

# Digital compact cassette recorder

**DCC730**

/00B  
/01B  
/05B

Service  
Service  
**Service**



# Service Manual



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# PHILIPS

## TECHNICAL SPECIFICATIONS

### GENERAL

<u>Power supply</u>	
/00B	: 230 V $\pm$ 15%
/01B	: 110, 127, 220-230, 240 V
	: Selectable by voltage selector
/05B	: 240 V $\pm$ 10%
<u>Power consumption</u>	
Standby mode	: < 5 W
Maximum	: < 25 W
<u>Dimensions(WXDXH)</u>	: 435 x 300 x 90(excl. feet)
<u>Weight</u>	: 4 Kg

### DIGITAL I/O:

Format	: AES/EBU format according IEC958 : (consumer format)
Sampling frequency	: 32 / 44.1 / 48 kHz ( $\pm$ 0.1%)
Unbalanced cinch	: 75 Ohm

### ANALOG IN(digital recording from analog input)

Input sensitivity	: 150 mVrms
Max. input voltage	: 2.5 Vrms(= 2 V + 2 dB)
Input impedance	: 50 kOhm
Levelmeter resolution	: 2 dB
	: 3 dB
	: 5 dB
	: 10 dB
Sampling frequency	: 44.1 kHz
Record level settings	: 0 dB up to -28 dB, 14 steps of -2 dB
Overload	

### DIGITAL OUT

Format	: AES/EBU format according IEC958 : (consumer format)
Sampling frequency	: 32 / 44.1 / 48 kHz( $\pm$ 100 ppm)
Unbalanced cinch	: 75 Ohm

### ANALOG OUT DCC PLAYBACK

Sampling frequency = 44.1 kHz unless otherwise specified

Output voltage	: 2 Vrms $\pm$ 2 dB(0 dB dig.)
Frequency range	: 20 Hz..14.5 kHz, fs = 32 kHz
	: 20 Hz..20 kHz, fs = 44.1 kHz
	: 20 Hz..22 kHz, fs = 48 kHz
amplitude linearity	: $\pm$ 0.1 dB
channel unbalance	: < 0.85 dB(1 kHz)
output resistance	: 300 Ohm
phase non-linearity	: < 0.2 degrees(1 kHz)
outband attenuation	: 50 dB above 30 kHz
channel separation	: > 90 dB(1 kHz)
	: > 85 dB(20 Hz..20 kHz)
muting(search)	: > 98 dB
SNR A-weighted	: 102 dB
SNR unweighted	: 98 dB
DR	: > 97 dB(1 kHz)
	: > 95 dB(20 Hz..20 kHz)
THD + Noise	: > 81 dB(20 Hz..20 kHz)

### ANALOG OUT ACC PLAYBACK

Noise reduction system according DOLBY B/C NR  
(for playback only)

output voltage	: 500 mVrms $\pm$ 2 dB(200 nWb/m)
channel unbalance	: < 3 db(1 kHz)
output resistance	: 300 Ohm
amplitude linearity	: typ. 40 Hz...16 kHz within 3 dB
channel separation	: 20 dB(1 kHz, rel.tracks)
	: 59 dB(non rel.tracks)
muting(search)	: 90 dB
SNR	: Fe
	CR
(DIN reference level, 315 Hz/0 dB)	
unweighted	: - 48 dB
	- 50 dB
weighted	: - 53 dBA
	- 55 dBA
noise reduction	: Dolby B
	Dolby C
	+ 8.5 dB
	+ 17 dB
THD	: < 2%(1 kHz/-10 dB)

### HEADPHONE OUTPUT DCC PLAYBACK

Sampling frequency = 44.1 kHz

output voltage	: > 5 Vrms
channel unbalance	: < 4 dB
output impedance	: 120 Ohm
load impedance	: 32 / 120 / 600 Ohm
output power	: 38 / 68 / 48 mW
frequency range	: 20 Hz..14.5 kHz, fs = 32 kHz
	: 20 Hz..20 kHz, fs = 44.1 kHz
	: 20 Hz..22 kHz, fs = 48 kHz
amplitude linearity	: +1/-2 dB

Audio specification at 4Vrms in case of 600 Ohm load

output sep.(typ.)	: 75 dB(1 kHz)
	: 65 dB(0-20 kHz)
muting	: 100 dB
SNR	: 86 dB
DR	: 86 dB(1 kHz)
THD+N	: 82 dB(1 kHz)

### MICROPHONE IN

Input sensitivity	: 20 mV for max. level
	: 3 mV for ref. level
Input impedance	: 10 kOhm
Microphone impedances	: 200 - 600 - 2000 Ohm
Amplitude linearity	: $\pm$ 1 dB(200 Hz - 20 kHz)
S/N ratio	: typ. 75 dB(BW = 20 kHz)
THD + Noise	: typ. 65 dB(1 kHz)

## INSTRUCTIONS FOR USE

## INDEX

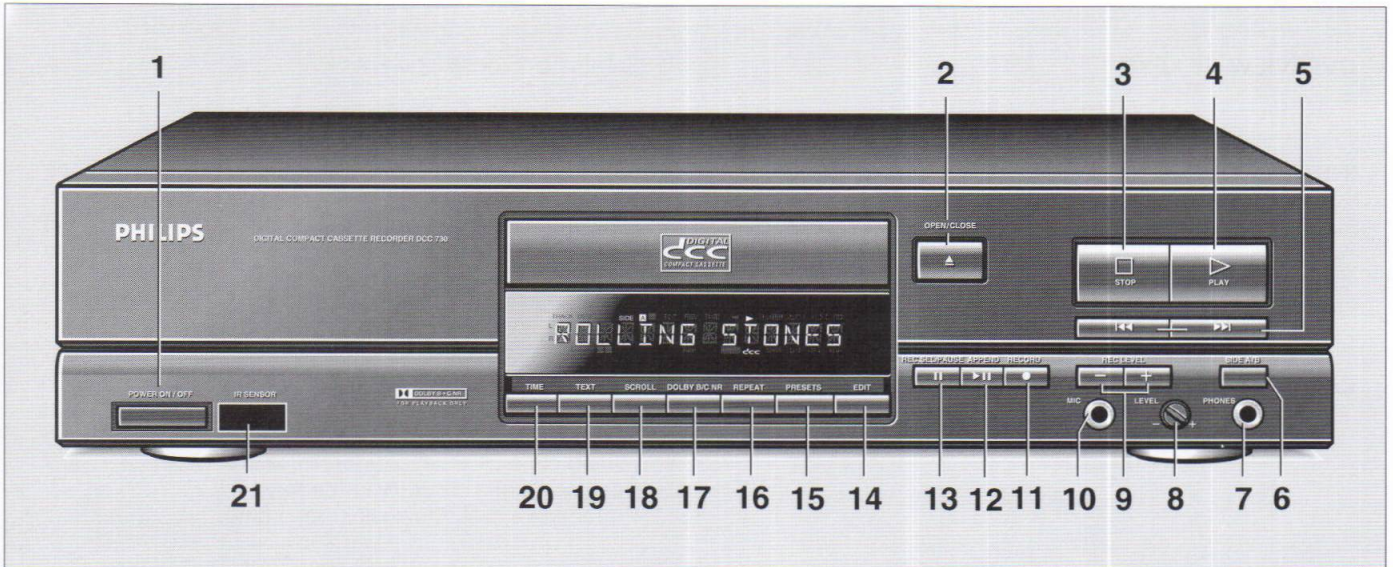
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The type plate can be found on the back of the unit.

This product complies with the radio interference requirements of the European Community.

Recording is permissible insofar as copyright or other rights of third parties are not infringed.

OVERVIEW OF KEYS



KEYS

- 1 POWER ON/OFF** to switch the recorder on and off.
- 2 OPEN/CLOSE** to open and close the tray loader (also push tray to close).
- 7 PHONES** socket for headphone connection.
- 8 LEVEL** to adjust the volume when using headphones
- 10 MIC** socket for a microphone. (automatic source selection)
- 17 DOLBY B/C NR** to select Dolby Noise Reduction only on conventional musicassettes
- 18 SCROLL**
  - to scroll text information or to enter the demo mode.
  - to adjust the scroll speed when lyrics information is selected.
- 19 TEXT**
  - to select text information
  - to enter the title programming mode.
- 20 TIME** to select time and level information

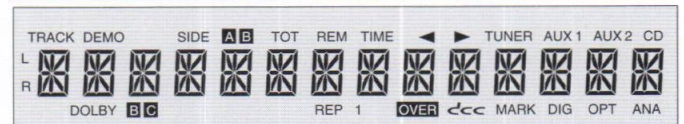
RECORDING CONTROLS

- 9 REC LEVEL +/-**
  - to adjust the recording level (analog and microphone input).
  - to select characters during title programming
- 11 RECORD ●**
  - to start the actual recording. (only in RECORD PAUSE mode)
  - to effectuate edit or title record
- 12 APPEND ►►** to search for the end of the latest recording after which the recorder switches to the RECORDING PAUSE mode.
- 13 SELECT PAUSE ■■** to select the recording source and to enter the RECORDING PAUSE mode.
- 14 EDIT** to enter the edit mode. see 'EDIT'

PLAYBACK CONTROLS

- 3 STOP ■** to stop any action
- 4 PLAY ►** to start playback or recording.
- 5 ◀◀**
  - to search for the start of the current track (press once <0.5 sec.) (also for music cassettes)
  - to search for previous tracks (press more than once)
  - to wind the tape backward (press >0.5 sec.)
- ▶▶**
  - to search for the start of the next track (press < 0.5 sec.) (also for musicassettes)
  - to wind the tape forward
- 6 SIDE A/B** to reverse the tape travel direction (press >0.5 sec.)
- 15 PRESETS** to enter the preset mode. see 'PRESETS'
- 16 REPEAT** to repeat the current track, to repeat all tracks or to switch repeat off.
- 21 IR SENSOR** infra red remote control eye

DISPLAY INDICATIONS



- ▶▶** on during playback or recording
- ▶** blinking during forward search
- ◀** blinking during backward search
- TUNER, AUX1, AUX2, CD** indicates the selected recording source (user selection).
- REP (1)** lights up to indicate that the current track (REP 1) or all tracks (REP) will be repeated.
- OVER MARK** lights up if the recording level is too high lights up each time a marker is read, written or erased on the tape.
- DIG, OPT, ANA** indicates the corresponding input with the selected recording source. see 'PRESETS'

## INSTALLATION

### SUPPLIED CABLES:

- 1 x mains cable
- 2 x hifi connection cable (cinch)
- 1 x digital cable (cinch)

#### 1 MAINS CONNECTION

- Before connecting the unit to the mains, proceed as follows:
  - If the unit is equipped with a VOLTAGE selector, first adjust the voltage selector to the local mains voltage.
  - If the unit does not have a voltage selector, first check if the mains voltage as shown on the type plate on the back of the unit corresponds to your local mains voltage. If it does not, consult your dealer or service organisation.
- After all other connections have been made, connect the mains lead to the AC MAINS socket and insert the mains plug in the wall socket.

#### 2 ANALOG CONNECTIONS

- a ANALOG PLAY** - Connect these sockets via the supplied hifi connection cables to the DCC **INPUT** sockets of your amplifier. You can also use the TAPE 1, TAPE 2 or AUX **INPUT** of your amplifier but never the PHONO **INPUT** socket.
- b ANALOG REC** - Connect these sockets via the supplied hifi connection cables to the DCC **OUTPUT** sockets of your amplifier. You can also use the TAPE 1/2 or AUX **OUTPUT** sockets of your amplifier.

#### 3 DIGITAL CONNECTIONS

The DCC730 can be connected to your CD player via the digital or via the optical socket, depending on the available outputs on your CD player. Recordings through a digital connection guarantee optimum recording quality; record level setting is then not necessary.

**DIGITAL IN** - Connect this socket via the supplied digital cable to the corresponding digital output socket of e.g. CD and DAT or to the digital selector of some Philips amplifiers.

**OPTICAL IN** - Pull out the protective plug from the socket. Connect this socket via an optical lead (SBC1150) to the corresponding optical output socket of e.g. CD and DAT.

**NOTE:** when you are not using the DIG IN connections, for the CD, the PRESETS of the DCC must be changed by using the preset key.

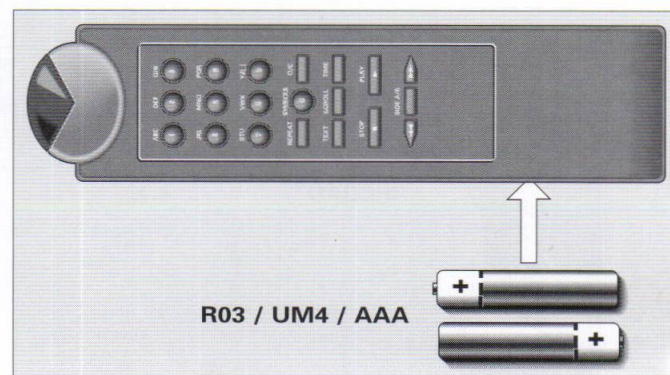
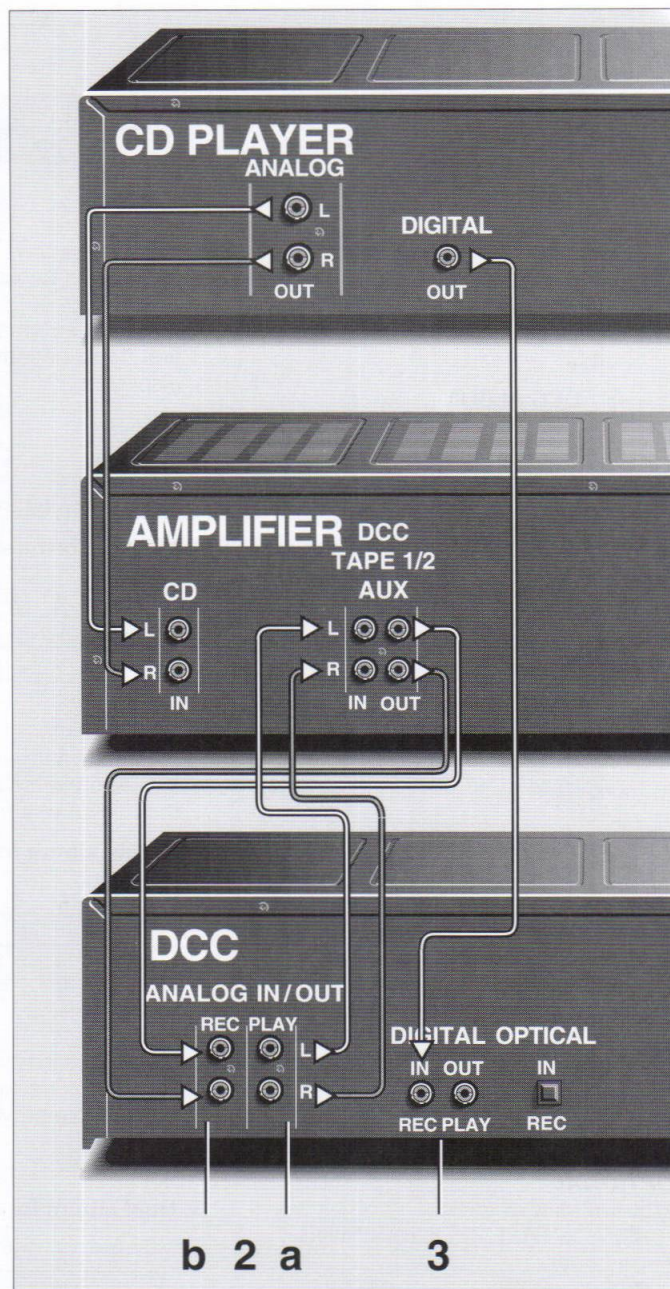
☞ For this refer to the chapter PRESETS.

#### OPTIONAL CONNECTION

**DIGITAL OUT** - Connect this socket via a cinch cable to the corresponding digital input socket of e.g. an amplifier with D/A convertor or another digital recorder.

#### 4 REMOTE CONTROL

Open the battery compartment and insert two batteries, type R03, UM-4 or AAA-cells.

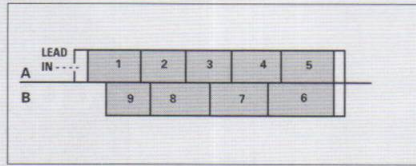


CASSETTE TYPES



DCC ALBUM

PLAY  
~~RECORD~~

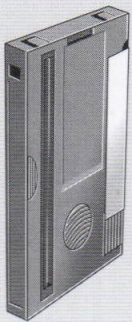


- continuous play
  - continuous tracknumbering
- \* LEAD IN: automatic search to start of first track; negative time will be displayed.

When using a DCC album the following information is available:

- album-info: title, artist
- tracktitle-list
- song lyrics (if present on cassette)
- tracknumbers
- track time, absolute time, total remaining time.
- direct track search
- title search

This information is continuously repeated in the music track and can be retrieved within a short time.

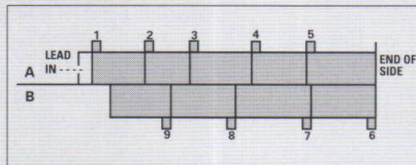


DCC

PLAY  
RECORD

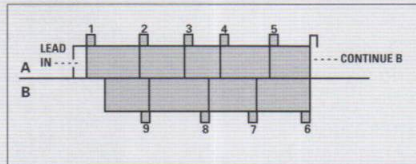
3 formats can be recorded:

1. MC like format



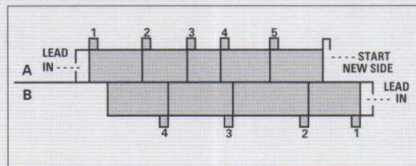
- automatic autoreverse at end of side
- this autoreverse action may occur in the middle of a track.

2. Single album format



- continuous play
  - continuous tracknumbering
  - autoreverse between tracks
  - continue B
- ☞ see EDIT

3. Dual album format



- fast wind to new side
  - independent tracknumbering per side
- ☞ see EDIT

NOTE:

A recording started on side A will automatically continue on side B, if limited recording space (< 1 min.) is available on side A. In order to reduce the loss of recorded information due the trailer tape, the DCC recorder switches to side B slightly before side A is completely full. During playback this may result in a silent 'gap'. It is advised to activate 'RENUMBER' after finalising the recording session (see: 'EDIT, RENUMBER'). 'RENUMBER' guarantees correct track numbering and direct change to side B during playback.

When using a DCC the following information is available:

- absolute time
- track number at start of track
- track time
- remaining time on current side
- sequential track search

OPTIONAL

- title at start of track
- ☞ see TITLE PROGRAMMING
- renumber
- ☞ see EDIT

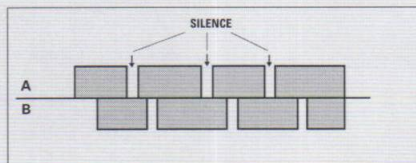
NOTE:

If a recording is started in a blank area, the player is not able to write tracknumbers and absolute time on the tape. The renumber action is then not possible.



MUSICASSETTE

PLAY  
~~RECORD~~



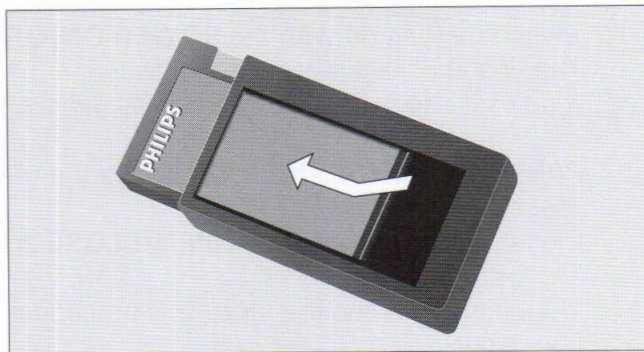
When using a conventional music cassette the following information is available:

- counter setting
- estimated absolute time
- AMS (search of start if tracks are separated with >3 sec. silence.

## CASSETTES

### SLIDING OUT A DCC CASSETTE FROM ITS BOX

Press the cassette out with your thumb; push the cassette upwards.



### POSITIONING A CASSETTE IN THE TRAY

Insert a DCC with the printed side up and protective slider pointed to the DCC-player.

A conventional music cassette should be inserted with the tape pointed to the DCC-player.

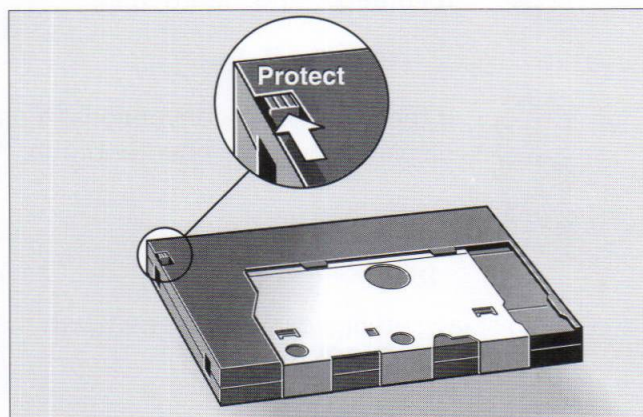


### PROTECTING A CASSETTE AGAINST RECORDING


Accidental overwriting of recordings made on your DCC cassettes can be prevented by sliding the red switch on the back of your cassette upward.

No recording will then be possible on both sides of this tape.

Recording will be possible when the red switch is slid backward again.

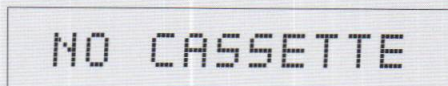


### NOTES ON PLAYBACK ( see page 8)

1. At the start of a tape (LEAD IN area) the display may show a negative time indication e.g. -0:11 and the player will wind to the start of the first track.
2. After closing the tray, the player always selects side A of a cassette. You can reverse the tape travel direction with the SIDE A/B key.
3. When you load a cassette and the tape is positioned near the start of a track, the DCC player will read the tape information and reposition the tape to the start of this track. Reading can take a little longer.
4. TROUBLESHOOTING:  
What to do in case no sound is heard:
  - Check the connections that are made (  see also INSTALLATION).
  - Check the source selection on your amplifier.
  - Check if the inserted cassette is not a blank DCC.
  - Check if a blank area on the tape is being played back.

Playback of a cassette is similar to operating a CD-player.

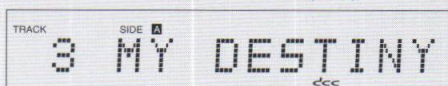
- 1 Switch the unit on with the **POWER ON/OFF** key.  
The unit checks if a cassette is loaded.  
If no cassette is loaded, the display panel shows:



- 2 Press the **OPEN/CLOSE** key to open the tray and insert a cassette.  
Close the tray by pressing **OPEN/CLOSE** again or by pushing the tray.  
The display panel shows:  
The unit now reads the tape. This procedure will take maximum 5 seconds.



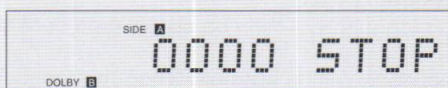
If the unit finds a DCC album, the complete track title will once scroll on the display.  
After that the shortened title will appear, e.g.:  
(max. 12 characters)



If the unit finds a (user-recorded) DCC, the time is displayed.  
The display panel shows for instance:  
The track number may not be known as this is recorded at the start of a track.

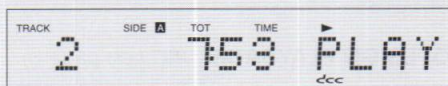


If the unit finds a conventional music cassette, the display shows the counter mode:



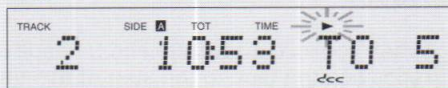
The display settings can be changed with the TIME/TEXT key.  
☞ see also: **DISPLAY**

- 3 Press the **PLAY ▶** key to start playback.  
Playback will start from the present position of the tape.  
The display will show for instance:  
The play indication ▶ on the display lights up.



- 4 Press the **STOP ■** key to stop playback.

- 5 Searching for next or previous tracks can be done by shortly pressing the |◀◀ ▶▶| keys.  
The play indicator ◀ or ▶ on the display will start blinking.  
The display shows e.g.:



When the |◀◀ ▶▶| keys are pressed > 0.5 sec., the deck starts (re)winding until you release the key.

☞ see also: **PLAYBACK FUNCTIONS**

**NOTES:** ☞ see page 7.

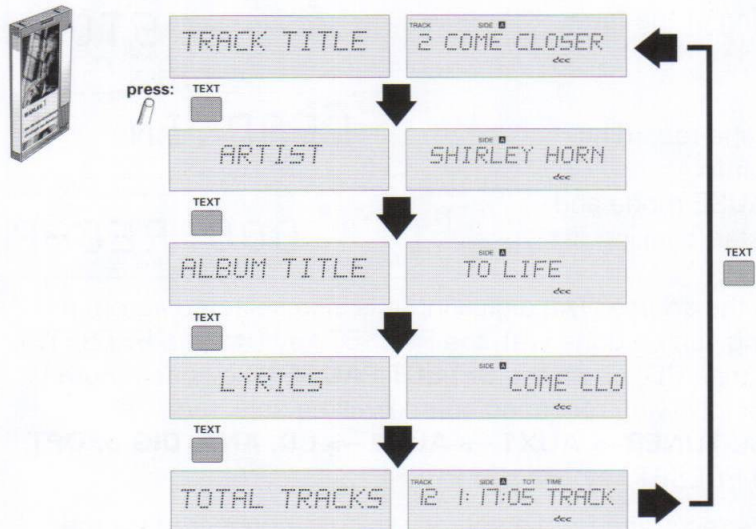


**TEXT - TIME**

By pressing the **TEXT** or **TIME** key you can select different information to be shown on the display. Different information is available for the different cassette types ( see CASSETTE TYPES ).

If the display is showing TIME information, pressing the **TEXT** key will result in:

**When using prerecorded DCC cassettes:**



Lyrics information is not present on all prerecorded DCC cassettes. In this case the topic indication **LYRICS** will stay on the display as long as no synchronized songtext has been detected.

First, the display will show the topic name, then the topic line will be scrolled once and afterwards the shortened topic will be fixed on the display.

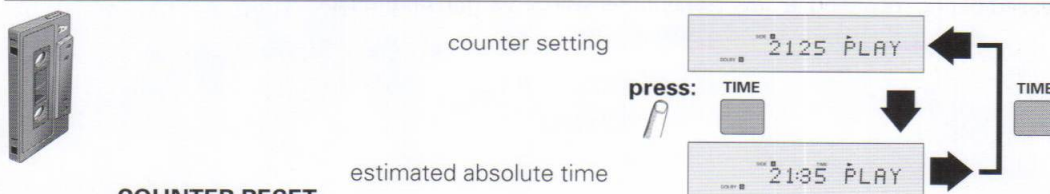
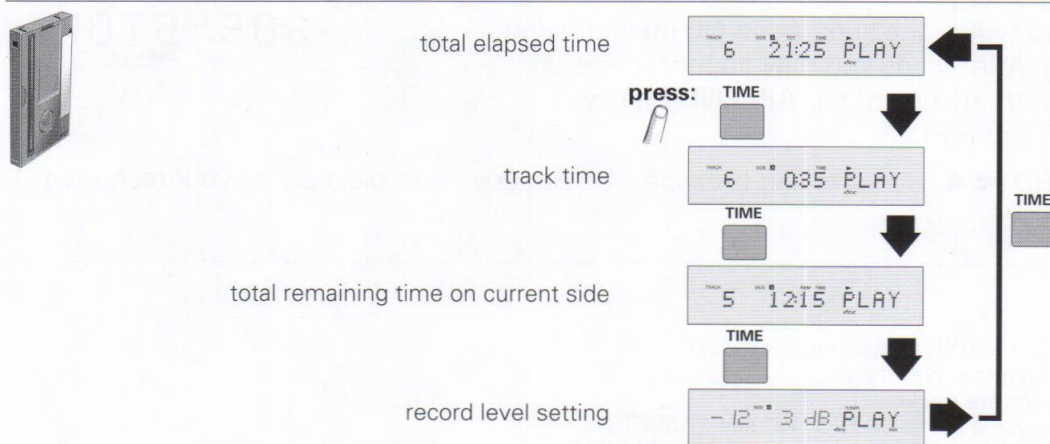
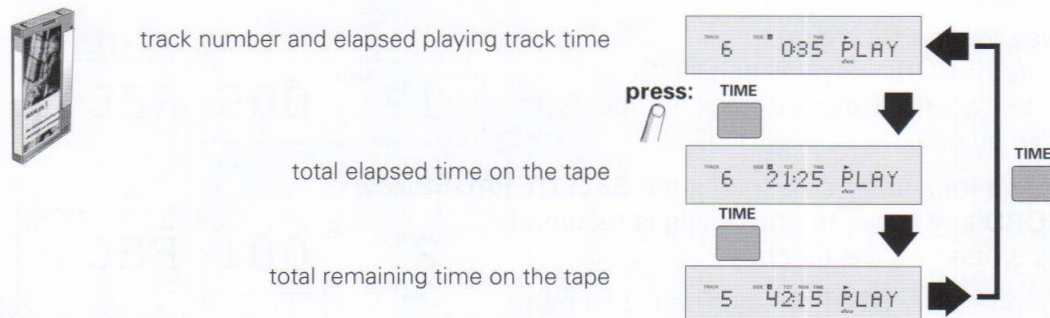
When you press the **SCROLL** key the selected text information will once be scrolled again on the display from right to left.

In case you have selected **LYRICS**, you can adapt the scrolling speed (in 9 steps) of the song lyrics to the music rhythm by pressing the **SCROLL** key several times.

The text key is only functional when DCC cassettes are used. When you press this key when you are using conventional musicassettes the display will show

NO TEXT INFO

If the display is showing TEXT information, pressing the **TIME** key will result in:



**COUNTER RESET**

By pressing the **TIME** key for 2 seconds the tape counter will be reset to 0000.

Basically, making recordings on your DCC recorder is similar to making tape recordings on a music cassette.



- 1 Press **OPEN/CLOSE**.
- 2 Insert a **blank** DCC and close the tray.
- 3 Press **BACKWARD** for more than 0.5 seconds. The deck rewinds and stops at the beginning of the tape.
- 4 Press the **SELECT PAUSE II** key.
  - a The deck writes a buffer area (LEAD-IN). This buffer area is to guarantee optimum tape-recording conditions and recording of time and track info.
  - b The DCC player will enter the RECORD PAUSE mode and the indicator above the RECORD key will start blinking .
  - c **SOURCE SELECTION:**
    - The CD player is automatically selected as the source. The digital input is also selected automatically (default setting). Changing this setting can be done with the PRESET key ( see PRESETS).
    - If you want to record from another source than CD, press the **SELECT PAUSE II** key once more. Each time you press **SELECT PAUSE II** the following recording source will be selected: The display shows the selected preset input: **TUNER--> AUX1 --> AUX2 --> CD. ANA, DIG or OPT.** Changing this preset can be done with the PRESET key, see PRESETS.

READING  
dccc

SIDE A  
-- -- -- -- STOP  
dccc

SIDE A  
LEAD IN  
dccc

TRACK	SIDE	TOT	TIME	CD
1	A		000	REC-P

dccc DIG

- 5 **RECORD LEVEL SETTING:** In case you are recording from a source which is connected via the digital or optical inputs the recording level does not need to and can not be adapted. When you want to record from a source via the analog or microphone inputs, you should check the peak level. see RECORDING LEVEL.

- 6 Press the **RECORD** key to start recording. The indicator above the RECORD key will be ON . The time is continuously recorded and the track number is automatically increased by one.

TRACK	SIDE	TOT	TIME	CD
1	A		0:05	REC

dccc DIG

- 7 To interrupt the recording for a short time, press the **SELECT PAUSE** key. By pressing the **RECORD** key again, the recording is resumed; a new tracknumber is written on the tape).

TRACK	SIDE	TOT	TIME	CD
2	A		0:01	REC

dccc DIG

- 8 To stop the recording, press the **STOP** key. The actual music recording stops immediately. The deck continues to write for a short period to mark the end of the last recording. Afterwards you may find this place on the tape very easily with the use of the **APPEND** key, see:RECORDING EXAMPLES.

TRACK	SIDE	TOT	TIME	CD
2	A		3:05	STOP

dccc MARK

- 9 Press the **BACKWARD** key to rewind the tape. You can now start playback of your recording with the **PLAY** key.

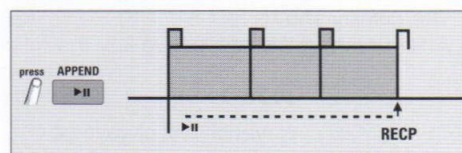
#### NOTES:

1. In case the display shows **CHECK DIG IN** you should check:
  - if the CD player is switched on and in play mode,
  - if the correct digital connections are made,
  - if the PRESET on the DCC player is set to CD DIG ( see PRESETS)
2. When the unit is in RECORD PAUSE mode, you may also use the **PLAY** key to start the recording.
3. When the **RECORD** key is pressed during recording, a new tracknumber will be written on the tape.

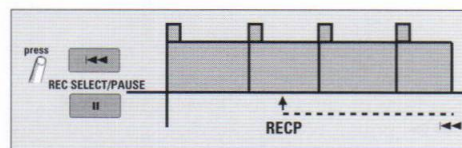
**RECORDING ON A PARTIALLY RECORDED DCC**

The APPEND function makes it possible to easily continue a recording at the end of your last recording. Track numbering will automatically continue in the right sequence. In case your last recording does not end with silence, it may happen that a very small part of your last recording (max 1 second) is overwritten.

- 1 Press APPEND ►||. The deck will search for the end of the last recording (which was marked when STOP was pressed during recording). APP > or APP < appears. When this position has been found the last 10 seconds of this music track will be played back (APPEND PLAY), after which the RECORD PAUSE (RECP) mode is entered.
- 2 (Select the correct input source by pressing SELECT PAUSE ||.)
- 3 Press RECORD ● to start the actual recording.
- 4 Press STOP ■ when you want to stop recording.  
The recording will be stopped and the deck marks the end of the last recording.

**RECORDING ON A SPECIFIC LOCATION**

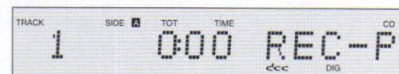
- 1 Search for the location on the tape where you want to make a recording.
- 2 **a** Press SELECT PAUSE ||. The deck will enter the RECORD PAUSE (RECP) mode at the current position.  
**b** (Select the correct input source by pressing again SELECT PAUSE ||.)
- 3 Press RECORD ● to start the actual recording.
- 4 Press STOP ■ when you want to stop recording.

**Note: the tape must be positioned at a recorded area.**

- In case you start recording on an area of the tape on which no previous recording was made (an blank area), the DCC player will not record time information. The tracknumber will not be shown.
- In case you start a recording in the middle of a track, it can happen that the DCC recorder has not yet read the track number of this track. Correct continuation of the track number-sequence is not possible. The DCC 730 will indicate track number '- - - -'. After finalizing the recording session, the 'RENUMBER' function (see: 'EDIT, RENUMBER') can correct the track number sequence.

**COMPLETELY OVERWRITING A RECORDED DCC**

- 1 Select side A. see 'REVERSING THE PLAYING DIRECTION'.
- 2 Press BACKWARD ◀◀. The deck will rewind and stop automatically at the beginning of the tape.
- 3 Press SELECT PAUSE ||.



The deck will now write a LEAD IN area at the beginning of side A and will enter the RECORD PAUSE mode.

- 4 (Select the correct input source and adjust the recording level when needed).
- 5 Press RECORD ● to start the actual recording.
- 6 Press STOP ■ when you want to stop recording.  
The recording will be stopped and the deck marks the end of the last recording.

**1. Using the APPEND key has the following advantages:**

- Easy finding of the latest recorded piece of music in order to continue recording at that point.
- Continuous tracknumbering
- Time recording.

**2. Using the SELECT PAUSE || key has the following advantages:**

- Possibility to start recording in the middle of a track.
- In case the RECP key is pressed while the position on the tape is within 2 seconds from the start of a tracknumber, the tape will be repositioned to the start of this track.

**3. Press RECORD to actually start the recording:**

**example:** press in following order: APPEND → RECORD (to start recording at end of the latest recording)  
or: REC SELECT → RECORD (to start recording at the current position)

**RECORDING IS NOT POSSIBLE:**

- On a prerecorded DCC
- On a conventional musicassette
- On a DCC which is protected against recording.  
 see 'PROTECTING A CASSETTE AGAINST RECORDING'.
- When the **COPY PROHIBIT** message lights up on the display.  
The DCC deck operates with a **Serial Copy Management System**, which includes that a fully digital copy can be made from Prerecorded digital material but only directly from the original material.  
It is not possible to make a digital copy of a digitally copied DCC to another DCC deck. When you want to copy this cassette from one DCC deck to another you can only do this via the analog input sockets.
- When no digital signal is available. The display shows CHECK DIG IN. see 'TROUBLESHOOTING'.

DETAILED FUNCTION DESCRIPTION

INSTALLATION

PRESETS

With the PRESETS function you can control the default settings of the DCC recorder.

- Press the **PRESETS** key to enter the edit mode.  
The display shows *SELECT PLAY - REC SELECT - EDIT*, indicating that you can select one of these keys.
- After pressing the respective key the following default settings can be adjusted.

**PLAY ▶**

- **AUTO PLAY**: playback will always be started automatically as soon as the tray has been closed.
- **AUTO STOP**: playback will not be started automatically.

- Selection can be made with the **◀◀ ▶▶** keys.
- Press **PRESETS** again to store the selected values.

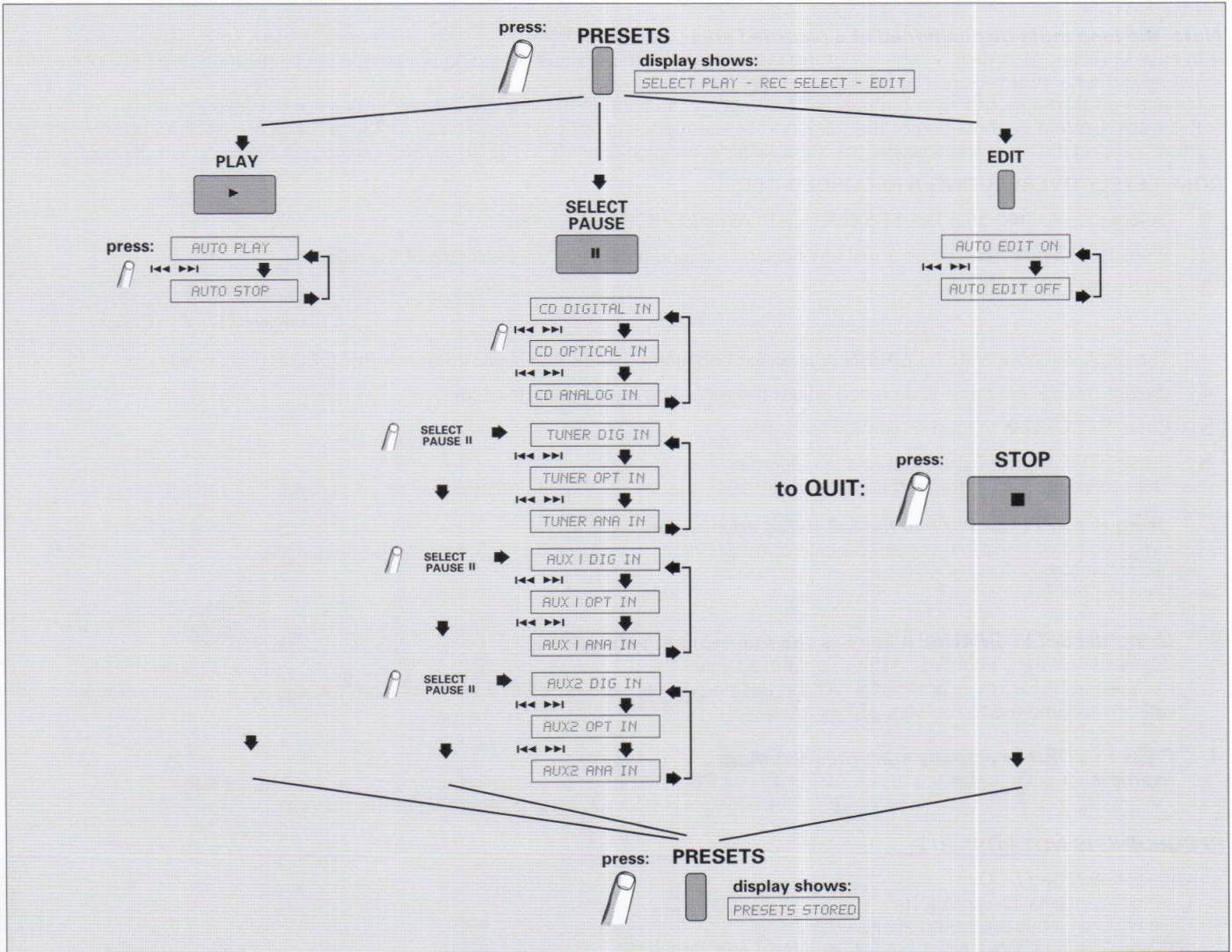
**SELECT PAUSE II**

- **CD, TUNER, AUX1, AUX2**: selection of recording source
- **DIG, OPT, ANA**: selecting the input: digital, optical or analog

- The recording source can be selected with the **SELECT PAUSE II** key
- The input can be selected with the **◀◀ ▶▶** keys.
- Press **PRESETS** again to store the selected values.

**EDIT**

- **AUTO EDIT ON**: the DCC recorder will write new track nrs on the tape when 3 sec. silence (<-60dB) is detected during recording from analog or micro input.  
When a digital source is connected (via digital sockets) this function is always automatically set to **AUTO EDIT ON**.
- **AUTO EDIT OFF**: the DCC player will not perform automatic track increment.
- Selection can be made with the **◀◀ ▶▶** keys.
- Press **PRESETS** again to store the selected values.



**EXAMPLE:** Changing the input source for CD.  
Press PRESETS → Press SELECT PAUSE → Display shows current setting *CD DIGITAL IN* → Select the input e.g. *CD OPTICAL IN* with the **◀◀ ▶▶** keys → Press PRESETS again to store the adjustment. The display shows **PRESETS STORED**.

## DETAILED FUNCTION DESCRIPTION

## INSTALLATION

## RECORD LEVEL SETTING MEMORY

The DCC730 stores the latest record-level setting for each independent source. As such, you do not have to adjust the record level setting each time another source is selected. During installation or when making your first recordings you can check and adjust the record level settings for each connected source.

## EXAMPLE:

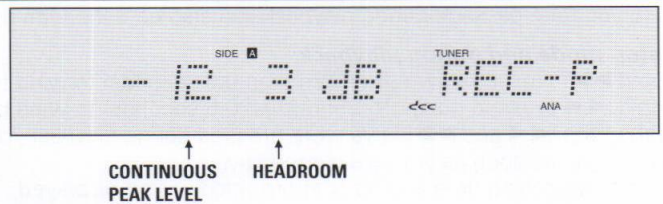
SOURCE		STORED RECORD LEVEL SETTING
CD	DIG IN	Optimal direct digital
TUNER	ANA	Setting nr. 10      LEV 10
AUX1	ANA	Setting nr. 7        LEV 7
AUX2	OPT IN	Optimal direct digital

## DISPLAY

## RECORDING LEVEL DISPLAY

The peak level can be displayed by pressing:

- **REC LEVEL + or -** ;  
The recording level display will be shown temporarily. 10 seconds after REC LEVEL + or - was pressed the display will go back to showing the previous information.
- **TIME**.  
☞ see 'TEXT, TIME'.



**CONTINUOUS PEAK LEVEL:** is updated every second.

**HEADROOM:** indicates the absolute highest peak level. The headroom will be reset:  
 - when you press **REC LEVEL + or -**  
 - when you start a new recording

**OVER indication:** If the level exceeds the 0 dB level, an overload will be indicated and the recorded signal can be distorted. The **OVER** indication will also be indicated on the display when the display is not showing the record level setting, e.g. during a recording.

## ADJUSTING THE RECORD LEVEL SETTING

The record level setting for a traditional music cassette was always very critical due to its limited dynamic range. In order to record low signal level, recordings had to be made at maximum recording level. For DCC the Record Level setting is much less critical.

1. **Digital/optical input:** Record Level setting is not needed. Signals are directly digitally copied which guarantees optimum settings.
2. **Analog input:** Due to very large dynamic range of DCC, even very low signal levels can be recorded.

It is no longer needed to adjust the level to its *maximum* value. It is even better to keep a safe distance from the maximum value in order to prevent overload (resulting in distortion). The distance from the maximum value is indicated by:

1. **the continuous peak level:** Recommended value for this continuous level is -9 to -12 dB.
2. **the headroom:** Recommended value for this head room is 2 dB.

The sensitivity can be adjusted in maximum 14 steps.

The maximum or minimum level is indicated on the display as:

MAX LEVEL or MIN LEVEL

**When in RECORD or REC PAUSE mode:**

- Press **REC LEVEL + or -** to enter the level-meter display mode. The recording sensitivity is not yet changed.
- Press **+** to increase the sensitivity of record-setting step by step
- Press **-** to decrease the sensitivity of record-setting step by step

If the level exceeds the 0 dB level, an overload **OVER** will be indicated and the recorded signal can be distorted. In this case press **REC LEVEL -** to decrease the level.

Adjusting the recording level is only needed when you are recording from a source which is connected via the ANALOG LINE IN sockets or via the MICRO(phone) socket to your DCC 730 (Analog In).

**ADVICE:**

It is recommended always to use the digital input when it is available. Adjustment of the recording level is then not needed.

## DETAILED FUNCTION DESCRIPTION

### PLAYBACK FUNCTIONS

#### TRACK SEARCH

The **◀◀** and **▶▶** keys can be used to search for a particular track on the tape or to scroll through the tracklist (see title search).  
 – During the track search the display shows e.g.:



#### In stop mode:

- Press **◀◀** (less than 0,5 seconds) to search for the start of the current track.
- Press **▶▶** (less than 0,5 seconds) to search for a track next to the current track.

**Note:** these keys are also functional when using conventional musicassettes (Automatic Music Search). This function reacts to silent passages of at least 3 seconds between the tracks.

#### WIND / REWIND

Searching for a passage during playback can also be done with the **◀◀** and **▶▶** keys.

#### In stop mode and during playback:

- Hold **▶▶** pressed down (for more than 0,5 seconds) to wind forward.
  - Hold **◀◀** pressed down (for more than 0,5 seconds) to wind backward.
- When the **◀◀** and **▶▶** keys were pressed during playback, playback will be continued as soon as you release the key.  
 During searching time and track information will be displayed.



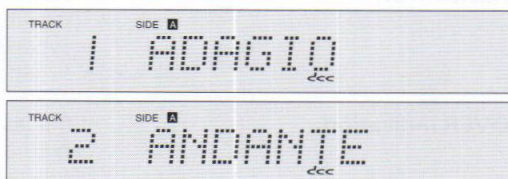
- When the text display is selected and the **◀◀** and **▶▶** keys are activated, the display changes to time indication as long as the search continues. Then the display will show the text information again.

#### TITLE SEARCH

The **◀◀** and **▶▶** keys can be used to browse through the track-list

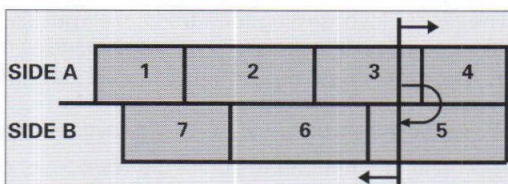
#### When in stop mode and track title display :

- When you press **▶▶** or **◀◀** while the display is showing the track title, the title of the next or previous track appears on the display.  
 Searching for the track does not yet start.
- You can actually search for the track by pressing the **PLAY ▶** key.



#### REVERSING THE PLAYING DIRECTION

- The SIDE A/B key is used to reverse the tape travel direction.  
 This selected side is indicated on the display with SIDE **[A]** or SIDE **[B]**.
- When you press this key during playback, the playing direction will be reversed and playback will be continued at the other side of the tape.



#### REPEAT

You can use the REPEAT key to replay a particular track or the total number of tracks on the tape.

- Press this key once to repeat the current track.  
 The indication **REP 1** will appear on the display.  
 Repeating the current track is not possible when you are using conventional analogue cassettes.
- Press this key once again if you wish to repeat all tracks on the tape. The display will show **REP .**
- Press this key another time to switch repeat off again.

**NOTE:** When analogue cassettes are used, only the function **REP** can be activated. **REP 1** can not be selected.

#### DOLBY NOISE REDUCTION

The Dolby Noise Reduction function can only be active when you are playing conventional music cassettes.  
 With the Dolby key you can switch the Dolby NR system on or off and select Dolby B or Dolby C NR.

Dolby Noise Reduction manufactured under license from Dolby Laboratories Licensing Corporation.  
 Dolby and the double-D symbol **DD** are trademarks of Dolby Laboratories Licensing Corporation.

## DETAILED FUNCTION DESCRIPTION

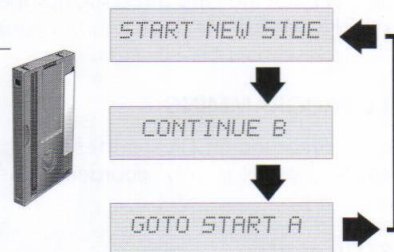
## RECORDING FUNCTIONS

## EDIT

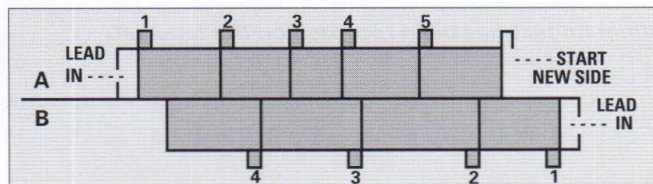
The EDIT function is only possible when you are using non protected user-recorded DCC cassettes. In this mode you can edit the tape formats, delete or create track transition and renumber the tracks.

**When in REC PAUSE mode:**

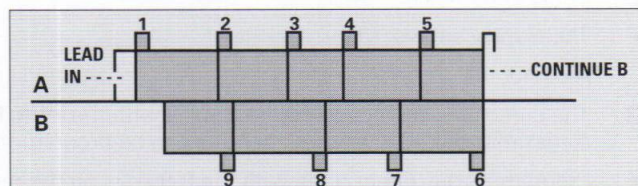
- 1 Press the **EDIT** key to enter the edit mode
- 2 You can select the various EDIT functions by pressing **EDIT** several times
- 3 Press the **RECORD** key to actually edit the tape.



- **START NEW SIDE:** When START NEW SIDE is detected during playback, the deck will automatically wind to the beginning of the next side after which playback will be continued with the first track on the next side. During winding the display will show `TO START B` or `TO START A`.



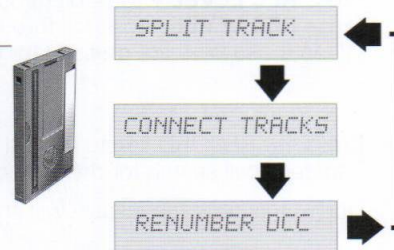
- **CONTINUE B:** mark the position where the tape must be reversed (only possible on side A of the tape). When CONTINUE B is detected during playback, the deck will immediately change to side B after which playback will be continued.



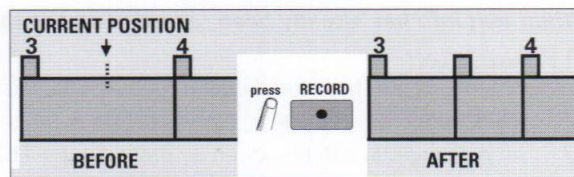
- **GO TO START A:** mark the position on the tape where the deck should start winding to the beginning of side A and stop. When GO TO START A is detected during playback, the deck will wind to the beginning of side A after which the deck stops.

**When in STOP mode:**

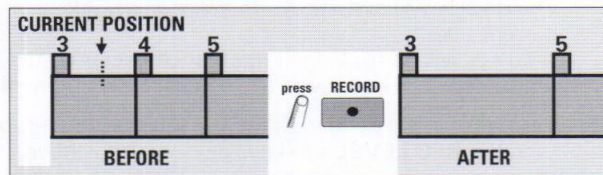
- 1 Press the **EDIT** key to enter the edit mode.
- 2 You can select the various EDIT functions by pressing **EDIT** several times
- 3 Press the **RECORD** key to actually edit the tape.



- **SPLIT TRACK:** the DCC starts a new track at the current position. When SPLIT TRACK has been performed a renumber action (see below) is necessary to ensure a correct tracknumber sequence.



- **CONNECT TRACKS:** the current and next track will be connected and recognized as one track. The deck will search for the start of the next track and erase the marker which indicates the start of this track. When tracks have been connected a renumber action (see below) is necessary to ensure a correct track number sequence.



**Note:** Do not use the 'CONNECT TRACKS' function when positioned at the start of a track.

- **RENUMBER:** renumbering the tape. This action is only possible if track numbers have been recorded on the tape.



– The 'RENUMBER' function is **always** needed when:

1. During recording, the deck has automatically switched from side A to side B (see: 'MC like format').
2. A track has been split into 2 tracks.
3. Two tracks have been connected to one track.

– The 'RENUMBER' function **may be** needed when: A recording is started in the middle of an existing track (see: 'RECORDING ON A SPECIFIC LOCATION').

– As the complete tape will be checked for correct tracknumber sequence, it is best to finalize all edit-actions before renumbering. During the renumber action the display shows the absolute time + 'RENUM'.

