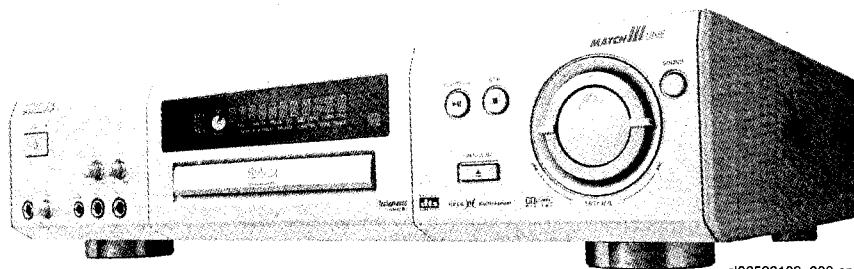


Service
Service
Service



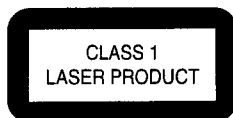
V26564

DVD 951 /001
DVD 957 /001
DVD 958 /001



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Service Manual



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PHILIPS

1. Technical specifications

Specifications

PLAYBACK SYSTEM

DVD-Video

Video CD

CD (CD-R and CD-RW)

DVD-RW

OPTICAL READOUT SYSTEM

Laser type	Semiconductor AlGaAs	
Numerical Aperture	0.60 (DVD)	
	0.45 (VCD/CD)	
Wavelength	650 nm (DVD)	
	780 nm (VCD/CD)	

DVD DISC FORMAT

Medium	Optical Disc	
Diameter	12cm (8cm)	
Playing time (12cm)	One layer	2.15 h*
	Dual layer	4 h*
	Two side	4.30 h*
	Single layer	
	Two side	8 h*
	Dual layer	

VIDEO FORMAT

DA Converter	10 bits	
Signal handling	Components	
Digital Compression	MPEG2 for DVD, MPEG1 for VCD	

TV STANDARD

	(PAL/50Hz)	(NTSC/60Hz)
Number of lines	625	525
Playback	Multistandard	(PAL/NTSC)

DVD

Horiz. Resolution	720 pixels	720 pixels
Vertical Resolution	576 lines	480 lines

VCD

Horiz. Resolution	352 pixels	352 pixels
Vertical Resolution	288 lines	240 lines

VIDEO PERFORMANCE

Video output	1 Vpp into 75 ohm	
S-Video output	Y: 1 Vpp into 75 ohm	
	C: 0.3 Vpp into 75 ohm	
Y Cb Cr (YUV) output	Y: 1 Vpp into 75 ohm	
	Cb Cr: 0.7 Vpp into 75 ohm	
Black Level Shift	On/Off	
Video Shift	Left/Right	

AUDIO FORMAT

Digital	MPEG	Compressed Digital
	DTS/AC-3	
	PCM	16, 20, 24 bits
		fs. 44.1, 48, 96 kHz

Analog Sound Stereo

2 channel downmix from DTS multi-channel sound

Dolby Pro Logic downmix from Dolby Digital (AC-3) multi-channel sound

Full decoding of AC-3 and DTS multi-channel surround sound

3D Sound for virtual 5.1 channel sound on 2 speakers

AUDIO PERFORMANCE

DA Converter	24 bits	
DVD	fs 96 kHz	4 Hz - 44 kHz
	fs 48 kHz	4 Hz - 22 kHz
Video CD	fs 44.1 kHz	4 Hz - 20 kHz
CD	fs 44.1 kHz	4 Hz - 20 kHz
Signal-Noise (1kHz)	103 dB	
Dynamic Range (1kHz)	100 dB	
Crosstalk (1kHz)	113 dB	
Distortion and Noise (1kHz)	92 dB	
Headphone	30mW at 32 Ohm load, headphone imp. 8-2k Ohm	

CONNECTIONS

Y Output	Cinch (green)
Cb (U) Output	Cinch (blue)
Cr (V) Output	Cinch (red)
S-Video Output	Mini DIN, 4 pins
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
6 Channel Analog Output	
Audio Front Left/Right	Cinch (white/red)
Audio Surround Left/Right	Cinch (white/red)
Audio Center	Cinch (blue)
Audio Subwoofer	Cinch (black)
Digital Output	1 coaxial, 1 optical IEC958 for CDDA / LPCM IEC1937 for MPEG1/2, AC-3 and DTS
Headphone	6.3 mm Jack

CABINET

Dimensions (w x h x d)	17.12 x 3.94 x 12.64 inch 435 x 100 x 321mm
Weight	Approx. 8.8 pounds Approx. 4 Kg

GENERAL FUNCTIONALITY

Stop / Play / Pause
Fast Forward / Backward
Time Search
Step Forward / Backward
Slow Motion
Title / Chapter / Track Select
Skip Next / Previous
Repeat (Chapter / Title / All) or (Track / All)
A-B Repeat
Shuffle
Scan
Enhanced ease of use graphical interface
Perfect Still with digital multi-tap filter
Zoom (x1.33, x2, x4) with picture enhancement
Smart Picture (Personal Colour Settings)
3D Sound
5.1 Channels user defined speaker settings
Easy Jog
Audio and video bit rate indicator
Beeper

DVD FUNCTIONALITY

Multi-angle Selection
Audio Selection (1 out of max. 8 languages)
Subtitles Selection (1 out of max. 32 languages)
Aspect Ratio conversion (16:9, 4:3 Letterbox, 4:3 Pan Scan)
Parental Control and Disk Lock
Disc Menu support (Title Menu and Access Control)
Resume (5 discs) after stop / standby
Programming Titles/chapters with Favorite Selection

VIDEO CD FUNCTIONALITY

Playback Control for VCD 2.0 discs
Disc Lock
Resume (5 discs) after stop / standby
Programming Tracks with Favorite Selection

AUDIO CD FUNCTIONALITY

Time Display (Total / Track / Remaining Track Time)
Full audio functionality with remote control
Programming with Favorite Track Selection

Specifications subject to change without prior notice

* typical playing time for movie with 2 spoken languages and 3 subtitle languages.

2. Warnings and Laser safety instructions

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.

ESD



NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische 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.

F ATTENTION

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

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

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

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

D WARNUNG

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).

Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern. Sorgen sie dafür, das Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.

Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

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

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

NL

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

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerats 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.

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.

SHOCK, FIRE HAZARD SERVICE TEST:

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

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

Ref.UL Standard NO.1492.

NOTE ON SAFETY:

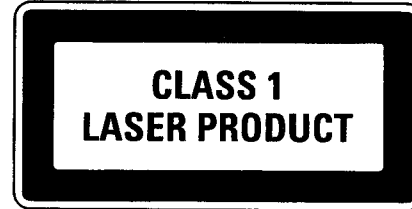
Symbol : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol Any other component substitution (other than original type), may increase risk or fire or electrical shock hazard.

LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

LASER DEVICE UNIT

Type:	SemiconductorlaserGaAIAs
Wave length:	650 nm (DVD) 780 nm (VCD/CD)
Output Power:	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence:	60 degree



USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

AVOID DIRECT EXPOSURE TO BEAM

WARNING

The use of optical instruments with this product will increase eye hazard.
Repair handling should take place as much as possible with a disc loaded inside the player

WARNING LOCATION: INSIDE ON LASER COVERSIELD

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD BETRakta EJ STRÅLEN
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

Warning for powersupply on position 1005

The primary side of the powersupply including the heatsink carries live mains voltage when the player is connected to the mains even when the player is switched off !

This primary area is not shielded so it is possible to touch copper tracks and/or components when servicing the player. Service personnel have to take precautions to prevent touching this area or components in this area .

The primary side of the powersupply has been indicated with a lightning stroke and a stripe-marked printed on the printed wiring board

2.1 Notes

2.1.1 DVD-Module

For repair of the DVD-module ASD1, the service manual 3122 785 10840 has to be used.

2.1.2 Compair

For assistance with the repair process of the monoboard an electronic Fault finding guidance has been developed , this program is called COMPAIR.

This COMPAIR program is available on CDROM.

The Version of the CDROM for repair of the monoboard is V1.3 and can be ordered with codenumber : 4822 727 21637.

This is an update CDROM , so when the COMPAIR CDROM is used for the first time , one has to install the COMPAIR ENGINE CDROM V1.2 first.

The V1.2 CDROM can be ordered with codenumber 4822 727 634 and has to registered after installation , the procedure for registration is explained in the help file of the program and in the booklet from the CDROM.

The cable to connect the monoboard with a PC can be ordered with codenumber 3122 785 90017.

All the hardware and software requirements of the systems necessary for working with COMPAIR is described on the CDROM.

3. Directions for use

General Information

LASER SAFETY

This unit employs a laser. Due to possible eye injury, only a qualified service person should remove the cover or attempt to service this device.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

LASER

Type	Semiconductor laser GaAlAs
Wave length	650 nm (DVD) 780 nm (VCD/CD)
Output Power	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence	60 degree

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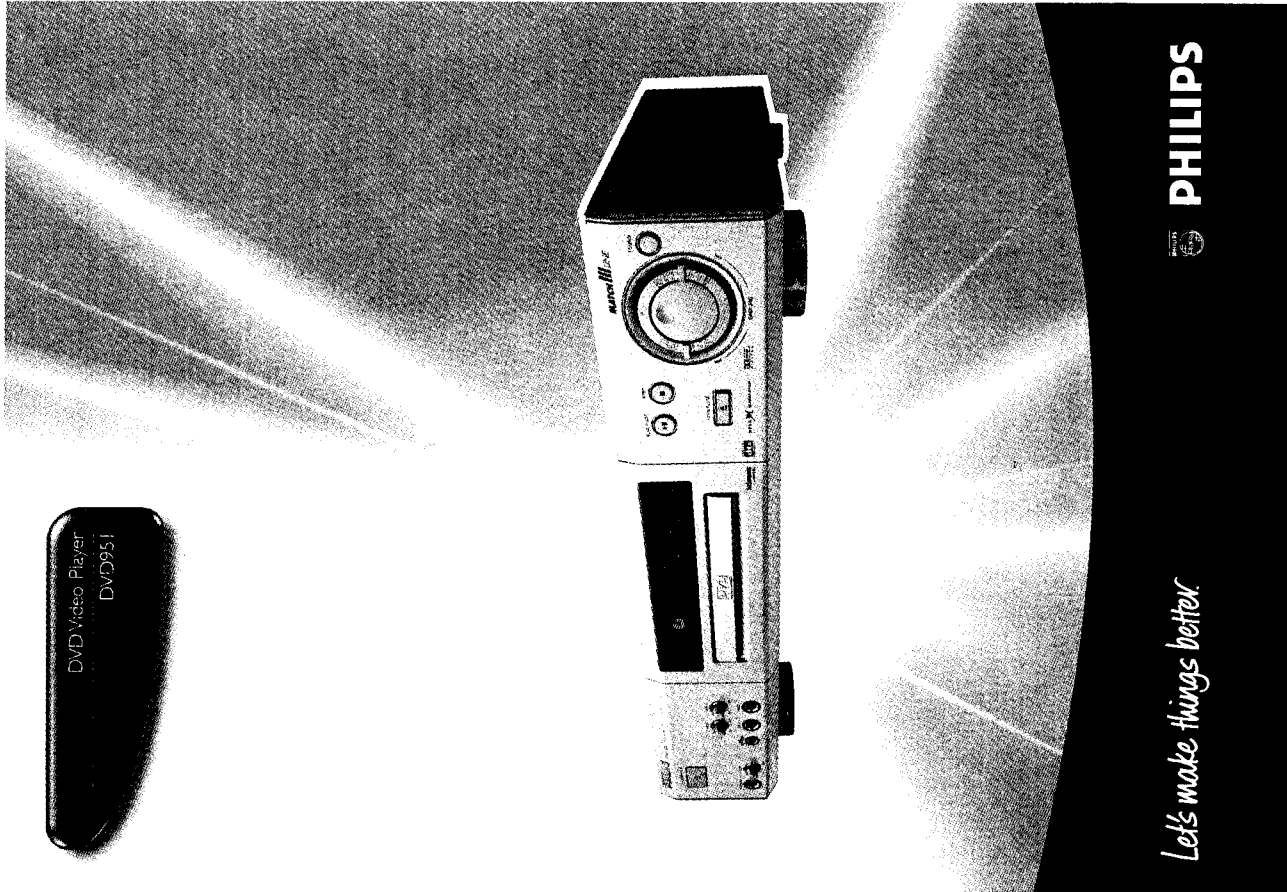
For Customer Use:

Read carefully the information located at the bottom of your DVD-VIDEO player and enter below the Serial No. Retain this information for future reference.

Model No. DVD-VIDEO 956K

Serial No. _____

2 GENERAL INFORMATION



TruSurround and the SRS symbol are trademarks of SRS Labs, Inc. TruSurround technology is manufactured under license from SRS Labs, Inc.

Manufactured under license from Digital Theater Systems, Inc. US Pat. No. 5,451,942 and other world-wide patents issued and pending. "DTS" and "DTS DIGITAL SURROUND" are trademarks of Digital Theater Systems, Inc. © 1996 Digital Theater Systems, Inc. All rights reserved

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English

English

Introduction

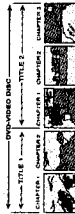
Philips DVD-Video Introduction

Your Philips DVD-Video player will play digital video discs conforming to the universal DVD-Video standard. With it, you will be able to enjoy full-length movies with true cinema picture quality, as well as stereo or multi-channel sound (depending on the disc and your playback setup). The unique features of DVD-Video such as selection of sound track, subtitle, languages and different camera angles (again depending on the disc), are all included. In addition to DVD-Video discs, you will be able to play all Video CDs and Audio CDs (including finalized CD Recordable and CD Rewritable).



DVD-Video

You will recognize DVD-Video discs by the logo shown. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more Titles.



Video CD

You will recognize Video CDs by the logo shown.



Audio CD

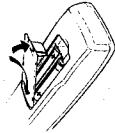
Audio CDs contain music tracks only. You will recognize Audio CDs by the logo shown.



Remote control battery installation

- Insert batteries as indicated inside the battery compartment.

Caution: Do not mix old and new batteries. Never mix different types of batteries (standard, alkaline, etc.).



Safety Information

- Do not expose the system to excessive moisture, rain, sand, or heat sources.
- Place the player on a firm, flat surface.
- Keep the player away from domestic heating equipment and direct sunlight.
- In a cabinet, allow about 2.5 cm (1 inch) of free space all around the player for adequate ventilation.
- If the DVD-Video player cannot read CDs/DVDs correctly, use a commonly available cleaning CD/DVD to clean the lens before taking the DVD-Video player to be repaired. Other cleaning methods may destroy the lens. Always keep the tray closed to avoid dust on the lens.
- The lens may cloud over when the DVD-Video player is suddenly moved from cold to warm surroundings. Playing a CD/DVD is not possible then. Leave the power on for about one hour with no disc in the unit until normal playback is possible.

Cleaning discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.
- Do not use solvents such as benzene, thinner, commercially available cleaners, or anti-static spray intended for analog discs.



Unpacking

First, check and identify the contents of your DVD-Video player package.

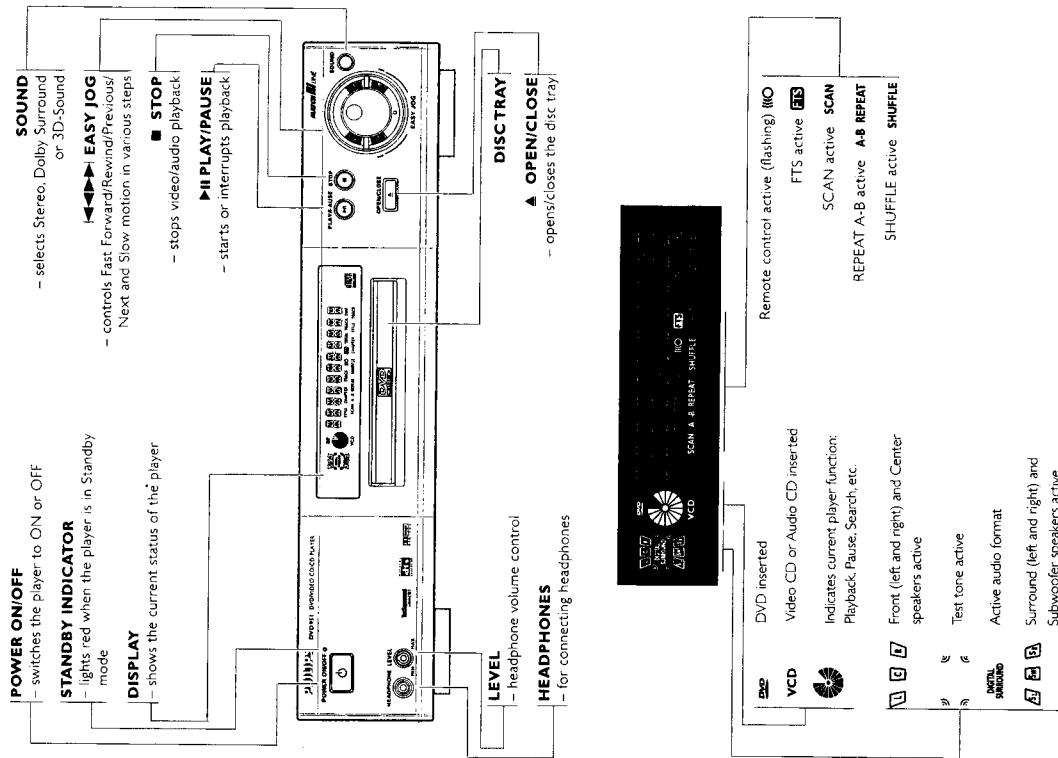
You should have the following items:

- DVD-Video player
 - Remote Control with batteries
 - AC power cord
 - Audio cable
 - Video cable
 - Instructions for use
- If any item is damaged or missing, contact your retailer or Philips.

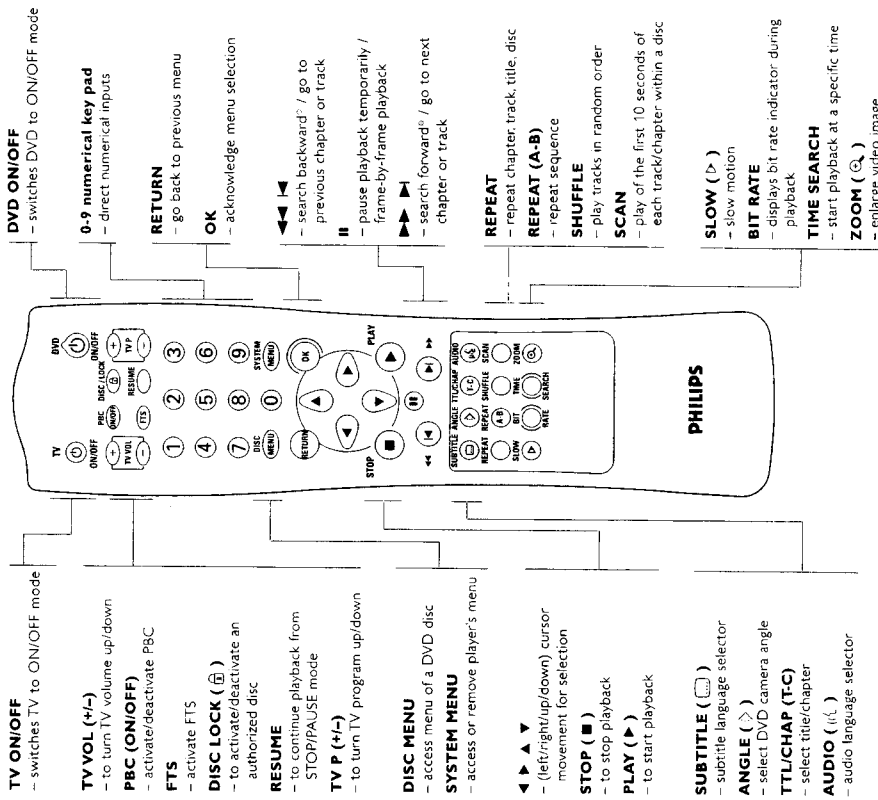
Keep the packaging material for future transportation.

Functional Overview

Front panel and Display

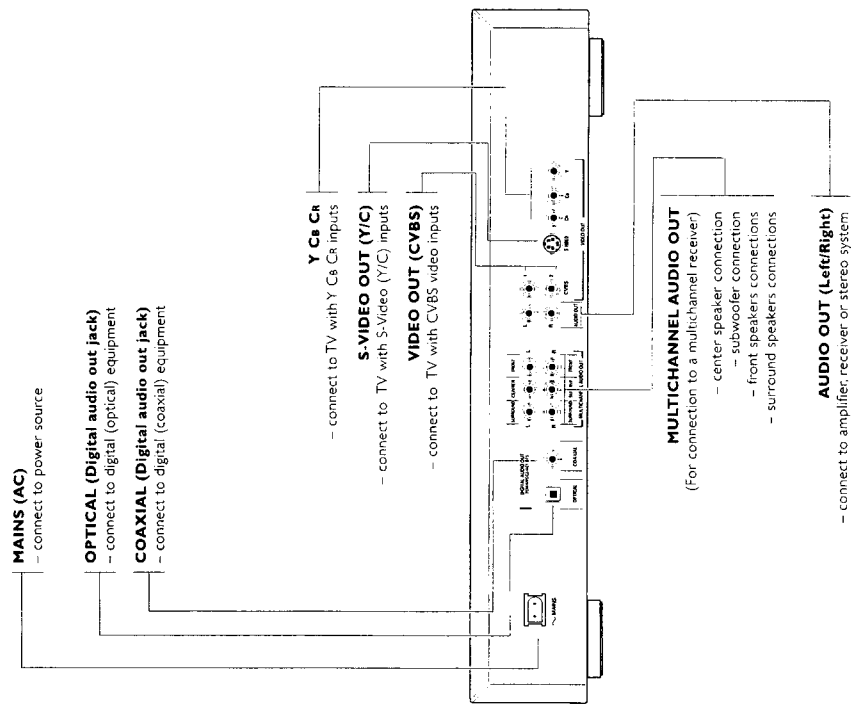


Remote control



^a Press and hold key for about 2 seconds

Rear panel



Caution: Do not touch the inner pins of the jacks on the rear panel. Electrostatic discharge may cause permanent damage to the unit.

Preparation

General notes

- Depending on your TV and other equipment you wish to connect, there are various ways you could connect the player.
- Please refer to the manuals of your TV/VCR, Stereo System or other devices as necessary to make the best connections.
- For better sound reproduction, connect the player's audio out jacks to the audio in jacks of your amplifier, receiver, stereo or audio/video equipment. See "Connecting to optional equipment".

Caution:

- Do not connect the player's audio out jack to the phono in jack of your audio system.
- Do not connect your DVD-player via your VCR. The DVD image could be distorted by the copy protection system.

Connecting to a TV

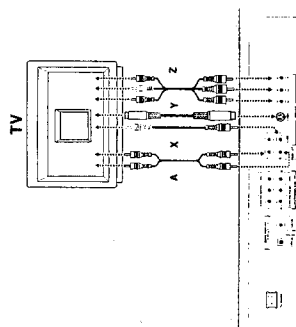
- Component Video (Y Cs Cr) connection**
- 1 Connect the Y, Cs, Cr out jacks on the DVD-player to the corresponding in jacks on the TV using optional Y, Cs, Cr cable (Z)
 - 2 Connect the Left and Right audio out jacks to the audio left/right in jacks on the TV (A).

S-Video (Y/C) connection

- 1 Connect the S-Video out jack on the DVD-player to the S-Video in jack on the TV using an optional S-Video cable (Y).
- 2 Connect the Left and Right audio out jacks to the audio left/right in jacks on the TV (A).

Video CVBS connection

- 1 Connect the Video out (CVBS) jack on the player to the video in jack on the TV using the video cable supplied (X)
- 2 Connect the Left and Right audio out jacks to the audio left/right in jacks on the TV (A)



Connecting to optional equipment

Connecting to an amplifier equipped with two channel analog stereo or Dolby Surround

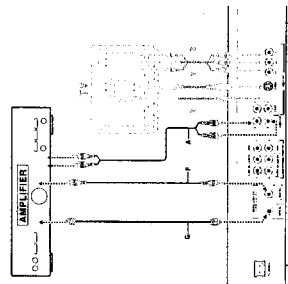
- 1 Connect the Left and Right audio out jacks of the DVD player to the audio left and right in jacks on your amplifier, receiver or stereo system, using the optional audio cable (A)

Connecting to an amplifier equipped with two channel digital stereo (PCM) or to an Audio/Video receiver equipped with a multi-channel decoder (Dolby Digital™ (AC-3), MPEG 2 and DTS)

- 1 Connect the player's digital audio out jack (optical G or coaxial F) to the corresponding in jack on your amplifier. Use an optional digital (optical G or coaxial F) audio cable.
- 2 You will need to activate the player's digital output (see Personal Preferences).

Digital Multi-channel sound

The digital multi-channel connection provides the best sound quality. For this you need a multi-channel A/V receiver that supports one or more of the audio formats supported by your DVD player (MPEG 2, Dolby Digital™ (AC-3) and DTS). Check the receiver manual and the logos on the front of the receiver.



Warning:
Due to DTS Licencing agreement, the digital output will also be in DTS digital out when DTS audio stream is selected.

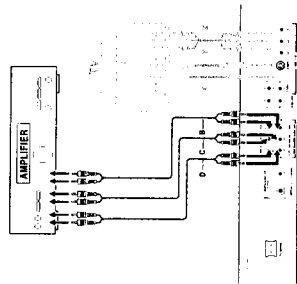
Note:

- If the audio format of the digital output does not match the capabilities of your receiver, the receiver will produce a strong, distorted sound or no sound at all.
- The selected audio format of the DVD is displayed in the Status Window when the SYSTEM MENU is activated or when the Audio button is pressed.
- Six Channel Digital Surround Sound via digital connection can only be obtained if your receiver is equipped with a Digital Multi-channel decoder.
- To see the selected audio format of the current DVD in the Status Window, press the SYSTEM MENU or the Audio Language selector button.

Analog connection to a multi-channel A/V receiver with 6 Channel connectors (AC-3 & DTS)

This DVD player contains a multi-channel decoder. This enables playback of DVD's recorded in Multi-channel Surround without the need for an optional decoder.

- 1 Connect the audio out jacks for the Center speaker and the Subwoofer connection (C) to the corresponding in jacks on your receiver.
- 2 Connect the Left and Right audio out jacks for the Front speaker (B) to the corresponding in jack on your receiver.
- 3 Connect the Left and Right audio out jacks for Surround speaker (D) to the corresponding in jacks on your receiver.
- 4 Make the appropriate Sound settings for Analog Output and Speaker Settings in the Personal Preferences menu.



NTSC/PAL Settings

You can switch the NTSC/PAL settings of the DVD player to match the video signal of your TV. This setting only affects the television's on-screen display that shows the stop and setup modes. You may select either NTSC or PAL. To change the DVD player's setting to PAL or NTSC, follow the steps below.

- 1 Unplug the DVD player from the power cord.
- 2 Press and hold **■** and **SOUND** on the front of the DVD player. While holding **■** and **SOUND**, press POWER ON/OFF.
- 3 After PAL or NTSC appears on the display panel of the DVD player, release **■** and **SOUND** at the same time. The PAL or NTSC indicator that appears on the display panel indicates the current setting.
- 4 To change the setting, press **SOUND** within three seconds. The new setting (PAL or NTSC) will appear on the display panel.

General explanation

About this manual

This manual gives the basic instructions for operating the DVD player. Some DVD's require specific operation or allow only limited operation during playback. When this occurs, the symbol **X** appears on the TV screen, indicating that the operation is not permitted by the player or the disc.

Remote control operation

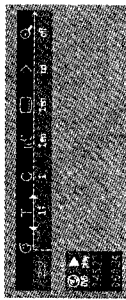
- Unless stated, all operations can be carried out with the remote control. Always point the remote control directly at the player, making sure there are no obstructions between the remote and the player.
- Corresponding keys on the front panel of the player can also be used.

Menu bar operation

- A number of operations can be carried out via the menu bar on the screen. The menu bar can be accessed by pressing the cursor keys on the remote control.
- Pressing SYSTEM MENU while the menu bar is displayed will clear the menu bar from the screen.
- The selected item will be highlighted and the appropriate cursor keys to operate will be displayed below the icon.
- The symbols < or > indicates that more items are available at the left/right of the menu bar. Press < or > to select these items.

Menu bar/Status window

- Personal Preferences
- Title/Track
- Chapter/Index
- Audio language
- Subtitle language
- Angle
- Zoom
- Color Settings (Smart Picture)
- Video Program
- Sound
- Picture by Picture
- Slow motion
- Fast motion
- Time search



Temporary Feedback Field icons

- Scan
- Repeat All
- Repeat Title
- Repeat Track
- Repeat Chapter
- Shuffle
- Shuffle Repeat
- Repeat A to end
- Repeat A-B
- Angle
- Child Lock On
- Child Safe
- Resume
- Action prohibited



Personal Preferences

You can set your own personal preferences on the player.

General operation:

- Press SYSTEM MENU on the remote control.
- Select **⏪** in the menu bar.
- The Personal Preferences menu appears.
- Use the < > keys to move through the menus, submenus and submenu options.
- When a menu item is selected, the cursor keys (on the remote control) needed to operate the item are displayed next to the item.
- Press OK to confirm your selection and return to the main menu.
- The following items can be adapted:

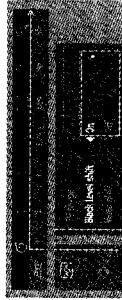
Picture

- **TV Shape**

If you have a wide screen (16:9) TV, select 16:9. If you have a regular (4:3) TV, select 4:3. If you have a 4:3 TV, you can also select between: Letterbox for a 'wide-screen' picture with black bars at the top and bottom of the screen, or Pan Scan, for a full-height picture with the sides trimmed. If a disc supports the format, the picture will be shown accordingly.

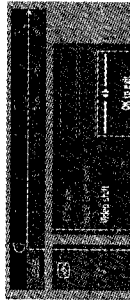
- **Black level shift (NTSC users only)**

Select ON for adapting the color dynamics to obtain richer contrasts.



- **Video shift**

The factory centers the video on your screen. Use this setting to personalize the position of the picture on your TV by moving it to the left or right.



Operation

English

English

- **Color settings (Y Co-Ca connection only)**
You can select one of five predefined sets of color settings or define one set (Personal) yourself.



- **Personal color**
Allows you to fine-tune saturation, brightness and contrast of the selected color settings.

- **Sound**
- **Digital output**
Factory setting: ALL. This means that both coaxial and optical outputs are on. If you are not connecting equipment with a digital input, change the setting to OFF. If your equipment doesn't include a digital multi-channel decoder, set the digital output to PCM (Pulse Code Modulation).



- **Analog output**
Select Stereo, Dolby Surround, 3D sound or multichannel output to match your system's playback capability.



- **Night Mode**
Optimizes the dynamics of the sound for low volume playback.

- **Speaker settings**
Allows you to select speaker settings including volume balance and delay time and to test the speaker. Speaker settings are only active on the Analog Multi-Channel Output. (See appendix)



- **Karaoke vocal**
Put this setting to ON only when a multi-channel karaoke DVD is being played. The karaoke channels on the disc will then be mixed into a normal stereo sound.

- **Language**
Select the required Menu, Audio and Subtitle language. Audio language and Subtitle language can also be adapted using the Menu bar.

- **Features**
- **Access Control**
Access Control contains the following features:
Child Lock - When Child Lock is set to ON, a 4-digit code must be entered in order to play discs.
Parental control - Allows the conditional viewing of DVDs containing Parental Control information (see Access Control)

- **Status Window**
Displays the current status of the player and is displayed with the menu bar. When disc playback is stopped, it is displayed with the Temporary Feedback Field in the default screen. See On-Screen Display information. The factory setting is ON. Select OFF to suppress display of the Status Window.



- **Bit Rate Indicator**
When activated, the bit rate for video and audio as well as the total bit rate is displayed. This is only applicable during playback of DVD and SVCD discs.



- **Beeper**
The beeper can be set to ON or OFF.

Loading discs

- 1 Press OPEN/CLOSE on the front of the player to open the disc tray.
 - 2 Load your chosen disc in the tray, label side up (also when a double sided DVD is inserted).
 - 3 Press OPEN/CLOSE again to close the tray.
→ REPEAT appears in the status window and on the player display, and playback starts automatically.
- Note:
- If Child Lock is set to ON and the disc inserted is not in the 'child safe' list (not authorized), the 4-digit code must be entered and/or the disc must be authorized (see Access Control).

Playing a DVD and Video CD



Playing a disc

- After inserting the disc and closing the tray, playback starts automatically and the status window of the player display shows the type of disc loaded, as well as the disc's information and playing time.
 - The disc may invite you to select an item from a menu. If the selections are numbered, press the appropriate numerical key; if not, use the Δ/∇ , \langle/\rangle keys to highlight your selection, then press OK.
 - The number of the current title and chapter are displayed.
 - Playback may stop at the end of the Title, and you may return to the DVD menu. To go to the next title, press \blacktriangleright to stop playback, press \blacksquare .
 - \rightarrow The default screen will appear, giving information about the current status.
 - You can resume playback from the point at which you stopped playback. Press \blacktriangleright ; when you see the Resume icon \blacktriangleright on the screen, press \blacktriangleright again.
 - \rightarrow The RESUME feature applies not only to the disc in the player, but also to the last four discs you have played. Simply reload the disc and press \blacktriangleright when you see the Resume icon \blacktriangleright on the screen, press \blacktriangleright again.
- Note:
- DVDs may be labeled with a region code.
 - Your player will not play discs that are labeled with a region code different from your player.

General features

- Note:
- Unless stated, all operations described are based on remote control use. Some operations can be carried out using the menu bar on the screen.

Moving to another title/track

- When a disc has more than one title or track, you can move to another title as follows:
- Press T.C. (TTU/CHAP), then press \blacktriangleright or \blacktriangleleft briefly during playback to select the next or to return to the beginning of the current title/track.
 - Press \blacktriangleleft twice briefly to step back to the previous title/track.



Moving to another chapter/index

- When a title on a disc has more than one chapter or a track has more than one index, you can move to another chapter/index as follows:
- Press \blacktriangleright or \blacktriangleleft briefly during playback to select the next or to return to the beginning of the current chapter/index.
 - Press \blacktriangleleft twice briefly to step back to the previous chapter/index.
 - To go directly to any chapter or index, select T.C. (TTU/CHAP), then enter the chapter/index number using the numerical keys (0-9).
- Note:
- For two digit numbers, press the keys in rapid succession.



Slow Motion

- Select S (SLOW MOTION) in the menu bar.
 - Use the ∇ keys to enter the SLOW MOTION menu.
 - \rightarrow The player will now go into PAUSE mode. Use the cursor keys \langle/\rangle to select the required speed: -1, -1/2, -1/4 or -1/8 (backward), or +1/4, +1/2, or +1 (forward).
 - Select 1 to playback at normal speed again.
 - If it is pressed, the speed will be set to zero (PAUSE).
 - To exit slow motion mode, press \blacktriangleright and \blacktriangleleft .
- You can also select Slow Motion speeds by using the \blacktriangleright button on the remote control.



Still Picture and Frame-by-frame playback

- Select **PICTURE BY PICTURE** in the menu bar.
 - Use the **▽** key to enter the picture by picture menu.
 - The player will now go into **PAUSE** mode.
 - Use the cursor keys **◀▶** to select the previous or next picture frame.
 - To exit **PICTURE BY PICTURE** mode, press **▶** or **△**.
- You can also step forward by pressing **II** repeatedly on the remote control.

Scan

- Plays the first 10 seconds of each chapter/tracks on the disc.
- Press **SCAN**.
- To continue playback at your chosen chapter/tracks, press **SCAN** again or press **▶**.

Search

- Select **(FAST MOTION)** in the menu bar.
 - Use the **▽** key to enter the **FAST MOTION** menu.
 - Use the **◀▶** keys to select the required speed: **-32x**, **-8** or **-4** (backward), or **+4**, **+8**, **+32** (forward).
 - Select **1** to play at normal speed again.
 - To exit **FAST MOTION** mode, press **▶** or **△**.
- To search forward or backward through different speeds, you can also hold down **◀◀** or **▶▶**.

Repeat

- **DVD-Video Discs - Repeat chapter/ title/disc**
- To repeat the currently playing chapter, press **REPEAT**.
- **REPEAT CHAPTER** appears on the display.
- To repeat the title currently playing, press **REPEAT** a second time.
- **REPEAT TITLE** appears on the display.
- To repeat the entire disc, press **REPEAT** a third time.
- **REPEAT** appears on the display.
- To exit Repeat mode, press **REPEAT** a fourth time.

Video CDs - Repeat track/disc

- To repeat the track currently playing, press **REPEAT**.
- **REPEAT TRACK** appears on the display.
- To repeat the entire disc, press **REPEAT** a second time.
- **REPEAT** appears on display and screen.
- To exit Repeat mode, press **REPEAT** a third time.

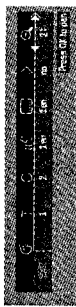
English

English

Zoom

The Zoom function allows you to enlarge the video image and to move through the enlarged image.

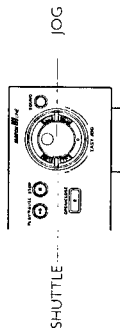
- Select **Q (ZOOM)**.
- Press **▽** to activate the **ZOOM** function and select the required zoom factor: **1.33x**, **2** or **4**.
- The selected zoom factor appears below the Zoom icon in the menu bar and Press **OK** to pair appears below the menu bar.
- The picture will change accordingly.
- Press **OK** to confirm the selection.
- The panning icons appear on the screen.
- Use the **◀▶** **▽** **△** keys to move across the screen.
- When **OK** is pressed, only the zoomed picture will be shown on the screen.
- To exit **ZOOM** mode:
 - Press **▶** to resume playback, **STOP** or **SYSTEM MENU**



Easy Jog

EASY JOG consists of **JOG** and **SHUTTLE** control which allows you to playback in various steps:

- **In playback mode** - search forward/backward within a chapter/index or move to the next/previous chapter/index
 - **SHUTTLE control** **+4x**, **+8x**, **+32x**; **Next** (clockwise direction), **-4x**, **-8x**, **-32x**; **Previous** (anti-clockwise direction)
 - In pause mode** - change playback speed or select next/previous frame-by-frame picture.
 - **SHUTTLE control** **+1/8x**, **+1/4x**, **+1/2x**; **Next** (clockwise direction), **-1/8x**, **-1/4x**, **-1/2x**; **Previous** (anti-clockwise direction).
- **JOG control** to select **Next Picture Frame** (clockwise direction), or **Previous Picture Frame** (anti-clockwise direction).



FTS-Video

- The **FTS-Video** function allows you to store your favorite titles and chapters (DVD) and favorite tracks and indexes (VCD) for a particular disc in the player memory.
- **FTS** program can contain 20 items (titles, chapters).
- A programmed **FTS** will be placed on top of the list when playback is activated. When the list is full, a new program will replace the last program on the list.
- The selections can be chosen and played at any time.

Storing a FTS-Video Program

- When playback is stop, select **VIDEO FTS** in the menu bar.
- Press **▽** to open the menu.
- The **VIDEO FTS** menu appears.
- Press **▶** or **◀** or **FTS** to select **ON** or **OFF**.

Storing titles/tracks

- Press **▽** to select **TITLES**
- Use **▶** and **◀** to select the required title.
- Press **OK** if you wish to store the entire title.
- The title number will be added to the list of selections.



Storing chapters/indexes

- Press **▽** on the selected title number.
- The title number will be marked and the highlight moves to the first available chapter number for this title.
- Use **▶** and **◀** to select the required chapter.
- Press **OK** to confirm the selection.
- The title/chapter selection will be added to the list of selections.
- Press **SYSTEM MENU** to exit the **VIDEO FTS** menu.

Erasing a FTS-Video Program

- When playback is stop, select **VIDEO FTS** in the menu bar.
- Use **▽** to select **PROGRAM**.
- Use **▶** and **◀** to select the required number.
- Press **OK** to erase the selection.
- Press **SYSTEM MENU** to exit.

If you wish to erase all selections:

- When playback is stop, select **VIDEO FTS** in the menu bar.
- Use **▽** to select **CLEAR ALL**.
- Press **OK**.
- All selections will now be erased.
- Press **SYSTEM MENU** to exit.

Special DVD features

Checking the contents of DVD-Video discs:

Menus
DVDs may contain menus to access special features. To use the disc menu, press the appropriate numerical key, or use the ∇ , Δ , \triangleright , \triangleleft keys to highlight your selection, then press OK.

Title menu

- Press DISC MENU
- If the current title has a menu, the menu will appear on the screen. Otherwise, the disc menu will be displayed.
- The menu can list camera angles, spoken language and subtitle options, and chapters for the title
- To remove the title menu, press DISC MENU again.

Disc menu

- Press T.C., then press DISC MENU
- The disc menu is displayed
- To remove the disc menu, press T.C., then press DISC MENU.

Camera Angle

If the disc contains sequences recorded from different camera angles, the angle icon appears, showing the number of available angles and the angle being shown currently. You can then change the camera angle if you wish.

Use the ∇/Δ keys to select the required angle icon.

→ After a while, playback changes to the selected angle. The angle icon remains displayed until multiple angles are no longer available.



Changing the audio language

- Select (AUDIO) in the menu bar
- Press (L) or ∇/Δ repeatedly to see the different languages



Subtitles

- Select (SUBTITLE) in the menu bar
- Press (L) or ∇/Δ repeatedly to see the different subtitles.



English

English

Moving to another track

- Press \triangleright or \triangleleft briefly during playback to go to the next track or to return to the beginning of the current track.
- Press \blacktriangleleft twice briefly to step back to the previous track.
- To go directly to any track, enter the track number using the numerical keys (0-9)



Shuffle

- Press SHUFFLE during playback.
- The order of the tracks is changed.
- To return to normal playback, press SHUFFLE again



Repeat track/disc

- To repeat the track currently playing, press REPEAT.
- REPEAT TRACK appears on the display.
- To repeat the entire disc, press REPEAT a second time.
- REPEAT DISC appears on the display.
- To exit Repeat mode, press REPEAT a third time.



Repeat A-B

- To repeat a sequence, press REPEAT A-B at your chosen starting point.
- A-B appears on the player display.
- Press REPEAT A-B again at your chosen end point, play repeatedly.
- To exit the sequence and return to normal play, press REPEAT A-B again.



Scan

- Plays the first 10 seconds of each track on the disc.
- Press SCAN.
- SCAN again or press \blacktriangleright



Special VCD Features

Playback Control (PBC)

- Load a Video CD with PBC and press \blacktriangleright
- Go through the menu with the keys indicated on the TV screen until your chosen passage starts to play. If a PBC menu includes titles, you can select a title directly.
- Enter your choice with the numerical keys (0-9).
- Press RETURN to go back to the previous menu.
- You may also set to PBC OFF under Personal Preferences.

Playing an audio CD

- After loading the disc, playback starts automatically.
- If the TV is on, the Audio CD screen appears.
- The number of tracks and the total playing time of the disc will be shown on the screen.
- During playback, the current track number and its elapsed playing time will be shown on the screen and on the player display.
- Playback will stop at the end of the disc.
- To stop playback at any other time, press \blacksquare



Pause

- Press II during playback.
- To return to playback, press \blacktriangleright

Search

- To search forward or backward through the disc at four times the normal speed, hold down \blacktriangleleft or \blacktriangleright for about one second during playback.
- Search begins and sound is partially muted.
- To stop up to eight times the normal speed, press \blacktriangleleft or \blacktriangleright again.
- Search goes to eight times the speed, and the sound is muted.
- To return to four times the normal speed, press \blacktriangleleft or \blacktriangleright again.
- If the TV is on, search speed and direction are indicated on the screen each time \blacktriangleleft or \blacktriangleright is pressed.
- To end the search, press \blacktriangleright to resume playback or \blacksquare to stop playback.

FTS Program

- FTS Program allows you to store your favorite tracks for a particular disc in the player memory.
- Each FTS Program can contain 20 tracks.



Storing an FTS Program

- 1 Load a disc and stop playback.
 - 2 Use ∇ to go to the list of available tracks.
 - 3 Use \triangleright or \triangleleft to select tracks from the list
 - To go directly to any track, enter the track number using the numerical keys (0-9).
 - Store each track by pressing OK.
 - The track numbers will be added to the list.
 - The number of tracks and the playing time of the program will be shown on the screen and the player display.
- When your FTS Program is complete, press \blacktriangleright to start playback or Δ to stop playback. In either case, the FTS Program will be automatically memorized.

Switching FTS ON/OFF

- 1 Use Δ ∇ to move to the FTS ON/OFF selection.
- 2 Use \triangleright or \triangleleft to select either ON or OFF

Erasing a track from an FTS Program

- 1 Use ∇ to go to the list of selected tracks.
- 2 Use \triangleright and \triangleleft to select the track number you wish to erase.
- 3 Press OK.
- The track number will be erased from the list of selected tracks

Erasing the complete program

- 1 Use ∇ to select CLEAR ALL, then press OK
- The complete FTS Program for the disc will be erased

Access Control

Access control; child lock (DVD and VCD)

Activating/deactivating the child lock

- When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ∇/Δ keys. Alternatively you can press **DISC LOCK** on the remote control if the child lock has been activated.
- Enter a 4-digit code of your own choice.
- Enter the code a second time.
- Move to **'CHILD LOCK'** using the ∇/Δ keys.
- Move to **LOCK/UNLOCK** using the \triangleright key.
- Select **LOCK** using the ∇/Δ keys.
- Press OK or \triangleleft to confirm; then press \triangleleft again to exit the menu.

