

Portable Compact Disc Player

AX5301 AX5303 AX5305
AX5311 AX5312
all versions

Service Service Service



PRODUCT FAMILY 2004 – CDDA-5 SERIES

Service Manual



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**CLASS 1
LASER PRODUCT**

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GB 3140 785 32841

version1.1



PHILIPS

TECHNICAL SPECIFICATION

General

| | |
|--------------------------|----------------|
| Dimensions (HxD) | :23.3x137.5 mm |
| Weight without batteries | :187g |

Power supply modes

| | |
|---------------------------|--------------|
| DC-in socket | : 2.9 - 6.0V |
| Primary batteries (2xLR6) | : 2.0 - 3.6V |
| Rechargeable batteries | : 2.0 - 3.6V |

Battery lifetime

| BATTERY TYPE | ESP=ON | PSM |
|----------------------------------|---------------------|---------------------|
| Primary Batteries 2 x LR6 | ≥ 15h (20h typ.) | ≥ 36h (40h typ.) |
| Primary Batteries 2 x AAA | ≥ 7h (9h typ.) | (15h typ.) |
| Rechargeable Batteries AY3363 | ≥ 4h (6h typ.) | (12h typ.) |

Battery level detection

| DETECTION LEVEL | Primary batteries | Rechargeable batteries |
|-----------------|---------------------------------------|--------------------------------------|
| Battery empty | 1.8V +100/-50mV | 1.8V +100/-50mV |
| Battery weak 1 | battery empty level + 0.75V ±100mV | battery empty level + 0.7V ±100mV |
| Battery weak 2 | battery empty level + 0.45V ±100mV | battery empty level + 0.5V ±100mV |
| Battery weak 3 | battery empty level + 0.3V ±100mV | battery empty level + 0.3V ±100mV |

Current consumption CDDA-playback

| OPERATION MODE | DC-IN SUPPLY (4.5V) | | BATT. SUPPLY (2.25V) | |
|----------------|---------------------|------------|----------------------|------------|
| | Powersave | ESP=ON | Powersave | ESP=ON |
| Play-mode | 90mA typ. | 110mA typ. | 80mA typ. | 120mA typ. |
| Charge-mode | 220mA typ. | | n/a | |
| Jump-mode | 400mA typ. | | 400mA typ. | |
| Stand-by | 60 mA typ. | | 350 μA typ. | |

Shock resistance

| | |
|-----------------|----------|
| +X/-X direction | : ≥2.5 g |
| +Y/-Y direction | : ≥2.5 g |
| +Z/-Z direction | : ≥2 g |

Headphone out (measured with 16Ω load, DBB/ESP off)

| | |
|------------------------------------|--------------------------|
| Output power (THD=10%) | |
| /17 version only | : 2x8mW (+1/-3dB) |
| all other versions | : 2x4mW (+2/-2dB) |
| Frequency response (1mW) | : 100Hz-20kHz within 6dB |
| S/N ratio (unwght) | : ≥80dB (82dB typ.) |
| S/N ratio (A-wght) | : ≥82dB (84dB typ.) |
| THD+N (1kHz, 1mW) | : ≤1% (0.2% typ.) |
| Channel crosstalk (1kHz, w/o load) | : ≤-24dB (-44dB typ.) |
| Channel unbalance (-40dB) | : ≤5dB |
| Volume attenuation (1kHz) | : >60dB |

Dynamic Bass Boost DBB

| DBB STAGE | Frequency response | | |
|-----------|--------------------|---------|---------|
| | 63Hz | 1kHz | 10kHz |
| DBB1 | +8dB±2dB | 0dB±2dB | 0dB±2dB |

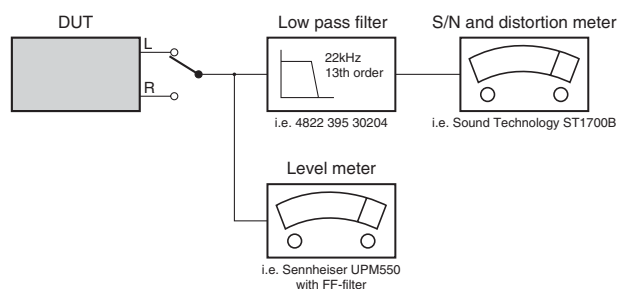
Laser

| | |
|--------------|-------------------|
| Output power | : <5mW (3mW typ.) |
| Wavelength | : 780nm |

Measurement setupCD

Use Audio Signal disc SBC429

4822 397 30184



FEATURES

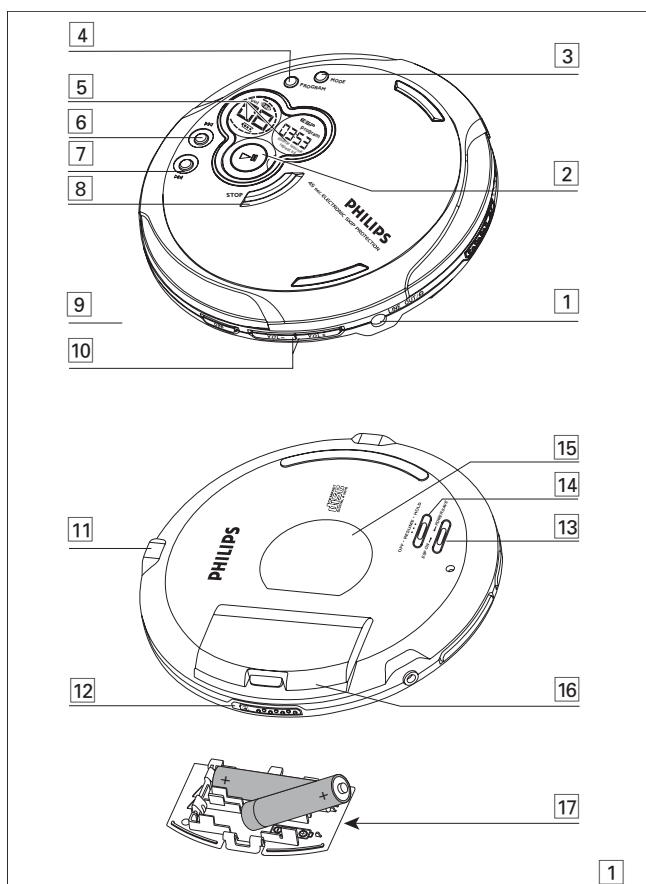
| FEATURES OF CD-PORTABLE | AX5301/00C | AX5301/01 | AX5301/05Z | AX5303/00C | AX5303/05Z | AX5305/10 | AX5311/17 | AX5312/17 |
|----------------------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|
| CD-RW COMPATIBILITY | ● | ● | ● | ● | ● | ● | ● | ● |
| ELECTRONIC SKIP PROTECTION | 45s | 45s | 45s | 45s | 45s | 45s | 45s | 45s |
| ESP DRAM SIZE [Mbit] | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| HOLD / RESUME FUNCTION | ●/● | ●/● | ●/● | ●/● | ●/● | ●/● | ●/● | ●/● |
| DBB STAGES | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| ACOUSTIC FEEDBACK | -- | -- | -- | -- | -- | -- | -- | -- |
| PROGRAM MEMORY | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| RECHARGE NiCd / NiMH | --/-- | --/-- | --/-- | --/● | --/● | --/-- | --/-- | --/-- |
| BELT-CLIP | -- | -- | -- | -- | -- | -- | -- | -- |
| CORD REMOTE CONTROL | ● | ● | ● | ● | ● | ● | ● | ● |
| LINE / OPT. DIGITAL OUTPUT | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- | --/-- |

ACCESSORIES

| ACCESSORIES FOR CD-PORTABLE | | AX5301 | | | AX5303 | | AX5305 | | | AX5311 | | AX5312 |
|--------------------------------|----------------|--------|-----|------|--------|------|--------|-----|-----|--------|---|--------|
| | | /00C | /01 | /05Z | /00C | /05Z | /10 | /17 | /17 | /17 | | |
| AY3170/00 AC/DC Adaptor | 3140 118 31923 | X | | | X | | | | | | | |
| AY3170/02 AC/DC Adaptor | 3140 118 32024 | | X | | | | | | | | | |
| AY3170/05 AC/DC Adaptor | 3140 118 33611 | | | X | | X | | | | | | |
| AY3170/10 AC/DC Adaptor | 3140 118 32182 | | | | | | | X | | | | |
| AY3584/00 DC/DC Adaptor | 3140 118 71901 | | | | | | | X | | | | |
| AY3150/00 Car Cassette Adaptor | 3140 118 71581 | | | | | | | X | | | | |
| AY3545/00 Car Adaptor | 3140 118 32963 | | | | | | | X | | | | |
| AY3363 Battery-NiMH-AAA | 3103 308 84542 | | | | X | X | | | | | | |
| AY3363 Battery-NiMH-AAA-BYD | 3103 308 84721 | | | | X | X | | | | | | |
| Door-Battery-2A | 3140 117 66911 | X | X | X | X | X | | | X | | X | |
| GR1-AX Mains plug adapter | 3139 128 73011 | | X | | | | | | | | | |
| Remote Control | 3140 118 51581 | X | X | X | X | X | | X | X | | X | |
| Pouch | 3140 113 10801 | | | | X | X | | | X | | X | |
| HE570/77s Headphone | 9082 100 01724 | X | X | X | X | X | | X | X | | | |
| HS383/77s Headphone (S-plug) | 9082 100 01821 | | | | | | | | | | | X |

X...supplied with the set

CONNECTIONS AND CONTROLS



English

CONTROLS

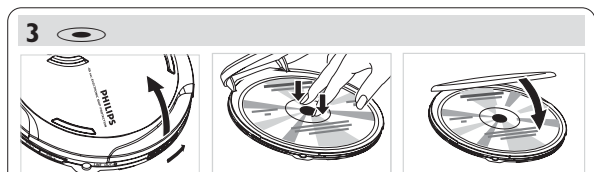
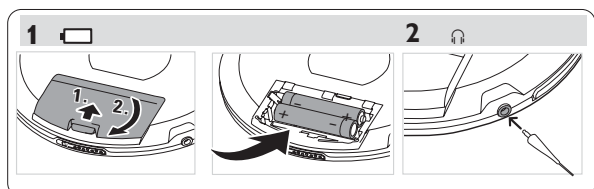
Controls (see figure 1)

- 1 LINE OUT/.....3.5 mm headphone socket, socket to connect the player to another audio input of an additional appliance, remote control socket (not on all versions)
- 2 **▶||**.....switches the player on, starts or pauses CD play
- 3 MODEselects the different playing possibilities: **shuffle**, **shuffle repeat all**, **repeat**, **repeat all** and **SCAN**
- 4 PROGRAMprograms tracks and reviews the program
- 5display
- 6 **◀◀**.....skips and searches CD tracks backwards
- 7 **▶▶**.....skips and searches CD tracks forwards
- 8 STOPstops CD play, clears a program or switches the player off
- 9 DBB.....switches the bass enhancement on and off. This button also switches acoustic feedback (the beep) on/off when it is pressed for more than 2 seconds
- 10 VOL +/-.....adjusts the volume
- 11 4.5V DC.....socket for external power supply
- 12 OPEN **▶**opens the CD lid
- 13 ESP ON / POWER SAVE.....to select between the battery powersave mode and **Electronic Skip Protection (ESP)**. ESP ensures continuous CD playback regardless of vibrations and shocks
- 14 OFF.....switches RESUME and HOLD off
- RESUMEstores the last position of a CD track played
- HOLD.....locks all buttons on the set only
- 15typeplate
- 16battery compartment
- 17AAA battery door

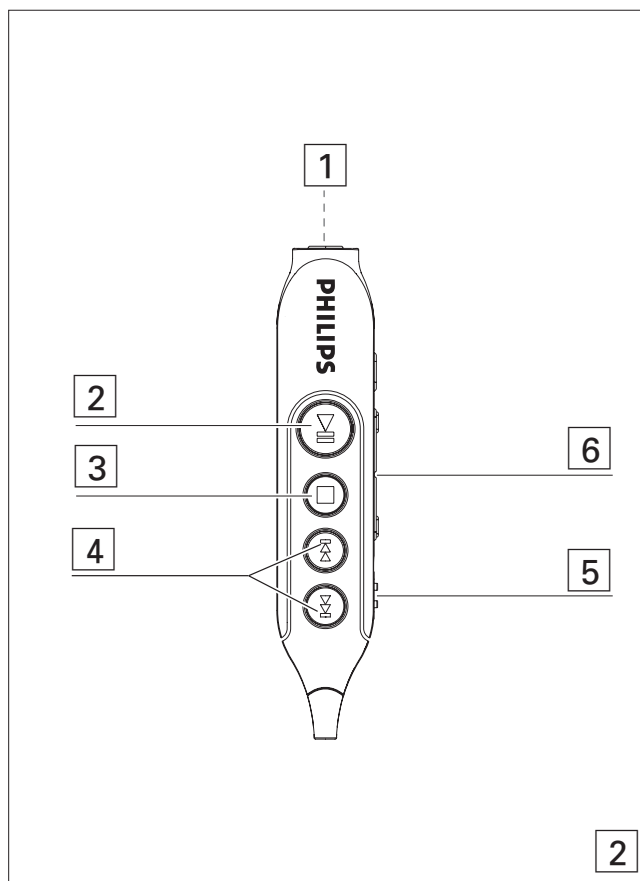
This set complies with the radio interference requirements of the European Union.

QUICK START

MISE EN SERVICE RAPIDE



2



2

INSTRUCTION FOR USE

CONTROLS / POWER SUPPLY

Remote Control AY 3785 (see figure 2)

- 13.5 mm headphone plug to connect to headphones socket
- 2switches the set on, starts playback and interrupts playback
- 3stops playback and switches the set off
- 4skips and searches forward / backward tracks
- 5 HOLD.....locks all buttons (on the remote control only)
- 6 VOLUME +/-.....adjusts the volume

Connecting the remote control

Use the AY 3785 cord remote control. The buttons on the remote control have the same functions as the corresponding buttons on the set.

- 1 Press twice to switch off the set.
- 2 Firmly connect the remote control to LINE OUT/ on the set.
- 3 Firmly connect the headphones to the plug on the remote control.
- 4 On the remote control press to switch on the set and to start playback.
- 5 Adjust the volume on the CD player or your remote control.



Notes: – Check the HOLD switch on the remote control is adjusted to the off position if you wish to operate the player using the remote control.

Batteries (supplied or optionally available)

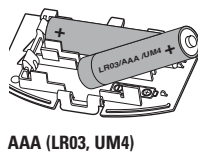
For convenience, this model is designed with 2 different detachable battery doors. This allows you to operate the player using 2 choices of battery size. You can use the following batteries with this CD-player:

- alkaline batteries type **AAA (LR03, UM4)** or **AA (LR6, UM3)** preferably Philips.

Notes:– Old and new or different types of batteries should not be combined.
– Remove batteries if they are empty or if the player is not going to be used for a long time.

