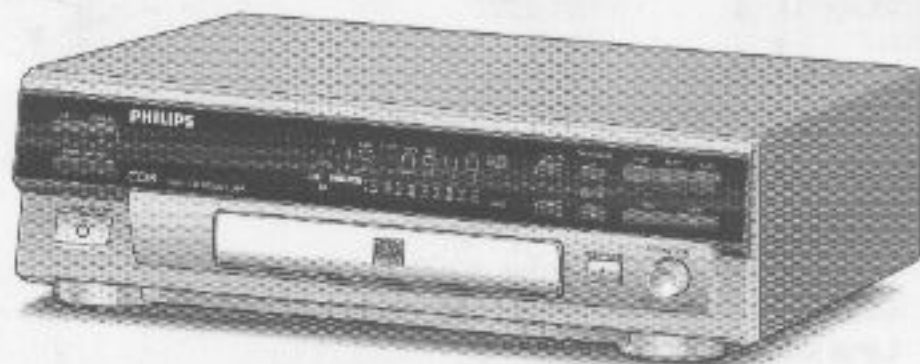


Service  
Service  
Service

CDR538/00S  
CDR560/00S/11S/13S



# Service Manual

## SERVICING

For servicing, the set can be divided into two parts.

1. The Display board, the Connector interface board and the Level / Headphone board have to be repaired on component level. The power supply is available as a spare part but can also be repaired on component level.
2. The loader (containing CD mechanism and CDM-board) and the Main board will be exchanged completely in case of failure. Both are available as sparepart. For easy diagnostics, the set has been equipped with a selfdiagnose program. Defective loaders and main boards have to be returned for central repair.

Also available: Circuit description: "The basics of Compact Disc Recordable / Rewritable.  
Service codenumber 4822 725 25242.

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PCS 98 801



# PHILIPS

## TECHNICAL SPECIFICATIONS

### General

- |                      |         |
|----------------------|---------|
| 1. Mains voltage     | 84-250V |
| /00/06/11/13         | 117V    |
| /17                  |         |
| 2. Mains frequency   | 50-60Hz |
| 3. Power consumption | 15W     |

### Input/Output

- Line output.**  
Output level: 2Vrms at 0dB.  
Output resistance: 200Ω.
- Line input.**  
input sensitivity: 500mVrms.  
Input impedance: 50kΩ.  
Maximum input voltage: 5Vrms.
- Digital output.**  
Format: AES/EBU format according IEC958 (consumer format).  
Sampling frequency: 44.1kHz.  
output resistance: 75Ω.
- Digital input.**  
Format: AES/EBU format according IEC958 (consumer format).  
Sampling frequency: 44.1kHz.  
Input resistance: 75Ω.
- Optical input.**  
Format: AES/EBU format according IEC958 (consumer format).  
Sampling frequency: 44.1kHz.

### Audio performance

#### Cinch analog output (playback path).

- |                       |   |
|-----------------------|---|
| Output voltage:       | 2Vrms ± 2dB. (0dB digital).   |
| Frequency range F.R.: | 20Hz < F.R. < 20kHz.  |
| Amplitude linearity:  | ± 0.3dB.<br>typical: ± 0.1dB.   |
| Channel unbalance:    | <0.3dB at 1kHz.<br>typical: ±0.2dB.   |
| Output resistance:    | 200Ω.   |
| Phase non-linearity:  | <0.2° at 1kHz.  |
| Outband attenuation:  | 50dB above 30kHz.   |
| Channel separation:   | >90dB at 1kHz.<br>typical: 110dB.<br>>85dB from 20Hz. until 20kHz.<br>typical: >93dB. |
| S/N-ratio A-weighted: | >98dB.<br>typical: 105dB.   |
| S/N-ratio unweighted: | >95dB.<br>typical: 100dB.   |
| Dynamic range:        | >92dB. at 1kHz.<br>typical: 96dB.<br>>90dB from 20Hz. until 20kHz.<br>typical: 96dB.  |
| THD+N:                | >82dB from 20Hz. until 20kHz.<br>typical: 85dB.                                       |

#### Cinch analog input/output (monitor path).

Measured with Audio precision system one.  
Input voltage is 500mVrms.

- |                       |  |
|-----------------------|--|
| Output voltage:       | 2Vrms ± 2dB. (0dB digital).  |
| Frequency range F.R.: | 20Hz < F.R. < 20kHz.   |
| Amplitude linearity:  | ± 0.3dB.<br>typical: ± 0.1dB.  |
| Channel unbalance:    | <0.3dB at 1kHz.<br>typical: ±0.2dB.  |
| Output resistance:    | 200Ω.  |
| Phase non-linearity:  | <0.2° at 1kHz.   |
| Outband attenuation:  | 50dB above 30kHz.  |
| Channel separation:   | >90dB at 1kHz.<br>typical: 98dB.<br>>85dB from 20Hz. until 20kHz.<br>typical: >92dB. |
| S/N-ratio unweighted: | >84dB.<br>typical: 88dB.   |
| Dynamic range:        | >85dB. at 1kHz.<br>typical: 90dB.  |
| THD+N:                | >80dB from 20Hz. until 20kHz.<br>typical: 85dB.                                      |
| Intermodulation THD:  | >80dB.   |

#### Dimensions and weight

- Apparatus tray closed: WxDxH 265 x 305 x 75
- Weight without packaging: 2,6 kg
- Weight in packaging: 3,6 kg

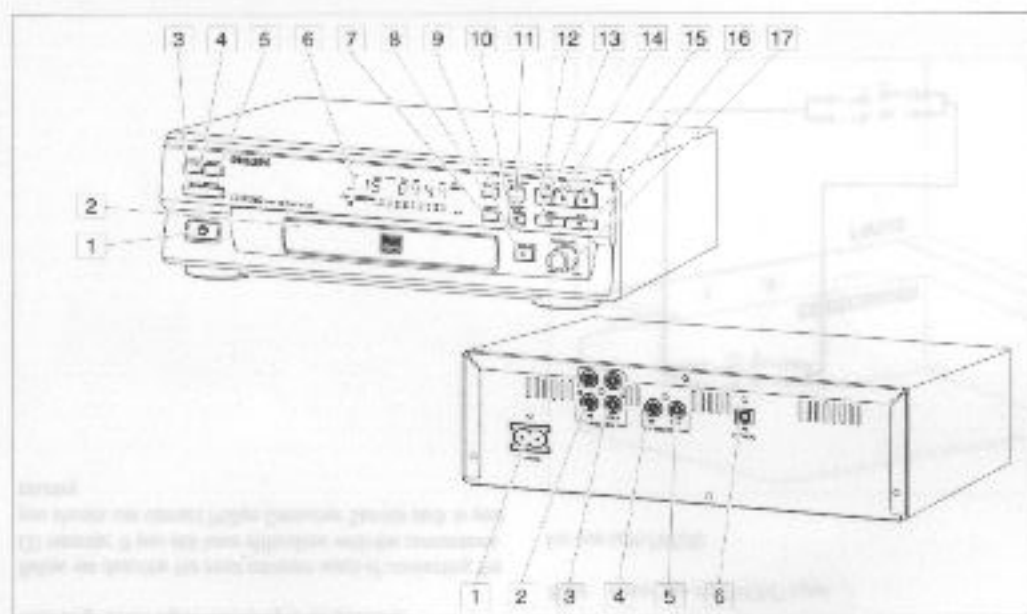
#### Laser Device Unit

- |                 |                     |
|-----------------|---------------------|
| 1. Material:    | GaAlAs              |
| 2. Wave length: | 775→795 nm(at 25°C) |
| 3. Laser output |                     |
| read:           | 0,7→0,9 mW          |
| write:          | 13→18 mW            |
| 4. Class:       | 3B                  |

## CONTROLS AND CONNECTIONS

## DISPLAY

English



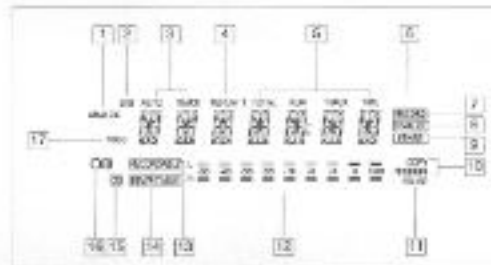
### Controls on the front

- 1 **ON/OFF** ..... turns the CD recorder ON and OFF
- 2 **Disc tray**
- 3 **AUTO/MANUAL** ..... selects track increase method
- 4 **SOURCE** ..... selects digital or analog input
- 5 **DISPLAY** ..... selects display information
- 6 **DISPLAY** (information screen)
- 7 **ERASE** ..... erases recording
- 8 **FINALIZE** ..... finalizes recording
- 9 **OPEN/CLOSE** ..... opens/closes disc tray
- 10 **RECORD** ..... records
- 11 **CD-SYNC** ..... synchronized recording (automatic start when recording)
- 12 **STOP** ■ ..... stops
- 13 **⏮** ..... previous track/searches back
- 14 **PLAY** ▶ ..... starts play or record
- 15 **PAUSE** ■ ..... interrupts play
- 16 **⏭** ..... next track/searches forward
- 17 **REC LEVEL** ..... adjusts the recording level (analog)

### Connections at the back

- 1 Connection to mains
- 2 **ANALOG IN** ..... connects to the line output of an amplifier (left and right)
- 3 **ANALOG OUT** ..... connects to the line input of an amplifier (left and right)
- 4 **DIGITAL IN** ..... connects to the digital coaxial output of a CD player
- 5 **DIGITAL OUT** ..... connects to the digital coaxial input of a e.g. amplifier or recording device
- 6 **OPTICAL IN** ..... connects to the digital optical output of a CD player

### DISPLAY explanation



- 1 **ANALOG** ..... analog input is selected
- 2 **DIG** ..... lights when digital input is selected and flashes when digital input is incorrect
- 3 **AUTO TRACK** ..... automatically increasing track numbers
- 4 **REPEAT (1)** ..... repeat function activated during play
- 5 Track number and time
- 6 **CD-SYNC** ..... synchronized recording is active
- 7 **RECORD** ..... lights during recording and flashes in record standby
- 8 **FINALIZE** ..... lights during finalizing and flashes in finalize standby
- 9 **ERASE** ..... lights during erase recording and flashes in erase standby
- 10 **COPY PROHIBIT** ..... lights when trying to record digital protected audio
- 11 **PAUSE** ..... pause function is active
- 12 Record/play level bar (analog)
- 13 **RECORDABLE** ..... Unfinalized CD-R disc inserted
- 14 **REWITABLE** ..... CD-RW disc inserted
- 15 **CD** ..... CD inserted (a pre-recorded CD or finalized CD-R or CD-RW disc)
- 16 **COI** ..... remote control active
- 17 **PROG** ..... programmed play

### DISPLAY messages

Messages, as listed and explained here, may appear on the display for your guidance.

- READING .....reading disc information
- OPC .....during OPC procedure
- OPEN .....during tray opening
- CLOSE .....during tray closing
- NO DISC .....no disc inserted, or disc unreadable
- UPDATE .....updating disc contents
- ERROR .....write error during recording
- RECOVER .....during recovery procedure
- WAIT .....recording stop (4 seconds) in progress
- SYNC .....during synchronized recording standby
- TRACK .....during erase-track standby
- DISC .....during erase-disc standby
- SERVICE .....selftest failed
- OPCFAIL .....laser power calibration failed. Further recording not possible
- FULL .....program full
- CD-FULL .....no more recording possible
- EMPTY .....no recordings on disc, finalizing not possible
- NO AUDIO (flashing) .....no audio disc loaded or failure to read data
- FINAL .....laser power calibration performed 96 times, finalize disc
- COAXIAL .....digital coaxial input selected
- OPTICAL .....digital optical input selected
- SHUFFLE .....during shuffle
- RC-DISC .....recovered disc. Finalizing not possible
- TOC .....flashes during unfinalize disc standby, lights during unfinalize disc
- (INPUT .....during input selection (CD-SYNC)
- ANALOG .....analog input selected

English

## INSTALLATION

English

## Connections general

For recording the CD recorder has the following inputs:

- Digital optical input
- Digital coaxial input
- Analog input

For playback the CD recorder has the following outputs:

- Digital coaxial output
- Analog output

The connections you make will depend upon the possibilities your audio equipment offers. Please refer to the user manuals for your other audio equipment first.

Recordings made from a digital source (CD player) via the digital optical or digital coaxial connection will give the best performance in audio and usability (e.g. auto-track). (The digital optical connection is less sensitive to external disturbances).

If your equipment does not offer digital connections, the high quality Analog Digital Converter of your CD recorder will ensure very good audio performance when recordings are made from the analog input.

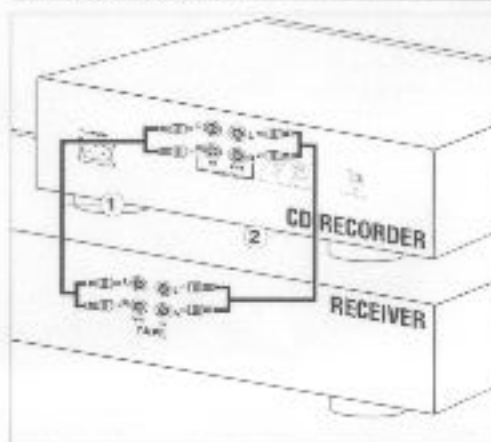
Playback via the digital coaxial output of the CD recorder gives the best audio performance.

If your equipment does not offer digital connections the high quality Digital Analog Converter of the CD recorder ensures a very good sound quality via the analog output.

We advise you always to establish both digital and analog connections. In this way you can always make analog recordings when digital recording is not possible.

Below we describe the most common ways of connecting the CD recorder. If you still have difficulties with the connections you always can contact Philips Consumer Service desk in your country.

## Analog connections



Use the audio cables supplied. Connect the red plugs to the R sockets, and the white plugs to the L sockets.

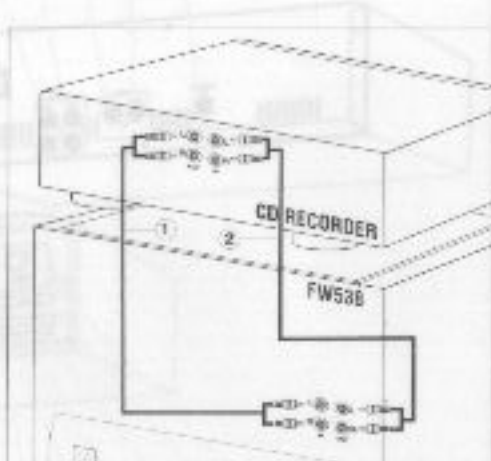
- 1 For recording, connect cable (1) between the ANALOG IN sockets on the CD recorder and the LINE- or TAPE OUT-sockets of an amplifier (FW538).

*Note:* For recording directly from a CD player the analog input of the CD recorder should be connected to the analog output of the CD player.

- 2 For playback, connect cable (2) between the ANALOG OUT-sockets on the CD recorder and the input sockets of an amplifier e.g. TAPE IN, CD-R or AUX (FW538).

*Note:* Never use the PFCMD input.

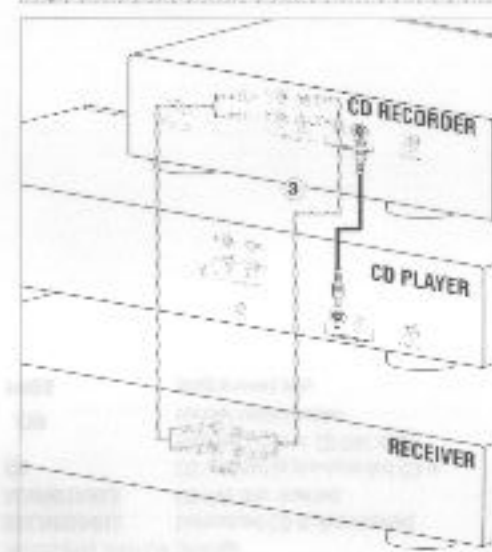
For use with FW538:



## INSTALLATION

English

## Digital coaxial connections



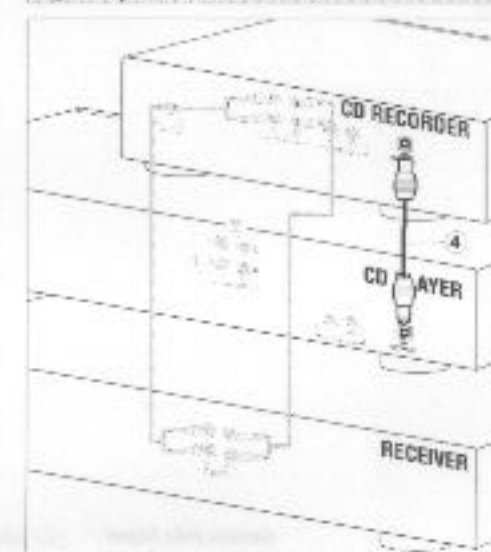
Use the supplied cable with the black plugs.

- 1 For recording, connect the cable (3) between the DIGITAL IN-socket on the CD recorder and the DIGITAL OUT-socket of a CD player.

*Note:* Your CD recorder is equipped with a digital coaxial output. This output can be used for digital playback.

Symbol	Description
1	LINE IN
2	TAPE IN
3	CD-R
4	AUX
5	LINE OUT
6	TAPE OUT
7	DIGITAL IN
8	DIGITAL OUT
9	OPTICAL IN
10	OPTICAL OUT
11	PFCMD

## Digital optical connections

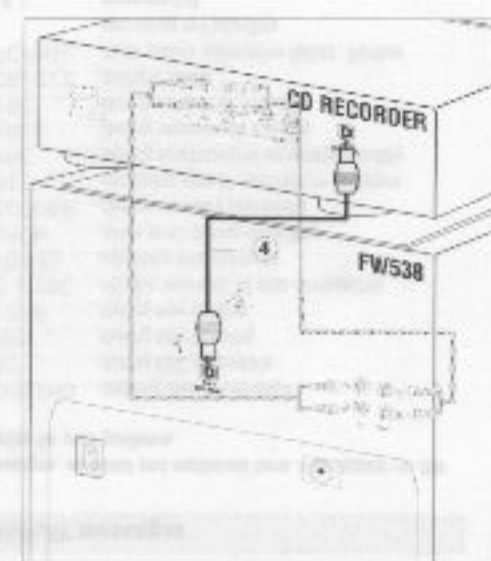


- 1 Remove the dust caps from the digital optical connections. (We recommend you to save the caps)

- 2 For recording, connect a fibre-optic cable (4) between the digital optical input of the CD recorder and the digital-optical output of a CD player (FW538).

*Note:* For playback the digital coaxial output or analog output should be connected to an amplifier.

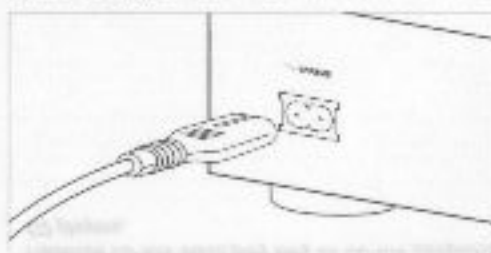
For use with FW538:



## INSTALLATION

English

### Power supply



1 Plug the power cord supplied into the MAINS connector on the CD recorder, then into a mains socket.

2 Press ON/OFF to turn the CD recorder on.

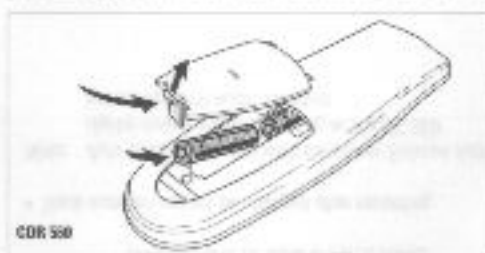
#### Note:

- The CD recorder will automatically adjust to the local mains voltage.
- When the CD recorder is in the "OFF" position, it is still consuming some power. If you wish to disconnect your CD recorder completely from the mains, withdraw the plug from the AC Outlet.

### Setup recommendations

- Place the CD recorder on a solid, vibration free surface.
- Do not place the CD recorder near a source of heat or in direct sunlight.
- Do not use the CD recorder under extremely damp conditions.
- If the CD recorder is placed in a cabinet, make sure that a 2,5 cm space remains free on all sides of the recorder for proper ventilation.

### Inserting batteries in the remote control



Note: For CDR538 use Remote Control RW538.

- Open the battery compartment cover.
- Insert 2 batteries (AAA, R03 or UM-4; as supplied) as shown.
- Replace the cover.

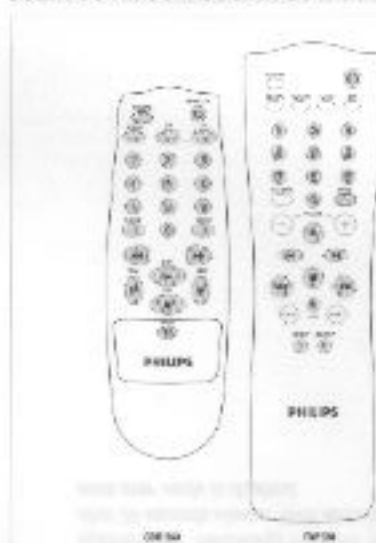
Note: We recommend using 2 batteries of the same type and condition.

Batteries contain chemical substances, so they should be disposed of properly.

## REMOTE CONTROL & INSERTING DISCS

English

### Remote control commands



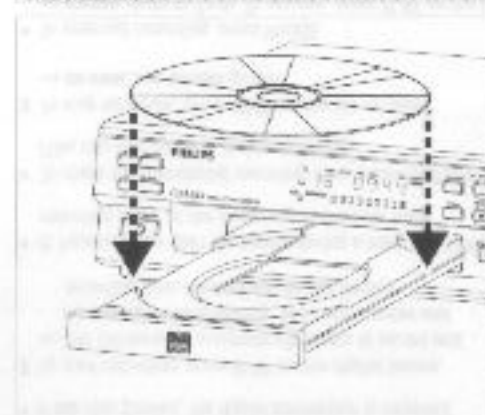
<b>PROGRAM</b> .....	programs track numbers
<b>DISPLAY</b> .....	selects display information
<b>Number keys 0 - 9</b> .....	Selects a track by number
<b>SHUFFLE</b> .....	plays CD(RW) or program in random order
<b>◀◀</b> .....	Searches backward
<b>PREVIOUS</b> ◀ .....	selects the beginning of a previous track
<b>STOP</b> ■ .....	stops CD(RW) and clears a program
<b>PAUSE</b>    .....	interrupts CD(RW) play
<b>NEXT</b> ▶ .....	selects the beginning of subsequent track
<b>PLAY</b> ▶ .....	starts CD(RW) play
<b>▶▶</b> .....	Searches forward
<b>REPEAT</b> .....	repeat play
<b>CD</b> .....	CD-R 765 only
<b>CD-R</b> .....	CD-R 765 only
<b>OPEN/CLOSE</b> .....	Opens or closes the disc tray

While you press a button on the remote control, the indicator on the display lights up.



Note: Unless otherwise stated, all controls are on the front of the CD recorder. When provided on the remote control, you can also use the corresponding buttons.

### Inserting discs



- Press OPEN/CLOSE (6) to open the disc tray.
- Insert a CD, CD-R or CD-RW in the appropriate recess in the tray, label side up.

#### IMPORTANT:

For recording it is important that the blank disc is completely free from dust particles or scratches. (see Disc Maintenance, p.5).

- Gently push the front of the tray or press OPEN/CLOSE to close the tray (see also Playing a CD).

⇒ The display will show the type of disc you inserted.



- If a CD-R is finalized it will show **CD** on the display.
- If a CD-RW is finalized it remains a CD-Rewritable and will show **CD REWRITABLE** on your display.

If you insert a blank or partly-recorded CD-R or CD-RW, the CD recorder will calibrate the disc for optimum recording. During this process the display will first show **OPC** and then the number of audio tracks. Calibration can take up to 25 seconds.



Note: Only Audio CDs will be accepted. If a non-audio disc is inserted, the display shows **NO AUDIO**.

## RECORDING

English

## Remarks about recording

You will soon discover how easy it is to make your own CDs. Nevertheless, it is advisable to use a CD-RW disc for your first try. We will describe the 3 ways to make recordings:

- Digital unsynchronized
- Digital synchronized
- Analog

- The recording procedure is the same for CD-Rs or CD-RWs.
- If the disc is a CD-RW and is already finalized you must unfinalize it first (p. 15).
- If the disc already contains recordings, the CD recorder will automatically search for the end of the last track, so that recording can start from there.
- There must be at least 7 seconds of recording time left on the disc, otherwise you will not be able to enter record standby mode.
- If the display indicates **copy protect**, no digital recording can be made of the source material. Recording will not start or stops after 4 seconds.
- The **Serial Copy Management System (SCMS)** only allows digital recording under specific conditions:
  - This means that it is not possible to make a digital copy from a digital copy.
  - Analog recording is always possible!
  - The number of recordings from the original is unlimited.
- A maximum of 99 tracks can be recorded on a disc. Minimum allowable track length is 4 seconds.

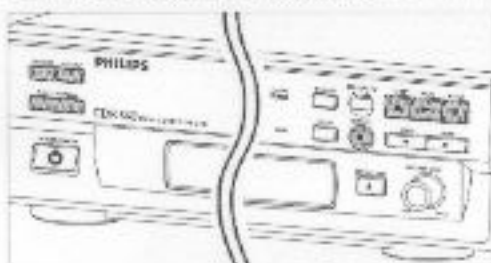
- Digital recordings can be made from CDs for other sources with an output Sample Frequency of 44.1 kHz +/- 100 ppm via the digital input.

**Important:**

If you want to play the recorded CD-R disc on a regular CD player, it must first be finalized. See finalizing discs (p. 15).

Finalized CD-RW discs play only on CD-RW compatible CD players.

## Digital recording - unsynchronized



## Preparing for digital recording

1 Make sure the disc is absolutely free of scratches and dust particles.

2 Press SOURCE repeatedly until (depending on the digital connection used)

→ **DIG COAXIAL** or **DIG OPTICAL** appears on the display



3 Press AUTO/MANUAL to switch between auto and manual track numbering

→ If **AUTO** is selected (preferred), **AUTO TRACK** appears on the display.



- **AUTO:** The track increments are automatically taken over from the digital source material.

- **MANUAL:** Track numbers can be incremented manually by pressing **▶▶** (minimum track length is 4 sec). (This can also be done in AUTO mode).

- Track numbers cannot be changed after recording.

*Note:* Auto track works only with Consumer Sources with a digital output signal according to the IEC 958 (consumer part) audio standard.

## Start digital recording

1 With the recorder stopped, press **RECORD** to enter the Record standby mode.  
→ **RECORD** flashes



- If **DIS** also flashes, the digital connection is incorrect.

2 To start recording, press **PLAY** and immediately start the source (from stop-mode).

→ **RECORD** lights continuously. The track number and recording time used appear on the display.

- To record a 3-second silence at the start of a track, press **PAUSE**.

- To check the (remaining) recording time, press **DISPLAY**. (This can also be done during the recording)

3 To stop recording, press **STOP** on the CD recorder.  
→ **RECORD** goes out.

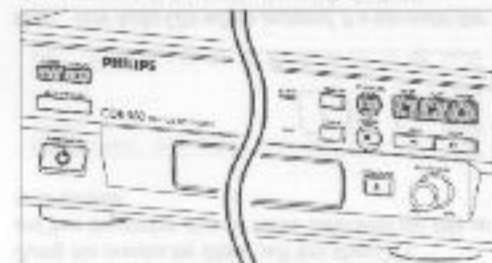
- To interrupt recording, press **PAUSE**.  
→ **RECORD** starts to flash. Resume at step 2.

After recording the display will show **UPDATE** for several seconds.

*Note:* With **auto track** on, the recorder will stop automatically. Recordings from **DAT** or **DCC** will stop after 20 seconds silence. With **auto track** off, the **auto stop** mode is disabled.



## Synchronized digital recording - CD-SYNC



## Preparing for synchronized digital recording

The CD-SYNC feature enables you to make fast and easy digital recording of a CD. Track increments are automatically detected from the digital source material. Track increments cannot be added manually.

1 Make sure the disc is absolutely free of scratches and dust particles.

2 Press SOURCE repeatedly until (depending on the connection used)

→ **DIG COAXIAL** or **DIG OPTICAL** appears on the display

## Start synchronized digital recording

1 With the CD recorder stopped, press **CD SYNC**.

→ On the display, **CD-SYNC & SYNC** appears. After a time, **RECORD** starts to flash.



- If **DIS** also flashes, the digital connection is incorrect.

2 To start recording, press **PLAY** on the digital source.  
→ The CD recorder automatically starts to record and **RECORD** lights continuously. The track number and recording time used appear on the display.

- If, however, you start the source during a track, CD-SYNC recording starts at the beginning of the next track.

- To check the (remaining) recording time, press **DISPLAY**. (This can also be done during recording)

3 To stop recording, press **STOP** on the CD recorder.  
→ **CD-SYNC** and **RECORD** go out.

- To interrupt recording, press **PAUSE**.  
→ **RECORD** starts to flash. To resume, press **PLAY** on the CD recorder.

After recording the display will show **UPDATE** for several seconds.

English

## RECORDING

English

### Note:

- The CD recorder will not start until it recognizes a digital signal. Although the reaction time is less than 200 milliseconds, the very beginning of the music may sometimes not be recorded. If this happens, you can start the recording manually (see digital recording - unsynchronized).
- Recordings from DAT or DCC will only stop after 20 seconds silence.

### Analog recording

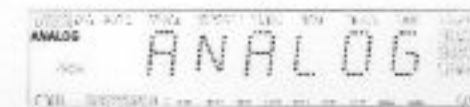


Only make analog recordings if digital recording is not possible.

#### Preparing for analog recording

1 Make sure the disc is absolutely free of scratches and dust particles.

2 Press SOURCE repeatedly until  
→ ANALOG appears on the display.



3 Press AUTO/MANUAL to switch between auto and manual track numbering  
→ If Auto is selected (preferred), AUTO TRACK appears on the display.

- AUTO: The track number is automatically incremented after a silence on the original of minimum 3 seconds.

- MANUAL: Track numbers can be incremented manually by pressing **TRK**. (minimum track length is 4 sec). (This can also be done in AUTO mode)

- Track numbers cannot be changed after recording.

4 With the recorder stopped, press RECORD to enter Record standby mode.  
→ RECORD flashes



5 Play the source first to set the optimal recording level on the CD recorder.

6 Turn the REC LEVEL control so that, on the Record/Play Level bar, all the blue segments are alight, but the red segments do not light continuously during the loudest passages.

7 Stop the source.

## RECORDING

English

### Start analog recording

1 To start recording, press PLAY on the CD recorder and immediately start the source.

→ RECORD lights continuously. The track number and recording time used appear on the display.

- To record a 3-second silence at the start of a track, press PAUSE.

- To check the (remaining) recording time, press DISPLAY. (This can also be done during the recording)

2 To stop recording, press STOP on the CD recorder.  
→ RECORD goes out

- To interrupt recording, press PAUSE.  
→ RECORD starts to flash. Resume at step 1.

After recording the display will show UPDATE for several seconds.

Note: With **auto track** on, the recorder will stop automatically after 20 seconds silence. With **auto track** off, the **AUTO STOP** mode is disabled.

### Finalizing CD-R & CD-RW discs

Finalizing is a simple procedure that is necessary in order to play the discs on a regular (non-recording) CD player.

Note: Finalizing prevents any further recording on a CD-R. A finalized CD-RW must be unfinalized to allow further recording or erasure of tracks.

1 Make sure the disc is absolutely free of scratches and dust particles.

2 With the recorder stopped press HPAUSE and then within 3 seconds press RECORD.



→ The approximate finalisation time appears in the display. Record & finalize lights up. The display counts down through the finalisation.

On completion, the total number of tracks and the total time recorded appears on the display.  
For CD-R **CD RECHARGEABLE** becomes **CD** on display.  
For CD-RW no change on display.

Finalizing will last at least 2 minutes.

Note: During finalisation, the CD recorder accepts no operating commands.

### Unfinalizing CD-RW discs

For CD-RW discs only  
If you want to make more recordings (or erasures of tracks) on a finalized disc you must unfinalize it first. The Table of Contents (TOC) will be removed.

To unfinalize:

1 Press ERASE twice.  
→ On the display, TOC and ERASE flash.



2 Press RECORD within 3 seconds.  
→ TOC and ERASE light continuously during erasure.

Note: This will take approximately 1 minute.

**Erasing CD-RW discs**

For CD-RW discs only.

You can erase:

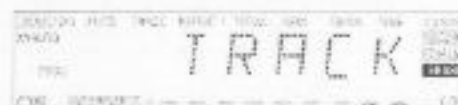
- track by track from the end.
- the entire disc.

**To erase the last track :**

1 Make sure the disc is not finalized (Showing **OPC** on display during start up). Otherwise finalize first (p.15)

2 Press ERASE.

⇒ On the display, **TRACK** and **erase** flash.



3 Press RECORD within 3 seconds.

⇒ **TRACK** and **ERASE** light continuously during erasure.

**To erase the entire disc:**

1 Press ERASE once (for finalized CD-RW) and twice (for unfinalized CD-RW)

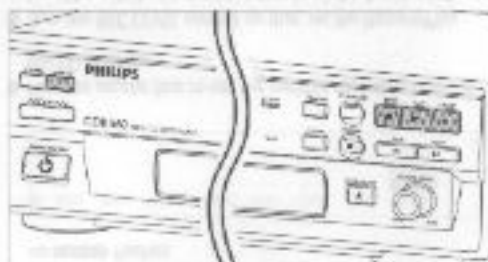
⇒ On the display, **DISC** and **erase** flash.



2 Press RECORD within 3 seconds.

⇒ **DISC** and **erase** light continuously during erasure.

Erasure of a complete disc may take up to 1.5 minutes.

**Playing a CD**

1 Press PLAY to start CD play.

⇒ The track number and track time appear on the display, together with the record/play level indicator.

2 Press DISPLAY once, twice, or three times to see:

⇒ Remaining track time; Total remaining time; Track time with the record/play level bar off.

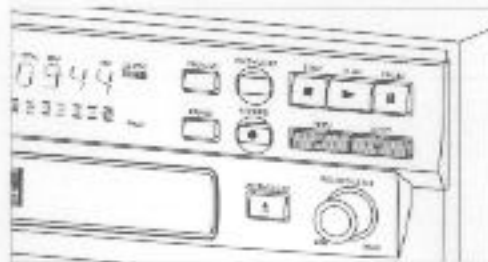
3 To interrupt play temporarily, press PAUSE.

⇒ **PAUSE** lights on the display.

4 To continue play, press PAUSE again or press PLAY.

5 To stop play, press STOP.

⇒ The number of tracks and the total playing time appear on the display.

**Selecting a track or searching****Selecting a track during play**

1 Briefly press **⏮** or **⏭** one or more times.

⇒ Play skips to the beginning of the present, previous or subsequent tracks.

or

• Key in the required track number using the numerical keys on the remote control. For 2 digit track numbers, press the keys in rapid succession.

⇒ Play skips to the beginning of the selected track.

**Selecting a track when CD play is stopped**

1 Briefly press **⏮** or **⏭** one or more times.

2 Press PLAY.

⇒ Play starts at the selected track.

or

• Key in the required track number using the numerical keys on the remote control. For 2 digit track numbers, press the keys in rapid succession.

**Searching during CD play**

1 Hold down **⏮** or **⏭** (or **⏮** or **⏭** on the remote control).

⇒ The player first searches backwards or forwards at 10 times normal speed with sound at low volume, then goes to fast reverse or fast forward with sound muted.

2 Release the button at the desired passage.

⇒ Play starts at the desired passage.

Note: During Shuffle, Repeat or Programme play, search is restricted to within the track being played at the time.

**Shuffle play**

1 Press SHUFFLE (or PLAY) on the remote control before or during CD play to start shuffle play.

⇒ The tracks on the CD (or program if set) play in random order. **SHUFFLE** appears on the display between tracks.

2 Press SHUFFLE again to return to normal CD play.

Note: Shuffle is also cleared if you open the disc tray.

**Repeat CD, track or program**

1 Press REPEAT on the remote control one or more times during CD play.

⇒ When **REPEAT 1** appears on the display, the current track plays repeatedly. When **REPEAT** appears on the display, the disc or programme plays repeatedly.

2 To return to normal play, press REPEAT one or more times until:

⇒ the repeat message disappears from the display.

Note:

- You can use shuffle in combination with repeat CD or programme play.

- Repeat is also cleared if you open the disc tray.

**Programming**

You can program up to 30 tracks to play in any desired sequence. Tracks can be programmed more than once, but each time counts as a track.



1 On the remote control press PROGRAM to start programming.

⇒ **PROG** flashes on the display.

2 Key in a track number with the number keys. For 2 digit numbers, press the keys in rapid succession.

⇒ On the display, the track number appears briefly, followed by the total programmed tracks and total programme time.

3 Repeat step 2 for all tracks to be programmed.

4 Press STOP or PROGRAM to end programming.

⇒ **PROG** lights continuously.

Note:

- To review the program, press **⏮** or **⏭** in stop mode.

- To add more tracks to the programme, repeat steps 1 to 4.

- If you try to store more than 30 tracks, **FULL** appears on the display.

5 Press PLAY to start programmed play.

**Clearing a program**

1 Press STOP if necessary to stop programmed play.

2 Press STOP again to clear the program.

⇒ **PROG** disappears from the display.

Note: The program is also cleared if you open the disc tray.



## FIXING PROBLEMS

English

### Troubleshooting

If you think your CD recorder is defective, it is wise to check this list first and run the diagnostic program. Maybe you have forgotten a simple step.

#### Warning!

Under no circumstances should you attempt to repair the CD recorder yourself as this will invalidate the guarantee.

#### SYMPTOM: • SOLUTION

- No power**
- ensure that the ON/OFF button is on
  - ensure that the mains cable is plugged in correctly
  - switch the recorder OFF and then immediately back ON

#### Auto track does not work

- check if auto track is selected.
- check if there are 3 seconds silence in between the tracks (analog recording only)
- check if the source is a consumer source with the digital output according the IEC audio standard.

#### No sound

- check the audio connections
- if using an amplifier, try using a different source

#### Amplifier sound is distorted

- check that the CD recorder analog output is not connected to the amplifier Phono input.

#### Play will not start

- ensure that the label of the CD is facing up
- clean the disc
- check that the disc is not defective by trying another disc

#### Remote control does not work

- point the remote control directly at the CD recorder
- check the batteries and replace if necessary
- select right source first

#### Will not record

- clean the disc.
- check if CD-RW is not finalized
- check that the disc is recordable and replace if necessary
- the disc is not an AUDIO disc
- wrong input source chosen

#### Analog recording is distorted

- make sure the recording level is correct

#### 20 second pause between recordings

- see synchronized digital recording (CD SYNC) (p. 13)

#### Player does not react

- switch the ON/OFF button on the front of the player off and back on

#### SERVICE on display after switching on

- try switching off and on again

#### RECOVER on display

- a power failure has occurred during recording, the CD recorder is attempting to repair the disc
- if RC - DISC then appears on the display, the disc cannot be recorded further, and cannot be finalized. But can be played on a CD recorder
- on a CD-RW disc, the track being recorded is lost, but further recording and finalization can still be done
- if OPC - FATEL appears, no further recording is possible. You can still use the disc as a CD on this recorder

### Diagnostic program

If the malfunction continues, perform the Diagnostic Program:

#### 1 Switch the recorder off using ON/OFF

#### 2 Simultaneously press PLAY and STOP and switch the recorder back on using ON/OFF

→ The display will now indicate **READY** and after a few minutes, the message will change to **ERROR** or **PASSED**.

- If the **ERROR** message appears, your recorder is defective and needs to be repaired. Consult your supplier or call the Philips Consumer Line to find the nearest service centre. The number of the Consumer Line can be found in the guarantee booklet.
- If the **PASSED** message appears, you may be misinterpreting the user instructions or using an inappropriate disc, or there may be a mechanical defect or an incorrect connection. Carefully read the user instructions once again, and if necessary contact your supplier.
- If you cannot solve the problem, contact to the nearest service centre.

#### 3 Switch off the recorder using ON/OFF to exit from the Diagnostic Program.

## GENERAL INFORMATION

English

### Discs for recording

For recording use, special audio discs must be used (for music only). These Discs bear the logos as shown below. The text "DIGITAL AUDIO" is present. Copyright fees have been paid on these discs in some countries.

Your recorder uses two types of discs for recording purposes:

- **CD-Audio Recordable (CD-R) discs:** Fully recorded and finalized, these discs play on all CD players and recorders.



- **CD-Audio ReWritable (CD-RW) discs:** Can be recorded, erased and re-recorded hundreds of times. When finalized, they play on CD-RW compatible CD players and recorders.



In the course of 1999 most Philips CD players and recorders will be CD-RW compatible.

### Discs for playback

Your CD recorder is able to play:

- All prerecorded audio CDs, and combined CDs such as CD Extra
- All Audio CD-R and Audio CD-RW.

Note: CD-R discs recorded with a computer can only be used when they are correctly treated according the audio standard (IEC958 - Consumer part). Single session only!

### Maintenance

For recording it is very important to use dust and scratch free discs.

To clean a CD, wipe it in a straight line from the center toward the edge using a soft, lint-free cloth. A cleaning agent may damage the disc! Write only on the printed side of a CD-R or CD-RW, and only with a soft felt-tipped pen.



Clean the CD recorder with a soft, slightly dampened lint-free cloth. Do not use any cleaning agents as they may have a corrosive effect.



Do not expose the CD recorder, batteries or CDs to humidity, rain, sand or excessive heat (caused by heating equipment or direct sunlight).



If the CD recorder cannot read CDs correctly use a commonly available cleaning CD to clean the lens before taking the CD player to repair. Other cleaning methods may destroy the lens. Always keep the tray closed to avoid dust on the lens.

The lenses may cloud over when the CD recorder is suddenly moved from cold to warm surroundings. Playing a CD is not possible then. Leave the CD recorder in a warm environment until the moisture evaporates.

### Accessories

- 2 Analog audio cables (with red and white plugs)
- 1 Digital coaxial cable (with black plugs)
- Power cord
- 2 Batteries
- Remote control
- Guarantee
- Optical cable (CDR538 only)

TECHNICIAN NOTES

REPAIRS TO BE MADE  
- Check for loose connections  
- Check for proper operation

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REPAIRS TO BE MADE

REPAIRS TO BE MADE

**(GB) WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.

**(F) ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

**(GB)**

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

**(NL)**

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

**(F)**

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.



**CAUTION  
VARO!  
VARNING  
ADVERSEL  
DANGER  
VORSICHT**

INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.  
AVATTAESSÄ OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER SÄTTEILYLLE ÄLÄ KATSO SÄTEESÄN.  
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRakta EJ STRÅLEN.  
USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UNSÆTTELSE FOR STRÅLING.  
INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.  
UNSIHTBARE LASERSTRÅLUNG WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

**SHOCK, FIRE HAZARD SERVICE TEST:**

**CAUTION:** After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom,

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.

Ref.UL Standard NO.1492.

**NOTE ON SAFETY:**

Symbol : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

\*Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne.\*

**CLASS 1  
LASER PRODUCT**

3127 110 02420



WARNING: LASER RADIATION  
 CLASS 1 LASER PRODUCT  
 DO NOT STARE INTO THE BEAM  
 DO NOT POINT THE BEAM AT OTHER PEOPLE

▲ Indicate the use of the set of tools for the repair of the set of components. The set of tools is used to repair the set of components. The set of tools is used to repair the set of components. The set of tools is used to repair the set of components.

