

DVD PLAYER

DVD-S530/DV-S5550

SERVICE MANUAL

IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

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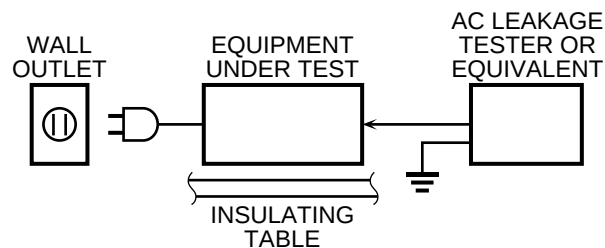


このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.



■ TO SERVICE PERSONNEL

1. Critical Components Information
Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.
 2. Leakage Current Measurement (For 120V Models Only)
When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.
- Meter impedance should be equivalent to 1500 ohm shunted by 0.15μF.



- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

THE DVD AUDIO/VIDEO RECEIVER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.



CAUTION

1110: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 2A, 250V FUSE.

CAUTION

1110: REPLACE WITH SAME TYPE 2A, 250V FUSE.

ATTENTION

1110: UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE 2A, 250V.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and /or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

WARNING: Laser Safety

This product contains a laser beam component. This component may emit invisible, as well as visible radiation, which may cause eye damage. To protect your eyes and skin from laser radiation, the following precautions must be used during servicing of the unit.

- 1) When testing and/or repairing any component within the product, keep your eyes and skin more than 30 cm away from the laser pick-up unit at all times. Do not stare at the laser beam at any time.
- 2) Do not attempt to readjust, disassemble or repair the laser pick-up, unless noted elsewhere in this manual.
- 3) CAUTION: Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Emitting conditions:

- 1) When the Top Cover is removed and the "STANDBY/ON" SW is turned to the "ON" position, the laser component will emit a beam for several seconds to detect if a disc is present. During this time (5 - 10 sec.) the laser may radiate through the lens of the laser pick-up unit. Do not attempt any servicing during this period!
If no disc is detected, the laser will stop emitting the beam. When a disc is loaded, you will not be exposed to any laser emissions.
- 2) The laser power level can be adjusted with the VR on the pick-up PWB. However, this level has been set by the factory prior to shipping from the factory. Do not adjust this laser level control unless instruction is provided elsewhere in this manual.
Adjustment of this control can increase the laser emission level from the device.

Laser Diode Properties

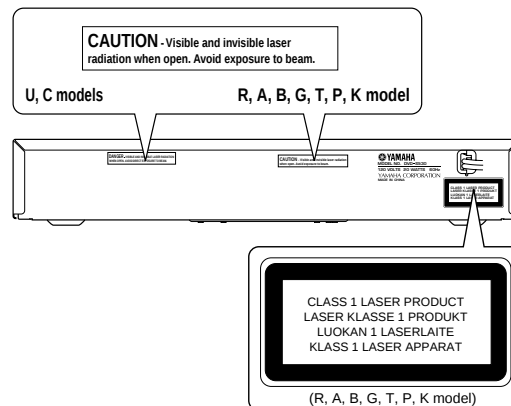
Type:	Semiconductor laser GaAlAs
Wave length:	650 nm (DVD) 780 nm (VCD/CD)
Output Power:	0.8 mW (DVD) 0.3 mW (VCD/CD)
Beam divergence:	60 degree

VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER-SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

VARNING! : OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

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: REAR PANEL

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

Warning for power supply

The primary side of the power supply carries live mains voltage when the player is connected to the mains even when the player is switched off !

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

The primary side of the power supply has been indicated with a lightening stroke and a stripe-marked print on the printed wiring board

Note:

The screws on the DVD mechanism (position 9 in on the exploded view drawing) may never be touched, removed or re-adjusted.

Handle the DVD mechanism with care when the unit has to be exchanged!

The DVD mechanism is very sensitive for dropping or giving shocks.

■ PREVENTION OF ELECTRO STATIC DISCHARGE

The laser diode in the DVD mechanism may be damaged due to static electricity from clothes or the human body. Use caution to prevent electrostatic damage when servicing or handling the DVD-mechanism.

1. Grounding for electrostatic damage prevention

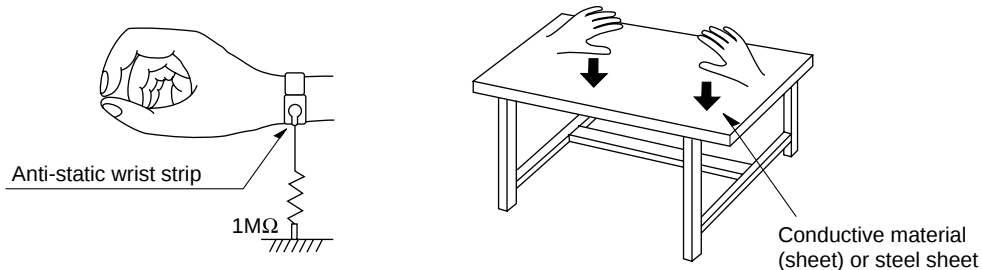
Some devices, such as the DVD player, use an optical pickup (laser diode) that will be damaged by static electricity in the working environment. Only attempt service after ensuring that all grounding procedures have been completed.

1. Worktable grounding

Put a grounded conductive material (sheet) or iron sheet on the area where the optical pickup is placed.

2. Human body grounding

Use an anti-static wrist strap to discharge the static electricity from your body.



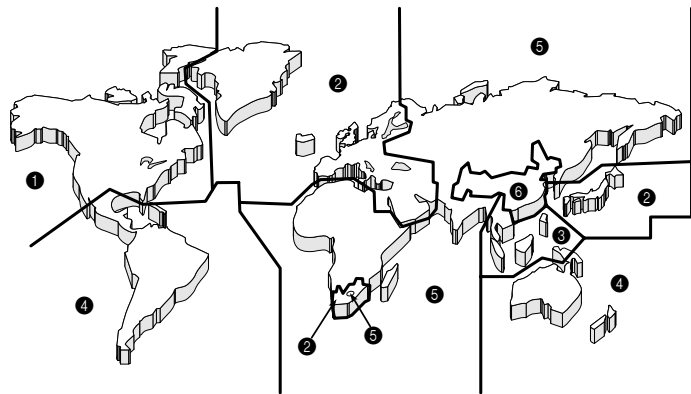
2. Handling Precautions for DVD mechanism

1. Handle the DVD mechanism gently, as it is an extremely high-precision assembly.
2. The flexible cable lines may break if an excessive force is applied to it. Use caution when handling the cable.
3. The semi-fixed resistor for laser power adjustment should not be adjusted. Do not turn the resistor.

■ LOCALE MANAGEMENT INFORMATION

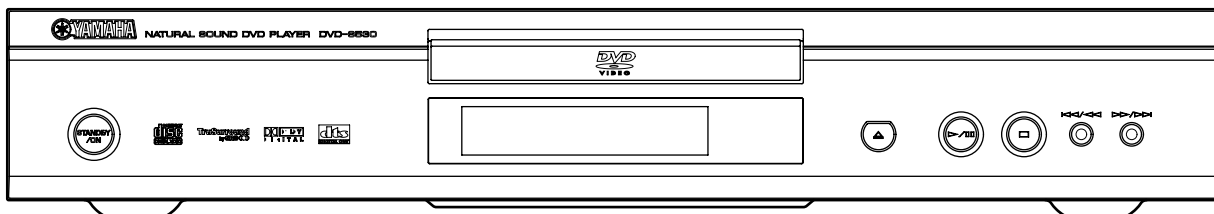
Locale Management Information : This DVD player is designed and manufactured to respond to the Locale Management Information that is recorded on the DVD disc. If the Locale number described on the DVD disc does not correspond to the Locale number of this DVD player, this DVD player cannot play this disc.

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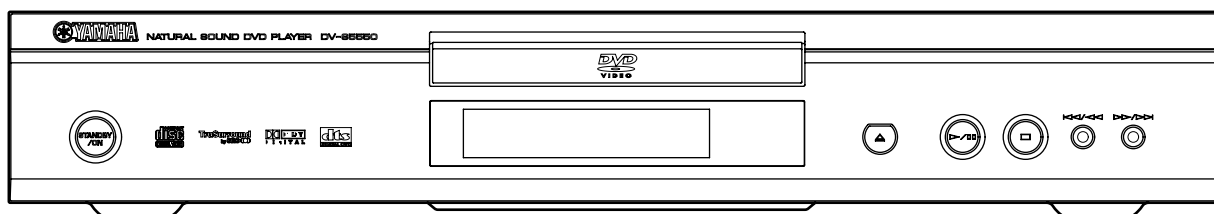


FRONT PANELS

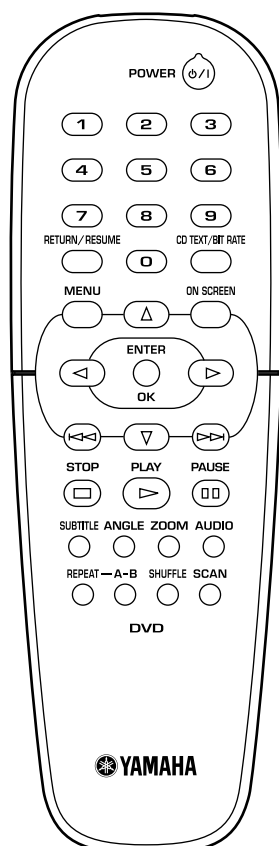
DVD-S530



DV-S5550

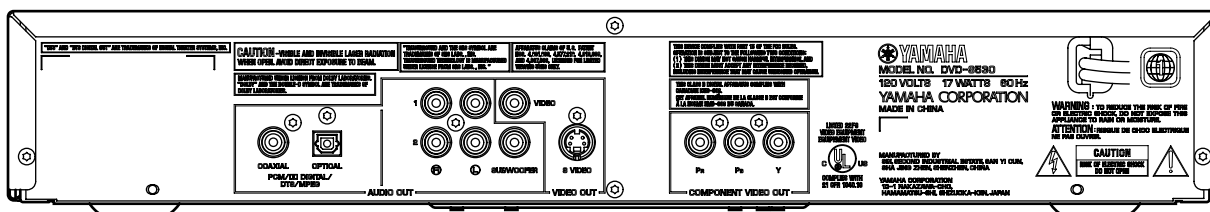


REMOTE CONTROL

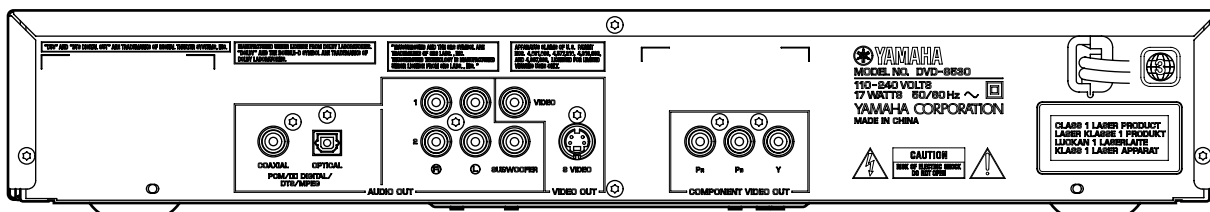


REAR PANELS

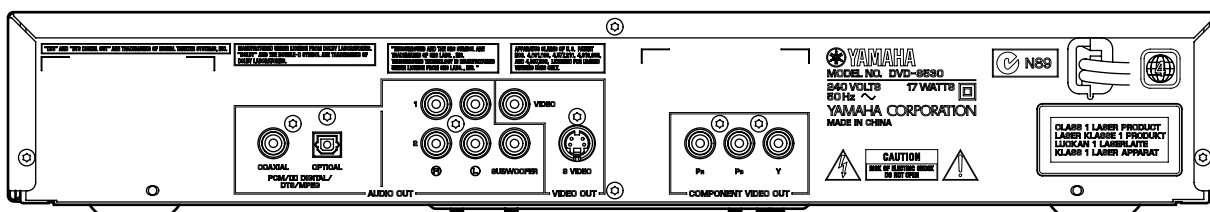
DVD-S530 U, C models



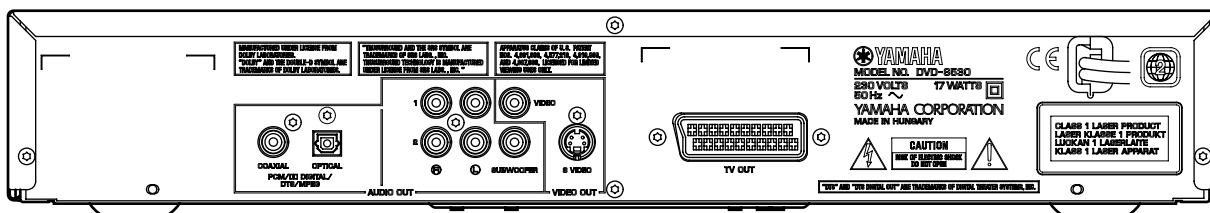
DVD-S530 R model



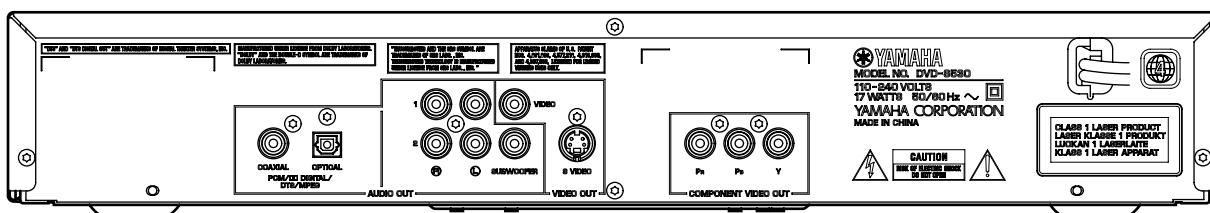
DVD-S530 A model



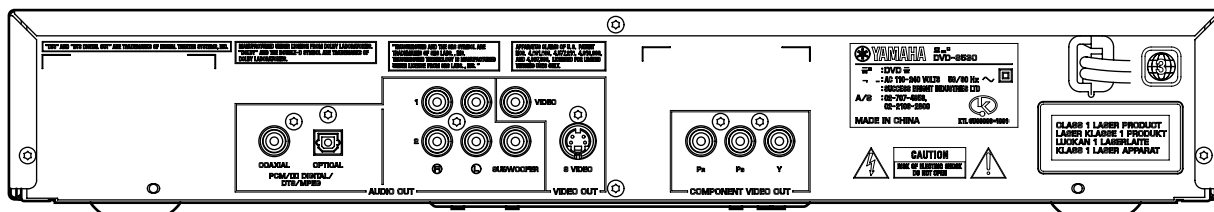
DVD-S530 B, G models



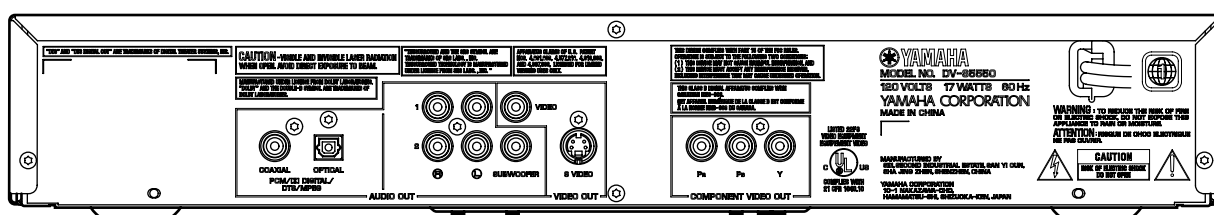
DVD-S530 P model



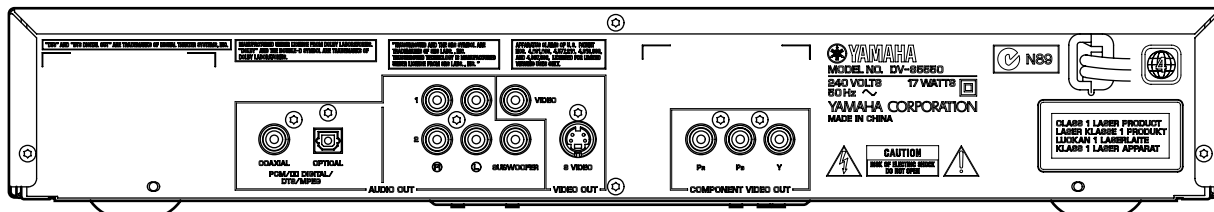
DVD-S530 K model



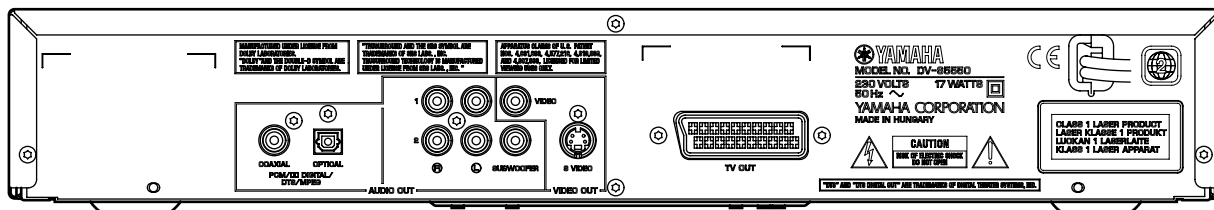
DV-S5550 U, C model



DV-S5550 A model



DV-S5550 G model



SPECIFICATIONS

PLAYBACK SYSTEM

DVD Video
DVD+RW
DVD+R
Video CD and SVCD
CD (CD-R and CD-Rw)
MP3 CD

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

VIDEO PERFORMANCE

Video output 1 Vpp into 75 ohm
RGB (SCART) output 0.7 Vpp into 75 ohm
Black Level Shift On/Off
Video Shift Left/Right

AUDIO FORMAT

Digital	MPEG DTS/Dolby Digital PCM	Compressed Digital 16, 20, 24 bits fs, 44.1, 48, 96 kHz
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Analog Sound Stereo
Dolby Pro Logic downmix from Dolby Digital multi-channel sound
3D Sound (TruSurround) for virtual 5.1 channel sound on 2 speakers

AUDIO PERFORMANCE

DA Converter	24 bits	
DVD	fs 96 kHz	2 Hz 44 kHz
DVD	fs 48 kHz	2 Hz 22 kHz
VCD/CD	fs 44.1 kHz	2 Hz 20 kHz
Signal-Noise (1kHz)		105 dB
Dynamic Range (1kHz)		100 dB
Harmonic Distortion and Noise (1kHz)		0.0030 %
MPEG MP3		MPEG Audio L3

CONNECTIONS

Y Output	Cinch (green)	(U, C, R, A, P, K)
Pb/Cb Output	Cinch (blue)	(U, C, R, A, P, K)
Pr/Cr Output	Cinch (red)	(U, C, R, A, P, K)
SCART	Euroconnector	(B, G)
S-Video Output	Mini DIN, 4 pins	
Video Output	Cinch (yellow)	
Audio L+R output	Cinch (white/red)	
Audio Subwoofer	Cinch (black)	
Digital Output	1 coaxial, 1 optical	
	IEC958 for CDDA / LPCM	
	IEC1937 for MPEG1/2, Dolby Digital, DTS	

GENERAL

Dimensions(w x h x d)	435 x 75 x 302 mm (17-1/8" x 2-15/16" x 11-7/8")
Weight	Approx. 2.8 Kg (6 lbs. 3 oz.)
Finish	DVD-S530 Gold Black Titanium DV-S5550 Black Titanium
Power supply	120 V, 60 Hz (U, C) 230 V, 50 Hz (B, G) 240 V, 50 Hz (A) 110–240 V, 50/60 Hz (R, P, K)
Power consumption	17 W
Standby power consumption (reference data)	3 W

* Specifications are subject to change without notice due to product improvements.

U U.S.A. model	C Canada model
G Europe model	B British model
A Australia model	R General model
P South America model	K Korean model

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TruSurround™
by SRS

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■ SERVICE HINTS

● Power Supply Unit

The power supply unit has to be replaced in case of failure. The schematic provided in the manual is only for information and no service parts will be available.

● DVD Mechanism

1. The DVD mechanism is not a repairable unit and in case of failure, it has to be replaced with a new DVD mechanism.

Note: When replacing with a new DVD mechanism, two solder joints have to be removed after connecting the OPU flex foil to the mono board.

The solder joints, which shortcircuits the laser diodes to ground, are for protection against ESD. Refer to Fig. 1 and 2 for location of solder joints.

2. The mono board has to be repaired down to component level. Repair handling of the monoboard requires a workshop with sophisticated desoldering tools.

Laser Diode Shorting Solder Joints

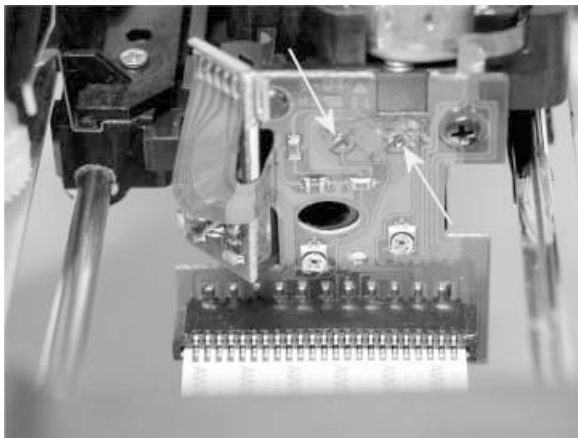


Fig. 1

DVD mechanism Solder Joints



Fig. 2

● Service Positions

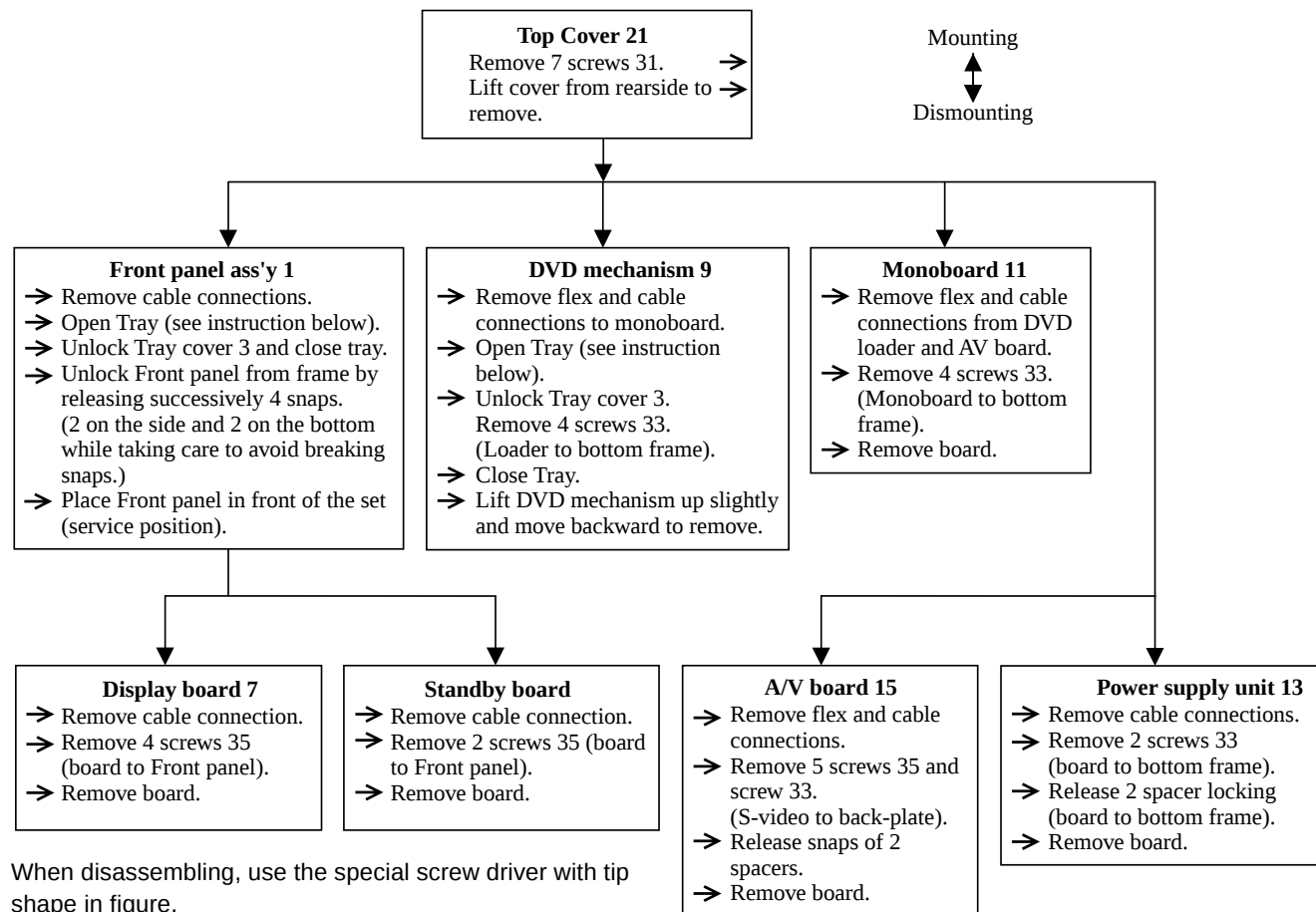
Refer to dismantling instructions for dismantling of the board. Fig. 3 shows the service position that are recommended during repair of the boards.



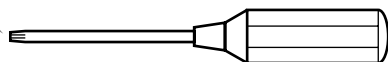
Fig. 3

■ DISASSEMBLY PROCEDURES

See exploded view for item numbers.



T10  2.7 mm



● The way to remove tray

1. Push the lever toward the right by using screwdriver, move the tray by pulling it forward. (Fig. 1)
2. While lifting up the lever (①), move the left side of the tray by pulling it forward (②). (Fig. 2)
3. While lifting up the tray (③), remove the tray by pulling it forward (④). (Fig. 2)

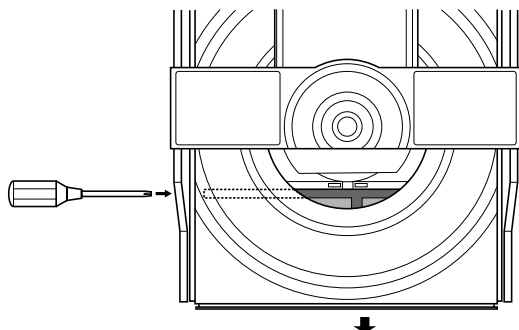


Fig. 1

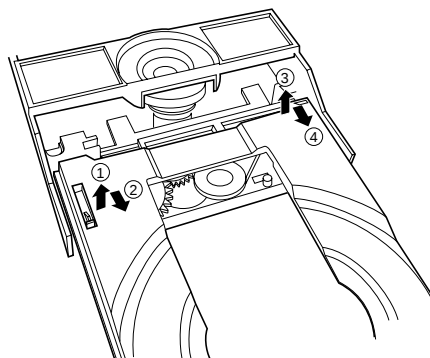


Fig. 2

■ DIAGNOSTIC SOFTWARE AND TROUBLESHOOTING

1. Dealer Script

1.1 Purpose of Dealer Script

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

1.2 Contents of Dealer Script

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

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

Nucleus

Display Countdown	Nucleus Number	Nucleus Name	Description
6	6	PapChksFI	Calculate and verify checksum of FLASH memory
5	12	PapI2cDisp	Checks the I2C interface with the slave processor on the display board
4	13	PapS2bEcho	Checks the I2C interface to the basic engine
3	11	PapI2cNvram	Checks the I2C interface with the NVRAM
2	15	PapNvramWrR	Pattern test of all locations in the NVRAM
1	16	CompSdramWrR	Pattern test of all locations in the SDRAM(s)

Fig. 1

Dealer Script

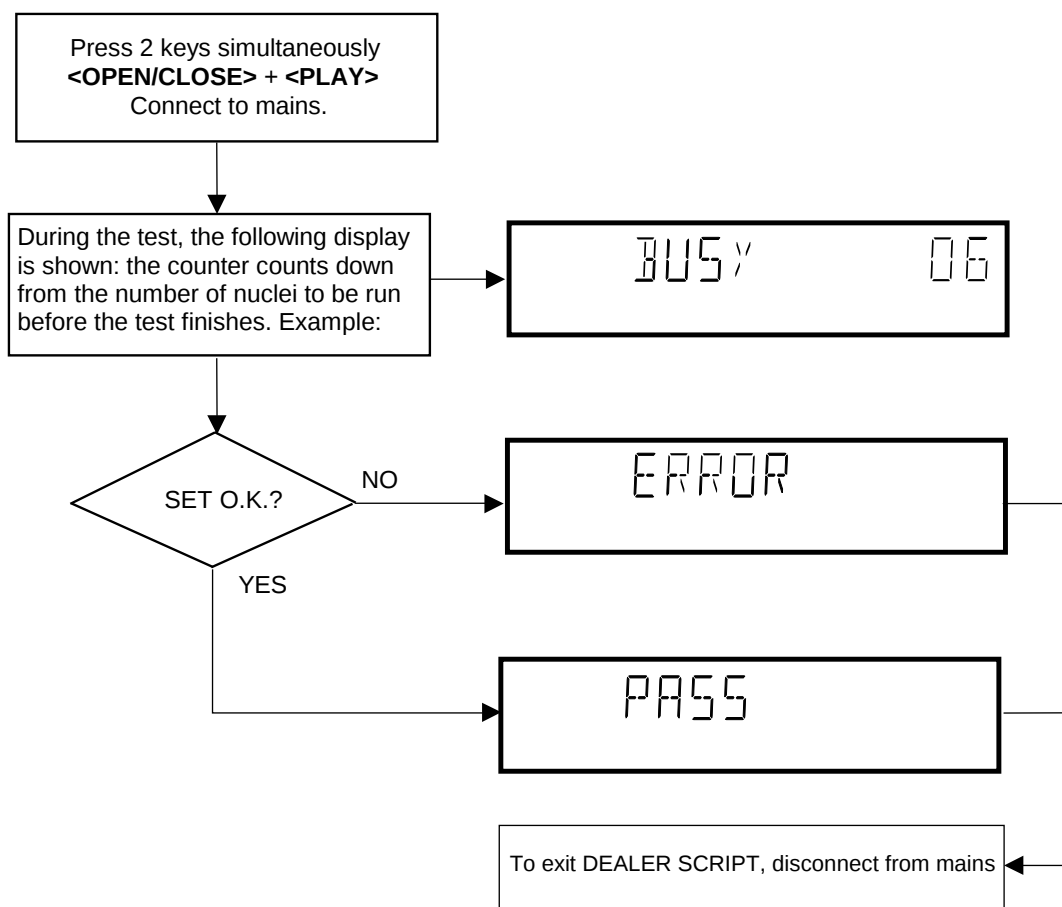


Fig. 2

2. Player Script

2.1 Purpose of Player Script

The Player script will give the opportunity to perform a test that will determine which of the DVD player's modules are faulty, to read the error log and error bits and to perform an endurance loop test. To successfully perform the tests, the DVD player must be connected to a TV set to check the output of a number of nuclei.

To be able to check results of certain nuclei, the player script expects some interaction of the user (i.e. to approve a test picture or a test sound). Some nuclei (e.g. nuclei that test functionality of the Basic Engine module) require that the DVD player itself is opened, to enable the user to observe moving parts and approve their movement visually. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

2.2 Contents of Player Script

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

2.3 Structure of Player Script

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

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

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

At the beginning of the tests, the DSW version number will be indicated on the local display of the DVD. The display will look like the following:

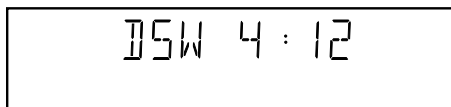


Fig. 3

Pressing the PLAY key will proceed to the slave S/W version display, which is shown on the local display of the DVD player.

The display will look like the following:

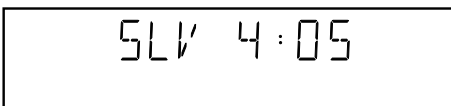


Fig. 4

Press the PLAY key to proceed to the next test.

2.4 Survey

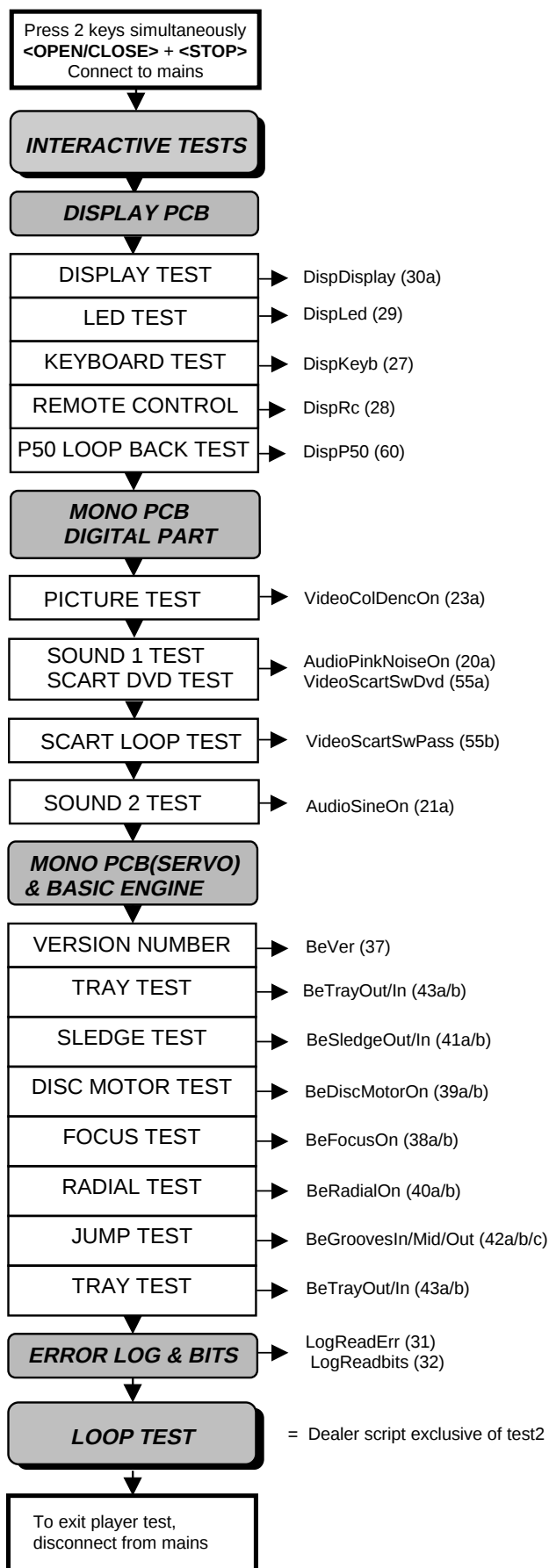


Fig. 5

3. Display PCB

3.1 Display Test

The display test is performed by nucleus DispDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press OPEN/CLOSE (pattern is ok) or STOP (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner, shown in Fig. 6, until the user presses PLAY. If the user presses PLAY before all display patterns are tested, the DispDisplay nucleus will return FALSE (display test unsuccessful).

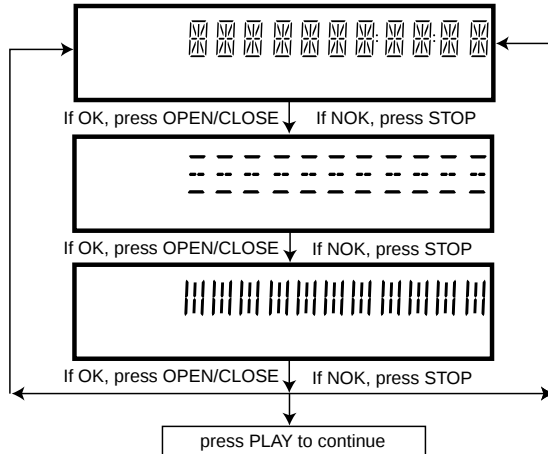


Fig. 6

3.2 Keyboard Test

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

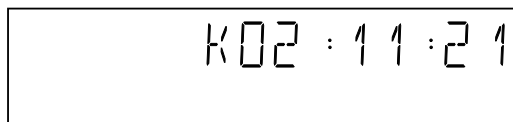


Fig. 7

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

KEY ID	KEY
0	PLAY/PAUSE ▷/◻◻
1	STOP ◻
2	OPEN/CLOSE ▲
3	STANDBY/ON
4	NEXT ▷▷
5	PREVIOUS ◁◁

Fig. 8

If any keys are detected more than once (due to hardware error), the key-code is displayed twice (or more), with the second digit increased by 1.

If the user does not press all keys at least once (in any order), the DispKeys nucleus will return FALSE and cause an error in the overall result of the player script.

The user can leave the keyboard test by pressing the PLAY key on the local display of the DVD player for at least one full second.

The result of the keyboard test is shown on local display as follows:

Note: With this model, "FAIL" always appears because of less number of keys but it does not mean anything abnormal.

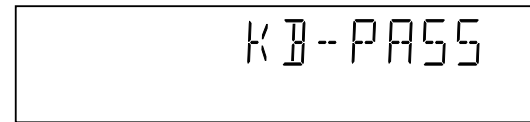


Fig. 9

Or

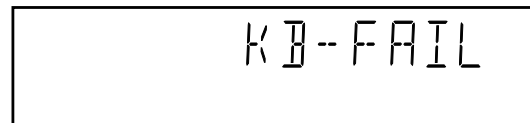


Fig. 10

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

3.3 Remote Control Test

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

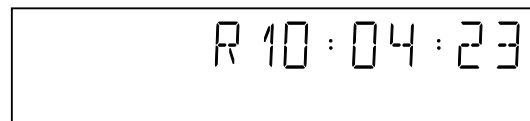


Fig. 11

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

RC Key id	Hexadecimal code
POWER ϕ / I	0C
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	0
RETURN/RESUME	83
CD TEXT/BIT RATE	EF
MENU	54
ON SCREEN	82
CURSOR UP Δ	58
CURSOR DOWN ∇	59
CURSOR LEFT $\triangleleft$	5A
CURSOR RIGHT $\triangleright$	5B
OK/ENTER	5C
PREVIOUS $\triangleleft\triangleleft$	21
NEXT $\triangleright\triangleright$	20
STOP $\square$	31
PLAY $\triangleright$	2C
PAUSE $\square\square$	30
SUBTITLE	4B
ANGLE	85
ZOOM	F7
AUDIO	4E
REPEAT	1D
REPEAT A-B	3B
SHUFFLE	1C
SCAN	2A

Fig. 12

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

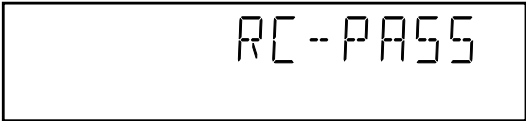


Fig. 13

Or

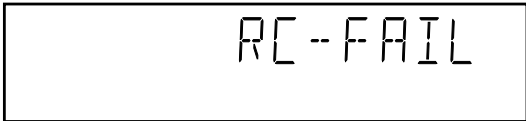


Fig. 14

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

3.5 P50 Loop-Back Test

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



Fig. 15

If the user presses STOP, the P50 test will be skipped. If the user presses OPEN/CLOSE, the P50 test is performed and the result is displayed as follows:

Test successful:

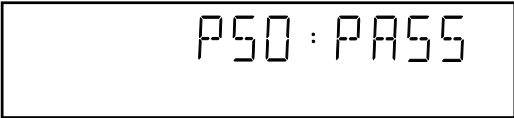


Fig. 16

Test fails:



Fig. 17

Press the PLAY key to continue to the next text.

4. Mono PCB Digital Part

4.1 Picture Test

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



Fig. 18

By pressing OPEN/CLOSE the user confirms the test, pressing STOP will indicate the picture was invisible or incorrect.

Pressing PLAY will proceed to the next test. If the user presses PLAY without pressing OPEN/CLOSE or STOP first, the result of this test will be TRUE (picture ok).

Note: The color bar must be simultaneously available on the CVBS, YC, and RGB (or YUV) outputs available. On the SCART only the CVBS and RGB signals will be available.

4.2 Sound 1 & SCART DVD Test

The first soundtest is performed by starting a pink noise sound that needs confirmation from the user (nucleus AudioPinkNoiseOn).

The display will show the following message:

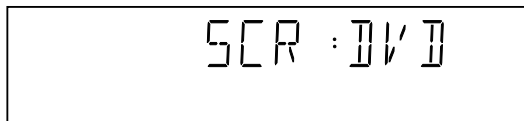


Fig. 19

On the TV screen a color bar (generated by nucleus VideoColDencOn) is visible and the internally generated pinknoise is audible.

By pressing the PLAY key, the user confirms the test.

Pressing the STOP key will indicate the sound was inaudible or incorrect.

By pressing the PLAY key, there will be switched over to the external source. This must become now visible on the TV screen (using the SCART).

The local display will show the following message:

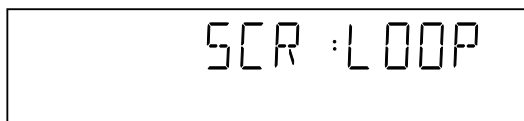


Fig. 20

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

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

4.3 Sound 2 Test

The second soundtest is performed by producing a sine sound (nucleus AudioSineOn). The signal can be stopped by pressing the STOP key.

The display will show the following message:



Fig. 21

After the audio signal has been stopped, by pressing OPEN/CLOSE, the user confirms the test. Pressing STOP will indicate that something went wrong. Pressing PLAY will proceed to the next. If the user presses PLAY without pressing OPEN/CLOSE or STOP first, the result of this test will be TRUE (sound ok).

5. Basic Engine

5.1 Version Number

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

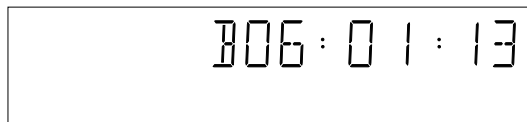


Fig. 22

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

5.2 Tray Test

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

The local display will look as follows:

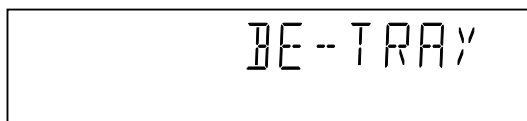


Fig. 23

By pressing OPEN/CLOSE the user can toggle the position of the tray. Note that this test will not contribute to the test result of the Basic Engine. Pressing PLAY will proceed to the next test. At this point, the tray will be closed automatically by the software if it was open.

5.3 Sledge Test (Visual Test)

The second Basic Engine test tests the sledge. The user can move the sledge as many times as desired by using OPEN/CLOSE (nucleus BeSledgeOut) and STOP (nucleus BeSledgeIn). Pressing PLAY on the local keyboard proceeds to the next test. Note that this test will not contribute to the test result of the Basic Engine.