Inserting AAA (LR03, UM4) or AY 3363 batteries

- 1 Open the **AAA** battery door.
- 2 Insert **AAA** batteries as shown onto the back of the door.
- 3 Replace the battery-loaded **AAA** door back onto the set.

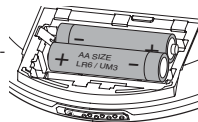


AAA (LR03, UM4)

Inserting AA (LR6, UM3) batteries

To double playback time, insert **AA** batteries into the battery compartment and use the **AA** marked battery door.

- Open the battery compartment and insert either 2 normal or alkaline batteries.



AA (LR6, UM3)

Battery indication

The approximate power level of your batteries is shown in the display.

- Battery full
- Battery two-thirds full
- Battery one-third full
- Battery dead or empty. When the batteries are dead or empty, the symbol flashes, is displayed, and the beep tone sounds repeatedly.



POWER SUPPLY / GENERAL INFORMATION

Average playing time of batteries under normal conditions

| Battery type | ESP on | Power Save |
|------------------------------------|-----------|------------|
| Normal AA | 10 hours | 20 hours |
| Normal AAA | 6 hours | 12 hours |
| Alkaline AA | 24 hours | 42 hours |
| Alkaline AAA | 10 hours | 16 hours |
| Rechargeable ECO-PLUS NiMH battery | 8.5 hours | 13 hours |

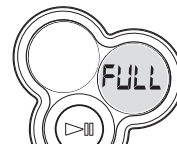
Batteries contain chemical substances, so they should be disposed of properly.

ECO-PLUS NiMH battery information (for versions supplied with the rechargeable ECO-PLUS NiMH battery AY 3363)

Recharging works only on players supplied with the rechargeable ECO-PLUS NiMH battery AY 3363.

Recharging the ECO-PLUS NiMH battery on board

- 1 Insert the rechargeable ECO-PLUS NiMH battery AY 3363.
- 2 Connect the mains adapter to the 4.5V DC socket of the player and then to the wall socket.
 - is pulsing.
- Recharging stops after a maximum of 7 hours, or when you start playback.
- 3 When the battery is fully recharged, **FULL** appears in the display.



Notes: – It is normal for the batteries to become warm during recharging.
– If the batteries become too warm, recharging will be interrupted for approximately 30 minutes.
– To ensure proper recharging on board, take care that contacts are clean.
– Use only the ECO-PLUS NiMH battery AY 3363.

Handling instructions

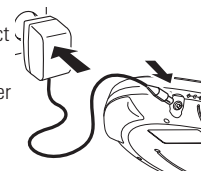
- Recharging already charged or half-charged batteries will shorten their lifetime. We therefore recommend that you let the rechargeable ECO-PLUS NiMH battery run till it is completely empty before you recharge it.
- To avoid a short circuit, do not let the battery touch any metal object.
- If the battery becomes empty soon after recharging, then either its contacts are dirty or it has reached the end of its lifetime.

Mains adapter (supplied or optionally available)

Use only the AY 3170 adapter (4.5 V / 300 mA direct current, positive pole to the center pin). Any other product may damage the player.

- 1 Make sure the local voltage corresponds to the power adapter's voltage.
- 2 Connect the power adapter to the 4.5V DC socket of the player and to the wall socket.

Note: Always disconnect the adapter when you are not using it.



Environmental information

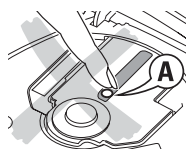
- All redundant packing material has been omitted. We have done our utmost to make the packaging easily separable into two mono materials: cardboard (box) and polyethylene (bags, protective foam sheet).
- Your set consists of materials which can be recycled if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packing materials, exhausted batteries and old equipment.

INSTRUCTION FOR USE

GENERAL INFORMATION

CD player and CD handling

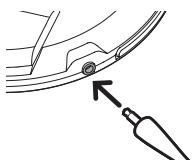
- Do not touch the lens (A) of the CD player.
- Do not expose the unit, batteries or CDs to humidity, rain, sand or excessive heat (caused by heating equipment or direct sunlight).
- You can clean the CD player with a soft, slightly dampened, lint-free cloth. Do not use any cleaning agents as they may have a corrosive effect.
- To clean the CD, wipe it in a straight line from the center toward the edge using a soft, lint-free cloth. A cleaning agent may damage the disc! Never write on a CD or attach a sticker to it.
- The lens may cloud over when the unit is moved suddenly from cold to warm surroundings. Playing a CD is not possible then. Leave the CD player in a warm environment until the moisture has evaporated.
- Active mobile phones in the vicinity of the CD player may cause malfunctions.
- Avoid dropping the unit as this may cause damage.



Headphones HE570

- Connect the supplied headphones to the LINE OUT/🔊 socket of the player.

Note: LINE OUT/🔊 can also be used for connecting this set to your HiFi system. To adjust the sound and volume, use the controls on the connected audio equipment and on the CD player.



IMPORTANT!

Hearing safety: Do not play your headphones at a high volume. Hearing experts advise that continuous use at high volume can permanently damage your hearing.

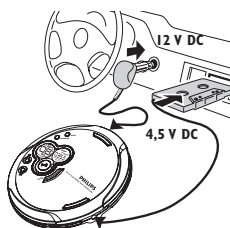
Traffic safety: Do not use headphones while driving a vehicle. It may create a hazard and it is illegal in many countries. Even if your headphones are an open-air type designed to let you hear outside sounds, do not turn up the volume so high that you cannot hear what is going on around you.

In-car use (connections supplied or optionally available)

Only use the AY 3545 or AY 3548 car voltage converter (4.5 V DC, positive pole to the centre pin) and the AY 3501 car cassette adapter. Any other product may damage the set.

- Put the set on a horizontal, vibration-free and stable surface. Make sure it is in a safe place, where the set is neither a danger nor an obstacle to the driver and the passengers.
 - Plug the voltage converter into the cigarette lighter socket (**only for 12 V car battery, negative grounding**), then connect the wired end with 4.5V DC input socket on the set.
 - If necessary, clean the cigarette lighter socket to obtain a good electrical contact.
 - Turn down the volume and connect the cassette adapter plug to LINE OUT/🔊 on the set.
 - Carefully insert the cassette adapter into the car radio's cassette compartment.
 - Make sure the cord does not hinder your driving.
 - Decrease the volume on the set if necessary. Start playback on the set and adjust the sound with the car radio controls.
- Always remove the voltage converter from the cigarette lighter socket when the set is not in use.**

Note: If your car radio has a LINE IN socket, it is better to use it for the car radio connection instead of the adapter cassette. Connect the signal lead to this LINE IN socket and to LINE OUT/🔊 on the set.

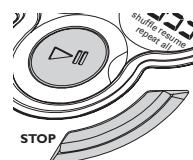
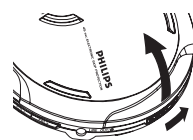


CD PLAY

Playing a CD

This CD-player can play all kinds of **Audio Discs** such as CD-Recordables and CD-Rewritables. Do not try to play a CD-ROM, CDi, VCD, DVD or computer CD.

- Push the OPEN ► slider to open the player.
- Insert an audio CD, printed side up, by pressing the CD onto the hub.
- Close the player by pressing the lid down.
- Press ►|| to switch the player on and start playback.
 - The current track number and elapsed playing time are displayed.



- You can pause playback by pressing ►||.
 - The time at which playback was paused starts flashing.
 - You can continue playback by pressing ►|| again.
- Press **STOP** to stop playback.
 - The total number of tracks and the total playing time of the CD are displayed.



- Press **STOP** again to switch the player off.

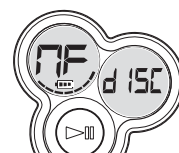
- To remove the CD, hold it by its edge and press the hub gently while lifting the CD.



Note: If there is no activity, the set will automatically switch off after a while to save energy.

Playback information

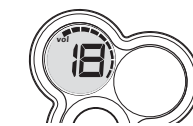
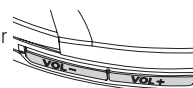
- If a CD-Recordable (CD-R) or a CD-Rewritable (CD-RW) is not recorded properly, **RF d 15C** is displayed, indicating that the CD has not been finalized. In that case, use FINALIZE on your CD recorder to complete the recording.
- When playing a CD-Rewritable (CD-RW), please note that it takes 3–15 seconds after pressing ►|| for sound reproduction to start.
- Playback will stop if you open the CD lid.
- While the CD is read, **! - - - -** flashes in the display.



Volume and bass

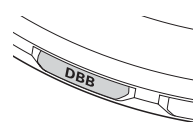
Volume adjustment

- Adjust the volume by using VOL +/- on the CD player or your remote control.



Bass adjustment

- Press **DBB** to switch the bass enhancement on or off.
 - **DBB** is shown if the bass enhancement is activated.



INSTRUCTION FOR USE

FEATURES

Selecting a track and searching

Selecting a track during playback

- Briefly press **◀** or **▶** once or several times to skip to the current, previous or next track.
→ Playback continues with the selected track, and the track's number is displayed.

Selecting a track when playback is stopped

- Briefly press **◀** or **▶** once or several times to select the desired track. The track number is displayed.

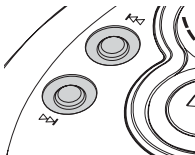
- Press **▶||** to start CD play.
→ Playback starts with the selected track.

Searching for a passage during playback

- Keep **◀** or **▶** pressed to find a particular passage in a backward or forward direction.
→ Searching starts while playback continues at low volume. After 2 seconds the search speeds up.

- Release the button when you reach the desired passage.
→ Playback continues from this position.

Notes: – If the player is in SCAN mode (see MODE chapter), searching is not possible.



FEATURES

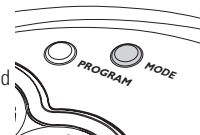
Selecting different playing possibilities -MODE

It is possible to play tracks in random order, to repeat a single track or the entire CD, and to play the first few seconds of each track.

- Press MODE during playback as often as required in order to activate one of the following 'modes'. The active mode is shown in the display.
 - **shuffle**: All tracks of the CD are played in random order until all of them have been played once.
 - **shuffle repeat all**: All tracks of the CD are played repeatedly in random order.
 - **repeat**: The current track is played repeatedly.
 - **repeat all**: The entire CD is played repeatedly.
 - **SCAN**: The first 10 seconds of each of the remaining tracks are played in sequence.

- Playback starts in the chosen mode after 2 seconds.

- To return to normal playback, press MODE repeatedly until the display shows no active modes.



ESP / Power Save Mode

With a conventional portable CD-player you might have experienced that the music stopped e.g. when you were jogging. The **ELECTRONIC SKIP PROTECTION** prevents loss of sound caused by light vibrations and shocks. Continuous playback is ensured. However ESP does not prevent playback interruptions during vigorous running. It also does not protect the unit against any **damage** caused by **dropping!** The power save mode helps to extend battery lifetime for longer playback.

- Switch the slider to ESP ON during playback to activate the shock protection.
→ **ESP** is shown and the protection is activated.
- To deactivate the shock protection and enter the power save mode, switch the slider to POWER SAVE.
→ **ESP** goes off

Programming track numbers

You can store up to 30 tracks to play in a program. A single track may be stored more than once in the program.

- While playback is stopped, select a track with **◀** or **▶**.
 - Press PROGRAM to store the track.
→ **program** lights up; the track number programmed and **P** with the total number of stored tracks are displayed.
 - Select and store all desired tracks in this way.
 - Press **▶||** to start playback of your selected tracks.
→ **program** is shown and playback starts.
- You can review the program by pressing PROGRAM for more than 2 seconds.
→ The display shows all the stored tracks in sequence.

Notes: – If you press PROGRAM and there is no track selected, **SEL** is displayed.
– If you try to store more than 30 tracks, **FULL** is displayed.

Clearing the program

- While playback is stopped, press **STOP** to clear program.
→ **SEL** is displayed once, **program** goes off, and the program is cleared.

Note: The program will also be cleared if the power supply is interrupted, or if the CD-player lid is opened, or if the set switches off automatically.



RESUME and HOLD

You can interrupt playback and continue (even after an extended period of time) from the position where playback stopped (RESUME) and you can lock all buttons of the set so that no action will be executed (HOLD). Use the OFF-RESUME-HOLD slider for these functions.

RESUME – continuing from where you have stopped

- Switch the slider to RESUME during playback to activate RESUME.
→ **resume** is shown.
 - Press **STOP** whenever you want to stop playback.
 - Press **▶||** whenever you want to resume playback.
→ **resume** is shown and playback continues from where you have stopped.
- To deactivate RESUME, switch the slider to OFF.
→ **resume** goes off.

HOLD – locking all buttons

This model offers a double lock function to prevent buttons from being accidentally pressed and activated. You can choose to lock all buttons on either your set, remote control or even both! Simply adjust the respective HOLD slider to HOLD on or off position as desired. For example:

- Switch the OFF-RESUME-HOLD slider to HOLD to activate HOLD on the set.
→ All buttons are locked and **HOLD** is shown when you press any button on the set. If the set is switched off, **HOLD** will be shown only when **▶||** is pressed.
- To deactivate HOLD, switch the slider to OFF.

Note: – If you deactivate HOLD by switching the slider on the set to RESUME, you will be activating the RESUME function.
– No **HOLD** display indication is available if you have activated the HOLD command on the remote control.



INSTRUCTION FOR USE

TROUBLESHOOTING

Troubleshooting

WARNING: Under no circumstances should you try to repair the set yourself as this will invalidate the warranty. If a fault occurs, first check the points listed, before taking the unit for repair. If you are unable to solve a problem by following these hints, consult your dealer or service center.

The CD player has no power, or playback does not start

- Check that your batteries are not dead or empty, that they are inserted correctly, that the contact pins are clean.
- Your adapter connection may be loose. Connect it securely.
- For in-car use, check that the car ignition is on. Also check player's batteries.

The indication *NO CD* is displayed

- Check that the CD is clean and correctly inserted (label-side upward).
- If your lens has steamed up, wait a few minutes for this to clear.

The indication *RF CD* is displayed

- CD-RW (CD-R) was not recorded properly. Use FINALIZE on your CD-recorder.

The indication **HOLD** is on and/or there is no reaction to controls

- If HOLD is activated, then deactivate it.
- Electrostatic discharge. Disconnect power or remove batteries for a few seconds.

The CD skips tracks

- The CD is damaged or dirty. Replace or clean the CD.
- resume, shuffle or program is active. Switch off whichever is on.

Troubleshooting

No sound or bad sound quality.

- PAUSE might be active. Press **▶||**.
- Loose, wrong or dirty connections. Check and clean connections.
- Volume might not be appropriately adjusted. Adjust the volume.
- Strong magnetic fields. Check player's position and connections. Also keep away from active mobile phones.
- For in-car use, check that the cassette adapter is inserted correctly, that the car cassette player's playback direction is correct (press autoreverse to change), and that the cigarette lighter jack is clean. Allow time for temperature change.

CAUTION

Use of controls or adjustments or performance of procedures other than herein may result in hazardous radiation exposure or other unsafe operation.

