

Service Service Service

EM5E-DVD

AA

Supplement on Service Manual EM5E

(3122 785 12560)

For DVD Module use Service Manual DVD SD-3

(3211 785 11010)

Service Manual

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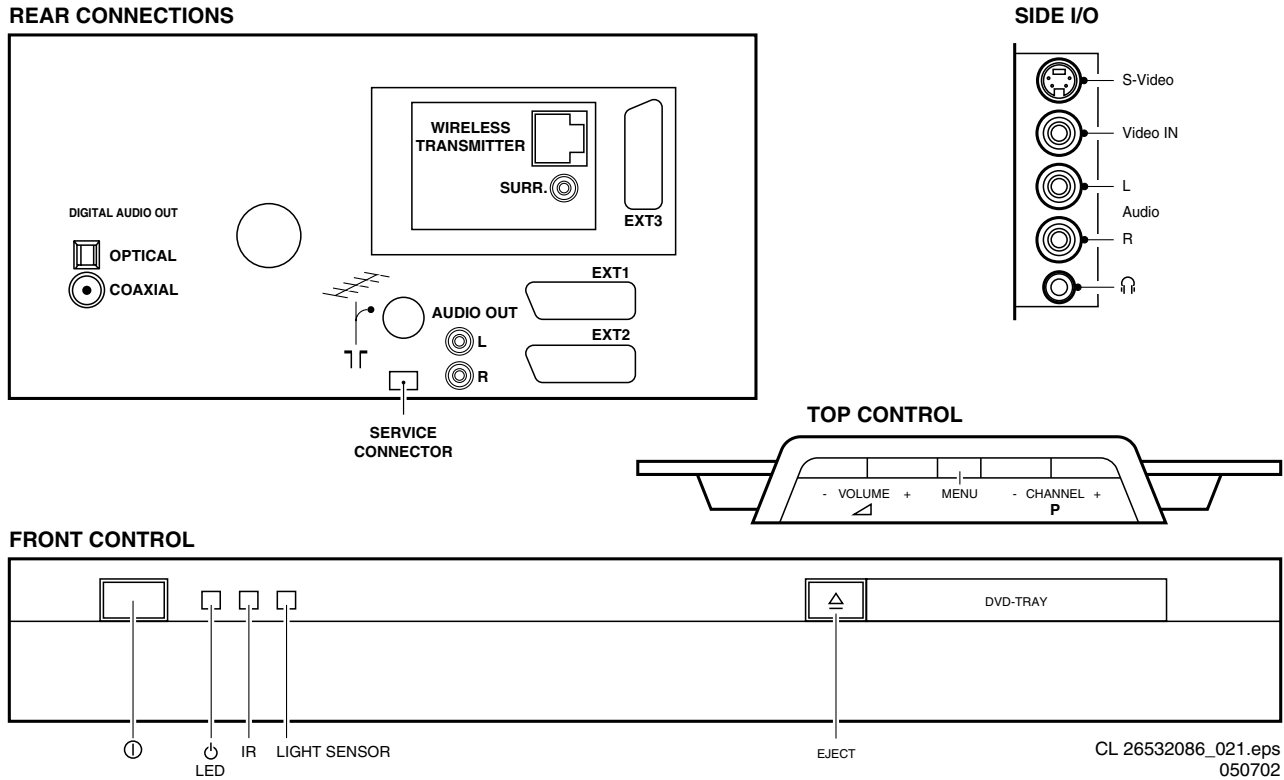
1. Technical Specifications, Connections & Chassis Overview

1.1 Technical specifications

Standby consumption : 1.1 W TV set + 6.5 W Surround speakers

1.2 Connections

1.2.1 Rear Connections and Side I/O



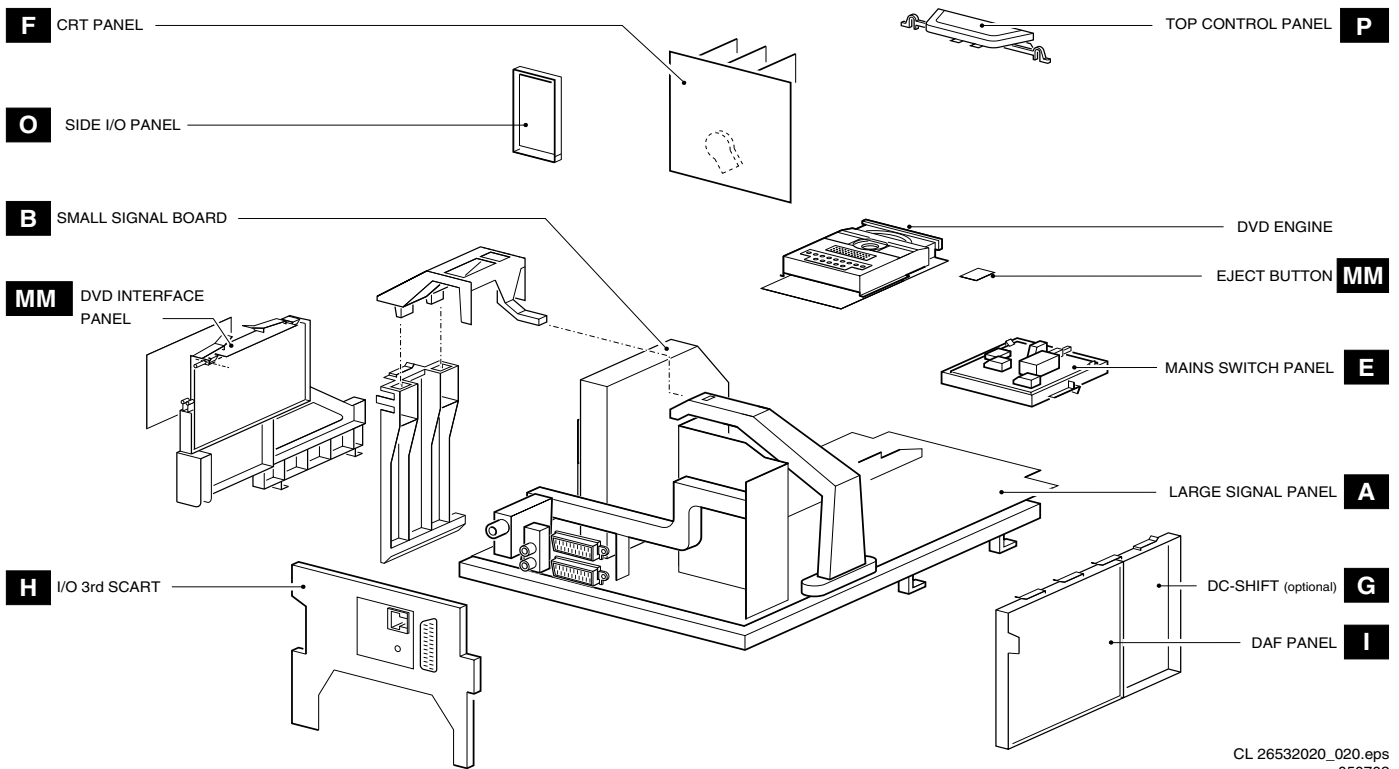
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Figure 1-1 Rear/ front view, top control and Side I/O.

1.2.2 Cinch - Digital Output

CDDA/LPCM : According IEC958
 MPEG1/2, AC3, DTS : According IEC1937
 : Digital output swing is 5Vpp.

1.3 Chassis Overview



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Figure 1-2 PWB location

2. Safety and Maintenance Instructions, Warnings, and Notes

2.1 Safety Instructions

Safety regulations require that **during** a repair:

- Due to the chassis concept, a very large part of the circuitry (incl. deflection) is 'hot'. Therefore, connect the set to the mains via an isolation transformer.
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

Safety regulations require that **after** a repair, you must return the set in its original condition. Pay, in particular, attention to the following points:

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current is flowing. In particular this is valid for the:
 1. Pins of the line output transformer (LOT).
 2. Fly-back capacitor(s).
 3. S-correction capacitor(s).
 4. Line output transistor.
 5. Pins of the connector with wires to the deflection coil.
 6. Other components through which the deflection current flows.

Note: This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the mains cord for external damage.
- Check the strain relief of the mains cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the mains plug and the secondary side (only for sets that have an isolated power supply). Do this as follows:
 1. Unplug the mains cord and connect a wire between the two pins of the mains plug.
 2. Turn on the main power switch (keep the mains cord unplugged!).
 3. Measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection of the set. The reading should be between 4.5 MΩ and 12 MΩ.
 4. Switch the TV 'off' and remove the wire between the two pins of the mains plug.
- Check the cabinet for defects, to prevent the possibility of the customer touching any internal parts.

2.2 Maintenance Instructions

We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.
- The maintenance inspection includes the following actions:
 1. Perform the 'general repair instruction' noted above.
 2. Clean the power supply and deflection circuitry on the chassis.
 3. Clean the picture tube panel and the neck of the picture tube.

2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in Fig. 2-1, to discharge the picture tube. Use a high voltage probe and a multi-meter (position VDC). Discharge until the meter reading is 0 V (after approx. 30 s).

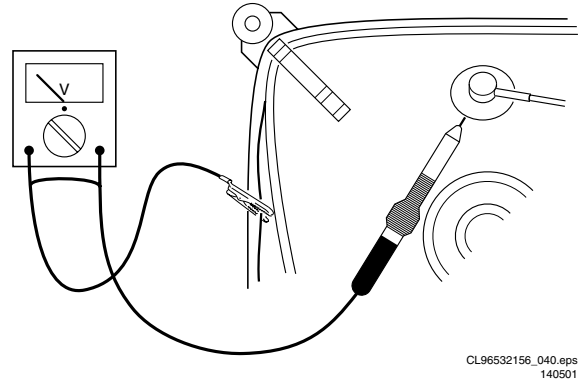


Figure 2-1 Discharge picture tube

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD, symbol w). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this potential. Available ESD protection equipment:
 - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and ground cable) 4822 310 10671.
 - Wristband tester 4822 344 13999.
- Together with the deflection unit and any multi-pole unit, flat square picture tubes form an integrated unit. The deflection and the multi-pole units are set optimally at the factory. We do not recommend adjusting this unit during repair.
- Be careful during measurements in the high voltage section and on the picture tube.
- Never replace modules or other components while the unit is 'on'.
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.4 Notes

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⊥), or hot ground (⊕), depending on the tested area of circuitry.
- The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz (PAL) or 61.25 MHz (NTSC, channel 3).
- Where necessary, measure the waveforms and voltages with (⊏) and without (⊘) aerial signal. Measure the voltages in the power supply section both in normal operation (Ⓢ) and in standby (Ⓢ). These values are indicated by means of the appropriate symbols.
- The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. 'Dolby', 'Pro Logic' and the 'double-D symbol', are trademarks of Dolby Laboratories.



Figure 2-2 Dolby Pro Logic Symbol

2.5 Laser Safety

LASER SAFETY

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

LASER DEVICE UNIT

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



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

AVOID DIRECT EXPOSURE TO BEAM

WARNING

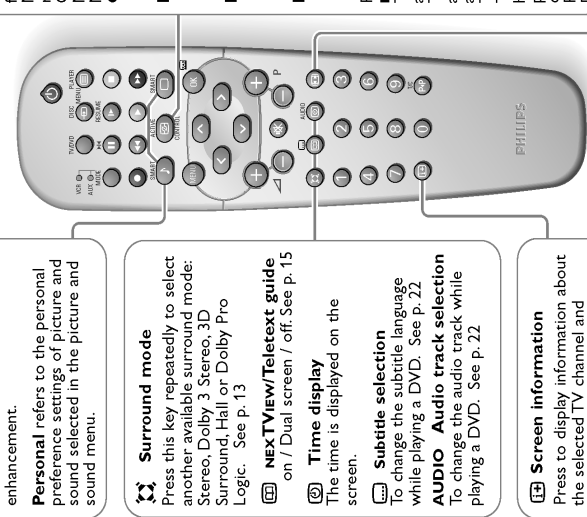
The use of optical instruments with this product will increase eye hazard. Repair handling should take place as much as possible with a disc loaded inside the player

WARNING LOCATION: INSIDE ON LASER COVERSIELD

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

Figure 2-3 Laser safety

3. Directions for Use



Smart Sound
Each time it is pressed, a different sound setting is selected, corresponding with specific factory settings of treble and bass.

Smart Picture
Each time it is pressed, a different picture setting is selected, corresponding with specific factory settings of Contrast, Colour, Sharpness, Dynamic Contrast and Colour enhancement.

Personal refers to the personal preference settings of picture and sound selected in the picture and sound menu.

Surround mode
Press this key repeatedly to select another available surround mode: Stereo, Dolby 3 Stereo, 3D Surround, Hall or Dolby Pro Logic. See p.13

NEXTVIEW/Teletext guide
on / Dual screen / off. See p. 15

Time display
The time is displayed on the screen.

Subtitle selection
To change the subtitle language while playing a DVD. See p. 22

AUDIO Audio track selection
To change the audio track while playing a DVD. See p. 22

Screen information
Press to display information about the selected TV channel and programme, and when in DVD mode to display the status window.

Menu information
When the TV menu is on screen, press to display info on the selected menu item. While the menu info is displayed, press any key to display remote control info.

Active control
Active control is a pro-active and automatic system. The TV continuously measures and corrects all incoming signals in order to provide the best picture possible. Thanks to the Ambient Light Sensor which measures the light conditions of the room, the contrast, dynamic contrast, brightness and colour picture settings are adjusted automatically. The light sensor is active when the Active control function is switched to Medium or Maximum. Press the key repeatedly to select the Active Control values Off, Minimum, Medium (recommended) or Maximum.

Off
Sharpness and Dynamic Contrast are controlled automatically

Minimum
Sharpness, Dynamic Contrast and Noise Reduction are controlled automatically.

Medium
Dynamic Contrast, Colour, Sharpness and Noise reduction are controlled automatically.

Maximum
Contrast, Dynamic Contrast, Colour, Sharpness and Noise reduction are controlled automatically.

INFO+
Press the cursor right to select The Active Control demo menu appears. The picture settings are being adapted continuously and automatically. The menu items cannot be selected. The sliders will be moving, showing how the TV is tweaking the current picture. None of the sliders is user controllable. Press the OK key to switch off the Demo.

Picture format
Press this key to summon a list of available picture formats. Press this key repeatedly or press the cursor up/down to select another picture format: Auto format, Super zoom, 4:3, Movie expand 14:9, Movie expand 16:9, Subtitle zoom, Wide screen. Auto format makes the picture fill the screen as much as possible. In case of subtitles in the bottom black bar, Auto format makes the subtitles visible. In case of a broadcaster logo in the corner of the top black bar, the logo disappears from the screen. Super zoom removes the black bars on the sides of 4:3 programs with minimal distortion. When in Movie Expand 14:9, 16:9 or Super zoom picture format, you can make subtitles visible with the cursor up/down.

4 Your remote control

Installation

Your remote control
Use the on-screen info for more information about the different keys. See p. 6.

MODE See p. 31.
TV/DVD To switch between TV and DVD mode.

Select peripherals
Press this key to select EXT1, EXT2, EXT3 or SIDE, according to where you connected the peripherals. (p. 30).

DISC MENU See p. 22

Standby
Press to switch the TV on or off. If your EasyLink video recorder has the system standby function and you press the standby key for 3 seconds, both the TV and video recorder are switched to standby.

Teletext
on / Dual screen / off. See p. 18

PLAYER MENU See p. 24

Play control keys
Used for DVD player or external equipment. See p. 31

Colour keys See p. 15 and p. 18

RESUME key See p. 22

Freeze
To activate/de-activate the frozen picture. See also p. 19

0/9 Digit keys
To select a TV channel, DVD chapter or audio track. For a two digit number, enter the second digit within 2 seconds. To switch immediately to a selected one digit TV channel, keep the digit key pressed a bit longer.

T/C Title / Chapter
To summon and switch between the title and chapter menu in DVD mode.

Volume
Press + or - to adjust the volume.

Mute
Interrupt the sound or restore it.

Programme selection
To browse through the TV channels and sources stored. Only those channels which are in the favourite list can be selected with the - P + keys. When in DVD mode, use the - P + keys to browse through DVD chapters or audio tracks.

PAP Smart surf (See General, Smart surf, p. 10.)
Press this key to select the previously viewed TV channel or source in case of a 2 programme surf. In case of a 9 programme surf, a list appears at the right side of the screen. On top, the most recent programme is displayed. The puck is on the channel number currently viewed.
Press the PAP key to turn to the next channel in the list or press cursor up/down to immediately select the desired TV channel of the list.
To add a new channel or source: tune to the channel or source you wish to add. Press the PAP key. Press the cursor right to add. If there are already nine channels/sources in the list, the one at the bottom of the list will be removed.
To remove a channel or source: select the channel number you want to remove. Press the PAP key. Press the cursor right to remove. Press the OK key or wait for the time out to dismiss the Smart surf display.

Main menu on/off see p. 12

OK Press this key to activate your choice, when in the menus.

Cinema Go
Press for 2 seconds to activate. See separate Cinema Link instruction manual supplied.

Cursor keys up/down left/right

3 Your remote control

Using the built-in DVD player

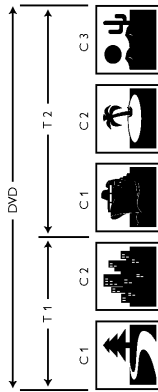
The built-in DVD player allows you to play DVD Video discs as well as Video-, Super Video-, Audio- and MP3-CDs (including CD-R and CD-RW CDs). The discs can be recognised by their logo on the packaging.



Note: Generally, DVD films are not placed on the market at the same time in the various regions of the world. Accordingly, DVD players are provided with geographical zone codes (Europe: code 2, Russia: code 5). If you insert a disc which has a regional code that is different from that of your reader, you will see a message displayed on the screen. The disc cannot be played and you will have to remove it.

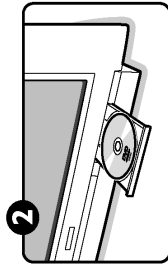
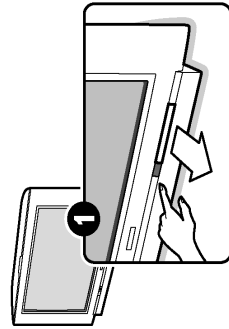
Introduction to DVD Video

The Universal DVD Video Standard offers some unique features, such as selection of different sound tracks for different languages, different subtitle languages and even multiple camera angles (disc dependent). Depending on the material on the disc (a movie, video clips, drama series, etc.), the disc may have one or more titles which can consist of multiple chapters (also called scenes).



Loading a disc

- 1 Press the **OPEN/CLOSE** ▲ button on the front of the TV or when in DVD mode, the ■ key on the remote control to open the disc tray.
- 2 Place your disc in the tray, label side up.
- 3 Press the **OPEN/CLOSE** ▲ button or when in DVD mode, the ■ key on the remote control again to close the disc tray.



Playing a DVD or Video-CD

Press the **TV/DVD** key to switch to DVD mode.

Play
Once a disc is loaded playback starts automatically. Certain discs may ask you to make a selection from a menu. Use the digit keys or up/down left/right keys and the **OK** key to make your selection.

Stop playback
Press the ■ key to stop playback. The default screen appears and gives information on the player status.

Resume playback
When you stop a disc mid-play (by switching to standby, ejecting the disc or pressing ■), you can resume play at the exact point you stopped the disc. Simply press the **RESUME** ► key or when the ► symbol appears on-screen, press ► again (otherwise the disc will restart from the beginning).
Note: When temporarily switching to TV mode, and switching back to DVD mode within 10 minutes, the DVD will automatically resume.

Slow motion, fast forward and rewind
During playback, press the cursor down key repeatedly to slow play down to 1/2, 1/4 or 1/8 speed. Press the ◀◀ or ▶▶ key (or the cursor left/right) to fast forward or rewind at x4 or x32 speed. Press ► to return to normal speed.

Freeze-frame
Press ■ or the cursor up to freeze the image. Press ■ or the cursor up again to move to the next frame or ► to resume play.

Select title / chapter
DVD discs are divided into different chapters to allow certain scenes to be accessed directly. Press the **T/C** key to access the Title or Chapter menu directly. Use the - **P** + keys to go to the previous or next chapter.

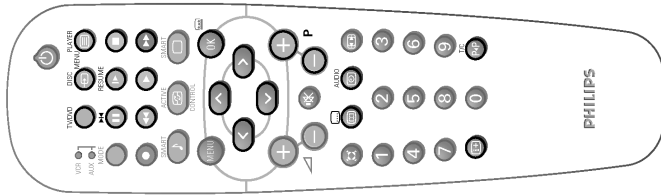
Disc menu
Press the **DISC MENU** key to summon the menu of the DVD disc. Its contents are entirely dependent on the DVD disc. It allows access to different sections such as choice of language, direct access to scenes, bonus materials, etc. Use the cursor up/down left/right to select, the **OK** key to confirm and the **DISC MENU** key to exit.

Language selection
Press the **AUDIO** key repeatedly to select the different audio languages available on the disc. A menu bar appears at the top of the screen, this will disappear after a few seconds.

Subtitle language selection
Press the **TEXT** key repeatedly to select the different subtitle languages available on the disc. Select **off** to deactivate subtitling. The menu bar disappears after a few seconds.

Status window
Press the **INFO** key to display information about the current disc.

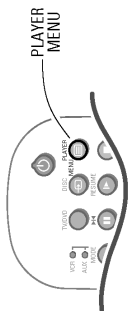
Removing a disc
Ensure playback has stopped, then press the **OPEN/CLOSE** ▲ button located on the front of the TV or, when in DVD mode, the ■ key on the remote control to open the disc tray.
Remove the disc.



The DVD Player Menu

This menu allows you to access all the special functions of the DVD player.

- 1 Press the **PLAYER MENU** key. A menu bar appears with symbols for each menu item.
- 2 Use the cursor left/right up/down to go through the options in the menu.
- 3 Use the **OK** key to confirm your selection.
- 4 Press the **PLAYER MENU** key repeatedly to return or to switch the menu off.



Using the DVD Player Menu

Personal preferences

See next page.

Subtitle and audio language

On the menu bar select for the subtitling language and for audio language. Use the cursor up/down to choose your setting. The and **AUDIO** keys on the remote control allow you to make these settings directly.

Frame by frame

Select and press the cursor down. The image freezes. Use the cursor left/right to move backwards or forwards frame by frame. Press to resume normal play.

Slow motion / fast motion

Select for slow motion or for fast motion and press the cursor down. Use the cursor left/right to select the desired speed. To resume normal speed, press .

Angle

Some DVDs include sequences recorded from several camera angles. Generally a special icon will appear. Select on the menu bar and use the cursor up/down to select the angle.

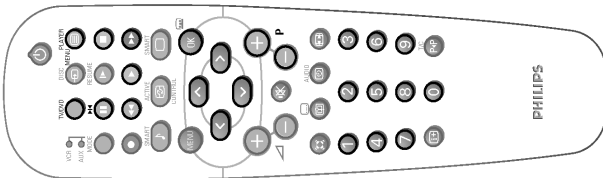
MP3 disc properties

Your built-in DVD player supports the following MP3-CD format (ISO9660)

- Max. 30 character filenames
- Max. levels of nested directories is 8
- the max. ALB number is 32
- VBR bit-rate support
- Supported MP3 sampling frequencies are: 32, 44.1, 48 kHz
- Supported MP3 bit-rates are: 32, 64, 96, 128, 192, 256 kbps
- Following formats are not supported: .WMA, .AAC, .DLF, .M3U, .PLS

Additional notes:

- Chinese filenames are not supported.
- The CD-session must be closed.
- Only the first session of a multi-session CD is supported.
- CDs in UDF format are not supported.
- In compliance with the SDMI, digital audio out is muted while playing MP3-CDs.
- The disc reading time may exceed 10 seconds due to a large number of songs on the disc.



Playing an Audio- or MP3-CD

Audio Disc Mode										
Play	Track	Time	Total tracks	Total time						
▶	7	0:01:34	4	1:11:19						
FTS On = Off										
Track	1	2	3	4	5	6	7	8	9	>
Program	3	5	8	9	Clear all					

Press the **TV/DVD** key to switch to DVD mode.

Play

Once a disc is loaded the Audio-CD screen appears. Press to start playback.

Stop playback / eject disc

Press the key to stop playback. Press again or the **OPEN/CLOSE** button on the front of the TV to eject the disc.

Moving to another track

Use **- P +** to go to the previous or next track. Use the digit keys to skip to a certain track number.

Fast forward and rewind

During playback, press the or key to fast forward or rewind at x8 speed. Press to return to normal speed.

Note: This function is not available with MP3-CDs.

Pause playback

Press **II** during playback. Press to resume.

Favourite track selection (FTS)

This function allows you to programme a selection of tracks into the memory.

Note: This function is not available with MP3-CDs.

- 1 Make sure playback has stopped.
- 2 Use the cursor up/down to select the Track line.
- 3 Use the cursor left/right or the digit keys to select a tracknumber. Press the **OK** key to confirm. The tracknumber appears in the **Program** line.
- 4 Repeat step 3 for each favourite track you wish to select (max. of 20 per disc). You can repeat the same tracknumber several times.
- 5 Press to play your favourite tracks.
- 6 To stop playing favourite tracks, position the **FTS** setting to **off**.
- 7 To clear the **Program** line, use the cursor down to select **Clear all** and press **OK**. To remove a tracknumber from the **Program** line, select the tracknumber in the **Program** line and press **OK**.

Description of the symbols

- Personal Preferences
- Subtitle Language
- Audio Language
- Frame by frame
- Slow motion
- Fast motion
- Angle
- Zoom
- T** Title
- C** Chapter
- G** Time Search
- Favourite Track Selection (FTS)

Grey symbols indicate that the option is not available.

Zoom

Select and press the cursor up/down to activate the zoom function with a magnification of 1.33, 2 or 4. Press **OK** and use the cursor up/down left/right to move around. Press **OK** again to confirm.

Direct access to titles and chapters

Select **T** to access the different titles available on the disk and **C** for the different chapters or film sequences. Use the cursor up/down to choose your setting. The **- P +** keys on the remote control allow you to access the chapters directly.

Direct access by time

Select and press the cursor down. The image freezes. Use the digit keys to enter a precise time to go to. Press **OK**, the key or the cursor up to resume at the indicated time.

Favourite track selection (FTS)

See next page.

Personal Preferences

Press the **PLAYER MENU** key. On the menu bar select **T** and press the cursor down to display the personal preferences menu.

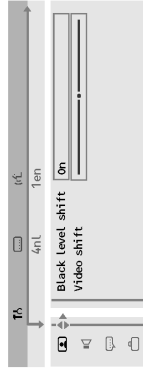


Image preferences

- **Black level shift:** to highlight the levels of black in the image (only works with NTSC images).
- **Video shift:** to move the image horizontally.

Sound preferences

- **Digital output:** allows you to choose **All** (the optical and coaxial outputs are activated), **PCM only** (the optical and coaxial outputs are activated, but for the connection of an amplifier without a multichannel digital decoder) or **Off** (no output is activated)
- **Night mode:** optimises the sound dynamics for low volume listening
- **Karaoke vocal:** only activate this function for playing special karaoke DVDs (choose **On** to hear the singing vocals)

Favourite Track Selection

This function allows you to programme a selection of your favourite chapters from the DVD into the memory.

T	C	Ch.	Cl.	on					
2	4			on					
FTS on> Off									
Title	1	2	3	4	5	6	7	8	9
Chapter	1	2	3	4	5	6	7		
Program	2.2	2.4	2.7						
	Clear all								

- 1 Press the **PLAYER MENU** key. On the menu bar select **T** and press the cursor down to display the favourite track selection menu. Use the cursor up/down to select the Title or Chapter line.
- 2 Use the cursor left/right to select the number of the favourite title or chapter.
- 3 Press the **OK** key to confirm your selection.

Language preferences

- **Audio Language:** to define the preferred language for the soundtracks of DVD films.
- **Subtitle:** to define the preferred language for subtitles on DVD films.

Note: if the preferred language is available on the disc, it will be selected by default. If not, the first language on the disc will be activated.

Features

- **Access control** (see next page)
- **Status window:** to turn off the display of the player's status window.
- **Low power standby:** on a fixed image, the contrast automatically fades after 5 minutes.
- **PBC (Playback Control):** to activate or deactivate the possibility to directly select a title on certain Video- or Super Video-CDs.
- **Help text:** when set to on, help text describes the symbols selected in the top menu-bar.

Access control / Child lock

This function allows you to access various levels of security for the player:

- 1 Press the **PLAYER MENU** key.
- 2 On the menu bar select **T** and press the cursor down to display the personal preferences menu.
- 3 Use the cursor up/down to select **Access control**.
- 4 Press the cursor right twice to enter the **Access control** menu.
- 5 Enter a four digit access code of your choice. Enter it a second time to confirm. The **Access control** menu appears.



- **Child lock:** select **Off** to switch the lock on or off. When the child lock is on, you will be asked to enter a code to authorise the playback of DVDs and video CDs.
- **Parental level:** to activate the level of security from 0 (off) to 8 (maximum). Certain DVD 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. For example, if you choose level 4, all scenes of level 4 (and below) will be played. Scenes of a higher level will not be played or will be replaced by alternative scenes. If no alternative scenes are available, play will stop and you will be asked to enter the 4-digit code.

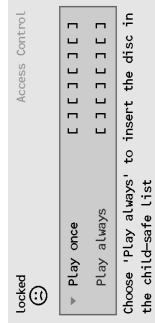
- **Change country:** select your country. This setting influences the parental levels which are country dependent.

- **Change code:** to modify the access code. You will be asked to enter the new code a second time to confirm. If you have forgotten your secret code, the code can be cancelled by pressing the **key** four times in the **Access control** dialog.

Play authorisation

When the Child lock function is switched on you will be asked to enter your code to authorise the playing of the DVD or Video-CD.

- 1 Insert a disc. The 'child lock' dialogue appears.



The player can memorise a list of 120 child safe discs. When the list is full and a new disc is added, the last disc in the list is removed. Double sided DVDs and Video-CDs with multiple volumes may include a different identification for each side or volume. In this case you will have to authorise each side or volume separately.

Removing play authorisation

- 1 Insert a disc. Playback starts automatically.
- 2 When the **key** symbol appears on screen, press the **key**. The **key** symbol appears and the disc is now deauthorised.

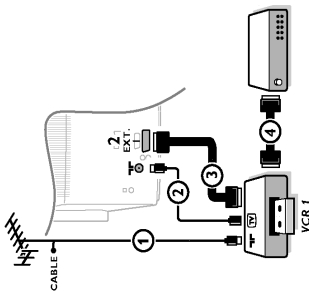
Removing the play authorisation dialogue

- To deactivate the Child lock:
- 1 Make sure you are in DVD mode. Press the **PLAYER MENU** key.
 - 2 Go to Personal preferences, then **Access control** menu.
 - 3 Enter your access code and set the child lock to **Off**.
 - 4 Press the **PLAYER MENU** key to exit the menu.

