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SERVICE NEWSLETTER

05.01 TYPENUMBER(S) : **AE6775, AE6780**

- SYMPTOM : **IRIS CODE D 1 1 3**
No battery contact for some battery types only.
- CURE : The ribs for fixing the battery contact wire are too close together for batteries with large plus-pole diameter. For such battery types the plus-pole of the upper battery will not contact the wire properly.
Service solution: Cut the inner ribs with a knife
- REMARKS : Modified Cabinets are used in production from week 9947 onwards.

05.02 TYPENUMBER(S): **AZ1005**

- INFORMATION : Correction to the Service Manual, Partslist
The codenumber for the CD Door Switch is missing.
The switch is available with codenumber 4822 278 90739.
- REMARKS :

05.03 TYPENUMBER(S) : **AZ1009, AZ1010, AZ1015**

- SYMPTOM : **IRIS CODE 3 1 6 1**
The Bracket-Cassette (item 502 for AZ1009, AZ1010 resp. item 501 for AZ1015) is broken at the support area for the Cassette Door Spring (item 404).
- CURE : Tooling has been modified (increased wall thickness and added radius at the corner).
Improved Bracket-Cassettes are available with codenumber 3103 304 64080.
- REMARKS : Modified parts are used in production from week 9945 onwards.

05.04 TYPENUMBER(S) : **AZ1100, AZ1101, AZ1102, AZ1103, AZ1104**

INFORMATION : Correction to the Service Manual, Mechanical Partslist
Position number 26 is listed twice. Correct is:

24	4822 410 10634	Band/Function Knob
26	4822 410 10632	Volume Knob

REMARKS :

05.05 TYPENUMBER(S) : **AZ1560, AZ1565**

INFORMATION : Correction to the Service Manual, Electrical Partslist

On Control board:

2400	5322 126 10223	47nF 10% X7R 63V
3422	4822 051 20332	3.3k Ω 5% 0.1W
3483	4822 051 20105	1M Ω 5% 0.1W
3487	4822 051 20124	120k Ω 5% 0.1W

On Feature board:

2556	4822 126 14585	100nF 20% X7R 16V
2557	4822 126 14585	100nF 20% X7R 16V
2574	4822 126 13188	15nF 20% X7R 50V
2575	4822 126 13188	15nF 20% X7R 50V
3593	4822 051 20683	68k Ω 5% 0.1W
3594	4822 051 20683	68k Ω 5% 0.1W
3612	4822 117 12521	68 Ω 5% 0.1W

REMARKS :

05.06 TYPENUMBER(S) : **AZ2750, AZ2755**

INFORMATION : Correction to the Service Manual, Mechanical Partslist
The codenumber for the Motor Pulley (item 116 on tape deck assy)
should read 4822 528 81493.

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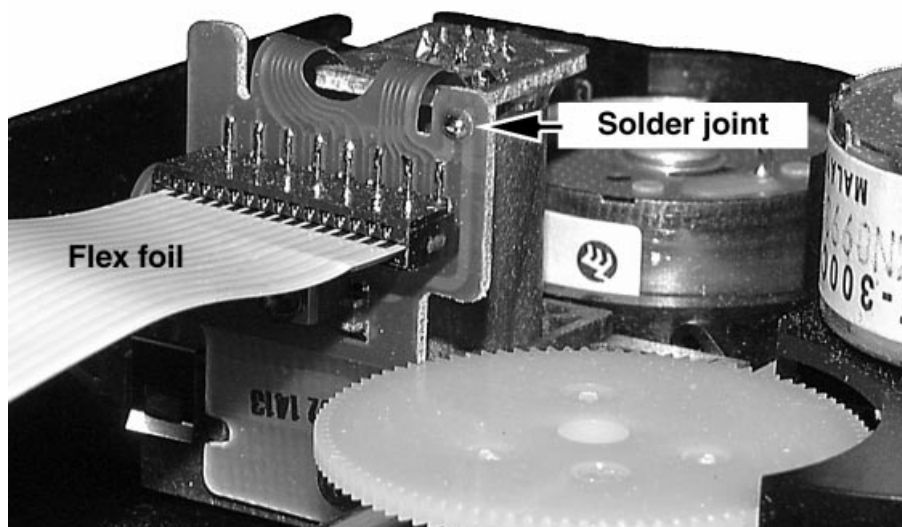


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SERVICE NEWSLETTER

10.01 TYPENUMBER(S): **CD-DRIVE VAM2201 – 4822 691 10772**

INFORMATION : The laser diode of the VAM2201 is protected against ESD by a solder joint which shortcircuits the laser diode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connecting the flex foil to the drive.



REMARKS : An addendum sheet will be packed to the CD drive, pointing out the above modification.

10.02 TYPENUMBER(S): **FW830C, FW840C, FW870C, FW878C, FW890P, FW898W**

INFORMATION : Additional information to Service Newsletter item AS99.08.03.

Although not mentioned explicitly, the EEPROM must be cleared after hardware modification.

The complete procedure is described on the next page.

Step 5, clearing the EEPROM via the Service Test Program "EEPROM Format Test", has been added.

SYMPTOM : IRIS CODE M 1 7 0

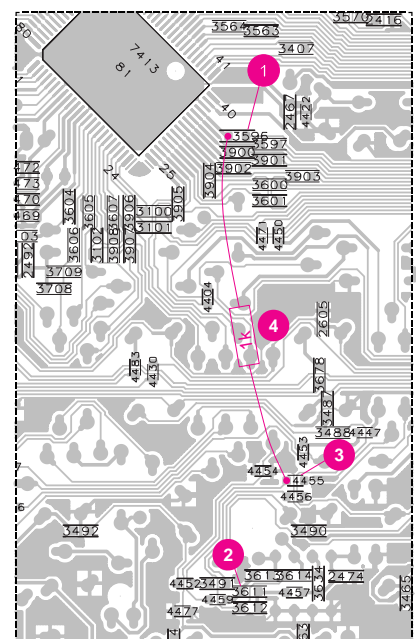
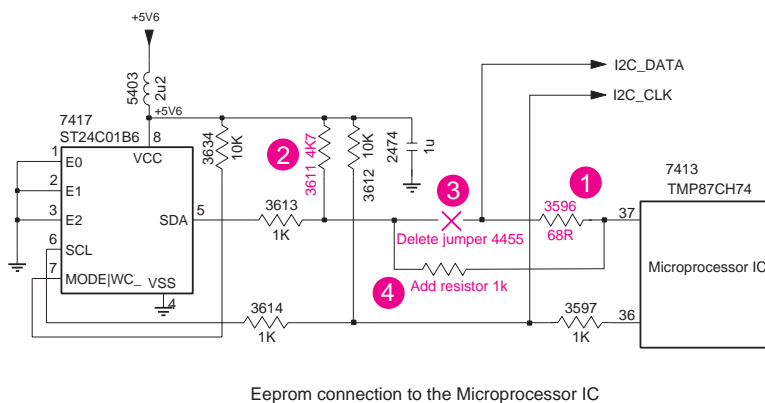
The set behaves strangely after switching it on via Standby button or mains supply re-connection. Strange behaviour includes:

- Loss of Tuner preset stations or tuning grid returns to 9kHz condition
- When changing source to Tuner the set stalls for a few seconds and may or may not switch to Tuner mode
- CD carousel rotates or the CD tray moves outwards
- Tape deck motors start to run or relay starts activation and the deck starts engaging and disengaging
- During this strange behaviour condition the set does not go into demo mode

CURE : The problem is caused by corrupted data being written into the EEPROM IC 7417 via the I2C_DATA line. The data corruption can be verified and cleared by performing an “EEPROM Format Test” in the Service Test Program.

The problem can be solved by the following hardware modification on the front board:

1. Ensure (change if necessary) that resistor 3596 is 68Ω (4822 117 12521)
2. Change resistor 3611 to 4.7kΩ (4822 051 20472)
3. Remove SMD jumper 4455
4. Add resistor 1kΩ (4822 050 11002) with insulated leads between pin 37 of microprocessor IC 7413 and junction of resistors 3611 and 3613 (left solder pad of jumper 4455)
5. Clear the corrupted data in the EEPROM as follows:
 - a) Enter the Service Test Program by holding the **PLAY ►** and **AUX** button depressed while switching on the mains supply
 - b) Perform an “EEPROM Format Test” by pressing the **SEARCH ◀◀** button to reset the EEPROM to default data
 - c) Exit the Service Test Program by disconnecting the mains supply



Portion of the Front board (copper side view)

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SERVICE NEWSLETTER

09.01 TYPENUMBER(S): **FR960, FR970, MX975D**

- SYMPTOM** : **IRIS CODE C 2 8 5**
When the set is tuned to a station with RDS-EON, and this station sends EON information that another station is currently broadcasting traffic announcements TA, the set might switch to stand-by mode for approx. 4 seconds. During these 4 seconds there is no voltage available on the AC mains outlets.
Please note that the phenomenon can also occur when the set is playing other sources (i.e. CD), as the tuner is continuously monitoring the RDS and EON signal.
- CURE** : The problem is solved by replacing microprocessor IC 7415 (located on front board) by the **new version v35 – 3103 308 83880**.
- REMARKS** : New microprocessors are used in production from week 9941 onwards. The software version can be read out via the service test program. Versions v35 and higher are OK.

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SERVICE NEWSLETTER

08.01 TYPENUMBER(S): **FW350C, FW390C, FW391C, FW396C, FW398C, FW910R, FW910SR, FW545C, FW548C, FW555C, FW585C, FW590C, FW595C, FW930, FW930R, FW768P, FW798W**

SYMPTOM : **IRIS CODE C 5 1 4**
CD does not play and the display shows "DISC NOT FINALIZED".

CURE : The problem happens mainly with Brazil's Millennium disc and is resolved by upgrading the software of the Front microprocessor IC.

The service codes for the new ICs are:

1. 9965 000 01676 (version 25) for FW350C, FW390C, FW391C, FW396C, FW398C, FW910R and FW910SR
2. 9965 000 01977 (version 35) for FW545C, FW548C, FW555C, FW585C, FW590C, FW595C, FW930 and FW930R
3. 9965 000 01978 (version 32) for FW768P and FW798W

REMARKS :

08.02 TYPENUMBER(S): **FW748P, FW768P, FW798W**

INFORMATION : Corrections to the Service Manual, AF6 board – Dolby Prologic (DPL) circuit diagram and partlist

For FW748P, FW768P, FW798W:

Change 2756 4822 124 40746 0.22µF 20% 63V
2757 4822 124 40746 0.22µF 20% 63V

For FW748P only:

Change 2789 5322 122 32531 100pF 5% 50V (partlist only)

REMARKS :

08.03 TYPENUMBER(S): FW830C, FW840C, FW870C, FW878C, FW890P, FW898W

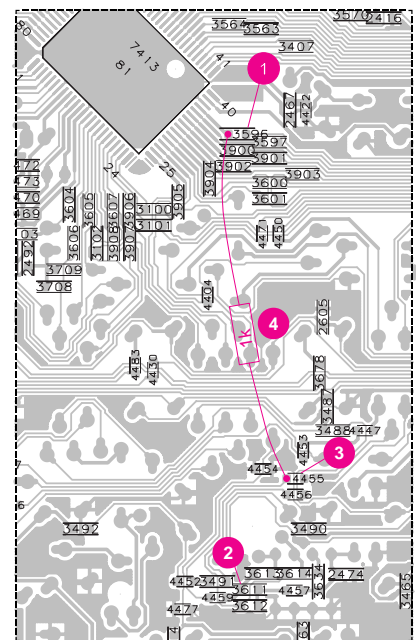
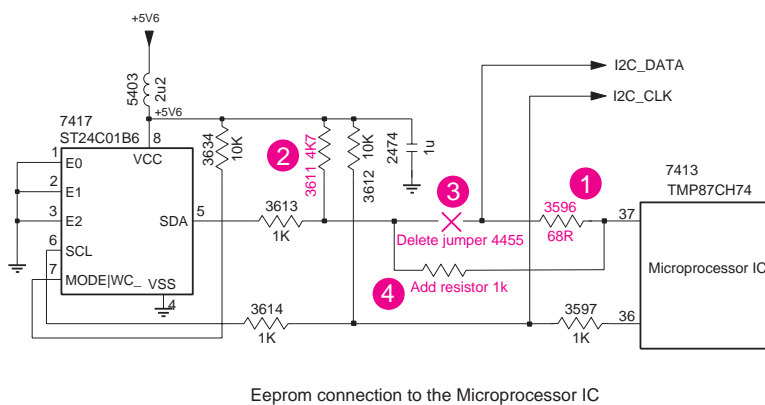
SYMPTOM : IRIS CODE M 1 7 0

- The set behaves strangely after switching it on via Standby button or mains supply re-connection. Strange behaviour includes:
- Loss of Tuner preset stations or tuning grid returns to 9kHz condition
 - When changing source to Tuner the set stalls for a few seconds and may or may not switch to Tuner mode
 - CD carousel rotates or the CD tray moves outwards
 - Tape deck motors start to run or relay starts activation and the deck starts engaging and disengaging
 - During this strange behaviour condition the set does not go into demo mode

CURE : The problem is caused by corrupted data being written into the EEPROM IC 7417 via the I2C_DATA line. The data corruption can be verified and cleared by performing an “EEPROM Format Test” in the Service Test Program.

The problem can be solved by the following hardware modification on the front board:

1. Ensure (change if necessary) that resistor 3596 is 68Ω (4822 117 12521)
2. Change resistor 3611 to 4.7kΩ (4822 051 20472)
3. Remove SMD jumper 4455
4. Add resistor 1kΩ (4822 050 11002) with insulated leads between pin 37 of microprocessor IC 7413 and junction of resistors 3611 and 3613 (left solder pad of jumper 4455)



Portion of the Front board (copper side view)

REMARKS :

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SERVICE NEWSLETTER

04.01 TYPENUMBER(S): **AJ3290**

INFORMATION : The Clock set button can get stuck inside when too much force is applied on the button. A rib will be added on the top cabinet as stopper.

REMARKS : Modification will be implemented in production from week 9948 onwards.

04.02 TYPENUMBER(S): **AJ3940**

INFORMATION : Additional information to Service Newsletter PA99.02.04.
The transformer hum can be further reduced by adding 2 pieces of sponge (about 20x15x2mm) between transformer and shield plate.

REMARKS : Modification has been implemented in production from week 9902 onwards.