SAFETY & WARNINGS

Ⓒ **WARNING**

All ICs and many other semiconductors 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 wristband with resistance. Keep components and tools at this potential.

Ⓕ **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilez le braceleterti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

Ⓓ **WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
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.

Ⓖ **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische 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.

Ⓘ **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

Ⓒ **AVAILABLE ESD PROTECTION EQUIPMENT :**

anti-static table mat large 1200x650x1.25mm
small 600x650x1.25mm

anti-static wristband

connection box (3 press stud connections, 1MΩ)

extendible cable (2m, 2MΩ, to connect wristband to connection box)

connecting cable (3m, 2MΩ, to connect table mat to connection box)

earth cable (1MΩ, to connect any product to mat or to connection box)

KIT ESD3 (combining all 6 prior products - small table mat)

wristband tester

4822 466 10953

4822 466 10958

4822 395 10223

4822 320 11307

4822 320 11305

4822 320 11306

4822 320 11308

4822 310 10671

4822 344 13999


Ⓒ

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

Safety components are marked by the symbol 

Ⓕ

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.

Les composants de sécurité sont marqués 

Ⓓ


Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

Sicherheitsbauteile sind durch das Symbol  markiert.


SAFETY



Ⓖ

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.
De Veiligheidsonderdelen zijn aangeduid met het symbool 

Ⓘ

Le norme di sicurezza estigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.
Componenti di sicurezza sono marcati con 

Ⓒ

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

**CLASS 1
LASER PRODUCT**

Ⓒ **Varning !**

Osynlig laserstrålning när apparaten är öppnad och spärren är ukopplad. Betrakta ej strålen.

Ⓓ **Advarsel !**

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

Ⓕ **Varoitus !**

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

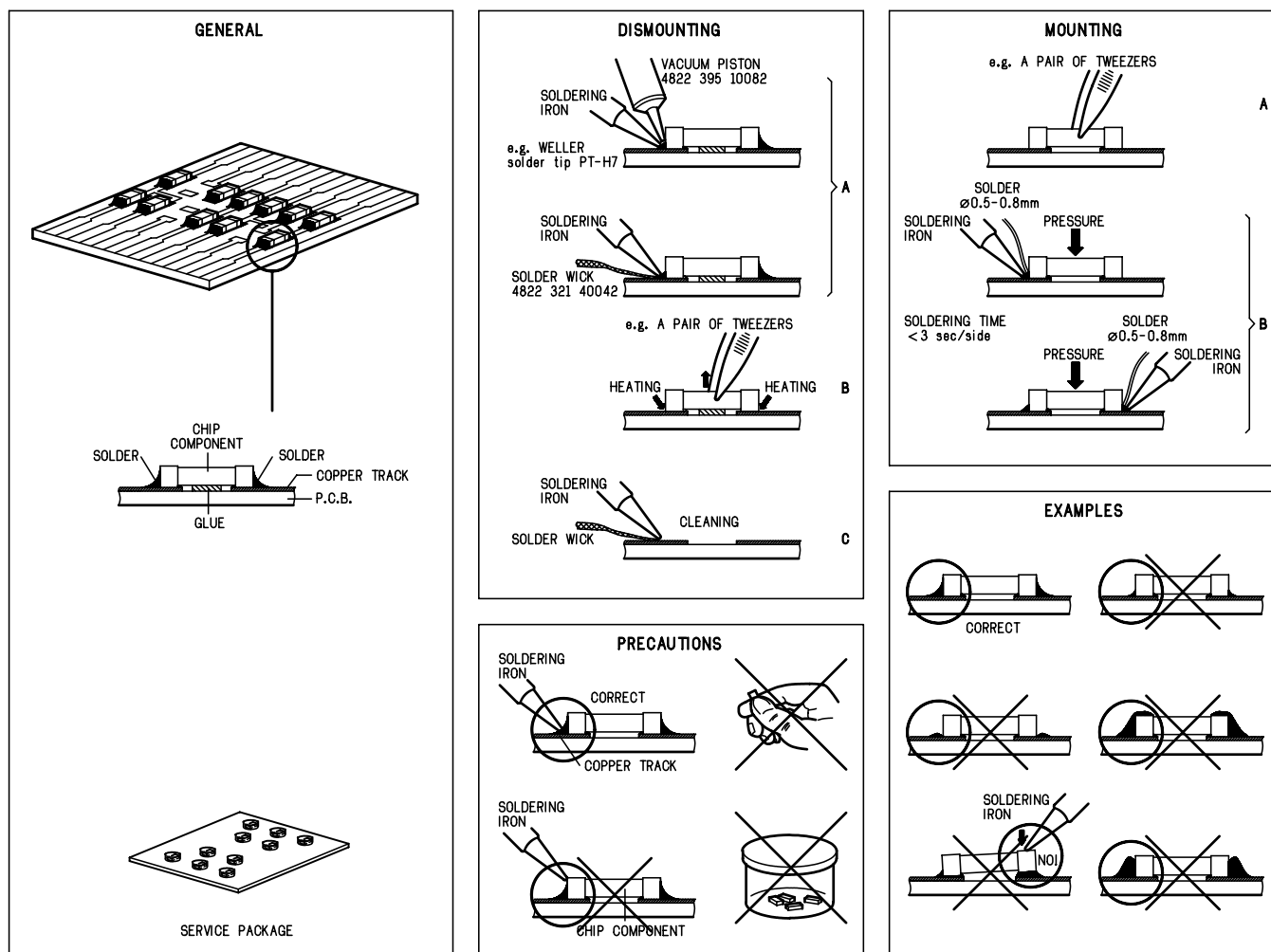
Ⓒ

After servicing and before returning the set to customer perform a leakage current measurement test from all exposed metal parts to earth ground, to assure no shock hazard exists.
The leakage current must not exceed 0.5mA.

Ⓕ

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

HANDLING CHIP COMPONENTS



SERVICE TOOLS

Audio signal disc SBC429

4822 397 30184

Playability test disc SBC444

4822 397 30245

Test disc 5 (disc without errors) + **Test disc 5A** (disc with dropout errors
black spots and fingerprints) **SBC426/ SBC426A**

4822 397 30096

ESD PROTECTION EQUIPMENT

Anti-static table mat large 1200x650x1.25mm
small 600x650x1.25mm

4822 466 10953

4822 466 10958

Anti-static wristband

4822 395 10223

Connection box (3press stud connections, 1MΩ)

4822 320 11307

Extendible cable (2m, 2MΩ, to connect wristband to connection box)

4822 320 11305

Connecting cable (3m, 2MΩ, to connect table mat to connection box)

4822 320 11306

Earth cable (1MΩ, to connect any product to mat or to connection box)

4822 320 11308

KIT ESD3 (combining all 6 prior products - small table mat)

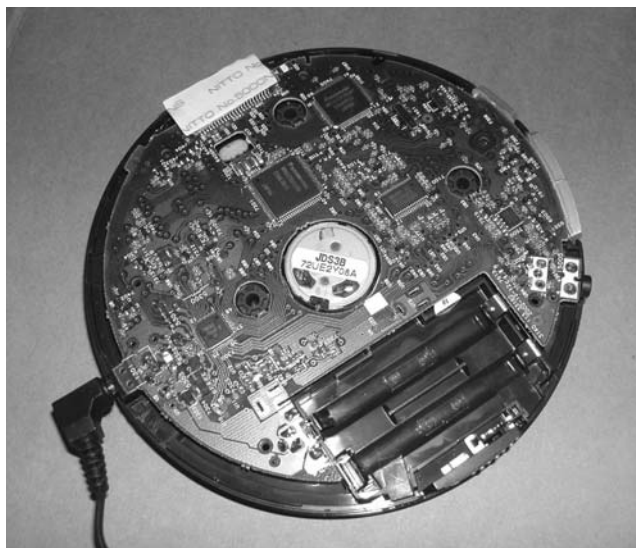
4822 310 10671

Wristband tester

4822 344 13999

SERVICE HINTS

REPAIR POSITION COPPERSIDE



To get access to the copperside of the printed board assembly proceed as follows:

1. Remove the bottom (3x) screws (2x of them under the rubber-foot) and the up (2x) screws (in the CD-door)
2. Lift the bottom -cabinet
3. Supply the unit via external DC-socket
4. Take care that the door switch is closed during measurements

DISMANTLING THE CD-DOOR



To dismantle the CD-door proceed as follows:

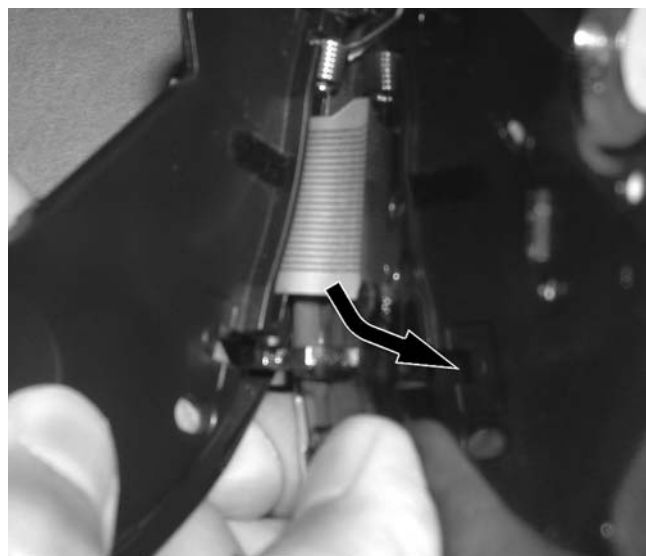
1. Dismantle bottom and printed board/drive assembly
2. Disconnect the sticker (flex-foil connector on the membrane keyboard)
3. Disconnect membrane keyboard (flex-foil connector on copperside of printed board)

REPAIR POSITION COMPONENTSIDE



To get access to the componentside of the printed board assembly proceed as followed:

1. Remove the bottom (3x) screws (2x of them under the rubber-foot) and the up (2x) screws (in the CD-door)
2. Open the CD-door
3. Lift the top-cabinet and put it backwards on the table
4. Supply the unit via the external DC-socket
5. Take care that the door switch is closed during measurements



4. Bend the cabinet rightwards downwards as indicated in the picture above

Remark: Do not use screwdrivers or tools .
Sharp edges could damage hinge or cabinet part.

PIN DESCRIPTION OF INTEGRATED CIRCUITS

MN662786SB – SIGNAL PROCESSING IC

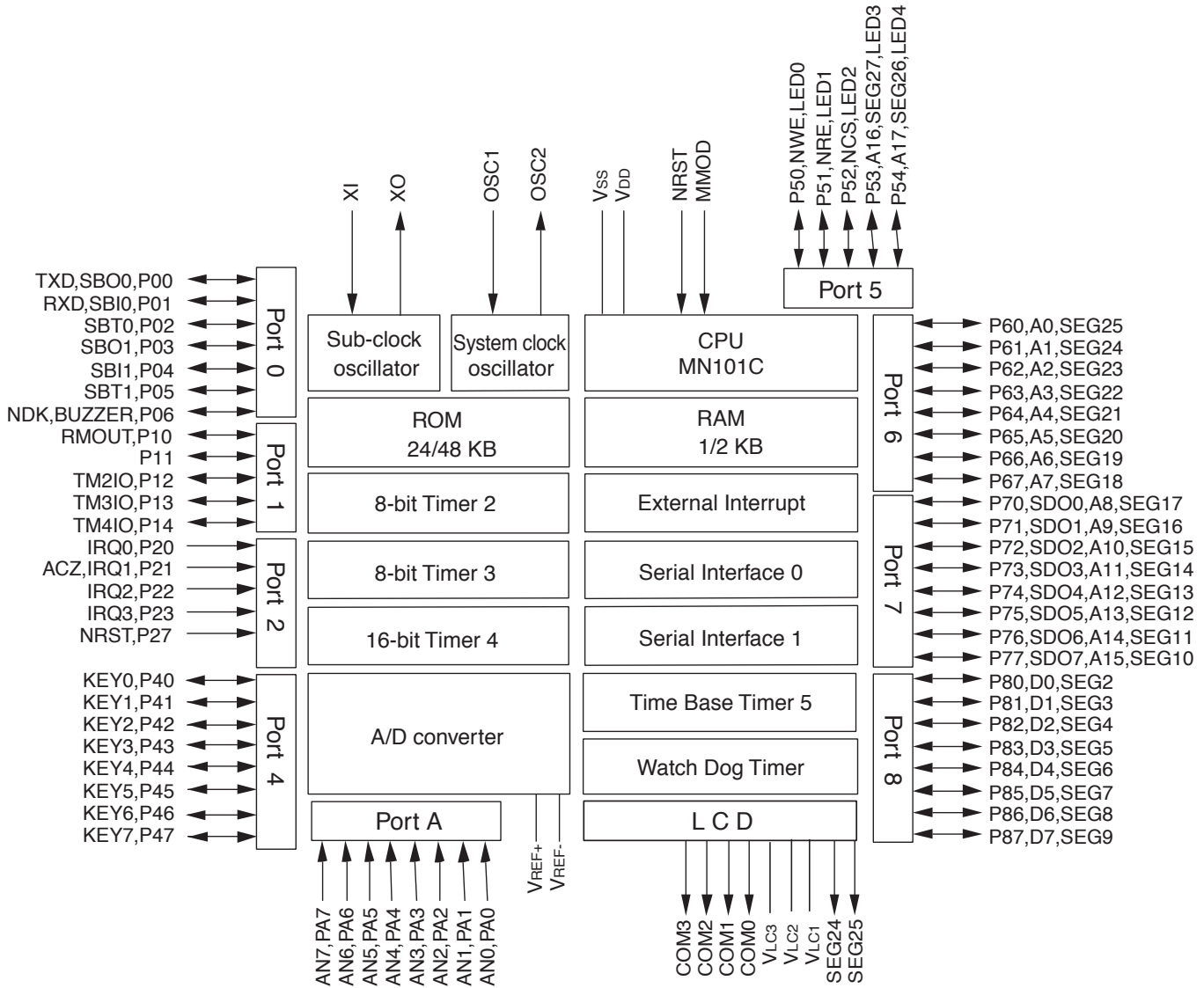
| Pin | Name | I/O | Description |
|-----|---------|-----|---|
| 1 | DRVDD | I | Power supply for DRAM interface (Pin 2 to 19, and 80) |
| 2 | D0 | I/O | DRAM data I/O signal 0 |
| 3 | D1 | I/O | DRAM data I/O signal 1 |
| 4 | NWE | O | DRAM write enable signal |
| 5 | NRAS | O | DRAM RAS control signal |
| 6 | D2 | I/O | DRAM data I/O signal 2 |
| 7 | D3 | I/O | DRAM data I/O signal 3 |
| 8 | NCAS0 | O | DRAM CAS control signal 0 |
| 9 | NCAS1 | O | DRAM CAS control signal 1 |
| 10 | A8 | O | DRAM address signal 8 |
| 11 | A7 | O | DRAM address signal 7 |
| 12 | A6 | O | DRAM address signal 6 |
| 13 | A5 | O | DRAM address signal 5 |
| 14 | A4 | O | DRAM address signal 4 |
| 15 | A9 | O | DRAM address signal 9 |
| 16 | A0 | O | DRAM address signal 0 |
| 17 | A1 | O | DRAM address signal 1 |
| 18 | A2 | O | DRAM address signal 2 |
| 19 | A3 | O | DRAM address signal 3 |
| 20 | DVSS2 | I | Ground for digital circuits |
| 21 | DVDD2 | I | Power supply for digital circuits |
| 22 | SPOUT | O | Spindle motor drive signal output (Absolute value output) |
| 23 | TRVP | O | Traverse drive output (+side output) |
| 24 | TRVM | O | Traverse drive output (-side output) |
| 25 | TRP | O | Traverse drive output (+side output) |
| 26 | TRM | O | Traverse drive output (-side output) |
| 27 | FOP | O | Focus drive output (+side output) |
| 28 | FOM | O | Focus drive output (-side output) |
| 29 | IOVDD1 | I | I/O power supply |
| 30 | TBAL | O | Tracking balance adjustment output |
| 31 | FBAL | O | Focus balance adjustment output |
| 32 | FE | I | Focus error signal input (Analog input) |
| 33 | TE | I | Tracking error signal input (Analog input) |
| 34 | RFENV | I | RF envelope signal input (Analog input) |
| 35 | OFT | I | Off-track signal input H: Off track |
| 36 | NRFDET | I | RF detection signal input L: Detect |
| 37 | BDO | I | Dropout signal input H: Dropout |
| 38 | LDON | O | Laser ON signal output H: ON |
| 39 | ARF | I | RF signal input |
| 40 | IREF | I | Reference current input |
| 41 | ADPVCC | I | A/D converter reference voltage input (Analog input) |
| 42 | DSLIF | O | DSL loop filter |
| 43 | DRF | I | DSL bias |
| 44 | PLLF | O | PLL loop filter |
| 45 | VCOF | O | Jitter-free VCO loop filter |
| 46 | AVDD2 | I | Power supply for analog circuits (For DSL, PLL, VCOF, A/D converter, and D/A converter) |
| 47 | AVSS2 | I | Ground for analog circuits (For DSL, PLL, VCOF, A/D converter, and D/A converter) |
| 48 | OUTL | O | L-ch audio output |
| 49 | AVSS1 | I | Ground for analog circuit (For audio output stage) |
| 50 | OUTR | O | R-ch audio output |
| 51 | AVDD1 | I | Power supply for analog circuits (For audio output stage) |
| 52 | FSEL | I | Noise filter for microcontroller interface ON/OFF selection input L:ON H:OFF |
| 53 | TMOD1 | I | Test input pin Normal: |
| 54 | TMOD2 | I | Test input pin Normal: L |
| 55 | *FLAG | O | Flag signal output |
| 56 | *IPFLAG | O | Interpolation flag signal output H: Interpolation |
| 57 | *EXT0 | I/O | Expansion I/O port 0 |
| 58 | *EXT1 | I/O | Expansion I/O port 1 |
| 59 | IOVDD2 | I | I/O power supply |
| 60 | TX | O | Digital audio interface signal output |
| 61 | MCLK | I | Microcontroller command clock signal input (Latches the data at a rising edge) |
| 62 | MDATA | I | Microcontroller command data signal input |
| 63 | MLD | I | Microcontroller command load signal input L: Load |
| 64 | *BLKCK | O | Subcode block clock signal output f=75 Hz (Normal-speed playback) |
| 65 | PWMSEL | I/O | PWM output mode selection input L: Direct H: 3-state |
| 66 | SMCK | O | 4.236-MHz/8.4672-MHz clock signal output |
| 67 | DMUTE | I/O | Muting input H: Mute |
| 68 | STAT | O | Status signal output |
| 69 | NRST | I | Reset input L: Reset |

