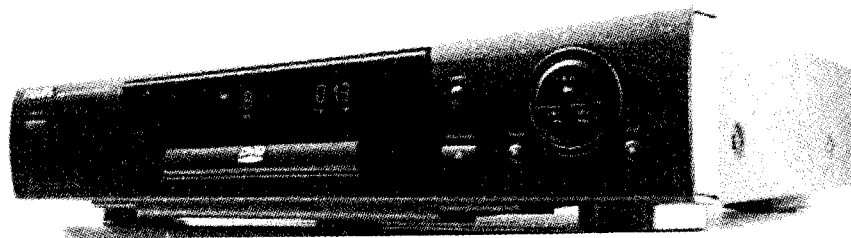
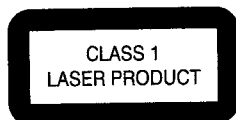


Service
Service
Service



CL06532021_000.eps
230200

Service Manual



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PHILIPS

1. Technical specifications

Specifications DVD711/001

PLAYBACK SYSTEM

DVD-Video
Video CD
CD (CD-R and CD-RW)

OPTICAL READOUT SYSTEM

Lasertype	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	

TV STANDARD

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

VIDEO FORMAT

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

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
RGB output	1 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

Dolby Pro Logic downmix from AC-3 multi-channel 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
	fs 48 kHz	4 Hz - 22 kHz
Video CD	fs 48 kHz	4 Hz - 22 kHz
	fs 44.1 kHz	4 Hz - 20 kHz
Signal-Noise (1kHz)		103 dB
Dynamic Range (1kHz)		98 dB
Crosstalk (1kHz)		115 dB
Distortion and Noise (1kHz)		95 dB

CONNECTIONS

SCART	Euroconnector 2x
S-Video Output	Mini DIN, 4 pins
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
Digital Output	1 coaxial, 1 optical IEC958 for CDDA / LPCM IEC1937 for MPEG1/2 ,AC-3 and DTS

CABINET

Dimensions(w x h x d)	435 x 92 x 320 mm
Weight	Approx. 4 Kg

PACKAGE CONTENTS

DVD-Video Player
Remote Control & Batteries
AC Power cable
User Manual
SCART cable (Euroconnector)
Audio/Video cable

GENERAL FUNCTIONALITY

Stop / Play / Pause
Fast Forward / Backward
Time search
Step Forward / Backward
Slow
Title / Chapter / Track Select
Skip Next / Skip Previous
Repeat (Chapter / Title / All) or (Track / All)
A-B Repeat
Shuffle
Enhanced ease of use graphical interface
Perfect Still with digital multi-tap filter
Zoom (x1.33, x2, x4) with picture enhancement
3D Sound
Virtual jog shuttle
Audio and video bit rate indicator* (only available in certain countries)

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 Root Menu)
Resume (5 discs) after stop / standby
Screen Saver (Dim 75% after 15 min.)
Programming Titles/chapters with Favorite Selection

VIDEO CD FUNCTIONALITY

Playback Control for VCD 2.0 discs
Parental Control and Disc lock
Resume (5 discs) after stop / standby
Screen Saver (Dim 75% after 15 min.)
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

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

** equivalent to 500 lines on your TV

Specifications subject to change without prior notice

Specifications DVD751/001

PLAYBACK SYSTEM

DVD-Video
Video CD
CD (CD-R and CD-RW)

OPTICAL READOUT SYSTEM

Lasertype	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	

TV STANDARD

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

VIDEO FORMAT

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

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
RGB	1 Vpp into 75 ohm
Black Level Shift	On/Off
Video Shift	Left/Right

AUDIO FORMAT

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

Analog Sound Stereo
Dolby Pro Logic downmix from AC-3 multi-channel 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 48 kHz	4 Hz - 22 kHz
	fs 44.1 kHz	4 Hz - 20 kHz
Signal-Noise (1kHz)		103 dB
Dynamic Range (1kHz)		98 dB
Crosstalk (1kHz)		115 dB
Distortion and Noise (1kHz)		95 dB
Headphone	30mW at 32 Ohm load, headphone imp. 8-2k Ohm	

CONNECTIONS

SCART	2 Euroconnector
S-Video Output	Mini DIN, 4 pins
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
Digital Output	1 coaxial, 1 optical IEC958 for CDDA / LPCM IEC1937 for MPEG1, MPEG2 and AC-3 DTS
Headphone	6.3 mm Jack
Cinematiclink	on SCART

CABINET

Dimensions (w x h x d)	435 x 92 x 320mm
Weight	Approx. 4 Kg

PACKAGE CONTENTS

DVD-Video Player
Remote Control & Batteries
AC Power cord
Instruction for Use
Audio cable
Video cable
SCART cable

GENERAL FUNCTIONALITY

Stop / Play / Pause
Fast Forward / Backward
Time search
Step Forward / Backward
Slow
Title / Chapter / Track Select
Skip Next / Skip 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
Personal Color settings (Smart Picture)
Cinematiclink interconnection for plug&play
3D Sound
Virtual Jog Shuttle
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
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VIDEO CD FUNCTIONALITY

Playback Control for VCD 2.0 discs
Disc Lock
Resume (5 discs) after stop / standby
Screen Saver (Dim 75% after 15 min.)
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

* typical playing time for movie with 2 spoken languages and 3 subtitle languages.
** equivalent to 500 lines on your TV

Specifications subject to change without prior notice

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.



(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 enfilez 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).

Unvorsichtige 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 longevita potrebbe essere fortemente ridatta in caso di non osservazione della piu 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.

(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.

(NL)

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

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio idetici 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:	SemiconductorlaserGaAlAs
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 NÄKYMÄTT ÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSET SEN
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

Note:

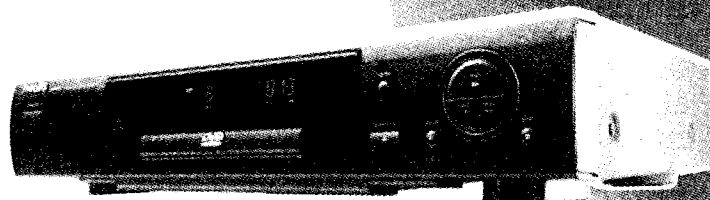
The screws on the basic Engine (position 218 in on the exploded viewdrawing) may never be touched removed or re-adjusted.

Handle the Basic engine with care when the unit has to be exchanged!

The mechanism of the basic engine is very sensitive for dropping or shocks

3. Directions for use

DVD Video player
DVD711



Let's make things better.

 PHILIPS

Important Note

DK

Advarsel:
Laserrudstråling ved åbning når sikkerhedsafbrydere er ude af funktion.
Undgå u tsættelse for stråling.

Bemærk:

Netafbryderen POWER er sekundært indkoblet og afbryder ikke strømmen fra nettet. Den indbyggede netdel er derfor tilsluttet til lysnettet så længe netstikket sidder i stikkontakten.

N

Observer:
Nettbryteren POWER er sekundært innkoplet. Den innebygdenetdelen er derfor ikke frakoplet nettet så længe apparatet er tilsluttet nettkontakten.

S

Klass 1 laserapparater

Varning!

Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kann användaren utsättas för laserstrålning, som överskrider gränsen för laserklass 1.

Observera!

Strömbrytaren POWER är sekundärt kopplad och inte bryter strömmen från nätet. Den inbyggda nåtdelen är därför ansluten till elnätet så länge stickproppen sitter i v ägguttaget.

SF

Luokan 1 laserlaitte + Klass 1 laserapparater

Varoitus!

Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle lasersäteille.

Huom.

Toiminnanvalitsin POWER on kytketty toisipuolelle, eikä se kytke laitetta irti sähköverkosta. Sisäänrakennettu verkko-osa on kytketty sähköverkkoon aina silloin, kun pistoke on pistorasiasassa.

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Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories. Confidential Unpublished Works. © 1992 - 1997 Dolby Laboratories, Inc. All rights reserved.

Important Note for Users in the UK

Mains plug

This apparatus is fitted with an approved 13 Amp plug. To change a fuse in this type of plug proceed as follows:

- 1 Remove fuse cover and fuse.
- 2 Fix new fuse which should be a BS1362 5 Amp, A.S.T.A. or BSI approved type.
- 3 Refit the fuse cover.

If the fitted plug is not suitable for your socket outlets, it should be cut off and an appropriate plug fitted in its place. If the mains plug contains a fuse, this should have a value of 5 Amp. If a plug without a fuse is used, the fuse at the distribution board should not be greater than 5 Amp.

Note: The severed plug must be disposed of to avoid a possible shock hazard should it be inserted into a 13 Amp socket elsewhere.

How to connect a plug

The wires in the mains lead are coloured with the following code: blue = neutral (N), brown = live (L).

As these colours may not correspond with the colour markings identifying the terminals in your plug, proceed as follows:

- Connect the blue wire to the terminal marked N or coloured black.
- Connect the brown wire to the terminal marked L or coloured red.
- Do not connect either wire to the earth terminal in the plug, marked E (or e) or coloured green (or green and yellow).

Before replacing the plug cover, make certain that the cord grip is clamped over the sheath of the lead - not simply over the two wires.

Copyright in the U.K.

Recording and playback of material may require consent. See Copyright Act 1956 and The Performer's Protection Acts 1958 to 1972.

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The region code for this set is 2.



Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes and discs can have an optional region code. If you load a disc of a different region code to your player, you will see the region code notice on the screen. The disc will not play and should be unloaded.

NOTE:
PICTURES SHOWN MAYBE DIFFERENT BETWEEN COUNTRIES.

NEVER MAKE OR CHANGE CONNECTIONS WITH THE POWER SWITCHED ON.

CAUTION

VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM (WARNING LOCATION: INSIDE ON LASER COVERSHEILD)

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

TruSurround™
with **SRS**

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

NEVER MAKE OR CHANGE CONNECTIONS WITH THE POWER SWITCHED ON.



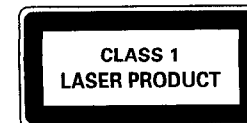
The DVD-VIDEO player is in conformity with the EMC directive and low-voltage directive.

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 BETRÄKTA EJ STRÅLEN
VARO! AVATTIASSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTERYLLE ÄLÄ KATSO SÄTEESSEN
VOORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEOFFNET 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

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
Serial No. _____



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Introduction

Entertainment for the new millennium

Video was never like this before! Digital video discs provide perfect digital, studio-quality pictures; three dimensional digital, multi-channel audio; story sequences screened from your choice of camera angle; sound tracks in as many as eight languages; and up to 32 subtitles (if available on disc). Whether you watch DVD-Video on wide-screen or regular TV, you always see it the way it was meant to be.

Digital video

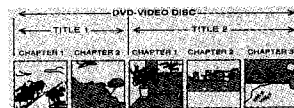
DVD-Video uses state-of-the-art MPEG2 data compression technology to register an entire movie on a single 5-inch disc. DVD's variable bitrate compression, running at up to 9.8 Mbits/second, captures even the most complex pictures in their original quality. The crystal-clear digital pictures have a horizontal resolution of over 500 lines, with 720 pixels (picture elements) to each line. This resolution is more than double that of VHS, superior to Laser Disc, and entirely comparable with digital masters made in recording studios. DVD-Video discs conform to either the PAL or NTSC video standard. This player can play both PAL and NTSC discs, presenting them in the best possible way on your multi-standard TV screen. As the universal video system of the future, DVD-Video offers optimal pictures on any TV screen.

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. What's more, Philips Child Lock lets you decide which discs your children will be able to see. 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). You will find the On-Screen Display, player display, and remote control make the player easy to use. This manual provides all the information you will need, so read on!

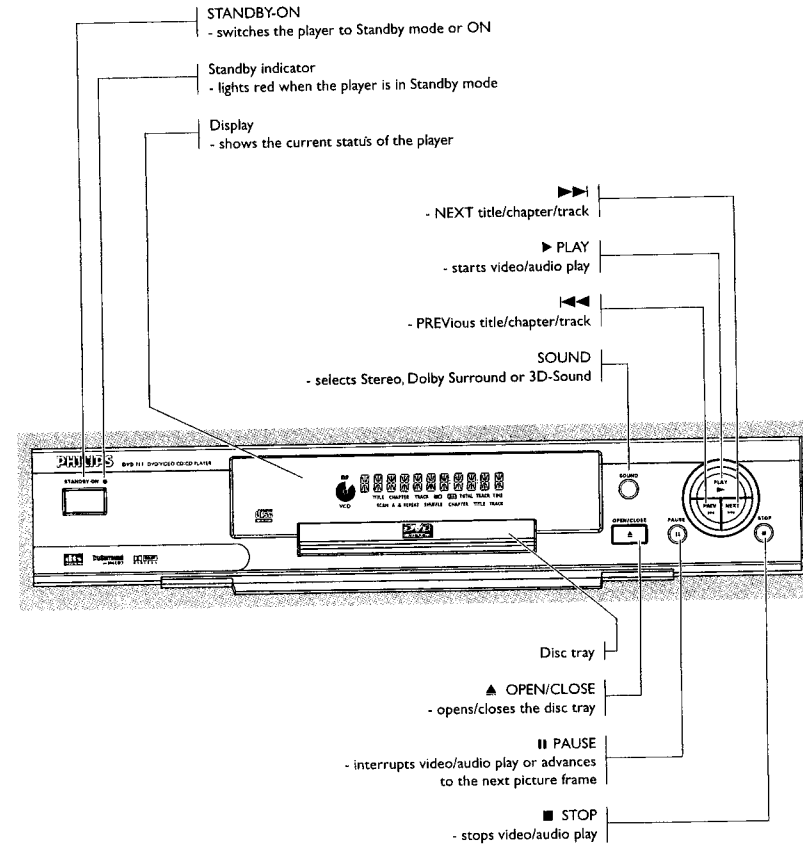
DVD-Video

You will recognize DVD-Video discs by the logo shown on left. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more Titles. Each Title may have one or more Chapters. To make playback easy and convenient, your player lets you select Titles and playback Chapters.



Functional overview

Front panel



Video CD



You will recognize Video CDs by the logo shown at left. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more tracks. Tracks may have one or more indexes, as indicated on the disc case. To make playback easy and convenient, your player lets you select tracks and indexes.

SuperVCD

SVCD discs based on the Super-VCD IO Standard based on the Standard of the Electronics Industry of the People's Republic of China.

Audio CD



Audio CDs contain music tracks only. You will recognize Audio CDs by their logo which is shown at left. You can play them in conventional style through a stereo system, using the keys on the remote control and/or front panel, or via the TV using the On-Screen Display (OSD).

Unpacking

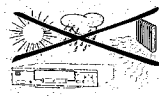
First check and identify the contents of your DVD-Video player package. You should have the following items.

- DVD-Video player
- Remote Control with batteries
- AC power cord
- Audio/Video cable
- SCART cable
- Instructions for use

If any item is damaged or missing, contact your retailer or Philips.

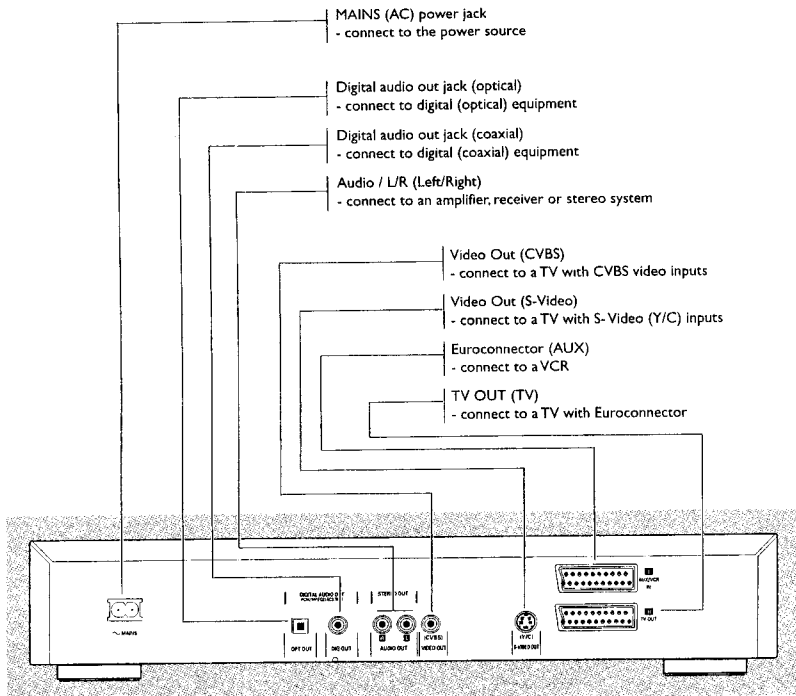
Keep the packaging materials; you may need them to transport your player in the future.

Placement



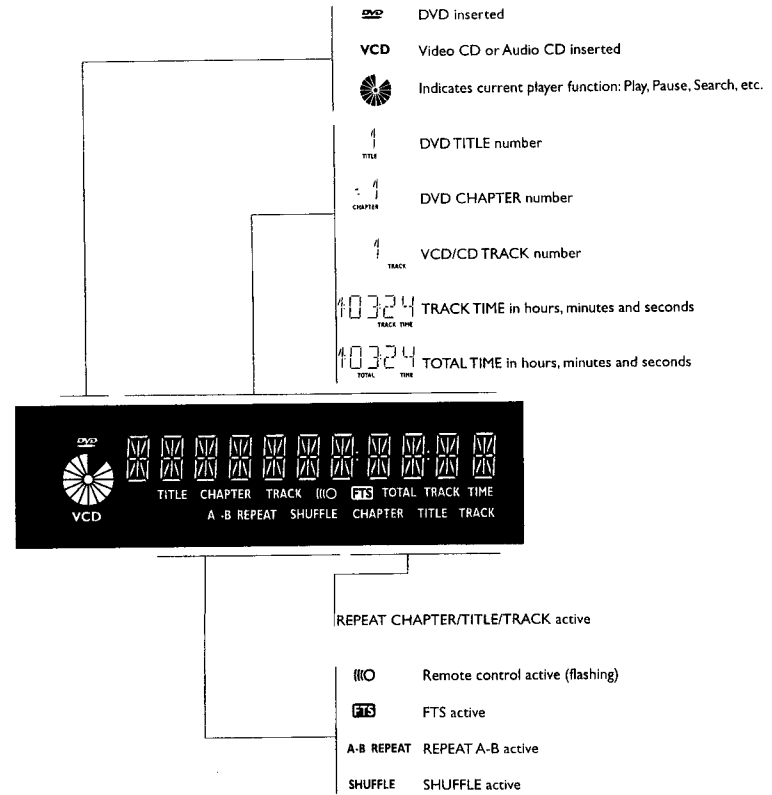
- Place the player on a firm, flat surface.
- Keep the player away from domestic heating equipment and direct sunlight.
- In a cabinet, allow about 2.5 cm (1 inch) of free space all around the player for adequate ventilation.
- If the DVD-Video player cannot read CDs/DVDs correctly, use a commonly available 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 DVD-Video player in a warm environment until the moisture evaporates.

Rear panel



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

Display



Remote control

0-9 numerical key pad

RETURN

- go back to previous menu

OK

- acknowledge menu selection

◀ ▶ ▽ ▲

- (left/right/up/down) cursor movement

◀◀ ▶▶

- search backward* / previous chapter or track

■

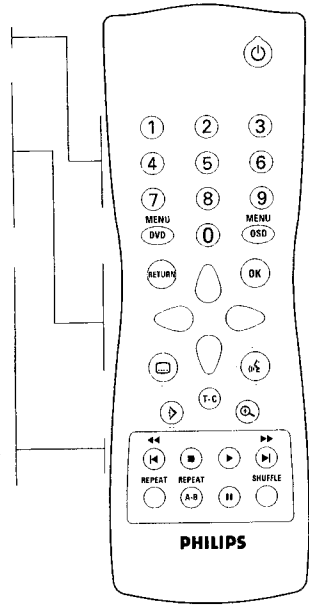
- stop

▶

- play

▶▶ ▶▶

- search forward* / next chapter or track



STANDBY-ON (ON-OFF)

MENU DVD
- access menu of a DVD

MENU OSD
- access or remove On-screen display
- bit rate indicator* (only visible in certain countries)

☐ - subtitle language selector

🗣️ - audio language selector

T - select title

C - select chapter

🔍 - enlarge video image

> - select DVD camera angle

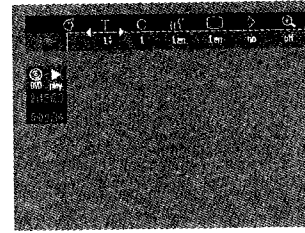
REPEAT
- repeat chapter, track, title, disc

REPEAT A-B
- repeat sequence

SHUFFLE
- playback tracks in random order

⏸️
- pause playback temporarily / frame-by-frame playback

On screen display information



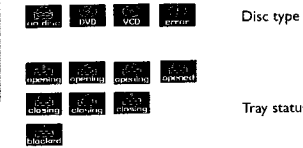
Menu bar/Status window

- ⚙️ Personal Preferences
- T Title/Track
- C Chapter/Index
- 🗣️ Audio language
- ☐ Subtitle language
- > Angle
- 🔍 Zoom
- 📄 Video Program
- 🔊 Sound
- ◀▶ Picture by Picture
- ⏪ Slow motion
- ⏩ Fast motion
- 🕒 Time search

Status window icons

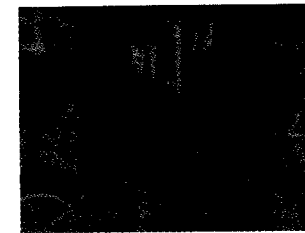
The status window displays the current status of the player and appears with the first part of the menu bar. (You must activate this in the Features Menu - see Personal Preferences for details).

General



Default screen

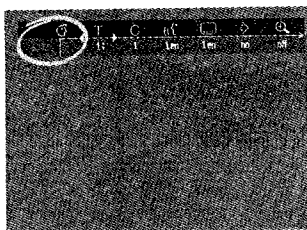
The default screen is displayed when the player is in STOP mode. It may contain a 'Status Window' and a 'Temporary Feedback Field'. This gives information concerning prohibited actions, playback modes, available angles, etc.
















* Press key for about 1 second

Preparation

Temporary Feedback Field icons



-  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

General notes

- Depending on your TV and other equipment you wish to connect, there are various ways you could connect the player. Possible connections are shown in the following drawings.
- Please refer to the manuals of your TV, VCR, Stereo System or other devices as necessary to make the best connections.
- Do not connect your DVD-player via your VCR. The video quality could be distorted by the copy protection system.
- For better sound reproduction, connect the player's audio out jacks to the audio in jacks of your amplifier, receiver, stereo or A/V 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.

Connecting to a TV

- Connect the Euroconnector to the corresponding connector on the TV using the Euroconnector cable supplied (A).

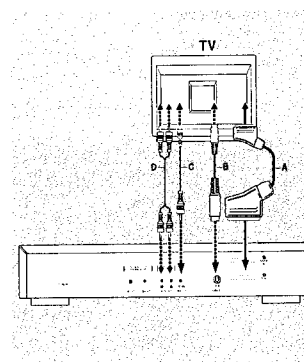
If your TV is not equipped with a Euroconnector you can select one of the following alternative connections:

S-Video (Y/C) connection

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

Video CVBS connection

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



Connecting to optional equipment

Connecting to an amplifier equipped with two channel analog stereo

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

Connecting to an amplifier equipped with two channel digital stereo (PCM)

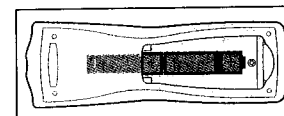
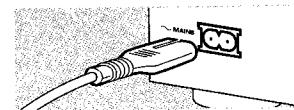
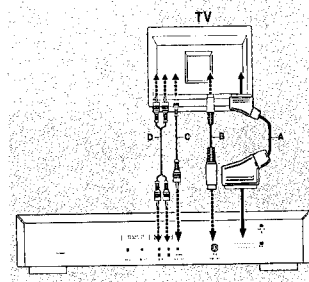
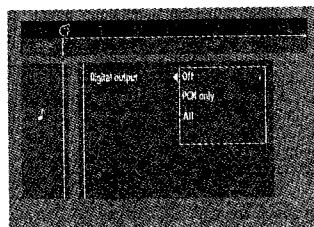
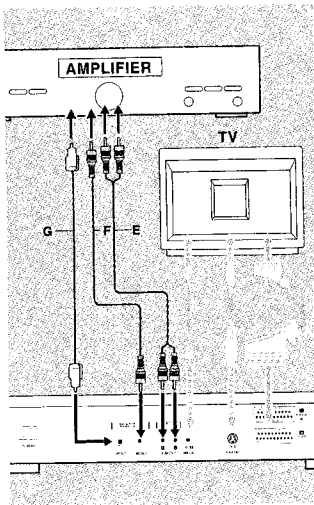
- 1 Connect the player's digital audio out jack (optical G or coaxial F) to the corresponding in jack on your amplifier. Use an optional digital (optical G or coaxial F) audio cable.
- 2 You will need to activate the player's digital output (see 'Personal Preferences').

Connecting to an A/V receiver equipped with a multi-channel decoder (Dolby Digital™ (AC-3), MPEG 2 and DTS)

Digital Multi-channel sound
 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), AC3 and DTS). Check the receiver manual and the logos on the front of the receiver.

- 1 Connect the DVD player's digital audio output (optical G or coaxial F) to the corresponding input on the receiver using an optional digital (optical G or coaxial F) audio cable.
- 2 You will need to activate the player's digital output (see 'Personal Preferences').

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 Menu OSD is activated or Audio button is activated. 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 MENU OSD or the Audio Language selector button.



Connecting to an amplifier equipped with Dolby Surround™

Dolby Surround sound

- 1 Connect the player to the TV, then connect the player's audio Left and Right out jacks to the corresponding in jacks on the Dolby Surround™ Audio/Video receiver, using the audio/video cable supplied (D).

If your amplifier is equipped with a Dolby Digital™ decoder,

- Connect the player as described in 'Connecting to an A/V receiver with multi-channel decoder'.

If your TV is equipped with a Dolby Surround™ decoder,

- Connect the player to the TV as described in 'Connecting to a TV'.

Connecting the power cord

- 1 Plug the female end of the supplied power cord into the Mains (AC) jack on the rear of the player.
- 2 Connect the other end of the cord to an AC outlet.

Note: When the player is in the "STANDBY" mode, it is still consuming some power. If you wish to disconnect your player completely from the power, unplug the power cord from the AC outlet.

Caution: Only qualified service personnel should remove the cover or attempt to service this device.

Remote control battery installation

Loading the batteries

- 1 Open the battery compartment cover.
- 2 Insert batteries as indicated inside the battery compartment.
- 3 Close the cover.

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

NTSC/PAL Settings

You can switch the NTSC/PAL setting 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 setting to PAL or NTSC, follow the steps below.

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

General explanation

About this manual

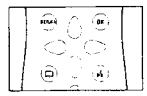
This manual gives the basic instructions for operating this DVD player. Some DVDs require specific operation or allow only limited operation during playback. In these cases, the player may not respond to all operating commands. When this occurs, please refer to the instructions contained with the DVD. When the symbol X appears on the TV screen, the operation is not permitted by the player or the disc.

Remote control operation

- Unless otherwise 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 in the path of the infrared beam. When there are corresponding keys on the front panel of the player, they 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 any of the following keys on the remote control: MENU OSD, T-C, Angle, Audio Language, Subtitle Language and Zoom.
- The following functions are available via the menu bar:
 - [Icon] Personal Preferences
 - [Icon] Title/Track
 - [Icon] Chapter/Index
 - [Icon] Audio language
 - [Icon] Subtitle language
 - [Icon] Angle
 - [Icon] Zoom
 - [Icon] Video Program
 - [Icon] Sound
 - [Icon] Picture by Picture
 - [Icon] Slow motion
 - [Icon] Fast motion
 - [Icon] Time search
- The various items can be selected by pressing the MENU OSD button, then the ∇/Δ keys or by pressing relevant keys on the remote control.
- Pressing MENU OSD while the menu bar is displayed will clear the menu bar from the screen.
- When selecting an item in the menu bar, the selected item will be highlighted and the appropriate cursor keys to operate this item will be displayed below the icon.
- < or > indicates that more items are available at the left/right of the menu bar. Press < or > to select these items.



Turning On the power

- 1 Switch on the TV and select the video input channel for your DVD-Video player.
- 2 Press ON button.



Initial Setup

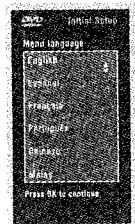
General

In 'Initial Setup' you may have to set your preferences for some of the player's features. *(not applicable for all models)*

Operation

After switching on the player for the very first time, the 'Initial Setup Screen' will appear. The menu for the first item to be set is displayed and the first option is highlighted.

- Use the ∇/Δ keys to go through the options in the menu. The icon of the selected option will be highlighted.
- Use OK to confirm your selection and to go to the next menu.



Note: Preferences have to be set in the order in which the item menus will appear on the screen. The 'Initial Setup' screen will only disappear after the settings for the last item have been confirmed. If any keys other than ∇/Δ or OK are pressed X, will appear on the screen. If the player is switched off while setting personal preferences, all preferences have to be set again after switching the player on again.

The following items may have to be set in Initial Setup:

Menu language

The On Screen Menus will be displayed in the language you choose. You can choose from different languages.

Audio language

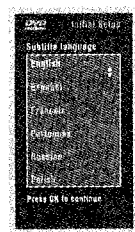
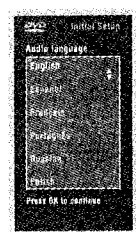
The sound will be in the language you choose if it is available on the disc in play. If the language you select is not available, speech will revert to the first spoken language on the disc. You can choose from different languages.

Subtitle language

The subtitles will be in the language you choose if it is available on the disc in play. If the language you select is not available, subtitles will revert to the first subtitle language on the disc. You can choose from different languages.

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 top and bottom, or Pan Scan, for a full-height picture with the sides trimmed. If a disc has Pan Scan, the picture then moves (scans) horizontally to keep the main action on the screen.



Country






Select your country. This also is used as input for the 'Parental Control' feature (see 'Access Control').

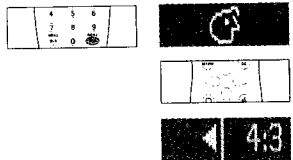
Note: All these items may have to be set during 'Initial Setup'. After that, they can always be changed in the Personal Preferences Menu.

Personal Preferences

You can set your personal preferences for some of the player features.

General operation:

- Press MENU OSD on the remote control.
- Select  in the menu bar.
 - The Personal Preferences menu appears.
- Use the     keys to toggle through the menus, submenus and submenu options.
 - When a menu item is selected, the cursor keys (on the remote control) to operate the item are displayed next to the item.
- Press **OK** to confirm and return to the main menu.



The following items can be adapted:

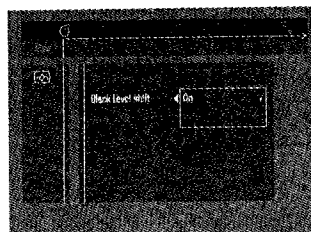
Picture

-TV Shape

See 'Initial Setup'

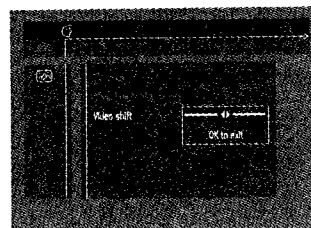
- Black level shift (NTSC only)

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 scrolling it to the left or right.



Sound

- Digital output

Factory setting: ALL. This means that both coaxial and optical outputs are switched 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). Both coaxial and optical outputs are switched on.

- Analog output

Select Stereo, Dolby Surround or 3D sound.

- Night Mode

Optimizes the dynamics of the sound with low volume playback.

- 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 to a normal stereo sound.

Language

Select the required Menu, Audio and Subtitle language. See 'Initial Setup'. Audio language and Subtitle language can also be adapted via the Menu bar on the screen.

Features

- Access Control

Access Control contains the following features:

Child Lock - When Child Lock is set to ON, a 4-digit code needs to be entered in order to play discs.

Parental control - Allows the conditional presentation of DVDs containing Parental Control information (see 'Access Control').

- Status Window

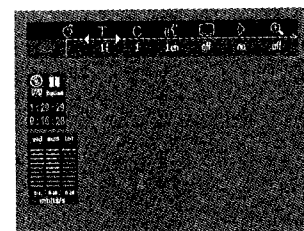
Displays the current status of the player and is displayed with the menu bar.

When disc playback is stopped, it is displayed with the 'Temporary Feedback Field' in the default screen. See 'On-Screen Display information'.

Factory setting is ON. Select OFF to suppress display of the Status Window.

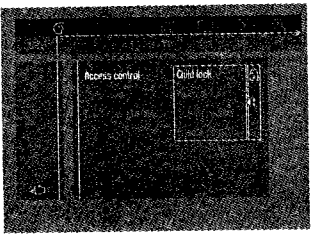
- Bit Rate Indicator (only available for certain countries)

When activated, the bit rate for video, audio as well as total bit rate is displayed. This is only applicable during playback of DVD & SVCD discs.



Access control; child lock (DVD and VCD)

Activating/deactivating the child lock

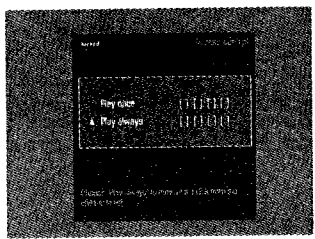


- 1 When disc playback is stopped, select Access Control in the features menu using the ∇/Δ keys.
- 2 Enter a 4-digit code of your own choice.
- 3 Enter the code a second time.
- 4 Move to "Child Lock" using the ∇/Δ keys.
- 5 Move to LOCK/UNLOCK using the ▷ key.
- 6 Select LOCK using the ∇/Δ keys.
- 7 Press OK or < to confirm, then press < 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 disc'.
 - The 'child protect' dialog will appear.
- You will be asked to enter your secret code for 'Play Once' or 'Play Always'. If you select 'Play Once', the disc can be played as long as it is in the player and the player is ON. If you select 'Play 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 'Play 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.

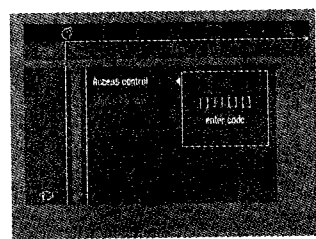
Multi-volume VCDs may have a different ID for each volume. In order to make the complete set 'child safe', each volume has to be authorized.

Deauthorizing discs

- Insert the disc. See 'Loading disc'.
 - Playback starts automatically.
- Press ■ while ☺ is visible.
 - The ☺ will appear and the disc is now deauthorized.

Access control; Parental control (DVD-Video only)

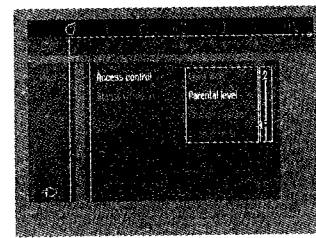
Movies on DVDs may contain scenes not suitable for children. Therefore, disc may contain 'Parental Control' information which applies to the complete disc or to certain scenes on the disc. These scenes are rated from 1 to 8, and alternative, more suitable scenes are available on the disc. Ratings are country dependent. The 'Parental Control' feature allows you to prevent discs from being played by your children or to have certain discs played with alternative scenes.



Activating/Deactivating Parental Control

1. When disc playback is stopped, select Access Control in the features menu using the ∇/Δ keys.
- 2 Enter your 4-digit code. If necessary, enter the code a second time.
- 3 Move to Parental Control using the ∇/Δ keys.
- 4 Move to Value Adjustment (1-8) using the ▷ key.
- 5 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, play will stop and the 4-digit code has to be entered.

- 6 Press OK or < to confirm, then press < again to exit the menu.

Country

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ∇/Δ keys.
- 2 Enter the 4-digit code.
- 3 Move to **CHANGE COUNTRY** using the ∇ key.
- 4 Press the ▷ key.
- 5 Select a country using ∇/Δ.
- 6 Press OK or < to confirm, then press < again to exit the menu.

Operation

Changing the 4-digit code

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

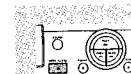
Note: If you forget your 4 digit code, it can be cancelled by pressing \blacksquare four times in the 'Access Control' dialog. You can then enter a new code (twice!) as described above.

Parental Control Disclaimer

This DVD player features the PARENTAL CONTROL system which is intended to activate when playing DVD discs furnished 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 disc which is not furnished 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 basis Philips cannot guarantee functioning of the PARENTAL CONTROL system 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.



Loading discs

- 1 Press **OPEN/CLOSE** on the front of the player. The disc tray opens.
- 2 Load your chosen disc in the tray, label side up (also when a double sided DVD is inserted). Make sure it is sitting properly in the correct recess.
- 3 Gently push the tray, or press **OPEN/CLOSE**, to close the tray.

\triangleright **READY** 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-video disc

Playing a title

- \triangleright After inserting the disc and closing the tray, playback starts automatically and the status window and the player display show the type of disc loaded, as well as information about the disc's contents 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 , $\triangleleft/\triangleright$ keys to highlight your selection, then press OK.
- \triangleright The currently playing title and chapter number are displayed in the menu bar and the player display.

The elapsed playing time is shown in the status window and the player display.

- If required, you can use the **Sound** key to select Stereo, Dolby Surround or 3D-Sound. Play may stop at the end of the Title, and the player may return to the DVD menu. To go on to the next title, press \triangleright .
- To stop play at any other time, press \blacksquare .
 - \triangleright The default screen will appear, giving information about the current status of the player.
- You can resume play from the point at which you stopped play. Press \triangleright : when you see the Resume icon \blacktriangleright on the screen, press \triangleright again.
 - \triangleright 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 \triangleright ; when you see the Resume icon \blacktriangleright on the screen, press \triangleright again.

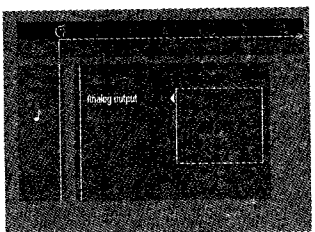
Note: Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes. Discs can have an optional region code. If you load a disc of a different region code into your player, you will see the region code notice on the screen. The disc will not play and should be removed from the player.

Playing a Video CD



Playing a disc

- After inserting the disc and closing the tray, playback starts automatically and the status window and the player display show the type of disc loaded, as well as information about the disc's contents 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.
 - The currently playing track number is displayed in the menu bar and the player display. The elapsed playing time is shown in the status window and the player display.
 - If required, you can use the **SOUND** key to select Stereo, Dolby Surround or 3D-Sound.
 - To stop play at any time, press **■**.
 - The default screen will then appear.
 - You can resume play from the point at which you stopped play. Press **▶**; when you see the Resume icon on the screen **▶**, press **▶** again.
- 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 **▶**; when you see the Resume icon **▶** on the screen, press **▶** again.



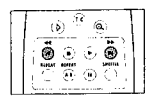
General features

Note: Unless stated otherwise, all operations described are based on remote control operation. A number of operations can also be carried out via the menu bar on the screen (see 'Menu bar operation').



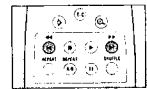
Moving to another title/TRACK

- When a disc has more than one title or track (which you can see from both the menu bar and the player display), you can move to another title as follows:
- Press **T-C** (title/chapter), then press **▶|** briefly during play to select the next title/track.
 - Press **T-C** (title/chapter), then press **|◀** briefly during play to return to the beginning of the current title/track. Press **|◀** twice briefly to step back to the previous title/track.



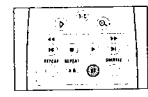
Moving to another chapter/index

- When a title on a disc has more than one chapter or a track has more than one index (which you can see from the player display and on the menu bar), you can move to another chapter/index as follows:
- Press **▶|** briefly during play to select the next chapter/index.
 - Press **|◀** briefly during play to return to the beginning of the current chapter/index. Press **|◀** twice briefly to step back to the previous chapter/index.
 - To go directly to any chapter or index, select **T-C** (title/chapter), then enter the chapter/index number using the numerical keys (0-9).



Note: If the number has more than one digit, press the keys in rapid succession.

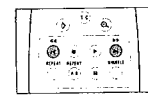
Still Picture and Frame-by-frame playback



- 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.