The local display will look as follows during the sledge test:

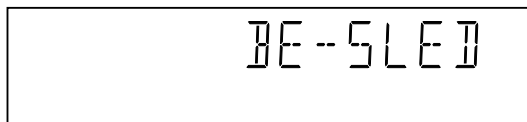


Fig. 24

5.4 Disc Motor Test (Visual Test)

The third Basic Engine test tests the disc motor (nucleus BeDiscMotorOn).

The local display looks as follows:

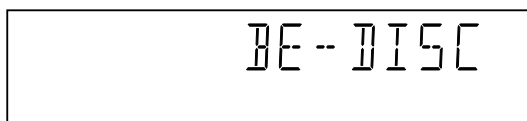


Fig. 25

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

5.5 Focus Test (Visual Test)

The fourth Basic Engine test tests the focusing. First focusing is turned on by calling nucleus BeFocusOn.

The display will look as follows:

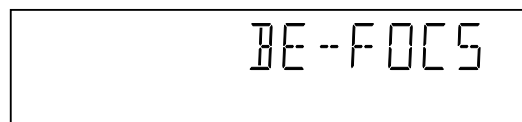


Fig. 26

By pressing OPEN/CLOSE the user confirms that the focusing was successful. Pressing STOP indicates a focusing failure. Pressing PLAY proceeds to the next test after a reset of the focusing (nucleus BeFocusOff). If PLAY is pressed before OPEN/CLOSE or STOP, the result of this test will be TRUE (focus successful).

5.6 Radial Test (Visual & Listening Test)

The fifth Basic Engine test tests the radial functionality (nucleus BeRadialOn).

The local display looks as follows:

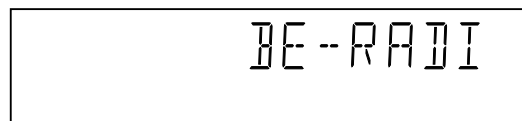


Fig. 27

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

5.7 Jump Test (Listening Test)

The sixth and last Basic Engine test tests the jumping by calling nuclei BeGroovesIn, BeGroovesMid and BeGroovesOut.

During this test, the local display looks as follows:

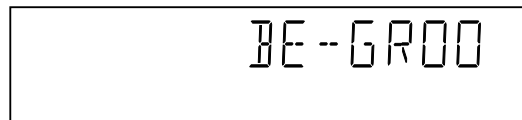


Fig. 28

The user can switch between the three different types of groove settings by pressing OPEN/CLOSE (forward to next nucleus in the list In-Mid-Out), or STOP (backward in the list In-Mid-Out). This is done in a cyclic manner; note

that this test will not contribute to the test result of the Basic Engine. Pressing PLAY proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

5.8 Tray Test

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

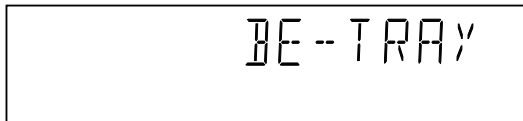


Fig. 29

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

5.9 Error Log

Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player. Reading the error log is done by nucleus LogReadErr.

The display during the errorlog readout looks as follows :

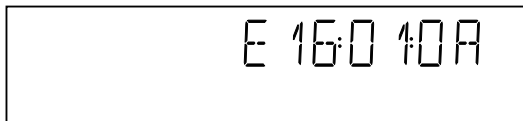


Fig. 30

Note: Previous versions of the diagnostic software showed a 8-digit error code.

Due to limitations in the number of digits that can be displayed by some front panel displays, the most significant digits will not be shown. This can be done since all the error codes used by this player has set these 2 digits to "00"

By pressing OPEN/CLOSE or STOP the user can move forward or backward (respectively) through the logged error codes. If "0000" is displayed at all positions, the error log is empty. Display of the logged errors is done in a cyclic manner.

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

5.10 Error Bits

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

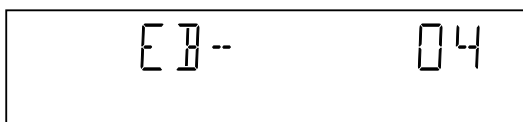


Fig. 31

Only the identification number (decimal) representing set errorbits will be shown. By pressing OPEN/CLOSE or STOP, the user can move forward or backward

(respectively) through the logged errorcodes. If the display only shows "EB-0", no error bits were set. By pressing PLAY the user can continue to the next test.

6. Loop Test (See Table Below)

At the start of the loop test, the local display of the DVD player will show the interactive player test result readout in the following display:

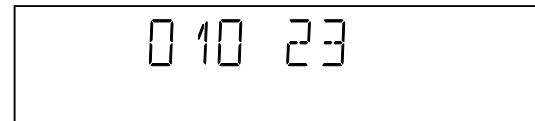


Fig. 32

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

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

Fig. 33

The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely. The display of the DVD player will display not only the three digits indicating correct/faulty modules and the last found error code (as mentioned, faults are detected as far as they can be within the scope of the diagnostic software), but also a loop counter indicating how many times the loop has been gone through. If an error was detected, the display will remain as in Fig. 34 until the user presses the PLAY key and then it will continue to the next loop.

Example:

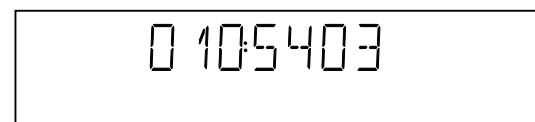


Fig. 34

The 2-digit number (23) on the right of Fig. 32 indicates the number of times the loop test has been performed.

After one loop cycle: Display the 3-digit module bits together with the last error code which occurred in the loop test. The 4 digits at the right side of the display (Fig. 34) show the last error that was found during the loop test. The leftmost two digits (54) of this code indicates which nucleus resulted in a fault. The rightmost two digits (03) refer to the faultcode within that nucleus. For further explanation of this error code, refer to chapter 8 (Nuclei Error Codes).

6.1 Errorlog

Explanation:

The application errors will be logged in the NVRAM. The maximum number of error bytes that will be visible is 16. The first word (4 digits) of the byte is the component identification, the last word is the error code.

The diagnostics software will present a combination of this component identification plus an error code on the local display (and on the attached terminal). The last reported error is shown as < 00000000, the oldest visible error as 00000000 > and the errors in between as < 00000000 >. The devices that may report errors are the serial controller (UART), the basic engine (BE), the slave processor (SLPH), the SACD Stream Manager (SSM) and the SACD Media Access (SMA). The identification of these components is as follows:

Component name	Component identification
Serial controller (UART)	000A
Engine (BE)	0016
Slave Processor (SLPH)	001A
SACD Stream Manager (SSM)	001C
SACD Media Access (SMA)	002E
Diagnostic software (DS)	Dxxx

The tables in the next chapters list the error code and corresponding problem. The column 'Explanation' holds a more elaborate description and the most likely reason for the error.

Some Examples:

002E0000 (SMA reported a timeout error)

0016010A (Engine could not fully close or open the tray)

D0010001 (Flash checksum failed).

For further explanation of DS errors, see description of nuclei error codes in paragraph 8.

UART Error Codes

Error Number	Error name	Explanation
0000	BUF_OVE RFLOW	Too many characters were offered in too little time. Reason: system was too busy doing other jobs.
0001	COMMUNI CATION	Usually a protocol error. Reason: bad connection between engine and processor.
0002	TIME OUT	

BE Errors

Error Number	Error name	Explanation
0101	S2B_ILL_CO MMAND	Parameter(s) not valid for this command. Reason: some communication problem between UART and engine.
0102	S2B_ILL_PAR AM	Command not allowed in this state or unknown. Reason: see S2B_ILL_COMMAND error

Error Number	Error name	Explanation
0103	S2B_SLEDGE	Sledge could not be moved to home position.
0104	S2B_FOCUS	Focus failure
0105	S2B_MOTOR	Motor could not reach speed within timeout
0106	S2B_RADIAL	Servo didn't get on track after several retries.
0107	S2B_PLL_LO CK	PLL could not lock in Accessing or Tracking state
0108	SBC_HEADE R_TO	Header timeout
0109	S2B_SBC_NO T_FOUND	Requested subcode item could not be found.
010A	S2B_TRAY	Tray could not be opened or closed completely.
010B	S2B_TOC_RE AD	TOC could not be read within timeout period.
010C	S2B_JUMP	Requested seek could not be performed.
010D	S2B_NON_EX IST_SES	Attempt to access a non-existing session.
010E	S2B_NON_EX IST_BCA	Caller tries to access a non-existing BCA area
010F	Speed setting	A wrong or inappropriate speed value has been set
0116	NO_DISC	No disc selected
011A	TRAY_INIT	After reset, initialized tray
011B	NO TOC INFO	No TOC information in lead-in area or erase TOC found
01F0	S2B_OVERR UN	Too many bytes received over S2B Reason: see S2B_ILL_COMMAND error
01F1	S2B_COMM TO	Not enough bytes are received over S2B Reason: see S2B_ILL_COMMAND error
01F2	S2B_PARITY	Byte received with parity error. Reason: see S2B_ILL_COMMAND error
01F3	S2B_ILL_PHA SE	CMD IDC is not valid, transmission out of sync. Reason: see S2B_ILL_COMMAND error
01F4	S2B_ILL_NR OF_BYTES	Byte count has an illegal value. Reason: see S2B_ILL_COMMAND error

SLPH Error Codes

Error Number	Error name	Explanation
0000	COMMUNICA TION	Error in I2C communication. Reason: bad connection between slave processor and main processor.

SSM Error Codes

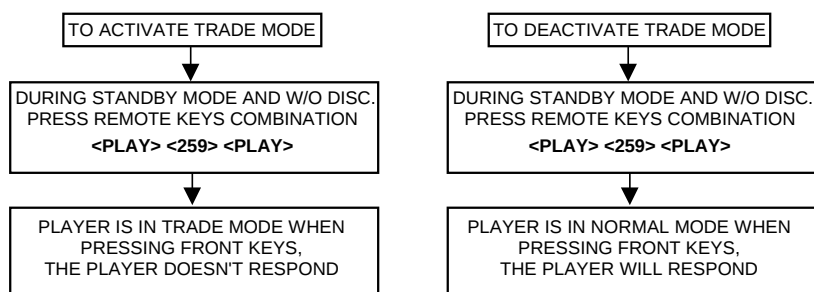
Error Code	Error name	Explanation
0006	SP_SYNCERROR	System cannot get synchronized with sectors coming from disc. Reason: Usually a damaged disc or the player was dropped/pushed during operation. If not, the engine is malfunctioning.
0007	SP_EDCERROR	Data coming from disc is damaged. Reason: see SP_SYNCERROR
0008	SP_CONTINUITYERROR	Sequence of sectors coming from disc is incorrect. Reason: see SP_SYNCERROR
0009	DMX_CONTINUITYERROR	Sequence of sectors is incorrect. Reason: problem with buffer RAM
000A	LLD_ERROR	An illegal audio format was offered to the decoder. Reason: unknown audio type on disc or problem with buffer RAM
000B	BCU_ERROR	Internal problem in Furoro chip

SMA Error Codes

Error Number	Error name	Explanation
0000	SMA_TIMEOUTERROR	Data coming from disc not in time. Reason: damaged disc or engine problem.

6.3 Trade Mode

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

**Fig. 35**

Note: To activate and deactivate the Trade Mode with the disc in the player, the procedure is similar to above, except that the remote control keys combination is pressed at the instant when the local display is flashing "READING"

■ TEST INSTRUCTION FRONT DISPLAY AND AUDIO/VIDEO BOARD

1. General

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

2. General Start-Up Measurement

Supply Check:

Before starting the measurement,ensure that all power supplies are connected to the A/V and Front Display board via conn.1101 and 1114/1133.

Pin nr.	A/V Board	Front Display
Voltage	Conn. 1101	Conn. 1114/1133
1	+3V3STBY	+5VSTBY
2	+3V3STBY	+12VSTBY
3	GND	GND
4	+12VSTBY	-32V
5	GND	-
6	+5VSTBY	-
7	GND	-
8	-8V	-

Clock Check

Confirm the presence of the clock to the DAC and the slave μP .

Clock Name	Testpoint	Frequency
PCM_CLK	I173	11.2896MHz $\pm 0.02\%$ tolerance
XOUT	S1	8MHz $\pm 0.2\%$ tolerance

Audio Mute Check

Measure the Audio mute voltage input at pin 22 of connector 1100.

Status	Value
AudioMuteOn	HIGH ($>3V$)
AudioMuteOff	LOW ($<3V$)

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

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

3. Audio DAC And Amplifier

Ensure that the Audio mute signal is OFF

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

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

The audio signal (sine or pink noise) will also be present on the digital output (SPDIF).This can be checked by connecting the digital signal to an amplifier with a digital input.

Check the I2S and audio signal at the following testpoints:

Name	Testpoint
PCM_LRCLK	I172
PCM_SCLK	I175
PCM_CLK	I173
PCM_DATA0	I174
PCM_DATA1	NA
PCM_DATA2	NA
DIG_OUT	I235
AUDIO L/R OUT	I226 / I236
FRONT L/R OUT	NA
SURROUND L/R OUT	NA
CENTER OUT	NA
SUB WOOFER L/R OUT	I165

All waveforms can be refered to the A/V board schematic diagram.

4. Video Output And Buffer Amplifier

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

Generate a color bar using the following software commands:

Ref.#	Command Name	Remarks
23a	VideoColDencOn	Color DENC ON
23b	VideoColDencOff	Colorbar DENC OFF

Check the video outputs at the following testpoints:

Name	Testpoint
BLUE	I123
GREEN	I124
RED	I125
CVBS out	I180 / I195 / I145
S-Video-C out	I122
S-Video-Y out	I121

If waveforms can be referred to the A/V board schematic diagram.

5. Play and 16/9 Detection

Check 0/6/12 signal on pin 8 of the SCART connector 1130 and change the input with the following commands:

Ref.#	Command Name	Remarks
25a	VideoScartLo	Sends out 0V $\pm$ 0.5V
25b	VideoScartMi	Sends out 6V $\pm$ 10%
25c	VideoScartHi	Sends out 12V $\pm$ 10%

Since in SD4 based single SCART players, pin 8 output is determined by SCART0 and standby control signal. Since standby control must be LOW when diagnostic is running, we can only set pin 8 to 6V or 12 V.

6. Kill Circuit

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

Ref.#	Command Name	Remarks	Audio output
21a	AudioSineOn	Audio Sinewave ON	1kHz tone

Check the audio outputs at the audio cinch of the A/V board: 1kHz tone

Activate the Kill circuit by using the following command:

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

Check the audio outputs at the audio L/R cinch and SCART of the A/V board: No waveform

Switch off the kill circuit by using the following command:

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

Check the audio outputs at the audio L/R cinch and SCART of the A/V board: 1kHz tone

7. Digital Silence

Digital silence is a signal from the audio DAC, KILL_LR, when there is no input to the audio DAC, or when the player is in STOP/PAUSE mode, or during disc changing track.

To check the KILL_LR signal, use the following command and check the voltage level at pin 16 of 7200:

Ref.#	Command Name	Remarks	KILL_LR signal
21a	AudioSineOn	Audio Sinewave ON	LOW (<0.3V)
---	Press STOP button	Audio Sine signal OFF	HIGH (>4.5V)

8. Front Display

To check the segment display of the FTD, the following command can be used. And for full detail description of the test, refer to the chapter of "Diagnostic Software Player Script" which can be found in chapter "Diagnostic Software Description and Troubleshooting"

Ref.#	Command Name	Remarks
30a	DispDisplay	Turn ON local display

9. IR Receiver

Check at pin 22 of 7101 and observe if this line switches from LOW (<0.3V) to HIGH (>4.5V) when pressing a key on a remote control.

■ CIRCUIT DESCRIPTIONS

1. Introduction
2. Power Supply
3. Control and Display
4. Audio/Video (A/V) and SCART
5. Loader/Mono Board

Notes:

- Figures can deviate slightly from the actual model.
- For a good understanding of the following circuit descriptions, please use the "BLOCK DIAGRAM" on page 51 and "SCHEMATIC DIAGRAMS" on page 70 – 84.

1. Introduction

Some of their features of this model are:

- MP3 playback.
- 3D Sound.
- Auto power off (after 15 min.).
- Built in MPEG2, MP3, and AC-3 decoder.
- CD-R(W) compatible.
- DVD+R(W) compatible.
- RGB video output on SCART.

Panel Overview

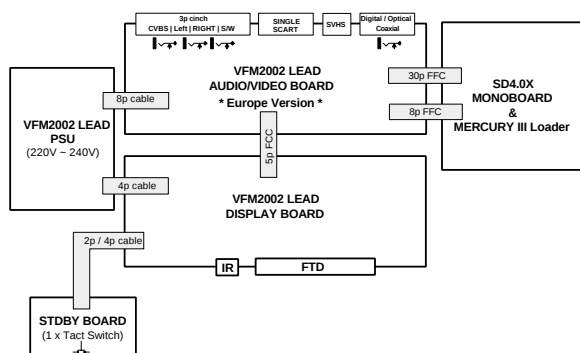


Fig. 1

2. Power Supply

2.1 Introduction

The supply is a Switching Mode Power Supply (SMPS), which uses the control IC TY720xx to produce pulses to drive the power 'switch' (MOSFET). The TY720xx (item 7130) is a high performance, current mode controller for DC-to-DC converter applications.

The operation frequency varies with the circuit load. When the output power demand decreases, the switching frequency raises, with a maximum frequency of 125 kHz (determined by C2107 at pin 5). At this point, the internal VCO takes over and starts to decrease the switching frequency.

This has some benefits compared to a 'fixed frequency' flyback converter. The efficiency is better, which results in a lower power consumption.

2.2 Output Voltages PSU Connection

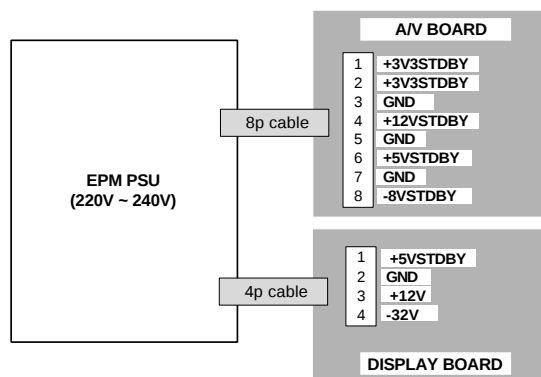


Fig. 2

The following voltages are connected to the A/V board and Front Display board via connectors 1101 and 1114 (1133) respectively:

- +12VSTBY, 470 mA.
- +5VSTBY, 400 mA.
- +3V3STBY, 1200 mA.
- 8V, 30 mA.
- 32V, 16 mA.

The +12VSTBY, on pin 4 of connector 1101, is further divided into the following voltage:

- +5V_DAC (via voltage regulator 7423), supply to audio DAC, and OpAmp filter.

The +5VSTBY, on pin 6 of connector 1101, is further divided into the following voltages:

- +5V, supply to SD4.0 mono board.
- +5VM, supply for analog circuitry.

The suffix 'STBY', indicates that the supply is not switched 'off' during Standby Mode. Power switching is done **on the A/V board** with the STBY_CTRL signal from the slave processor.

Power Switching

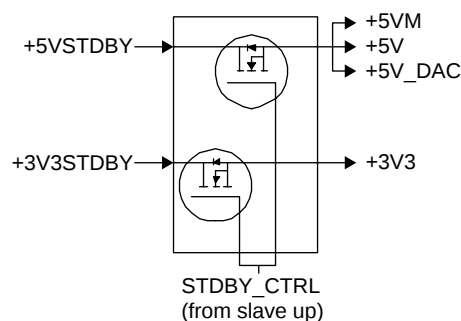


Fig. 3

The derived voltages +3V3, +5V, and +5V_DAC are switched 'off' during Standby Mode with a MOSFET (see items 7308, 7309, and 7506 on diagram A3).

The -8V is regulated to -5.5V via transistor 7304 and zenerdiode 6308, and is switched 'off', with transistor 7305, during Standby Mode.

The -32V is not switched 'off' during Standby Mode.

2.3 Operation

Mains Input Circuit

The bridge rectifier (D6110-D6113), direct after the mains filter 5115, rectifies the mains voltage, after which C2116 smooths it. The DC voltage across this capacitor is the DC input voltage (HV= approximately 300 V), to pin 9 of transformer T5190 and pin 1 of IC7130.

Start-up Circuitry

The rectified voltage from the bridge rectifier is connected to pin 1 via L5130. It will charge the VCC capacitor (C2131).

When this voltage, (at pin 13 of 7130), reaches the start-up threshold of min 15 V, the control circuit starts to operate.

After start-up, IC 7130 requires a sinking current, which the start-up circuitry cannot deliver. Therefore, a take-over circuitry (a coupled winding of transformer L5190) is present. The voltage here will take over the supply voltage at pin 13 of the IC.

If the take-over circuit does not function, the IC will switch 'off' again at the minimal operating voltage of +8 V. The whole operation cycle will repeat itself with audible hiccup sound if take-over is not present.

Secondary Voltage Sensing

The secondary voltage regulating circuit is comprised of opto-coupler 7190 (which isolates the error signal from the control IC on the primary side), and a reference component 7290 (TL431) with the following functions:

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

TL431

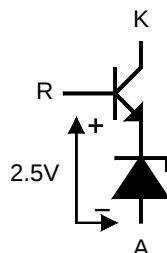


Fig. 4

When the output voltage increases (due to a reduction in the load), the voltage across R3290+R3291 increases to above the internal reference voltage of 2.5 V. Item 7290 will conduct and the current through the opto-coupler will increase. This results in an increase of the voltage at pin 4 of 7130, which will reduce the 'on' time of FET 7125. In the event of an output voltage decrease (due to an increase in the load), the control circuit will operate in the opposite way.

Primary Current Sensing

The current through FET 7125 will result in a voltage drop across R3120/21/22 (RSENSE). This line goes to pin 11 of 7130, which is the current sense input. The higher the input voltage, the more the primary current is limited. In this way, the maximum output power of the power supply is limited.

Under-voltage Protection

If the supply voltage at pin 13 drops below 7.2 V (typical), e.g. due to a shorted secondary voltage or excessive load, the drive pulse at pin 12 is disabled and the controller will switch 'off'.

Over-voltage Protection

An internal over-voltage protection circuitry continuously monitors the VCC pin. If, after start-up, this voltage exceeds 40 V, the internal latch circuit is triggered, the output buffer is disabled, and the SMPS goes into over-voltage protection.

Now a complete restart sequence is required.

Note: If the event of the over-voltage situation remains present, the SMPS will go in sequence of protection, start-up, protection and the cycle repeats. This effect is highly audible.

3. Control and Display

3.1 Control

The most important component on this board is the (slave) microprocessor (item 7113/7101). It runs on an 8MHz system clock generated by a ceramic resonator.

After the RESET pulse (active LOW), the STB_CTRL line (pin 21, item 7113/7101) will release the reset of the host uP (on the mono board) via the switched 3V3 supply (see circuit around item 7605 on mono board).

Other slave processor functions are:

- Generation of a scanning grid for the keys.
- Generation of the display grid and segment scanning.
- Generation of a square signal to generate the filament voltage for FTD display.
- Input for RC5/6 remote control protocol. The logic is HIGH > 4.5V and LOW < 0.3V.

Key Matrix

When a key on the local keyboard is pressed, the signal at the scanning pins of the microprocessor goes from +5V to 0V.

Circuit IR Receiver

The IR controller in the slave processor handles both RC5 and RC6 signals. The logic is +5V for 'high' and 0V for 'low'.

FTD Display

The slave uP drives the 11-segment FTD. It provides a negative DC switching drive voltage. As the display consists of eleven segments, there are eleven grid signals (G1-G11) controlling each respective grid.

The slave processor has an internal square signal generator (42 kHz), to generate the AC filament voltage. TS7105/7103 and 7106 amplify the square signal before it is applied to the display (VAC= VFIL_1 - VFIL_2, VRMS $\approx$ 2.4V). The necessary power supply of -26V is derived (via zener diode 6101) from the -32V supply directly from the Switching Mode Power Supply (SMPS).

Slave Processor Interface

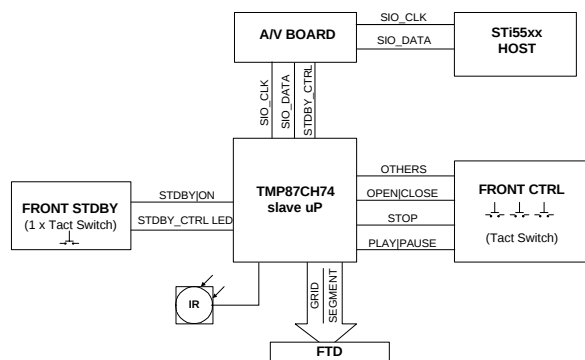


Fig. 5

The block diagram above, illustrates the interfaces of the slave uP. The start-up sequence is as follows:

1. The required IC voltage is the +5VSTBY, which is present during Standby Mode.
2. When the RESET circuit (7108/7102) is triggered by the +5VSTBY, the slave uP initializes.
3. This will set the STDBY_CTRL signal to LOW, which will switch on the +3V3 and +5V.
4. Once these voltages are provided, the host uP (on the SD4.0 mono board) will reset.
5. Now, the host uP will initialize, and command the slave uP to activate the Standby Mode (STBY_CTRL) signal.
6. The player wakes up from the Standby Mode when any button is pressed on the front panel, or when the 'Power' button is pressed on the Remote Control.

Note: The slave uP will not reset successfully if the 8MHz clock oscillator has not stabilized (check on pin 8 of item 7113/7101).

4. Audio/Video (A/V) and SCART

The video output from the STi55xx is RGB, YC and CVBS. These signals enter the A/V Board via connector 1100.

All these analog video signals, from the SD4.0 Monoboard, first go through the transistor (item 7168, 7169, 7170, 7160, 7161, 7162, 7163, 7164, 7132) for impedance matching before going directly to the cinch, SVHS and SCART connector.

However for double scart models, the RGB signals go directly to the SCART connector 1103.

The '0/6/12' switch signal on pin 8 of the single SCART connector, depends on the logic state of two other signals: SCART0 from the μ P and STBY_CTRL from the slave μ P. This is done according to the following table:

Status Truth Table

SCART_0	STBY_CTRL	0/6/12	Function
0	0	12V	4:3 aspect ratio DVD
0	1	0V	TV display
1	0	6V	16:9 aspect ratio DVD
1	1	0V	TV display

Fig. 6

4.1 Audio Path

Audio DAC circuitry

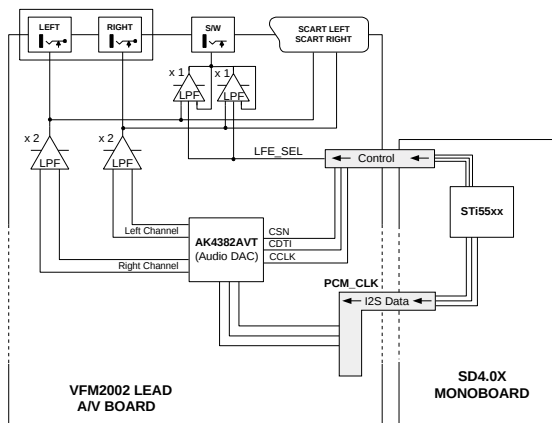


Fig. 7

The STi55xx supplies I2S data and PCM_CLK master clock to the new audio DAC (item 7200, AK4382AVT). The decoded analog output of both left and right channel is balanced. These are filtered (3-pole LPF) and amplified with OpAmp LM833 (item 7211). The gain of this OpAmp is two times.

There is only 2X two stereo output from the A/V Board, a subwoofer, and Digital audio out on coaxial and optical connector.

The audio DAC accepts only +5V inputs with +3V3 tolerance.

During STDBY mode, there will be no power to the audio DAC.

The registers of the audio DAC are in their default values each time the power to the IC is cut-off. The slave uP is required to program the DAC each time after exiting from STDBY mode.

This requires three signal lines.

- CSN - Chip Select Pin.
- CCLK - Control Clk Input Pin.
- CDTI - Control Data Input Pin in Serial Mode.

CCLK and CDTI are connected to P1 and P2 of host uP (via conn 1104) respectively for communication between the slave uP and STi55xx.

The host uP (STi55xx) will indicate the slave uP when to program the audio DAC after waking up from STDBY mode.

The audio MUTE signal depends on the logic state of two other signals:

- KILL: This signal comes from the host processor (STi55xx) and is meant to mute the outputs during switch on/off.

- **KILL_LR:** This is a signal from the audio DAC, when it receives no input for a certain time (8192 LRCK cycles). It can be tested in STOP, PAUSE and during track changes.

The logic level for the MUTE signal is $-3V < \text{LOW} < 0V$ and $0V < \text{HIGH} < +3V$.

Mute Truth Table

KILL	KILL_LR	MUTE	Function
0	0	0	Output is not muted.
0	1	1	Output is muted.
1	0	1	Output is muted.
1	1	1	Output is muted.

Fig. 8

5. Mono Board

SD4.0 Block Diagram

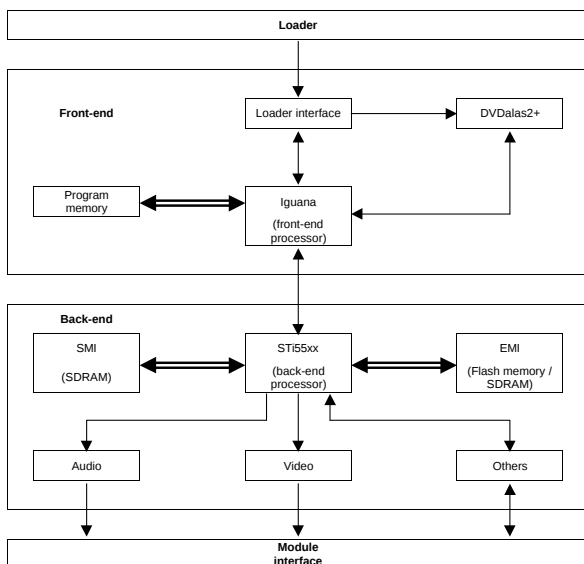


Fig. 9

5.1 Front-end: the Servo Part

The front-end consists of:

- The loader interface.
- The analog DVD signal processor and laser supply.
- DVD front-end processor.
- Program memory.

The Signal Processor TZA1033

The TZA1033 (or DVDALAS2plus) is an analog pre-processor and laser supply circuit. It contains data amplifiers and several options for radial tracking and focus control.

It is possible to optimise the dynamic range of this pre-amp/ processor combination for the LF servo and RF data paths. The gain in both channels is separately programmable. This will guarantee an optimal playability for all kind of discs.

Also, a dual laser supply is implemented, with fully automatic laser control including stabilization and an ON/OFF switch, plus a separate supply pin for power efficiency.

In the SD3.0 module, the servo signals were fed to the MACE2 servo processor, while the HF output signal was fed to the SAA7335 decoder. In the new SD4.0 module, these ICs are combined into one chip: the SAA7812 Iguana.

This chip contains the following blocks: channel decoder, block decoder, servo processor, and microcontroller.

The Servo Processor/Decoder SAA7812

The servo circuit in the SAA7812 (item 7200) takes care of the servo controls.

In a CD system, there are some 12 control loops active. About six of them are needed to adjust the servo error signals, that is once per disc rotation. It also adjusts offsets, signal amplitudes, and loop gains (AGCs), to enlarge system robustness and to avoid expensive potentiometer adjustments in production.

The other six loops determine the laser spot position on the disc in the radial, axial (focus), and tangential directions.

It also has to take care that the spot accesses a required position as fast as possible. This access system consists of two parts, namely the actuator and the sled, which are (within a certain range) mechanically and electrically independent.

Therefore, during an access, the servo has to control as well the actuator as the sled.

The analog signals, from the diode pre-processor, are converted into a digital representation using A/D converters.

For the communication between the host processor (STi5580) and the servo processor, the S2B bus is used. This bus supports full-duplex asynchronous communication.

The SAA7812 is also a combined CD/DVD compatible decoding device. The device operates with built in hardware for CD/DVD error correction and de-interleaving operations. It decodes EFM or EFM+HF signals directly from the laser pre-amplifier, including analog front-end, PLL data recovery, demodulation, and error correction.

Its analog front-end input (the channel decoder), converts the HF input signal to the digital domain via an 8-bit ADC, preceded by an AGC circuit to obtain the optimum performance from the converter. An external resonator clocks this block.

This subsystem recovers the data from the channel stream. It corrects asymmetry, performs noise filtering and equalization, and finally recovers the bit clock and data from the channel using a digital PLL.

The demodulator part detects the frame synchronization signals and decodes the EFM (14 bit) and EFM+ (16 bit) data and sub-code words into 8-bit symbols. Via the serial output interface, the I 2 S data (audio and video) go to the DVD decoder STi5580.

The spindle-motor interface provides both motor control signals from the demodulator and, in addition, contains a tachometer loop that accepts tachometer pulses from the motor unit. They drive the motor IC (BA6665FM, item 7301).

The SAA7812 has two independent microcontroller interfaces.

The first is a serial I²C-bus and the second is a standard 8-bit multiplexed parallel interface. Both of these interfaces provide access to 32 8-bit registers for control and status.

5.2 Interface

The interface between front-end (SAA7812) and back-end (Sti55xx) is via:

- I²S bus (BCLK, DATA, WCLK, FLAG, SYNC and V4).
- S2B bus (RXD_S2B, TXD_S2B, CPR_S2B and SUR_S2B).
- Miscellaneous I/O ports (RSTNF= front-end reset, EANF= front-end processor boot select).

Note: These lines contain series resistors (47 or 100 Ω) for easy hardware debugging, and for EMC/noise reduction of the high-speed I²S lines.

The front-end processor SAA7812 (Iguana) has two boot modes: normal boot from flash memory, or serial mode.

The boot selection is via the EANF pin. The Iguana samples the EANF signal level once during boot-up. Once boot-up is completed, this pin is no longer used for this purpose.

However, in the SD4.0 circuit, the EANF is also connected to the flash memory. Therefore, when this pin is LOW, the lower 1Mbits of the memory is accessible. Conversely, when this pin is HIGH, the upper 1Mbits is accessible.

Under front-end normal operation, the program memory (less than 1Mbits in size) should reside in the lower bank. Therefore, the EANF pin should be LOW at all times. Since the actual flash memory used is 2Mbits, the upper 1Mbits is unused. This area is reserved for possible use by the front-end self-diagnostic software, or flash download application.

5.3 Back-End: the Digital Part

The back-end consists of:

- DVD back-end processor.
- External memory.
- Audio output.
- Video output.
- Miscellaneous.

DVD Back-End Processor

The SD4.0 is designed for the Sti55xx family. Some of the DVD related features of these ICs are:

Processor Overview

Function	STi5580	STi5588	STi5519
Basic CD/CD/DVD decoding	X	X	X
Extra 2-channel of I ² S output (PCMDATA3)	X	X	
Karaoke	X	X	
DTS	X	X	
Audio post processing (equalizer, level meter, etc)		X	
DVD audio		X	
Progressive scan at analog video output		X	

Fig. 10

The Sti5580 has the same architecture as the Sti5508 (used in earlier DVD generations), and is pin-to-pin compatible.

It works on 3.3 V (VDD), and comprises the following functions:

- Video decoder which supports MPEG1 and MPEG2
- Audio decoder which supports AC-3, MPEG1, MPEG2, DTS, PCM, S/PDIF, MP3.
- PAL/NTSC video encoder with simultaneously Y/C, CVBS and RGB/YUV outputs
- The video encoder supports Closed Caption and allows MacroVision 7.0/6.1
- Full screen On Screen Display (OSD) generator
- Three on-chip PLLs to generate all necessary clocks (as reference the 27 MHz video clock is used).

Input

Input data comes from the I²S-bus. The front-end interface of this device, accepts DVD, CD and CD-DA information.

Signal Processing

For video, the input data stream is decoded to the appropriate MPEG, Sub Picture, and OSD data streams, after which they are fed to the PAL/NTSC encoder. This cell will convert the digital MPEG/Sub Picture/OSD stream into a standard base band signal and into RGB components. It handles interlaced and non-interlaced data, can perform CC/TXT encoding, and allows MacroVision copy protection.

For audio, the processing cell is a fully compatible DTS, Dolby Digital (AC-3), MPEG1, MPEG2, and PCM decoder, capable of decoding 5.1 and 2 channel streams.

Output

For video, six analog output pins are available on which CVBS, S-VHS (Y/C), and RGB/YUV signals are present. They go directly to output connector 1701.

External Memory

The STi55xx family is capable of accessing external memory via three buses:

- **The enhanced memory interface (EMI).** This interface is configurable and can be used to access Flash, ROM, and various types of DRAM. The EMI is connected to:
 - Flash/ROM in Bank 3 (item 7410 and 7401 optional). This memory holds the DVD firmware, and is controlled by pin 186 (FLASH_OE) of the STi5580. It must be able to perform a download (by disk or DCU) in a Flash-only system.
 - SDRAM in Bank 0 (item 7402, optional). A 64Mbits (4M x 16bits) 7.5ns SDRAM can be connected to the EMI when the module is used as a Software Development Module (SDM).
- **The shared memory interface (SMI).** The SMI is only capable of accessing SDRAM. The SMI is connected to a 64Mbits (4M x 16bit) 7.5ns SDRAM (item 7500). There is no longer the option to use two pieces of 16Mbits SDRAM. The SDRAM has the following functions:
 - It is used by the MPEG video decoder as a frame buffer.
 - It holds the software and the variables used by it.
- The I2C bus. Via this bus, the NVRAM (or EEPROM) is accessible. This memory is used to store user settings, player settings, and region code.

Audio Output

The audio interfaces available in SD4.0 are I2S and S/PDIF for digital audio output, and I2S karaoke microphone input.

I2S audio

The STi55xx is capable of 6-channel I2S output. These channels can be configured to output 5.1 Dolby Digital, DTS, etc.

- PCM_OUT0: left and right.
- PCM_OUT1: center and LFE.
- PCM_OUT2: left and right surround.

Two additional channels (available in STi5580 and STi5588) are capable of providing down-mixed stereo.

S/PDIF

The S/PDIF signal level (item 7600, pin 57, SPDIF_OUT) is 5V TTL at module interface. To meet the complete S/PDIF specifications, an external de-coupling circuit (item 7716, diagram M7) is implemented.

Video Output

Analog video

The STi55xx is capable of 6-channel analogue video. Three channels (pins 25, 26 and 27) are RGB or YUV format, while the other three channels (pins 32, 33 and 34) are Y, C, and CVBS.

A new video output buffer (see diagram M7, e.g. item 7707 for R) is implemented: an 8MHz/16MHz selectable filter stage and a 75 Ω drive stage.

Miscellaneous I/O Signals

Most general IO ports are connected directly to the module interface.

SCART

The SCART0 and SCART1 signals are now directly available at the module interface.

Mute

The MUTE signal is now directly available at the module interface.

Service

Service Port Buffer

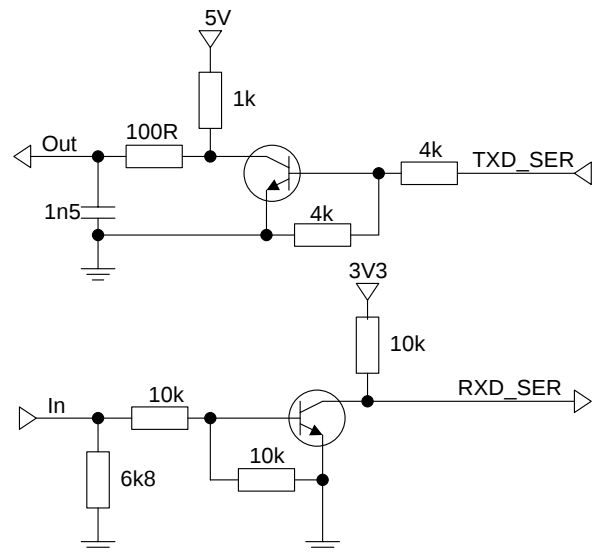


Fig. 11

Buffers

The signal levels at the module interface are 3.3V only.

Note: Care must be taken that the external circuitry does not force any IO line from the module to more than 3.8V.

External DAC

An external audio DAC from AKM (AK4382) is used.

Serial Bus Voltage Translator

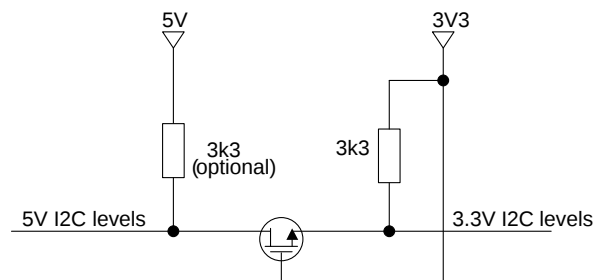


Fig. 11

Since the 5V in the module is turned 'off' during the DVD player's standby mode, the pull-up to 5V on the module is not used. Instead, pull-up resistors to a +5V standby voltage are added outside the module.

5.4 Power Supply (Diagram M7)
SD4.0 Power Supply Block Diagram

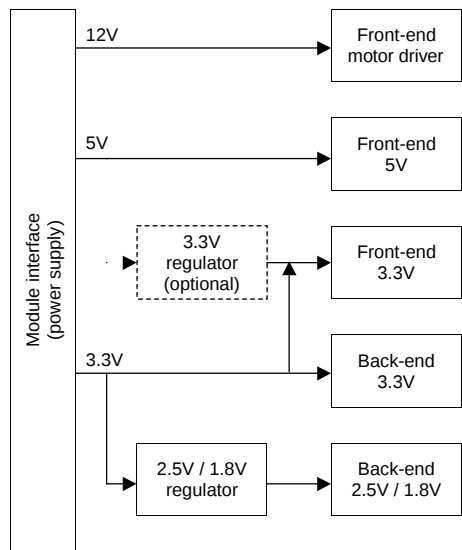


Fig. 12

The main power supplies to the module are 3.3V, 5V, and 12V (input via connector 1701). The back-end section mainly uses the 3.3V. On-board linear regulators are used to generate the 2.5V or 1.8V required by the STi55xx. The front-end section mainly uses the 5V and 12V. An optional on-board linear regulator can be used to generate the 3.3V required by the front-end. The motor and servo drivers use the 12V.