| <i>Pin</i> | <i>Name</i> | <i>I/O</i> | <i>Description</i> |
|------------|-------------|------------|--|
| 70 | *SPPOL | O | Spindle motor drive signal output (Polarity output) |
| 71 | PMCK | O | 88.2-KHz clock signal output |
| 72 | *NCLDCK | O | Frame sync signal output f=7.35kHz (Normal-speed playback) |
| 73 | *SUBC | O | Subcode serial output |
| 74 | *SBCK | I | Subcode serial output clock input |
| 75 | NTEST | I | Test input pin Normal: H |
| 76 | X2 | O | Crystal oscillator output pin f=16.9344 MHz |
| 77 | X1 | I | Crystal oscillator input pin f=16.9344 MHz |
| 78 | DVSS1 | I | Ground for digital circuits |
| 79 | DVDD1 | I | Power supply for digital circuits |
| 80 | *EXT2 | I | Expansion I/O part 2 |

AN41502– DC-DC CONVERTER AND 4-CHANNEL PWM DRIVER

| <i>Pin</i> | <i>Name</i> | <i>Description</i> |
|------------|-------------|---|
| 1 | EMP | Low battery detection output |
| 2 | RESET | Reset output |
| 3 | OFF | DDC turning off |
| 4 | PREGND | Ground for control circuit block |
| 5 | EO | Step-up/down DDC error amplifier output |
| 6 | EI | Step-up/down DDC error amplifier input |
| 7 | SVCC | Step-up/down DDC error supply output |
| 8 | CRP | Ripple filter capacitor output |
| 9 | AVCC | Ripple filter connection |
| 10 | VSUBIN | Sub DDC error amplifier input |
| 11 | VSUB | Sub DDC power supply output |
| 12 | SSW | Sub DDC coil drive |
| 13 | SVCCF | Step-up/down DDC power supply |
| 14 | USW | Step-up/down DDC coil drive 2 |
| 15 | PGND1 | Ground for power supply block1 |
| 16 | DSW | Step-up/down DDC coil derive 1 |
| 17 | PVCC1 | Battery power supply input |
| 18 | VSEN | Battery voltage detection input |
| 19 | START | DDC startup |
| 20 | LG | VG voltage step-up coil drive |
| 21 | VG | Gate drive power supply |
| 22 | REGB | REG transistor drive |
| 23 | PVCC2 | AC adapter power supply input |
| 24 | VCNT | Setting PVCC1 for charging |
| 25 | FO4 | Ch.4 forward output |
| 26 | RO4 | Ch.4 reverse output |
| 27 | DRGND2 | Motor ground 2 |
| 28 | FO3 | Ch.3 forward output |
| 29 | RO3 | Ch.3 reverse output |
| 30 | VM | Motor power supply |
| 31 | RO2 | Ch.2 reverse output |
| 32 | FO2 | Ch.2 forward output |
| 33 | DRGND1 | Motor ground 1 |
| 34 | RO1 | Ch.1 reverse output |
| 35 | FO1 | Ch.1 forward output |
| 36 | MON | VM monitoring |
| 37 | FI1 | Ch.1 forward input |
| 38 | RI1 | Ch.1 reverse input |
| 39 | FI2 | Ch.2 forward input |
| 40 | RI2 | Ch.2 reverse input |
| 41 | FI3 | Ch.3 forward input |
| 42 | RI3 | Ch.3 reverse input |
| 43 | FI4 | Ch.4 forward input |
| 44 | RI4 | Ch.4 reverse input |
| 45 | CLK | DDC external clock input |
| 46 | SOFT | Soft start setting |
| 47 | CT | Triangular wave output |
| 48 | SPRT | Power off time constant setting |

MN101C39C-399 - MICROCOMPUTER BLOCK DIAGRAM



PIN DESCRIPTION OF MN101C39C-399

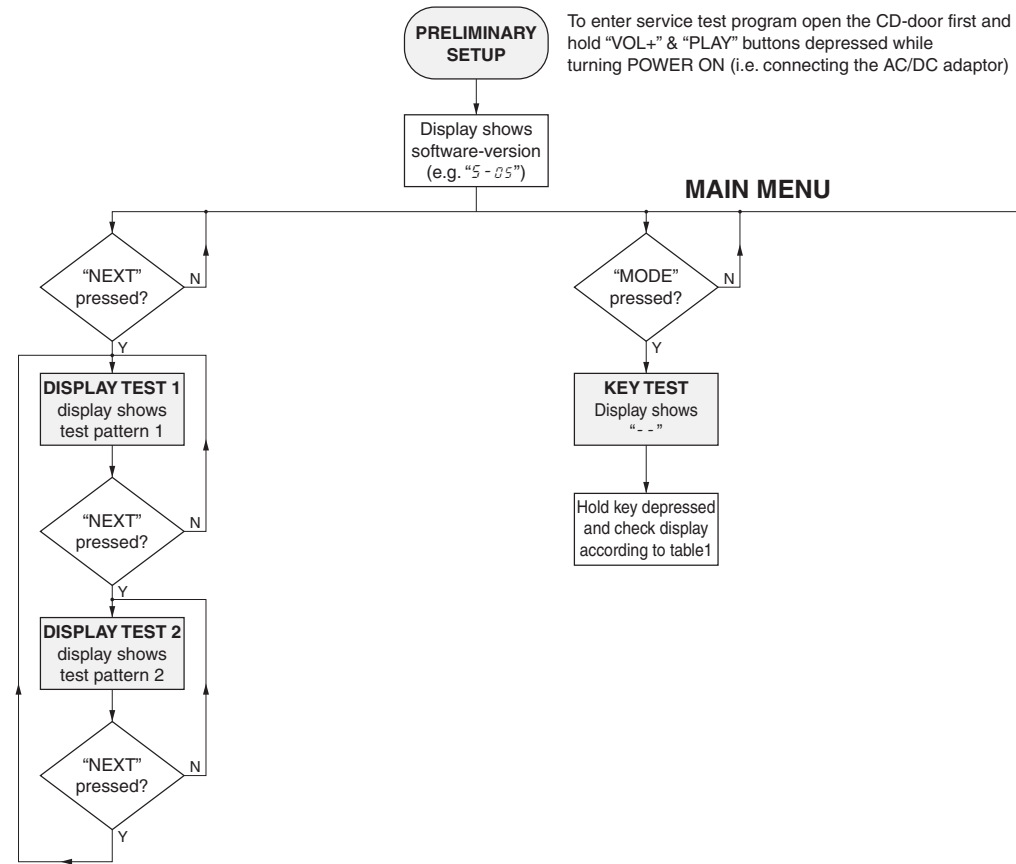
Pin Specification (1/2)

| Pins | Special Functions | I/O | Direction Control | Pin Control | Functions Description |
|------|-------------------|--------|-------------------|-------------|--|
| P00 | SBO0 TXD | in/out | P0DIR0 | P0PLU0 | SBO0 : Serial Interface 0 transmission data output TXD : UART transmission data output |
| P01 | SBI0 RXD | in/out | P0DIR1 | P0PLU1 | SBI0 : Serial Interface 0 reception data input RXD : UART reception data input |
| P02 | SBT0 | in/out | P0DIR2 | P0PLU2 | SBT0 : Serial Interface 0 clock I/O |
| P03 | SBO1 | in/out | P0DIR3 | P0PLU3 | SBO1 : Serial Interface 1 transmission data output |
| P04 | SBI1 | in/out | P0DIR4 | P0PLU4 | SBI1 : Serial Interface 1 reception data input |
| P05 | SBT1 | in/out | P0DIR5 | P0PLU5 | SBT1 : Serial Interface 1 clock I/O |
| P06 | NDK BUZZER | in/out | P0DIR6 | P0PLU6 | NDK : Data acknowledgement signal BUZZER : Buzzer output |
| P10 | RMOUT | in/out | P1DIR0 | P1PLU0 | RMOUT : Remote control carrier output |
| P11 | | in/out | P1DIR1 | P1PLU1 | |
| P12 | TM2IO | in/out | P1DIR2 | P1PLU2 | TM2IO : Timer 2 I/O |
| P13 | TM3IO | in/out | P1DIR3 | P1PLU3 | TM3IO : Timer 3 I/O |
| P14 | TM4IO | in/out | P1DIR4 | P1PLU4 | TM4IO : Timer 4 I/O |
| P20 | IRQ0 | in | - | P2PLU0 | IRQ0 : External interrupt 0 |
| P21 | IRQ1 ACZ | in | - | P2PLU1 | IRQ1 : External interrupt 1 ACZ : Zero-cross input |
| P22 | IRQ2 | in | - | P2PLU2 | IRQ2 : External interrupt 2 |
| P23 | IRQ3 | in | - | P2PLU3 | IRQ3 : External interrupt 3 |
| P27 | NRST | in | - | - | NRST : Reset |
| P40 | KEY 0 | in/out | P4DIR0 | P4PLU0 | KEY0 : KEY interrupt input 0 |
| P41 | KEY 1 | in/out | P4DIR1 | P4PLU1 | KEY1 : KEY interrupt input 1 |
| P42 | KEY 2 | in/out | P4DIR2 | P4PLU2 | KEY2 : KEY interrupt input 2 |
| P43 | KEY 3 | in/out | P4DIR3 | P4PLU3 | KEY3 : KEY interrupt input 3 |
| P44 | KEY 4 | in/out | P4DIR4 | P4PLU4 | KEY4 : KEY interrupt input 4 |
| P45 | KEY 5 | in/out | P4DIR5 | P4PLU5 | KEY5 : KEY interrupt input 5 |
| P46 | KEY 6 | in/out | P4DIR6 | P4PLU6 | KEY6 : KEY interrupt input 6 |
| P47 | KEY 7 | in/out | P4DIR7 | P4PLU7 | KEY7 : KEY interrupt input 7 |
| P50 | NWE LED0 | in/out | P5DIR0 | P5PLU0 | NWE : Write enable signal LED0 : LED driving pin 0 |
| P51 | NRE LED1 | in/out | P5DIR1 | P5PLU1 | NRE : Read enable signal LED1 : LED driving pin 1 |
| P52 | NCS LED2 | in/out | P5DIR2 | P5PLU2 | NCS : Chip select signal LED2 : LED driving pin 2 |
| P53 | A16 LED3 | in/out | P5DIR3 | P5PLU3 | A16 : Address output (bp16) LED3 : LED driving pin 3 |
| P54 | A17 SEG27 LED4 | in/out | P5DIR4 | P5PLU4 | A17 : Address output (bp17) LED : LED driving pin 4 |
| | SEG26 | | | | SEG26 : LCD segment output 26 |
| P60 | A0 SEG25 | in/out | P6DIR0 | P6PLU0 | A0 : Address output (bp0) SEG25 : LCD segment output 25 |
| P61 | A1 SEG24 | in/out | P6DIR1 | P6PLU1 | A1 : Address output (bp1) SEG24 : LCD segment output 24 |
| P62 | A2 SEG23 | in/out | P6DIR2 | P6PLU2 | A2 : Address output (bp2) SEG23 : LCD segment output 23 |
| P63 | A3 SEG22 | in/out | P6DIR3 | P6PLU3 | A3 : Address output (bp3) SEG22 : LCD segment output 22 |
| P64 | A4 SEG21 | in/out | P6DIR4 | P6PLU4 | A4 : Address output (bp4) SEG21 : LCD segment output 21 |
| P65 | A5 SEG20 | in/out | P6DIR5 | P6PLU5 | A5 : Address output (bp5) SEG20 : LCD segment output 20 |
| P66 | A6 SEG19 | in/out | P6DIR6 | P6PLU6 | A6 : Address output (bp6) SEG19 : LCD segment output 19 |
| P67 | A7 SEG18 | in/out | P6DIR7 | P6PLU7 | A7 : Address output (bp7) SEG18 : LCD segment output 18 |