**NOTE ON SAFETY:**

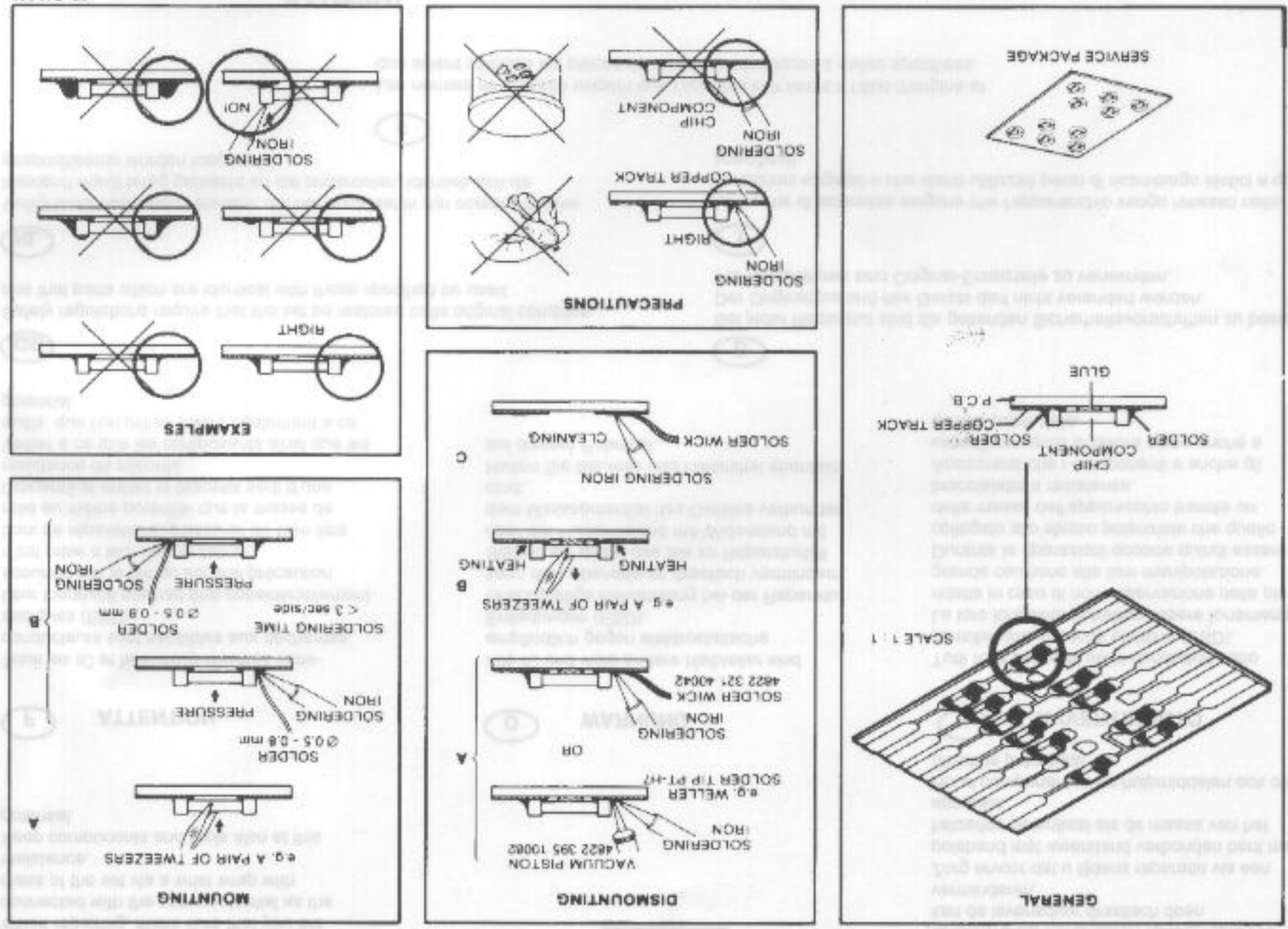
CAUTION: The set of tools is used to repair the set of components. The set of tools is used to repair the set of components. The set of tools is used to repair the set of components. The set of tools is used to repair the set of components.

Audio signals disc  
 Disc without errors(SBC444) and disc with DO errors, black spots and fingerprints(SBC444A)  
 Disc(65 min , 1 kHz) without no pause  
 Maximum diameter disc(58.0 mm)  
 Torx screwdrivers  
 Set (straight)  
 Set (square)

4822 397 30184  
 4822 397 30245  
 4822 397 30155  
 4822 397 60141  
 4822 395 50145  
 4822 395 50132

**SERVICE TOOLS**

27 012CTZ



In the set chip components have been applied. For disassembly and assembly of chip components see the figure below.

**SERVICING HINTS**

## SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

### Important

Proper service and repair is important to the safe, reliable operation of all Philips equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

### Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

### Fire and Shock Hazard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those units which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barriers, covers, strain reliefs, and other hardware have been installed according to the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length, and dress.
5. No lead or component should touch a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with a  $\blacktriangle$  by the Ref. No. in the parts list and enclosed within a broken line\* (where several critical components are grouped in one area) along with the safety symbol  $\blacktriangle$  on the schematic diagrams and/or exploded views.  
Replacement parts without the same safety characteristics may create shock, fire, or other hazards.
7. When servicing any unit, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug). Defeating this safety feature may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should never be used.

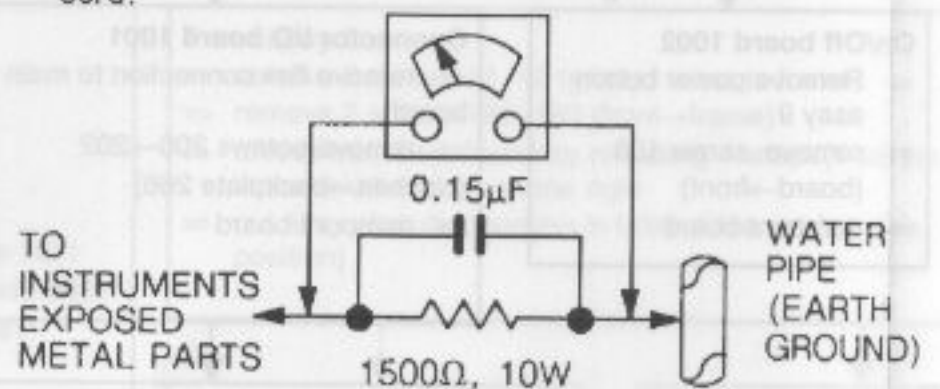
### Fire and Shock Hazard (Continued)

9. After reassembly of the unit, always perform an ac leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit is safe to operate without danger of electrical shock.

\* Broken line: 

### Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



### Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled unit directly into the ac outlet.
2. Connect a 1.5k, 10W resistor paralleled by a 0.15μF capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms/volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamperes. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed. (Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

### Parts Replacement

1. Many electrical and mechanical parts in Philips equipment have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.
2. All ICs and many other semiconductor parts are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce the life of the part drastically.

### LASER NOTE:

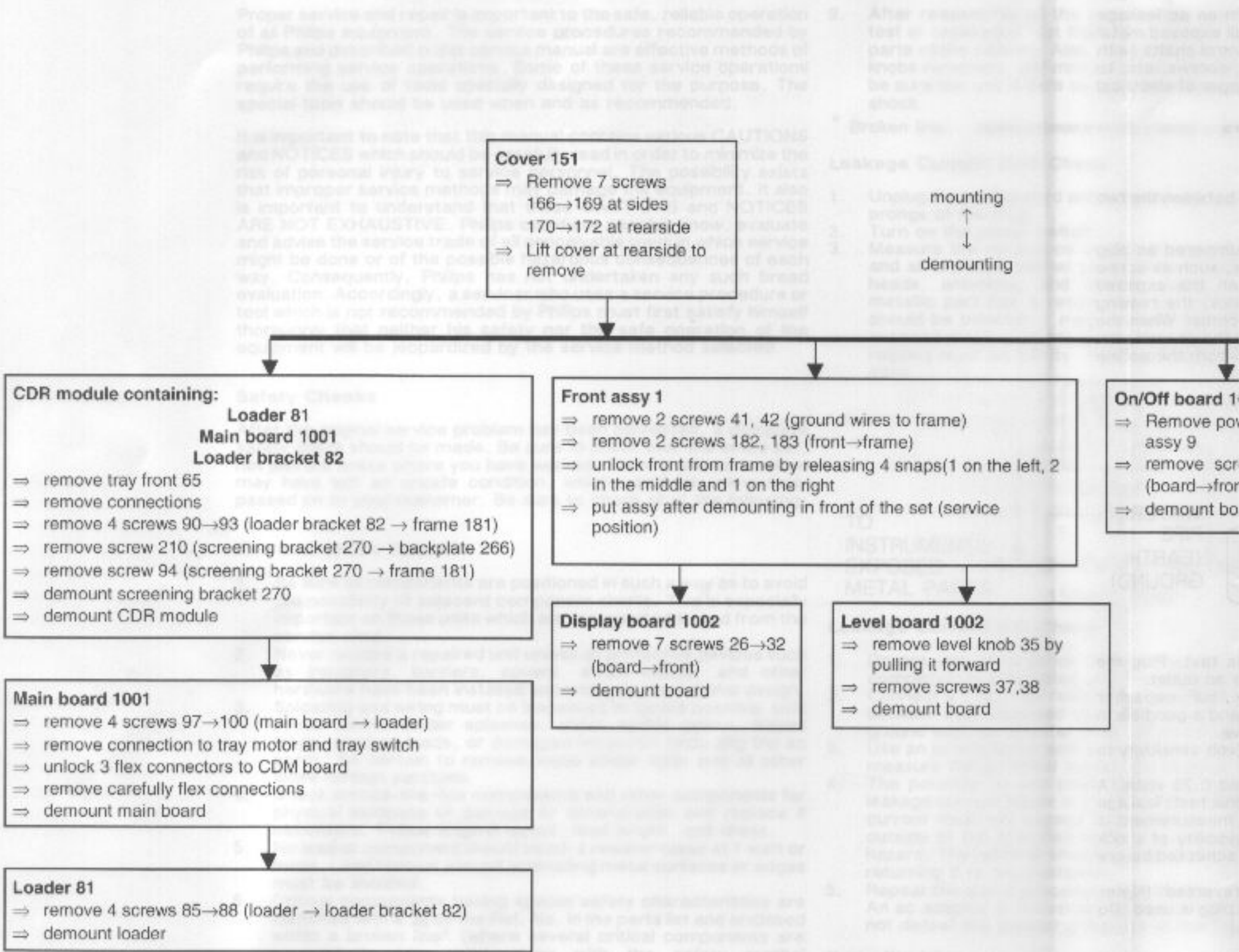
**DANGER** - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

**CAUTION** - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**CAUTION** - The use of optical instruments with this product will increase eye hazard.

**DISMANTLING INSTRUCTIONS**

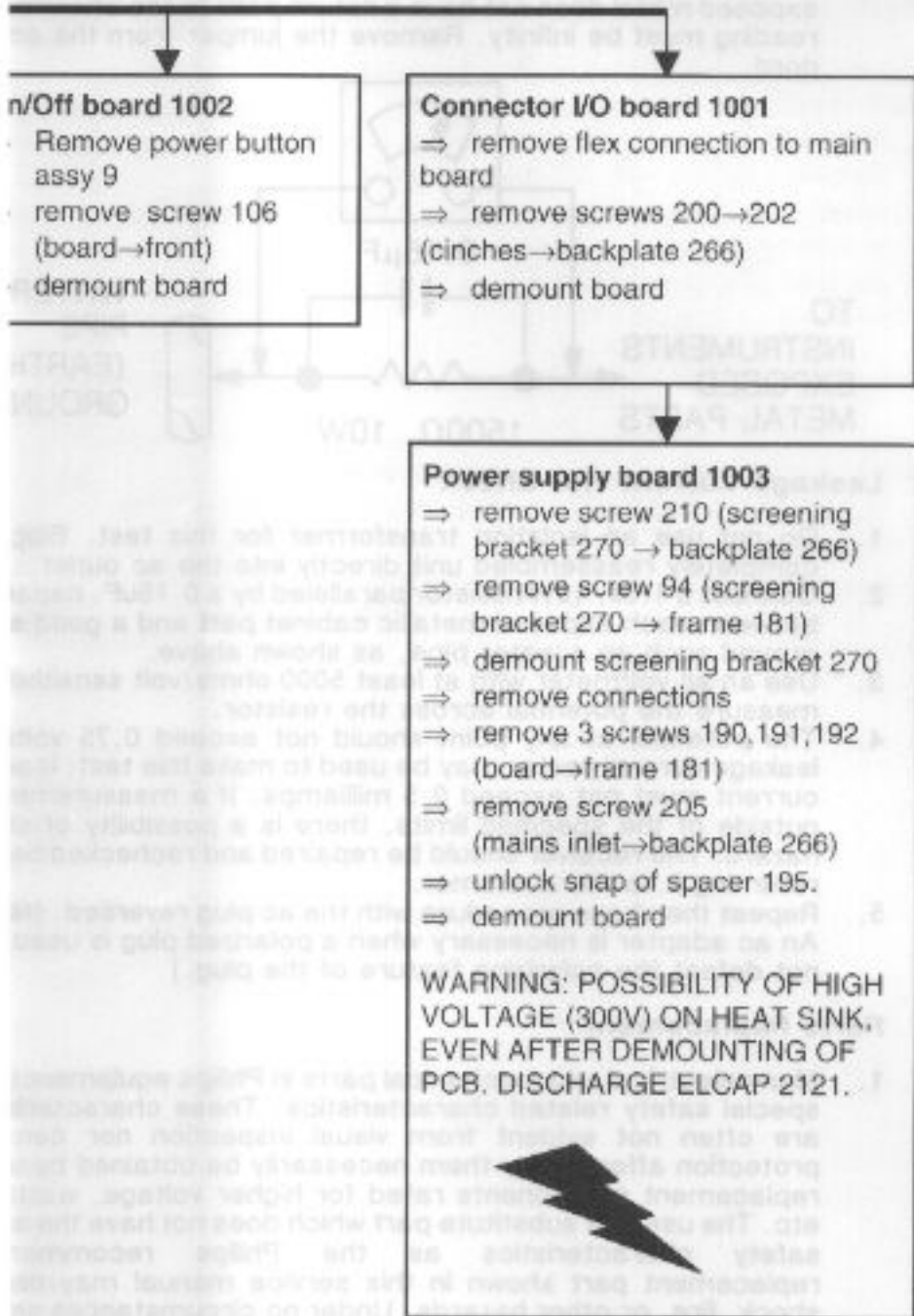
See exploded view for item numbers



**LASER NOTE:**  
**DANGER -** Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.  
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MECHANICAL PARTSLIST

1	4822 459 05124	FRONT ASSY CDR538
1	4822 459 05126	FRONT ASSY CDR560
9	4822 410 12066	POWER BUTTON ASSY
15	4822 454 13339	CDRW - LOGO
35	4822 410 12067	REC. LEVEL KNOB ASSY
65	4822 459 05125	TRAY FRONT ASSY
81	4822 691 10737	CDR LOADER CDL3610/01
271-274	4822 462 40883	FOOT
301▲	4822 321 10249	SBC1201 MAINS CABLE
312-313	4822 321 11357	AUDIO CORD SET
316	4822 324 00007	OPTICAL CORD SET
317	4822 321 61452	DIG OUT CABLE
318	4822 219 10559	REMOTE CONTROL RC07110/01
1001	4822 214 12845	MAIN BOARD CDR538/560
1003▲	4822 218 11938	POWER SUPPLY 20PS314/00

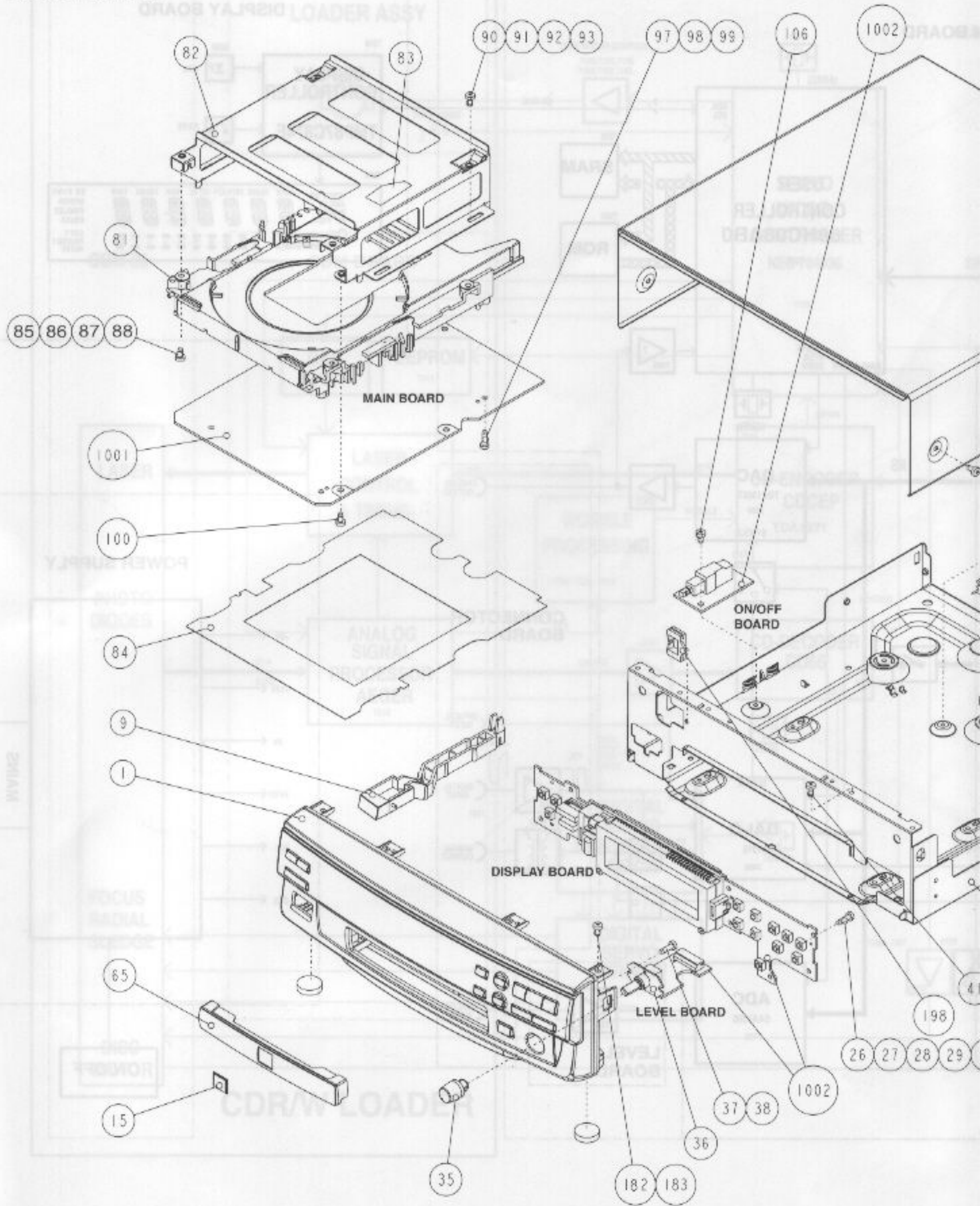


LASER NOTE:

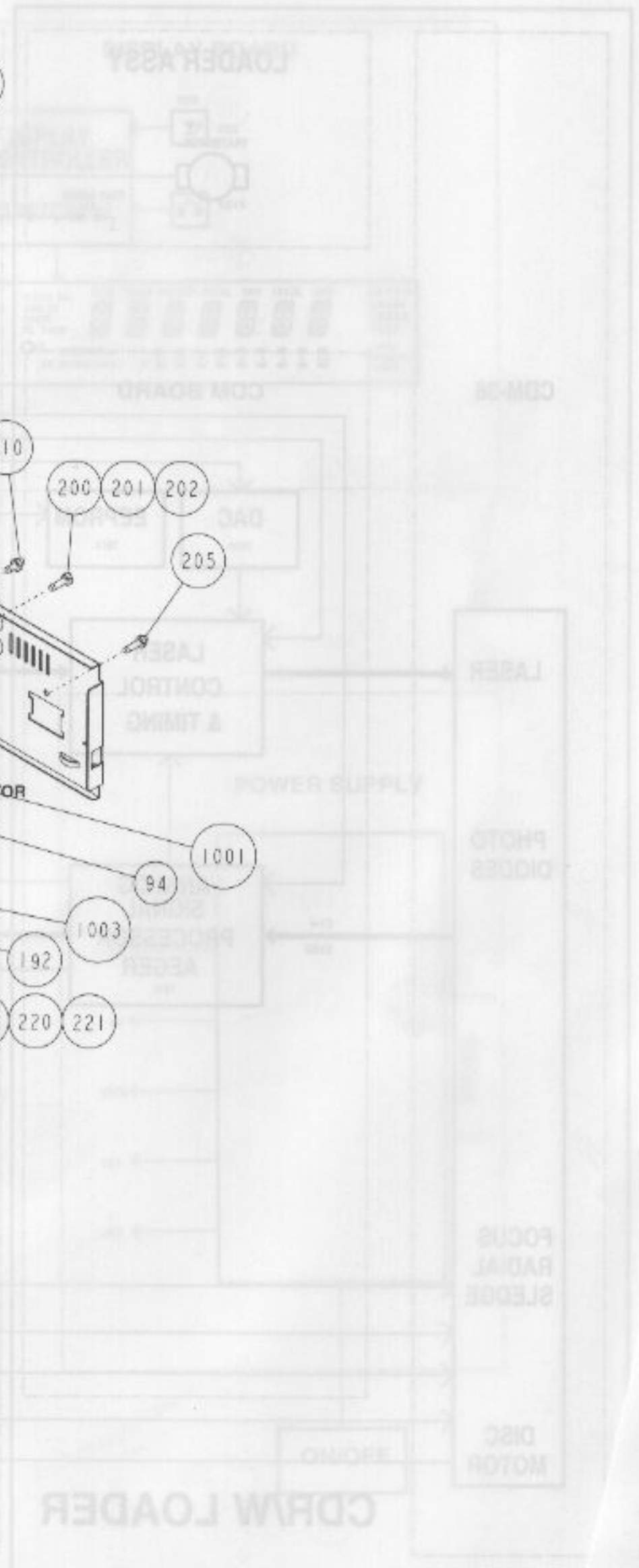
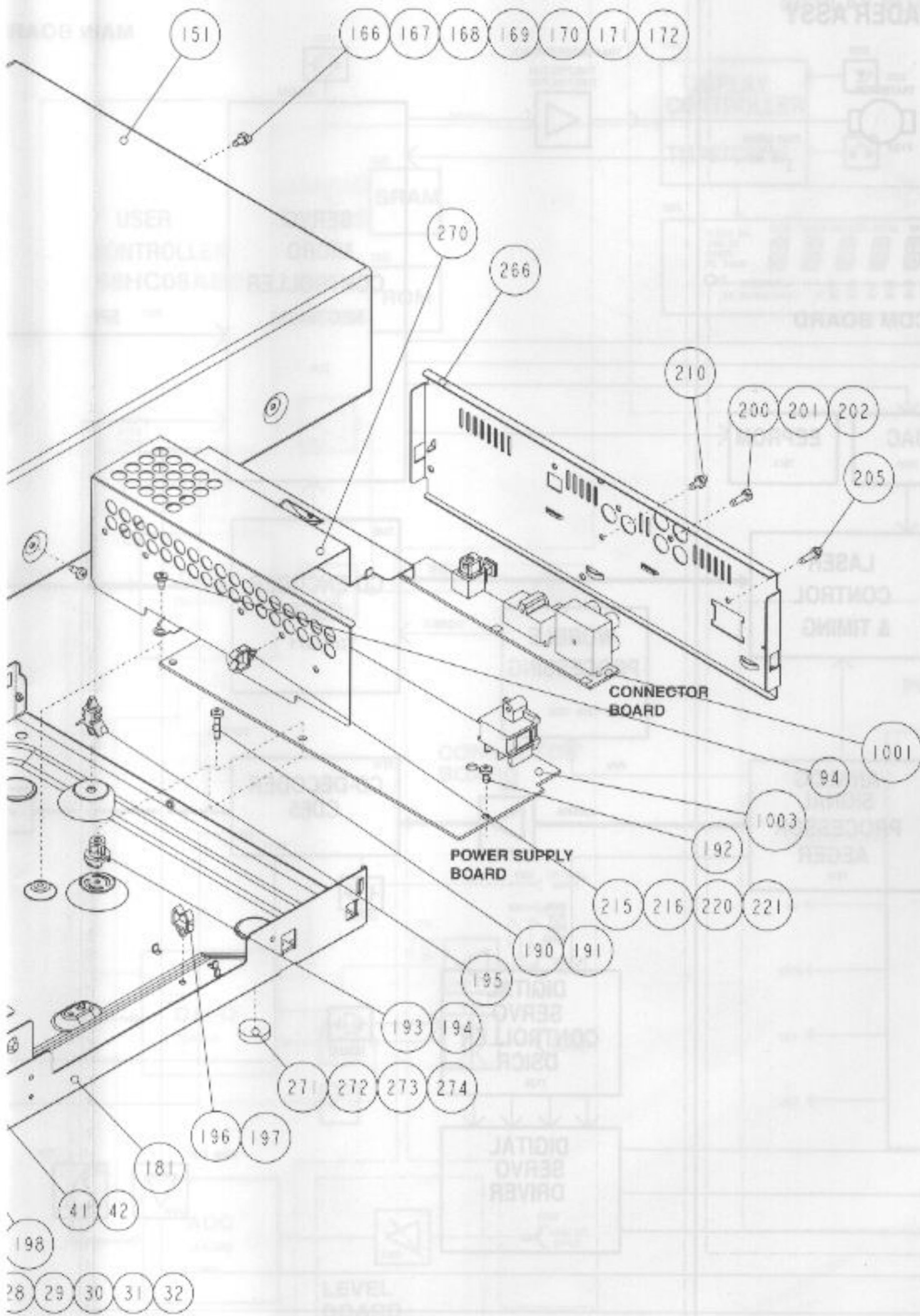
- CAUTION - The use of optical instruments with this product will increase eye hazard.
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OVERALL BLOCKDIAGRAM

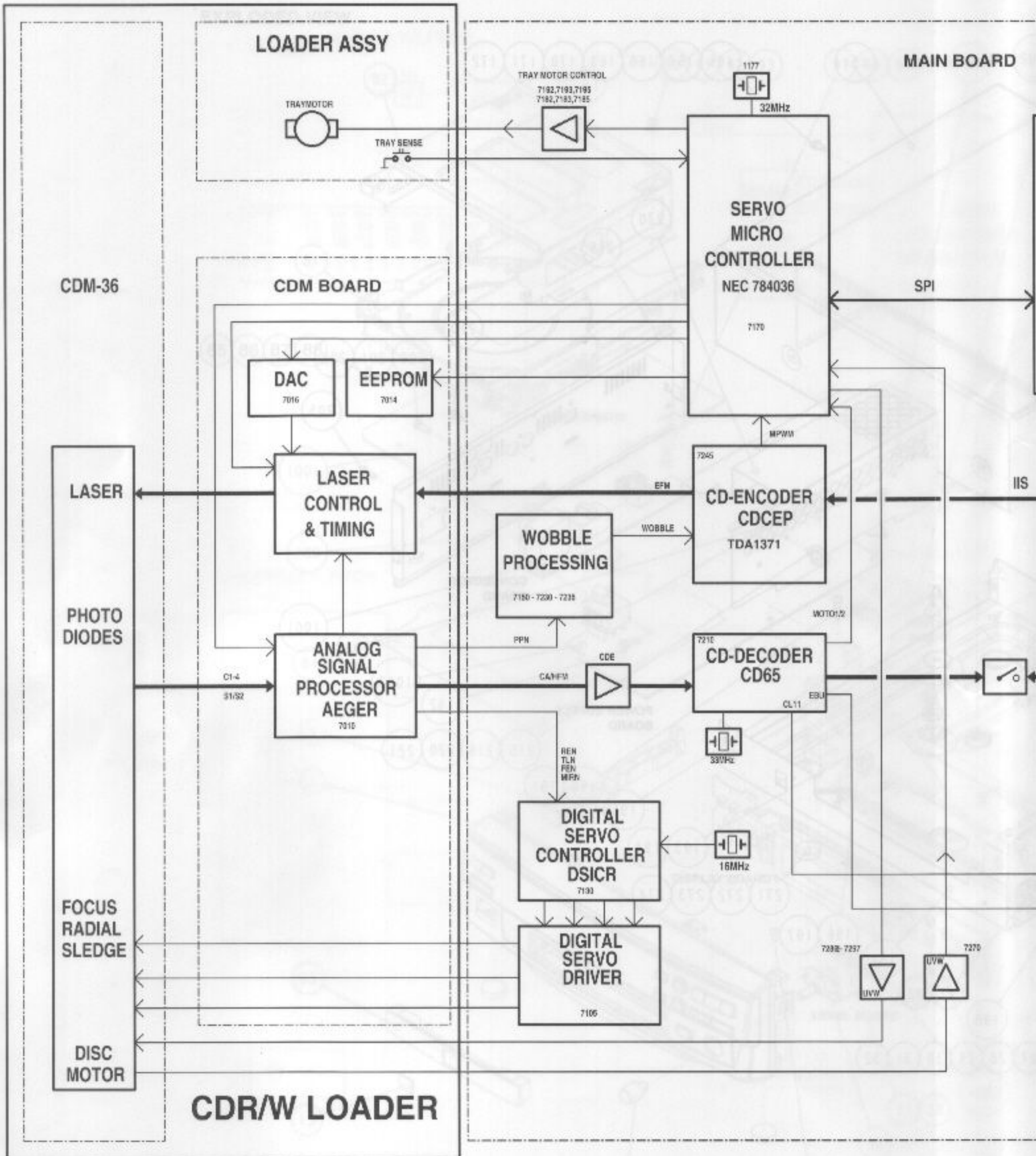
EXPLODED VIEW

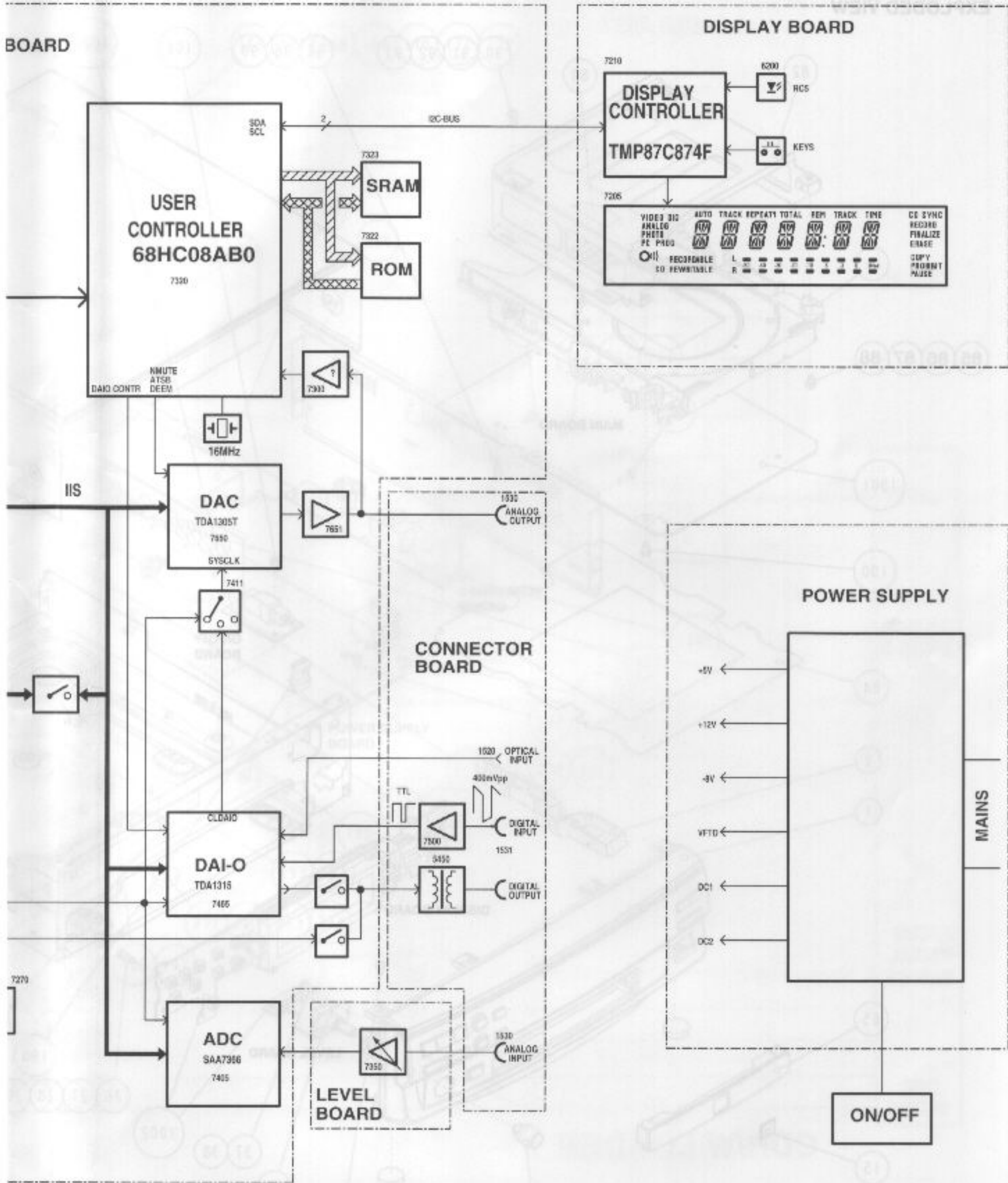






OVERALL BLOCKDIAGRAM





## SIGNALS AND ABBREVIATIONS

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
+12Va	Supply voltage	Single power supply +12V for op-amps 7150, 7235
+12Vb	Supply voltage	Power supply +12V for op-amps
+4V	Supply from CDR loader	Power supply +4V for servo microcontroller
+5Va	Supply voltage	Analog power supply +5V
+5Vb	Supply voltage	Digital power supply +5V
+5VDS	Supply voltage	Power supply +5V for Connector Part
+5VM	Supply voltage	Power supply turntable motor control circuit
-8Va	Supply voltage	Power supply -8V
A1A	IC7170→CONN.1101	Calculation $\beta$ and HF0 Positive peak detector between CA and CALF
A2A	IC7170→CONN.1101	Beta = $(A1-A2)/(A1+A2)$ Negative peak detector between CA and CALF
ACK	IC7320↔R3904(IC7170)	Acknowledge serial communication user microprocessor
AD[0:18]	IC7320→IC7322 IC7320→IC7323	External address bus of user processor
<b>ADC</b>		Analog/Digital Converter
ANACD	IC7320→IC7605	Control signal dubbing analog for protected tracks
ANAIN1	IC7320→IC7601	Control signal level setting analog input
ANAIN2	IC7320→IC7601	Control signal level setting analog input
ATSB	IC7320→IC7650	Attenuation 12 dB of DAC(active low) during search
BS	IC7320→IC7440	Block synchronisation
CA	CONN.1101→R3299	Central Aperture(C1+C2+C3+C4)DC →for Mod. calculation
CALF	IC7170→CONN.1101	CA low frequency
<b>CD60</b>		Decoder
CD60CLK	IC7210→IC7403	I2S clock from CD60
CD60WS	IC7210→IC7403	I2S word select from CD60
CDAICL	IC7320→IC7465	DAI-O interface clock
CDAIDA	IC7320↔IC7465	DAI-O interface data
CDAILD	IC7320→IC7465	DAI-O interface mode
<b>CDCEP</b>		CD-Circ Efm Encoder Plus
CDE	IC7170→R3255	CD erase
CDTRAYO	IC7320→CONN1380	CD loader tray open (CDR765) (not used)
CDTRAYC	IC7320→CONN1380	CD loader tray closed (CDR765) (not used)
CE_INT	IC7170←IC7245	CDCEP interrupt
CFLG	IC7210→CONN.1250	Correction flag output(CD60)
CL11	IC7210→IC7411	11.2896 MHz systemclock for ADC/DAC
CL16	IC7210→IC7241	164344 MHz systemclock (not used)
CLCE	IC7170→IC7245	$\mu$ P clock output encoder(CD60)
CLDAIO	IC7465→IC7411	Clock output DAIO
CLDE	IC7170→IC7210	$\mu$ P clock output decoder(CD60)
CLDS	IC7170→IC7130	$\mu$ P clock output DSICR
CLKC0	IC7241→CONN1360	System clock for CD player (CDR765)
CLKCDCEP	IC7260→IC7245	I2S clock to CDCEP
CLKN2	CONN1360→IC7260	I2S clock from CD player (CDR765)
CLKQ	IC7245→IC7240 IC7245→IC7241	PLL clock output from encoder
CLKQD	IC7241→IC7240	CLKQ divided by 2
CLO3	IC7440→IC7411	GDIN clock3 out: system clock for DAC (option)
CLWP	IC7170→IC7245	$\mu$ P clock Atip information CDCEP
COMCLK	IC7320↔R3165(IC7170)	Communication clock for data transfer from user microprocessor
COMSYNC	IC7320↔IC7170	Communication synchronisation from user microprocessor
CRIN	IC7440→IC7210	GDIN clock1 out: system clock for decoder CD60 (option)
CSRAM	IC7320→IC7323	Chip Select RAM

CSROM	IC7320→IC7322	Chip Select ROM
D[0:7]	IC7320↔IC7322 IC7320↔IC7323 IC7320↔IC7324	Data bus
<b>DAC</b>		Digital/Analog Converter
DACDCEP	IC7260↔IC7245	I2S data to CDCEP
DACE	IC7170→IC7245	μP data I/O CDCEP
DACL	IC7170→CONN.1102	DAC clock
DADE	IC7170→IC7210	uP data CDLIP
DADI	IC7170→CONN.1102	DAC data in (CDM)
DADS	IC7170→IC7130	μP data I/O DSICR
DAIN	IC7465↔IC7245	Data signal(CDCEP)
<b>DAI-O</b>		Digital Audio Input/Output
DAIO_REC	IC7325→IC7403	high during recording from digital in source, low to prevent conflict in IIS bus during playback and analog recording(option)
DALD	IC7170→CONN.1102	DAC load(CDM)
DAN2	CONN1360↔IC7260	I2S data from CD player (CDR765)
DAOUT	R3217(IC7210)→IC7403	I2S data output(CD60)
DATADIR	IC7320→IC7403	Data direction: control signal, HIGH during playback
DAWP	IC7170→IC7245	μP data Atip information(CDCEP)
DEEM1	IC7320→IC7650	Deemphasis active(44.1 kHz sample rate)
DIGIN	IC7410→IC7465 IC7410→IC7440	Digital input signal to DAIO and GDIN
DIGINEXT	CONN1400→IC7410	Digital input
DIGOUT	IC7465→CONN.1400	Digital output
DIGSW1	IC7320→IC7410	Control signal for digital input/output selection
DIGSW2	IC7320→IC7410	Control signal for digital input/output selection
DSA_ACK	IC7320→CONN1360	Data/strobe/acknowledge serial communication from USER uP to CD player (CDR765)
DSA_DATA	IC7320→CONN1360	Data/strobe/acknowledge serial communication from USER uP to CD player (CDR765)
DSA_STROBE	IC7320→CONN1360	Data/strobe/acknowledge serial communication from USER uP to CD player (CDR765)
<b>DSICR</b>		Digital Servo IC Recordable
EBUCD60	IC7210→IC7410	Digital out signal from CD60
EBUDAIO	IC7465→IC7410	Digital out signal from DAIO
EBUININT	CONN1360→IC7410	Digital input from CD player (CDR765)
EECL	IC7170→CONN.1102	EEPROM clock
EEDA	IC7170↔CONN.1102	EEPROM data
EFM	IC7245→IC7205	Eight to Fourteen Modulation CDCEP output for monitoring (reduced voltage from CD60 to MONON)
EFMCLK	IC7245→CONN.1102	EFM clock 4.3218 or 8.6436 MHz
EFMM	IC7245→CONN.1102	EFM N-1
FEN	CONN.1101→IC7130	Focus Error Normalized = (C1 + C3 - C2 - C4)/(C1 + C2 + C3 + C4)
FEofs	IC7170→R3133	Focus Error OFF Switch
FOC-	IC7105→CONN.1101	Focus actuator negative connection
FOC+	IC7105→CONN.1101	Focus actuator positive connection
FS	CONN.1102→R3152	FS = FS0 - DALFA( write power to laser control)
FSM	CONN.1102→D6155	Focused sense monitor
<b>GDIN</b>		General Digital Input (option)
GDINCL	IC7320→IC7440	GDIN interface clock
GDINDA	IC7320↔IC7440	GDIN interface data
GDINLD	IC7320→IC7440	GDIN interface mode
HALL_U, V, W	IC7170→IC7270 IC7170→IC7280	Hall element U, V, W of motor

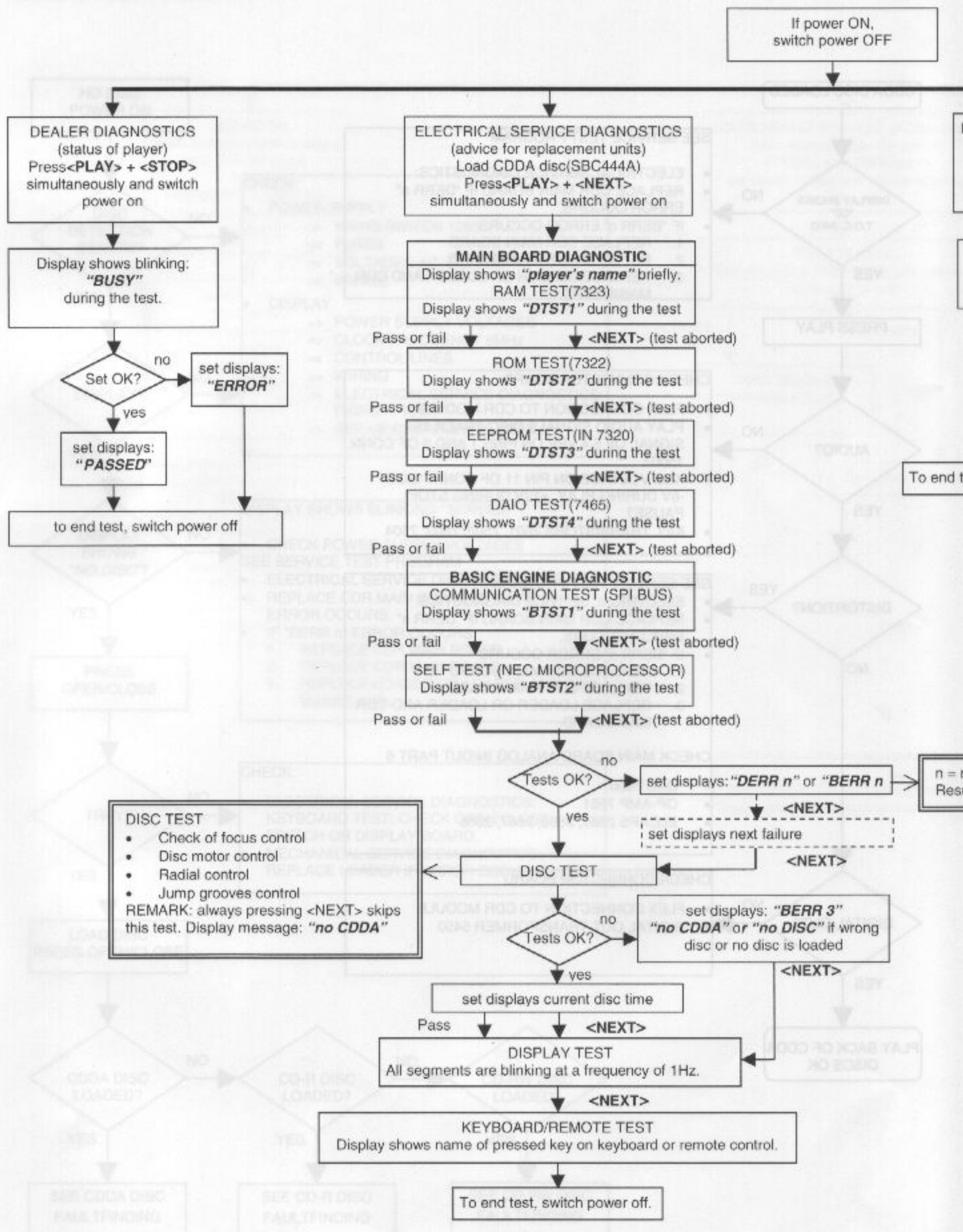
HMSW	CONN.1101→IC7170	Home Switch
IISCLK	IC7603→IC7465 IC7603→IC7245 IC7403→IC7650	I2S-BUS clock
IISWS	R3219(IC7210)→IC7403	I2S-BUS word select
INTSLAVE	CONN1330→IC7320	Slave processor interrupt
KILL	T7446→R3671,3672	Kill signal to mute analog output signal
KILL_OUT	IC7320→R3473	Control signal to activate Kill signal
LDCE	IC7170←IC7245	μP load input(from CDCEP)
LDDE	IC7170→IC7210	μP load output decoder
LDDS	IC7170→IC7130	μP load output DSICR
LDON	IC7130→CONN.1102 IC7105→CONN.1102	Laser Diode ON(on read)
LEFTOUT	C2497→CONN.1400 C2497→CONN.1420 C2497→C2300	Analog left output
LWRT	IC7245→CONN.1102	Laser at writing power
MIRN	CONN.1101→IC7130	Mirror normalized
MISO	IC7320↔R3168(IC7170) IC7320↔CONN.1300	Master in, Slave out: data from Basic Engine to USER.
MONON	IC7170→IC7205	Monitoring EFM from CDCEP to CD60
MOSI	IC7320↔R3903(IC7170) IC7320↔CONN.1300	Master out, Slave in : data from USER to Basic Engine
MOTO1	IC7210→IC7170	Control signal for motor
MPWM	IC7170→IC7245	Motor Pulse Width Modulation
N=2	IC7320→IC7260	Control signal to close switch when dubbing (n = 2 l)
N2	IC7170→IC7240 IC7170→IC7205	N = high(double speed)
N4	IC7170→IC7205	N = high(fourfold speed)
NCLOSE	IC7170→R3196	Tray close (CDR loader)
NIRQ	IC7170→IC7245	Interrupt request wobble processing(CDCEP)
NMUTE	IC7320→IC7650	Mute signal (active low)
NOPEN	IC7170→R3181	Tray open (CDR loader)
NRSMP	IC7245→CONN.1102	None read sample
OPTIN	CONN.1400→IC7440 CONN.1400→IC7465	Optical input
OTD	IC7130→IC7170	Off track detection DISCR
OVL	IC7603→IC7320	Overload flag input
PP	CONN.1101→C2231	XB or PPN(read or write)
PWM	IC7170→R3268	Pulse width modulation
R/W	IC7320→IC7324	μP read/write signal
RAD-	IC7105→CONN.1101	Radial actuator negative connection
RAD+	IC7105→CONN.1101	Radial actuator positive connection
RADINT	IC7170→R3111	Radial actuator integrator voltage.
REN	CONN.1101	Radial Error Normalized
RENSW	IC7170→R3124	Radial Error Normalized switch
RESEN	IC7170→IC7245 IC7170→IC7130	Reset encoder(CDCEP) and digital servo(DSICR)
RESET	IC7170→IC7210	Reset decoder CD60
RIGHTOUT	C2498→CONN.1400 C2498→CONN.1420 C2498→C2303	Analog right output
RSTHA	IC7325→IC7465	Reset high active, reset for DAIO

