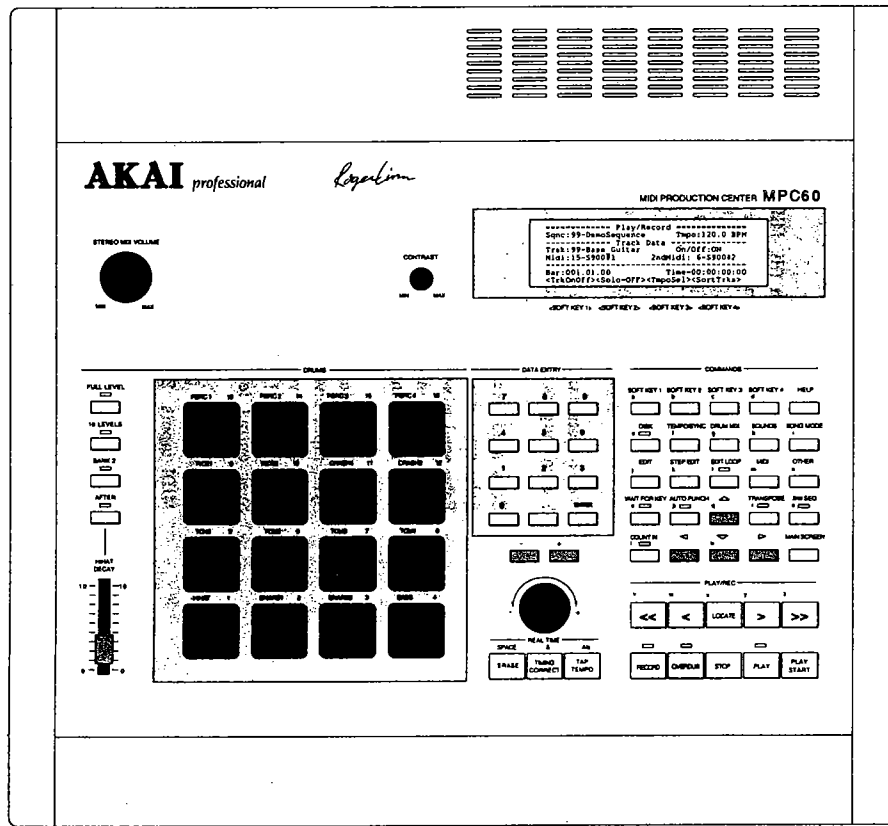


AKAI SERVICE MANUAL

MPC60/EXM003



MIDI PRODUCTION CENTER

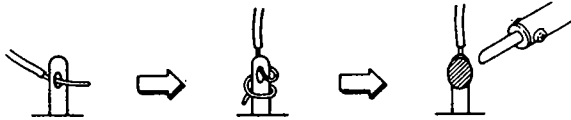
MODEL MPC 60

MEMORY EXPANSION BOARD

MODEL EXM 003

PRECAUTIONS DURING SERVICING

- Parts identified by the \triangle symbols are critical for safety. Replace only with parts number specified.
- In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
- Use specified internal wiring. Note especially:
 - Wires covered with PVC tubing
 - Double insulated wires
 - High voltage leads
- Use specified insulating materials for hazardous live parts. Note, especially:
 - Insulation Tape
 - PVC tubing
 - Spacers (Insulating Barriers)
 - Insulation sheets for transistors
 - Plastic screws for fixing microswitch (especially in turntable)
- When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



- Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

- Check that replaced wires do not contact sharp edged or pointed parts.
- Also check areas surrounding repaired locations.
- Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

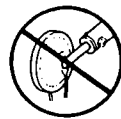
SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for **C** or **A**, specified insulation resistance should be head-phone jacks, line-in-out jacks, etc. more than 2.2 M ohms (ground terminals, microphone jacks).

PRECAUTIONS FOR LITHIUM BATTERY

The lithium battery may explode when heated excessively. [OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type only.
- Use soldering iron in "recommended way" only.
- Place battery in correct polarity.
- Do not short the terminals.
- Do not recharge battery.
- Do not dispose of battery in fire.



[DANGER]



[RECOMMENDED WAY]

★ INFORMATION

SYMBOLS FOR PRIMARY DESTINATION

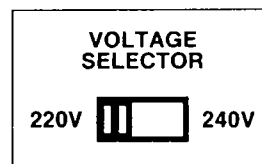
Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
A	USA
B	UK
C	Canada
E	Europe (except UK)
J	Japan
S	Australia
V	W. Germany only
U	Universal Area
Y*	Custom version

VOLTAGE CONVERSION

(**V, E, B, S** Model only)

Before connecting the power cord, set the VOLTAGE SELECTOR located on the bottom plate with a screw-driver so that the correct voltage is indicated.



I. SPECIFICATIONS

[Sampler Section]

Sampling rate.....	40 kHz (fixed)
Sampling time.....	13.1 seconds standard (750k bytes), or 26.2 seconds with sound memory expansion option (EXM003, 750k bytes)
Frequency response.....	20 Hz~18 kHz
Data format.....	12 bit sample resolution with special non-linear format for reduced noise
Tuning range.....	+ 1/2 octave, -1 octave
Preset sounds.....	32 drums
Voice.....	16

[Sequencer Section]

Note.....	60,000 (512k bytes)
Timing resolution.....	96 divisions per 1/4 note
Sequence.....	99
Track per Sequence.....	99
Output MIDI channels.....	16
Song mode.....	20 songs, 256 steps per song
Drum pads.....	16 (velocity and pressure sensitive)
Sync mode.....	SMPTE, MIDI time code, MIDI clock, MIDI song position pointer FSK24, Pulse, 1/4 note clicks

[Rear Panel Inputs/Outputs]

Record input.....	1 (record input gain switch: HI, MID, LOW) Input level (balanced) HI: -65dBm, Impedance 45k ohms MID: -45 dBm, Impedance 45k ohms LOW: -27 dBm, Impedance 45k ohms
Assignable mix outputs.....	8 Standard output level 0dBv, Impedance 600 ohms

Stereo outputs.....	2 (left & right) Standard output level -3 dBv, Impedance 600 ohms
Echo send mixer output....	1 (output level control ×1) Standard output level -1.5 dBv, Impedance 600 ohms
Echo return inputs.....	2 (left & right) Standard inputs level -3 dBv, Impedance 10k ohms
Sync input.....	1 (dual function-also trigger input, balanced, input level control ×1) Input level 0.5 Vp-p ~ 1 Vp-p
Sync output.....	1 Output level 1 Vp-p, Impedance 220 ohms
Metro output.....	1 (clicks)
MIDI input.....	2
MIDI output.....	4 (independent)
Foot switch inputs.....	2

[GENERAL]

Display.....	320 character LCD display with graphics
Disk drive.....	3.5" 2DD (793k bytes formatted capacity)
Computer.....	80186 (10 MHz)
Power requirement.....	AC 100V, 50/60 Hz for Japan AC 120V, 60 Hz for USA and Canada AC 220V, for Europe except UK AC 240V, for UK and Australia
Power Consumption.....	30W for Japan 32W for other countries
Dimensions.....	495 (W) × 127 (H) × 471 (D) mm
Weight.....	10.5 kg

[Accessories]

Standard accessories.....	3.5" 2DD × 4 (Drum sound data)
Optional accessories.....	EXM003 Memory Expansion Board SC-X614 Soft case for MPC60

* For improvement purposes, specifications and design are subject to change without notice.

③ **DISK key**

To access the disk functions, press the DISK key and the following screen will appear.

```

===== Save / Load =====
1) Save Sequence      2) Save All Seqs/Song
3) Save Drum Sound   4) Save all Sounds
5) Load/View/Erase/Rename files
6) Erase/format disk

Select Option:
    
```

Fig. 2-4

This screen displays a list of disk options. To select one, type the number of the desired option. Each of the options are described in detail in the following sections.

④ **TEMPO/SYNC key**

TEMPO..... This feature is useful, for example, to quickly switch between the normal playing tempo and a slower tempo for recording.

SYNC..... This feature is used to select the type of SYNC signal of the MPC60 to receive SYNC from an external device or tape. There are seven possible type of SYNC which the MPC60 will accept, but only one may be active at one time.

⑤ **DRUM MIX key**

To adjust the individual volume and pan settings for the stereo mix outputs, press DRUM MIX and the following screen will appear:

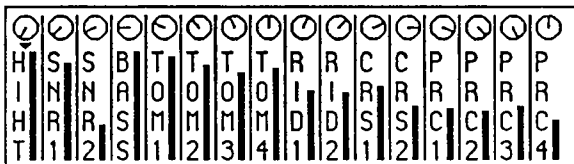


Fig. 2-5

This is a simulation of a 16 channel stereo mixer. For each channel, there is a four letter abbreviation of a drum, a graphic representation of a volume slider, and a graphic representation of a rotary pan control.

⑥ **SOUND key**

The SOUNDS key provides access to all functions associated with the creation.

⑦ **SONG MODE key**

To enter song mode, press the SONG MODE key. The following screen will appear:

```

===== SONG MODE =====
Song#: 8      End:LOOP      Loop step: 20
----- Contents of step#: 4 -----
Sequence#:02      Repetitions:4
Name:Roger's_tune....  Size (bars): 2
-----
Bar:124.01.00      Time=00:00:00:00
<Insert B4> <Delete> <Step-1> <Step+1>
    
```

Fig. 2-6

While this screen is showing, the MPC60 is in SONG mode, meaning that if play is entered, the active song will play instead of the active sequence.

⑧ **EDIT key**

The EDIT key encompasses the following functions related to editing of the active sequence:

- Viewing/changing the ending status
- Viewing all time signature changes
- Creating a new time signature/number of bars format
- Inserting blank bars into a sequence
- Deleting specified bars from a sequence
- Copying a section and inserting it elsewhere within the sequence
- Copying a single track to another area or merging it with other data
- Copying an entire sequence to another sequence

When the EDIT key is pressed, the following screen is displayed:

```

===== Edit Sequence =====
1) Time Sig / # of Bars / Ending Status
2) Create new time sig / # of bars
3) Insert Blank Bars  4) Delete Bars
5) Copy Bars          6) Copy/merge tracks
7) Copy one sequence to another
8) Convert song to long sequence
Select Option:
    
```

Fig. 2-7

Pressing a single number key will cause the screen for the selected function to be displayed.

⑨ **STEP EDIT key**

The STEP EDIT function allows the contents of the active track to be edited in precise detail.

Every parameter of every note, drum or other type of midi event is displayed in on-screen fields for detailed editing.

⑩ **Edit LOOP key**

This function causes a specified number of bars within a sequence to repeat in a loop to allow quick recording or editing of that section.

⑪ **MIDI key**

The MIDI key provides access to a number of parameters related to Midi.

- Assign the 4 Midi outputs.
- Assign incoming Midi notes numbers to the internal drums.
- Assign outgoing drums to Midi note numbers.
- Remove selected event types from the Midi input data.
- Select the Midi channel which the internal drums play from.
- Set the 'Midi soft through' feature.

⑫ **OTHER key**

The OTHER key function has many uses.

- The two metronome adjustment.
- The two foot switch input
- The 'Free sequence memory' display

- ⑬ **WAIT FOR KEY** key
This acts as a 'remote play switch' to start the sequence. If **PLAY RECORD** or **OVER DUB** mode is entered while the **WAIT FOR KEY** function is on, the sequence will not begin to play until a key (any key) is played on the Midi keyboard.
- ⑭ **AUTO PUNCH** key
The auto punch function, when set to **ON**, enables **OVERDUB** or **RECORD** modes to be automatically entered and exited at preset times while playing.
- ⑮ **TRANSPOSE** key
This function allows you to transpose a track up or down by a specified amount on a specified range of the bars in real time.
- ⑯ **2nd SEQ** key
This feature will be implemented in a future version of software. Currently, it has no function.
- ⑰ **COUNT IN** key
This function causes a single bar of metronome 'clicks' to play before the sequence starts playing or recording, acting as a 'count in' or 'countdown' before recording this part.
- ⑱ **MAIN SCREEN** key
Pressing the **MAIN SCREEN** key at any time will return you back to the main 'power-up' screen of MPC 60 without damaging any data.

3. REC/PLAY keys (Refer to Fig. 2-3)

These ten keys operate similarly to the transport keys on a tape recorder, with some very useful additions.

- ① **PLAY START** key
This key causes the sequence to begin playing from the beginning.
- ② **PLAY** key
This key causes the sequence to begin playing from the current position within the sequence, displayed in the 'Bar': field in the **PLAY/RECORD** screen.
- ③ **STOP** key
This key causes the sequence to stop playing.
- ④ **OVERDUB** key
This key, when pressed simultaneously with either **PLAY** or **PLAY START**, causes **OVERDUB** mode to be entered, in which new notes may be recorded onto the active track, but existing notes will not be erased. While **OVERDUB** mode is active, the light above the **OVERDUB** key goes on.
- ⑤ **RECORD** key
This key, when pressed simultaneously with either **PLAY** or **PLAY START**, causes **RECORD** mode to be entered, in which new notes may be recorded onto the active track while existing notes are erased, just like a tape recorder. While **RECORD** mode is active, the light above the **RECORD** key goes on.
- ⑥ '<<' key
This key causes the current position within the sequence to move to the previous bar.
- ⑦ '>>' key
This key causes the current position within the sequence to move to the next bar.
- ⑧ '<' key
This key causes the current position within the sequence to move to the previous step. The step size is normally one 1/16 note. However, it is possible to this value by changing the 'Note value' field in the **TIMING CORRECT** screen.
- ⑨ '>' key
This key causes the current position within the sequence to move to the next step. The step size is normally one 1/16 note. However, it is possible to this value by changing the 'Note value' field in the **TIMING CORRECT** screen.
- ⑩ **LOCATE** key
This key is used to instantly go to a specific position within the active sequence. When pressed, it displays the following screen:

```

===== Locate =====
Press Softkeys To Go To Markers:
Marker A: 001.01.00
Marker B: 001.01.00
Marker C: 001.01.00
-----
Bar:001.01.00           Time:00:00:00:00
<Goto 'A'><Goto 'B'><Goto 'C'><Load 'Now'>

```

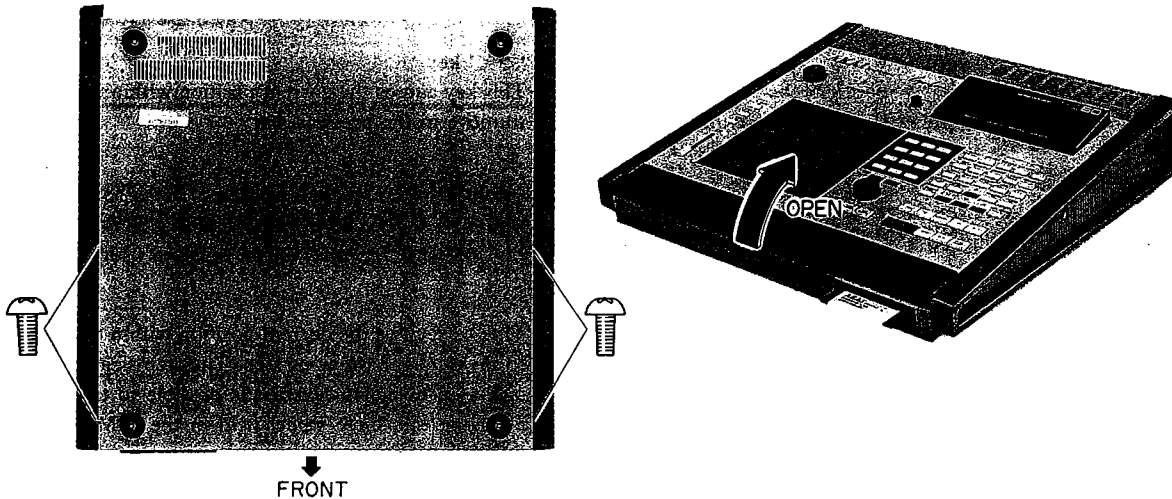
Fig. 2-8

There are three sequence position markers, labeled A, B and C. Pressing softkey 1, 2 or 3 causes either marker A, B or C, respectively, to be loaded into the 'Bar' position, having the effect of 'going' to that location. Pressing **SOFTKEY 4**, <Load'Now'>, causes the contents of the 'Bar' field to be loaded into the marker field currently containing the cursor. To load any of the three markers, move the cursor to it and enter the desired bar numbers in the format: 'bar.note.clock' (separated by '.', in the numeric keypad). If you only want to enter the bar number, type it, followed by **ENTER**, and the note and clock numbers will be automatically reset.

III. DISASSEMBLY

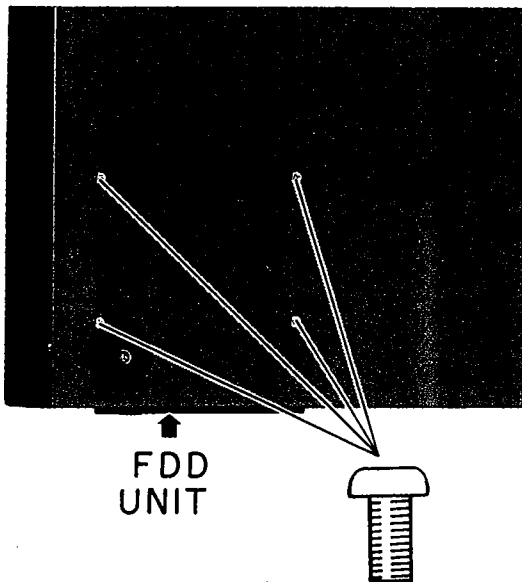
In case of trouble, etc, necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

1. HOW TO OPEN THE FRONT PANEL

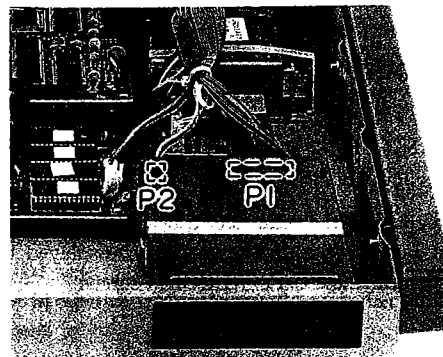


Remove 4 screws and then open the FRONT PANEL

2. HOW TO DISMANTLE THE FDD UNIT



Remove 4 screws and open the FRONT PANEL.



Disconnect connectors P1 and P2, then remove the FDD UNIT.

IV. PRINCIPAL PARTS LOCATION

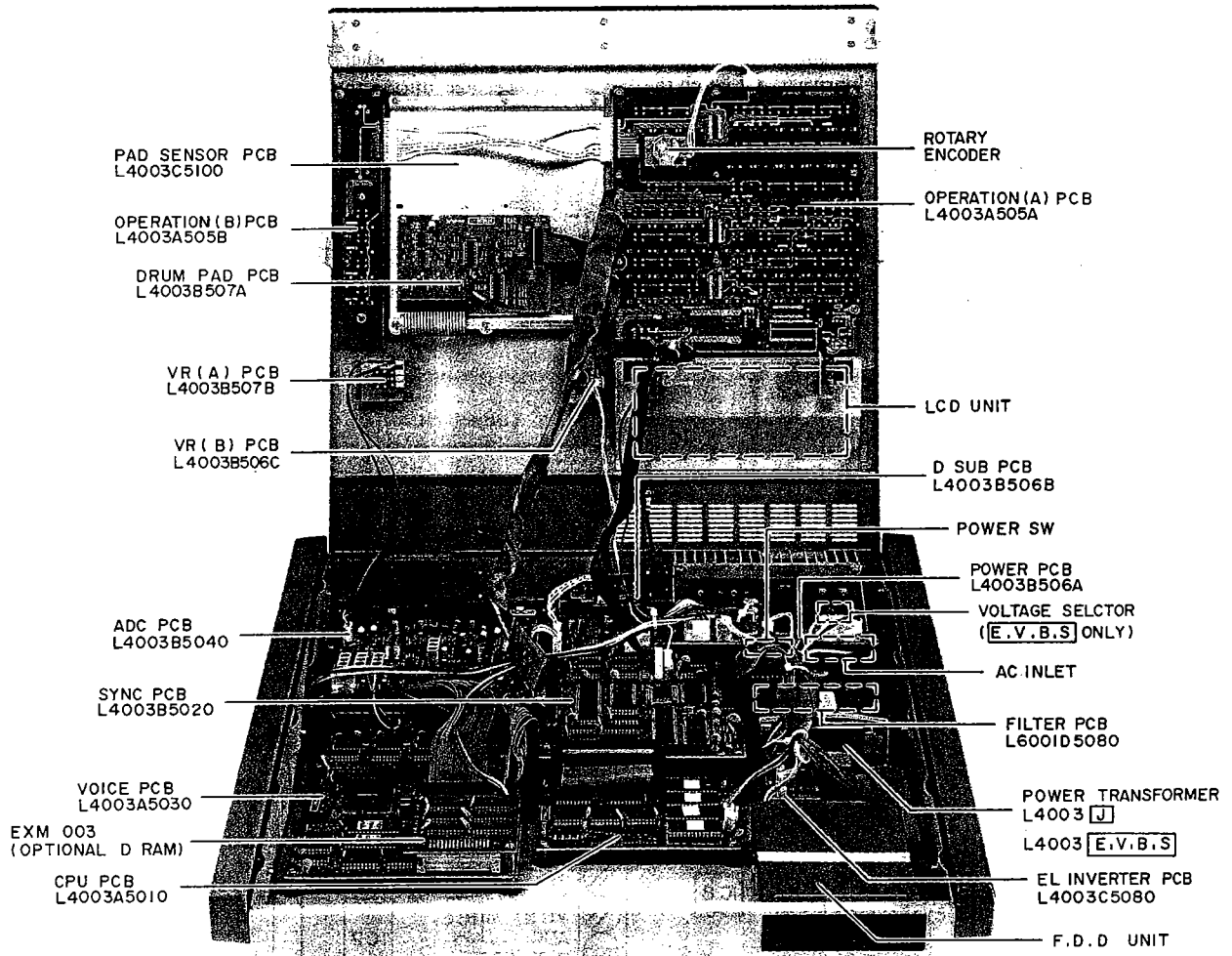


Fig. 4-1

V. ADJUSTMENT

[TEST MODE]

- * This test mode is used for adjusting and inspecting the Model MPC60.
- * Insert the TEST DISK into the disk drive, then switch the power ON. The following menu will appear on the LC-display a few seconds later indicating that the unit is set to test mode. (Fig. 5-1)

- * Once in the test mode, testing functions can be selected by pressing the DATA ENTRY key on the control panel.
- * Inputs from keys other than the DATA ENTRY key are not accepted during the test mode.
- * For the termination of the test mode, switch the power OFF and remove the test disk.

```

===== MPC60 Test Functions =====
1) DAC Trim (15Hz out #8)
2) ADC Monitor
3) CPU RAM test
4) Battery CRAM test
5) Sound Memory test
    
```

Fig. 5-1

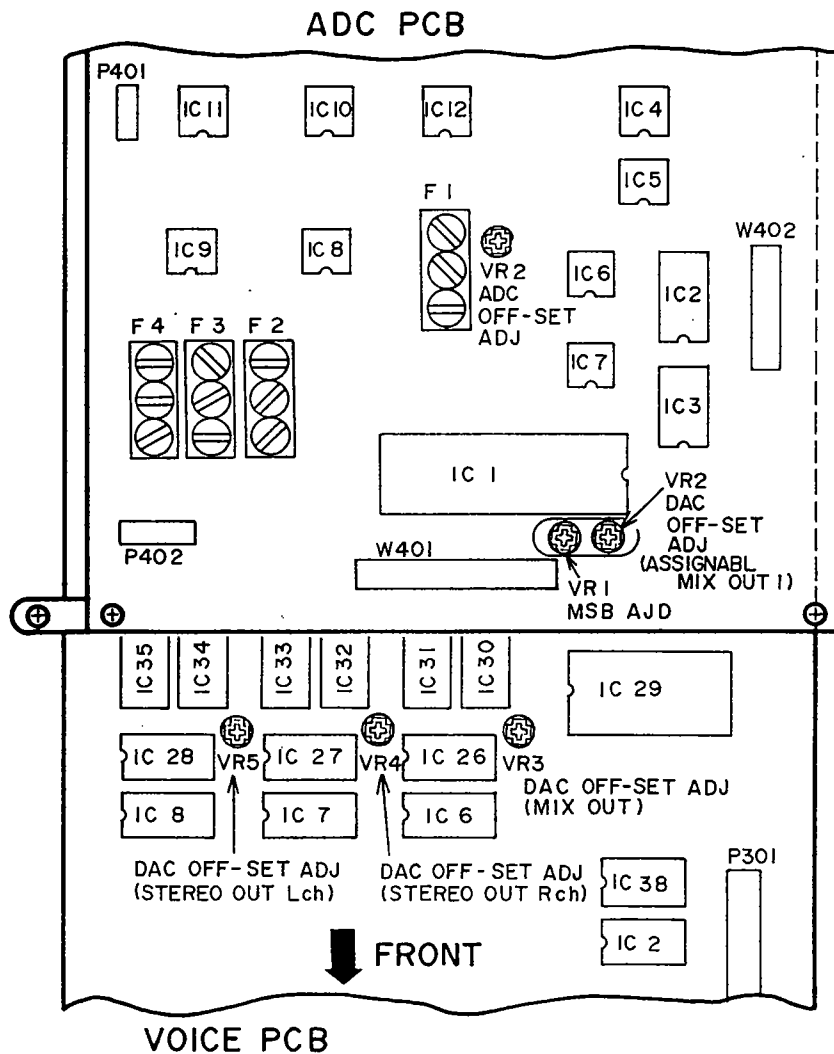


Fig. 5-2

5-1. Adjustment of A/D converter OFF-SET (ADC PCB)

1. Select "2) ADC Monitor" by pressing the DATA ENTRY key. Then the LC-display will change as shown below indicating that the unit enters the OFF-SET adjustment mode. (Refer to Fig. 5-3).

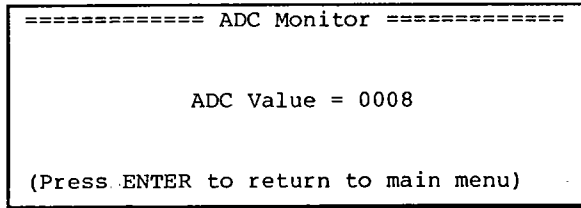


Fig. 5-3

2. Set the indicated ADC-value between 0003 and 000E by adjusting VR2 on the ADC PCB.
3. Press the ENTER key when the adjustment is completed.

5-2. D/A converter MSB-adjustment (VOICE PCB)

1. Select "1) DAC Trim (15 Hz out #8)" by pressing the DATA ENTRY key. The LC-display will change as shown below, indicating that the sine wave for MSB adjustment is being loaded. (Refer to Fig. 5-4)

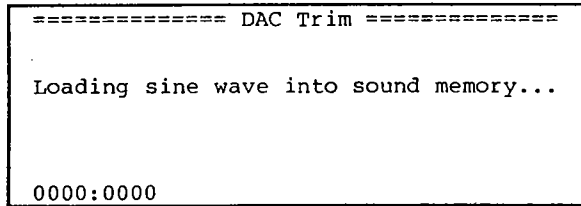


Fig. 5-4

2. Then the following screen will appear to indicate that the sine wave has been loaded and the MSB adjustment mode is set. (Refer to Fig. 5-5)

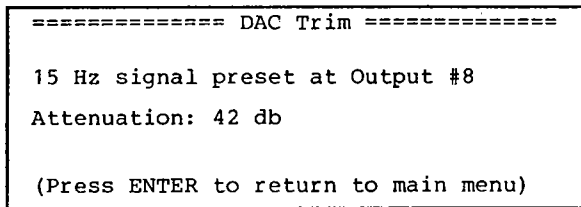


Fig. 5-5

3. Connect the oscilloscope to terminal [8] of [ASSIGN-ABLE MIX OUT] located on the rear panel. (The attenuation level can be altered in 6dB steps with the DATA CONTROL dial. The adjustment range is between 36dB and 48dB.)

If notches appear in the waveform displayed on the oscilloscope as shown Fig. 5-6, adjust VR1 on the VOICE PCB as shown Fig. 5-7.

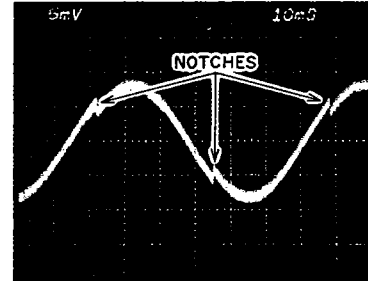


Fig. 5-6

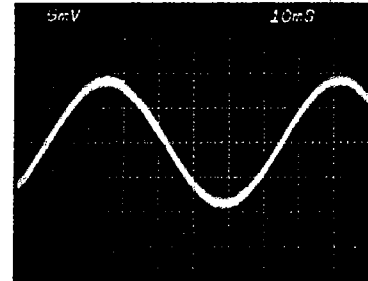


Fig. 5-7

5-3. Adjustment of D/A converter OFF-SET (VOICE PCB)

1. At first, switch the MCP60 OFF to terminate the test mode. Then switch power ON again, and load the data of the DRUM SOUND DATA "STUDIO-SET" (Standard accessories) in DISK mode.
2. Press the "FULL LEVEL" key on the left of the front panel to set the unit to FULL LEVEL mode. Press the "BASS DRUM" pad and adjust each VR so that there is no click noise during sustain. The outputs and their corresponding VRs are as follows.

ASSIGNABLE MIX OUT 1	VR2
MIX OUT	VR3
STEREO OUT RIGHT CH	VR4
STEREO OUT LEFT CH.....	VR5

Note: Connect the corresponding output of the MCP60 to an amplifier and adjust each VR according to the sound coming out of the speaker.

5-4. RAM checks

For testing each section of RAM operation, a RAM test software in test mode is used as shown in the Fig. 5-1. These programs test the function of each RAM and indicates if the LSI of each RAM functions correctly or not. In case of faultless operation, "OK" will appear on the LC-display, while malfunctions are indicated by "ERROR". The "ERROR" display contains messages pointing out which LSI and peripheral circuit to be checked.

5-4-1. CPU RAM TEST

1. Set the MPC60 to TEST MODE. (Refer to page 10 "TEST MODE")
2. Select "3) CPU RAM TEST" by pressing the DATA ENTRY key and the screen shown in fig. 5-8 will appear on the LC-display.

```
CPU RAM TEST (Seg 0000; PASS # 0001)
```

Fig. 5-8

3. If the CPU RAM function is normal, the LC-display will show the message as in fig. 5-9. If "ERROR" is displayed, the function is abnormal. Check it's circuit and the LSI.

```
CPU RAM OK  
  
(Press ENTER to return to main menu)
```

Fig. 5-9

4. When the test is completed, press ENTER key to return to the main menu (Refer to Fig. 5-1).

5-4-2. BATTERY CRAM TEST

1. Select "4) BATTERY CRAM TEST" by pressing the DATA ENTRY key. The screen as shown in the fig. 5-10 will appear on the LC-display.

```
=====CRAM Test =====  
  
Select type of CRAM test:  
  
1) Full CRAM Read / Write test  
2) Read only CRAM test
```

Fig. 5-10

Select the test function required by pressing DATA ENTRY.

2. If the CRAM function is normal, the LC-display will indicate the message as shown in the Fig. 5-11. If "ERROR" is displayed, the function is abnormal. Check its circuit and the LSI.

```
CRAM OK  
  
(Press ENTER to return to main menu)
```

Fig. 5-11

3. When the test is completed, press ENTER key to return to the main menu on the LC-display (Refer to Fig. 5-1).

5-4-3. Sound Memory Test

1. Select "5) Sound Memory Test" by pressing the DATA ENTRY key. The screen shown in Fig. 5-12 will appear on the LC-display.

```
===== Sound Memory Test =====  
  
Indicate sound memory configuration:  
  
1) Half MEG (NO memory expansion card)  
2) Full MEG (Expansion card installed)
```

Fig. 5-12

If the optional Expansion DRAM "EXM003" is equipped, select "2) Full MEG".

2. If the DRAM function is normal, the test will be carried out automatically in order of Fig. 5-13, 5-14 and 5-15 after which the display will change to the screen as shown in the Fig. 5-16.

```

===== Sound Memory Test =====
Writing 5550 ( hex ) ...
Reading 5550 ( hex ) ...

```

Fig. 5-13

```

===== Sound Memory Test =====
Writing AAA0 ( hex ) ...
Reading AAA0 ( hex ) ...