- Now unauthorized discs will not be played unless the 4-digit code is entered.

8 Select **UNLOCK** to deactivate the **CHILD LOCK**

- Note: Confirmation of the 4-digit code is necessary when:
- The code is entered for the very first time (see above).
 - The code is changed (see 'Changing the 4-digit code').
 - The code is cancelled (see 'Changing the 4-digit code').



Authorizing discs

- Insert the disc. See 'Loading discs'.
 - The 'child protect' dialog will appear. You will be asked to enter your 4-digit code for 'Playback Once' or 'Playback Always'. If you select 'Playback Once', the disc can be played as long as it is in the player and the player is ON. If you select 'Playback Always', the disc will become child safe (authorized) and can always be played, even if the Child Lock is set to ON.

Notes

- The player memory maintains a list of 50 authorized ('Child safe') disc titles. A disc will be placed in the list when 'Playback Always' is selected in the 'child protect' dialog.
- Each time a 'child safe' disc is played, it will be placed on top of the list. When the list is full and a new disc is added, the last disc in the list will be removed from the list.
- Double sided DVDs may have a different ID for each side. In order to make the disc child safe, each side has to be authorized.
- Multi-volume VCDs may have a different ID for each volume in order to make the complete set 'child safe', each volume has to be authorized.

English

English

Activating/Deactivating Parental Control

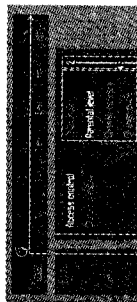
- When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ∇/Δ keys. Enter your 4-digit code. If necessary, enter the code a second time.
- Move to **Parental Level** using the ∇/Δ keys.
- Move to **VALUE ADJUSTMENT** (1-8) using the \triangleright key.
- Then use the ∇/Δ keys or the numerical keys on the remote control to select a rating from 1 to 8 for the disc inserted.

Rating 0 (displayed as '-')

Parental Control is not activated. The Disc will be played in full.

Ratings 1 to 8:
The disc contains scenes not suitable for children. If you set a rating for the player, all scenes with the same rating or lower will be played. Higher rated scenes will not be played unless an alternative is available on the disc. The alternative must have the same rating or a lower one. If no suitable alternative is found, playback will stop and the 4-digit code has to be entered.

- Press OK or \triangleleft to confirm; then press \triangleleft again to exit the menu.



Country

- When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ∇/Δ keys.
- Enter the 4-digit code.
- Move to **CHANGE COUNTRY** using the \triangleright key.
- Press the \triangleright key.
- Select a country using ∇/Δ .
- Press OK or \triangleleft to confirm; then press \triangleleft again to exit the menu.

Changing the 4-digit code

- When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ∇/Δ keys. Enter the old code.
- Move to **CHANGE CODE** using the \triangleright key.
- Press the \triangleright key.
- Enter the new 4-digit code.
- Enter the code a second time and reconfirm by pressing OK.
- Press \triangleleft to exit the menu.

If you forget your 4 digit code

- Press \blacksquare to exit 'Child Protect' screen.
- Select **ACCESS CONTROL** in the features menu using the ∇/Δ keys.
- The 4-digit code can be cancelled by pressing \blacksquare four times in the 'Access Control' dialog. You can then enter a new code (twice) as described above (Changing the 4 digit code).

Parental Control Disclaimer

This DVD player features the **PARENTAL CONTROL** system which is intended to be active when playing DVD discs with certain software coding. This is according to technical standards adopted by the set maker and disc content industries. Please note that the **PARENTAL CONTROL** system will not operate a DVD which does not have, with the appropriate software coding. Also note that at the time of release of this DVD player, certain aspects of the technical standards had not been settled between set makers and the disc industries.

On this basic Philips cannot guarantee the functioning of **PARENTAL CONTROL** and denies any liability associated with unintended watching of disc content. If in doubt, please make sure the disc plays according to your **PARENTAL CONTROL** settings before you allow children access.

Before Requesting Service

If it appears that the DVD-Video player is faulty, first consult this checklist. It may be that something has been overlooked. Under no circumstances should you attempt to repair the system yourself; this will invalidate the warranty.

Look for the specific symptom(s). Then perform only the actions listed to remedy the specific symptom(s).

Symptom

No power

- Make sure the mains cord (AC) is properly connected.
- Check if there is power at the AC outlet by plugging in another appliance.

No picture

- Check if the TV is switched on.
- Check the video connection.

Distorted picture

- Check the disc for fingerprints and clean with a soft cloth, wiping from center to edge.
- Sometimes a small amount of picture distortion may appear. This is not a malfunction.

Completely distorted picture or no color with player menu

- If the picture is distorted completely or if the picture rolls vertically, make sure the NTSC/PAL setting at the DVD player matches the video signal of your television.
- If your TV video signal is NTSC, select the NTSC setting at the DVD player.
- If your TV video signal is PAL, select the PAL setting - see NTSC/PAL SETTINGS.

Distorted or Black/White picture with DVD or Video CD

- The disc format does not match your TV's video signal (PAL/NTSC).

No sound

- Check audio connections.
- If you are using a HiFi amplifier, try another sound source.

Distorted sound from HiFi amplifier

- Check to make sure that no audio connections are made to the amplifier's phono input.

No audio at digital output

- Check the digital connections.
- Check the settings menu to make sure the digital output is set to ALL or PCM.
- Check if the audio format of the selected audio language matches your receiver capabilities.

Disc can't be played

- Ensure the disc label is facing up.
- Clean the disc.
- Check if the disc is defective by trying another disc.
- Check to see if the disc is defective (badly scratched or warped (not flat)).

No return to start-up screen when disc is removed

- Reset the player by switching it, then on again.
- Check to see if the program requires another disc to be loaded.

The player does not respond to the remote control.

- Aim the remote control directly at the sensor on the front of the player.
- Remove any obstacles between the player and the remote control.
- Inspect or replace the batteries in the remote control.

Buttons do not work

- In order to completely reset the player, unplug the AC cord from the AC outlet.

Player does not respond to some operating commands during playback

- Operations may not be permitted by the disc. Refer to the instructions of the disc.

DVD-Video player cannot read CDs/DVDs

- Use a commonly available cleaning CD/DVD to clean the lens before sending the DVD-Video player for repair.

Appendix

English

Speaker Settings

6 Channel settings

Front speaker

- L (Large): When the front speakers can reproduce low frequency signals below 120Hz
- S (Small): When the front speakers cannot produce low frequency signals below 120Hz

Center Speaker*

- L (Large): When the center speaker can reproduce low frequency signals below 120Hz
- S (Small): When the center speaker cannot produce low frequency signals below 120Hz
- Off: When the center speaker is not connected

Surround speakers

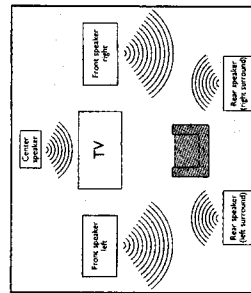
- L (Large): When the surround speakers can reproduce low frequency signals below 120Hz
- S (Small): When the surround speakers cannot produce low frequency signals below 120Hz
- Off: When the surround speakers are not connected

Subwoofer

- On: When you connect a subwoofer
- Off: When a subwoofer is not connected

Note:

- Certain speaker settings are prohibited by the Dolby Digital (AC-3) licensing agreement.

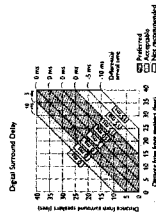


Delay times

The DVD player is set to reproduce correctly synchronized Digital Surround Sound in a listening area where the surround speakers are about 150cm nearer to the listening position than the front speakers, and the center speaker is in line with the front speakers. To adjust for other listening area arrangements, adapt delay times according to the following instructions:

Digital Surround

Measure the distances in centimeters from the front speaker and the surround speaker to the listening positioning. Subtract the surround distance from the front distance and divide by 30. The result is the required Surround Channel delay time in milliseconds. If the center speaker is in line with the front speaker, no center speaker delay is needed. If, however, it is nearer the listening position, measure the distance in centimeters between the front and center speaker planes, and divide by 30. The result is the required Center Channel delay time in milliseconds.



English

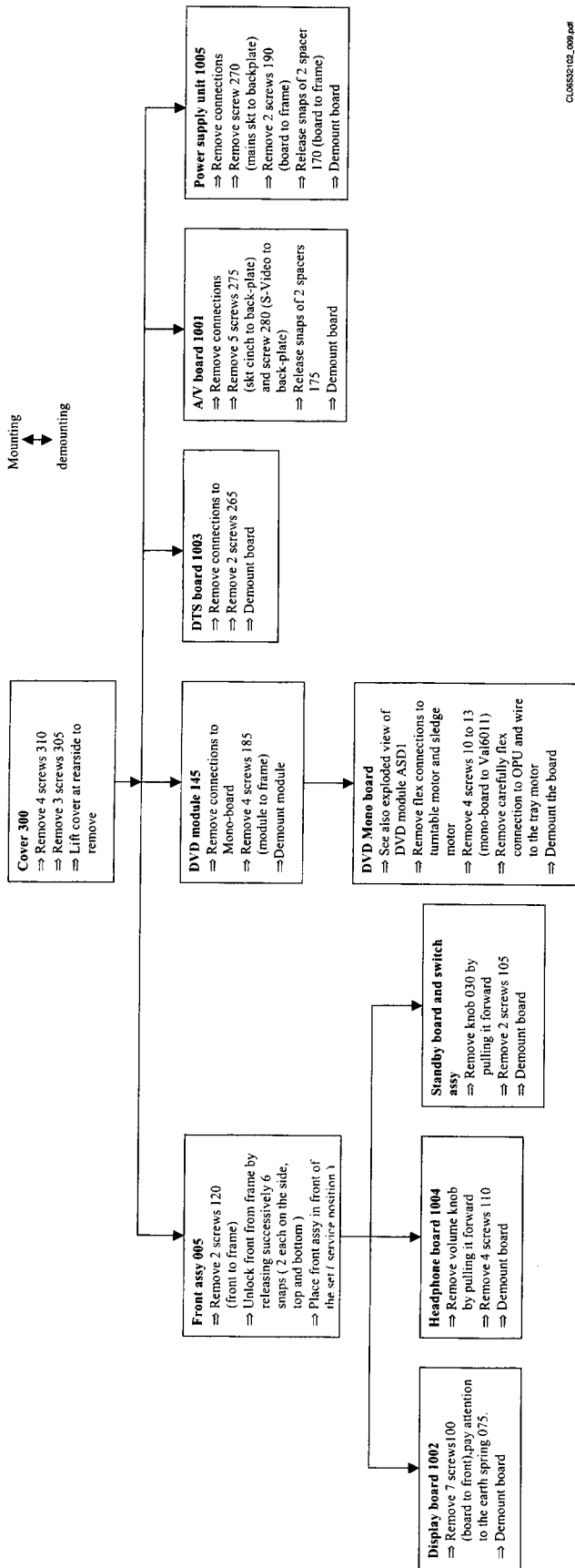
Remedy

4. Dismantling instructions and exploded view

Dismantling Instructions

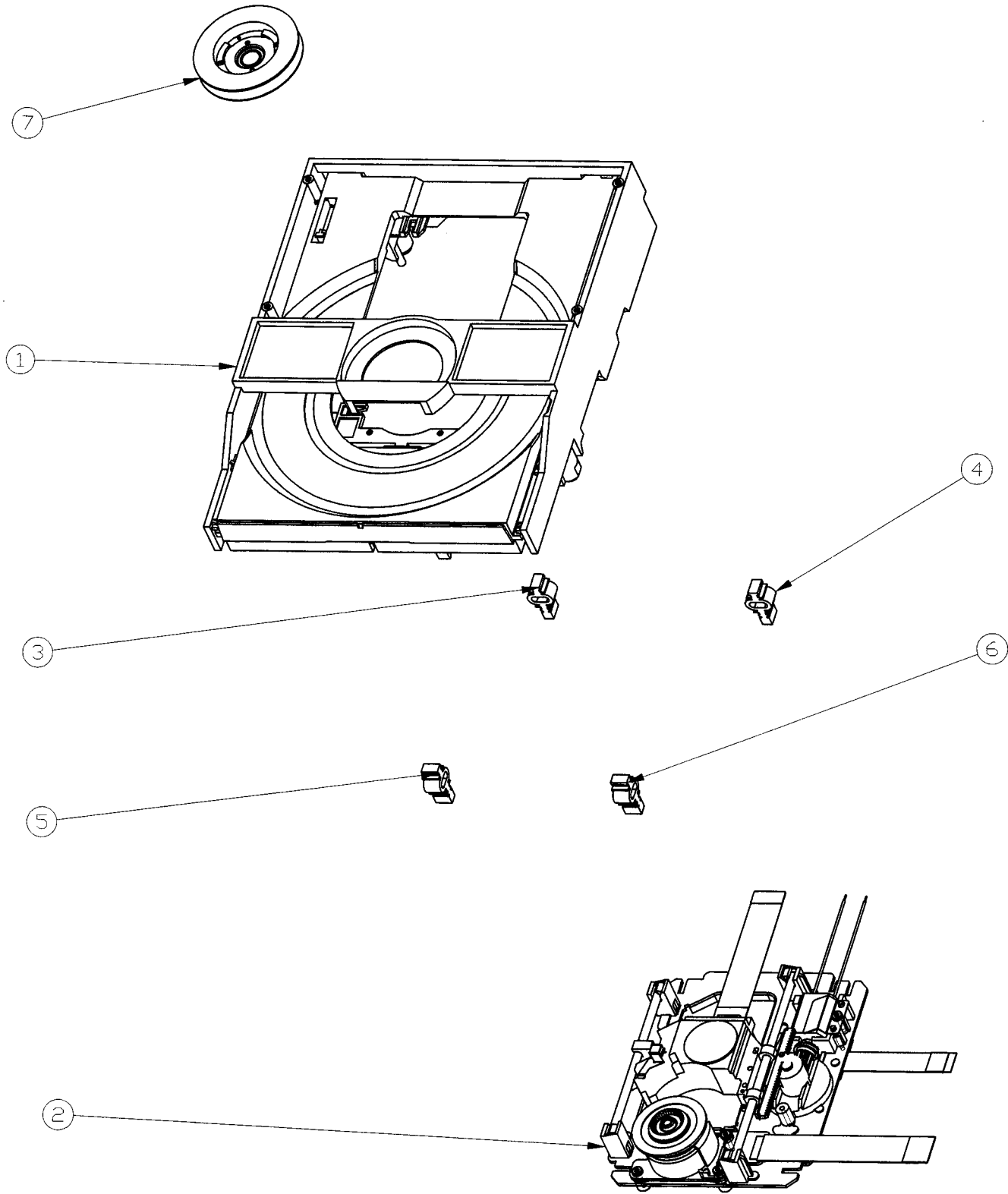
DISMANTLING INSTRUCTIONS

See exploded view for item numbers

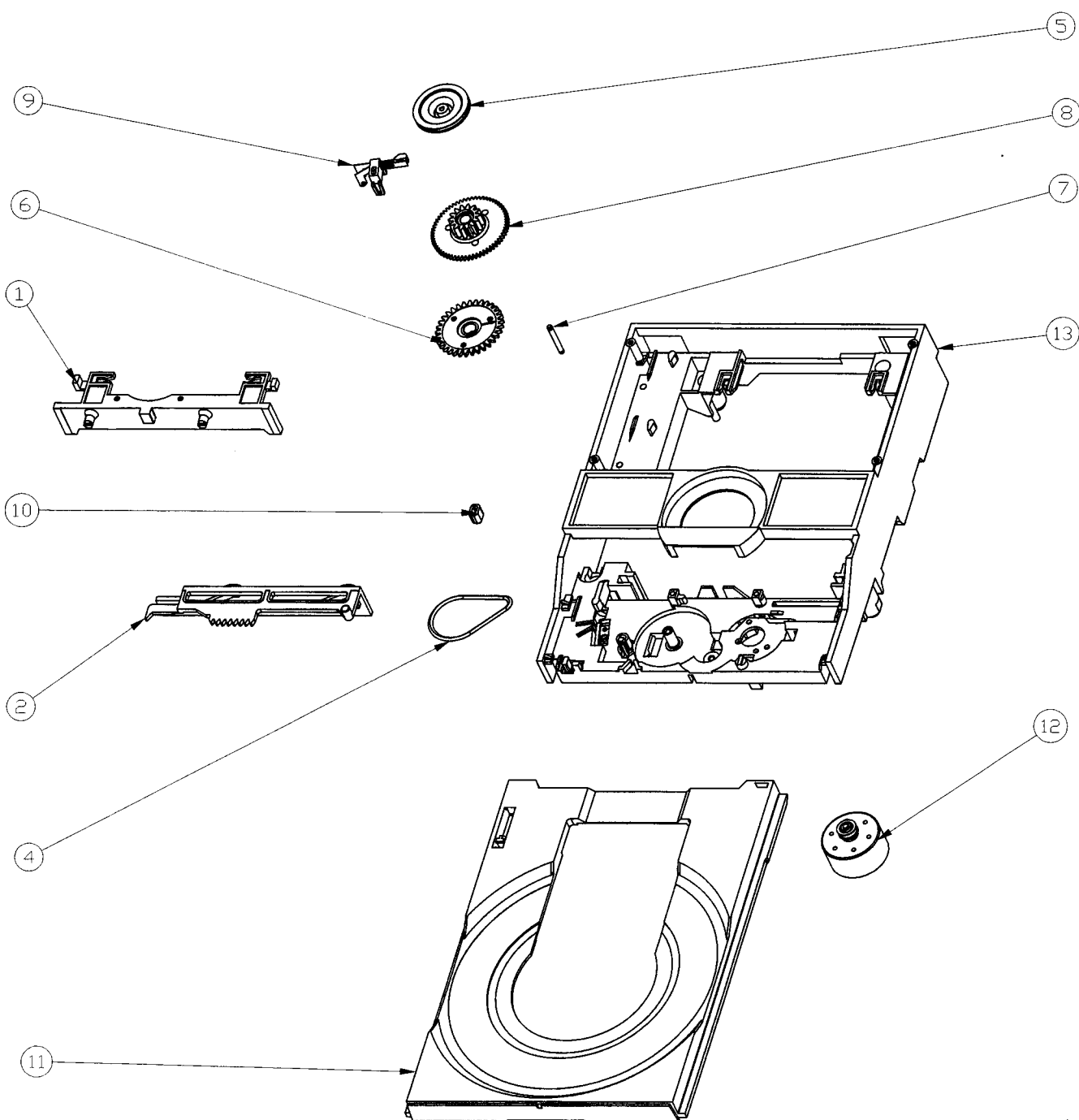


classmate 001 10070

Mounting
↕
dismantling



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|-----|----------------|----------------------------|
| | 9305 023 61101 | VAL6011/01 LOADER COMPLETE |
| 1 | 3139 197 60090 | GENEVA LP LOADER ASSY |
| 2 | 9305 022 60101 | VAM6001/01 |
| 3+4 | 3139 194 00710 | SUSPENSION (YELLOW) |
| 5+6 | 3139 194 00620 | SUSPENSION (BLUE) |
| 7 | 3139 197 60060 | CLAMPER ASSY |



4	4822 358 10266	BELT
9	3139 198 80010	SWITCH
10	4822 532 13097	TULE
11	3139194 00270	TRAY
12	3139 197 50060	TRAY MOTOR ASSY

5. Diagnostic software descriptions and troubleshooting

5.1 Dealerscript V1.2

5.1.2 Contents of Dealer Script

5.1.1 Purpose of Dealer Script

The dealer script can give a diagnosis on a standalone DVD player; no other equipment is needed to perform a number of hardware tests to check if the DVD player is faulty. The diagnosis is simply a "error" or "pass" message; no indication is given of faulty hardware modules. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

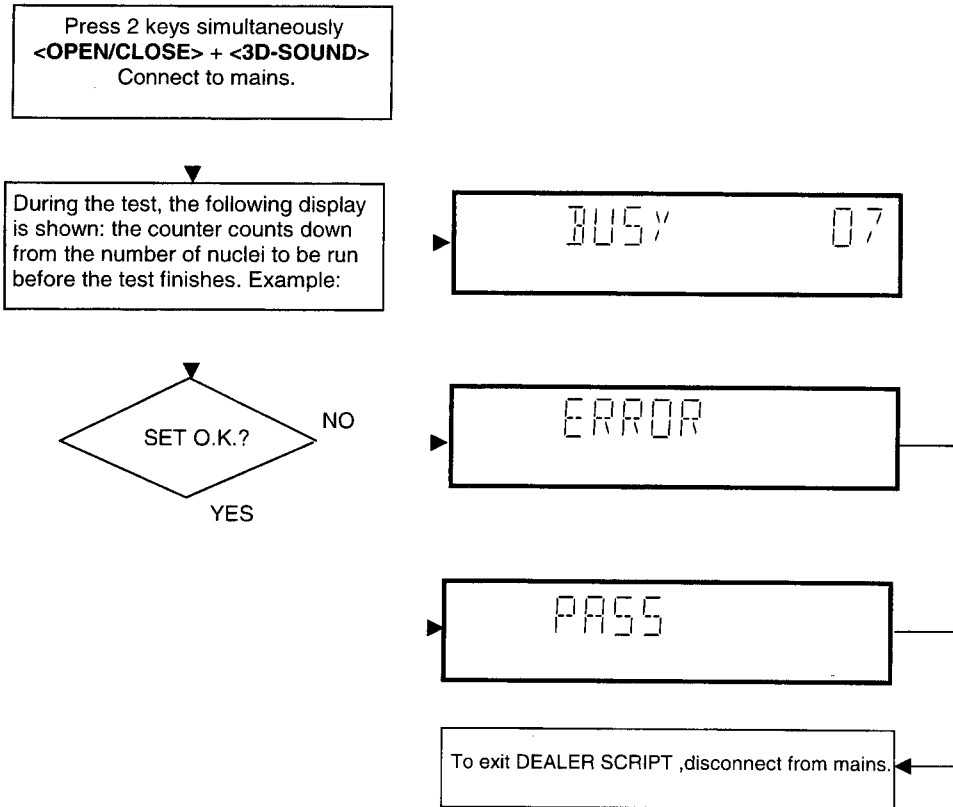
The dealer script executes all diagnostic nuclei that do not need any user interaction and are meaningful on a standalone DVD player.

The nuclei called in the dealer script are the following (the number after each nucleus name corresponds with the number being on the local display when the nucleus is executed during the dealer script):

Nucleus		Description
VideoColSetupComm	7	Checks the I2C interface with the RGB video processor on the Audio/Video board (only for DVD players with RGB video processor).
PapChksFl	6	Calculate and verify checksum of FLASH memory.
PapI2cDisp	5	Checks the I2C interface with the slave processor on the display PCB.
PapS2bEcho	4	Checks the I2C interface to the basic engine.
PapI2cNvram	3	Checks the I2C interface with the NVRAM.
PapNvramWrR	2	Pattern test of all locations in the NVRAM
CompSdramWrR	1	Pattern test of all locations in the SDRAM(s).

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050700

Figure 5-1



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130700

Figure 5-2

5.2 PLAYER SCRIPT

5.2.4 Survey

5.2.1 Purpose of Player Script

The Player script will give the opportunity to perform a test that will determine which of the DVD player's modules are faulty, to read the error log and error bits and to perform an endurance loop test. To successfully perform the tests, the DVD player must be connected to a tv set to check the output of a number of nuclei. For DVDv2b a multi-channel amplifier, a set of 6 boxes and an external video source are necessary to test. To be able to check results of certain nuclei, the player script expects some interaction of the user (i.e. to approve a test picture or a test sound). Some nuclei (e.g. nuclei that test functionality of the Basic Engine module) require that the DVD player itself is opened, to enable the user to observe moving parts and approve their movement visually. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

5.2.2 Contents of Player Script

The player script contains all nuclei that are useful on a DVD player that is connected to a tv-set and help to determine which module of the DVD player is faulty, as well as to read out the contents of the error logs.

5.2.3 Structure of Player Script

The player script consists of a set of nuclei testing the three hardware modules in the DVD player: the Display PWB, the Digital PWB and the Basic Engine.

Nuclei run by the player test need some user interaction; in the next paragraph this interaction is described. The player test is done in two phases:

1. Interactive tests: this part of the player test depends strongly on user interaction and input to determine nucleus results and to progress through the full test. Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player.
2. The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely.

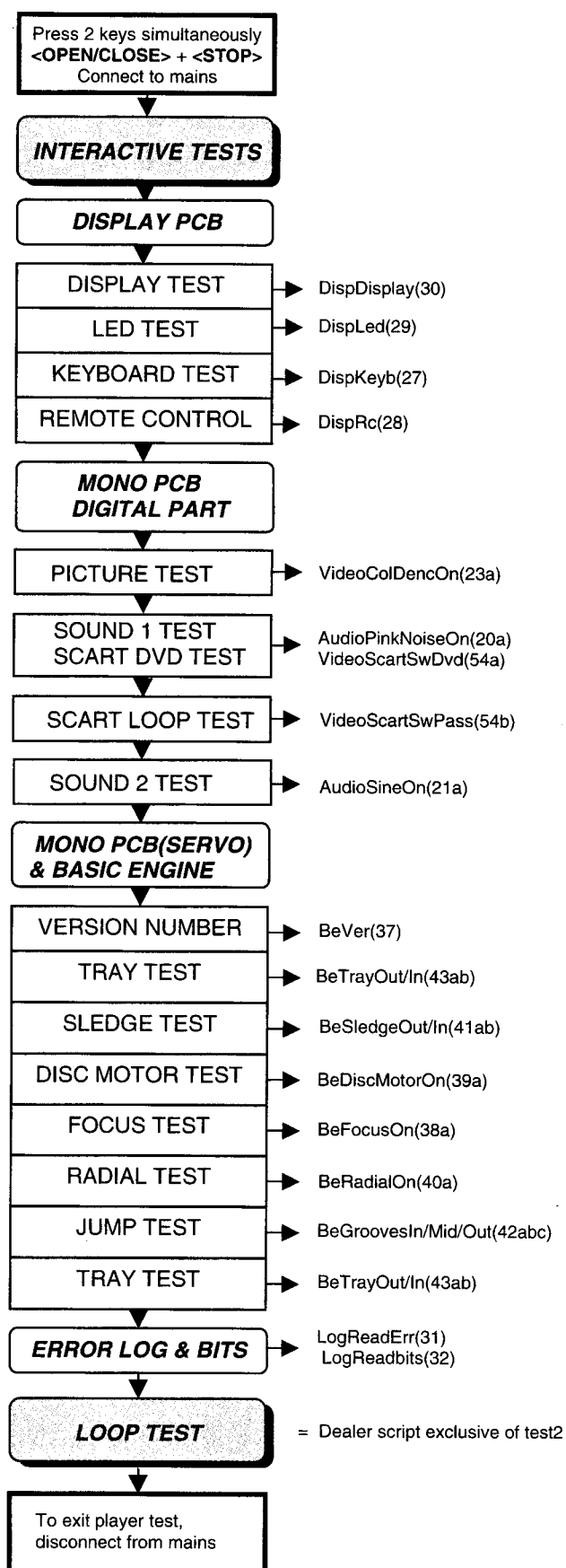


Figure 5-3

5.3 DISPLAY PCB

5.3.1 DISPLAY TEST

The display test is performed by nucleus DispDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press 3D-SOUND (pattern is ok) or STOP (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner until the user presses PLAY. If the user presses PLAY before all display patterns are tested, the DispDisplay nucleus will return TRUE (display test successful).

5.3.2 LED TEST

The LED(s) on the DVD player is (are) tested by nucleus DispLed. The user must check if the LED(s) is (are) lighted; if it is, press 3D-SOUND, if it is not, press STOP. By pressing PLAY the script will proceed to the next test. If the user presses PLAY before 3D-SOUND or STOP, the DispLed nucleus will return TRUE (LED test successful).

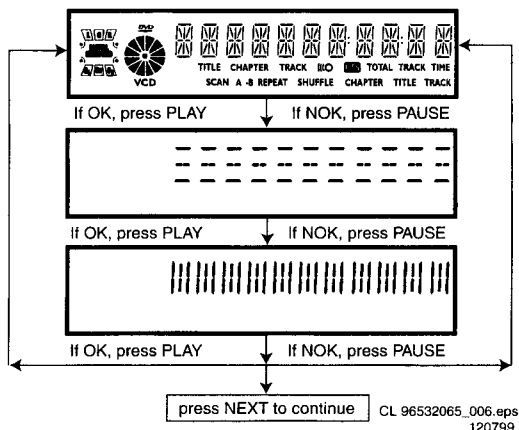


Figure 5-4

5.3.3 KEYBOARD TEST

The keyboard of the DVD player is tested by nucleus DispKeyb. The user is expected to press all keys on the local keyboard once. The code of the key pressed is shown on the local display (1 hexadecimal digit) immediately followed by a (hexadecimal) number indicating how many times that key has been pressed. Example of the local display during this test:

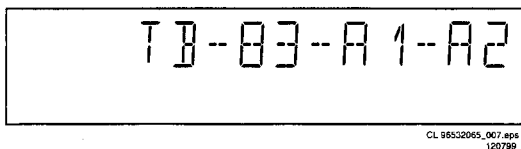


Figure 5-5

The key-codes displayed on the local display will scroll from right to left when the display gets full, the text "tb-" will remain on display.

key id.	key
0	PLAY
1	NEXT
2	PREVIOUS
3	PAUSE
4	STOP
5	OPEN/CLOSE
6	3D-SURROUND
7	KEY- (Mic Control)
8	Once More (Mic Control)
9	KEY+ (Mic Control)
A	FORWARD
B	STAND BY

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050700

Figure 5-6

If any keys are detected more than once (due to hardware error), the key-code is displayed twice (or more), with the second digit increased by 1. If the user does not press all keys minimally once (in any order), the DispKeys nucleus will return FALSE and cause an error in the overall result of the player script. The test will also pass if all buttons, except the microphone key buttons, are pressed. The user can leave the keyboard test by pressing the PLAY key on the local display of the DVD player for at least one full second. The result of the keyboard test is shown on local display as follows:

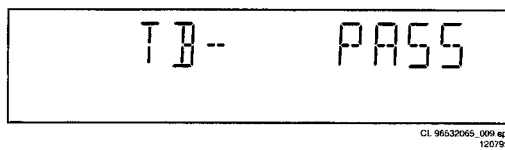


Figure 5-7

Or

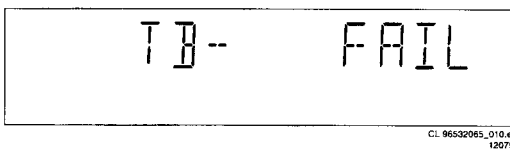


Figure 5-8

Pressing PLAY on the local keyboard again will proceed to the next text.

5.3.4 REMOTE CONTROL TEST

The remote control of the DVD player is tested by nucleus DispRc. The user must press any key on the remote control just once. The codes of the key pressed will be shown on the local display in hexadecimal format and the beeper will also sound if its available. Example:

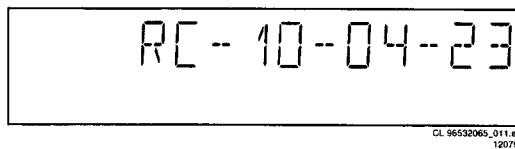


Figure 5-9

In this example 23 is the hexadecimal code of the pressed RC key. The user can leave the remote-control test by pressing PLAY on the local keyboard of the DVD player. The remote control test is successful if a code was received before the user pressed the PLAY key; pressing the PLAY key before pressing a key on the remote control gives an error in the remote control test (note that the remote control test will also fail if a key on the remote control was pressed but no code was received). The remote control test does not check upon the contents of the received code, that is it will not be checked if the received code matches the key pressed. If desired, the user can manually check this code by using a code-table for the remote control key-codes.

C Key id	Hexadecimal code
STANDBY	0C
STOP	31
PLAY	2C
PLAY BACKWARD	2D
PAUSE	30
STEP FORWARD	F6
STEP BACKWARD	F5
FORWARD	28
FORWARD 4X	DF
FORWARD 8X	E0
BACKWARD	29
BACKWARD 4X	DE
BACKWARD 8X	DD
SLOW	22
SLOW 2	D9
SLOW BACKWARD	23
SLOW BACKWARD 2	DA
NEXT	20
PREVIOUS	21
CURSOR UP	58
CURSOR DOWN	59
CURSOR LEFT	5A
CURSOR RIGHT	5B
OK	5C
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
TOGGLE	C8
ANGLE	85
AUDIO	4E
SUBTITLES	4B
SUBTITLE ON/OFF	E3
ROOT MENU	54
TITLE MENU	71
MENU	D1
SETUP MENU	82
OSD ON/OFF	F
RETURN	83
RESUME	D7
SCAN	2A
SHUFFLE	1C
REPEAT	1D
A/B REPEAT	3B
TOGGLE SCART	43
OPEN/CLOSE	42
FTS	FB
KARAOKE	E4
OPTION	FA

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050700

Figure 5-10

After pressing PLAY, the result of the remote control test is displayed on the local display of the DVD player as follows:

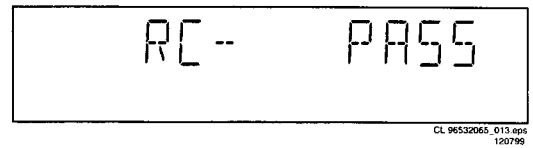


Figure 5-11

Or

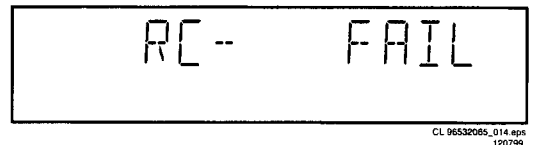


Figure 5-12

Pressing PLAY on the local keyboard again will proceed to the next test.

5.4 MONO PCB DIGITAL PART

5.4.1 PICTURE TEST

The picture test is performed by putting a predefined picture (colour bar) on the display (nucleus VideoColDencOn) and asking the user for confirmation. The display will show the following message:

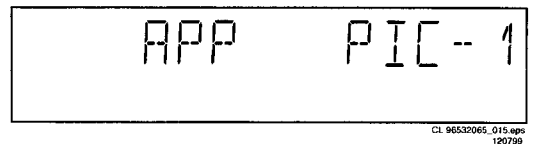


Figure 5-13

By pressing 3D-SOUND the user confirms the test, pressing STOP will indicate the picture was invisible or incorrect. Pressing PLAY will proceed to the next test

5.4.2 SOUND 1 & SCART DVD TEST

The first soundtest is performed by starting a pink noise sound that needs confirmation from the user (nucleus AudioPinkNoiseOn); the display will show the following message very shortly:

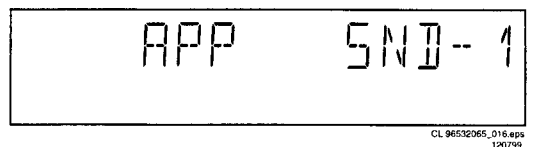


Figure 5-14

This sound will only be audible from version cut3.1 of Sti5505 (item7503 on mono board) onwards. After starting up sound 1, SCART loop-trough will be simultaneously active during this test. SCART loop-trough will be measured with the aid of an external video source.

When entering the SCART loop-trough, the local display indicates:

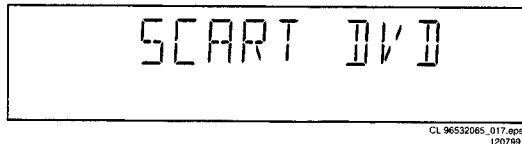


Figure 5-15

On the TV screen a colour bar (generated by nucleus VideoColDencOn) is visual and the internally generated pinknoise is audible. By pressing 3D-SOUND the user confirms the test, pressing STOP will indicate the sound was inaudible or incorrect. Pressing PLAY will proceed to the next test; if the user presses PLAY without pressing 3D-SOUND or STOP first, the result of this test will be TRUE (sound ok). By pressing the PLAY button there will be switched over to the external source, this must become now visible on the TV screen (using the SCART). The local display indicates:

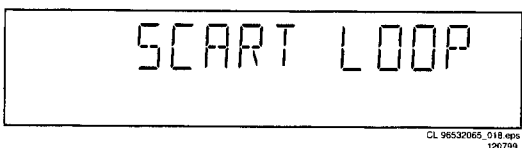


Figure 5-16

The internally generated colour bar is still available on the CVBS and Y/C outputs. And the pinknoise-signal is still available on the cinch audio outputs. By pressing the PREV button, the internal generated colour bar becomes visual again.

The test can be left by pressing the PLAY key for more than one second.

5.4.3 SOUND 2 TEST

The second soundtest is performed by producing a sine sound (nucleus AudioSineOn). The signal can be stopped by pressing the STOP-key. The display will show the following message:

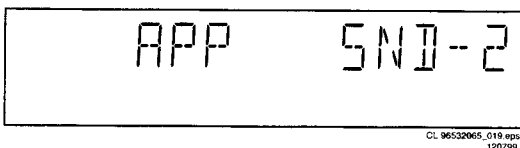


Figure 5-17

By pressing 3D-SOUND the user confirms the test, pressing STOP will indicate that something went wrong. Pressing PLAY will proceed to the next; if the user presses PLAY without pressing 3D-SOUND or STOP first, the result of this test will be TRUE (sound ok).

5.4.4 Colour setup test

The colour setup test is performed by putting the internally generated colour bar in different settings on the TV screen. The first colour bar will be displayed in setting 1. the display will show the following message:

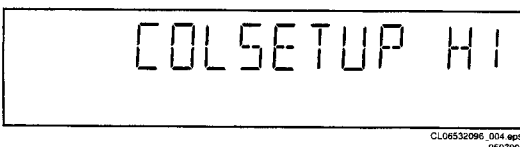


Figure 5-18

By pressing the PLAY button, you can go to the second setting. The local display indicates:

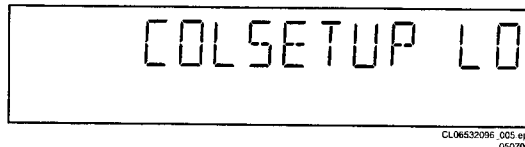


Figure 5-19

By pressing the PREVIOUS button, the colour bar with the first setting becomes visual again. Pressing STOP will indicate that something went wrong. The test can be left by pressing the PLAY key for more than one second; if the user proceed to the next test without pressing STOP first, the result of the test will be TRUE (colour set-up ok).

5.5 BASIC ENGINE

5.5.1 VERSION NUMBER

In the basic engine tests, the version number of the Basic Engine will be shown first, as the following example:

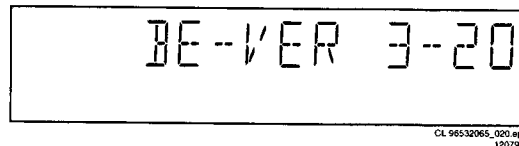


Figure 5-20

By pressing the PLAY key, the Basic Engine tests are started.

5.5.2 TRAY TEST

First, the tray is tested. The purpose of this test is also to give the user the opportunity to put a disc in the tray of the DVD player. Some tests on the Basic Engine require that a disc (e.g. DVD MPTD test disc) is present in the player. At the end of the Basic Engine tests this tray test will be repeated solely to enable the user to remove the disc in the tray. The local display will look as follows:

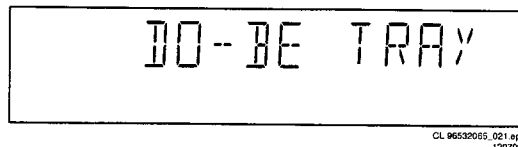


Figure 5-21

By pressing 3D-SOUND or STOP the user can toggle the position of the tray. Note that this test will not contribute to the test result of the Basic Engine. Pressing PLAY will proceed to the next test, after the tray has been closed (by the software) if it was open.

5.5.3 SLEDGE TEST(visual test)

The second Basic Engine test tests the sledge; the user can move the sledge as many times as desired by using 3D-SOUND (nucleus BeSledgeOut) and STOP (nucleus BeSledgeIn). Pressing PLAY on the local keyboard proceeds to the next test. Note that this test will not contribute to the test result of the Basic Engine. The local display will look as follows during the sledge test:

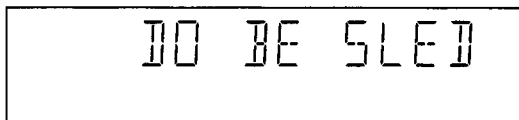
CL 96532065_022.eps
120799

Figure 5-22

5.5.4 DISC MOTOR TEST(visual test)

The third Basic Engine test tests the disc motor (nucleus BeDiscMotorOn); the local display looks as follows:

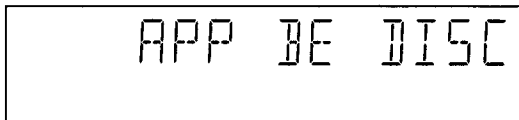
CL 96532065_023.eps
120799

Figure 5-23

By pressing 3D-SOUND the user confirms that the disc motor is running; pressing STOP indicates the disc motor does not work. Pressing PLAY proceeds to the next test, after a reset of the disc motor (nucleus BeDiscMotorOff). If the user presses PLAY before pressing 3D-SOUND or STOP, the result of this test will be TRUE (disc motor is running).

5.5.5 FOCUS TEST(visual test)

The fourth Basic Engine test tests the focussing; first focussing is turned on by calling nucleus BeFocusOn. The display will look as follows:

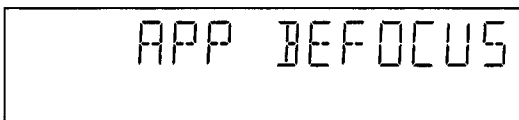
CL 96532065_024.eps
120799

Figure 5-24

By pressing 3D-SOUND the user confirms that the focussing was successful; pressing STOP indicates a focussing failure. Pressing PLAY proceeds to the next test after a reset of the focussing (nucleus BeFocusOff); if PLAY is pressed before 3D-SOUND or STOP, the result of this test will be TRUE (focus successful).

5.5.6 RADIAL TEST(visual & listening test)

The fifth Basic Engine test tests the radial functionality (nucleus BeRadialOn); the local display looks as follows:

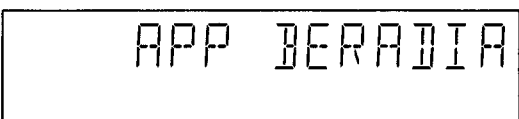
CL 96532065_025.eps
120799

Figure 5-25

By pressing 3D-SOUND the user confirms that the radial function worked; pressing STOP indicates the function does not work. Pressing PLAY proceeds to the next test, after a reset of the radial (nucleus BeRadialOff). If the user presses PLAY before pressing 3D-SOUND or STOP, the result of this test will be TRUE (radial successful).

5.5.7 JUMP TEST(listening test)

The sixth and last Basic Engine test tests the jumping by calling nuclei BeGroovesIn, BeGroovesMid and BeGroovesOut. During this test, the local display looks as follows:

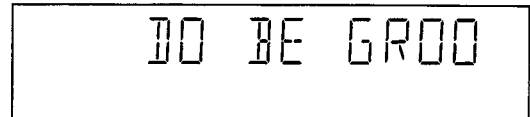
CL 96532065_026.eps
120799

Figure 5-26

The user can switch between the three different types of groove settings by pressing 3D-SOUND (forward to next nucleus in the list In-Mid-Out) or STOP (backward in the list In-Mid-Out). This is done in a cyclic manner; note that this test will not contribute to the test result of the Basic Engine. Pressing PLAY proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

5.5.8 TRAY TEST

As a last action for the Basic Engine tests, the tray test is repeated. The local display will look as follows:

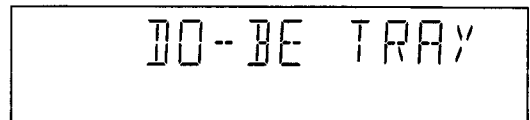
CL 96532065_027.eps
120799

Figure 5-27

This test is meant to give the user the opportunity to remove the disc in the tray. The tray position can be toggled using the 3D-SOUND and STOP key. The tray will be closed (by the software, if it is open) before proceeding to the next test when the user presses the PLAY key.

5.5.9 ERROR LOG (see table on page 30)

Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player. Reading the error log is done by nucleus LogReadErr. The display during the errorlog readout looks as follows :

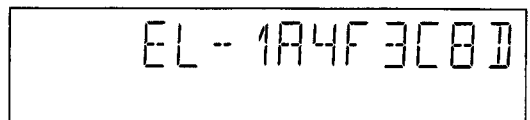
CL 96532065_028.eps
120799

Figure 5-28

By pressing 3D-SOUND or STOP the user can move forward or backward (respectively) through the logged error codes. The highlighted number indicates which errorcode is currently on display (in the example above, errorcode number 4 is displayed). If "0000" is displayed at all positions, the error log is empty. Display of the logged errors is done in a cyclic manner. The errorcode with the lowest highlighted number is the most recent. By pressing PLAY on the local keyboard, the user can proceed to the next test.