RSTIN	IC7320→IC7325	Reset microcontroller( from user μP)
RSTLA	IC7325→IC7440 IC7325→IC7170 IC7325→D6130 IC7325→CONN.1330	Reset low active, reset for GDIN, servo uP, DSD3, DSICR and display.
RXD	IC7320↔IC7325	Receive data of serial interface
SCL	IC7320↔L5300	I2C-bus clock for communication
SCLI	IC7320→T7326	I2C-bus clock Input to check "busy" of slave
SDA	IC7320↔L5300	I2C-bus data to display driver
SDAUX	IC7603→IC7440	Analog to digital converted data from ADC to DAI-O
SL-	IC7105→CONN.1101	Sledge motor negative connection
SL+	IC7105→CONN.1101	Sledge motor positive connection
STROBE	IC7320→IC7465 IC7320→CONN.1302	Control signal for DAI-O : data strobe
SWRT	IC7245→CONN.1102	Start Write 9ms(one shot at start up LWRT)
SYSCLSW2	IC7320→IC7411	Control signal for system clock selection
SYSCLSW1	IC7320→IC7411	Control signal for system clock selection
SYSSYNC	IC7170→CONN.1135	System synchronization
TLN	CONN.1101→IC7130	Track Loss Normalized
TRAYSW	CONN1380→IC7320	Control signal from CD loader (CDR765)
TRS1N	IC7170→CONN.1103	Tray sense
TXD	IC7320↔IC7325	Transmit data serial interface
UDAVAIL	IC7320→IC7465	User-data available
UNLOCK	IC7465→IC7320	Not locked on incoming EBU-signal
UNLOCK_GDIN	IC7323→R3435	Unlock signal to GDIN
V4	IC7210→CONN.1250	Versatile pin 4
VDC1	Supply voltage	Filament voltage for display
VDC2	Supply voltage	Filament voltage for display
VFTD	Supply voltage	Power supply for display
WCLK	IC7210→IC7245	Word clock
WSCDCEP	IC7260→IC7245	I2S word select to CDCEP
WSN2	CONN1360→IC7260	I2S word select from CD player (CDR765)

RSTHA	IC7325→IC7465	Reset high active, reset for DAIO
RIGHTOUT	CA98→CONN.1400 CA98→CONN.1420 CA98→CA200	Analog right output
RESET	IC7170→IC7210	Reset decoder CDB
RESEN	IC7170→IC7320	Reset encoder(CDCEP) and digital servo(DSICR)
RENEW	IC7170→R3124	Radial Error Normalized switch
REN	CONN.1101	Radial Error Normalized
RADINT	IC7170→R3111	Radial actuator integrator voltage
RAD+	IC7105→CONN.1101	Radial actuator positive connection
RAD-	IC7105→CONN.1101	Radial actuator negative connection
RAW	IC7250→IC7324	μP read/write signal
PWM	IC7170→R3288	Pulse width modulation
PP	CONN.1101→CA2301	XB or PPM(lead or wife)
OVLD	IC7465→IC7320	Overload flag input
OTD	IC7130→IC7170	Off track detection DSICR
OPTIN	CONN.1400→IC7460 CONN.1400→IC7465	Optical input
NRSTR	IC7245→CONN.1102	None read sample
MORPH	IC7170→R3181	Tray open (CD loader)

SERVICE TEST PROGRAM

CODE DISC FAULT FINDING GUIDE





**MECHANICAL SERVICE DIAGNOSTICS**  
 (advice for replacement units)  
 Press <PREV> + <NEXT>  
 simultaneously and switch power on

**FOCUS TEST**  
 Display shows **"BUSY"** during the test  
 Visual inspection

**TRAY TEST**  
 Visual inspection  
 Display shows **"OPENED"**  
 even if tray is blocked

**DC ERASE**  
 (erasure of complete disc)  
 Load CD-RW disc  
 Press  
 <ERASE> + <RECORD>  
 simultaneously and switch  
 power on

Display shows:  
**"ER mm:ss"**  
 during the erase function.  
*mm* : remaining minutes  
*ss* : remaining seconds  
**TOTAL** and **REM** are also  
 illuminated

Display shows:  
**"PASSED"**  
 when the erase function is  
 completed.  
**"ERROR"**  
 if DC ERASE fails.

switch power off.

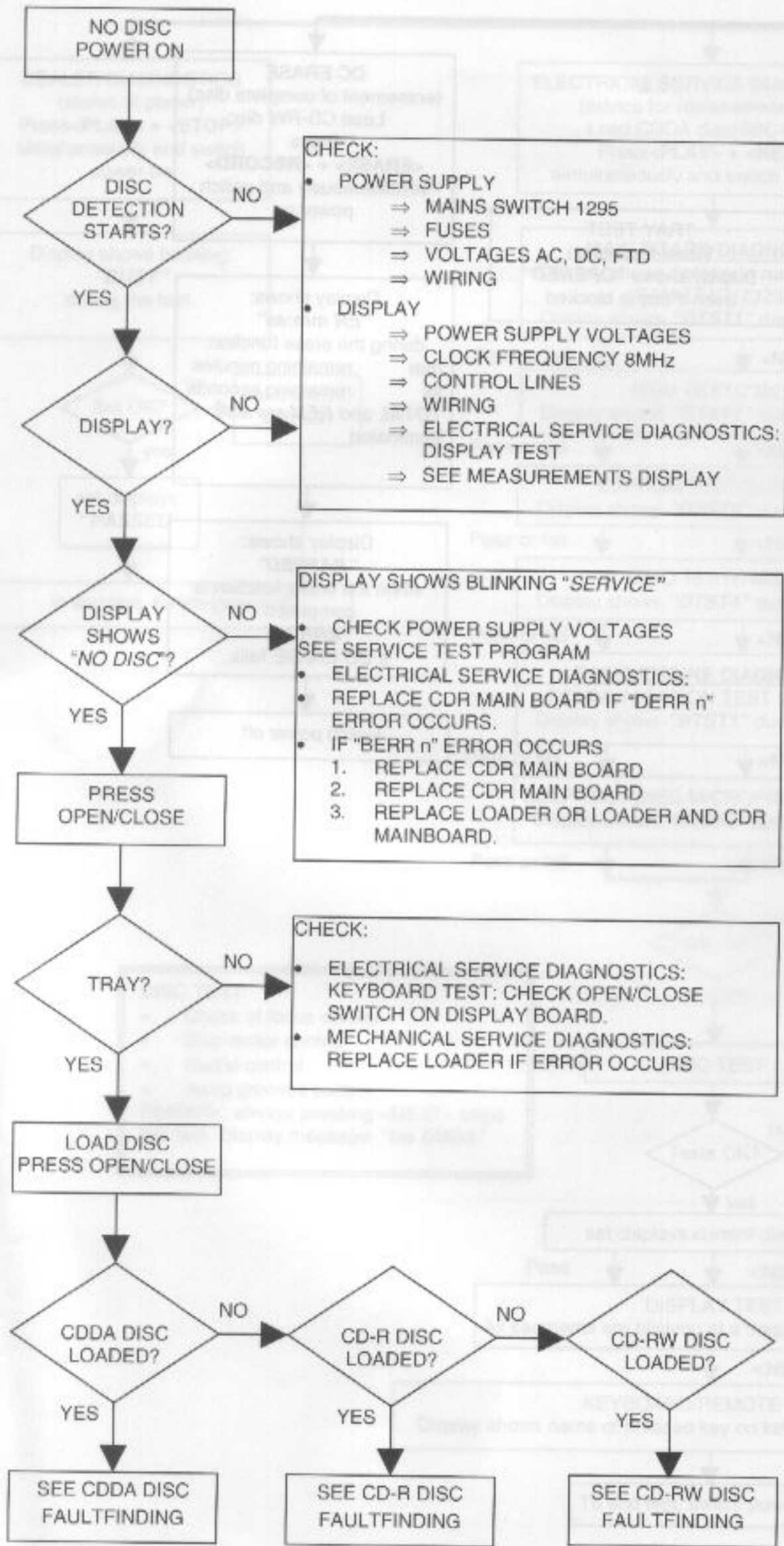
**SLEDGE TEST**  
 Visual inspection

To end test, switch power off.

n = number of test  
 Result of aborted test will not be displayed

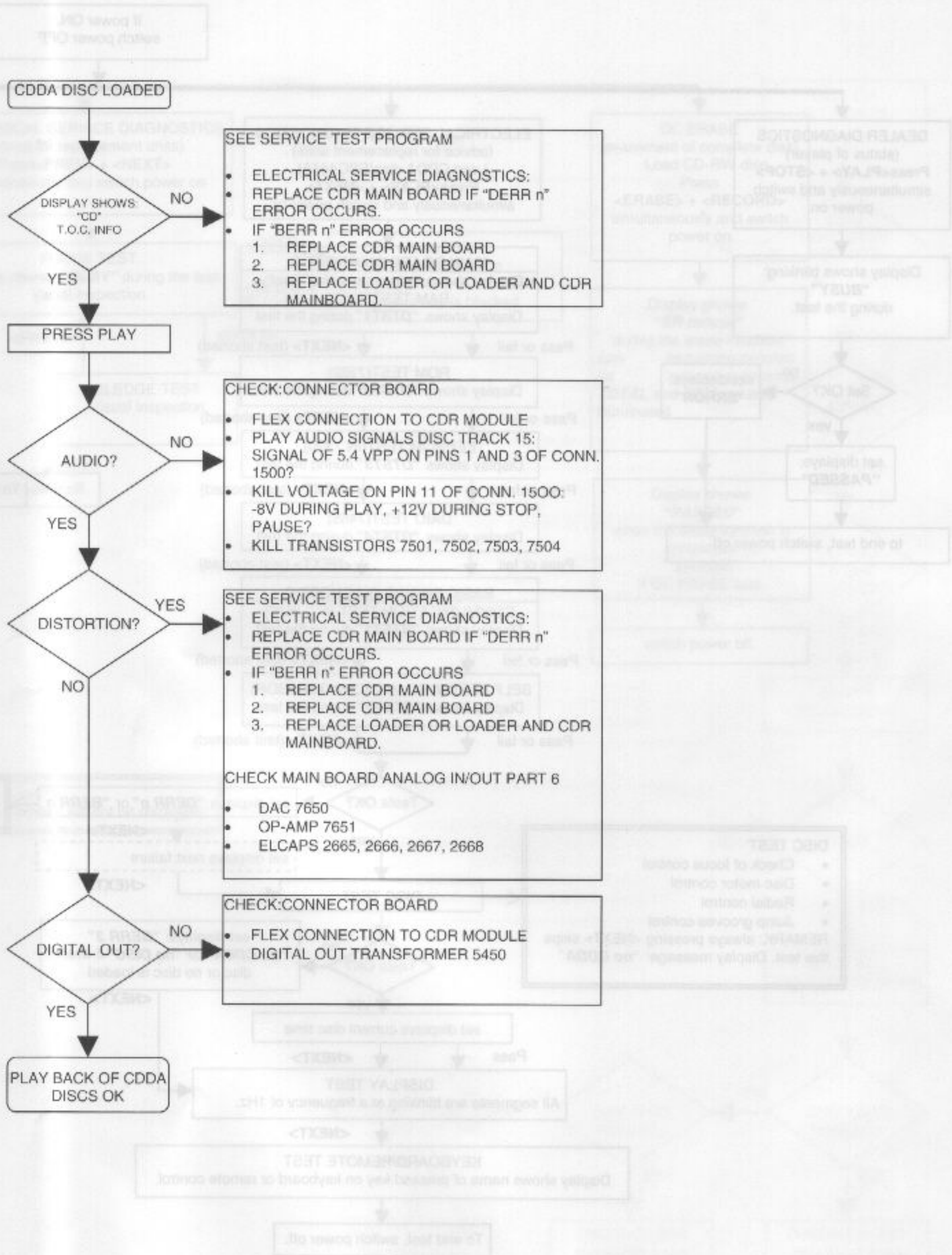


FAULTFINDING GUIDE



CDDA DISC FAULTFINDING GUIDE

SERVICE TEST PROGRAM

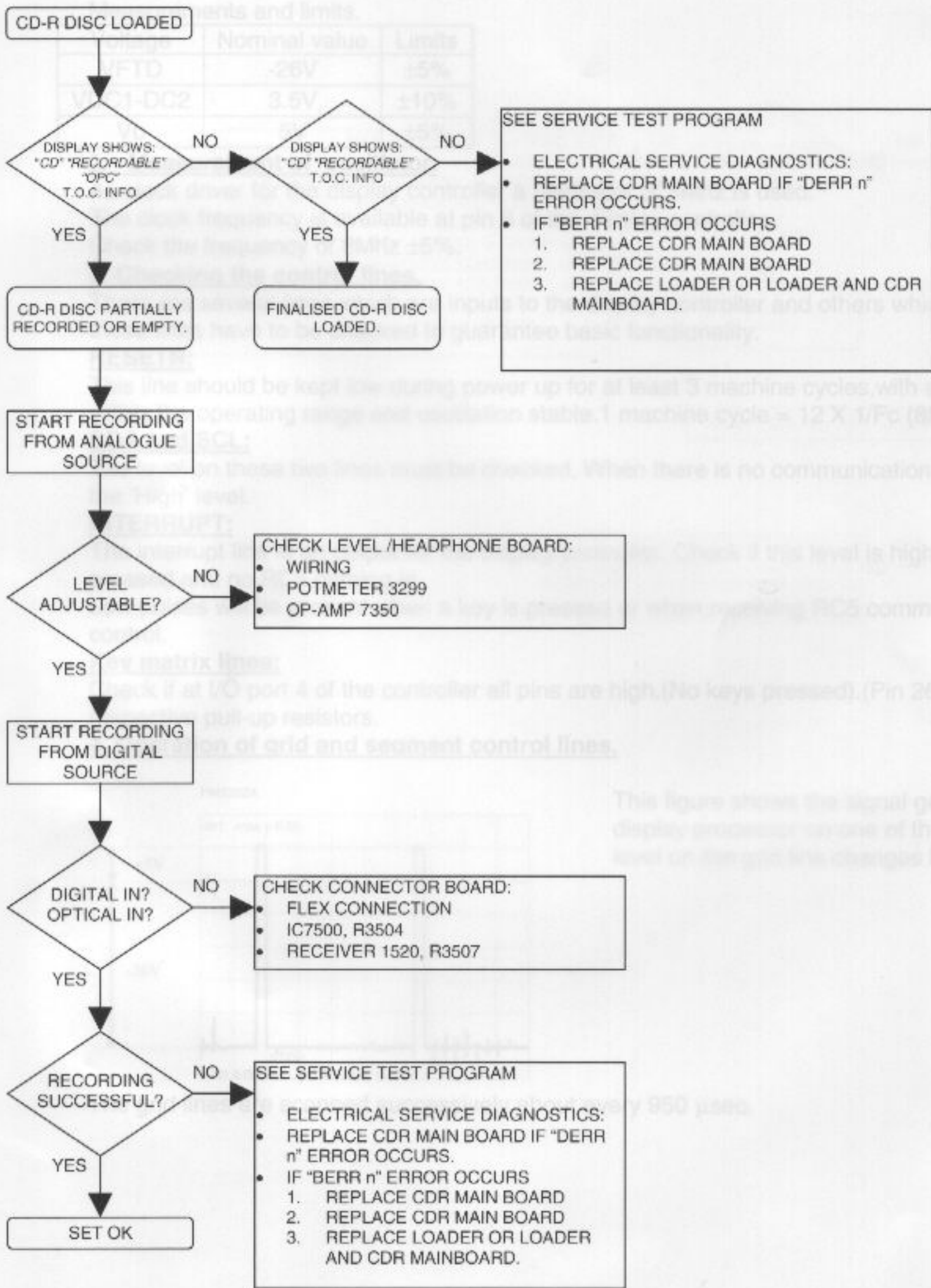


**CD-R DISC FAULTFINDING**

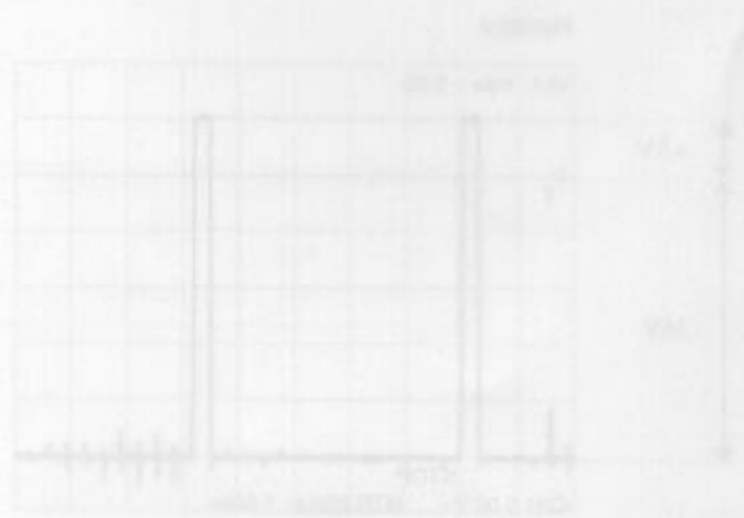
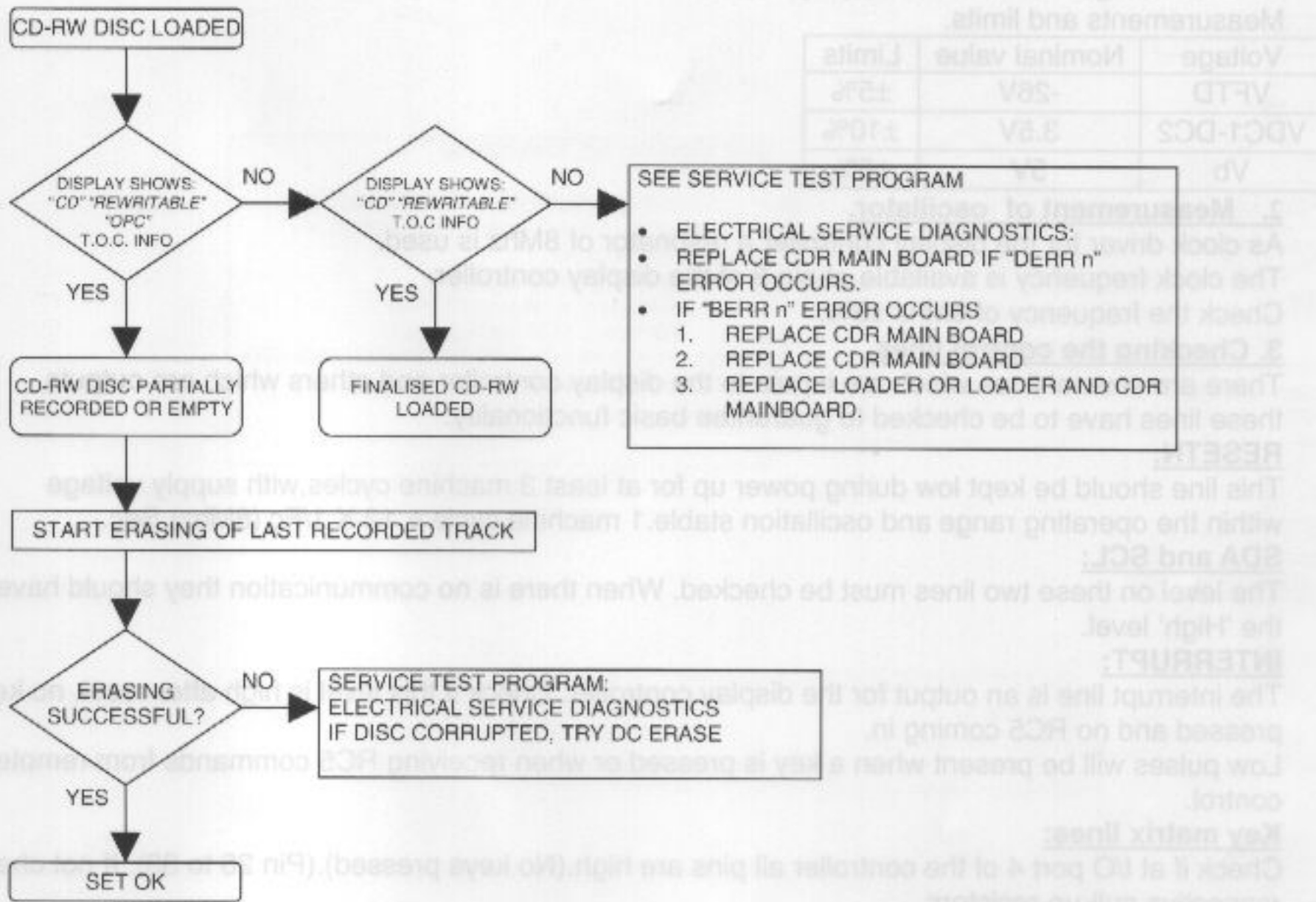
MEASUREMENTS DISPLAY PANEL

1. Measurement of voltage supplies.

Several voltages arrive at the display PCB.



## CD-RW DISC FAULTFINDING



**MEASUREMENTS DISPLAY PANEL**

**1. Measurement of voltage supplies.**

Several voltages arrive at the display PCB.

Measurements and limits.

Voltage	Nominal value	Limits
VFTD	-26V	±5%
VDC1-DC2	3.5V	±10%
Vb	5V	±5%

**2. Measurement of oscillator.**

As clock driver for the display controller a resonator of 8Mhz is used.

The clock frequency is available at pin 8 of the display controller.

Check the frequency of 8Mhz ±5%.

**3. Checking the control lines.**

There are several lines which are inputs to the display controller and others which are outputs, these lines have to be checked to guarantee basic functionality.

**RESETN:**

This line should be kept low during power up for at least 3 machine cycles, with supply voltage within the operating range and oscillation stable. 1 machine cycle = 12 X 1/Fc (8Mhz) Sec.

**SDA and SCL:**

The level on these two lines must be checked. When there is no communication they should have the 'High' level.

**INTERRUPT:**

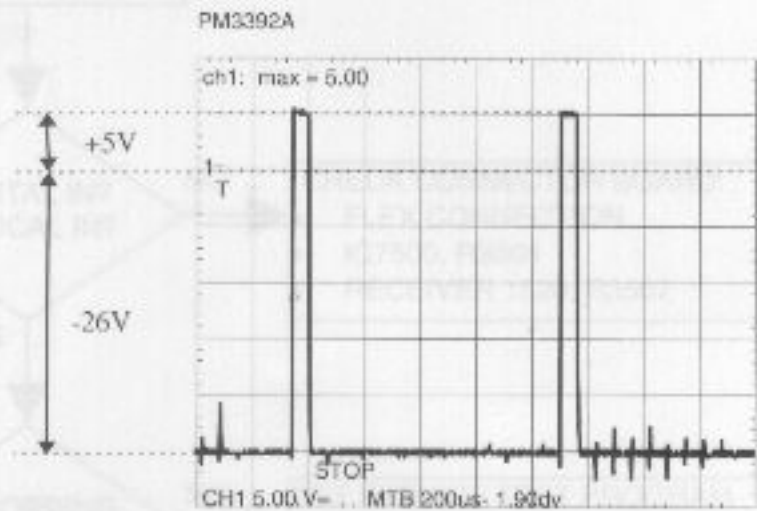
The interrupt line is an output for the display controller. Check if this level is high after reset, no key pressed and no RC5 coming in.

Low pulses will be present when a key is pressed or when receiving RC5 commands from remote control.

**Key matrix lines:**

Check if at I/O port 4 of the controller all pins are high. (No keys pressed). (Pin 26 to 33). If not check respective pull-up resistors.

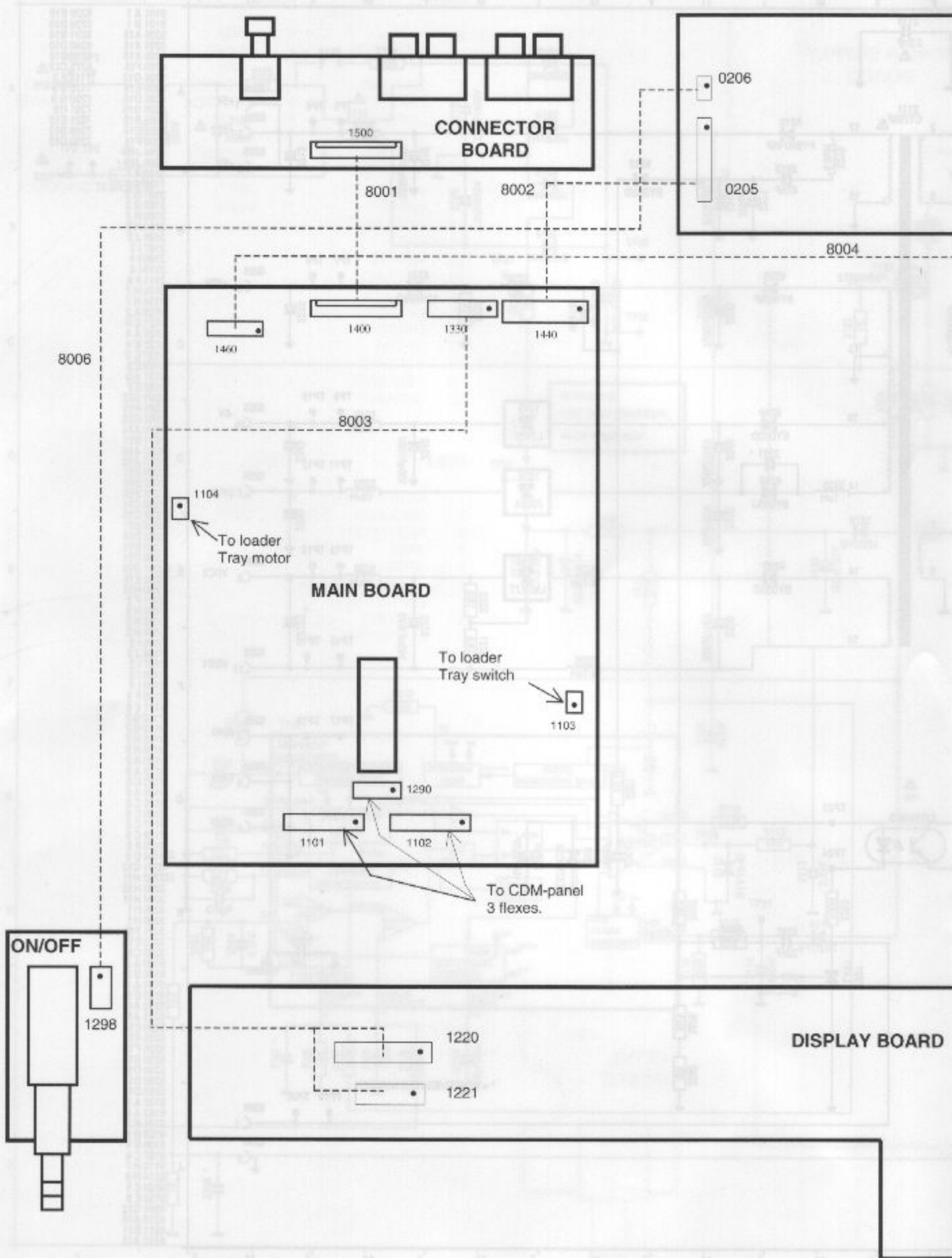
**4. Operation of grid and segment control lines.**



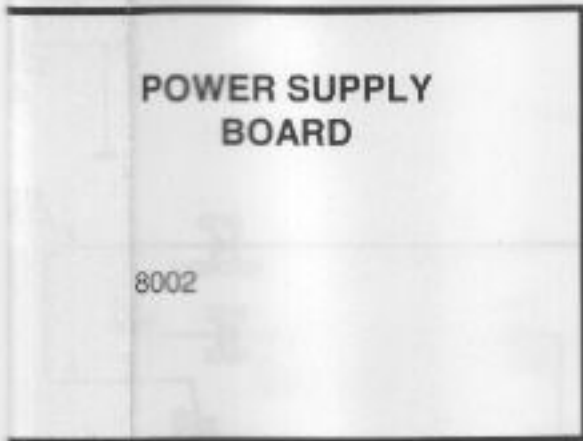
This figure shows the signal generated by the display processor on one of the grid lines. The level on the grid line changes from -26V to +5V.

The grid lines are scanned successively about every 950 μsec.

WIRING DIAGRAM CDR560/538



Pin 1 indicated by • All Wires are 1/1.



**8001**

- 1 RIGHTOUT
- 2 GROUND
- 3 LEFTOUT!
- 4 LEFTIN!
- 5 GROUND
- 6 RIGHTIN!
- 7 GROUND
- 8 +5Vb!
- 9 LEFT2!
- 10 GROUND
- 11 KILL!
- 12 RIGHT2!
- 13 GROUND
- 14 DIGOUT!
- 15 DIGINEXT!
- 16 GROUND
- 17 OPTIN!
- 18 GROUND
- 19 EBUININT!
- 20 GROUND

**8002**

- 1 +5Vb!
- 2 +5VM!
- 3 +5Vb!
- 4 GROUND
- 5 GROUND
- 6 VDC2!
- 7 VFTD!
- 8 GROUND
- 9 +12V!
- 10 -8V!
- 11 VDC1!

**8003**

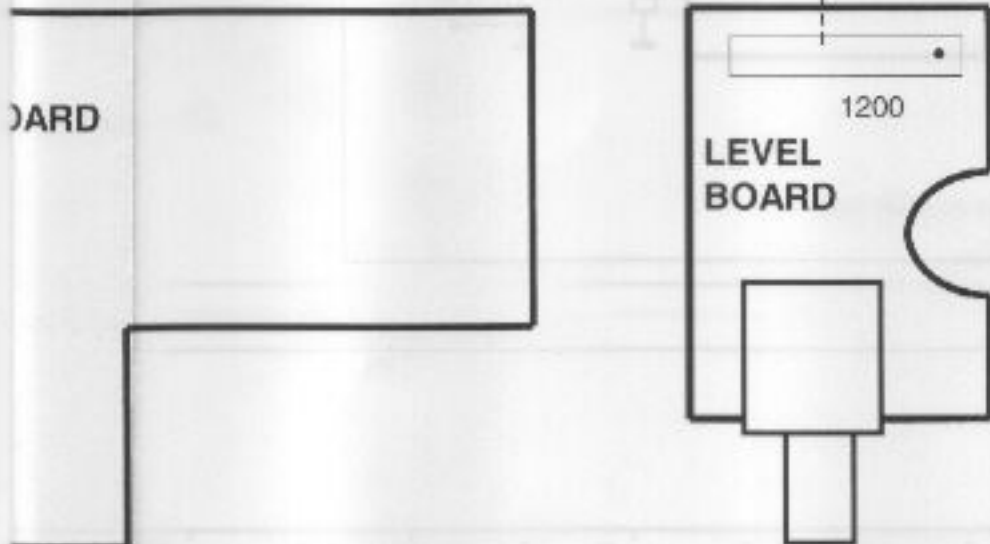
- 1 SDA!
- 2 SCL!
- 3 RSTLA!
- 4 GROUND
- 5 INTSLAVE!
- 6 VDC1!
- 7 VFTD!
- 8 VDC2!
- 9 +5Vb!
- 10 GROUND

**8004**

- 1 RIGHTTLEV!
- 2 GROUND
- 3 RIGHTFLEV!
- 4 -8Vb!
- 5 GROUND
- 6 +12Vb!
- 7 LEFTFLEV!
- 8 GROUND
- 9 LEFTTLEV!

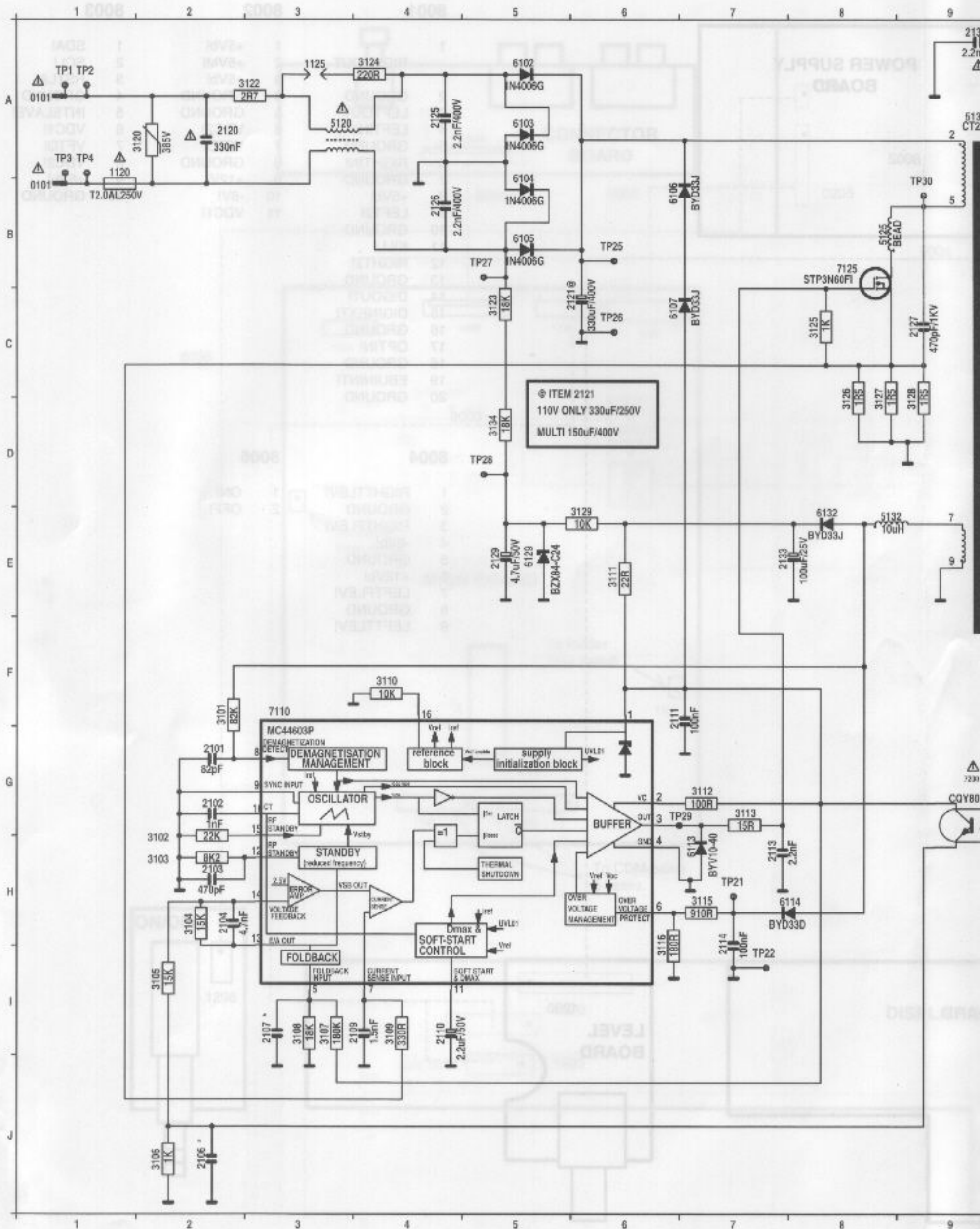
**8006**

- 1 ON!
- 2 OFF!