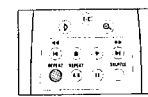
Search



- Select **⏏** (Fast motion) in the menu bar.
- Use the **▽** keys to enter the Fast Motion menu.
- Use the **◀ ▶** keys to select the required speed: -32, -8 or -4 (backward), or +4, +8, +32 (forward).
- Select 1 to play at normal speed again.
- To exit Fast Motion mode, press **▶** or **△**.

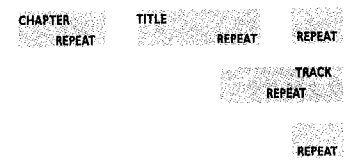
To search forward or backward through different speeds, you can also hold down **◀◀** or **▶▶**.

Repeat



DVD-Video Discs - Repeat chapter/title/disc

- To repeat the currently playing chapter, press **REPEAT**.
 - **REPEAT CHAPTER** appears on the player 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.

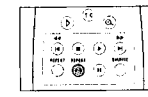


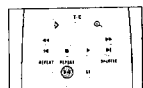
Video CDs - Repeat track/disc

- To repeat the track currently playing, press **REPEAT**.
 - **REPEAT TRACK** appears on the player 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.

Repeat A-B

- To repeat a sequence in a title:
- Press **REPEAT A-B** at your chosen starting point;
 - **A-** appears briefly on the screen.
 - Press **REPEAT A-B** again at your chosen end point;
 - **A-B REPEAT** appears briefly on the display, and the repeat sequence begins (**A-B REPEAT** is displayed on the front panel of the player).
 - To exit the sequence, press **REPEAT A-B**.





A-B REPEAT



SHUFFLE

Shuffle

DVD-Video discs

This shuffles the playing order of chapters within a title, if the title has more than one.

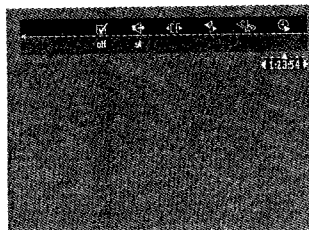
- Press **SHUFFLE** during play.
 - **SHUFFLE** appears on the screen for about 2 seconds.
- To return to normal play, press **SHUFFLE** again.

Video CDs

This shuffles the playing order of the tracks, if the disc has more than one.

- Press **SHUFFLE** during play.
 - **SHUFFLE** appears on the screen for about 2 seconds.
- To return to normal play, press **SHUFFLE** again.

Time search



The Time Search function allows you to start playing at any chosen time on the disc.

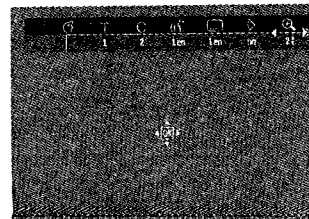
- Select **Time Search** in the menu bar.
- Press **▽**.
 - The player will now go into **PAUSE** mode.
 - A time edit box appears on the screen, showing the elapsed playing time of the current disc.
- Use the digit keys to enter the required start time. Enter hours, minutes and seconds from left to right in the box.
 - Each time an item has been entered, the next item will be highlighted.
- Press **OK** to confirm the start time.
 - The time edit box will disappear and play starts from the selected time position on the disc.

Zoom

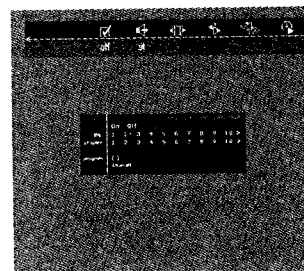


The Zoom function allows you to enlarge the video image and to pan through the enlarged image.

- Select **Zoom** in the menu bar.
- Press **▽/△** to activate the **ZOOM** function and select the required zoom factor: 1.33 or 2 or 4.
 - The player will go into Pause mode.
 - The selected zoom factor appears below the Zoom icon in the menu bar and 'Press OK to pan' appears below the menu bar.
 - The picture will change accordingly.
- Press **OK** to confirm the selection.
 - The panning icons appear on the screen: **△ ▽ ◀ ▶** and **OK**.
- Use the **△ ▽ ◀ ▶** keys to pan across the screen.
- When **OK** is pressed only the zoomed picture will be shown on the screen.
- If you wish to zoom at any moment, press **Zoom** and select the required zoom factor as described above.
- To exit Zoom mode:
 - Press **▶**.
 - Playback will resume.
 - Press **STOP, MENU OSD**.



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.
- Each FTS program can contain 20 items (titles, chapters).
- Each time an FTS program is played it will be placed on top of the list. When the list is full and a new program is added, the last program in the list will be removed from the list.
- The selections can be called up and played at any time.

Storing a FTS-Video Program

- In **STOP** mode, 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 **◀** or **▶** 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 **◀** or **▶** to select the required chapter number.
- Press **OK** to confirm the selection.
 - The title/chapter selection will be added to the list of selections.
- Press **MENU OSD** to exit the **Video FTS** menu.

Erasing a FTS-Video Program

- In **STOP** mode, select **Video FTS** in the menu bar.
- Use **▽** to select **PROGRAM**.
- Use **◀** or **▶** to select the required selection number.
- Press **OK** to erase the selection.
- Press **MENU OSD** to exit.

If you wish to erase all selections:

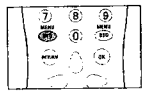
- In **STOP** mode, select **Video FTS** in the menu bar.
- Use **▽** to select **CLEAR ALL**.
- Press **OK**.
 - All selections will now be erased.
- Press **MENU OSD** to exit.

Special DVD features

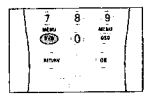
Checking the contents of DVD-Video discs: Menu

For titles and chapters, selection menus may be included on the disc. The DVD's menu feature allows you to make selections from these menus. Press the appropriate numerical key; or use the ∇ , Δ , \triangleright , \triangleleft keys to highlight your selection, then press **OK**.

Title menu



- Press **MENU DVD**.
 - ▶ If the current title has a menu, the menu will appear on the screen. If no menu is present in the title, 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 **MENU DVD** again.



Disc menu

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

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 in the angle icon.
 - ▶ After a small delay, play changes to the selected angle. The angle icon remains displayed until multiple angles are no longer available.

Changing the audio language



- Select **ii** (Audio) in the menu bar.
- Press **ii** or ∇/Δ repeatedly to see the different languages.

Subtitles



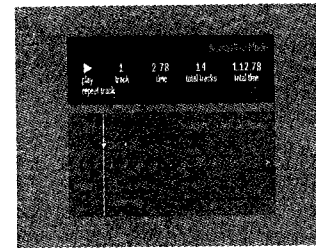
- Select **iii** (Subtitle) in the menu bar.
- Press **iii** or ∇/Δ repeatedly to see the different subtitles.

Special VCD-Features

Playback Control (PBC)

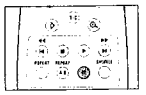
- Load a Video CD with PBC and press \triangleright .
- Go through the menu with the keys indicated on the TV screen until your chosen passage starts to play. If a PBC menu consists of a list of titles, you can select a title directly.
- Enter your choice with the numerical keys (0-9).
- Press **RETURN**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

Playing an audio CD



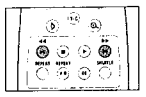
- After loading the disc, playback starts automatically.
- If the TV is on, the Audio CD screen appears.
- The number of tracks and the total playing time will be shown on the screen.
- During play, the current track number and its elapsed playing time will be shown on the screen and on the player display.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

Pause



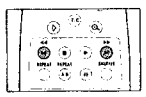
- Press **II** during play.
- To return to play, press \triangleright .

Search

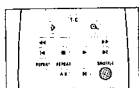


- To search forward or backward through the disc at four times normal speed, hold down \triangleleft or \triangleright for about one second during play.
 - ▶ Search begins, and sound is partially muted.
- To step up to eight times the normal speed, press \triangleleft or \triangleright again.
 - ▶ Search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

Moving to another track

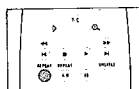


- Press \triangleright briefly during play to go to the next track.
- Press \triangleleft briefly during play to return to the beginning of the current track. Press \triangleleft twice briefly to step back to the previous track.
- To go directly to any track, enter the track number using the numerical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



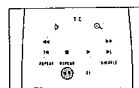
Shuffle

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



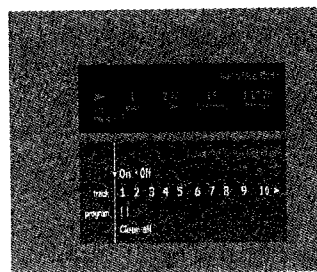
Repeat track/disc

- 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** 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-** appears on the player display.
 - Press **REPEAT A-B** again at your chosen end point;
 - ▶ **A-B** appears on the display, and the sequence begins to play repeatedly.
 - To exit the sequence, press **REPEAT A-B** again.



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 \leftarrow or \rightarrow to select tracks from the list.
 - ▶ To go directly to any track, enter the track number using the numerical keys (0-9).
- 4 Store each track by pressing **OK**.
 - ▶ The track numbers will be added to the list of selected tracks.
 - ▶ 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 play, or \triangle to go back to Stop mode. In either case, the FTS Program will be automatically memorized.

Switching FTS ON/OFF

- 1 Use Δ/∇ to move to the top.
- 2 Use \leftarrow or \rightarrow 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 \leftarrow or \rightarrow 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

- Use ∇ to select **Clear All**, then press **OK**.
 - ▶ The complete FTS Program for the disc will be erased.

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 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	Remedy
No power	Make sure the AC cord 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 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 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 by switching the player off, 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 for a few seconds.
Player does not respond to all operating commands during playback.	Operations are not permitted by the disc. Refer to the instructions of the disc.
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.



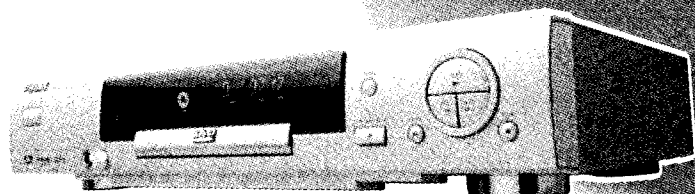
Cleaning discs

Some problems occur because the disc inside the player is dirty. To avoid these problems clean your discs regularly, in the following way:

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.

Caution: Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for analog discs.

DVD Video player
DVD751



Let's make things better

 **PHILIPS**

Important Note

DK

Advarsel:
Laserradstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

Bemærk:

Netafbryderen POWER er sekundært indkoblet og afbryder ikke strømmen fra nettet. Den indbyggede neddel er derfor tilsluttet til lysnettet så længe netstikket sidder i stikkontakten.

N

Observer:
Nettbryderen POWER er sekundært innkoblet. Den indbygdenetdelen er derfor ikke frakoblet nettet så længe apparatet er tilsluttet nettkontakten.

S

Klass 1 laserapparat

Varning!

Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kann användaren utsättas för laserstrålning, som överskrider gränsen för laserklass 1.

Observera!

Strömbrytaren POWER är sekundärt kopplad och inte bryter strömmen från nätet. Den inbyggda neddelen är därför ansluten till elnätet så länge stickproppen sitter i v äggtaget.

SF

Luokan 1 laserlaite + Klass 1 laserapparat

Varoitus!

Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainituilla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle lasersäteille.

Huom.

Toiminnanvalitsin POWER on kytketty toisiopuolelle, eikä se kytkä laitetta irti sähköverkosta. Sisäänrakennettu verkko-osa on kytkettyä sähköverkkoon aina silloin, kun pistoke on pistorasiassa.

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Important Note for Users in the UK

Mains plug

This apparatus is fitted with an approved 13 Amp plug. To change a fuse in this type of plug proceed as follows:

- 1 Remove fuse cover and fuse.
- 2 Fix new fuse which should be a BS1362 5 Amp, A.S.T.A. or BSI approved type.
- 3 Refit the fuse cover.

If the fitted plug is not suitable for your socket outlets, it should be cut off and an appropriate plug fitted in its place. If the mains plug contains a fuse, this should have a value of 5 Amp. If a plug without a fuse is used, the fuse at the distribution board should not be greater than 5 Amp.

Note: The severed plug must be disposed of to avoid a possible shock hazard should it be inserted into a 13 Amp socket elsewhere.

How to connect a plug

The wires in the mains lead are coloured with the following code: blue = neutral (N); brown = live (L).

As these colours may not correspond with the colour markings identifying the terminals in your plug, proceed as follows:

- Connect the blue wire to the terminal marked N or coloured black.
- Connect the brown wire to the terminal marked L or coloured red.
- Do not connect either wire to the earth terminal in the plug, marked E (or e) or coloured green (or green and yellow).

Before replacing the plug cover, make certain that the cord grip is clamped over the sheath of the lead - not simply over the two wires.

Copyright in the U.K.

Recording and playback of material may require consent. See Copyright Act 1956 and The Performer's Protection Acts 1958 to 1972.

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Remote Control Setup Codes For Television 360

The region code for this set is 2.



Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes and discs can have an optional region code. If you load a disc of a different region code to your player, you will see the region code notice on the screen. The disc will not play, and should be unloaded.

NOTE:
PICTURES SHOWN MAYBE DIFFERENT BETWEEN COUNTRIES.

NEVER MAKE OR CHANGE CONNECTIONS WITH THE POWER SWITCHED ON.

CAUTION
 VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM (WARNING LOCATION: INSIDE ON LASER COVERSIELD)

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

TruSurround™
 with **SRS**

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

NEVER MAKE OR CHANGE CONNECTIONS WITH THE POWER SWITCHED ON.

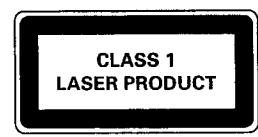
The DVD-VIDEO player is in conformity with the EMC directive and low-voltage directive.

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 ÅPNESS UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD BETRÄKTA EJ STRÅLEN
VARO! AVATTIASSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTELYLLE ÄLÄ KATSO SÄTEESSEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG WENN ABDECKUNG GEOFFNET 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

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 _____
 Serial No. _____



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Introduction

Entertainment for the new millennium

Video was never like this before! Digital video discs provide perfect digital, studio-quality pictures; three dimensional digital, multi-channel audio; story sequences screened from your choice of camera angle; sound tracks in as many as eight languages; and up to 32 subtitles (if available on disc). Whether you watch DVD-Video on wide-screen or regular TV, you always see it the way it was meant to be.

Digital video

DVD-Video uses state-of-the-art MPEG2 data compression technology to register an entire movie on a single 5-inch disc. DVD's variable bitrate compression, running at up to 9.8 Mbits/second, captures even the most complex pictures in their original quality.

The crystal-clear digital pictures have a horizontal resolution of over 500 lines, with 720 pixels (picture elements) to each line. This resolution is more than double that of VHS, superior to Laser Disc, and entirely comparable with digital masters made in recording studios.

DVD-Video discs conform to either the PAL or NTSC video standard. This player can play both PAL and NTSC discs, presenting them in the best possible way on your multi-standard TV screen.

As the universal video system of the future, DVD-Video offers optimal pictures on any TV screen.

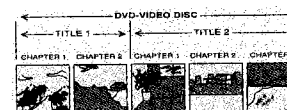
Introduction

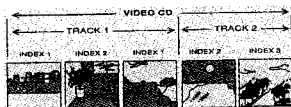
Your Philips DVD-Video player will play digital video discs conforming to the universal DVD-Video standard. With it, you will be able to enjoy full-length movies with true cinema picture quality, as well as stereo or multi-channel sound (depending on the disc and your playback setup). The unique features of DVD-Video, such as selection of sound track, subtitle languages and different camera angles (again depending on the disc), are all included. What's more, Philips Child Lock lets you decide which discs your children will be able to see.

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). You will find the On-Screen Display, player display, and remote control make the player easy to use. This manual provides all the information you will need, so read on!

DVD-Video

You will recognize DVD-Video discs by the logo shown on left. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more Titles. Each Title may have one or more Chapters. To make playback easy and convenient, your player lets you select Titles and playback Chapters.





Video CD

You will recognize Video CDs by the logo shown at left. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more tracks. Tracks may have one or more indexes, as indicated on the disc case. To make playback easy and convenient, your player lets you select tracks and indexes.

Super VCD

SVCD discs based on the SuperVCD IO Standard based on the Standard of the Electronics Industry of the People's Republic of China.

Audio CD

Audio CDs contain music tracks only. You will recognize Audio CDs by their logo which is shown at left. You can play them in conventional style through a stereo system, using the keys on the remote control and/or front panel, or via the TV using the On-Screen Display (OSD).



Unpacking

First check and identify the contents of your DVD-Video player package. You should have the following items.

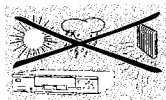
- DVD-Video player
- Remote Control with batteries
- AC power cord
- Audio/Video cable
- SCART cable
- Instructions for use

If any item is damaged or missing, contact your retailer or Philips.

Keep the packaging materials; you may need them to transport your player in the future.

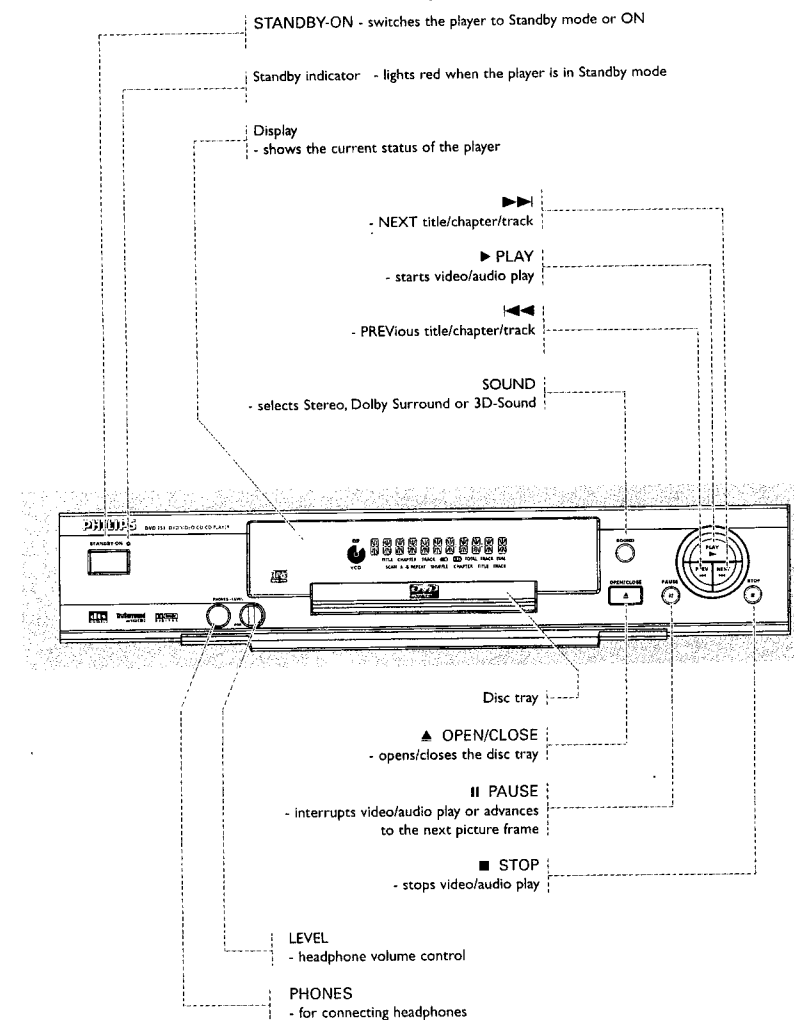
Placement

- 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 DVD-Video player in a warm environment until the moisture evaporates.

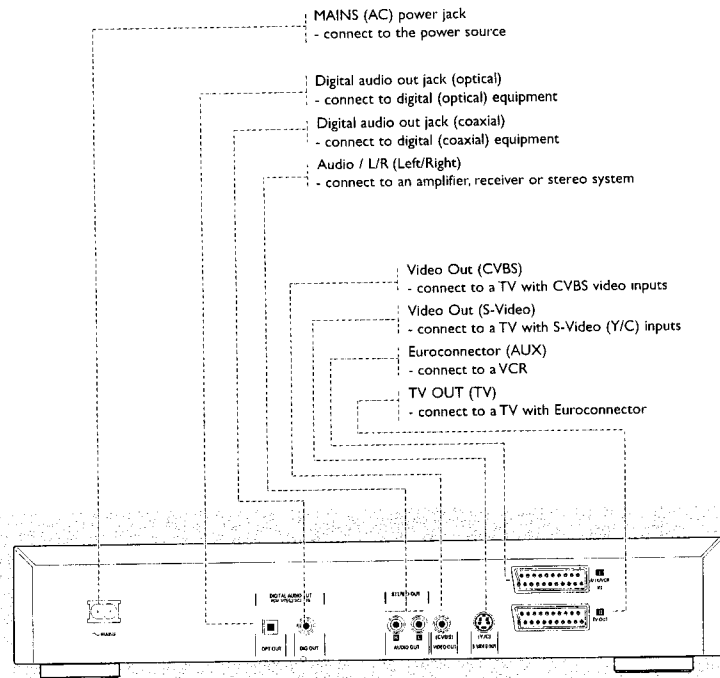


Functional overview

Front panel

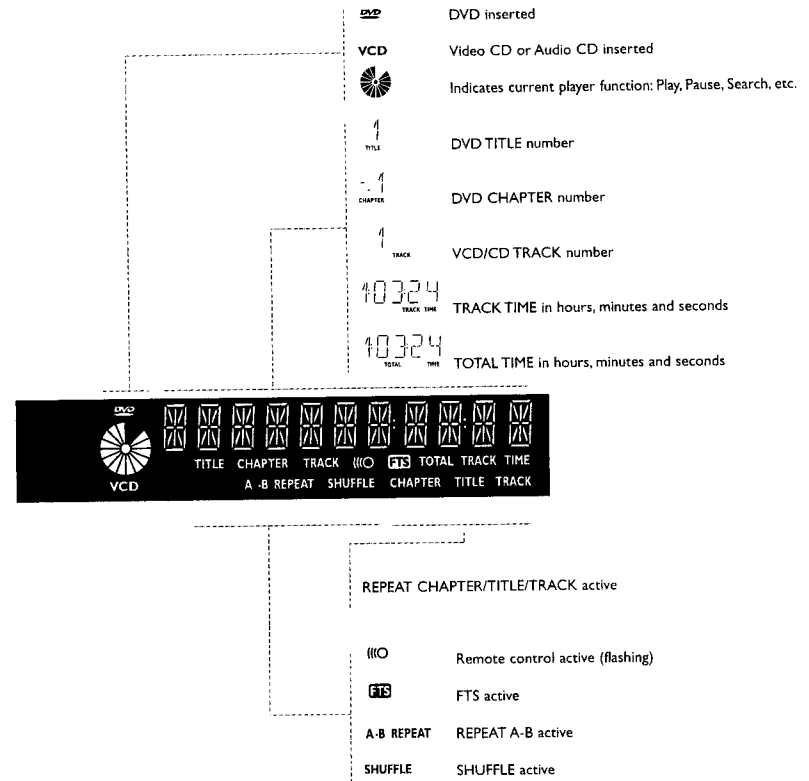


Rear panel



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

Display



Remote control (Universal)

TV MUTE

- DVD-mode: selects Stereo, Dolby Surround, 3D Sound reproduction
- TV-mode: mute ON/OFF

DVD/TV switch

- DVD mode/TV mode selector**



0-9 numerical key pad

RETURN

- go back to previous menu

OK

- acknowledge menu selection

- search backward* / previous chapter or track

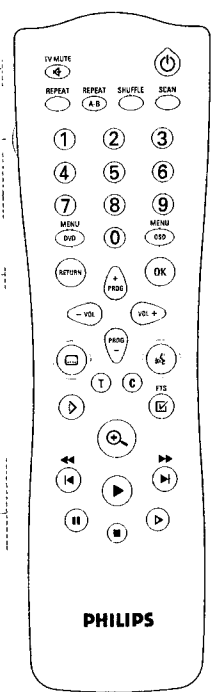
- play

- search forward* / next chapter or track

- pause playback temporarily / frame-by-frame playback

- stop

- slow motion



STANDBY-ON

REPEAT

- repeat chapter, track, title, disc

REPEAT A-B

- repeat sequence

SHUFFLE

- playback tracks in random order

SCAN

- playback of the first 10 seconds of each chapter within a title (DVD) or the first 10 seconds of each track on a disc (VCD/CD)

MENU DVD

- access menu of a DVD

MENU OSD

- access or remove On-screen display
- bit rate indicator**

PROG +/-

- DVD mode: up/down cursor movement
- TV mode: Program up/down

VOL +/-

- DVD mode: left/right cursor movement
- TV mode: Volume up/down

- subtitle language selector

- audio language selector

T

- select title

C

- select chapter

- activate FTS

- select DVD camera angle

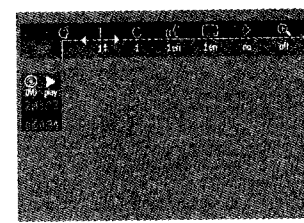
- enlarge video image

* Press key for about 1 second
 ** Press and hold while you press mute/VOL/PROG keys for compatible TVs
 Please refer to list of Remote Control Setup Codes For Television from page 360 to 363)

On screen display information

Menu bar/Status window

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



Status window icons

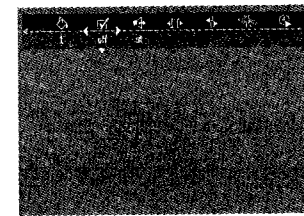
The status window displays the current status of the player and appears with the first part of the menu bar (You must activate this in the Features Menu - see Personal Preferences for details).

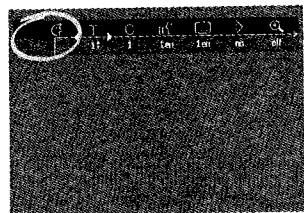
General

















Default screen

The default screen is displayed when the player is in STOP mode. It may contain a 'Status Window' and a 'Temporary Feedback Field'. This gives information concerning prohibited actions, playback modes, available angles, etc.





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

Preparation

General notes

- Depending on your TV and other equipment you wish to connect, there are various ways you could connect the player. Possible connections are shown in the following drawings. Please refer to the manuals of your TV, VCR, Stereo System or other devices as necessary to make the best connections.
- Do not connect your DVD-player via your VCR. The video quality could be distorted by the copy protection system.
- For better sound reproduction, connect the player's audio out jacks to the audio in jacks of your amplifier, receiver, stereo or A/V 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.

Connecting to a TV

- Connect the Euroconnector to the corresponding connector on the TV using the Euroconnector cable supplied (A).

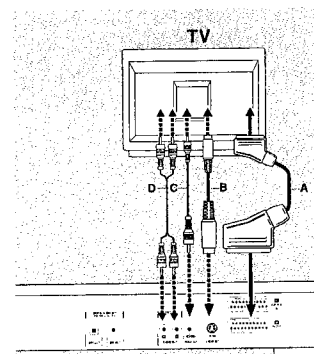
If your TV is not equipped with a Euroconnector you can select one of the following alternative connections:

S-Video (Y/C) connection

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

Video CVBS connection

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



Connecting to optional equipment

Connecting to an amplifier equipped with two channel analog stereo

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

Connecting to an amplifier equipped with two channel digital stereo (PCM)

- 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').

Connecting to an A/V receiver equipped with a multi-channel decoder (Dolby Digital™(AC-3), MPEG 2 and DTS)

Digital Multi-channel sound
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.

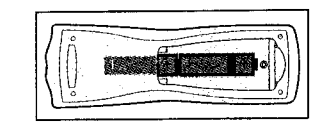
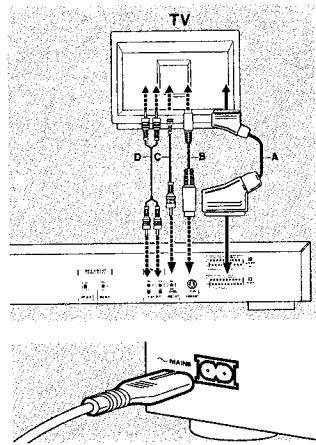
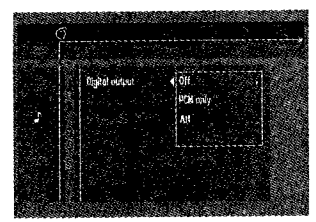
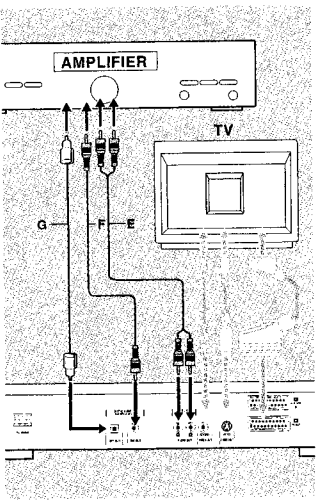
- 1 Connect the DVD player's digital audio output (optical G or coaxial F) to the corresponding input on the receiver using an optional digital (optical G or coaxial F) audio cable.
- 2 You will need to activate the player's digital output (see 'Personal Preferences').

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 Menu OSD is activated or Audio button is activated. 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 MENU OSD or the Audio Language selector button.

Cinematiclink

This DVD player is equipped with cinematiclink feature (from Philips) which allows a more complete control of your home audio/video (AV) equipment.

Cinematiclink interconnection plug & play will enable the AV system to recognise the users intention and automatically switch the necessary controls or input source accordingly. This will reduce the necessity of having multiple control inputs for all AV equipments (eg. TV and Amplifier).



Connecting to an amplifier equipped with Dolby Surround™

- 1 Connect the player to the TV, then connect the player's audio Left and Right out jacks to the corresponding in jacks on the Dolby Surround™ Audio/Video receiver, using the audio/video cable supplied (D).

If your amplifier is equipped with a Dolby Digital™ decoder,

- Connect the player as described in 'Connecting to an A/V receiver with multi-channel decoder'.

If your TV is equipped with a Dolby Surround™ decoder,

- Connect the player to the TV as described in 'Connecting to a TV'.

Connecting the power cord

- 1 Plug the female end of the supplied power cord into the Mains (AC) jack on the rear of the player.
- 2 Connect the other end of the cord to an AC outlet.

Note: When the player is in the "STANDBY" mode, it is still consuming some power. If you wish to disconnect your player completely from the power, unplug the power cord from the AC outlet.

Caution: Only qualified service personnel should remove the cover or attempt to service this device.

Remote control battery installation

Loading the batteries

- 1 Open the battery compartment cover.
- 2 Insert batteries as indicated inside the battery compartment.
- 3 Close the cover.

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


NTSC/PAL Settings

You can switch the NTSC/PAL setting 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 setting to PAL or NTSC, follow the steps below.

- 1 Unplug the DVD player from the mains.
- 2 Press and hold **■** and **▶▶|** on the front of the DVD player. While holding **■** and **▶▶|**, plug in the mains.
- 3 After PAL or NTSC appears on the display panel of the DVD player, release **■** and **▶▶|** at the same time. The PAL or NTSC that appears on the display panel indicates the current setting.
- 4 To change the setting, press **▶▶|** 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 this DVD player. Some DVDs require specific operation or allow only limited operation during playback. In these cases, the player may not respond to all operating commands. When this occurs, please refer to the instructions contained with the DVD. When the symbol  appears on the TV screen, the operation is not permitted by the player or the disc.

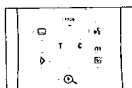
Remote control operation

- Unless otherwise 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 in the path of the infrared beam.

When there are corresponding keys on the front panel of the player, they 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 any of the following keys on the remote control: MENU OSD, T, C, Angle, Audio Language, Subtitle Language and Zoom.
- The following functions are available via the menu bar:
 -  Personal Preferences
 -  Title/Track
 -  Chapter/Index
 -  Audio language
 -  Subtitle language
 -  Angle
 -  Zoom
 -  Color Setting (Smart Picture)
 -  Video Program
 -  Sound
 -  Picture by Picture
 -  Slow motion
 -  Fast motion
 -  Time search
- The various items can be selected by pressing the **MENU OSD** button, then the ∇/Δ keys or by pressing relevant keys on the remote control.
- Pressing **MENU OSD** while the menu bar is displayed will clear the menu bar from the screen.
- When selecting an item in the menu bar, the selected item will be highlighted and the appropriate cursor keys to operate this item will be displayed below the icon.
- \leftarrow or \rightarrow indicates that more items are available at the left/right of the menu bar. Press \leftarrow or \rightarrow to select these items.



Turning On the power

- 1 Switch on the TV and select the video input channel for your DVD Video player.
- 2 Press **ON** button.



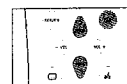
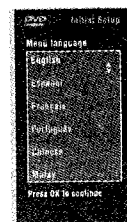
Initial Setup (Virgin Mode)

General

In 'Initial Setup' you may have to set your preferences for some of the player's features. (not applicable for all models)

Operation


After switching on the player for the very first time, the 'Initial Setup Screen' will appear. The menu for the first item to be set is displayed and the first option is highlighted.



- Use the ∇/Δ keys to go through the options in the menu. The icon of the selected option will be highlighted.
- Use **OK** to confirm your selection and to go to the next menu.

Note: Preferences have to be set in the order in which the item menus will appear on the screen.

The 'Initial Setup' screen will only disappear after the settings for the last item have been confirmed.

*If any keys other than ∇/Δ or **OK** are pressed,  will appear on the screen.*

If the player is switched off while setting personal preferences, all preferences have to be set again after switching the player on again.

The following items may have to be set in Initial Setup: Menu language

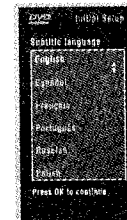
The On Screen Menu will be displayed in the language you choose. You can choose from different languages.

Audio language

The sound will be in the language you choose if it is available on the disc in play. If the language you select is not available, speech will revert to the first spoken language on the disc. You can choose from different languages.

Subtitle language

The subtitles will be in the language you choose if it is available on the disc in play. If the language you select is not available, subtitles will revert to the first subtitle language on the disc. You can choose from different languages.



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 top and bottom, or Pan Scan, for a full-height picture with the sides trimmed. If a disc has Pan Scan, the picture then moves (scans) horizontally to keep the main action on the screen.

Country






Select your country. This also is used as input for the 'Parental Control' feature (see 'Access Control').

Note: All these items may have to be set during 'Initial Setup'. After that, they can always be changed in the Personal Preferences Menu.

Personal Preferences

You can set your personal preferences for some of the player features.

General operation:

- Press **MENU OSD** on the remote control.
- Select  in the menu bar:
 - The Personal Preferences menu appears.
- Use the     keys to toggle through the menus, submenu and submenu options.
 - When a menu item is selected, the cursor keys (on the remote control) to operate the item are displayed next to the item.
- Press **OK** to confirm and return to the main menu.

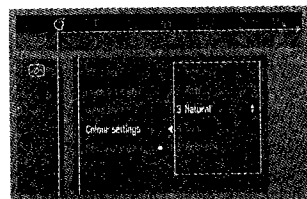
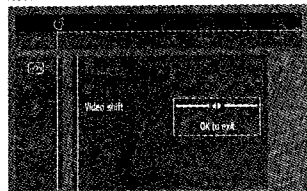
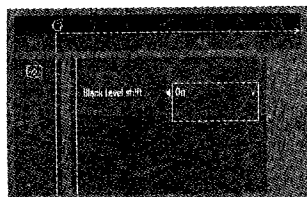
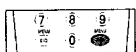
The following items can be adapted:

Picture

- **TV Shape**
See 'Initial Setup'
- **Black level shift (NTSC 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 scrolling it to the left or right.



- Color settings (SCART connection)

You can select one of five predefined sets of color settings (SCART connection only) and one set (Personal) which you can define yourself.

- Personal color

Allows you to fine-tune the selected color settings (SCART connection only) saturation, brightness and contrast.

Sound

- Digital output

Factory setting: ALL. This means that both coaxial and optical outputs are switched 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). Both coaxial and optical outputs are switched on.

- Analog output

Select Stereo, Dolby Surround or 3D sound.

- Night Mode

Optimizes the dynamics of the sound with low volume playback.

- 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 to a normal stereo sound.

Language

Select the required Menu, Audio and Subtitle language. See 'Initial Setup'. Audio language and Subtitle language can also be adapted via the Menu bar on the screen.

Features

- Access Control

Access Control contains the following features:

- Child Lock - When Child Lock is set to ON, a 4-digit code needs to be entered in order to play discs.
- Parental control - Allows the conditional presentation of DVDs containing Parental Control information (see 'Access Control').

- Status Window

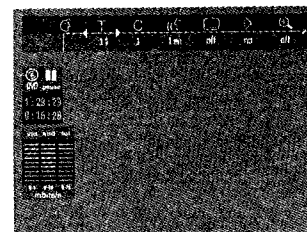
Displays the current status of the player and is displayed with the menu bar. When disc playback is stopped, it is displayed with the 'Temporary Feedback Field' in the default screen. See 'On-Screen Display' information; Factory setting is ON. Select OFF to suppress display of the Status Window.

- Bit Rate Indicator

When activated, the bit rate for video, audio as well as total bit rate is displayed. This is only applicable during playback of DVD and SVCD disc.

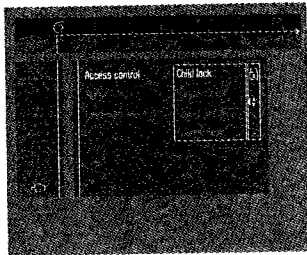
- Beeper (only available in certain countries)

The beeper can be set to ON or OFF.



Access control; child lock (DVD and VCD)

Activating/deactivating the child lock

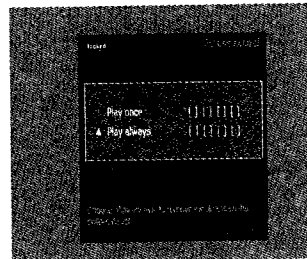


- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ∇/Δ keys.
- 2 Enter a 4-digit code of your own choice.
- 3 Enter the code a second time.
- 4 Move to "Child Lock" using the ∇/Δ keys.
- 5 Move to **LOCK/UNLOCK** using the \triangleright key.
- 6 Select **LOCK** using the ∇/Δ keys.
- 7 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 disc'.
 - ▶ The 'child protect' dialog will appear.
 You will be asked to enter your secret code for 'Play Once' or 'Play Always.' If you select 'Play Once', the disc can be played as long as it is in the player and the player is ON. If you select 'Play Always', the disc will become child safe (authorized) and can always be played, even if the Child Lock is set to ON.

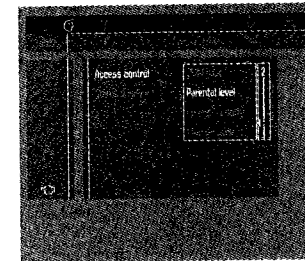
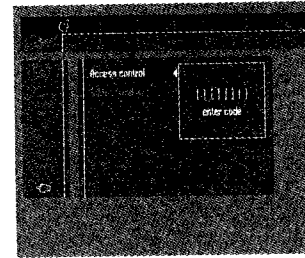
Notes: The player memory maintains a list of 50 authorized ('Child safe') disc titles. A disc will be placed in the list when 'Play Always' is selected in the 'child protect' dialog. Each time a 'child safe' disc is played, it will be placed on top of the list. When the list is full and a new disc is 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.

Deauthorizing discs

- Insert the disc. See 'Loading disc'.
 - ▶ Playback starts automatically.
- Press \blacksquare while \odot is visible.
 - ▶ The \odot will appear and the disc is now deauthorized.



Access control; Parental control (DVD-Video only)

Movies on DVDs may contain scenes not suitable for children. Therefore, disc may contain 'Parental Control' information which applies to the complete disc or to certain scenes on the disc. These scenes are rated from 1 to 8, and alternative, more suitable scenes are available on the disc. Ratings are country dependent. The 'Parental Control' feature allows you to prevent discs from being played by your children or to have certain discs played with alternative scenes.

Activating/Deactivating Parental Control

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ∇/Δ keys.
- 2 Enter your 4-digit code. If necessary, enter the code a second time.
- 3 Move to **Parental Control** using the ∇/Δ keys.
- 4 Move to **VALUE ADJUSTMENT** (1-8) using the \triangleright key.
- 5 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, play will stop and the 4-digit code has to be entered.

- 6 Press **OK** or \triangleleft to confirm, then press \triangleleft again to exit the menu.