```

Fig. 5-14

```

===== Sound Memory Test =====
Writing Address check Data ...
Reading Address check Data ...

```

Fig. 5-15

```

SOUND MEM. OK

(Press ENTER to return to main menu)

```

Fig. 5-16

If the screen as shown in Fig. 5-17 appears on the LC-display, it means that the DRAM does not function normally. Check its circuit and the LSI.

```

LSI ERROR ADDR.00080003
Expected = 5550 Read = FFF0
Voice PCB      Extension card
|ok| |ok|  BAD  |ok|
|ok| |ok|  BAD  |ok|
|ok| |ok|  BAD  |ok|
(Press ENTER to return to main menu)

```

Fig. 5-17

- * When "2) Full MEG" test is selected while "EXM003" is not equipped, the screen as shown above will appear indicating errors in the RAM circuit of the Extension card.

Note: These RAM test mode programs only indicate if their functions are normal or not, but they do not apply to each BUS LINE and LSI. Use these programs as a guidance for checking the function of RAMs.

5-5. PROCEDURE OF CPU ROM (CPU PCB IC2 TO IC5) Version Check

- * This Version Check is for checking the EP-ROM Version used for the CPU of the MCP60.

1. Switch the MPC60 on without inserting a floppy disk.
2. When the "Main Screen" appears on the LC-display, press the COMMAND key "OTHER" first, then "SOFT KEY4".

Note: There will be indication of "SOFT KEY4" on the LC-display in the "OTHER" mode.

3. After pressing "SOFT KEY4" key the "Debug Function" screen appears on the LC-display from which the production date of the EP-ROM can be detected. (Refer to Fig. 5-18)
4. To terminate the Version Check mode, press the "MAIN SCREEN" key.

```

===== Debug Functions =====
Date of this version: 12/14/87
Voices off After Playing: YES
Help Codes: OFF

(sync)

```

Fig. 5-18

VI. THE MIDI IMPLEMENTATION CHART

This section contains the Midi implementation charts for the MPC60. There are two charts-one for the drum sampler section, and one for the sequencer section.

[Drums sampler section]

Model MPC60 MIDI Implementation Chart Version: 1.0

Function ...	Transmitted	Recognized	Remarks
Basic Default Channel Changed	16 1-16	16 1-16	memorized
Mode Default Messages Altered	3 × *****	3 × ×	
Note Number : True voice	0-127 *****	0-127 0-127	
Velocity Note ON Note OFF	○ ○ (Always=64)	○ ×	
After Key's Touch Ch's	× ×	○ ○	Used in 'Note repeat' feature
-Pitch Bender	×	×	
Control 20 Change	○	○	Hihat decay cont.
Prog Change : True #	× *****	× ×	
System Exclusive	○	○	See note 2
System : Song Pos : Song Sel Common : Tune	× × ×	× × ×	
System : Clock Real Time : Commands	× ×	× ×	
Aux : Local ON/OFF : All Notes OFF Messages : Active Sense : Reset	× × × ×	× ○ (when stop pressed) × ×	
Notes			

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

○: Yes
×: No

[Sequencer section]

Model MPC60 MIDI Implementation Chart Version: 1.0

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	1-16	1-16	memorized
	Changed	1-16	1-16	memorized
Mode	Default	3	1	
	Messages	×	×	
	Altered	*****	×	
Note Number	: True voice	0-127	0-127	
		*****	0-127	
Velocity	Note ON	○	○	
	Note OFF	○	○	
After Touch	Key's	○	○	
	Ch's	○	○	
Pitch Bender		○	○	
Control Change	0 - 121	○	○	See note 1
Prog Change	: True #	○ *****	○ 0-127	
System Exclusive		○	○	See note 2
System Common	: Song Pos	×	○	
	: Song Sel	×	○	
	: Tune	×	×	
System Real Time	: Clock	○	○	
	: Commands	○	○	
Aux Messages	: Local ON/OFF	×	×	
	: All Notes OFF	○	×	
Messages	: Active Sense	×	×	
	: Reset	×	×	
Notes				

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

○: Yes
×: No

Note 1:

When the control code 64 (damper or sustain pedal) is received while recording, it is not recorded. Instead, all notes currently on at that time are held on until the sustain pedal is released, even if the individual notes are released. This allows multiple overdubs on the same track to have different and independent sustain pedal times.

Note 2:

The follow system exclusive messages, unique to the MPC60, are sent and received:

Drum mixer volume change:

11110000	System exclusive header
01000111	Akai ID (47 H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60=45H)
00000001	Parameter ID: 01= Drum mix volume
000XXXXX	Drum number (0-31)
0XXXXXXX	Data: 0 (off) - 127(full volume)

Drum mixer pan change:

11110000	System exclusive header
01000111	Akai ID (47H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60 = 45H)
00000010	Parameter ID: 02= Drum mix pan
000XXXXX	Drum number (0-31)
0000XXXX	Data: 0 (full left) - 14 (full right)

Echo mixer volume change:

11110000	System exclusive header
01000111	Akai ID (47 H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60=45H)
00000011	Parameter ID: 03=Drum mix volume
000XXXXX	Drum number (0-31)
0XXXXXXX	Data: 0 (off) - 127(full volume)

Drum tuning change:

11110000	System exclusive header
01000111	Akai ID (47H)
0000XXXX	Unit number (midi channel # 1-16)
01000100	44H
01000XXX	Akai product ID (MPC60 = 45H)
00000100	Parameter ID:04= Drum mix volume
000XXXXX	Drum number (0-31)
0XXXXXXX	Pitch data MSB
0XXXXXXX	Pitch data LSB

The above two bytes comprise a 14 bit pitch change word. Range =0 - 4000H in increments of 1/2 cent (2000H= no change).

VII. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No., and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

A small "x" indicates that this part is not shown in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure.

This number corresponds with the Figure Number.

b) PC Board

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
6-C1B	EC-350949	C MMY V 223M 250DC [J]
6-C1C	EC-338397	C MMY V 223M 125AC [C,A]
6-X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A]: AAL(U.S.A.) [S]: SAA(Australia)
 [B]: BEAB(England) [U]: U/T(Universal Area)
 [C]: CSA(Canada) [V]: VDE(W. Germany)
 [E]: CEE(Europe) [Y]: Custom Version
 [J]: JPN(Japan)

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

- The available PC Board Blocks are listed separately.
5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

△ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

△ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

MODEL MPC60

1. RECOMMENDED SPARE PARTS

Ref. No.	Part No.	Description
1	BB-375768	FROPPY DISK MF353C-62M
2	*BT-378272	TRANS POW L4003 C,A [A,C,Y1] [T901]
3	*BT-378273	TRANS POW L4003 E,V,B,S [E,V,B,S] [T901]
4	*BT-378271	TRANS POW L4003 J [J] [T901]
5	BT-379599	TRANS PULSE D32-48
6	ED-359863	D LED LN81CV-(LF) AK ORANGE
7	*ED-365819	D SILICON CTU-12R 200/ 6.0A
8	*ED-365818	D SILICON CTU-12S 200/ 6.0A
9	*ED-330319	D SILICON DBA10B 100/1.0A
10	*ED-361055	D SILICON DS135E-UB1
11	ED-301911	D SILICON H DS448
12	ED-378184	D ZENER H HZ3BLL
13	ED-378219	DETECTOR PC 6N137
14	*EF-364518	FUSE BET T 250V 2.50A [B]
15	*EF-355374	FUSE BET T 250V 500MA [B]
16	*EF-623125	FUSE SEMKO T [E,V,S]
17	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
18	*EF-311839	FUSE TSC A 250V 1.60A [J]
19	*EF-326639	FUSE TSC A 250V 3.15A [J]
20	*EF-309388	FUSE TSC A 250V 800MA [J]
21	*EF-310229	FUSE TSC 125V 1.00A [C,A]
22	*EF-309392	FUSE TSC 125V 1.25A [C,A]
23	*EF-323080	FUSE TSC 125V 3.15A [C,A]
24	EH-359185	COMP R RKC1/8B8 103J
25	EH-378283	DL ADL-050SH7P
26	EI-379592	IC AD7523JN
27	EI-378285	IC CD74HCT173
28	EI-378141	IC CD74HC4051
29	EI-379585	IC CD74HC4053
30	EI-369660	IC CXK5816PN-12L
31	EI-376734	IC F74AC74P
32	EI-355891	IC HD74LS32P
33	EI-365804	IC HD7406P
34	EI-365806	IC HD75188P
35	EI-365805	IC HD75189P
36	EI-378277	IC I-0055
37	EI-360954	IC IR9311
38	EI-379605	IC LA6339
39	EI-378276	IC LC7981
40	EI-378293	IC L4003
41	EI-378197	IC MBL80186-10-CR-G-C
42	EI-378294	IC MBM27C256-15-ADR15-5-V1.0
43	EI-378296	IC MBM27C256-15-ADR15-6-V1.0
44	EI-378198	IC MBM27C512-20-ADR15-1-V1.0
45	EI-378200	IC MBM27C512-20-ADR15-2-V1.0
46	EI-378201	IC MBM27C512-20-ADR15-3-V1.0
47	EI-378203	IC MBM27C512-20-ADR15-4-V1.0
48	EI-378218	IC MB81C4256-10-G
49	EI-379657J	IC MB89255A-P-G
50	EI-378204	IC MB89371-P-G
51	EI-378214	IC MC74F08N
52	EI-379586	IC MC74F157N
53	EI-378212	IC MC74F158N
54	EI-378215	IC MC74F32N
55	EI-375346	IC MM74HCO4N
56	EI-375347	IC MM74HC14N
57	EI-349719	IC M5218P
58	EI-360043	IC M5220P
59	*EI-348123	IC M5230L
60	EI-362588	IC M5238P
61	EI-336995	IC NJM78L05A
62	*EI-360772	IC NJM79L05A

Ref. No.	Part No.	Description
63	EI-378297	IC PCM54HP
64	EI-377067	IC PCM77P
65	EI-364253	IC PST520D-2
66	EI-365798	IC SED9420CAC
67	*EI-365820	IC STR9005
68	EI-378286	IC TC4516BP
69	EI-378284	IC TC74HCT245P
70	EI-378211	IC TC74HCT573P
71	EI-379583	IC TC74HCT574P
72	EI-360037	IC TC74HC00P
73	EI-360039	IC TC74HC08P
74	EI-375222	IC TC74HC125P
75	EI-378216	IC TC74HC126P
76	EI-360025	IC TC74HC138P
77	EI-372578	IC TC74HC153P
78	EI-365840	IC TC74HC155P
79	EI-372550	IC TC74HC161P
80	EI-360054	IC TC74HC174P
81	EI-360053	IC TC74HC175P
82	EI-360042	IC TC74HC259P
83	EI-360036	IC TC74HC32P
84	EI-378217	IC TC74HC390
85	EI-365831	IC TC74HC393P
86	EI-365803	IC TC74HC4002P
87	EI-375205	IC TC74HC541P
88	EI-360028	IC TC74HC74P
89	EI-379598	IC TM2764AD-20-ADR15-7-V1.0
90	EI-379594	IC UPC814C
91	EI-379593	IC UPD5200C
92	EI-378275	IC UPD72066C
93	EI-371671	IC UPD78C11G-044-36
94	EI-354123	OSC CE CSA120MT 12.000000MHZ
95	EI-378205	OSC X'TAL AT-51 20.000000MHZ
96	EI-365811	OSC X'TAL NR18 16.000MHZ
97	EI-378290	OSC X'TAL TD308A 35.84MHZ
98	*EJ-358633	SOCKET INLET SOT-17 2P [J,E,V,B,S,Y1]
99	EM-378267	IND LCD 240082
100	*EO-360068	COIL LF LF-2 B
101	EO-378291	FILTER LC 258BLR-5326N 18KHZ
102	ES-365943	SW EWT-XDFK2550B
103	*ES-364478	SW SEESAW SDDT SPST TYPEA T8.5
104	*ES-306430	SW SLIDE J-S4013#01 01-2
105	ES-379609	SW SLIDE SSSP***** [REC GAIN]
106	ES-349474	SW TACT SKHHAM004A
107	ET-353899	TR 2SA1317 S,T,U
108	ET-305463	TR 2SA970 GR,BL
109	*ET-356817	TR 2SB891 Q,R
110	ET-307195	TR 2SC2240 GR,BL
111	ET-308977	TR 2SC2274K F F05
112	ET-360067	TR 2SC3330 T,U F05
113	*ET-354083	TR 2SD1189 Q,R
114	EV-379613	VR ROTARY EVHCCAP20B53 B502
115	EV-379614	VR ROTARY EWKE2AP20A14 A103X2
116	EV-365876	VR SLIDE VJ4513-2PVNB5 103 [HIHAT DECAY]
117	EV-379610	VR V012L-PLHJ20U A103 [MIX OUT LEVEL]
118	EV-378278	VR V012L-PLHJ20U B103 [SYNC LEVEL]
119	*EZ-378206	BATTERY LITHIUM CL2020 IHF

2. P.C BOARD BLOCK

Ref. No.	Part No.	Description
1	BA-L4003A020A	PC(##) OPERATION BLK MPC60
2	BA-L4003A050A	PC CPU BLK MPC60
3	BA-L4003A070A	PC SYNC BLK MPC60
4	BA-L4003A040A	PC VOICE BLK MPC60
5	BA-L4003A060A	PC ADC BLK MPC60
6	BA-L4003A030A	PC(##) DRUM PAD BLK MPC60

NOTE

PC (##) OPERATION BLK CONSISTS OF FOLLOWING P.C BOARD.

- * OPERATION (A) P.C BOARD
- * OPERATION (B) P.C BOARD

PC (##) DRUM PAD BLK CONSISTS OF FOLLOWING P.C BOARD.

- * DRUM PAD P.C BOARD
- * VR (A) P.C BOARD

3. OPERATION (A) P.C BOARD

Ref. No.	Part No.	Description
D1	ED-359863	D LED LN81CV-(LF) AK ORANGE
D2	ED-359863	D LED LN81CV-(LF) AK ORANGE
D3	ED-359863	D LED LN81CV-(LF) AK ORANGE
D4	ED-359863	D LED LN81CV-(LF) AK ORANGE
D5	ED-359863	D LED LN81CV-(LF) AK ORANGE
D6	ED-359863	D LED LN81CV-(LF) AK ORANGE
D7	ED-359863	D LED LN81CV-(LF) AK ORANGE
D8	ED-359863	D LED LN81CV-(LF) AK ORANGE
D9	ED-359863	D LED LN81CV-(LF) AK ORANGE
D10	ED-359863	D LED LN81CV-(LF) AK ORANGE
D11	ED-361055	D SILICON DS135E-UB1
IB1	EH-359185	COMP R RKC1/8B8 103J
IC1	EI-371671	IC UPD78C11G-044-36
IC2	EI-379598	IC TM2764AD-20-ADR15-7-V1.0
IC3	EI-378211	IC TC74HCT573P
IC4	EI-360025	IC TC74HC138P
IC5	EI-360042	IC TC74HC259P
IC6	EI-360042	IC TC74HC259P
IC7	EI-336995	IC NJM78L05A
SW1	ES-349474	SW TACT SKHHAM004A
SW2	ES-349474	SW TACT SKHHAM004A
SW3	ES-349474	SW TACT SKHHAM004A
SW4	ES-349474	SW TACT SKHHAM004A
SW5	ES-349474	SW TACT SKHHAM004A
SW6	ES-349474	SW TACT SKHHAM004A
SW7	ES-349474	SW TACT SKHHAM004A
SW8	ES-349474	SW TACT SKHHAM004A
SW9	ES-349474	SW TACT SKHHAM004A
SW10	ES-349474	SW TACT SKHHAM004A
SW11	ES-349474	SW TACT SKHHAM004A
SW12	ES-349474	SW TACT SKHHAM004A
SW13	ES-349474	SW TACT SKHHAM004A
SW14	ES-349474	SW TACT SKHHAM004A
SW15	ES-349474	SW TACT SKHHAM004A
SW16	ES-349474	SW TACT SKHHAM004A
SW17	ES-349474	SW TACT SKHHAM004A
SW18	ES-349474	SW TACT SKHHAM004A
SW19	ES-349474	SW TACT SKHHAM004A
SW20	ES-349474	SW TACT SKHHAM004A
SW21	ES-349474	SW TACT SKHHAM004A
SW22	ES-349474	SW TACT SKHHAM004A
SW23	ES-349474	SW TACT SKHHAM004A
SW24	ES-349474	SW TACT SKHHAM004A
SW25	ES-349474	SW TACT SKHHAM004A
SW26	ES-349474	SW TACT SKHHAM004A
SW27	ES-349474	SW TACT SKHHAM004A
SW28	ES-349474	SW TACT SKHHAM004A

Ref. No.	Part No.	Description
SW29	ES-349474	SW TACT SKHHAM004A
SW30	ES-349474	SW TACT SKHHAM004A
SW31	ES-349474	SW TACT SKHHAM004A
SW32	ES-349474	SW TACT SKHHAM004A
SW33	ES-349474	SW TACT SKHHAM004A
SW34	ES-349474	SW TACT SKHHAM004A
SW35	ES-349474	SW TACT SKHHAM004A
SW36	ES-349474	SW TACT SKHHAM004A
SW37	ES-349474	SW TACT SKHHAM004A
SW38	ES-349474	SW TACT SKHHAM004A
SW39	ES-349474	SW TACT SKHHAM004A
SW40	ES-349474	SW TACT SKHHAM004A
SW41	ES-349474	SW TACT SKHHAM004A
SW42	ES-349474	SW TACT SKHHAM004A
SW43	ES-349474	SW TACT SKHHAM004A
SW44	ES-349474	SW TACT SKHHAM004A
SW45	ES-349474	SW TACT SKHHAM004A
SW46	ES-349474	SW TACT SKHHAM004A
SW47	ES-349474	SW TACT SKHHAM004A
SW48	ES-349474	SW TACT SKHHAM004A
SW49	ES-349474	SW TACT SKHHAM004A
SW50	ES-349474	SW TACT SKHHAM004A
SW51	ES-349474	SW TACT SKHHAM004A
SW52	ES-349474	SW TACT SKHHAM004A
X1	EI-354123	OSC CE CSA120MT 12.000000MHZ
1	EJ-358691	SOCKET IC DILB28P-8J

4. OPERATION (B) P.C BOARD

Ref. No.	Part No.	Description
D1	ED-359863	D LED LN81CV-(LF) AK ORANGE
D2	ED-359863	D LED LN81CV-(LF) AK ORANGE
D3	ED-359863	D LED LN81CV-(LF) AK ORANGE
D4	ED-359863	D LED LN81CV-(LF) AK ORANGE
SW1	ES-349474	SW TACT SKHHAM004A
SW2	ES-349474	SW TACT SKHHAM004A
SW3	ES-349474	SW TACT SKHHAM004A
SW4	ES-349474	SW TACT SKHHAM004A
VR1	EV-365876	VR SLIDE VJ4513-2PVBNS 103 [HIHAT DECAY]

5. CPU P.C BOARD

Ref. No.	Part No.	Description
DL1	EH-378283	DL ADL-050SH7P
D2	ED-301911	D SILICON H DS448
D3	ED-378184	D ZENER H HZ3BLL
D4	ED-301911	D SILICON H DS448
D5	ED-301911	D SILICON H DS448
IC1	EI-378197	IC MBL80186-10-CR-G-C
IC2	EI-378198	IC MBM27C512-20-ADR15-1-V1.0
IC3	EI-378200	IC MBM27C512-20-ADR15-2-V1.0
IC4	EI-378201	IC MBM27C512-20-ADR15-3-V1.0
IC5	EI-378203	IC MBM27C512-20-ADR15-4-V1.0
IC6	EI-369660	IC CXX5816PN-12L
IC7	EI-378204	IC MB89371-P-G
IC8	EI-378204	IC MB89371-P-G
IC9	EI-378211	IC TC74HCT573P
IC10	EI-378211	IC TC74HCT573P
IC11	EI-378211	IC TC74HCT573P
IC12	EI-378212	IC MC74F158N

Ref. No.	Part No.	Description
IC13	EI-378212	IC MC74F158N
IC14	EI-378212	IC MC74F158N
IC15	EI-365840	IC TC74HC155P
IC16	EI-360028	IC TC74HC74P
IC17	EI-360036	IC TC74HC32P
IC18	EI-375347	IC MM74HC14N
IC19	EI-378214	IC MC74F08N
IC20	EI-360037	IC TC74HCOOP
IC21	EI-378215	IC MC74F32N
IC23	EI-365803	IC TC74HC4002P
IC24	EI-375222	IC TC74HC125P
IC25	EI-378216	IC TC74HC126P
IC26	EI-355891	IC HD74LS32P
IC27	EI-365805	IC HD75189P
IC28	EI-378217	IC TC74HC390
IC29	EI-378217	IC TC74HC390
IC30	EI-372550	IC TC74HC161P
IC31	EI-378218	IC MB81C4256-10-G
IC32	EI-378218	IC MB81C4256-10-G
IC33	EI-378218	IC MB81C4256-10-G
IC34	EI-378218	IC MB81C4256-10-G
IC35	EI-364253	IC PST520D-2
J101	EJ-378207	DIN J TCS4450-01-1011 [MIDI IN 1]
J102	EJ-378207	DIN J TCS4450-01-1011 [MIDI IN 2]
J103	EJ-378207	DIN J TCS4450-01-1011 [MIDI OUT 1]
J104	EJ-378207	DIN J TCS4450-01-1011 [MIDI OUT 2]
J105	EJ-378207	DIN J TCS4450-01-1011 [MIDI OUT 3]
J106	EJ-378207	DIN J TCS4450-01-1011 [MIDI OUT 4]
PH1	ED-378219	DETECTOR PC 6N137
PH2	ED-378219	DETECTOR PC 6N137
TR1	ET-353899	TR 2SA1317 S,T,U
TR2	ET-360067	TR 2SC3330 T,U F05
X1	EI-378205	OSC X'TAL AT-51 20.000000MHZ
1	*EZ-378206	BATTERY LITHIUM CL2020 IHF
2	EJ-358691	SOCKET IC DILB28P-8J

6. SYNC P.C BOARD

Ref. No.	Part No.	Description
D1	ED-301911	D SILICON H DS448
D2	ED-301911	D SILICON H DS448
D3	ED-301911	D SILICON H DS448
D4	ED-301911	D SILICON H DS448
IC1	EI-379657J	IC MB89255A-P-G
IC2	EI-378275	IC UPD72066C
IC3	EI-365798	IC SED9420CAC
IC4	EI-378276	IC LC7981
IC5	EI-369660	IC CXK5816PN-12L
IC6	EI-378211	IC TC74HCT573P
IC7	EI-378284	IC TC74HCT245P
IC8	EI-360053	IC TC74HC175P
IC9	EI-378285	IC CD74HCT173
IC10	EI-360028	IC TC74HC74P
IC11	EI-365840	IC TC74HC155P
IC12	EI-365831	IC TC74HC393P
IC13	EI-372578	IC TC74HC153P
IC14	EI-372578	IC TC74HC153P
IC15	EI-360028	IC TC74HC74P
IC16	EI-360028	IC TC74HC74P
IC17	EI-375346	IC MM74HCO4N
IC18	EI-360039	IC TC74HCO8P
IC19	EI-360039	IC TC74HCO8P
IC20	EI-375347	IC MM74HC14N

Ref. No.	Part No.	Description
IC21	EI-360039	IC TC74HCO8P
IC22	EI-365804	IC HD7406P
IC23	EI-365806	IC HD75188P
IC24	EI-378286	IC TC4516BP
IC25	EI-360954	IC IR9311
IC26	EI-362588	IC M5238P
IC27	EI-362588	IC M5238P
IC28	EI-362588	IC M5238P
IC29	EI-349719	IC M5218P
IC30	EI-378277	IC I-0055
IC31	EI-375346	IC MM74HCO4N
J201	EJ-353031	PHONE J 3P HLJ0520-010 [SYNC IN]
J202	EJ-353031	PHONE J 3P HLJ0520-010 [SYNC OUT]
J203	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [FOOT SW 1]
J204	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [FOOT SW 2]
J205	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [METRO OUT]
P201	EJ-378279	PLUG RA-H502SD-1190 50P
P202	EJ-378282	PLUG RF-H202TD-1190 20P
P203	EJ-378282	PLUG RF-H202TD-1190 20P
P204	EJ-365834	PLUG RK-H341TD-0190 34P
P205	EJ-378269	PLUG B10P-ER 10P
R65	*ER-325114	R CB H S10 FS RDS 1/4W 330J
R66	*ER-325114	R CB H S10 FS RDS 1/4W 330J
VR1	EV-378278	VR V012L-PLHJ20U B103 [SYNC LEVEL]
X1	EI-365811	OSC X'TAL NR18 16.000MHZ

7. VOICE P.C BOARD

Ref. No.	Part No.	Description
F1	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F2	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F3	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F4	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F5	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F6	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F7	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F8	EO-378291	FILTER LC 258BLR-5326N 18KHZ
IC1	EI-378293	IC L4003
IC2	EI-375346	IC MM74HCO4N
IC3	EI-379583	IC TC74HCT574P
IC4	EI-379583	IC TC74HCT574P
IC5	EI-360054	IC TC74HC174P
IC6	EI-360054	IC TC74HC174P
IC7	EI-360054	IC TC74HC174P
IC8	EI-360054	IC TC74HC174P
IC9	EI-375222	IC TC74HC125P
IC10	EI-375205	IC TC74HC541P
IC11	EI-360025	IC TC74HC138P
IC12	EI-379585	IC CD74HC4053
IC13	EI-378141	IC CD74HC4051
IC14	EI-379586	IC MC74F157N
IC15	EI-379586	IC MC74F157N
IC16	EI-379586	IC MC74F157N
IC17	EI-378294	IC MBM27C256-15-ADR15-5-V1.0
IC18	EI-378296	IC MBM27C256-15-ADR15-6-V1.0
IC19	EI-378218	IC MB81C4256-10-G
IC20	EI-378218	IC MB81C4256-10-G
IC21	EI-378218	IC MB81C4256-10-G
IC22	EI-378218	IC MB81C4256-10-G
IC23	EI-378218	IC MB81C4256-10-G
IC24	EI-378218	IC MB81C4256-10-G
IC25	EI-376734	IC F74AC74P
IC26	EI-360054	IC TC74HC174P

Ref. No.	Part No.	Description
IC27	EI-360054	IC TC74HC174P
IC28	EI-360054	IC TC74HC174P
IC29	EI-378297	IC PCM54HP
IC30	EI-379585	IC CD74HC4053
IC31	EI-379585	IC CD74HC4053
IC32	EI-379585	IC CD74HC4053
IC33	EI-379585	IC CD74HC4053
IC34	EI-379585	IC CD74HC4053
IC35	EI-379585	IC CD74HC4053
IC36	*EI-360772	IC NJM79L05A
IC37	*EI-336995	IC NJM78L05A
IC38	EI-360037	IC TC74HC00P
IC39	EI-360043	IC M5220P
IC40	EI-360043	IC M5220P
IC41	EI-360043	IC M5220P
IC42	EI-360043	IC M5220P
J301	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 1]
J302	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 2]
J303	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 3]
J304	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 4]
J305	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 5]
J306	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 6]
J307	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 7]
J308	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [CH 8]
L1	EO-379607	COIL FIX 2 8RBS 151K
L2	EO-379607	COIL FIX 2 8RBS 151K
P301	EJ-378280	PLUG RA-H502TD-1190 50P
P302	EJ-365834	PLUG RK-H341TD-0190 34P
P304	EJ-378287	PLUG RP148B30P-1TD2-03 48P
VR1	EV-336768	R S-FIX H RH0621C 0.30W104
VR2	EV-307626	R S-FIX H RH0621C 0.30W103
VR3	EV-307626	R S-FIX H RH0621C 0.30W103
VR4	EV-307626	R S-FIX H RH0621C 0.30W103
VR5	EV-307626	R S-FIX H RH0621C 0.30W103
X1	EI-378290	OSC X'TAL TD308A 35.84MHZ

8. ADC P.C BOARD

Ref. No.	Part No.	Description
D1	ED-301911	D SILICON H DS448
F1	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F2	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F3	EO-378291	FILTER LC 258BLR-5326N 18KHZ
F4	EO-378291	FILTER LC 258BLR-5326N 18KHZ
IC1	EI-377067	IC PCM77P
IC2	EI-379592	IC AD7523JN
IC3	EI-379593	IC UPD5200C
IC4	EI-360043	IC M5220P
IC5	EI-362588	IC M5238P
IC6	EI-379594	IC UPC814C
IC7	EI-362588	IC M5238P
IC8	EI-360043	IC M5220P
IC9	EI-360043	IC M5220P
IC10	EI-362588	IC M5238P
IC11	EI-362588	IC M5238P
IC12	EI-362588	IC M5238P
IC13	EI-336995	IC NJM78L05A
J401	EJ-353031	PHONE J 3P HLJ0520-010 [REC IN]
J402	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [OUT-L]

Ref. No.	Part No.	Description
J403	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [OUT-R]
J404	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [MIX OUT]
J405	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [EFFECT RETURN-R]
J406	EJ-354105	PHONE J 2P HLJ0520-110 6.3 [EFFECT RETURN-L]
L1	EO-379607	COIL FIX 2 8RBS 151K
L2	EO-379607	COIL FIX 2 8RBS 151K
R26	ER-333363	R CB H S10 FS RDS 1/4W 120J
R27	ER-333363	R CB H S10 FS RDS 1/4W 120J
SW1	ES-379609	SW SLIDE SSSP***** [REC GAIN]
TR1	ET-307195	TR 2SC2240 GR,BL
TR2	ET-307195	TR 2SC2240 GR,BL
TR3	ET-305463	TR 2SA970 GR,BL
TR4	ET-305463	TR 2SA970 GR,BL
VR1	EV-379610	VR V012L-PLHJ20U A103 [MIX OUT LEVEL]
VR2	EV-336768	R S-SIX H RH0621C 0.30W104

