1SS119
<u>CONNECTOR</u>					D316	8-719-911-19	DIODE 1SS119	
CN101	*1-560-900-00	PIN, CONNECTOR 12P			D317	8-719-911-19	DIODE 1SS119	
CN102	*1-560-900-00	PIN, CONNECTOR 12P			D318	8-719-911-19	DIODE 1SS119	
CN103	*1-560-893-00	PIN, CONNECTOR 5P			D320	8-719-000-06	DIODE MC921	
CN104	*1-560-898-00	PIN, CONNECTOR 10P			D321	8-719-911-19	DIODE 1SS119	
CN105	*1-564-011-11	PIN, CONNECTOR 12P			D322	8-719-911-19	DIODE 1SS119	
CN106	*1-560-891-00	PIN, CONNECTOR 3P			D323	8-719-911-19	DIODE 1SS119	
CN107	*1-560-891-00	PIN, CONNECTOR 3P			D610	8-719-911-19	DIODE 1SS119	
CN108	*1-564-007-00	PIN, CONNECTOR 8P			<u>IC</u>			
CN109	*1-560-890-00	PIN, CONNECTOR 2P			IC101	8-759-924-61	IC MB88551-181M	
CN110	1-562-732-11	SOCKET 5P			IC102	8-759-602-75	IC M50761-696P	
CN111	*1-560-896-00	PIN, CONNECTOR 8P			IC103	8-759-105-55	IC UPD7508HG-537-22	
CN112	1-507-678-21	JACK						

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

# SS-50

Ref.No	Part No.	Description
IC104	8-759-921-02	IC M889005-104
IC105	8-759-920-94	IC MSM6411B-19RS
IC106	8-759-240-53	IC TC4053BP
IC108	8-759-801-60	IC LB1640M
IC109	8-759-801-60	IC LB1640M
IC110	8-759-135-80	IC UPC358C
IC301	8-752-012-41	IC CX20124A
IC302	8-752-006-90	IC CX20069
IC304	8-759-240-51	IC TC4051BP
IC305	8-759-100-06	IC UPC4556C
IC306	8-759-240-13	IC TC4013BP
IC307	8-759-135-80	IC UPC358C
IC308	8-759-132-40	IC UPC324C
IC309	8-759-240-66	IC TC4066BP
IC310	8-759-240-53	IC TC4053BP
IC501	8-759-918-61	IC M888201-191G
IC602	8-759-240-53	IC TC4053BP

### COIL

L101	1-408-412-00	MICRO INDUCTOR 18UH
L102	1-407-705-00	MICRO INDUCTOR 100UH
L103	1-407-705-00	MICRO INDUCTOR 100UH
L501	1-408-421-00	MICRO INDUCTOR 100UH
L502	1-408-417-00	MICRO INDUCTOR 47UH

### IC LINK



### TRANSISTOR

Q101	8-729-900-89	TRANSISTOR DTC144ES
Q102	8-729-900-65	TRANSISTOR DTA144ES
Q103	8-729-900-89	TRANSISTOR DTC144ES
Q104	8-729-900-89	TRANSISTOR DTC144ES
Q105	8-729-900-89	TRANSISTOR DTC144ES
Q106	8-729-204-83	TRANSISTOR 2SA1048
Q109	8-729-900-89	TRANSISTOR DTC144ES
Q111	8-729-900-89	TRANSISTOR DTC144ES
Q112	8-729-900-89	TRANSISTOR DTC144ES
Q113	8-729-245-83	TRANSISTOR 2SC2458
Q114	8-729-245-83	TRANSISTOR 2SC2458
Q117	8-729-204-83	TRANSISTOR 2SA1048
Q118	8-729-113-32	TRANSISTOR 2SB733
Q119	8-729-204-83	TRANSISTOR 2SA1048
Q120	8-729-900-80	TRANSISTOR DTC114ES
Q121	8-729-900-89	TRANSISTOR DTC144ES
Q122	8-729-900-89	TRANSISTOR DTC144ES
Q301	8-729-900-89	TRANSISTOR DTC144ES
Q302	8-729-900-89	TRANSISTOR DTC144ES
Q303	8-729-900-89	TRANSISTOR DTC144ES
Q304	8-729-900-89	TRANSISTOR DTC144ES

Remark	Ref.No	Part No.	Description	Remark
	Q305	8-729-245-83	TRANSISTOR 2SC2458	
	Q306	8-729-245-83	TRANSISTOR 2SC2458	
	Q307	8-729-204-83	TRANSISTOR 2SA1048	
	Q308	8-729-245-83	TRANSISTOR 2SC2458	
	Q309	8-729-177-32	TRANSISTOR 2SD773	
	Q310	8-729-900-89	TRANSISTOR DTC144ES	
	Q311	8-729-900-89	TRANSISTOR DTC144ES	
	Q312	8-729-245-83	TRANSISTOR 2SC2458	
	Q313	8-729-204-83	TRANSISTOR 2SA1048	
	Q314	8-729-900-89	TRANSISTOR DTC144ES	
	Q315	8-729-831-33	TRANSISTOR 2SD313HP	
	Q316	8-729-247-33	TRANSISTOR 2SA473	
	Q317	8-729-900-65	TRANSISTOR DTA144ES	
	Q318	8-729-900-89	TRANSISTOR DTC144ES	
	Q319	8-729-900-80	TRANSISTOR DTC114ES	
	Q320	8-729-245-83	TRANSISTOR 2SC2458	
	Q321	8-729-245-83	TRANSISTOR 2SC2458	
	Q322	8-729-245-83	TRANSISTOR 2SC2458	
	Q323	8-729-900-89	TRANSISTOR DTC144ES	
	Q324	8-729-245-83	TRANSISTOR 2SC2458	
	Q325	8-729-831-33	TRANSISTOR 2SD313HP	
	Q326	8-729-900-89	TRANSISTOR DTC144ES	
	Q327	8-729-900-89	TRANSISTOR DTC144ES	
	Q328	8-729-245-83	TRANSISTOR 2SC2458	
	Q329	8-729-204-83	TRANSISTOR 2SA1048	
	Q330	8-729-245-83	TRANSISTOR 2SC2458	
	Q331	8-729-900-89	TRANSISTOR DTC144ES	
	Q333	8-729-204-83	TRANSISTOR 2SA1048	
	Q334	8-729-245-83	TRANSISTOR 2SC2458	
	Q335	8-729-900-89	TRANSISTOR DTC144ES	
	Q336	8-729-245-83	TRANSISTOR 2SC2458	
	Q337	8-729-900-89	TRANSISTOR DTC144ES	
	Q338	8-729-177-32	TRANSISTOR 2SD773	
	Q339	8-729-900-89	TRANSISTOR DTC144ES	
	Q340	8-729-900-89	TRANSISTOR DTC144ES	
	Q341	8-729-900-89	TRANSISTOR DTC144ES	
	Q342	8-729-900-65	TRANSISTOR DTA144ES	
	Q343	8-729-900-89	TRANSISTOR DTC144ES	
	Q344	8-729-900-89	TRANSISTOR DTC144ES	
	Q345	8-729-113-32	TRANSISTOR 2SB733	
	Q346	8-729-204-83	TRANSISTOR 2SA1048	
	Q350	8-729-900-89	TRANSISTOR DTC144ES	
	Q351	8-729-900-89	TRANSISTOR DTC144ES	
	Q355	8-729-900-89	TRANSISTOR DTC144ES	
	Q356	8-729-204-83	TRANSISTOR 2SA1048	
	Q357	8-729-204-83	TRANSISTOR 2SA1048	
	Q358	8-729-245-83	TRANSISTOR 2SC2458	
	Q359	8-729-245-83	TRANSISTOR 2SC2458	
	Q360	8-729-900-65	TRANSISTOR DTA144ES	
	Q361	8-729-900-89	TRANSISTOR DTC144ES	
	Q362	8-729-900-89	TRANSISTOR DTC144ES	
	Q363	8-729-245-83	TRANSISTOR 2SC2458	
	Q364	8-729-900-89	TRANSISTOR DTC144ES	

The components identified by shading and mark **A** 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	Ref.No	Part No.	Description	Remark
Q365	8-729-900-89	TRANSISTOR DTC144ES		R301	1-249-421-11	CARBON 2.2K 5%	1/6W
Q366	8-729-245-83	TRANSISTOR 2SC2458		R302	1-247-847-00	CARBON 4.7K 5%	1/6W
Q367	8-729-900-89	TRANSISTOR DTC144ES		R304	1-247-683-00	CARBON 150K 5%	1/6W
Q501	8-729-245-83	TRANSISTOR 2SC2458		R305	1-249-429-11	CARBON 10K 5%	1/6W
Q612	8-729-900-89	TRANSISTOR DTC144ES		R306	1-247-869-00	CARBON 39K 5%	1/6W
Q613	8-729-900-89	TRANSISTOR DTC144ES		R307	1-247-877-00	CARBON 82K 5%	1/6W
Q614	8-729-900-89	TRANSISTOR DTC144ES		R308	1-247-877-00	CARBON 82K 5%	1/6W
				R309	1-247-885-00	CARBON 180K 5%	1/6W
				R311	1-247-883-00	CARBON 150K 5%	1/6W
				R312	1-249-429-11	CARBON 10K 5%	1/6W
				R313	1-247-841-00	CARBON 2.7K 5%	1/6W
				R314	1-215-467-00	METAL 82K 1%	1/6W
				R315	1-215-400-00	METAL 130 1%	1/6W
				R316	1-215-400-00	METAL 130 1%	1/6W
				R317	1-215-420-00	METAL 910 1%	1/6W
				R318	1-215-433-00	METAL 3.3K 1%	1/6W
				R319	1-249-437-11	CARBON 47K 5%	1/6W
				R320	1-249-421-11	CARBON 2.2K 5%	1/6W
				R321	1-249-429-11	CARBON 10K 5%	1/6W
				R322	1-247-859-00	CARBON 15K 5%	1/6W
				R323	1-249-437-11	CARBON 47K 5%	1/6W
				R324	1-249-437-11	CARBON 47K 5%	1/6W
				R325	1-247-879-00	CARBON 100K 5%	1/6W
				R326	1-247-863-00	CARBON 22K 5%	1/6W
				R329	1-215-485-00	METAL 470K 1%	1/6W
				R330	1-215-485-00	METAL 470K 1%	1/6W
				R331	1-247-889-00	CARBON 270K 5%	1/6W
				R332	1-247-889-00	CARBON 270K 5%	1/6W
				R333	1-247-879-00	CARBON 100K 5%	1/6W
				R334	1-247-867-00	CARBON 33K 5%	1/6W
				R335	1-247-859-00	CARBON 15K 5%	1/6W
				R336	1-249-429-11	CARBON 10K 5%	1/6W
				R337	1-249-429-11	CARBON 10K 5%	1/6W
				R338	1-247-881-00	CARBON 120K 5%	1/6W
				R339	1-247-867-00	CARBON 33K 5%	1/6W
				R340	1-249-437-11	CARBON 47K 5%	1/6W
				R341	1-247-879-00	CARBON 100K 5%	1/6W
				R343	1-247-831-00	CARBON 1K 5%	1/6W
				R344	1-249-425-11	CARBON 4.7K 5%	1/6W
				R345	1-247-873-00	CARBON 56K 5%	1/6W
				R346	1-249-437-11	CARBON 47K 5%	1/6W
				R347	1-247-863-00	CARBON 22K 5%	1/6W
				R348	1-247-881-00	CARBON 120K 5%	1/6W
				R349	1-247-807-00	CARBON 100 5%	1/6W
				R350	1-247-903-00	CARBON 1M 5%	1/6W
				R351	1-215-485-00	METAL OXIDE 0.47 5%	1/6W
				R352	1-247-861-00	CARBON 18K 5%	1/6W
				R353	1-249-429-11	CARBON 10K 5%	1/6W
				R354	1-247-861-00	CARBON 18K 5%	1/6W
				R355	1-247-879-00	CARBON 100K 5%	1/6W
				R356	1-249-437-11	CARBON 47K 5%	1/6W
				R357	1-249-434-11	CARBON 27K 5%	1/6W
				R358	1-247-867-00	CARBON 33K 5%	1/6W