5.5 Top Side Connectors

All mono board interfaces are located on the topside of the board, as shown below:

SD4.0 Connections

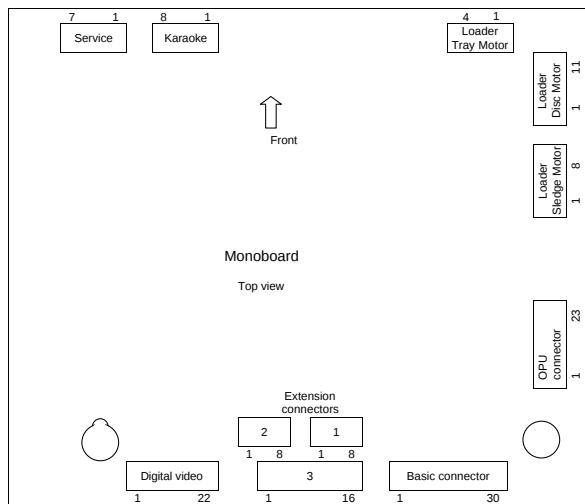


Fig. 13

■ ABBREVIATION LIST

ADC	Analog to Digital Converter	SCL	Serial Clock I2C
AM	Amplitude Modulation	SCLK	Audio serial bit clock
BE	Basic Engine	SDA	Serial Data I2C
ComPair	Computer aided rePair	SDRAM	Synchronous DRAM
CD-DA	CD Digital Audio	S/PDIF	Sony Philips Digital InterFace
CS	Chip Select	SRAM	Static RAM
DAC	Digital to Analog Converter	STBY	Standby
DAIO	Digital Audio Input Output	SVCD	Super Video CD
DENC	Digital Encoder	SW	Software
DFU	Direction For Use: description for the end user	THD	Total Harmonic Distortion
		TTL	Transistor-to-Transistor Logic (5V logic)
DNR	Dynamic Noise Reduction	uP	Microprocessor
DRAM	Dynamic RAM	VCD	Video CD
DSD	Direct Stream Digital	Y/C	Luminance (Y) and Chrominance (C) signal
DSP	Digital Signal Processing	YUV	Component video
DTS	Digital Theatre Sound		
DVD	Digital Versatile Disc		
EEPROM	Electrically Erasable and Programmable Read Only Memory		
EFM	Eight to Fourteen bit Modulation		
EMI	External Memory Interface (STi55xx)		
FFC	Flat Foil Cable		
FLASH	Flash memory		
HPF	High Pass Filter		
HW	Hardware		
I2C	Integrated IC bus (signals at 5V level)		
I2S	Integrated IC Sound bus (signals at 3.3V level)		
IC	Integrated Circuit		
IF	Intermediate Frequency		
IRQ	Interrupt Request		
LLD	Loss Less Decoder		
LPCM	Linear Pulse Code Modulation		
LRCLK	Left/Right clock		
LVTTL	Low Voltage Transistor-to-Transistor Logic (3.3V logic)		
MACE	Mini All Compact Disc Engine		
MPEG	Motion Pictures Experts Group		
NC	Not Connected		
NVM	Non Volatile Memory: IC containing TV related data e.g. alignments		
OC	Open Circuit		
OPU	Optical Pick-up Unit		
PCB	Printed Circuit Board (see PWB)		
PCM	Pulse Code Modulation		
PCM_CLK	Audio system clock for DAC		
PCM_OUTx	Audio serial output data		
PSU	Power Supply Unit		
PWB	Printed Wiring Board (see PCB)		
RAM	Random Access Memory		
RGB	Red, Green and Blue color space		
ROM	Read Only Memory		
S2B	Serial to Basic Engine, communication bus between host- and servo processor		

■ TECHNICAL SPECIFICATIONS OF DVD MODULE

Connections

1. Connector 1701: Basic Connector

1. I2CSCL/SIOCLK
2. I2CSDA/SIODATA
3. SCART1
4. SCART0
5. AGND
6. B_VID(U)
7. AGND
8. G_VID(Y)
9. AGND
10. R_VID(V)
11. AGND
12. Y_VID
13. AGND
14. C_VID
15. AGND
16. CVS_VID
17. +3V3
18. +3V3
19. +5V
20. +12V
21. +12V
22. MUTE
23. GND
24. PCMSCLK
25. PCMDATA0
26. GND
27. PCMCLK
28. PCMLRCLK
29. GND
30. SPDIFOUT

2. Connector 1702: Extension Connector 1.

1. GND
2. P6
3. P7
4. GND
5. PCMDATA3
6. PCMDATA2
7. GND
8. PCMDATA1

3. Connector 1705: Extension Connector 2.

1. P0
2. P1 / I2CSCL
3. GND
4. P2 / I2CSDA
5. P3
6. GND
7. P4
8. P5

4. Connector 1703: Digital Video Connector.

1. GND
2. YC0
3. GND
4. YC1
5. GND
6. YC2
7. GND
8. YC3
9. GND
10. YC4
11. GND
12. YC5
13. GND
14. YC6
15. GND
16. YC7
17. GND
18. HSYNC
19. GND
20. VSYNC
21. GND
22. 27MHZ CLOCK SIGNAL

5. Connector 1501: Service Connector.

1. TXD_SER
2. SERVICE
3. RXD_SER
4. RTS_SER (not used)
5. GND
6. CTS_SER (not used)
7. +5V_SER

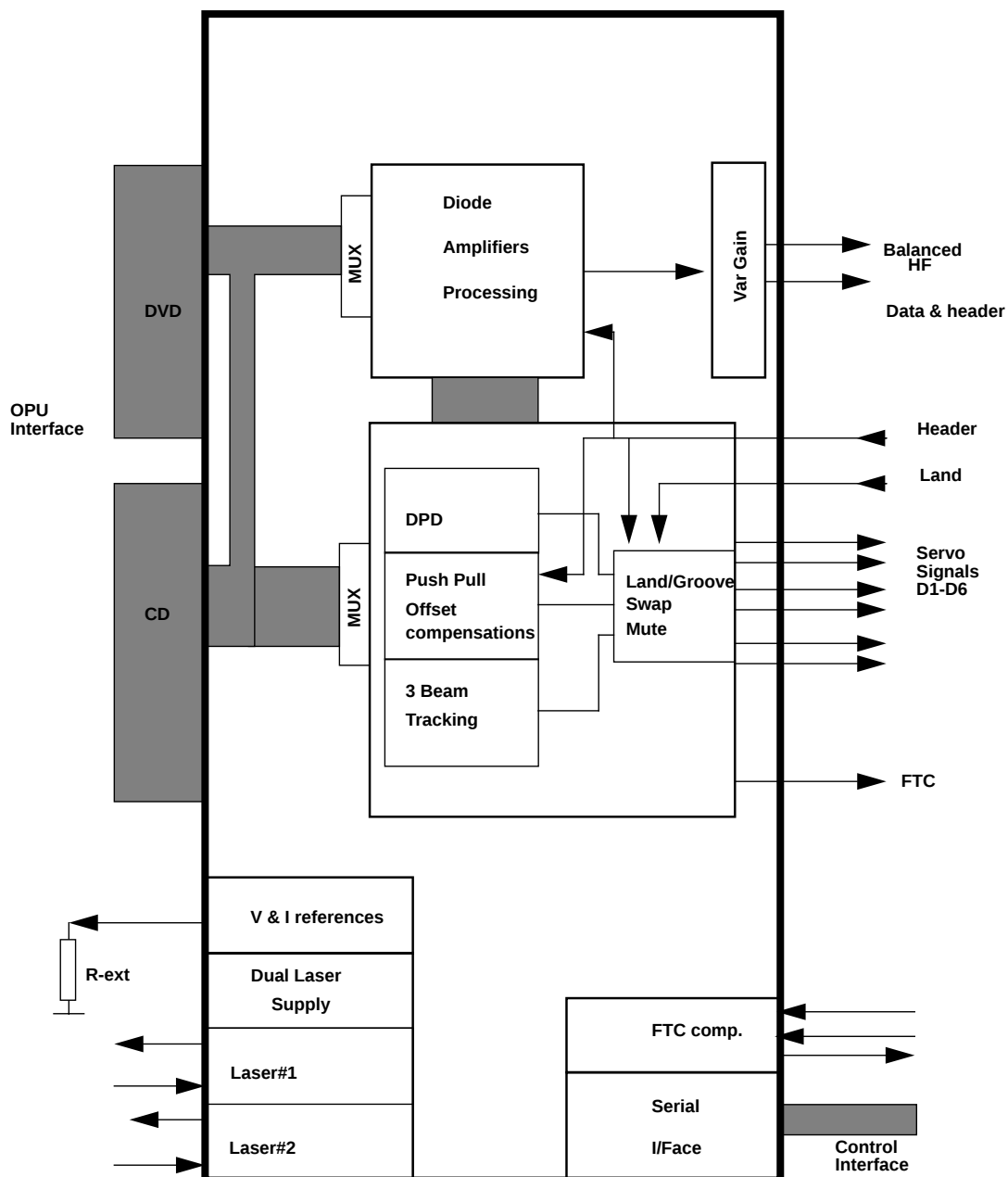
1.1.6 Connector 1704: Karaoke Connector.

1. KOKSCLK
2. +12V
3. KOKLRCLK
4. GND
5. KOKDATA
6. GND
7. KOKPCMCLK
8. KOKVOCDET

■ IC DESCRIPTIONS

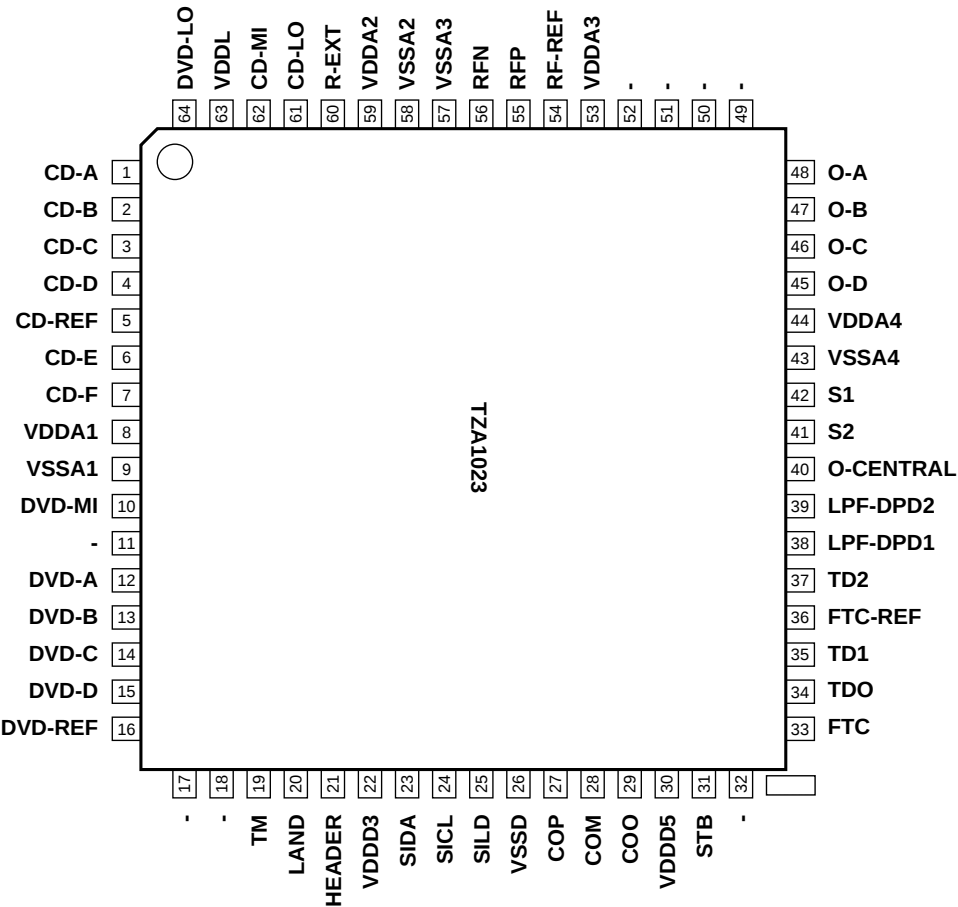
TZA1033

DVDALAS2plus Advanced Analog DVD Signal Processor and Laser Supply



TZA1033

DVDALAS2plus Advanced Analog DVD Signal Processor and Laser Supply

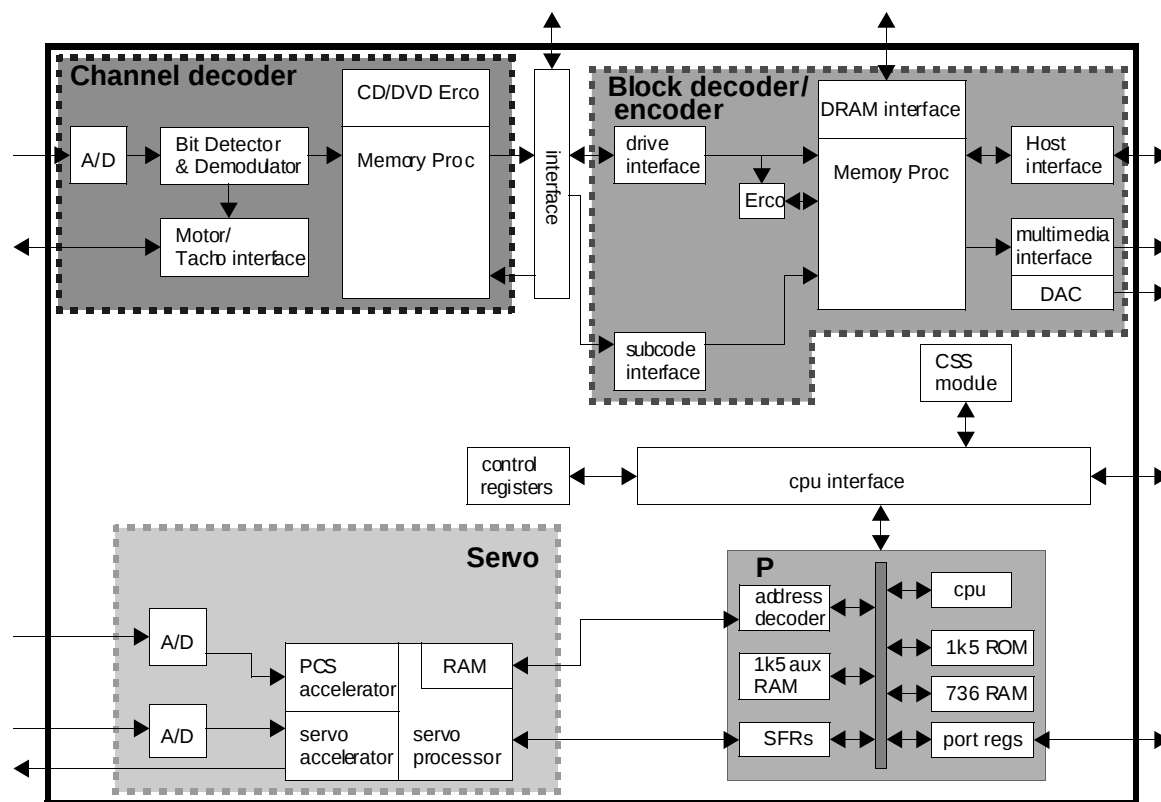


Pin description

Name	Pin	Description
CD-A	1	CD pick up input A
CD-B	2	CD pick up input B
CD-C	3	CD pick up input C
CD-D	4	CD pick up input D
CD-REF	5	CD pick up reference voltage
CD-E	6	CD pick up input E
CD-F	7	CD pick up input F
DVD-A	12	DVD pick up input A
DVD-B	13	DVD pick up input B
DVD-C	14	DVD pick up input C
DVD-D	15	DVD pick up input D
DVD-ref	16	DVD pick up reference voltage
O-A	48	Servo current output for Focus-A
O-B	47	Servo current output for Focus-B
O-C	46	Servo current output for Focus-C
O-D	45	Servo current output for Focus-D

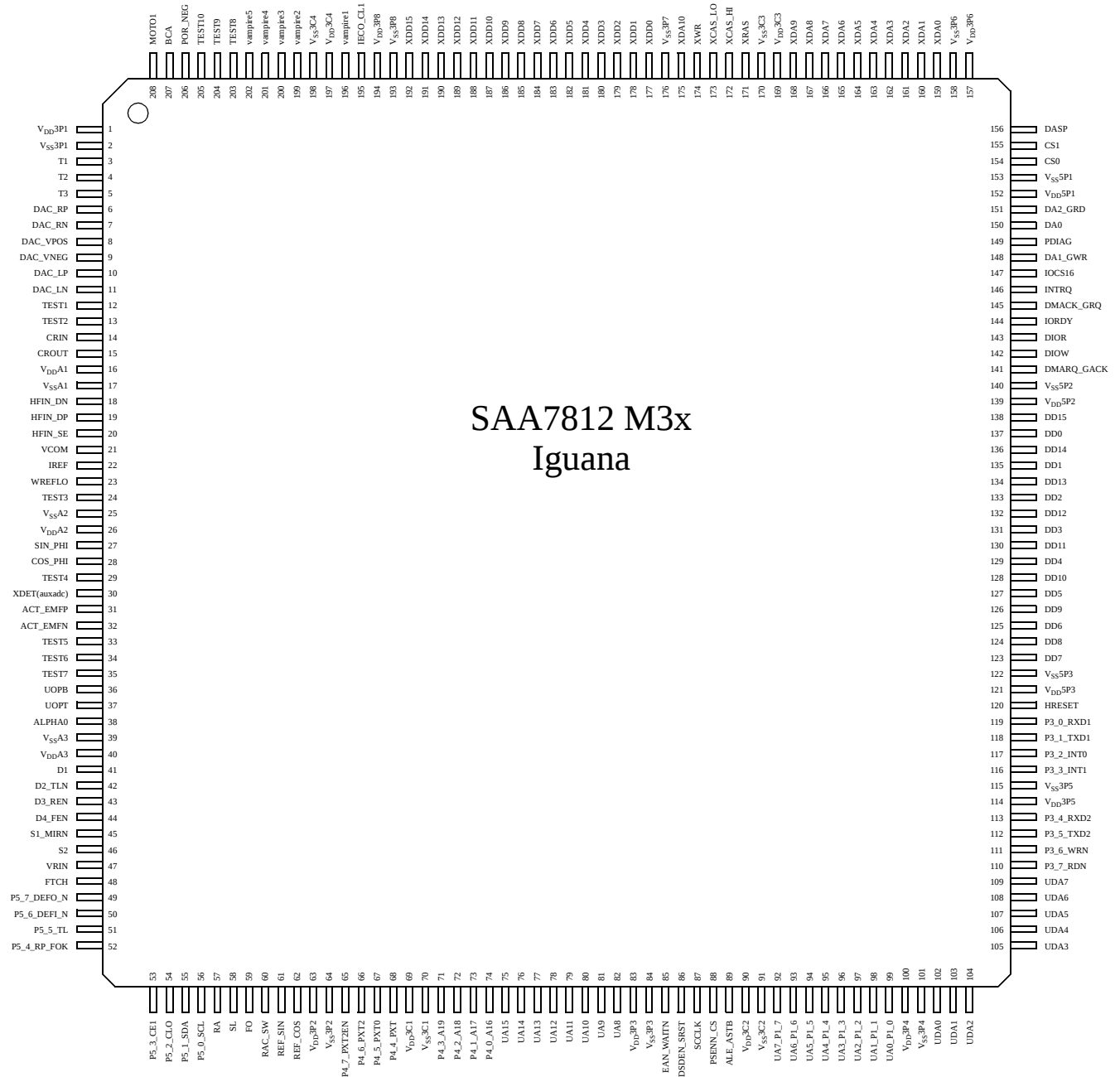
TZA1033**DVDALAS2plus Advanced Analog DVD Signal Processor and Laser Supply**

Name	Pin	Description
O-central	40	Test pin for offset cancelation
TD2	37	Internally connected
FTC-ref	36	Servo output voltage reference input
S1	42	Servo current output for radial tracking
S2	41	Servo current output for radial tracking
TD1	35	Internally connected
FTC	33	Fast track count voltage output
RFP	55	pos. RF output signal
RFN	56	neg. RF output signal
RF-REF	54	DC Reference signal input RF
LPF-DPD1	38	DPD Low pass bandwidth capacitor, channel pos
LPF-DPD2	39	DPD Low pass bandwidth capacitor, channel neg
Land	20	Land/groove toggle input
HEADER	21	Header detector window input
CD-MI	62	CD laser monitor input
DVD-MI	10	DVD laser monitor input
CD-LO	61	CD laser output
DVD-LO	64	DVD laser output
COP	27	Positive input FTC comparator
COM	28	Inverting input FTC comparator
COO	29	FTC comparator output
SIDA	23	Serial host interface data input
SICL	24	Serial host interface clock input
SILD	25	Serial host interface load
VDDA1	8	Analog Supply voltage 1 (RF input)
VDDA2	59	Analog Supply voltage 2 (RF internal)
VDDA3	53	Analog Supply voltage 3 (RF output stage)
VDDA4	44	Analog Supply voltage 4 (Servo)
VDDD5	30	Digital Supply voltage (5V dig core)
VDDD3	22	Digital Supply voltage (3V I/O pads and FTC comp.)
VDDL	63	Supply voltage for laser
VSSA1	9	Analog Ground 1
VSSA2	58	Analog Ground 2
VSSA3	57	Analog Ground 3
VSSA4	43	Analog Ground 4
VSSD	26	Digital ground
R-EXT	60	Reference current input (Connect 12k1 to VSSA4)
STB	31	Standby input
TM	19	Test mode input
TDO	34	Test data out

SAA7812HL**Front-end Processor**

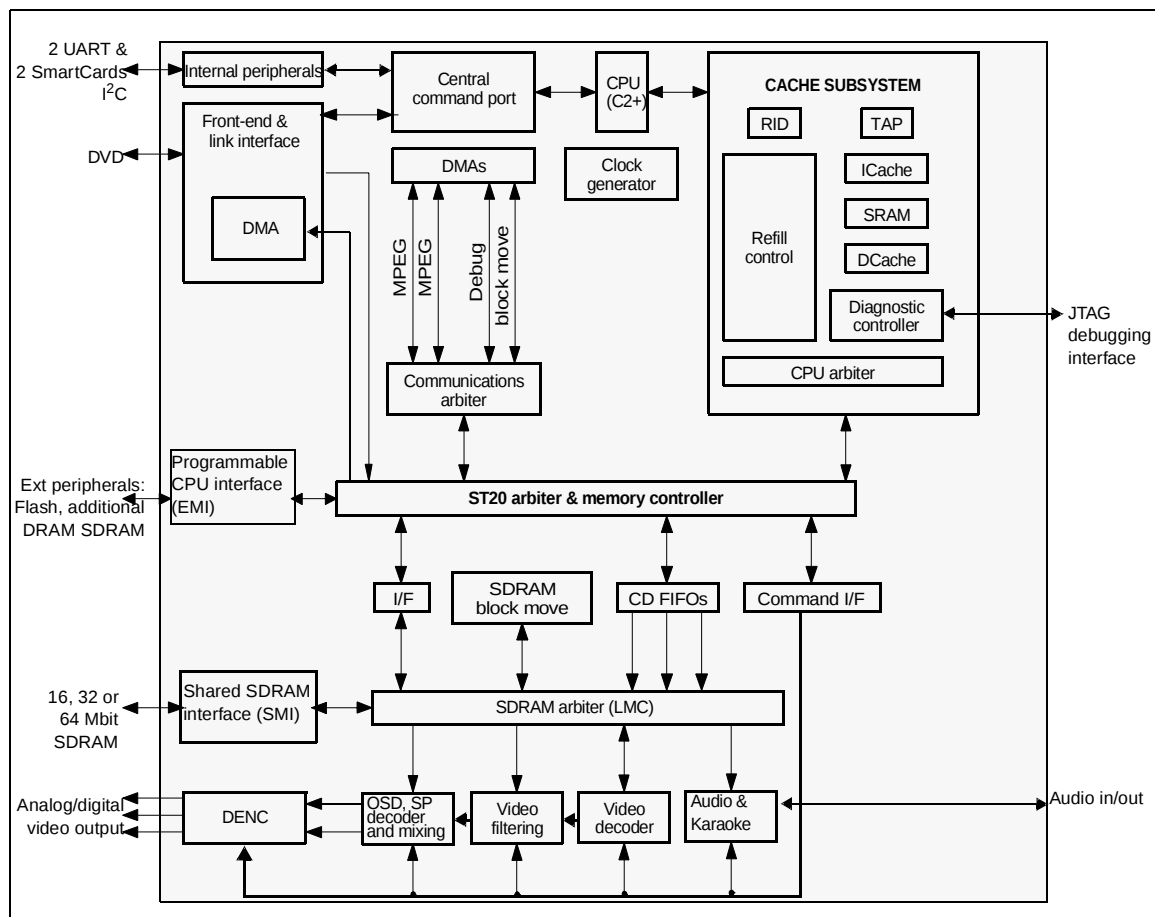
SAA7812HL

Front-end Processor

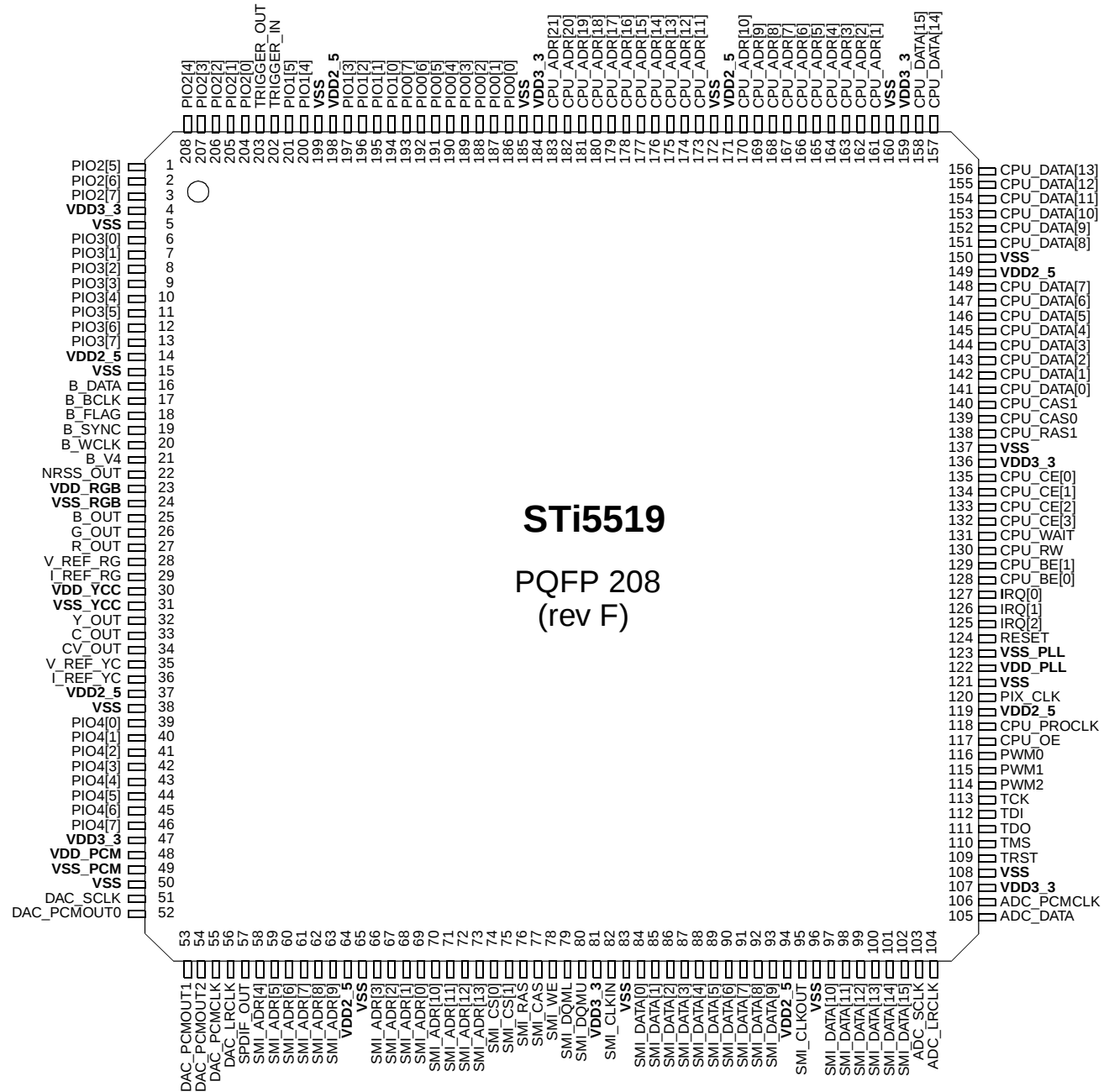


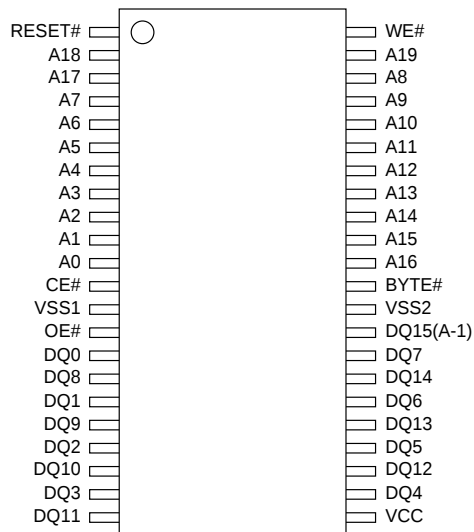
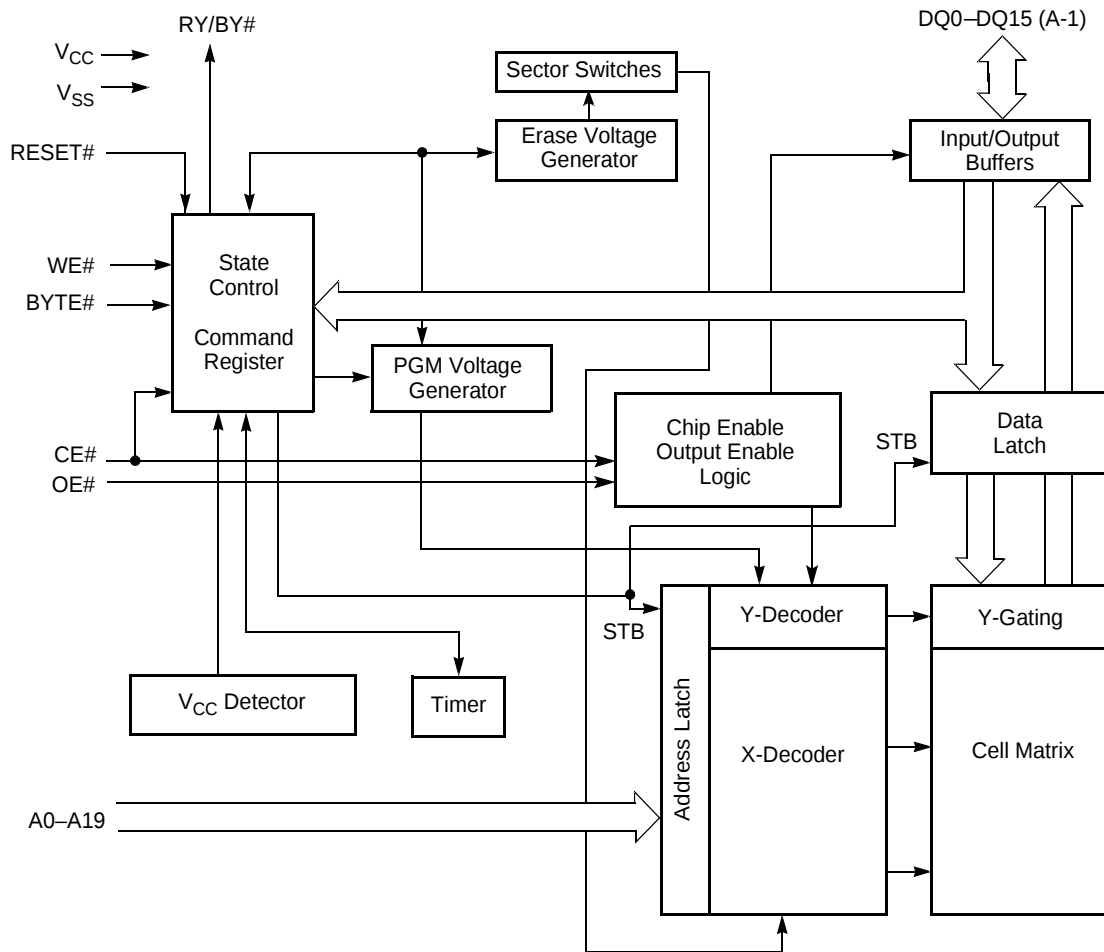
STI5519

Back end Host Processor



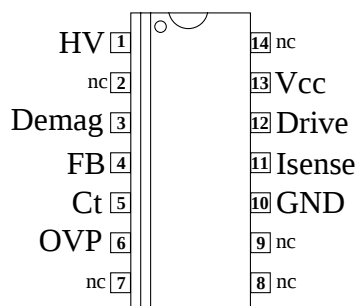
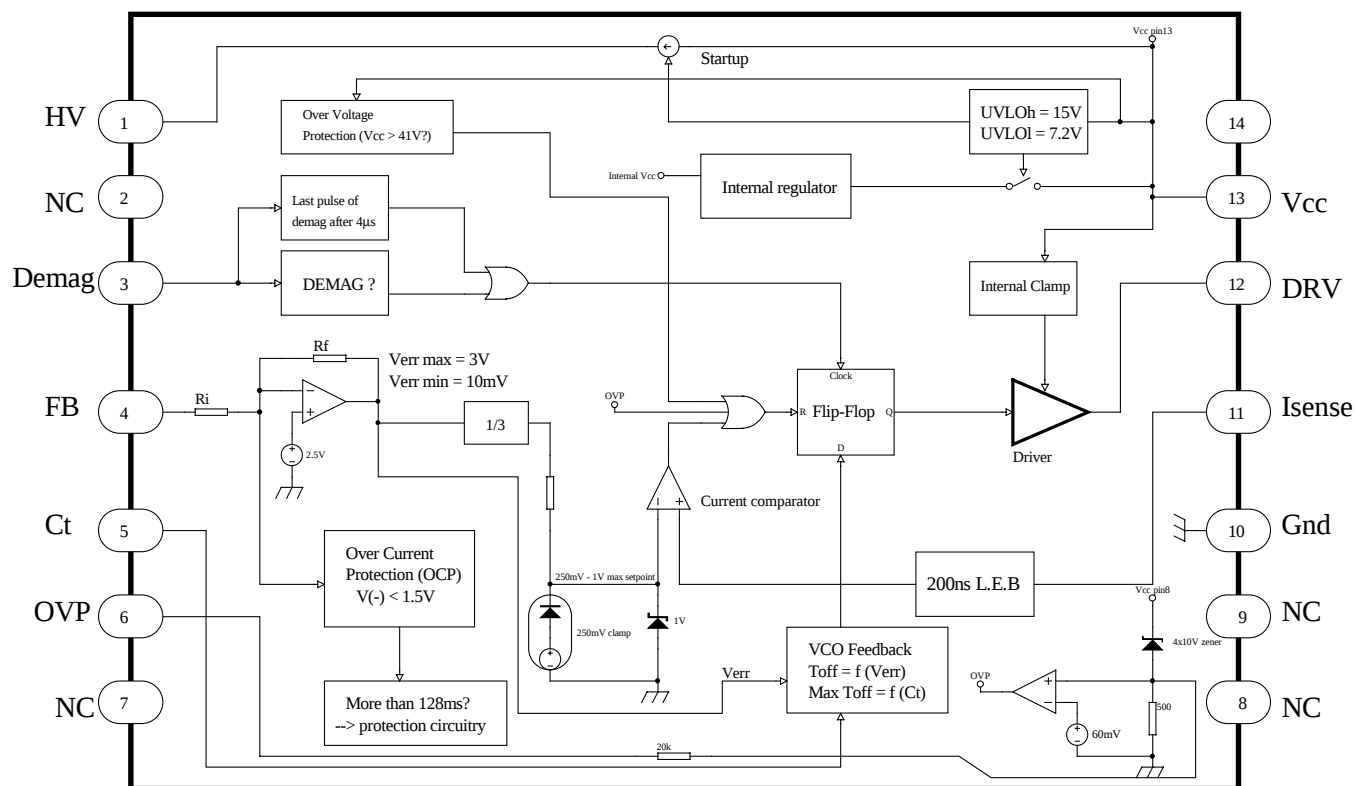
Back end Host Processor



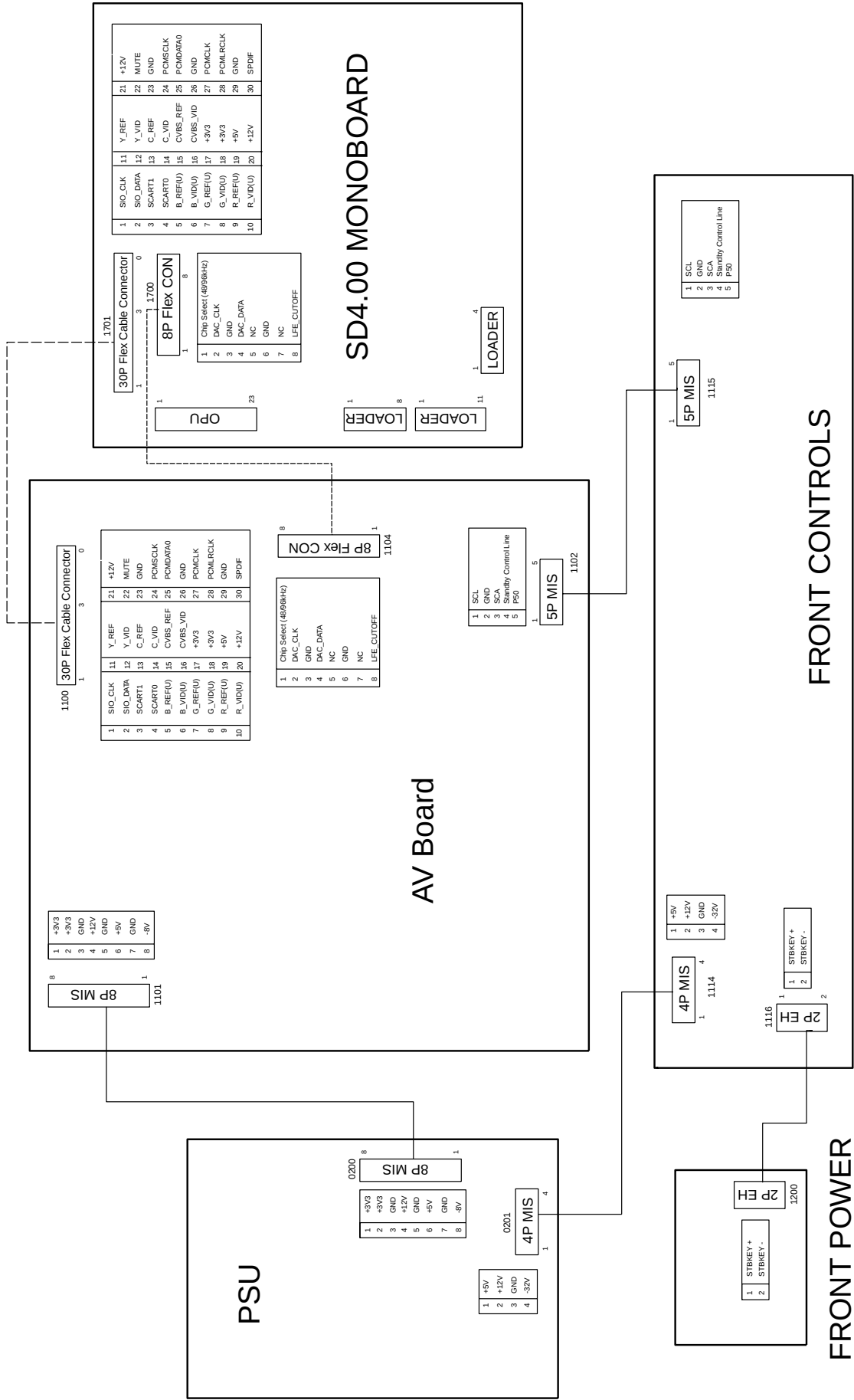
Am29LV160BT**16 MB (2 M x 8-bit / 1 M x 16-bit) CMOS 3.0 Volt-only Sector Erase Flash Memory**