When the action is finished the display shows `RENUM COMPLETE`

**NOTE:** to exit edit  **STOP** 

## DETAILED FUNCTION DESCRIPTION

## RECORDING FUNCTIONS

**Note:** If a recording is started in a blank area, the recorder is not able to write track numbers and absolute time on the type. The display will *not* indicate the track number (also not with --). Indication will be similar to a music cassette. The 'RENUMBER' function can *not* correct the track number sequence. Recording of track numbers is only possible when a tape is initialized with a LEAD-IN area.

## TITLE PROGRAMMING

On user recorded DCC cassettes, you can record your own titles. The title will be recorded *at the start* of the track.

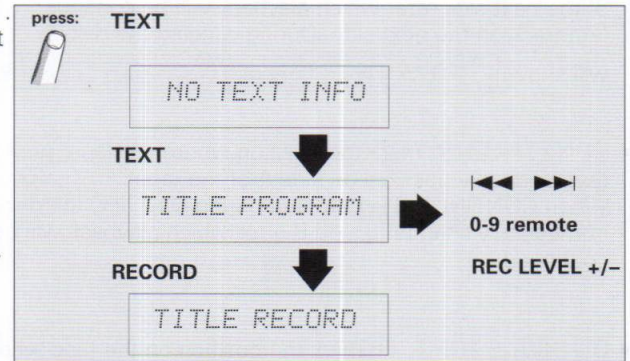
**Note:** As the title is only recorded at the start of the track, the **NO TEXT INFO** message will appear if the deck has *not* yet read a title.



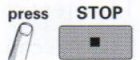
## In STOP mode

**When no text has been recorded on the tape yet:**

- 1 Press TEXT  
When a new track is found and no text-info has been recorded yet the display shows **NO TEXT INFO**
- 2 Press TEXT again.  
The display shows **TITLE PROGRAM**  
A cursor will be blinking at the first character on the display (left).
- 3 The cursor can be moved on the display with the **◀◀, ▶▶** keys.  
A maximum of 40 characters per title can be programmed.
- 4 Programming is either done with the **0-9** keys on the remote control (1=A,B,C, 2=D,E,F, 3=G,H,I, etc.) or with the **REC LEVEL +/-** keys.
  - Press **REC LEVEL +** to scroll through the alphabet characters in the following sequence: A, B, C, etc.
  - Press **REC LEVEL -** to scroll through the alphabet characters in the opposite sequence: Z, Y, X, etc.
 When these keys are pressed for more than 1 second the scrolling speed will be increased.



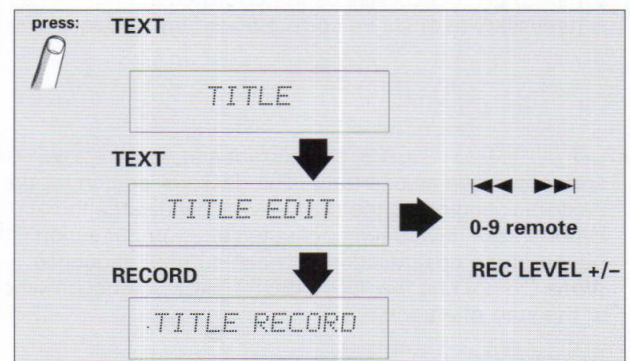
**NOTE: to exit title programming**



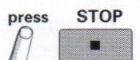
- 5 Press the RECORD key to store the title.  
The deck will search for the start of the current track and record the track title at the start of this track.  
During this time the display will show **TITLE RECORD**

**When text info has already been recorded on the tape:**

- 1 Press TEXT  
When text info has already been recorded the display shows the current title.
- 2 An existing title can be edited by pressing the **TEXT** key again.  
The display will first show **TITLE EDIT** and then the current title.  
A cursor will be blinking at the first character on the display (left). This cursor can be moved on the display with the **◀◀, ▶▶** keys
- 3 Programming is done with the **0-9** keys on the remote control or with the **REC LEVEL +/-** keys as described above.
- 4 Press the RECORD key to store the new title.  
The deck will search for the start of the current track and record the track title at the start of this track.  
During this time the display will show **TITLE RECORD**



**NOTE: to exit title programming**



## MICROPHONE RECORDING

If a microphone (e.g. Philips SBC 3036) is connected, your DCC 730 will automatically select microphone recording.

If 'howling' occurs when using microphones:

- keep the microphones away from the loudspeakers,
- or reduce the reproduction volume,
- or use headphones for monitoring.



## REMOTE CONTROL

- 1 **0-9** – these keys can be used for track selection and for title programming.
- 2 **REPEAT** – to repeat the current track, to repeat all tracks or to switch repeat off.
- 3 **TEXT** – to select text information and to enter the title programming mode.
- 4 **STOP** ■ – to stop any action.
- 5 **◀▶** – when pressed < 0,5 sec.: track search.  
– when pressed > 0,5 sec.: wind/rewind.
- 6 **O/C** – open/close.
- 7 **TIME** – to select time information.
- 8 **SCROLL**  
– to scroll text information or to enter demo mode.  
– to adjust the scroll speed when lyrics. information is selected.
- 9 **PLAY** ▶ – to start playback or recording.
- 10 **SIDE A/B** – to reverse the side.

### DIRECT TRACK SELECTION with remote control

The 0-9 keys on the supplied remote control can be used to directly select a desired track on the tape.

These keys can be activated during the stop mode, when the tray is open, during playback or during the search mode.

The DCC player will wind to the desired track, after which playback will start automatically.

When using DCC user-recorded tapes this function only works if a tracklist is present and has been read by the DCC-recorder.

Direct track selection functions differently for different cassette types. Direct selection of track 1 is always possible.

#### 1. DCC album:

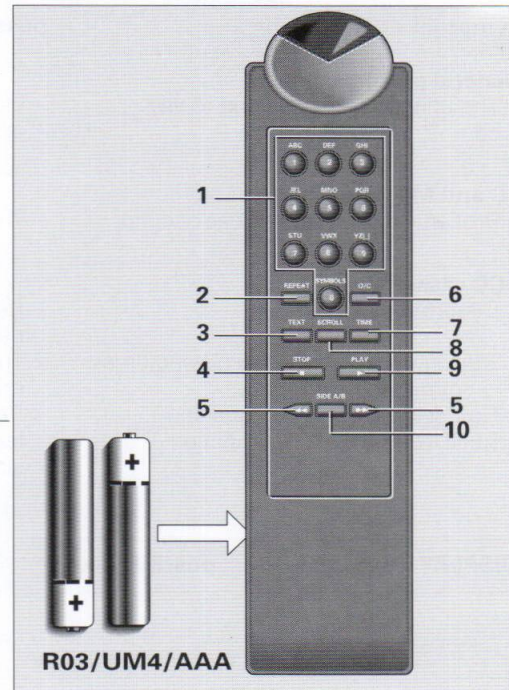
Always functions as soon as the track list has been read; direct side selection

#### 2. DCC user recorded tape:

- Only if the current track number is known; e.g. current track number 3, requested track 8, sequential search to track 8.
- If the current track number is *not* known, the message **NO TRACK INFO** will appear.
- Direct selection of track 1 is always possible.

#### 3. Musicassette:

Only selection of track 1 is possible; for all other tracks the message **NO TRACK INFO** will appear.



## MAINTENANCE

### GENERAL REMARKS

The DCC730 might influence the quality of a broadcast signal when the radio antenna is located close to the DCC player.

- Keep the radio antenna as far as possible away from the DCC player.

### MAINTENANCE OF YOUR DCC RECORDER

- Do not leave the unit for any length of time in direct sunlight or other places where high temperatures can occur, such as in the vicinity of heating apparatus.
- Do not expose the equipment to humidity or rain.
- A chamois leather cloth slightly moistened with water is sufficient for cleaning the deck.
- Do not use cleaning agents containing alcohol, spirits, ammonia or abrasives.

### CASSETTE MAINTENANCE

Keep the cassettes at room temperature and avoid leaving them in the sun or too close to magnets and transformers of e.g. recorders, radios, TV's and loudspeakers.

Do not push the tape protection of DCC cassettes aside and avoid touching the tape.

### CLEANING CASSETTES

- In principle there is no need to clean the head of your DCC player when you use only DCC cassettes. The use of conventional musiccassettes of inferior quality may leave dirt on the DCC head. This can affect the sound quality of DCC cassettes (sound will be interrupted). Your DCC730 automatically indicates when headcleaning is needed by showing the message **CLEAN HEAD**. This message can be shown when RECORD PAUSE is entered, during PLAYBACK or after playing many hours with conventional musiccassettes. Special DCC cleaning-cassettes (Philips SBC3500) are available to clean the DCC head. It is strongly advised not to use conventional cleaning cassettes as they will not clean the DCC head good enough.

#### **WARNING: Do not use DEMAGNETIZE cassettes.**

*This product complies with the radio interference requirements of the European Community.*

#### **Copyright:**

Recording or copying is only authorised if there is no violation of copyright or other rights of third parties.

## TROUBLESHOOTING

symptom	possible cause	remedy
<b>General problems</b>		
- The unit does not respond to any command.	- Electrostatic charge may cause this problem.	- Switch off the power. - Switch on the power again after a few seconds.
<b>CC and MC cassettes</b>		
- Broken/intermittent playback sound.	- The head section is dirty.	- Clean the head section.
<b>DCC cassettes</b>		
- Distorted signal.	- Recording was made with too high peak level (OVERLOAD).	- Make a new recording with lower peak level.
- Track number or elapsed playing time is not displayed correctly.	- The cassette has been loaded in the middle of one of the tracks.	- Rewind the tape to the start of the track and start playback.
- No track number indication and RENUMBER does not function.	- Recording has not been started with a lead-in area at the beginning of each side.	- You may consider to re-record the tape.

DISPLAY MESSAGE	possible cause	remedy
PRESS STOP	- You have pressed a key during a function which cannot respond to this key	- Press the STOP key
BLOCKED	- For some reason, the compartment cannot be opened or closed (e.g. cassette not correctly inserted, compartment touched an object when it was opened).	- Do not force anything. Try to reset the player by switching ON and OFF again. If the trouble persists, consult your dealer or service station.
WRONG TRACK	- The selected tracknumber does not exist on the tape, playback is continued	- Enter an existing track number
CHECK DIG IN and CHECK OPT IN	- The CD player does not send any signal in 'STOP' mode. - The digital source has failed (i.e. loosened cable or DIG IN is not connected. The unit is switched to STOP. - 'Digital' or 'Optical' has been selected at the unit. If the digital source is missing, recording can not be started.	- Set the CD player into 'PAUSE' mode. - Check the connections and try again If the problem persists, your digital/optical cable might be broken. Consult your dealer for a new cable
COPY PROHIBIT	- You can not make a digital copy of a source which is already a digital copy of an original music-program. The DCC730 operates with a Serial Copy Management System, which includes that a fully digital copy can be made from prerecorded material. E.g. you can make a digital recording from a CD to your DCC via the digital in- and output sockets. However, it is not possible to make a digital copy of this recorded DCC cassette to another DCC deck.	- When you want to copy this cassette from one DCC deck to another you can only do this via the analogue in- and output sockets. - Select the analog input and start recording again.
NO TEXT INFO	- There is no text information on the tape that has been inserted in the compartment or the information is not known yet.	- Program your own text information or select TIME information)
NO DCC	- You have tried to start recording with an 'ACC'.	- Insert a DCC into the tray.
TAPE PROTECT	- You have tried to start recording with a recording protected cassette.	- Push the red button on the DCC down (towards protective touch slider)
CLEAN HEAD	- There is dust or dirt on the head of your DCC player This indication may appear during playback/recording or recording pause mode.	- Use a special DCC cleaning cassette to clean the head
RENUM FAILED	- Renum is not possible when a recording was started on an empty area of the tape (no time info recorded)	- You may consider to re-record the tape
TAPE FULL	- indicates that the recording cannot be continued because the tape is full	- Use a new cassette for recording or rewind the tape to overwrite an existing recording
LOAD AGAIN	- The cassette has not been loaded correctly	- Load the cassette again.

If the trouble persists, even after the remedial action has been taken or if the symptoms are not included in the table, consult the dealer where you purchased the unit.

**WARNINGS****(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 muni 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 teruggebracht 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.

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

**ESD****(D) WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD). Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern. Sorgen Sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

**(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

**(I)**

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.

**(NL) WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

**(I) AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**(GB) HANDLING DCC-HEADS**

**CAUTION:** The heads are susceptible to electrostatic voltage higher than 150Vdc! The heads are protected from external electrostatic charging by connecting the head flexible cable to the read/write board. When disconnecting the cable, always place the deck on a bench with required electrostatic discharging measures taken and wear electrostatic discharging band. Moreover, always mount the short-clip on the flexible cable removed.

The heads are also susceptible to strong external magnetic field and the analog output may be affected. **DO NOT USE HEAD DEMAGNETIZER, MAGNETIC SCREWDRIVER OR DEMAGNETIZER CASSETTE!**

**(NL) VOORZORGSMAATREGELEN BIJ DE BEHANDELING VAN DE DCC-KOPPEN.**

**LET OP:** De koppen zijn gevoelig voor een elektrostatische spanning groter dan 150Vdc. Als de kop normaal verbonden is met de Read/Write printplaat, is deze beveiligd tegen externe elektrostatische ontladingen. Zodra deze flex-foil verbinding wordt onderbroken, plaats dan het deck altijd op een werktafel, die voorzien is van elektrostatische ontladings-middelen en draag een elektrostatische ontladings-manchet. Schuif, bovendien, direct na het losnemen de kortsluit-clip over de flex-foil kabel.

De koppen zijn ook gevoelig voor sterke externe magnetische velden, deze kunnen het analoge uitgangsvermogen beïnvloeden.

**GEBRUIK GEEN KOP DEMAGNETISEER SPOEL, MAGNETISCHE SCHROEVEDRAAIER OF DEMAGNETISEER CASSETTE!**

**(D) BEHANDLUNG VON DCC-KÖPFEN.**

**VORSICHT!** Die Köpfe sind empfindlich gegenüber elektrostatischen Spannungen ab ca. 150V! Schutz vor Schäden durch statische Entladungen besteht für die Köpfe nur, solange sie über den Flexprint mit dem Lese-/Schreib-Verstärker verbunden sind. Die Verbindung darf erst unterbrochen werden, wenn der DCC-Recorder auf einer ESD-sicheren Tischaufgabe steht und nachdem ein ESD-Schutz-Armband angelegt worden ist. Der vom Verstärker-Print abgezogene Flexprint-Connector muß mit einem Kurzschlußstecker geschützt werden.

Die Köpfe sind ebenfalls empfindlich gegenüber starken äußeren Magnetfeldern; deren Einwirkung kann das analoge Ausgangssignal beeinträchtigen.

Verwendete Werkzeuge müssen antimagnetisch oder entmagnetisiert sein.

**IM DCC-DECK DÜRFEN KEINE ENTMAGNETISIERUNGS-CASSETTEN ODER ENTMAGNETISIERUNGS-SPULEN BENUTZT WERDEN!**

**(F) MANIPULATION DES TÊTES DCC**

**ATTENTION:** Ces têtes sont sensibles aux tensions électrostatiques supérieures à 150Vdc. Les têtes sont protégées des charges électrostatiques extérieures par la connection du câble flexible de tête sur la carte Lecture/Ecriture. Lorsque l'on déconnecte ce câble, placer impérativement la platine sur un établi pour lequel on aura pris les mesures requises de décharge électrostatiques, l'opérateur devant porter l'équipement approprié (bracelet d'écoulement des charges électrostatiques)> De plus monter toujours le clip de court-circuit sur le câble flexible démonté.

Les têtes sont également sensibles à un champ magnétique extérieur puissant et la sortie analogique peut en être affectée.

**NE PAS UTILISER DE DEMAGETISEUR DE TÊTES - DE TOURNEVIS MAGNETIQUE OU DE CASSETTE DE DEMAGNETISATION.**

**(I) MANEGGIAMENTO DELL TESTINA DCC**

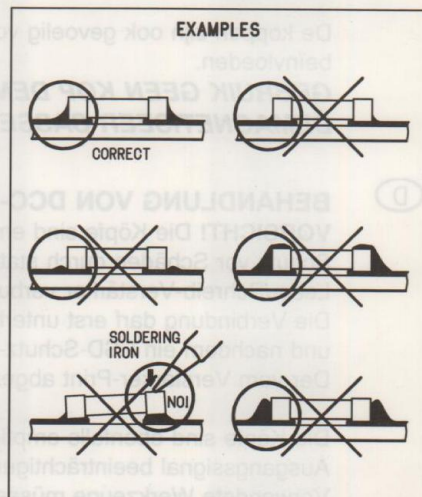
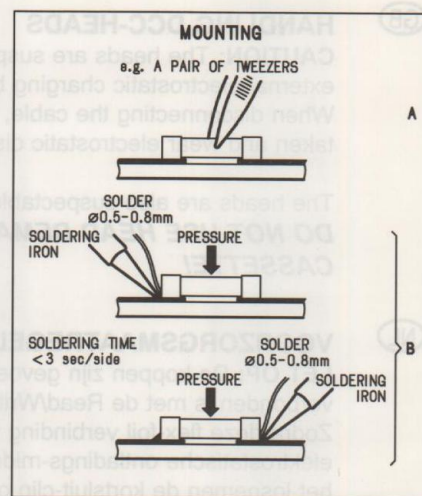
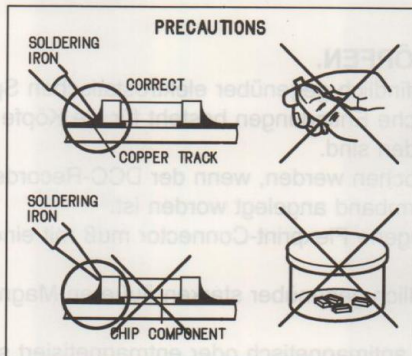
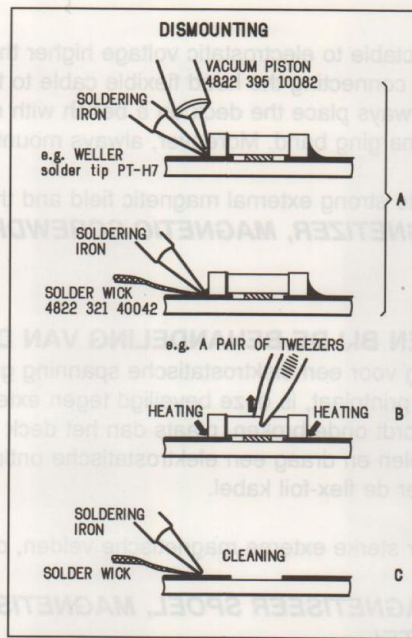
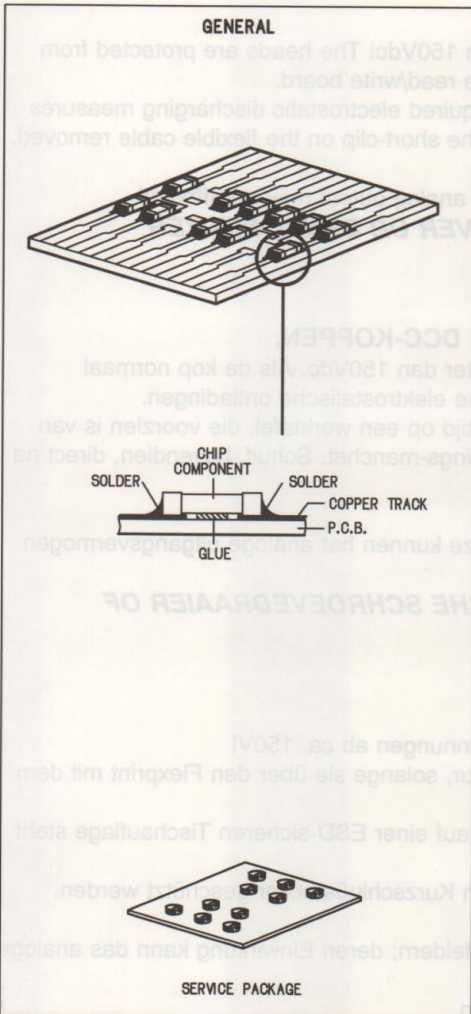
**ATTENZIONE:** le testine sono suscettibili a cariche elettrostatiche con tensioni maggiori di 150V DC. Le testine sono protette dall'influenza di cariche elettrostatiche esterne dovute al collegamento del cavetto flessibile dalla testina alla basetta di lettura e scrittura ( read/write board ). Quando viene scollegato il cavetto, il deck deve sempre essere riposto sul banco di lavoro , che deve essere necessariamente provvisto delle necessarie protezioni antistatiche ( ad esempio tappetino collegato a massa ) e il tecnico addetto alla riparazione dovrà trovarsi necessariamente allo stesso potenziale.

Dopodiché è necessario posizionare la clip ( graffetta ) in modo da cortocircuitare il cavetto rimosso.

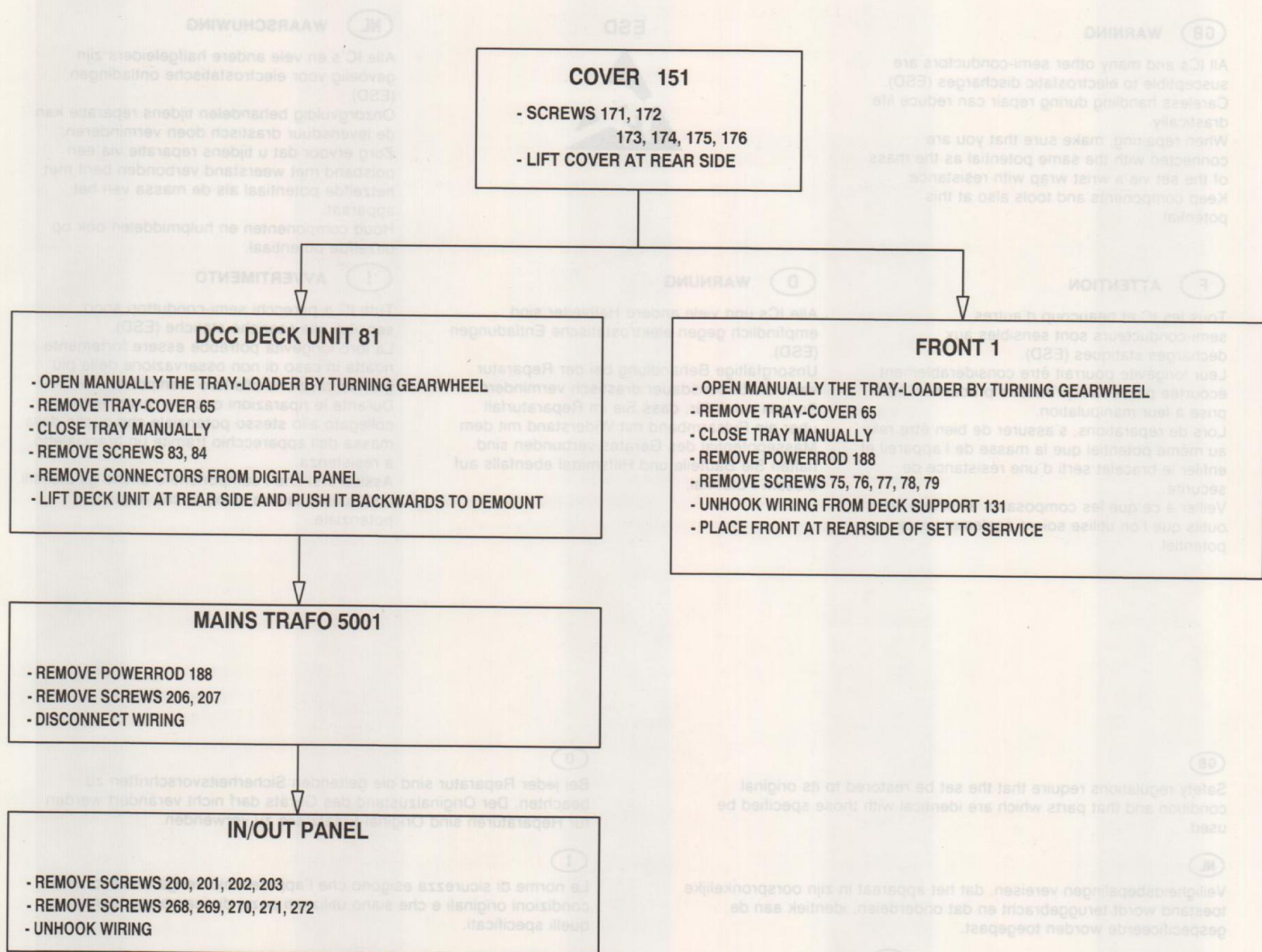
Le testine sono suscettibili anche alla presenza di forti campi magnetici esterni e l'uscita analogica potrebbe risentirne particolarmente.

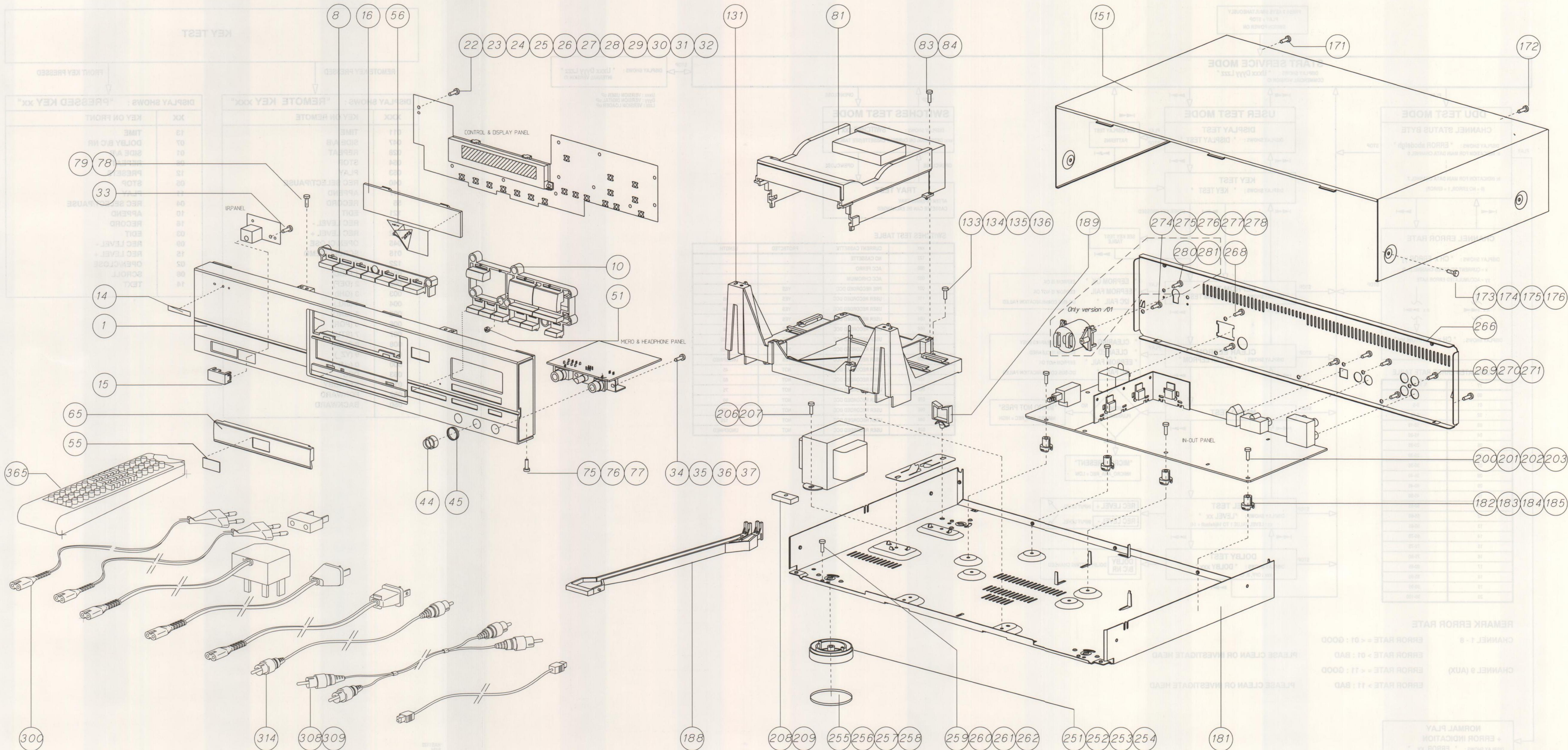
**NON UTILIZZARE TESTINE SMAGNETIZZATRICI , CACCIAVITI MAGNETIZZATI O CASSETTE SMAGNETIZZATRICI.**

# HANDLING CHIP COMPONENTS



# DISASSEMBLY INSTRUCTIONS





REMARK ERROR RATE

CHANNEL 1 - 8	ERROR RATE < 11 : GOOD
CHANNEL 8 (AUX)	ERROR RATE < 11 : GOOD
	ERROR RATE < 11 : BAD
	ERROR RATE < 11 : BAD

PLEASE CLEAN OR INVESTIGATE HEAD

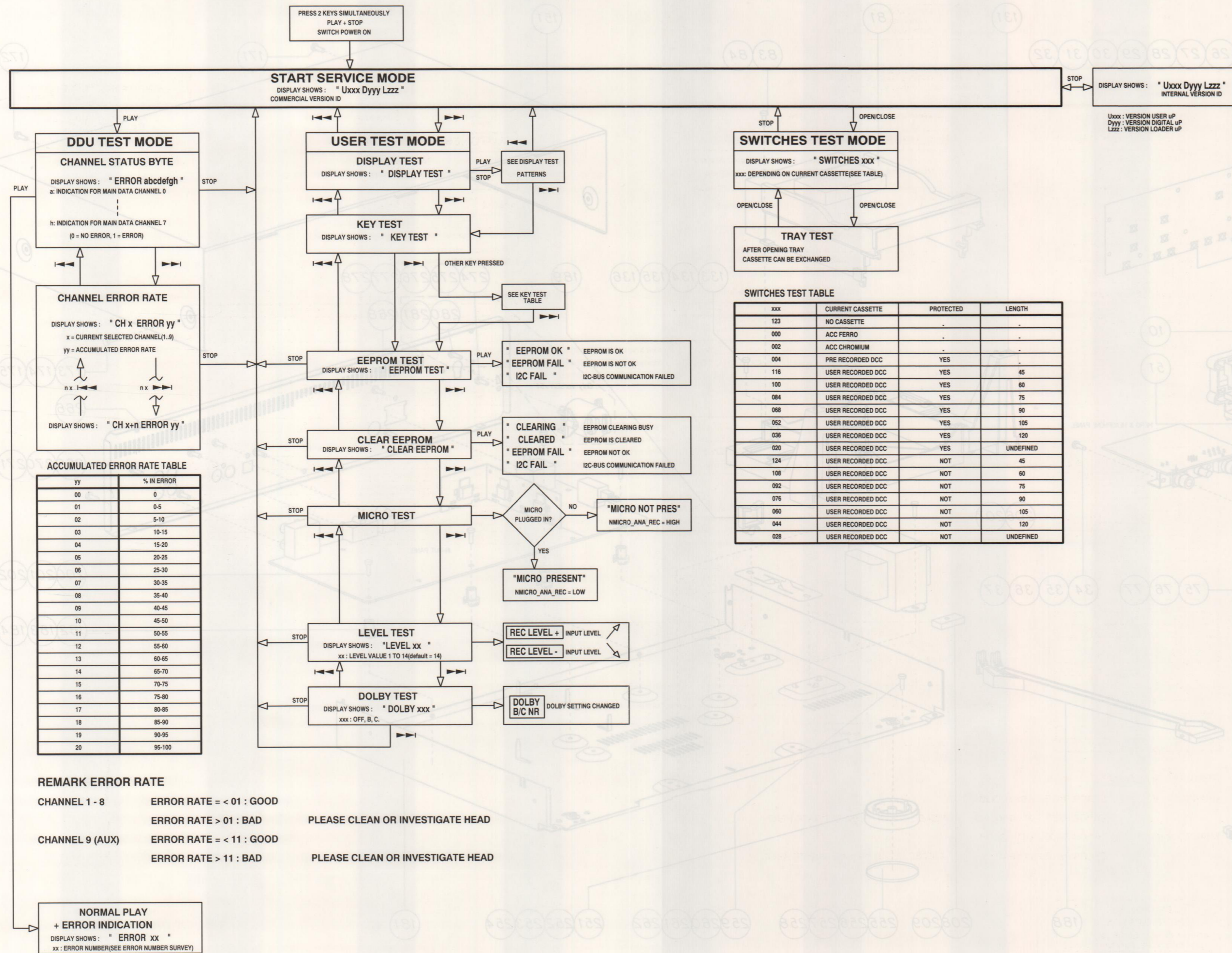
PLEASE CLEAN OR INVESTIGATE HEAD

NORMAL PLAY

+ ERROR INDICATION

DISPLAY SHOWS "ERROR xx"

xx - ERROR NUMBER OTHER NUMBER CORRECT



**KEY TEST**

REMOTE KEY PRESSED

FRONT KEY PRESSED

DISPLAY SHOWS: " REMOTE KEY xxx "

XXX	KEY ON REMOTE
011	TIME
047	SIDE A/B
028	REPEAT
054	STOP
053	PLAY
040	REC SELECT/PAUSE
117	APPEND
55	RECORD
121	EDIT
103	REC LEVEL -
102	REC LEVEL +
045	OPEN/CLOSE
015	SCROLL/DEMO
122	TEXT
001	1 (ABC)
002	2 (DEF)
003	3 (GHI)
004	4 (JKL)
005	5 (MNO)
006	6 (PQR)
007	7 (STU)
008	8 (VWX)
009	9 (YZ_)
000	0 (-+*)
063	DCC
012	STANDBY
052	FORWARD
050	BACKWARD

DISPLAY SHOWS: " PRESSED KEY xx "

XX	KEY ON FRONT
13	TIME
07	DOLBY B/C NR
01	SIDE A/B
06	REPEAT
12	PRESETS
05	STOP
11	PLAY
04	REC SELECT/PAUSE
10	APPEND
16	RECORD
03	EDIT
09	REC LEVEL -
15	REC LEVEL +
02	OPEN/CLOSE
14	TEXT

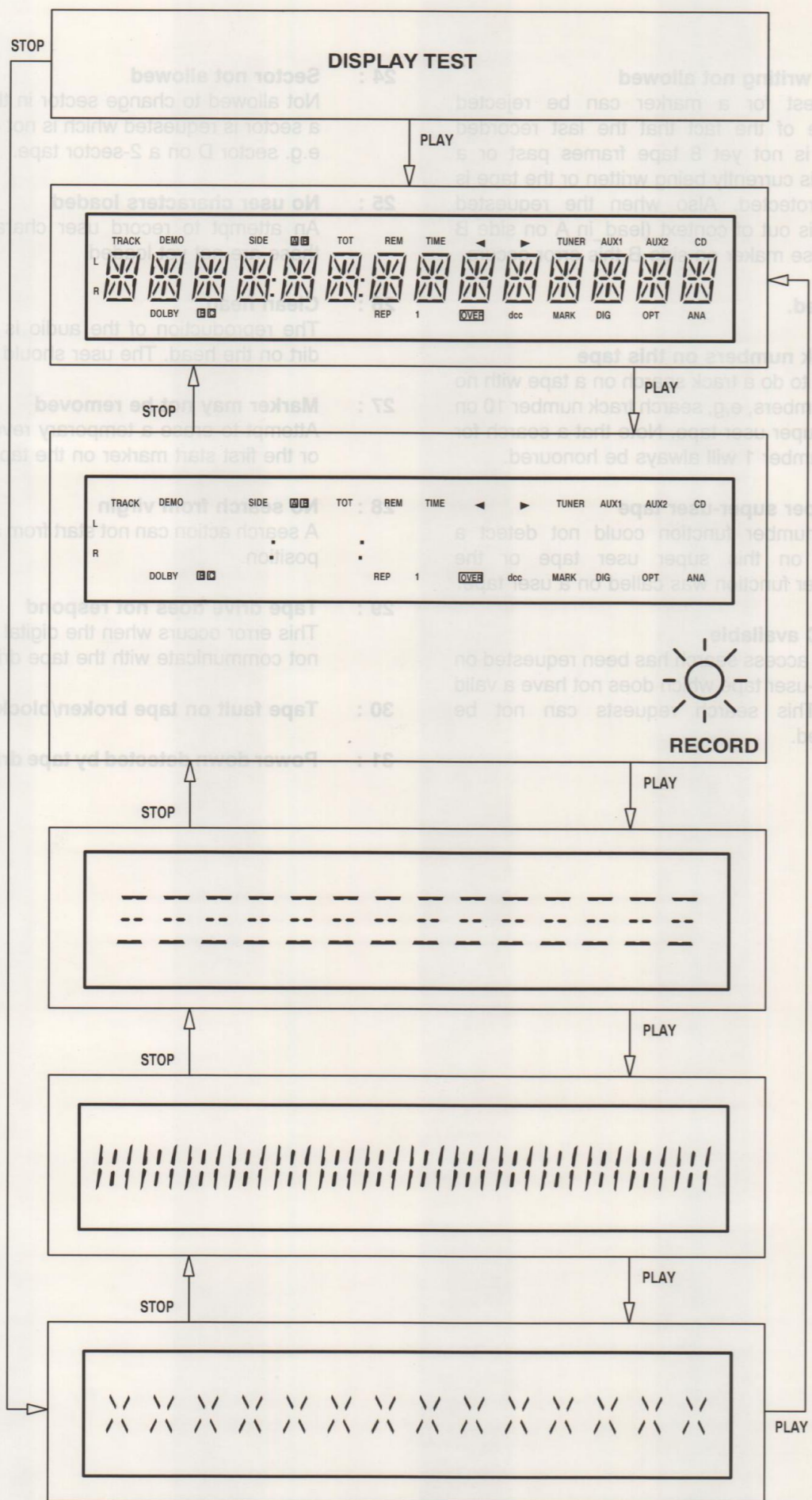
**REMARK ERROR RATE**

CHANNEL 1 - 8      ERROR RATE = < 01 : GOOD  
 ERROR RATE > 01 : BAD      PLEASE CLEAN OR INVESTIGATE HEAD

CHANNEL 9 (AUX)      ERROR RATE = < 11 : GOOD  
 ERROR RATE > 11 : BAD      PLEASE CLEAN OR INVESTIGATE HEAD

**NORMAL PLAY + ERROR INDICATION**  
 DISPLAY SHOWS: " ERROR xx "  
 xx: ERROR NUMBER(SEE ERROR NUMBER SURVEY)

DISPLAY TEST PATTERNS



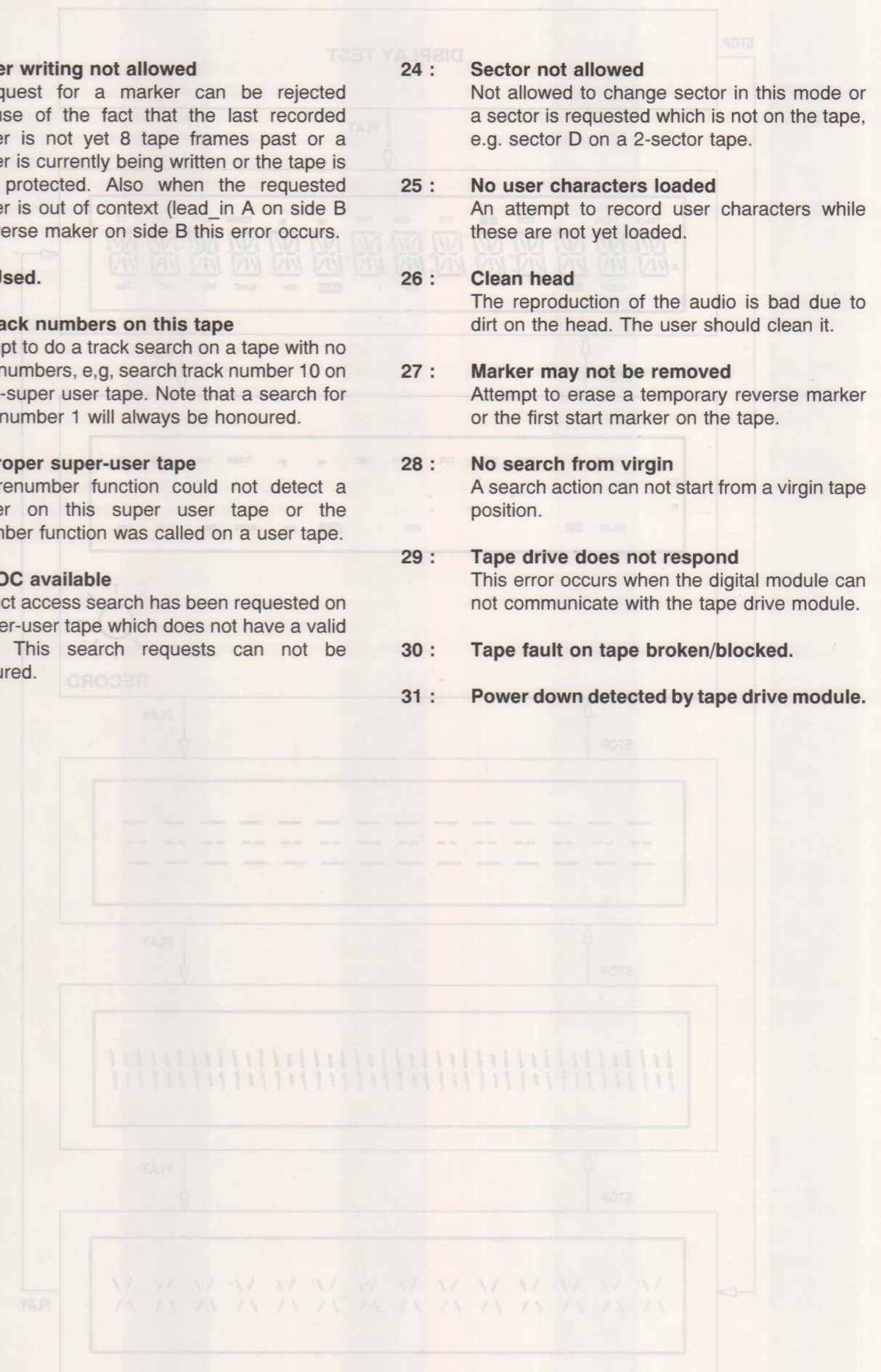
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ERROR NUMBER SURVEY

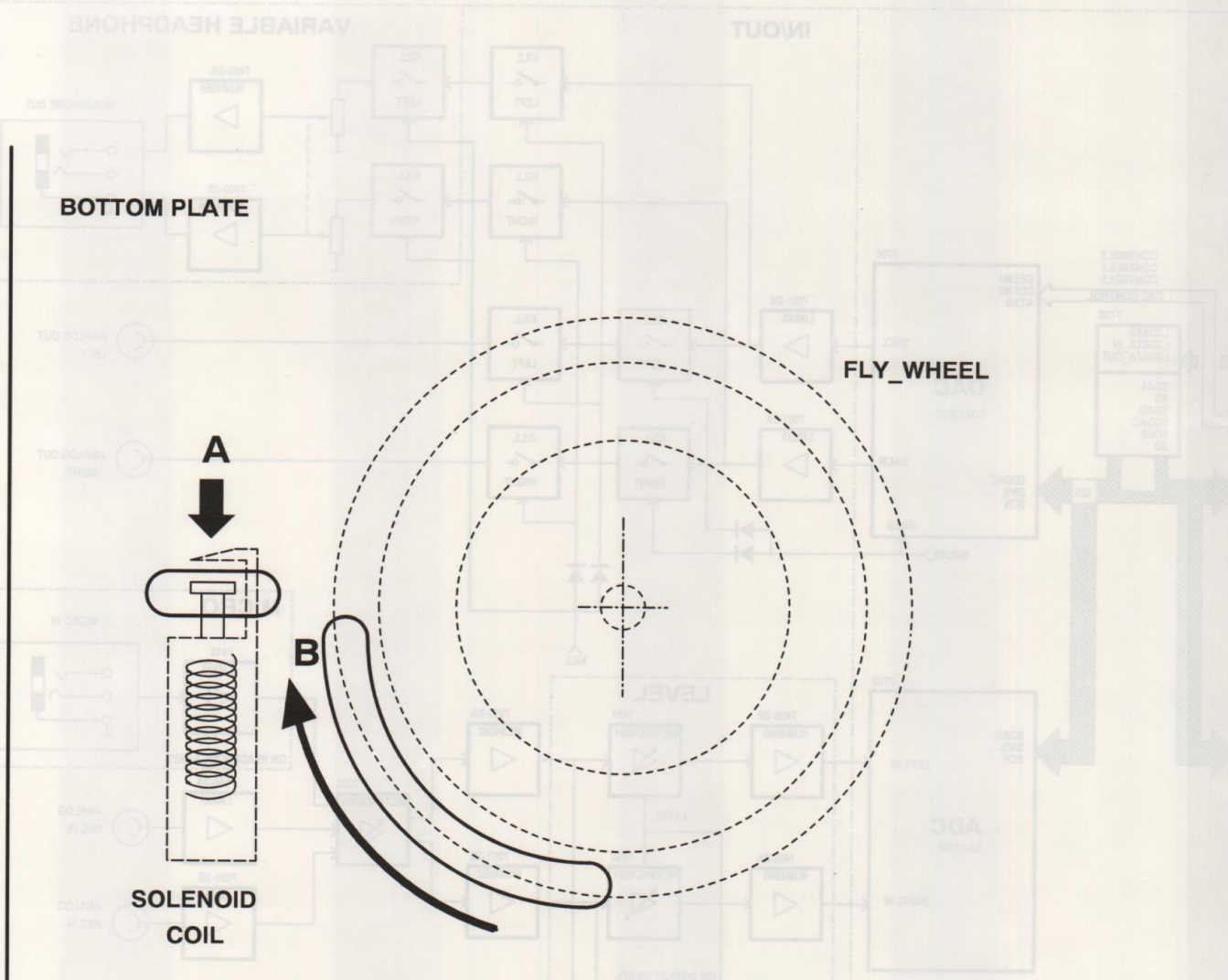
00	No error	
01	Deck failed	The requested command could not be executed because of a malfunctioning of the mechanics.
02	Tape blocked	This error is issued when the tray has been blocked, although the tray might be moving out again due to this fact. The blocked indication will hence occur very short in the tray status message and could be missed.
03	Tape pulled open	During normal operation the tape drive module has sensed that the tray loader is forced to open state by the user.
04	Invalid parameter	The parameter going with the last received command is unknown or out of range.
05	No cassette	The command can not be executed since there is no cassette loaded.
06	Digital Audio input out of lock or missing carrier	During recording from a digital input, no input signal is detected. When continuing the recording, undefined data will be recorded which may lead to unpredictable audio during playback. The DDU module will refuse to continue the recording.
07	Digital Audio input has Professional class (unsupported)	During recording from a digital input, a professional source may be detected which is not supported by the DDU module, hence the module will refuse to record from this source.
08	Digital Audio input has non-audio format	During recording from a digital input, the input data may contain computer data instead of audio. The DDU module will refuse to continue the recording.
09	Copy right protection violation (SCMS)	During recording from a digital input, which contains user audio data but which is copyright protected, the DDU module will refuse to continue the recording.
10	Internal DCC chip error	There has an error occurred within the DCC chips on the DDU digital module. When this error persists over a longer period of time, please consult your nearest service officer.
11	Record attempted on write protected tape	A record or auxiliary record or record-pause command is issued while the loaded cassette is write protected or is an ACC. The DDU module will refuse to record on such a tape.
12	Non-existent search target	The target to search for does not exist on the currently loaded cassette, e.g. search for track number 20 while the tape only contains 12 tracks.
13	Invalid command received	The command which was received is not allowed in this context.
14	Setting not allowed	This error message will be returned when the DDU module is performing a TOC search and a next_previous_count is downloaded.
15	Command overrun	The DDU module has received too many state changing commands in a row to handle. This error occurs whenever a command is received while another command is still waiting for execution. The DDU module will not store a queue of received commands.
16	Signature not yet loaded	The record command will only be accepted by the DDU module after the setmaker's signature has been loaded. This will make it possible to identify the recording set of each DCC cassette.
17	Unavailable TOC	During the process of TOC search the DDU module found out that the contents of the TOC does not match the contents of the tape. The search command should be repeated using relative search.
18	Search target could not be found	The requested search target was valid but could not be found, e.g. a direct track search after track number 5 on a super-user tape while track number 5 was removed by after-recording, or an spend search on a full tape.