5.5.10 ERROR BITS (see table on page 30)

Reading the error bits is done by nucleus LogReadBits. The display during the errorbits readout looks as follows:

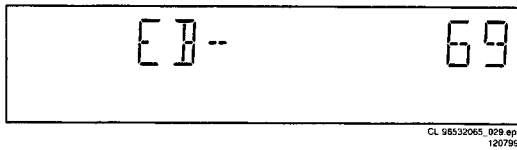


Figure 5-29

Only the set errorbits will be shown by their (decimal) number. Refer to the appropriate documentation for the explanation of each bit number. If the display only shows "EB-0", no error bits were set. By pressing PLAY the user can continue to the next test.

5.6 LOOP TEST (see table below)

At the start of the loop test, the display will show the result of the interactive player test:

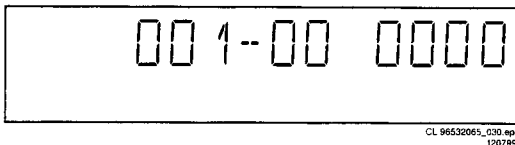


Figure 5-30

The left side of the display contains a 3-digit code, which can have a value between 000 and 111. These values are to be interpreted as follows:

Displayed Value	Indication for each module		
	Basic Engine Servo Part	Digital Part	Display PCB
000	ok	ok	ok
001	ok	ok	faulty
010	ok	faulty	ok
011	ok	faulty	faulty
100	faulty	ok	ok
101	faulty	ok	faulty
110	faulty	faulty	ok
111	faulty	faulty	faulty

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130700

Figure 5-31

The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely. The display of the DVD player will display not only the three digits indicating correct/faulty modules and the last found error code (as mentioned, faults are detected as far as they can be within the scope of the diagnostic software), but also a loop counter indicating how many times the loop has been gone through. Example:

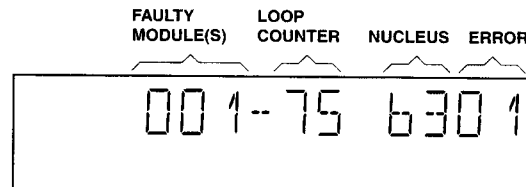


Figure 5-32

The number after the hyphen indicates the number of times the loop test has been performed; the 4 digits at the right side of the display show the last error that was found when running the loop test: the leftmost two digits of this code indicate which nucleus resulted in a fault; the rightmost two digits refer to the faultcode within that nucleus. For further explanation of this error code, see list of error codes below.

ERROR CODES LOOP TEST

ERROR CODE	NUCLEUS NUMBER	ERROR DESCRIPTION
0601	6	Calculated checksum of FLASH is not correct
1101	11	I2C bus busy before start
1102		NVRAM access time-out
1103		No NVRAM Acknowledge
1104		NVRAM reply time-out
1201	12	I2C bus busy
1202		I2C bus not working
1203		Slave controller not responding
1204		Slave response is not correct
1301	13	Parity error from basic engine to serial
1302		Parity error from serial to basic engine
1303		No communication between serial and basic engine
1304		Communication time-out error
1601	16	The SDRAM is faulty
5201	52	I2C bus busy
5202		Error sending I2C command to COLOR SETUP IC
5203		Colour setup IC not responding
5204		Colour setup IC response is not correct
5401	54	I2C bus busy
5402		Error sending I2C command to SCART SWITCH IC
5403		SCART Switch is not responding
5403		SCART Switch response is not correct

CL06532096_006.eps
050700

Figure 5-33

Error log / bits table	Read ERROR LOG in player script	Read ERROR BITS in player script
Basic engine errors	Value:	Value:
Command to the Basic Engine not allowed in this state or unknown command	150101	8
Parameter(s) from the command to the Basic Engine is not valid	150102	7
Sledge could not be moved to the inner home position	150103	6
Focus failure	150104	5
Turntable motor speed could not be reached within timeout	150105	4
Radial servo could not get on track on the disc	150106	3
PLL could not lock in the accessing or tracking state	150107	2
Subcode or sector information could not be read	150108	1
requested subcode could not be found	150109	16
Tray could not be closed or opened completely	15010A	15
TOC could not be read within timeout	15010B	14
The requested seek on the disc could not be executed	15010C	13
A requested lead-in is not on the disc	15010D	12
A non existing burst cutting area is requested	15010E	11
S2b communication error	1501F0	10
S2b communication error	1501F1	9
S2b communication error	1501F3	24
S2b communication error	1501F4	23
S2b communication error	1501F5	22
Digital PWB errors		
Communication error with the Sti 5505	90000	32
Communication error with the Sti 5505	90001	31
Display processor errors		
Communication error with the display processor	190000	40

5.6.1 Servicing DVD loader

The DVD Loader / mechanism, VAL6011, has to be exchanged completely in case of failure. A new mechanism can be ordered with codenumber 9305 023 61101.

5.6.2 Reprogramming of new mono boards.

Caution

This information is confidential and may not be distributed. Only a qualified service person should reprogram the mono board.

After reset of NV-memory or repair of the mono board, all the customer settings and also the region code will be lost.

Reprogramming of the mono board will put the player back in the state in which it has left the factory, i.e. with the default settings and the allowed region code.

Reprogramming is limited to 25 times

When the counter reaches 25, reprogramming is not possible anymore

Reprogramming will be done by way of the remote control.

Put the player in stop mode, no disc loaded.

Press the following keys on the remote control:

<PLAY> followed by numerical keys <1> <5> <9>

The display shows: "-----"

Press now successively the following keys :

for DVD951/001 : <1><1><3> <0><0><0><0><0><0><0><0><0>

for DVD957/001 : <1><1><3> <0><0><0><0><0><0><0><0><0>

for DVD958/001 : <1><1><5> <0><0><0><0><0><0><0><0><0>

Press <PLAY> again.

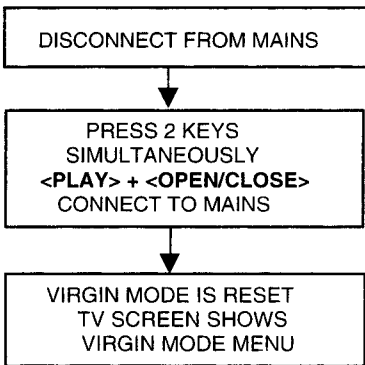
The TV screen will become BLUE during a short time to confirm that the mono board has been reprogrammed, then the display shows: "NO DISC".

CL 06532102_043.eps
190700

Figure 5-34

5.6.3 Reset of Virgin Mode

After the player has been powered up for test by the dealer, it would have gone through the Virgin Mode. It is possible to reset the settings made during that mode before the delivery of player to the customer. This can be done as shown in the following diagram:

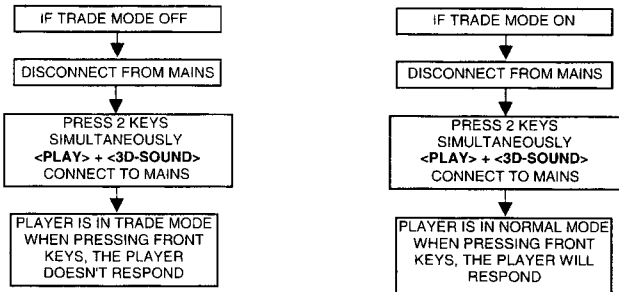


CL 96532065_034.eps
070700

Figure 5-35

TRADE MODE

When the player is in Trade Mode, the player cannot be controlled by means of the front key buttons, but only by means of the remote control.



C06532102_008.eps
130700

Figure 5-36

5.7 Test instructions A/V board

5.7.1 Introduction

These test instructions are written for all versions of the display PCB 3104 123 42230. The contents of the PCB can be split up into next blocks:

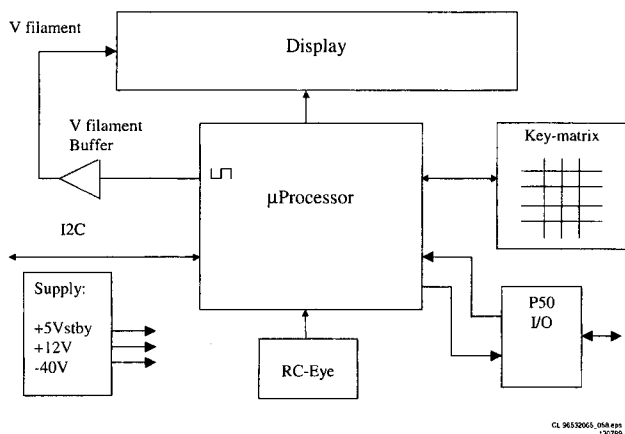


Figure 5-37

5.7.2 Functionality description:

The essential component of the display PCB is the uP (slave). This slave works on an 8MHz resonator and has a reset circuit that is triggered by the +5Vstby. After the reset pulse, the standby control line will release the reset of the host uP. This host uP will then initialise the slave. In addition, when going to stand-by, the slave will put the host uP in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host uP will be released. Other slave functions are:

- Square signal generator to generate the filament voltage, which is required for an AC FTD.
- Generates the grid and segment scanning for the FTD.
- Generates a scanning grid for the keys (separated from display scanning).
- Has inputs for RC (RC5 and RC6) and P50 (P50 controller is built in).

5.7.3 General

- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be > 1MΩ.
- To do correct measurements we recommend to use supply 3122 427 21370, which is used in all "second generation B" DVD-players. Make sure that the main 3.3V has a 0.7A load.

5.7.4 Reset

Check next reset timing with an oscilloscope at pin 10 of the (processor).

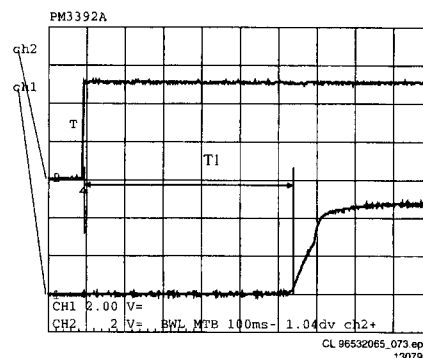


Figure 5-38

Timing: 400msec < T1 > 700msec.
CH1: +5Vstby voltage at power on.
CH2: Voltage at pin 10.

5.7.5 Display steering

Check next timing and level for all grid-lines (G1 r G14).

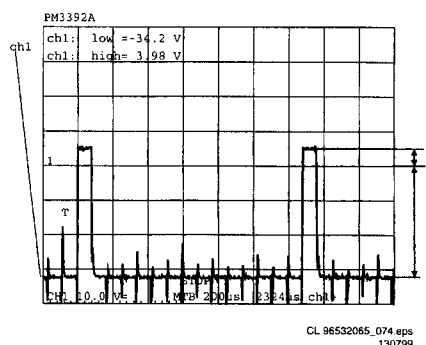


Figure 5-39

1. Check level A: +4V5 ± 10% for grid lines 1 => 11
2. Check level A: +4V0 ± 10% for grid lines 12 => 14
3. Check level B: -33V ± 10%
4. Check timing and levels of segment-lines P1 => P10:

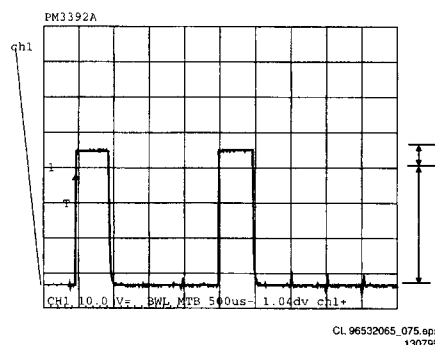


Figure 5-40

Level A: +4V5 ± 10%
Level B: -33V ± 10%

The data on these segment lines depend on the characters that are displayed. The characters can be set by sending I2C commands to the display.

See the Slave URS how to send a display command.

5.7.6 Key-matrix

Connect a extra 10k(pull-up to pin 36 en 37 of the (P and check next matrix scanning at these pins.

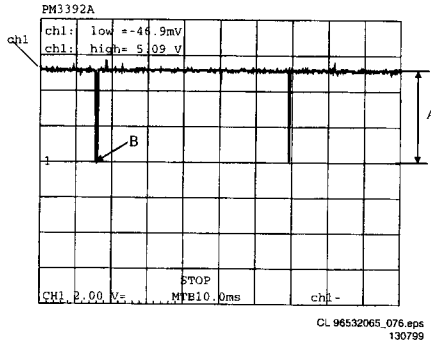


Figure 5-41

Level A: $5.0V \pm 7\%$

Level B: $0V \pm 200mV$

Check matrix scanning from pin 26 until 33 of the μP .

The results should be the same as the diagram above.

5.7.7 I.R. receiver

Check at pin 23 of the μP if this line switches from low ($< 0.3V$) to high ($> 4.5V$), while pressing a key on a Philips RC5 or RC6 remote control.

5.7.8 Karaoke interface

The karaoke interface (4 lines) is a single direction communication.

This means that it consists of four μP output lines.

The interface can be checked by setting or resetting these output-ports via the I2C bus.

Send next command via the I2C bus:

Address : 0x70
 Command byte : 0x24
 Data byte : xxxabcd
 Where : a = Karaoke reset.
 : b = Karaoke data.
 : c = Karaoke clock.
 : d = Karaoke strobe.

5.7.9 P50 interface

P50 is a bi-directional serial interface, which is used for communication between video equipment. For European sets, this communication goes via pin 10 of the scart-bus. In other regions, it can be a cinch bus at the back of the set.

1. Keep the μP in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5: $< 200mV$.

When the reset is released the μP output-pin becomes low and transistor 7101 is switched off.

1. Check the voltage at the P50 output connector 1118-5: $4V9 \pm 5\%$.
2. Check also the μP P50 input (μP pin 20): $5V \pm 5\%$.
3. Connect the P50 line (connector 1118-5) to ground.
4. Check again the μP P50 input (μP pin 20): $< 0V3$.

5.8 A/V board

5.8.1 Supply

Make sure following voltages are applied to the board:

- +12 V (+/- 2 %) on PIN 9 of connector 1301
- +5 V (+/- 2 %) on PIN 10 of connector 1300
- +6 V (+/- 2 %) on PIN 11 of connector 1301
- -8 V (+/- 2 %) on PIN 9 of connector 1300

5.8.2 CVBS Cinch Output

- Terminate output with 75Ω
- Connect CVBS input to GND
- Measure DC level on CVBS cinch: Result should be: 1 V DC +/- 10 %
- apply a 2 Vpp sinusoidal signal. Vary the frequency according the table 1.
- Measure output voltage:

Frequency	Level
200 kHz	1.17 Vrms $\pm 10\%$
2 MHz	1.17 Vrms $\pm 10\%$
5 MHz	1.17 Vrms $\pm 10\%$
8 MHz (1Vpp)	1.0 Vrms $\pm 10\%$

Table 1

5.8.3 YC Hosiden Output

- Terminate Y and C output with 75Ω

Y output

- Connect Y to GND (PIN nr.16 of connector 1301).
- Measure DC level on CVBS cinch: Result should be: 1 V DC $\pm 10 \%$
- Apply sinusoidal signals to Y (PIN nr.16 of connector 1301)
- Measure Y output (PIN 3) on connector 1303. Expected value:

Frequency	Level
200 kHz	1.23 Vrms $\pm 20\%$
2 MHz	1.23 Vrms $\pm 20\%$
5 MHz	1.23 Vrms $\pm 20\%$
8 MHz (1 Vpp)	1.1 Vrms $\pm 20\%$

Table 2

C output

- Apply sinusoidal signal of 1 Vpp to C (PIN nr.14 of connector 1301)
- Measure C output (PIN 4) on connector 1303.

Frequency	Level
200 kHz	343 mVrms $\pm 20\%$
2 MHz	305 mVrms $\pm 20\%$
5 MHz	280 mVrms $\pm 20\%$
8 MHz	260 mVrms $\pm 20\%$

Table 3

Aspect Ratio

- Remove termination on C signal output
- Rpply respective voltages on input PIN 8 of connector 1300.
- Measure DC level on C output (PIN 4) of connector 1303

Input on pin 8 of connector 1300	Output DC on C of connector 1303
12 V	<0.2 V
6 V	5 V \pm 20 %
0 V	<0.2 V

Table 4

5.8.4 RGB and CVBS output on SCART

RGB and CVBS outputs

- Terminate CVBS, R, G and B outputs with 75 Ω
- Apply 12 V signal to 0/6/12V (PIN nr.8 of connector 1300).
- Apply a 2 Vpp sinusoidal signal. Vary the frequency according table 4.
- Measure output voltage on PIN nrs.7, 11, 15 and 19 on connector 1304: Measured values should be according table 5

Frequency	Level
200 kHz	1.2 Vrms \pm 20%
2 MHz	1.2 Vrms \pm 20%
5 MHz	1.2 Vrms \pm 20%
8 MHz	1.2 Vrms \pm 20%

Table 5

- Measure DC levels of PIN nrs.8 and 16 on connector 1304. Values should be according table 6

PIN nr.	Level
8	>10V
16	5 V \pm 20 %

Table 6

5.8.5 Loop through function

- Terminate CVBS, R, G and B outputs with 75 Ω on connector 1304-1.
- Connect signal 0/6/12V (PIN nr.8 of connector 1300) to GND.
- Measure SELECT line (on TESTPIN U228). Result should be +6V +/- 20 %.
- Apply 12 V signal to PIN nr.8 of connector 1304-2.
- Apply 5 V signal to PIN 16 on connector 1304-2.
- Apply a 2 Vpp sinusoidal signal via a 75 Ω series resistor on PIN nrs. 7,11,15 and 19 of connector 1304-2. Vary the frequency according the table.
- Measure output voltage on PIN nrs.7, 11, 15 and 19 on connector 1304-1: Measured values should be according table 7

Frequency	Level
200 kHz	1 Vrms \pm 20 %
2 MHz	1 Vrms \pm 20 %
5 MHz	1 Vrms \pm 20 %
8 MHz	1 Vrms \pm 20 %

Table 7

- Measure DC levels of PIN nrs.8 and 16 on connector 1304-1. Values should be according table 8

PIN nr.	Level
8	>10 V
16	5 V \pm 20 %

Table 8

5.9 Test instructions DTS Board

5.9.1 Introduction

This test instruction is applicable for all models with DTS board of the following:

Table 5-1

PCBA 12NC	- 5 V	3.3 V	YUV	DTS
3139 248 80581	*		*	
3139 248 80481	*	*	*	*
3139 248 80471		*		*

5.9.2 Block diagram

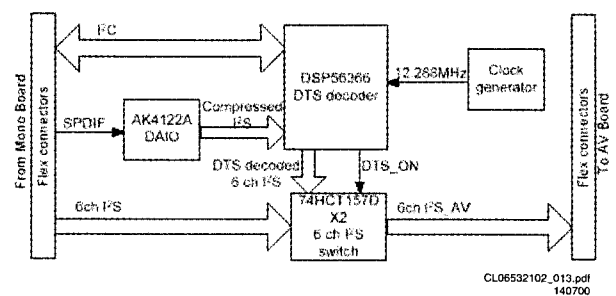


Figure 5-42

5.9.3 General

- Oscilloscope measurements have been carried out using Fluke PM3394B
- Impedance of measuring-equipment should be > 1M Ω
- To do correct measurements, the following supply voltages are recommended:

Table 5-2

+5V_DSP:	+5V \pm 3%	I \geq 200mA
+5V_vid:	+5V \pm 3%	I \geq 100mA
+6V_stdby:	+6V \pm 3%	I \geq 100mA
-8V:	-8V \pm 3%	I \geq 100mA

5.9.4 A. Voltage supplies

3V3 supply

Check voltage level at output pin of IC 7409-1 (LD1117DT33) : 3V3 \pm 5%

-5V with cutoff circuit

Check voltage level at output pin of IC 7400-1 (MC79L05ABD) : -5V \pm 5%

Cut 5V to connector +5Vvid (1002-11), check voltage level again : < 0.5V
Reconnect the 5V.

5.9.5 B. YUV outputs

Make sure that the YUV outputs at connector 1007-1, 3, 5 are terminated with 75 Ω .

Y Buffer

Connect the input Y (1000-16) to GND, check cinch output Y (1007-A) : 0Vdc

Disconnect the GND to Y input and apply a 400mVrms sine wave to the input and check the output for the following frequencies:

Table 5-3

FREQUENCY	LEVEL
200kHz	400mVrms ± 10%
2MHz	400mVrms ± 10%
8MHz	380mVrms ± 10%
20MHz	200mVrms ± 20%

RGB to UV matrix

Apply a 400mVrms, 2MHz sine wave to the R, G, and B inputs of connector 1003-5, 3, 2 according to the connection as shown in table with "1" as signal input and "0" as shorted to GND.

R	G	B	U-LEVEL	V-LEVEL
0	0	0	0 Vrms, 0 Vdc	0 Vrms, 0 Vrms
0	0	1	201mVrms ± 10%	32mVrms ± 10%
0	1	0	132mVrms ± 10%	167mVrms ± 10%
1	0	0	68mVrms ± 10%	200mVrms ± 10%

C. DTS outputs

Before starting measurements, the following have to be done:

- Initialize the IC 7406 (DSP56366) via the I2C interface.
- Disconnect or ground the 6 channels I2S source.
- Apply the SPDIF source containing digital compressed audio for DTS with 6 channels, 1KHz tone, 0db.
- Check DTS_ON signal on Pin 1 of IC7407 and IC7408 : High 3V3

Check the following Digital signal outputs with ampl. of 5V :

Table 5-4

SCLK_AV	(1003-16)	3.072 MHz
LRCLK_AV	(1003-15)	48KHz
PCM_OUT0_AV	(1003-14)	Random
SYS_CLK_AV	(1003-18)	12.288MHz
PCM_OUT1_AV	(1001-6)	Random
PCM_OUT2_AV	(1001-4)	Random
SPDIF_AV	(1003-21)	Random

To be sure that the data are correct and output it to the 6 channels 24-bits DAC and measure for 1KHz, 0db sine wave at all channels.

Disconnect or ground the SPDIF source and re-measure all outputs : Result no output

D. I2S switch

Before starting measurements, the following have to be done:

- Apply I2S source containing PCM (fs=96KHz) with 6 channels 1KHz, 0db tone.
- Check DTS_ON signal on Pin 1 of IC 7407 and IC 7408 : Low 0V

Check the following Digital signal outputs with ampl. of 5V

SCLK_AV	(1003-16)	6.144 MHz
LRCLK_AV	(1003-15)	96KHz
PCM_OUT0_AV	(1003-14)	Random

SYS_CLK_AV	(1003-18)	24.576MHz
PCM_OUT1_AV	(1001-6)	Random
PCM_OUT2_AV	(1001-4)	Random
SPDIF_AV	(1003-21)	Random

To be sure that the data are correct and output it to the 6 channels 24-bits DAC and measure for 1KHz, 0db sine wave at all channels.

5.10 Test instructions Display board

5.10.1 Introduction

These test instructions are written for all versions of the display PCB 3104 123 42230.

The contents of the PCB can be split up into next blocks:

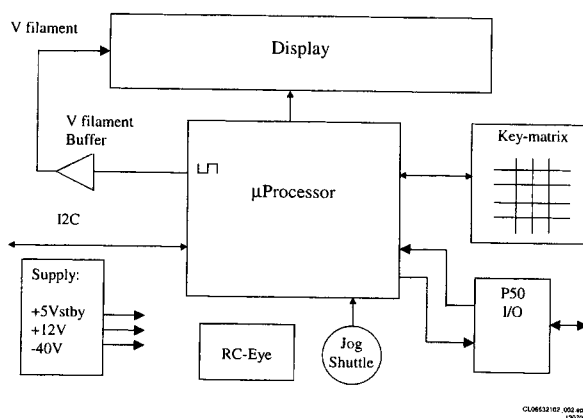


Figure 5-43

5.10.2 Functionality description:

The essential component of the display PCB is the μP (slave). This slave works on an 8MHz resonator and has a reset circuit that is triggered by the +5Vstby. After the reset pulse, the standby control line will release the reset of the host μP. This host μP will then initialise the slave. In addition, when going to stand-by, the slave will put the host μP in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host μP will be released.

Other slave functions are:

- Square signal generator to generate the filament voltage, which is required for an AC FTD.
- Generates the grid and segment scanning for the FTD.
- Generates a scanning grid for the keys (separated from display scanning).
- Has inputs for RC (RC5 and RC6) and P50 (P50 controller is built in).

5.10.3 General

- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be > 1MΩ.
- To do correct measurements we recommend to use supply with following specification:.

Connector-pin	Voltage	Current	Tolerance
1115-1	12V	400mA	±5%
1115-2	GND		
1115-3	+5Vstby	55mA	±5%
1115-4	-40V	45mA	±10%

5.10.4 Reset

Check next reset timing with an oscilloscope at pin 10 of the microprocessor.

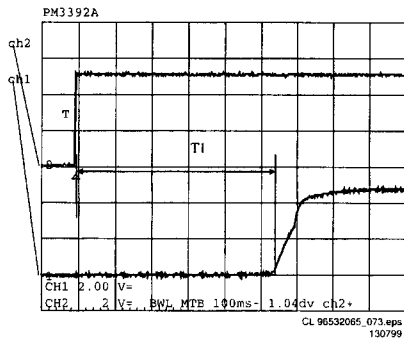


Figure 5-44

Timing: $400\text{msec} < T1 > 700\text{msec}$.
 CH1: +5Vstby voltage at power on.
 CH2: Voltage at pin 10.

5.10.5 Display steering

Check next timing and level for all grid-lines (G1 r G14).

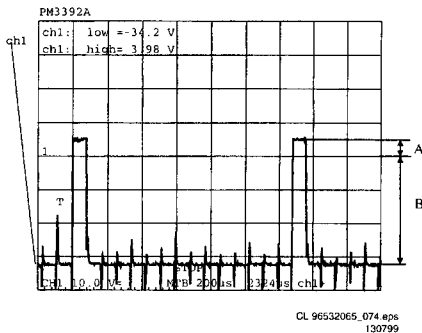


Figure 5-45

1. Check level A: +4V5 +/-10% for grid lines 1 => 11
2. Check level A: +4V0 +/-10% for grid lines 12 => 14
3. Check level B: -33V +/-10%
4. Check timing and levels of segment-lines P1 => P10:

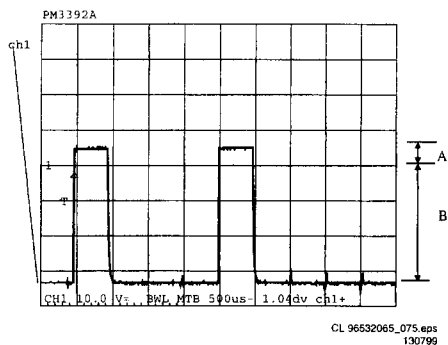


Figure 5-46

Level A: +4V5 +/-10%
 Level B: -33V +/-10%

The data on these segment lines depend on the characters that are displayed.

The characters can be set by sending I2C commands to the display.

See the Slave URS how to send a display command.

5.10.6 Key-matrix

Connect a extra 10kΩ pull-up to pin 36 en 37 of the μP and check next matrix scanning at these pins.

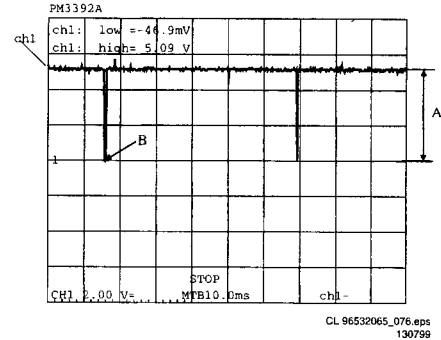


Figure 5-47

Level A: 5.0V +/-7%

Level B: 0V +/-200mV

Check matrix scanning from pin 26 until 33 of the μP.
 The results should be the same as the diagram above.

5.10.7 I.R. receiver

Check at pin 23 of the μP if this line switches from low (< 0.3V) to high (> 4.5V), while pressing a key on a Philips RC5 or RC6 remote control.

5.10.8 Karaoke interface

The karaoke interface (4 lines) is a single direction communication.

This means that it consists of four μP output lines.

The interface can be checked by setting or resetting these output-ports via the I2C bus.

Send next command via the I2C bus:

Address	: 0x70
Command byte	: 0x24
Data byte	: xxxabcd
Where	: a = Karaoke reset.
	: b = Karaoke data.
	: c = Karaoke clock.
	: d = Karaoke strobe.

5.10.9 P50 interface

P50 is a bi-directional serial interface, which is used for communication between video equipment. For European sets, this communication goes via pin 10 of the scart-bus. In other regions, it can be a cinch bus at the back of the set.

1. Keep the μP in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5: < 200mV.

When the reset is released the μP output-pin becomes low and transistor 7101 is switched off.

1. Check the voltage at the P50 output connector 1118-5: 4V9 +/-5%.
2. Check also the μP P50 input (μP pin 20): 5V +/-5%.
3. Connect the P50 line (connector 1118-5) to ground.
4. Check again the μP P50 input (μP pin 20): <0V3.

5.10.10 Jog Shuttle

Connect the Jog Shuttle as shown in figure 5-42:

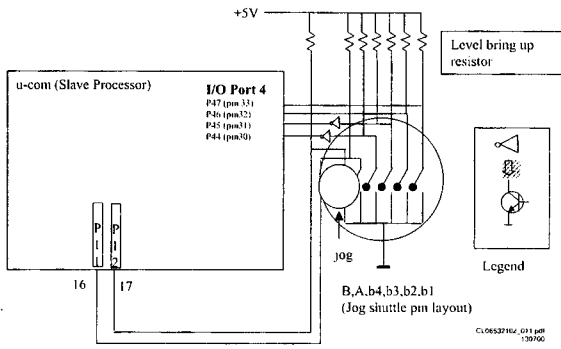


Figure 5-48

For the Jog Part

Connect pin A and B of the jog shuttle to the scope

For the Shuttle Part

Connect the following points to the scope or voltmeter: P47, P46, P45, P44.

Rotate the shuttle part and waveform as shown in figure 5-43 should be seen on the scope.

True table of port 44 to port 47 of slave processor.

True table of Port 44~Port 47 of slave processor:

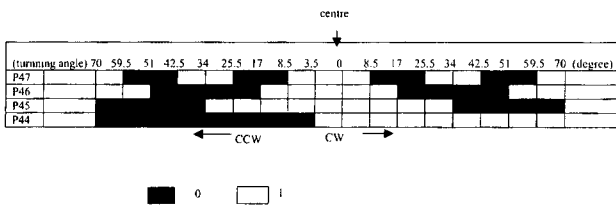


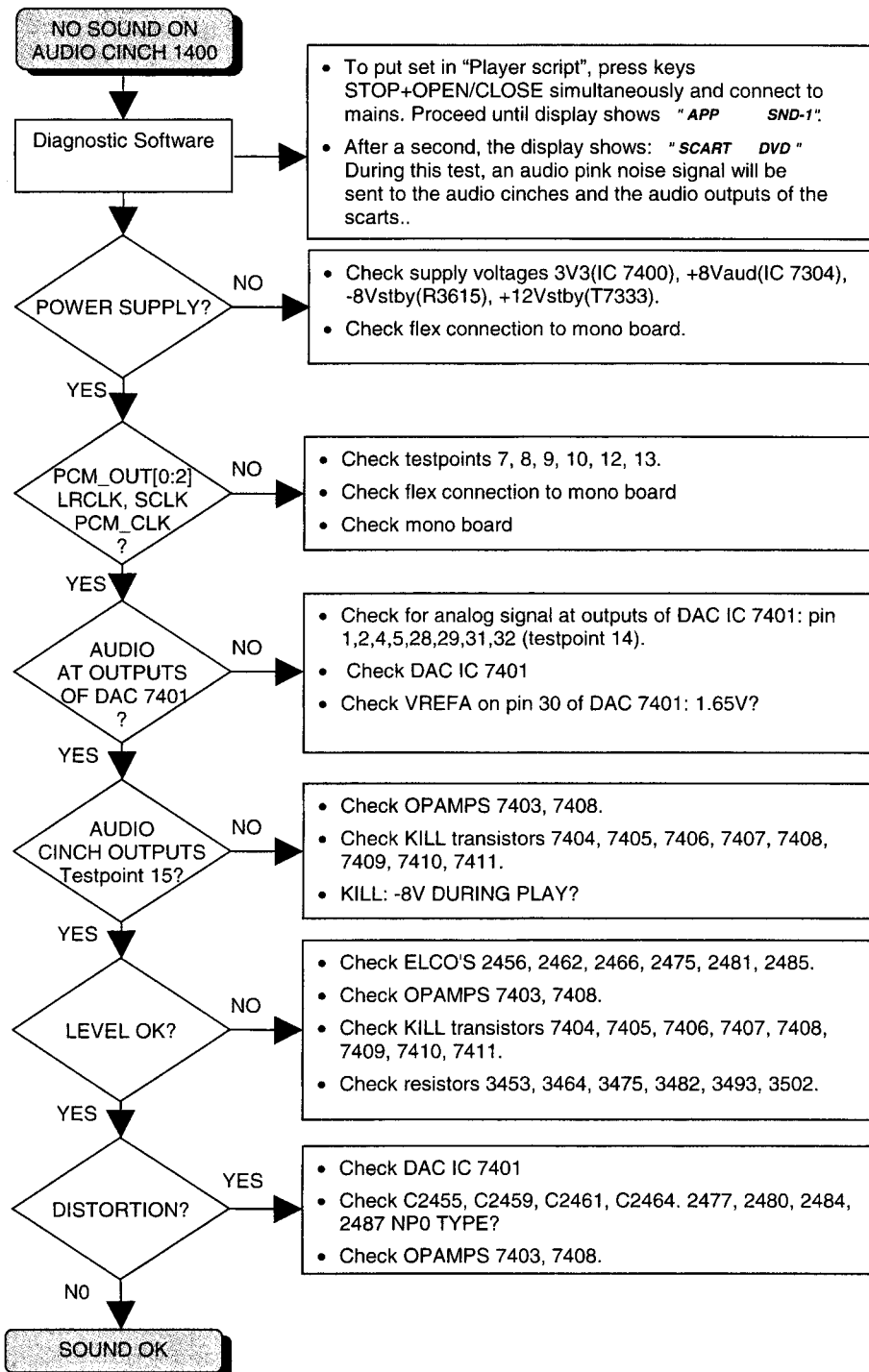
Figure 5-49

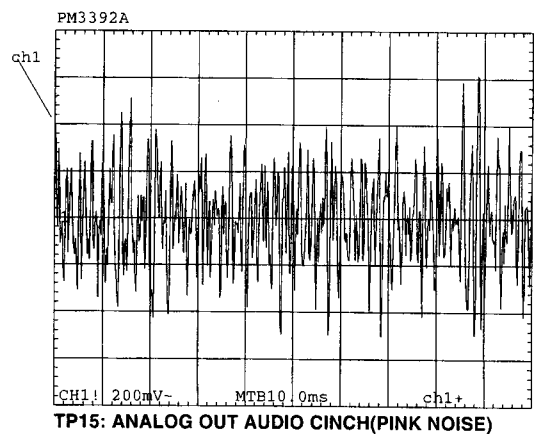
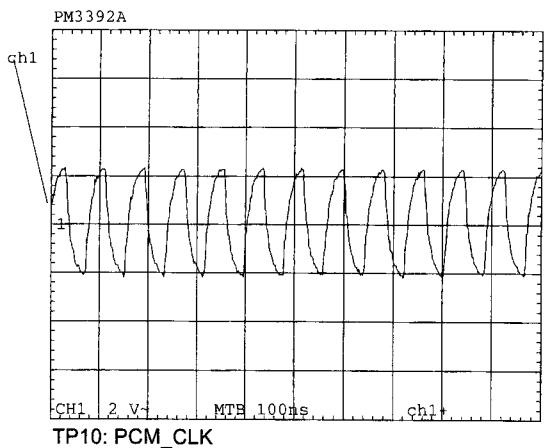
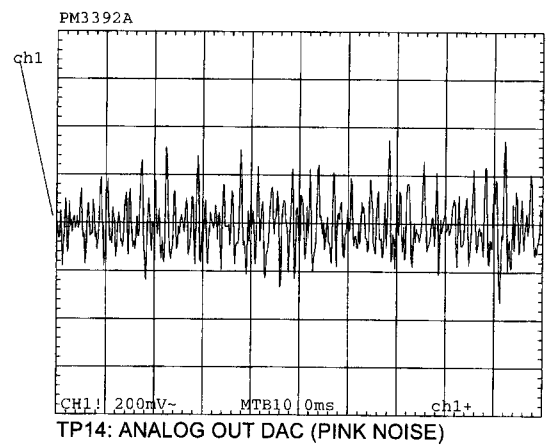
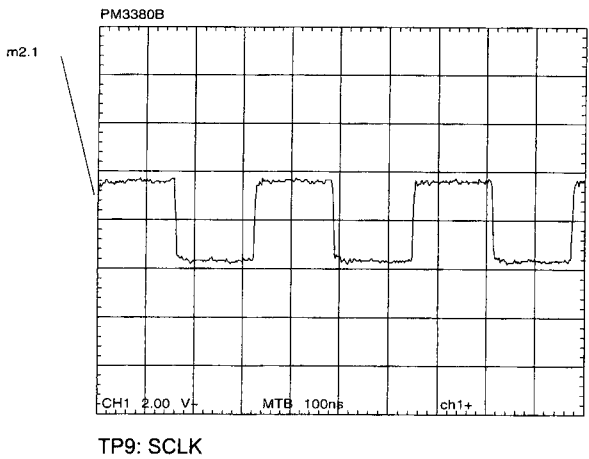
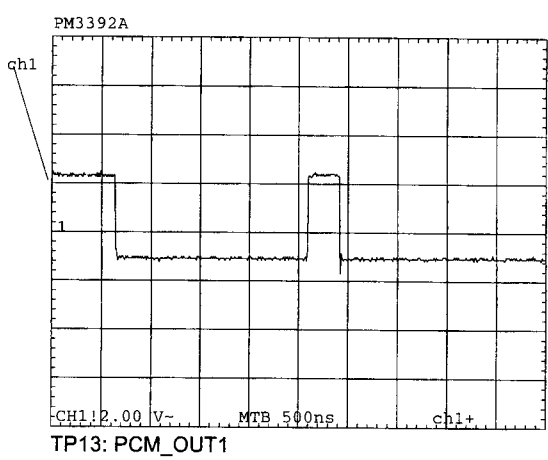
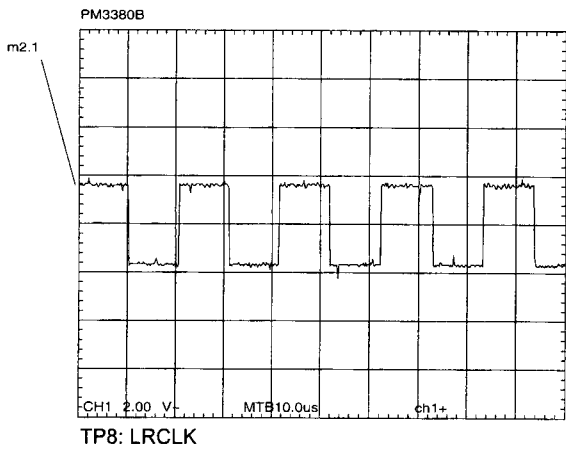
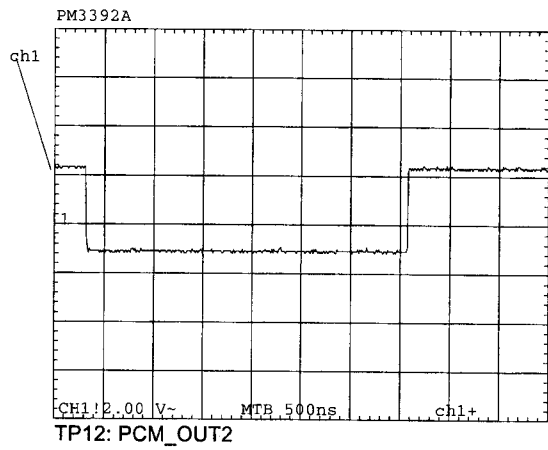
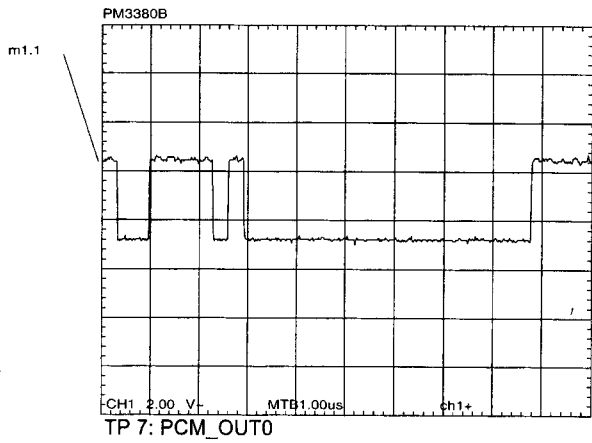
5.11 Troubleshooting A/V board

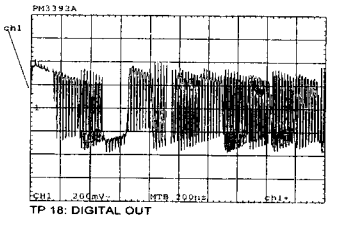
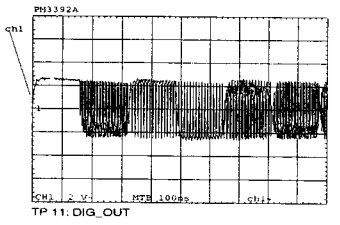
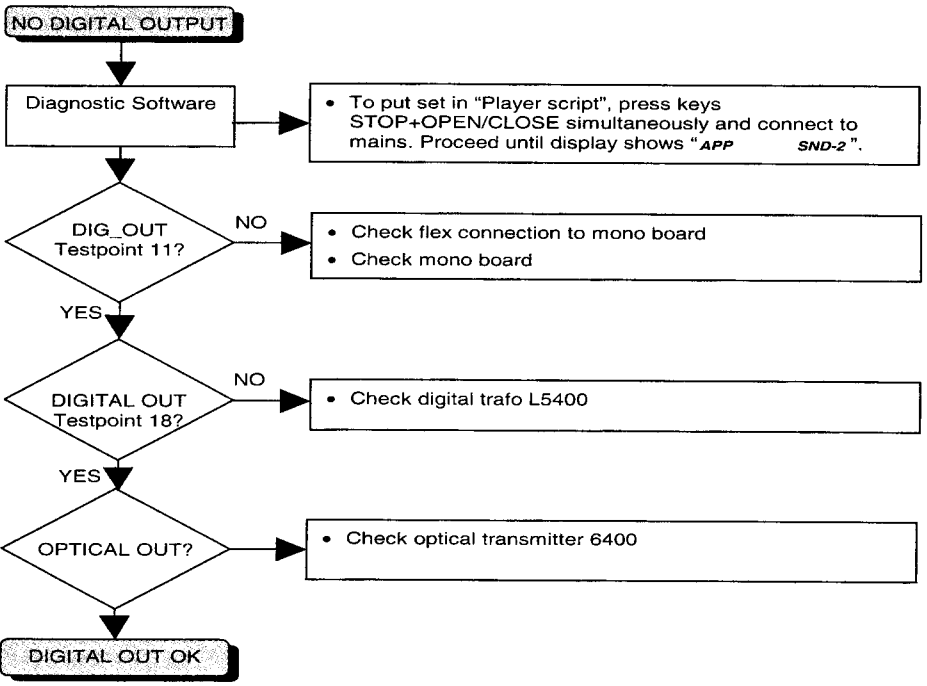
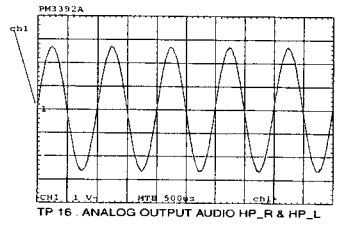
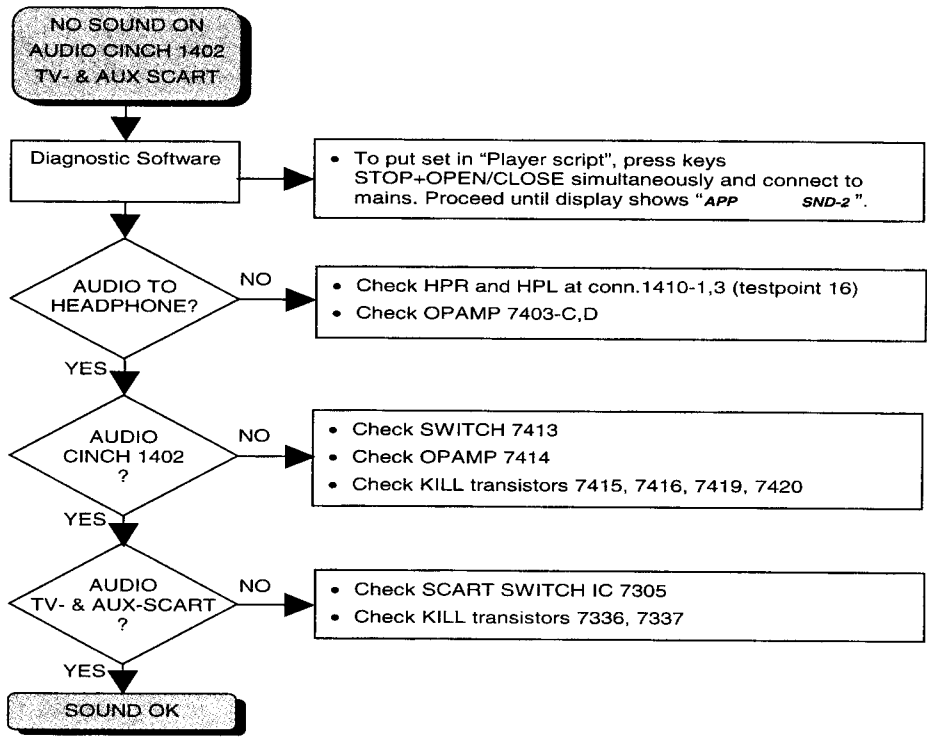
TROUBLESHOOTING A/V BOARD