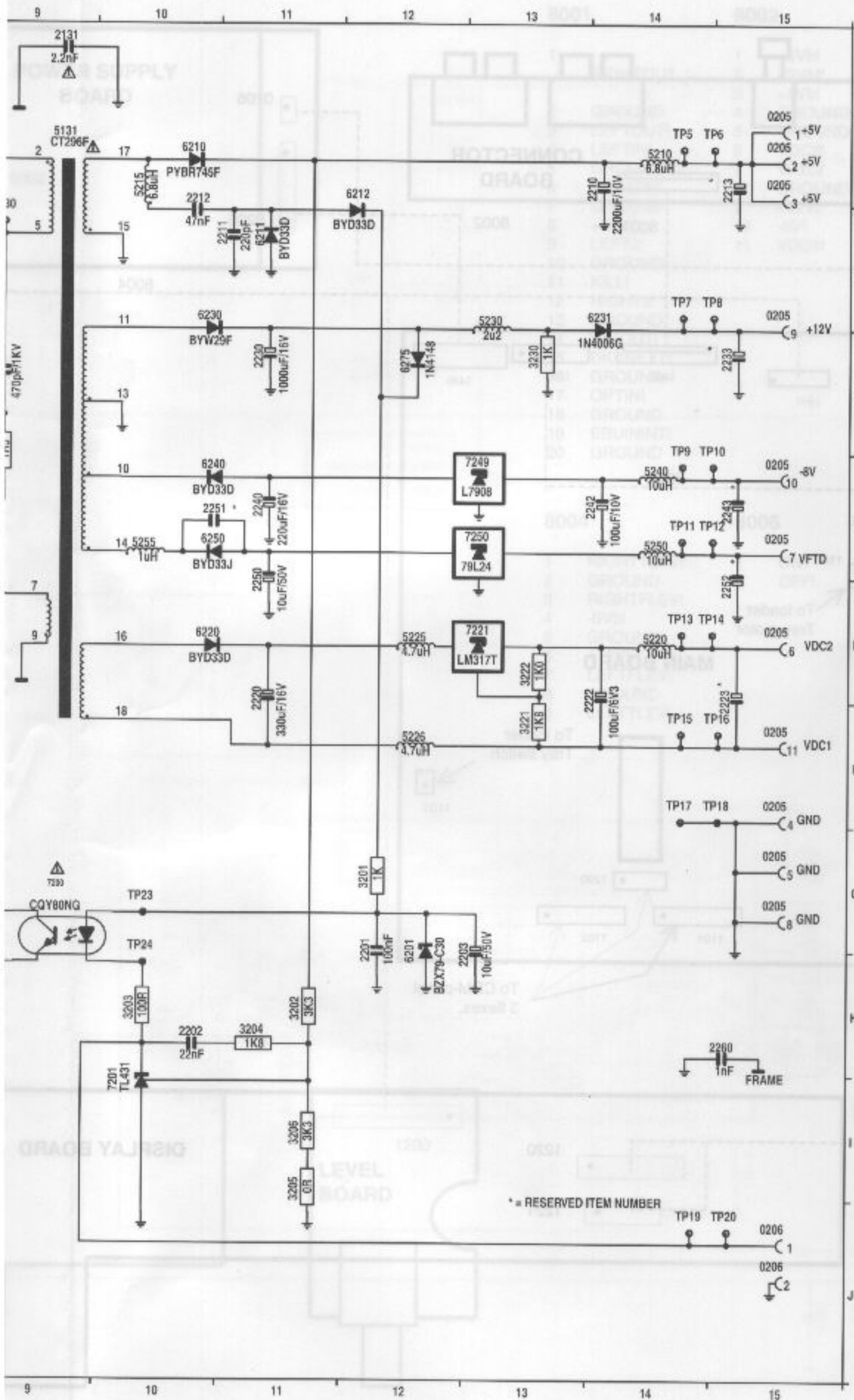


# POWER SUPPLY UNIT CIRCUIT DIAGRAM



Ⓢ ITEM 2121  
110V ONLY 330uF/250V  
MULTI 150uF/400V

Pin 1 Indicated by ...  
WIRING DIAGRAM CORRESPONDING

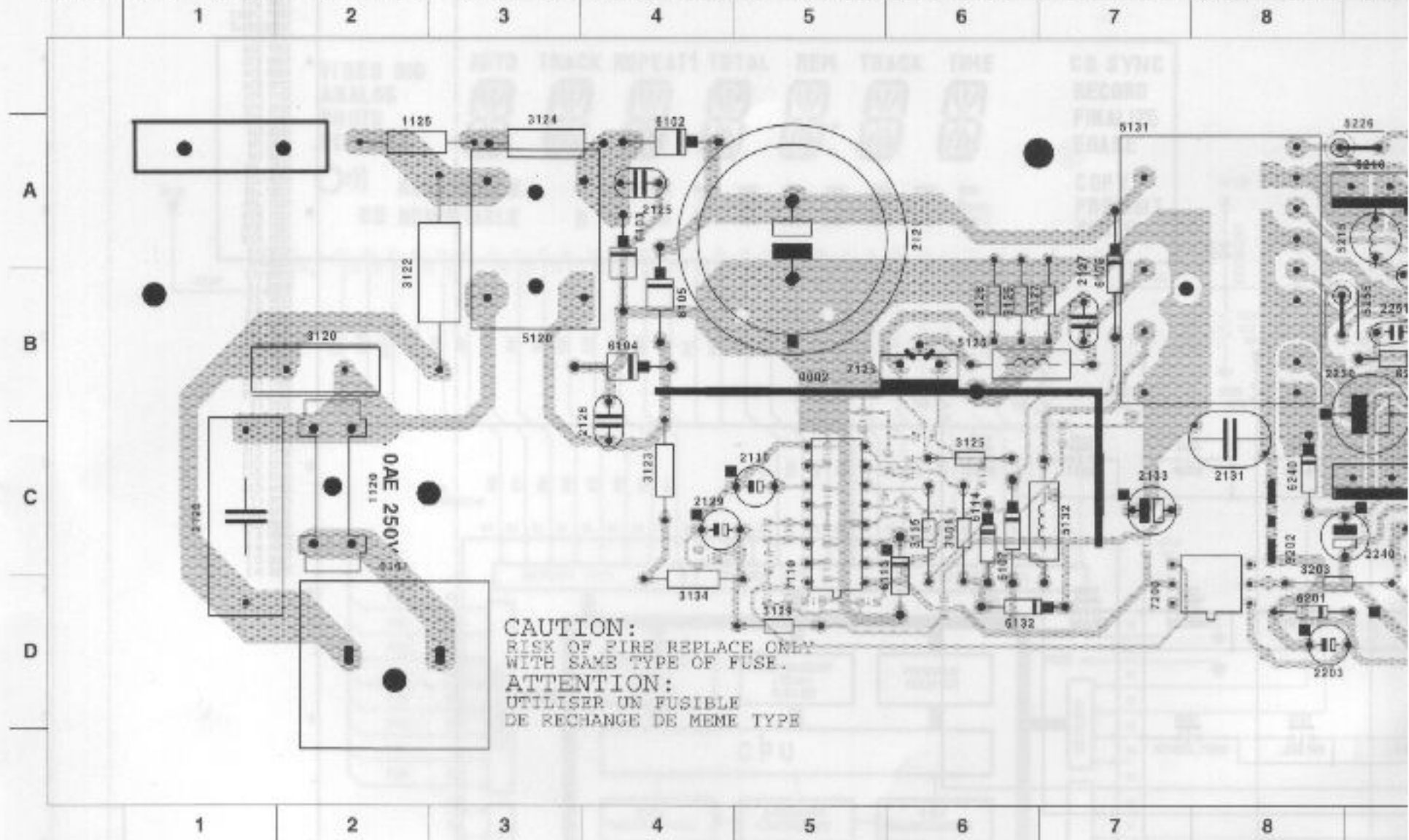


- 0101 A 1
- 0101 B 1
- 0205 A15
- 0205 A15
- 0205 A15
- 0205 A15
- 0205 G15
- 0205 E15
- 0205 D15
- 0205 G15
- 0205 B15
- 0205 D15
- 0205 F15
- 0206 J15
- 1120 A 1
- 1125 A 3
- 2101 G 2
- 2102 G 2
- 2103 H 2
- 2104 H 2
- 2106 J 2
- 2107 I 3
- 2109 I 4
- 2110 I 4
- 2111 F 6
- 2113 H 7
- 2114 H 7
- 2120 A 2
- 2121 C 8
- 2125 A 4
- 2126 B 4
- 2127 C 9
- 2129 E 5
- 2131 A 9
- 2133 E 7
- 2201 G12
- 2202 H10
- 2203 G13
- 2210 A14
- 2211 B11
- 2212 A10
- 2213 A15
- 2220 E11
- 2222 E14
- 2223 E15
- 2230 C11
- 2233 C15
- 2240 D11
- 2242 D14
- 2243 D15
- 2250 D11
- 2251 D10
- 2252 E15
- 2260 H15
- 3101 F 2
- 3102 H 2
- 3103 H 2
- 3104 H 2
- 3105 I 2
- 3106 J 2
- 3107 I 3
- 3108 I 3
- 3109 I 4
- 3110 F 4
- 3111 E 8
- 3112 G 7
- 3113 G 7
- 3115 H 7
- 3116 H 6
- 3120 A 2
- 3122 A 3
- 3123 C 5
- 3124 A 4
- 3125 C 8
- 3126 C 8
- 3127 C 8
- 3128 C 9
- 3129 E 6
- 3134 D 5
- 3201 G12
- 3202 H11
- 3203 H10
- 3204 H11
- 3205 I11
- 3206 I11
- 3221 F13
- 3222 E13
- 3230 C13
- 5120 A 3
- 5125 B 8
- 5131 A 9
- 5132 E 8
- 5210 A14
- 5215 A10
- 5220 E14
- 5225 E12
- 5228 F12
- 5230 B13
- 5240 D14
- 5250 D14
- 5255 D10
- 6102 A 5
- 6103 A 5
- 6104 B 5
- 6105 B 5
- 6106 B 6
- 6107 C 6
- 6113 H 7
- 6114 H 8
- 6129 E 5
- 6132 E 8
- 6201 G12
- 6210 A10
- 6211 B11
- 6212 A12
- 6220 E10
- 6230 B10
- 6231 B14
- 6240 D10
- 6250 D10
- 6275 C12
- 7110 F 3
- 7125 B 8
- 7200 G 9
- 7201 I10
- 7221 E13
- 7249 D13
- 7250 D13

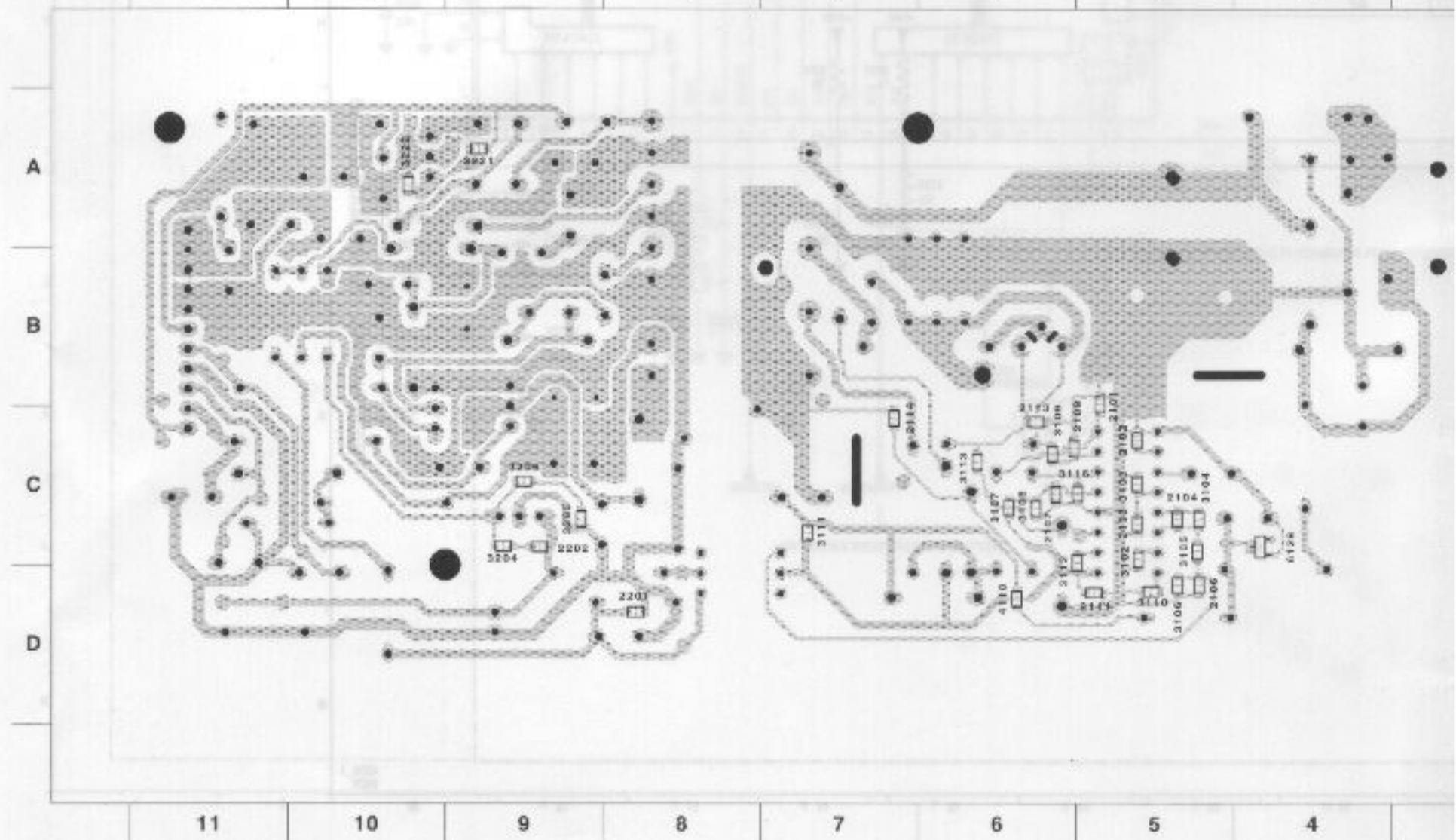
\* = RESERVED ITEM NUMBER

POWER SUPPLY UNIT BOARD

0022 B 6	1125 A 2	2126 B 4	2208 D 6	2220 A 9	2240 C 9	2252 D 10	3122 B 3	3127 B 7	3202 B 10	5131 B 8	5235 A 9	5265 B 8	6106 B 7	6201 D 6	6230 C 9	7110 C
0151 D 2	2110 C 5	2127 B 7	2210 B 5	2222 A 10	2242 C 9	2250 B 11	3123 C 4	3128 B 5	3203 D 8	5132 C 7	5236 A 9	6102 A 4	6107 C 5	6210 A 9	6231 C 10	7125 B
0205 B 11	2120 C 1	2129 C 4	2211 B 10	2223 A 10	2243 C 11	3101 C 6	3124 A 3	3129 D 5	3230 C 10	5210 A 10	5230 C 10	6103 A 4	6113 D 8	6211 B 10	6240 C 8	7200 D
0206 D 11	2121 A 5	2131 C 8	2212 B 8	2230 B 9	2250 B 10	3115 C 6	3125 C 8	3134 D 4	5120 A 3	5215 A 8	5240 C 10	6104 B 4	6114 C 5	6212 B 10	6250 B 9	7201 C
1120 C 2	2125 A 4	2133 C 7	2213 A 11	2233 C 11	2251 B 9	3120 B 2	3126 B 6	3201 B 11	5125 B 8	5220 A 10	5250 B 10	6105 B 4	6132 D 4	6220 A 10	6275 B 10	7221 A

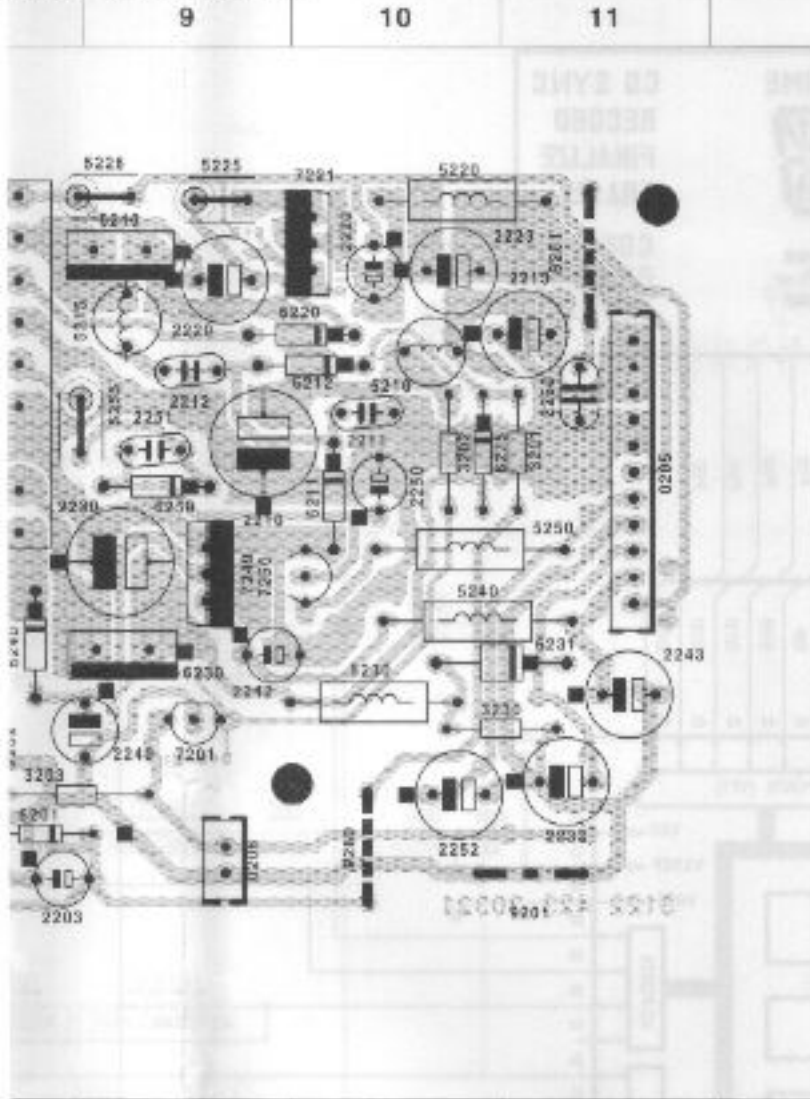


2101 B 5	2104 C 5	2109 C 6	2114 C 7	3102 C 5	3105 C 5	3108 C 5	3111 C 7	3116 C 6	3236 C 9	4110 D 6	TP2 D 2	TP5 B 11	TP8 C 11	TP11 C 10	TP14 A 11	TP17 C
3102 C 5	3106 D 5	3111 D 5	2201 D 8	3103 C 5	3106 D 5	3109 C 5	3112 C 5	3204 C 9	3221 A 9	6129 C 4	TP5 D 3	TP6 A 11	TP9 C 11	TP12 B 11	TP15 B 11	TP18 C
2103 C 5	2107 C 5	2113 C 6	2202 C 9	3104 C 5	3107 C 5	3110 D 5	3113 C 6	3205 C 9	3222 A 10	TP1 D 2	TP4 C 2	TP7 C 11	TP10 C 11	TP13 A 10	TP16 C 11	TP19 C

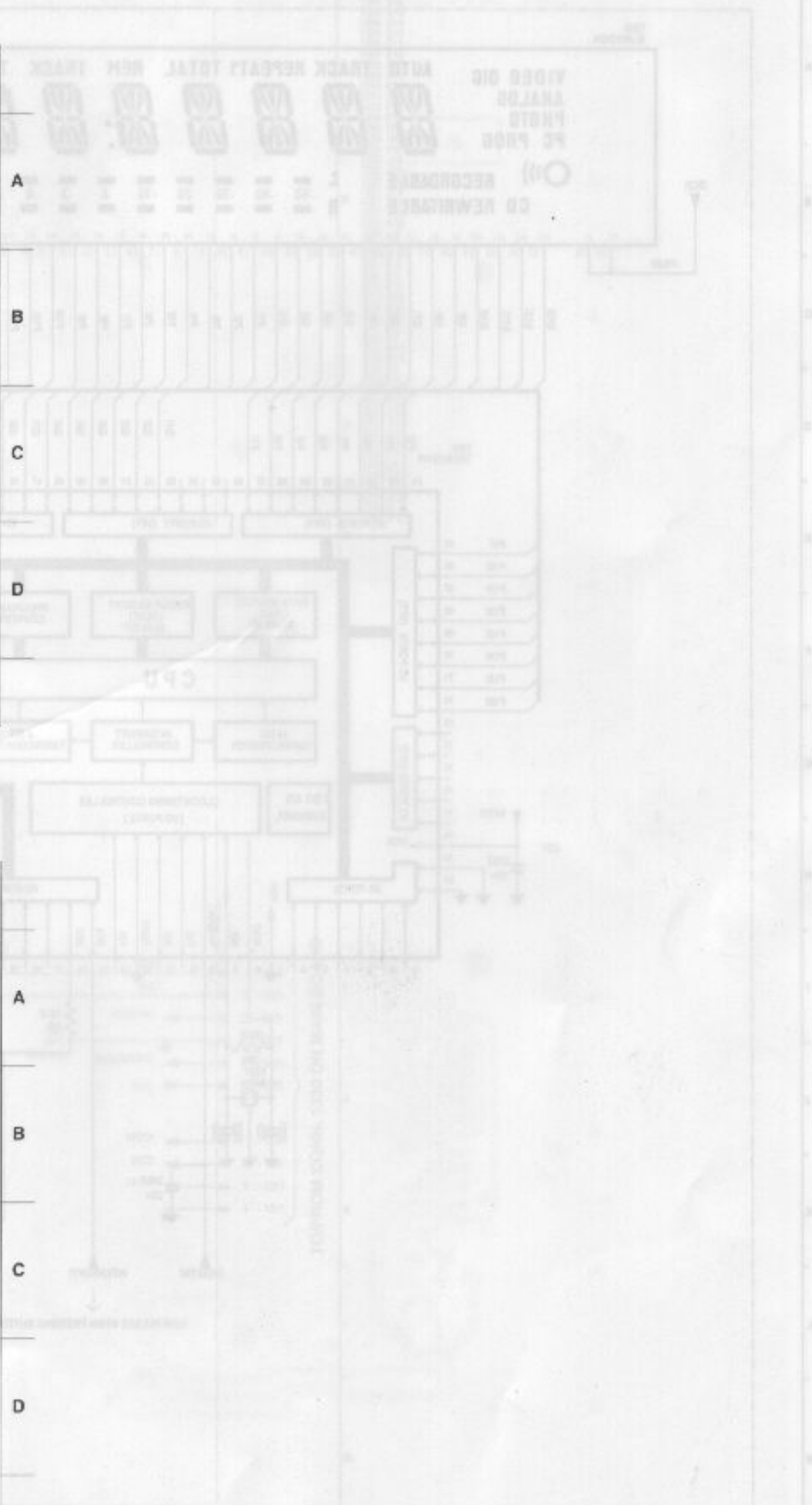
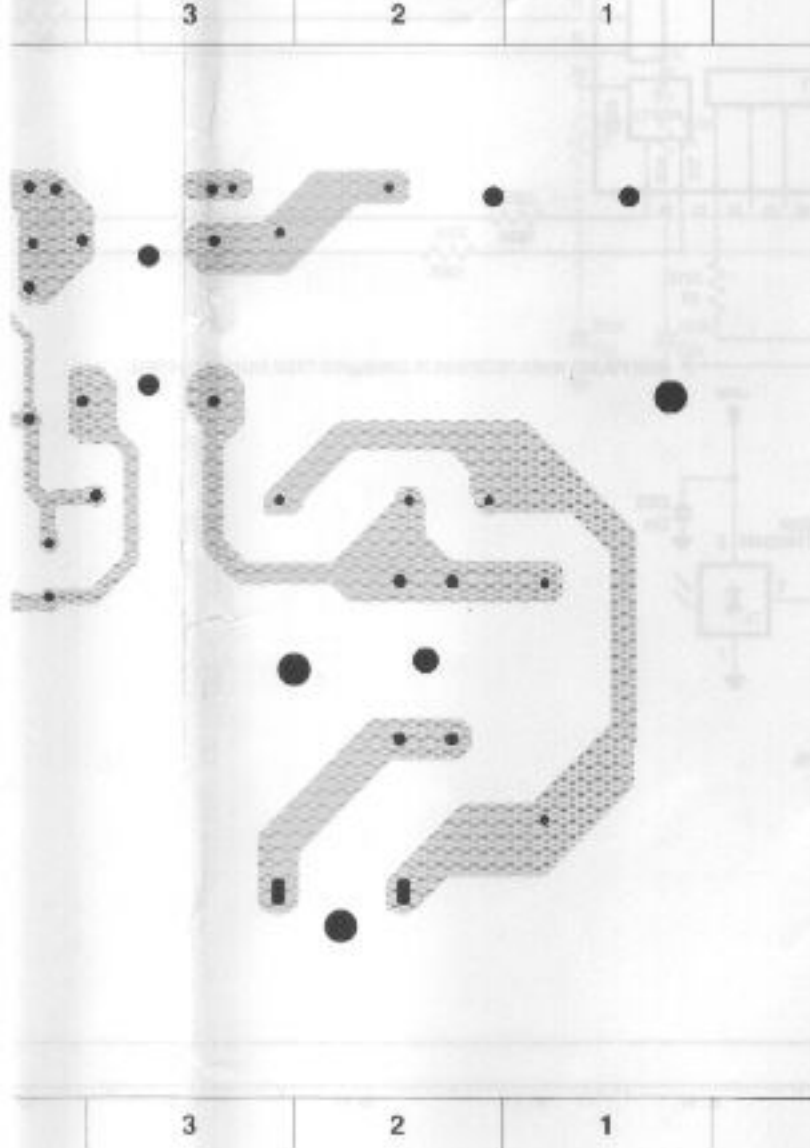


DISPLAY CIRCUIT DIAGRAM

230 C 9	7110 C 5	7249 C 9	9380 D 10
231 C 10	7125 B 5	7250 C 10	
240 C 8	7200 D 8	9201 D 11	
250 B 9	7201 C 9	9202 C 8	
275 B 10	7221 A 10	9261 A 11	

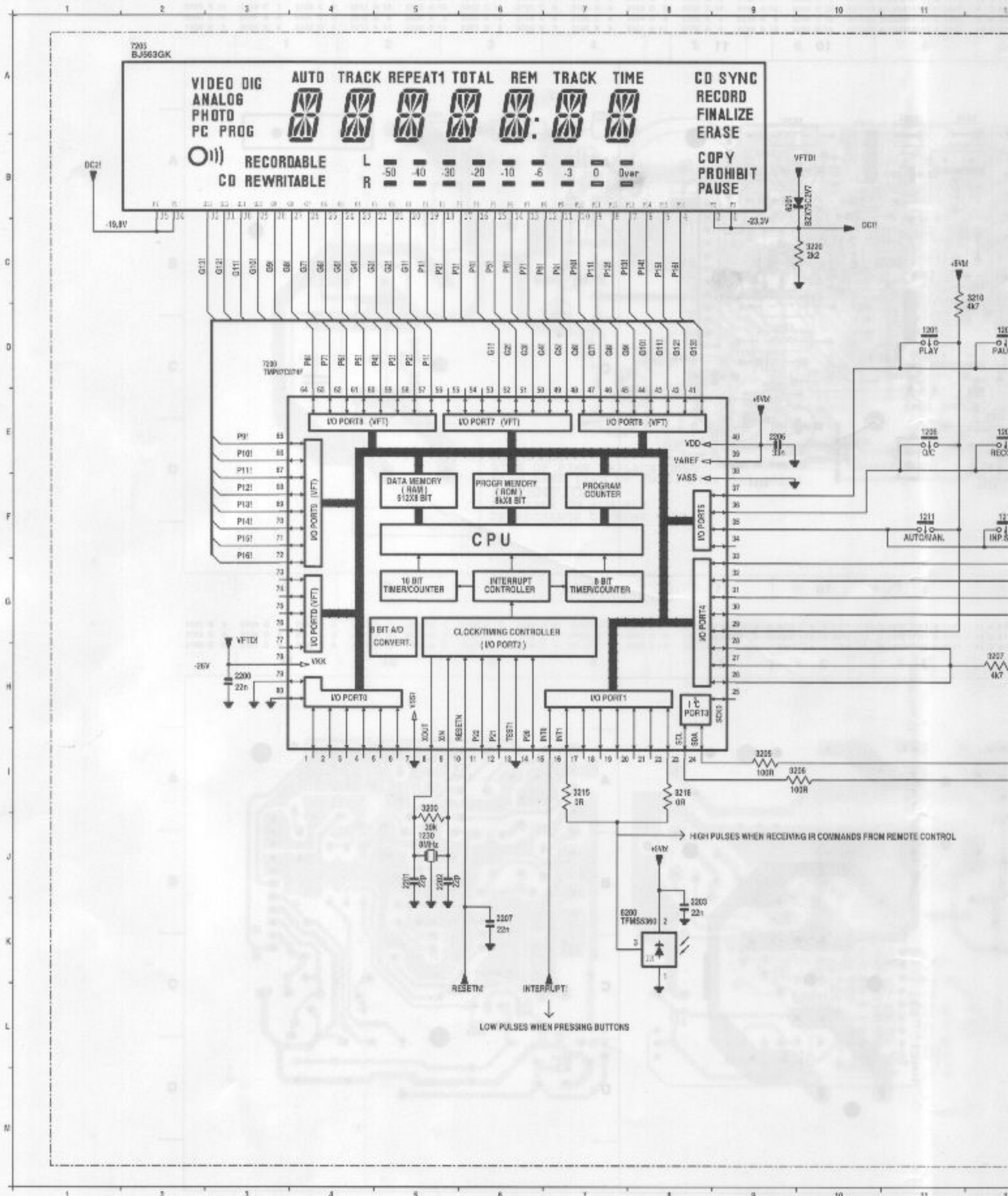


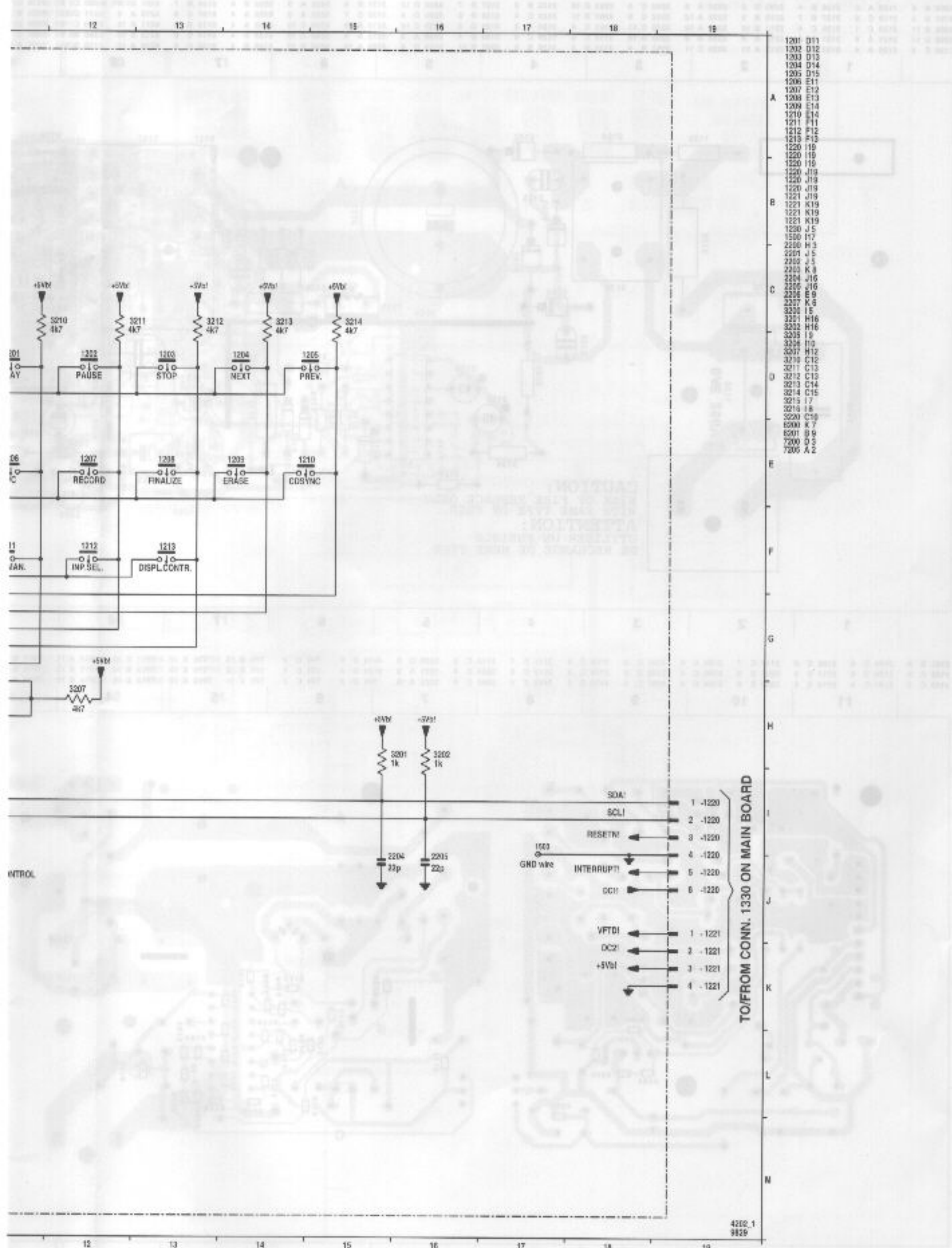
TP14 A 11	TP17 B 11	TP20 D 11	TP23 D 8	TP26 B 5	TP29 C 5
TP15 B 11	TP18 B 11	TP21 C 7	TP24 D 8	TP27 C 4	TP30 B 7
TP16 C 11	TP19 D 11	TP22 B 7	TP25 A 5	TP28 C 5	



POWER SUPPLY UNIT BOARD

DISPLAY CIRCUIT DIAGRAM





TO/FROM CONN. 1330 ON MAIN BOARD

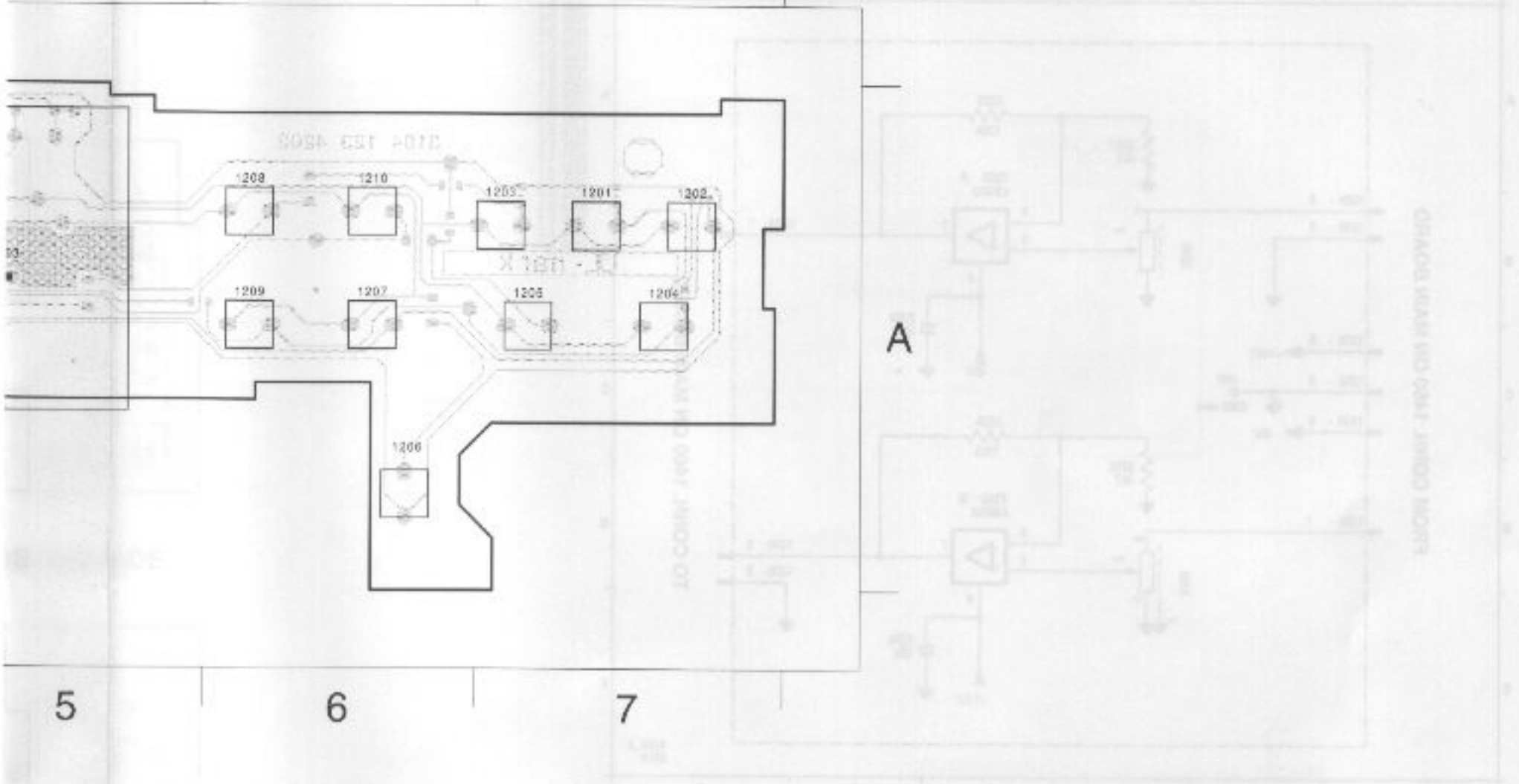
4202.1  
9829



LEVEL CIRCUIT DIAGRAM

1221 A 2 1500 A 2 6200 A 2 7205 A 4 9001 A 1 9002 A 3 9003 A 5

5 6 7

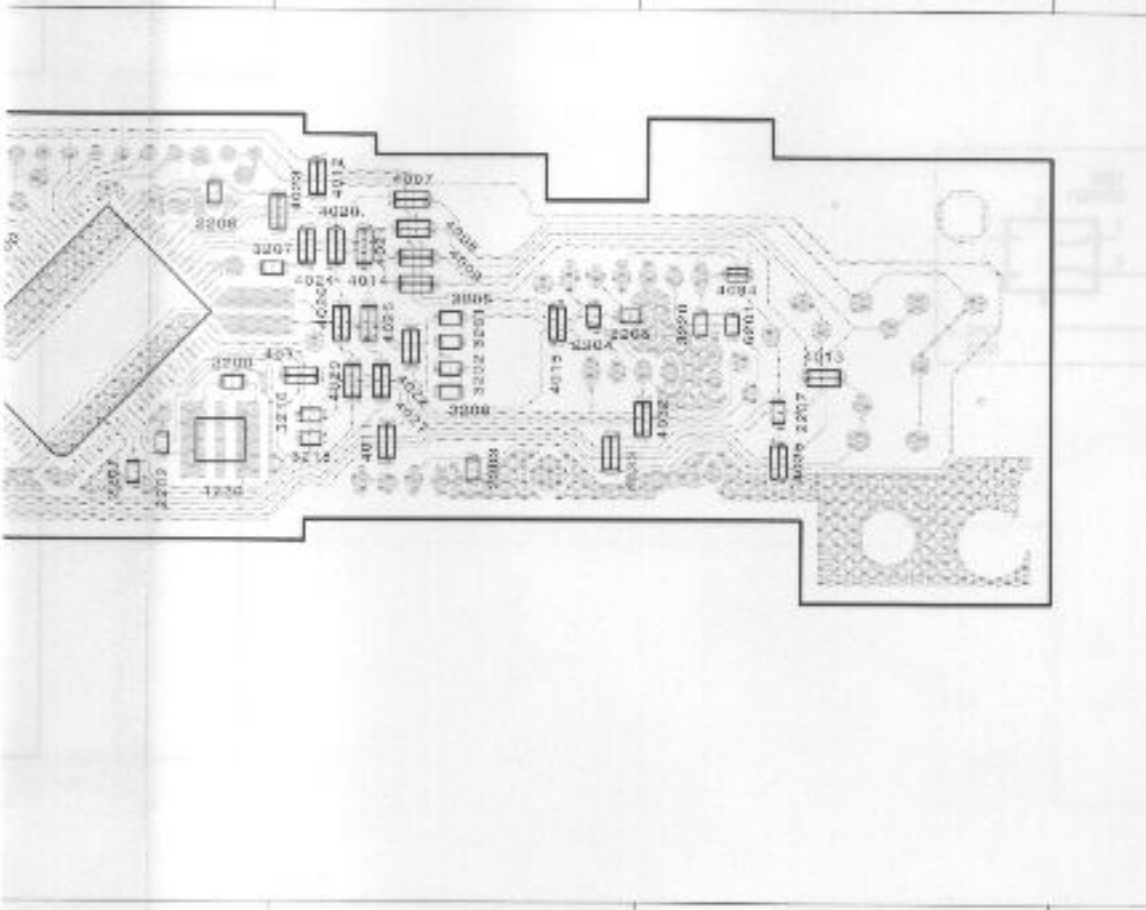


5 6 7

4020 A 2 4023 A 2 4026 A 2 4030 A 5 4033 A 2 6201 A 1  
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4022 A 2 4025 A 2 4029 A 2 4032 A 1 4035 A 1

