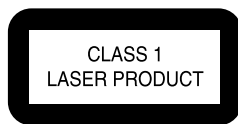


Service
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Service



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020501

Service Manual



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1. Technical Specifications

Specifications

PLAYBACK SYSTEM

DVD Video
Video CD & SVCD
CD (CD-Recordable and CD-Rewritable)
DVD+RW
MP3

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	

VIDEO FORMAT

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

TV STANDARD (PAL/50Hz) (NTSC/60Hz)

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

DVD

Horizontal Resolution	720 pixels	720 pixels
Vertical Resolution	576 lines	480 lines

VCD

Horizontal 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	
Component video output	Y: 1 Vpp into 75 ohm Pb/Cb Pr/Cr: 0.7 Vpp into 75 ohm	
Black Level Shift	On/Off	
Video Shift	Left/Right	

AUDIO FORMAT

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

Analog Sound Stereo

Dolby Pro Logic downmix from Dolby Digital multi-channel sound
3D Sound (TruSurround) for virtual 5.1 channel sound on 2 speakers

AUDIO PERFORMANCE

DA Converter	24 bits	
DVD	fs 96 kHz	4 Hz - 44 kHz
	fs 48 kHz	4 Hz - 22 kHz
Video CD	fs 44.1 kHz	4 Hz - 20 kHz
CD	fs 44.1 kHz	4 Hz - 20 kHz
Signal-Noise (1kHz)	100 dB	
Dynamic Range (1kHz)	97 dB	
Crosstalk (1kHz)	110 dB	
Distortion and Noise (1kHz)	88 dB	
MPEG MP3	MPEG Audio L3	
Headphone	30mW at 32 Ohm load, headphone imp. 8-2k Ohm	

CONNECTIONS

Y Output	Cinch (green)
Pb/Cb Output	Cinch (blue)
Pr/Cr Output	Cinch (red)
S-Video Output	Mini DIN, 4 pins
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
Subwoofer output	Cinch (black)
Digital Output	1 coaxial, 1 optical IEC958 for CDDA / LPCM IEC1937 for MPEG1/2, Dolby Digital and DTS
Headphone	6.3 mm Jack
Microphone	2 x 6.3 mm Jack

CABINET

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

GENERAL FUNCTIONALITY

Stop / Play / Pause
Fast Forward / Backward
Time Search
Step Forward / Backward
Slow Motion
Title / Chapter / Track Select
Skip Next / Previous
Repeat (Chapter / Title / All) or (Track / All)
A-B Repeat
Shuffle
Scan
New enhanced user graphical interface
Perfect Still with digital multi-tap filter
Zoom (x1.33, x2, x4) with picture enhancement
Smart Picture for convenient personal color setting
NTSC/PAL Conversion
Screen Saver (Dim 75% after 15 minutes)
3D Sound (TruSurround)
Virtual Jog Shuttle
Audio and video bit rate indicator

DVD FUNCTIONALITY

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

VIDEO CD FUNCTIONALITY

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

AUDIO CD FUNCTIONALITY

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

MP3 FUNCTIONALITY

Time Display (Track)
Album and Track Selection
Repeat (Disc / Album / Track)

KARAOKE FUNCTIONALITY

2 microphone inputs
Echo control
Key control
Vocal Cancel/Fader
Mode Selection for VCD and DVD

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

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.

ESD



NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.

Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

F ATTENTION

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

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

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

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

D WARNUNG

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

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

Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.

Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

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

NL

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

D

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

I

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

F

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

SHOCK, FIRE HAZARD SERVICE TEST:

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

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

Ref. UL Standard NO. 1492.

NOTE ON SAFETY:

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

LASER SAFETY

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

LASER DEVICE UNIT

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



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

AVOID DIRECT EXPOSURE TO BEAM

WARNING

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

WARNING LOCATION: INSIDE ON LASER COVERSIELD

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

Warning for powersupply on position 1005

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

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

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

2.1 Notes

2.1.1 DVD-Module

For repair of the DVD-module SD3, the service manual 3122 785 11010 has to be used.

2.1.2 ComPair

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

This ComPair program is available on CDROM.

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

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

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

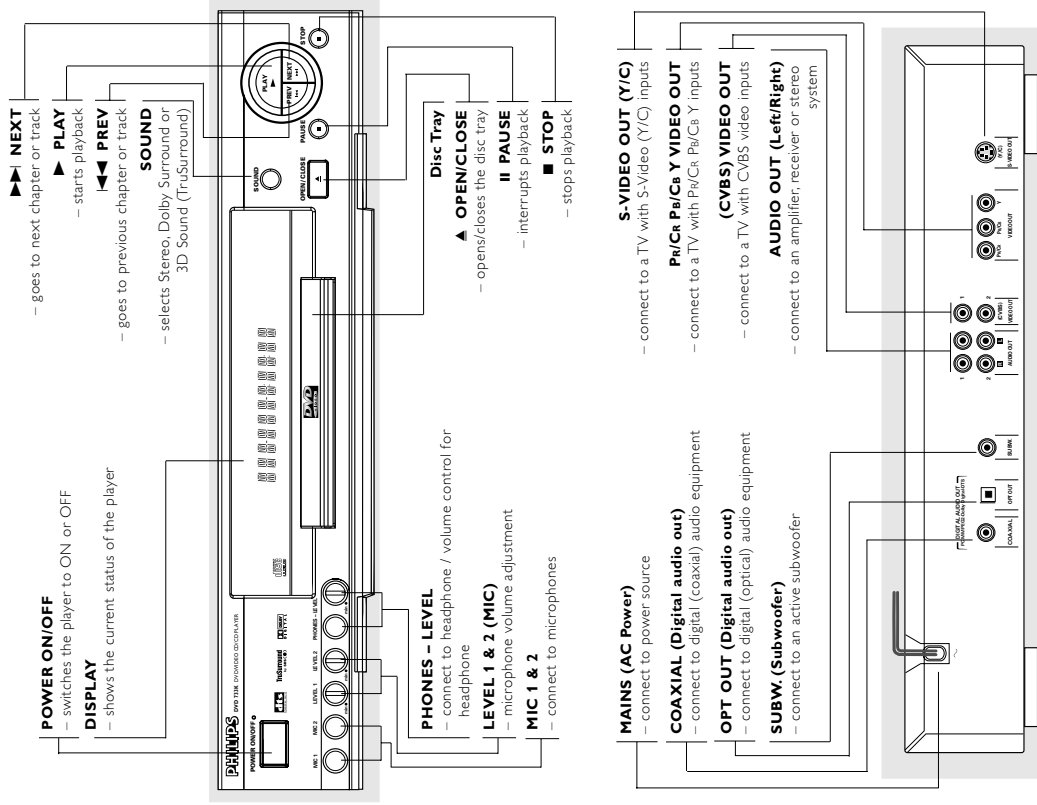
The cable to connect the monoboard with a PC can be ordered with codenumber 3122 785 90017.

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

3. Directions For Use

Functional Overview

Front and Rear Panels



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

6 FUNCTIONAL OVERVIEW

English

English

Introduction

Philips DVD Video Introduction

Your Philips DVD Video player will play digital video discs conforming to the universal DVD Video standard. The unique features on DVD Video, such as selection of sound track, subtitle languages and different camera angles (again depending on the disc), are all supported. In addition to DVD Video discs, you will be able to play all Video CDs and Audio CDs.

DVD Video

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



Video CD

You will recognize Video CDs by the logo shown.

Super Video CD (SVCD)

SVCDs are based on the Super-VCD IO Standard, referring to the Standard of Electronics Industry of the People's Republic of China.

Audio CD

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

MP3 (MPEG Audio Layer-3)

This player supports the MP3 format which contains compressed music tracks.

Note:

- Only the first session of multisession discs is supported.

Unpacking

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

You should have the following items.

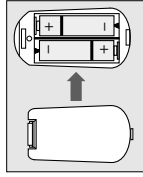
- DVD Video Player
 - Remote Control with batteries
 - Audio cable
 - Video cable
 - Instructions for use
- If any item is damaged or missing, contact your retailer or Philips.

Keep the packaging material for future transportation.

Remote Control Battery Installation

- Insert batteries as indicated inside the battery compartment.

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



Environmental Information

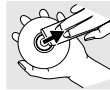
- Your system consists of materials which can be recycled and reused if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

Safety Information

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

Cleaning Discs

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



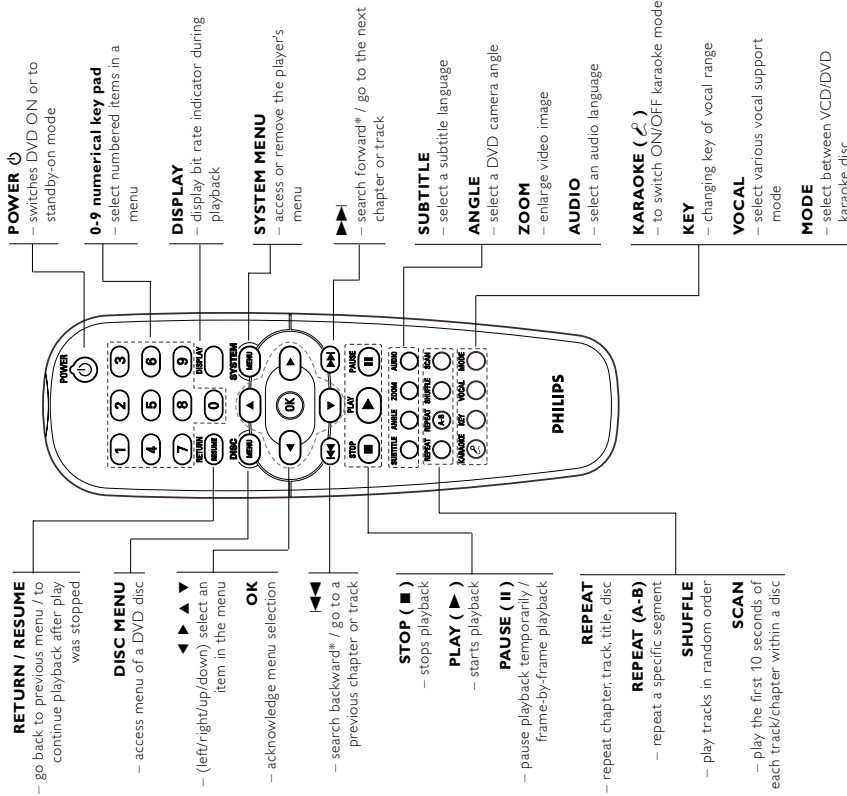
INTRODUCTION 5

Preparation

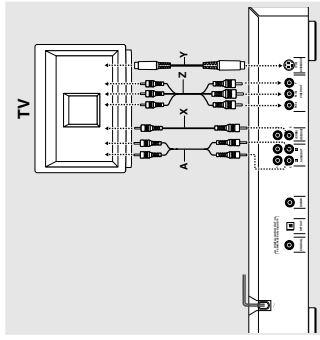
English

English

Remote Control



* Press and hold key for about two seconds



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

Caution:
- Make sure the DVD player is connected directly to the TV. Set the TV to the correct video input channel.
- Do not connect the player's audio out jack to the phono in jack of your audio system.
- Do not connect your DVD player to the TV via your VCR. The DVD image could be distorted by the copy protection system.

Connecting to a TV

- Make one of the following connections, depending on the capabilities of your existing equipment.

Component Video (Pr/Cr/Pb/Ca Y) connection

- 1 Connect the Pr/Cr, Pb/Ca, Y VIDEO OUT jacks on the DVD player to the corresponding jacks on the TV using an optional Pr/Cr, Pb/Ca, Y cable (Z).
- 2 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left/right in jacks on the TV (A).

S-Video (Y/C) connection

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

CVBS connection

- 1 Connect the (CVBS) VIDEO OUT jack on the DVD player to the video in jack on the TV using the video cable supplied (X).
- 2 Connect the Left and Right AUDIO OUT jacks of the DVD player to the audio left/right in jacks on the TV (A).

Connecting to Optional Equipment

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

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

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

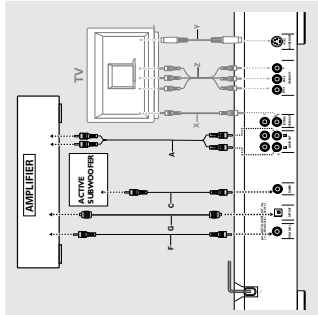
- 1 Connect the player's digital audio out jack (optical G or coaxial F) to the corresponding digital audio in on your amplifier. Use an optional digital (optical G or coaxial F) audio cable.
- 2 You will need to activate the player's digital output (see "Personal Preferences").

Digital Multi-channel sound

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

Connecting to an active subwoofer

Connect the active subwoofer to the SUBWOOFER OUT audio out jack (C). The subwoofer reproduces just the low bass sound effect (e.g. explosions, the rumble of spacships, etc.). Be sure to follow the instructions supplied with the subwoofer.



NTSC/PAL Conversion

This player is equipped with a NTSC/PAL conversion feature to convert the video output of the disc to match your TV system. The conversions supported are as below:

Disc Type	Format	Output format	
		NTSC	PAL
DVD	NTSC	NTSC	AUTO
	PAL	NTSC	PAL
VCD	NTSC	NTSC	PAL
	PAL	NTSC	PAL

- In the Preference Menu, select **TV System**.
- Press **▲** or **▼** to select PAL, NTSC or AUTO.
 - Note:**
 - AUTO can only be selected when using a TV that has both the NTSC and PAL systems.
 - This is applicable for CVBS output on cinch and SCART only.
 - Slight picture distortions may occur due to this conversion. This is normal. Thus, the AUTO format is most suitable for the best picture quality.

General Explanation

About this manual

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

Remote control operation

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

Menu bar operation

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

Menu Bar/Status Window

As there are multiple menu bars, the items on the menu bar are arranged according to usage and availability of direct access keys. Pressing the SYSTEM MENU keys repeatedly will toggle through menu bar 1, menu bar 2, menu bar 3 and OFF.

- Menu bar 1
 - Personal Preferences
 - Subtitle Language
 - Audio Language
 - Color
 - Sound
- Menu bar 2
 - Step by step playback
 - Slow motion
 - Fast motion
 - Angle
 - Zoom
- Menu bar 3
 - Title
 - Chapter
 - Time Search
 - Favorite Track Selection (FTS)

Temporary Feedback Field Icons

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

Personal Preferences

You can set your own personal preferences on the player.

General operation:

- Press SYSTEM MENU on the remote control.
- Select **1** 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:

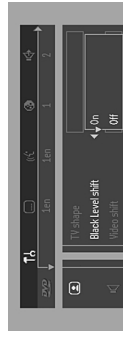
Picture

TV Shape

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

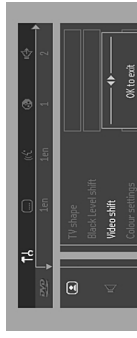
Black level shift (NTSC users only)

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



Video shift

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



Operation

English

English

Language

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

Features

- Access Control

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

- Status Window

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



- Bit Rate Indicator

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



- Help text

When set to ON, help text describes the icons selected. Select OFF if you no longer require the help text.