**RESISTOR**

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

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

# SS-50

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R359	1-247-867-00	CARBON	33K 5% 1/6W	R418	1-247-859-00	CARBON	15K 5% 1/6W
R360	1-247-831-00	CARBON	1K 5% 1/6W	R419	1-249-421-11	CARBON	2.2K 5% 1/6W
R361	1-247-867-00	CARBON	33K 5% 1/6W	R420	1-249-437-11	CARBON	47K 5% 1/6W
R362	1-249-429-11	CARBON	10K 5% 1/6W	R421	1-247-843-00	CARBON	3.3K 5% 1/6W
R363	1-247-867-00	CARBON	33K 5% 1/6W	R422	1-249-429-11	CARBON	10K 5% 1/6W
R364	1-247-807-00	CARBON	100 5% 1/6W	R425	1-249-437-11	CARBON	47K 5% 1/6W
R365	1-247-831-00	CARBON	1K 5% 1/6W	R426	1-249-437-11	CARBON	47K 5% 1/6W
R366	1-247-831-00	CARBON	1K 5% 1/6W	R427	1-247-859-00	CARBON	15K 5% 1/6W
R367	1-247-831-00	CARBON	1K 5% 1/6W	R428	1-249-434-11	CARBON	27K 5% 1/6W
R368	1-247-833-00	CARBON	1.2K 5% 1/6W	R429	1-249-429-11	CARBON	10K 5% 1/6W
R369	1-247-833-00	CARBON	1.2K 5% 1/6W	R430	1-247-831-00	CARBON	1K 5% 1/6W
R370	1-247-847-00	CARBON	4.7K 5% 1/6W	R431	1-249-429-11	CARBON	10K 5% 1/6W
R371	1-247-847-00	CARBON	4.7K 5% 1/6W	R440	1-247-877-00	CARBON	82K 5% 1/6W
R372	1-247-831-00	CARBON	1K 5% 1/6W	R442	1-249-437-11	CARBON	47K 5% 1/6W
R373	1-249-429-11	CARBON	10K 5% 1/6W	R443	1-249-437-11	CARBON	47K 5% 1/6W
R374	1-247-859-00	CARBON	15K 5% 1/6W	R449	1-247-851-00	CARBON	6.8K 5% 1/6W
R375	1-247-879-00	CARBON	100K 5% 1/6W	R450	1-249-437-11	CARBON	47K 5% 1/6W
R376	1-247-895-00	CARBON	47K 5% 1/6W	R451	1-249-429-11	CARBON	10K 5% 1/6W
R377	1-249-437-11	CARBON	47K 5% 1/6W	R452	1-249-437-11	CARBON	47K 5% 1/6W
R378	1-247-879-00	CARBON	100K 5% 1/6W	R453	1-247-867-00	CARBON	33K 5% 1/6W
R379	1-249-429-11	CARBON	10K 5% 1/6W	R454	1-249-437-11	CARBON	47K 5% 1/6W
R380	1-249-437-11	CARBON	47K 5% 1/6W	R455	1-249-437-11	CARBON	47K 5% 1/6W
R381	1-247-863-00	CARBON	22K 5% 1/6W	R456	1-247-879-00	CARBON	100K 5% 1/6W
R382	1-215-485-00	METAL	470K 1% 1/6W	R457	1-249-437-11	CARBON	47K 5% 1/6W
R383	1-215-457-00	METAL	33K 1% 1/6W	R458	1-249-429-11	CARBON	10K 5% 1/6W
R384	1-247-837-00	CARBON	1.8K 5% 1/6W	R459	1-249-421-11	CARBON	2.2K 5% 1/6W
R385	1-247-869-00	CARBON	39K 5% 1/6W	R460	1-247-859-00	CARBON	15K 5% 1/6W
R388	1-247-891-00	CARBON	330K 5% 1/6W	R461	1-247-863-00	CARBON	22K 5% 1/6W
R389	1-247-903-00	CARBON	1M 5% 1/6W	R462	1-247-891-00	CARBON	330K 5% 1/6W
R390	1-247-831-00	CARBON	1K 5% 1/6W	R464	1-249-437-11	CARBON	47K 5% 1/6W
R391	1-249-419-11	CARBON	1.5K 5% 1/6W	R465	1-249-429-11	CARBON	10K 5% 1/6W
R392	1-249-429-11	CARBON	10K 5% 1/6W	R466	1-247-837-00	CARBON	1.8K 5% 1/6W
R393	1-247-859-00	CARBON	15K 5% 1/6W	R467	1-247-831-00	CARBON	1K 5% 1/6W
R394	1-247-879-00	CARBON	100K 5% 1/6W	R468	1-249-419-11	CARBON	1.5K 5% 1/6W
R395	1-247-883-00	CARBON	150K 5% 1/6W	R470	1-247-843-00	CARBON	3.3K 5% 1/6W
R396	1-247-859-00	CARBON	15K 5% 1/6W	R471	1-247-861-00	CARBON	18K 5% 1/6W
R397	1-247-867-00	CARBON	33K 5% 1/6W	R472	1-247-903-00	CARBON	1M 5% 1/6W
R398	1-247-867-00	CARBON	33K 5% 1/6W	R473	1-247-903-00	CARBON	1M 5% 1/6W
R399	1-247-850-00	CARBON	6.2K 5% 1/6W	R474	1-247-849-00	CARBON	5.6K 5% 1/6W
R400	1-247-903-00	CARBON	1M 5% 1/6W	R475	1-249-469-11	CARBON	100K 5% 1/4W
R401	1-247-879-00	CARBON	100K 5% 1/6W	R480	1-249-429-11	CARBON	10K 5% 1/6W
R402	1-247-889-00	CARBON	270K 5% 1/6W	R482	1-247-862-00	CARBON	20K 5% 1/6W
R403	1-247-895-00	CARBON	470K 5% 1/6W	R483	1-247-859-00	CARBON	15K 5% 1/6W
R404	1-249-437-11	CARBON	47K 5% 1/6W	R484	1-249-425-11	CARBON	4.7K 5% 1/6W
R405	1-247-861-00	CARBON	18K 5% 1/6W	R486	1-249-437-11	CARBON	47K 5% 1/6W
R406	1-247-859-00	CARBON	15K 5% 1/6W	R487	1-249-437-11	CARBON	47K 5% 1/6W
R407	1-247-831-00	CARBON	1K 5% 1/6W	R488	1-247-887-00	CARBON	220K 5% 1/6W
R408	1-247-863-00	CARBON	22K 5% 1/6W	R490	1-247-847-00	CARBON	4.7K 5% 1/6W
R409	1-247-863-00	CARBON	22K 5% 1/6W	R491	1-249-437-11	CARBON	47K 5% 1/6W
R410	1-247-867-00	CARBON	33K 5% 1/6W	R492	1-249-437-11	CARBON	47K 5% 1/6W
R413	1-249-437-11	CARBON	47K 5% 1/6W	R501	1-249-437-11	CARBON	47K 5% 1/6W
R415	1-249-437-11	CARBON	47K 5% 1/6W	R502	1-247-859-00	CARBON	15K 5% 1/6W
R417	1-247-857-00	CARBON	12K 5% 1/6W				

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

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

**SS-50****DR-33****TA-36**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R503	1-249-421-11	CARBON 2.2K 5%	1/6W	C009	1-161-059-00	CERAMIC 0.047MF	10% 25V
R504	1-247-803-00	CARBON 68 5%	1/6W	C010	1-123-330-00	ELECT 22MF	20% 16V
R505	1-247-831-00	CARBON 1K 5%	1/6W	C011	1-102-973-00	CERAMIC 100PF	5% 50V
R506	1-249-429-11	CARBON 10K 5%	1/6W	C012	1-161-059-00	CERAMIC 0.047MF	10% 25V
R507	1-249-429-11	CARBON 10K 5%	1/6W	C013	1-161-013-00	CERAMIC 0.01MF	10% 25V
R508	1-247-879-00	CARBON 100K 5%	1/6W	C014	1-161-013-00	CERAMIC 0.01MF	10% 25V
R509	1-247-879-00	CARBON 100K 5%	1/6W	<u>CONNECTOR</u>			
R510	1-247-843-00	CARBON 3.3K 5%	1/6W	CN001	*1-564-010-11	PIN, CONNECTOR 11P	
R511	1-249-429-11	CARBON 10K 5%	1/6W	CN002	*1-560-892-00	PIN, CONNECTOR 4P	
R512	1-249-429-11	CARBON 10K 5%	1/6W	CN003	*1-560-891-00	PIN, CONNECTOR 3P	
R513	1-249-429-11	CARBON 10K 5%	1/6W	CN004	*1-564-009-00	PIN, CONNECTOR 10P	
R623	1-249-421-11	CARBON 2.2K 5%	1/6W	CN005	*1-560-892-00	PIN, CONNECTOR 4P	
R624	1-249-437-11	CARBON 47K 5%	1/6W	CN006	*1-560-890-00	PIN, CONNECTOR 2P	
R625	1-249-437-11	CARBON 47K 5%	1/6W	CN007	*1-560-891-00	PIN, CONNECTOR 3P	
R626	1-249-437-11	CARBON 47K 5%	1/6W	CN008	*1-560-890-00	PIN, CONNECTOR 2P	
R630	1-249-419-11	CARBON 1.5K 5%	1/6W	CN010	*1-560-468-00	PIN, CONNECTOR 5P	
R632	1-247-815-00	CARBON 220 5%	1/6W	CN011	*1-560-466-00	PIN, CONNECTOR 3P	
<u>VARIABLE RESISTOR</u>				CN012	*1-560-891-00	PIN, CONNECTOR 3P	
RV101	1-228-991-00	RES, ADJ, CARBON 2.2K		CN013	*1-564-005-00	PIN, CONNECTOR 6P	
RV102	1-228-270-00	RES, VAR, CARBON 10K		CN014	*1-564-005-00	PIN, CONNECTOR 6P	
RV104	1-228-995-00	RES, ADJ, CARBON 22K		CN015	*1-564-003-00	PIN, CONNECTOR 4P	
RV301	1-228-997-00	RES, ADJ, CARBON 100K		CN017	*1-560-900-00	PIN, CONNECTOR 12P	
RV302	1-228-995-00	RES, ADJ, CARBON 22K		CN018	*1-564-011-11	PIN, CONNECTOR 12P	
RV303	1-228-997-00	RES, ADJ, CARBON 100K		CN019	*1-564-011-11	PIN, CONNECTOR 12P	
RV304	1-228-997-00	RES, ADJ, CARBON 100K		CN020	*1-564-010-11	PIN, CONNECTOR 11P	
RV305	1-228-997-00	RES, ADJ, METAL GLAZE 100K		<u>IC</u>			
RV306	1-228-996-00	RES, ADJ, METAL GLAZE 47K		IC002	8-759-800-72	IC LA7205	
RV307	1-228-992-11	RES, ADJ, METAL GLAZE 3.3K		<u>RESISTOR</u>			
RV308	1-228-997-00	RES, ADJ, METAL GLAZE 100K		R001	1-247-831-00	CARBON 1K 5%	1/6W
RV601	1-228-993-00	RES, ADJ, CARBON 4.7K		R002	1-247-815-00	CARBON 220 5%	1/6W
RV602	1-228-993-00	RES, ADJ, CARBON 4.7K		R003	1-247-831-00	CARBON 1K 5%	1/6W
RV603	1-228-993-00	RES, ADJ, CARBON 4.7K		R004	1-247-815-00	CARBON 220 5%	1/6W
RV604	1-228-993-00	RES, ADJ, CARBON 4.7K		R019	1-247-861-00	CARBON 18K 5%	1/6W
<u>CRYSTAL</u>				R020	1-247-862-00	CARBON 20K 5%	1/6W
X101	1-527-726-00	VIBRATOR, CRYSTAL		R021	1-247-873-00	CARBON 56K 5%	1/6W
X102	1-527-965-00	OSCILLATOR, CERAMIC		*****			
X103	1-527-822-00	OSCILLATOR, CERAMIC		*****			
*****				*****			
*A-6717-408-A DR-33 BOARD, COMPLETE				*A-6721-248-A TA-36 BOARD, COMPLETE (ES MODEL)			
*****				*****			
*3-683-631-01 CLAMP				1-404-438-00 FILTER, SAW			
<u>CAPACITOR</u>				*1-555-110-00 CABLE, PIN			
C001	1-123-381-00	ELECT 2.2MF	20% 50V	*3-662-227-00 HOLDER (R-3), LED			
C002	1-123-381-00	ELECT 2.2MF	20% 50V	3-671-893-00 CLAMP (LOW TYPE)			
C005	1-161-059-00	CERAMIC 0.047MF	10% 25V	*3-674-390-00 HOLDER (B), LED			
C006	1-129-794-00	FILM 0.003MF	5% 100V	*3-683-631-01 CLAMP			
C007	1-129-794-00	FILM 0.003MF	5% 100V	3-701-748-00 CLAMP			
C008	1-161-059-00	CERAMIC 0.047MF	10% 25V				

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



# TA-36

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<b>BATTERY</b>							
B701	1-528-132-00	BATTERY, STORAGE, NI-CD		C049	1-136-147-00	FILM 0.0033MF	5% 50V
<b>CAPACITOR</b>							
C001	1-102-529-00	CERAMIC 100PF	5% 50V	C050	1-130-014-00	FILM 470PF	5% 50V
C002	1-102-529-00	CERAMIC 100PF	5% 50V	C051	1-161-055-00	CERAMIC 0.022MF	10% 25V
C003	1-102-947-00	CERAMIC 10PF	5% 50V	C052	1-161-059-00	CERAMIC 0.047MF	10% 25V
C004	1-102-523-00	CERAMIC 56PF	5% 50V	C053	1-136-244-11	FILM 0.1MF	2% 50V
C005	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C054	1-136-244-11	FILM 0.1MF	2% 50V
C006	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C055	1-123-330-00	ELECT 22MF	20% 16V
C007	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C056	1-136-243-11	FILM 0.047MF	2% 50V
C008	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C057	1-136-243-11	FILM 0.047MF	2% 50V
C009	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C058	1-123-333-00	ELECT 100MF	20% 16V
C010	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C059	1-123-333-00	ELECT 100MF	20% 16V
C011	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C060	1-123-356-00	ELECT 10MF	20% 16V
C012	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C061	1-161-013-00	CERAMIC 0.01MF	10% 25V
C013	1-123-369-00	ELECT 4.7MF	20% 25V	C062	1-123-356-00	ELECT 10MF	20% 16V
C014	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C063	1-102-125-00	CERAMIC 0.0047MF	10% 50V
C015	1-161-059-00	CERAMIC 0.047MF	10% 25V	C064	1-161-013-00	CERAMIC 0.01MF	10% 25V
C016	1-102-529-00	CERAMIC 100PF	5% 50V	C065	1-102-963-00	CERAMIC 33PF	5% 50V
C017	1-102-963-00	CERAMIC 33PF	5% 50V	C066	1-130-493-00	MYLAR 0.068MF	5% 50V
C018	1-102-504-00	CERAMIC 4PF	0.25PF 50V	C067	1-130-493-00	MYLAR 0.068MF	5% 50V
C019	1-102-529-00	CERAMIC 100PF	5% 50V	C068	1-130-495-00	MYLAR 0.1MF	5% 50V
C020	1-102-504-00	CERAMIC 4PF	0.25PF 50V	C069	1-102-973-00	CERAMIC 100PF	5% 50V
C021	1-102-963-00	CERAMIC 33PF	5% 50V	C070	1-123-380-00	ELECT 1MF	20% 50V
C022	1-123-333-00	ELECT 100MF	20% 16V	C072	1-161-013-00	CERAMIC 0.01MF	10% 25V
C023	1-161-013-00	CERAMIC 0.01MF	10% 25V	C075	1-102-963-00	CERAMIC 33PF	5% 50V
C024	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C076	1-102-963-00	CERAMIC 33PF	5% 50V
C025	1-123-379-00	ELECT 0.47MF	20% 50V	C077	1-123-381-00	ELECT 2.2MF	20% 50V
C026	1-102-973-00	CERAMIC 100PF	5% 50V	C078	1-161-059-00	CERAMIC 0.047MF	10% 25V
C027	1-102-125-00	CERAMIC 0.0047MF	10% 50V	C079	1-161-013-00	CERAMIC 0.01MF	10% 25V
C028	1-123-286-00	ELECT 0.33MF	20% 50V	C080	1-161-013-00	CERAMIC 0.01MF	10% 25V
C029	1-161-013-00	CERAMIC 0.01MF	10% 25V	C081	1-123-332-00	ELECT 47MF	20% 16V
C030	1-101-361-00	CERAMIC 150PF	5% 50V	C082	1-123-356-00	ELECT 10MF	20% 50V
C031	1-123-380-00	ELECT 1MF	20% 50V	C083	1-123-380-00	ELECT 1MF	20% 50V
C032	1-130-014-00	FILM 470PF	5% 50V	C201	1-102-123-00	CERAMIC 0.0033MF	10% 50V
C033	1-102-525-00	CERAMIC 68PF	5% 50V	C301	1-123-356-00	ELECT 10MF	20% 50V
C034	1-161-055-00	CERAMIC 0.022MF	10% 25V	C401	1-123-318-00	ELECT 33MF	20% 16V
C035	1-161-055-00	CERAMIC 0.022MF	10% 25V	C402	1-102-121-00	CERAMIC 0.0022MF	10% 50V
C036	1-161-055-00	CERAMIC 0.022MF	10% 25V	C403	1-102-527-00	CERAMIC 82PF	5% 50V
C037	1-123-332-00	ELECT 47MF	20% 16V	C501	1-123-356-00	ELECT 10MF	20% 16V
C038	1-130-478-00	MYLAR 0.0039MF	5% 50V	C502	1-123-381-00	ELECT 2.2MF	20% 50V
C039	1-130-478-00	MYLAR 0.0039MF	5% 50V	C503	1-123-332-00	ELECT 47MF	20% 16V
C040	1-130-478-00	MYLAR 0.0039MF	5% 50V	C504	1-102-074-00	CERAMIC 0.001MF	10% 50V
C041	1-123-380-00	ELECT 1MF	20% 50V	C505	1-123-369-00	ELECT 4.7MF	20% 25V
C042	1-123-380-00	ELECT 1MF	20% 50V	C506	1-102-808-00	CERAMIC 6PF	1PF 50V
C043	1-123-332-00	ELECT 47MF	20% 16V	C508	1-102-816-00	CERAMIC 120PF	5% 50V
C044	1-123-356-00	ELECT 10MF	20% 16V	C511	1-123-369-00	ELECT 4.7MF	20% 25V
C045	1-123-356-00	ELECT 10MF	20% 16V	C512	1-123-332-00	ELECT 47MF	20% 16V
C046	1-161-059-00	CERAMIC 0.047MF	10% 25V	C513	1-161-013-00	CERAMIC 0.01MF	10% 25V
C047	1-123-333-00	ELECT 100MF	20% 16V	C601	1-101-004-00	CERAMIC 0.01MF	50V
C048	1-123-308-00	ELECT 220MF	20% 10V	C602	1-101-004-00	CERAMIC 0.01MF	50V
				C603	1-123-356-00	ELECT 10MF	20% 16V
				C604	1-123-382-00	ELECT 3.3MF	20% 50V
				C605	1-101-001-00	CERAMIC 0.001MF	50V
				C606	1-101-004-00	CERAMIC 0.01MF	50V