3 2 1

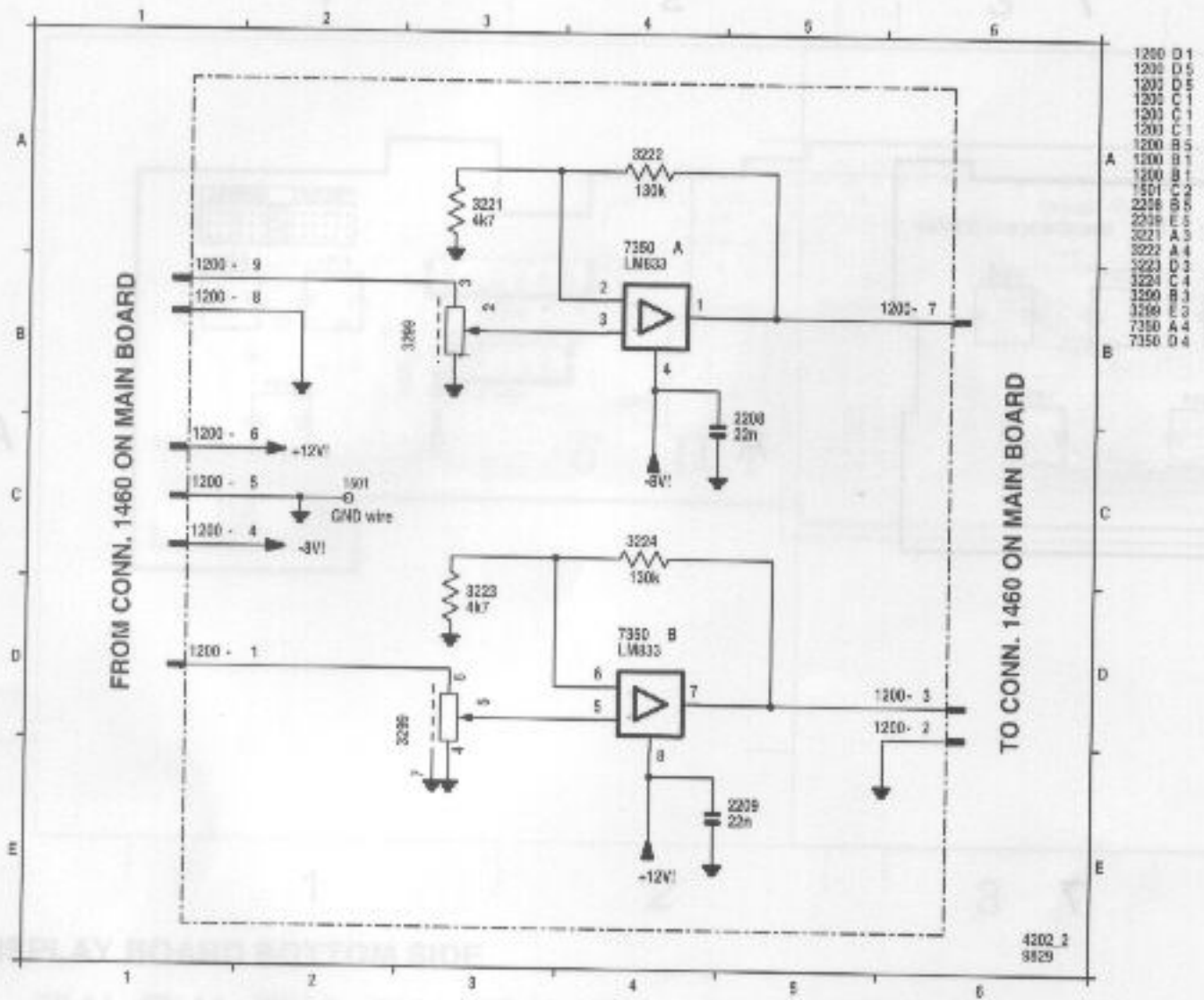
ONOFF SWITCH BOARD



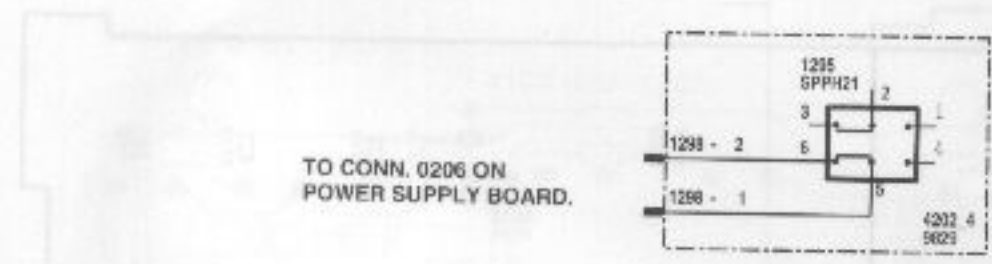
3 2 1



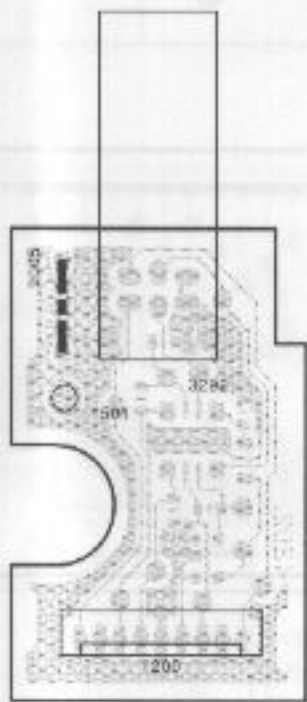
LEVEL CIRCUIT DIAGRAM



ON/OFF SWITCH BOARD



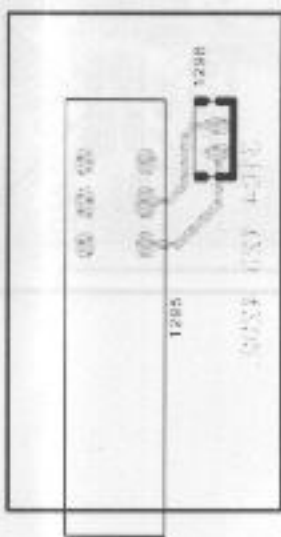
**LEVEL BOARD  
TOPSIDE**



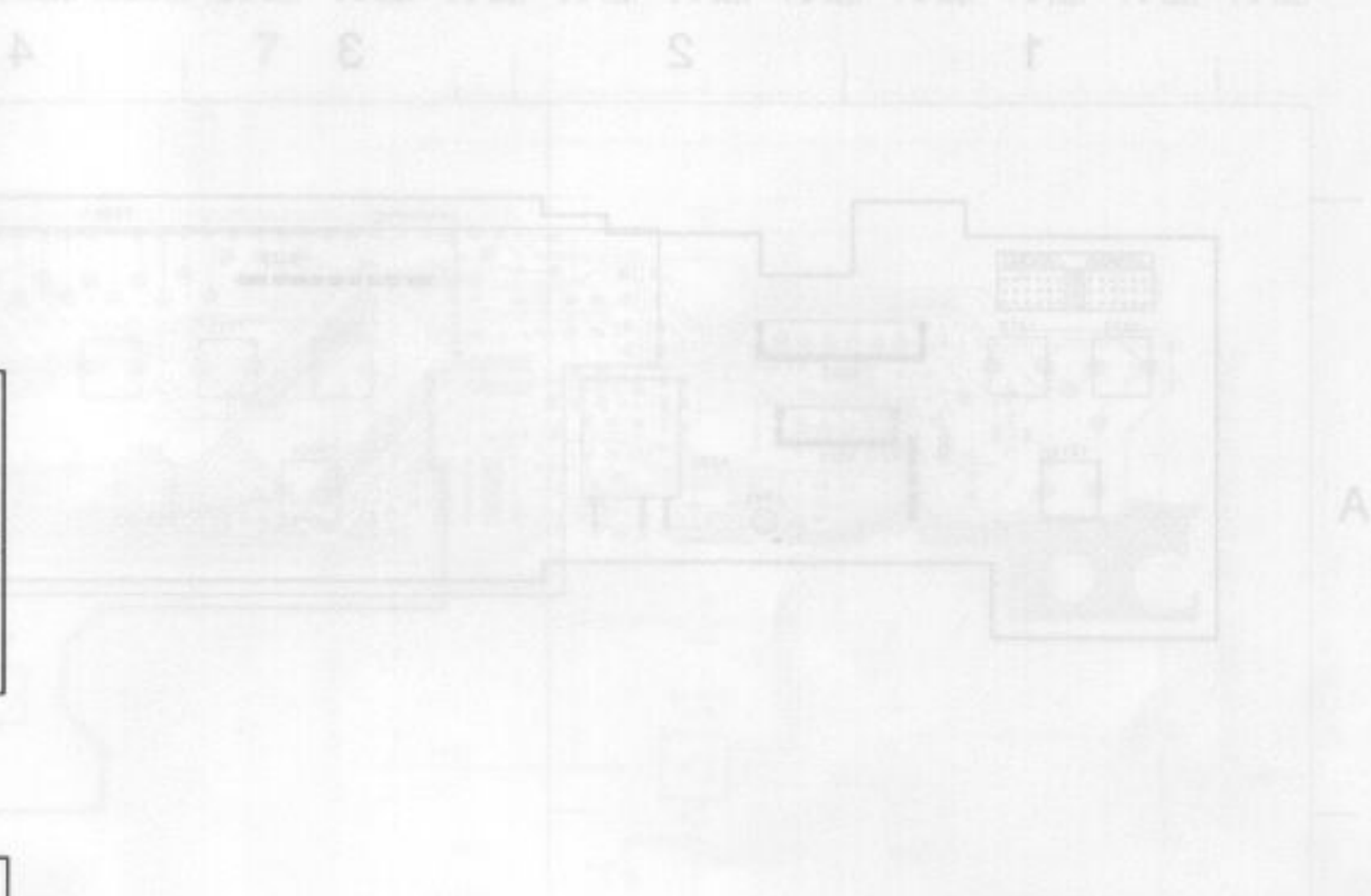
**BOTTOM SIDE**



**ON/OFF SWITCH BOARD**



**DISPLAY BOARD TOP SIDE**



**DISPLAY BOARD BOTTOM SIDE**



# ***CDR MAIN BOARD***

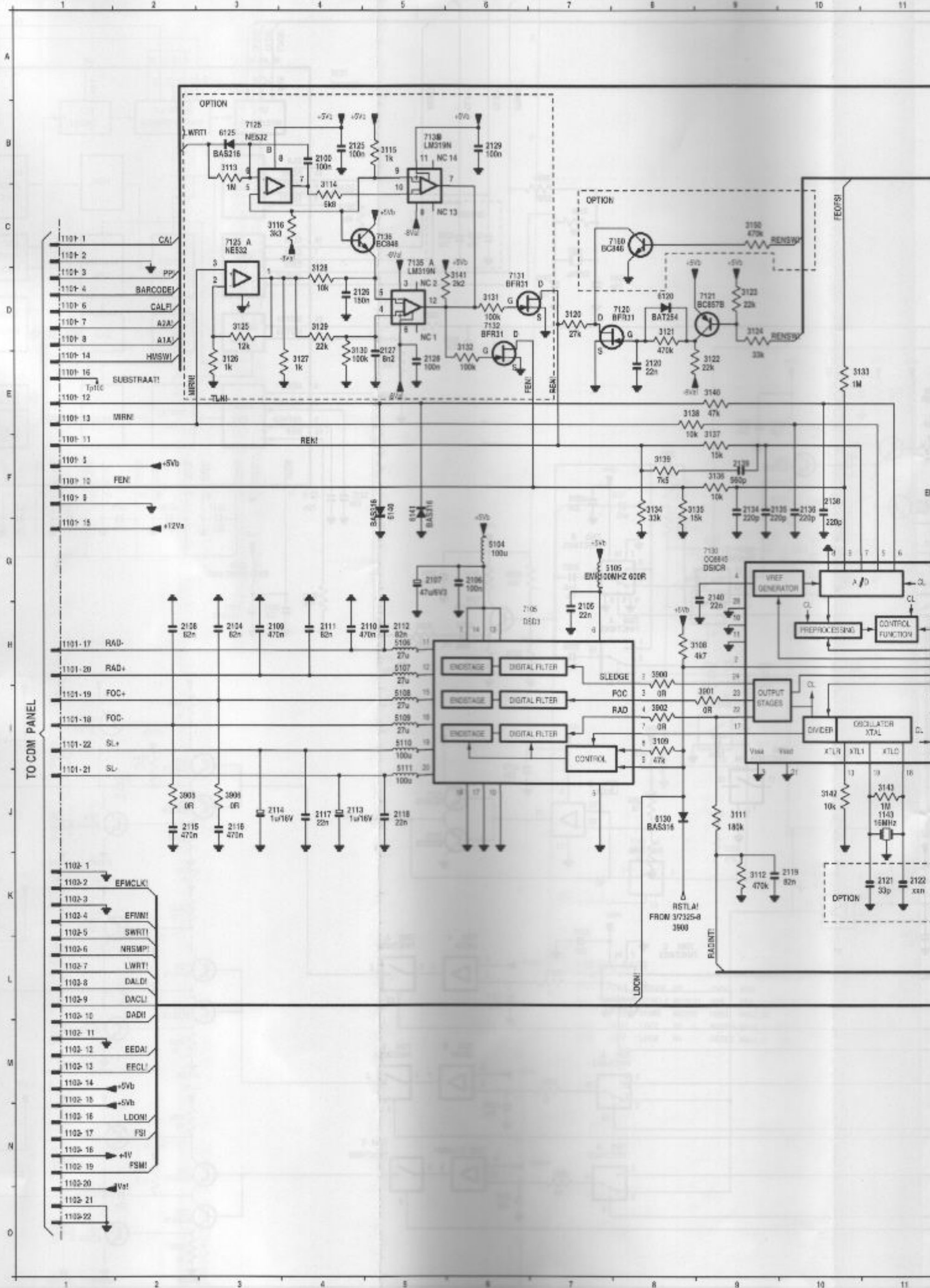
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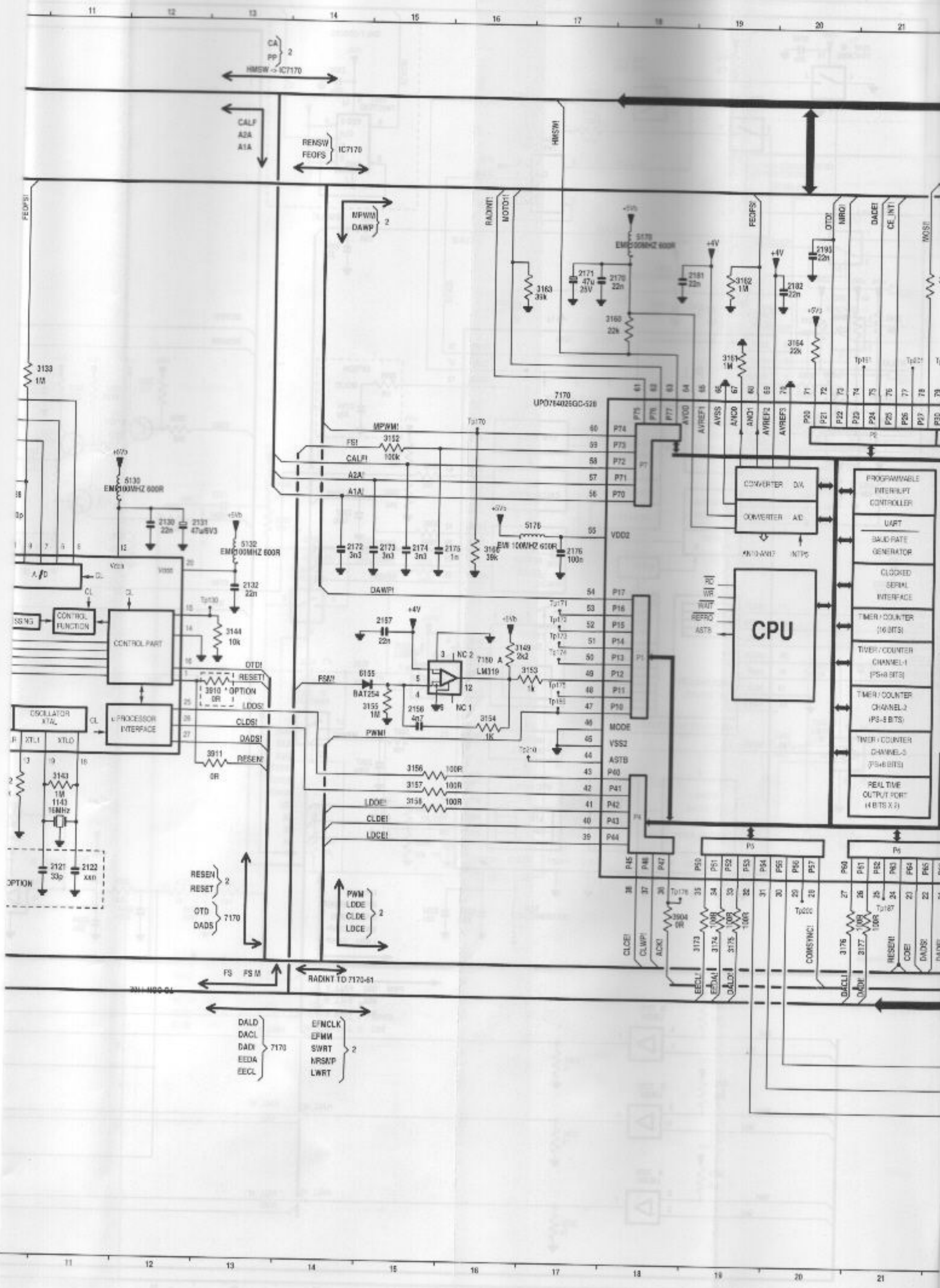
## TECHNICIAN NOTES

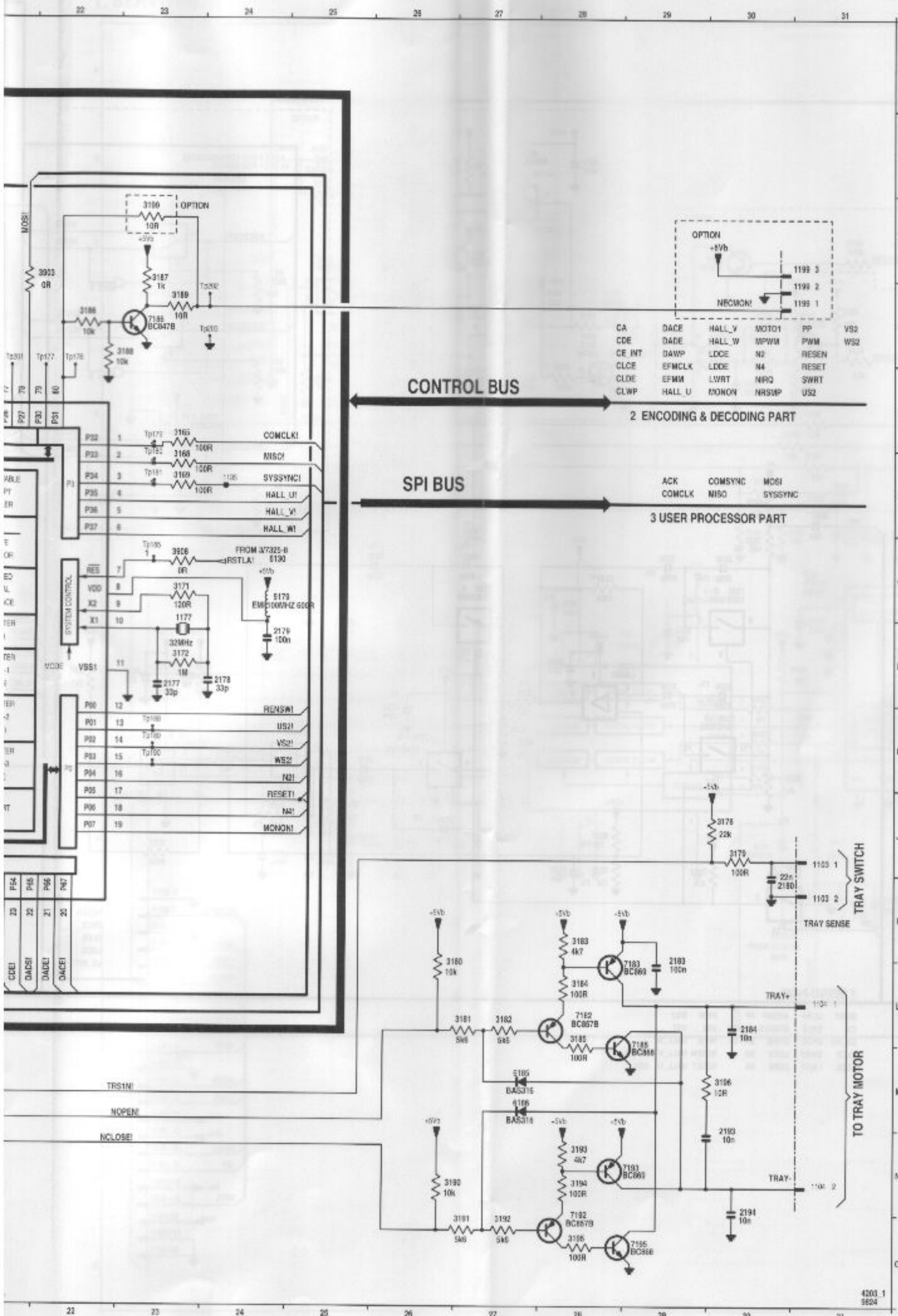
# CDR MAIN BOARD

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15-4	2 ENCODING AND DECODING PART CIRCUIT DIAGRAM
15-8	3 USER PROCESSOR PART CIRCUIT DIAGRAM
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15-9	7 CDR MAINBOARD TOPSIDE PCB DRAWING
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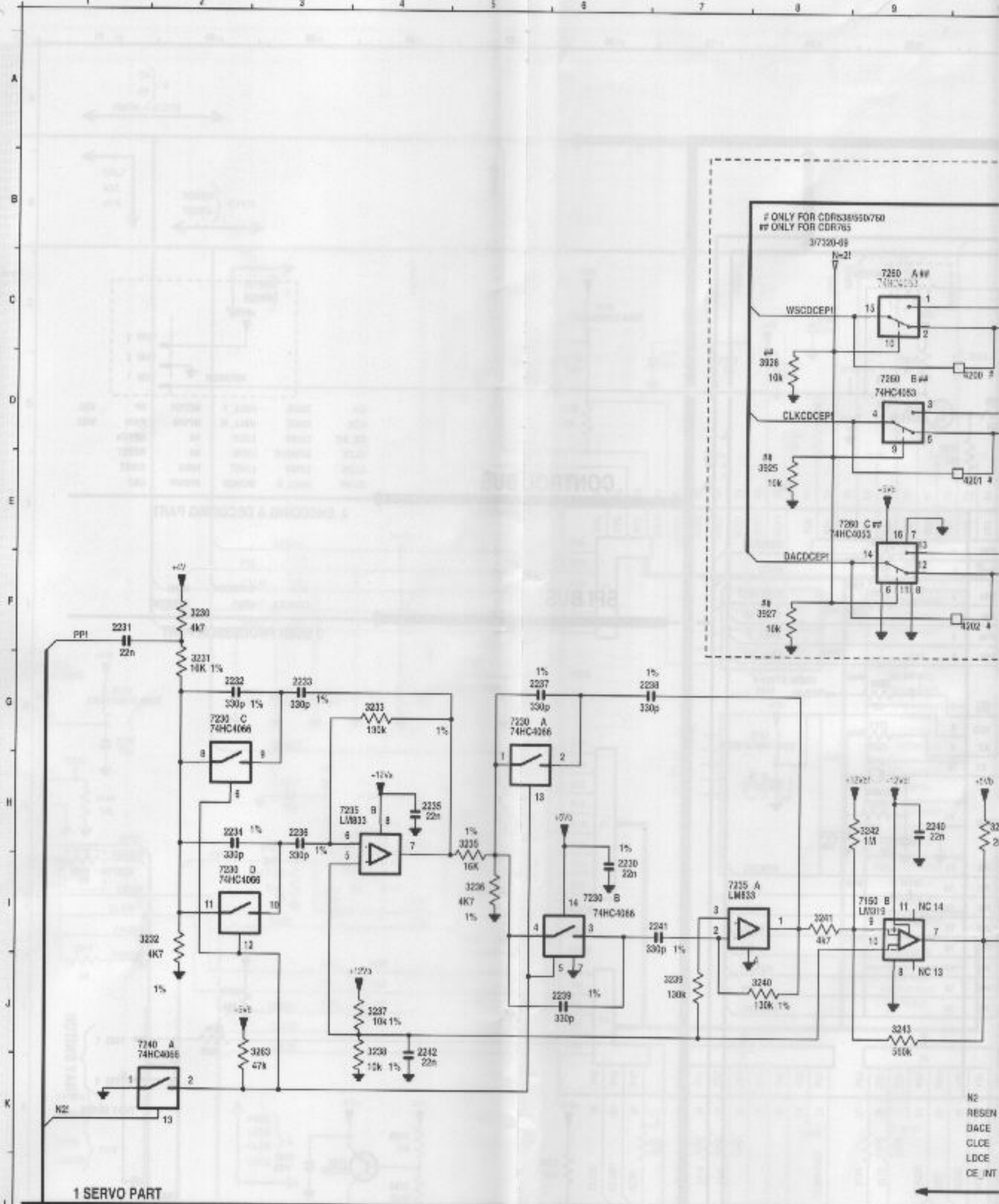
# 1. SERVO PART







1101	C 1	3173	L19
1101	C 1	3174	L19
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1101	D 1	3176	L20
1101	F 1	3177	L21
1101	D 1	3178	J30
1101	D 1	3179	J30
1101	D 1	3180	L27
1101	F 1	3181	L27
1101	F 1	3182	L27
1101	F 1	3183	K28
1101	E 1	3184	L28
1101	E 1	3185	L28
1101	E 1	3186	D22
1101	G 1	3187	D23
1101	E 1	3188	D23
1101	H 1	3189	D23
1101	I 1	3190	N27
1101	I 1	3191	O27
1101	H 1	3192	O27
1101	J 1	3193	N28
1101	J 1	3194	N28
1101	K 1	3195	O28
1102	K 1	3196	M30
1102	K 1	3199	C23
1102	K 1	3500	H 8
1102	K 1	3501	I 9
1102	L 1	3502	I 8
1102	L 1	3503	C22
1102	L 1	3504	K18
1102	L 1	3505	J 2
1102	L 1	3506	J 3
1102	M 1	3508	D23
1102	M 1	3510	I13
1102	M 1	3511	I13
1102	M 1	3504	G 5
1102	M 1	3505	G 8
1102	M 1	3506	H 5
1102	M 1	3507	H 5
1102	M 1	3508	I 5
1102	M 1	3509	I 5
1102	M 1	3510	I 5
1102	M 1	3511	J 5
1102	M 1	3512	F12
1102	M 1	3513	G13
1102	M 1	3514	K18
1102	M 1	3515	G17
1102	M 1	3516	G17
1102	M 1	3517	G24
1102	M 1	3518	F24
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1102	M 1	3520	G 8
1102	M 1	3521	H 3
1102	M 1	3522	H 7
1102	M 1	3523	H 7
1102	M 1	3524	G 6
1102	M 1	3525	G 6
1102	M 1	3526	H 2
1102	M 1	3527	H 5
1102	M 1	3528	H 5
1102	M 1	3529	H 5
1102	M 1	3530	H 5
1102	M 1	3531	H 5
1102	M 1	3532	H 5
1102	M 1	3533	H 5
1102	M 1	3534	H 5
1102	M 1	3535	H 5
1102	M 1	3536	H 5
1102	M 1	3537	H 5
1102	M 1	3538	H 5
1102	M 1	3539	H 5
1102	M 1	3540	H 5
1102	M 1	3541	H 5
1102	M 1	3542	H 5
1102	M 1	3543	H 5
1102	M 1	3544	H 5
1102	M 1	3545	H 5
1102	M 1	3546	H 5
1102	M 1	3547	H 5
1102	M 1	3548	H 5
1102	M 1	3549	H 5
1102	M 1	3550	H 5
1102	M 1	3551	H 5
1102	M 1	3552	H 5
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1102	M 1	3557	H 5
1102	M 1	3558	H 5
1102	M 1	3559	H 5
1102	M 1	3560	H 5
1102	M 1	3561	H 5
1102	M 1	3562	H 5
1102	M 1	3563	H 5
1102	M 1	3564	H 5
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1102	M 1	3566	H 5
1102	M 1	3567	H 5
1102	M 1	3568	H 5
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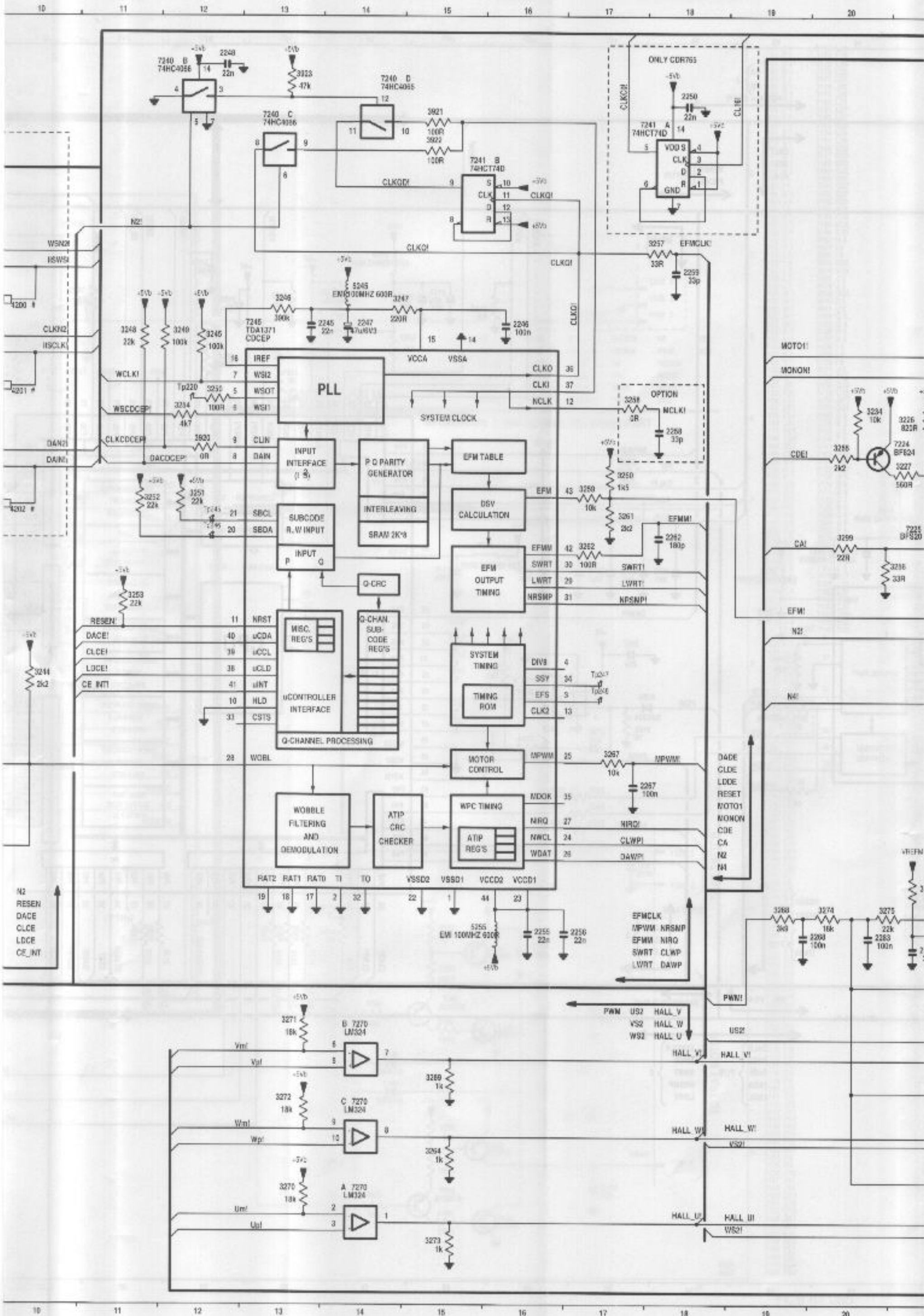


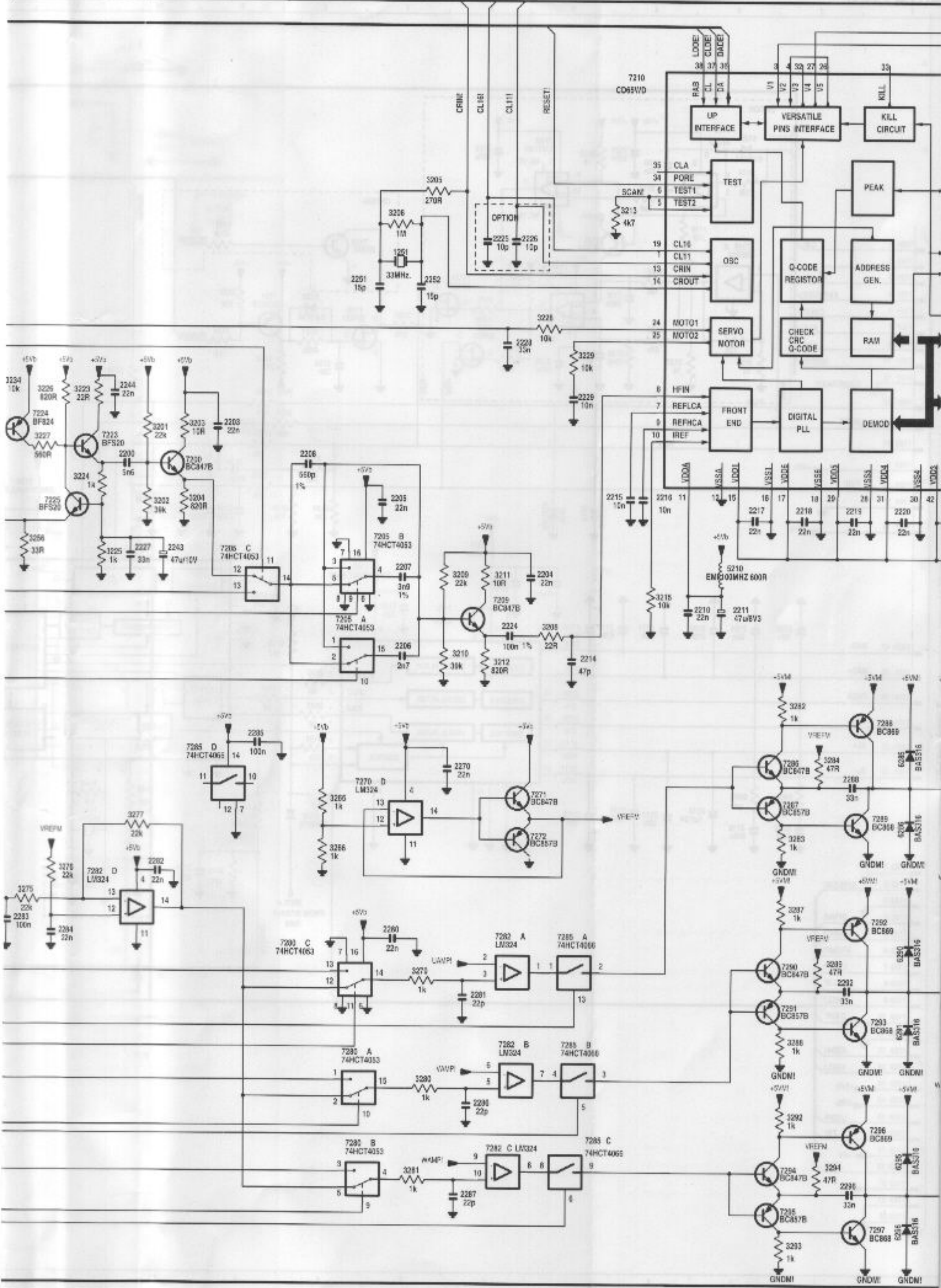
1 SERVO PART

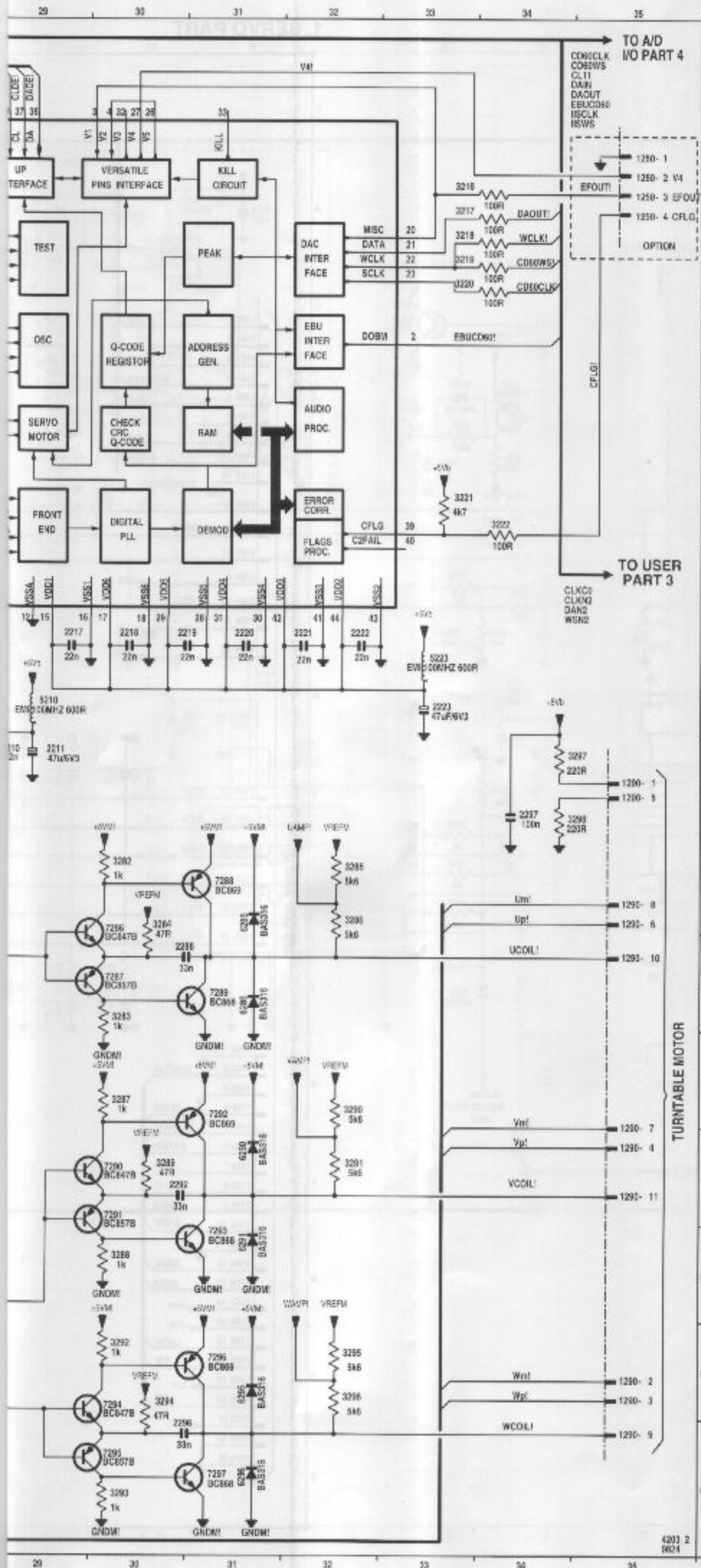
SWRT	CLWP	NRSMP	PP	PWN	WS2
CA	DACE	EFNCLK	MONON	US2	VS2
CE_INT	DADE	EFNM	MOTO1	MRQ	HALL_W
CLCE	DAWP	LDCE	N2	RESEN	HALL_V
CLDE	LWRT	LDDE	M4	RESET	HALL_U
					CDE

N2  
RESEN  
DACE  
CLCE  
LDCE  
CE\_INT





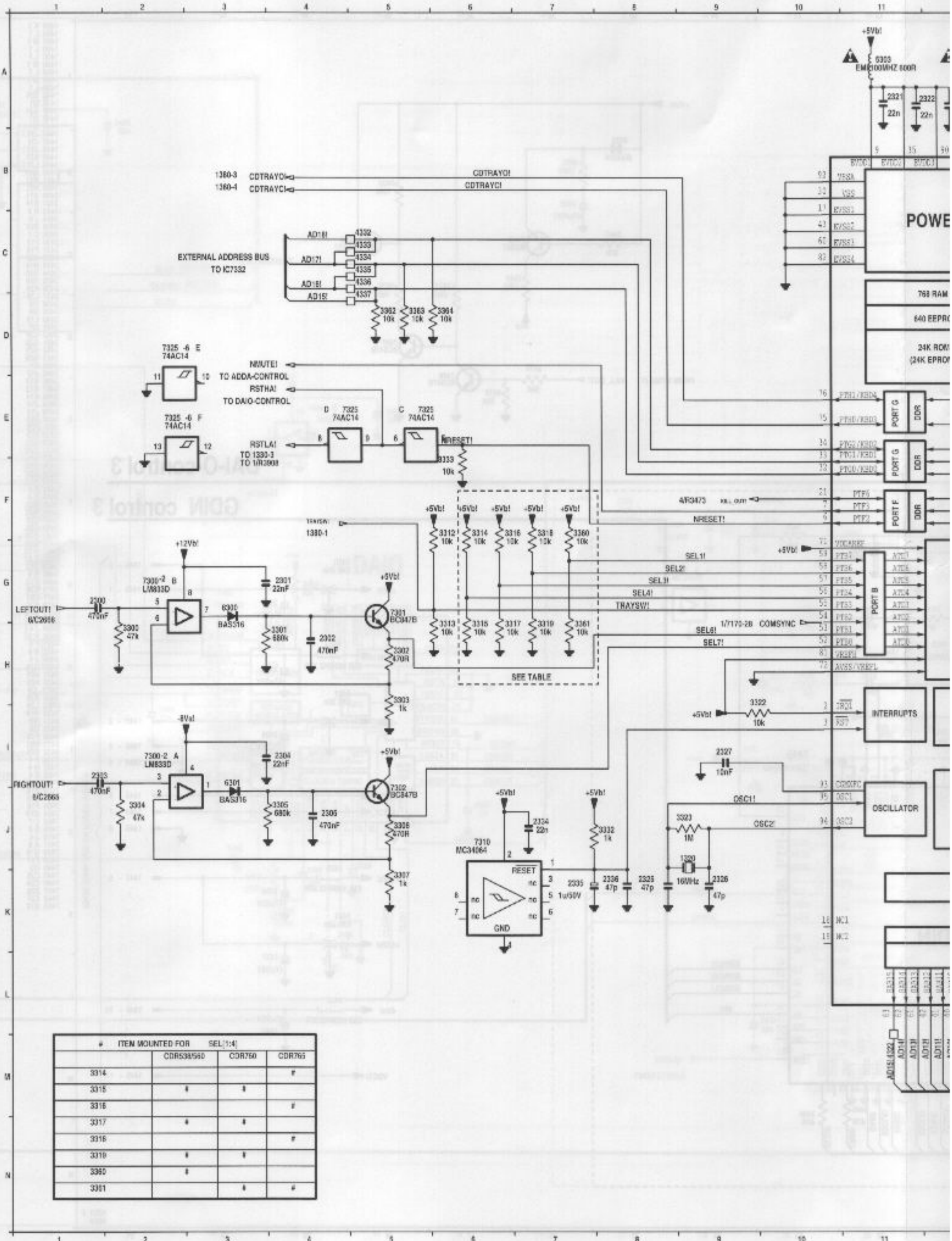




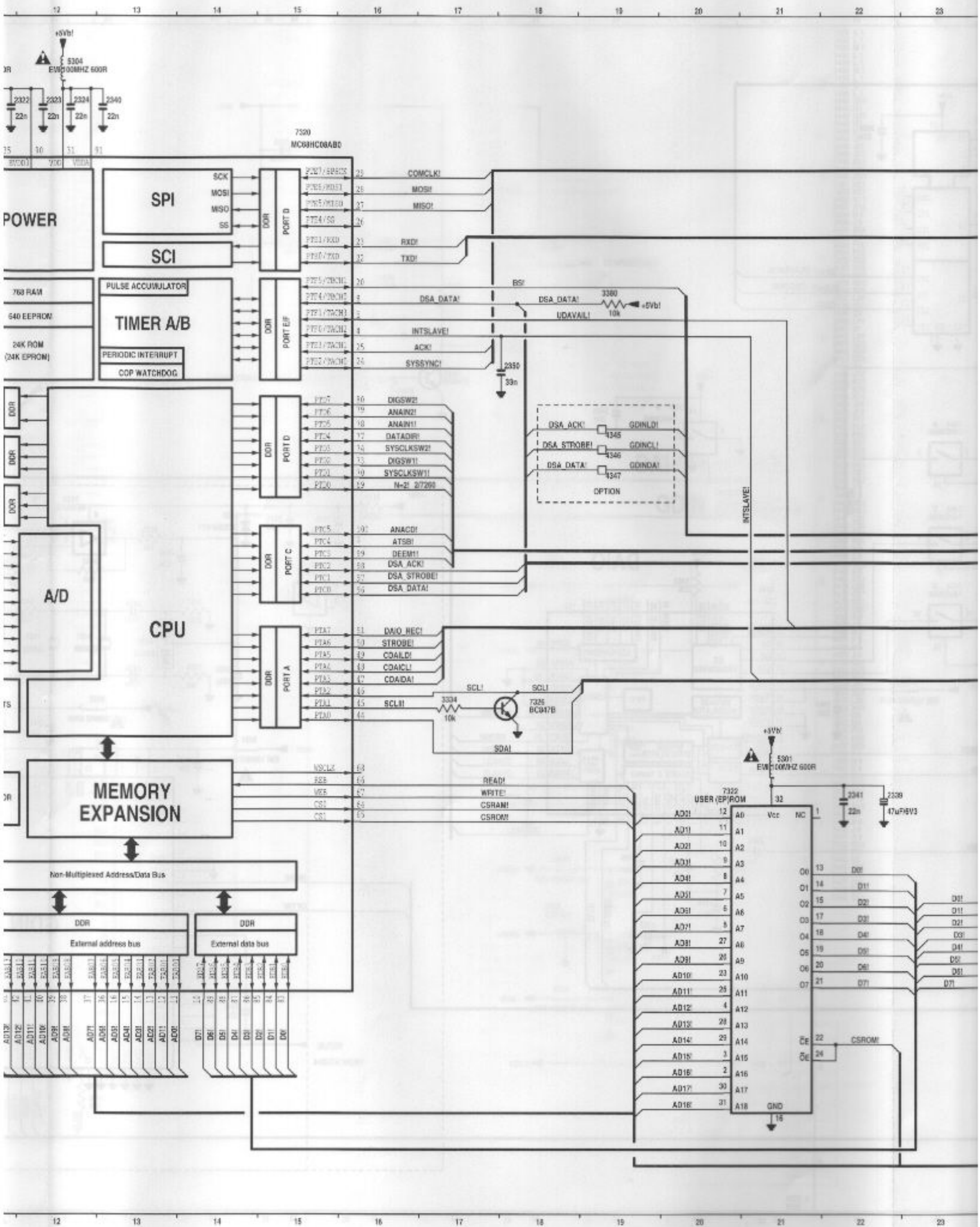
1250 B35	3288 L30
1250 B36	3290 K32
1250 B38	3291 L32
1251 C26	3292 N33
1290 H35	3293 O30
1290 H36	3294 N31
1290 H37	3295 N32
1290 L35	3296 H35
1290 L36	3297 H36
1290 L37	3298 H37
1290 L38	3299 F20
1290 L39	3300 F12
1290 L40	3301 A15
1290 L41	3302 B15
1290 L42	3303 A13
1290 L43	3304 E 8
1290 L44	3305 D 8
1290 L45	3306 F 8
1290 L46	3307 F 8
1290 L47	3308 D10
1290 L48	3309 E10
1290 L49	3310 G25
1290 L50	3311 G33
1290 L51	3312 C14
1290 L52	3313 K16
1290 L53	3314 I31
1290 L54	3315 J31
1290 L55	3316 L31
1290 L56	3317 M31
1290 L57	3318 N31
1290 L58	3319 O31
1290 L59	3320 F 1
1290 L60	3321 G 2
1290 L61	3322 G 2
1290 L62	3323 G 3
1290 L63	3324 H 2
1290 L64	3325 H 3
1290 L65	3326 H 3
1290 L66	3327 J 1
1290 L67	3328 A11
1290 L68	3329 A13
1290 L69	3330 A14
1290 L70	3331 A17
1290 L71	3332 B15
1290 L72	3333 D13
1290 L73	3334 C 9
1290 L74	3335 D 9
1290 L75	3336 F10
1290 L76	3337 N14
1290 L77	3338 L14
1290 L78	3339 M14
1290 L79	3340 J23
1290 L80	3341 J27
1290 L81	3342 J27
1290 L82	3343 M24
1290 L83	3344 N24
1290 L84	3345 L24
1290 L85	3346 L26
1290 L86	3347 M26
1290 L87	3348 N26
1290 L88	3349 K21
1290 L89	3350 L27
1290 L90	3351 M27
1290 L91	3352 N27
1290 L92	3353 Q2
1290 L93	3354 Q1
1290 L94	3355 J30
1290 L95	3356 B1
1290 L96	3357 J31
1290 L97	3358 L30
1290 L98	3359 L30
1290 L99	3360 K31
1290 L100	3361 M31
1290 L101	3362 N31
1290 L102	3363 O31
1290 L103	3364 Q31
1290 L104	3365 Q31
1290 L105	3366 Q31
1290 L106	3367 Q31
1290 L107	3368 Q31
1290 L108	3369 Q31
1290 L109	3370 Q31
1290 L110	3371 Q31
1290 L111	3372 Q31
1290 L112	3373 Q31
1290 L113	3374 Q31
1290 L114	3375 Q31
1290 L115	3376 Q31
1290 L116	3377 Q31
1290 L117	3378 Q31
1290 L118	3379 Q31
1290 L119	3380 Q31
1290 L120	3381 Q31
1290 L121	3382 Q31
1290 L122	3383 Q31
1290 L123	3384 Q31
1290 L124	3385 Q31
1290 L125	3386 Q31
1290 L126	3387 Q31
1290 L127	3388 Q31
1290 L128	3389 Q31
1290 L129	3390 Q31
1290 L130	3391 Q31