- Color settings

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



- Personal color

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

Sound

- Digital output

Factory setting: ALL. This means coaxial output is on if you are not connecting to 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 only (Pulse Code Modulation).



- Analog output

Select Stereo, Dolby Surround or 3D Sound (TruSurround) to match your system's playback capability.



- Subwoofer cut-off

The frequency of the subwoofer output can be set to HIGH (200Hz) or LOW (100Hz) to match your system's playback sound quality.

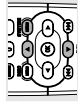
- Night Mode

Optimizes the dynamics of the sound for low volume playback.

General Features

Note:

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



Moving to another title/ chapter

When a disc has more than one title or chapter, you can move to another title/chapter as follows:
 • Press **SYSTEM MENU**, then select **II** or **III** in the menu bar.
 • Press **▲** or **▼** to select a title/chapter.

Slow Motion

- Select **II** (SLOW MOTION) in the menu bar.
- Use the **▼** keys to enter the SLOW MOTION menu.
- → Playback will pause.
- 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 the disc at normal speed again.
- If **III** is pressed, the speed will be set to zero (PAUSE).
- To exit slow motion mode, press **▶▶** or **▲▲**.

Still Picture and Frame-by-frame playback



- Select **III** (STEP) in the menu bar.
- Use the **▼** key to enter the step by step menu.
- → Playback will pause.
- Use the cursor keys **◀▶** to select the previous or next picture frame.
- To exit step by step playback, press **▶▶** or **▲▲**.

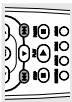
You can also step forward by pressing **II** repeatedly on the remote control.

Scan



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

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 the disc 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**
 - **REPEAT CHPT** appears on the player display.
 - **REPEAT TITL** 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 current track, press **REPEAT**.
- **Repeat TRK** appears on the player display.
- To repeat the entire disc, press **REPEAT** a second time.
- **REPEAT** appears on the display and the TV screen.
- To exit Repeat mode, press **REPEAT** a third time.

Repeat A-B

- To repeat a specific portion of 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.
 - **REPEAT A-B** appears briefly on the display, and the repeat sequence begins. (**REPEAT A-B** is displayed on the front panel of the player)
 - To cancel the sequence and continue playback, press **REPEAT A-B**.

Shuffle

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

English

FTS-Video

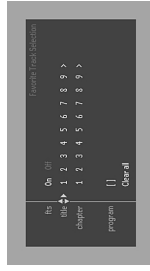
- The FTS-Video function allows you to store your favorite titles and chapters (DVD) and favorite tracks and indexes (VCD) for a particular disc in the player memory.
- FTS program can contain 20 items (titles, chapters etc.).
- A programmed FTS will be placed on top of the list when playback is activated.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

Storing an FTS-Video Program


- While playback is stopped, select **VIDEO FTS**  in the menu bar.
- Press **▼** to open the menu.
- → The **VIDEO FTS** menu appears.
- Press **▶** or **▲** 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 **SYSTEM MENU** to exit the **VIDEO FTS**  menu.

Erasing an FTS-Video Program

- While playback is stopped, select **VIDEO FTS**  in the menu bar.
- Use **▼** to select **PROGRAM**.
- Use **▶** and **▲** to select the required number.
- Press **OK** to erase the selection.
- Press **SYSTEM MENU** to exit.

Erasing all selections

- While playback is stopped, select **VIDEO FTS**  in the menu bar.
- Use **▼** to select **CLEAR ALL**.
- Press **OK**.
- → All selections will be erased.
- Press **SYSTEM MENU** to exit.

Special DVD Features

Checking the contents of DVD Video discs: Menus

DVDs may contain menus to navigate the disc and access special features. To use the menu, press the appropriate numerical key or use the **▼▲▶◀** keys to highlight your selection, then press **OK**.

Title/Disc menu

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

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 **▼▲** keys to select the required angle.
- → After a while, playback changes to the selected angle. The angle icon remains displayed until multiple angles are no longer available.



Changing the audio language

- Select  (AUDIO) in the menu bar.
- Press **AUDIO** or **▶▼** repeatedly to see the different languages.



Subtitles

- Select  (SUBTITLE) in the menu bar.
- Press **SUBTITLE** or **▶▼** repeatedly to see the different subtitles.



Special Video CD & SVCD Features

- Load a Video CD with PBC and press **▶**
- 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 select **PBC OFF** under Personal Preferences.

Playing an Audio CD

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



Pause

- Press **II** during playback.
- To return to playback, press **▶**.

Search

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

English

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.
 - The number of tracks and the playing time of the program will be shown on the TV screen and the player display.
- When your FTS Program is complete, press **▶** to start playback or press **▲** to go back to Stop mode. In either case, the FTS Program will be automatically memorized.

Switching FTS ON/OFF

- 1 Use **▲** to move and select desired tracks.
- 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

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

MP3 Disc Features

Support following MP3-CD formats (ISO9660 format):

- Max: 30 characters
- Max nested directory is: 8 levels
- The max.ALB number is: 32
- Supported VBR bit-rate
- Supported sampling frequencies for MP3 disc are: 32 kHz, 44.1 kHz, 48 kHz
- Supported Bit-rates of MP3 disc are: 32, 64, 96, 128, 192, 256 (kbps)

Following formats can't be supported

- The files like *VMA, *AAC, *DLI, *M3U, *PLS
- Chinese filename
- The non-session closed discs
- The discs recorded under UDF format

Downloading MP3 files from the Internet or copying songs from your own legal discs is a delicate process.

Source Quality	Bit Rate	Approximate MP3-CD time	Approximate MP3-CD time	Comment
MP3radio	32 kbps	40:1	40 hrs	Sound quality significantly affected (not recommended)
MP3radio	48 kbps	26:1	26 hrs	
MP3radio	64 kbps	20:1	20 hrs	
MP3radio	96 kbps	15:1	15 hrs	
MP3radio	128 kbps	11:1	11 hrs	
MP3radio	160 kbps	9:1	9 hrs	
MP3radio	192 kbps	7:1	7 hrs	
MP3radio	256 kbps	5:1	5 hrs	Optimal for play CD instead

You may experience an occasional "skip" while listening to your MP3 files. This is normal.

Additional note for MP3 disc Playback:

- In compliance with the SDMI, digital-out is muted while playing MP3 discs.
- Due to the recording nature of Digital Audio MP3 (DAM), only Digital Audio music will play.

Note:

- Only the first session of multisection discs is supported.

Album/Title

This feature allows you to view and select the next or previous MP3 disc, Album/Title.

- 1 Press **▲** to scroll through the previous or next Album.
- 2 Press **◀** to scroll through the previous or next Track.



- 3 You can also select the desired album/track number directly using the numeric keys on the remote control.

Note:

- In **STOP mode**: numbers are used for **ALBUM** selection.
- In **PLAY mode**: numbers are used for **TRACK** selection.

Only the following functions are possible for MP3 discs:

- STOP /PLAY / PAUSE
- SKIP NEXT / PREVIOUS
- REPEAT (TRACK / ALBUM / DISC)

MP3 Discs - Album/Track/Disc

- To repeat a track, press **REPEAT**.
- **REPEAT TRK** appears on the display.
- To repeat an album, press **REPEAT** a second time.
- **REPEAT ALBM** appears on the player display.
- To repeat the entire disc, press **REPEAT** a third time.
- **REPEAT DISC** appears on the player display.

English

Moving to another track

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

Shuffle

- Press **SHUFFLE** during playback.
- To return to normal playback, press **SHUFFLE** again.

Repeat track/disc

- To repeat the current track, press **REPEAT**.
 - **REPEAT TRK** appears on the display.
 - 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

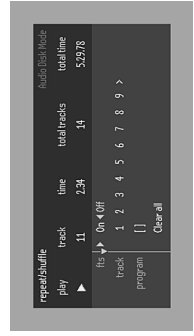
- To repeat a specific portion of a track:
 - Press **REPEAT A-B** at your chosen starting point.
 - **A** appears on the player display.
 - Press **REPEAT A-B** again at your chosen end point.
 - **A-B** appears on the display, and the sequence begins to play repeatedly.
 - To cancel the sequence and continue playback, press **REPEAT A-B**.

Scan

- Scanning plays the first 10 seconds of each track on the disc.
- Press **SCAN**.
- To continue playback at your chosen track, press **SCAN** again or press **▶**.

Favorite Track Selection (FTS) Program

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



Karaoke

Setting up Karaoke

- 1 Load a karaoke disc into the player.
- 2 Set the **LEVEL 1 & 2** control to the minimum level to prevent acoustic feedback (e.g. a loud howling sound) before connecting the microphone.
- 3 Connect a microphone to **MIC 1** or **MIC 2** or to both sockets.
- 4 Press **▶** to start playback.
- 5 Adjust the **LEVEL 1 & 2** control to the preferred level.
- 6 Press **KARAOKE** on the remote control to switch ON the karaoke mode.
- 7 Karaoke menu bar appears.
 - Move to the function you want to change using **▲** or **▼** then use **◀** or **▶** to scroll to your preferred option.
- 8 Adjust the **ECHO** **KL** to the level you desire.
- 9 Adjust the **KEY CONTROL** **KL** to change the key of your vocal range.
- 10 Select the different **MODE SELECTION** **KL** you desire (see Karaoke - General Features).
- 11 Select the different **VOCAL** **KL** options you desire (see Karaoke - General Features).
- 12 Press Karaoke button to exit the menu screen.



General Features

Karaoke ON/OFF

- To switch karaoke features ON/OFF mode.
- Note:
- Only analog output supported in Karaoke mode.

Echo Control

- Can be adjusted in the range of (0....+7)

Key Control

- Can be adjusted in the range of (-7....0....+7)

Once More

- To repeat track one more time after it has ended.

English

English

Access Control

Access Control: Child Lock (DVD Video and Video CD)

Activating/deactivating the Child Lock

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the **▲▼** 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 **▲▼** keys.
 - 5 Move to **LOCK/UNLOCK** using the **▶** key.
 - 6 Select **LOCK** using the **▲▼** keys.
 - 7 Press **OK** or **◀** to confirm, then press **▶** again to exit the menu.
 - 8 Now unauthorized discs will not be played unless the 4-digit code is entered.
 - 9 Select **UNLOCK** to deactivate the **CHILD LOCK**.
- Note: Confirmation of the 4-digit code is necessary when:
- The code is entered for the very first time (see above).
 - The code is changed (see "Changing the 4-digit code").
 - The code is cancelled (see "Changing the 4-digit code").



Authorizing discs

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

Notes:

- The player memory maintains a list of 120 authorized ('Child safe') disc titles. A disc will be placed in the list when 'Playback Always' is selected in the 'child protect' dialog.
- Each time a 'child safe' disc is played, it will be placed on top of the list. When the list is full and a new disc is added, the last disc in the list will be removed from the list.
- Double-sided DVDs may have a different ID for each side. In order to make the disc child safe, each side has to be authorized.
- Multi-volume VCDs may have a different ID for each volume. In order to make the complete set 'child safe', each volume has to be authorized.



Deauthorizing discs

- Insert the disc. See 'Loading discs'.
- 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, discs 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.



Before Requesting Service

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

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

English

English

Activating/Deactivating Parental Control

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the **▲▼** keys.
- 2 Enter your 4-digit code. If necessary, enter the code a second time.
- 3 Move to **Parental Control** using the **▲▼** keys.
- 4 Move to **VALUEADJUSTMENT** (1-8) using the **▶** key.
- 5 Then use the **▲▼** keys or the numerical keys on the remote control to select a rating from 1 to 8 for the disc inserted.

Rating 0 (displayed as “-”):

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

Ratings 1 to 8:

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

- 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 **▲▼** keys.
- 2 Enter the 4-digit code.
- 3 Move to **CHANGE COUNTRY** using the **▼** key.
- 4 Press the **▶** key.
- 5 Select a country using **▲▼**.
- 6 Press **OK** or **◀** to confirm, then press **◀** again to exit the menu.

Changing the 4-digit code

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

If you forget your 4 digit code

- 1 Press **■** to exit the 'Child Protect' screen.
- 2 Select **ACCESS CONTROL** in the features menu using the **▲▼** keys.
- 3 The 4-digit code can be cancelled by pressing **■** four times in the 'Access Control' dialog.
- 4 You can then enter a new code (twice!) as described above (Changing the 4 digit code).

Parental Control Disclaimer

This DVD player features the **PARENTAL CONTROL** system which is intended to 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 the 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 to the player.

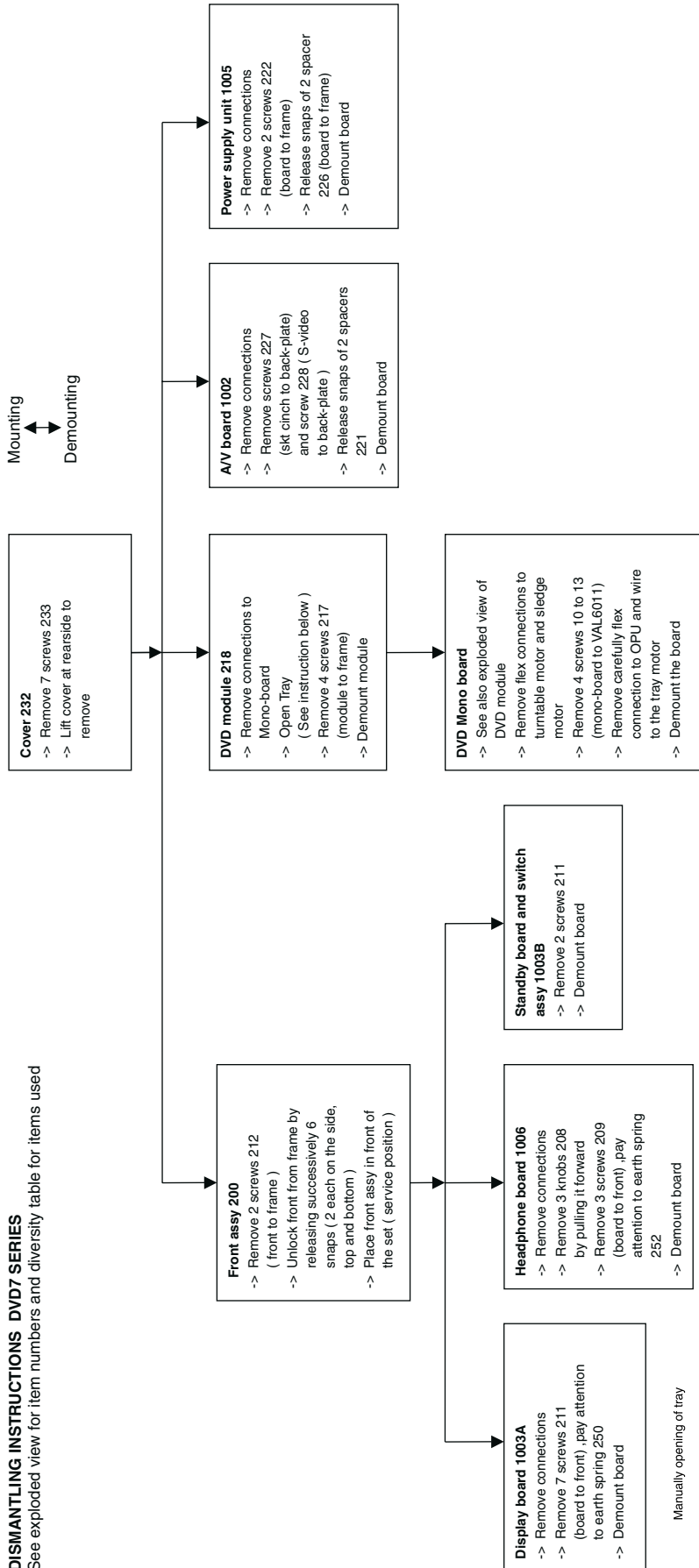
Symptom

Remedy

- | | |
|---|--|
| No power | <ul style="list-style-type: none"> - Make sure the power cord is properly connected. - Check if there is power at the AC outlet by plugging in another appliance. |
| No picture | <ul style="list-style-type: none"> - Check if the TV is switched on. - Check the video connection. |
| Distorted picture | <ul style="list-style-type: none"> - Check the disc for fingerprints and clean the disc with a soft cloth, wiping from the center to the edge in a straight line. - Sometimes a small amount of picture distortion may appear. This is not a malfunction. |
| Completely distorted picture or no color with player menu | <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - The disc format does not match your TV's video signal (PAL/NTSC). |
| No sound | <ul style="list-style-type: none"> - Check audio connections. - If you are using a HiFi amplifier, try another sound source. |
| Distorted sound from HiFi amplifier | <ul style="list-style-type: none"> - Check to make sure that no audio connections are made to the amplifier's phono input. |
| No audio at digital output | <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - Reset the unit 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 | <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - In order to completely reset the player, unplug the AC cord from the AC outlet. (Please ensure that the set is not in Initial Setup mode.) - Operations may not be permitted by the disc. Refer to the instructions of the disc. |
| Player does not respond to some operating commands during playback | |
| DVD/Video player cannot read CDs/DVDs | <ul style="list-style-type: none"> - Use a commonly available cleaning CD/DVD to clean the lens before sending the DVD/Video player for repair. |