## ERROR NUMBER SURVEY

- 00 : No error**
- 01 : Deck failed**  
The requested command could not be executed because of a malfunctioning of the mechanics.
- 02 : Tray blocked**  
This error is issued when the tray has been blocked, although the tray might be moving out again due to this fact. The blocked indication will hence occur very short in the tray status message and could be missed.
- 03 : Tray pulled open**  
During normal operation the tape drive module has sensed that the tray loader is forced to the open state by the user.
- 04 : Invalid parameter**  
The parameter going with the last received command is unknown or out of range.
- 05 : No cassette**  
The command can not be executed since there is no cassette loaded.
- 06 : Digital Audio input out of lock or missing carrier**  
During recording from a digital input, no input signal is detected. When continuing the recording, undefined data will be recorded which may lead to unpredictable audio during playback. The DDU module will refuse to continue the recording.
- 07 : Digital Audio input has Professional class (unsupported)**  
During recording from a digital input, a professional source may be detected which is not supported by the DDU module, hence the module will refuse to record from this source.
- 08 : Digital Audio input has non-audio format**  
During recording from a digital input, the input data may contain computer data instead of audio. The DDU module will refuse to continue the recording.
- 09 : Copy right protection violation (SCMS)**  
During recording from a digital input, which contains user audio data but which is copyright protected, the DDU module will refuse to continue the recording.
- 10 : Internal DCC chip error**  
There has an error occurred within the DCC chips on the DDU digital module. When this error persists over a longer period of time, please consult your nearest service officer.
- 11 : Record attempted on write protected tape**  
A record or auxiliary record or record-pause command is issued while the loaded cassette is write protected or is an ACC. The DDU module will refuse to record on such a tape.
- 12 : Non existent search target**  
The target to search for does not exist on the currently loaded cassette. e.g. search for track number 20 while the tape only contains 12 tracks.
- 13 : Invalid command received**  
The command which was received is not allowed in this context.
- 14 : Setting not allowed**  
This error message will be returned when the DDU module is performing a TOC search and a next\_previous\_count is downloaded.
- 15 : Command overrun**  
The DDU module has received too many state changing commands in a row to handle. This error occurs whenever a command is received while another command is still waiting for execution. The DDU module will not store a queue of received commands.
- 16 : Signature not yet loaded**  
The record command will only be accepted by the DDU module after the setmakers signature has been loaded. This will make it possible to identify the recording set of each DCC cassette.
- 17 : Unreliable TOC**  
During the process of TOC search the DDU module found out that the contents of the TOC does not match the contents of the tape. The search command should be repeated using relative search.
- 18 : Search target could not be found**  
The requested search target was valid but could not be found, e.g. a direct track search after track number 5 on a super-user tape while track number 5 was removed by after-recording, or an append search on a full tape.
- 19 : Marker writing not allowed**  
A request for a marker can be rejected because of the fact that the last recorded marker is not yet 8 tape frames past or a marker is currently being written or the tape is write protected. Also when the requested marker is out of context (lead\_in A on side B or reverse marker on side B this error occurs.
- 20 : Not Used.**
- 21 : No track numbers on this tape**  
Attempt to do a track search on a tape with no track numbers, e.g. search track number 10 on a non-super user tape. Note that a search for track number 1 will always be honoured.
- 22 : No proper super-user tape**  
The renumber function could not detect a marker on this super user tape or the renumber function was called on a user tape.
- 23 : No TOC available**  
A direct access search has been requested on a super-user tape which does not have a valid TOC. This search requests can not be honoured.
- 24 : Sector not allowed**  
Not allowed to change sector in this mode or a sector is requested which is not on the tape, e.g. sector D on a 2-sector tape.
- 25 : No user characters loaded**  
An attempt to record user characters while these are not yet loaded.
- 26 : Clean head**  
The reproduction of the audio is bad due to dirt on the head. The user should clean it.
- 27 : Marker may not be removed**  
Attempt to erase a temporary reverse marker or the first start marker on the tape.
- 28 : No search from virgin**  
A search action can not start from a virgin tape position.
- 29 : Tape drive does not respond**  
This error occurs when the digital module can not communicate with the tape drive module.
- 30 : Tape fault on tape broken/blocked.**
- 31 : Power down detected by tape drive module.**







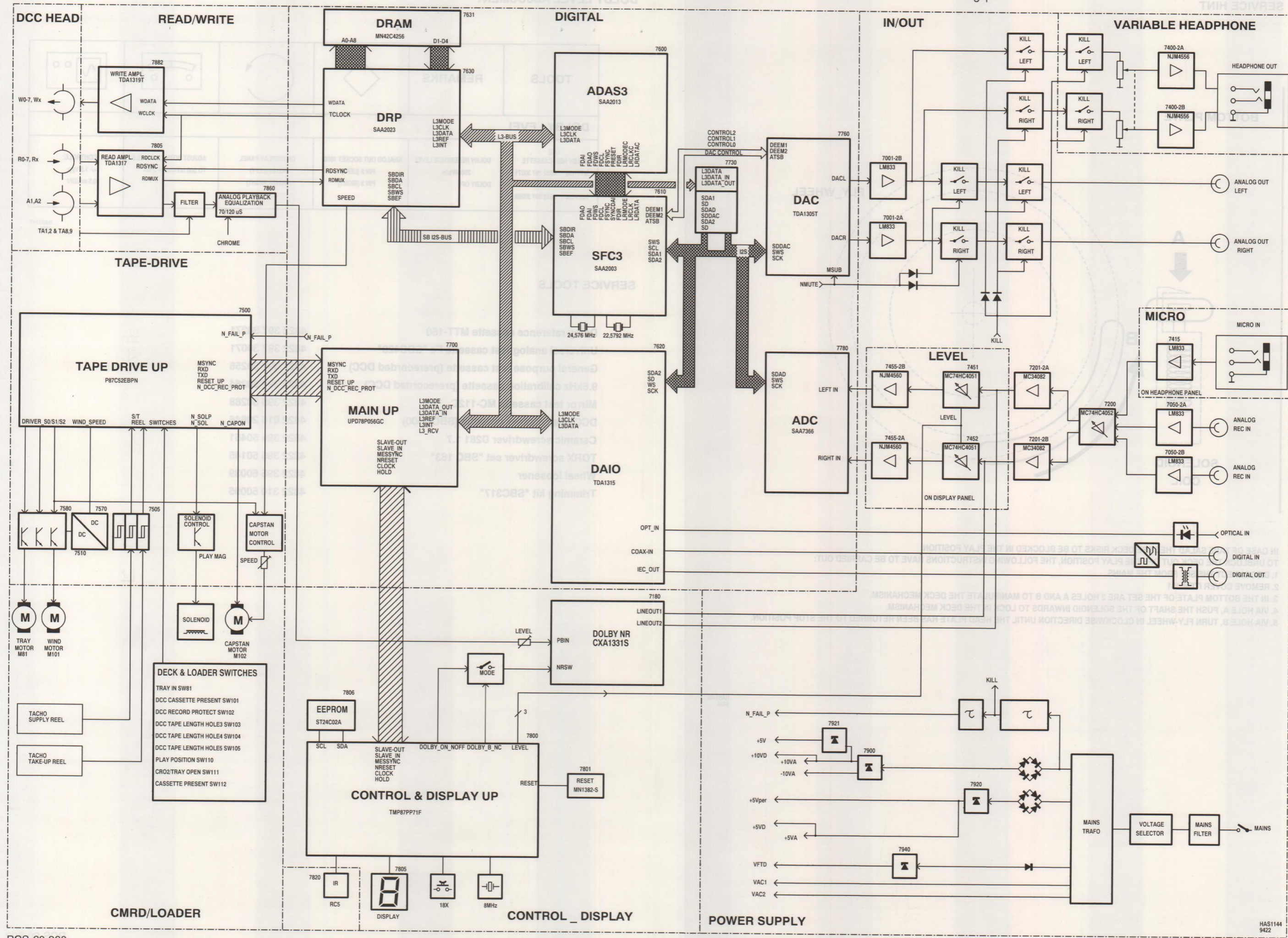
TOOLS	REMARKS				
<b>DOLBY LEVEL</b>					
USE DOLBY REF. CASSETTE MTT-150 4822 397 30271 OR TCC-130 4822 397 30269	DOLBY REFERENCE LEVEL 200nWb/m DOLBY OFF	ANALOG OUT SOCKET 1005 PIN 2 (LEFT) PIN 3 (RIGHT)	ON DISPLAY PANEL R3199 (LEFT) R3198 (RIGHT)	ADJUST BOTH CHANNELS TO 500 mVrms +/- 2 dB	CONTROLE: +/- 1.5 Vpp 0.5 mS/DIV

**SERVICE TOOLS**

- |   |                |
|---|----------------|
| Dolby reference cassette MTT-150                | 4822 397 30271 |
| Universal analog test cassette Fe "SBC420"      | 4822 397 30071 |
| General purpose test cassette (prerecorded DCC) | 4822 397 30256 |
| 9.6kHz calibration cassette (prerecorded DCC)   | 4822 397 30264 |
| Mirror test cassette MC-112C                    | 4822 395 30288 |
| DCC head cleaner cassette (SBC 3500)            | 4822 015 20646 |
| Ceramic screwdriver D281 1.7                    | 4822 395 50451 |
| TORX screwdriver set "SBC 163"                  | 4822 395 50145 |
| Wheel loosener                                  | 4822 395 60039 |
| Trimming kit "SBC317"                           | 4822 310 50095 |

IN CASE OF TAPE SALAD THE TAPE DECK RISKS TO BE BLOCKED IN THE PLAY POSITION.  
 TO UNBLOCK THE DECK OUT OFF THE PLAY POSITION, THE FOLLOWING INSTRUCTIONS HAVE TO BE CARRIED OUT:  
 1. DISCONNECT THE SET FROM THE MAINS.  
 2. REMOVE COVER ITEM 151  
 3. IN THE BOTTOM PLATE OF THE SET ARE 2 HOLES A AND B TO MANIPULATE THE DECK MECHANISM.  
 4. VIA HOLE A, PUSH THE SHAFT OF THE SOLENOID INWARDS TO LOCK IN THE DECK MECHANISM.  
 5. VIA HOLE B, TURN FLY-WHEEL IN CLOCKWISE DIRECTION UNTIL THE HEAD PLATE HAS BEEN RETURNED TO THE STOP POSITION.

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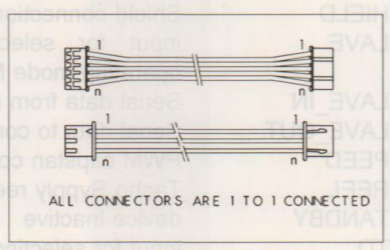
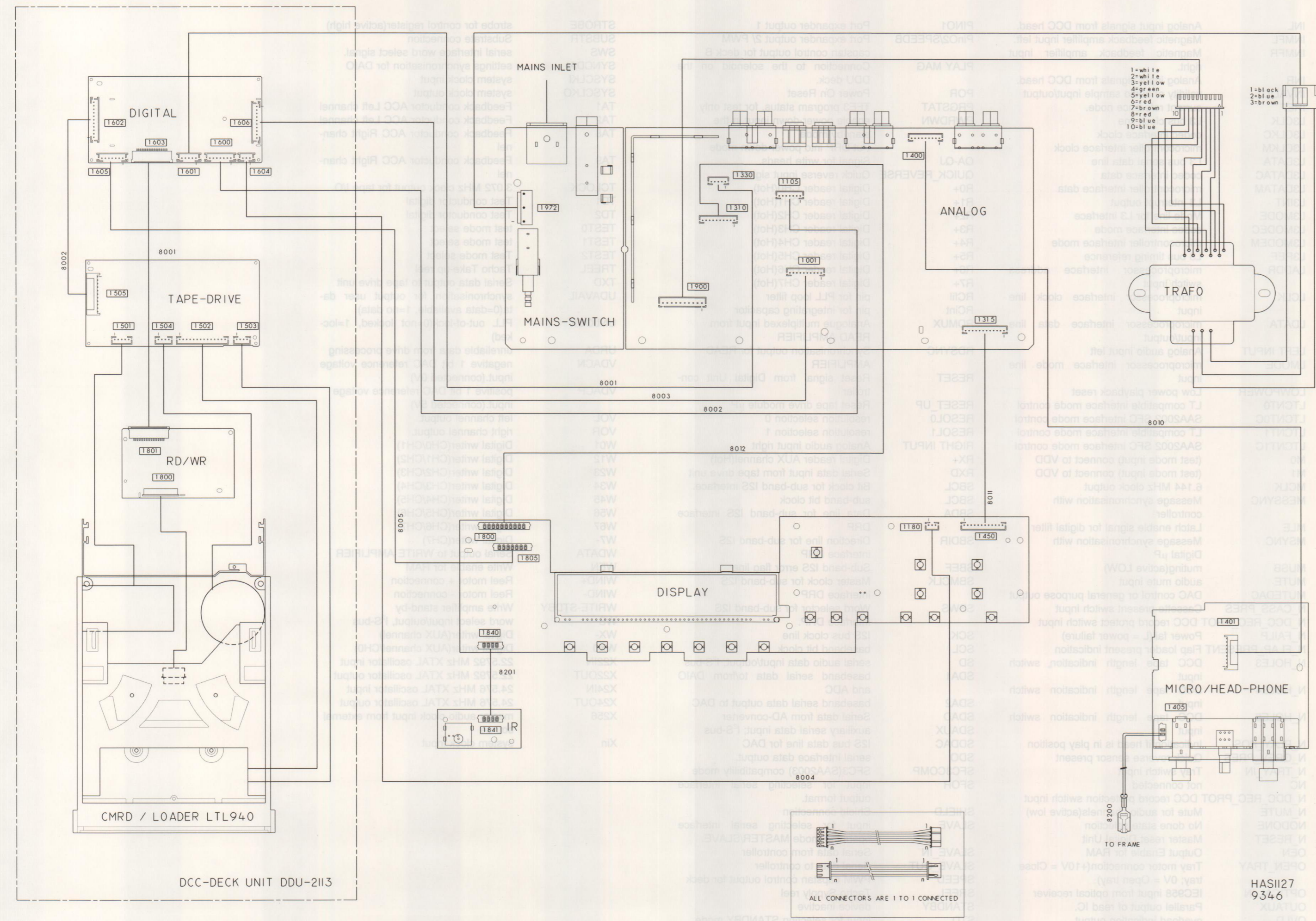


## ABBREVIATIONS

A0	Address SRAM; Address DRAM
A1	Address SRAM; Address DRAM
A1 0/RAS	Address SRAM; RAS DRAM
A1 1	Address SRAM
A1 2/PinO5	Address SRAM; Address DRAM; Port expander output 5
A1 3/PinO2	Address SRAM; Address DRAM; Port expander output 2
A1 4/PinO1	Address SRAM; Address DRAM; Port expander output 1
A1 5/PinO4	Address SRAM; Address DRAM; Port expander output 4
A1 6/PinO3	Address SRAM; Address DRAM; Port expander output 3
A2	Address SRAM; Address DRAM
A3	Address SRAM; Address DRAM
A4	Address SRAM; Address DRAM
A5	Address SRAM; Address DRAM
A6	Address SRAM; Address DRAM
A7	Address SRAM; Address DRAM
A8	Address SRAM; Address DRAM
A9/CAS	Address SRAM; CAS for DRAM
A1+	Analog reader ACC Left channel
A2+	Analog reader ACC Right channel-
ACC/NDCC	Analog or DCC playback
ANAEEY	Analogue eye pattern output
ANAL	ACC output Left
ANAR	ACC output Right
ATSB	12 dB attenuation(active LOW)
ATTDAC	DAC attenuation control.
AZCHK	channel 0 and channel 7 azimuth monitor.
BCK	bit clock input.
BIAS	Bias current for ADC
BIL	buffer op-amp inverting input for left channel.
BIR	buffer op-amp inverting input for right channel.
BOL	buffer op-amp inverting input for left channel.
BOR	buffer op-amp output for right channel.
CAP_A	Capstan motor control connection A
CAP_B	Capstan motor control connection B
CAPSTAN	Low output level switches the capstan motor on.
CAPSTAN+	Capstan motor + connection
CAPSTAN-	Capstan motor - connection
CEDC	system clock output.
CHMODE	use of channel status(0=professional use, 1=consumer use)
CHROME	Indication if a chrome analog cassette is inserted.
CHTST1	Channel test pin 1
CHTST2	Channel test pin 2
CKIN	system clock input.
CKSL1	clock selection 1
CKSL2	clock selection 2
CLAMP	Write current output
CLK22	22.5792 MHz buffered clock output of SFC3.
CLK24	24.576 MHz XTAL buffered clock output of SFC3.
CLKSEL	select system clock
CLOCK	Serial data clock from controller
CLOSE_TRAY	Tray motor connection
COA	Common analog
COAXIAL IN	IEC958 high sensitive input
COD	Common digital
COPY	copyright status bit
CRO2/TRAY_OPEN	CRO2/FE cassette detection switch input if N_CASS_PRES = L L = FE; H = CRO2 if N_CASS_PRES = H L = tray fully opened, H = tray is not fully opened
CTRLMODE	select µP/stand-alone mode
D0	Data SRAM; Data DRAM
D1	Data SRAM; Data DRAM
D2	Data SRAM; Data DRAM
D3	Data SRAM; Data DRAM
D4	Data SRAM;
D5	Data SRAM;
D6	Data SRAM;
D7	Data SRAM;
DACL	Analog audio output left
DACR	Analog audio output right
DATA	data input
DCC_CASS_PRES	DCC cassette present switch input
DEEM	pre-emphasis output bit
DEEM1	deemphasis on/off
DEEM2	deemphasis on/off
DEEMDAC	DAC control output.
DIGITAL OUT	IEC958 output
DSMB	double speed mode(active LOW).
ERCOSTAT	ERCO status, for test only
FDAI	filtered serial data input(from ADAS)
FDAO	filtered serial data output(to ADAS)
FDCL	filtered data bit clock
FDIR	PASC mode encode/decode
FDWS	filtered data word select
FILTCL	capacitor for left channel 1st order filter function.
FILTCLR	capacitor for right channel 1st order filter function.
FRESET	reset signal from codec.
FS256	master audio clock at 256x sample frequency
FS32	indicates sample frequency=32kHz
FS44	indicates sample frequency=44kHz
FS48	indicates sample frequency=48kHz
FSYNC	subband synchronisation on F-I <sup>2</sup> S bus.
GNDA	Analog ground
GNDD	Digital ground
GNDS	Analog motors ground
HOLD	DDU is busy flag
HPEN	high pass filter enable input.
I <sup>2</sup> SOUTEN	serial audio output enable.
I <sup>2</sup> SSEL	select auxiliary input or normal input in transmit mode.
IECIN0	TTL level IEC input.
IECIN1	high sensitivity IEC input.
IECO	digital audio output for optical and transformer link.
IECOEN	digital audio output enable
IECOP	IEC958 digital audio output.
IECSEL	select IEC input 0 or 1
IN0-7	Head signals of main data channels
INAUX	Head signal of auxiliary data.
INL	Analog input signals from DCC head.
INMFL	Magnetic feedback amplifier input left.
INMFR	Magnetic feedback amplifier input right.
INR	Analog input signals from DCC head.
INVALID	validity of audio sample input/output
IREF	current reference node.
L3CLK	L3 bus clock line
L3CLKC	codec interface clock
L3CLKM	microcontroller interface clock
L3DATA	L3 bus serial data line
L3DATAC	codec interface data
L3DATAM	microcontroller interface data
L3INT	L3 interrupt output
L3MODE	Mode line for L3 interface
L3MODEC	codec interface mode
L3MODEM	microcontroller interface mode
L3REF	L3 bus timing reference
LADDR	microprocessor interface address switch input
LCLK	microprocessor interface clock line input
LDATA	microprocessor interface data line input/output
LEFT INPUT	Analog audio input left
LMODE	microprocessor interface mode line input
LOWPOWER	Low power playback reset
LTCNT0	LT compatible interface mode control
LTCNT0C	SAA2002 SFC interface mode control
LTCNT1	LT compatible interface mode control
LTCNT1C	SAA2002 SFC interface mode control (test mode input) connect to VDD
M0	(test mode input) connect to VDD
M1	6.144 MHz clock output
MCLK	Message synchronisation with controller
MESSYNC	Latch enable signal for digital filter
MLE	Message synchronisation with Digital µP
MSYNC	muting(active LOW)
MUSB	audio mute input
MUTE	DAC control or general purpose output
MUTEDAC	Cassette present switch input
N_CASS_PRES	DCC record protect switch input
N_DCC_REC_PROT	Power fail(L = power failure)
N_FAILP	Flap loader present indication
N_FLAP_PRESENT	DCC tape length indication switch input
N_HOLE3	DCC tape length indication switch input
N_HOLE4	DCC tape length indication switch input
N_HOLE5	DCC tape length indication switch input
N_PLAY_POS	Indication if head is in play position
N_QREV_PRES	Quick reverse sensor present
N_TRAY_IN	Tray switch input
NC	not connected
N_DCC_REC_PROT	DCC record protection switch input
N_MUTE	Mute for audio channels(active low)
NODONE	No done state selection
N_RESET	Master reset Digital Unit
OEN	Output Enable for RAM
OPEN_TRAY	Tray motor connection(+10V = Close tray; 0V = Open tray)
OPTICAL IN	IEC958 input from optical receiver
OUTAUX	Parallel output of read IC.
OVLD	overload indication output.

PINO1	Port expander output 1
PinO2/SPEEDB	Port expander output 2/ PWM capstan control output for deck B
PLAY MAG	Connection to the solenoid on the DDU deck.
POR	Power On Reset
PRGSTAT	TFE3 program status, for test only
PWRDWN	enable power-down input in the standby mode
QA-QJ	Put DRP into power down mode
QUICK_REVERSE	Signal for write heads.
R0+	Quick reverse input signal
R1+	Digital reader CH0(Hot)
R2+	Digital reader CH1(Hot)
R3+	Digital reader CH2(Hot)
R4+	Digital reader CH3(Hot)
R5+	Digital reader CH4(Hot)
R6+	Digital reader CH5(Hot)
R7+	Digital reader CH6(Hot)
RCfil	Digital reader CH7(Hot)
RCint	pin for PLL loop filter
RDMUX	pin for integrating capacitor
RDSYNC	Analogue multiplexed input from READ AMPLIFIER
RESET	Synchronisation output for READ AMPLIFIER
RESET_UP	Reset signal from Digital Unit controller
RESOL0	Reset tape drive module µP resolution selection 0
RESOL1	resolution selection 1
RIGHT INPUT	Analog audio input right
RX+	Digital reader AUX channel(Hot)
RXD	Serial data input from tape drive unit
SBCL	Bit clock for sub-band I2S interface.
SBCL	sub-band bit clock
SBDA	Data line for sub-band I2S interface
SBDIR	DRP
SBEF	Direction line for sub-band I2S interface DRP
SBMCLK	Sub-band I2S error flag line
SBWS	Master clock for sub-band I2S interface DRP
SCK	Word selector for sub-band I2S interface DRP.
SCL	I2S bus clock line
SD	baseband bit clock
SDA1	serial audio data input/output; I <sup>2</sup> S-bus baseband serial data to/from DAIO and ADC
SDA2	baseband serial data output to DAC
SDAD	Serial data from AD-converter
SDAUX	auxiliary serial data input; I <sup>2</sup> S-bus
SDDAC	I2S bus data line for DAC
SDO	serial interface data output.
SFC3COMP	SFC3(SAA2003) compatibility mode
SFOR	input for selecting serial interface output format.
SHIELD	Shield connection
SLAVE	input for selecting serial interface operating mode MASTER/SLAVE.
SLAVE_IN	Serial data from controller
SLAVE_OUT	Serial data to controller
SPEED	PWM capstan control output for deck
SREEL	Tacho Supply reel
STANDBY	device inactive
STD	input for selecting STANDBY mode.

STROBE	strobe for control register(active high)
SUBSTR	Substrate connection
SWS	serial interface word select signal.
SYNCDAI	settings synchronisation for DAIO
SYSCCLKI	system clock input
SYSCCLKO	system clock output
TA1	Feedback conductor ACC Left channel
TA2	Feedback conductor ACC Left channel
TA8	Feedback conductor ACC Right channel
TA9	Feedback conductor ACC Right channel
TCLOCK	3.072 MHz clock output for tape I/O
TD1	Test conductor digital
TD2	Test conductor digital
TEST0	test mode select
TEST1	test mode select
TEST2	Test mode select
TREEL	Tacho Take-up reel
TXD	Serial data output to tape drive unit
UDAVAIL	synchronisation for output user data(0=data available, 1=no data)
UNLOCK	PLL out-of-lock(0=not locked, 1=locked)
URDA	unreliable data from drive processing
VDACN	negative 1 bit DAC reference voltage input.(connected 0V)
VDACP	positive 1 bit DAC reference voltage input.(connected 5V)
VOL	left channel output.
VOR	right channel output.
W01	Digital writer(CH0/CH1)
W12	Digital writer(CH1/CH2)
W23	Digital writer(CH2/CH3)
W34	Digital writer(CH3/CH4)
W45	Digital writer(CH4/CH5)
W56	Digital writer(CH5/CH6)
W67	Digital writer(CH6/CH7)
W7-	Digital writer(CH7)
WDATA	Serial output to WRITE AMPLIFIER
WEN	Write enable for RAM
WIND+	Reel motor + connection
WIND-	Reel motor - connection
WRITE-STDBY	Write amplifier stand-by
WS	word select input/output, I <sup>2</sup> S-bus
WX-	Digital writer(AUX channel)
WX0	Digital writer(AUX channel/CH0)
X22IN	22.5792 MHz XTAL oscillator input
X22OUT	22.5792 MHz XTAL oscillator output
X24IN	24.576 MHz XTAL oscillator input
X24OUT	24.576 MHz XTAL oscillator output
X256	master audio clock input from external source
Xin	system clock input



HASII27  
9346

PIN DESCRIPTION

1600-1105

- 1 = GNDD
- 2 = OPTICAL IN
- 3 = GNDD
- 4 = COAXIAL IN
- 5 = +5VD
- 6 = DIGITAL OUT
- 7 = GNDD

1601-1330

- 1 = N\_FAILP
- 2 = GNDD
- 3 = +5VD
- 4 = GNDS
- 5 = +10VD
- 6 = SPEED
- 7 = RXD
- 8 = +5VD
- 9 = TXD
- 10 = NDCC\_REC\_PROT
- 11 = GNDD

1602-1505

- 1 = MSYNC
- 2 = N\_FAILP
- 3 = GNDS
- 4 = +10VD
- 5 = RESET\_UP
- 6 = SPEED
- 7 = RXD
- 8 = +5VD
- 9 = TXD
- 10 = NDCC\_REC\_PROT
- 11 = GNDD

1603-1801

- 1 = GNDD
- 2 = WDATA
- 3 = GNDD
- 4 = CHROME
- 5 = ANAR
- 6 = GNDA
- 7 = GNDA
- 8 = ANAL
- 9 = WRITE\_STNDBY
- 10 = ACC/NDCC
- 11 = RDMUX
- 12 = GNDD
- 13 = RDSYNC
- 14 = GNDD
- 15 = TCLOCK
- 16 = GNDD
- 17 = +5VD
- 18 = +10VD

1604-1180

- 1 = ANAL
- 2 = GNDA
- 3 = ANAR

1605-1805

- 1 = SLAVE\_OUT
- 2 = GNDD
- 3 = MESSYNC
- 4 = SLAVE\_IN
- 5 = NRESET
- 6 = CLOCK
- 7 = HOLD

1606-1001

- 1 = LEFT INPUT
- 2 = GNDA
- 3 = RIGHT INPUT
- 4 = GNDA
- 5 = NMUTE
- 6 = DACR
- 7 = GNDA
- 8 = +5VA
- 9 = GNDA
- 10 = DACL

1501

- 1 = CLOSE\_TRAY
- 2 = OPEN\_TRAY
- 3 = N\_TRAY\_IN
- 4 = GNDS
- 5 = N\_FLAP\_PRESENT

1502

- 1 = TREEL
- 2 = SREEL
- 3 = N\_CASS\_PRES
- 4 = CRO2/TRAY\_OPEN
- 5 = DCC\_CAS\_PRES
- 6 = N\_DCC\_REC\_PROT
- 7 = N\_HOLE3
- 8 = N\_HOLE4
- 9 = N\_HOLE5
- 10 = N\_QREV\_PRES
- 11 = QUICK\_REVERSE
- 12 = +5VD
- 13 = GNDD
- 14 = N\_PLAY\_POS

1503

- 1 = WIND-
- 2 = WIND+
- 3 = PLAY\_MAG-
- 4 = +10VD

1504

- 1 = CAPSTAN-
- 2 = CAPSTAN+
- 3 = CAP\_A
- 4 = CAP\_B

1800

- 1 = TXD
- 2 = WX-
- 3 = RX+
- 4 = WX0
- 5 = R0+
- 6 = W01
- 7 = R1+
- 8 = W12
- 9 = R2+
- 10 = W23
- 11 = R3+
- 12 = W34
- 13 = COD
- 14 = W45
- 15 = R4+
- 16 = W56
- 17 = R5+
- 18 = W67
- 19 = R6+
- 20 = W7-
- 21 = R7+
- 22 = TD2
- 23 = TA8
- 24 = A2+
- 25 = TA9
- 26 = TA1
- 27 = A1+
- 28 = COA
- 29 = TA2
- 30 = SHIELD

1310-1800

- 1 = ESI\_OUT
- 2 = ESI\_IN
- 3 = NDIG\_DET
- 4 = OPT\_NDIG\_SEL
- 5 = NON\_OFF\_SUPPLY
- 6 = +5VPER
- 7 = GND
- 8 = VFTD
- 9 = VAC2
- 10 = VAC1

1315-1450

- 1 = NHIGH\_LOW\_REC\_LEVEL
- 2 = NMICRO\_ANA\_REC
- 3 = NMICRO\_DET
- 4 = LEFT\_OUT
- 5 = GND
- 6 = RIGHT\_OUT
- 7 = -10VA
- 8 = GND
- 9 = +10VA
- 10 = LEFT\_IN
- 11 = GND
- 12 = RIGHT\_IN

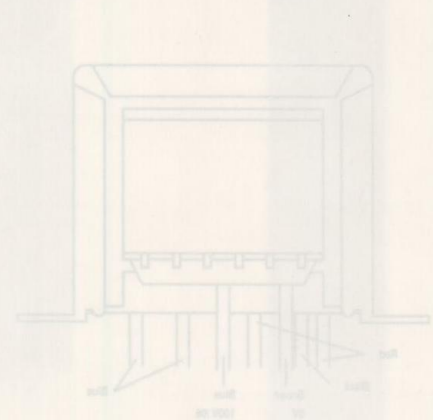
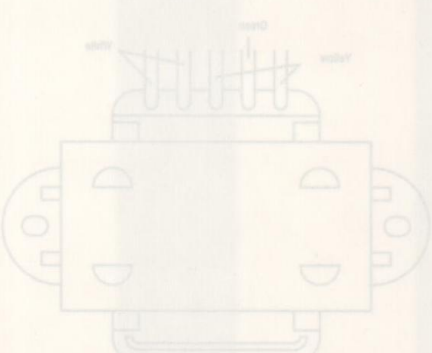
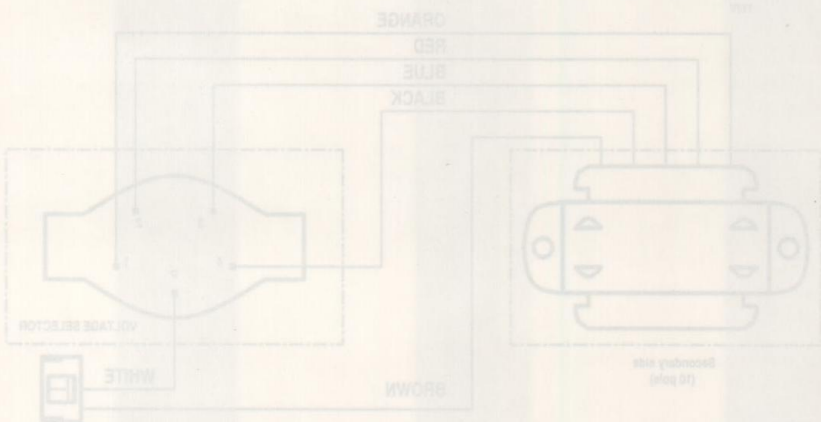
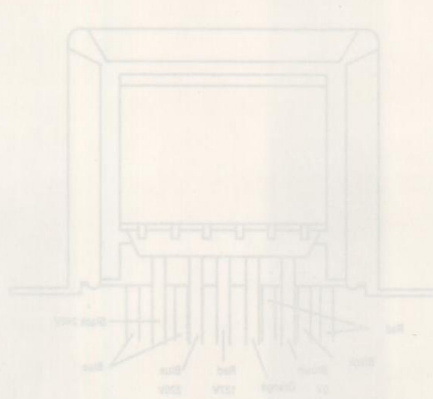
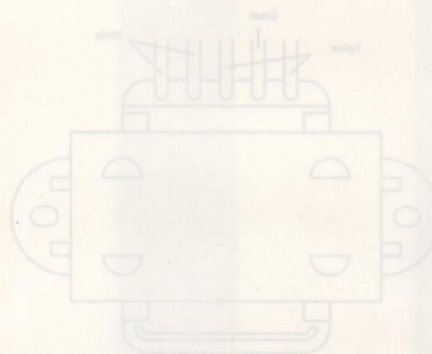
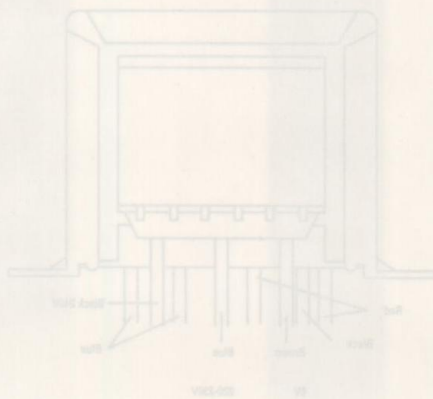
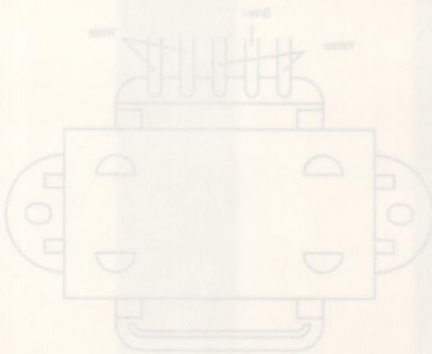
1840-1841

- 1 = +5V
- 2 = GND
- 3 = RC5
- 4 = LED

1400-1401

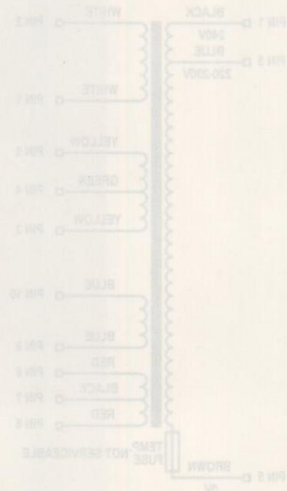
- 1 = MICRO\_IN
- 2 = MICRO\_DET
- 3 = KILL
- 4 = +10VA
- 5 = GND\_PWR
- 6 = -10VA
- 7 = RHP
- 8 = GND\_HP
- 9 = LHP

PERSONAL NOTES

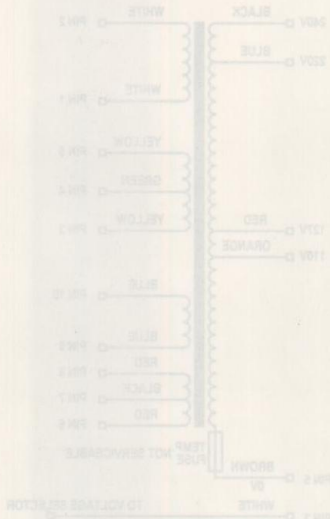


TRANSFORMER CONNECTIONS

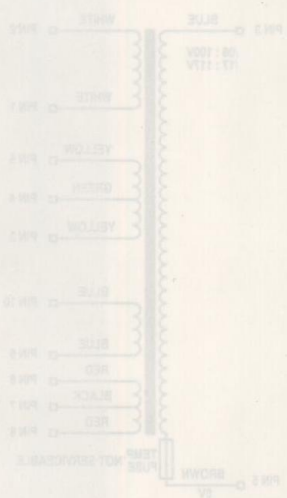
1000S VERSIONS



1010S VERSION

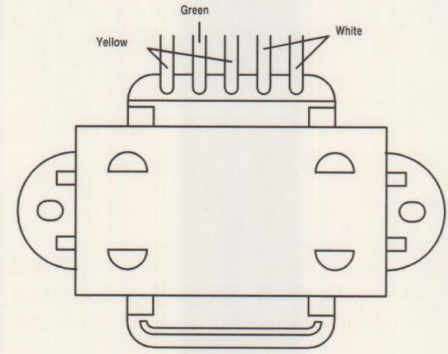
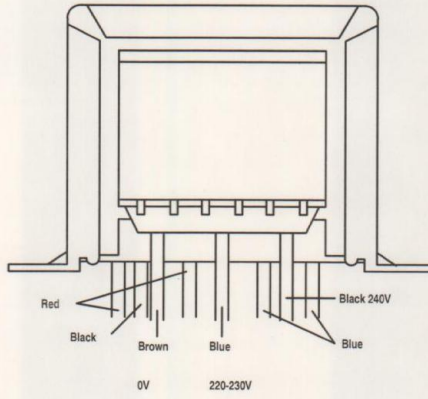
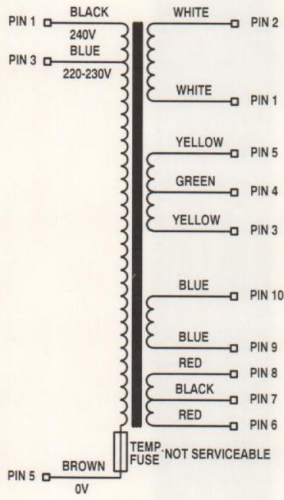


10617 VERSIONS

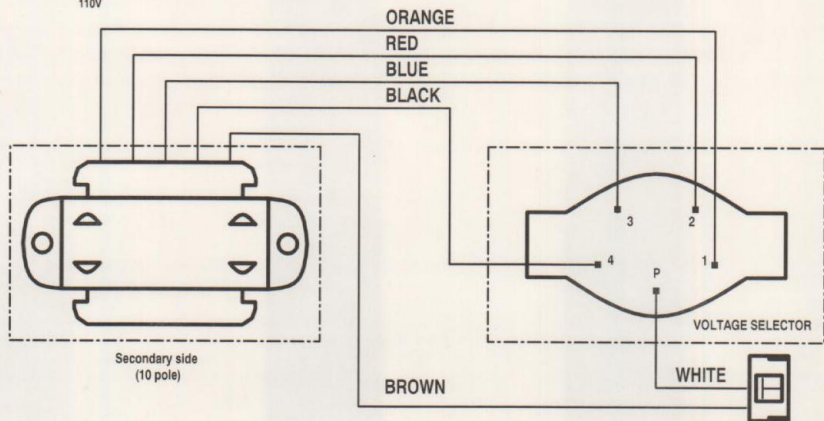
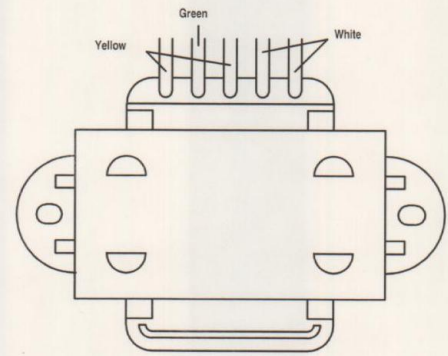
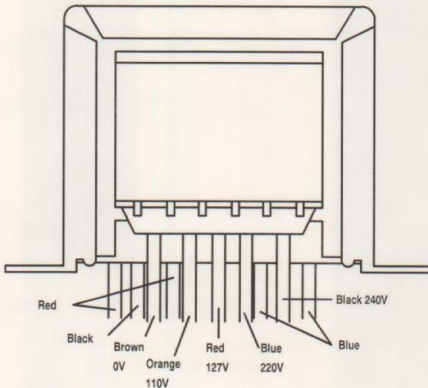
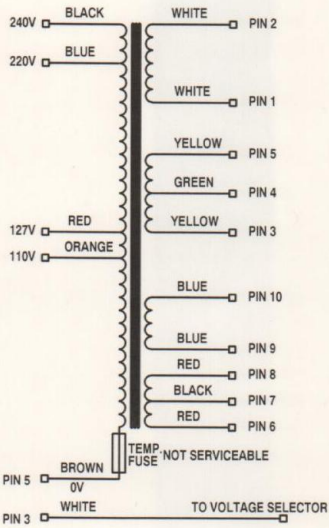


# TRANSFORMER CONNECTIONS

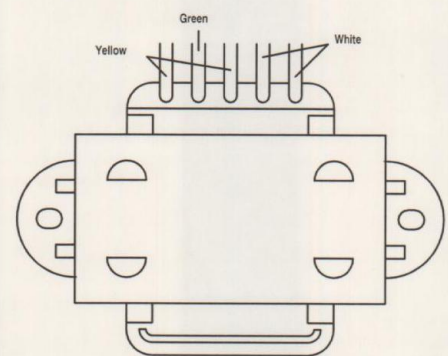
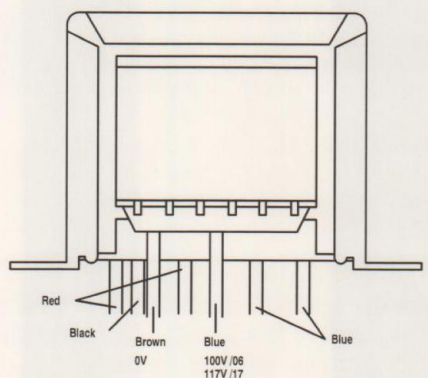
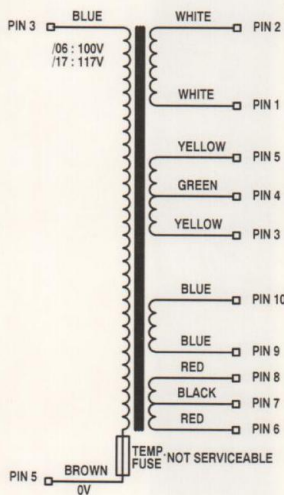
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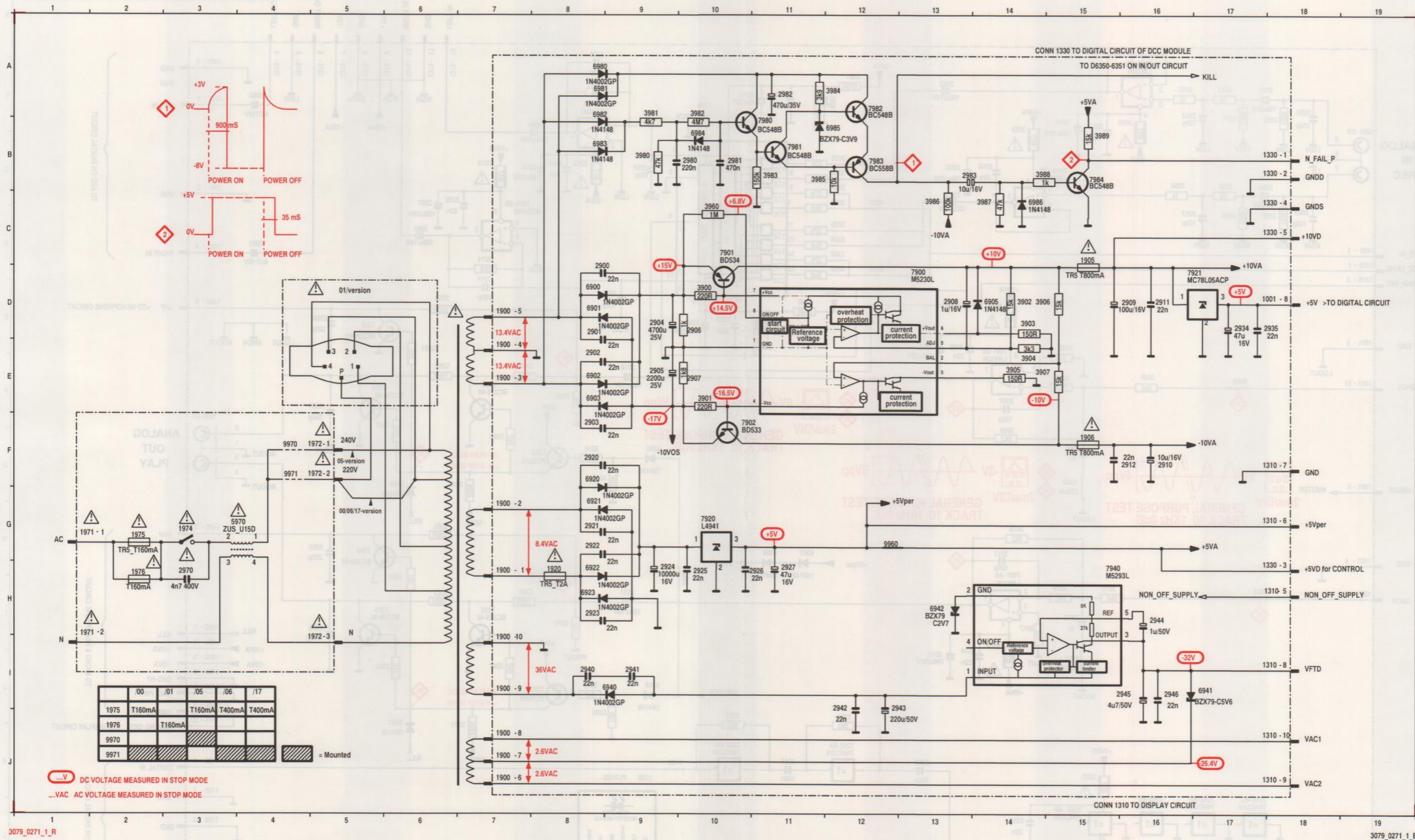
## /01 VERSION



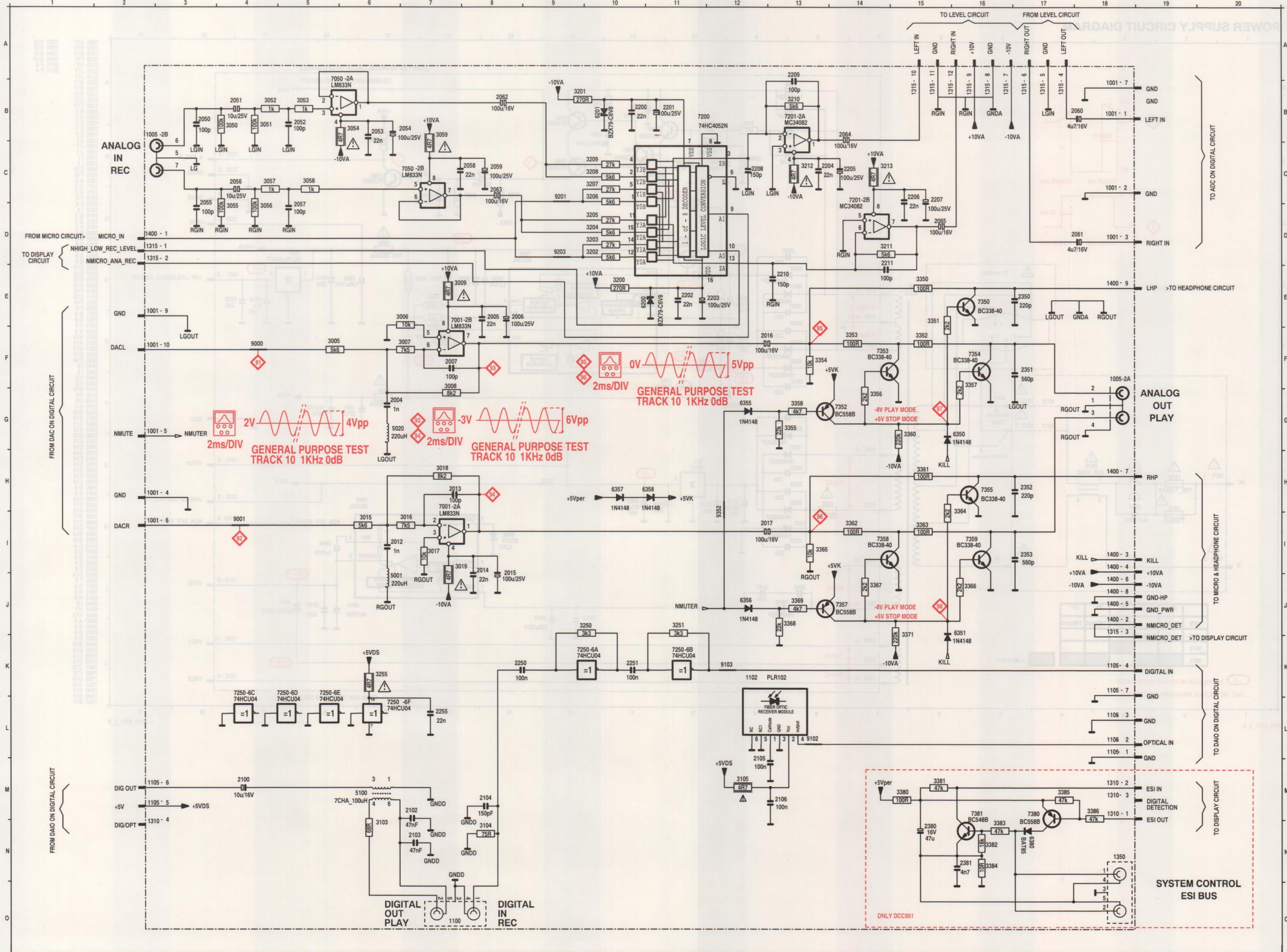
## /06/17 VERSIONS



POWER SUPPLY CIRCUIT DIAGRAM



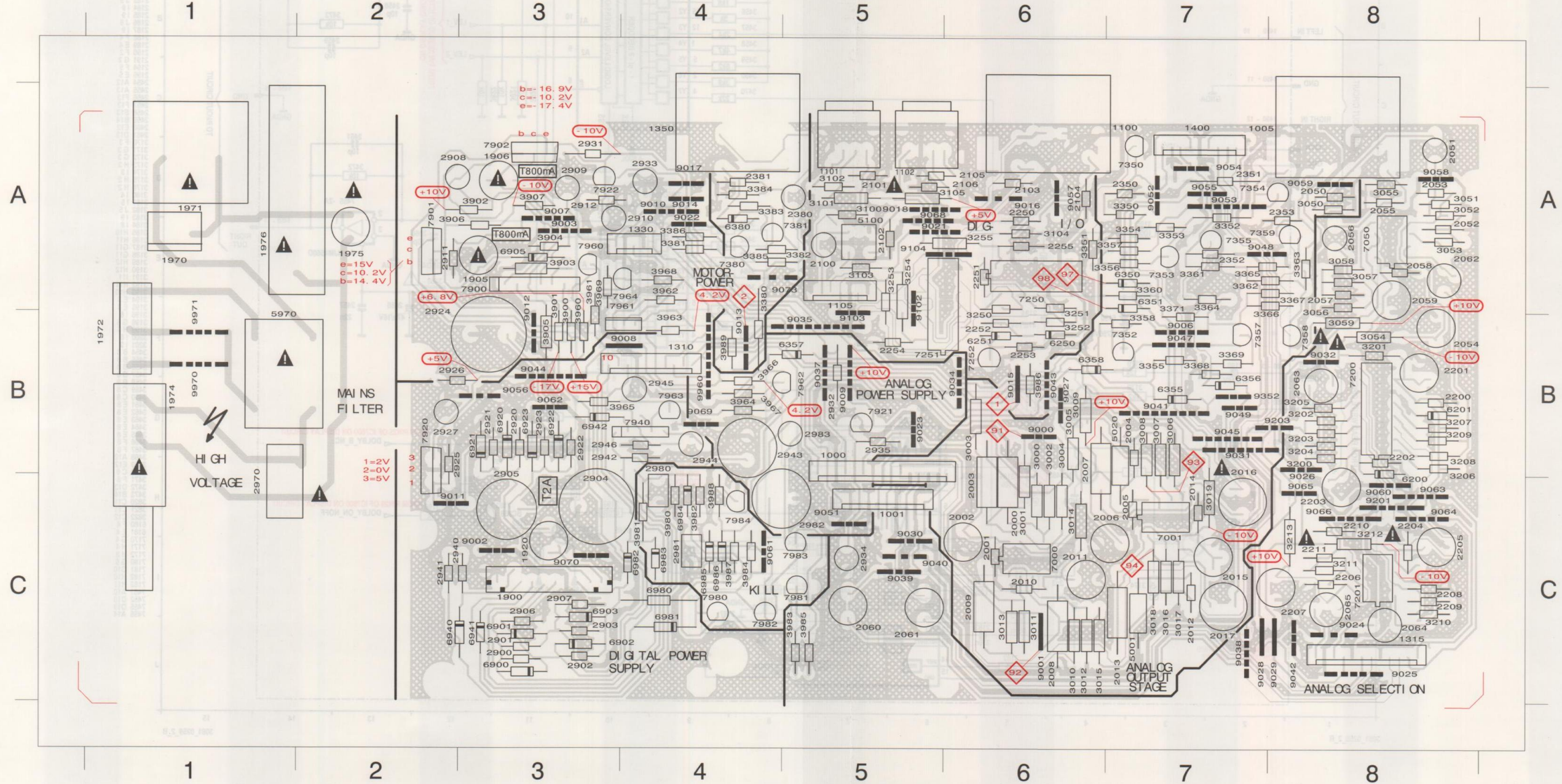
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- 1310 G17
- 1310 F17
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- 1310 J17
- 1310 J17
- 1330 B17
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- 1330 C17
- 1330 C17
- 1900 G7
- 1900 E7
- 1900 D7
- 1900 J7
- 1900 J7
- 1900 J7
- 1900 J7
- 1900 J7
- 1900 J7
- 1900 J7
- 1905 C15
- 1906 F15
- 1920 H8
- 1971 G2
- 1972 H2
- 1972 F4
- 1972 F4
- 1972 I4
- 1974 G3
- 1975 G2
- 1975 H2
- 2900 D8
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- 2902 E8
- 2903 F8
- 2904 F9
- 2905 E9
- 2905 D10
- 2906 D10
- 2907 E10
- 2908 D13
- 2909 D16
- 2910 F16
- 2911 F16
- 2912 F16
- 2920 F8
- 2921 G8
- 2922 G8
- 2923 H8
- 2924 H9
- 2925 H10
- 2926 H11
- 2927 H11
- 2934 D17
- 2935 D18
- 2940 H3
- 2941 H9
- 2942 H2
- 2943 H3
- 2944 H16
- 2945 H16
- 2946 H16
- 2970 H3
- 2980 B10
- 2981 B10
- 2982 A11
- 2983 B13
- 3900 D10
- 3901 E14
- 3902 E14
- 3903 D14
- 3904 E14
- 3905 E14
- 3906 C10
- 3907 E14
- 3908 C10
- 3909 B9
- 3982 A10
- 3983 B11
- 3984 A12
- 3985 B11
- 3986 C13
- 3987 C14
- 3988 B14
- 3989 B15
- 5970 G4
- 6900 D8
- 6901 D8
- 6902 E8
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- 6905 D14
- 6920 F8
- 6921 G8
- 6922 H8
- 6923 H8
- 6924 H8
- 6941 H7
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- 6981 A8
- 6982 A8
- 6983 B8
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- 9971 F4