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



# TA-36

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>COIL</u>							
L001	1-408-397-00	MICRO INDUCTOR 1UH		Q606	8-729-245-83	TRANSISTOR 2SC2458	
L002	1-408-592-41	MICRO INDUCTOR 1.2UH		Q607	8-729-245-83	TRANSISTOR 2SC2458	
L003	1-408-406-00	MICRO INDUCTOR 5.6UH		Q608	8-729-245-83	TRANSISTOR 2SC2458	
L004	1-408-406-00	MICRO INDUCTOR 5.6UH		Q609	8-729-245-83	TRANSISTOR 2SC2458	
L005	1-408-604-00	MICRO INDUCTOR 12UH		Q610	8-729-900-89	TRANSISTOR DTC144ES	
L006	1-408-408-00	MICRO INDUCTOR 8.2UH		Q701	8-729-177-32	TRANSISTOR 2SD773	
L007	1-408-403-00	MICRO INDUCTOR 3.3UH		Q702	8-729-245-83	TRANSISTOR 2SC2458	
L008	1-408-397-00	MICRO INDUCTOR 1UH		Q703	8-729-900-80	TRANSISTOR DTC114ES	
L009	1-408-421-00	MICRO INDUCTOR 100UH		Q704	8-729-204-83	TRANSISTOR 2SA1048	
L501	1-408-421-00	MICRO INDUCTOR 100UH		Q800	8-729-900-74	TRANSISTOR DTC143TS	
L502	1-408-417-00	MICRO INDUCTOR 47UH		Q802	8-729-900-89	TRANSISTOR DTC144ES	
L701	1-407-168-XX	MICRO INDUCTOR 82UH		Q901	8-729-900-89	TRANSISTOR DTC144ES	
L901	1-407-508-00	MICRO INDUCTOR 22MMH		Q904	8-729-245-83	TRANSISTOR 2SC2458	
L902	1-407-510-00	MICRO INDUCTOR 27MMH		Q906	8-729-177-43	TRANSISTOR 2SD774	
L903	1-410-120-11	MICRO INDUCTOR 1.2MMH		Q907	8-729-245-83	TRANSISTOR 2SC2458	
<u>VARIABLE COIL</u>							
LV901	1-408-713-00	VARIABLE INDUCTOR		<u>RESISTOR</u>			
<u>TRANSISTOR</u>							
Q001	8-729-203-28	TRANSISTOR 2SC2216		R001	1-249-421-11	CARBON 2.2K 5%	1/6W
Q002	8-729-245-83	TRANSISTOR 2SC2458		R002	1-247-847-00	CARBON 4.7K 5%	1/6W
Q003	8-729-900-74	TRANSISTOR DTC143TS		R003	1-247-815-00	CARBON 220 5%	1/6W
Q004	8-729-900-74	TRANSISTOR DTC143TS		R004	1-247-819-00	CARBON 330 5%	1/6W
<del>Q005</del> $\Delta$ 8-729-274-02	<del>TRANSISTOR 2SC2458</del>			R005	1-247-813-00	CARBON 180 5%	1/6W
Q006	8-729-900-89	TRANSISTOR DTC144ES		R006	1-247-837-00	CARBON 1.8K 5%	1/6W
Q007	8-729-245-83	TRANSISTOR 2SC2458		R007	1-249-419-11	CARBON 1.5K 5%	1/6W
Q008	8-729-245-83	TRANSISTOR 2SC2458		R008	1-247-867-00	CARBON 33K 5%	1/6W
Q009	8-729-245-83	TRANSISTOR 2SC2458		R009	1-247-879-00	CARBON 100K 5%	1/6W
Q011	8-729-204-83	TRANSISTOR 2SA1048		R010	1-247-879-00	CARBON 100K 5%	1/6W
Q012	8-729-204-83	TRANSISTOR 2SA1048		R011	1-247-901-00	CARBON 820K 5%	1/6W
Q013	8-729-900-89	TRANSISTOR DTC144ES		R012	1-247-831-00	CARBON 1K 5%	1/6W
Q014	8-729-900-89	TRANSISTOR DTC144ES		R014	1-247-807-00	CARBON 100 5%	1/6W
Q015	8-729-900-89	TRANSISTOR DTC144ES		R015	1-247-817-00	CARBON 270 5%	1/6W
Q201	8-729-204-83	TRANSISTOR 2SA1048		R016	1-247-815-00	CARBON 220 5%	1/6W
Q202	8-729-245-83	TRANSISTOR 2SC2458		R017	1-247-847-00	CARBON 4.7K 5%	1/6W
Q301	8-729-900-65	TRANSISTOR DTA144ES		R018	1-247-829-00	CARBON 820 5%	1/6W
Q401	8-729-245-83	TRANSISTOR 2SC2458		R019	1-247-829-00	CARBON 820 5%	1/6W
Q501	8-729-245-83	TRANSISTOR 2SC2458		R020	1-247-829-00	CARBON 820 5%	1/6W
Q502	8-729-204-83	TRANSISTOR 2SA1048		R021	1-247-891-00	CARBON 330K 5%	1/6W
Q503	8-729-384-48	TRANSISTOR 2SA844		R022	1-249-437-11	CARBON 47K 5%	1/6W
Q504	8-729-245-83	TRANSISTOR 2SC2458		R023	1-247-853-00	CARBON 8.2K 5%	1/6W
Q505	8-729-245-83	TRANSISTOR 2SC2458		R024	1-247-863-00	CARBON 22K 5%	1/6W
Q506	8-729-245-83	TRANSISTOR 2SC2458		R025	1-247-853-00	CARBON 8.2K 5%	1/6W
Q507	8-729-245-83	TRANSISTOR 2SC2458		R026	1-247-863-00	CARBON 22K 5%	1/6W
Q508	8-729-900-80	TRANSISTOR DTC114ES		R027	1-249-429-11	CARBON 10K 5%	1/6W
Q509	8-729-204-83	TRANSISTOR 2SA1048		R028	1-249-429-11	CARBON 10K 5%	1/6W
Q601	8-729-900-89	TRANSISTOR DTC144ES		R031	1-247-861-00	CARBON 18K 5%	1/6W
Q602	8-729-245-83	TRANSISTOR 2SC2458		R032	1-249-434-11	CARBON 27K 5%	1/6W
Q603	8-729-245-83	TRANSISTOR 2SC2458		R033	1-247-829-00	CARBON 820 5%	1/6W
Q605	8-729-900-89	TRANSISTOR DTC144ES		R034	1-247-831-00	CARBON 1K 5%	1/6W
				R035	1-215-487-00	METAL 560K 1%	1/6W
				R036	1-215-409-00	METAL 330 1%	1/6W
				R037	1-215-461-00	METAL 47K 1%	1/6W
				R038	1-215-460-00	METAL 43K 1%	1/6W
				R039	1-215-408-00	METAL 300 1%	1/6W

The components identified by shading and mark  $\Delta$  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	Ref.No	Part No.	Description	Remark
R040	1-215-486-00	METAL	510K 1% 1/6W	R510	1-247-847-00	CARBON	4.7K 5% 1/6W
R041	1-247-831-00	CARBON	1K 5% 1/6W	R511	1-249-429-11	CARBON	10K 5% 1/6W
R042	1-206-670-00	METAL OXIDE	1.8K 5% 2W F	R512	1-247-857-00	CARBON	12K 5% 1/6W
R043	1-247-847-00	CARBON	4.7K 5% 1/6W	R513	1-247-831-00	CARBON	1K 5% 1/6W
R044	1-247-831-00	CARBON	1K 5% 1/6W	R514	1-247-807-00	CARBON	100 5% 1/6W
R045	1-247-833-00	CARBON	1.2K 5% 1/6W	R516	1-247-815-00	CARBON	220 5% 1/6W
R046	1-249-419-11	CARBON	1.5K 5% 1/6W	R517	1-249-414-11	CARBON	560 5% 1/6W
R047	1-249-421-11	CARBON	2.2K 5% 1/6W	R519	1-247-815-00	CARBON	220 5% 1/6W
R048	1-247-891-00	CARBON	330K 5% 1/6W	R523	1-247-847-00	CARBON	4.7K 5% 1/6W
R049	1-247-863-00	CARBON	22K 5% 1/6W	R524	1-247-807-00	CARBON	100 5% 1/6W
R050	1-247-863-00	CARBON	22K 5% 1/6W	R525	1-247-831-00	CARBON	1K 5% 1/6W
R051	1-247-863-00	CARBON	22K 5% 1/6W	R526	1-247-837-00	CARBON	1.8K 5% 1/6W
R052	1-247-863-00	CARBON	22K 5% 1/6W	R527	1-247-807-00	CARBON	100 5% 1/6W
R053	1-247-863-00	CARBON	22K 5% 1/6W	R550	1-247-799-00	CARBON	47 5% 1/6W
R054	1-247-877-00	CARBON	82K 5% 1/6W	R601	1-249-429-11	CARBON	10K 5% 1/6W
R055	1-247-851-00	CARBON	6.8K 5% 1/6W	R602	1-249-429-11	CARBON	10K 5% 1/6W
R056	1-247-843-00	CARBON	3.3K 5% 1/6W	R603	1-249-429-11	CARBON	10K 5% 1/6W
R058	1-247-867-00	CARBON	33K 5% 1/6W	R604	1-249-429-11	CARBON	10K 5% 1/6W
R059	1-247-863-00	CARBON	22K 5% 1/6W	R605	1-249-429-11	CARBON	10K 5% 1/6W
R060	1-247-847-00	CARBON	4.7K 5% 1/6W	R606	1-249-429-11	CARBON	10K 5% 1/6W
R061	1-247-863-00	CARBON	22K 5% 1/6W	R607	1-249-429-11	CARBON	10K 5% 1/6W
R062	1-247-867-00	CARBON	33K 5% 1/6W	R608	1-249-434-11	CARBON	27K 5% 1/6W
R063	1-249-429-11	CARBON	10K 5% 1/6W	R609	1-247-849-00	CARBON	5.6K 5% 1/6W
R064	1-249-429-11	CARBON	10K 5% 1/6W	R610	1-247-867-00	CARBON	33K 5% 1/6W
R066	1-249-429-11	CARBON	10K 5% 1/6W	R611	1-247-867-00	CARBON	33K 5% 1/6W
R067	1-247-903-00	CARBON	1M 5% 1/6W	R612	1-247-843-00	CARBON	3.3K 5% 1/6W
R068	1-247-831-00	CARBON	1K 5% 1/6W	R613	1-249-429-11	CARBON	10K 5% 1/6W
R070	1-247-853-00	CARBON	8.2K 5% 1/6W	R614	1-247-861-00	CARBON	18K 5% 1/6W
R071	1-249-437-11	CARBON	47K 5% 1/6W	R615	1-247-869-00	CARBON	39K 5% 1/6W
R072	1-249-437-11	CARBON	47K 5% 1/6W	R616	1-249-421-11	CARBON	2.2K 5% 1/6W
R073	1-249-437-11	CARBON	47K 5% 1/6W	R617	1-249-437-11	CARBON	47K 5% 1/6W
R074	1-247-833-00	CARBON	1.2K 5% 1/6W	R618	1-249-429-11	CARBON	10K 5% 1/6W
R076	1-249-421-11	CARBON	2.2K 5% 1/6W	R619	1-247-847-00	CARBON	4.7K 5% 1/6W
R077	1-247-847-00	CARBON	4.7K 5% 1/6W	R620	1-249-429-11	CARBON	10K 5% 1/6W
R201	1-247-819-00	CARBON	330 5% 1/6W	R622	1-249-429-11	CARBON	10K 5% 1/6W
R202	1-247-887-00	CARBON	220K 5% 1/6W	R701	1-247-791-00	CARBON	22 5% 1/6W
R203	1-247-845-00	CARBON	3.9K 5% 1/6W	R702	1-247-811-00	CARBON	150 5% 1/6W
R204	1-247-827-00	CARBON	680 5% 1/6W	R703	1-247-831-00	CARBON	1K 5% 1/6W
R205	1-249-414-11	CARBON	560 5% 1/6W	R704	1-247-831-00	CARBON	1K 5% 1/6W
R301	1-249-429-11	CARBON	10K 5% 1/6W	R705	1-247-819-00	CARBON	330 5% 1/6W
R302	1-249-429-11	CARBON	10K 5% 1/6W	R706	1-249-429-11	CARBON	10K 5% 1/6W
R303	1-247-849-00	CARBON	5.6K 5% 1/6W	R707	1-249-429-11	CARBON	10K 5% 1/6W
R401	1-247-831-00	CARBON	1K 5% 1/6W	R800	1-247-847-00	CARBON	4.7K 5% 1/6W
R402	1-247-823-00	CARBON	470 5% 1/6W	R801	1-247-847-00	CARBON	4.7K 5% 1/6W
R403	1-247-867-00	CARBON	33K 5% 1/6W	<del>R802 1-212-853-00 FUSIBLE 6.8 5% 1/6W F</del>			
R404	1-247-831-00	CARBON	1K 5% 1/6W	R805	1-249-429-11	CARBON	10K 5% 1/6W
R501	1-249-429-11	CARBON	10K 5% 1/6W	R806	1-247-843-00	CARBON	3.3K 5% 1/6W
R503	1-249-414-11	CARBON	560 5% 1/6W	R807	1-249-437-11	CARBON	47K 5% 1/6W
R504	1-249-429-11	CARBON	10K 5% 1/6W	R820	1-247-869-00	CARBON	39K 5% 1/6W
R505	1-247-847-00	CARBON	4.7K 5% 1/6W	R821	1-247-861-00	CARBON	18K 5% 1/6W
R507	1-247-833-00	CARBON	1.2K 5% 1/6W	R901	1-249-429-11	CARBON	10K 5% 1/6W
R508	1-247-831-00	CARBON	1K 5% 1/6W	R902	1-247-783-00	CARBON	10 5% 1/6W
R509	1-247-849-00	CARBON	5.6K 5% 1/6W	R903	1-247-859-00	CARBON	15K 5% 1/6W