4. Mechanical Instructions

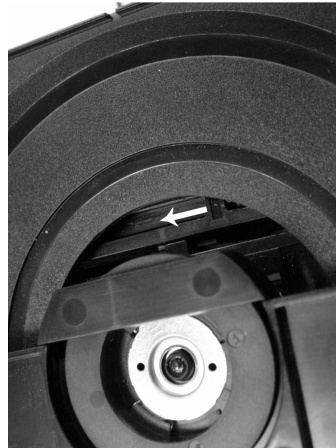
4.1 Dismantling Instructions



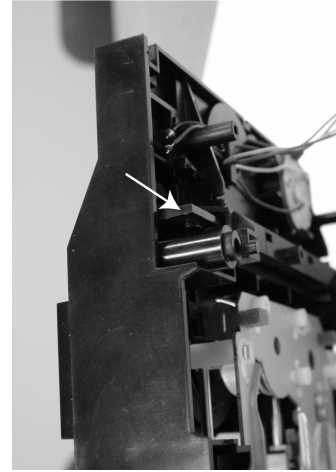
Manually opening of tray

When it is not possible to open the tray with the open/close button, the tray can manually be opened.

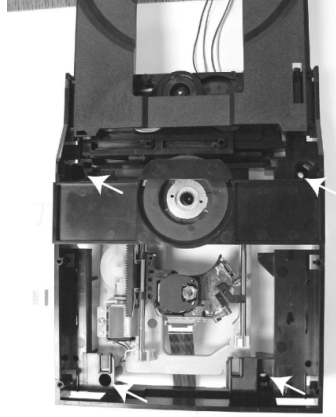
When no disc is loaded, unlock the tray by moving the slide from the left to the right and pull tray outwards.



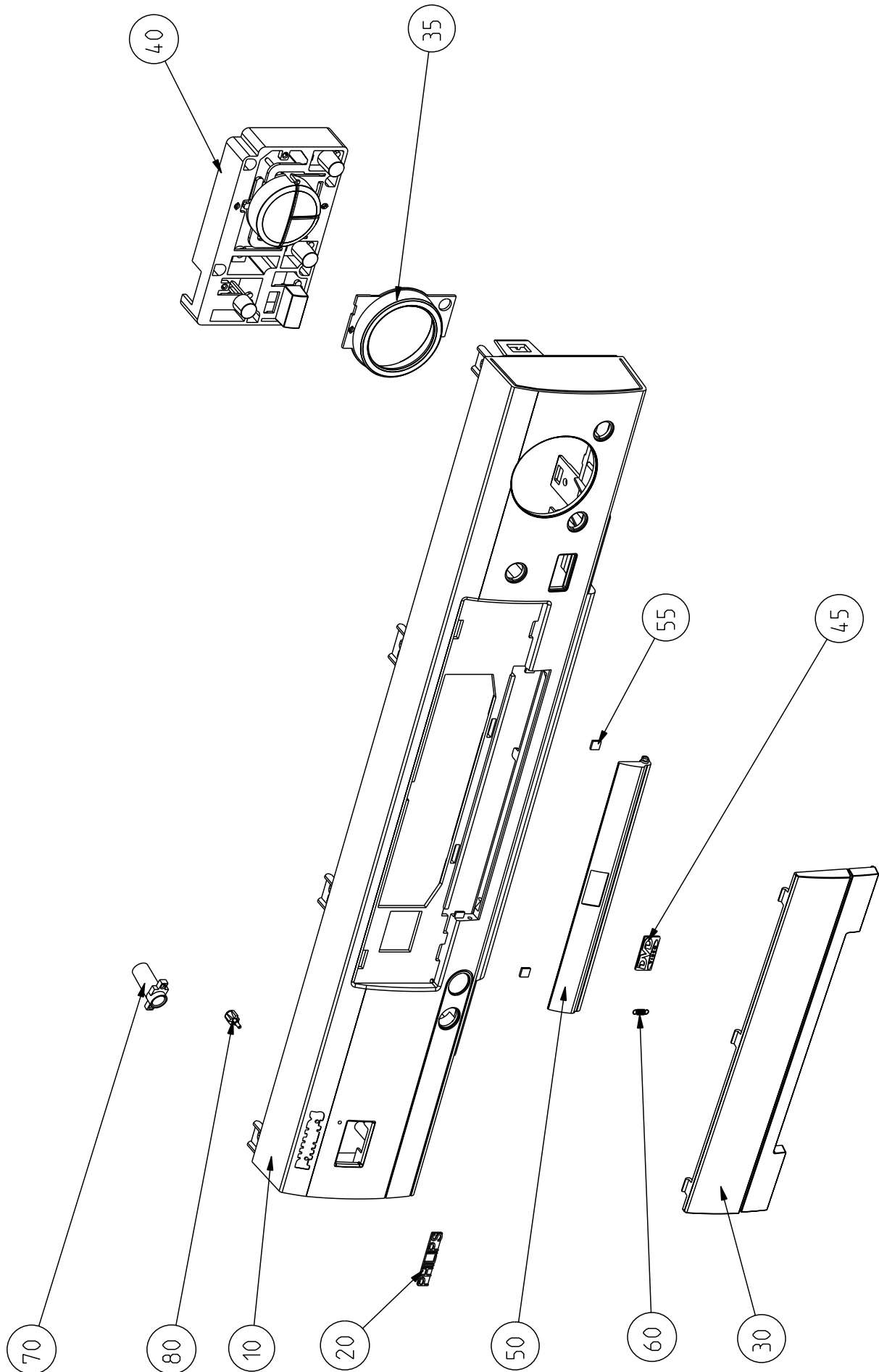
When a disc is loaded, unlock the tray by pushing the slide inwards by way of a screwdriver and pull tray outwards.



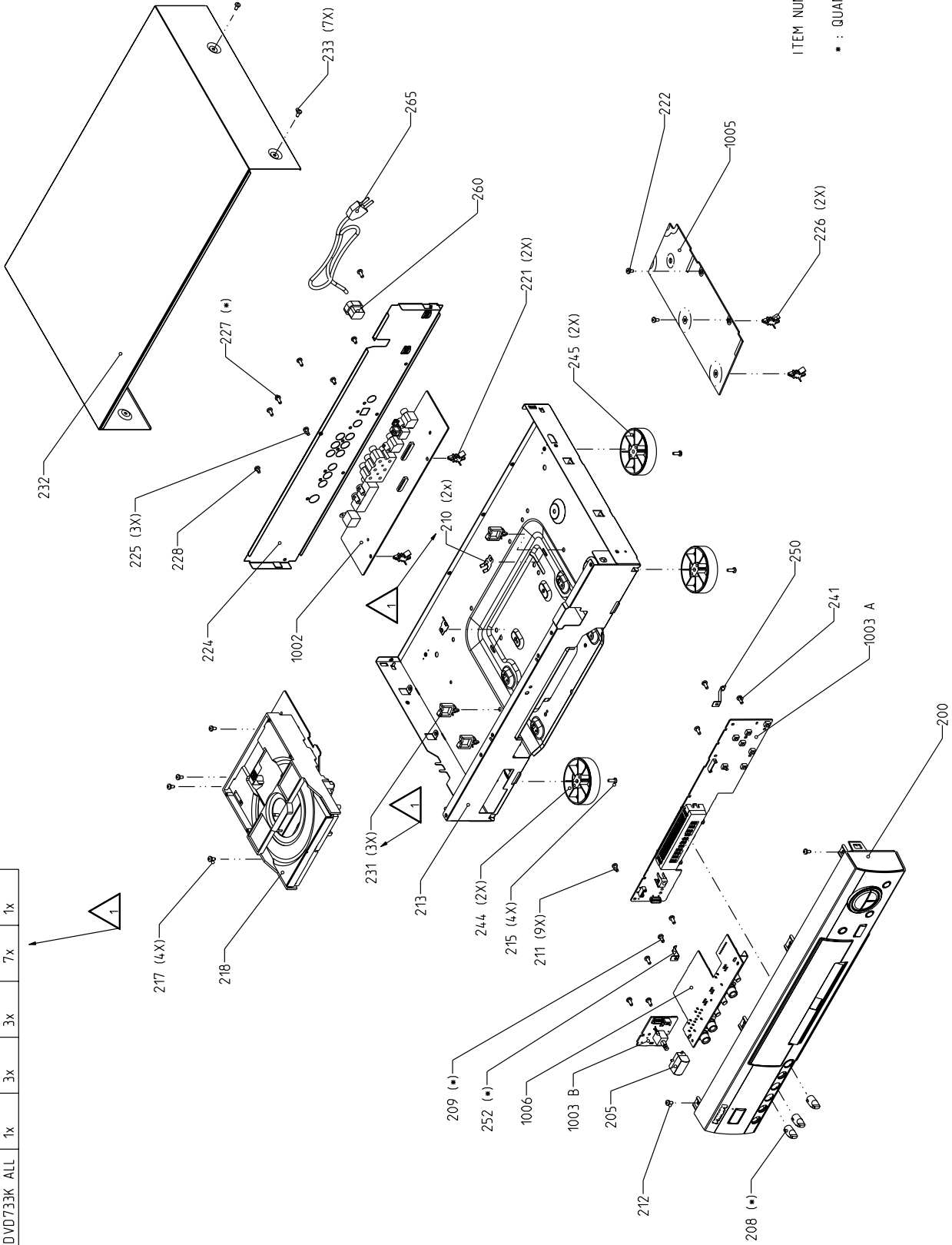
Remove 4 screws to remove loader.



4.2 Exploded Views

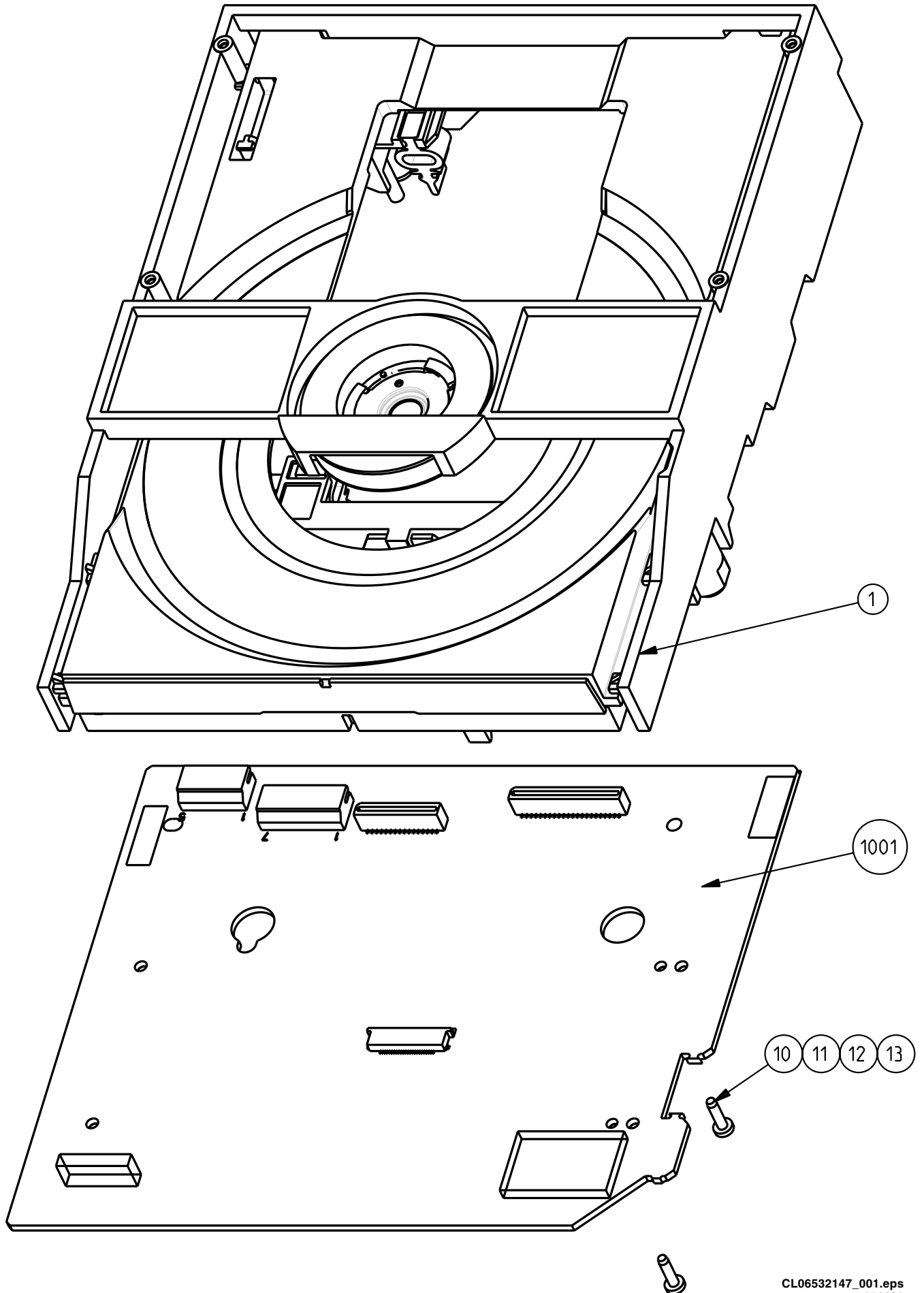


MODEL	ITEM	252	208	209	227	1006
DVD703 ALL		--	--	--	5x	--
DVD712 US		--	--	--	5x	--
DVD733K ALL		1x	3x	3x	7x	1x



ITEM NUMBER CORRESPOND TO PART LIST

* : QUANTITY REFER TO TABLE



4.3 Service Position

See figure 4-1 for the service position

1. Remove the cables from the cable tie housing.
2. Remove 4 screws that mount the DVD module to the bottom frame.
3. Move the DVD module backward slightly and flip the module over, so that the component side of the board faces upwards, and the module is in the service position.