Testing of A/V board can be done using diagnostic software "Player script". Mono board is used to generate a sound with the sound tests SND-1 and SND-2 or a VIDEO signal with the picture test PIC-1. Functional control of scart switching and RGB video processing is also possible. See description in chapter "Diagnostic Software: Script Interfaces"

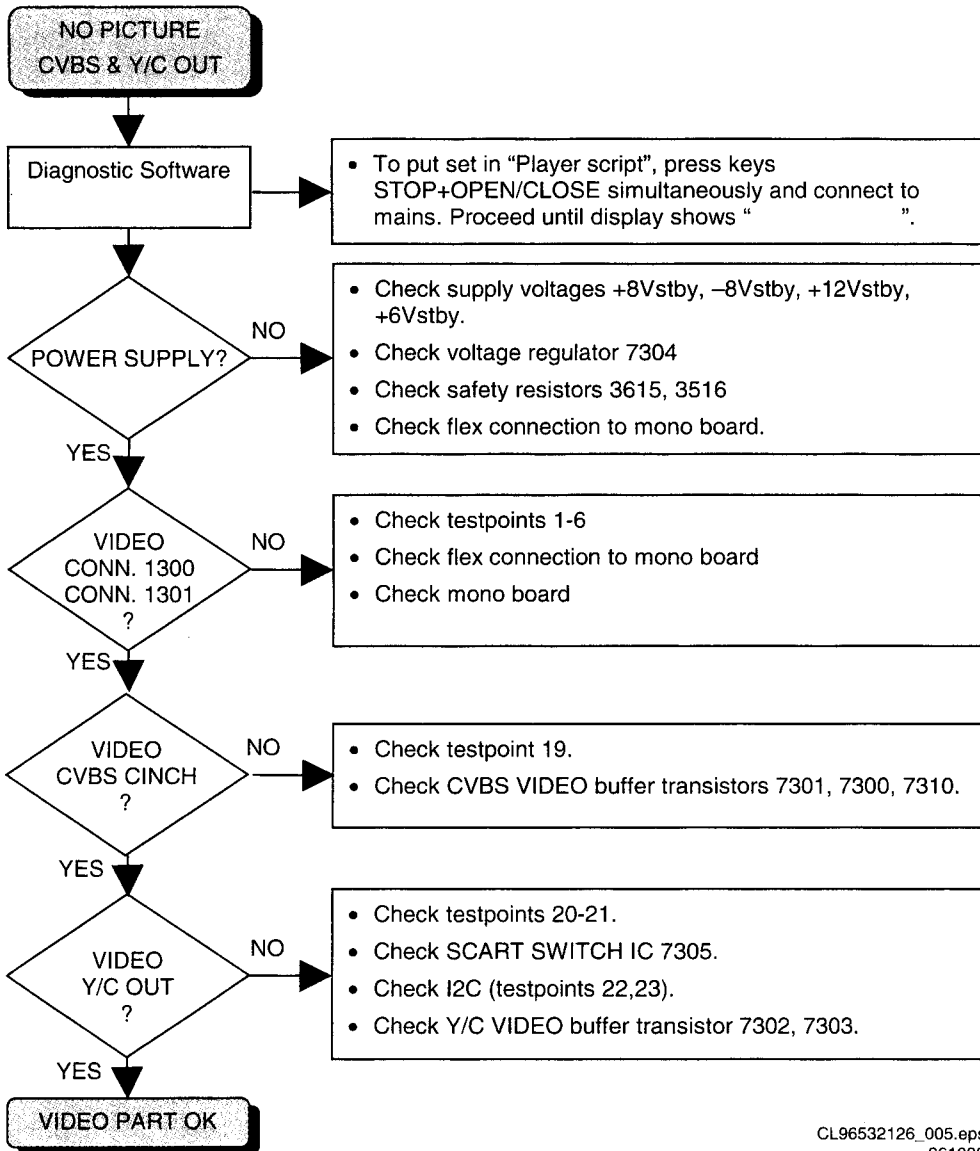
AUDIO PART

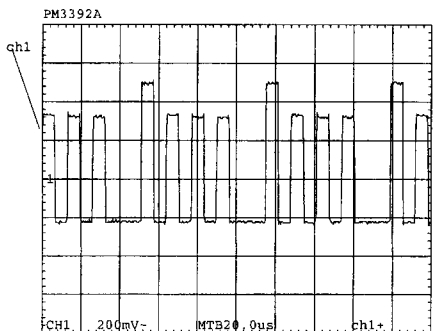




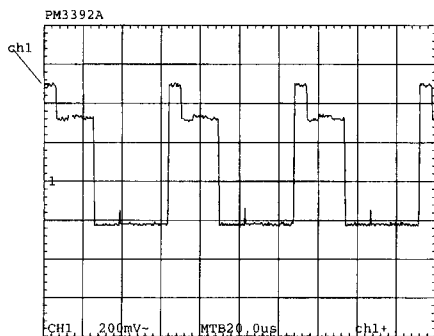


VIDEO PART

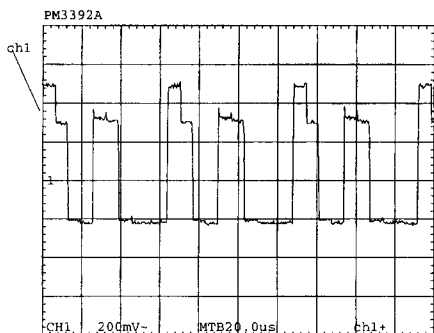




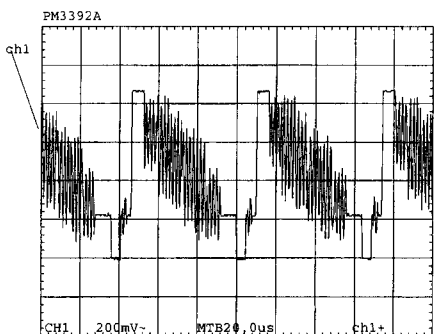
TP 1 : video B



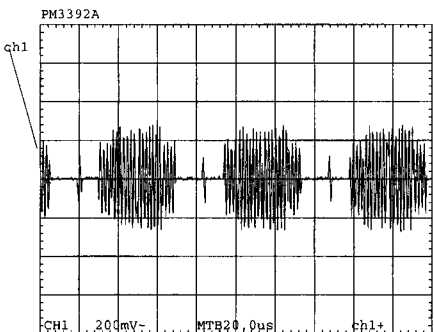
TP 2 : video G



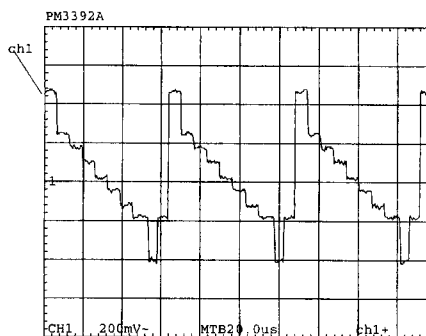
TP 3 : video R



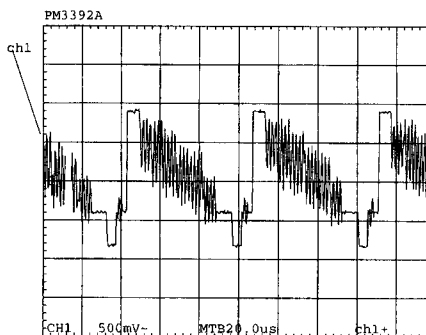
TP 4 : CVBS



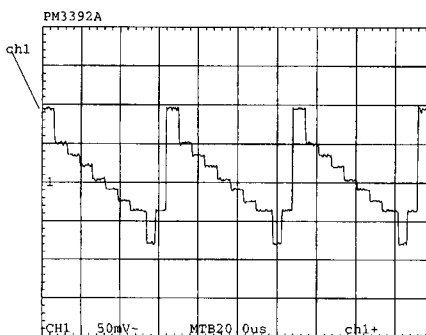
TP 5 : C_ENC



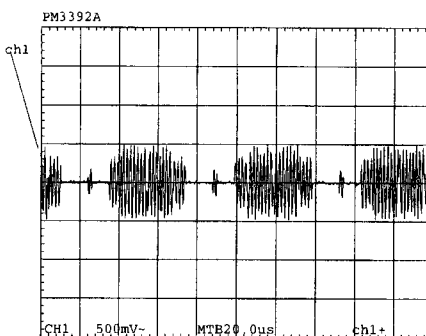
TP 6 : Y_ENC



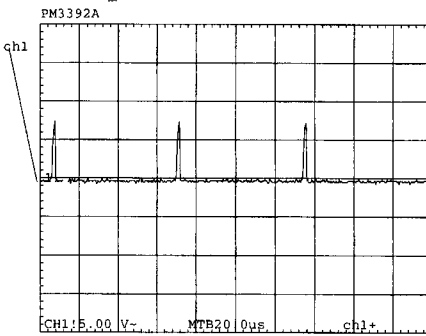
TP 19 : CVBS_OUT



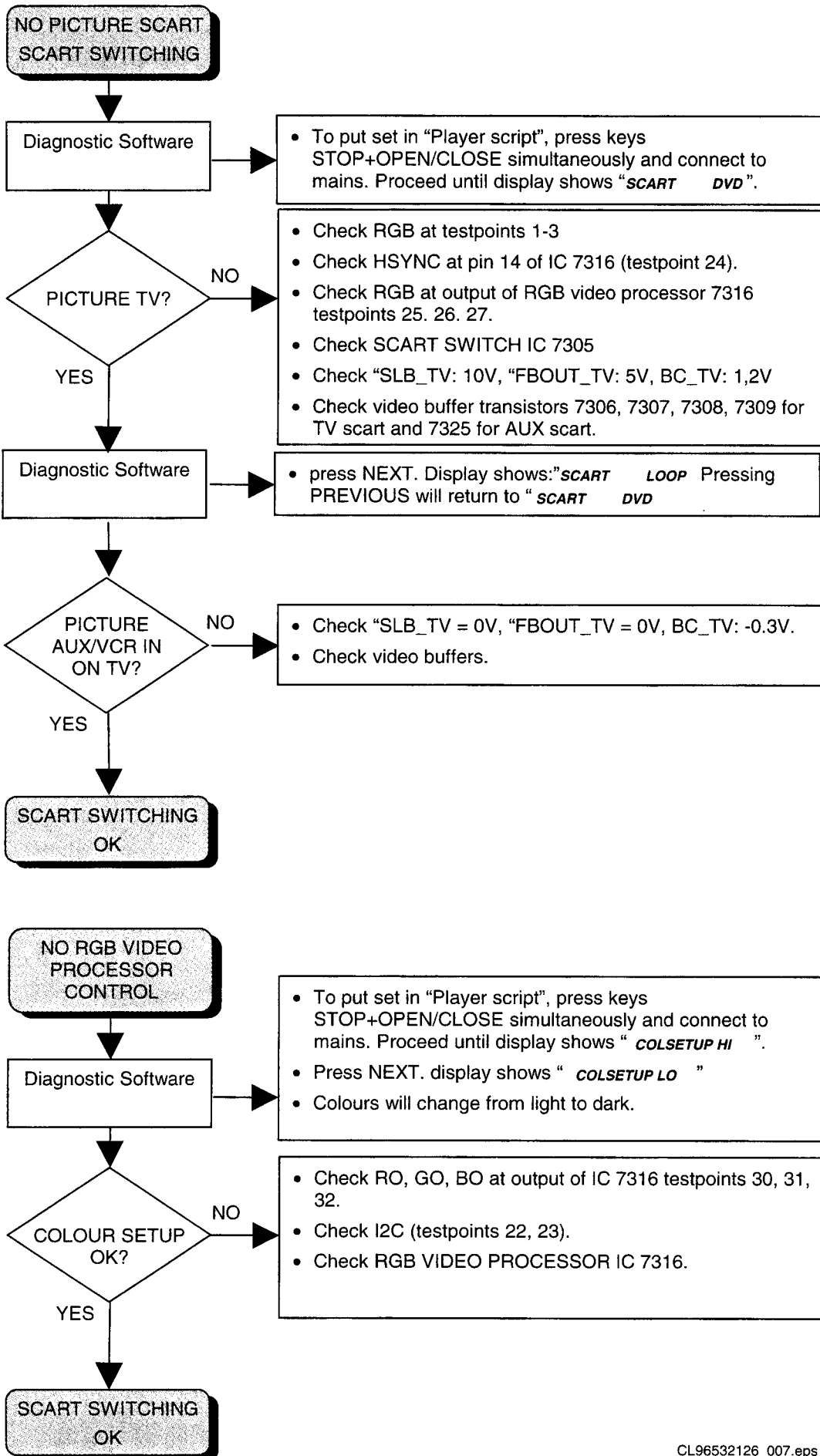
TP 20 : Y_OUT

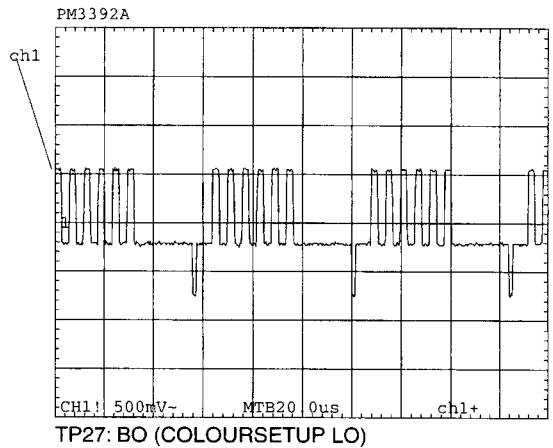
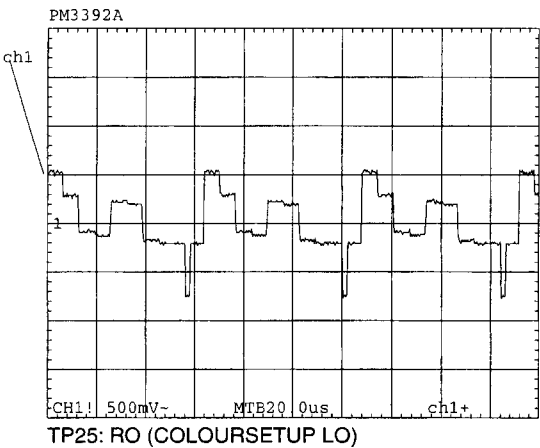
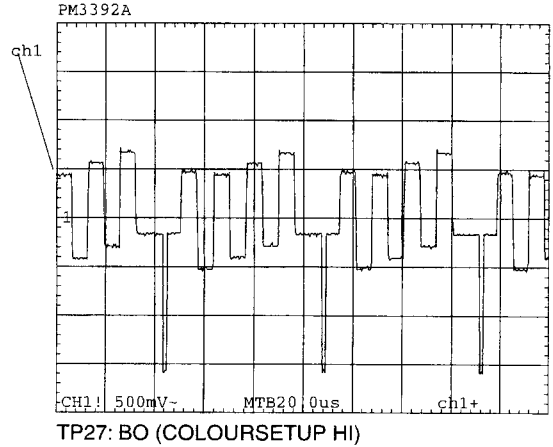
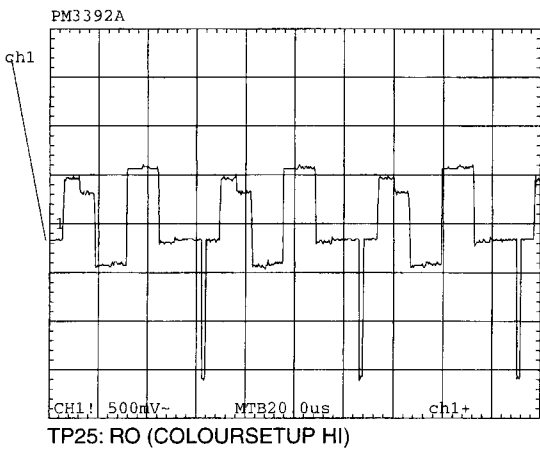
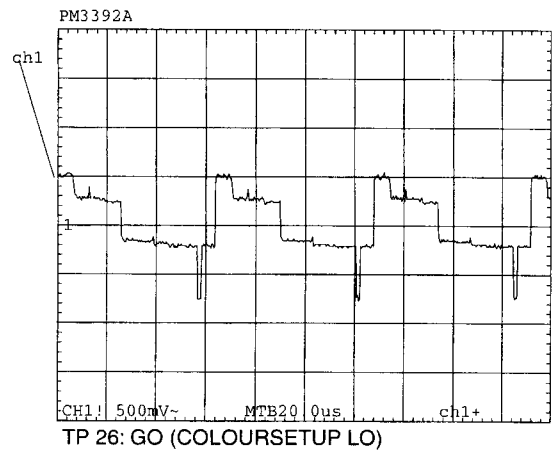
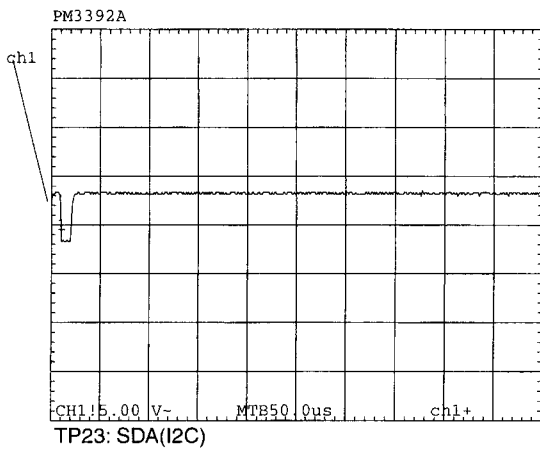
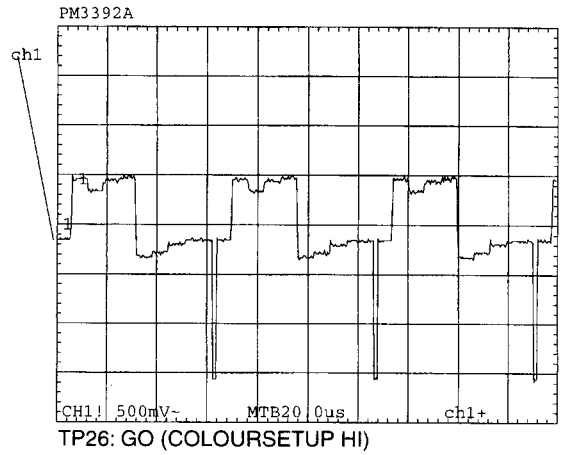
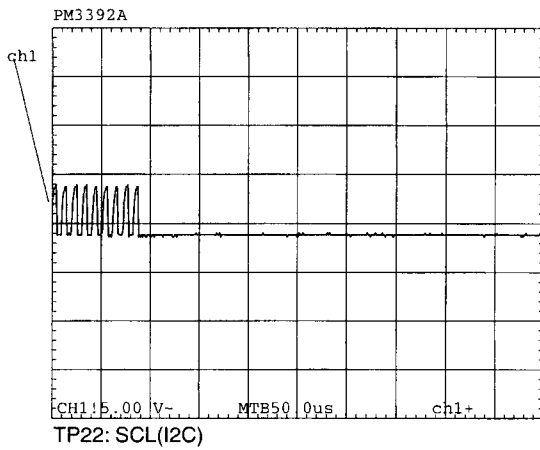


TP 21 : C_OUT

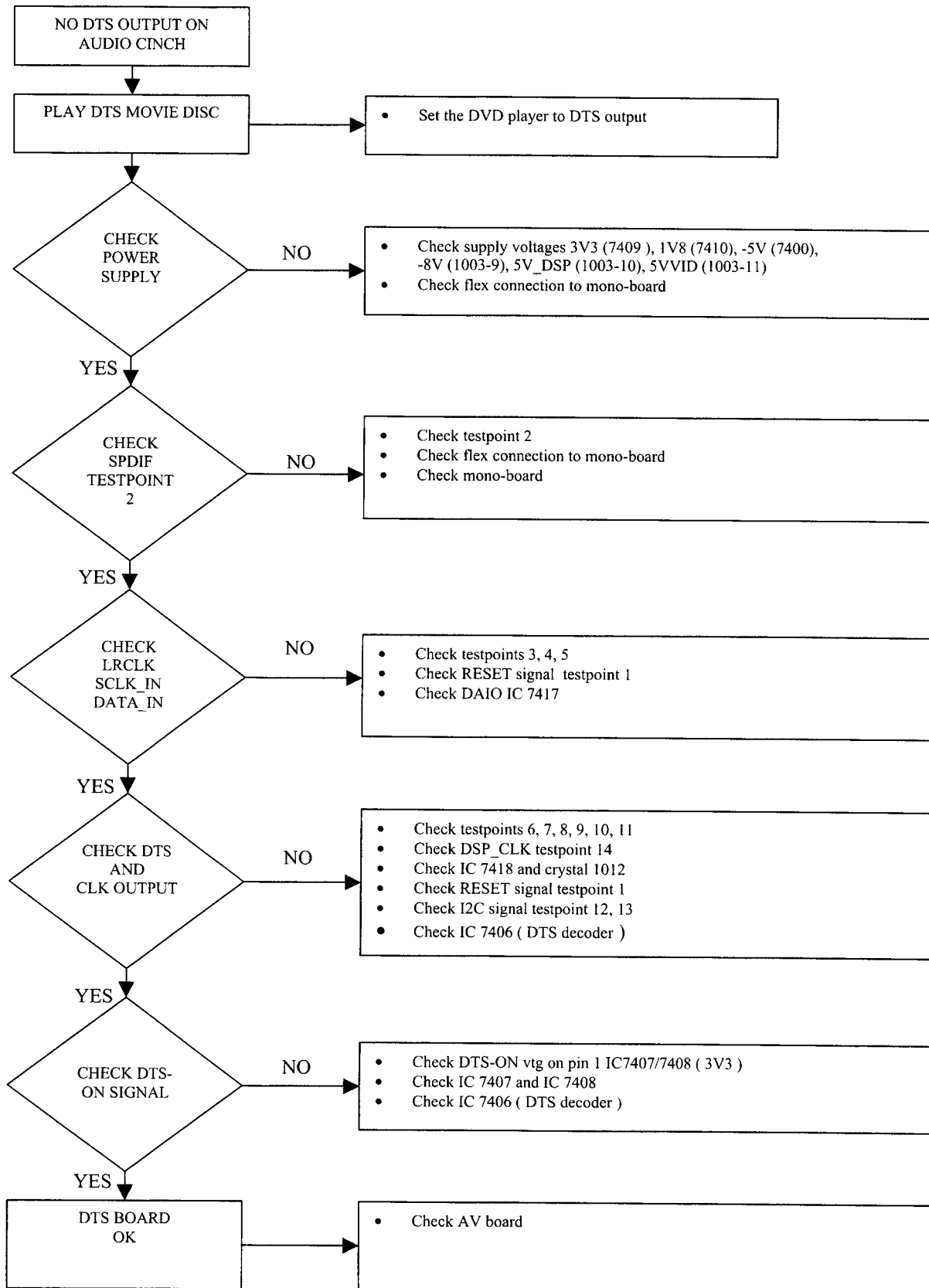


TP 24 : HSYNC



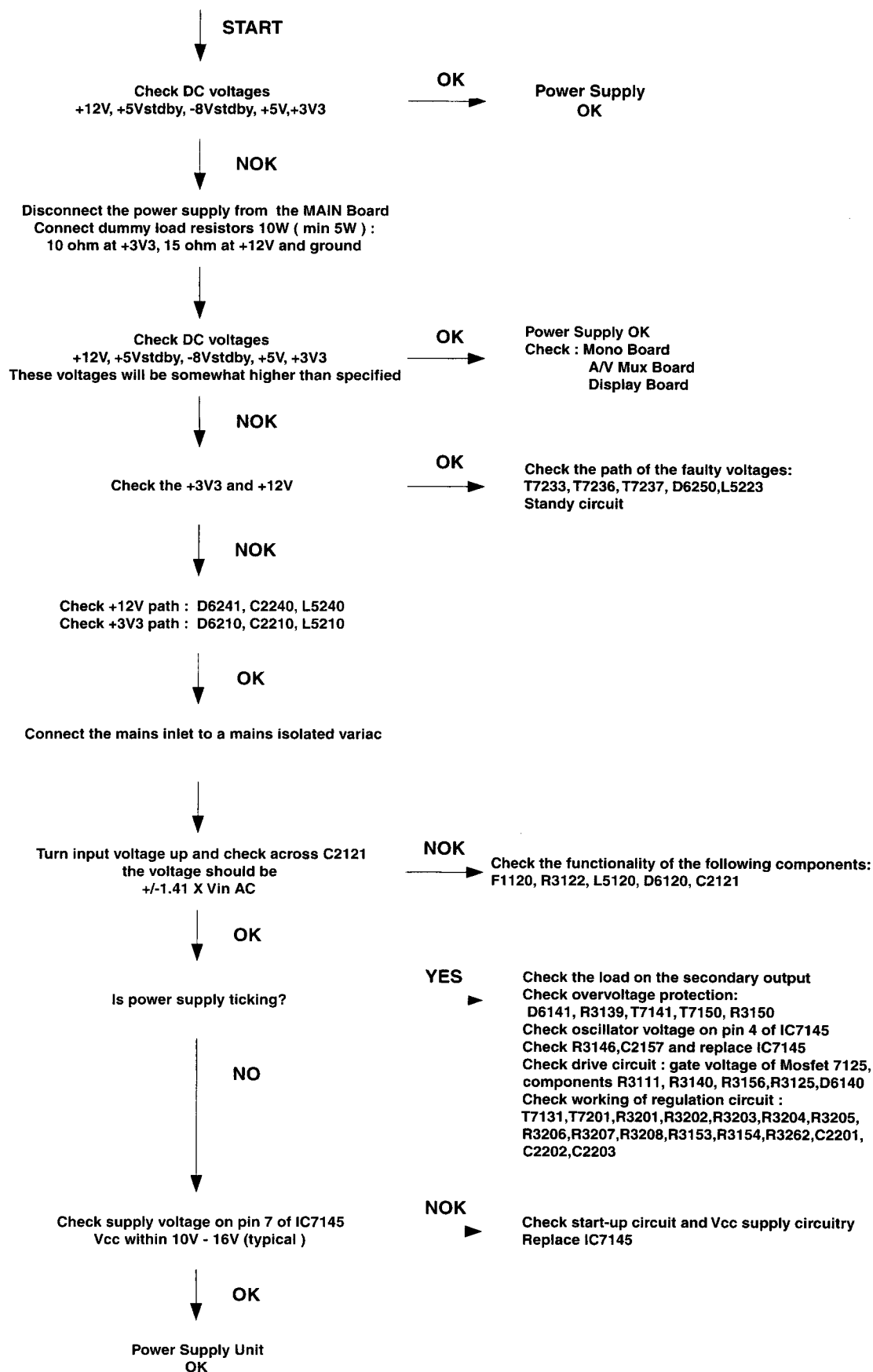


TROUBLESHOOTING DTS BOARD



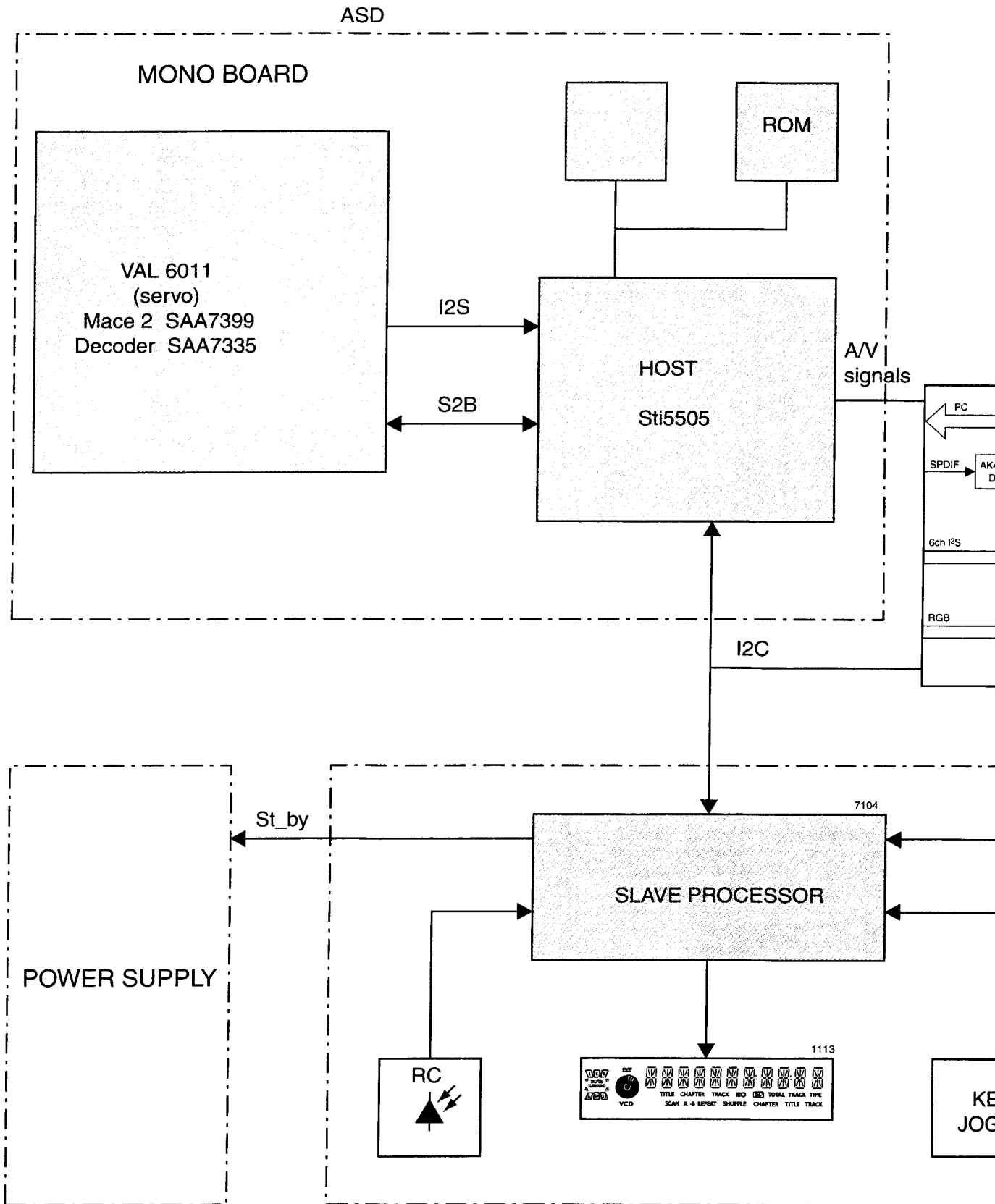
5.12 Trouble shooting Current mode power supply

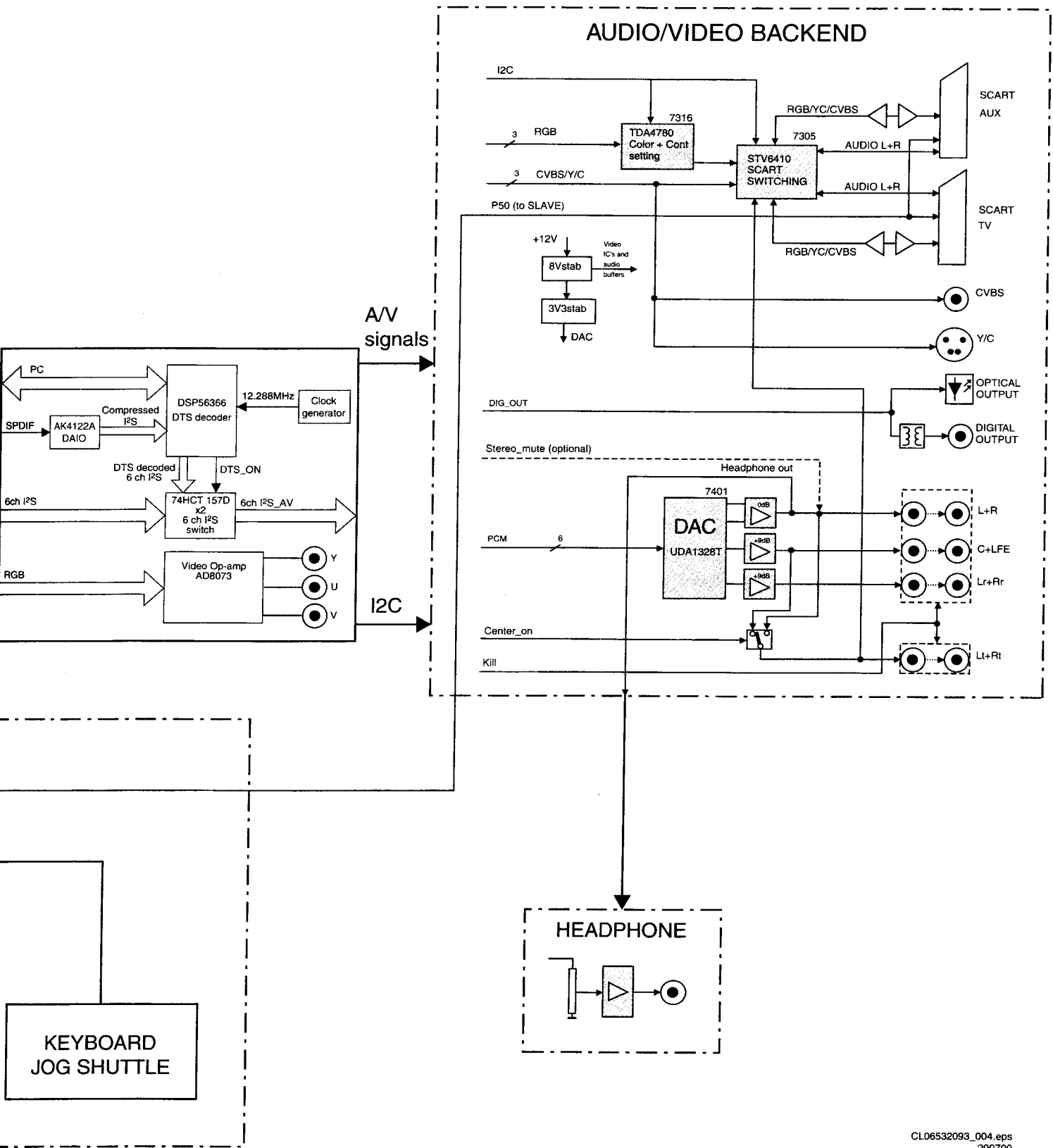
Current mode power supply units



6. Block- and wiringdiagram.

Block diagram

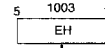
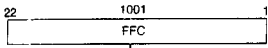




BOARD

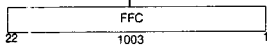
1	P50	9	-8V	17	GND
2	B	10	+5VD	18	PCM_CLK
3	G	11	+5VVID	19	CENTER_ON
4	GND	12	KILL	20	STEREO_MUTE
5	R	13	GND	21	DIG_OUT
6	CVBS	14	PCM_OUT0	22	GND
7	GND	15	LRCLK		
8	0[6]12	16	SCLK		

1	RESN
2	IFS
3	GND
4	IFD
5	IFL



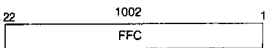
%[1105]

*[1103]

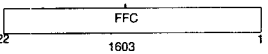


1	P50	9	-8V	17	GND
2	B	10	+5VD	18	SYS_CLK_AV
3	G	11	+5VVID	19	CENTER_ON
4	GND	12	KILL	20	STEREO_MUTE
5	R	13	GND	21	SPDIF_AV
6	CVBS	14	PCM_OUT0_AV	22	GND
7	GND	15	LRCLK_AV		
8	0[6]12	16	SCLK_AV		

SAME AS IN ASD2



[1107]



1	P50	9	-8V	17	GND
2	B	10	+5VD	18	PCM_CLK
3	G	11	+5VVID	19	CENTER_ON
4	GND	12	KILL	20	STEREO_MUTE
5	R	13	GND	21	DIG_OUT
6	CVBS	14	PCM_OUT0	22	GND
7	GND	15	LRCLK		
8	0[6]12	16	SCLK		

1	3V3	7	GND
2	3V3	8	GND
3	+5V	9	-8VSTBY
4	+5VSTBY	10	STB_CONTROL
5	+6VSTBY	11	+12VSTBY
6	GND	12	GND

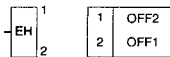
1600 PH

[1108]

D1 : DVD STEP 2000

WIRING / BLOCK DIAGRAM

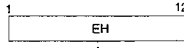
[1005] POWER SUPPLY BOARD



1	OFF2
2	OFF1

1	3V3	7	GND
2	3V3	8	GND
3	+5V	9	-8VSTBY
4	+5VSTBY	10	STB_CONTROL
5	+6VSTBY	11	+12VSTBY
6	GND	12	GND

1	+12V
2	GND
3	+5VSTBY
4	-40V



[1110]

LOADER ASSY



1	+12V
2	GND
3	+5VSTBY
4	-40V

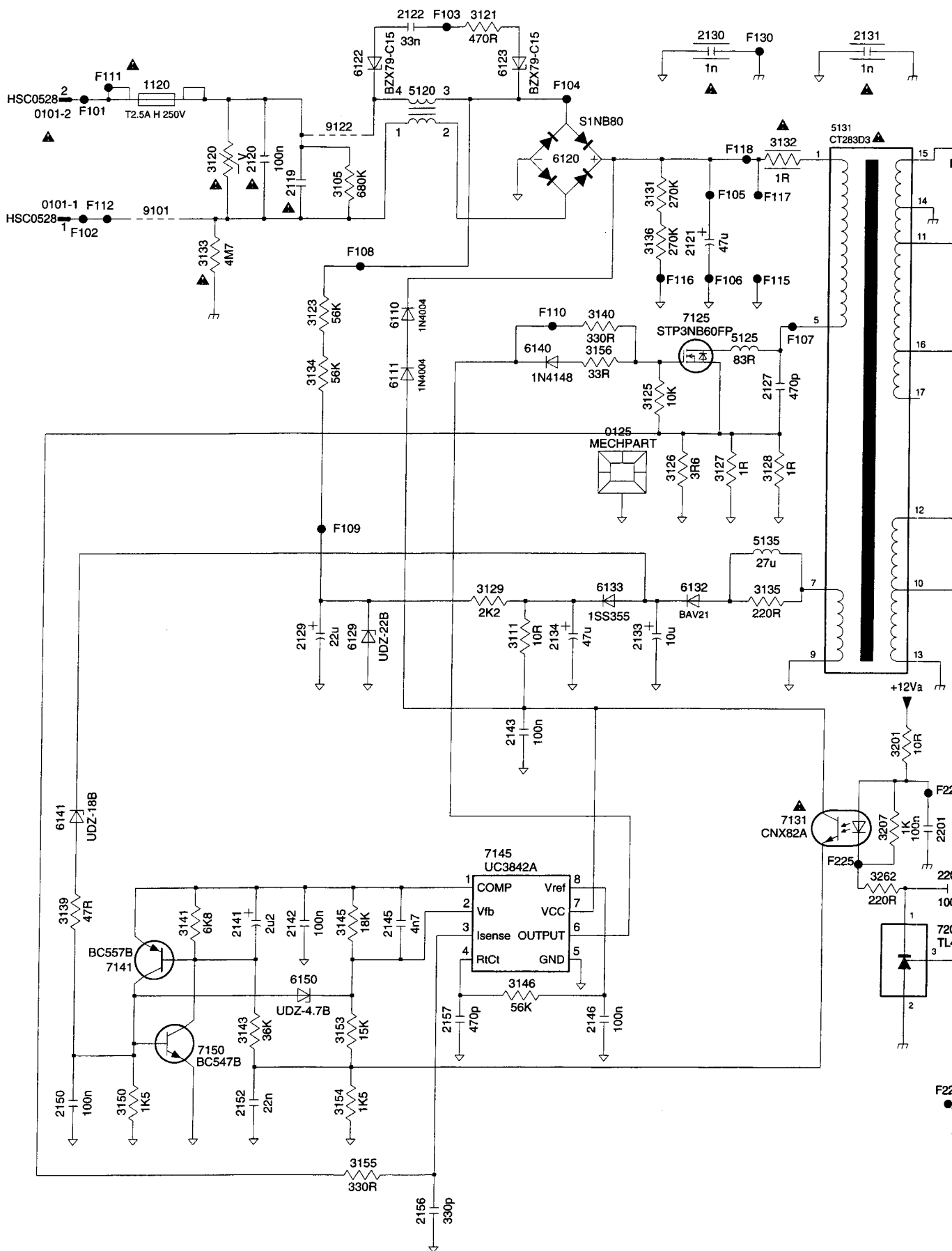
[1002A]

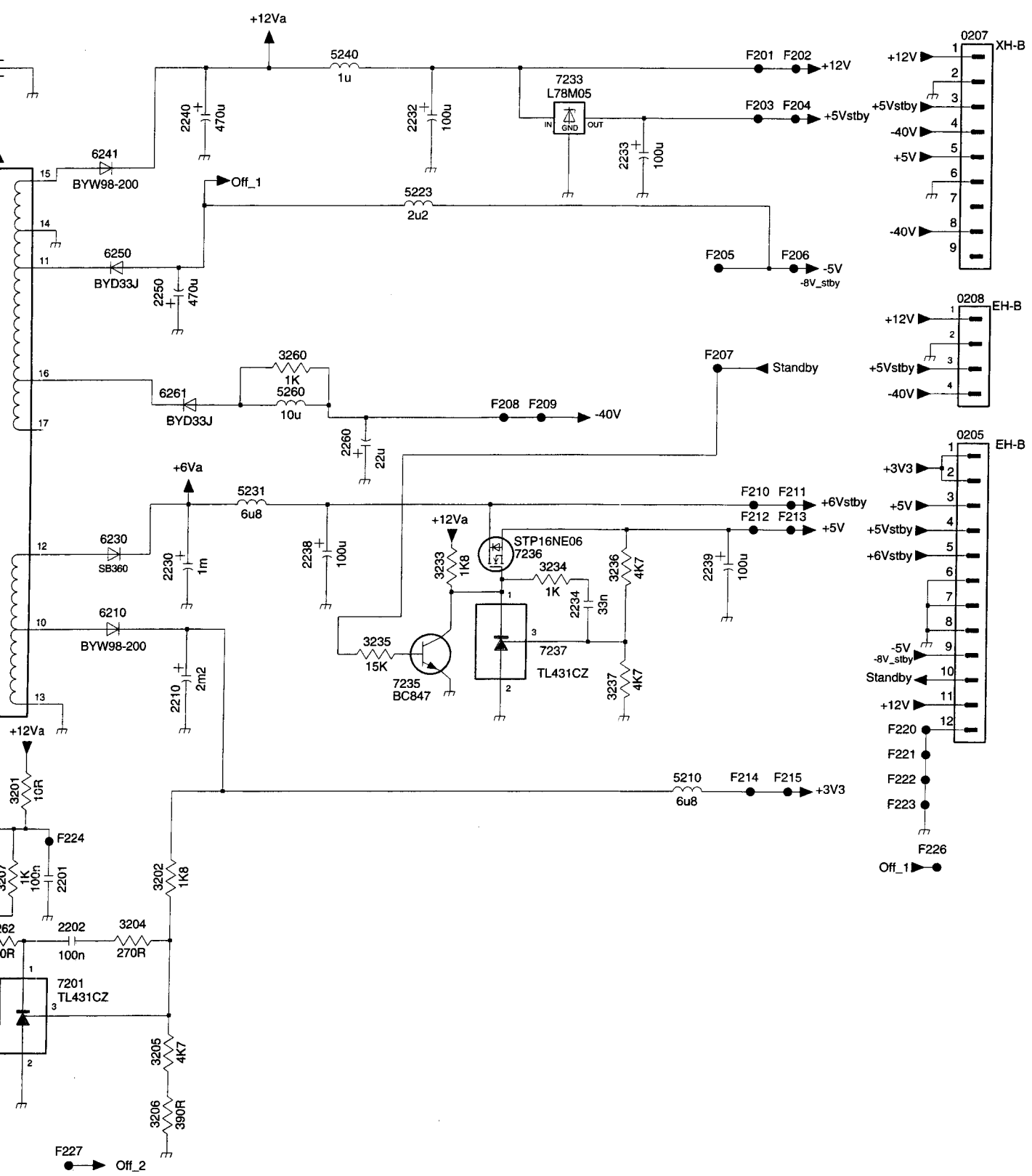
DISPLAY BOARD

LEGEND : [] COMM SET ITEM NUMBER
 * FOR DVD 956K
 *# FOR ALL EXCEPT DVD 956K
 # FOR NON-EURO VERSION
 ! FOR EURO VERSION
 % FOR ALL EXCEPT DVD 941/171