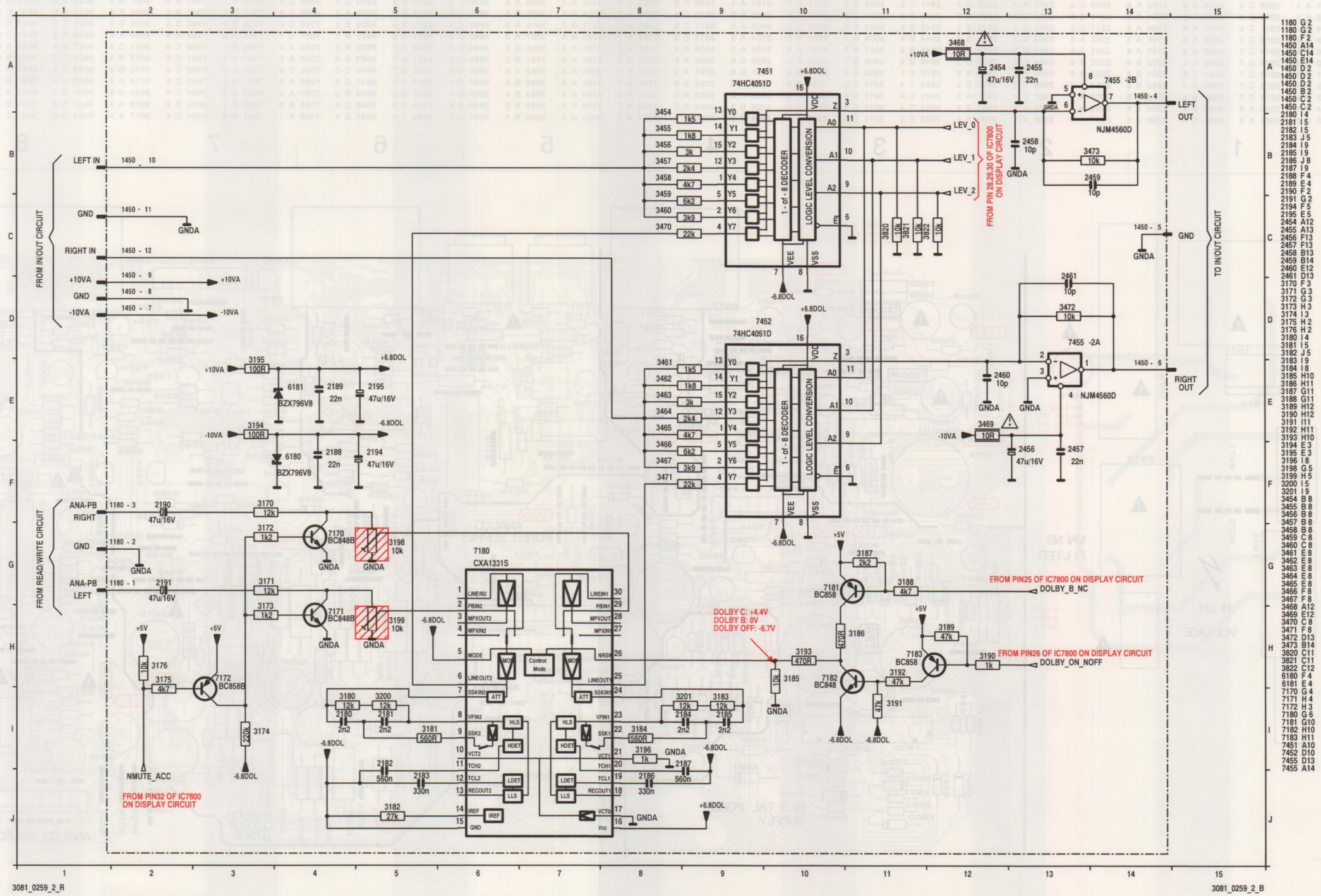
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1001 E 3	6201 B10
1001 F 3	6350 G16
1005 F18	6351 J16
1005 B 3	6355 G12
1100 O 7	6356 J12
1102 K12	6357 H10
1105 L18	6358 H11
1105 L18	6360 M17
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1105 K18	7001 E 7
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1105 M 3	7050 C 7
1105 K18	7200 B12
1310 M18	7201 B13
1310 M18	7201 C14
1310 M18	7250 K 9
1310 M 3	7250 K11
1315 D 3	7250 K 4
1315 D 3	7250 K 4
1315 J18	7353 F14
1315 B17	7250 L 6
1315 B17	7350 E16
1315 B17	7352 G14
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2014 I 8	
2015 I 8	
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2205 A13	
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2207 C15	
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2211 D14	
2250 K 8	
2251 K10	
2252 L17	
2350 E17	
2351 F17	
2352 H17	
2353 H17	
2380 N15	
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3006 E 7	
3007 F 7	
3008 F 7	
3009 E 7	
3015 I 6	
3016 I 7	
3017 I 7	
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3058 C 5	
3059 B 7	
3103 N 6	
3104 N 8	
3105 M12	
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3201 B 9	
3202 D10	
3203 D10	
3204 D10	
3205 D10	
3206 C10	
3207 C10	
3208 C10	
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3250 J10	
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3362 I14	
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1101 A 5	1972 B 1	2010 C 6	2056 A 8	2104 A 6	2210 C 8	2900 C 3	2921 B 3	2942 B 4	3004 C 6	3018 C 7	3102 A 5	3210 C 8	3354 A 7	3369 B 7	3905 B 3	3981 C 4	6201 B 8	6905 A 3	6986 C 4	7357 B 7	7962 B 5	9008 B 4	9024 C 8	9040 C 5	9056 B 3	9073 A 4
1102 A 5	1974 B 1	2011 C 6	2057 A 8	2105 A 5	2211 C 8	2901 C 3	2922 B 3	2943 B 4	3005 B 6	3019 C 7	3103 A 5	3211 C 8	3355 B 7	3371 B 7	3906 A 3	3982 C 4	6250 B 6	6920 B 3	7000 C 6	7358 B 8	7963 B 4	9009 B 5	9025 C 8	9041 B 7	9057 A 6	9102 A 5
1105 A 5	1975 A 2	2012 C 7	2058 A 8	2106 A 5	2250 A 6	2902 C 3	2923 B 3	2944 B 4	3006 B 7	3050 A 8	3104 A 6	3212 C 8	3356 A 7	3380 B 4	3907 A 3	3983 C 5	6251 B 6	6921 B 3	7001 C 7	7359 A 8	7964 A 4	9010 A 4	9026 B 8	9042 C 8	9058 A 8	9103 B 5
1310 B 4	1976 A 2	2013 C 7	2059 A 8	2107 A 6	2251 A 6	2903 C 3	2924 B 3	2945 B 4	3007 B 7	3051 A 8	3105 A 5	3213 C 8	3357 A 7	3381 A 4	3960 B 3	3984 C 4	6350 A 7	6922 B 3	7050 A 8	7380 A 4	7980 C 4	9011 C 2	9027 B 6	9043 B 6	9059 A 8	9104 A 6
1315 C 8	2000 C 6	2014 C 7	2060 C 5	2200 B 8	2252 B 6	2904 C 3	2925 B 2	2946 B 4	3008 B 7	3052 A 8	3200 B 8	3250 A 6	3358 B 7	3382 A 4	3961 B 3	3985 C 5	6351 A 7	6923 B 3	7200 B 8	7381 A 4	7981 C 5	9012 B 3	9028 C 7	9044 B 3	9060 C 8	9201 C 8
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1900 C 3	2004 B 7	2050 A 8	2064 C 8	2204 C 8	2350 A 7	2908 A 2	2932 B 5	2982 C 4	3012 C 6	3056 A 8	3204 B 8	3254 A 5	3363 A 8	3386 A 4	3965 B 3	3989 B 4	6358 B 6	6980 C 4	7252 B 6	7920 B 2	9000 B 6	9016 A 6	9032 B 8	9049 B 7	9064 C 8	9970 B 1
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# LEVEL & DOLBY CIRCUIT DIAGRAM



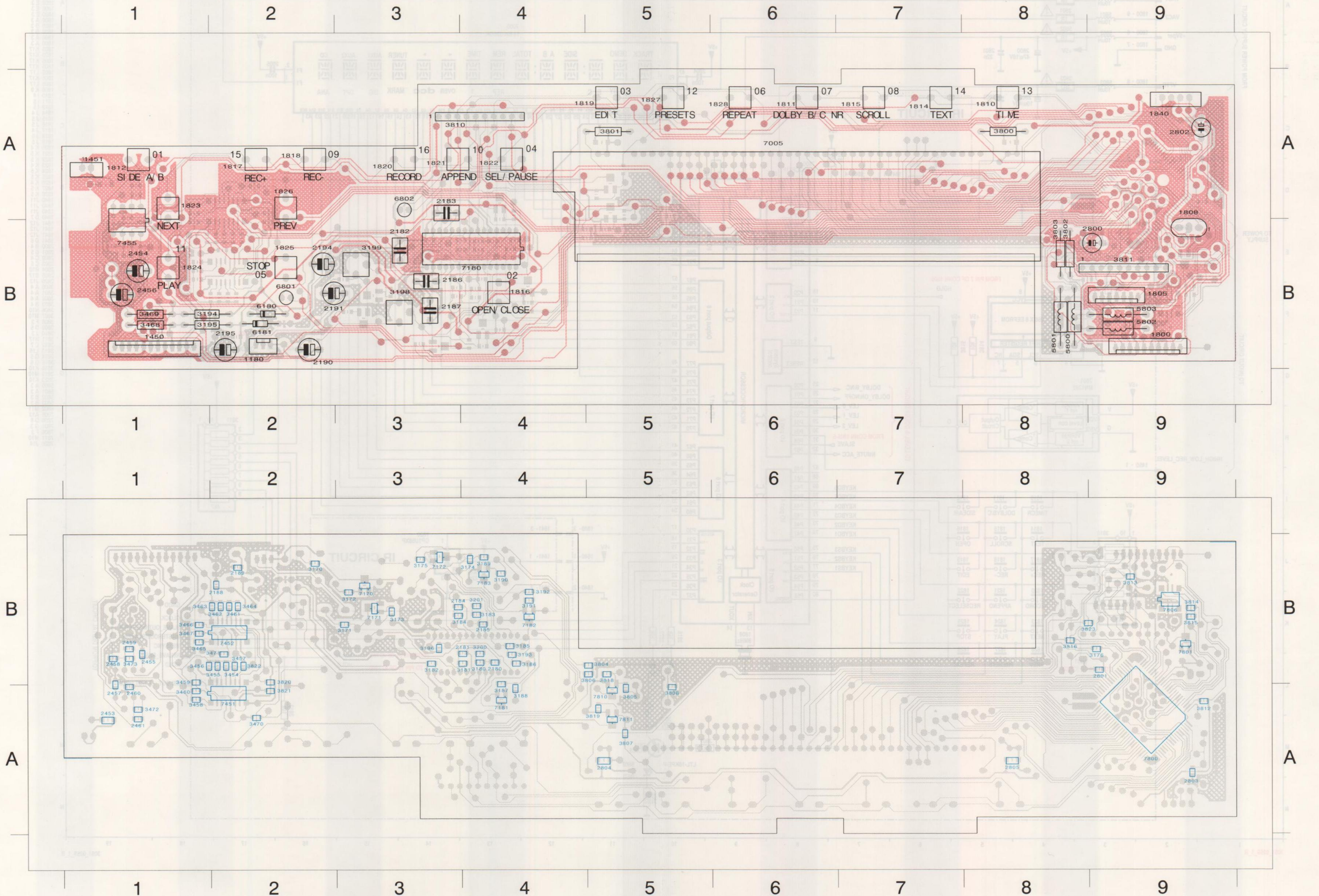
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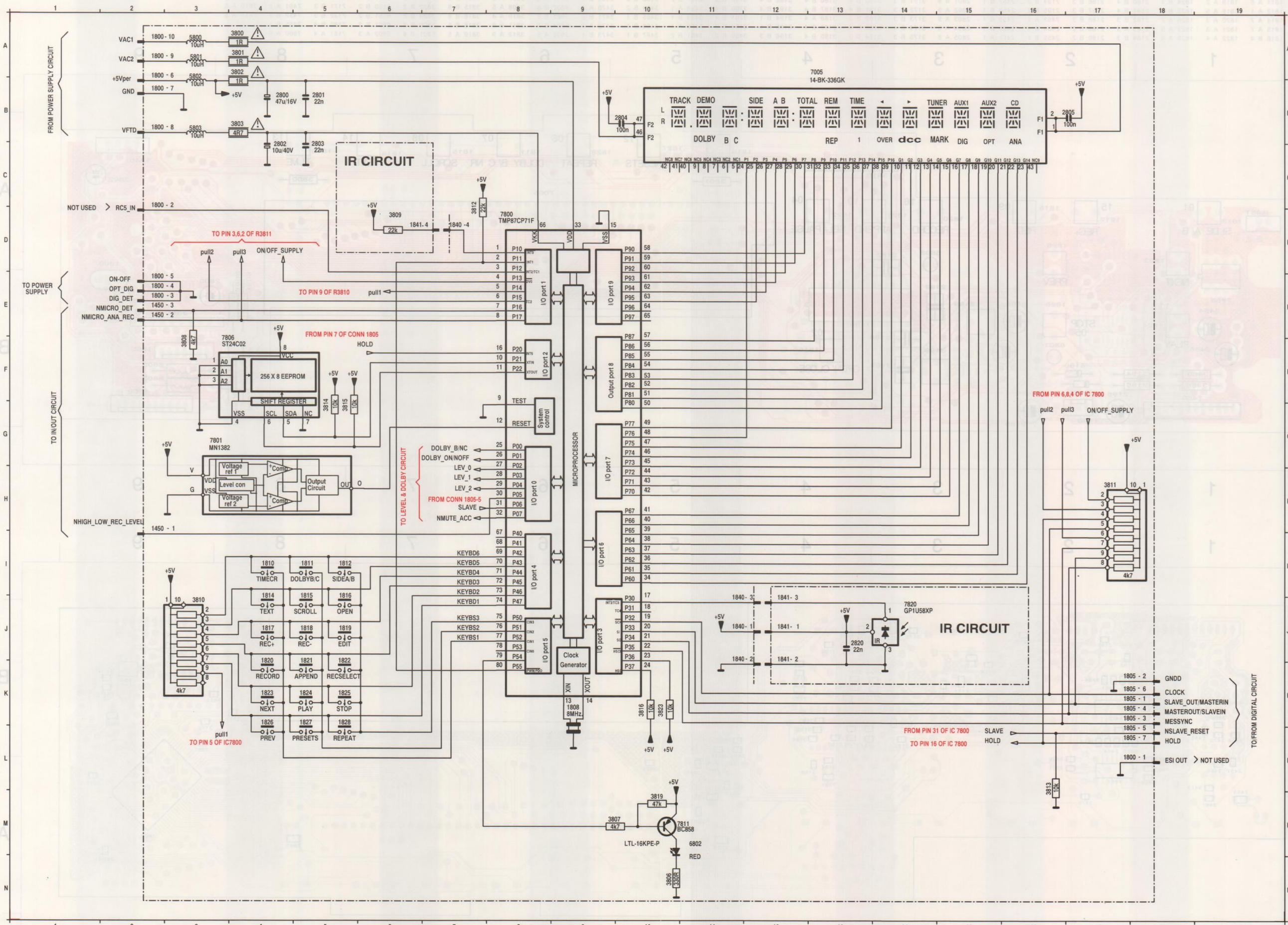
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- 1450 D2
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- 1450 C2
- 2180 I4
- 2181 I3
- 2182 I5
- 2183 J5
- 2184 I9
- 2185 I9
- 2186 J8
- 2187 I9
- 2188 F4
- 2189 E4
- 2190 F2
- 2191 G2
- 2194 F5
- 2195 F5
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- 2456 F13
- 2457 F13
- 2458 B13
- 2459 B14
- 2460 E12
- 2461 D13
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- 3171 G3
- 3172 G3
- 3173 H3
- 3174 I3
- 3175 H2
- 3176 H2
- 3180 I4
- 3181 I5
- 3182 J5
- 3183 I9
- 3184 I8
- 3185 H10
- 3186 H11
- 3187 G11
- 3188 G11
- 3189 H12
- 3190 H12
- 3191 I11
- 3192 H11
- 3193 H10
- 3194 E3
- 3195 E3
- 3196 I8
- 3198 G5
- 3199 H5
- 3200 I5
- 3201 I9
- 3454 B8
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- 3456 B8
- 3457 B8
- 3458 B8
- 3459 C9
- 3460 C8
- 3461 E8
- 3462 E8
- 3463 E8
- 3464 E8
- 3465 E8
- 3466 F8
- 3467 F8
- 3468 A12
- 3469 E12
- 3470 C8
- 3471 F8
- 3472 D13
- 3473 B14
- 3820 C11
- 3821 C11
- 3822 C12
- 6180 F4
- 6181 E4
- 7170 G4
- 7171 H4
- 7172 H3
- 7180 G6
- 7181 G10
- 7182 H10
- 7183 H11
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- 7452 D10
- 7455 D13
- 7455 A14

FRONT PANEL

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1450 B 1	1811 A 6	1818 A 2	1824 B 1	2180 B 4	2186 B 3	2194 B 2	2457 B 1	2801 B 9	3171 B 3	3180 B 4	3186 B 4	3192 B 4	3199 B 3	3457 B 2	3463 B 2	3469 B 1	3801 A 5	3807 A 5	3814 B 9	3821 A 2	5803 B 9	7170 B 3	7183 B 4	7806 B 9
1451 A 1	1812 A 1	1819 A 5	1825 B 2	2181 B 4	2187 B 3	2195 B 2	2458 B 1	2802 A 9	3172 B 3	3181 B 4	3187 B 4	3193 B 4	3200 B 4	3458 A 1	3464 B 2	3470 A 2	3802 B 8	3808 A 5	3815 B 9	3822 B 2	6180 B 2	7171 B 3	7451 A 2	7810 A 5
1800 B 9	1814 A 7	1820 A 3	1826 A 2	2182 B 3	2188 B 2	2453 A 1	2459 B 1	2803 A 9	3173 B 3	3182 B 3	3188 A 4	3194 B 1	3201 B 4	3459 B 1	3465 B 1	3471 B 2	3803 B 8	3810 A 4	3816 B 8	3823 B 8	6181 B 2	7172 B 3	7452 B 2	7811 A 5
1805 B 9	1815 A 7	1821 A 3	1827 A 5	2183 A 3	2189 B 2	2454 B 1	2460 A 1	2804 A 5	3174 B 4	3183 B 4	3189 B 4	3195 B 1	3454 B 2	3460 A 1	3466 B 1	3472 A 1	3804 B 5	3811 B 9	3818 B 5	5800 B 8	6801 B 2	7180 B 4	7455 B 1	
1808 B 9	1816 B 4	1822 A 4	1828 A 6	2184 B 3	2190 B 2	2455 B 1	2461 A 1	2805 A 8	3175 B 3	3184 B 3	3190 B 4	3196 B 3	3455 B 2	3461 B 2	3467 B 1	3473 B 1	3805 A 5	3812 A 9	3819 A 5	5801 B 8	6802 A 3	7181 A 4	7800 A 9	



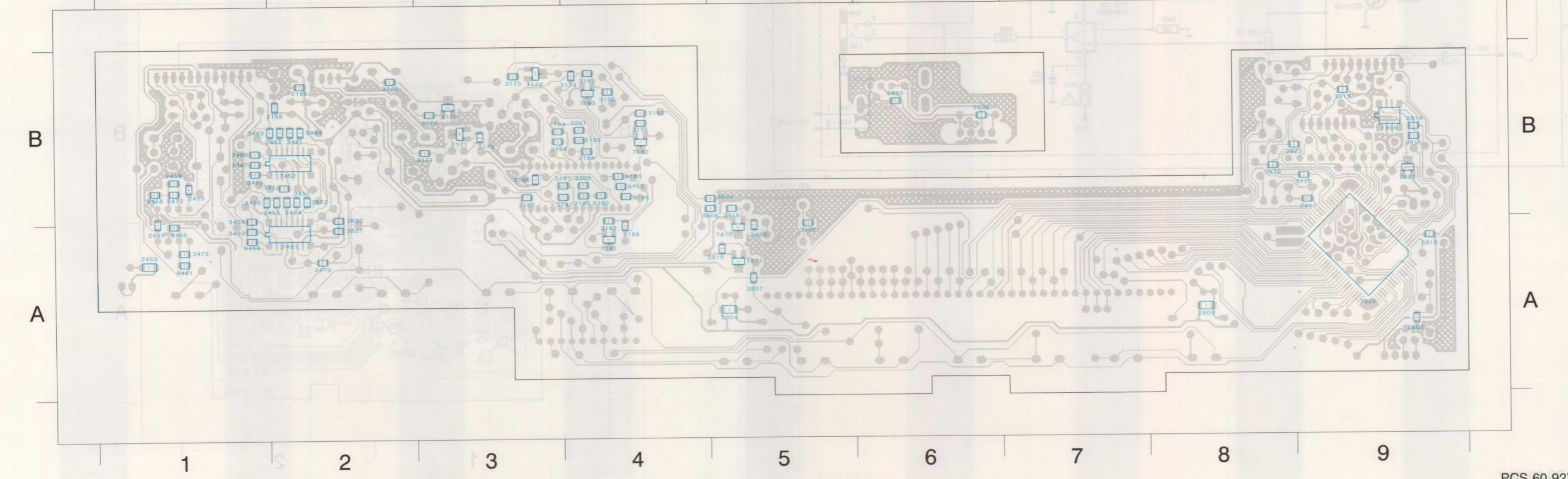
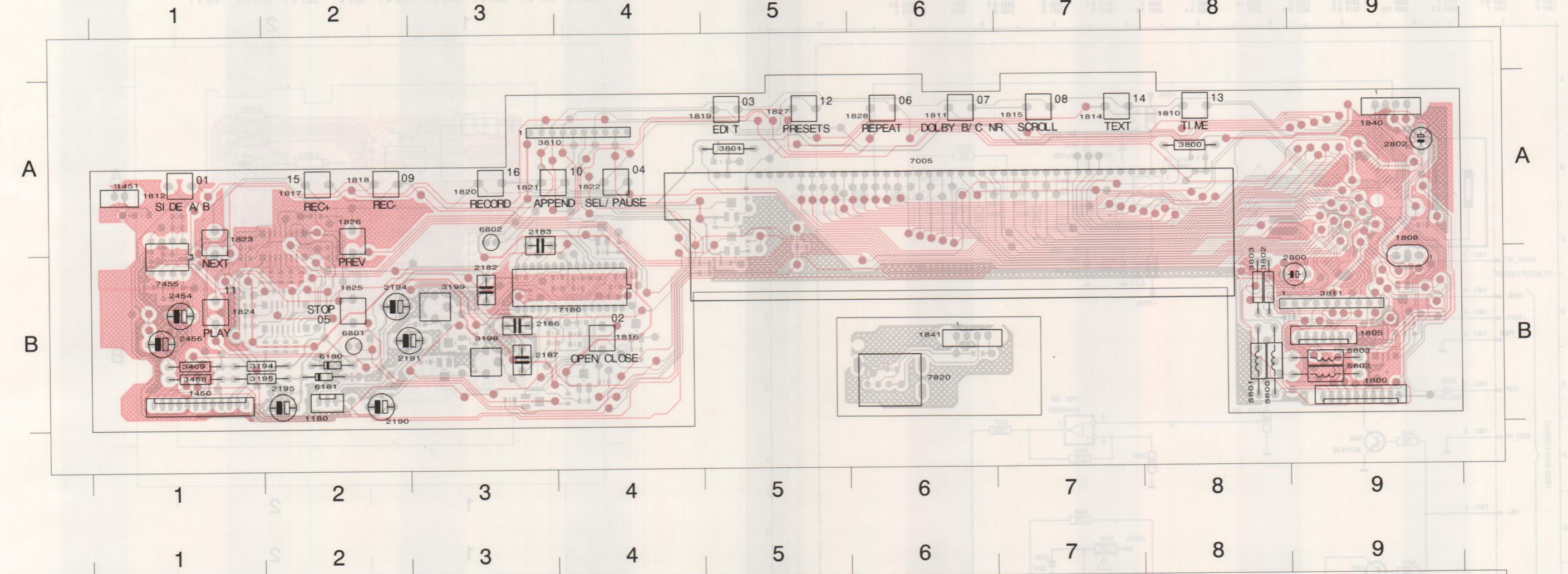
CONTROL & DISPLAY CIRCUIT DIAGRAM



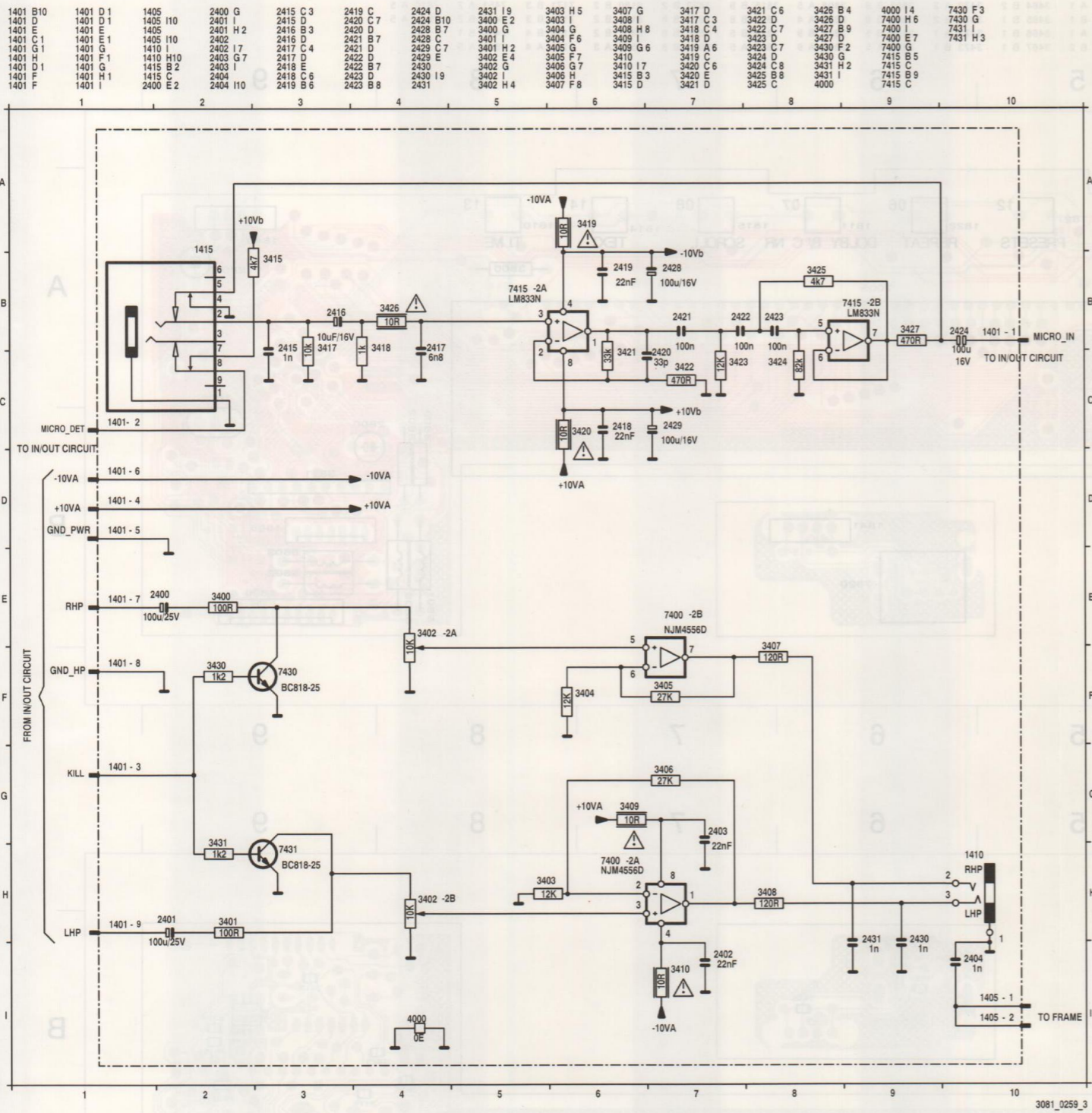
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- 1808 K 9
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- 1812 I 5
- 1814 J 4
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- 1824 K 5
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- 1840 J 11
- 1840 J 11
- 1840 J 11
- 1840 D 7
- 1841 J 12
- 1841 J 12
- 1841 J 12
- 1841 D 6
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- 2801 B 5
- 2802 C 4
- 2803 C 5
- 2804 B 10
- 2805 B 17
- 2820 J 13
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- 3801 A 4
- 3802 A 4
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- 3806 N 10
- 3807 M 10
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- 3809 D 6
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- 3811 H 7
- 3812 C 7
- 3813 L 16
- 3814 G 5
- 3815 G 6
- 3816 K 10
- 3819 M 10
- 3823 K 10
- 5800 A 3
- 5801 A 3
- 5802 B 5
- 5803 B 3
- 6802 M 11
- 7005 A 13
- 7800 D 8
- 7801 G 3
- 7806 F 3
- 7811 M 10
- 7820 J 14

FRONT & I.R. PANEL

1180 B 2	1810 A 8	1817 A 2	1823 A 1	1840 A 9	2185 B 4	2191 B 2	2456 B 1	2800 B 9	3170 B 2	3176 B 9	3185 B 4	3191 B 4	3198 B 3	3456 B 1	3462 B 2	3468 B 1	3800 A 8	3806 B 5	3813 B 9	3820 B 2	5802 B 9	7005 A 6	7182 B 4	7801 B 9
1450 B 1	1811 A 6	1818 A 2	1824 B 1	2180 B 4	2186 B 3	2194 B 2	2457 B 1	2801 B 9	3171 B 3	3180 B 4	3186 B 4	3192 B 4	3199 B 3	3457 B 2	3463 B 2	3469 B 1	3801 A 5	3807 A 5	3814 B 9	3821 A 2	5803 B 9	7170 B 3	7183 B 4	7806 B 9
1451 A 1	1812 A 1	1819 A 5	1825 B 2	2181 B 4	2187 B 3	2195 B 2	2458 B 1	2802 A 9	3172 B 3	3181 B 4	3187 B 4	3193 B 4	3200 B 4	3458 A 1	3464 B 2	3470 A 2	3802 B 8	3808 A 5	3815 B 9	3822 B 2	6180 B 2	7171 B 3	7451 A 2	7810 A 5
1800 B 9	1814 A 7	1820 A 3	1826 A 2	2182 B 3	2188 B 2	2453 A 1	2459 B 1	2803 A 9	3173 B 3	3182 B 3	3188 A 4	3194 B 1	3201 B 4	3459 B 1	3465 B 1	3471 B 2	3803 B 8	3810 A 4	3816 B 8	3823 B 8	6181 B 2	7172 B 3	7452 B 2	7811 A 5
1805 B 9	1815 A 7	1821 A 3	1827 A 5	2183 A 3	2189 B 2	2454 B 1	2460 A 1	2804 A 5	3174 B 4	3183 B 4	3189 B 4	3195 B 1	3454 B 2	3460 A 1	3466 B 1	3472 A 1	3804 B 5	3811 B 9	3818 B 5	5800 B 8	6801 B 2	7180 B 4	7455 B 1	
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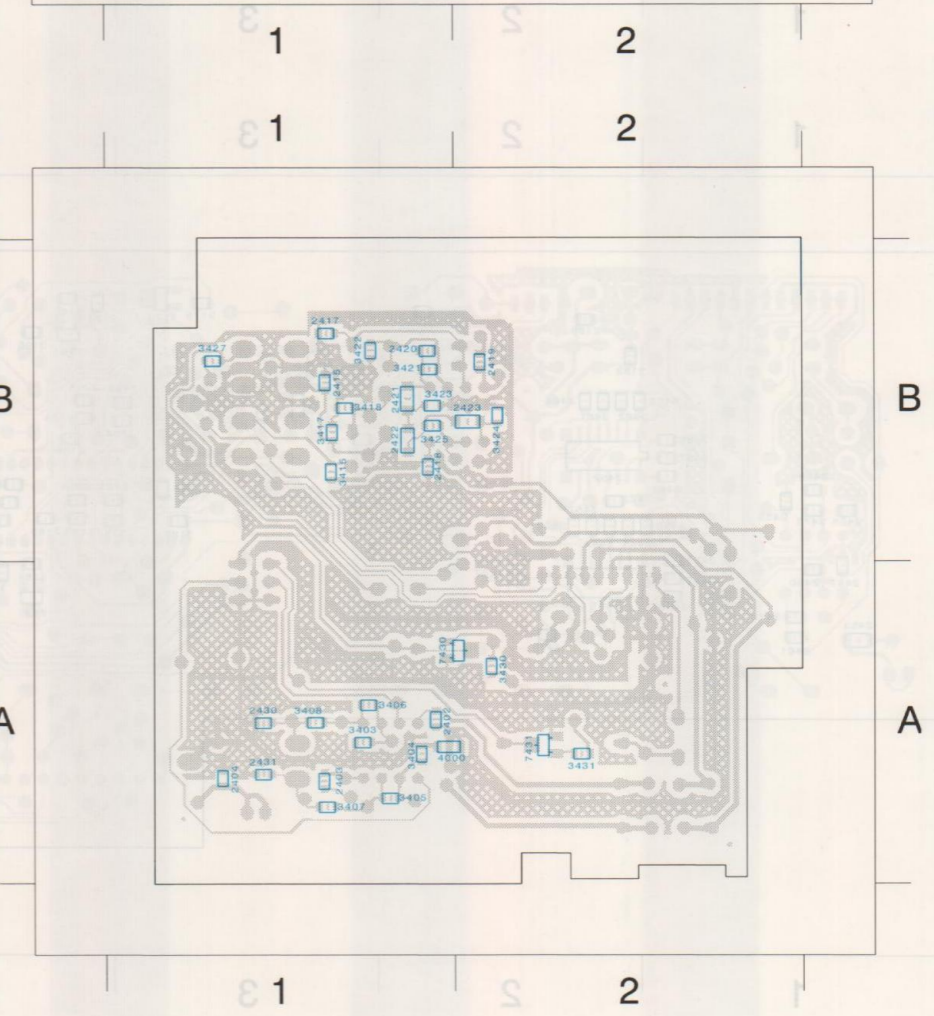
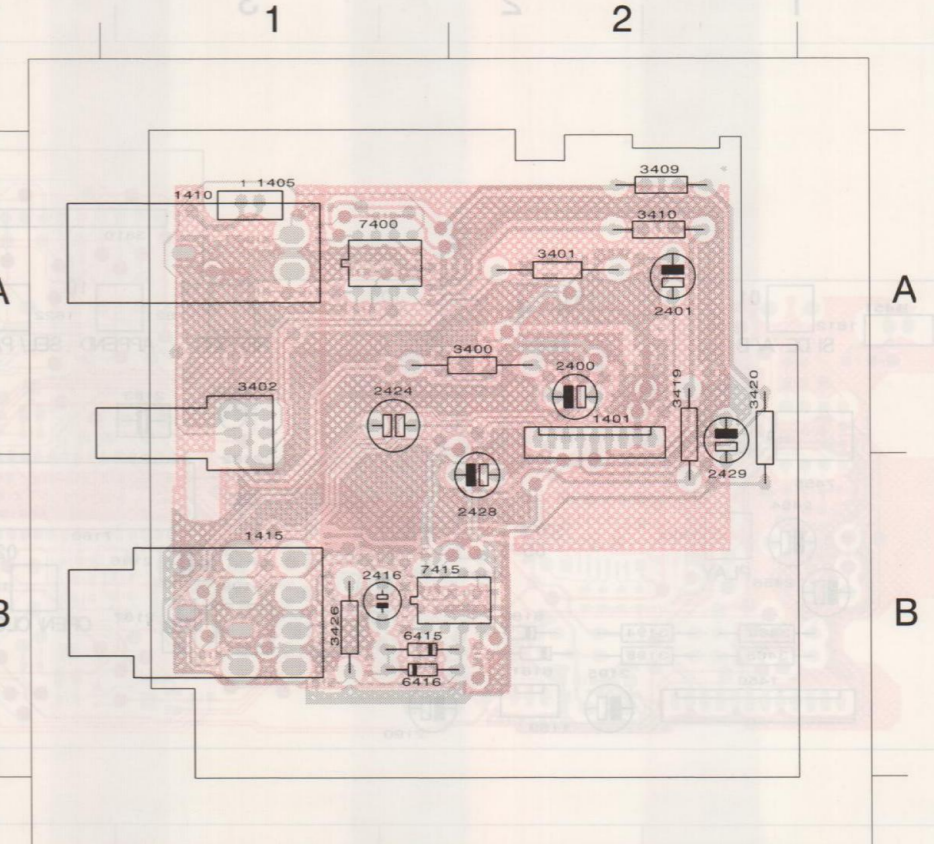


### MICRO & HEADPHONE CIRCUIT DIAGRAM

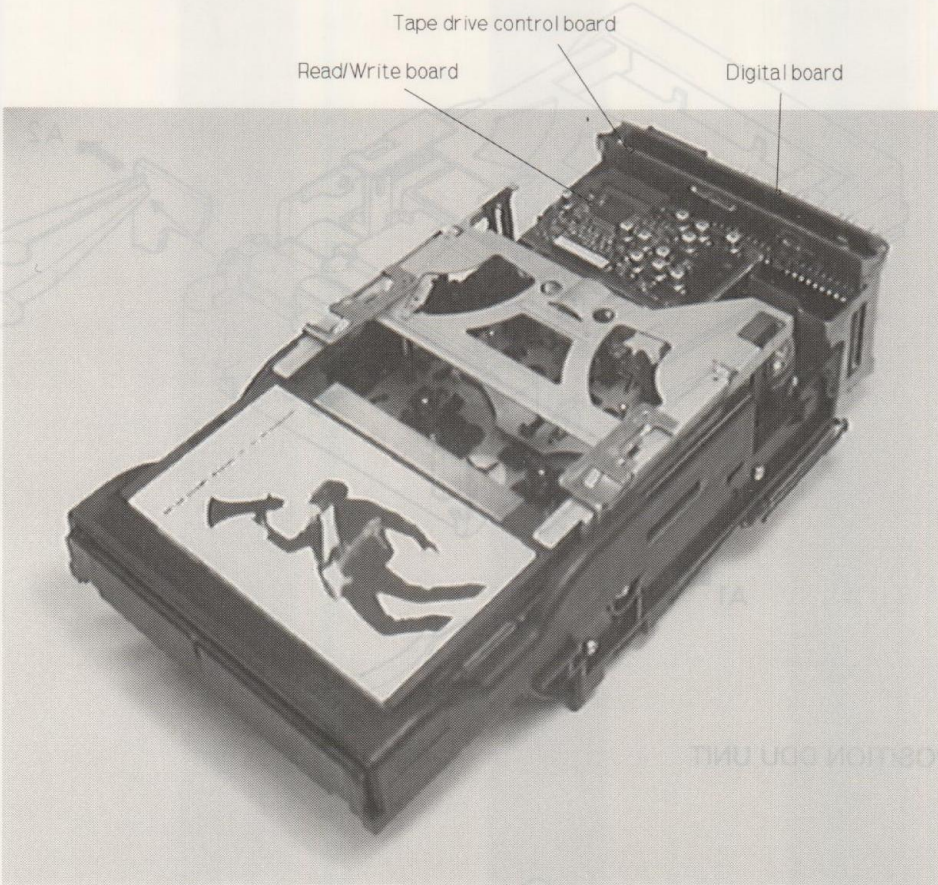


### MICRO & HEADPHONE PANEL

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1405 A 1	2403 A 1	2419 B 2	2428 B 2	3402 A 1	3408 A 1	3419 A 2	3425 B 1	6415 B 1	
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2400 A 2	2416 B 1	2422 B 1	2431 A 1	3405 A 1	3415 B 1	3422 B 1	3430 A 2	7415 B 2	
2401 A 2	2417 B 1	2423 B 2	3400 A 2	3406 A 1	3417 B 1	3423 B 1	3431 A 2	7430 A 2	



## DDU DIGITAL DECK UNIT



## DIGITAL DECK UNIT 2113

Figure 8.1

The Digital deck unit 2113 consists of:

### Mechanical

- Loader mechanism
- Tape deck mechanism

### Electrical

- Read / Write board
- Tape drive control board
- Digital board

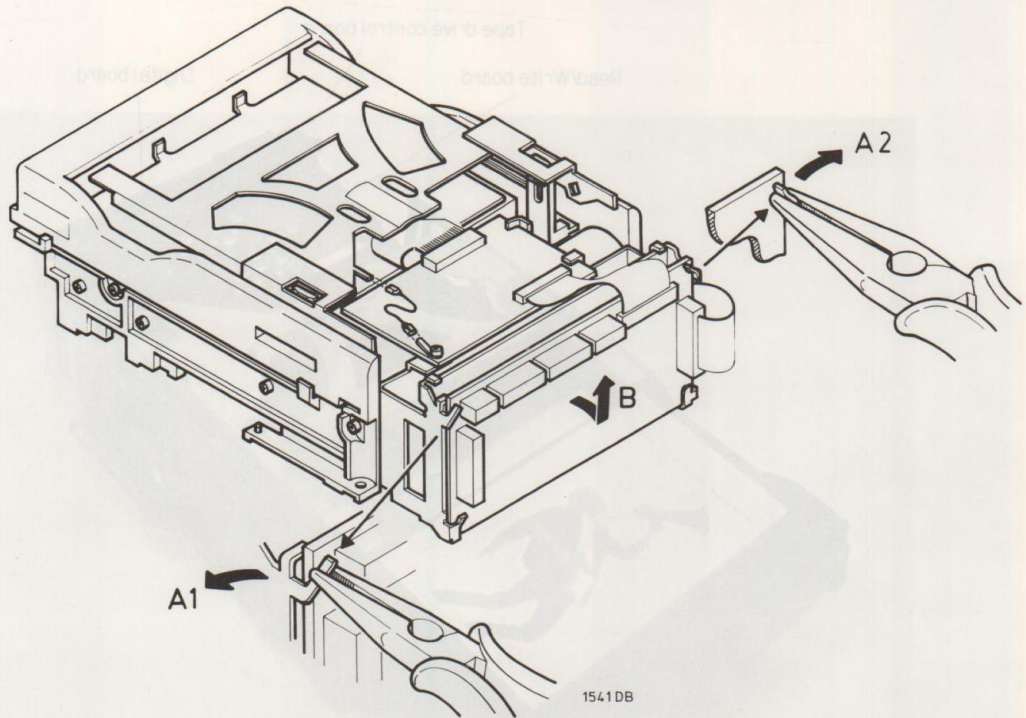
**SERVICE HINTS**

This unit is equipped with a Flexible Printed Circuit board (Flexfoil), so handle that foil with care during disassembly and re-assembly.

In the chapter "Instructions for use" of this manual the cleaning of the DCC-head is explained. See Trouble shooting.

COME TO SERVICE POSITION OF THE DDU UNIT

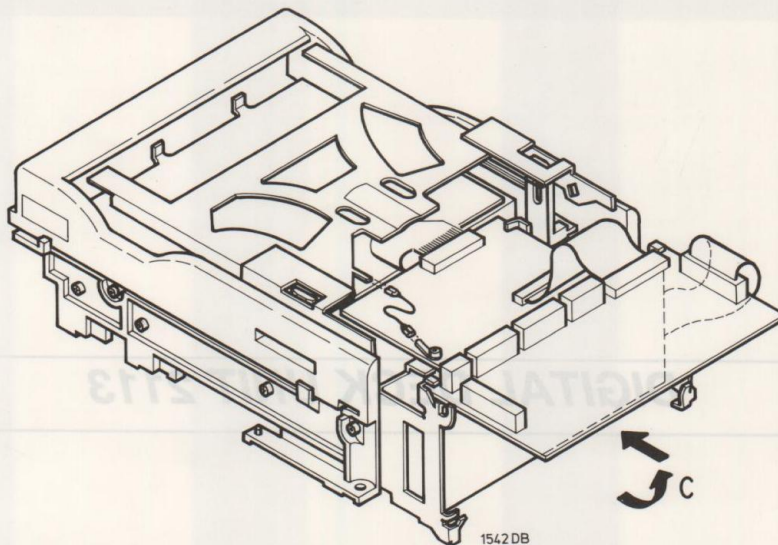
action: A1, A2, B



**Figure 8.2**

SERVICE POSITION DDU UNIT

action: C



**Figure 8.3**

Now electrical measurements and checks on Read/Write-, tape drive control- and digital board can be carried out.



**DISASSEMBLY INSTRUCTIONS**

**DISASSEMBLY OF THE LOADER**

Open tray manually, by moving - counter clockwise - drive gear wheel 86.

action: D, E

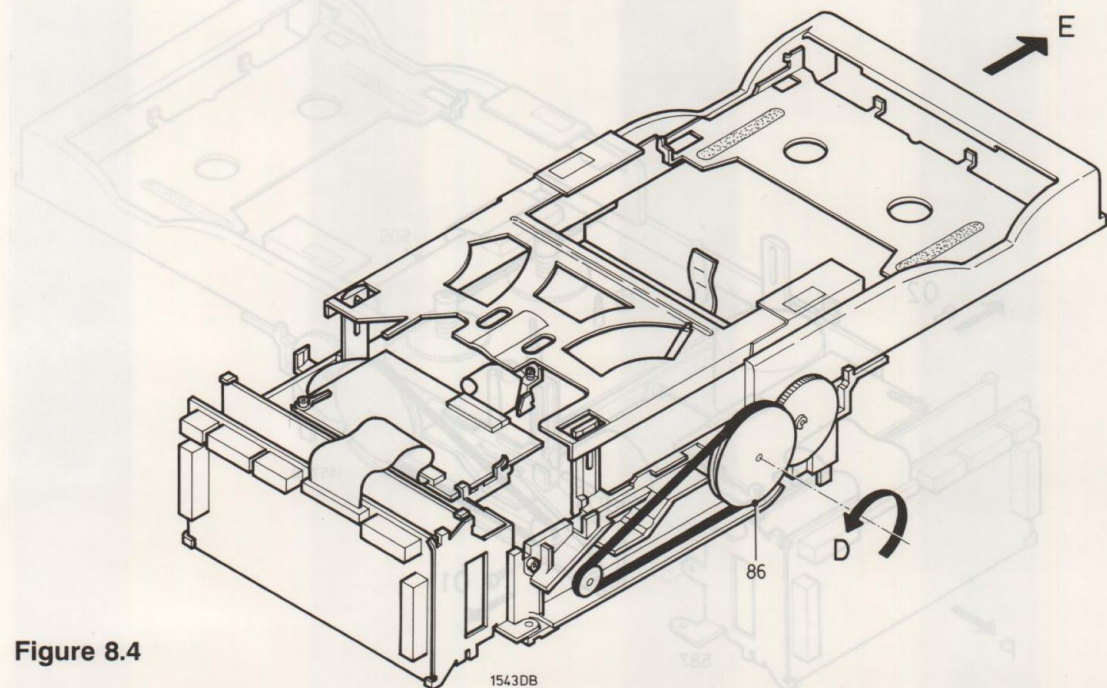


Figure 8.4

**REMOVE CLAMPER ASSEMBLY ITEM 81**

action: F1, F2

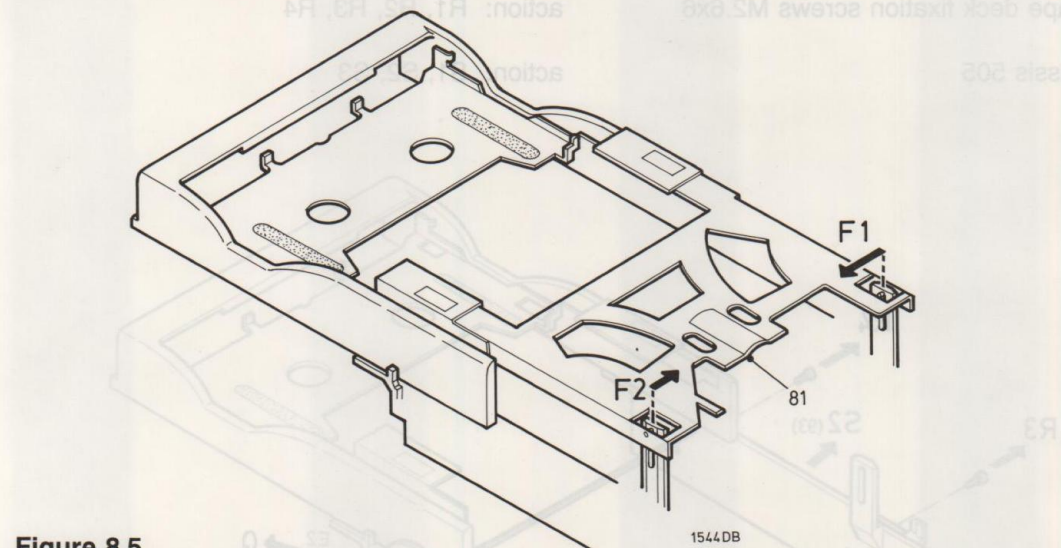


Figure 8.5

**REPLACEMENT OF DCC-HEAD-SUPPORT-ASSEMBLY**

After performing the actions D, E, F1 and F2, a.o., the DCC head support assembly item 117 can be reached.

**REMOVAL HEAD SUPPORT ASSEMBLY ITEM 117**

action: G1, G2, G3

Open with action G1 connector 1800 and disconnect head's flexfoil. (action: G2)  
Warning! Do not open G1 too far, it will damage the connector. Do not forget to short-circuit the head's flexfoil, action G3.

Remove pinch-rollers 102 and 118

action: H1, H2

Remove head support fixation screw 105

action: J

Remove head support assembly 117.

action: K

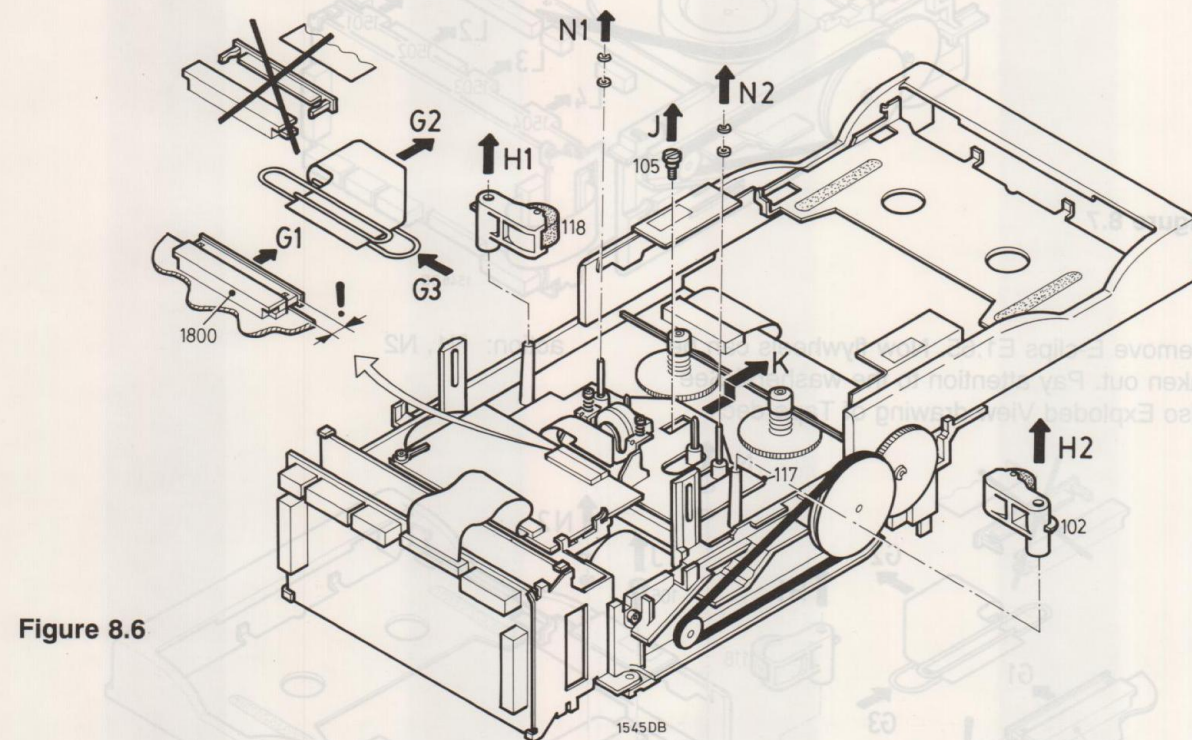


Figure 8.6

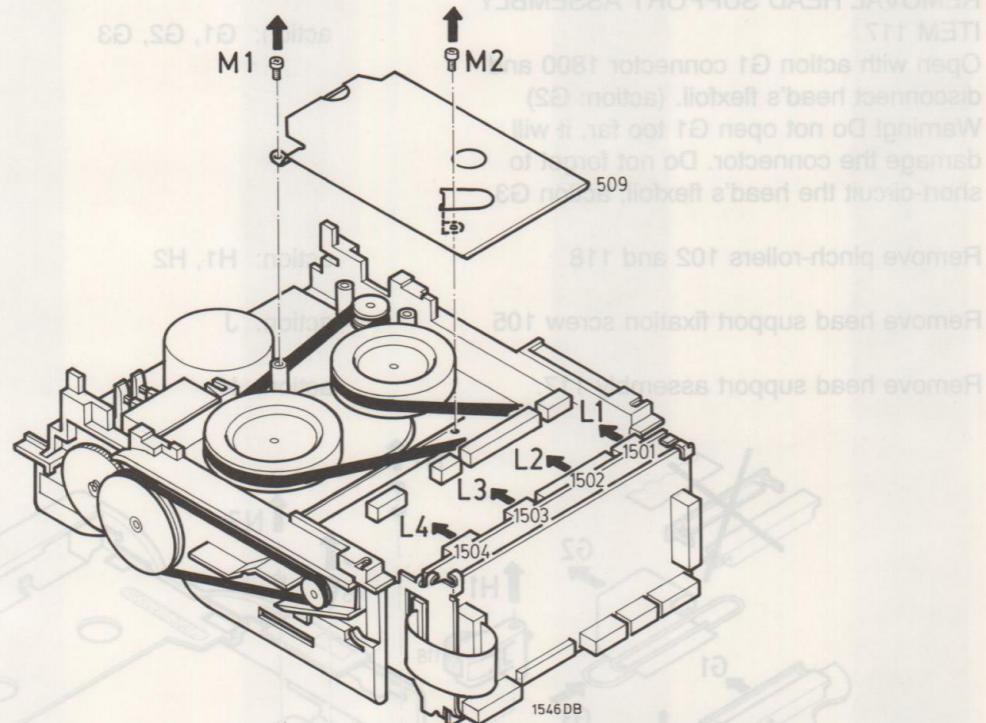
**REMOVAL FLYWHEELS ITEMS 108 AND 126.**

Remove connectors 1501, 1502, 1503 and 1504.

action: L1, L2, L3, L4

Remove cover 509

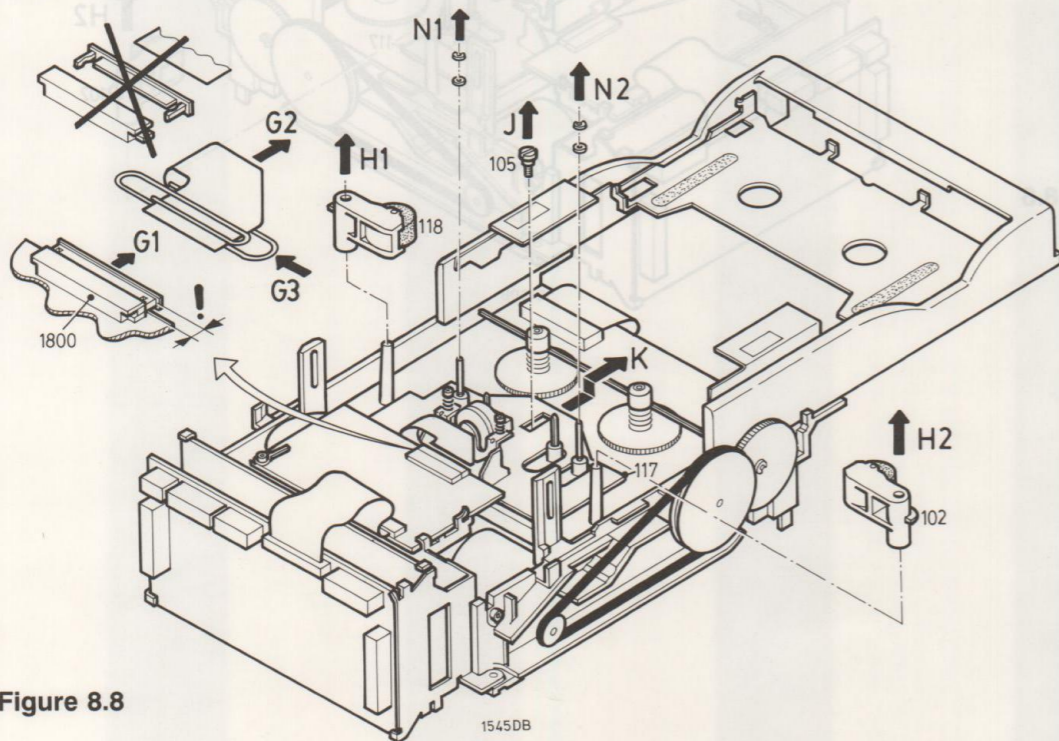
action: M1, M2



**Figure 8.7**

Remove E-clips E1.65. Now flywheels can be taken out. Pay attention to the washers! See also Exploded View drawing of Tape deck.

action: N1, N2



**Figure 8.8**

After removal of the flywheels, a.o. the printed board item 506 can be loosened, after desoldering Solenoid wires (L101), removing the solenoid fixing screw M2.6x6, item 114 (Solenoid coil), the command play arm 112 and Wind Motor M101 (item 123).