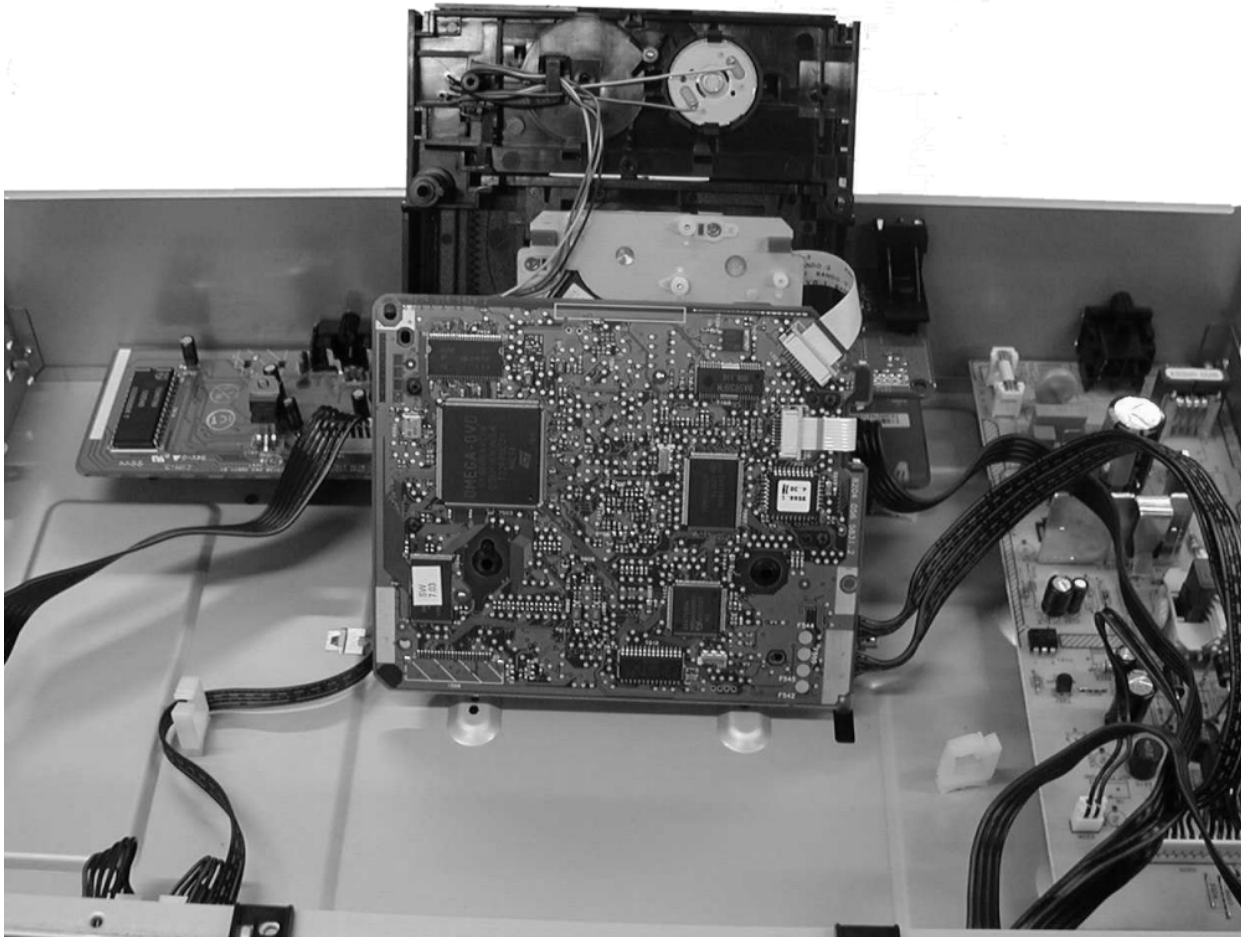


Figure 4-1

5. Diagnostic Software Descriptions And Troubleshooting

5.1 Dealerscript

5.1.2 Contents Of Dealer Script

5.1.1 Purpose Of Dealer Script

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

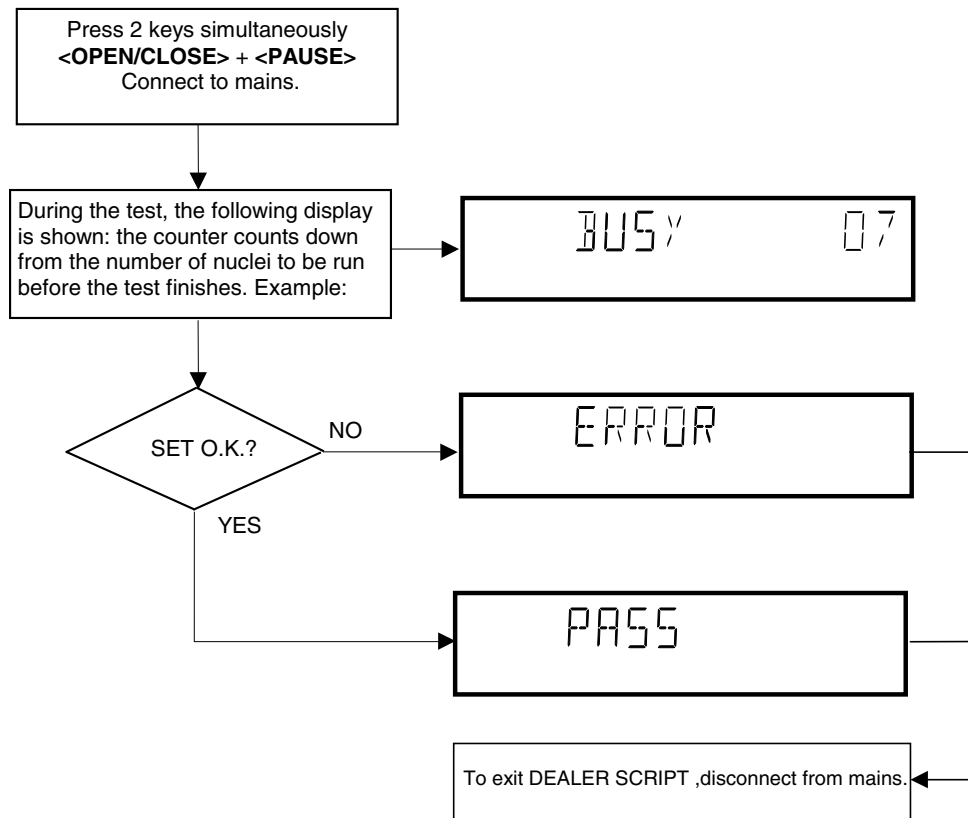
The dealer script executes all diagnostic nuclei that do not need any user interaction and are meaningful on a standalone DVD player.

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

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

CL06532096_001.eps
050700

Figure 5-1



CL 96532065_004.eps
120799

Figure 5-2

5.2 Player Script

5.2.1 Purpose Of Player Script

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

5.2.2 Contents Of Player Script

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

5.2.3 Structure Of Player Script

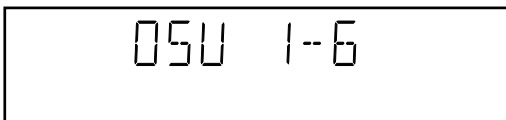
The player script consists of a set of nuclei testing the three hardware modules in the DVD player: the Display PWB, the Digital PWB and the Basic Engine.

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

1. Interactive tests: this part of the player test depends strongly on user interaction and input to determine nucleus results and to progress through the full test. Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player.
2. The loop test will loop through the list of nuclei indefinitely, till the NEXT key is pressed. The list of nuclei is as follows:
 - VideoColSetupComm
 - VideoScartSwComm
 - PapChksFlash
 - PapI2cNvram
 - CompSdramWrR
 - PapS2bEcho
 - PapI2cDisp

For DSW version 1.6 and above, the DSW version number will be displayed on the local display. Press NEXT to continue to the display test.

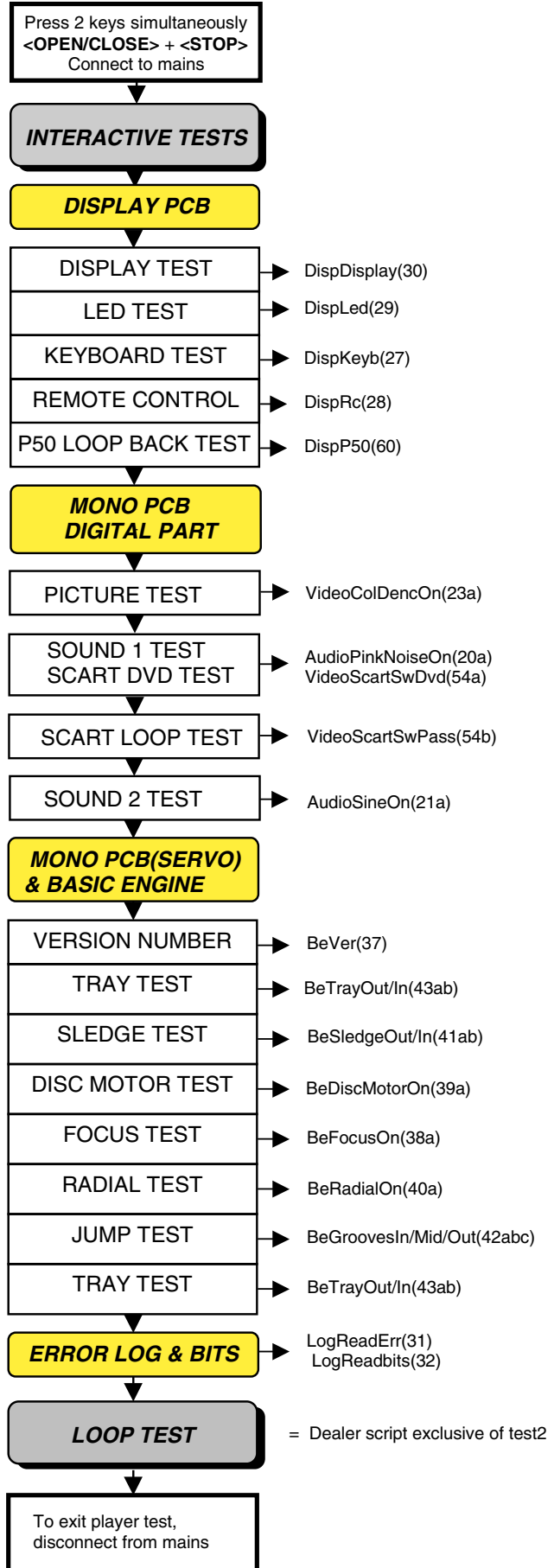
The display should look like the following:



CL 16532007_002.eps
010201

Figure 5-3

5.2.4 Survey



CL 16532007_003.eps
300101

Figure 5-4

5.3 Display PCB

5.3.1 Display Test

The display test is performed by nucleus DispDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press 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).

5.3.2 Led Test

The LED(s) on the DVD player is (are) tested by nucleus DispLed. The user must check if the LED(s) is (are) lighted; if it is, press 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).

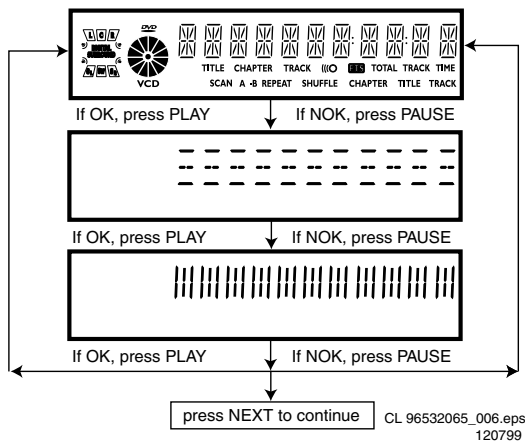


Figure 5-5

5.3.3 Keyboard Test

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

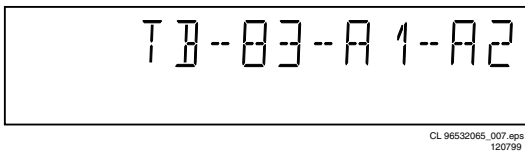


Figure 5-6

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

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

CL16532007_007.eps 300101

Figure 5-7

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

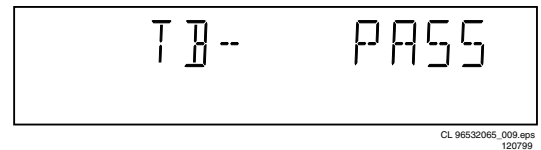


Figure 5-8

Or

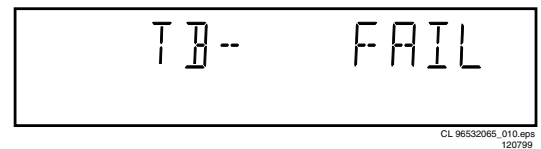


Figure 5-9

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

5.3.4 Remote Control Test

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

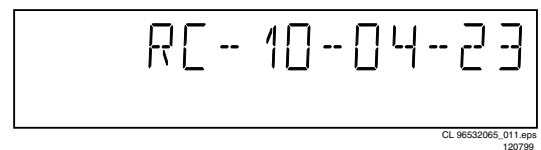


Figure 5-10

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.