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

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

**TA-36**

**TA-37**

Ref.No	Part No.	Description
R904	1-247-831-00	CARBON 1K 5% 1/6W
R905	1-247-821-00	CARBON 390 5% 1/6W
R906	1-247-861-00	CARBON 18K 5% 1/6W
R907	1-247-885-00	CARBON 180K 5% 1/6W
R908	1-249-429-11	CARBON 10K 5% 1/6W
R909	1-247-867-00	CARBON 33K 5% 1/6W
R912	1-247-899-00	CARBON 680K 5% 1/6W
R913	1-247-867-00	CARBON 33K 5% 1/6W
R914	1-247-829-00	CARBON 820 5% 1/6W
R915	1-249-429-11	CARBON 10K 5% 1/6W
R916	1-247-831-00	CARBON 1K 5% 1/6W
R917	1-247-807-00	CARBON 100 5% 1/6W
R919	1-247-899-00	CARBON 4.7K 5% 1/6W
R921	1-247-831-00	CARBON 1K 5% 1/6W
R922	1-247-859-00	CARBON 15K 5% 1/6W
R923	1-247-077-00	CARBON 3.3 5% 1/4W
R925	1-249-437-11	CARBON 47K 5% 1/6W
R926	1-247-853-00	CARBON 8.2K 5% 1/6W
R950	1-247-857-00	CARBON 12K 5% 1/6W
R951	1-247-867-00	CARBON 33K 5% 1/6W

VARIABLE RESISTOR

RV001	1-228-993-00	RES, ADJ, CARBON 4.7K
RV002	1-228-995-00	RES, ADJ, CARBON 22K
RV901	1-228-994-00	RES, ADJ, CARBON 10K
RV902	1-228-998-00	RES, ADJ, METAL GLAZE 220K

RELAY

RY901	1-515-418-00	RELAY
-------	--------------	-------

SWITCH

S001	1-553-997-00	SWITCH, KEY BOARD
S002	1-553-997-00	SWITCH, KEY BOARD
S003	1-553-997-00	SWITCH, KEY BOARD
S004	1-553-997-00	SWITCH, KEY BOARD
S005	1-553-997-00	SWITCH, KEY BOARD
S006	1-553-997-00	SWITCH, KEY BOARD
S007	1-553-997-00	SWITCH, KEY BOARD

TRANSFORMER

T001	1-404-068-00	COIL, YIF
T002	1-404-068-00	COIL, YIF
T003	1-404-427-00	YIFT
T004	1-404-427-00	YIFT
T005	1-404-477-00	COIL, IF
T006	1-404-465-12	COIL, YIF (MOLD TYPE)
T007	1-404-477-00	COIL, IF
T008	1-404-619-11	COIL, IF
T701	1-446-571-00	TRANSFORMER, CONVERTOR
T901	1-433-275-00	TRANSFORMER, BIAS OSCILLATOR

TUNER

TU001A	1-469-577-31	TUNER, ET (BT-803AD)
--------	--------------	----------------------

The components identified by shading and mark **A** 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-6721-258-A	TA-37 BOARD, COMPLETE (E MODEL)	*****	
*1-555-110-00	CABLE, PIN		
*3-662-227-00	HOLDER (R-3), LED		
3-671-893-00	CLAMP (LOW TYPE)		
*3-674-390-00	HOLDER (B), LED		
*3-683-631-01	CLAMP		
3-701-748-00	CLAMP		
*4-336-029-00	PLATE, SHIELD		
<u>BATTERY</u>			
8701	1-528-132-00	BATTERY, STORAGE, NI-CD	
<u>CAPACITOR</u>			
C001	1-102-529-00	CERAMIC 100PF 5% 50V	
C002	1-102-529-00	CERAMIC 100PF 5% 50V	
C003	1-102-947-00	CERAMIC 10PF 5% 50V	
C004	1-102-523-00	CERAMIC 56PF 5% 50V	
C005	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C006	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C007	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C008	1-102-074-00	CERAMIC 0.001MF 10% 50V	
C009	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C010	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C011	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C012	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C013	1-123-369-00	ELECT 4.7MF 20% 25V	
C014	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C015	1-161-059-00	CERAMIC 0.047MF 10% 25V	
C016	1-102-529-00	CERAMIC 100PF 5% 50V	
C017	1-102-963-00	CERAMIC 33PF 5% 50V	
C018	1-102-504-00	CERAMIC 4PF 0.25PF 50V	
C019	1-102-529-00	CERAMIC 100PF 5% 50V	
C020	1-102-504-00	CERAMIC 4PF 0.25PF 50V	
C021	1-102-963-00	CERAMIC 33PF 5% 50V	
C022	1-123-333-00	ELECT 100MF 20% 16V	
C023	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C024	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C025	1-123-379-00	ELECT 0.47MF 20% 50V	
C058	1-123-333-00	ELECT 100MF 20% 16V	
C059	1-123-333-00	ELECT 100MF 20% 16V	
C060	1-123-356-00	ELECT 10MF 20% 16V	
C061	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C062	1-123-356-00	ELECT 10MF 20% 16V	

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark	
C063	1-102-125-00	CERAMIC	0.0047MF 10%	50V	C701	1-123-330-00	ELECT 22MF 20%	16V
C064	1-161-013-00	CERAMIC	0.01MF 10%	25V	C702	1-123-330-00	ELECT 22MF 20%	16V
C065	1-102-963-00	CERAMIC	33PF 5%	50V	C703	1-102-121-00	CERAMIC 0.0022MF	10% 50V
C066	1-130-493-00	MYLAR	0.068MF 5%	50V	C704	1-123-381-00	ELECT 2.2MF	20% 50V
C067	1-130-493-00	MYLAR	0.068MF 5%	50V	C705	1-123-330-00	ELECT 22MF	20% 16V
C068	1-130-495-00	MYLAR	0.1MF 5%	50V	C706	1-123-308-00	ELECT 220MF	20% 10V
C069	1-102-973-00	CERAMIC	100PF 5%	50V	C800	1-101-004-00	CERAMIC 0.01MF	50V
C070	1-123-380-00	ELECT	1MF 20%	50V	C801	1-130-483-00	MYLAR 0.01MF	5% 50V
C072	1-161-013-00	CERAMIC	0.01MF 10%	25V	C802	1-136-164-00	MYLAR 0.082MF	5% 50V
C073	1-161-047-00	CERAMIC	0.0047MF 20%	25V	C803	1-101-004-00	CERAMIC 0.01MF	50V
C074	1-102-116-00	CERAMIC	680PF 10%	50V	C804	1-123-608-00	ELECT 0.22MF	20% 50V
C075	1-102-963-00	CERAMIC	33PF 5%	50V	C805	1-123-332-00	ELECT 47MF	20% 16V
C076	1-102-963-00	CERAMIC	33PF 5%	50V	C806	1-123-608-00	ELECT 0.22MF	20% 50V
C077	1-123-381-00	ELECT	2.2MF 20%	50V	C901	1-123-332-00	ELECT 47MF	20% 16V
C078	1-161-059-00	CERAMIC	0.047MF 10%	25V	C902	1-102-111-00	CERAMIC 270PF	10% 50V
C079	1-161-013-00	CERAMIC	0.01MF 10%	25V	C903	1-130-474-00	MYLAR 0.0018MF	5% 50V
C080	1-161-013-00	CERAMIC	0.01MF 10%	25V	C904	1-123-332-00	ELECT 47MF	20% 16V
C081	1-123-332-00	ELECT	47MF 20%	16V	C905	1-123-332-00	ELECT 47MF	20% 16V
C082	1-123-356-00	ELECT	10MF 20%	50V	C906	1-123-369-00	ELECT 4.7MF	20% 25V
C083	1-123-332-00	ELECT	47MF 20%	16V	C907	1-130-473-00	MYLAR 0.0015MF	5% 50V
C101	1-102-976-00	CERAMIC	180PF 5%	50V	C908	1-130-483-00	MYLAR 0.01MF	5% 50V
C102	1-161-013-00	CERAMIC	0.01MF 10%	25V	C909	1-123-381-00	ELECT 2.2MF	20% 50V
C103	1-123-318-00	ELECT	33MF 20%	16V	C910	1-123-332-00	ELECT 47MF	20% 16V
C104	1-102-959-00	CERAMIC	22PF 5%	50V	C911	1-102-978-00	CERAMIC 220PF	5% 50V
C106	1-102-125-00	CERAMIC	0.0047MF 10%	50V	C912	1-123-332-00	ELECT 47MF	20% 16V
C107	1-161-013-00	CERAMIC	0.01MF 10%	25V	C913	1-123-356-00	ELECT 10MF	20% 16V
C108	1-161-013-00	CERAMIC	0.01MF 10%	25V	C914	1-123-330-00	ELECT 22MF	20% 16V
C109	1-102-959-00	CERAMIC	22PF 5%	50V	C915	1-123-379-00	ELECT 0.47MF	20% 50V
C113	1-102-959-00	CERAMIC	22PF 5%	50V	C916	1-123-332-00	ELECT 47MF	20% 16V
C115	1-161-013-00	CERAMIC	0.01MF 10%	25V	C917	1-130-481-00	MYLAR 0.0068MF	5% 50V
C116	1-123-380-00	ELECT	1MF 20%	50V	C918	1-123-356-00	ELECT 10MF	20% 16V
C117	1-123-333-00	ELECT	100MF 20%	16V	C919	1-130-477-00	MYLAR 0.0033MF	5% 50V
C118	1-161-059-00	CERAMIC	0.047MF 10%	25V	C920	1-130-479-00	MYLAR 0.0047MF	5% 50V
C150	1-101-880-00	CERAMIC	47PF 5%	50V	C921	1-123-332-00	ELECT 47MF	20% 16V
C201	1-102-123-00	CERAMIC	0.0033MF 10%	50V	C922	1-136-215-00	FILM 0.0068MF	10% 400V
C301	1-123-356-00	ELECT	10MF 20%	50V	C923	1-107-080-00	NICA 62PF	5% 50V
C501	1-123-356-00	ELECT	10MF 20%	16V	C951	1-123-332-00	ELECT 47MF	20% 16V
C502	1-123-381-00	ELECT	2.2MF 20%	50V				
C503	1-123-332-00	ELECT	47MF 20%	16V				
C504	1-102-074-00	CERAMIC	0.001MF 10%	50V				
C505	1-123-369-00	ELECT	4.7MF 20%	25V				
C506	1-102-808-00	CERAMIC	6PF 1PF	50V				
C508	1-102-816-00	CERAMIC	120PF 5%	50V				
C511	1-123-369-00	ELECT	4.7MF 20%	25V				
C512	1-123-332-00	ELECT	47MF 20%	16V				
C513	1-161-013-00	CERAMIC	0.01MF 10%	25V				
C601	1-101-004-00	CERAMIC	0.01MF	50V				
C602	1-101-004-00	CERAMIC	0.01MF	50V				
C603	1-123-356-00	ELECT	10MF 20%	16V				
C604	1-123-382-00	ELECT	3.3MF 20%	50V				
C605	1-101-001-00	CERAMIC	0.001MF	50V				
C606	1-101-004-00	CERAMIC	0.01MF	50V				
C608	1-123-380-00	ELECT	1MF 20%	50V				