Country

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

Operation

Changing the 4-digit code

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

Note: If you forget your 4 digit code, it can be cancelled by pressing \blacksquare four times in the 'Access Control' dialog. You can then enter a new code (twice!) as described above.

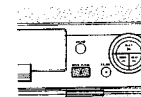
Parental Control Disclaimer

This DVD player features the PARENTAL CONTROL system which is intended to activate when playing DVD discs furnished 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 disc which is not furnished 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 basis Philips cannot guarantee functioning of the PARENTAL CONTROL system 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.



Loading discs

- 1 Press **OPEN/CLOSE** on the front of the player. The disc tray opens.
- 2 Load your chosen disc in the tray, label side up (also when a double sided DVD is inserted). Make sure it is sitting properly in the correct recess.
- 3 Gently push the tray, or press **OPEN/CLOSE**, to close the tray.

\triangleright **READY** 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-video disc

Playing a title

\triangleright After inserting the disc and closing the tray, playback starts automatically and the status window and the player display show the type of disc loaded, as well as information about the disc's contents 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 , $\triangleleft/\triangleright$ keys to highlight your selection, then press **OK**.

\triangleright The currently playing title and chapter number are displayed in the menu bar and the player display.

The elapsed playing time is shown in the status window and the player display.

- If required, you can use the **Sound** key to select Stereo, Dolby Surround or 3D-Sound. Play may stop at the end of the Title, and the player may return to the DVD menu. To go on to the next title, press \triangleright .
- To stop play at any other time, press \blacksquare .
 - \triangleright The default screen will appear, giving information about the current status of the player.
- You can resume play from the point at which you stopped play. Press \triangleright ; when you see the Resume icon \blacktriangleright on the screen, press \triangleright again.
 - \triangleright 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 \triangleright ; when you see the Resume icon \blacktriangleright on the screen, press \triangleright again.

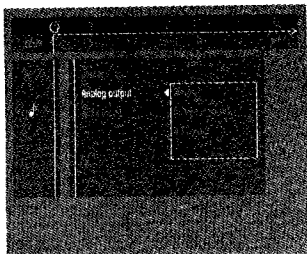
Note: Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes. Discs can have an optional region code. If you load a disc of a different region code into your player, you will see the region code notice on the screen. The disc will not play and should be removed from the player.



Playing a Video CD

Playing a disc

- After inserting the disc and closing the tray, playback starts automatically and the status window and the player display show the type of disc loaded, as well as information about the disc's contents 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.
- The currently playing track number is displayed in the menu bar and the player display. The elapsed playing time is shown in the status window and the player display.
- If required, you can use the **SOUND** key to select Stereo, Dolby Surround or 3D-Sound.
- To stop play at any time, press ■.
- The default screen will then appear.
- You can resume play from the point at which you stopped play. Press ► when you see the Resume icon on the screen ►, press ► again. 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 ► when you see the Resume icon ► on the screen, press ► again.



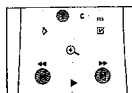
General features

Note: Unless stated otherwise, all operations described are based on remote control operation. A number of operations can also be carried out via the menu bar on the screen (see 'Menu bar operation').

Moving to another title/TRACK

When a disc has more than one title or track (which you can see from both the menu bar and the player display), you can move to another title as follows:

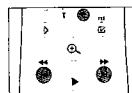
- Press T (title/track), then press ► briefly during play to select the next title/track.
- Press T (title/track), then press ◀ briefly during play to return to the beginning of the current title/track. Press ◀ twice briefly to step back to the previous title/track.



Moving to another chapter/index

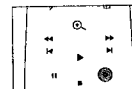
When a title on a disc has more than one chapter or a track has more than one index (which you can see from the player display and on the menu bar), you can move to another chapter/index as follows:

- Press ► briefly during play to select the next chapter/index.
- Press ◀ briefly during play to return to the beginning of the current chapter/index. Press ◀ twice briefly to step back to the previous chapter/index.
- To go directly to any chapter or index, select C (chapter/index), then enter the chapter/index number using the numerical keys (0-9).



Note: If the number has more than one digit, press the keys in rapid succession.

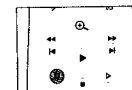
Slow Motion



- Select ◀ (Slow motion) in the menu bar.
- Use the ▽ keys to enter the Slow Motion menu.
 - The player will now go into PAUSE mode.
- Use the cursor keys ◀ ▸ to select the required speed: -1, -1/2, -1/4 or -1/8 (backward), or +1/8, +1/4, +1/2 or +1 (forward).
- Select 1 to play at normal speed again.
- If II is pressed, the speed will be set to zero (pause).
- To exit slow motion mode, press ► and △.

You can also select Slow Motion speeds by using the ▸ button on the remote control.

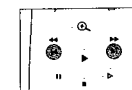
Still Picture and Frame-by-frame playback



- 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.

Search



- Select ◀ (Fast motion) in the menu bar.
- Use the ▽ keys to enter the Fast Motion menu.
- Use the ◀ ▸ keys to select the required speed: -32, -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 ►►.

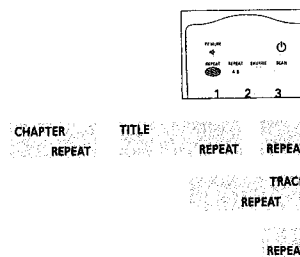
Repeat

DVD-Video Discs - Repeat chapter/title/disc

- To repeat the currently playing chapter, press REPEAT.
 - REPEAT CHAPTER appears on the player 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 player 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.



Repeat A-B

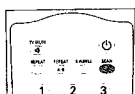
- To repeat a sequence in a title:
 - Press **REPEAT A-B** at your chosen starting point:
 - **A-** appears briefly on the screen.
 - Press **REPEAT A-B** again at your chosen end point:
 - **A-B REPEAT** appears briefly on the display, and the repeat sequence begins. (**A-B REPEAT** is displayed on the front panel of the player)
- To exit the sequence, press **REPEAT A-B**.



A-B REPEAT

Scan

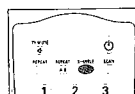
- Plays the first 10 seconds of each chapter/index on the disc.
- Press **SCAN**.
- To continue play at your chosen chapter/index, press **SCAN** again or press ▶.



SCAN

Shuffle

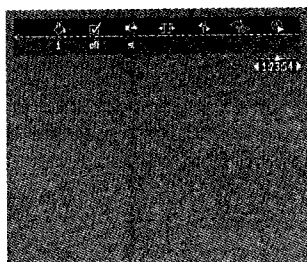
- **DVD-Video discs**
 - This shuffles the playing order of chapters within a title, if the title has more than one.
 - Press **SHUFFLE** during play.
 - **SHUFFLE** appears on the screen for about 2 seconds.
 - To return to normal play, press **SHUFFLE** again.
- **Video CDs**
 - This shuffles the playing order of the tracks, if the disc has more than one.
 - Press **SHUFFLE** during play.
 - **SHUFFLE** appears on the screen for about 2 seconds.
 - To return to normal play, press **SHUFFLE** again.



SHUFFLE

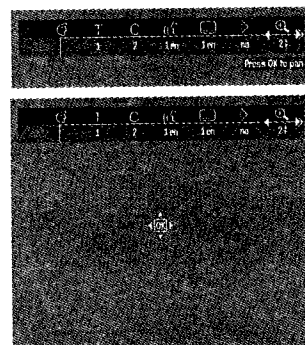
Time search

- The Time Search function allows you to start playing at any chosen time on the disc.
- Select **Time Search** in the menu bar.
- Press ▾.
 - The player will now go into **PAUSE** mode.
 - A time edit box appears on the screen, showing the elapsed playing time of the current disc.
- Use the digit keys to enter the required start time. Enter hours, minutes and seconds from left to right in the box.
 - Each time an item has been entered, the next item will be highlighted.
- Press **OK** to confirm the start time.
 - The time edit box will disappear and play starts from the selected time position on the disc.



Zoom

- The Zoom function allows you to enlarge the video image and to pan through the enlarged image.
- Select **Zoom** in the menu bar.
- Press **Zoom** to activate the ZOOM function and select the required zoom factor: 1.33 or 2 or 4.
 - The player will go into Pause mode.
 - The selected zoom factor appears below the Zoom icon in the menu bar and 'Press OK to pan' appears below the menu bar.



- The picture will change accordingly.
- Press **OK** to confirm the selection.
 - The panning icons appear on the screen: ▴ ▾ ◀ ▶ and **OK**.
- Use the ▴ ▾ ◀ ▶ keys to pan across the screen.
- When **OK** is pressed only the zoomed picture will be shown on the screen.
- If you wish to zoom at any moment, press **Zoom** (Zoom) and select the required zoom factor as described above.
- To exit Zoom mode:
 - Press ▶.
 - Playback will resume.
 - Press **STOP, MENU OSD**.

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.
- Each FTS program can contain 20 items (titles, chapters).
- Each time an FTS program is played it will be placed on top of the list. When the list is full and a new program is added, the last program in the list will be removed from the list.
- The selections can be called up and played at any time.

Storing a FTS-Video Program

- In STOP mode, 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

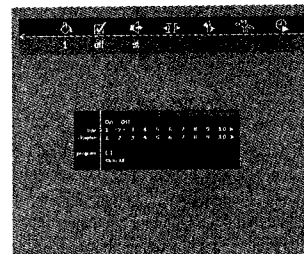
- Press ▾ on the selected title number.
 - The title number will be marked and the highlight moves to the first available chapter number for this title.
- Use ▶ and ◀ to select the required chapter number.
- Press **OK** to confirm the selection.
 - The title/chapter selection will be added to the list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

Erasing a FTS-Video Program

- In STOP mode, select **Video FTS** in the menu bar.
- Use ▾ to select **PROGRAM**.
- Use ▶ and ◀ to select the required selection number.
- Press **OK** to erase the selection.
- Press **MENU OSD** to exit.

If you wish to erase all selections:

- In STOP mode, select **Video FTS** in the menu bar.
- Use ▾ to select **CLEAR ALL**.
- Press **OK**.
 - All selections will now be erased.
- Press **MENU OSD** to exit.

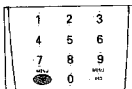


Special DVD features

Checking the contents of DVD-Video discs: Menu

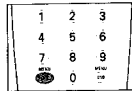
For titles and chapters, selection menus may be included on the disc. The DVD's menu feature allows you to make selections from these menus. Press the appropriate numerical key; or use the ∇ , Δ , \triangleright , \triangleleft keys to highlight your selection, then press **OK**.

Title menu



- Press **MENU DVD**.
 - If the current title has a menu, the menu will appear on the screen. If no menu is present in the title, 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 **MENU DVD** again.

Disc menu



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

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 in the angle icon.
 - After a small delay, play changes to the selected angle. The angle icon remains displayed until multiple angles are no longer available.

Changing the audio language



- Select A (Audio) in the menu bar.
- Press A or ∇/Δ repeatedly to see the different languages.

Subtitles



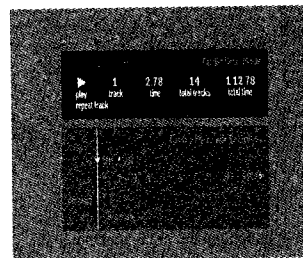
- Select S (Subtitle) in the menu bar.
- Press S or ∇/Δ repeatedly to see the different subtitles.

Special VCD-Features

Playback Control (PBC)

- Load a Video CD with PBC and press \triangleright .
- Go through the menu with the keys indicated on the TV screen until your chosen passage starts to play. If a PBC menu consists of a list of 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 the 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 will be shown on the screen.
- During play, 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 play at any other time, press \blacksquare .

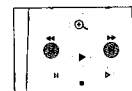
Pause

- Press **II** during play.
- To return to play, press \triangleright .

Search

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

Moving to another track



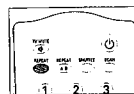
- Press \triangleright briefly during play to go to the next track.
- Press \triangleleft briefly during play to return to the beginning of the current track. Press \triangleleft twice to step back to the previous track.
- To go directly to any track, enter the track number using the numerical keys (0-9).

Shuffle



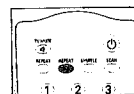
- Press **SHUFFLE** during play.
 - The order of the tracks is changed.
- To return to normal play, press **SHUFFLE** again.

Repeat track/disc



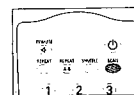
- To repeat the track currently playing, press **REPEAT**.
 - **REPEAT TRACK** appears on the display.
- To repeat the entire disc, press **REPEAT** a second time.
 - **REPEAT** appears on the display.
- To exit Repeat mode, press **REPEAT** a third time.

Repeat A-B



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

Scan



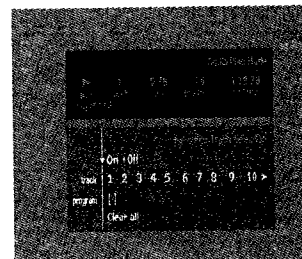
- Plays the first 10 seconds of each track on the disc.
- Press **SCAN**.
 - To continue play at your chosen chapter/index, press **SCAN** again or press **▶**.

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 **◀** or **▶** to select tracks from the list.
 - To go directly to any track, enter the track number using the numerical keys (0-9).
- 4 Store each track by pressing **OK**.
 - The track numbers will be added to the list of selected tracks.
 - 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 **▶** to start play, or **△** to go back to Stop mode. In either case, the FTS Program will be automatically memorized.

Switching FTS ON/OFF

- 1 Use **△** **▼** to move to the top.
- 2 Use **◀** or **▶** 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 **◀** and **▶** 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

- Use **▼** to select **Clear All**, then press **OK**.
 - The complete FTS Program for the disc will be erased.

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 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	Remedy
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 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 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 by switching the player off, 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 all operating commands during playback.	Operations are not permitted by the disc. Refer to the instructions of the disc.
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.

Cleaning discs

Some problems occur because the disc inside the player is dirty. To avoid these problems clean your discs regularly, in the following way:

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.



Caution: Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for analog discs.

4. Service hints

4.1 DVD-Module 218

The DVD mechanism has to be exchanged completely in case of failure. A new or repaired mechanism can be ordered with codenumber 9305 023 61001.

Return the defective unit complete assembled in original package to Philips Consumer Service in Eindhoven.

The monoboard has to be repaired on component level.

4.3 Power Supply options

3122 427 21750		3122 427 21370		3122 427 21760	
110V USA		220V Europe China		Multi voltage A/P	
2261	CAP 330pF	2121	ELCO 100uF 385V	2261	CAP 330pF
2121	ELCO 150uF 250V			2121	ELCO 150uF 400V
3133	Resistor 10M				

4.4 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.

4.5 Monoboard repair

For repair of the monoboard the service manual 3122 785 10045 must be used.

4.2 Diagnostic software

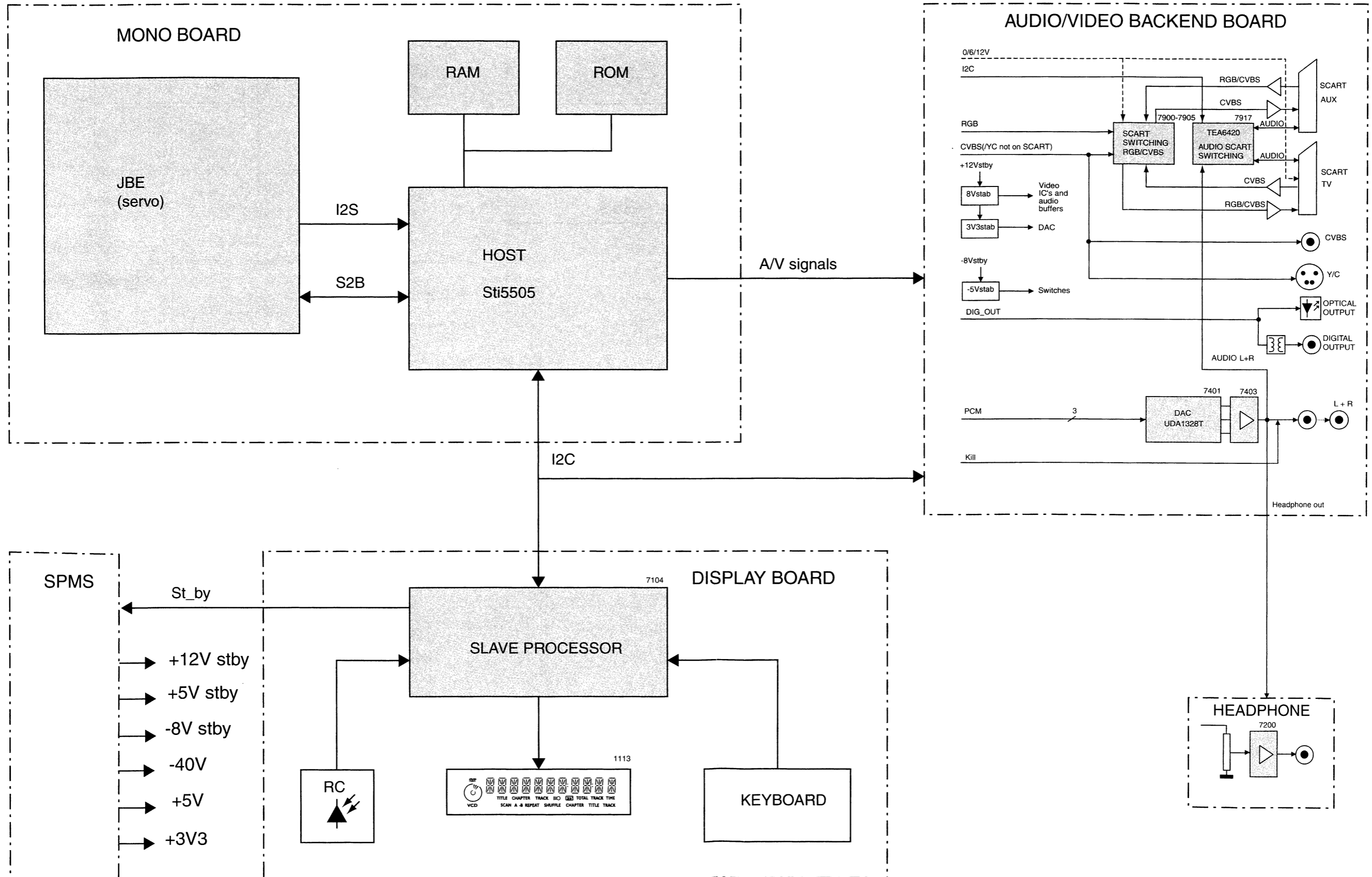
In chapter "Diagnostic software" some tests are referring to the SCART functionality.

These tests are for sets with RGB-output.

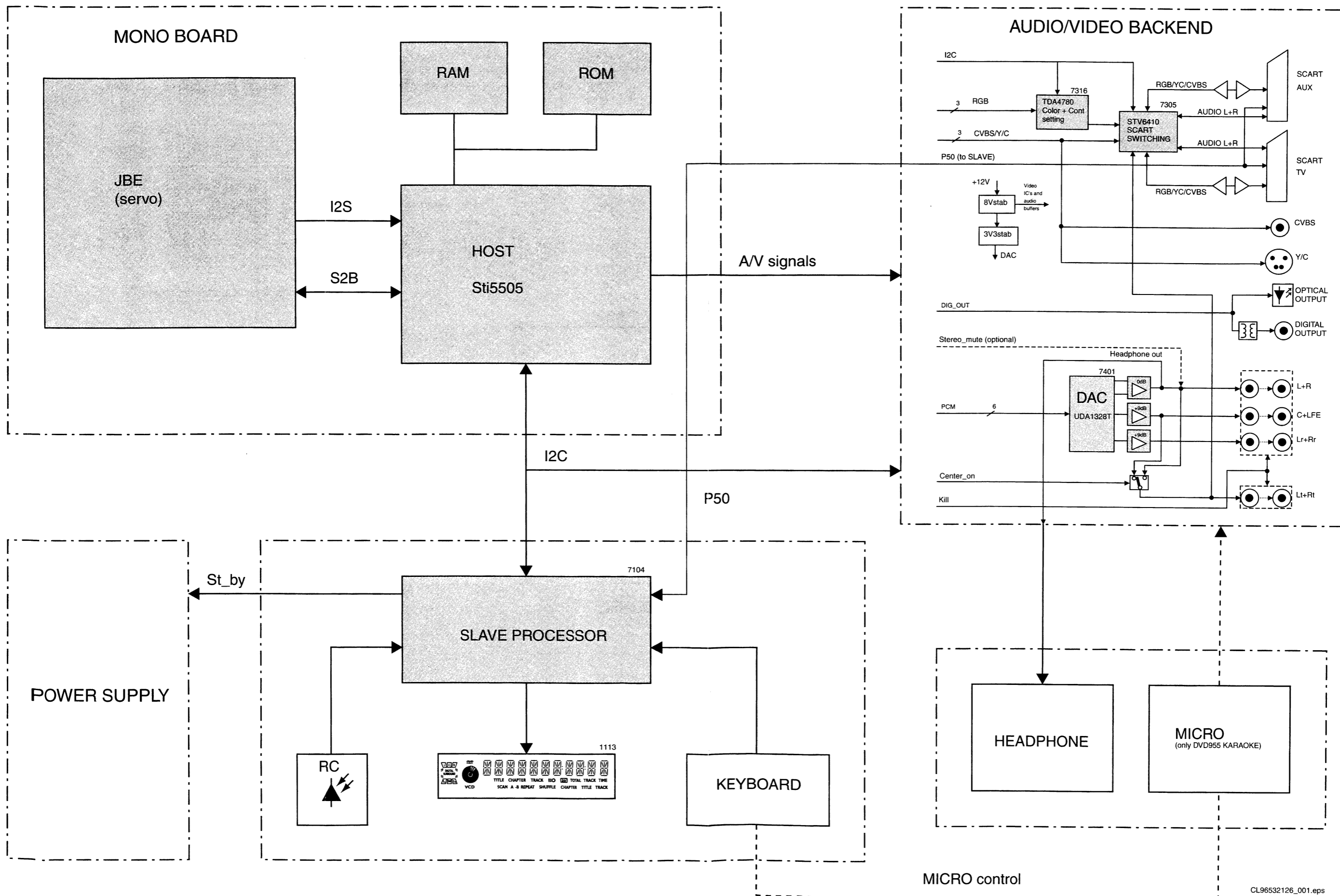
For sets without RGB-output no SCART connector is mounted. In these sets the SCART tests will automatically be skipped

5. Block and wiring diagram, dismantling, exploded view and oscillograms

Blockdiagram DVD 711 /001



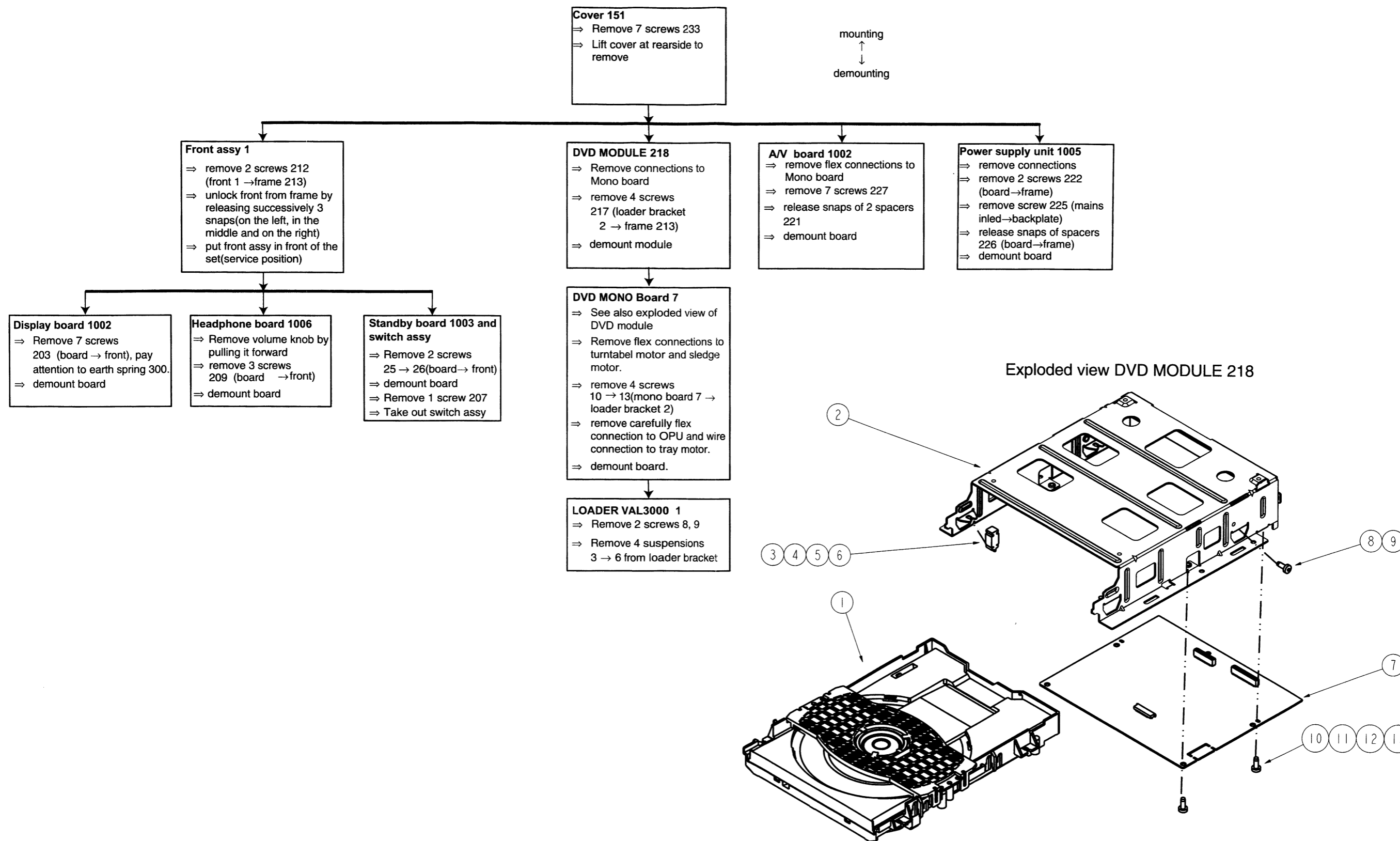
Blockdiagram DVD 751 /001



Dismantling instructions

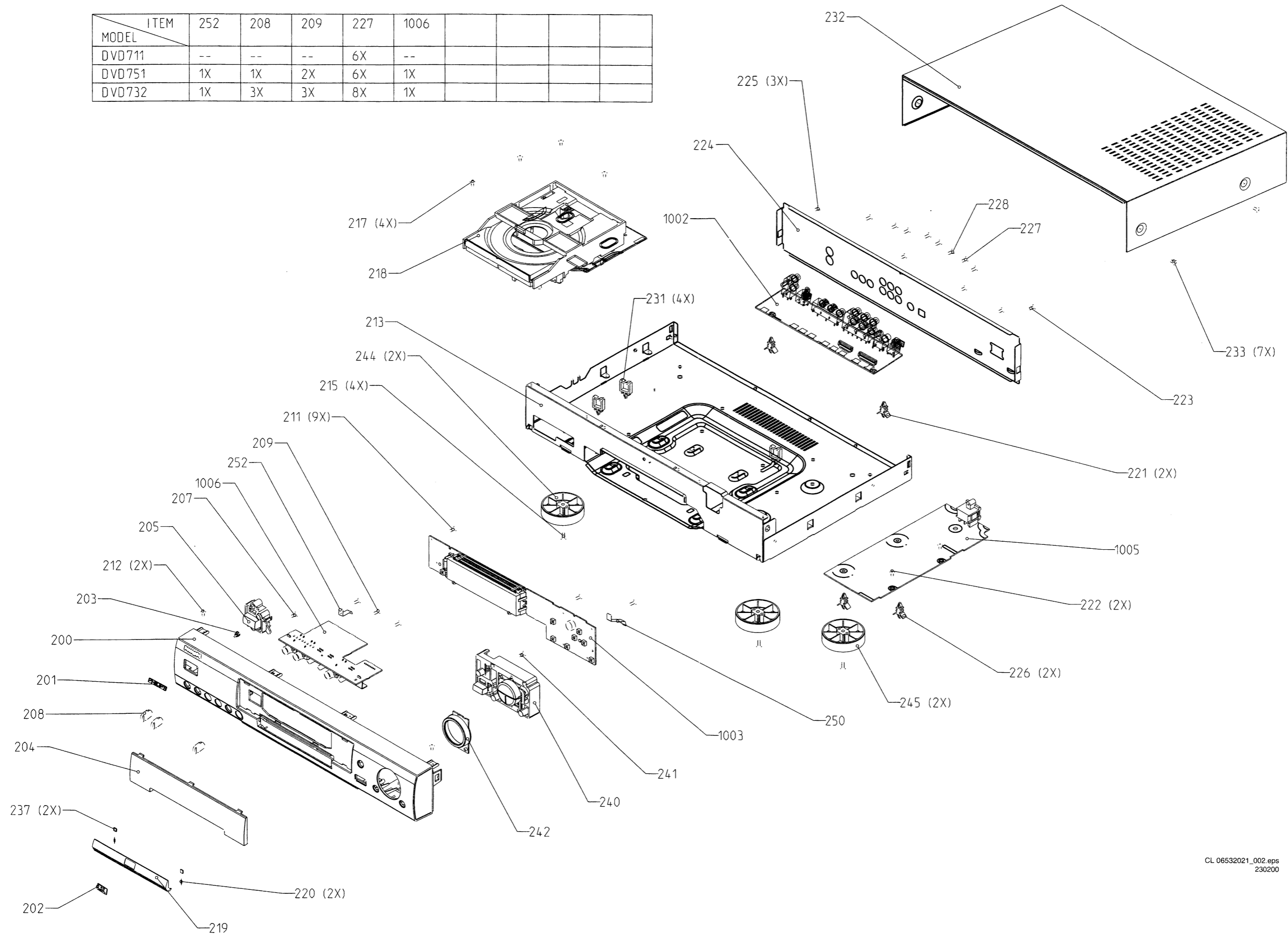
DISMANTLING INSTRUCTIONS

See exploded view for item numbers



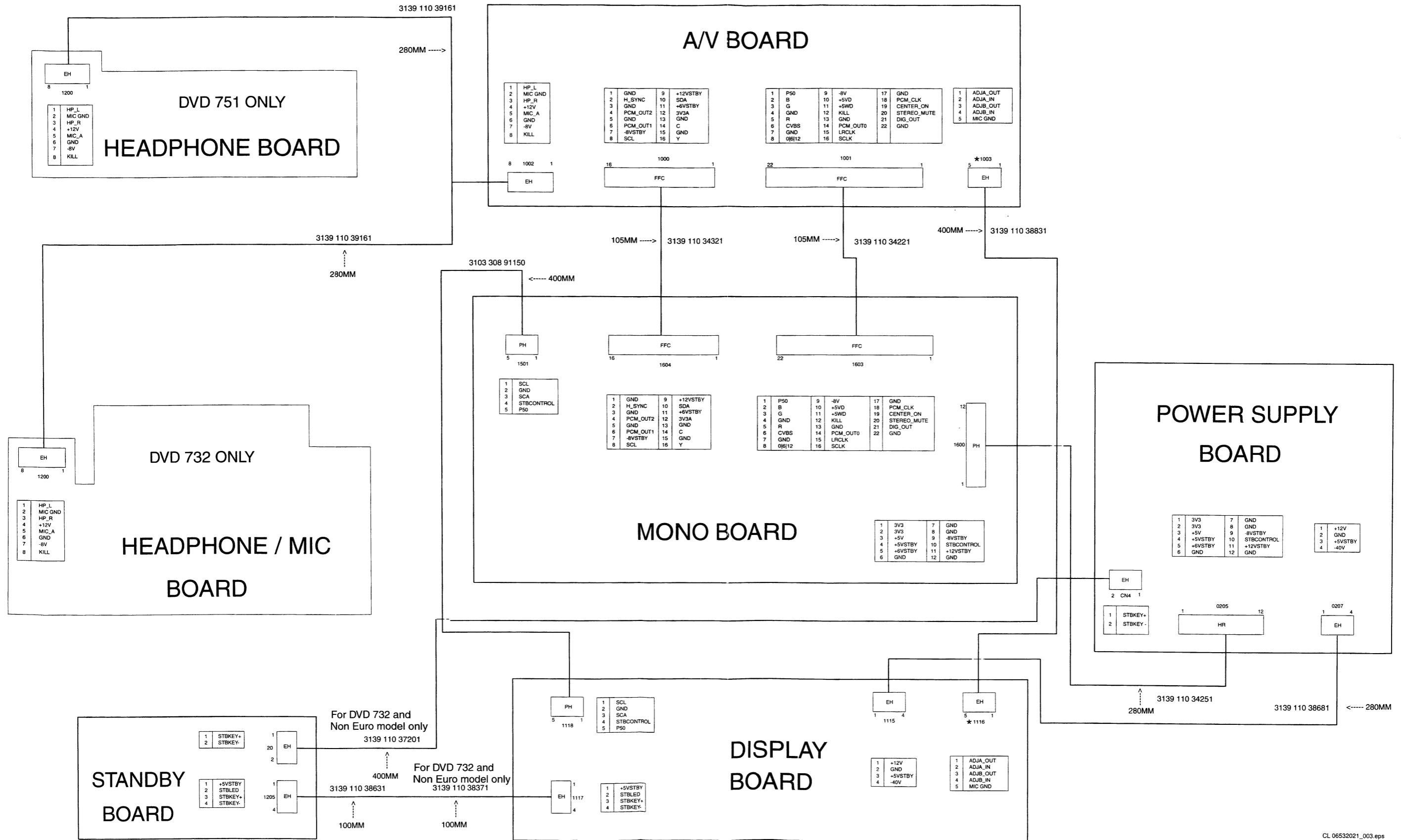
Exploded view

ITEM	252	208	209	227	1006				
MODEL									
DVD711	--	--	--	6X	--				
DVD751	1X	1X	2X	6X	1X				
DVD732	1X	3X	3X	8X	1X				



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230200

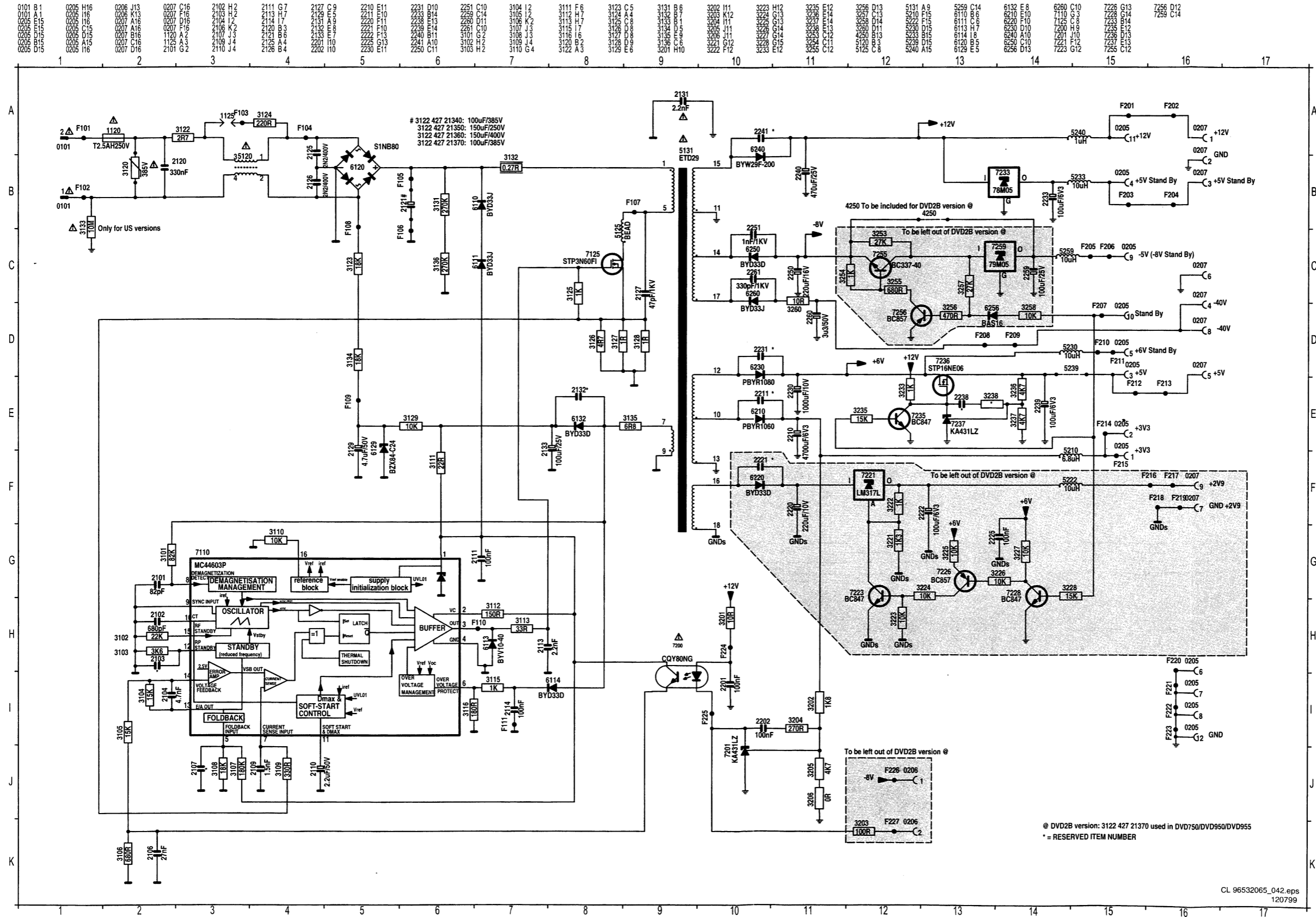
Wiring diagram



6. Electrical diagrams and Print-layouts

Power supply

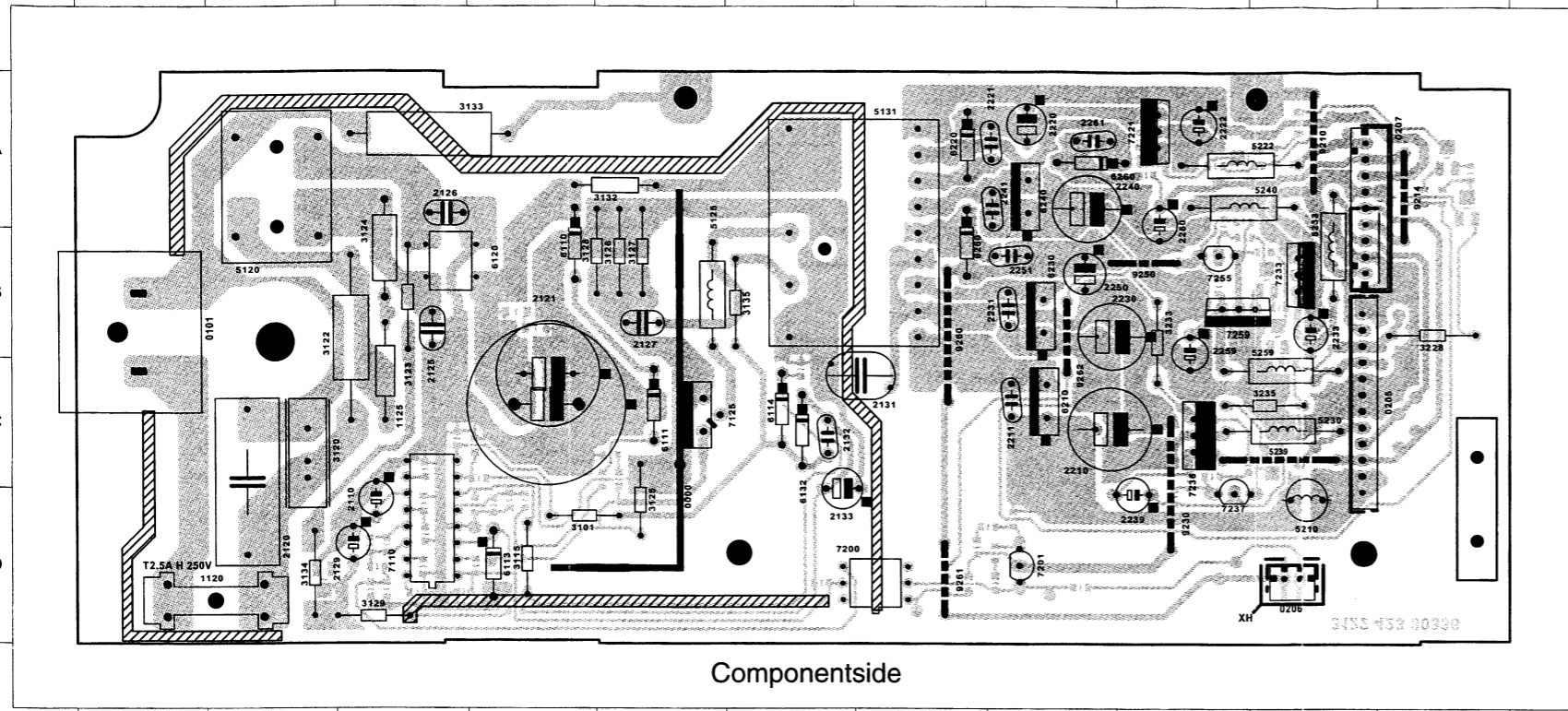
POWER SUPPLY 20PS203



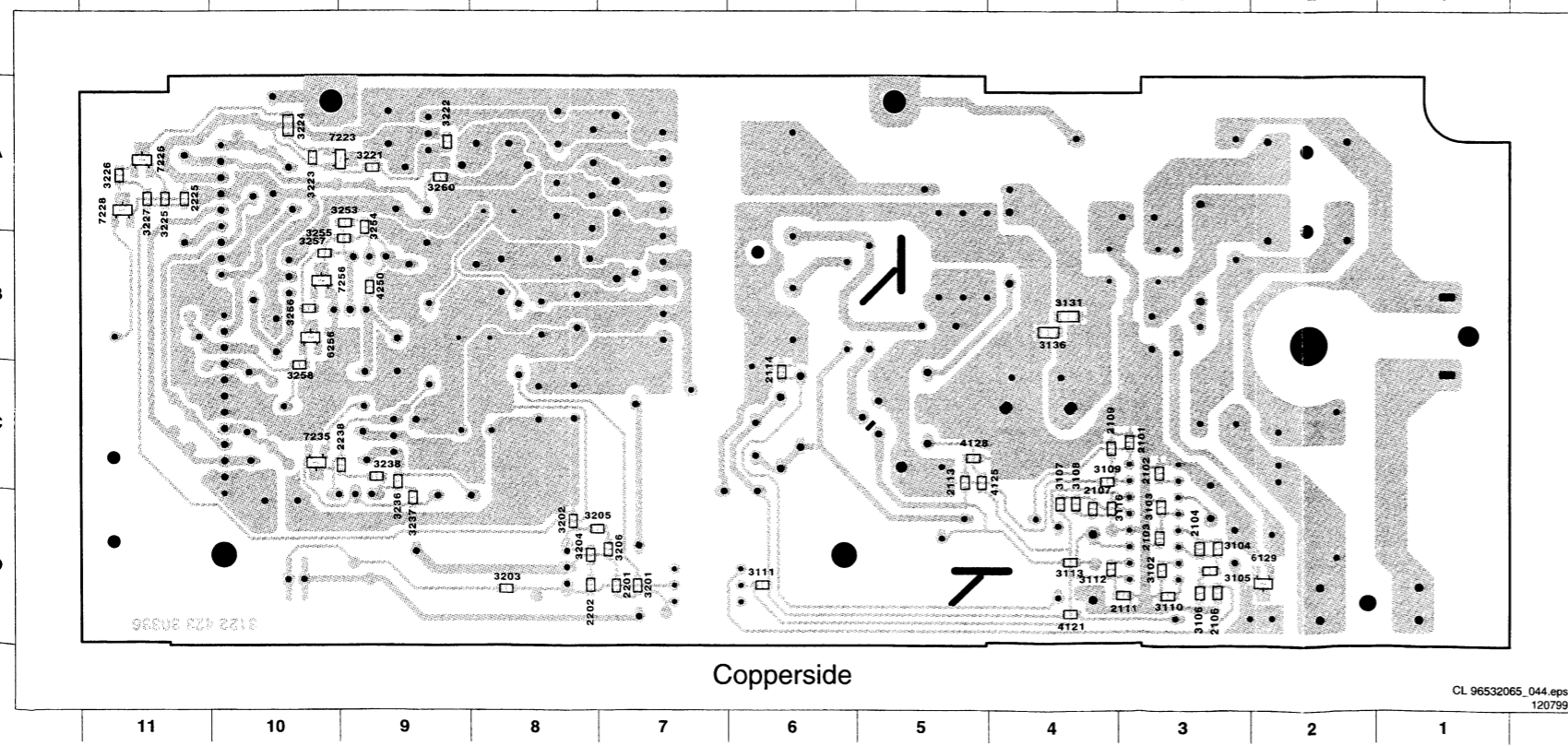
@ DVD2B version: 3122 427 21370 used in DVD750/DVD950/DVD955
* = RESERVED ITEM NUMBER