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

CL06532096_003.eps
050700

Figure 5-11

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

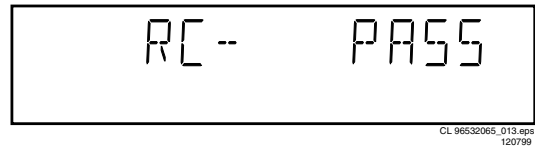


Figure 5-12

Or

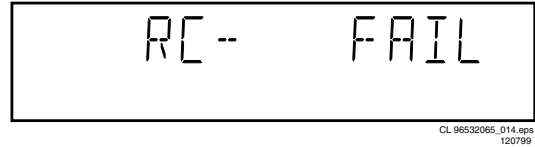


Figure 5-13

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

5.3.5 P50 Loop-Back Test

For the P50 loop-back test, the user must first press a key to decide if the test is to be performed. The display will show the following message:

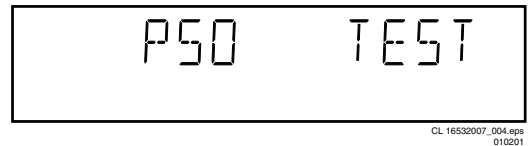


Figure 5-14

If the user presses PAUSE, the P50 test will be skipped. If the user presses PLAY, the P50 test is performed and the result is displayed as follows:

Test successful:

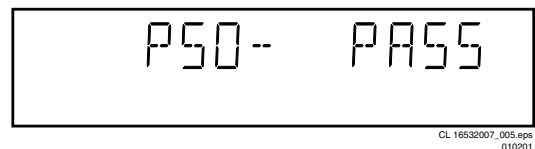


Figure 5-15

Test fails:

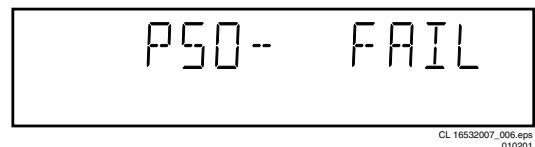


Figure 5-16

Press the NEXT key to continue to the next text

5.4 Mono PCB Digital Part

5.4.1 Picture Test

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

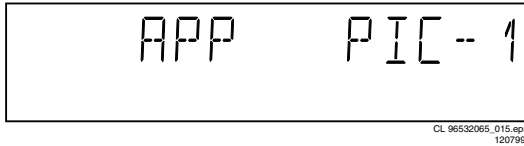


Figure 5-17

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

5.4.2 Sound 1 & SCART DVD Test

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



Figure 5-18

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

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

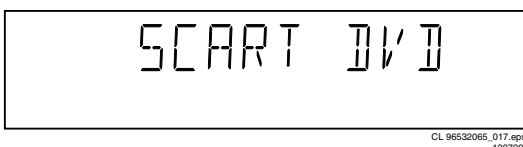


Figure 5-19

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:

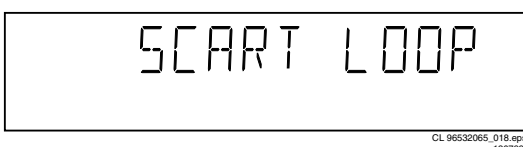


Figure 5-20

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.

5.4.3 Sound 2 Test

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

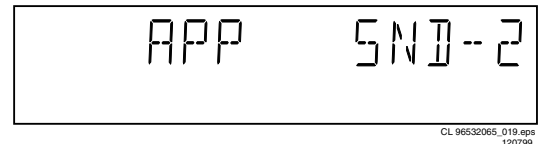


Figure 5-21

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).

5.4.4 Colour Setup Test

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

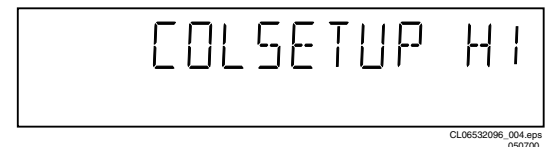


Figure 5-22

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

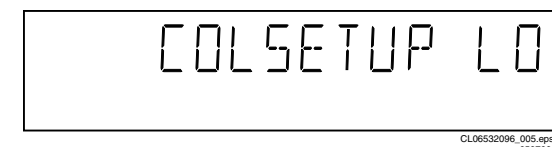


Figure 5-23

By pressing the PREVIOUS button, the colour bar with the first setting becomes visual again.

By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong.

The test can be left by pressing the NEXT key for more than one second; if the user presses NEXT without pressing PLAY or PAUSE first, the result of the test will be TRUE (colour set-up ok).

5.5 Basic Engine

5.5.1 Version Number

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

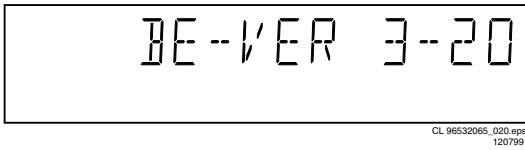


Figure 5-24

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

5.5.2 Tray Test

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

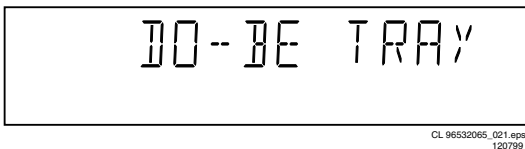


Figure 5-25

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.

5.5.3 Sledge Test (Visual Test)

The second Basic Engine test tests the sledge; the user can move the sledge as many times as desired by using 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:

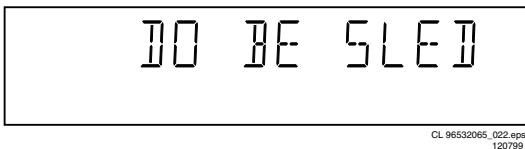


Figure 5-26

5.5.4 Disc Motor Test (Visual Test)

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

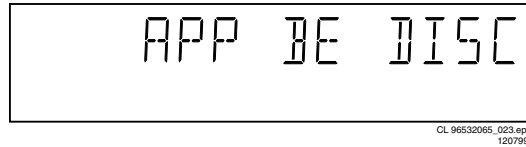


Figure 5-27

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).

5.5.5 Focus Test (Visual Test)

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

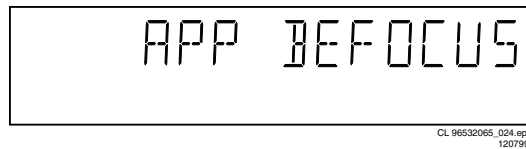


Figure 5-28

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).

5.5.6 Radial Test (Visual & Listening Test)

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

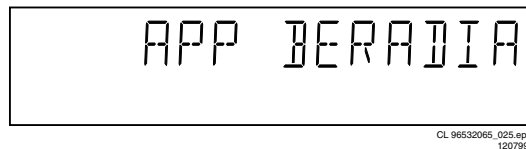


Figure 5-29

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).

5.5.7 Jump Test (Listening Test)

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

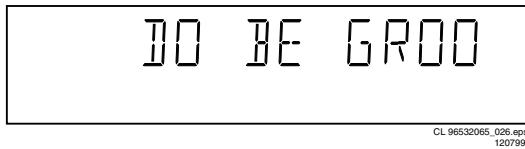


Figure 5-30

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.

5.5.8 Tray Test

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

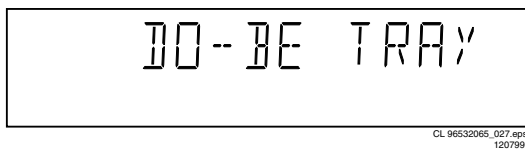


Figure 5-31

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.

5.5.9 Error Log (See Table On Page 30)

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

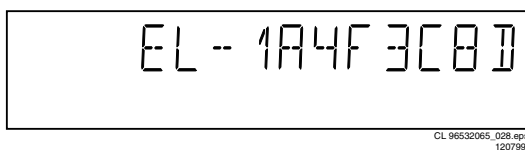


Figure 5-32

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.

5.5.10 Error Bits (See Table On Page 30)

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

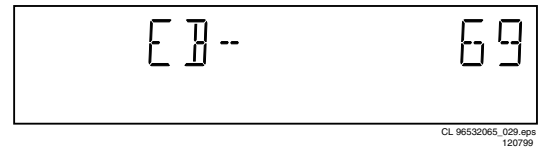


Figure 5-33

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.

5.6 Loop Test (See Table Below)

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

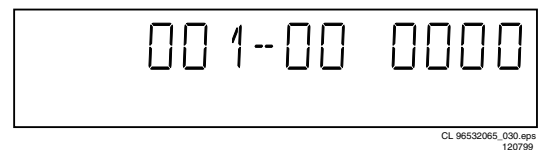


Figure 5-34

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

Figure 5-35

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

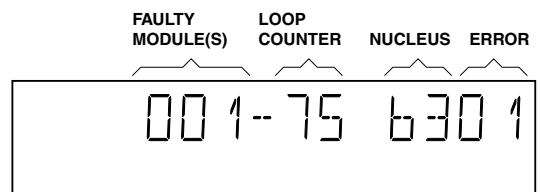


Figure 5-36

The number after the hyphen indicates the number of times the loop test has been performed; the 4 digits at the right side of the display show the last error that was found when running the loop test: the leftmost two digits of this code

indicate which nucleus resulted in a fault; the rightmost two digits refer to the faultcode within that nucleus. For further explanation of this error code, see list of error codes below.

ERROR CODES LOOP TEST

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

CL06532096_006.eps
050700

Figure 5-37

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

5.6.1 Servicing DVD Loader

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

5.6.2 Reprogramming Of New Mono Boards.

Caution

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

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

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

Reprogramming is limited to 25 times

When the counter reaches 25, reprogramming is not possible anymore

Reprogramming will be done by way of the remote control.

Put the player in stop mode, no disc loaded.

Press the following keys on the remote control:

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

The display shows: "-----"

Press now successively the following keys :

for DVD733K /691: <0><1><6> <0><0><0><0><0><0><0><0><0>

for DVD733K /781: <0><2><4> <0><0><0><0><0><0><0><0><0>

Press <PLAY> again.

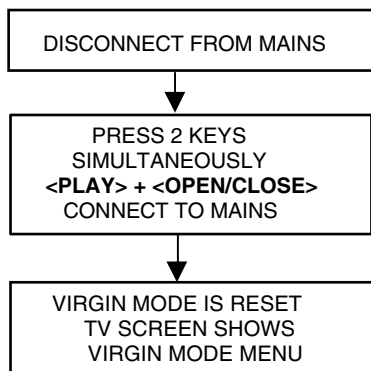
The TV screen will become BLUE during a short time to confirm that the mono board has been reprogrammed.

CL 16532007_108.eps
020501

Figure 5-38

5.6.3 Reset Of Virgin Mode

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

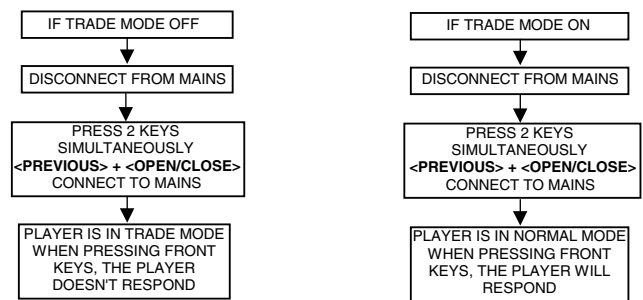


CL 96532065_034.eps
070700

Figure 5-39

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.



C06532096_005.eps
050700

Figure 5-40

5.7 Test Instruction Audio/Video Board

These test instructions can be used for all versions of the A/V board which has the following outputs:

- Audio L/R
- 5.1 Audio output
- Subwoofer output
- Optical / Coaxial digital output
- CVBS
- Y/G_vid,U/B_vid,V/R_vid output
- S-video
- Scart output

5.7.1 General

- All the waveforms measurement carried out in these test instruction will be base on the testpoint indicated in the A/V board schematic diagram in the Service manual.
- Impedance of the measuring-equipment should be > 1M Ω
- Most of the tests can be done using either the Diagnostic software "Player script" which can be found in the chapter "Diagnostic Software description and troubleshooting" or the Menu interface using the Service PC with a terminal emulation program (e.g. Window Hyperterminal) where it is possible to control the execution of the Diagnostic Nuclei
- Setup for the measurement will be done in set level with all modules connected as shown in the Wiring Block diagram.

5.7.2 General Start-Up Measurement

Supply check:

Before starting the measurement,ensure that all power supply are connected to the A/V board.

Pin nbr	Supply
1010-9	-5V (-Vcc)
1010-10	+5V
1010-11	+5V

The supply currents can be measured using a Tektronics AM503B current probe or equivalent.

Supply	Power consumption (AVG)
+5VA	+5V \pm 3% I = 200mA
+5Vvid	+5V \pm 3% I = 200mA
-5V	-5V \pm 3% I = 200mA

Clock Check

Ensure the present of the clock to the DAC

Clock Name	Testpoint	Frequency
PCM_CLK	TP10	11.2896MHz \pm 0.02% tolerance

Audio Mute Check

Measure the Audio mute voltage input at pin 12 of connector 1010

Status	Value
AudioMuteOn	4.7V \pm 10%
AudioMuteOff	-8V \pm 10%

To toggle between ON and OFF,use the following commands:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On
19b	AudioMuteOff	Audio Mute Off

5.7.3 Audio DAC And Amplifier

Ensure that the Audio mute signal is OFF

To check the DAC and buffer amplifier,send the following commands:

Ref.#	Command Name	Remarks	Audio output
21a	AudioSineOn	Audio Sine signal ON	Sine,1Khz on stereo
----	Press stop button	Audio Sine signal OFF	No waveform
20a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels
20b	AudioPinkNoiseOff	Audio Pinknoise OFF	No waveform

The audio signal (sine or pink noise) will also be present on the digital output (SPDIF).This can be checked by connecting digital signal to an amplifier with digital input. Check the I2S and audio signal at the following testpoints:

Name	Testpoint
LRCLK	TP8
SCLK	TP9
PCM_CLK	P10
PCM_OUT0	TP7
PCM_OUT1	TP27
PCM_OUT2	TP28
SPDIF	TP11
Front L/R out-Audio cinch	TP13
H/P L/R out	TP20
Analog out -Audio cinch	TP25

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic software description and troubleshooting".

5.7.4 Video Output And Buffer Amplifier

Check DC output-level at all video cinch output : 1.0V DC \pm 10%

Generate a color bar using the following software commands:

Ref.#	Command Name	Remarks
23a	VideoColDencOn	Colour DENC ON
61a	VideoColOutRGB	RGB Colourbar
61b	VideoColOutYUV	YUV Colourbar
23b	VideoColDencOff	Colourbar DENC OFF

Check the video outputs at the following testpoints:

Name	Testpoint
B_VID	TP1
G_VID	TP2
R_VID	TP3
CVBS out	TP14
S-Video-C out	TP15
S-Video-Y out	TP16
Y out	TP17
U out	TP18
V out	TP19

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic Software description and troubleshooting".

5.7.5 Play And 16/9 Detection

Check DC voltage at S-Video-chroma output (pin 4) with a 6K8 ohm load and Scart connector (pin 8) and change the 0/6/12 input (1010-8) using the following commands:

Ref.#	Command Name	Remarks	Chroma output
25a	VideoScartLo	Sends out 0V \pm 0.5V	<0.1V
25b	VideoScartMi	Sends out 6V \pm 10%	2.0V \pm 10% with load
			5.0V \pm 10% without load
25c	VideoScartHi	Sends out 12V \pm 10%	<0.1V

5.7.6 Kill Circuit

To check the functionality of the Kill circuitry, the audio outputs has to be present by the following command:

Ref.#	Command Name	Remarks	Audio output
21a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels

Check the audio outputs at the audio cinch of the A/V board : Pink Noise

Activate the Kill circuit by using the following command:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On

Check the audio outputs at the audio cinch of the A/V board : No waveform

Switch off the kill circuit by using the following command:

Ref.#	Command Name	Remarks
19b	AudioMuteOff	Audio Mute Off

Check the audio outputs at the audio cinch of the A/V board : Pink Noise

5.8 Test Instructions Display Board

5.8.1 Introduction

These test instructions are written for all versions of the display PCBAS.