DISCRIMINATOR

CD101 1-404-380-00 DISCRIMINATOR, CERAMIC 5.5MHZ

FILTER

CF003 1-527-822-00 OSCILLATOR, CERAMIC  
CF101 1-527-263-00 CERAMIC FILTER (5.5MHZ)

CONNECTOR

CN001 \*1-560-891-00 PIN, CONNECTOR 3P  
CN002 \*1-560-896-00 PIN, CONNECTOR 8P  
CN003 \*1-560-894-00 PIN, CONNECTOR 6P  
CN004 \*1-560-900-00 PIN, CONNECTOR 12P  
CN501 \*1-560-892-00 PIN, CONNECTOR 4P  
CN502 \*1-560-896-00 PIN, CONNECTOR 8P

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

# TA-37

Ref.No	Part No.	Description
CN901	*1-564-030-00	PIN, CONNECTOR 5P
CN902	*1-564-033-00	PIN, CONNECTOR 8P

### TRIMMER

CT001	1-404-134-00	TRAP, CERAMIC (5.5MHZ)
CT101	1-409-333-00	TRAP, CERAMIC (6.0MHZ)

### DIODE

D003	8-719-911-19	DIODE 1SS119
D005	8-719-812-33	DIODE TLG123A
D006	8-719-812-31	DIODE TLR123
D007	8-719-812-31	DIODE TLR123
D008	8-719-000-12	DIODE MC931
D009	8-719-812-32	DIODE TLY123
D010	8-719-200-02	DIODE 10E-2
D101	8-719-911-19	DIODE 1SS119
D301	8-719-000-12	DIODE MC931
D302	8-719-911-19	DIODE 1SS119
D402	8-719-911-19	DIODE 1SS119
D505	8-719-911-19	DIODE 1SS119
D508	8-719-911-19	DIODE 1SS119
D601	8-719-911-19	DIODE 1SS119
D602	8-719-911-19	DIODE 1SS119
D603	8-719-911-19	DIODE 1SS119
D604	8-719-911-19	DIODE 1SS119
D605	8-719-911-19	DIODE 1SS119
D607	8-719-911-19	DIODE 1SS119
D608	8-719-911-19	DIODE 1SS119
D609	8-719-911-19	DIODE 1SS119
D701	8-719-911-19	DIODE 1SS119
D702	8-719-911-19	DIODE 1SS119
D703	8-719-100-31	DIODE R05.1E83
D704	8-719-911-19	DIODE 1SS119
D705	8-719-911-19	DIODE 1SS119
D706	8-719-911-19	DIODE 1SS119
D707	8-719-911-19	DIODE 1SS119
D800	8-719-911-19	DIODE 1SS119
D801	8-719-911-19	DIODE 1SS119
D901	8-719-000-06	DIODE MC921
D902	8-719-911-19	DIODE 1SS119

### IC

IC001	8-759-276-07	IC TA7607AP
IC005	8-759-602-16	IC M54572L
IC006	8-759-157-40	IC UPC574J
IC007	8-759-603-11	IC M50160-115SP
IC008	8-759-600-66	IC M58653P
IC009	8-759-105-50	IC UPD7507SC-068
IC101	8-759-103-70	IC UPC1391HA
IC601	8-759-205-76	IC TC504013BP
IC901	8-759-101-73	IC UPC1513HA
IC902	8-759-802-11	IC LA7091

The components identified by shading and mark **A** 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
<u>COIL</u>			
L001	1-408-397-00	MICRO INDUCTOR 1UH	
L002	1-408-397-00	MICRO INDUCTOR 1UH	
L003	1-408-406-00	MICRO INDUCTOR 5.6UH	
L004	1-408-406-00	MICRO INDUCTOR 5.6UH	
L005	1-408-408-00	MICRO INDUCTOR 8.2UH	
L009	1-408-421-00	MICRO INDUCTOR 100UH	
L101	1-408-604-00	MICRO INDUCTOR 12UH	
L102	1-408-406-00	MICRO INDUCTOR 5.6UH	
L103	1-408-413-00	MICRO INDUCTOR 22UH	
L104	1-408-412-00	MICRO INDUCTOR 18UH	
L106	1-408-421-00	MICRO INDUCTOR 100UH	
L501	1-408-421-00	MICRO INDUCTOR 100UH	
L502	1-408-417-00	MICRO INDUCTOR 47UH	
L701	1-407-168-XX	MICRO INDUCTOR 82UH	
L901	1-407-508-00	MICRO INDUCTOR 22MMH	
L902	1-407-510-00	MICRO INDUCTOR 27MMH	
L903	1-410-120-11	MICRO INDUCTOR 1.2MMH	
<u>VARIABLE COIL</u>			
LY901	1-408-713-00	VARIABLE INDUCTOR	
<u>TRANSISTOR</u>			
Q001	8-729-203-28	TRANSISTOR 2SC2717	
Q006	8-729-900-89	TRANSISTOR DTC144ES	
Q007	8-729-245-83	TRANSISTOR 2SC2458	
Q008	8-729-245-83	TRANSISTOR 2SC2458	
Q009	8-729-245-83	TRANSISTOR 2SC2458	
Q011	8-729-204-83	TRANSISTOR 2SA1048	
Q012	8-729-204-83	TRANSISTOR 2SA1048	
Q013	8-729-900-89	TRANSISTOR DTC144ES	
Q015	8-729-900-89	TRANSISTOR DTC144ES	
Q101	8-729-245-83	TRANSISTOR 2SC2458	
Q106	8-729-900-74	TRANSISTOR DTC143TS	
Q201	8-729-204-83	TRANSISTOR 2SA1048	
Q202	8-729-245-83	TRANSISTOR 2SC2458	
Q301	8-729-900-65	TRANSISTOR DTA144ES	
Q501	8-729-245-83	TRANSISTOR 2SC2458	
Q502	8-729-204-83	TRANSISTOR 2SA1048	
Q503	8-729-117-54	TRANSISTOR 2SA1175	
Q504	8-729-245-83	TRANSISTOR 2SC2458	
Q505	8-729-245-83	TRANSISTOR 2SC2458	
Q506	8-729-245-83	TRANSISTOR 2SC2458	
Q507	8-729-245-83	TRANSISTOR 2SC2458	
Q508	8-729-900-80	TRANSISTOR DTC114ES	
Q509	8-729-204-83	TRANSISTOR 2SA1048	
Q601	8-729-900-89	TRANSISTOR DTC144ES	
Q602	8-729-245-83	TRANSISTOR 2SC2458	
Q603	8-729-245-83	TRANSISTOR 2SC2458	
Q605	8-729-900-89	TRANSISTOR DTC144ES	
Q606	8-729-245-83	TRANSISTOR 2SC2458	

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q607	8-729-245-83	TRANSISTOR 2SC2458		R067	1-247-903-00	CARBON	1M 5% 1/6W
Q608	8-729-245-83	TRANSISTOR 2SC2458		R068	1-247-831-00	CARBON	1K 5% 1/6W
Q609	8-729-245-83	TRANSISTOR 2SC2458		R070	1-247-853-00	CARBON	8.2K 5% 1/6W
Q610	8-729-900-89	TRANSISTOR DTC144ES		R071	1-249-437-11	CARBON	47K 5% 1/6W
Q701	8-729-177-32	TRANSISTOR 2SQ773		R072	1-249-437-11	CARBON	47K 5% 1/6W
Q702	8-729-245-83	TRANSISTOR 2SC2458		R073	1-249-437-11	CARBON	47K 5% 1/6W
Q703	8-729-900-80	TRANSISTOR DTC114ES		R074	1-247-833-00	CARBON	1.2K 5% 1/6W
Q704	8-729-204-83	TRANSISTOR 2SA1048		R076	1-249-419-11	CARBON	1.5K 5% 1/6W
Q800	8-729-900-89	TRANSISTOR DTC144ES		R077	1-247-847-00	CARBON	4.7K 5% 1/6W
Q802	8-729-900-89	TRANSISTOR DTC144ES		R101	1-247-807-00	CARBON	100 5% 1/6W
Q901	8-729-900-89	TRANSISTOR DTC144ES		R102	1-247-817-00	CARBON	270 5% 1/6W
Q904	8-729-245-83	TRANSISTOR 2SC2458		R103	1-247-815-00	CARBON	220 5% 1/6W
Q906	8-729-177-43	TRANSISTOR 2SD774		R104	1-247-829-00	CARBON	820 5% 1/6W
Q907	8-729-245-83	TRANSISTOR 2SC2458		R105	1-247-819-00	CARBON	330 5% 1/6W
<b>RESISTOR</b>							
R001	1-249-421-11	CARBON	2.2K 5% 1/6W	R109	1-247-863-00	CARBON	22K 5% 1/6W
R002	1-247-847-00	CARBON	4.7K 5% 1/6W	R110	1-247-831-00	CARBON	1K 5% 1/6W
R003	1-247-815-00	CARBON	220 5% 1/6W	R111	1-247-815-00	CARBON	220 5% 1/6W
R004	1-247-819-00	CARBON	330 5% 1/6W	R113	1-247-831-00	CARBON	1K 5% 1/6W
R005	1-247-813-00	CARBON	180 5% 1/6W	R115	1-249-437-11	CARBON	47K 5% 1/6W
R006	1-247-837-00	CARBON	1.8K 5% 1/6W	R116	1-247-891-00	CARBON	330K 5% 1/6W
R007	1-249-419-11	CARBON	1.5K 5% 1/6W	R201	1-247-819-00	CARBON	330 5% 1/6W
R008	1-247-867-00	CARBON	33K 5% 1/6W	R202	1-247-887-00	CARBON	220K 5% 1/6W
R009	1-247-879-00	CARBON	100K 5% 1/6W	R203	1-247-845-00	CARBON	3.9K 5% 1/6W
R010	1-247-879-00	CARBON	100K 5% 1/6W	R204	1-247-827-00	CARBON	680 5% 1/6W
R011	1-247-901-00	CARBON	820K 5% 1/6W	R205	1-249-414-11	CARBON	560 5% 1/6W
R012	1-247-831-00	CARBON	1K 5% 1/6W	R301	1-249-429-11	CARBON	10K 5% 1/6W
R013	1-247-815-00	CARBON	220 5% 1/6W	R302	1-249-429-11	CARBON	10K 5% 1/6W
R042	1-206-670-00	METAL OXIDE	1.8K 5% 2W F	R303	1-247-849-00	CARBON	5.6K 5% 1/6W
R043	1-247-847-00	CARBON	4.7K 5% 1/6W	R501	1-249-429-11	CARBON	10K 5% 1/6W
R044	1-247-831-00	CARBON	1K 5% 1/6W	R503	1-249-414-11	CARBON	560 5% 1/6W
R045	1-247-833-00	CARBON	1.2K 5% 1/6W	R504	1-249-429-11	CARBON	10K 5% 1/6W
R046	1-249-421-11	CARBON	2.2K 5% 1/6W	R505	1-247-847-00	CARBON	4.7K 5% 1/6W
R047	1-249-421-11	CARBON	2.2K 5% 1/6W	R507	1-247-833-00	CARBON	1.2K 5% 1/6W
R048	1-247-891-00	CARBON	330K 5% 1/6W	R508	1-247-831-00	CARBON	1K 5% 1/6W
R049	1-247-863-00	CARBON	22K 5% 1/6W	R509	1-247-849-00	CARBON	5.6K 5% 1/6W
R050	1-247-863-00	CARBON	22K 5% 1/6W	R510	1-247-847-00	CARBON	4.7K 5% 1/6W
R051	1-247-863-00	CARBON	22K 5% 1/6W	R511	1-249-429-11	CARBON	10K 5% 1/6W
R052	1-247-863-00	CARBON	22K 5% 1/6W	R512	1-247-857-00	CARBON	12K 5% 1/6W
R053	1-247-863-00	CARBON	22K 5% 1/6W	R513	1-247-831-00	CARBON	1K 5% 1/6W
R054	1-247-877-00	CARBON	82K 5% 1/6W	R514	1-247-807-00	CARBON	100 5% 1/6W
R055	1-247-851-00	CARBON	6.8K 5% 1/6W	R516	1-247-815-00	CARBON	220 5% 1/6W
R056	1-247-843-00	CARBON	3.3K 5% 1/6W	R517	1-249-414-11	CARBON	560 5% 1/6W
R058	1-247-867-00	CARBON	33K 5% 1/6W	R519	1-247-815-00	CARBON	220 5% 1/6W
R059	1-247-863-00	CARBON	22K 5% 1/6W	R523	1-247-847-00	CARBON	4.7K 5% 1/6W
R060	1-247-847-00	CARBON	4.7K 5% 1/6W	R524	1-247-807-00	CARBON	100 5% 1/6W
R061	1-247-863-00	CARBON	22K 5% 1/6W	R525	1-247-831-00	CARBON	1K 5% 1/6W
R062	1-247-867-00	CARBON	33K 5% 1/6W	R526	1-247-837-00	CARBON	1.8K 5% 1/6W
R063	1-249-429-11	CARBON	10K 5% 1/6W	R527	1-247-807-00	CARBON	100 5% 1/6W
R064	1-249-429-11	CARBON	10K 5% 1/6W	R550	1-247-799-00	CARBON	47 5% 1/6W
R065	1-249-429-11	CARBON	10K 5% 1/6W	R601	1-249-429-11	CARBON	10K 5% 1/6W
R066	1-249-429-11	CARBON	10K 5% 1/6W	R602	1-249-429-11	CARBON	10K 5% 1/6W
				R603	1-249-429-11	CARBON	10K 5% 1/6W