04.03 TYPENUMBER(S): **AZ1010**

INFORMATION : On special request the following parts were added to the service partslist:

pos	code number	article description
507	3103 307 96350	button set CD1 lacquered
511	3103 307 96360	button set CD2 lacquered

REMARKS :

04.04 TYPENUMBER(S): **AZ2000, AZ2010**

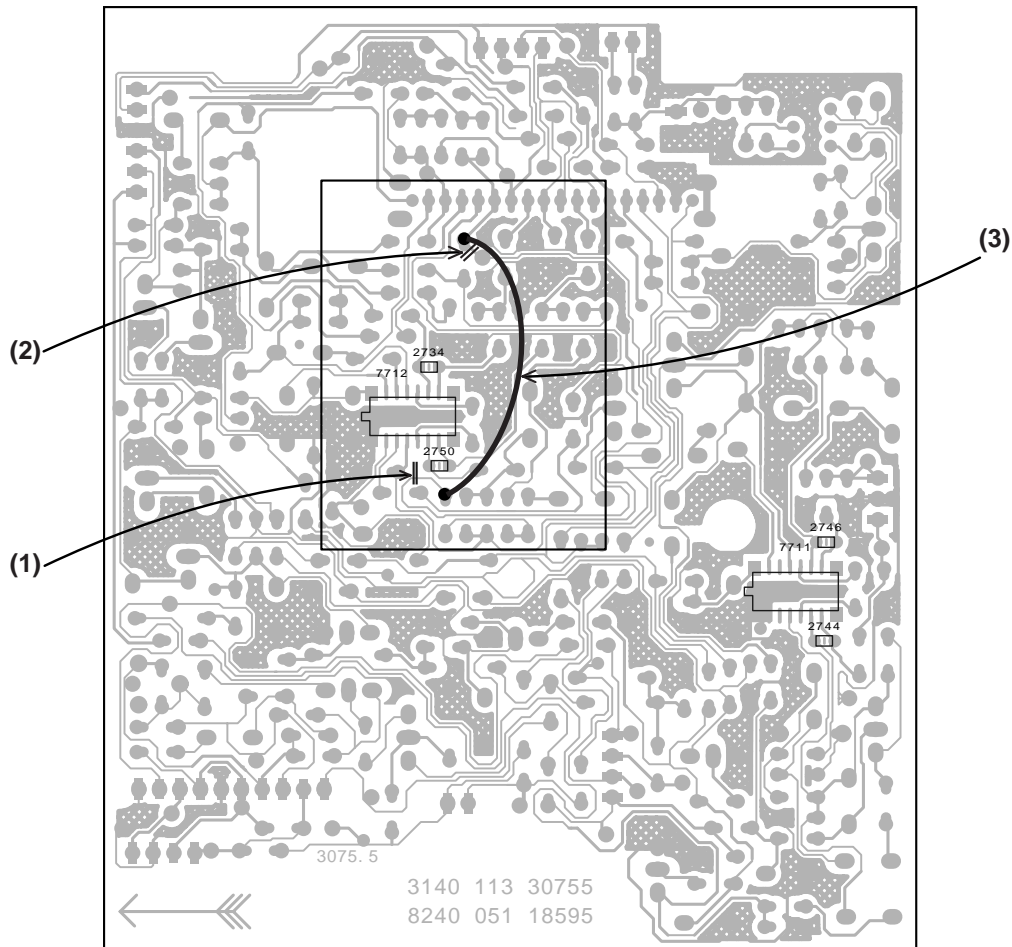
INFORMATION : On the rear cabinet, the ribs for holding the Battery Spring (item 459) are broken. In order to strengthen the ribs their wall thickness was increased and a radius was added.

REMARKS : Modification has been implemented in production from week 9934 onwards.

04.05 TYPENUMBER(S) : **AZ2750, AZ2755**

SYMPTOM : **IRIS CODE C 1 4 X**
Abnormal noise is audible in TAPE mode.

CURE : The signal paths on the Recorder board are too close.
Solution is to cut 2 copper tracks on the printed board and to connect resistor 3729 and capacitor 2736 with a wire (for details see diagram below).



Recorder Board - Layout Diagram
(PCB code : 3140 113 30755)

REMARKS : Modification has been implemented in production from week 9922 onwards.
This information will be followed by Service Information A99-577 (3140 785 22030).

04.06 TYPENUMBER(S): **AZ2750**

INFORMATION : In course of production the source selection IC TC9145 (pos. U1) has been replaced by the new type PT233 (9655 000 01767). Schematic and layout diagram of the Main Board had to be adapted accordingly. The new diagrams can be found in Service Information A99-577 (3140 785 22030).

REMARKS : The new IC is used in production from week 9938 onwards with factory change code KZ02.

04.07 TYPENUMBER(S): **AZ7495, AZ7595, AZ7794, AZ7894**

INFORMATION : Correction to Service Manual, Accessories:
The code number for the External Battery Box "AY3770" should read 4822 256 10592.

REMARKS :

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07.01 TYPENUMBER(S): **FW350C/34, FW390C/34, FW398C/34**

SYMPTOM : **IRIS CODE 1 2 1 2**

FM1 range is lost when the set is switched off.

CURE : The FM1 range (65.81-74MHz) can be turned on via the procedure published in Service Newsletter AS99.05.03.

However, due to a software problem, some sets disable the FM1 range again when the set is switched off.

The problem can be resolved by replacing the microprocessor by the new version "23". The ordering code reads 9965 000 01676.

REMARKS :

07.02 TYPENUMBER(S): **FW754P, FW765P, FW795W**

INFORMATION : Corrections to the Service Manual, partslist

1. Service code for Rucksack of "Power4 Module" should read:
4822 256 10575 Rucksack 4 Channel

2. FW795W/37 only: Service code for item 224
(Exploded view, page 14-2) should read:
4822 454 13447 Orn Display DPL only for FW795W/37

REMARKS :

07.03 TYPENUMBER(S): **MC115**

INFORMATION : On special request the following parts were added to the service partslist:

pos	code number	article description
506	3103 304 65290	button set "power"
507	3103 304 65390	cap-IR
508	3103 304 65280	button set + cap
509	3103 304 65310	button "surround"
511	3103 304 65280	button set + cap
512	3103 304 65300	button set "volume"

REMARKS :

07.04 TYPENUMBER(S): **MC145**

INFORMATION : On special request the following parts were added to the service partslist:

pos	code number	article description
509	3103 304 66660	button set "power"
511	3103 304 65390	cap-IR
513	3103 304 66670	button set "volume"
514	3103 304 66380	button set + cap
514a	3103 304 66380	button set + cap
516	3103 304 65310	button "surround"

REMARKS :

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06.01 TYPENUMBER(S): **CD713, CD723, CD753**

INFORMATION : Above mentioned sets use CD-Short Loader MK3.
This module is equipped with CD-drive **VAM1201** – 4822 691 10615.
Based on repair feedback it has been found that sometimes the
VAM1201 is replaced by CDM12.1 – 4822 691 30278.

**Although drives seem to be identical, it is not allowed to replace
VAM1201 by CDM12.1. The higher clamping force of the CDM12.1
might cause problems during open/close.**

REMARKS :

06.02 TYPENUMBER(S): **FW399V**

SYMPTOM : **IRIS CODE 1 3 5 X**
Pictures skip and jump when playing a Video-CD.

CURE : The problem can be solved by the following modification on the
Servo Board:
1. Add elcap 2861 22µF 16V (4822 124 41796) into the location
provided on the printed board
2. Replace bare wire 9015 with resistor 3872 47Ω (4822 116 52195)

REMARKS :

06.03 TYPENUMBER(S): **FW399V/21/21M**

SYMPTOM : **IRIS CODE C 5 1 X**
Sometimes the set does not read the TOC of some critical CDs.
“NO DISC” is shown on the display.

CURE : The problem can be solved by the following modification on the
Main Combi Board:
1. Delete elcap 2342 100µF 10V

REMARKS : Above modification is implemented in production from week 9932
onwards.

06.04 TYPENUMBER(S): **FW850C, FW855C, FW860P, FW880P, FW880W**

SYMPTOM : **IRIS CODE 1 1 3 X**

Program number is not displayed for Tuner frequency 100.2MHz.

CURE : The problem is caused by software. Although the program number is not displayed, the program number can still be selected.

An improved software (version 26) for microprocessor IC 7461 TMP87CS71F is available via service code 4822 900 11253.

REMARKS :

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SERVICE NEWSLETTER

05.01 TYPENUMBER(S): **AS670/34, AS675/34**

SYMPTOM : **IRIS CODE 3 1 3 X**
In standby mode, the clock display is switched off after a while.

CURE : There is nothing wrong with the set.
Switching off the display is part of the "Lower Power Standby Feature", described in chapter 11 of the Service Manual.

REMARKS :

05.02 TYPENUMBER(S): **CDC775**

INFORMATION : From production week 9930 onwards a new microprocessor (mask 2) has been introduced:

pos.	service code	article description
7401	3139 110 51260	TMP87CP71F with marking "775S52161"

The new μ P solves CD-Recorder related problems and reduces the FTD brightness to the level of other products from the Home Cinema range.

The introduction of the new microprocessor is accompanied by some hardware changes on the DAC/AF-board.

The following components have been added:

pos.	service code	article description
3963	4822 051 20479	47 Ω 5% 0.1W
3975	4822 116 52176	10 Ω 5% 1/6W
9919		Bare Wire

REMARKS : For location of components see circuit diagram and component layout. New components have already been foreseen in these drawings, but were not used, yet.

05.03 TYPENUMBER(S): **FW350C/34, FW390C/34, FW398C/34, FW545C/34, FW548C/34, FW590C/34, FW768P/34, FW830C/34, FW878C/34, FW898W/34, MZ7/34**

SYMPTOM : **IRIS CODE 1 2 1 X**
FM 65.81-74MHz cannot be tuned on the set

CURE : All Mini Systems 1999 versions /34 are set to the default FM range of 87.5-108MHz when leaving the factory.

The lower FM1 range of 65.81-74MHz can be turned on by holding the undermentioned keys depressed, while switching on the mains supply:

- a) "Tuner" & "Search Up" for all models except the MZ7/34
- b) "Tuner" & "Next" for MZ7/34 only

The display shows "FM1 ON".

REMARKS : By repeating the procedure the FM1 range will be switched off again.

05.04 TYPENUMBER(S): **FW399V**

INFORMATION : Service Manual, correction/update of the partslist

1) In the parts list of page 12-8 the service code for item 7202, IC AT27C020-12PC, should read 3139 110 52240 instead of 8239 210 51830.

2) The following parts of the Loudspeaker Box are now available as service spareparts:

service code	article description
9965 000 00757	TWEETER
9965 000 00758	WOOFER
9965 000 00795	BUZZER W/WIRE ASSY
4822 464 10523	CLOTH FRAME ASSY

REMARKS :

05.05 TYPENUMBER(S): FR960, FR970, MX975D

INFORMATION : Correction to the Service Manual, Electrical partslist
Monobard FR960 (page 13-4) and Monobard FR970 (page 14-4)

The following items should read:

pos.	service code	article description
3587	4822 051 20392	3.9kΩ 5% 0.1W
3588	4822 116 52276	3.9kΩ 5% 0.5W
3593	4822 051 20472	4.7kΩ 5% 0.1W
3594	4822 051 20472	4.7kΩ 5% 0.1W
3597	4822 116 52289	5.6kΩ 5% 1/6W
3598	4822 116 52289	5.6kΩ 5% 1/6W

REMARKS : Electrical diagram is correct (page 10-4).

05.06 TYPENUMBER(S): FR970

INFORMATION : Correction to the Service Manual, Exploded View Partslist (page 12)
The service codenumber for item 14 should read:
3104 217 52260 "Window Display" only for FR970/01B/17
3104 217 52660 "Window Display" only for FR970/01

REMARKS :

05.07 TYPENUMBER(S): MC165, MC175

INFORMATION : Correction to the Service Manual, Electrical partslist
The service codenumbers of the Mains Transformers have been
mixed up. They should read:
4822 146 11104 for /01 and /11 versions
4822 146 11105 for /02, /05, /10 and /14 versions
4822 146 11106 for /37 version

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SERVICE NEWSLETTER

03.01 TYPENUMBER(S): GENERAL

INFORMATION : Service Information A99-572 (3140 785 22022) is published to introduce the survey of service spareparts for those typenumbers in category 1, for which no Service Manual has been published.

In this additional issue, the following typenumbers are new:

- Portable radio : AE2180, AE6776, AE6780
- Clock radio : AJ3141, AJ3142, AJ3143, AJ3144, AJ3145
- Radio Cass. Recorder: AQ4150/..S, AQ5150/..S
- Headphone Stereo : AQ6411, AQ6412, AQ6413, AQ6414, AQ6682

REMARKS :

03.02 TYPENUMBER(S): AZ1120

INFORMATION : In course of production, the following parts have been changed to improve DBB performance:
• Capacitor 2503 and 2504 changed to 68nF (5322 121 42465)

REMARKS : Modification has been implemented in production from week 9921 onwards.

03.03 TYPENUMBER(S) : AZ2000, AZ2010

SYMPTOM : **IRIS CODE 2 1 1 3**
Sets are not working on some batteries (e.g. Energizer batteries) because the battery plate fails to contact with the batteries.

CURE : The cabinet wall holding the battery plate is too thick.
The simplest service solution is to add a washer (of 0.5 - 0.7mm thickness) behind the battery plate to compensate the tolerance.
On long term, the battery plate will be modified to increase the height of the contact point.

REMARKS : Modification has been implemented in production from week 9926 onwards.

03.04 TYPENUMBER(S): AZ2402, AZ2407

- SYMPTOM** : **IRIS CODE C 2 1 2**
No FM reception at the higher end frequencies of the FM-band, when Volume is set to maximum and MODE button is pressed.
- CURE** : Problem can be solved by changing following parts:
• Capacitor 2322 and 2326 changed to 22 μ F (4822 124 81151)
• Resistor 3223 changed to 150 Ω (4822 116 83868)
- REMARKS** : Modification has been implemented in production from week 9923 onwards.

03.05 TYPENUMBER(S): AZ2402

- SYMPTOM** : **IRIS CODE 6 1 1 X**
The Power ON/OFF switch 1496 or resistor 3594 is burst due to high transient current.
- CURE** : Additional to Service Newsletter PA99.02.11, on long term the layout of the Front board will be modified and following parts will be changed or added:
• Resistor 3456 changed to 15k Ω (4822 116 52244)
• Resistor 3457 changed to 5.6k Ω (4822 116 52289)
• Resistor 3516, 47 Ω (4822 116 52195) added
• Diode 7483 and 7484, 1N4148 (4822 130 30621) added
- REMARKS** : Modification will be implemented in production from week 9932 onwards.
This information will be followed by Service Information A99-573 (3140 785 22023).

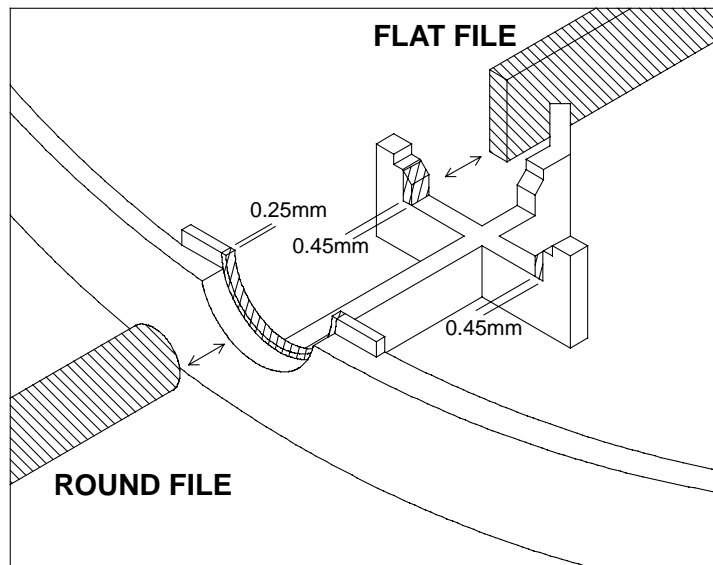
03.06 TYPENUMBER(S): AZ2407

- SYMPTOM** : **IRIS CODE 6 1 1 X**
The Power ON/OFF switch 1496 or resistor 3594 is burst due to high transient current.
- CURE** : Additional to Service Newsletter PA99.02.11, on long term the layout of the Front board will be modified and following parts will be changed or added:
• Resistor 3456 changed to 15k Ω (4822 116 52244)
• Resistor 3457 changed to 5.6k Ω (4822 116 52289)
• Resistor 3516, 47 Ω (4822 116 52195) added
• Diode 7482 and 7483, 1N4148 (4822 130 30621) added
- REMARKS** : Modification will be implemented in production from week 9932 onwards.
This information will be followed by Service Information A99-574 (3140 785 22024).