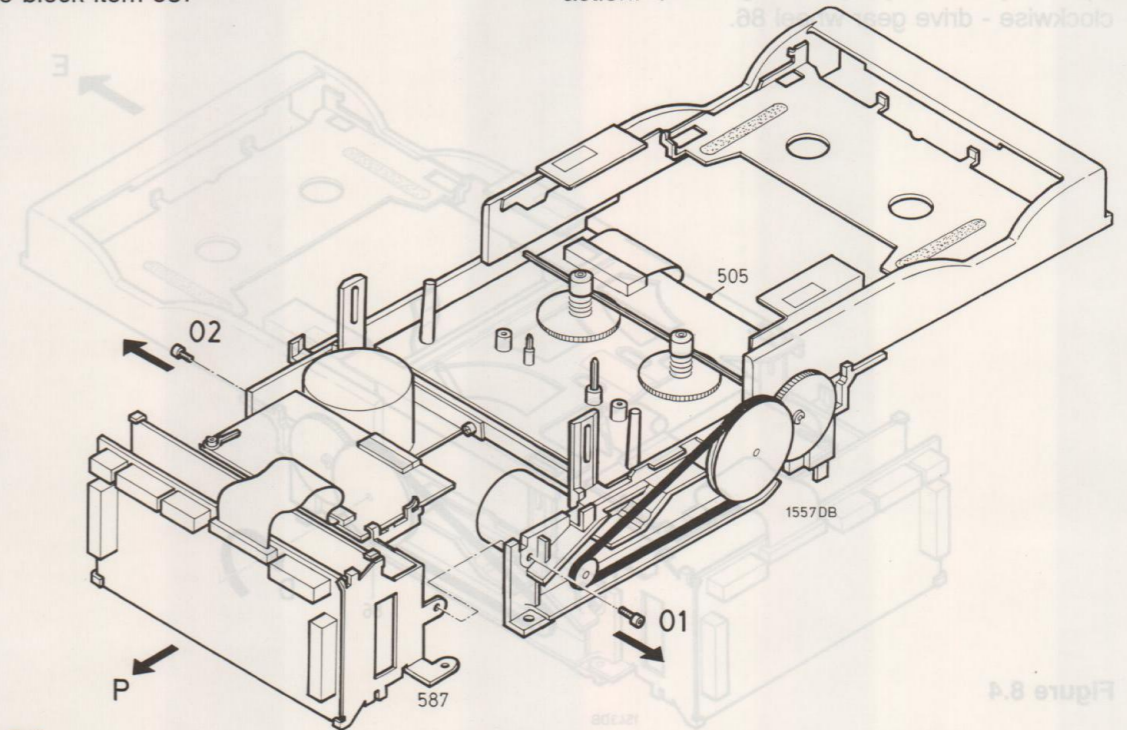
**REMOVAL TAPE DECK CHASSIS 505. (Previous actions: G1, G2, G3)**

Remove screws printed board block item 587

action: O1, O2

Remove block item 587

action: P



**Figure 8.9**

Remove E-ring E2 from axle 94

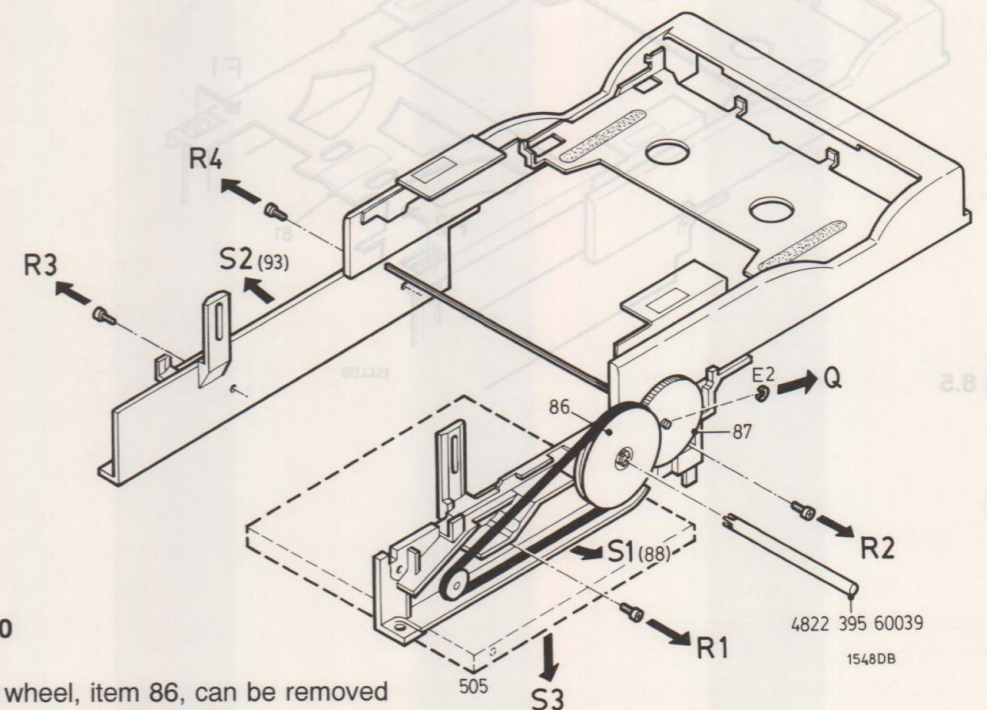
action: Q

Remove 4 tape deck fixation screws M2.6x6

action: R1, R2, R3, R4

Remove chassis 505

action: S1, S2, S3



**Figure 8.10**

Drive gear wheel, item 86, can be removed with the aid of 4822 395 60039

DEMOUNTING AND MOUNTING TRAY ASSEMBLY ITEM 82

Keep with self-adhesive tape item 82 in mounted condition before loosening from the rest of the loader/tape deck.

action: T1, T2

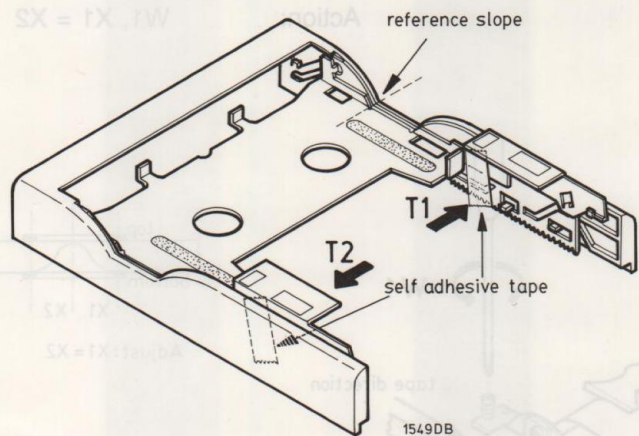


Figure 8.11

Exploded view of item 82

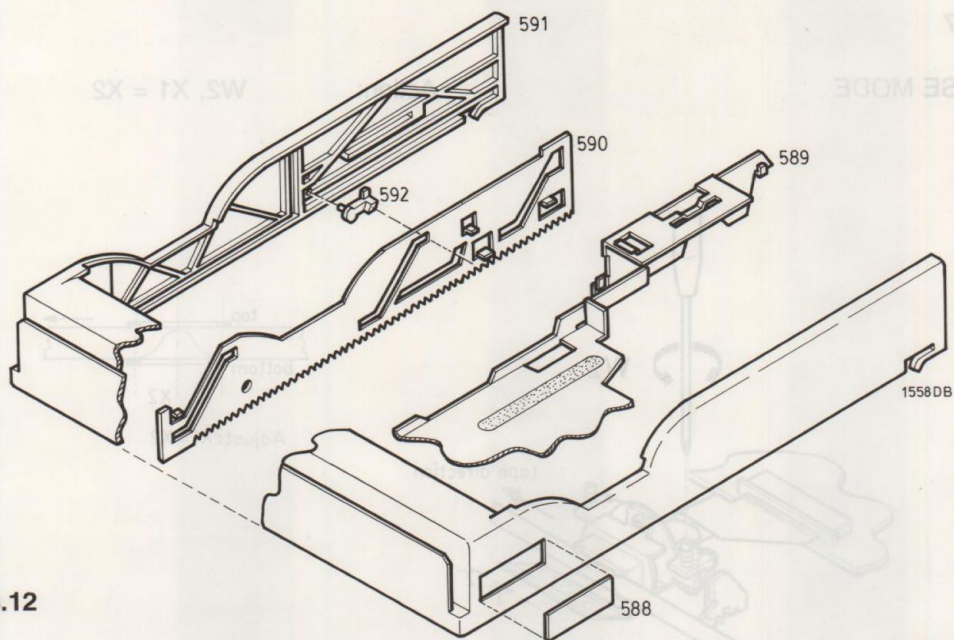


Figure 8.12

HINTS FOR MOUNTING

Mounting the loose components of tray assembly (item 82)

action: U1, U2, U3, U4

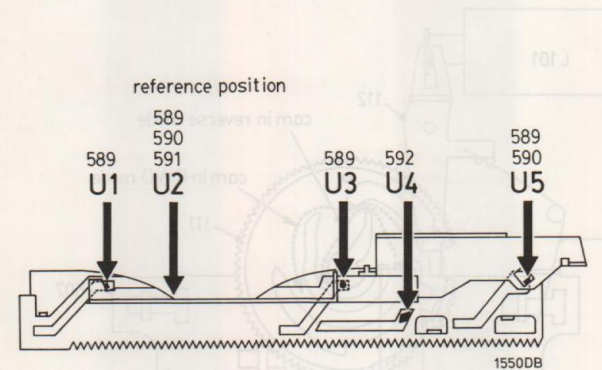


Figure 8.13

Mounting spring 89

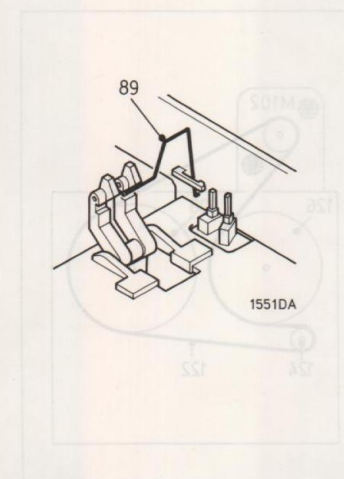


Figure 8.14

Mounting gearwheel item 111  
Positioning gearwheel 111

STOP MODE

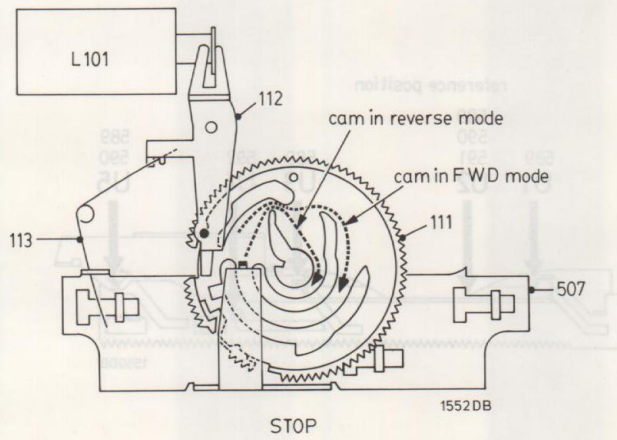


Figure 8.15

Mounting belt 122

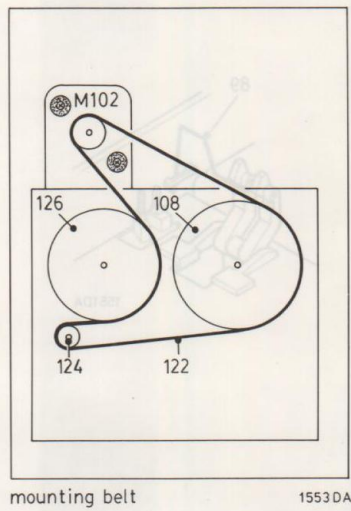


Figure 8.16

AZIMUTH ADJUSTMENT

Due to the Fixed Azimuth Tape Guides (FATG) and Azimuth Locking Pins (ALP), with a mirror cassette (4822 395 30288) the azimuth can be adjusted.

See next figure. The mirror picture can be divided into two parts. One part reaches from first FATG to Head mid position, and the other part from Head mid position to the other FATG.

Adjust with the first azimuth screw, seen from tape direction, for synchronous left and right part of the mirror picture.

action: W

IN PLAY MODE

Action: W1, X1 = X2

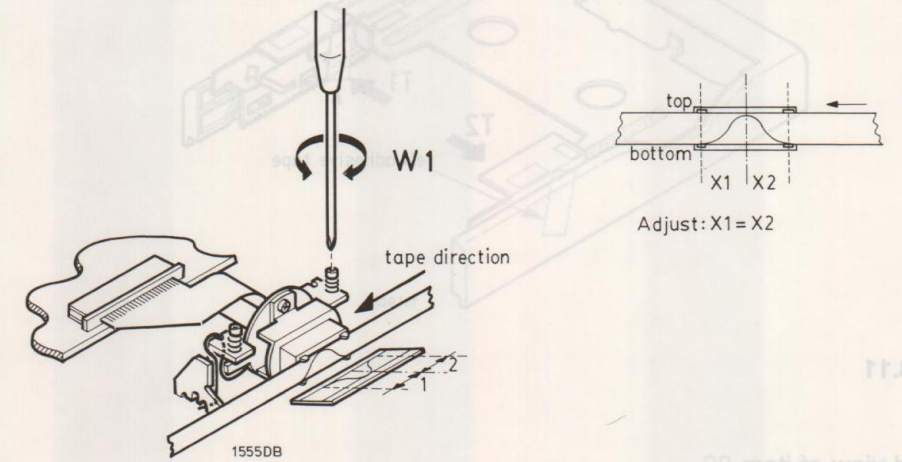


Figure 8.17

IN REVERSE MODE

Action: W2, X1 = X2

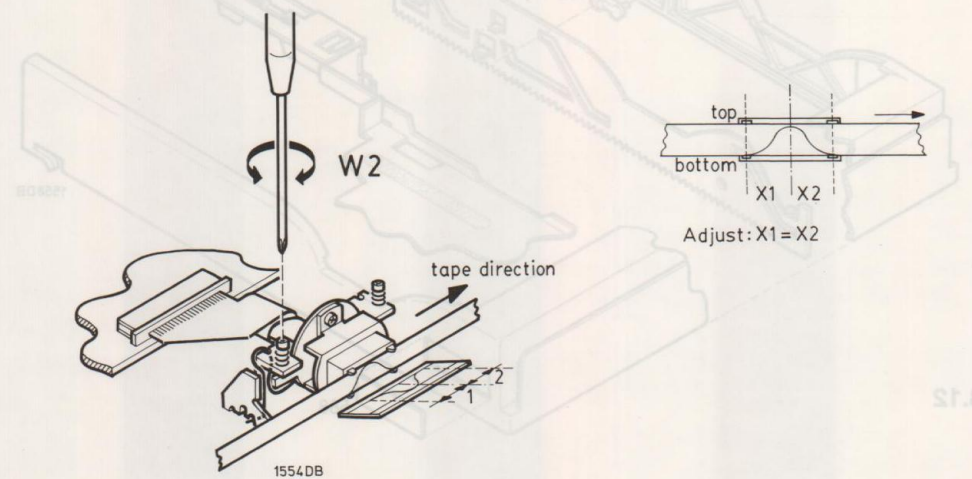


Figure 8.18

## ABBREVIATIONS

A0	Address SRAM; Address DRAM	COA	Common analog
A1	Address SRAM; Address DRAM	COAXIAL IN	IEC958 high sensitive input
A1 0/RAS	Address SRAM; RAS DRAM	COD	Common digital
A1 1	Address SRAM	COPY	copyright status bit
A1 2/PinO5	Address SRAM; Address DRAM; Port expander output 5	CRO2/TRAY_OPEN	CRO2/FE cassette detection switch input
A1 3/PinO2	Address SRAM; Address DRAM; Port expander output 2		if N_CASS_PRES = L L = FE; H = CRO2
A1 4/PinO1	Address SRAM; Address DRAM; Port expander output 1		if N_CASS_PRES = H L = tray fully opened, H = tray is not fully opened
A1 5/PinO4	Address SRAM; Address DRAM; Port expander output 4	CTRLMODE	select $\mu$ P/stand-alone mode
A1 6/PinO3	Address SRAM; Address DRAM; Port expander output 3	D0	Data SRAM; Data DRAM
A2	Address SRAM; Address DRAM	D1	Data SRAM; Data DRAM
A3	Address SRAM; Address DRAM	D2	Data SRAM; Data DRAM
A4	Address SRAM; Address DRAM	D3	Data SRAM; Data DRAM
A5	Address SRAM; Address DRAM	D4	Data SRAM;
A6	Address SRAM; Address DRAM	D5	Data SRAM;
A7	Address SRAM; Address DRAM	D6	Data SRAM;
A8	Address SRAM; Address DRAM	D7	Data SRAM;
A9/CAS	Address SRAM; CAS for DRAM	DACL	Analog audio output left
A1+	Analog reader ACC Left channel	DACR	Analog audio output right
A2+	Analog reader ACC Right channel-	DATA	data input
ACC/NDCC	Analog or DCC playback	DCC_CASS_PRES	DCC cassette present switch input
ANAEYE	Analogue eye pattern output	DEEM	pre-emphasis output bit
ANAL	ACC output Left	DEEM1	deemphasis on/off
ANAR	ACC output Right	DEEM2	deemphasis on/off
ATSB	12 dB attenuation(active LOW)	DEEMDAC	DAC control output.
ATTDAC	DAC attenuation control.	DIGITAL OUT	IEC958 output
AZCHK	channel 0 and channel 7 azimuth monitor.	DSMB	double speed mode(active LOW).
		ERCOSTAT	ERCO status, for test only
BCK	bit clock input.	FDAI	filtered serial data input(from ADAS)
BIAS	Bias current for ADC	FDAO	filtered serial data output(to ADAS)
BIL	buffer op-amp inverting input for left channel.	FDCL	filtered data bit clock
		FDIR	PASC mode encode/decode
BIR	buffer op-amp inverting input for right channel.	FDWS	filtered data word select
		FILTCL	capacitor for left channel 1st order filter function.
BOL	buffer op-amp inverting input for left channel.	FILTCLR	capacitor for right channel 1st order filter function.
			reset signal from codec.
BOR	buffer op-amp output for right channel.	FRESET	master audio clock at 256x sample frequency
CAP_A	Capstan motor control connection A	FS256	indicates sample frequency=32kHz
CAP_B	Capstan motor control connection B	FS44	indicates sample frequency=44kHz
CAPSTAN	Low output level switches the capstan motor on.	FS48	indicates sample frequency=48kHz
		FSYNC	subband synchronisation on F-I <sup>2</sup> S bus.
CAPSTAN+	Capstan motor + connection	GND	Analog ground
CAPSTAN-	Capstan motor - connection	GND	Digital ground
CEDC	system clock output.	GND	Analog motors ground
CHMODE	use of channel status(0=professional use, 1=consumer use)	GND	DDU is busy flag
		HOLD	high pass filter enable input.
CHROME	Indication if a chrome analog cassette is inserted.	HPEN	serial audio output enable.
		I <sup>2</sup> SOUTEN	select auxiliary input or normal input in transmit mode.
CHTST1	Channel test pin 1	I <sup>2</sup> SSEL	Write current output.
CHTST2	Channel test pin 2	ICLAMP	TTL level IEC input.
CKIN	system clock input.	IECIN0	high sensitivity IEC input.
CKSL1	clock selection 1	IECIN1	digital audio output for optical and transformer link.
CKSL2	clock selection 2	IECO	digital audio output enable
CLK22	22.5792 MHz buffered clock output of SFC3.	IECOP	IEC958 digital audio output.
		IECSEL	select IEC input 0 or 1
CLK24	24.576 MHz XTAL buffered clock output of SFC3.	IN0-7	Head signals of main data channels
		INAUX	Head signal of auxiliary data.
CLKSEL	select system clock		
CLOCK	Serial data clock from controller		
CLOSE_TRAY	Tray motor connection (+10V = Open tray; 0V = Close tray)		

INL	Analog input signals from DCC head.
INMFL	Magnetic feedback amplifier input left.
INMFR	Magnetic feedback amplifier input right.
INR	Analog input signals from DCC head.
INVALID	validity of audio sample input/output
IREF	current reference node.
L3CLK	L3 bus clock line
L3CLKC	codec interface clock
L3CLKM	microcontroller interface clock
L3DATA	L3 bus serial data line
L3DATAC	codec interface data
L3DATAM	microcontroller interface data
L3INT	L3 interrupt output
L3MODE	Mode line for L3 interface
L3MODEC	codec interface mode
L3MODEM	microcontroller interface mode
L3REF	L3 bus timing reference
LADDR	microprocessor interface address switch input
LCLK	microprocessor interface clock line input
LDATA	microprocessor interface data line input/output
LEFT INPUT	Analog audio input left
LMODE	microprocessor interface mode line input
LOWPOWER	Low power playback reset
LTCNT0	LT compatible interface mode control
LTCNT0C	SAA2002 SFC interface mode control
LTCNT1	LT compatible interface mode control
LTCNT1C	SAA2002 SFC interface mode control
M0	(test mode input) connect to VDD
M1	(test mode input) connect to VDD
MCLK	6.144 MHz clock output
MESSYNC	Message synchronisation with controller
MLE	Latch enable signal for digital filter
MSYNC	Message synchronisation with Digital $\mu$ P
MUSB	muting(active LOW)
MUTE	audio mute input
MUTEDAC	DAC control or general purpose output
N_CASS_PRES	Cassette present switch input
N_DCC_REC_PROT	DCC record protect switch input
N_FAILP	Power fail(L = power failure)
N_FLAP_PRESENT	Flap loader present indication
N_HOLE3	DCC tape length indication switch input
N_HOLE4	DCC tape length indication switch input
N_HOLE5	DCC tape length indication switch input
N_PLAY_POS	Indication if head is in play position
N_QREV_PRES	Quick reverse sensor present
N_TRAY_IN	Tray switch input
NC	not connected
N_DDC_REC_PROT	DCC record protection switch input
N_MUTE	Mute for audio channels(active low)
NODONE	No done state selection
N_RESET	Master reset Digital Unit
OEN	Output Enable for RAM
OPEN_TRAY	Tray motor connection(+10V = Close tray; 0V = Open tray)
OPTICAL IN	IEC958 input from optical receiver
OUTAUX	Parallel output of read IC.
OVL	overload indication output.

PINO1	Port expander output 1
PinO2/SPEEDB	Port expander output 2/ PWM capstan control output for deck B
PLAY MAG	Connection to the solenoid on the DDU deck.
POR	Power On Reset
PRGSTAT	TFE3 program status, for test only
PWRDWN	enable power-down input in the standby mode
QA-QJ	Put DRP into power down mode
QUICK_REVERSE	Signal for write heads.
R0+	Quick reverse input signal
R1+	Digital reader CH0(Hot)
R2+	Digital reader CH1(Hot)
R3+	Digital reader CH2(Hot)
R4+	Digital reader CH3(Hot)
R5+	Digital reader CH4(Hot)
R6+	Digital reader CH5(Hot)
R7+	Digital reader CH6(Hot)
RCfil	Digital reader CH7(Hot)
RCint	pin for PLL loop filter
RDMUX	pin for integrating capacitor
	Analogue multiplexed input from READ AMPLIFIER
RDSYNC	Synchronisation output for READ AMPLIFIER
RESET	Reset signal from Digital Unit controller
RESET_UP	Reset tape drive module $\mu$ P
RESOL0	resolution selection 0
RESOL1	resolution selection 1
RIGHT INPUT	Analog audio input right
RX+	Digital reader AUX channel(Hot)
RXD	Serial data input from tape drive unit
SBCL	Bit clock for sub-band I2S interface.
SBCL	sub-band bit clock
SBDA	Data line for sub-band I2S interface
	DRP
SBDIR	Direction line for sub-band I2S interface
	DRP
SBEF	Sub-band I2S error flag line
SBMCLK	Master clock for sub-band I2S interface
SBWS	Word selector for sub-band I2S interface
SCK	DRP.
SCL	I2S bus clock line
SD	baseband bit clock
SDA1	serial audio data input/output; I <sup>2</sup> S-bus baseband serial data to/from DAIO and ADC
SDA2	baseband serial data output to DAC
SDAD	Serial data from AD-converter
SDAUX	auxiliary serial data input; I <sup>2</sup> S-bus
SDDAC	I2S bus data line for DAC
SDO	serial interface data output.
SFC3COMP	SFC3(SAA2003) compatibility mode input for selecting serial interface output format.
SFOR	
SHIELD	Shield connection
SLAVE	input for selecting serial interface operating mode MASTER/SLAVE.
SLAVE_IN	Serial data from controller
SLAVE_OUT	Serial data to controller
SPEED	PWM capstan control output for deck
SREEL	Tacho Supply reel
STANDBY	device inactive
STD	input for selecting STANDBY mode.

STROBE	strobe for control register(active high)
SUBSTR	Substrate connection
SWS	serial interface word select signal.
SYNCDAI	settings synchronisation for DAIO
SYSCCLKI	system clock input
SYSCCLKO	system clock output
TA1	Feedback conductor ACC Left channel
TA2	Feedback conductor ACC Left channel
TA8	Feedback conductor ACC Right channel
TA9	Feedback conductor ACC Right channel
TCLOCK	3.072 MHz clock output for tape I/O
TD1	Test conductor digital
TD2	Test conductor digital
TEST0	test mode select
TEST1	test mode select
TEST2	test mode select
TREEL	Tacho Take-up reel
TXD	Serial data output to tape drive unit
UDAVAIL	synchronisation for output user data(0=data available, 1=no data)
UNLOCK	PLL out-of-lock(0=not locked, 1=locked)
URDA	unreliable data from drive processing
VDACN	negative 1 bit DAC reference voltage input.(connected 0V)
VDACP	positive 1 bit DAC reference voltage input.(connected 5V)
VOL	left channel output.
VOR	right channel output.
W01	Digital writer(CH0/CH1)
W12	Digital writer(CH1/CH2)
W23	Digital writer(CH2/CH3)
W34	Digital writer(CH3/CH4)
W45	Digital writer(CH4/CH5)
W56	Digital writer(CH5/CH6)
W67	Digital writer(CH6/CH7)
W7-	Digital writer(CH7)
WDATA	Serial output to WRITE AMPLIFIER
WEN	Write enable for RAM
WIND+	Reel motor + connection
WIND-	Reel motor - connection
WRITE-STDBY	Write amplifier stand-by
WS	word select input/output, I <sup>2</sup> S-bus
WX-	Digital writer(AUX channel)
WX0	Digital writer(AUX channel/CH0)
X22IN	22.5792 MHz XTAL oscillator input
X22OUT	22.5792 MHz XTAL oscillator output
X24IN	24.576 MHz XTAL oscillator input
X24OUT	24.576 MHz XTAL oscillator output
X256	master audio clock input from external source
Xin	system clock input

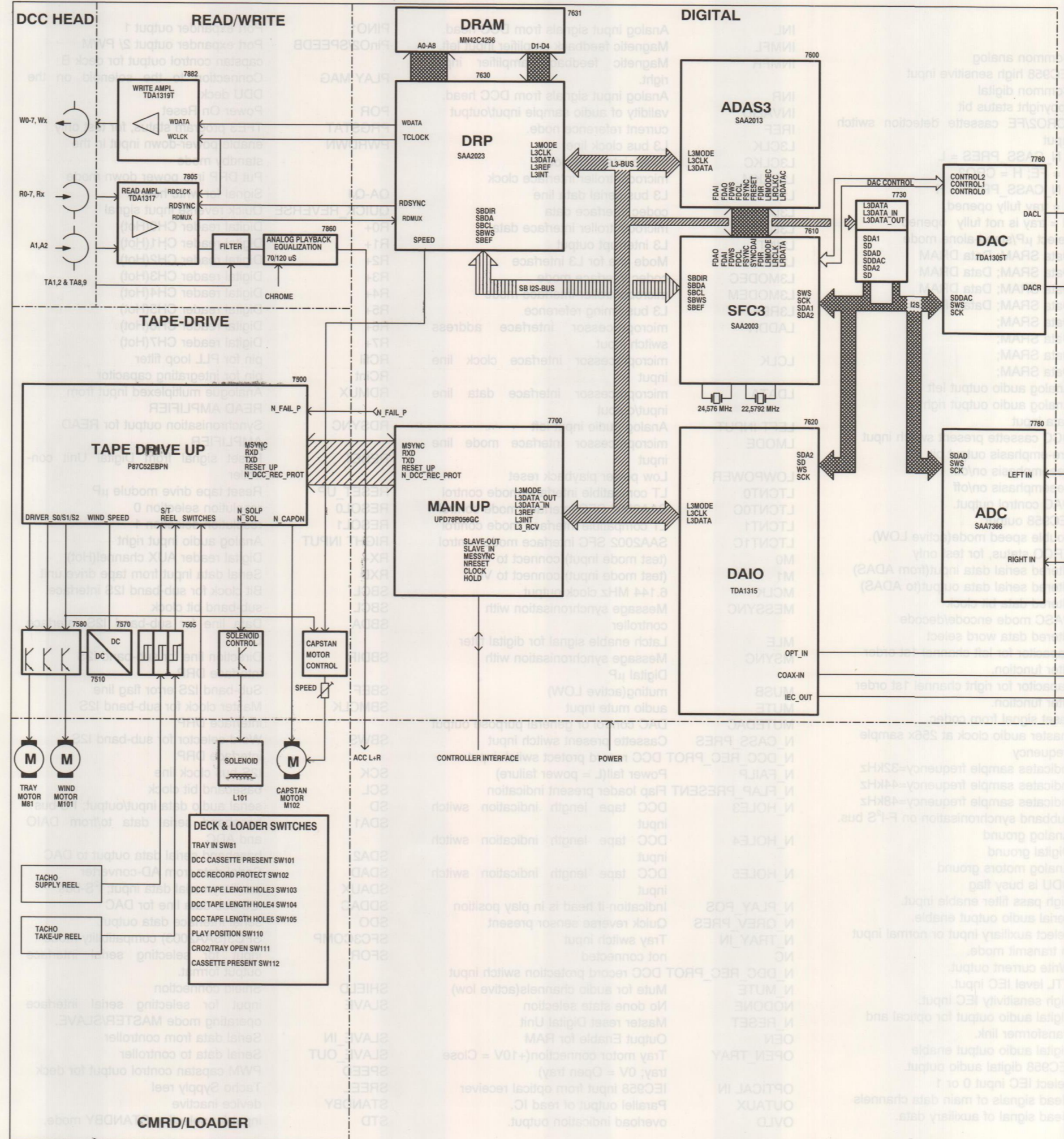
ADJUSTMENT TABLE

TOOLS	REMARKS				
<b>TAPE SPEED</b>					
USE TEST CASSETTE "SBC420" 3150 Hz 4822 397 30071	PLAYBACK MODE	5 OR 6 ANAR OR ANAL	ON TAPE DRIVE PANEL R3543 (A-SIDE) R3542 (B-SIDE)	USE I-COUNTER ADJUST BOTH SIDES TO f = 3150 Hz +/- 0.25 %	
<b>WRITE CURRENT</b>					
USE 9.6 kHz CALIBRATION TAPE 4822 397 30264	PLAYBACK MODE ON READ/WRITE PANEL SHORT CIRCUIT AGC	2 3 RDSYNC RDMUX	ON READ/WRITE PANEL R3888	MEASURE PEAK TO PEAK VALUE OF RDMUX SIGNAL TRIGGER ON RDSYNC (AVERAGE VALUE)	
	IF RDMUX OUTPUT CLIPS (>3Vpp) CONNECT VIA POTMETER OF 47k TO GROUND	8	POTMETER 47k	ADJUST UNTIL RDMUX SIGNAL DOESN'T CLIP ANYMORE	
USE DCC BLANC CASSETTE	RECORD MODE	9 VCLAMP	ON READ/WRITE PANEL R3888	VCLAMP = Iwrite(*) x Rtot ADJUST VCLAMP TO 1.2Vpp(*)	
	MAKE RECORDING ON VIRGIN PIECE OF TAPE				
	PLAYBACK MODE PLAYBACK OWN RECORDING	2 3 RDSYNC RDMUX	ON READ/WRITE PANEL	MEASURE PEAK TO PEAK VALUE OF RDMUX SIGNAL TRIGGER ON RDSYNC (AVERAGE VALUE)	
	RECORD MODE	9 VCLAMP	ON READ/WRITE PANEL R3888	ADJUST TO DESIRED WRITE CURRENT = $\frac{Vpp \text{ RDMUX } 9.6\text{kHz}}{Vpp \text{ OWN RECORDING}} \times 110\text{mA}$	
	REMOVE SHORT CIRCUIT TO ACTIVATE AGC	7 10			

(\*) ON FLEXIBLE CABLE OF DCC HEAD, THE ADVISED WRITE CURRENT HAS BEEN INDICATED. VCLAMP = NOTED WRITE CURRENT x Rtot(10 Ohm)

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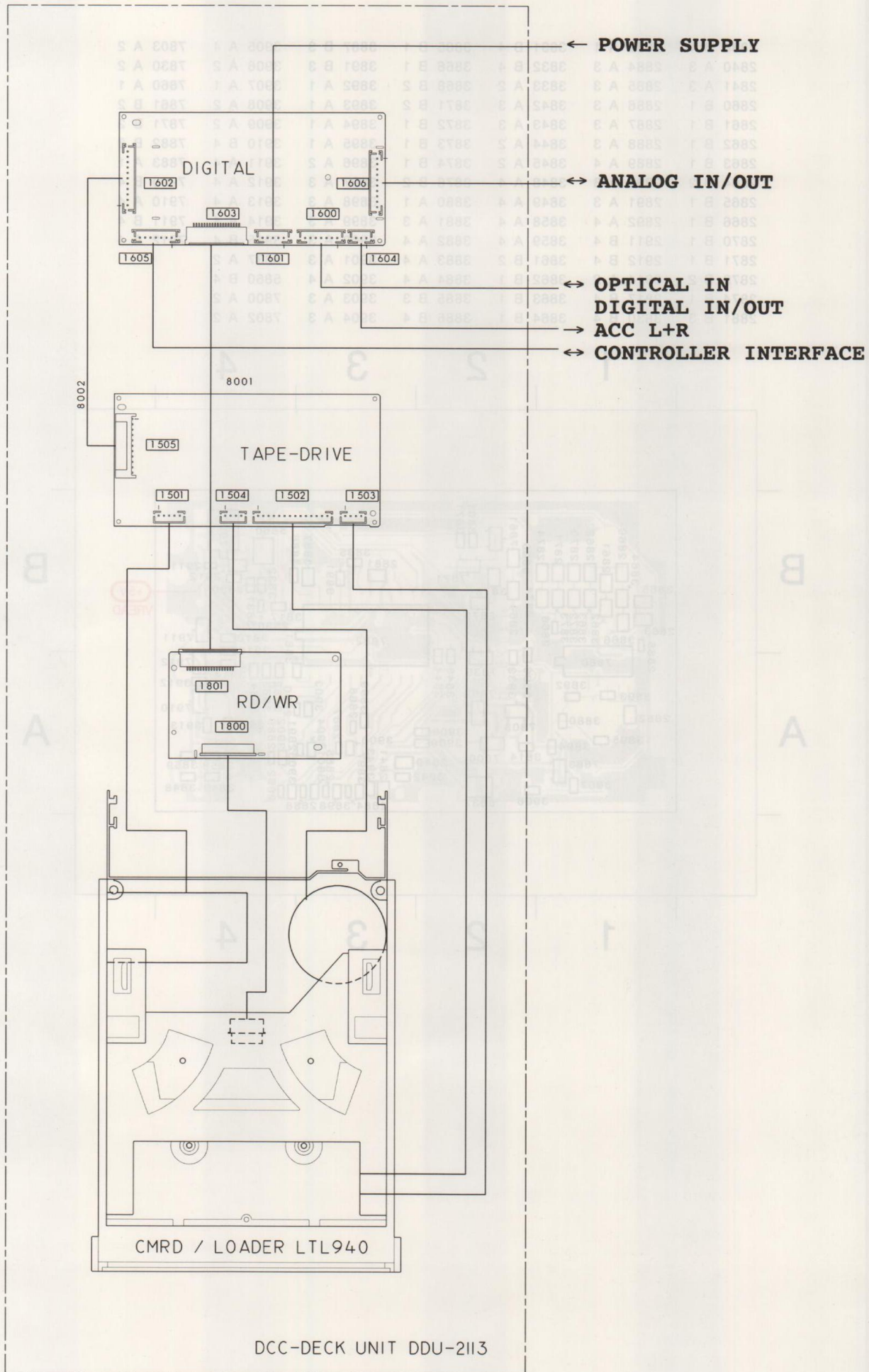
BLOCK DIAGRAM



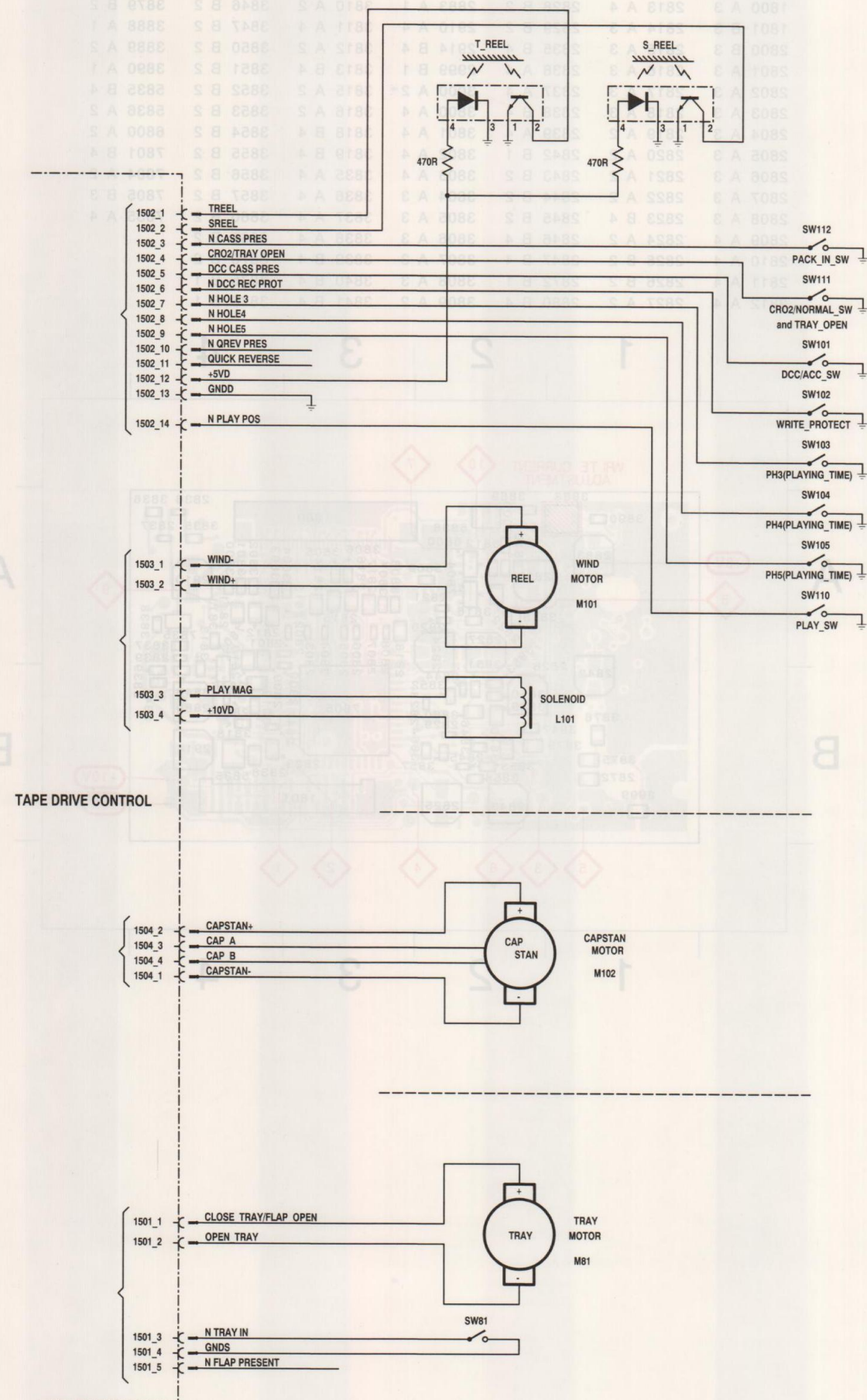
- |   |  |   |
|---|--|---|
| <p><b>1600</b></p> <ul style="list-style-type: none"> <li>1 = GNDD</li> <li>2 = OPTICAL IN</li> <li>3 = GNDD</li> <li>4 = COAXIAL IN</li> <li>5 = +5VD</li> <li>6 = DIGITAL OUT</li> <li>7 = GNDD</li> </ul> <p><b>1601</b></p> <ul style="list-style-type: none"> <li>1 = N_FAILP</li> <li>2 = GNDD</li> <li>3 = +5VD</li> <li>4 = GNDS</li> <li>5 = +10VD</li> </ul> <p><b>1602-1505</b></p> <ul style="list-style-type: none"> <li>1 = MSYNC</li> <li>2 = N_FAILP</li> <li>3 = GNDS</li> <li>4 = +10VD</li> <li>5 = RESET_UP</li> <li>6 = SPEED</li> <li>7 = RXD</li> <li>8 = +5VD</li> <li>9 = TXD</li> <li>10 = NDCC_REC_PROT</li> <li>11 = GNDD</li> </ul> <p><b>1603-1801</b></p> <ul style="list-style-type: none"> <li>1 = GNDD</li> <li>2 = WDATA</li> <li>3 = GNDD</li> <li>4 = CHROME</li> <li>5 = GNDA</li> <li>6 = ANAR</li> <li>7 = GNDA</li> <li>8 = ANAL</li> <li>9 = WRITE_STNDBY</li> <li>10 = ACC/NDCC</li> <li>11 = RDMUX</li> <li>12 = GNDD</li> <li>13 = RDSYNC</li> <li>14 = GNDD</li> <li>15 = TCLOCK</li> <li>16 = GNDD</li> <li>17 = +5VD</li> <li>18 = +10VD</li> </ul> <p><b>1604</b></p> <ul style="list-style-type: none"> <li>1 = ANAL</li> <li>2 = GNDA</li> <li>3 = ANAR</li> </ul> | <p><b>1605</b></p> <ul style="list-style-type: none"> <li>1 = SLAVE_OUT</li> <li>2 = GNDD</li> <li>3 = MESSYNC</li> <li>4 = SLAVE_IN</li> <li>5 = NRESET</li> <li>6 = CLOCK</li> <li>7 = HOLD</li> </ul> <p><b>1606</b></p> <ul style="list-style-type: none"> <li>1 = LEFT INPUT</li> <li>2 = GNDA</li> <li>3 = RIGHT INPUT</li> <li>4 = GNDA</li> <li>5 = NMUTE</li> <li>6 = DACR</li> <li>7 = GNDA</li> <li>8 = +5VA</li> <li>9 = GNDA</li> <li>10 = DACL</li> </ul> <p><b>1501</b></p> <ul style="list-style-type: none"> <li>1 = CLOSE_TRAY</li> <li>2 = OPEN_TRAY</li> <li>3 = N_TRAY_IN</li> <li>4 = GNDS</li> <li>5 = N_FLAP_PRESENT</li> </ul> <p><b>1502</b></p> <ul style="list-style-type: none"> <li>1 = TREEL</li> <li>2 = SREEL</li> <li>3 = N_CASS_PRES</li> <li>4 = CRO2/TRAY_OPEN</li> <li>5 = DCC_CAS_PRES</li> <li>6 = N_DCC_REC_PROT</li> <li>7 = N_HOLE3</li> <li>8 = N_HOLE4</li> <li>9 = N_HOLE5</li> <li>10 = N_QREV_PRES</li> <li>11 = QUICK_REVERSE</li> <li>12 = +5VD</li> <li>13 = GNDD</li> <li>14 = N_PLAY_POS</li> </ul> <p><b>1503</b></p> <ul style="list-style-type: none"> <li>1 = WIND-</li> <li>2 = WIND+</li> <li>3 = PLAY_MAG-</li> <li>4 = +10VD</li> </ul> <p><b>1504</b></p> <ul style="list-style-type: none"> <li>1 = CAPSTAN-</li> <li>2 = CAPSTAN+</li> <li>3 = CAP_A</li> <li>4 = CAP_B</li> </ul> | <p><b>1800</b></p> <ul style="list-style-type: none"> <li>1 = TXD</li> <li>2 = WX-</li> <li>3 = RX+</li> <li>4 = WX0</li> <li>5 = R0+</li> <li>6 = W01</li> <li>7 = R1+</li> <li>8 = W12</li> <li>9 = R2+</li> <li>10 = W23</li> <li>11 = R3+</li> <li>12 = W34</li> <li>13 = COD</li> <li>14 = W45</li> <li>15 = R4+</li> <li>16 = W56</li> <li>17 = R5+</li> <li>18 = W67</li> <li>19 = R6+</li> <li>20 = W7-</li> <li>21 = R7+</li> <li>22 = TD2</li> <li>23 = TA8</li> <li>24 = A2+</li> <li>25 = TA9</li> <li>26 = TA1</li> <li>27 = A1+</li> <li>28 = COA</li> <li>29 = TA2</li> <li>30 = SHIELD</li> </ul> |
|---|--|---|

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WIRING DIAGRAM DDU

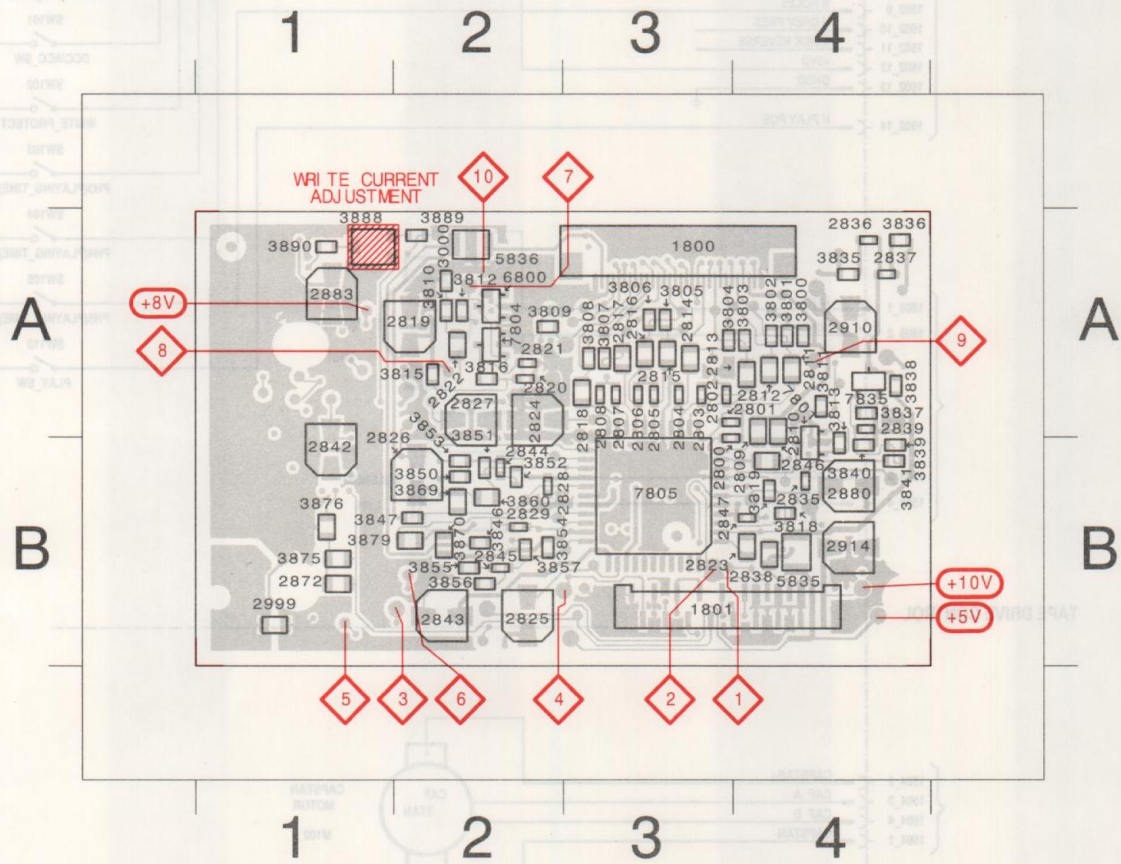


WIRING DIAGRAM DCC DECK

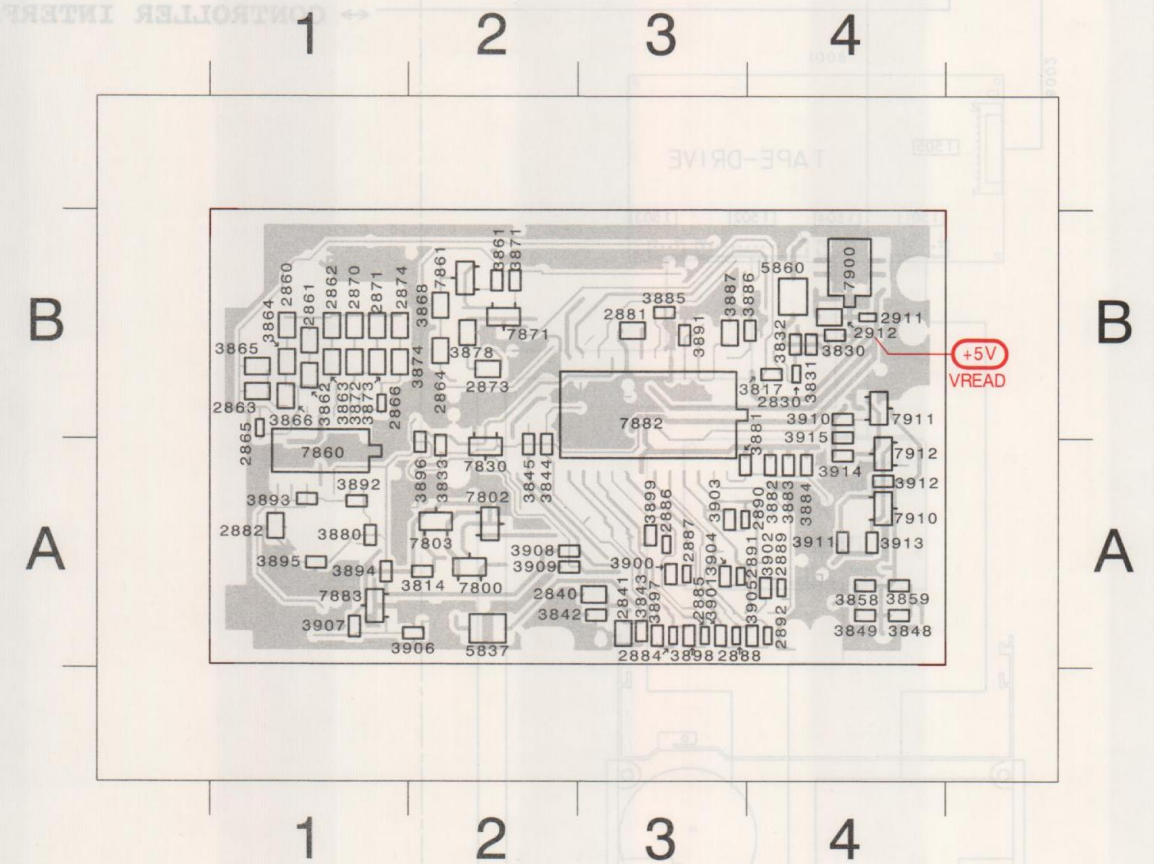


READ/WRITE PANEL

1800 A 3	2813 A 4	2828 B 2	2883 A 1	3810 A 2	3846 B 2	3879 B 2
1801 B 3	2814 A 3	2829 B 2	2910 A 4	3811 A 4	3847 B 2	3888 A 1
2800 B 3	2815 A 3	2835 B 4	2914 B 4	3812 A 2	3850 B 2	3889 A 2
2801 A 3	2816 A 3	2836 A 4	2999 B 1	3813 B 4	3851 B 2	3890 A 1
2802 A 3	2817 A 3	2837 A 4	3000 A 2	3815 A 2	3852 B 2	5835 B 4
2803 A 3	2818 A 3	2838 B 4	3800 A 4	3816 A 2	3853 B 2	5836 A 2
2804 A 3	2819 A 2	2839 A 4	3801 A 4	3818 B 4	3854 B 2	6800 A 2
2805 A 3	2820 A 2	2842 B 1	3802 A 4	3819 B 4	3855 B 2	7801 B 4
2806 A 3	2821 A 2	2843 B 2	3803 A 4	3835 A 4	3856 B 2	7804 A 2
2807 A 3	2822 A 2	2844 B 2	3804 A 3	3836 A 4	3857 B 2	7805 B 3
2808 A 3	2823 B 4	2845 B 2	3805 A 3	3837 A 4	3860 B 2	7835 A 4
2809 A 4	2824 A 2	2846 B 4	3806 A 3	3838 A 4	3869 B 2	
2810 A 4	2825 B 2	2847 B 4	3807 A 3	3839 B 4	3870 B 2	
2811 A 4	2826 B 2	2872 B 1	3808 A 3	3840 B 4	3875 B 1	
2812 A 4	2827 A 2	2880 B 4	3809 A 2	3841 B 4	3876 B 1	