Connect Peripheral Equipment

There is a wide range of audio and video equipment that can be connected to your TV. The following connection diagrams show you how to connect them.

Recorder



Connect the aerial cables ①, ② and, to obtain the optimum picture quality, eurocable ③ as shown.



If your recorder is provided with the EasyLink function, the eurocable supplied with it should be connected to **EXTERNAL 2** to benefit from the EasyLink functionality.

If the eurocable ③ is not used the following steps are required:

Search for and store the test signal of the recorder

- ① Unplug the aerial cable ① from the aerial socket of your recorder.
- ② Switch on your TV and put the recorder on the test signal.
- ③ (See the handbook for your recorder.) Search for the test signal of your recorder in the same way as you searched for and stored the TV signals. See installation, Store TV channels, Manual installation, p. 7.
- ④ Store the test signal under programme number 0 or between 90 and 99.
- ⑤ Replace the aerial cable in the aerial socket of your recorder after you have stored the test signal.

Decoder and recorder

Connect a eurocable ④ to your decoder and to the special euroconnector of your recorder. See also the recorder handbook. See Decoder, p. 11.
You can also connect your decoder directly to **EXTERNAL 1** or 2 with a eurocable.

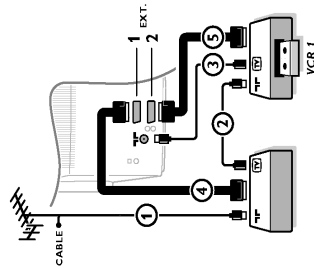
Recorder and other peripherals

(except Digital Sources)

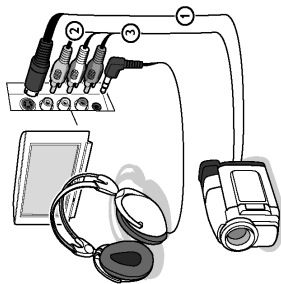
- ① Connect the aerial cables ①, ② and ③ as shown. Better picture quality can be obtained if you also connect eurocable ⑤ to **EXTERNAL 2** and a eurocable ④ to **EXTERNAL 1** or **EXTERNAL 3**.
- ② Look for the test signal of your peripheral in the same way as you do for a recorder.

When a recorder is connected to **EXTERNAL 1** you can only record a programme from your TV.
Only when a recorder is connected to **EXTERNAL 2** it is possible to record a programme from your TV as well as from other connected equipment.
See Record with your recorder, p. 32.

Note: **EXTERNAL 1** can handle CVBS and RGB.
EXTERNAL 2 CVBS and Y/C. **EXTERNAL 3** CVBS and RGB. It is preferred to connect peripherals with RGB output to **EXTERNAL 1** or 3 as RGB provides a better picture quality.



Side connections



Camera or camcorder

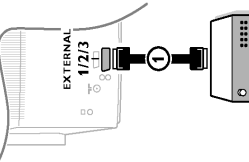
- ① Connect your camera or camcorder to the sockets at the right side of your TV.
 - ② Connect the equipment to **VIDEO ②** and **AUDIO L ③** for mono equipment.
 - ③ For stereo equipment also connect **AUDIO R ③**.
- S-VHS quality with an S-VHS camcorder is obtained by connecting the S-VHS cables with the **S-VIDEO input ①** and **AUDIO inputs ③**.
Do not connect cable ① and ② at the same time. This may cause picture distortion!

Headphone

- ① Insert the plug into the headphone socket at the right side of the TV.
 - ② Press **IKK** on the remote control to switch off the internal loudspeakers of the TV. The headphone impedance must be between 8 and 4000 Ohm. The headphone socket has a 3.5 mm jack.
- In the **Sound** menu select **Headphone** volume to adjust the headphone volume.

Note: The surround mode is always stereo when the headphone is connected.

Digital equipment (Digital satellite tuner, STB, DVD,...)



Connect your digital equipment with a eurocable ① to one of the euroconnectors (**EXT1, EXT2** or **EXT3**), or with a cinch cable to the **VIDEO** input at the right side of the TV.

Note: The low quality of some digital picture material may be the cause of digital image distortion. According to the connected digital equipment, select **DVD, SAT, Game** or **Digital STB** in the Setup/Source menu. See p. 11.
(In case the digital transmission is still poor, also select the **Soft** setting using the Smart Picture key, without changing the picture setting manually.)

Extra loudspeakers / Amplifier

REAR multimedia loudspeakers

You can enjoy Dolby Pro Logic Surround sound by connecting two rear loudspeakers to be connected to the Dolby Surround output **S** at the back of your TV. Connect two rear loudspeakers with built in amplifiers or an audio amplifier with rear loudspeakers. Connect the audio cables to the rear loudspeakers and to the Dolby surround output **S** at the back of your TV as shown.

There is only one output for both speakers.

Note: Switch off the TV and the rear loudspeakers before connecting them.

The surround output **S** has a 3.5 mm stereo jack.

Select **Surround speakers - On** in the Setup menu. See p. 9.

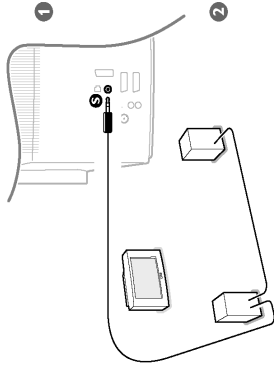
See Surround sound modes in the Sound menu, p. 13 for the available Surround modes.

Rear Surround Sound loudspeakers should always be located behind or to either side of the listener at about 1 m above the listener.

Adjust the volume of the rear loudspeakers when audio distortion occurs.

Use the Test tone function in the Speakers menu, see p. 9, to have a reference of the loudness of the separate loudspeakers.

Note: Once you have adjusted the volume of the rear loudspeakers, do not change it while watching TV as the whole configuration operates with the volume adjustment of your TV.



Stereo amplifier and two extra FRONT speakers

To enhance the sound reproduction of your TV you can connect two extra front loudspeakers via an external amplifier.

1 Connect the audio cables to the audio input of your amplifier and to **AUDIO L** and **R** at the back of your TV. The output level is controlled by the volume control of your TV.

Note: Switch off the TV and your audio amplifier before connecting them. Set the audio amplifier's volume to minimum.

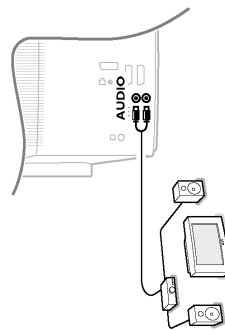
2 Select **Centre mode On** in the Setup. Speakers menu. See p. 9. See Surround mode in the Sound menu, p. 13 for the available Surround modes.

3 Adjust the volume of the audio amplifier.

Use the Test tone function in the Setup. Speakers menu, see p. 9 to have a reference of the loudness of the separate loudspeakers.

Note: Once you have adjusted the volume of the amplifier, do not change it while watching TV as the whole configuration operates with the volume adjustment of your TV.

If extra front speakers are connected and selected, all internal TV speakers produce centre sound in the surround modes Dolby Pro Logic and Dolby 3 Stereo.



Cinema Link Surround receiver

1 For a receiver with analog input: Connect the Dolby Pro Logic Surround amplifier to the **AUDIO L** and **R** at the back of your TV. For a receiver with coaxial digital input:

Only for digital audio from the built-in DVD player: Connect a digital audio cable to the digital audio input of your receiver and to **COAXIAL** at the back of your TV.

For a receiver with optical digital input:

Only for digital audio from the built-in DVD player: Remove the cap from the optical output.

Connect an optical audio cable to the optical audio input of your receiver and to **OPT OUT** at the back of your TV.

Warning: The cap is a small object and could be swallowed by small children.

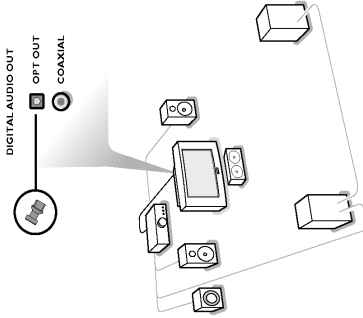
2 To activate the coaxial and optical digital outputs, set **Digital output to All** or **PCM only** in the **Sound preferences** menu of the built-in DVD player. See p.25.

3 Switch off the volume of the TV with the mute key **MUTE**.

All volume settings, tone control and speaker connections have to be done via the external surround receiver.

Attention: The sound info on screen will not correspond with the actual sound reproduction. No sound will be heard when a TV channel or external source is blocked via the Child lock menu, see p. 15.

If you want to connect more equipment to your TV, consult your dealer.



Selecting connected equipment

Equipment connected with an aerial cable only
Select the programme number under which you have stored the test signal with the digit keys.

Equipment connected to a euroconnector or to the right side of the TV

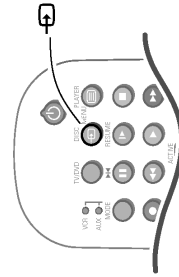
1 Press the **EXT** key repeatedly to select **EXT1**, **EXT2**, **EXT3** or **SIDE** according to where you connected your equipment at the back or the right side of your TV.

Remark: Most equipment (decoder, recorder) carries out the switching itself.

2 Press the cursor up/down and press **OK**.

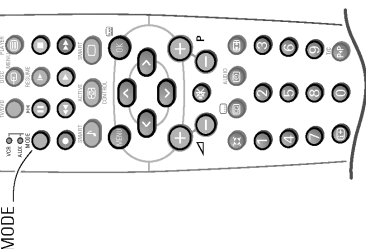
If you want to change to TV channels

Enter the programme number of the TV channel you want to watch with the digit keys.



Remote control functions for peripherals

The **MODE** key takes you through the main functions of a video recorder or AV-receiver (tuner, amplifier).
The remote control is compatible with Philips devices using the RC5 or RC6 standard.

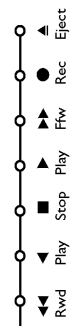


- 1 Press the **MODE** key repeatedly to select the required mode. The indicator lights up to display the selected mode. If no action has been taken during 30 seconds, the remote control returns to TV mode.
- 2 The following keys are operational, depending on the device:

- record
- ◀◀ rewind
- stop
- ▶▶ play
- ▶ fast forward
- || pause / step
- MENU menu
- OK confirmation
- cursor keys navigation
- digit keys digit entry
- P + programme or track selection
- [TV] display information
- [VCR] tape list (VCR); RDS on/off (tuner, AV-receiver)
- [TIMER] VCR timer
- [RDS] RDS display (tuner, AV-receiver)

Recorder with EasyLink

The recorder can be operated via the **Recorder** menu on screen.



- 1 Press the **MENU** key on the remote control.
- 2 Select the Recorder menu with the cursor up/down.
- 3 Press the cursor left/right, up/down to select one of the Recorder functions:
- 4 Press the **OK** key to confirm.

The key ● on the remote control for recording, can be operated in the TV mode.
If your EasyLink recorder has the system standby function, when you press the key for 3 seconds, both TV and the recorder are switched to standby.

Record with your Recorder with NEXTVIEWLink

If your Recorder is equipped with NEXTVIEWLink, and you tagged one or more programmes to be recorded automatically in the NEXTVIEW mode, it is not necessary for the TV to be in the standby mode or switched on for the recording to start.

Record with your recorder without EasyLink

To record S-VHS quality, connect an S-VHS peripheral directly to the video recorder.

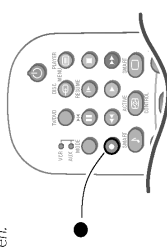
- 1 Record a TV programme
- 2 Select the programme number on your recorder.
- 3 Set your recorder to record.
- 4 See the handbook of your recorder.

Switching programme numbers on your TV does not disturb recording!

Record with your recorder with EasyLink

If you have connected an S-VHS recorder provided with the EasyLink function, you can record S-VHS quality from an S-VHS peripheral connected to the right side of the TV. (E.g. from an S-VHS camcorder.)

In TV mode, it is possible to start a recording of the programme which is displayed on the TV screen. Press the record key ● on the remote control. The recorder switches on from standby and a message of what is being recorded appears on the screen.



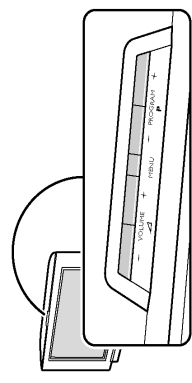
The recorder starts recording the programme you are watching.

Switching programme numbers on your TV does not disturb recording!

When recording a programme from a peripheral connected to EXTERNAL 1, 3 or SIDE, you can not select another TV programme on the screen. To watch TV programmes again, press the programme number you want to select twice.
Attention: the recording is stopped and your recorder switches to standby.

If you switch to standby during recording of a programme from a peripheral connected to EXTERNAL 1, 3 or SIDE, the blinking lamp on the front of your TV indicates that you are still recording. The blinking stops after the recording is finished.

Keys on top of the TV



Should your remote be lost or broken you can still change some of the basic settings in the TV menu with the keys on top of your TV.

Press the **▲** - or + key to adjust the volume.

Press the **P** - and + key to browse through the TV channels or sources stored and to select them.

Press the **MENU** key to summon the main menu.

Use the **▲** - and + keys to select menu items in the horizontal axis.

Use the **P** - and + keys to select submenu items in the vertical axis.

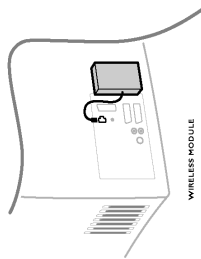
Use the **MENU** key to confirm your selection.

Note:

- Sometimes not all the menu items are visible on the screen.
- Press the **P +** key to reveal all items.
- **EXIT** lets you dismiss the menu. Select **Exit** and press the **MENU** key.

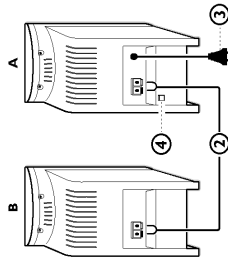
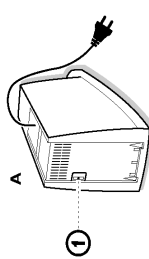
Appendix: Wireless Surround speaker system

- Wireless transmitter module**
- Switch the TV off with the power switch.
 - Attach the wireless module to the back of the TV as shown.
- Note: Make sure you switch the TV on only after you have plugged in the wireless module.*
- Connect the attached cable to the wireless module connector.
 - Switch the TV on.



Surround loudspeakers

- There are two surround loudspeakers supplied. One is the active loudspeaker A. The other loudspeaker B is a passive one which has to be connected with the active loudspeaker.
- The slide channel switch ① at the bottom of the active loudspeaker has been set default to channel 1 in the factory.
 - Connect the active to the passive loudspeaker with the supplied speaker cable ②. Insert the marked wire into the openings of the same coloured connector clips on both speakers. Do not insert the wires too far.
 - The Surround sound loudspeakers can be located behind or to either side of the listener. The front of the loudspeakers do not have to face the listener. The distance between the TV and the surround speakers should not exceed 15 m.
- Note: In rare occasions people moving around close to the TV may interfere with the sound transmission.*



- Connect the active loudspeaker to the mains with the mains cable ③.
 - Switch on the active loudspeaker with the **POWER** switch ④. The red indicator at the front of the active surround speaker shows that the speaker is in standby. During sound transmission the indicator turns to green.
 - 10-15 min. after the sound transmission of the TV has stopped, the indicator turns back to red to indicate the low power standby.
- To switch the active speaker off, use the **POWER** switch.

Setup - Speakers menu

- Press the **MENU** key on the remote control.
 - Use the cursor down to select **Setup**.
 - Use the cursor right to select **Speakers**.
 - Use the cursor down to select **Wireless surround**.
- The system has already been configured in the factory to work properly. In rare circumstances, interference from external RF (wireless) equipments such as RF headphones, mobile phones or remote controls for lights, may occur. Then it may be necessary to shift to another wireless channel.
- Important:** Always be sure that the active surround speaker (A) and the Wireless surround setting are switched to the same transmitting channel. Otherwise no sound or only a distorted sound will be heard on the surround speakers.
- Select **FM transmitter** and select the correct type of transmitter, 864 MHz or 433 MHz, valid for the country where you are now located.
- When the TV is tuned to a channel in the neighbourhood of 864 MHz (alternatively 433 MHz), the transmitter is switched off because no RF surround sound is possible. This is necessary to avoid interfered picture. In rare cases, when no RF surround sound is possible or when there is too much interference, use the wired back up solution with a 3.5 mm stereo jack (if provided). In this case select Off in the Wireless surround menu item. See Connect Peripheral Equipment, p. 29.*

Wireless Surround speaker system

Tips

Care of the screen
Clean the TV with a slightly damp soft cloth. Do not use abrasive solvent as it can damage the TV screen.

Mobile telephone warning!

To avoid disturbances in picture and sound, malfunctioning of your TV or even damage to the TV, keep away your mobile telephone from the TV.

DVD player disc tray

Avoid leaving the disc tray open for long periods of time to prevent dust from entering the player and to prevent the tray from accidentally breaking off.

Poor Picture

- Have you selected the correct TV system?
- Is your TV or house aerial located too close to loudspeakers, non-earthed audio equipment or neon lights, etc.?
- Mountains or high buildings can cause double pictures or ghost images. Sometimes you can improve the picture quality by changing the direction of the aerial.
- Is the picture or teletext unrecognisable? Check if you have entered the correct frequency. See installation, p. 7.
- Are brightness, sharpness and contrast out of adjustment? Select factory settings in the Setup menu, p. 10.
- Sometimes poor picture quality is possible when having activated an S-VHS camera or camcorder connected to the right side of your TV and another peripheral is connected to **EXT1**, **EXT2** or **EXT3** at the same time. In this case switch off one of the other peripherals.

No picture

- Is the aerial connected properly?
- Are the plugs tightly connected in the aerial socket?
- Is the aerial cable in good condition and does it have suitable plugs?
- Are the connection facilities to a possible second TV in good condition? If in doubt, consult your dealer.

No sound

- No sound on any channel? Check the volume isn't at minimum.
- Is the sound interrupted with the mute key **MUTE**? Check if your speaker configuration corresponds with the selections made in the Setup, Speakers menu, p. 9. E.g. is your amplifier switched on when you have 2 extra front speakers connected?
- No sound from the rear speakers or the centre speakers? Select an appropriate surround mode, according to the broadcasted sound signal or adjust the volume or check if the wireless transmitter is properly connected. See Surround Modes, p. 13.

Remote control

- If your TV no longer responds to the remote control, the batteries may be dead or the wrong mode (TV or other peripheral, see p. 31) is selected.
- You can still use the **MENU** key and the **-/+** keys at the top of your TV.

The DVD player doesn't work

Make sure that the disc is not scratched and it is clean. Clean the disc with a soft cloth, wiping from the centre to the edge.

No surround sound

- Check if the headphone is not plugged in.
- Check if the channel is broadcasting good quality surround sound.

Wireless Surround speaker system

- Are the active surround speaker and the Surround Sound setting in the Setup menu switched to the same transmitting channel?
- External RF equipment, mobile telephones or people moving around close to the TV may disturb the sound transmission.
- When no RF surround sound is possible, or when there is too much interference, try to switch to another wireless channel or use the wired back up solution. See Connecting extra loudspeakers / amplifier, p. 29.
- When you switch to another wireless channel, take care to select the same transmitting channel as well in the setup menu as on the speaker box.
- For wireless transmitter modules with a built in antenna, direct the antenna to achieve the best reception.

No solution

Switch your TV off and then on again once.

Never attempt to repair a defective TV yourself.

Check with your dealer or call a TV technician.

Caution: Visible and invisible laser radiation when open. Avoid exposure to beam.

End of life directives

Philips is paying a lot of attention to producing environmentally-friendly in green focal areas. Your new TV contains materials which can be recycled and reused. At the end of its life specialised companies can dismantle the discarded TV to concentrate the reusable materials and to minimise the amount of materials to be disposed of. Please ensure you dispose of your old TV according to local regulations.

How to dispose of dead batteries?

The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries dead batteries may not be disposed of with your household waste. Please ensure you dispose of dead batteries according to local regulations.

Tips

4. Mechanical instructions

4.1 Service Positions

The following PWB's or modules are added for DVD (see also PWB location drawing):

1. DVD Interface panel.
2. DVD Module.

4.1.1 DVD Interface Panel

- For better accessibility of the panel, remove the complete PWB from its bracket. Therefore release the two clamps at the side of the bracket [1] and lift the panel out [2], (see figure "DVD interface board"). (For measuring safely when the LSP is in service position, remove the bracket from the bottom tray by pulling it backward while lifting the clamp [3]. Then pull it upward [4], and replace the panel into the bracket.)

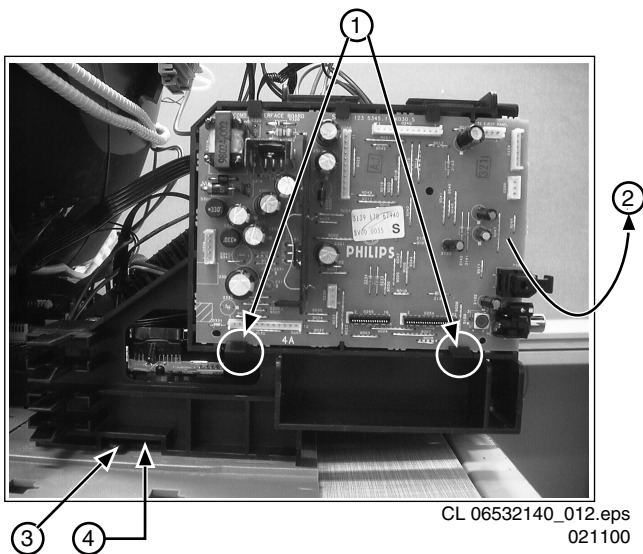


Figure 4-1 DVD interface board.

4.1.2 DVD Module

- Remove the cables from connectors 1501, 1600, 1603 and 1604 on the DVD module.
- Remove the DVD lock plate [1]. Therefore lift the two clamps [2] (see Figure "DVD lock plate removal") and pull back the lock plate.
- Remove the DVD-interface module from the bottom tray. Therefore lift the backside of the module and pull the module backwards, (see figures hereunder).



Figure 4-2 DVD lock plate removal.



Figure 4-3 Release DVD module.

4.1.3 DVD Board

- Press the DVD-tray release catch [1] and slide the DVD tray forward, (see figure "DVD-tray release catch."). Be sure to push it in far enough, a screwdriver might be needed.
- Unscrew four fixation screws [1], and remove the screws, (see figure "DVD fixation screws").
- Remove 2 fixation screws, on metal bottom cover.
- Un-twist the three lugs and take off the metal cover. The DVD board can now be accessed.

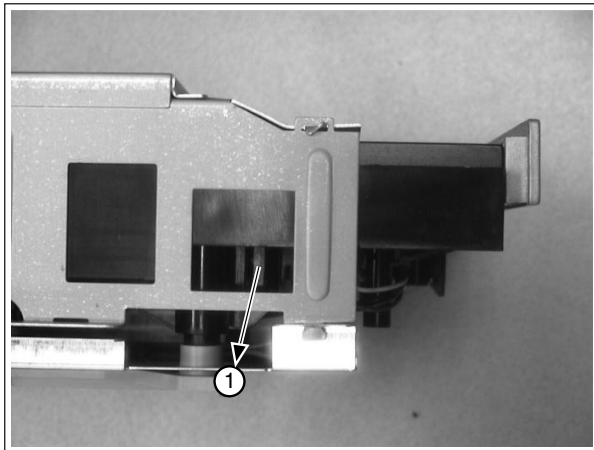
CL 16532021_012.eps
300301

Figure 4-4 DVD-tray release catch.

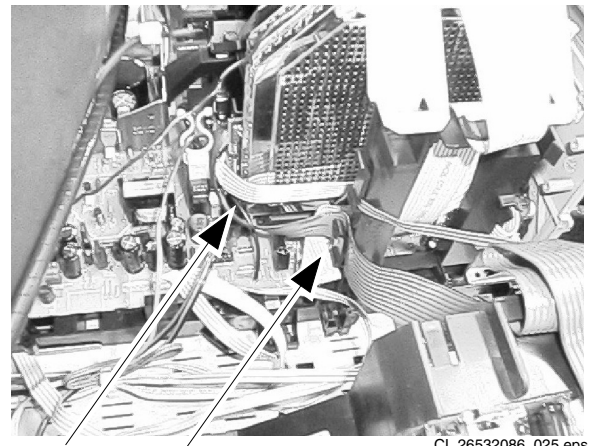
CL 26532086_025.eps
050702

Figure 4-6 Cable routing 1

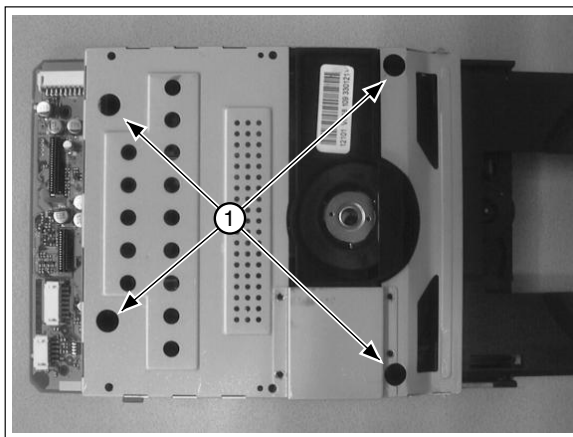
CL 16532021_013.eps
300301

Figure 4-5 DVD fixation screws.

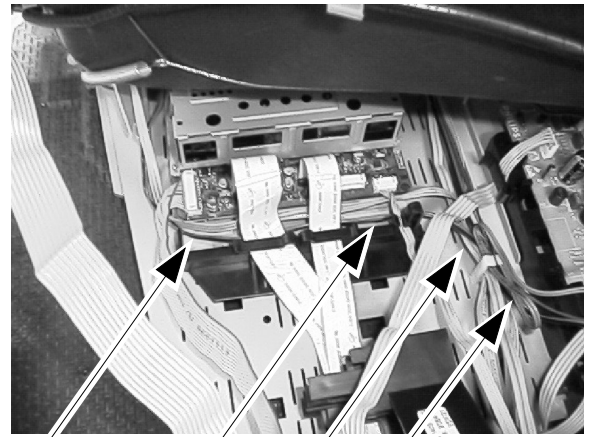
CL 26532086_026.eps
050702

Figure 4-7 Cable routing 2.

4.1.4 DVD Eject Switch

- To access the DVD eject switch, unscrew the two fixation screws and pull the switch out of the cabinet. Remove the switch cable if necessary. The switch panel can now be removed.
- To reassemble the switch, make sure that the cable is fixed before mounting.

4.1.5 Attention Point

- The routing of some cables is very critical. So therefore, take care that the cables are routed as shown in pictures hereunder. Not routing the cables in this way can cause problems like picture disturbance and EMC problems.
 - Routing of the cable between LSP connector 1936 and DVD Interface connector 0240 (blue 11-pins cable): guide the cable as close as possible to the SSB shielding en than between the cable relief of the scavem-assy (Auto-scavem board itself is not present in EM5E-DVD), and from there to the DVD-interface. (See figure "Cable routing 1")
 - Routing of speaker cable and top control cable: make sure this cables are routed between the DVD lock plate and the DVD board. Also make sure to guide them underneath the two flat foil cables. (See Figure "Cable routing 2.")

5. Fault Finding and Repair Tips

For additional technical information on the EM5E TV set, see Service Manual 'EM5E AA' (3122 785 12560) and for additional technical information on the DVD Module, see Service Manual 'DVD Module SD-3' (3122 785 11010) and Service Information 'DVD SD3 Monoboard' (3122 785 40490).

5.1 Error Codes

Two new error codes are introduced for the EM5E-DVD, Error 29 and 31, see table below.

Table 5-1 Error code table.

Error	Device	Description	Def. item	Defect. Module indication	Diagram
29	PCF8574AT	DVD Interface	7150	DVD Interface	MM1
31	--	DVD Engine		DVD Engine	DVD Engine

5.2 ComPair

First install the ComPair Browser software before connecting ComPair to the EM5E-DVD (see the ComPair Browser Quick Reference Card for installation instructions). In the EM5E-DVD, you must diagnose the TV (plus DVD-interface panel) and the DVD-module separately. Always start the diagnosis by connecting the ComPair tool to the TV set. If something is wrong with the DVD-module, ComPair will explain how and when to connect the ComPair tool to the DVD-module.

Connection to the TV set:

1. Connect the RS232 interface cable to a free serial (COM) port of the PC, and to the ComPair interface PC connector (connector marked with 'PC').
2. Connect the mains adapter to the connector marked 'POWER 9V DC' of the ComPair interface.
3. Switch the ComPair interface OFF.
4. Switch the television set OFF with the mains switch.
5. Connect the interface cable (3122 785 90004) to the connector on the rear side of the ComPair interface that is marked 'I2C'

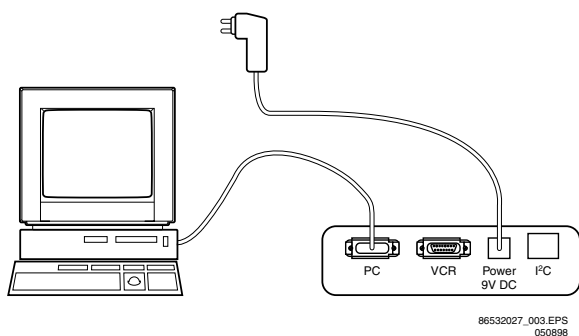


Figure 5-1 ComPair Interface Connection.

1. Connect the other end of the interface cable to the ComPair connector on the rear-side of the set.
2. Plug the mains adapter in the mains outlet and switch ON the interface. The green and red LEDs light up together. The red LED extinguishes after approx. 1 second (the green LED remains lit).
3. Start-up ComPair and select 'File' menu, 'Open'..; select 'EM5E-DVD' and click 'OK'.
4. Follow the instructions given on the screen for further diagnosis (note that the OSD works but that the actual user control is disabled).

Connection to DVD-module:

1. Follow the instructions given on the screen for further diagnosis.
2. Use the DVD ComPair interface cable (3122 785 90017) to connect the DVD Module to the ComPair interface (connector 1602).