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

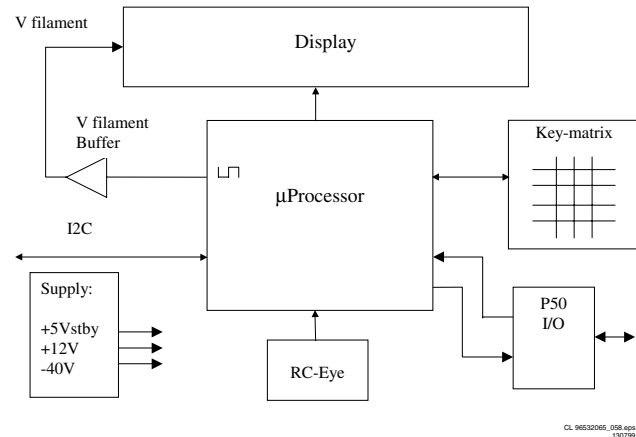


Figure 5-41

5.8.2 Functionality Description:

The essential component of the display PCB is the μ P (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 μ P. This host μ P will then initialise the slave. In addition, when going to stand-by, the slave will put the host μ P in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host μ P will be released.

Other slave functions are:

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

5.8.3 General

- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be $> 1M\Omega$.
- To do correct measurements we recommend to use supply 3122 427 22600.

5.8.4 Reset

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

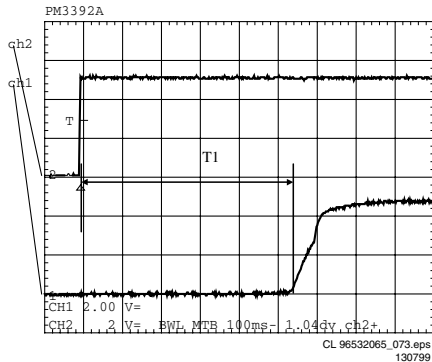


Figure 5-42

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

5.8.5 Display Steering

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

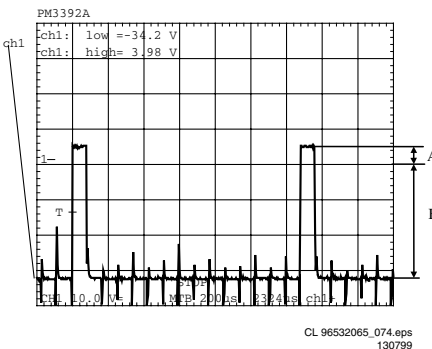


Figure 5-43

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

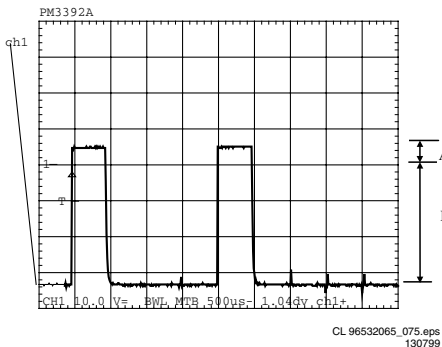


Figure 5-44

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

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

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

See the Slave URS how to send a display command.

5.8.6 Key-Matrix

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

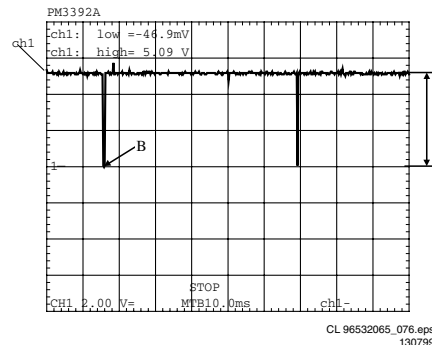


Figure 5-45

Level A: 5.0V +/-7%

Level B: 0V +/-200mV

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

5.8.7 I.R. Receiver

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

5.8.8 Karaoke Interface

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

This means that it consists of four µP output lines.

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

Send next command via the I2C bus:

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

5.8.9 P50 Interface

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

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

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

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

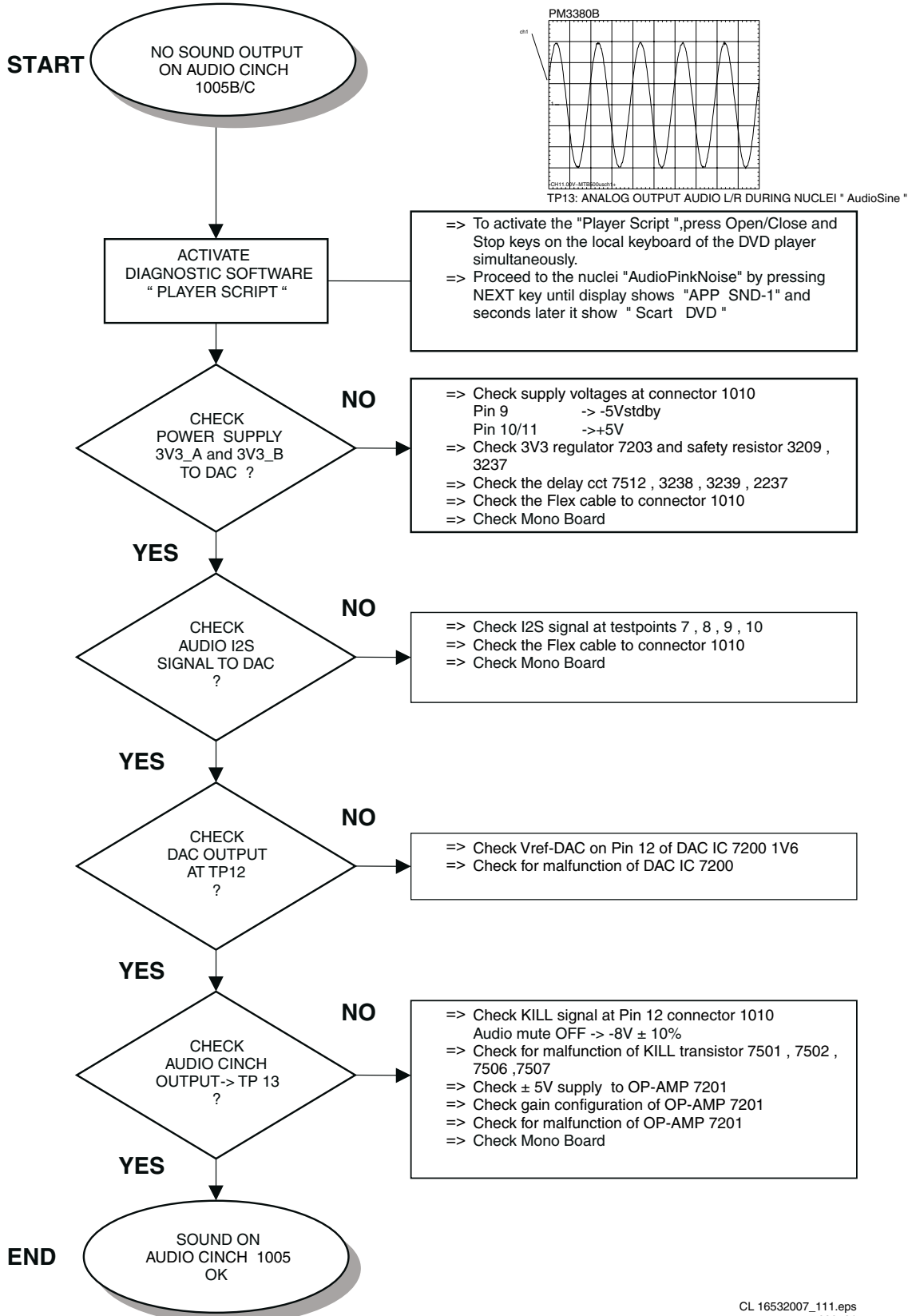
5.9 Troubleshooting

5.9.1 Troubleshooting A/V board

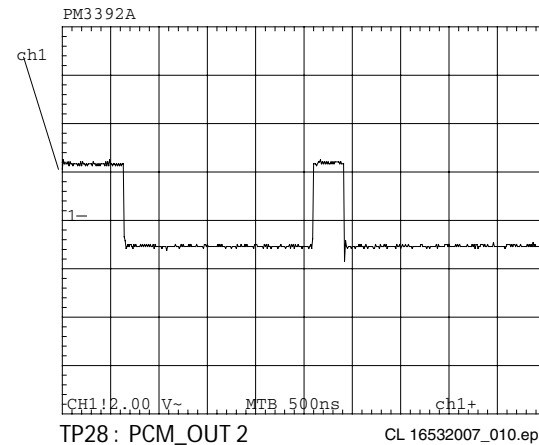
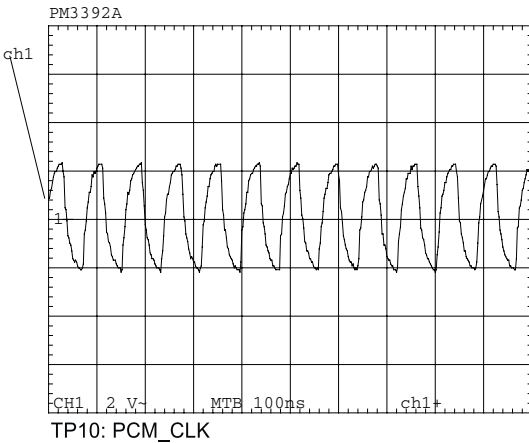
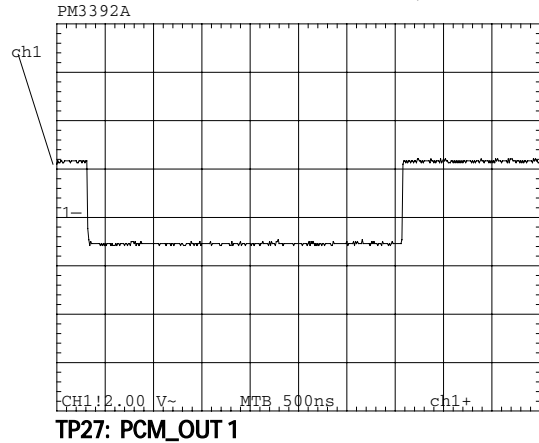
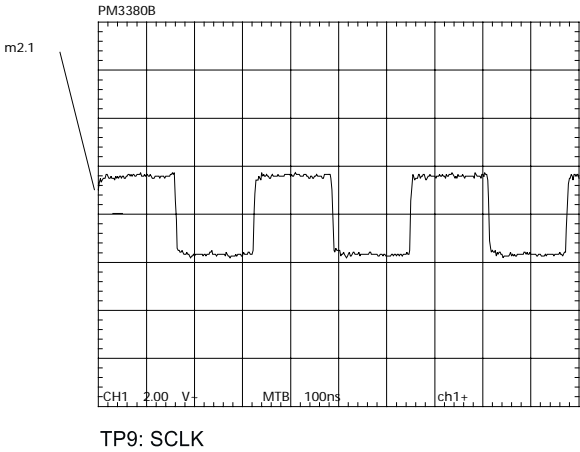
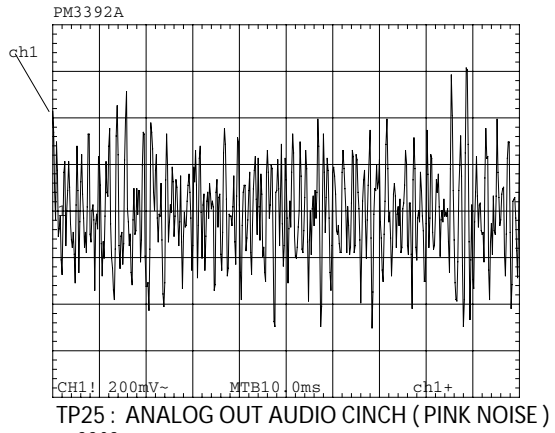
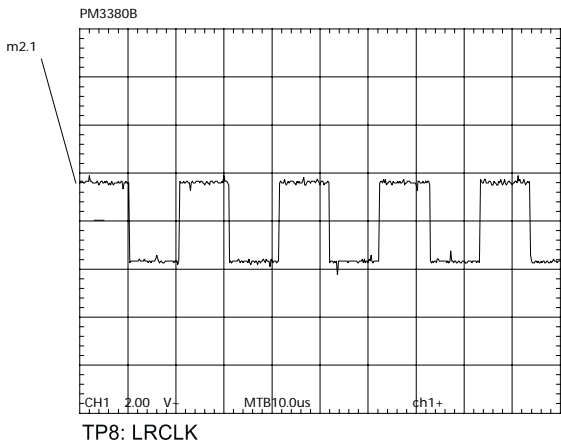
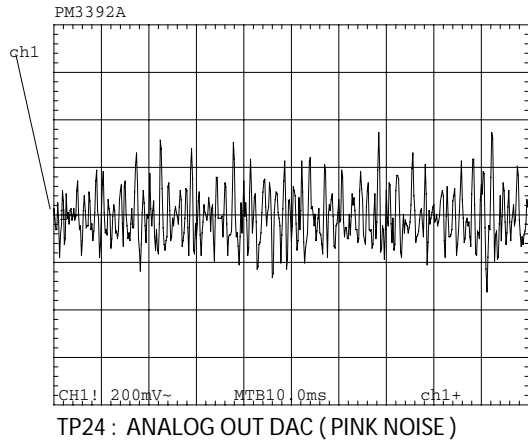
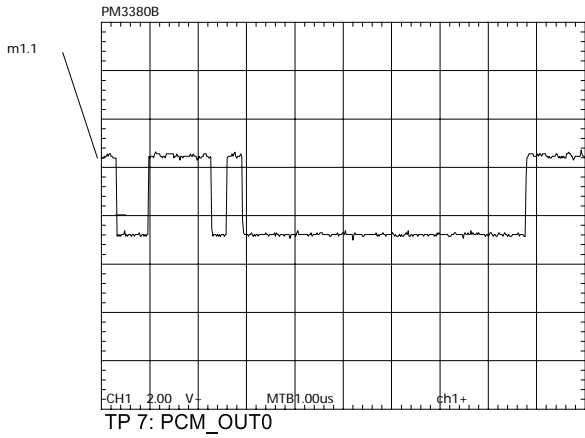
Testing of A/V board can be done using diagnostic software "PLAYER SCRIPT".

MONO board is used to generate a sound with the sound tests SND-1 and SND-2 or a VIDEO signal with the picture PIC-1. See description in the chapter of "DIAGNOSTIC SOFTWARE: SCRIPT INTERFACES".