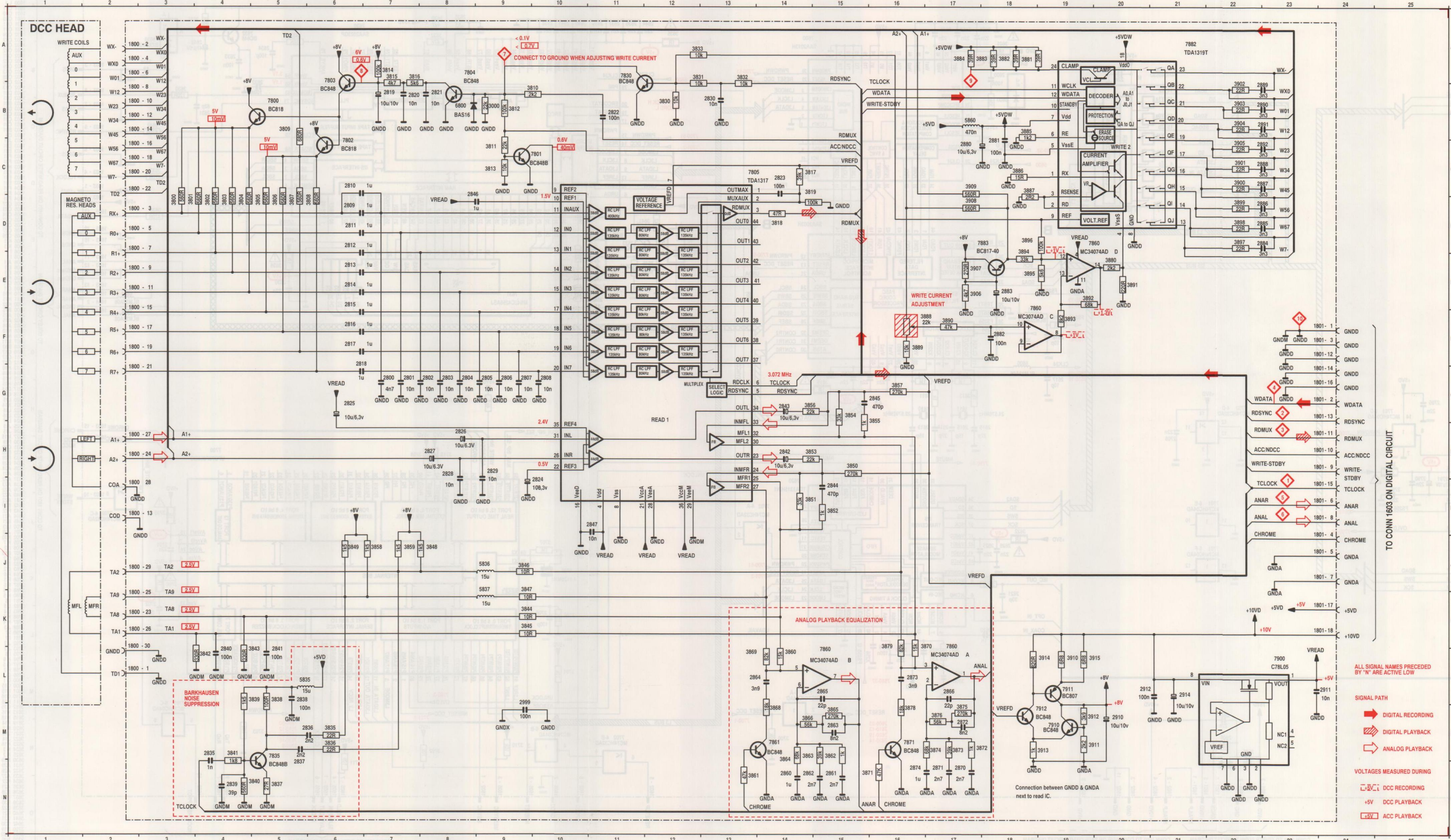


2830 B 4	2882 A 1	3831 B 4	3865 B 1	3887 B 3	3905 A 4	7803 A 2
2840 A 3	2884 A 3	3832 B 4	3866 B 1	3891 B 3	3906 A 2	7830 A 2
2841 A 3	2885 A 3	3833 A 2	3868 B 2	3892 A 1	3907 A 1	7860 A 1
2860 B 1	2886 A 3	3842 A 3	3871 B 2	3893 A 1	3908 A 2	7861 B 2
2861 B 1	2887 A 3	3843 A 3	3872 B 1	3894 A 1	3909 A 2	7871 B 2
2862 B 1	2888 A 3	3844 A 2	3873 B 1	3895 A 1	3910 B 4	7882 B 3
2863 B 1	2889 A 4	3845 A 2	3874 B 1	3896 A 2	3911 A 4	7883 A 1
2864 B 2	2890 A 3	3848 A 4	3878 B 2	3897 A 3	3912 A 4	7900 B 4
2865 B 1	2891 A 3	3849 A 4	3880 A 1	3898 A 3	3913 A 4	7910 A 4
2866 B 1	2892 A 4	3858 A 4	3881 A 3	3899 A 3	3914 A 4	7911 B 4
2870 B 1	2911 B 4	3859 A 4	3882 A 4	3900 A 3	3915 B 4	7912 A 4
2871 B 1	2912 B 4	3861 B 2	3883 A 4	3901 A 3	5837 A 2	
2873 B 2	3814 A 2	3862 B 1	3884 A 4	3902 A 4	5860 B 4	
2874 B 1	3817 B 4	3863 B 1	3885 B 3	3903 A 3	7800 A 2	
2881 B 3	3830 B 4	3864 B 1	3886 B 4	3904 A 3	7802 A 2	





READ/WRITE CIRCUIT DIAGRAM



**DCC PLAY BACK**

- 1 TCLOCK 2V/DIV
- 2 0.5uS/DIV RDSYNC
- 3 RDMUX 0.5V/DIV

**DCC RECORDING**

- 1 TCLOCK 2V/DIV
- 2 1uS/DIV WDATA 2V/DIV

**DOLBY TEST CASSETTE**

- 1 2V +/- 500mVpp
- 2 1ms/DIV

**CONNECT TO GROUND WHEN ADJUSTING WRITE CURRENT**

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

**TO CONN 1603 ON DIGITAL CIRCUIT**

- 1801-1 GNDD
- 1801-2 GNDD
- 1801-3 GNDD
- 1801-4 GNDD
- 1801-5 GNDD
- 1801-6 GNDD
- 1801-7 GNDD
- 1801-8 GNDD
- 1801-9 GNDD
- 1801-10 GNDD
- 1801-11 GNDD
- 1801-12 GNDD
- 1801-13 GNDD
- 1801-14 GNDD
- 1801-15 GNDD
- 1801-16 GNDD
- 1801-17 WDATA
- 1801-18 RDSYNC
- 1801-19 RDSYNC
- 1801-20 RDMUX
- 1801-21 ACC.NDCC
- 1801-22 WRITE-STDBY
- 1801-23 TCLOCK
- 1801-24 ANAL
- 1801-25 ANAL
- 1801-26 CHROME
- 1801-27 GNDA
- 1801-28 GNDA
- 1801-29 GNDA
- 1801-30 GNDA
- 1801-31 +5V
- 1801-32 +5V
- 1801-33 +10V
- 1801-34 +10V

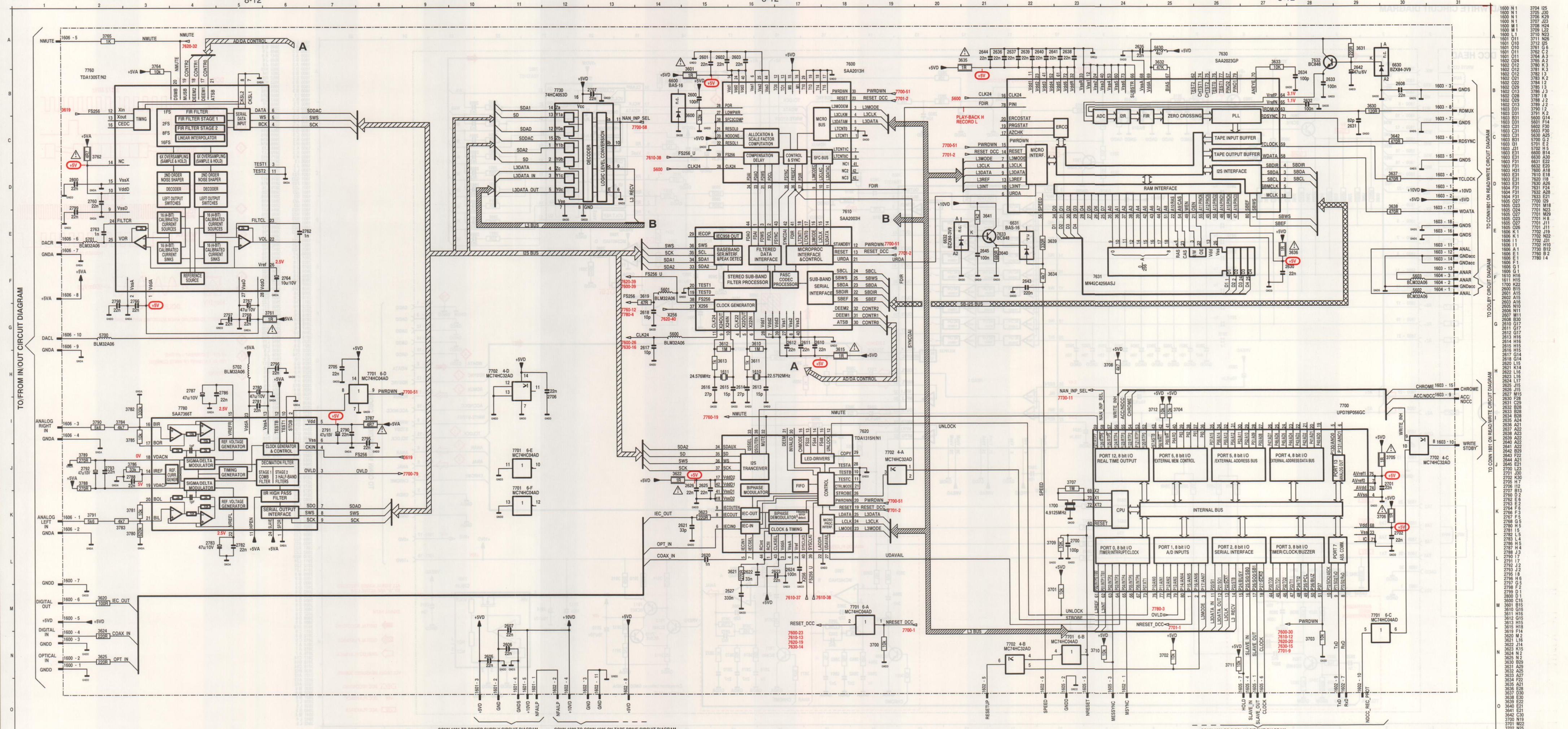
**ALL SIGNAL NAMES PRECEDED BY "N" ARE ACTIVE LOW**

**SIGNAL PATH**

- DIGITAL RECORDING
- DIGITAL PLAYBACK
- ANALOG PLAYBACK

**VOLTAGES MEASURED DURING**

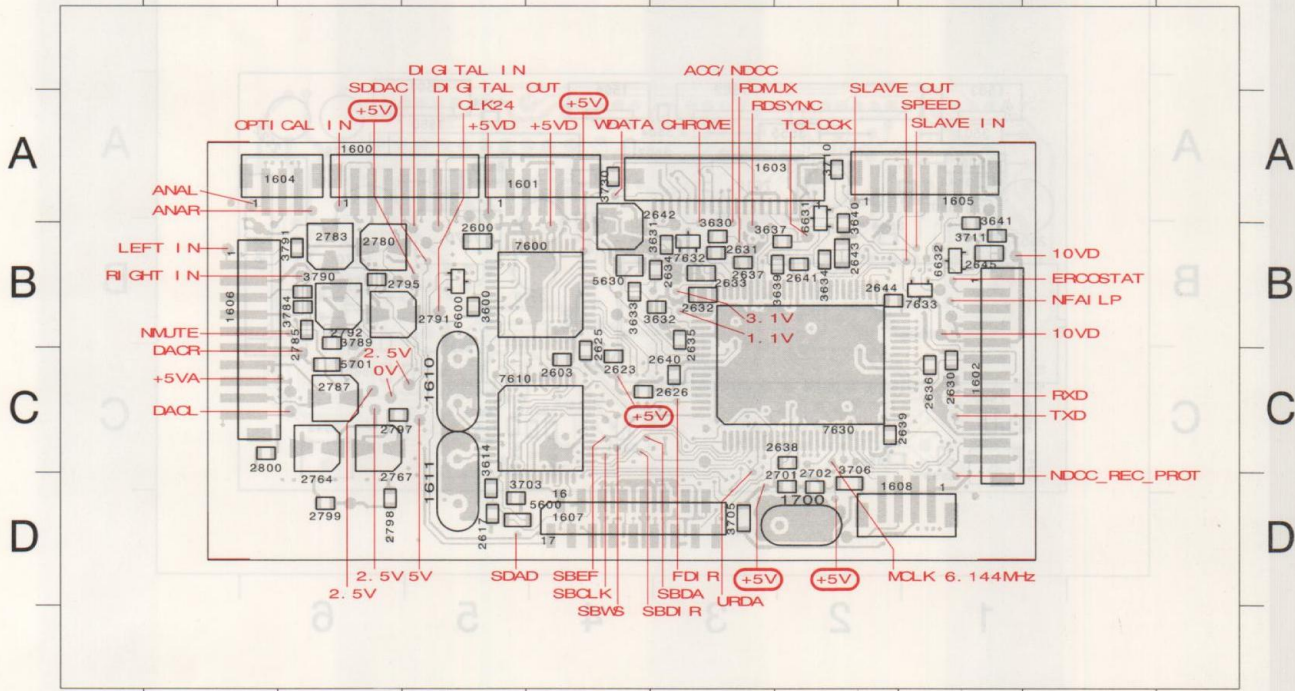
- DCC RECORDING
- DCC PLAYBACK
- ACC PLAYBACK



DIGITAL PANEL

1600 A 3	1607 D 4	2617 D 3	2633 B 5	2640 C 5	2702 D 6	2791 B 2	3600 B 3	3637 B 6	3710 A 6	5600 D 3	7610 C 4
1601 A 4	1608 D 7	2623 C 4	2634 B 5	2641 B 6	2764 C 2	2792 B 2	3614 D 3	3639 B 6	3711 B 7	5630 B 4	7630 C 6
1602 C 7	1610 C 3	2625 C 4	2635 B 5	2642 B 4	2767 C 2	2795 B 2	3630 B 5	3640 B 6	3730 A 4	5701 C 2	7632 B 5
1603 A 5	1611 D 3	2626 C 4	2636 C 7	2643 B 6	2780 B 2	2797 C 2	3631 B 5	3641 B 7	3784 B 2	6600 B 3	7633 B 7
1604 A 2	1700 D 6	2630 C 7	2637 B 5	2644 B 6	2783 B 2	2798 D 2	3632 B 5	3703 D 3	3789 B 2	6631 A 6	
1605 A 7	2600 B 3	2631 B 5	2638 C 6	2645 B 7	2785 B 2	2799 D 2	3633 B 4	3705 D 3	3790 B 2	6632 B 7	
1606 B 1	2603 C 4	2632 B 5	2639 C 6	2701 D 6	2787 C 2	2800 C 1	3634 B 6	3706 D 6	3791 B 2	7600 B 4	

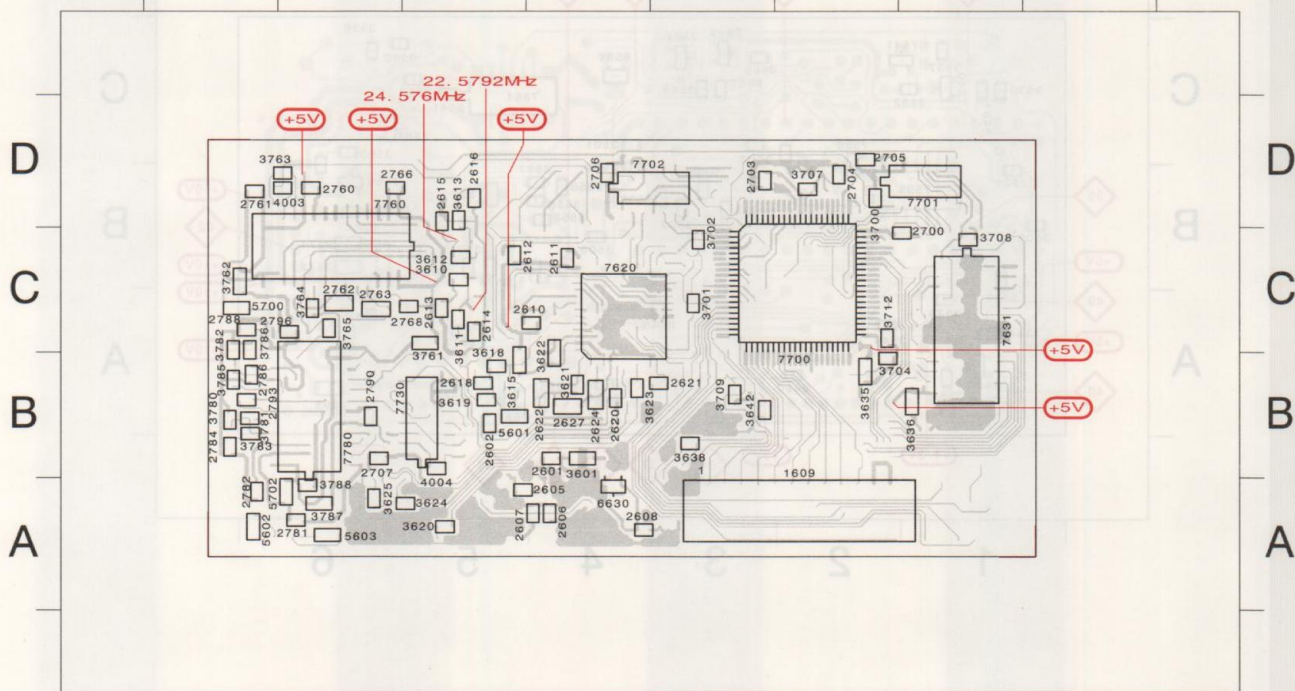
1     2     3     4     5     6     7     8



1     2     3     4     5     6     7     8

1609 B 6	2611 C 4	2621 B 5	2706 D 4	2781 A 2	3601 B 4	3620 A 3	3638 B 5	3709 B 5	3781 B 1	4004 B 3	7631 C 7
2601 B 4	2612 C 3	2622 B 4	2707 B 2	2782 A 1	3610 C 3	3621 B 4	3642 B 5	3712 C 6	3782 C 1	5601 B 3	7700 C 6
2602 B 3	2613 C 3	2624 B 4	2760 D 2	2784 B 1	3611 C 3	3622 B 4	3700 D 6	3761 C 3	3783 B 1	5602 A 1	7701 D 7
2605 A 3	2614 C 3	2627 B 4	2761 D 1	2786 B 1	3612 C 3	3623 B 4	3701 C 5	3762 C 1	3785 B 1	5603 A 2	7702 D 5
2606 A 4	2615 D 3	2700 C 7	2762 C 2	2788 C 1	3613 D 3	3624 A 3	3702 C 5	3763 D 2	3786 C 1	5700 C 1	7730 B 3
2607 A 4	2616 D 3	2703 D 5	2763 C 2	2790 B 2	3615 B 3	3625 A 2	3704 B 6	3764 C 2	3787 A 2	5702 A 2	7760 C 2
2608 A 4	2618 B 3	2704 D 6	2766 D 2	2793 B 1	3618 B 3	3635 B 6	3707 D 6	3765 C 2	3788 A 2	6630 A 4	7780 B 2
2610 C 4	2620 B 4	2705 D 6	2768 C 3	2796 C 2	3619 B 3	3636 B 7	3708 C 7	3780 B 1	4003 D 2	7620 C 4	

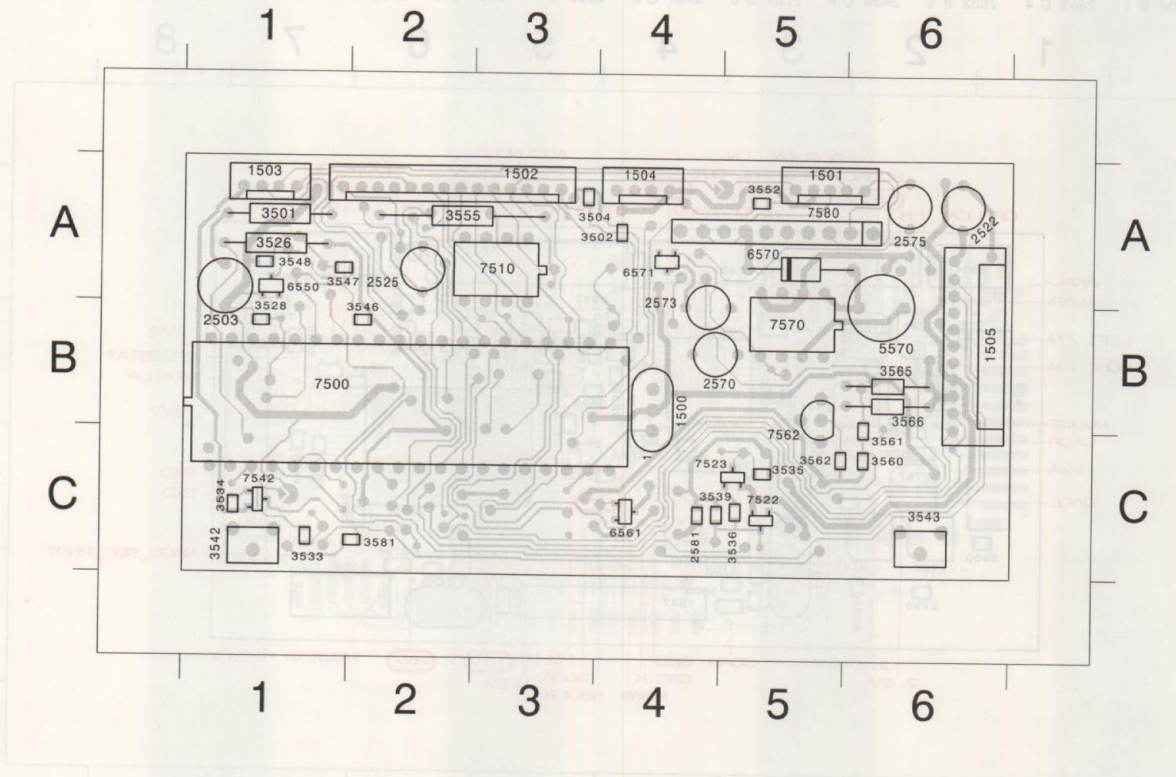
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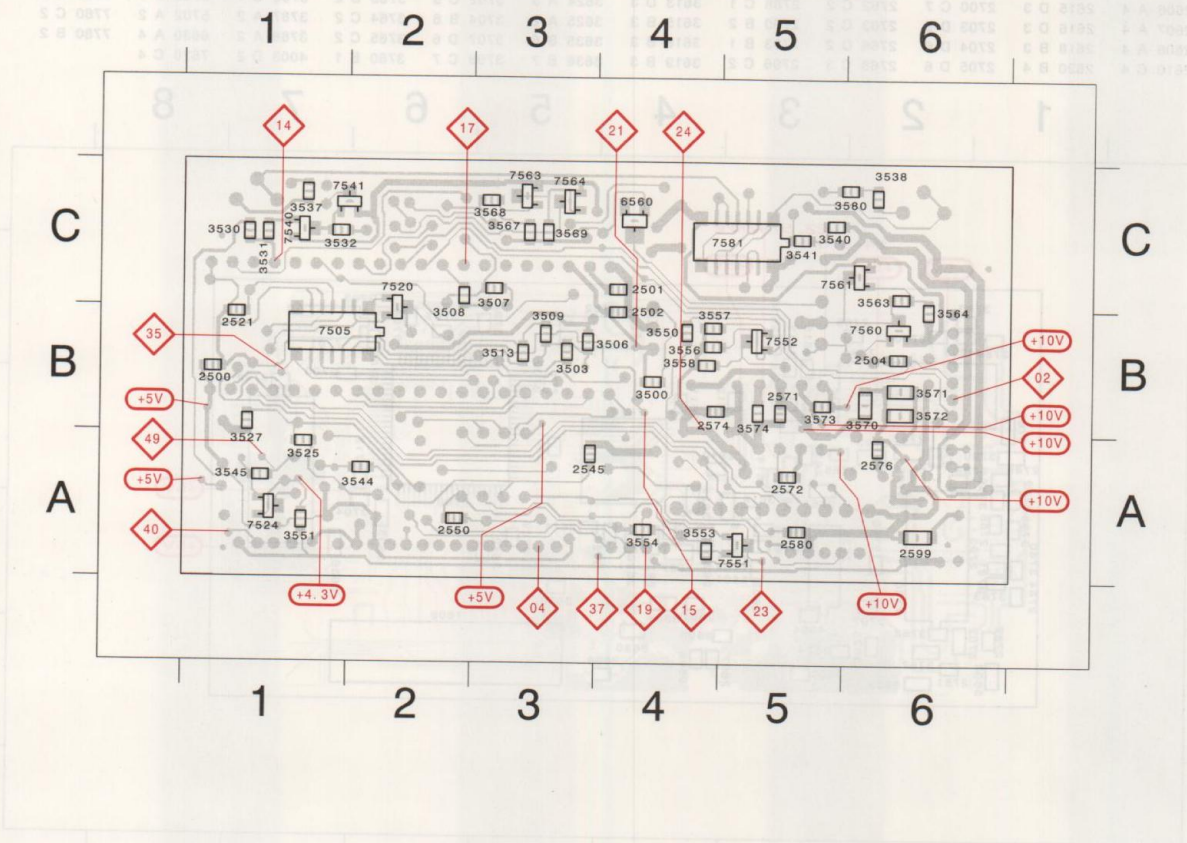
1     2     3     4     5     6     7     8

### TAPE DRIVE CONTROL PANEL

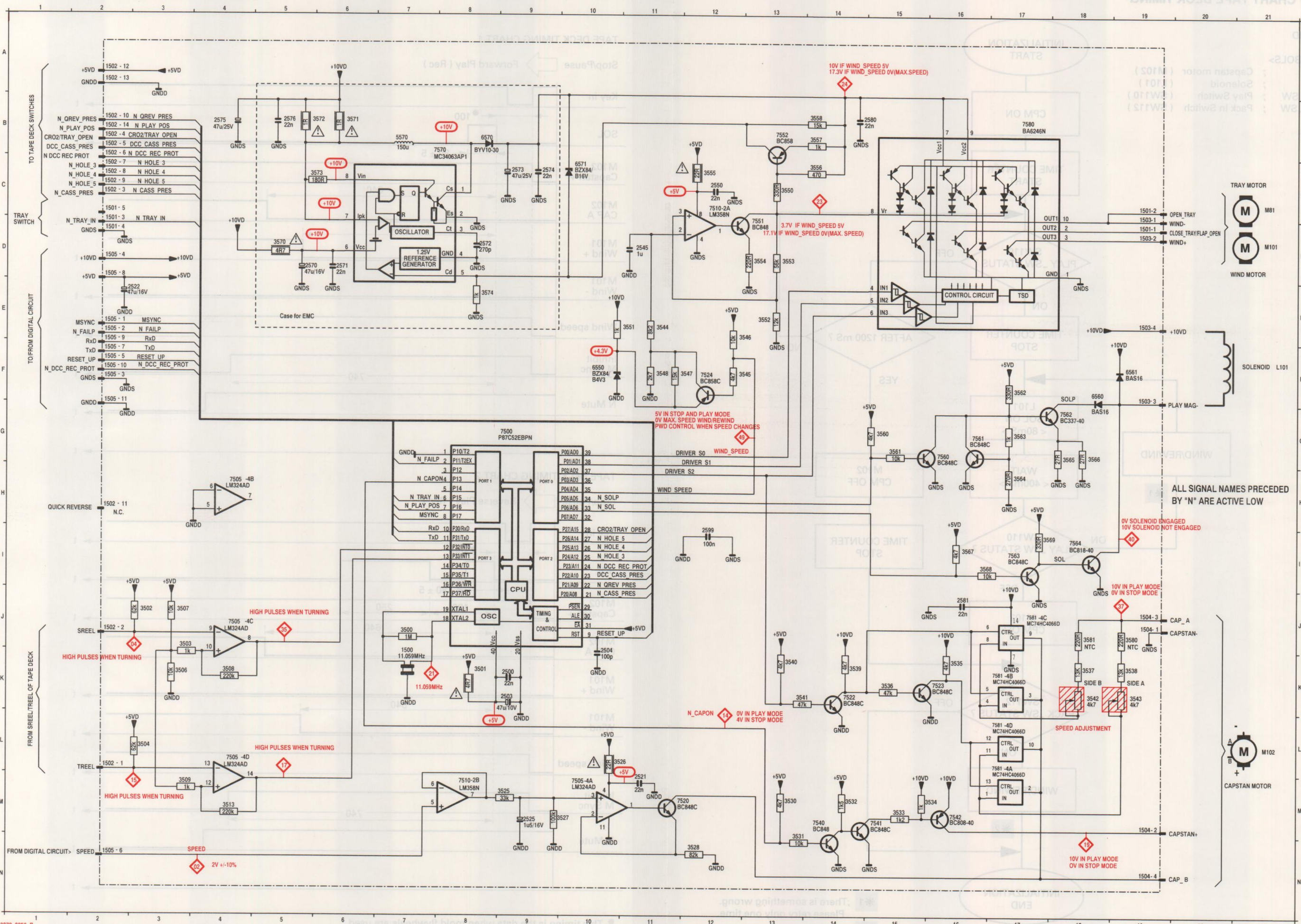
1500 B 4	1505 B 6	2573 B 4	3504 A 3	3535 C 5	3546 B 2	3560 C 6	3581 C 2	6571 A 4	7542 C 1
1501 A 5	2503 A 1	2575 A 6	3526 A 1	3536 C 5	3547 A 1	3561 B 6	5570 B 6	7500 B 2	7562 B 5
1502 A 2	2522 A 6	2581 C 4	3528 B 1	3539 C 4	3548 A 1	3562 C 5	6550 A 1	7510 A 3	7570 B 5
1503 A 1	2525 A 2	3501 A 1	3533 C 1	3542 C 1	3552 A 5	3565 B 6	6561 C 4	7522 C 5	7580 A 5
1504 A 4	2570 B 4	3502 A 4	3534 C 1	3543 C 6	3555 A 2	3566 B 6	6570 A 5	7523 C 5	



2500 B 1	2571 B 5	3503 B 3	3527 B 1	3541 C 5	3556 B 4	3569 C 3	6560 C 4	7552 B 5
2501 C 4	2572 A 5	3506 B 3	3530 C 1	3544 A 2	3557 B 4	3570 B 6	7505 B 1	7560 B 6
2502 B 4	2574 B 4	3507 C 3	3531 C 1	3545 A 1	3558 B 4	3571 B 6	7520 B 2	7561 C 6
2504 B 6	2576 A 6	3508 C 2	3532 C 1	3550 B 4	3563 C 6	3572 B 6	7524 A 1	7563 C 3
2521 B 1	2580 A 5	3509 B 3	3537 C 1	3551 A 1	3564 B 6	3573 B 5	7540 C 1	7564 C 3
2545 A 3	2599 A 6	3513 B 3	3538 C 6	3553 A 4	3567 C 3	3574 B 5	7541 C 1	7581 C 5
2550 A 2	3500 B 4	3525 A 1	3540 C 5	3554 A 4	3568 C 3	3580 C 6	7551 A 5	



TAPE DRIVE CONTROL CIRCUIT DIAGRAM



- 1500 K 7
- 1501 D19
- 1501 C19
- 1501 D 2
- 1501 C 2
- 1502 J 2
- 1502 C 2
- 1502 B 2
- 1502 C 2
- 1502 A 2
- 1502 B 2
- 1502 C 2
- 1503 C19
- 1503 D19
- 1503 F19
- 1503 E19
- 1504 J19
- 1504 M19
- 1504 J19
- 1504 N19
- 1505 E 2
- 1505 N 2
- 1505 F 2
- 1505 G 2
- 1505 H 2
- 1505 J 2
- 1505 K 2
- 1505 L 2
- 1505 M 2
- 1505 N 2
- 1505 O 2
- 1505 P 2
- 1505 Q 2
- 1505 R 2
- 1505 S 2
- 1505 T 2
- 1505 U 2
- 1505 V 2
- 1505 W 2
- 1505 X 2
- 1505 Y 2
- 1505 Z 2
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- 1506 P 2
- 1506 Q 2
- 1506 R 2
- 1506 S 2
- 1506 T 2
- 1506 U 2
- 1506 V 2
- 1506 W 2
- 1506 X 2
- 1506 Y 2
- 1506 Z 2
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- 1507 B 2
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- 1507 F 2
- 1507 G 2
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- 1507 I 2
- 1507 J 2
- 1507 K 2
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- 1507 R 2
- 1507 S 2
- 1507 T 2
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- 1507 W 2
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- 1508 R 2
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- 1508 U 2
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- 1509 T 2
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- 1509 V 2
- 1509 W 2
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- 1509 Z 2
- 1510 A 2
- 1510 B 2
- 1510 C 2
- 1510 D 2
- 1510 E 2
- 1510 F 2
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- 1510 I 2
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- 1510 K 2
- 1510 L 2
- 1510 M 2
- 1510 N 2
- 1510 O 2
- 1510 P 2
- 1510 Q 2
- 1510 R 2
- 1510 S 2
- 1510 T 2
- 1510 U 2
- 1510 V 2
- 1510 W 2
- 1510 X 2
- 1510 Y 2
- 1510 Z 2

ALL SIGNAL NAMES PRECEDED BY "N" ARE ACTIVE LOW

0V SOLENOID ENGAGED  
10V SOLENOID NOT ENGAGED

10V IN PLAY MODE  
0V IN STOP MODE

SPEED ADJUSTMENT

10V IN PLAY MODE  
4V IN STOP MODE

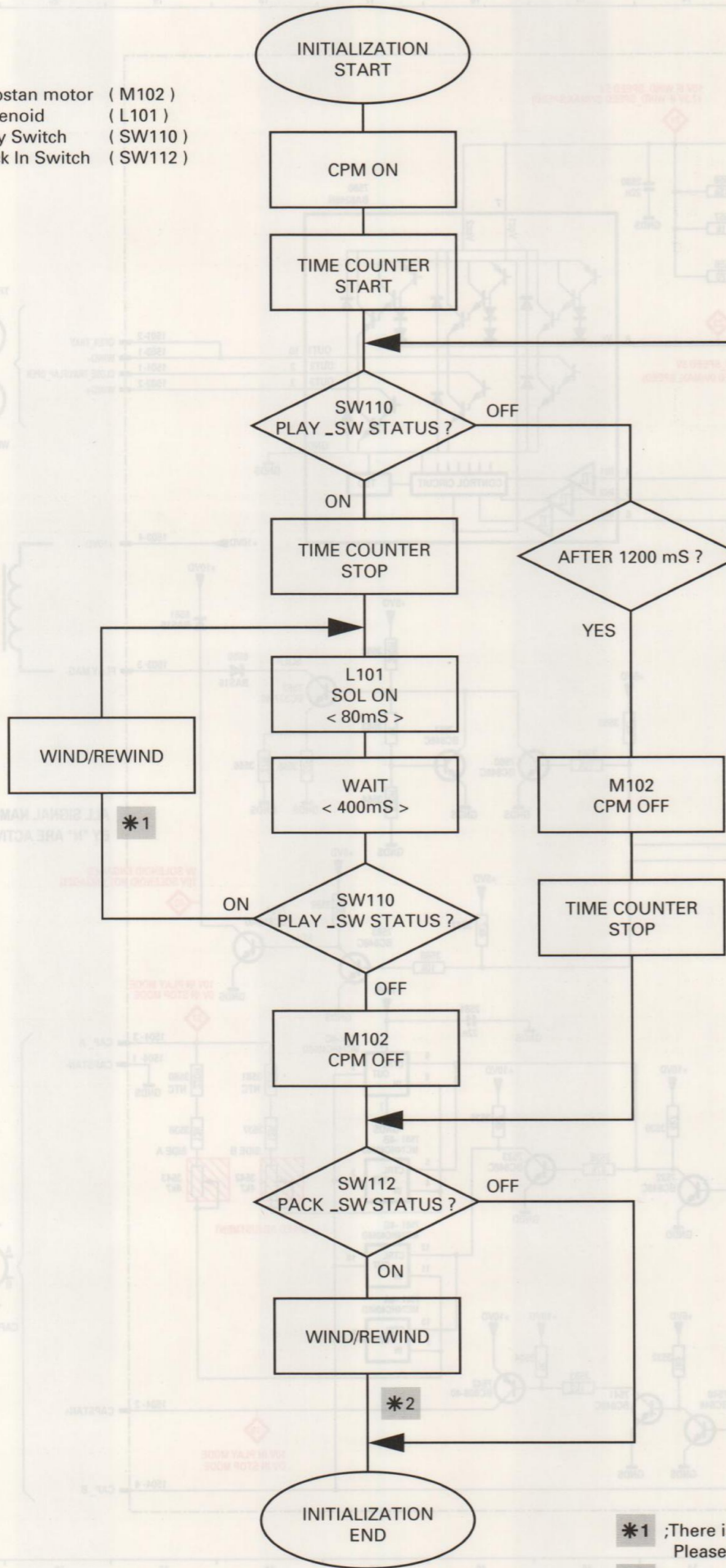
10V IN PLAY MODE  
0V IN STOP MODE

FLOW CHART TAPE DECK TIMING

TAPE DECK TIMING CHARTS

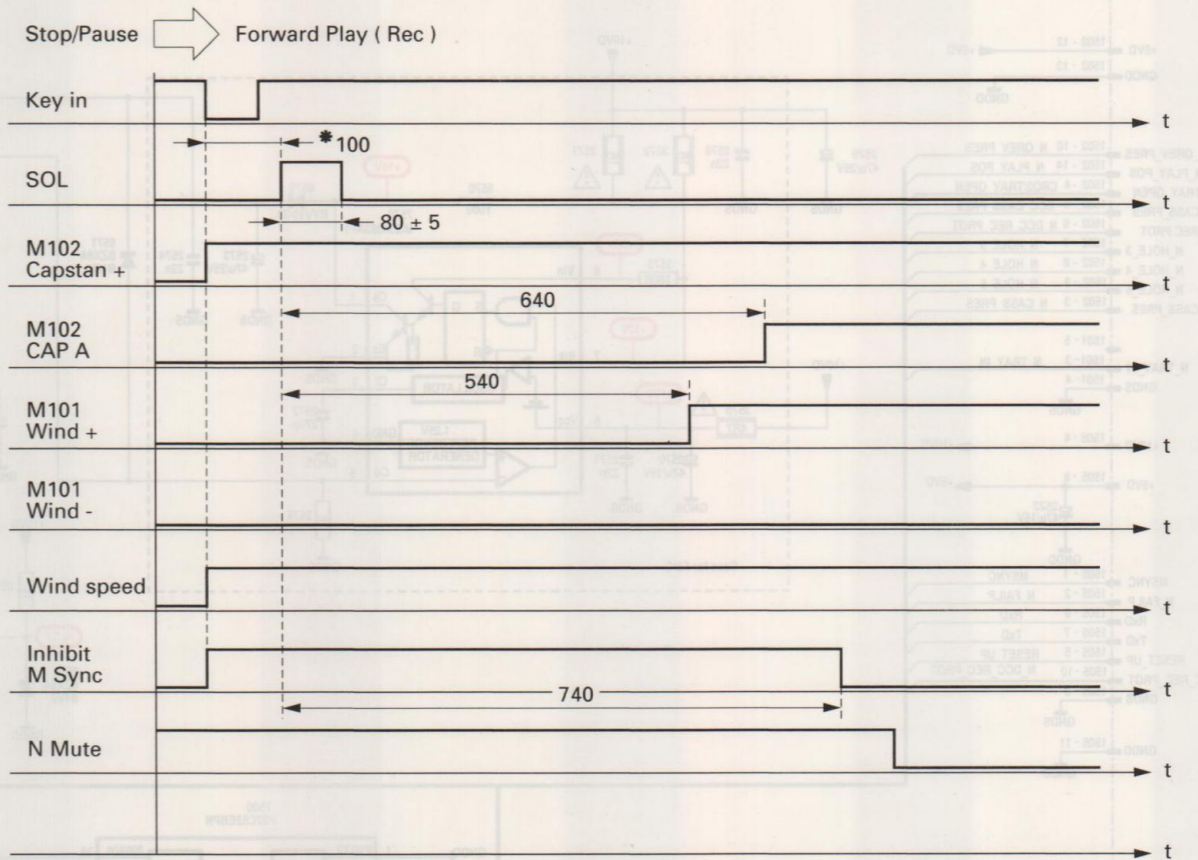
LEGEND

- < SYMBOLS >
- CPM ; Capstan motor ( M102 )
- SOL ; Solenoid ( L101 )
- PLAY\_SW ; Play Switch ( SW110 )
- PACK\_SW ; Pack In Switch ( SW112 )

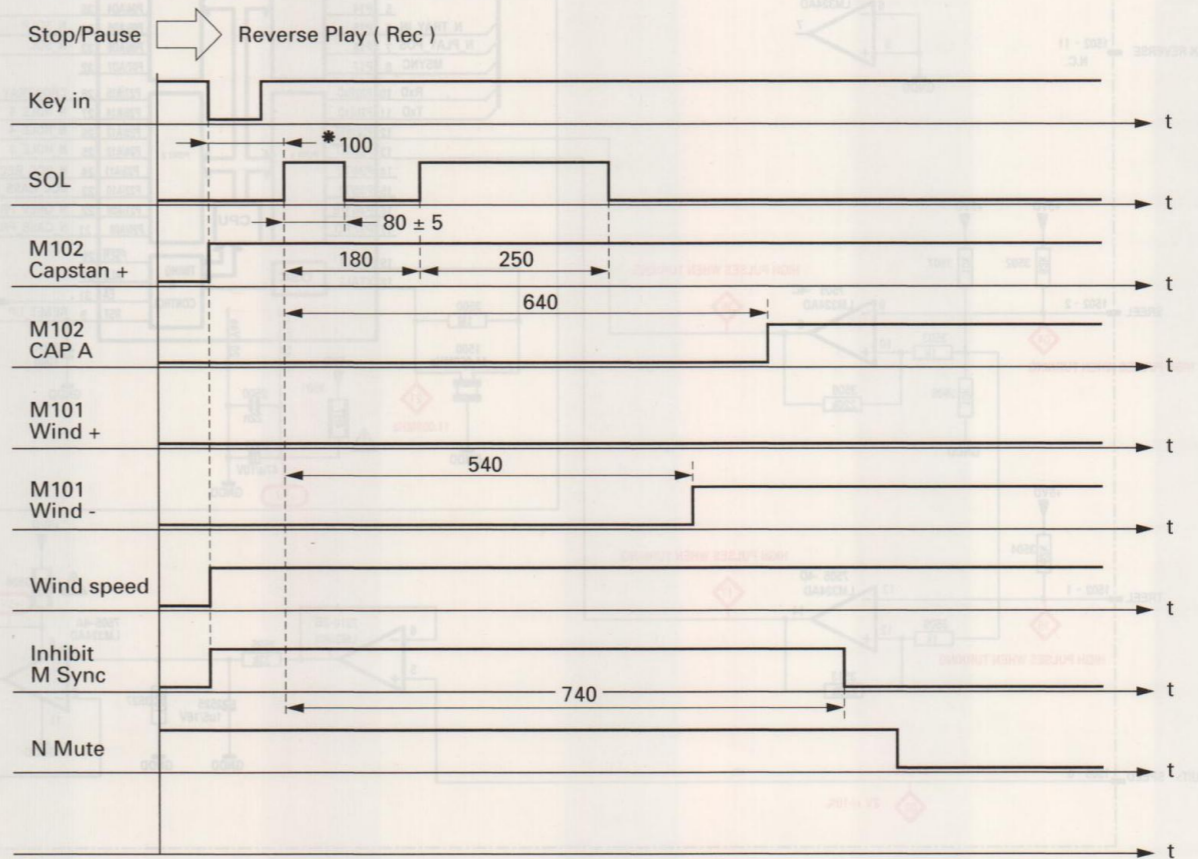


\*1 ;There is something wrong. Please retry only one time.  
 \*2 ;Please remove the slack of tape.

TAPE DECK TIMING CHART 1

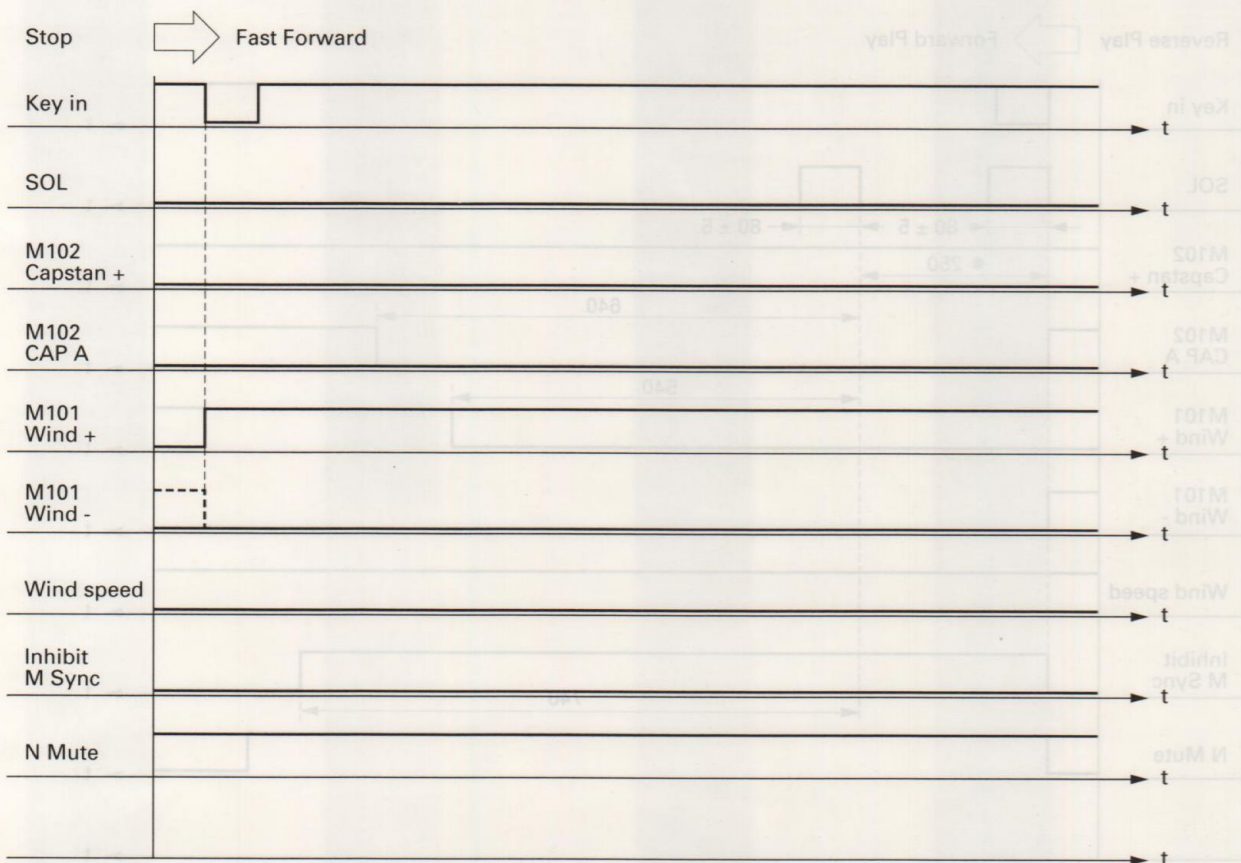


TAPE DECK TIMING CHART 2

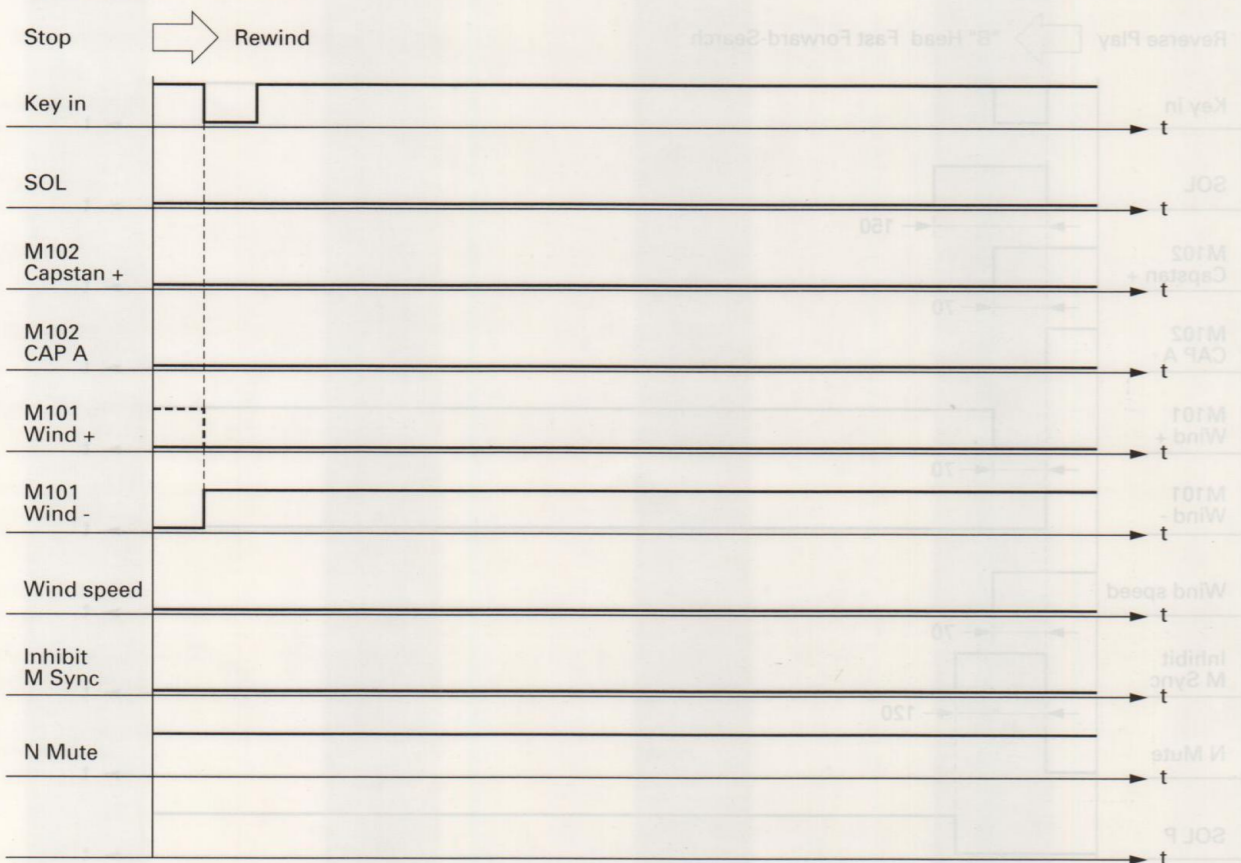


\* This timing is the data when mold flywheels are used. Please change to more than 150 mS at Zn-diecasting or sintered flywheels.