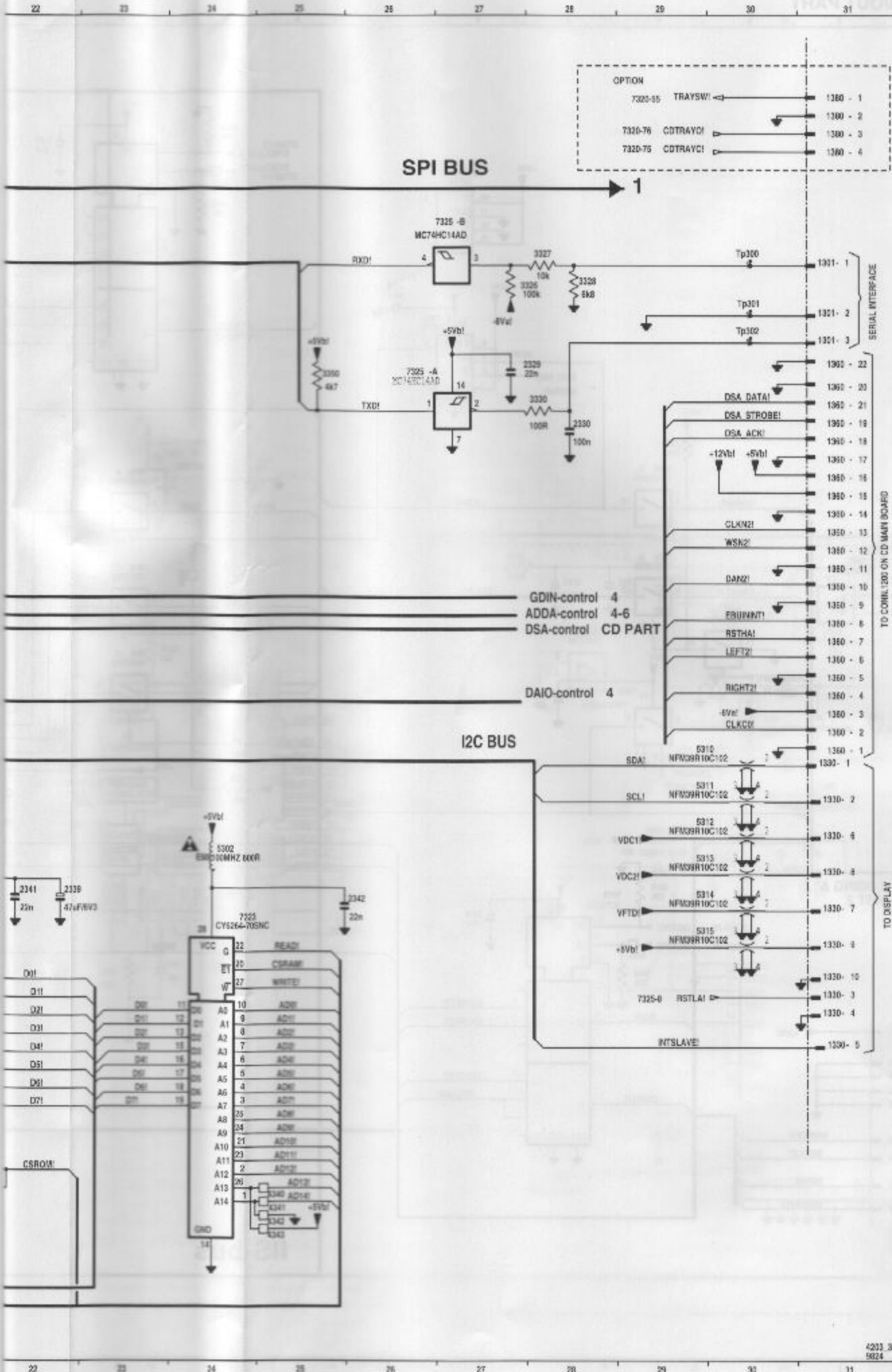
TURNABLE MOTOR

3. USER PROCESSOR PART



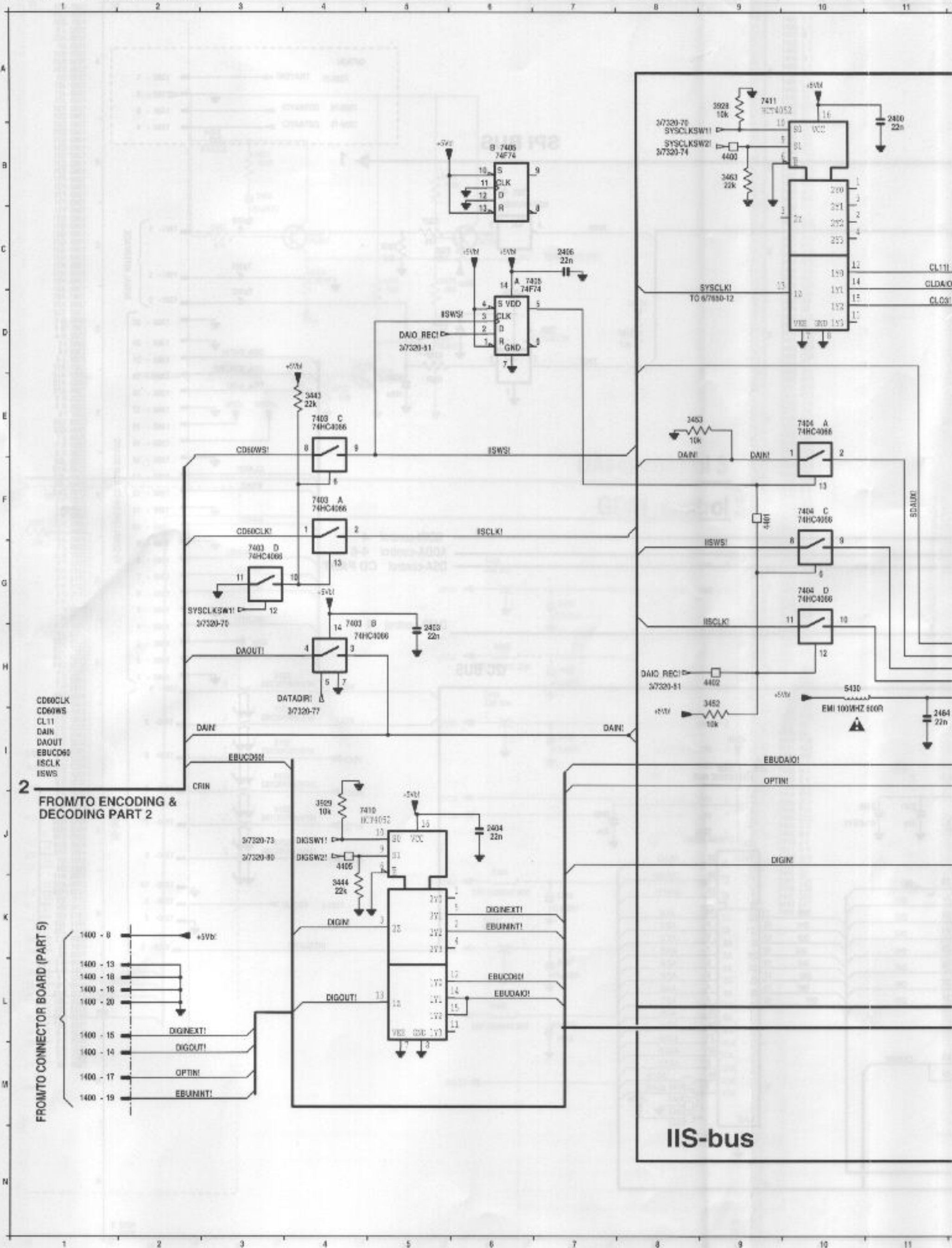
#	ITEM MOUNTED FOR	SEL[1:4]		
		CDR538/540	CDR760	CDR765
3314				*
3315		*	*	
3316				*
3317		*	*	
3318				*
3360		*	*	
3361			*	*





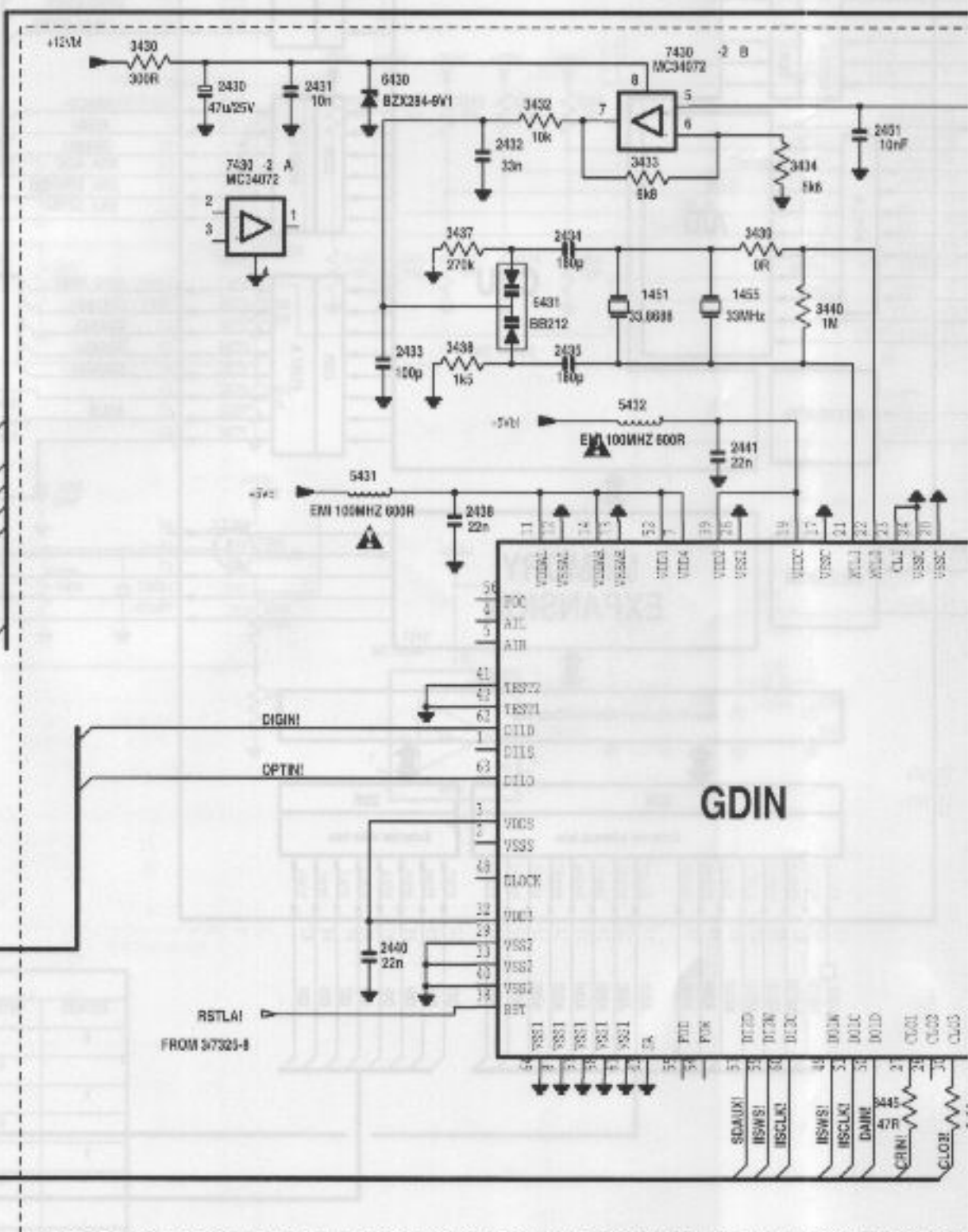
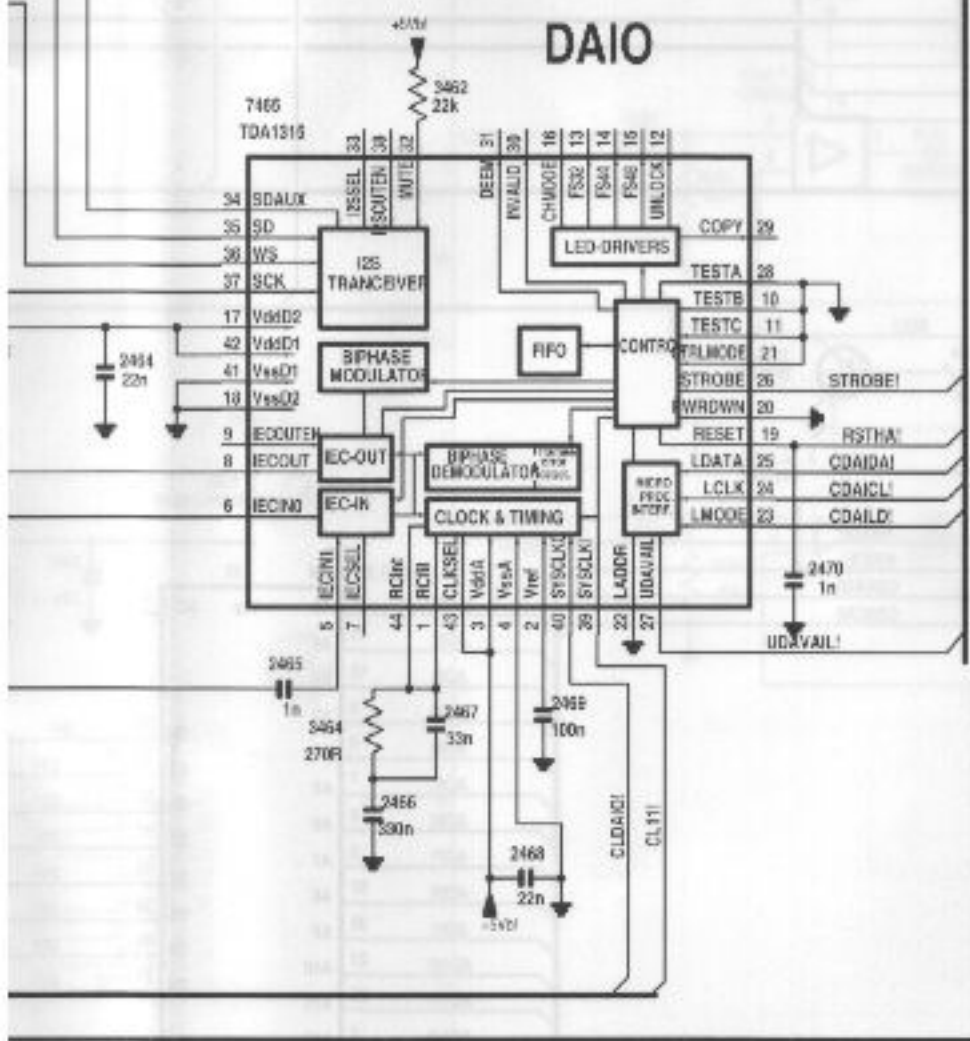
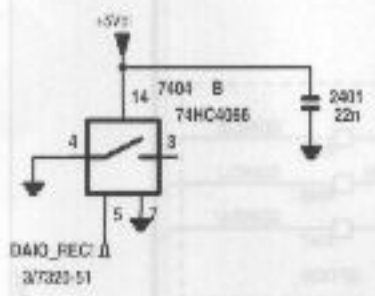
- 1301 C31
- 1301 C31
- 1301 C31
- 1301 J9
- 1301 H81
- 1301 I31
- 1301 K31
- 1301 K31
- 1301 K31
- 1301 I31
- 1301 J31
- 1301 J31
- 1301 K31
- 1301 K31
- 1301 D31
- 1301 D31
- 1301 D31
- 1301 E31
- 1301 E31
- 1301 E31
- 1301 F31
- 1301 F31
- 1301 F31
- 1301 F31
- 1301 G31
- 1301 G31
- 1301 G31
- 1301 G31
- 1301 H31
- 1301 H31
- 1301 H31
- 1301 H31
- 1301 A31
- 1301 A31
- 1301 B31
- 2300 G 1
- 2301 G 4
- 2302 H 4
- 2303 I 1
- 2304 I 4
- 2305 J 4
- 2306 A11
- 2307 A12
- 2308 A12
- 2309 A12
- 2310 K 8
- 2311 K 9
- 2312 I 9
- 2313 O2B
- 2314 E2B
- 2315 J 7
- 2316 K 7
- 2317 K 8
- 2318 J22
- 2319 A13
- 2320 J22
- 2321 J26
- 2322 D10
- 2323 H 2
- 2324 H 4
- 2325 H 3
- 2326 H 5
- 2327 J 4
- 2328 J 5
- 2329 K 5
- 2330 K 5
- 2331 F 6
- 2332 H 6
- 2333 H 6
- 2334 F 6
- 2335 H 6
- 2336 F 6
- 2337 H 6
- 2338 F 7
- 2339 H 7
- 2340 H 9
- 2341 J 9
- 2342 C28
- 2343 C28
- 2344 C28
- 2345 D28
- 2346 J 6
- 2347 E 5
- 2348 I 7
- 2349 D25
- 2350 F 7
- 2351 H 7
- 2352 D 5
- 2353 D 5
- 2354 D 6
- 2355 D10
- 2356 C 5
- 2357 C 5
- 2358 C 5
- 2359 C 5
- 2360 D 5
- 2361 N25
- 2362 N25
- 2363 N25
- 2364 N25
- 2365 E10
- 2366 E10
- 2367 F15
- 2368 I21
- 2369 I24
- 2370 A11
- 2371 A12
- 2372 H29
- 2373 I29
- 2374 I29
- 2375 J29
- 2376 J29
- 2377 G 3
- 2378 I 3
- 2379 I 2
- 2380 G 2
- 2381 G 5
- 2382 J 5
- 2383 J 6
- 2384 B13
- 2385 J25
- 2386 J25
- 2387 D25
- 2388 B27
- 2389 E 5
- 2390 E 5
- 2391 D 2
- 2392 E 2
- 2393 I18

4. DIGITAL IN/OUT PART



3. USER PROCESSOR PART

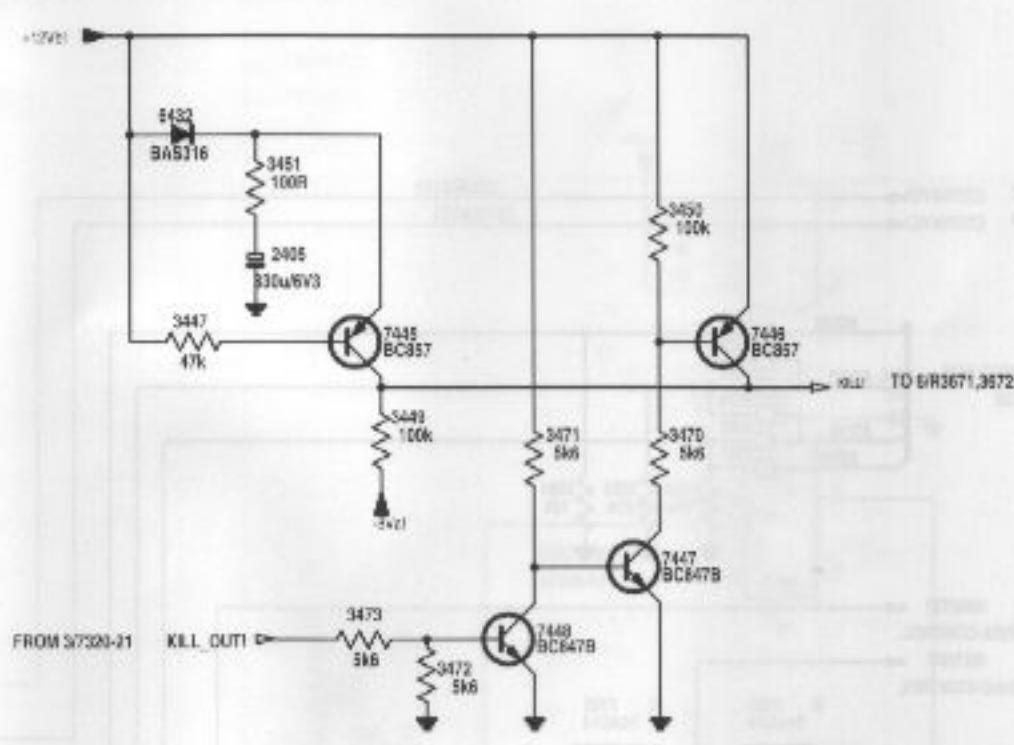
11 12 13 14 15 16 17 18 19 20 21 22



11 12 13 14 15 16 17 18 19 20 21 22

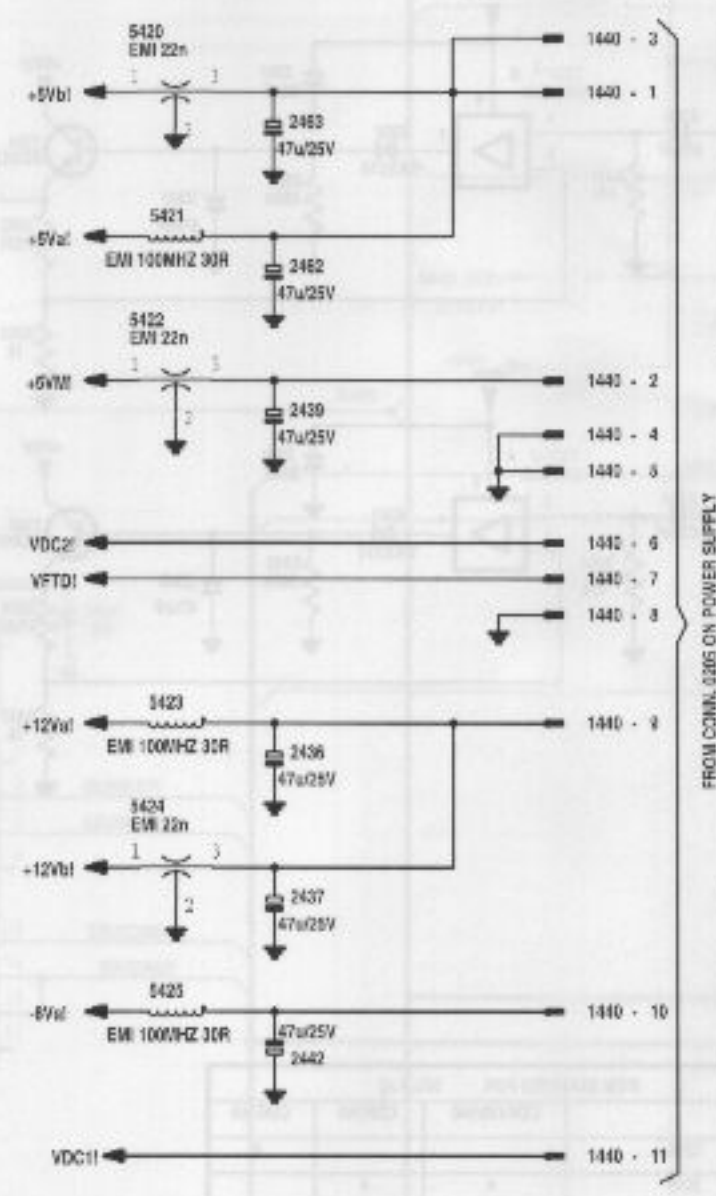
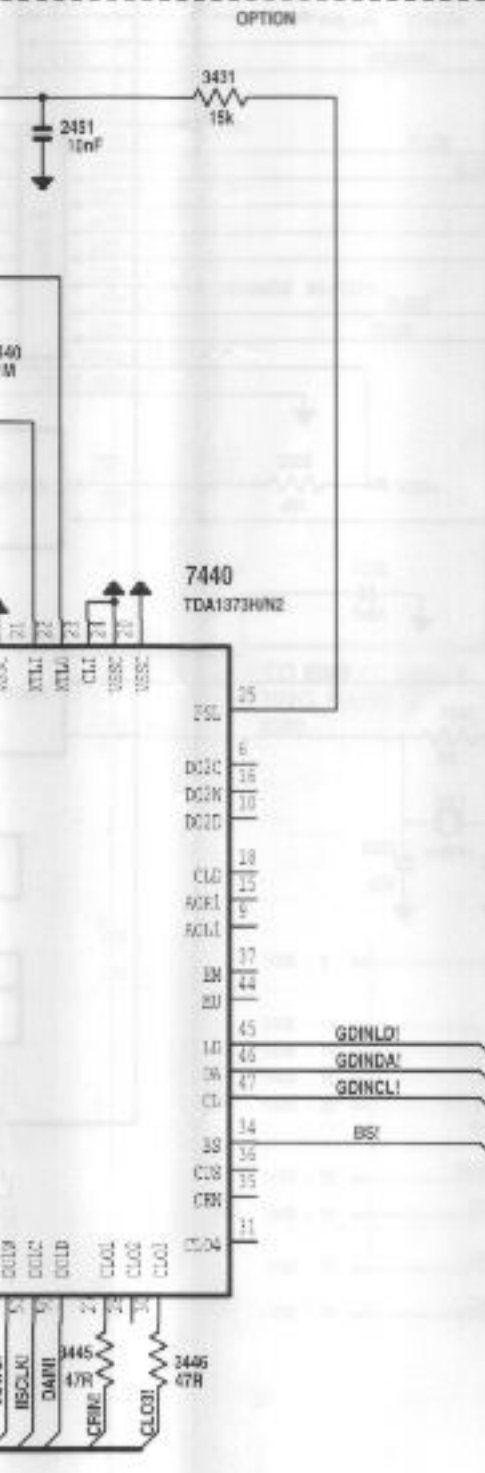


22 23 24 25 26 27 28 29 30 31



**DAI-O-control 3**

**GDIN control 3**

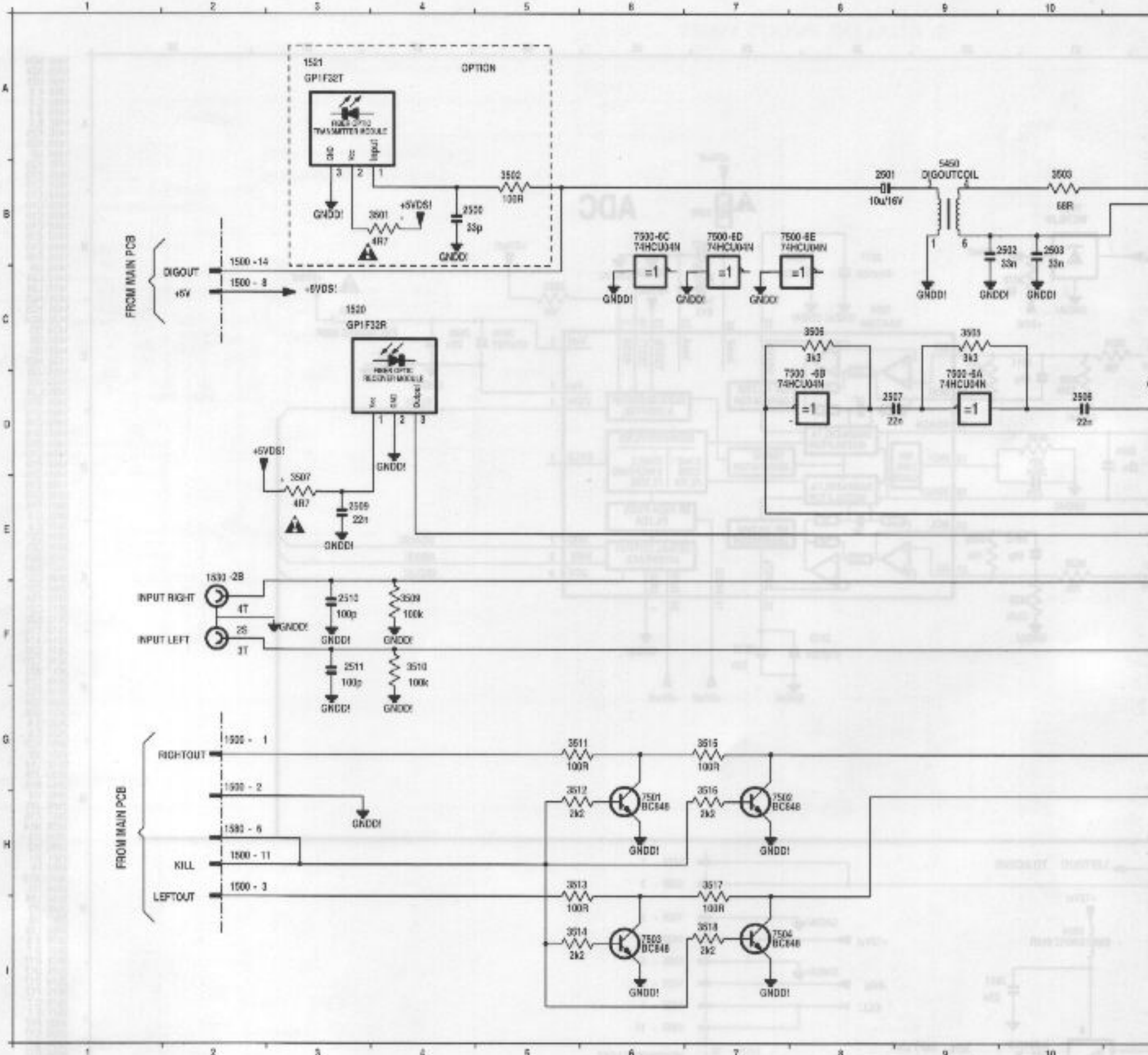


1400 K 1  
 1400 L 1  
 1400 M 1  
 1400 L 1  
 1400 L 1  
 1400 L 1  
 1400 M 1  
 1400 L 1  
 1400 M 1  
 1400 L 1  
 1400 J31  
 1400 J31  
 1400 J31  
 1400 J31  
 1400 K31  
 1400 L31  
 1400 M31  
 1400 H31  
 1400 H31  
 2400 A11  
 2401 E14  
 2403 H 8  
 2404 J 6  
 2405 B26  
 2406 C 7  
 2430 F18  
 2431 F18  
 2432 G20  
 2433 H19  
 2434 G20  
 2435 H20  
 2436 K29  
 2437 L29  
 2438 I19  
 2439 G29  
 2440 L19  
 2441 G21  
 2442 L28  
 2443 G22  
 2462 H28  
 2463 G29  
 2464 I11  
 2805 J12  
 2466 K13  
 2467 K13  
 2468 K14  
 2469 J14  
 2470 J15  
 3400 F17  
 3401 F23  
 3402 F20  
 3403 G21  
 3404 G22  
 3407 G19  
 3408 H19  
 3409 G21  
 3410 H22  
 3411 E 4  
 3412 K 4  
 3444 M22  
 3445 M23  
 3446 C25  
 3449 C26  
 3450 B28  
 3451 B25  
 3452 H 9  
 3453 E 6  
 3452 G13  
 3463 B 9  
 3464 K13  
 3470 C26  
 3471 C27  
 3472 E27  
 3473 G26  
 3828 A 9  
 3829 J 4  
 4400 B 9  
 4401 F 8  
 4402 H 9  
 4405 J 4  
 4406 G28  
 4421 H29  
 4422 H28  
 4423 J29  
 4424 K28  
 4425 L28  
 4430 H10  
 4431 I19  
 4432 G3  
 4430 F19  
 4431 H20  
 4432 B25  
 7400 F 4  
 7403 H 4  
 7400 E 4  
 7400 D 3  
 7404 E10  
 7404 E13  
 7404 F10  
 7404 G10  
 7405 C 7  
 7405 B 6  
 7410 J 4  
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 7448 E27  
 7465 G12

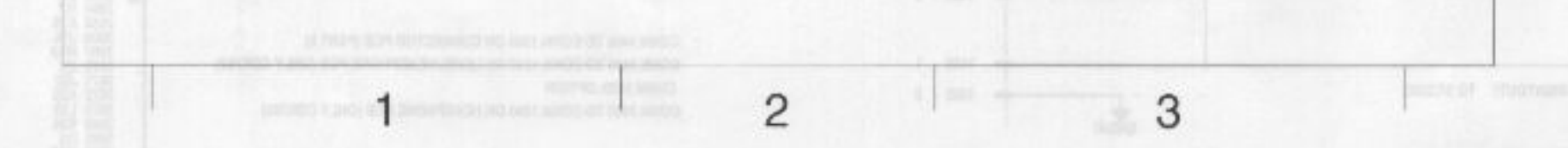
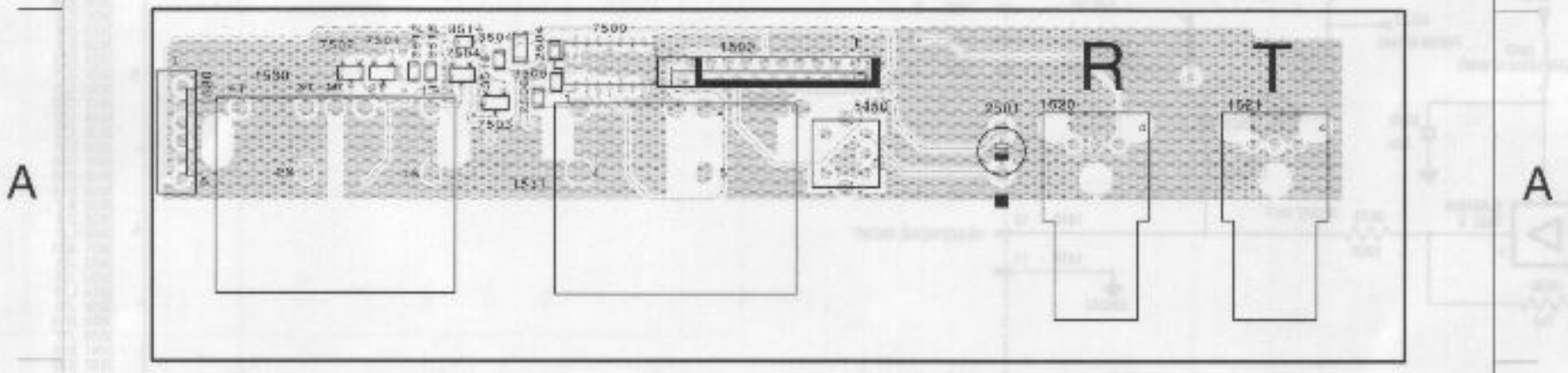
FROM CONN. 0205 ON POWER SUPPLY

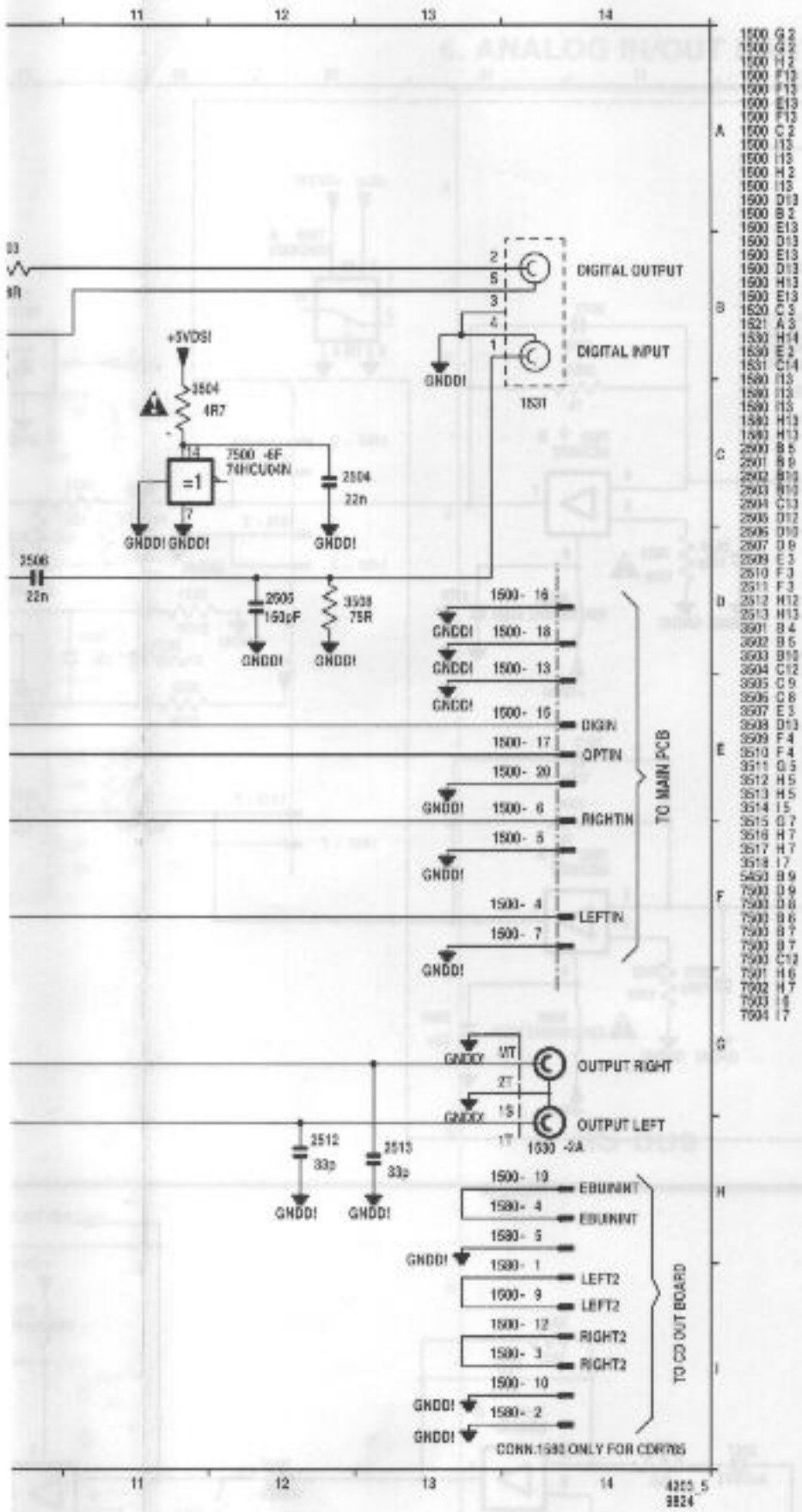
22 23 24 25 26 27 28 29 30 31

5 CONNECTOR PART

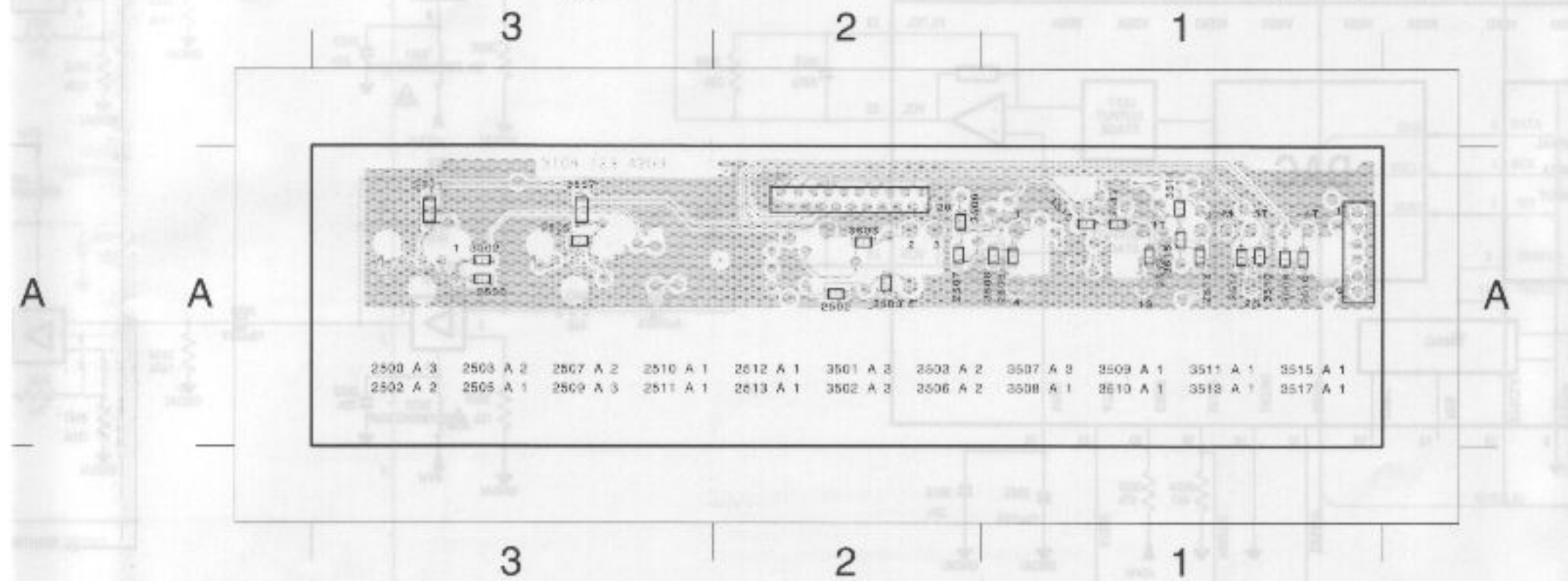


1500 A 2	1521 A 3	1531 A 2	2501 A 3	2506 A 1	3505 A 1	3514 A 1	3518 A 1	7500 A 1	7502 A 1	7504 A 1
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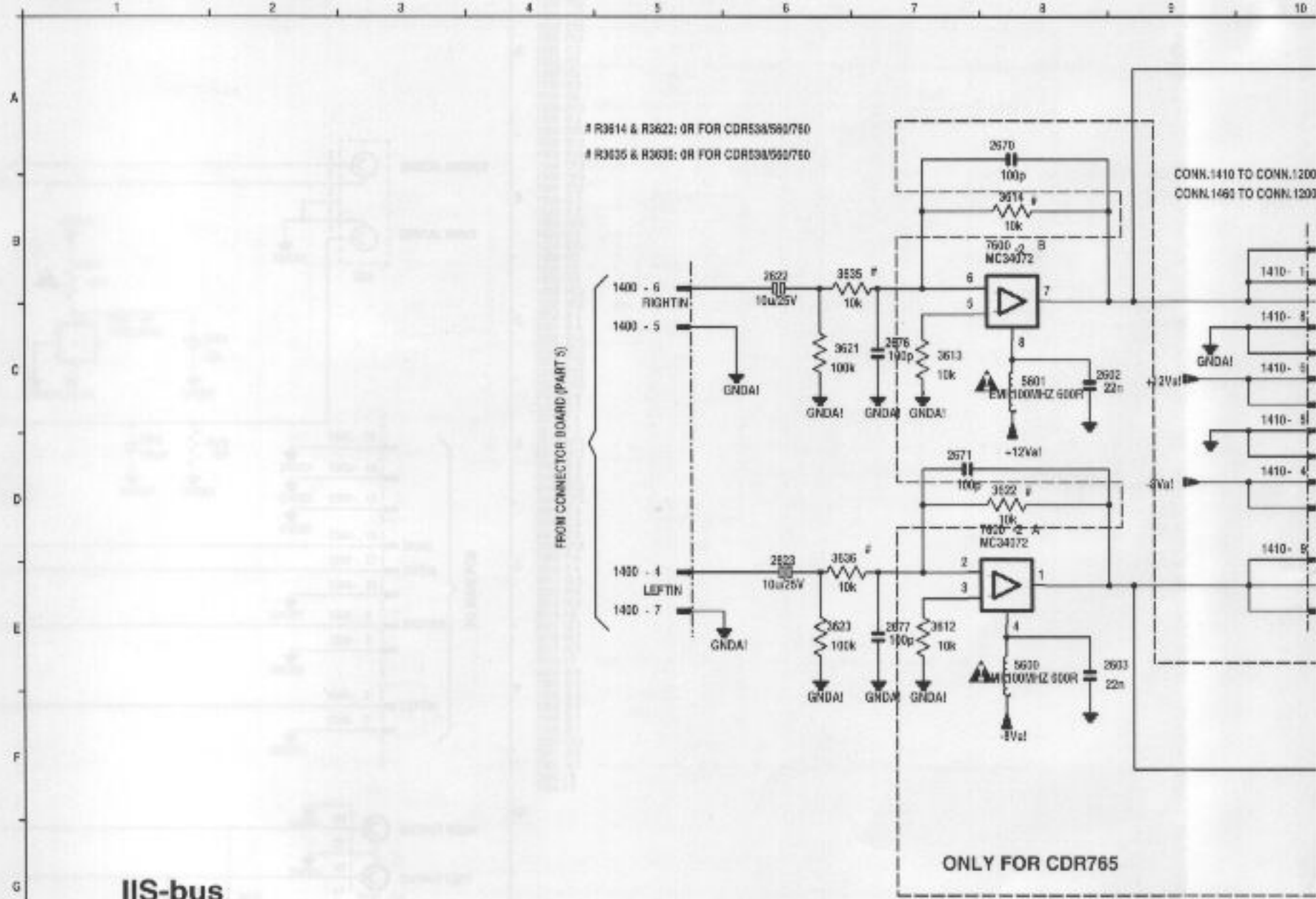