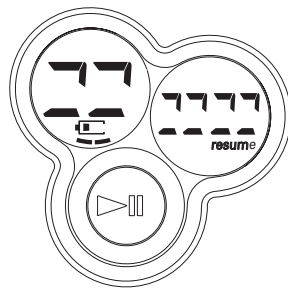
Pin Specification (2/2)

| Pins | Special Functions | I/O | Direction Control | Pin Control | Functions Description |
|------|----------------------|--------|-------------------|-------------|---|
| P70 | A8 SEG17 SDO0 | in/out | P7DIR0 | P7PLUD0 | A8 : Address output (bp8) SEG17 : LCD segment output 17 SDO0 : Synchronous output 0 |
| P71 | A9 SEG16 SDO1 | in/out | P7DIR1 | P7PLUD1 | A9 : Address output (bp9) SEG16 : LCD segment output 16 SDO1 : Synchronous output 1 |
| P72 | A10 SEG15 SDO2 | in/out | P7DIR2 | P7PLUD2 | A10 : Address output (bp10) SEG15 : LCD segment output 15 SDO2 : Synchronous output 2 |
| P73 | A11 SEG14 SDO3 | in/out | P7DIR3 | P7PLUD3 | A11 : Address output (bp11) SEG14 : LCD segment output 14 SDO3 : Synchronous output 3 |
| P74 | A12 SEG13 SDO4 | in/out | P7DIR4 | P7PLUD4 | A12 : Address output (bp12) SEG13 : LCD segment output 13 SDO4 : Synchronous output 4 |
| P75 | A13 SEG12 SDO5 | in/out | P7DIR5 | P7PLUD5 | A13 : Address output (bp13) SEG12 : LCD segment output 12 SDO5 : Synchronous output 5 |
| P76 | A14 SEG11 SDO6 | in/out | P7DIR6 | P7PLUD6 | A14 : Address output (bp14) SEG11 : LCD segment output 11 SDO6 : Synchronous output 6 |
| P77 | A15 SEG10 SDO7 | in/out | P7DIR7 | P7PLUD7 | A15 : Address output (bp15) SEG10 : LCD segment output 10 SDO7 : Synchronous output 7 |
| P80 | D0 SEG2 | in/out | P8DIR0 | P8PLU0 | D0 : Data I/O (bp0) SEG2 : LCD segment output 2 |
| P81 | D1 SEG3 | in/out | P8DIR1 | P8PLU1 | D1 : Data I/O (bp1) SEG3 : LCD segment output 3 |
| P82 | D2 SEG4 | in/out | P8DIR2 | P8PLU2 | D2 : Data I/O (bp2) SEG4 : LCD segment output 4 |
| P83 | D3 SEG5 | in/out | P8DIR3 | P8PLU3 | D3 : Data I/O (bp3) SEG5 : LCD segment output 5 |
| P84 | D4 SEG6 | in/out | P8DIR4 | P8PLU4 | D4 : Data I/O (bp4) SEG6 : LCD segment output 6 |
| P85 | D5 SEG7 | in/out | P8DIR5 | P8PLU5 | D5 : Data I/O (bp5) SEG7 : LCD segment output 7 |
| P86 | D6 SEG8 | in/out | P8DIR6 | P8PLU6 | D6 : Data I/O (bp6) SEG8 : LCD segment output 8 |
| P87 | D7 SEG9 | in/out | P8DIR7 | P8PLU7 | D7 : Data I/O (bp7) SEG9 : LCD segment output 9 |
| PA0 | AN0 | in | - | PAPLUD0 | AN0 : Analog 0 input |
| PA1 | AN1 | in | - | PAPLUD1 | AN1 : Analog 1 input |
| PA2 | AN2 | in | - | PAPLUD2 | AN2 : Analog 2 input |
| PA3 | AN3 | in | - | PAPLUD3 | AN3 : Analog 3 input |
| PA4 | AN4 | in | - | PAPLUD4 | AN4 : Analog 4 input |
| PA5 | AN5 | in | - | PAPLUD5 | AN5 : Analog 5 input |
| PA6 | AN6 | in | - | PAPLUD6 | AN6 : Analog 6 input |
| PA7 | AN7 | in | - | PAPLUD7 | AN7 : Analog 7 input |
| SEG0 | SEG0 | out | - | - | SEG0 : LCD segment output 0 |
| SEG1 | SEG1 | out | - | - | SEG1 : LCD segment output 1 |
| COM0 | COM0 | out | - | - | COM0 : LCD common output 0 |
| COM1 | COM1 | out | - | - | COM1 : LCD common output 1 |
| COM2 | COM2 | out | - | - | COM2 : LCD common output 2 |
| COM3 | COM3 | out | - | - | COM3 : LCD common output 3 |

SERVICE TEST PROGRAM - FLOW CHART



test pattern 1 (all segments activated)



test pattern 2 (alternate segments activated)

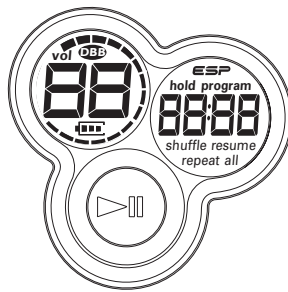


table1 - key test

| KEY | DISPLAY |
|----------|---------|
| DBB | 01 |
| PROGRAM | 02 |
| MODE | 03 |
| PLAY | 05 |
| NEXT | 06 |
| PREVIOUS | 07 |
| VOL+ | 08 |
| VOL- | 09 |

Press "STOP" on the CD-player to exit the key test.

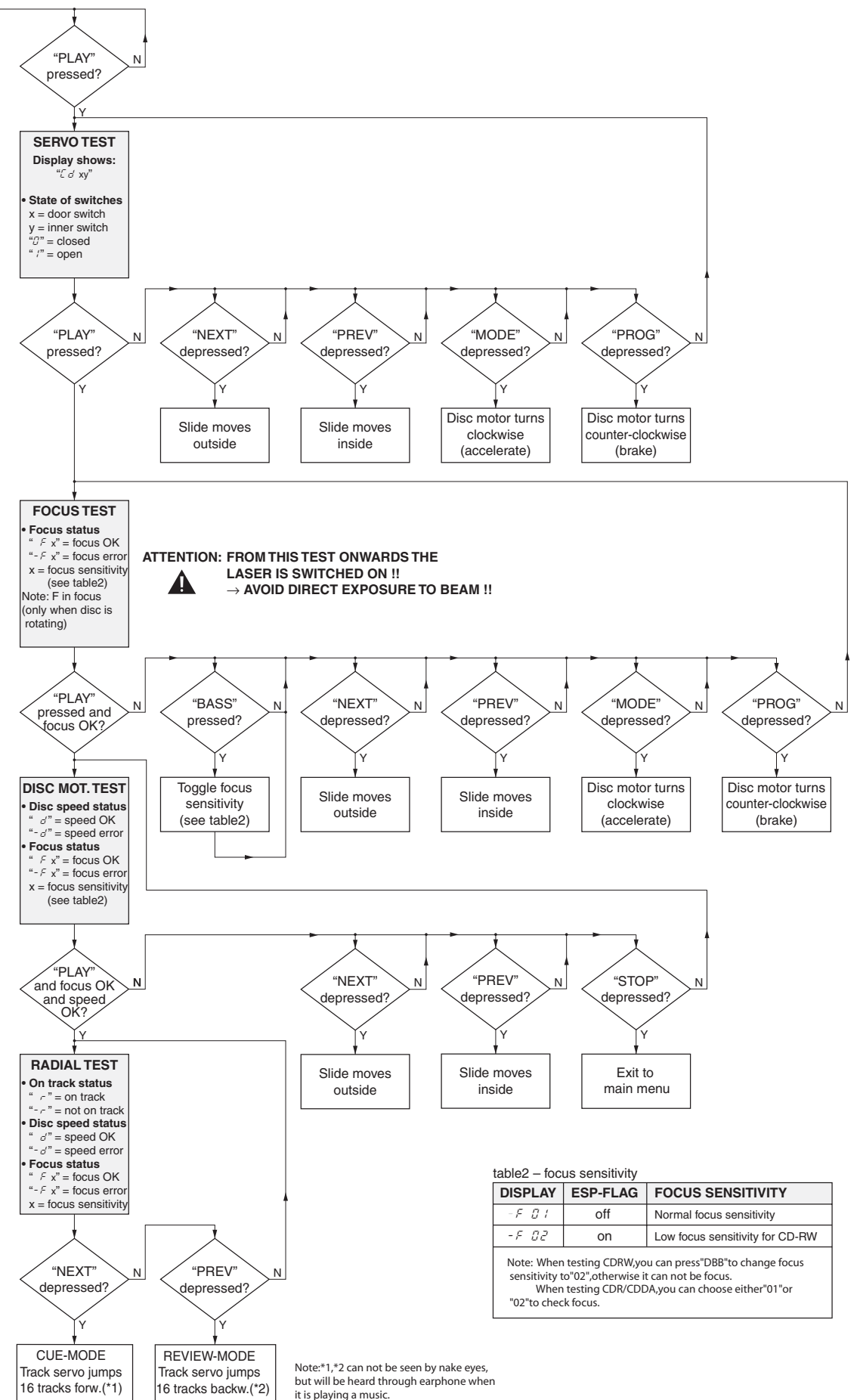


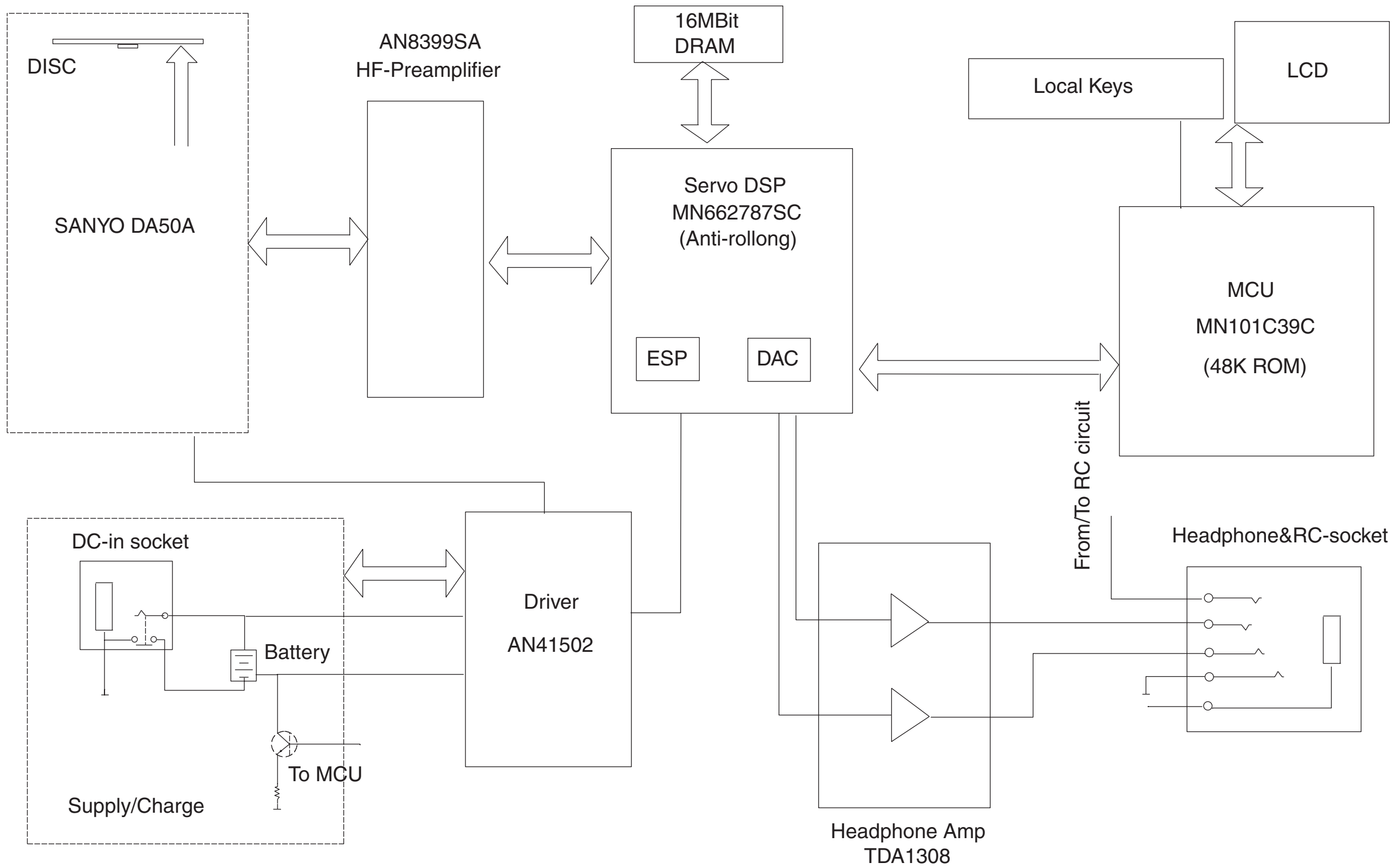
table2 - focus sensitivity

| DISPLAY | ESP-FLAG | FOCUS SENSITIVITY |
|---------|----------|---------------------------------|
| - F 01 | off | Normal focus sensitivity |
| - F 02 | on | Low focus sensitivity for CD-RW |

