

Service Service Service

CDR570
CDR770
CDR775
CDR930
CDR950

Service Manual



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PHILIPS

1. Technical Specifications/Introduction.

In this document the important issues for the mechanical and electrical testing, adjusting, checking and diagnosing of the Digital Audio CDR Module such as applied in so-called 3rd generation CDR recorders is described.

In this first chapter is presented the introduction of the repair manual for 2nd line repair workshops. It contains the repair instructions of the CDR Module CDL4009 + Mainboard 4228. All modules consist of the same loader + CDM part, the mounting of the components on the Mainboard deviates from each other. For that reason a separate CDR-module has been defined for each type/modelnumber.

On top of that: Each mainboard connected to another CDM has to be adjusted before that module can be used. To have this module on component level repaired this second line service (repair) manual has to be used in combination with the "first" line service manual of mentioned typenumber. As long as the adjustment instructions can not be carried out, the module has to be exchanged by an adjusted one from Service stock in case of repairs concerning CDM and/or Servo circuits.

Chapter 2 contains the required safety instructions, in chapter 3 a referring to the directions for use, as published in the typenumber Service Manual, is made.

In chapter 4 the mechanical exploded view of the complete module, the loading part and the CDM3800 is presented. This chapter also includes the mounting, demounting, cleaning and greasing instruction.

In chapter 5 the internal selfdiagnostics without opening the set and use of other tools is described in the service modes. The faultfinding trees and repair suggestions like the power supply voltages for proper functioning of the mainboard are indicated there too. This chapter also contains initialising and reset, concerned measuring points are highlighted. For proper functioning of all ICs the clockfrequencies have to be tested and the importance of derived clockfrequencies is shown. and how to operate with the menu driven diagnostics. Via a PC connection (serial input socket RS232C) the Menu Driven Diagnostics feature is started.

To improve the interactivity and communication with the set/module the COMPAIR (the for service designed computer aided repair) tool is supported too by this CDR generation. Details to be defined soonest and will be published by a service information bulletin later on.

Via blockdiagrams of applied boards the common issues of all boards are shown and in short explained in chapter 6.

In chapter 7 the circuit diagrams and printed wiring boards with important measuring points are shown.

The adjustment of the laser current (only one important and necessary adjustment has to be carried out, the rest of the adjustments are calculated from that parameter onwards) will be presented in chapter 8. The needed PC program is under investigation now and with the implementation of COMPAIR this adjustment action will be explained. The method how to align the software, if needed, is indicated here.

In chapter 9 reference is made to existing 3rd generation circuit description in which publication a lot of details about the functioning of the set is explained.

Also the list of abbreviations is inserted here.

Finally a survey of applied components and corresponding service ordering numbers is given in chapter 10.

As the Mainboard 4228 is designed to be applied for several modelnumbers this board contains a lot of optional components.

The most extended board is modelnumber CDR775 where double speed dubbing feature is applied too.

2. Safety and Maintenance instructions warnings and notes

GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.



NL WAARSCHUWING

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

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.

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

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

F ATTENTION

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

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

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

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

D WARNUNG

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

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

Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

I AVVERTIMENTO

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

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

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

GB

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

NL

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

D

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

I

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

F

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



**CAUTION
VARO!
VARNING
ADVERSEL
DANGER
VORSICHT**

INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
AVATTAESSA OLET ALTTIINA NÄKYMÄTÖNÄLLÄ LASER SÄTEILYLLE ÄLÄ KATSO SÄTEESIEN.
ÖSYNYLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRÄKTA EJ STRÅLEN.
USYNYLIG LASERSTRÅLNING VID ÅBNING. UNDGÅ UNSÆTTELSE FOR STRÅLING.
INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
UNSIHTBARE LASERSTRÅLUNG WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

SHOCK, FIRE HAZARD SERVICE TEST:

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

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

Ref.UL Standard NO.1492.

NOTE ON SAFETY:

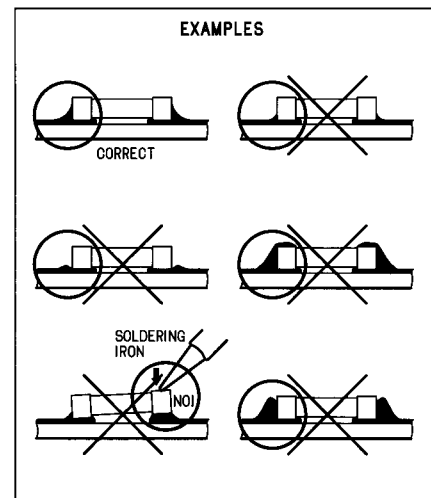
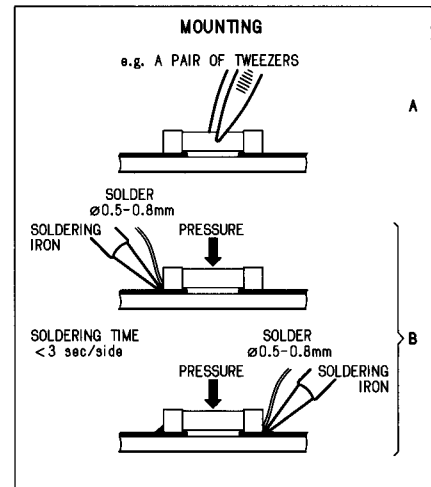
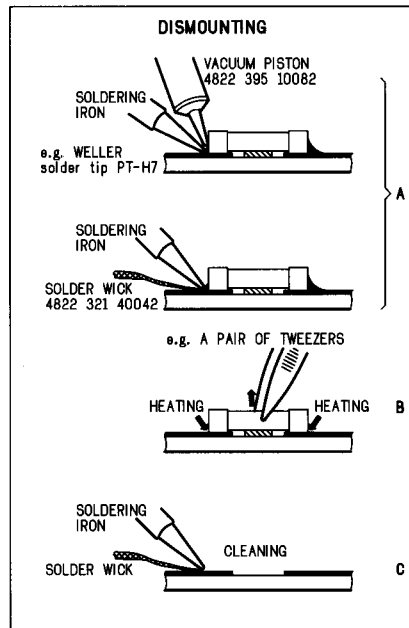
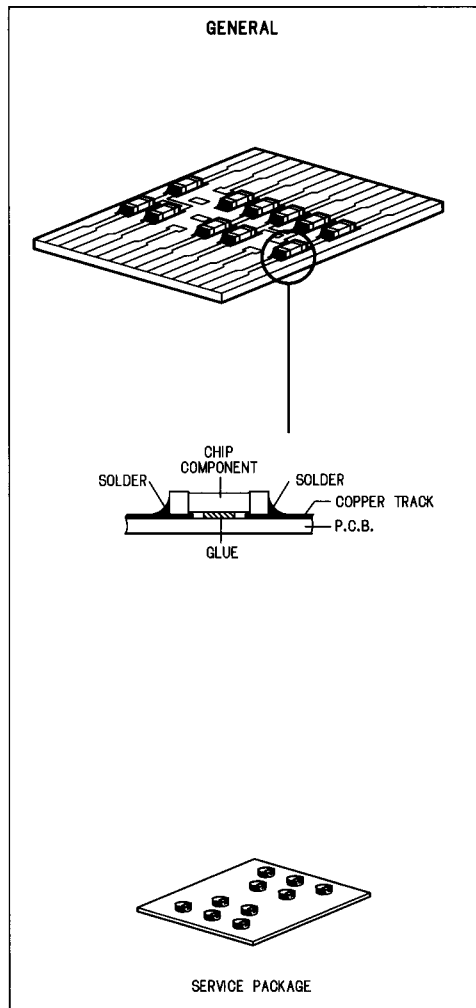
Symbol  : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.



"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne."

SERVICING HINTS

In the set, chip components have been applied. For disassembly and assembly check the figure below.



SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Important

Proper service and repair is important to the safe, reliable operation of all Philips equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock Hazard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those units which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barriers, covers, strain reliefs, and other hardware have been installed according to the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length, and dress.
5. No lead or component should touch a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with a Δ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol Δ on the schematic diagrams and/or exploded views.

Replacement parts without the same safety characteristics may create shock, fire, or other hazards.

7. When servicing any unit, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug). Defeating this safety feature may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should never be used.

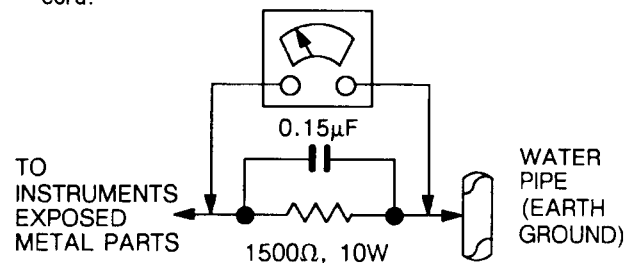
Fire and Shock Hazard (Continued)

9. After reassembly of the unit, always perform an ac leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit is safe to operate without danger of electrical shock.

* Broken line: 

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled unit directly into the ac outlet.
2. Connect a 1.5k, 10W resistor paralleled by a 0.15µF capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms/volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 millamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed. (Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Parts Replacement

1. Many electrical and mechanical parts in Philips equipment have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.
2. All ICs and many other semiconductor parts are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce the life of the part drastically.

LASER NOTE:

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION - The use of optical instruments with this product will increase eye hazard.

3. Instructions for use

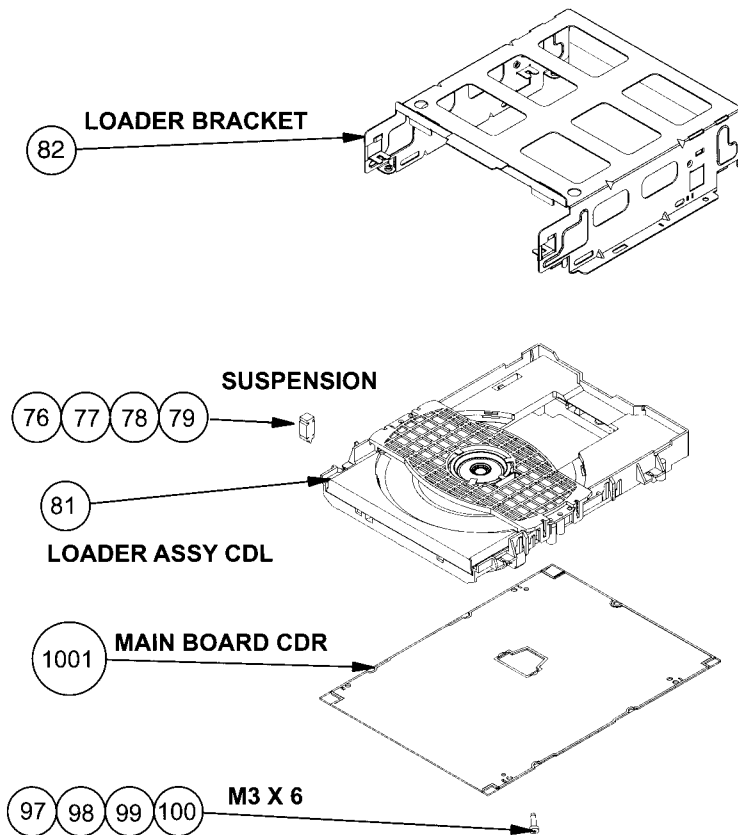
See service manual of concerned modelnumber in which the instructions for use has been inserted. This chapter has not been filled as this module of CDR Module CDL4009 + Mainboard 4228 is only a part of a complete set.

4. Mechanical instructions

4.1 Loader CDL4009

CDL4009 consists of metal loader bracket item 82 and glued on it an identification sticker (on which the module production number and production code is printed); 4 suspension rubbers items 76, 77, 78 and 79 which carry loader assembly item 81;

and on the bottom side the CDR mainboard 1001 is mounted. Notice that mainboard is dependant to the applied set and has to be adjusted to mounted CDM in loader in case of exchange. See next figure, Loader CDL4009



82: LOADER BRACKET
81: LOADER ASSY CDL
76: SUSPENSION

3104 121 23900
9305 043 20900
3104 144 05730

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090300

Figure 4-1

To demount loader module CDL4009:

1. Mainboard item 1001. Beware of connections to CDM. Optical pick-up unit has to be ESD protected!
2. Loosen suspensions 76, 77, 78 and 79 from metal loader bracket 81
3. Take out Loader assy CDL

4.2 Exploded view CDL3800

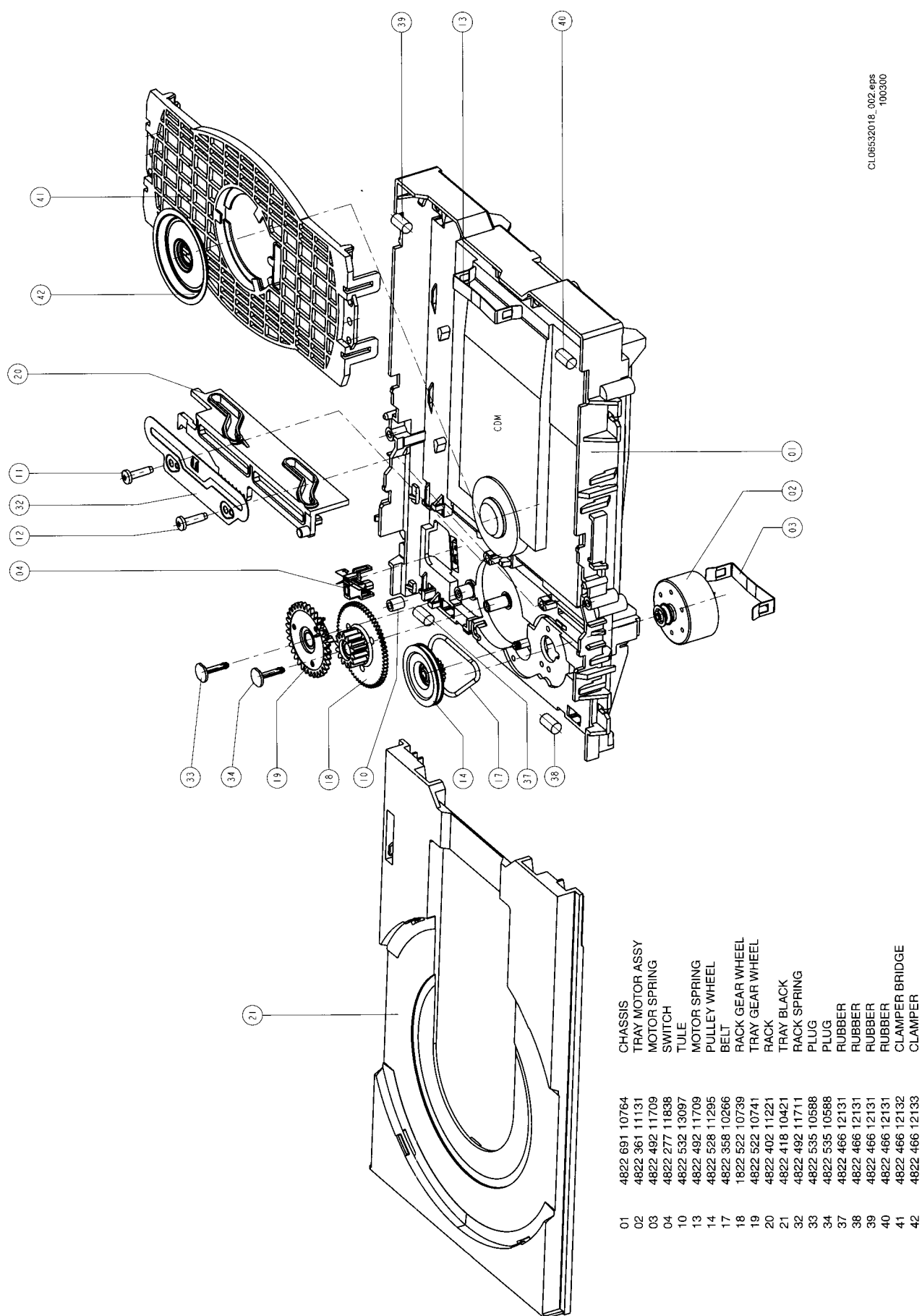


Figure 4-2

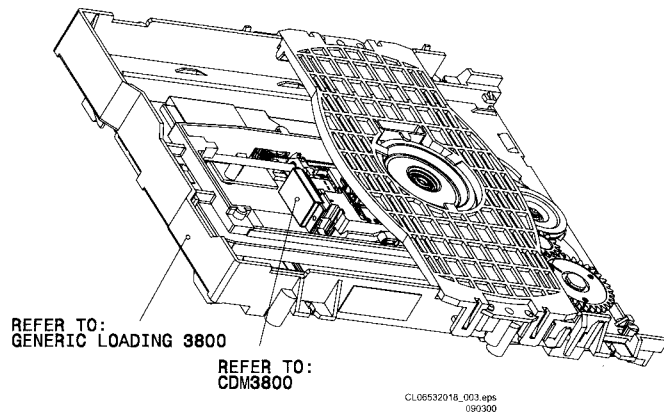


Figure 4-3

4.3 DEMOUNTING LOADER CDL3800

Remove the following items starting with:
(For the item numbers refer to the Exploded Views CDL3800,
figure 4.2)

4.3.1 Release and remove tray

Push to open the tray on the rack (item 20)

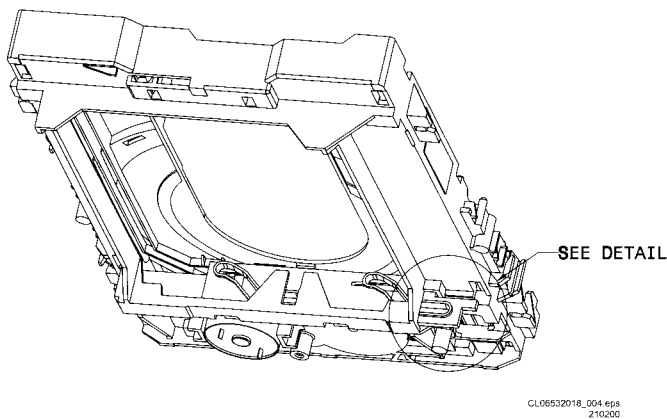


Figure 4-4

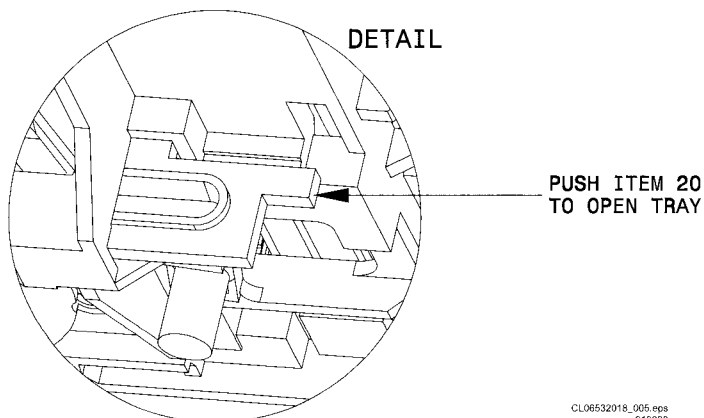


Figure 4-5

Tray

Pull out the tray (item 21) until it sticks. Press the lock at the left side of the tray upwards. Pull out the tray.

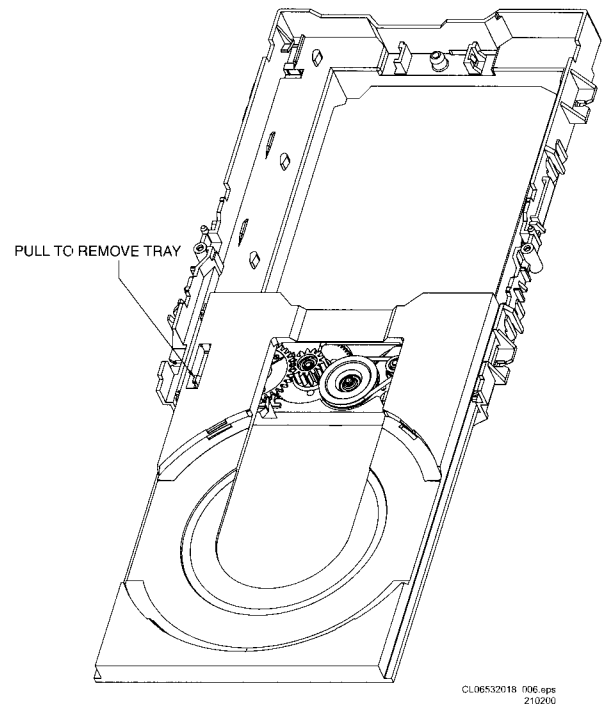


Figure 4-6

Tray motor assey

Remove the tray motor belt (item 17).

Loosen the motorspring (item 3) with a pair of tweezers or a screwdriver via the rectangular hole at the right side of the tray motor.

Clamper bridge

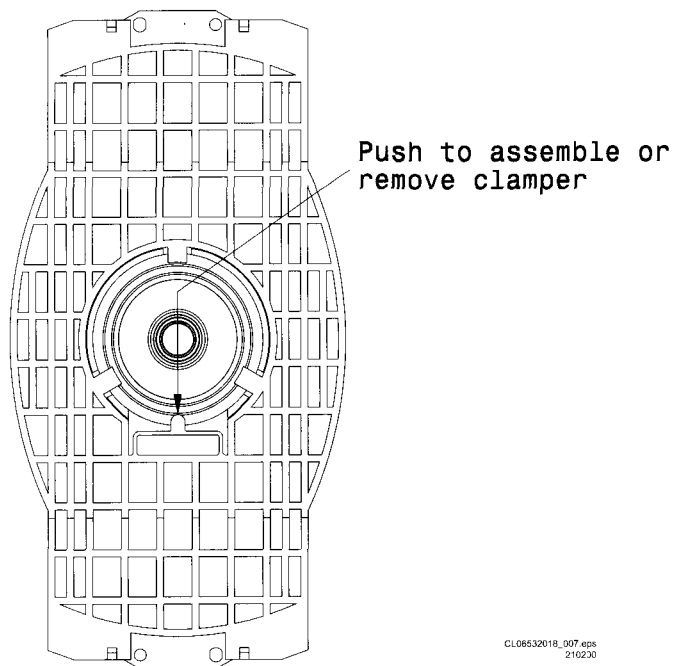
Bend the locks-profiles on both sides of the clamper bridge (item 41) carefully to the outside and lift up the clamper bridge.

CDM

Place the loader upside down and remove the motorspring (item 13) with a pair of tweezers or a screwdriver, but hold the CDM so it can't fall down.

Rack

First remove the rack spring (item 32) by unscrewing items 11 and 12.

Clamper

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210230

Figure 4-7

4.4 Exploded view CDM3800

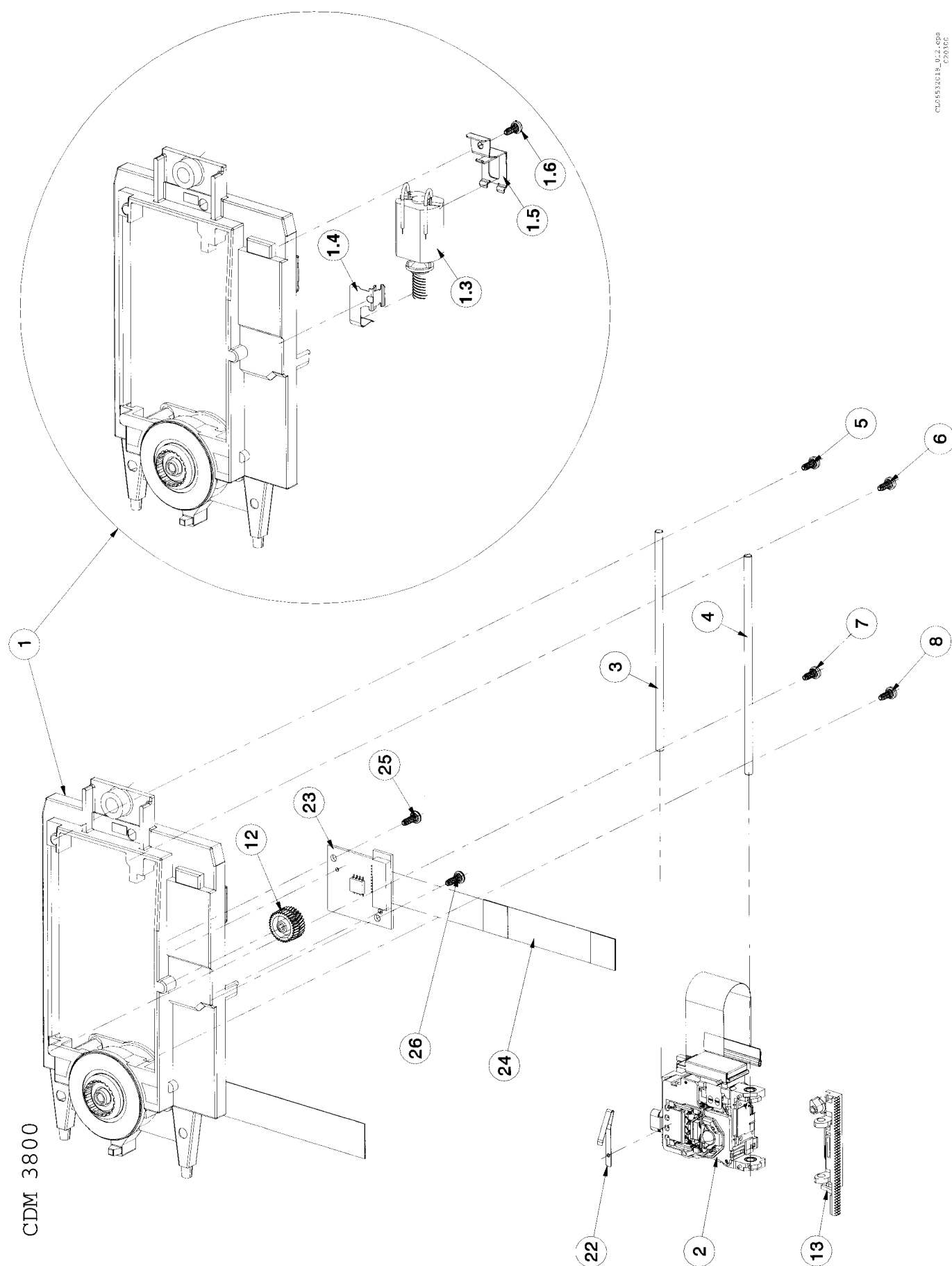
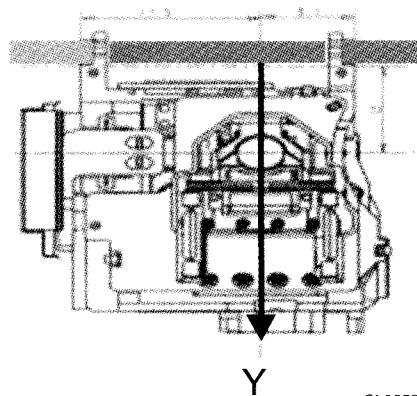


Figure 4-8

3104 147 01580 CDM3800 COMPLETE

1: 4822 691 10765 MOUNTING PLATE ASSY
 1.3: 4822 361 11132 SLEDGE MOTOR ASSY
 2: 3104 147 12890 OPU-24.24
 3: 4822 535 10591 THIRD BEARING AXLE
 4: 4822 535 10591 AXLE
 12: 4822 528 11297 COMBI WHEEL
 13: 4822 522 10742 GEAR RACK ASSY
 22: 3104 141 21830 THIRD BEARING SPRING

2100: 4822 126 13196 100nF 10% 25V
 3100: Δ 4822 051 20101 100 Ω 5% 0,1W
 5101: 4822 130 11531 SENSOR LT125A



4

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 210200

4.5 Cleaning objective lens

4.5.1 CLEANING PRESCRIPTION OBJECTIVE LENS

Figure 4-9

- Cleaning fluid

The lens cleaner codenumber reads 4822 389 10026

- Procedure

- Take a clean cotton wool tipped stick and put Lens-cleaner on the wool.
- Wipe the lens very softly with the wet wool end of the stick by moving it forwards and backwards in the Y-direction. (see drawing)
- Take a dry cotton wool tipped stick and remove the Lens-cleaner from the lens by moving it very softly back and forth in the Y-direction (see drawing)
- During cleaning, take the necessary precautions in order to prevent damage to the*Actuator (hinges, lens, litze-wires) or OPU (ESD, ...) Do not remove axle (item 4, see drawing) from OPU, because the fixing screws of axle are deforming it at it's end. On their turn these deformings are damaging the hinges of the OPU when loosening the axle.

- Application

This cleaning procedure is only applicable for the flat side (upside) of the lens.

Never try to clean the round side (underside) of the lens (replica-side).

With this cleaning procedure, fingerprints and dust can easily be removed with very soft and gently movements of the cotton wool tipped stick.

- Limitation

This cleaning procedure is only applicable in cases of malfunctions of the product, due to lens-problems. It's not ment to be applied on 100% of the actuators, OPU's.

After cleaning, the product must be re-checked on it's functionality.

4.6 Lubricating

Between worm and combiwheel (item 12, 4822 528 11297)2x

4.6.1 LUBRICATING INSTRUCTIONS FOR GENERIC LOADING CDL3800

USE TRIBOL GREASE (1322 523 78101)

Be careful when lubricating the parts.

For parts and points to apply grease, refer to the drawing figure 4-10.

Avoid excess grease.

B. The bearing of the gearwheel. Grease on upper part of cylindrical surface.^o

C. Guiding and 2 guiding pins of the rack on the chassis.^o

D. The guiding of the rackspring.*

E. The 2 guiding profiles of the rack*

F. 10 guiding surface of the chassis on the tray.*

G. The guiding pin on the rack.*

H. On top (in the middle) of the 4 rubbers.*

I. Guiding on the chassis of the tray. Grease around the 5 guiding pins.*

J. The guiding ribs of the chassis for guiding the CDM-nose.*

^o=Lubricated with dosing apparatus.

*=Lubricated with a brush.

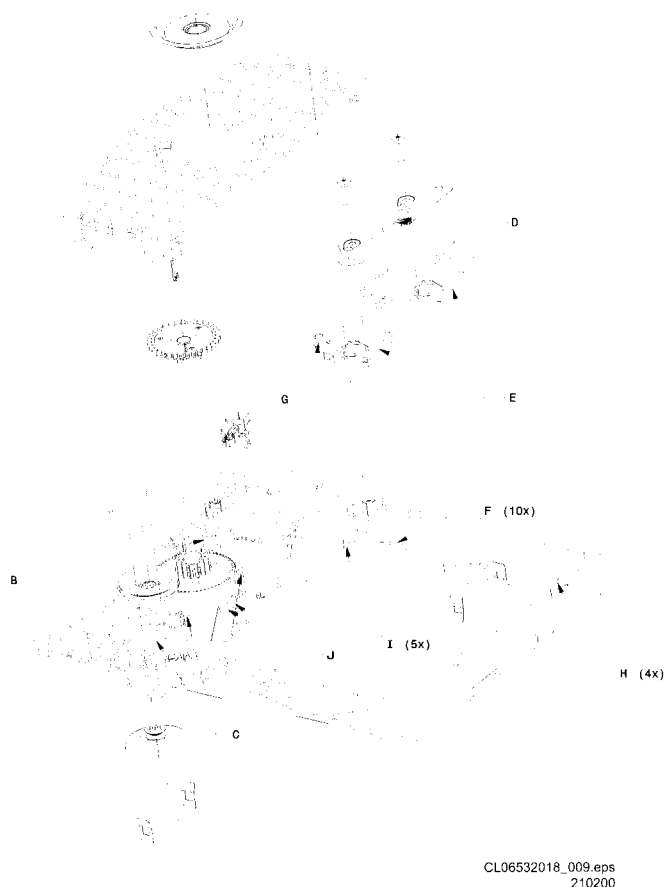


Figure 4-10

4.6.2 Lubricating instructions for CDM3800

USE TRIBOL GREASE (1322 523 78101)

The third bearing axle (item 3, 4822 535 10591) on the upperside of the axle 2x

The third bearing axle on the bottomside of the axle 2x

The OPU bearing with Mobil Oil SHC 629 (see next paragraph)

The top of the worm

The pressed in axle on the top

The gear rack assy (item 13, 4822 522 10742) on the teeth2x



Figure 4-11

Oiling the centrifuged bearings

USE MOBIL OIL SHC 629 (3104 129 52260)

Use dose apparatus

Place the needle against the bearing and axle.

Dose one (1) drop of oil there where the bearing touches the axle (see drawing figure 4-12)

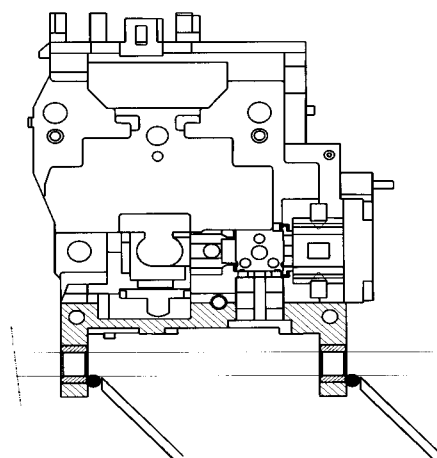
Repeat this handling for the second bearing

Move the OPU for a few times up and down.

REMARKS:

Do not use the oil on the axle alone. Always place the oil drop against the bearing.

No oil on top of the OPU.



2x 1 DROP OF OIL

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020300

Figure 4-12

5. Service modes, repair tips and faultfinding trees

5.1 Service modes

In this paragraph the internal selfdiagnostics without opening the set and use of other tools is described.

Notice: Module is mounted in a set

5.1.1 Dealer mode

The purpose of the dealer mode is to prevent people taking out the CD inside the player at exhibitions, showrooms etc.. This mode disables the open/close function of the player.

The dealer mode can be switched on and off pressing keys [OPEN/CLOSE] and [STOP] of the CDR player simultaneously while switching on the unit. The dealer mode is stored in the flash memory and can only be changed by executing the above actions.

5.1.2 Dealer diagnostics

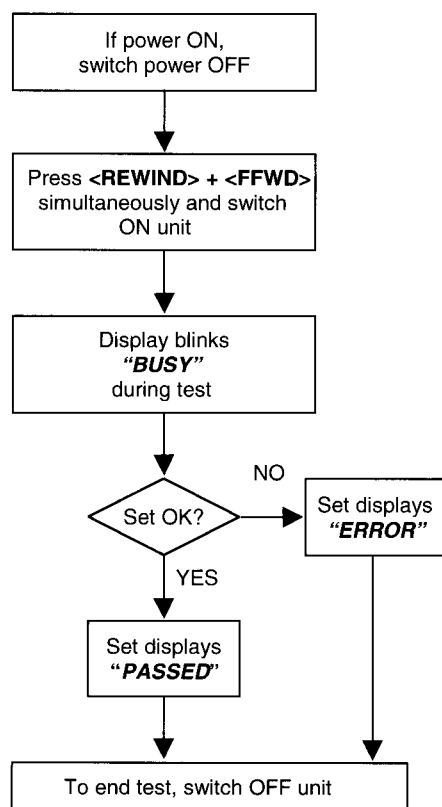
display. Pressing keys [F FWD] and [REWIND] simultaneously while switching on the unit, starts the test. Switching off the unit ends the test.

Requirements to perform the test

- Working keyboard to start up the test.
- Working local display to check the output messages.

DEALER DIAGNOSTICS

(status of player)



CL96532086-024.eps
090999

Figure 5-1

Description

The intention of the dealer diagnostics is to give an indication of the CDR player status. An inexperienced, even non-technical dealer will/can perform the test. Tests are executed automatically without need for external tools or disassembly of the unit. This test checks the CDR main board using the same tests as the electrical service diagnostics program. Only the result of the test, "PASSED" or "ERROR", will be shown on the

5.1.3 Electrical service diagnostics

ELECTRICAL SERVICE DIAGNOSTICS

(software versions, test for defective components)

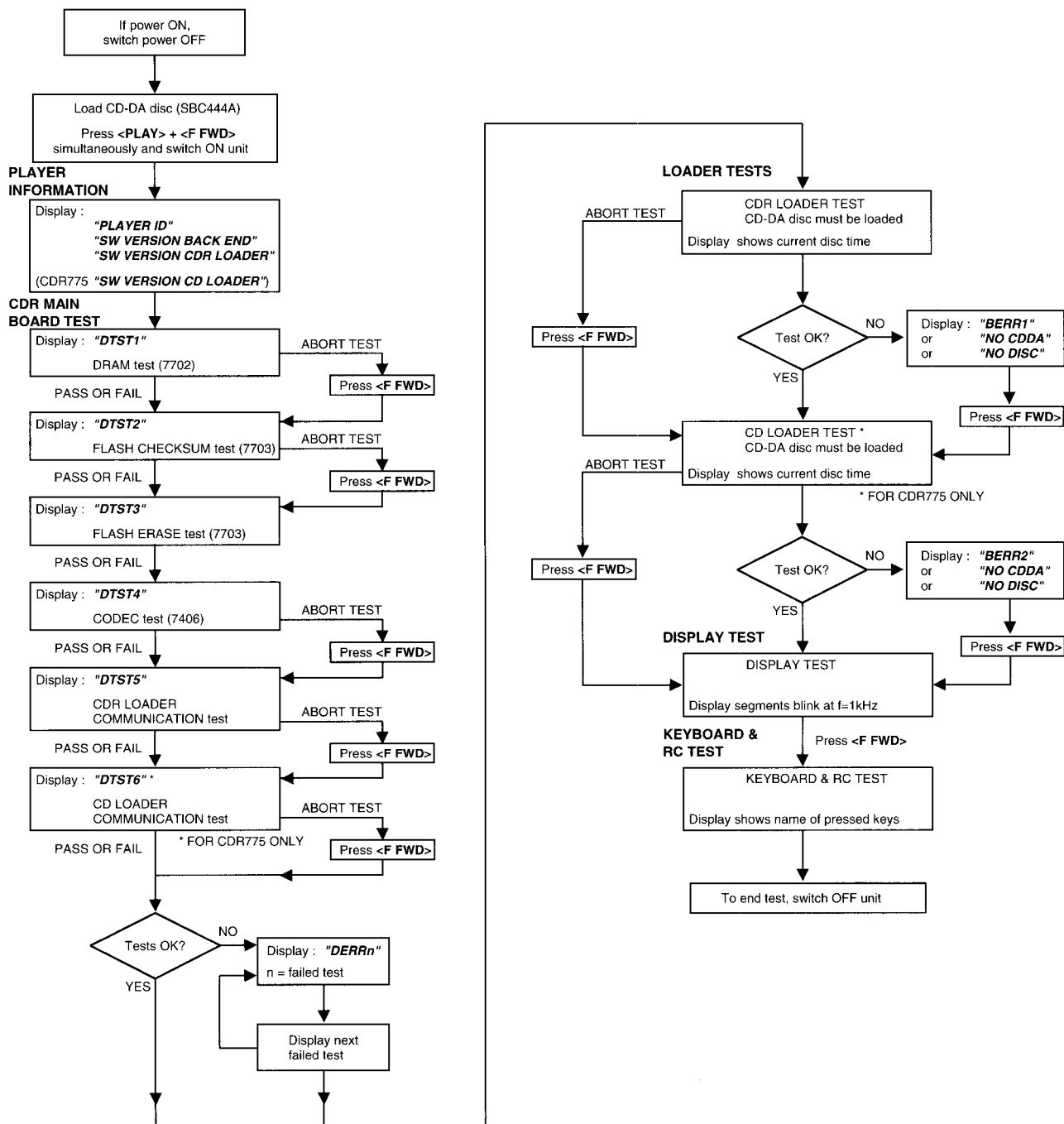
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090300

Figure 5-2

Description

The intention of the electrical service diagnostics is to show the software versions present in the player and to direct the dealer towards defective internal units. The units are : the CDR main board, the CDR loader, the CD loader in case of a CDR775 and the keyboard/display board. A sequence of tests is executed automatically. Some of the tests can be aborted or skipped without the result being taken into account. External tools or disassembly of the unit is not necessary to get the diagnostic information. Pressing keys [PLAY/PAUSE] and [F FWD] simultaneously while switching on the unit, starts the test. Switching off the unit ends the test.

Requirements to perform the test

- Working keyboard to start up the test.
- Working local display to check the output messages.
- A CD-DA disc with a minimum of 3 tracks in all trays to perform the disc test.

Description of the tests**Player information**

In this part of the test the following important information can be checked without removing the cover :

- Recorder ID.
- SW-version back end of player.
- SW-version CDR loader.
- SW-version CD loader (only for CDR775).

CDR main board test

[F FWD] key. The message "DERRn" will be displayed with n indicating the faulty test number.

If one of the tests is aborted with the [F FWD] key, no error message will be displayed for this test. The flash data erase test ("DTST3") can not be aborted !

The CDR main board test consists out of :

DRAM test

Display : "DTST1". The DRAM used for buffer management is tested by writing, reading and verifying test patterns.