5.3 Ordering ComPair

ComPair order codes:

ComPair interface cable (for EMX chassis): 3122 785 90004
ComPair interface cable (for DVD-module): 3122 785 90017

5.4 Reconnecting Cables to DVD Interface Panel

When all cables are removed from the DVD Interface Panel attention has to be paid when reconnecting the 11 pins connectors coming from the Side I/O panel and LSP. The cables have to be connected as follows (for correct connection see also wiring diagram):

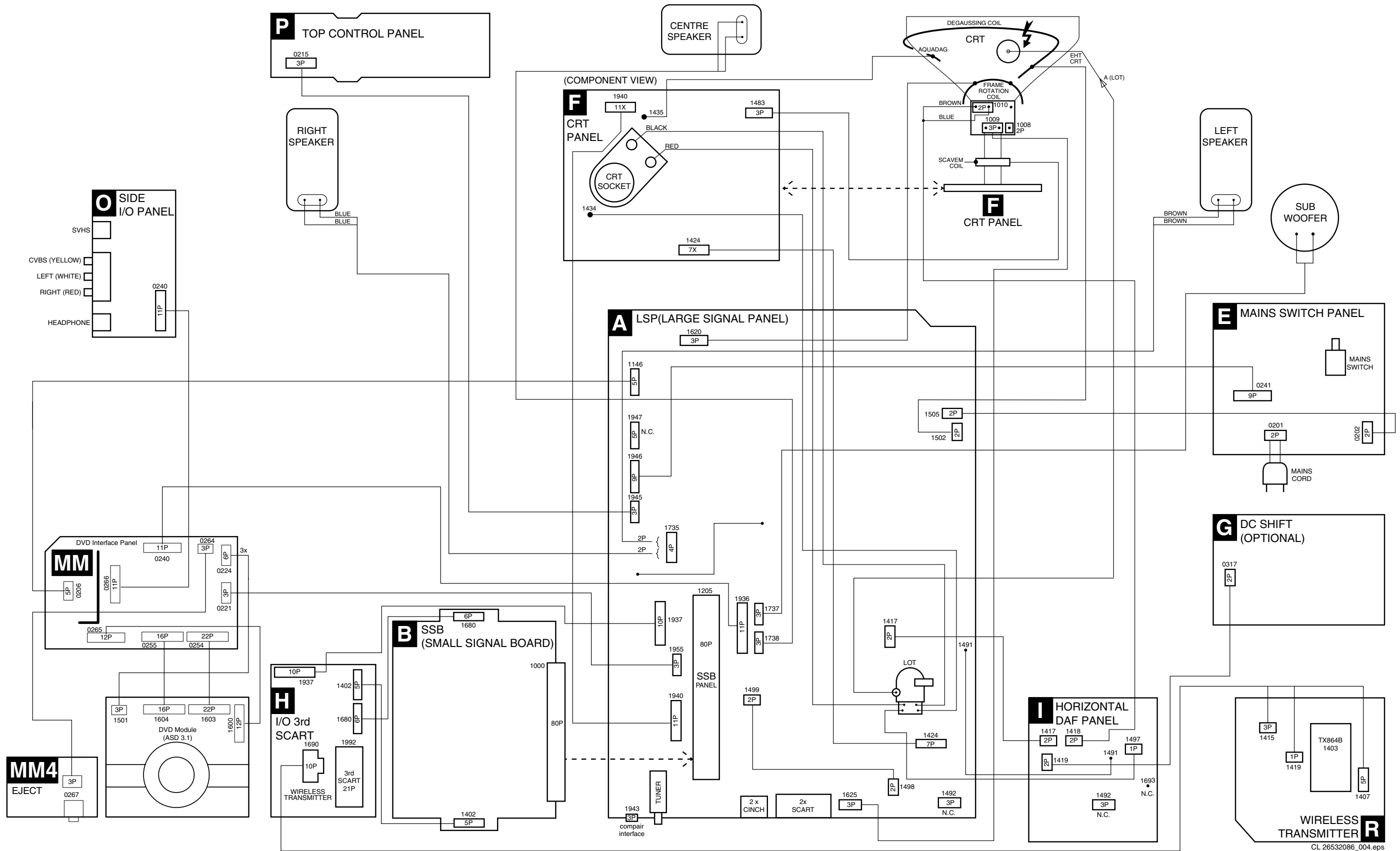
- Connect cable (11p) from the LSP (pos. nr. 1936) to pos. nr. 0240 on the DVD Interface Panel.
- Connect cable (11p) from the Side I/O panel (pos. nr. 0240) to pos. nr. 0266 on the DVD Interface Panel.

5.5 Repair Tips

- When re-assembling the DVD board or DVD Interface make sure the routing of the cables is as instructed in chapter "Mechanical Instructions". Incorrect routing can lead to picture disturbance (vertical dark bars in DVD mode) or EMC problems.
- When DVD door does not open, check Service Alignment Mode - 'Dealer Options' - 'Personal Options' - 'DVD door lock': this must be set to 'NO'. This option can be used to lock the DVD door in demonstration situations

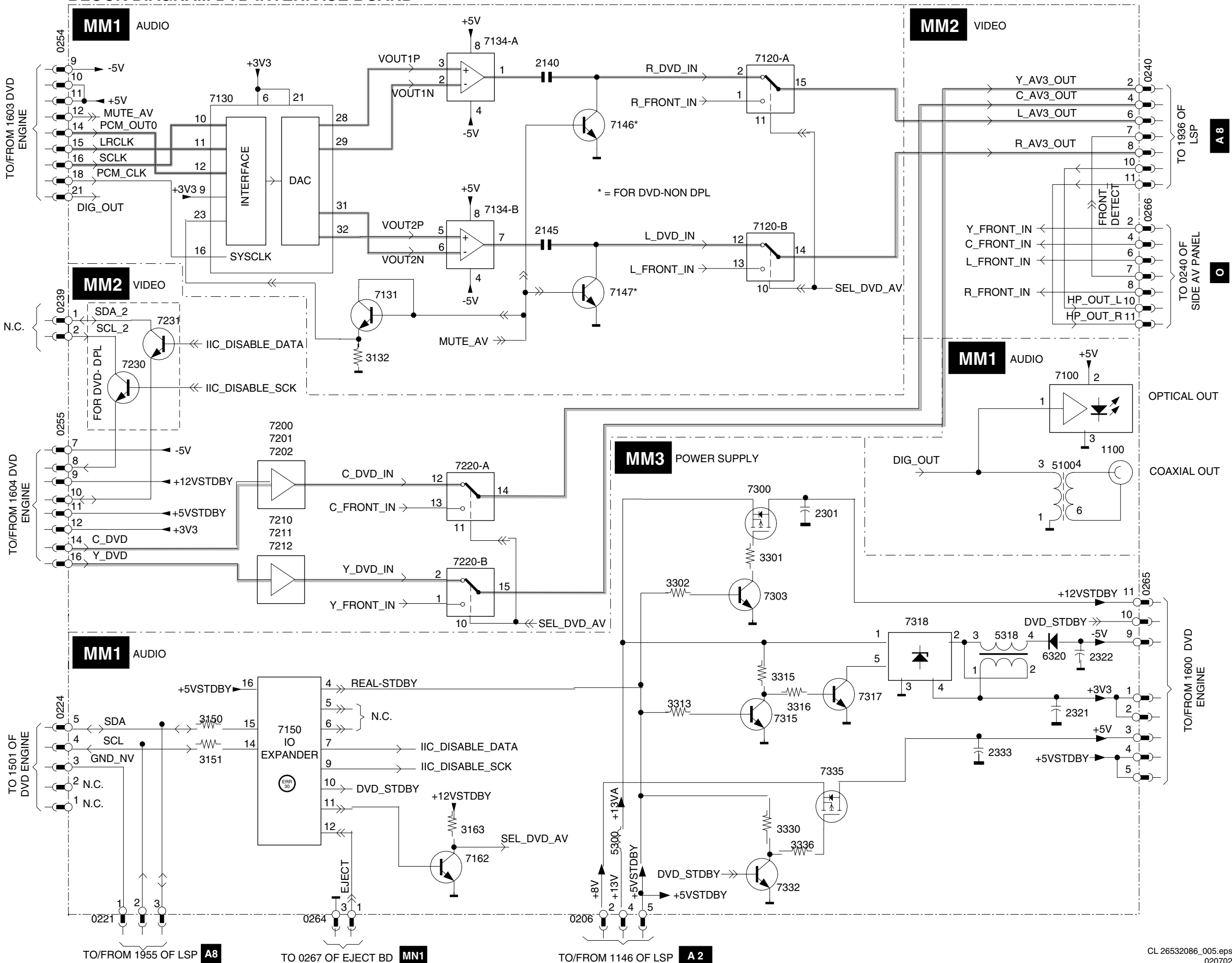
6. Wiring Diagram, Block Diagrams and Overviews

Wiring Diagram

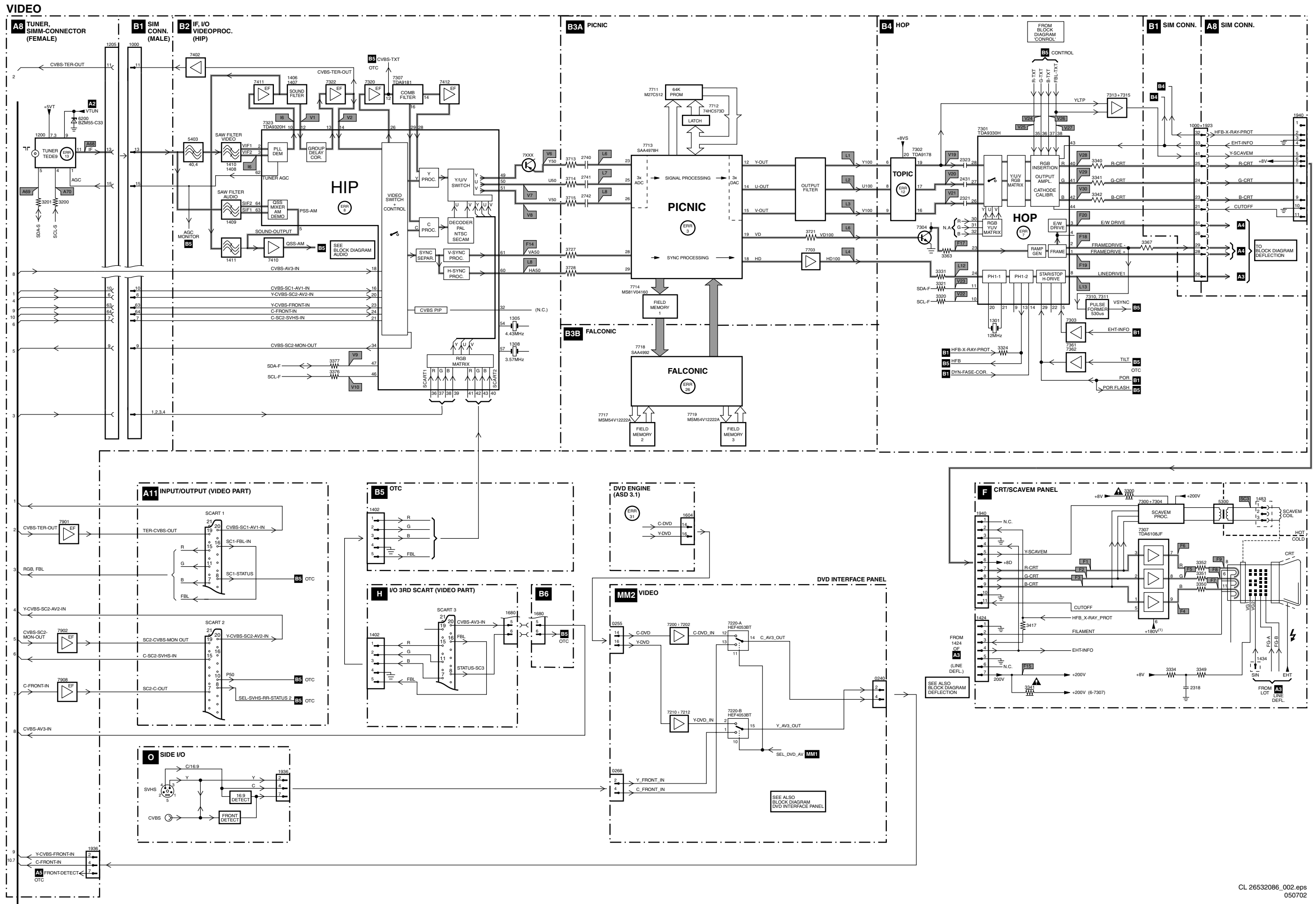


Block Diagram DVD-Dolby Interface Panel

BLOCK DIAGRAM DVD INTERFACE BOARD

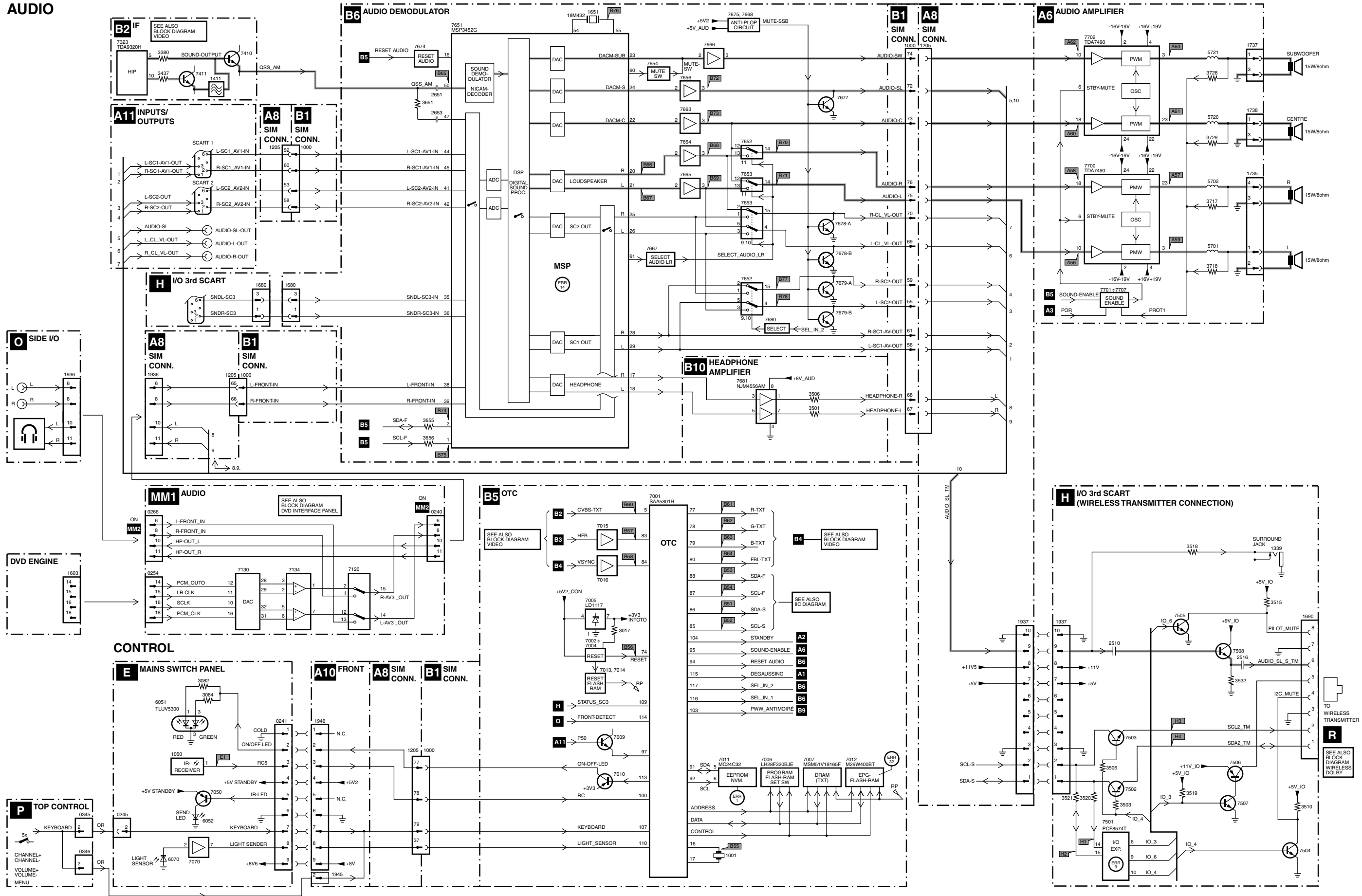


Block Diagram Video

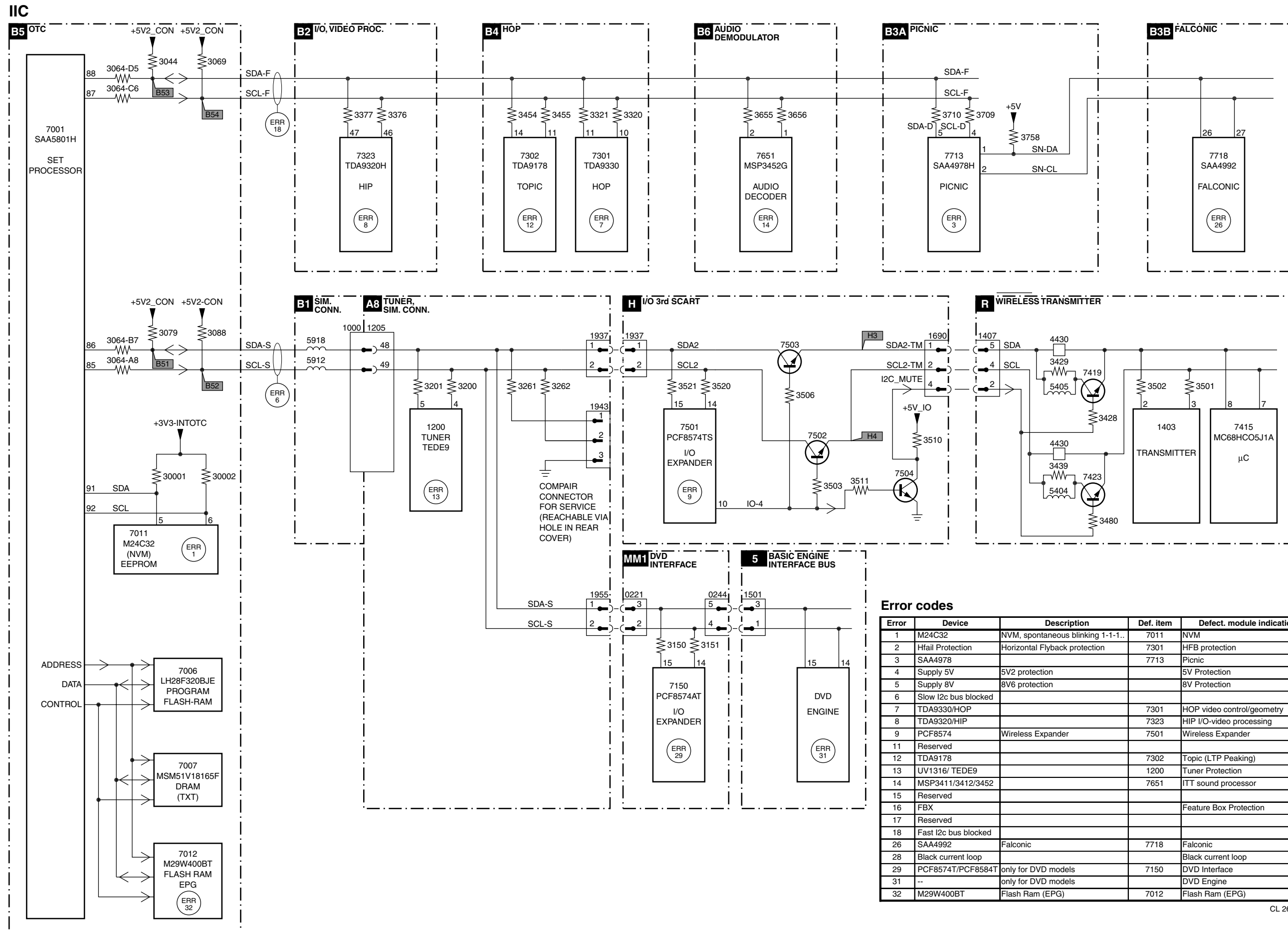


Block Diagram Audio

AUDIO



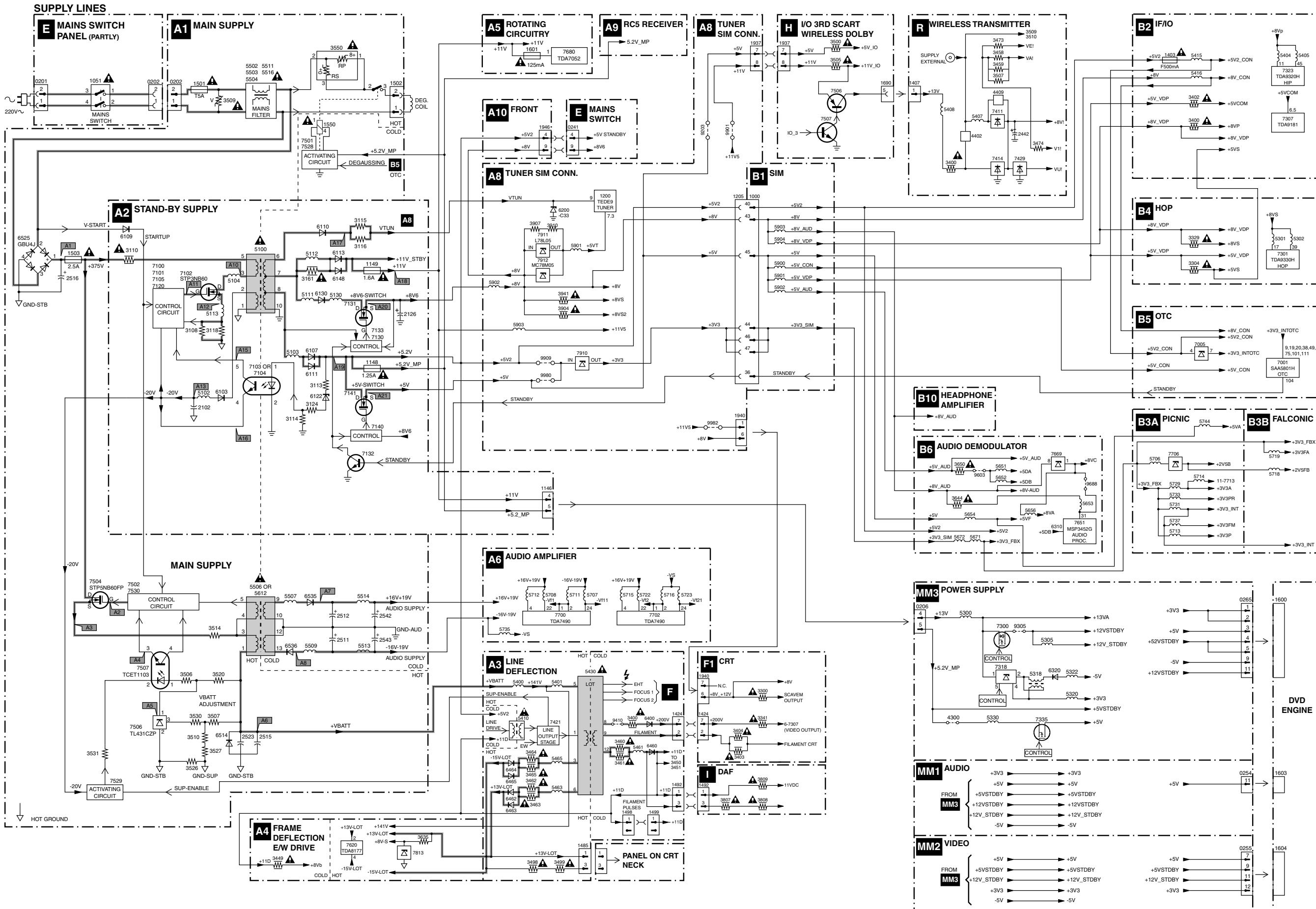
I²C IC's Overview



Error codes

Error	Device	Description	Def. item	Defect. module indication	Diagram
1	M24C32	NVM, spontaneous blinking 1-1-1..	7011	NVM	B5
2	Hfail Protection	Horizontal Flyback protection	7301	HFB protection	B4
3	SAA4978		7713	Picnic	B3a
4	Supply 5V	5V2 protection		5V Protection	B5
5	Supply 8V	8V6 protection		8V Protection	B5
6	Slow I2c bus blocked				B5
7	TDA9330/HOP		7301	HOP video control/geometry	B4
8	TDA9320/HIP		7323	HIP I/O-video processing	B2
9	PCF8574	Wireless Expander	7501	Wireless Expander	H
11	Reserved				
12	TDA9178		7302	Topic (LTP Peaking)	B4
13	UV1316/ TEDE9		1200	Tuner Protection	A8
14	MSP3411/3412/3452		7651	ITT sound processor	B6
15	Reserved				
16	FBX			Feature Box Protection	B3
17	Reserved				
18	Fast I2c bus blocked				B5
26	SAA4992	Falconic	7718	Falconic	B3b
28	Black current loop			Black current loop	
29	PCF8574T/PCF8584T	only for DVD models	7150	DVD Interface	MM1
31	--	only for DVD models		DVD Engine	
32	M29W400BT	Flash Ram (EPG)	7012	Flash Ram (EPG)	B5