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



# TA-37

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R604	1-249-429-11	CARBON	10K 5% 1/6W	R926	1-247-853-00	CARBON 8.2K 5% 1/6W	
R605	1-249-429-11	CARBON	10K 5% 1/6W	R950	1-247-857-00	CARBON 12K 5% 1/6W	
R606	1-249-429-11	CARBON	10K 5% 1/6W	R951	1-247-867-00	CARBON 33K 5% 1/6W	
R607	1-249-429-11	CARBON	10K 5% 1/6W	<u>VARIABLE RESISTOR</u>			
R608	1-249-434-11	CARBON	27K 5% 1/6W	RV001	1-228-993-00	RES, ADJ, CARBON 4.7K	
R609	1-247-849-00	CARBON	5.6K 5% 1/6W	RV901	1-228-994-00	RES, ADJ, CARBON 10K	
R610	1-247-867-00	CARBON	33K 5% 1/6W	RV902	1-228-998-00	RES, ADJ, METAL GLAZE 220K	
R611	1-247-867-00	CARBON	33K 5% 1/6W	<u>RELAY</u>			
R612	1-247-843-00	CARBON	3.3K 5% 1/6W	RY901	1-515-418-00	RELAY	
R613	1-249-429-11	CARBON	10K 5% 1/6W	<u>SWITCH</u>			
R614	1-247-861-00	CARBON	18K 5% 1/6W	S001	1-553-997-00	SWITCH, KEY BOARD	
R615	1-247-869-00	CARBON	39K 5% 1/6W	S002	1-553-997-00	SWITCH, KEY BOARD	
R616	1-249-421-11	CARBON	2.2K 5% 1/6W	S003	1-553-997-00	SWITCH, KEY BOARD	
R617	1-249-437-11	CARBON	47K 5% 1/6W	S004	1-553-997-00	SWITCH, KEY BOARD	
R618	1-249-429-11	CARBON	10K 5% 1/6W	S005	1-553-997-00	SWITCH, KEY BOARD	
R619	1-247-847-00	CARBON	4.7K 5% 1/6W	S006	1-553-997-00	SWITCH, KEY BOARD	
R620	1-249-429-11	CARBON	10K 5% 1/6W	S007	1-553-997-00	SWITCH, KEY BOARD	
R622	1-249-429-11	CARBON	10K 5% 1/6W	<u>SAWF</u>			
R701	1-247-791-00	CARBON	22 5% 1/6W	SAWF1011-404-563-11	SAWF		
R702	1-247-811-00	CARBON	150 5% 1/6W	<u>TRANSFORMER</u>			
R703	1-247-831-00	CARBON	1K 5% 1/6W	T001	1-404-068-00	COIL, VIF	
R704	1-247-831-00	CARBON	1K 5% 1/6W	T002	1-404-068-00	COIL, VIF	
R705	1-247-819-00	CARBON	330 5% 1/6W	T003	1-404-427-00	VIFT	
R706	1-249-429-11	CARBON	10K 5% 1/6W	T004	1-404-427-00	VIFT	
R707	1-249-429-11	CARBON	10K 5% 1/6W	T101	1-404-428-00	VIFT	
R800	1-247-847-00	CARBON	4.7K 5% 1/6W	T701	1-446-571-00	TRANSFORMER, CONVERTOR	
R801	1-247-847-00	CARBON	4.7K 5% 1/6W	T901	1-433-275-00	TRANSFORMER, BIAS OSCILLATOR	
R805	1-249-429-11	CARBON	10K 5% 1/6W	<u>TUNER</u>			
R806	1-247-843-00	CARBON	3.3K 5% 1/6W	*****			
R807	1-249-437-11	CARBON	47K 5% 1/6W	*****			
R820	1-247-869-00	CARBON	39K 5% 1/6W	*****			
R821	1-247-861-00	CARBON	18K 5% 1/6W	*****			
R901	1-249-429-11	CARBON	10K 5% 1/6W	*****			
R902	1-247-783-00	CARBON	10 5% 1/6W	*****			
R903	1-247-859-00	CARBON	15K 5% 1/6W	*****			
R904	1-247-831-00	CARBON	1K 5% 1/6W	*****			
R905	1-247-821-00	CARBON	390 5% 1/6W	*****			
R906	1-247-861-00	CARBON	18K 5% 1/6W	*****			
R907	1-247-885-00	CARBON	180K 5% 1/6W	*****			
R908	1-249-429-11	CARBON	10K 5% 1/6W	*****			
R909	1-247-867-00	CARBON	33K 5% 1/6W	*****			
R912	1-247-899-00	CARBON	680K 5% 1/6W	*****			
R913	1-247-867-00	CARBON	33K 5% 1/6W	*****			
R914	1-247-829-00	CARBON	820 5% 1/6W	*****			
R915	1-249-429-11	CARBON	10K 5% 1/6W	*****			
R916	1-247-831-00	CARBON	1K 5% 1/6W	*****			
R917	1-247-807-00	CARBON	100 5% 1/6W	*****			
R921	1-247-831-00	CARBON	1K 5% 1/6W	*****			
R922	1-247-859-00	CARBON	15K 5% 1/6W	*****			
R923	1-247-077-00	CARBON	3.3 5% 1/4W	*****			
R925	1-249-437-11	CARBON	47K 5% 1/6W	*****			

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

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

**LM-17**

**PW-15**

**US-1**

**LS-11**

**FL-8**

**FL-9**

Ref.No	Part No.	Description	Remark
	*1-616-601-11	LM-17 BOARD *****	
<u>CAPACITOR</u>			
C101	1-161-057-00	CERAMIC 0.033MF 20% 25V	
C102	1-161-057-00	CERAMIC 0.033MF 20% 25V	
<u>COIL</u>			
L101	1-408-120-00	MICRO INDUCTOR 18UH	
L102	1-408-120-00	MICRO INDUCTOR 18UH	

\*\*\*\*\*

	*1-617-041-11	PW-15 BOARD *****	
	*3-697-646-01	HOLDER (PW), LED	
<u>DIODE</u>			
D101	8-719-812-33	DIODE TLG123A	
<u>RESISTOR</u>			
R101	1-247-708-11	CARBON 470 5% 1/4W	
<u>VARIABLE RESISTOR</u>			
RV101	1-230-856-11	RES, VAR, CARBON 50K/50K	
<u>SWITCH</u>			
SW101	1-554-174-00	SWITCH, KEY BOARD	

\*\*\*\*\*

	*1-616-598-11	US-1 BOARD *****	
	*1-616-600-11	LS-11 BOARD *****	
<u>CAPACITOR</u>			
C001	1-161-057-00	CERAMIC 0.033MF 20% 25V	
C002	1-161-057-00	CERAMIC 0.033MF 20% 25V	
<u>COIL</u>			
L001	1-408-120-00	MICRO INDUCTOR 18UH	
L002	1-408-120-00	MICRO INDUCTOR 18UH	

\*\*\*\*\*

	*A-6724-466-A	FL-8 BOARD, COMPLETE *****	
	*3-697-606-01	HOLDER, LED, B-HIFI	
	*3-697-607-01	HOLDER (SU), LED	

Ref.No	Part No.	Description	Remark
	*3-697-648-01	HOLDER, INDICATION TUBE	
<u>CAPACITOR</u>			
C001	1-123-356-00	ELECT 10MF 20% 16V	
<u>CONNECTOR</u>			
CN001	*1-564-016-00	PIN, CONNECTOR 6P	
CN002	*1-564-001-11	PIN, CONNECTOR 2P	
<u>TRIMMER</u>			
CV101	1-141-022-11	CAP, TRIMMER, CERAMIC	
<u>DIODE</u>			
D001	8-719-906-49	DIODE LT-9230N	
D002	8-719-812-33	DIODE TLG123A	
<u>INDICATOR TUBE</u>			
FL001	1-519-366-11	INDICATOR TUBE, FLUORESCENT	
<u>IC</u>			
IC001	8-741-131-70	IC 8X-1317	
<u>RESISTOR</u>			
R001	1-249-437-11	CARBON 47K 5% 1/6W	
R003	1-247-801-00	CARBON 56 5% 1/6W	
R004	1-247-813-00	CARBON 180 5% 1/6W	
R005	1-247-813-00	CARBON 180 5% 1/6W	
R006	1-249-421-11	CARBON 2.2K 5% 1/6W	
R007	1-249-421-11	CARBON 2.2K 5% 1/6W	
<u>VARIABLE RESISTOR</u>			
RV001	1-230-986-11	RES, VAR, SLIDE 20K/20K	
RV002	1-228-994-00	RES, ADJ, CARBON 10K	
RV003	1-228-994-00	RES, ADJ, CARBON 10K	
<u>SWITCH</u>			
S001	1-554-174-00	SWITCH, KEY BOARD	
S002	1-554-174-00	SWITCH, KEY BOARD	
S003	1-554-174-00	SWITCH, KEY BOARD	
S004	1-554-174-00	SWITCH, KEY BOARD	
S005	1-554-174-00	SWITCH, KEY BOARD	
S006	1-554-174-00	SWITCH, KEY BOARD	

\*\*\*\*\*

	*A-6724-467-A	FL-9 BOARD, COMPLETE *****	
<u>CAPACITOR</u>			
C102	1-123-617-00	ELECT 10MF 20% 16V	
C103	1-123-617-00	ELECT 10MF 20% 16V	

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

# FL-9      FR-20

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C104	1-102-508-00	CERAMIC 10PF	0.5PF 50V	D004	8-719-911-19	DIODE 1SS119	
C105	1-161-025-00	CERAMIC 0.1MF	10% 25V	D005	8-719-911-19	DIODE 1SS119	
C106	1-123-611-00	ELECT 1MF	20% 50V	D006	8-719-911-19	DIODE 1SS119	
<u>CONNECTOR</u>				D007	8-719-911-19	DIODE 1SS119	
CN101	*1-564-003-00	PIN, CONNECTOR 4P		D008	8-719-812-33	DIODE TLG123A	
CN102	*1-564-011-11	PIN, CONNECTOR 12P		D009	8-719-812-31	DIODE TLR123	
<u>COMPOSITION CIRCUIT BLOCK</u>				D010	8-719-812-31	DIODE TLR123	
CP101	1-232-967-11	COMPOSITION CIRCUIT BLOCK		D011	8-719-812-31	DIODE TLR123	
<u>DIODE</u>				D012	8-719-812-30	DIODE TLO123	
D102	8-719-100-54	DIODE RD9.1E-B2		D013	8-719-812-32	DIODE TLY123	
<u>IC</u>				D014	8-719-812-32	DIODE TLY123	
IC101	8-752-800-26	IC CXP5016-104S		D015	8-719-812-33	DIODE TLG123A	
IC102	8-759-913-41	IC S-8054ALB		D016	8-719-812-33	DIODE TLG123A	
<u>TRANSISTOR</u>				D017	8-719-812-33	DIODE TLG123A	
Q102	8-729-900-80	TRANSISTOR DTC114ES		D018	8-719-812-33	DIODE TLG123A	
Q103	8-729-900-80	TRANSISTOR DTC114ES		D019	8-719-812-33	DIODE TLG123A	
<u>RESISTOR</u>				D020	8-719-812-33	DIODE TLG123A	
R104	1-249-429-11	CARBON 10K 5%	1/6W	D021	8-719-812-33	DIODE TLG123A	
R107	1-247-843-00	CARBON 3.3K 5%	1/6W	D022	8-719-812-33	DIODE TLG123A	
R109	1-247-879-00	CARBON 100K 5%	1/6W	D023	8-719-812-33	DIODE TLG123A	
<u>CRYSTAL</u>				D024	8-719-812-33	DIODE TLG123A	
X101	1-567-519-11	VIBRATOR, CRYSTAL		D025	8-719-911-19	DIODE 1SS119	
*****				D026	8-719-911-19	DIODE 1SS119	
		*A-6725-469-A	FR-20 BOARD, COMPLETE	D027	8-719-911-19	DIODE 1SS119	
		*****		D028	8-719-911-19	DIODE 1SS119	
		*3-684-005-01	HOLDER (S), LED	D029	8-719-911-19	DIODE 1SS119	
		*3-697-663-01	HOLDER (FR), LED	D030	8-719-911-19	DIODE 1SS119	
<u>CAPACITOR</u>				D031	8-719-911-19	DIODE 1SS119	
C001	1-161-025-00	CERAMIC 0.1MF	10% 25V	D032	8-719-911-19	DIODE 1SS119	
C002	1-161-025-00	CERAMIC 0.1MF	10% 25V	D033	8-719-911-19	DIODE 1SS119	
C003	1-102-518-00	CERAMIC 33PF	5% 50V	D034	8-719-911-19	DIODE 1SS119	
C004	1-102-518-00	CERAMIC 33PF	5% 50V	D035	8-719-911-19	DIODE 1SS119	
<u>CONNECTOR</u>				D036	8-719-911-19	DIODE 1SS119	
CN004	*1-564-016-00	PIN, CONNECTOR 6P		<u>IC</u>			
CN005	*1-564-013-00	PIN, CONNECTOR 3P		IC001	8-759-105-54	IC UPD7508HG-536-22	
CN006	*1-564-013-00	PIN, CONNECTOR 3P		IC002	8-759-901-38	IC SN74LS138N	
<u>DIODE</u>				<u>TRANSISTOR</u>			
D001	8-719-911-19	DIODE 1SS119		Q001	8-729-245-83	TRANSISTOR 2SC2458	
D002	8-719-911-19	DIODE 1SS119		Q002	8-729-245-83	TRANSISTOR 2SC2458	
D003	8-719-911-19	DIODE 1SS119		Q003	8-729-902-11	TRANSISTOR 2SC2021	
<u>RESISTOR</u>				Q004	8-729-902-11	TRANSISTOR 2SC2021	
R004	1-249-437-11	CARBON 47K 5%	1/6W	Q005	8-729-245-83	TRANSISTOR 2SC2458	
R005	1-247-873-00	CARBON 56K 5%	1/6W	Q006	8-729-245-83	TRANSISTOR 2SC2458	

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

FR-20

RD-17

HP-18

MC-10

OC-1

Ref.No	Part No.	Description				Remark
R006	1-249-437-11	CARBON	47K	5%	1/6W	
R007	1-247-873-00	CARBON	56K	5%	1/6W	
R008	1-247-843-00	CARBON	3.3K	5%	1/6W	
R009	1-247-879-00	CARBON	100K	5%	1/6W	
R018	1-247-879-00	CARBON	100K	5%	1/6W	
R019	1-247-879-00	CARBON	100K	5%	1/6W	
R020	1-247-879-00	CARBON	100K	5%	1/6W	
R021	1-247-879-00	CARBON	100K	5%	1/6W	
R022	1-247-879-00	CARBON	100K	5%	1/6W	
R023	1-247-879-00	CARBON	100K	5%	1/6W	
R024	1-247-879-00	CARBON	100K	5%	1/6W	
R025	1-247-805-00	CARBON	82	5%	1/6W	
R026	1-247-805-00	CARBON	82	5%	1/6W	
R027	1-247-805-00	CARBON	82	5%	1/6W	
R028	1-247-805-00	CARBON	82	5%	1/6W	
R029	1-247-805-00	CARBON	82	5%	1/6W	
R030	1-247-805-00	CARBON	82	5%	1/6W	
R031	1-247-805-00	CARBON	82	5%	1/6W	
R032	1-247-809-00	CARBON	120	5%	1/6W	
R033	1-249-414-11	CARBON	560	5%	1/6W	
R034	1-249-414-11	CARBON	560	5%	1/6W	
R035	1-249-421-11	CARBON	2.2K	5%	1/6W	
R036	1-247-859-00	CARBON	15K	5%	1/6W	
R037	1-247-843-00	CARBON	3.3K	5%	1/6W	
R040	1-247-895-11	CARBON	470K	5%	1/6W	