7. Electrical diagrams and Print-layouts

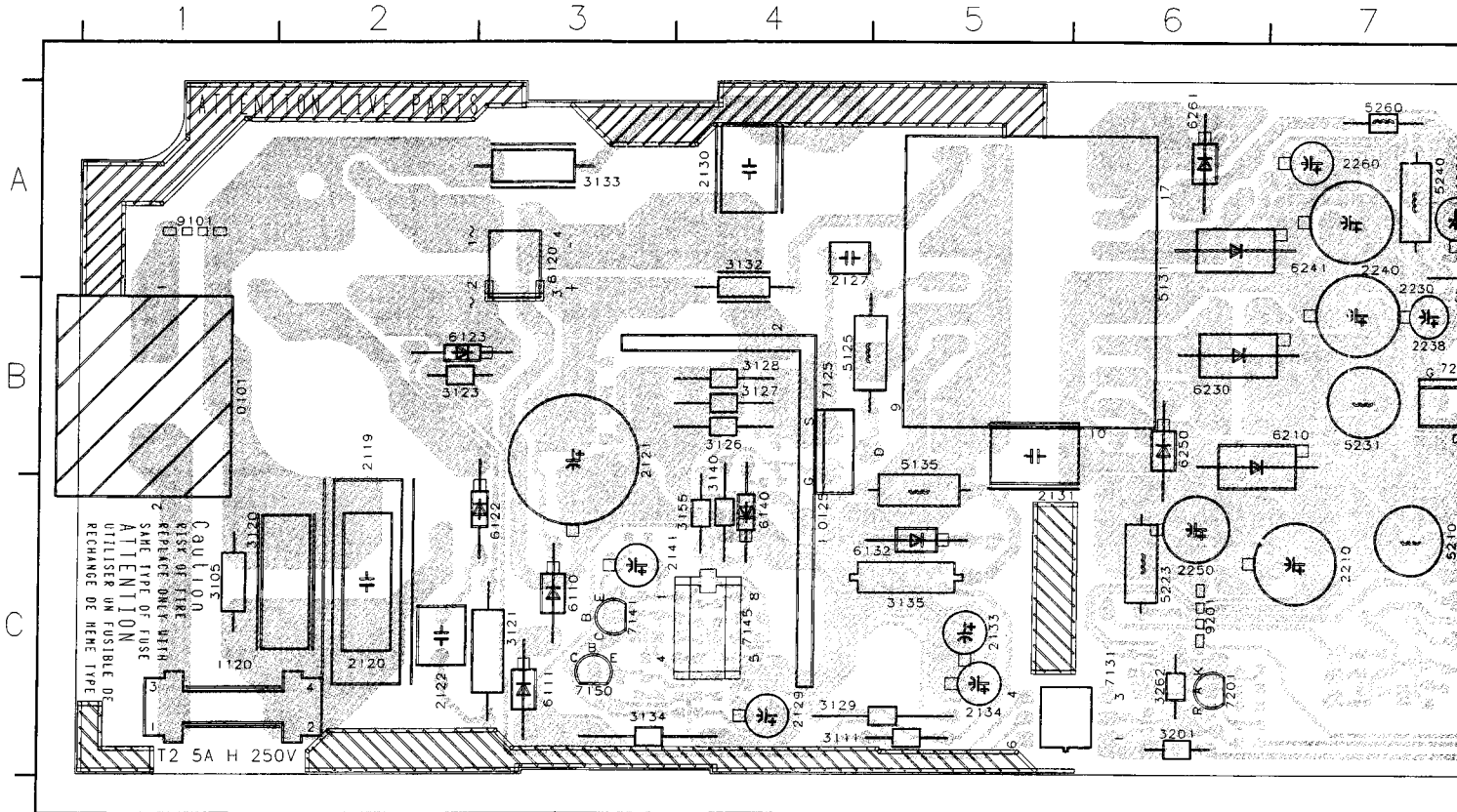
Power supply 20PS227



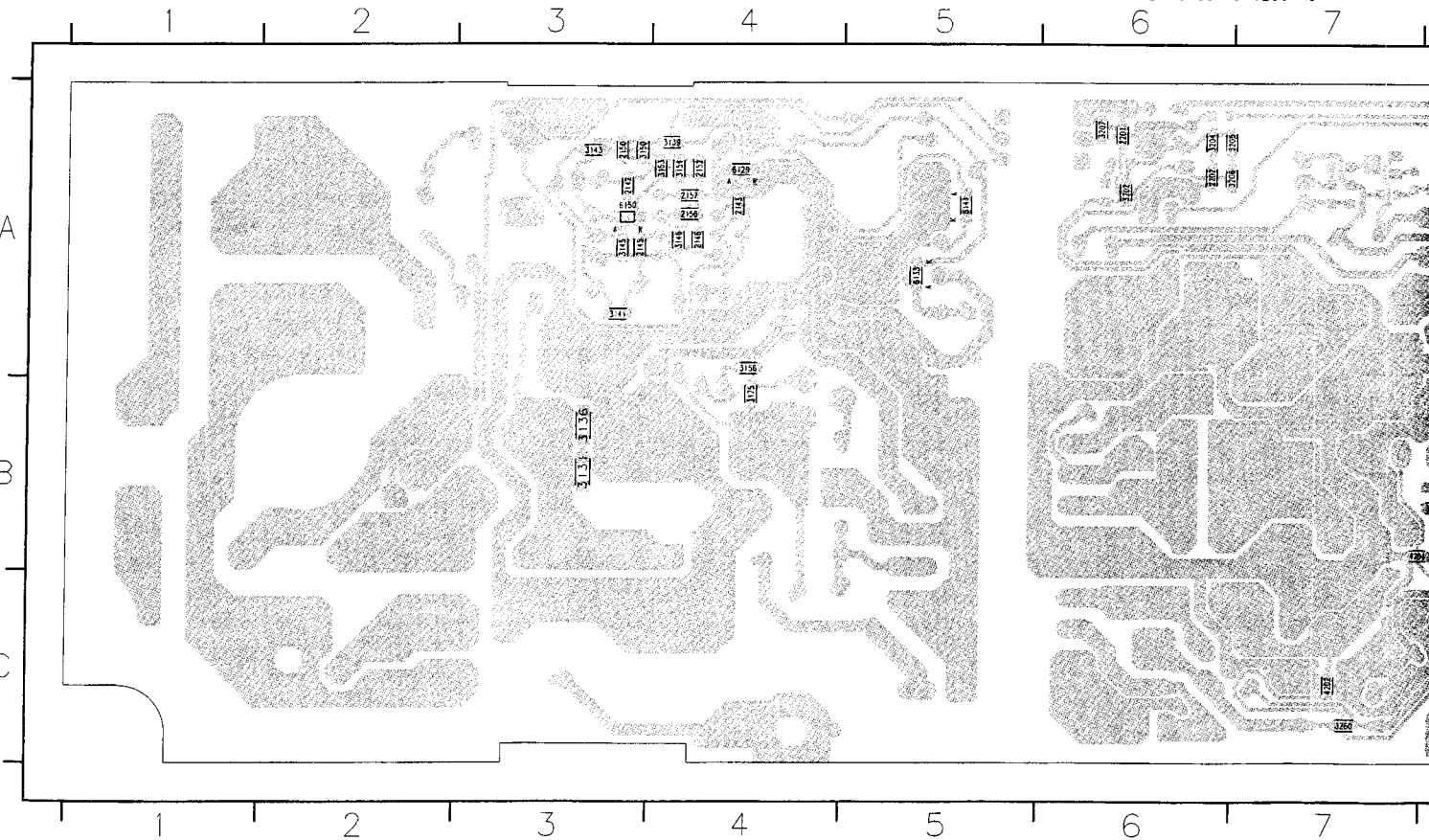


Power supply 20PS227

0101	B1	0208	B9	2122	C2	2129	C4	2134	C5	2232	A7	2240	A7	2259	C8	3111	C4	3126	B4	3133	A3	3201	C6	5125	B4	5223	C6	6110	C3	6132	C5	6231	B6	6261	A6	7150
0125	C4	1120	C1	2123	B3	2130	A4	2141	C4	2233	A8	2241	A6	2260	A7	3120	C1	3127	B4	3134	C3	3233	B8	5131	B6	5230	B7	6111	C3	6140	C4	6240	B6	7125	E4	7201
0205	C9	2119	B2	2125	B3	2131	C5	2210	C7	2236	B6	2250	C6	2261	A7	3121	C3	3128	B4	3135	C5	3262	C6	5135	B5	5231	A7	6120	A3	6210	B7	6241	A7	7131	C6	7233
0206	C8	2120	C2	2126	A3	2132	C5	2211	B7	2238	B7	2251	B6	2263	A6	3122	B2	3129	C4	3140	B4	5120	A2	5210	C7	5240	A7	6122	C3	6211	C6	6250	B6	7141	C3	7236
0207	A9	2121	B3	2127	B4	2133	C5	2230	B7	2239	B8	2253	C7	3105	C1	3123	B2	3132	A4	3155	C4	5121	B2	5222	C6	5260	A7	6123	B2	6230	B6	6260	A6	7145	C4	7237

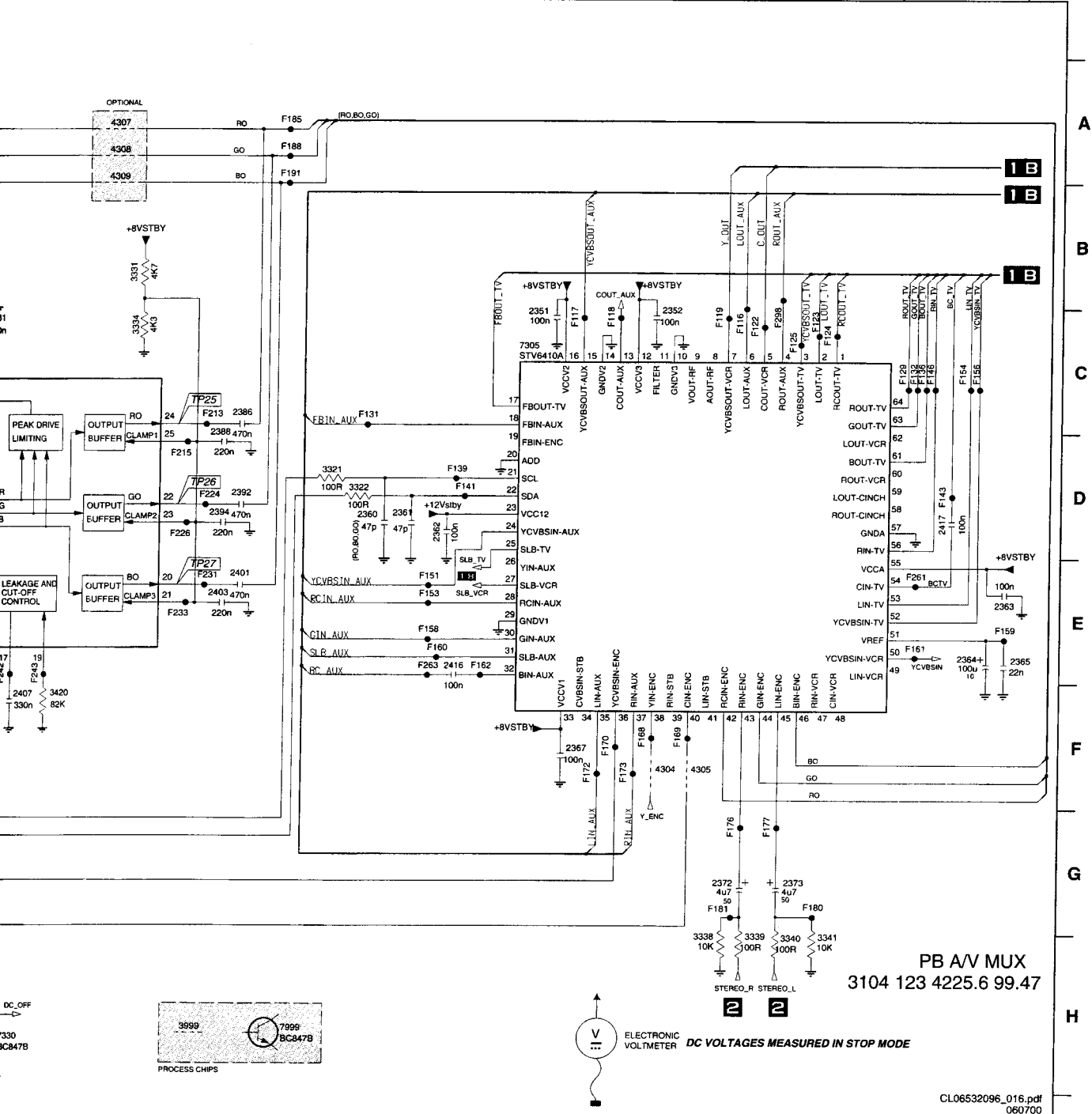


2142	A3	2146	A4	2156	A4	2202	A6	2262	B8	3136	B3	3143	A3	3150	A3	3156	A4	3204	A6	3207	A6	3235	B8	3241	B8	3255	A7	3258	A8	4202	C7	6141	A5	7235	B9		
2143	A4	2150	A3	2157	A4	2203	A6	3125	B4	3139	A4	3145	A3	3153	A4	3202	A6	3205	A6	3208	A6	3236	B8	3253	A7	3256	A7	3260	C7	6129	A4	6150	A3	7256	A7		
2145	A3	2152	A4	2201	A6	2234	B8	3131	B3	3141	A3	3146	A4	3154	A4	3203	A6	3206	A6	3234	B8	3237	B8	3254	A7	3257	A7	4201	B7	6133	A5	6256	A8				



F316 C4	7999 H10	F118 C12	F129 C15	F142 D1	F158 E11	F173 F12	F196 C5	F215 D9	F230 E4	F260 A1	F270 A3	F279 F2
F322 F4	F105 A1	F119 C13	F130 D1	F143 D15	F159 E15	F176 G13	F200 C5	F217 C4	F231 E9	F261 E15	F271 B2	F280 F2
F329 H6	F106 C1	F120 H4	F131 C10	F144 G1	F160 E11	F177 G14	F201 C5	F221 D4	F233 E9	F262 E2	F272 B2	F281 G1
F330 H7	F109 C1	F121 H5	F132 C15	F146 C15	F161 E15	F180 G14	F202 C6	F223 D4	F237 E6	F263 E11	F273 B2	F298 C14
F331 A2	F110 C1	F122 C13	F135 E1	F150 E1	F162 E11	F181 G13	F203 C6	F224 D9	F238 E7	F265 H7	F274 B1	F301 B1
F332 B2	F112 G2	F123 C14	F136 C15	F151 E11	F168 F13	F182 G3	F204 C7	F225 D4	F242 E7	F266 H7	F275 E2	
F333 F2	F113 A1	F124 C14	F138 D1	F153 E11	F169 F13	F185 A10	F211 C4	F226 D9	F243 E8	F267 H7	F276 E3	
F334 F2	F116 C13	F125 C14	F139 D11	F154 C15	F170 F12	F188 A10	F213 C9	F227 D4	F244 F4	F268 H6	F277 F2	
F335 G1	F117 C12	F128 D1	F141 D11	F156 C15	F172 F12	F191 A10	F214 C4	F228 D4	F249 F4	F269 A2	F278 F1	

8 9 10 11 12 13 14 15



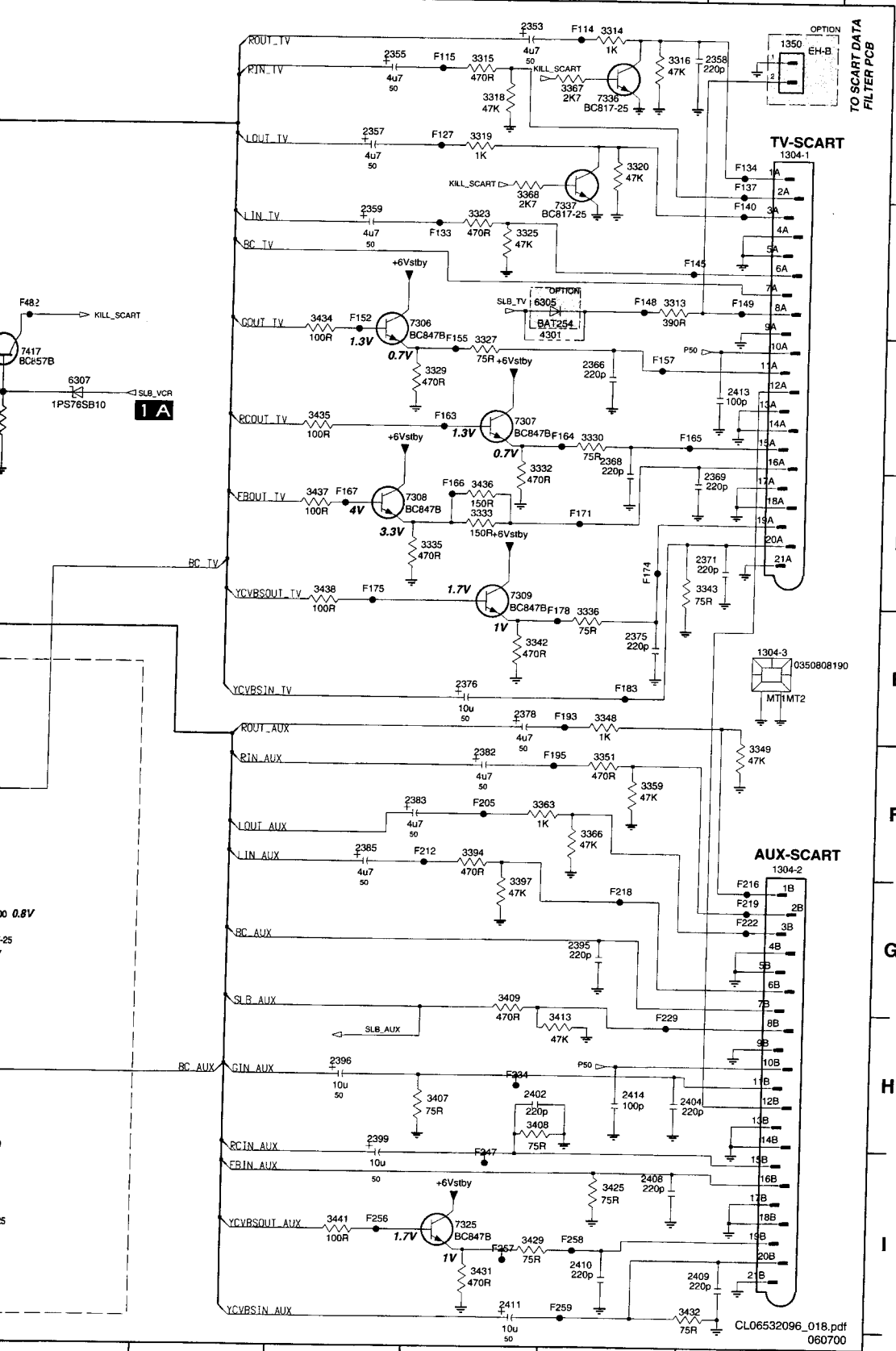
PB AV MUX
3104 123 4225.6 99.47

ELECTRONIC VOLTMETER
DC VOLTAGES MEASURED IN STOP MODE

CL06532096_016.pdf
060700



8 9 10 11 12 13



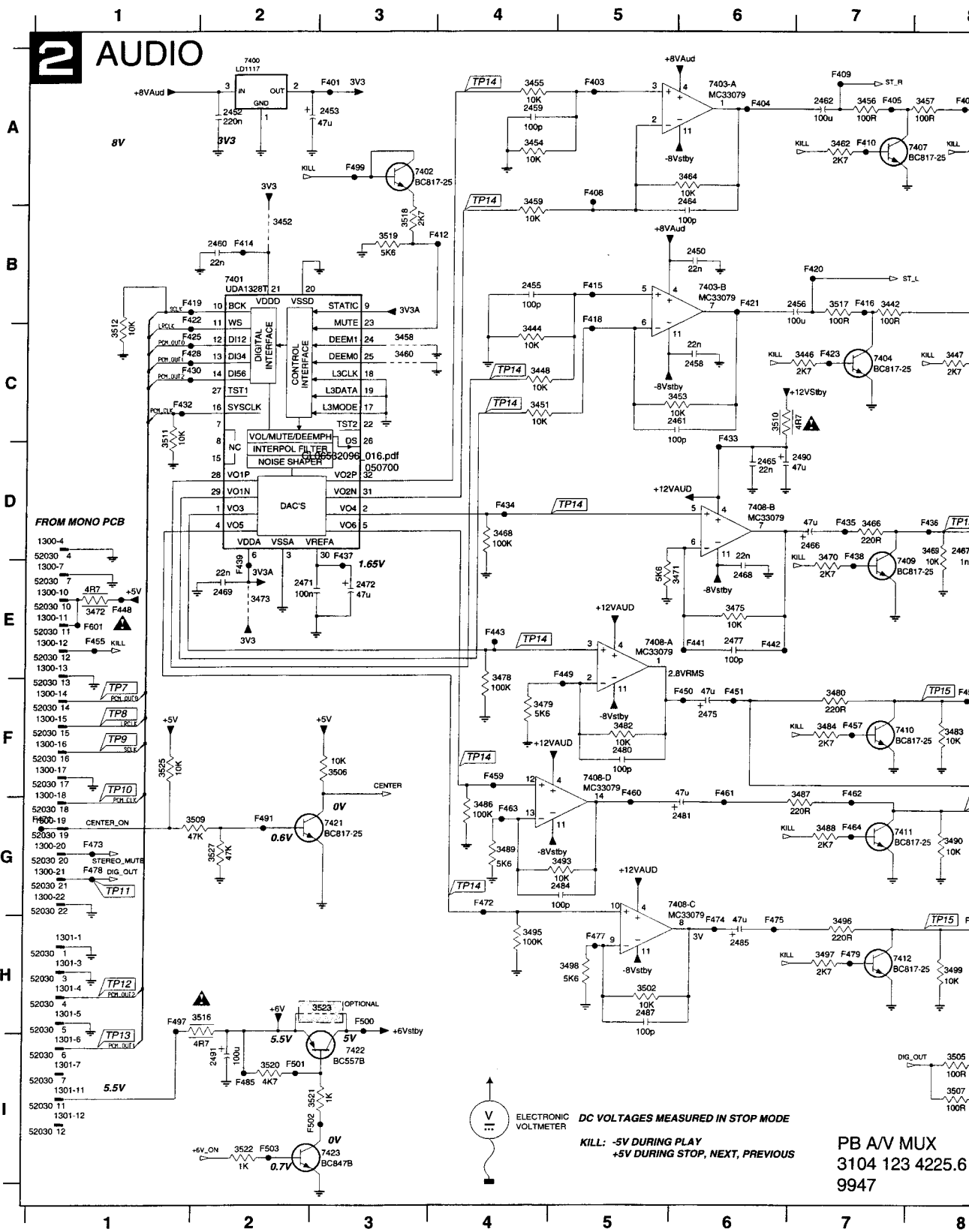
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1350 A13	3606 F4
1402-A B6	3607 F4
2308 D6	3608 H5
2314 C3	3609 D4
2337 D5	4301 C11
2353 A11	6300 C3
2355 A10	6301 H1
2357 A10	6305 B11
2358 A13	6306 B7
2359 B10	6307 C8
2366 C12	7300 B3
2368 C12	7301 B2
2369 C13	7302 C5
2371 D13	7303 D3
2375 E12	7306 B10
2376 E11	7307 C11
2377 B5	7308 D10
2378 E11	7309 D11
2382 F11	7310 B4
2383 F11	7311 H6
2385 F10	7312 H4
2395 G12	7313 I3
2396 H10	7314 I6
2399 H10	7315 I7
2402 H11	7320 F6
2404 H13	7321 F6
2408 I12	7324 G7
2409 I13	7325 I11
2410 I12	7326 F4
2411 I11	7327 F3
2413 C13	7328 F2
2414 H12	7336 A12
2418 D4	7337 B11
3300 A3	7417 C8
3301 B3	F100 B2
3302 B3	F101 B3
3303 D4	F102 B4
3304 B3	F103 B3
3305 B3	F104 B4
3306 D5	F107 B3
3307 C3	F108 B5
3308 C3	F111 C3
3309 C3	F114 A12
3310 D5	F115 A11
3312 D3	F127 A11
3313 B12	F133 B11
3314 A12	F134 A13
3315 A11	F137 A13
3316 A12	F140 B13
3318 A11	F145 B12
3319 A11	F148 B12
3320 A12	F149 B13
3323 B11	F152 B10
3325 B11	F155 C11
3327 C11	F157 C12
3329 C11	F163 C11
3330 C12	F164 C12
3332 D11	F165 C12
3333 D11	F166 D11
3335 D11	F167 D10
3336 E12	F171 D12
3342 E11	F174 D12
3343 D13	F175 D10
3345 B5	F178 E12
3347 B4	F183 E12
3348 E12	F184 C4
3349 F13	F186 D3
3351 F12	F187 D5
3354 H7	F189 D4
3355 H7	F190 D5
3356 H3	F192 D5
3357 H4	F193 E12
3359 F12	F194 F3
3360 H6	F195 F12
3362 H7	F197 F2
3363 F11	F198 F4
3364 I7	F199 F7
3365 I4	F205 F11
3366 F12	F207 F2
3367 A12	F208 F6
3368 A11	F209 F4
3378 I2	F210 F5
3394 F11	F212 F11
3395 I5	F216 G13
3397 G11	F218 G12
3398 I3	F219 G13
3399 I4	F220 G7
3402 I6	F222 G13
3407 H11	F225 H12
3408 H11	F232 H1
3409 G11	F234 H11
3410 F5	F235 H7
3411 F7	F236 H4
3413 H12	F239 H3
3416 F7	F240 H7
3417 F6	F241 H5
3421 H1	F245 I2
3422 F5	F246 I3
3423 G7	F247 I11
3425 I12	F248 H6
3427 G7	F252 I5
3429 I11	F253 I5
3431 H1	F254 I7
3432 I13	F255 I7
3434 B10	F256 I10
3435 C10	F257 I11
3436 D11	F258 I12
3437 D10	F259 I12
3438 D10	F264 D4
3439 C4	F297 F3
3440 D3	F299 F4
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3600 E3	F482 B8
3601 F2	F483 C7

8 9 10 11 12 13

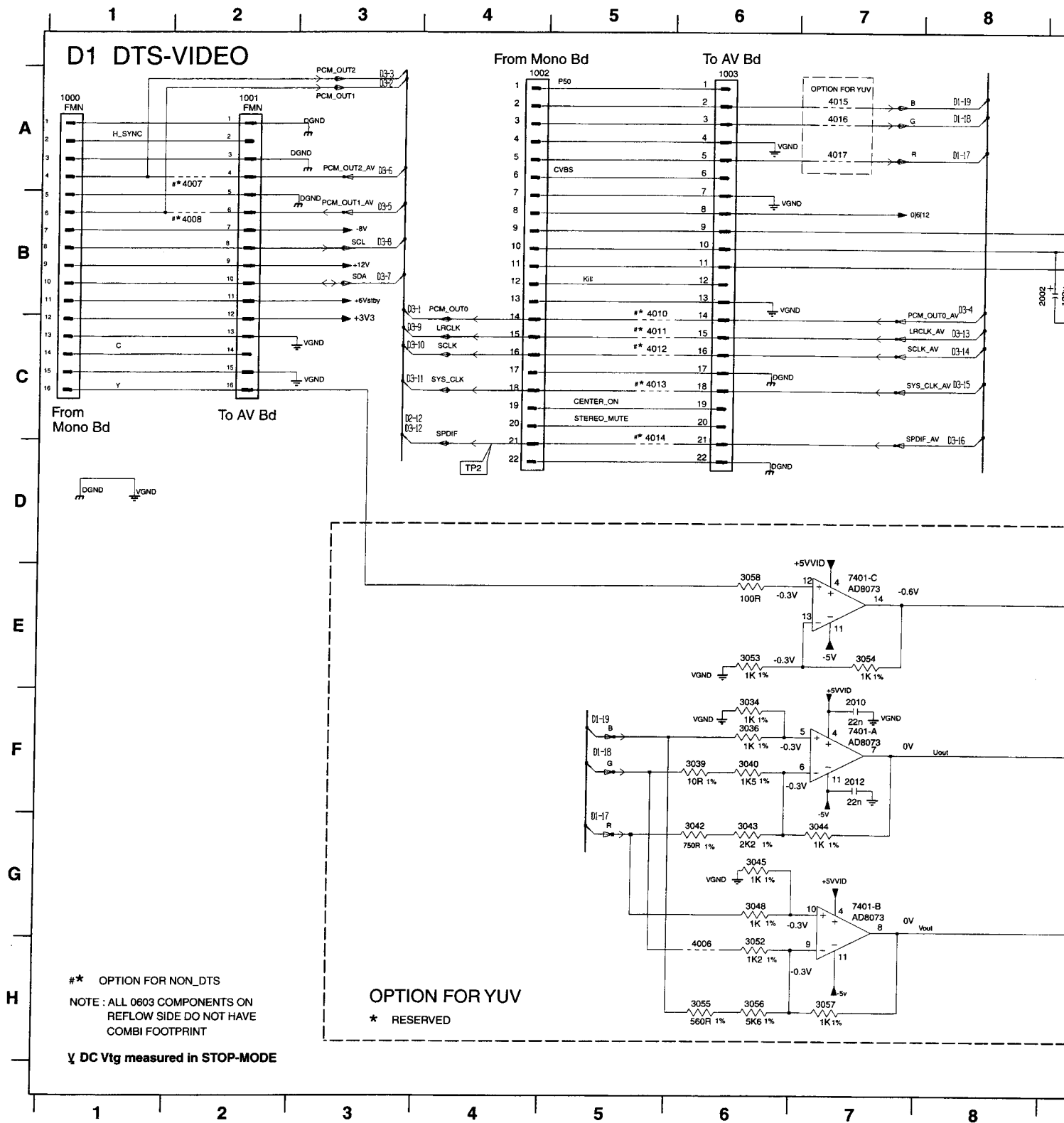
A B C D E F G H I

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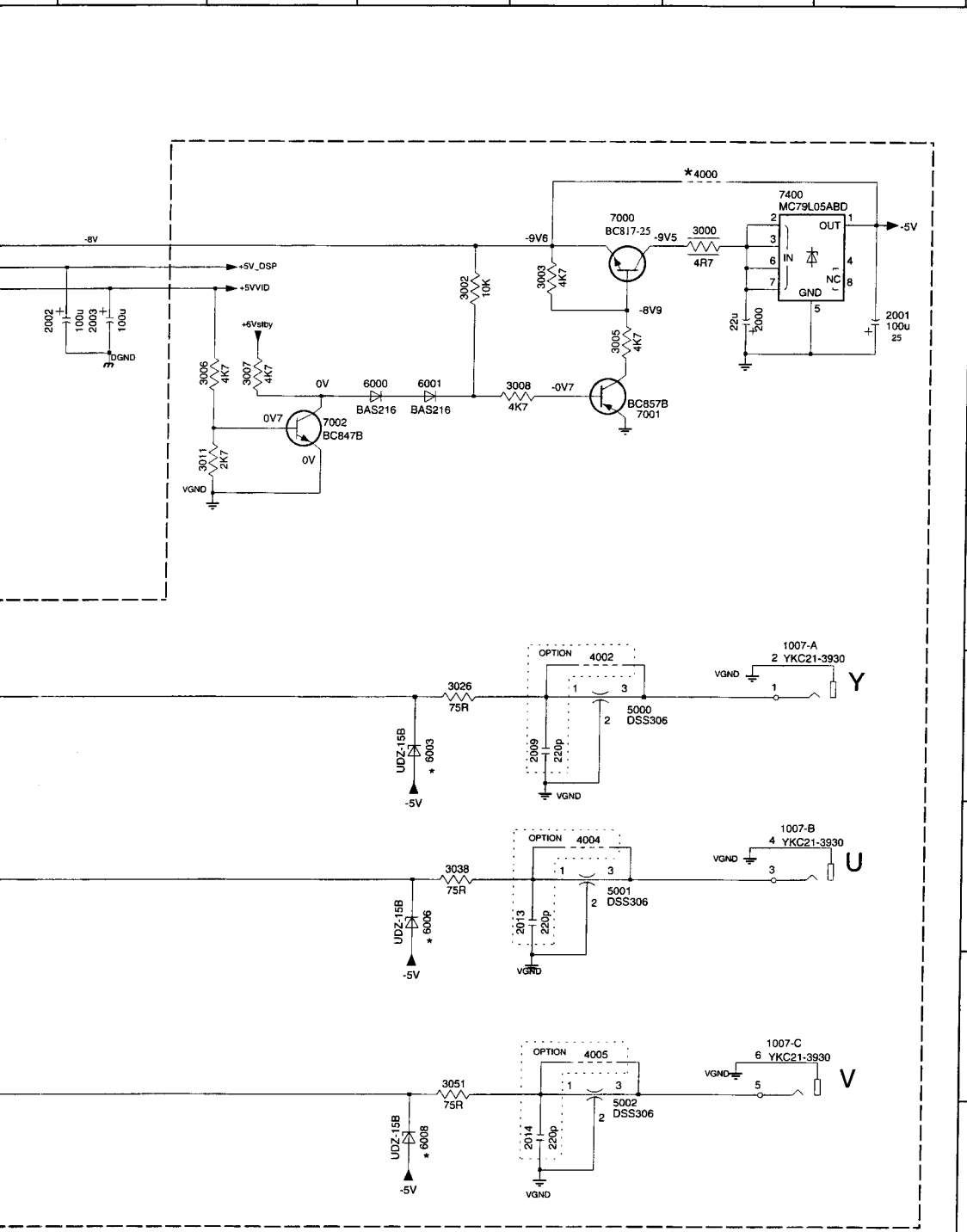
AV Board (Audio)



DTS video



9 10 11 12 13 14



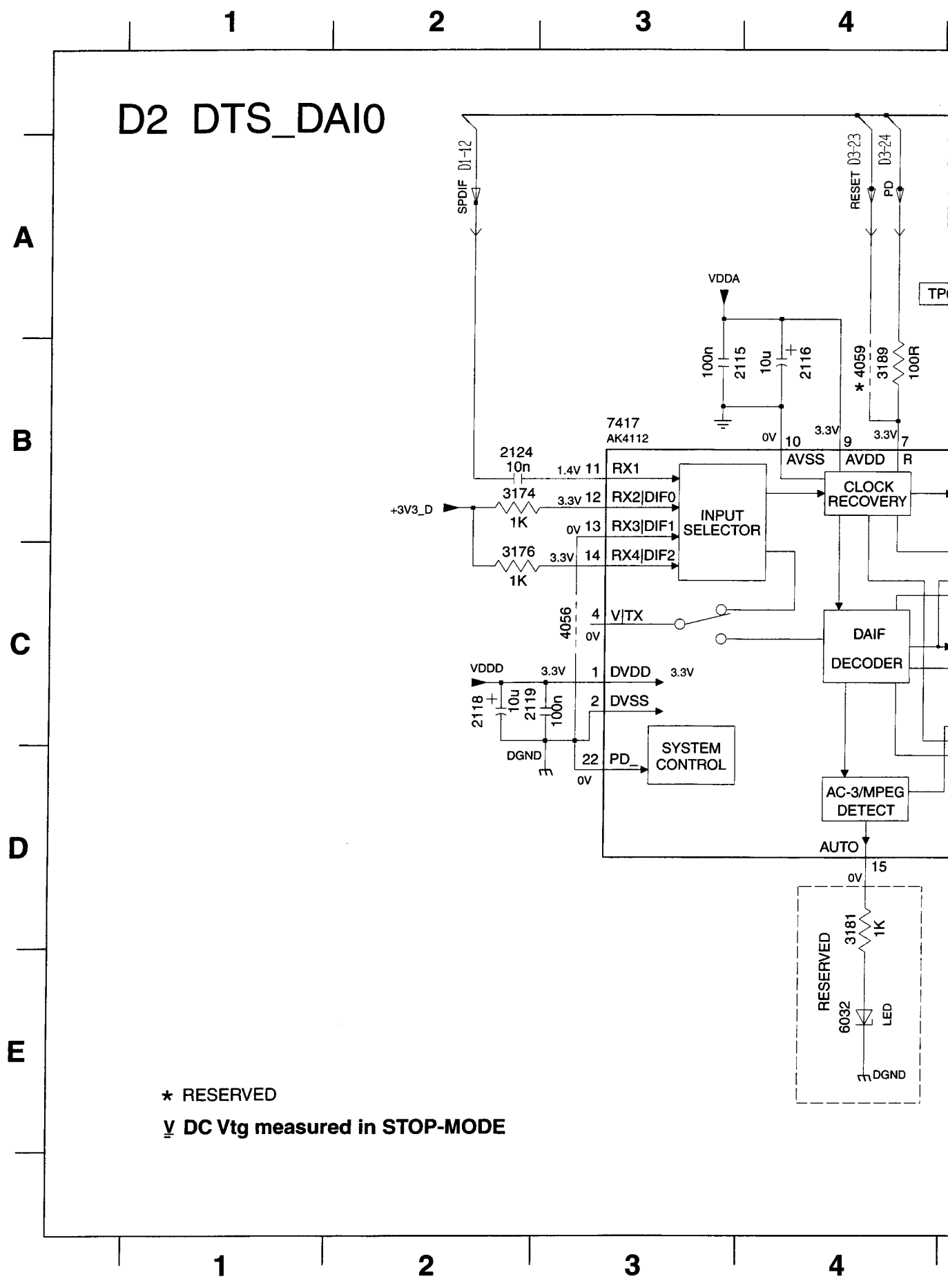
A
B
C
D
E
F
G
H

- 1000 A1
- 1001 A2
- 1002 A4
- 1003 A6
- 1007-A D13
- 1007-B F13
- 1007-C G13
- 2000 B13
- 2001 B14
- 2002 B8
- 2003 B9
- 2009 E12
- 2010 F7
- 2012 F7
- 2013 F12
- 2014 H12
- 3000 B13
- 3002 B11
- 3003 B12
- 3005 B12
- 3006 C10
- 3007 C10
- 3008 C12
- 3011 C10
- 3026 E11
- 3034 F6
- 3036 F6
- 3038 F11
- 3039 F6
- 3040 F6
- 3042 G6
- 3043 G6
- 3044 G7
- 3045 G6
- 3048 G6
- 3051 G11
- 3052 H6
- 3053 E9
- 3054 E7
- 3055 H6
- 3056 H6
- 3057 H7
- 3058 E6
- 4000 A13
- 4002 E12
- 4004 F12
- 4005 G12
- 4006 H6
- 4007 A2
- 4008 B2
- 4010 C5
- 4011 C5
- 4012 C5
- 4013 C5
- 4014 D5
- 4015 A7
- 4016 A7
- 4017 A7
- 5000 E12
- 5001 F12
- 5002 H12
- 6000 C11
- 6001 C11
- 6003 E11
- 6006 F11
- 6008 H11
- 7000 B12
- 7001 C12
- 7002 C10
- 7400 A13
- 7401-A F7
- 7401-B G7
- 7401-C E7
- F000 A1
- F001 B1
- F003 A2
- F004 A2
- F005 A2
- F006 A2
- F007 A2
- F008 B2
- F009 B2
- F010 B2
- F011 B2
- F012 B2
- F013 B2
- F014 B2
- F015 C2
- F016 C2
- F017 C2
- F018 C2
- F019 B5
- F020 C5
- F021 C5
- F022 C5
- F023 A5
- F024 A6
- F025 A6
- F026 A6
- F027 A6
- F028 A5
- F029 A6
- F030 B6
- F031 B6
- F032 B6
- F033 B6
- F034 B5
- F035 B6
- F036 B6
- F037 C6
- F038 C6
- F039 C6
- F040 C6
- F041 C5
- F042 C5
- F043 C6
- F044 D6
- F045 C5
- I022 B14
- I029 E13
- I030 E13
- I031 F13
- I032 F13
- I033 G13
- I034 H13
- I036 E11
- I037 F11
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- I039 C9
- I040 C10
- I041 C11
- I042 B12

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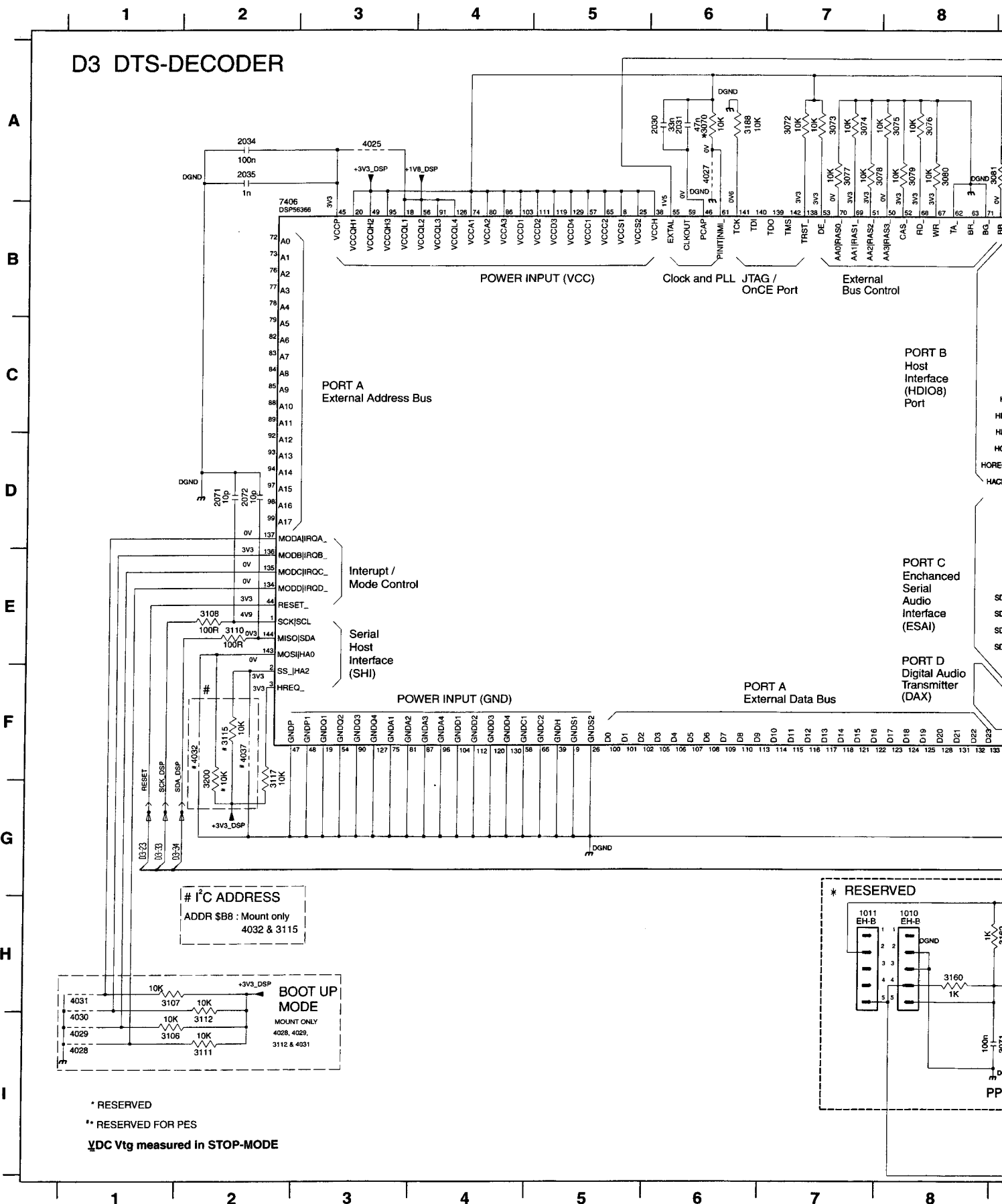
DTS video