Power supply

0900 C 5	1120 D 2	2121a C 4	2131 C 7	2220 A 8	2233 B 10	2251 B 8	3115 D 4	3124 B 3	3129 D 3	3226 B 11	5131 B 6	5239 C 10	6113 D 4	6220 A 7	7110 D 3	7233 B 10	9210 A 10	9261 D 7
0101 B 1	1125 C 3	2125 B 3	2132 C 6	2221 A 8	2239 D 9	2259 B 9	3120 C 2	3125 D 5	3132 A 5	3233 B 9	5210 D 10	5240 A 9	6114 C 6	6230 B 8	7125 C 5	7236 C 9	9214 A 11	9262 B 8
0205 C 10	2110 D 3	2126 A 3	2133 D 6	2222 A 8	2240 A 8	2260 A 9	3120a C 2	3126 B 5	3133 A 3	3235 C 10	5222 A 9	5259 C 10	6120 B 3	6240 A 8	7200 D 7	7237 D 9	9230 C 9	
0206 D 10	2120 C 2	2127 B 5	2210 C 8	2230 B 8	2241 A 8	2261 A 8	3122 C 3	3127 B 5	3134 D 2	5120 A 2	5230 C 10	6110 B 4	6132 C 6	6250 B 7	7201 D 8	7255 B 9	9250 B 9	
0207 A 10	2121 C 4	2129 D 3	2211 C 8	2231 B 8	2250 B 8	3101 D 4	3123 B 3	3128 B 5	3135 B 6	5125 B 5	5233 B 10	6111 C 5	6210 C 8	6260 A 8	7221 A 9	7259 B 9	9260 B 7	
	1	2	3	4	5	6	7	8	9	10	11							



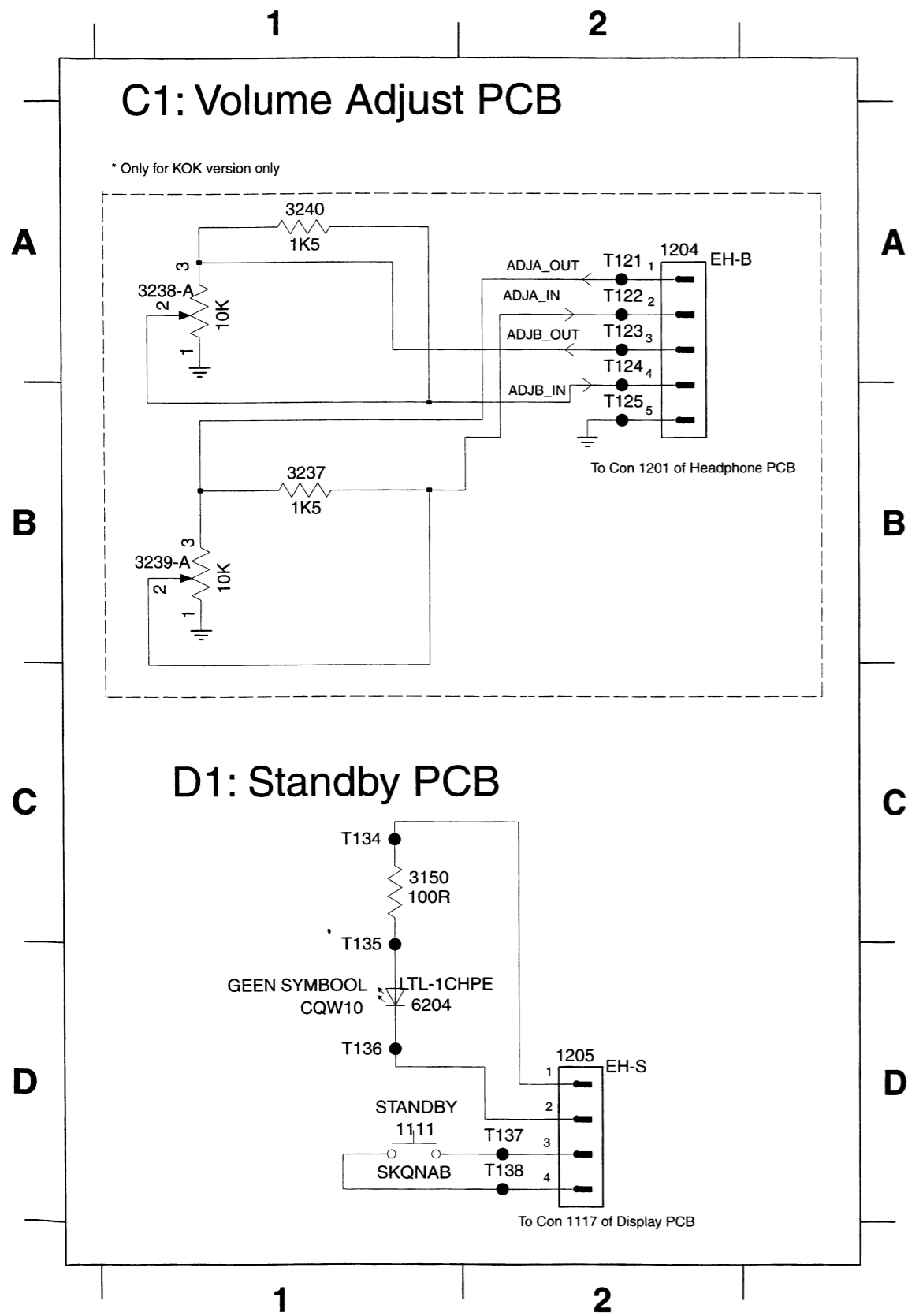
2101 C 3	2107 D 4	2201 D 7	3103 D 3	3108 D 4	3113 D 4	3202 D 8	3221 A 9	3226 A 11	3253 A 9	3258 C 10	4250 B 9	7226 A 11	F103 B 3	F106 A 3	F202 B 10	F207 B 11	F212 C 11	F217 A 10	F222 C 11	F227 D 9	
2102 C 3	2109 C 4	2202 D 8	3104 D 3	3109 C 4	3116 D 4	3203 D 8	3222 A 9	3227 A 11	3254 A 9	3260 A 9	4129 D 2	7235 C 10	F104 A 2	F109 D 3	F202 C 11	F208 A 10	F213 C 11	F218 A 10	F223 B 11		
2103 D 3	2111 D 3	2225 A 11	3105 D 3	3110 D 3	3131 B 4	3204 D 8	3223 A 10	3236 C 9	3255 B 9	4121 D 4	6256 B 10	F206 B 10	F105 B 4	F110 D 4	F204 C 11	F209 A 9	F214 C 11	F219 A 10	F224 D 7		
2104 D 3	2113 C 5	2238 C 9	3106 D 3	3111 D 6	3136 A 4	3205 D 8	3224 A 10	3237 D 9	3256 B 10	4125 C 5	7223 A 9	F101 C 1	F106 B 4	F111 D 4	F205 C 10	F210 B 11	F215 C 10	F220 C 10	F225 D 8		
2106 D 3	2114 C 6	3102 D 3	3107 D 4	3112 D 4	3201 D 7	3206 D 7	3225 A 11	3238 C 9	3257 B 10	4128 C 5	7226 A 11	F102 B 1	F107 B 6	F201 B 10	F206 C 11	F211 C 10	F216 A 10	F221 C 11	F226 D 9		
	11	10	9	8	7	6	5	4	3	2	1										



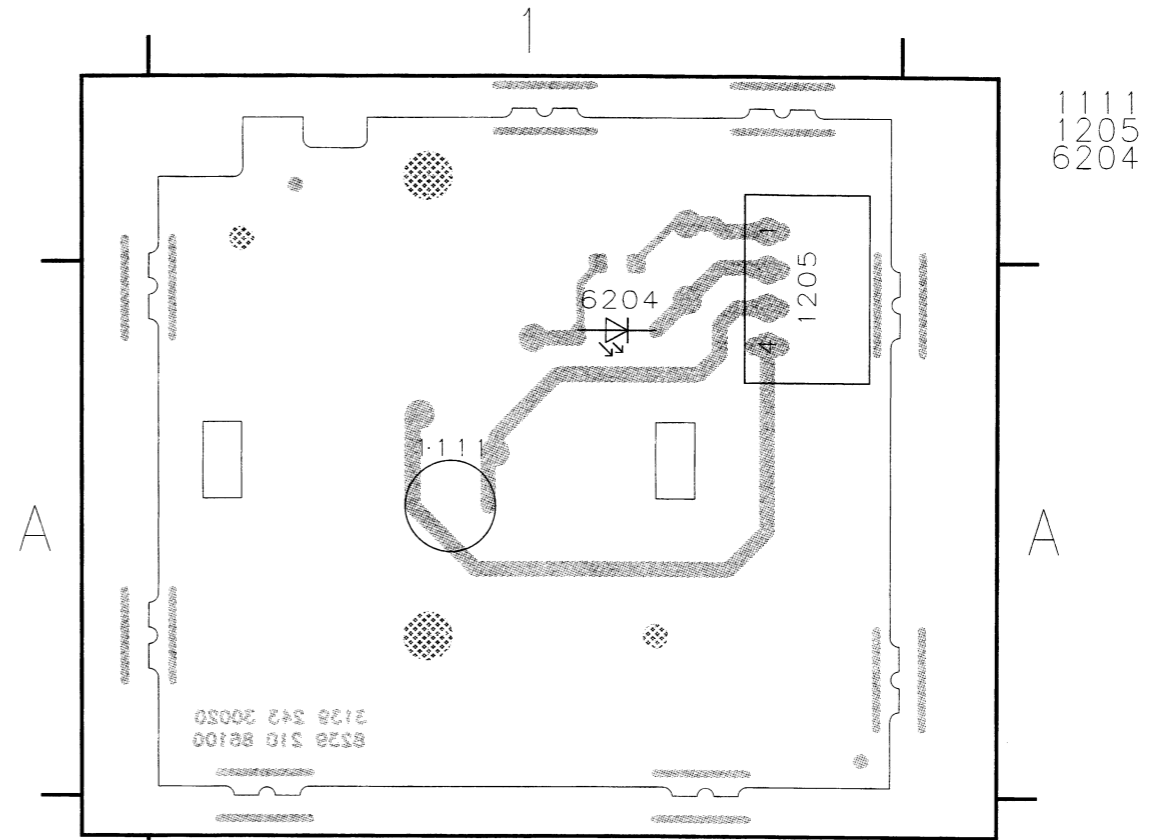
	11	10	9	8	7	6	5	4	3	2	1										
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120799

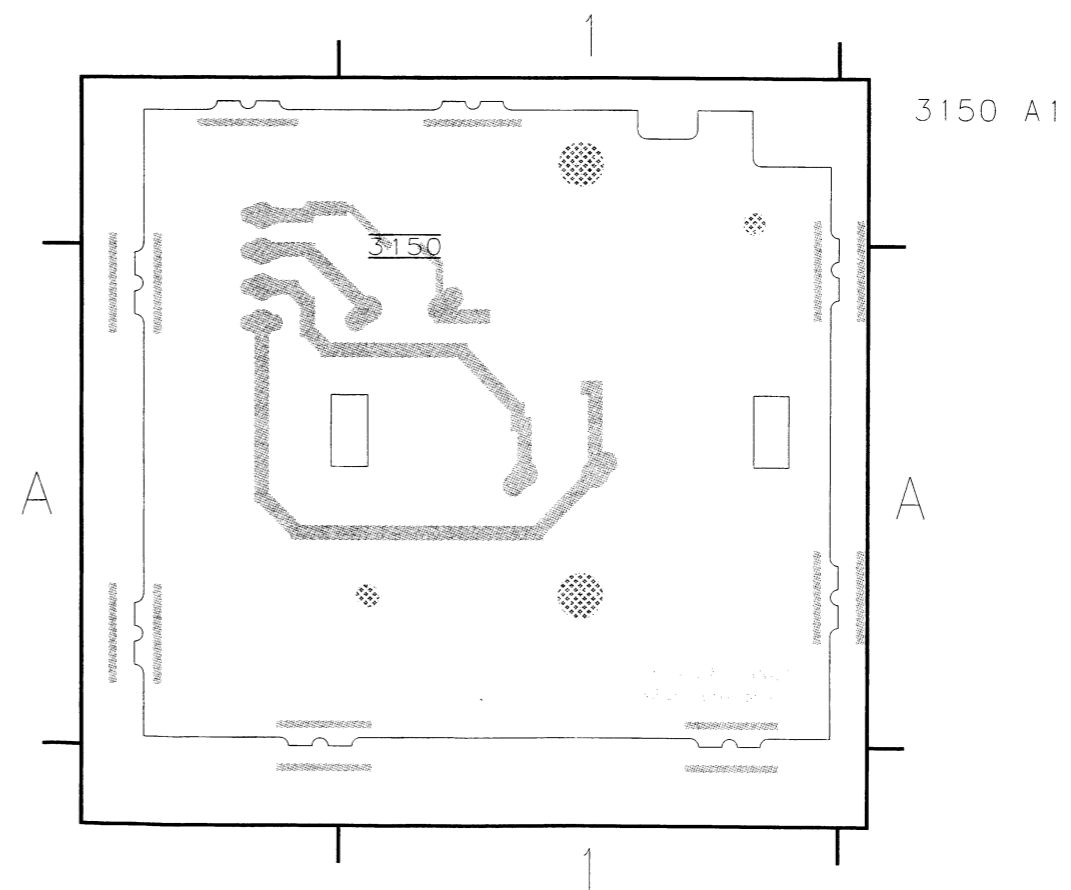
Volume / Standby PWB



- 1111 D1
- 1204 A2
- 1205 D2
- 3150 C1
- 3237 B1
- 3238-A A1
- 3239-A B1
- 3240 A1
- 6204 D1
- T121 A2
- T122 A2
- T123 A2
- T124 A2
- T125 B2
- T134 C1
- T135 D1
- T136 D1
- T137 D2
- T138 D2

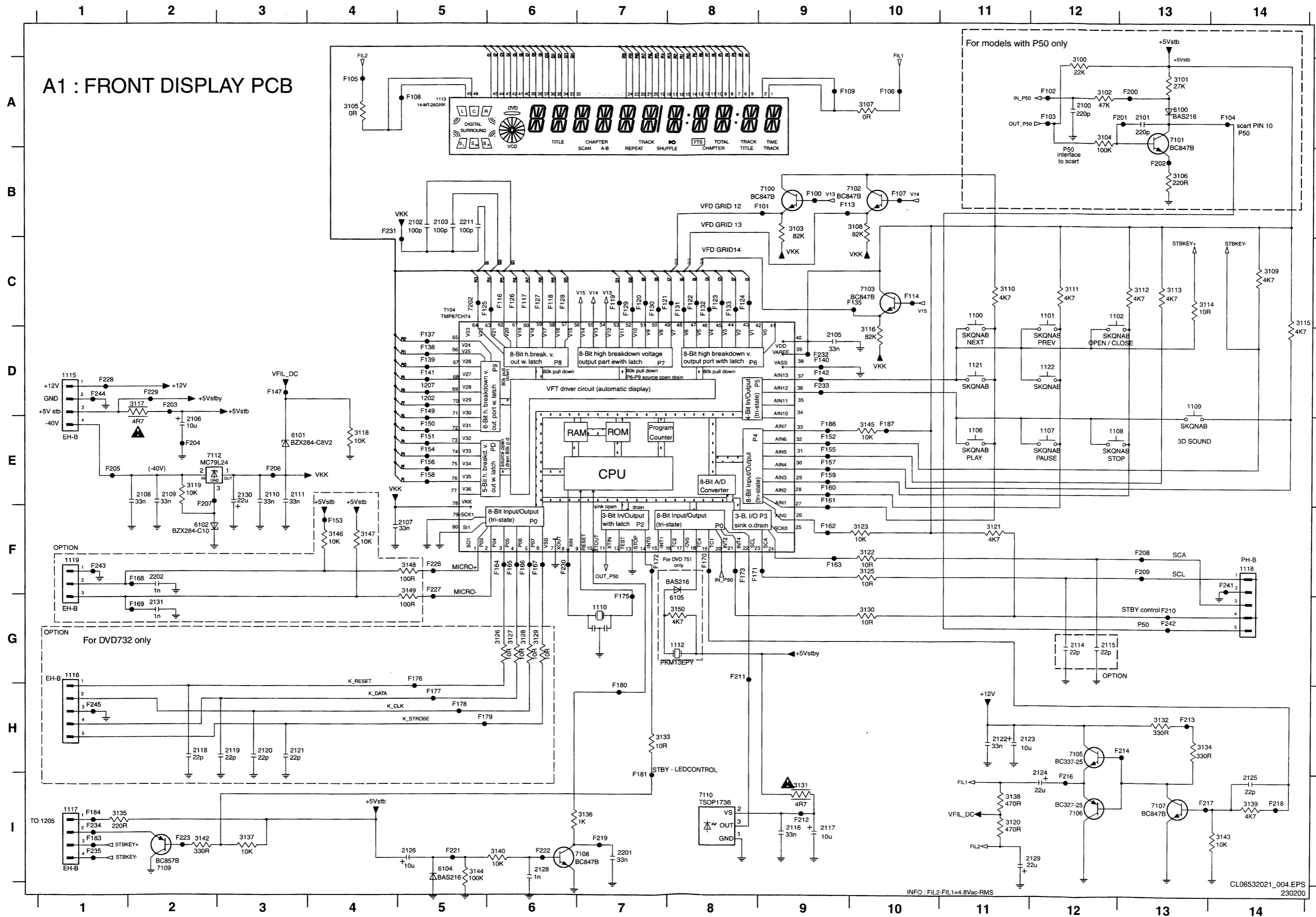


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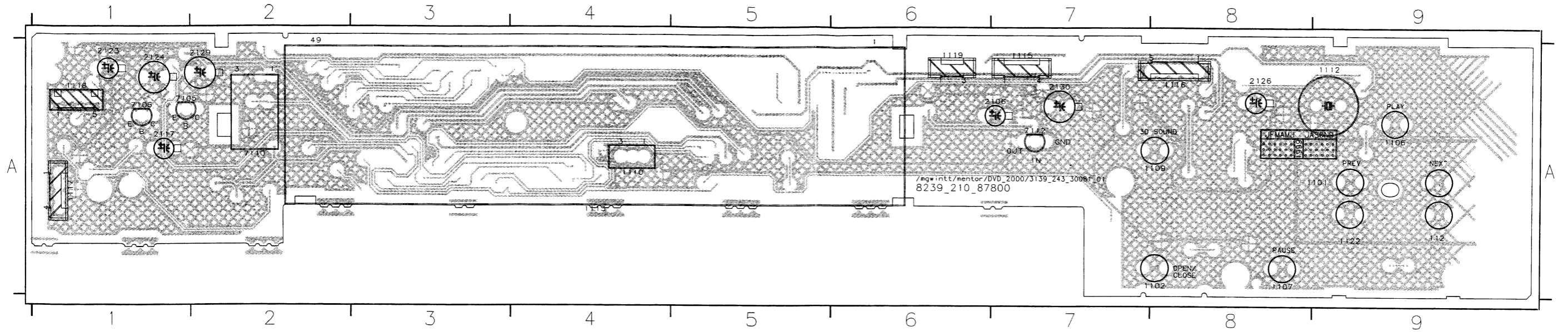
CL 96532070_015.eps
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Display

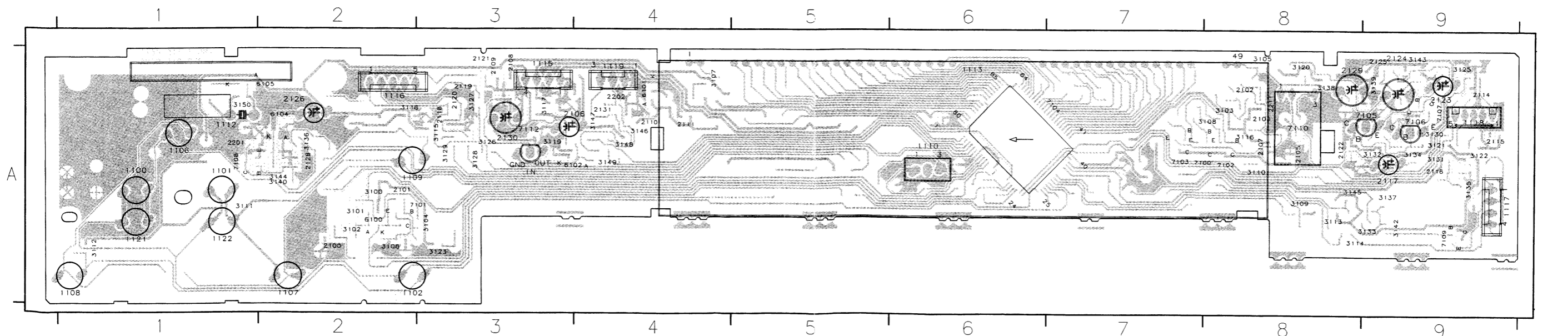


Display PWB

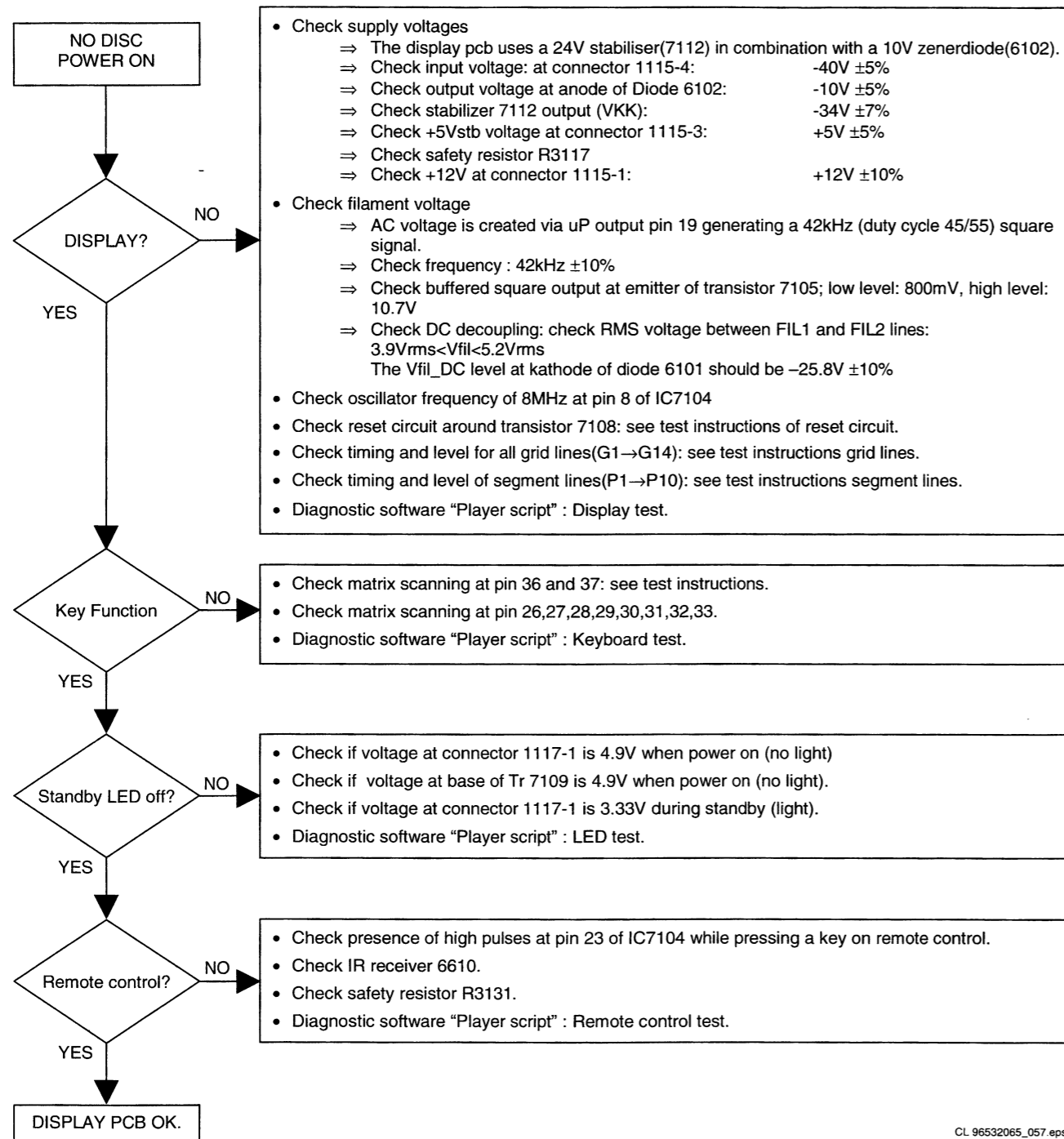
1100 A9101 A9102 A8106 A9107 A8108 A9109 A8110 A4112 A9113 A4115 A7116 A8117 A1118 A1119 A6121 A9122 A2106 A7117 A2123 A2124 A2126 A2129 A2130 A7105 A7106 A7110 A7112 A7



2100 A2103 A8108 A2111 A2116 A9120 A3125 A2201 A3100 A2103 A8106 A2109 A8112 A3115 A3118 A2121 A9125 A9128 A9131 A9134 A9137 A9140 A2144 A2147 A6150 A6102 A2100 A7103 A7108 A1
2101 A2105 A8109 A2114 A9118 A2121 A3128 A2202 A4101 A2104 A8106 A2109 A8113 A3115 A3116 A3119 A3122 A9126 A9129 A3132 A9135 A9138 A9142 A9145 A8148 A6100 A2104 A2104 A7104 A7109 A9
2102 A2107 A8110 A2115 A9119 A2122 A2131 A2211 A8102 A2105 A8108 A8111 A6114 A8117 A3120 A8123 A3127 A3130 A3133 A9136 A2139 A9143 A9146 A4149 A6101 A6105 A7102 A7107 A9



TROUBLESHOOTING DISPLAY BOARD



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130799

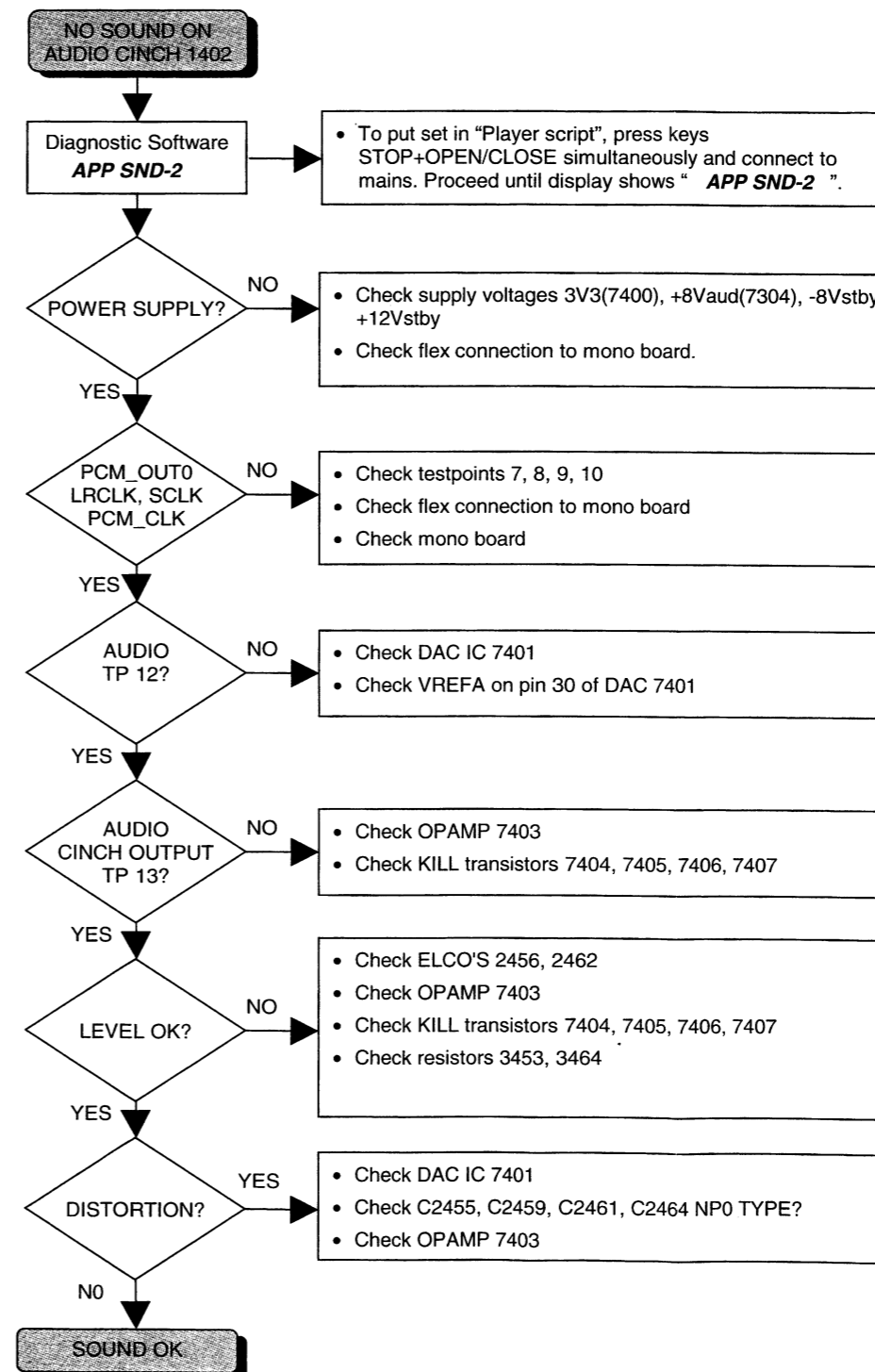
Figure 6-1

DVD 711 /001

TROUBLESHOOTING A/V BOARD

Testing of A/V board can be done using diagnostic software "Player script". Mono board is used to generate a sinus with the soundtest SND-2 or a VIDEO signal with the picture test PIC-1. See description in chapter "Diagnostic Software : Script Interfaces"

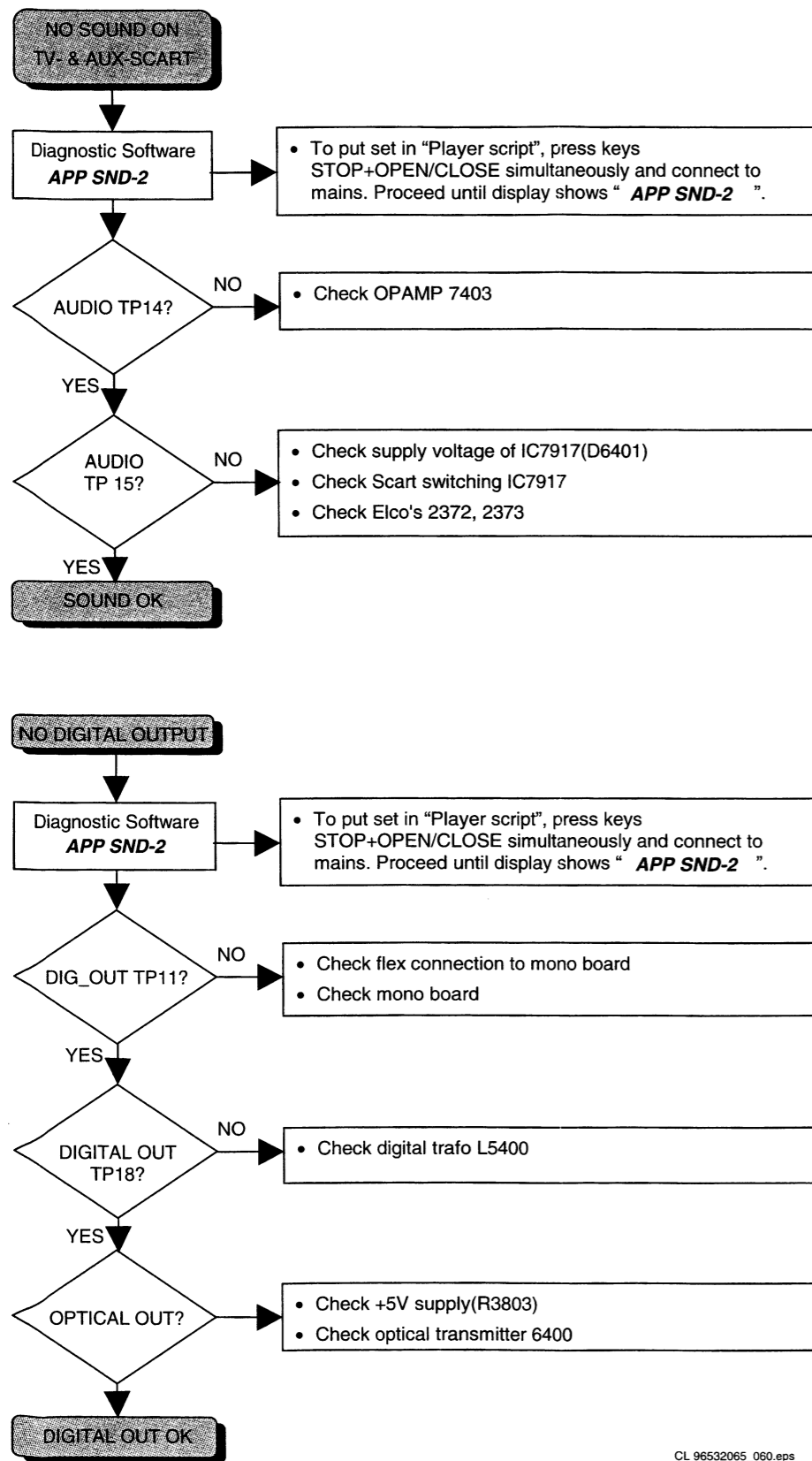
AUDIO PART



CL 96532065_059.eps
130799

Figure 6-2

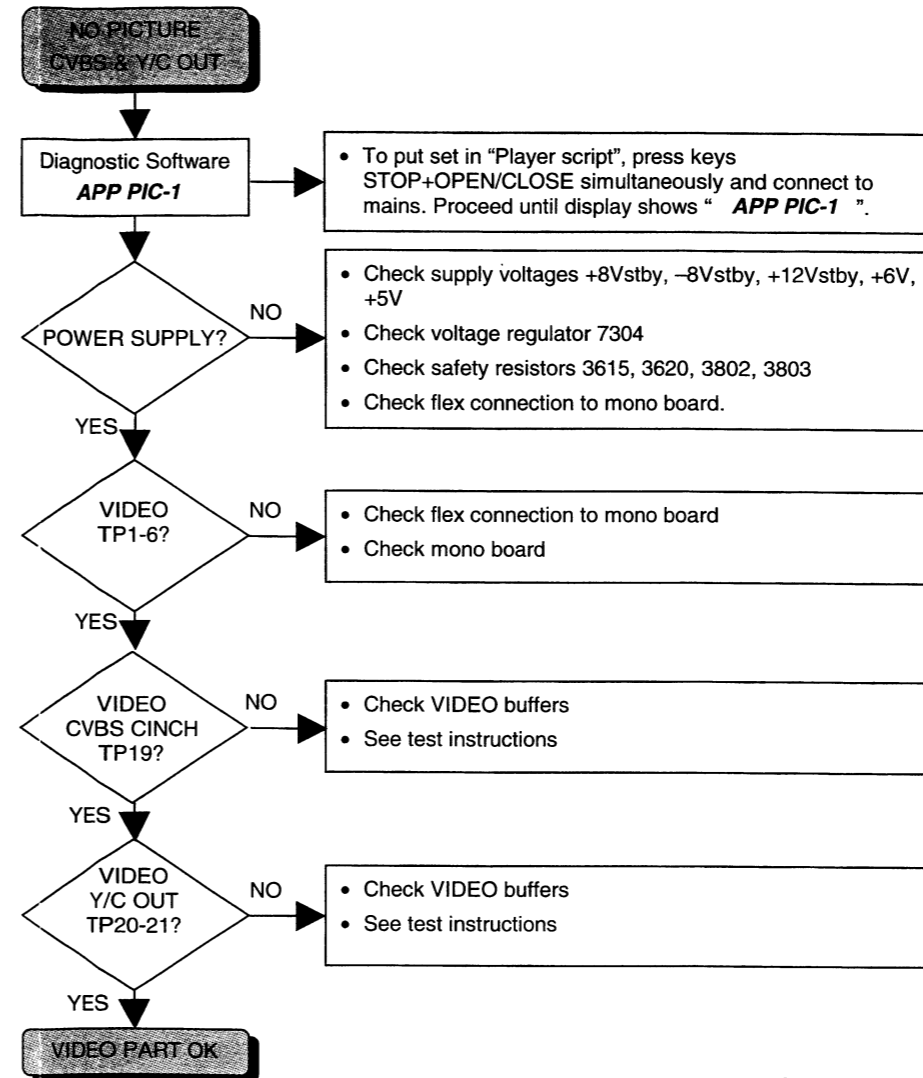
DVD 711 /001



CL 96532065_060.eps
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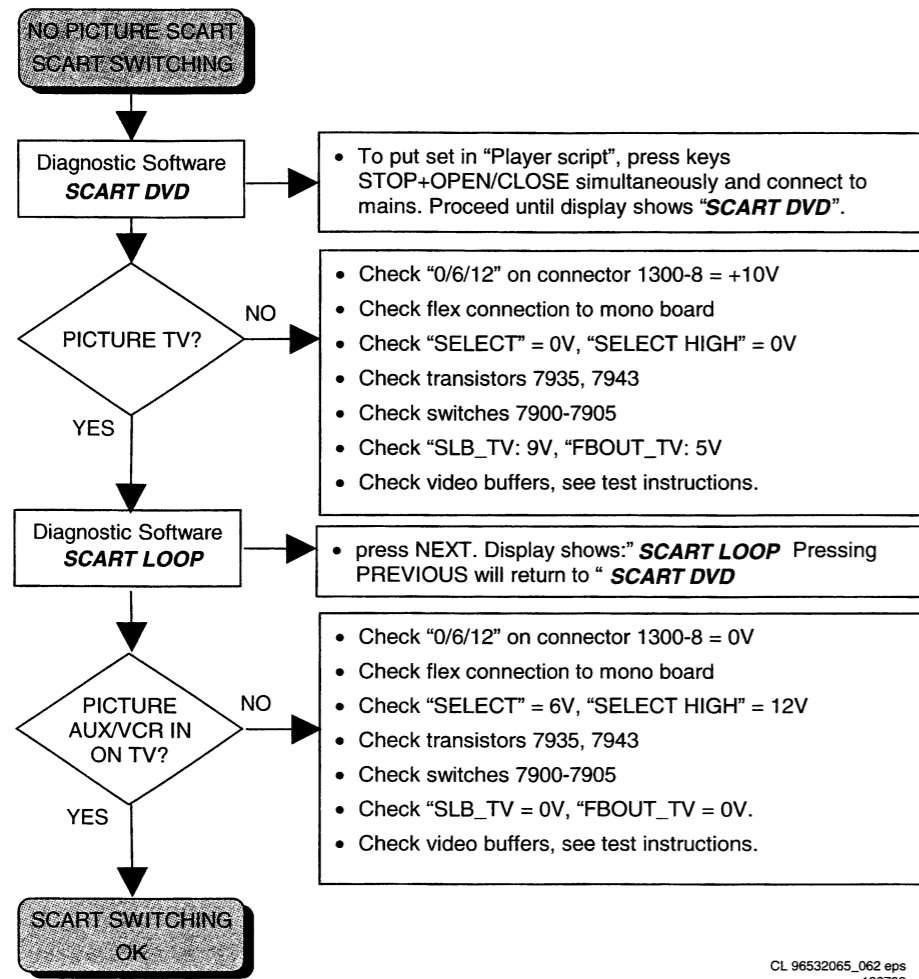
DVD 711 /001