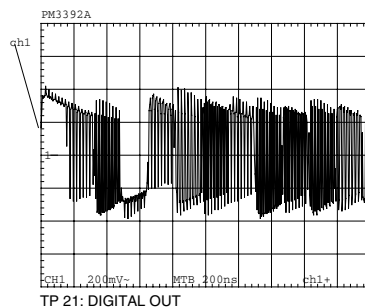
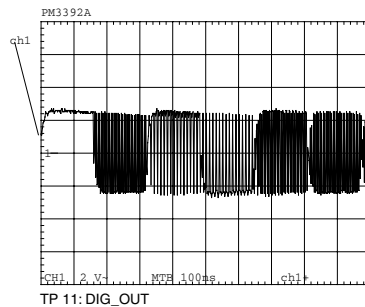
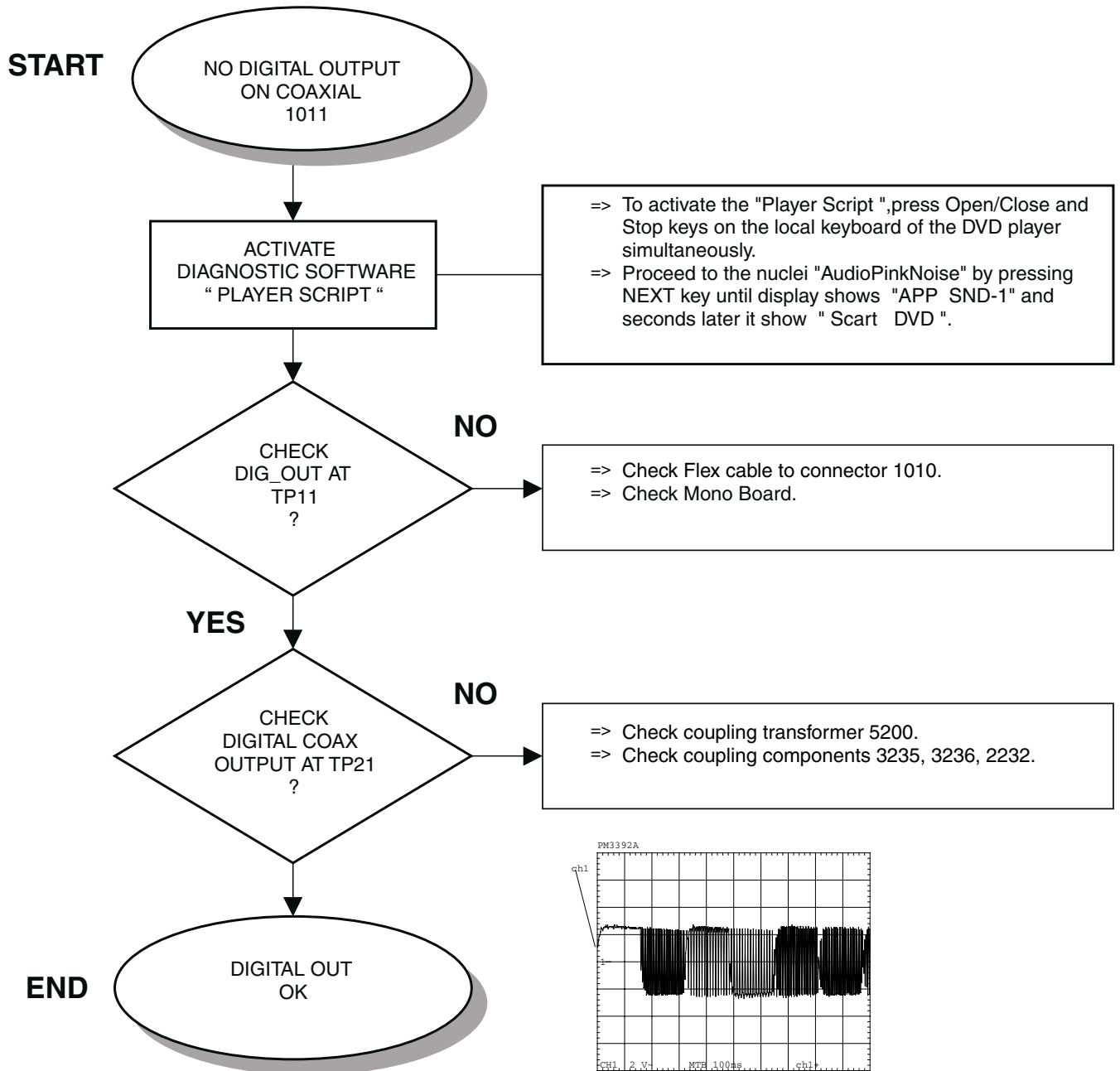
AUDIO PART OF AUDIO/VIDEO BOARD 3139 243 30261



AUDIO WAVEFORM MEASUREMENT

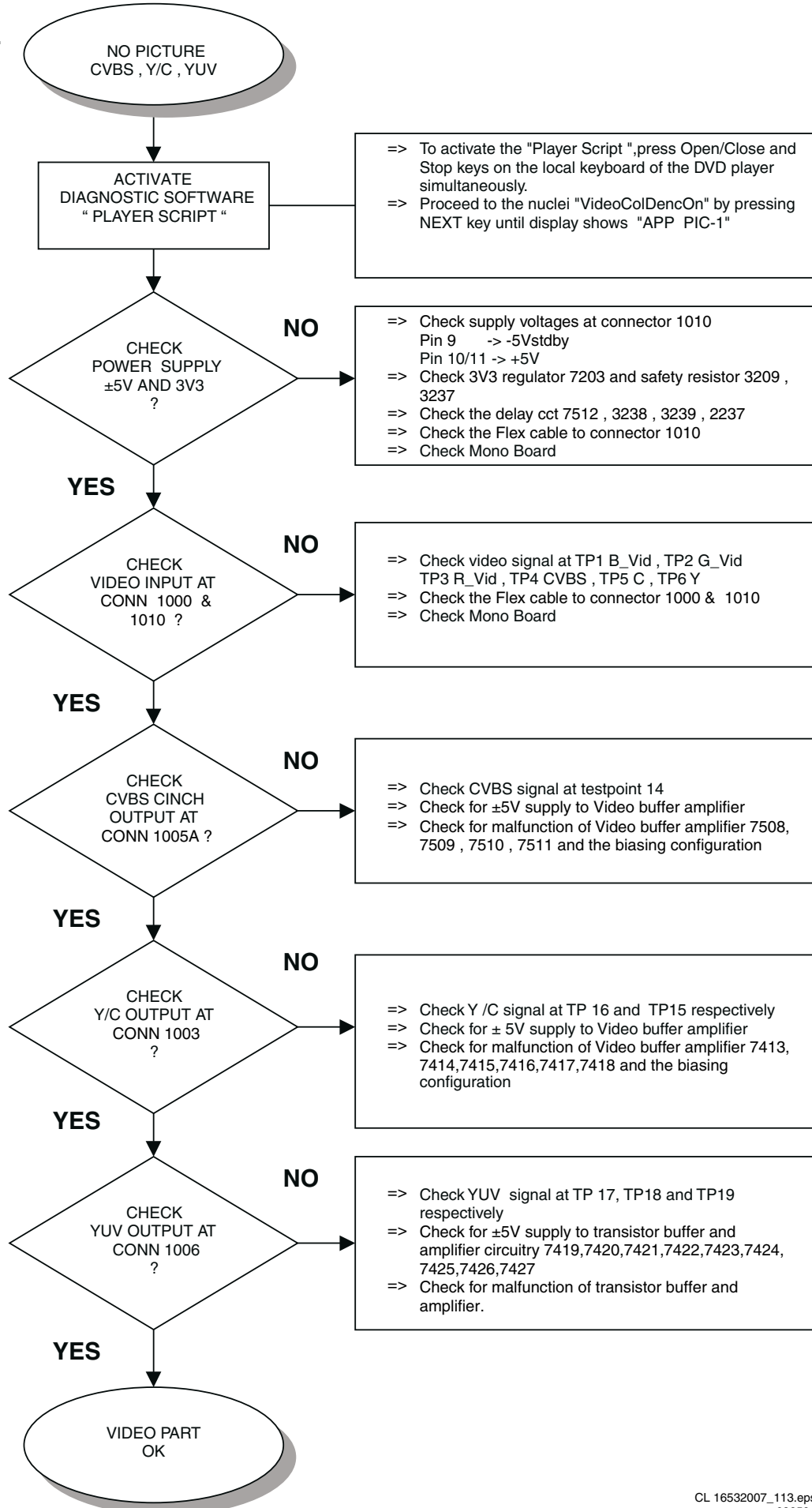


AUDIO PART OF AUDIO/VIDEO BOARD 3139 243 30261

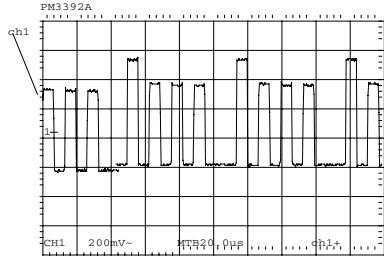


VIDEO PART OF AUDIO/VIDEO BOARD 3139 243 30261

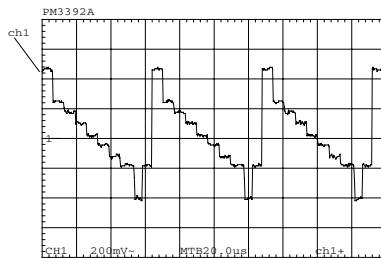
START



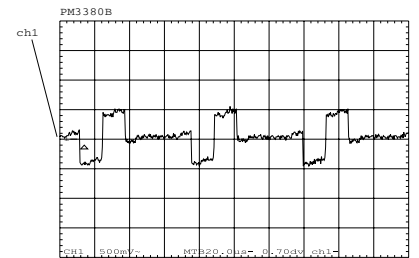
VIDEO WAVEFORM MEASUREMENT



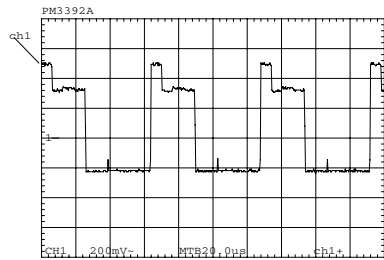
TP 1 : VIDEO B



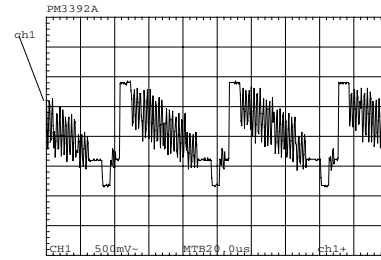
TP 6 : Y_ENC



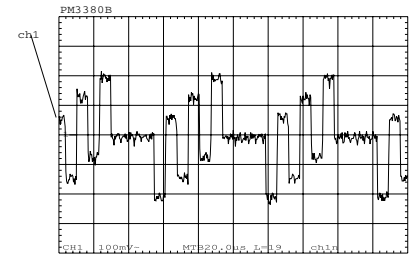
TP 19 : V_VID OUT



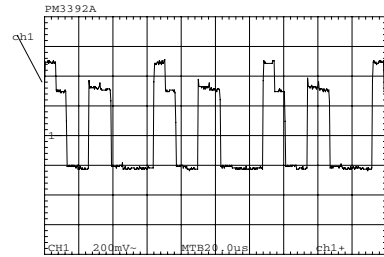
TP 2 : VIDEO G



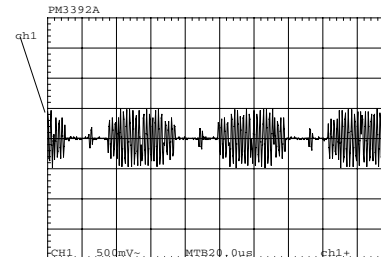
TP 14 : CVBS_OUT



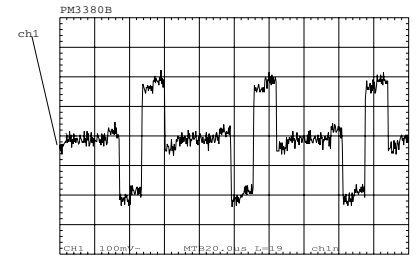
TP 22 : U_VID



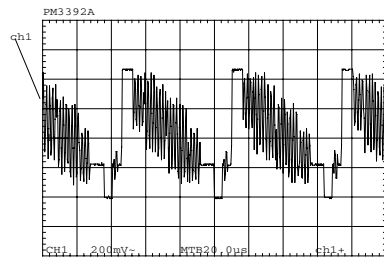
TP 3 : VIDEO R



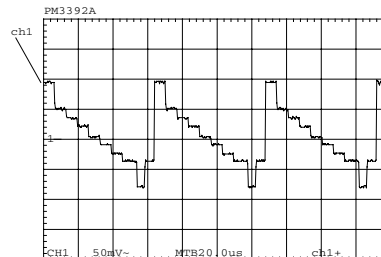
TP 15 : C_OUT



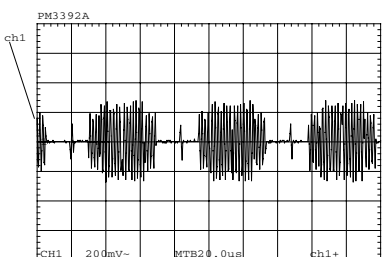
TP 23 : V_VID



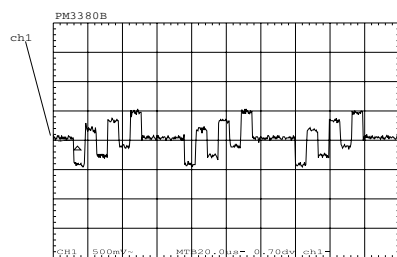
TP 4 : CVBS



TP 16 / 17 : Y_OUT

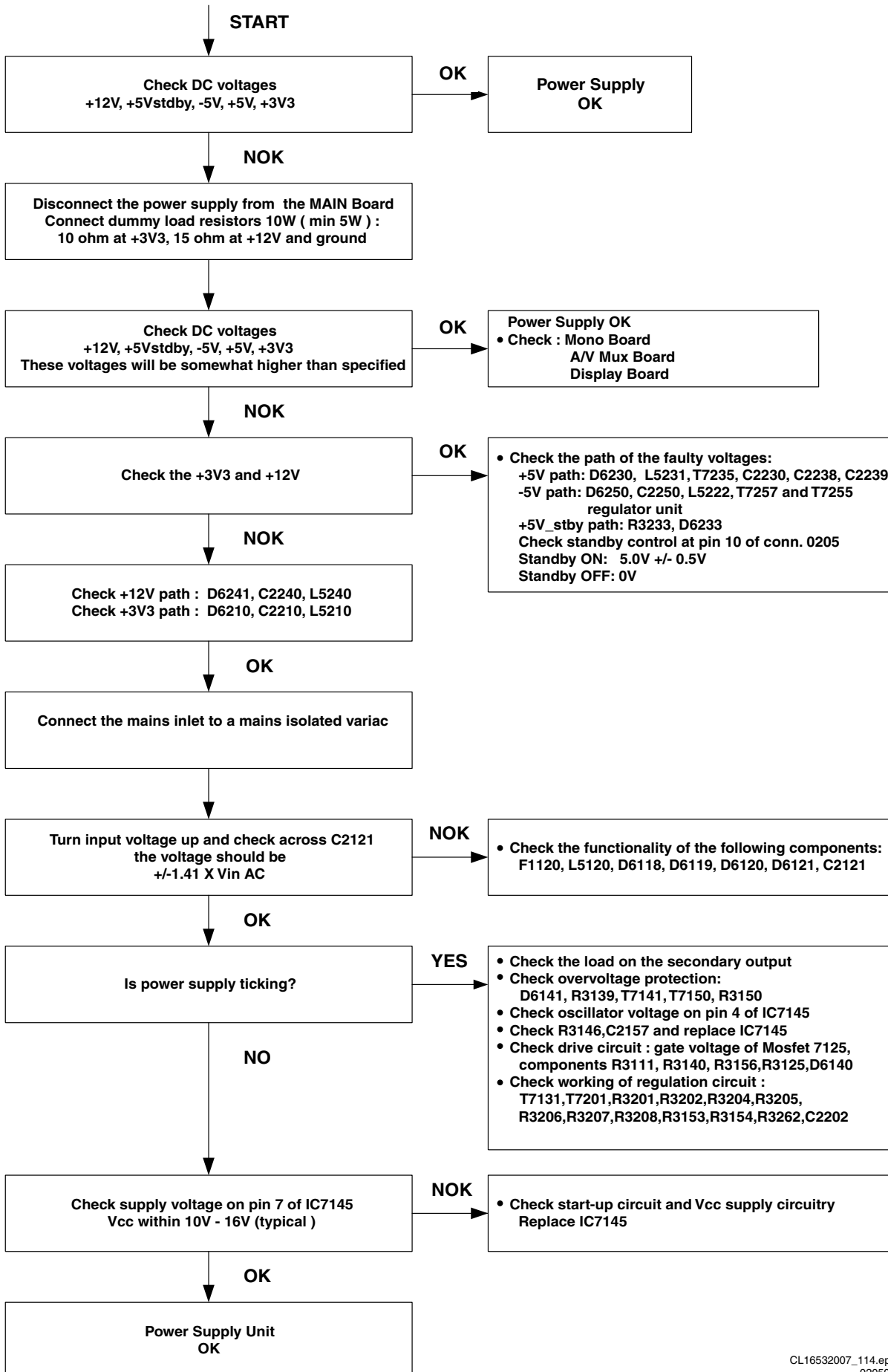


TP 5 : C_ENC



TP 18 : U_VID OUT

TROUBLESHOOTING POWER SUPPLY UNIT VFM WR



8. Alignments

No electrical alignments available

9. Circuit Descriptions And List Of Abbreviations

9.1 Current Mode Power Supply

9.1.1 Introduction

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

9.1.2 General Description of UC 3842C

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

9.1.3 Block Diagram

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

A representative Block diagram and Pin function description is shown in Fig 9-1 and Fig 9-2 respectively.