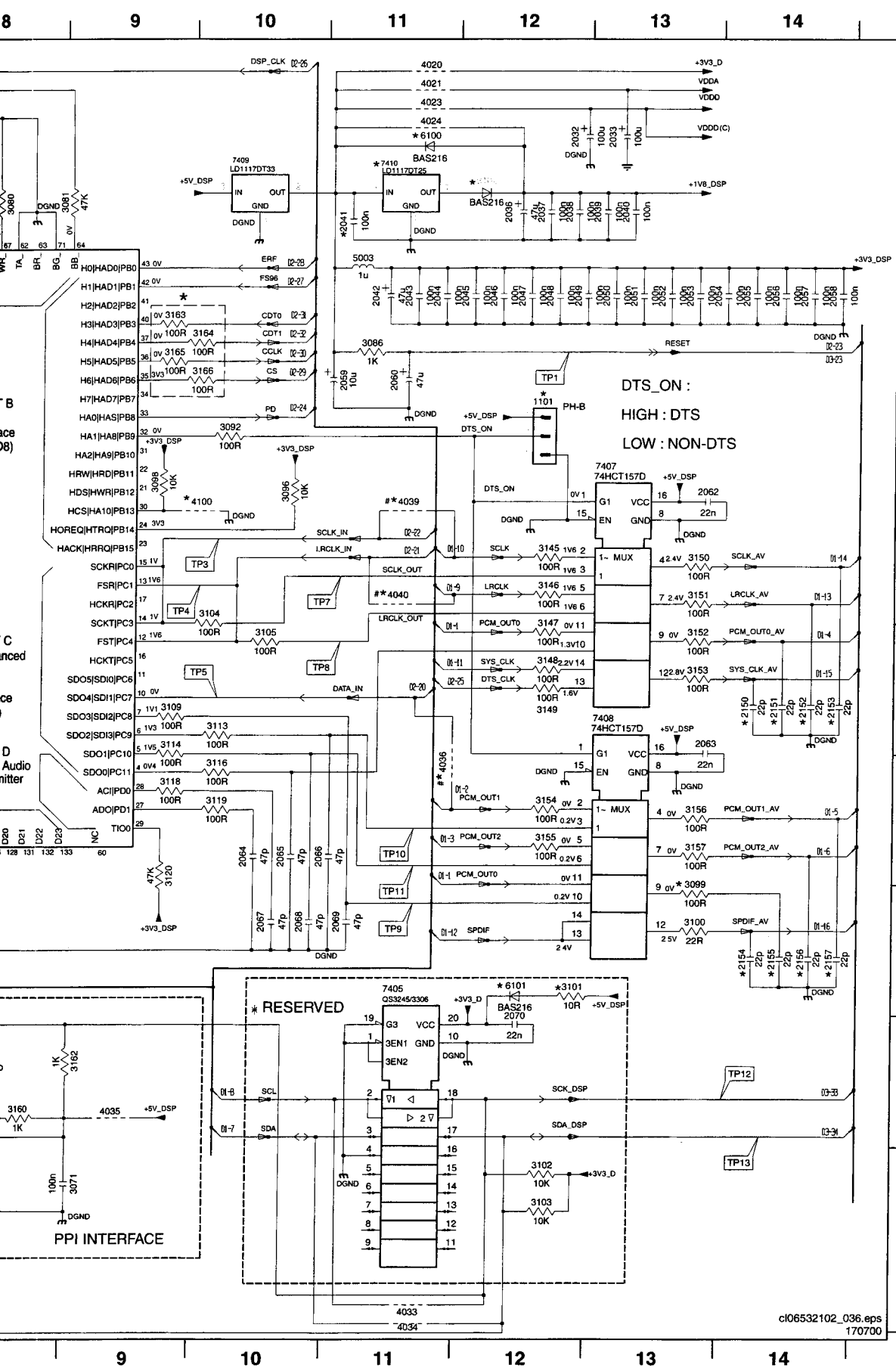


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DTS video

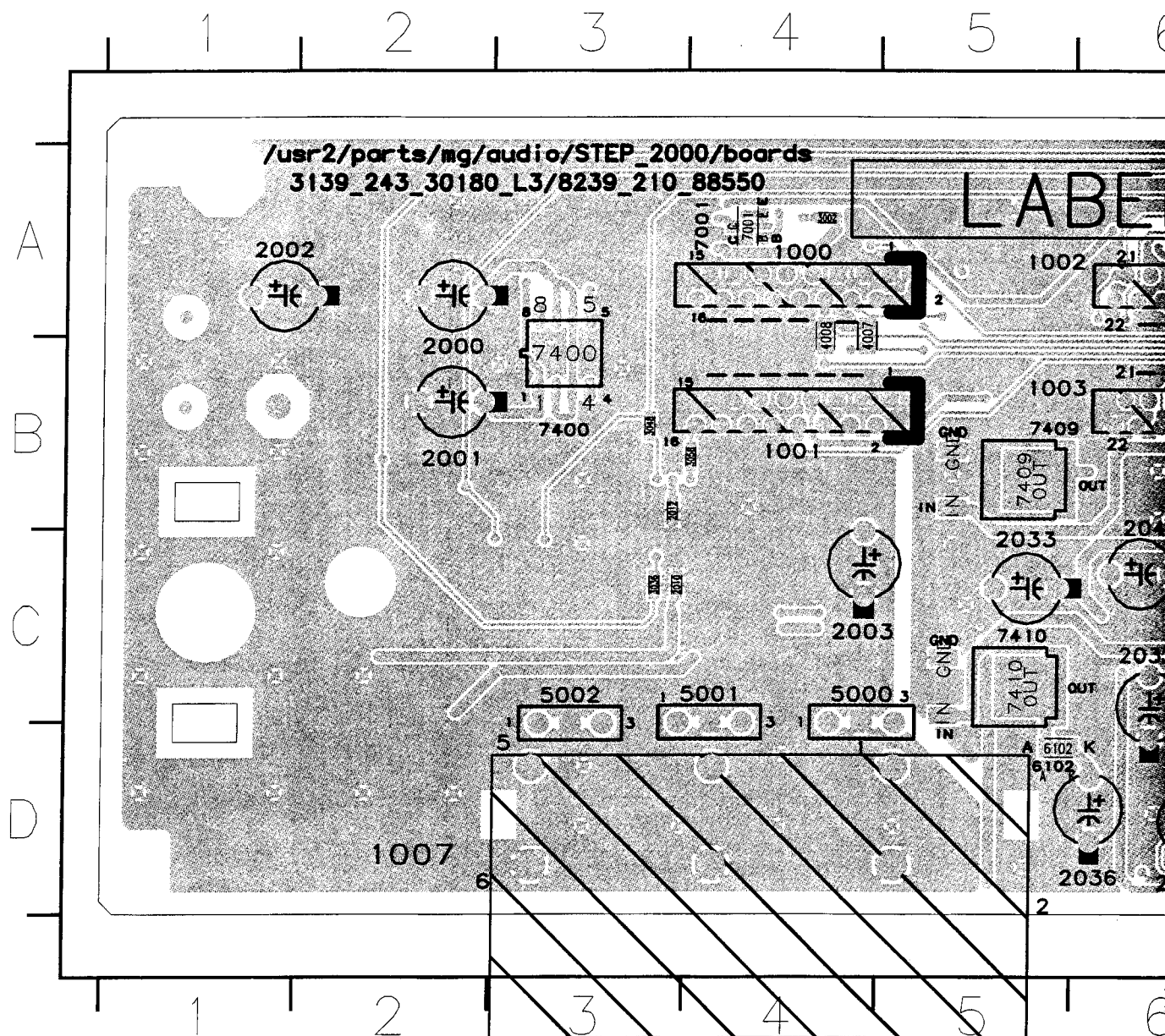




- 1010 H8
- 1011 H8
- 1101 C12
- 2030 A6
- 2031 A6
- 2032 A12
- 2033 A13
- 2034 A2
- 2035 A2
- 2036 A12
- 2037 A12
- 2038 A12
- 2039 A13
- 2040 A13
- 2041 A11
- 2042 B11
- 2043 B11
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- 2060 C11
- 2062 D13
- 2063 E13
- 2064 F10
- 2065 F10
- 2066 F10
- 2067 G10
- 2068 G10
- 2069 G11
- 2070 H12
- 2071 D2
- 2072 D2
- 2150 E14
- 2151 E14
- 2152 E14
- 2153 E14
- 2154 G14
- 2155 G14
- 2156 G14
- 2157 G14
- 3070 A5
- 3071 B9
- 3072 A7
- 3073 A7
- 3074 A7
- 3075 A8
- 3076 A8
- 3077 A7
- 3078 A7
- 3079 A8
- 3080 A8
- 3081 A8
- 3086 B11
- 3092 C10
- 3096 C10
- 3098 C9
- 3099 G13
- 3100 G13
- 3101 G12
- 3102 I12
- 3103 I12
- 3104 D10
- 3105 E10
- 3106 H1
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- 3108 E2
- 3109 E9
- 3110 E2
- 3111 H2
- 3112 H2
- 3113 E10
- 3114 E9
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- 3116 F10
- 3117 F2
- 3118 F9
- 3119 F10
- 3120 F9
- 3145 D12
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- 3149 E12
- 3150 D13
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- 3154 F12
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- 3156 F13
- 3157 F13
- 3160 H8
- 3162 H9
- 3163 B9
- 3164 B10
- 3165 B9
- 3166 C10
- 3188 A6
- 3200 F2
- 4020 A11
- 4021 A11
- 4023 A11
- 4024 A11
- 4025 A3
- 4027 A6
- 4028 H1
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- 4032 F2
- 4033 I11
- 4034 I11
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- 4036 F11
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- 7406 B2
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- 1060 A13
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- 1066 E2
- 1067 F1
- 1068 F2
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- 1072 B10
- 1073 B10
- 1074 C10
- 1075 D10
- 1076 D10
- 1077 D10
- 1078 E10
- 1079 C12
- 1080 D12
- 1081 E10
- 1082 E10
- 1083 F10
- 1084 F10
- 1085 F10
- 1086 H7
- 1087 H8
- 1088 B8
- 1089 E9
- 1100 H9
- 1101 E10
- 1102 F14
- 1103 E2
- 1104 D9

Layout DTS video (component side)

1000	A4	2002	A1	2060	B6	2118	D9	3058	B4	309
1001	B4	2003	C5	2062	A8	2121	C8	3070	D7	310
1002	A6	2010	C3	2063	A8	2150	A8	3071	A11	310
1003	B6	2012	B3	2065	B8	2151	A8	3073	C7	310
1007	D4	2030	C7	2066	B8	2152	B8	3074	D7	310
1010	A10	2031	C7	2068	B8	2153	B8	3077	D7	310
1011	A10	2032	C6	2069	B8	2156	B9	3078	C7	311
1012	D10	2033	C5	2070	B10	2157	B9	3079	C7	311
1101	B9	2036	D6	2071	B9	3002	A4	3080	D7	311
2000	A2	2042	B6	2072	C9	3036	C3	3092	B7	311
2001	B2	2059	D6	2116	D10	3048	B3	3096	B8	311



3098 B7
 3101 A10
 3102 A100
 3103 A100
 3106 C9
 3109 B8
 3112 C9
 3113 C9
 3114 B8
 3116 B8
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3119 B7
 3146 B8
 3147 A8
 3148 A8
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 3152 A8
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3156 B9
 3157 B9
 3160 A11
 3162 A10
 3163 C7
 3164 C7
 3165 C7
 3166 B7
 3177 C10
 3180 C10
 3181 B10

3188 C10
 3189 C9
 3188 C9
 3200 B4
 4007 B4
 4008 B4
 4010 A8
 4015 A7
 4016 A7
 4017 A7
 4027 C6

4029 C9
 4030 C9
 4032 C9
 4035 A10
 4036 B9
 4037 B8
 4056 C10
 5000 D4
 5001 D4
 5002 D3
 6032 B10

6101 A10
 6102 D5
 7001 A4
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 7405 B10
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 7408 A9
 7409 B5
 7410 C5
 7417 C10
 7418 D10

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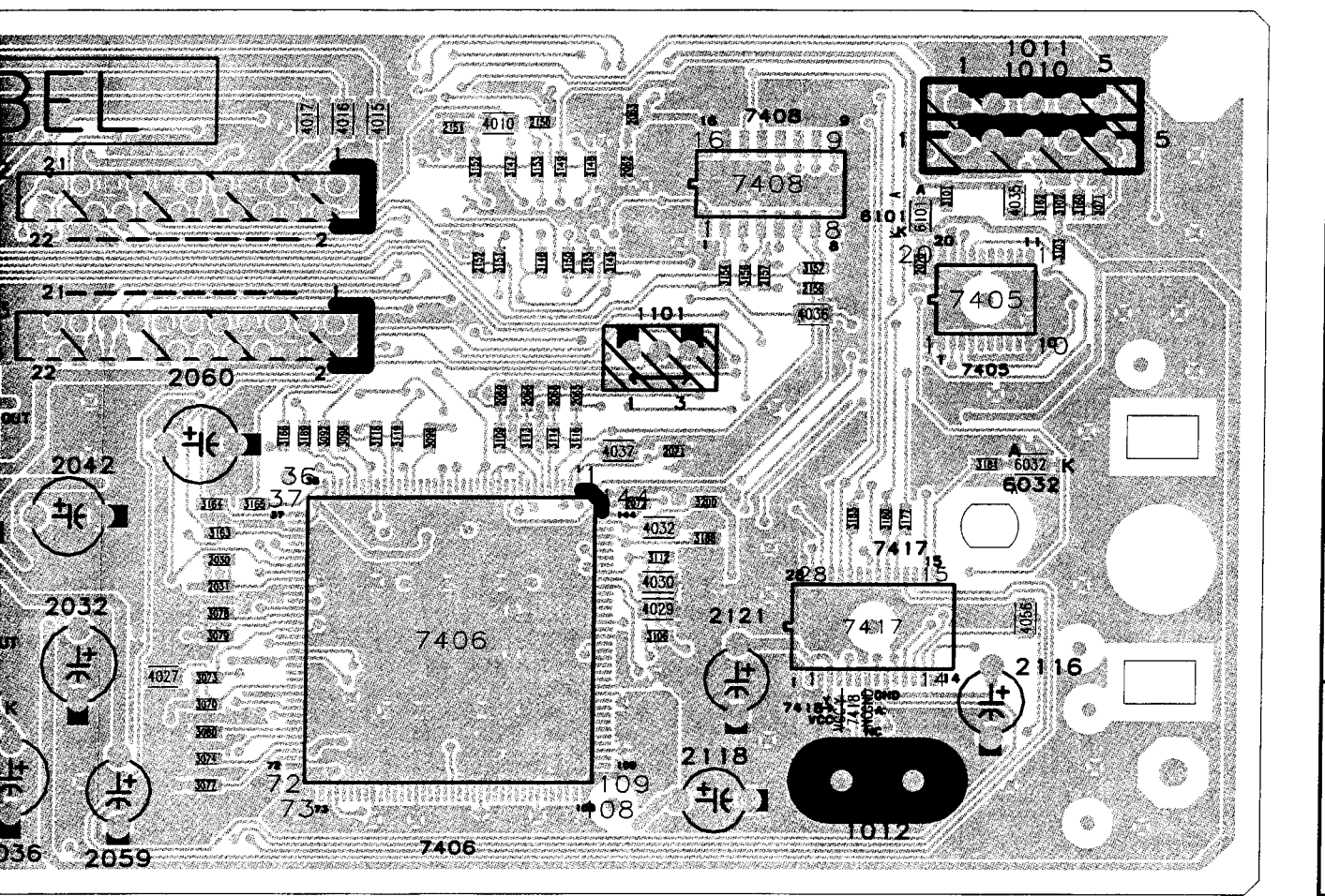
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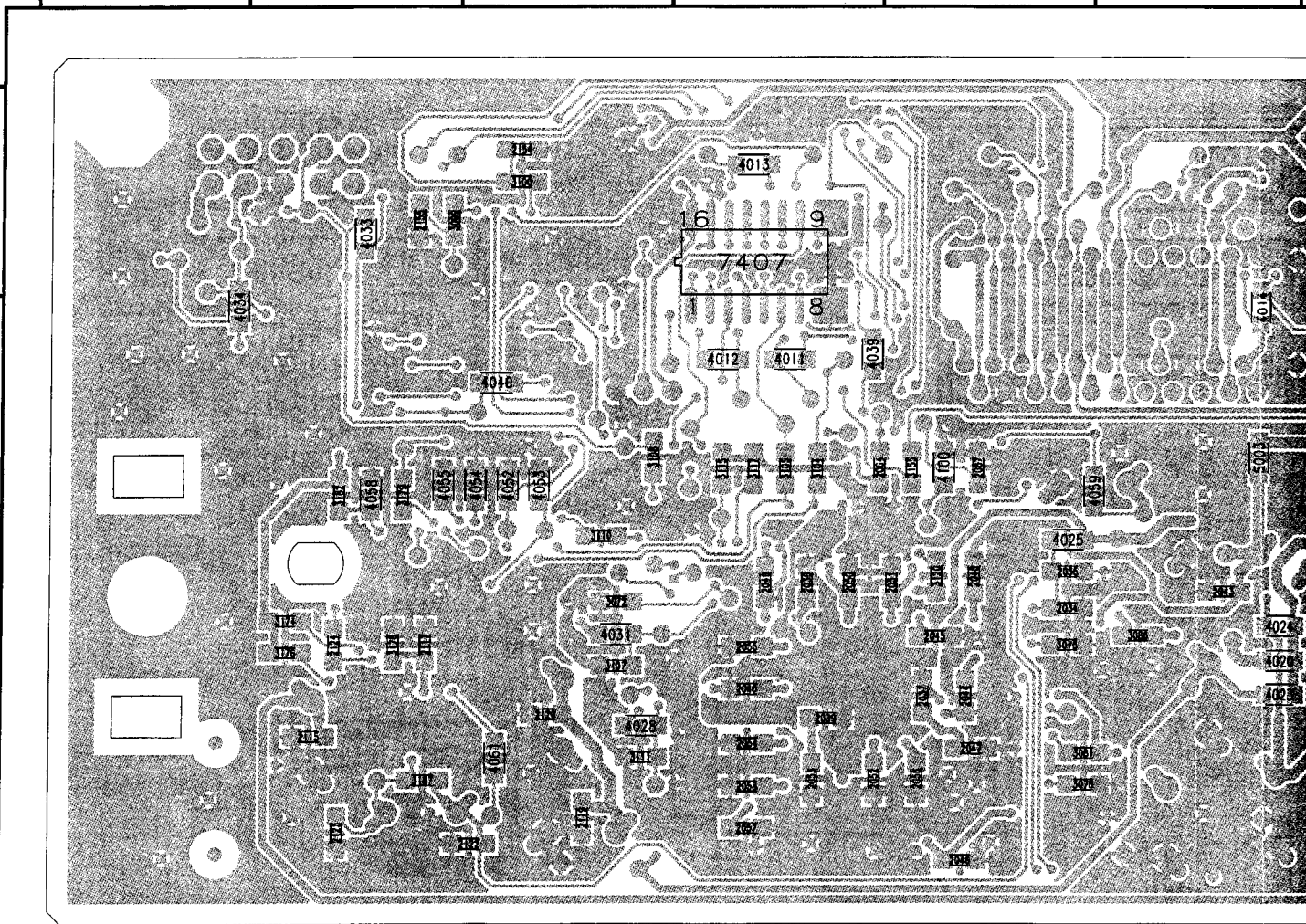
11

Layout DTS video (copper side)

20009	D8	20445	C5	20557	D4	21555	A2	30440	C9	30772	C3
20113	D9	20446	D5	20558	D4	30000	A9	30442	C9	30775	C5
20114	D9	20447	D5	20664	BB4	30003	A9	30443	C9	30776	D5
20334	C5	20448	C5	20667	BB5	30005	A9	30444	C9	30881	D5
20335	C5	20449	C4	21115	D2	30006	A7	30445	BC9	30886	C5
20337	C5	20550	C4	21117	C2	30007	A7	30551	BC9	30999	A2
20338	C4	20551	C5	21119	D3	30008	A8	30552	BC9	31000	A3
20339	D4	20552	D4	21200	CC3	30011	A7	30553	BC9	31004	BB4
20440	C4	20553	D4	21223	D3	30026	C8	30554	BC9	31005	BB4
20441	C7	20554	D4	21223	D3	30034	C9	30555	BC9	31007	CC3
20443	C6	20555	C4	21224	C2	30038	C9	30556	BC9	31008	CC3
20444	C5	20556	D5	21554	A3	30039	C9	30557	BC9	31010	CC3

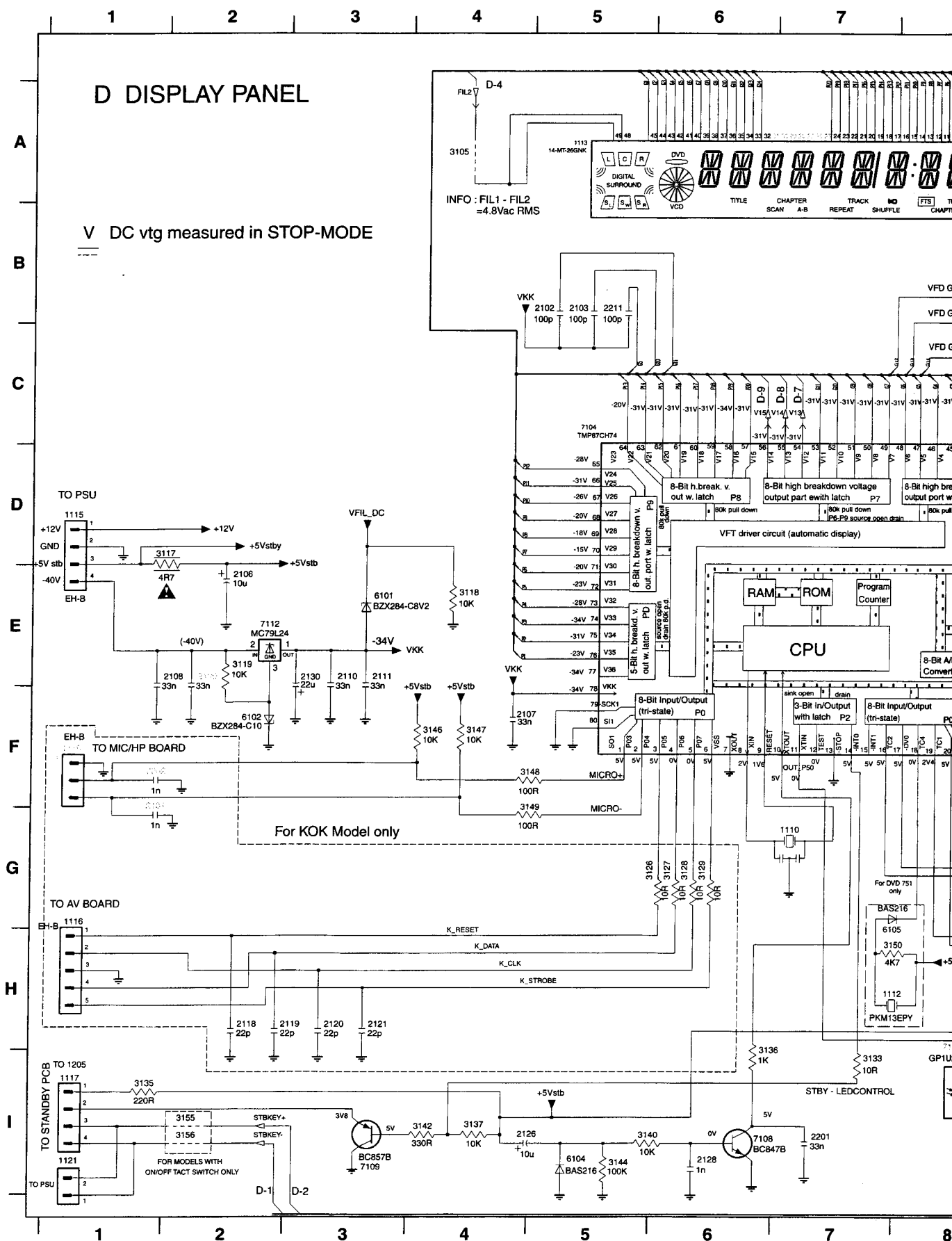
1 2 3 4 5 6

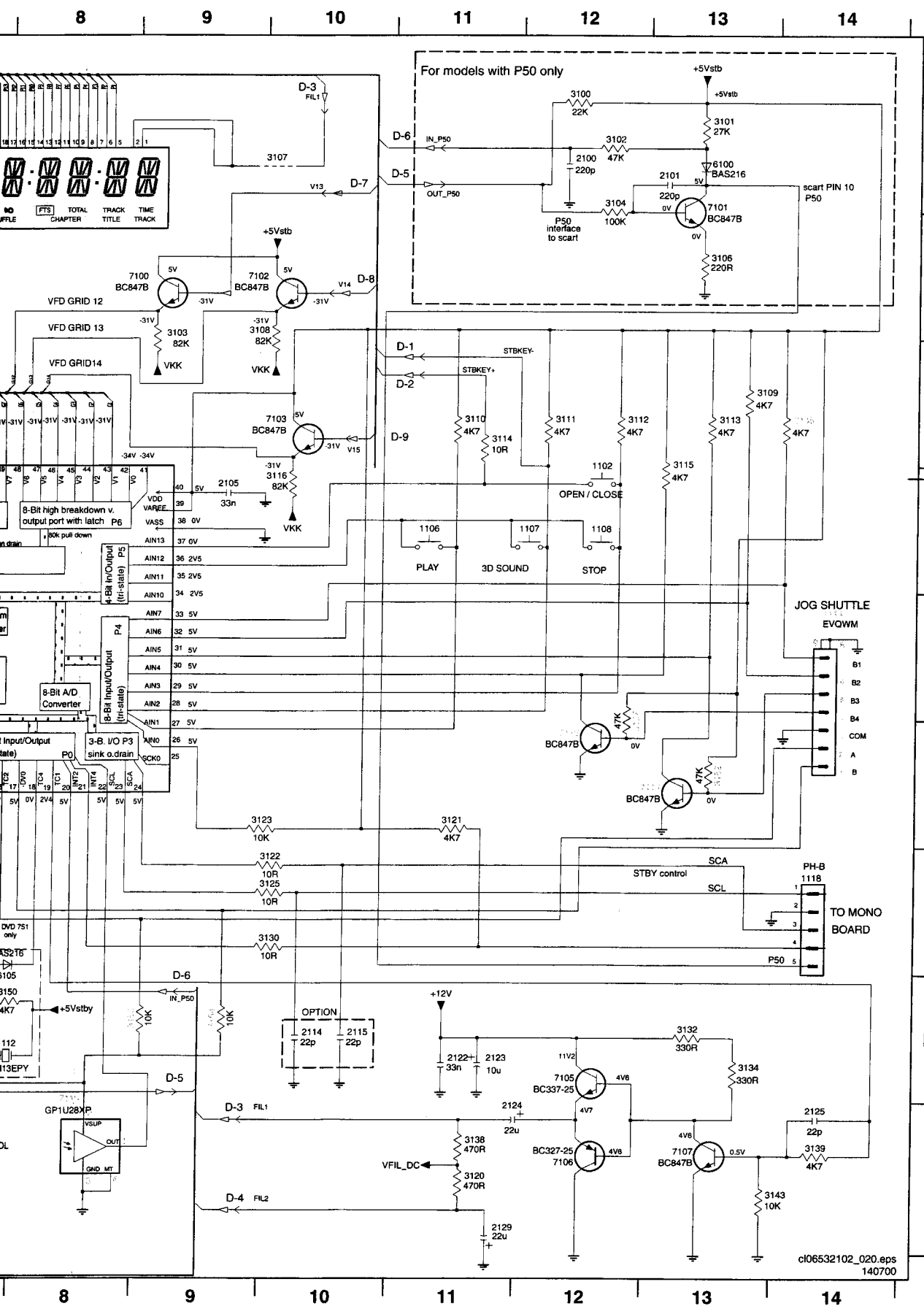
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1 2 3 4 5 6

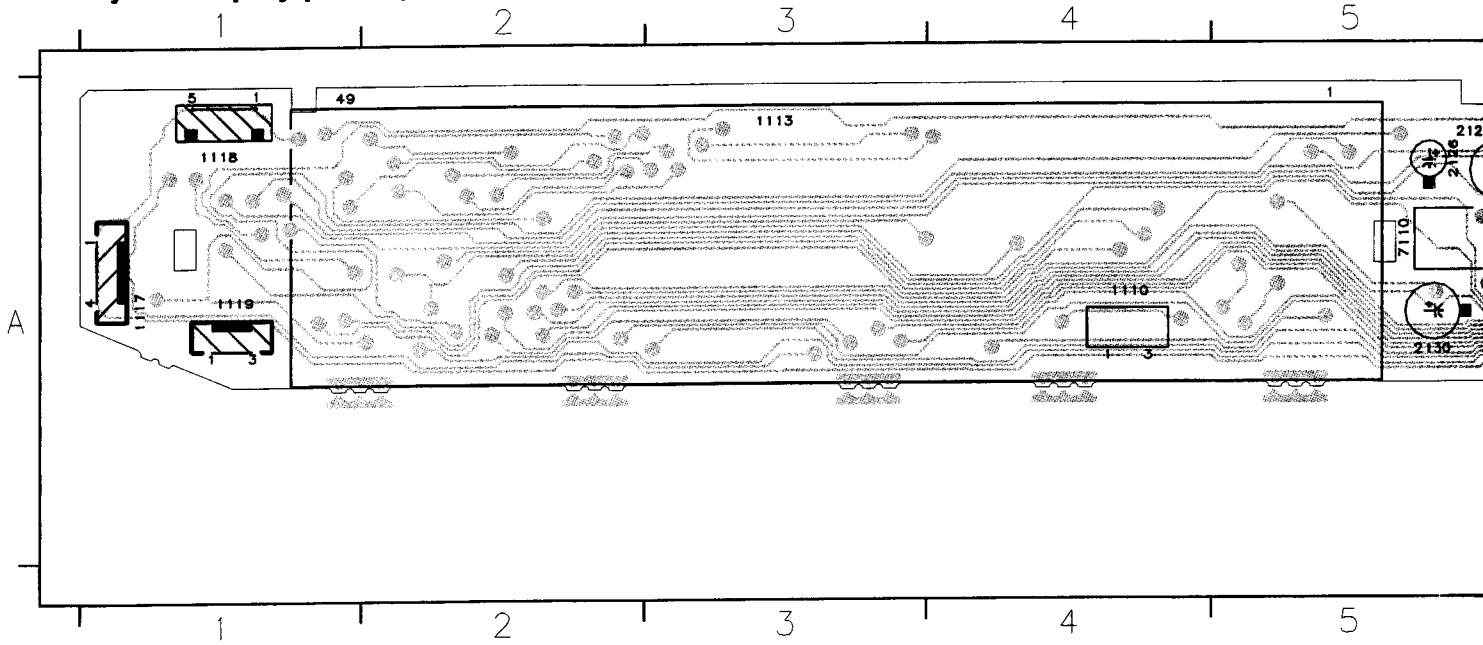
Display panel



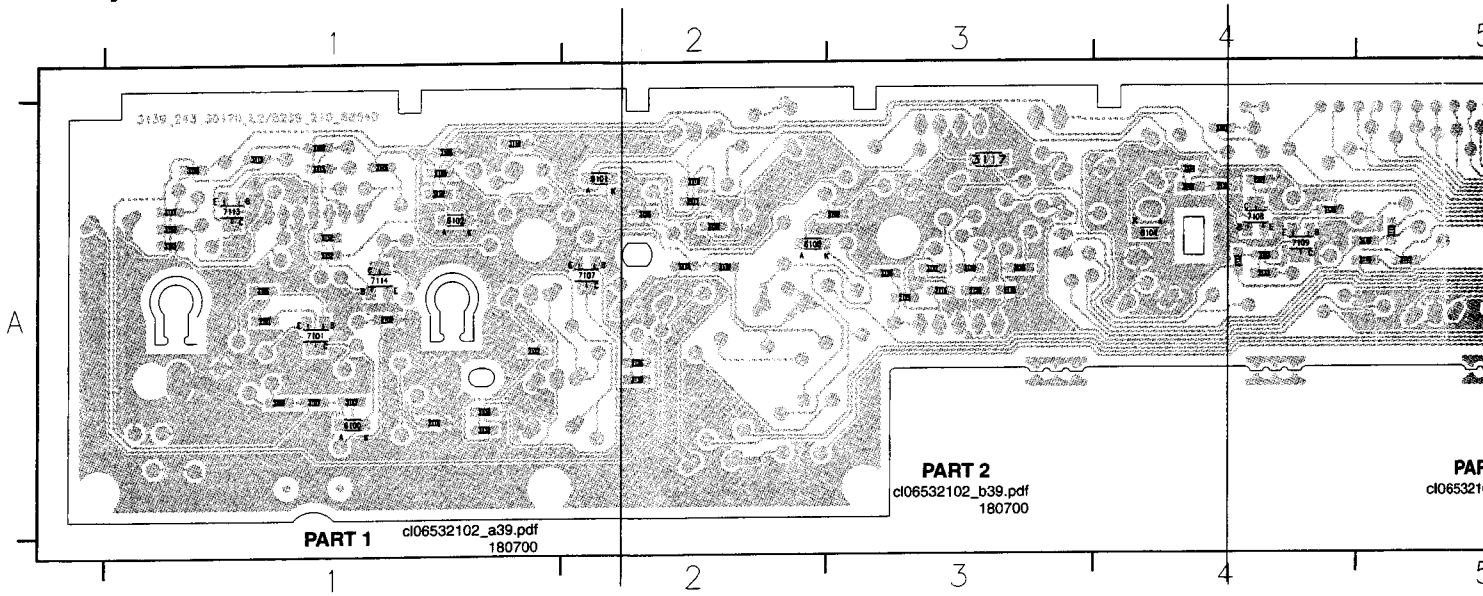


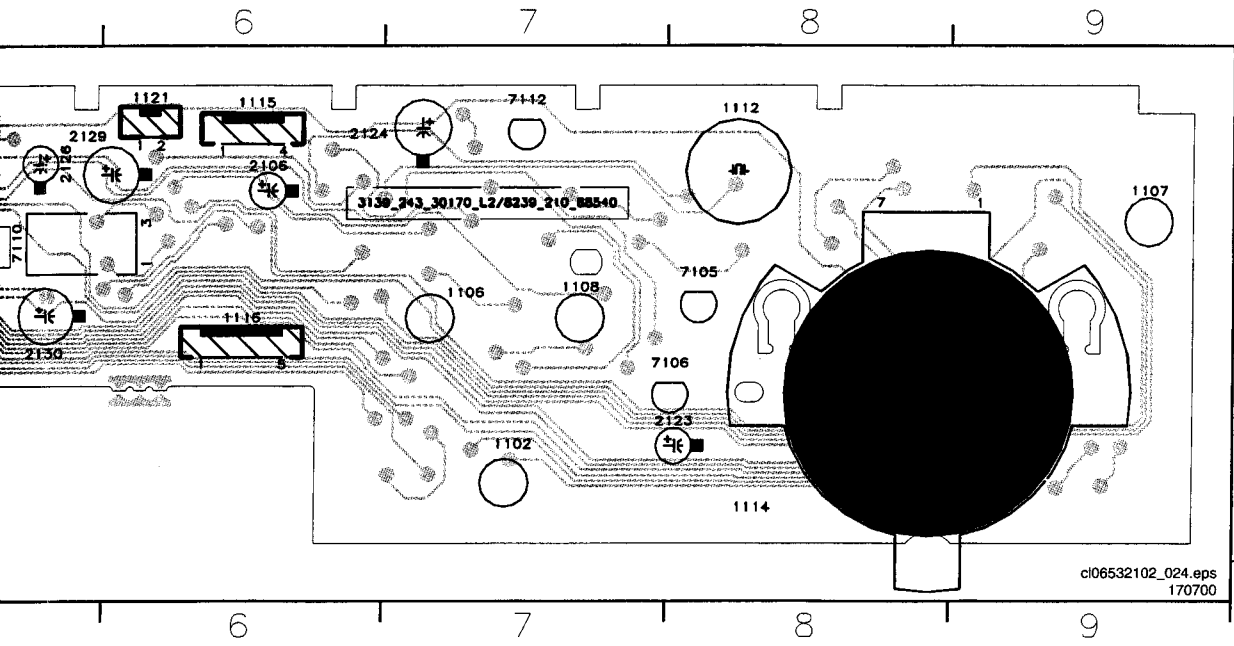
1102 D12	F100 B9
1106 D11	F101 B8
1107 D12	F102 D5
1108 D12	F103 D5
1110 G7	F104 F14
1112 H7	F105 F14
1113 A5	F106 F14
1114 F14	F107 B10
1115 D1	F108 A5
1116 G1	F109 A9
1117 H1	F113 B9
1118 G14	F114 C10
1119 F1	F115 C6
1121 H1	F116 C6
2100 A12	F117 C6
2101 A13	F119 C7
2102 B5	F120 C7
2103 B5	F121 C7
2105 D9	F122 C8
2106 E2	F123 C8
2107 F4	F124 C8
2108 E2	F125 C5
2109 E2	F126 C5
2110 E3	F127 C6
2111 E3	F128 C6
2114 H10	F129 C7
2115 H10	F130 C7
2116 H2	F131 C7
2119 H3	F132 C8
2120 H3	F133 C8
2121 H3	F134 E13
2122 H11	F135 C9
2123 H11	F136 E14
2124 I11	F137 D5
2125 I14	F138 D5
2126 I5	F139 D5
2128 I6	F140 H8
2129 H11	F141 D5
2130 E3	F142 D9
2131 G1	F143 A12
2201 I7	F144 A12
2202 F1	F145 G8
2211 B5	F146 D3
3100 A12	F147 E3
3101 A13	F148 D1
3102 A12	F149 E5
3103 B9	F150 E5
3104 A12	F151 E5
3105 A4	F152 E9
3106 B13	F153 C5
3107 A10	F154 E5
3108 B9	F155 E9
3109 C13	F156 E5
3110 C11	F157 E9
3111 C12	F158 E5
3112 C12	F159 E9
3113 C13	F160 E9
3114 C11	F161 F9
3115 C13	F162 F2
3116 D10	F163 F2
3117 D1	F164 H5
3118 E4	F165 H5
3119 E2	F166 H5
3120 I11	F167 H5
3121 F11	F168 I1
3122 G10	F169 I1
3123 F10	F170 E9
3125 G10	F203 D2
3126 G5	F205 E1
3127 G6	F208 G13
3128 C6	F209 G13
3129 C6	F210 G13
3130 G10	F228 D1
3132 H13	F229 D2
3133 I7	F233 D9
3134 H13	F234 I1
3135 I1	F235 I1
3136 H6	F241 G14
3137 I4	F242 G13
3138 I11	F245 H1
3139 I14	
3140 I6	
3142 I4	
3143 I14	
3144 I5	
3145 C14	
3146 F4	
3147 F4	
3148 F5	
3149 G5	
3150 H8	
3152 F13	
3153 H9	
3154 H9	
3155 I2	
3156 I2	
3157 F12	
6100 A13	
6101 E3	
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Layout Display panel (component side)

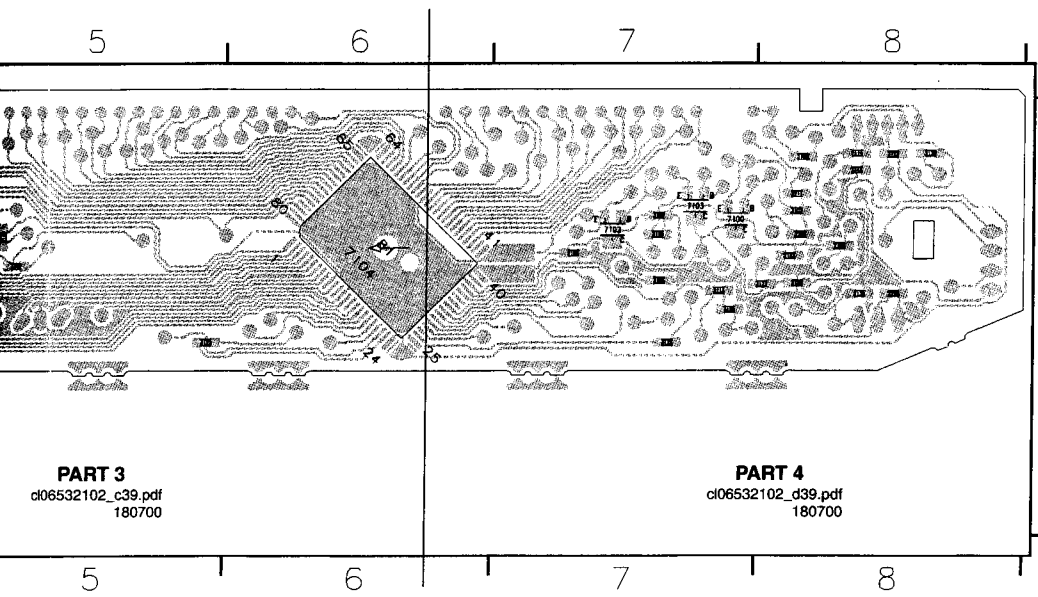


Layout overview Display panel (copper side)



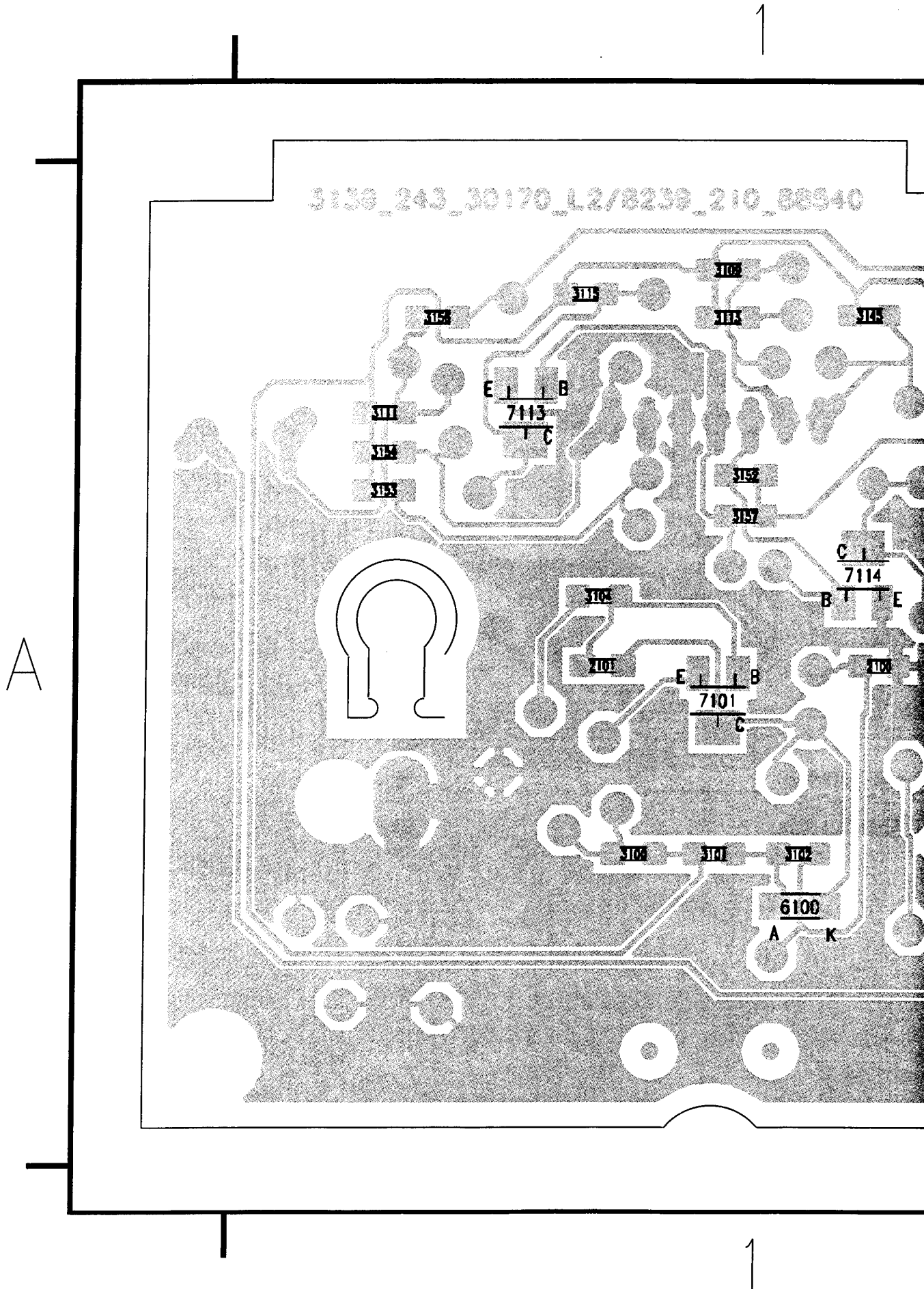


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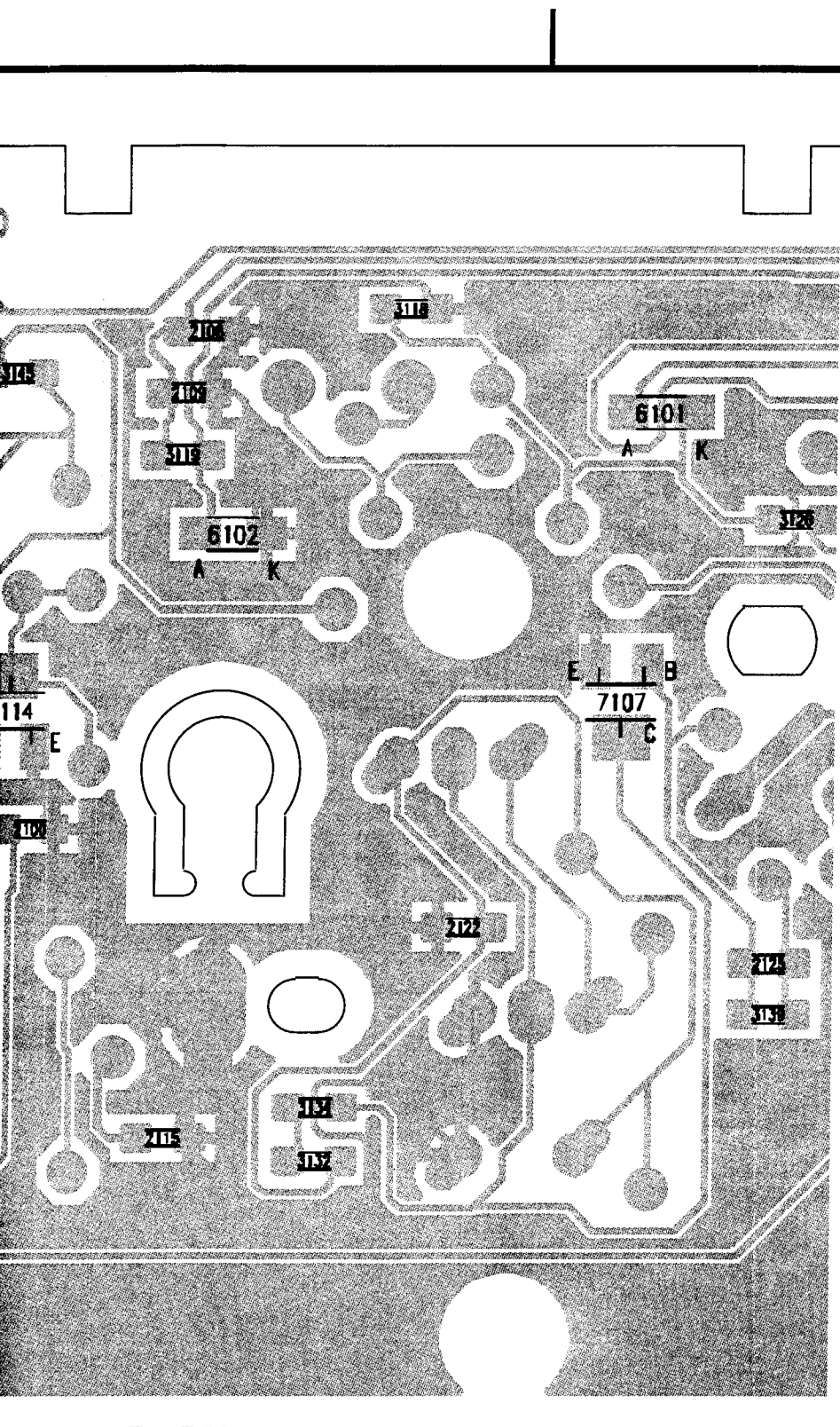