03.07 TYPENUMBER(S): **AZ7381, AZ7382, AZ7383, AZ7481, AZ7482, AZ7483**

INFORMATION : In course of production, the PCB Assembly was changed to PB2 (for details please refer to Service Manual 4822 725 26021).
In the PB2 assembly a smaller headphone jack was used and thus the hole for h/p jack on the cabinet was also made smaller.
The cabinet (4822 449 80201) of the sets produced in earlier stage is no longer available and the new cabinet (4822 449 80266) with smaller jack hole will be delivered as substitute.

As a service solution, for repairing sets with bigger headphone jack, we suggest to enlarge the hole by use of files (see drawing below).



REMARKS :

03.08 TYPENUMBER(S): **MC165, MC175**

INFORMATION : Correction to the Service Manual, Electrical partslist
The service codenumbers of the Mains Transformers have been mixed up. They should read:

4822 146 11104 for /01 and /11 versions
4822 146 11105 for /02, /05, /10 and /14 versions
4822 146 11106 for /37 version

REMARKS :

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SERVICE NEWSLETTER

This newsletter concerns the introduction of the new generation CD recorders.

First of all some issues concerning the new products are presented then the typical new features in 1999 sets and explained, at the end the service approach is given according next schedule:

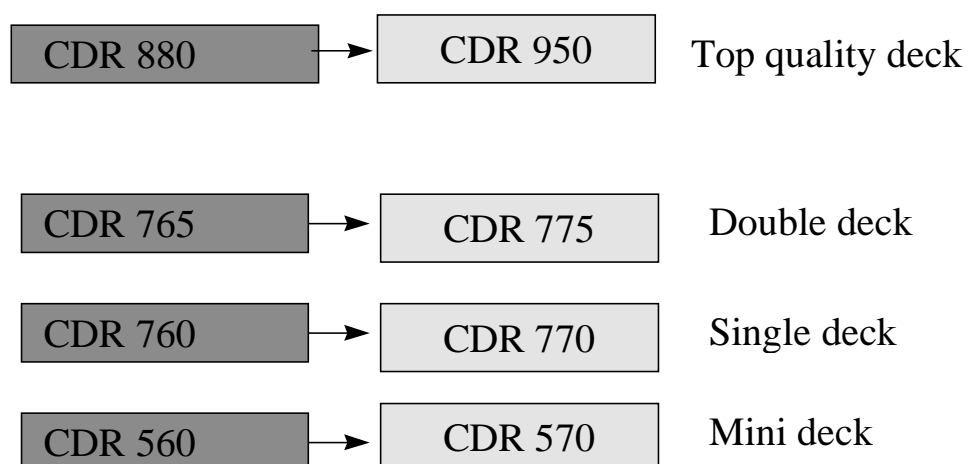
- Introduction
- The 1999 range overview
- The 1999 products
- User interface / interaction
- What is new in all 1999 sets
- Survey of ReWritable(disc) Compatible products in 1999
- Survey of digital out products in 1999
- CD-R(W) Digital Audio discs
- Service approach

Introduction

The 3rd generation CD Recorders have great similarity to the current 1998 range which was based on 3 concepts. First, the high-end CDR880 with a neutral styling to match the installed base of HiFi components of any brand. Secondly, a new styling for the CDR765 and CDR760 to match the Philips CD player line, and thirdly, the separate Mini CDR560/CDR538 to address the Mini systems market.

Range overview + table of stroke versions

Product line-up 1999:



Difference between stroke versions:

CDR TYPE	Europe	AP/ Latam	Japan	Korea	Eastern Europe	USA
950	/00	/01	/06	/13	/14	/17
775	/00	/01	/06	/13	/14	/17
770	/00	/01	/06	/13	/14	/17
570	/00	/01	/06	/13	/14	/17
930	/00	/01	/06	/13	/14	/17
951	/00					
776	/00					

Power supplies:

	West Europe /00	USA /17	Asia Pacific /01	E & C Europe /14	Japan /06	Korea /13
CDR950	230V +/-10% 50 Hz	117V +/-10% 60 Hz	100/110/220/230 V +/-10%	230V +/-10% 50 Hz	100V +/-10% 60 Hz	230V +/-10% 50 Hz
CDR775	80-276V 50-60 Hz	80-150V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz
CDR770	80-276V 50-60 Hz	80-150V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz
CDR570	80-276V 50-60 Hz	80-150V +/-10% 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz
CDR930	80-276V 50-60 Hz	80-150V +/-10% 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz	80-276V 50-60 Hz

High-end CDR950*:

After being very successful with both the CDR870 and CDR880, we have seen the competition enter the market for high-end CD Recorders. Philips will join this market with the CDR950, which will have the Harmonised Design styling, matching other products like the new DVD player, receiver and CD players in 1999. To make the 950 into a serious player in the segment, it will be equipped with high-end specifications for both recording and playback. Together with a maximum of dazzling new features like text editing, this model will be marketed as our 'Flagship' of the range at a target price point of DM 999.-.

Product specific feature overview CDR950:

Successor of CDR880 with e.g. :

Analogue linear power supply (Less Hum & Noise)

SRC & DLR (Direct Line Recording)

High-quality cables

New in 1999:

Harmonised Design (Receivers / CD changer / DVD / VCR)

Fade-in / fade-out (with adjustable timing 10 seconds)

Stereo microphone input (separate or mixed recording with separate level potmeter)

Monitor path (listen to the actual recording or using the SRC for separate)

High-end audio specifications(separate AD / DA converters)

Input / output as CDR880 but with 2 digital coaxial inputs

Renaming the inputs (e.g. change DIGITAL 1 into 'MY DAT RECORDER')

Dual-deck CDR775*:

To continue the success of the current dual-deck CDR765, its successor the CDR775 will surprise you with many new features like the menu-controlled user interface via an easy jog control, text recording and a standby function. The design matches the Audio Systems CD players, but shows significant improvements in many details.

Product specific feature overview CDR 775/CDR776:

Successor of CDR765 with e.g.:

Double-speed recording (internal)

Seamless playback changer

DJ mode (separate play / outputs)

Recording from internal or external sources

Synchronised start recording from external sources



New in 1999:

CD Text recording from internal deck

Normal-speed recording whole disc (Listen mode)

Advanced and easy programming of favourite tracks

(e.g. a program that does not fit can be edited (adding and/or deleting tracks).

Random programming over two discs (CDR765 can only program per disc)

New CD drive in the dual-deck recorder which also offers more functionality (better performance, playing unfinalised discs)

CD drive is able to play unfinalised CDR/RW discs

SRC (11-56 kHz)

DLR (Direct Line Recording)

Single-deck CDR770*:

The CDR760 will be succeeded by the CDR770, which also benefits from the new featuring of text editing, easy jog and the new user interface. The design also matches that of the Audio Systems CD players.

*) All these models are planned in Black and Champagne versions

Product specific feature overview CDR770

Successor of the CDR 760 with e.g.:
Synchronised start recording of DISC
or TRACK

Digital optical, digital coaxial and
analogue inputs

Digital coaxial and analogue outputs

New in 1999:

SRC (11-56 kHz)

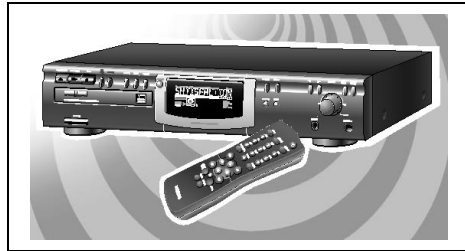
Direct Line Recording

CD Text input/editing

Multi-track erase (RW)

Scrolling text

Synchronised start of disc recording automatically followed by auto finalise
(made CD).



Mini CD Recorder CDR 570/930:

To complete the range for 1999, the CDR560 will be succeeded by the CDR570, which has the same specification as the CDR770. The design remains the same on the outside to match the current Mini Systems, with the exception of the new easy jog control and the menu-controlled user interface.

Product specific feature overview CDR570/ 930

Successor of CDR560 with e.g.:

System remote control for CDR930

New in 1999:

Similar featuring to CDR770 but no headphone
output

Matching the FW930C design



Mini systems with CDR (FW930, FW910)

Two mini systems will be created with a bundled CDR.

The CDR930 will be created for bundling together with the FW930 Mini System and the FW910.

Improved user interface / Interaction

General

The aim for CD-R is to make successful CD recording so easy that users can easily remember all the steps needed to create and play their own CDs. This is where user interface design plays a crucial role. Making a recording on CD is a technically complex task for the CD Recorder, but the trick is to keep this complexity away from the user. When the task of recording is analysed, there are very few things that the user has to know and do to make a successful recording. So what are the essential aspects for achieving simple, user-friendly operation?

The display is one of the most important. It constantly shows the status of the CD Recorder and gives relevant information about the current task. It is able to enter into a dialogue with the user, giving relevant information and choices at the appropriate moments, warning and explaining problems when necessary, and informing the user when the task will be complete. In other words, the display gives all the elements of good customer service!

The controls are also important. The easy jog, in particular, makes controlling the CD Recorder quicker and more intuitive by rolling through the tracks of a CD or the choice and selection of tasks.

The 3rd generation of CD Recorders will address a larger, and to some extent less 'audio-involved', target group compared with the previous models. This requires a more self-explanatory and consistent user interface.

Together with specialists in the field of Ergonomics and Interactive Design, a new, more self-explanatory, user interface has been designed.

The CD-R is designed to communicate with us as humans. That's when making your own CD becomes absolute simplicity!

What benefits does it offer?

- 1) Reduction of nuisance calls. The set will more explicitly show the consumer what was done wrong or what he should do next.
- 2) Improved ease of use (also the double deck).
- 3) A very satisfied consumer and a competitive edge versus the competition.
- 4) Sales force will be able to operate all types of Philips CD Recorders (and Mini sets) as we now follow a similar approach throughout the audio organisation.

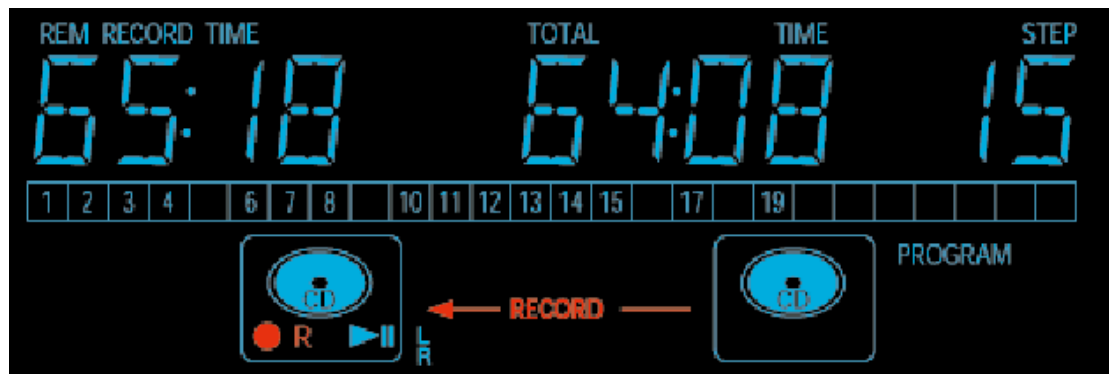
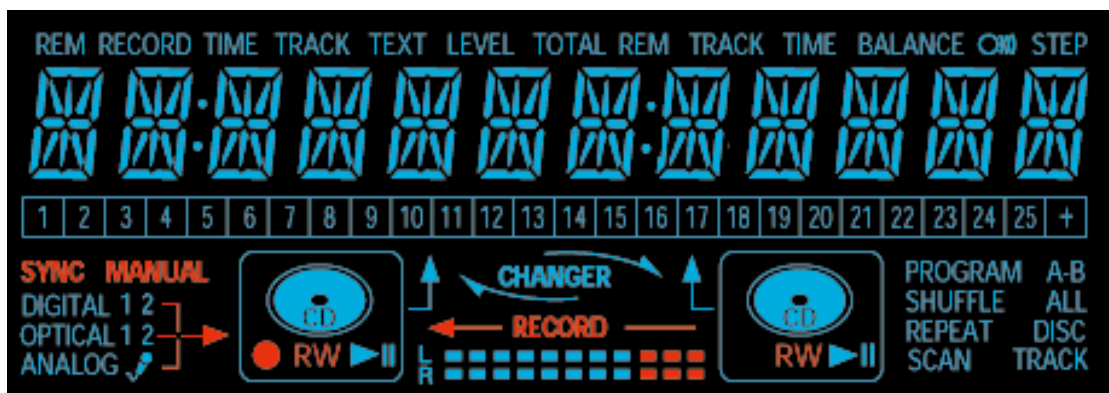
Why do you need it?

To make issues like Finalising, Unfinalising, Initialising (OPC), Erasing only CD-RW, CD Text (text memory), all the different status & types of discs, as well as the feedback given on the display, clearer and more explicit at the moment you need to know it.

How does it work? (only the major changes are described)

- One RECORD key to start all types of recording (inclusive Finalising and Erasing)
- One REC-TYPE key which displays clearly what recording (-standby) is selected and which is the next key that should be pressed to start.
- Easy jog control for quick and accurate track selection.
- Standby via remote control. Hard On/Off key on front that 'wakes' set in standby. This is very nice when using the CD-R in a stack (e.g. power taken from a receiver). If the receiver is switched on, the CD-R will be in standby unless a CD-R key is touched (RC or front).
- Clear and more functional messages.
- Technical names like CD-SYNC-1 have also been renamed to 'RECORD TRACK' or 'MAKE CD' when recording with CD-SYNC & FINALISE.
- All typical CD functions are available on the front (FWD, BWD, repeat, shuffle, program, scroll)
- Menu access like text input is possible via both remote control and front panel.
- Synchronised start (analogue and digital) is active as standard (no choice needed).

- Scanning (CDR765) is no longer needed.
- Clear status information from the newly designed FTD. (See below):
 - Trackbar that clearly shows the tracks on the disc and what track is active or selected.
 - Disc label shows clearly if a disc is in the tray.
 - Status of set, play, pause, rec.
 - The play modes like 'Changer' and 'DJ-mode' are clearly visual.
 - Input selection (internal / external) continuously visual.
 - Advanced programming (in STOP mode as well as REC standby)



The display shows an example in program mode:

Left: The remaining recording time is available so the user can judge if the selection will fit on the blank CD.

Middle: When searching a new track to be programmed, it already shows the total amount of time before selecting it.

Right: The number of tracks in the program (steps),

The track bar shows which tracks are programmed.

Remote control*:

With its ergonomic design this new RC enables users to carry out all the necessary control actions from the comfort of their armchair.

For the 1999 range, one remote control will be supplied for both single- and dual-deck recorders. As well as Philips CD Recorders, this remote control can also be used with all Philips CD players by selecting 'CD'. To avoid damaging the disc recording process, no Recording Finalise and Erase keys are provided.

Functions which can only be activated via the remote control:

- Intro scan function (scanning tracks 10 seconds).
- Switching the recorder into low-power (<6 watt) standby mode.
- Manual writing of a new track number

What is different versus 1998?

From the remote control, it is also possible to control the complete menu using the additional menu keys. (The next / previous keys are used as the easy jog.)

Text input is new and works in the well known way, similar to cellular phones (Handy, GSM).