Flash checksum test

Display : "DTST2". This test checks the checksum of the player's SW stored in the flash.

Flash data erase

Display : "DTST3". During this test, all temporary information (CDtxt) in the flash is erased.

CODEC (ADC/DAC) test

Display : "DTST4". This test checks the CODEC IC by writing, reading and verifying test patterns. The test is not applicable for CDR950.

CDR communication test

Display : "DTST5". The communication between the host processor (DASP) and the CDR loader via the DSA-R-bus is tested.

CD communication test

Display : "DTST6". The communication between the host processor (DASP) and the CD loader is tested. The test is only applicable for CDR775.

Loader tests

These tests determine if the CDR loader and the CD loader in case of a CDR775 work correctly. A CD-DA disc with a minimum of 3 tracks needs to be inserted in both loaders. A disc test is executed to check focus control, disc motor control, radial control and jump grooves control. The disc test is

performed by audio play-back of 5 seconds at the beginning, middle and end of the disc.

CDR loader test

During the test, the current disc time is shown. In case of an error the message "BERR1" will be displayed and the [F FWD] key must be pressed to continue with the following test. Pressing the [F FWD] key also aborts this test.

CD loader test

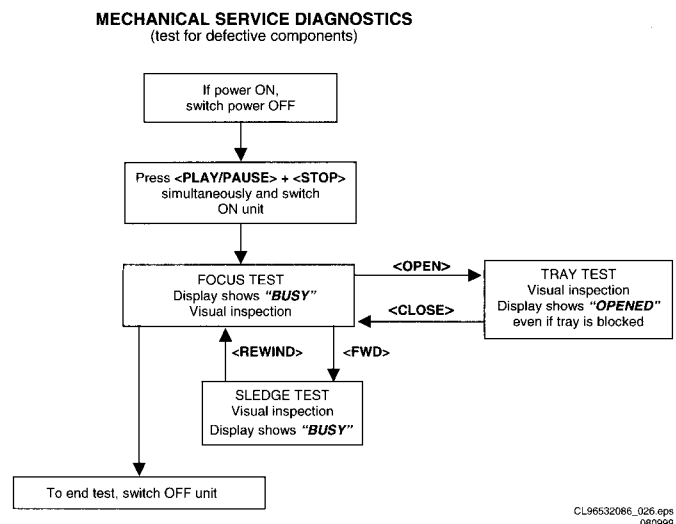
For CDR775 only. During the test, the current disc time is shown. In case of an error the message "BERR2" will be displayed and the [F FWD] key must be pressed to continue with the following test. Pressing the [F FWD] key also aborts this test.

Display test

All segments will blink at a frequency of 1 Hz. Pressing the [F FWD] key will start the next test because the user has to check for himself if all segments work properly.

Keyboard and remote control tests

The test will give the user the ability to test every key without executing the function assigned to it. Therefore, the user needs to press every key on the keyboard and the remote control. The display will show the name of the key being pressed. Pressing more than one key at once will give an unpredictable result except for the service combinations : [PLAY/PAUSE] + [STOP], [PLAY/PAUSE] + [F FWD], [F FWD] + [REWIND], [ERASE] + [RECORD], [PLAY/PAUSE] + [RECORD], [OPEN/CLOSE] + [PROGRAM].

5.1.4 Mechanical service diagnostics**Figure 5-3****Description**

No external tools are required to perform this test. The cover needs to be removed because the user has to check the movements of the tray, focus and sledge visually. Pressing keys [PLAY/PAUSE] and [STOP] simultaneously while switching on the unit, starts the test. Switching off the unit ends the test. In case of a CDR775, one can check the CD loader mechanics in the same way by pressing the above key combination on the CD player keys.

Requirements to perform the test

- Working keyboard to cycle through the tests and to start up the test.
- Working local display to check the output messages.

Description of the tests**Focus control test**

The focussing lens is continuously moving up and down. The display reads "BUSY".

Sledge control test

After pressing [F FWD] the sledge continuously moves up and down. Pressing [REWIND] stops the sledge at the position it is in and the focus control test resumes. The display reads "BUSY".

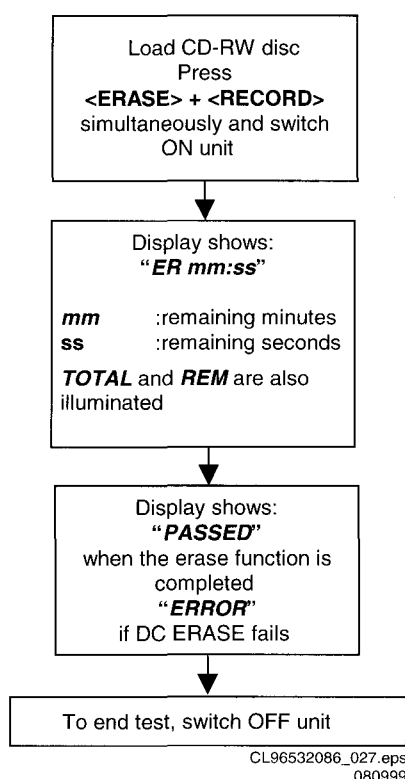
Tray control test

This test starts from within the focus control test routine. Pressing [OPEN/CLOSE] moves the tray in or out. In the tray open position one can initiate focus and sledge tests by pressing [F FWD]. One has to stop these tests pressing [REWIND] before it is possible to close the tray again. Depending on the action the display reads "OPEN", "OPENED", "CLOSE" or "BUSY".

5.1.5 DC-erase service mode

DC ERASE SERVICE MODE

(erasure of complete CD-RW)

**Figure 5-4****Description**

This test is initiated by pressing [ERASE] and [RECORD] simultaneously while switching on the unit. The player will erase a complete CD-RW disc (including PMA and ATIP lead out area) at speed N=2. The display shows the countdown of the remaining time required for the operation to complete. The format is "ER mm:ss", where "mm" are the remaining minutes and "ss" the remaining seconds. After completion the message "PASSED" is shown, and the player has to be switched off and on again to start up in normal operating mode. Switching off the

unit before completion of the test, leaves the disc in an unpredictable state. In such case only a complete DC-erase procedure can recover the CD-RW disc.

Requirements to perform the test

- Functional CDR player.
- A CD-RW audio disc must be present in the tray.

5.1.6 Burn in mode**Description:**

The Burn In mode is an endless cycle of:

- DC-Erase to erase the CDRW disc with maximum laser power.
- Recording a CDRW disc
- Finalising at double speed

The Burn In mode is used to test intermittent faults of the loader.

Requirements to perform the test:

- Working Local Keyboard: needed to start up the test.
- Working Local Display: all output messages must be displayed on the local display.
- Analog source connected to the CDR99 player
- CDRW disc in tray

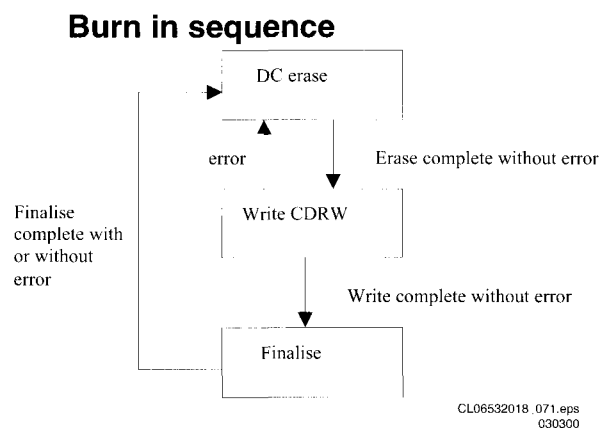
Burn in sequence

- Initialisation

The 'Burn In' mode is initiated by pressing the PAUSE> and key on the local keyboard at the same time, and then switching the POWER switch on.

- Continuous loop

The following picture shows the burn in sequence.

**Figure 5-5**

Continuously do DC erase, record complete CDRW and then finalise until the player is powered off.

When an error is detected during writing, the DC erase procedure is called again., the disc will be DC erased and the cycle starts again.

During the test the display shows the number of hours for which the test is running and the number of errors detected during the test. The display looks as follows : "HH BI RE FE"

HH	: number of hours on digits 1 and 2
"BI"	: burn in mode, digits 3 and 4
RE	: number of errors detected during DC erase and write CDRW modes on digits 7 and 8

FE : number of errors detected during finalise modes on digits 10 and 11

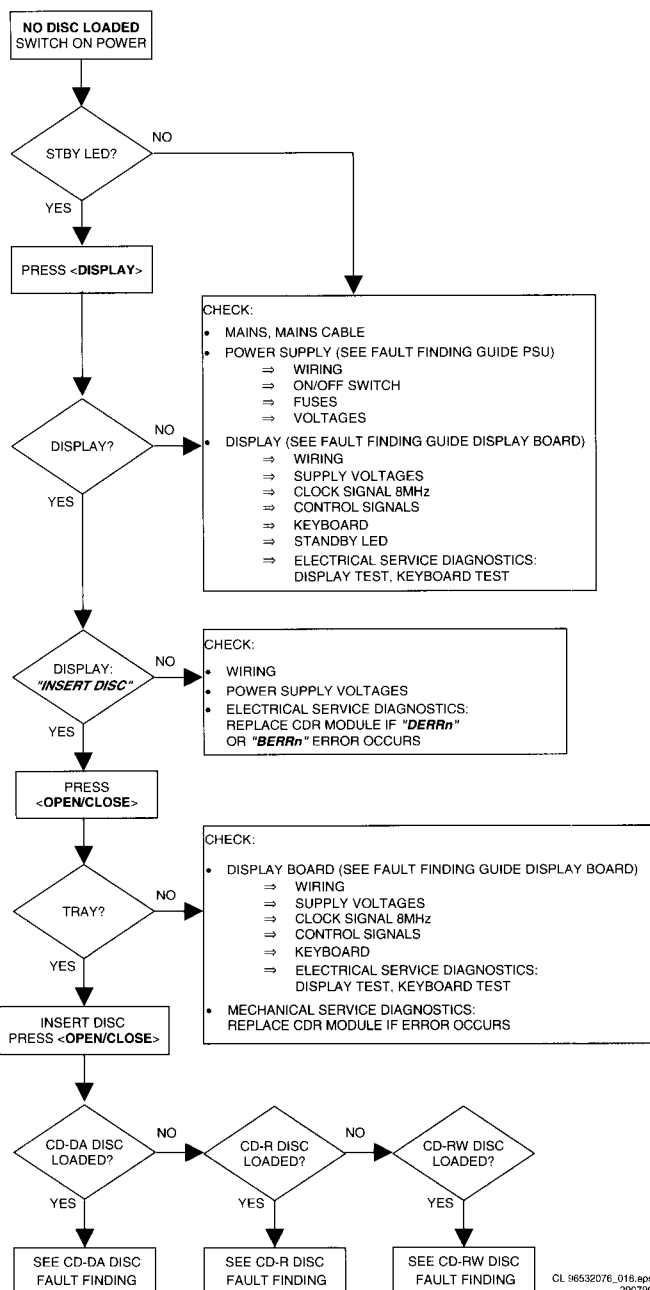
If started up with a disc other than a CDRW disc the display shows : "WRONG DISC",
if no disc is inserted display : "NO DISC".
– End of test

To exit the Burn In mode, power off the player.

5.2 Faultfinding Trees

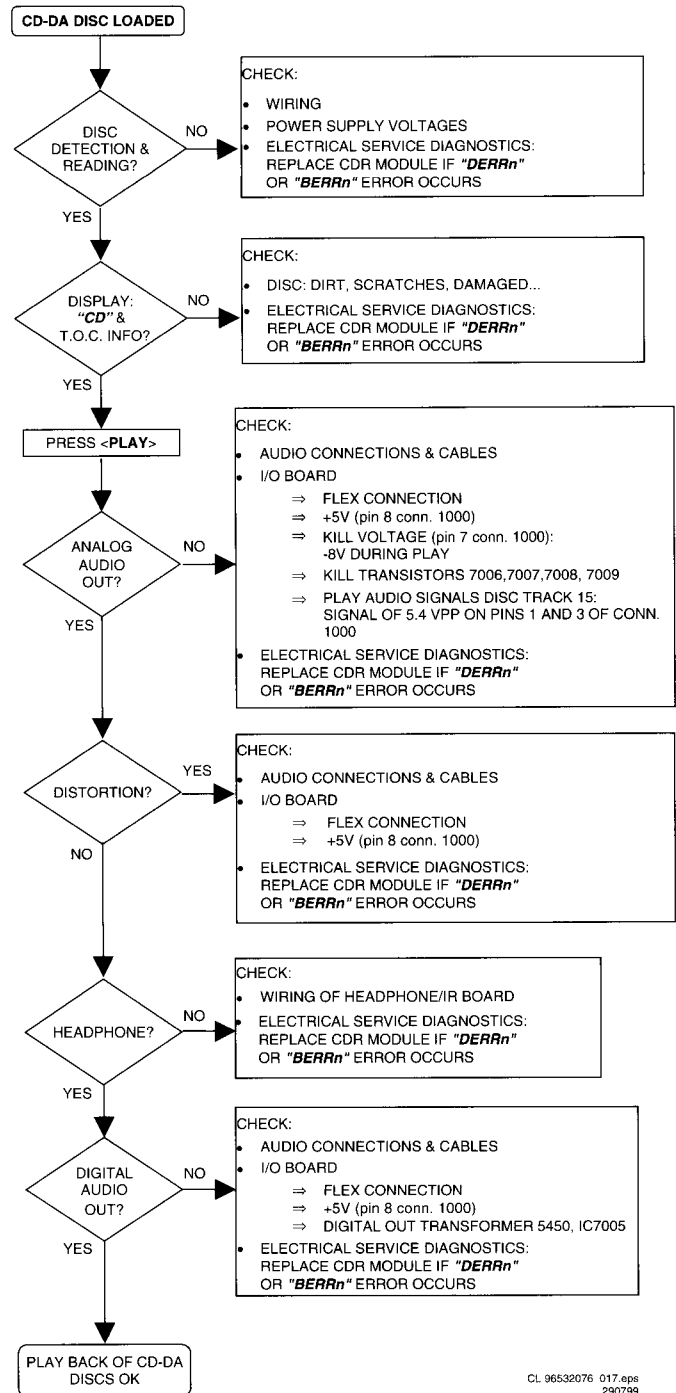
The faultfinding trees and repair suggestions like the power supply voltages for proper functioning of the mainboard are indicated here.

5.2.1 CDR-Module



CL 96532076_016.eps
290799

Figure 5-6



CL 96532076_017.eps
290799

Figure 5-7

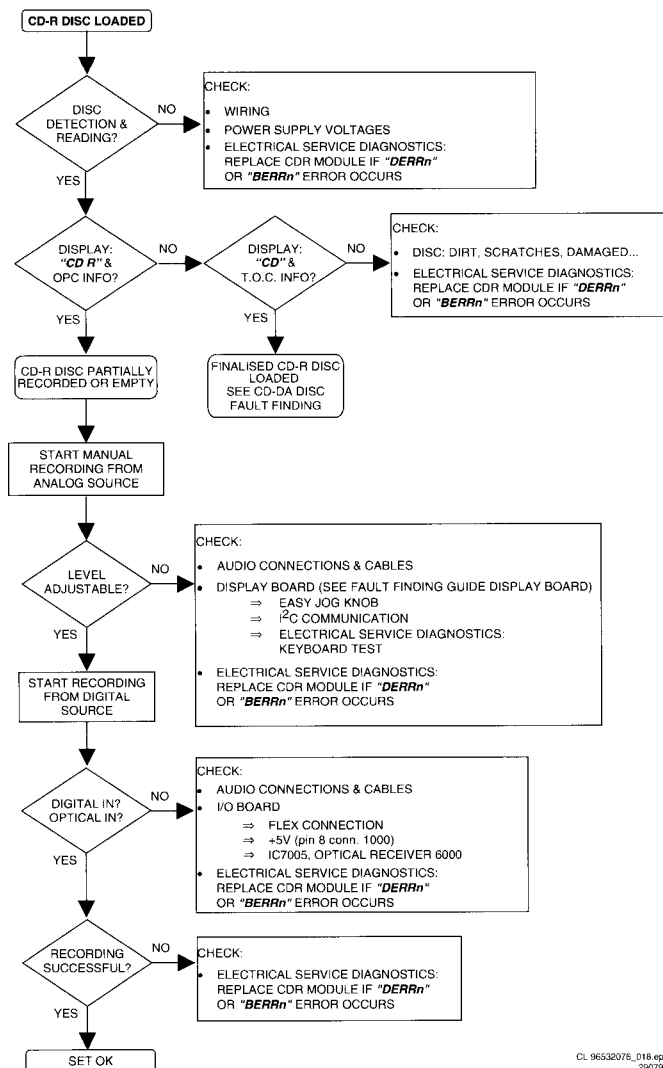


Figure 5-8

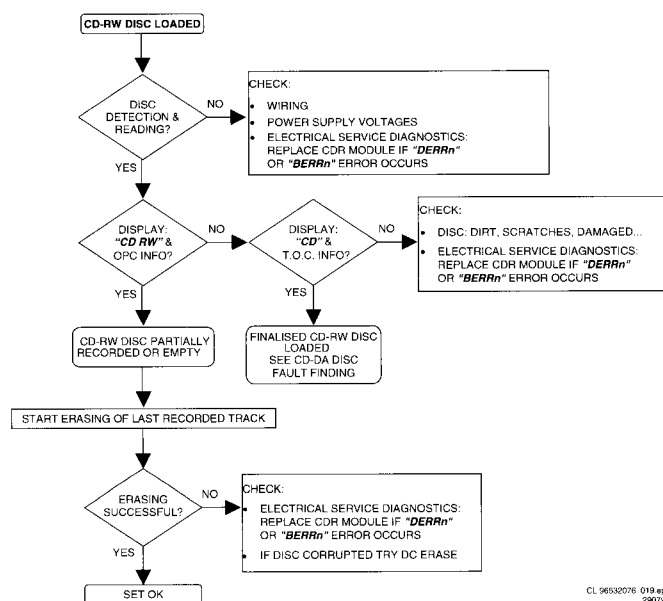


Figure 5-9

5.2.2 Mainboard

Power supply part on mainboard

- Description.

The most important part of an electrical function is the power supply. Without it will never operate. The power supplies as well analog as digital equipment. For these reasons the power supply is split-up in different sections. One for the digital electronics, one for the servo controls and one for the AUDIO part. The servo controls are the big consuming parts with high peak-currents, also introducing disturbances in the power lines. The audio part needs very "clean" power, because noise and ripples have there reflection in the audio signals, specially in S/N and THD+N. Some of the power supplies are switched off, this to reduce consumption in case of standby.

The different power supplies are delivered to the PCB via connector 1500. This is a 11 pole connector with following voltages on it: +5V, +12V, -8V, VFTD, VDC1 and VDC2. The last 3 voltages are not used on the main PCB, but are meant for the FTD (Fluorescent Tube Display). They are directly routed to connector 1705.

The other voltages are split up in different functions on the PCB. The following block-diagram gives an indication of that implementation.

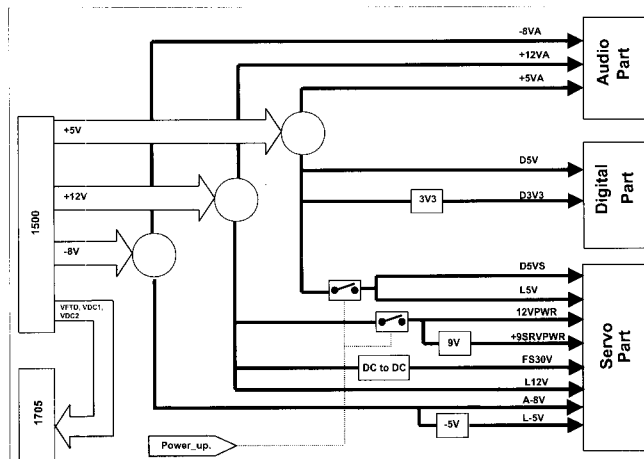


Figure 5-10

- Power supply to main board.

Power supply enters the BOARD via connector 1500. Pinning as follows:

Connector 1500

pin 1: VDC2 : 3V8 (10%)

pin 2: VFTD : -38V (5%

pin 3: VDC1 : 3V8 (10%)

pin 4: GND : Ground.

pin 5: D5V : +5V (5%

pin 6: D5V : +5V (5%

pin 7: GND : Ground.

pin 8: GND : Ground.

pin 9: GND : Ground.

pin 10: 12V : 12V (10%

pin 11: -8V : -8V (10%

POWER PART CHECK

USE CDR MAIN BOARD CIRCUIT DIAGRAM 7 AND CDR MAIN BOARD BOTTOM VIEW : POWER PART TEST POINTS

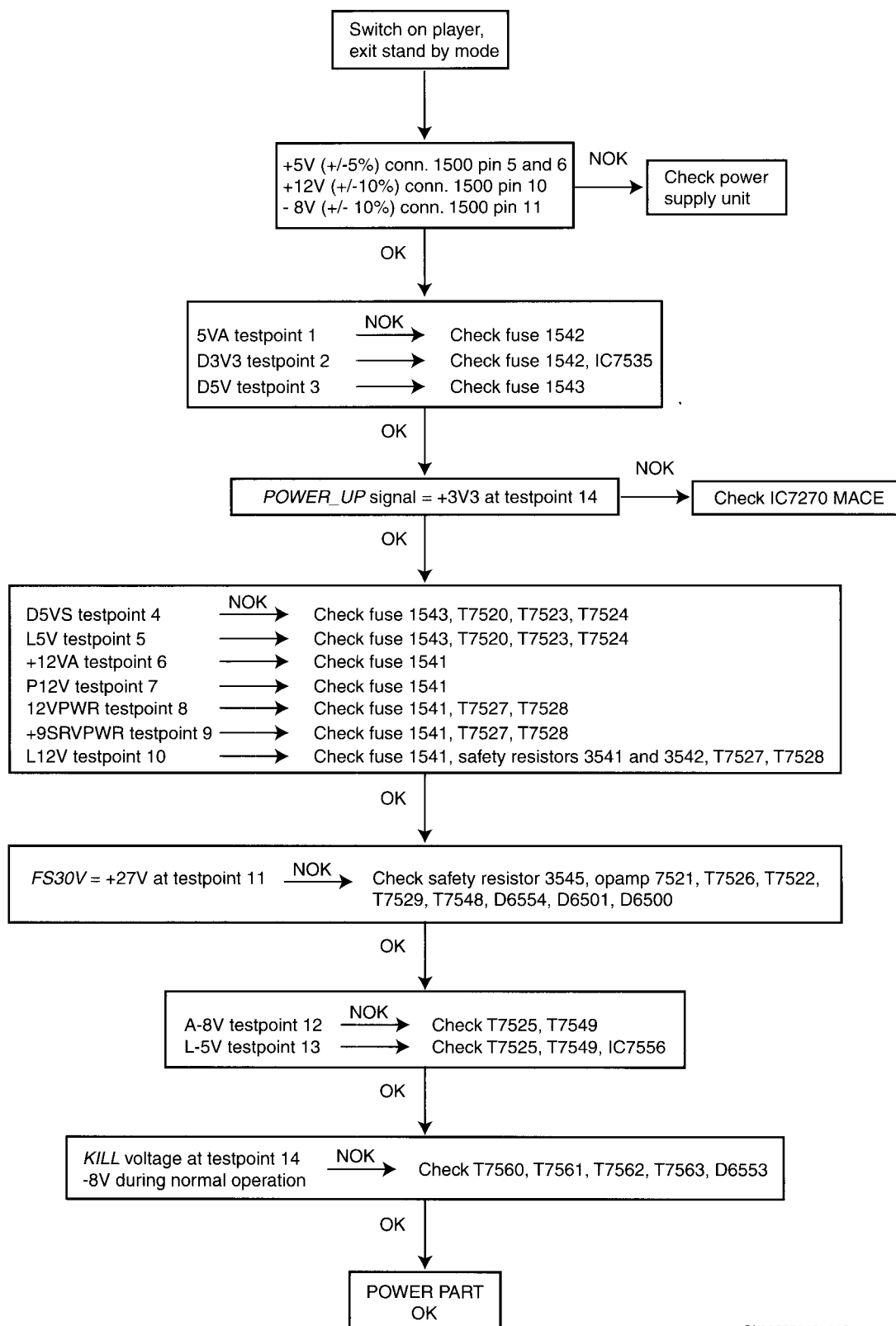


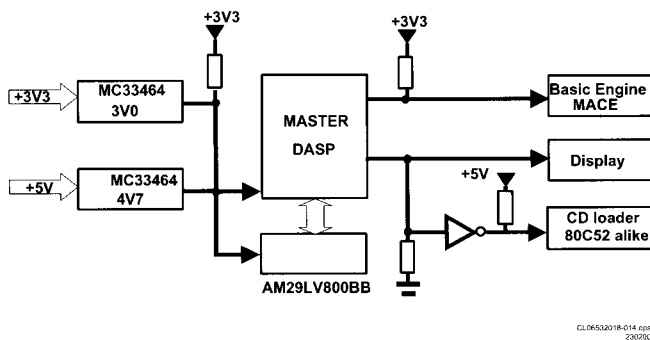
Figure 5-11

Reset & Clock*Master reset.*

Since the Mainboard is more or less mix-mode between +3V3 and +5V devices, special treatment for the RESET behavior is wishful. Controlling the RESET only from 1 power supply could lead to collisions between different devices, damaging the internal I/O structure of the devices. To avoid this the +3V3 and the +5V are guarded by a special device. These devices keep the output low as long as the power supply is not stable or is not above the required level. As soon as the power supply is stable it switches the output to "HIGH-Z". The output is an open collector type. From then onwards the line can be controlled by means of external pull-up resistors. Benefit of the open-collector devices is that several of those devices can be tight together at the outputs. In our case we used a device on the +5V and one on the +3V3. This means that both power supplies need to be stable before the RESET of the Master processor is released.

Resetting several processors in the same structure by means of the power supplies invokes certain risks. The duration of initialization after reset is processor and Code depending. It can lead to hang-up in those cases that communication between the processors is "time" driven. Meaning that only in a certain time frame the establishment of the communication-bus must take place. If not successful the Bus hangs!

To avoid these kinds of problems, only 1 RESET is depending on the power supply, and this is the RESET of the Master controller. The same master controller will then take care of the RESET of the other devices. In the next figure this is explained.

**Figure 5-12**

For further measurements see next reset and clock flowcharts.

RESET & CLOCK CHECK

USE CDR MAIN BOARD CIRCUIT DIAGRAMS 4, 9 AND 10 AND CDR MAIN BOARD BOTTOM VIEW : RESET & CLOCK TESTPOINTS

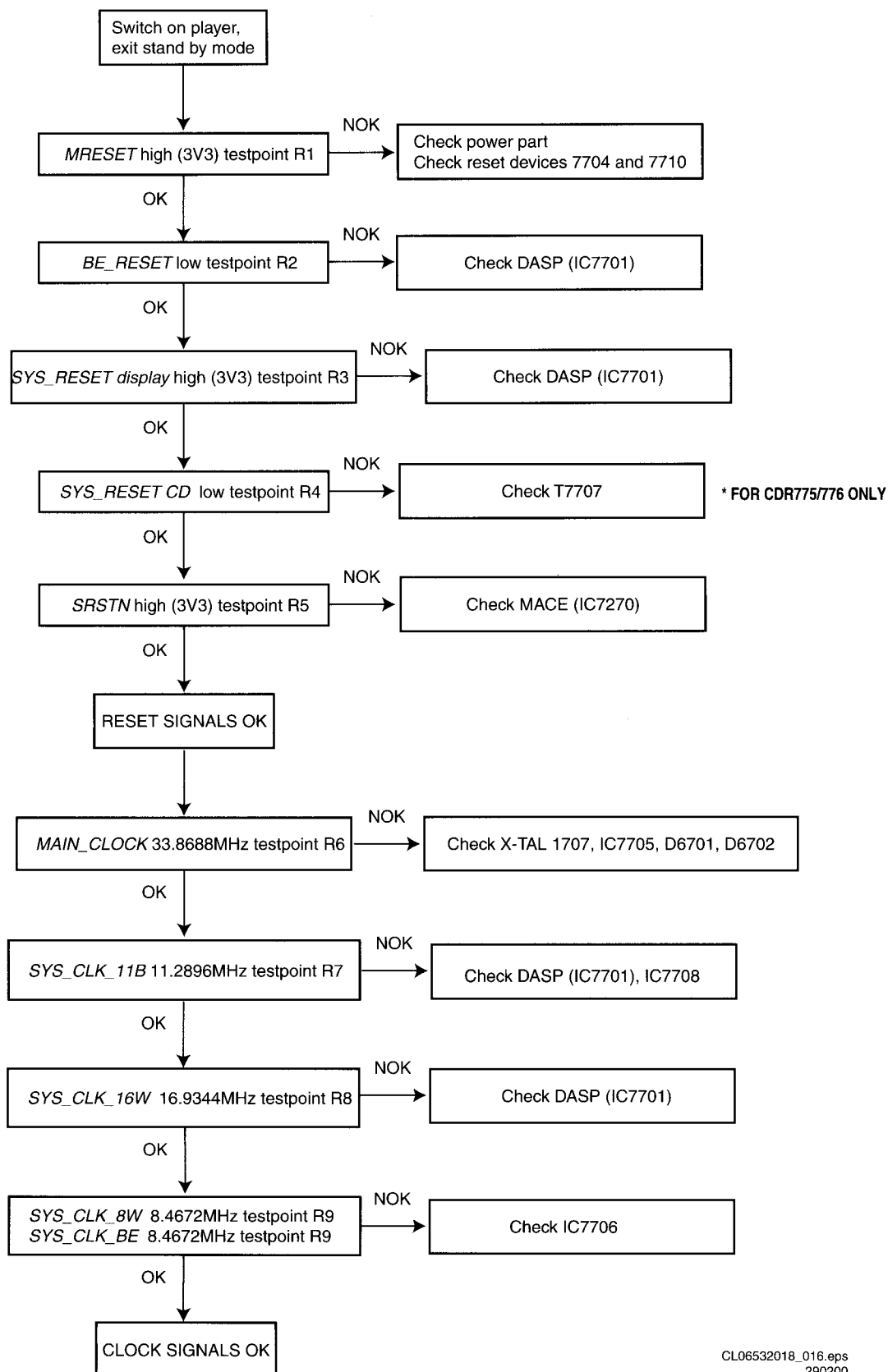


Figure 5-13

The clockgeneration

All microprocessors or digital devices need a clock. The clock is usually made by means of resonators or crystals depending on the speed and the accuracy that is requested. The clock can also differ from device to device so that more than one crystal is needed. The cheapest and "system wise" best way is only 1 crystal. The derived clocks are then Phase related to each other.

On the CDR MAIN 99 the DASP is generating all clock signals. Not only the systemclock for the processor itself, but also for the basic engine processor and even the systemclock for the ADDA part which is directly related to the 44.1kHz. sample frequency. To be able to do this a 33.8688Mhz. crystal with 25ppm accuracy is connected to the internal oscillator of the DASP. Internal the clock signal is multiplied by means of a PLL. This gives the systemclock on which the processor runs internally. This systemclock is then again divided internally to have the systemclock for the ADDA, which is 11.2896Mhz, and the 16.9344Mhz. which divided by 2 gives the systemclock for the BE part. In this way only 1 crystal is required. The same 8.4672Mhz. is also routed to the CD-module in case of a CDR775 player.

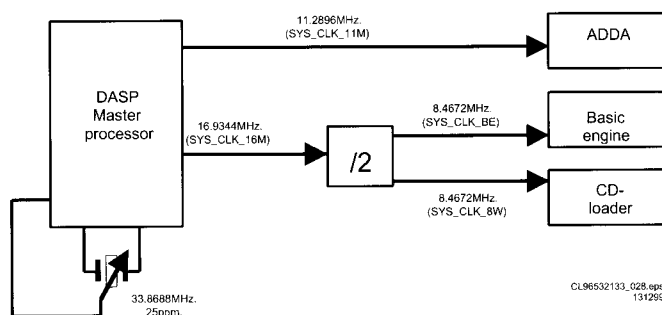


Figure 5-14

PC help on mainboard diagnostics

A couple of the diagnostics are only possible with the help of a PC. The DASP micro controller will contain an interface with the external world; this interface is realised via a serial RS232 connector that is accessible inside the player. It can be accessed from the outside world by means of test pins and connector 1818 and interface board 7104 086 91111.

Via those test pins a terminal emulator can be connected. Then menus will come up that give the opportunity to enter all Audio Engine commands. This includes the commands on Bit Engine Level (transparent). This terminal emulator functionality is part of the embedded software, so no external software is needed. It can also read out the User Profile Logging of Bit Engine. This can show the hours that the loader really was in recording mode.

This diagnostic tool is activated if communication is detected on the RS232 interface during power up. The baud rate for both is 19k2 baud.

Details of the diagnostic tool are given in chapter 5.2.3 of this publication: Menu Driven Diagnostics.

Also in preparation is the interactive COMPAIR tool. Then the PC communicates in an active form with the set and compares the result for making the next decision. With MDD the technician has to take the next active step from his experiences onwards.

5.2.3 Menu Driven Diagnostics

In this paragraph the specification of the software requirements for the Menu Driven Fault Finding Diagnostics is given. It will give a clear and unambiguous description of what the Menu Driven Diagnostics (MDD) do.

NOTICE: THE TESTS, AS PROVIDED BY THE MENU DRIVEN DIAGNOSTICS, ARE NOT SUPPOSED TO BE MIXED RANDOMLY, ESPECIALLY TESTS LIKE 'LASER ON' AND 'FOCUS ON'. IT IS ASSUMED THAT THE PERSON THAT USES THE MDD KNOWS IN WHICH ORDER THESE TESTS CAN BE EXECUTED.

The MDD module communicates with two entities: the terminal emulator on the PC. The MDD receives instructions (test to be executed) and transmits the menu to be shown and the test results; the Audio Engine module. It instructs the Audio Engine via the interface field which test should be executed. The test result is retrieved from the interface field.

Requirements

The functionality of the Menu Driven Diagnostics module is to implement Menu Driven Diagnostics for service purposes. When the CDR recorder is connected to a PC via an interface board 7104 086 91111, connection cable 3104 157 11122 and a RS232 cable (available at PC shop), the service technician can select via a menu on the PC screen which test should be performed. The result of the test is also shown on the PC screen. No special test tool is needed for the PC; any terminal emulation program can be used (for example, HyperTerminal under Windows95/NT).

The last occurred error during a test session can be retrieved via the menu.

The RS232 connector should be soldered to pins:

1818-1 = Rx
1818-4 = Gnd
1818-2 = Tx

General Constraints

It is advised to connect the connection cable 3104 157 11122 to the Mainboard connector 1818 mounted just under the loader (topview). Via this cable also the powersupply for the interface board 7104 086 91111 is arranged when it is connected to connector 1000 on interfaceboard. To start this application at powering on; for 5 seconds the Rx and Tx output pin of the mainboard connector should be short circuited. This temporarily short circuit indicates the internal CDR software program to switch onto Menu Driven Diagnostics. This short cut can easily be done via the switch (1009) on the interface board. To communicate with the PC the RS232 cable has to be connected to output connector 1010 on the interface board and the switch (1009) should be released.

When switching on the CDR, two possibilities exist:

the RS232 cable is not connected. The application is executed (no MDD mode);

the RS232 connector is connected; Rx and Tx are short circuited for more than 5 seconds then the Menu Driven Diagnostics is started. By connecting via connection cable to interface and from there via the RS232 cable onto the PC, so the MDD can transmit the main menu to the PC.

User Interfaces

RS232 interface

The CDR recorder transmits the menu to be shown and the test results to the PC via connection cable 3104 157 11122, interface board 7104 086 91111 and a RS232 cable. It receives the selection of the user, chosen in the menu.

Hardware Interfaces

RS232 interface

The communication via RS232 should be set to the following settings:

Baudrate:19200
Databits:8
Stopbits1
Parity:none
Handshaking:none

Data Communication Interfaces

Communication between the CDR recorder and the PC is straightforward: everything the CDR recorder transmits to the PC is shown on the PC screen. Data, transmitted from the PC to the CDR775, is treated as a choice from the currently shown menu.

All functionality of the MDD has to be part of the CDR775 software; the PC can only use a terminal emulation program.

Menu Structure and Test Results

This chapter describes the structure of the menus and the results of the tests, as shown on the PC screen.

Menu Structure

When starting up, the PC screen is cleared and the software version and the main menu (level 1) are shown. From the main menu, one of the sub menus (level 2) can be selected. These sub menus contain other sub menus and/or a number of tests that can be executed. The menus are shown below. '>>' indicates that when this option is selected, a new menu will be shown.

*Level 1 Mainmenu:***MAIN MENU**

- 1 General tests >>
- 2 Retrieve last occurred error
- 3 Recorder module test >>
- 4 Playback module test >>* *Only used for the CDR775
- 5 Select adjust program CDM
- 6 Download new program

When a test is running, a 'test running indicator' (a dot) is showed on the screen every second. When a test has been executed, the screen is cleared and the result of the test (if any) and the menu, separated by one empty line, are showed.

Three types of tests exist:

Tests that return PASSED or FAILED, like the DRAM test.

When a test has been executed, the result is showed on the PC screen;

Tests that return a value, the message 'PASSED, xxx' (with xxx is the returned value) is showed on the PC screen;

Tests that don't return anything, like the 'laser on' test. Most of these tests require a visual check of the service person. When one of these tests is executed, 'PASSED, visual check' is showed on the PC.

Level 2 menus

When a submenu is selected in the main menu, the level 2 menus are showed. These sub menus contain other sub menus and/or a number of tests that can be executed.