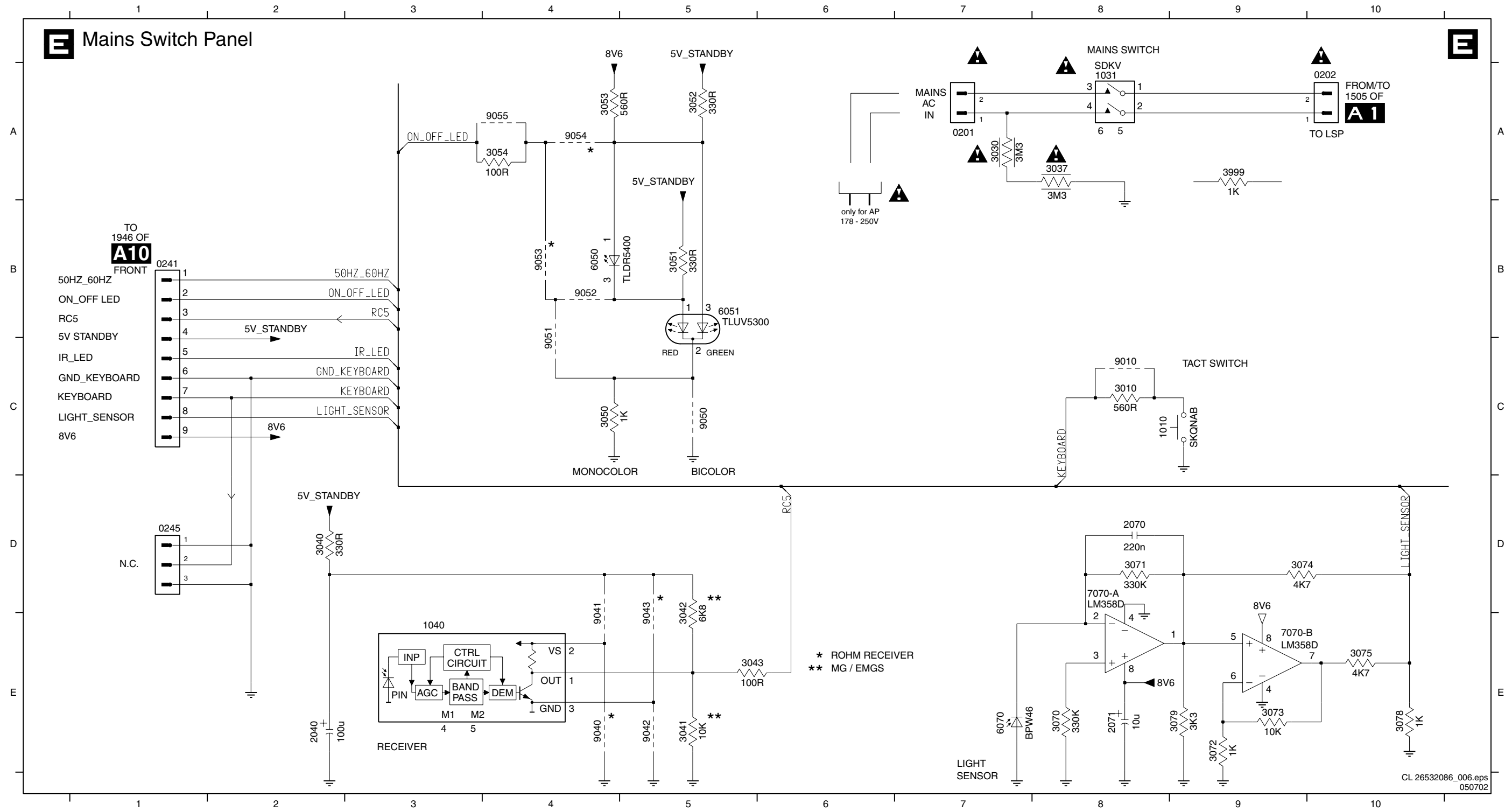
Supply Lines Overview



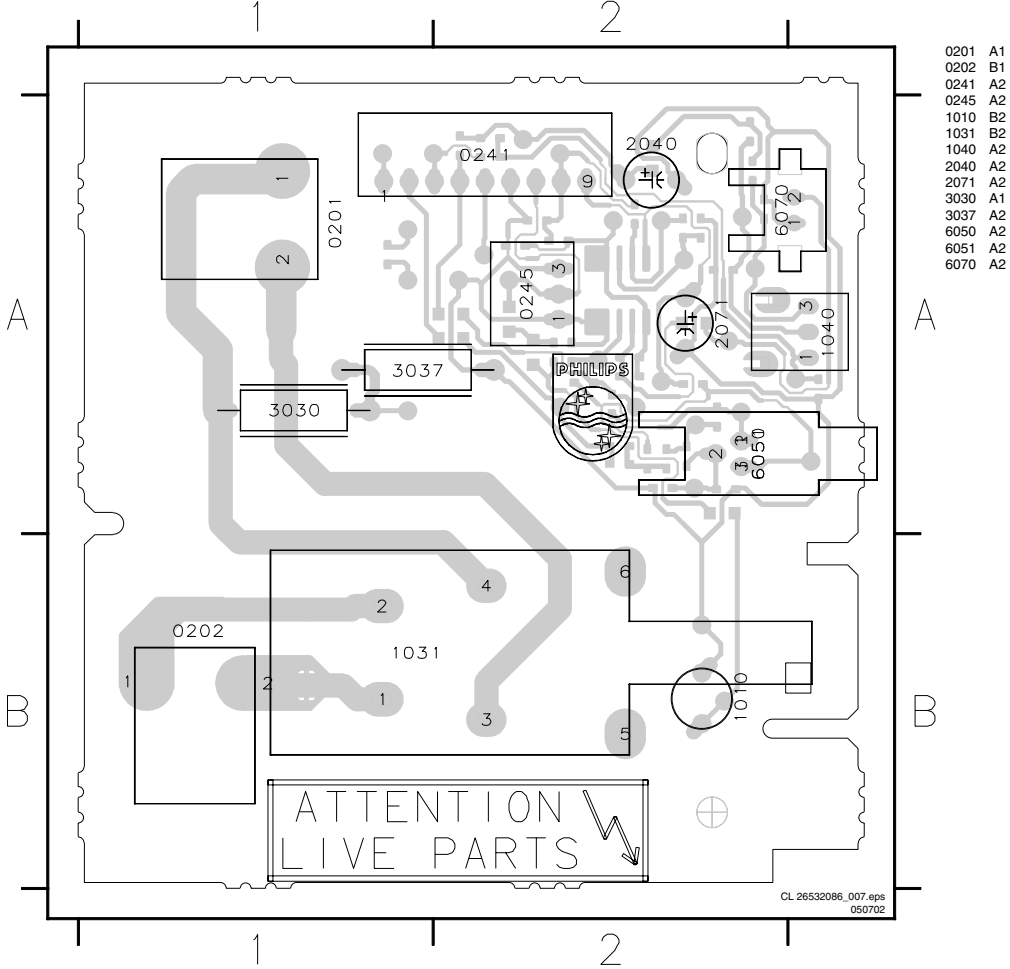
7. Circuit Diagrams and PWB Layouts

Mains Switch Panel

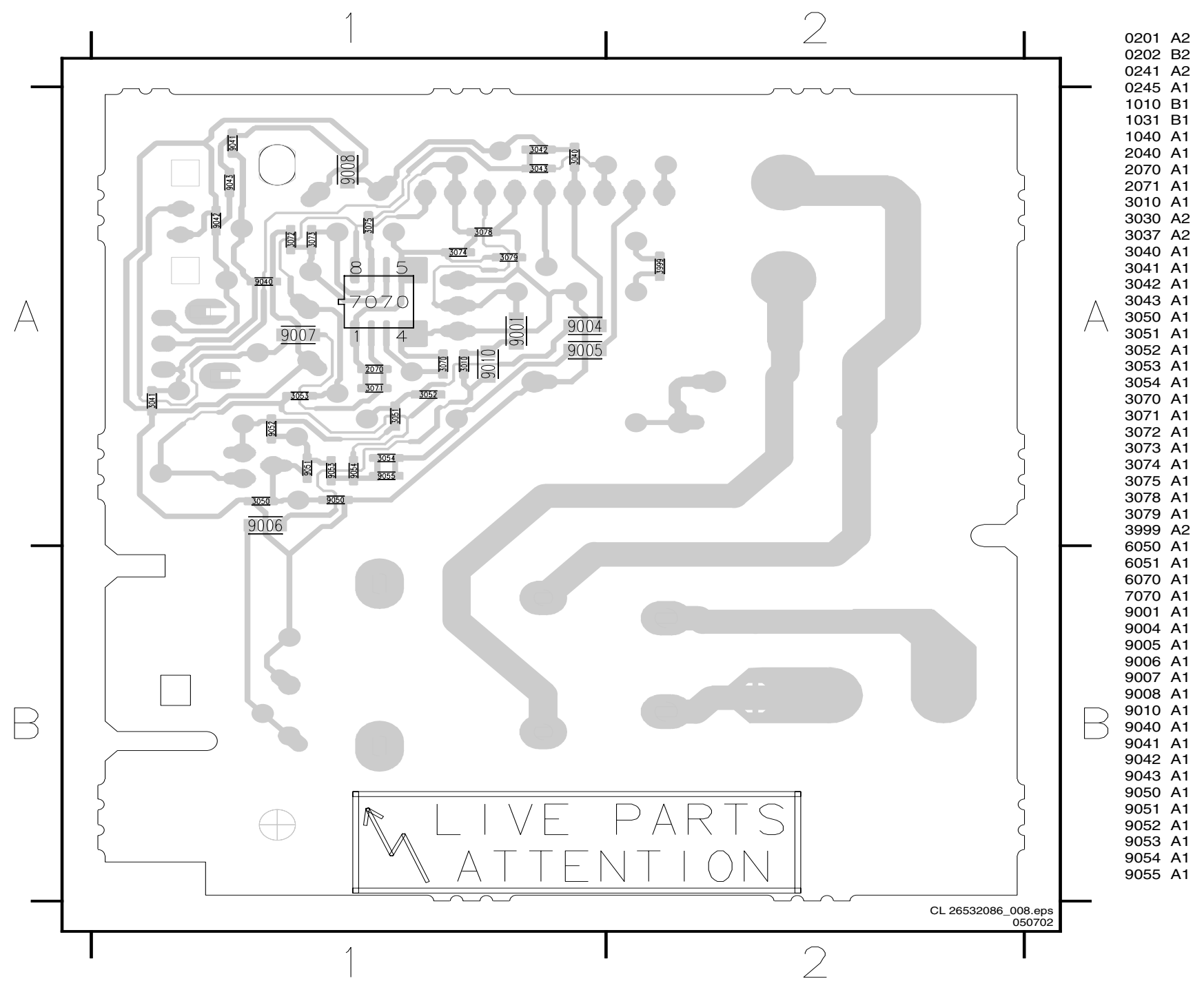
0201 A7	0245 D1	1040 E3	2071 E8	3037 A8	3042 E5	3051 B5	3054 A4	3072 E9	3075 E10	3999 A9	6070 E7	9010 C8	9042 E5	9051 C4	9054 A4
0202 A10	1010 C8	2040 E2	3010 C8	3040 D2	3043 E5	3052 A5	3070 E8	3073 E9	3078 E10	6050 B4	7070-A D8	9040 E4	9043 E5	9052 B4	9055 A4
0241 B1	1031 A8	2070 D8	3030 A7	3041 E5	3050 C4	3053 A4	3071 D8	3074 D9	3079 E9	6051 B5	7070-B E9	9041 E4	9050 C5	9053 B4	



Layout Mains Switch Panel (Top Side)

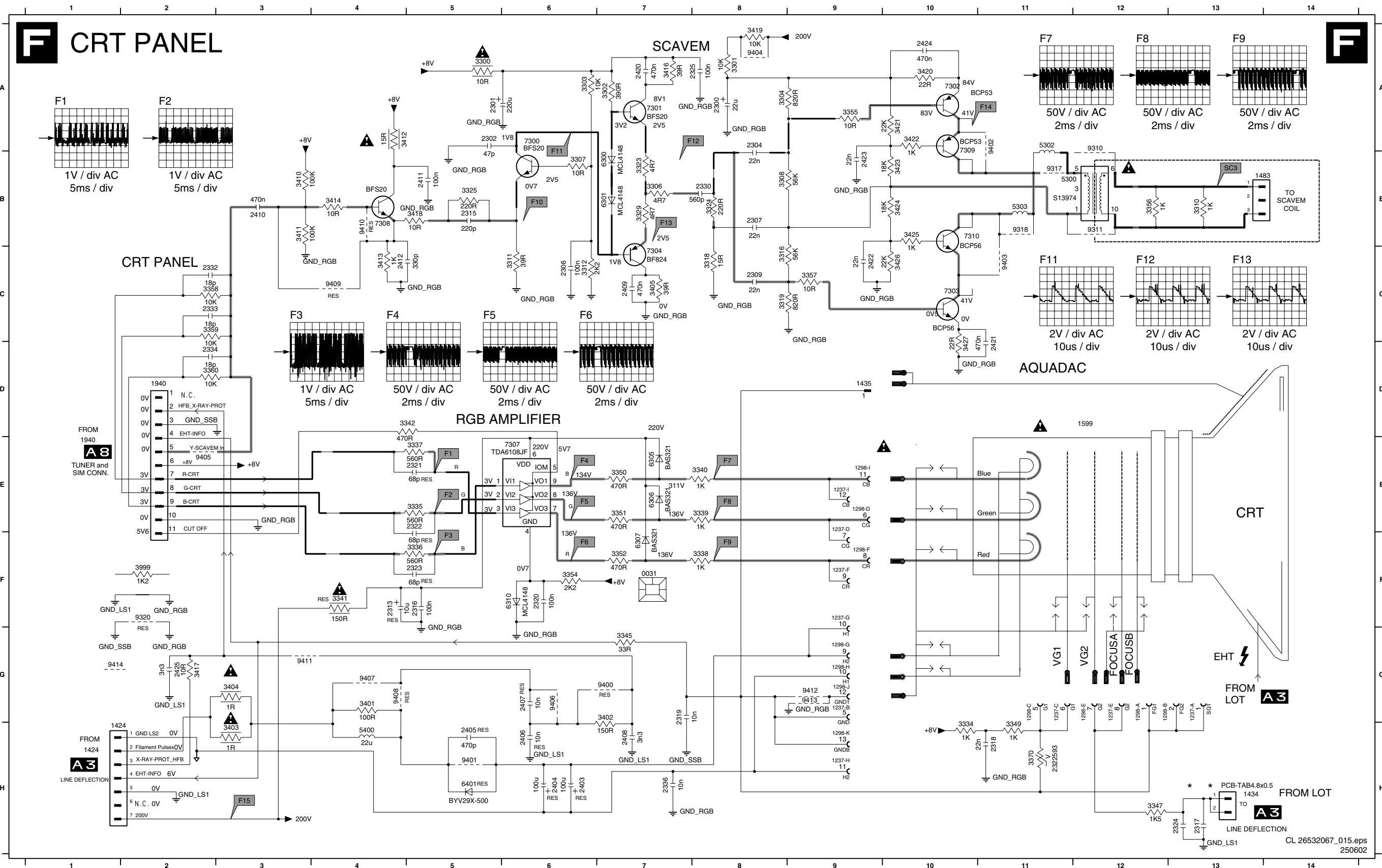


Layout Mains Switch Panel (Bottom Side)

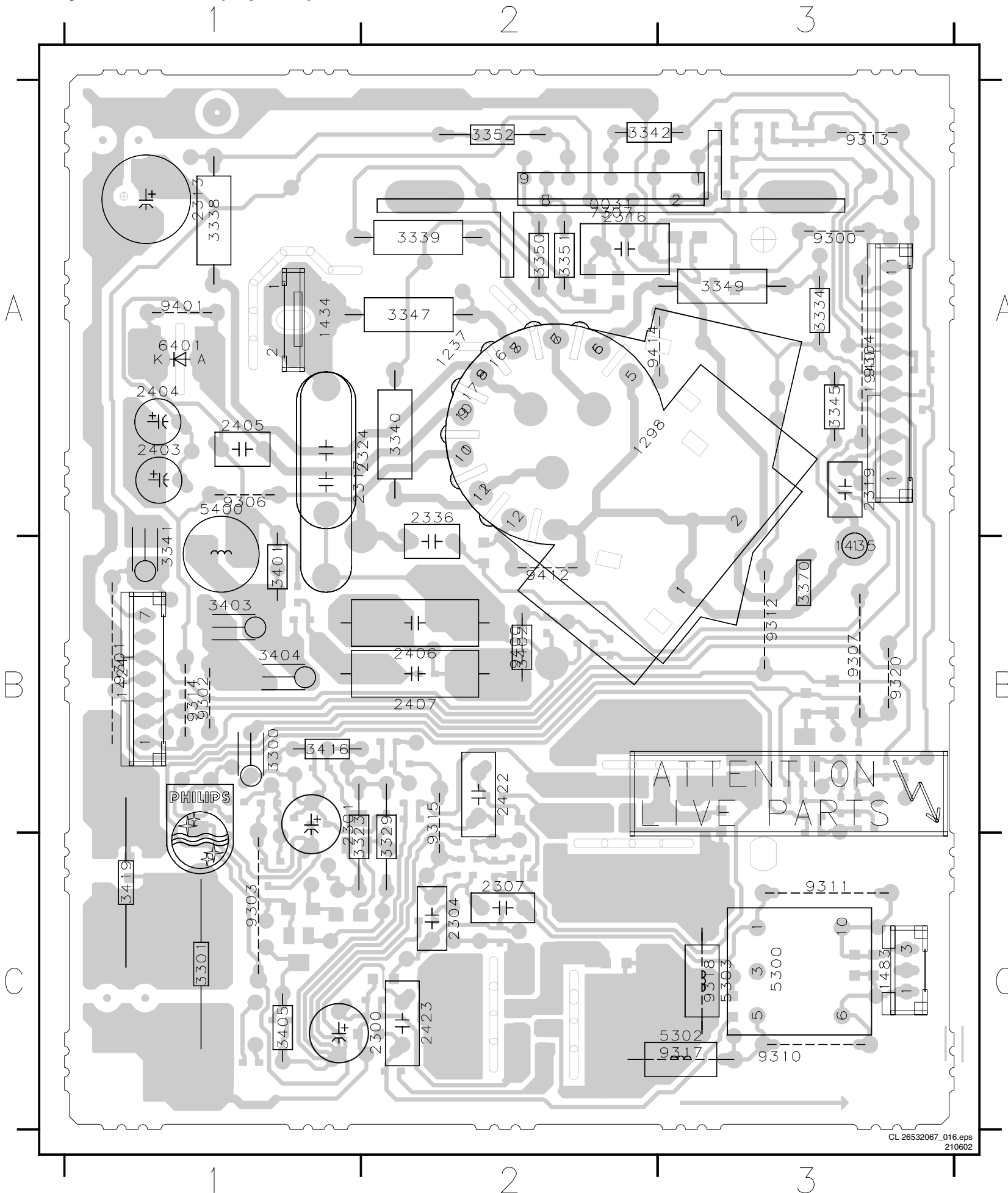


CRT Panel

0031 F7	1298-A G12	1298-K H9	2306 C6	2321 E5	2403 H6	2420 A7	3304 A8	3323 B7	3340 E8	3355 A9	3404 G3	3419 A8	5300 B11	6401 H5	9310 A12	9405 E2	9415 G1
1237-A G13	1298-B G12	1424 H2	2307 B8	2322 E5	2404 H6	2421 D11	3306 B7	3324 B8	3341 F4	3356 B12	3405 C7	3420 A10	5302 A11	7300 A6	9311 B12	9406 G6	
1237-B G9	1298-C G11	1434 H13	2309 C8	2323 F5	2405 H5	2422 C9	3307 B6	3325 B5	3342 D5	3357 C9	3410 B3	3421 A10	5303 B11	7301 A7	9317 B11	9407 G4	
1237-C G11	1298-D E9	1435 D9	2313 F4	2324 H13	2406 H6	2423 B9	3308 B8	3326 B7	3345 G7	3358 C2	3411 B3	3422 A10	5400 H4	7302 A10	9318 B11	9408 G4	
1237-D E9	1298-E G12	1483 B13	2315 B5	2325 A8	2407 G6	2424 A10	3310 B13	3334 H10	3347 H12	3359 C2	3412 A4	3423 B10	6300 B7	7303 C10	9320 F2	9409 C4	
1237-E G12	1298-F F9	1940 D2	2316 F5	2330 B8	2408 H7	2425 G2	3311 C6	3335 E5	3349 H11	3360 D2	3413 C4	3424 B10	6301 B7	7304 C7	9400 G7	9410 B4	
1237-F F9	1298-G G9	2300 A8	2317 H13	2332 C2	2409 C7	2409 C7	3300 A5	3312 C6	3336 F5	3350 E7	3370 H11	3414 B4	3425 B10	6305 E7	7307 E6	9401 H5	9411 G3
1237-G F9	1298-H G9	2301 A5	2318 H11	2333 C2	2410 B3	2410 B3	3301 A8	3316 C8	3337 E5	3351 E7	3401 G4	3416 A7	3426 C10	6306 E7	7308 B4	9402 A11	9412 G9
1237-H H9	1298-I E9	2302 A5	2319 G7	2334 D2	2411 B5	2411 B5	3302 A7	3318 C8	3338 F8	3352 F7	3402 G7	3417 G2	3427 D10	6307 F7	7309 A10	9403 C11	9413 G9
1237-I E9	1298-J G9	2304 A8	2320 F6	2336 H7	2412 C4	2412 C4	3303 A6	3319 C8	3339 E8	3354 F6	3403 H3	3418 B5	3999 F2	6310 F6	7310 B10	9404 A8	9414 G1

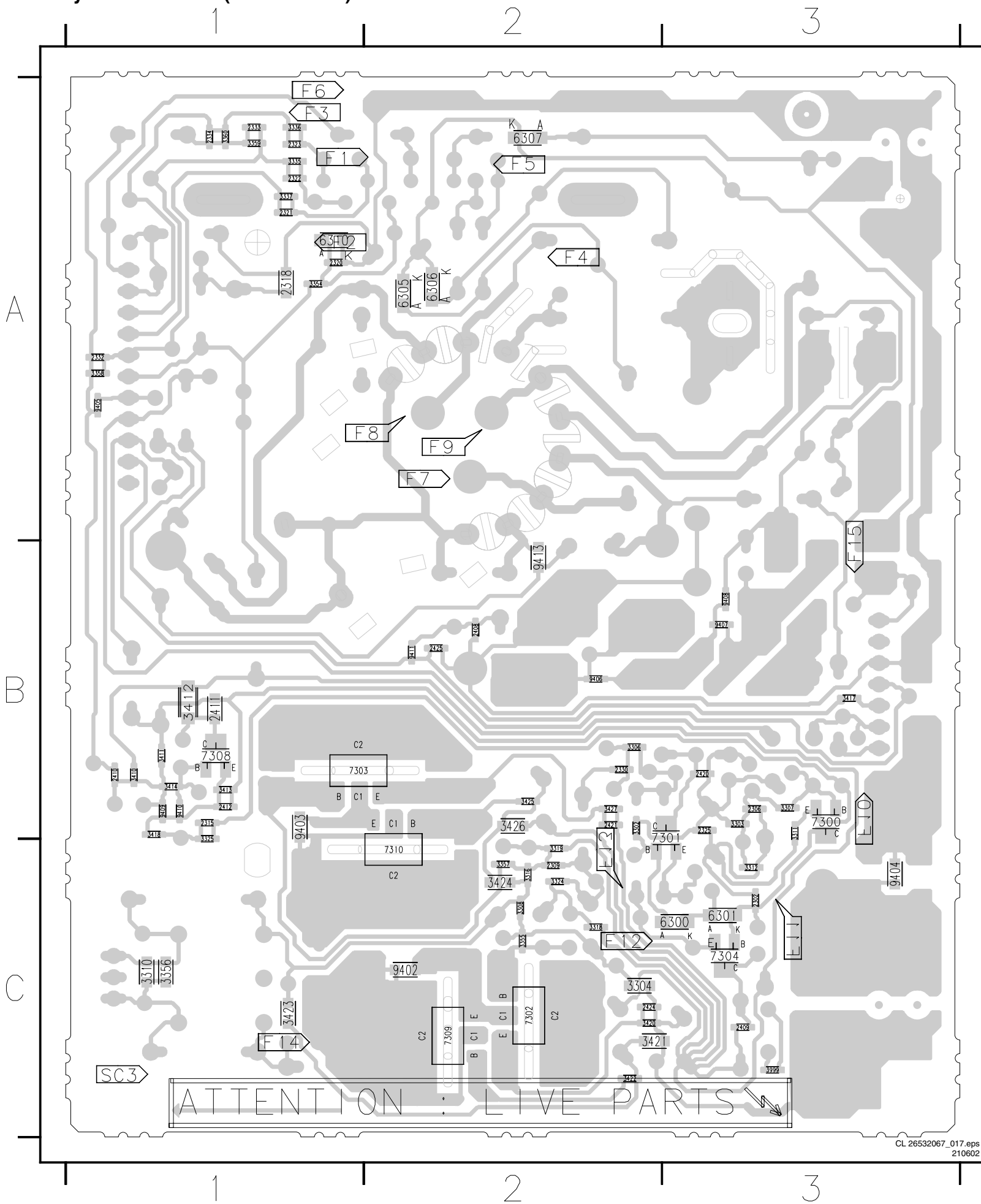


Layout CRT Panel (Top Side)



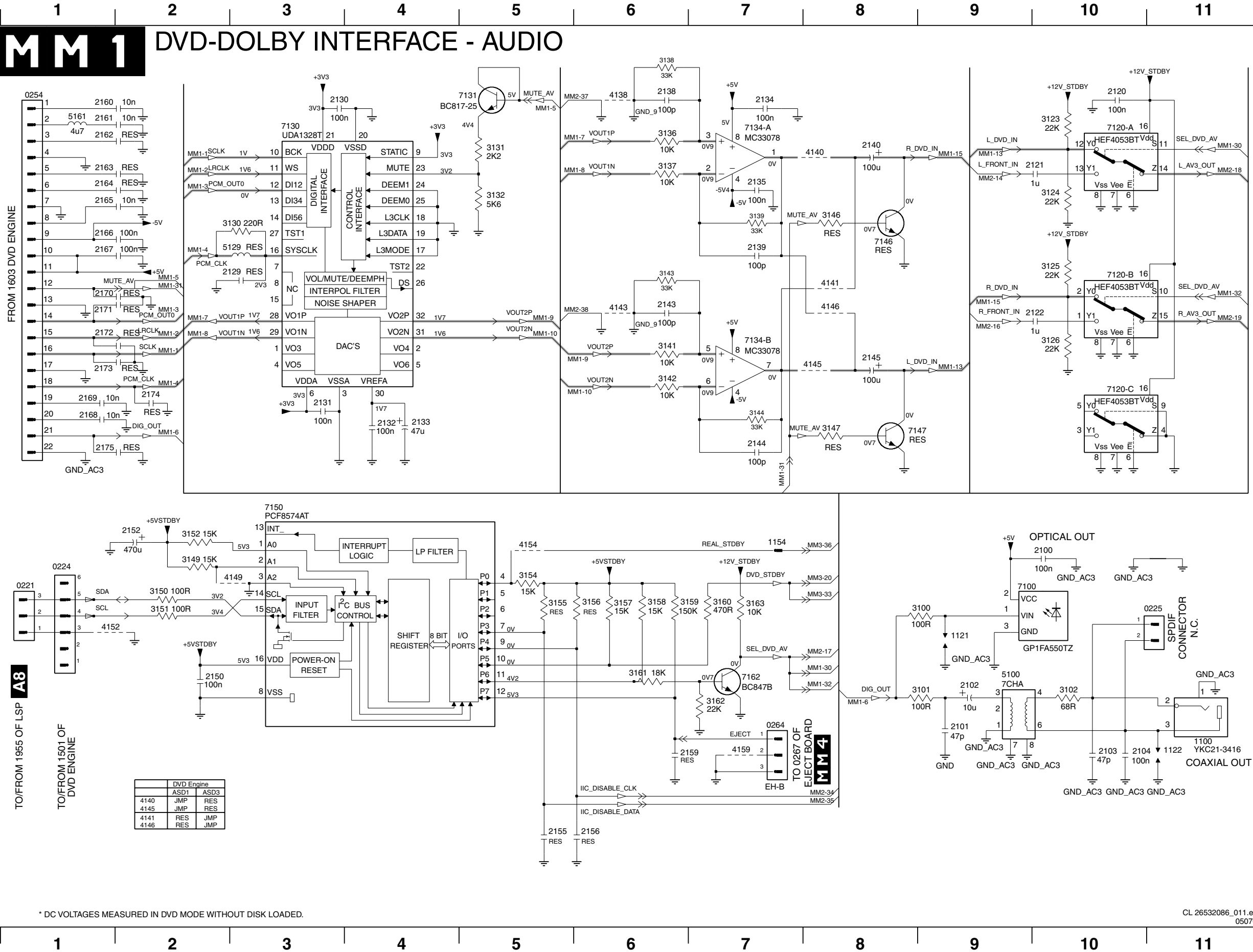
- 0031 A2
- 1237 A2
- 1298 A2
- 1424 B1
- 1434 A1
- 1435 A3
- 1483 C3
- 1940 A3
- 2300 C1
- 2301 B1
- 2304 C2
- 2307 C2
- 2313 A1
- 2316 A2
- 2317 B2
- 2319 A3
- 2324 A2
- 2336 A2
- 2403 A1
- 2404 A1
- 2405 A1
- 2406 B2
- 2407 B2
- 2422 B2
- 2423 C2
- 3300 B1
- 3301 C1
- 3323 C1
- 3329 C2
- 3334 A3
- 3338 A1
- 3339 A2
- 3340 A2
- 3341 A1
- 3342 A2
- 3345 A3
- 3347 A2
- 3349 A3
- 3350 A2
- 3351 A2
- 3352 A2
- 3370 B3
- 3401 B1
- 3402 B2
- 3403 B1
- 3404 B1
- 3405 C1
- 3416 B1
- 3419 C1
- 5300 C3
- 5302 C3
- 5303 C3
- 5400 A1
- 6401 A1
- 7307 A2
- 9300 A3
- 9301 B1
- 9302 B1
- 9303 C1
- 9304 A3
- 9306 A1
- 9307 B3
- 9310 C3
- 9311 C3
- 9312 B3
- 9313 A3
- 9314 B1
- 9315 B2
- 9317 C3
- 9318 C3
- 9320 B3
- 9400 B2
- 9401 A1
- 9412 B2
- 9414 A2

Layout CRT Panel (Bottom Side)



- 2302 C3
- 2306 B3
- 2309 C2
- 2315 B1
- 2318 A1
- 2320 A1
- 2321 A1
- 2322 A1
- 2323 A1
- 2325 B3
- 2330 B2
- 2332 A1
- 2333 A1
- 2334 A1
- 2408 B2
- 2409 C3
- 2410 B1
- 2411 B1
- 2412 B1
- 2420 B3
- 2421 B2
- 2424 C2
- 2425 B2
- 3302 B2
- 3303 B3
- 3304 C2
- 3306 B2
- 3307 B3
- 3308 C2
- 3310 C1
- 3311 B3
- 3312 C3
- 3316 C2
- 3318 C2
- 3319 C2
- 3324 C2
- 3325 B1
- 3335 A1
- 3336 A1
- 3337 A1
- 3354 A1
- 3355 C2
- 3356 C1
- 3357 C2
- 3358 A1
- 3359 A1
- 3360 A1
- 3410 B1
- 3411 B1
- 3412 B1
- 3413 B1
- 3414 B1
- 3417 B3
- 3418 B1
- 3420 C2
- 3421 C2
- 3422 C2
- 3423 C1
- 3424 C2
- 3425 B2
- 3426 B2
- 3427 B2
- 3999 C3
- 6300 C3
- 6301 C3
- 6305 A2
- 6306 A2
- 6307 A2
- 6310 A1
- 7300 C3
- 7301 B3
- 7302 C2
- 7303 B1
- 7304 C3
- 7308 B1
- 7309 C2
- 7310 C1
- 9402 C2
- 9403 B1
- 9404 C3
- 9405 A1
- 9406 B2
- 9407 B3
- 9408 B3
- 9409 B1
- 9410 B1
- 9411 B2
- 9413 B2

DVD Dolby Interface Panel: Audio

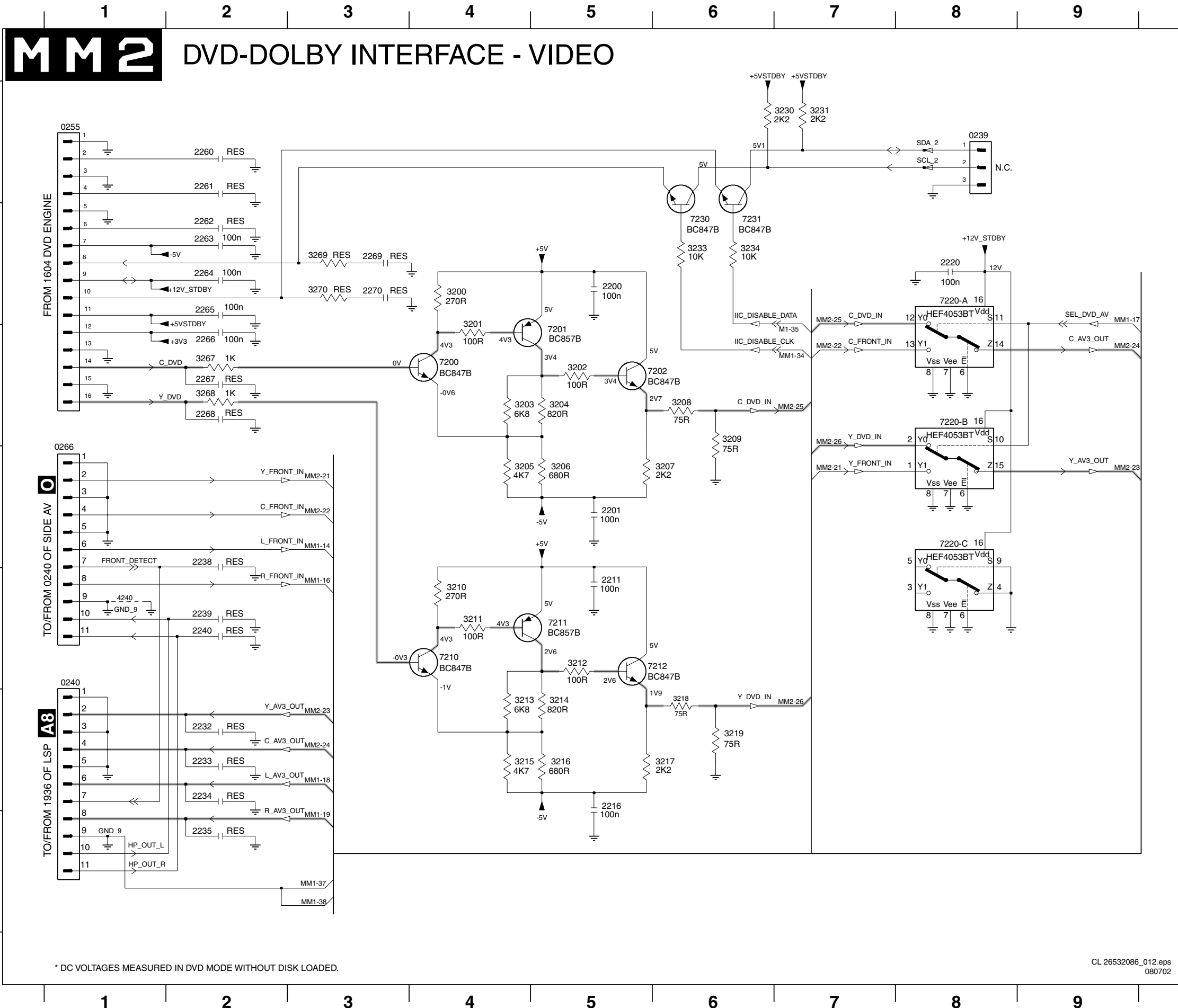


- 0221 E1
- 0224 E1
- 0225 E10
- 0254 A1
- 0264 F7
- 1100 F11
- 1121 E9
- 1122 F11
- 1154 E7
- 2100 E10
- 2101 F9
- 2102 F9
- 2103 F10
- 2104 F10
- 2120 A10
- 2121 A10
- 2122 C10
- 2129 B3
- 2130 A3
- 2131 C3
- 2132 D4
- 2133 C4
- 2134 A7
- 2135 A7
- 2138 A6
- 2139 B7
- 2140 A8
- 2143 C6
- 2144 D7
- 2145 C8
- 2150 F2
- 2152 D2
- 2155 G5
- 2156 G6
- 2159 F7
- 2160 A1
- 2161 A1
- 2162 A1
- 2163 A1
- 2164 A1
- 2165 B1
- 2166 B1
- 2167 B1
- 2168 C1
- 2169 C1
- 2170 B1
- 2171 C1
- 2172 C1
- 2173 C1
- 2174 C2
- 2175 D1
- 3100 E9
- 3101 F9
- 3102 F10
- 3123 A10
- 3124 A10
- 3125 B10
- 3126 C10
- 3130 B3
- 3131 A5
- 3132 B5
- 3136 A6
- 3137 A6
- 3138 A6
- 3139 B7
- 3141 C6
- 3142 C6
- 3143 B6
- 3144 C7
- 3146 B8
- 3147 D8
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- 3150 E2
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- 3152 E2
- 3154 E5
- 3155 E5
- 3156 E6
- 3157 E6
- 3158 E6
- 3159 E7
- 3160 E7
- 3161 F6
- 3162 F7
- 3163 E7
- 4138 A6
- 4140 A8
- 4141 B8
- 4143 C6
- 4145 C8
- 4146 B8
- 4149 E3
- 4152 E1
- 4154 E5
- 4159 F7
- 5100 F9
- 5129 B3
- 5161 A1
- 7100 E10
- 7120-A A10
- 7120-B B10
- 7120-C C10
- 7130 A3
- 7130 A5
- 7134-A A7
- 7134-B C7
- 7146 B8
- 7147 D8
- 7150 D3
- 7162 F7

DVD Engine	
ASD1	ASD3
4140 JUMP	RES
4145 JUMP	RES
4141 RES	JUMP
4146 RES	JUMP

* DC VOLTAGES MEASURED IN DVD MODE WITHOUT DISK LOADED.