* planned in black and champagne for CDR950/CDR951



What's new in all the 1999 sets?

- Audio buffer
- CD Text input, recording & editing (album / artist for disc and per track; 60 char.)
- Text scrolling (possibility to display this permanently for dealers and freaks)
- CD Text input via front panel and remote control
- Tray blocking mode to avoid theft of discs on the shop floor - dealer feature
- CD Recorder drive offering more functionality, e.g. CD Text, audio buffer, integration of functions
- Auto finalise CD-R/RW (Make CD!) and Auto unfinalise CD-RW (To avoid ERASE TOC)
- Synchronised start of recording also from ANALOGUE sources
- Digital recording level adjustment and balance setting to correct for differences in volume level between source discs
- Multi-track erase
- Sample Rate Converter 11-56 kHz (DAB = 32 kHz; DAT = 48 kHz)
- All sets have the high performance DLR technique (Direct Line Recording)
- Music scan or Intro scan 10 sec. (program, disc)
- Improved stop modes (digital and analogue)
- Standby (RC) + hard on/off
- Easy jog (menu controller / level controller / next-previous)
- New user-friendly user interface:
 - music calendar (track bar)
 - FTD with fundamental status of the set visual
 - advanced programming (99 tracks / reviewing and editing programs)
 - easy start of recording
 - clear messages show customer what to do next
- Improved finishing (face value)
- Remote control functionality
- HD-CD recording (No playback)

AUDIO BUFFER

With the new DASP processing IC we are able to introduce an advanced audio buffer with a capacity of several seconds (0-3 sec.).

Although this is not a major competitive edge compared with the competition (audio buffer is quite common), it gives a major improvement over our 1998 range CD Recorders.

What does it mean for your recording?

- No loss of music while starting a recording with synchronised start (CD Sync). At present* a maximum of 400 msec. can be lost.
- Synchronised start per track. At present* this is not included because the first track only of an original CD usually starts after a couple of seconds. The other tracks often start immediately. Losing 400 ms per track is unacceptable.
- No loss of music when recording from a program. A program jumps immediately to a track, and the missing 400 ms can be noticed by a critical consumer.
- Perfect positioning when jumping to next / previous track. Track increment will be positioned in exactly the same position as the original. At present* the track increment is delayed by 3 frames (13 ms). Jumping can only be done to a position that is shifted by 39 ms into the new track.
- Synchronised start analogue.
- Better stop behaviour analogue.
- Recording can be stopped within 3 seconds without 'damaging' the CD. At present* a track of 4 seconds will always be recorded.
- When entering an SCMS track, no recording will be made of the first few seconds. At present* a track of 4 seconds will be recorded.

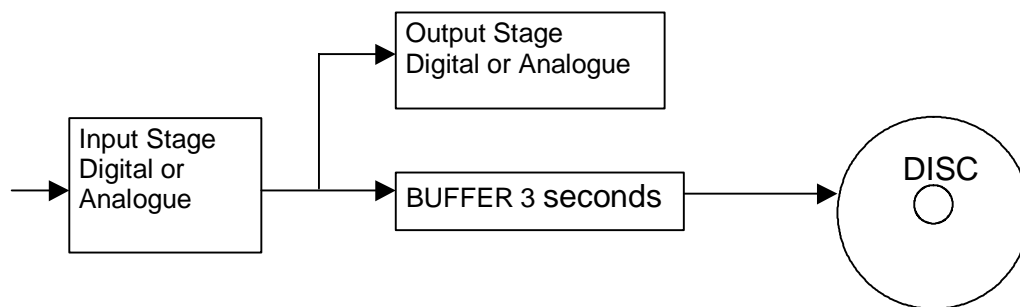
* 'At present' refers to the 1997/1998 product range.

Why do you need it?

First of all: to make perfect recordings without any loss of music at the start of a track. Secondly: all information available on the original disc will be duplicated at the exact same spot of the disc you are recording to. By using this state-of-the-art technology, we have finally perfected the 'bit-for-bit' copying technique.

How does it work?

The audio (and track information) will pass through an audio buffer that continuously holds several seconds (0 to 3 seconds) in memory. In this way the recorder has enough time to determine the status of the input signal (music versus no music, track increment, lead-out etc.), and will start the recording at the right moment. The music is taken from the buffer.



Improved STOP modes

The current range (without audio buffer) has difficulties in detecting if the source has stopped. With the audio buffer this is no longer a problem, and provided the opportunity to improve the stop behaviour.

What is the benefit?

Perfect stopping of recordings (even when an analogue source is used as input).

Why do you need it? To avoid:

- 20 seconds silence between recordings (current range)
- The recorder stopping when recording music with very silent parts (e.g. playing a violin)
- The possibility to stop a recording which has just started (within 3 seconds), without having anything recorded on the disc
- To be able to record properly from CD changers

How does it work?

See audio buffer.

Analogue CD Sync.

What is the benefit?

Synchronised start of a recording with an analogue source or a professional source without subcode information as input.

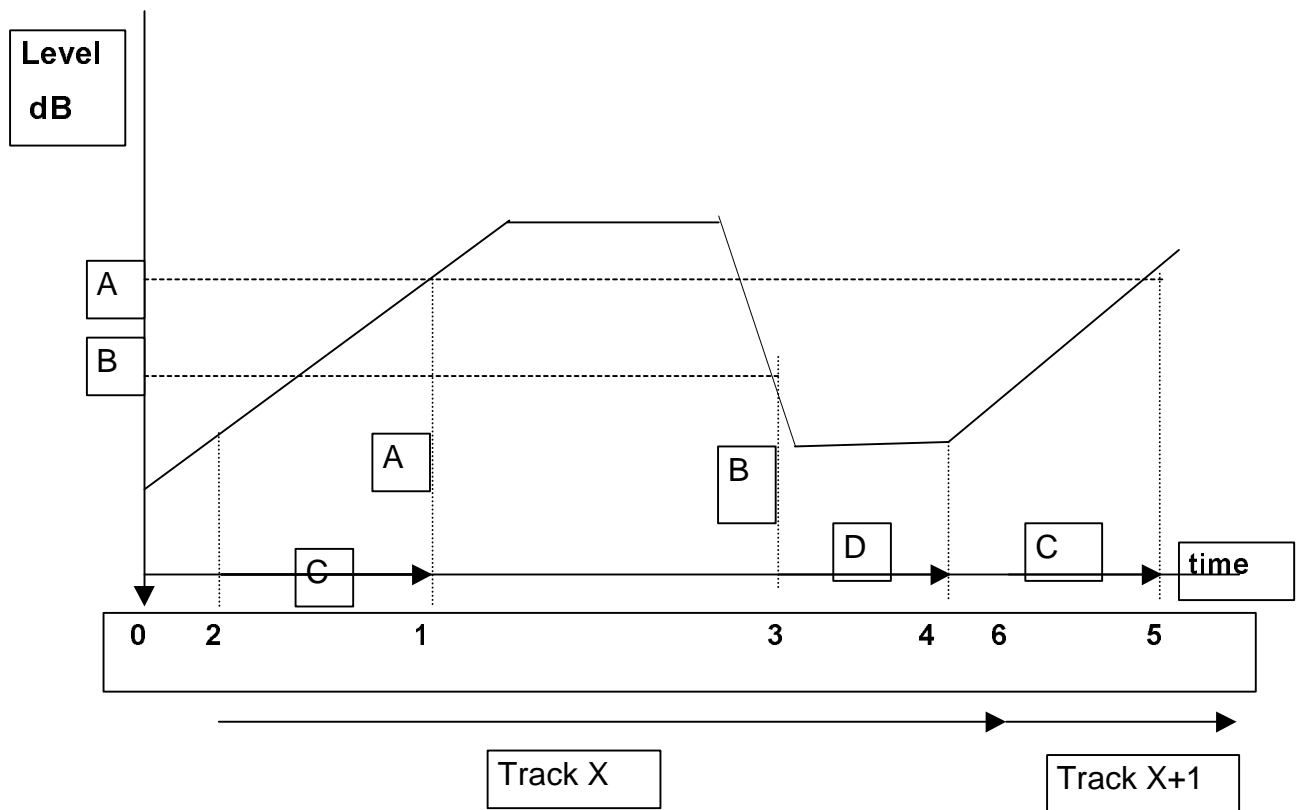
Why do you need it?

Synchronised start of a recording ensures that the recorder will only start when music is detected.

How does it work?

Digital information also contains the track start information. This information is used to start a digital recording.

This kind of information is not available for analogue input signals. In this case, the input level is continuously measured with the help of the audio buffer. When the source has started, the recorder senses a significant change in the input level and starts recording (input level above -50dB). As the first seconds are still in memory (audio buffer), the recorder will calculate a certain time back in time and put this audio data on the disc. We called a virtual start point.



Explanation :

- 0 Auto start active
- 1 Track transition is detected when audio goes above value A
- 2 The actual recording of the audio track will start at point 2. A jump backwards is performed in the audio buffer" Time C" . Virtual start point
- 3 & 4 when audio goes below level B for a time D, a track increment is detected
5. When audio rises again above value A
6. The recording of the new audio track will start at point 6

Sample Rate Converter (SRC)

What is the benefit?

Recordings can be made from all kinds of digital sources (with sampling frequencies from 12 kHz - 56 kHz).

Why do you need it?

- When you want to record from a source with a sampling frequency that is not equal to the 44.1 kHz as used in CD and MD. The sampling rates of the various digital sources are:
 - CD 44.1 kHz
 - MD (digital recordings) 44.1 kHz
 - MD (analogue recordings) 44.1 kHz
 - DAB (Digital audio broadcasting) 32 /48 kHz
 - DAT 32 / 44.1 /48 kHz
 - DCC 44.1 / 48 kHz
- When you want to record from pitch-controlled sources (variable Sample Rate Converter)

How does it work?

The input signal is sampled again with a frequency of 70 MHz and reconstructed to give a signal with frequency of 44.1 kHz.

Direct Line Recording (DLR)

For the perfectionists among audio enthusiasts, Philips has added a technique to make true 'bit-for-bit' recordings from sources with a Sample Rate Frequency of 44.1 kHz +/- 100 ppm (CD and MD).

For more detailed information, see the below.

Direct Line recording (DLR)

There are two purposes for direct line recording.

The first one is to make a bit-to-bit copy without changing the bits of the original digital source. How does this work in the CDR880?

Connected to a digital source of a sample rate from 44.1kHz +/- 100ppm, the machine will automatically tune his crystal in the same deviation. The speed of the recorder will follow the speed of the connected source. Now we are making a direct line recording Bit to Bit copy. This however has it's limits. The accuracy of the connected digital source must be within the range of +/- 100 ppm (piece per million). If the source exceeds the deviation of +/- 100 ppm, the recorder will automatically switch over to Sample Rate Conversion. During a recording it will never change back to Direct Line Recording to avoid undesirable clicks in the audio signal.

The second reason is to eliminate the jitter of the incoming digital source (dejittering) . Imagine the source is within the standard (44.1 kHz +/-100 ppm) but the deviation is changing into a very high frequency. This will cause extra jitter in the write pattern of our recorder. Also the quality of the audio will be affected by this jitter. To prevent the extra jitter, a dejitter system has been implemented in our key component TDA1373N2. This converts all jitter coming from the connected digital source into a maximum of 50 Hz. This gives the benefit that the 'writing jitter' is very stable.

What if you listen to a copy of an original and it occurs that you hear a difference?

This depends to the quality of your CD player and the quality of your original disc. The CD recorders from Philips meet the needs of the standard known as SPDIF (Sony Philips Digital Input Format) Every player should meet the requirements in the digital standard norm IEC958 I/II (SPDIF) to safeguard a good digital copying behaviour.

In today's situation, the CDR880 is the only CD Recorder from Philips which is equipped with the high-performance DLR technique. In the 1999 range, we will introduce DLR for all new models.

What is the benefit?

- * A perfect copy of the source material (44.1 kHz), meaning a true 'bit-for-bit' recording.
- * HD-CD Recording

Why do you need it?

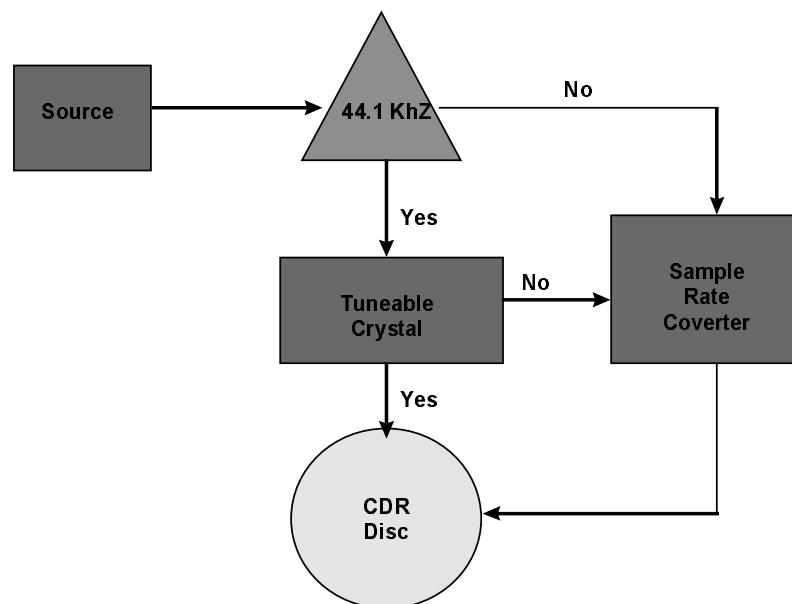
To avoid digital information being transformed by the Sample Rate Converter. Elimination of jitter from the incoming digital source ('dejittering'). The result is a clear reproduction of the original material.

How does it work?

When a signal of 44.1 kHz is detected, the Sample Rate Converter is bypassed and the digital bitstream is recorded directly to the destination disc. To be able to make a 'bit-for-bit' copy, it is essential that the source disc has the same speed as the destination disc.

We therefore measure the input frequency (speed of the source disc). A tuneable crystal accurately controls the speed of the destination disc and keeps the speed within the limits of max. +/-100 ppm (parts per million). If the speed deviates too much, the Sample Rate Converter is activated.

To avoid audio disturbance, the recorder will never switch back to DLR during a recording.



HDCD – recording

With a bit-for-bit DLR technology, HDCD-encoded CDs are recorded in HDCD (High-Density Compact Disc) format. This means that if you copy an HDCD disc using the digital output of your CD player, the entire encoding technology is reproduced. This proves that DLR technology really does make a bit-for-bit copy of a CD without interrupting the audio data.

CD players with a built-in HDCD filter can playback the higher sound quality of these discs.

The new range of CD recorders do not have the HDCD filter and encoder built-in. This means that the CD recorder cannot playback the HDCD quality.

What are the benefits?

HDCD gives you a 20-bit dynamic range and a more natural instrumental sound.

HDCD uses the same standard as a normal CD. You can play HDCD discs on any CD player, anywhere in the world

Why do you need it?

If you have a CD player with an HDCD filter and DAC, then you playback the recording without HDCD sound quality. (The recorder has no HDCD filter).

How does HDCD work?

HDCD converts analogue signals (ADC) first to 192/176.4 kHz –24bit. Then, decimation takes place from 196/176.4 kHz through 96/88.2 kHz to 44.1 kHz – 24bit. After that, HDCD extended dynamic range encoding is performed, which delivers a 44.1 kHz - 16bit signal (CD standard).

To allow detection of HDCD afterwards dithering is done which implements the HDCD detection code.