VIDEO PART



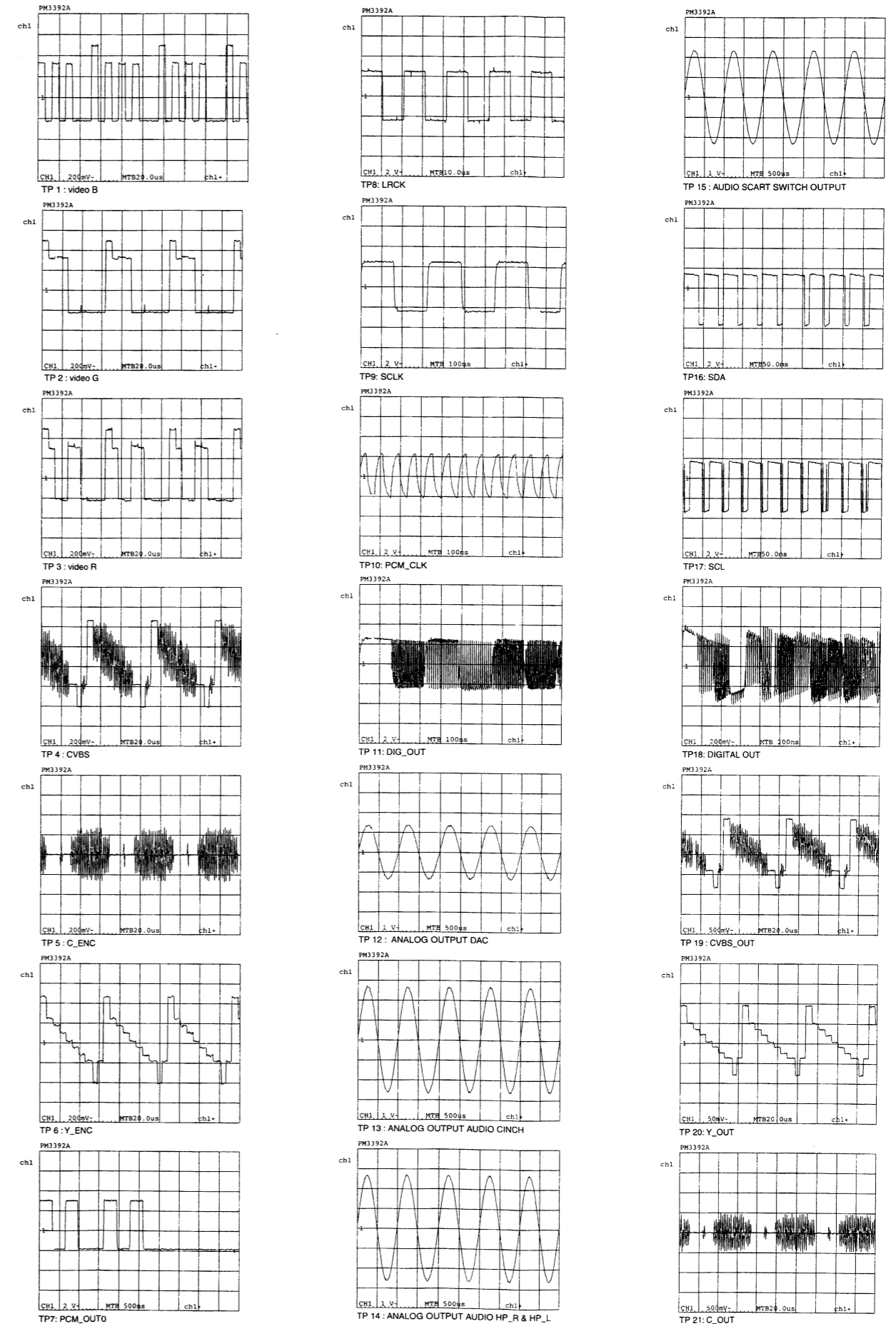
CL 96532065_061.eps
130799

DVD 711 /001



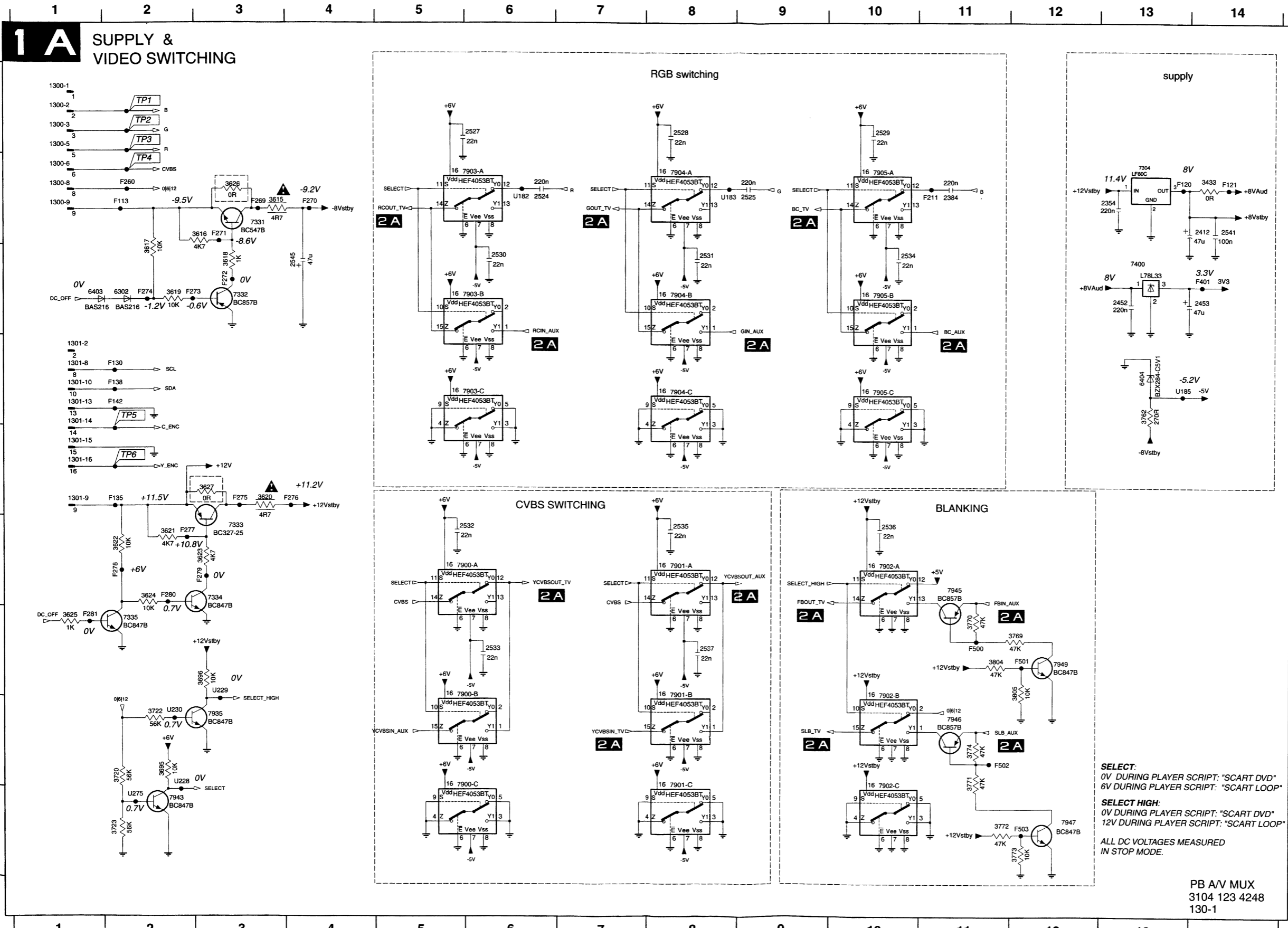
CL 96532065_062 eps
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DVD 711 /001



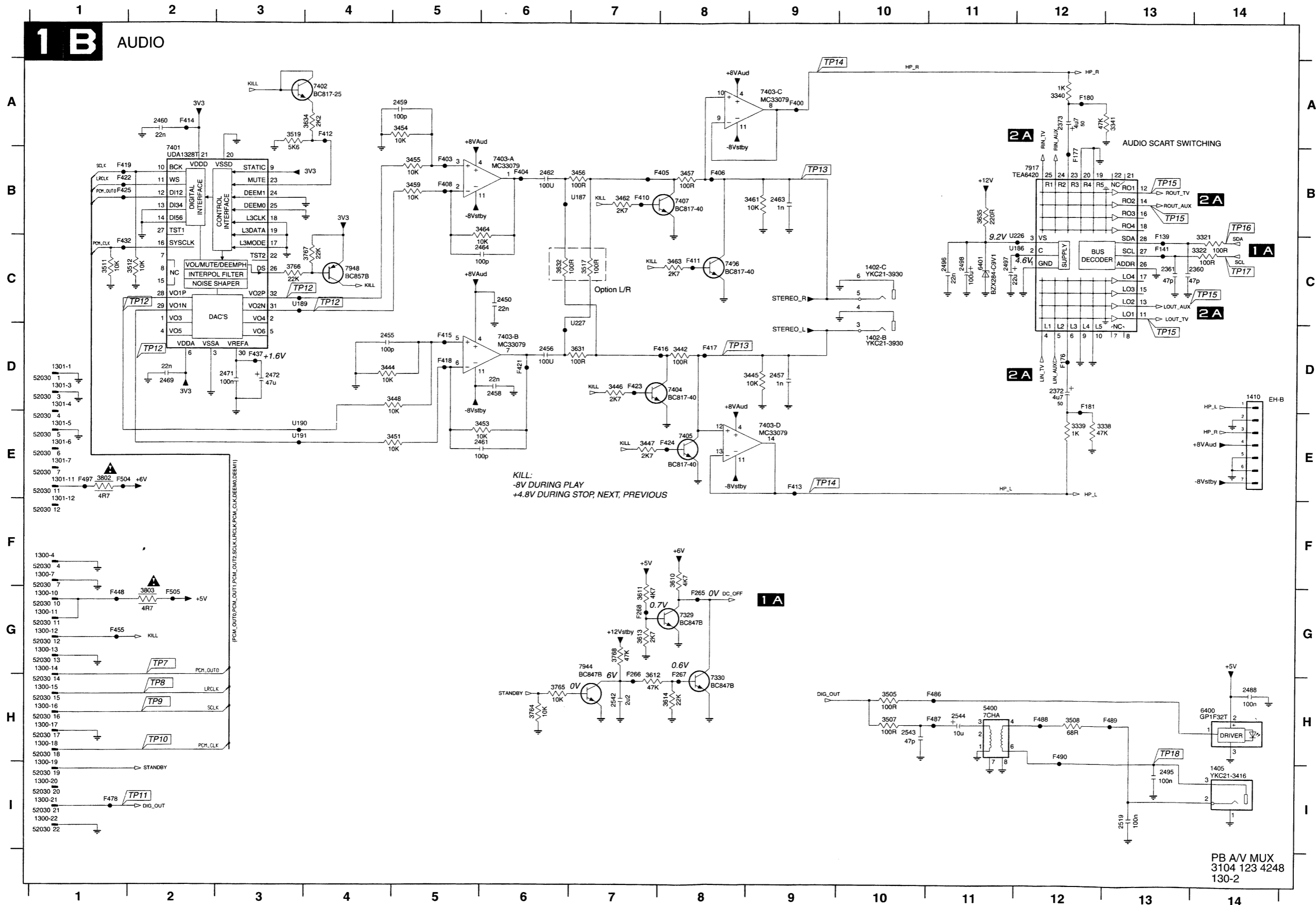
CL 96532065_063 eps
130799

Supply and video switching 711 /001



- 1300-1 A1
- 1300-2 A1
- 1300-3 A1
- 1300-5 A1
- 1300-6 B1
- 1300-8 B1
- 1300-9 B1
- 1301-10 D1
- 1301-13 D1
- 1301-14 D1
- 1301-15 E1
- 1301-16 E1
- 1301-2 D1
- 1301-4 D1
- 1301-8 D1
- 1301-9 E1
- 2354 B13
- 2384 B11
- 2412 B14
- 2452 C13
- 2453 C14
- 2524 B5
- 2525 B9
- 2527 A6
- 2528 A8
- 2529 A10
- 2530 C6
- 2531 C8
- 2532 C2
- 2533 G6
- 2534 C10
- 2535 F8
- 2536 F10
- 2537 G8
- 2541 B14
- 2546 C4
- 3433 B14
- 3615 B3
- 3616 B3
- 3617 C2
- 3618 C3
- 3619 C2
- 3620 G3
- 3621 F2
- 3622 F2
- 3623 F3
- 3624 F2
- 3625 G1
- 3626 B3
- 3627 G3
- 3695 H2
- 3696 G3
- 3720 H2
- 3722 H2
- 3723 I2
- 3762 D13
- 3769 G12
- 3770 G11
- 3771 H11
- 3772 I11
- 3773 I12
- 3774 H11
- 3804 G11
- 3805 G12
- 6302 C2
- 6403 C1
- 6404 D13
- 7304 B13
- 7331 B3
- 7332 C3
- 7333 F3
- 7334 F3
- 7335 G2
- 7400 C13
- 7900-A F6
- 7900-B G6
- 7900-C H6
- 7901-A F8
- 7901-B G8
- 7901-C H8
- 7902-A F10
- 7902-B G10
- 7902-C H10
- 7903-A B6
- 7903-B C6
- 7903-C D6
- 7904-A B8
- 7904-B C8
- 7904-C D8
- 7905-A B10
- 7905-B C10
- 7905-C D10
- 7935 H3
- 7943 I2
- 7945 F11
- 7946 H11
- 7947 I12
- 7949 G12
- F106 A2
- F109 A2
- F110 A2
- F112 B2
- F113 B2
- F120 B13
- F121 B14
- F130 D2
- F135 E2
- F138 D2
- F142 D2
- F144 D2
- F150 E2
- F211 B11
- F260 B2
- F269 B3
- F270 B4
- F271 B3
- F272 C3
- F273 C2
- F274 C2
- F275 E3
- F276 E4
- F277 F2
- F278 F2
- F279 F3
- F280 F2
- F281 G1
- F401 C14
- F500 G11
- F501 G12
- F502 H11
- F503 H2
- U182 B6
- U183 B8
- U185 D13
- U228 H2
- U229 G3
- U230 H2
- U275 I2

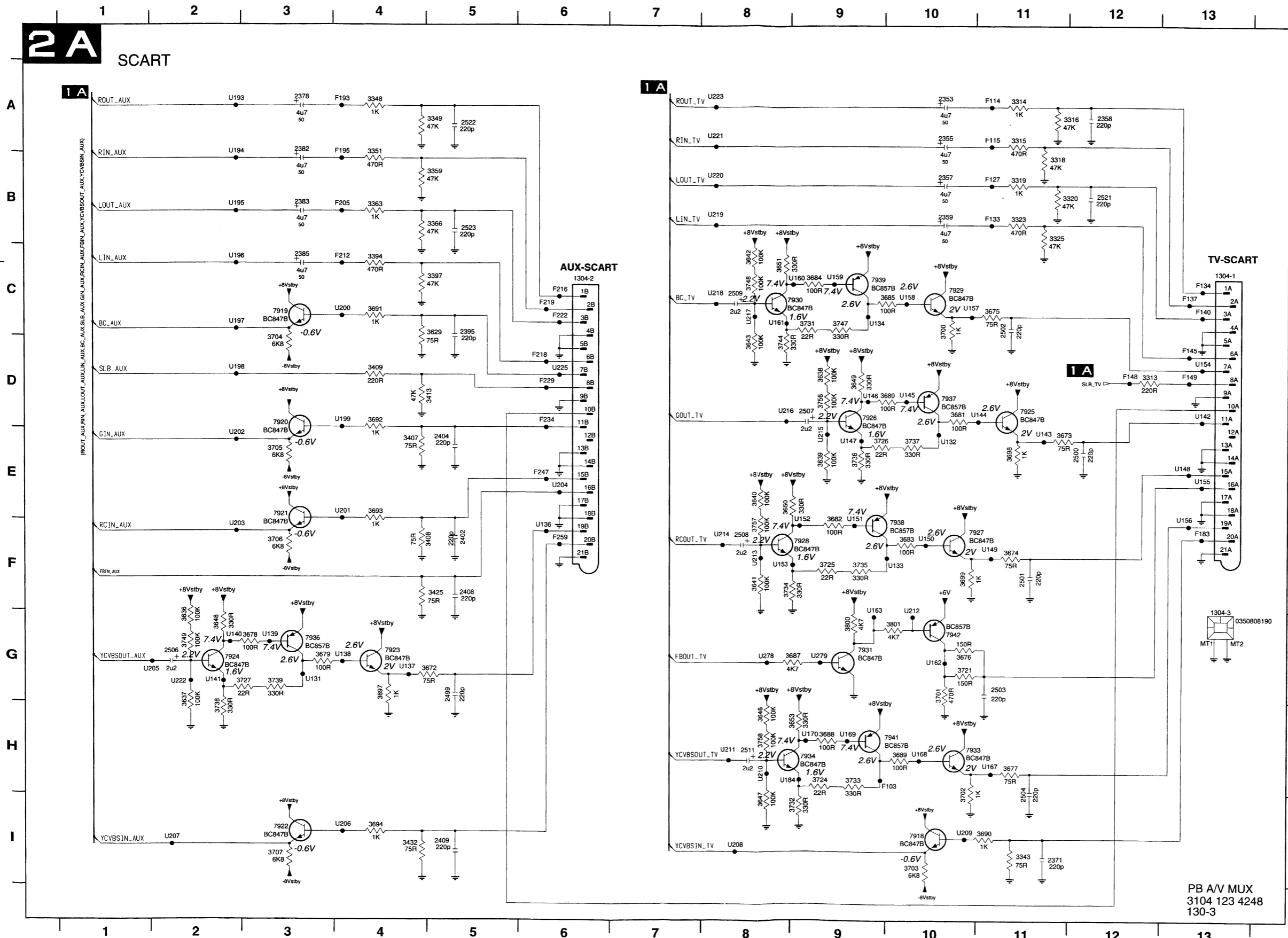
Audio A/V MUX DVD711 /001



1300-10 G1	7944 G7
1300-11 G1	7948 C4
1300-12 C1	F139 C13
1300-13 G1	F141 C13
1300-14 G1	F176 D12
1300-15 H1	F177 B12
1300-16 H1	F180 A12
1300-17 H1	F181 D12
1300-18 H1	F265 G8
1300-19 I1	F266 H7
1300-20 I1	F267 H8
1300-21 I1	F268 G7
1300-22 I1	F400 A9
1300-4 F1	F403 B5
1300-7 F1	F404 B6
1301-1 D1	F405 B8
1301-11 E1	F406 B8
1301-12 F1	F408 B5
1301-3 D1	F410 B7
1301-4 D1	F411 C8
1301-5 E1	F412 A4
1301-6 E1	F413 A2
1301-7 E1	F414 A2
1301-8 E1	F414 A2
1301-9 E1	F414 A2
1301-10 E1	F414 A2
1301-11 E1	F414 A2
1301-12 E1	F414 A2
1402-B D10	F415 D5
1402-C C10	F415 D5
1405 H14	F417 D3
1410 D14	F418 D5
2360 C14	F419 B1
2361 C13	F421 D5
2372 D12	F422 B1
2373 A12	F423 D7
2450 C5	F424 E3
2455 D4	F425 B1
2456 D6	F432 C1
2457 D9	F437 D1
2458 D6	F448 G1
2459 A5	F455 G1
2460 A2	F478 I1
2461 E6	F486 H1
2462 B6	F487 H1
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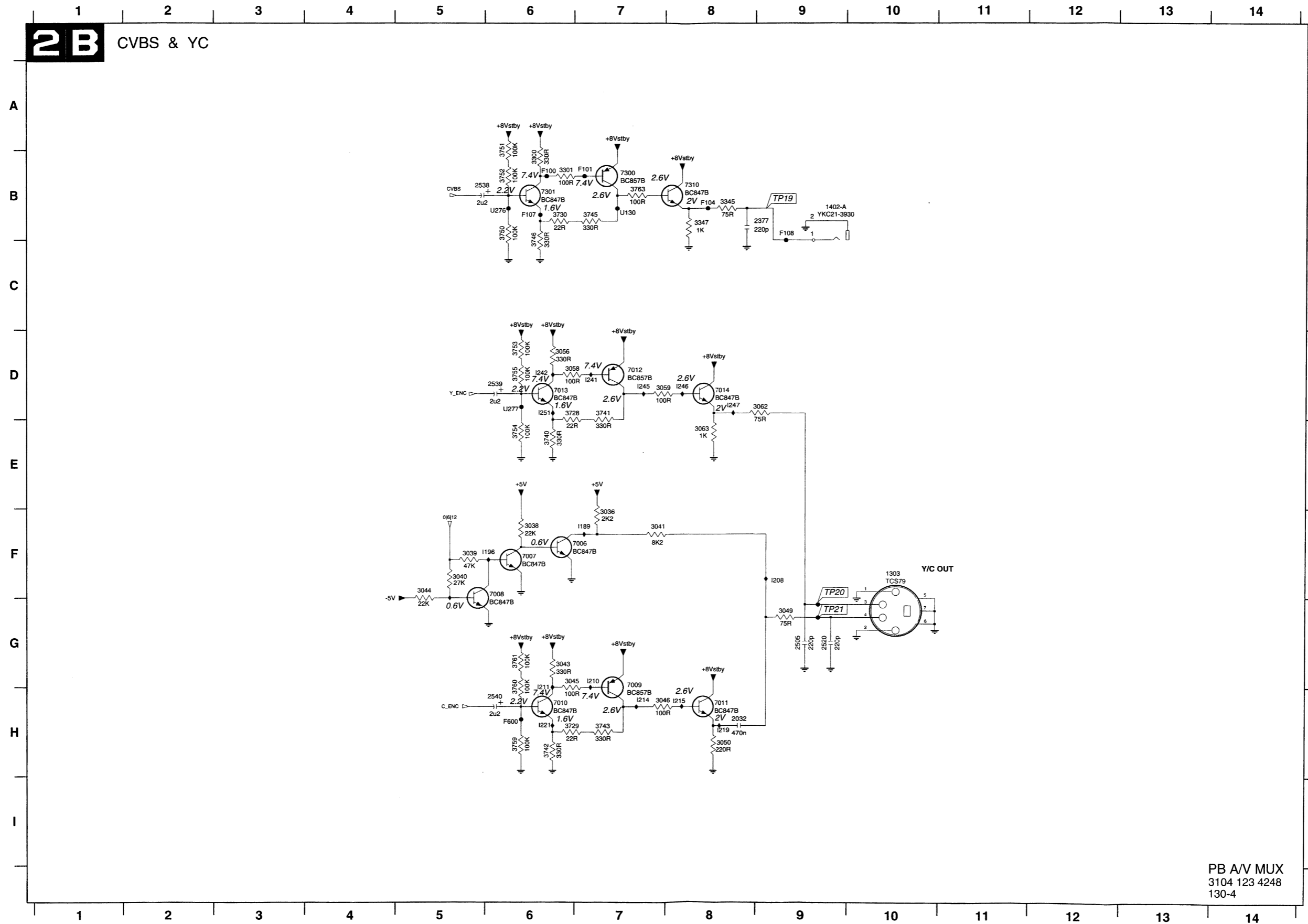
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Scart panel DVD711 /001



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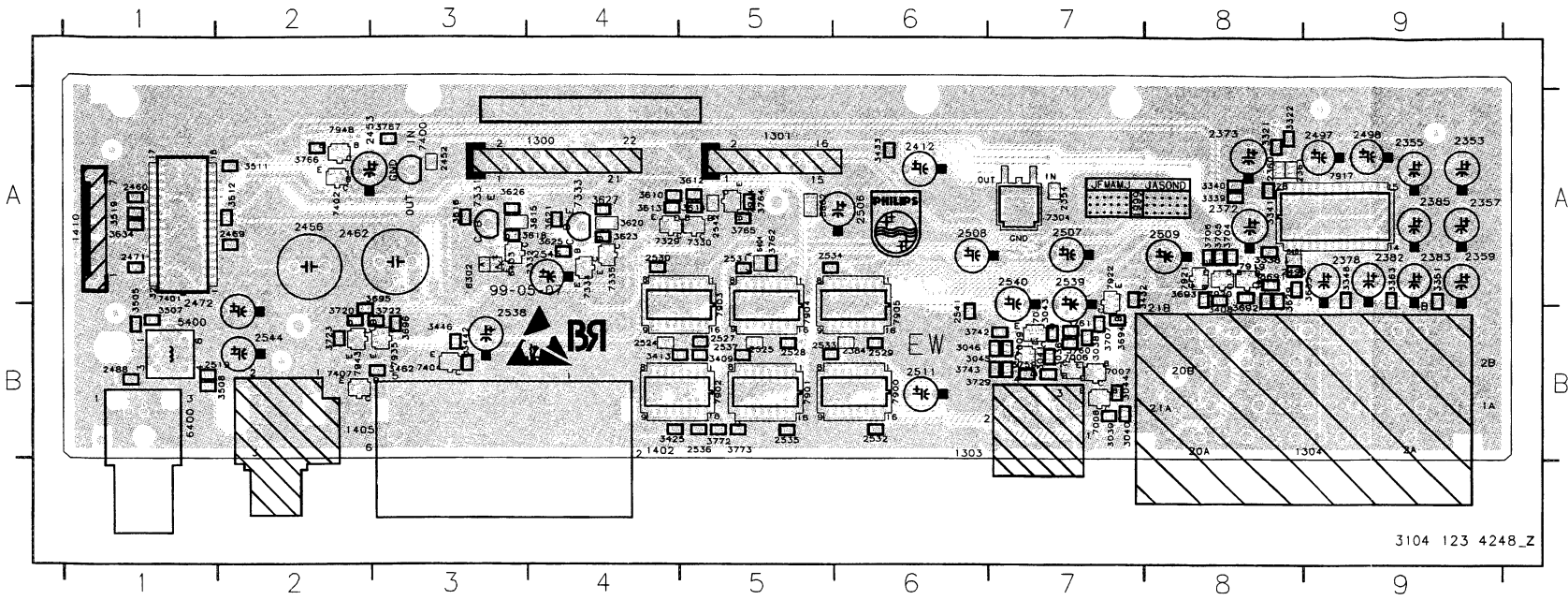
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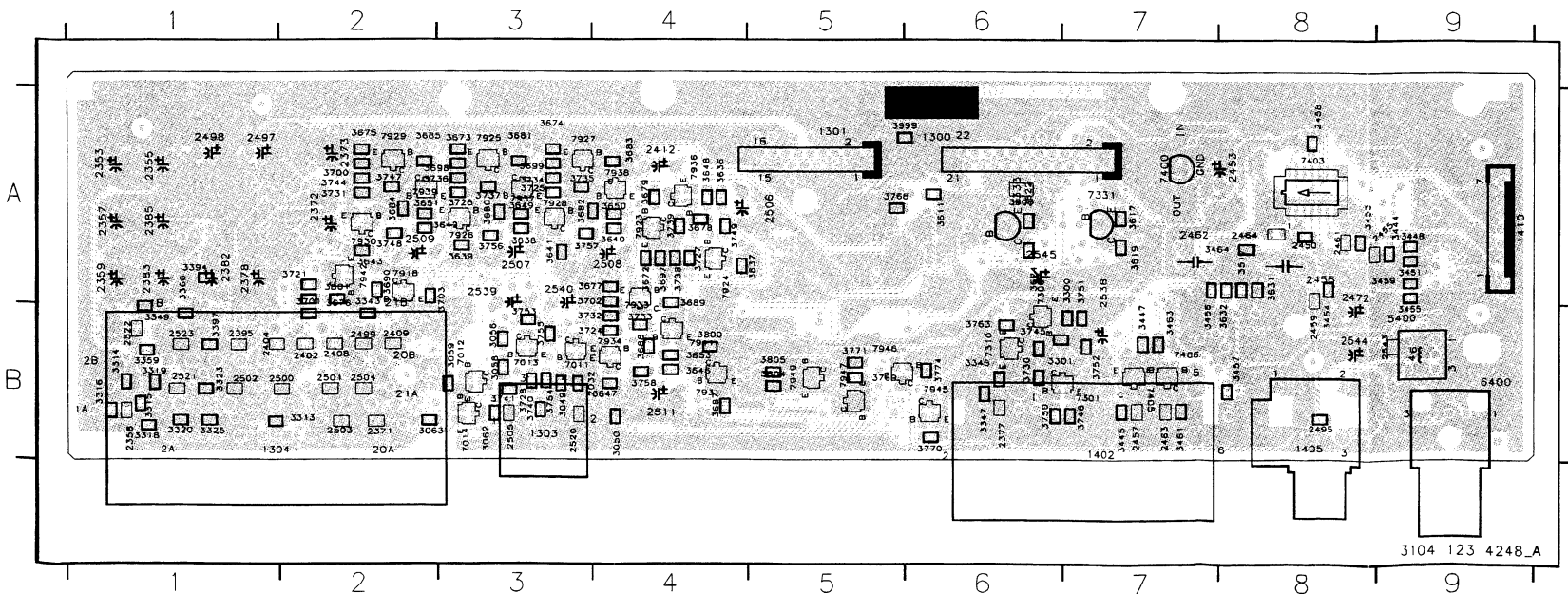
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A/V Mux panel DVD711 /001

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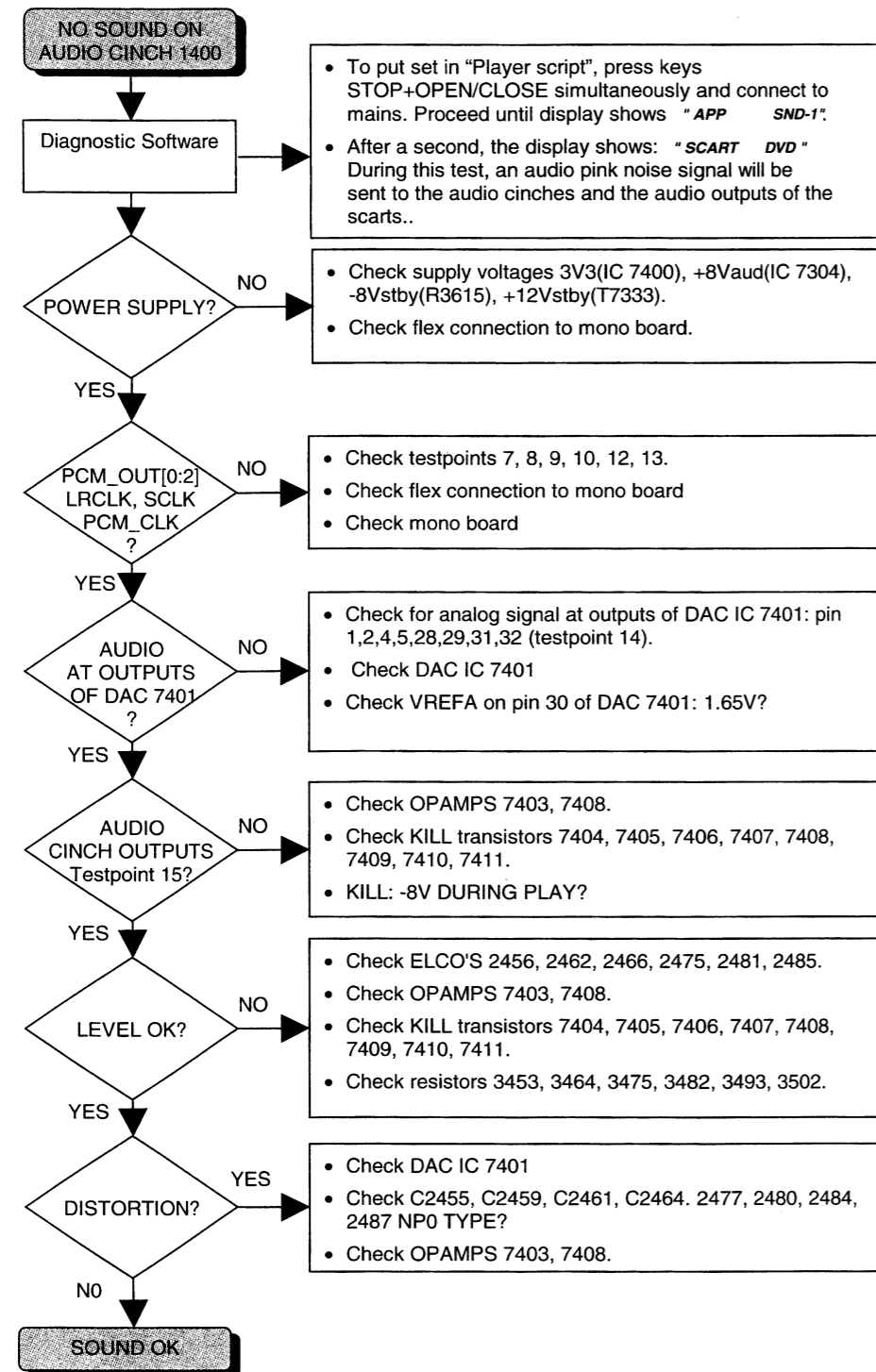