GENERAL TESTS MENU

- 1 Check DRAM
- 2 CHECK FLASH>>
- 3 Check ADC/DAC
- 4 Check LCD

RECORDER MODULE TEST MENU

- 1 communication test
- 2 Tray >>
- 3 Laser >>
- 4 Focus >>
- 5 Radial >>
- 6 Sledge >>
- 7 Miscellaneous >>
- 8 Jump grooves >>

PLAYBACK MODULE TEST MENU

- 1 communication test
- 2 Tray >>
- 3 Laser >>
- 4 Focus >>

- 5 Turntable motor >>
- 6 Radial >>
- 7 Sledge >>
- 8 Miscellaneous >>

*Level 3 menus***CHECK FLASH MENU**

- 1 Check FLASH
- 2 Manufacturar-ID and
- 3 Device ID

TRAY MENU

- 1 Open tray
- 2 Close tray

LASER MENU

- 1 Laser off
- 2 Laser on, read
- 3 Laser on, write*-----*Laser on, write' only used for the recorder module

FOCUS MENU

- 1 Focus on
- 2 Focus off

TURNTABLE MOTOR

- 1 Turntable motor ON
- 2 Turntable motor OFF

RADIAL MENU

- 1 Radial control on
- 2 Radial control off

SLEDGE MENU

- 1 Sledge inwards
- 2 Sledge outwards*-----*Sledge stays outwards for the recorder module; sledge moves inwards after 300 ms for playback module

JUMP GROOVES MENU

- 1 Jump grooves to inside
- 2 Jump grooves to middle
- 3 Jump grooves to outside

MISCELLANEOUS MENU

- 1 Start player
- 2 Stop player
- 3 Calibrate CD >>*-----*Only used for recorder module
- 4 Get user profile logging
- 5 Erase CD-RW*-----*Only used for recorder module
- 6 Read firmware version**-----**CD firmware version for CD-module, CDR firmware version for CDR-module

CALIBRATE CD MENU *-----*Only used for recorder module

- 1 Calibrate CD, N=1
- 2 Calibrate CD, N=2
- 3 Get last OPC values

End of test

These diagnostics can be quitted by powering off the player

5.2.4 Servo drivers check

SERVO DRIVERS CHECK

USE CDR MAIN BOARD CIRCUIT DIAGRAMS 1, 3 AND 4 AND CDR MAIN BOARD BOTTOM VIEW : SERVO DRIVERS TESTPOINTS

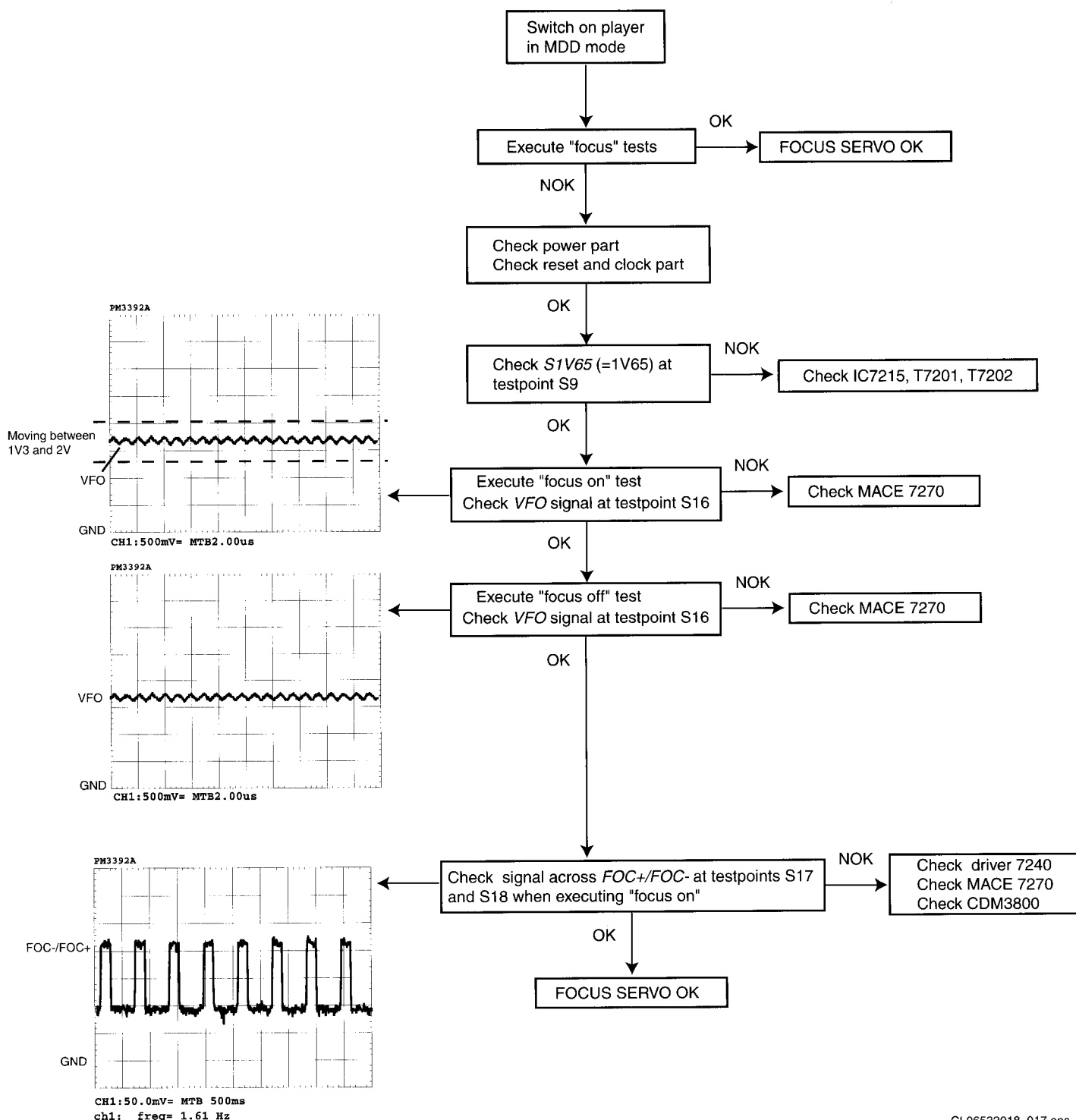
FOCUS SERVO

Figure 5-15

SERVO DRIVERS CHECK

USE CDR MAIN BOARD CIRCUIT DIAGRAMS 1, 3 AND 4 AND CDR MAIN BOARD BOTTOM VIEW : SERVO DRIVERS TESTPOINTS

RADIAL SERVO

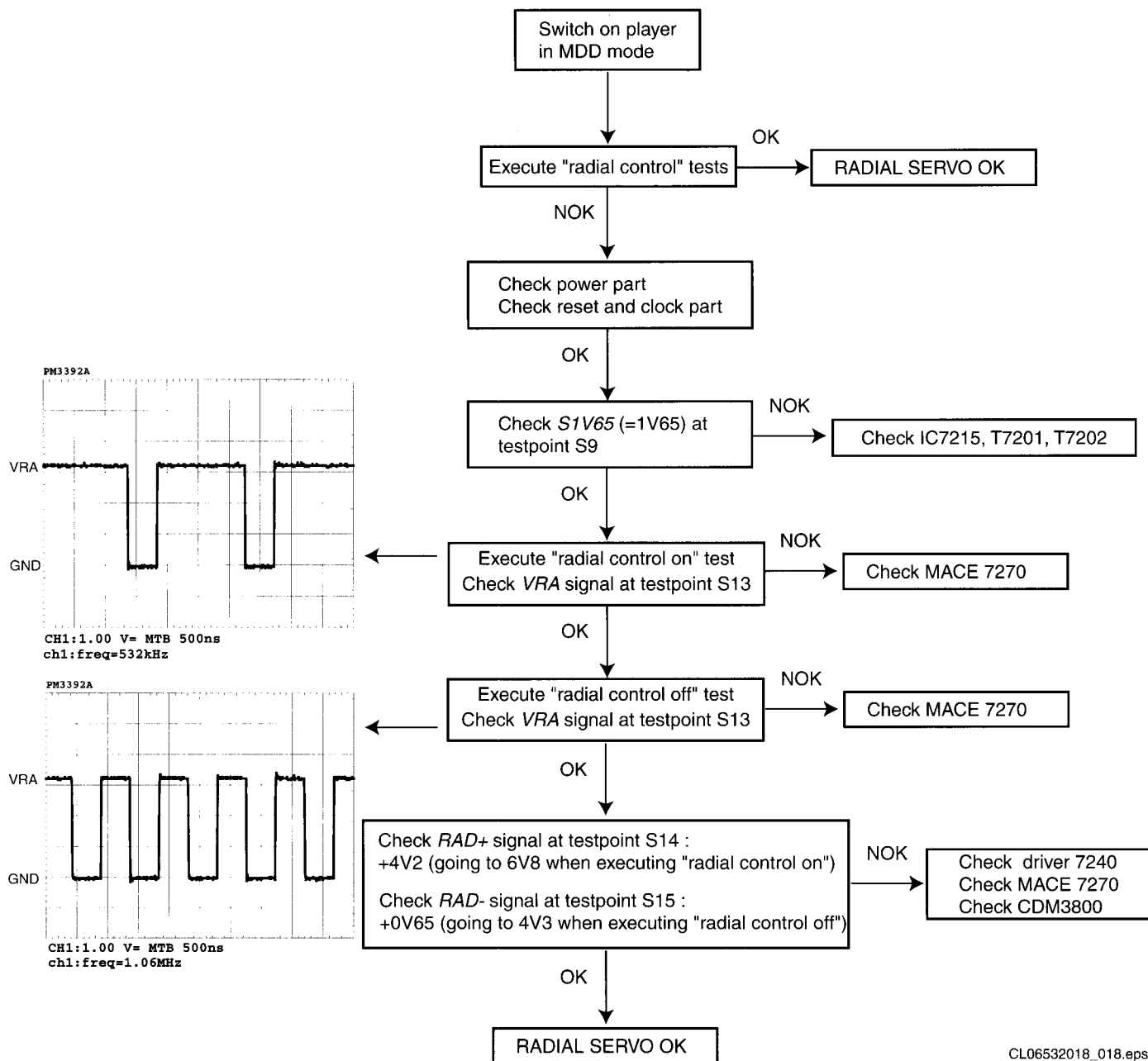
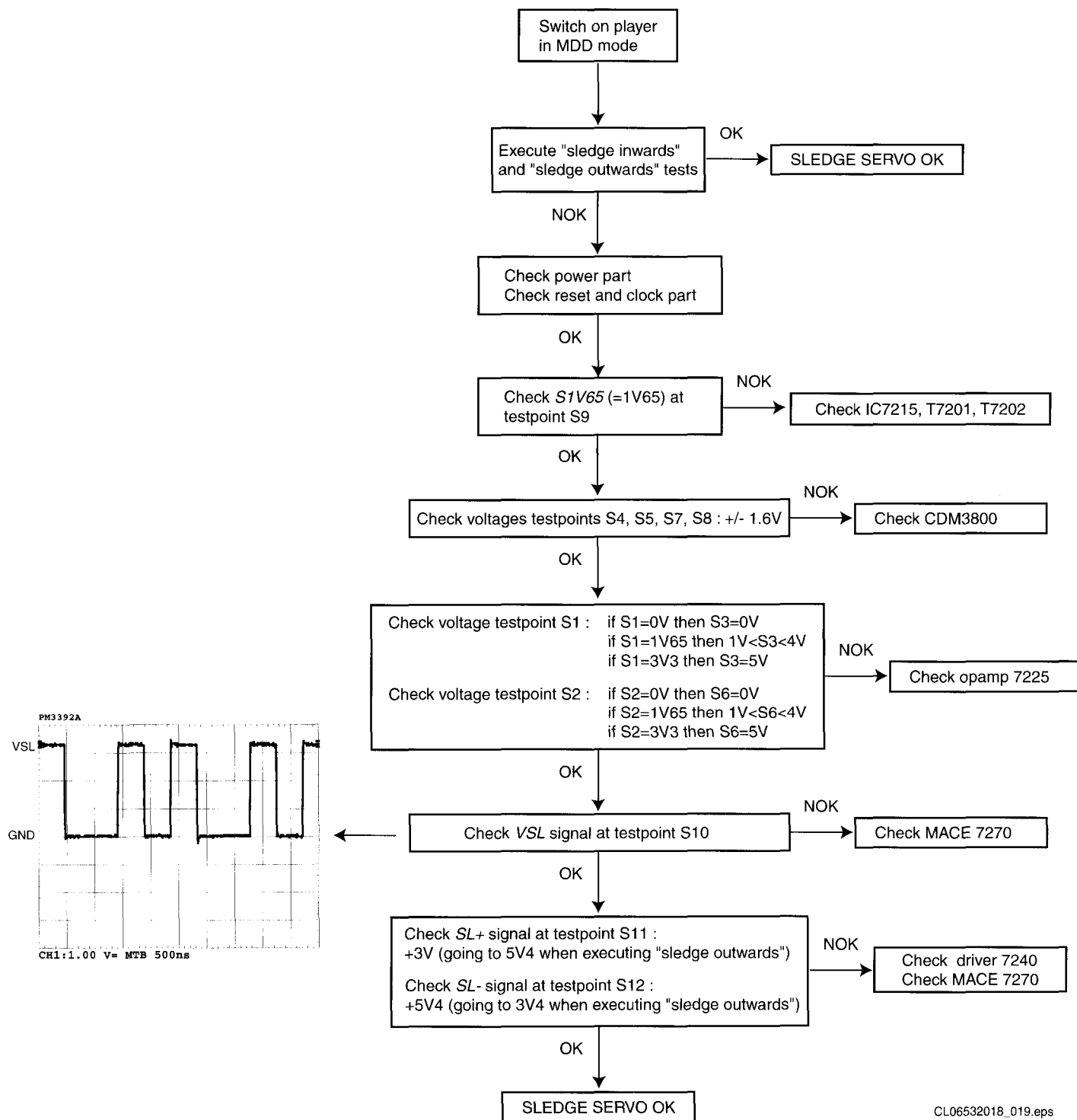


Figure 5-16

SERVO DRIVERS CHECK

USE CDR MAIN BOARD CIRCUIT DIAGRAMS 3 AND 4 AND CDR MAIN BOARD BOTTOM VIEW : SERVO DRIVERS TESTPOINTS

SLEDGE SERVO



CL06532018_019.eps
290200

Figure 5-17

SERVO DRIVERS CHECK

USE CDR MAIN BOARD CIRCUIT DIAGRAMS 3 AND 4 AND CDR MAIN BOARD BOTTOM VIEW : SERVO DRIVERS TESTPOINTS

TRAY SERVO

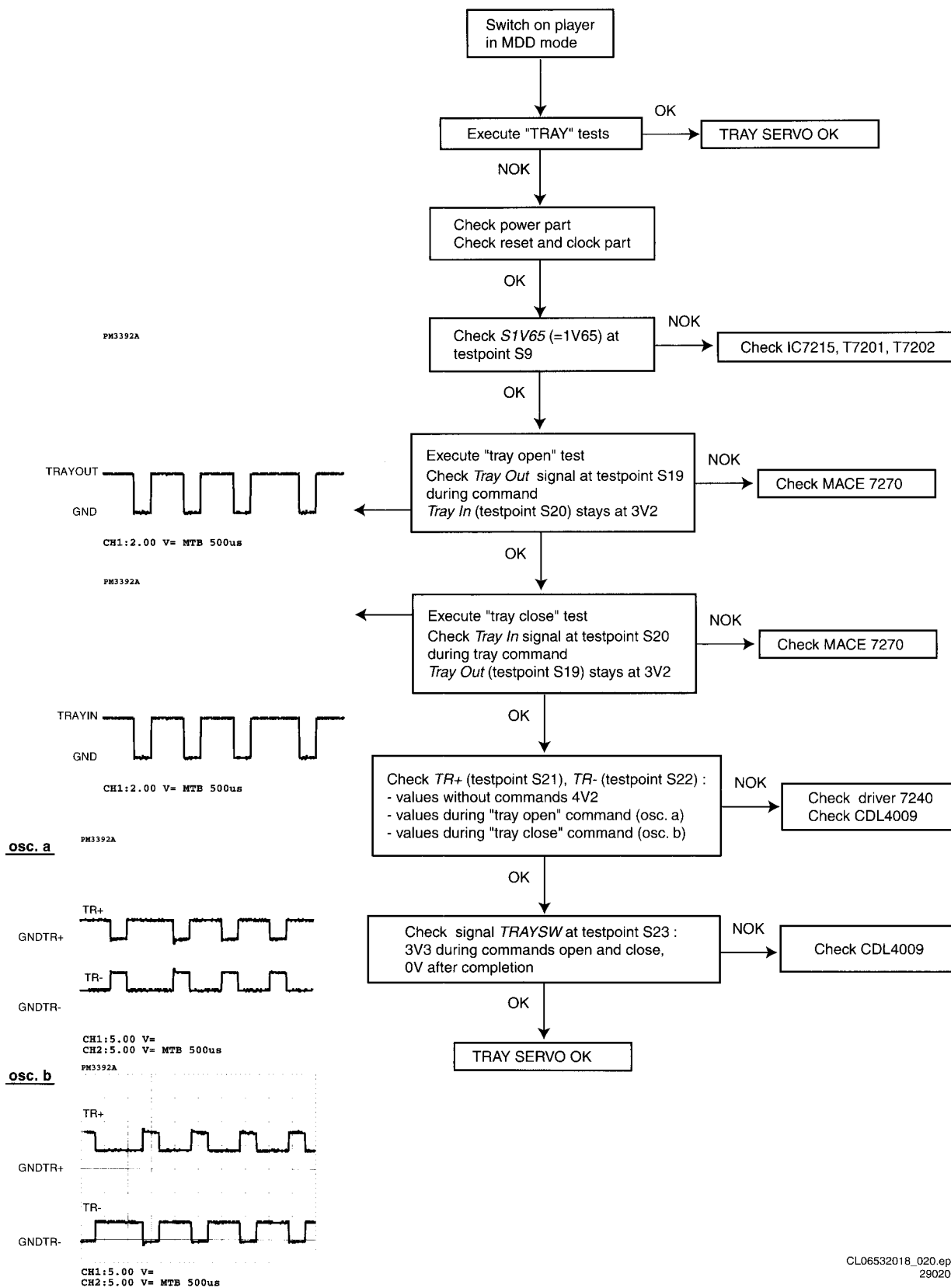


Figure 5-18

5.2.5 Audio signal check

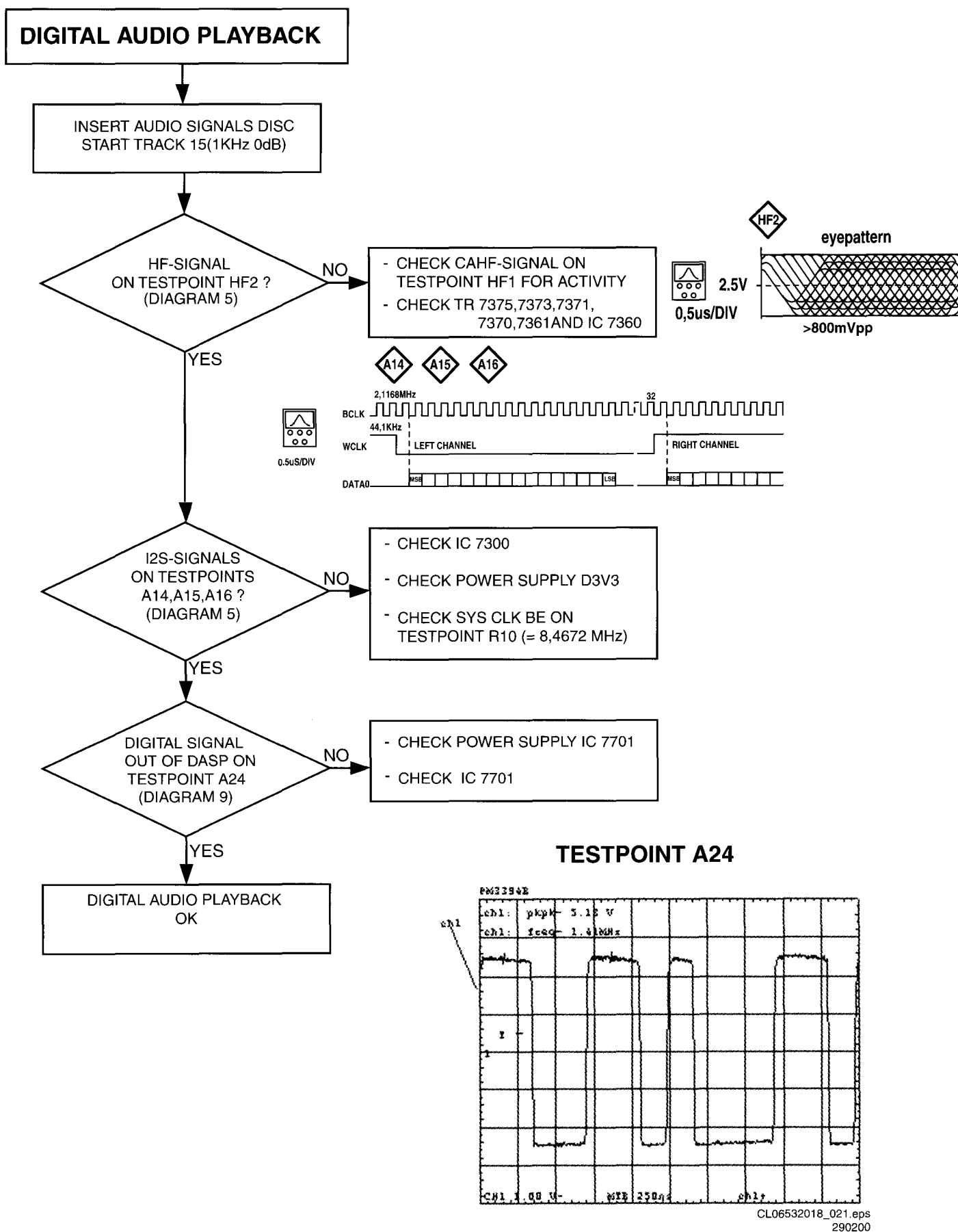


Figure 5-19

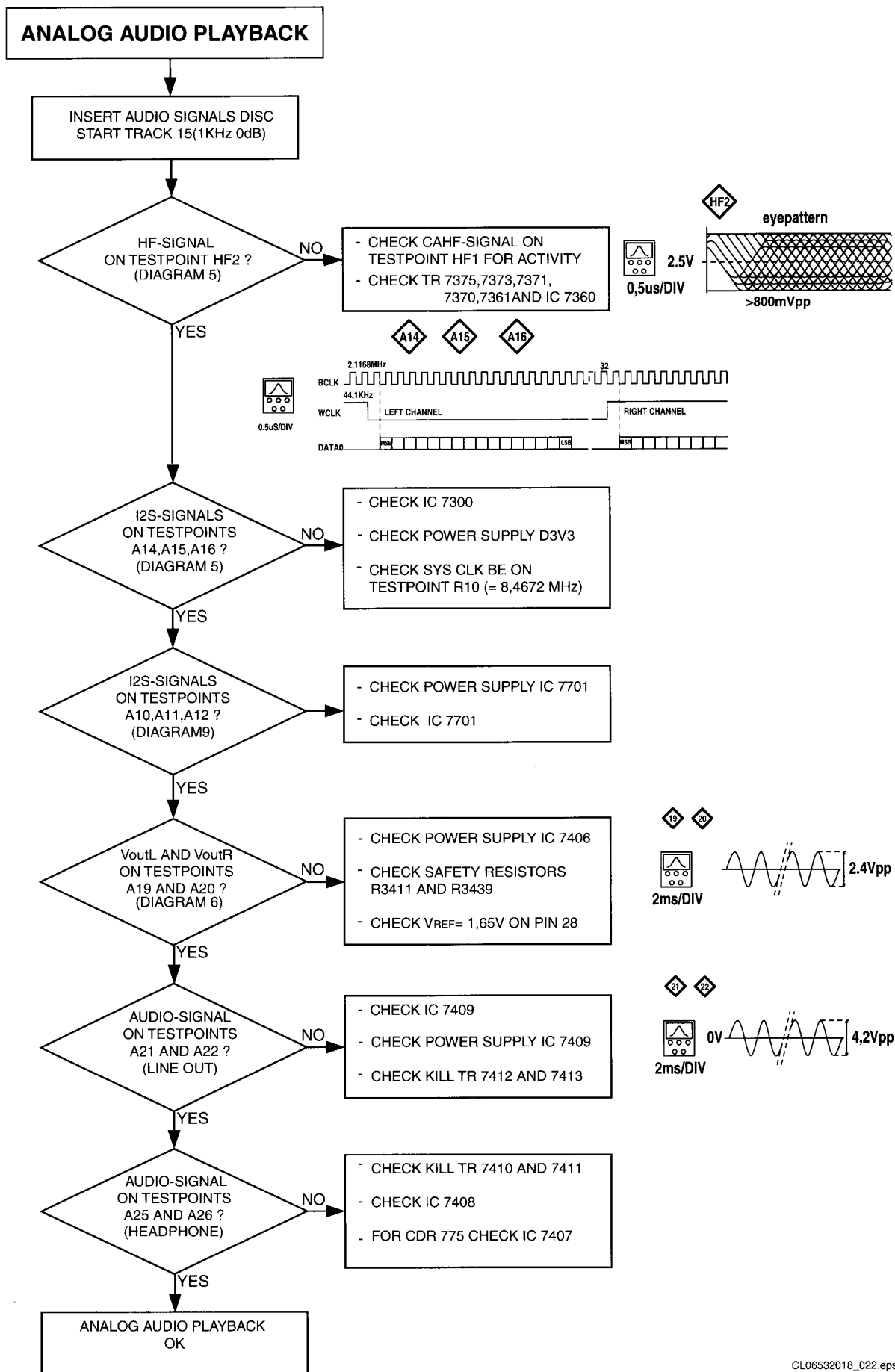


Figure 5-20

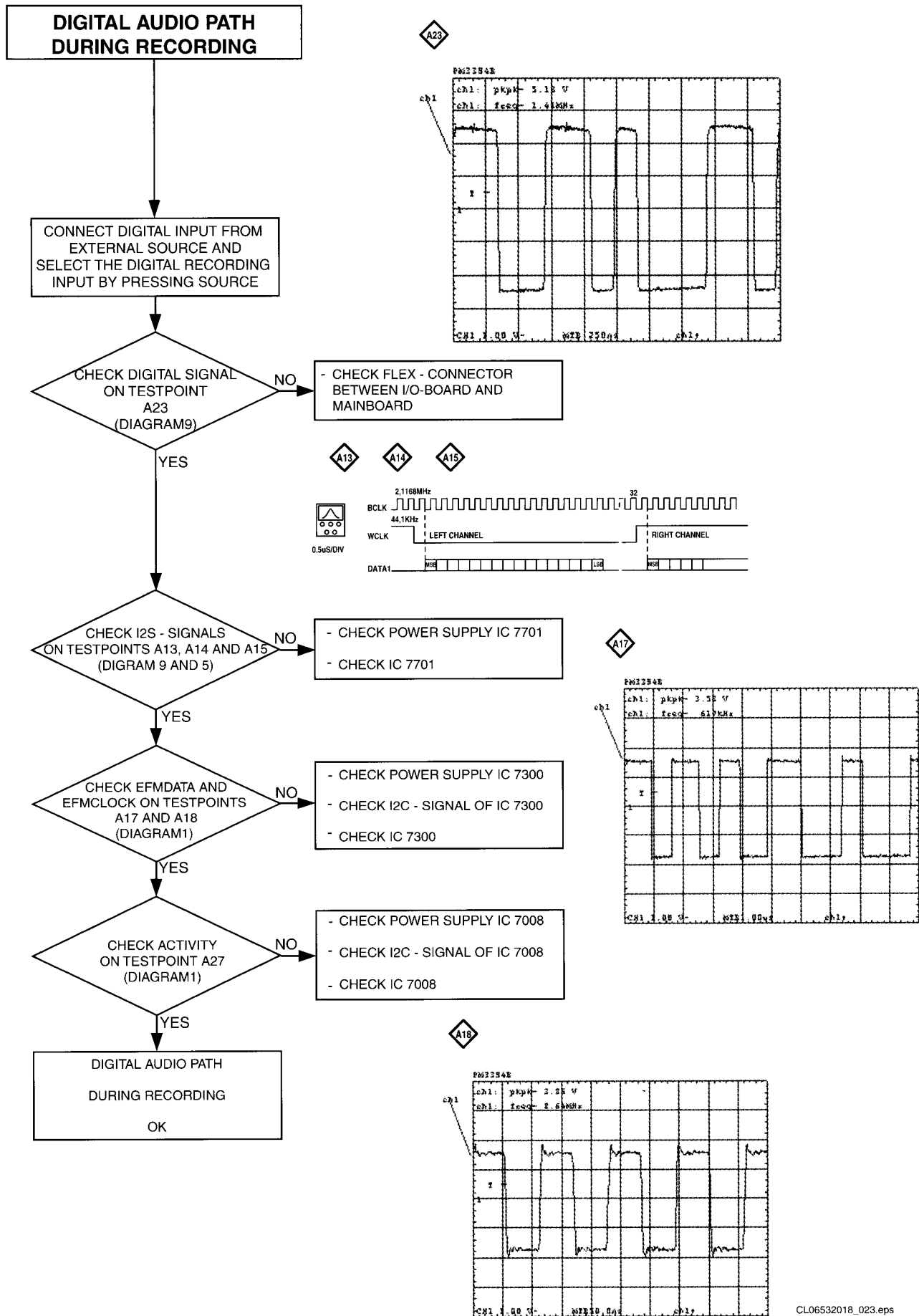
CL06532018_023.eps
290200

Figure 5-21

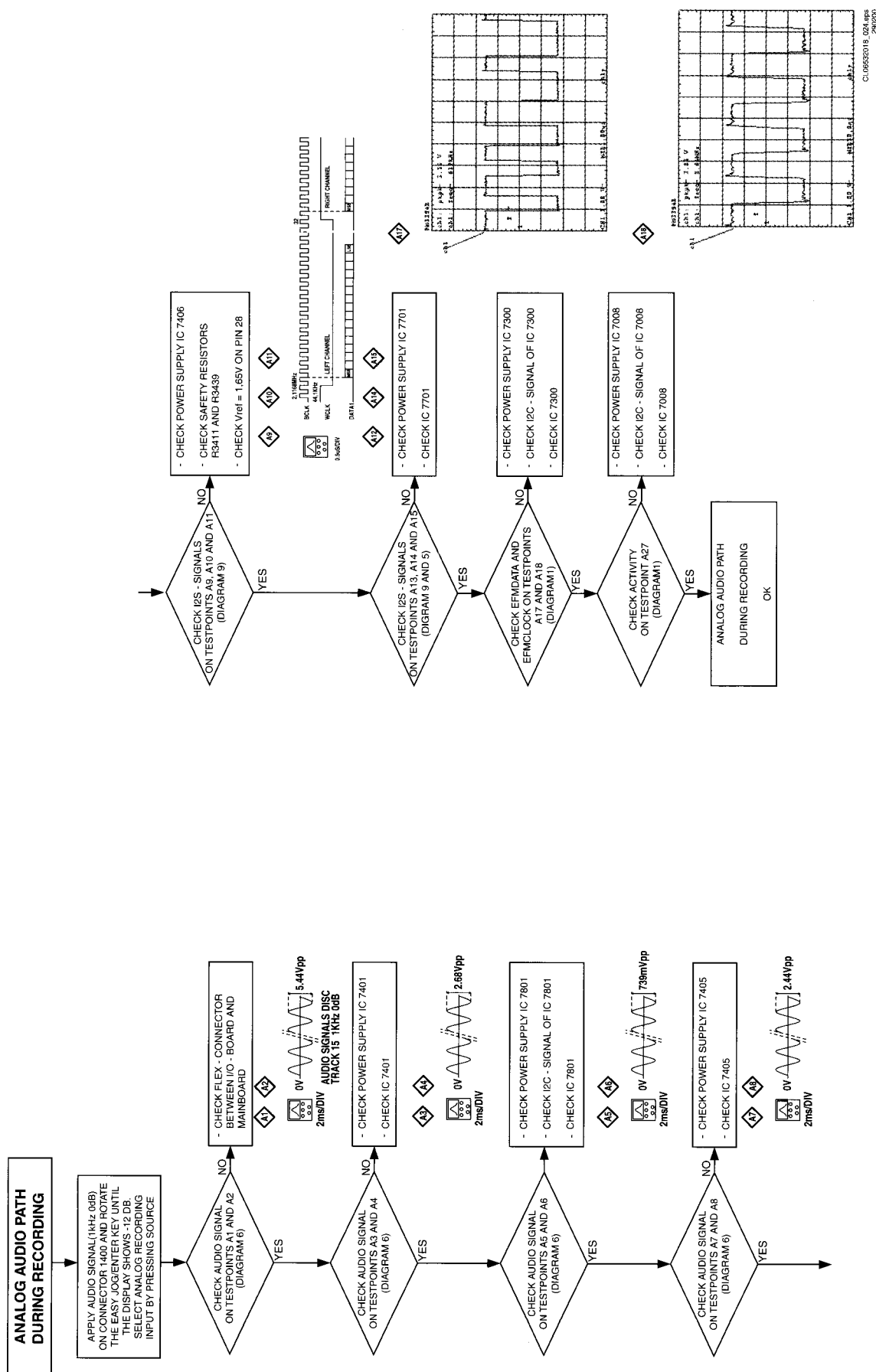


Figure 5-22

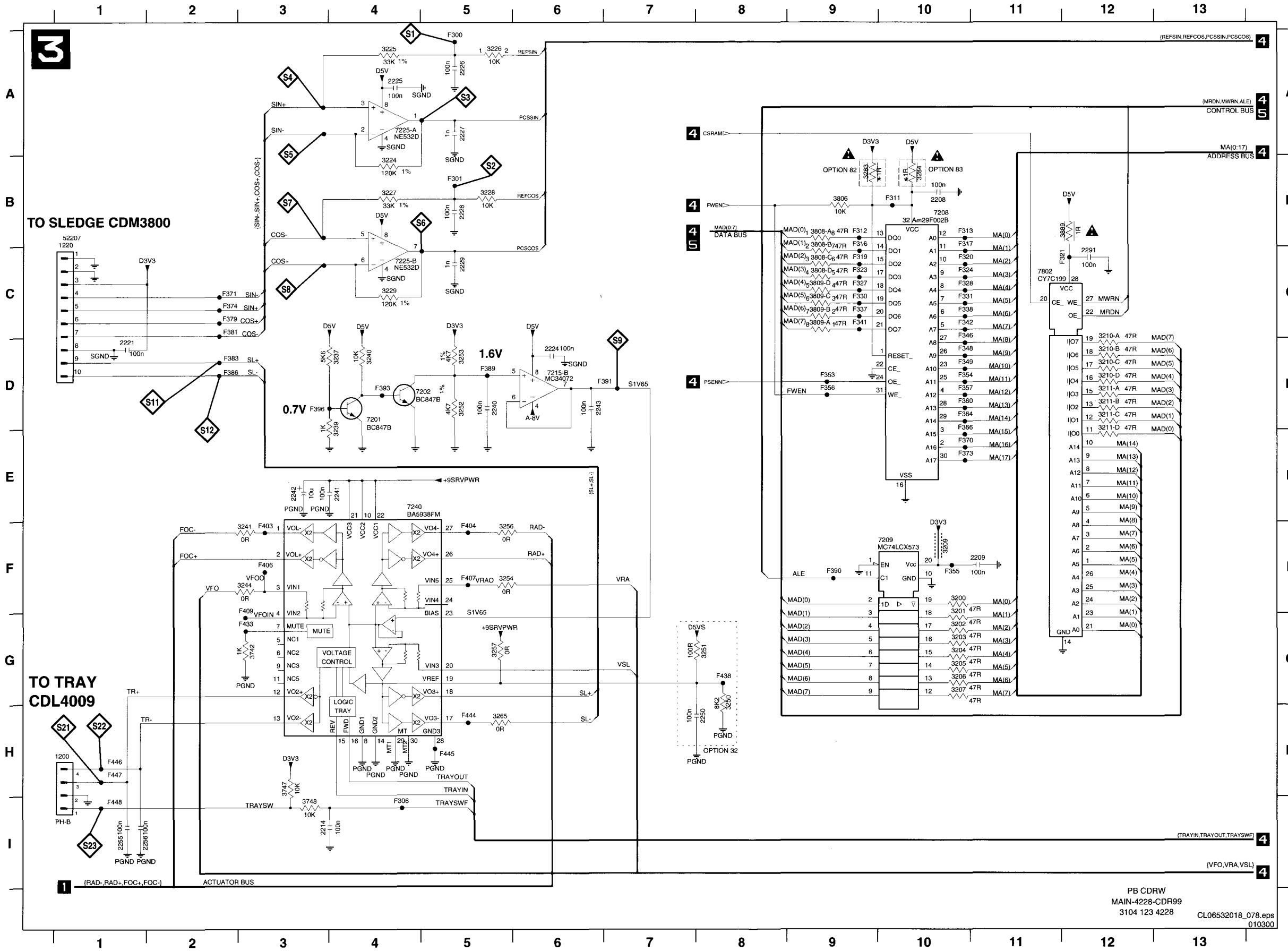
CDR-Mainboard Version 4228.5

2001 G1	F10 C11
2002 D2	F11 C12
2003 C2	F12 B12
2004 H4	F13 B8
2009 H4	F14 B10
2010 G4	F14 B9
2011 C2	F14 B6
2012 E3	F14 C3
2013 B5	F14 C6
2014 B5	F14 T3
2015 B4	F14 C10
2016 B4	F14 C6
2017 C7	F15 C1
2019 D6	F15 C3
2020 F3	F15 C6
2021 F3	F15 C1
2022 C7	F15 C3
2023 G9	F15 B6
2024 F12	F15 B9
2025 E9	F16 C1
2026 C7	F16 B6
2028 C8	F16 C3
2029 B8	F16 C1
2030 A13	F16 D6
2042 C8	F17 D1
2052 D13	F17 D1
2058 D13	F17 D3
2060 B7	F17 D6
2061 D12	F17 B3
2126 C11	F17 D3
2000 B2	F17 B6
2001 C2	F17 D6
3003 M4	F18 D10
3004 H4	F18 D10
3005 D2	F18 B6
3006 H4	F18 B6
3012 E7	F19 C12
3014 D3	F20 D2
3015 C2	F20 D9
3016 C11	F20 A3
3017 C12	F20 T3
3019 B9	F20 E1
3020 D10	F20 B3
3021 H11	F22 F1
3022 H11	F21 F5
3023 H11	F22 D1
3024 H11	F22 F12
3025 H11	F22 F1
3026 H11	F22 F5
3028 H10	F22 F1
3029 H10	F21 F4
3030 H10	F23 F5
3031 F9	F23 F3
3035 P9	F23 A6
3036 F9	F23 F1
3038 F13	F23 B12
3039 F13	F23 B12
3041 F13	F24 G12
3044 F13	F24 G1
3045 A9	F24 T9
3046 A9	F24 B9
3051 B9	F25 T9
3052 A7	F252 H9
3063 A7	
3064 B7	
3065 B7	
3065 C6	
3068 A13	
3069 A12	
3070 A12	
3102 C6	
3113 D3	
3104 E6	
3105 E6	
3106 B8	
3107 H4	
3108 B11	
3113 D12	
3114 C12	
3115 C11	
3123 B13	
3130 F6	
3331 F7	
3332 C11	
6002 C11	
7005-A B14	
7010 B4	
7050-A B9	
7050-B9	
7050-C6	
7050-D13	
7054 B12	
7119 A8	
7120 A8	
7126-A C11	
7126-B C12	
7126-C B12	
7126-D C8	
7127 B13	
7133 B12	
7355-A B11	
7355-D12	
7355-D13	
7355-D14	
F100 A11	
F101 B12	
F102 B13	
F103 A12	
F104 B14	
F107 C11	
F108 C13	

[illegible]

2003 A3	F120 A7
2031 B6	F121 A5
2032 A8	F122 B4
2033 A8	F123 B7
2034 C9	F124 B4
2035 D6	F125 B3
2038 D6	F126 B3
2040 C6	F128 B3
2041 E7	F129 B7
2043 E5	F130 B4
2044 E9	F131 C4
2045 F11	F132 A4
2046 E11	F136 C4
2047 E12	F139 C4
2048 E12	F141 C6
2049 E10	F144 C7
2050 E11	F151 D6
2051 G12	F154 D6
2052 G7	F156 D5
2053 G8	F160 D7
2054 F7	F164 D7
2055 G6	F168 D6
2056 G6	F173 E5
2061 A5	F180 E6
2063 H8	F183 E7
2078 F7	F196 F5
2080 B7	F200 F10
2082 I6	F201 F11
2083 I7	F205 F12
2084 A7	F206 F10
2007 C4	F218 G13
2037 C6	F224 G10
2038 D6	F229 G7
2043 G9	F236 G7
2044 H5	F237 G6
2045 E5	F241 G7
2046 D5	F242 G7
2056 B9	F244 G5
2057 A5	F245 H4
2058 B5	F253 I6
2059 B6	F255 I7
2060 B7	F268 I8
2061 B6	F269 I6
2062 G9	F271 I8
2063 A9	
2066 A5	
2067 A4	
2070 E7	
2071 D7	
2072 E5	
2073 D5	
2074 A3	
2075 E5	
2076 C8	
2077 E7	
2078 H5	
2081 F5	
2082 F10	
2085 E12	
2086 E12	
2087 G13	
2088 E13	
2090 F12	
2091 E11	
2092 E11	
2093 G12	
2094 G8	
2095 F8	
2097 G7	
2098 G7	
2099 H8	
2100 D9	
2101 A9	
2102 A6	
2111 A6	
2112 A4	
2116 I6	
2117 I7	
2118 H7	
2119 I7	
2120 I8	
2126 I5	
2127 G6	
2128 I7	
2129 H7	
2089 F9	
6003 H8	
6007 D7	
6015 C5	
7001-A B6	
7001-C F9	
7001-D C8	
7002-A I6	
7002-B G5	
7002-C F10	
7002-D A5	
7005-B G6	
7005-C F11	
7005-D A7	
7016 A4	
7110 A7	
7111 H8	
7112 I8	
7113 F10	
7121 F12	
7122 G6	
7124 G5	
7135 A9	
F106 A4	
F112 A3	
F114 A7	
F116 A6	
F117 A4	
F118 A9	
F119 A8	