What is the difference between CDR760 / CDR 560 / CDR765 and DLR in CDR880?

The CDR760 / 765 / 570 / 538 have no Sample Rate Converter to by-pass. So these sets can only make digital recordings from sources with the 44.1 kHz sampling frequency (CD and MD).

As (bad) sources could deviate by more than 150 ppm (the standard), we have built-in a Voltage Controlled Oscillator (VCO) to keep the speed of the destination disc within the limits of +/-100 ppm (+/-1%). This enables recording from even very low-end CD players, but also increases the amount of jitter.

The 1999 range has been designed with the optimal architecture: DLR (44.1 kHz +/-100 ppm) and SRC for signals that deviate too much for DLR.

(For a detailed description, see also DLR.)

Initialising (OPC) & Running OPC

Running OPC is a feature that ensures an optimal recording quality. It is unique to Philips recording devices.

What is the benefit?

- Maximum compatibility with other CD players and optimal recording quality
- High-quality writing on the blank CD-R(W)

Why do you need it?

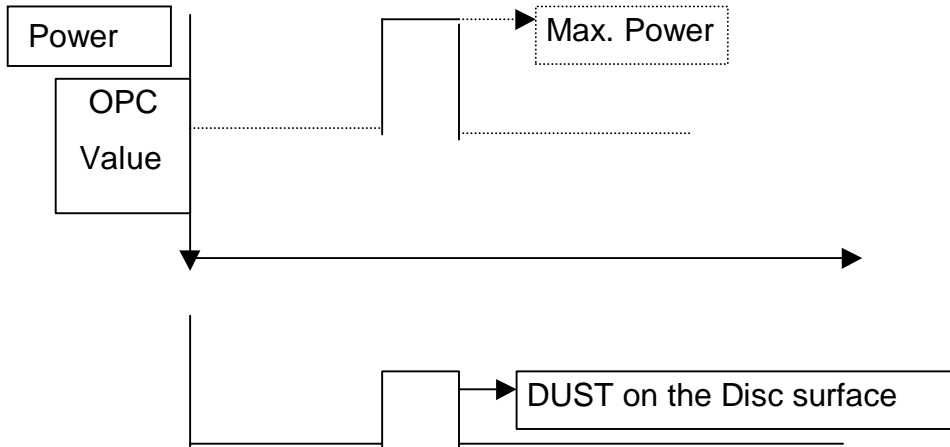
CDs are often recorded for use in other CD players (e.g. car, portable CD, sound machine etc.). This technique ensures maximum compatibility.

How does it work?

Running OPC means that the optimal power for the laser is adjusted continuously.

To ensure that the laser energy is constantly optimised during a recording, an initial OPC (Optimum Power Calibration) is performed each time a disc is

loaded, together with constant running OPCs which compensate for dust, scratches and any other possible variations across the disc surface.



SCMS (Serial Copy Management System)

What are the benefits?

SCMS is the function that prevents unauthorised copying by adding copy inhibit information to the digital signals.

Why do you need it?

Unauthorised copying is restricted by law. All digital recording equipment for consumer use must be equipped with SCMS.

How does it work?

Originals that are subject to copyright protection (Copy Protected audio) are marked by a copy bit which is present in the digital signal (EBU). This copy bit is taken over and placed on the *Home copy* every second.

SCMS distinguishes between three possible copying situations:

Original status:

1. Copy Free originals
2. Copy Protected audio (commercial CDs)
3. Home copies
between 'low'

Copy bit status:

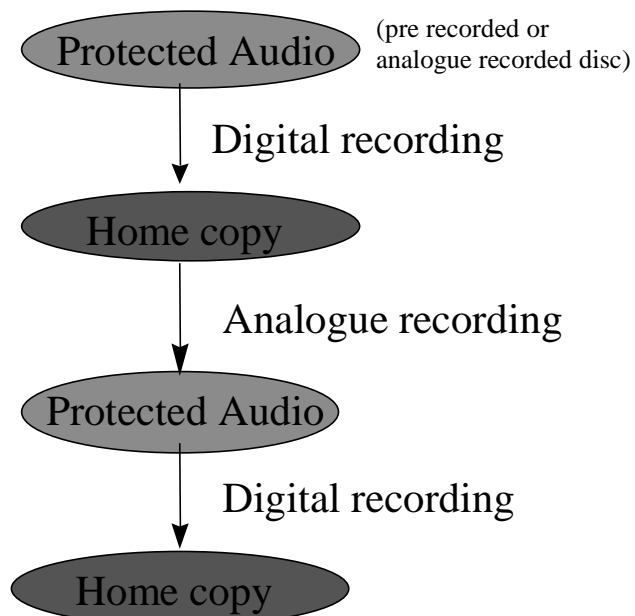
- 'low'
- 'high'
- 'toggled every 65 ms
and 'high'

The (SCMS) only allows a new digital recording to be made under specific conditions:

- A digital copy of Copy Protected audio becomes a Home Copy of Original audio.
- A digital copy of a Home Copy of Original audio is not possible. Only an analogue copy can be made!
- A digital copy of Not Copy Protected audio remains Not Copy Protected audio.
- An analogue copy of any kind of audio becomes Copy Protected audio.

To find out if a CD is Copy Protected, all you need to do is just start the recording as usual. If the CD is Copy Protected, the message ' COPY PROTECT' will be displayed.

In this case the recording can be made via the analogue connections (to be selected using the SOURCE key) The CDR775 dual-deck recorder (copying from internal CD deck → CDR deck) will automatically switch over to analogue if a Copy Protected original is detected.



RID (Recorder Unique Identifier)

What are the benefits?

Home Copies are marked with a unique code.

The RID is a method to prevent unauthorised copying by enabling identification of the recorder on which a recording has been made.

Why do you need it?

In line with SCMS, the RID is required on consumer digital recording equipment to allow identification of *Home Copies* that may be made as the result of illegal activities.

How does it work?

The RID is a 97-bit code which is recorded every 100 frames (1.3 sec.) on all discs made with the CD Recorder. It comprises a brand name identifier, a type number and the drive number (e.g.: PH775xxxxxx) which, together, uniquely identify the recorder on which any specific disc was recorded.

Disabling of tray (dealer function)

What are the benefits?

Extra safety feature for dealers who want to demonstrate the CD Recorder permanently.

Why do you need it?

To prevent theft of discs used in demo players on the shop floor.

How does it work?

By pressing a key combination (OPEN/CLOSE & STOP) during powering-up the CD Recorder, the tray will be disabled (or enabled). This setting is stored in the memory.

CD Text editing (record*, input, playback)

The new CD Text feature offers users the option of identifying the disc while playing. However, creative users will be able to find several other applications for this feature (e.g. you can give personal names to songs, or if you have recorded your own voice the 'artist name' can also show the performer's name).

*CDR775 only!

What are the benefits ?

1. **PLAYBACK:** Title and artist names of the disc and tracks appear on the display.
2. **INPUT:** The disc/track titles and artist names can be added in the stop mode or during recording, independently of the tracks being recorded.
3. **RECORDING:** CD Text is copied from the original, if not protected (CDR775 only).
4. **EDITING:** Text can always be edited for a CD-RW disc, and this can also be done for CD-R as long as the disc is NOT finalised.

Why do you need it?

1. To see title and artist information in the display during playing.
Tip: dealers can show this text feature permanently on the display.
2. To personalise your own recordings by giving them a name, e.g. DISC TITLE: 'MY FAVOURITE LOVE SONGS'.
Tip: dealers can make special discs with commercial texts like 'I CAN RECORD' or 'MAKE YOUR OWN CD', combined with music or slogans to scroll over the display during demo in the shop.
3. To avoid the need for manual text input.
4. To be able to change an existing text.

How does it work?

Text input is easy, by using the menu plus the easy jog control or by using the remote control.

The user can select the album title, artist title, track titles or track artists to make a text of max. 60 characters. The text will be stored in the memory of the CD Recorder until the disc is finalised. During finalising of the disc, the text is written to the Table Of Contents (TOC).

As long as the disc is not finalised, the user is still able to change the text (for both CD-R and CD-RW discs!).

For CD-RW discs, the text can always be changed.

CD TEXT INPUT

Text input is very flexible and convenient:

The text menu is active in both STOP mode and RECORDING mode.

1. STOP mode: When a CD-R(W) disc with recorded audio tracks is in the recorder, text for the recorded tracks can be added.
2. RECORDING mode: Text for 99 tracks can be added completely independently of the track being recorded at that time. This also applies even if the actual recording has not (yet) been made. When the recording has stopped, the text for the recorded audio tracks will be stored. (If auto finalise was active and the text input menu is still open, the auto finalise function is disabled.)

TEXT MEMORY / HANDLING

As the CD Text is part of the Table Of Contents, all text will stay in the CD Recorder's memory until that disc is finalised. (The text can therefore still be edited as long as the disc is not finalised.)

The memory can contain text for approximately 50 discs, each with 20 tracks. (If only a disc title and artist name is used, text for more than 100 discs can be stored.)

To prevent users from structurally not finalising discs, the recorder will show a flashing message 'UNFINALISED' every time the tray opens, together with the percentage of the memory which is used (TEXT MEMORY xx%).

CD TEXT MEMORY FULL

Although the memory capacity is more than sufficient, a MEMORY FULL message may sometimes be displayed. The user then has two options: either

finalise a couple of discs, or delete the text for some discs. The stored text for every unfinalised disc can be reviewed or deleted by using the menu (MEMORY VIEW function).

CDL4009 loader

The new generation of Philips CD Recorders use the latest recording technologies. These ensure perfect recording quality.

What are the benefits?

- Better and quicker jumps to a new track. Specially needed when you make a program on your player.
- Possibility to record and play CD-Text

Why do you need it?

This new loader enables the CD Text function, and at the same time it solves all the shortcomings of the current range.

How does it work?

The new feature in our loader is PCS (Position Control System)

With this new servo control system we can jump much quicker than the previous one.

Fully compatible with the RED Book standard .

CD-text implementation for read and write options over the entire disc.

Audio Codec UDA 1341TS/N1 used in all sets except CDR950:

This analogue-to-digital and digital-to-analogue converter has signal processing features based on bitstream conversion technology.

The fully integrated analogue front end (including PGA and digital AGC) and DSP featuring makes the device an excellent choice. The Codec has special sound processing features in playback mode like de-emphasis, volume and soft mutes.

**Stereo, 96 kHz, Multibit sigma-delta Digital Analogue Converter
(CDR950 only)**

The flagship CDR950 is equipped with the AD1855 (Analogue Devices), a high-performance, single-chip stereo, audio DAC delivering 113 dB Dynamic Range and SNR (A-weighted, not muted) at 48 kHz sampling rate. It comprises a multibit sigma-delta modulator with dither, continuous time analogue filters and analogue output driver circuitry. It is backwards-compatible by supporting 50s/15s digital de-emphasis intended for 'red-book' 44.1 kHz sampling frequency playback from compact discs.

The AD1855 accepts 16bit –bit serial audio data in MSB first, two-complement format.

Summery of AD1855 features:

- * Multibit Sigma-Delta Modulator with “perfect differential linearity restoration” for reduced idle tones and noise floor.
- * Data direct scrambling DAC-least sensitive to jitter
- * Differential output for optimum performance 113 dB S/N and dynamic range at 48 kHz sampling rate.
- * -97 dB THD+N
- * On-chip volume control with 1024 steps.
- * 5V Stereo Audio DAC System
- * Hardware and software controllable clickless mute
- * Digital de-emphasis processing

16-Bit sigma-delta Analogue Digital Converter (CDR950 only)

The CDR950 uses the AD1877 (Analogue Devices), a stereo, 16-bit oversampling ADC based on sigma delta technology intended primarily for digital audio bandwidth applications .Each single-ended channel consists of a fourth-order one-bit noise-shaping modulator and a digital decimation filter. An on-chip voltage reference, stable over temperature and time, defines the full scale range for both channels. Digital output data from both channels are time-multiplexed to a single, flexible serial interface.

Summary of the AD1877 featuring:

- * 92 dB (typ) dynamic range
- * 5V power supply
- * Single-ended dual-channel analogue inputs
- * 90 dB (typ) S/(THD+N)
- * 0.006 dB decimator passband ripple
- * 4th order, 64-times oversampling sigma-delta modulator
- * 3-stage, linear phase decimator
- * On-chip voltage reference.

Fade-in / Fade-out (CDR950 only)

What is the benefit?

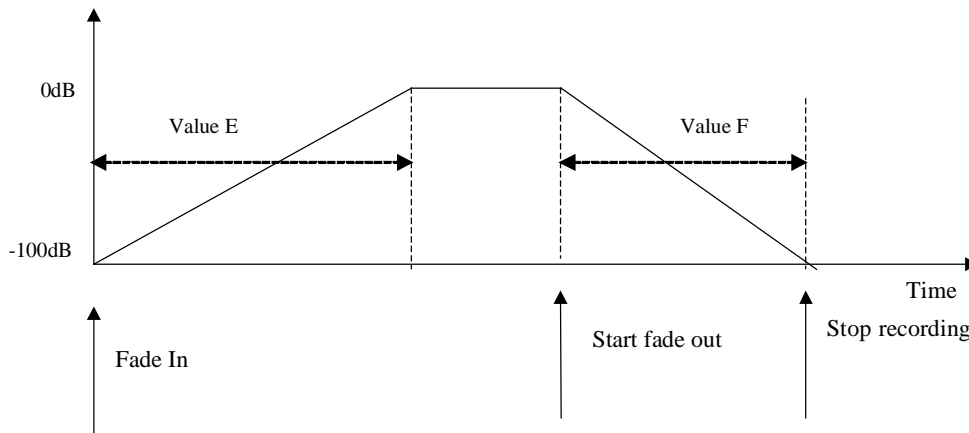
Smooth start and stop of the audio signal when recording parts of music. This is a more sophisticated recording feature.

Why do you need it?

When you want to make a recording where the start or end of the music is not well defined (e.g. one song from a live concert, or a recording from the radio). The alternative is to use the level potmeter or a special digital signal processing unit.

How does it work?

When a recording starts, the signal is automatically ramped-up to the adjusted recording level. When Stop is pressed, the signal gradually fades down to silence. This feature, as well as the start and/or stop time, can be set via the menu. A label in the display shows that the 'Fade function' is enabled or disabled.



Microphone input (Stereo/mix) (CDR 950 only)

What is the benefit?

Recording from a microphone

Microphone preamplifier (input via CD Recorder to amplifier)

Why do you need it?

To record your voice or to mix the microphone input with one of the inputs.

To be able to connect a microphone to an amplifier (which does not normally have a mic. input).

How does it work?

1. Separate stereo microphone recording:

The microphone input is selected using the SOURCE button. The JOG is active for adjusting the correct recording level. In this mode, the separate level potmeter for the microphone should be adjusted to the maximum (signal is recorded on both channels).

2. Mixing the stereo microphone with one of the inputs:

The required input (Digital 1-2, Analogue or Optical) is selected using the SOURCE button.

When a microphone is also connected (Microphone label lights up), it will be mixed with the input signal. In this case the JOG adjusts the levels of both the microphone and the selected input together, and the separate level potmeter

for the microphone can be used to adjust the balance between the microphone and the selected input (the microphone signal is mixed in both channels).

Monitor path (CDR 950 only)

What is the benefit?

1. Better monitoring of the actual recording (hearing what is really recorded).
2. The CD Recorder can be used as a preamp. for the microphone.
3. The high-quality signal processing (ADC / DAC / SRC) of the CD Recorder is used separately.