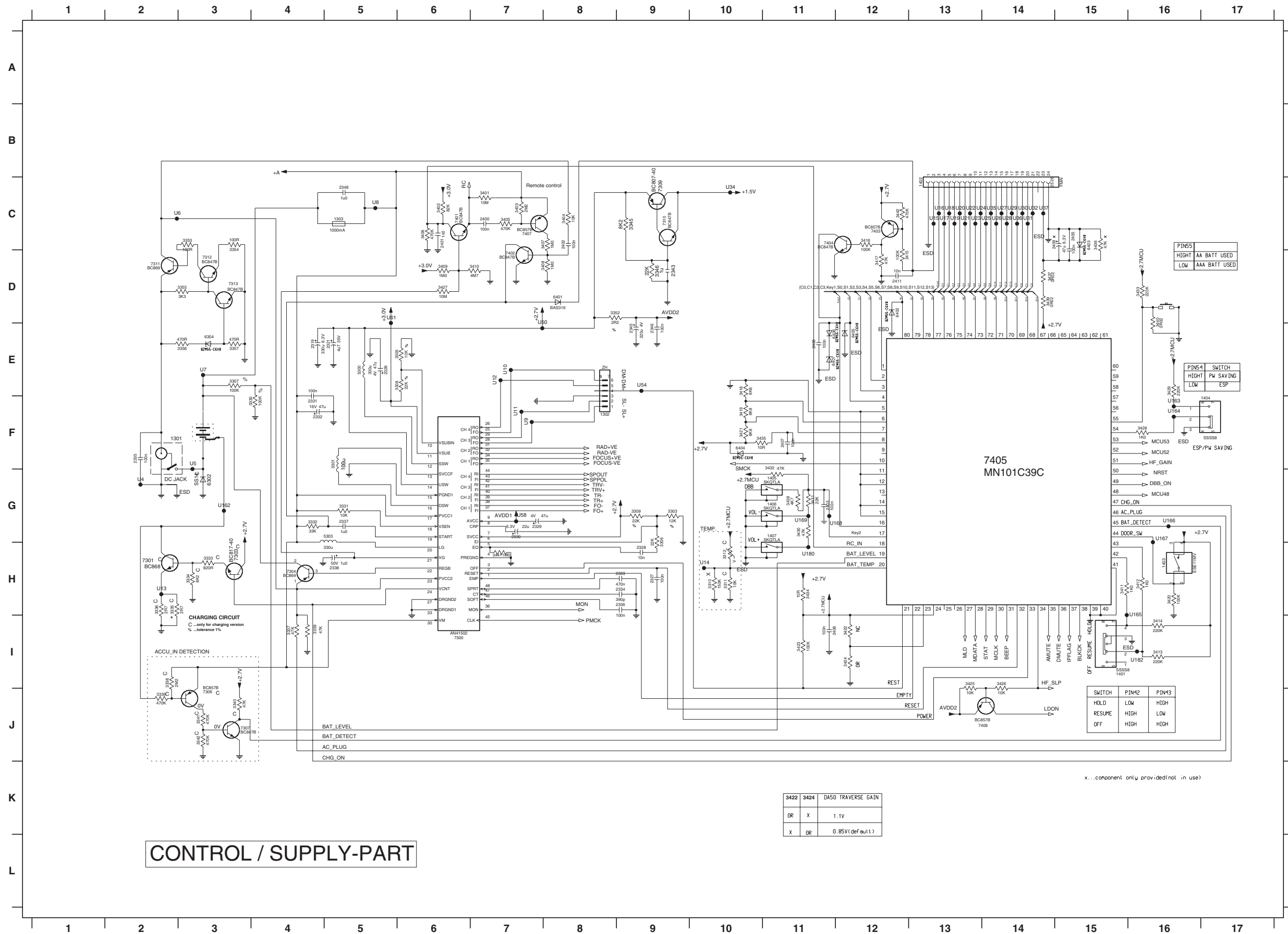
Note: When testing CDRW, you can press "DBB" to change focus sensitivity to "02", otherwise it can not be focus.
When testing CDR/CDDA, you can choose either "01" or "02" to check focus.

Note: *1, *2 can not be seen by naked eyes, but will be heard through earphone when it is playing a music.

BLOCKDIAGRAM



CIRCUIT DIAGRAM - CONTROL / SUPPLY PART



CONTROL / SUPPLY-PART

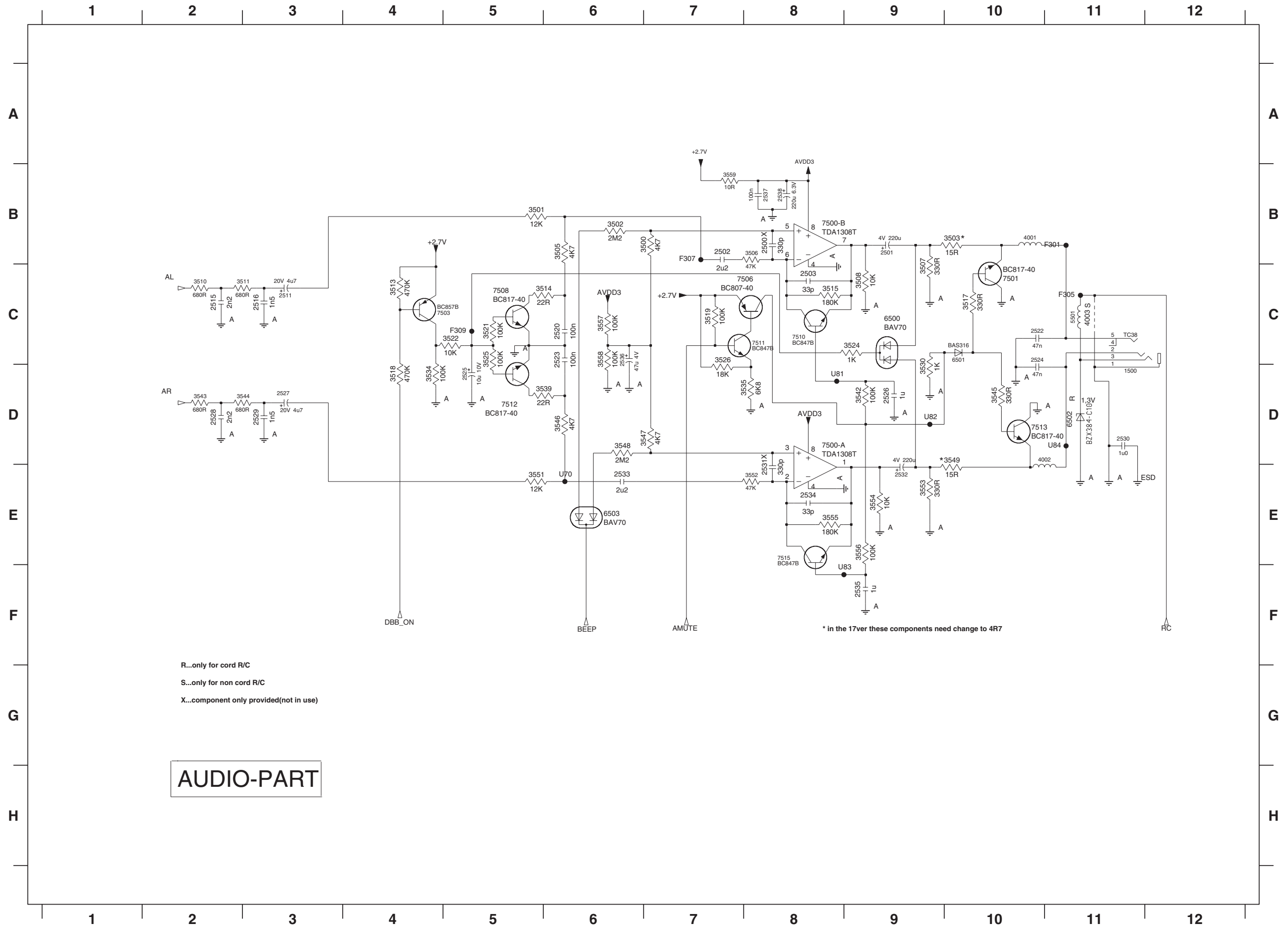
| | | |
|------|------|--------------------|
| 3422 | 3424 | DASO TRAVERSE GAIN |
| OR | X | 1.1V |
| X | OR | 0.85V (default) |

x...component only provided(not in use)

- U4 G2 3439 D14
- U5 F3 3440 D16
- U6 C2 3441 H7
- U7 E3 3442 C12
- U8 C5 5300 E5
- U9 F7 5301 F5
- U10 E7 5303 G5
- U11 F7 6302 G3
- U12 E7 6304 E3
- U13 H2 6401 D8
- U14 H10 6402 D12
- U15 C13 6403 C15
- U16 C13 6404 F10
- U17 C13 6405 E12
- U18 C13 6406 E11
- U19 C13 6407 E11
- U20 C13 7300 I6
- U21 C13 7301 H2
- U22 C13 7303 H3
- U23 C13 7304 H4
- U24 C13 7306 J3
- U25 C14 7307 J3
- U26 C14 7309 C9
- U27 C14 7310 C9
- U28 C14 7311 D2
- U29 C14 7312 D3
- U30 C14 7313 D3
- U31 C14 7401 C6
- U32 C14 7402 D7
- U34 C10 7403 C12
- U35 C14 7404 C11
- U36 C14 7405 F14
- U37 C14 7406 J13
- U50 E7 7407 C7
- U54 E9 U162 G3
- U58 G7 U163 F16
- U61 D5 U164 F16
- U65 F2 U165 I16
- U66 F2 U166 G16
- U67 F2 U167 G16
- U68 G12 U168 G12
- U69 G11 U169 G11
- U70 H11 U180 H11
- U71 H11 U182 I16
- U72 H11 U183 I16
- U73 H11 U184 I16
- U74 H11 U185 I16
- U75 H11 U186 I16
- U76 H11 U187 I16
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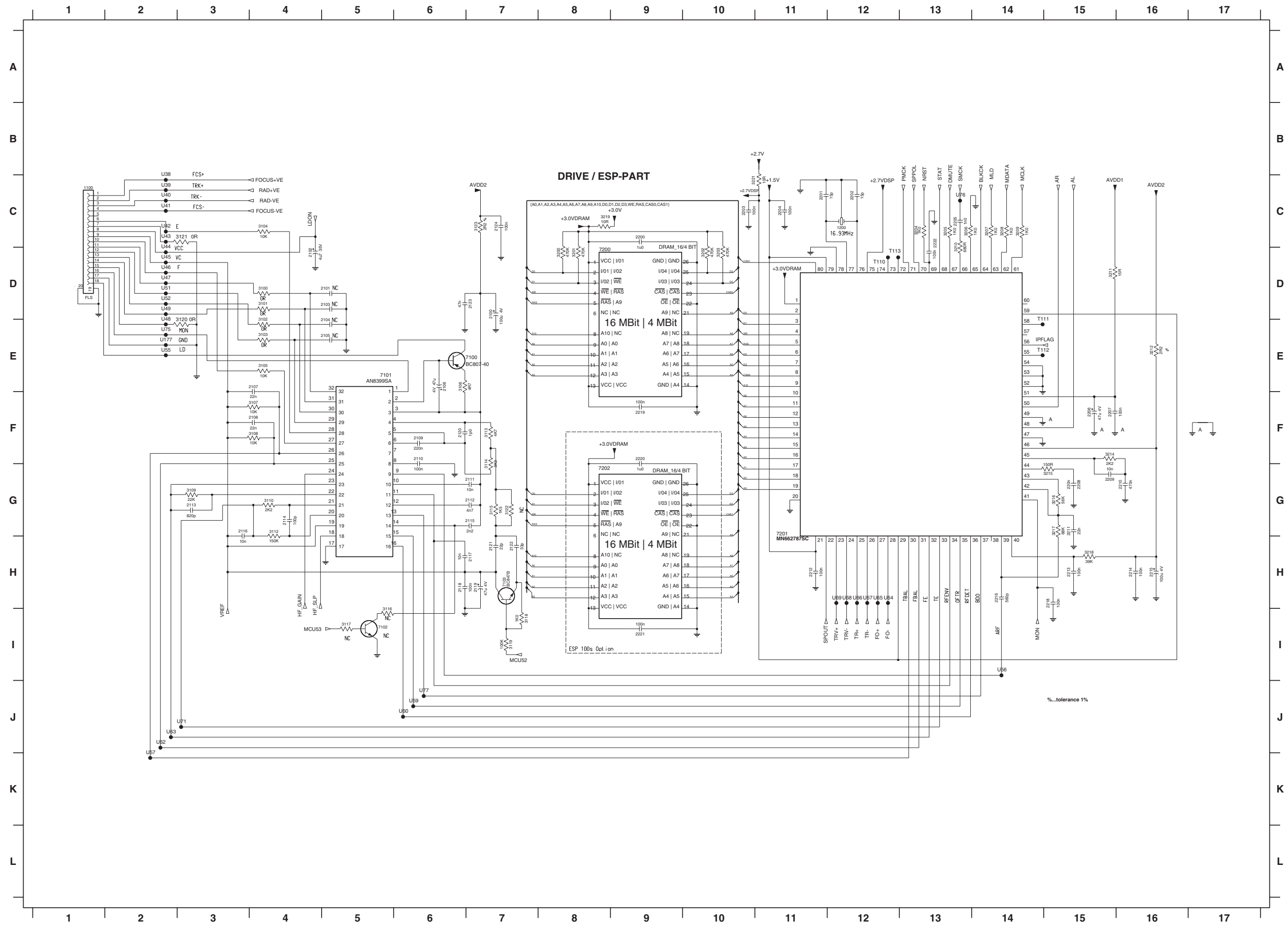
| | | |
|--------|-------|-------|
| SWITCH | PIN#2 | PIN#3 |
| HOLD | LOW | HIGH |
| RESUME | HIGH | LOW |
| OFF | HIGH | HIGH |