DVD Dolby Interface Panel: Video

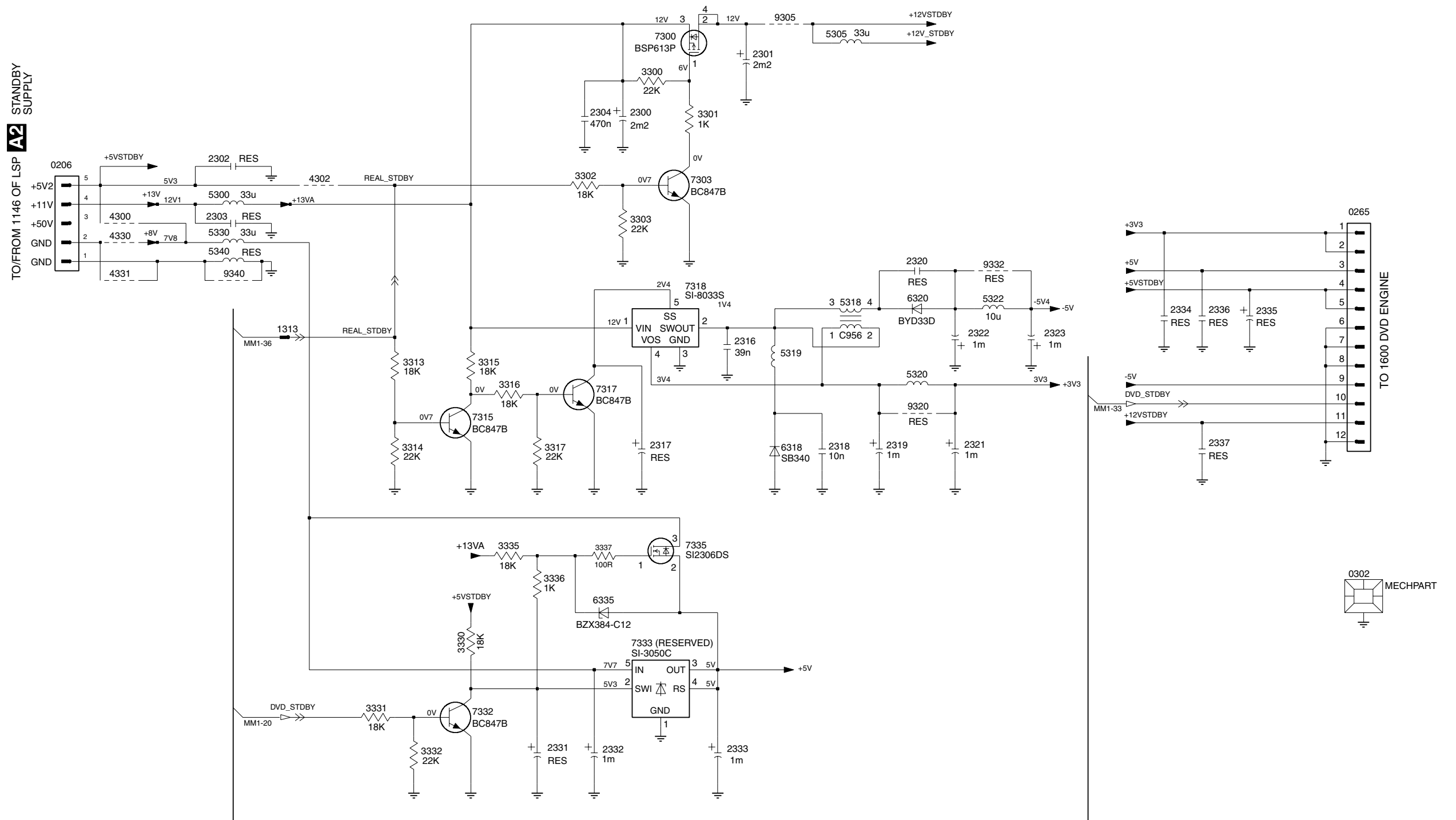


- 0239 A8
- 0240 E1
- 0255 A1
- 0266 D1
- 2200 B5
- 2201 D5
- 2211 E5
- 2216 F5
- 2220 B8
- 2232 F2
- 2233 F2
- 2234 F2
- 2235 G2
- 2238 D2
- 2239 E2
- 2240 E2
- 2260 A2
- 2261 A2
- 2262 B2
- 2263 B2
- 2264 B2
- 2265 B2
- 2266 C2
- 2267 C2
- 2268 C2
- 2269 B3
- 2270 B3
- 3200 B4
- 3201 C4
- 3202 C5
- 3203 C4
- 3204 C5
- 3205 D4
- 3206 D5
- 3207 D6
- 3208 C6
- 3209 C6
- 3210 E4
- 3211 E4
- 3212 E5
- 3213 F4
- 3214 F5
- 3215 F4
- 3216 F5
- 3217 F6
- 3218 F6
- 3219 F6
- 3230 A7
- 3231 A7
- 3233 B6
- 3234 B6
- 3267 C2
- 3268 C2
- 3269 B3
- 3270 B3
- 4240 E1
- 7200 C4
- 7201 C5
- 7202 C5
- 7210 E4
- 7211 E5
- 7212 E5
- 7220-A B8
- 7220-B C8
- 7220-C D8
- 7230 B6
- 7231 B6

* DC VOLTAGES MEASURED IN DVD MODE WITHOUT DISK LOADED.

DVD Dolby Interface Panel: Power Supply

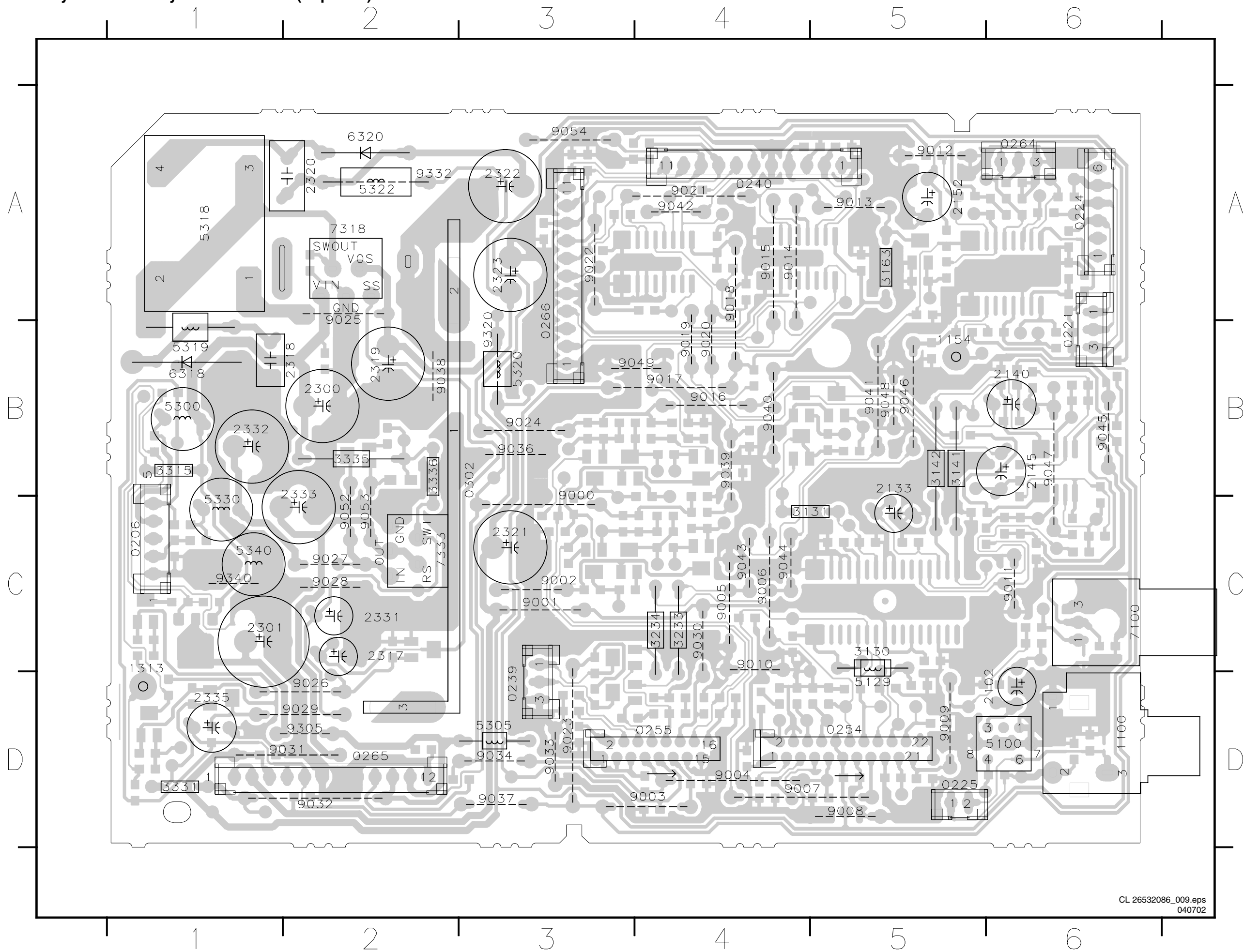
MM3 DVD-DOLBY INTERFACE - POWER SUPPLY



- 0206 B1
- 0265 B11
- 0302 E11
- 1313 C3
- 2300 A5
- 2301 A6
- 2302 B2
- 2303 B2
- 2304 A5
- 2316 C6
- 2317 D5
- 2318 D7
- 2319 D7
- 2320 C7
- 2321 D8
- 2322 C8
- 2323 C8
- 2331 F5
- 2332 F5
- 2333 F6
- 2334 C9
- 2335 C10
- 2336 C10
- 2337 D10
- 3300 A5
- 3301 A6
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- 3314 D4
- 3315 C4
- 3316 D4
- 3317 D5
- 3330 E4
- 3331 F3
- 3332 F4
- 3335 E4
- 3336 E5
- 3337 E5
- 4300 B1
- 4302 B3
- 4330 B1
- 4331 C1
- 5300 B2
- 5305 A7
- 5318 C7
- 5319 C6
- 5320 C7
- 5322 C8
- 5330 B2
- 5340 C2
- 6318 D6
- 6320 C7
- 6335 E5
- 7300 A6
- 7303 B6
- 7315 D4
- 7317 D5
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- 7335 E6
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- 9340 C2

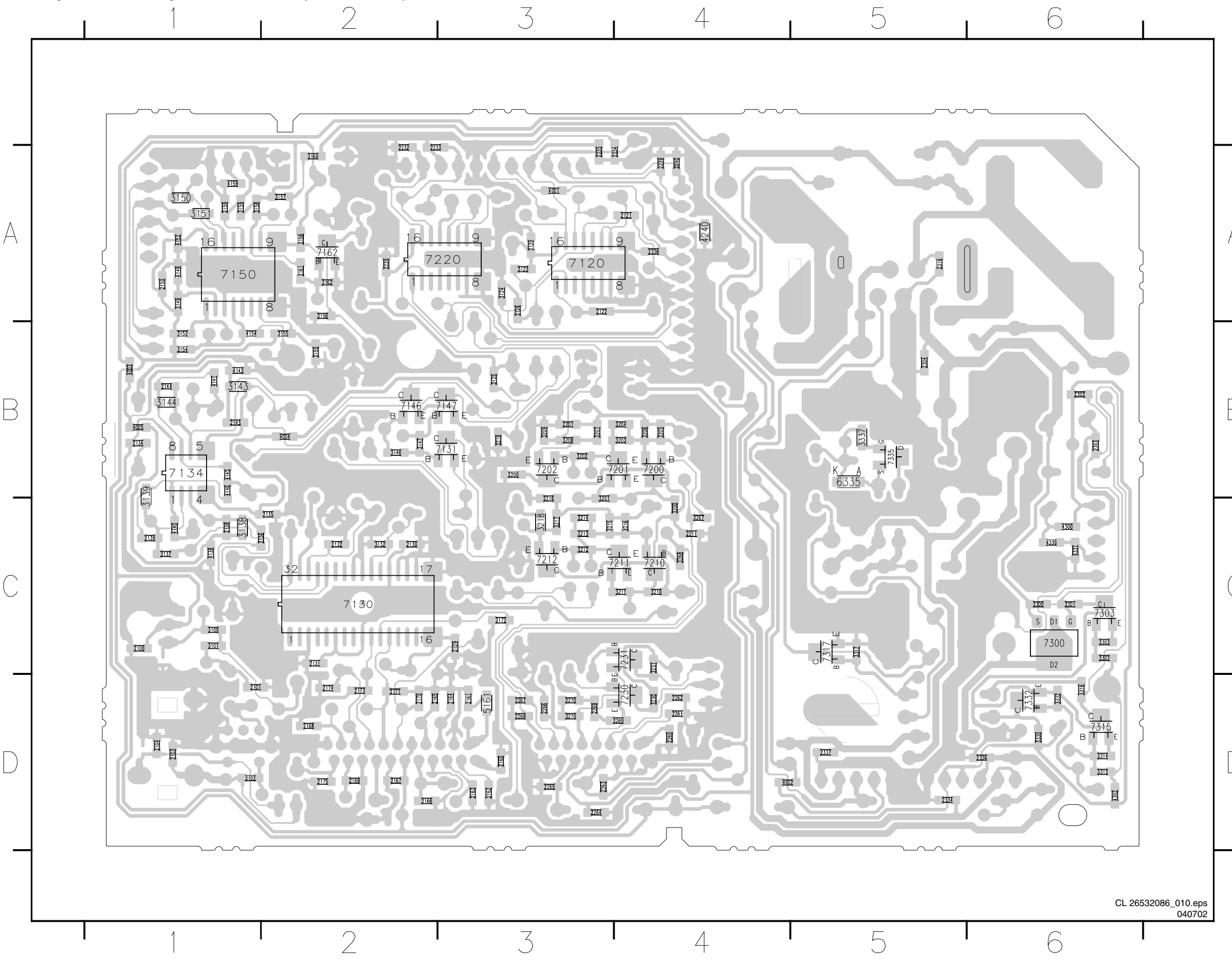
* DC VOLTAGES MEASURED IN DVD MODE WITHOUT DISK LOADED

Layout DVD Dolby Interface Panel (Top Side)



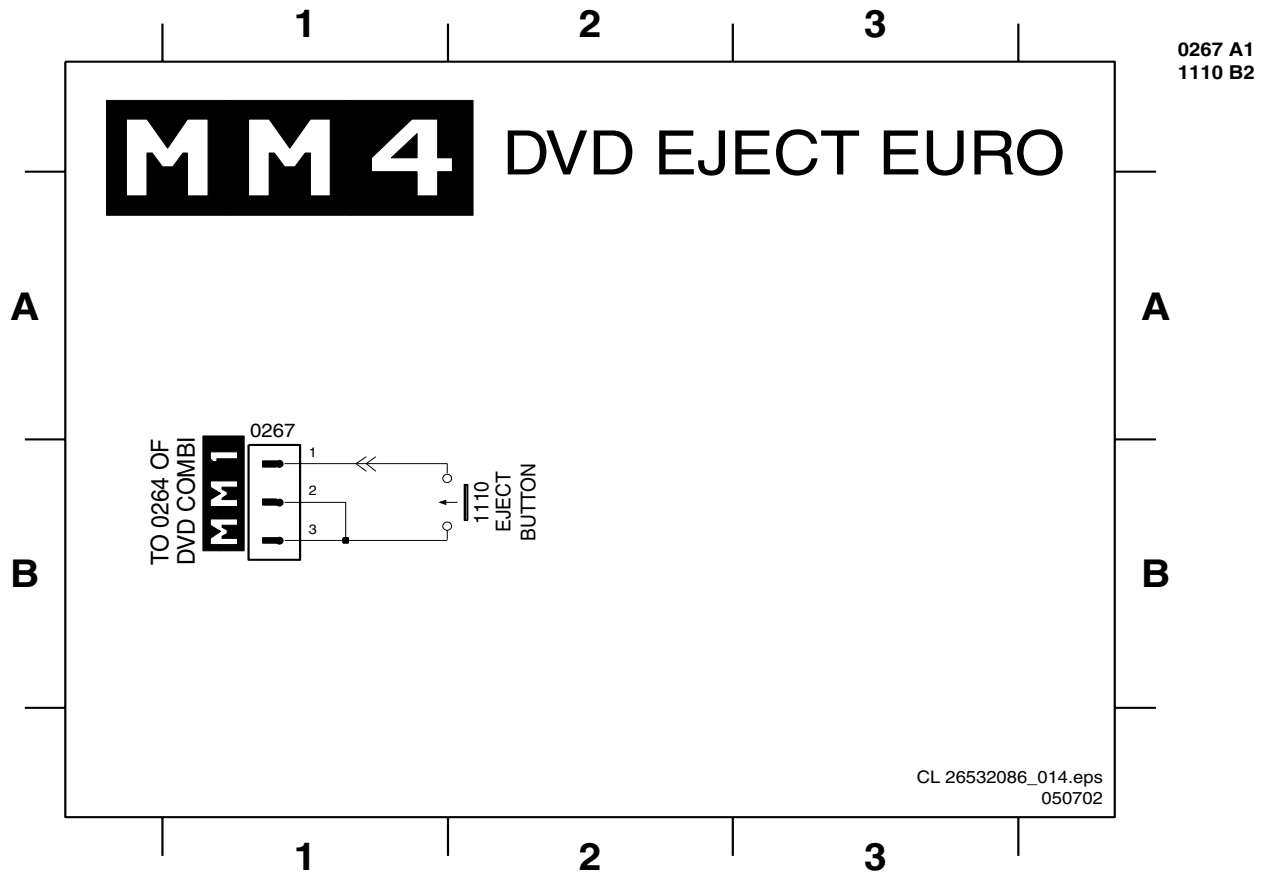
- 0206 C1
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- 0239 D3
- 0240 A4
- 0254 D5
- 0255 D4
- 0264 A6
- 0265 D2
- 0266 B3
- 0302 B3
- 1100 D6
- 1154 B5
- 1313 C1
- 2102 D6
- 2133 B5
- 2140 B6
- 2145 B6
- 2152 A5
- 2300 B2
- 2301 C1
- 2317 C2
- 2318 B2
- 2319 B2
- 2320 A2
- 2321 C3
- 2322 A3
- 2323 A3
- 2331 C2
- 2332 B1
- 2333 B2
- 2335 D1
- 3130 C5
- 3131 C4
- 3141 B5
- 3142 B5
- 3163 A5
- 3233 C4
- 3234 C4
- 3315 B1
- 3331 D1
- 3335 B2
- 3336 B2
- 5100 D6
- 5129 D5
- 5300 B1
- 5305 D3
- 5318 A1
- 5319 B1
- 5320 B3
- 5322 A2
- 5330 C1
- 5340 C1
- 6318 B1
- 6320 A2
- 7100 C6
- 7318 A2
- 7333 C2
- 9000 B3
- 9001 C3
- 9002 C3
- 9003 D4
- 9004 D4
- 9005 C4
- 9006 C4
- 9007 D4
- 9008 D5
- 9009 D5
- 9010 C4
- 9011 C6
- 9012 A5
- 9013 A5
- 9014 A4
- 9015 A4
- 9016 B4
- 9017 B4
- 9018 A4
- 9019 B4
- 9020 B4
- 9021 A4
- 9022 A3
- 9023 D3
- 9024 B3
- 9025 A2
- 9026 D2
- 9027 C2
- 9028 C2
- 9029 D2
- 9030 C4
- 9031 D2
- 9032 D3
- 9033 D3
- 9034 B3
- 9035 D2
- 9036 B3
- 9037 C2
- 9038 B4
- 9039 B4
- 9040 B4
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- 9042 B5
- 9043 B5
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- 9074 B5
- 9075 B5
- 9076 B5
- 9077 B5
- 9078 B5
- 9079 B5
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- 9208 B5

Layout DVD Dolby Interface Panel (Bottom Side)

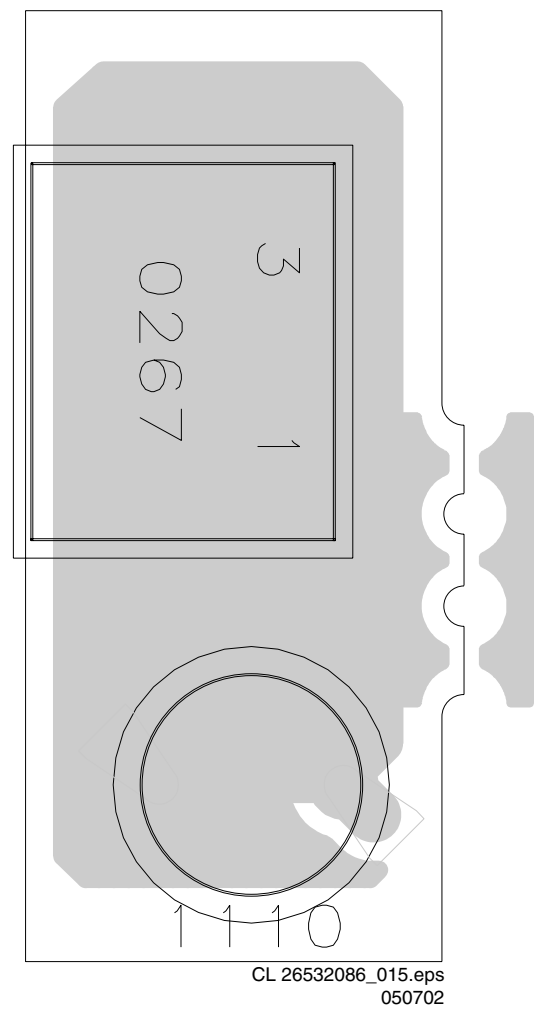


2100	C1	3144	B1	7147	B3
2101	D1	3146	B2	7150	A1
2103	D1	3147	B2	7162	A2
2104	D1	3149	A1	7200	B4
2120	A3	3150	A1	7201	B4
2121	A4	3151	A1	7202	B3
2122	A3	3152	B1	7210	C4
2129	C3	3154	B1	7211	C4
2130	C2	3155	B2	7212	C3
2131	C2	3156	A2	7220	A3
2132	C2	3157	A2	7230	D4
2134	B1	3158	A1	7231	C4
2135	C2	3159	A1	7300	C6
2138	C1	3160	A2	7303	C6
2139	C1	3161	A2	7315	D6
2143	B1	3162	A2	7317	C5
2144	B1	3200	C4	7332	D6
2150	A1	3201	C3	7335	B5
2155	B2	3202	B3		
2156	A2	3203	B4		
2159	A1	3204	B4		
2160	D3	3205	B4		
2161	D3	3206	B4		
2162	D3	3207	B3		
2163	D3	3208	B3		
2164	D3	3209	B3		
2165	D2	3210	C4		
2166	D2	3211	C4		
2167	D2	3212	C3		
2168	D2	3213	C3		
2169	D2	3214	C3		
2170	D2	3215	C3		
2171	D2	3216	C4		
2172	C3	3217	C3		
2173	D2	3218	C3		
2174	D2	3219	B3		
2175	D2	3230	D4		
2200	B3	3231	C4		
2201	B3	3267	C4		
2211	C4	3268	C4		
2216	C3	3269	D4		
2220	A2	3270	D3		
2232	A2	3300	C6		
2233	A2	3301	C6		
2234	A4	3302	C6		
2235	A3	3303	C6		
2238	A4	3313	D6		
2239	A4	3314	D6		
2240	A4	3316	D6		
2260	D4	3317	C5		
2261	D4	3330	D6		
2262	D4	3332	D6		
2263	D3	3337	B5		
2264	D3	4001	A3		
2265	D3	4002	D4		
2266	D3	4003	B1		
2267	D3	4004	B2		
2268	D3	4005	B1		
2269	D3	4138	C1		
2270	D3	4140	C1		
2302	B6	4141	B1		
2303	B6	4143	B1		
2304	B5	4145	B1		
2316	A5	4146	B1		
2334	D5	4149	A1		
2336	D6	4152	A1		
2337	D5	4154	B1		
3100	C1	4159	A1		
3101	C1	4240	A4		
3102	D1	4300	C6		
3123	A3	4302	D6		
3124	A3	4330	C6		
3125	B3	4331	C6		
3126	A3	5161	D3		
3132	C2	6335	B5		
3136	C1	7120	A3		
3137	C1	7130	C2		
3138	C1	7131	B3		
3139	B1	7134	B1		
3143	B1	7146	B2		

DVD Eject Button



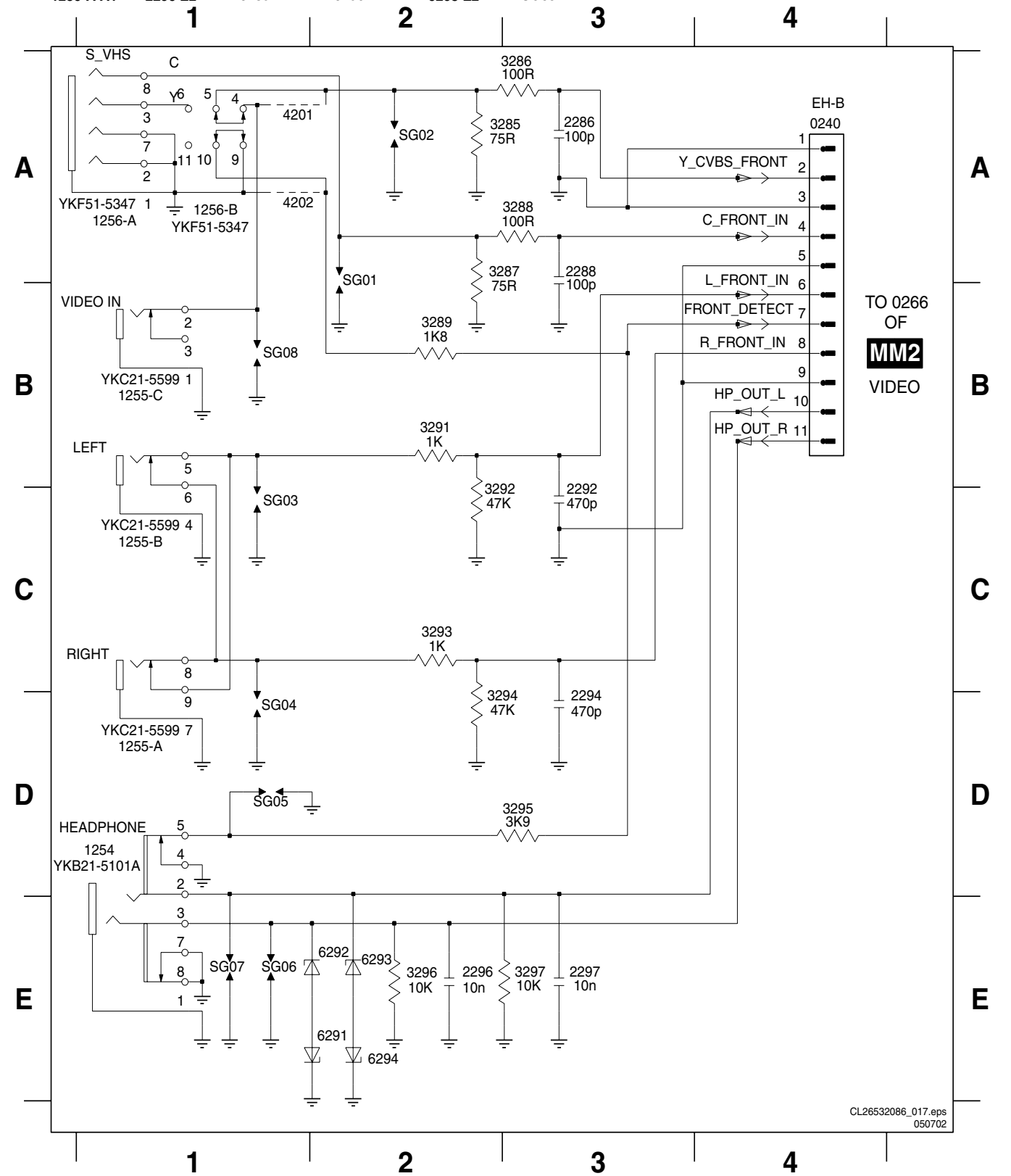
Layout DVD Eject Button



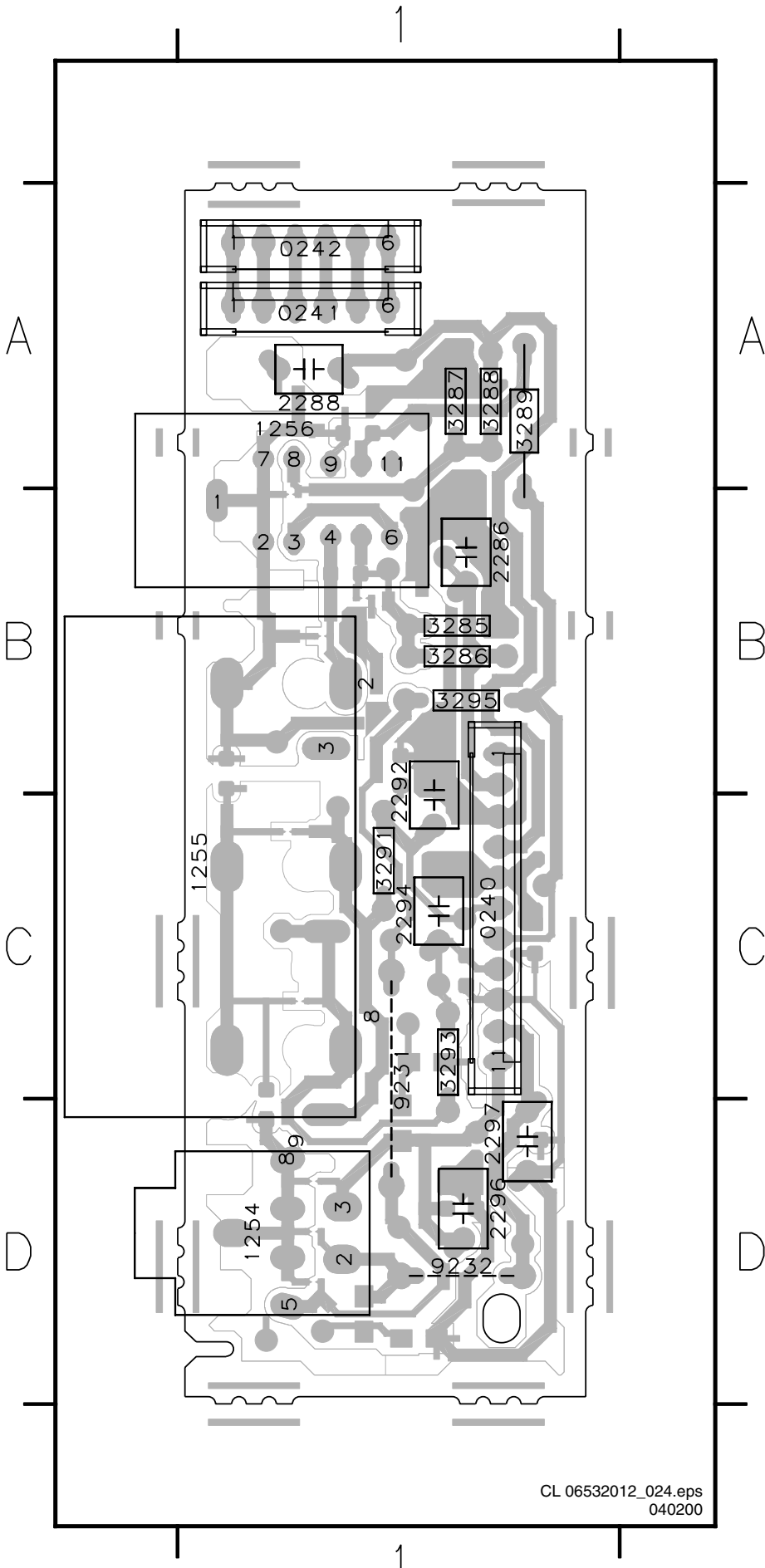
Side I/O Panel

O SIDE IO PANEL

0240 A4	1256-B A1	2297 E3	3291 B2	3297 E3	6294 E2	SG06 E1
1254 D1	2286 A3	3285 A3	3292 B2	4201 A1	SG01 B2	SG07 E1
1255-A D1	2288 A3	3286 A3	3293 C2	4202 A1	SG02 A2	SG08 B1
1255-B C1	2292 B3	3287 A3	3294 C3	6291 E2	SG03 C1	
1255-C B1	2294 C3	3288 A3	3295 D3	6292 E2	SG04 D1	
1256-A A1	2296 E2	3289 B2	3296 E2	6293 E2	SG05 D1	