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TROUBLESHOOTING A/V BOARD

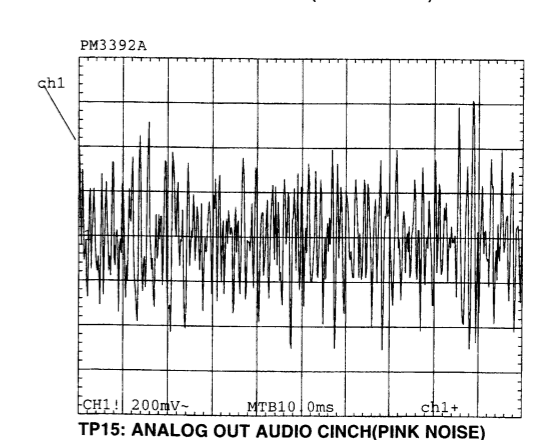
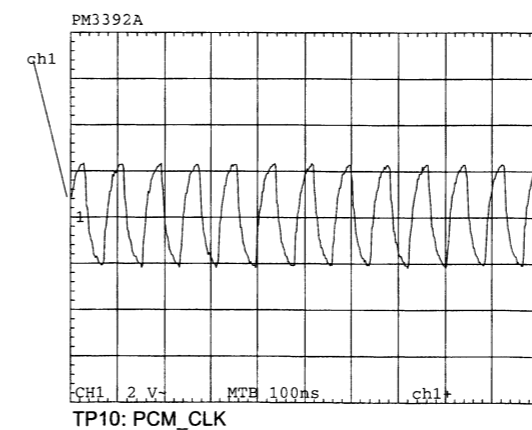
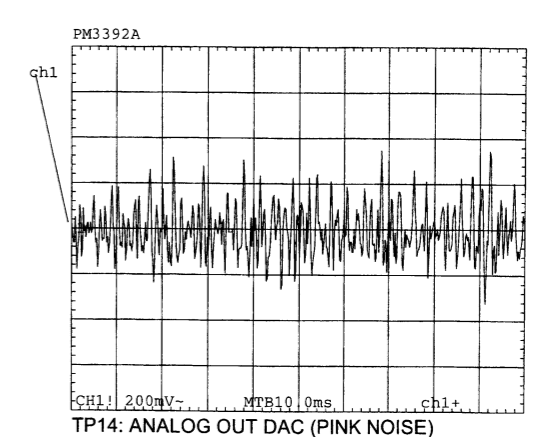
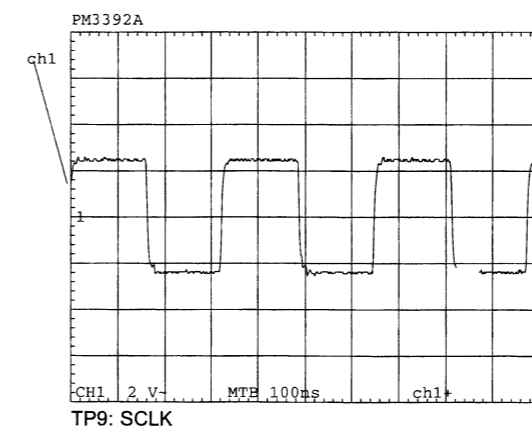
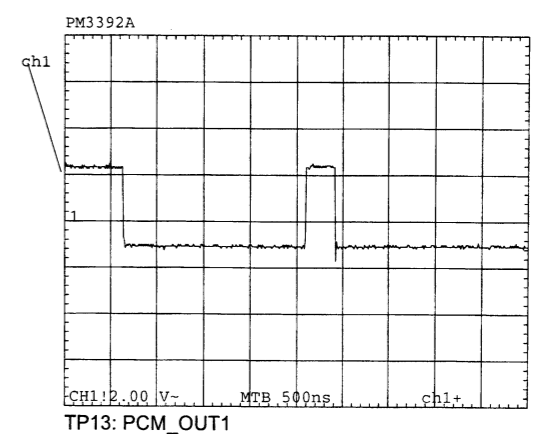
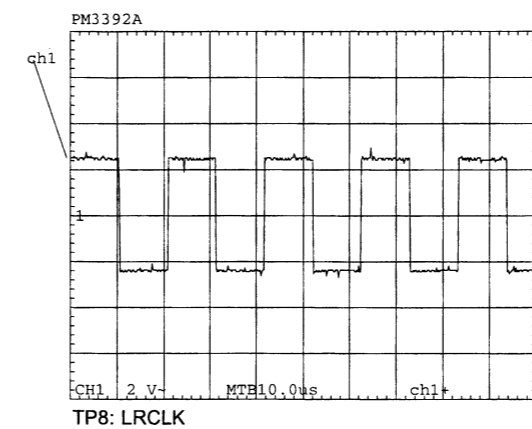
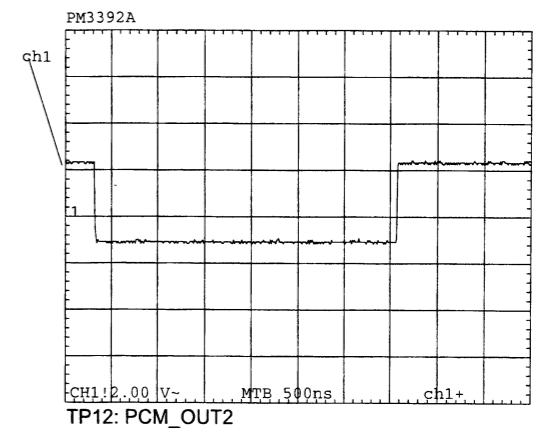
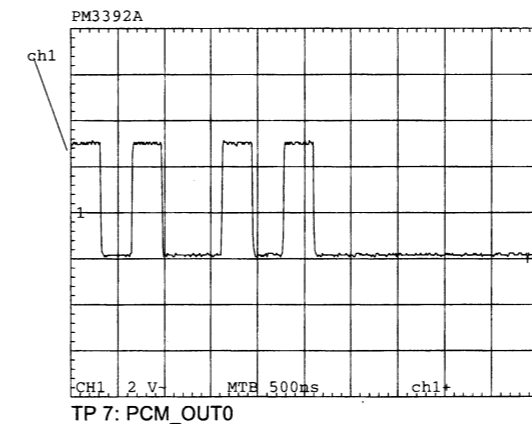
Testing of A/V board can be done using diagnostic software "Player script". Mono board is used to generate a sound with the sound tests SND-1 and SND-2 or a VIDEO signal with the picture test PIC-1. Functional control of scart switching and RGB video processing is also possible. See description in chapter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

AUDIO PART



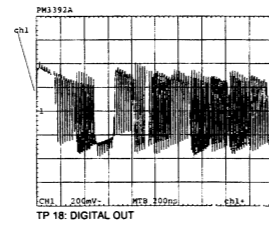
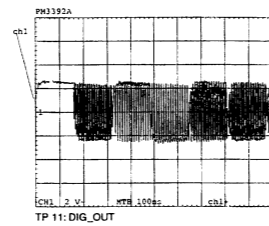
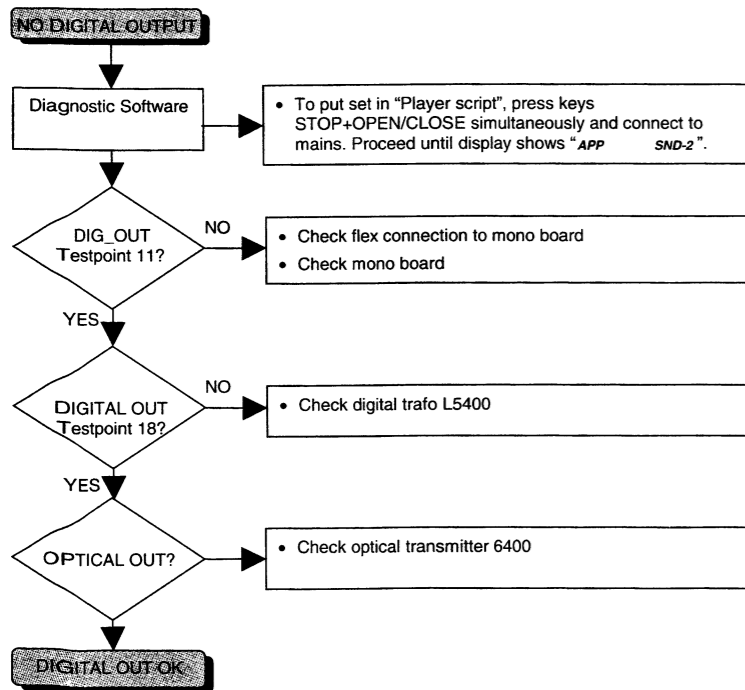
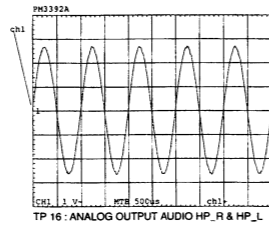
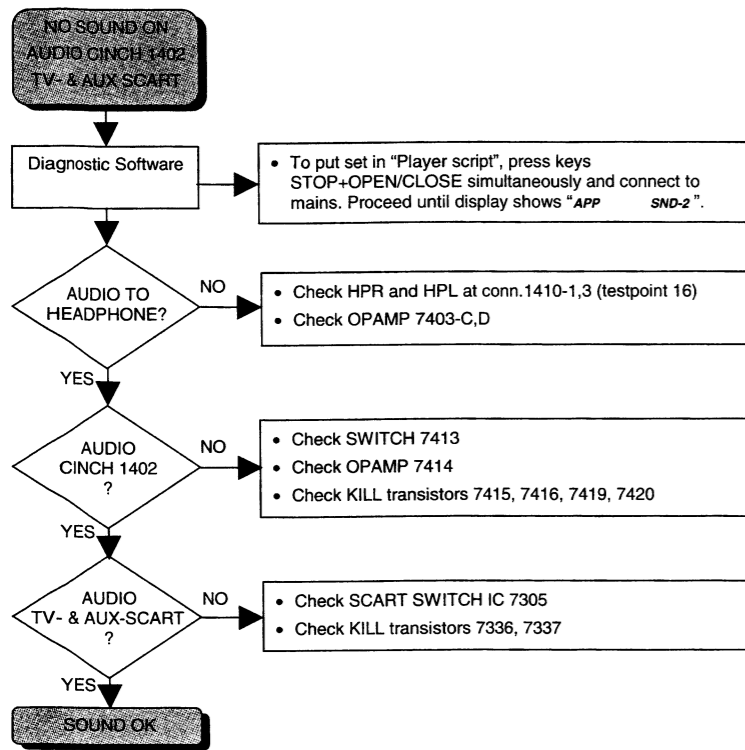
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Audio-1 DVD751 /001



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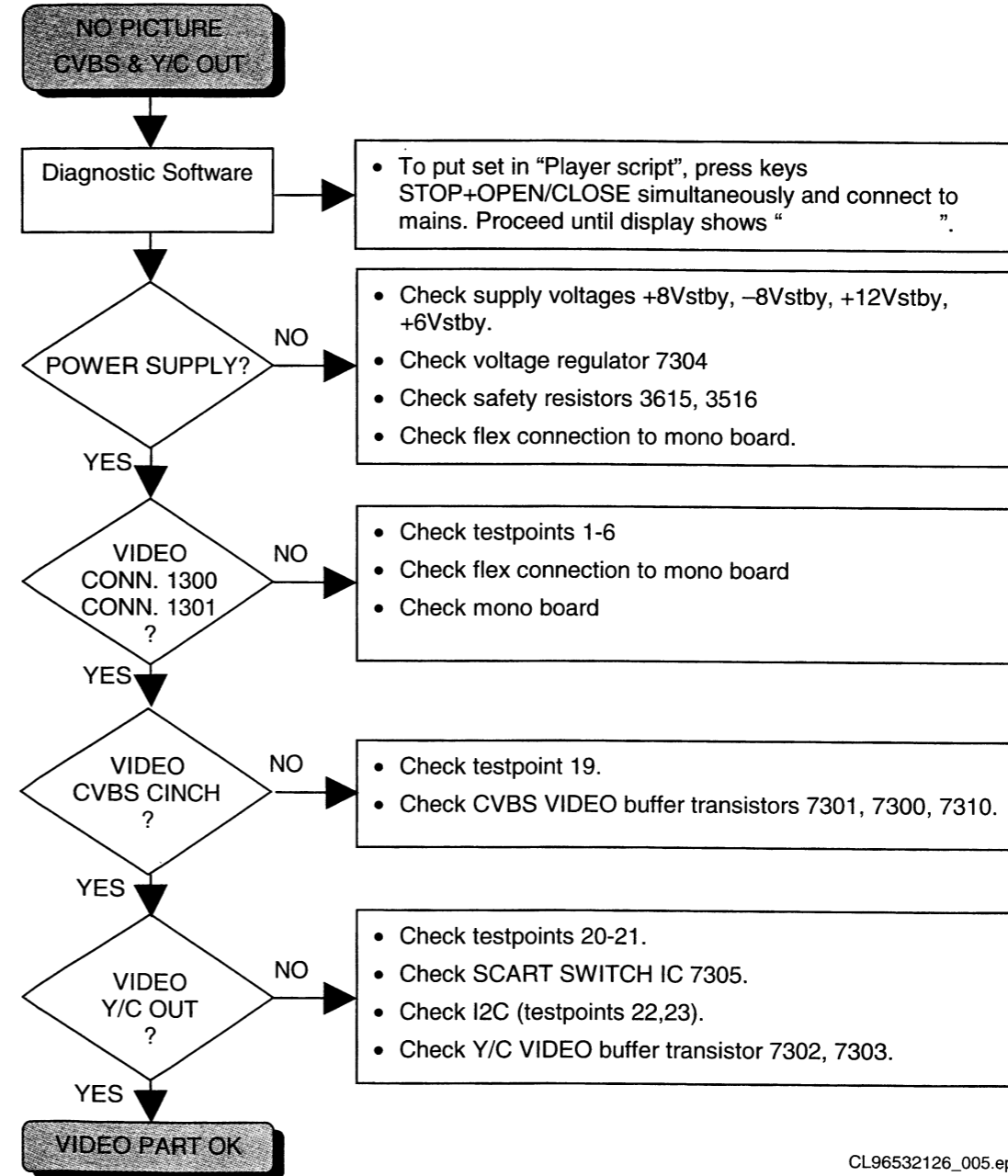
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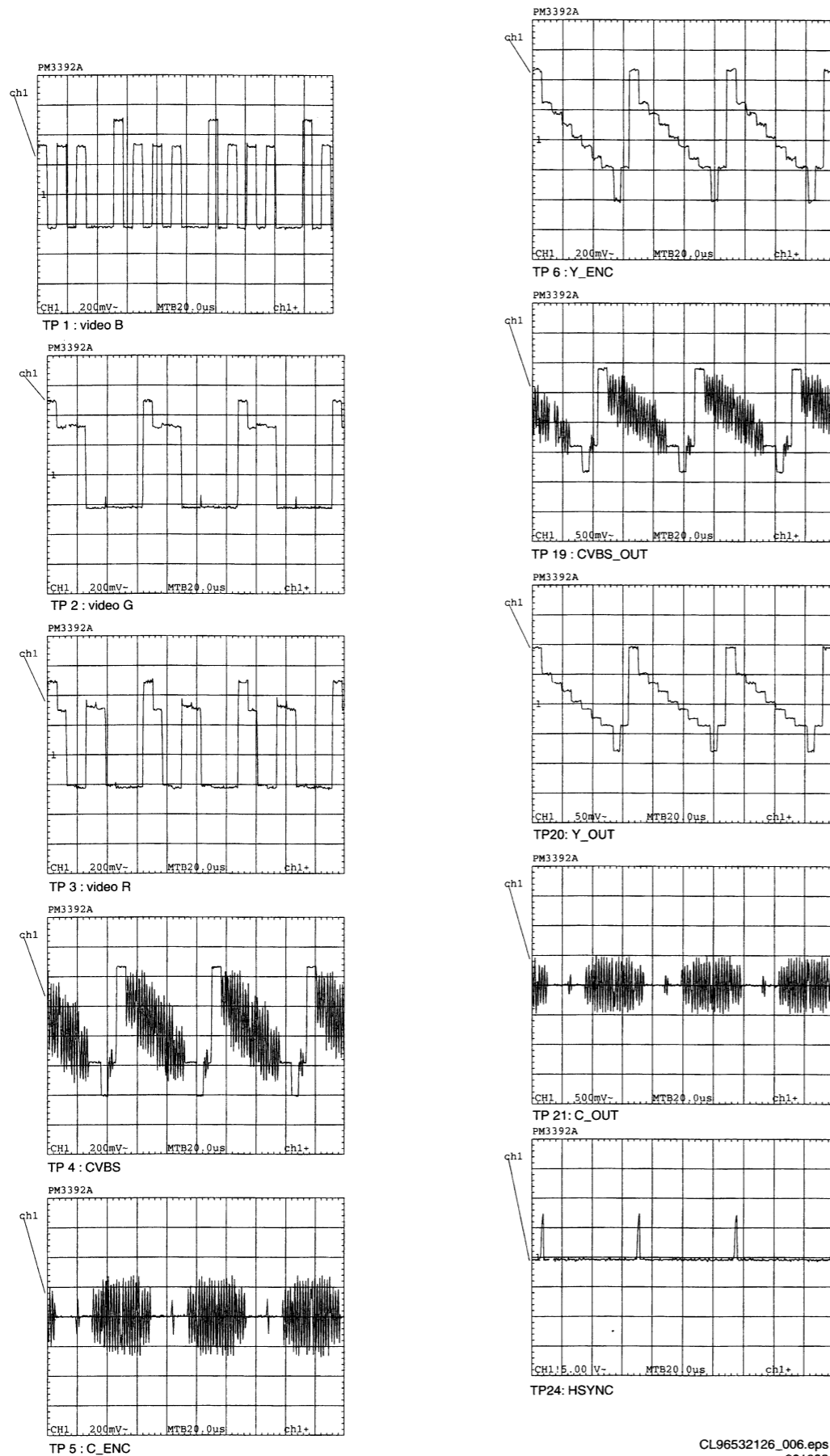
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VIDEO PART



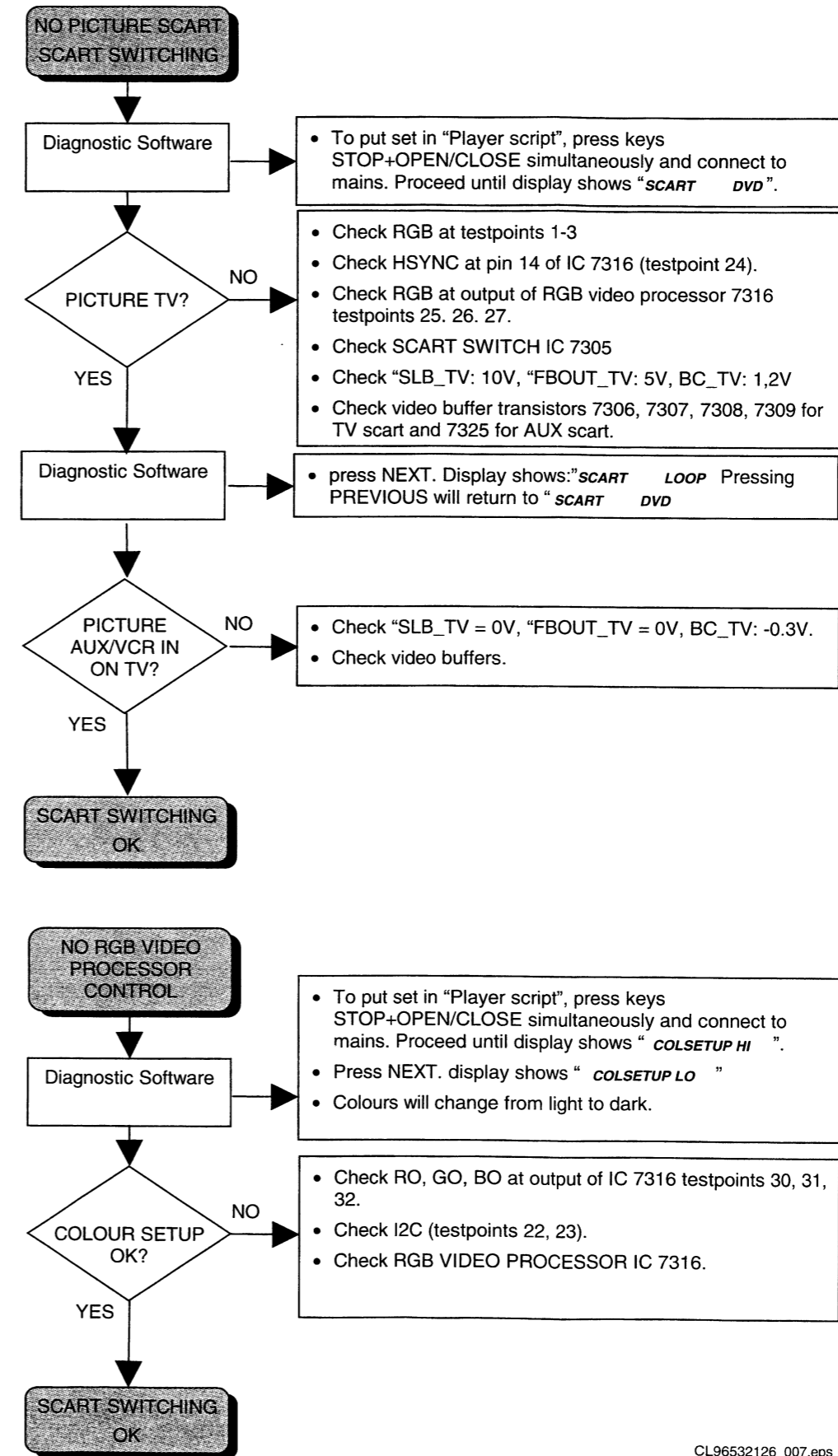
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Video-1 DVD751 /001



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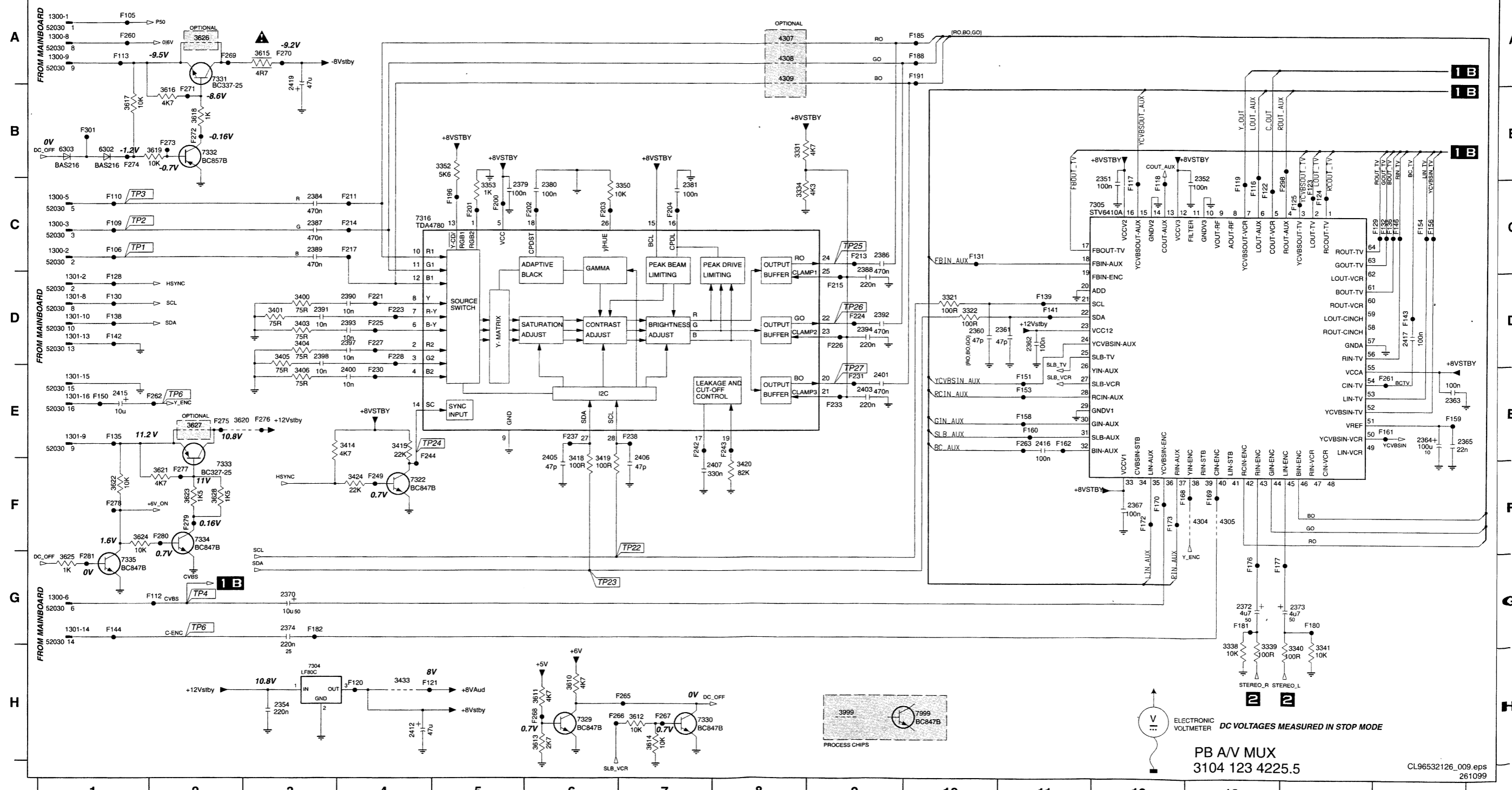


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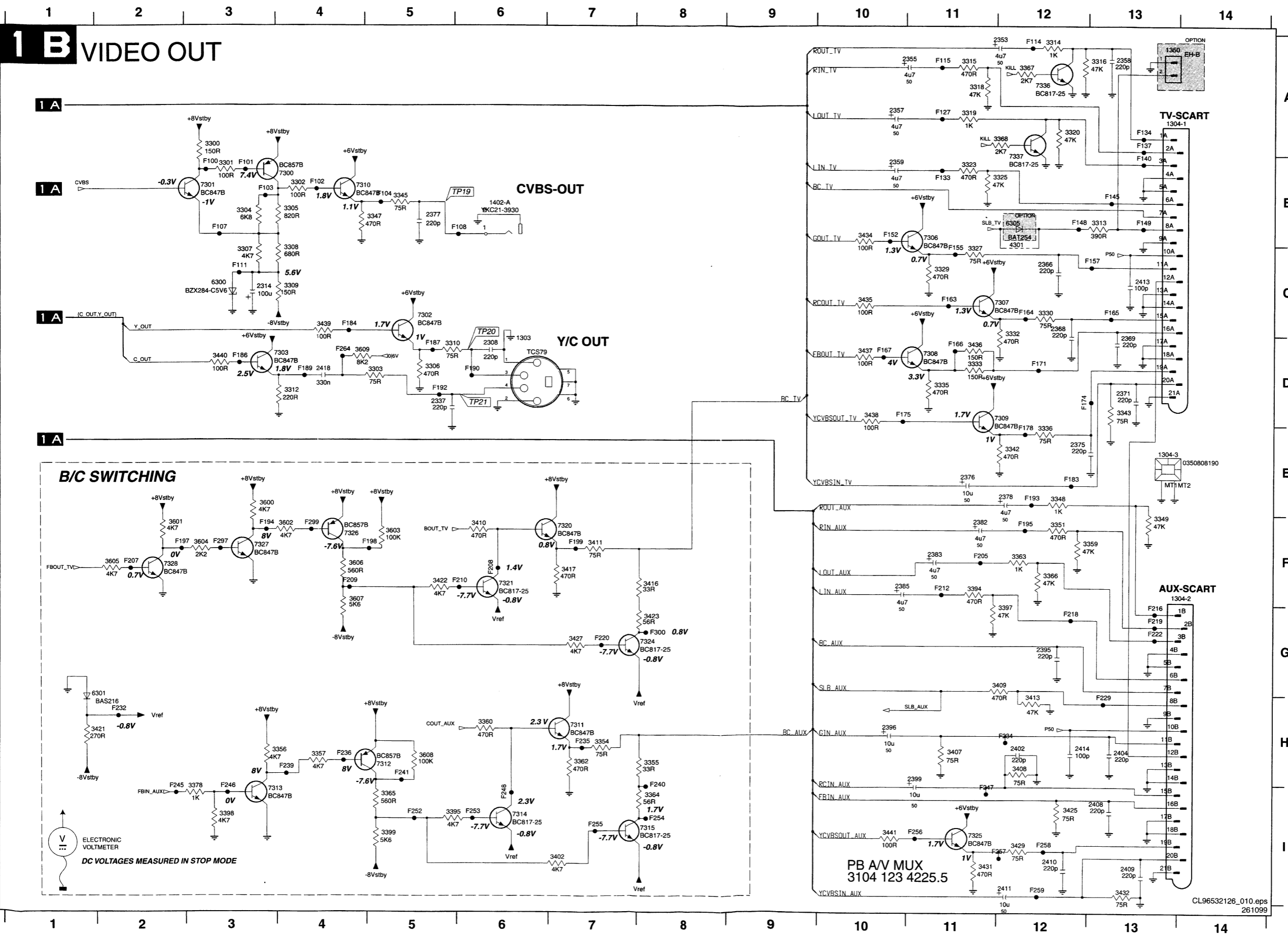
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1 A VIDEO CONTROL & SCART SWITCH

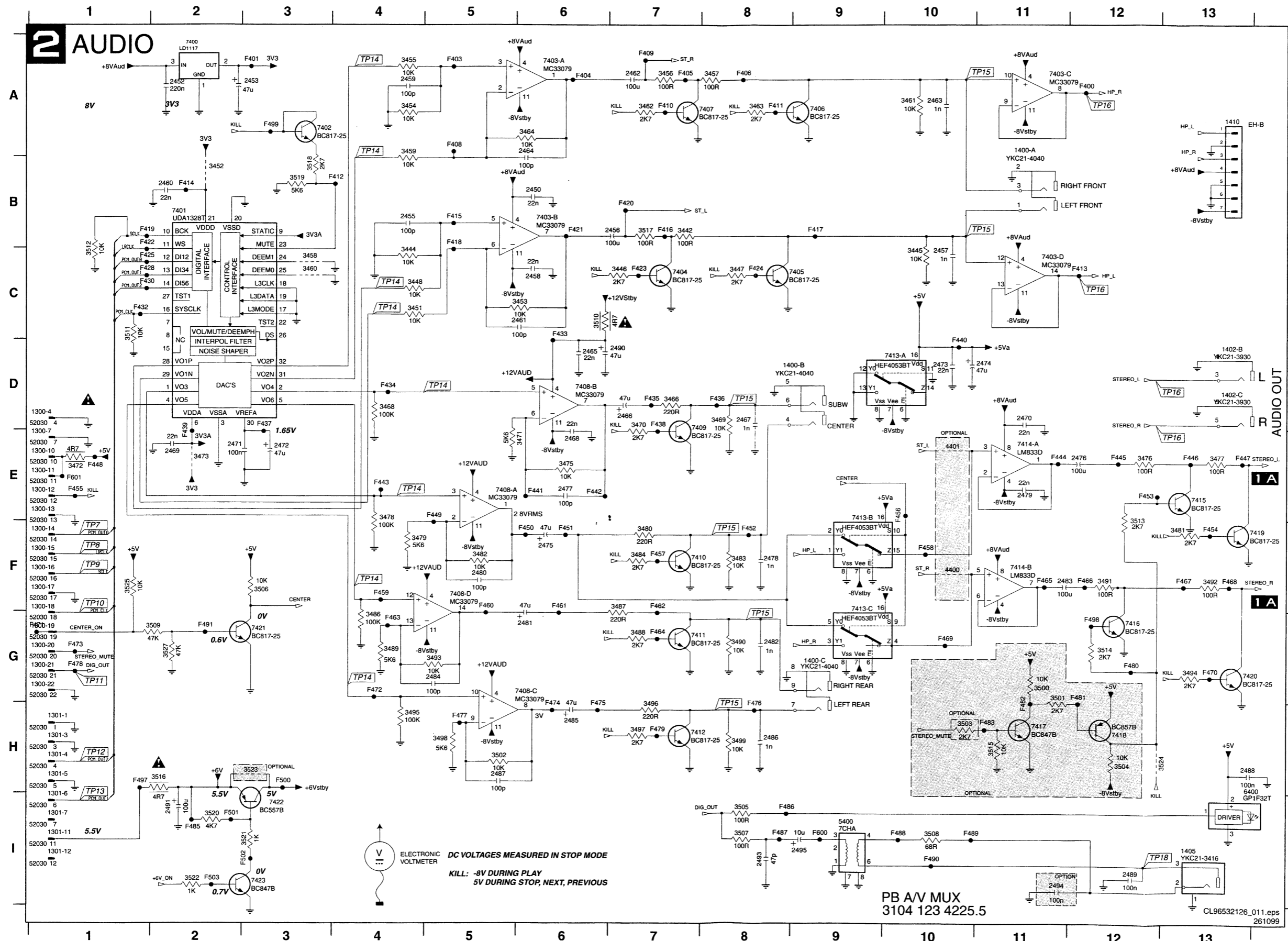


DVD751 /001



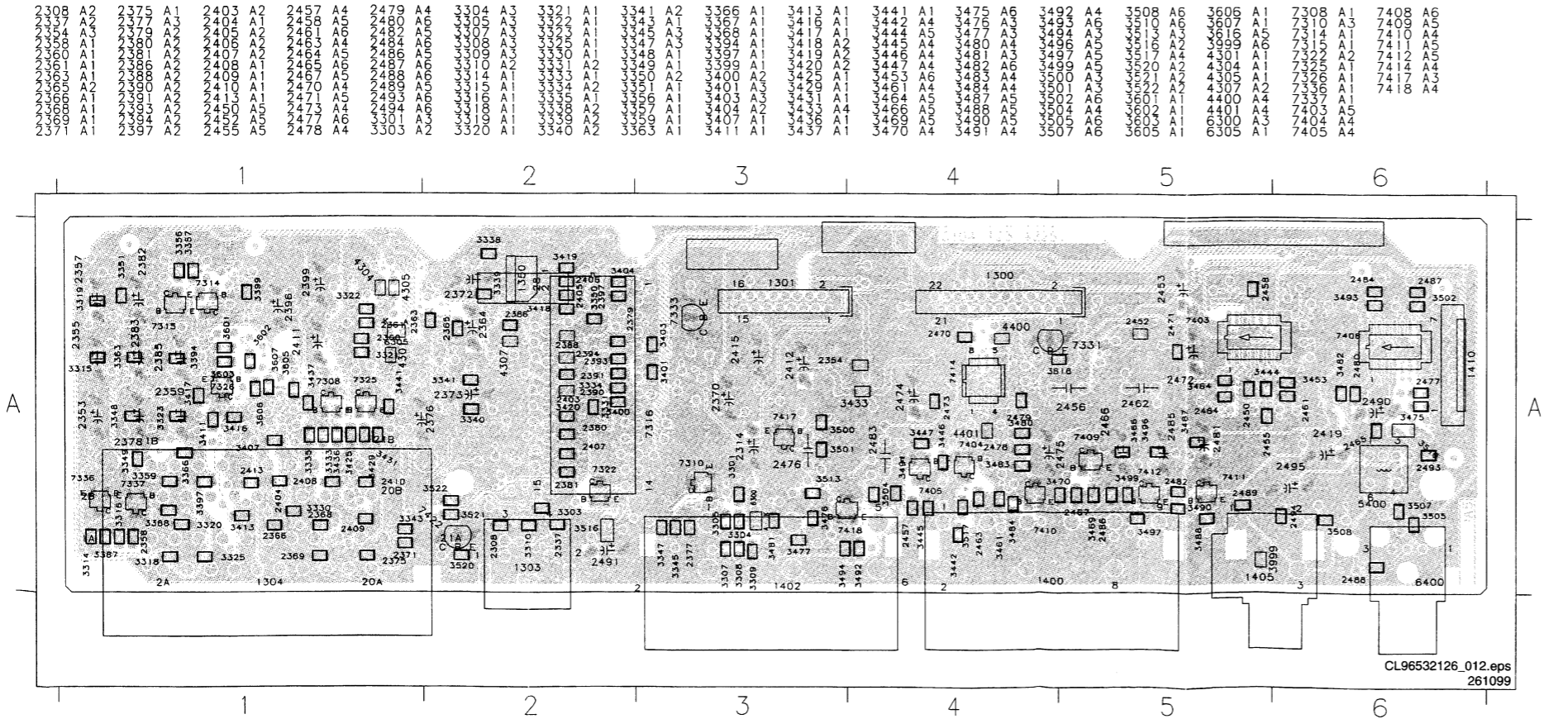
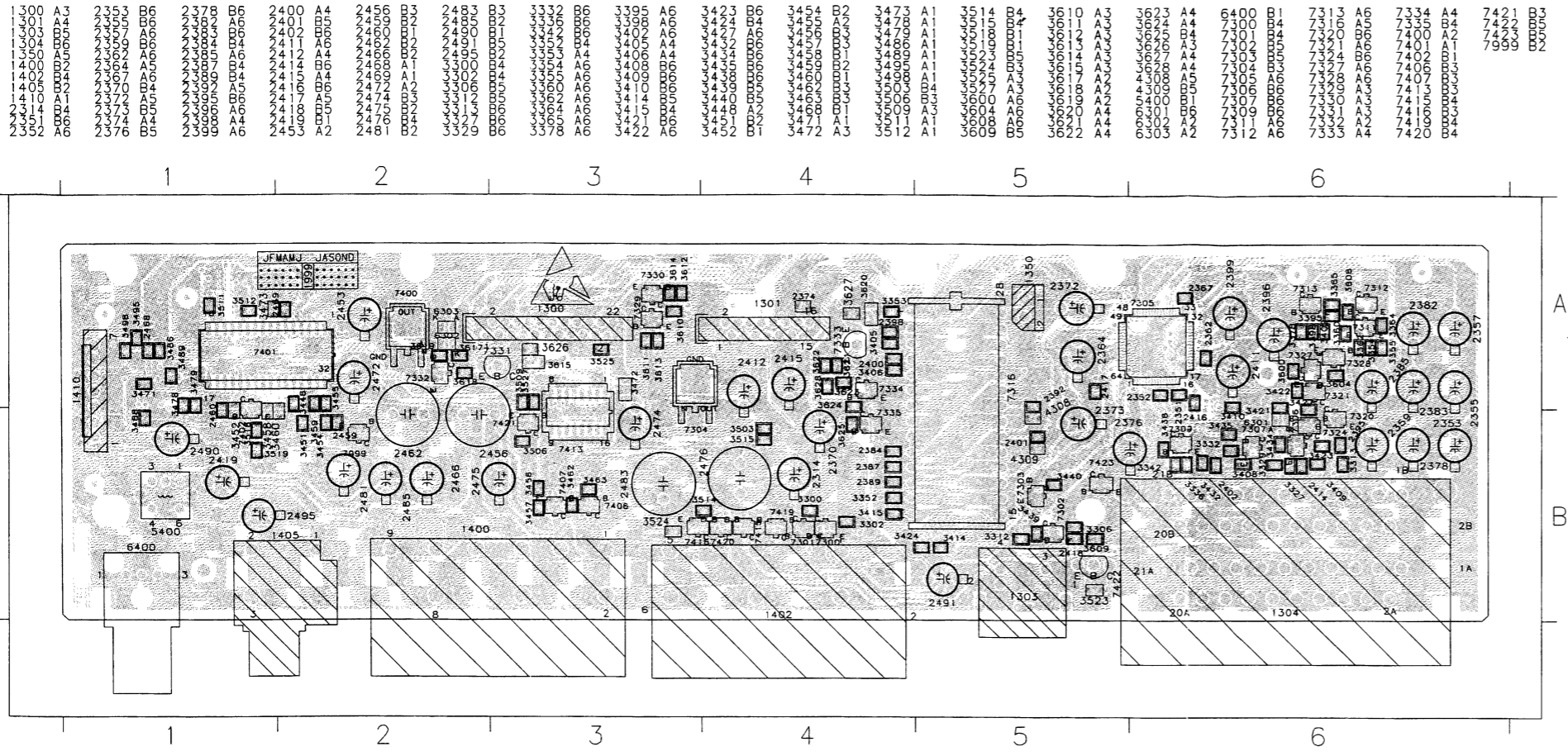
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1301-7 H1	3515 H11	F474 H6
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3484 F7	F444 E11	
3486 G4	F445 E12	
3487 F7	F446 E13	
3488 G7	F447 E13	
3489 G4	F448 E1	
3490 G8	F449 E5	
3491 F12	F450 F6	
3492 F13	F451 F6	

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7. DIAGNOSTIC SOFTWARE : SCRIPT INTERFACES

7.1 DEALER SCRIPT

7.1.2 Contents of Dealer Script

7.1.1 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.

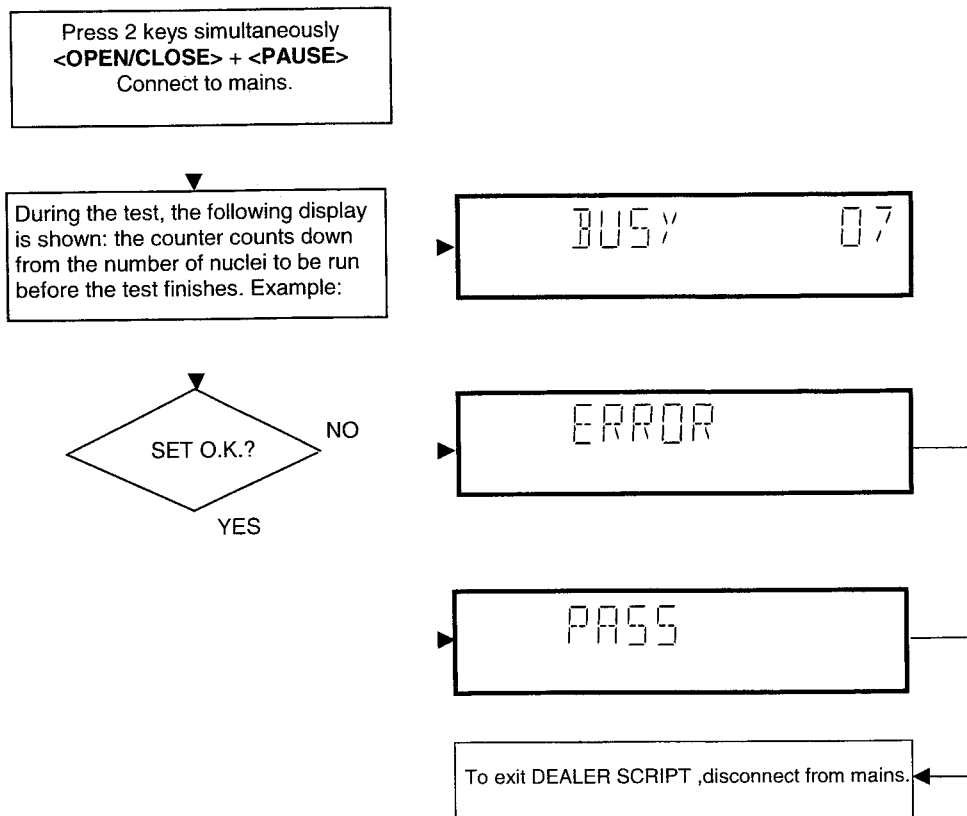
The dealer script executes all diagnostic nuclei that do not need any user interaction and are meaningful on a standalone DVD player.