CIRCUIT DIAGRAM - AUDIO PART



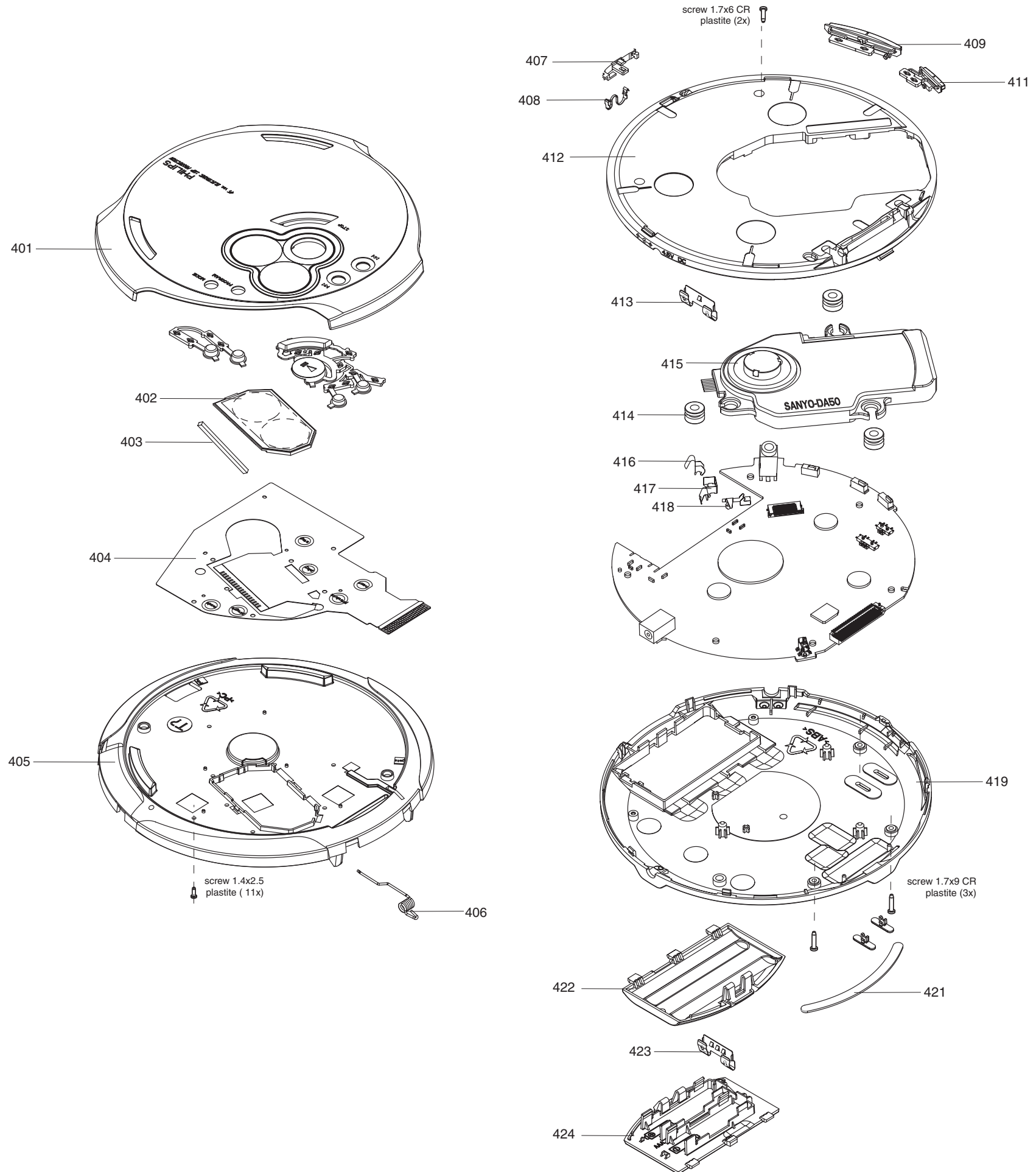
- U70 E6
- U81 D8
- U82 D9
- U83 F9
- U84 D11
- 1500 D11
- 2500 B8
- 2501 B9
- 2502 B7
- 2503 C8
- 2511 C3
- 2515 C2
- 2516 C3
- 2520 C6
- 2522 C10
- 2523 C6
- 2524 C10
- 2525 D5
- 2526 D9
- 2527 D3
- 2528 D2
- 2529 D3
- 2530 D11
- 2531 E8
- 2532 E9
- 2533 E6
- 2534 E8
- 2535 F9
- 2536 C6
- 2537 B8
- 2538 B8
- 3500 B7
- 3501 B5
- 3502 B6
- 3503 B10
- 3505 B6
- 3506 B8
- 3507 C9
- 3508 C9
- 3510 C2
- 3511 C3
- 3513 C4
- 3514 C6
- 3515 C8
- 3517 C10
- 3518 D4
- 3519 C7
- 3521 C5
- 3522 C5
- 3524 C9
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- 3526 C7
- 3530 D9
- 3534 D4
- 3535 D8
- 3539 D6
- 3542 D9
- 3543 D2
- 3544 D3
- 3545 D10
- 3546 D6
- 3547 D7
- 3548 D6
- 3549 D10
- 3551 E5
- 3552 E8
- 3553 E9
- 3554 E9
- 3555 E8
- 3556 E9
- 3557 C6
- 3558 C6
- 3559 B7
- 4001 B10
- 4002 D11
- 4003 C11
- 5501 C11
- 6500 C9
- 6501 C10
- 6502 D11
- 6503 E6
- 7500-A D8
- 7500-B B8
- 7501 C10
- 7503 C4
- 7506 C8
- 7508 C5
- 7510 C8
- 7511 C8
- 7512 D5
- 7513 D10
- 7515 E8
- F301 B11
- F305 C11
- F307 B7
- F309 C5

CIRCUIT DIAGRAM - DRIVE/ESP PART



- U38 C2
- U39 C2
- U40 C2
- U41 C2
- U42 C2
- U43 C2
- U44 D2
- U45 D2
- U46 D2
- U47 D2
- U48 E2
- U49 D2
- U51 D2
- U52 D2
- U55 E2
- U56 H4
- U57 K2
- U59 J6
- U60 J6
- U62 J2
- U63 J2
- U64 H12
- U65 H12
- U66 H12
- U67 H12
- U68 H12
- U69 H12
- U71 J3
- U75 E2
- U76 C13
- U77 J6
- 1100 C1
- 1200 C12
- 2100 D7
- 2101 D5
- 2102 D4
- 2103 D5
- 2104 E5
- 2105 E5
- 2106 E6
- 2107 E4
- 2108 F4
- 2109 F6
- 2110 F6
- 2111 G7
- 2112 G7
- 2113 G3
- 2114 G4
- 2115 G7
- 2116 G3
- 2117 H7
- 2118 H6
- 2119 H7
- 2120 F6
- 2121 H7
- 2122 H7
- 2123 D7
- 2124 G7
- 2200 C9
- 2201 C11
- 2202 C12
- 2203 C10
- 2204 C11
- 2205 C13
- 2206 F15
- 2207 F15
- 2208 G15
- 2209 G15
- 2210 G16
- 2211 G15
- 2212 H11
- 2213 H15
- 2214 H16
- 2215 H16
- 2216 H14
- 2218 H15
- 2219 F9
- 2220 F9
- 2221 I9
- 2222 C13
- 3100 D4
- 3101 D4
- 3102 E4
- 3103 E4
- 3104 C4
- 3105 E4
- 3106 E6
- 3107 F4
- 3108 F4
- 3109 G3
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- 3119 I7
- 3120 E3
- 3121 G3
- 3122 G7
- 3123 C7
- 3200 D8
- 3201 D8
- 3202 D10
- 3203 D10
- 3204 C13
- 3205 C13
- 3206 C13
- 3207 C14
- 3208 C14
- 3209 C14
- 3210 C13
- 3211 D15
- 3212 E16
- 3214 F15
- 3215 G15
- 3216 G15
- 3217 G15
- 3218 H15
- 3219 C8
- 3221 C10
- 7100 E6
- 7101 E5
- 7102 I5
- 7103 H7
- 7200 D8
- 7201 G11
- 7202 G8
- T110 D12
- T111 E14
- T112 E14
- T113 D12
- U177 E2

EXPLODED VIEW DIAGRAM





MECHANICAL PARTSLIST - CABINET

| | | |
|-----|----------------|-------------------------------------|
| 401 | 3140 117 71562 | PANEL-ASSY AX5301 |
| 401 | 3140 117 72322 | PANEL-ASSY AX5312 |
| 401 | 3140 117 69302 | PANEL-ASSY AX5303/AX5311 |
| 402 | 3140 110 52001 | LCD-AX53XX |
| 403 | 3140 114 61821 | ZEBRASTRIP |
| 404 | 3140 113 33441 | MEMBRANE-AX53-ETERNITY |
| 405 | 3140 117 71522 | CD-DOOR-ASSY AX5301 |
| 405 | 3140 117 71542 | CD-DOOR-ASSY AX5312 |
| 405 | 3140 117 69282 | CD-DOOR-ASSY AX5303/AX5311 |
| 406 | 3140 111 23151 | SPRING-CD DOOR |
| 407 | 3140 117 66991 | SLIDER-DOOR-OPEN |
| 408 | 3140 111 22611 | SPRING-SLIDER-OPEN |
| 409 | 3140 117 67001 | KNOB-VOLUME |
| 411 | 3140 117 67011 | KNOB-DBB |
| 412 | 3140 117 70981 | CABINET-ASSY-1 AX5301/AX5303/AX5311 |
| 412 | 3140 117 70991 | CABINET-ASSY-1 AX5312 |
| 413 | 3140 111 22621 | SPRING-BATTERY-SET, +/- |
| 414 | 3140 114 61761 | DAMPER AX53xx |
| 415 | 2422 549 45374 | CD DRIVE DA50 |
| 416 | 3140 111 22581 | SPRING BATTERY, -VE |
| 417 | 3140 111 22571 | SPRING BATTERY, +VE |
| 418 | 3140 111 22600 | SPRING BATTERY CHARGE |
| 419 | 3140 117 72171 | BOTTOM-ASSY 1 AX5301/AX5303 |
| 419 | 3140 117 72162 | BOTTOM-ASSY 1 AX5311/AX5312/AX5305 |
| 421 | 3140 114 49361 | RUBBER-FOOT |
| 422 | 3140 117 66911 | DOOR-BATTERY-2A |
| 423 | 3140 111 22631 | SPRING BATTERY-DOOR +/- |
| 424 | 3140 117 67031 | DOOR-BATTERY-3A-ASSY |

Note: Only these parts mentioned in the list are normal service parts.

ELECTRICAL PARTSLIST - COMBI BOARD**- MISCELLANEOUS -**

| | | |
|------|--|-------------------|
| 1100 | 2422 025 17486 | SOCKET FFC H 18P |
| 1301 | 2422 026 05086 | CONNECT H 1P |
| 1302 | 2422 025 12918 | CONNECT BM H 6P |
| 1303 |  2422 086 11012 | FUSE 0,7A 50V |
| 1303 |  2422 086 11012 | FUSE 0,7A 50V |
| 1401 | 2422 127 00547 | SWITCH-SLID |
| 1402 | 4822 265 11248 | CONN 24P |
| 1403 | 2422 129 16818 | SWITCH-DET |
| 1404 | 2422 127 00543 | SWITCH-SLID |
| 1405 | 2422 128 02968 | SWITCH-TACT |
| 1406 | 2422 128 02968 | SWITCH-TACT |
| 1407 | 2422 128 02968 | SWITCH-TACT |
| 1500 | 2422 026 05401 | SOCKET PHONE H 1P |

- CAPACITORS -

| | | |
|------|----------------|-----------------------|
| 2100 | 4822 124 12108 | 100µF 20% 4V |
| 2102 | 2020 021 91729 | 4,7µF 20% 35V |
| 2106 | 4822 124 81058 | 47µF 20% 4V |
| 2107 | 2238 916 15641 | 22nF 10%X7R 25V |
| 2108 | 2238 916 15641 | 22nF 10%X7R 25V |
| 2109 | 4822 126 13879 | 220nF +80-20% 16V |
| 2110 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2111 | 5322 126 11583 | 10nF 10% X7R 50V |
| 2112 | 4822 126 13193 | 4,7nF 10% X7R 63V |
| 2113 | 3198 016 38210 | 820pF NP0 25V |
| 2114 | 2020 552 94427 | 100pF 5% NP0 50V |
| 2115 | 4822 126 14238 | 2,2nF X7R 50V |
| 2116 | 5322 126 11583 | 10nF 10% X7R 50V |
| 2117 | 5322 126 11583 | 10nF 10% X7R 50V |
| 2118 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2119 | 4822 124 81058 | 47µF 20% 4V |
| 2120 | 3198 016 31080 | 1pF NP0 50V |
| 2121 | 4822 122 33761 | 22pF 5% NP0 50V |
| 2122 | 2222 867 15339 | 33pF 5% NP0 50V |
| 2123 | 3198 024 44730 | 47nF Y5V 50V |
| 2124 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2200 | 3198 017 41050 | 1µF Y5V 10V |
| 2201 | 4822 122 33752 | 15pF 5% NP0 50V |
| 2202 | 4822 122 33752 | 15pF 5% NP0 50V |
| 2203 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2204 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2205 | 5322 126 11578 | 1nF 10% X7R 50V |
| 2206 | 4822 124 81058 | 47µF 20% 4V |
| 2207 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2208 | 4822 126 13879 | 220nF +80-20% 16V |
| 2209 | 5322 126 11583 | 10nF 10% X7R 50V |
| 2210 | 3198 017 44740 | 470nF Y5V 10V |
| 2211 | 2238 916 15641 | 22nF 10% X7R 25V |
| 2212 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2213 | 2238 586 59812 | 100nF +80-20% Y5V 50V |

- CAPACITORS -

| | | |
|------|----------------|-----------------------|
| 2214 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2215 | 4822 124 12108 | 100µF 20% 4V |
| 2216 | 4822 126 14249 | 560pF 10% X7R 50V |
| 2218 | 2238 586 59812 | 100nF +80-20%Y5V 50V |
| 2219 | 2238 586 59812 | 100nF +80-20%Y5V 50V |
| 2220 | 3198 017 41050 | 1µF Y5V 10V |
| 2221 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2222 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2319 | 2022 029 00632 | 330µF 20% 6,3V |
| 2321 | 2020 021 91729 | 35V 4,7µF 20% |
| 2326 | 4822 124 81058 | 47µF 20% 4V |
| 2327 | 2238 586 59812 | 100nF +80-20%Y5V 50V |
| 2328 | 5322 126 11583 | 10nF 10% X7R 50V |
| 2329 | 4822 124 81058 | 47µF 20% 4V |
| 2330 | 4822 124 23237 | 22µF 6,3V |
| 2331 | 2238 586 59812 | 100nF +80-20%Y5V 50V |
| 2332 | 4822 124 80151 | 47µF 16V |
| 2333 | 3198 017 44740 | 470nF Y5V 10V |
| 2334 | 4822 126 14315 | 390pF 5% NP0 50V |
| 2335 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2336 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2337 | 3198 017 41050 | 1µF Y5V 10V |
| 2338 | 4822 124 12084 | 1µF 20% 50V |
| 2343 | 3198 017 41050 | 1µF Y5V 10V |
| 2345 | 4822 124 81059 | 220µF 20% 4V |
| 2346 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2348 | 3198 017 41050 | 1µF Y5V 10V |
| 2400 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2401 | 5322 126 11578 | 1nF 10% X7R 50V |
| 2402 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2403 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2405 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2406 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2407 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2408 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2411 | 5322 126 11583 | 10nF 10% X7R 50V |
| 2500 | 4822 126 14241 | 330pF NP0 50V |
| 2501 | 4822 124 81059 | 220µF 20% 4V |
| 2502 | 4822 126 14491 | 2,2µF 10V |
| 2503 | 2222 867 15339 | 33pF 5% NP0 50V |
| 2511 | 3198 032 54110 | 4,7µF 20% 20V |
| 2515 | 4822 126 14238 | 2,2nF X7R 50V |
| 2516 | 4822 126 14247 | 1,5nF X7R 50V |
| 2520 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2522 | 4822 126 13883 | 220pF 5% 50V |
| 2523 | 2238 586 59812 | 100nF +80-20% Y5V 50V |
| 2524 | 4822 126 13883 | 220pF 5% 50V |
| 2525 | 2020 004 90283 | 10µF 20% F93 10V |
| 2526 | 3198 017 41050 | 1µF Y5V 10V |
| 2527 | 3198 032 54110 | 4,7µF 20% 20V |

ELECTRICAL PARTSLIST - COMBI BOARD**- CAPACITORS -**

| | | |
|------|----------------|----------------------|
| 2528 | 4822 126 14238 | 2,2nF X7R 50V |
| 2529 | 4822 126 14247 | 1,5nF X7R 50V |
| 2530 | 3198 017 41050 | 1µF Y5V 10V |
| 2531 | 4822 126 14241 | 330pF NP0 50V |
| 2532 | 4822 124 81059 | 220µF 20% 4V |
| 2533 | 4822 126 14491 | 2,2µF 10V |
| 2534 | 2222 867 15339 | 33pF 5% NP0 50V |
| 2535 | 3198 017 41050 | 1µF Y5V 10V |
| 2536 | 4822 124 81058 | 47µF 20% 4V |
| 2537 | 2238 586 59812 | 100nF +80-20%Y5V 50V |
| 2538 | 3198 032 28210 | 220µF 20% 6,3V |