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Layout Display panel (copper side part 1)



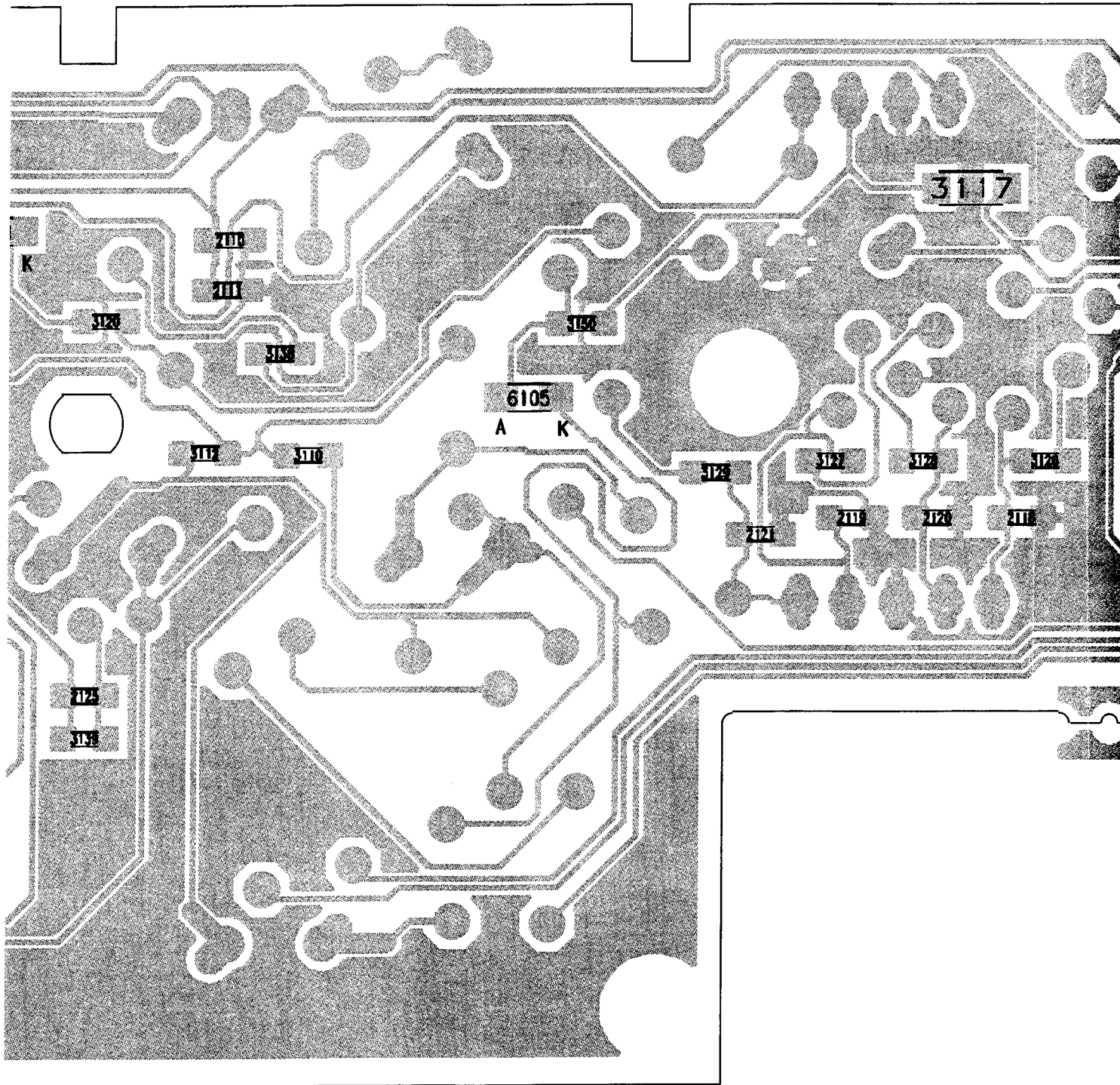
A



Layout Display panel (copper side part 2)

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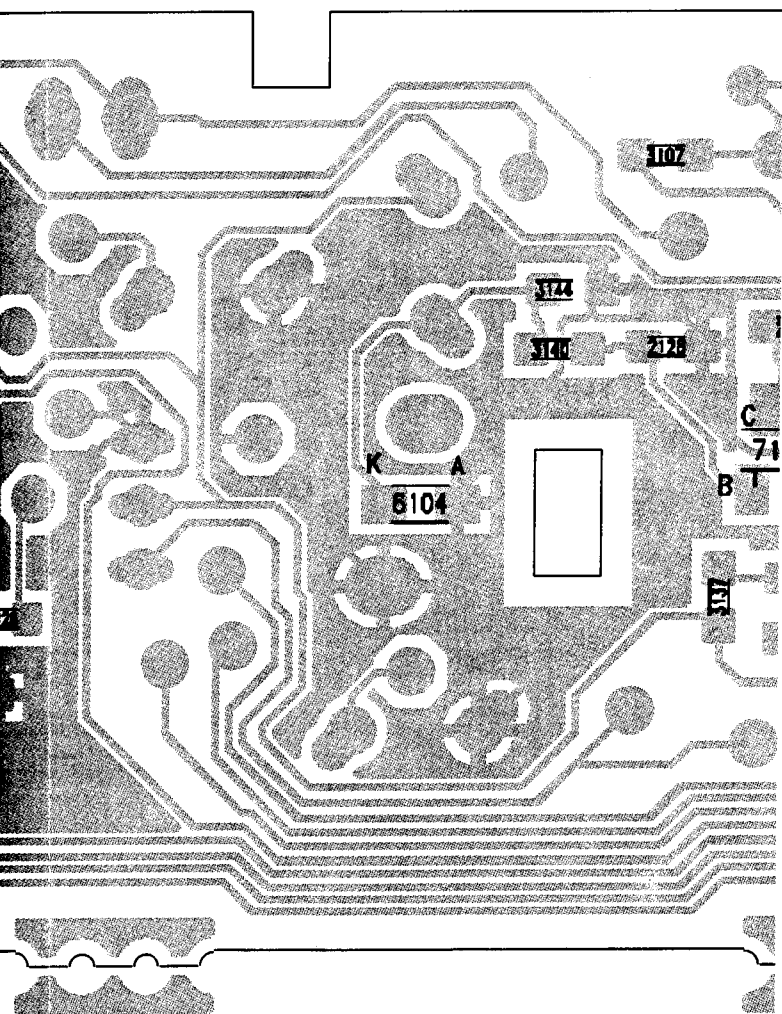
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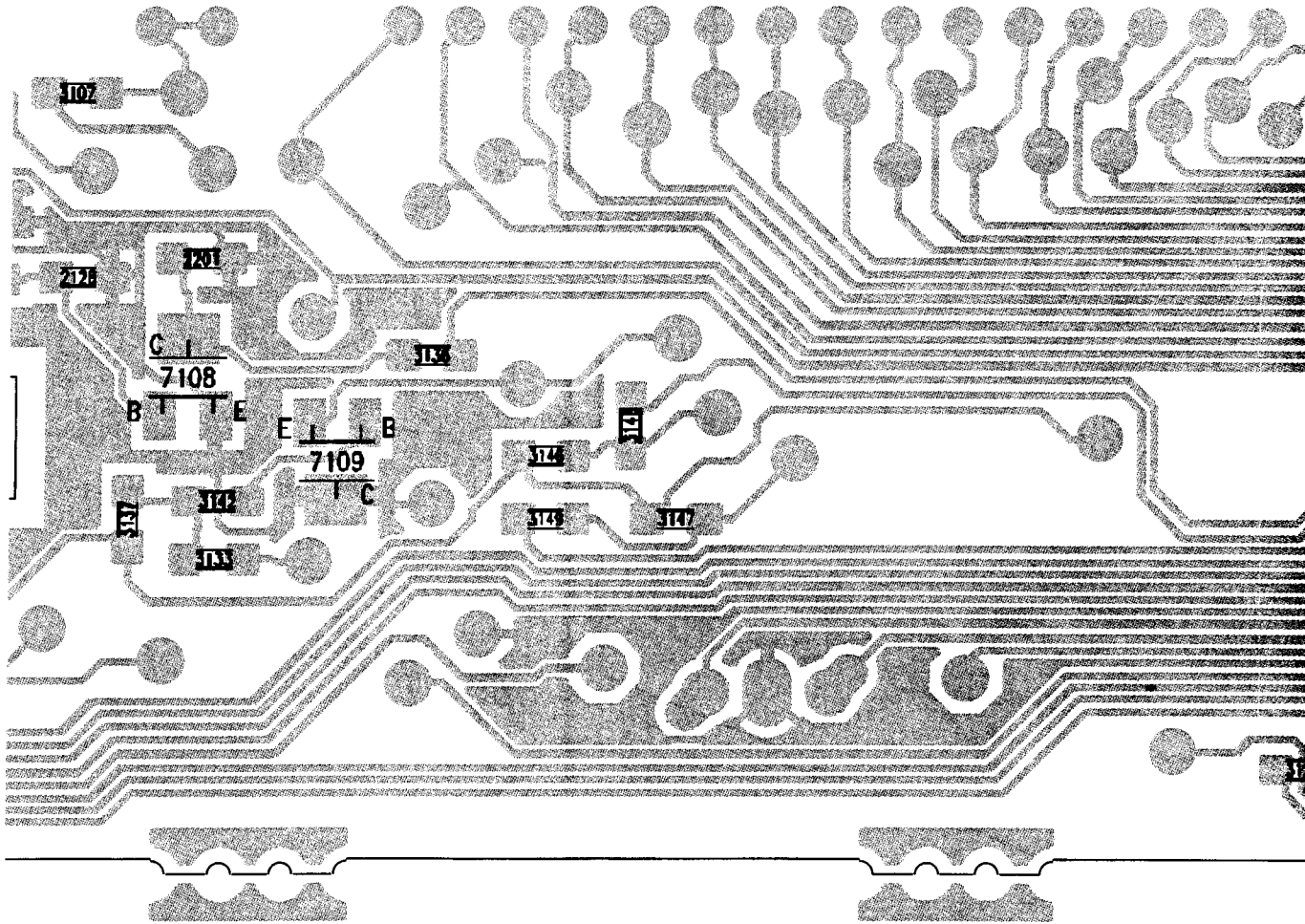


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Layout Display panel (copper side part 3)

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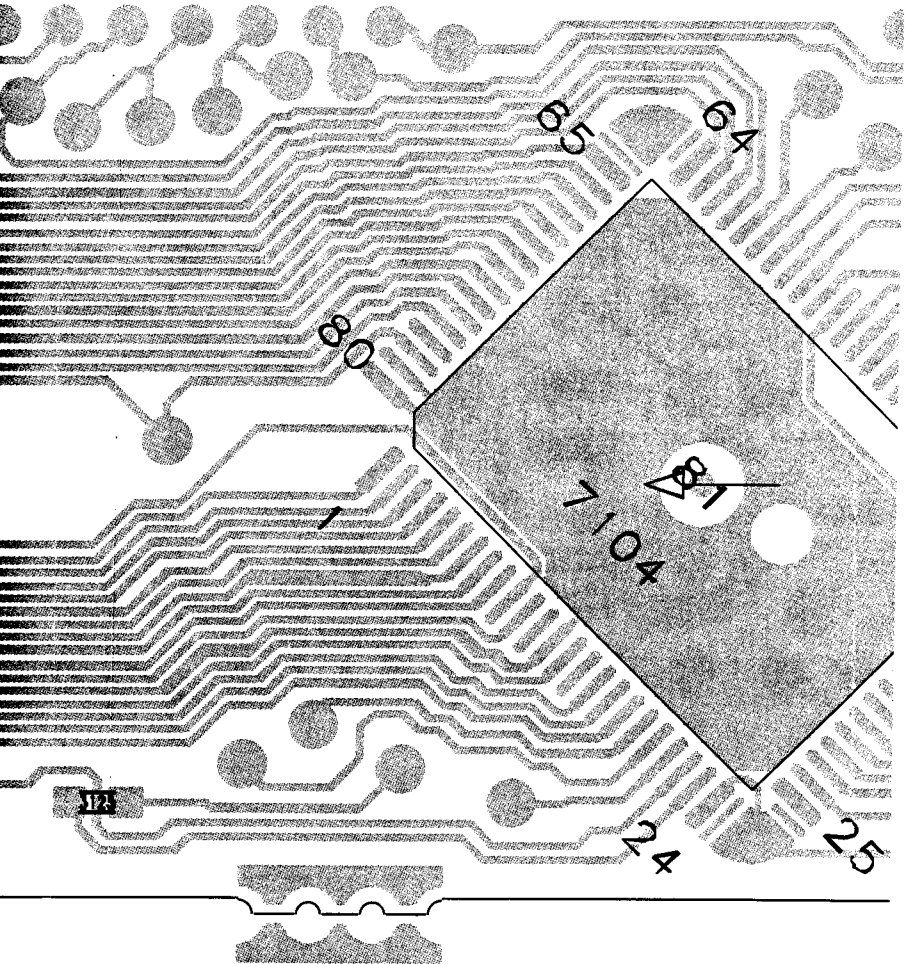
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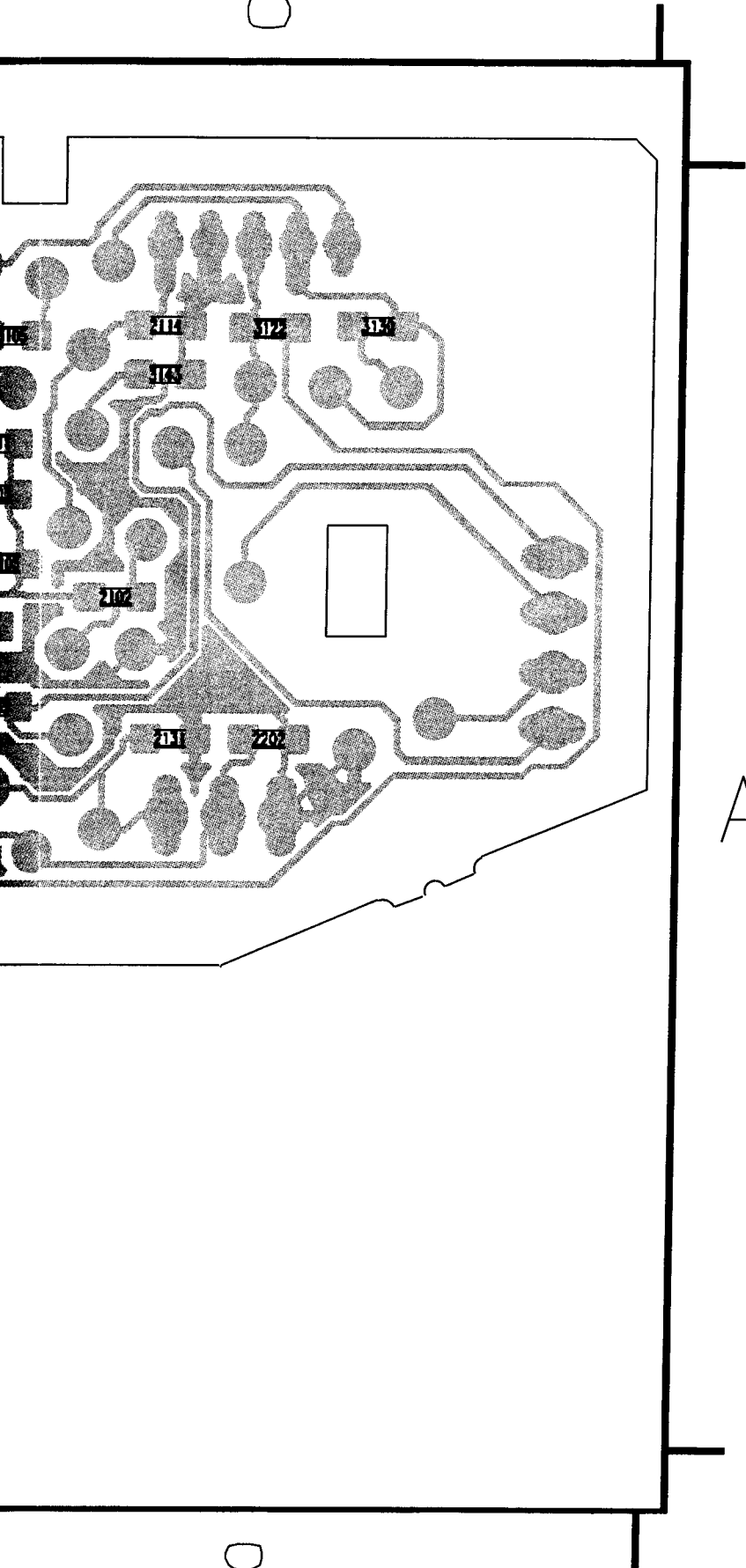
5

6



6

8

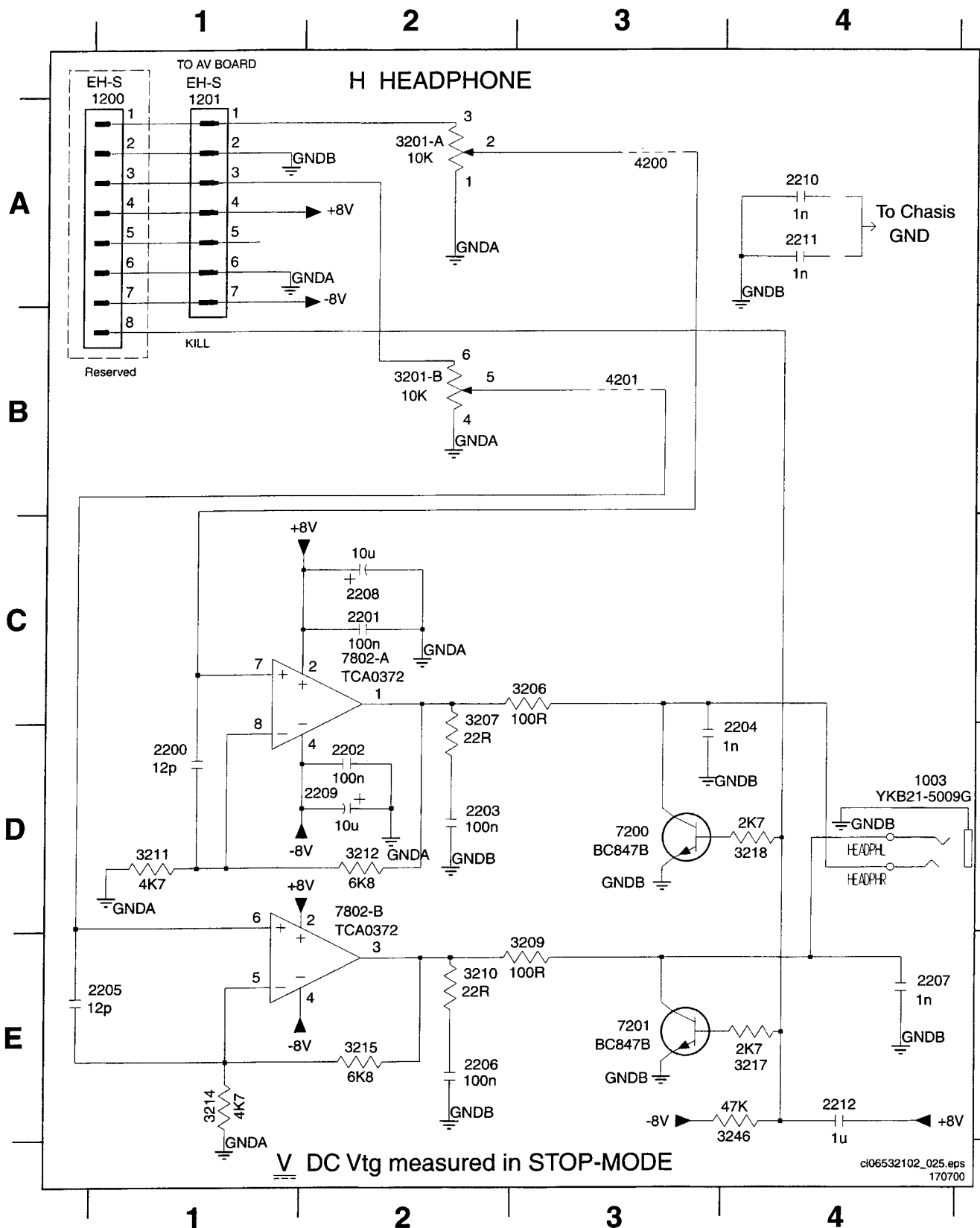


A

8

Headphone panel

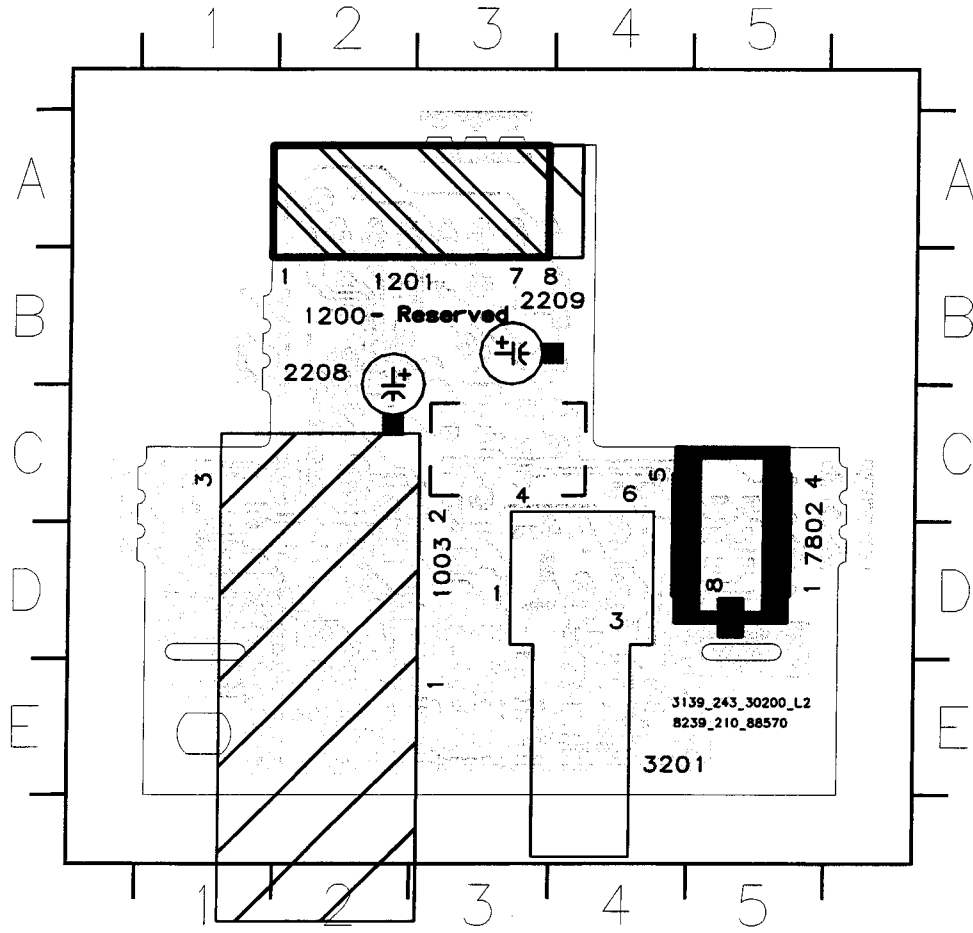
1003 D4	2203 D2	2209 D2	3206 C3	3214 E1	4201 B3	T101 A1	T107 A3	T113 C4
1200 A1	2204 D4	2210 A4	3207 C2	3215 E2	7200 D3	T102 A1	T108 B3	T114 E4
1201 A1	2205 E1	2211 A4	3209 E3	3217 E4	7201 E3	T103 A1	T109 D1	T115 B1
2200 D1	2206 E2	2212 E4	3210 E2	3218 D4	7802-A C2	T104 A1	T110 E2	T117 C2
2201 C2	2207 E4	3201-A A2	3211 D1	3246 E4	7802-B D2	T105 A1	T111 D2	T118 D4
2202 D2	2208 C2	3201-B B2	3212 D2	4200 A3	T100 A1	T106 B2	T112 E2	T119 E2



Layout headphone panel

13 C4
14 E4
15 B1
17 C2
18 D4
19 E2

1003	D3
1200	D2
1201	B2
2208	B2
2209	B3
3201	F4
7802	D5



sis

A
B
C
D
E

A
B
C
D
E

3
009G

2200	D1
2201	C3
2202	C3
2203	F4
2204	D4
2205	D1
2206	F5
2207	F5
2210	F4
2211	F4
2212	F5
3206	C2
3207	C3
3209	F4
3210	F4
3211	F3
3212	F3
3214	C3
3215	C3
3217	D4
3218	D4
4001	B3
4002	B3
4003	B3
4004	F3
4005	B4
4006	B4
4007	B4
4008	B4
4009	B4
4200	C3
4201	D2
7200	D3
7201	D4

C
A
B
C
D
E

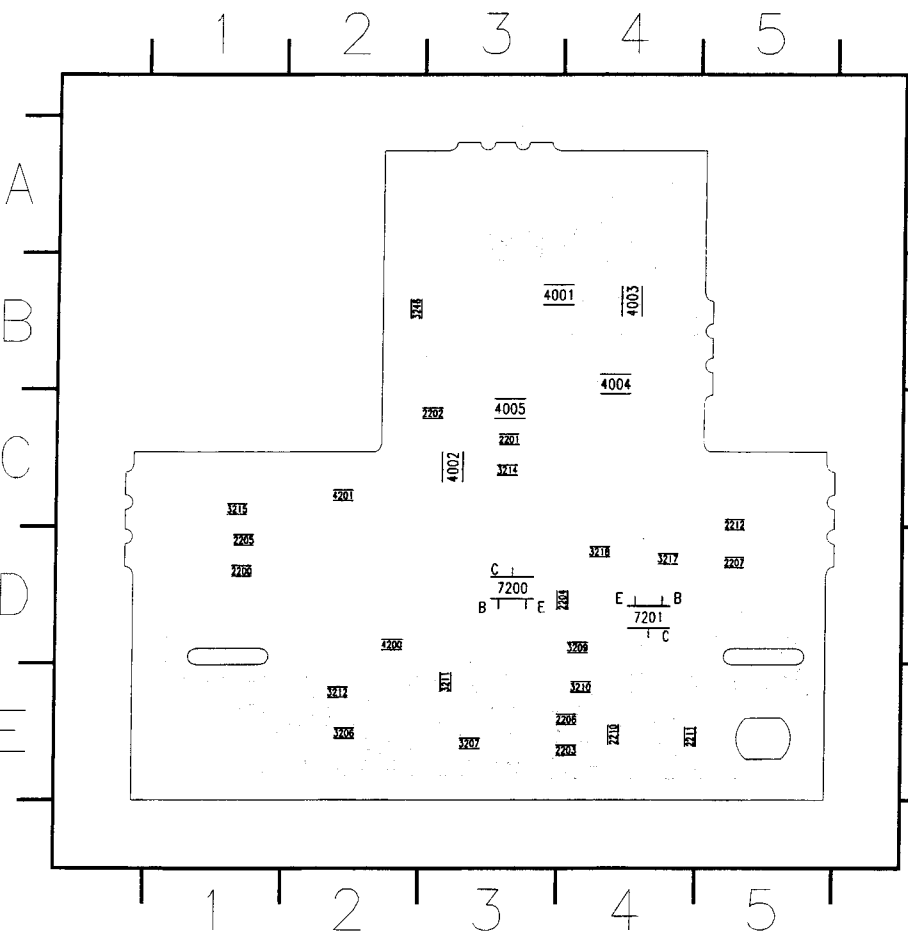
A
B
C
D
E

7

3

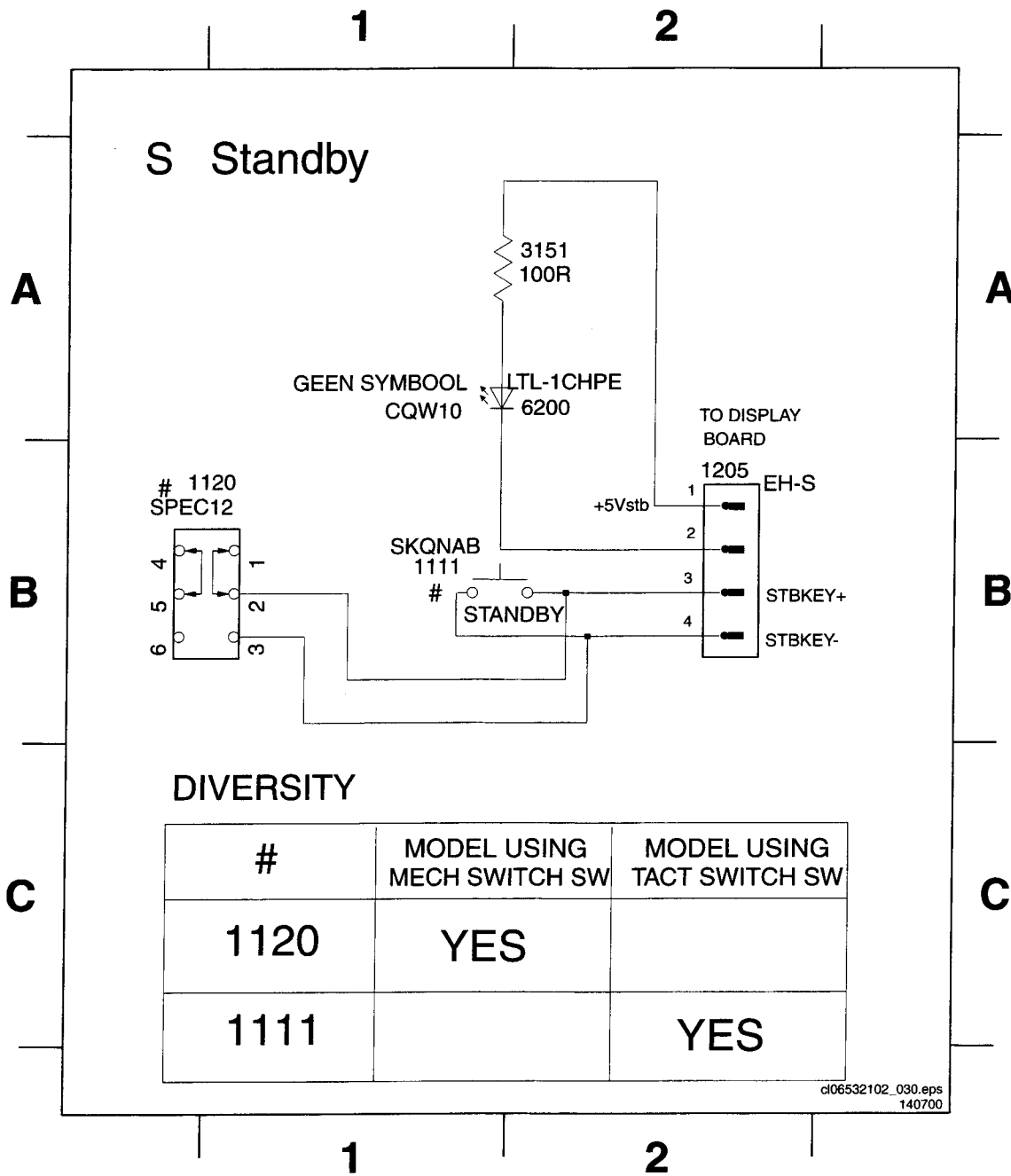
+8V

5.eps
0700



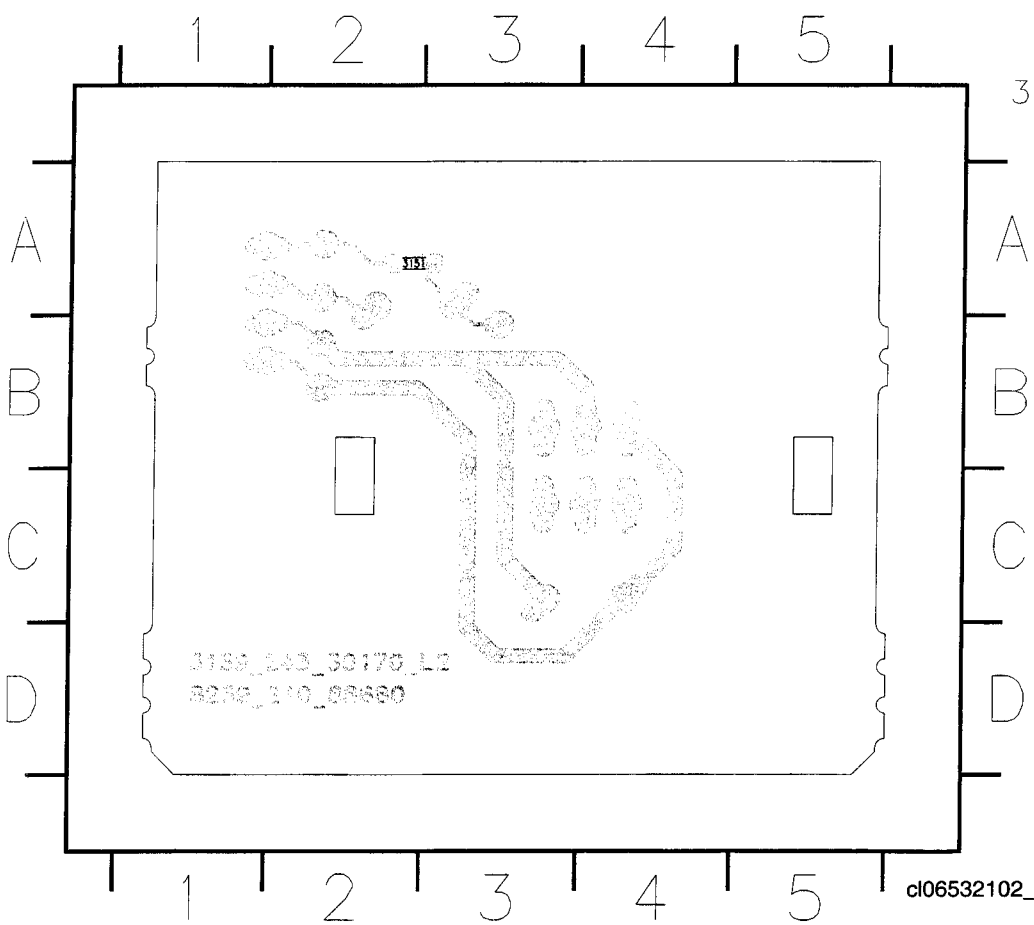
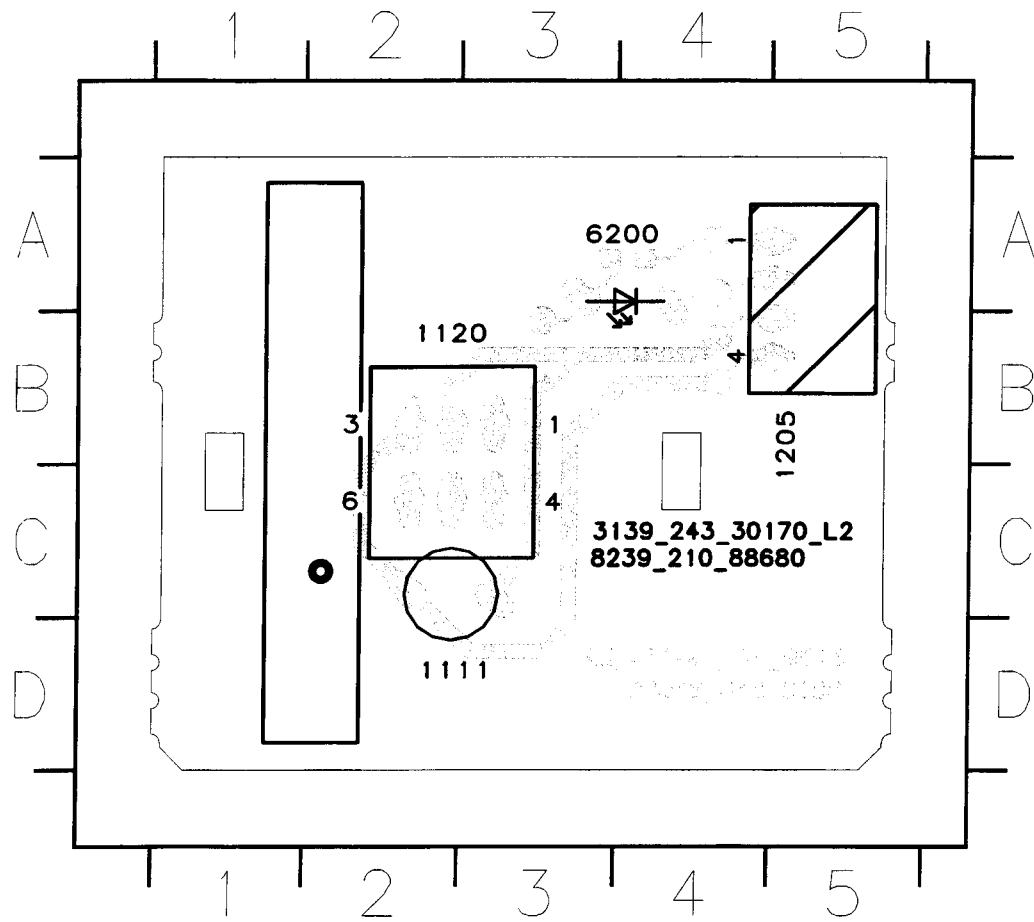
Standby panel

1111 B1
 1120 B1
 1205 B2
 3151 A2
 6200 A2
 F236 A1
 F237 A1
 F238 B1
 F239 B2
 F240 B2



A
B
C
D
A
B
C
D

Layout standby panel



8. Alignments

No electrical alignments available

9. Circuit descriptions and list of abbreviations

9.1 Current mode Power Supply 20PS227

9.1.1 Introduction

The switch mode power supply (SPMS) is mains isolated. The control IC 7145 (UC 3842A) produces pulses to drive the power switch, Mosfet 7125. Power supply regulation is achieved by using duty cycle control at fix frequency ,of approximately 58KHz ,determined by the RC timing components.

9.1.2 General Description of UC 3842A

The UC 3842 is a high performance fixed frequency current mode controller that is specifically designed for off-line and

9.1.3 BLOCK DIAGRAM

DC-to-DC converter application. This integrated circuit feature a trimmed oscillator for precise duty cycle control, a temperature compensated reference, high gain error amplifier, current sensing comparator and a high current totem pole output ideally suited for driving a power MOSFET. Also included are protective features consisting of input and reference undervoltage lockouts each with hysteresis, cycle by cycle current limiting, programmable output deadtime and a latch for single pulse metering.

A representative Block diagram and Pin function description is shown in Fig 1 and Fig 2 respectively.

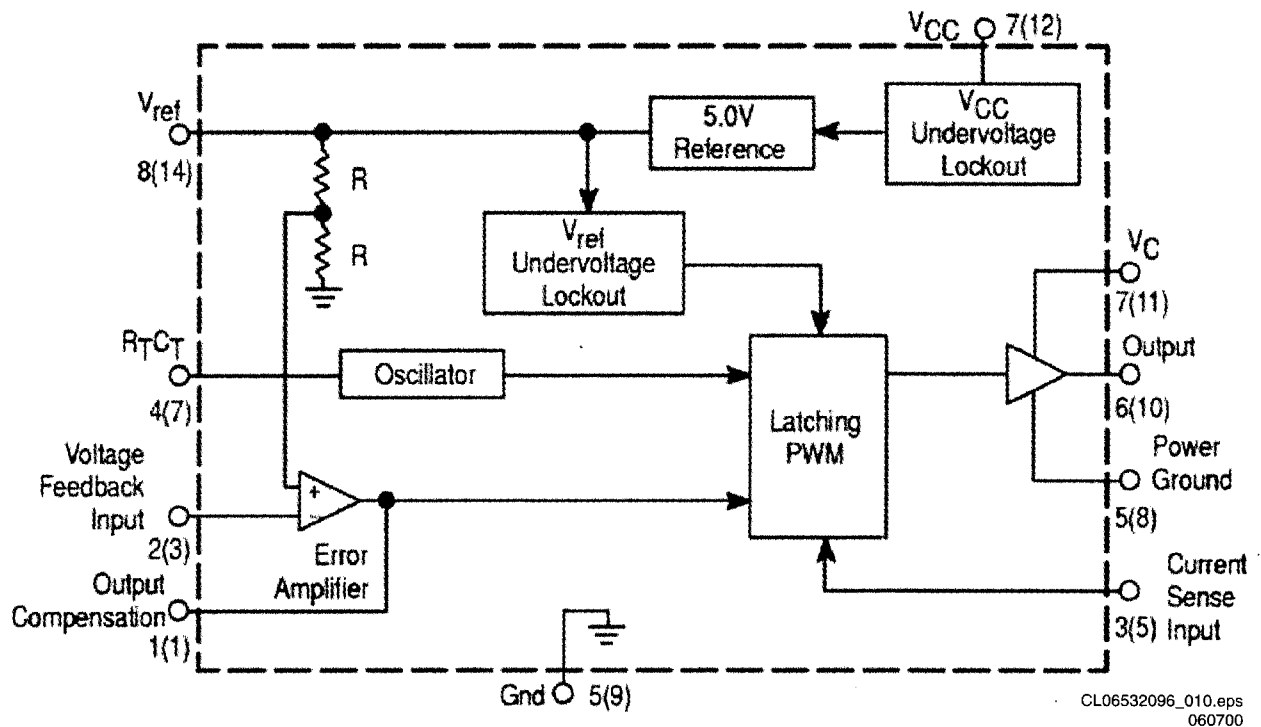


Figure 9-1

9.1.4 Pin function description

Pin		Function	Description
8-Pin	14-Pin		
1	1	Compensation	This pin is Error Amplifier output and is made available for loop compensation.
2	3	Voltage Feedback	This is the inverting input of the Error Amplifier. It is normally connected to the switching power supply output through a resistor divider.
3	5	Current Sense	A voltage proportional to inductor current is connected to this input. The PWM uses this information to terminate the output switch conduction.
4	7	R_T/C_T	The Oscillator frequency and maximum Output duty cycle are programmed by connecting resistor R_T to V_{ref} and capacitor C_T to ground. Operation to 500 kHz is possible.
5	-	Gnd	This pin is the combined control circuitry and power ground (8-pin package only).
6	10	Output	This output directly drives the gate of a power MOSFET. Peak currents up to 1.0 A are sourced and sunk by this pin.
7	12	V_{CC}	This pin is the positive supply of the control IC.
8	14	V_{ref}	This is the reference output. It provides charging current for capacitor C_T through resistor R_T .
-	8	Power Ground	This pin is a separate power ground return (14-pin package only) that is connected back to the power source. It is used to reduce the effects of switching transient noise on the control circuitry.
-	11	V_C	The Output high state (V_{OH}) is set by the voltage applied to this pin (14-pin package only). With a separate power source connection, it can reduce the effects of switching transient noise on the control circuitry.
-	9	Gnd	This pin is the control circuitry ground return (14-pin package only) and is connected back to the power source ground.
-	2,4,6,13	NC	No connection (14-pin package only). These pins are not internally connected.