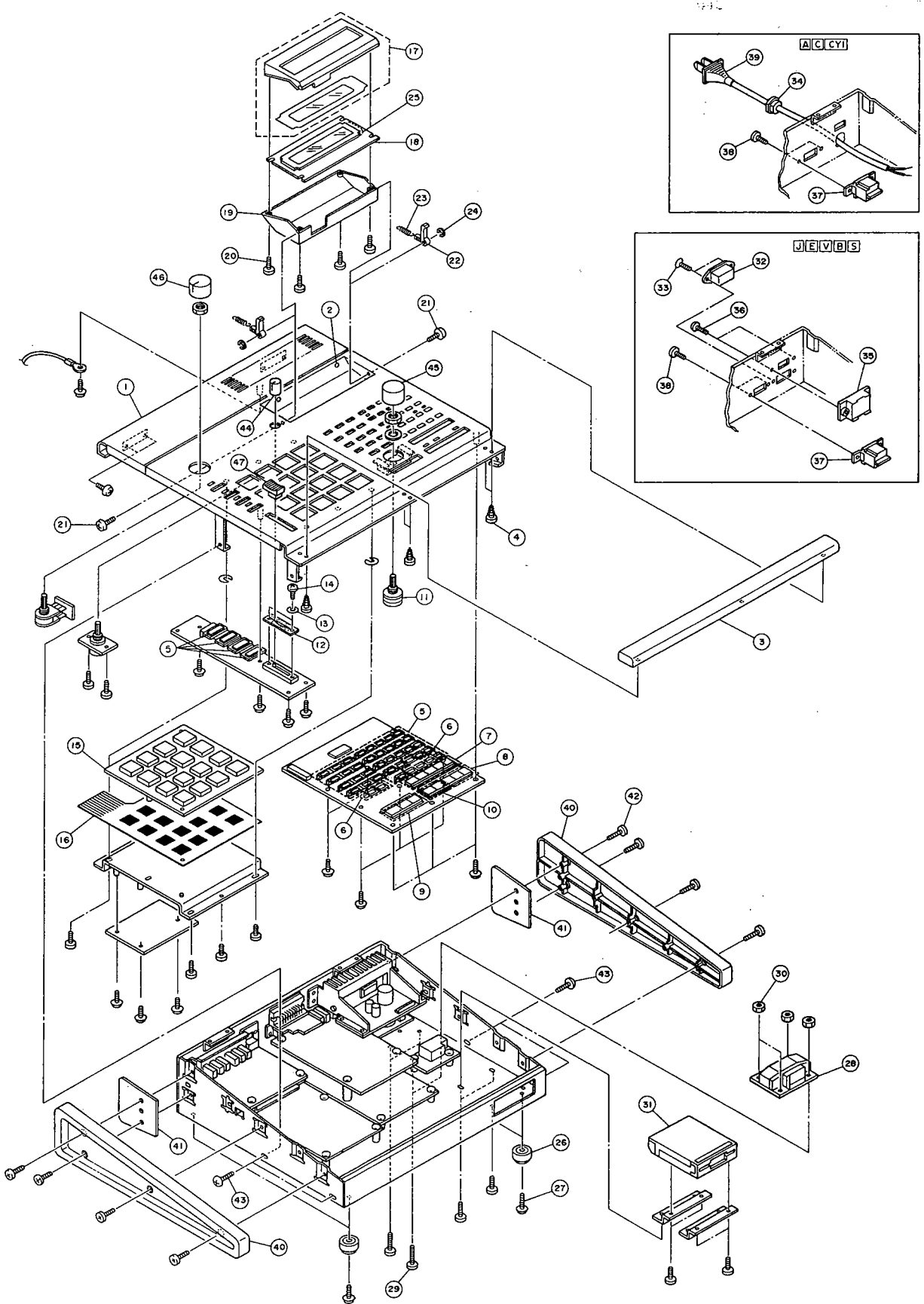
9. DRUM PAD P.C BOARD

Ref. No.	Part No.	Description
D1	ED-301911	D SILICON H DS448
D2	ED-301911	D SILICON H DS448
D3	ED-301911	D SILICON H DS448
D4	ED-301911	D SILICON H DS448
D5	ED-301911	D SILICON H DS448
D6	ED-301911	D SILICON H DS448
D7	ED-301911	D SILICON H DS448
D8	ED-301911	D SILICON H DS448
D9	ED-301911	D SILICON H DS448
D10	ED-301911	D SILICON H DS448
D11	ED-301911	D SILICON H DS448
D12	ED-301911	D SILICON H DS448
D13	ED-301911	D SILICON H DS448
D14	ED-301911	D SILICON H DS448
D15	ED-301911	D SILICON H DS448
D16	ED-301911	D SILICON H DS448
D17	ED-301911	D SILICON H DS448
D18	ED-301911	D SILICON H DS448
D19	ED-301911	D SILICON H DS448
D20	ED-301911	D SILICON H DS448
D21	ED-301911	D SILICON H DS448
D22	ED-301911	D SILICON H DS448
D23	ED-301911	D SILICON H DS448
D24	ED-301911	D SILICON H DS448
IC1	EI-375346	IC MM74HC04N
IC2	EI-379605	IC LA6339
IC3	EI-362588	IC M5238P
IC4	EI-362588	IC M5238P
P701	EJ-378282	PLUG RF-H202TD-1190 20P
P702	EJ-379603	PLUG 20FR-ST

10. VR (A) P.C BOARD

Ref. No.	Part No.	Description
VR1	EV-379614	VR ROTARY EWKE2AP20A1.4 A103X2

FINAL ASSEMBLY BLOCK



PARTS LIST

MODEL EXM003
2. EXM P.C BOARD

Ref. No.	Part No.	Description
IC1	EI-378218	IC MB81C4256-10-G
IC2	EI-378218	IC MB81C4256-10-G
IC3	EI-378218	IC MB81C4256-10-G
IC4	EI-378218	IC MB81C4256-10-G
IC5	EI-378218	IC MB81C4256-10-G
IC6	EI-378218	IC MB81C4256-10-G

INDEX

MODEL MPC60

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
BA-379695	16	ED-378184	D3	EI-360054	IC8	EI-378204	IC7
BA-L4003A020A	1	ED-378219	13	EI-360054	IC26	EI-378204	IC8
BA-L4003A030A	6	ED-378219	PH1	EI-360054	IC27	EI-378205	95
BA-L4003A040A	4	ED-378219	PH2	EI-360054	IC28	EI-378205	X1
BA-L4003A050A	2	EF-309388	20	EI-360772	62	EI-378211	70
BA-L4003A060A	5	EF-309388	F3	EI-360772	IC36	EI-378211	IC3
BA-L4003A070A	3	EF-309388	F4	EI-360954	37	EI-378211	IC9
BB-375768	1	EF-309392	22	EI-360954	IC25	EI-378211	IC10
BB-375768	31	EF-309392	F1A	EI-362588	60	EI-378211	IC11
BD-381924J	1	EF-310229	21	EI-362588	IC26	EI-378211	IC6
BT-378271	4	EF-310229	F3A	EI-362588	IC27	EI-378212	53
BT-378271	28	EF-310229	F4A	EI-362588	IC28	EI-378212	IC12
BT-378272	2	EF-311839	18	EI-362588	IC5	EI-378212	IC13
BT-378272	28A	EF-311839	F1	EI-362588	IC7	EI-378212	IC14
BT-378273	3	EF-323080	23	EI-362588	IC10	EI-378212	51
BT-378273	28B	EF-323080	F2A	EI-362588	IC11	EI-378214	IC19
BT-379599	5	EF-326639	19	EI-362588	IC12	EI-378215	54
BT-379599	T1	EF-326639	F2	EI-362588	IC3	EI-378215	IC21
EC-338411	C4	EF-355374	15	EI-362588	IC4	EI-378216	75
EC-358450	C2	EF-355374	F3C	EI-364253	65	EI-378216	IC25
EC-358450	C3	EF-355374	F4C	EI-364253	IC35	EI-378217	84
EC-369670	C1	EF-355374	F1C	EI-365798	66	EI-378217	IC28
ED-301911	11	EF-364518	14	EI-365798	IC3	EI-378217	IC29
ED-301911	D2	EF-364518	F2C	EI-365803	86	EI-378218	48
ED-301911	D4	EF-593706	17	EI-365803	IC23	EI-378218	IC31
ED-301911	D5	EF-593706	F3B	EI-365804	33	EI-378218	IC32
ED-301911	D1	EF-593706	F4B	EI-365804	IC22	EI-378218	IC33
ED-301911	D2	EF-593706	F1B	EI-365805	35	EI-378218	IC34
ED-301911	D3	EF-623125	16	EI-365805	IC27	EI-378218	IC19
ED-301911	D4	EF-623125	F2B	EI-365806	34	EI-378218	IC20
ED-301911	D1	EH-359185	24	EI-365806	IC23	EI-378218	IC21
ED-301911	D1	EH-359185	IB1	EI-365811	96	EI-378218	IC22
ED-301911	D2	EH-378283	25	EI-365811	X1	EI-378218	IC23
ED-301911	D3	EH-378283	DL1	EI-365820	67	EI-378218	IC24
ED-301911	D4	EI-336995	61	EI-365820	IC901	EI-378275	92
ED-301911	D5	EI-336995	IC7	EI-365831	85	EI-378275	IC2
ED-301911	D6	EI-336995	IC37	EI-365831	IC12	EI-378276	39
ED-301911	D7	EI-336995	IC13	EI-365840	78	EI-378276	IC4
ED-301911	D8	EI-348123	59	EI-365840	IC15	EI-378277	36
ED-301911	D9	EI-348123	IC1	EI-365840	IC11	EI-378277	IC30
ED-301911	D10	EI-349719	57	EI-369660	30	EI-378284	69
ED-301911	D11	EI-349719	IC29	EI-369660	IC6	EI-378284	IC7
ED-301911	D12	EI-354123	94	EI-369660	IC5	EI-378285	27
ED-301911	D13	EI-354123	X1	EI-371671	93	EI-378285	IC9
ED-301911	D14	EI-355891	32	EI-371671	IC1	EI-378286	68
ED-301911	D15	EI-355891	IC26	EI-372550	79	EI-378286	IC24
ED-301911	D16	EI-360025	76	EI-372550	IC30	EI-378290	97
ED-301911	D17	EI-360025	IC4	EI-372578	77	EI-378290	X1
ED-301911	D18	EI-360025	IC11	EI-372578	IC13	EI-378293	40
ED-301911	D19	EI-360028	88	EI-372578	IC14	EI-378293	IC1
ED-301911	D20	EI-360028	IC16	EI-375205	87	EI-378294	42
ED-301911	D21	EI-360028	IC10	EI-375205	IC10	EI-378294	IC17
ED-301911	D22	EI-360028	IC15	EI-375222	74	EI-378296	43
ED-301911	D23	EI-360028	IC16	EI-375222	IC24	EI-378296	IC18
ED-301911	D24	EI-360036	83	EI-375222	IC9	EI-378297	63
ED-330319	9	EI-360036	IC17	EI-375346	55	EI-378297	IC29
ED-330319	D2	EI-360037	72	EI-375346	IC17	EI-379583	71
ED-359863	6	EI-360037	IC20	EI-375346	IC31	EI-379583	IC3
ED-359863	D1	EI-360037	IC38	EI-375346	IC2	EI-379583	IC4
ED-359863	D2	EI-360039	73	EI-375346	IC1	EI-379585	29
ED-359863	D3	EI-360039	IC18	EI-375347	56	EI-379585	IC12
ED-359863	D4	EI-360039	IC19	EI-375347	IC18	EI-379585	IC30
ED-359863	D5	EI-360039	IC21	EI-375347	IC20	EI-379585	IC31
ED-359863	D6	EI-360042	82	EI-376734	31	EI-379585	IC32
ED-359863	D7	EI-360042	IC5	EI-376734	IC25	EI-379585	IC33
ED-359863	D8	EI-360042	IC6	EI-377067	64	EI-379585	IC34
ED-359863	D9	EI-360043	58	EI-377067	IC1	EI-379585	IC35
ED-359863	D10	EI-360043	IC39	EI-378141	28	EI-379586	52
ED-359863	D1	EI-360043	IC40	EI-378141	IC13	EI-379586	IC14
ED-359863	D2	EI-360043	IC41	EI-378197	41	EI-379586	IC15
ED-359863	D3	EI-360043	IC42	EI-378197	IC1	EI-379586	IC16
ED-359863	D4	EI-360043	IC4	EI-378198	44	EI-379592	26
ED-361055	10	EI-360043	IC8	EI-378198	IC2	EI-379592	IC2
ED-361055	D11	EI-360043	IC9	EI-378200	45	EI-379593	91
ED-361055	D1	EI-360053	81	EI-378200	IC3	EI-379593	IC3
ED-365818	8	EI-360053	IC8	EI-378201	46	EI-379594	90
ED-365818	D901	EI-360054	80	EI-378201	IC4	EI-379594	IC6
ED-365819	7	EI-360054	IC5	EI-378203	47	EI-379598	89
ED-365819	D902	EI-360054	IC6	EI-378203	IC5	EI-379598	IC2
ED-378184	12	EI-360054	IC7	EI-378204	50	EI-379605	38

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
EI-379605	IC2	ES-349474	SW6	EV-365876	VR1		
EI-379657J	49	ES-349474	SW7	EV-378278	118		
EI-379657J	IC1	ES-349474	SW8	EV-378278	VR1		
EJ-353031	J201	ES-349474	SW9	EV-379610	117		
EJ-353031	J202	ES-349474	SW10	EV-379610	VR1		
EJ-353031	J401	ES-349474	SW11	EV-379613	114		
EJ-354105	J203	ES-349474	SW12	EV-379613	VR1		
EJ-354105	J204	ES-349474	SW13	EV-379614	115		
EJ-354105	J205	ES-349474	SW14	EV-379614	VR1		
EJ-354105	J301	ES-349474	SW15	EW-357931	39A		
EJ-354105	J302	ES-349474	SW16	EW-358630	39E		
EJ-354105	J303	ES-349474	SW17	EW-358631	39D		
EJ-354105	J304	ES-349474	SW18	EW-359641	39C		
EJ-354105	J305	ES-349474	SW19	EW-365947	39		
EJ-354105	J306	ES-349474	SW20	EW-366055	39B		
EJ-354105	J307	ES-349474	SW21	EW-379635	48		
EJ-354105	J308	ES-349474	SW22	EW-379636	49		
EJ-354105	J402	ES-349474	SW23	EZ-302906	34		
EJ-354105	J403	ES-349474	SW24	EZ-378206	119		
EJ-354105	J404	ES-349474	SW25	EZ-378206	1		
EJ-354105	J405	ES-349474	SW26	MB-330911	2		
EJ-354105	J406	ES-349474	SW27	ML-380175J	22		
EJ-358633	98	ES-349474	SW28	SA-332850	26		
EJ-358633	32	ES-349474	SW29	SD-378251	3		
EJ-358691	1	ES-349474	SW30	SE-362389A-A	12		
EJ-358691	2	ES-349474	SW31	SE-370057	41		
EJ-365834	P204	ES-349474	SW32	SE-376331	15		
EJ-365834	P302	ES-349474	SW33	SK-364219B	47		
EJ-378207	J101	ES-349474	SW34	SK-378252A	5		
EJ-378207	J102	ES-349474	SW35	SK-378252B	6		
EJ-378207	J103	ES-349474	SW36	SK-378253A	7		
EJ-378207	J104	ES-349474	SW37	SK-378253B	8		
EJ-378207	J105	ES-349474	SW38	SK-378253C	9		
EJ-378207	J106	ES-349474	SW39	SK-378253D	10		
EJ-378269	P205	ES-349474	SW40	SK-380281J	45		
EJ-378269	25	ES-349474	SW41	SK-380293J	46		
EJ-378279	P201	ES-349474	SW42	SK-380638J	44		
EJ-378280	P301	ES-349474	SW43	SP-369956	40		
EJ-378282	P202	ES-349474	SW44	SP-380172J	19		
EJ-378282	P203	ES-349474	SW45	SP-380192J	17		
EJ-378282	P701	ES-349474	SW46	ZG-380174J	23		
EJ-378287	P304	ES-349474	SW47	ZS-311746	33		
EJ-379603	P702	ES-349474	SW48	ZS-321783	42		
EJ-379612	J601	ES-349474	SW49	ZS-338591	38		
EM-378267	99	ES-349474	SW50	ZS-345107	43		
EM-378267	18	ES-349474	SW51	ZS-353268	20		
EO-360068	100	ES-349474	SW52	ZS-360715	27		
EO-360068	FL1	ES-349474	SW1	ZS-360952	36		
EO-378291	101	ES-349474	SW2	ZS-362266	14		
EO-378291	F1	ES-349474	SW3	ZS-369535	29		
EO-378291	F2	ES-349474	SW4	ZS-379293	4		
EO-378291	F3	ES-364478	103	ZS-421806	21		
EO-378291	F4	ES-364478	37	ZW-270101	24		
EO-378291	F5	ES-365943	102	ZW-321317	13		
EO-378291	F6	ES-365943	11	ZW-516993	30		
EO-378291	F7	ES-379609	105				
EO-378291	F8	ES-379609	SW1				
EO-378291	F1	ET-305463	108				
EO-378291	F2	ET-305463	TR3				
EO-378291	F3	ET-305463	TR4				
EO-378291	F4	ET-307195	110				
EO-379607	L1	ET-307195	TR1				
EO-379607	L2	ET-307195	TR2				
EO-379607	L1	ET-308977	111				
EO-379607	L2	ET-308977	TR1				
ER-322787	R1	ET-353899	107				
ER-324185	R1	ET-353899	TR1				
ER-324185	R2	ET-354083	113				
ER-325114	R65	ET-354083	TR902				
ER-325114	R66	ET-356817	109				
ER-333363	R26	ET-356817	TR901				
ER-333363	R27	ET-360067	112				
ES-306430	104	ET-360067	TR2				
ES-306430	35	EV-307626	VR2				
ES-349474	106	EV-307626	VR3				
ES-349474	SW1	EV-307626	VR4				
ES-349474	SW2	EV-307626	VR5				
ES-349474	SW3	EV-336768	VR1				
ES-349474	SW4	EV-336768	VR2				
ES-349474	SW5	EV-365876	116				

MODEL EXM003

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
EI-378218	IC1						
EI-378218	IC2						
EI-378218	IC3						
EI-378218	IC4						
EI-378218	IC5						
EI-378218	IC6						

ABBREVIATIONS FOR THE SERVICE MANUAL

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AMP (Amp)	AMPlifier	MINI	MINIum
BBD	Backet Brigade Diode	MIX	MIXer
BCD	Binary Code Decimal	MOD	MODulation
B.DOWN	Brak Down	OSC	OSCillator
B.UP	Back UP	RAM	Random Access Memory
CE	Chip Enable	RD	ReaD
CH	Channel	REG	REGulator
COMP	COMParator	RESO	RESOnance
CONT	CONTrol	RL	ReLay
CV	Control Voltage	ROM	Read Only Memory
D/A	Digital to Analogue	S/H	Sample and Hold
EG	Envelope Generator	SW	SWitch
EXT	EXTernal	THRU	THRoUgh
FREQ	FREQUency	TRANS	TRANSpose
HPF	High Pass Filter	U	Upper
INH	INHibit	VA	Voltage Analog
INT	INTerrupt	VCA	Voltage Controlled Amplifier
INV	INVerter	VCF	Voltage Controlled Filter
L	Lower	VR	Variable Resistor
LFO	Low Frequency Oscillator	VREF	REFerence Voltage
MAX	MAXimum	WR	WRite
MEMO	MEMOry		
MIDI	Musical Instrument Digital Interface		

MPC60/EXM003

AKAI ELECTRIC CO., LTD.

12-14, 2-Chome, Higashi-Kojiya, Ohta-ku, Tokyo, Japan
 TEL: Tokyo (742) 5111 CABLE: HIFIAKAI TOKYO TELEX: J26261
 Printed No. 880125-G1-600 Printed Date: February 20, 1988
 950 Printed in Japan

AKAI

MODEL **MPC 60**

MODEL **EXM 003**

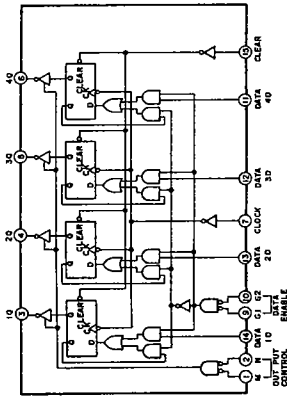
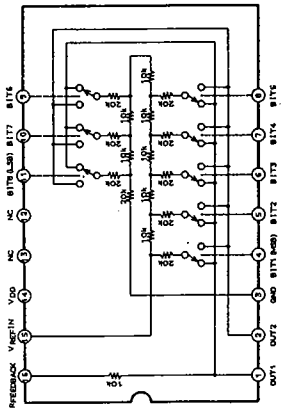
SCHEMATIC DIAGRAM AND PC BOARDS

TABLE OF CONTENTS

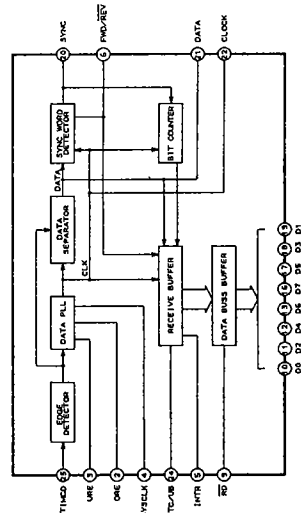
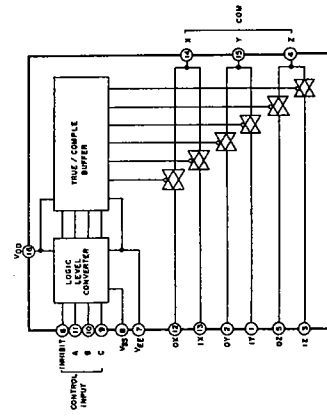
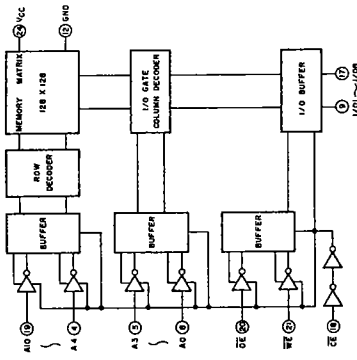
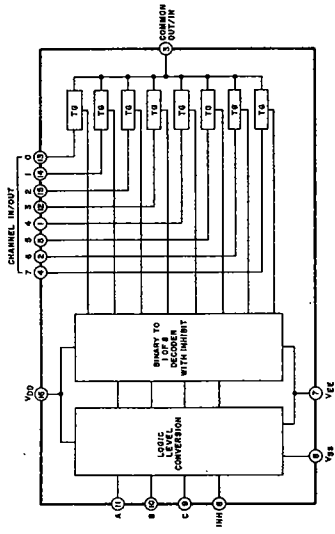
1. ICs	2
2. EV INVERTER P.C BOARD, D SUB PC BOARD, FILTER PC BOARD, POWER PC BOARD, AND VR (B) PC BOARD	8
3. MPC60 CONNECTION DIAGRAM	9
4. CPU SCHEMATIC DIAGRAM	10
5. CPU PC BOARD	11
6. SYNC PC BOARD	12
7. SYNC SCHEMATIC DIAGRAM	13
8. VOICE SCHEMATIC DIAGRAM	14
9. VOICE PC BOARD	15
10. ADC SCHEMATIC DIAGRAM	16
11. ADC PC BOARD	17
12. OPERATION SCHEMATIC DIAGRAM	18
13. OPERATION (A), (B) PC BOARD	19
14. DRUM SCHEMATIC DIAGRAM AND PC BOARD	20
15. BLOCK DIAGRAM	21
16. EXM003 RAM SCHEMATIC DIAGRAM	22
17. D RAM PC BOARD	23

Information of ICs

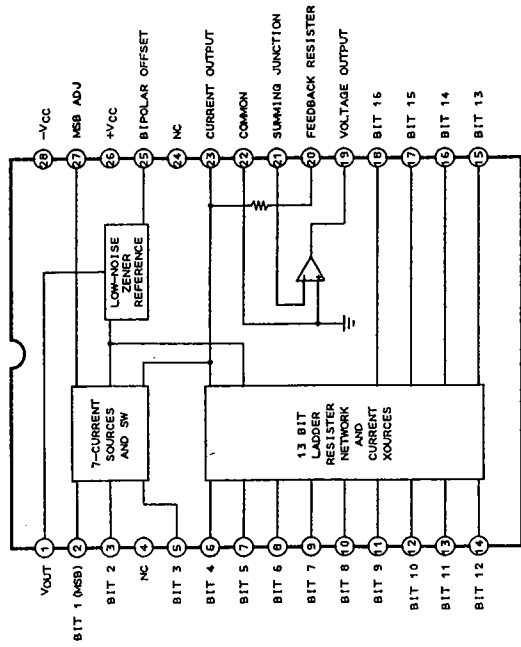
NAME OF IC	FUNCTION	NAME OF IC	FUNCTION
AD7523JN	Digital Control Attenuator	SED9420CAC	VFO type FDD Data Separator
CD74HC4051	Single 8-Channel Multiplexer	STR9005	+5V Regulator
CD74HC4053	Tripple 2-Channel Multiplexer	TC74HCOOP	Quad 2-Input NAND Gate
CD74HCT173	3 state Quad D-Flip Flop	TC74HC04P	Hex Inverter
CXK5816PN-15L	2K×8 bit Static RAM	TC74HC08P	Quad 2-Input AND Gate.
F74AC74P	Dual D-Flip Flop with Preset and Clear	TC74HC14P	Hex Inverting Schmitt Trigger
HD74LS32P	Quand 2-Input OR Gate	TC74HC32P	Quad 2-Input OR Gate
HD7406P	Hex Inverter	TC74HC74P	Dual D-Flip Flop with Preset and Clear
HD75188P	Quand Line Driver	TC74HC125P	3-State Quad Buffer
HD75189P	Quand Line Receiver	TC74HC126P	3-State Quad Buffer
I-0055	Time Code Reader	TC74HC138P	3 to 8 Line Decoder/ Demultiplexer
IR9311	High Speed Comparator	TC74HC153P	Dual 4-Input Multiplexer
L4003	Custom Micro-Processor for MPC60	TC74HC155P	Dual 2 to 4 Decoder/ Demultiplexer
LA6339	Quad Comparator	TC74HC161P	4-bit Synchronous Binary Counter with Asynchronous Clear
LC7981	LCD Dot Matrix Graphic Generator	TC74HC174P	Hex D-Flip Flop with Clear
M5218P	Dual Low Noise OP-Amplifier	TC74HC175P	Quand D-Flip Flop with Clear
M5220P	Dual Low Noise Voltage Amplifier	TC74HC259P	3 to 8 Line Decoder
M5230L	Regulator (Variable output, + - teacking type)	TC74HC390	Dual 4-bit Decode Counter
M5238P	Dual J-FET Input OP-Amplifier	TC74HC393P	Dual 4-bit Binary Counter
MB89255-P-G	Parallel Data IN-OUT Interface	TC74HC541P	Octal 3-State Buffer
MB89371P-G	Serial Data Transmitter, Receiver	TC74HCT245P	Octal 3-State Transceiver
MB81C4256-10	256K×4 (1M) bit Dynamic RAM	TC74HCT573P	3-State Octal D-Type Latch
MBL80186-10	High-Integration 16 bit Micro-Processor	TC74HCT574P	Octal D-Flip Flop
MBM27C256-15	256K bit EP-ROM	TC74HC4002P	Dual 4-Input NOR Gate
MBM27C512-20	64K×8 (512K) bit EP-ROM	TC4516BP	Binary U/D counter
MC74F08N	Quad 2-Input AND Gate	TM2764AD-20	64 K bit EP-ROM
MC74F32N	Quad 2-Input OR Gate	μPC814C	High-Speed Dual Low Noise OP-Amplifier
MC74F157N	Quad 2-Input Multiplexer	μPD78C11G-044	8 bit Micro-Processor with A/D Coverter
MC74F158N	Quad 2-Input Multiplexer (Inv. out)	μPD5200C	Dual Analog Switch
NJM78L05A	+5V Regulator	μPD72066C	FDD Controler
NJM79L05A	-5V Regulator		
PCM54HP	16 bit D/A Converter		
PCM77P	16 bit A/D Converter		
PST520D	Reset Pulse Generator		



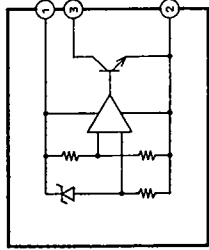
PIN No.	SYMBOL	FUNCTION
1, 15	GROUND	
14, 28	V _{CC}	+5VDC
2	ORE	Internal Register Overflow
3	URE	Internal Register Underflow
4	SYSCLK	Input for system clock-To 10 MHz
5	INTR	Active when a new Time Code Word has been stored in the internal buffer.
6	FWD/REV	Tape Direction Indicator HIGH = FWD LOW = REV
7	AO	Output Word Select-Selects which word is presented to Data Output 00-07
8	A1	Output Word Selected
		0 0 Frame 1 0 Seconds 0 1 Minutes 1 1 Hours
9	RD	Output Enable-Data is available at Data Outputs 00-07 when RD is active.
10	D0	Data Output 0
11	D2	Data Output 2
12	D4	Data Output 4
13	D6	Data Output 6
16	D7	Data Output 7
17	D5	Data Output 5
18	D3	Data Output 3
19	D1	Data Output 1
20	SYNC	Outputs a pulse two clock periods wide when the Time Code SYNC word has been read completely.
21	DATA	Serial NRZ Data Output, Format:NRZ 1
22	CLOCK	Time Code Clock [clock rate derived from Time Code]
23	TESTEN	Test Enable-Must be HIGH for normal operation
24	TC/UB	Time code or User Bits select Input HIGH = Time Code LOW = User Bits
25	TIMCO	Longitudinal Time Code Input at TTL levels
26	TEST B	Test Input B-Must be HIGH for normal operation
27	TEST A	Test Input A-Must be HIGH for normal operation



PCM54HP



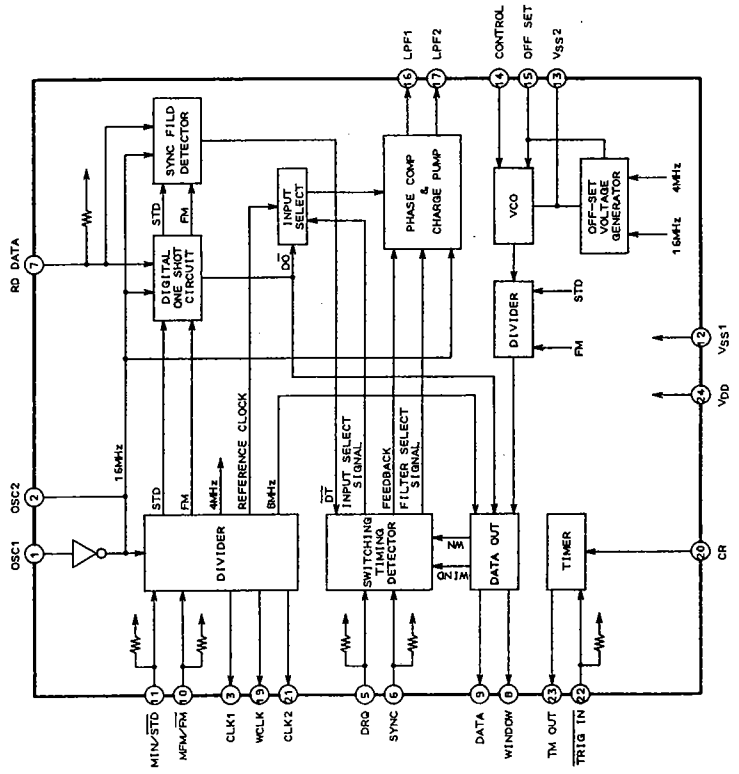
PST520D



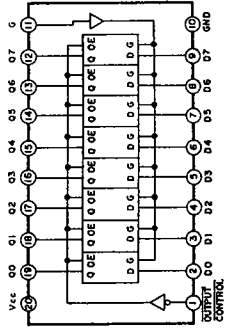
SED9420CAC

PIN No.	SYMBOL	FUNCTION
1	OSC1	OSC IN
2	OSC2	OSC OUT
3	CLK1	FDC CLOCK OUT STD FD: 8MHz MINI FD: 4MHz
4	TEST 2	NC OR PULL UP (V _{DD})
5	DRQ	DATA REQUEST IN
6	SYNC	SYNC REQUEST IN
7	RD DATA	FDD. READ DATA IN
8	WINDOW	DATA WINDOW OUT
9	DATA	
10	MFM/FM	MFM/FM SELECT
11	MIN/STD	FD SELECT 5 INCH; High 8 INCH; Low
12	V _{SS1}	DIGITAL GND
13	V _{SS2}	ANALOG GND (VCO GND)
14	CONTROL	VCO CONTROL
15	OFFSET	VCO OFFSET
16	LPF1	PLL LOOP FILTER CONNECTOR
17	LPF2	PLL LOOP FILTER CONNECTOR
18	TEST	TEST NC
19	WCLK	FDC SAVE CLOCK ● 8 INCH/MFM; T = 1 μs ● 8 INCH/FM; T = 2 μs ● 5 INCH/MFM; T = 2 μs ● 5 INCH/FM; T = 4 μs
20	CR	
21	CLK2	FDC CLOCK OUT ● 8 INCH; 2 MHz ● 5 INCH; 1 MHz
22	TRIG IN	TIMER TRIGGER IN
23	TM OUT	(For HEAD LOAD, MOTORSTOP ETC.)
24	V _{DD}	+5V

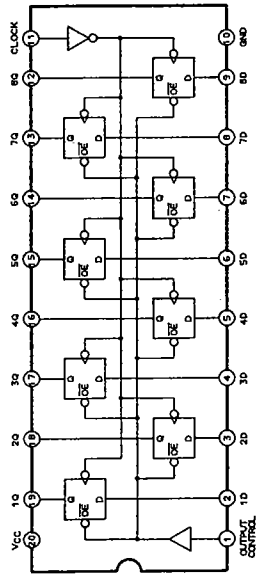
SED9420CAC



TC74HCT573P

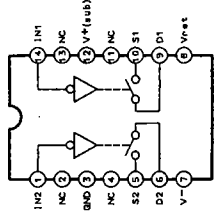


TC74HCT574P



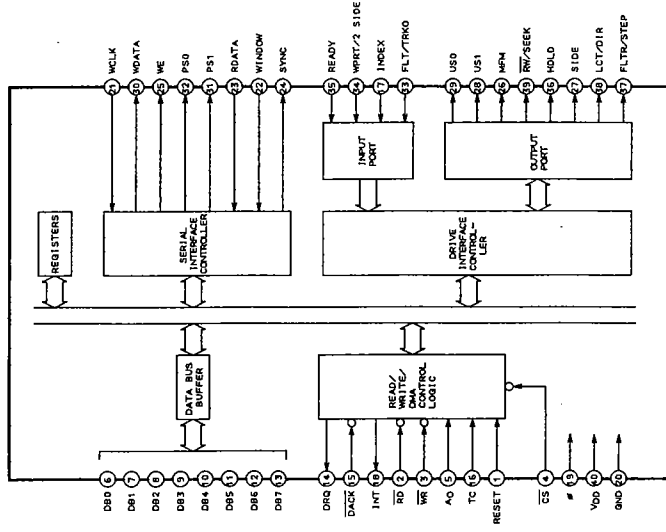
OUTPUT CONTROL	CLOCK	DATA	OUTPUT
L	L	H	H
L	L	L	L
L	L	X	X
H	X	X	Z