TY72011P2

Power Supply



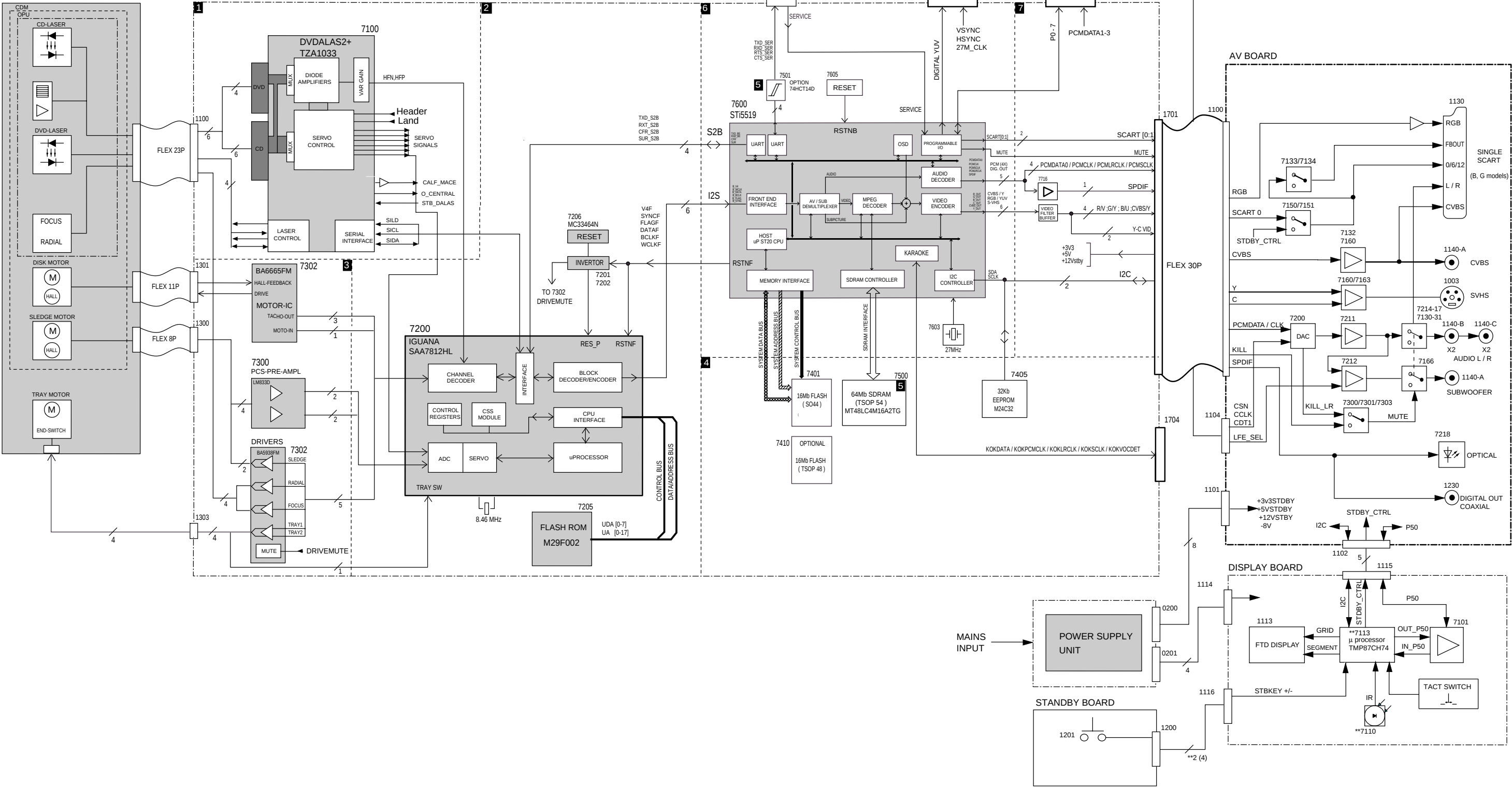
WIRING DIAGRAM



■ BLOCK DIAGRAM

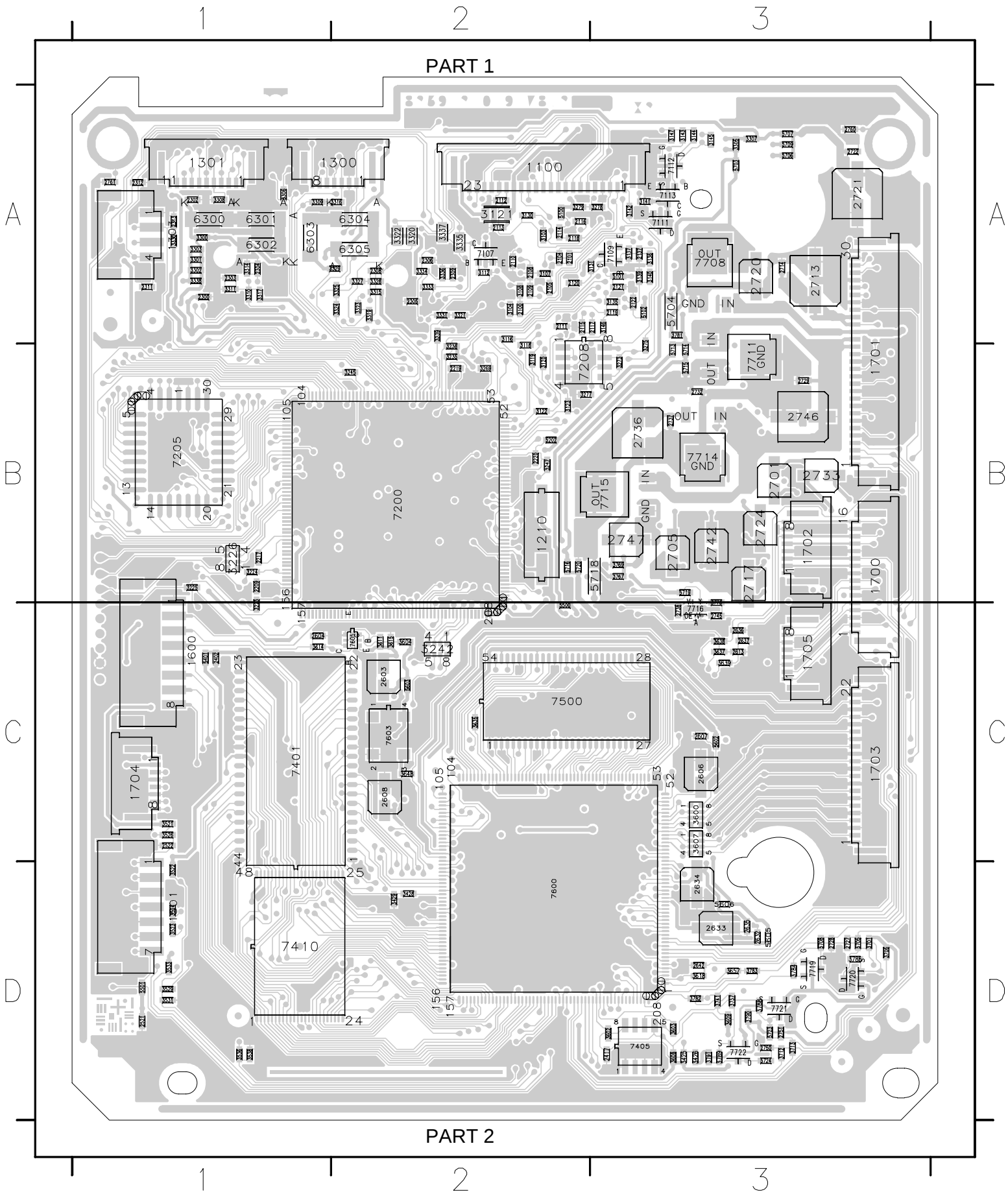
DVD MECHANISM
MERCURY 3 LOADER

MONO BOARD



PRINTED CIRCUIT BOARD

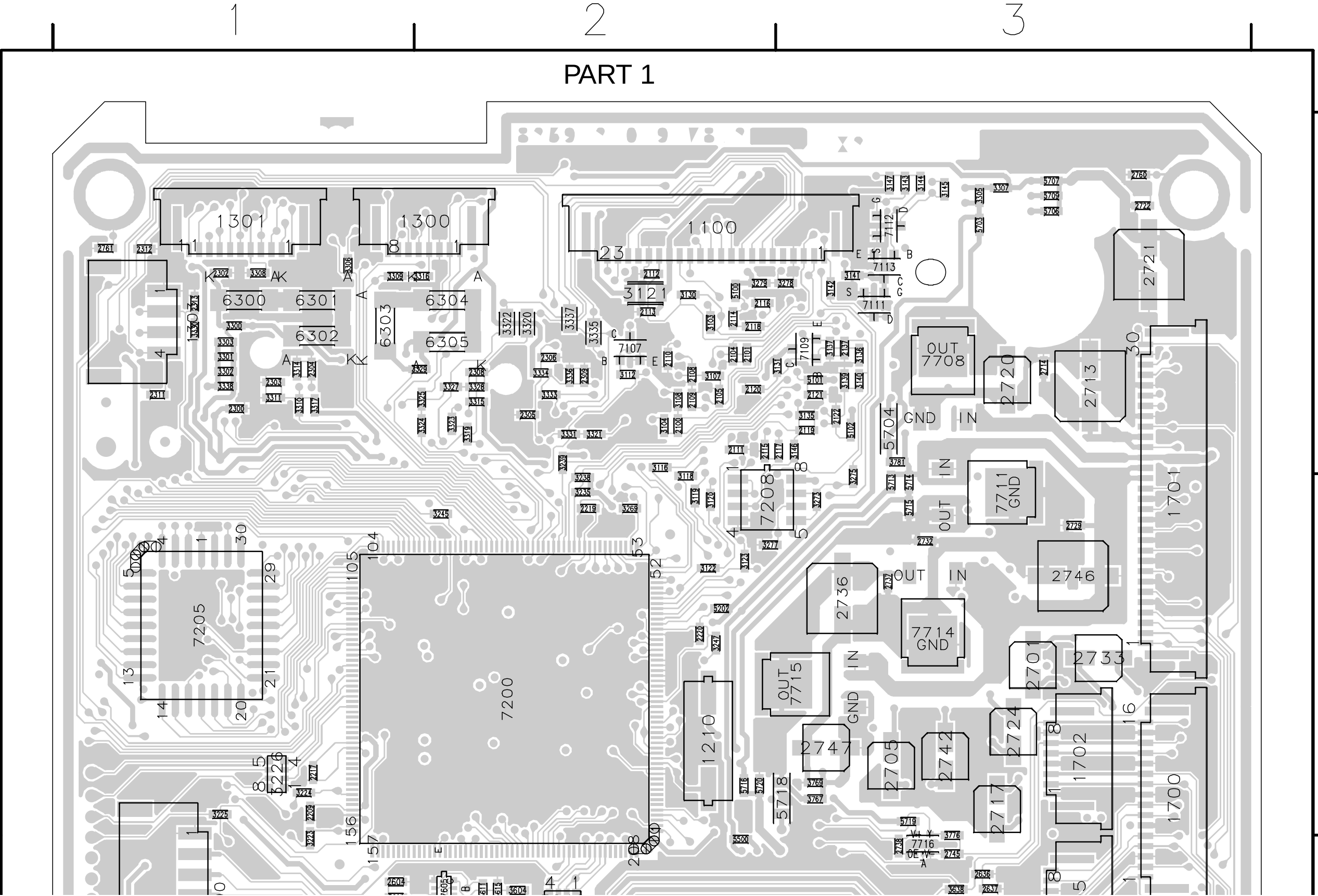
MONO-Board Top View (Overview)



1100	A2	2720	A3	3309	A1	3788	D3
1210	B2	2721	A3	3310	A1	3789	D3
1300	A2	2722	A3	3311	A1	3790	D3
1301	A1	2724	B3	3314	A1	3791	D3
1303	A1	2727	D3	3315	A2	5100	A2
1501	D1	2728	D3	3316	A2	5101	A3
1600	C1	2729	B3	3317	A1	5102	A3
1700	B3	2732	B3	3319	A2	5202	B2
1701	B3	2733	B3	3320	A2	5401	C1
1702	B3	2736	B3	3321	A2	5500	C2
1703	C3	2737	B3	3322	A2	5501	D1
1704	C1	2738	C3	3323	A2	5602	C3
1705	C3	2742	B3	3324	A2	5603	C2
2100	A2	2745	C3	3325	A2	5605	D3
2101	A2	2746	B3	3327	A2	5606	D3
2104	A2	2747	B3	3328	A2	5703	A3
2105	A2	2750	D3	3329	A2	5704	A3
2108	A2	2751	D3	3330	A1	5705	D3
2109	A2	2760	A3	3331	A2	5706	A3
2110	A2	2761	A1	3333	A2	5707	A3
2111	A2	3103	A2	3334	A2	5708	D3
2112	A2	3104	A2	3335	A2	5709	A3
2113	A2	3107	A2	3336	A2	5713	B3
2114	A2	3108	A2	3337	A2	5714	B3
2115	A2	3112	A2	3338	A1	5715	B3
2116	A2	3116	A2	3425	D3	5716	B2
2117	A3	3118	B2	3426	D3	5718	B3
2118	A2	3119	B2	3428	D2	5719	B3
2119	A3	3120	B2	3429	D2	5720	B2
2120	A2	3121	A2	3521	C1	5723	D3
2121	A3	3122	B2	3522	D1	5724	D3
2122	A3	3123	B2	3523	D1	6300	A1
2137	A3	3130	A2	3524	D1	6301	A1
2209	B1	3131	A3	3526	C1	6302	A1
2217	B1	3135	A3	3529	D1	6303	A1
2219	B2	3136	A3	3531	D1	6304	A2
2220	B2	3137	A3	3533	D1	6305	A2
2300	A1	3139	A3	3536	D1	7107	A2
2302	A1	3140	A3	3538	D1	7109	A3
2303	A1	3141	A3	3600	C3	7111	A3
2304	A1	3142	A3	3602	D3	7112	A3
2305	A2	3143	A3	3603	D3	7113	A3
2306	A2	3144	A3	3604	C2	7200	B2
2308	A2	3145	A3	3607	C3	7205	B1
2309	A2	3146	A3	3608	D3	7208	B2
2311	A1	3147	A3	3609	D3	7401	C1
2312	A1	3223	C1	3611	C2	7405	D3
2313	A1	3224	B1	3614	C1	7410	D1
2402	C1	3225	B1	3615	C2	7500	C2
2417	D3	3226	B1	3618	D3	7600	D2
2521	D1	3235	B2	3635	C2	7603	C2
2522	C1	3238	B2	3637	C3	7605	C2
2603	C2	3239	A2	3638	C3	7708	A3
2604	C1	3242	C2	3639	C3	7711	B3
2606	C3	3245	B2	3648	C2	7714	B3
2607	C3	3247	B2	3657	D3	7715	B3
2608	C2	3269	B2	3701	D3	7716	C3
2613	C3	3273	B3	3705	D3	7719	D3
2632	D3	3275	B3	3712	D3	7720	D3
2633	D3	3277	B2	3713	D3	7721	D3
2634	D3	3278	A3	3737	D3	7722	D3
2635	D3	3279	A2	3741	D3		
2636	C3	3300	A1	3767	B3		
2637	C3	3301	A1	3769	B3		
2642	D3	3302	A1	3776	C3		
2701	B3	3303	A1	3781	A3		
2705	B3	3305	A3	3782	D3		
2713	A3	3306	A1	3783	D3		
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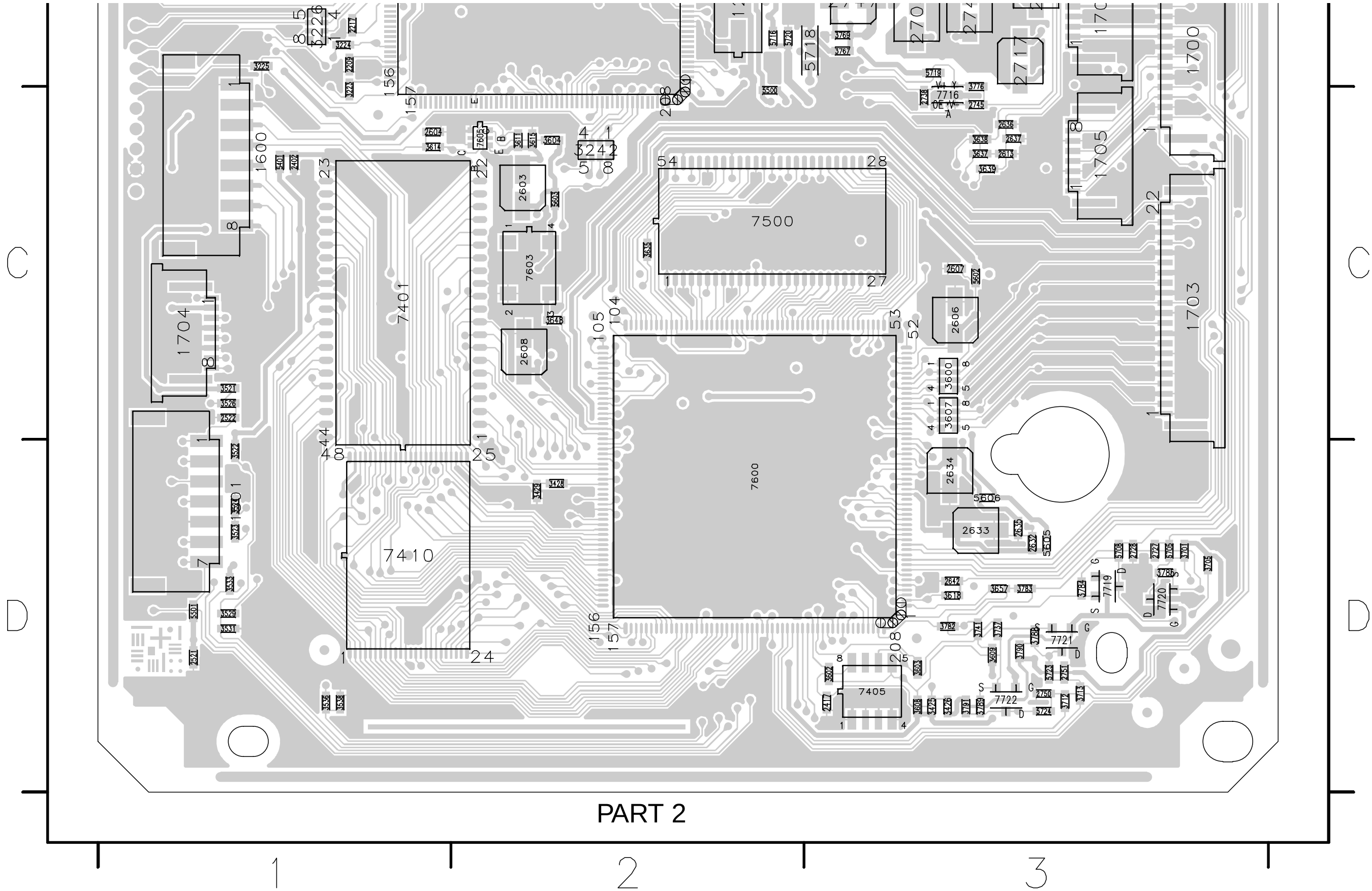
■ PRINTED CIRCUIT BOARD

MONO-Board Detailed Top View Part 1



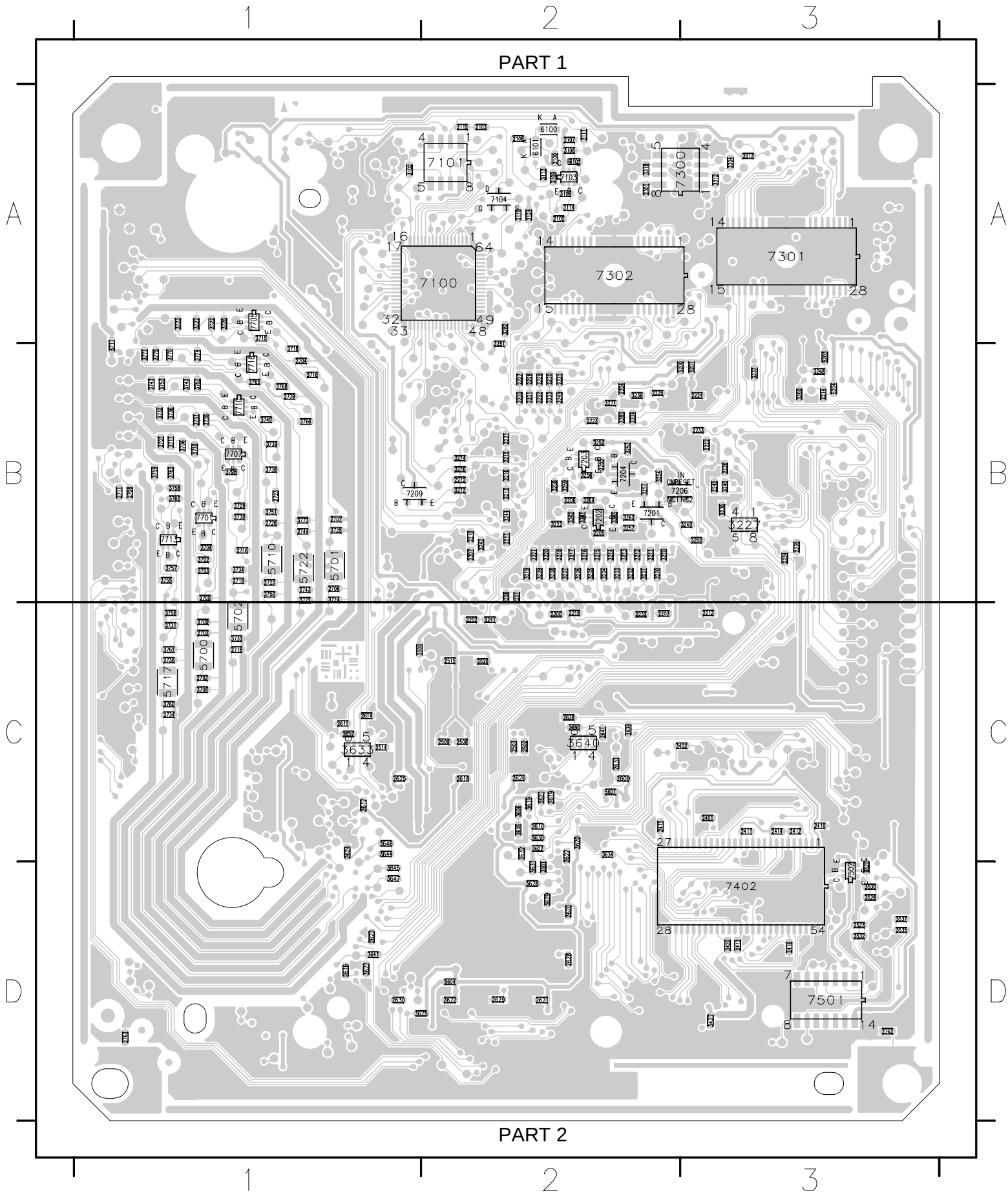
■ PRINTED CIRCUIT BOARD

MONO-Board Detailed Top View Part 2



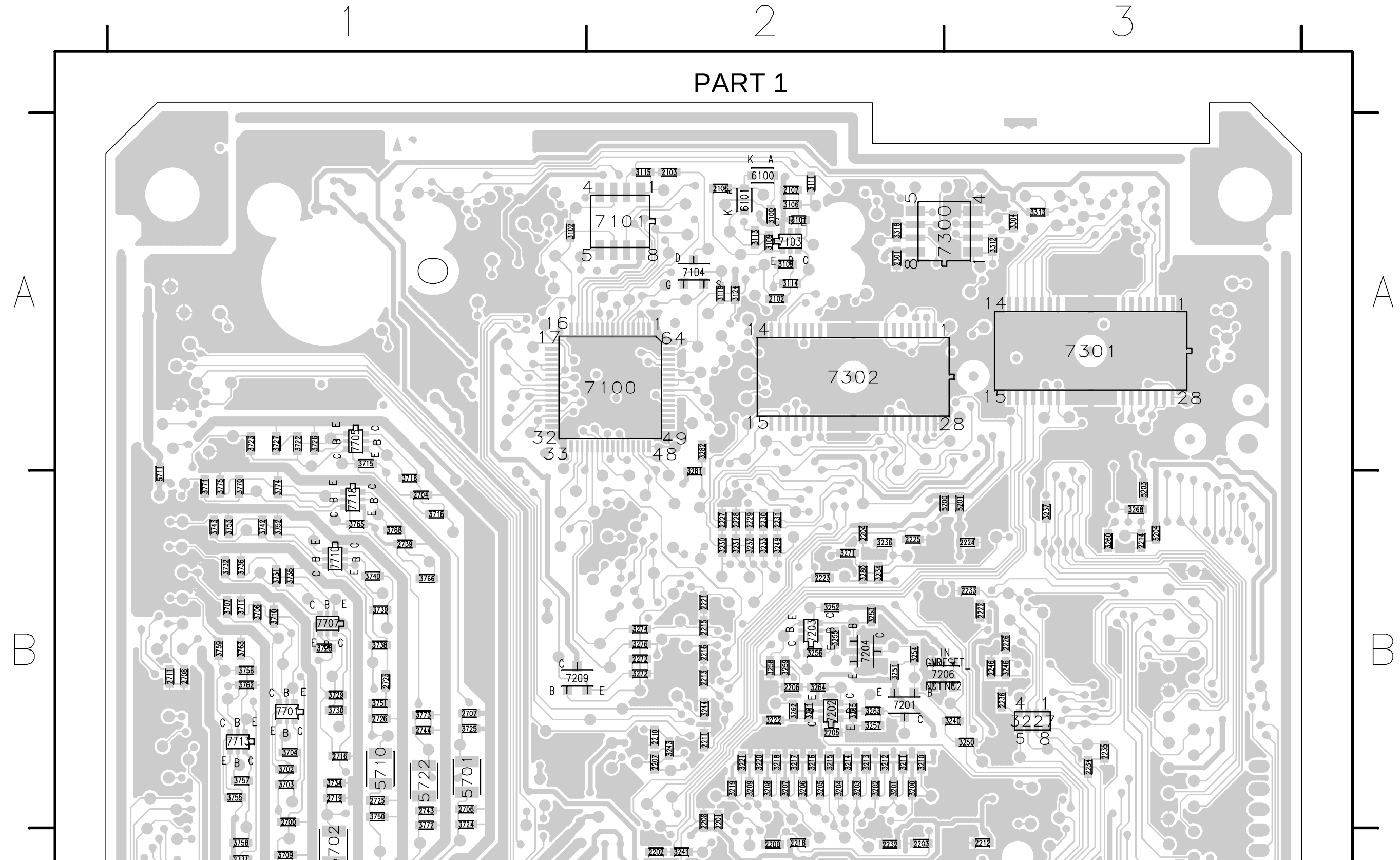
■ PRINTED CIRCUIT BOARD

MONO-Board Bottom View (Overview)



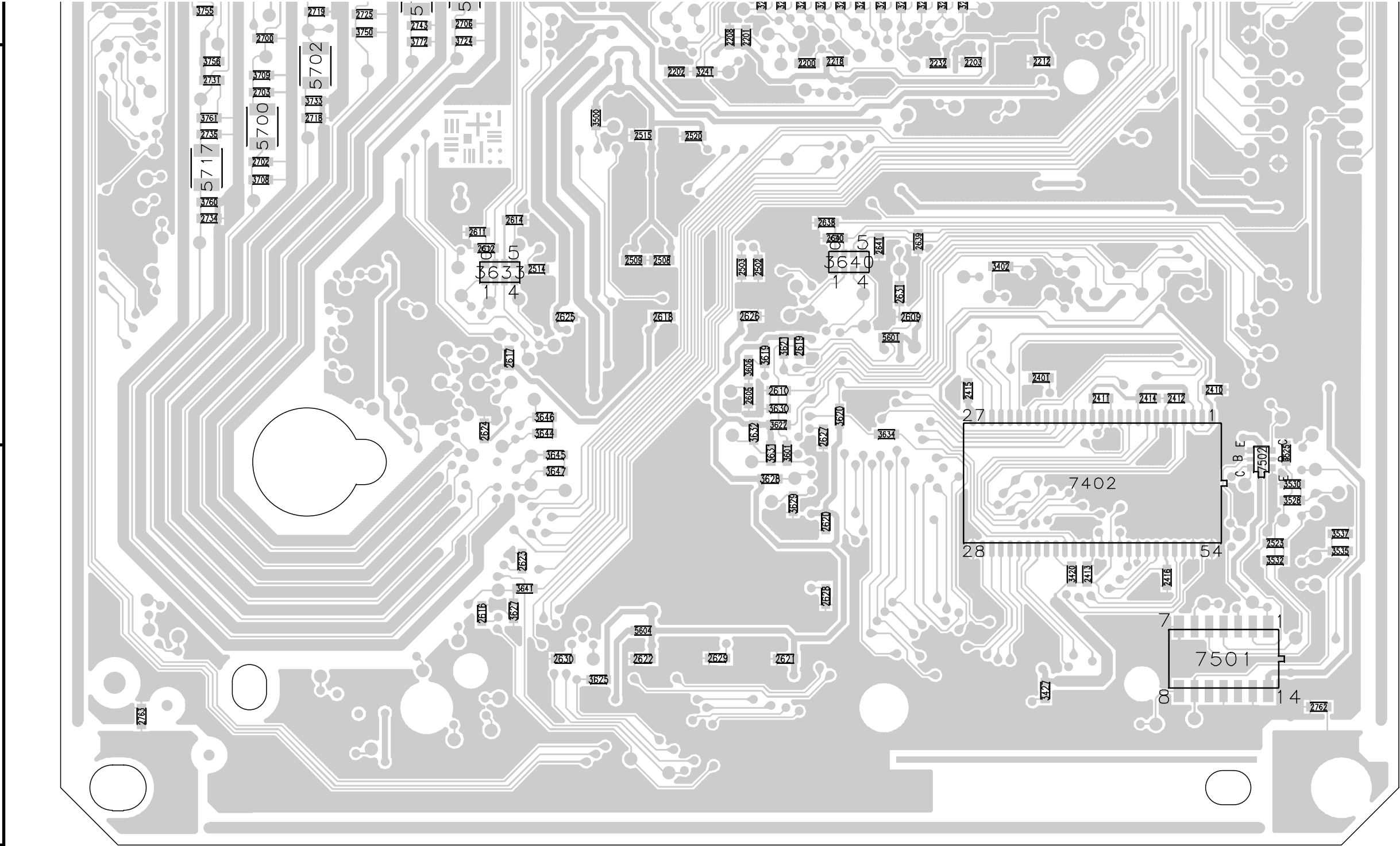
2102 A2	2625 C1	3232 B2	3703 B1	7104 A2
2103 A2	2626 C2	3233 B2	3704 B1	7201 B2
2106 A2	2627 C2	3234 B2	3706 B1	7202 B2
2107 A2	2628 D2	3236 B2	3707 B1	7203 B2
2200 C2	2629 D2	3237 B3	3708 C1	7204 B2
2201 B2	2630 D1	3240 B3	3709 C1	7206 B2
2202 C2	2631 C2	3241 C2	3710 B1	7209 B1
2203 C2	2638 C2	3243 B2	3711 B1	7300 A3
2204 B2	2639 C2	3244 B2	3715 A1	7301 A3
2205 B2	2640 C2	3246 B3	3716 B1	7302 A2
2206 B2	2641 C2	3249 B2	3718 B1	7402 D3
2207 B2	2700 B1	3250 B3	3722 A1	7501 D3
2208 B2	2702 C1	3251 B2	3723 A1	7502 D3
2210 B2	2703 C1	3252 B2	3724 B1	7701 B1
2211 B2	2704 B1	3253 B2	3725 B1	7705 A1
2212 C3	2706 B1	3254 B2	3726 A1	7707 B1
2213 B2	2707 B1	3255 B2	3727 A1	7710 B1
2214 B3	2708 B1	3256 B2	3728 B1	7713 B1
2215 B2	2711 B1	3257 B2	3729 B1	7718 B1
2216 B2	2716 B1	3258 B2	3730 B1	
2218 C2	2718 C1	3259 B2	3731 B1	
2221 B2	2719 B1	3260 B3	3732 B1	
2222 B3	2723 B1	3261 B2	3733 C1	
2223 B2	2725 B1	3262 B2	3734 B1	
2224 B3	2726 B1	3263 B2	3735 B1	
2225 B2	2731 C1	3264 B2	3736 B1	
2226 B3	2734 C1	3265 B2	3738 B1	
2227 B2	2735 C1	3268 B3	3739 B1	
2228 B2	2739 B1	3271 B2	3740 B1	
2229 B2	2743 B1	3272 B2	3742 B1	
2230 B2	2744 B1	3274 B2	3743 B1	
2231 B2	2762 D3	3276 B2	3750 B1	
2232 C2	2763 D1	3280 B2	3751 B1	
2233 B3	3100 A2	3281 B2	3752 B1	
2234 B3	3101 A2	3282 A2	3753 B1	
2235 B3	3102 A1	3304 A3	3755 B1	
2236 B3	3105 A2	3312 A3	3756 C1	
2246 B3	3106 A2	3313 A3	3757 B1	
2272 B2	3109 A2	3318 A2	3758 B1	
2301 A2	3110 A2	3402 C3	3759 B1	
2401 C3	3111 A2	3420 D3	3760 C1	
2410 C3	3113 A2	3427 D3	3761 C1	
2411 C3	3114 A2	3500 C1	3762 B1	
2412 C3	3115 A2	3525 D3	3763 B1	
2413 D3	3124 A2	3528 D3	3765 B1	
2414 C3	3200 B2	3530 D3	3766 B1	
2415 C2	3201 B2	3532 D3	3768 B1	
2416 D3	3202 B2	3535 D3	3770 B1	
2502 C2	3203 B2	3537 D3	3771 B1	
2503 C2	3204 B2	3601 D2	3772 B1	
2508 C2	3205 B2	3606 C2	3773 B1	
2509 C2	3206 B2	3619 C2	3774 B1	
2514 C1	3207 B2	3620 C2	3775 B1	
2515 C2	3208 B2	3621 C2	5200 B3	
2520 C2	3209 B2	3622 C2	5201 B3	
2523 D3	3210 B2	3625 D2	5203 B3	
2605 C2	3211 B2	3627 D1	5204 B3	
2609 C2	3212 B2	3628 D2	5601 C2	
2610 C2	3213 B2	3629 D2	5604 D2	
2611 C1	3214 B2	3630 C2	5700 C1	
2612 C1	3215 B2	3631 D2	5701 B1	
2614 C1	3216 B2	3632 C2	5702 C1	
2616 D1	3217 B2	3633 C1	5710 B1	
2617 C1	3218 B2	3634 C2	5711 B1	
2618 C2	3219 B2	3640 C2	5717 C1	
2619 C2	3220 B2	3641 D1	5722 B1	
2620 D2	3221 B2	3644 C1	6100 A2	
2621 D2	3222 B2	3645 D1	6101 A2	
2622 D2	3227 B3	3646 C1	7100 A2	
2623 D1	3230 B2	3647 D1	7101 A2	
2624 C1	3231 B2	3702 B1	7103 A2	

MONO-Board Detailed Bottom View Part 1



■ PRINTED CIRCUIT BOARD

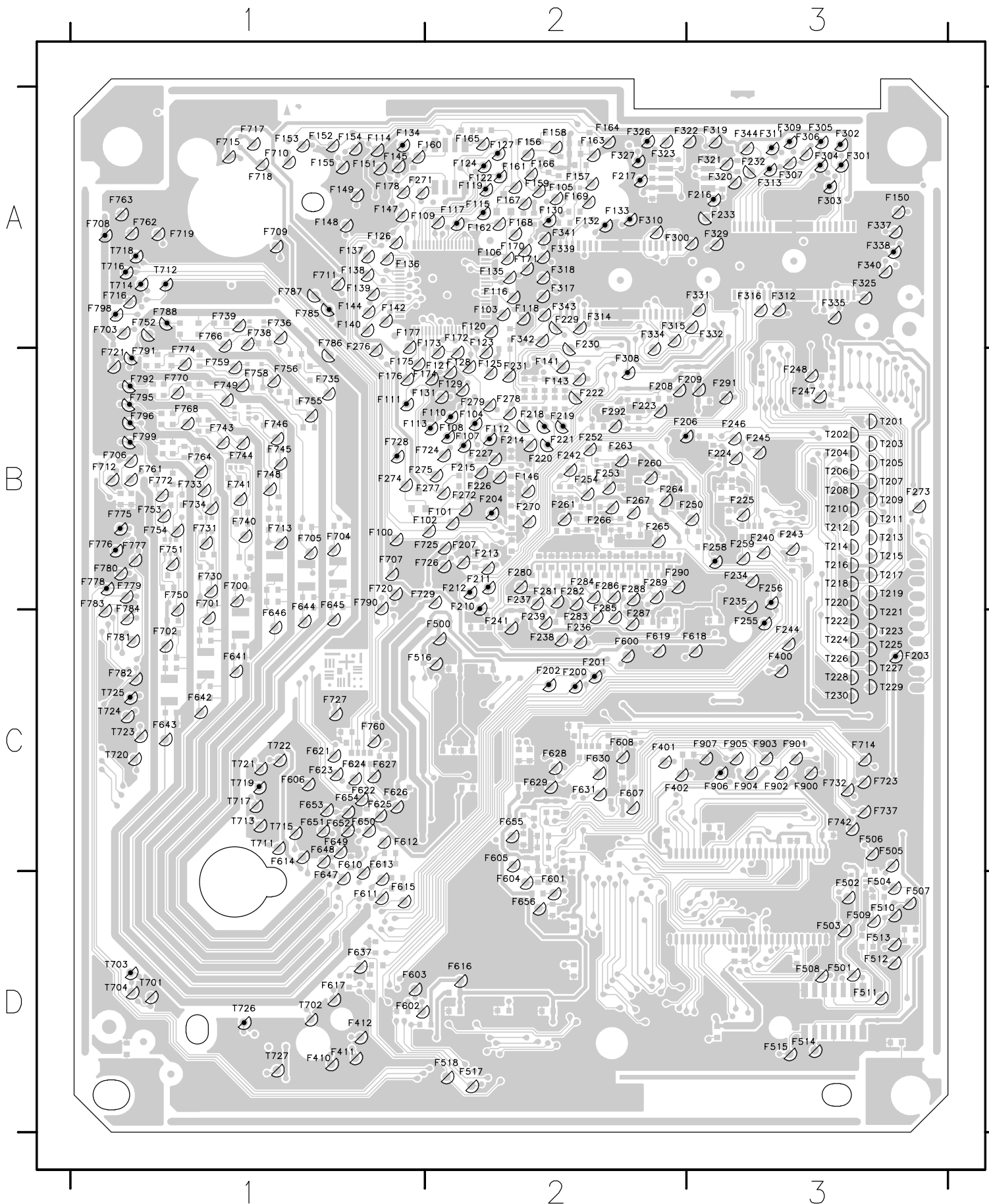
MONO-Board Detailed Bottom View Part 2



PART 2

PRINTED CIRCUIT BOARD

MONO-Board Testpoint Overview

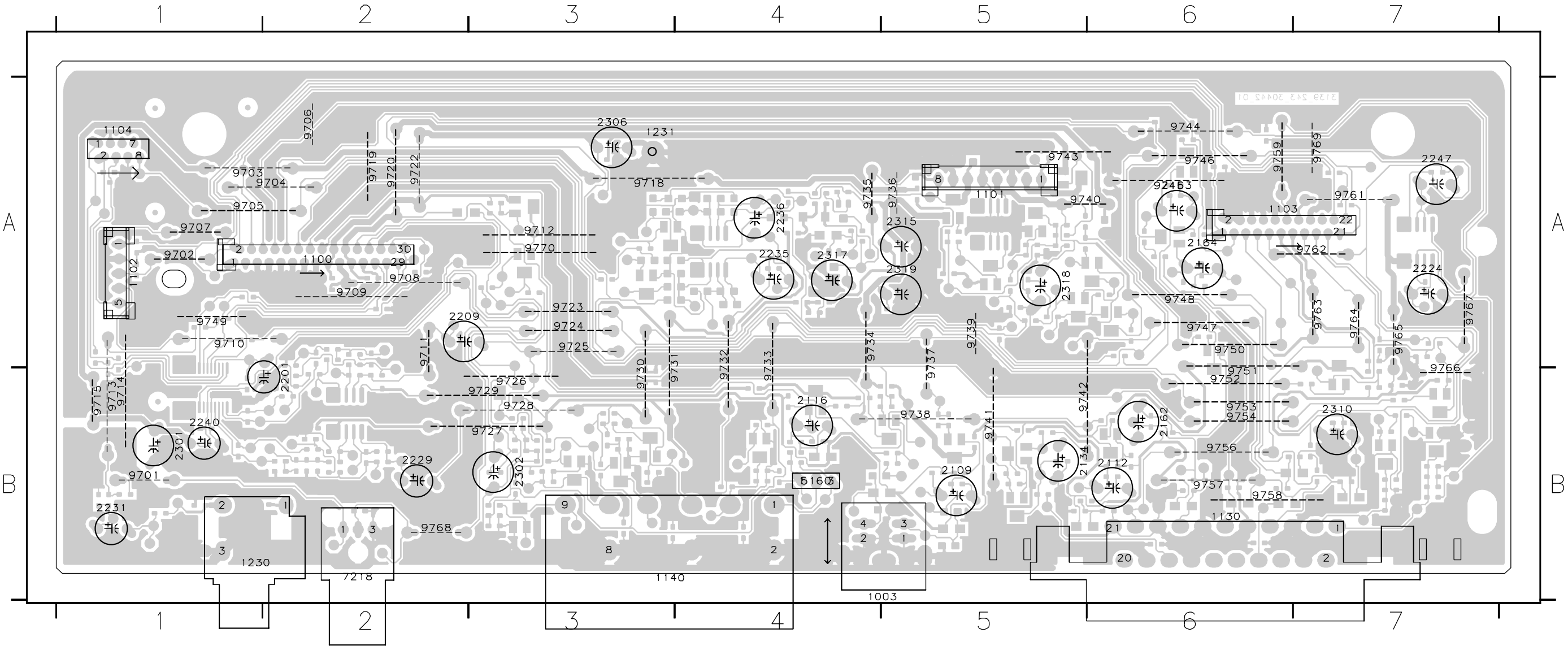


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F102 B2	F173 B2	F273 B3	F505 C3	F710 A1	F790 B1
F103 A2	F174 B2	F274 B1	F506 C3	F711 A1	F791 B1
F104 B2	F175 B1	F275 B2	F507 D3	F712 B1	F792 B1
F105 A2	F176 B1	F276 B1	F508 D3	F713 B1	F795 B1
F106 A2	F177 A1	F277 B2	F509 D3	F714 C3	F796 B1
F107 B2	F178 A1	F278 B2	F510 D3	F715 A1	F798 A1
F108 B2	F200 C2	F279 B2	F511 D3	F716 A1	F799 B1
F109 A2	F201 C2	F280 B2	F512 D3	F717 A1	F900 C3
F110 B2	F202 C2	F281 B2	F513 D3	F718 A1	F901 C3
F111 B1	F203 C3	F282 B2	F514 D3	F719 A1	F902 C3
F112 B2	F204 B2	F283 C2	F515 D3	F720 B1	F903 C3
F113 B2	F206 B2	F284 B2	F516 C2	F721 B1	F904 C3
F114 A1	F207 B2	F285 C2	F517 D2	F723 C3	F905 C3
F115 A2	F208 B2	F286 B2	F518 D2	F724 B2	F906 C3
F116 A2	F209 B3	F287 C2	F600 C2	F725 B2	F907 C3
F117 A2	F210 B2	F288 B2	F601 D2	F726 B2	T201 B3
F118 A2	F211 B2	F289 B2	F602 D1	F727 C1	T202 B3
F119 A2	F212 B2	F290 B2	F603 D1	F728 B1	T203 B3
F120 A2	F213 B2	F291 B3	F604 D2	F729 B2	T204 B3
F121 B2	F214 B2	F292 B2	F605 C2	F730 B1	T205 B3
F122 A2	F215 B2	F300 A3	F606 C1	F731 B1	T206 B3
F123 B2	F216 A3	F301 A3	F607 C2	F732 C3	T207 B3
F124 A2	F217 A2	F302 A3	F608 C2	F733 B1	T208 B3
F125 B2	F218 B2	F303 A3	F610 D1	F734 B1	T209 B3
F126 A1	F219 B2	F304 A3	F611 D1	F735 B1	T210 B3
F127 A2	F220 B2	F305 A3	F612 C1	F736 A1	T211 B3
F128 B2	F221 B2	F306 A3	F613 D1	F737 C3	T212 B3
F129 B2	F222 B2	F307 A3	F614 C1	F738 A1	T213 B3
F130 A2	F223 B2	F308 B2	F615 D1	F739 A1	T214 B3
F131 B2	F224 B3	F309 A3	F616 D2	F740 B1	T215 B3
F132 A2	F225 B3	F310 A2	F617 D1	F741 B1	T216 B3
F133 A2	F226 B2	F311 A3	F618 C3	F742 C3	T217 B3
F134 A1	F227 B2	F312 A3	F619 C2	F743 B1	T218 B3
F135 A2	F229 A2	F313 A3	F621 C1	F744 B1	T219 B3
F136 A1	F230 A2	F314 A2	F622 C1	F745 B1	T220 B3
F137 A1	F231 B2	F315 A2	F623 C1	F746 B1	T221 C3
F138 A1	F232 A3	F316 A3	F624 C1	F748 B1	T222 C3
F139 A1	F233 A3	F317 A2	F625 C1	F749 B1	T223 C3
F140 A1	F234 B3	F318 A2	F626 C1	F750 B1	T224 C3
F141 B2	F235 B3	F319 A3	F627 C1	F751 B1	T225 C3
F142 A1	F236 C2	F320 A3	F628 C2	F752 A1	T226 C3
F143 B2	F237 B2	F321 A3	F629 C2	F753 B1	T227 C3
F144 A1	F238 C2	F322 A3	F630 C2	F754 B1	T228 C3
F145 A1	F239 C2	F323 A2	F631 C2	F755 B1	T229 C3
F146 B2	F240 B3	F325 A3	F637 D1	F756 B1	T230 C3
F147 A1	F241 C2	F326 A2	F641 C1	F758 B1	T701 D1
F148 A1	F242 B2	F327 A2	F642 C1	F759 B1	T702 D1
F149 A1	F243 B3	F329 A3	F643 C1	F760 C1	T703 D1
F150 A3	F244 C3	F331 A3	F644 C1	F761 B1	T704 D1
F151 A1	F245 B3	F332 A3	F645 C1	F762 A1	T711 C1
F152 A1	F246 B3	F334 A2	F646 C1	F763 A1	T712 A1
F153 A1	F247 B3	F335 A3	F647 D1	F764 B1	T713 C1
F154 A1	F248 B3	F337 A3	F648 C1	F766 A1	T714 A1
F155 A1	F250 B3	F338 A3	F649 C1	F768 B1	T715 C1
F156 A2	F252 B2	F339 A2	F650 C1	F770 B1	T716 A1
F157 A2	F253 B2	F340 A3	F651 C1	F772 B1	T717 C1
F158 A2	F254 B2	F341 A2	F652 C1	F774 B1	T718 A1
F159 A2	F255 C3	F342 A2	F653 C1	F775 B1	T719 C1
F160 A1	F256 B3	F343 A2	F654 C1	F776 B1	T720 C1
F161 A2	F258 B3	F344 A3	F655 C2	F777 B1	T721 C1
F162 A2	F259 B3	F400 C3	F656 D2	F778 B1	T722 C1
F163 A2	F260 B2	F401 C2	F700 B1	F779 B1	T723 C1
F164 A2	F261 B2	F402 C2	F701 C1	F780 B1	T724 C1
F165 A2	F263 B2	F410 D1	F702 C1	F781 C1	T725 C1
F166 A2	F264 B2	F411 D1	F703 A1	F782 C1	T726 D1
F167 A2	F265 B2	F412 D1	F704 B1	F783 C1	T727 D1
F168 A2	F266 B2	F500 C2	F705 B1	F784 C1	
F169 A2	F267 B2	F501 D3	F706 B1	F785 A1	
F170 A2	F270 B2	F502 D3	F707 B1	F786 B1	