CDR MAIN BOARD - CIRCUIT DIAGRAM 3 : SERVO DRIVERS, MACE-RAM, -FLASH, -DEMUX TEST POINTS

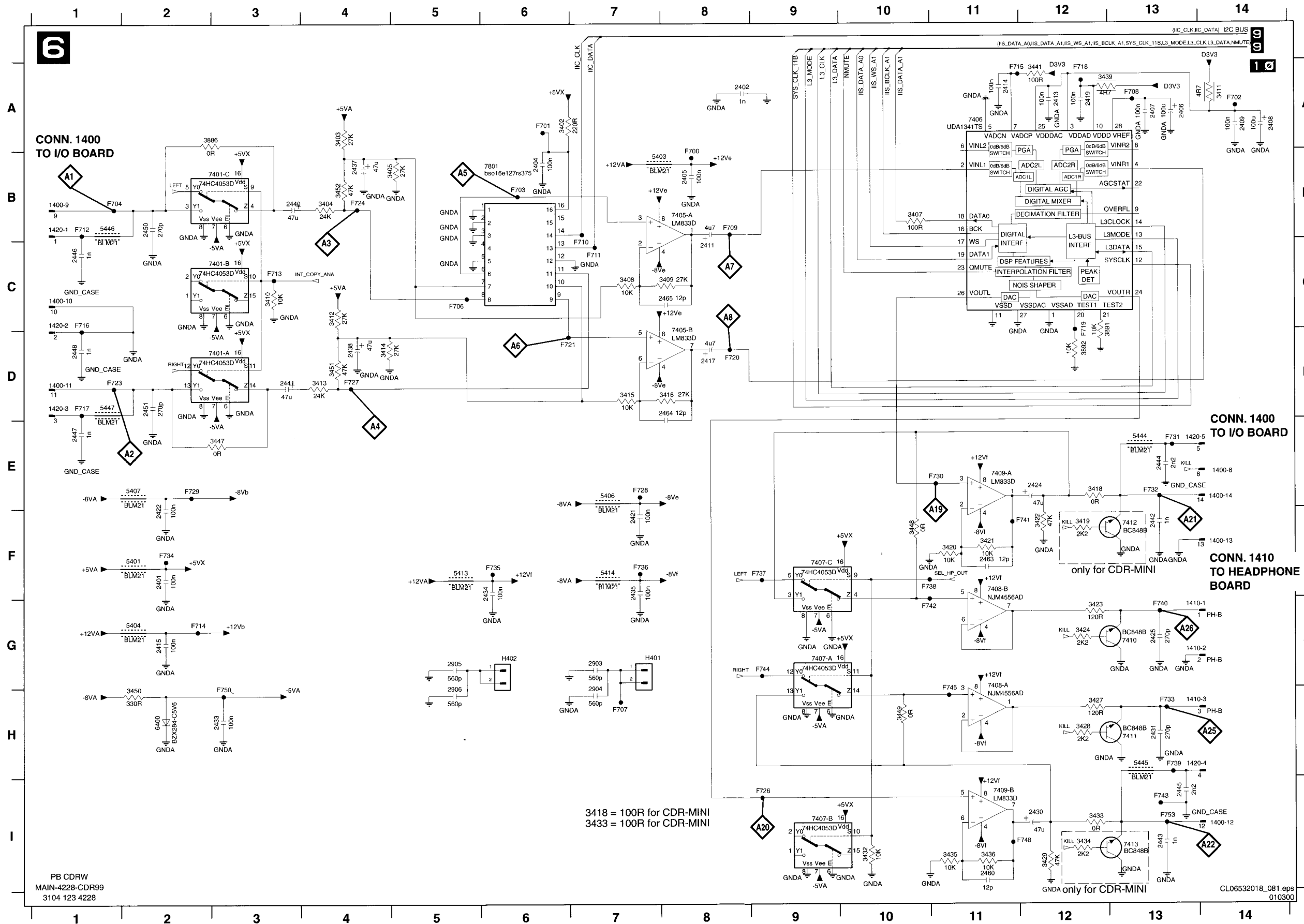


- 1200 H1
- 1220 B1
- 2208 B10
- 2209 F11
- 2214 I3
- 2221 D1
- 2224 D6
- 2225 A4
- 2226 A5
- 2227 A5
- 2228 B5
- 2229 C5
- 2240 D5
- 2241 E4
- 2242 E3
- 2243 D6
- 2250 H8
- 2255 I1
- 2256 I1
- 2291 C12
- 3200 F10
- 3201 G10
- 3202 G10
- 3203 G10
- 3204 G10
- 3205 G10
- 3206 G10
- 3207 G10
- 3209 F10
- 3210-A D12
- 3210-B D12
- 3210-C D12
- 3210-D D12
- 3211-A D12
- 3211-B D12
- 3211-C D12
- 3211-D E12
- 3224 B4
- 3225 A4
- 3226 A5
- 3227 B4
- 3228 B5
- 3229 C4
- 3237 D4
- 3239 D4
- 3240 D4
- 3241 F3
- 3244 F3
- 3250 G8
- 3251 G8
- 3252 D5
- 3253 D5
- 3254 F5
- 3256 F5
- 3257 G5
- 3265 H5
- 3268 B9
- 3284 B10
- 3742 G3
- 3747 H3
- 3748 I3
- 3806 B9
- 3806-A B9
- 3808-B C9
- 3808-C C9
- 3808-D C9
- 3809-A C9
- 3809-B C9
- 3809-C C9
- 3809-D C9
- 3889 B12
- 7201 D4
- 7202 D4
- 7208 B10
- 7209 F10
- 7215-B D6
- 7225-A A4
- 7225-B C4
- 7240 E4
- 7802 C11
- F300 A5
- F301 B5
- F306 H
- F311 B10
- F312 B9
- F313 B10
- F316 B9
- F317 B10
- F319 C9
- F320 C10
- F321 C12
- F323 C9
- F324 C10
- F327 C9
- F328 C10
- F330 C9
- F331 C10
- F337 C9
- F338 C10
- F341 C9
- F342 C10
- F346 C10
- F348 D10
- F349 D10
- F353 D9
- F354 D10
- F355 F10
- F356 D9
- F357 D10
- F360 D10
- F364 D10
- F366 D10
- F370 E10
- F371 C2
- F373 E10
- F374 C2
- F379 C2
- F381 C2
- F383 D2
- F386 D2
- F389 D5
- F390 F9
- F391 D7
- F393 D4
- F396 D3
- F403 F3
- F404 F5
- F406 F3
- F407 F5
- F409 F3
- F433 G3
- F438 G8
- F444 H5
- F445 H5
- F446 H1
- F448 I1

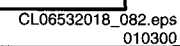
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2217 H2	F325 B12
2217 D2	F329 B4
2218 G12	F334 B12
2220 E2	F335 B4
2222 E1	F350 C3
2223 B3	F351 C4
2231 C4	F356 C4
2232 G2	F361 C3
2232 G2	F362 C2
2234 G2	F367 C4
2235 G2	F368 C1
2273 A8	F375 D3
2273 A8	F377 D2
2275 A9	F380 D1
2276 A9	F382 D4
2277 A10	F385 E4
2278 H10	F387 E4
2282 E12	F392 E4
2284 H5	F394 E2
2285 H5	F397 F4
2286 D3	F398 F12
2287 C3	F399 F4
2288 C3	F400 F12
2289 H9	F401 C12
2290 H9	F402 F12
3212 I5	F411 H11
3213 E12	F413 H5
3215 C2	F414 H6
3216 E12	F415 H6
3217 C2	F416 H6
3218 E2	F417 H7
3219 E2	F418 H7
3220 E2	F419 H7
3221 D2	F420 H7
3222-A D12	F421 H8
3222-B D12	F422 H8
3222-C D12	F423 H9
3222-D E12	F425 H9
3222-E E12	F426 H9
3222-F E12	F427 H9
3223-A E12	F428 H10
3223-B E12	F430 H10
3223-C E12	F431 H10
3223-D E12	F432 H10
3230 H11	F433 D3
3233 G12	F435 H8
3234 G12	F436 H9
3235-A B12	F439 H4
3235-B B12	F440 H10
3235-C B12	F441 H8
3235-D B12	F443 H9
3238 H10	
3242-A H12	
3242-B H12	
3242-C H12	
3242-D H12	
3242-E H12	
3243-A H12	
3243-B H12	
3243-C A12	
3243-D A12	
3245 H10	
3246 H10	
3247-A C4	
3247-B C4	
3247-C H12	
3247-D H5	
3248-B H5	
3248-C H5	
3248-D H5	
3249 H10	
3255 D4	
3260 F12	
3271-A C12	
3271-B C12	
3271-C C12	
3271-D C12	
3271-E C12	
3273-B D12	
3273-D D12	
3273-F D12	
3274 A6	
3276 H8	
3280 H9	
3281 H7	
3283 B4	
3287 H7	
3288 F3	
3289 F3	
3291 E3	
3295 D3	
3297 C3	
3298 C3	
3300 F13	
3301 E2	
3303 H12	
3318 B12	
3322 B4	

1330-I E1	6375 C1
1330-10 H1	7300 C8
1330-11 E1	7330 E2
1330-2 F1	7355 A-H8
1330-3 F1	7355-B H7
1330-4 F1	7360 B3
1330-5 G1	7361 C5
1330-6 F1	7370 B3
1330-7 H1	7371 A3
1330-8 F1	7372 B2
1330-9 G1	7375 B1
2302 B10	7601 C5
2302 B10	7604 F5
2303 B10	7600 A1
2304 B11	7501 A3
2305 B11	7502 A5
2306 B11	7503 B3
2308 A4	7504 A2
2309 A4	7505 B2
2310 B4	7506 B3
2314 E7	7507 B3
2315 E7	7508 B3
2316 E7	7509 B2
2317 E7	7510 B2
2318 D7	7511 B1
2319 D7	7512 C3
2320 D7	7513 D1
2321 D7	7514 A10
2322 E7	7515 B11
2330 F2	7516 C6
2331 F2	7517 C5
2332 F2	7518 D9
2333 F2	7519 C6
2335 H5	7520 C8
2336 I5	7521 C8
2337 I4	7522 A4
2335 H8	7523 B4
2337 D7	7524 E7
2360 H5	7525 E2
2362 C6	7526 H3
2364 C7	7527 C8
2368 B4	7530 D8
2370 B4	7531 B3
2370 A3	7532 D3
2371 A4	7534 D13
2372 B2	7535 D8
2373 A1	7536 D13
2374 C1	7537 D14
2375 C2	7540 D13
2378 A1	7541 E13
2379 C14	7542 E8
2907 G13	7543 E13
2908 H13	7544 C7
3300 B9	7545 B3
3301 B9	7546 E13
3302 A2	7547 E1
3303 A4	7548 E3
3304 B4	7549 E3
3305 G10	7550 E13
3308 H9	7551 E8
3309 C7	7552 E13
3312 E7	7553 E8
3313 D7	7554 E13
3314 D14	7555 E8
3315 E7	7556 E1
3316 H12	7558 E8
3317 H12	7559 F1
3319 E14	7561 F2
3320 F5	7562 F6
3323 F5	7563 H5
3324 G6	7564 F3
3325 G6	7565 F1
3330 F1	7566 F5
3331 F1	7567 F1
3332 F1	7568 F4
3333 E5	7569 G4
3334 E5	7570 G4
3335 E5	7571 G8
3336 E5	7572 G1
3337 H5	7573 G8
3338 I5	7574 G1
3339 I5	7575 G4
3340 I4	7577 G8
3341 H1	7578 G1
3342 H2	7579 G1
3342 H2	7580 G9
3348 H2	7581 G9
3349 H5	7583 G10
3350 E2	7584 G10
3351 E4	7585 G1
3352 H5	7586 G11
3360 B5	7588 G12
3361 C6	7589 G12
3362 D8	7590 H1
3363 D6	7591 H1
3365 C7	7592 G10
3368 B3	7593 G11
3370 B3	7594 G11
3371 C3	7595 G11
3372 B2	7597 G12
3373 A2	7598 G12
3374 A1	7599 H7
3375 C2	7600 H8
3376 C1	7601 H8
3378 A1	7601 G14
3379 A2	
3380 H2	
3381 B3	
3382-A C13	
3382-B C13	
3382-C D13	
3382-D D13	
5301 A5	
5302 B10	
5303 B10	
6373 C2	
6374 B2	

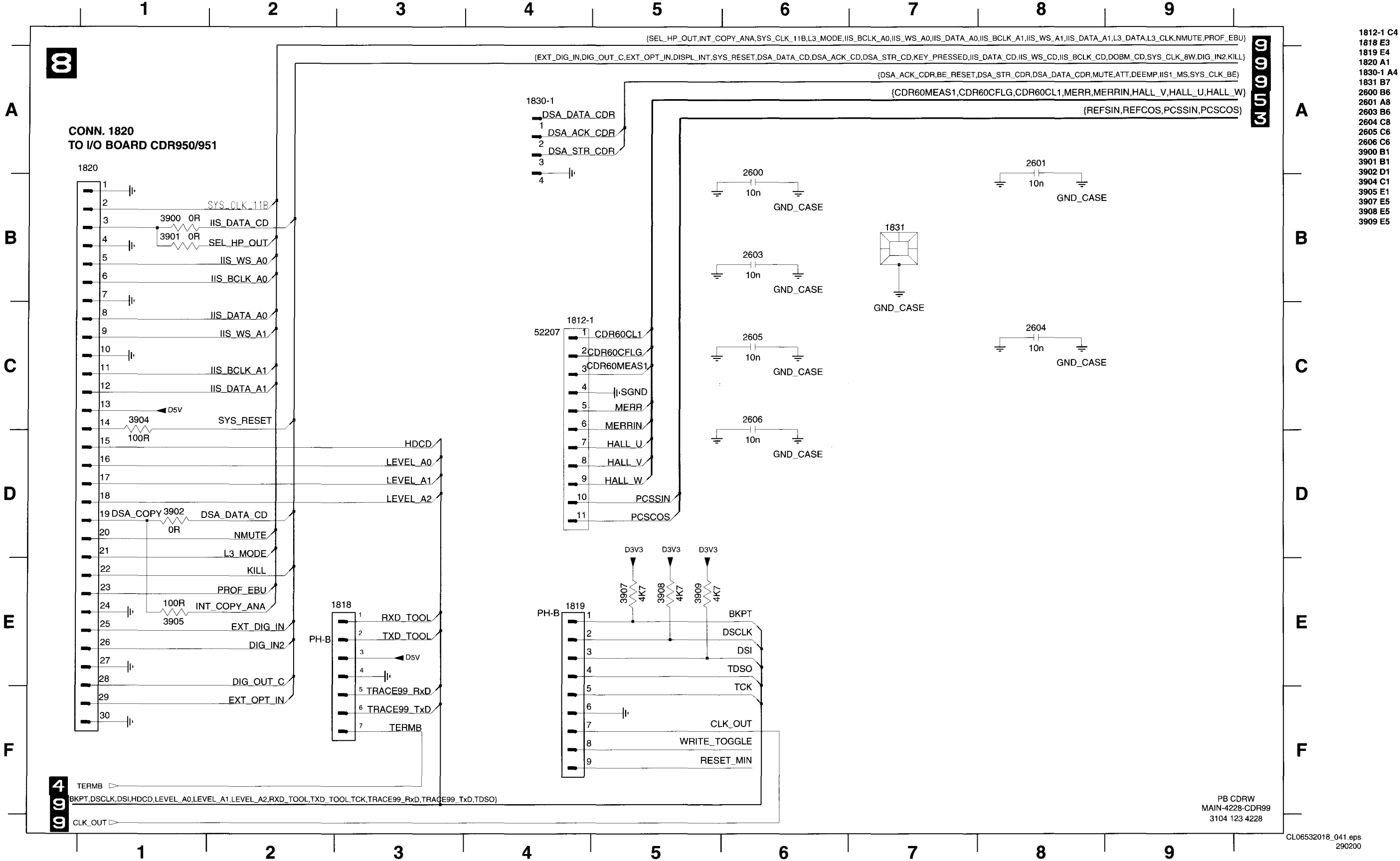
CDR MAIN BOARD - CIRCUIT DIAGRAM 6 : AUDIO PART (NOT FOR CDR950/951)



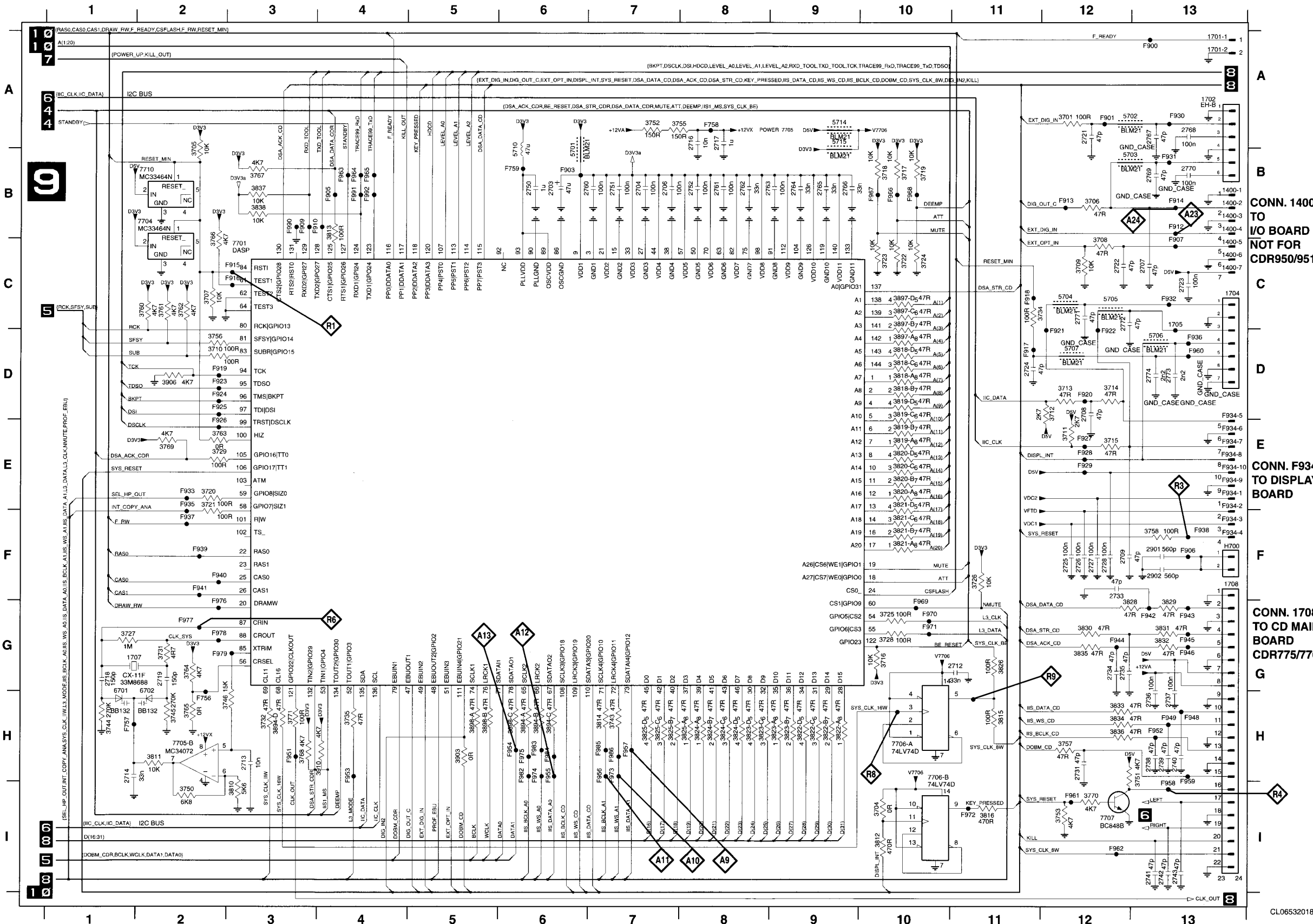
1400-10 C1	7407-A G9
1400-11 D1	7407-B B9
1400-12 F14	7407-C F9
1400-13 F14	7408-A H11
1400-14 E14	7408-B F11
1400-8 E14	7409-A E11
1400-9 B1	7409-B I11
1410-1 G14	7410 G13
1410-2 G14	7411 H13
1410-3 H14	7412 F13
1420-1 B1	7413 I13
1420-2 C1	7801 B6
1420-3 D1	7802 B6
1420-4 H14	7801 A6
1420-5 E14	7802 A14
2401 F2	7803 B6
2402 A6	7804 B1
2404 B6	7806 C5
2405 B6	7807 H7
2406 A13	7808 A13
2407 A13	7809 B6
2408 A14	7810 B7
2409 A14	7811 C7
2411 C8	7812 B1
2413 A12	7813 C3
2414 A11	7814 C2
2415 G2	7815 A11
2417 D8	7816 C1
2419 A12	7817 D1
2421 F7	7818 A12
2422 F2	7819 D12
2424 E12	7820 D8
2425 G13	7821 D6
2430 I12	7823 D1
2431 H13	7824 B4
2433 H3	7826 B9
2434 F6	7827 D4
2435 F7	7828 E7
2437 B4	7829 E2
2438 D4	7830 E11
2440 B3	7831 E13
2441 D3	7832 E13
2442 F13	7833 H13
2443 I13	7834 F2
2444 E13	7835 F6
2445 I13	7836 F7
2446 C1	7837 F9
2447 E1	7838 F10
2448 D1	7839 H13
2450 B2	7840 G13
2451 D2	7841 F12
2460 I11	7842 G10
2463 F11	7843 I13
2464 D8	7844 G9
2465 C8	7845 H11
2903 G7	7848 I12
2904 H7	7850 H3
2905 G5	7853 I13
2906 H5	7854 G7
3402 A6	7855 G6
3403 A4	7856 G6
3404 B4	
3405 B5	
3407 B10	
3408 C7	
3409 C8	
3410 C3	
3411 A14	
3412 C4	
3413 D4	
3414 D4	
3415 D7	
3416 D8	
3418 E12	
3419 F12	
3420 F11	
3421 F11	
3422 F12	
3423 G12	
3424 G12	
3427 H12	
3429 I12	
3432 I10	
3433 I12	
3434 I12	
3435 I11	
3436 I11	
3439 A12	
3440 H10	
3441 D4	
3442 B4	
3886 A2	
3891 D12	
3892 D12	
5401 F2	
5403 B7	
5404 G2	
5406 E7	
5407 E2	
5413 F6	
5414 F7	
5444 E13	
5445 H13	
5446 B1	
5447 D1	
6400 H2	
7401-A D3	
7401-B C3	
7401-C B3	
7405-A B6	
7405-B D8	
7406 A11	



CDR MAIN BOARD - CIRCUIT DIAGRAM 8 : TEST & CONNECTOR PART

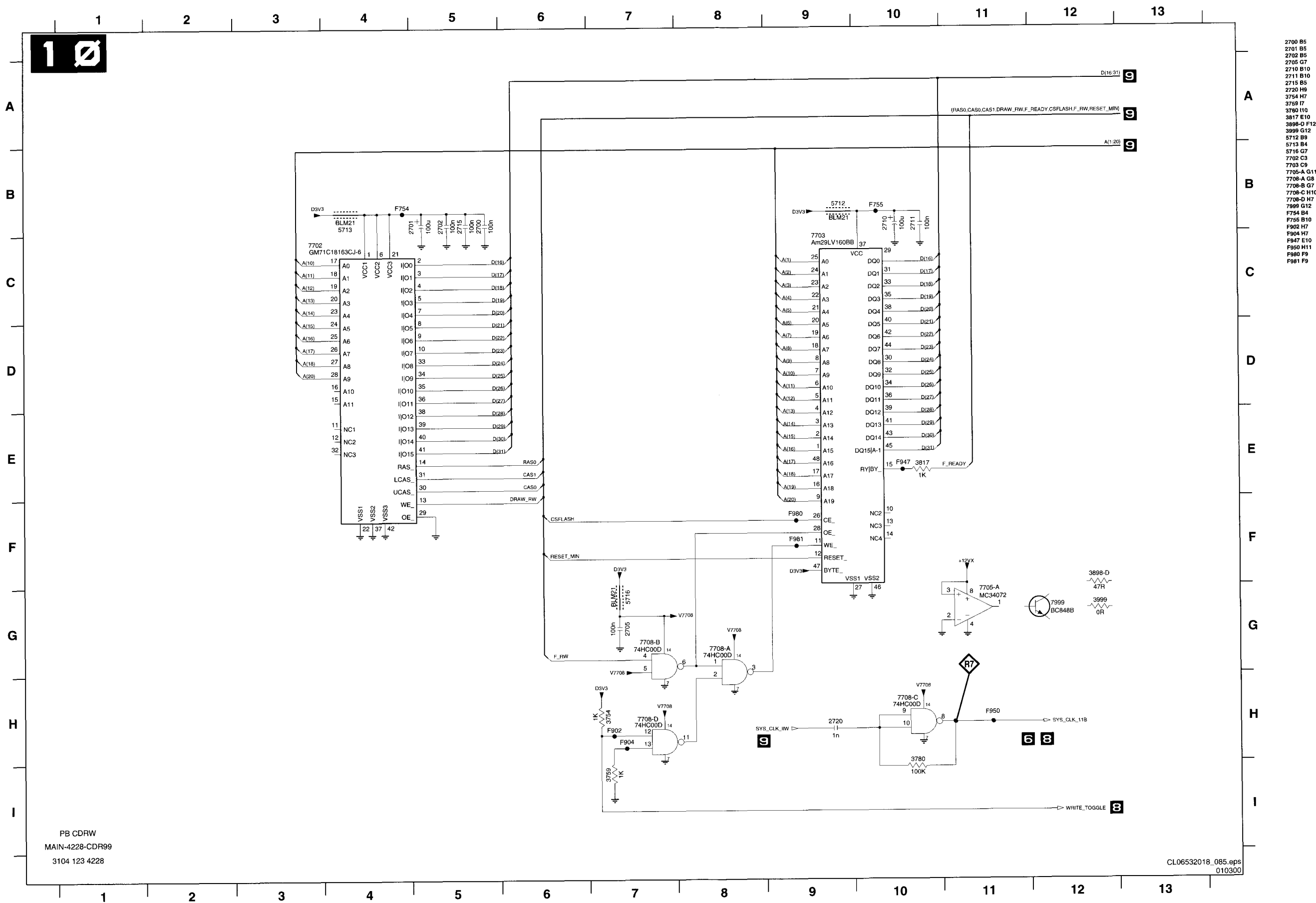


CDR MAIN BOARD - CIRCUIT DIAGRAM 9 : DASP MASTER PROCESSOR TESTPOINTS



- 1400-1 B13 3767 B3
- 1400-2 B13 3768 H3
- 1400-3 B13 3769 E2
- 1400-4 B13 3770 H2
- 1400-5 C13 3771 H3
- 1400-6 C13 3810 I3
- 1400-7 C13 3811 H2
- 1701-1 A13 3812 H0
- 1701-2 A13 3813 B4
- 1702 A13 3814 H7
- 1704 C13 3815 H11
- 1707 G1 3816 H11
- 1708 F13 3816-A D10
- 2703 B6 3818-B D10
- 2704 B7 3818-C D10
- 2706 B7 3818-D D10
- 2707 C13 3818-A E10
- 2708 D12 3818-B E10
- 2709 F12 3818-C D10
- 2712 G11 3818-D D10
- 2713 H3 3820-A E10
- 2714 H1 3820-B E10
- 2718 A8 3820-C E10
- 2717 A8 3820-D E10
- 2718 G1 3821-A F10
- 2719 G2 3821-B F10
- 2721 A12 3821-C F10
- 2722 C12 3821-D E10
- 2723 C13 3822-A H9
- 2724 D11 3822-B H9
- 2725 C12 3822-C H9
- 2726 F12 3822-D H9
- 2727 F12 3823-A H9
- 2728 F12 3823-B H9
- 2731 H12 3823-C H9
- 2733 F12 3823-D H9
- 2734 G12 3824-A H8
- 2735 G12 3824-B H8
- 2736 H13 3824-C H8
- 2737 H13 3824-D H8
- 2738 H13 3825-A H7
- 2739 H13 3825-B H7
- 2740 H13 3825-C H7
- 2741 H13 3825-D H7
- 2742 H13 3826-G11
- 2743 I13 3828-G12
- 2750 B6 3829-G13
- 2751 B7 3830-G12
- 2752 B8 3831-G13
- 2760 B7 3832-G13
- 2761 B8 3833-H12
- 2762 B8 3834-H12
- 2763 B9 3835-G12
- 2764 B9 3836-H12
- 2765 B9 3837-B3
- 2766 B9 3838-B3
- 2767 A13 3894-A H6
- 2768 A13 3894-B H6
- 2769 B13 3894-C H6
- 2770 B13 3894-D H3
- 2771 C12 3897-A D10
- 2772 C12 3897-B C10
- 2773 D13 3897-C C10
- 2774 D13 3897-D C10
- 2901 F13 3898-A H5
- 2902 F13 3898-B H5
- 3701 A12 3898-C H6
- 3704 I10 3903-H5
- 3705 B2 3906-D2
- 3706 B12 3910-H4
- 3707 C2 3701-B6
- 3708 C12 3706-C12
- 3709 C12 3708-C12
- 3710 D2 3704-C12
- 3711 E12 3705-C12
- 3712 D12 3706-D13
- 3713 D12 3707-D12
- 3714 D12 3710-B6
- 3715 E12 3714-A9
- 3716 G10 3715-A9
- 3717 B10 3718-B10
- 3718 B10 3702-H2
- 3719 B10 3701-C3
- 3720 E2 3704-B2
- 3721 E2 3705-B H2
- 3722 C10 3706-A H10
- 3723 C10 3706-B H10
- 3724 C10 3707-H2
- 3725 G10 3710-B2
- 3726 F11 3704-E13
- 3727 G1 3704-E13
- 3728 G10 3704-E13
- 3729 E2 3704-E13
- 3731 G2 3704-E13
- 3732 H3 3704-E13
- 3734 C11 3704-E13
- 3735 H4 3704-E13
- 3743 H7 3704-E13
- 3744 H1 3704-E13
- 3745 H2 3704-E13
- 3746 H3 3704-E13
- 3750 I2 3704-E13
- 3751 H13 3704-E13
- 3752 A7 3704-E13
- 3753 I12 3704-E13
- 3755 A7 3704-E13
- 3756 D2 3704-E13
- 3757 H12 3704-E13
- 3758 F13 3704-E13
- 3760 C2 3704-E13
- 3761 C2 3704-E13
- 3762 C2 3704-E13
- 3763 E2 3704-E13
- 3764 G2 3704-E13
- 3765 H2 3704-E13
- 3766 C2 3704-E13

CDR MAIN BOARD - CIRCUIT DIAGRAM 10 : DASP FLASH & DRAM TESTPOINTS

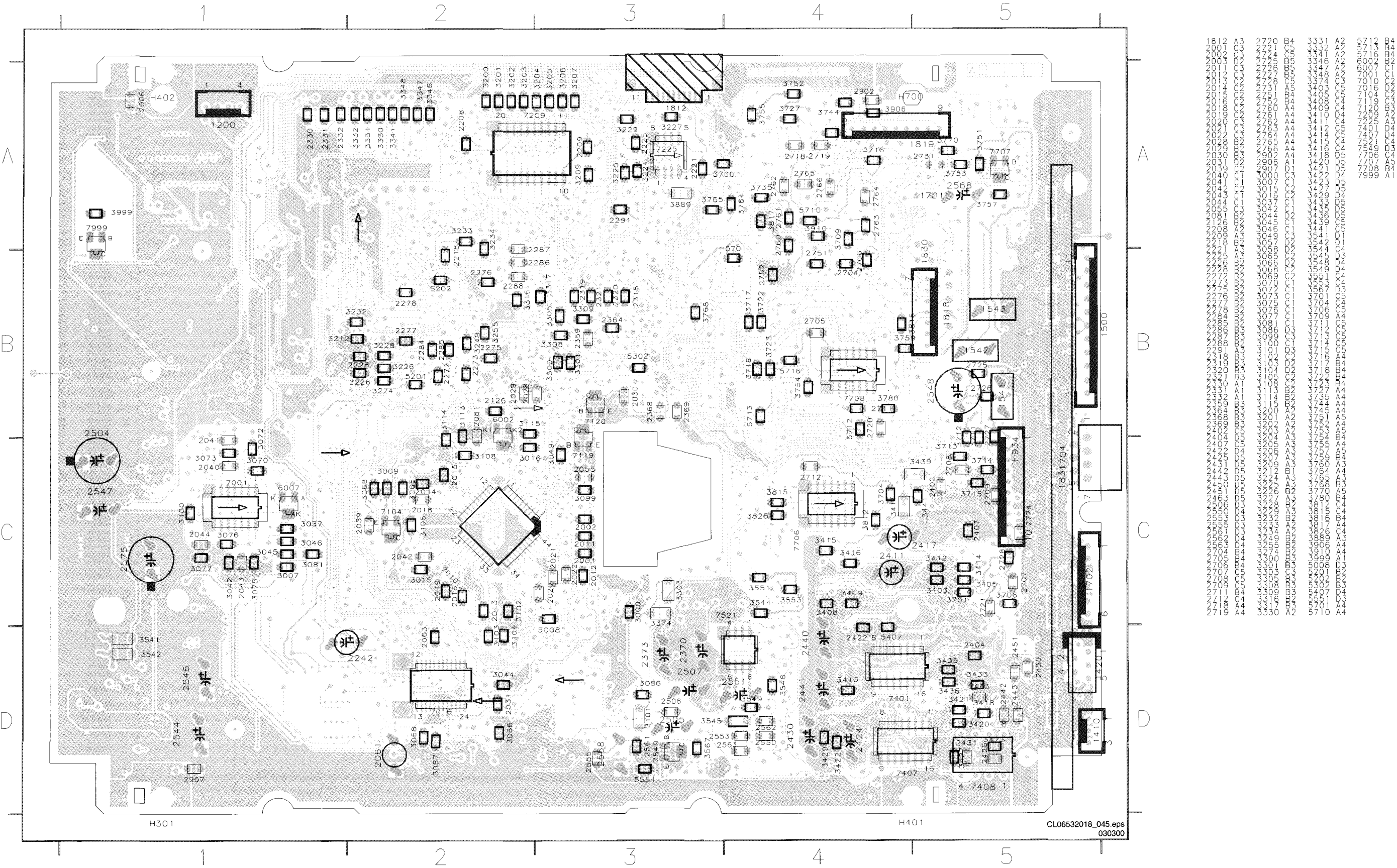


2700 B5
2701 B5
2702 B5
2705 G7
2710 B10
2711 B10
2715 B5
2720 H9
3754 H7
3759 I7
3760 I10
3817 E10
3898-D F12
3999 G12
5712 B9
5713 B4
5716 G7
7702 C3
7703 C9
7705-A G11
7708-A G8
7708-B G7
7708-C H10
7708-D H7
7999 G12
F754 B4
F755 B10
F902 H7
F904 H7
F947 E10
F950 H11
F980 F9
F981 F9

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290200

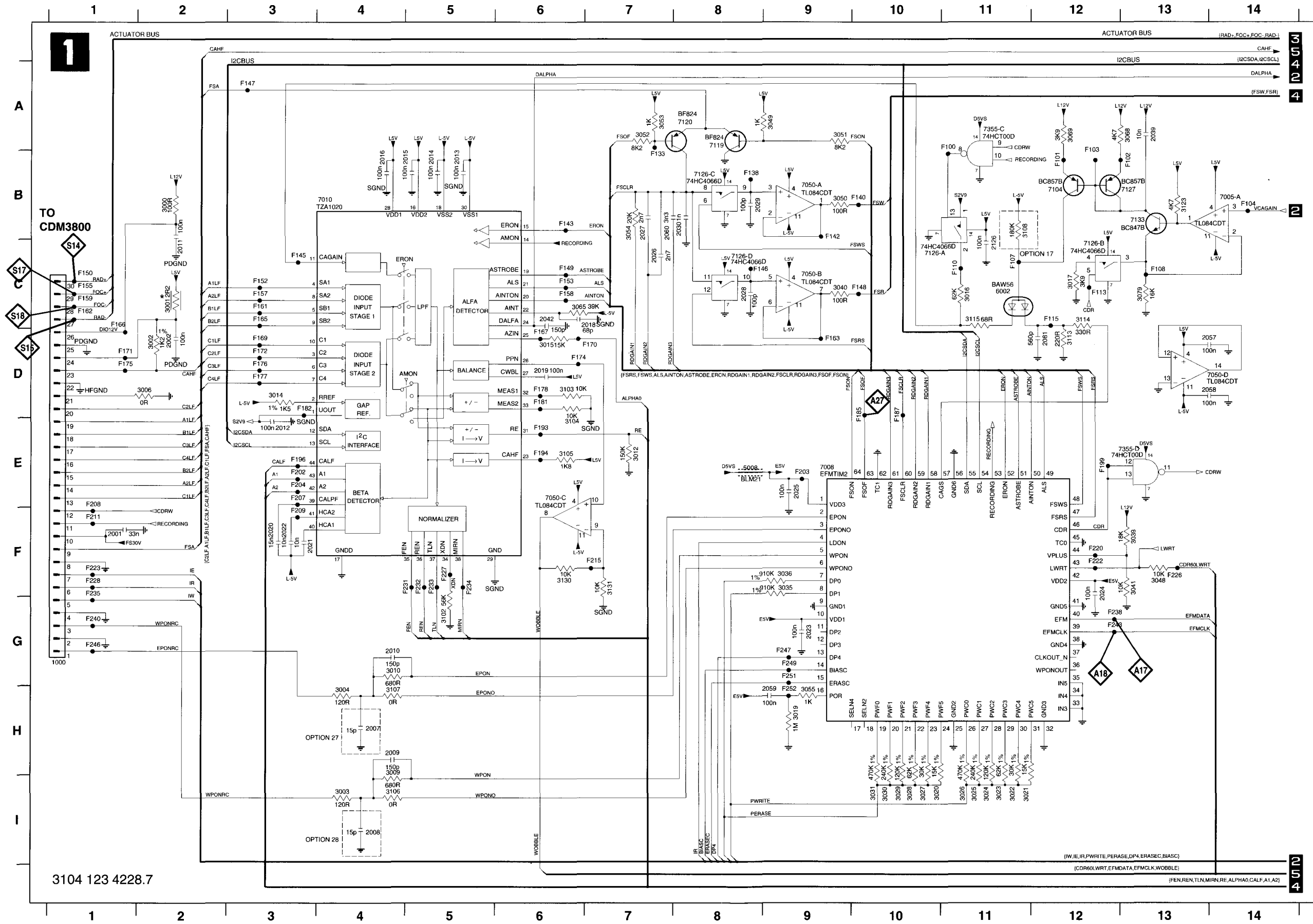
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CDR MAIN BOARD - BOTTOM VIEW

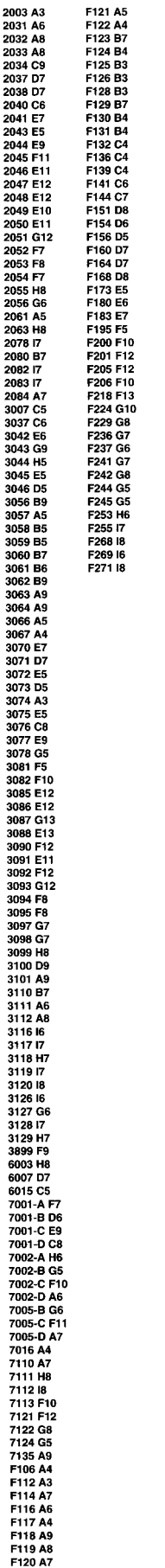


CDR-Mainboard Version 4228.7

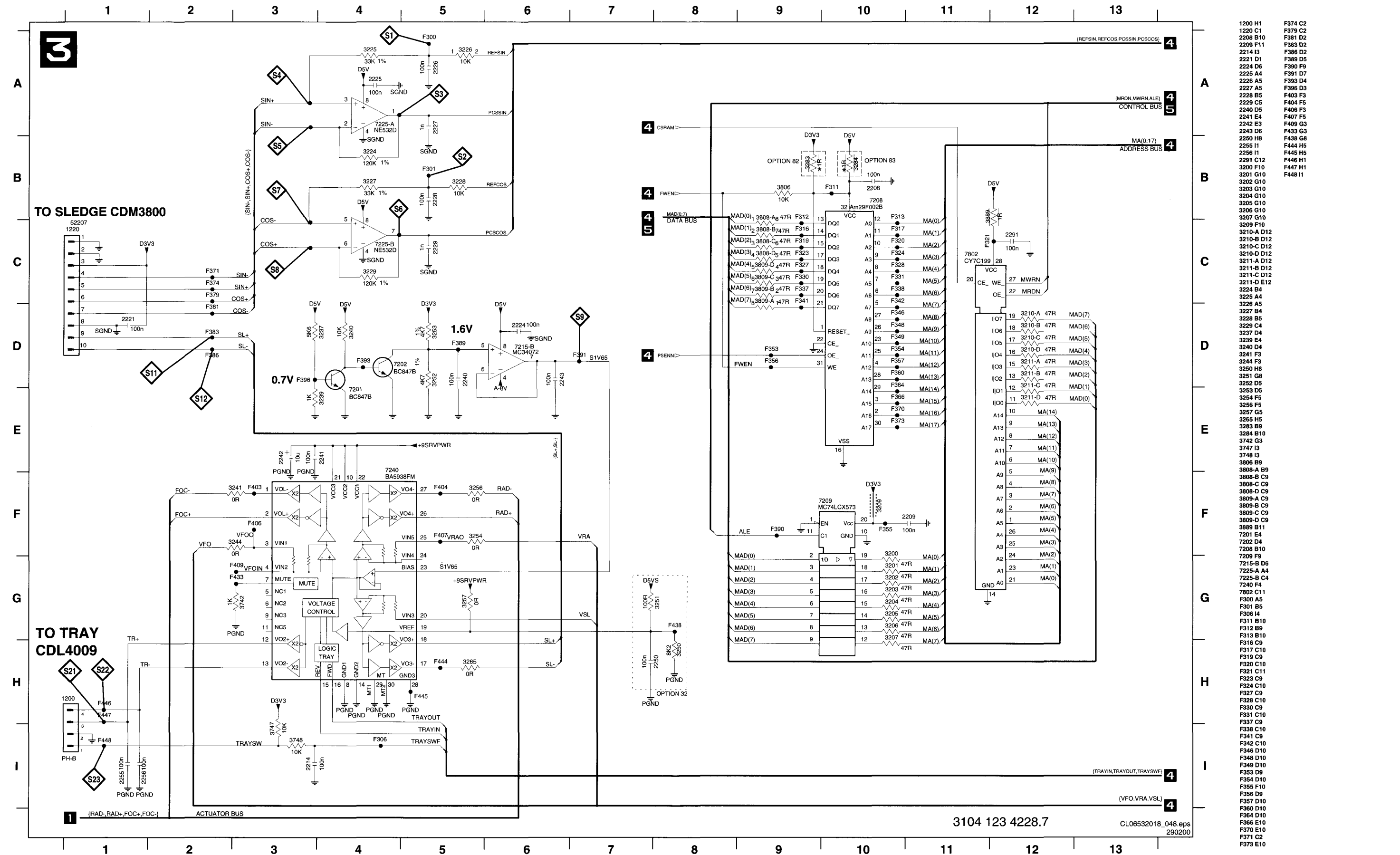
CDR MAIN BOARD - CIRCUIT DIAGRAM 1 : AEGER, EFMTIM, FORWARD SENSE CIRCUIT TESTPOINTS