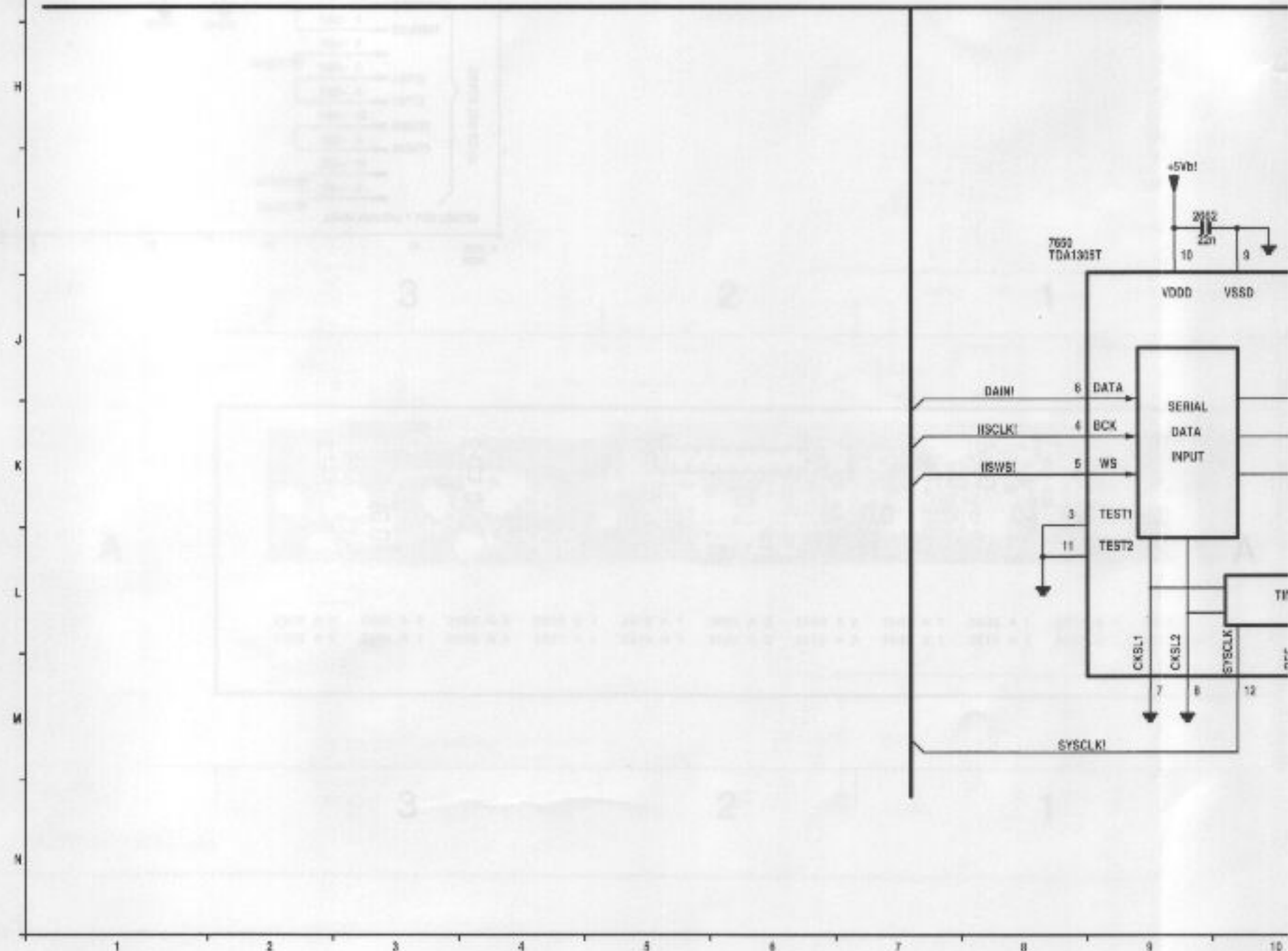
- 1500 G 2
- 1500 G 2
- 1500 H 2
- 1500 F13
- 1500 F13
- 1500 F13
- 1500 C 2
- 1500 H 2
- 1500 H 2
- 1500 H 2
- 1500 H 2
- 1500 D13
- 1500 B 2
- 1500 E13
- 1500 D13
- 1500 D13
- 1500 D13
- 1500 H13
- 1520 C 3
- 1521 A 3
- 1530 H14
- 1530 E 3
- 1531 C14
- 1530 H13
- 1530 H13
- 1530 H13
- 1530 H13
- 1530 H13
- 2500 B 5
- 2501 B 9
- 2502 B10
- 2503 B10
- 2504 C13
- 2505 D12
- 2506 D10
- 2507 D 9
- 2508 E 3
- 2509 E 3
- 2510 F 3
- 2511 F 3
- 2512 H12
- 2513 H13
- 3501 B 4
- 3502 B 5
- 3503 B10
- 3504 C12
- 3505 C 9
- 3506 C 8
- 3507 E 3
- 3508 D13
- 3509 F 4
- 3510 F 4
- 3511 D 5
- 3512 H 5
- 3513 H 5
- 3514 1 5
- 3515 D 7
- 3516 H 7
- 3517 H 7
- 3518 1 7
- 5450 B 9
- 7500 D 9
- 7500 D 8
- 7500 B 6
- 7500 B 7
- 7500 B 7
- 7500 C12
- 7501 H 6
- 7502 H 7
- 7503 1 6
- 7504 1 7

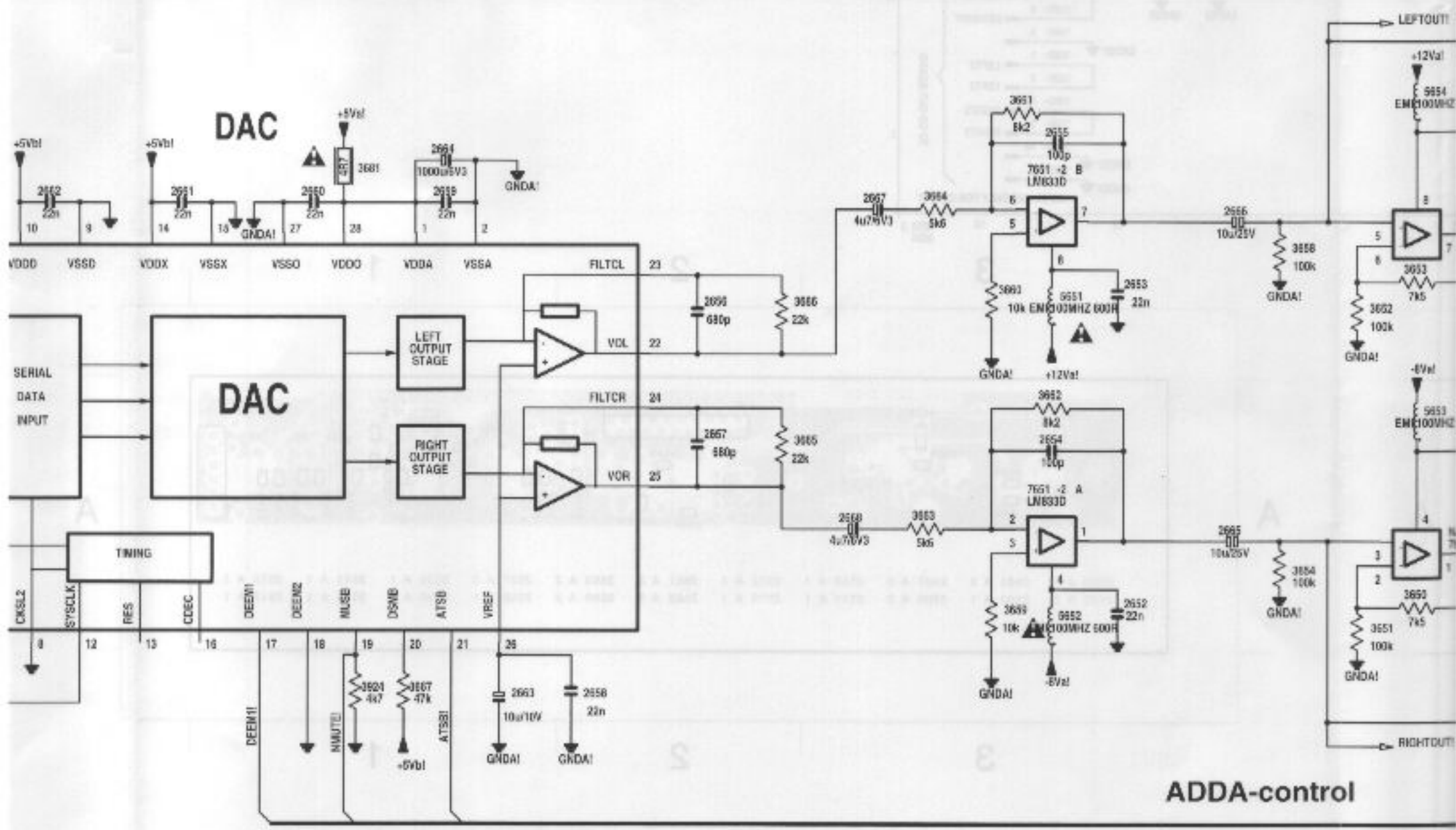
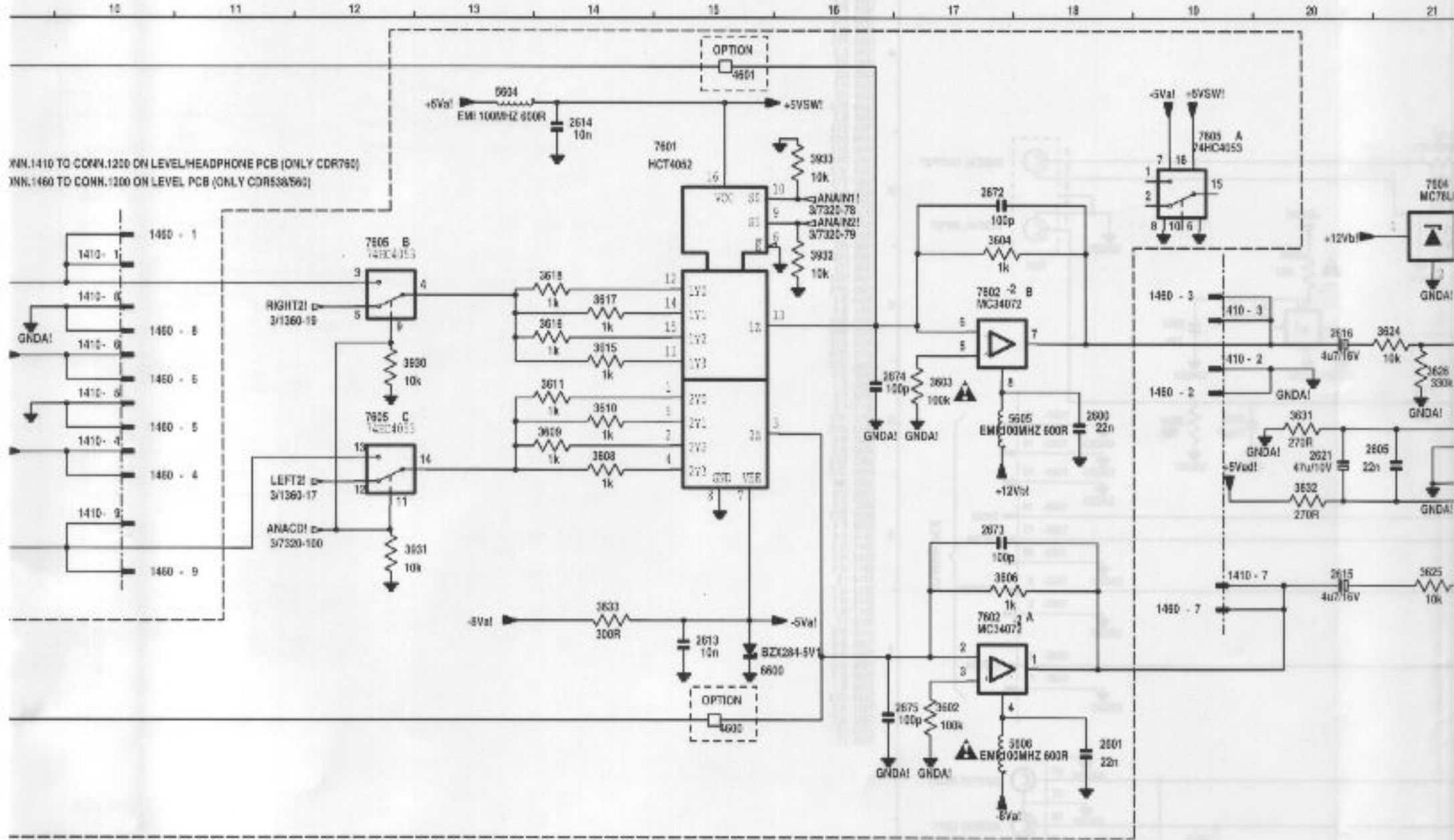


### 6. ANALOG IN/OUT PART

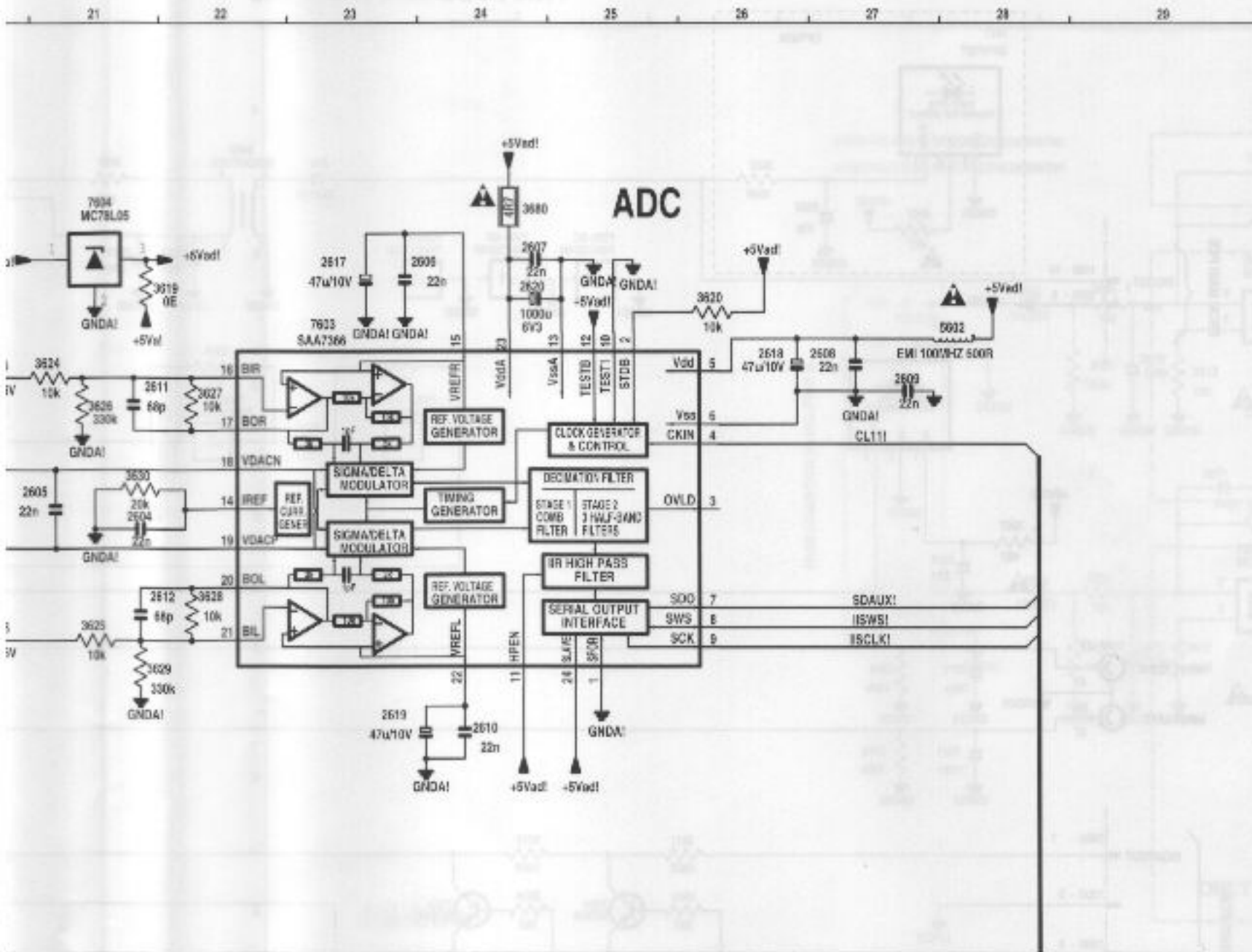


IIS-bus

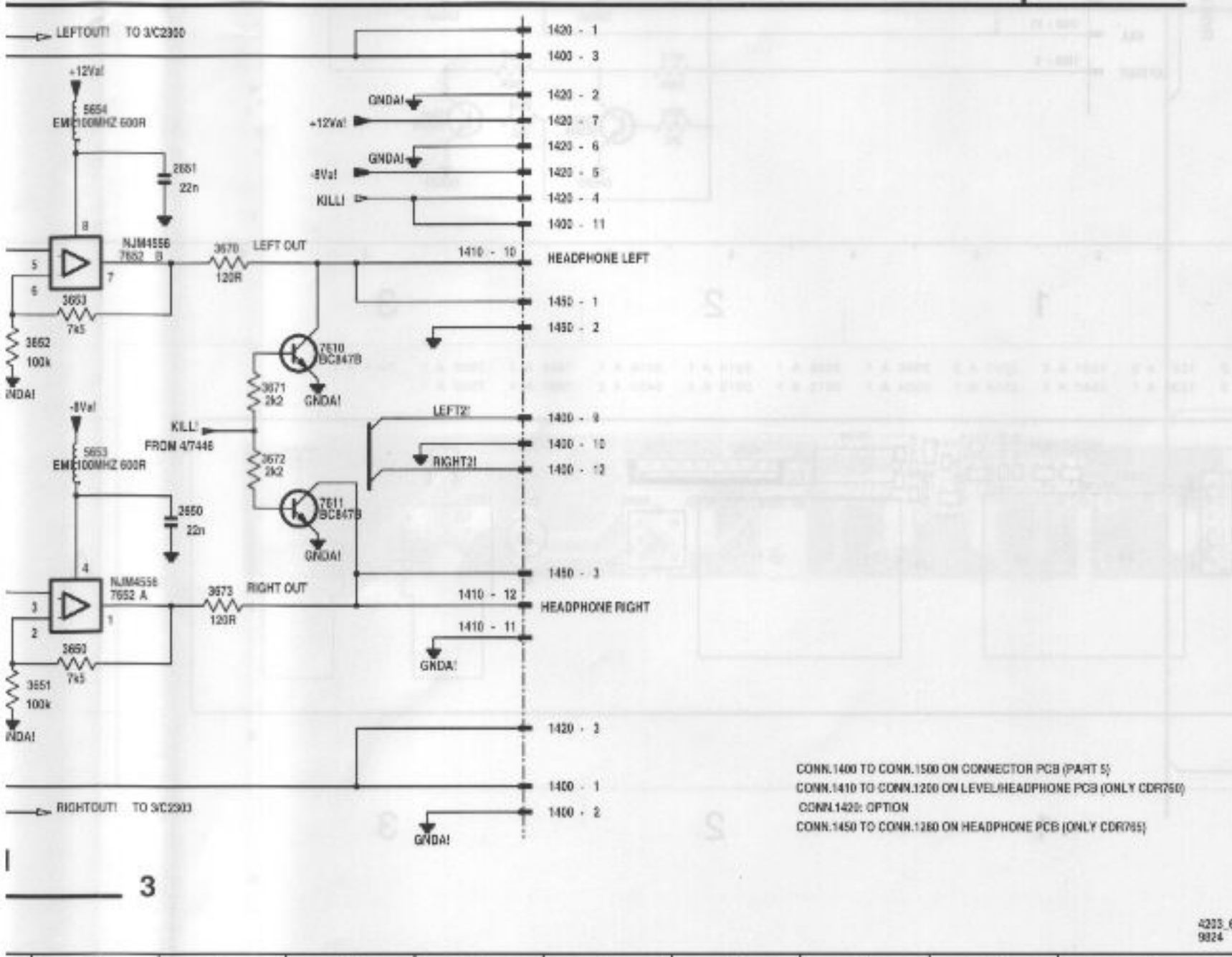




ADDA-control



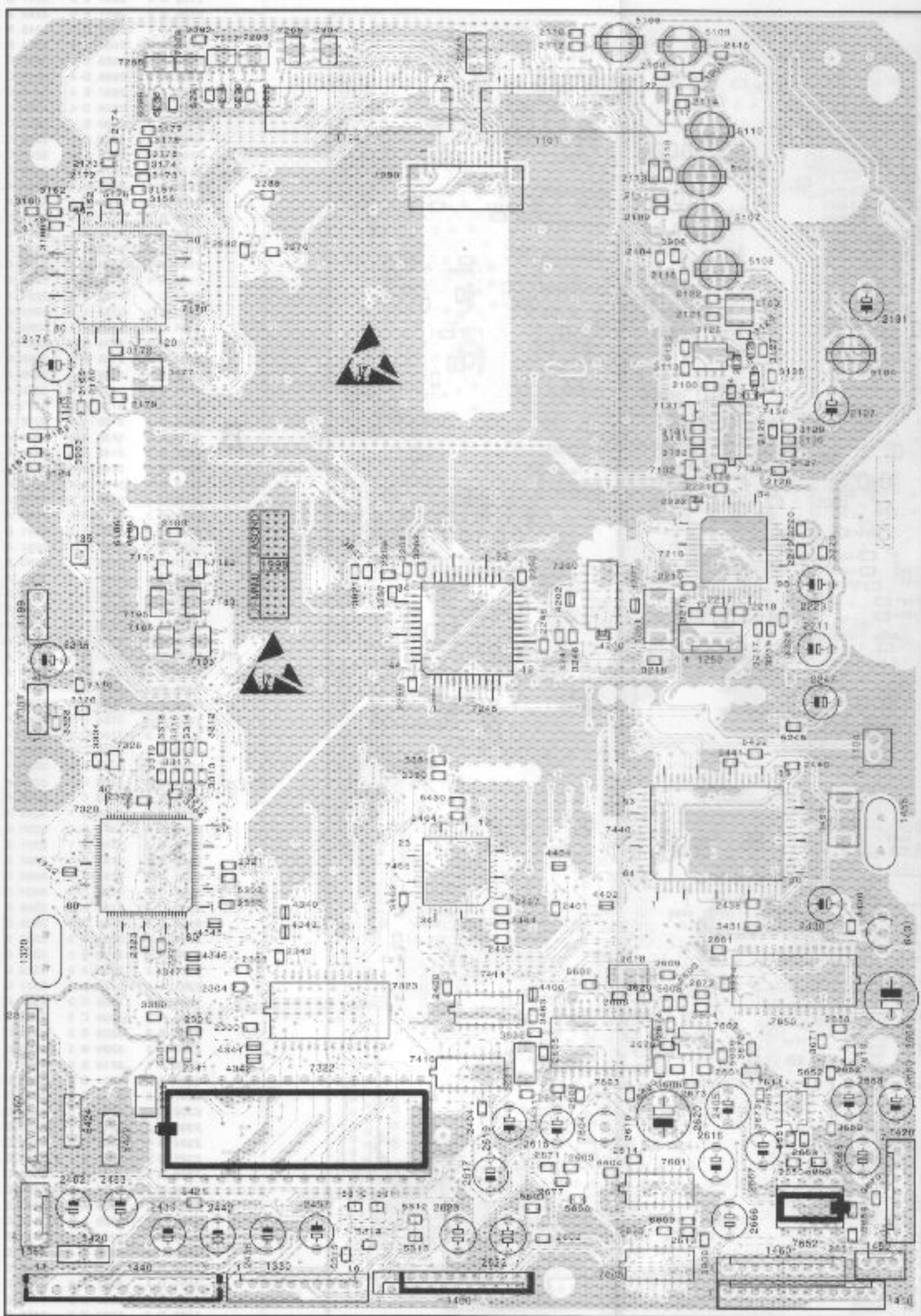
1400	M24	5601	C 8
1400	M21	5602	C28
1400	H25	5604	A13
1400	E 5	5605	D16
1400	C 5	5606	F16
1400	B 5	5607	J16
1400	E 5	5608	M14
1400	K25	5609	K21
1400	K25	5610	H21
1400	C25	5611	F19
1400	K25	5612	D 7
1410	B10	7500	B 9
1410	C19	7501	A15
1410	C19	7502	E17
1410	D10	7503	C17
1410	C10	7504	C23
1410	C10	7505	R21
1410	E15	7506	A19
1410	C10	7507	B12
1410	D10	7508	D12
1410	B4	7509	J23
1410	L24	7510	I 8
1410	L24	7511	K23
1410	L24	7512	I 8
1420	H25	7513	L16
1420	H25	7514	I16
1420	M24	7515	L21
1420	I25	7516	I21
1420	I25		
1420	H25		
1450	J25		
1450	L24		
1450	B10		
1450	C19		
1450	C19		
1450	D10		
1450	D10		
1450	C12		
1450	E19		
1450	C19		
1450	E10		
2600	D18		
2601	F16		
2602	C 9		
2603	E 9		
2604	D21		
2605	D21		
2606	B24		
2607	B24		
2608	C27		
2609	C27		
2610	F24		
2611	C21		
2612	E22		
2613	E15		
2614	A14		
2615	E20		
2616	C20		
2617	B23		
2618	C26		
2619	F23		
2620	B24		
2621	D20		
2622	B 6		
2623	E 6		
2624	K22		
2625	I 22		
2626	L19		
2627	J19		
2628	K18		
2629	I16		
2630	J15		
2631	K15		
2632	M14		
2633	I13		
2634	I12		
2635	I11		
2636	I 9		
2637	M13		
2638	I13		
2639	L19		
2640	I16		
2641	I16		
2642	L16		
2643	A 8		
2644	D 7		
2645	D17		
2646	D17		
2647	C17		
2648	C17		
2649	C 7		
2650	C 7		
2651	B 6		
2652	C14		
2653	C14		
2654	C14		
2655	C14		
2656	B14		
2657	B14		
2658	B22		
2659	B22		
2660	B22		
2661	C 6		
2662	D 8		
2663	E 8		
2664	C21		
2665	E21		
2666	C21		
2667	C21		
2668	E22		
2669	D21		
2670	D20		
2671	D20		
2672	E14		
2673	B 7		
2674	D 6		
2675	L21		
2676	M21		
2677	J21		
2678	J21		
2679	L20		
2680	J20		
2681	M18		
2682	J17		
2683	H18		
2684	K18		
2685	L17		
2686	I17		
2687	K16		
2688	J16		
2689	M13		
2690	I 22		
2691	J22		
2692	K22		
2693	L22		
2694	B24		
2695	I 2		
2696	M12		
2697	C13		
2698	E13		
2699	B16		
2700	A16		
4500	F15		
4501	A15		
5600	E 8		



CONN.1400 TO CONN.1500 ON CONNECTOR PCB (PART 5)  
 CONN.1410 TO CONN.1200 ON LEVEL/HEADPHONE PCB (ONLY CDR750)  
 CONN.1420: OPTION  
 CONN.1450 TO CONN.1260 ON HEADPHONE PCB (ONLY CDR750)

FOR MAIN AND BOTTOM SIDE

1 2 3 4



A

B

C

D

E

1101 A 3	2438 D 4	3314 C 1	6206 A 2
1102 A 2	2439 E 1	3315 C 1	6206 A 2
1103 B 1	2440 C 4	3316 C 1	6431 D 4
1104 C 4	2441 C 4	3317 C 1	6600 E 2
1135 C 1	2442 E 1	3318 C 1	7126 B 4
1143 A 4	2462 E 1	3319 C 1	7131 B 3
1177 B 1	2463 E 1	3325 C 1	7132 B 3
1199 C 1	2464 D 2	3326 C 1	7135 B 4
1250 C 4	2466 D 3	3334 C 1	7136 B 4
1251 C 3	2467 D 3	3360 C 2	7170 A 1
1290 A 2	2600 D 3	3361 C 2	7182 C 1
1301 C 1	2601 E 4	3364 D 1	7183 C 1
1320 D 1	2602 E 3	3380 E 1	7185 C 1
1330 E 2	2603 E 3	3430 D 4	7192 C 1
1360 E 1	2604 E 3	3462 D 2	7193 C 1
1380 E 1	2605 E 3	3463 E 3	7195 C 1
1400 E 2	2606 E 3	3464 D 3	7210 C 4
1410 E 4	2608 D 3	3604 E 4	7246 C 3
1420 E 4	2609 D 3	3606 E 3	7260 C 3
1440 E 1	2610 E 3	3620 D 3	7288 A 1
1450 E 4	2613 E 3	3631 E 3	7289 A 1
1451 D 4	2614 E 3	3632 E 3	7282 A 1
1455 D 4	2615 E 3	3633 E 3	7293 A 2
1460 E 4	2616 E 4	3659 E 4	7296 A 2
2100 B 4	2617 E 3	3670 E 4	7297 A 2
2104 A 3	2618 D 3	3671 E 4	7320 D 1
2107 B 4	2619 E 3	3672 E 4	7322 E 2
2108 A 3	2620 E 3	3673 E 4	7323 E 2
2109 A 3	2621 E 3	3680 E 3	7326 C 1
2110 A 3	2622 E 3	3903 B 1	7410 E 3
2111 A 3	2623 E 2	3905 A 4	7411 E 3
2112 A 3	2650 E 4	3905 A 3	7440 D 4
2113 A 3	2651 E 4	3921 C 2	7465 D 2
2114 A 3	2652 E 4	3922 C 2	7601 E 3
2115 A 4	2653 A 4	3924 D 4	7502 E 4
2116 A 3	2658 E 4	3930 E 4	7503 E 3
2117 A 3	2661 D 4	4200 C 3	7504 E 3
2118 A 3	2663 E 4	4201 C 3	7505 E 3
2121 A 4	2664 D 4	4202 C 3	7510 E 4
2122 A 4	2665 E 4	4322 D 1	7511 E 4
2125 B 4	2666 E 4	4340 D 2	7550 D 4
2126 B 4	2667 E 4	4341 E 2	7551 E 4
2127 B 4	2668 E 4	4342 E 2	7552 E 4
2128 B 4	2671 E 3	4343 D 2	
2129 B 4	2672 D 4	4345 D 1	
2131 A 4	2673 E 3	4346 D 1	
2171 B 1	2674 E 3	4347 D 1	
2172 A 1	2675 E 3	4400 D 3	
2173 A 1	2677 E 3	4401 D 3	
2174 A 1	3113 B 3	4402 D 3	
2175 A 1	3114 B 4	5104 B 4	
2183 B 1	3115 B 4	5106 A 3	
2210 C 3	3116 B 4	5107 A 4	
2211 C 4	3125 B 4	5108 A 4	
2217 C 4	3126 B 4	5109 A 3	
2218 C 4	3127 B 4	5110 A 4	
2219 C 4	3128 B 4	5111 A 4	
2220 B 4	3129 B 4	5176 A 1	
2221 B 4	3130 B 4	5179 B 1	
2222 B 4	3131 B 4	5245 C 4	
2223 C 4	3132 B 4	5301 E 1	
2243 A 3	3141 B 4	5303 D 1	
2246 C 3	3152 A 1	5310 E 2	
2247 C 4	3156 A 1	5311 E 2	
2255 C 3	3157 A 1	5312 E 2	
2256 C 2	3160 A 1	5313 E 2	
2259 C 2	3161 B 1	5314 E 2	
2262 C 2	3162 A 1	5315 E 2	
2282 A 2	3163 B 1	5420 E 1	
2285 A 2	3164 B 1	5421 E 1	
2288 A 1	3165 B 1	5422 E 1	
2300 E 2	3166 A 1	5424 E 1	
2301 E 1	3168 B 1	5430 D 2	
2303 D 2	3172 B 1	5431 D 4	
2304 D 2	3173 A 1	5432 C 4	
2321 D 1	3174 A 1	5500 E 3	
2322 D 1	3175 A 1	5501 E 3	
2323 D 1	3176 A 1	5502 D 3	
2327 D 1	3177 A 1	5504 E 3	
2330 C 1	3216 C 4	5505 C 3	
2335 C 1	3217 C 4	5508 E 4	
2339 E 1	3218 C 3	5551 E 4	
2341 E 1	3219 C 4	5552 E 4	
2342 D 2	3220 C 4	5553 E 4	
2350 D 1	3229 C 4	5554 E 4	
2400 D 2	3246 C 3	6125 B 3	
2401 D 3	3247 C 3	6185 B 1	
2404 E 3	3257 C 2	6188 B 1	
2405 E 4	3262 C 2	6285 A 1	
2430 D 4	3276 A 2	6286 A 1	
2436 E 2	3312 C 1	6290 A 1	
2437 E 2	3313 C 1	6291 A 1	

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective partlist.

1 2 3 4

FOR MAIN AND BOTTOM SIDE

4

3

2

1

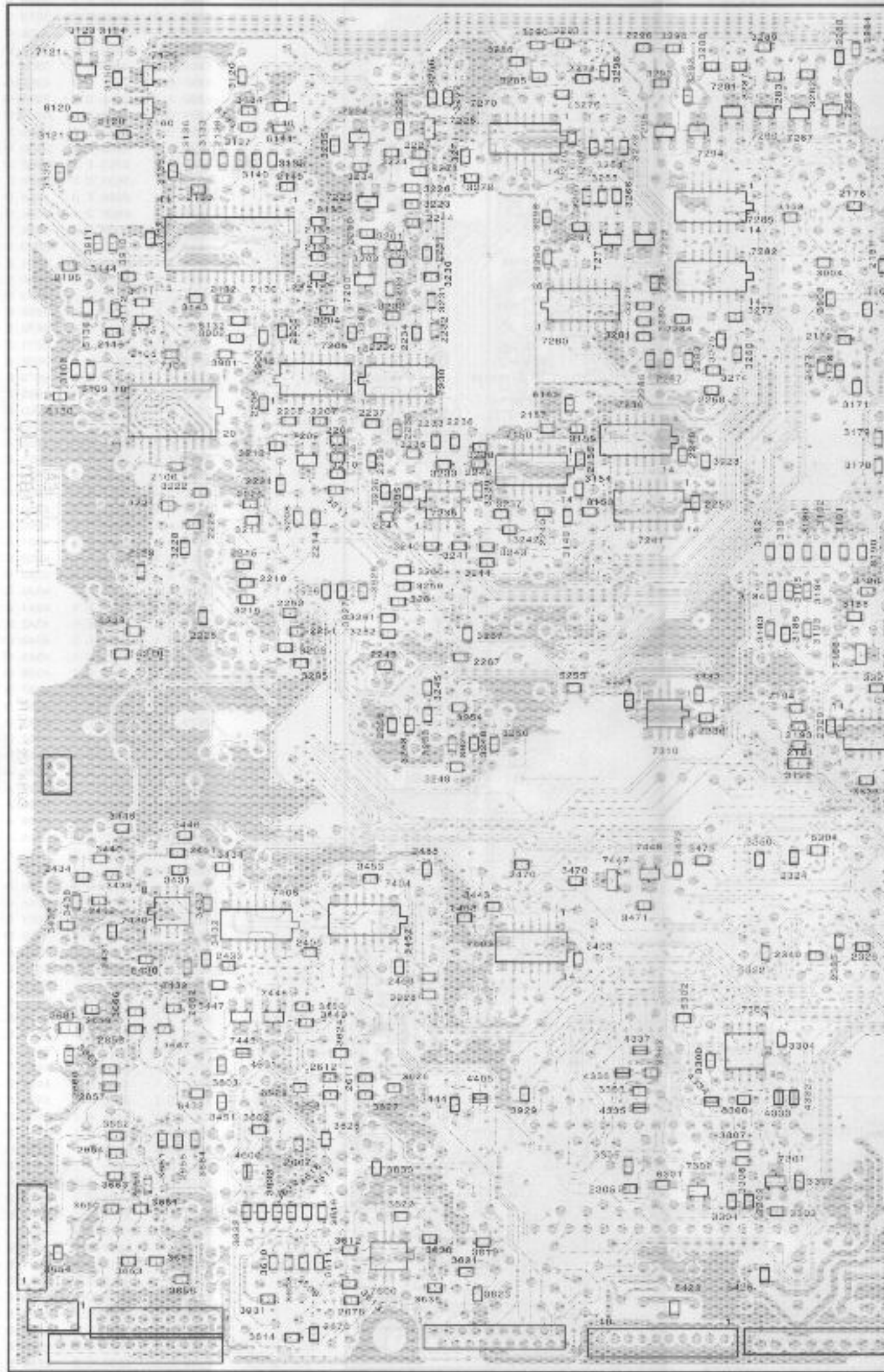
A

B

C

D

E



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and res

4

3

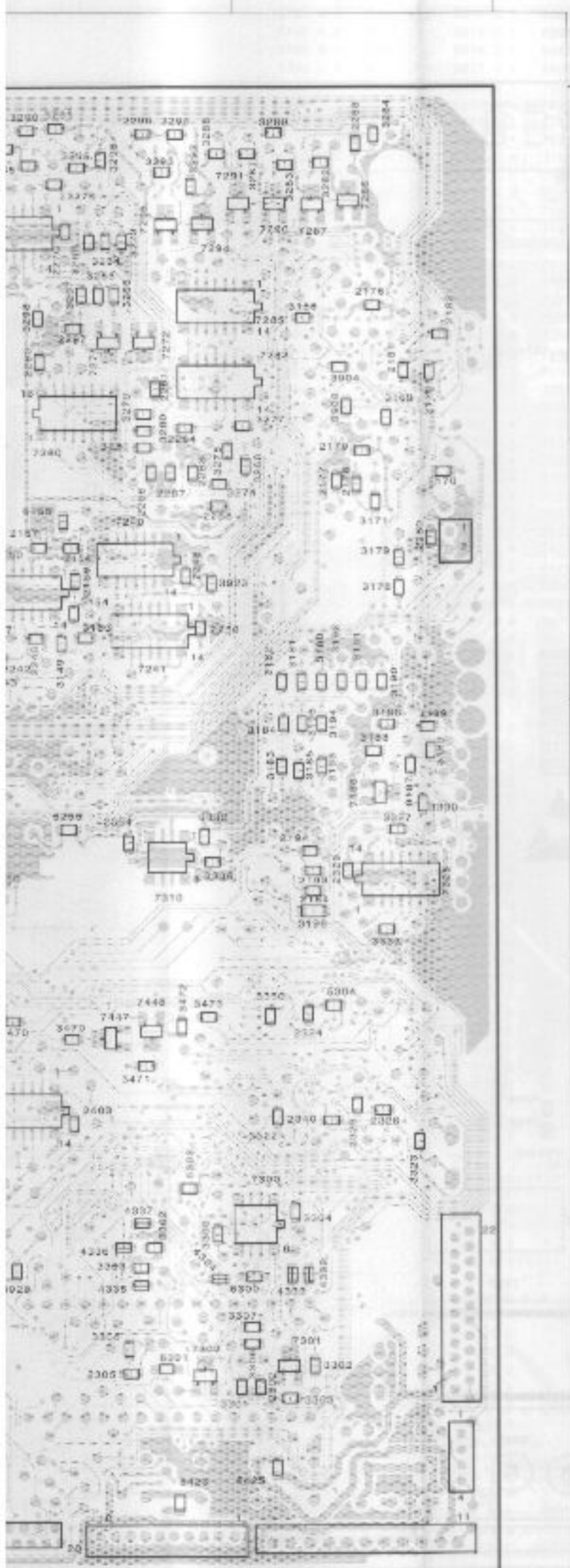
2

1



2

1



A

B

C

D

E

2105 B 4	2465 D 3	3238 B 3	3471 D 2	7121 A 4
2106 B 4	2469 D 3	3239 B 3	3472 D 2	7130 A 4
2119 B 4	2473 D 2	3240 B 3	3473 D 2	7150 B 2
2120 A 4	2607 E 3	3241 B 3	3602 E 3	7160 A 4
2130 A 4	2611 E 3	3242 B 2	3603 E 4	7180 C 1
2132 A 4	2612 E 3	3243 B 3	3608 E 3	7200 A 3
2134 A 3	2654 E 4	3244 B 3	3609 E 3	7205 B 3
2135 A 3	2655 E 4	3245 C 3	3610 E 3	7200 B 3
2135 A 3	2656 D 4	3248 C 3	3611 E 3	7223 A 3
2138 A 3	2857 E 4	3249 C 3	3612 E 3	7224 A 3
2139 A 4	2858 D 4	3250 C 2	3613 E 3	7225 A 3
2140 A 3	2660 E 4	3251 C 3	3614 E 3	7230 B 3
2156 B 2	2662 D 4	3252 C 3	3615 E 3	7235 B 3
2157 B 2	2870 E 3	3253 C 3	3616 E 3	7240 B 2
2170 A 1	2876 E 3	3254 C 3	3617 E 3	7241 B 2
2170 A 1	3108 B 4	3255 A 3	3618 E 3	7270 A 2
2177 B 1	3109 B 4	3258 A 3	3619 E 3	7271 A 2
2178 B 1	3111 A 4	3258 C 3	3621 E 3	7272 A 2
2179 B 1	3112 A 4	3259 C 3	3622 E 3	7280 A 2
2180 B 1	3120 A 4	3260 C 3	3623 E 3	7282 A 2
2181 A 1	3121 A 4	3251 C 3	3624 E 3	7285 A 2
2182 A 1	3122 A 4	3263 B 3	3625 E 3	7286 A 1
2184 C 1	3123 A 4	3254 A 2	3626 E 3	7287 A 1
2193 C 1	3124 A 4	3285 A 2	3627 E 3	7290 A 1
2194 C 1	3133 A 4	3266 A 2	3628 E 3	7291 A 1
2195 A 4	3134 A 4	3267 C 3	3629 E 3	7294 A 2
2200 A 3	3135 A 4	3268 B 1	3630 E 3	7295 A 2
2203 A 3	3136 A 4	3269 A 2	3635 E 3	7300 E 1
2204 B 3	3137 A 4	3270 A 2	3636 E 3	7301 E 1
2205 B 3	3138 A 3	3271 A 3	3650 E 4	7302 E 2
2206 B 3	3139 A 4	3272 A 3	3651 E 4	7310 C 2
2207 B 3	3140 A 3	3273 A 2	3652 E 4	7325 C 1
2208 B 3	3142 A 4	3274 B 2	3653 E 4	7403 D 2
2214 B 3	3143 A 4	3275 B 2	3654 E 4	7404 D 3
2215 B 4	3144 A 4	3277 A 1	3658 E 4	7405 D 3
2216 C 4	3146 B 2	3279 A 2	3660 E 4	7430 D 4
2224 B 3	3150 A 4	3280 A 2	3661 E 4	7445 D 4
2225 C 4	3153 B 2	3281 B 2	3662 E 4	7446 D 3
2226 B 4	3154 B 2	3282 A 1	3663 E 4	7447 D 2
2227 A 3	3155 B 2	3283 A 1	3664 E 4	7448 D 2
2228 B 4	3156 A 1	3284 A 1	3665 E 4	7600 E 3
2229 C 4	3169 A 1	3285 A 2	3666 D 4	
2230 B 3	3171 B 1	3286 A 2	3667 D 4	
2231 A 3	3175 B 1	3287 A 1	3681 D 4	
2232 B 3	3179 B 1	3288 A 2	3900 B 3	
2233 B 3	3180 B 1	3289 A 1	3901 B 4	
2234 B 3	3181 B 1	3290 A 2	3902 B 4	
2236 B 3	3182 D 1	3291 A 2	3904 A 1	
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2241 B 3	3188 C 1	3297 A 2	3925 C 3	
2242 B 3	3189 C 1	3298 A 2	3926 C 3	
2244 A 3	3190 B 1	3299 A 3	3927 C 3	
2245 C 3	3191 B 1	3300 E 2	3928 D 3	
2248 B 2	3192 B 1	3301 E 1	3929 E 2	
2250 B 2	3193 C 1	3302 E 1	3931 E 3	
2251 C 3	3194 C 1	3303 E 1	3932 E 4	
2252 C 3	3195 C 1	3304 D 1	3933 E 3	
2255 C 3	3196 C 1	3305 E 2	4332 E 1	
2267 C 3	3188 C 1	3306 E 1	4333 E 1	
2268 B 2	3201 A 3	3307 E 1	4334 E 2	
2270 A 2	3202 A 3	3322 D 1	4335 E 2	
2280 A 2	3203 A 3	3323 D 1	4336 E 2	
2281 A 2	3204 A 3	3327 C 1	4337 E 2	
2283 B 2	3205 C 3	3330 C 1	4405 E 3	
2284 A 2	3206 C 3	3332 C 2	4600 E 4	
2286 B 2	3208 B 3	3333 C 1	4601 E 4	
2297 B 2	3209 B 3	3350 D 1	5105 A 4	
2298 A 1	3210 B 3	3362 E 2	5130 A 4	
2299 A 2	3211 B 3	3363 E 2	5132 A 4	
2297 A 2	3212 B 3	3431 D 4	5170 B 1	
2302 E 1	3213 B 3	3432 D 4	5210 C 4	
2305 E 2	3215 C 4	3433 D 4	5223 C 4	
2324 D 1	3221 B 4	3434 D 4	5255 C 2	
2325 D 1	3222 B 4	3437 D 4	5302 D 2	
2326 D 1	3223 A 3	3438 D 4	5304 D 1	
2329 C 1	3224 A 3	3439 D 4	5423 E 2	
2334 C 2	3225 A 3	3440 D 4	5425 E 1	
2336 C 2	3226 A 3	3443 D 2	6120 A 4	
2340 D 1	3227 A 3	3444 E 3	6130 B 4	
2403 D 2	3228 B 4	3445 D 4	6140 A 3	
2406 D 3	3230 A 3	3446 D 4	6141 A 3	
2431 D 4	3231 A 3	3447 D 4	6155 B 2	
2432 D 4	3232 A 3	3448 D 3	6300 E 1	
2435 D 4	3233 B 3	3450 D 3	6301 E 2	
2434 D 4	3234 A 3	3451 E 4	6430 D 4	
2435 D 4	3235 B 3	3452 D 3	6432 E 4	
2461 D 4	3236 B 3	3453 D 3	7105 B 4	
2465 D 3	3237 B 2	3470 D 2	7120 A 4	

used in a specific version see schematic diagram and respective partslist.