■ PRINTED CIRCUIT BOARD (G, B models)

AV-Board (Top View)

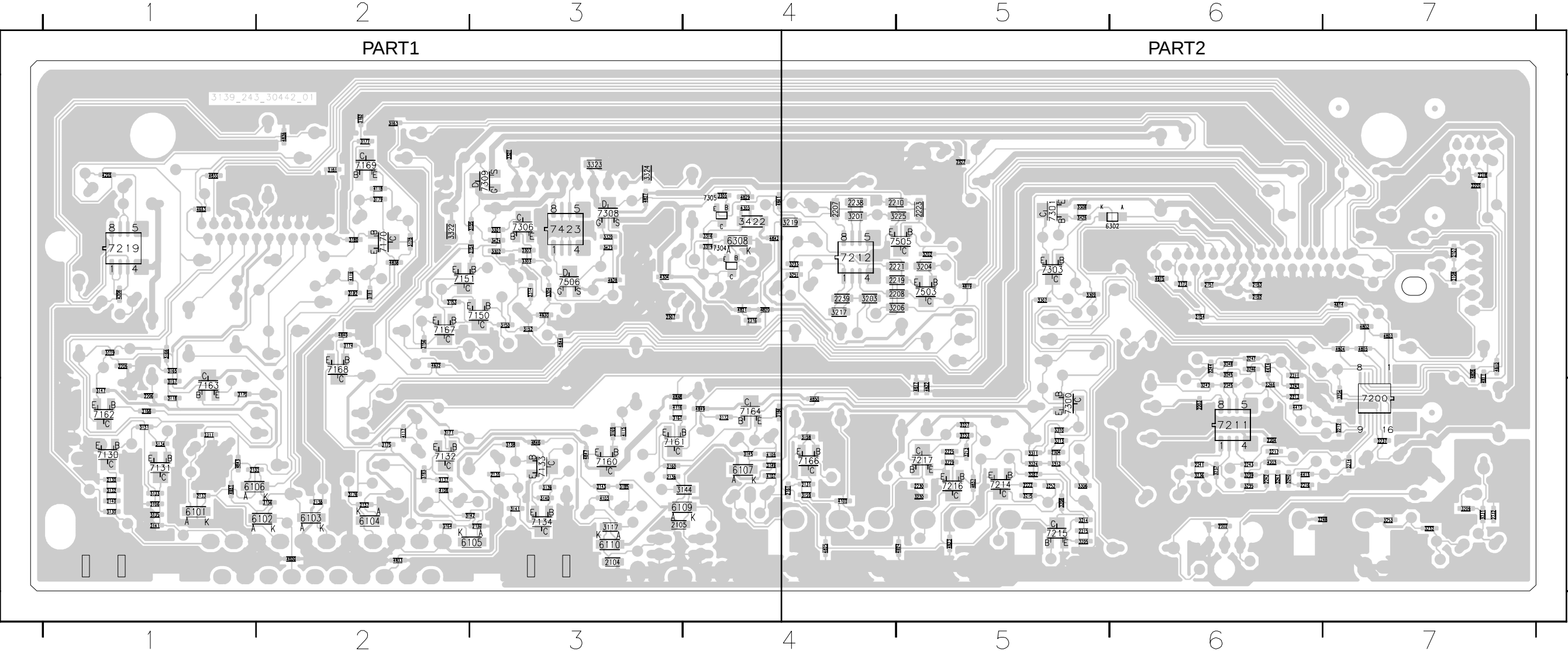
1003	B5	1140	B3	2162	B6	2231	B1	2306	A3	7218	B2	9707	A1	9714	B1	9724	A3	9731	A4	9738	B5	9745	A6	9752	B6	9761	A7	9768	B2
1100	A2	1230	B1	2163	A6	2235	A4	2310	B7	9701	B1	9708	A2	9715	B1	9725	A3	9732	A4	9739	A5	9746	A6	9753	B6	9762	A7	9769	A7
1101	A5	1231	A3	2164	A6	2236	A4	2315	A5	9702	A1	9709	A2	9718	A3	9726	A3	9733	A4	9740	A5	9747	A6	9754	B6	9763	A7	9770	A3
1102	A1	2109	B5	2201	B1	2240	B1	2317	A4	9703	A1	9710	A1	9719	A2	9727	B3	9734	A4	9741	B5	9748	A6	9756	B6	9764	A7		
1103	A6	2112	B6	2209	A2	2247	A7	2318	A5	9704	A2	9711	A2	9720	A2	9728	B3	9735	A4	9742	B5	9749	A1	9757	B6	9765	A7		
1104	A1	2116	B4	2224	A7	2301	B1	2319	A5	9705	A1	9712	A3	9722	A2	9729	B3	9736	A5	9743	A5	9750	A6	9758	B6	9766	A7		
1130	B6	2134	B5	2229	B2	2302	B3	5160	B4	9706	A2	9713	B1	9723	A3	9730	B3	9737	A5	9744	A6	9751	A6	9759	A6	9767	A7		



PRINTED CIRCUIT BOARD (G, B models)

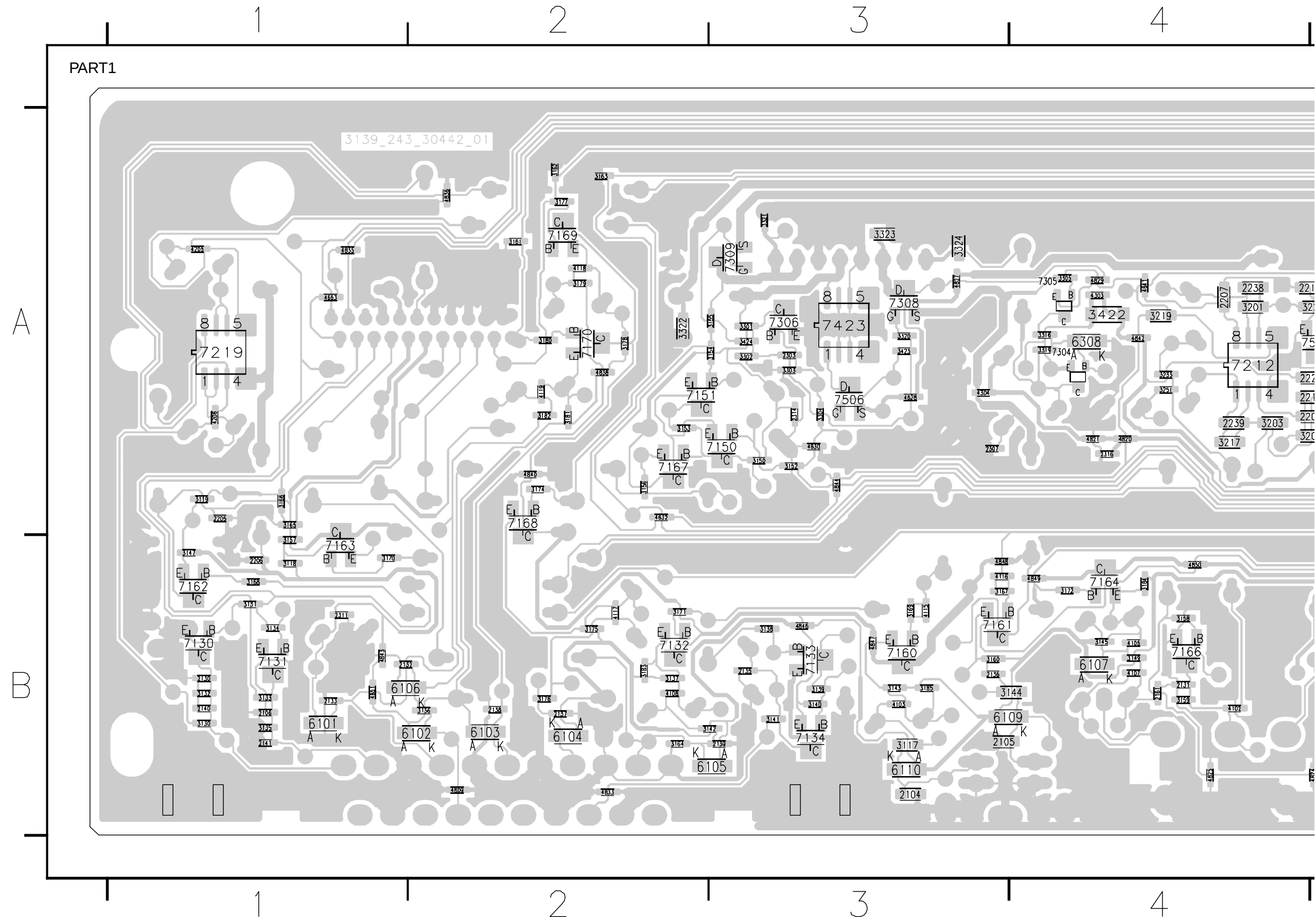
AV-Board (Bottom View)

2104 B3	2161 B4	2222 B5	2316 A4	3145 B4	3168 B1	3203 A4	3233 A4	3304 A3	3425 A5	4802 A7	4829 A4	6102 B2	7163 B1	7306 A3
2105 B3	2202 B6	2223 A5	2322 A5	3147 B1	3169 B3	3204 A5	3234 B7	3305 A4	4102 B4	4803 A7	4830 A3	6103 B2	7164 B4	7308 A3
2106 B1	2203 B6	2225 B5	3117 B3	3149 B4	3170 B1	3205 B5	3235 B6	3306 B5	4103 B3	4804 A7	4832 A2	6104 B2	7166 B4	7309 A3
2107 A7	2204 B6	2230 B5	3118 B1	3150 A3	3171 B2	3206 A5	3236 B6	3307 A5	4105 B4	4805 A7	4833 B2	6105 B3	7167 A2	7423 A3
2108 A7	2205 A1	2232 B7	3119 A1	3152 A3	3172 B4	3207 B5	3237 B6	3308 A5	4107 B4	4806 A7	4835 A1	6106 B1	7168 A2	7503 A5
2130 B1	2206 B1	2237 B7	3130 B1	3153 A2	3173 A6	3208 B5	3239 B6	3309 A5	4108 B2	4809 B2	4836 A2	6107 B4	7169 A2	7505 A5
2131 B4	2207 A4	2238 A4	3131 B1	3154 A3	3174 A2	3209 B7	3240 B6	3310 B5	4115 B3	4810 A7	4837 B5	6109 B3	7170 A2	7506 A3
2132 B1	2208 A5	2239 A4	3132 B1	3155 A3	3175 B2	3213 B5	3241 B6	3311 B5	4116 B3	4811 B7	4838 A2	6110 B3	7200 B7	
2133 B1	2210 A4	2241 B6	3133 B1	3156 A2	3176 B2	3214 B5	3242 B6	3312 B5	4117 B2	4814 A7	4840 A2	6302 A6	7211 B6	
2135 B3	2211 A6	2242 B6	3134 B1	3157 B1	3177 A2	3215 B5	3243 B6	3313 B5	4118 A2	4815 A6	4841 A4	6308 A4	7212 A4	
2136 B3	2212 B7	2243 B6	3135 B1	3158 B4	3178 A2	3217 A4	3245 A6	3316 A4	4119 A2	4817 B5	4842 A4	7130 B1	7214 B5	
2137 B2	2213 B6	2244 A6	3136 B2	3159 B4	3179 A2	3219 A4	3246 A6	3319 A4	4203 B6	4819 A5	4843 B1	7131 B1	7215 B5	
2138 B2	2214 B7	2245 B6	3137 B2	3160 B3	3180 A2	3223 B5	3247 A6	3320 A3	4205 A1	4820 A4	4844 A3	7132 B2	7216 B5	
2139 B3	2215 B5	2246 B6	3138 B3	3161 A2	3181 A2	3224 B5	3248 A6	3321 A3	4206 A1	4821 A4	4846 B3	7133 B3	7217 B5	
2140 B1	2216 B6	2248 B6	3139 B3	3162 A2	3182 A2	3225 A5	3251 A4	3322 A2	4303 A4	4822 B5	4847 B3	7134 B3	7219 A1	
2141 B1	2217 B6	2303 A3	3140 B3	3163 A2	3183 B2	3227 B5	3252 B5	3323 A3	4304 A3	4823 B5	4848 B3	7150 A3	7300 B5	
2151 A6	2218 A7	2304 B5	3141 B3	3164 B2	3184 B4	3229 B5	3253 B7	3324 A3	4413 B6	4824 B5	4849 B4	7151 A2	7301 A5	
2152 A6	2219 A5	2307 A3	3142 B3	3165 A1	3185 B3	3230 B5	3301 A3	3422 A4	4414 A6	4825 B4	4850 B4	7160 B3	7303 A5	
2153 A6	2220 A7	2311 B1	3143 B3	3166 A1	3201 A4	3231 B7	3302 A3	3423 A3	4415 B6	4827 A3	4851 B1	7161 B3	7304 A4	
2154 A6	2221 A5	2314 A3	3144 B4	3167 B3	3202 A5	3232 B7	3303 A3	3424 A3	4653 A1	4828 A3	6101 B1	7162 B1	7305 A4	



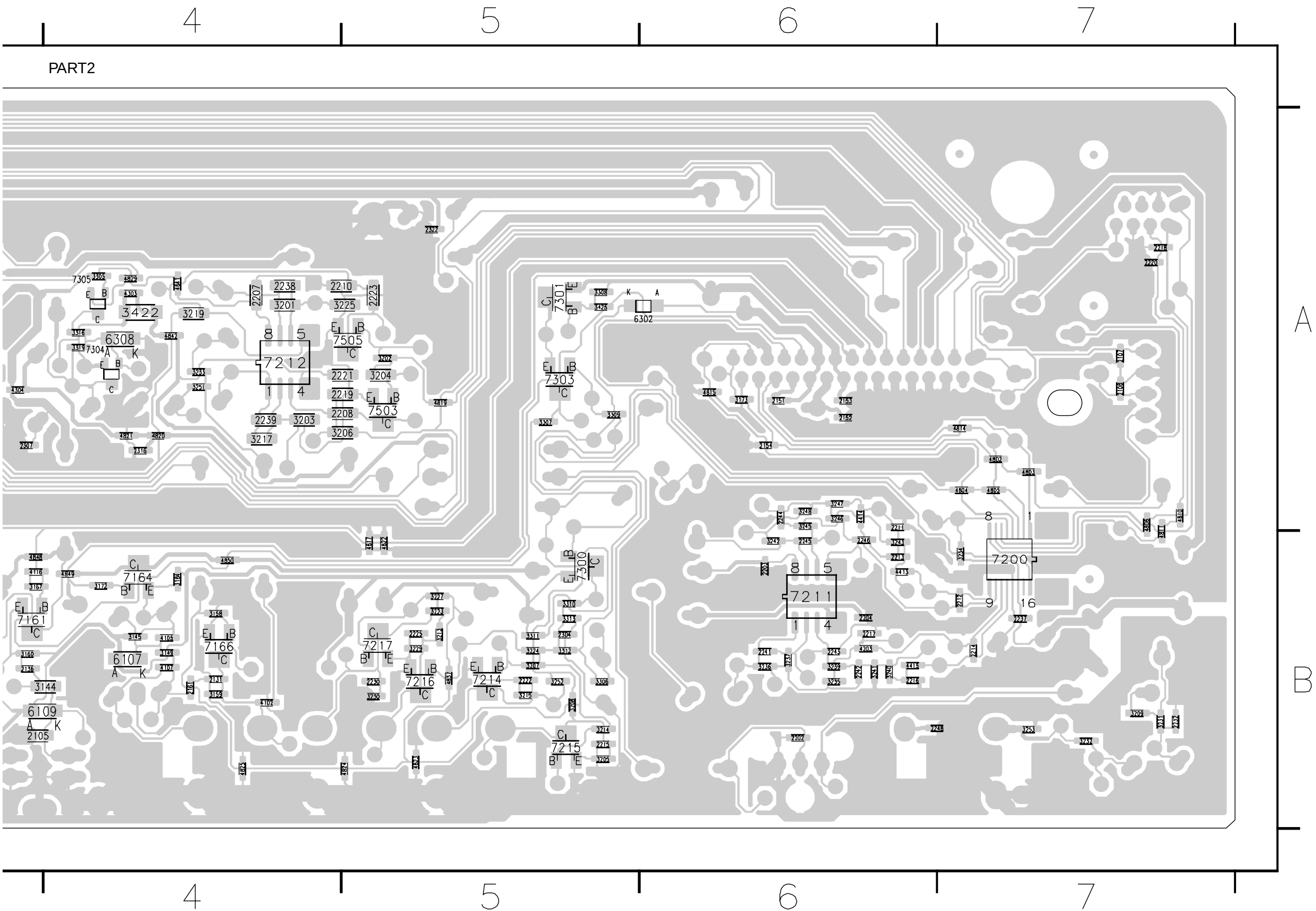
■ PRINTED CIRCUIT BOARD (G, B models)

AV-Board Bottom View Part 1



■ PRINTED CIRCUIT BOARD (G, B models)

AV-Board Bottom View Part 2

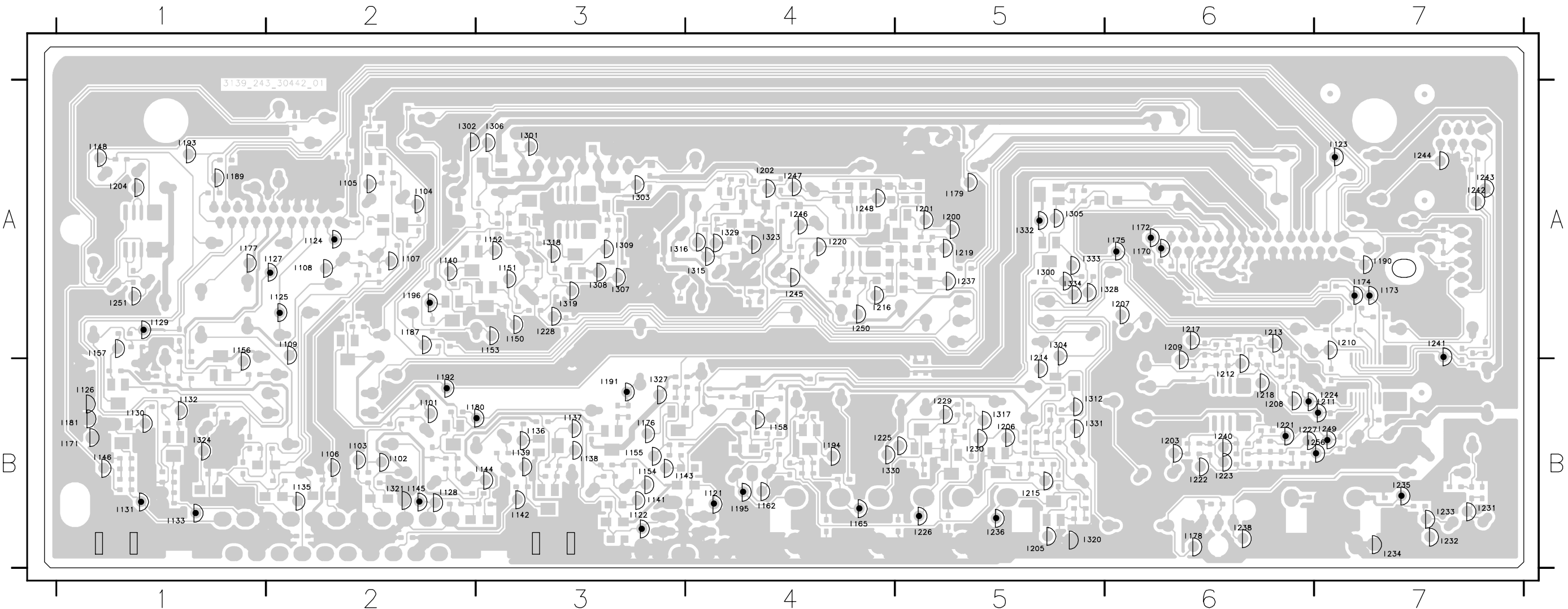


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■ PRINTED CIRCUIT BOARD (G, B models)

AV-Board Testpoint Overview

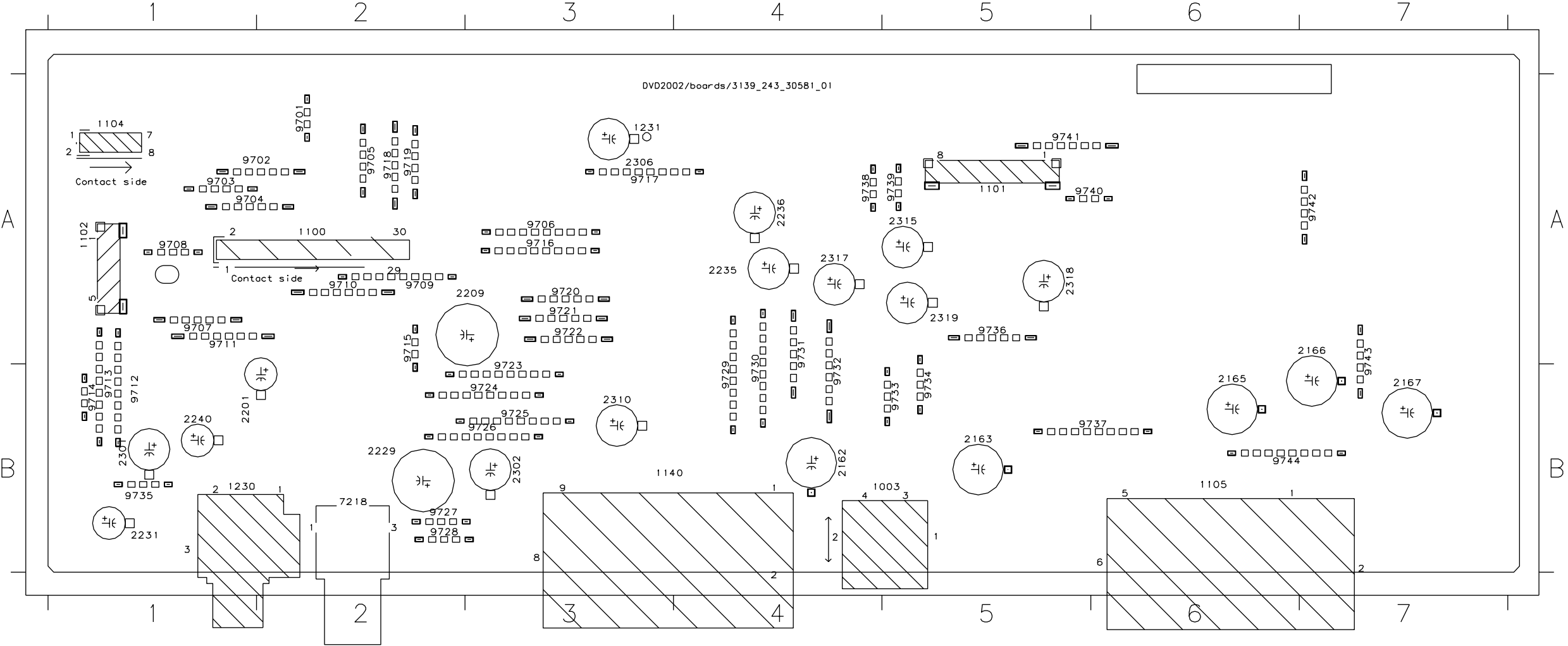
I101 B2	I125 A2	I139 B3	I154 B3	I176 B3	I195 B4	I211 B7	I224 B7	I237 A5	I251 A1	I315 A4	I331 B5
I102 B2	I126 B1	I140 A2	I155 B3	I177 A1	I196 A2	I212 B6	I225 B4	I238 B6	I256 B7	I316 A3	I332 A5
I103 B2	I127 A2	I141 B3	I156 A1	I178 B6	I200 A5	I213 A6	I226 B5	I240 B6	I300 A5	I317 B5	I333 A5
I104 A2	I128 B2	I142 B3	I157 A1	I179 A5	I201 A5	I214 A5	I227 B6	I241 A7	I301 A3	I318 A3	I334 A5
I105 A2	I129 A1	I143 B3	I158 B4	I180 B2	I202 A4	I215 B5	I228 A3	I242 A7	I302 A2	I319 A3	
I106 B2	I130 B1	I144 B3	I162 B4	I181 B1	I203 B6	I216 A4	I229 B5	I243 A7	I303 A3	I320 B5	
I107 A2	I131 B1	I145 B2	I165 B4	I187 A2	I204 A1	I217 A6	I230 B5	I244 A7	I304 A5	I321 B2	
I108 A2	I132 B1	I146 B1	I170 A6	I189 A1	I205 B5	I218 B6	I231 B7	I245 A4	I305 A5	I323 A4	
I109 A2	I133 B1	I148 A1	I171 B1	I190 A7	I206 B5	I219 A5	I232 B7	I246 A4	I306 A3	I324 B1	
I121 B4	I135 B2	I150 A3	I172 A6	I191 B3	I207 A6	I220 A4	I233 B7	I247 A4	I307 A3	I327 B3	
I122 B3	I136 B3	I151 A3	I173 A7	I192 B2	I208 B6	I221 B6	I234 B7	I248 A4	I308 A3	I328 A6	
I123 A7	I137 B3	I152 A3	I174 A7	I193 A1	I209 A6	I222 B6	I235 B7	I249 B7	I309 A3	I329 A4	
I124 A2	I138 B3	I153 A3	I175 A6	I194 B4	I210 A7	I223 B6	I236 B5	I250 A4	I312 B5	I330 B4	



■ PRINTED CIRCUIT BOARD (U, C, A, R, T, P models)

AV-Board (Top View)

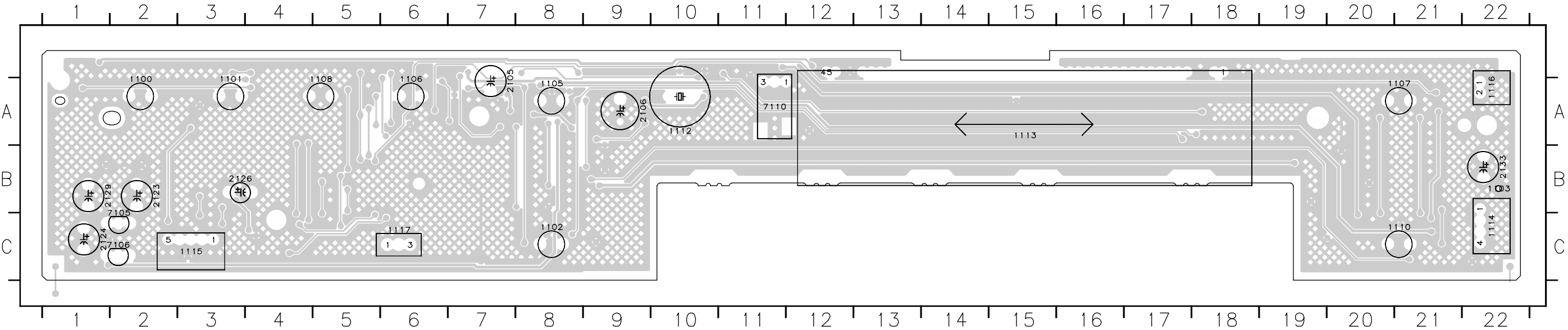
1003	B5	1104	A1	1231	A3	2166	A7	2229	B2	2240	B1	2310	B3	2319	A5	9703	A1	9707	A1	9711	A1	9715	A2	9719	A2	9723	B3	9727	B2	9731	A4	9735	B1	9739	A5	9743	A7
1100	A2	1105	B6	2162	B4	2167	B7	2231	B1	2301	B1	2315	A5	7218	B2	9704	A1	9708	A1	9712	B1	9716	A3	9720	A3	9724	B3	9728	B2	9732	B4	9736	A5	9740	A5	9744	B6
1101	A5	1140	B3	2163	B5	2201	B1	2235	A4	2302	B3	2317	A4	9701	A2	9705	A2	9709	A2	9713	B1	9717	A3	9721	A3	9725	B3	9729	B4	9733	B5	9737	B6	9741	A5		
1102	A1	1230	B1	2165	B6	2209	A3	2236	A4	2306	A3	2318	A5	9702	A1	9706	A3	9710	A2	9714	B1	9718	A2	9722	A3	9726	B3	9730	B4	9734	B5	9738	A4	9742	A7		



1 ■ PRINTED CIRCUIT BOARD

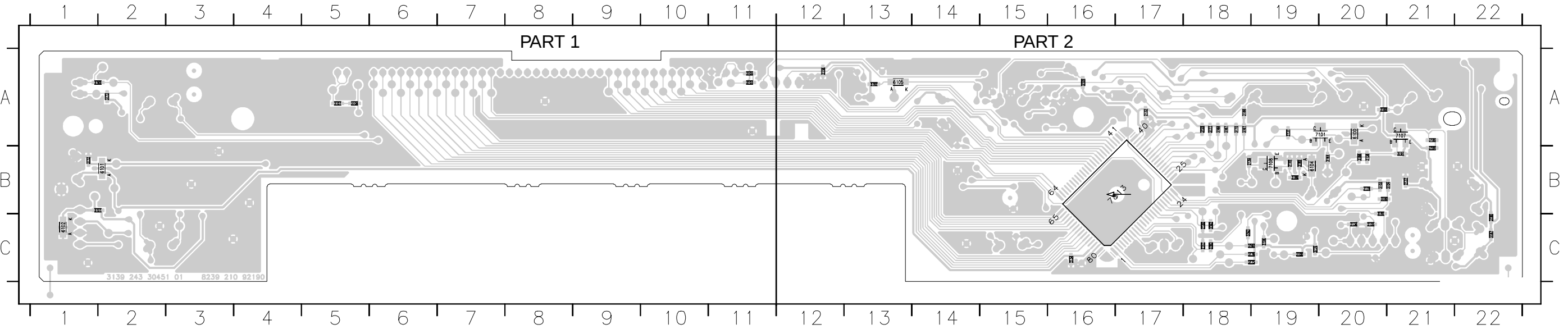
Display-Board (Top View)

1100 A2	1105 A8	1110 C21	1115 C3	2106 A9	2129 B1	7110 A11
1101 A3	1106 A6	1112 A10	1116 A22	2123 B2	2133 B22	
1102 C8	1107 A21	1113 B15	1117 C6	2124 C1	7105 B2	
1103 B22	1108 A5	1114 C22	2105 A7	2126 B3	7106 C2	



Display-Board (Bottom View)

2116 A12	2136 C20	3100 C19	3106 C19	3161 A18	3167 A18	3173 A2	3181 B20	3187 C22	6101 B2	7108 B19
2130 C18	2137 B21	3101 B1	3107 A5	3162 C18	3168 A18	3174 C19	3182 A13	3188 B20	6102 C1	7113 B17
2131 A19	2138 B20	3102 B20	3108 A5	3163 C18	3169 A20	3175 C19	3183 C18	3189 B19	6104 B19	
2132 A17	2139 B18	3103 A11	3109 A16	3164 B20	3170 A18	3176 C19	3184 B21	3190 C22	6105 A13	
2134 C16	2140 B19	3104 B21	3159 A18	3165 A1	3171 A18	3178 B20	3185 A21	3191 B21	7101 A20	
2135 C20	2141 C18	3105 A11	3160 C19	3166 A18	3172 B1	3180 B20	3186 B19	6100 A20	7107 A21	



1

■ PRINTED CIRCUIT BOARD

Display-Board Bottom View Part 1

2

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A

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B

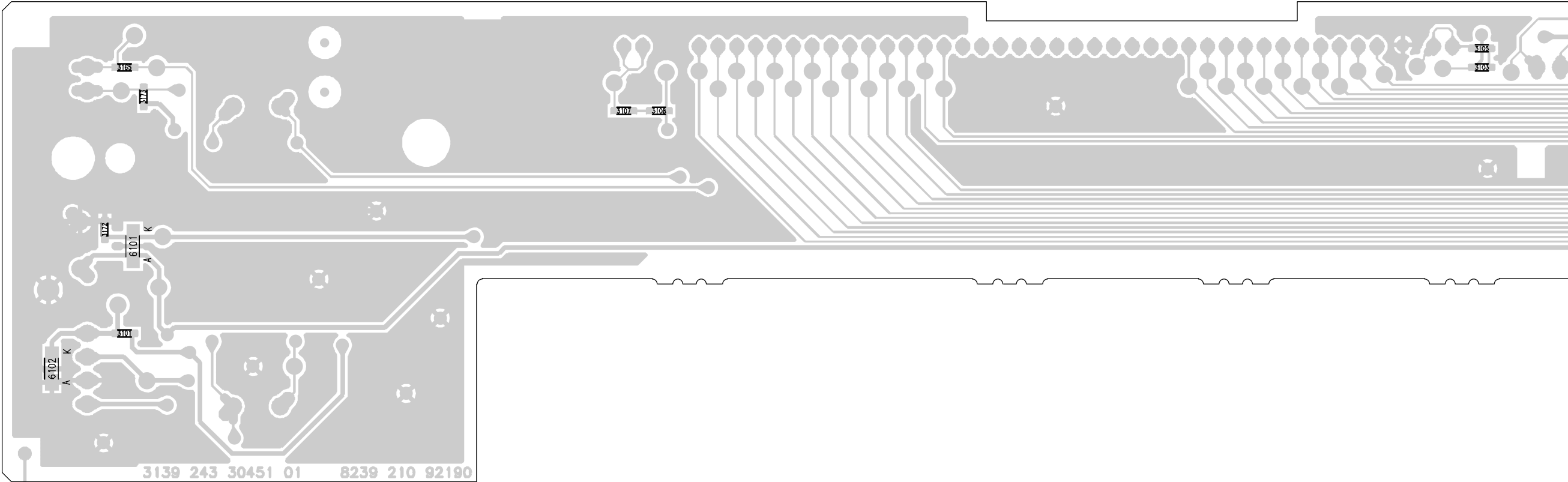
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C

6

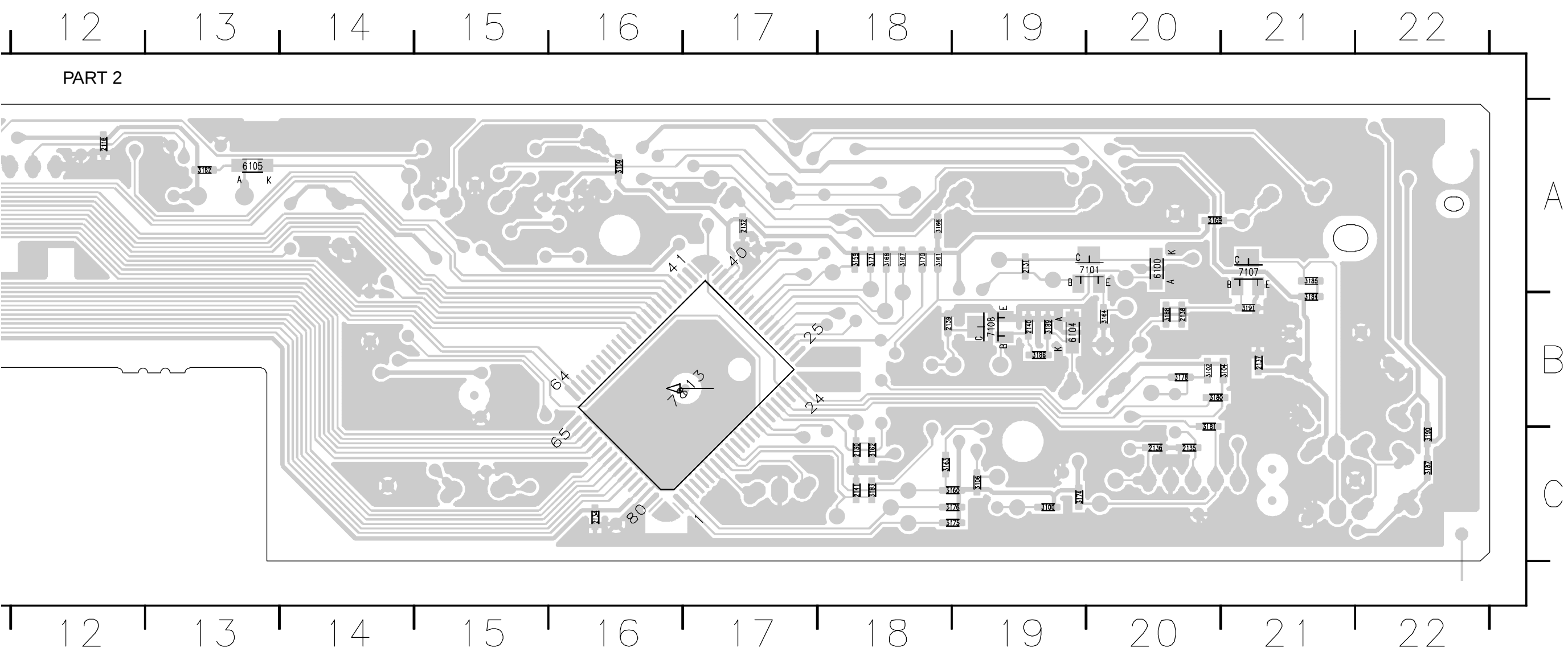
7

PART 1



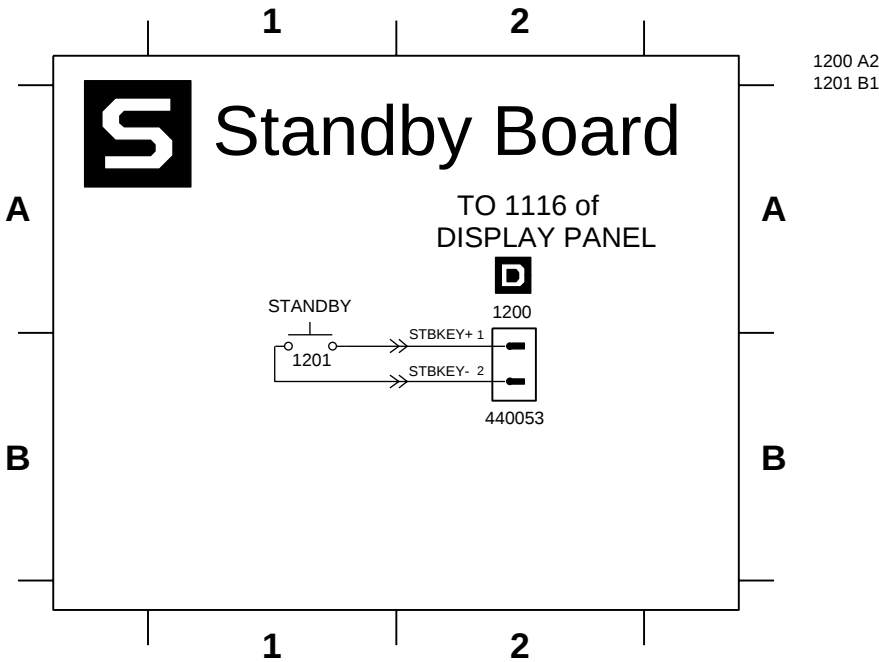
■ PRINTED CIRCUIT BOARD

Display-Board Bottom View Part 2

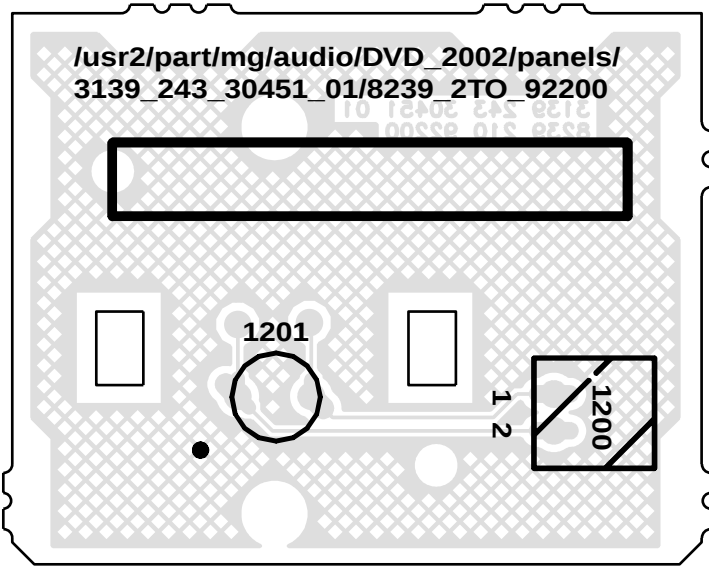


■ PRINTED CIRCUIT BOARD

Standby-Board (Top View)