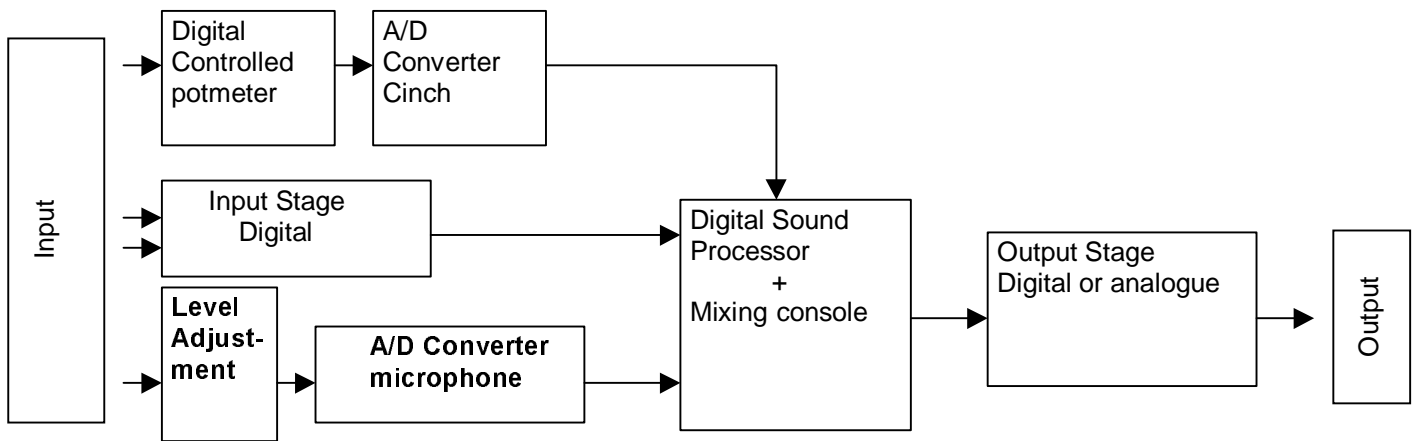
Why do you need it?

There can be many reasons. Some examples:

1. It enables the user to make better recordings by listening to the actual recorded audio.
2. When the user has no microphone input on the installed equipment.
3. When you want to transfer an analogue signal to a digital signal and adjust the overall level and channel levels

How does it work ?

1. In normal equipment, the audio on the input is directly coupled to the output. In the CDR950, the audio that passes through the recorder's digital processing stages (DAC/ADC/SRC) is placed on the output.
2. When NO disc is inserted, the recorder can still be put in recording-standby mode with the REC MODE button. In this case a connected microphone signal will pass through the processing stages of the CD Recorder, and will be present on the outputs (digital and analogue).
3. As well as a microphone, connected analogue sources will also pass through the ADC and will be converted into digital signals.



Text input for source (CDR950)

What are the benefits?

Ease of use.

Why do you need it?

As the CDR950 has 4 inputs, it will difficult to remember which audio source is connected to which input. Operation will be much easier if you can select between e.g. DAT, DCC, CD PLAYER or RECEIVER. These names will be shown in the display.

How does it work?

From the menu you can select NAME SOURCE. As for the text input menu, you can rename each input to the name you prefer. These names are stored in the memory of the recorder.

DJ mode (CDR775 only)

What are the benefits?

Simultaneous use of both CD drives is possible in playback mode only. (In principle, both drives act as if they were two separate CD players, each with two separate outputs, analogue and digital coaxial).

Why do you need it?

When using both drives together with a mixer, e.g. in a discotheque.

How does it work?

A special button (DJ MODE) is provided on the recorder. It only works when both drives are in playback mode. When this mode is activated, the recorder's microprocessor needs all the available capacity, which makes it impossible to use the playback function simultaneously during recording.

ReWritable-Compatible Products 1999:

The table below shows all Philips products per region which are currently planned to be RW-compatible in 1999.

ReWritable-Compatible Products 1999:							
Philips		Regions					
Product-group	model-numbers	Europe	Eastern Europe	USA	AP	ME&A	Latam
Mini's							
	FW350c, 390c, 398c	x/x/-	x/x/-	x/-/x	-/-/x	-/x/x	-/x/-
	FW545c, 548c, 555c, 585c, 590c, 595c	x/-/x/-/-/-	x/x/-/-/x/-	x/-/x/x/-/-	-/-/-/-/-/x	-/-/-/-/-/x	-/x/-/-/-/-
	FW768p, 798w	x/x	x/-	x/x	x/-	x/-	x/-
	FW830c, 870c, 878c, 890p, 898w	x/x/-/x/-	x/-/x/x/x	x/-/-/x/-	-/-/x/-/x	-/-/x/-/-	-/x/-/x/x
	FW930r	x	-	-	-	-	-
	MZ7	x	x	x	-	-	-
Midi's	not compatible!	not comp.	not comp.	not comp.	not comp.	not comp.	not comp.
Micro's							
	MC165	x	x	x	x	x	x
	MC175	x	x	x	x	x	x
CD RCR							
	AZ1412	x	-	-	-	-	-
	AZ1518	x	x	x	x	x	-
CD Portable							
	AZ7680 /81 /82 /88	x/x/x/-	-/-/-/-	-/x/-/-	-/x/x/-	-/x/x/-	-/x/-/x
	AZ7781 /82 /83 /84	x/x/x/x	x/-/-/-	x/-/x/-	-/x/-/x	-/x/-/x	-/-/x/-
	AZ7880 /81 /82 /83 /84	-/x/x/-/x	-/-/x/-/-	x/x/-/x/x	-/-/-/-/x	-/-/-/-/x	-/-/-/-/-
	AZ7495	x	-	-	-	-	-
	AZ7585	-	-	-	x	x	-
	AZ7794	x	-	-	-	-	-
	AZ7895	x	-	-	x	x	-
CD Players							
	CD713	x	-	-	-	-	-
	CD723	x	x	-	x	-	-
	CD753	x	x	-	x	-	-
	CDC775	x	x	x	x	-	-

Car CD *							
	DC-6 series	x	x	x	x	x**	x
	DC-8 series	x	x	x	x	x**	x
*) All information on VDO Mannesmann is confidential and for internal use only!							
**) Only Middle East, excluding Africa							

Which products will have digital out in 1999

The table below shows all Philips products which are currently planned to have digital out for recording.

Mini's

FW396
FW545C
FW548C
FW555C
FW585C
FW590C
FW595C
FW768P (EXCEPT /37 USA
VERSION!)
FW798W
FW830C
FW840
FW870C
FW 878C
FW 890P

Mini's (continued)

FW 898W
FW 910R
FW 930R
FW 938
MZ7

CD-players

CDC775
CD753
CD723

Receivers

FR960
FR970
MX975D

CD-R(W) Digital Audio Discs

Difference between CD-R/CD-RW digital audio discs and standard (prerecorded CDs)

The main physical difference between these two disc types and the standard prerecorded CD (audio or CD-ROM) is that the latter has no recording layer: the information is permanently stamped in the aluminium reflective layer.

There is also a difference in terms of the data areas on the disc. Compared with standard CDs, the CD-R and CD-RW discs have an additional CD-R/CD-RW area located in front of the lead-in area. This additional area is used to store data specific to the recording process, and is divided into two parts:

- Program Memory Area (PMA), which contains the track numbers of the recorded titles and their respective start and stop points.
- Program Calibration Area (PCA), which is used by the CDR to calibrate the required laser energy by means of a trial recording (Optimum Power Calibration)

The CD-R disc versus the CD-RW disc

Both CD-R and CD-RW discs have the same basic structure but with significant detail differences. The CD-R disc has a dye-based recording layer, with a reflectivity of 40-70%, while the CD-RW disc has a phase-change recording layer with a lower reflectivity of 15-20%. Both discs have an additional reflective layer: golden for the CD-R, which accounts for the distinctive appearance, and silver (aluminium) for the CD-RW.

Recording on a CD-R Digital Audio Disc

Digital information is written to the disc by burning (forming) pits in the recording layer. The energy of the laser beam - in the range of 4 to 11 mW - causes limited heating of the substrate and recording layer to approximately 250°C. At this temperature the recording layer melts, reducing its volume, while the substrate expands into the space that becomes available. By constant switching between writing and reading power, a pit pattern corresponding to that of a conventional CD is produced.

Recording on a CD-RW Digital Audio Disc

In the CD-RW disc, the recording layer is made of an alloy of silver, indium, antimony and tellurium. In its original state, this layer has a polycrystalline structure. During the recording process, the laser selectively heats tiny areas of the recording track to a temperature above the layer's melting point (500 - 700°C) . For CD-RW writing, the laser power used is in the range of 8 to 14 mW.

The pulsed energy delivered by the laser beam melts the crystals in the heated areas into a non-crystalline amorphous phase ('pits'), which has a much lower reflectance than the remaining crystalline areas ('lands'). This difference in reflectance allows the recorded data to be read-out, producing a signal similar to that obtained from a standard CD. The physical characteristics of the amorphous phase are 'frozen-in' during cooling, making the recording just as permanent as any standard prerecorded CD.

Erasing and Overwriting a CD-RW Digital Audio Disc

Erasing of a CD-RW disc is performed by returning the material in the recording layer, which was changed to the amorphous state during recording, back to the crystalline state. This is done by heating the layer to a temperature of about 200°C (less than the melting point) and maintaining that temperature for an extended period (in practice 37 minutes for a complete disc). The disc is then returned to its original - completely unrecorded - state. A direct overwrite strategy is possible by combining the write and erase techniques. In this case, new pits are written in the recording layer using the same pulsed laser beam energy as in the standard writing strategy.

The new HR 100 CD-R Digital Audio Disc from Philips



In line with the fast-increasing market acceptance of our full range of Audio CD Recorders, Philips has now introduced an enhanced CD-Recordable Digital Audio disc, the **HR100**, which offers increased reliability and outdoor playback performance.

HR 100 stands for **High Reliability for more than 100 days under outdoor direct sunlight**, making the HR100 disc the ideal choice for portable and outdoor playback applications.

Service approach

The 3rd generation CD recorders contain an adjusted CDRloader Module. For this module a central repair is foreseen. This module contains the loader + CDM and the mainboard. Electronic adjustments on mainboard have to be carried out with special equipment. So to all repairs which concern the CDM and/or de Servo part this adjustment has to be carried out. Mainboard can not be interchanged with another CDM or loader!!! This means mainboard swaps are not possible any longer.

For each modelnumber a new module has been defined:

CDR570/CDR930:	3104 129 52510	CDR570 MODULE SERVICE
CDR770:	3104 129 52520	CDR770 MODULE SERVICE
CDR775:	3104 129 52530	CDR775 MODULE SERVICE
CDR950:	3104 129 52540	CDR950 MODULE SERVICE

The rest of the set can be repaired on component level. Dedicated Service manuals are available or still in preparation.

For Service manual CDR570/ CDR930 ordernumber reads

3104 125 40010.

For Service manual CDR770 ordernumber reads

3104 125 40020.

Service manuals for CDR775 and CDR950 are in preparation now.

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03.01 TYPENUMBER(S): **FW350C, FW390C, FW398C, FW540C, FW545C, FW548C, FW555C, FW585C, FW590C, FW595C, FW748P, FW768P, FW798W, FW830C, FW840C, FW870C, FW878C, FW890P, FW898W**

INFORMATION : Correction to the Service Manual, Partslist
The following flex-foils and flex-foil-connector were missing and have been added to the partlist of the 3CDC-99 Module (chapter 10).

pos.	code number	article description
1805	2422 025 09768	Flex-Foil-Connector 19P
8001	4822 320 12232	Flex-Foil 15P 480mm
8001	4822 320 12658	Flex-Foil 19P 480mm
8001	4822 320 12659	Flex-Foil 23P 480mm
8001	4822 320 12729	Flex-Foil 23P 400mm
8005	3103 308 91820	Flex-Foil 15P 95mm

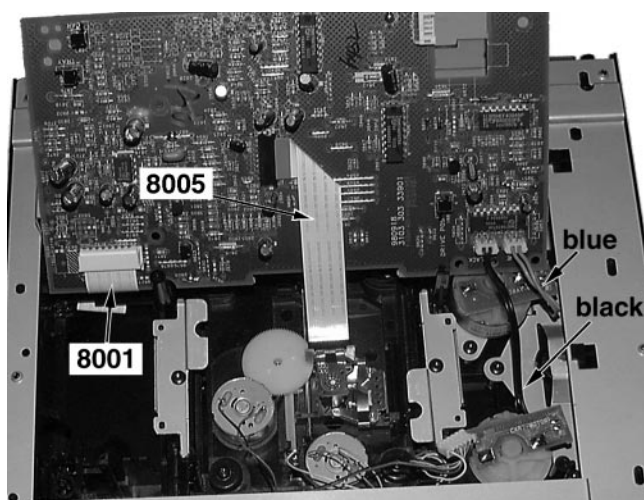


fig.1 – location of flex-foils

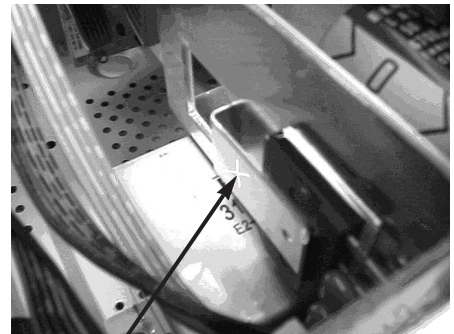
REMARKS :

03.02 TYPENUMBER(S): FW540C, FW545C, FW548C, FW768P

INFORMATION : During production weeks 9921 to 9925, some sets have been produced without the Clip-Rectifier, that enhances the heat transfer between Rectifier and Heatsink. Below pictures show the Power Supply board with and without the Clip-Rectifier.



clip-rectifier missing



clip-rectifier in position

REMARKS : All sets from production weeks 9921 to 9925 that come in for repair must be checked – Missing clips have to be added as preventive action. The service code reads 4822 492 11068.

03.03 TYPENUMBER(S): FW570C/37

SYMPTOM : **IRIS CODE 1 1 1 C**
Fuse 1350 T315mA is blown.

CURE : The fuse blows because its application is near the marginal limit in worst case condition (most of the LEDs are on).
The problem is resolved by changing:
1) Fuse 1350 to T400mA type (2422 086 10612)
2) Resistor 3480 to higher wattage PR02 type (2322 194 73109)

REMARKS : Production has already been stopped.
Above solution is applicable for repair only.

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SERVICE NEWSLETTER

02.01 TYPENUMBER(S): **ACT7580, ACT7581, ACT7582**

INFORMATION : In order to improve the CD start-up behaviour, following parts have been changed:

- Capacitor 2815 deleted
- Capacitor 2823, 47pF (4822 122 33761) added
- Resistor 3830 changed to 1k Ω (4822 051 30102)

REMARKS : Modification is implemented from production start onwards.

02.02 TYPENUMBER(S): **AJ3080**

SYMPTOM : **IRIS CODE C 1 1 X**
The fuse is blown out.

CURE : The fuse will blow if the CLOCK switch is set to ALARM and the SLUMBER button is pressed.
The problem can be solved by replacing jumper 9022 by a 1k Ω resistor (4822 050 11002).

REMARKS : Modification has been implemented in production from week 9910 onwards.

02.03 TYPENUMBER(S): **AJ3935**

INFORMATION : In course of production, following parts are changed to improve distortion at maximum volume.