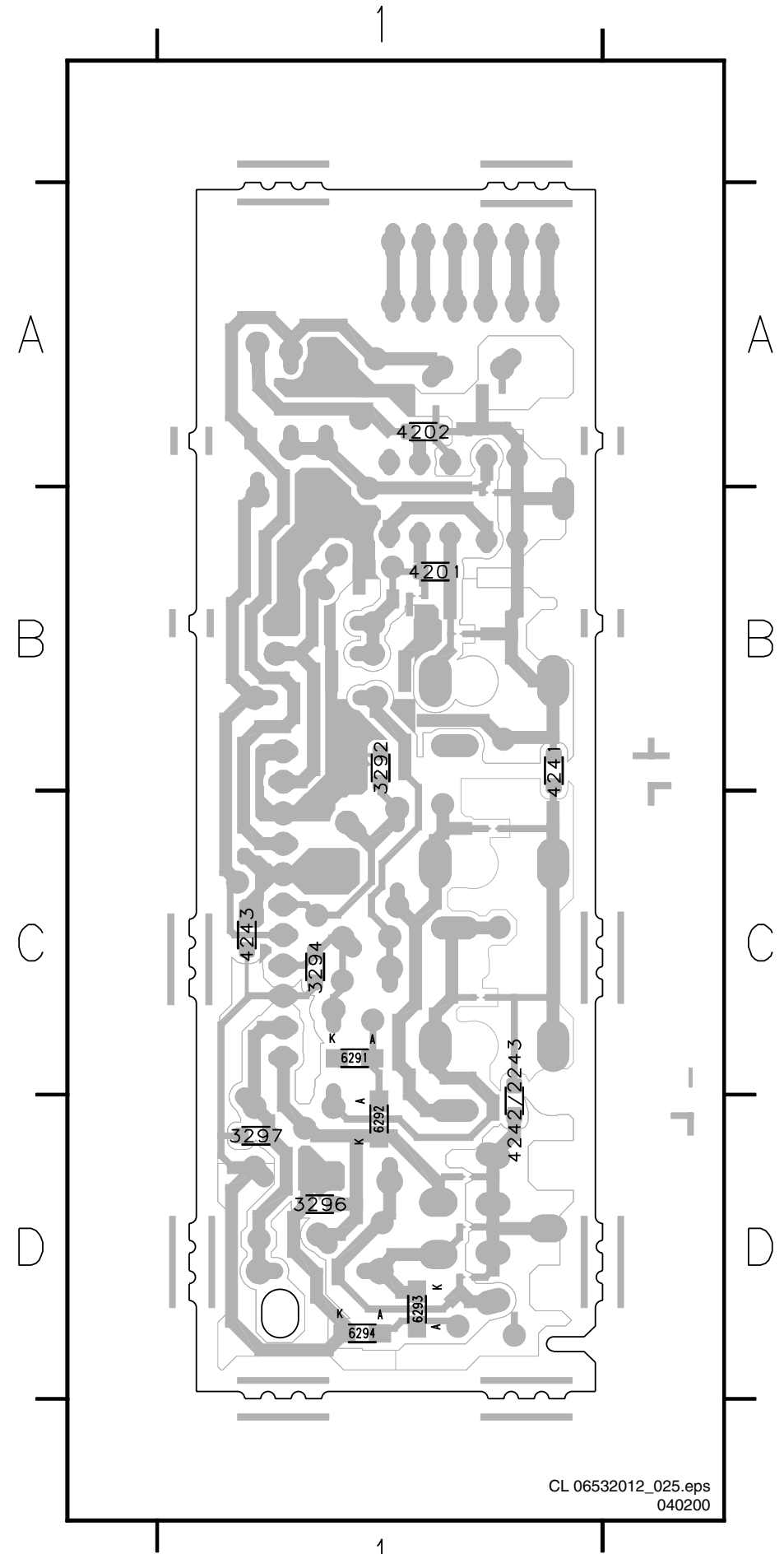


Layout Side I/O Panel (Top Side)



- 0240 C1
- 0241 A1
- 0242 A1
- 1254 D1
- 1255 C1
- 2286 A1
- 2287 B1
- 2288 A1
- 2289 B1
- 2291 C1
- 2292 B1
- 2294 C1
- 2296 D1
- 2297 D1
- 3285 B1
- 3286 B1
- 3287 A1
- 3288 A1
- 3289 A1
- 3291 C1
- 3292 B1
- 3293 B1
- 3295 D1
- 9231 D1
- 9232 D1

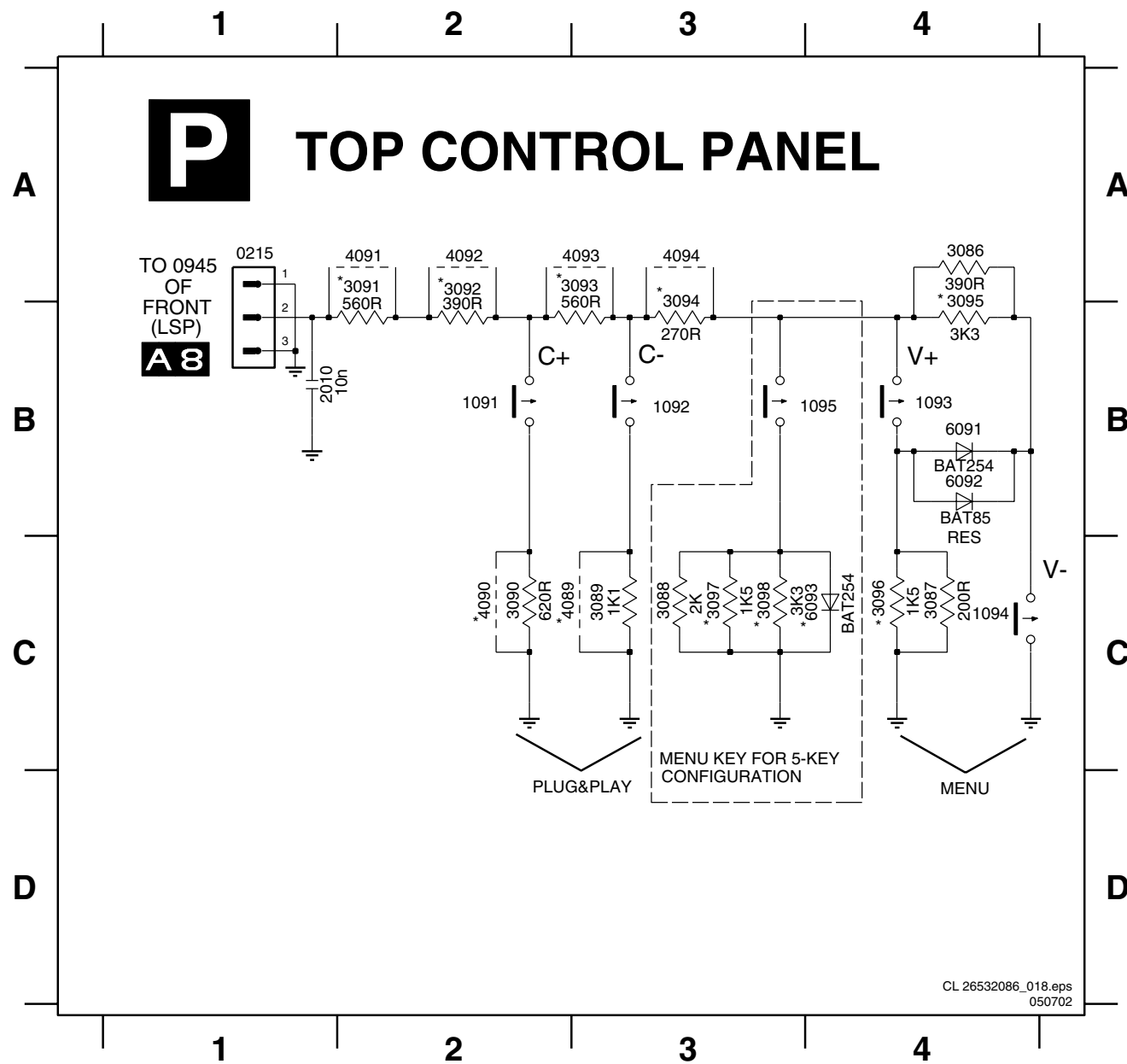
Layout Side I/O Panel (Bottom Side)



- 3292
- 3294
- 3296
- 3297
- 4201
- 4202
- 4241
- 4242
- 4243
- 6291
- 6292
- 6293
- 6294

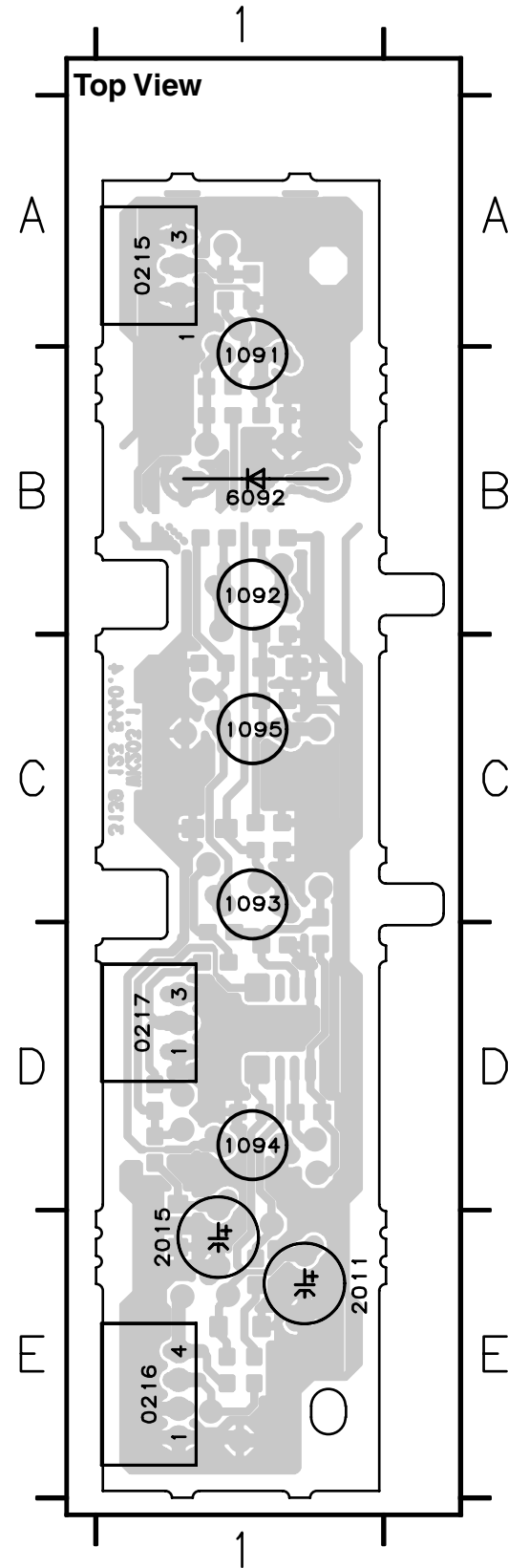
Top Control Panel

0215 A1	1093 B4	2010 B1	3088 C3	3091 A2	3094 B3	3097 C3	4090 C2	4093 A3	6092 B4
1091 B2	1094 C4	3086 A4	3089 C3	3092 A2	3095 B4	3098 C3	4091 A2	4094 A3	6093 C4
1092 B3	1095 B4	3087 C4	3090 C2	3093 A3	3096 C4	4089 C3	4092 A2	6091 B4	

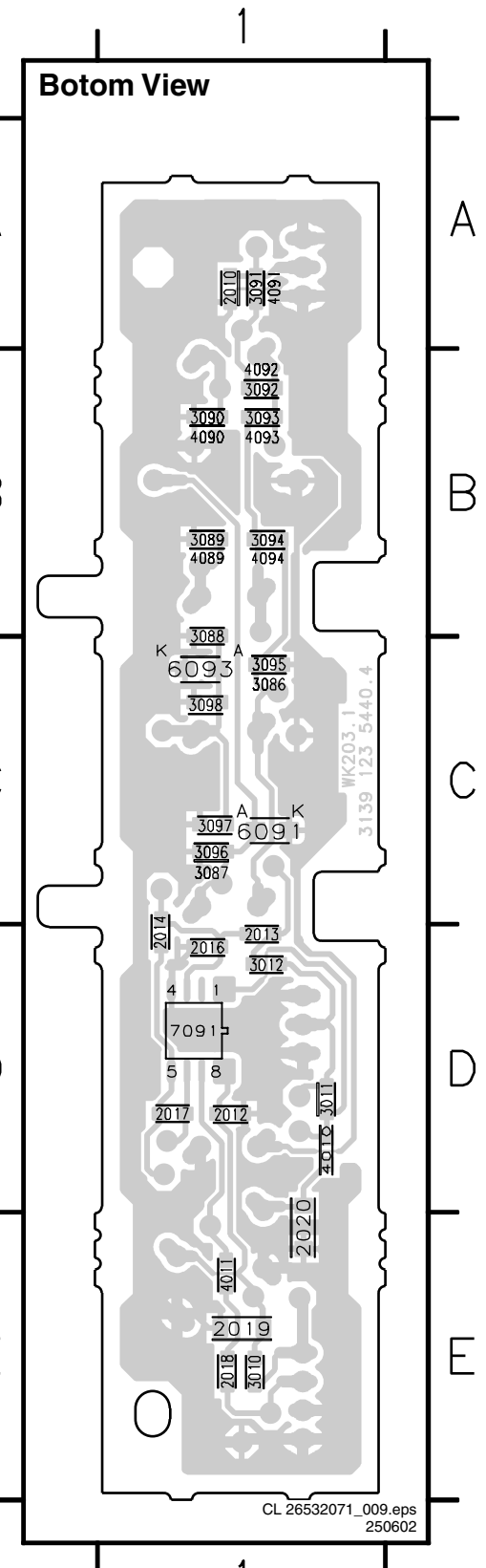


CL 26532086_018.eps
050702

Layout Top Control Panel



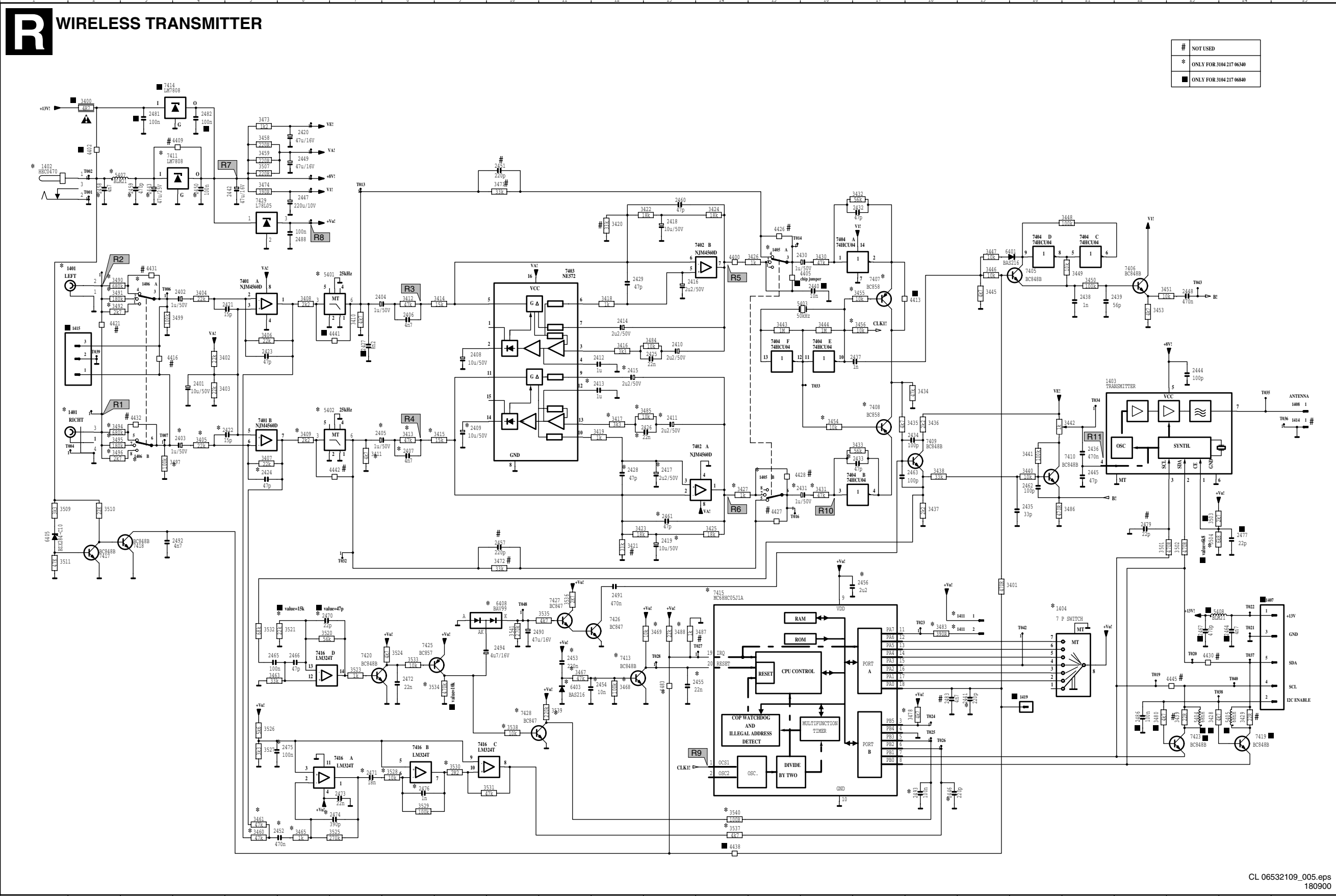
- 0215 A1
- 0216 E1
- 0217 D1
- 1091 B1
- 1092 B1
- 1093 C1
- 1094 D1
- 1095 C1
- 2011 E1
- 2015 E1
- 6092 B1



- 2010 A1
- 2012 D1
- 2013 D1
- 2014 D1
- 2016 D1
- 2017 D1
- 2018 E1
- 2019 E1
- 2020 E1
- 3010 E1
- 3011 D1
- 3012 D1
- 3086 C1
- 3087 C1
- 3088 B1
- 3089 B1
- 3090 B1
- 3091 A1
- 3092 B1
- 3093 B1
- 3094 B1
- 3095 C1
- 3096 C1
- 3097 C1
- 3098 C1
- 4010 D1
- 4011 E1
- 4089 B1
- 4090 B1
- 4091 A1
- 4092 B1
- 4093 B1
- 4094 B1
- 6091 C1
- 6093 C1
- 7091 D1

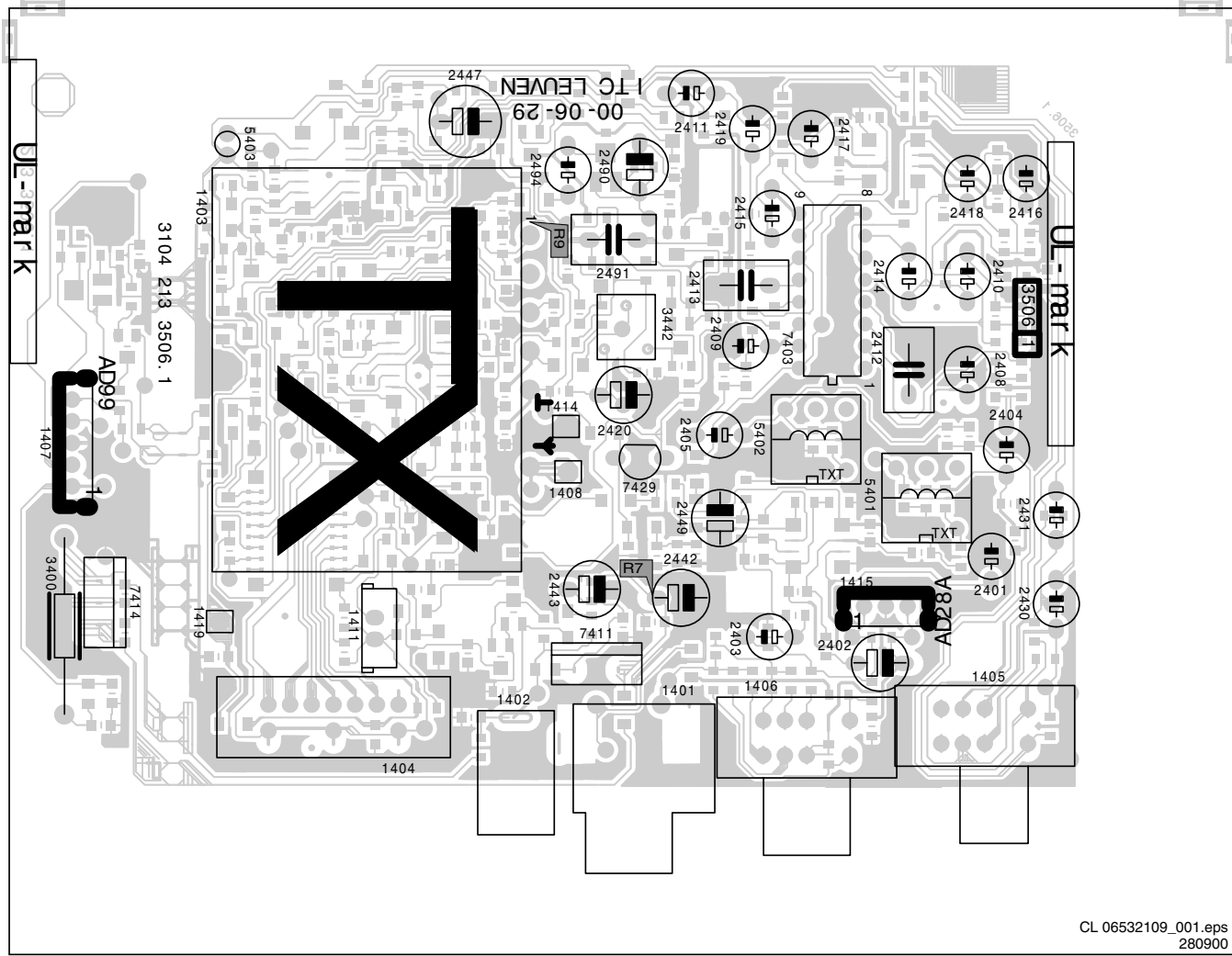
CL 26532071_009.eps
250602

Wireless Transmitter

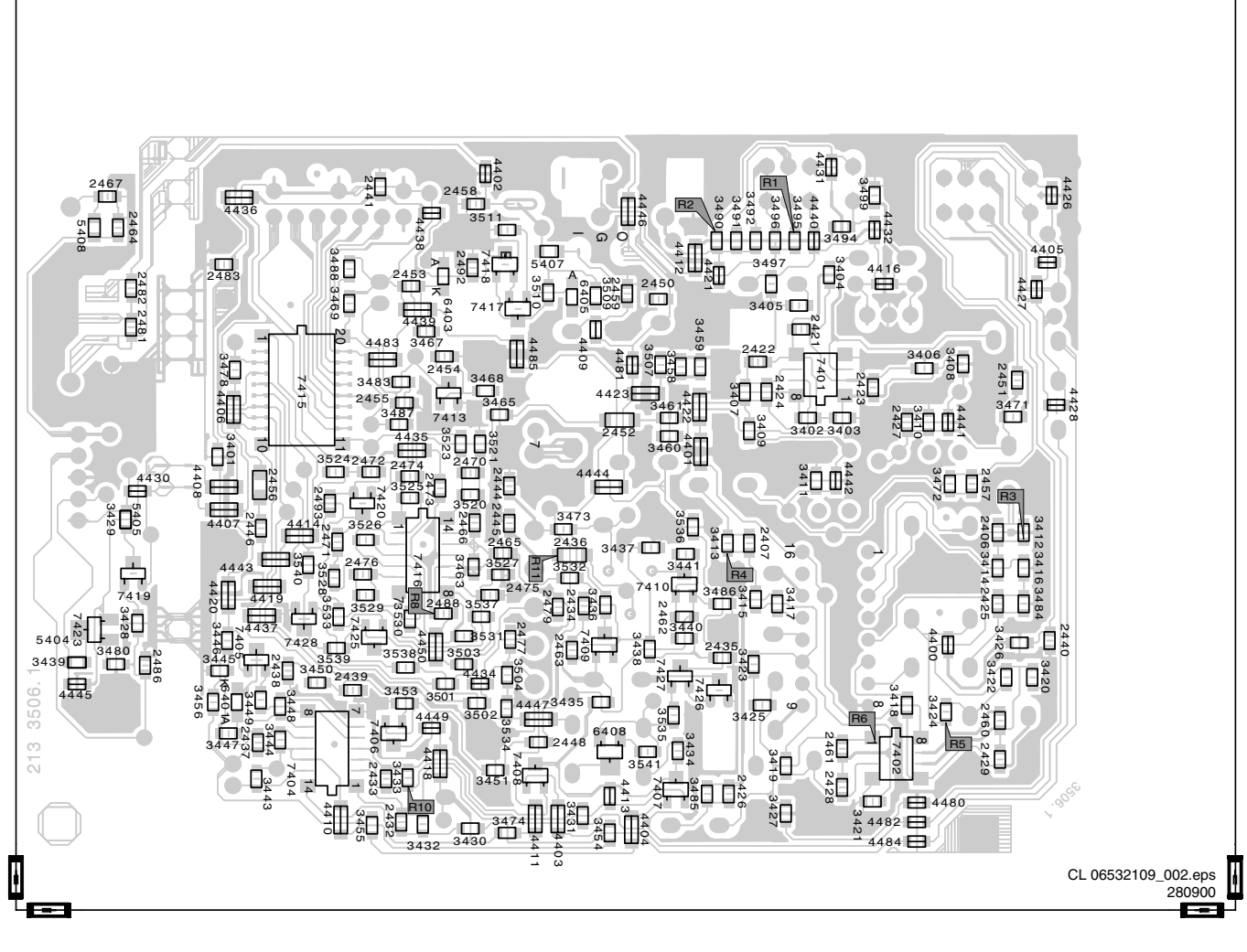


1401	F 2	3492	P 2
1402	F 2	3493	P 2
1403	F 2	3494	P 2
1404	F 2	3495	P 2
1405	F 2	3496	P 2
1406	F 2	3497	P 2
1407	F 2	3498	P 2
1408	F 2	3499	P 2
1409	F 2	3500	P 2
1410	F 2	3501	P 2
1411	F 2	3502	P 2
1412	F 2	3503	P 2
1413	F 2	3504	P 2
1414	F 2	3505	P 2
1415	F 2	3506	P 2
1416	F 2	3507	P 2
1417	F 2	3508	P 2
1418	F 2	3509	P 2
1419	F 2	3510	P 2
1420	F 2	3511	P 2
1421	F 2	3512	P 2
1422	F 2	3513	P 2
1423	F 2	3514	P 2
1424	F 2	3515	P 2
1425	F 2	3516	P 2
1426	F 2	3517	P 2
1427	F 2	3518	P 2
1428	F 2	3519	P 2
1429	F 2	3520	P 2
1430	F 2	3521	P 2
1431	F 2	3522	P 2
1432	F 2	3523	P 2
1433	F 2	3524	P 2
1434	F 2	3525	P 2
1435	F 2	3526	P 2
1436	F 2	3527	P 2
1437	F 2	3528	P 2
1438	F 2	3529	P 2
1439	F 2	3530	P 2
1440	F 2	3531	P 2
1441	F 2	3532	P 2
1442	F 2	3533	P 2
1443	F 2	3534	P 2
1444	F 2	3535	P 2
1445	F 2	3536	P 2
1446	F 2	3537	P 2
1447	F 2	3538	P 2
1448	F 2	3539	P 2
1449	F 2	3540	P 2
1450	F 2	3541	P 2
1451	F 2	3542	P 2
1452	F 2	3543	P 2
1453	F 2	3544	P 2
1454	F 2	3545	P 2
1455	F 2	3546	P 2
1456	F 2	3547	P 2
1457	F 2	3548	P 2
1458	F 2	3549	P 2
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1463	F 2	3554	P 2
1464	F 2	3555	P 2
1465	F 2	3556	P 2
1466	F 2	3557	P 2
1467	F 2	3558	P 2
1468	F 2	3559	P 2
1469	F 2	3560	P 2
1470	F 2	3561	P 2
1471	F 2	3562	P 2
1472	F 2	3563	P 2
1473	F 2	3564	P 2
1474	F 2	3565	P 2
1475	F 2	3566	P 2
1476	F 2	3567	P 2
1477	F 2	3568	P 2
1478	F 2	3569	P 2
1479	F 2	3570	P 2
1480	F 2	3571	P 2
1481	F 2	3572	P 2
1482	F 2	3573	P 2
1483	F 2	3574	P 2
1484	F 2	3575	P 2
1485	F 2	3576	P 2
1486	F 2	3577	P 2
1487	F 2	3578	P 2
1488	F 2	3579	P 2
1489	F 2	3580	P 2
1490	F 2	3581	P 2
1491	F 2	3582	P 2
1492	F 2	3583	P 2
1493	F 2	3584	P 2
1494	F 2	3585	P 2
1495	F 2	3586	P 2
1496	F 2	3587	P 2
1497	F 2	3588	P 2
1498	F 2	3589	P 2
1499	F 2	3590	P 2
1500	F 2	3591	P 2