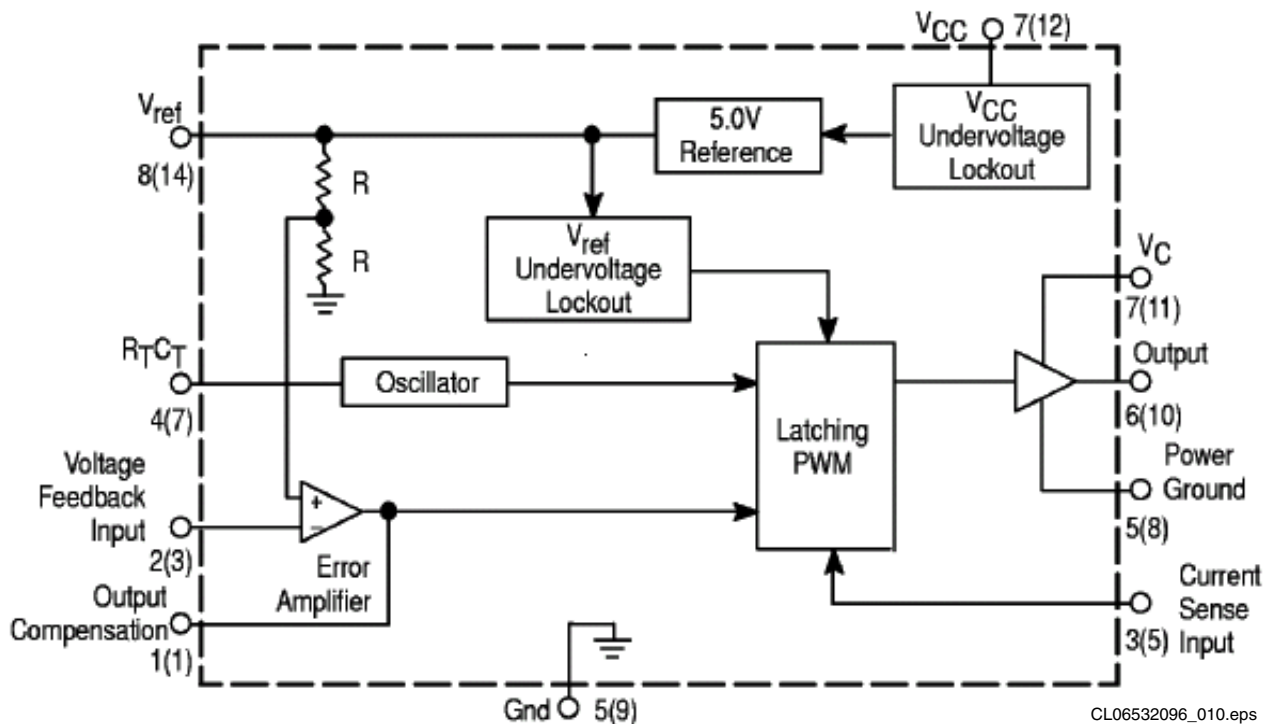


Figure 9-1

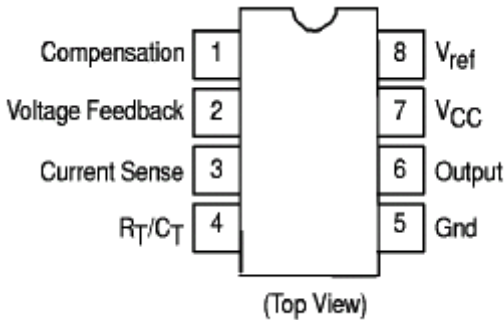
9.1.4 Pin Function Description

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

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060700

Figure 9-2

9.1.5 Pin Connection



CL06532096_012.eps
060700

Figure 9-3

9.1.6 Output Voltages

- +12V (For Display board, Monoboard, A/V board) created via D6241, C2240, L5240, C2232 (This voltage is also present during standby)
- +5V_ stdby (For Display board, Standby PCB, Monoboard) created from +6V via R3233 and D6233 (This voltage is also present during standby)
- +6V_ stdby (Reserve) created from D6230, C2230, L5231 (This voltage is also present during standby)
- +5V (For Monoboard, A/V board) derive from +6V stdby via Mosfet 7238, C2239 and it will be switch off via R3235, T7235 during Standby.
- 5V (For Monoboard, A/V board) created from D6250, C2250, C2259, L5222, R3259, T7255 regulator circuit and will switch off via R3258, T7257 during standby (control signal Standby is HIGH)

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

9.2 Control Circuitry

9.2.1 Mains Input Circuitry

The mains voltage is rectified by bridge rectifier (D6118 to D6121) and filter by C2121. The DC voltage across C2121 is the DC input voltage ,approximately 300V, is the DC input to pin 1 of transformer T5131. The mains input also consists of a lighting protection R3120.

9.2.2 Start-Up And Takeover Circuitry

The start-up circuitry consist R3123, R3134, R3111, D6129, C2134 and with the mains voltage input, the C2134 will charge via R3123 and R3134. When the voltage at pin 7 of IC7145 reaches the start-up threshold of min 14.5V, IC7145 will start-up and the control circuit start to operate. After start-up, the max sinking current of 17mA is required by IC7145 which is not able to be delivered by the start-up circuitry, so the takeover circuitry must be present. If the takeover circuit does not occurred, the supply voltage at pin 7 will decrease gradually till it reaches the IC7145 minimal operating voltage of 8.5V and the IC will switch off. The whole operation cycle will repeat itself with audible hiccup sound if takeover is not present.

The takeover circuit comprises of D6133, R3135, I5135, C2134. During the control circuit start-up, the voltage across winding pin 7 and 9 will gradually built up and charged C2134

via D6133, R3135 which will takeover the supply voltage of T7145 at pin 7.

it goes into the overvoltage protection and a complete restart sequence is required.

9.2.3 Secondary Voltage Sensing

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

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

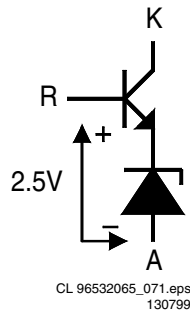


Figure 9-4

When the output voltage increases, due to a reduction in the load, the voltage across R3205 and R3206 increases to above the internal reference voltage of about 2.5V then TL431 conduct. The current through the opto-coupler 7131 will increase due to the fact that the series resistor in 7201 decreases. This result in a increase of voltage to pin 2 of IC7145, thus reducing the on-time of FET 7125. In the event of a decrease in output voltage (increase in load),the control circuit will operate in the opposite way to the explanation above.

9.2.4 Primary Current Sensing

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

9.2.5 Undervoltage Protection

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

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

9.2.6 Overvoltage Protection

The overvoltage circuitry comprising of D6141,R3139, R3150, R3141,T7141, T7150 which is used to detect an over voltage situation on the secondary side of the transformer. After start-up, when the voltage across C2135 exceeds 18V,the overvoltage circuit will trigger the internal latch circuit, pin 1 of IC7145 and the output buffer is disabled and

9.3 List Of Abbreviations

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

7141	4822 130 44568	BC557B
7145	9322 145 88682	UC3842A
7150	4822 130 44257	BC547
7201	4822 209 81397	TL431CLPST
7235	4822 130 42705	BC847
7238	5322 130 11197	IRLML2803
7255	4822 130 40855	BC337
7256	5322 130 42756	BC857C
7257	5322 130 42756	BC857C

Mic+HP+Vol PWB**Various**

1000	2422 026 04309	SOC PHONE H 1P F 6.3 ST B
1001	2422 026 04309	SOC PHONE H 1P F 6.3 ST B
1003	4822 267 31453	
1200	4822 267 10573	CON BM H 8P 2.50

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2200	4822 126 11663	12pF
2201	4822 126 14305	100nF 10% 16V 0603
2202	4822 126 14305	100nF 10% 16V 0603
2203	4822 126 14305	100nF 10% 16V 0603
2204	5322 126 11578	1nF 10% 50V 0603
2205	4822 126 11663	12pF
2206	4822 126 14305	100nF 10% 16V 0603
2207	5322 126 11578	1nF 10% 50V 0603
2208	4822 122 31765	100pF 2% 63V
2209	4822 122 31765	100pF 2% 63V
2210	3198 017 44740	0603 10V 470nF COL
2211	3198 017 44740	0603 10V 470nF COL
2212	4822 122 33777	47pF 5% 63V
2213	4822 126 14305	100nF 10% 16V 0603
2214	4822 124 40248	10µF 20% 63V
2215	4822 126 14305	100nF 10% 16V 0603
2216	5322 126 11578	1nF 10% 50V 0603
2217	3198 017 41050	0603 10V 1µF COL R
2218	4822 122 31765	100pF 2% 63V
2219	4822 122 31765	100pF 2% 63V
2220	3198 017 44740	0603 10V 470nF COL
2221	3198 017 44740	0603 10V 470nF COL
2222	4822 122 33777	47pF 5% 63V
2223	4822 126 14305	100nF 10% 16V 0603
2224	4822 124 40248	10µF 20% 63V
2225	4822 126 14305	100nF 10% 16V 0603
2226	5322 126 11578	1nF 10% 50V 0603
2227	3198 017 41050	0603 10V 1µF COL R
2228	3198 017 41050	0603 10V 1µF COL R
2229	4822 126 13881	470pF 5% 50V
2232	4822 122 31765	100pF 2% 63V
2233	3198 017 41050	0603 10V 1µF COL R
2234	4822 126 13881	470pF 5% 50V
2237	4822 122 31765	100pF 2% 63V
2238	5322 126 11583	10nF 10% 50V 0603
2239	4822 051 20008	0 OHM 5% 0.25W 0805
2240	3198 016 31020	0603 25V 1nF
2241	4822 124 11947	10µF 20% 16V
2242	4822 124 11947	10µF 20% 16V

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3201	4822 101 21199	10kX2 20% 0.025W
3202	4822 117 13608	4.7Ω 5% 0603 0.0016W
3203	4822 117 13608	4.7Ω 5% 0603 0.0016W
3204	4822 050 24708	4Ω7 1% 0.6W
3205	4822 050 24708	4Ω7 1% 0.6W
3206	4822 051 30479	47Ω 5% 0.062W
3207	4822 117 12139	22Ω 5% 0.062W
3209	4822 051 30479	47Ω 5% 0.062W
3210	4822 117 12139	22Ω 5% 0.062W
3211	4822 117 11817	1k2 1% 1/16W
3212	4822 051 30222	2k2 5% 0.062W
3213	4822 051 20274	270k 5% 0.1W
3214	4822 051 30105	1M 5% 0.062W
3215	4822 051 30154	150k 5% 0.062W
3216	4822 117 12968	820Ω 5% 0.62W
3217	4822 051 30102	1k 5% 0.062W
3218	4822 051 30105	1M 5% 0.062W
3219	4822 051 30271	270Ω 5% 0.062W
3220	4822 051 30271	270Ω 5% 0.062W
3221	4822 051 30222	2k2 5% 0.062W
3222	4822 051 20274	270k 5% 0.1W
3223	4822 117 12968	820Ω 5% 0.62W
3224	4822 051 30105	1M 5% 0.062W
3225	4822 051 30154	150k 5% 0.062W
3226	4822 051 30102	1k 5% 0.062W
3227	4822 051 30271	270Ω 5% 0.062W

3228	4822 051 30105	1M 5% 0.062W
3229	4822 051 30271	270Ω 5% 0.062W
3230	4822 117 11817	1k2 1% 1/16W
3231	4822 051 30682	6k8 5% 0.062W
3232	4822 051 30102	1k 5% 0.062W
3233	4822 117 11817	1k2 1% 1/16W
3234	4822 051 30682	6k8 5% 0.062W
3235	4822 051 30102	1k 5% 0.062W
3236	4822 117 11817	1k2 1% 1/16W
3237	4822 051 30472	4k7 5% 0.062W
3238	4822 051 30472	4k7 5% 0.062W
3239	4822 051 30102	1k 5% 0.062W
3240	4822 051 30102	1k 5% 0.062W
3241	4822 101 21199	10kX2 20% 0.025W
3242	4822 101 21199	10kX2 20% 0.025W
3244	4822 116 52283	4k7 5% 0.5W
3245	4822 116 52283	4k7 5% 0.5W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

5200	4822 157 11235	22µH LANO2TB220J PM5 A
5201	4822 157 11235	22µH LANO2TB220J PM5 A

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6200	4822 130 30621	1N4148
6201	4822 130 30621	1N4148
6202	4822 130 30621	1N4148
6203	4822 130 30621	1N4148



7200	4822 130 60511	BC847B
7201	4822 130 60511	BC847B
7202	4822 130 60511	BC847B
7203	4822 130 60511	BC847B
7204	4822 130 60511	BC847B
7205	4822 130 60511	BC847B
7206	4822 130 42804	BC817-25
7207	4822 130 42804	BC817-25
7800	4822 209 83357	NJM4560M JRC
7801	4822 209 83357	NJM4560M JRC
7802	4822 209 62059	TCA0372DP1

VAL 6011**Various**

0001	9305 023 61101	VAL6011/01
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