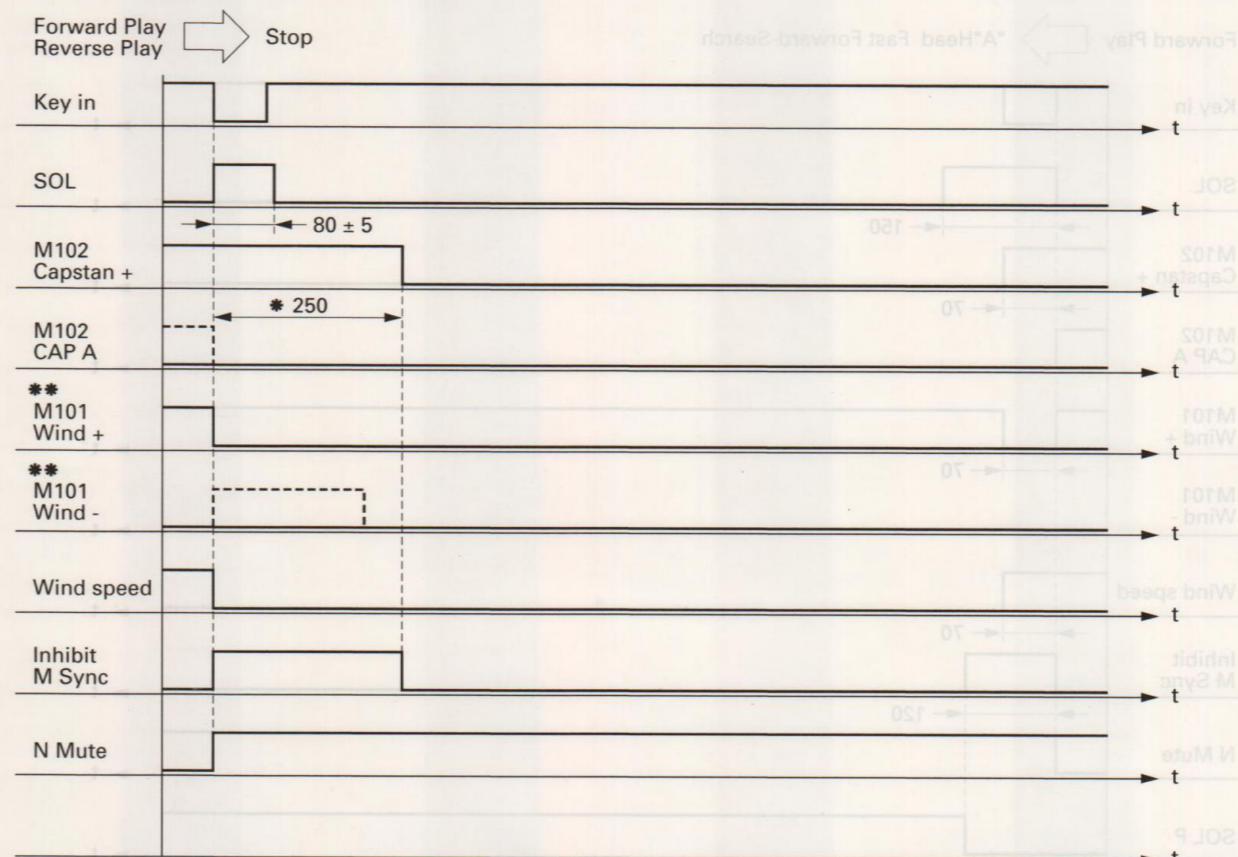
TAPE DECK TIMING CHART 3



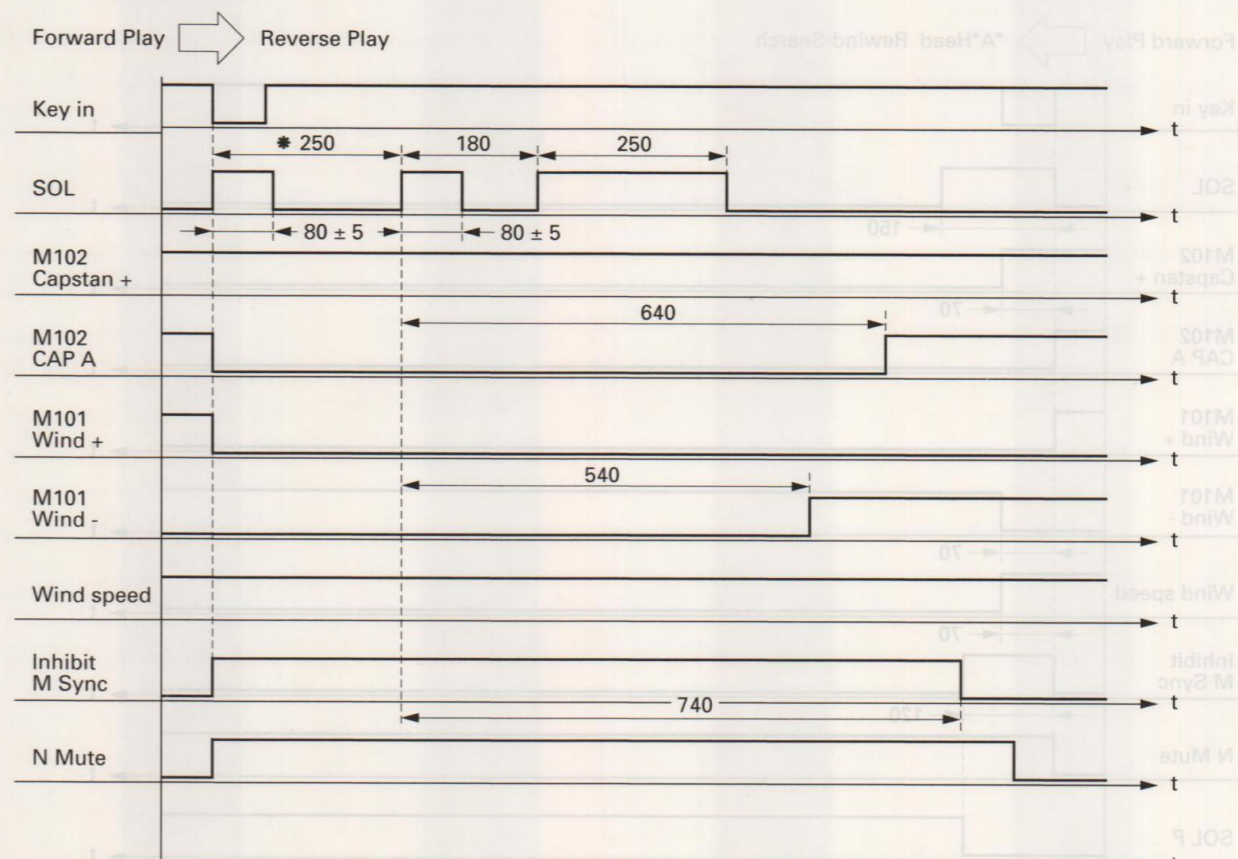
TAPE DECK TIMING CHART 4



TAPE DECK TIMING CHART 5



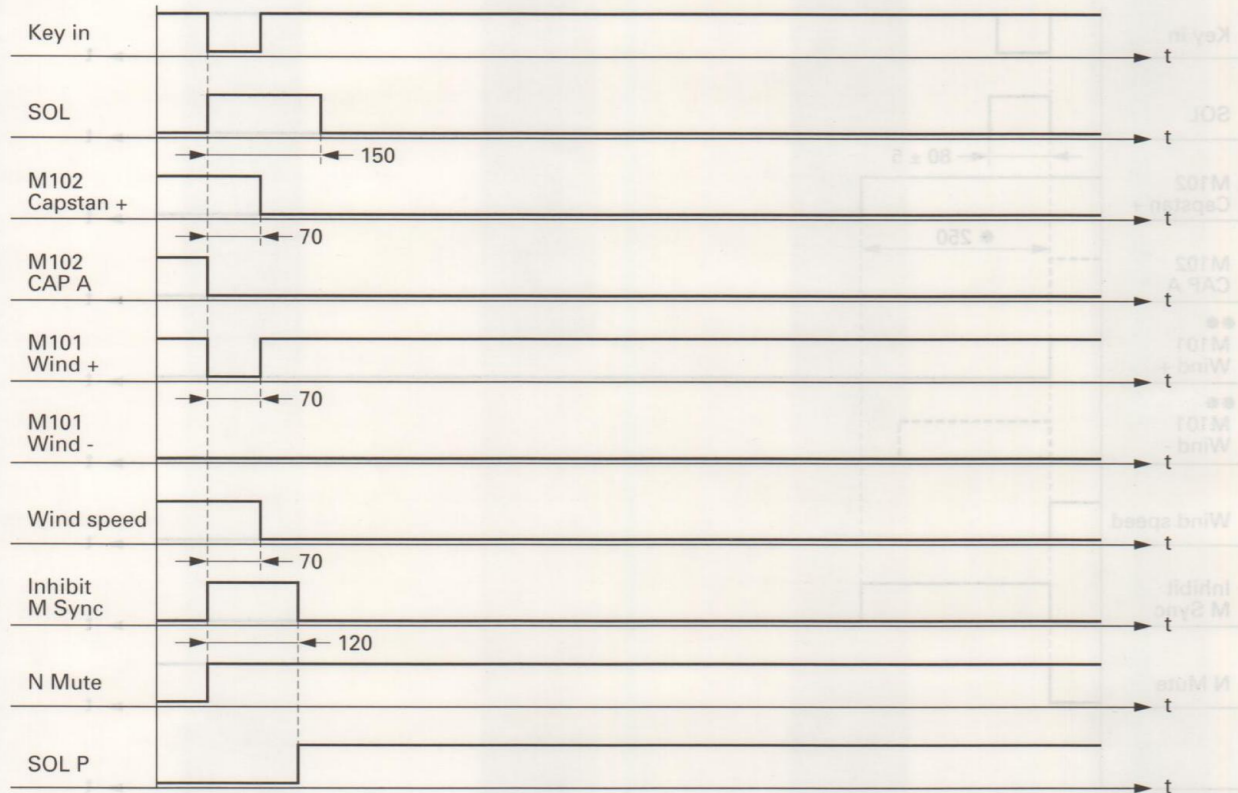
TAPE DECK TIMING CHART 6



\* Please change 250mS to 400mS at double speed PLAY mode.  
 \*\* Interchange M101 Wind + and M101 Wind - timing at REVERSE PLAY mode.

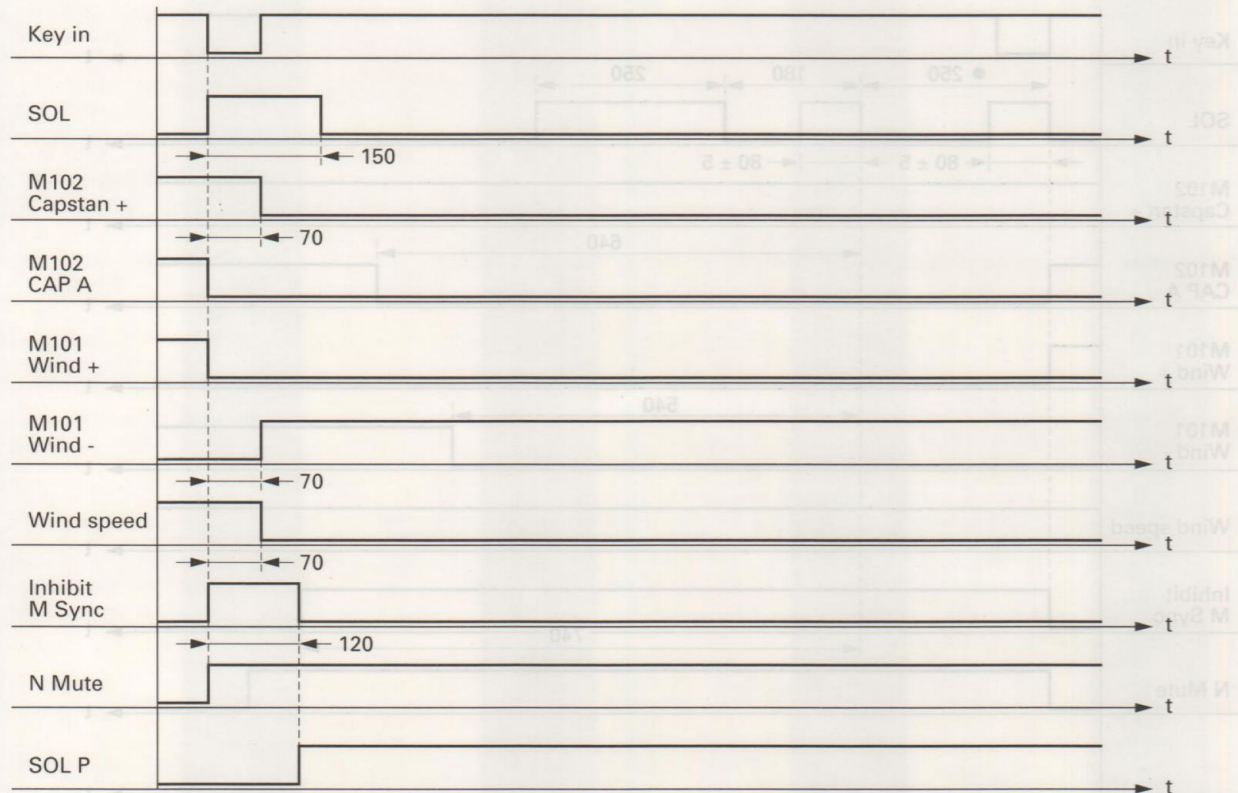
TAPE DECK TIMING CHART 7

Forward Play → "A"Head Fast Forward-Search



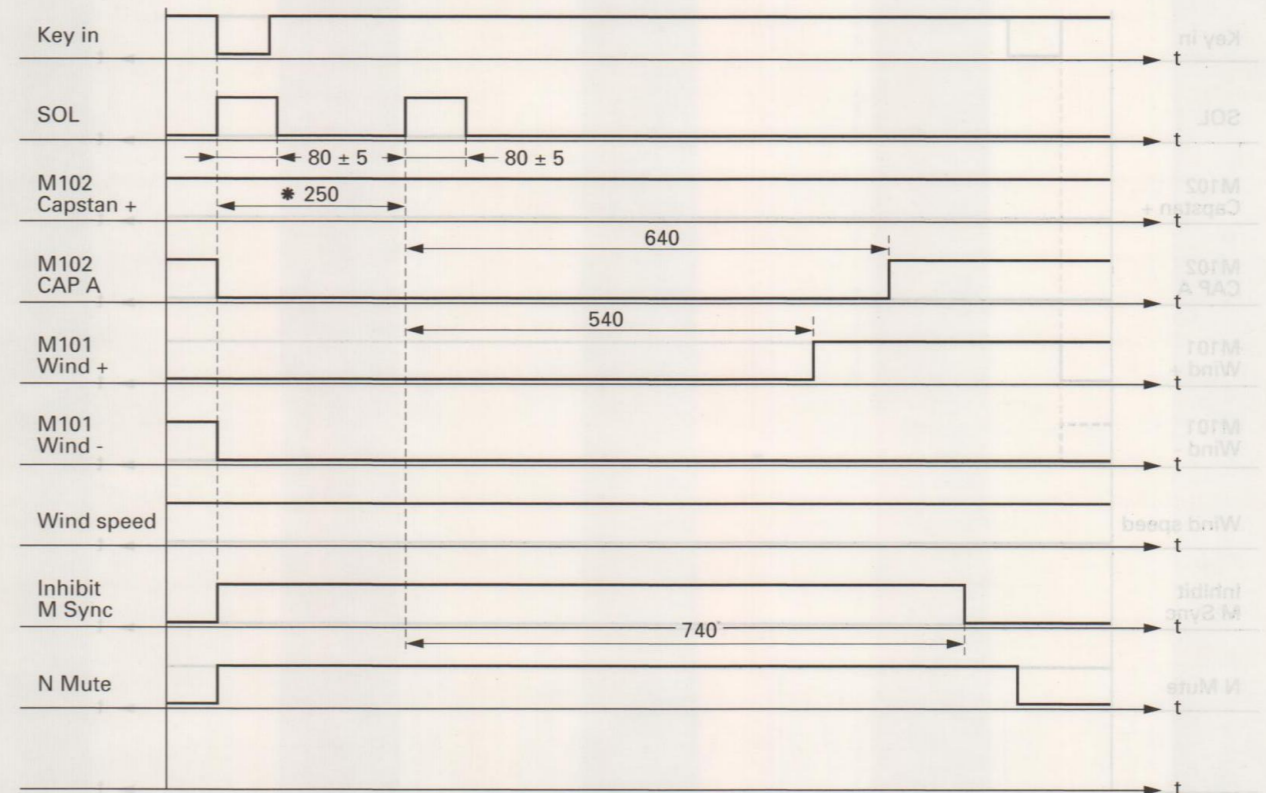
TAPE DECK TIMING CHART 8

Forward Play → "A"Head Rewind-Search



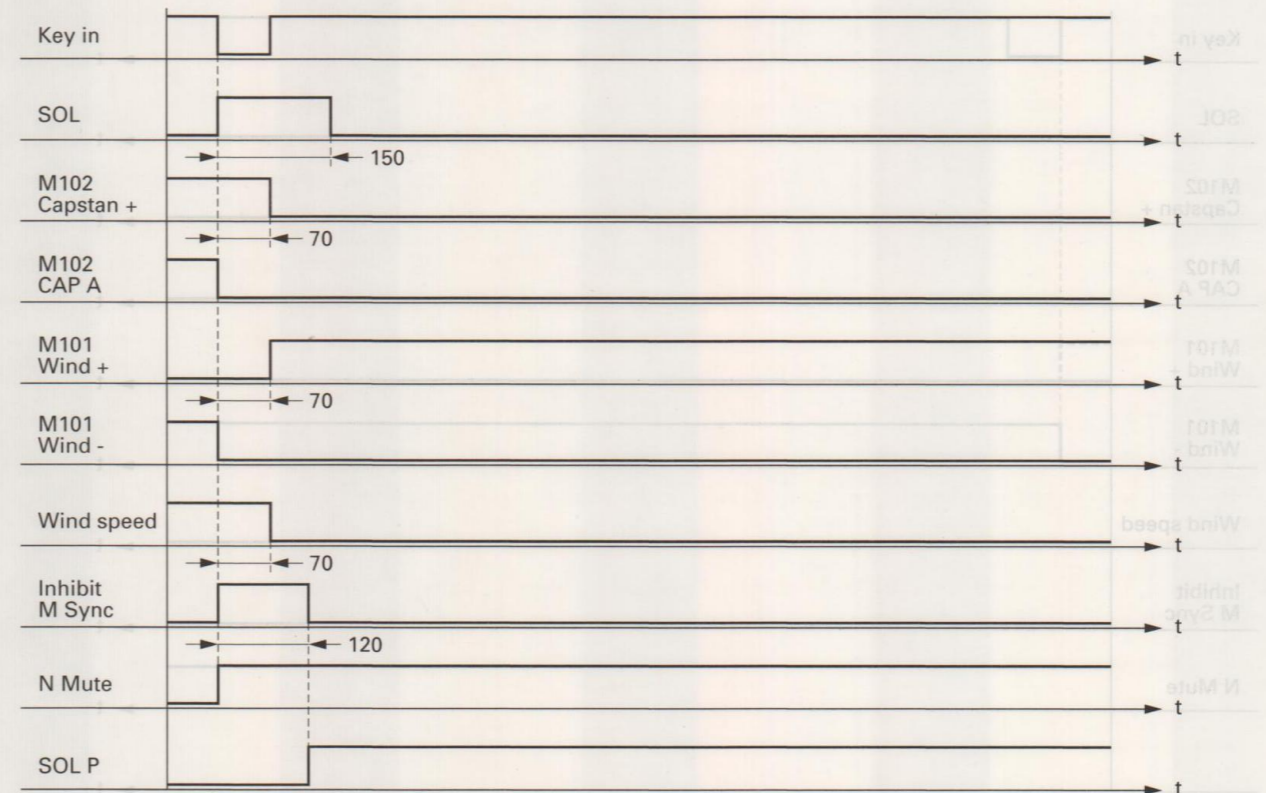
TAPE DECK TIMING CHART 9

Reverse Play → Forward Play



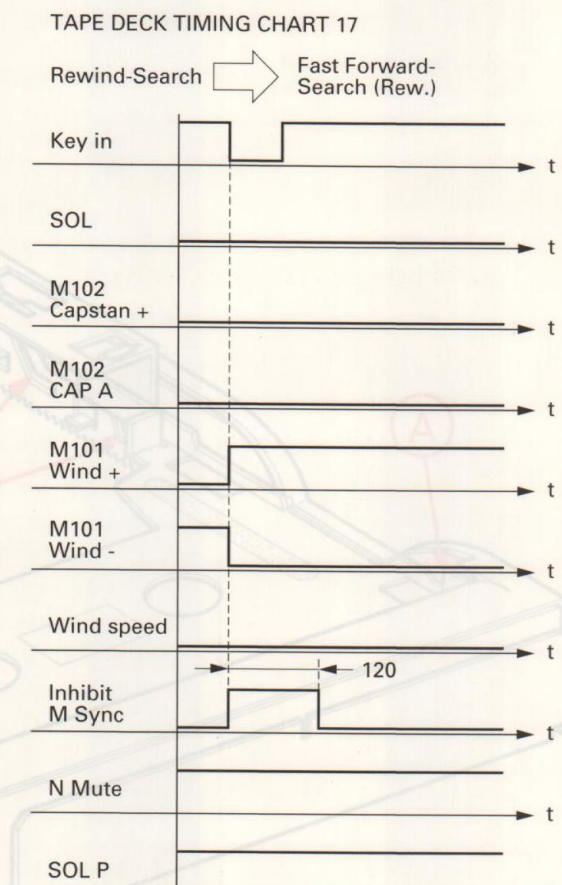
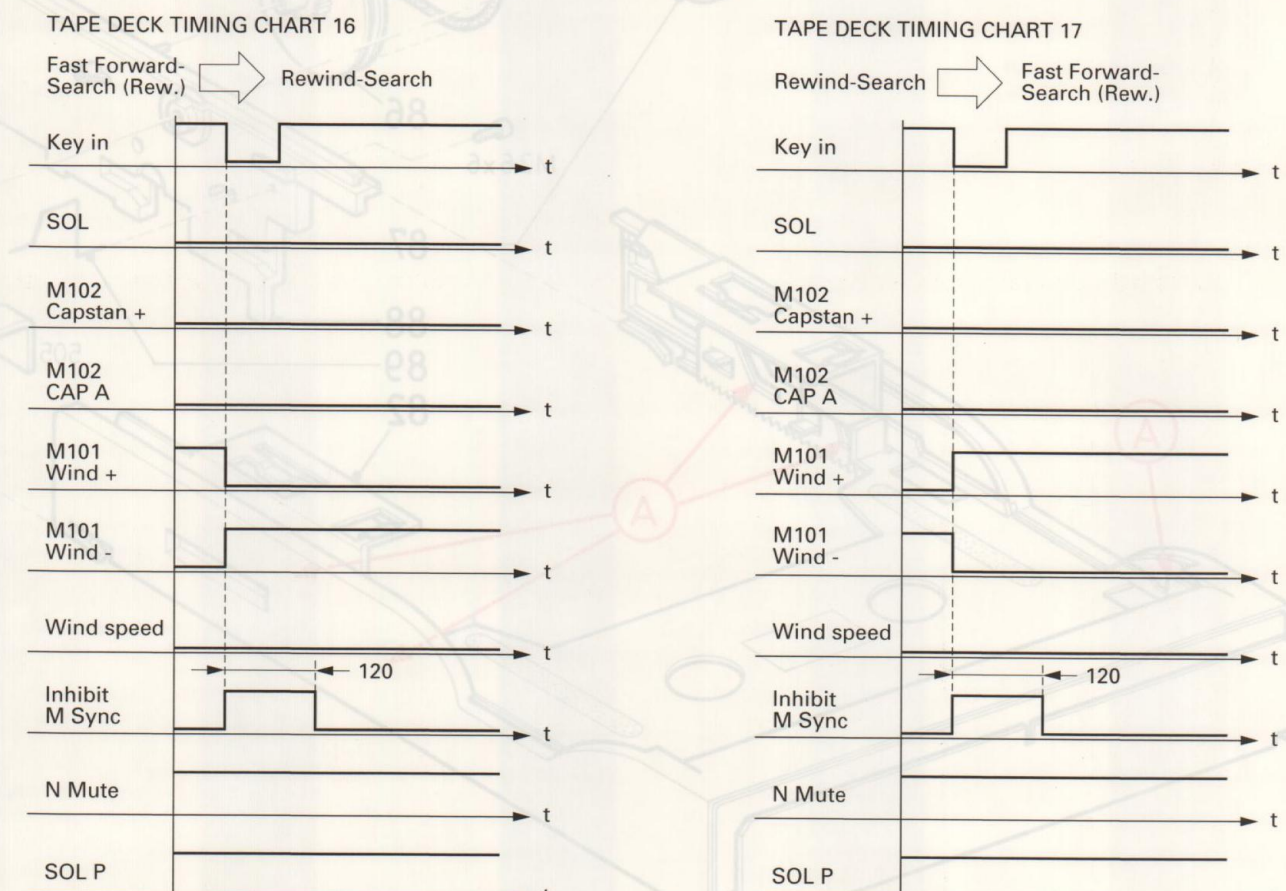
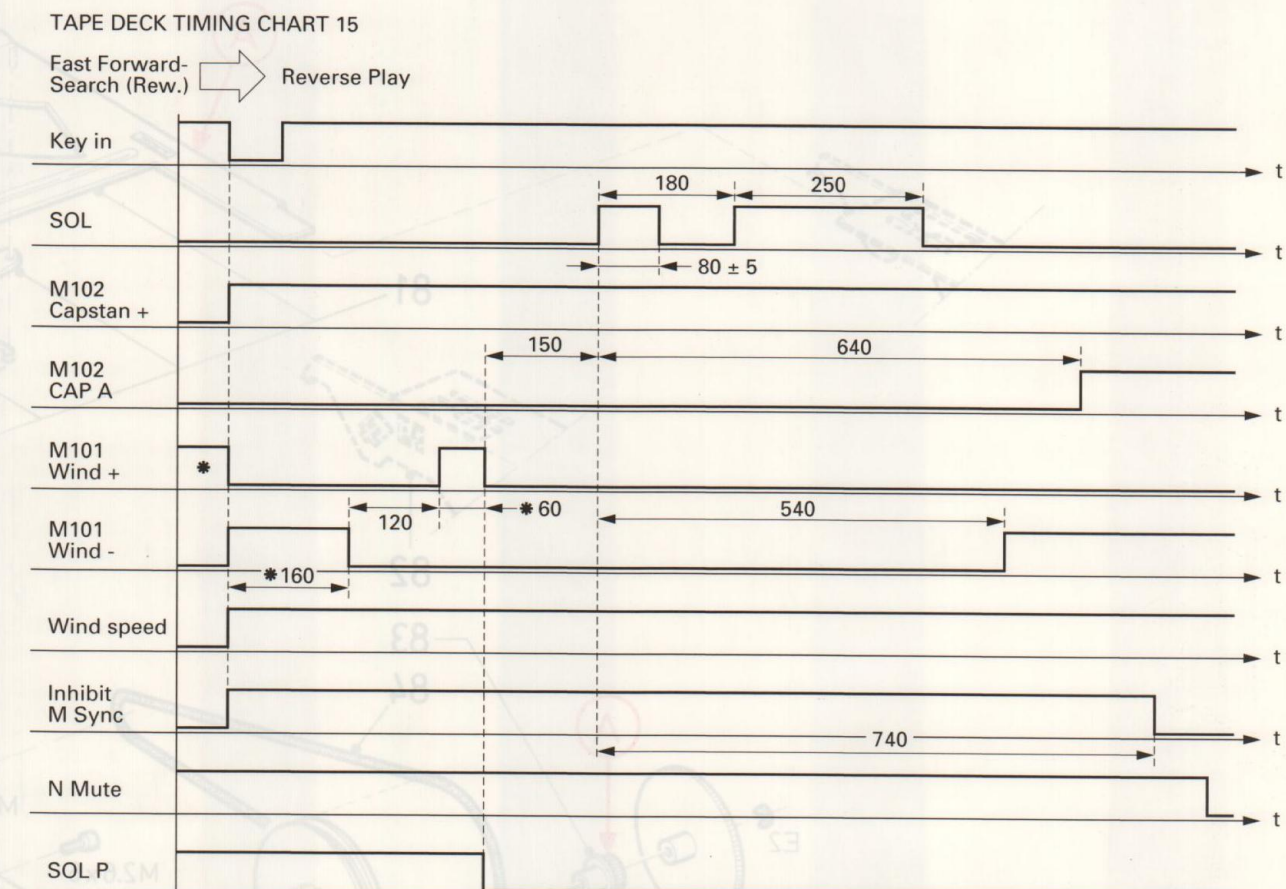
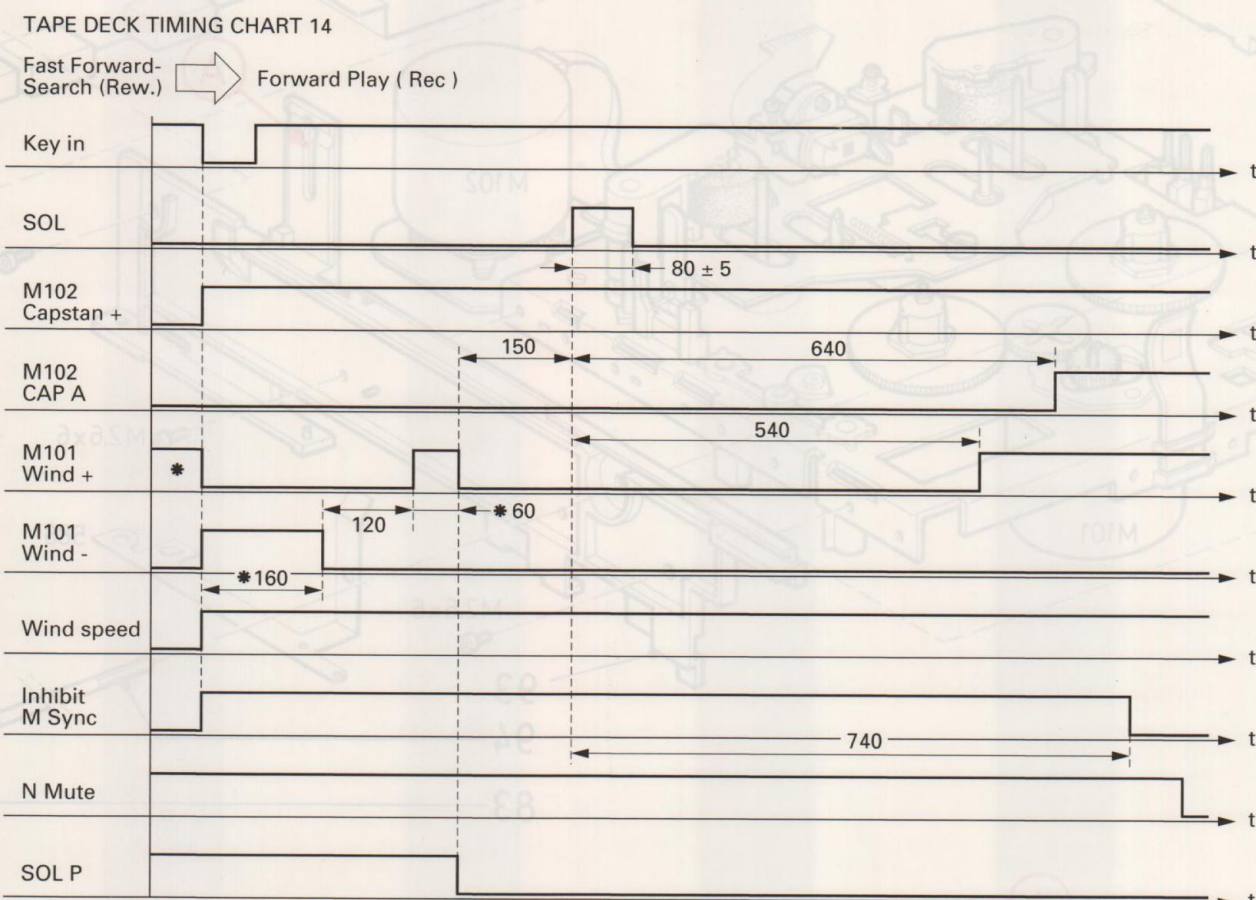
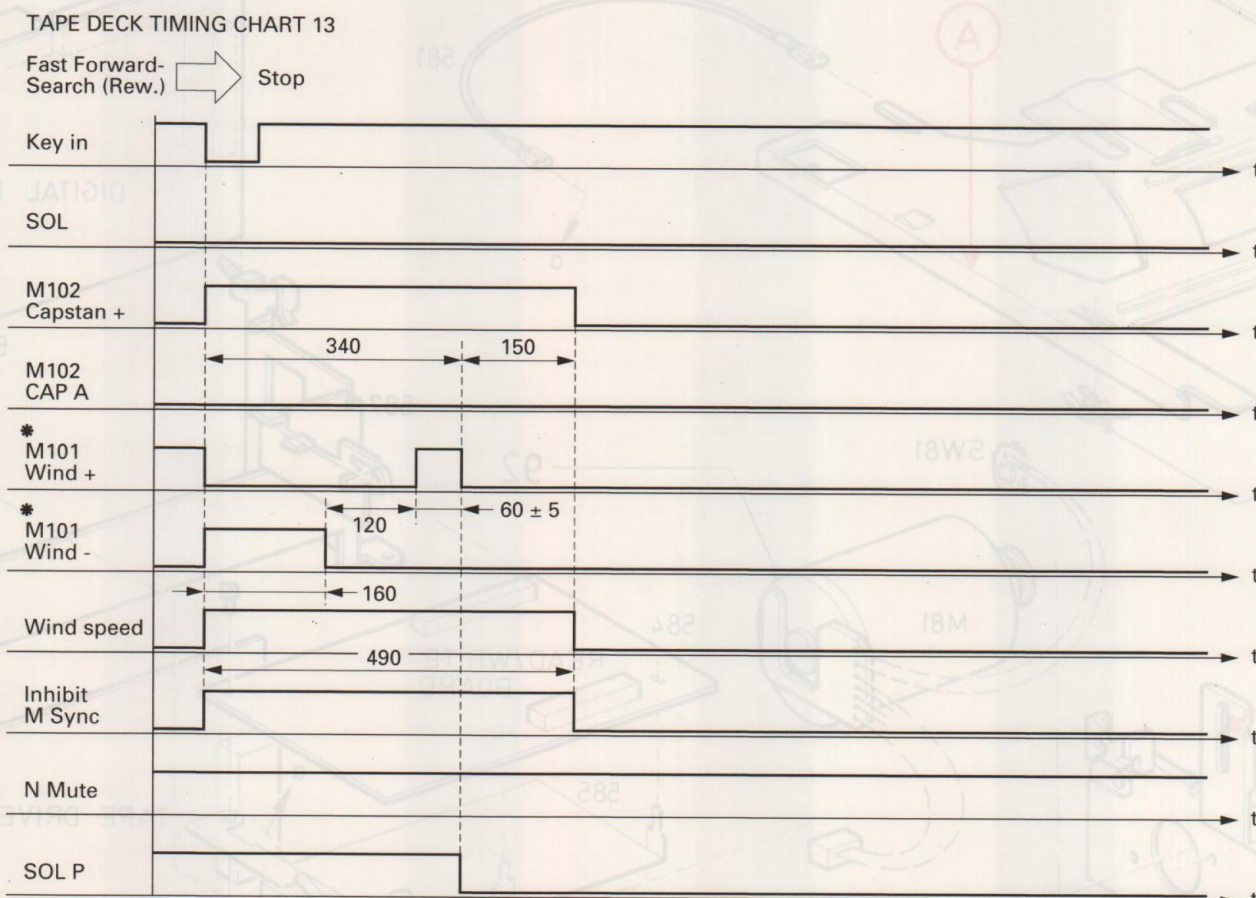
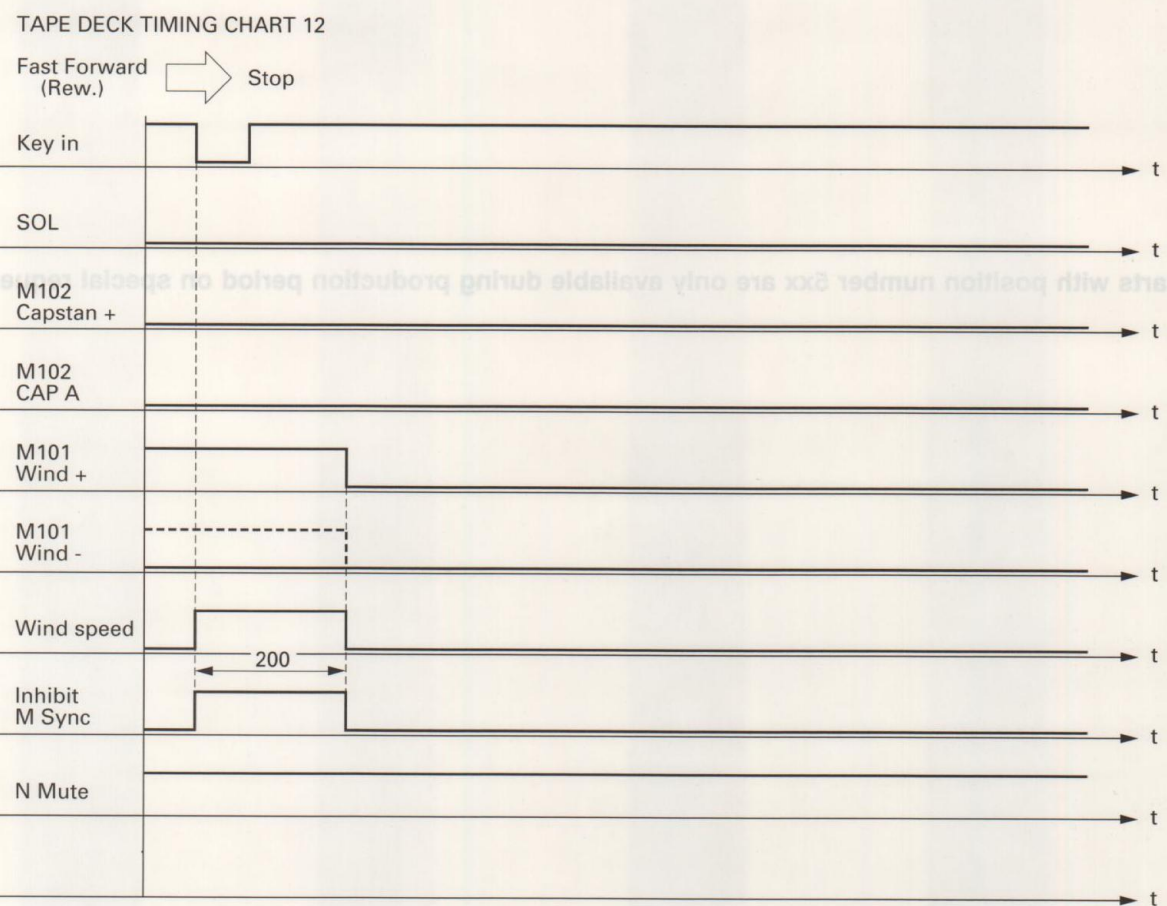
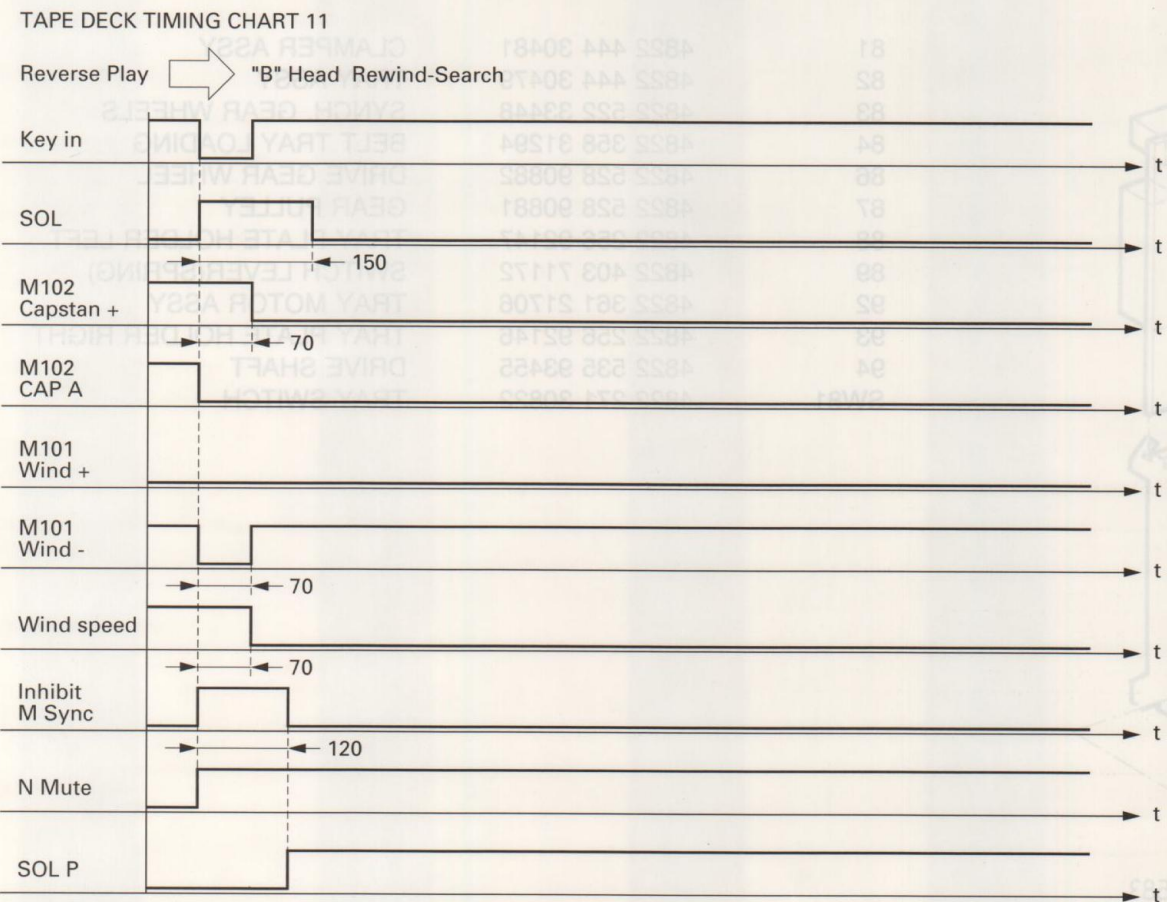
TAPE DECK TIMING CHART 10

Reverse Play → "B" Head Fast Forward-Search

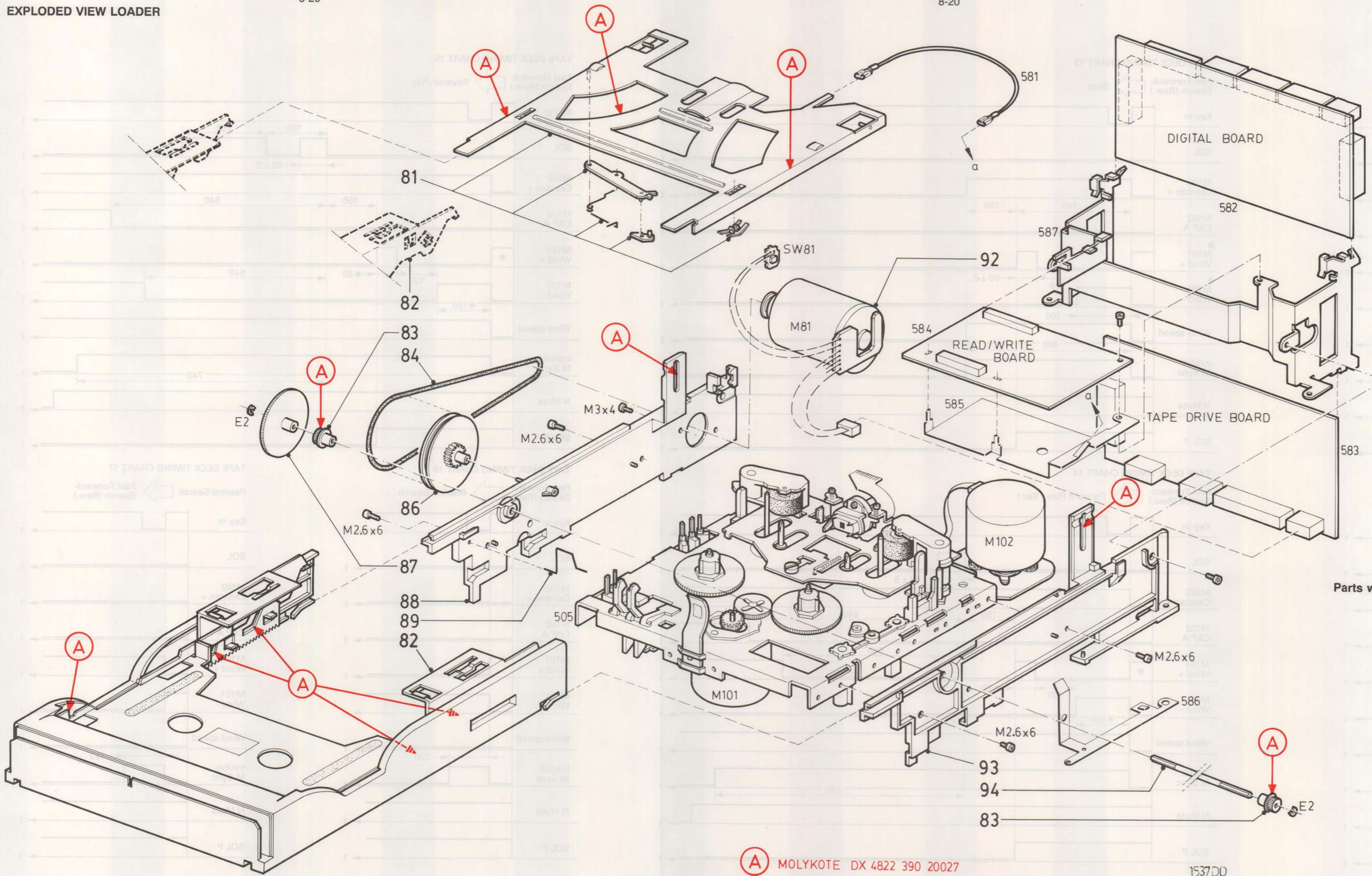


\* Please change 250ms to 400ms at double speed PLAY mode.





EXPLODED VIEW LOADER



MECHANICAL PARTS LIST LOADER

81	4822 444 30481	CLAMPER ASSY
82	4822 444 30479	TRAY ASSY
83	4822 522 33448	SYNCH. GEAR WHEELS
84	4822 358 31294	BELT TRAY LOADING
86	4822 528 90882	DRIVE GEAR WHEEL
87	4822 528 90881	GEAR PULLEY
88	4822 256 92147	TRAY PLATE HOLDER LEFT
89	4822 403 71172	SWITCH LEVER (SPRING)
92	4822 361 21706	TRAY MOTOR ASSY
93	4822 256 92146	TRAY PLATE HOLDER RIGHT
94	4822 535 93455	DRIVE SHAFT
SW81	4822 271 30822	TRAY SWITCH

Parts with position number 5xx are only available during production period on special request.

**A** MOLYKOTE DX 4822 390 20027

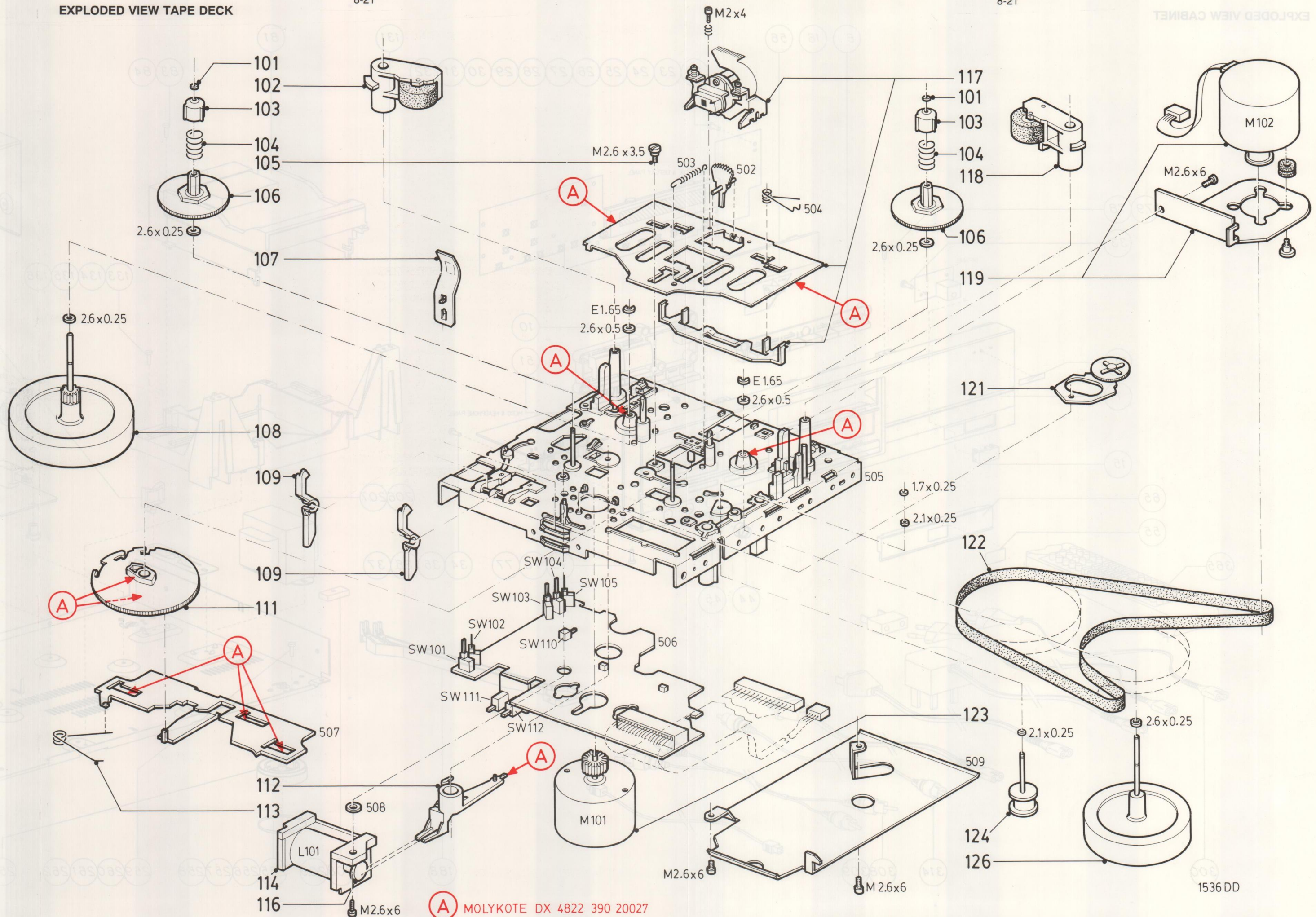
1537DD

EXPLODED VIEW TAPE DECK

MECHANICAL PARTS LIST DECK

101	4822 532 52211	WASHER 1.7x0.25 PS
102	4822 403 40525	PINCH ROLLER ASSY RIGHT
103	4822 522 33501	REEL HUBS CAP
104	4822 492 52412	REEL HUBS SPRING
105	4822 502 21547	SCREW HEADSUPPORT M2.6x3.5
106	4822 522 20458	REEL HUB TOOTH WHEEL
107	4822 492 71477	CASSETTE LEAF SPRING
108	4822 528 60419	CAPSTAN WHEEL LEFT
109	4822 403 71102	PACK LEVER CASSETTE SWITCH
111	4822 522 33449	COMMAND WHEEL CAM GEAR
112	4822 403 71103	COMMAND PLAY ARM
113	4822 492 42699	TORSION SPRING COMMAND PLATE
114	4822 281 11065	SOLENOID COIL ASSY
116	4822 526 10607	"PLANGER" SOLENOID CORE
117	4822 520 10769	HEAD SUPPORT ASSY
118	4822 403 40524	PINCH ROLLER ASSY LEFT
119	4822 361 21699	CAPSTAN MOTOR ASSY
121	4822 358 20456	IDLER WHEEL WINDMOTOR
122	4822 358 31293	MAIN BELT
123	4822 361 21701	REEL MOTOR ASSY
124	4822 528 70841	IDLER WHEEL BELT
126	4822 528 60421	CAPSTAN WHEEL RIGHT
SW101	4822 130 91328	DCC SENSORSWITCH
SW102	4822 130 91328	DCC SENSORSWITCH
SW103	4822 130 91328	DCC SENSORSWITCH
SW104	4822 130 91328	DCC SENSORSWITCH
SW105	4822 130 91328	DCC SENSORSWITCH
SW110	4822 271 30821	PLAY SWITCH
SW111	4822 271 30823	SWITCH CRO2
SW112	4822 271 30823	SWITCH TRAY IN

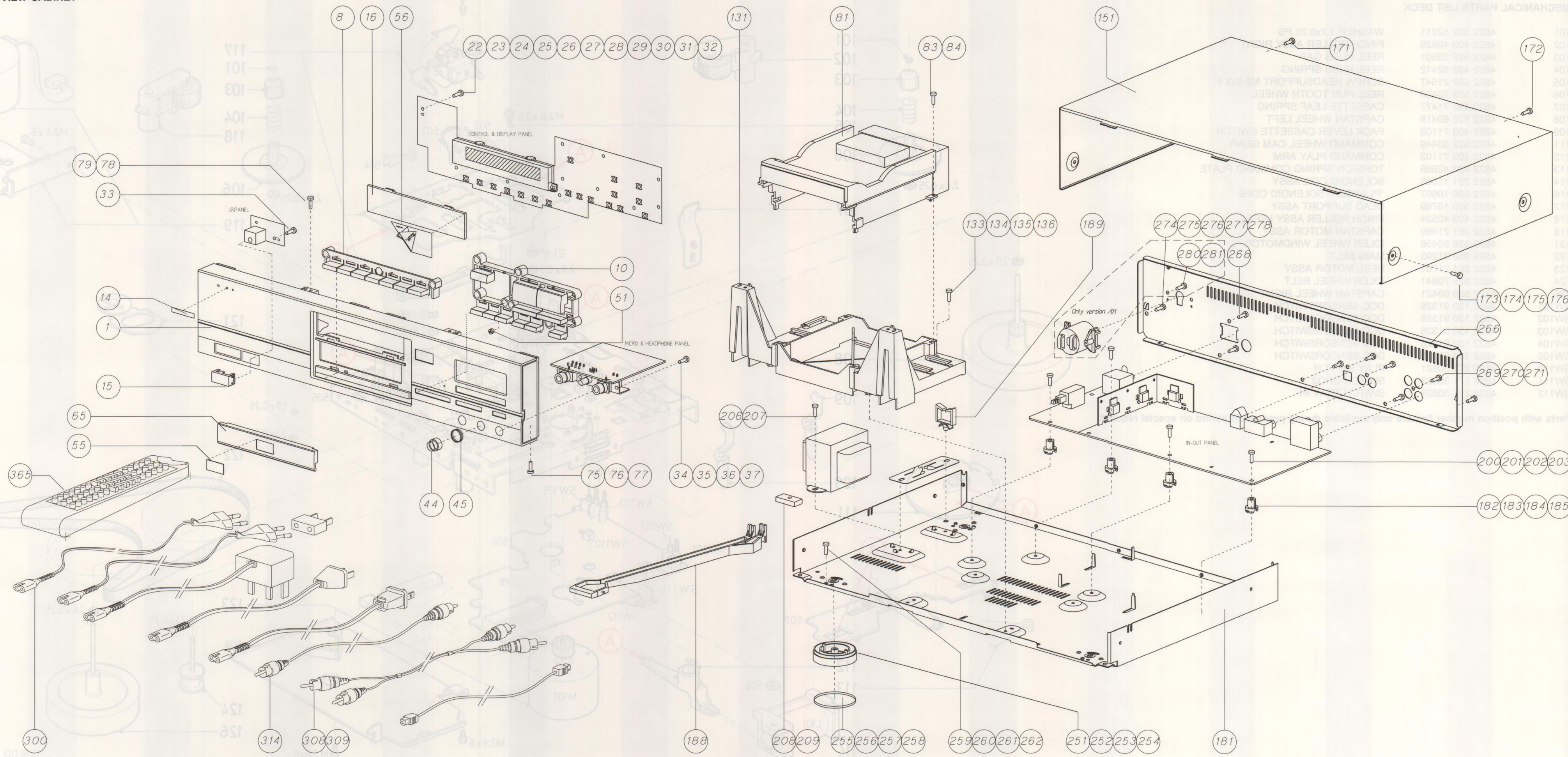
Parts with position number 5xx are only available during production period on special request.