VARIABLE RESISTOR

RV001	1-230-431-11	RES, VAR, CARBON 100K
RV002	1-230-430-11	RES, VAR, CARBON 10K
RV003	1-230-430-11	RES, VAR, CARBON 10K

SWITCH

S001	1-553-716-00	SWITCH, SLIDE
S002	1-553-754-00	SWITCH, SLIDE
S003	1-553-716-00	SWITCH, SLIDE
S004	1-553-754-00	SWITCH, SLIDE
S005	1-553-716-00	SWITCH, SLIDE
S006	1-553-754-00	SWITCH, SLIDE
S007	1-553-716-00	SWITCH, SLIDE
S008	1-553-716-00	SWITCH, SLIDE
S009	1-553-716-00	SWITCH, SLIDE
S010	1-553-754-00	SWITCH, SLIDE
S011	1-554-174-00	SWITCH, KEY BOARD
S012	1-554-174-00	SWITCH, KEY BOARD
S013	1-554-174-00	SWITCH, KEY BOARD
S014	1-554-174-00	SWITCH, KEY BOARD
S015	1-554-174-00	SWITCH, KEY BOARD
S016	1-554-174-00	SWITCH, KEY BOARD
S017	1-554-174-00	SWITCH, KEY BOARD
S018	1-554-174-00	SWITCH, KEY BOARD
S019	1-554-174-00	SWITCH, KEY BOARD
S020	1-554-174-00	SWITCH, KEY BOARD
S021	1-554-174-00	SWITCH, KEY BOARD

Ref.No	Part No.	Description	Remark
S022	1-554-174-00	SWITCH, KEY BOARD	
S023	1-554-174-00	SWITCH, KEY BOARD	
S024	1-554-174-00	SWITCH, KEY BOARD	
S025	1-554-174-00	SWITCH, KEY BOARD	
S026	1-554-174-00	SWITCH, KEY BOARD	
S027	1-554-174-00	SWITCH, KEY BOARD	
S028	1-554-174-00	SWITCH, KEY BOARD	
S029	1-554-174-00	SWITCH, KEY BOARD	
S030	1-554-174-00	SWITCH, KEY BOARD	
S031	1-554-174-00	SWITCH, KEY BOARD	
S032	1-554-174-00	SWITCH, KEY BOARD	
S033	1-554-174-00	SWITCH, KEY BOARD	
S034	1-554-174-00	SWITCH, KEY BOARD	
S035	1-554-174-00	SWITCH, KEY BOARD	
S037	1-554-174-00	SWITCH, KEY BOARD	
S038	1-554-174-00	SWITCH, KEY BOARD	

CRYSTAL

X001 1-527-822-00 OSCILLATOR, CERAMIC

\*\*\*\*\*

\*1-616-599-11 RD-17 BOARD  
\*\*\*\*\*

\*3-696-392-01 HOLDER, PI

DIODE

PC001 8-719-751-42 DIODE NJL5141E-AC  
PC002 8-719-751-42 DIODE NJL5141E-AC

\*\*\*\*\*

\*1-617-042-11 HP-18 BOARD  
\*\*\*\*\*

JACK

J001 1-507-796-21 JACK

\*\*\*\*\*

\*1-617-043-11 MC-10 BOARD  
\*\*\*\*\*

JACK

J901 1-507-678-00 JACK

RESISTOR

R102 1-247-831-00 CARBON 1K 5% 1/6W  
R103 1-247-879-00 CARBON 100K 5% 1/6W

\*\*\*\*\*

\*1-616-602-11 OC-1 BOARD  
\*\*\*\*\*

SWITCH

MS-1 1-570-424-11 SWITCH, MICRO  
MS-2 1-570-424-11 SWITCH, MICRO

\*\*\*\*\*

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

# POWER BLOCK

Ref. No.	Part No.	Description	Remark
*****			
M BOARD, COMPLETE			
*****			
CAPACITOR			
*****			
C609	1-125-352-00	ELECT 180MF	400V
C611	1-124-023-00	ELECT 4.7MF	350V
C612	1-124-162-00	ELECT 47MF	10V
C613	1-124-162-00	ELECT 47MF	10V
C621	1-106-347-00	FILM 0.0015MF	200V
C622	1-106-347-00	FILM 0.0015MF	200V
C623	1-161-910-00	CERAMIC 390PF	500V
C624	1-161-910-00	CERAMIC 390PF	500V
C625	1-161-915-00	CERAMIC 0.001MF	500V
C626	1-136-153-00	FILM 0.01MF	50V
C627	1-136-157-00	FILM 0.022MF	50V
C628	1-123-385-00	ELECT 22MF	100V
C630	1-124-597-11	ELECT 2200MF	16V
C631	1-136-157-00	FILM 0.022MF	50V
CONNECTOR			
CN620	1-508-847-00	PIN, CONNECTOR 4P	
DIODE			
D601	8-719-300-63	DIODE LB156	
D621	8-719-908-00	DIODE ESAC33-02C5	
D622	8-719-900-93	DIODE V09C	
D623	8-719-815-85	DIODE 1S1585	
D624	8-719-100-61	DIODE RD11EB2	
D625	8-719-100-44	DIODE RD7.5EB2	
D626	8-719-100-50	DIODE RD9.1EB1	
D641	8-719-900-93	DIODE V09C	
FERRITE BEAD			
FB621	1-543-060-00	BEAD, FERRITE	
FB622	1-543-060-00	BEAD, FERRITE	
FB623	1-543-060-00	BEAD, FERRITE	
FB624	1-543-060-00	BEAD, FERRITE	

The components identified by shading and mark  $\Delta$  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
COIL			
L621	1-421-791-11	COIL, CHOKE 2MH	
TRANSISTOR			
Q601	8-729-104-66	TRANSISTOR 2SC3158	
Q602	8-729-104-66	TRANSISTOR 2SC3158	
Q603	8-729-100-13	TRANSISTOR 2SC2001	
Q604	8-729-100-13	TRANSISTOR 2SC2001	
Q621	8-729-306-72	TRANSISTOR 2SD667A	
Q622	8-729-245-83	TRANSISTOR 2SC2458	
RESISTOR			
R602	1-205-783-11	WIRE WOUND 2.2	5W F
R603	1-246-528-00	CARBON 200K	1/4W
R604	1-246-528-00	CARBON 200K	1/4W
R605	1-246-528-00	CARBON 200K	1/4W
R606	1-246-528-00	CARBON 200K	1/4W
R609	1-247-700-11	CARBON 100	1/4W
R610	1-247-700-11	CARBON 100	1/4W
R621	1-206-475-11	METAL OXIDE 33	2W F
R622	1-535-363-00	SHUNT 0.02	2W
R623	1-247-143-00	CARBON 3.3K	1/4W
R624	1-247-713-11	CARBON 1K	1/4W
R625	1-247-700-11	CARBON 100	1/4W
R626	1-213-157-11	METAL OXIDE 15K	1W F
R627	1-247-713-11	CARBON 1K	1/4W
R628	1-247-717-11	CARBON 2.2K	1/4W
R629	1-249-455-11	CARBON 4.7	1/4W
R630	1-247-702-11	CARBON 150	1/4W
TRANSFORMER			
*****			
CN BOARD, COMPLETE			
*****			
CAPACITOR			
C636	1-123-330-00	ELECT 22MF	25V
C637	1-123-323-00	ELECT 470MF	16V
C638	1-124-555-00	ELECT 1000MF	16V
C639	1-123-323-00	ELECT 470MF	16V
C641	1-123-333-00	ELECT 100MF	25V
C642	1-123-333-00	ELECT 100MF	25V
C643	1-123-357-00	ELECT 22MF	50V
C644	1-123-357-00	ELECT 22MF	50V
C645	1-123-356-00	ELECT 10MF	50V
C646	1-123-357-00	ELECT 22MF	50V

# POWER BLOCK

Ref. No.	Part No.	Description	Remark
<u>CONNECTOR</u>			
CN1	*1-564-163-00	PIN, CONNECTOR 6P	
CN001	*1-560-894-00	PIN, CONNECTOR 6P	
CN002	*1-560-893-00	PIN, CONNECTOR 5P	
CN003	*1-560-891-00	PIN, CONNECTOR 3P	
CN004	*1-560-892-00	PIN, CONNECTOR 4P	
CN005	*1-560-896-00	PIN, CONNECTOR 8P	
<u>DIODE</u>			
D630	8-719-101-04	DIODE RD33EB2	
D631	8-719-911-19	DIODE 1SS119	
D636	8-719-911-19	DIODE 1SS119	
D637	8-719-911-19	DIODE 1SS119	
D638	8-719-100-40	DIODE RD6.8EB1	
D639	8-719-911-19	DIODE 1SS119	
D640	8-719-100-38	DIODE RD6.2EB2	
<u>COIL</u>			
L622	1-421-421-00	COIL, CHOKE 100μH	
L623	1-421-421-00	COIL, CHOKE 100μH	
L624	1-408-933-00	COIL, CHOKE 10μH	
<u>TRANSISTOR</u>			
Q623	8-729-245-83	TRANSISTOR 2SC2458-GR	
Q624	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q626	8-729-188-23	TRANSISTOR 2SD882	
Q627	8-729-188-23	TRANSISTOR 2SD882	
Q628	8-729-245-83	TRANSISTOR 2SC2458-GR	
<u>RESISTOR</u>			
R640	1-247-159-00	CARBON	15K 1/4W
R641	1-247-147-00	CARBON	4.7K 1/4W
R642	1-247-147-00	CARBON	4.7K 1/4W
R643	1-247-141-00	CARBON	2.7K 1/4W
R644	1-247-143-00	CARBON	3.3K 1/4W
R645	1-247-134-00	CARBON	1.3K 1/4W
R646	1-247-155-00	CARBON	10K 1/4W
R647	1-247-147-00	CARBON	4.7K 1/4W
R650	1-205-724-11	CEMENT-COATED	22 5W F
R651	1-247-129-00	CARBON	820 1/4W
R652	1-205-789-11	CEMENT-COATED	1.8 5W F
R654	1-247-133-00	CARBON	1.2K 1/4W
R655	1-247-141-00	CARBON	2.7K 1/4W
R6			
<u>VARIABLE RESISTOR</u>			
RV621	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	
<u>RELAY</u>			
RY621	1-515-462-00	RELAY	

\*\*\*\*\*

Ref. No.	Part No.	Description	Remark
*1-616-113-11 C BOARD *****			
<u>CAPACITOR</u>			
C1	1-123-333-00	ELECT	100MF 25V
C2	1-130-150-00	FILM	0.0056MF 50V
C3	1-136-159-00	FILM	0.033MF 50V
C4	1-136-145-00	FILM	0.0022MF 50V
C5	1-123-318-00	ELECT	33MF 16V
<u>DIODE</u>			
D1	8-719-200-02	DIODE 10E-2	
D2	8-719-100-67	DIODE RD13EB1	
<u>IC</u>			
IC1	8-759-937-59	IC MB-3759	
<u>RESISTOR</u>			
R1	1-247-825-00	CARBON	560 1/6W
R2	1-247-867-00	CARBON	33K 1/6W
R3	1-247-843-00	CARBON	3.3K 1/6W
R4	1-247-831-00	CARBON	1K 1/6W
R5	1-247-849-00	CARBON	5.6K 1/6W
R6	1-249-421-11	CARBON	2.2K 1/6W
R7	1-247-841-00	CARBON	2.7K 1/6W
R8	1-247-836-00	CARBON	1.6K 1/6W (STANDARD)
	1-249-419-11	CARBON	1.5K 1/6W (ADJUST)
	1-247-837-00	CARBON	1.8K 1/6W (ADJUST)
R9	1-247-861-00	CARBON	18K 1/6W
R10	1-247-700-11	CARBON	100 1/4W
<u>VARIABLE RESISTOR</u>			
RV1	1-228-141-00	RES, ADJ, METAL GLAZE 500	
*1-616-114-11 D BOARD *****			
<u>CAPACITOR</u>			
C21	1-136-150-00	FILM	0.0056MF 50V
C22	1-123-356-00	ELECT	10MF 50V
C23	1-161-915-00	CERAMIC	0.001MF 500V
C24	1-123-333-00	ELECT	100MF 25V
C25	1-136-165-00	FILM	0.1MF 50V
C26	1-136-165-00	FILM	0.1MF 50V
C27	1-123-357-00	ELECT	22MF 50V
C28	1-123-357-00	ELECT	22MF 50V
<u>CONNECTOR</u>			
CN21	1-564-163-00	PIN, CONNECTOR 6P	
<u>DIODE</u>			
D21	8-719-815-85	DIODE 1S1585	
D22	8-719-815-85	DIODE 1S1585	
D23	8-719-815-85	DIODE 1S1585	