- RESISTORS -

| | | |
|------|----------------|-----------------|
| 3100 | 4822 051 30008 | 0R JUMPER |
| 3101 | 4822 051 30008 | 0R JUMPER |
| 3102 | 4822 051 30008 | 0R JUMPER |
| 3103 | 4822 051 30008 | 0R JUMPER |
| 3104 | 4822 051 30103 | 10K 5% 0,062W |
| 3105 | 4822 051 30103 | 10K 5% 0,062W |
| 3106 | 4822 117 13608 | 4,7R 5% 0,0016W |
| 3107 | 4822 051 30103 | 10K 5% 0,062W |
| 3108 | 4822 051 30103 | 10K 5% 0,062W |
| 3109 | 4822 051 30223 | 22K 5% 0,062W |
| 3110 | 4822 051 30222 | 2,2K 5% 0,062W |
| 3112 | 4822 051 30154 | 150K 5% 0,062W |
| 3113 | 4822 051 30472 | 4,7K 5% 0,062W |
| 3114 | 4822 051 30332 | 3,3K 5% 0,062W |
| 3115 | 4822 051 30152 | 1,5K 5% 0,062W |
| 3118 | 4822 051 30102 | 1K 5% 0,062W |
| 3119 | 4822 117 13632 | 100K 1% 0,62W |
| 3120 | 4822 051 30008 | 0R JUMPER |
| 3121 | 4822 051 30008 | 0R JUMPER |
| 3123 | 2322 704 62208 | 2,2R 1% RC22H |
| 3200 | 4822 051 30474 | 470K 5% 0,062W |
| 3201 | 4822 051 30474 | 470K 5% 0,062W |
| 3202 | 4822 051 30474 | 470K 5% 0,062W |
| 3203 | 4822 051 30474 | 470K 5% 0,062W |
| 3204 | 4822 051 30102 | 1K 5% 0,062W |
| 3205 | 4822 051 30102 | 1K 5% 0,062W |
| 3206 | 4822 051 30102 | 1K 5% 0,062W |
| 3207 | 4822 051 30102 | 1K 5% 0,062W |
| 3208 | 4822 051 30102 | 1K 5% 0,062W |
| 3209 | 4822 051 30102 | 1K 5% 0,062W |
| 3210 | 4822 051 30681 | 680R 5% 0,062W |
| 3211 | 4822 117 12971 | 15R 5% 0,62W |
| 3212 | 2322 704 62208 | 2,2R 1% RC22H |
| 3214 | 4822 051 30222 | 2,2K 5% 0,062W |
| 3215 | 4822 051 30151 | 150R 5% 0,062W |

- RESISTORS -

| | | |
|------|----------------|----------------|
| 3216 | 4822 051 30563 | 56K 5% 0,062W |
| 3217 | 4822 051 30683 | 68K 5% 0,062W |
| 3218 | 4822 051 30393 | 39K 5% 0,062W |
| 3219 | 4822 051 30109 | 10R 5% 0,062W |
| 3221 | 4822 051 30109 | 10R 5% 0,062W |
| 3303 | 5322 117 13028 | 12K 1% 0,063W |
| 3305 | 4822 117 12706 | 10K 1% 0,063W |
| 3306 | 4822 051 30223 | 22K 5% 0,062W |
| 3307 | 4822 117 13632 | 100K 1% 0,62W |
| 3308 | 5322 117 13022 | 22K 1% 0,063W |
| 3309 | 5322 117 13022 | 22K 1% 0,063W |
| 3310 | 4822 051 30154 | 150K 5% 0,062W |
| 3311 | 4822 051 30103 | 10K 5% 0,062W |
| 3312 | 2322 615 33103 | 10K 5% |
| 3330 | 4822 117 13632 | 100K 1% 0,62W |
| 3331 | 4822 051 30103 | 10K 5% 0,062W |
| 3332 | 4822 051 30333 | 33K 5% 0,062W |
| 3333 | 4822 117 12968 | 820R 5% 0,62W |
| 3334 | 5322 117 13056 | 8,2K 1% 0,063W |
| 3335 | 2322 702 70278 | 2,7R 5% |
| 3336 | 2322 702 70278 | 2,7R 5% |
| 3337 | 4822 117 12925 | 47K 1% 0,063W |
| 3338 | 3198 021 32250 | 2,2M 5% |
| 3339 | 4822 051 30474 | 470K 5% 0,062W |
| 3340 | 4822 117 12925 | 47K 1% 0,063W |
| 3341 | 4822 051 30474 | 470K 5% 0,062W |
| 3342 | 4822 051 30474 | 470K 5% 0,062W |
| 3345 | 5322 117 13056 | 8,2K 1% 0,063W |
| 3346 | 4822 051 30223 | 22K 5% 0,062W |
| 3352 | 2322 704 62208 | 2,2R 1% RC22H |
| 3353 | 4822 051 30101 | 100R 5% 0,062W |
| 3354 | 4822 051 30101 | 100R 5% 0,062W |
| 3355 | 4822 051 30332 | 3,3K 5% 0,062W |
| 3356 | 4822 051 30471 | 470R 5% 0,062W |
| 3357 | 4822 051 30471 | 470R 5% 0,062W |
| 3359 | 4822 117 12925 | 47K 1% 0,063W |
| 3401 | 3198 021 31060 | 10M 5% |
| 3402 | 4822 117 12864 | 82K 5% 0,6W |
| 3403 | 3198 021 32250 | 2,2M 5% |
| 3404 | 4822 051 30103 | 10K 5% 0,062W |
| 3405 | 4822 051 30474 | 470K 5% 0,062W |
| 3406 | 4822 051 30474 | 470K 5% 0,062W |
| 3407 | 4822 051 30105 | 1M 5% 0,062W |
| 3408 | 4822 051 30105 | 1M 5% 0,062W |
| 3409 | 4822 051 30105 | 1M 5% 0,062W |
| 3410 | 4822 051 30475 | 4,7M 5% 0,062W |
| 3411 | 4822 051 30102 | 1K 5% 0,062W |
| 3412 | 4822 051 30102 | 1K 5% 0,062W |
| 3413 | 4822 117 12891 | 220K 1% |
| 3414 | 4822 117 12891 | 220K 1% |

ELECTRICAL PARTSLIST - COMBI BOARD**- RESISTORS -**

| | | |
|------|----------------|----------------|
| 3415 | 4822 117 13632 | 100K 1% 0,62W |
| 3416 | 4822 117 13632 | 100K 1% 0,62W |
| 3417 | 4822 117 12925 | 47K 1% 0,063W |
| 3418 | 4822 051 30682 | 6,8K 5% 0,062W |
| 3419 | 4822 051 30682 | 6,8K 5% 0,062W |
| 3420 | 4822 117 13632 | 100K 1% 0,62W |
| 3421 | 4822 051 30682 | 6,8K 5% 0,062W |
| 3422 | 4822 051 30008 | 0R JUMPER |
| 3423 | 4822 117 13632 | 100K 1% 0,62W |
| 3425 | 4822 051 30103 | 10K 5% 0,062W |
| 3426 | 4822 051 30103 | 10K 5% 0,062W |
| 3427 | 3198 021 31060 | 10M 5%R |
| 3428 | 4822 051 30102 | 1K 5% 0,062W |
| 3429 | 4822 117 12891 | 220K 1% |
| 3430 | 4822 117 12925 | 47K 1% 0,063W |
| 3431 | 4822 051 30223 | 22K 5% 0,062W |
| 3432 | 4822 117 12925 | 47K 1% 0,063W |
| 3433 | 4822 117 12891 | 220K 1% |
| 3434 | 4822 051 30109 | 10R 5% 0,062W |
| 3435 | 4822 051 30109 | 10R 5% 0,062W |
| 3437 | 4822 051 30008 | 0R JUMPER |
| 3438 | 4822 051 30472 | 4,7K 5% 0,062W |
| 3439 | 4822 051 30008 | 0R JUMPER |
| 3440 | 4822 051 30008 | 0R JUMPER |
| 3441 | 4822 051 30105 | 1M 5% 0,062W |
| 3500 | 4822 051 30472 | 4,7K 5% 0,062W |
| 3501 | 4822 051 30123 | 12K 5% 0,062W |
| 3502 | 3198 021 32250 | 2,2M 5% |
| 3503 | 4822 117 12971 | 15R 5% 0,62W |
| 3505 | 4822 051 30472 | 4,7K 5% 0,062W |
| 3506 | 4822 051 30683 | 68K 5% 0,062W |
| 3507 | 4822 051 30331 | 330R 5% 0,062W |
| 3508 | 4822 051 30103 | 10K 5% 0,062W |
| 3510 | 4822 051 30681 | 680R 5% 0,062W |
| 3511 | 4822 051 30681 | 680R 5% 0,062W |
| 3513 | 4822 051 30474 | 470K 5% 0,062W |
| 3514 | 4822 117 12139 | 22R 5% 0,062W |
| 3515 | 2322 702 60184 | 180K 5% |
| 3517 | 4822 051 30331 | 330R 5% 0,062W |
| 3518 | 4822 051 30474 | 470K 5% 0,062W |
| 3519 | 4822 117 13632 | 100K 1% 0,62W |
| 3521 | 4822 117 13632 | 100K 1% 0,62W |
| 3522 | 4822 051 30103 | 10K 5% 0,062W |
| 3524 | 4822 051 30102 | 1K 5% 0,062W |
| 3525 | 4822 117 13632 | 100K 1% 0,62W |
| 3526 | 4822 051 30183 | 18K 5% 0,062W |
| 3530 | 4822 051 30102 | 1K 5% 0,062W |
| 3534 | 4822 117 13632 | 100K 1% 0,62W |
| 3535 | 4822 051 30682 | 6,8K 5% 0,062W |
| 3539 | 4822 117 12139 | 22R 5% 0,062W |

- RESISTORS -

| | | |
|------|----------------|----------------|
| 3542 | 4822 117 13632 | 100K 1% 0,62W |
| 3543 | 4822 051 30681 | 680R 5% 0,062W |
| 3544 | 4822 051 30681 | 680R 5% 0,062W |
| 3545 | 4822 051 30331 | 330R 5% 0,062W |
| 3546 | 4822 051 30472 | 4,7K 5% 0,062W |
| 3547 | 4822 051 30472 | 4,7K 5% 0,062W |
| 3548 | 3198 021 32250 | 2,2M 5% |
| 3549 | 4822 117 12971 | 15R 5% 0,62W |
| 3551 | 4822 051 30123 | 12K 5% 0,062W |
| 3552 | 4822 051 30683 | 68K 5% 0,062W |
| 3553 | 4822 051 30331 | 330R 5% 0,062W |
| 3554 | 4822 051 30103 | 10K 5% 0,062W |
| 3555 | 2322 702 60184 | 180K 5% |
| 3556 | 4822 117 13632 | 100K 1% 0,62W |
| 3557 | 4822 117 13632 | 100K 1% 0,62W |
| 3558 | 4822 117 13632 | 100K 1% 0,62W |
| 3559 | 4822 051 30109 | 10R 5% 0,062W |
| 4001 | 4822 051 30008 | 0R JUMPER |
| 4002 | 4822 051 30008 | 0R JUMPER |

- COILS & FILTERS -

| | | |
|------|----------------|---------------------|
| 1200 | 4822 242 81865 | CST16,93MXW0C3-TF01 |
| 5300 | 4822 158 10525 | LAL 04T 331K |
| 5301 | 4822 157 50964 | 100M μ H |
| 5303 | 4822 158 10525 | LAL 04T 331K |

- DIODES -

| | | |
|------|----------------|-----------------|
| 6302 | 9322 128 70685 | DIO REC SM SS14 |
| 6304 | 4822 130 11416 | PDZ6,8B |
| 6401 | 4822 130 11397 | BAS316 |
| 6402 | 4822 130 11416 | PDZ6,8B |
| 6403 | 4822 130 11416 | PDZ6,8B |
| 6404 | 4822 130 11416 | PDZ6,8B |
| 6405 | 4822 130 11416 | PDZ6,8B |
| 6406 | 4822 130 11416 | PDZ6,8B |
| 6407 | 4822 130 11416 | PDZ6,8B |
| 6500 | 5322 130 34331 | BAV70 |
| 6501 | 4822 130 11397 | BAS316 |
| 6502 | 4822 130 11551 | UDZS10B |
| 6503 | 5322 130 34331 | BAV70 |

ELECTRICAL PARTSLIST - COMBI BOARD**- IC & TRANSISTORS -**

| | | |
|------|----------------|-------------------------|
| 7100 | 5322 130 60123 | BC807-40 |
| 7101 | 9322 182 66671 | IC SM AN8399SA |
| 7103 | 5322 130 60159 | BC846B |
| 7200 | 9322 175 89668 | IC SM MSM51V17405F-60SJ |
| 7201 | 9322 198 07671 | IC SM MN662787SC |
| 7300 | 9322 186 76671 | IC SM AN41502 |
| 7301 | 5322 130 61569 | BC868 |
| 7303 | 4822 130 42615 | BC817-40 |
| 7304 | 4822 130 60142 | BC869 |
| 7306 | 4822 130 60373 | BC856B |
| 7307 | 5322 130 60159 | BC846B |
| 7309 | 5322 130 60123 | BC807-40 |
| 7310 | 5322 130 60159 | BC846B |
| 7311 | 4822 130 60142 | BC869 |
| 7312 | 5322 130 60159 | BC846B |
| 7313 | 5322 130 60159 | BC846B |
| 7401 | 5322 130 60159 | BC846B |
| 7402 | 5322 130 60159 | BC846B |
| 7403 | 4822 130 60373 | BC856B |
| 7404 | 5322 130 60159 | BC846B |
| 7405 | 3140 110 51730 | MCU MN101C39C |
| 7406 | 4822 130 60373 | BC856B |
| 7407 | 4822 130 60373 | BC856B |
| 7500 | 4822 209 33165 | TDA1308T/N1 |
| 7501 | 4822 130 42615 | BC817-40 |
| 7503 | 4822 130 60373 | BC856B |
| 7506 | 5322 130 60123 | BC807-40 |
| 7508 | 4822 130 42615 | BC817-40 |
| 7510 | 5322 130 60159 | BC846B |
| 7511 | 5322 130 60159 | BC846B |
| 7512 | 4822 130 42615 | BC817-40 |
| 7513 | 4822 130 42615 | BC817-40 |
| 7515 | 5322 130 60159 | BC846B |

Note: Only these parts mentioned in the list are normal service parts.

REVISION LIST

Version 1.0 (3140 785 32840)

Initial Release AX5301, AX5303, AX5305, AX5311, AX5312

Version 1.1 (3140 785 32841)

Page 3 - 6 Service Test Program - Flow Chart
Service Test Program was updated