**A** MOLYKOTE DX 4822 390 20027

1536 DD

EXPLODED VIEW CABINET



**MECHANICAL PARTS LIST CABINET**

1	4822 423 51177	FRONT ASSY
8	4822 410 63442	BUTTON UNIT NOSE
10	4822 410 63443	BUTTON UNIT
14	4822 459 10887	WORDMARK
15	4822 450 61894	IR WINDOW
16	4822 450 62315	WINDOW
44	4822 413 51486	VOLUME KNOB
45	4822 492 51374	SPRING
51	4822 380 20425	REFLECTOR
55	4822 454 12949	DCC LOGO
65	4822 426 51764	TRAY FRONT ASSY
151	4822 444 60843	COVER
188	4822 535 93475	POWER ROD
251	4822 462 41715	FOOT
252	4822 462 41715	FOOT
253	4822 462 41715	FOOT
254	4822 462 41715	FOOT
255	4822 462 41479	FELT
256	4822 462 41479	FELT
257	4822 462 41479	FELT
258	4822 462 41479	FELT
282▲	4822 256 30402	FUSE CARRIER /01B
300▲	4822 321 10831	MAINS CORD /00B/01B
301▲	4822 321 10886	MAINS CORD /05B
308	4822 321 22832	SBC1072 CINCH CABLE
309	4822 321 22832	SBC1072 CINCH CABLE
314	4822 321 61452	CINCH CABLE DIGITAL IN
365	4822 218 10543	REMOTE CONTROLE RD6842/00

**Not mentioned parts are only available during production period on special request.**

**Screws**

Self-tapping screw for metal M3x6	: 75,76,77
Self-tapping screw for metal with washer 3x6	: 171
	: 172
	: 173,174,175,176
	: 274,275,276,277,278
Self-tapping screw for metal M3x10	: 206,207
Self-tapping screw for metal M3x15	: 133,134,135,136
	: 200,201,202,203
Self-tapping screw for plastic 3,5x8	: 259,260,261,262
Self-tapping screw for plastic 3x10	: 22,23,24,25,26,27,28,29,30,31,32
	: 33
	: 34,35,36,37
	: 78,79
	: 83,84
	: 268
	: 269,270,271
Self-tapping screw for plastic 3x18	: 280,281

## ELECTRICAL PARTS LIST

IN/OUT PANEL					
			2205	4822 124 41525	100µF 20% 25V
			2206	4822 126 11585	22nF +80-20% 25V
			2207	4822 124 41525	100µF 20% 25V
<b>MISCELLANEOUS</b>					
	▲	4822 492 63076	CLAMPING SPRING		
1005		4822 267 31823	ANALOG IN/OUT SOCKET		
1100		4822 267 31448	DIGITAL IN/OUT SOCKET		
1102		4822 212 23837	OPTICAL INPUT		
1905	▲	4822 071 58001	RADIAL FUSE T 800mA		
1906	▲	4822 071 58001	RADIAL FUSE T 800mA		
1920	▲	4822 071 52002	RADIAL FUSE T 2A		
1971	▲	4822 265 31015	MAINS INLET		
1974	▲	4822 276 13277	MAINS SWITCH		
1975	▲	4822 071 51601	FUSE T 160mA (/00B/05B)		
<b>CAPACITORS</b>					
2004		4822 122 33197	1nF 10% 50V		
2005		4822 126 11585	22nF +80-20% 25V		
2006		4822 124 41525	100µF 20% 25V		
2007		4822 121 51288	100pF 630V		
2012		4822 122 33197	1nF 10% 50V		
2013		4822 121 51288	100pF 630V		
2014		4822 126 11585	22nF +80-20% 25V		
2015		4822 124 41525	100µF 20% 25V		
2016		4822 124 22339	100µF 16V		
2017		4822 124 22339	100µF 16V		
2050		4822 122 33195	100pF 10% 50V		
2051		4822 124 80865	10µF 20% 25V		
2052		4822 122 33195	100pF 10% 50V		
2053		4822 126 11585	22nF +80-20% 25V		
2054		4822 124 41525	100µF 20% 25V		
2055		4822 122 33195	100pF 10% 50V		
2056		4822 124 80865	10µF 20% 25V		
2057		4822 122 33195	100pF 10% 50V		
2058		4822 126 11585	22nF +80-20% 25V		
2059		4822 124 41525	100µF 20% 25V		
2060		4822 124 40246	4,7µF 20% 63V		
2061		4822 124 40246	4,7µF 20% 63V		
2062		4822 124 22339	100µF 16V		
2063		4822 124 22339	100µF 16V		
2064		4822 124 22339	100µF 16V		
2065		4822 124 22339	100µF 16V		
2100		4822 124 40248	10µF 20% 63V		
2102		4822 126 12785	47nF TUB 50V		
2103		4822 126 12785	47nF TUB 50V		
2104		4822 122 33849	150pF 10%Y5P 50V		
2105		4822 126 12882	100nF +80-20% 50V		
2106		4822 126 12882	100nF +80-20% 50V		
2200		4822 126 11585	22nF +80-20% 25V		
2201		4822 124 41525	100µF 20% 25V		
2202		4822 126 11585	22nF +80-20% 25V		
2203		4822 124 41525	100µF 20% 25V		
2204		4822 126 11585	22nF +80-20% 25V		
			2208	4822 122 33849	150pF 10%Y5P 50V
			2209	4822 122 33195	100pF 10% 50V
			2210	4822 122 33849	150pF 10%Y5P 50V
			2211	4822 122 33195	100pF 10% 50V
			2250	4822 126 12882	100nF +80-20% 50V
			2251	4822 126 12882	100nF +80-20% 50V
			2255	4822 126 11585	22nF +80-20% 25V
			2350	4822 122 10466	220pF 10% 50V
			2351	4822 122 10459	560pF 10% 50V
			2352	4822 122 10466	220pF 10% 50V
			2353	4822 122 10459	560pF 10% 50V
			2900	4822 126 11585	22nF +80-20% 25V
			2901	4822 126 11585	22nF +80-20% 25V
			2902	4822 126 11585	22nF +80-20% 25V
			2903	4822 126 11585	22nF +80-20% 25V
			2904	4822 124 42119	4700µF 20% 25V
			2905	4822 124 80984	2200µF 20% 25V
			2908	4822 124 40242	1µF 20% 63V
			2909	4822 124 41525	100µF 20% 25V
			2910	4822 124 40248	10µF 20% 63V
			2911	4822 126 11585	22nF +80-20% 25V
			2912	4822 126 11585	22nF +80-20% 25V
			2920	4822 126 11585	22nF +80-20% 25V
			2921	4822 126 11585	22nF +80-20% 25V
			2922	4822 126 11585	22nF +80-20% 25V
			2923	4822 126 11585	22nF +80-20% 25V
			2924	4822 124 80153	1000µF 20% 16V
			2925	4822 126 11585	22nF +80-20% 25V
			2926	4822 126 11585	22nF +80-20% 25V
			2927	4822 124 40433	47µF 20% 25V
			2934	4822 124 40433	47µF 20% 25V
			2935	4822 126 11585	22nF +80-20% 25V
			2940	4822 126 11585	22nF +80-20% 25V
			2941	4822 126 11585	22nF +80-20% 25V
			2942	4822 126 11585	22nF +80-20% 25V
			2943	5322 124 22094	220µF 20% 50V
			2944	4822 124 40242	1µF 20% 63V
			2945	4822 124 40246	4,7µF 20% 63V
			2946	4822 126 11585	22nF +80-20% 25V
			2970	4822 126 12224	4,7nF 20% 125V
			2980	4822 121 42408	220nF 5% 63V
			2981	4822 121 51252	470nF 5% 63V
			2982	4822 124 41334	470µF 20% 35V
			2983	4822 124 80865	10µF 20% 25V

## RESISTORS

2906	4822 050 11002	1k	1%	0,4W	3361	4822 116 52175	100Ω	5%	0,5W
2907	4822 116 52249	1k8	5%	0,5W	3362	4822 116 52175	100Ω	5%	0,5W
3005	4822 050 25602	5k6	1%	0,6W	3363	4822 116 52175	100Ω	5%	0,5W
3006	4822 050 21003	10k	1%	0,6W	3364	4822 116 52256	2k2	5%	0,5W
3007	4822 050 27502	7k5	1%	0,6W	3365	4822 116 52233	10k	5%	0,5W
3008	4822 050 28202	8k2	1%	0,6W	3366	4822 116 52256	2k2	5%	0,5W
3009 ▲	4822 052 10478	4Ω7	5%	0,33W	3367	4822 116 52256	2k2	5%	0,5W
3015	4822 050 25602	5k6	1%	0,6W	3368	4822 116 52257	22k	5%	0,5W
3016	4822 050 27502	7k5	1%	0,6W	3369	4822 116 52283	4k7	5%	0,5W
3017	4822 050 21003	10k	1%	0,6W	3371	4822 116 52258	220k	5%	0,5W
3018	4822 050 28202	8k2	1%	0,6W	3900	4822 116 52215	220Ω	5%	0,5W
3019 ▲	4822 052 10478	4Ω7	5%	0,33W	3901	4822 116 52215	220Ω	5%	0,5W
3050	4822 116 52234	100Ω	5%	0,5W	3902	4822 116 52244	15k	5%	0,5W
3051	4822 116 52234	100Ω	5%	0,5W	3903	4822 050 21501	150Ω	1%	0,6W
3052	4822 050 11002	1k	1%	0,4W	3904	4822 116 52269	3k3	5%	0,5W
3053	4822 050 11002	1k	1%	0,4W	3905	4822 050 21501	150Ω	1%	0,6W
3054 ▲	4822 052 10478	4Ω7	5%	0,33W	3906	4822 116 52244	15k	5%	0,5W
3055	4822 116 52234	100Ω	5%	0,5W	3907	4822 116 52244	15k	5%	0,5W
3056	4822 116 52234	100Ω	5%	0,5W	3980	4822 116 52284	47k	5%	0,5W
3057	4822 050 11002	1k	1%	0,4W	3981	4822 116 52283	4k7	5%	0,5W
3058	4822 050 11002	1k	1%	0,4W	3982	4822 050 24705	4M7	1%	0,6W
3059 ▲	4822 052 10478	4Ω7	5%	0,33W	3983	4822 116 52245	150k	5%	0,5W
3103	4822 116 52199	68Ω	5%	0,5W	3984	4822 116 52276	3k9	5%	0,5W
3104	4822 116 52201	75Ω	5%	0,5W	3985	4822 116 52233	10k	5%	0,5W
3105 ▲	4822 052 10478	4Ω7	5%	0,33W	3986	4822 116 52234	100Ω	5%	0,5W
3200	4822 116 52217	270Ω	5%	0,5W	3987	4822 116 52284	47k	5%	0,5W
3201	4822 116 52217	270Ω	5%	0,5W	3988	4822 050 11002	1k	1%	0,4W
3202	4822 116 52289	5k6	5%	0,5W	3989	4822 116 52244	15k	5%	0,5W
3203	4822 116 52264	27k	5%	0,5W					
3204	4822 116 52289	5k6	5%	0,5W					
3205	4822 116 52264	27k	5%	0,5W					
3206	4822 116 52289	5k6	5%	0,5W					
3207	4822 116 52264	27k	5%	0,5W					
3208	4822 116 52289	5k6	5%	0,5W					
3209	4822 116 52264	27k	5%	0,5W					
3210	4822 116 52289	5k6	5%	0,5W					
3211	4822 116 52289	5k6	5%	0,5W					
3212 ▲	4822 052 10478	4Ω7	5%	0,33W					
3213 ▲	4822 052 10478	4Ω7	5%	0,33W					
3250	4822 116 52269	3k3	5%	0,5W					
3251	4822 116 52269	3k3	5%	0,5W					
3255 ▲	4822 052 10478	4Ω7	5%	0,33W					
3350	4822 116 52175	100Ω	5%	0,5W					
3351	4822 116 52256	2k2	5%	0,5W					
3352	4822 116 52175	100Ω	5%	0,5W					
3353	4822 116 52175	100Ω	5%	0,5W					
3354	4822 116 52233	10k	5%	0,5W					
3355	4822 116 52257	22k	5%	0,5W					
3356	4822 116 52256	2k2	5%	0,5W					
3357	4822 116 52256	2k2	5%	0,5W					
3358	4822 116 52283	4k7	5%	0,5W					
3360	4822 116 52258	220k	5%	0,5W					

**COILS**

5001	4822 157 51192	220mH
5020	4822 157 51192	220mH
5100	4822 157 70601	DIGITAL TRAF0
5970 ▲	4822 214 51841	MAINS FILTER

**DIODES**

6200	4822 130 34278	BZX79-C6V8
6201	4822 130 34278	BZX79-C6V8
6350	4822 130 30621	1N4148
6351	4822 130 30621	1N4148
6355	4822 130 30621	1N4148

6356	4822 130 30621	1N4148
6357	4822 130 30621	1N4148
6358	4822 130 30621	1N4148
6900	4822 130 80291	1N4002GP
6901	4822 130 80291	1N4002GP

6902	4822 130 80291	1N4002GP
6903	4822 130 80291	1N4002GP
6905	4822 130 30621	1N4148
6920	4822 130 80291	1N4002GP
6921	4822 130 80291	1N4002GP

6922	4822 130 80291	1N4002GP
6923	4822 130 80291	1N4002GP
6940	4822 130 80291	1N4002GP
6941	4822 130 34173	BZX79-C5V6
6942	5322 130 34563	BZX79-C2V7

6980	4822 130 80291	1N4002GP
6981	4822 130 80291	1N4002GP
6982	4822 130 30621	1N4148
6983	4822 130 30621	1N4148
6984	4822 130 30621	1N4148

6985	4822 130 31981	BZX79-C3V9
6986	4822 130 30621	1N4148

**TRANSISTORS & I.C.'s**

7001	4822 209 83163	LM833N
7050	4822 209 83163	LM833N
7200	4822 209 60002	74HC4052N
7201	5322 209 12377	MC34082P
7250	5322 209 11323	74HCU04P

7350	5322 130 44779	BC338-40
7352	4822 130 44197	BC558B
7353	5322 130 44779	BC338-40
7354	5322 130 44779	BC338-40
7355	5322 130 44779	BC338-40

7357	4822 130 44197	BC558B
7358	5322 130 44779	BC338-40
7359	5322 130 44779	BC338-40
7900	4822 209 72868	M5230L
7901	4822 130 63427	BD534

7902	5322 130 42631	BD533
7920	4822 209 12335	L4941

7921	4822 209 72042	MC78L05ACP
7940	4822 209 33379	M5293L
7980	4822 130 40937	BC548B
7981	4822 130 40937	BC548B
7982	4822 130 40937	BC548B
7983	4822 130 44197	BC558B
7984	4822 130 40937	BC548B

**FRONT PANEL****MISCELLANEOUS**

	4822 256 92194	FTD HOLDER
1808	5322 242 73697	RESONATOR 8MHz
1810	4822 276 13213	TACT SWITCH
1811	4822 276 13213	TACT SWITCH
1812	4822 276 13213	TACT SWITCH

1814	4822 276 13213	TACT SWITCH
1815	4822 276 13213	TACT SWITCH
1816	4822 276 13213	TACT SWITCH
1817	4822 276 13213	TACT SWITCH
1818	4822 276 13213	TACT SWITCH

1819	4822 276 13213	TACT SWITCH
1820	4822 276 13213	TACT SWITCH
1821	4822 276 13213	TACT SWITCH
1822	4822 276 13213	TACT SWITCH
1823	4822 276 13213	TACT SWITCH

1824	4822 276 13213	TACT SWITCH
1825	4822 276 13213	TACT SWITCH
1826	4822 276 13213	TACT SWITCH
1827	4822 276 13213	TACT SWITCH
1828	4822 276 13213	TACT SWITCH

**CAPACITORS**

2180	4822 122 33175	2,2nF 20% 50V
2181	4822 122 33175	2,2nF 20% 50V
2182	4822 121 51412	560nF 5% 63V
2183	5322 121 42661	330nF 5% 63V
2184	4822 122 33175	2,2nF 20% 50V

2185	4822 122 33175	2,2nF 20% 50V
2186	5322 121 42661	330nF 5% 63V
2187	4822 121 51412	560nF 5% 63V
2188	4822 122 32654	22nF 10% 63V
2189	4822 122 32654	22nF 10% 63V

2190	4822 124 23624	47µF 20% 16V
2191	4822 124 23624	47µF 20% 16V
2194	4822 124 23624	47µF 20% 16V
2195	4822 124 23624	47µF 20% 16V
2454	4822 124 23624	47µF 20% 16V

2455	4822 122 33809	22nF 20% 50V
2456	4822 124 23624	47µF 20% 16V
2457	4822 122 33809	22nF 20% 50V
2458	5322 122 32448	10pF 5% 50V



2459	5322 122 32448	10pF 5% 50V
2460	5322 122 32448	10pF 5% 50V
2461	5322 122 32448	10pF 5% 50V
2800	4822 124 23624	47μF 20% 16V
2801	4822 122 33809	22nF 20% 50V
2802	4822 124 40248	10μF 20% 63V
2803	4822 122 33809	22nF 20% 50V
2804	4822 122 33496	100nF 10% 63V
2805	4822 122 33496	100nF 10% 63V

**RESISTORS**

3170	4822 051 20123	12k 5% 0,1W
3171	4822 051 20123	12k 5% 0,1W
3172	4822 051 20122	1k2 5% 0,1W
3173	4822 051 20122	1k2 5% 0,1W
3174	4822 051 20224	220k 5% 0,1W
3175	4822 051 20472	4k7 5% 0,1W
3176	4822 051 20103	10k 5% 0,1W
3180	4822 051 20123	12k 5% 0,1W
3181	4822 051 20561	560Ω 5% 0,1W
3182	4822 051 20273	27k 5% 0,1W
3183	4822 051 20123	12k 5% 0,1W
3184	4822 051 20561	560Ω 5% 0,1W
3185	4822 051 20103	10k 5% 0,1W
3186	4822 051 20471	470Ω 5% 0,1W
3187	4822 051 20222	2k2 5% 0,1W
3188	4822 051 20472	4k7 5% 0,1W
3189	4822 051 20473	47k 5% 0,1W
3190	4822 051 10102	1k 2% 0,25W
3191	4822 051 20473	47k 5% 0,1W
3192	4822 051 20473	47k 5% 0,1W
3193	4822 051 20471	470Ω 5% 0,1W
3194	4822 050 21001	100Ω 1% 0,6W
3195	4822 050 21001	100Ω 1% 0,6W
3196	4822 051 10102	1k 2% 0,25W
3198	4822 100 11676	10k 30%LIN 0.2W
3199	4822 100 11676	10k 30%LIN 0.2W
3200	4822 051 20123	12k 5% 0,1W
3201	4822 051 20123	12k 5% 0,1W
3454	4822 117 11139	1k5 1% 0,1W
3455	4822 117 11141	1k8 1% 0,1W
3456	4822 117 11143	3k 1% 0,1W
3457	4822 117 11142	2k4 1% 0,1W
3458	4822 117 11145	4k7 1% 0,1W
3459	4822 117 11146	6k2 1% 0,1W
3460	4822 117 11144	3k9 1% 0,1W
3461	4822 117 11139	1k5 1% 0,1W
3462	4822 117 11141	1k8 1% 0,1W
3463	4822 117 11143	3k 1% 0,1W
3464	4822 117 11142	2k4 1% 0,1W
3465	4822 117 11145	4k7 1% 0,1W
3466	4822 117 11146	6k2 1% 0,1W
3467	4822 117 11144	3k9 1% 0,1W

3468 ▲	4822 052 10109	10Ω 5% 0,33W
3469 ▲	4822 052 10109	10Ω 5% 0,33W
3470	4822 117 10354	22k 1% 0,1W
3471	4822 117 10354	22k 1% 0,1W
3472	4822 117 10833	10k 1% 0,1W
3473	4822 117 10833	10k 1% 0,1W
3800 ▲	4822 052 10108	1Ω 5% 0,33W
3801 ▲	4822 052 10108	1Ω 5% 0,33W
3802 ▲	4822 052 10108	1Ω 5% 0,33W
3803 ▲	4822 052 10478	4Ω7 5% 0,33W
3806	4822 051 20331	330Ω 5% 0,1W
3807	4822 051 20472	4k7 5% 0,1W
3808	4822 051 20472	4k7 5% 0,1W
3809	4822 051 20223	22k 5% 0,1W
3810	4822 116 90877	4k7X8 5%
3811	4822 116 90877	4k7X8 5%
3812	4822 051 20223	22k 5% 0,1W
3813	4822 051 20103	10k 5% 0,1W
3814	4822 051 20103	10k 5% 0,1W
3815	4822 051 20103	10k 5% 0,1W
3816	4822 051 20103	10k 5% 0,1W
3819	4822 051 20473	47k 5% 0,1W
3820	4822 051 20103	10k 5% 0,1W
3821	4822 051 20103	10k 5% 0,1W
3822	4822 051 20103	10k 5% 0,1W
3823	4822 051 20103	10k 5% 0,1W

**COILS**

5800	4822 157 51462	10μH
5801	4822 157 51462	10μH
5802	4822 157 51462	10μH
5803	4822 157 51462	10μH

**DIODES, TRANSISTORS & IC'S**

6180	4822 130 34278	BZX79-C6V8
6181	4822 130 34278	BZX79-C6V8
6802	4822 130 82978	LTL-16kPE
7005	4822 130 91403	DISPLAY 14-BK-336GK
7170	5322 130 41982	BC848B
7171	5322 130 41982	BC848B
7172	5322 130 41983	BC858B
7180	4822 209 31134	CXA1331S
7181	5322 130 42012	BC858
7182	5322 130 61207	BC848
7183	5322 130 42012	BC858
7451	5322 209 61483	74HC4051D
7452	5322 209 61483	74HC4051D
7455	4822 209 83274	NJM4560D
7800	4822 209 33369	TMP87CP70F
7998	4822 209 33381	TMP87PP71F
7801	4822 209 33378	MN1382-S
7806	5322 209 63719	ST24C02A
7811	5322 130 42012	BC858

I.R. PANEL					
2820	4822 122 33809	22nF 20% 50V	3423	4822 051 20123	12k 5% 0,1W
7820	4822 214 52009	GP1U58XP	3424	4822 051 20823	82k 5% 0,1W
MICRO & HEADPHONE PANEL					
MISCELLANEOUS					
1410	4822 267 31453	MICROPHONE SOCKET	3425	4822 051 20472	4k7 5% 0,1W
1415	4822 267 31479	HEADPHONE SOCKET	3426 ▲	4822 052 10109	10Ω 5% 0,33W
CAPACITORS			3427	4822 051 20471	470Ω 5% 0,1W
2400	4822 124 41525	100μF 20% 25V	3430	4822 051 20122	1k2 5% 0,1W
2401	4822 124 41525	100μF 20% 25V	3431	4822 051 20122	1k2 5% 0,1W
2402	4822 122 33809	22nF 20% 50V	4000	4822 051 10008	0Ω 5% 0,25W
2403	4822 122 33809	22nF 20% 50V	DIODES, TRANSISTORS & I.C.'s		
2404	5322 122 34123	1nF 10% 50V	7400	4822 209 82362	NJM4556D
2415	5322 122 34123	1nF 10% 50V	7415	4822 209 83163	LM833N
2416	4822 124 40248	10μF 20% 63V	7430	4822 130 42696	BC818-25
2417	5322 122 31866	6,8nF 10% 63V	7431	4822 130 42696	BC818-25
2418	5322 122 32654	22nF 10% 63V	MAINS VOLTAGE		
2419	5322 122 32654	22nF 10% 63V	1976	4822 070 31601	FUSE T 160mA /01B
2420	5322 122 32659	33pF 5% 50V	5001 ▲	4822 146 31355	MAINS TRAFO /00B/05B
2421	4822 122 33496	100nF 10% 63V	5001 ▲	4822 146 31396	MAINS TRAFO /01B
2422	4822 122 33496	100nF 10% 63V	5001 ▲	4822 277 21366	VOLTAGE SELECTOR/01B
2423	4822 122 33496	100nF 10% 63V	5001 ▲	4822 444 60655	SELECTOR COVER /01B
2424	4822 124 22339	100μF 16V			
2428	4822 124 41525	100μF 20% 25V			
2429	4822 124 41525	100μF 20% 25V			
2430	5322 122 34123	1nF 10% 50V			
2431	5322 122 34123	1nF 10% 50V			
RESISTORS					
3400	4822 116 52175	100Ω 5% 0,5W			
3401	4822 116 52175	100Ω 5% 0,5W			
3402	4822 101 21199	10kX2 20% 0,025W			
3403	4822 051 20123	12k 5% 0,1W			
3404	4822 051 20123	12k 5% 0,1W			
3405	4822 051 20273	27k 5% 0,1W			
3406	4822 051 20273	27k 5% 0,1W			
3407	4822 051 20121	120Ω 5% 0,1W			
3408	4822 051 20121	120Ω 5% 0,1W			
3409 ▲	4822 052 10109	10Ω 5% 0,33W			
3410 ▲	4822 052 10109	10Ω 5% 0,33W			
3415	4822 051 20472	4k7 5% 0,1W			
3417	4822 051 20103	10k 5% 0,1W			
3418	4822 051 10102	1k 2% 0,25W			
3419 ▲	4822 052 10109	10Ω 5% 0,33W			
3420 ▲	4822 052 10109	10Ω 5% 0,33W			
3421	4822 051 20333	33k 5% 0,1W			
3422	4822 051 20471	470Ω 5% 0,1W			

### READ/WRITE PANEL

#### CAPACITORS

2800	4822 126 13193	4,7nF 10% 63V
2801	5322 126 11583	10nF 10% 63V
2802	5322 126 11583	10nF 10% 63V
2803	5322 126 11583	10nF 10% 63V
2804	5322 126 11583	10nF 10% 63V
2805	5322 126 11583	10nF 10% 63V
2806	5322 126 11583	10nF 10% 63V
2807	5322 126 11583	10nF 10% 63V
2808	5322 126 11583	10nF 10% 63V
2809	4822 126 13189	1µF 80-20%16V
2810	4822 126 13189	1µF 80-20%16V
2811	4822 126 13189	1µF 80-20%16V
2812	4822 126 13189	1µF 80-20%16V
2813	4822 126 13189	1µF 80-20%16V
2814	4822 126 13189	1µF 80-20%16V
2815	4822 126 13189	1µF 80-20%16V
2816	4822 126 13189	1µF 80-20%16V
2817	4822 126 13189	1µF 80-20%16V
2818	4822 126 13189	1µF 80-20%16V
2819	4822 124 80867	10µF 20% 16V
2820	5322 126 11583	10nF 10% 63V
2821	5322 126 11583	10nF 10% 63V
2822	4822 126 13196	100nF 10% 25V
2823	4822 126 13196	100nF 10% 25V
2824	4822 124 80867	10µF 20% 16V
2825	4822 124 80867	10µF 20% 16V
2826	4822 124 80867	10µF 20% 16V
2827	4822 124 80867	10µF 20% 16V
2828	5322 126 11583	10nF 10% 63V
2829	5322 126 11583	10nF 10% 63V
2830	5322 126 11583	10nF 10% 63V
2835	5322 126 11578	1nF 10% 63V
2836	4822 126 13192	2,2nF 10% 63V
2837	4822 126 13192	2,2nF 10% 63V
2838	4822 126 13196	100nF 10% 25V
2839	4822 122 33775	39pF 5% 50V
2840	4822 126 13196	100nF 10% 25V
2841	4822 126 13196	100nF 10% 25V
2842	4822 124 80867	10µF 20% 16V
2843	4822 124 80867	10µF 20% 16V
2844	4822 126 13191	470pF 10% 63V
2845	4822 126 13191	470pF 10% 63V
2846	4822 126 13189	1µF 80-20%16V
2847	5322 126 11583	10nF 10% 63V
2860	4822 126 13189	1µF 80-20%16V
2861	4822 122 32627	2.7nF 10% 50V
2862	4822 122 32627	2.7nF 10% 50V
2863	4822 126 10525	8,2nF 10% 63V
2864	4822 126 10525	8,2nF 10% 63V

2865	4822 122 33761	22pF 5% 50V
2866	4822 122 33761	22pF 5% 50V
2870	4822 122 32627	2.7nF 10% 50V
2871	4822 122 32627	2.7nF 10% 50V
2872	4822 126 10525	8,2nF 10% 63V
2873	4822 126 10525	8,2nF 10% 63V
2874	4822 126 13189	1µF 80-20%16V
2880	4822 124 80867	10µF 20% 16V
2881	4822 126 13196	100nF 10% 25V
2882	4822 126 13196	100nF 10% 25V
2883	4822 124 80867	10µF 20% 16V
2884	5322 126 11579	3,3nF 10% 63V
2885	5322 126 11579	3,3nF 10% 63V
2886	5322 126 11579	3,3nF 10% 63V
2887	5322 126 11579	3,3nF 10% 63V
2888	5322 126 11579	3,3nF 10% 63V
2889	5322 126 11579	3,3nF 10% 63V
2890	5322 126 11579	3,3nF 10% 63V
2891	5322 126 11579	3,3nF 10% 63V
2892	5322 126 11579	3,3nF 10% 63V
2910	4822 124 80867	10µF 20% 16V
2911	5322 126 11583	10nF 10% 63V
2912	4822 126 13196	100nF 10% 25V
2914	4822 124 80867	10µF 20% 16V
2999	4822 126 13196	100nF 10% 25V

#### RESISTORS

3000	4822 051 30223	22k 5% 0,062W
3800	4822 051 30561	560Ω 5% 0,062W
3801	4822 051 30561	560Ω 5% 0,062W
3802	4822 051 30561	560Ω 5% 0,062W
3803	4822 051 30561	560Ω 5% 0,062W
3804	4822 051 30561	560Ω 5% 0,062W
3805	4822 051 30561	560Ω 5% 0,062W
3806	4822 051 30561	560Ω 5% 0,062W
3807	4822 051 30561	560Ω 5% 0,062W
3808	4822 051 30561	560Ω 5% 0,062W
3809	4822 051 30681	680Ω 5% 0,062W
3810	4822 051 30222	2k2 5% 0,062W
3811	4822 051 30473	47k 5% 0,062W
3812	4822 051 30104	100k 5% 0,062W
3813	4822 051 30103	10k 5% 0,062W
3814	4822 051 30104	100k 5% 0,062W
3815	4822 051 30472	4k7 5% 0,062W
3816	4822 051 30562	5k6 5% 0,062W
3817	4822 051 30393	39k 5% 0,062W
3818	4822 051 30479	47Ω 5% 0,062W
3819	4822 051 30104	100k 5% 0,062W
3830	4822 051 30103	10k 5% 0,062W
3831	4822 051 30103	10k 5% 0,062W
3832	4822 051 30103	10k 5% 0,062W
3833	4822 051 30103	10k 5% 0,062W
3835	4822 051 30229	22Ω 5% 0,062W

3836	4822 051 30229	22Ω	5%	0,062W
3837	4822 051 30279	27Ω	5%	0,062W
3838	4822 051 30101	100Ω	5%	0,062W
3839	4822 051 30152	1k5	5%	0,062W
3840	4822 051 30561	560Ω	5%	0,062W

3841	4822 051 30182	1k8	5%	0,062W
3842	4822 051 30331	330Ω	5%	0,062W
3843	4822 051 30331	330Ω	5%	0,062W
3844	4822 051 30109	10Ω	5%	0,062W
3845	4822 051 30109	10Ω	5%	0,062W

3846	4822 051 30109	10Ω	5%	0,062W
3847	4822 051 30109	10Ω	5%	0,062W
3848	4822 051 30152	1k5	5%	0,062W
3849	4822 051 30152	1k5	5%	0,062W
3850	4822 051 30274	270k	5%	0,062W

3851	4822 051 30333	33k	5%	0,062W
3852	4822 051 30102	1k	5%	0,062W
3853	4822 051 30183	18k	5%	0,062W
3854	4822 051 30333	33k	5%	0,062W
3855	4822 051 30102	1k	5%	0,062W

3856	4822 051 30183	18k	5%	0,062W
3857	4822 051 30274	270k	5%	0,062W
3858	4822 051 30152	1k5	5%	0,062W
3859	4822 051 30152	1k5	5%	0,062W
3860	4822 116 83933	15k	1%	0,1W

3861	4822 051 30473	47k	5%	0,062W
3862	4822 117 11154	1k	1%	0,1W
3863	4822 117 10356	39k	1%	0,2W
3864	4822 117 11137	68k	1%	0,1W
3865	4822 117 11147	270k	1%	0,1W

3866	4822 117 11148	56k	1%	0,1W
3868	4822 117 10965	18k	1%	0,1W
3869	4822 117 11149	82k	1%	0,1W
3870	4822 116 83933	15k	1%	0,1W
3871	4822 051 30473	47k	5%	0,062W

3872	4822 117 11154	1k	1%	0,1W
3873	4822 117 10356	39k	1%	0,2W
3874	4822 117 11137	68k	1%	0,1W
3875	4822 117 11147	270k	1%	0,1W
3876	4822 117 11148	56k	1%	0,1W

3878	4822 117 10965	18k	1%	0,1W
3879	4822 117 11149	82k	1%	0,1W
3880	4822 051 30222	2k2	5%	0,062W
3881	4822 051 30399	39Ω	5%	0,062W
3882	4822 051 30399	39Ω	5%	0,062W

3883	4822 051 30399	39Ω	5%	0,062W
3884	4822 051 30399	39Ω	5%	0,062W
3885	4822 051 30122	1k2	5%	0,062W
3886	4822 051 30159	15Ω	5%	0,062W
3887	4822 051 20228	2Ω2	5%	0,1W

3888	4822 101 11318	POTMETER	22k	LIN
3889	4822 051 30103	10k	5%	0,062W
3890	4822 051 30473	47k	5%	0,062W
3891	4822 051 30221	220Ω	5%	0,062W

3892	4822 051 30683	68k	5%	0,062W
3893	4822 051 30822	8k2	5%	0,062W
3894	4822 051 30333	33k	5%	0,062W
3895	4822 051 30562	5k6	5%	0,062W
3896	4822 051 30104	100k	5%	0,062W
3897	4822 051 30229	22Ω	5%	0,062W

3898	4822 051 30229	22Ω	5%	0,062W
3899	4822 051 30229	22Ω	5%	0,062W
3900	4822 051 30229	22Ω	5%	0,062W
3901	4822 051 30229	22Ω	5%	0,062W
3902	4822 051 30229	22Ω	5%	0,062W

3903	4822 051 30229	22Ω	5%	0,062W
3904	4822 051 30229	22Ω	5%	0,062W
3905	4822 051 30229	22Ω	5%	0,062W
3906	4822 051 30472	4k7	5%	0,062W
3907	4822 051 30271	270Ω	5%	0,062W

3908	4822 051 30561	560Ω	5%	0,062W
3909	4822 051 30561	560Ω	5%	0,062W
3910	4822 051 30688	6Ω8	5%	0,062W
3911	4822 051 30222	2k2	5%	0,062W
3912	4822 051 30392	3k9	5%	0,062W

3913	4822 051 30102	1k	5%	0,062W
3914	4822 051 30821	820Ω	5%	0,062W
3915	4822 051 30688	6Ω8	5%	0,062W

**COILS**

5835	4822 157 70298	15μH
5836	4822 157 70298	15μH
5837	4822 157 70298	15μH
5860	4822 157 63622	0.47μH

**DIODES, TRANSISTORS & I.C.'s**

6800	5322 130 31928	BAS16
7800	4822 130 42675	BC818
7801	5322 130 41982	BC848B
7802	4822 130 42675	BC818
7803	5322 130 41982	BC848B
7804	5322 130 41982	BC848B
7805	4822 209 31995	TDA1317
7830	5322 130 41982	BC848B
7835	5322 130 41982	BC848B
7860	4822 209 33392	MC34074AD
7861	5322 130 41982	BC848B
7871	5322 130 41982	BC848B
7882	4822 209 33396	TDA1319T/N1
7883	4822 130 42615	BC817-40
7900	4822 209 33411	MC78L05ACD
7910	5322 130 41982	BC848B
7911	5322 130 41979	BC808
7912	5322 130 41982	BC848B

**DIGITAL PANEL****RESONATORS**

1610	4822 242 81359	CRYSTAL 22.579 MHz
1611	4822 242 81358	CRYSTAL 24.576 MHz
1700	4822 242 81739	RESONATOR 4.91 MHz

**CAPACITORS**

2600	4822 122 33496	100nF 10% 63V
2601	4822 122 33809	22nF 20% 50V
2602	4822 122 33809	22nF 20% 50V
2603	4822 122 33809	22nF 20% 50V
2605	4822 122 33809	22nF 20% 50V
2606	4822 122 33809	22nF 20% 50V
2607	4822 122 33809	22nF 20% 50V
2610	4822 122 33809	22nF 20% 50V
2611	4822 122 33809	22nF 20% 50V
2612	4822 122 33809	22nF 20% 50V
2613	5322 122 32481	15pF 5% 50V
2614	5322 122 31946	27pF 5%NP0 50V
2615	5322 122 32481	15pF 5% 50V
2616	5322 122 31946	27pF 5%NP0 50V
2617	5322 122 32448	10pF 5% 50V
2618	5322 122 32448	10pF 5% 50V
2620	5322 122 34123	1nF 10% 50V
2621	5322 122 32659	33pF 5% 50V
2622	4822 122 31981	33nF +-0,5pF 50V
2623	4822 122 33809	22nF 20% 50V
2624	4822 122 33496	100nF 10% 63V
2625	4822 122 33809	22nF 20% 50V
2626	4822 122 33809	22nF 20% 50V
2627	4822 122 33064	330nF 80% 25V
2630	4822 122 33809	22nF 20% 50V
2631	4822 122 33515	82pF 5% 63V
2632	4822 122 33496	100nF 10% 63V
2633	4822 122 33496	100nF 10% 63V
2634	5322 122 32531	100pF 5% 50V
2635	4822 122 33809	22nF 20% 50V
2636	4822 122 33809	22nF 20% 50V
2637	4822 122 33809	22nF 20% 50V
2638	4822 122 33809	22nF 20% 50V
2639	4822 122 33809	22nF 20% 50V
2640	4822 122 33809	22nF 20% 50V
2641	4822 122 33809	22nF 20% 50V
2642	4822 124 80866	47µF 20% 6,3V
2643	4822 122 32927	220nF +80-20% 50V
2644	4822 122 33809	22nF 20% 50V
2645	4822 122 33496	100nF 10% 63V
2700	5322 122 32531	100pF 5% 50V
2701	4822 122 33809	22nF 20% 50V
2702	4822 122 33809	22nF 20% 50V
2705	4822 122 33809	22nF 20% 50V

2706	4822 122 33809	22nF 20% 50V
2707	4822 122 33809	22nF 20% 50V
2760	4822 122 33809	22nF 20% 50V
2762	4822 122 31746	1000pF 2% 63V
2763	4822 122 31746	1000pF 2% 63V
2764	4822 124 80867	10µF 20% 16V
2766	4822 122 33809	22nF 20% 50V
2767	4822 124 80866	47µF 20% 6,3V
2768	4822 122 33809	22nF 20% 50V
2780	4822 124 80866	47µF 20% 6,3V
2781	4822 122 33809	22nF 20% 50V
2782	4822 122 33809	22nF 20% 50V
2783	4822 124 80866	47µF 20% 6,3V
2786	4822 122 33809	22nF 20% 50V
2787	4822 124 80866	47µF 20% 6,3V
2788	4822 122 33809	22nF 20% 50V
2790	4822 122 33809	22nF 20% 50V
2791	4822 124 80866	47µF 20% 6,3V
2792	4822 124 80866	47µF 20% 6,3V
2793	4822 122 33809	22nF 20% 50V
2795	4822 122 33809	22nF 20% 50V
2796	4822 122 33809	22nF 20% 50V
2797	4822 122 33809	22nF 20% 50V
2798	4822 122 33809	22nF 20% 50V
2799	4822 122 33809	22nF 20% 50V
2800	4822 122 33809	22nF 20% 50V

**RESISTORS**

3600	4822 051 20333	33k 5% 0,1W
3601 ▲	4822 117 11151	1Ω 5%
3610	4822 051 20105	1M 5% 0,1W
3611	4822 051 10102	1k 2% 0,25W
3612	4822 051 20105	1M 5% 0,1W
3613	4822 051 10102	1k 2% 0,25W
3615 ▲	4822 117 11151	1Ω 5%
3619	4822 051 20479	47Ω 5% 0,1W
3620	4822 051 20101	100Ω 5% 0,1W
3621	4822 051 20271	270Ω 5% 0,1W
3622 ▲	4822 117 11151	1Ω 5%
3623	4822 051 20221	220Ω 5% 0,1W
3624	4822 051 20221	220Ω 5% 0,1W
3625	4822 051 20221	220Ω 5% 0,1W
3630	4822 051 20121	120Ω 5% 0,1W
3631	4822 051 20221	220Ω 5% 0,1W
3632	4822 117 10834	47k 1% 0,1W
3633	4822 117 10833	10k 1% 0,1W
3634	4822 051 20472	4k7 5% 0,1W
3635 ▲	4822 117 11151	1Ω 5%
3636 ▲	4822 117 11151	1Ω 5%
3637	4822 051 20471	470Ω 5% 0,1W
3638	4822 051 20471	470Ω 5% 0,1W
3639	4822 051 20331	330Ω 5% 0,1W
3640	4822 051 20331	330Ω 5% 0,1W

3641	4822 051 20122	1k2 5% 0,1W
3642	4822 051 20471	470Ω 5% 0,1W
3700	4822 117 10833	10k 1% 0,1W
3701	4822 117 10833	10k 1% 0,1W
3702	4822 117 10833	10k 1% 0,1W

3703	4822 117 10833	10k 1% 0,1W
3704	4822 117 10833	10k 1% 0,1W
3705 ▲	4822 117 11151	1Ω 5%
3706 ▲	4822 117 11151	1Ω 5%
3707	4822 051 20105	1M 5% 0,1W

3708	4822 051 20472	4k7 5% 0,1W
3709	4822 117 10833	10k 1% 0,1W
3710	4822 117 10833	10k 1% 0,1W
3711	4822 117 10833	10k 1% 0,1W
3712	4822 117 10833	10k 1% 0,1W

3761 ▲	4822 117 11151	1Ω 5%
3762 ▲	4822 117 11152	4Ω7 5%
3764	4822 117 10833	10k 1% 0,1W
3765	4822 051 10102	1k 2% 0,25W
3780	4822 051 20624	620k 5% 0,1W

3781	4822 117 10833	10k 1% 0,1W
3782	4822 051 20334	330k 5% 0,1W
3783	4822 051 20472	4k7 5% 0,1W
3784	4822 051 20472	4k7 5% 0,1W
3785	4822 117 10833	10k 1% 0,1W

3786	4822 051 20333	33k 5% 0,1W
3787 ▲	4822 117 11152	4Ω7 5%
3788	4822 051 20271	270Ω 5% 0,1W
3789	4822 051 20271	270Ω 5% 0,1W
3790	4822 051 20562	5k6 5% 0,1W

3791	4822 051 20562	5k6 5% 0,1W
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**COILS**

5600	4822 157 71267	COIL
5601	4822 157 71267	COIL
5602	4822 157 71267	COIL
5603	4822 157 71267	COIL
5630	4822 157 70298	15μH

5700	4822 157 71267	COIL
5701	4822 157 71267	COIL
5702	4822 157 71267	COIL

**DIODES, TRANSISTORS & I.C.'s**

6600	5322 130 31928	BAS16
6630	4822 130 80654	BZX84-B3V9
6631	5322 130 31928	BAS16
6632	4822 130 80654	BZX84-B3V9
7600	4822 209 33401	SAA2013H

7610	4822 209 33399	SAA2003H
7620	4822 209 33395	TDA1315H/N1
7630	4822 209 33402	SAA2023GP
7631	4822 209 33387	MN41C4256ASJ
7632	4822 130 61207	BC848

7633	4822 130 61207	BC848
7700	4822 209 33388	UPD78P056GC
7701	4822 209 30739	MC74HC04AD
7702	4822 209 33389	MC74HC32AD
7730	4822 209 60792	74HC4053D

7760	4822 209 33403	TDA1305T/N2
7780	4822 209 33397	SAA7366T

**TAPE/DRIVE PANEL****RESONATORS**

1500	4822 242 81738	RESONATOR 11.059 MHz
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**CAPACITORS**

2500	4822 122 33809	22nF 20% 50V
2503	4822 124 40433	47μF 20% 25V
2504	5322 122 32531	100pF 5% 50V
2521	4822 122 33809	22nF 20% 50V
2522	4822 124 40433	47μF 20% 25V

2525	4822 124 40243	1,5μF 20% 63V
2545	4822 126 13189	1μF 80-20%16V
2550	4822 122 33809	22nF 20% 50V
2570	4822 124 40433	47μF 20% 25V
2571	4822 122 33809	22nF 20% 50V

2572	4822 122 33216	270pF 5% 50V
2573	4822 124 40433	47μF 20% 25V
2574	4822 122 33809	22nF 20% 50V
2575	4822 124 40433	47μF 20% 25V
2576	4822 122 33809	22nF 20% 50V

2580	4822 122 33809	22nF 20% 50V
2581	4822 122 33809	22nF 20% 50V
2599	4822 122 33496	100nF 10% 63V

**RESISTORS**

3500	4822 051 20105	1M 5% 0,1W
3501 ▲	4822 052 10478	4Ω7 5% 0,33W
3502	4822 117 11158	62k 5% 0,1W
3503	4822 051 10102	1k 2% 0,25W
3504	4822 117 11158	62k 5% 0,1W

3506	4822 117 10833	10k 1% 0,1W
3507	4822 117 10833	10k 1% 0,1W
3508	4822 051 20224	220k 5% 0,1W
3509	4822 051 10102	1k 2% 0,25W
3513	4822 051 20224	220k 5% 0,1W

3525	4822 051 20333	33k 5% 0,1W
3526 ▲	4822 052 10229	22Ω 5% 0,33W
3527	4822 051 20104	100k 5% 0,1W
3528	4822 051 20823	82k 5% 0,1W
3530	4822 051 20472	4k7 5% 0,1W

3531	4822 117 10833	10k 1% 0,1W
3532	4822 117 11139	1k5 1% 0,1W

3533	4822 051 20122	1k2 5% 0,1W
3534	4822 051 10102	1k 2% 0,25W
3535	4822 051 20472	4k7 5% 0,1W
3536	4822 117 10834	47k 1% 0,1W
3537	4822 051 20133	13k 5% 0,1W
3538	4822 051 20133	13k 5% 0,1W
3539	4822 051 20472	4k7 5% 0,1W
3540	4822 051 20472	4k7 5% 0,1W
3541	4822 117 10834	47k 1% 0,1W
3542	5322 100 11542	4k7 30%LIN 0,1W
3543	5322 100 11542	4k7 30%LIN 0,1W
3544	4822 051 20822	8k2 5% 0,1W
3545	4822 051 20472	4k7 5% 0,1W
3546	4822 117 10833	10k 1% 0,1W
3547	4822 116 83933	15k 1% 0,1W
3548	4822 117 11384	2k7 1% 0,1W
3550	4822 051 20331	330Ω 5% 0,1W
3551	4822 051 10102	1k 2% 0,25W
3552	4822 117 11383	12k 1% 0,1W
3553	4822 117 11148	56k 1% 0,1W
3554	4822 051 20221	220Ω 5% 0,1W
3555 ▲	4822 052 10229	22Ω 5% 0,33W
3556	4822 051 20471	470Ω 5% 0,1W
3557	4822 051 10102	1k 2% 0,25W
3558	4822 051 20153	15k 5% 0,1W
3560	4822 051 20472	4k7 5% 0,1W
3561	4822 117 10833	10k 1% 0,1W
3562	4822 051 20331	330Ω 5% 0,1W
3563	4822 051 10102	1k 2% 0,25W
3564	4822 051 20271	270Ω 5% 0,1W
3565	4822 050 22709	27Ω 1% 0,6W
3566	4822 050 22709	27Ω 1% 0,6W
3567	4822 051 20472	4k7 5% 0,1W
3568	4822 117 10833	10k 1% 0,1W
3569	4822 051 20331	330Ω 5% 0,1W
3570 ▲	4822 117 11152	4Ω7 5%
3571 ▲	4822 117 11151	1Ω 5%
3572 ▲	4822 117 11151	1Ω 5%
3573	4822 051 20181	180Ω 5% 0,1W
3574	4822 051 10102	1k 2% 0,25W
3580	4822 116 30468	220Ω 5% 0,21W
3581	4822 116 30468	220Ω 5% 0,21W

**COILS**

5570 4822 157 71152 150μH

**DIODES, TRANSISTORS & I.C.'s**

6550	4822 130 81755	BZX84-B4V3
6560	5322 130 31928	BAS16
6561	5322 130 31928	BAS16
6570	4822 130 32911	BYV10-30
6571	4822 130 83665	BZX84-B16
7500	4822 209 33915	P87C52EBPN-CV5454-1N

7505	4822 209 31615	LM324A
7510	4822 209 70672	LM358N
7520	5322 130 42136	BC848C
7522	5322 130 42136	BC848C
7523	5322 130 42136	BC848C
7524	5322 130 42012	BC858
7540	5322 130 42136	BC848C
7541	5322 130 42136	BC848C
7542	4822 130 42655	BC808-40
7551	5322 130 42136	BC848C
7552	5322 130 42012	BC858
7560	5322 130 42136	BC848C
7561	5322 130 42136	BC848C
7562	4822 130 41344	BC337-40
7563	5322 130 42136	BC848C
7564	4822 130 42616	BC818-40
7570	4822 209 60059	MC34063A
7580	4822 209 33391	BA6246N
7581	4822 209 33393	MC74HC4066D