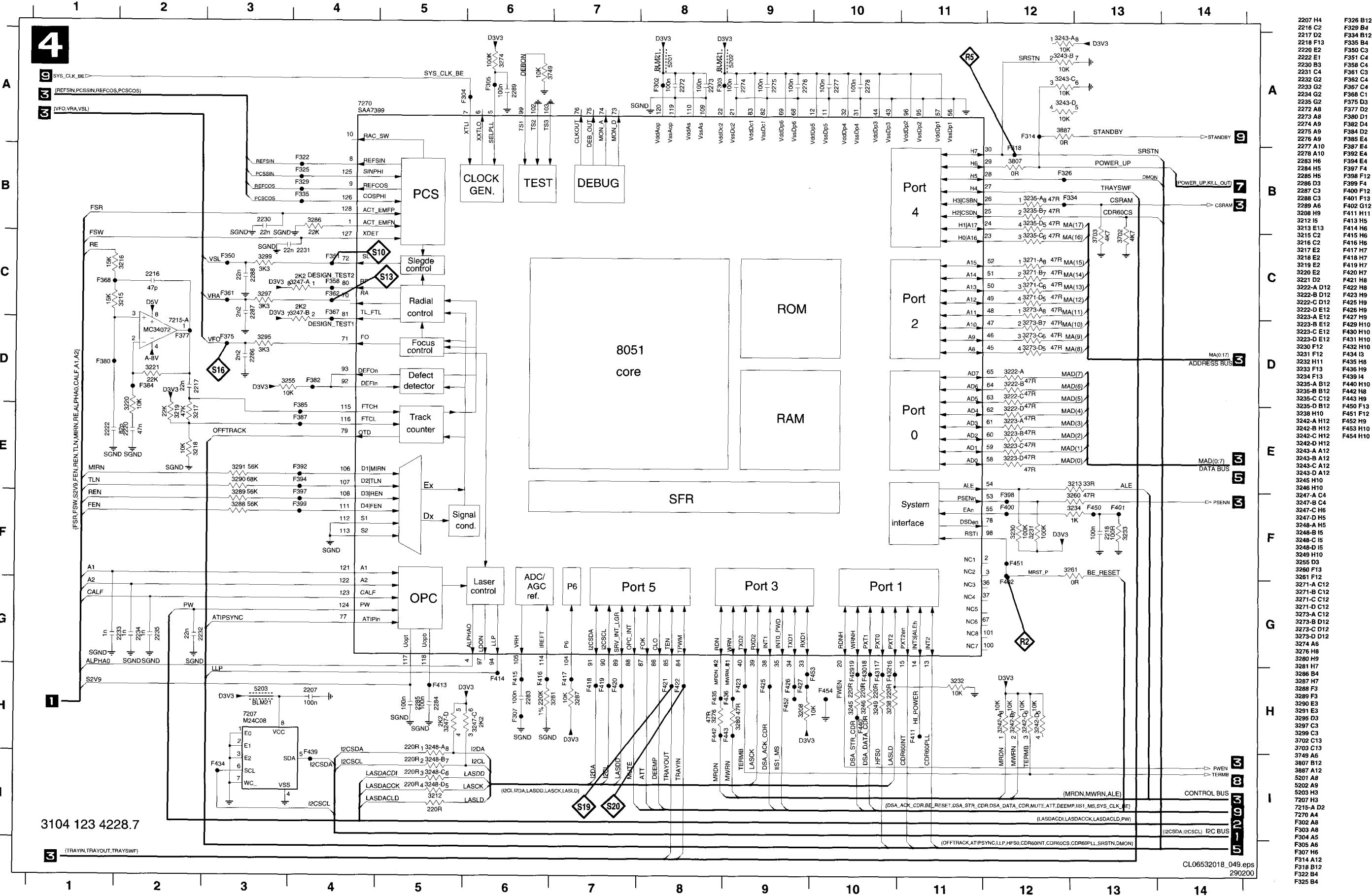
1000 G1	F100 C11
2001 F1	F101 C12
2002 D2	F102 C12
2007 H4	F103 B7
2008 I4	F104 B6
2009 H4	F105 B10
2010 G4	F106 B9
2011 C2	F107 B6
2012 E3	F108 C3
2013 B5	F109 C8
2014 B5	F110 A3
2015 B4	F111 C10
2016 B4	F112 C6
2018 C7	F113 C1
2019 D6	F114 C3
2020 F3	F115 C6
2021 F3	F116 C1
2022 F3	F117 C3
2023 G9	F118 C6
2024 F12	F119 C1
2025 E9	F120 C3
2026 C7	F121 C1
2027 B7	F122 D9
2028 C8	F123 C3
2029 B8	F124 C1
2030 B8	F125 D6
2039 A13	F126 D3
2042 C6	F127 D7
2057 D14	F128 D1
2058 D14	F129 D3
2059 H9	F130 D6
2060 B7	F131 D1
2061 D12	F132 D3
2125 C11	F133 D3
3000 B2	F134 D6
3001 C2	F135 D6
3002 D2	F136 D3
3003 I4	F137 D10
3004 H4	F138 D10
3006 D2	F139 E6
3008 H4	F140 E6
3010 G4	F141 E3
3012 E7	F142 E2
3014 D3	F143 E3
3015 D6	F144 E9
3016 C11	F145 E3
3017 C12	F146 E3
3019 H9	F147 E1
3020 I10	F148 F3
3021 I11	F149 F1
3022 I11	F150 F7
3023 I11	F151 F2
3024 I11	F152 F12
3025 I11	F153 F1
3026 I11	F154 F3
3027 I10	F155 F5
3028 I10	F156 F1
3029 I10	F157 F4
3030 I10	F158 F5
3031 I10	F159 F5
3032 F9	F160 F9
3033 F9	F161 F1
3039 F13	F162 G12
3040 C9	F163 G1
3041 F13	F164 G12
3048 F13	F165 G1
3049 A9	F166 G9
3050 B9	F167 G9
3051 A9	F168 G9
3052 A7	F169 G9
3053 A7	F170 G9
3054 B7	F171 G9
3055 H9	F172 G12
3065 C6	F173 G12
3068 A13	F174 G12
3069 A12	F175 G12
3079 C13	F176 G5
3102 G5	F177 G6
3103 D6	F178 G6
3104 E6	F179 E6
3105 E6	F180 E6
3106 I4	F181 H4
3107 H4	F182 B11
3113 D12	F183 D12
3114 C12	F184 C12
3115 C11	F185 C11
3123 B13	F186 B13
3130 F6	F187 F6
3131 F7	F188 F7
5008 E8	F189 E8
6002 C11	F190 C11
7005-A B14	F191 B14
7008 E9	F192 E9
7010 B4	F193 B4
7050-A B9	F194 B9
7050-B C9	F195 C9
7050-C E6	F196 E6
7050-D D13	F197 D13
7104 B12	F198 B12
7119 A8	F199 A8
7120 A8	F200 A8
7126-A C11	F201 C11
7126-B C12	F202 C12
7126-C B8	F203 B8
7126-D C8	F204 C8
7127 B13	F205 B13
7133 B13	F206 B13
7355-C A11	F207 A11
7355-D E12	F208 E12
F100 A11	F209 A11
F101 B12	F210 B12
F102 B12	F211 B12
F103 B12	F212 B12
F104 B14	F213 B14
F107 C11	F214 C11
F108 C13	F215 C13



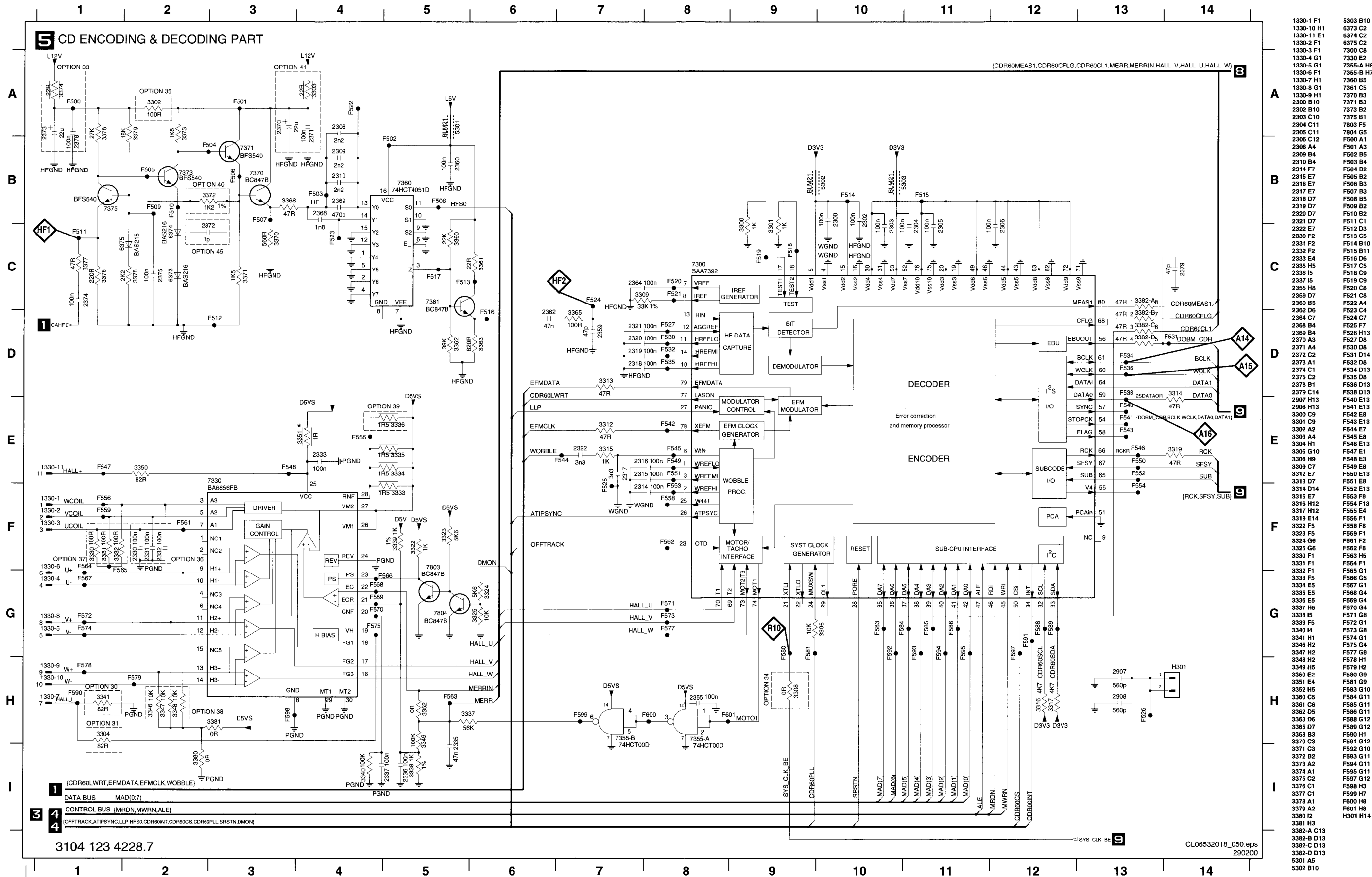
CDR MAIN BOARD - CIRCUIT DIAGRAM 3 : SERVO DRIVERS, MACE-RAM, -FLASH, -DEMUX TEST POINTS



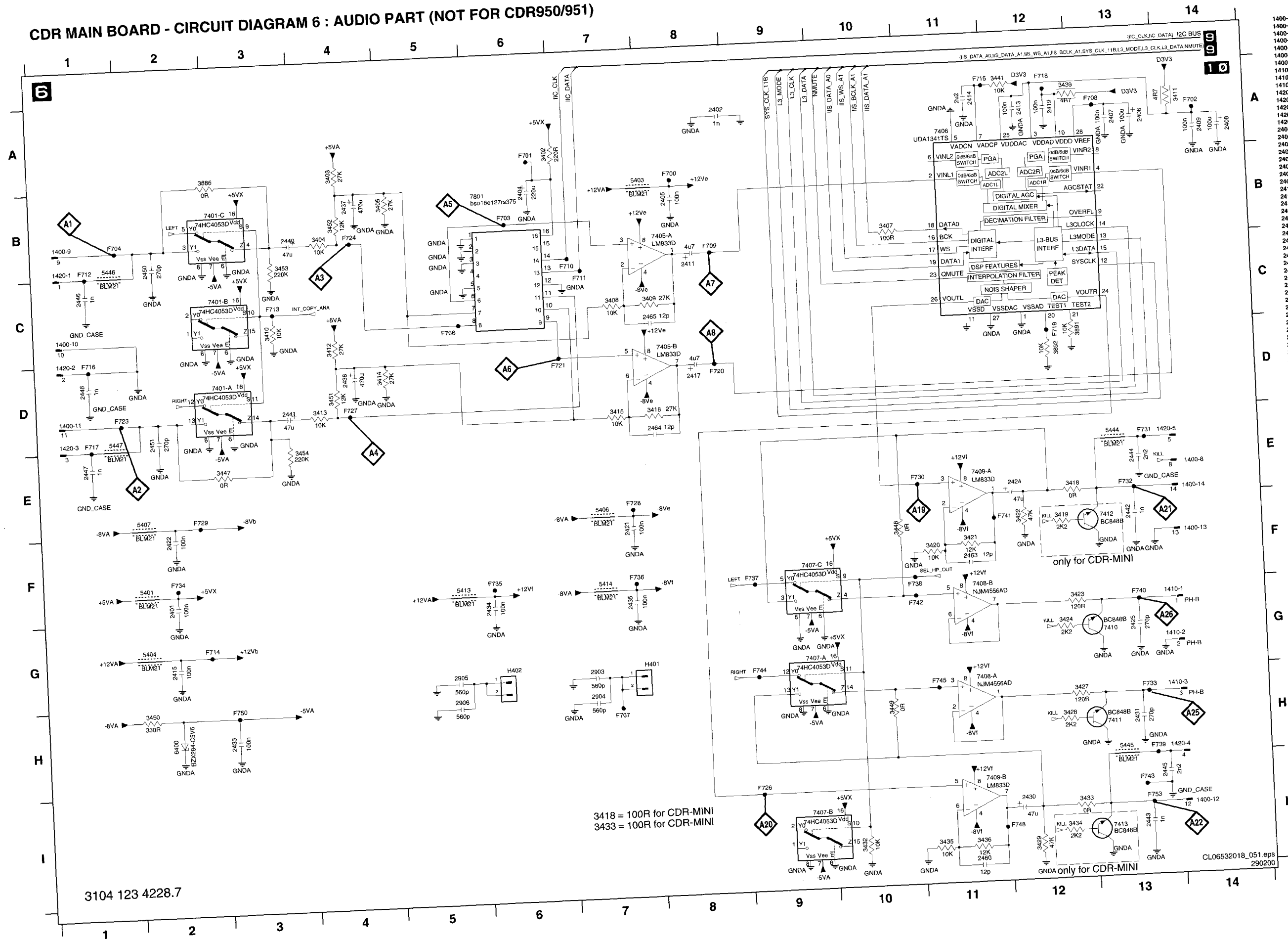
CDR MAIN BOARD - CIRCUIT DIAGRAM 4 : MACE BE-PROCESSOR TESTPOINTS



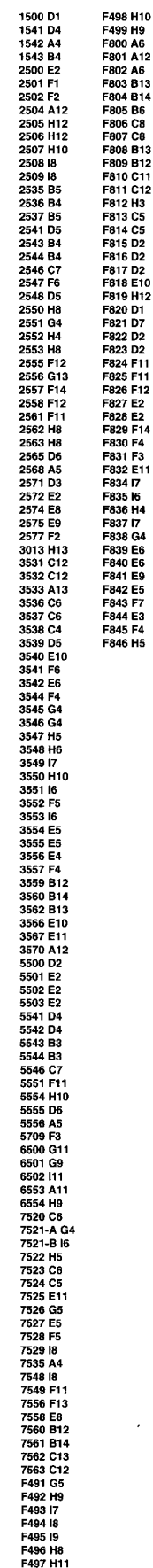
CDR MAIN BOARD - CIRCUIT DIAGRAM 5 : CD ENCODING-DECODING PART

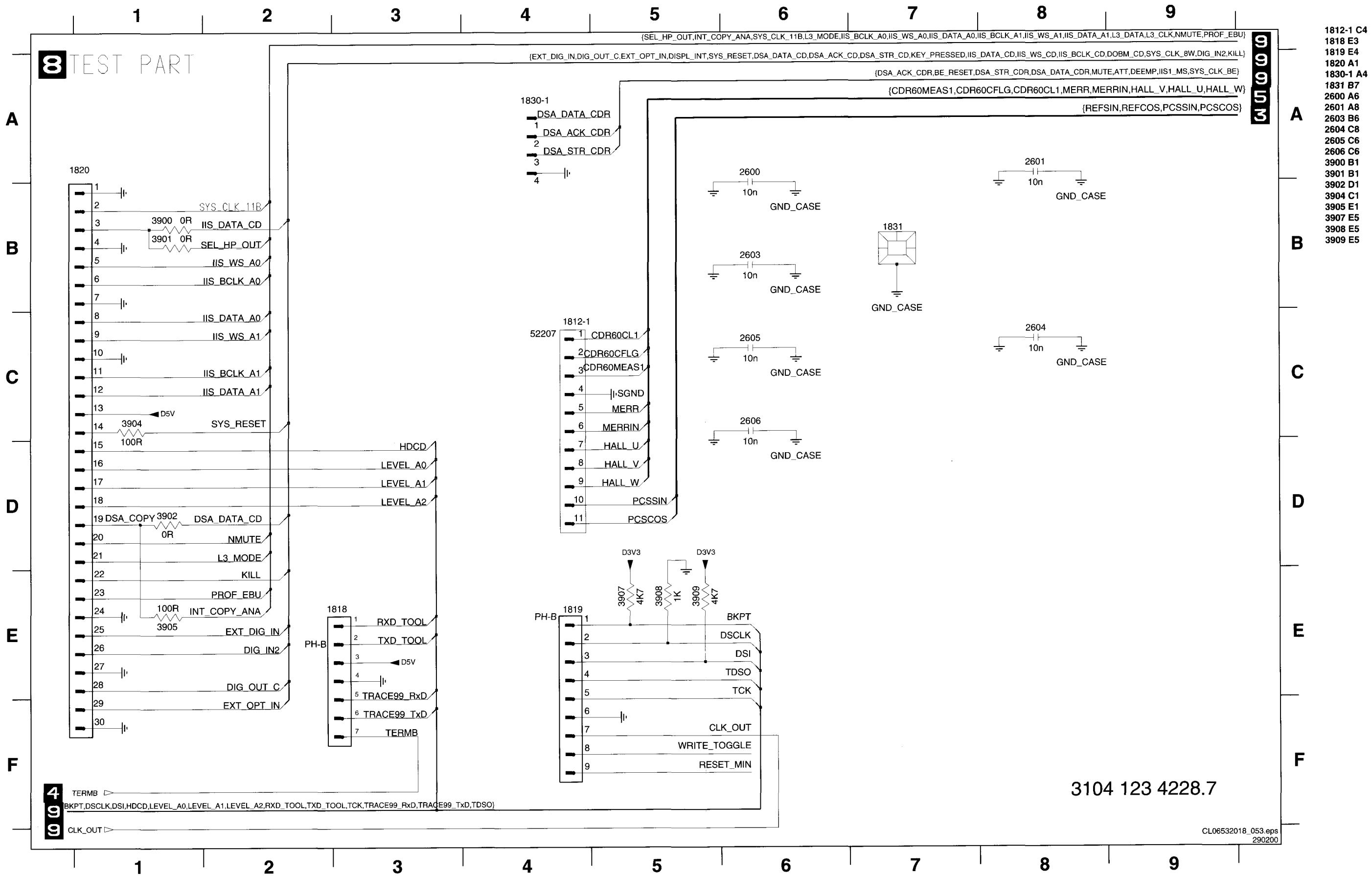


CDR MAIN BOARD - CIRCUIT DIAGRAM 6 : AUDIO PART (NOT FOR CDR950/951)



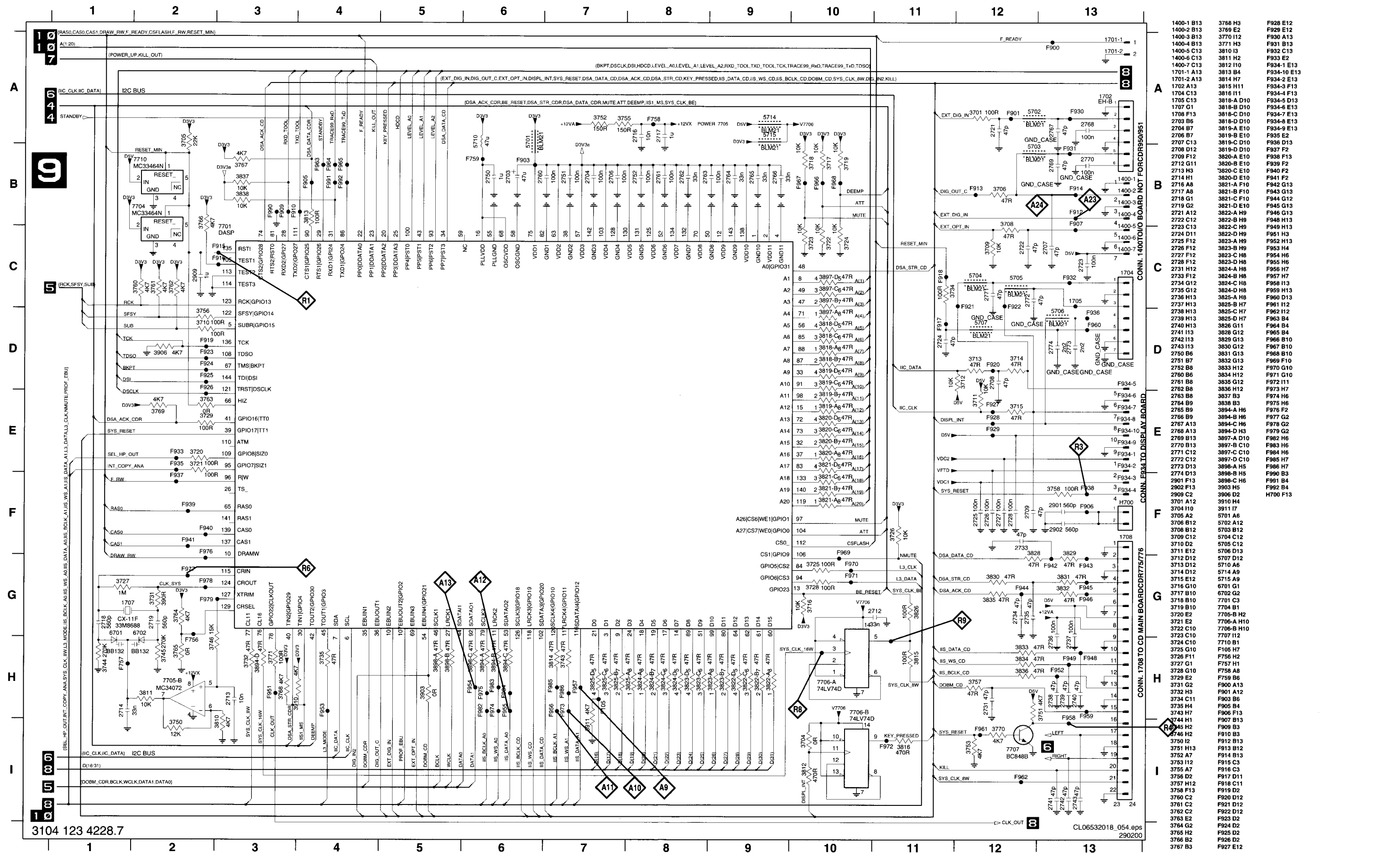
7 POWER PART



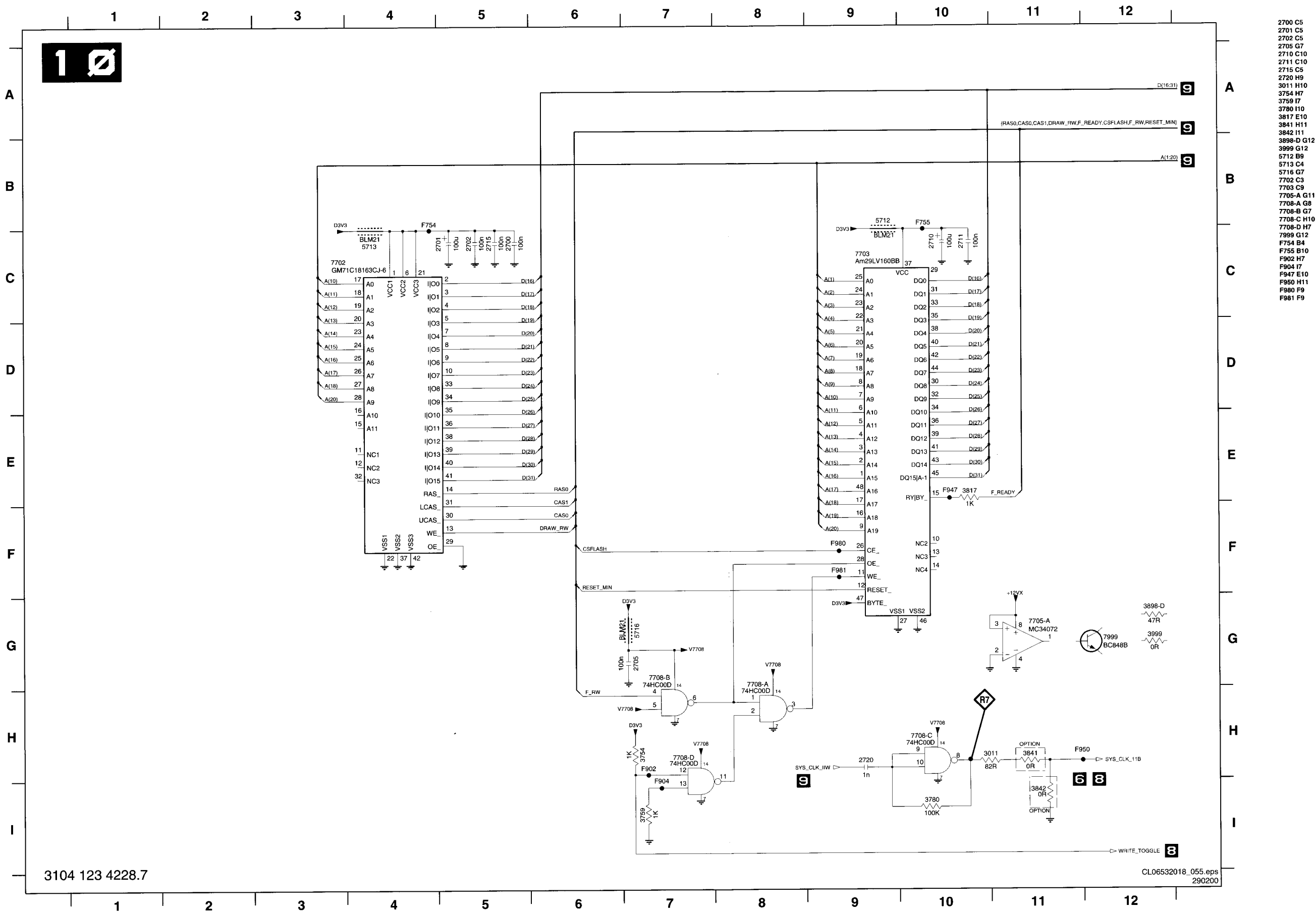


- 1812-1 C4
- 1818 E3
- 1819 E4
- 1820 A1
- 1830-1 A4
- 1831 B7
- 2600 A6
- 2601 A8
- 2603 B6
- 2604 C8
- 2605 C6
- 2606 C6
- 3900 B1
- 3901 B1
- 3902 D1
- 3904 C1
- 3905 E1
- 3907 E5
- 3908 E5
- 3909 E5

CDR MAIN BOARD - CIRCUIT DIAGRAM 9 : DASP MASTER PROCESSOR TESTPOINTS

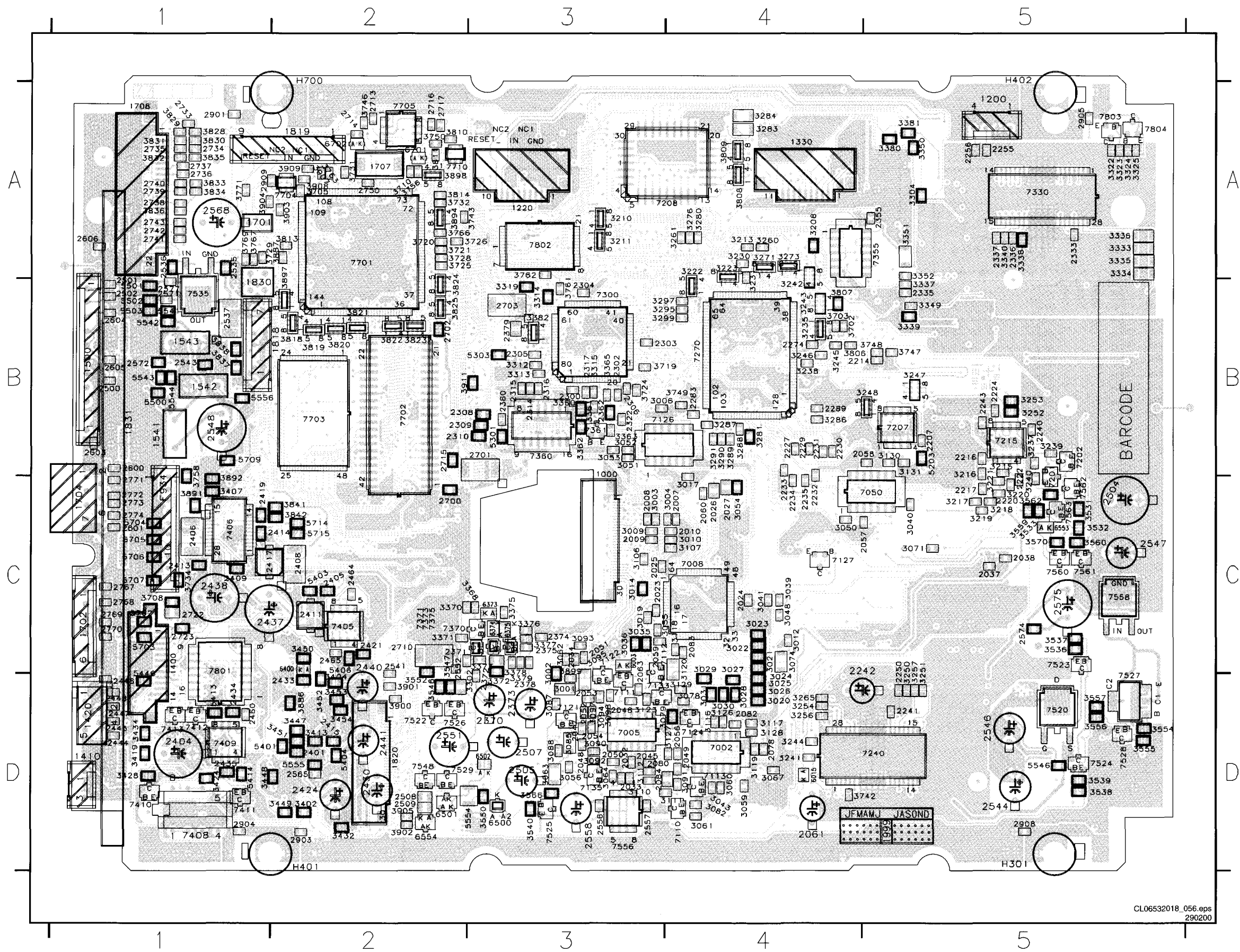


CDR MAIN BOARD - CIRCUIT DIAGRAM 10 : DASP FLASH & DRAM TESTPOINTS



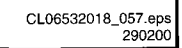
- 2700 C5
- 2701 C5
- 2702 C5
- 2705 G7
- 2710 C10
- 2711 C10
- 2715 C5
- 2720 H9
- 3011 H10
- 3754 H7
- 3759 I7
- 3780 I10
- 3817 E10
- 3841 H11
- 3842 I11
- 3898-D G12
- 3999 G12
- 5712 B9
- 5713 C4
- 5716 G7
- 7702 C3
- 7703 C9
- 7705-A G11
- 7708-A G8
- 7708-B G7
- 7708-C H10
- 7708-D H7
- 7999 G12
- F754 B4
- F755 B10
- F902 H7
- F904 I7
- F947 E10
- F950 H11
- F980 F9
- F981 F9

CDR MAIN BOARD .7 - TOP VIEW



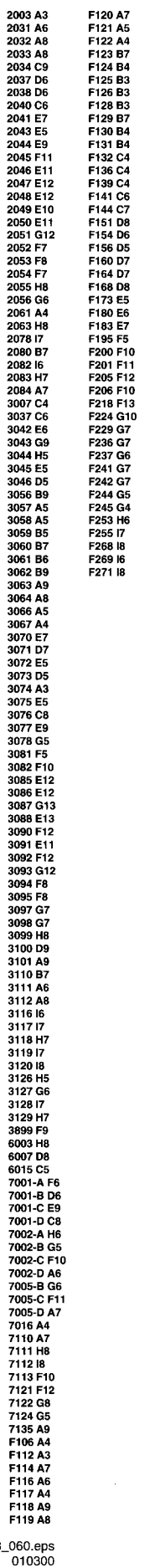
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290200

1 2 3 4 5

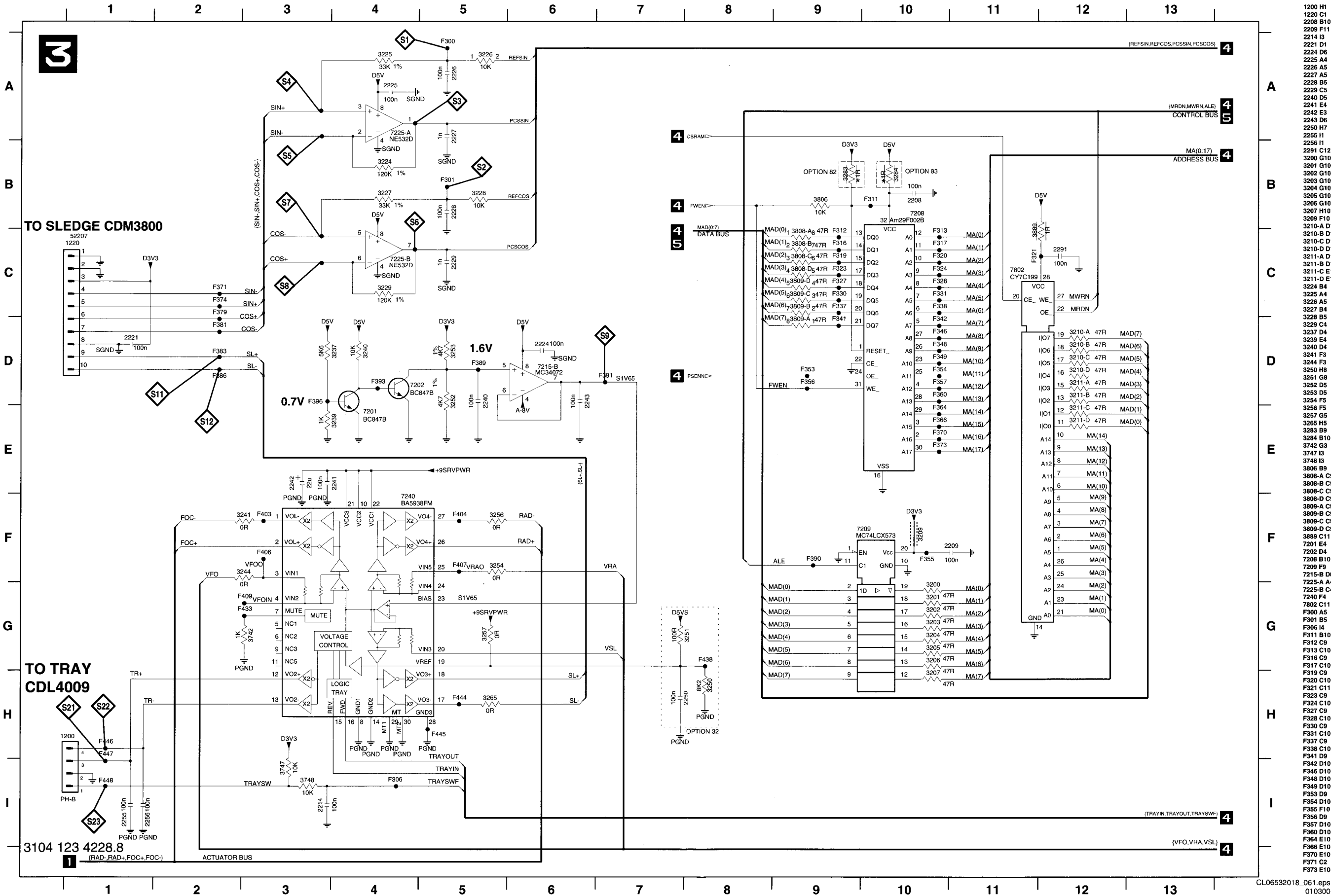
[illegible]