- Resistors 3201 and 3204 changed to 820 Ω (4822 117 11454)
- Resistors 3221 and 3222 changed to 3.3k Ω (4822 051 20332)

REMARKS : Modification is implemented from production start onwards.

02.04 TYPENUMBER(S): **AJ3940**

SYMPTOM : **IRIS CODE 1 1 4 4**

The transformer hum is audible.

CURE : Hum is caused by the vibration of shielding plate which is mounted on top of mains transformer. The shield plate is a construction of 3 metal layers which are stucked together by means of double-sided adhesive tape. If the layers are not pressed together properly, the shield plate will vibrate.

To solve the problem, we suggest to dismantle the shield plate and hammer it against a solid surface.

REMARKS : From production week 9905 onwards, a press jig has been used to ensure shield plates are well pressed.

02.05 TYPENUMBER(S): **AZ1009, AZ1010**

INFORMATION : CD-drive CD94V5T1 has been replaced by the new type DA11 4822 691 10747.

To adapt the electronic circuitry to the new CD-drive following components have been changed on the Combi Board:

3828 changed from 18k Ω to 68k Ω (4822 116 52297)

3851 changed from 10k Ω to 15k Ω (4822 116 52244)

3853 changed from 15k Ω to 18k Ω (4822 116 52251)

3855 changed from 33k Ω to 27k Ω (4822 116 52264)

REMARKS : Modification has been implemented in production from week 9912 onwards. Sets with the new CD-drive are marked with factory change code KT03.

This info will be followed by Service Information A99-350 (4822 725 26032).

02.06 TYPENUMBER(S): **AZ1120**

INFORMATION : In order to improve the ESD behaviour, coil 5100 has been changed to 2.2mH (3198 018 12280).

REMARKS : Modification is implemented from production start onwards.

02.07 TYPENUMBER(S): **AZ1202**

INFORMATION : In course of production, following parts have been changed to re-adjust the amplification reserve of CD signal.

• Resistors 3302 and 3303 changed to 270 Ω (3198 011 02710)

• Resistors 3595 and 3596 changed to 22k Ω (3198 011 02230)

• Resistors 3597 and 3598 changed to 15k Ω (3198 011 01530)

REMARKS : Modification has been implemented in production from week 9915 onwards.

02.08 TYPENUMBER(S): **AZ1202, AZ1207, AZ1209**

INFORMATION : The Cassette Door Spring (pos. 407) looses out easily.
To solve the problem, the shape of the spring has been changed.
The code number of the new spring is 3140 111 00620.

REMARKS : Modification has been implemented in production from week 9915 onwards.

02.09 TYPENUMBER(S): **AZ2000**

INFORMATION : In course of production, following parts on the Combi Board have been changed to improve sound quality:

- Capacitors 2518 and 2519 changed to 10nF (4822 121 51387)
- Jumpers 9555 & 9556 replaced by resistors 3590 and 3591, 2.2k Ω (4822 116 52256)
- Resistors 3559 and 3560, 10k Ω (4822 050 21003) added across pins 1 to 6 and 3 to 5 of volume control 3522
- Resistors 3595 and 3596 changed to 56k Ω (4822 116 52291)

REMARKS : Modification has been implemented in production from week 9910 onwards.

02.10 TYPENUMBER(S): **AZ2000**

SYMPTOM : **IRIS CODE 4 5 1 1**
CD does not operated because IC 7801 (M65821) is defective.

CURE : IC7801 is damaged by overheating because its location is too close to the heatsink of the Power IC.
The problem can be solved by reducing the supply voltage of the CD module:

- Replace jumper 9526 by a resistor 3315, 4.7 Ω (4822 050 4708) on Combi Board

REMARKS : Modification has been implemented in production from week 9913 onwards.

02.11 TYPENUMBER(S): **AZ2000**

INFORMATION : In order to improve reliability, transistor 7260 has been changed from BC327-40 to BC369 (5322 130 44593).
Due to different transistor-pinning, the layout of the printed board had to be modified.
Layout stage "3140 113 3139.2" uses BC327-40
Layout stage "3140 113 3139.3" uses BC369

REMARKS : Modification has been implemented in production from week 9921 onwards.

02.12 TYPENUMBER(S): **AZ2402**

SYMPTOM : **IRIS CODE 6 1 1 X**
The Power ON/OFF switch 1496 is burst.

CURE : The transient current through the switch is too high.
To reduce the transient current we suggest the following changes:

- Replace 3594 by a 10Ω fusible resistor (4822 052 11109)
- Change 2567 to 100μF/25V (4822 124 40207)

REMARKS : Modification has been implemented in production from week 9913 onwards.

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02.01 TYPENUMBER(S): GENERAL

SYMPTOM : **IRIS CODE 3 1 3 X**

The clock runs too fast/slow, approximate 1-2 minutes per month.

CURE : In addition to Newsletter issue AS98.09.02, the clock accuracy can also be corrected by replacing the 32.768kHz crystal by an improved one. The service codenumber for the improved crystal reads 2422 543 01069.

REMARKS :

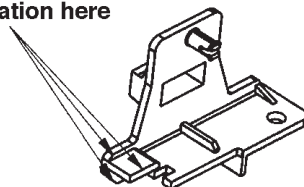
02.02 TYPENUMBERS : FW72C, FW346C, FW356C, FW358C, FW359C, FW388V, FW530C, FW535C, FW538, FW550C, FW570C, FW575C, FW765P, FW775P, FW795W, FW850C, FW855C, FW860P, FW880P, FW880W

SYMPTOM : **IRIS CODE 1 6 1 5**

The cassette doors (especially the left door) do not close properly.

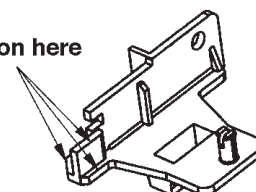
CURE : In addition to Newsletter issue AS98.09.03, the improved brackets (left & right) can be recognized by the modification shown below:

Modification here



Bracket-left : 4822 402 11245

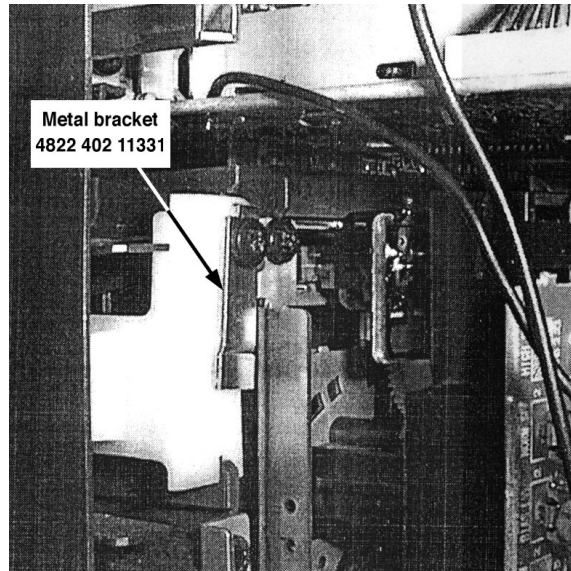
Modification here



Bracket-right : 4822 402 11246

Sets with old brackets can be adapted by either

- i) adding a metal bracket (4822 402 11331) to press onto the back of the bracket left or right as shown below, or



- ii) replacing the old bracket by the modified one.

REMARKS :

02.03 TYPENUMBER(S): FW388V

SYMPTOM : **IRIS CODE 1 1 5 1**

Tuner preset stations cannot be selected via the numeric key-pad (0..9) of the remote control.

CURE : This feature is not available on the set.

It is an error in the IFU which is corrected with an addendum sheet from wk904 onwards.

REMARKS :

02.04 TYPENUMBER(S): FW850C, FW855C, FW860P, FW880P, FW880W

SYMPTOM : **IRIS CODE C 5 6 1**

Mic-mixing cannot be recorded when the selected source is TAPE 1.

CURE : Recording of mic-mixing with TAPE 1 source is not supported because the set will switch automatically into dubbing mode.

The IFU (section "Recording the mixed sound") causes some confusion but will not be updated as production will end in April 1999.

REMARKS :

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01.01 TYPENUMBER(S): **AQ6581**

SYMPTOM : **IRIS CODE 2 5 3 2**
Tape sound is distorted near strong electro-magnetic fields.

CURE : Problem can be solved by connecting two 390pF ceramic capacitors (4822 122 32121) from pins 6 and 23 to pin 10 (ground) of IC LAG668.

REMARKS :

01.02 TYPENUMBER(S): **AZ1015**

INFORMATION : Correction to the Electrical Partslist:
The service codenumbers of the Mains transformers have been mixed up. They should read:
4822 146 10877 for /00 and /14 versions
4822 146 11118 for /01 version
4822 146 10876 for /17 version

REMARKS :

01.03 TYPENUMBER(S): **AZ1025**

INFORMATION : In order to increase the tuner output power, following parts have been changed on the Audio Board:

- Resistors 3307 and 3308 changed to 150Ω (4822 116 83868)
- Resistors 3595 and 3596 changed to 27kΩ (4822 116 52264)
- Resistors 3597 and 3598 replaced by jumpers

REMARKS : Modification has been implemented from production start onwards.

01.04 TYPENUMBER(S): AZ1200, AZ1202, AZ1203, AZ1205, AZ1207, AZ1208, AZ1209

SYMPTOM : **IRIS CODE C 1 3 X**
No display in CD mode at low battery voltage.

CURE : Problem can be solved by changing resistor 3251 from 470Ω to 390Ω (4822 116 83881).

REMARKS : Modification has been implemented in production from week 9850 onwards.

01.05 TYPENUMBER(S): AZ1202

INFORMATION : Correction to the Mechanical Partslist:
The service codenumber of the Knob-Open (item 439) for Silver versions should read 4822 410 11392.

REMARKS :

01.06 TYPENUMBER(S): AZ1205, AZ1207

SYMPTOM : **IRIS CODE 2 5 2 5**
Volume setting is reset to level "11" when power is switched off.

CURE : Problem can be solved by changing capacitor 2401 from 100μF to 47μF (4822 124 81286).

REMARKS : Modification has been implemented in production from week 9901 onwards.

01.07 TYPENUMBER(S): AZ8310, ND7600

INFORMATION : In course of production the potentiometers VR1, VR4, VR5 and VR6 have been changed. The new potentiometers are available via following service codenumbers:
VR1 : 4822 101 11373
VR4 to VR6 : 4822 105 11133

REMARKS : The potentiometers can be distinguished by their pin layout:
Old potentiometers : 4 pins in 1 row
New potentiometers : 4 pins in 2 rows

01.08 TYPENUMBER(S): MC135, MC136, MC155, MC156

SYMPTOM : **IRIS CODE C 5 3 2**
 Sound is muted or distorted at start-up when playing a CD containing only two tracks.

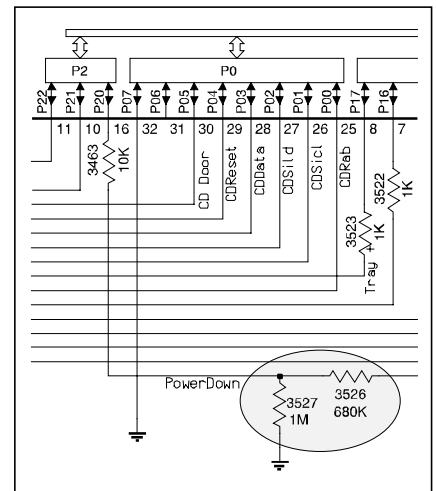
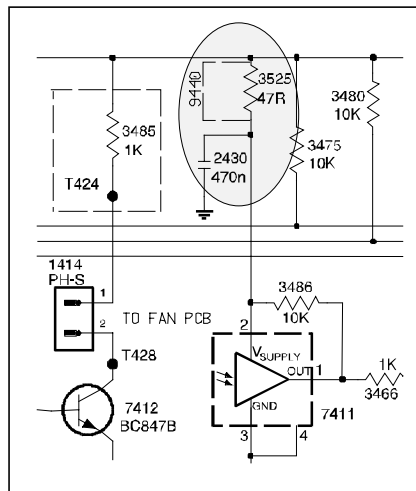
CURE : The problem can be solved by adding a resistor of 100kΩ (4822 116 52234) across C445 on the CD board.

REMARKS : Modification has been implemented in production from week 9901 onwards.

01.09 TYPENUMBER(S): MC175

INFORMATION : Correction to the Service Manual, Frontboard:
 Following parts have been added/changed from production start onwards:

- Capacitor 2430 changed from 100pF to 470nF (4822 126 13482)
- Jumper 9440 replaced by resistor 3525, 47Ω (4822 116 52195)
- Resistor 3526, 680kΩ (4822 051 20684) added
- Resistor 3527, 1MΩ (4822 051 20105) added



REMARKS :

Published by:
Service Department Audio Systems



LINE OF BUSINESS AUDIO SYSTEMS

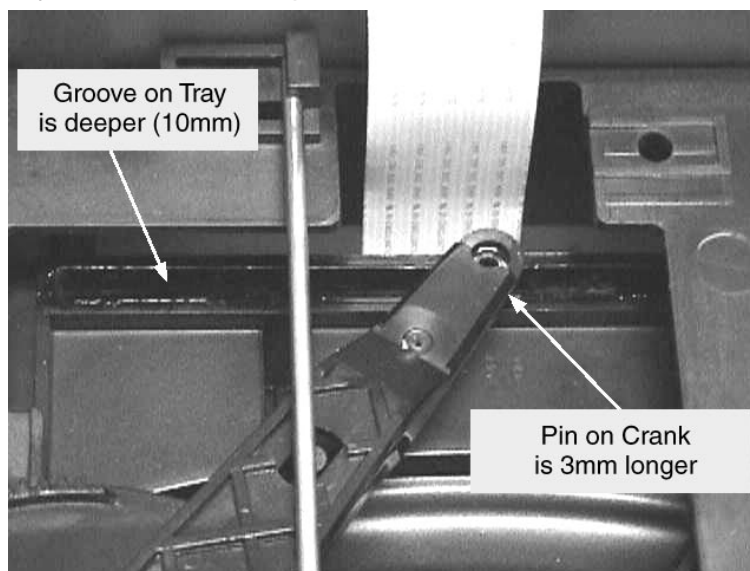
SERVICE NEWSLETTER

01.01 TYPENUMBER(S): CDC751, CDC752

INFORMATION : During transportation the pin on the Crank (pos 96) might jump out of the groove on the Tray (pos 108).

From production wk9835 onwards, the Tray and Crank have been modified. The groove on the tray is now deeper and likewise the pin on the Crank is 3mm longer.

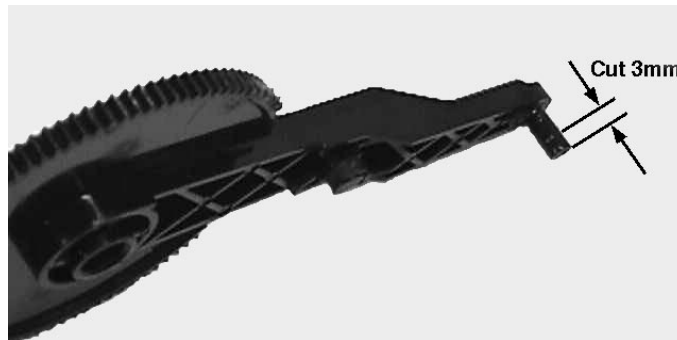
Due to this change the new Crank does not fit into the old Tray anymore. But it is still possible to use the old Crank on the new Tray.