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	9	Checks the I2C interface with the RGB video processor on the Audio/Video board (only for DVD players with RGB video processor).
VideoScartSwComm	8	Checks the I2C interface with the scart switch on the Audio/Video board
PapChksFl	7	Calculate and verify checksum of FLASH memory.
PapDramWrR	6	Pattern test of all locations in the DRAM(s).
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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Figure 7-1



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Figure 7-2

7.2 PLAYER SCRIPT

7.2.4 Survey

7.2.1 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.

7.2.2 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.

7.2.3 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.

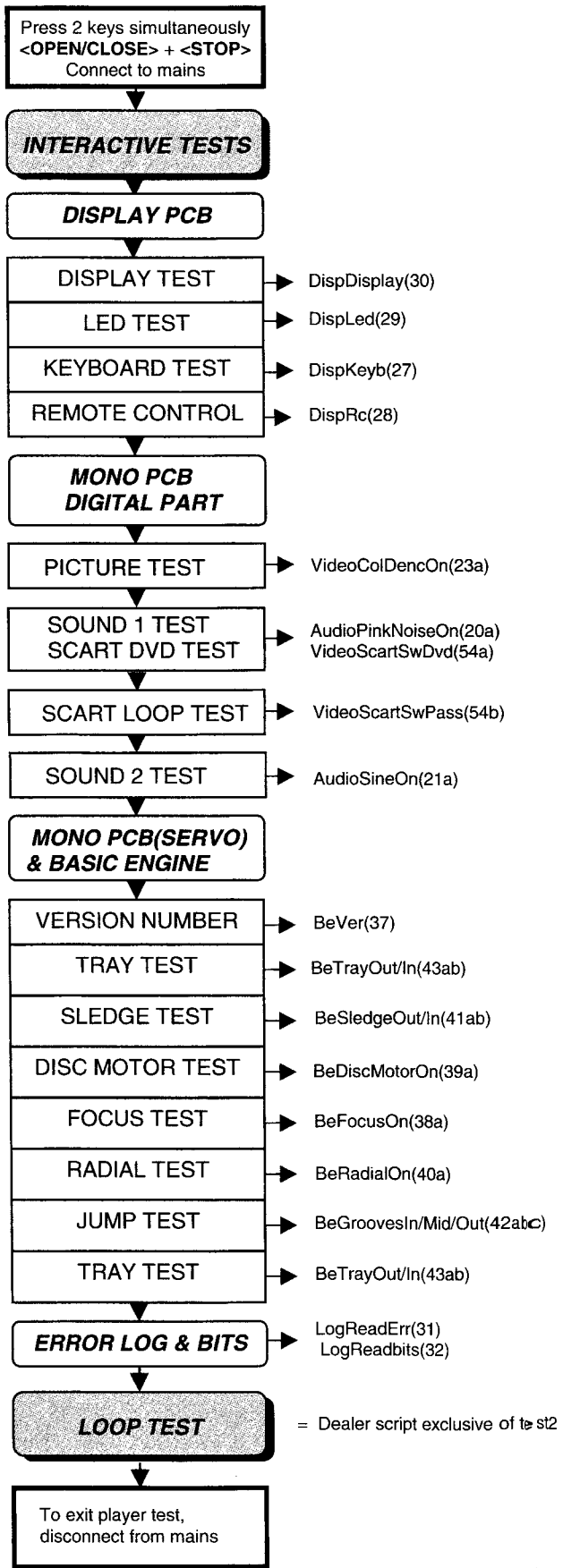


Figure 7-3

8. INTERACTIVE TESTS

8.1 DISPLAY PCB

8.1.1 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 PLAY (pattern is ok) or PAUSE (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner until the user presses NEXT. If the user presses NEXT before all display patterns are tested, the DispDisplay nucleus will return TRUE (display test successful).

8.1.2 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 PLAY, if it is not, press PAUSE. By pressing NEXT the script will proceed to the next test. If the user presses NEXT before PLAY or PAUSE, the DispLed nucleus will return TRUE (LED test successful).

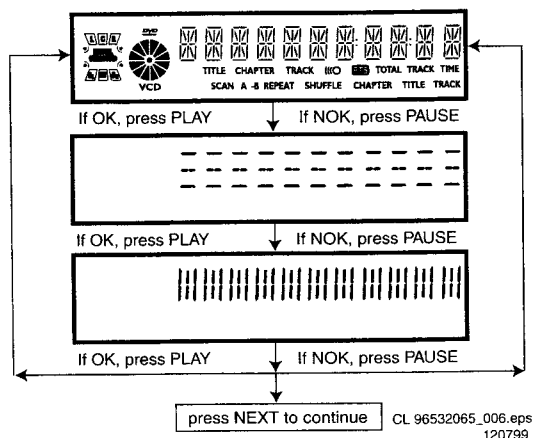


Figure 8-1

8.1.3 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:

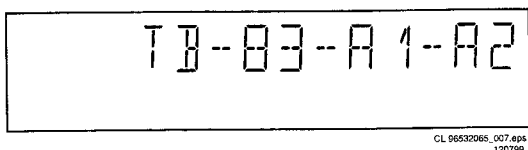


Figure 8-2

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	REPEAT
6	FTS
7	SCAN
8	BACKWARD
9	OPEN / CLOSE
A	FORWARD
B	SHUFFLE

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Figure 8-3

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 user can leave the keyboard test by pressing the NEXT 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:

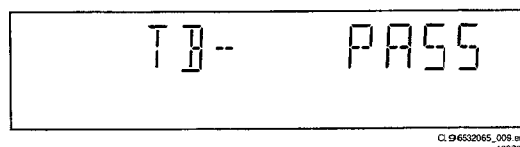


Figure 8-4

Or

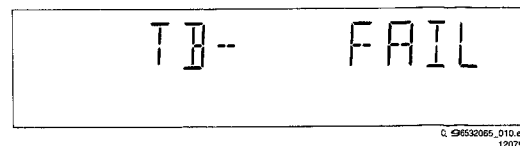


Figure 8-5

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

8.1.4 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. Example:

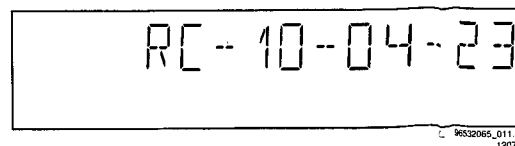


Figure 8-6

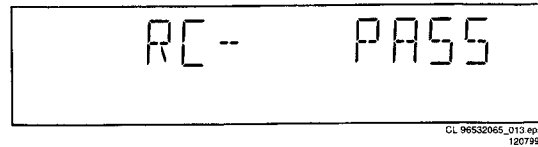
In this example 23 is the hexadecimal code of the pressed RC key. The user can leave the remote-control test by pressing NEXT on the local keyboard of the DVD player. The remote control test is successful if a code was received before the user pressed the NEXT key; pressing the NEXT key before pressing 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.

RC Key id	Hexadecimal code
STANDBY	C
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	D8
SLOW BACKWARD	23
SLOW BACKWARD 2	DB
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	3D
TOGGLE SCART	43
OPEN/CLOSE	42
FTS	FB
KARAOKE	E4
OPTION	FA

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Figure 8-7

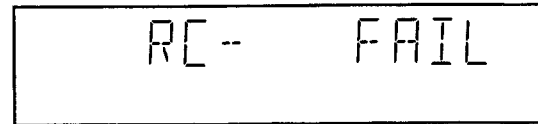
After pressing NEXT, the result of the remote control test is displayed on the local display of the DVD player as follows:



CL 96532065_013.eps
120799

Figure 8-8

Or



CL 96532065_014.eps
120799

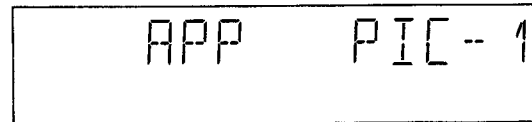
Figure 8-9

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

8.2 MONO PCB DIGITAL PART

8.2.1 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:



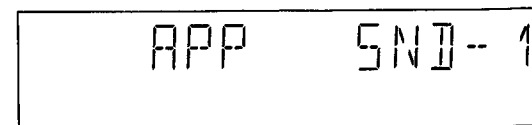
CL 96532065_015.eps
120799

Figure 8-10

By pressing PLAY the user confirms the test, pressing PAUSE will indicate the picture was invisible or incorrect. Pressing NEXT will proceed to the next test

8.2.2 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:



CL 96532065_016.eps
120799

Figure 8-11

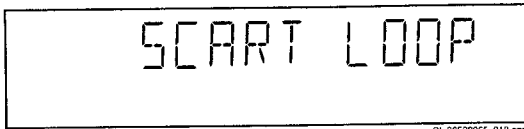
This sound will only be audible from version cut3.1 of Sti5505(item7503 on mono board) onwards. After starting up sound 1, SCART loop-trough will be simultaneously active during this test. SCART loop-trough will be measured with the aid of an external video source. When entering the SCART loop-trough,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



CL 96532065_017.eps
120799

Figure 8-12

On the TV screen a colour bar (generated by nucleus VideoColDencOn) is visual and the internally generated pinknoise is audible. By pressing PLAY the user confirms the test, pressing PAUSE will indicate the sound was inaudible or incorrect. Pressing NEXT will proceed to the next test; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok). By pressing the NEXT 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:



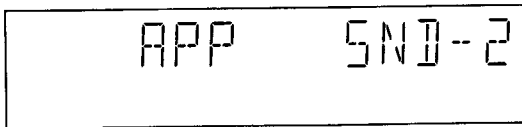
CL 96532065_018.eps
120799

Figure 8-13

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 NEXT key for more than one second.

8.2.3 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:



CL 96532065_019.eps
120799

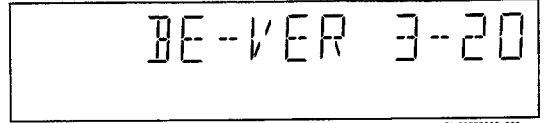
Figure 8-14

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

8.3 BASIC ENGINE

8.3.1 VERSION NUMBER

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



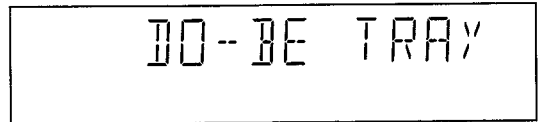
CL 96532065_020.eps
120799

Figure 8-15

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

8.3.2 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:



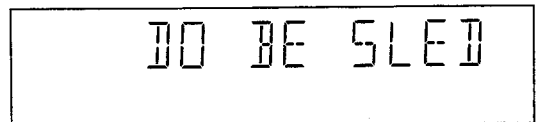
CL 96532065_021.eps
120799

Figure 8-16

By pressing PLAY or PAUSE 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 NEXT will proceed to the next test, after the tray has been closed (by the software) if it was open.

8.3.3 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 PLAY (nucleus BeSledgeOut) and PAUSE (nucleus BeSledgeIn). Pressing NEXT 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 8-17

8.3.4 DISC MOTOR TEST(visual test)

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

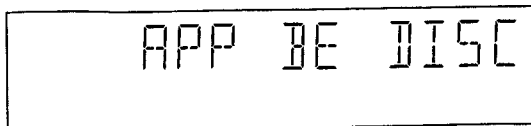
CL 96532065_023 eps
120799

Figure 8-18

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

8.3.5 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:

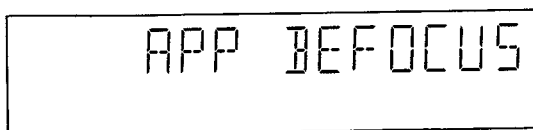
CL 96532065_024 eps
120799

Figure 8-19

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

8.3.6 RADIAL TEST(visual & listening test)

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

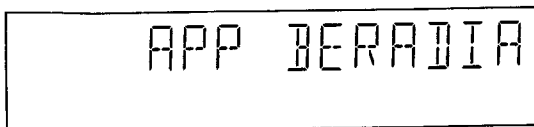
CL 96532065_025 eps
120799

Figure 8-20

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

8.3.7 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:

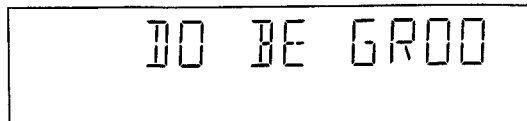
CL 96532065_026 eps
120799

Figure 8-21

The user can switch between the three different types of groove settings by pressing PLAY (forward to next nucleus in the list In-Mid-Out) or PAUSE (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 NEXT proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

8.3.8 TRAY TEST

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

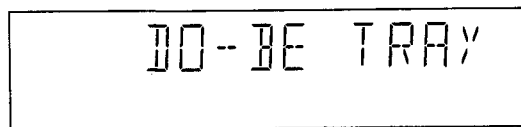
CL 96532065_027 eps
120799

Figure 8-22

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 PLAY and PAUSE key. The tray will be closed (by the software, if it is open) before proceeding to the next test when the user presses the NEXT key.

8.3.9 ERROR LOG

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 :

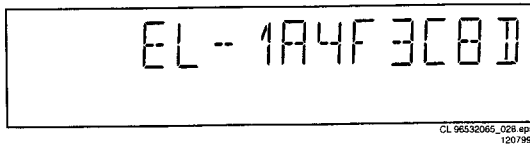


Figure 8-23

By pressing PLAY or PAUSE 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 NEXT on the local keyboard, the user can proceed to the next test.

8.3.10 ERROR BITS

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

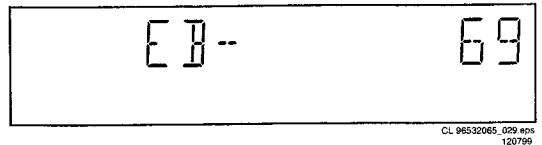


Figure 8-24

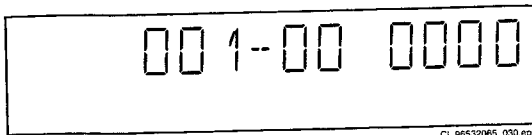
Only the set errorbits will be shown by their (decimal) number. Refer to the appropriate documentation for the explanation of each bit number. If the display only shows "EB-0", no error bits were set. By pressing NEXT the user can continue to the next test.

See table below:

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
Disply processor errors		
Communication error with the display processor	190000	40

8.4 LOOP TEST

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



CL 96532065_030.eps
120799

Figure 8-25

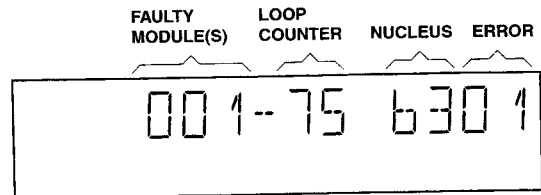
The left side of the display contains a 3-digit code, which can have a value between 000 and 111. These values are to be interpreted as follows:

Displayed Value	Indication for each module		
	Basic Engine	Mono PCB	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

CL 96532065_031.eps
120799

Figure 8-26

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:



CL 96532065_032.eps
120799

Figure 8-27

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
0901	9	The DVD DRAM is faulty
1104	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

CL 96532065_077.eps
210799

Figure 8-28

8.5 Servicing DVD module and MONO board

The DVD module(Basic Engine and the mono board) has to be exchanged completely in case of failure. A new module for DVD750/001 can be ordered with codenumber 3104 129 51980.

Return the defective unit complete assembled in original package to Philips Consumer Service in Eindhoven

8.5.1 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 replacement 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 DVD711/001 : <0><5><3> <0><0><0><0><0><0><0><0><0><0> PAL / NTSC
 for DVD751/001 : <0><5><4> <0><0><0><0><0><0><0><0><0><0> PAL / NTSC

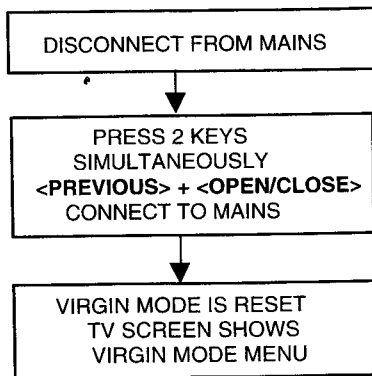
Press <PLAY> again.
 The TV screen will become BLUE during a short time to confirm that the mono board has been reprogrammed, then the set goes to standby mode.

CL 06:32043_001.eps
130400

Figure 8-29

8.5.2 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:

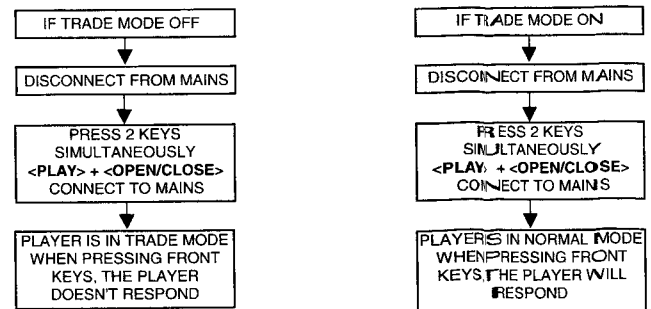


CL 96532065_034.eps
120799

Figure 8-30

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.



CL 96532065_035.eps
120799

Figure 8-31

9. Test instructions Display board

9.1 Display board

9.1.1 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:

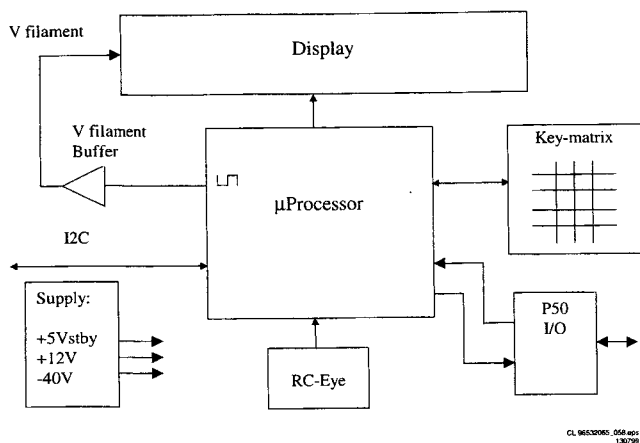


Figure 9-1

9.1.2 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).

9.1.3 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.

9.1.4 Reset

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

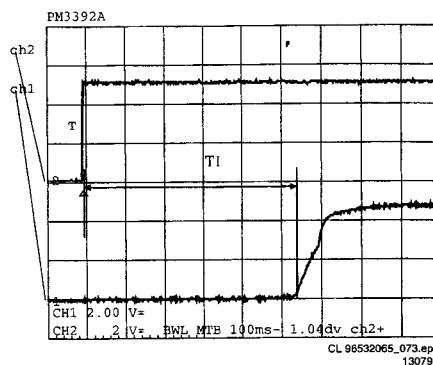


Figure 9-2

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

9.1.5 Display steering

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

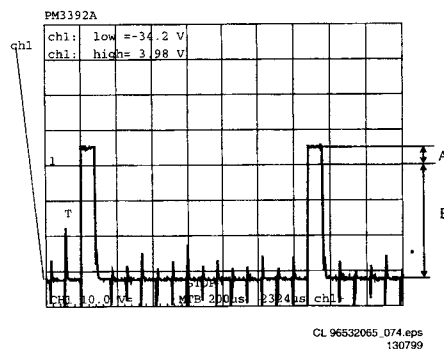


Figure 9-3

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:

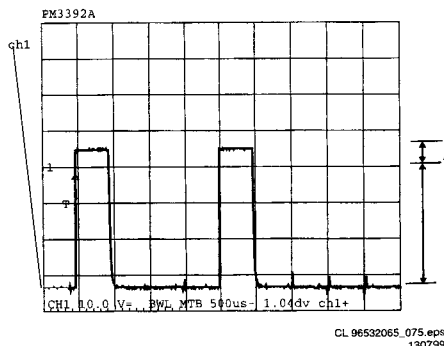


Figure 9-4

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.

9.1.6 Key-matrix

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

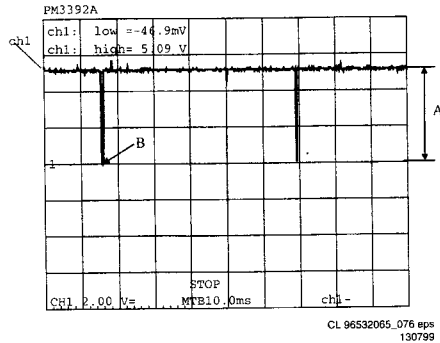


Figure 9-5

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.

9.1.7 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.

9.1.8 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 : xxxxabcd
- Where : a = Karaoke reset.
- : b = Karaoke data.
- : c = Karaoke clock.
- : d = Karaoke strobe.

9.1.9 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.

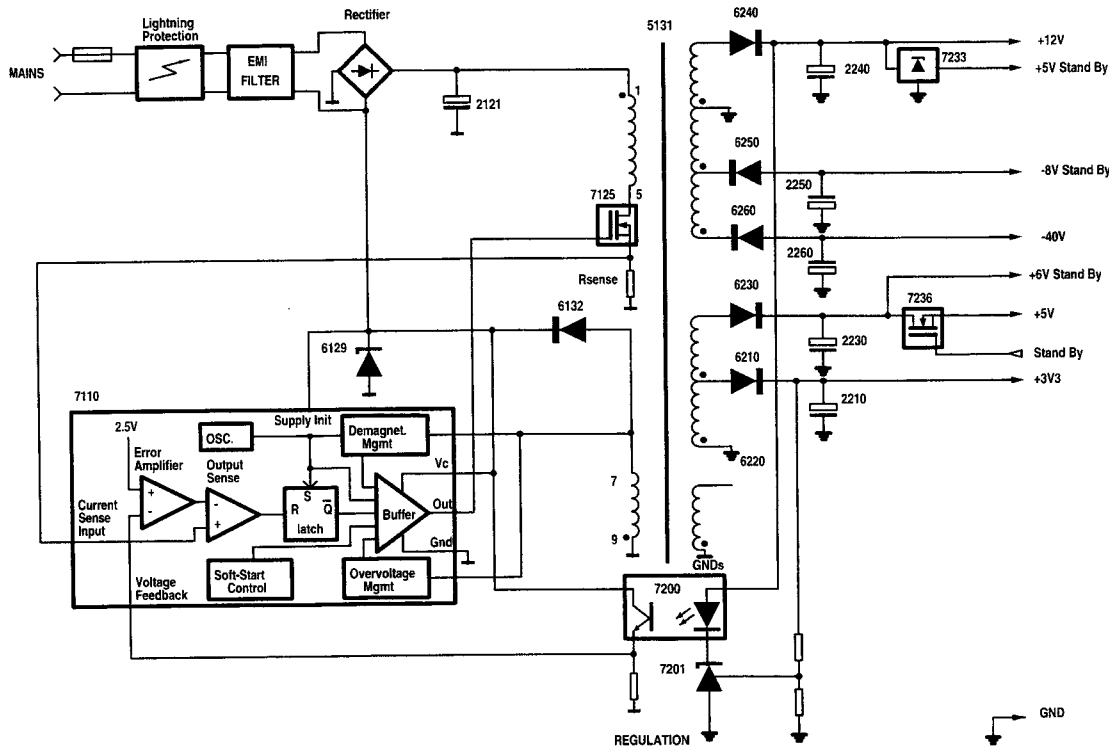
1. Keep the μP in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5: < 200mV.

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.

10. Current mode power supply 20PS203

10.1 Blockdiagram



CL 96532065_064.eps
130799

Figure 10-1

10.1.1 Function description of the current mode power supply

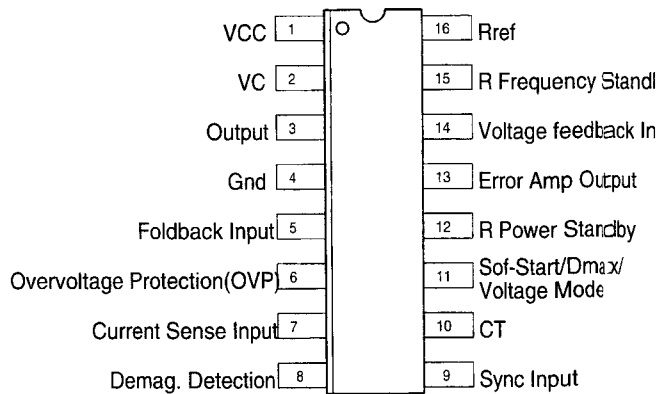
MOSFET 7125 is used as a power switch controlled by the controller IC 7110. When the switch is closed, energy is transferred from the mains into the transformer. This energy is then supplied to the load when the switch is opened. By control of the switched-on time, the energy transferred in each cycle is regulated so that the output voltages are independent of load or input voltage variations. The controlling device MC44603P is an integrated pulse width modulator. A clock signal initiates power pulses at a fixed frequency. The termination of each output pulse occurs when an analogue of the inductor current reaches a threshold established by the error signal. In this way the error signal actually controls the peak inductor current on cycle-by-cycle basis.

10.2 General description of MC44603

The MC44603 is an enhanced high performance controller that is specifically designed for Off-line and dc-to dc converter applications. This device has the unique ability of automatically changing operating modes if the converter output is overloaded, unloaded, or shorted. The MC44603 has several distinguishing features when compared to conventional SMPS controllers. These features consist of a foldback facility for overload protection, a standby mode when the converter output is slightly loaded, a demagnetisation detection for reduced switching stresses on transistor and diodes, and a high current totem pole output ideally suited for driving a power MOSFET. It

can also be used for driving a bipolar transistor in low power converters. It is optimised to operate in discontinuous mode but can also operate in continuous mode. Its advanced design allows use in current mode or voltage mode control applications.

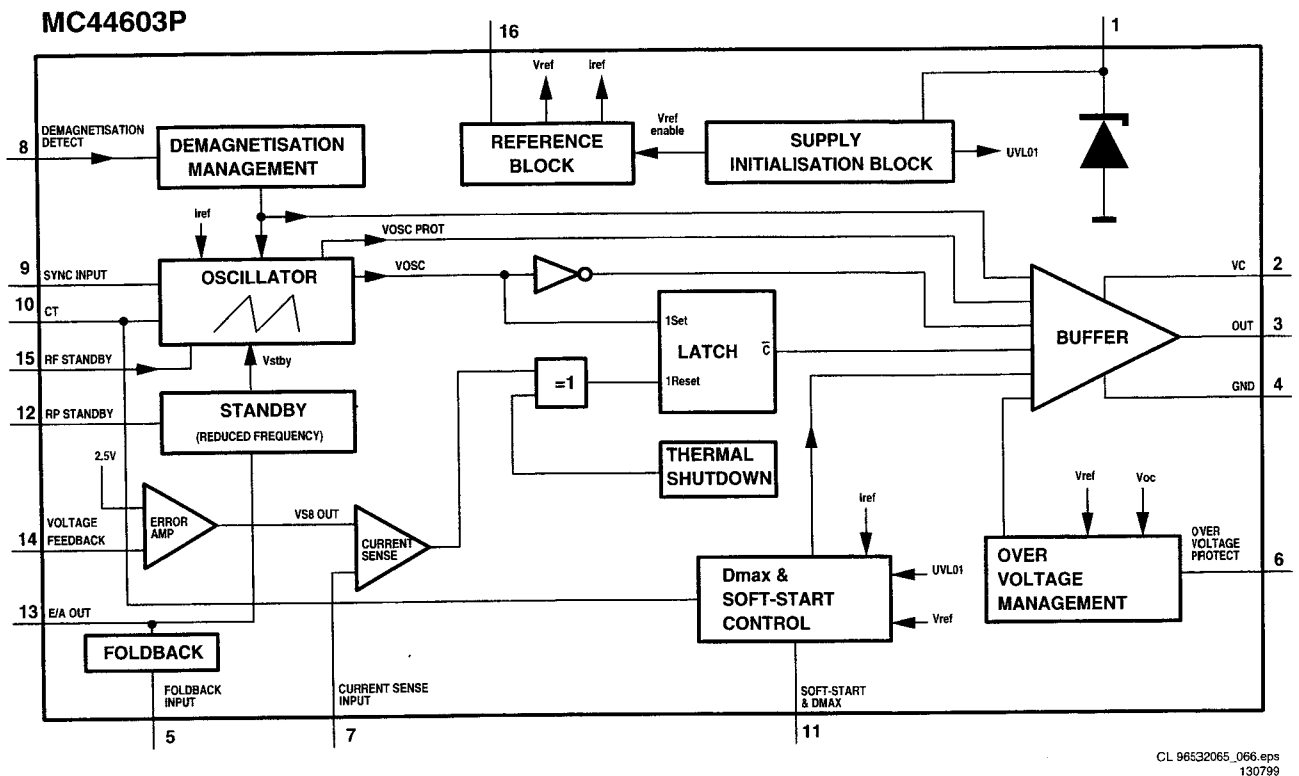
10.3 Pin connections



CL 96532065_057.eps
130799

Figure 10-2

10.4 Blockdiagram of MC44603



CL 96532065_066.eps
130799

Figure 10-3

10.5 Pin function description

Pin function description

Pin	Name	Description
1	VCC	This pin is the positive supply of the IC. The operating voltage range after start-up is 9.0 to 14.5 V.
2	VC	The output high state (VOH) is set by the voltage applied to this pin.
3	Output	Peak currents up to 750 mA can be sourced or sunk, suitable for driving either MOSFET or Bipolar transistors.
4	Gnd	The groundpin is a single return, typically connected back to the power source.
5	Foldback Input	The foldback function provides overload protection.
6	Overvoltage Protection	When the overvoltage protection pin receives a voltage greater than 2.5V, the device is disabled and requires a complete restart sequence.
7	Current Sense Input	A voltage proportional to the current flowing into the power switch is connected to this input.
8	Demagnetisation Detection	A voltage delivered by an auxiliary transformer winding provides to the demagnetisation pin an indication of the magnetisation state of the flyback transformer. A zero voltage detection corresponds to complete core saturation.
9	Synchronisation Input	The synchronisation input pin can be activated with either a negative pulse going from a level between 0.7V and 3.7V to Gnd or a positive pulse going from a level between 0.7V and 3.7V up to a level higher than 3.7V. The oscillator runs free when Pin 9 is connected to Gnd.
10	C _T	The normal mode oscillator frequency is programmed by the capacitor CT choice together with the Rref resistance value. CT, connected between Pin 10 and Gnd, generates the oscillator sawtooth.
11	Soft-Start/Dmax/Voltage-Mode	A capacitor, resistor or a voltage source connected to this pin limits the switching duty-cycle. This pin can be used as a voltage mode control input. By connecting Pin 11 to Ground, the MC44603 can be shut down.
12	RP Standby	A voltage level applied to the RP Standby pin determines the output power level at which the oscillator will turn into the reduced frequency mode of operation(i.e. standby mode). An internal hysteresis comparator allows to return in the normal mode at a higher output power level.
13	E/A Out	The error amplifier output is made available for loop compensation.
14	Voltage Feedback	This is the inverting input of the Error Amplifier. It can be connected to the switching power supply output through an optical (or other) feedback loop.
15	RF Standby	The reduced frequency or standby frequency programming is made by the RF Standby resistance choice.
16	Rref	Rref sets the internal reference current. The internal reference current ranges from 100µA to 500µA. This requires that $5.0k\Omega \leq Rref \leq 25k\Omega$.

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Figure 10-4

10.6 Operating description

The input voltage V_{cc} (pin 1) is monitored by a comparator with hysteresis, enabling the circuit at 14.5V and disabling the circuit below 7.5V. The error amplifier compares a voltage V_{fb} (pin 14) related to the output voltage of the power supply, with an internal 2.5V reference. The current sense comparator compares the output of the error amplifier with the switch current I_{sense} (pin 7) of the power supply. The output of the current sense comparator resets a latch, which is set every cycle by the oscillator. The output stage is a totem pole, capable of driving a MOSFET directly.

10.6.1 Start-up sequence

t1: Charging the capacitor at V_{cc}

C2129 will be charged via R3123 and R3134, C2133 and C2111 via R3129. The output is switched off during t1.

t2: Charging of output capacitors

When the input voltage of the IC exceeds 14.5V, the circuit is enabled and starts to produce output pulses. The current consumption of the circuit increases to about 17mA, depending on the external loads of the IC. At first, the capacitor at the V_{cc} pin will discharge because the primary auxiliary voltage, coming from winding 7-9 is below the V_{cc} voltage. At some moment during t2, the primary auxiliary voltage reaches the same level as V_{cc} . The V_{cc} voltage is now determined by this primary auxiliary voltage.

t3: regulation

The output voltage of the power supply is in regulation

t4: overload

When the output is shortened, the supply voltage of the circuit will decrease and after some time drop below the lower threshold voltage. At that moment, the output will be disabled and the process of charging the V_{cc} capacitor starts again. If the output is still shorted at the next t2 phase, the complete start-and stop sequence will repeat. The power supply comes in a hiccup mode

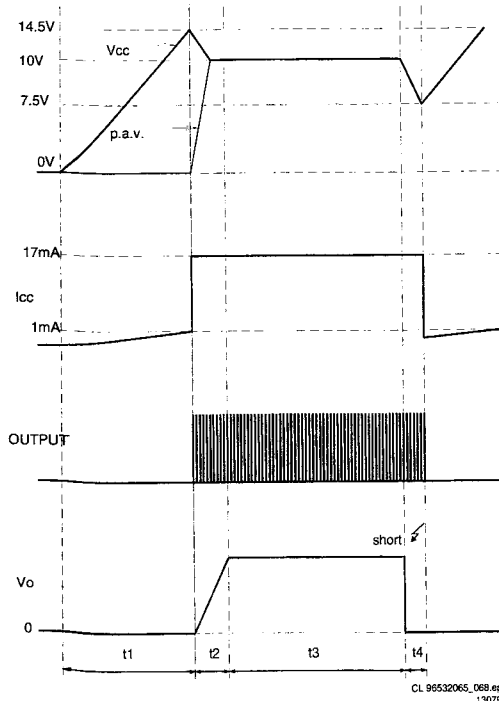


Figure 10-5 Start-up sequence

10.7 Regulation

Figure B shows the most relevant signals during the regulation phase of the power supply.

The oscillator voltage ramps up and down between V1 and V2. The voltage at the current sense terminal is compared every cycle with the output of the error amplifier V_{comp} . The output is switched off when the current sense level exceeds the level at the output of the error amplifier.

1. TimeON phase : A drain current will flow from the positive supply at pin 1 of the transformer through the transformer's primary winding, the MOSFET and R_{sense} to ground. As the positive voltage at pin 1 of the transformer is constant, the current will increase linearly and create a ramp dependent on the mains voltage and the inductance of the primary winding. A certain amount of energy is stored in the transformer in the form of a magnetic field. The polarity of the voltages at the secondary windings is such that the diodes are non-conducting.
2. TimeDIODE phase : When the MOSFET is switched off, energy is no longer supplied to the transformer. The inductance of the transformer now tries to maintain the current which has been flowing through it at a constant level. The polarity of the voltage from the transformer therefore becomes reversed. This results in a current flow through the transformer's secondary winding via the diodes, electrolytic capacitors and the load. This current is also ramp shaped but decreasing.
3. TimeDEAD phase : when the stored energy has been supplied to the load, the current in the secondary windings stops flowing. At this point the drain voltage of the MOSFET will drop to the voltage of C2121 with a ringing caused by the Drain-Source capacitance with the primary inductance.

The oscillator will start a next cycle which consists of the described three-phases. The time of the different phases depends on the mains voltage and the load.

TimeDEAD is maximum at an input of 400VDC and minimum load, it will be zero at an input of 100VDC and overload.

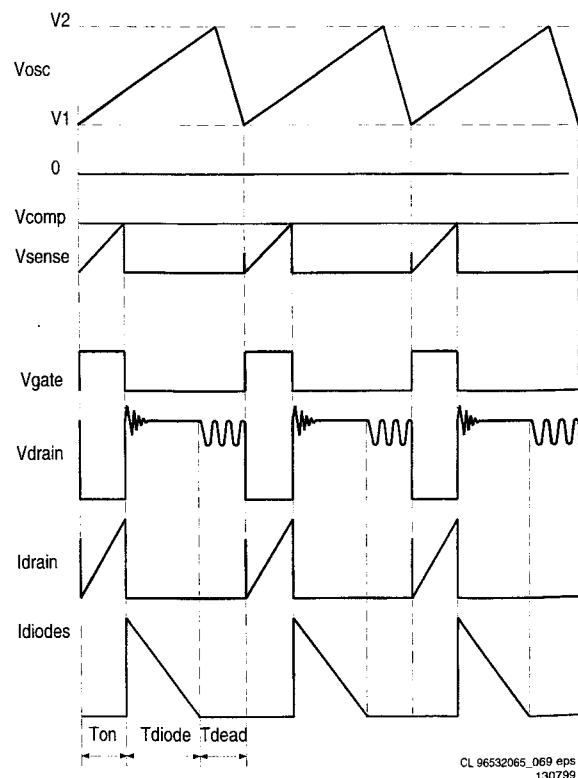
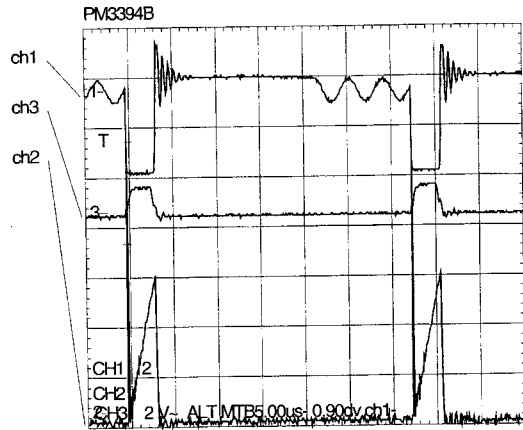
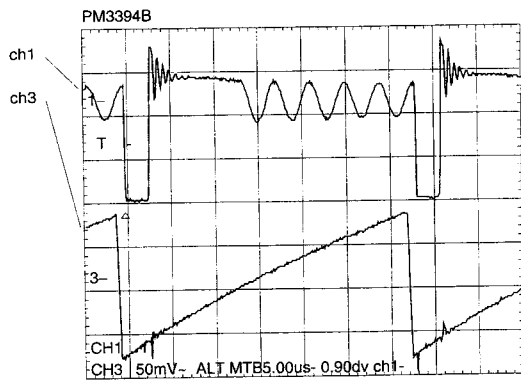


Figure 10-6 Regulation

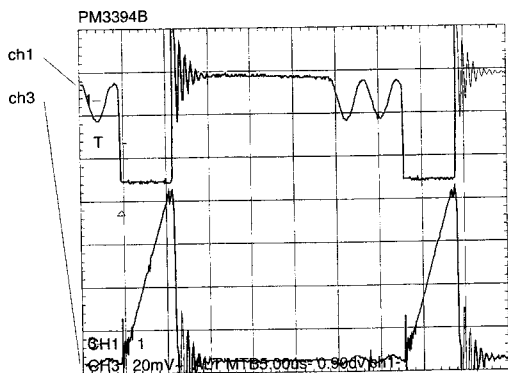
10.8 Oscillograms



ch1 : Drain voltage
ch2 : Drain current
ch3 : Gate voltage



ch1 : Drain voltage
ch2 : Oscillator voltage



ch1 : Drain voltage
ch3 : Sense voltage

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Figure 10-7

11. Circuit descriptions and abbreviations

11.1 Input circuit

The input circuit consists of a lightning protection circuit and an EMI filter.