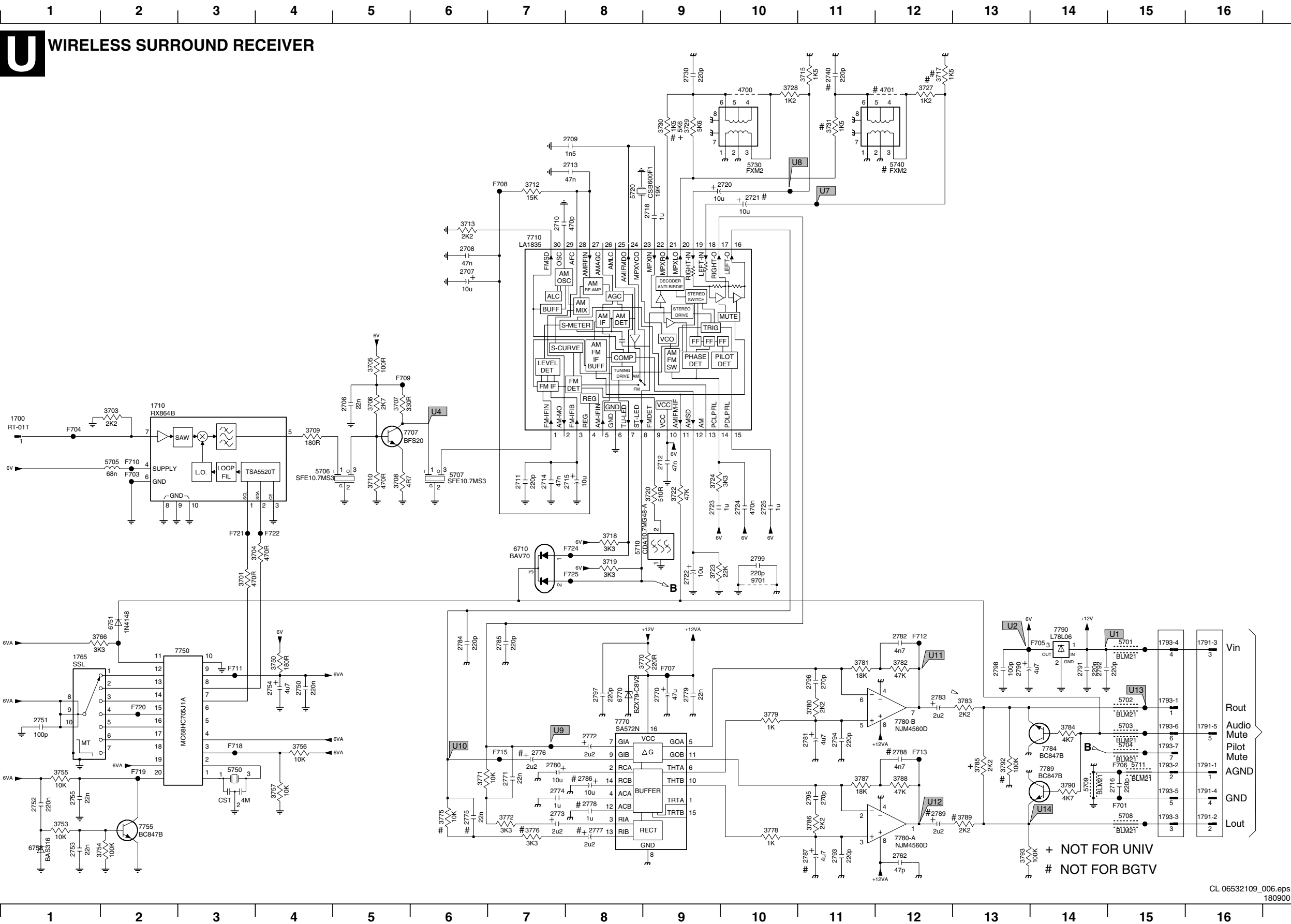
Layout Wireless Transmitter (Top Side)



Layout Wireless Transmitter (Bottom Side)

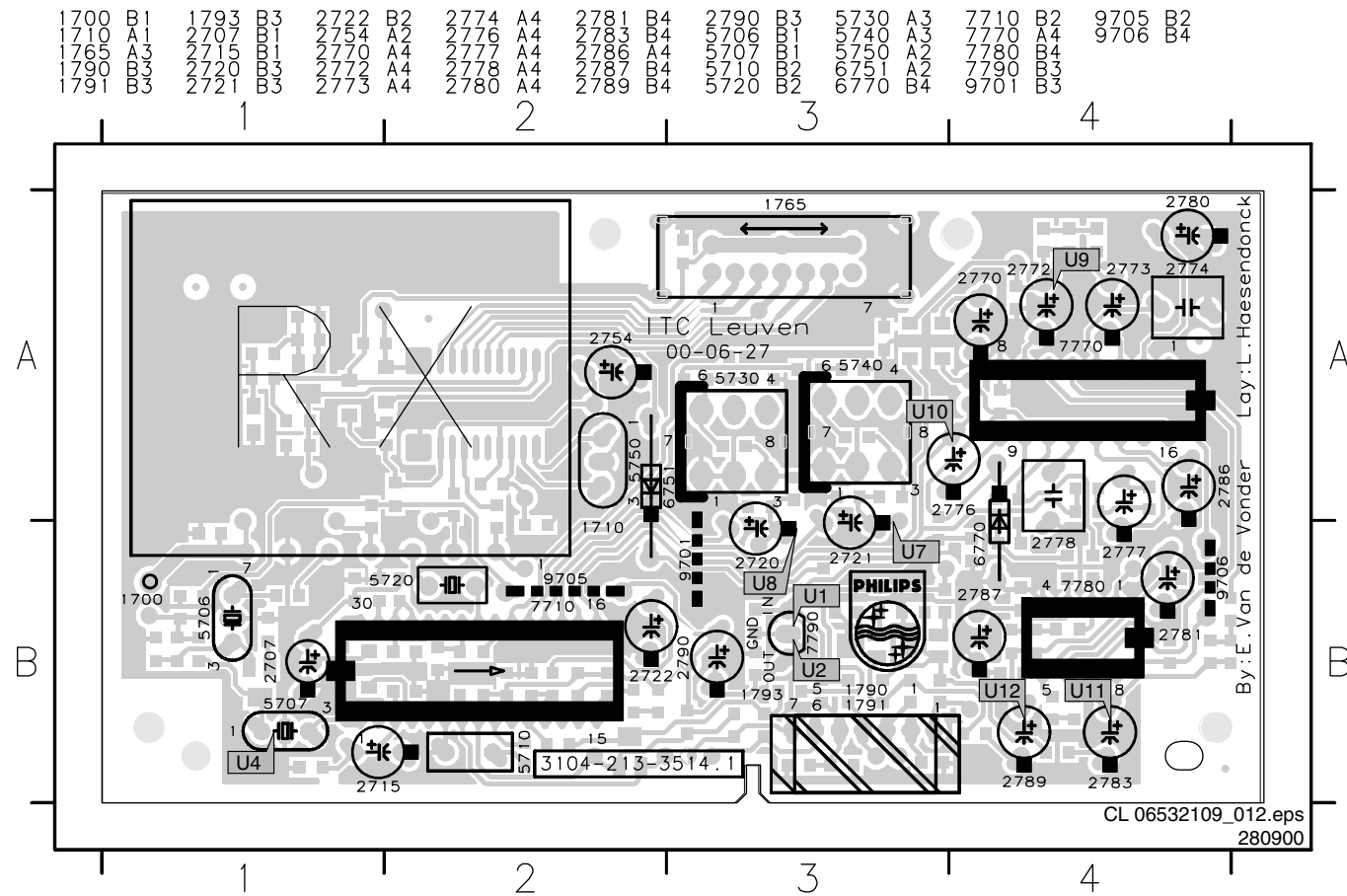


Wireless Surround Receiver

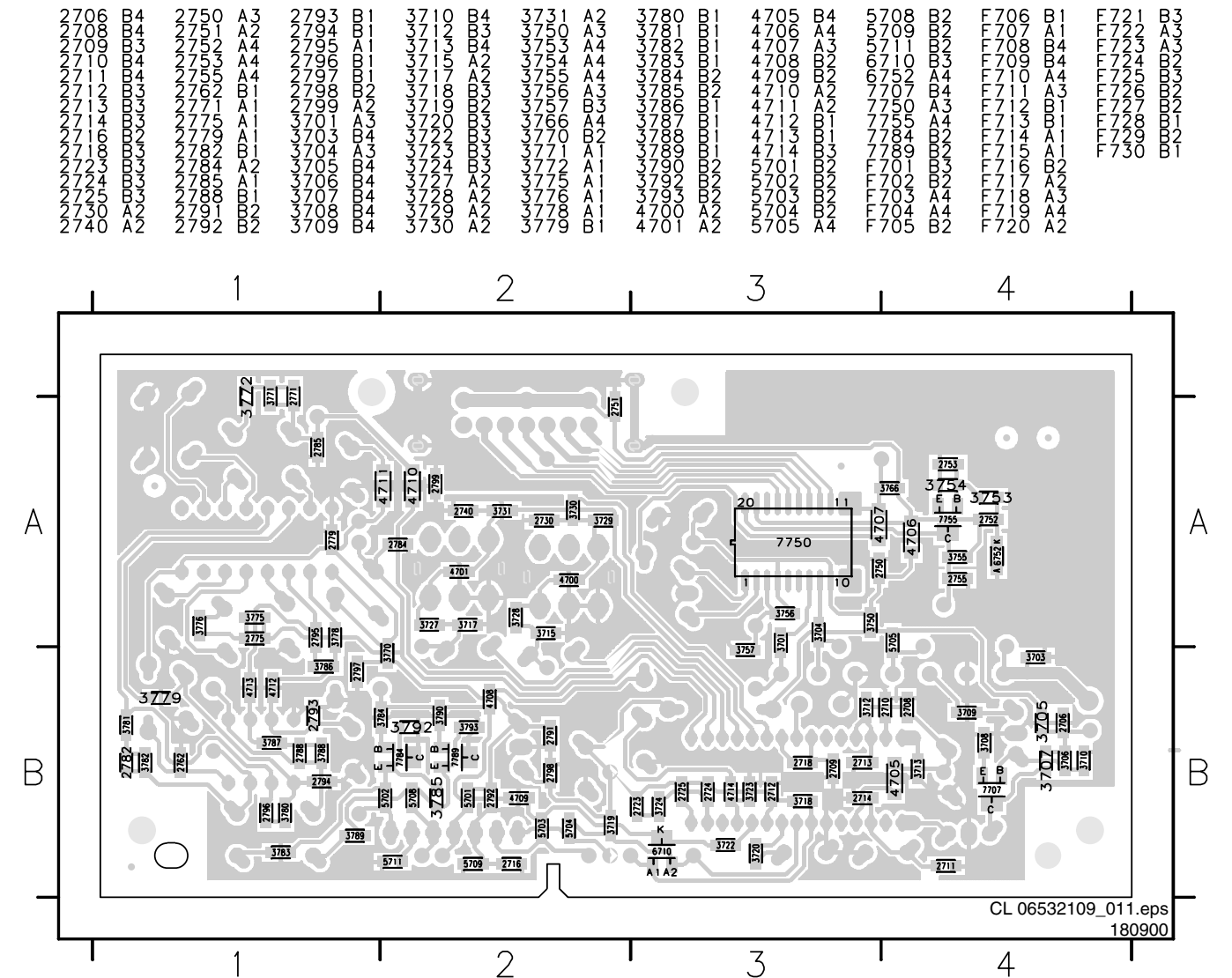


- 1700 E1
- 1710 E2
- 1765 I1
- 1790-1 I16
- 1790-2 J16
- 1790-3 K16
- 1790-4 H16
- 1790-5 J16
- 1790-6 I16
- 1791-1 J16
- 1791-2 K16
- 1791-3 H16
- 1791-4 J16
- 1791-5 I16
- 1793-1 I15
- 1793-2 J15
- 1793-3 K15
- 1793-4 H15
- 1793-5 J15
- 1793-6 I15
- 1793-7 J15
- 2706 E5
- 2707 D6
- 2708 C6
- 2709 B8
- 2710 C7
- 2711 F7
- 2712 F9
- 2713 B8
- 2714 F7
- 2715 F8
- 2716 J15
- 2718 C9
- 2720 B10
- 2721 C10
- 2722 G9
- 2723 G9
- 2724 G10
- 2725 G10
- 2730 A9
- 2740 A11
- 2750 I4
- 2751 I1
- 2752 J1
- 2753 K1
- 2754 I4
- 2755 J1
- 2762 K12
- 2770 I9
- 2771 J7
- 2772 J8
- 2773 K7
- 2774 J7
- 2775 K6
- 2776 J7
- 2777 K8
- 2778 J8
- 2779 J8
- 2780 J7
- 2781 J11
- 2782 H12
- 2783 I12
- 2784 H6
- 2785 H7
- 2786 J8
- 2787 K11
- 2788 J12
- 2789 K12
- 2790 I13
- 2791 I14
- 2792 I4
- 2793 K11
- 2794 J11
- 2795 J11
- 2796 I11
- 2797 I8
- 2798 I13
- 2799 G10
- 3701 G3
- 3703 E2
- 3704 G4
- 3705 E5
- 3706 E5
- 3707 E5
- 3708 F5
- 3709 F4
- 3710 F5
- 3712 B7
- 3713 C6
- 3715 A11
- 3717 A12
- 3718 G8
- 3719 G8
- 3720 F9
- 3722 F9
- 3723 G9
- 3724 F9
- 3727 A12
- 3728 A10
- 3729 B9
- 3730 B9
- 3731 B11
- 3750 I4
- 3753 K1
- 3754 K2
- 3755 J1
- 3756 J4
- 3757 J4
- 3766 H1
- 3770 I9
- 3771 J6
- 3772 K7
- 3775 K6
- 3776 F7
- 3778 K10
- 3779 I10
- 3780 I11
- 3781 I11
- 3782 I12
- 3783 I13
- 3784 I14
- 3785 J13
- 3786 K11
- 3787 J11
- 3788 J12
- 3789 K13
- 3790 J14
- 3792 J13
- 3793 K13
- 4700 A10
- 4701 A12
- 5701 H15
- 5702 I15
- 5703 I15
- 5704 J15
- 5705 F2
- 5706 F4
- 5707 F6
- 5708 K15
- 5709 I14
- 5710 G8
- 5711 J15
- 5720 B8
- 5730 B10
- 5740 B12
- 5750 J3
- 6710 G7
- 6751 H2
- 6752 K1
- 6770 I8
- 7707 F5
- 7710 C7
- 7710 A K12
- 7711 F7
- 7784 I14
- 7789 J14
- 7790 H14
- 9701 H10
- F702 H15
- F703 F2
- F704 F1
- F705 H14
- F706 J15
- F707 I9
- F708 B7
- F709 E5
- F710 F2
- F711 I3
- F712 H12
- F713 J12
- F714 J7
- F715 J7
- F716 B10
- F717 C10
- F718 J3
- F719 J2
- F720 I2
- F721 G3
- F722 G4
- F723 H2
- F724 G8
- F725 H8
- F726 J15
- F727 I15
- F728 I15
- F729 K15
- F730 I14

Layout Wireless Surround Receiver (Top Side)



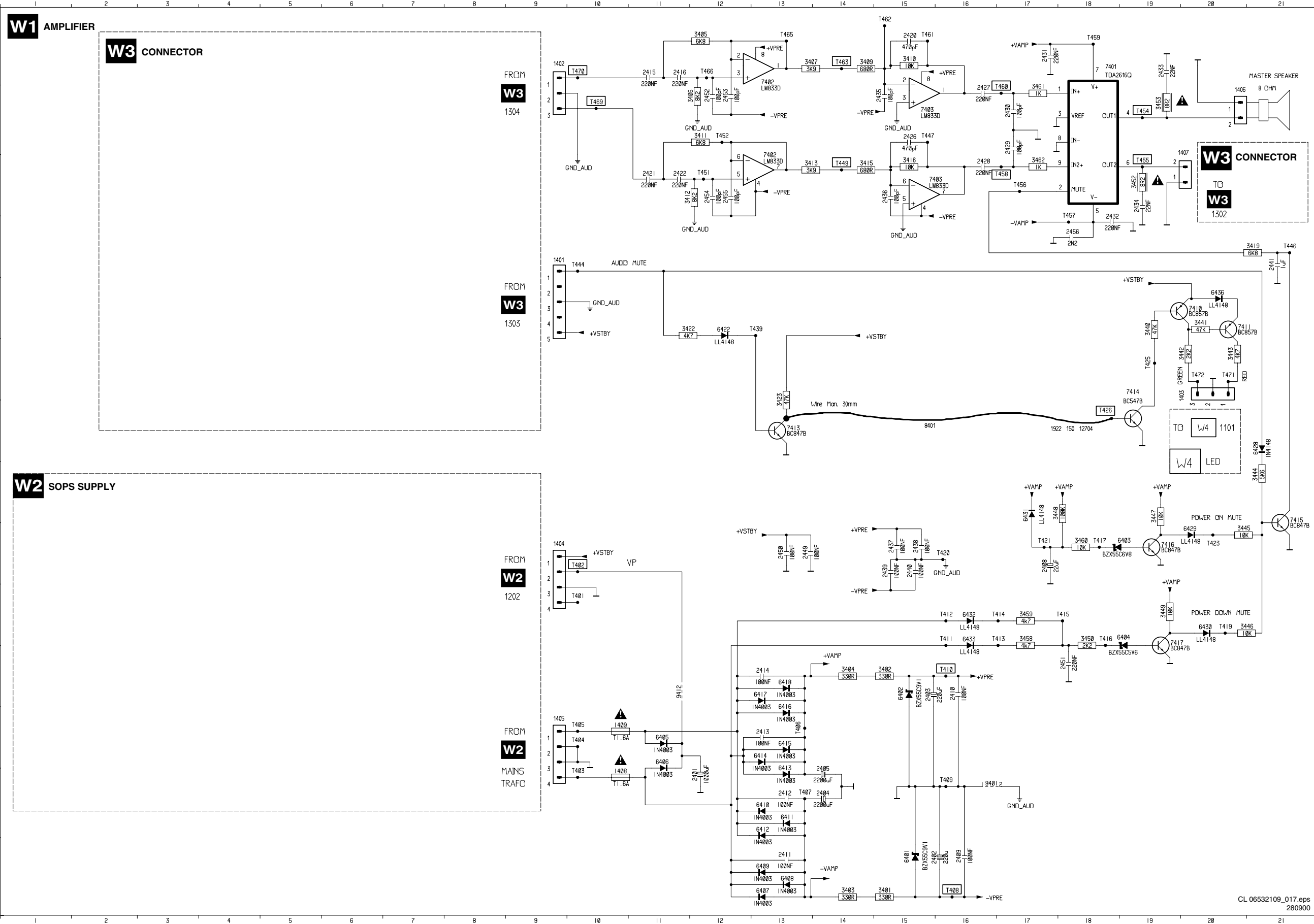
Layout Wireless Surround Receiver (Bottom Side)



1700	B1	1793	B3	2722	B2	2774	A4	2781	B4	2790	B3	5730	A3	7710	B2	9705	B2
1710	A1	2707	B1	2754	A2	2776	A4	2783	B4	5706	B1	5740	A3	7770	A4	9706	B4
1765	A3	2715	B1	2770	A4	2777	A4	2787	A4	5707	B1	6750	A2	7780	B4		
1790	B3	2720	B3	2772	A4	2778	A4	2787	B4	5710	B2	6751	A2	7790	B3		
1791	B3	2721	B3	2773	A4	2780	A4	2789	B4	5720	B2	6770	B4	9701	B3		

2706	A4	2750	A3	2770	B1	3710	B4	3731	A2	3770	B1	4705	B4	5708	B2	F706	B1	F721	B3
2708	B4	2751	A2	2771	A1	3711	A3	3732	A3	3771	A1	4706	A3	5709	B2	F707	A1	F722	A3
2709	B4	2752	A4	2772	A2	3712	B2	3733	A4	3772	B2	4707	A4	5710	B2	F708	B4	F723	A3
2710	B4	2753	A4	2773	A3	3713	A4	3734	A4	3773	A4	4708	B2	5711	A3	F709	B4	F724	B3
2711	B4	2754	A4	2774	A4	3714	B3	3735	A4	3774	B3	4709	A4	5712	A4	F710	B4	F725	B3
2712	B4	2755	A4	2775	A4	3715	A2	3736	A4	3775	A2	4710	A2	5713	A3	F711	A3	F726	B3
2713	B4	2756	B1	2776	B1	3716	A1	3737	B3	3776	B3	4711	A2	5714	A4	F712	B1	F727	B3
2714	B4	2757	A1	2777	A1	3717	A2	3738	B4	3777	B4	4712	A1	5715	A4	F713	A1	F728	B3
2715	B4	2758	A1	2778	A1	3718	A3	3739	A4	3778	A3	4713	A1	5716	A4	F714	A1	F729	B3
2716	B4	2759	A2	2779	A2	3719	A4	3740	A4	3779	A4	4714	A1	5717	A4	F715	B2	F730	B3
2717	B4	2760	A2	2780	A2	3720	B1	3741	A4	3780	B1	4715	A2	5718	A4	F716	A2	F731	B3
2718	B4	2761	A2	2781	A2	3721	B2	3742	A4	3781	B2	4716	A2	5719	A4	F717	A3	F732	B3
2719	B4	2762	A2	2782	A2	3722	B3	3743	A4	3782	B3	4717	A2	5720	A4	F718	A3	F733	B3
2720	B4	2763	A2	2783	A2	3723	B4	3744	A4	3783	B4	4718	A2	5721	A4	F719	A4	F734	B3
2721	B4	2764	A2	2784	A2	3724	B1	3745	A4	3784	B1	4719	A2	5722	A4	F720	A2	F735	B3
2722	B4	2765	A2	2785	A2	3725	B2	3746	A4	3785	B2	4720	A2	5723	A4	F721	A2	F736	B3
2723	B4	2766	A2	2786	A2	3726	B3	3747	A4	3786	B3	4721	A2	5724	A4	F722	A3	F737	B3
2724	B4	2767	A2	2787	A2	3727	B4	3748	A4	3787	B4	4722	A2	5725	A4	F723	A3	F738	B3
2725	B4	2768	A2	2788	A2	3728	B1	3749	A4	3788	B1	4723	A2	5726	A4	F724	A3	F739	B3
2726	B4	2769	A2	2789	A2	3729	B2	3750	A4	3789	B2	4724	A2	5727	A4	F725	A3	F740	B3
2727	B4	2770	A2	2790	A2	3730	B3	3751	A4	3790	B3	4725	A2	5728	A4	F726	A3	F741	B3
2728	B4	2771	A2	2791	A2	3731	B4	3752	A4	3791	B4	4726	A2	5729	A4	F727	A3	F742	B3
2729	B4	2772	A2	2792	A2	3732	B1	3753	A4	3792	B1	4727	A2	5730	A4	F728	A3	F743	B3
2730	B4	2773	A2	2793	A2	3733	B2	3754	A4	3793	B2	4728	A2	5731	A4	F729	A3	F744	B3
2731	B4	2774	A2	2794	A2	3734	B3	3755	A4	3794	B3	4729	A2	5732	A4	F730	A3	F745	B3
2732	B4	2775	A2	2795	A2	3735	B4	3756	A4	3795	B4	4730	A2	5733	A4	F731	A3	F746	B3
2733	B4	2776	A2	2796	A2	3736	B1	3757	A4	3796	B1	4731	A2	5734	A4	F732	A3	F747	B3
2734	B4	2777	A2	2797	A2	3737	B2	3758	A4	3797	B2	4732	A2	5735	A4	F733	A3	F748	B3
2735	B4	2778	A2	2798	A2	3738	B3	3759	A4	3798	B3	4733	A2	5736	A4	F734	A3	F749	B3
2736	B4	2779	A2	2799	A2	3739	B4	3760	A4	3799	B4	4734	A2	5737	A4	F735	A3	F750	B3
2737	B4	2780	A2	2800	A2	3740	B1	3761	A4	3800	B1	4735	A2	5738	A4	F736	A3	F751	B3
2738	B4	2781	A2	2801	A2	3741	B2	3762	A4	3801	B2	4736	A2	5739	A4	F737	A3	F752	B3
2739	B4	2782	A2	2802	A2	3742	B3	3763	A4	3802	B3	4737	A2	5740	A4	F738	A3	F753	B3
2740	B4	2783	A2	2803	A2	3743	B4	3764	A4	3803	B4	4738	A2	5741	A4	F739	A3	F754	B3

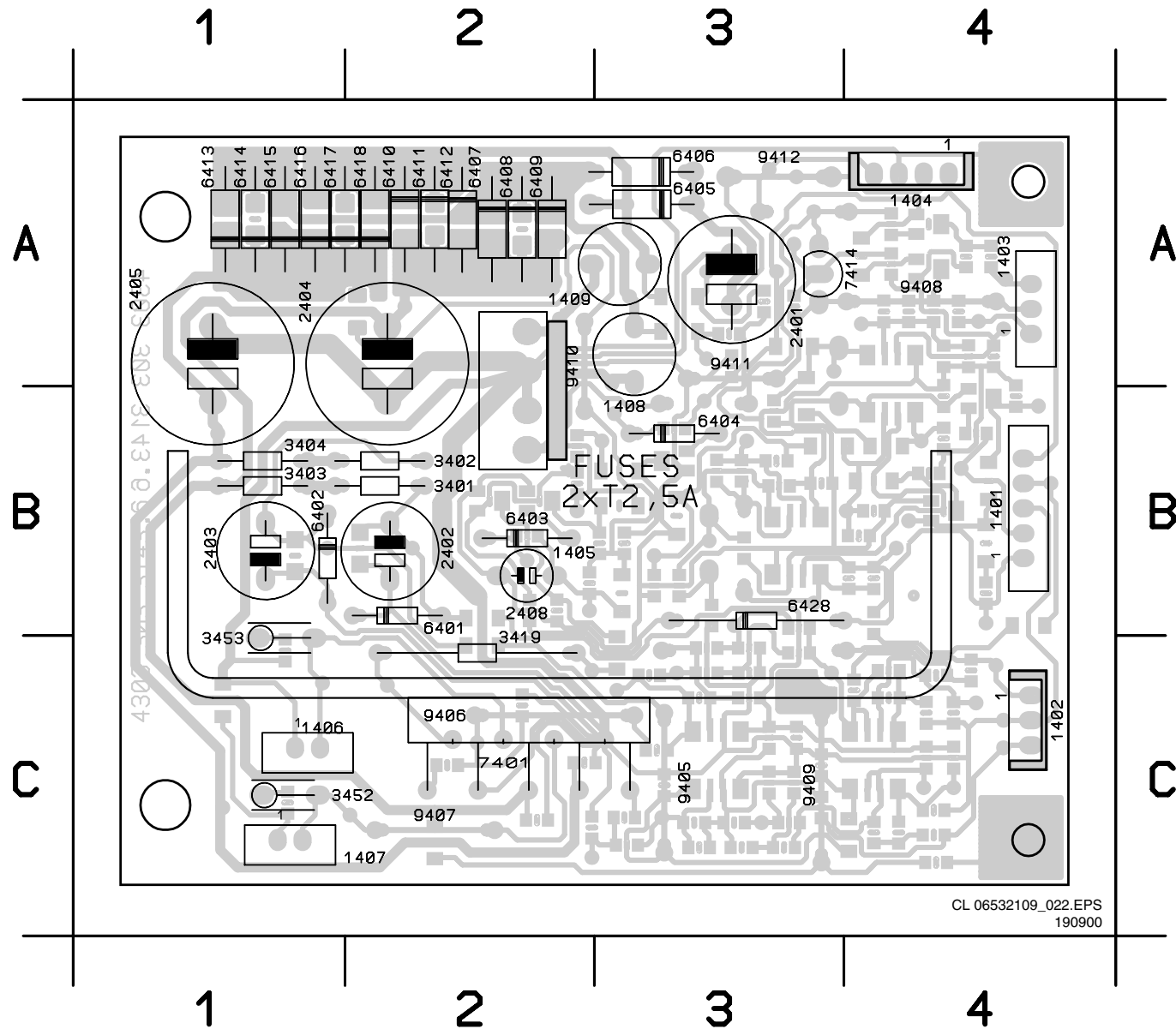
Amplifier Panel Surround Speakers



1401:	D	9	T426:	G	18
1402:	A	9	T439:	F	13
1403:	G	20	T444:	D	10
1404:	I	9	T446:	D	21
1405:	L	9	T447:	B	15
1406:	B	20	T449:	C	14
1407:	B	20	T451:	C	12
1408:	M	10	T452:	B	12
1409:	L	10	T454:	B	19
1410:	M	12	T455:	C	19
1411:	N	13	T456:	C	17
1412:	K	15	T457:	C	18
1413:	M	14	T458:	C	17
1414:	M	14	T459:	A	18
1415:	A	11	T470:	A	10
1416:	A	11	T471:	F	20
1417:	A	15	T472:	F	20
1418:	C	11			
1419:	C	11			
1420:	C	11			
1421:	C	11			
1422:	C	11			
1423:	C	11			
1424:	C	11			
1425:	C	11			
1426:	C	11			
1427:	C	11			
1428:	C	11			
1429:	C	11			
1430:	C	11			
1431:	C	11			
1432:	C	11			
1433:	C	11			
1434:	C	11			
1435:	C	11			
1436:	C	11			
1437:	C	11			
1438:	C	11			
1439:	C	11			
1440:	C	11			
1441:	C	11			
1442:	C	11			
1443:	C	11			
1444:	C	11			
1445:	C	11			
1446:	C	11			
1447:	C	11			
1448:	C	11			
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1450:	C	11			
1451:	C	11			
1452:	C	11			
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1457:	C	11			
1458:	C	11			
1459:	C	11			
1460:	C	11			
1461:	C	11			
1462:	C	11			
1463:	C	11			
1464:	C	11			
1465:	C	11			
1466:	C	11			
1467:	C	11			
1468:	C	11			
1469:	C	11			
1470:	C	11			
1471:	C	11			
1472:	C	11			
1473:	C	11			
1474:	C	11			
1475:	C	11			
1476:	C	11			
1477:	C	11			
1478:	C	11			
1479:	C	11			
1480:	C	11			