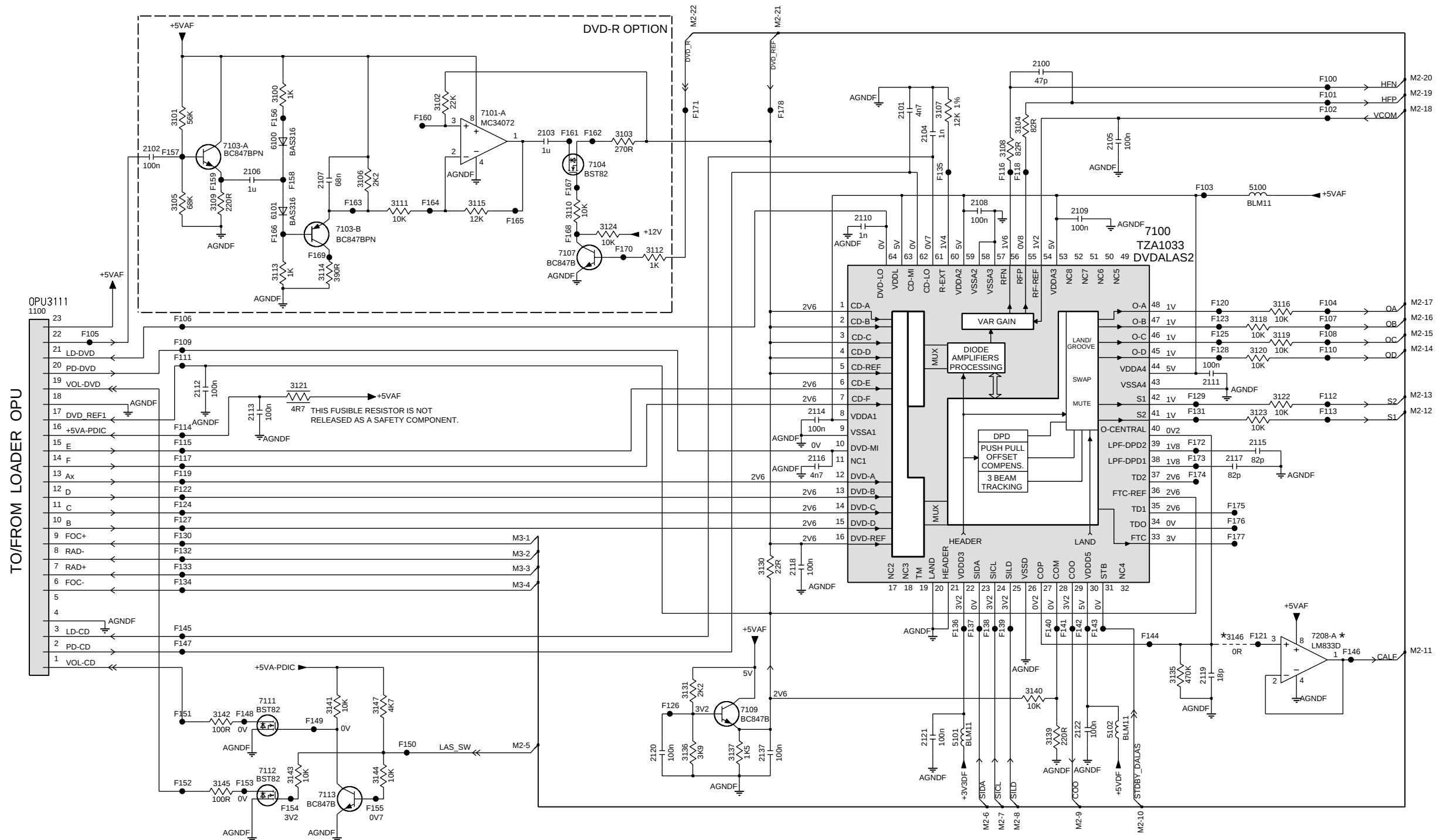
Standby-Board (Bottom View)



■ SCHEMATIC DIAGRAM

M 1

Front-end processor and Laser supply - DVDallas 2

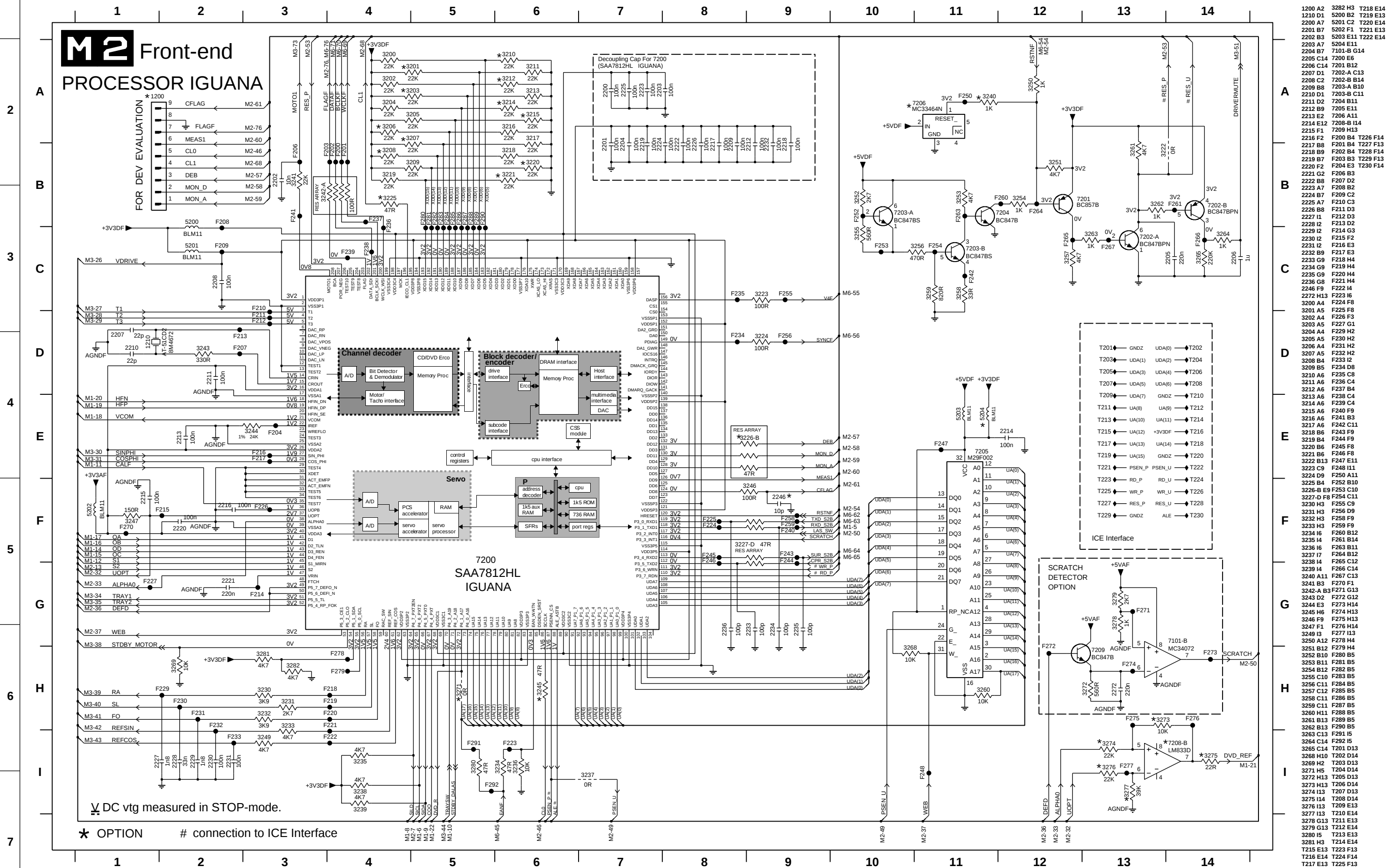


* OPTION

V DC vtg measured in STOP-mode.

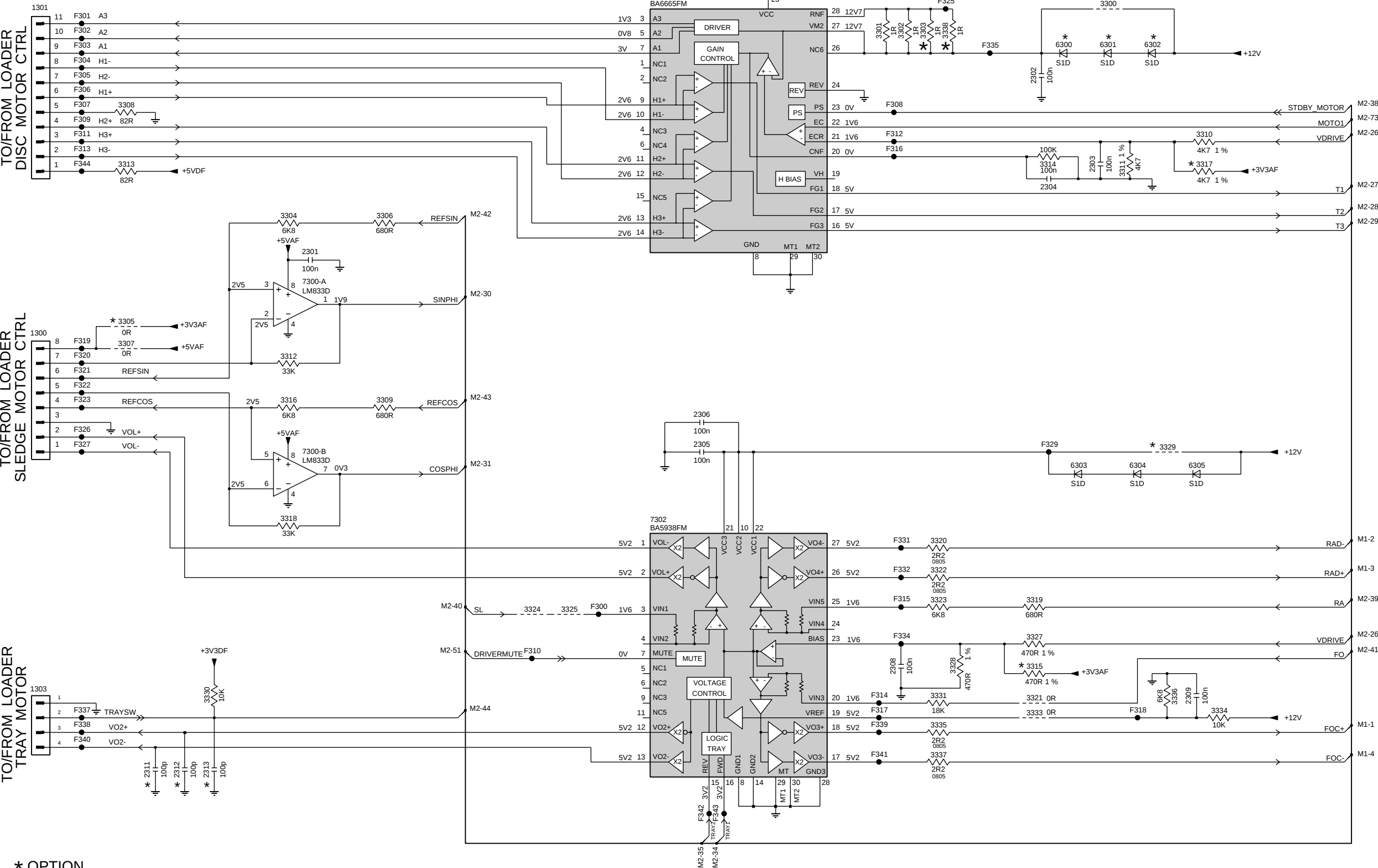
1100 D1	F127 F2
2100 A10	F128 D1
2101 B9	F129 D11
2102 B2	F130 F2
2103 B5	F131 E11
2104 B9	F132 F2
2105 B11	F133 F2
2106 B3	F134 F2
2107 B3	F135 B9
2108 C9	F136 F9
2109 C10	F137 F9
2110 C8	F138 F9
2111 D11	F139 F10
2112 D2	F140 F10
2113 D3	F141 F10
2114 F8	F142 F10
2115 E12	F143 F10
2116 F8	F144 F11
2117 E12	F145 G2
2118 F8	F146 G13
2119 G17	F147 G2
2120 H6	F148 G3
2121 G9	F149 G3
2122 G10	F150 H4
2137 H7	F151 G2
3100 B3	F152 H2
3101 B2	F153 H3
3102 B4	F154 H3
3103 B6	F155 H4
3104 B10	F156 B3
3105 C2	F157 B2
3106 B4	F158 B3
3107 B9	F159 B2
3108 B10	F160 B4
3109 C2	F161 B6
3110 C6	F162 B6
3111 C4	F163 C4
3112 C6	F164 C4
3113 C3	F165 C5
3114 C3	F166 C3
3115 C5	F167 B6
3116 D12	F168 C6
3118 D12	F169 C3
3119 D12	F170 C6
3120 D12	F171 B7
3121 D3	F172 E11
3122 D12	F173 E11
3123 D12	F174 E11
3124 C6	F175 E11
3130 F7	F176 F11
3131 G7	F177 F11
3135 G11	F178 B8
3136 H7	
3137 H7	
3139 G10	
3140 G10	
3141 G3	
3142 G2	
3143 H3	
3144 H4	
3145 H2	
3146 F12	
3147 G4	
5100 B12	
5101 G9	
5102 G11	
6100 B3	
6101 C3	
7100 E9	
7101-A B5	
7103-A B2	
7103-B C3	
7104 B6	
7107 C6	
7109 G7	
7111 G3	
7112 H3	
7113 H3	
7208-A F12	
F100 A13	
F101 B13	
F102 B13	
F103 B11	
F104 D13	
F105 D1	
F106 D2	
F107 D13	
F108 D13	
F109 D2	
F110 D13	
F111 D2	
F112 D13	
F113 E13	
F114 E2	
F115 E2	
F116 B10	
F117 E2	
F118 B10	
F119 E2	
F120 D11	
F121 F12	
F122 E2	
F123 D11	
F124 E2	
F125 D11	
F126 G6	

SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

M3 Front-end Loader Interface

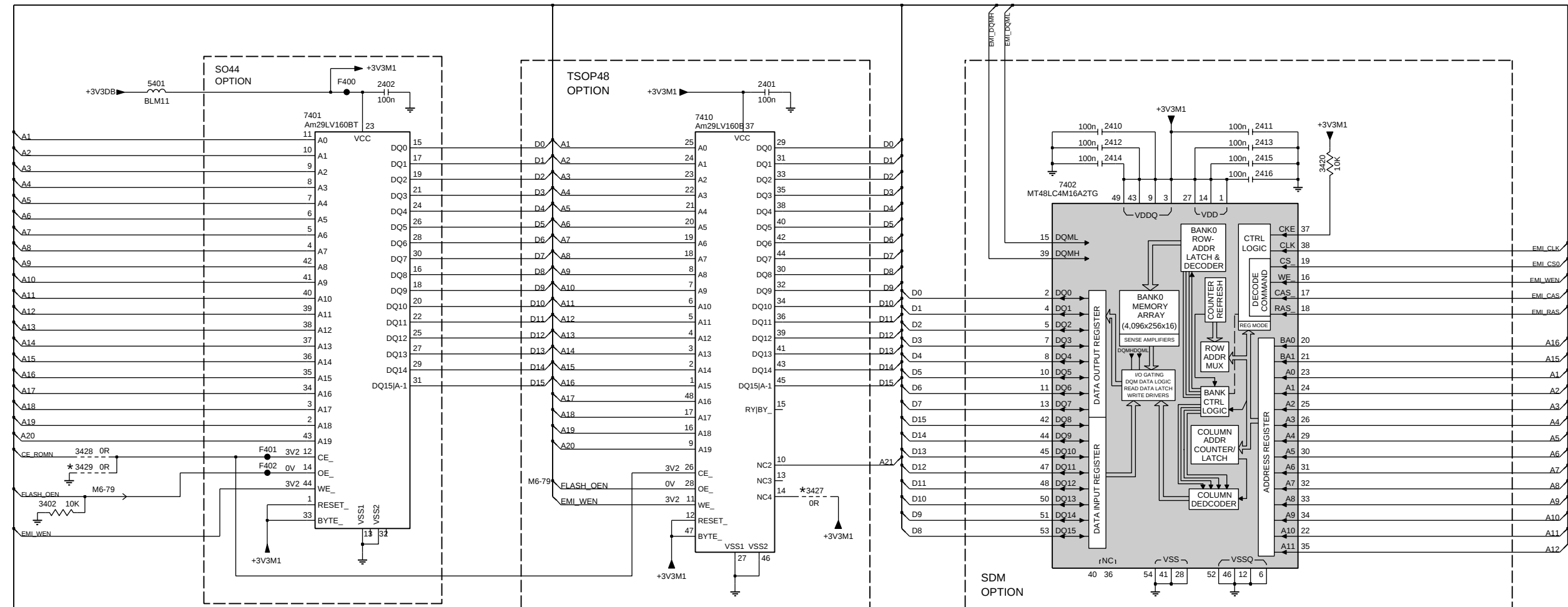


- 1300 D1
- 1301 A1
- 1303 H1
- 2300 A8
- 2301 C3
- 2302 B10
- 2303 C11
- 2304 C10
- 2305 E7
- 2306 E7
- 2308 H9
- 2309 H12
- 2311 I2
- 2312 I2
- 2313 I2
- 3300 A11
- 3301 A9
- 3302 A9
- 3303 A9
- 3304 C3
- 3305 D2
- 3306 C4
- 3307 D2
- 3308 B2
- 3309 E4
- 3310 B12
- 3311 C11
- 3312 D3
- 3313 C2
- 3314 C10
- 3315 H10
- 3316 E3
- 3317 C12
- 3318 F3
- 3319 G10
- 3320 F9
- 3321 H10
- 3322 G9
- 3323 G9
- 3324 G5
- 3325 G6
- 3327 G10
- 3328 H10
- 3329 E12
- 3330 H2
- 3331 H9
- 3333 H10
- 3334 H12
- 3335 H9
- 3336 H12
- 3337 H9
- 3338 A9
- 6300 A11
- 6301 A11
- 6302 A11
- 6303 F11
- 6304 F11
- 6305 F12
- 7300-A D3
- 7300-B E3
- 7301 A7
- 7302 F7
- F300 G6
- F301 A1
- F302 A1
- F303 A1
- F304 B1
- F305 B1
- F306 B1
- F307 B1
- F308 B9
- F309 B1
- F310 G5
- F311 B1
- F312 B9
- F313 B1
- F314 H9
- F315 G9
- F316 B9
- F317 H9
- F318 H11
- F319 D1
- F320 D1
- F321 E1
- F322 E1
- F323 E1
- F325 A9
- F326 E1
- F327 E1
- F329 E10
- F331 F9
- F332 G9
- F334 G9
- F335 A10
- F337 H1
- F338 H1
- F339 H9
- F340 H1
- F341 H9
- F342 I7
- F343 I7
- F344 C1

SCHEMATIC DIAGRAM

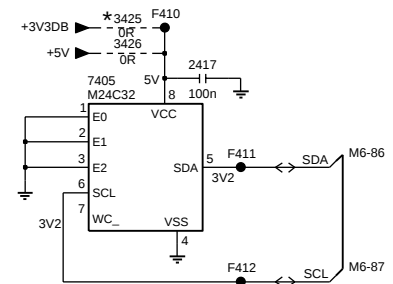
M4 Back end - MEMORY

2401 B7
2402 B4
2410 B10
2411 B12
2412 C10
2413 C12
2414 C10
2415 C12
2416 C12
2417 H14
3402 F1
3420 C12
3425 G13
3426 G13
3427 F8
3428 E1
3429 F1
5401 B2
7401 B3
7402 C10
7405 H13
7410 B7
F400 B3
F401 E3
F402 F3
F410 G13
F411 H14
F412 I14



TO **M6** Back end - HOST PROCESSOR
Enhanced Memory Interface (EMI) Bus

* OPTION
V_{DC} v_{tg} measured in STOP-mode.

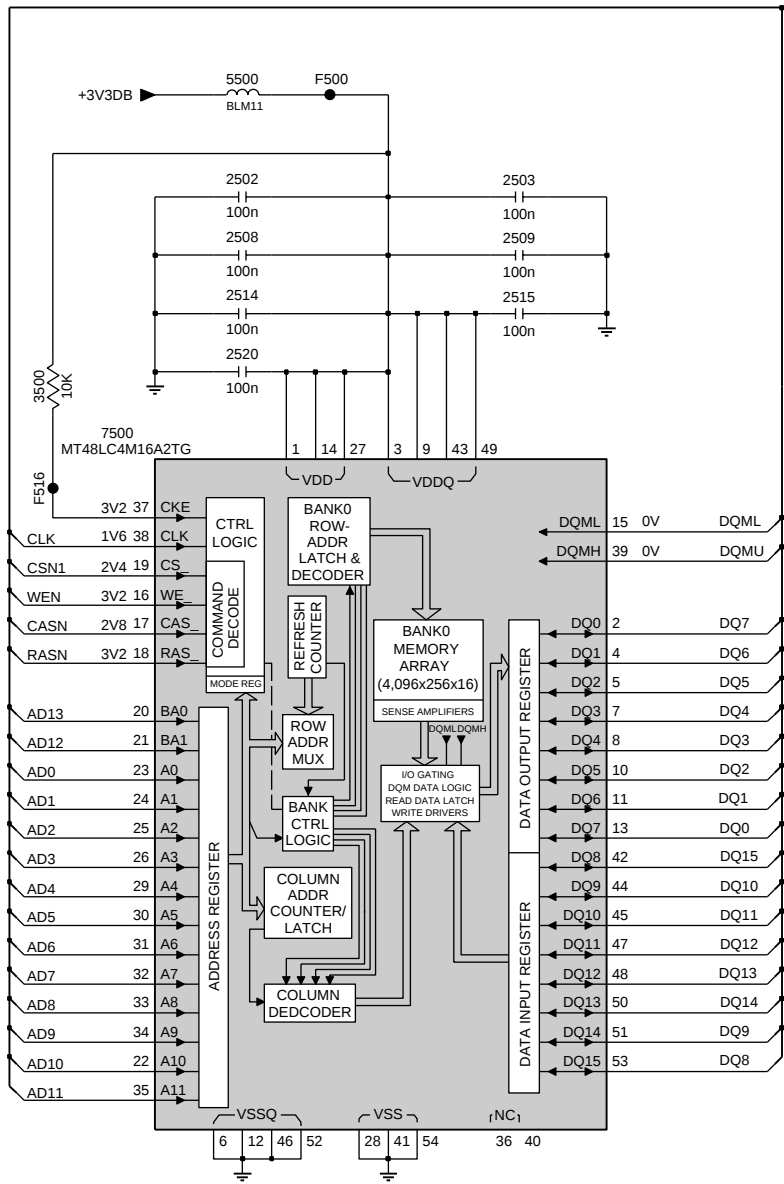


■ SCHEMATIC DIAGRAM

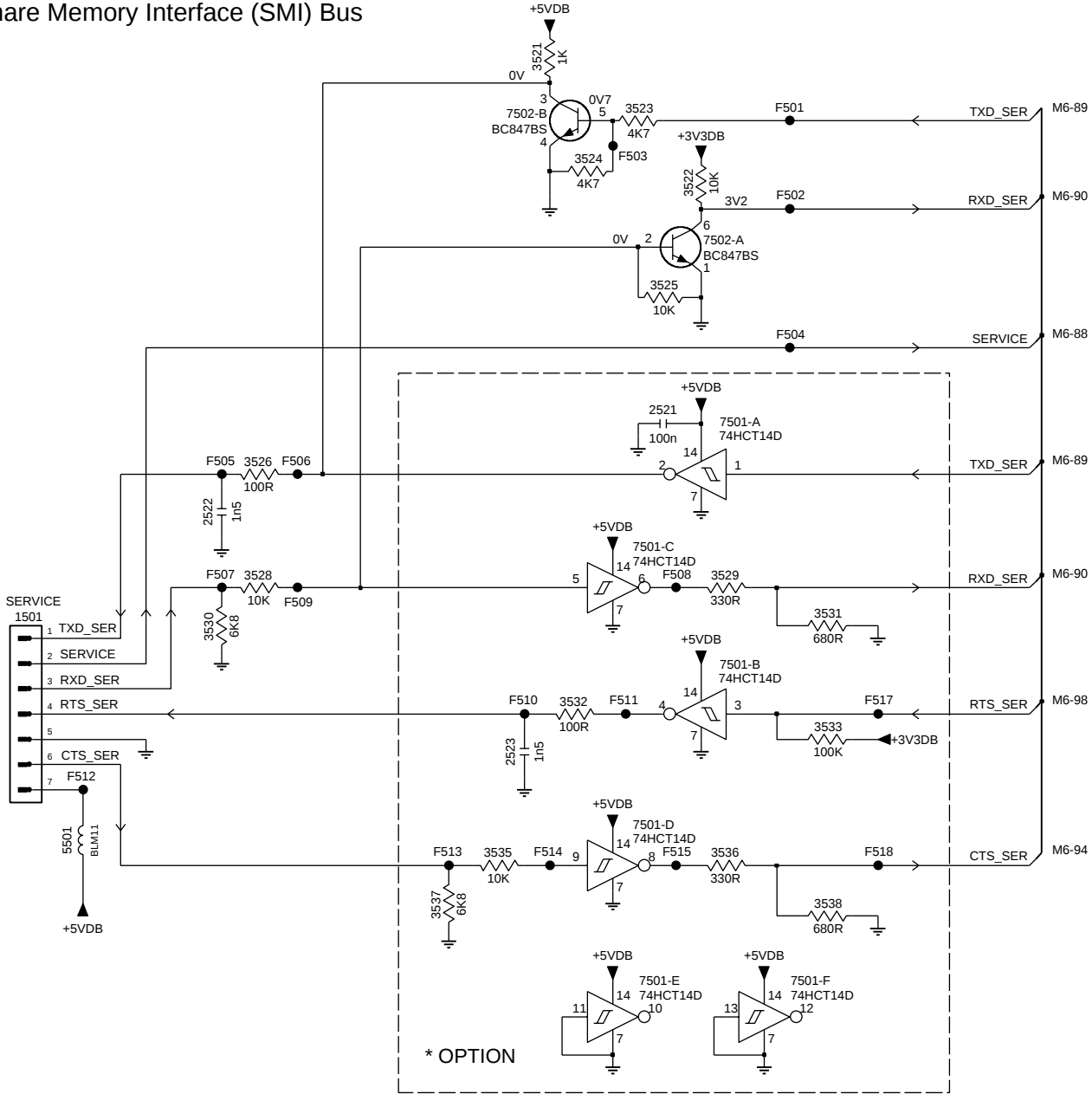
M5

Back-end SDRAM and SERVICE INTERFACE

TO M6 Back-end HOST PROCESSOR
Share Memory Interface (SMI) Bus

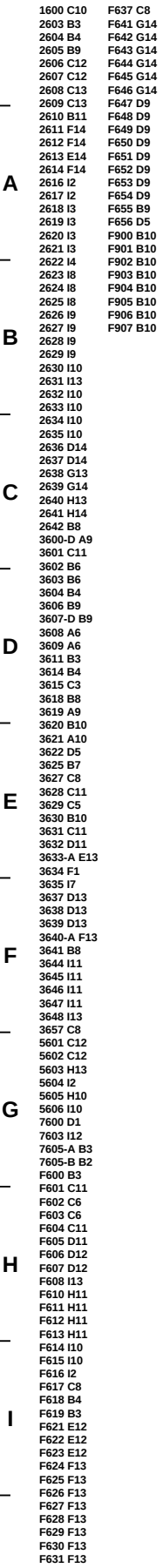


TO/FROM PC INTERFACE

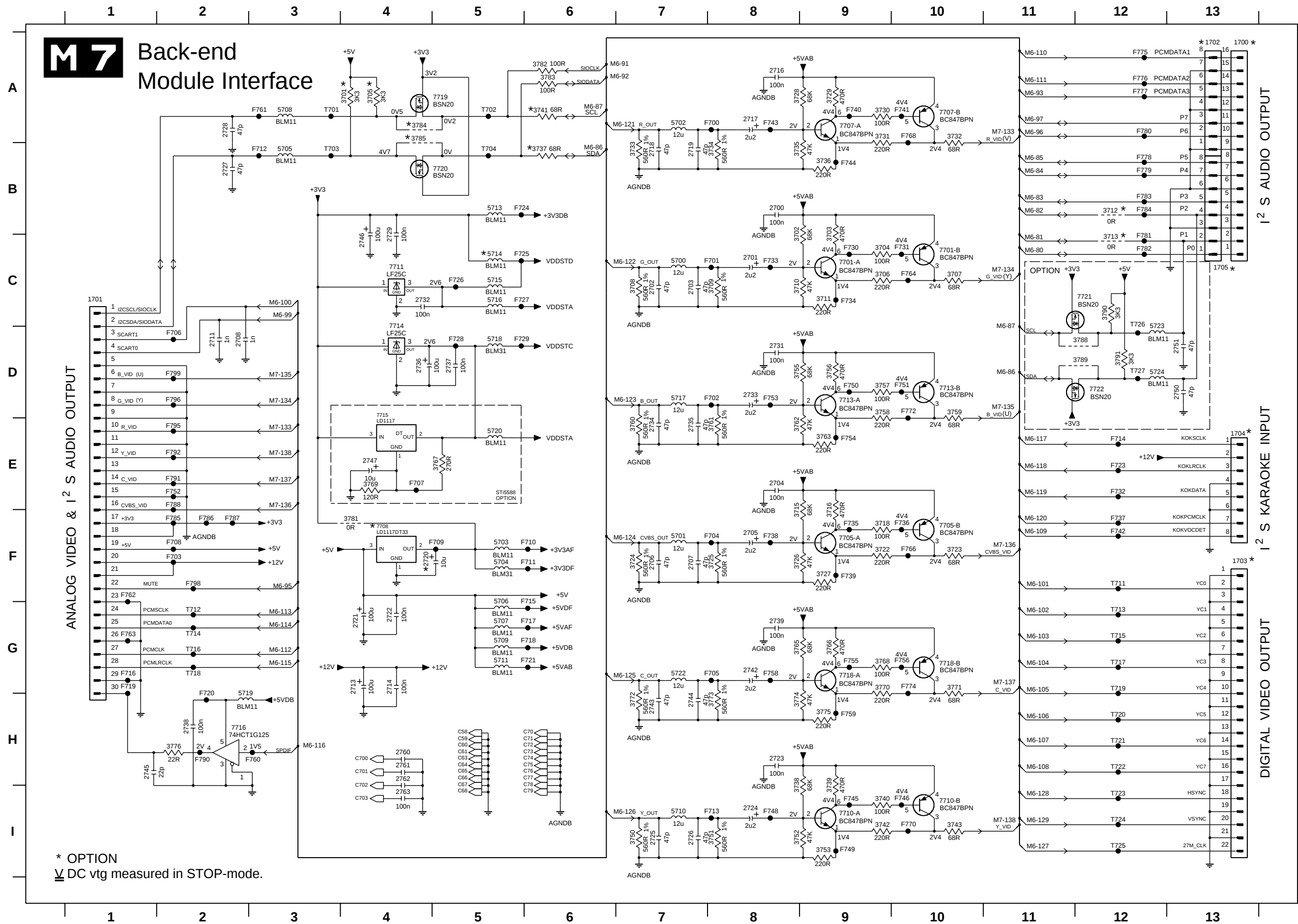


1501 E6
2502 B2
2503 B3
2508 B2
2509 B3
2514 C2
2515 C3
2520 C2
2521 D9
2522 D7
2523 F8
3500 C1
3521 B9
3522 B9
3523 B9
3524 B9
3525 C9
3526 D7
3528 E7
3529 E10
3530 E7
3531 E10
3532 E9
3533 E10
3535 F8
3536 F10
3537 F8
3538 F10
5500 A2
5501 F6
7500 C1
7501-A D10
7501-B E10
7501-C D9
7501-D F9
7501-E G9
7501-F G10
7502-A C9
7502-B B9
F500 A2
F501 B10
F502 B10
F503 B9
F504 C10
F505 D7
F506 D7
F507 E7
F508 E9
F509 E7
F510 E8
F511 E9
F512 F6
F513 F8
F514 F9
F515 F9
F516 C1
F517 E10
F518 F10

A



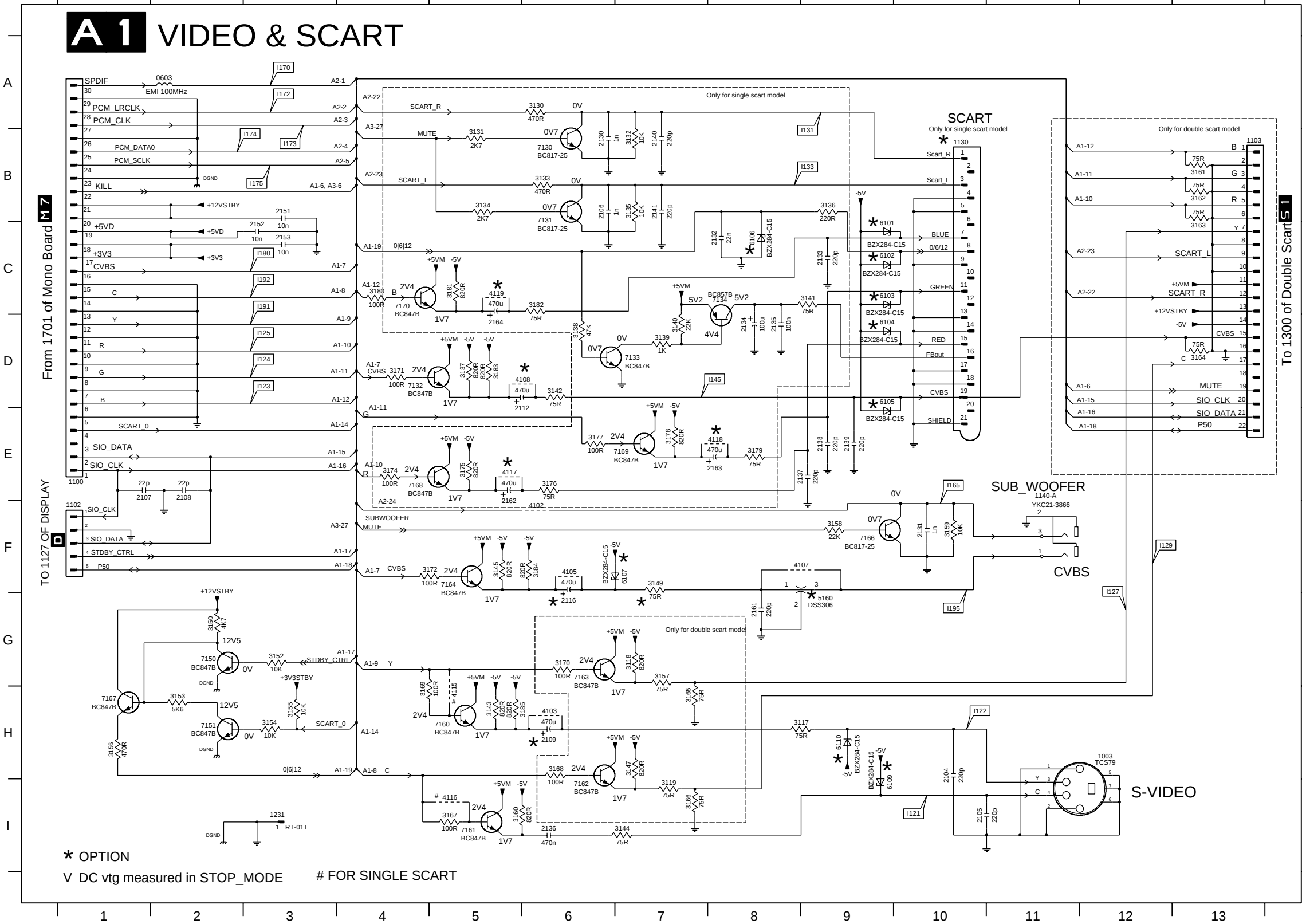
■ SCHEMATIC DIAGRAM



C58 H5	3753 I9	F736 F10
C59 H5	3755 D8	F737 F12
C60 H5	3756 D9	F738 F8
C61 H5	3757 D9	F739 F9
C63 H5	3758 D9	F740 A9
C64 H5	3759 D10	F741 A10
C65 H5	3760 E7	F742 F12
C66 H5	3761 E8	F743 A8
C67 H5	3762 E8	F744 B9
C68 I5	3763 E9	F745 I9
C70 H6	3765 G8	F746 I0
C71 H6	3766 G9	F748 I8
C72 H6	3767 E5	F749 I9
C73 H6	3768 G9	F750 D9
C74 H6	3769 E4	F751 D10
C75 H6	3770 G9	F752 E2
C76 H6	3771 G10	F753 D8
C77 H6	3772 H7	F754 E9
C78 H6	3773 H8	F755 G9
C79 I6	3774 H8	F756 G10
1700 A13	3775 H9	F758 H8
1701 C1	3776 H2	F759 H9
1702 A13	3781 F4	F760 H3
1703 F13	3782 A6	F761 A3
1704 E13	3783 A6	F762 F1
1705 C13	3784 A4	F763 G1
2700 C8	3785 A4	F764 C10
2701 C8	3788 D11	F766 F10
2702 C7	3789 D11	F768 A10
2703 C7	3790 C12	F770 I0
2704 F8	3791 D12	F772 D10
2705 F8	3792 C7	F774 G10
2706 F7	3793 F7	F775 A12
2707 F7	3794 A7	F776 A12
2708 D2	3795 F5	F777 A12
2711 D2	3796 F5	F778 B12
2713 G4	3797 B3	F779 B12
2714 G4	3798 G5	F780 A12
2716 A8	3799 G5	F781 C12
2717 A8	3798 A3	F782 C12
2718 B7	3799 G5	F783 B12
2719 B7	3798 B12	F784 B12
2720 F4	3799 G5	F785 F2
2721 G4	3799 B5	F786 F2
2722 G4	3799 C5	F787 F2
2723 I8	3799 C5	F788 E2
2724 I8	3799 C5	F789 H2
2725 I7	3799 D7	F791 E2
2726 I7	3799 D5	F792 E2
2727 B2	3799 H2	F795 E2
2728 A2	3799 E2	F796 D2
2729 C4	3799 G7	F798 F2
2731 D8	3799 D12	F799 D2
2732 C4	3799 D12	T701 A3
2733 D8	3799 A C9	T702 A5
2734 E7	3799 B C10	T703 B3
2735 E7	3799 A F9	T704 B5
2736 D4	3799 B F10	T711 F12
2737 D5	3799 A A9	T712 G2
2738 H2	3799 B A10	T713 G12
2739 G8	3799 F4	T714 C2
2742 G8	3799 A I9	T715 G12
2743 H7	3799 B I10	T716 G2
2744 H7	3799 C4	T717 G12
2745 H1	3799 A D9	T718 G2
2746 C4	3799 B D10	T719 G12
2747 E4	3799 D4	T720 H12
2750 D13	3799 D5	T721 H12
2751 D13	3799 H2	T722 H12
2760 H4	3799 A G9	T723 I2
2761 H4	3799 B G10	T724 I2
2762 H4	3799 A5	T725 I2
2763 I4	3799 B5	T726 C12
3701 A4	3799 C12	T727 D12
3702 B8	3799 D12	
3703 B9	3799 H4	
3704 C9	3799 H4	
3705 A4	3799 H4	
3706 C9	3799 I4	
3707 C10	3799 A8	
3708 C7	3799 C8	
3709 C8	3799 D8	
3710 C8	3799 F2	
3711 C9	3799 F8	
3712 B12	3799 G8	
3713 C12	3799 D2	
3715 E8	3799 E4	
3716 E9	3799 F2	
3718 F9	3799 F5	
3722 F9	3799 F6	
3723 F10	3799 F6	
3724 F7	3799 B3	
3725 F8	3799 I8	
3726 F8	3799 E12	
3727 F9	3799 G6	
3728 A8	3799 G1	
3729 A9	3799 G6	
3730 A9	3799 G6	
3731 A9	3799 G1	
3732 A10	3799 H2	
3733 B7	3799 G6	
3734 B8	3799 E12	
3735 B8	3799 B5	
3736 B9	3799 C5	
3737 B6	3799 C5	
3738 H8	3799 C5	
3739 H9	3799 D5	
3740 I9	3799 D5	
3741 A6	3799 C9	
3742 I9	3799 C10	
3743 I10	3799 C8	
3750 I7	3799 C8	
3751 I8	3799 C9	
3752 I8	3799 F9	

SCHEMATIC DIAGRAM (G, B models)

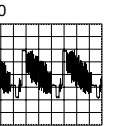
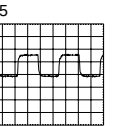
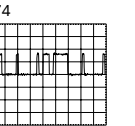
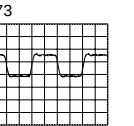
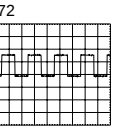
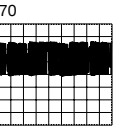
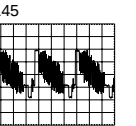
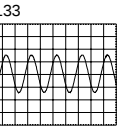
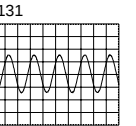
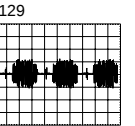
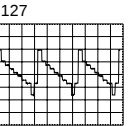
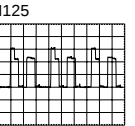
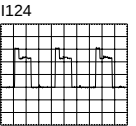
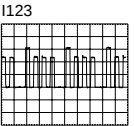
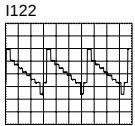
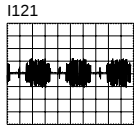
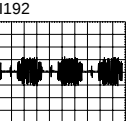
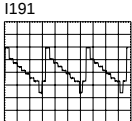
A 1 VIDEO & SCART