CDR MAIN BOARD - CIRCUIT DIAGRAM 1 : AEGER, EFMTIM, FORWARD SENSE CIRCUIT TESTPOINTS





CDR MAIN BOARD - CIRCUIT DIAGRAM 3 : SERVO DRIVERS, MACE-RAM, -FLASH, -DEMUX TEST POINTS

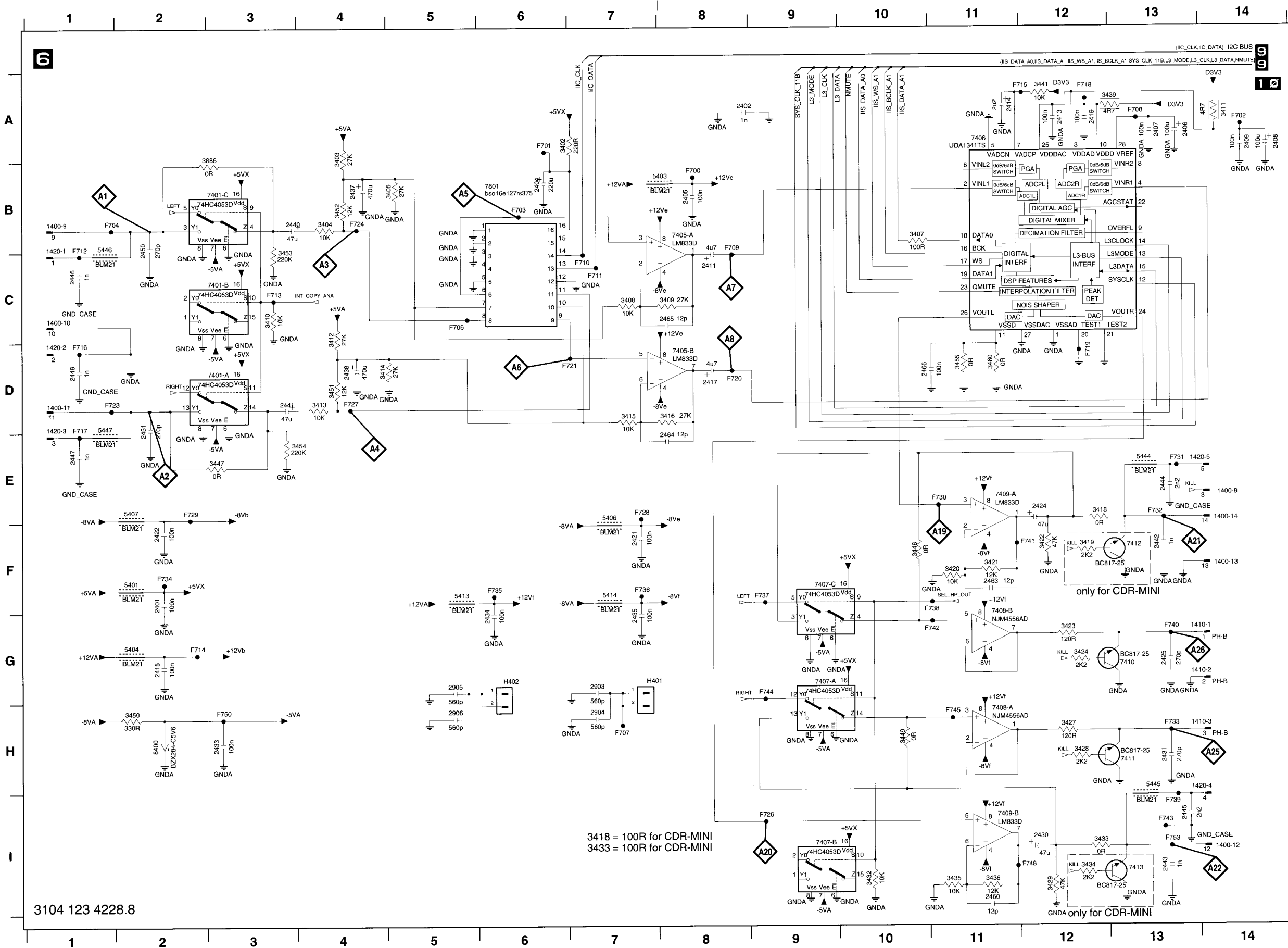


1200 H1	F374 C2
1220 C1	F379 C2
2208 B10	F381 D2
2209 F11	F383 D2
2214 I3	F386 D2
2221 D1	F389 D5
2224 D6	F390 F9
2225 A4	F391 D7
2226 A5	F393 D4
2227 A5	F396 D3
2228 B5	F403 F3
2229 C5	F404 F5
2240 D5	F406 F3
2241 E4	F407 F5
2242 E3	F409 G3
2243 D6	F433 G3
2250 H7	F438 G8
2255 I1	F444 H5
2256 I1	F445 H5
2291 C12	F446 H1
3200 G10	F447 H1
3201 G10	F448 I1
3202 G10	
3203 G10	
3204 G10	
3205 G10	
3206 G10	
3207 H10	
3209 F10	
3210-A D12	
3210-B D12	
3210-C D12	
3210-D D12	
3211-A D12	
3211-B D12	
3211-C E12	
3211-D E12	
3224 B4	
3225 A4	
3226 A5	
3227 B4	
3228 B5	
3229 C4	
3237 D4	
3239 E4	
3240 D4	
3241 F3	
3244 F3	
3250 H8	
3251 G8	
3252 D5	
3253 D5	
3254 F5	
3255 F5	
3257 G5	
3265 H5	
3283 B9	
3284 B10	
3742 G3	
3747 I3	
3748 I3	
3806 B9	
3808-A C9	
3808-B C9	
3808-C C9	
3808-D C9	
3809-A C9	
3809-B C9	
3809-C C9	
3809-D C9	
3889 C11	
7201 E4	
7202 D4	
7208 B10	
7209 F9	
7215-B D6	
7225-A A4	
7225-B C4	
7240 F4	
7802 C11	
F300 A5	
F301 B5	
F306 I4	
F311 B10	
F312 C9	
F313 C10	
F316 C9	
F317 C10	
F319 C9	
F320 C10	
F321 C11	
F323 C9	
F324 C10	
F327 C9	
F328 C10	
F330 C9	
F331 C10	
F337 C9	
F338 C10	
F341 D9	
F342 D10	
F346 D10	
F348 D10	
F349 D10	
F353 D9	
F354 D10	
F355 F10	
F357 D10	
F360 D10	
F364 E10	
F366 E10	
F370 E10	
F371 C2	
F373 E10	

2207 H4	F326 B12
2209 C2	F329 B4
2217 D2	F334 B12
2218 F13	F335 B4
2220 E2	F350 C3
2222 E1	F351 C4
2230 B3	F358 C4
2231 C4	F361 C3
2232 G2	F362 C4
2233 G2	F367 C4
2234 G2	F368 C1
2237 A8	F375 D3
2272 A8	F377 D2
2273 A8	F380 D1
2274 A9	F382 D4
2275 A9	F384 D2
2276 A9	F385 E4
2277 A10	F387 E4
2278 A10	F392 E4
2283 H6	F394 E4
2284 H5	F397 F4
2285 H5	F398 F12
2286 D3	F400 F4
2287 C3	F409 F12
2288 C3	F401 F3
2289 A6	F402 G12
2306 H9	F411 H11
2312 I5	F413 H5
2313 E13	F414 H6
2315 C2	F415 H6
2316 C2	F416 H9
2317 C2	F417 H7
2318 E2	F418 H7
2319 E2	F419 H7
2320 E2	F420 H7
2321 D2	F421 H6
2322-A D12	F422 H6
2322-B D12	F423 H9
2322-C D12	F425 H9
2322-D E12	F426 H9
2322-A E12	F427 H8
2322-B E12	F429 H10
2323-C E12	F430 H10
2323-D E12	F431 H10
2330 F12	F432 H10
2331 F12	F434 I3
2332 H11	F435 H6
2333 F13	F436 H9
2334 F13	F439 I4
2335-A B12	F440 H10
2335-B B12	F442 H8
2335-C B12	F443 H9
2335-D B12	F450 F13
2336 H10	F451 F12
2342-A H12	F452 H9
2342-B H12	F453 H9
2342-C H12	F454 H10
2343-A A12	
2343-B A12	
2343-C A12	
2343-D A12	
2345 H10	
2346 H10	
2347-A C4	
2347-B C4	
2347-C H6	
2347-D H5	
2348-A H5	
2348-B H5	
2348-C H5	
2348-D H5	
2349 H10	
3255 D3	
3260 F13	
3261 F12	
3271-A C12	
3271-B C12	
3271-C C12	
3273-A C12	
3273-B D12	
3273-C D12	
3273-D D12	
3274 A6	
3276 H8	
3280 H9	
3281 H7	
3286 B4	
3287 H7	
3288 F3	
3290 F3	
3290 E3	
3291 E3	
3295 D3	
3297 C3	
3299 C3	
3702 C13	
3749 A6	
3807 B12	
3867 A12	
5201 A8	
5202 A9	
5203 H3	
7207 H3	
7215-A D2	
F302 A8	
F303 A8	
F304 A5	
F307 H6	
F314 A12	
F318 B12	
F322 B4	
F325 B4	

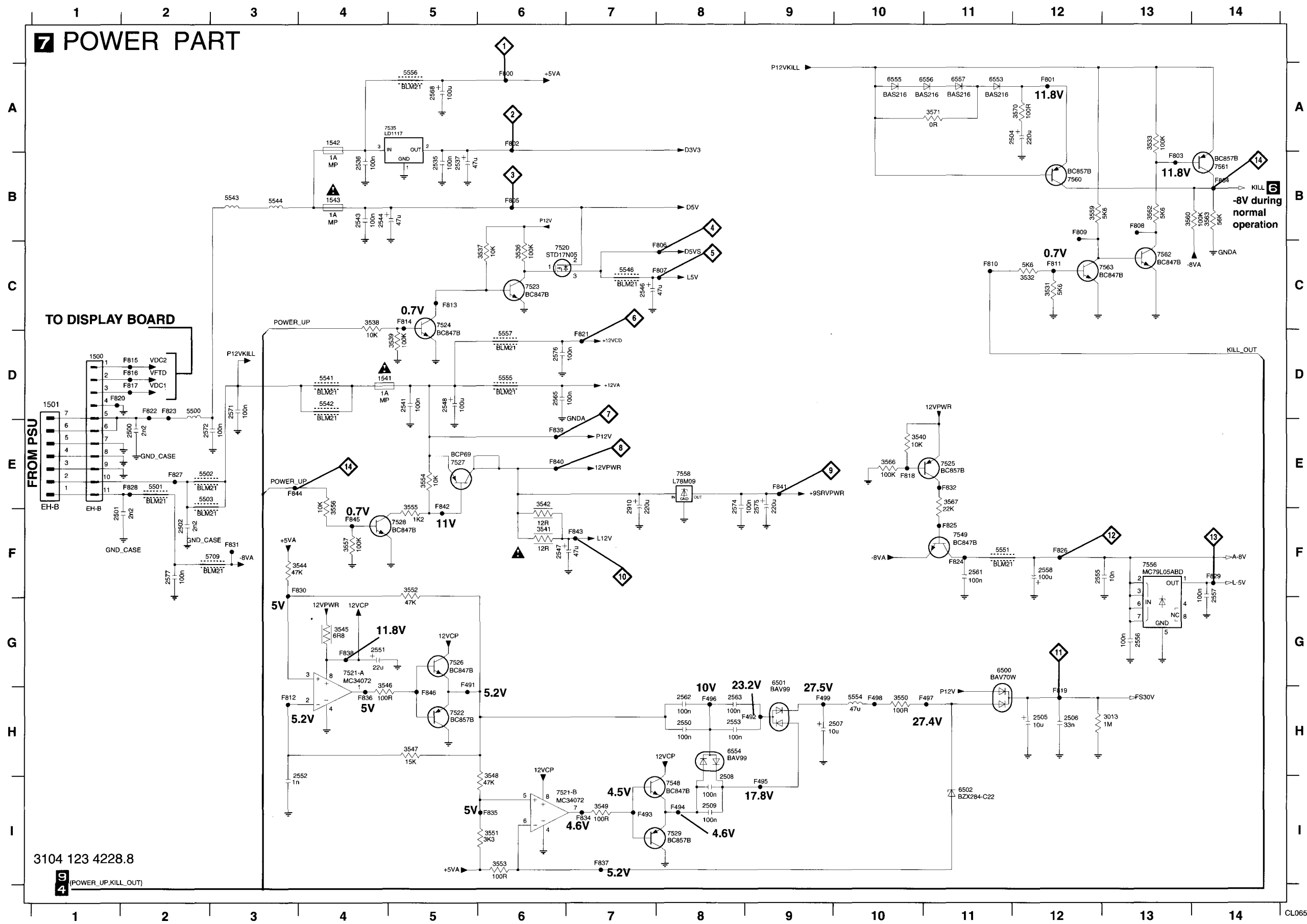
1330-1 F1	6373 C2
1330-10 H1	6374 C2
1330-11 E1	6375 C2
1330-2 F1	7300 C8
1330-3 F1	7330 E3
1330-4 G1	7355-A H8
1330-5 G1	7355-B H7
1330-6 F1	7360 B5
1330-7 H1	7361 C5
1330-8 H1	7370 B3
1330-9 H1	7371 B3
2300 B10	7373 B2
2302 B10	7375 B1
2303 C10	7803 F5
2304 C11	7804 G5
2305 C11	F500 A1
2306 C12	F501 A3
2308 A4	F502 B5
2308 B4	F503 B4
2310 B4	F504 B3
2314 F7	F505 B2
2315 E7	F506 B3
2316 E7	F507 B3
2317 E7	F508 B5
2318 D7	F509 B2
2319 D7	F510 B2
2320 D7	F511 C1
2321 D7	F512 D3
2322 E7	F513 C5
2323 F2	F514 C5
2331 F2	F515 B11
2332 E2	F516 D6
2333 F4	F517 C5
2335 H5	F518 C9
2336 I5	F519 C9
2337 I5	F520 C8
2338 H5	F521 C8
2339 D5	F522 C4
2360 B5	F523 A4
2362 D6	F524 C7
2363 D6	F525 F7
2368 B4	F526 H13
2369 B4	F527 D8
2370 A3	F530 D8
2371 A3	F531 D14
2372 C4	F532 D8
2373 A1	F534 D13
2374 C1	F535 D6
2375 C2	F536 D13
2378 B1	F538 D13
2379 B1	F540 E13
2380 H13	F541 F7
2908 H13	F542 E8
3300 C9	F543 I3
3301 C9	F544 E7
3302 A2	F545 E8
3303 A4	F546 E13
3304 H1	F547 E1
3305 G10	F548 E3
3308 H8	F549 E8
3309 C7	F560 E13
3310 E7	F561 E8
3313 D7	F562 E13
3314 D14	F563 F8
3315 E7	F554 F3
3316 H12	F555 E4
3317 H12	F556 F1
3319 E14	F558 F8
3322 F5	F559 F1
3323 F5	F561 F2
3324 G6	F562 F8
3325 G6	F563 H5
3326 F1	F564 F1
3331 F1	F565 G1
3332 F1	F566 G5
3333 F5	F567 G1
3334 E5	F568 G4
3335 E5	F569 G4
3336 E5	F570 G4
3338 I6	F571 G8
3339 I6	F572 G1
3340 F4	F573 G8
3341 H1	F574 G1
3342 H2	F575 G4
3343 H2	F577 G8
3344 H2	F578 H1
3348 H5	F579 H2
3350 E2	F581 G9
3351 E4	F583 G10
3352 H5	F584 G11
3360 C5	F585 G11
3361 C6	F586 G11
3362 D6	F588 G12
3363 D6	F589 G12
3365 D7	F590 H1
3368 B3	F591 G12
3370 C3	F592 G10
3371 C3	F593 G11
3372 B3	F594 G11
3373 A2	F595 G11
3374 A1	F597 G12
3375 C2	F598 H3
3376 C1	F599 H7
3377 C1	F600 H8
3381 A1	F601 H8
3379 A2	H301 H4
3380 I2	
3381 H3	
3382-A C13	
3382-B D13	
3382-C D13	
3382-D D13	
3301 A5	
5302 B10	
5303 B10	

CDR MAIN BOARD - CIRCUIT DIAGRAM 6 : AUDIO PART (NOT FOR CDR950/951)

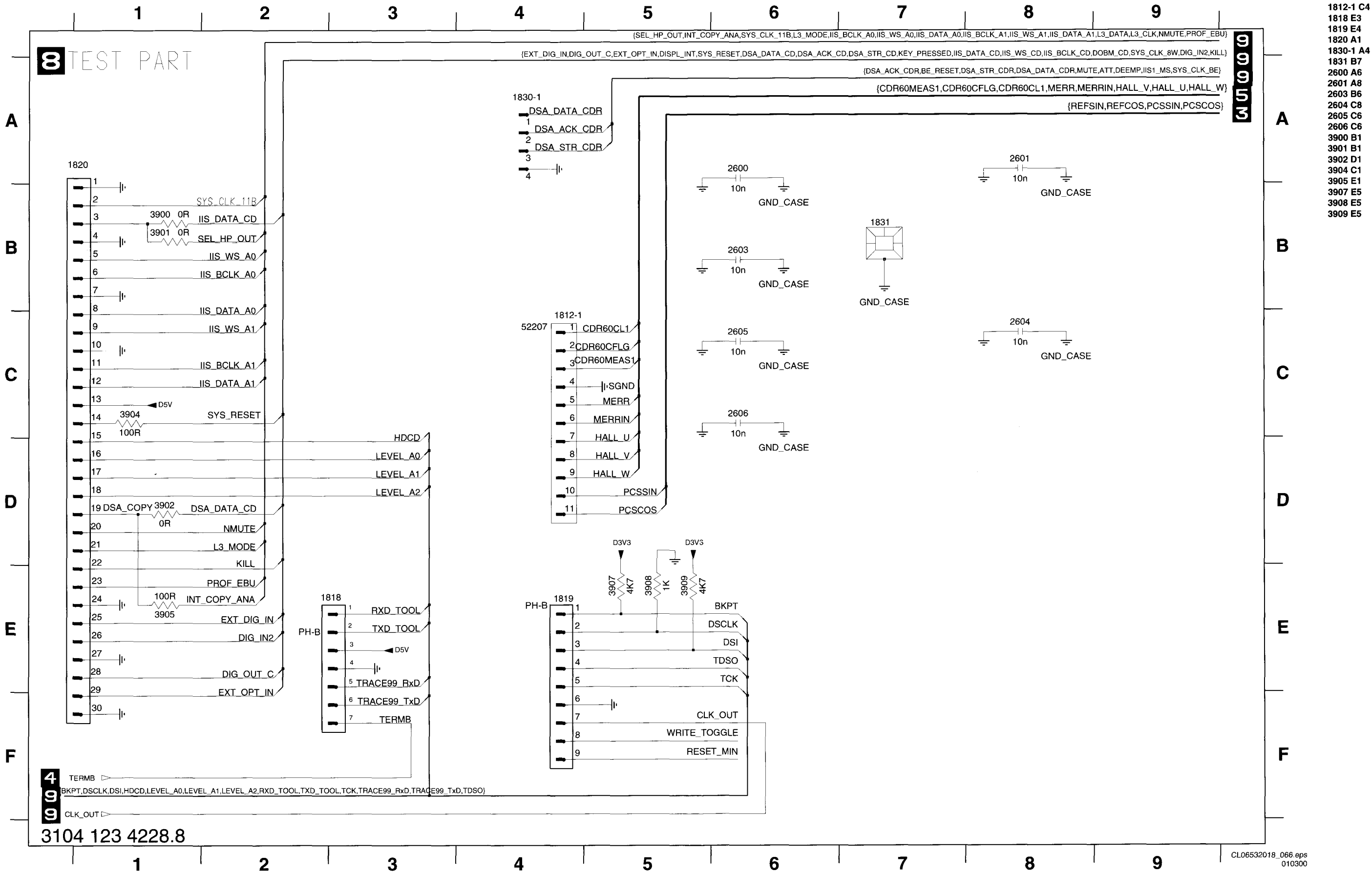


1400-10 C1	7405-B D8
1400-11 D1	7406 A11
1400-12 H4	7407-A G9
1400-13 F14	7407-B I9
1400-14 F14	7407-C F9
1400-8 E14	7408-A H11
1400-9 B1	7408-B G11
1410-1 G14	7409-A E11
1410-2 G14	7409-B I11
1410-3 H14	7410 G13
1420-1 B1	7411 H13
1420-2 D1	7412 F13
1420-3 D1	7413 I13
1420-4 H14	7801 B6
1420-5 E14	7700 B8
2401 F2	7701 A6
2402 A8	7702 A14
2404 B6	7703 B6
2405 B8	7704 B1
2406 A13	7706 C5
2407 A13	7707 H7
2408 A14	7708 A13
2409 A14	7709 B8
2411 C8	7710 C7
2413 A12	7711 C7
2414 A11	7712 B1
2415 C2	7713 C3
2417 D8	7714 G2
2419 A12	7715 A12
2421 F7	7716 D1
2422 F2	7717 D1
2424 E12	7718 A12
2425 G13	7719 D12
2430 H12	7720 D8
2431 H13	7721 D7
2433 H3	7723 D1
2434 G6	7724 B4
2435 G7	7726 I9
2437 B4	7727 D4
2438 D4	7728 E7
2440 B3	7729 E2
2441 D3	7730 E11
2442 F13	7731 E13
2443 I13	7732 E13
2444 E13	7733 H13
2445 I13	7734 F2
2446 C1	7735 F6
2447 E1	7736 F7
2448 D1	7737 F9
2450 B2	7738 F11
2451 D2	7739 I13
2460 I11	7740 G13
2463 F11	7741 F12
2464 E8	7742 G11
2465 C8	7743 I13
2466 D10	7744 G9
2903 G7	7745 H11
2904 H7	7746 I12
2905 G5	7750 H3
2906 H5	7753 I13
3402 A6	H401 G7
3403 A4	H402 G6
3404 B4	
3405 B5	
3407 B10	
3408 C7	
3409 C8	
3410 C3	
3411 A14	
3412 C4	
3413 D4	
3414 D4	
3415 D7	
3416 D8	
3418 E12	
3419 F12	
3420 F11	
3421 F11	
3422 F12	
3423 G12	
3427 H12	
3428 H12	
3429 I12	
3432 I10	
3433 I12	
3434 I12	
3435 I11	
3436 I11	
3439 A13	
3441 A12	
3447 E3	
3448 F10	
3449 H10	
3450 H2	
3451 D4	
3452 B4	
3453 B3	
3454 E4	
3455 D11	
3460 D11	
3886 A3	
5401 F2	
5403 B8	
5404 G2	
5406 E7	
5407 E2	
5413 F5	
5414 F7	
5444 E13	
5445 H13	
5446 B1	
5447 D1	
6400 H2	
7401-A D3	
7401-B C3	
7401-C B3	
7405-A B8	

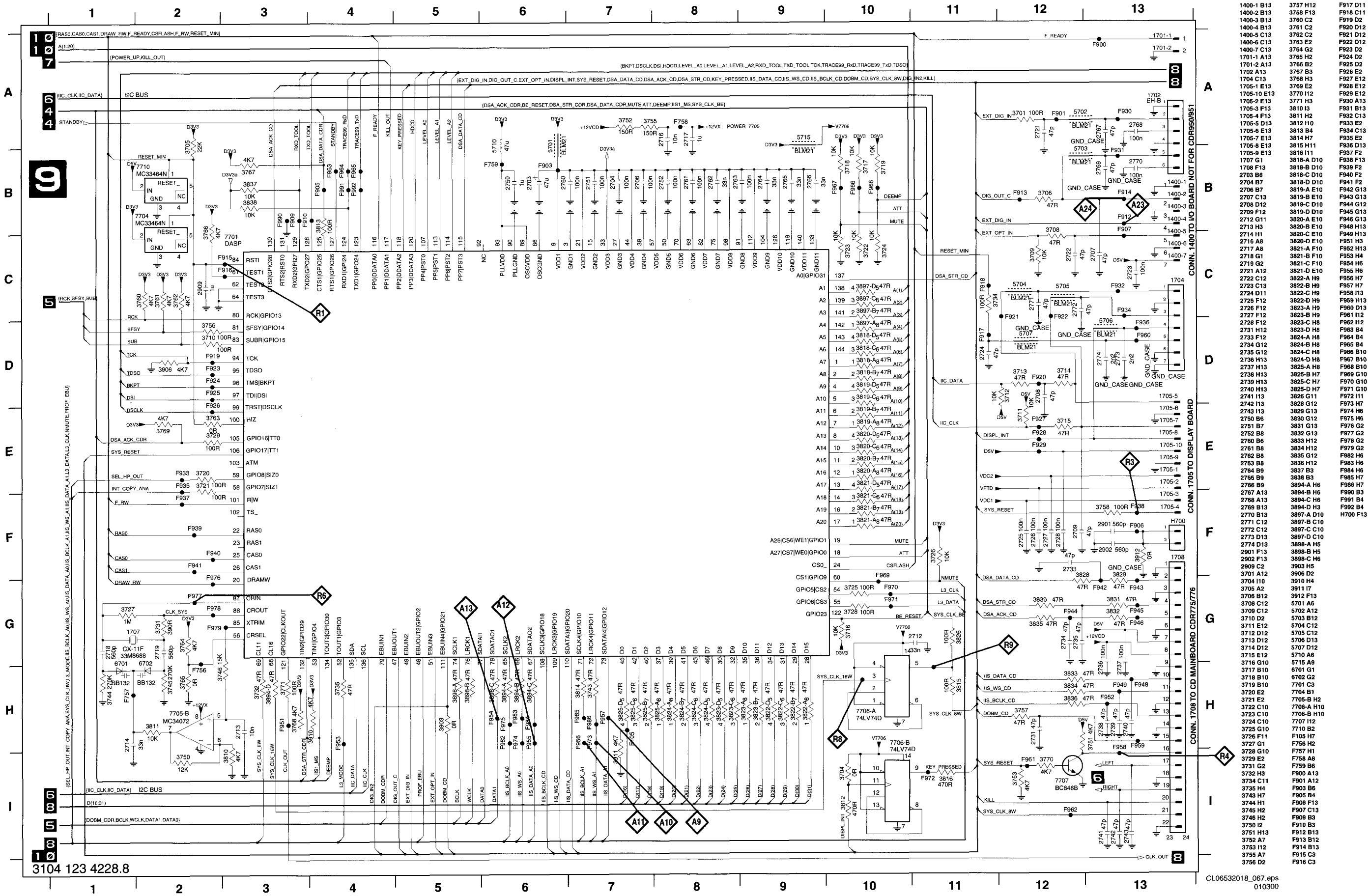
CDR MAIN BOARD - CIRCUIT DIAGRAM 7 : POWER PART TESTPOINTS



- 1500 D1
- 1541 D4
- 1542 A4
- 1543 B4
- 2500 E2
- 2501 F1
- 2502 F2
- 2504 A12
- 2505 H12
- 2506 H12
- 2507 H10
- 2508 I8
- 2509 I8
- 2535 B5
- 2536 B4
- 2537 B5
- 2541 D5
- 2543 B4
- 2544 B4
- 2546 C7
- 2547 F6
- 2548 D5
- 2550 H8
- 2551 G4
- 2552 H4
- 2553 H8
- 2555 F12
- 2556 G13
- 2557 F14
- 2558 F12
- 2561 F11
- 2562 H8
- 2563 H8
- 2565 D6
- 2568 A5
- 2571 D3
- 2572 E2
- 2574 E8
- 2575 E9
- 2576 D6
- 2577 F2
- 2910 E7
- 3013 H13
- 3531 C12
- 3532 C12
- 3533 A13
- 3536 C6
- 3537 C6
- 3538 C4
- 3539 D5
- 3540 E10
- 3541 F6
- 3542 E6
- 3544 F4
- 3545 G4
- 3546 H4
- 3547 H5
- 3548 H6
- 3549 I7
- 3550 H10
- 3551 I6
- 3552 F5
- 3553 I6
- 3554 E5
- 3555 F5
- 3556 E4
- 3557 F4
- 3559 B12
- 3560 B13
- 3562 B13
- 3563 B14
- 3566 E10
- 3567 E11
- 3570 A12
- 3571 A11
- 5500 D2
- 5501 E2
- 5502 E2
- 5503 E2
- 5541 D4
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- 7522 H5
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- 7560 B12
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- F496 H8
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- F811 C12
- F812 H3
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- F815 D2
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- F820 D1
- F821 D7
- F822 D2
- F823 D2
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- F836 H4
- F837 I7
- F838 G4
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- F846 H5

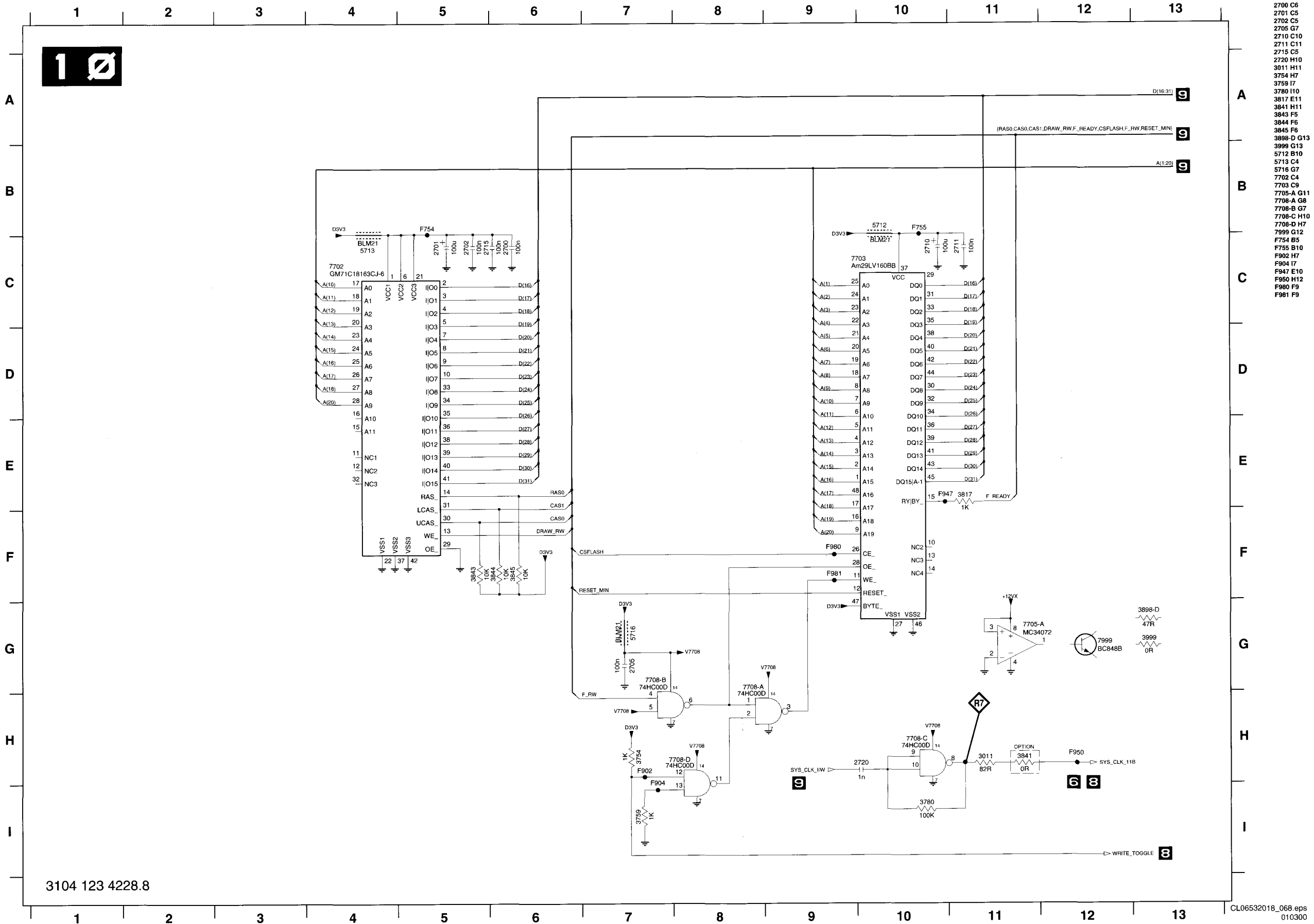


CDR MAIN BOARD - CIRCUIT DIAGRAM 9 : DASP MASTER PROCESSOR TESTPOINTS

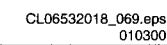


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1400-4 B13	3761 C2	F920 D12
1400-5 C13	3762 C2	F921 D12
1400-6 C13	3763 E2	F922 D12
1400-7 C13	3764 G2	F923 D2
1701-1 A13	3765 H2	F924 D2
1701-2 A13	3766 B2	F925 D2
1702 A13	3767 B3	F926 E2
1704 C13	3768 H3	F927 E12
1705-1 E13	3769 E2	F928 E12
1705-10 E13	3770 H12	F929 E12
1705-2 E13	3771 H3	F930 A13
1705-3 F13	3810 H3	F931 B13
1705-4 F13	3811 H2	F932 C13
1705-5 D13	3812 H10	F933 E2
1705-6 E13	3813 B4	F934 C13
1705-7 E13	3814 H7	F935 E2
1705-8 E13	3815 H11	F936 D13
1705-9 E13	3816 H1	F937 F2
1707 G1	3818-A D10	F938 F13
1708 F13	3818-B D10	F939 F2
2703 B6	3818-C D10	F940 F2
2704 B7	3818-D D10	F941 F2
2706 B7	3819-A E10	F942 G13
2707 C13	3819-B E10	F943 G13
2708 D12	3819-C D10	F944 G12
2709 F12	3819-D D10	F945 G12
2712 G11	3820-A E10	F946 G13
2713 H3	3820-B E10	F948 H13
2714 H1	3820-C E10	F949 H13
2716 A8	3820-D E10	F951 H3
2717 A8	3821-A F10	F952 H13
2718 G1	3821-B F10	F953 H13
2719 G2	3821-C F10	F954 H6
2721 A12	3821-D E10	F955 H6
2722 C12	3822-A H9	F956 H7
2723 C13	3822-B H9	F957 H7
2724 D11	3822-C H9	F958 H13
2725 F12	3822-D H9	F959 H13
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2727 F12	3823-B H9	F961 H12
2728 F12	3823-C H9	F962 H12
2731 H12	3823-D H9	F963 B4
2733 F12	3824-A H8	F964 B4
2734 G12	3824-B H8	F965 B4
2735 G12	3824-C H8	F966 B10
2736 H13	3824-D H8	F967 B10
2737 H13	3825-A H7	F968 B10
2738 H13	3825-B H7	F969 G10
2739 H13	3825-C H7	F970 G10
2740 H13	3825-D H7	F971 G10
2741 H13	3826 G11	F972 H11
2742 H13	3826 H12	F973 H12
2743 H13	3827 H13	F974 H6
2750 B6	3830 G12	F975 H6
2751 B7	3831 G13	F976 G2
2752 B8	3832 G13	F977 G2
2753 B8	3833 H12	F978 G2
2754 B8	3834 H12	F979 G2
2755 B8	3835 G12	F980 H6
2756 B8	3836 H12	F981 H6
2757 B8	3837 B3	F982 H6
2758 B8	3838 B3	F983 H6
2759 B8	3839 B3	F984 H6
2760 B8	3840 B3	F985 H7
2761 B8	3841 B3	F986 H7
2762 B8	3842 B3	F987 B3
2763 B8	3843 B3	F988 B3
2764 B8	3844 B3	F989 B3
2765 B8	3845 B3	F990 B3
2766 B8	3846 B3	F991 B4
2767 B8	3847 B3	F992 B4
2768 B8	3848 B3	F993 B4
2769 B8	3849 B3	F994 B4
2770 B8	3850 B3	F995 B4
2771 B8	3851 B3	F996 B4
2772 B8	3852 B3	F997 B4
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2774 B8	3854 B3	F999 B4
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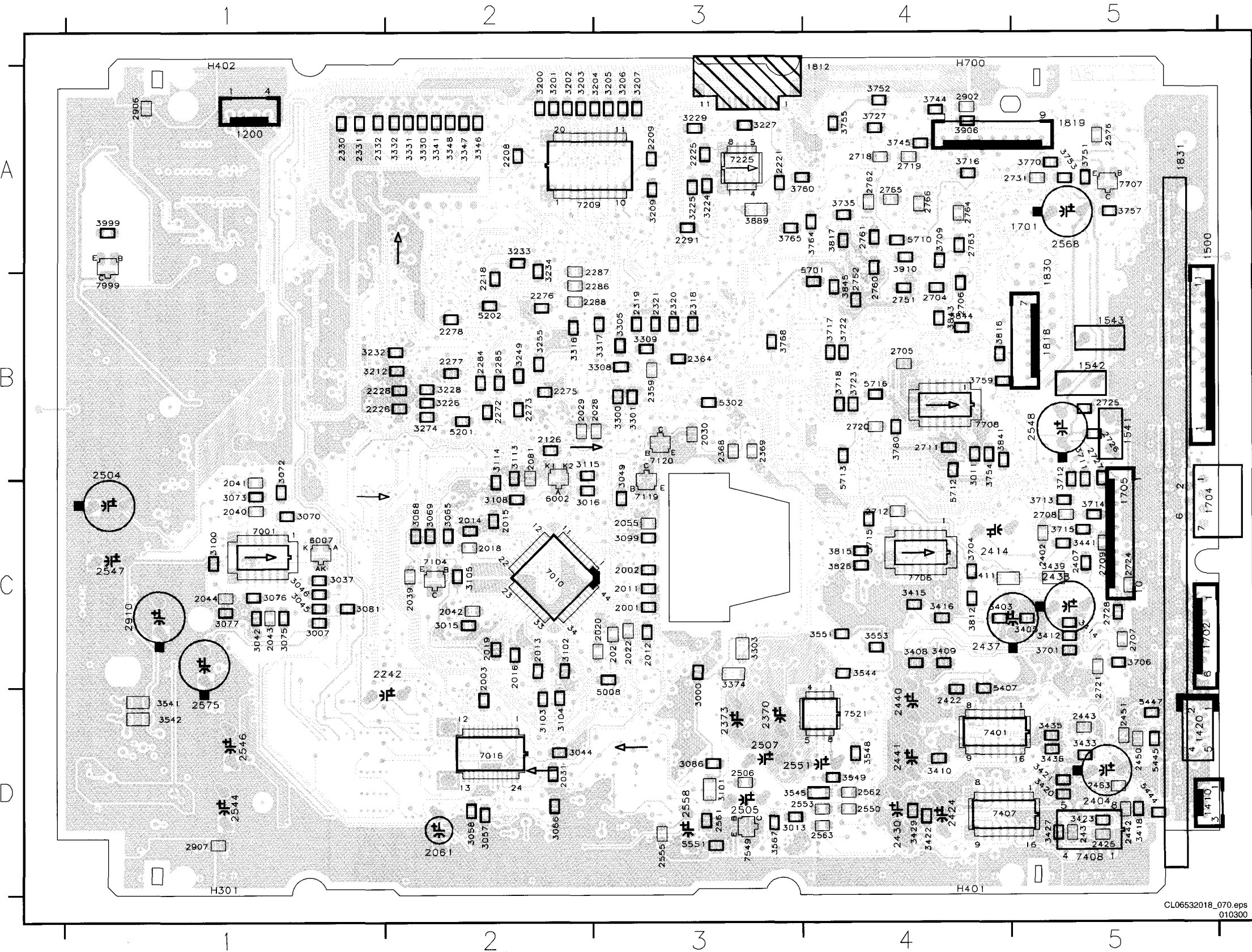
CDR MAIN BOARD - CIRCUIT DIAGRAM 10 : DASP FLASH & DRAM TESTPOINTS



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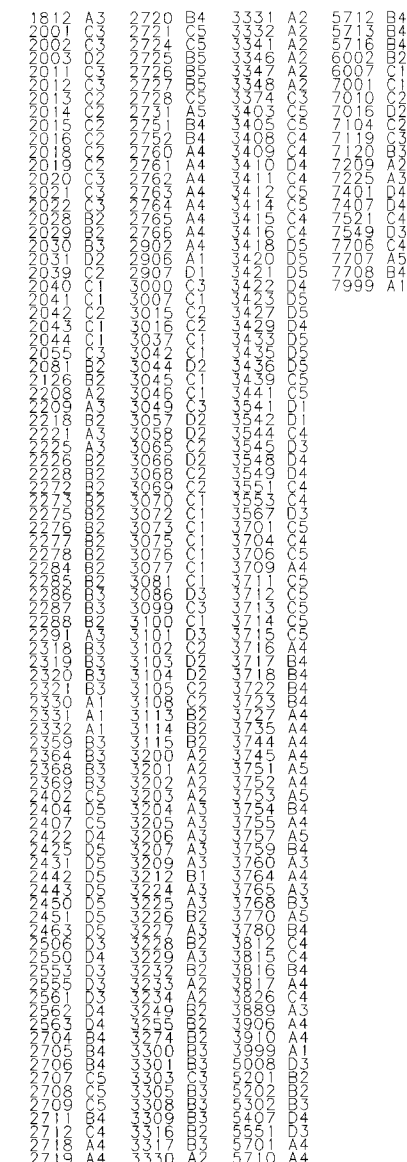
CDR MAIN BOARD .8 - BOTTOM VIEW



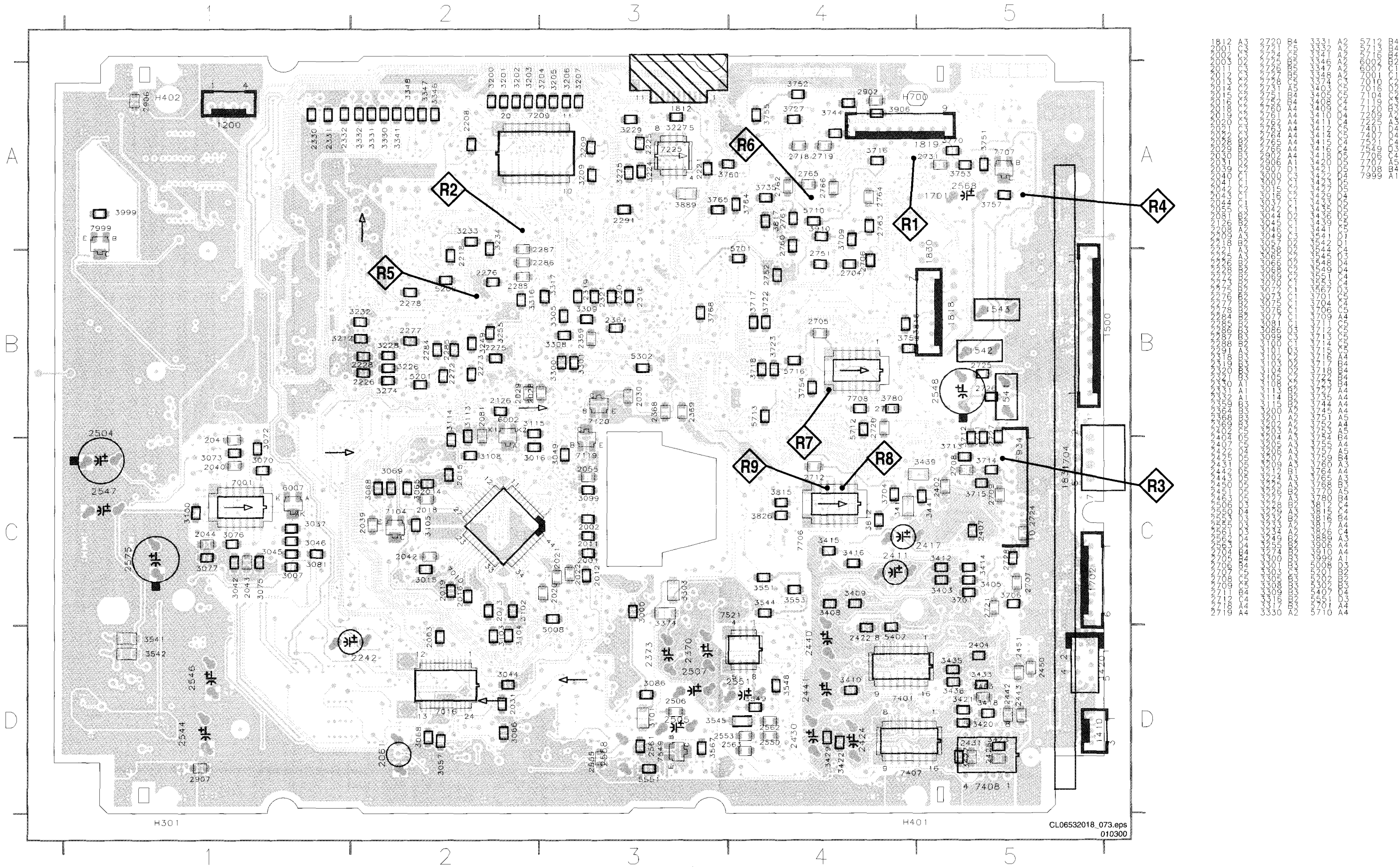
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