Layout Amplifier Panel Surround Speakers (Top Side)

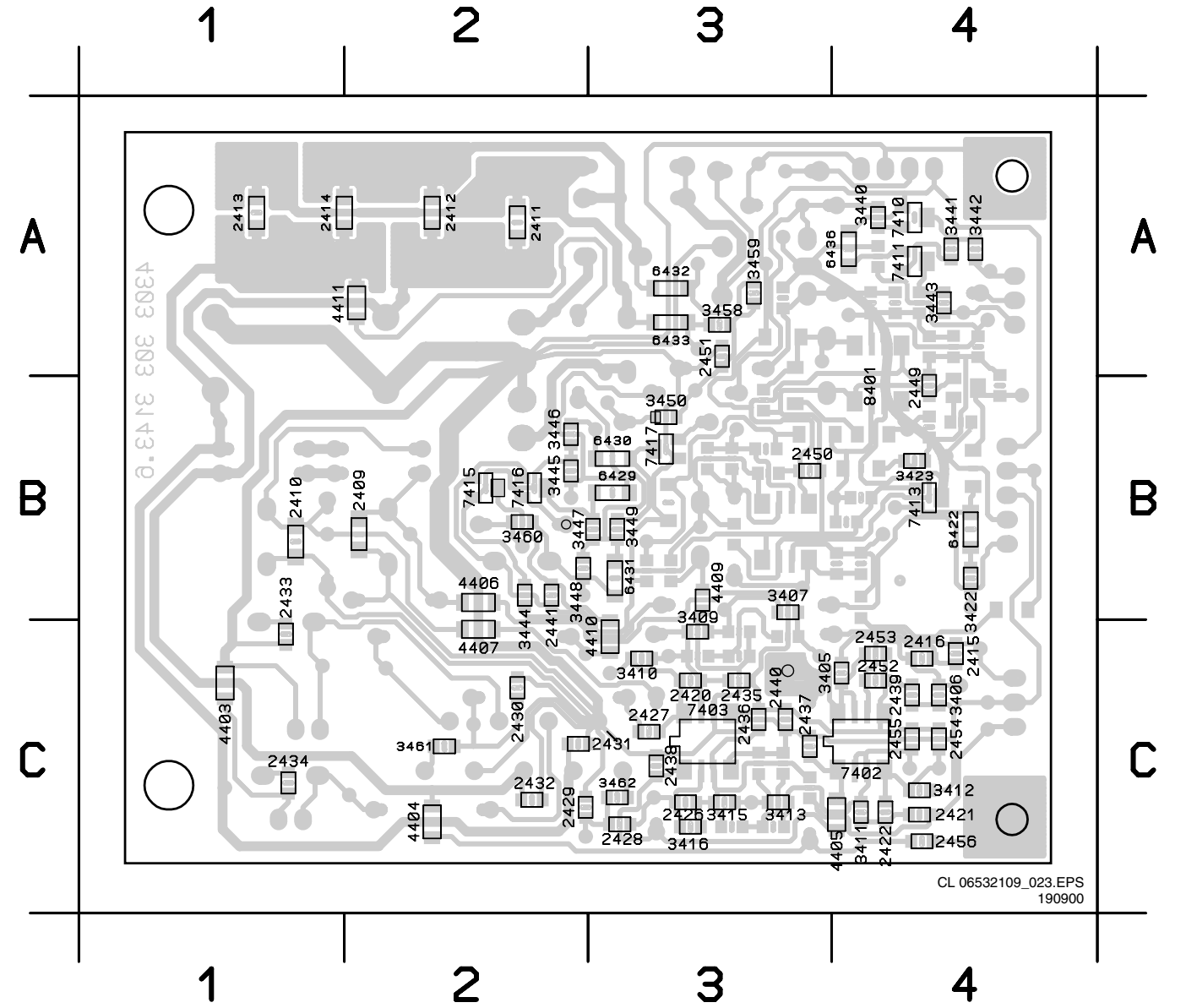
1401 B4	1406 C1	2402 B2	3401 B1	3452 C1	6404 B3	6409 A2	6414 A1	6428 B3	9407 C2	9412 A3
1402 C4	1407 C1	2403 B1	3402 B1	3453 C1	6405 A2	6410 A2	6415 A1	7401 C2	9408 A4	
1403 A4	1408 A3	2404 B2	3403 B1	6401 B2	6406 A2	6411 A2	6416 A1	7414 A3	9409 C3	
1404 A4	1409 A2	2405 B1	3404 B1	6402 B1	6407 A2	6412 A2	6417 A1	9405 C3	9410 B2	
1405 B2	2401 A3	2408 B2	3419 C2	6403 B2	6408 A2	6413 A1	6418 A2	9406 C2	9411 A3	



CL 06532109_022.EPS
190900

Layout Amplifier Panel Surround Speakers (Bottom Side)

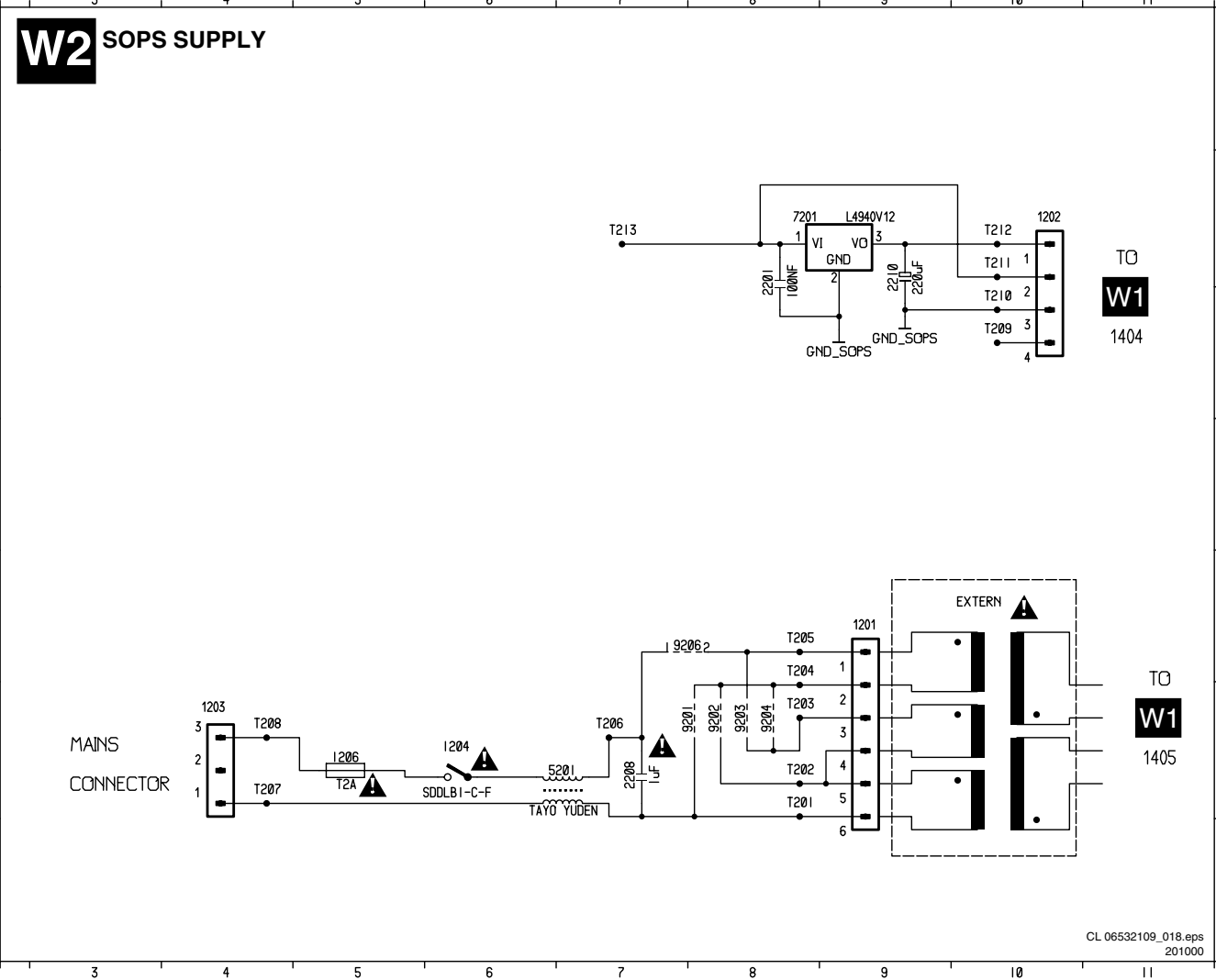
2409 B2	2428 C3	2441 B2	3410 C3	3445 B2	4405 C4	7402 C4	T405 A2	T419 B3	T454 C1	T470 C
2410 B1	2429 C2	2449 B4	3411 C4	3446 B2	4406 B2	7403 C3	T406 B1	T420 C4	T455 C2	T471 A
2411 A2	2430 C2	2450 B3	3412 C4	3447 B3	4407 C2	7410 A4	T407 A2	T421 B2	T456 C2	T472 A
2412 A2	2431 C2	2451 A3	3413 C3	3448 B2	4408 B3	7411 A4	T408 B2	T423 B2	T457 C3	
2413 A1	2432 C2	2452 C4	3415 C3	3449 B3	4410 C3	7413 B4	T409 A2	T425 A3	T458 C2	
2414 A1	2433 C1	2453 C4	3416 C3	3450 B3	4411 A2	7415 B2	T410 B1	T426 A3	T459 C1	
2415 C4	2434 C1	2454 C4	3422 B4	3458 A3	6422 B4	7416 B2	T411 A3	T439 B4	T460 C2	
2416 C4	2435 C3	2455 C4	3423 B4	3459 A3	6429 B3	7417 B3	T412 A3	T444 B4	T461 C3	
2420 C3	2436 C3	2456 C4	3440 A4	3460 B2	6430 B3	9401 C3	T413 A3	T446 C2	T462 C3	
2421 C4	2437 C3	3405 C4	3441 A4	3461 C2	6431 B3	T401 A3	T414 A3	T447 C3	T463 B3	
2422 C4	2438 C3	3406 C4	3442 A4	3462 C3	6432 A3	T402 A3	T415 B3	T449 C3	T465 C3	
2426 C3	2439 C4	3407 B3	3443 A4	4403 C1	6433 A3	T403 A3	T416 B3	T451 C4	T466 C4	
2427 C3	2440 C3	3409 C3	3444 B2	4404 C2	6436 A4	T404 A2	T417 B2	T452 C4	T469 C4	



CL 06532109_023.EPS
190900

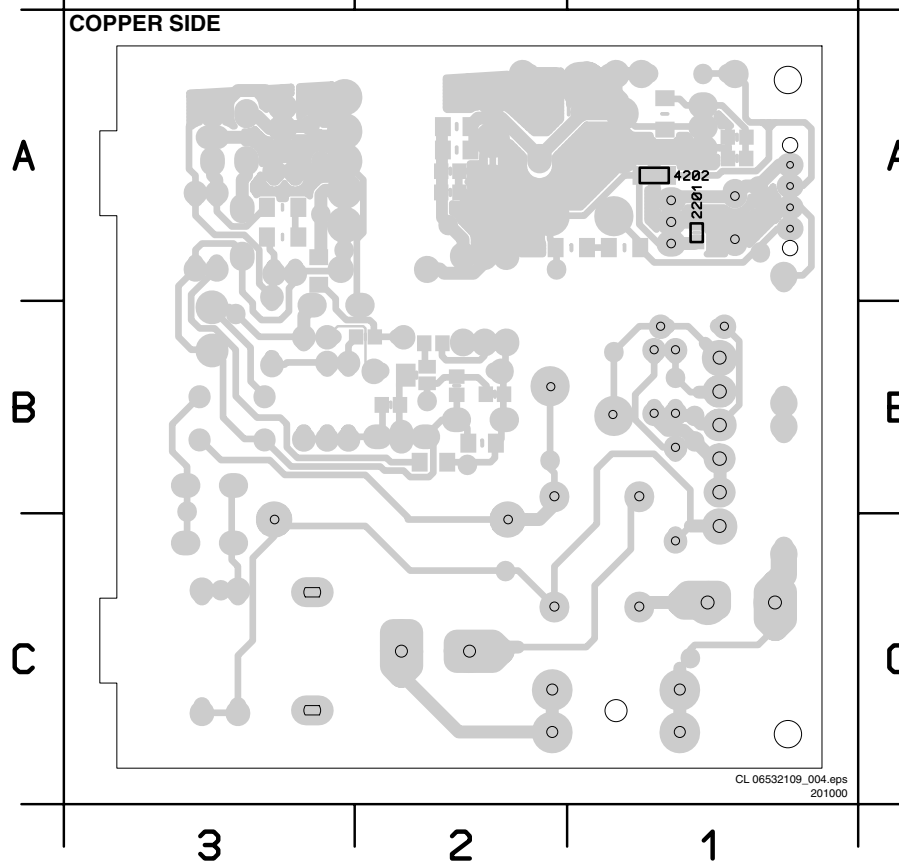
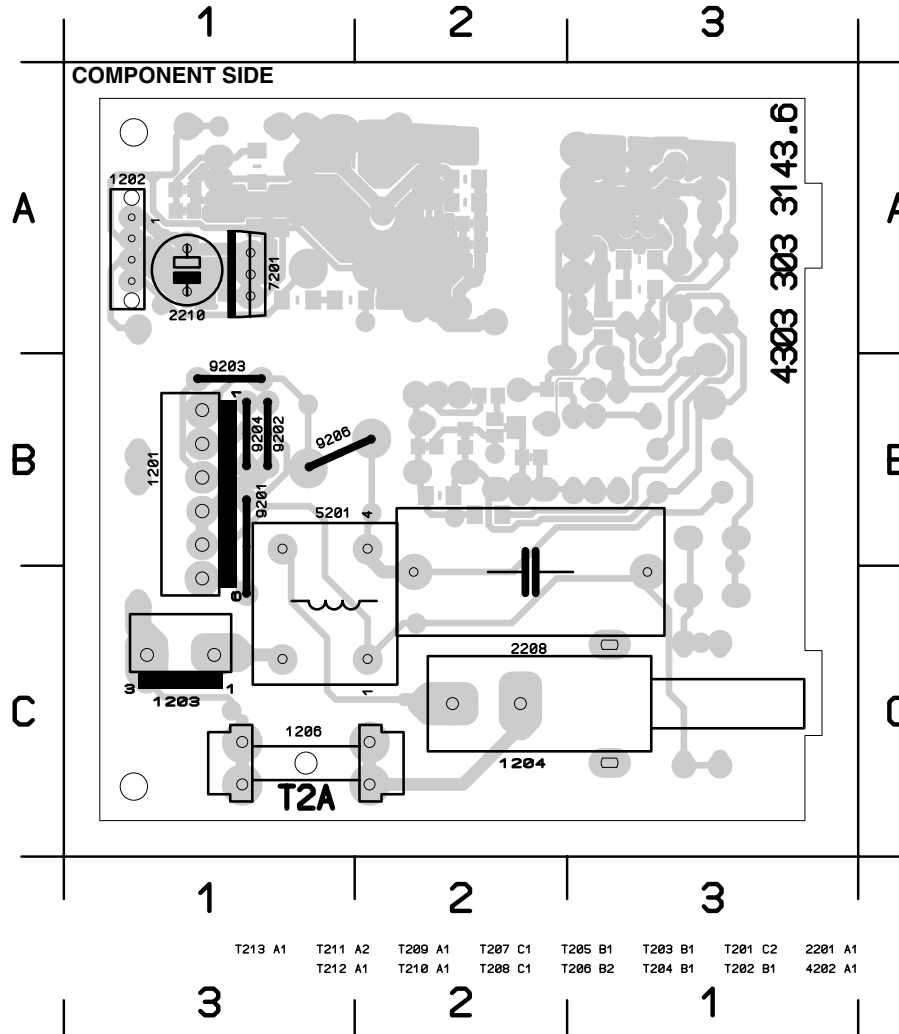
Supply Panel Surround Speakers

1201: E 9 1203: F 4 1206: F 5 2208: F 7 5201: F 7 9201: F 8 9203: F 8 9206: F 7 T202: F 8 T204: E 8 T206: F 7 T208: F 4 T210: C 10 T212: B 10
 1202: B 10 1204: F 6 2201: B 8 2210: B 9 7201: B 8 9202: F 8 9204: F 8 T201: F 8 T203: F 8 T205: E 8 T207: F 4 T209: C 10 T211: B 10 T213: B 7



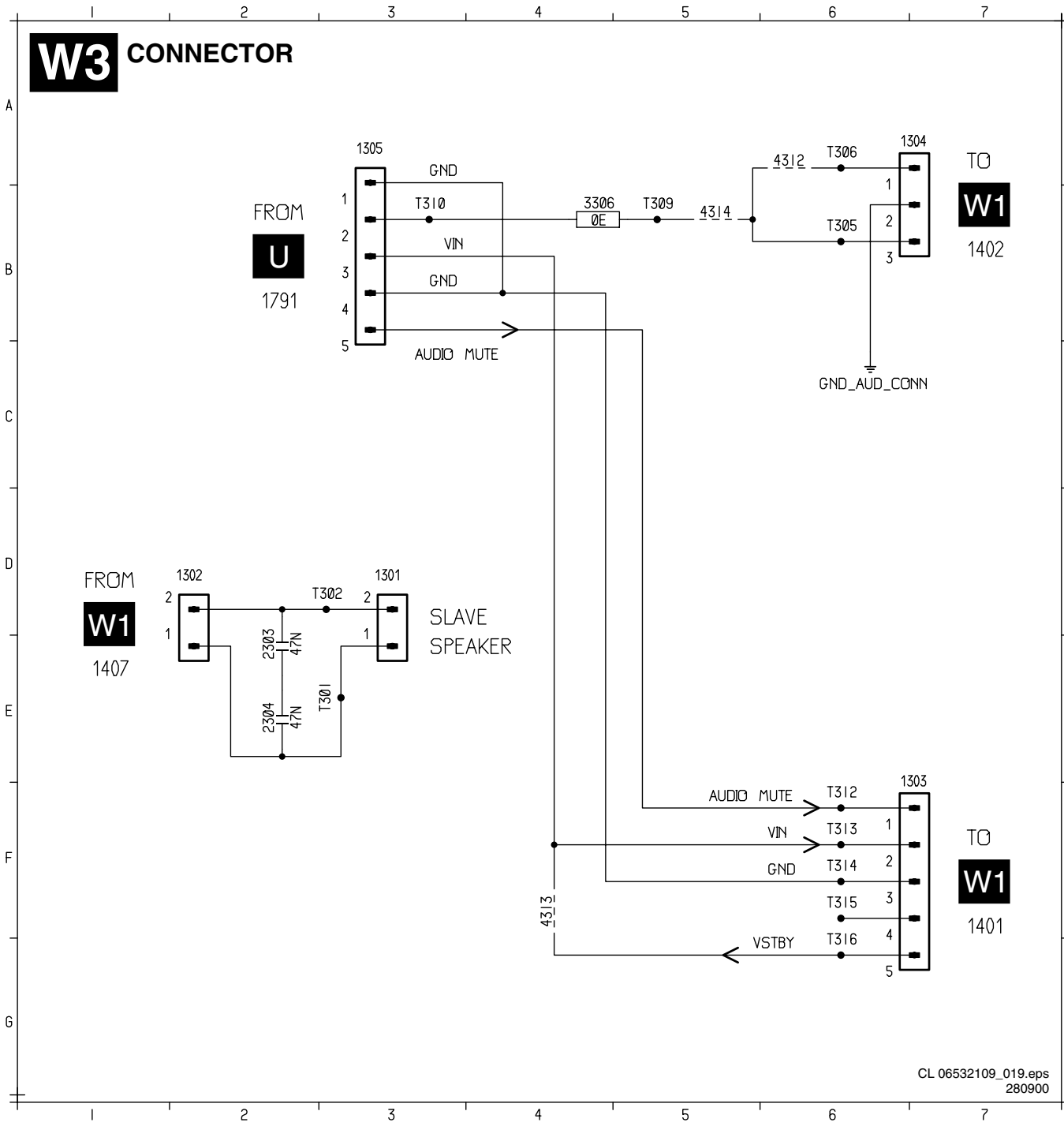
Layout Supply Panel Surround Speakers

1201 B1 1203 C1 1206 C1 2210 A1 7201 A1 9202 B1 9204 B1
 1202 A1 1204 C2 2208 C3 5201 C2 9201 C1 9203 B1



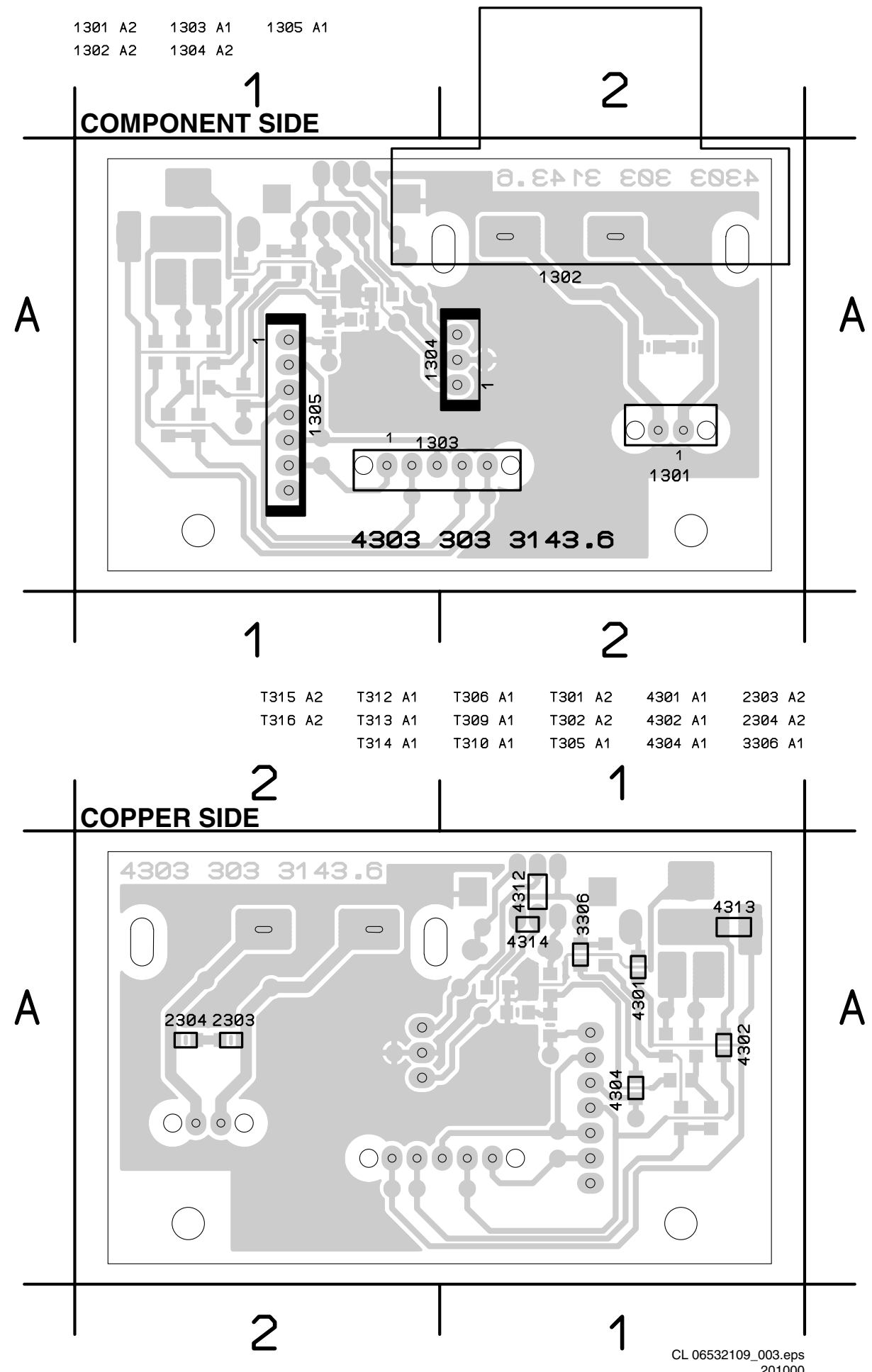
Connector Panel Surround Speakers

1301: D 3 1304: A 6 2304: E 2 4313: F 4 T302: D 3 T309: B 5 T313: F 6 T316: F 6
 1302: D 2 1305: A 3 3306: B 4 4314: B 5 T305: B 6 T310: B 3 T314: F 6
 1303: F 6 2303: E 2 4312: A 6 T301: E 3 T306: A 6 T312: F 6 T315: F 6



Layout Connector Panel Surround Speakers

1301 A2 1303 A1 1305 A1
 1302 A2 1304 A2



8. Alignments

8.1 Reprogramming of New Mono Boards.

For Alignments of the TV-set see Service Manual 'EM5E AA' (3122 785 12560).

For Alignments of the DVD Module see Service Manual 'DVD Module SD-3' (3122 785 11010) and Service Information 'DVD SD3 Monoboard' (3122 785 40490).

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 DVD 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.

Make sure that the TV set is in DVD mode.

Put the DVD in stop mode, no disc loaded.

Press the following keys on the remote control:

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

Press now successively the following keys :

For Europe: <1><4><1><0><0><0><0><0><0><0><0><0>

For Russia only: <1><4><2><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 26532086_016.eps
050702

Figure 8-1 Reprogramming code

9. Circuit Description

For circuit description of the TV-set see Service Manual 'EM5E AA' (3122 785 12560).

For circuit description of the DVD Module see Service Manual 'DVD Module SD-3' (3122 785 11010) and Service Information 'DVD SD3 Monoboard' (3122 785 40490).

9.1 List of Abbreviations

AC3	Digital Audio Compression standard
CDDA	Compact Disc Digital Audio
CSM	Customer Service Mode
DTS	Digital Theater Systems
DVD	Digital Versatile Disc
LPCM	Linear Pulse Code Modulation
LSP	Large Signal Panel
MPEG	Moving Picture Experts Group
OSD	On Screen Display
SAM	Service Alignment Mode
SDM	Service Default Mode

3448	4822 117 10837	100k 1% 0.1W
3449	4303 308 75451	10k 5% 0.125W
3449	4822 117 10833	10k 1% 0.1W
3450	4303 308 75591	2k2 5% 0.125W
3450	4822 117 11449	2k2 5% 0.1W
3452	4822 052 10828	8Ω2 5% 0.33W
3453	4822 052 10828	8Ω2 5% 0.33W
3458	4303 308 75701	4k7 5% 0.125W
3458	4822 051 20472	4k7 5% 0.1W
3459	4303 308 75701	4k7 5% 0.125W
3459	4822 051 20472	4k7 5% 0.1W
3460	4303 308 75451	10k 5% 0.125W
3460	4822 117 10833	10k 1% 0.1W
3461	4303 308 75441	1k0 5% 0.125W
3461	4822 051 10102	1k 2% 0.25W
3462	4303 308 75441	1k0 5% 0.125W
3462	4822 051 10102	1k 2% 0.25W



6402	4822 130 30862	BZX79-B9V1
6403	4822 130 34278	BZX79-B6V8
6404	4822 130 34173	BZX79-B5V6
6405	4822 130 31878	1N4003G
6406	4822 130 31878	1N4003G
6407	4822 130 31878	1N4003G
6408	4822 130 31878	1N4003G
6409	4822 130 31878	1N4003G
6410	4822 130 31878	1N4003G
6411	4822 130 31878	1N4003G
6412	4822 130 31878	1N4003G
6413	4822 130 31878	1N4003G
6414	4822 130 31878	1N4003G
6415	4822 130 31878	1N4003G
6416	4822 130 31878	1N4003G
6417	4822 130 31878	1N4003G
6418	4822 130 31878	1N4003G
6422	4822 130 83338	LL4148
6428	4822 130 30621	1N4148
6429	4822 130 83338	LL4148
6430	4822 130 83338	LL4148
6431	4822 130 83338	LL4148
6432	4822 130 83338	LL4148
6433	4822 130 83338	LL4148
6436	4822 130 83338	LL4148



7401	4822 209 32641	TDA2616Q
7402	4822 209 30095	LM833D
7403	4822 209 30095	LM833D
7410	4822 130 60373	BC856B
7411	4822 130 60373	BC856B
7413	4822 130 60373	BC856B
7414	4822 130 44503	BC547C
7415	5322 130 60159	BC846B
7416	5322 130 60159	BC846B
7417	5322 130 60159	BC846B

Supply Panel Surround Speakers [W2]

Various

1201	2422 025 14044	6P
1202	4822 265 30734	4P
1203	4303 308 99380	3P
1204	4822 276 13224	Switch
1205	4822 265 11253	Fuse holder
1206	4822 070 32002	Fuse 2A



2201	4822 126 13838	100nF 20-80% 50V
2208	2222 336 20105	1nF 20% 275V
2210	4822 124 40196	220μF 20% 16V
4xxx	4822 051 10008	0Ω 5% 0.25W
4xxx	4822 051 20008	0Ω 5% 0.25W



5201	4303 308 75810	Coil TLF12UA
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7201	9335 040 10685	LM7812CV
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Connector Panel Surround Speakers [W3]

Various

1301	2422 025 04849	2P
1302	4822 265 10872	YKD21-0178
1304	4822 267 10735	B3B-EH-A
1305	4822 267 10734	B5B-EH-A



2303	4822 126 13751	47nF 10% 63V
2304	4822 126 13751	47nF 10% 63V



3306	4822 051 20008	Jumper
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LED Panel Surround Speakers [W4]

Various

1101	4822 267 10748	3P
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6101	8243 001 00551	LED
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