μPD5200C



INPUT	SWITCH
L*	ON
H*	OFF

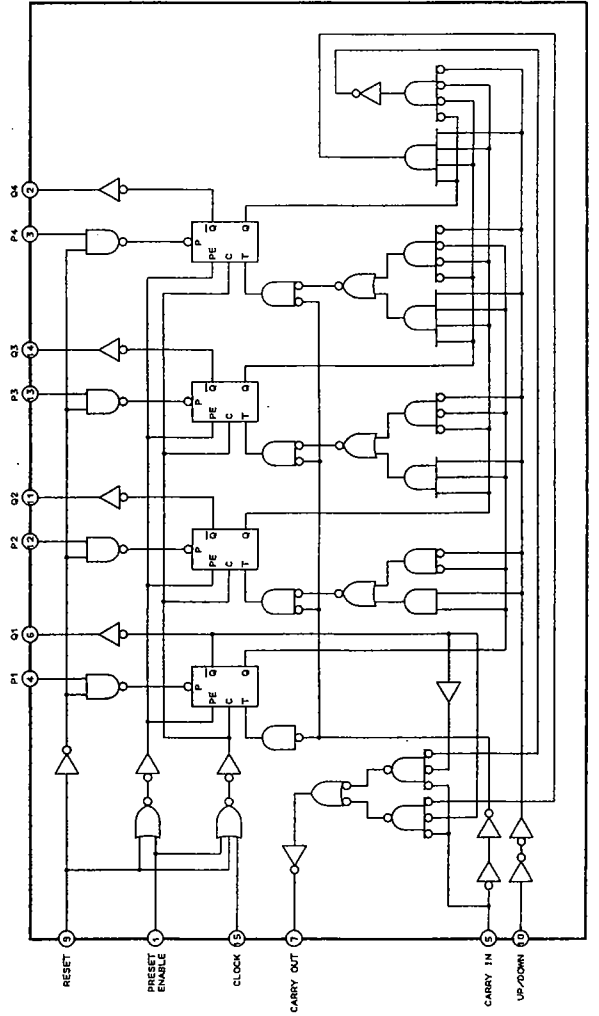
μPD72066C

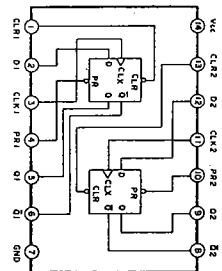


CARRY IN	UP/DOWN	PRESET ENABLE	RESET	ACTION
1	X	0	0	NO COUNT UP
0	1	0	0	COUNT UP
0	0	0	0	COUNT DOWN
X	X	1	0	PRESET
X	X	X	1	RESET

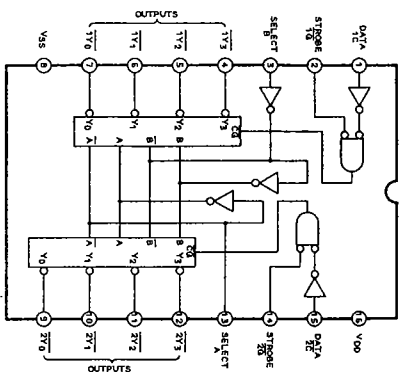
X=DON'T CARE

TC4516BP

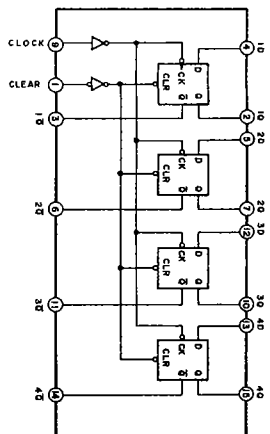




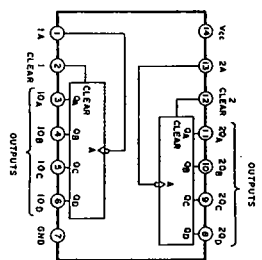
TC74HC14P



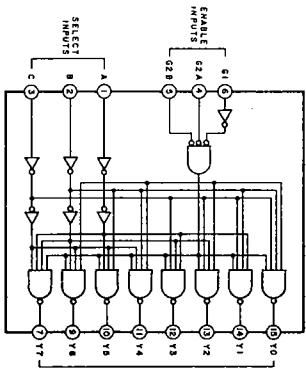
TC74HC155P



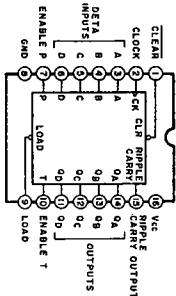
TC74HC175P



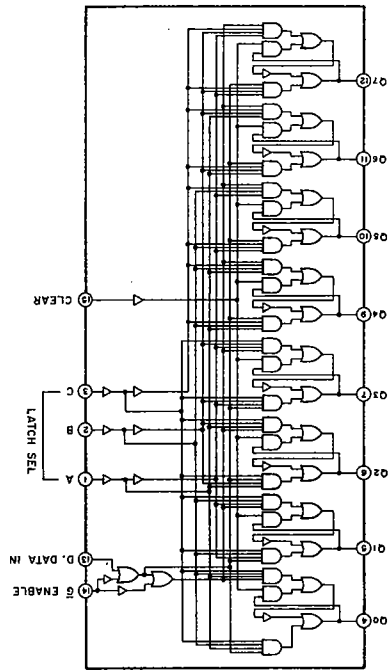
TC74HC93P



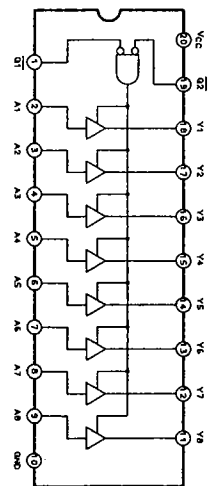
TC74HC138P



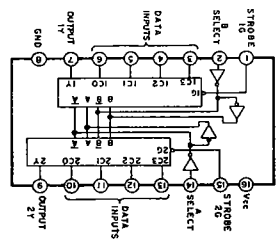
TC74HC161P



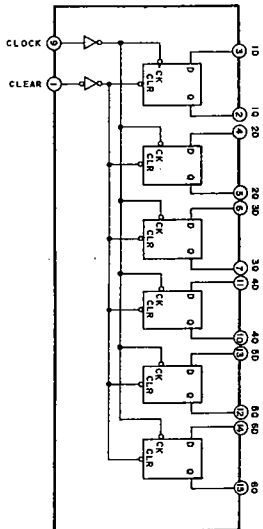
TC74HC259P



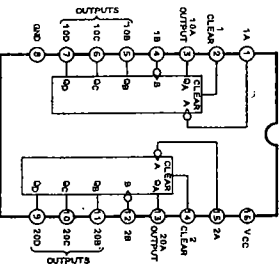
TC74HC541P



TC74HC153P

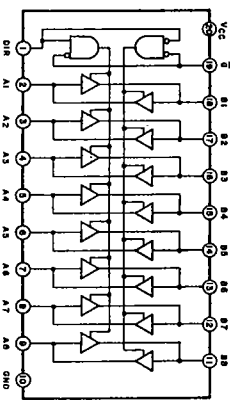


TC74HC174P

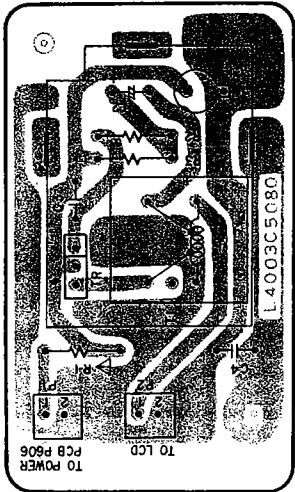


TC74HC390P

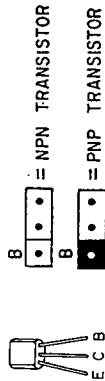
INPUTS	FUNCTION
1	CLOCK
X	INHIBIT
	CLEAR



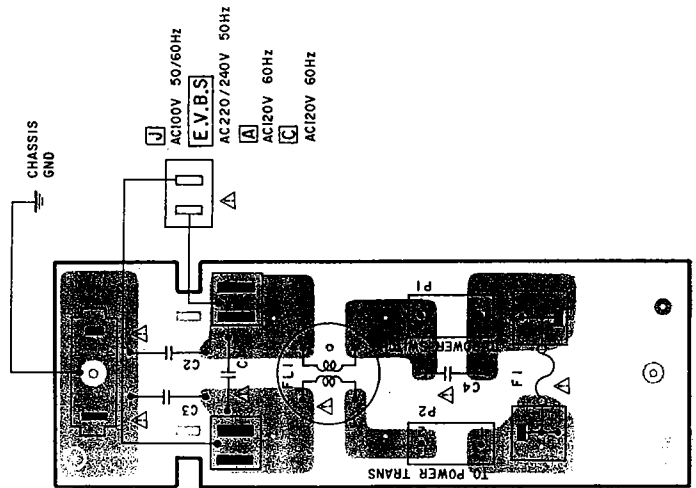
TC74HC745P



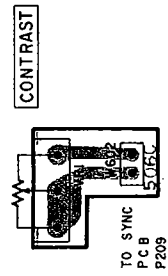
EL INVERTER PCB L4003C5080



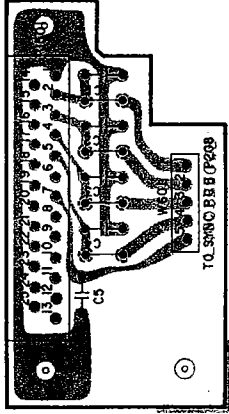
2SC2774



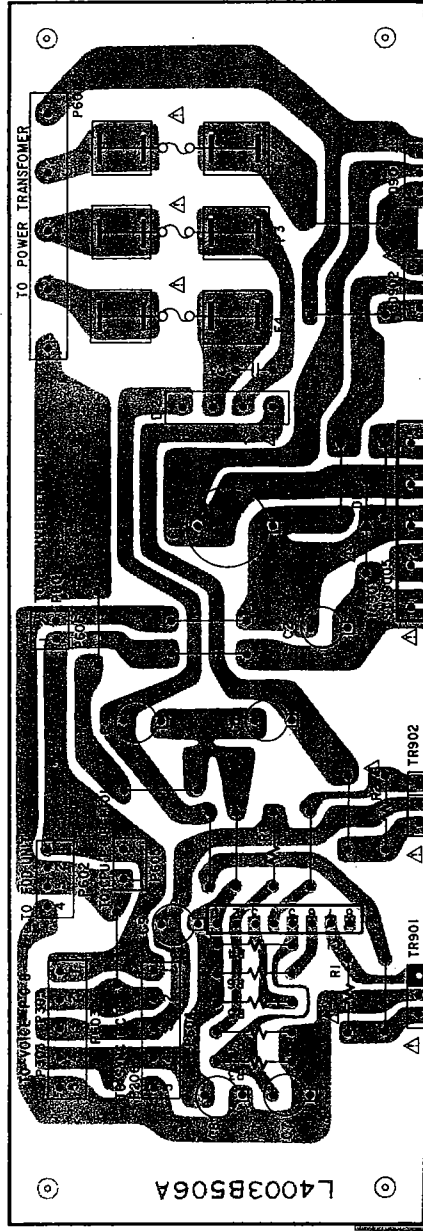
FILTER PCB L600ID5080



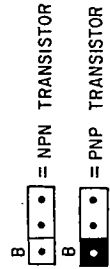
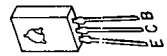
VR (B) PCB L4003B506C



D SUB PCB L4003B506B

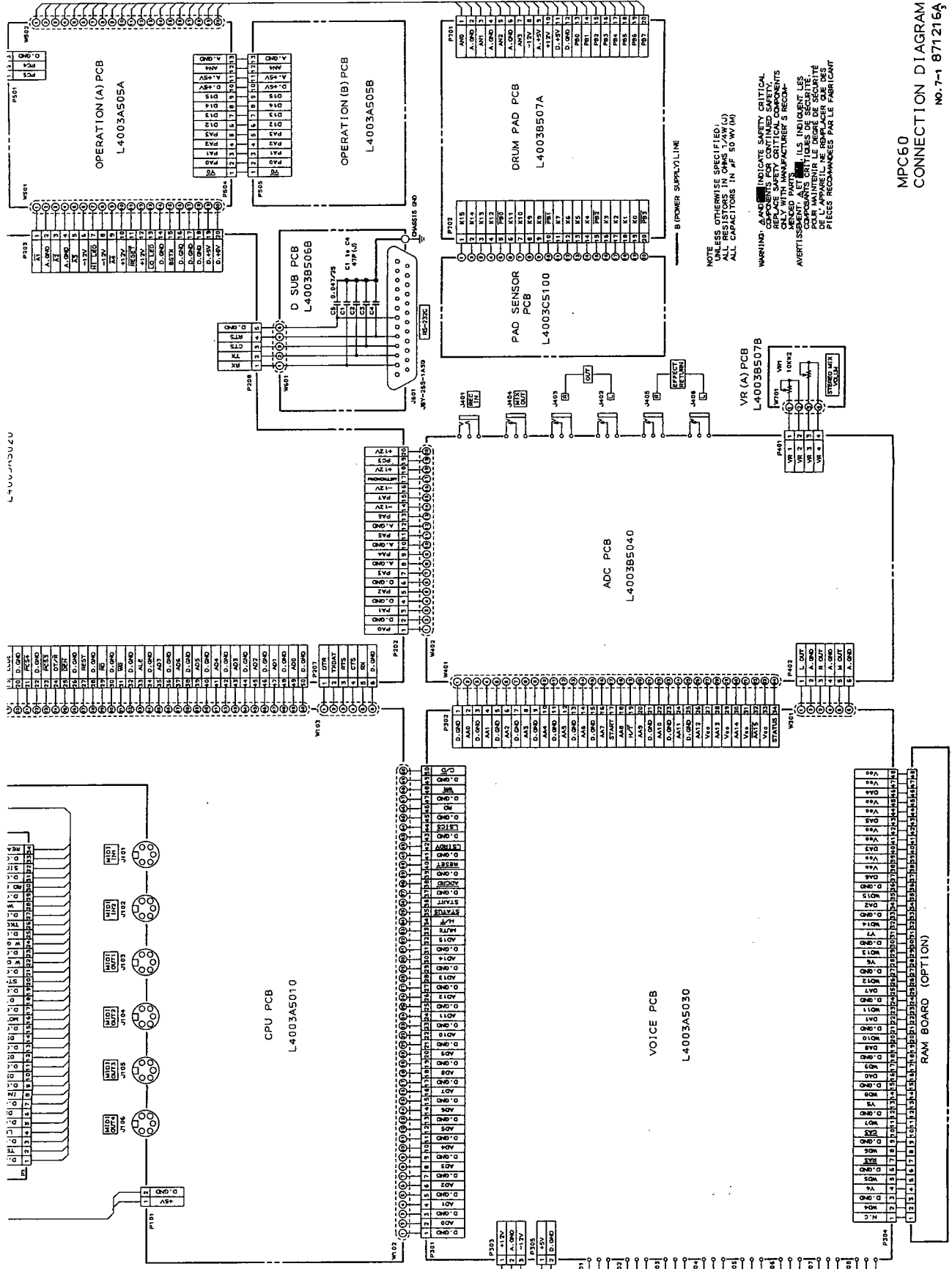


POWER PCB L4003B506A



WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: Δ ILL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

2SB891
2SD1189

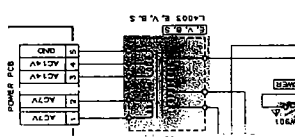


NOTE
UNLESS OTHERWISE SPECIFIED,
ALL RESISTORS IN OHMS (1/4W/1%)
ALL CAPACITORS IN #F 50V(10%)

WARNING: **▲** INDICATE SAFETY CRITICAL COMPONENTS
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDATIONS
ILS INDICENT LES COMPOSANTS CRITIQUES DE SECURITE. SEULEMENT LES PIECES RECOMMANDEES PAR LE FABRICANT.

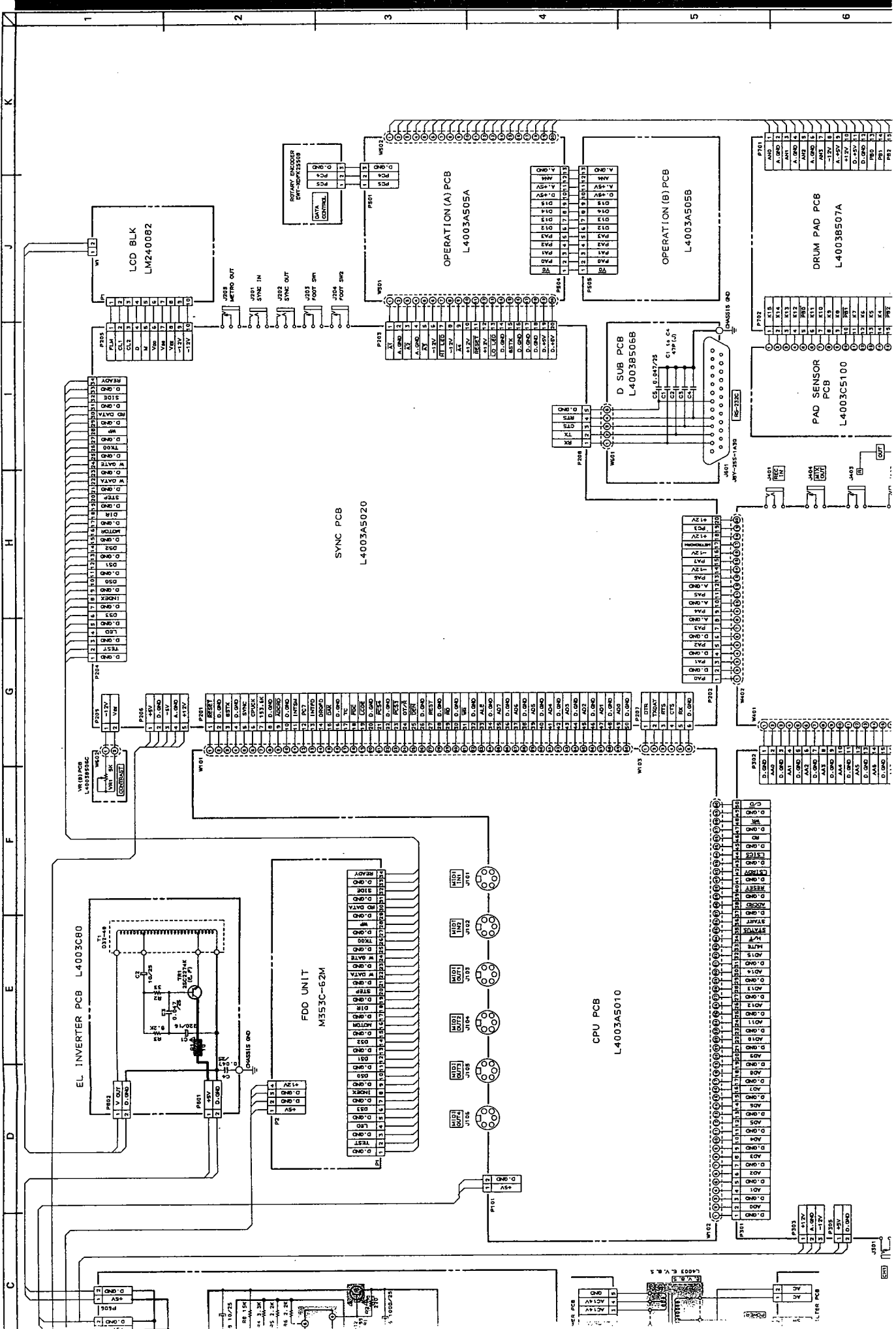
MPC60
CONNECTION DIAGRAM
NO. 7-1 871216A

L4003A5020ZU



S	5
20V	20V
25V	25V
250V	250V
250V	250V

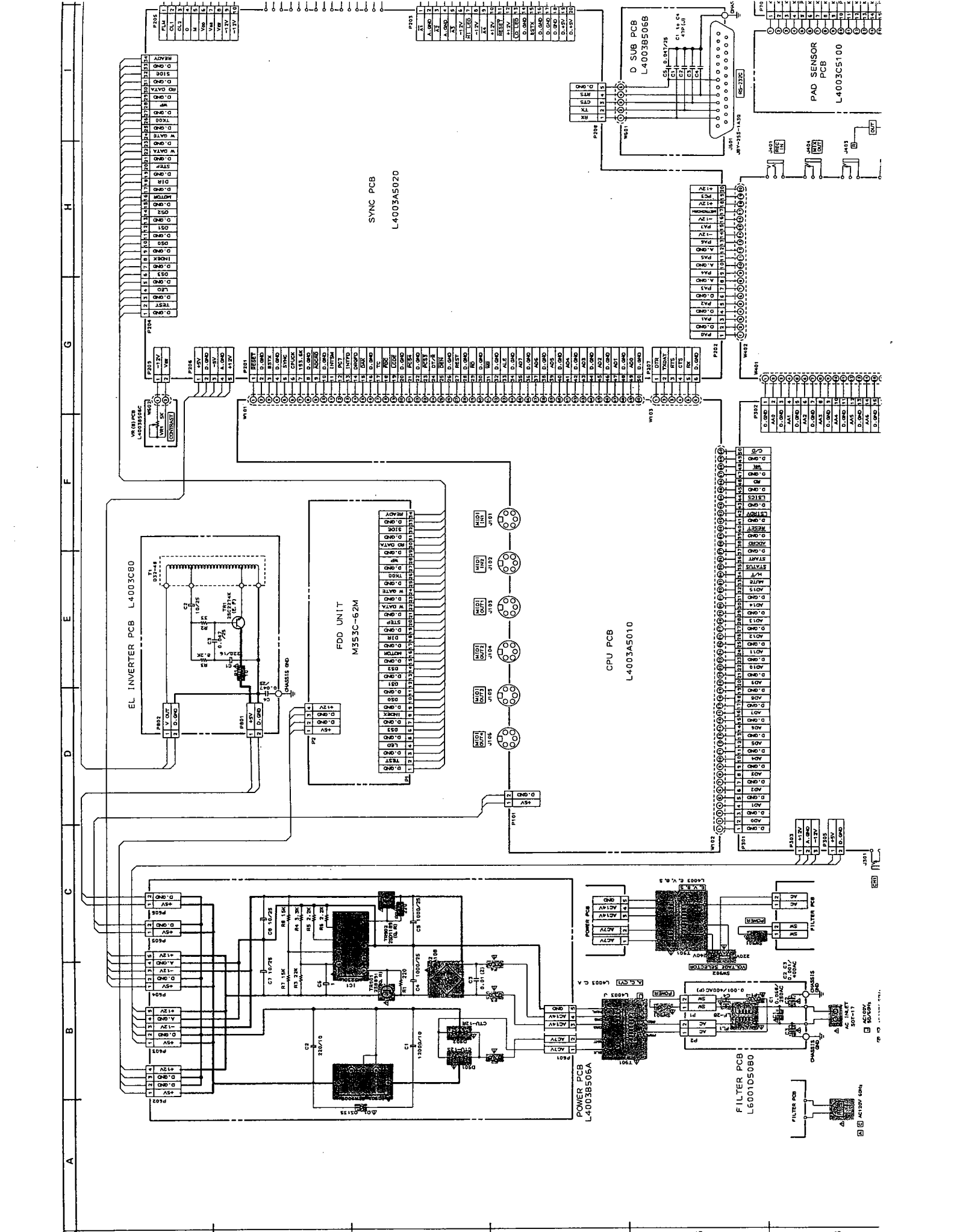
C D E F G H I J K



1 2 3 4 5 6
K
J
I
H
G
F
E
D
C

5 10/25
80 5K
44 3.3K
35 2.2K
44 2.2K
44 2.2K

REF. PCB
L4003A5010
L4003A5020
L4003A505A
L4003A505B
L4003B506B
L4003B507A
L4003C5100
L4003C90



A B C D E F G H

1
2
3
4
5
6

AC INLET
 SW
 ACTIVE LOW

REV. 02 11/80

11. POWER P.C BOARD

Ref. No.	Part No.	Description
D1	*ED-361055	D SILICON DS135E-UB1
D2	*ED-330319	D SILICON DBA10B 100/1.0A
D901	*ED-365818	D SILICON CTU-12S 200/ 6.0A
D902	*ED-365819	D SILICON CTU-12R 200/ 6.0A
IC1	*EI-348123	IC M5230L
IC901	*EI-365820	IC STR9005
R1	*ER-324185	R CB H S10 FS RDS 1/4W 221J
R2	*ER-324185	R CB H S10 FS RDS 1/4W 221J
TR901	*ET-356817	TR 2SB891 Q,R
TR902	*ET-354083	TR 2SD1189 Q,R
F2	*EF-326639	FUSE TSC A 250V 3.15A [J]
F3	*EF-309388	FUSE TSC A 250V 800MA [J]
F4	*EF-309388	FUSE TSC A 250V 800MA [J]
F2A	*EF-323080	FUSE TSC 125V 3.15A [C,A]
F3A	*EF-310229	FUSE TSC 125V 1.00A [C,A]
F4A	*EF-310229	FUSE TSC 125V 1.00A [C,A]
F2B	*EF-623125	FUSE SEMKO T [E,V,S]
F3B	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
F4B	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
F2C	*EF-364518	FUSE BET T 250V 2.50A [B]
F3C	*EF-355374	FUSE BET T 250V 500MA [B]
F4C	*EF-355374	FUSE BET T 250V 500MA [B]

12. D SUB P.C BOARD

Ref. No.	Part No.	Description
J601	EJ-379612	PLUG JBY-25S-1A3G ***

13. VR (B) P.C BOARD

Ref. No.	Part No.	Description
VR1	EV-379613	VR ROTARY EVHCCAP20B53 B502

14. FILTER P.C BOARD

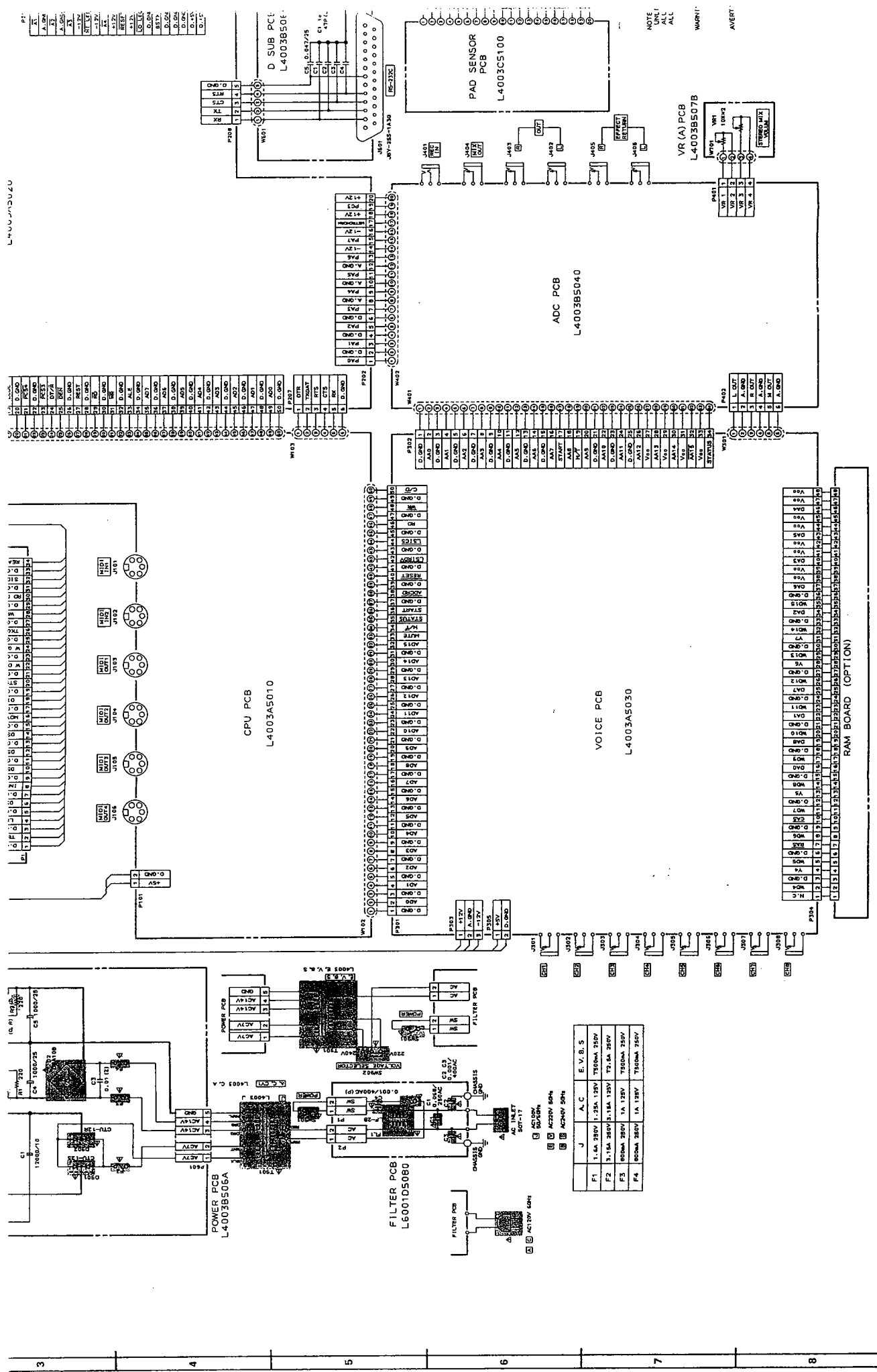
Ref. No.	Part No.	Description
C1	*EC-369670	C MMY V XE 683M 250AC
C2	*EC-358450	C CE V DNS102MBE B 102M 400AC
C3	*EC-358450	C CE V DNS102MBE B 102M 400AC
C4	*EC-338411	C CE V FZ 103P 400AC
FL1	*EO-360068	COIL LF LF-2 B
F1	*EF-311839	FUSE TSC A 250V 1.60A [J]
F1A	*EF-309392	FUSE TSC 125V 1.25A [C,A]
F1B	*EF-593706	FUSE SEMKO T 250V 500MA [E,V,S]
F1C	*EF-355374	FUSE BET T 250V 500MA [B]

15. EL INVERTER P.C BOARD

Ref. No.	Part No.	Description
R1	ER-322787	R CB H S10 FS RDS 1/4W 100J
TR1	ET-308977	TR 2SC2274K F F05
T1	BT-379599	TRANS PULSE D32-48

16. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
1	BD-381924J	PANEL FRONT COMP PART
2	MB-330911	CUSHION RUBBER
3	SD-378251	PANEL LEATHER PART
4	ZS-379293	WS RND31X100STL CMT
5	SK-378252A	KNOB PUSH(A)
6	SK-378252B	KNOB PUSH(B)
7	SK-378253A	KNOB OPERATE(A)
8	SK-378253B	KNOB OPERATE(B)
9	SK-378253C	KNOB OPERATE(C)
10	SK-378253D	KNOB OPERATE(D)
11	ES-365943	SW EWT-XDFK2550B
12	SE-362389A-A	MASK VOLUME(A)
13	ZW-321317	PW2 1X040X050PSL
14	ZS-362266	PAN20X02STL BNI
15	SE-376331	PAD
16	BA-379695	PC PAD SENSOR
17	SP-380192J	PANEL LCD(A) PART
18	EM-378267	IND LCD 240082
19	SP-380172J	PANEL LCD(B)
20	ZS-353268	BID30X10STL NI3
21	ZS-421806	PAN30X08STL CMT
22	ML-380175J	ARM LOCK
23	ZG-380174J	SP PULL ARM LOCK
24	ZW-270101	RING E 300SUP CMT
25	EJ-378269	PLUG B10P-ER 10P
26	SA-332850	FOOT ROUND
27	ZS-360715	ST PAN30X08STL CMT C080
28	*BT-378271	TRANS POW L4003 J [J] [T901]
28A	*BT-378272	TRANS POW L4003 C,A [A,C,Y1] [T901]
28B	*BT-378273	TRANS POW L4003 E,V,B,S [E,V,B,S] [T901]
29	ZS-369535	ST BR30X10STL NI3
30	ZW-516993	N30STL CMT 1
31	BB-375768	FROPPY DISK MF353C-62M
32	*EJ-358633	SOCKET INLET SOT-17 2P [J,E,V,B,S,Y1]
33	ZS-311746	T2CTS30X08STL BNI
34	*EZ-302906	STRAIN RELIEF SR-6N-4 [C,A,Y1]
35	*ES-306430	SW SLIDE J-S4013#01 01-2
36	ZS-360952	PT BR30X08STL NI3
37	*ES-364478	SW SEESAW SDDT SPST TYPEA T8.5
38	ZS-338591	BID30X08STL NI3
39	*EW-365947	AC CORD 250 SKP210KS17B A [J]
39A	*EW-357931	AC CORD 3 CORES VM0033A SJT18A [C,Y1]
39B	*EW-366055	AC CORD 250 KP11WSJT18 UC [A]
39C	*EW-359641	AC CORD 2C KP-419C/KS-17 EV [E,V]
39D	*EW-358631	AC CORD 2C KS-17 LTBS2F BS [B]
39E	*EW-358630	AC CORD 2C KP560 LTSA2F KS17 S [S]
40	SP-369956	PANEL SIDE
41	SE-370057	MASK SIDE
42	ZS-321783	ST BID40X10STL NI3
43	ZS-345107	ST BR30X08STL NI3
44	SK-380638J	KNOB(A-6)
45	SK-380281J	KNOB(A-2)
46	SK-380293J	KNOB(A-3)
47	SK-364219B	KNOB SLIDE(B)
48	EW-379635	WIRE ASSY MPC60 W901 34P
49	EW-379636	WIRE ASSY MPC60 W902 10P



PT:

1	A. 20A
2	Z.
3	A. 20A
4	A. 20A
5	A. 20A
6	A. 20A
7	A. 20A
8	A. 20A
9	A. 20A
10	A. 20A
11	A. 20A
12	A. 20A
13	A. 20A
14	A. 20A
15	A. 20A
16	A. 20A
17	A. 20A
18	A. 20A
19	A. 20A
20	A. 20A
21	A. 20A
22	A. 20A
23	A. 20A
24	A. 20A
25	A. 20A
26	A. 20A
27	A. 20A
28	A. 20A
29	A. 20A
30	A. 20A
31	A. 20A
32	A. 20A
33	A. 20A
34	A. 20A
35	A. 20A
36	A. 20A
37	A. 20A
38	A. 20A
39	A. 20A
40	A. 20A
41	A. 20A
42	A. 20A
43	A. 20A
44	A. 20A
45	A. 20A
46	A. 20A
47	A. 20A
48	A. 20A
49	A. 20A
50	A. 20A

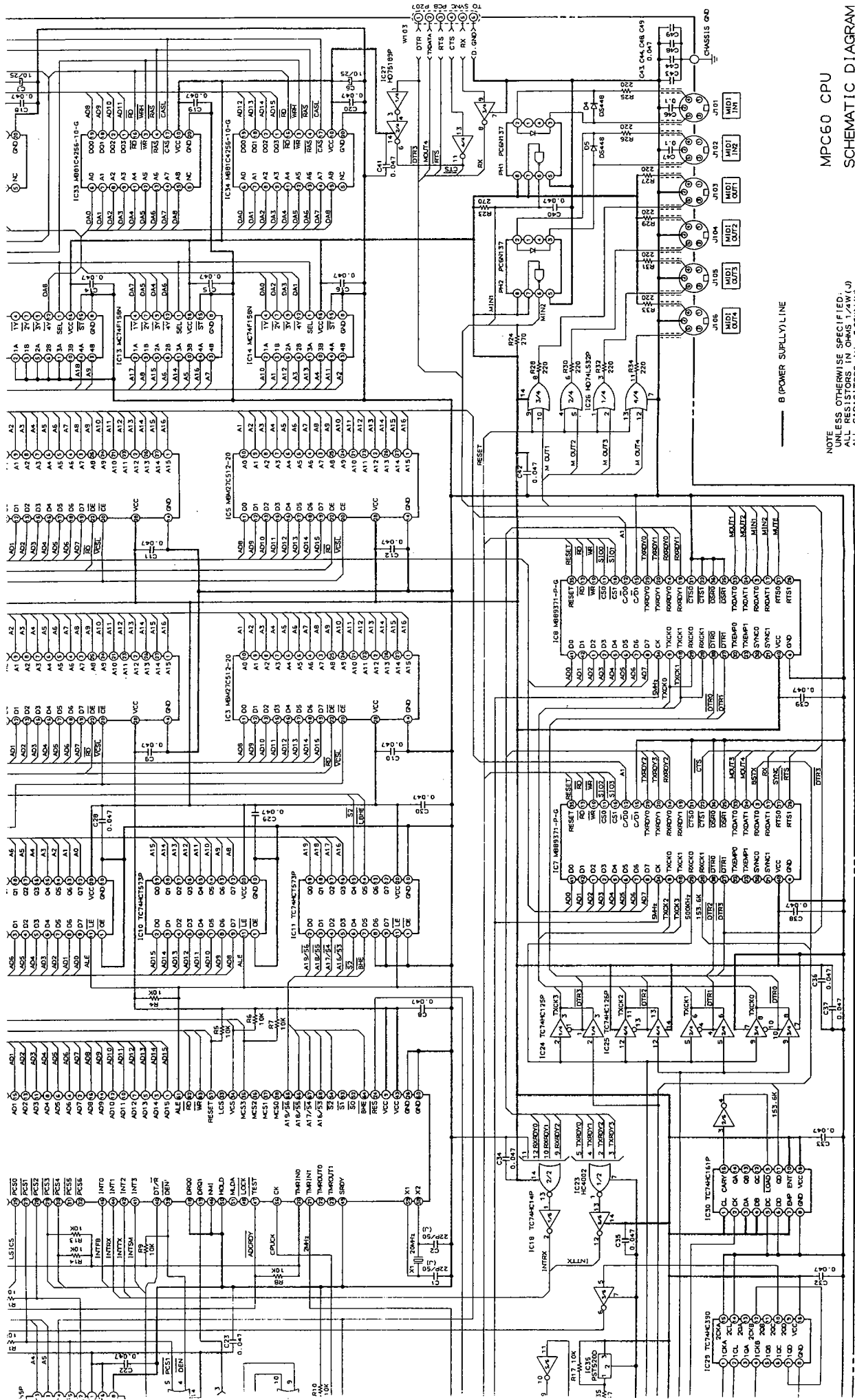
J	A.C.	E.V.B.S
F1	1.6A 250V	1.25A 125V T560MA 250V
F2	3.15A 250V	3.15A 125V T7.5A 250V
F3	600MA 250V	1A 125V T560MA 250V
F4	600MA 250V	1A 125V T560MA 250V

L4003A5030

A B C D E F G H I

3 4 5 6 7 8

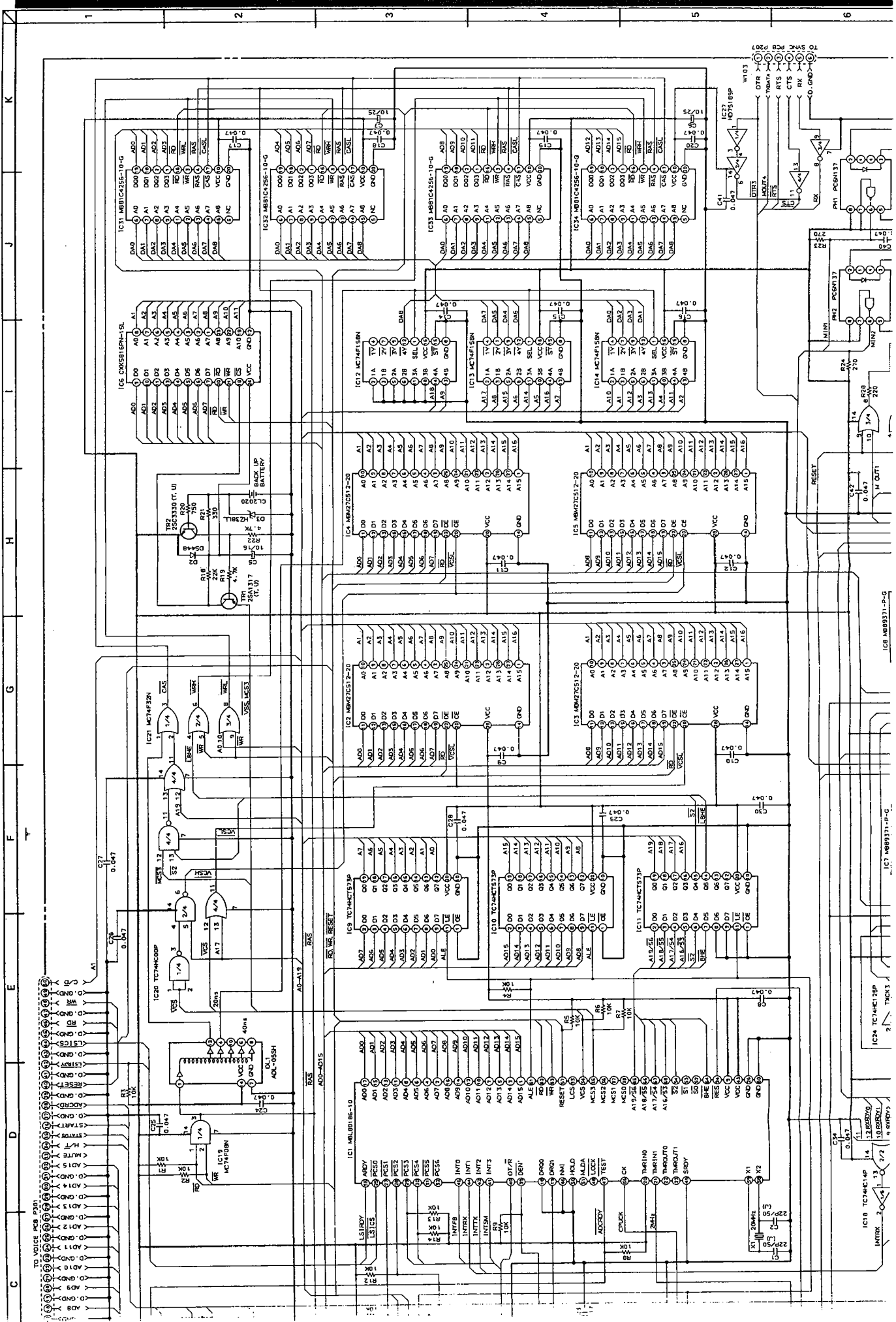
NOTE:
UNL: ALL
WARN: ALL
AVERT:



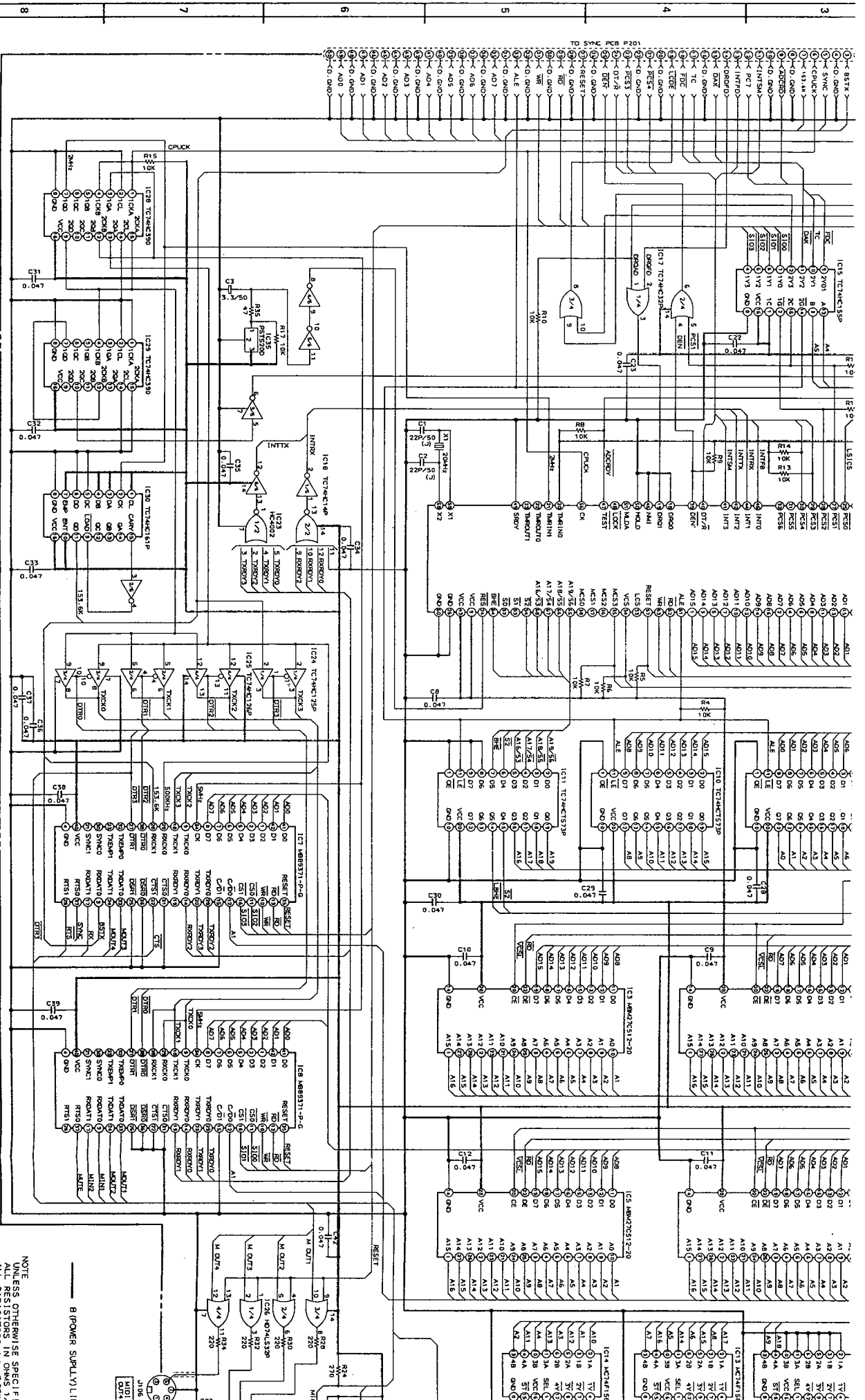
MPC60 CPU
SCHEMATIC DIAGRAM
NO. 7-2 871217A

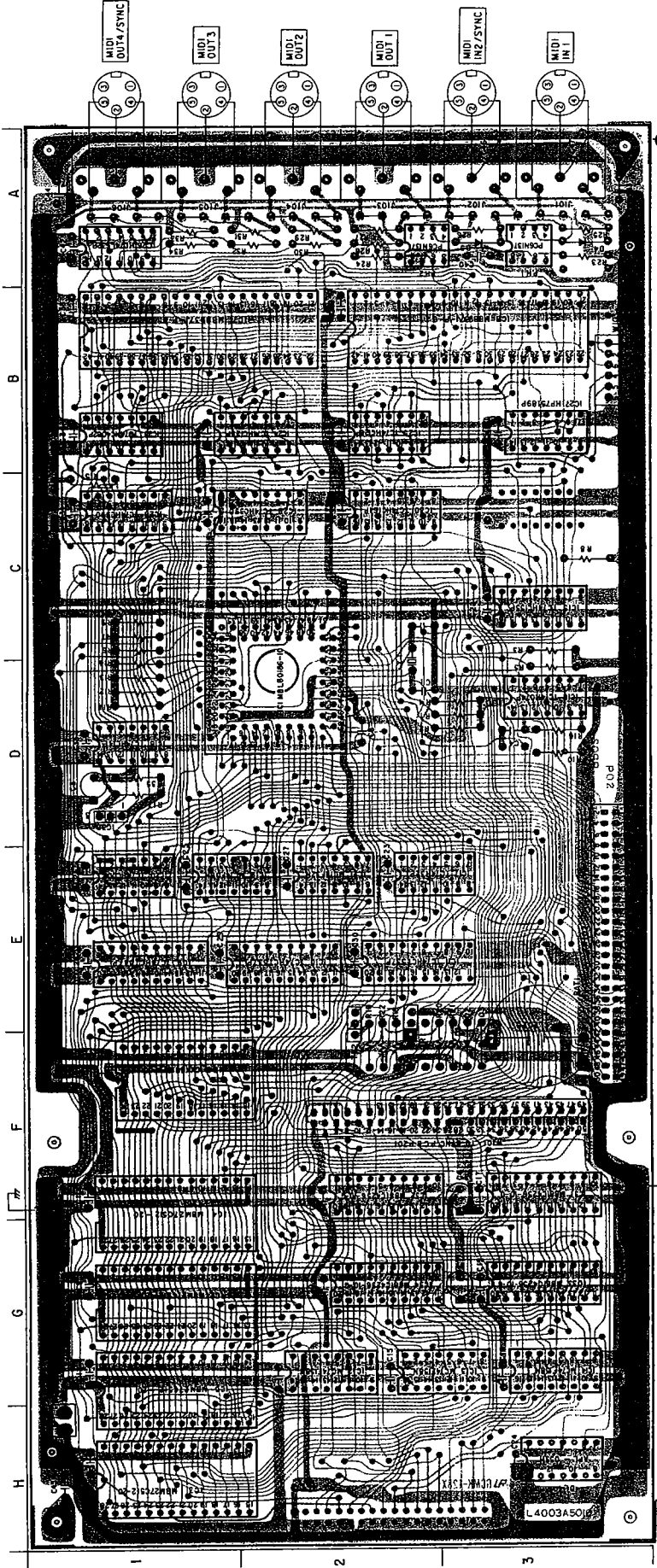
NOTE
UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 25WV (M)

C D E F G H I J K



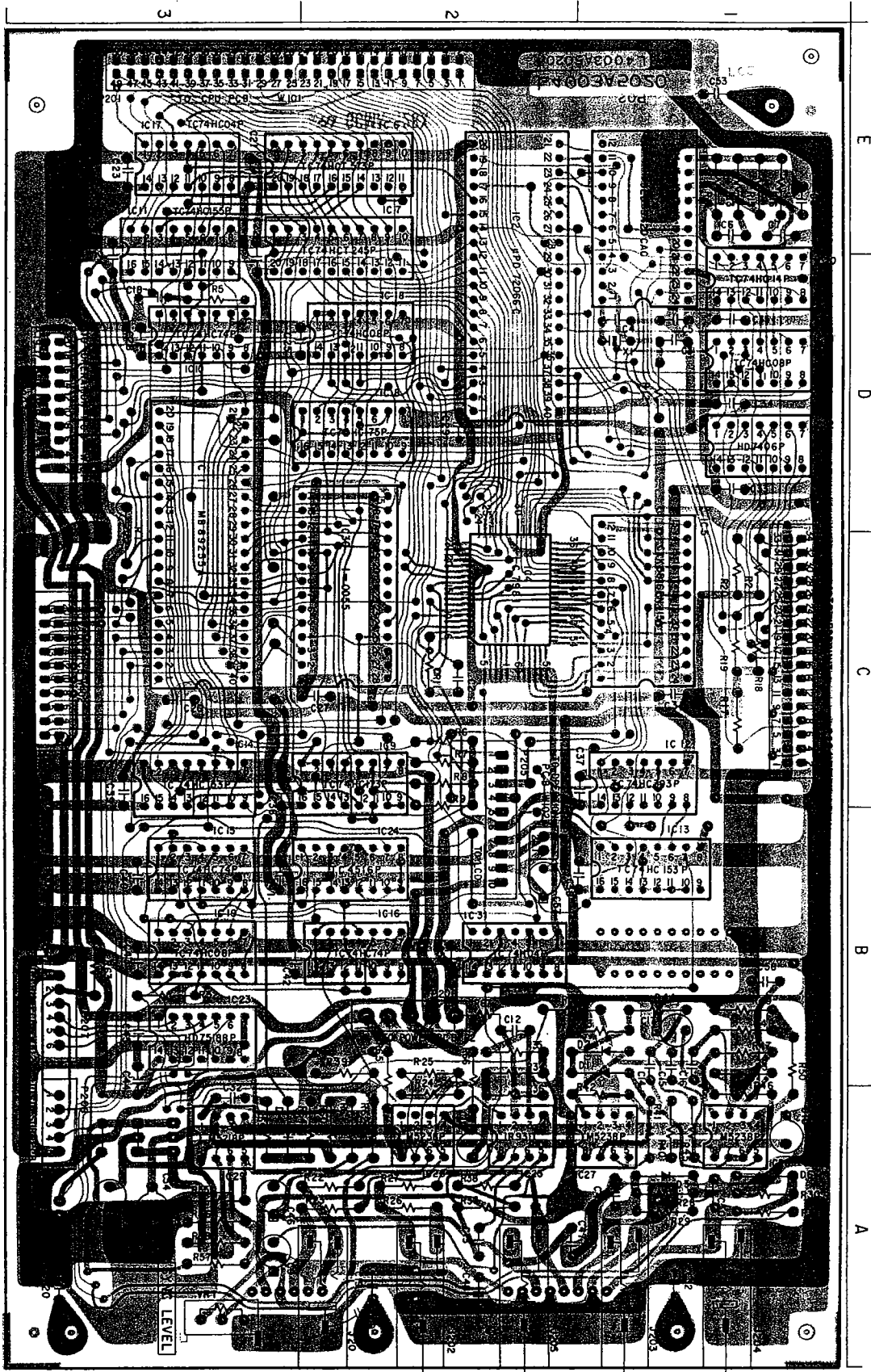
CPU PCB L4003A5010



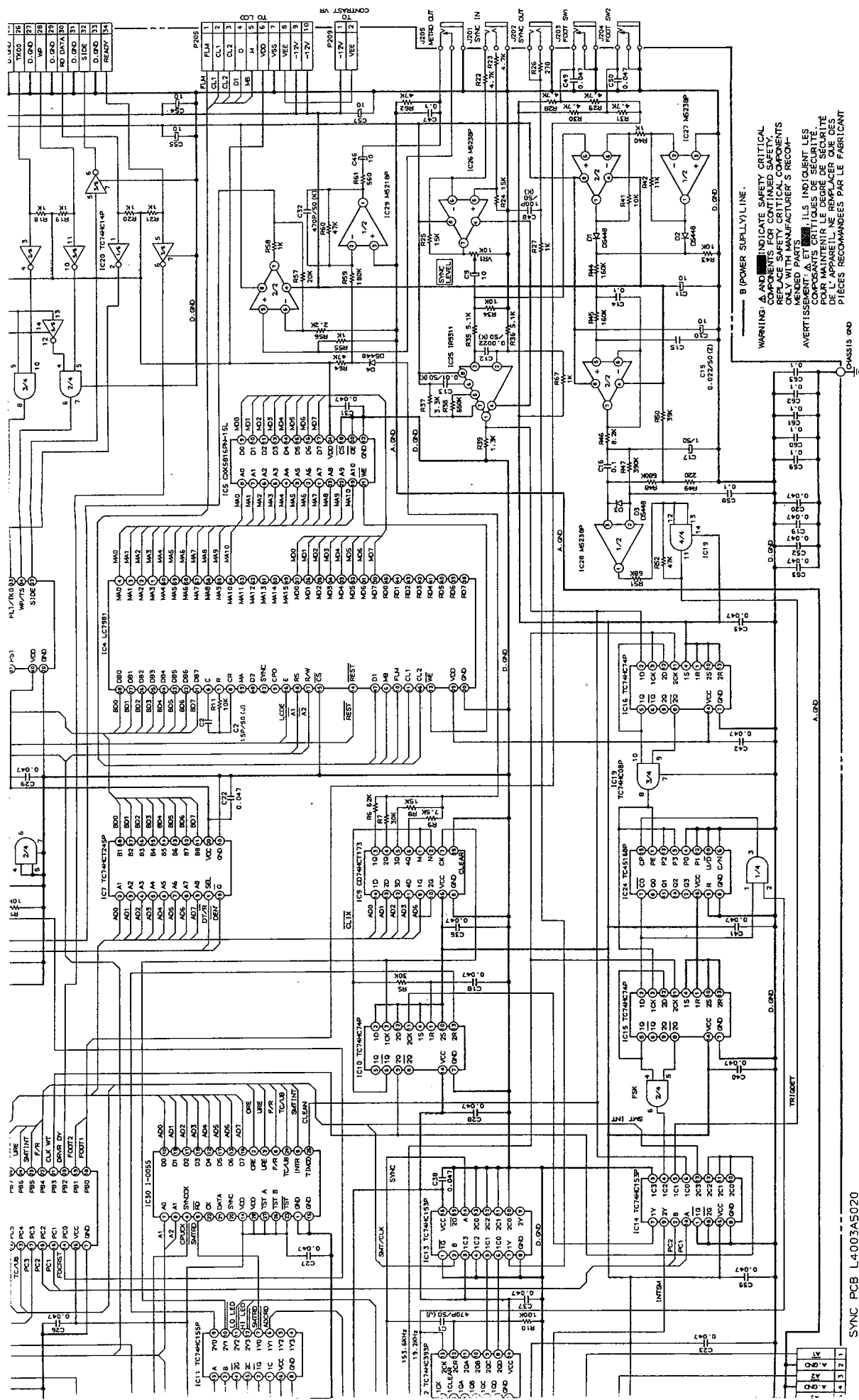


CPU PCB L4003A5010

IC1	IC2	IC3	IC4	IC5	IC6	IC7	IC8	IC9	IC10	IC11	IC12	IC13	IC14	IC15	IC16	IC17	IC18	IC19	IC20	IC21	IC22	IC23	IC24	IC25	IC26	IC27	IC28	IC29	IC30	IC31	IC32	IC33	IC34	IC35	IC36	IC37	IC38	IC39	IC40	IC41	IC42	IC43	IC44	IC45	IC46	IC47	IC48	IC49	IC50	IC51	IC52	IC53	IC54	IC55	IC56	IC57	IC58	IC59	IC60	IC61	IC62	IC63	IC64	IC65	IC66	IC67	IC68	IC69	IC70	IC71	IC72	IC73	IC74	IC75	IC76	IC77	IC78	IC79	IC80	IC81	IC82	IC83	IC84	IC85	IC86	IC87	IC88	IC89	IC90	IC91	IC92	IC93	IC94	IC95	IC96	IC97	IC98	IC99	IC100
TRANSISTORS																																																																																																			
TR1																																																																																																			
TR2																																																																																																			
TR3																																																																																																			
TR4																																																																																																			
TR5																																																																																																			
TR6																																																																																																			
TR7																																																																																																			
TR8																																																																																																			
TR9																																																																																																			
TR10																																																																																																			
TR11																																																																																																			
TR12																																																																																																			
TR13																																																																																																			