The lightning protection comprises R3120, gasarrestor 1125 and R3124. The EMI filter is formed by C2120, L5120, C2125 and C2126. It prevents inflow of noises into the mains.

11.2 Primary rectifier/smoothing circuit

The AC input is rectified by rectifier bridge 6120 and smoothed into C2121. The voltage over C2121 is approximately 300V. It can vary from 100V to 390V.

11.3 Start circuit and Vcc supply

This circuit is formed by R3123, R3134, C2129, D6129, R3129, R3111, C2133 and C2111.

When the power plug is connected to the mains voltage, the stabilised voltage over D6129(24V) will charge C2133 via R3129. When the voltage reaches 14.5V across C2111, the control circuit of IC7110 is turned on and the regulation starts. During regulation, Vcc of IC7110 will be supplied by the rectified voltage from winding 7-9 via R3135, D6132 and C2133.

11.4 Control circuit

The control circuit exists of IC7110, C2102, 2104, 2107, 2109, 2110, R3102, 3103, 3104, 3107, 3108, 3109 and 3110. The frequency of the oscillator is defined by C2102 and R3110.

Power switch circuit

This circuit comprises MOSFET 7125, Rsense 3126, 3127 and 3128, R3125, C2127, L5125, R3112 and R3113. R3125 is a pull-down resistor to remove static charges from the gate of the MOSFET.

11.5 Regulation circuit

The regulation circuit comprises opto-coupler 7200 which isolates the error signal from the control IC on the primary side and a reference component 7201. The TL431(7201) can be represented by two components:

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

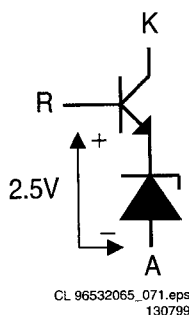


Figure 11-1

TL431 will conduct from cathode to anode when the reference is higher than the internal reference voltage of about 2.5V. If the reference voltage is lower, the cathode current is almost zero.

The cathode current flows through the LED of the opto-coupler. The collector current of the opto-coupler flows through R3106, producing an error voltage, connected to voltage feedback pin 14 of IC7110.

11.6 Demagnetisation

The auxiliary winding (7-9) voltage is used to detect magnetic saturation of the transformer core and connected via R3101 to pin 8 of IC7110. During the demagnetisation phase, the output will be disabled.

11.7 Overvoltage protection circuit

This circuit consist of D6114, C2114, R3115 and R3116. When the regulation circuit is interrupted due to an error in the control loop, the regulated output voltage will increase (overvoltage). This overvoltage is sensed on the primary winding 7-9.

When an overvoltage longer than 2.0 (s) is detected, the output is disabled until VCC is removed and then re-applied. The power supply will come in a hiccup mode as long as the error in the control loop is present.

11.8 Secondary rectifier/smoothing circuit

There are 5 rectifier/smoothing circuits on the secondary side. Each voltage depends on the number of windings of the transformer.

The +5Vstby power supply is derived from the +12Vstby by voltage regulator 7233, C2233 and L5233.

The -5V voltage is regulated by voltage regulator 7259 and will be switched off via D6256, T7256 and T7255 during standby (control signal STAND BY is high). When jumper 4250 is mounted instead of this circuit, a supply voltage -8Vstby will be present at pin 9 of connector 0205. -5V is used in DVD730 MK II, DVD 930 MK II and DVD710. -8Vstby is used in DVD750 and DVD950.

The +5V power supply is derived from +6Vstby by the load-regulator circuit formed by MOSFET 7236, reference component 7237, R3236, R3237 and C2239. This voltage will be switched off during STAND BY via T7235.

The 3V3 power supply is regulated by the control loop (7201, 7200, 7110) of the switched mode PSU.

11.9 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 ST15505 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

12. Spare parts list DVD711 /001

Various			-		
0381	2422 076 00304	CABLE CINCH/CINCH 1M5 YE/RD/WH	2130	3198 028 42290	EL 5MM 35V 22µF PM20 COL A
0382	4822 321 61847	SCART	2201	4822 126 12105	50V 33nF PM5
0384	3139 228 82060	IRT ASSY RC283201/01 PACKED	2211	5322 122 32531	100pF 5% 50V
0385	4822 321 10249	SBC1201 MAINS CABLE	-II-		
0454	3104 126 20540	PE-SHEET 720X550 POLYETHYLEEN	2120	4822 121 10512	275V 220nF 20%
Mechanical			2121	8211 248 53120	C CHM YK 68M 400VM RUBYCONF
Various			2122	4822 121 70141	33nF 5% 400V
0200	3139 247 50790	CAB FRONT DVD711/17X PNT PRT	2127	4822 122 50116	470pF 10% 1KV
0201	4822 459 10887	DVD LOGO DVD711	2130	4822 126 14572	100pF 10% 250V
0202	3139 240 00030	LIGHT CONDUCTOR DVD950	2131	4822 126 14133	1nF 20% 250V
0203	3139 244 00160	LIGHT CONDUCTOR DVD950	2133	4822 124 40248	10µF 20% 63V
0204	3139 247 50900	WINDOW DVD711/17X PNT PRT	2134	2020 012 93111	EL YK 35V S 47µF PM20 A
0219	3139 247 50930	DOOR DVD711/17X PNT PRT	2141	4822 124 22652	2.2µF 20% 50V
0220	3139 241 20110	DOOR SPRING	2143	4822 126 14585	100nF 10% 50V
0232	3139 247 50340	COVER TOP	2145	5322 126 10223	4.7nF 10% 63V
0240	3139 247 50870	BTN CONTROL DVD711/17X PNT PRT	2146	4822 126 14585	100nF 10% 50V
0242	3139 247 51080	RING DVD711 ML PNT PRT	2150	4822 126 14585	100nF 10% 50V
0244	3139 247 50750	FOOT ASSY DVD711	2156	5322 122 31863	63V 330pF PM5
0245	3139 247 50750	FOOT ASSY DVD711	2157	5322 122 32268	470pF 10% 50V
1002	3104 128 06120	AV PB ASSY 4248 DVD750	2202	4822 126 13838	100nF 50V 20%
1014	3139 110 34220	FFC FOIL 22P/105/22P BD B	2210	2020 012 93728	EL YK 10V S 2200µF PM20 B
1018	3139 110 34230	FFC FOIL 16P/105/16P BD B	2230	4822 124 22779	1000µF 10V
Front PCB			2232	4822 124 81021	100µF 20% 16V
Various			2233	4822 124 81021	100µF 20% 16V
0002	3139 244 00440	FTD HOLDER DVD711	2234	4822 126 12105	50V 33nF PM5
1100	4822 276 13775	SWITCH	2238	4822 124 81021	100µF 20% 16V
1101	4822 276 13775	SWITCH	2239	4822 124 81021	100µF 20% 16V
1102	4822 276 13775	SWITCH	2240	4822 124 81147	470µF 20% YK 25V
1106	4822 276 13775	SWITCH	2250	4822 124 41545	220µF 20% 16V
1107	4822 276 13775	SWITCH	2260	4822 124 81151	22µF 50V
1108	4822 276 13775	SWITCH	-II-		
1109	4822 276 13775	SWITCH	3105	4822 053 21684	680k 5% 0.5W
1110	2422 540 98423	RES CER 8MHz CSTS*MHz 03	3111	4822 116 52186	22Ω 5% 0.5W
1111	4822 276 13775	SWITCH	3120	4822 116 21217	1M A/423V 800V
1113	2722 171 07172	VFD 14-MT-27GNK 135*29 (FTB)B	3121	4822 117 12181	470Ω 20% 0.5W
-II-			3123	4822 116 83882	39k 5% 0.5W
2100	4822 122 33575	220pF 5% 63V CASE	3125	4822 117 10833	10k 1% 0.1W
2101	4822 122 33575	220pF 5% 63V CASE	3126	4822 050 24708	4Ω 7% 1% 0.6W
2102	5322 122 32531	100pF 5% 50V	3127	4822 116 80176	1Ω 5% 0.5W
2103	5322 122 32531	100pF 5% 50V	3128	4822 116 80176	1Ω 5% 0.5W
2105	4822 126 12105	50V 33nF PM5	3129	4822 116 83882	39k 5% 0.5W
2106	4822 124 40248	10µF 20% 63V	3134	4822 116 83882	39k 5% 0.5W
2107	4822 126 12105	50V 33nF PM5	3135	4822 053 11159	15Ω 5% 2W
2108	4822 126 12105	50V 33nF PM5	3139	4822 051 20479	47Ω 5% 0.1W
2109	4822 126 12105	50V 33nF PM5	3140	4822 116 52191	33Ω 5% 0.5W
2110	4822 126 12105	50V 33nF PM5	3141	4822 117 10833	10k 1% 0.1W
2111	4822 126 12105	50V 33nF PM5	3143	4822 117 10834	47k 1% 0.1W
2114	5322 122 32658	22pF 5% 50V	3145	4822 116 83933	15k 1% 0.1W
2115	5322 122 32658	22pF 5% 50V	3146	4822 117 11148	56k 1% 0.1W
2116	4822 126 12105	50V 33nF PM5	3150	4822 117 11139	1k5 1% 0.1W
2117	4822 124 40248	10µF 20% 63V	3153	4822 116 83933	15k 1% 0.1W
2122	4822 126 12105	50V 33nF PM5	3154	4822 051 10102	1k 2% 0.25W
2123	4822 124 11947	10µF 20% 16V	3155	4822 116 52219	330Ω 5% 0.5W
2124	3198 028 42290	EL 5MM 35V 22µF PM20 COL A	3156	4822 051 20339	33Ω 5% 0.1W
2125	5322 122 32658	22pF 5% 50V	3201	4822 116 52176	10Ω 5% 0.5W
2126	4822 124 40248	10µF 20% 63V	3202	4822 117 11141	1k8 1% 0.1W
2128	5322 122 31647	1nF 10% 63V	3204	4822 117 11504	270Ω 1% 0.1W
2129	3198 028 42290	EL 5MM 35V 22µF PM20 COL A	3205	4822 117 11145	4k7 1% 0.1W
PSU 20PS223			3206	4822 051 20008	0Ω jumper . (0805)
Various			3207	4822 051 10102	1k 2% 0.25W
0025	4822 492 63524	FIX. TRANSISTOR	3233	4822 050 11002	1k 1% 0.4W
0101	4822 265 31015	0120 4822 265 11253 FUSE HOLDER 2P	3234	4822 051 10102	1k 2% 0.25W
1120	4822 265 11253	FUSE HOLDER 2P	3235	4822 116 83933	15k 1% 0.1W
1120	4822 265 11253	FUSE HOLDER 2P	3236	4822 051 20472	4k7 5% 0.1W
1120	4822 253 30383	19181 (2.5A)	3237	4822 117 11145	4k7 1% 0.1W
PSU 20PS223			3260	4822 051 20102	1k 5% 0.1W
Various			3262	4822 116 83872	220Ω 5% 0.5W
0025	4822 492 63524	FIX. TRANSISTOR	4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
0101	4822 265 31015	0120 4822 265 11253 FUSE HOLDER 2P	4xxx	4822 051 20008	0Ω 5% 0.25W (0805)
1120	4822 265 11253	FUSE HOLDER 2P	-II-		
1120	4822 253 30383	19181 (2.5A)	5120	4822 157 11846	100mH z
PSU 20PS223			5125	4822 157 11411	100mH z
Various			5131	4822 146 10402	Trafo CT395FANF/P VF
0025	4822 492 63524	FIX. TRANSISTOR	5210	4822 157 11722	6.8µH 20% 7.7X9.5
0101	4822 265 31015	0120 4822 265 11253 FUSE HOLDER 2P	5223	4822 157 50963	2.2µH
1120	4822 265 11253	FUSE HOLDER 2P	5231	4822 157 11722	6.8µH 20% 7.7X9.5
1120	4822 253 30383	19181 (2.5A)	5240	4822 157 51195	1 µH 20% 4X9.8MM AXIAL
PSU 20PS223			5260	4822 157 11517	10µH 5% 2.3X3.4

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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
6132	4822	130	42488	BYD33D
6133	4822	130	83649	1SS355
6140	4822	130	30621	1N4148
6141	4822	130	11152	UD218B
6150	4822	130	11148	UDZ4.7B
6210	4822	130	11584	BYW98-200-C1
6230	4822	130	11584	BYW98-200-C1
6241	4822	130	11584	BYW98-200-C1
6250	4822	130	42606	BYD33J
6261	4822	130	42606	BYD33J



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

Loader

Various

0001	9305	023	61001	VAL3000
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AV PCB

Various

1300	4822	265	11154	52030-2210 (22P)
1301	4822	265	11103	52030-1610 (16P)
1303	4822	267	10994	4P, MDIN
1304	2422	033	00334	CON BM EURO H 42P F BK GRND-L
1402	4822	265	11566	3P YKC21-3930
1405	4822	267	31729	

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2032	4822	126	13482	470nF 80/20% 16V
2353	4822	124	40769	4.7µF 20% 100V
2354	4822	126	14076	220nF 25V, P8020
2355	4822	124	40769	4.7µF 20% 100V
2357	4822	124	40769	4.7µF 20% 100V
2358	4822	122	33575	220pF 5% 63V CASE
2359	4822	124	40769	4.7µF 20% 100V
2360	4822	126	13692	47pF 1% 63V
2361	4822	126	13692	47pF 1% 63V
2371	4822	122	33575	220pF 5% 63V CASE
2372	4822	124	40769	4.7µF 20% 100V
2373	4822	124	40769	4.7µF 20% 100V
2377	4822	122	33575	220pF 5% 63V CASE
2378	4822	124	40769	4.7µF 20% 100V
2382	4822	124	40769	4.7µF 20% 100V
2383	4822	124	40769	4.7µF 20% 100V
2384	4822	051	20008	0R00 JUMP. ()
2385	4822	124	40769	4.7µF 20% 100V
2395	4822	122	33575	220pF 5% 63V CASE
2402	4822	122	33575	220pF 5% 63V CASE
2404	4822	122	33575	220pF 5% 63V CASE
2408	4822	122	33575	220pF 5% 63V CASE
2409	4822	122	33575	220pF 5% 63V CASE
2412	4822	124	40433	47µF 20% 25V
2450	5322	122	32654	22nF 10% 63V
2452	4822	126	14076	220nF 25V, P8020
2453	4822	124	40433	47µF 20% 25V
2455	5322	122	32531	100pF 5% 50V
2456	4822	124	22339	100UE 16V
2457	5322	126	10511	1nF 5% 50V
2458	5322	122	32654	22nF 10% 63V
2459	5322	122	32531	100pF 5% 50V
2460	5322	122	32654	22nF 10% 63V
2461	5322	122	32531	100pF 5% 50V

2462	4822	124	22339	100UE 16V
2463	5322	126	10511	1nF 5% 50V
2464	5322	122	32531	100pF 5% 50V
2469	5322	122	32654	22nF 10% 63V
2471	4822	126	14585	100nF 10% 50V
2472	4822	124	40433	47µF 20% 25V
2488	4822	126	14585	100nF 10% 50V
2495	4822	126	14585	100nF 10% 50V
2496	5322	122	32654	22nF 10% 63V
2497	4822	124	81151	22µF 50V
2498	4822	124	41584	100µF 20% 10V
2499	4822	122	33575	220pF 5% 63V CASE
2500	4822	122	33575	220pF 5% 63V CASE
2501	4822	122	33575	220pF 5% 63V CASE
2502	4822	122	33575	220pF 5% 63V CASE
2503	4822	122	33575	220pF 5% 63V CASE
2504	4822	122	33575	220pF 5% 63V CASE
2505	4822	122	33575	220pF 5% 63V CASE
2506	4822	124	40763	2.2µF 100 V
2507	4822	124	40763	2.2µF 100 V
2508	4822	124	40763	2.2µF 100 V
2509	4822	124	40763	2.2µF 100 V
2511	4822	124	40763	2.2µF 100 V
2520	4822	122	33575	220pF 5% 63V CASE
2521	4822	122	33575	220pF 5% 63V CASE
2522	4822	122	33575	220pF 5% 63V CASE
2523	4822	122	33575	220pF 5% 63V CASE
2524	4822	051	20008	0R00 JUMP. ()
2525	4822	051	20008	0R00 JUMP. ()
2527	5322	122	32654	22nF 10% 63V
2528	5322	122	32654	22nF 10% 63V
2529	5322	122	32654	22nF 10% 63V
2530	5322	122	32654	22nF 10% 63V
2531	5322	122	32654	22nF 10% 63V
2532	5322	122	32654	22nF 10% 63V
2533	5322	122	32654	22nF 10% 63V
2534	5322	122	32654	22nF 10% 63V
2535	5322	122	32654	22nF 10% 63V
2536	5322	122	32654	22nF 10% 63V
2537	5322	122	32654	22nF 10% 63V
2538	4822	124	40763	2.2µF 100 V
2539	4822	124	40763	2.2µF 100 V
2540	4822	124	40763	2.2µF 100 V
2541	4822	126	14585	100nF 10% 50V
2542	4822	126	14491	2.2µF 10V
2543	4822	126	13692	47pF 1% 63V
2544	4822	124	40248	10µF 20% 63V
2545	4822	124	40433	47µF 20% 25V



3036	4822	117	11449	2k2 5% 0.1W 0805
3038	4822	051	20223	22k 5% 0.1W
3039	4822	117	10834	47k 1% 0.1W
3040	4822	051	20273	27k 5% 0.1W
3041	4822	051	20822	8k2 5% 0.1W
3043	4822	117	13577	330Ω 1% RC12H 0805 1.25W
3044	4822	051	20223	22k 5% 0.1W
3045	4822	051	20101	100Ω 5% 0.1W
3046	4822	051	20101	100Ω 5% 0.1W
3049	4822	117	11927	75Ω 1% 0.1W
3050	4822	117	11503	220Ω 1% 0.1W
3056	4822	117	13577	330Ω 1% RC12H 0805 1.25W
3058	4822	051	20101	100Ω 5% 0.1W
3059	4822	051	20101	100Ω 5% 0.1W
3062	4822	117	11927	75Ω 1% 0.1W
3063	4822	051	10102	1k 2% 0.25W
3300	4822	117	13577	330Ω 1% RC12H 0805 1.25W
3301	4822	051	20101	100Ω 5% 0.1W
3313	4822	117	11503	220Ω 1% 0.1W
3314	4822	051	10102	1k 2% 0.25W
3315	4822	051	20471	470Ω 5% 0.1W
3316	4822	117	10834	47k 1% 0.1W
3318	4822	117	10834	47k 1% 0.1W
3319	4822	051	10102	1k 2% 0.25W
3320	4822	117	10834	47k 1% 0.1W
3321	4822	051	20101	100Ω 5% 0.1W
3322	4822	051	20101	100Ω 5% 0.1W
3323	4822	051	20471	470Ω 5% 0.1W
3325	4822	117	10834	47k 1% 0.1W
3339	4822	051	10102	1k 2% 0.25W
3340	4822	051	10102	1k 2% 0.25W
3343	4822	117	11927	75Ω 1% 0.1W
3345	4822	117	11927	75Ω 1% 0.1W
3347	4822	051	10102	1k 2% 0.25W
3348	4822	051	10102	1k 2% 0.25W
3349	4822	117	10834	47k 1% 0.1W

3351	4822	051	20471	470Ω 5% 0.1W
3359	4822	117	10834	47k 1% 0.1W
3363	4822	051	10102	1k 2% 0.25W
3366	4822	117	10834	47k 1% 0.1W
3394	4822	051	20471	470Ω 5% 0.1W
3397	4822	117	10834	47k 1% 0.1W
3407	4822	117	11927	75Ω 1% 0.1W
3408	4822	117	11927	75Ω 1% 0.1W
3409	4822	117	11503	220Ω 1% 0.1W
3413	4822	117	10834	47k 1% 0.1W
3425	4822	117	11927	75Ω 1% 0.1W
3432	4822	117	11927	75Ω 1% 0.1W
3433	4822	051	20008	0Ω jumper . (0805)
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
3453	4822	117	10833	10k 1% 0.1W
3454	4822	117	10833	10k 1% 0.1W
3455	4822	117	10833	10k 1% 0.1W
3457	4822	051	20101	100Ω 5% 0.1W
3459	4822	117	10833	10k 1% 0.1W
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
3505	4822	051	20101	100Ω 5% 0.1W
3507	4822	051	20101	100Ω 5% 0.1W
3508	4822	117	12521	68Ω 1% 0.1W
3511	4822	117	10833	10k 1% 0.1W
3512	4822	117	10833	10k 1% 0.1W
3517	4822	051	20101	100Ω 5% 0.1W
3519	4822	051	20562	5k6 5% 0.1W 0805
3610	4822	051	20472	4k7 5% 0.1W
3611	4822	051	20472	4k7 5% 0.1W
3612	4822	117	10834	47k 1% 0.1W
3613	4822	117	12955	2k7 1% 0.1W 0805
3614	4822	051	20223	22k 5% 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	051	10102	1k 2% 0.25W
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	051	20472	4k7 5% 0.1W
3624	4822	117	10833	10k 1% 0.1W
3625	4822	051	10102	1k 2% 0.25W
3629	4822	117		

3688	4822 051 20101	100Ω 5% 0.1W
3689	4822 051 20101	100Ω 5% 0.1W
3690	4822 051 10102	1k 2% 0.25W
3691	4822 051 10102	1k 2% 0.25W
3692	4822 051 10102	1k 2% 0.25W
3693	4822 051 10102	1k 2% 0.25W
3694	4822 051 10102	1k 2% 0.25W
3695	4822 117 10833	10k 1% 0.1W
3696	4822 117 10833	10k 1% 0.1W
3697	4822 051 10102	1k 2% 0.25W
3698	4822 051 10102	1k 2% 0.25W
3699	4822 051 10102	1k 2% 0.25W
3700	4822 051 10102	1k 2% 0.25W
3701	4822 051 20471	470Ω 5% 0.1W
3702	4822 051 10102	1k 2% 0.25W
3703	4822 117 11507	6k8 1% 0.1W
3704	4822 117 11507	6k8 1% 0.1W
3705	4822 117 11507	6k8 1% 0.1W
3706	4822 117 11507	6k8 1% 0.1W
3707	4822 117 11507	6k8 1% 0.1W
3720	4822 117 11148	56k 1% 0.1W
3721	4822 117 10353	150Ω 1% 0.1W
3722	4822 117 11148	56k 1% 0.1W
3723	4822 117 11148	56k 1% 0.1W
3724	4822 051 20229	22Ω 5% 0.1W
3725	4822 051 20229	22Ω 5% 0.1W
3726	4822 051 20229	22Ω 5% 0.1W
3727	4822 051 20229	22Ω 5% 0.1W
3728	4822 051 20229	22Ω 5% 0.1W
3729	4822 051 20229	22Ω 5% 0.1W
3730	4822 051 20229	22Ω 5% 0.1W
3731	4822 051 20229	22Ω 5% 0.1W
3732	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3733	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3734	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3735	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3736	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3737	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3738	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3739	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3740	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3741	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3742	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3743	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3744	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3745	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3746	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3747	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3748	4822 117 10837	100k 1% 0.1W
3749	4822 117 10837	100k 1% 0.1W
3750	4822 117 10837	100k 1% 0.1W
3751	4822 117 10837	100k 1% 0.1W
3752	4822 117 10837	100k 1% 0.1W
3753	4822 117 10837	100k 1% 0.1W
3754	4822 117 10837	100k 1% 0.1W
3755	4822 117 10837	100k 1% 0.1W
3756	4822 117 10837	100k 1% 0.1W
3757	4822 117 10837	100k 1% 0.1W
3758	4822 117 10837	100k 1% 0.1W
3759	4822 117 10837	100k 1% 0.1W
3760	4822 117 10837	100k 1% 0.1W
3761	4822 117 10837	100k 1% 0.1W
3762	4822 117 11504	270Ω 1% 0.1W
3763	4822 051 20101	100Ω 5% 0.1W
3764	4822 117 10833	10k 1% 0.1W
3765	4822 117 10833	10k 1% 0.1W
3768	4822 117 10834	47k 1% 0.1W
3769	4822 117 10834	47k 1% 0.1W
3770	4822 117 10834	47k 1% 0.1W
3771	4822 117 10834	47k 1% 0.1W
3772	4822 117 10834	47k 1% 0.1W
3773	4822 117 10833	10k 1% 0.1W
3774	4822 117 10834	47k 1% 0.1W
3800	4822 051 20472	4k7 5% 0.1W
3801	4822 051 20472	4k7 5% 0.1W

3802▲	4822 117 11152	4Ω7 5%
3803▲	4822 117 11152	4Ω7 5%
3804	4822 117 10834	47k 1% 0.1W
3805	4822 117 10833	10k 1% 0.1W
3999	4822 117 12842	

5400 4822 157 70601 100μH (920927085A)

6302	4822 130 83757	BAS216
6400	4822 130 10845	GP1F32T
6401	4822 130 11047	BZX284-C9V1
6403	4822 130 83757	BAS216
6404	4822 130 11383	BZX284-C5V1



7006	4822 130 60511	BC847B
7007	4822 130 60511	BC847B
7008	4822 130 60511	BC847B
7009	4822 130 60373	BC856B
7010	4822 130 60511	BC847B
7011	4822 130 60511	BC847B
7012	4822 130 60373	BC856B
7013	4822 130 60511	BC847B
7014	4822 130 60511	BC847B
7300	4822 130 60373	BC856B
7301	4822 130 60511	BC847B
7304	9322 134 86668	LF80C
7310	4822 130 60511	BC847B
7329	4822 130 60511	BC847B
7330	4822 130 60511	BC847B
7331	4822 130 40959	BC547B
7332	4822 130 60373	BC856B
7333	4822 130 41246	BC327-25
7334	4822 130 60511	BC847B
7335	4822 130 60511	BC847B
7400	9322 134 92676	L78L33
7401	4822 209 17423	UAD1328T
7402	4822 130 42804	BC817-25
7403	4822 209 32071	MC33079D
7404	4822 130 42615	BC817-40
7405	4822 130 42615	BC817-40
7406	4822 130 42615	BC817-40
7407	4822 130 42615	BC817-40
7900	5322 209 11296	74HC4053N
7901	5322 209 11296	74HC4053N
7902	5322 209 11296	74HC4053N
7903	5322 209 11296	74HC4053N
7904	5322 209 11296	74HC4053N
7905	5322 209 11296	74HC4053N
7917	4822 209 17512	TEA6420D
7918	4822 130 60511	BC847B
7919	4822 130 60511	BC847B
7920	4822 130 60511	BC847B
7921	4822 130 60511	BC847B
7922	4822 130 60511	BC847B
7923	4822 130 60511	BC847B
7924	4822 130 60511	BC847B
7925	4822 130 60511	BC847B
7926	4822 130 60511	BC847B
7927	4822 130 60511	BC847B
7928	4822 130 60511	BC847B
7929	4822 130 60511	BC847B
7930	4822 130 60511	BC847B
7931	4822 130 60511	BC847B
7933	4822 130 60511	BC847B
7934	4822 130 60511	BC847B
7935	4822 130 60511	BC847B
7936	4822 130 60373	BC856B
7937	4822 130 60373	BC856B
7938	4822 130 60373	BC856B
7939	4822 130 60373	BC856B
7941	4822 130 60373	BC856B
7942	4822 130 60373	BC856B
7943	4822 130 60511	BC847B
7944	4822 130 60511	BC847B
7945	4822 130 60373	BC856B
7946	4822 130 60373	BC856B
7947	4822 130 60511	BC847B
7949	4822 130 60511	BC847B

13. Spare parts list DVD 751 /001

Various

Various

0381	2422 076 00304	CABLE CINCH/CINCH 1M5 YE/RD/WH
0382	4822 321 61847	SCART
0384	3139 228 82060	IRT ASSY RC283201/01 PACKED
0385▲	4822 321 10249	SBC1201 MAINS CABLE
0387	3139 246 10280	IFU DVD751/00X
0454	3104 126 20540	PE-SHEET 720X550 POLYETHYLEEN

Accessories

Various

0200	3139 247 50810	CAB FRONT DVD751/00X PNT PRT
0201	4822 459 10887	
0202	3139 240 00030	DVD LOGO DVD711
0203	3139 244 00160	LIGHT CONDUCTOR DVD950
0204	3139 247 50910	WINDOW DVD751/00X PNT PRT
0205	3139 247 50850	BTN STANDBY DVD751/ 00X PNT PRT
0208	3139 247 50670	VOL KNOB DVD931 PNT PRT
0219	3139 247 50940	DOOR DVD751/00X PNT PRT
0220	3139 241 20110	DOOR SPRING
0232	3139 247 50340	COVER TOP
0240	3139 247 50880	BTN CONTROL DVD751/ 00X PNT PRT
0242	3139 247 50950	RING DVD751/00X PNT PRT
0244	3139 247 50750	FOOT ASSY DVD711
0245	3139 247 50750	FOOT ASSY DVD711
1014	3139 110 34220	FFC FOIL 22P/105/22P BD B
1018	3139 110 34230	FFC FOIL 16P/105/16P BD B

Headphone PCB

Various

1003	4822 267 31453	
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2200	4822 122 33926	12pF 50V
2201	4822 126 14585	100nF 10% 50V
2202	4822 126 14585	100nF 10% 50V
2203	4822 126 14585	100nF 10% 50V
2204	5322 122 31647	1nF 10% 63V
2205	4822 122 33926	12pF 50V
2206	4822 126 14585	100nF 10% 50V
2207	5322 122 31647	1nF 10% 63V
2208	4822 124 40207	100µF 20% 25V
2209	4822 124 40207	100µF 20% 25V
2210	5322 122 31647	1nF 10% 63V



3201	4822 101 21199	10kX2 20% 0.025W
3206	4822 051 20101	100Ω 5% 0.1W
3207	4822 051 20229	22Ω 5% 0.1W
3209	4822 051 20101	100Ω 5% 0.1W
3210	4822 051 20229	22Ω 5% 0.1W
3211	4822 051 20472	4k7 5% 0.1W
3212	4822 117 11507	6k8 1% 0.1W
3214	4822 051 20472	4k7 5% 0.1W
3215	4822 117 11507	6k8 1% 0.1W



7802	4822 209 62059	TCA0372DP1
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Front PCB

Various

0002	3139 244 00440	FTD HOLDER DVD711
1100	4822 276 13775	SWITCH
1101	4822 276 13775	SWITCH
1102	4822 276 13775	SWITCH
1106	4822 276 13775	SWITCH
1107	4822 276 13775	SWITCH
1108	4822 276 13775	SWITCH
1109	4822 276 13775	SWITCH
1110	2422 540 98423	RES CER 8MHz CSTS*MHZ 03
1111	4822 276 13775	SWITCH
1112	8239 210 52390	BEEPER PKM13EPY-4002
1113	2722 171 07172	VFD 14-MT-27GNK 135*29 (FTB0)B



2100	4822 122 33575	220pF 5% 63V CASE
2101	4822 122 33575	220pF 5% 63V CASE
2102	5322 122 32531	100pF 5% 50V
2103	5322 122 32531	100pF 5% 50V
2105	4822 126 12105	50V 33nF PM5
2106	4822 124 40248	10µF 20% 63V
2107	4822 126 12105	50V 33nF PM5
2108	4822 126 12105	50V 33nF PM5
2109	4822 126 12105	50V 33nF PM5
2110	4822 126 12105	50V 33nF PM5
2111	4822 126 12105	50V 33nF PM5
2114	5322 122 32658	22pF 5% 50V
2115	5322 122 32658	22pF 5% 50V
2116	4822 126 12105	50V 33nF PM5
2117	4822 124 40248	10µF 20% 63V
2122	4822 126 12105	50V 33nF PM5
2123	4822 124 11947	10µF 20% 16V
2124	3198 028 42290	EL 5MM 35V 22µF PM20 COL A
2125	5322 122 32658	22pF 5% 50V
2126	4822 124 40248	10µF 20% 63V
2128	5322 122 31647	1nF 10% 63V
2129	3198 028 42290	EL 5MM 35V 22µF PM20 COL A
2130	3198 028 42290	EL 5MM 35V 22µF PM20 COL A
2201	4822 126 12105	50V 33nF PM5
2211	5322 122 32531	100pF 5% 50V



3100	4822 051 20223	22k 5% 0.1W
3101	4822 051 20273	27k 5% 0.1W
3102	4822 117 10834	47k 1% 0.1W
3103	4822 117 11149	82k 1% 0.1W
3104	4822 117 10837	100k 1% 0.1W
3105	4822 051 20008	0Ω jumper . (0805)
3106	4822 117 11503	220Ω 1% 0.1W
3107	4822 051 20008	0Ω jumper . (0805)
3108	4822 117 11149	82k 1% 0.1W
3109	4822 051 20472	4k7 5% 0.1W
3110	4822 051 20472	4k7 5% 0.1W
3111	4822 051 20472	4k7 5% 0.1W
3112	4822 051 20472	4k7 5% 0.1W
3113	4822 051 20472	4k7 5% 0.1W
3114	4822 051 20109	10Ω 5% 0.1W
3115	4822 051 20472	4k7 5% 0.1W
3116	4822 117 11149	82k 1% 0.1W
3117	4822 117 11152	4Ω 7% 5%
3118	4822 117 10833	10k 1% 0.1W
3119	4822 117 10833	10k 1% 0.1W
3120	4822 051 20471	470Ω 5% 0.1W
3121	4822 051 20472	4k7 5% 0.1W
3122	4822 051 20109	10Ω 5% 0.1W
3123	4822 117 10833	10k 1% 0.1W
3125	4822 051 20109	10Ω 5% 0.1W
3130	4822 051 20109	10Ω 5% 0.1W
3131	4822 117 11152	4Ω 7% 5%
3132	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3133	4822 051 20109	10Ω 5% 0.1W
3134	4822 117 13577	330Ω 1% RC12H 0805 1.25W

3135	4822 117 11503	220Ω 1% 0.1W
3136	4822 051 10102	1k 2% 0.25W
3137	4822 117 10833	10k 1% 0.1W
3138	4822 051 20471	470Ω 5% 0.1W
3139	4822 051 20472	4k7 5% 0.1W
3140	4822 117 10833	10k 1% 0.1W
3142	4822 117 13577	330Ω 1% RC12H 0805 1.25W
3143	4822 117 10833	10k 1% 0.1W
3144	4822 117 10837	100k 1% 0.1W
3145	4822 117 10833	10k 1% 0.1W
3150	4822 051 20472	4k7 5% 0.1W
3151	4822 051 20101	100Ω 5% 0.1W



6100	4822 130 83757	BAS216
6101	4822 130 11666	BZX284-C8V2
6102	4822 130 10794	BZX284-C10
6104	4822 130 83757	BAS216
6105	4822 130 83757	BAS216
6200	4822 130 82978	LTL-16KPE-P



7100	4822 130 60511	BC847B
7101	4822 130 60511	BC847B
7102	4822 130 60511	BC847B
7103	4822 130 60511	BC847B
7104	3104 123 94530	IC ROM SLAVE DVD950
7105	4822 130 40855	BC337
7106	4822 130 40854	BC327
7107	4822 130 60511	BC847B
7108	4822 130 60511	BC847B
7109	4822 130 60373	BC856B
7110	4822 212 30842	TSOP1736SB1
7112	4822 209 31257	MC79L24ACP

Loader

Various

0001	9305 023 61001	VAL3000
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PSU 20PS223

Various

0025	4822 492 63524	FIX. TRANSISTOR
0101▲	4822 265 31015	
0120	4822 265 11253	FUSE HOLDER 2P
1120▲	4822 253 30383	19181 (2.5A)



2120▲	4822 121 10512	275V 220nF 20%
2121	8211 248 53120	C CHM YK 68M 400V M RUBYCONF
2122	4822 121 70141	33nF 5% 400V
2127	4822 122 50116	470pF 10% 1KV
2130▲	4822 126 14572	100pF 10% 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	4822 124 22779	1000µF 10V
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 41545	220µF 20% 16V

3399	4822 051 20562	5k6 5% 0.1W 0805	3609	4822 051 20822	8k2 5% 0.1W	7423	4822 130 60511	BC847B
3400	4822 117 11927	75Ω 1% 0.1W	3610	4822 051 20472	4k7 5% 0.1W			
3401	4822 117 11927	75Ω 1% 0.1W	3611	4822 051 20472	4k7 5% 0.1W			
3402	4822 051 20472	4k7 5% 0.1W	3612	4822 117 10833	10k 1% 0.1W			
3403	4822 117 11927	75Ω 1% 0.1W	3613	4822 117 12955	2k7 1% 0.1W 0805			
3404	4822 117 11927	75Ω 1% 0.1W	3614	4822 117 10833	10k 1% 0.1W			
3405	4822 117 11927	75Ω 1% 0.1W	3615	4822 117 11152	4Ω7 5%			
3406	4822 117 11927	75Ω 1% 0.1W	3616	4822 051 20472	4k7 5% 0.1W			
3407	4822 117 11927	75Ω 1% 0.1W	3617	4822 117 10833	10k 1% 0.1W			
3408	4822 117 11927	75Ω 1% 0.1W	3618	4822 117 10361	680Ω 1% 0.1W			
3409	4822 051 20471	470Ω 5% 0.1W	3619	4822 117 10833	10k 1% 0.1W			
3410	4822 051 20471	470Ω 5% 0.1W	3620	4822 051 10008	0Ω 5% 0.25W			
3411	4822 117 11927	75Ω 1% 0.1W	3621	4822 051 20472	4k7 5% 0.1W			
3413	4822 117 10834	47k 1% 0.1W	3622	4822 117 10833	10k 1% 0.1W			
3414	4822 051 20472	4k7 5% 0.1W	3623	4822 117 11139	1k5 1% 0.1W			
3415	4822 051 20223	22k 5% 0.1W	3624	4822 117 10833	10k 1% 0.1W			
3416	4822 051 20339	33Ω 5% 0.1W	3625	4822 051 10102	1k 2% 0.25W			
3417	4822 051 20471	470Ω 5% 0.1W	3628	4822 117 11139	1k5 1% 0.1W			
3418	4822 051 20101	100Ω 5% 0.1W	3999	4822 117 12842				
3419	4822 051 20101	100Ω 5% 0.1W	4xxx	4822 051 10008	0Ω 5% 0.25W (1206)			
3420	4822 117 11149	82k 1% 0.1W	4xxx	4822 051 20008	0Ω 5% 0.25W (0805)			
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	5400	4822 157 70601	100μH (920927085A)			
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)	6300	4822 130 10648	BZX284-C5V6			
3434	4822 051 20101	100Ω 5% 0.1W	6301	4822 130 83757	BAS216			
3435	4822 051 20101	100Ω 5% 0.1W	6302	4822 130 83757	BAS216			
3436	4822 117 10353	150Ω 1% 0.1W	6303	4822 130 83757	BAS216			
3437	4822 051 20101	100Ω 5% 0.1W	6306	4822 130 11528	1PS76SB10			
3438	4822 051 20101	100Ω 5% 0.1W	6307	4822 130 11528	1PS76SB10			
3439	4822 051 20101	100Ω 5% 0.1W	6308	4822 130 11528	1PS76SB10			
3440	4822 051 20101	100Ω 5% 0.1W	6309	4822 130 11383	BZX284-C5V1			
3441	4822 051 20101	100Ω 5% 0.1W	6400	4822 130 10845	GP1F32T			
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						
3472	4822 117 11152	4Ω7 5%						
3473	4822 051 20008	0Ω jumper . (0805)						
3476	4822 051 20101	100Ω 5% 0.1W						
3477	4822 051 20101	100Ω 5% 0.1W						
3481	4822 117 12955	2k7 1% 0.1W 0805						
3491	4822 051 20101	100Ω 5% 0.1W						
3492	4822 051 20101	100Ω 5% 0.1W						
3494	4822 117 12955	2k7 1% 0.1W 0805						
3505	4822 051 20101	100Ω 5% 0.1W						
3507	4822 051 20101	100Ω 5% 0.1W						
3508	4822 117 12521	68Ω 1% 0.1W						
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)						
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						