2

1

## ELECTRICAL PARTSLIST

## MAINBOARD

## MISCELLANEOUS

1001	4822 214 12845	MAINBOARD ASSY CDR560
1101	4822 267 60409	CONN 22P FEMALE
1102	4822 267 60409	CONN 22P FEMALE
1143	4822 242 82075	CRYSTAL 16 MHz
1177	4822 242 10557	XTL.RESONATOR 32 MHz
1251	4822 242 10757	CRYSTAL 33.868 000MHz
1290	4822 267 51454	CONN. 11P FEMALE
1320	4822 242 10236	LN-G102-139 (16MHZ)
1400	4822 267 10939	FLEX CONN. 20P. FEM. V
1500	4822 267 10939	FLEX CONN. 20P. FEM. V
1520	4822 218 11487	OPTICAL INPUT GP1F32R
1530	4822 265 11151	ANALOG INPUT/OUTPUT CINCH
1531	4822 267 31448	DIGITAL INPUT/OUTPUT CINCH

## CAPACITORS

2104	4822 126 14104	82nF 10% 0805 X7R 16V
2105	5322 122 32654	22nF10%X7R 63V
2106	4822 126 13296	100nF10% X7R 16V
2107	4822 124 80483	47µF20% 6.3V
2108	4822 126 14104	82nF 10% 0805 X7R 16V
2109	4822 126 13482	470nF80/20% 16V
2110	4822 126 13482	470nF80/20% 16V
2111	4822 126 14104	82nF 10% 0805 X7R 16V
2112	4822 126 14104	82nF 10% 0805 X7R 16V
2113	4822 124 11353	1µF20% 16V
2114	4822 124 11353	1µF20% 16V
2115	4822 126 13482	470nF80/20% 16V
2116	4822 126 13482	470nF80/20% 16V
2117	5322 122 32654	22nF10%X7R 63V
2118	5322 122 32654	22nF10%X7R 63V
2119	4822 126 14104	82nF 10% 0805 X7R 16V
2120	5322 122 32654	22nF10%X7R 63V
2130	5322 122 32654	22nF10%X7R 63V
2131	4822 124 80483	47µF20% 6.3V
2132	5322 122 32654	22nF10%X7R 63V
2134	4822 122 33575	220pF 5%NPO 50V
2135	4822 122 33575	220pF 5%NPO 50V
2136	4822 122 33575	220pF 5%NPO 50V
2138	4822 122 33575	220pF 5%NPO 50V
2139	5322 116 80853	560pF 5%NPO 63V
2140	5322 122 32654	22nF10%X7R 63V
2156	5322 126 10223	4.7nF10%X7R 63V
2157	5322 122 32654	22nF10%X7R 63V
2170	5322 122 32654	22nF10%X7R 63V
2171	4822 124 40433	47µF20% 25V
2172	4822 122 33891	3.3nF10%X7R 63V
2173	4822 122 33891	3.3nF10%X7R 63V
2174	4822 122 33891	3.3nF10%X7R 63V
2175	5322 122 34123	1nF10%X7R 50V
2176	4822 126 13296	100nF10% X7R 16V
2177	5322 122 32659	33pF 5% 50V
2178	5322 122 32659	33pF 5% 50V
2179	4822 126 13296	100nF10% X7R 16V
2180	5322 122 32654	22nF10%X7R 63V
2181	5322 122 32654	22nF10%X7R 63V
2182	5322 122 32654	22nF10%X7R 63V
2183	4822 126 13296	100nF10% X7R 16V
2184	4822 122 33177	10nF 20% X7R 50V
2193	4822 122 33177	10nF 20% X7R 50V
2194	4822 122 33177	10nF 20% X7R 50V
2195	5322 122 32654	22nF10%X7R 63V

2200	4822 122 32646	5.6nF10%X7R 50V
2203	5322 122 32654	22nF10%X7R 63V
2204	5322 122 32654	22nF10%X7R 63V
2205	5322 122 32654	22nF10%X7R 63V
2206	4822 122 32627	2.7nF10%X7R 50V
2207	5322 126 10465	3.9nF 10% X7R 50V 0805 CER2
2208	5322 116 80853	560pF 5%NPO 63V
2210	5322 122 32654	22nF10%X7R 63V
2211	4822 124 80483	47µF20% 6.3V
2214	4822 126 13692	47pF 1% NPO 63V
2215	4822 122 33177	10nF 20% X7R 50V
2216	4822 122 33177	10nF 20% X7R 50V
2217	5322 122 32654	22nF10%X7R 63V
2218	5322 122 32654	22nF10%X7R 63V
2219	5322 122 32654	22nF10%X7R 63V
2220	5322 122 32654	22nF10%X7R 63V
2221	5322 122 32654	22nF10%X7R 63V
2222	5322 122 32654	22nF10%X7R 63V
2223	4822 124 80483	47µF20% 6.3V
2224	4822 126 13296	100nF10% X7R 16V
2225	5322 122 32448	10pF 5% 50V
2226	5322 122 32448	10pF 5% 50V
2227	4822 126 12105	33nF 5%X7R 63V
2228	4822 126 12105	33nF 5%X7R 63V
2229	4822 122 33177	10nF 20% X7R 50V
2230	5322 122 32654	22nF10%X7R 63V
2231	5322 122 32654	22nF10%X7R 63V
2232	4822 126 13618	330pF 1%NPO 63V
2233	4822 126 13618	330pF 1%NPO 63V
2234	4822 126 13618	330pF 1%NPO 63V
2235	5322 122 32654	22nF10%X7R 63V
2236	4822 126 13618	330pF 1%NPO 63V
2237	4822 126 13618	330pF 1%NPO 63V
2238	4822 126 13618	330pF 1%NPO 63V
2239	4822 126 13618	330pF 1%NPO 63V
2240	5322 122 32654	22nF10%X7R 63V
2241	4822 126 13618	330pF 1%NPO 63V
2242	5322 122 32654	22nF10%X7R 63V
2243	4822 124 11445	47µF20% 10V
2244	5322 122 32654	22nF10%X7R 63V
2245	5322 122 32654	22nF10%X7R 63V
2246	4822 126 13296	100nF10% X7R 16V
2247	4822 124 80483	47µF20% 6.3V
2248	5322 122 32654	22nF10%X7R 63V
2250	5322 122 32654	22nF10%X7R 63V
2251	4822 126 13486	15pF 2% NPO 63V
2252	4822 126 13486	15pF 2% NPO 63V
2255	5322 122 32654	22nF10%X7R 63V
2256	5322 122 32654	22nF10%X7R 63V
2259	5322 122 32659	33pF 5% 50V
2262	4822 126 10326	180pF 5%NPO 63V
2267	4822 126 13296	100nF10% X7R 16V
2268	4822 126 13296	100nF10% X7R 16V
2270	5322 122 32654	22nF10%X7R 63V
2280	5322 122 32654	22nF10%X7R 63V
2281	5322 122 32658	22pF 5% 50V
2282	5322 122 32654	22nF10%X7R 63V
2283	4822 126 13296	100nF10% X7R 16V
2284	5322 122 32654	22nF10%X7R 63V
2285	4822 126 13296	100nF10% X7R 16V
2286	5322 122 32658	22pF 5% 50V
2287	5322 122 32658	22pF 5% 50V
2288	4822 126 12105	33nF 5%X7R 63V
2292	4822 126 12105	33nF 5%X7R 63V
2296	4822 126 12105	33nF 5%X7R 63V

2297	4822 126 13296	100nF10% X7R 16V
2300	4822 126 13482	470nF80/20% 16V
2301	5322 122 32654	22nF10%X7R 63V
2302	4822 126 13482	470nF80/20% 16V
2303	4822 126 13482	470nF80/20% 16V
2304	5322 122 32654	22nF10%X7R 63V
2305	4822 126 13482	470nF80/20% 16V
2321	5322 122 32654	22nF10%X7R 63V
2322	5322 122 32654	22nF10%X7R 63V
2323	5322 122 32654	22nF10%X7R 63V
2324	5322 122 32654	22nF10%X7R 63V
2325	4822 126 13692	47pF 1% NPO 63V
2326	4822 126 13692	47pF 1% NPO 63V
2327	4822 122 33177	10nF 20% X7R 50V
2329	5322 122 32654	22nF10%X7R 63V
2330	4822 126 13296	100nF10% X7R 16V
2334	5322 122 32654	22nF10%X7R 63V
2336	4822 126 13692	47pF 1% NPO 63V
2339	4822 124 11445	47μF20% 10V
2340	5322 122 32654	22nF10%X7R 63V
2341	5322 122 32654	22nF10%X7R 63V
2342	5322 122 32654	22nF10%X7R 63V
2350	4822 126 12105	33nF 5%X7R 63V
2400	5322 122 32654	22nF10%X7R 63V
2401	5322 122 32654	22nF10%X7R 63V
2403	5322 122 32654	22nF10%X7R 63V
2404	5322 122 32654	22nF10%X7R 63V
2405	4822 124 42242	330μF20% 6.3V
2406	5322 122 32654	22nF10%X7R 63V
2436	4822 124 80483	47μF20% 6.3V
2437	4822 124 80483	47μF20% 6.3V
2439	4822 124 80483	47μF20% 6.3V
2442	4822 124 80483	47μF20% 6.3V
2462	4822 124 80483	47μF20% 6.3V
2463	4822 124 80483	47μF20% 6.3V
2464	5322 122 32654	22nF10%X7R 63V
2465	5322 122 34123	1nF10%X7R 50V
2466	4822 126 12102	330 nF 10% X7R 16V 0603
2467	4822 126 12105	33nF 5%X7R 63V
2468	5322 122 32654	22nF10%X7R 63V
2469	4822 126 13296	100nF10% X7R 16V
2501	4822 124 41579	10μF 20% 50V
2502	4822 126 12105	33nF 5%X7R 63V
2503	4822 126 12105	33nF 5%X7R 63V
2504	5322 122 32654	22nF10%X7R 63V
2505	5322 122 33538	150pF 2%NPO 63V
2506	5322 122 32654	22nF10%X7R 63V
2507	5322 122 32654	22nF10%X7R 63V
2509	5322 122 32654	22nF10%X7R 63V
2510	5322 122 32531	100pF 5%NPO 50V
2511	5322 122 32531	100pF 5%NPO 50V
2512	5322 122 32659	33pF 5% 50V
2513	5322 122 32659	33pF 5% 50V
2604	5322 122 32654	22nF10%X7R 63V
2605	5322 122 32654	22nF10%X7R 63V
2606	5322 122 32654	22nF10%X7R 63V
2607	5322 122 32654	22nF10%X7R 63V
2608	5322 122 32654	22nF10%X7R 63V
2609	5322 122 32654	22nF10%X7R 63V
2610	5322 122 32654	22nF10%X7R 63V
2611	4822 126 13694	68pF 1% NPO 63V
2612	4822 126 13694	68pF 1% NPO 63V
2615	4822 124 40246	4.7μF 20% 63V DXH=5X11
2616	4822 124 40246	4.7μF 20% 63V DXH=5X11
2617	4822 124 40433	47μF20% 25V
2618	4822 124 11445	47μF20% 10V
2619	4822 124 40433	47μF20% 25V
2620	4822 124 41829	1000μF20% 6.3V
2621	4822 124 11445	47μF20% 10V

2622	4822 124 80865	10μF20% 25V
2623	4822 124 80865	10μF20% 25V
2652	5322 122 32654	22nF10%X7R 63V
2653	5322 122 32654	22nF10%X7R 63V
2654	5322 122 32531	100pF 5%NPO 50V
2655	5322 122 32531	100pF 5%NPO 50V
2656	5322 126 10184	680P 5% NPO 50V
2657	5322 126 10184	680pF 5% NPO 50V
2658	5322 122 32654	22nF10%X7R 63V
2659	5322 122 32654	22nF10%X7R 63V
2660	5322 122 32654	22nF10%X7R 63V
2661	5322 122 32654	22nF10%X7R 63V
2662	5322 122 32654	22nF10%X7R 63V
2663	4822 124 41579	10μF 20% 50V
2664	4822 124 41829	1000μF20% 6.3V
2665	4822 124 80865	10μF20% 25V
2666	4822 124 80865	10μF20% 25V
2667	4822 124 40246	4.7μF 20% 63V DXH=5X11
2668	4822 124 40246	4.7μF 20% 63V DXH=5X11

**RESISTORS**

3108	4822 051 20472	4k7 5% 0.1W
3109	4822 117 10834	47k 1% 0.1W
3111	4822 051 20184	180k 5% 0.1W
3112	4822 051 20474	470k 5% 0.1W
3120	4822 051 20273	27k 5% 0.1W
3121	4822 051 20474	470k 5% 0.1W
3122	4822 051 20223	22k 5% 0.1W
3123	4822 051 20223	22k 5% 0.1W
3124	4822 051 20333	33k 5% 0.1W
3133	4822 051 20105	1M 5% 0.1W
3134	4822 051 20333	33k 5% 0.1W
3135	4822 051 20153	15k 5% 0.1W
3136	4822 117 10833	10k 1% 0.1W
3137	4822 051 20153	15k 5% 0.1W
3138	4822 117 10833	10k 1% 0.1W
3139	4822 051 20752	7k5 5% 0.1W
3140	4822 117 10834	47k 1% 0.1W
3142	4822 117 10833	10k 1% 0.1W
3143	4822 051 20105	1M 5% 0.1W
3144	4822 117 10833	10k 1% 0.1W
3149	4822 117 11449	2k2 1% 0.1W
3152	4822 051 20104	100k 5% 0.1W
3153	4822 051 10102	1k 2% 0.25W
3154	4822 051 10102	1k 2% 0.25W
3155	4822 051 20105	1M 5% 0.1W
3156	4822 051 20101	100Ω 5% 0.1W
3157	4822 051 20101	100Ω 5% 0.1W
3158	4822 051 20101	100Ω 5% 0.1W
3160	4822 051 20223	22k 5% 0.1W
3161	4822 051 20105	1M 5% 0.1W
3162	4822 051 20105	1M 5% 0.1W
3163	4822 051 20393	39k 5% 0.1W
3164	4822 051 20223	22k 5% 0.1W
3165	4822 051 20101	100Ω 5% 0.1W
3166	4822 051 20393	39k 5% 0.1W
3168	4822 051 20101	100Ω 5% 0.1W
3169	4822 051 20101	100Ω 5% 0.1W
3171	4822 051 20121	120Ω 5% 0.1W
3172	4822 051 20105	1M 5% 0.1W
3173	4822 051 20101	100Ω 5% 0.1W
3174	4822 051 20101	100Ω 5% 0.1W
3175	4822 051 20101	100Ω 5% 0.1W
3176	4822 051 20101	100Ω 5% 0.1W
3177	4822 051 20101	100Ω 5% 0.1W
3178	4822 051 20223	22k 5% 0.1W
3179	4822 051 20101	100Ω 5% 0.1W
3180	4822 117 10833	10k 1% 0.1W

3181	4822 051 20562	5k6 5% 0,1W 0805		3254	4822 051 20472	4k7 5% 0,1W	
3182	4822 051 20562	5k6 5% 0,1W 0805		3255	4822 117 11449	2k2 1% 0,1W	
3183	4822 051 20472	4k7 5% 0,1W		3256	4822 051 20339	33Ω 5% 0,1W	
				3257	4822 051 20339	33Ω 5% 0,1W	
3184	4822 051 20101	100Ω 5% 0,1W		3259	4822 117 10833	10k 1% 0,1W	
3185	4822 051 20101	100Ω 5% 0,1W		3260	4822 117 11139	1k5 1% 0,1W	
3186	4822 117 10833	10k 1% 0,1W		3261	4822 117 11449	2k2 1% 0,1W	
3187	4822 051 10102	1k 2% 0,25W		3262	4822 051 20101	100Ω 5% 0,1W	
3188	4822 117 10833	10k 1% 0,1W		3263	4822 117 10834	47k 1% 0,1W	
3189	4822 051 20109	10Ω 5% 0,1W		3264	4822 051 10102	1k 2% 0,25W	
3190	4822 117 10833	10k 1% 0,1W					
3191	4822 051 20562	5k6 5% 0,1W 0805		3265	4822 051 10102	1k 2% 0,25W	
3192	4822 051 20562	5k6 5% 0,1W 0805		3266	4822 051 10102	1k 2% 0,25W	
3193	4822 051 20472	4k7 5% 0,1W		3267	4822 117 10833	10k 1% 0,1W	
3194	4822 051 20101	100Ω 5% 0,1W		3268	4822 051 20392	3k9 5% 0,1W	
				3269	4822 051 10102	1k 2% 0,25W	
3195	4822 051 20101	100Ω 5% 0,1W		3270	4822 117 10965	18k 1% 0,1W	
3196	5322 117 11726	10Ω 5%		3271	4822 117 10965	18k 1% 0,1W	
3201	4822 051 20223	22k 5% 0,1W		3272	4822 117 10965	18k 1% 0,1W	
3202	4822 051 20393	39k 5% 0,1W		3273	4822 051 10102	1k 2% 0,25W	
3203	4822 051 20109	10Ω 5% 0,1W		3274	4822 117 10965	18k 1% 0,1W	
3204	4822 117 11454	820Ω 1% 0,1W		3275	4822 051 20223	22k 5% 0,1W	
3205	4822 117 11504	270Ω 1% 0,1W					
3206	4822 051 20105	1M 5% 0,1W		3276	4822 051 20223	22k 5% 0,1W	
3208	4822 051 20229	22Ω 5% 0,1W		3277	4822 051 20223	22k 5% 0,1W	
3209	4822 051 20223	22k 5% 0,1W		3279	4822 051 10102	1k 2% 0,25W	
				3280	4822 051 10102	1k 2% 0,25W	
3210	4822 051 20393	39k 5% 0,1W		3281	4822 051 10102	1k 2% 0,25W	
3211	4822 051 20109	10Ω 5% 0,1W		3282	4822 051 10102	1k 2% 0,25W	
3212	4822 117 11454	820Ω 1% 0,1W		3283	4822 051 10102	1k 2% 0,25W	
3213	4822 051 20472	4k7 5% 0,1W		3284	4822 051 20479	47Ω 5% 0,1W	
3215	4822 117 10833	10k 1% 0,1W		3285	4822 051 20562	5k6 5% 0,1W 0805	
3216	4822 051 20101	100Ω 5% 0,1W		3286	4822 051 20562	5k6 5% 0,1W 0805	
3217	4822 051 20101	100Ω 5% 0,1W		3287	4822 051 10102	1k 2% 0,25W	
3218	4822 051 20101	100Ω 5% 0,1W					
3219	4822 051 20101	100Ω 5% 0,1W		3288	4822 051 10102	1k 2% 0,25W	
3220	4822 051 20101	100Ω 5% 0,1W		3289	4822 051 20479	47Ω 5% 0,1W	
				3290	4822 051 20562	5k6 5% 0,1W 0805	
3221	4822 051 20472	4k7 5% 0,1W		3291	4822 051 20562	5k6 5% 0,1W 0805	
3222	4822 051 20101	100Ω 5% 0,1W		3292	4822 051 10102	1k 2% 0,25W	
3223	4822 051 20229	22Ω 5% 0,1W		3293	4822 051 10102	1k 2% 0,25W	
3224	4822 051 10102	1k 2% 0,25W		3294	4822 051 20479	47Ω 5% 0,1W	
3225	4822 051 10102	1k 2% 0,25W		3295	4822 051 20562	5k6 5% 0,1W 0805	
3226	4822 117 11454	820Ω 1% 0,1W		3296	4822 051 20562	5k6 5% 0,1W 0805	
3227	4822 051 20561	560Ω 5% 0,1W		3297	4822 117 11503	220Ω 1% 0,1W	
3228	4822 117 10833	10k 1% 0,1W		3298	4822 117 11503	220Ω 1% 0,1W	
3229	4822 117 10833	10k 1% 0,1W		3299	4822 051 20229	22Ω 5% 0,1W	
3230	4822 051 20472	4k7 5% 0,1W					
3231	4822 117 11751	16k RC12H 1% 0805		3300	4822 117 10834	47k 1% 0,1W	
				3301	4822 051 20684	680k 5% 0,1W	
3232	4822 117 11145	4k7 1% 0,1W		3302	4822 051 20471	470Ω 5% 0,1W	
3233	4822 117 10839	130k 1% 0,1W		3303	4822 051 10102	1k 2% 0,25W	
3234	4822 117 10833	10k 1% 0,1W		3304	4822 117 10834	47k 1% 0,1W	
3235	4822 117 11751	16k RC12H 1% 0805		3305	4822 051 20684	680k 5% 0,1W	
3236	4822 117 11145	4k7 1% 0,1W		3306	4822 051 20471	470Ω 5% 0,1W	
3237	4822 117 10833	10k 1% 0,1W		3307	4822 051 10102	1k 2% 0,25W	
3238	4822 117 10833	10k 1% 0,1W		3312	4822 117 10833	10k 1% 0,1W	
3239	4822 117 10839	130k 1% 0,1W		3313	4822 117 10833	10k 1% 0,1W	
3240	4822 117 10839	130k 1% 0,1W		3315	4822 117 10833	10k 1% 0,1W	
3241	4822 051 20472	4k7 5% 0,1W					
3242	4822 051 20105	1M 5% 0,1W		3317	4822 117 10833	10k 1% 0,1W	
				3319	4822 117 10833	10k 1% 0,1W	
3243	4822 051 20564	560k 5% 0,1W		3322	4822 117 10833	10k 1% 0,1W	
3244	4822 117 11449	2k2 1% 0,1W		3323	4822 051 20105	1M 5% 0,1W	
3245	4822 051 20104	100k 5% 0,1W		3326	4822 051 20104	100k 5% 0,1W	
3246	4822 051 20394	390k 5% 0,1W		3327	4822 117 10833	10k 1% 0,1W	
3247	4822 117 11503	220Ω 1% 0,1W		3328	4822 117 11507	6k8 1% 0,1W	
3248	4822 051 20223	22k 5% 0,1W		3330	4822 051 20101	100Ω 5% 0,1W	
3249	4822 051 20104	100k 5% 0,1W		3332	4822 051 10102	1k 2% 0,25W	
3250	4822 051 20101	100Ω 5% 0,1W		3333	4822 117 10833	10k 1% 0,1W	
3251	4822 051 20223	22k 5% 0,1W					
3252	4822 051 20223	22k 5% 0,1W		3334	4822 117 10833	10k 1% 0,1W	
3253	4822 051 20223	22k 5% 0,1W		3350	4822 051 20472	4k7 5% 0,1W	
				3360	4822 117 10833	10k 1% 0,1W	
				3362	4822 117 10833	10k 1% 0,1W	

3363	4822 117 10833	10k	1%	0,1W
3364	4822 117 10833	10k	1%	0,1W
3380	4822 117 10833	10k	1%	0,1W
3443	4822 051 20223	22k	5%	0,1W
3444	4822 051 20223	22k	5%	0,1W
3447	4822 117 10834	47k	1%	0,1W
3449	4822 051 20104	100k	5%	0,1W
3450	4822 051 20104	100k	5%	0,1W
3451	4822 051 20101	100Ω	5%	0,1W
3452	4822 117 10833	10k	1%	0,1W
3453	4822 117 10833	10k	1%	0,1W
3462	4822 051 20223	22k	5%	0,1W
3463	4822 051 20223	22k	5%	0,1W
3464	4822 117 11504	270Ω	1%	0,1W
3470	4822 051 20562	5k6	5%	0,1W 0805
3471	4822 051 20562	5k6	5%	0,1W 0805
3472	4822 051 20562	5k6	5%	0,1W 0805
3473	4822 051 20562	5k6	5%	0,1W 0805
3503	4822 051 20689	68Ω	5%	0,1W
3504▲	4822 117 11152	4Ω7	5%	
3505	4822 051 20332	3k3	5%	0,1W
3506	4822 051 20332	3k3	5%	0,1W
3507▲	4822 117 11152	4Ω7	5%	
3508	4822 051 20759	75Ω	5%	0,1W
3509	4822 051 20104	100k	5%	0,1W
3510	4822 051 20104	100k	5%	0,1W
3511	4822 117 11373	100Ω	1%	RC12H 0805
3512	4822 117 11449	2k2	1%	0,1W
3513	4822 117 11373	100Ω	1%	RC12H 0805
3514	4822 117 11449	2k2	1%	0,1W
3515	4822 117 11373	100Ω	1%	RC12H 0805
3516	4822 117 11449	2k2	1%	0,1W
3517	4822 117 11373	100Ω	1%	RC12H 0805
3518	4822 117 11449	2k2	1%	0,1W
3614	4822 051 20008	0Ω	JUMP.	(0805)
3620	4822 117 10833	10k	1%	0,1W
3621	4822 051 20104	100k	5%	0,1W
3622	4822 051 20008	0Ω	JUMP.	(0805)
3623	4822 051 20104	100k	5%	0,1W
3624	4822 117 10833	10k	1%	0,1W
3625	4822 117 10833	10k	1%	0,1W
3626	4822 051 20334	330k	5%	0,1W
3627	4822 117 10833	10k	1%	0,1W
3628	4822 117 10833	10k	1%	0,1W
3629	4822 051 20334	330k	5%	0,1W
3630	4822 117 11188	20k	1%	0,1W
3631	4822 117 11504	270Ω	1%	0,1W
3632	4822 117 11504	270Ω	1%	0,1W
3635	4822 051 20008	0Ω	JUMP.	(0805)
3636	4822 051 20008	0Ω	JUMP.	(0805)
3654	4822 051 20104	100k	5%	0,1W
3658	4822 051 20104	100k	5%	0,1W
3659	4822 117 10833	10k	1%	0,1W
3660	4822 117 10833	10k	1%	0,1W
3661	4822 117 11437	8k2	1%	0,1W
3662	4822 117 11437	8k2	1%	0,1W
3663	4822 117 13085	5k6	1%	RC12H 0,1W 0805
3664	4822 117 13085	5k6	1%	RC12H 0,1W 0805
3665	4822 051 20223	22k	5%	0,1W
3666	4822 051 20223	22k	5%	0,1W
3667	4822 117 10834	47k	1%	0,1W
3680▲	4822 117 11152	4Ω7	5%	
3681▲	4822 117 11152	4Ω7	5%	
3900	4822 051 20008	0Ω	JUMP.	(0805)
3901	4822 051 20008	0Ω	JUMP.	(0805)
3902	4822 051 20008	0Ω	JUMP.	(0805)
3903	4822 051 20008	0Ω	JUMP.	(0805)

3904	4822 051 20008	0Ω	JUMP.	(0805)
3905	4822 051 20008	0Ω	JUMP.	(0805)
3906	4822 051 20008	0Ω	JUMP.	(0805)
3908	4822 051 20008	0Ω	JUMP.	(0805)
3911	4822 051 20008	0Ω	JUMP.	(0805)
3920	4822 051 20008	0Ω	JUMP.	(0805)
3921	4822 051 20101	100Ω	5%	0,1W
3922	4822 051 20101	100Ω	5%	0,1W
3923	4822 117 10834	47k	1%	0,1W
3924	4822 051 20472	4k7	5%	0,1W
4xxx	4822 051 20008	0Ω	JUMP.	(0805)

## COILS

5104	4822 157 71659	100μH	15%	7A06L
5105▲	4822 157 71206	BLM21A601SPT		
5106	4822 157 71658	27μH	15%	7A06L
5107	4822 157 71658	27μH	15%	7A06L
5108	4822 157 71658	27μH	15%	7A06L
5109	4822 157 71658	27μH	15%	7A06L
5110	4822 157 71659	100μH	15%	7A06L
5111	4822 157 71659	100μH	15%	7A06L
5130▲	4822 157 71206	BLM21A601SPT		
5132▲	4822 157 71206	BLM21A601SPT		
5170▲	4822 157 71206	BLM21A601SPT		
5176▲	4822 157 71206	BLM21A601SPT		
5179▲	4822 157 71206	BLM21A601SPT		
5210▲	4822 157 71206	BLM21A601SPT		
5223▲	4822 157 71206	BLM21A601SPT		
5245▲	4822 157 71206	BLM21A601SPT		
5255▲	4822 157 71206	BLM21A601SPT		
5301▲	4822 157 71206	BLM21A601SPT		
5302▲	4822 157 71206	BLM21A601SPT		
5303▲	4822 157 71206	BLM21A601SPT		
5304▲	4822 157 71206	BLM21A601SPT		
5310	4822 242 10958	NFM39R12C102T1		
5311	4822 242 10958	NFM39R12C102T1		
5312	4822 242 10958	NFM39R12C102T1		
5313	4822 242 10958	NFM39R12C102T1		
5314	4822 242 10958	NFM39R12C102T1		
5315	4822 242 10958	NFM39R12C102T1		
5420	4822 242 82201	DSS306-92F223Z16		
5421	4822 157 11716	BLM21P300SPT		
5422	4822 242 82201	DSS306-92F223Z16		
5423	4822 157 11716	BLM21P300SPT		
5424	4822 242 82201	DSS306-92F223Z16		
5425	4822 157 11716	BLM21P300SPT		
5430▲	4822 157 71206	BLM21A601SPT		
5450	4822 157 70601	100μH (920927085A)		
5602▲	4822 157 71206	BLM21A601SPT		
5651▲	4822 157 71206	BLM21A601SPT		
5652▲	4822 157 71206	BLM21A601SPT		
6120	4822 130 10654	BAT254		
6130	4822 130 11397	BAS316		
6140	4822 130 11397	BAS316		
6141	4822 130 11397	BAS316		
6155	4822 130 10654	BAT254		
6185	4822 130 11397	BAS316		
6186	4822 130 11397	BAS316		
6285	4822 130 11397	BAS316		
6286	4822 130 11397	BAS316		
6290	4822 130 11397	BAS316		
6291	4822 130 11397	BAS316		
6295	4822 130 11397	BAS316		
6296	4822 130 11397	BAS316		
6300	4822 130 11397	BAS316		
6301	4822 130 11397	BAS316		
6432	4822 130 11397	BAS316		

## DIODES

**TRANSISTORS AND INTEGRATED CIRCUITS**

7105	4822 209 15602	SZA1010T/k1
7120	5322 130 44787	BFR31
7121	5322 130 60508	BC857B
7130	4822 209 33421	OQ8845
7150	4822 209 30732	LM319D
7170	4822 209 14785	SERVO CONTROLLER V 2.1
7182	5322 130 60508	BC857B
7183	4822 130 60142	BC869
7185	5322 130 61569	BC868
7186	4822 130 60511	BC847B
7192	5322 130 60508	BC857B
7193	4822 130 60142	BC869
7195	5322 130 61569	BC868
7200	4822 130 60511	BC847B
7205	4822 209 60792	74HC4053D
7209	4822 130 60511	BC847B
7210	4822 209 16438	CD65WD
7223	5322 130 42718	BFS20
7224	4822 130 60383	BF824
7225	5322 130 42718	BFS20
7230	5322 209 61482	PC74HC4066T
7235	4822 209 30095	LM833D
7240	5322 209 61482	PC74HC4066T
7241	5322 209 73179	74HCT74D
7245	4822 209 33417	TDA1371H/N1
7270	4822 209 31615	LM324AD
7271	4822 130 60511	BC847B
7272	5322 130 60508	BC857B
7280	4822 209 60792	74HC4053D
7282	4822 209 31615	LM324AD
7285	5322 209 61482	PC74HC4066T
7286	4822 130 60511	BC847B
7287	5322 130 60508	BC857B
7288	4822 130 60142	BC869
7289	5322 130 61569	BC868
7290	4822 130 60511	BC847B
7291	5322 130 60508	BC857B
7292	4822 130 60142	BC869
7293	5322 130 61569	BC868
7294	4822 130 60511	BC847B
7295	5322 130 60508	BC857B
7296	4822 130 60142	BC869
7297	5322 130 61569	BC868
7300	4822 209 30095	LM833D
7301	4822 130 60511	BC847B
7302	4822 130 60511	BC847B
7310	4822 209 31275	MC34064D5
7320	4822 209 16834	MC68HC08AB0
7322	4822 209 16934	IC USER CDR560
7323	4822 209 16439	CY6264-70SNC
7325	5322 209 11548	74HC14D
7326	4822 130 60511	BC847B
7403	5322 209 61482	PC74HC4066T
7404	5322 209 61482	PC74HC4066T
7405	5322 209 73179	74HCT74D
7410	5322 209 61132	PC74HCT4052T
7411	5322 209 61132	PC74HCT4052T
7445	5322 130 60508	BC857B
7446	5322 130 60508	BC857B
7447	4822 130 60511	BC847B
7448	4822 130 60511	BC847B
7465	4822 209 33395	TDA1315H/N2
7500	5322 209 11517	PC74HCU04T
7501	4822 130 60511	BC847B
7502	4822 130 60511	BC847B
7503	4822 130 60511	BC847B
7504	4822 130 60511	BC847B
7603	4822 209 33397	SAA7366T

7604	4822 209 72042	L78L05ACZ
7650	4822 209 33403	TDA1305T/N2
7651	4822 209 30095	LM833D

**DISPLAY BOARD****MISCELLANEOUS**

1002/3	4822 256 10522	FTD HOLDER
1201	4822 276 13114	TACT SWITCH
1202	4822 276 13114	TACT SWITCH
1203	4822 276 13114	TACT SWITCH
1204	4822 276 13114	TACT SWITCH
1205	4822 276 13114	TACT SWITCH
1206	4822 276 13114	TACT SWITCH
1207	4822 276 13114	TACT SWITCH
1208	4822 276 13114	TACT SWITCH
1209	4822 276 13114	TACT SWITCH
1210	4822 276 13114	TACT SWITCH
1211	4822 276 13114	TACT SWITCH
1212	4822 276 13114	TACT SWITCH
1213	4822 276 13114	TACT SWITCH
1230	4822 242 10753	CSTCS8,00MT-TC
1295	4822 276 13489	ON/OFF SWITCH

**CAPACITORS**

2200	5322 122 32654	22nF10%X7R 63V
2201	5322 122 32658	22pF 5% 50V
2202	5322 122 32658	22pF 5% 50V
2203	5322 122 32654	22nF10%X7R 63V
2204	5322 122 32658	22pF 5% 50V
2205	5322 122 32658	22pF 5% 50V
2206	4822 126 12105	33nF 5%X7R 63V
2207	5322 122 32654	22nF10%X7R 63V
2208	5322 122 32654	22nF10%X7R 63V
2209	5322 122 32654	22nF10%X7R 63V

**RESISTORS**

3200	4822 051 20393	39k 5% 0,1W
3201	4822 051 10102	1k 2% 0,25W
3202	4822 051 10102	1k 2% 0,25W
3205	4822 051 20101	100Ω 5% 0,1W
3206	4822 051 20101	100Ω 5% 0,1W
3207	4822 051 20472	4k7 5% 0,1W
3210	4822 051 20472	4k7 5% 0,1W
3211	4822 051 20472	4k7 5% 0,1W
3212	4822 051 20472	4k7 5% 0,1W
3213	4822 051 20472	4k7 5% 0,1W
3214	4822 051 20472	4k7 5% 0,1W
3215	4822 051 20008	0Ω JUMP. (0805)
3216	4822 051 20008	0Ω JUMP. (0805)
3220	4822 117 11449	2k2 1% 0,1W
3221	4822 117 10833	10k 1% 0,1W
3222	4822 117 10833	10k 1% 0,1W
3223	4822 117 10833	10k 1% 0,1W
3224	4822 117 10833	10k 1% 0,1W
3299	4822 100 90108	20k
4xxx	4822 051 10008	0Ω 5% 0,25W
4019	4822 051 20008	0Ω JUMP. (0805)
4030	4822 051 20008	0Ω JUMP. (0805)
4034	4822 051 20008	0Ω JUMP. (0805)
4041	4822 051 20008	0Ω JUMP. (0805)

**INTEGRATED CIRCUITS**

6200	4822 212 30842	TSOP1736SB1
6201	4822 130 11088	BZX284-C2V4
7200	4822 209 16055	TMP87PM74ZF
7205	4822 135 00251	BJ363Gk
7350	4822 209 30095	LM833D

**CONNECTIONS**

8001 4822 320 12499 CWAS FLEX CDR 20P

**POWER SUPPLY BOARD****MISCELLANEOUS**

1003 4822 218 11938 PSU ASSY 20PS314/00

4▲ 4822 265 31015 MAINS INLET /00  
 9▲ 4822 256 92053 FUSE HOLDER CLICK (PROM)  
 1120▲ 4822 070 32002 FUSE 218002.(2A)  
 1125 4822 252 60151 SURGE PROTECT DSP-501N-  
 A21F A

**CAPACITORS**

2101 4822 126 13695 82pF 1% NP0 63V  
 2102 5322 126 10511 1nF 5%NP0 50V  
 2103 5322 122 32268 470pF 10% 50V  
 2104 5322 126 10223 4,7nF10%X7R 63V  
 2109 5322 122 31865 1,5nF10%X7R 63V  
 2110 4822 124 41576 2,2μF 20% 50V  
 2111 4822 126 13196 100nF 10% 0805 X7R 25V  
 2113 4822 122 33127 2,2nF10%X7R 63V  
 2114 4822 126 13196 100nF 10% 0805 X7R 25V  
 2120 4822 121 10799 330nF 20% MPP 250V

2121 4822 124 12281 150μF 20% 400V  
 2125 4822 121 51598 2,2nF 5% 400V  
 2126 4822 121 51598 2,2nF 5% 400V  
 2127 4822 126 14496 470pF 10% 1KV  
 2129 4822 124 81024 4,7μF20% 50V  
 2131▲ 4822 126 14497 2,2nF 20% 250V  
 2133 4822 124 12062 100μF 20% 25V  
 2201 4822 126 13196 100nF 10% 0805 X7R 25V  
 2202 5322 122 32654 22nF10%X7R 63V  
 2203 4822 124 40248 10μF20% 63V

2210 4822 124 12282 2200μF 20% YK 10V  
 2211 4822 122 31173 220pF 10% 500V  
 2212 4822 121 43526 47nF 5% 250V  
 2220 4822 124 40849 330μF 20% 16V  
 2222 4822 124 12283 100μF 20% MS7 6.3V  
 2230 4822 124 81144 1000μF 16V  
 2240 4822 124 41545 220μF20% 16V  
 2242 4822 124 41584 100μF 20% 10V  
 2250 4822 124 40248 10μF20% 63V  
 2260 4822 122 31175 1nF 10% 500V

**RESISTORS**

3101 4822 116 52304 82k 5% 0,5W  
 3102 4822 051 20223 22k 5% 0,1W  
 3103 4822 051 20822 8k2 5% 0,1W  
 3104 4822 051 20153 15k 5% 0,1W  
 3105 4822 051 20153 15k 5% 0,1W  
 3106 4822 051 20102 1k 5% 0,1W  
 3107 4822 051 20184 180k 5% 0,1W  
 3108 4822 117 10965 18k 1% 0,1W  
 3109 4822 051 20331 330Ω 5% 0,1W  
 3110 4822 117 10833 10k 1% 0,1W

3111 4822 051 20229 22Ω 5% 0,1W  
 3112 4822 051 20101 100Ω 5% 0,1W  
 3113 4822 051 20159 15Ω 5% 0,1W  
 3115 4822 116 52232 910Ω 5% 0,5W  
 3116 4822 117 11448 180Ω 1% 0,1W  
 3120 4822 116 21217 1MA/423V 800V  
 3122 4822 117 13515 2Ω7 3W AC03 WW  
 3123 4822 050 21803 18k 1% 0,6W  
 3124 4822 116 83872 220Ω 5% 0,5W  
 3125 4822 050 21002 1k 1% 0,6W  
 3126 4822 116 80676 1Ω5 5% 0,5W  
 3127 4822 116 80676 1Ω5 5% 0,5W

3128 4822 116 80676 1Ω5 5% 0,5W  
 3129 4822 116 83864 10k 5% 0,5W  
 3134 4822 050 21803 18k 1% 0,6W  
 3201 4822 050 21002 1k 1% 0,6W  
 3202 4822 050 13302 3k3 1% 0,4W  
 3203 4822 116 52175 100Ω 5% 0,5W  
 3204 4822 051 20182 1k8 5% 0,1W  
 3205 4822 051 20008 0Ω JUMP. (0805)

3206 4822 051 20332 3k3 5% 0,1W  
 3221 4822 051 20182 1k8 5% 0,1W  
 3222 4822 051 20102 1k 5% 0,1W  
 3230 4822 050 21002 1k 1% 0,6W  
 4110 4822 051 20008 0Ω JUMP. (0805)

**COILS**

5120▲ 4822 157 53348 FILTER CHOKE ASSY CU15D3  
 5125 4822 157 11411 100MHz  
 5131▲ 4822 146 11062 TRANSFORMER CT296F  
 CDR765  
 5132 4822 157 51462 10μH  
 5210 4822 157 11722 6,8μH 20% 7,7X9,5  
 5215 4822 157 11722 6,8μH 20% 7,7X9,5  
 5220 4822 157 51462 10μH  
 5225 4822 157 53139 4,7μH  
 5226 4822 157 53139 4,7μH  
 5230 4822 157 50963 2,2μH

5240 4822 157 51462 10μH  
 5250 4822 157 51462 10μH  
 5255 4822 157 51195 1μH 20% 4X9,8MM AXIAL

**DIODES**

6102 4822 130 31603 1N4006  
 6103 4822 130 31603 1N4006  
 6104 4822 130 31603 1N4006  
 6105 4822 130 31603 1N4006  
 6106 4822 130 42606 BYD33J  
 6107 4822 130 42606 BYD33J  
 6113 4822 130 32245 BYV10-40  
 6114 4822 130 42488 BYD33D  
 6129 5322 130 80122 BZX84-C24  
 6132 4822 130 42488 BYD33D

6201 4822 130 34328 BZX79-B30  
 6210 4822 130 83801 PBYR745F  
 6211 4822 130 42488 BYD33D  
 6212 4822 130 42488 BYD33D  
 6220 4822 130 42488 BYD33D  
 6230 4822 130 80983 BYW29F-150  
 6231 4822 130 31603 1N4006  
 6240 4822 130 42488 BYD33D  
 6250 4822 130 42606 BYD33J  
 6275 4822 130 30621 1N4148

**IC's**

7110 4822 209 90025 MC44603P  
 7125 4822 130 63689 STP3N60FI  
 7200▲ 4822 130 91451 CQY80NG  
 7201 4822 209 16944 KA431AZ  
 7221 4822 209 80591 LM317T  
 7249 4822 209 82112 MC7908CT  
 7250 4822 209 31257 MC79L24ACP