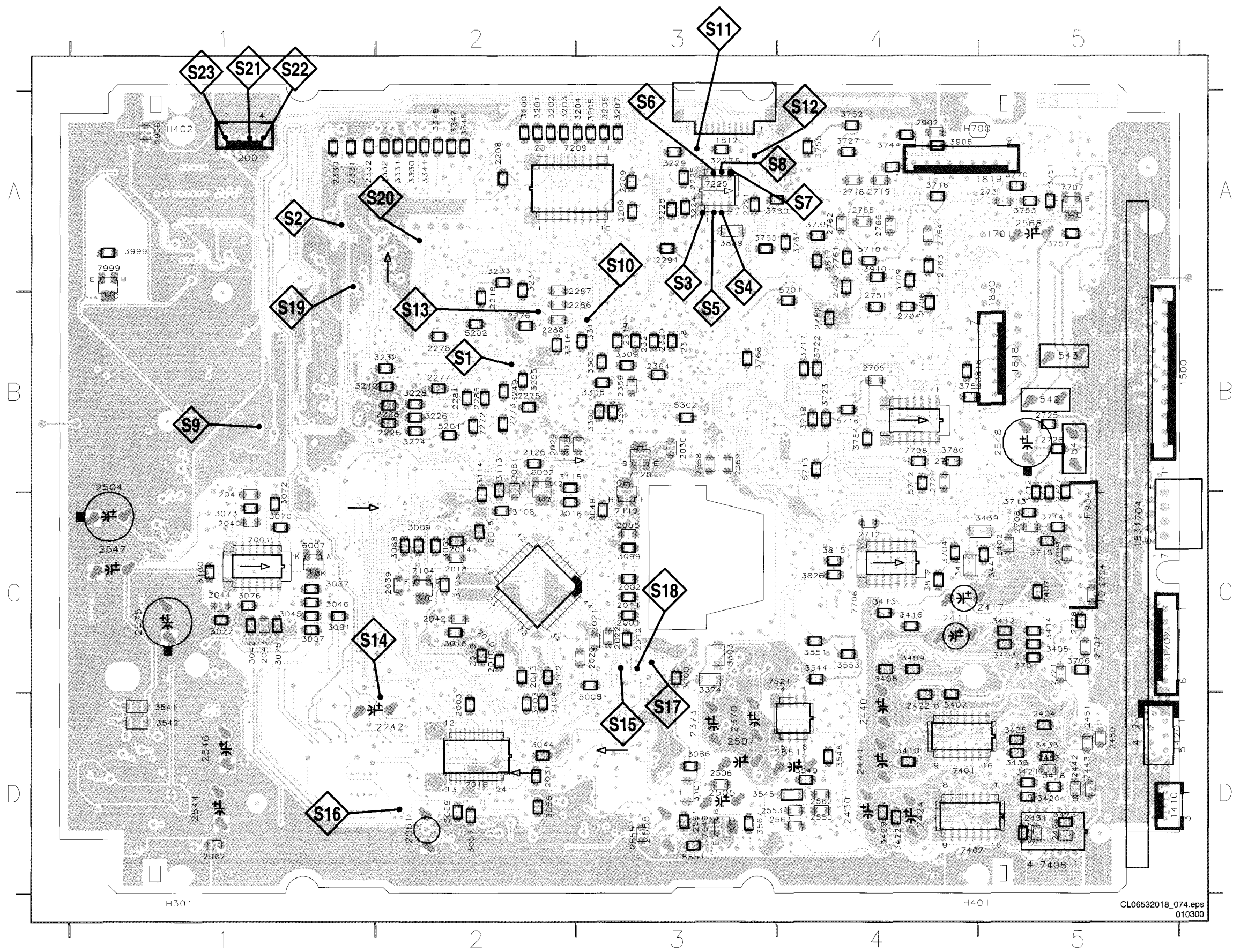
CDR MAIN BOARD - BOTTOM VIEW : POWER PART TESTPOINTS



CDR MAIN BOARD - BOTTOM VIEW : RESET & CLOCK TESTPOINTS



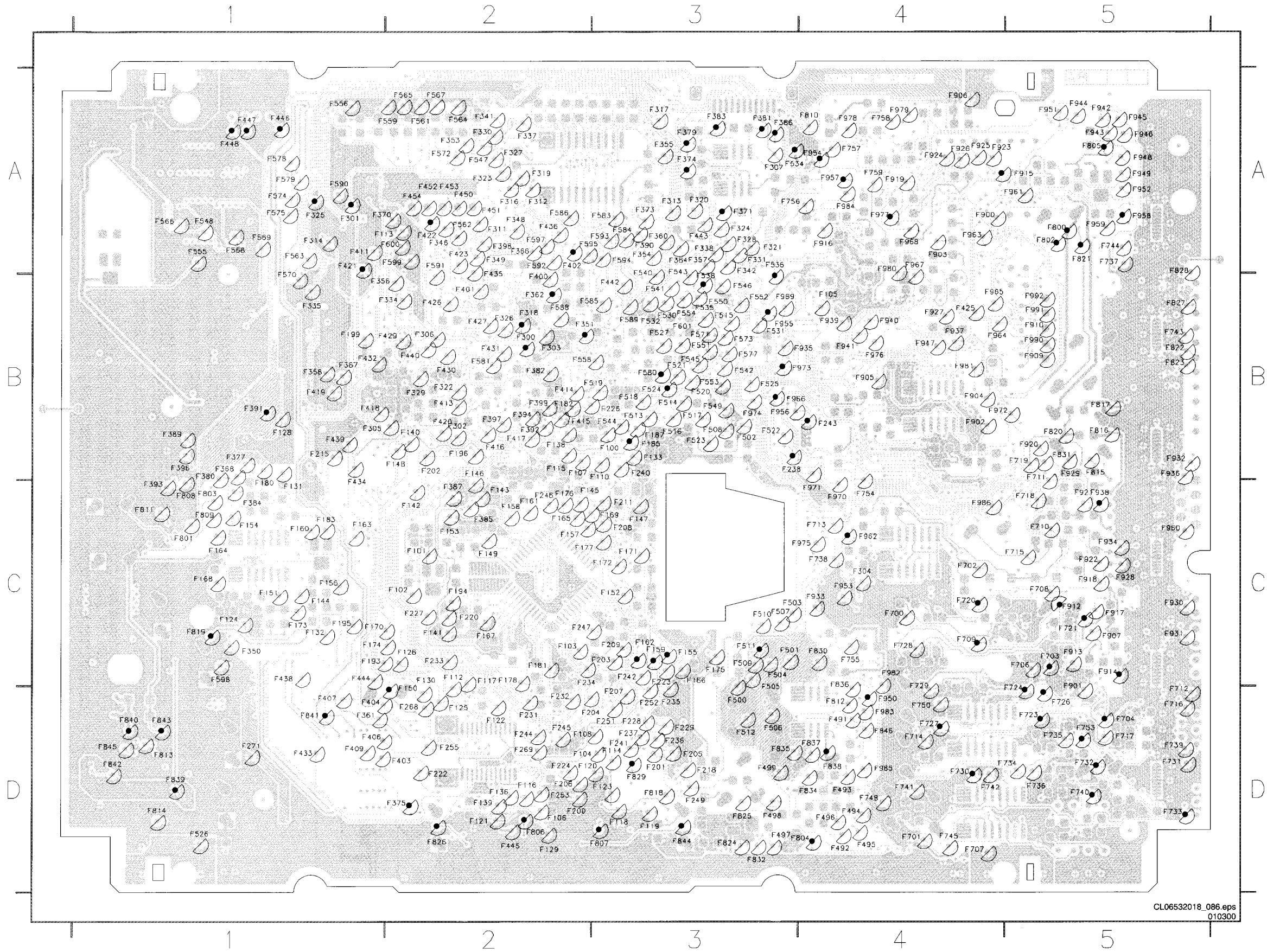
CDR MAIN BOARD - BOTTOM VIEW : SERVO TESTPOINTS



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CDR MAINBOARD: SURVEY OF TESTPOINTS



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8. Alignments & Adjustments

Each CDR-module composed from CDRloader and CDRmainboard has to be matched via SW filled parameters. This adjustment processed in the factory is under investigation to have it implemented into the COMPAIR tool. As long as this adjustment is not possible to be executed in secondline service workshop, the swop of modules and a central repair has to be continued. Adjustment only has to be done at replacement of CDM and concerned servo circuits. Other repairs (audio signals, replacement of adapted Flash roms etc) can be done without infringing the adjusted components.

As soon as COMPAIR CDR is installed this chapter will be adapted via a service information.

Flash Rom IC 7208 (MACE-ROM) is mounted on a socket and can be replaced after lifting up the loader part above it. Flash Rom IC 7703 (DASP-ROM) has to be soldered.

Take care for both ICs Firmware loaded components are mounted.

In case a module is offered with SW versions 1.4 and 91.48, the complete CDR-module should be replaced.

For SW versions 1.23 and 91.63, IC7703 and IC7208 have to be replaced by the latest SW versions.

9. Circuit description

9.1 Description

A separate circuit description concerning the 3rd generation
CDR recorders is available with order number 3104 125 40100

9.2 List of Abbreviations

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
+12V	main supply voltage from PSU	+12V supply voltage from PSU
+12VA	supply voltage	+12V supply voltage for Audio part
+5V	main supply voltage from PSU	+5V supply voltage from PSU
+5VA	supply voltage	+5V supply voltage for Audio part
+9SRVPWR	IC7558 → IC7240	PoWeR supply for SeRVo driver IC
12VPWR	supply voltage	+12V supply voltage for servo part
-8V	main supply voltage from PSU	-8V supply voltage from PSU
-8VA	supply voltage	-8V supply voltage for Audio part
A(1:20)	IC7701 → R3818, R3819, R3820, R3821, R3897 → IC7703	Address lines 1 to 20 between DASP and flash ROM
A(10:20)	IC7701 → R3819, R3820, R3821 → IC7702	Address lines 10 to 20 between DASP and DRAM
A1	IC7010 → IC7270	amplitude of the "land" reflection relative to the average EFM, voltage output, OPC input
A1LF, A2LF	CONN1000 → IC7010	satellite photo diodes A1, A2 current output
A2	IC7010 → IC7270	amplitude of the "pit" reflection relative to the average EFM, voltage output, OPC input
A-8V	supply voltage	-8V supply voltage for servo part
AEGER		Analog Error signal GEnerator for Recordable
AINTON	IC7008 → IC7010	Alpha INTegrator ON (to AEGER)
ALE	* IC7270 → R3213 → IC7209, IC7300 * IC7270 → R3230	Address Latch Enable; external address latch strobe line, freeze address when low
ALPHA0	IC7270 → IC7010	analog voltage mode output from OPC D/A converter
ALS	IC7008 → IC7010	Alpha Loop Switch (to AEGER)
ASTROBE	IC7008 → IC7010	Alpha STROBE (to AEGER)
ATIP		Absolute Time In Pre-groove (sync signal)
ATIPSYNC	IC7300 → IC7270	ATIP SYNC signal
ATT	* IC7270 → R3717, R3722 * IC7270 → IC7701	ATTenuation request from MACE2 to audio DAC, active low; means that the output can be attenuated in case of search activities
B1LF, B2LF	CONN1000 → IC7010	satellite photo diodes B1, B2 current output
BCLK	IC7701 → R3898A → IC7300	I ² S1 BitCLoCK from DASP to CDR60 (playback and record)
BE_RESET	* IC7701 → R3261 → IC7270 * IC7701 → R3716	Basic Engine RESET, active high
BIASC	IC7008 → R3056	BIAS Current switch CDRW output
BKPT	CONN1819, R3907 → IC7701	JTAG mode select / debug mode BreakPoinT
C1LF, .., C4LF	CONN1000 → IC7010	Central photo diodes C1, C2, C3, C4 current output
CAGAIN	R3016, R3115 → IC7010	set-point laser power on disc, current input
CAHF	CONN1000 → C2374	Central Aperture (central photo diodes) High Frequency current output (C1+C2+C3+C4)
CALF	IC7010 → IC7270	Central Aperture (central photo diodes) Low-pass Filtered signal (DC coupled EFM signal), voltage output, OPC input
CAS0	IC7701 → IC7702	Column Address Strobe DRAM for upper byte

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
CAS1	IC7701 → IC7702	Column Address Strobe DRAM for lower byte
CDR	IC7008 → IC7355	CDR strategy detected output (active high)
CDR60CFLG	IC7300 → R3382B → CONN1812	serial output of error corrector status information of the CDR60-decoder, to be measured at test connector
CDR60CL1	IC7300 → R3382C → CONN1812	output of CLock signal for testing system clock of IC CDR60 at test connector
CDR60CS	IC7270 → R3235B → R3702, IC7300	CDR60 Chip Select, active high
CDR60INT	IC7300 → IC7270	CDR60 INTerrupt line, active low
CDR60LWRT	IC7300 → R3048	CDR60 Laser WRiTe control output
CDR60MEAS1	IC7300 → R3382A → CONN1812	serial output of information about jitter, PLL frequency and asymmetry of bit recovery block in CDR60, to be measured at test connector
CDR60PLL	IC7270 → R3305 → IC7300	CDR60 clock multiplier enable, active high
CDRW	* IC7355D → IC7355C * IC7355D → CONN1000	inverted CDR-strategy-detected signal
CLK_OUT	IC7701 → R3771 → CONN1819	system CLock OUT
CLK_SYS	IC7701 → R3727, R3731	oscillator output
COS-	CONN1220 → IC7225B	Hall feedback signal from sledge motor
COS+	CONN1220 → IC7225B	Hall feedback signal from sledge motor
CSFLASH	IC7701 → IC7703	Chip Select for FLASH or boot device
CSRAM	IC7270 → R3235A → R3703, IC7802	Chip Select SRAM, active low
D(16:31)	IC7701 ↔ R3822, R3823, R3824, R3825 ↔ IC7703, IC7702	Databus bit 16 to 31 between DASP, flash ROM and DRAM
D3V3	supply voltage	+3,3V supply voltage for Digital part
D5V	supply voltage	+5V supply voltage for Digital part
D5VS	supply voltage	+5V supply voltage for Servo part
DALPHA	IC7010 → R3037	ALPHA error signal for laser power control
DASP		Digital Audio Signal Processor
DATAI	IC7701 → R3898C → IC7300	I ² S1 DATA In from DASP to CDR60 (recording)
DATAO	IC7300 → R3314 → IC7701	I ² S1 DATA Out from CDR60 to DASP (playback)
DEEMP	* IC7270 → R3719, R3724 * IC7270 → IC7701	DE-EMphasis control for audio DAC from MACE2, active high; means that de-emphasis is needed in digital filter
DELTAP	IC7016 → R3126	DELTA Power current source drive signal from XDAC
DIG_OUT_C	IC7701 → R3706 → C2707, CONN1400	Common DIGital OUTput (consumer)
DISPLAY_INT	F934 → R3812, IC7701	DISPLAY INTerrupt
DMON	IC7270 → R3324	power save at stop, active low
DOBM_CD	CONN1708, C2731 → R3757 → R3903 → IC7701	Digital Output (EBU output) from CD player in CDR775 to DASP
DOBM_CDR	IC7300 → R3382D → C2379, IC7701	Digital Output (EBU output) from CDR60 to DASP
DRAM_RW	IC7701 → IC7702	Read/Write strobe for DRAM
DSA_ACK_CD	* IC7701 ↔ R3830 ↔ R3831	Data/Strobe/Acknowledge serial communication

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
	↔ CONN1708 * IC7701 ↔ R3830 ↔ C2735	between DASP and CD-player in CDR775
DSA_ACK_CDR	* IC7701 → R3729 → IC7270, CONN1830 * IC7701 → R3729 → R3769	Data/Strobe/Acknowledge serial communication between MACE2 and DASP for CDR; acknowledge input for MACE2 is strobe output for DASP
DSA_DATA_CD	* IC7701 ↔ R3828 ↔ R3829 ↔ CONN1708 * IC7701 ↔ R3828 ↔ C2733	Data/Strobe/Acknowledge serial communication between DASP and CD-player in CDR775
DSA_DATA_CDR	* IC7270 ↔ R3246 ↔ R3813 ↔ IC7701, CONN1830 * IC7270 ↔ R3246 ↔ R3767	Data/Strobe/Acknowledge serial communication between MACE2 and DASP for CDR
DSA_STR_CD	* IC7701 ↔ R3835 ↔ R3832 ↔ CONN1708 * IC7701 ↔ R3835 ↔ C2734	Data/Strobe/Acknowledge serial communication between DASP and CD-player in CDR775
DSA_STR_CDR	* IC7270 → R3245 → IC7701, CONN1830 * IC7270 → R3245 → R3768	Data/Strobe/Acknowledge serial communication between MACE2 and DASP for CDR (strobe output for MACE2 is acknowledge input for DASP)
DSCLK	CONN1819, R3908 → IC7701	reset in / Debug Serial CLoCK in
DSI	CONN1819, R3909 → IC7701	JTAG reset in / Debug Serial clock In
EFM		Eight to Fourteen Modulation = modulation method used for CD storage, also the actual raw CD signal as written or read on or from the CD disc
EFMCLK	IC7300 → IC7008	EFM CLoCK output
EFMDATA	IC7300 → IC7008	EFM DATA output
EFMTIM3		EFM TIMing generator
EPON	IC7008 → R3010 IC7008 → C2010	Erase Power ON
EPONO	IC7008 → R3107	Erase Power ON Open drain output
EPONRC	R3004 → CONN1000	Erase Power ON (after RC circuit)
ERASEC	IC7008 → R3087	ERASE Current switch CDRW output
ERON	IC7008 → IC 7010	ERror ON (to AEGER)
EXT_DIG_IN1	CONN1400 → IC7701	EXTernal DIGital INput 1
EXT_DIG_IN2	CONN1702, C2767, C2721 → R3701 → IC7701	EXTernal DIGital INput 2 (CDR950 only)
EXT_OPT_IN	CONN1400, C2722 → R3708 → IC7701	EXTernal OPTical INput
F_READY	* IC7703 → R3817 → IC7701 * CONN1701 → IC7701	Flash READY detection, this line is forced low as long as the flash is busy with erase or program algorithm
F_RW	IC7701 → IC7708B	Read/Write strobe for Flash ROM
FEN	IC7010 → IC7270	Focus Error Normalized current output
FOC-	IC7240 → CONN1000	FOCus actuator drive signal negative connection
FOC+	IC7240 → CONN1000	FOCus actuator drive signal positive connection
FS30V	D6500 → CONN1000	Forward Sense diode 30V power supply
FSA	CONN1000 → T7119, T7120	Forward Sense photo diode current output
FSCLR	IC7008 → IC7126	Forward Sense signals CLear switch
FSOF	IC7008 → R3052	Forward Sense photo diode sampling OFF

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
FSON	IC7008 → R3051	Forward Sense photo diode sampling ON
FSR	R3040 → IC7270	Forward Sense signal while Reading for read control loop
FSRS	IC7008 → IC7126D	Forward Sense photo diode Read Sampling
FSW	R3050 → IC7270	Forward Sense signal while Writing for write control loop
FSWS	IC7008 → IC7126C	Forward Sense photo diode Write Sampling
FWEN	IC7270 → IC7208, R3806	Flash EPROM Write ENable
HALL_U, HALL_V, HALL_W	IC7330 → IC7300, CONN1812	HALL feedback signals from turn table motor via hall motor driver
HFS0	IC7270 → R3249 → IC7360	select HF circuit
I ² C		Inter IC
I ² C_CLK	* IC7701, R3711 → R3715 → C2709 → F934 * IC7701, R3711 → IC7801	I ² C CLock line used for display slave processor and digital potmeter
I ² C_DATA	* IC7701, R3712 ↔ R3713 ↔ C2708, R3714 ↔ F934 * IC7701, R3712 ↔ IC7801	I ² C DATA line used for display slave processor and digital potmeter
I ² CL	R3248B → IC7207, R3247C	I ² C CLock line
I ² CSCL	* IC7207 → IC7008 * IC7207 → IC7010 * IC7207 → R3248B	I ² C Serial CLock line
I ² CSDA	* IC7207 ↔ IC7008 * IC7207 ↔ IC7010 * IC7207 ↔ R3248A	I ² C Serial DATA line
I ² DA	R3248A ↔ IC7270, R3247D	I ² C DATA line
I ² S_BCLK_AI	IC7701 → R3814 → IC7406	I ² S4 Bit CLock for CODEC (ADC for CDR950) Analog Input (record from analog source)
I ² S_BCLK_AO	IC7701 → R3894A → IC7406	I ² S2 Bit CLock for CODEC (DAC for CDR950) Analog Output
I ² S_BCLK_CD	CONN1708, C2739 → R3834 → IC7701	I ² S3 Bit CLock from CD player (record n=2) (CDR775 only)
I ² S_BCLK_MIC	CONN1708, C2739 → R3834 → IC7701	I ² S3 Bit CLock from MICrophone (CDR950 only)
I ² S_DATA_AI	IC7406 → IC7701	I ² S4 DATA from CODEC (ADC for CDR950) Analog Input (record from analog source)
I ² S_DATA_AO	IC7701 → R3894C → IC7406	I ² S2 DATA for CODEC (DAC for CDR950) Analog Output
I ² S_DATA_CD	CONN1708, C2738 → R3836 → IC7701	I ² S3 DATA from CD player (record n=2) (CDR775 only)
I ² S_DATA_MIC	CONN1708, C2738 → R3836 → IC7701	I ² S3 DATA from MICrophone (CDR950 only)
I ² S_WS_AI	IC7701 → R3743 → IC7406	I ² S4 Word CLock for CODEC (ADC for CDR950) Analog Input (record from analog source)
I ² S_WS_AO	IC7701 → R3894B → IC7406	I ² S2 Word CLock for CODEC (DAC for CDR950) Analog Output
I ² S_WS_CD	CONN1708, C2740 → R3833 → IC7701	I ² S3 Word CLock from CD player (record n=2) (CDR775 only)

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
I ² S_WS_MIC	CONN1708, C2740 → R3833 → IC7701	I ² S3 Word CLoCK from MICrophone (CDR950 only)
I ² S1_MS	IC7270 → R3910, IC7701	I ² S1 Master-Slave interrupt from MACE2
IE	T7121 → CONN1000	laser Erase drive current signal
INT_COPY_ANA	* IC7701 → R3721 → IC7401 * IC7701 → R3721 → R3410	select INTernal COPY ANAlog (in case of copy protected disc or track on CD drive) (CDR775 only)
IR	* T7135 → CONN1000 * T7135 → R3056 * T7135 → IC7008	laser Read drive current signal
IW	* T7122 → CONN1000 * T7122 → D6003	laser Write drive current signal
KEY_PRESSED	IC7706B → R3816 → IC7701	KEY PRESSED interrupt
KILL	T7560, T7561, R3560 → CONN1400, R3424, R3428	KILL signal from power supply part to audio outputs
KILL_OUT	IC7701 → R3532	disables the KILL activity from the PSU; 1 = no kill, 0 = kill active
L12V	supply voltage	+12V supply voltage for servo/Laser part
L3_CLK	IC7701 → R3725 → IC7406	L3 interface CLoCK line / control CODEC (not for CDR950)
L3_DATA	IC7701 ↔ R3728 ↔ IC7406	L3 interface DATA line with CODEC (not for CDR950)
L3_MODE	IC7701 → R3735 → IC7406	L3 interface MODE line selects data or address transfer mode for CODEC (not for CDR950)
L5V	supply voltage	+5V supply voltage for servo/Laser part
L-5V	supply voltage	-5V supply voltage for servo/Laser part
LASCK	IC7270 ↔ R3248D	CloCK line DAC LASer control
LASDACCK	R3248D ↔ IC7016	CloCK line DAC LASer control
LASDACDI	R3248C ↔ IC7016	Data line DAC LASer control
LASDACLD	R3212 ↔ IC7016	LoaD line DAC LASer control
LASDD	IC7270 ↔ R3248C	Data line DAC LASer control
LASLD	* IC7270 ↔ R3238 ↔ R3212 * IC7270 ↔ R3232	LoaD line DAC LASer control
LEFT	CONN1708, C2743 → IC7401C, IC7407C	audio output LEFT channel from CD-player in CDR775
LLP	IC7270 → IC7300	Laser Low Power (active high), switches the laser from write to read power whenever the device tends to go offtrack
LWRT	R3048 → IC7008	Laser WRiTe control input
MA(16:17)	IC7270 ↔ IC7208	bank switch higher address lines
MA(8:15)	IC7270 ↔ IC7802 ↔ IC7208	address bus high byte
MACE2		Mini All Cd Engine (minus decoder + OPC + PCS + extra RAM)
MAD(0:7)	IC7270 ↔ IC7209 ↔ IC7802 ↔ IC7208 ↔ IC7300	bi-directional data bus / address bus low byte
MIRN	IC7010 → IC7270	MIRror Normalized (disc reflection) current output
MOTO1	IC7300 → IC7355A	turn table MOTOr control output

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
MRDN	IC7270 → R3276 → R3242A, IC7802, IC7300	Master ReaD, read strobe for external peripherals, active low
MUTE	* IC7270 → R3718, R3723 * IC7270 → IC7701	MUTE control from MACE2 to DASP, active low
MWRN	IC7270 → R3280 → R3242B, IC7802, IC7300	Master WRite, write strobe for external peripherals, active low
NMUTE	IC7701 → R3726, IC7406	MUTE output, low active
OFFTRACK	IC7270 → IC7300	OFFTRACK detection flag
OPC		Optimum Power Calibration
P12VKILL	supply voltage	+12V supply voltage for KILL-circuit
PCS		Position Control Sledge
PCSCOS	IC7225B, C2229 → IC7270, CONN1812	Position Control Sledge COS feedback signal
PCSSIN	IC7225A, C2227 → IC7270, CONN1812	Position Control Sledge SIN feedback signal
PDAR		Photo Diode Amplifier Recordable
PERASE	R3036, R3031, R3030, R3029, R3028, R3027, R3020 → IC7002C, R3043, T7113	laser Power switch for ERASE
POWER_UP	IC7270 → R3243C, R3556, R3538	standby pin, high level activates essential powers necessary for full function; overrules HI_POWER setting
PPN	IC7010 → IC7050C	Push-Pull signal, Normalized, balanced, voltage output
PRCOARSE	IC7016 → R3057	drive signal from Power Read COARSE DAC for read current source
PRFINE	IC7016 → R3058	drive signal from Power Read FINE DAC for read current source
PROF_EBU	IC7701 → CONN1820	PROFessional digital output (CDR950 only)
PSEn	* IC7270 → R3260 → IC7208 * IC7270 → R3231	Program Store ENable; external ROM output enable line, active low
PW	R3081 → IC7008	Write Power signal to OPC input of MACE2
PWB	IC7001C → IC7016	drive signal to XDAC's for write and erase current sources and VCAGAIN
PWD	* IC7016 → IC7002B * IC7016 → IC7002C	drive signal from XDAC for write and erase current sources
PWMAX	IC7016 → R3073	PW MAXimum signal from DAC used for determining set point for laser power during writing
PWMIN	IC7016 → R3072	PW MINimum signal from DAC used for determining set point for laser power during writing
PWRITE	R3035, R3026, R3025, R3024, R3023, R3022, R3021 → IC7002B, R3044, T7124	laser Power switch for WRITE
RAD-	IC7240 → CONN1000	Radial actuator drive signal negative connection
RAD+	IC7240 → CONN1000	Radial actuator drive signal positive connection
RAS0	IC7701 → IC7702	Row Address Strobe DRAM
RCK	IC7300 → R3319 → IC7701	EIAJ subcode clock from CDR60 to DASP (CD text interface)
RDGAIN1	IC7008 → R3054	forward sense ReaD GAIN switch 1

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
RDGAIN2	IC7008 → C2027	forward sense ReaD GAIN switch 2
RDGAIN3	IC7008 → C2060	forward sense ReaD GAIN switch 3
RE	IC7010 → IC7215A	Radial Error signal for fast track counting, voltage output
RECORDING	* IC7008 → IC7010 * IC7008 → CONN1000 * IC7008 → IC7355C	RECORDING output (active high)
REN	IC7010 → IC7270	Radial Error Normalized current output
RIGHT	CONN1708, C2742 → IC7401A, IC7407A	audio output RIGHT channel from CD-player in CDR775
RXD_TOOL	CONN1818 → IC7701	Receive of UART for test TOOL
S1V65	Reference Voltage	1.65V delivered by IC7215B for Servo part
S2V9	Reference Voltage	2.9V delivered by IC7010 for Servo part
SEL_HP_OUT	* IC7701 → R3720 → IC7407	SElect HeadPhone OUTput in DJ-mode (for CDR775 only)
SFSY	IC7701 → R3756 → IC7300	EIAJ subcode synchronisation from DASP to CDR60 (CD text interface)
SIN-	CONN1220 → IC7225A	Hall feedback signal from sledge motor
SIN+	CONN1220 → IC7225A	Hall feedback signal from sledge motor
SL-	IC7240 → R3265 → CONN1220	SLedge motor drive signal negative connection
SL+	IC7240 → CONN1220	SLedge motor drive signal positive connection
SRSTN	IC7270 → R3243B, IC7300	Slave ReSeT out (CDR60 reset), active low
STANDBY	IC7270 → R3807 → R3887 → IC7701	STANDBY pin, high level activates essential powers necessary for full function; overrules HI_POWER setting
SUB	IC7701 → R3710 → IC7300	EIAJ subcode data from DASP to CDR60 (CD text interface)
SYS_CLK_11W	IC7701 → R3732 → IC7406	11.2896 MHz SYStem CLock for AD/DA datapath
SYS_CLK_16W	IC7701 → R3894D → IC7706A	16.9344 MHz SYStem CLock for producing SYS_CLK_BE
SYS_CLK_8W	IC7706A → R3815 → CONN1708	SYStem CLock CD player (8.4672 MHz) (CDR775 only)
SYS_CLK_BE	IC7706A → R3826 → IC7270	SYStem CLock Basic Engine (8.4672 MHz)
SYS_RESET	* IC7701 → R3758 → CONNF934 * IC7701 → R3770 → T7707 → CONN1708	SYStem RESET to display assy (and CD player for CDR775)
TCK	CONN1819 → R3906, IC7701	JTAG CLock signal
TDSO	IC7701 → CONN1819	JTAG Serial Data Out / debug data out
TERMB	IC7270 ↔ CONN1818	UART connection with MACE
TLN	IC7010 → IC7270	Track Loss Normalized current output
TR-	IC7240 → CONN1200	TRay motor drive signal negative connection
TR+	IC7240 → CONN1200	TRay motor drive signal positive connection
TRACE99_RXD	CONN1818 → R3838, IC7701	TRACE99 test tool receive data
TRACE99_TXD	IC7701 → CONN1818	TRACE99 test tool transmit data
TRAYIN	IC7270 → IC7240	move TRAY IN line, active low

SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
TRAYOUT	IC7270 → IC7240	move TRAY OUT line, active low
TRAYSW	* CONN1200 → R3747 * CONN1200 → R3748	TRAY SWitch signal from loader assy
TRAYSWF	R3748, C2214 → IC7270	Filtered TRAY SWitch signal, low is completely out or in
TXD_TOOL	IC7701 → CONN1818	Transmit of UART for test TOOL
U+, U-, V+, V-, W+, W-	CONN1330 → IC7330	hall feedback signals from turn table motor to hall motor driver
UCOIL, VCOIL, WCOIL	IC7330 → CONN1330	drive signals for turn table motor
VCAGAIN	IC7016 → IC7005A	set-point laser power on disc, voltage output
VDC1	CONN1500 → CONNF934	supply voltage for display assy
VDC2	CONN1500 → CONNF934	supply voltage for display assy
VFO	IC7270 → R3295 → R3244	FOcus actuator drive output
VFTD	CONN1500 → CONNF934	Voltage Fluorescent Tube Display (display assy)
VRA	IC7270 → R3297 → R3254	RAdial actuator drive output
VSL	IC7270 → R3299 → IC7240	SLedge actuator drive output
WCLK	IC7701 → R3898B → IC7300	I ² S1 WordCLOCK from DASP to CDR60 (playback and record)
WOBBLE	IC7050C → IC7300	analog WOBBLE signal of pre-groove detected by PPN-signal
WPON	* IC7008 → R3009 * IC7008 → C2009	Write Power ON
WPONO	IC7008 → R3106	Write Power ON Open drain output
WPONRC	R3003 → CONN1000	Write Power ON (after RC circuit)
XDAC		multiplying DAC

10. Spareparts List

ELECTRICAL PARTSLIST MAINBOARD CDR'99

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
1000	482226710666	30 P. FEM.	+	+	+	+
1541	482225251173	19398E1(1,000A)	+	+	+	+
1542	482225251173	19398E1(1,000A)	+	+	+	+
1543	482225251173	19398E1(1,000A)	+	+	+	+
1707	482224210757	33.868 000MHZ SM 20P CX-11F	+	+	+	+
1708	482226760409	CONN 22P FEMALE	+	-	-	-
1820	482226710666	30 P. FEM.	-	-	-	+
2001	482212612105	CER2 0805 X7R 50V 33NF PM5	+	+	+	+
2002	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2003	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2009	482212233753	150PF 5%NP0 50V	+	+	+	+
2010	482212233753	150PF 5%NP0 50V	+	+	+	+
2011	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2012	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2013	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2014	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2015	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2016	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2018	482212613694	68PF 1% NP0 63V	+	+	+	+
2019	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2020	482212613188	15NF 5% X7R 63V	+	+	+	+
2021	482212233177	10NF 20% X7R 50V	+	+	+	+
2022	482212233177	10NF 20% X7R 50V	+	+	+	+
2023	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2024	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2025	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2026	222286115272	CER1 0805 NP0 50V	+	+	+	+
2027	222286115272	CER1 0805 NP0 50V	+	+	+	+
2028	532212232531	100PF 5%NP0 50V	+	+	+	+
2029	532212232531	100PF 5%NP0 50V	+	+	+	+
2030	532212231647	1NF10%X7R 63V	+	+	+	+
2031	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2032	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2033	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2037	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2038	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2039	482212233177	10NF 20% X7R 50V	+	+	+	+
2040	482212233172	390PF 5% NP0 50V	+	+	+	+
2041	532212234099	470PF10%X7R 63V	+	+	+	+
2042	532212233538	150PF 2%NP0 63V	+	+	+	+
2043	532212231647	1NF10%X7R 63V	+	+	+	+
2044	482212613486	15PF 2% NP0 63V	+	+	+	+
2045	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2046	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2047	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2048	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2049	532212611579	3,3NF10%X7R 63V	+	+	+	+
2050	482212614238	CER2 0603 X7R 50V 2N2 COL R	+	+	+	+
2052	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2053	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2054	482212614238	CER2 0603 X7R 50V 2N2 COL R	+	+	+	+
2056	532212611579	3,3NF10%X7R 63V	+	+	+	+
2057	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2058	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2059	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2060	532212611579	3,3NF10%X7R 63V	+	+	+	+
2061	482212411947	10UF 20% 16V	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
2063	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2078	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2080	482212614238	CER2 0603 X7R 50V 2N2 COL R	+	+	+	+
2081	532211680853	560PF 5%NP0 63V	+	+	+	+
2082	482212614238	CER2 0603 X7R 50V 2N2 COL R	+	+	+	+
2083	482212613956	68PF 5% NP0 63V CASE 0603	+	+	+	+
2084	482212232627	2.7NF10%X7R 50V	+	+	+	+
2126	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2207	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2208	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2209	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2214	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2216	482212233777	47PF 5%NP0 63V	+	+	+	+
2217	482212614494	22NF 10% X7R 25V 0603	+	+	+	+
2218	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2220	319801734730	CER2 0603 X7R 16V 47N COL	+	+	+	+
2221	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2222	482212614226	82PF 5% NP0 50V 0603	+	+	+	+
2224	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2225	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2226	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2227	319801631020	CER1 0603 NP0 25V 1N	+	+	+	+
2228	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2229	319801631020	CER1 0603 NP0 25V 1N	+	+	+	+
2230	482212614494	22NF 10% X7R 25V 0603	+	+	+	+
2231	482212614494	22NF 10% X7R 25V 0603	+	+	+	+
2232	482212614494	22NF 10% X7R 25V 0603	+	+	+	+
2233	319801631020	CER1 0603 NP0 25V 1N	+	+	+	+
2234	319801631020	CER1 0603 NP0 25V 1N	+	+	+	+
2235	319801631020	CER1 0603 NP0 25V 1N	+	+	+	+
2240	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2241	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2242	482212441796	22UF20% 16V	+	+	+	+
2243	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2255	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2256	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2272	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2273	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2274	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2275	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2276	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2277	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2278	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2283	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2284	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2285	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2286	482212233127	2,2NF10%X7R 63V	+	+	+	+
2287	482212233127	2,2NF10%X7R 63V	+	+	+	+
2288	532212232654	22NF10%X7R 63V	+	+	+	+
2289	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2291	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2300	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2302	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2303	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2304	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2305	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2306	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2308	222286115222	CER1 0805 NP0 50V 2N2 PM5	+	+	+	+
2309	222286115222	CER1 0805 NP0 50V 2N2 PM5	+	+	+	+
2310	222286115222	CER1 0805 NP0 50V 2N2 PM5	+	+	+	+
2314	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
2315	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2316	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2317	532212611579	3,3NF10%X7R 63V	+	+	+	+
2318	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2319	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2320	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2321	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2322	532212611579	3,3NF10%X7R 63V	+	+	+	+
2333	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2335	319801734730	CER2 0603 X7R 16V 47N COL	+	+	+	+
2336	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2337	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2355	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2359	482212613692	47PF 1% NP0 63V	+	+	+	+
2360	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2362	482212613751	47NF10% X7R 63V	+	+	+	+
2364	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2368	223886115182	CER1 0805 NP0 50V 1N8 PM5 R	+	+	+	+
2369	532212232268	470PF 10% 50V	+	+	+	+
2370	482212441796	22UF20% 16V	+	+	+	+
2371	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2372	532212232447	1PF 5% NP0 63V CASE 0805	+	+	+	+
2373	482212441796	22UF20% 16V	+	+	+	+
2374	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2375	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2378	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2379	482212613692	47PF 1% NP0 63V	+	+	+	+
2401	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2402	482205120008	0R00 JUMP. (0805)	+	+	+	+
2404	482212412245	ELCAP 10V 220U PM20	+	+	+	-
2405	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2406	532212411919	47UF 20% 6,3V	+	+	+	-
2407	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2408	532212411919	47UF 20% 6,3V	+	+	+	-
2409	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2411	319803074780	ELCAP SM 35V 4U7 PM20 COL R	+	+	+	-
2413	482212613838	100NF Y5V 0805 50V P80M20	+	+	+	-
2414	482212480483	47UF20% 6,3V	+	+	+	-
2415	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2417	319803074780	ELCAP SM 35V 4U7 PM20 COL R	+	+	+	-
2419	482212613838	100NF Y5V 0805 50V P80M20	+	+	+	-
2421	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2422	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2424	482212480483	47UF20% 6,3V	+	+	+	-
2425	482212233216	270PF 5%NP0 50V	+	+	-	-
2430	482212480483	47UF20% 6,3V	+	+	+	-
2431	482212233216	270PF 5%NP0 50V	+	-	-	-
2433	482212614585	100NF 10% X7R 0805 50V	+	-	-	-
2434	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2435	482212614585	100NF 10% X7R 0805 50V	+	+	+	-
2437	202002490264	ELCAP MA 4V S 470U PM20 A	+	+	+	-
2438	202002490264	ELCAP MA 4V S 470U PM20 A	+	+	+	-
2440	482212480483	47UF20% 6,3V	+	+	+	-
2441	482212480483	47UF20% 6,3V	+	+	+	-
2442	532212231647	1NF10%X7R 63V	+	+	+	-
2443	532212231647	1NF10%X7R 63V	+	+	+	-
2450	482212233216	270PF 5%NP0 50V	+	+	+	-
2451	482212233216	270PF 5%NP0 50V	+	+	+	-
2460	482212611663	12PF	+	+	+	-
2463	482212233926	12PF 50V	+	+	+	-
2464	482212611663	12PF	+	+	+	-