IC5	.....	C3
IC4	.....	D2
IC3	.....	E1
IC2	.....	F2
IC1	.....	G3
IC10	.....	H4
IC9	.....	I5
IC8	.....	J6
IC7	.....	K7
IC6	.....	L8
IC5	.....	M9
IC4	.....	N10
IC3	.....	O11
IC2	.....	P12
IC1	.....	Q13
IC10	.....	R14
IC9	.....	S15
IC8	.....	T16
IC7	.....	U17
IC6	.....	V18
IC5	.....	W19
IC4	.....	X20
IC3	.....	Y21
IC2	.....	Z22
IC1	.....	AA23
IC10	.....	AB24
IC9	.....	AC25
IC8	.....	AD26
IC7	.....	AE27
IC6	.....	AF28
IC5	.....	AG29
IC4	.....	AH30
IC3	.....	AI31
IC2	.....	AJ32
IC1	.....	AK33
IC10	.....	AL34
IC9	.....	AM35
IC8	.....	AN36
IC7	.....	AO37
IC6	.....	AP38
IC5	.....	AQ39
IC4	.....	AR40
IC3	.....	AS41
IC2	.....	AT42
IC1	.....	AU43
IC10	.....	AV44
IC9	.....	AW45
IC8	.....	AX46
IC7	.....	AY47
IC6	.....	AZ48
IC5	.....	BA49
IC4	.....	BB50
IC3	.....	BC51
IC2	.....	BD52
IC1	.....	BE53
IC10	.....	BF54
IC9	.....	BG55
IC8	.....	BH56
IC7	.....	BI57
IC6	.....	BJ58
IC5	.....	BK59
IC4	.....	BL60
IC3	.....	BM61
IC2	.....	BN62
IC1	.....	BO63
IC10	.....	BP64
IC9	.....	BQ65
IC8	.....	BR66
IC7	.....	BS67
IC6	.....	BT68
IC5	.....	BU69
IC4	.....	BV70
IC3	.....	BW71
IC2	.....	BX72
IC1	.....	BY73
IC10	.....	BZ74
IC9	.....	CA75
IC8	.....	CB76
IC7	.....	CC77
IC6	.....	CD78
IC5	.....	CE79
IC4	.....	CF80
IC3	.....	CG81
IC2	.....	CH82
IC1	.....	CI83
IC10	.....	CJ84
IC9	.....	CK85
IC8	.....	CL86
IC7	.....	CM87
IC6	.....	CN88
IC5	.....	CO89
IC4	.....	CP90
IC3	.....	CQ91
IC2	.....	CR92
IC1	.....	CS93
IC10	.....	CT94
IC9	.....	CU95
IC8	.....	CV96
IC7	.....	CW97
IC6	.....	CX98
IC5	.....	CY99
IC4	.....	CZ100
IC3	.....	CA101
IC2	.....	CB102
IC1	.....	CC103
IC10	.....	CD104
IC9	.....	CE105
IC8	.....	CF106
IC7	.....	CG107
IC6	.....	CH108
IC5	.....	CI109
IC4	.....	CJ110
IC3	.....	CK111
IC2	.....	CL112
IC1	.....	CM113
IC10	.....	CN114
IC9	.....	CO115
IC8	.....	CP116
IC7	.....	CQ117
IC6	.....	CR118
IC5	.....	CS119
IC4	.....	CT120
IC3	.....	CU121
IC2	.....	CV122
IC1	.....	CW123
IC10	.....	CX124
IC9	.....	CY125
IC8	.....	CZ126
IC7	.....	CA127
IC6	.....	CB128
IC5	.....	CC129
IC4	.....	CD130
IC3	.....	CE131
IC2	.....	CF132
IC1	.....	CG133
IC10	.....	CH134
IC9	.....	CI135
IC8	.....	CJ136
IC7	.....	CK137
IC6	.....	CL138
IC5	.....	CM139
IC4	.....	CN140
IC3	.....	CO141
IC2	.....	CP142
IC1	.....	CQ143
IC10	.....	CR144
IC9	.....	CS145
IC8	.....	CT146
IC7	.....	CU147
IC6	.....	CV148
IC5	.....	CW149
IC4	.....	CX150
IC3	.....	CY151
IC2	.....	CZ152
IC1	.....	CA153
IC10	.....	CB154
IC9	.....	CC155
IC8	.....	CD156
IC7	.....	CE157
IC6	.....	CF158
IC5	.....	CG159
IC4	.....	CH160
IC3	.....	CI161
IC2	.....	CJ162
IC1	.....	CK163
IC10	.....	CL164
IC9	.....	CM165
IC8	.....	CN166
IC7	.....	CO167
IC6	.....	CP168
IC5	.....	CQ169
IC4	.....	CR170
IC3	.....	CS171
IC2	.....	CT172
IC1	.....	CU173
IC10	.....	CV174
IC9	.....	CW175
IC8	.....	CX176
IC7	.....	CY177
IC6	.....	CZ178
IC5	.....	CA179
IC4	.....	CB180
IC3	.....	CC181
IC2	.....	CD182
IC1	.....	CE183
IC10	.....	CF184
IC9	.....	CG185
IC8	.....	CH186
IC7	.....	CI187
IC6	.....	CJ188
IC5	.....	CK189
IC4	.....	CL190
IC3	.....	CM191
IC2	.....	CN192
IC1	.....	CO193
IC10	.....	CP194
IC9	.....	CQ195
IC8	.....	CR196
IC7	.....	CS197
IC6	.....	CT198
IC5	.....	CU199
IC4	.....	CV200
IC3	.....	CW201
IC2	.....	CX202
IC1	.....	CY203
IC10	.....	CZ204
IC9	.....	CA205
IC8	.....	CB206
IC7	.....	CC207
IC6	.....	CD208
IC5	.....	CE209
IC4	.....	CF210
IC3	.....	CG211
IC2	.....	CH212
IC1	.....	CI213
IC10	.....	CJ214
IC9	.....	CK215
IC8	.....	CL216
IC7	.....	CM217
IC6	.....	CN218
IC5	.....	CO219
IC4	.....	CP220
IC3	.....	CQ221
IC2	.....	CR222
IC1	.....	CS223
IC10	.....	CT224
IC9	.....	CU225
IC8	.....	CV226
IC7	.....	CW227
IC6	.....	CX228
IC5	.....	CY229
IC4	.....	CZ230
IC3	.....	CA231
IC2	.....	CB232
IC1	.....	CC233
IC10	.....	CD234
IC9	.....	CE235
IC8	.....	CF236
IC7	.....	CG237
IC6	.....	CH238
IC5	.....	CI239
IC4	.....	CJ240
IC3	.....	CK241
IC2	.....	CL242
IC1	.....	CM243
IC10	.....	CN244
IC9	.....	CO245
IC8	.....	CP246
IC7	.....	CQ247
IC6	.....	CR248
IC5	.....	CS249
IC4	.....	CT250
IC3	.....	CU251
IC2	.....	CV252
IC1	.....	CW253
IC10	.....	CX254
IC9	.....	CY255
IC8	.....	CZ256
IC7	.....	CA257
IC6	.....	CB258
IC5	.....	CC259
IC4	.....	CD260
IC3	.....	CE261
IC2	.....	CF262
IC1	.....	CG263
IC10	.....	CH264
IC9	.....	CI265
IC8	.....	CJ266
IC7	.....	CK267
IC6	.....	CL268
IC5	.....	CM269
IC4	.....	CN270
IC3	.....	CO271
IC2	.....	CP272
IC1	.....	CQ273
IC10	.....	CR274
IC9	.....	CS275
IC8	.....	CT276
IC7	.....	CU277
IC6	.....	CV278
IC5	.....	CW279
IC4	.....	CX280
IC3	.....	CY281
IC2	.....	CZ282
IC1	.....	CA283
IC10	.....	CB284
IC9	.....	CC285
IC8	.....	CD286
IC7	.....	CE287
IC6	.....	CF288
IC5	.....	CG289
IC4	.....	CH290
IC3	.....	CI291
IC2	.....	CJ292
IC1	.....	CK293
IC10	.....	CL294
IC9	.....	CM295
IC8	.....	CN296
IC7	.....	CO297
IC6	.....	CP298
IC5	.....	CQ299
IC4	.....	CR300
IC3	.....	CS301
IC2	.....	CT302
IC1	.....	CU303
IC10	.....	CV304
IC9	.....	CW305
IC8	.....	CX306
IC7	.....	CY307
IC6	.....	CZ308
IC5	.....	CA309
IC4	.....	CB310
IC3	.....	CC311
IC2	.....	CD312
IC1	.....	CE313
IC10	.....	CF314
IC9	.....	CG315
IC8	.....	CH316
IC7	.....	CI317
IC6	.....	CJ318
IC5	.....	CK319
IC4	.....	CL320
IC3	.....	CM321
IC2	.....	CN322
IC1	.....	CO323
IC10	.....	CP324
IC9	.....	CQ325
IC8	.....	CR326
IC7	.....	CS327
IC6	.....	CT328
IC5	.....	CU329
IC4	.....	CV330
IC3	.....	CW331
IC2	.....	CX332
IC1	.....	CY333
IC10	.....	CZ334
IC9	.....	CA335
IC8	.....	CB336
IC7	.....	CC337
IC6	.....	CD338
IC5	.....	CE339
IC4	.....	CF340
IC3	.....	CG341
IC2	.....	CH342
IC1	.....	CI343
IC10	.....	CJ344
IC9	.....	CK345
IC8	.....	CL346
IC7	.....	CM347
IC6	.....	CN348
IC5	.....	CO349
IC4	.....	CP350
IC3	.....	CQ351
IC2	.....	CR352
IC1	.....	CS353
IC10	.....	CT354
IC9	.....	CU355
IC8	.....	CV356
IC7	.....	CW357
IC6	.....	CX358
IC5	.....	CY359
IC4	.....	CZ360
IC3	.....	CA361
IC2	.....	CB362
IC1	.....	CC363
IC10	.....	CD364
IC9	.....	CE365
IC8	.....	CF366
IC7	.....	CG367
IC6	.....	CH368
IC5	.....	CI369
IC4	.....	CJ370
IC3	.....	CK371
IC2	.....	CL372
IC1	.....	CM373
IC10	.....	CN374
IC9	.....	CO375
IC8	.....	CP376
IC7	.....	CQ377
IC6	.....	CR378
IC5	.....	CS379
IC4	.....	CT380
IC3	.....	CU381
IC2	.....	CV382
IC1	.....	CW383
IC10	.....	CX384
IC9	.....	CY385
IC8	.....	CZ386
IC7	.....	CA387
IC6	.....	CB388
IC5	.....	CC389
IC4	.....	CD390
IC3	.....	CE391
IC2	.....	CF392
IC1	.....	CG393
IC10	.....	CH394
IC9	.....	CI395
IC8	.....	CJ396
IC7	.....	CK397
IC6	.....	CL398
IC5	.....	CM399
IC4	.....	CN400
IC3	.....	CO401
IC2	.....	CP402
IC1	.....	CQ403
IC10	.....	CR404
IC9	.....	CS405
IC8	.....	CT406
IC7	.....	CU407
IC6	.....	CV408
IC5	.....	CW409
IC4	.....	CX410
IC3	.....	CY411
IC2	.....	CZ412
IC1	.....	CA413
IC10	.....	CB414
IC9	.....	CC415
IC8	.....	CD416
IC7	.....	CE417
IC6	.....	CF418
IC5	.....	CG419
IC4	.....	CH420
IC3	.....	CI421
IC2	.....	CJ422
IC1	.....	CK423
IC10	.....	CL424
IC9	.....	CM425
IC8	.....	CN426
IC7	.....	CO427
IC6	.....	CP428
IC5	.....	CQ429
IC4	.....	CR430
IC3	.....	CS431
IC2	.....	CT432
IC1	.....	CU433
IC10	.....	CV434
IC9	.....	CW435
IC8	.....	CX436
IC7	.....	CY437
IC6	.....	CZ438
IC5	.....	CA439
IC4	.....	CB440
IC3	.....	CC441
IC2	.....	CD442
IC1	.....	CE443
IC10	.....	CF444
IC9	.....	CG445
IC8	.....	CH446
IC7	.....	CI447
IC6	.....	CJ448
IC5	.....	CK449
IC4	.....	CL450
IC3	.....	CM451
IC2	.....	CN452
IC1	.....	CO453



WARNING: Δ AND □ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. RELY ON MANUFACTURER'S SPECIFICATIONS FOR THESE COMPONENTS. REPAIRS SHOULD BE MADE USING THE SAME MANUFACTURER'S RECOMMENDED PARTS.

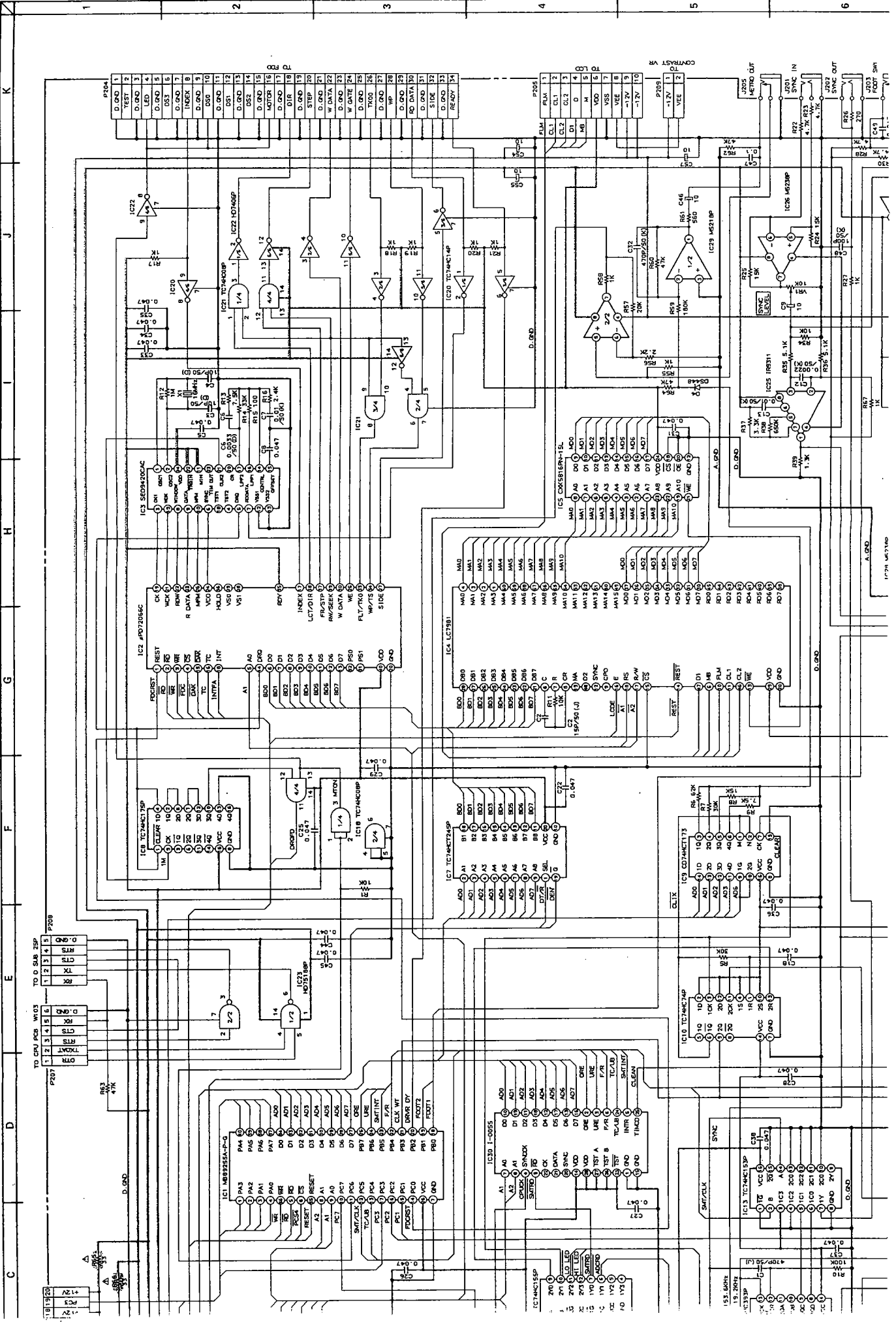
AVERTISSEMENT: Δ ET □ ILS INDICENT LES COMPOSANTS CRITIQUES DE SECURITE. SEULEMENT LES PIÈCES RECOMMANDÉES PAR LE FABRICANT DE L'APPAREIL NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

MPC60 SYNC
SCHEMATIC DIAGRAM

NO. 7-3 871218A

NOTE: UNLESS OTHERWISE SPECIFIED, ALL RESISTORS IN OHMS 1/4W (J) ALL CAPACITORS IN μF 25 WV (M)

SYNC PCB L4003A5020



IC1 MB2555-P-0

IC2 74LS163

IC3 74LS163

IC4 74LS163

IC5 74LS163

IC6 74LS163

IC7 74LS163

IC8 74LS163

IC9 74LS163

IC10 74LS163

IC11 74LS163

IC12 74LS163

IC13 74LS163

IC14 74LS163

IC15 74LS163

IC16 74LS163

IC17 74LS163

IC18 74LS163

IC19 74LS163

IC20 74LS163

IC21 74LS163

IC22 74LS163

IC23 74LS163

IC24 74LS163

IC25 74LS163

IC26 74LS163

IC27 74LS163

IC28 74LS163

IC29 74LS163

IC30 74LS163

IC31 74LS163

IC32 74LS163

IC33 74LS163

IC34 74LS163

IC35 74LS163

IC36 74LS163

IC37 74LS163

IC38 74LS163

IC39 74LS163

IC40 74LS163

IC41 74LS163

IC42 74LS163

IC43 74LS163

IC44 74LS163

IC45 74LS163

IC46 74LS163

IC47 74LS163

IC48 74LS163

IC49 74LS163

IC50 74LS163

IC51 74LS163

IC52 74LS163

IC53 74LS163

IC54 74LS163

IC55 74LS163

IC56 74LS163

IC57 74LS163

IC58 74LS163

IC59 74LS163

IC60 74LS163

IC61 74LS163

IC62 74LS163

IC63 74LS163

IC64 74LS163

IC65 74LS163

IC66 74LS163

IC67 74LS163

IC68 74LS163

IC69 74LS163

IC70 74LS163

IC71 74LS163

IC72 74LS163

IC73 74LS163

IC74 74LS163

IC75 74LS163

IC76 74LS163

IC77 74LS163

IC78 74LS163

IC79 74LS163

IC80 74LS163

IC81 74LS163

IC82 74LS163

IC83 74LS163

IC84 74LS163

IC85 74LS163

IC86 74LS163

IC87 74LS163

IC88 74LS163

IC89 74LS163

IC90 74LS163

IC91 74LS163

IC92 74LS163

IC93 74LS163

IC94 74LS163

IC95 74LS163

IC96 74LS163

IC97 74LS163

IC98 74LS163

IC99 74LS163

IC100 74LS163

IC101 74LS163

IC102 74LS163

IC103 74LS163

IC104 74LS163

IC105 74LS163

IC106 74LS163

IC107 74LS163

IC108 74LS163

IC109 74LS163

IC110 74LS163

IC111 74LS163

IC112 74LS163

IC113 74LS163

IC114 74LS163

IC115 74LS163

IC116 74LS163

IC117 74LS163

IC118 74LS163

IC119 74LS163

IC120 74LS163

IC121 74LS163

IC122 74LS163

IC123 74LS163

IC124 74LS163

IC125 74LS163

IC126 74LS163

IC127 74LS163

IC128 74LS163

IC129 74LS163

IC130 74LS163

IC131 74LS163

IC132 74LS163

IC133 74LS163

IC134 74LS163

IC135 74LS163

IC136 74LS163

IC137 74LS163

IC138 74LS163

IC139 74LS163

IC140 74LS163

IC141 74LS163

IC142 74LS163

IC143 74LS163

IC144 74LS163

IC145 74LS163

IC146 74LS163

IC147 74LS163

IC148 74LS163

IC149 74LS163

IC150 74LS163

IC151 74LS163

IC152 74LS163

IC153 74LS163

IC154 74LS163

IC155 74LS163

IC156 74LS163

IC157 74LS163

IC158 74LS163

IC159 74LS163

IC160 74LS163

IC161 74LS163

IC162 74LS163

IC163 74LS163

IC164 74LS163

IC165 74LS163

IC166 74LS163

IC167 74LS163

IC168 74LS163

IC169 74LS163

IC170 74LS163

IC171 74LS163

IC172 74LS163

IC173 74LS163

IC174 74LS163

IC175 74LS163

IC176 74LS163

IC177 74LS163

IC178 74LS163

IC179 74LS163

IC180 74LS163

IC181 74LS163

IC182 74LS163

IC183 74LS163

IC184 74LS163

IC185 74LS163

IC186 74LS163

IC187 74LS163

IC188 74LS163

IC189 74LS163

IC190 74LS163

IC191 74LS163

IC192 74LS163

IC193 74LS163

IC194 74LS163

IC195 74LS163

IC196 74LS163

IC197 74LS163

IC198 74LS163

IC199 74LS163

IC200 74LS163

IC201 74LS163

IC202 74LS163

IC203 74LS163

IC204 74LS163

IC205 74LS163

IC206 74LS163

IC207 74LS163

IC208 74LS163

IC209 74LS163

IC210 74LS163

IC211 74LS163

IC212 74LS163

IC213 74LS163

IC214 74LS163

IC215 74LS163

IC216 74LS163

IC217 74LS163

IC218 74LS163

IC219 74LS163

IC220 74LS163

IC221 74LS163

IC222 74LS163

IC223 74LS163

IC224 74LS163

IC225 74LS163

IC226 74LS163

IC227 74LS163

IC228 74LS163

IC229 74LS163

IC230 74LS163

IC231 74LS163

IC232 74LS163

IC233 74LS163

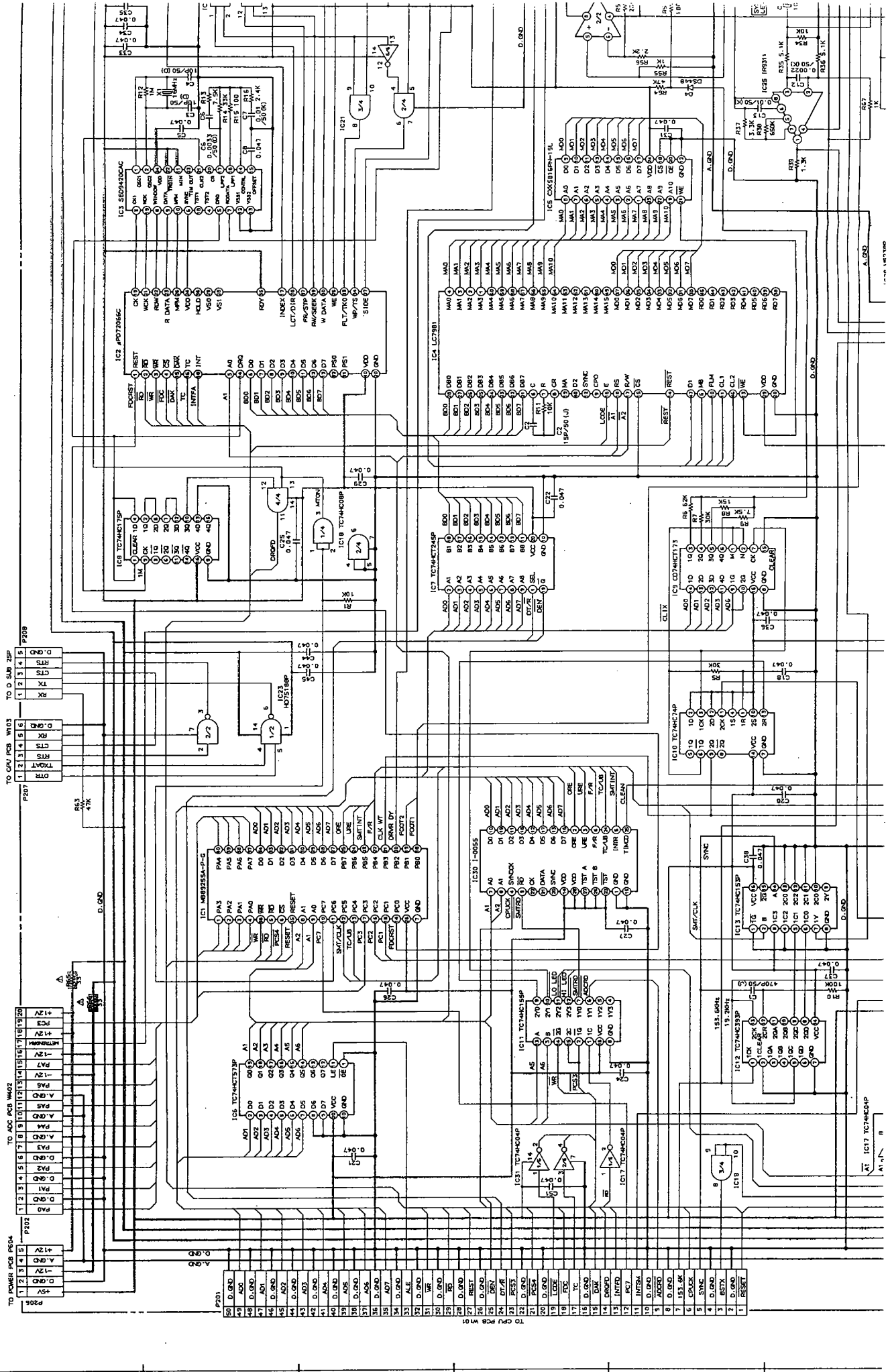
IC234 74LS163

IC235 74LS163

IC236 74LS163

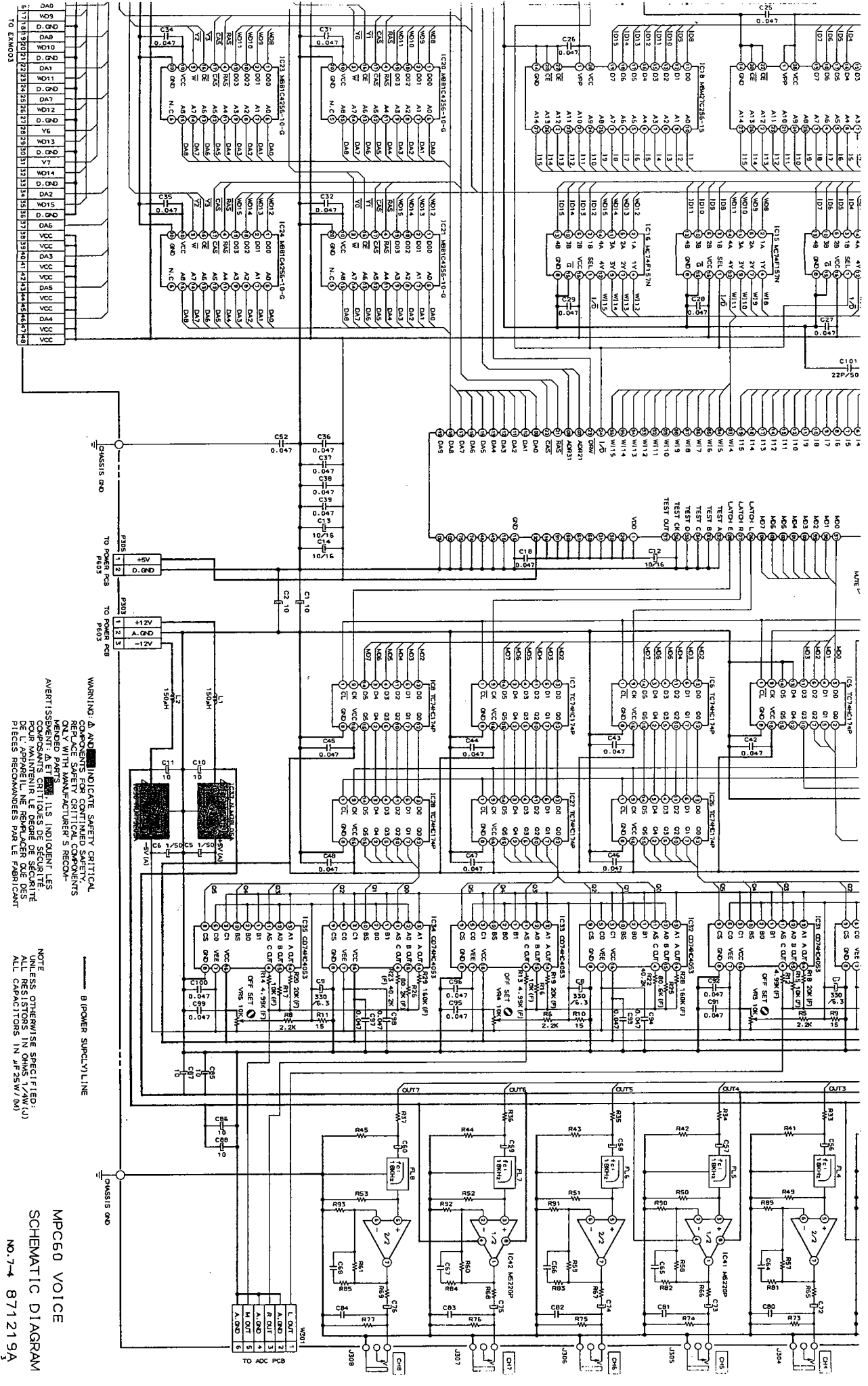
IC237 74LS163

IC238 74LS163



TO POWER PCB P204
 TO ADC PCB W402
 TO CPU PCB W403
 TO D SUB 35P

IC1 74138
 IC2 7414
 IC3 7415
 IC4 7416
 IC5 7417
 IC6 7418
 IC7 7419
 IC8 7420
 IC9 7421
 IC10 7422
 IC11 7423
 IC12 7424
 IC13 7425
 IC14 7426
 IC15 7427
 IC16 7428
 IC17 7429
 IC18 7430
 IC19 7431
 IC20 7432
 IC21 7433
 IC22 7434
 IC23 7435
 IC24 7436
 IC25 7437
 IC26 7438
 IC27 7439
 IC28 7440
 IC29 7441
 IC30 7442
 IC31 7443
 IC32 7444
 IC33 7445
 IC34 7446
 IC35 7447
 IC36 7448
 IC37 7449
 IC38 7450
 IC39 7451
 IC40 7452
 IC41 7453
 IC42 7454
 IC43 7455
 IC44 7456
 IC45 7457
 IC46 7458
 IC47 7459
 IC48 7460
 IC49 7461
 IC50 7462
 IC51 7463
 IC52 7464
 IC53 7465
 IC54 7466
 IC55 7467
 IC56 7468
 IC57 7469
 IC58 7470
 IC59 7471
 IC60 7472
 IC61 7473
 IC62 7474
 IC63 7475
 IC64 7476
 IC65 7477
 IC66 7478
 IC67 7479
 IC68 7480
 IC69 7481
 IC70 7482
 IC71 7483
 IC72 7484
 IC73 7485
 IC74 7486
 IC75 7487
 IC76 7488
 IC77 7489
 IC78 7490
 IC79 7491
 IC80 7492
 IC81 7493
 IC82 7494
 IC83 7495
 IC84 7496
 IC85 7497
 IC86 7498
 IC87 7499
 IC88 7500

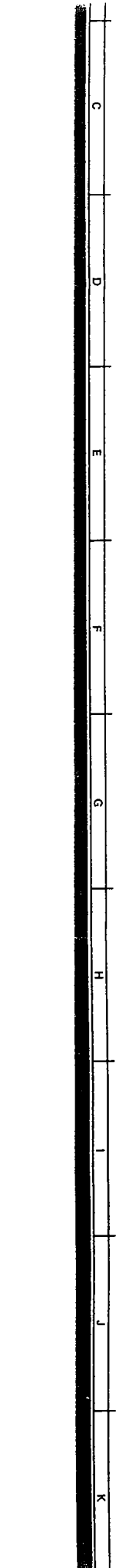


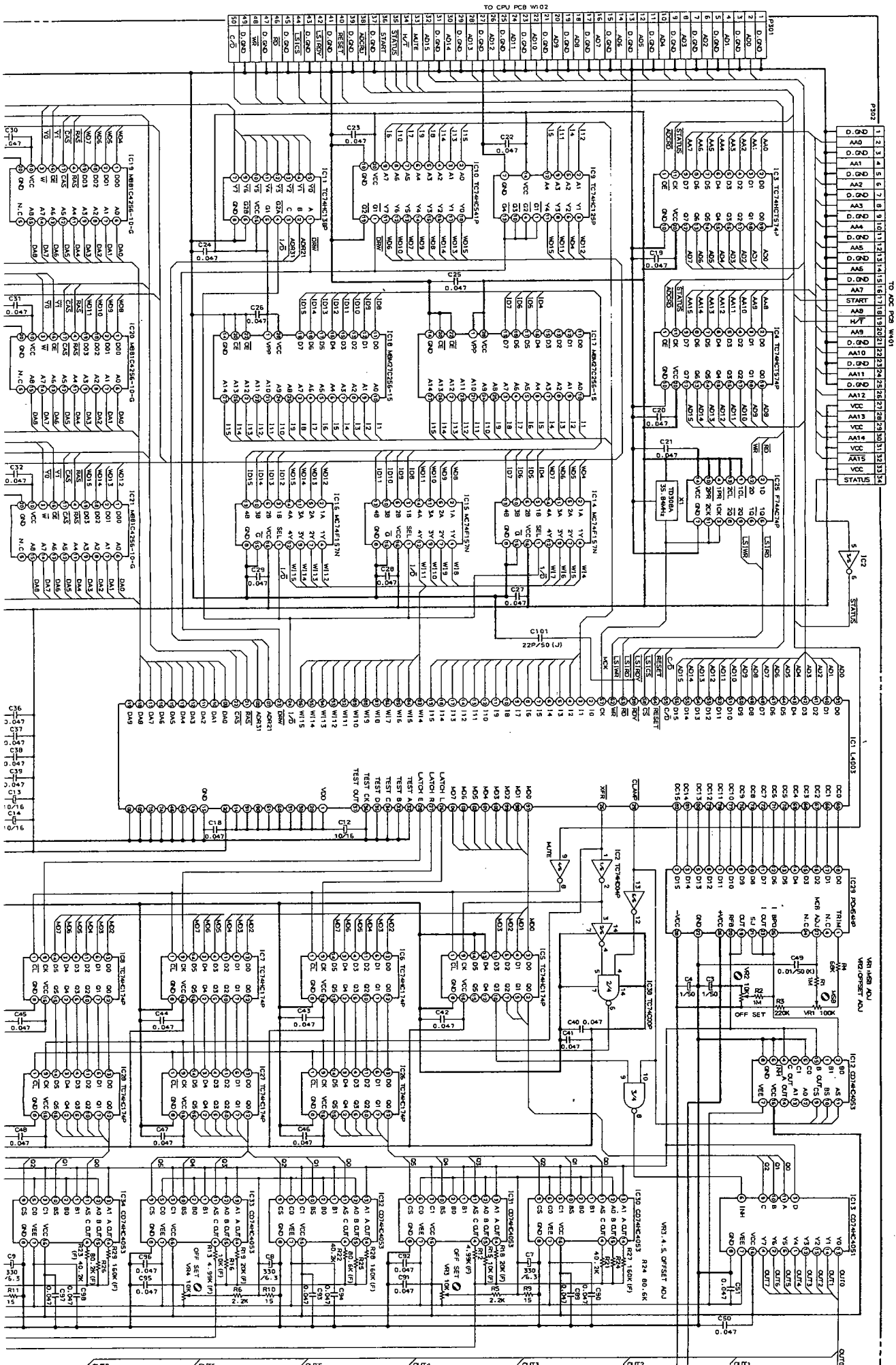
WARNING: A AND B INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

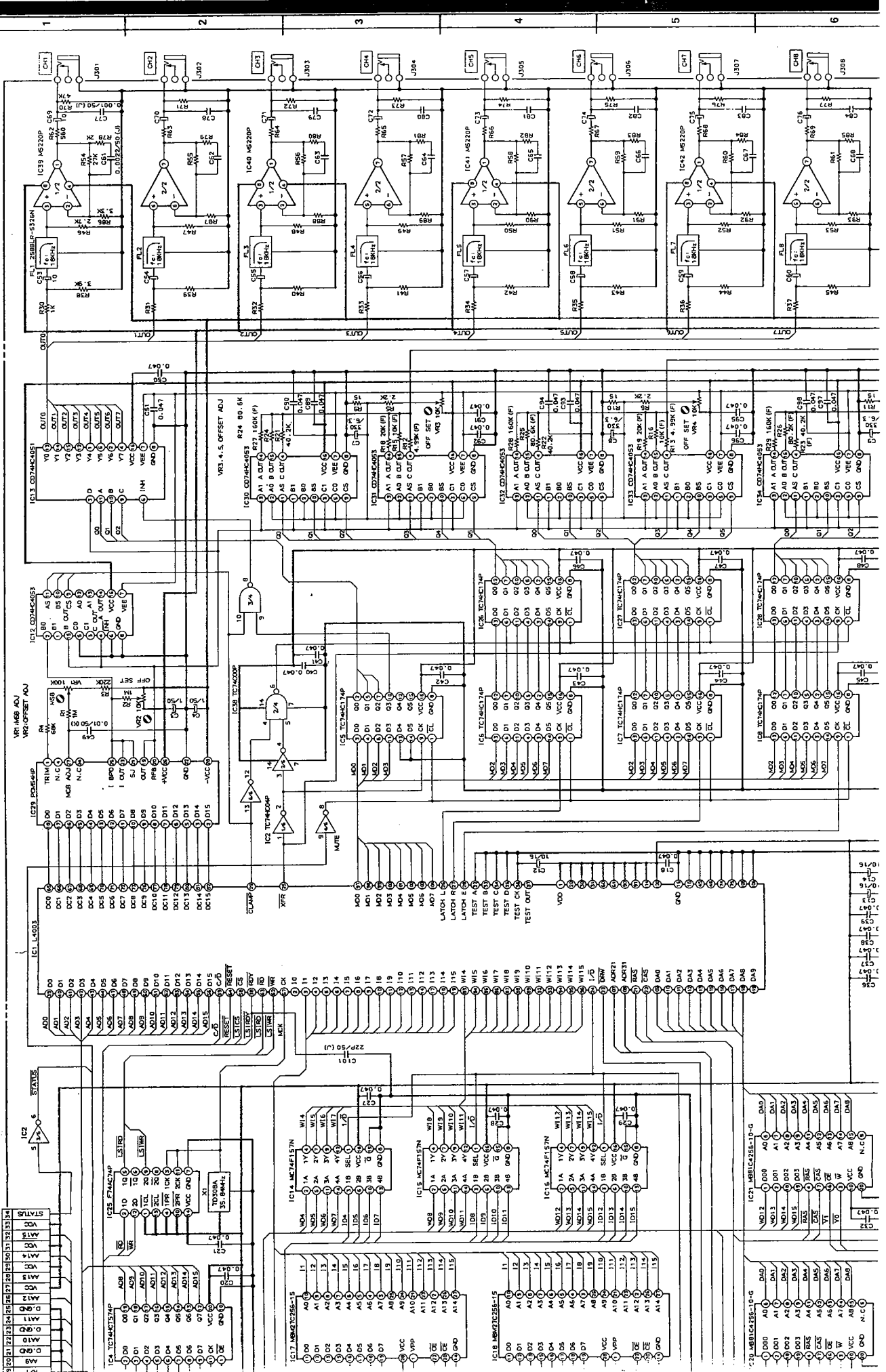
AVERTISSEMENT: A ET B ILS INDICENT LES COMPOSANTS CRITIQUES DE SECURITE DE L'APPAREIL. NE REMPLACEZ QUE DES PIECES RECOMMANDEES PAR LE FABRICANT.