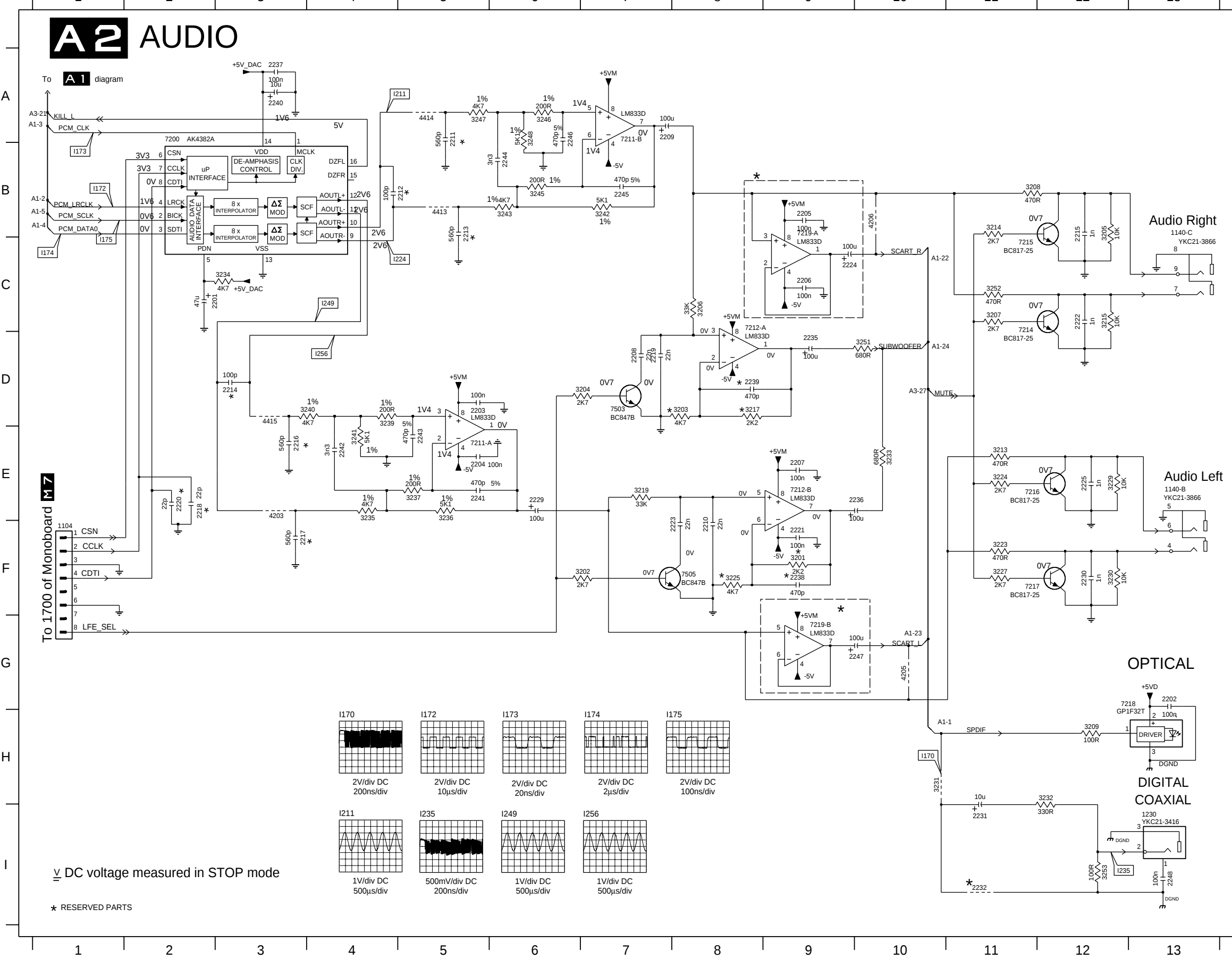
* OPTION
V DC vtg measured in STOP_MODE # FOR SINGLE SCART

DIVERSITY TABLE FOR DIAGRAM A1

ITEM NO	DESCRIPTION	DVD730X1	DVD740X1
1103	CON BM V 22P F 1.00 FFC 0.3 B	X	X
1130	SOC EURO H 21P F BK L-GRND B	X	X
2106	CER1 0603 NP0 25V 1N COL	X	X
2112	ELCAP 16V S 470U PM20 COL A	X	X
2130	CER1 0603 NP0 25V 1N COL	X	X
2132	CER2 0603 XTR 25V 22N COL	X	X
2134	ELCAP 25V S 100U PM20 COL A	X	X
2135	CER2 0603 XTR 16V 100N COL	X	X
2137	CER1 0603 NP0 50V 220P COL	X	X
2141	CER1 0603 NP0 50V 220P COL	X	X
2162	ELCAP 16V S 470U PM20 COL A	X	X
2163	ELCAP 16V S 470U PM20 COL A	X	X
2164	ELCAP 16V S 470U PM20 COL A	X	X
3138	RST SM 0603 560R PM5 COL	X	X
3139	RST SM 0603 68R PM5 COL	X	X
3140	RST SM 0603 470R PM5 COL	X	X
3141	RST SM 0603 2K7 PM5 COL	X	X
3142	RST SM 0603 10K PM5 COL	X	X
3143	RST SM 0603 220R PM5 COL	X	X
3144	RST SM 0603 560R PM5 COL	X	X
3145	RST SM 0603 1K PM5 COL	X	X
3146	RST SM 0603 22K PM5 COL	X	X
3147	RST SM 0603 75R PM5 COL	X	X
3148	RST SM 0603 68R PM5 COL	X	X
3149	RST SM 0603 75R PM5 COL	X	X
3150	RST SM 0603 100R PM5 COL	X	X
3151	RST SM 0603 100R PM5 COL	X	X
3152	RST SM 0603 100R PM5 COL	X	X
3153	RST SM 0603 100R PM5 COL	X	X
3154	RST SM 0603 100R PM5 COL	X	X
3155	RST SM 0603 100R PM5 COL	X	X
3156	RST SM 0603 100R PM5 COL	X	X
3157	RST SM 0603 100R PM5 COL	X	X
3158	RST SM 0603 100R PM5 COL	X	X
3159	RST SM 0603 100R PM5 COL	X	X
3160	RST SM 0603 100R PM5 COL	X	X
3161	RST SM 0603 100R PM5 COL	X	X
3162	RST SM 0603 100R PM5 COL	X	X
3163	RST SM 0603 100R PM5 COL	X	X
3164	RST SM 0603 100R PM5 COL	X	X
3165	RST SM 0603 100R PM5 COL	X	X
3166	RST SM 0603 100R PM5 COL	X	X
3167	RST SM 0603 100R PM5 COL	X	X
3168	RST SM 0603 100R PM5 COL	X	X
3169	RST SM 0603 100R PM5 COL	X	X
3170	RST SM 0603 100R PM5 COL	X	X
3171	RST SM 0603 100R PM5 COL	X	X
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3175	RST SM 0603 100R PM5 COL	X	X
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3196	RST SM 0603 100R PM5 COL	X	X
3197	RST SM 0603 100R PM5 COL	X	X
3198	RST SM 0603 100R PM5 COL	X	X
3199	RST SM 0603 100R PM5 COL	X	X
3200	RST SM 0603 100R PM5 COL	X	X

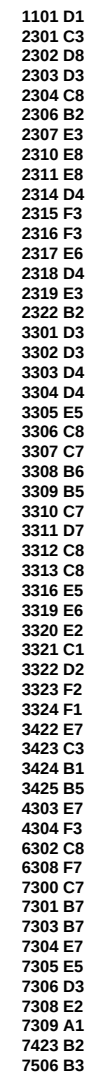


■ SCHEMATIC DIAGRAM (G, B models)

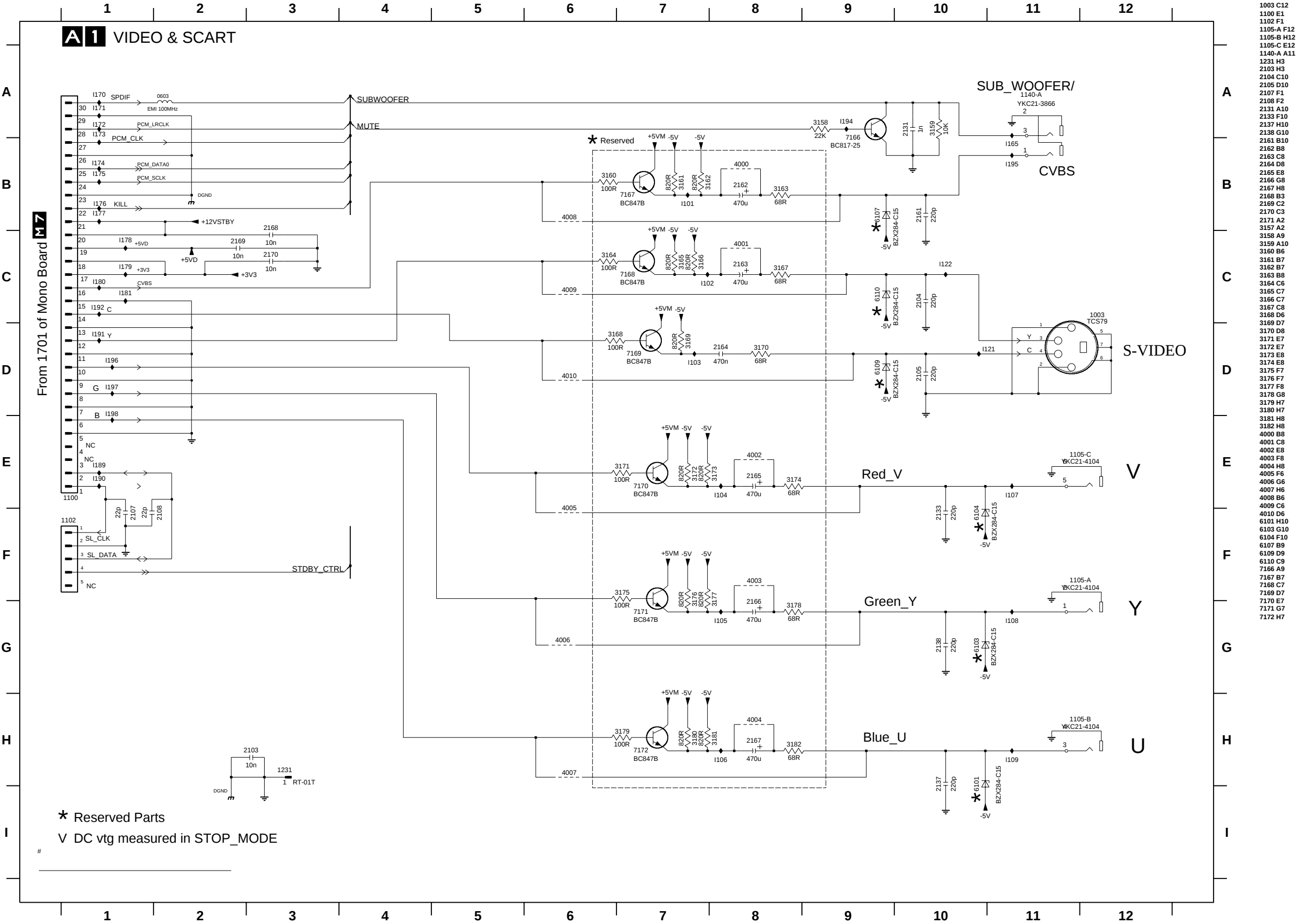


- 1104 F1
- 1140-B E13
- 1140-C B13
- 1230 I13
- 2201 C2
- 2202 G13
- 2203 D5
- 2204 E5
- 2205 B9
- 2206 C9
- 2207 E9
- 2208 D7
- 2209 A7
- 2210 F8
- 2211 A5
- 2212 B5
- 2213 B5
- 2214 D3
- 2215 B12
- 2216 E3
- 2217 F3
- 2218 E2
- 2219 D7
- 2220 E2
- 2221 F9
- 2222 C12
- 2223 F8
- 2224 C9
- 2225 E12
- 2229 E6
- 2230 F12
- 2231 I11
- 2232 I11
- 2235 D9
- 2236 E10
- 2237 A3
- 2238 F9
- 2239 D8
- 2240 A3
- 2241 E5
- 2242 E4
- 2243 E5
- 2244 B6
- 2245 B7
- 2246 A6
- 2247 G10
- 2248 I13
- 3201 F9
- 3202 F7
- 3203 D8
- 3204 D7
- 3205 B12
- 3206 C8
- 3207 C11
- 3208 B11
- 3209 H12
- 3213 E11
- 3214 B11
- 3215 C12
- 3217 D8
- 3219 E7
- 3223 F11
- 3224 E11
- 3225 F8
- 3227 F11
- 3229 E12
- 3230 F12
- 3231 I10
- 3232 I12
- 3233 E10
- 3234 C3
- 3235 E4
- 3236 E5
- 3237 E5
- 3239 D4
- 3240 D4
- 3241 E4
- 3242 B7
- 3243 B6
- 3245 B6
- 3246 A6
- 3247 A5
- 3248 A6
- 3251 D10
- 3252 C11
- 3253 I12
- 4203 E3
- 4205 G10
- 4206 B10
- 4413 B5
- 4414 A5
- 4415 D3
- 7200 A2
- 7211-A E5
- 7211-B A7
- 7212-A C8
- 7212-B E9
- 7214 C11
- 7215 C11
- 7216 E12
- 7217 F12
- 7218 G12
- 7219-A B9
- 7219-B G9
- 7503 D7
- 7505 F8

■ SCHEMATIC DIAGRAM (G, B models)



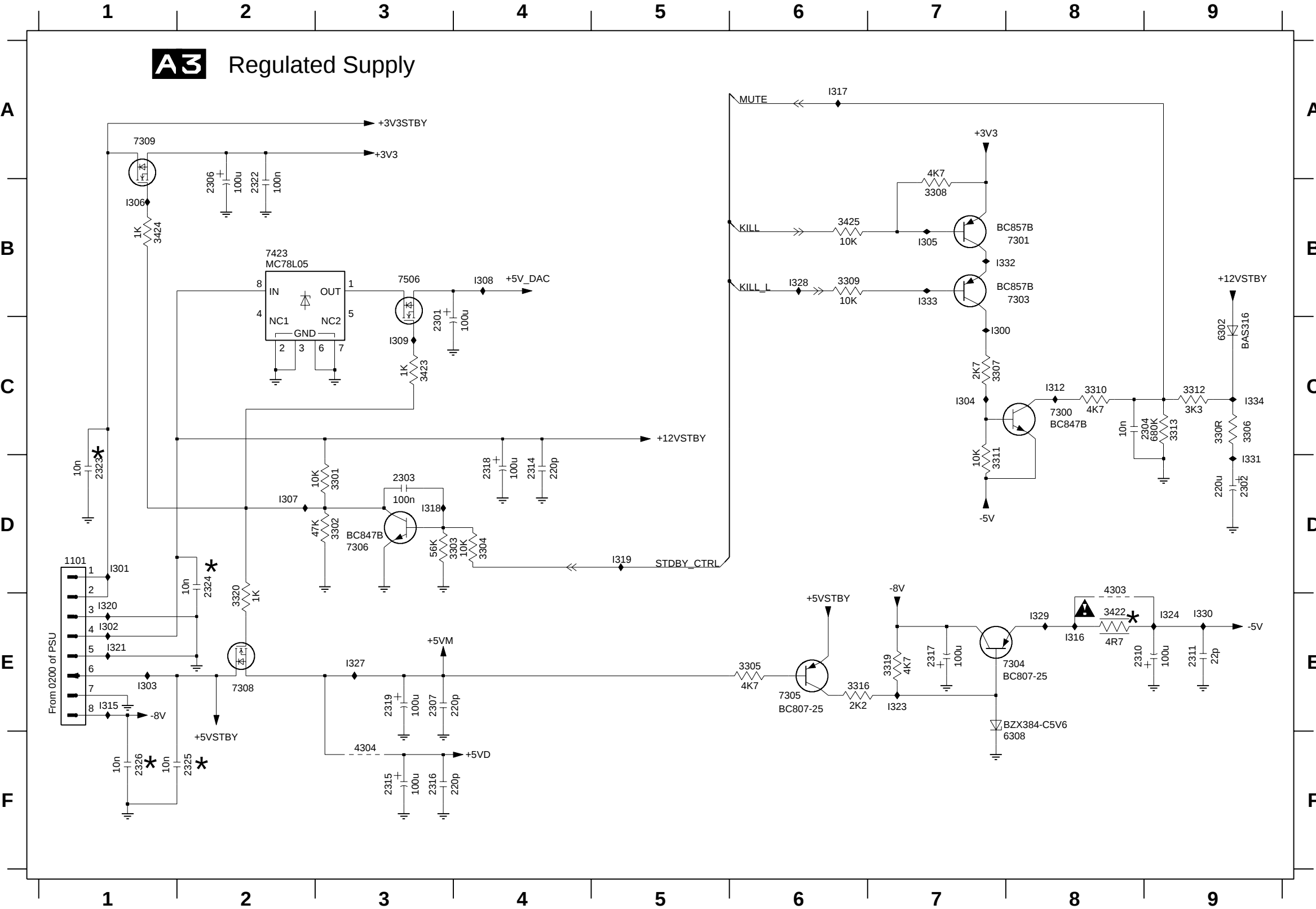
■ SCHEMATIC DIAGRAM (U, C, A, R, T, P models)



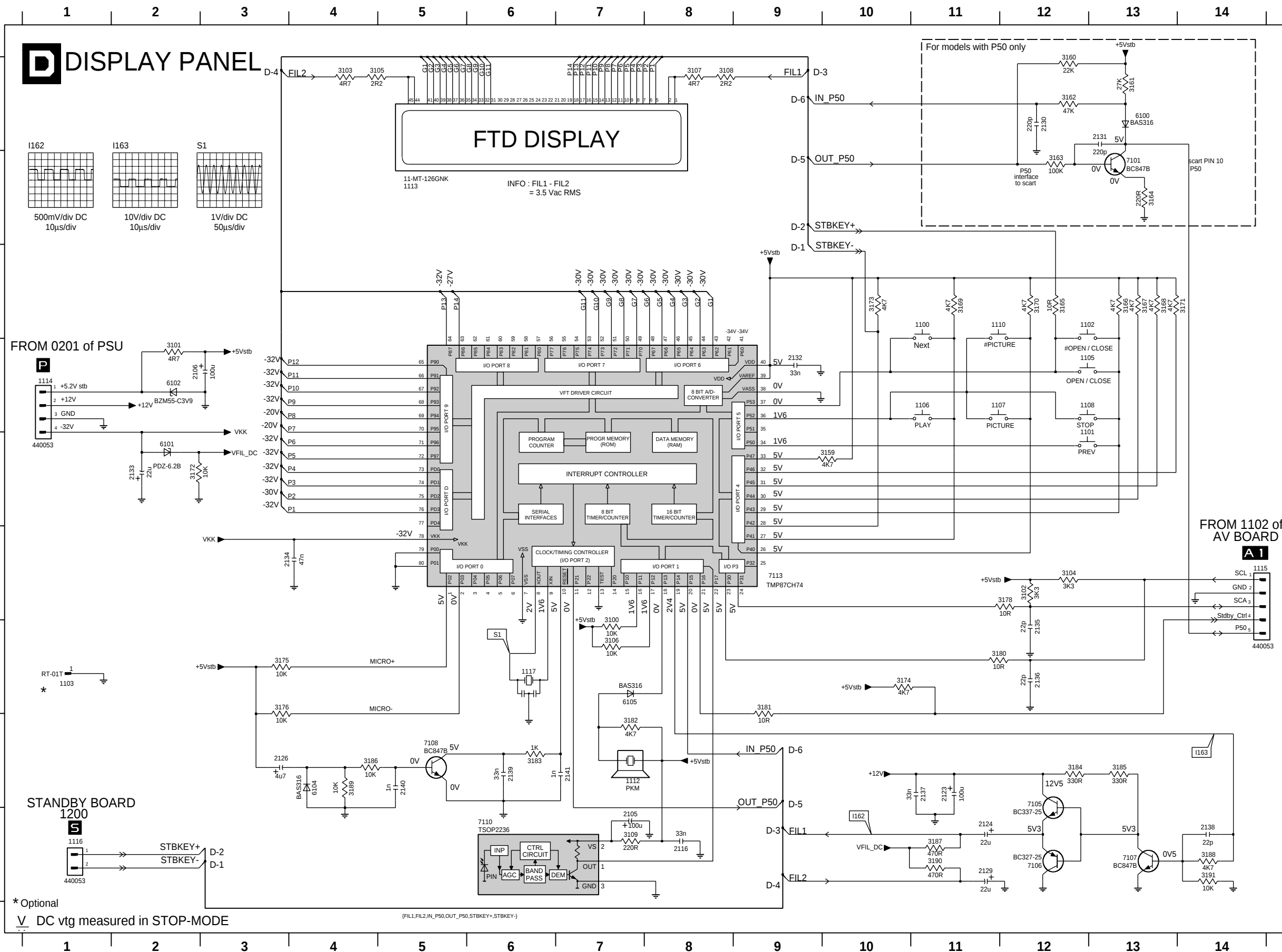
A 1



■ SCHEMATIC DIAGRAM (U, C, A, R, T, P models)



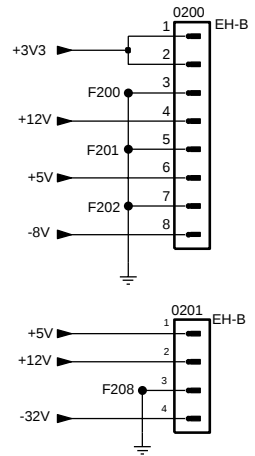
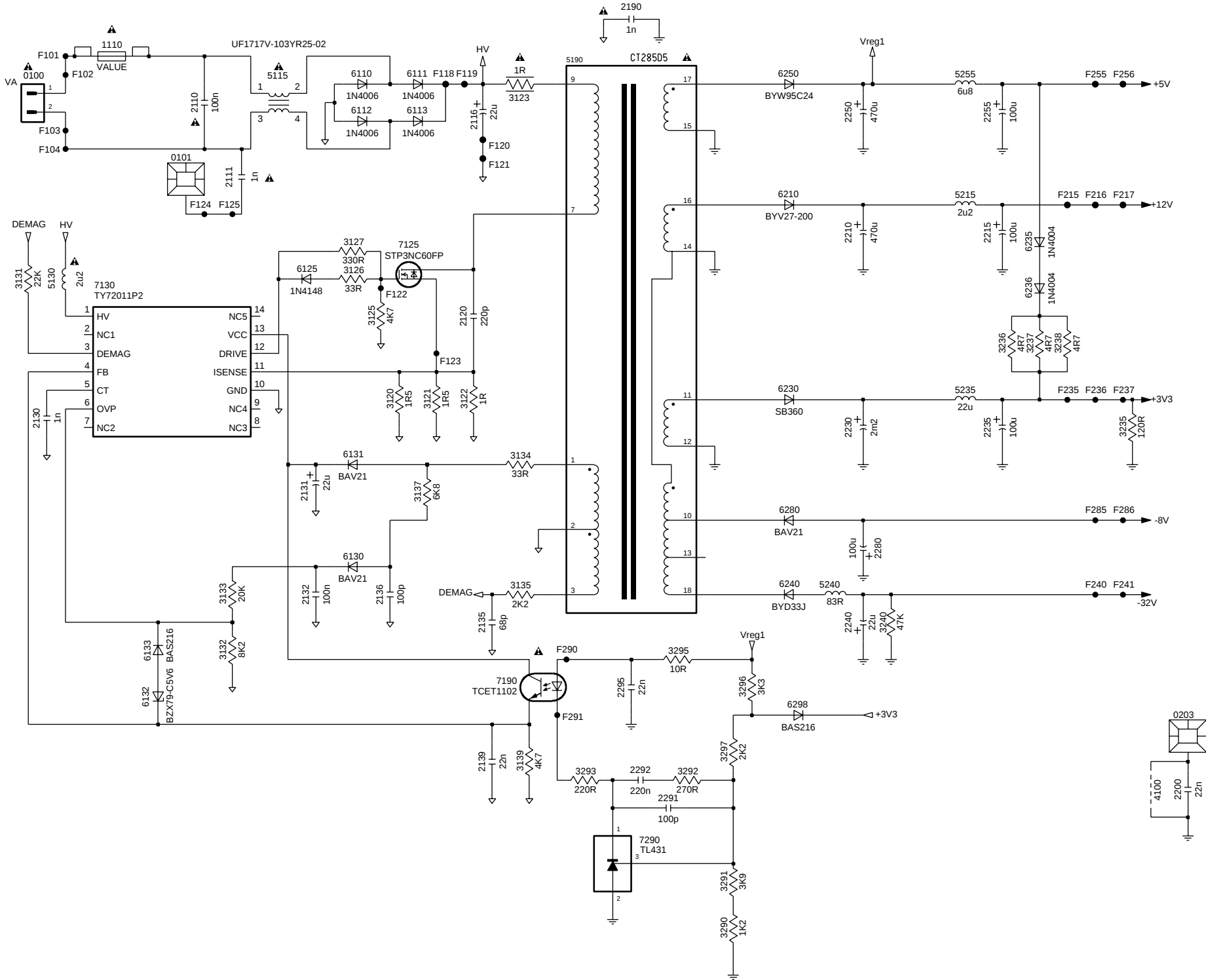
SCHEMATIC DIAGRAM



1100 C11
1101 E12
1102 C12
1103 G1
1105 D12
1106 D11
1107 D11
1108 D12
1110 C11
1112 H7
1113 B5
1114 D1
1115 F14
1116 I1
1117 G6
1105 I7
2106 D2
2116 I8
2123 H11
2124 I11
2126 H3
2129 I11
2130 A12
2131 A13
2132 D9
2133 E2
2134 F4
2135 G12
2136 G12
2137 H11
2138 I14
2139 H6
2140 H5
2141 H7
3100 G7
3101 D2
3102 F12
3103 A4
3104 F12
3105 A4
3106 G7
3107 A8
3108 A8
3109 I7
3159 E10
3160 A12
3161 A13
3162 A12
3163 B12
3164 B13
3165 C12
3166 C13
3167 C13
3168 C13
3169 C11
3170 C12
3171 C14
3172 E2
3173 C10
3174 G10
3175 G3
3176 G3
3178 F12
3180 G11
3181 G9
3182 H7
3183 H6
3184 H12
3185 H13
3186 H4
3187 I11
3188 I14
3189 H4
3190 I11
3191 I14
6100 A13
6101 E2
6102 D2
6104 H4
6105 G7
7101 B13
7105 H12
7106 I12
7107 I13
7108 H5
7110 I6
7113 F9

■ SCHEMATIC DIAGRAM (G, B models only)

FOR INFORMATION ONLY (NO SERVICE PARTS WILL BE AVAILABLE)



- | | |
|----------|----------|
| 0100 A1 | F236 D10 |
| 0101 B2 | F237 D10 |
| 0200 D12 | F240 E10 |
| 0201 F12 | F241 E10 |
| 0203 F10 | F255 A10 |
| 1110 A2 | F256 A10 |
| 2110 A3 | F285 E10 |
| 2111 B3 | F286 E10 |
| 2116 B5 | F290 F6 |
| 2120 C5 | F291 F6 |
| 2130 D1 | |
| 2131 D4 | |
| 2132 E4 | |
| 2135 E5 | |
| 2136 E4 | |
| 2139 F5 | |
| 2190 A6 | |
| 2200 G10 | |
| 2210 B8 | |
| 2215 B9 | |
| 2230 D8 | |
| 2235 D9 | |
| 2240 E8 | |
| 2250 A8 | |
| 2255 A9 | |
| 2280 E8 | |
| 2291 G6 | |
| 2292 G6 | |
| 2295 F6 | |
| 3120 D4 | |
| 3121 D4 | |
| 3122 D5 | |
| 3123 A5 | |
| 3125 C4 | |
| 3126 C4 | |
| 3127 B4 | |
| 3131 C1 | |
| 3132 F3 | |
| 3133 E3 | |
| 3134 D5 | |
| 3135 E5 | |
| 3137 D4 | |
| 3139 F5 | |
| 3235 D10 | |
| 3236 C9 | |
| 3237 C9 | |
| 3238 C9 | |
| 3240 E8 | |
| 3290 H7 | |
| 3291 G7 | |
| 3292 G6 | |
| 3293 G6 | |
| 3295 F6 | |
| 3296 F7 | |
| 3297 F7 | |
| 4100 G10 | |
| 5115 A3 | |
| 5130 C2 | |
| 5190 A6 | |
| 5215 B9 | |
| 5235 D9 | |
| 5240 E8 | |
| 5255 A9 | |
| 6110 A4 | |
| 6111 A4 | |
| 6112 A4 | |
| 6113 A4 | |
| 6125 C4 | |
| 6130 E4 | |
| 6131 D4 | |
| 6132 F2 | |
| 6133 F2 | |
| 6210 B7 | |
| 6230 D7 | |
| 6235 B9 | |
| 6236 C9 | |
| 6240 E7 | |
| 6250 A7 | |
| 6280 E7 | |
| 6298 F7 | |
| 7125 C4 | |
| 7130 C2 | |
| 7190 F5 | |
| 7290 G6 | |
| F101 A2 | |
| F102 A2 | |
| F103 B2 | |
| F104 B2 | |
| F118 A5 | |
| F119 A5 | |
| F120 B5 | |
| F121 B5 | |
| F122 C4 | |
| F123 C5 | |
| F124 B3 | |
| F125 B3 | |
| F200 D11 | |
| F201 E11 | |
| F202 E11 | |
| F208 F11 | |
| F215 B9 | |
| F216 B10 | |
| F217 B10 | |
| F235 D9 | |

PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.

- For the parts No. of the chip carbon resistors, refer to last page of ELECTRICAL PARTS LIST.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

C.A.EL.CHP	: CHIP ALUMI.ELECTROLYTIC CAP	L.EMIT	: LIGHT EMITTING MODULE
C.CE	: CERAMIC CAP	LED.DSPLY	: LED DISPLAY
C.CE.ARRAY	: CERAMIC CAP ARRAY	LED.INFRD	: LED,INFRARED
C.CE.CHP	: CHIP CERAMIC CAP	MODUL.RF	: MODULATOR,RF
C.CE.ML	: MULTILAYER CERAMIC CAP	PHOT.CPL	: PHOTO COUPLER
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT.INTR	: PHOTO INTERRUPTER
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP	PHOT.RFLCT	: PHOTO REFLECTOR
C.CE.TUBLR	: CERAMIC TUBULAR CAP	PIN.TEST	: PIN,TEST POINT
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP	PLST.RIVET	: PLASTIC RIVET
C.EL	: ELECTROLYTIC CAP	R.ARRAY	: RESISTOR ARRAY
C.MICA	: MICA CAP	R.CAR.	: CARBON RESISTOR
C.ML.FLM	: MULTILAYER FILM CAP	R.CAR.CHP	: CHIP RESISTOR
C.MP	: METALLIZED PAPER CAP	R.CAR.FP	: FLAME PROOF CARBON RESISTOR
C.MYLAR	: MYLAR FILM CAP	R.FUS	: FUSABLE RESISTOR
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP	R.MTL.CHP	: CHIP METAL FILM RESISTOR
C.PAPER	: PAPER CAPACITOR	R.MTL.FLM	: METAL FILM RESISTOR
C.PLS	: POLYSTYRENE FILM CAP	R.MTL.OXD	: METAL OXIDE FILM RESISTOR
C.POL	: POLYESTER FILM CAP	R.MTL.PLAT	: METAL PLATE RESISTOR
C.POLY	: POLYETHYLENE FILM CAP	RSNR.CE	: CERAMIC RESONATOR
C.PP	: POLYPROPYLENE FILM CAP	RSNR.CRYS	: CRYSTAL RESONATOR
C.TNTL	: TANTALUM CAP	R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
C.TNTL.CHP	: CHIP TANTALUM CAP	R.WW	: WIRE WOUND RESISTOR
C.TRIM	: TRIMMER CAP	SCR.BND.HD	: BIND HEAD B-TITE SCREW
CN	: CONNECTOR	SCR.BW.HD	: BW HEAD TAPPING SCREW
CN.BS.PIN	: CONNECTOR,BASE PIN	SCR.CUP	: CUP TITE SCREW
CN.CANNON	: CONNECTOR,CANNON	SCR.TERM	: SCREW TERMINAL
CN.DIN	: CONNECTOR,DIN	SCR.TR	: SCREW,TRANSISTOR
CN.FLAT	: CONNECTOR,FLAT CABLE	SUPRT.PCB	: SUPPORT,P.C.B.
CN.POST	: CONNECTOR,BASE POST	SURG.PRTCT	: SURGE PROTECTOR
COIL.MX.AM	: COIL,AM MIX	SW.TACT	: TACT SWITCH
COIL.AT.FM	: COIL,FM ANTENNA	SW.LEAF	: LEAF SWITCH
COIL.DT.FM	: COIL,FM DETECT	SW.LEVER	: LEVER SWITCH
COIL.MX.FM	: COIL,FM MIX	SW.MICRO	: MICRO SWITCH
COIL.OUTPT	: OUTPUT COIL	SW.PUSH	: PUSH SWITCH
DIOD.ARRAY	: DIODE ARRAY	SW.RT.ENC	: ROTARY ENCODER
DIODE.BRG	: DIODE BRIDGE	SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
DIODE.CHP	: CHIP DIODE	SW.RT	: ROTARY SWITCH
DIODE.VAR	: VARACTOR DIODE	SW.SLIDE	: SLIDE SWITCH
DIOD.Z.CHP	: CHIP ZENER DIODE	TERM.SP	: SPEAKER TERMINAL
DIODE.ZENR	: ZENER DIODE	TERM.WRAP	: WRAPPING TERMINAL
DSCR.CE	: CERAMIC DISCRIMINATOR	THRMST.CHP	: CHIP THERMISTOR
FER.BEAD	: FERRITE BEADS	TR.CHP	: CHIP TRANSISTOR
FER.CORE	: FERRITE CORE	TR.DGT	: DIGITAL TRANSISTOR
FET.CHP	: CHIP FET	TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
FL.DSPLY	: FLUORESCENT DISPLAY	TRANS	: TRANSFORMER
FLTR.CE	: CERAMIC FILTER	TRANS.PULS	: PULSE TRANSFORMER
FLTR.COMB	: COMB FILTER MODULE	TRANS.PWR	: POWER TRANSFORMER ASS'Y
FLTR.LC.RF	: LC FILTER,EMI	TUNER.AM	: TUNER PACK,AM
GND.MTL	: GROUND PLATE	TUNER.FM	: TUNER PACK,FM
GND.TERM	: GROUND TERMINAL	TUNER.PK	: FRONT-END TUNER PACK
HOLDER.FUS	: FUSE HOLDER	VR	: ROTARY POTENTIOMETER
IC.PRTCT	: IC PROTECTOR	VR.MTR	: POTENTIOMETER WITH MOTOR
JUMPER.CN	: JUMPER CONNECTOR	VR.SW	: POTENTIOMETER WITH ROTARY SW
JUMPER.TST	: JUMPER,TEST POINT	VR.SLIDE	: SLIDE POTENTIOMETER
L.DTCT	: LIGHT DETECTING MODULE	VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with “#” are not included in the P.C.B. ass'y.

P. C. B. MONO

Schm Ref.	PART NO.	Description	Remarks
	AAAX39610	MONO BOARD (UCRATPK)	3139 248 82211
	AAAX39600	MONO BOARD (GB)	3139 247 10631
1210	AAAX39910	RSNR. CRYST	8.4672MHz 2422 543 01242
2100	US061470	C. CE. CHP	47pF 50V
2101	US063470	C. CE. CHP	4700pF 50V
2102	US135100	C. CE. CHP	0.1uF 16V
2103	US126100	C. CE. CHP	1uF 10V
2104	US063100	C. CE. M. CHP	1000pF 50V
2105	US135100	C. CE. CHP	0.1uF 16V
2106	US126100	C. CE. CHP	1uF 10V
2107	UB214680	C. CE. CHP	0.068uF 16V
2108	US135100	C. CE. CHP	0.1uF 16V
2109	US135100	C. CE. CHP	0.1uF 16V
2110	US063100	C. CE. M. CHP	1000pF 50V
2111	US135100	C. CE. CHP	0.1uF 16V
2112	US135100	C. CE. CHP	0.1uF 16V
2113	US135100	C. CE. CHP	0.1uF 16V
2114	US135100	C. CE. CHP	0.1uF 16V
2115	UB051820	C. CE. CHP	82pF 50V
2116	US063470	C. CE. CHP	4700pF 16V
2117	UB051820	C. CE. CHP	82pF 50V
2118	US135100	C. CE. CHP	0.1uF 16V
2119	US061180	C. CE. CHP	18pF 50V
2120	US135100	C. CE. CHP	0.1uF 16V
2121	US135100	C. CE. CHP	0.1uF 16V
2122	US135100	C. CE. CHP	0.1uF 16V
2137	US135100	C. CE. CHP	0.1uF 16V
2200	US135100	C. CE. CHP	0.1uF 16V
2201	US135100	C. CE. CHP	0.1uF 16V
2202	US064100	C. CE. CHP	0.01uF 50V
2203	US135100	C. CE. CHP	0.1uF 16V
2204	US135100	C. CE. CHP	0.1uF 16V
2205	US126100	C. CE. CHP	1uF 10V
2206	US126100	C. CE. CHP	1uF 10V
2207	US061220	C. CE. M. CHP	22pF 50V
2208	US135100	C. CE. CHP	0.1uF 16V
2209	US135100	C. CE. CHP	0.1uF 16V
2210	US061220	C. CE. M. CHP	22pF 50V
2211	US135100	C. CE. CHP	0.1uF 16V
2212	US135100	C. CE. CHP	0.1uF 16V
2213	US135100	C. CE. CHP	0.1uF 16V
2214	US135100	C. CE. CHP	0.1uF 16V
2215	US135100	C. CE. CHP	0.1uF 16V
2216	US135100	C. CE. CHP	0.1uF 16V
2217	US135100	C. CE. CHP	0.1uF 16V
2218	US135100	C. CE. CHP	0.1uF 16V
2219	US135100	C. CE. CHP	0.1uF 16V
2220	US135100	C. CE. CHP	0.1uF 16V
2221	US135220	C. CE. CHP	0.22uF 16V
2222	US135100	C. CE. CHP	0.1uF 16V
2223	US135100	C. CE. CHP	0.1uF 16V
2224	US135100	C. CE. CHP	0.1uF 16V
2225	US135100	C. CE. CHP	0.1uF 16V
2226	US135100	C. CE. CHP	0.1uF 16V
2227	US063180	C. CE. CHP	1800pF 50V
2228	US034330	C. CE. CHP	0.033uF 16V
2229	US063180	C. CE. CHP	1800pF 50V
2230	US135100	C. CE. CHP	0.1uF 16V
2231	US135100	C. CE. CHP	0.1uF 16V
2232	US135100	C. CE. CHP	0.1uF 16V
2233	US062100	C. CE. CHP	100pF 50V
2234	US062100	C. CE. CHP	100pF 50V
2235	US062100	C. CE. CHP	100pF 50V

* New Parts

Schm Ref.	PART NO.	Description	Remarks
2236	US062100	C. CE. CHP	100pF 50V
2300	US135100	C. CE. CHP	0.1uF 16V
2301	US135100	C. CE. CHP	0.1uF 16V
2302	US135100	C. CE. CHP	0.1uF 16V
2303	US135100	C. CE. CHP	0.1uF 16V
2304	US135100	C. CE. CHP	0.1uF 16V
2305	US135100	C. CE. CHP	0.1uF 16V
2306	US135100	C. CE. CHP	0.1uF 16V
2308	US135100	C. CE. CHP	0.1uF 16V
2309	US135100	C. CE. CHP	0.1uF 16V
2401	US135100	C. CE. CHP	0.1uF 16V
2417	US135100	C. CE. CHP	0.1uF 16V
2502	US135100	C. CE. CHP	0.1uF 16V
2503	US135100	C. CE. CHP	0.1uF 16V
2508	US135100	C. CE. CHP	0.1uF 16V
2509	US135100	C. CE. CHP	0.1uF 16V
2514	US135100	C. CE. CHP	0.1uF 16V
2515	US135100	C. CE. CHP	0.1uF 16V
2520	US135100	C. CE. CHP	0.1uF 16V
2522	US063150	C. CE. CHP	1500pF 50V
2603	UF066470	C. EL. CHP	4.7uF 50V
2604	US135100	C. CE. CHP	0.1uF 16V
2605	US062100	C. CE. CHP	100pF 50V
2606	UF037100	C. EL. CHP	10uF 16V
2607	US135100	C. CE. CHP	0.1uF 16V
2608	UF037100	C. EL. CHP	10uF 16V
2609	US135100	C. CE. CHP	0.1uF 16V
2610	US044220	C. CE. CHP	0.022uF 25V
2612	US061220	C. CE. M. CHP	22pF 50V
2613	US061220	C. CE. M. CHP	22pF 50V
2614	US061220	C. CE. M. CHP	22pF 50V
2616	US135100	C. CE. CHP	0.1uF 16V
2617	US135100	C. CE. CHP	0.1uF 16V
2618	US135100	C. CE. CHP	0.1uF 16V
2619	US135100	C. CE. CHP	0.1uF 16V
2620	US135100	C. CE. CHP	0.1uF 16V
2621	US135100	C. CE. CHP	0.1uF 16V
2622	US135100	C. CE. CHP	0.1uF 16V
2623	US135100	C. CE. CHP	0.1uF 16V
2624	US135100	C. CE. CHP	0.1uF 16V
2625	US135100	C. CE. CHP	0.1uF 16V
2626	US135100	C. CE. CHP	0.1uF 16V
2627	US135100	C. CE. CHP	0.1uF 16V
2628	US135100	C. CE. CHP	0.1uF 16V
2629	US135100	C. CE. CHP	0.1uF 16V
2630	US135100	C. CE. CHP	0.1uF 16V
2631	US135100	C. CE. CHP	0.1uF 16V
2632	US135100	C. CE. CHP	0.1uF 16V
2633	UF066470	C. EL. CHP	4.7uF 50V
2634	UF066470	C. EL. CHP	4.7uF 50V
2635	US135100	C. CE. CHP	0.1uF 16V
2636	US061220	C. CE. M. CHP	22pF 50V
2637	US061220	C. CE. M. CHP	22pF 50V
2700	US135100	C. CE. CHP	0.1uF 16V
2701	UF066220	C. EL. CHP	2.2uF 50V
2702	US061470	C. CE. CHP	47pF 50V
2703	US061470	C. CE. CHP	47pF 50V
2704	US135100	C. CE. CHP	0.1uF 16V
2705	UF066220	C. EL. CHP	2.2uF 50V
2706	US061470	C. CE. CHP	47pF 50V
2707	US061470	C. CE. CHP	47pF 50V
2708	US063100	C. CE. M. CHP	1000pF 50V
2711	US063100	C. CE. M. CHP	1000pF 50V