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
2465	482212611663	12PF	+	+	+	-
2500	482212614238	CER2 0603 X7R 50V 2N2 COL R	+	+	+	+
2501	482212614238	CER2 0603 X7R 50V 2N2 COL R	+	+	+	+
2502	482212614238	CER2 0603 X7R 50V 2N2 COL R	+	+	+	+
2504	482212412245		+	+	+	+
2505	482212412255	10UF 20% 50V	+	+	+	+
2506	482212612105	CER2 0805 X7R 50V 33NF PM5	+	+	+	+
2507	482212412255	10UF 20% 50V	+	+	+	+
2508	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2509	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2535	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2536	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2537	532212411919	47UF 20% 6,3V	+	+	+	+
2541	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2543	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2544	482212480483	47UF20% 6,3V	+	+	+	+
2546	482212480483	47UF20% 6,3V	+	+	+	+
2547	482212481286	47UF20% 16V	+	+	+	+
2548	482212441643	100UF 20% 16V DIM:6,3X11MM	+	+	+	+
2550	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2551	482212441796	22UF20% 16V	+	+	+	+
2552	532212231647	1NF10%X7R 63V	+	+	+	+
2553	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2555	482212233177	10NF 20% X7R 50V	+	+	+	+
2556	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2557	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2558	482212441584	100UF 20% 10V	+	+	+	+
2561	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2562	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2563	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2565	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2568	482212441643	100UF 20% 16V DIM:6,3X11MM	+	+	+	+
2571	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2572	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2574	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2575	482212412245	ELCAP 220U 16V 20%	+	+	+	+
2576	482212613838	100NF Y5V 0805 50V P80M20	+	+	+	+
2577	482212614305	100NF 10% X7R 16V 0603 CER2	+	+	+	+
2700	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2701	532212411919	47UF 20% 6,3V	+	+	+	+
2702	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2703	532212411919	47UF 20% 6,3V	+	+	+	+
2704	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2705	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2706	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2707	482212613692	47PF 1% NP0 63V	+	+	+	+
2708	482212613692	47PF 1% NP0 63V	+	+	+	+
2709	482212613692	47PF 1% NP0 63V	+	+	+	+
2710	532212411919	47UF 20% 6,3V	+	+	+	+
2711	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2712	482212612105	CER2 0805 X7R 50V 33NF PM5	+	+	+	+
2713	532212611583	10NF 10% X7R 50V 0603 CER2	+	+	+	+
2714	482212614549	33N 16V X7R O6O3	+	+	+	+
2715	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2716	532212611583	10NF 10% X7R 50V 0603 CER2	+	+	+	+
2717	319801741050	CER2 0603 Y5V 10V 1U COL R	+	+	+	+
2718	532211680853	560PF 5%NP0 63V	+	+	+	+
2719	532211680853	560PF 5%NP0 63V	+	+	+	+
2720	532212231647	1NF10%X7R 63V	+	+	+	+
2721	482212613692	47PF 1% NP0 63V	+	+	+	+
2722	482212613692	47PF 1% NP0 63V	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
2723	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2725	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2726	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2727	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2728	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2731	482212613692	47PF 1% NP0 63V	+	-	-	-
2733	482212233777	47PF 5%NP0 63V	+	-	-	-
2734	482212233777	47PF 5%NP0 63V	+	-	-	-
2735	482212233777	47PF 5%NP0 63V	+	-	-	-
2736	482212614305	100NF 10% X7R 16V 0603 CER2	+	-	-	-
2737	482212614305	100NF 10% X7R 16V 0603 CER2	+	-	-	-
2738	482212233777	47PF 5%NP0 63V	+	-	-	-
2739	482212233777	47PF 5%NP0 63V	+	-	-	-
2740	482212233777	47PF 5%NP0 63V	+	-	-	-
2741	482212233777	47PF 5%NP0 63V	+	-	-	-
2742	482212233777	47PF 5%NP0 63V	+	-	-	-
2743	482212233777	47PF 5%NP0 63V	+	-	-	-
2750	319801741050	CER2 0603 Y5V 10V 1U COL R	+	+	+	+
2751	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2752	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2760	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2761	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2762	482212612105	CER2 0805 X7R 50V 33NF PM5	+	+	+	+
2763	482212614585	100NF 10% X7R 0805 50V	+	+	+	+
2764	482212612105	CER2 0805 X7R 50V 33NF PM5	+	+	+	+
2765	482212612105	CER2 0805 X7R 50V 33NF PM5	+	+	+	+
2766	482212612105	CER2 0805 X7R 50V 33NF PM5	+	+	+	+
2901	319802190030	RST JUMPER 0603 0.05 OHM	+	+	+	+
2902	482205120008	0R00 JUMP. (0805)	+	+	+	+
2903	319802190030	RST JUMPER 0603 0.05 OHM	+	+	-	+
2904	319802190030	RST JUMPER 0603 0.05 OHM	+	+	+	+
2905	319802190030	RST JUMPER 0603 0.05 OHM	+	+	+	+
2906	482205120008	0R00 JUMP. (0805)	+	+	+	+
2907	482205120008	0R00 JUMP. (0805)	+	+	+	+
2908	319802190030	RST JUMPER 0603 0.05 OHM	+	+	+	+
2909	319801741050	CER2 0603 Y5V 10V 1U COL R	+	+	+	+
2910	482212412245	ELCAP 220U 16V 20%	+	+	+	+
3000	482205120101	100R00 5% 0,1W	+	+	+	+
3001	482211711151	1R 5%	+	+	+	+
3002	482205120122	1K20 5% 0,1W	+	+	+	+
3003	482205130121	120R00 5% 0,062W	+	+	+	+
3004	482205130121	120R00 5% 0,062W	+	+	+	+
3006	482205130008	0R00 JUMPER	+	+	+	+
3007	482205120154	150K00 5% 0,1W	+	+	+	+
3009	482205130681	680R00 5% 0,062W	+	+	+	+
3010	482205130681	680R00 5% 0,062W	+	+	+	+
3011	482205120829	82R00 5% 0,1W	+	+	+	+
3012	482205130154	150K00 5% 0,062W	+	+	+	+
3013	482205120105	1M00 5% 0,1W	+	+	+	+
3014	482211711139	1K5 1% 0,1W	+	+	+	+
3015	482211683933	15K 1% 0,1W	+	+	+	+
3016	482211713172	62K 1% RC12H 0805 0,1W	+	+	+	+
3017	482205130392	3K9 5% 0.063W 0603	+	+	+	+
3019	482205130105	1M00 5% 0,062W	+	+	+	+
3020	482211683933	15K 1% 0,1W	+	+	+	+
3021	482211683933	15K 1% 0,1W	+	+	+	+
3022	482211711456	30K 1% 0,1W	+	+	+	+
3023	482211713172	62K 1% RC12H 0805 0,1W	+	+	+	+
3024	482211711374	120K 1% RC12H 0805	+	+	+	+
3025	482211713569	240K 1% 0805 RC12H	+	+	+	+
3026	482205120474	470K00 5% 0,1W	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
3027	482211711456	30K 1% 0,1W	+	+	+	+
3028	482211713172	62K 1% RC12H 0805 0,1W	+	+	+	+
3029	482211711374	120K 1% RC12H 0805	+	+	+	+
3030	482211713569	240K 1% 0805 RC12H	+	+	+	+
3031	482205120474	470K00 5% 0,1W	+	+	+	+
3035	482211713571	910K 1% 0805 RC12H	+	+	+	+
3036	482211713571	910K 1% 0805 RC12H	+	+	+	+
3037	482211710833	10K 1% 0,1W	+	+	+	+
3039	482205130183	18K00 5% 0,062W	+	+	+	+
3040	482205130101	100R00 5% 0,062W	+	+	+	+
3041	482205130103	10K00 5% 0,062W	+	+	+	+
3043	482205130105	1M00 5% 0,062W	+	+	+	+
3044	482205120105	1M00 5% 0,1W	+	+	+	+
3048	482205130103	10K00 5% 0,062W	+	+	+	+
3049	482205110102	1K00 2% 0,25W	+	+	+	+
3050	482205130101	100R00 5% 0,062W	+	+	+	+
3051	482211712902	8K2 1% 0.063W 0603	+	+	+	+
3052	482211712902	8K2 1% 0.063W 0603	+	+	+	+
3053	482205130102	1K00 5% 0,062W	+	+	+	+
3054	482211711188	20K 1% 0,1W	+	+	+	+
3055	482205130102	1K00 5% 0,062W	+	+	+	+
3056	482205130102	1K00 5% 0,062W	+	+	+	+
3057	482205120472	4K70 5% 0,1W	+	+	+	+
3058	482205120154	150K00 5% 0,1W	+	+	+	+
3059	482205130682	6K80 5% 0,062W	+	+	+	+
3060	482205130103	10K00 5% 0,062W	+	+	+	+
3061	482205130102	1K00 5% 0,062W	+	+	+	+
3063	482211713572	22R 5% 1206	+	+	+	+
3064	482205130221	220R00 5% 0,062W	+	+	+	+
3065	482205120393	39K00 5% 0,1W	+	+	+	+
3066	482211712367	33K 1% 0.10W	+	+	+	+
3067	482205130102	1K00 5% 0,062W	+	+	+	+
3068	482205120472	4K70 5% 0,1W	+	+	+	+
3069	482205120392	3K90 5% 0,1W	+	+	+	+
3070	482205110102	1K00 2% 0,25W	+	+	+	+
3071	482205130222	2K20 5% 0,062W	+	+	+	+
3072	482205120472	4K70 5% 0,1W	+	+	+	+
3073	482205120472	4K70 5% 0,1W	+	+	+	+
3074	482211711151	1R 5%	+	+	+	+
3075	482205120154	150K00 5% 0,1W	+	+	+	+
3076	482205120154	150K00 5% 0,1W	+	+	+	+
3077	482205120154	150K00 5% 0,1W	+	+	+	+
3078	482205130102	1K00 5% 0,062W	+	+	+	+
3079	482211711751	16K RC12H 1% 0805	+	+	+	+
3081	482205110102	1K00 2% 0,25W	+	+	+	+
3082	482205130102	1K00 5% 0,062W	+	+	+	+
3085	482211713568	6R8 5% 1206	+	+	+	+
3086	482211711503	220R 1% 0,1W	+	+	+	+
3087	482205130222	2K20 5% 0,062W	+	+	+	+
3088	482205130152	1K50 5% 0,062W	+	+	+	+
3090	482205130479	47R00 5% 0,062W	+	+	+	+
3091	482211712903	1K8 1% 0.063W 0603	+	+	+	+
3092	482205130103	10K00 5% 0,062W	+	+	+	+
3094	482205130221	220R00 5% 0,062W	+	+	+	+
3095	482211713568	6R8 5% 1206	+	+	+	+
3097	482205130479	47R00 5% 0,062W	+	+	+	+
3098	482205130103	10K00 5% 0,062W	+	+	+	+
3100	482205120472	4K70 5% 0,1W	+	+	+	+
3101	482211713572	22R 5% 1206	+	+	+	+
3102	482211711148	56K 1% 0,1W	+	+	+	+
3103	482211710833	10K 1% 0,1W	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
3104	482211710833	10K 1% 0,1W	+	+	+	+
3105	482205120182	1K80 5% 0,1W	+	+	+	+
3106	482205130008	0R00 JUMPER	+	+	+	+
3107	482205130008	0R00 JUMPER	+	+	+	+
3110	482205130103	10K00 5% 0,062W	+	+	+	+
3111	482211712902	8K2 1% 0.063W 0603	+	+	+	+
3112	482205130479	47R00 5% 0,062W	+	+	+	+
3113	482211711503	220R 1% 0,1W	+	+	+	+
3114	482211713577	330R 1% RC12H 0805 1,25W	+	+	+	+
3115	482211712521	68R 1% 0,1W	+	+	+	+
3116	482211711817	1K2 1% 1/16W	+	+	+	+
3117	482205130103	10K00 5% 0,062W	+	+	+	+
3118	482205130561	560R00 5% 0,062W	+	+	+	+
3119	482205130221	220R00 5% 0,062W	+	+	+	+
3120	532211711726	10R 5%	+	+	+	+
3123	482205130472	4K70 5% 0,062W	+	+	+	+
3126	482205130682	6K80 5% 0,062W	+	+	+	+
3127	482211712903	1K8 1% 0.063W 0603	+	+	+	+
3128	482205130479	47R00 5% 0,062W	+	+	+	+
3129	482205130102	1K00 5% 0,062W	+	+	+	+
3130	482205130103	10K00 5% 0,062W	+	+	+	+
3131	482205130103	10K00 5% 0,062W	+	+	+	+
3200	482205120479	47R00 5% 0,1W	+	+	+	+
3201	482205120479	47R00 5% 0,1W	+	+	+	+
3202	482205120479	47R00 5% 0,1W	+	+	+	+
3203	482205120479	47R00 5% 0,1W	+	+	+	+
3204	482205120479	47R00 5% 0,1W	+	+	+	+
3205	482205120479	47R00 5% 0,1W	+	+	+	+
3206	482205120479	47R00 5% 0,1W	+	+	+	+
3207	482205120479	47R00 5% 0,1W	+	+	+	+
3208	482211710833	10K 1% 0,1W	+	+	+	+
3209	482215771206	BLM21A601SPT	+	+	+	+
3210	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3211	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3212	482211711503	220R 1% 0,1W	+	+	+	+
3213	482205130008	0R00 JUMPER	+	+	+	+
3215	482205130153	15K00 5% 0,062W	+	+	+	+
3216	482205130153	15K00 5% 0,062W	+	+	+	+
3217	482211712925	47K 1% 0.063W 0603	+	+	+	+
3218	482205130103	10K00 5% 0,062W	+	+	+	+
3219	482205130223	22K00 5% 0,062W	+	+	+	+
3220	482205130103	10K00 5% 0,062W	+	+	+	+
3221	482205130223	22K00 5% 0,062W	+	+	+	+
3222	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3223	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3224	482211711374	120K 1% RC12H 0805	+	+	+	+
3225	482211712367	33K 1% 0.10W	+	+	+	+
3226	482211710833	10K 1% 0,1W	+	+	+	+
3227	482211712367	33K 1% 0.10W	+	+	+	+
3228	482211710833	10K 1% 0,1W	+	+	+	+
3229	482211711374	120K 1% RC12H 0805	+	+	+	+
3230	482211713632	100K 1% 0603 0.62W	+	+	+	+
3231	482211713632	100K 1% 0603 0.62W	+	+	+	+
3232	482211710833	10K 1% 0,1W	+	+	+	+
3233	482205120101	100R00 5% 0,1W	+	+	+	+
3234	482205110102	1K00 2% 0,25W	+	+	+	+
3235	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3237	482205130562	5K6 5% 0,063W 0603 RC21 RST SM	+	+	+	+
3238	482205130221	220R00 5% 0,062W	+	+	+	+
3239	482205130102	1K00 5% 0,062W	+	+	+	+
3240	482205130103	10K00 5% 0,062W	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
3241	482205130008	0R00 JUMPER	+	+	+	+
3242	235003510103	RST NETW SM ARV24 4X10K PM5 R	+	+	+	+
3243	235003510103	RST NETW SM ARV24 4X10K PM5 R	+	+	+	+
3244	482205130008	0R00 JUMPER	+	+	+	+
3245	482205130221	220R00 5% 0,062W	+	+	+	+
3246	482205130221	220R00 5% 0,062W	+	+	+	+
3248	482211713523	220R 5% RESN 0.63W	+	+	+	+
3249	482211711503	220R 1% 0.1W	+	+	+	+
3252	482211711145	4K70 1% 0,1W	+	+	+	+
3253	482211711145	4K70 1% 0,1W	+	+	+	+
3254	482205130008	0R00 JUMPER	+	+	+	+
3255	482211710833	10K 1% 0.1W	+	+	+	+
3256	482205130008	0R00 JUMPER	+	+	+	+
3260	482205130008	0R00 JUMPER	+	+	+	+
3261	482205130222	2K20 5% 0,062W	+	+	+	+
3265	482205130008	0R00 JUMPER	+	+	+	+
3271	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3273	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3274	482211710837	100K 1% 0.1W	+	+	+	+
3276	482205130479	47R00 5% 0,062W	+	+	+	+
3280	482205130479	47R00 5% 0,062W	+	+	+	+
3281	482211713579	220K 1% 0.1W RC12H 0805	+	+	+	+
3284	482211711151	1R 5%	+	+	+	+
3286	482205130223	22K00 5% 0,062W	+	+	+	+
3287	482205130103	10K00 5% 0,062W	+	+	+	+
3288	482205130563	56K00 5% 0,062W	+	+	+	+
3289	482205130563	56K00 5% 0,062W	+	+	+	+
3290	482205130683	68K00 5% 0,062W	+	+	+	+
3291	482205130563	56K00 5% 0,062W	+	+	+	+
3295	482205130332	3K30 5% 0,062W	+	+	+	+
3297	482205130332	3K30 5% 0,062W	+	+	+	+
3299	482205130332	3K30 5% 0,062W	+	+	+	+
3300	482205110102	1K00 2% 0,25W	+	+	+	+
3301	482205110102	1K00 2% 0,25W	+	+	+	+
3303	482211713572	22R 5% 1206	+	+	+	+
3305	482211710833	10K 1% 0,1W	+	+	+	+
3308	482205120008	0R00 JUMP. (0805)	+	+	+	+
3309	482211712367	33K 1% 0.10W	+	+	+	+
3312	482205130479	47R00 5% 0,062W	+	+	+	+
3313	482205130479	47R00 5% 0,062W	+	+	+	+
3314	482205120479	47R00 5% 0,1W	+	+	+	+
3315	482205130102	1K00 5% 0,062W	+	+	+	+
3316	482205120472	4K70 5% 0,1W	+	+	+	+
3317	482205120472	4K70 5% 0,1W	+	+	+	+
3319	482205120479	47R00 5% 0,1W	+	+	+	+
3322	482205130102	1K00 5% 0,062W	+	+	+	+
3323	482205130562	5K6 5% 0,063W 0603 RC21 RST SM	+	+	+	+
3324	482205130562	5K6 5% 0,063W 0603 RC21 RST SM	+	+	+	+
3325	482205130103	10K00 5% 0,062W	+	+	+	+
3333	482211713574	1R5 5% 1206	+	+	+	+
3334	482211713574	1R5 5% 1206	+	+	+	+
3335	482211713574	1R5 5% 1206	+	+	+	+
3337	482205130563	56K00 5% 0,062W	+	+	+	+
3338	532211712487	1K RC12G 1% 0,125W	+	+	+	+
3339	532211712487	1K RC12G 1% 0,125W	+	+	+	+
3340	482211713632	100K 1% 0603 0.62W	+	+	+	+
3341	232273468209	RST SM 0805 RC12H 82R PM1	+	+	+	+
3346	482211711507	6K8 1% 0,1W	+	+	+	+
3347	482211711507	6K8 1% 0,1W	+	+	+	+
3348	482211711507	6K8 1% 0,1W	+	+	+	+
3349	482211713632	100K 1% 0603 0.62W	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
3350	232273468209	RST SM 0805 RC12H 82R PM1	+	+	+	+
3351	482211711151	1R 5%	+	+	+	+
3352	482205130008	0R00 JUMPER	+	+	+	+
3360	482211710354	22K 1% 0,1W	+	+	+	+
3361	482211712139	22R 5% 0,062W	+	+	+	+
3362	482211712708	39K 1% 0,1W 0805 RC12G	+	+	+	+
3363	482211712968	820R 5% 0,62W	+	+	+	+
3365	482205130101	100R00 5% 0,062W	+	+	+	+
3368	482205130479	47R00 5% 0,062W	+	+	+	+
3370	482205130561	560R00 5% 0,062W	+	+	+	+
3371	482205130152	1K50 5% 0,062W	+	+	+	+
3372	482205120122	1K20 5% 0,1W	+	+	+	+
3373	482211712903	1K8 1% 0,063W 0603	+	+	+	+
3374	482211713572	22R 5% 1206	+	+	+	+
3375	482205130222	2K20 5% 0,062W	+	+	+	+
3376	482205130221	220R00 5% 0,062W	+	+	+	+
3377	482205130479	47R00 5% 0,062W	+	+	+	+
3378	482205130273	27K00 5% 0,062W	+	+	+	+
3379	482205130183	18K00 5% 0,062W	+	+	+	+
3381	482205120008	0R00 JUMP. (0805)	+	+	+	+
3382	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3402	482211711503	220R 1% 0,1W	+	+	+	-
3403	482211712024	27K 1% 0,1W	+	+	+	-
3404	482211710833	10K 1% 0,1W	+	+	+	-
3405	482211712024	27K 1% 0,1W	+	+	+	-
3407	482205120101	100R00 5% 0,1W	+	+	+	-
3408	482211710833	10K 1% 0,1W	+	+	+	-
3409	482211712367	33K 1% 0,10W	+	+	+	-
3410	482211710833	10K 1% 0,1W	+	+	+	-
3411	482211711152	4R7 5%	+	+	+	-
3412	482211712024	27K 1% 0,1W	+	+	+	-
3413	482211710833	10K 1% 0,1W	+	+	+	-
3414	482211712024	27K 1% 0,1W	+	+	+	-
3415	482211710833	10K 1% 0,1W	+	+	+	-
3416	482211712367	33K 1% 0,10W	+	+	+	-
3418	482205120008	0R00 JUMP. (0805)	+	+	+	-
3420	482211710833	10K 1% 0,1W	+	+	+	-
3421	482211711383	12K 1% 0,1W	+	+	+	-
3422	482211710834	47K 1% 0,1W	+	+	+	-
3423	482211713629	120R 1% 0,1W RC12H 0805	+	-	+	-
3424	482205120225	2M20 5% 0,1W	+	-	+	-
3427	482211713629	120R 1% 0,1W RC12H 0805	+	-	+	-
3428	482205120225	2M20 5% 0,1W	+	-	+	-
3429	482211710834	47K 1% 0,1W	+	+	+	-
3432	482211710833	10K 1% 0,1W	+	+	+	-
3433	482205120008	0R00 JUMP. (0805)	+	+	+	-
3435	482211710833	10K 1% 0,1W	+	+	+	-
3436	482211711383	12K 1% 0,1W	+	+	+	-
3439	482211711152	4R7 5%	+	+	+	-
3441	482205120101	100R00 5% 0,1W	+	+	+	-
3447	482205120008	0R00 JUMP. (0805)	-	+	+	-
3448	482205120008	0R00 JUMP. (0805)	-	+	+	-
3449	482205120008	0R00 JUMP. (0805)	-	+	+	-
3450	319802153311	330R 5%	+	-	-	-
3451	482211711383	12K 1% 0,1W	+	+	+	-
3452	482211711383	12K 1% 0,1W	+	+	+	-
3453	482211713579	220K 1% 0,1W RC12H 0805	+	+	+	-
3454	482211713579	220K 1% 0,1W RC12H 0805	+	+	+	-
3455	319802190030	RST JUMPER 0603 0.05 OHM	+	+	+	-
3460	319802190030	RST JUMPER 0603 0.05 OHM	+	+	+	-
3531	482205120562	5K6 5% 0,1W 0805	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
3532	482205120562	5K6 5% 0,1W 0805	+	+	+	+
3533	482211710837	100K 1% 0,1W	+	+	+	+
3536	482211710837	100K 1% 0,1W	+	+	+	+
3537	482211710833	10K 1% 0,1W	+	+	+	+
3538	482211710833	10K 1% 0,1W	+	+	+	+
3539	482211710837	100K 1% 0,1W	+	+	+	+
3540	482211710833	10K 1% 0,1W	+	+	+	+
3541	482211711747	12R 1206 5% FUSE	+	+	+	+
3542	482211711747	12R 1206 5% FUSE	+	+	+	+
3544	482211710834	47K 1% 0,1W	+	+	+	+
3545	482211713568	6R8 5% 1206	+	+	+	+
3546	482205120101	100R00 5% 0,1W	+	+	+	+
3547	482211683933	15K 1% 0,1W	+	+	+	+
3548	482211710834	47K 1% 0,1W	+	+	+	+
3549	482205120101	100R00 5% 0,1W	+	+	+	+
3550	482205120101	100R00 5% 0,1W	+	+	+	+
3551	482205120332	3K30 5% 0,1W	+	+	+	+
3552	482211710834	47K 1% 0,1W	+	+	+	+
3553	482205120101	100R00 5% 0,1W	+	+	+	+
3554	482211710833	10K 1% 0,1W	+	+	+	+
3555	482205120122	1K20 5% 0,1W	+	+	+	+
3556	482211710833	10K 1% 0,1W	+	+	+	+
3557	482211710837	100K 1% 0,1W	+	+	+	+
3559	482205120562	5K6 5% 0,1W 0805	+	+	+	+
3560	482211710837	100K 1% 0,1W	+	+	+	+
3562	482205120562	5K6 5% 0,1W 0805	+	+	+	+
3563	482205130563	56K00 5% 0,062W	+	+	+	+
3566	482211710837	100K 1% 0,1W	+	+	+	+
3567	482205120223	22K00 5% 0,1W	+	+	+	+
3570	482205120101	100R00 5% 0,1W	+	+	+	+
3701	482205120101	100R00 5% 0,1W	+	+	+	+
3702	482205130472	4K70 5% 0,062W	+	+	+	+
3703	482205130472	4K70 5% 0,062W	+	+	+	+
3704	482205120008	0R00 JUMP. (0805)	+	+	+	+
3705	482205130223	22K00 5% 0,062W	+	+	+	+
3706	482205120479	47R00 5% 0,1W	+	+	+	+
3708	482205120479	47R00 5% 0,1W	+	+	+	+
3710	482205130101	100R00 5% 0,062W	+	+	+	+
3711	482211710833	10K 1% 0,1W	+	+	+	+
3712	482211710833	10K 1% 0,1W	+	+	+	+
3713	482205120479	47R00 5% 0,1W	+	+	+	+
3714	482205120479	47R00 5% 0,1W	+	+	+	+
3715	482205120479	47R00 5% 0,1W	+	+	+	+
3716	482211710833	10K 1% 0,1W	+	+	+	+
3717	482211710833	10K 1% 0,1W	-	+	+	+
3718	482211710833	10K 1% 0,1W	+	+	+	-
3719	482205130103	10K00 5% 0,062W	+	+	-	+
3720	482205130101	100R00 5% 0,062W	+	+	+	+
3721	482205130101	100R00 5% 0,062W	+	+	+	+
3722	482211710833	10K 1% 0,1W	+	-	-	-
3723	482211710833	10K 1% 0,1W	-	-	-	+
3724	482205130103	10K00 5% 0,062W	+	-	+	-
3725	482205130101	100R00 5% 0,062W	+	+	+	+
3726	482205130103	10K00 5% 0,062W	+	+	+	+
3727	482205120105	1M00 5% 0,1W	+	+	+	+
3728	482205130101	100R00 5% 0,062W	+	+	+	+
3729	482205130101	100R00 5% 0,062W	+	+	+	+
3731	482205130391	390R00 5% 0,062W	+	+	+	+
3732	482205130479	47R00 5% 0,062W	+	+	+	+
3735	482205120479	47R00 5% 0,1W	+	+	+	+
3742	482205130102	1K00 5% 0,062W	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
3743	482205130479	47R00 5% 0,062W	+	+	+	+
3744	482205120274	270K00 5% 0,1W	+	+	+	+
3745	482205120274	270K00 5% 0,1W	+	+	+	+
3746	482205130153	15K00 5% 0,062W	+	+	+	+
3747	482205130103	10K00 5% 0,062W	+	+	+	+
3748	482205130103	10K00 5% 0,062W	+	+	+	+
3749	482205130103	10K00 5% 0,062W	+	+	+	+
3750	482205130123	12K00 5% 0,062W	+	+	+	+
3751	482205120472	4K70 5% 0,1W	+	-	-	-
3752	482211710353	150R 1% 0,1W	+	+	+	+
3753	482205120472	4K70 5% 0,1W	+	-	-	-
3754	482205110102	1K00 2% 0,25W	+	+	+	+
3755	482211710353	150R 1% 0,1W	+	+	+	+
3756	482205130101	100R00 5% 0,062W	+	+	+	+
3757	482205120479	47R00 5% 0,1W	+	-	-	-
3758	482205120101	100R00 5% 0,1W	+	+	+	+
3759	482205110102	1K00 2% 0,25W	+	+	+	+
3760	482205120472	4K70 5% 0,1W	+	+	+	+
3761	482205130472	4K70 5% 0,062W	+	+	+	+
3762	482205130472	4K70 5% 0,062W	+	+	+	+
3763	482205130102	1K00 5% 0,062W	+	+	+	+
3764	482205120472	4K70 5% 0,1W	+	+	+	+
3766	482205130472	4K70 5% 0,062W	+	+	+	+
3767	482205130472	4K70 5% 0,062W	+	+	+	+
3768	482205120472	4K70 5% 0,1W	+	+	+	+
3769	482205130472	4K70 5% 0,062W	+	+	+	+
3770	482205120472	4K70 5% 0,1W	+	+	+	+
3771	482205130101	100R00 5% 0,062W	+	+	+	+
3780	482211710837	100K 1% 0,1W	+	+	+	+
3806	482205130103	10K00 5% 0,062W	+	+	+	+
3807	482205120008	0R00 JUMP. (0805)	+	+	+	+
3808	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3809	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3810	482205130472	4K70 5% 0,062W	+	+	+	+
3811	482205130103	10K00 5% 0,062W	+	+	+	+
3813	482205130101	100R00 5% 0,062W	+	+	+	+
3814	482205130479	47R00 5% 0,062W	+	+	+	+
3817	482205110102	1K00 2% 0,25W	+	+	+	+
3818	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3819	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3820	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3821	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3822	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3823	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3824	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3825	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3826	482205120101	100R00 5% 0,1W	+	+	+	+
3828	482205130479	47R00 5% 0,062W	+	-	-	-
3829	482205130479	47R00 5% 0,062W	+	-	-	-
3830	482205130479	47R00 5% 0,062W	+	-	-	-
3831	482205130479	47R00 5% 0,062W	+	-	-	-
3832	482205130479	47R00 5% 0,062W	+	-	-	-
3833	482205130479	47R00 5% 0,062W	+	-	-	-
3834	482205130479	47R00 5% 0,062W	+	-	-	-
3835	482205130479	47R00 5% 0,062W	+	-	-	-
3836	482205130479	47R00 5% 0,062W	+	-	-	-
3837	482211710833	10K 1% 0,1W	+	+	+	+
3838	482211710833	10K 1% 0,1W	+	+	+	+
3841	482205120101	100R00 5% 0,1W	+	+	+	+
3843	482211710833	10K 1% 0,1W	+	+	+	+
3844	482211710833	10K 1% 0,1W	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
3845	482211710833	10K 1% 0,1W	+	+	+	+
3886	482205120008	0R00 JUMP. (0805)	-	+	+	-
3889	482211711151	1R 5%	+	+	+	+
3891	482211710833	10K 1% 0,1W	+	+	+	-
3892	482211710833	10K 1% 0,1W	+	+	+	-
3894	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3897	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3898	482211713573	NETW 4 X 47R 5% MNR14	+	+	+	+
3900	319802190030	RST JUMPER 0603 0.05 OHM	-	-	-	+
3902	319802190030	RST JUMPER 0603 0.05 OHM	-	-	-	+
3903	482205130008	0R00 JUMPER	+	+	+	+
3904	482205110102	1K00 2% 0,25W	-	+	-	+
3906	482205120472	4K70 5% 0,1W	+	+	+	+
3907	482205130472	4K70 5% 0,062W	+	+	+	+
3908	482205130102	1K00 5% 0,062W	+	+	+	+
3909	482205130472	4K70 5% 0,062W	+	+	+	+
3910	482205120472	4K70 5% 0,1W	+	+	+	+
3911	482205120472	4K70 5% 0,1W	+	+	+	+
5008	482215771206	BLM21A601SPT	+	+	+	+
5201	482215771206	BLM21A601SPT	+	+	+	+
5202	482215771206	BLM21A601SPT	+	+	+	+
5203	482215771206	BLM21A601SPT	+	+	+	+
5301	482215771206	BLM21A601SPT	+	+	+	+
5302	482215771206	BLM21A601SPT	+	+	+	+
5303	482215771206	BLM21A601SPT	+	+	+	+
5401	482215771206	BLM21A601SPT	+	+	+	-
5403	482215771206	BLM21A601SPT	+	+	+	-
5404	482215771206	BLM21A601SPT	+	+	+	-
5406	482215771206	BLM21A601SPT	+	+	+	-
5407	482215771206	BLM21A601SPT	+	+	+	-
5413	482215771206	BLM21A601SPT	+	+	+	-
5414	482215771206	BLM21A601SPT	+	+	+	-
5500	482215711716	BLM21P300SPT	+	+	+	+
5501	242254942103	IND FXD SM EMI 100MHZ 2K2 R	+	+	+	+
5502	242254942103	IND FXD SM EMI 100MHZ 2K2 R	+	+	+	+
5503	242254942103	IND FXD SM EMI 100MHZ 2K2 R	+	+	+	+
5541	242254942103	IND FXD SM EMI 100MHZ 2K2 R	+	+	+	+
5542	242254942103	IND FXD SM EMI 100MHZ 2K2 R	+	+	+	+
5543	482215711716	BLM21P300SPT	+	+	+	+
5544	482215711716	BLM21P300SPT	+	+	+	+
5546	482215771206	BLM21A601SPT	+	+	+	+
5551	482215771206	BLM21A601SPT	+	+	+	+
5554	482215710548	47UH 5%	+	+	+	+
5555	482215771206	BLM21A601SPT	+	+	+	+
5556	482215771206	BLM21A601SPT	+	+	+	+
5557	482215771206	BLM21A601SPT	+	+	+	+
5701	482215771206	BLM21A601SPT	+	+	+	+
5709	242254942103	IND FXD SM EMI 100MHZ 2K2 R	+	+	+	+
5710	482215710477	COIL 47UH	+	+	+	+
5712	482215771206	BLM21A601SPT	+	+	+	+
5713	482215771206	BLM21A601SPT	+	+	+	+
5715	482215771206	BLM21A601SPT	+	+	+	+
5716	482215771206	BLM21A601SPT	+	+	+	+
6002	532213030691	BAW56	+	+	+	+
6003	482213083757	BAS216	+	+	+	+
6007	532213034337	BAV99	+	+	+	+
6373	482213083757	BAS216	+	+	+	+
6374	482213083757	BAS216	+	+	+	+
6375	482213083757	BAS216	+	+	+	+
6400	482213010648	BZX284-C5V6	+	-	-	-
6500	532213083777	BAV70W	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
6501	532213034337	BAV99	+	+	+	+
6502	482213034441	BZX79-B22	+	+	+	+
6553	482213083757	BAS216	+	+	+	+
6554	532213034337	BAV99	+	+	+	+
6555	482213083757	BAS216	+	+	+	+
6556	482213083757	BAS216	+	+	+	+
6557	482213083757	BAS216	+	+	+	+
6701	934042250135	DIO VAR SM BB147 (PHSE) R	+	+	+	+
6702	934042250135	DIO VAR SM BB147 (PHSE) R	+	+	+	+
7001	482220963709	LM324DTR	+	+	+	+
7002	482220963709	LM324DTR	+	+	+	+
7005	482220990331	TL084CDT	+	+	+	+
7008	482220917223	EFM TIM3	+	+	+	+
7010	935261972518	IC SM TZA1020HP/M1 (PHSE) R	+	+	+	+
7016	482220917225	M62364FP	+	+	+	+
7050	482220990331	TL084CDT	+	+	+	+
7104	482213060373	BC856B	+	+	+	+
7110	482213060511	BC847B	+	+	+	+
7111	482213060511	BC847B	+	+	+	+
7112	482213042804	BC817-25	+	+	+	+
7113	482213060511	BC847B	+	+	+	+
7119	482213060383	BF824	+	+	+	+
7120	482213060383	BF824	+	+	+	+
7121	532213060123	BC807-40	+	+	+	+
7122	532213060123	BC807-40	+	+	+	+
7124	482213060511	BC847B	+	+	+	+
7126	933714420653	IC SM 74HC4066D	+	+	+	+
7127	482213060373	BC856B	+	+	+	+
7133	482213060511	BC847B	+	+	+	+
7135	532213060123	BC807-40	+	+	+	+
7201	482213060511	BC847B	+	+	+	+
7202	482213060511	BC847B	+	+	+	+
7207	932213040668	IC SM M24C16-WMN (ST00) R	+	+	+	+
7208	310412394850	FLASH EPROM ASSY CDR-AUDIO	+	+	+	+
7209	482220917227	MC74LCX573	+	+	+	+
7215	482220932073	MC34072D	+	+	+	+
7225	532220971553	NE532D	+	+	+	+
7240	482220917229	BA5938FM	+	+	+	+
7270	482220917231	SAA7399HL	+	+	+	+
7300	935263368557	IC SM SAA7392HLM3 (PHSE) Y	+	+	+	+
7330	482220916877	BA6856FP	+	+	+	+
7355	933713370653	IC SM 74HCT00D (PHSE) R	+	+	+	+
7360	933715300118	IC SM 74HCT4051D (PHSE) R	+	+	+	+
7361	482213060511	BC847B	+	+	+	+
7370	482213060511	BC847B	+	+	+	+
7371	482213011527	BFS540	+	+	+	+
7373	482213011527	BFS540	+	+	+	+
7375	482213011527	BFS540	+	+	+	+
7401	482220960792	74HC4053D	+	-	-	-
7405	482220930095	LM833D	+	+	+	-
7406	935254530118	IC SM UDA1341TS/N1 (PHSE) R	+	+	+	-
7407	482220960792	74HC4053D	+	-	-	-
7408	482220982362	NJM4556D	+	-	+	-
7409	482220930095	LM833D	+	+	+	-
7410	482213042804	BC817-25	+	-	+	-
7411	482213042804	BC817-25	+	-	+	-
7520	820405604480	FET POW STD16NE06L	+	+	+	+
7521	482220932073	MC34072D	+	+	+	+
7522	482213060373	BC856B	+	+	+	+
7523	482213060511	BC847B	+	+	+	+
7524	482213060511	BC847B	+	+	+	+

ITEM	CODENUMBER	DESCRIPTION	CDR775	CDR570	CDR770	CDR950
7525	482213060373	BC856B	+	+	+	+
7526	482213060511	BC847B	+	+	+	+
7527	482213011379	BCP69	+	+	+	+
7528	482213060511	BC847B	+	+	+	+
7529	482213060373	BC856B	+	+	+	+
7535	482220917398	LD1117DT33	+	+	+	+
7548	482213060511	BC847B	+	+	+	+
7549	482213060511	BC847B	+	+	+	+
7556	482220990332	MC79L05ABD	+	+	+	+
7558	482220915083	AN78M09	+	+	+	+
7560	482213060373	BC856B	+	+	+	+
7561	482213060373	BC856B	+	+	+	+
7562	482213060511	BC847B	+	+	+	+
7563	482213060511	BC847B	+	+	+	+
7701	820405603460	USER PROCESSOR DASP CF5244PU	+	+	+	+
7702	482220917375	GM71V18163CJ-6	+	+	+	+
7703	932213814668	IC SM AM29LV800BB-70REC (AMD)R	+	+	+	+
7704	482220916318	MC33464-30A	+	+	+	+
7705	482220932073	MC34072D	+	+	+	+
7706	482220917236	74LV74D	+	+	+	+
7707	482213060511	BC847B	+	-	-	-
7708	932214178668	IC SM 74LCX00M (ST00) R	+	+	+	+
7710	932213967685	IC SM MC33464N-45A (MOTA) R	+	+	+	+
7801	820405603520	LEVEL DIG POTMETER DS1807S-T/R	+	+	+	-
7802	820405603910	IC SM CY7C199-15ZC	+	+	+	+
7803	482213060511	BC847B	+	+	+	+
7804	482213060511	BC847B	+	+	+	+
PCINT-DASP	710408691110	PC-INTERFACE BOARD DASP	+	+	+	+
PCINT-MACE	710408683110	PC-INTERFACE BOARD MACE	+	+	+	+