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

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

# POWER BLOCK

Ref.No.	Part No.	Description	Remark
<u>IC</u>			
IC21	8-759-937-59	IC MB3759	
<u>COIL</u>			
L21	1-421-550-00	COIL, CHOKE 66 $\mu$ H	
L22	1-421-421-00	COIL, CHOKE 100 $\mu$ H	
L23	1-408-421-00	MICRO INDUCTOR 100 $\mu$ H	
L24	1-408-421-00	MICRO INDUCTOR 100 $\mu$ H	
L25	1-408-427-00	MICRO INDUCTOR 330 $\mu$ H	
L26	1-408-427-00	MICRO INDUCTOR 330 $\mu$ H	
<u>IC LINK</u>			
<del>Q21 A-1-554-839-11 LINK, K</del>			
<u>TRANSISTOR</u>			
Q21	8-729-177-43	TRANSISTOR 2SD774	
Q22	8-729-177-43	TRANSISTOR 2SD774	
<u>RESISTOR</u>			
<del>R21 A-1-247-807-00 CARBON 100 1/6W</del>			
R22	1-247-807-00	CARBON 100	1/6W
R23	1-247-807-00	CARBON 100	1/6W
R24	1-247-837-00	CARBON 1.8K	1/6W (STANDARD)
	1-249-419-11	CARBON 1.5K	1/6W (ADJUST)
	1-249-421-11	CARBON 2.2K	1/6W (ADJUST)
R25	1-247-859-00	CARBON 15K	1/6W
R26	1-247-869-00	CARBON 39K	1/6W
R27	1-247-811-00	CARBON 150	1/6W
R28	1-247-887-00	CARBON 220K	1/6W
R29	1-247-831-00	CARBON 1K	1/6W
<u>VARIABLE RESISTOR</u>			
RV21	1-228-644-00	RES. ADJ. METAL GLAZE 1K	
<u>TRANSFORMER</u>			
T21	1-448-269-11	TRANSFORMER, DC-DC CONVERTER	

\*\*\*\*\*

~~A-1-408-427-00 BOARD~~  
\*\*\*\*\*

~~A-1-554-839-11 POLYMER FUSE~~  
~~A-1-554-839-11 POLYMER FUSE~~

### CAPACITOR

~~C21 A-1-249-419-11 FILM 0.22MF 250V~~

### FUSE

~~F1 A-1-554-839-11 FUSE, TIME LAG, T3, 15A 250V~~

### RESISTOR

~~R21 A-1-247-807-00 METAL 100 1/2W~~

\*\*\*\*\*

Ref.No.	Part No.	Description	Remark
MISCELLANEOUS *****			
<del>A-1-413-220-01</del>			
<del>A-1-464-526-11</del>			
<del>A-1-464-527-11</del>			
	1-464-526-11	T COIL SENSOR	
	1-464-527-11	S COIL SENSOR	
	1-520-485-11	METER UNIT, LEVEL	
	<del>A-1-554-839-11</del>	<del>COND. POWER</del>	
	8-825-508-10	HEAD, FE	
M902	8-838-096-01	MOTOR, DC (BHF-1914A) (CAPSTAN MOTOR)	
M904	X-3696-314-1	MOTOR ASSY, L (LOADING MOTOR)	
M905	X-3696-306-1	MOTOR ASSY, DC (SKATE MOTOR)	
S901	1-554-839-11	SWITCH, LEAF (2 GANG)	
S902	1-570-394-21	SWITCH, ROTARY (ROTARY ENCODER)	

### ACCESSORIES AND PACKING MATERIALS \*\*\*\*\*

Part No.	Description	Remark
A-6765-943-A	COMMANDER ASSY (RMT-223)	
1-551-513-00	CORD ASSY, COAXIAL	
*3-681-287-01	LID, ACCESSORY CASE	
3-694-484-01	DRIVER, VOLUME	
*3-697-649-01	CASE, ACCESSORY	
*3-697-650-01	CUSHION (UPPER)	
*3-697-651-02	CUSHION (LOWER)	
*3-697-684-01	INDIVIDUAL CARTON (ES MODEL)	
*3-697-711-01	INDIVIDUAL CARTON (E MODEL)	
*3-697-712-01	SHEET, PROTECTION	
3-760-837-11	MANUAL, INSTRUCTION	
3-760-837-41	MANUAL, INSTRUCTION (ES MODEL)	
3-760-837-52	MANUAL, INSTRUCTION	

\*\*\*\*\*

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


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

### 3. CORRECTION

 : Corrected Portion

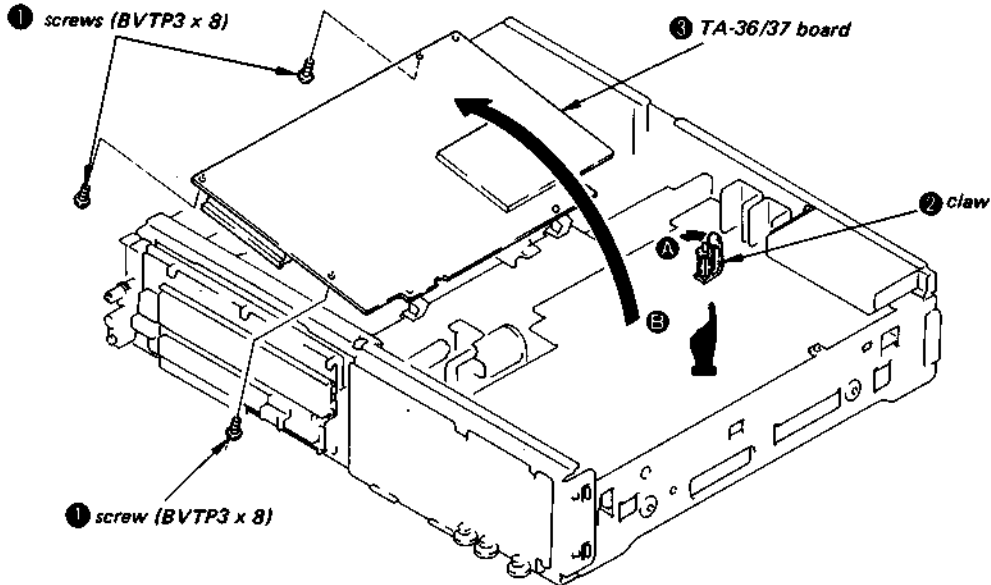
#### DISASSEMBLY

Page 36

-  2) Remove the claw **2** in the direction shown by the arrow **A**, then remove the TA-36/37 board **3** in the direction shown by the arrow **B**.

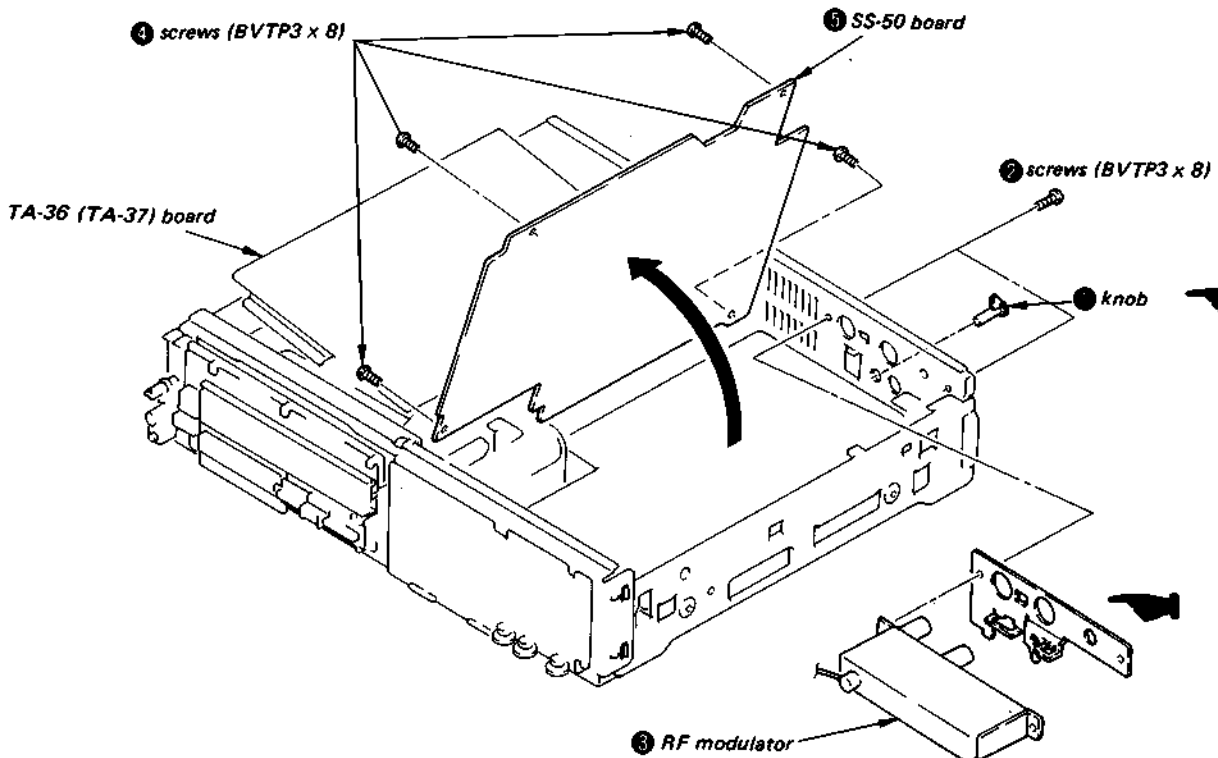
#### 2-2. REMOVAL OF THE TA-36/37 BOARD

- 1) Remove the three screws (BVTP3 x 8) **1**.




#### 2-3. REMOVAL OF THE SS-50 BOARD

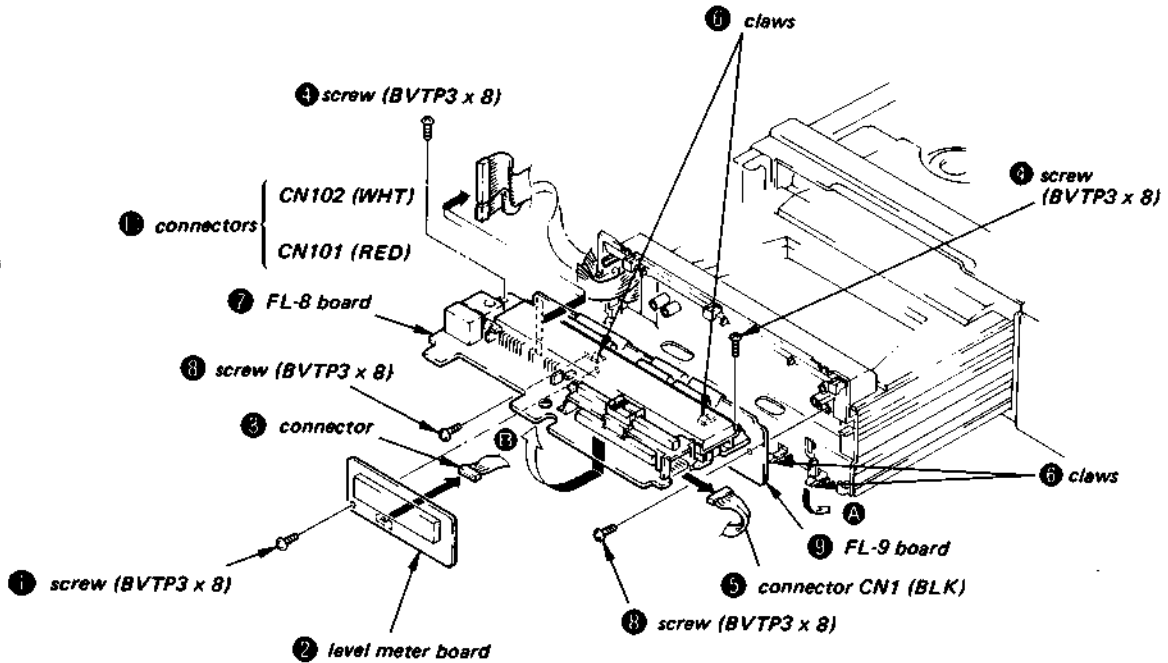
- 1) Remove the TA-36/37 board.  
(Refer to section 2-2. REMOVAL OF THE TA-36/37 BOARD.)
- 2) Remove the knob **2**.
- 3) Remove the two screws (BVTP3 x 8) **4**.
- 4) Remove the RF modulator **3**.
- 5) Remove the four screws **7**.
- 6) Remove the SS-50 board **5** in the direction shown by the arrow.





**2-6. REMOVAL OF THE FL-8, FL-9 BOARD**

- 1) Remove the one screw (BVTP3 x 8) ①.
- 2) Remove the level meter board ②.
- 3) Pull out the connector ③.
- 4) Remove the two screws ④. 
- 5) Pull out the connector ⑤.
- 6) Remove the four claws ⑥ in the direction shown by the arrow ④, then remove the FL-8 board ⑦ in the direction shown by the arrow ⑤.
- 7) Remove the two screws (BVTP3 x 8) ⑧.
- 8) Remove the FL-9 board ⑨.
- 9) Pull out the two connectors ⑩.



## ADJUSTMENTS (SUPPLEMENT-1)

Page 43

### 3) RF Switching Position Adjustment (SS-50 Board)

Mode: Playback  
Signal: Alignment tape colour-bar or monoscope  
Oscilloscope: CH-1 TP304 (Pin ③④ of IC301)  
(RF SW PULSE)  
CH-2 Pin ① of CN309 (DRUM PG)

#### [Adjustment method]

- i) PG (A) Edge  
Adjust to  $900 \pm 30 \mu\text{sec}$  with RV303.  
(See Fig. 5-11 (a))
- ii) PG (B) Edge  
Adjust the duty cycle of RF SW PULSE to 50%  
 $\pm 5 \mu\text{sec}$ .

Page 49

### 16) Chroma Record Current Adjustment (YC-40 Board)

Mode: Record (PRO mode)  
Signal: Colour-bar  
Oscilloscope: Emitter of Q310 on DH-4 board.

#### [Adjustment method]

Adjust to  $150 \pm 5 \text{ mVp-p}$  with RV008.

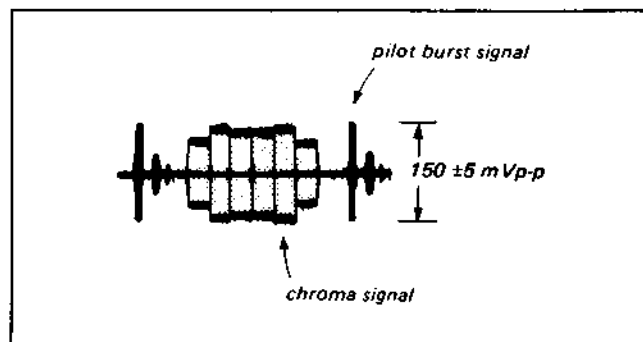


Fig. 5-30. Chroma record current adjustment

MC-Service