CL06532096_011.eps
060700

Figure 9-2

9.1.5 Pin connection

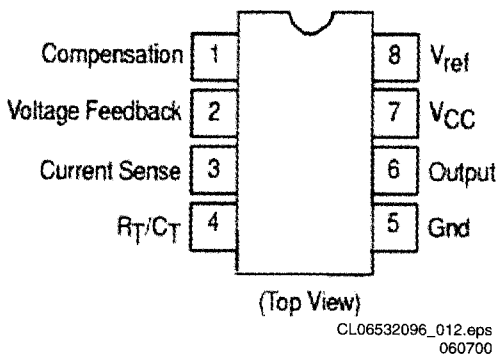


Figure 9-3

9.1.6 Output voltages

- +12V (For Display board, Monoboard, A/V board) created via D6241, C2240, L5240, C2232 (This voltage is also present during standby)
- +5V_ stbby (For Display board, Standby PCB, Monoboard) created from +12V via regulator 7233 and C2233 (This voltage is also present during standby)
- +6V_ stbby (For A/V board) created from D6230, C2230, C2238, L5230, L5231 (This voltage is also present during standby)
- +5V (For Monoboard, A/V board) derive from +6V stbby by the loader-up circuit form by Mosfet 7236, reference components T7237, R3236, R3237, C2239 and it will be switch off via R3235, T7235 during Standby.
- 5V / -8V_ stbby (For Monoboard, A/V board) -5V regulated by voltage regulator 7259 and will be switched

off via D6256, T7256 and T7255 during standby (control signal STAND BY is high).When Coil L5223 is mounted instead of this circuit,a supply voltage -8V will be present at pin 9 of connector 0205. This -8V_ stbby voltage is also present during standby

- 3V3 (For Monoboard, A/V board) The 3V3 power supply is regulated by the control loop comprising of 7201, 7131 and 7145 of the switch mode PSU. This voltage is also present during standby
- 40V (For Display board) created via D6261, R3260, L5260, C2260 This will not be present during standby

9.2 CONTROL CIRCUITRY

9.2.1 Mains input circuit

The mains voltage is rectified by bridge rectifier D6120 filter by either C2121 or C2123 . The DC voltage across C2121/ C2123 is the DC input voltage ,approximately 300V, is the DC input to pin 1 of transformer T5131.The mains input also consists of a lighting protection circuit and an EMI filter. The lighting protection comprises of R3120,D6122,D6123,C2122 and R3121.The EMI filter is formed by L5120,C2120,C2125 and C2126.The purpose of the EMI filter is to filter off inflow of noises into the mains.

9.2.2 Start-up and takeover circuitry

The start-up circuitry consist R3123,R3134,C2129 and with the mains voltage input, the C2129 will charge via R3123 and R3134. When the voltage at pin 7 of IC7145 reaches the start-up threshold of min 14.5V, IC7145 will start-up and the control circuit start to operate. After start-up, the max sinking current of 17mA is required by IC7145 which is not able to be delivered by the start-up circuitry, so the takeover circuitry must be present.

If the takeover circuit does not occur, the supply voltage at pin 7 will decrease gradually till it reaches the IC7145 minimal operating voltage of 8.5V and the IC will switch off. The whole operation cycle will repeat itself with audible hiccup sound if takeover is not present.

The takeover circuit comprises of D6132, D6133, C2133, C2134. During the control circuit start-up, the voltage across winding pin 7 and 9 will gradually built up and charged C2134 via D6133, D6132, C2133, R3135 which will takeover the supply voltage of T7145 at pin 7.

9.2.3 Secondary voltage sensing

The secondary voltage regulating circuit comprise of the opto-coupler 7131 which isolate the error signal from the control IC7145, on the primary side, and a reference component 7201 (TL431). The 7201 can be represented by two components:

- A very stable and accurate reference diode
- A high gain amplifier

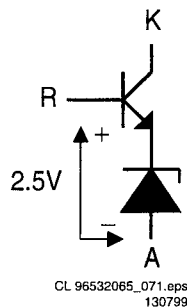


Figure 9-4

When the output voltage increases, due to a reduction in the load, the voltage across R3205 and R3206 increases to above the internal reference voltage of about 2.5V then TL431 conduct. The current through the opto-coupler 7131 will increase due to the fact that the series resistor in 7201 decreases. This result in a increase of voltage across C2152, which is connected to pin 2 of IC7145, thus reducing the on-time of FET 7125.

In the event of a decrease in output voltage (increase in load), the control circuit will operate in the opposite way to the explanation above.

9.2.4 Primary current sensing

The current through the FET 7125 resulting in a voltage drop across R3126, R3127, R3128 which is couple to pin 3 of IC7145, current sense input. The higher the input voltage, the more the primary current is limited. In this way the maximum output power of the power supply is limited.

9.2.5 Undervoltage protection

Two undervoltage lockout comparators have been incorporated to guarantee that the IC7145 is fully functional before the output stage is enable. The supply voltage at pin 7 and reference voltage at pin 8 of IC7145 are each monitored by separate comparators with built-in hysteresis. If the supply voltage at pin 7 of IC7145 drops below 10V (typical), due to a secondary voltage is short-circuit or excessive load, the drive pulse at pin 6 of IC7145 will be disabled and the controller will switch off the complete SMPS.

Remarks : In the event of the overvoltage situation remaining present, the SPMS will go in sequence of protection, start-up cycle, protection and the cycle repeats. This effect is highly audible.

9.2.6 Overvoltage protection

The overvoltage circuitry comprising of D6141, R3139, R3150, R3141, T7141, T7150 which is used to detect an over voltage situation on the secondary side of the transformer. After start-up, when the voltage across C2133 exceeds 18V, the overvoltage circuit will trigger the internal latch circuit, pin 1 of IC7145 and the output buffer is disabled and it goes into the overvoltage protection and a complete restart sequence is required.

9.3 List of abbreviations

B	Buffered Video input Blue from DVD monoboard
BC_AUX	Blue or Chroma input from AUX-scart
BC_TV	Blue or Chroma output to TV-scart
C_ENC	Buffered Chroma input from DVD monoboard
CVBS	Buffered Composite video input from DVD monoboard
DC_OFF	Control signal to switch off $\hat{u}8V_{stby}$ and $+12V_{stby}$ during standby
DIG_OUT	Digital out
FBIN_AUX	Fast blanking input from AUX-scart
FBOU_TV	Fast blanking output to TV-scart
G	Buffered Video input Green from DVD monoboard
GIN_AUX	Video input Green from AUX-scart
GOUT_TV	Video output Green to TV-scart
HP_L	Audio output left to headphone and audio scart switch TEA6420
HP_R	Audio output right to headphone and audio scart switch TEA6420
KILL	Kill control signal for audio outputs and for soft mute of DAC
LIN_AUX	Audio input left from AUX-scart
LIN_TV	Audio input left from TV-scart
LOUT_AUX	Audio output left to AUX-scart
LOUT_TV	Audio output left to TV-scart
LRCLK	Left/Right clock
PCM_CLK	Audio system clock for DAC
PCM_OUT0	Audio serial output data
R	Buffered Video input Red from DVD monoboard
RCIN_TV	Red or Chroma input from TV-scart
RCOUT_TV	Red or Chroma output to TV-scart
RIN_AUX	Audio input right from AUX-scart
RIN_TV	Audio input right from TV-scart
ROUT_AUX	Audio output right to AUX-scart
ROUT_TV	Audio output right to TV-scart
SCL	I2C bus clock
SCLK	Audio serial bit clock
SDA	I2C bus data
SELECT	Control signal for video scart switches; high = TV, low = AUX
SELECT_HIGH	Control signal for switching fast blanking and slow blanking signals; high = TV, low = AUX
SLB_AUX	Slow blanking control signal from AUX-scart
SLB_TV	Slow blanking control signal to TV-scart
STANDBY	Control signal from STI5505 used to switch off $\hat{u}8V_{stby}$ and $+12V_{stby}$ during standby.
STEREO_L	Audio cinch output left
STEREO_R	Audio cinch output right
Y_ENC	Buffered Luma input from DVD monoboard
YCVBSIN_AUX	Luma or CVBS input from AUX-scart
YCVBSIN_TV	Luma or CVBS input from TV-scart
YCVBSOUT_AUX	Luma or CVBS output to AUX-scart
YCVBSOUT_TV	Luma or CVBS output to TV-scart
0/6/12	Scart switch control signal A/V board. 0V : loop through (AUX to TV), 6V : play 16:9 format, 12V : play 4:3 format

HP + VOL PCB

Various

1003	2422 026 05193	CON BM PHONE H 1P F 6.3 ST B
1201	2422 025 12491	CON BM H 07P M 2.50 EH B

-II-

2200	2222 867 75129	0603 50V 12P PM5 R
2201	4822 126 14305	100nF 10% 16V 0603
2202	4822 126 14305	100nF 10% 16V 0603
2203	4822 126 14305	100nF 10% 16V 0603
2204	5322 126 11578	1nF 10% 50V 0603
2205	4822 126 11663	12pF
2206	4822 126 14305	100nF 10% 16V 0603
2207	5322 126 11578	1nF 10% 50V 0603
2208	4822 124 11947	10µF 20% 16V
2209	4822 124 11947	10µF 20% 16V
2210	5322 126 11578	1nF 10% 50V 0603
2211	5322 126 11578	1nF 10% 50V 0603
2212	2238 246 59863	0603 10V 1µF P8020 R

-III-

3201	4822 101 21199	10kX2 20% 0.025W
3206	4822 051 30101	100Ω 5% 0.062W
3207	4822 117 12139	22Ω 5% 0.062W
3209	4822 051 30101	100Ω 5% 0.062W
3210	4822 117 12139	22Ω 5% 0.062W
3211	4822 051 30472	4k7 5% 0.062W
3212	4822 051 30682	6k8 5% 0.062W
3214	4822 051 30472	4k7 5% 0.062W
3215	4822 051 30682	6k8 5% 0.062W
3217	4822 051 30272	2k7 5% 0.062W
3218	4822 051 30272	2k7 5% 0.062W
3246	4822 117 12925	47k 1% 0.063W 0603

-IV-

7200	5322 130 60159	BC846B
7201	5322 130 60159	BC846B
7802	4822 209 62059	TCA0372DP1

PSU 20PS227

Various

0101▲	4822 265 31015	
0120	4822 265 11253	FUSE HOLDER 2P
0205	2422 025 08333	CON BM V 12P M 2.50 EH B
0208	4822 267 10565	4P
1120▲	4822 253 30383	19181 (2,5A)

-II-

2120▲	4822 121 10711	100nF 20% 275V
2121	2222 151 90048	47µF 20% 400V
2122	4822 121 70141	33nF 5% 400V
2127	4822 122 50116	470pF 10% 1KV
2130▲	4822 126 14133	1nF 20% 250V
2131▲	4822 126 14133	1nF 20% 250V
2133	4822 124 40248	10µF 20% 63V
2134	2020 012 93111	EL YK 35V S 47µF PM20 A
2141	4822 124 22652	2.2µF 20% 50V
2143	4822 126 14585	100nF 10% 50V
2145	5322 126 10223	4.7nF 10% 63V
2146	4822 126 14585	100nF 10% 50V
2150	4822 126 14585	100nF 10% 50V
2156	5322 122 31863	63V 330pF PM5
2157	5322 122 32268	470pF 10% 50V
2202	4822 126 13838	100nF 50V 20%
2210	2020 012 93728	EL YK 10V S 2200µF PM20 B
2230	2020 021 91442	1000µF 20% 16V
2232	4822 124 81021	100µF 20% 16V
2233	4822 124 81021	100µF 20% 16V
2234	4822 126 12105	50V 33nF PM5
2238	4822 124 81021	100µF 20% 16V
2239	4822 124 81021	100µF 20% 16V
2240	4822 124 81147	470µF 20% YK 25V
2250	4822 124 80791	470µF 16V 20% 85C DXH=8X11.5
2260	4822 124 81151	22µF 50V

-V-

3105	4822 053 21684	680k 5% 0.5W
3111	4822 116 52176	10Ω 5% 0.5W
3121	4822 117 12181	470Ω 20% 0.5W
3123	4822 116 52291	56k 5% 0.5W
3125	4822 117 10833	10k 1% 0.1W
3126	4822 116 81801	3Ω 6.5% 0.5W
3127	4822 116 80176	1Ω 5% 0.5W
3128	4822 116 80176	1Ω 5% 0.5W
3129	4822 116 52256	2k2 5% 0.5W
3131	4822 051 10274	270k 2% 0.25W
3132	4822 052 11108	1Ω 5% 0.5W
3134	4822 116 52291	56k 5% 0.5W
3135	4822 116 83872	220Ω 5% 0.5W
3136	4822 051 10274	270k 2% 0.25W
3139	4822 051 20479	47Ω 5% 0.1W
3140	4822 116 52219	330Ω 5% 0.5W
3141	4822 117 11507	6k8 1% 0.1W
3143	3198 021 53630	36k 5% 0.1W 0805
3145	4822 117 10965	18k 1% 0.1W
3146	4822 117 11148	56k 1% 0.1W
3150	4822 117 11139	1k5 1% 0.1W
3153	4822 116 83933	15k 1% 0.1W
3154	4822 117 11139	1k5 1% 0.1W
3155	4822 116 52219	330Ω 5% 0.5W
3156	4822 051 20339	33Ω 5% 0.1W
3201	4822 116 52176	10Ω 5% 0.5W
3202	4822 117 11141	1k8 1% 0.1W
3204	4822 117 11504	270Ω 1% 0.1W
3205	4822 117 11145	4k7 1% 0.1W
3206	4822 051 20391	390Ω 5% 0.1W
3207	4822 051 10102	1k 2% 0.25W
3233	4822 116 52249	1k8 5% 0.5W
3234	4822 051 10102	1k 2% 0.25W
3235	4822 116 83933	15k 1% 0.1W
3236	4822 117 11145	4k7 1% 0.1W
3237	4822 117 11145	4k7 1% 0.1W
3260	4822 051 20102	1k 5% 0.1W
3262	4822 116 83872	220Ω 5% 0.5W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

-VI-

5120▲	4822 157 11846	
5125	4822 157 11411	100mH z
5135	4822 157 70698	27µH
5210	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5223	4822 157 50963	2.2µH
5230	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5231	4822 157 11722	6.8µH 20% 7.7X9.5
5240	4822 157 51195	1 µH 20% 4X9.8MM AXIAL
5260	4822 157 11517	10µH 5% 2.3X3.4

-VII-

6110	5322 130 34574	1N4004G
6111	5322 130 34574	1N4004G
6120	4822 130 83707	SINB80
6122	4822 130 34281	BZX79-B15
6123	4822 130 34281	BZX79-B15
6129	9322 107 43685	UDZ22B
6132	4822 130 30842	BAV21
6133	4822 130 83649	1SS355
6140	4822 130 30621	1N4148
6141	4822 130 11152	UDZ18B
6150	4822 130 11148	UDZ4.7B
6210	4822 130 11584	BYW98-200-C1
6230	4822 130 83865	SB306
6241	4822 130 11584	BYW98-200-C1
6250	4822 130 42606	BYD33J
6261	4822 130 42606	BYD33J

-VIII-

7125	4822 130 11417	STP3NB60FP
7131▲	4822 130 91451	CQY80NG
7141	4822 130 44568	BC557B
7145	9322 145 88682	UC3842A
7150	4822 130 40959	BC547B
7201	4822 209 81397	TL431CLPST
7233	5322 209 86445	LM7805CT
7235	4822 130 42705	BC847
7236	4822 130 11578	STP16NE06
7237	4822 209 81397	TL431CLPST

ASD2

Various

0001	9305 023 61101	
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VAL 6011

Various

0001	3139 197 60090	GENEVA LP LOADER ASSY
0002	9305 022 60101	VAM6001/01
0003	3139 194 00710	SUSPENSION
0004	3139 194 00710	SUSPENSION
0005	3139 194 00620	SUSPENSION
0006	3139 194 00620	SUSPENSION
0007	3139 197 60060	CLAMPER ASSEMBLY

LOADER

Various

0004	4822 358 10266	
0009	3139 198 80010	
0010	4822 532 13097	TULE
0011	3139 194 00270	
0012	3139 197 50060	

MONO BOARD

Various

1104	2422 025 15963	CON BM H 24P F 0.50 FFC SMD R
1106	2422 025 16158	CON BM H 8P F 1.00 FFC 0.3 R
1205	2422 540 98428	RES CER SM 8M467 CSTCC8.46MHz R
1300	2422 540 98426	RES CER SM 6MHz CSTCC6.00MHz R
1301	4822 267 51454	CONN. 11P FEMALE
1603	2422 025 16389	CON BM V 22P F 1.00 FFC 0.3 R
1604	2422 025 16388	CON BM V 16P F 1.00 FFC 0.3 R

-II-

2100	4822 126 14305	100nF 10% 16V 0603
2101	4822 126 14305	100nF 10% 16V 0603
2103	4822 124 80151	47µF 16V
2104	4822 126 13193	4.7nF 10% 63V
2105	4822 122 33761	22pF 5% 50V
2107	4822 126 13956	68pF 5% 63V CASE 0603
2108	4822 126 14315	390pF 5% 50V 0603
2109	2020 552 95697	
2110	2222 861 15222	50V 2N2 PM5
2111	4822 126 14305	100nF 10% 16V 0603
2112	5322 126 11578	1nF 10% 50V 0603
2113	4822 126 14305	100nF 10% 16V 0603
2114	4822 122 31765	100pF 2% 63V
2115	4822 126 14305	100nF 10% 16V 0603
2116	4822 126 14305	100nF 10% 16V 0603
2117	4822 126 14305	100nF 10% 16V 0603
2118	3198 017 42230	0603 50V 22nF COL
2119	3198 017 42230	0603 50V 22nF COL
2120	4822 126 14305	100nF 10% 16V 0603
2121	4822 126 13879	220nF 20% 16V
2122	3198 017 42230	0603 50V 22nF COL
2123	4822 126 14305	100nF 10% 16V 0603
2124	4822 126 14305	100nF 10% 16V 0603
2125	4822 126 14305	100nF 10% 16V 0603
2126	4822 126 14305	100nF 10% 16V 0603
2127	4822 126 14305	100nF 10% 16V 0603
2128	4822 126 14508	180pF 5% 50V 0603
2129	4822 126 14508	180pF 5% 50V 0603
2130	4822 122 33761	22pF 5% 50V
2131	4822 126 14494	22nF 10% 25V 0603
2136	4822 126 14305	100nF 10% 16V 0603
2137	4822 126 14305	100nF 10% 16V 0603
2138	4822 126 14305	100nF 10% 16V 0603
2139	4822 126 14305	100nF 10% 16V 0603
2140	4822 126 14241	0603 50V 330P COL R
2141	4822 122 33761	22pF 5% 50V
2142	5322 126 11583	10nF 10% 50V 0603
2143	4822 126 13883	220pF 5% 50V

2144	4822 126 13883	220pF 5% 50V	2608	4822 124 23002	10µF 16V	3163	4822 051 30273	27k 5% 0.062W
2145	4822 126 13883	220pF 5% 50V	2609	4822 124 80151	47µF 16V	3164	4822 117 13613	20Ω 5% 0603
2203	4822 126 14305	100nF 10% 16V 0603	2610	4822 126 14305	100nF 10% 16V 0603	3165	5322 117 13063	120Ω 1% 0.063W 0603 RC22H
2204	4822 126 14305	100nF 10% 16V 0603	2611	4822 124 12095	100µF 20% 16V			
2205	4822 126 14305	100nF 10% 16V 0603	2614	4822 122 33777	47pF 5% 63V	3166	4822 051 30393	39k 5% 0.062W
2206	4822 126 14549	33nF 16V 0603	2615	4822 122 33777	47pF 5% 63V	3167	4822 051 30101	100Ω 5% 0.062W
2207	5322 126 11578	1nF 10% 50V 0603	2616	4822 122 33777	47pF 5% 63V	3168	5322 117 13047	330Ω 1% 0.063W 0603 RC22H
2208	4822 126 14305	100nF 10% 16V 0603	2617	4822 122 33777	47pF 5% 63V			
2209	4822 126 14305	100nF 10% 16V 0603	2618	4822 126 14305	100nF 10% 16V 0603	3169	4822 051 30101	100Ω 5% 0.062W
2210	5322 126 11578	1nF 10% 50V 0603	2619	4822 126 14305	100nF 10% 16V 0603	3170	4822 051 30101	100Ω 5% 0.062W
2212	4822 126 14305	100nF 10% 16V 0603	2620	4822 122 33777	47pF 5% 63V	3171	4822 051 30101	100Ω 5% 0.062W
2213	4822 126 14305	100nF 10% 16V 0603	2621	4822 122 33777	47pF 5% 63V	3172	4822 117 13632	100k 1% 0603 0.62W
2214	3198 017 42230	0603 50V 22nF COL	2622	4822 122 33777	47pF 5% 63V	3173	4822 117 13632	100k 1% 0603 0.62W
2215	4822 124 23237	22µF 6.3V	2623	4822 122 33777	47pF 5% 63V	3174	4822 117 11152	40Ω 5%
2216	5322 126 11578	1nF 10% 50V 0603	2624	4822 122 33777	47pF 5% 63V	3175	4822 117 13613	20Ω 5% 0603
2226	4822 126 14305	100nF 10% 16V 0603	2625	4822 122 33777	47pF 5% 63V	3176	4822 051 30153	15k 5% 0.062W
2227	4822 126 14305	100nF 10% 16V 0603	2626	4822 122 33777	47pF 5% 63V	3178	4822 117 11151	1Ω 5%
2228	4822 126 14305	100nF 10% 16V 0603	2627	4822 122 33777	47pF 5% 63V	3179	4822 051 30221	220Ω 5% 0.062W
2300	4822 126 14305	100nF 10% 16V 0603	2632	4822 124 12095	100µF 20% 16V	3180	4822 117 13632	100k 1% 0603 0.62W
2301	4822 126 14305	100nF 10% 16V 0603	2633	4822 124 12095	100µF 20% 16V	3181	4822 051 30561	560Ω 5% 0.062W
2302	4822 126 14305	100nF 10% 16V 0603	2634	4822 126 14305	100nF 10% 16V 0603	3182	5322 117 13018	1k0 1% 0.063W 0603 RC22H
2303	4822 124 80349	47µF 20% 6.3V	2635	4822 126 14305	100nF 10% 16V 0603			
2304	3198 017 42230	0603 50V 22nF COL	2636	4822 126 14305	100nF 10% 16V 0603	3183	5322 117 13017	100Ω 1% 0.063W 0603 RC22H
2305	3198 017 42230	0603 50V 22nF COL	2637	4822 126 14305	100nF 10% 16V 0603			
2306	4822 124 23002	10µF 16V	2638	4822 126 14305	100nF 10% 16V 0603			
2307	3198 017 42230	0603 50V 22nF COL	2639	4822 126 14305	100nF 10% 16V 0603			
2309	4822 126 14305	100nF 10% 16V 0603						
2310	4822 126 14305	100nF 10% 16V 0603						
2314	4822 126 14305	100nF 10% 16V 0603						
2315	4822 126 14305	100nF 10% 16V 0603						
2318	5322 122 33861	120pF 10% 50V						
2319	4822 126 11669	27pF						
2401	4822 126 14305	100nF 10% 16V 0603						
2402	4822 126 14305	100nF 10% 16V 0603						
2403	4822 126 14305	100nF 10% 16V 0603						
2404	4822 126 14305	100nF 10% 16V 0603						
2405	4822 126 14305	100nF 10% 16V 0603						
2406	4822 126 14305	100nF 10% 16V 0603						
2407	4822 126 14305	100nF 10% 16V 0603						
2408	4822 126 14305	100nF 10% 16V 0603						
2409	4822 126 14305	100nF 10% 16V 0603						
2410	4822 126 14305	100nF 10% 16V 0603						
2411	4822 126 14305	100nF 10% 16V 0603						
2412	4822 126 14305	100nF 10% 16V 0603						
2413	4822 126 14305	100nF 10% 16V 0603						
2418	4822 124 12095	100µF 20% 16V						
2419	4822 124 80349	47µF 20% 6.3V						
2420	4822 124 80349	47µF 20% 6.3V						
2500	4822 126 14305	100nF 10% 16V 0603						
2502	3198 030 74780	EL SM 35V 4U7 PM20 COL R						
2503	4822 126 14305	100nF 10% 16V 0603						
2504	4822 122 31765	100pF 2% 63V						
2505	4822 126 14494	22nF 10% 25V 0603						
2506	4822 124 23002	10µF 16V						
2507	4822 126 14305	100nF 10% 16V 0603						
2508	5322 126 11579	3.3nF 10% 63V						
2509	4822 126 14241	0603 50V 330P COL R						
2510	4822 126 14305	100nF 10% 16V 0603						
2511	4822 126 14305	100nF 10% 16V 0603						
2512	4822 126 14305	100nF 10% 16V 0603						
2513	4822 126 14305	100nF 10% 16V 0603						
2514	4822 126 14305	100nF 10% 16V 0603						
2515	4822 126 14305	100nF 10% 16V 0603						
2516	4822 126 14305	100nF 10% 16V 0603						
2517	4822 126 14305	100nF 10% 16V 0603						
2518	4822 126 14305	100nF 10% 16V 0603						
2519	4822 126 14305	100nF 10% 16V 0603						
2520	4822 126 14305	100nF 10% 16V 0603						
2521	4822 126 14305	100nF 10% 16V 0603						
2522	4822 126 14305	100nF 10% 16V 0603						
2523	4822 126 14305	100nF 10% 16V 0603						
2524	4822 126 14305	100nF 10% 16V 0603						
2525	4822 126 14305	100nF 10% 16V 0603						
2526	4822 126 14305	100nF 10% 16V 0603						
2527	4822 126 14305	100nF 10% 16V 0603						
2528	4822 126 14305	100nF 10% 16V 0603						
2529	4822 126 14305	100nF 10% 16V 0603						
2530	3198 030 74780	EL SM 35V 4U7 PM20 COL R						
2531	3198 030 74780	EL SM 35V 4U7 PM20 COL R						
2532	4822 122 33777	47pF 5% 63V						
2533	4822 122 33777	47pF 5% 63V						
2534	5322 126 11578	1nF 10% 50V 0603						
2535	5322 126 11578	1nF 10% 50V 0603						
2600	4822 126 14494	22nF 10% 25V 0603						
2601	4822 126 14247	0603 50V 1N5 COL R						
2602	4822 126 14247	0603 50V 1N5 COL R						
2603	4822 126 14305	100nF 10% 16V 0603						
2604	4822 124 12095	100µF 20% 16V						
2605	4822 126 14494	22nF 10% 25V 0603						
2606	4822 124 12095	100µF 20% 16V						
2607	4822 124 12095	100µF 20% 16V						
3100	4822 117 11152	40Ω 5%						
3102	5322 117 13034	1k5 1% 0.063W 0603 RC22H						
3103	5322 117 13034	1k5 1% 0.063W 0603 RC22H						
3104	5322 117 13062	390Ω 1% 0.063W 0603 RC22H						
3105	4822 051 30103	10k 5% 0.062W						
3106	4822 051 30479	47Ω 5% 0.062W						
3107	4822 051 20228	20Ω 5% 0.1W						
3108	4822 051 20228	20Ω 5% 0.1W						
3110	4822 051 30479	47Ω 5% 0.062W						
3111	5322 117 13058	150Ω 1% 0.063W 0603 RC22H						
3112	5322 117 13021	47Ω 1% 0.063W 0603 RC22H						
3114	4822 051 20228	20Ω 5% 0.1W						
3115	4822 051 20228	20Ω 5% 0.1W						
3116	5322 117 13042	3k9 1% 0.063W 0603 RC22H						
3117	4822 051 30181	180Ω 5% 0.062W						
3118	4822 051 30681	680Ω 5% 0.062W						
3119	5322 117 13062	390Ω 1% 0.063W 0603 RC22H						
3120	4822 051 30102	1k 5% 0.062W						
3121	4822 051 30273	27k 5% 0.062W						
3122	4822 051 30471	470Ω 5% 0.062W						
3123	4822 051 30103	10k 5% 0.062W						
3124	4822 051 30471	470Ω 5% 0.062W						
3125	4822 051 30103	10k 5% 0.062W						
3126	4822 051 30103	10k 5% 0.062W						
3127	4822 051 30223	22k 5% 0.062W						
3128	2322 704 69109							
3129	4822 051 30392	3k9 5% 0.063W 0603						
3130	4822 051 20228	20Ω 5% 0.1W						
3131	4822 051 20228	20Ω 5% 0.1W						
3132	4822 051 20228	20Ω 5% 0.1W						
3133	4822 051 20228	20Ω 5% 0.1W						
3134	5322 117 13047	330Ω 1% 0.063W 0603 RC22H						
3135	4822 117 13613	20Ω 5% 0603						
3137	4822 117 13613	20Ω 5% 0603						
3138	5322 117 13053	6k8 1% 0.063W 0603 RC22H						
3139	4822 117 12917	1Ω 5% 0.062W CASE0603						
3140	4822 051 30479	47Ω 5% 0.062W						
3141	4822 117 11152	40Ω 5%						
3142	5322 117 13028	12k 1% 0.063W 0603 RC22H						
3143	5322 117 13043	220Ω 1% 0.063W 0603 RC22H						
3144	2322 704 69109							
3146	4822 051 30103	10k 5% 0.062W						
3147	4822 051 30103	10k 5% 0.062W						
3148	5322 117 13022	22k 1% 0.063W 0603 RC22H						
3153	4822 117 12139	22Ω 5% 0.062W						

11. Spare parts list DVD957 /001 (also use chapter 10)

Mechanical

Various

0002	3139 247 52291	FRONT COMPLETE DVD957/00X
0003	3139 240 00041	BADGE DVD SILVER
0005	3139 247 51831	BADGE PHILIPS ASSY SILVER
0010	3139 247 52051	CAB FRONT DVD957 PNT PRT
0015	3139 247 51861	CAP END LEFT DVD957 PNT PRT
0020	3139 247 51871	CAP END RIGHT DVD957 PNT PRT
0025	3139 247 51621	WINDOW LENS DVD956K PNT PRT
0025	3139 247 51891	TRAY COVER DVD957 PNT PRT
0030	3139 247 51911	BUTTON STANDBY DVD957 PNT PRT
0035	3139 247 51931	BUTTON TREE DVD957 PNT PRT
0040	3139 247 51951	BUTTON SOUND DVD957 PNT PRT
0045	3139 247 51681	RING DVD956K PNT PRT
0045	3139 247 52031	KNOB VOL DVD957 PNT PRT
0050	3139 244 00761	LIGHT GUIDE DVD STEP 2K
0055	3139 247 51971	KNOB JOG DVD957 PNT PRT
0060	3139 247 51991	SHUTTLERING DVD957 PNT PRT
0150	3139 241 20261	COVER BOTTOM DVD STEP 2K
0155	4822 462 11174	LEG SILVER DVD825
0250	3139 247 51821	PLATE BACK DVD951 EUR PNT PRT
0300	3139 247 51691	COVER TOP DVD956K PNT PRT
0350	3139 248 70111	ASSY RC DVD957 EUR PACKED
0360▲	4822 321 10249	SBC1201 MAINS CABLE
0365	4822 321 62401	
0366	4822 321 61579	
0372	4822 321 61847	SCART
0375	3139 246 10401	IFU DVD957/00X
1001	3139 248 80551	PCBAS DVD957/00X AV
1002	3139 248 80511	PCBAS DVD951/00X FRONT PCB
1003	3139 248 80481	PCBAS DTS DECODER EU
1004	3139 248 80571	PCBAS DVD951 HP+VOL COMBI
1005	3122 427 22491	PSU DVD STEP2000 EU 20PS227
1104	3139 110 34230	FFC FOIL 16P/105/16P BD B
1105	3139 110 34220	FFC FOIL 22P/105/22P BD B
1106	3139 110 34230	FFC FOIL 16P/105/16P BD B
1107	3139 110 34220	FFC FOIL 22P/105/22P BD B

3398	4822 051 20472	4k7 5% 0.1W
3399	4822 051 20562	5k6 5% 0.1W 0805
3400	4822 117 11927	75Ω 1% 0.1W
3401	4822 117 11927	75Ω 1% 0.1W
3402	4822 051 20472	4k7 5% 0.1W
3403	4822 117 11927	75Ω 1% 0.1W
3404	4822 117 11927	75Ω 1% 0.1W
3405	4822 117 11927	75Ω 1% 0.1W
3406	4822 117 11927	75Ω 1% 0.1W
3407	4822 117 11927	75Ω 1% 0.1W
3408	4822 117 11927	75Ω 1% 0.1W
3409	4822 051 20471	470Ω 5% 0.1W
3410	4822 051 20471	470Ω 5% 0.1W
3411	4822 117 11927	75Ω 1% 0.1W
3413	4822 117 10834	47k 1% 0.1W
3414	4822 051 20472	4k7 5% 0.1W
3415	4822 051 20223	22k 5% 0.1W
3416	4822 051 20339	33Ω 5% 0.1W
3417	4822 051 20471	470Ω 5% 0.1W
3418	4822 051 20101	100Ω 5% 0.1W
3419	4822 051 20101	100Ω 5% 0.1W
3420	4822 117 11149	82k 1% 0.1W
3421	4822 117 11504	270Ω 1% 0.1W
3422	4822 051 20472	4k7 5% 0.1W
3423	2322 734 65609	RST SM 0805 RC12H 56Ω PM1 R
3424	4822 051 20223	22k 5% 0.1W
3425	4822 117 11927	75Ω 1% 0.1W
3427	4822 051 20472	4k7 5% 0.1W
3429	4822 117 11927	75Ω 1% 0.1W
3431	4822 051 20471	470Ω 5% 0.1W
3432	4822 117 11927	75Ω 1% 0.1W
3433	4822 051 20008	0Ω jumper . (0805)
3434	4822 051 20101	100Ω 5% 0.1W
3435	4822 051 20101	100Ω 5% 0.1W
3436	4822 117 10353	150Ω 1% 0.1W
3437	4822 051 20101	100Ω 5% 0.1W
3438	4822 051 20101	100Ω 5% 0.1W
3439	4822 051 20101	100Ω 5% 0.1W
3440	4822 051 20101	100Ω 5% 0.1W
3441	4822 051 20101	100Ω 5% 0.1W
3442	4822 051 20101	100Ω 5% 0.1W
3444	4822 117 10833	10k 1% 0.1W
3445	4822 117 10833	10k 1% 0.1W
3446	4822 117 12955	2k7 1% 0.1W 0805
3447	4822 117 12955	2k7 1% 0.1W 0805
3448	4822 117 10833	10k 1% 0.1W
3451	4822 117 10833	10k 1% 0.1W
3452	4822 051 20008	0Ω jumper . (0805)
3453	4822 117 10833	10k 1% 0.1W
3454	4822 117 10833	10k 1% 0.1W
3455	4822 117 10833	10k 1% 0.1W
3456	4822 051 20101	100Ω 5% 0.1W
3457	4822 051 20101	100Ω 5% 0.1W
3458	4822 051 20008	0Ω jumper . (0805)
3459	4822 117 10833	10k 1% 0.1W
3460	4822 051 20008	0Ω jumper . (0805)
3461	4822 117 10833	10k 1% 0.1W
3462	4822 117 12955	2k7 1% 0.1W 0805
3463	4822 117 12955	2k7 1% 0.1W 0805
3464	4822 117 10833	10k 1% 0.1W
3466	4822 117 11503	220Ω 1% 0.1W
3468	4822 117 10837	100k 1% 0.1W
3469	4822 117 10833	10k 1% 0.1W
3470	4822 117 12955	2k7 1% 0.1W 0805
3471	4822 051 20562	5k6 5% 0.1W 0805
3472	4822 117 11152	4Ω7 5%
3473	4822 051 20008	0Ω jumper . (0805)
3475	4822 117 10833	10k 1% 0.1W
3476	4822 051 20101	100Ω 5% 0.1W
3477	4822 051 20101	100Ω 5% 0.1W
3478	4822 117 10837	100k 1% 0.1W
3479	4822 051 20562	5k6 5% 0.1W 0805
3480	4822 117 11503	220Ω 1% 0.1W
3481	4822 117 12955	2k7 1% 0.1W 0805
3482	4822 117 10833	10k 1% 0.1W
3483	4822 117 10833	10k 1% 0.1W
3484	4822 117 12955	2k7 1% 0.1W 0805
3486	4822 117 10837	100k 1% 0.1W
3487	4822 117 11503	220Ω 1% 0.1W
3488	4822 117 12955	2k7 1% 0.1W 0805
3489	4822 051 20562	5k6 5% 0.1W 0805
3490	4822 117 10833	10k 1% 0.1W
3491	4822 051 20101	100Ω 5% 0.1W
3492	4822 051 20101	100Ω 5% 0.1W
3493	4822 117 10833	10k 1% 0.1W
3494	4822 117 12955	2k7 1% 0.1W 0805
3495	4822 117 10837	100k 1% 0.1W
3496	4822 117 11503	220Ω 1% 0.1W
3497	4822 117 12955	2k7 1% 0.1W 0805
3498	4822 051 20562	5k6 5% 0.1W 0805
3499	4822 117 10833	10k 1% 0.1W
3502	4822 117 10833	10k 1% 0.1W
3505	4822 051 20101	100Ω 5% 0.1W

3506	4822 117 10833	10k 1% 0.1W
3507	4822 051 20101	100Ω 5% 0.1W
3508	4822 117 12521	68Ω 1% 0.1W
3509	4822 117 10834	47k 1% 0.1W
3510	4822 117 11152	4Ω7 5%
3513	4822 117 12955	2k7 1% 0.1W 0805
3514	4822 117 12955	2k7 1% 0.1W 0805
3515	4822 117 10837	100k 1% 0.1W
3516	4822 117 11152	4Ω7 5%
3517	4822 051 20101	100Ω 5% 0.1W
3518	4822 117 12955	2k7 1% 0.1W 0805
3519	4822 051 20562	5k6 5% 0.1W 0805
3520	4822 051 20472	4k7 5% 0.1W
3521	4822 051 10102	1k 2% 0.25W
3522	4822 051 10102	1k 2% 0.25W
3524	4822 051 20008	0Ω jumper . (0805)
3525	4822 117 10833	10k 1% 0.1W
3527	4822 117 10834	47k 1% 0.1W
3600	4822 051 20472	4k7 5% 0.1W
3601	4822 051 20472	4k7 5% 0.1W
3602	4822 051 20472	4k7 5% 0.1W
3603	4822 117 10837	100k 1% 0.1W
3604	4822 117 11449	2k2 5% 0.1W 0805
3605	4822 051 20472	4k7 5% 0.1W
3606	4822 051 20561	560Ω 5% 0.1W
3607	4822 051 20562	5k6 5% 0.1W 0805
3608	4822 117 10837	100k 1% 0.1W
3609	4822 051 20822	8k2 5% 0.1W
3610	4822 051 20472	4k7 5% 0.1W
3611	4822 051 20472	4k7 5% 0.1W
3612	4822 117 10833	10k 1% 0.1W
3613	4822 117 12955	2k7 1% 0.1W 0805
3614	4822 117 10833	10k 1% 0.1W
3615	4822 117 11152	4Ω7 5%
3616	4822 051 20472	4k7 5% 0.1W
3617	4822 117 10833	10k 1% 0.1W
3618	4822 117 10361	680Ω 1% 0.1W
3619	4822 117 10833	10k 1% 0.1W
3620	4822 051 10008	0Ω 5% 0.25W
3621	4822 051 20472	4k7 5% 0.1W
3622	4822 117 10833	10k 1% 0.1W
3623	4822 117 11139	1k5 1% 0.1W
3624	4822 117 10833	10k 1% 0.1W
3625	4822 051 10102	1k 2% 0.25W
3628	4822 117 11139	1k5 1% 0.1W
3999	4822 117 12842	
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)
~		
5400	4822 157 70601	100μH (920927085A)
→		
6300	4822 130 10185	UDZS5.6B
6301	4822 130 83757	BAS216
6302	4822 130 83757	BAS216
6303	4822 130 83757	BAS216
6306	4822 130 11528	1PS76SB10
6307	4822 130 11528	1PS76SB10
6308	4822 130 11528	1PS76SB10
6309	4822 130 11383	BZX284-C5V1
6400	4822 130 10845	GP1F32T
⊗		
7300	4822 130 60373	BC856B
7301	5322 130 60159	BC846B
7302	5322 130 60159	BC846B
7303	5322 130 60159	BC846B
7304	9322 134 86668	LF 80C
7305	9322 135 58671	IC SM STV6410AD (ST00) Y
7306	5322 130 60159	BC846B
7307	5322 130 60159	BC846B
7308	5322 130 60159	BC846B
7309	5322 130 60159	BC846B
7310	5322 130 60159	BC846B
7311	5322 130 60159	BC846B
7312	4822 130 60373	BC856B
7313	5322 130 60159	BC846B
7314	4822 130 42804	BC817-25
7315	4822 130 42804	BC817-25
7316	4822 209 16256	TDA4780/V4
7320	5322 130 60159	BC846B
7321	4822 130 42804	BC817-25
7322	5322 130 60159	BC846B
7324	4822 130 42804	BC817-25
7325	5322 130 60159	BC846B
7326	4822 130 60373	BC856B
7327	5322 130 60159	BC846B

7328	5322 130 60159	BC846B
7329	5322 130 60159	BC846B
7330	5322 130 60159	BC846B
7331	4822 130 40981	BC337-25
7332	4822 130 60373	BC856B
7333	4822 130 41246	BC327-25
7334	5322 130 60159	BC846B
7335	5322 130 60159	BC846B
7336	4822 130 42804	BC817-25
7337	4822 130 42804	BC817-25
7400	4822 209 17398	LD1117DT33
7401	4822 209 17423	UAD1328T
7402	4822 130 42804	BC817-25
7403	4822 209 32071	MC33079D
7404	4822 130 42804	BC817-25
7405	4822 130 42804	BC817-25
7406	4822 130 42804	BC817-25
7407	4822 130 42804	BC817-25
7408	4822 209 32071	MC33079D
7409	4822 130 42804	BC817-25
7410	4822 130 42804	BC817-25
7411	4822 130 42804	BC817-25
7412	4822 130 42804	BC817-25
7413	5322 209 14481	HEF4053BT
7414	4822 209 30095	LM833D
7415	4822 130 42804	BC817-25
7416	4822 130 42804	BC817-25
7417	4822 130 60373	BC856B
7419	4822 130 42804	BC817-25
7420	4822 130 42804	BC817-25
7421	4822 130 42804	BC817-25
7422	4822 130 44568	BC557B
7423	5322 130 60159	BC846B

YUV ext.PCB

Various

1000	2422 025 16525	CON BM V 16P F 1.00 FFC 0.3 R
1001	2422 025 16525	CON BM V 16P F 1.00 FFC 0.3 R
1002	2422 025 16526	CON BM V 22P F 1.00 FFC 0.3 R
1003	2422 025 16526	CON BM V 22P F 1.00 FFC 0.3 R
1007	2422 026 05049	CON BM CINCH H 3P F

-II-

2000	4822 124 81151	22μF 50V
2001	4822 124 40207	100μF 20% 25V
2002	4822 124 40207	100μF 20% 25V
2010	4822 126 14494	22nF 10% 25V 0603
2012	4822 126 14494	22nF 10% 25V 0603

-III-

3000	4822 117 11152	4Ω7 5%
3002	4822 051 30103	10k 5% 0.062W
3003	4822 051 30472	4k7 5% 0.062W
3005	4822 051 30472	4k7 5% 0.062W
3006	4822 051 30472	4k7 5% 0.062W
3007	4822 051 30472	4k7 5% 0.062W
3008	4822 051 30472	4k7 5% 0.062W
3011	4822 051 30272	2k7 5% 0.062W
3026	4822 051 30759	75Ω 5% 0.062W
3034	5322 117 12487	1k RC12G 1% 0.125W
3036	5322 117 13018	1k0 1% 0.063W 0603 RC22H
3038	4822 051 30759	75Ω 5% 0.062W
3039	4822 117 12635	10Ω 1% 0.125W
3040	4822 117 11139	1k5 1% 0.1W
3042	2120 108 93474	RST SM 0805 ERJ6ΩN 75Ω PM1
3043	2120 108 92619	RST SM0805 ERJ6ΩN 2k2PM1
3044	5322 117 12487	1k RC12G 1% 0.125W
3045	5322 117 12487	1k RC12G 1% 0.125W
3048	5322 117 13018	1k0 1% 0.063W 0603 RC22H
3051	4822 051 30759	75Ω 5% 0.062W
3052	2120 108 92616	RST SM 0805 ERJ6ΩN 1k2 PM1
3053	5322 117 12487	1k RC12G 1% 0.125W
3054	5322 117 12487	1k RC12G 1% 0.125W
3055	4822 117 11953	560Ω 1% 0.1W
3056	2	

4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

5000	4822 242 10756	DSS306-92Y5S221M100
5001	4822 242 10756	DSS306-92Y5S221M100
5002	4822 242 10756	DSS306-92Y5S221M100

→+

6000	4822 130 83757	BAS216
6001	4822 130 83757	BAS216



7000	4822 130 42804	BC817-25
7001	4822 130 60373	BC856B
7002	5322 130 60159	BC846B
7400	4822 209 90332	MC79L05ABD
7401	9322 141 80668	AD8073