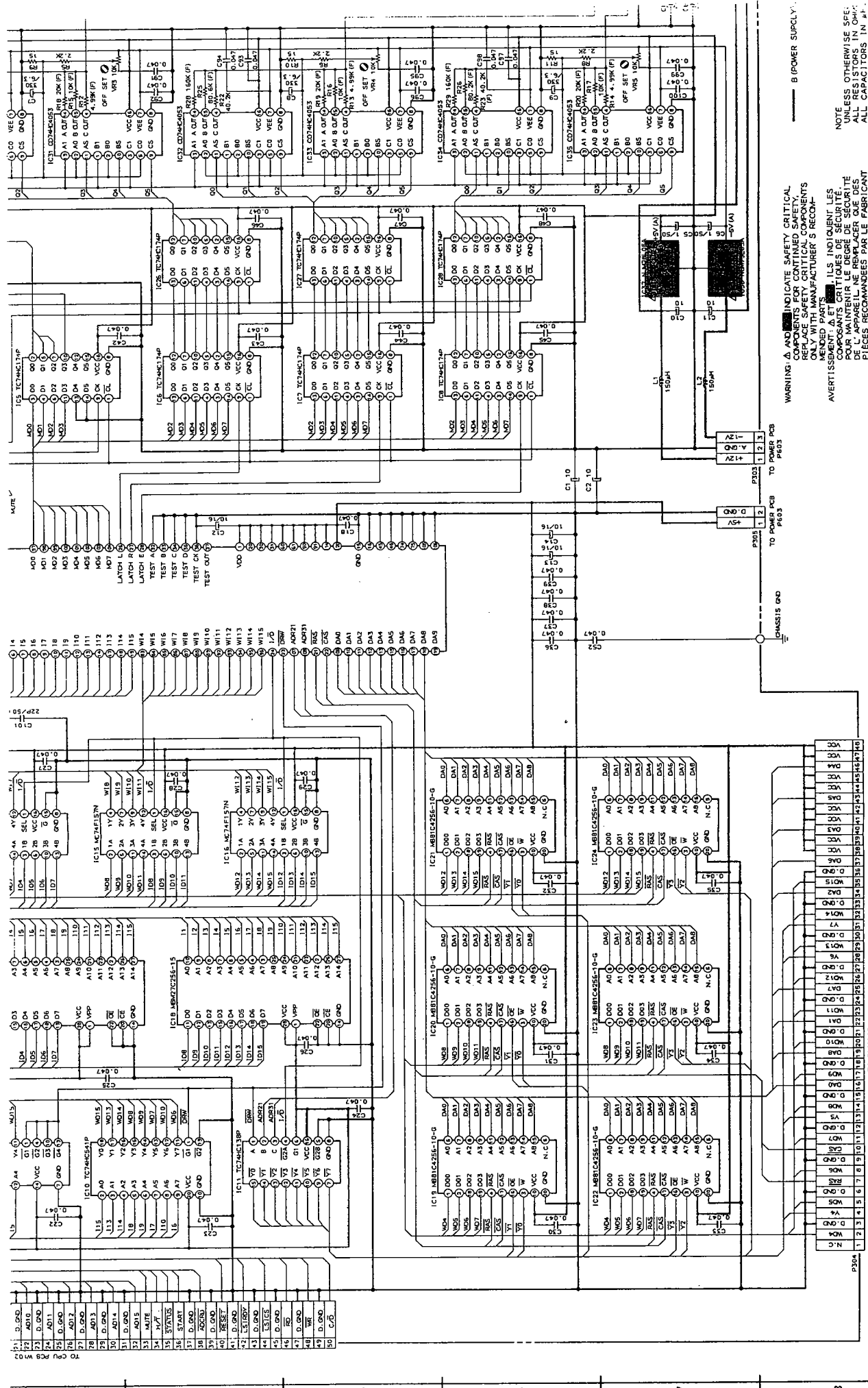
NOTE: UNLESS OTHERWISE SPECIFIED: ALL RESISTORS IN OHMS (1/W) (U) ALL CAPACITORS IN P.F. (2W/0A)

MPC60 VOICE
SCHEMATIC DIAGRAM
NO. 7-4 871219A









WARNING: A AND INDICATE SAFETY CRITICAL COMPONENTS. CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

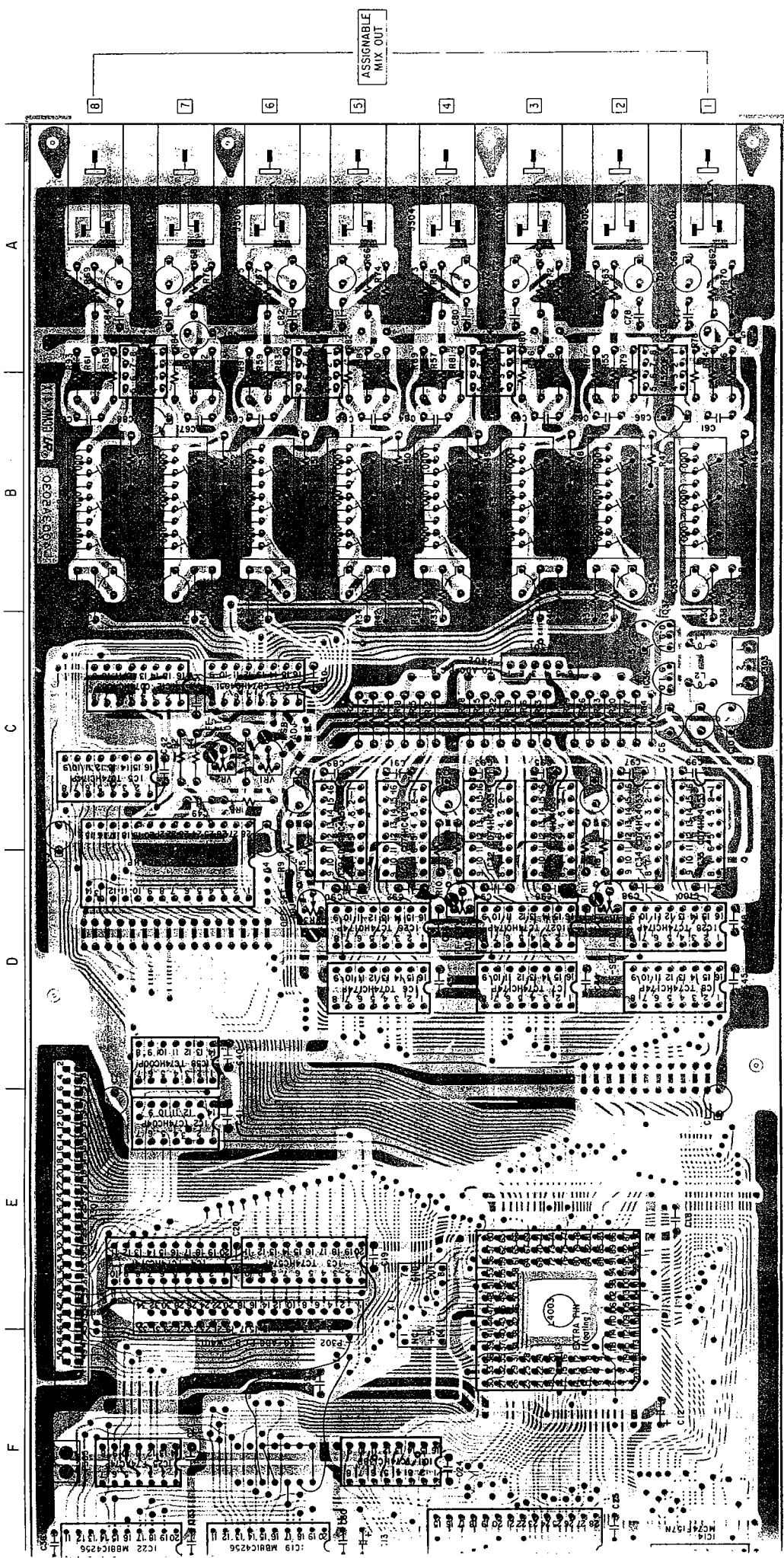
AVERTISSEMENT: A ET INDICENT LES COMPOSANTS CRITIQUES. SEULEMENT LES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

NOTE: UNLESS OTHERWISE SPECIFIED, ALL RESISTORS IN OHMS, ALL CAPACITORS IN P.F.

VOICE PCB L4003A5030

A B C D E F G H

1 2 3 4 5 6 7 8



ASSIGNABLE
MIX OUT

A

B

C

D

E

F

8

7

6

5

4

3

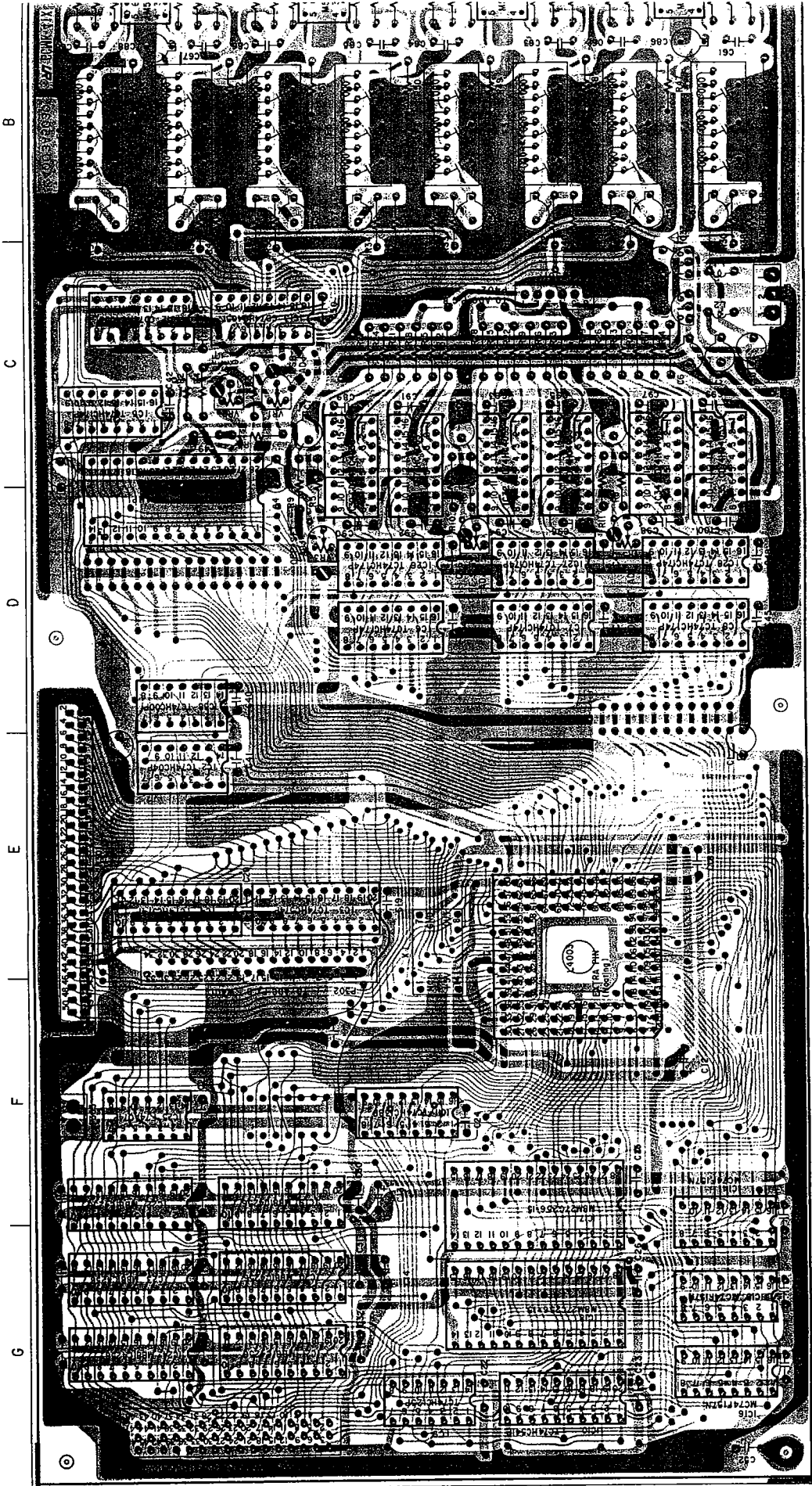
2

1

VOICE P C B L 4003A5030

WARNING: INDICATE ALL ORIGINAL COMPONENTS FOR CORRECTED PARTS BY REPLACING ORIGINAL COMPONENTS ONI WITH CORRECTED PARTS.
RECOMMENDED PAGES
REF: 1000-1001

IC14 M244157N
IC19 MB1C4256
IC22 MB1C4256
IC3 MB1C4256
IC4 MB1C4256
IC5 MB1C4256
IC6 MB1C4256
IC7 MB1C4256
IC8 MB1C4256
IC9 MB1C4256
IC10 MB1C4256
IC11 MB1C4256
IC12 MB1C4256
IC13 MB1C4256
IC15 MB1C4256
IC16 MB1C4256
IC17 MB1C4256
IC18 MB1C4256
IC20 MB1C4256
IC21 MB1C4256
IC23 MB1C4256
IC24 MB1C4256
IC25 MB1C4256
IC26 MB1C4256
IC27 MB1C4256
IC28 MB1C4256
IC29 MB1C4256
IC30 MB1C4256
IC31 MB1C4256
IC32 MB1C4256
IC33 MB1C4256
IC34 MB1C4256
IC35 MB1C4256
IC36 MB1C4256
IC37 MB1C4256
IC38 MB1C4256
IC39 MB1C4256
IC40 MB1C4256
IC41 MB1C4256
IC42 MB1C4256
IC43 MB1C4256
IC44 MB1C4256
IC45 MB1C4256
IC46 MB1C4256
IC47 MB1C4256
IC48 MB1C4256
IC49 MB1C4256
IC50 MB1C4256
IC51 MB1C4256
IC52 MB1C4256
IC53 MB1C4256
IC54 MB1C4256
IC55 MB1C4256
IC56 MB1C4256
IC57 MB1C4256
IC58 MB1C4256
IC59 MB1C4256
IC60 MB1C4256
IC61 MB1C4256
IC62 MB1C4256
IC63 MB1C4256
IC64 MB1C4256
IC65 MB1C4256
IC66 MB1C4256
IC67 MB1C4256
IC68 MB1C4256
IC69 MB1C4256
IC70 MB1C4256
IC71 MB1C4256
IC72 MB1C4256
IC73 MB1C4256
IC74 MB1C4256
IC75 MB1C4256
IC76 MB1C4256
IC77 MB1C4256
IC78 MB1C4256
IC79 MB1C4256
IC80 MB1C4256
IC81 MB1C4256
IC82 MB1C4256
IC83 MB1C4256
IC84 MB1C4256
IC85 MB1C4256
IC86 MB1C4256
IC87 MB1C4256
IC88 MB1C4256
IC89 MB1C4256
IC90 MB1C4256
IC91 MB1C4256
IC92 MB1C4256
IC93 MB1C4256
IC94 MB1C4256
IC95 MB1C4256
IC96 MB1C4256
IC97 MB1C4256
IC98 MB1C4256
IC99 MB1C4256
IC100 MB1C4256

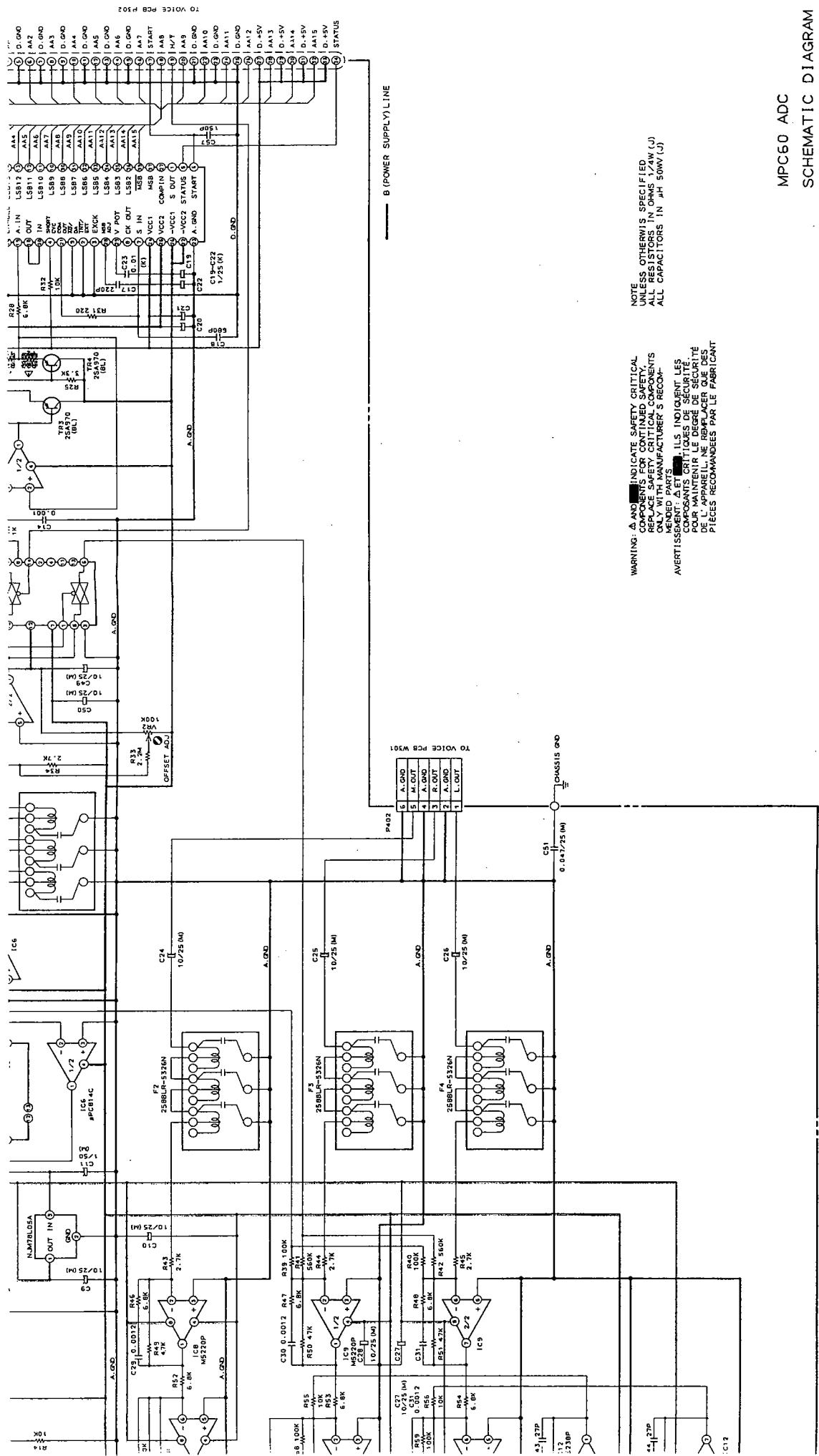


VOICE P C B L4003A5030

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
 AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES EN MATIÈRE DE SÉCURITÉ. NE REMPLACEZ QUE LES COMPOSANTS CRITIQUES CRITIQUES PAR LES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

- | | | | | |
|------|----|------------|------|----|
| IC1 | E3 | CONDUCTORS | P301 | E1 |
| IC2 | E1 | | P302 | E1 |
| IC3 | E1 | | P303 | E1 |
| IC4 | E1 | | P304 | E1 |
| IC5 | E1 | | P305 | E1 |
| IC6 | E2 | | W301 | E1 |
| IC7 | E3 | | | |
| IC8 | E3 | | | |
| IC9 | E3 | | | |
| IC10 | E3 | | | |
| IC11 | E3 | | | |
| IC12 | E3 | | | |
| IC13 | E3 | | | |
| IC14 | E3 | | | |
| IC15 | E3 | | | |
| IC16 | E3 | | | |
| IC17 | E3 | | | |
| IC18 | E3 | | | |
| IC19 | E3 | | | |
| IC20 | E3 | | | |
| IC21 | E3 | | | |
| IC22 | E3 | | | |
| IC23 | E3 | | | |
| IC24 | E3 | | | |
| IC25 | E3 | | | |
| IC26 | E3 | | | |
| IC27 | E3 | | | |
| IC28 | E3 | | | |
| IC29 | E3 | | | |
| IC30 | E3 | | | |
| IC31 | E3 | | | |
| IC32 | E3 | | | |
| IC33 | E3 | | | |
| IC34 | E3 | | | |
| IC35 | E3 | | | |
| IC36 | E3 | | | |
| IC37 | E3 | | | |
| IC38 | E3 | | | |
| IC39 | E3 | | | |
| IC40 | E3 | | | |
| IC41 | E3 | | | |
| IC42 | E3 | | | |

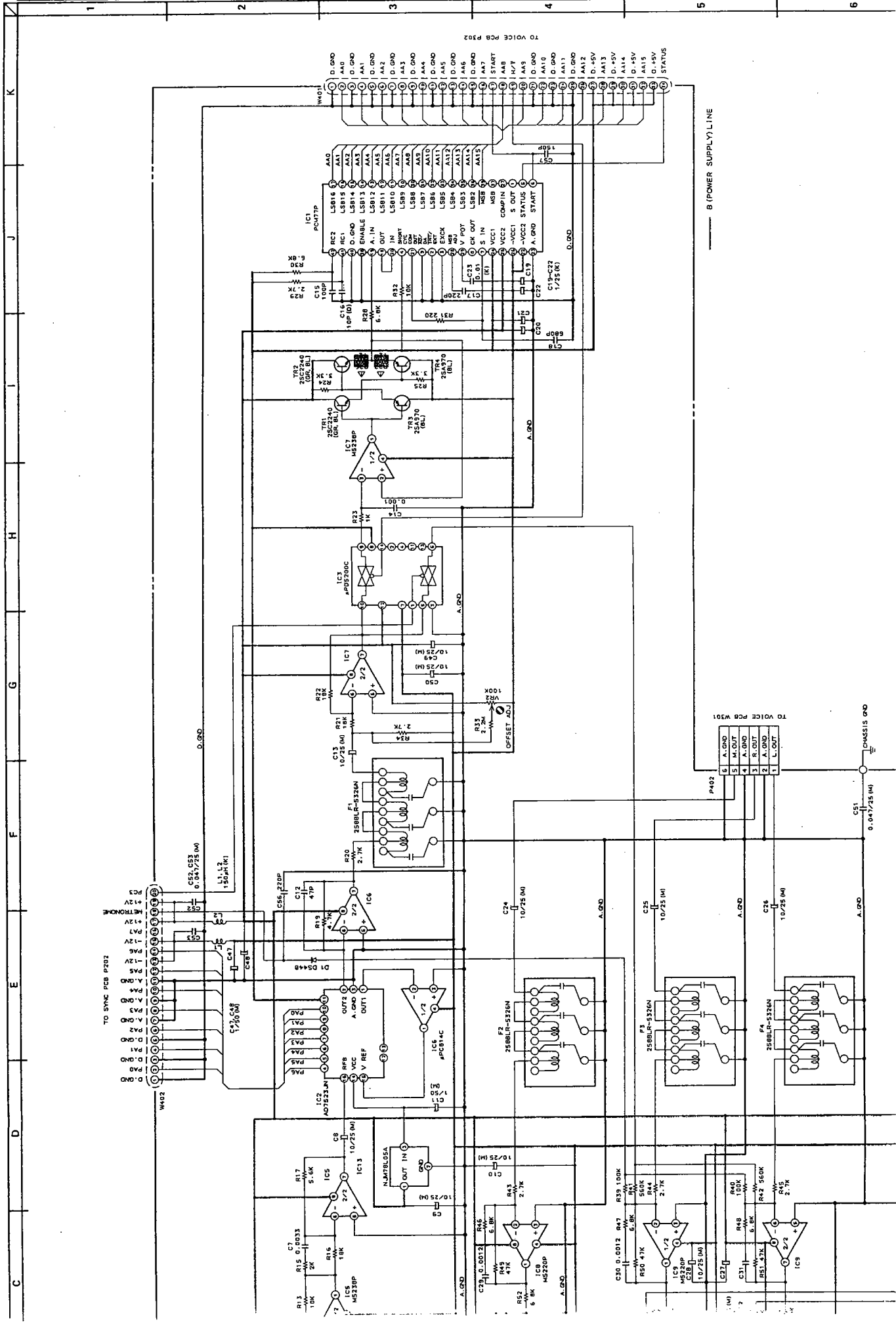
MPC60 ADC
SCHEMATIC DIAGRAM
NO. 7-5 871220A



NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μ H 50WV (J)

WARNING: A AND B INDICATE SAFETY CRITICAL
COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS
ONLY WITH MANUFACTURER'S RECOM-
MENDED PARTS.
AVERTISSEMENT: A ET B INDICQUENT LES
COMPOSANTS CRITIQUES DE SECURITE.
POUR MAINTENIR LE DEGRE DE SECURITE
REPLACEZ SEULEMENT LES COMPOSANTS
PIECES RECOMMANDEES PAR LE FABRICANT