* New Parts

P. C. B. MONO & P. C. B. AV (U, C, R, A, T, P, K models)

Schm Ref.	PART NO.	Description	Remarks
2713	UF138100	C. EL. CHP 100uF 16V	
2714	US135100	C. CE. CHP 0. 1uF 16V	
2716	US135100	C. CE. CHP 0. 1uF 16V	
2717	UF066220	C. EL. CHP 2. 2uF 50V	
2718	US061470	C. CE. CHP 47pF 50V	
2719	US061470	C. CE. CHP 47pF 50V	
2721	UF138100	C. EL. CHP 100uF 16V	
2722	US135100	C. CE. CHP 0. 1uF 16V	
2723	US135100	C. CE. CHP 0. 1uF 16V	
2724	UF066220	C. EL. CHP 2. 2uF 50V	
2725	US061470	C. CE. CHP 47pF 50V	
2726	US061470	C. CE. CHP 47pF 50V	
2727	US061470	C. CE. CHP 47pF 50V	
2728	US061470	C. CE. CHP 47pF 50V	
2729	US135100	C. CE. CHP 0. 1uF 16V	
2731	US135100	C. CE. CHP 0. 1uF 16V	
2732	US135100	C. CE. CHP 0. 1uF 16V	
2733	UF066220	C. EL. CHP 2. 2uF 50V	
2734	US061470	C. CE. CHP 47pF 50V	
2735	US061470	C. CE. CHP 47pF 50V	
2736	UF138100	C. EL. CHP 100uF 16V	
2737	US135100	C. CE. CHP 0. 1uF 16V	
2738	US135100	C. CE. CHP 0. 1uF 16V	
2739	US135100	C. CE. CHP 0. 1uF 16V	
2742	UF066220	C. EL. CHP 2. 2uF 50V	
2743	US061470	C. CE. CHP 47pF 50V	
2744	US061470	C. CE. CHP 47pF 50V	
2745	US061220	C. CE. M. CHP 22pF 50V	
2746	UF138100	C. EL. CHP 100uF 16V	
2760	US135100	C. CE. CHP 0. 1uF 16V	
2761	US135100	C. CE. CHP 0. 1uF 16V	
2762	US135100	C. CE. CHP 0. 1uF 16V	
2763	US135100	C. CE. CHP 0. 1uF 16V	
6100	AAAX22630	DIODE. CHP BAS316	4822 130 11397
6101	AAAX22630	DIODE. CHP BAS316	4822 130 11397
6303	AAAX22690	DIODE. CHP S1D	9322 128 69685
6304	AAAX22690	DIODE. CHP S1D	9322 128 69685
6305	AAAX22690	DIODE. CHP S1D	9322 128 69685
* 7100	AAAX39570	IC TZA1033HL/K2	9352 703 49118
7101	AAAX21690	IC MC34072D	4822 209 32073
* 7103	AAAX22740	TR. CHP BC847B	4822 130 60511
* 7104	AAAX39450	FET BST82	9337 331 10215
7107	AAAX22740	TR. CHP BC847B	4822 130 60511
7109	AAAX22740	TR. CHP BC847B	4822 130 60511
* 7111	AAAX39450	FET BST82	9337 331 10215
* 7112	AAAX39450	FET BST82	9337 331 10215
7113	AAAX22740	TR. CHP BC847B	4822 130 60511
* 7200	AAAX39560	IC SAA7812HL/M3B	9352 681 05557
7201	AAAX29980	TR BC857C	5322 130 42756
7202	AAAX22740	TR. CHP BC847B	4822 130 60511
* 7205	AAAX39520	IC FLASH DVD-SD4. 02	3139 240 50401
* 7300	AAAX21660	IC LM833D	4822 209 30095
7301	AAAX39530	IC BA6665FM	9322 139 85668
7302	AAAX21620	IC BA5938FM	4822 209 17229
7405	AAAX21850	IC M24C32-WMN6TNKSA	9322 156 81668
* 7500	AAAX39540	IC MT48LC4M16A2TG-7E	9322 166 67668
7502	AAAX22740	TR. CHP BC847B	4822 130 60511
* 7600	AAAX39550	IC STi5519	9322 171 47671
* 7603	AAAX39920	RSNR. CRYST 27MHz 2560TK-2	2722 171 08763
7605	AAAX22740	TR. CHP BC847B	4822 130 60511
7701	AAAX22740	TR. CHP BC847B	4822 130 60511
7705	AAAX22740	TR. CHP BC847B	4822 130 60511
7707	AAAX22740	TR. CHP BC847B	4822 130 60511

* New Parts

Schm Ref.	PART NO.	Description	Remarks
7710	AAAX22740	TR. CHP BC847B	4822 130 60511
7711	AAAX39530	IC LF25C	9322 139 85668
7713	AAAX22740	TR. CHP BC847B	4822 130 60511
7714	AAAX39530	IC LF25C	9322 139 85668
7716	AAAX29510	IC 74HCT1G125	9352 456 80115
7718	AAAX22740	TR. CHP BC847B	4822 130 60511
7719	AAAX29940	FET BSN20	5322 130 63289
7720	AAAX29940	FET BSN20	5322 130 63289
* 1105	AAAX39590	AV (UCRATPK)	3139 248 82061
1140	AAAX39760	JACK. PIN 3P	2422 026 05049
2103	US064100	C. CE. CHP 0. 01uF 50V	2422 026 05318
2104	US062220	C. CE. CHP 220pF 50V	
2105	US062220	C. CE. CHP 220pF 50V	
2107	US061220	C. CE. M. CHP 22pF 50V	
2108	US061220	C. CE. M. CHP 22pF 50V	
2131	US062680	C. CE. CHP 680pF 50V	
2133	US062220	C. CE. CHP 220pF 50V	
2137	US062220	C. CE. CHP 220pF 50V	
2138	US062220	C. CE. CHP 220pF 50V	
2161	US062220	C. CE. CHP 220pF 50V	
2168	US064100	C. CE. CHP 0. 01uF 50V	
2169	US064100	C. CE. CHP 0. 01uF 50V	
2170	US064100	C. CE. CHP 0. 01uF 50V	
2201	UR847470	C. EL 47uF 25V	
2202	US135100	C. CE. CHP 0. 1uF 16V	
2203	US135100	C. CE. CHP 0. 1uF 16V	
2204	US135100	C. CE. CHP 0. 1uF 16V	
2207	US135100	C. CE. CHP 0. 1uF 16V	
2208	US044220	C. CE. CHP 0. 022uF 25V	
2209	AAAX23610	C. EL 100uF 16V	4822 124 22339
2210	US044220	C. CE. CHP 0. 022uF 25V	
2215	US062680	C. CE. CHP 680pF 50V	
2219	US044220	C. CE. CHP 0. 022uF 25V	
2221	US135100	C. CE. CHP 0. 1uF 16V	
2222	US062680	C. CE. CHP 680pF 50V	
2223	US044220	C. CE. CHP 0. 022uF 25V	
2225	US062680	C. CE. CHP 680pF 50V	
2229	AAAX23610	C. EL 100uF 16V	4822 124 22339
2230	US062680	C. CE. CHP 680pF 50V	
2231	UR867100	C. EL 10uF 50V	
2232	US062470	C. CE. CHP 470pF 50V	
2233	US135100	C. CE. CHP 0. 1uF 16V	
2235	UR848100	C. EL 100uF 25V	
2236	UR848100	C. EL 100uF 25V	
2237	US135100	C. CE. CHP 0. 1uF 16V	
2238	US062470	C. CE. CHP 470pF 50V	
2239	US062470	C. CE. CHP 470pF 50V	
2240	UR867100	C. EL 10uF 50V	
2241	US062470	C. CE. CHP 470pF 50V	
2242	US063330	C. CE. CHP 3300pF 50V	
2243	US062470	C. CE. CHP 470pF 50V	
2244	US063330	C. CE. CHP 3300pF 50V	
2245	US062470	C. CE. CHP 470pF 50V	
2246	US062470	C. CE. CHP 470pF 50V	
2248	US135100	C. CE. CHP 0. 1uF 16V	
2301	UR848100	C. EL 100uF 25V	
2302	UR838220	C. EL 220uF 16V	
2303	UB245100	C. CE. CHP 0. 1uF 25V	
2304	US064100	C. CE. CHP 0. 01uF 50V	
2306	UR848100	C. EL 100uF 25V	

* New Parts

P. C. B. AV (B, G models)

Schm Ref.	PART NO.	Description	Remarks
2307	US135100	C. CE. CHP 0.1uF 16V	
2310	UR848100	C. EL 100uF 25V	
2311	US135100	C. CE. CHP 0.1uF 16V	
2314	US135100	C. CE. CHP 0.1uF 16V	
2315	UR848100	C. EL 100uF 25V	
2316	US135100	C. CE. CHP 0.1uF 16V	
2317	UR848100	C. EL 100uF 25V	
2318	UR848100	C. EL 100uF 25V	
2319	UR848100	C. EL 100uF 25V	
2322	US135100	C. CE. CHP 0.1uF 16V	
6302	AA22630	DIODE. CHP BAS316	4822 130 11397
6308	AA239720	DIODE. ZENR BZX384-C6V2	9322 163 91685
7166	AA29930	TR. CHP BC807-25	5322 130 60845
7200	X0661A00	IC AK4382AVT	
7211	AA21660	IC LM833D	4822 209 30095
7212	AA21660	IC LM833D	4822 209 30095
7214	AA29930	TR. CHP BC807-25	5322 130 60845
7215	AA29930	TR. CHP BC807-25	5322 130 60845
7216	AA29930	TR. CHP BC807-25	5322 130 60845
7217	AA29930	TR. CHP BC807-25	5322 130 60845
7218	AA239900	CN. PHOT. SN GP1FA550TZ	9322 155 28667
7300	AA22740	TR. CHP BC847B	4822 130 60511
7301	AA29980	TR BC857C	5322 130 42756
7303	AA29980	TR BC857C	5322 130 42756
7304	AA29930	TR. CHP BC807-25	5322 130 60845
7305	AA29930	TR. CHP BC807-25	5322 130 60845
7306	AA22740	TR. CHP BC847B	4822 130 60511
7308	AA239440	FET IRLML2502	9322 163 27685
7309	AA239440	FET IRLML2502	9322 163 27685
7423	AA229490	IC L78L05ACD	4822 209 90927
7503	AA22740	TR. CHP BC847B	4822 130 60511
7505	AA22740	TR. CHP BC847B	4822 130 60511
7506	AA239440	FET IRLML2502	9322 163 27685
	AA239580	AV (BG)	3139 248 81651
1130	AA29760	TERM. SCART 21P	2422 025 12352
1140	AA239760	JACK. PIN 6P	2422 026 05318
2104	US062220	C. CE. CHP 220pF 50V	
2105	US062220	C. CE. CHP 220pF 50V	
2106	US063100	C. CE. M. CHP 1000pF 50V	
2107	US061220	C. CE. M. CHP 22pF 50V	
2108	US061220	C. CE. M. CHP 22pF 50V	
2112	UR838470	C. EL 470uF 16V	
2130	US063100	C. CE. M. CHP 1000pF 50V	
2131	US062680	C. CE. CHP 680pF 50V	
2132	US044220	C. CE. CHP 0.022uF 25V	
2133	US062220	C. CE. CHP 220pF 50V	
2134	UR848100	C. EL 100uF 25V	
2135	US135100	C. CE. CHP 0.1uF 16V	
2136	UB445470	C. CE. M. CHP 0.47uF 16V	
2137	US062220	C. CE. CHP 220pF 50V	
2138	US062220	C. CE. CHP 220pF 50V	
2139	US062220	C. CE. CHP 220pF 50V	
2140	US062220	C. CE. CHP 220pF 50V	
2141	US062220	C. CE. CHP 220pF 50V	
2151	US064100	C. CE. CHP 0.01uF 50V	
2152	US064100	C. CE. CHP 0.01uF 50V	
2153	US064100	C. CE. CHP 0.01uF 50V	
2161	US062220	C. CE. CHP 220pF 50V	
2162	UR838470	C. EL 470uF 16V	
2163	UR838470	C. EL 470uF 16V	
2164	UR838470	C. EL 470uF 16V	

* New Parts

Schm Ref.	PART NO.	Description	Remarks
2201	UR847470	C. EL 47uF 25V	
2202	US135100	C. CE. CHP 0.1uF 16V	
2203	US135100	C. CE. CHP 0.1uF 16V	
2204	US135100	C. CE. CHP 0.1uF 16V	
2207	US135100	C. CE. CHP 0.1uF 16V	
2208	US044220	C. CE. CHP 0.022uF 25V	
2209	AA23610	C. EL 100uF 16V	4822 124 22339
2210	US044220	C. CE. CHP 0.022uF 25V	
2215	US062680	C. CE. CHP 680pF 50V	
2219	US044220	C. CE. CHP 0.022uF 25V	
2221	US135100	C. CE. CHP 0.1uF 16V	
2222	US062680	C. CE. CHP 680pF 50V	
2223	US044220	C. CE. CHP 0.022uF 25V	
2225	US062680	C. CE. CHP 680pF 50V	
2229	AA23610	C. EL 100uF 16V	4822 124 22339
2230	US062680	C. CE. CHP 680pF 50V	
2231	UR867100	C. EL 10uF 50V	
2235	UR848100	C. EL 100uF 25V	
2236	UR848100	C. EL 100uF 25V	
2237	US135100	C. CE. CHP 0.1uF 16V	
2238	US062470	C. CE. CHP 470pF 50V	
2239	US062470	C. CE. CHP 470pF 50V	
2240	UR867100	C. EL 10uF 50V	
2241	US062470	C. CE. CHP 470pF 50V	
2242	US063330	C. CE. CHP 3300pF 50V	
2243	US062470	C. CE. CHP 470pF 50V	
2244	US063330	C. CE. CHP 3300pF 50V	
2245	US062470	C. CE. CHP 470pF 50V	
2246	US062470	C. CE. CHP 470pF 50V	
2248	US135100	C. CE. CHP 0.1uF 16V	
2301	UR848100	C. EL 100uF 25V	
2302	UR838220	C. EL 220uF 16V	
2303	UB245100	C. CE. CHP 0.1uF 25V	
2304	US064100	C. CE. CHP 0.01uF 50V	
2306	UR848100	C. EL 100uF 25V	
2307	US135100	C. CE. CHP 0.1uF 16V	
2310	UR848100	C. EL 100uF 25V	
2311	US135100	C. CE. CHP 0.1uF 16V	
2314	US135100	C. CE. CHP 0.1uF 16V	
2315	UR848100	C. EL 100uF 25V	
2316	US135100	C. CE. CHP 0.1uF 16V	
2317	UR848100	C. EL 100uF 25V	
2318	UR848100	C. EL 100uF 25V	
2319	UR848100	C. EL 100uF 25V	
2322	US135100	C. CE. CHP 0.1uF 16V	
6302	AA22630	DIODE. CHP BAS316	4822 130 11397
6308	AA239720	DIODE. ZENR BZX384-C6V2	9322 163 91685
7130	AA29930	TR. CHP BC807-25	5322 130 60845
7131	AA29930	TR. CHP BC807-25	5322 130 60845
7132	AA22740	TR. CHP BC847B	4822 130 60511
7133	AA22740	TR. CHP BC847B	4822 130 60511
7134	AA29980	TR BC857C	5322 130 42756
7150	AA22740	TR. CHP BC847B	4822 130 60511
7151	AA22740	TR. CHP BC847B	4822 130 60511
7160	AA22740	TR. CHP BC847B	4822 130 60511
7161	AA22740	TR. CHP BC847B	4822 130 60511
7164	AA22740	TR. CHP BC847B	4822 130 60511
7166	AA29930	TR. CHP BC807-25	5322 130 60845
7167	AA22740	TR. CHP BC847B	4822 130 60511
7168	AA22740	TR. CHP BC847B	4822 130 60511
7169	AA22740	TR. CHP BC847B	4822 130 60511
7170	AA22740	TR. CHP BC847B	4822 130 60511
7200	X0661A00	IC AK4382AVT	

* New Parts

P. C. B. AV (B, G models) & P. C. B. DISPLAY

Schm Ref.	PART NO.	Description		Remarks
*	7211	AAx21660	IC	LM833D
	7212	AAx21660	IC	LM833D
	7214	AAx29930	TR. CHP	BC807-25
	7215	AAx29930	TR. CHP	BC807-25
	7216	AAx29930	TR. CHP	BC807-25
	7217	AAx29930	TR. CHP	BC807-25
	7218	AAx39900	CN. PHOT. SN	GP1FA550TZ
	7300	AAx22740	TR. CHP	BC847B
	7301	AAx29980	TR	BC857C
	7303	AAx29980	TR	BC857C
*	7304	AAx29930	TR. CHP	BC807-25
	7305	AAx29930	TR. CHP	BC807-25
	7306	AAx22740	TR. CHP	BC847B
	7308	AAx39440	FET	IRLML2502
	7309	AAx39440	FET	IRLML2502
	7423	AAx29490	IC	L78L05ACD
	7503	AAx22740	TR. CHP	BC847B
	7505	AAx22740	TR. CHP	BC847B
	7506	AAx39440	FET	IRLML2502
*		AAx39620		DISPLAY (UCRATPK)
		AAx39630		DISPLAY (GB)
	1100	AAx39710	SW. TACT	
	1101	AAx39710	SW. TACT	
	1105	AAx39710	SW. TACT	
	1106	AAx39710	SW. TACT	
	1108	AAx39710	SW. TACT	
	1112	AAx39770	BUZZER	PKM13EPY-4002
	1113	AAx39890	FL. DISPLAY	11-MT-130GNK
	1117	AAx23300	RSNR. CRYS	8MHz CSTS
*	1201	AAx39710	SW. TACT	
	2105	UR838100	C. EL	100uF 16V
	2106	UR838100	C. EL	100uF 16V
	2116	US034330	C. CE. CHP	0.033uF 16V
	2123	UR838100	C. EL	100uF 16V
	2124	UR867220	C. EL	22uF 50V
	2126	UR866470	C. EL	4.7uF 50V
	2129	UR867220	C. EL	22uF 50V
	2130	US062220	C. CE. CHP	220pF 50V
	2131	US062220	C. CE. CHP	220pF 50V
*	2132	US034330	C. CE. CHP	0.033uF 16V
	2133	UR867220	C. EL	22uF 50V
	2134	US034470	C. CE. CHP	0.047uF 16V
	2135	US061220	C. CE. M. CHP	22pF 50V
	2136	US061220	C. CE. M. CHP	22pF 50V
	2137	US034330	C. CE. CHP	0.033uF 16V
	2138	US061220	C. CE. M. CHP	22pF 50V
	2139	US034330	C. CE. CHP	0.033uF 16V
	2140	US063100	C. CE. CHP	1000pF 50V
	2141	US063100	C. CE. CHP	1000pF 50V
*	6100	AAx22630	DIODE. CHP	BAS316
	6101	AAx29920	DIOD. Z. CHP	UDZ6.2B TE-17
	6102	AAx29920	DIOD. Z. CHP	UDZ6.2B TE-17
	6104	AAx22630	DIODE. CHP	BAS316
	6105	AAx22630	DIODE. CHP	BAS316
	7101	AAx22740	TR. CHP	BC847B
	7105	AAx29960	TR	BC337-25
	7106	AAx22850	TR	BC327
	7107	AAx22740	TR. CHP	BC847B
	7108	AAx22740	TR. CHP	BC847B
*	7110	AAx39880	L. DTCT	TSOP2236LL1
	7113	AAx39960	IC	TMP87CH74F-3PG5

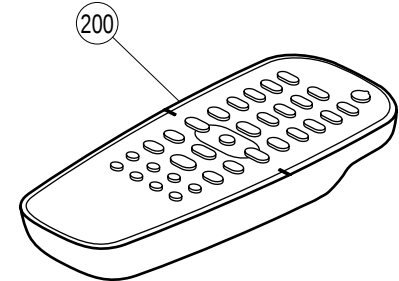
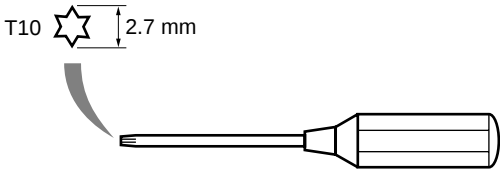
* New Parts

Schm Ref.	PART NO.	Description		Remarks
	RD350000	R. CAR. CHP	0Ω	1/10W
	RD353100	R. CAR. CHP	1Ω	1/10W
	RD353220	R. CAR. CHP	2.2Ω	1/10W
	RD353470	R. CAR. CHP	4.7Ω	1/10W
	RD354330	R. CAR. CHP	33Ω	1/10W
	RD354470	R. CAR. CHP	47Ω	1/10W
	RD355100	R. CAR. CHP	100Ω	1/10W
	RD355390	R. CAR. CHP	390Ω	1/10W
	RD356100	R. CAR. CHP	1KΩ	1/10W
	RD357220	R. CAR. CHP	22KΩ	1/10W
	RD357360	R. CAR. CHP	36KΩ	1/10W
	HX611040	R. CAR. CHP	0Ω	1/16W
	HX610750	R. CAR. CHP	1Ω	1/16W
	NX703320	R. CAR. CHP	2.2Ω	1/16W
	HX611160	R. CAR. CHP	10Ω	1/16W
	HX610090	R. CAR. CHP	22Ω	1/16W
	HX611150	R. CAR. CHP	47Ω	1/16W
	AAx06470	R. CAR. CHP	68Ω	1/16W
	AAx15900	R. CAR. CHP	75Ω	1/16W
	HX610900	R. CAR. CHP	100Ω	1/16W
	AAx15800	R. CAR. CHP	150Ω	1/16W
	HX610960	R. CAR. CHP	220Ω	1/16W
	HX611120	R. CAR. CHP	270Ω	1/16W
	HX610170	R. CAR. CHP	330Ω	1/16W
	HX610890	R. CAR. CHP	470Ω	1/16W
	HX611010	R. CAR. CHP	560Ω	1/16W
	HX610910	R. CAR. CHP	1kΩ	1/16W
	HX611090	R. CAR. CHP	1.5kΩ	1/16W
	HX610110	R. CAR. CHP	2.2KΩ	1/16W
	HX611140	R. CAR. CHP	2.7kΩ	1/16W
	HX610980	R. CAR. CHP	3.3kΩ	1/16W
	AAx17770	R. CAR. CHP	3.9KΩ	1/16W
	HX611080	R. CAR. CHP	4.7kΩ	1/16W
	HX611030	R. CAR. CHP	6.8kΩ	1/16W
	HX610920	R. CAR. CHP	10kΩ	1/16W
	HX610780	R. CAR. CHP	12kΩ	1/16W
	HX610950	R. CAR. CHP	15KΩ	1/16W
	HX611110	R. CAR. CHP	22kΩ	1/16W
	HX611130	R. CAR. CHP	27kΩ	1/16W
	AAx17750	R. CAR. CHP	33KΩ	1/16W
	AAx06590	R. CAR. CHP	39KΩ	1/16W
	HX611070	R. CAR. CHP	1MΩ	1/16W

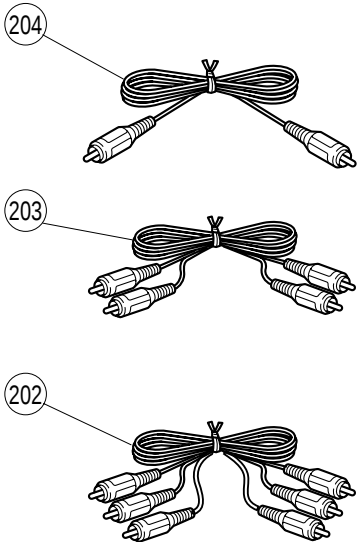
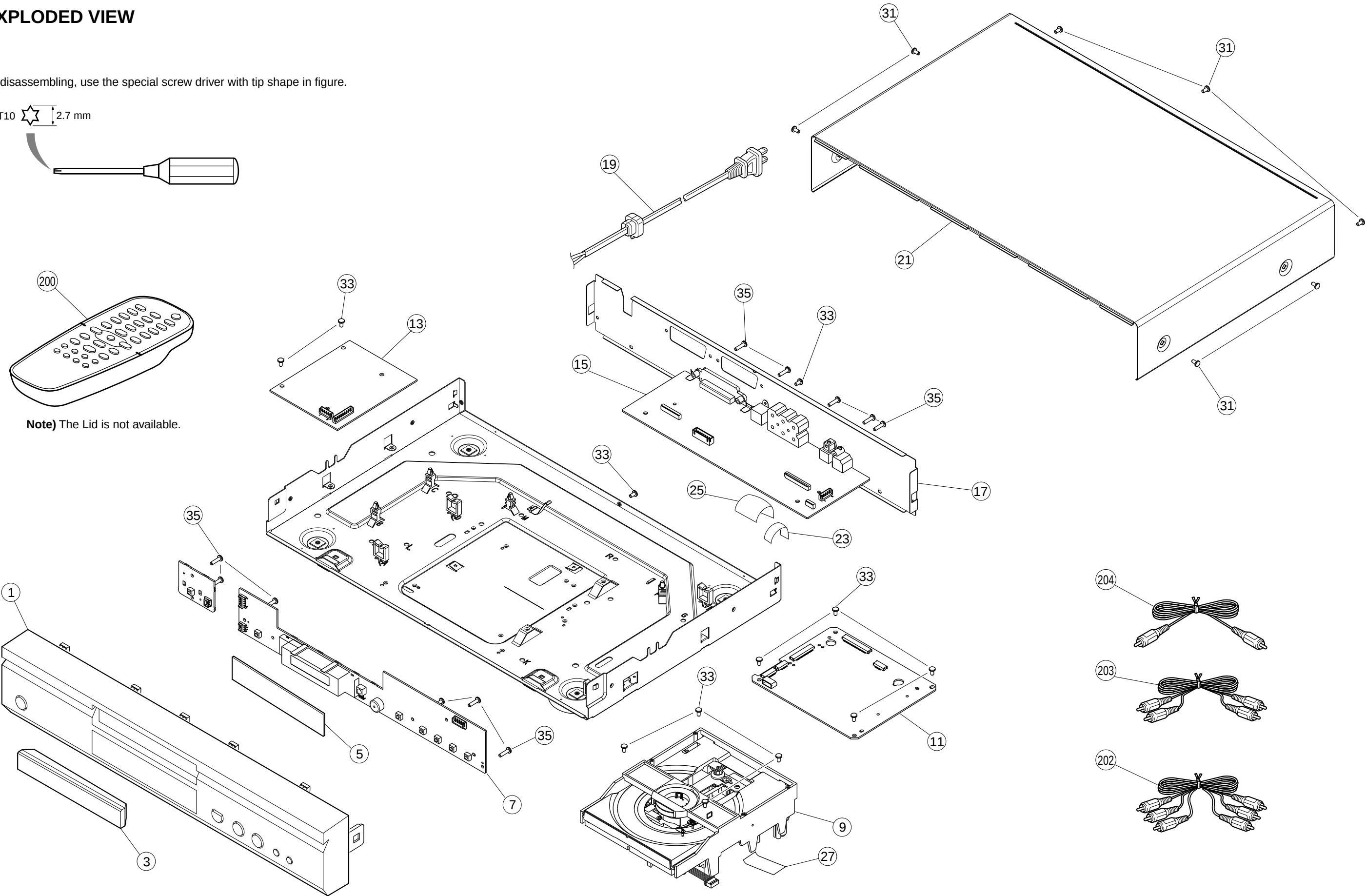
* New Parts

EXPLODED VIEW

When disassembling, use the special screw driver with tip shape in figure.



Note) The Lid is not available.



MECHANICAL PARTS

	Ref. No.	PART NO.	Description		Remarks	Markets
*	1	AAX39510	FRONT PANEL ASS'Y	S530BL	3139 247 56201	UCPA
*	1	AAX41990	FRONT PANEL ASS'Y	S530BL	3139 247 57451	BG
*	1	AAX39500	FRONT PANEL ASS'Y	S530GD	3139 247 56191	RK
*	1	AAX41970	FRONT PANEL ASS'Y	S530GD	3139 247 57431	G
*	1	AAX39490	FRONT PANEL ASS'Y	S530TI	3139 247 56181	BG
*	1	AAX39470	FRONT PANEL ASS'Y	5550BL	3139 247 56161	UCA
*	1	AAX41980	FRONT PANEL ASS'Y	5550BL	3139 247 57441	G
*	1	AAX39480	FRONT PANEL ASS'Y	5550TI	3139 247 56171	U
*	3	AAX39700	COVER TRAY	S530BL	3139 247 56341	UCPA
*	3	AAX42030	COVER TRAY	S530BL	3139 247 57251	BG
*	3	AAX39680	COVER TRAY	S530GD	3139 247 56261	RK
*	3	AAX42010	COVER TRAY	S530GD	3139 247 57231	G
*	3	AAX39670	COVER TRAY	S530TI	3139 247 56221	BG
*	3	AAX39690	COVER TRAY	S5550BL	3139 247 56301	UCA
*	3	AAX42020	COVER TRAY	S5550BL	3139 247 57241	G
*	3	AAX42000	COVER TRAY	S5550TI	3139 247 57221	U
*	5	AAX39460	FL FILTER		3139 244 80011	
*	7	AAX39620	P. C. B. ASS' Y	DISPLAY	3139 248 82111	UCRATPK
*	7	AAX39630	P. C. B. ASS' Y	DISPLAY	3139 248 82331	BG
*	9	AAX39430	DVD MECHANISM (BASIC ENGINE)	VAL6013/02	9305 023 61302	
*	11	AAX39610	P. C. B. ASS' Y	MONO BOARD	3139 248 82211	UCRATPK
*	11	AAX39600	P. C. B. ASS' Y	MONO BOARD	3139 247 10631	BG
* ⚠	13	AAX39930	POWER SUPPLY UNIT	VFM2002	3122 427 23341	UCRATPK
* ⚠	13	AAX39940	POWER SUPPLY UNIT	VFM2002	3122 427 23351	BG
*	15	AAX39590	P. C. B. ASS' Y	AV	3139 248 82061	UCRATPK
*	15	AAX39580	P. C. B. ASS' Y	AV	3139 248 81651	BG
*	17	AAX39840	REAR PANEL	S530	3139 247 56531	UC
*	17	AAX39810	REAR PANEL	S530	3139 247 56501	RK
*	17	AAX39800	REAR PANEL	S530	3139 247 56481	T
*	17	AAX39830	REAR PANEL	S530	3139 247 56521	A
*	17	AAX39860	REAR PANEL	S530	3139 247 56551	P
*	17	AAX39790	REAR PANEL	S530	3139 247 56471	BG
*	17	AAX39850	REAR PANEL	S5550	3139 247 56541	UC
*	17	AAX39820	REAR PANEL	S5550	3139 247 56511	A
*	17	AAX39780	REAR PANEL	S5550	3139 247 56461	G
⚠	19	V2363800	POWER CABLE	2m		UC
⚠	19	VZ542500	POWER CABLE	2m		RTP
⚠	19	V8013000	POWER CABLE	2m		K
⚠	19	V2296800	POWER CABLE	2m		A
⚠	19	VV437300	POWER CABLE	2m		B
⚠	19	VN363700	POWER CABLE	2m		G
*	21	AAX39750	TOP COVER	BL	3139 247 56451	
*	21	AAX39740	TOP COVER	GD	3139 247 56441	
*	21	AAX39730	TOP COVER	TI	3139 247 56431	
*	23	AAX39640	FLEXIBLE FOIL CONNECTION	FFC 8P 100mm P=1m	3139 110 36061	
*	25	AAX39650	FLEXIBLE FOIL CONNECTION	FFC 30P 100mm P=1m	3139 110 36071	
*	27	AAX39660	FLEXIBLE FOIL CONNECTION	FFC 23P 158mm P=1m	3139 241 00131	
	31	AAX23640	PAN HEAD TORX S-TITE SCREW	3x6 ZN-BL (BL)	4822 502 13988	
	31	AAX23650	PAN HEAD TORX S-TITE SCREW	3x6 NI (GD, TI)	2511 077 01039	
	33	AAX23640	PAN HEAD TORX S-TITE SCREW	3x6 ZN-BL	4822 502 13988	
	35	AAX23630	PAN HEAD TORX P-TITE SCREW	3x10 ZN-BL	2511 076 50013	

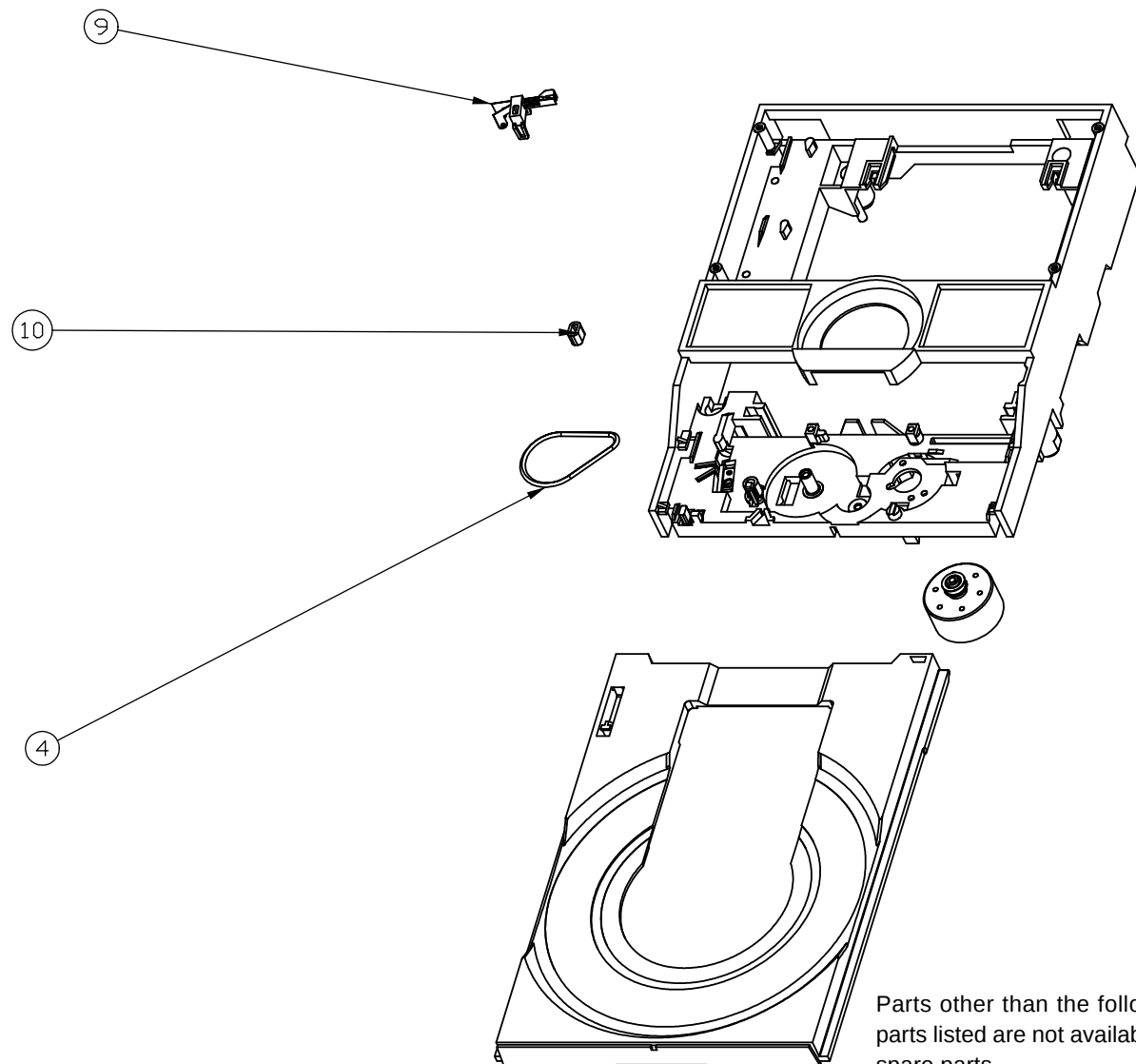
* New Parts

DVD-S530/DV-S5550

Ref. No.	PART NO.	Description		Remarks	Markets
* 200	AAX39870	ACCESSORY	RC19133010/00	3139 238 02571	
202	AAX23450	REMOTE CONTROL	YE/RD/WH 1.5m 1pc	2422 076 00304	UCRTPKA
203	AAX21980	AUDIO/VIDEO CABLE	RD/WH 1.5m 1pc	3103 308 92611	BG
204	AAX22970	AUDIO PIN CABLE	YE 1.5m 1pc	3104 108 45432	BG
		VIDEO CABLE			

* New Parts

DVD MECHANISM ASS'Y

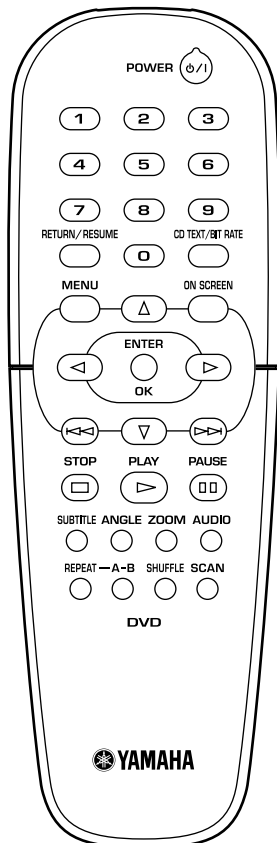
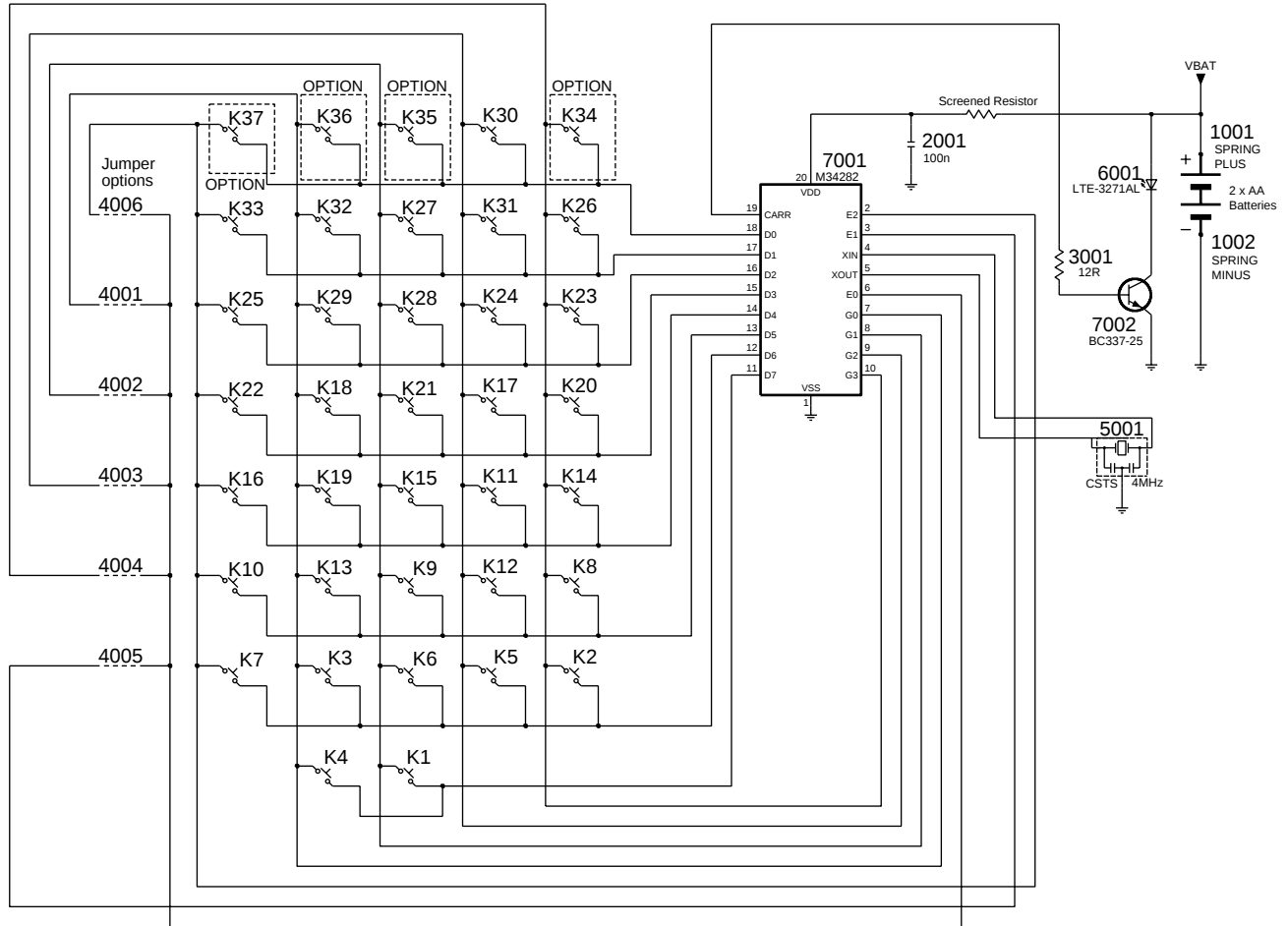


Parts other than the following parts listed are not available as spare parts.

Ref. No.	PART NO.	Description		Remarks	Markets
* 4	AAX39430	DVD MECHANISM (BASIC ENGINE)	VAL6013/02	9305 023 61302	
	AAX23070	BELT/DRIVING		4822 358 10266	
	AAX22410	SWITCH/OTHERS		3139 198 80010	
10	AAX23210	RING	TULE	4822 532 13097	
		TRAY		3139 194 00270	not availa
		MOTOR	DC <=37.5W	3139 197 50060	not availa

* New Parts

REMOTE CONTROL



Protocol Type: RC6 Mode 0

Key No.	RC Key id	Hexadecimal code
1	POWER ϕ / I	C
2	1	1
3	2	2
4	3	3
5	4	4
6	5	5
7	6	6
8	7	7
9	8	8
10	9	9
11	RETURN/RESUME	83
12	0	0
13	CD TEXT/BIT RATE	EF
14	MENU	54
15	CURSOR UP Δ	58
16	ON SCREEN	82
17	CURSOR LEFT $\triangleleft$	5A
18	OK	5C
19	CURSOR RIGHT $\triangleright$	5B
20	PREVIOUS $\ll$	21
21	CURSOR DOWN ∇	59
22	NEXT $\gg$	20
23	STOP $\square$	31
24	PLAY $\triangleright$	2C
25	PAUSE $\square\square$	30
26	SUBTITLE	4B
27	ANGLE	85
28	ZOOM	F7
29	AUDIO	4E
30	REPEAT	1D
31	A/B REPEAT	3B
32	SHUFFLE	1C
33	SCAN	2A

DVD-S530/DV-S5550