C D E F G H I J K



B (POWER SUPPLY)LINE

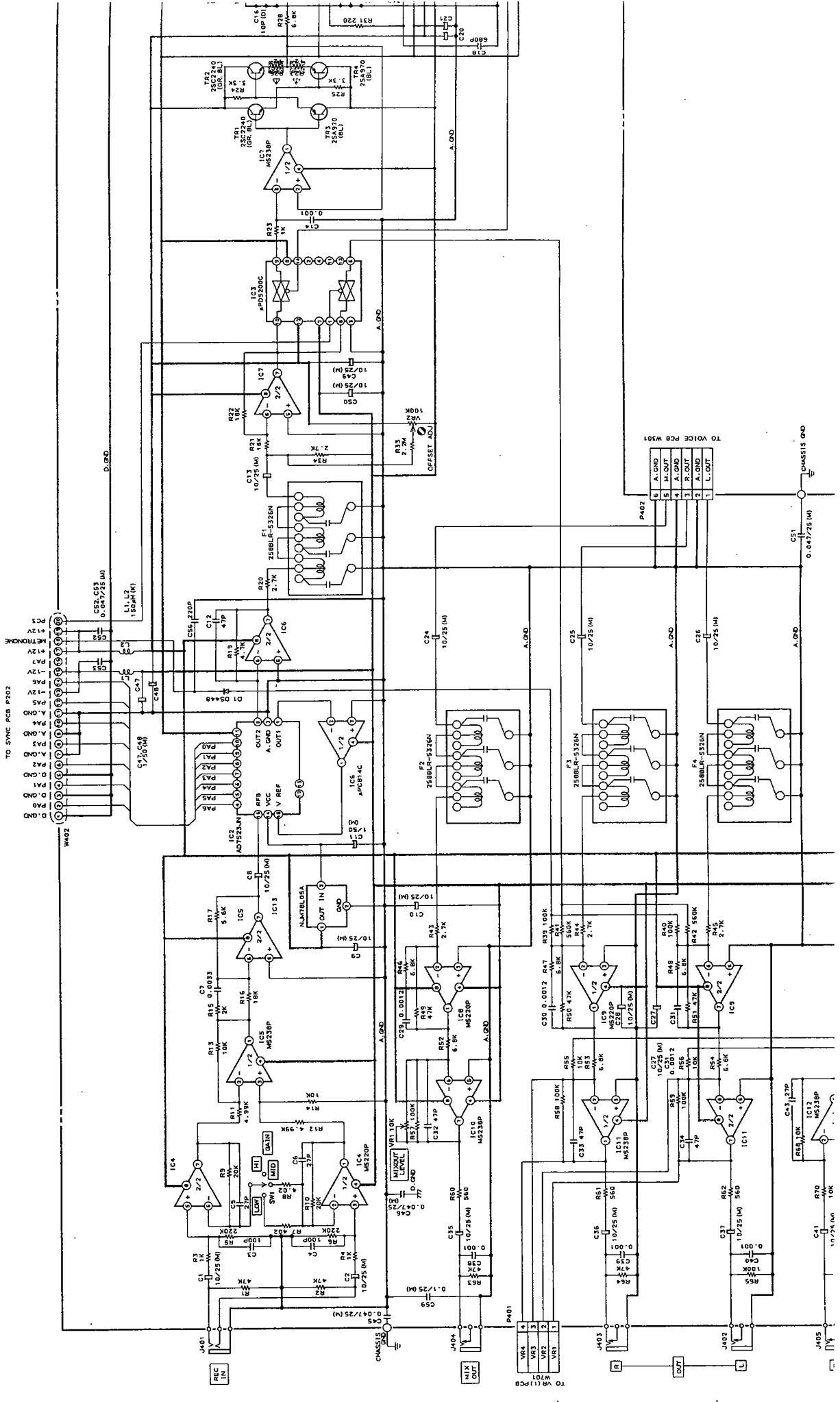
TO SYNC PCB P202

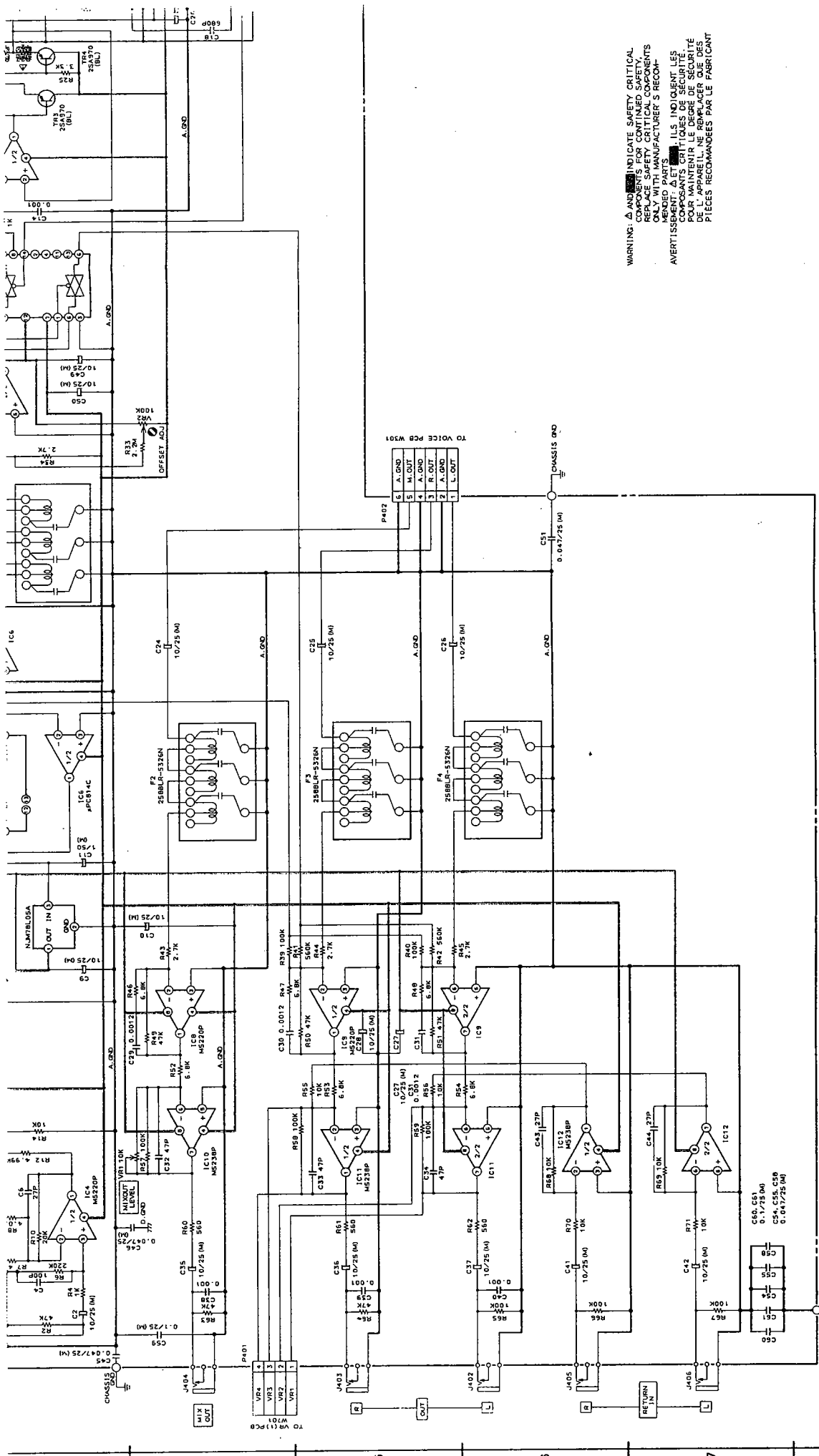
TO VOICE PCB W301

TO VOICE PCB P302

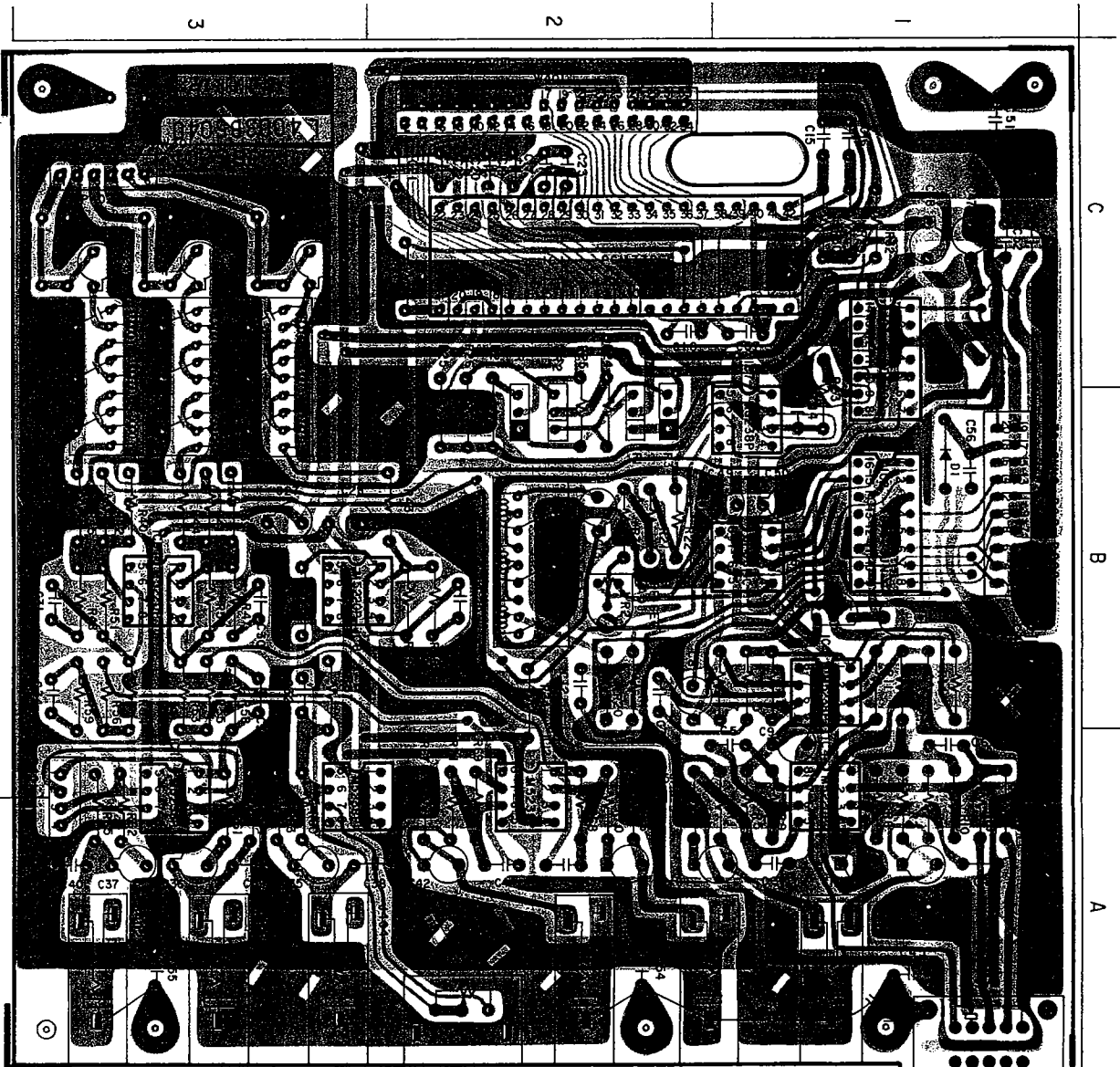
C D E F G H I J K

1 2 3 4 5 6

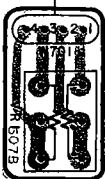




WARNING: **Δ** AND **□** INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. ONLY USE THE ORIGINAL MANUFACTURER'S PARTS OR EQUIVALENTS. ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
 AVERTISSEMENT: **Δ** ET **□** ILS INDICENT LES COMPOSANTS CRITIQUES DE SÉCURITÉ. SEULEMENT LES PIÈCES D'ORIGINE DU FABRICANT OU DES ÉQUIVALENTS. SEULEMENT AVEC LES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

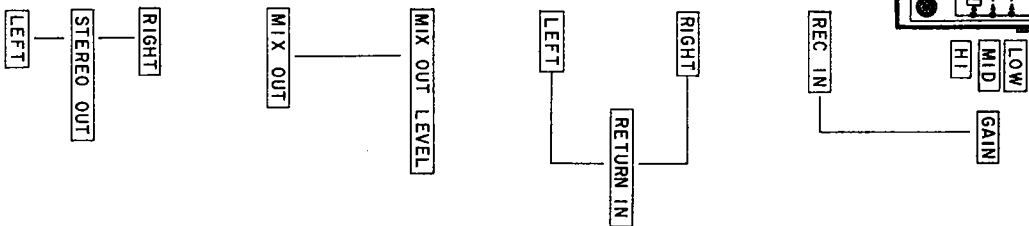


ADC PCB L4003B5040

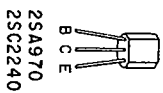


VR (A) PCB
L4003B507B

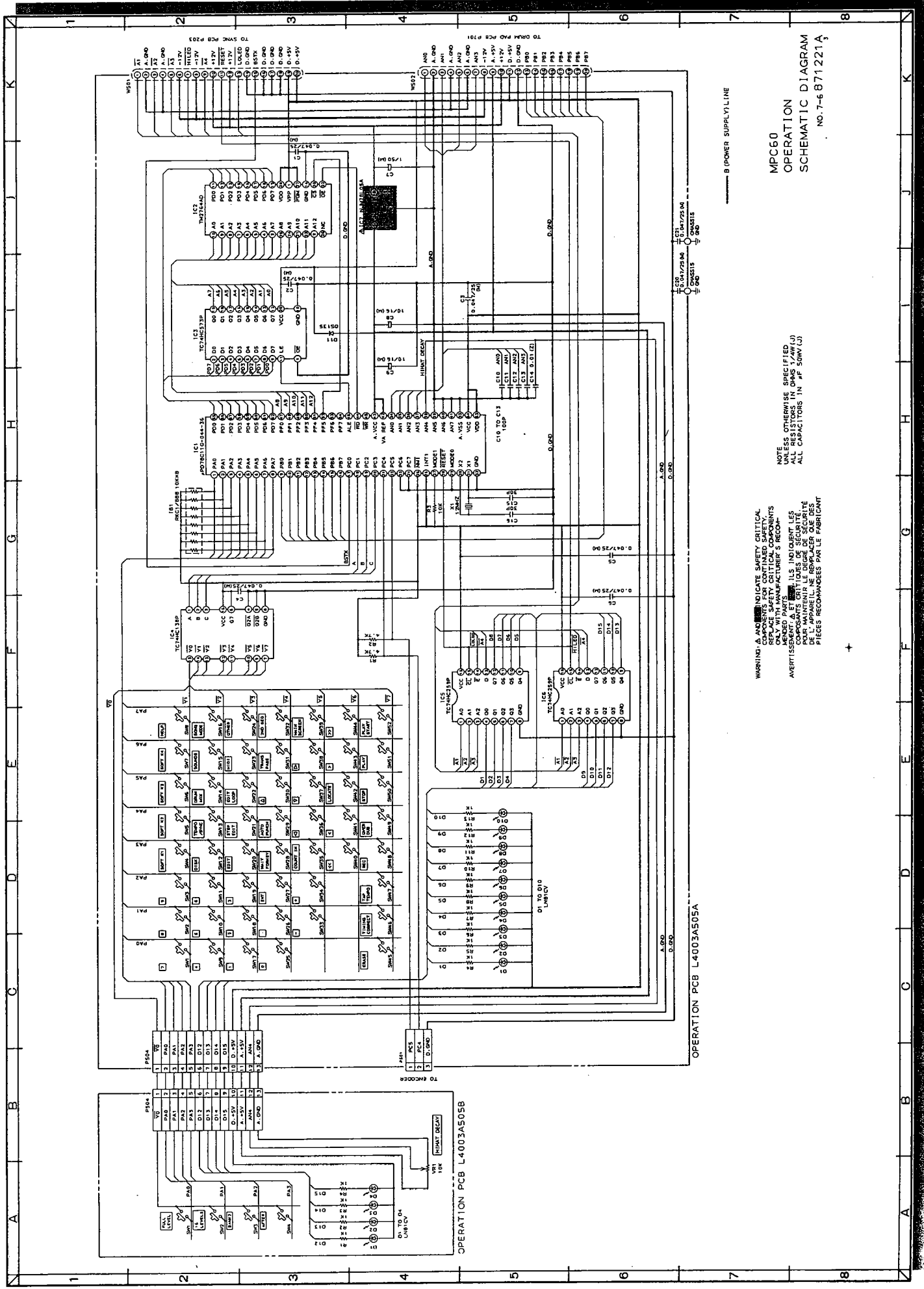
STEREO MIX VOLUM



- IC'S
 IC1 C2
 IC2 B1
 IC3 C1
 IC4 A1
 IC5 B1
 IC6 B1
 IC7 B1
 IC8 B3
 IC9 B3
 IC10 A3
 IC11 A3
 IC12 A2
 IC13 B1
- TRANSISTORS
 TR1 B2
 TR2 B2
 TR3 B2
 TR4 B2
- CONNECTORS
 P401 A3
 P402 C3



- B
 • • • = NPN TRANSISTOR
 B
 • • • = PNP TRANSISTOR



MPC60
OPERATION
SCHEMATIC DIAGRAM
NO. 7-6871 221A

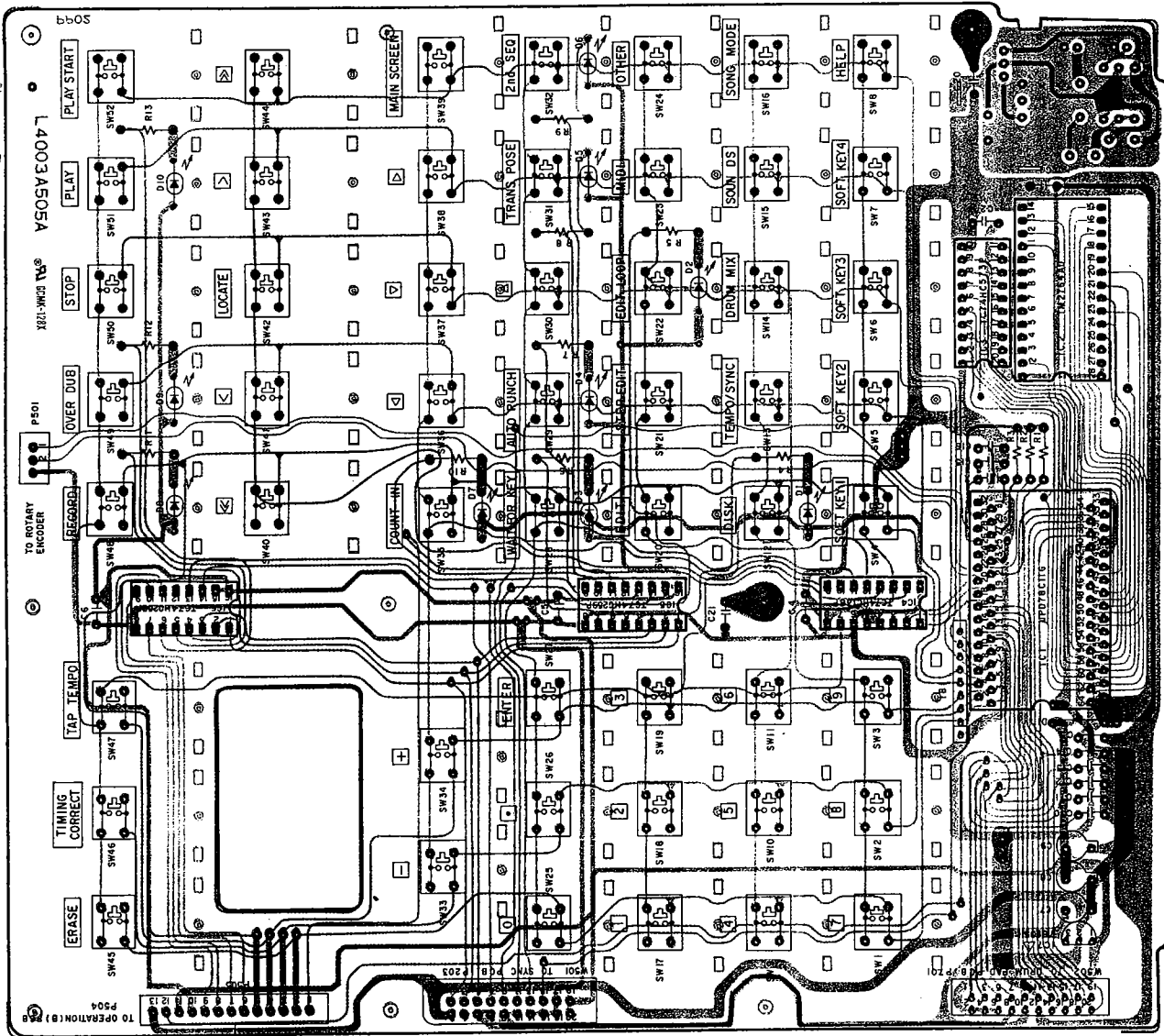
NOTE: 1. ORIGINALS SPECIFIED
2. ALL RESISTORS IN OHMS / (AW/LJ)
3. ALL CAPACITORS IN #F 50WV(LJ)

WARNING: A AND B INDICATE SAFETY CRITICAL COMPONENTS. ONLY WITH MANUFACTURER'S RECOMMENDATIONS SHOULD THESE COMPONENTS BE REPLACED. A ET B INDICENT LES COMPOSANTS CRITIQUES DE SECURITE. SEULEMENT AVEC LES RECOMMANDATIONS DE L'APPAREILLEUR PEUT-ON LES REMPLACER. A ET B INDICENT LES PIECES RECOMMENDEES PAR LE FABRICANT.

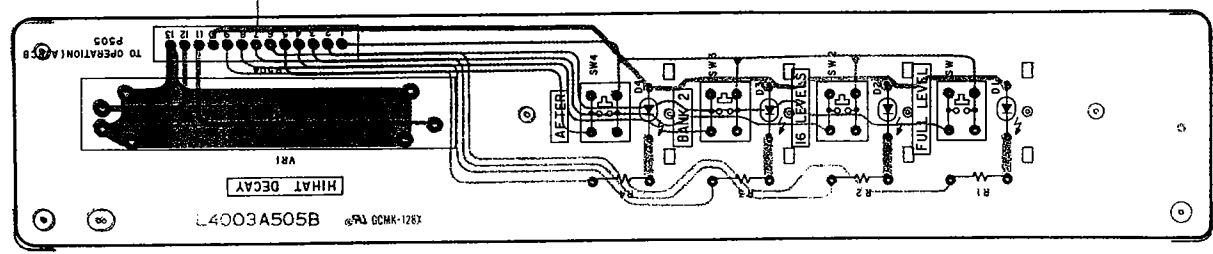
OPERATION PCB L4003AS05A

OPERATION PCB L4003AS05B

+

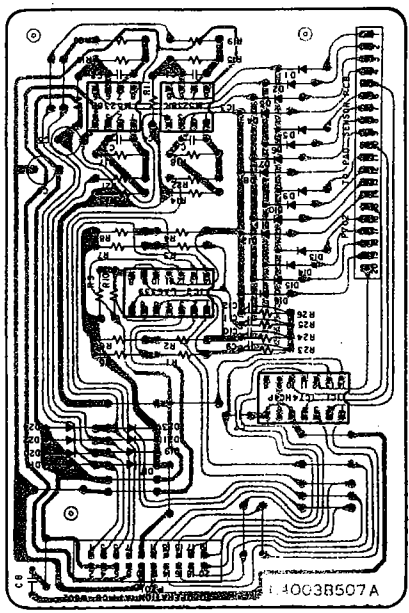
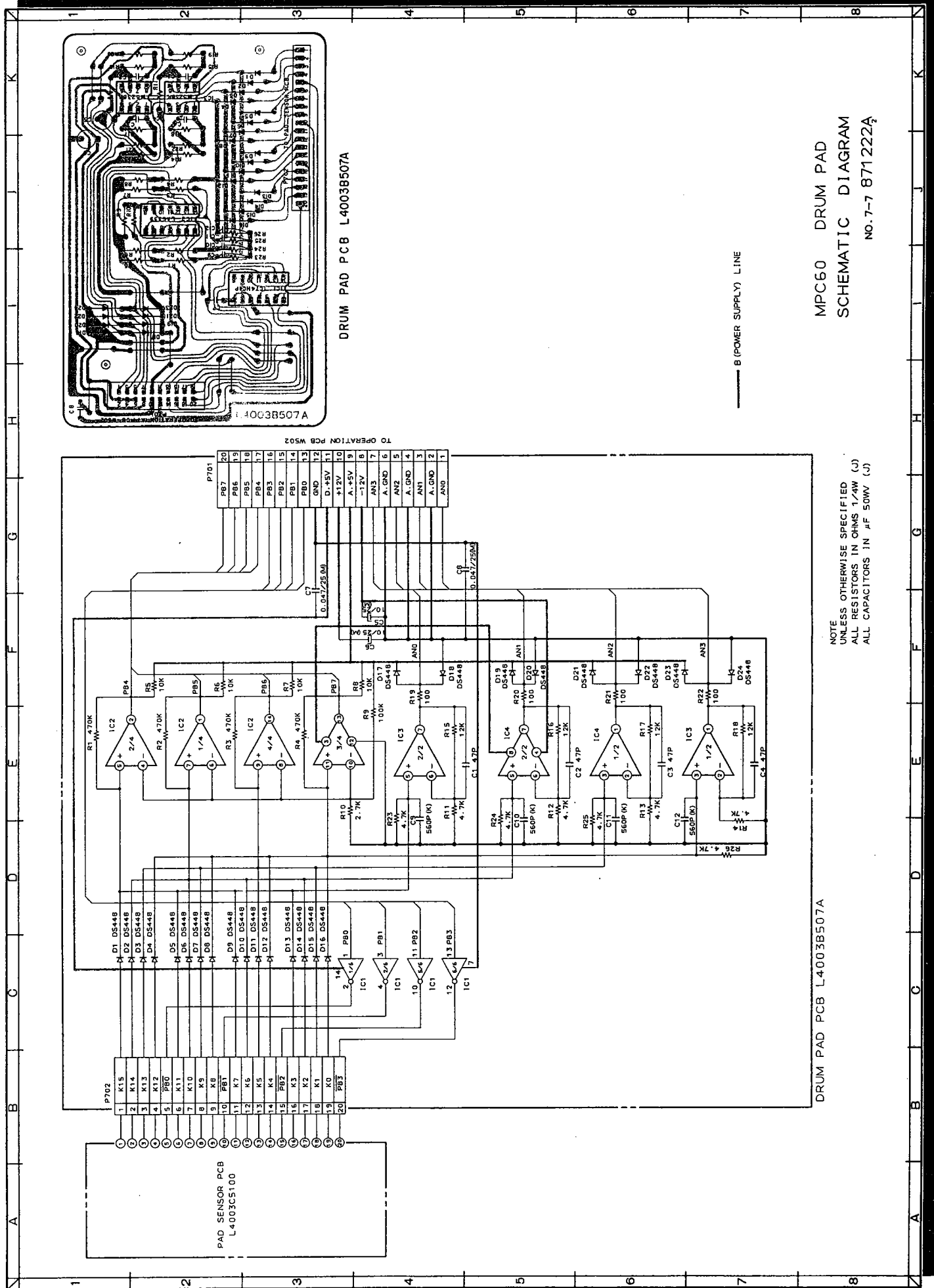


OPERATION (A) PCB L4003A505A



OPERATION (B) PCB L4003A505B

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFE REPLACEMENT. ONLY RECOMMENDED PARTS SHOULD BE USED.
 AVERTISSEMENT: Δ INDICATES COMPOSANTS CRITIQUES DE SÉCURITÉ. SEULS LES PIÈCES RECOMMANDÉES DOIVENT ÊTRE UTILISÉES.
 NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



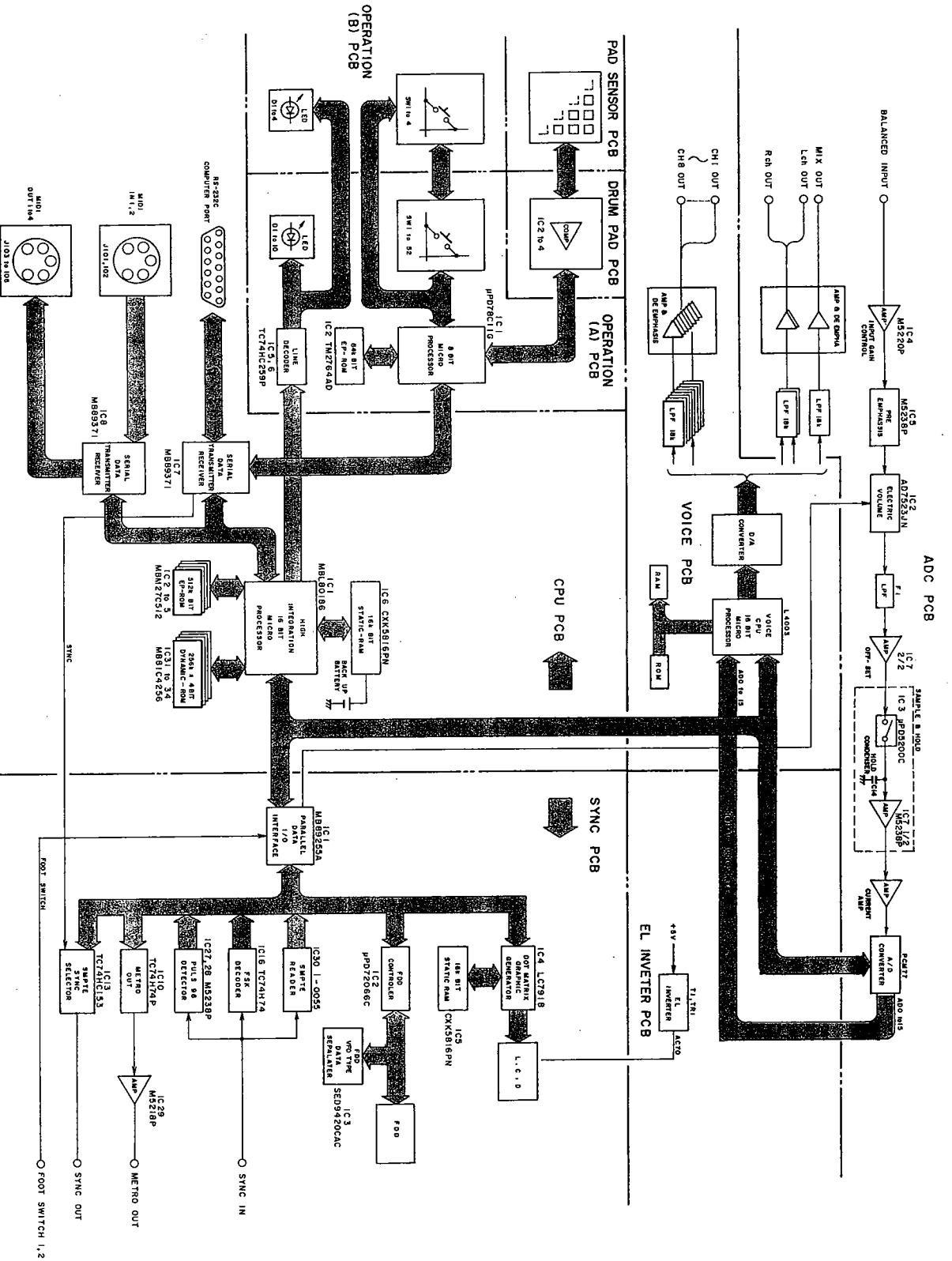
DRUM PAD PCB L4003BS07A

— B (POWER SUPPLY) LINE

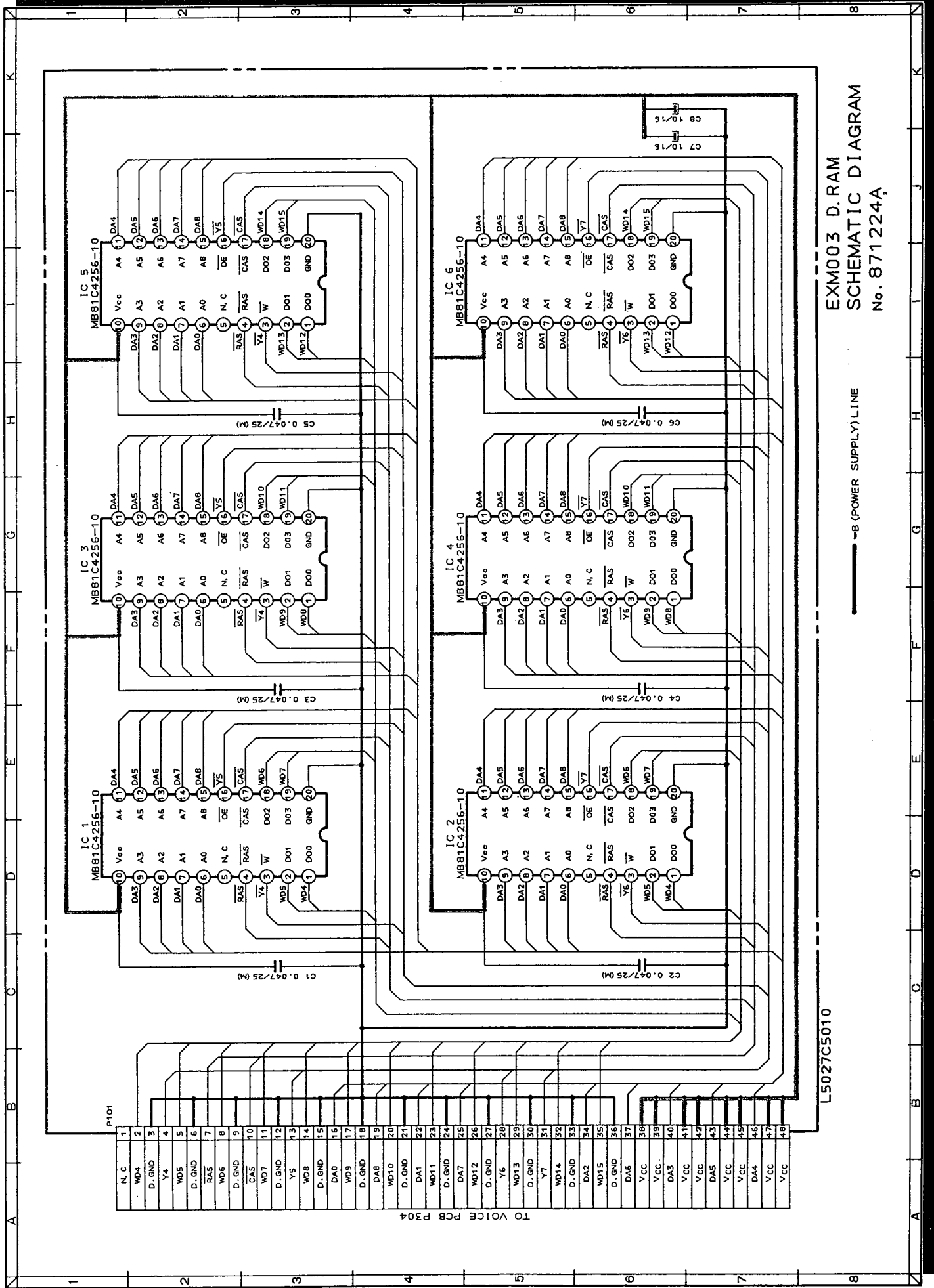
MPC60 DRUM PAD
SCHEMATIC DIAGRAM
NO. 7-7 871222A

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μ F 50WV (J)

DRUM PAD PCB L4003BS07A



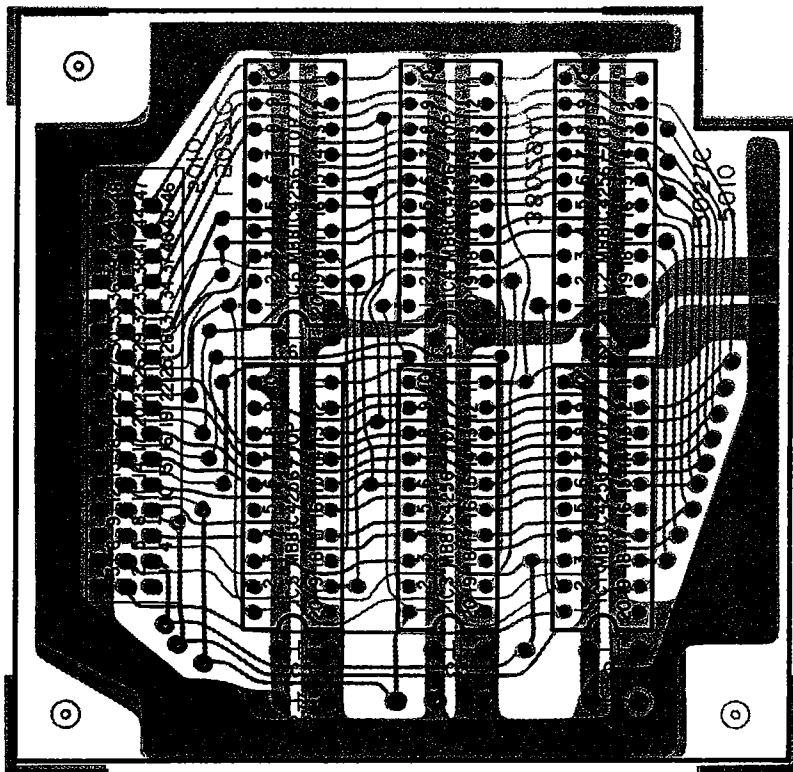
MPC 60
BLOCK DIAGRAM
NO. 871223A



EXM003 D.RAM
SCHEMATIC DIAGRAM
No. 871224A

— B (POWER SUPPLY) LINE

L5027C5010



EXM003 D. RAM P C B L5027C5010