The service code numbers for the Cranks are as follows:
4822 535 40105 Old Crank
4822 402 11241 New Crank

The new Tray can be recognized by its 10mm deep groove.

Because of limited stock of old Cranks, new Cranks have to be reworked for sets with an old Tray. This is done by cutting the pin by 3mm with a sharp NT-cutter (give it a clean cut & do not deform its circular cross-section) as shown below.



REMARKS :

01.02 TYPENUMBER(S): **CDC775**

INFORMATION : Corrections to the Service Manual
On page 1-2, CDC775/01 a 2-position voltage selector is shown instead of a 4-position type.
The 4 positions are: 110V/127V/220-230V/240V.

On page 8-4, capacitor 2863 and resistor 3885 are drawn as provision. Both components will be assembled from production start onwards to improve playability of "Thin Disc".

2863	4822 126 13689	18pF 1% 63V
3885	4822 051 20153	15kΩ 5% 0,1W

REMARKS :

01.03 TYPENUMBER(S): ALL CDR TYPENUMBERS

INFORMATION : The user problems in this publication are separated into the following categories:

1. Playback behaviour
2. Recording behaviour
3. Operating behaviour

1. PLAYBACK

1.1. Display indicates: No disc

- ◆ Indeed no disc inserted
- ◆ Inserted disc is not recognised by Loader CDR mechanism (defective disc or damaged disc)
- ◆ Does the set work properly with another CDDA disc (pre-recorded Audio disc)?
- If Yes then disc is indeed defective
- If No then check the functioning of the set.
- ◆ Disc is not positioned correctly on tray at inserting and therefore not recognised by Loader CDR mechanism, reposition disc on tray.

1.2. CD-RW disc is not recognised

- ◆ Is it a CD-RW Digital Audio disc?
- If Yes and if the set is working properly on other recording discs, this particular disc should be "DC-Erased" (Power off, ERASE + RECORD simultaneously and switch Power on) This operation takes about 37 minutes and returns that CD-RW disc to its virginal status again.

2. RECORDING

2.1. Analogue input signal recorded is distorted at Playback.

- ◆ When recording analogue signals via tape or cassette recording customer is used to overpower the input signal. This brings more dynamic in recorded signal.
- ◆ For digital recording there is enough dynamic space between 0 dB till about -95 dB, so overpowering is not necessary, the opposite is true; by digitalizing an overpowered signal 'mutes' are converted, resulting in the distorted stored signal

2.2. Digital connected, tracks are not incremented

- ◆ Is Auto track increment function switched on. If not switch on Automatic track increment
- ◆ Digital source is using another digital output than IEC958 format (consumer part). This is due to the transmitted subcode information which contains other data than the subcode information in the CD-format. To have the advantage of digital recording, the Digital Audio Data is recorded without any problem. However the track-increment bit is not transferred.

2.3. Disc full after some or a few tracks.

Disc full message can be the result after a misrecording.

- ◆ Misrecordings due to customer actions are:
 - bumps against recorder: prevent bumps onto the set during recording process.
 - dust on disc: prevent dust particles on disc
 - scratches on disc: prevent scratches on disc
 - set is suddenly powered off: prevent switching off!!
- ◆ Misrecording due to improper working of CD Recording Module:
 - In case the error occurs always at the same time indication then Optical Pick-up Unit is not exactly following the Pregroove track on that position: replace CD-Recording Module (CDR765, CDR760, CDR560, CDR538; 4822 691 10737) or the CDRLoader module part CDR870, CDR880: 4822 218 12745)
- ◆ In case a CD-R disc is used, each misrecording will automatically activate the finalizing process of the recorder, because after a misrecording it is not possible to add further recordings onto that CD-R disc. To have all proper recordings stored, the TOC of the disc is filled.
- ◆ In case a CD-RW disc is used, the last recorded track will be overwritten when making further new recordings. Here the disc is not finalized automatically, but PMA (program memory area) is filled with the number of proper recorded tracks.

2.4. Analog input is so low that tracknumber is incremented and recording stops.

- ◆ If analog input signal starts very low (-35 dB) and automatic track increment is switched on then track number x will be followed by next number (x+1) after 4 seconds. If this low signal still continues the recording will be switched off after some seconds.
- ◆ By applying Manually track increment this signal can be recorded.
- ◆ Automatic switch off has been modified by adapting μ P software program in CDR765, CDR760, CDR560, CDR538.

2.5. Loud noise on CD-RW disc

- ◆ CD-RW erasings are only done in PMA. The original signal will be overwritten later on. It might occur that the overwriting does not start at exactly the beginning of the frame of the track to be overwritten. In case overwritten signal consisted out of loud signal, then this short remaining signal can give this suddenly loud noise.
- ◆ For this phenomenon no better solution is possible.

3. OPERATING

3.1. Finalizing takes approx. 5 minutes

- ◆ Normally finalizing takes approx. 2 minutes.
- ◆ Due to the fact that finalizing is done at speed N=2.
- ◆ In case something goes wrong finalizing is automatically switched over to speed N=1 and procedure will restart. (4 minutes)
- ◆ Now in IFU is stated: " Finalizing takes at least 2 minutes"

3.2. CD-sync activated and in first track 1 second deviation upon original disc.

- ◆ Via CD-sync, the recorder is brought in record standby position at the last recorded position on the program area.
- ◆ When CD-player is started the digital signal is brought to digital in. When this signal arrives immediately the linking procedure starts. After reading the last recorded 14 frames the recording of the digital input signal starts. As no buffer is used the first frames are not stored. (Max. about 400 msec. are lost)

3.3. How to erase one track between other tracks on CD-RW disc?

- ◆ It is not possible to erase tracks between other tracks. Only the last recorded track can be erased. In case of an erasure between tracks make first a copy of the to be safed tracks to another disc and then erase track after track to the desired position and add stored recording again.

3.4. Can a copy of another copy be made?

- ◆ For Philips Digital Audio CDR recorders SCMS protocol is valid
- ◆ This applies even to devices without a digital output
- ◆ SCMS allows any number of digital copies of original sound carriers, but prevents further digital copies of this created master.
- ◆ copies of this created master can only be made via D/A -> A/D conversion.
- ◆ According to audio interface standard IEC958, via channel status bit (timeslot30), the channel status word consists out of 384 bits per blok,each bit repeated twice so 192 channel status bits per blok are available. In channel status word every digital source is identified by an 8-bit "category code" Category code is formed by bit 8-15 of the channel status word.
- ◆ bit 15 of timeslot 30 or the last bit of the category code is called L-bit. This bit indicates an original source, commercially released pre-recorded software (L="1") or a personal recording or "home copy" (L="0") No indication.
- ◆ Control code gives the transmission mode and the copy protection status of the signal that is transmitted.
- ◆ the transmission mode is given by the bits 0 and 1 of the channel status word.
- ◆ Bit 2 contains the copy status (C-bit).
- ◆ C-bit = "0" for protected and "1" for unprotected material "alt" for "home copy of copyright protected original"
- ◆ On recorded disc the copy bit defines the copy status:
- ◆ Q-control bit 1 (copy bit) copy protection status:
- ◆ Q-control bit 1 = "1" for protected,
- ◆ Q-control bit 1 = "0" for unprotected material
- ◆ Q-control bit 1 = alternating between "0" and "1" (alt) for "home copy of copyright protected original"

On recorded disc the copy bit defines the copy status summarised in one table:

Playback disc:	Flags coming from Q-control bit 1	Channel status at digital output			Maximum possible copies
		"C-bit" = bit 2	Category code	"L-bit" = bit 15	
CD, CD-R, CD-RW	1 0 alt	1 0 alt	10000000 10000000 10000000	0 0 0	Infinite 1 0

3.5. Can CD-i disc be copied to Audio CDRrecorder?

- ◆ Digitally connected only the CD DA tracks on that disc
- ◆ CD-i disc complete is not possible, only CD DA discs.
- ◆ Only via analogue connection the Audio signal can be copied

3.6. Can VCD disc be copied to Audio CDRrecorder?

- ◆ Digitally connected only the CD DA tracks on that disc
- ◆ VCD disc complete is not possible, only CD DA discs
- ◆ Only via analogue connection the Audio signal can be copied

3.7. Can CD-ROM disc be copied to Audio CDRrecorder?

- ◆ Digitally connected only the CD DA tracks on that disc.
- ◆ CD-ROM disc complete is not possible, only CD DA discs
- ◆ Only via analogue connection the Audio signal can be copied

3.8. Can more than one digital connection be made from one source?

- ◆ Only one digital connection per output can be made. Using more digital recorders which are digitally connected via Input and Output sockets behind each other is very limited because the IEC958 clockbit will deviate too much, resulting in a non proper recording.

3.9. Display indicates: No Audio

- ◆ Professional Recording Disc has been inserted in loader
- ◆ use Digital Audio CD-R or Digital Audio CD-RW discs.

01.04 TYPENUMBER(S): **CDR538, CDR560, CDR760**

INFORMATION : To solve "No copy" problem in FW538 systems when recording digitally new software version V2.4. has been introduced.

With SW V2.4 the unit will go into Record Standby after recording instead of Stop. If no further audio signals are presented for recording within 1 minute after going into Standby mode, the unit will go to Stop. This solves the problem of recording with CD Changer systems.

The new SW V2.4 has to be implemented for IC 7322 on the CDR Main Board and is available under service codenumber 4822 900 11306.

REMARKS : SW V2.4 has been introduced in production:
for CDR538/00S, CDR560/00S and CDR560/06S in week 9849 marked with AH-no. 03.
for CDR560/11S in week 9902 with AH-no. 02.
for CDR560/17 in week 9902 with AH-no. 01.

01.05 TYPENUMBER(S): **CDR538, CDR560, CDR760, CDR765**

INFORMATION : Whenever the CDR Loader Module is removed for replacement, the flex foil cables connecting the CDM-board and the CDR Main Board should be included in the shipment because they are part of the Loader Module.

REMARKS :

01.06 TYPENUMBER(S): **CDR538, CDR560, CDR760, CDR765**

INFORMATION : In the central repair which is organized for the CDR-loader module of above mentioned sets, the new part (4822 691 10737) is accompanied by a fill in form. Please take care for actual inserting of all available information which will help to make a diagnosis about the returned defective loader, in case this form is not filled in the restitution will not be activated. Find on one of the next pages the fill-in form for repair 4822 691 10737.

REMARKS :

01.07 TYPENUMBER(S): CDR538, CDR560, CDR760, CDR765, CDR870, CDR880

INFORMATION : A new Tray Locking Device has been released to increase the safety of the units during transportation. It is strongly recommended to use this new device whenever the unit needs to be transported. The new locking device can be ordered using the service codenumber 4822 466 12204.

REMARKS :

01.08 TYPENUMBER(S): CDR765

SYMPTOM : **IRIS CODE 7 5 5 3**
Shock sensitivity CD-Player part, audio-mutes on recorded CD after dubbing

CURE : The CD-Player module is very sensitive to shocks. Also during dubbing of an audio-CD, mutes can be heard on the recorded CD. These mutes are mostly located in track 1. Both of these problems can be solved by a software upgrade to V1.6 for IC 7220 on the CD Main Board. Service code number reads 4822 900 11309.

The shock sensitivity problem had already been addressed in item 08.06 of issue AS98.08 (98-10-30) of the Service Newsletter. The cure for the above problem(s), as mentioned in that Service Newsletter, needs to be changed as follows:

Upgrading IC 7220 on the CD Main Board to SW V1.6, solves the problems of shock sensitivity and audio mutes, regardless of the suspension grommets used in the CD-Player module.

REMARKS : Together with the new software V1.6, the original black suspension grommets will be reintroduced into production from week 9903 onwards.
The CD-Loader unit with modified software has been marked VN03.
The set with built-in modified software has been marked VN04.

01.09 TYPENUMBER(S): CDR870

INFORMATION : A printing error has occurred on the front page of the CDR870 Service Information Issue A98-250. The service codenumber of part 1520 should read 4822 218 11487 instead of 4822 218 11987.

REMARKS :

01.10 TYPENUMBER(S): CDR870

INFORMATION : In the central repair which is organized for the CDR-loader module of above mentioned sets, the new part (4822 691 10644) is accompanied by a fill in form. Please take care for actual inserting of all available information which will help to make a diagnosis about the returned defective loader, in case this form is not filled in the restitution will not be activated. Find on one of the next pages the fill-in form for repair 4822 691 10644.

REMARKS : Instead of 4822 691 10644 can be delivered 4822 214 12745 (CDR880 version of the module). This loader module is backwards compatible for CDR870.

01.11 TYPENUMBER(S): CDR880

INFORMATION : In the central repair which is organized for the CDR-loader module of above mentioned sets, the new part (4822 214 12745) is accompanied by a fill in form. Please take care for actual inserting of all available information which will help to make a diagnosis about the returned defective loader, in case this form is not filled in the restitution will not be activated. Find on one of the next pages the fill-in form for repair 4822 214 12745.

REMARKS :

01.12 TYPENUMBER(S): CDR880

INFORMATION : Upgrading of software V1.4 to V1.7 for EPROM 7322 (service codenumber 4822 900 11271) will make it possible to erase the Table Of Contents (TOC) when unfinalizing a CD-RW disc.

This software upgrade will also automatically stop a recording session after the source has stopped or after disconnection of the source (Autostop).

REMARKS : SW V1.7 will be introduced from week 9904 onwards with AH-no. 02 for CDR880/00, CDR880/00S, CDR880/06S and CDR880/17.

01.13 TYPENUMBER(S): **FW14, FW15, FW36, FW56, FW351C/37, FW360C, FW620C, FW650C, FW670P, FW680V, AZ3705, AZ3708 (PORTABLE AUDIO), FW350C, M6, M25, M26 (GRUNDIG), 74MX540 (MARANTZ)**

INFORMATION : **Replacement of CDM12.1 for 7-Disc Changer**
Production of CDM12.1 will stop. For service purpose CDM12.1 (4822 691 30278) will be replaced by service kit VAM1201 (4822 310 11263) when stock depletes.

For the above mentioned sets with 7-Disc Changer the new VAM1201 does not fit.

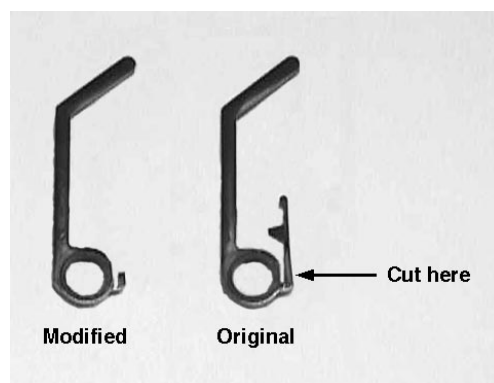
As an alternative, the CDM12.1 can be replaced by CDM12.1/T (4822 691 30343) without any further modifications.

REMARKS :

01.14 TYPENUMBER(S): **FW45C, FW52C, FW55C, FW62C, FW65C, FW72C, FW316C, FW318C, FW320C, FW338C, FW339C, FW346C, FW356C, FW358C, FW359C, FW380C, FW386C, FW510C, FW520C, FW530C, FW535C, FW538, FW550C, FW560C, FW570C, FW575C, FW754P, FW755P, FW765P, FW775P, FW795W, FW850C, FW855C, FW860P, FW880P, FW880W**

SYMPTOM : **IRIS CODE 1 6 7 X**
When CD tray was activated to open, the tray would move out and immediately go in again or stop at half way.
When the CD tray is in motion the inside arm of the switch bracket (pos 123) hits the micro switch earlier than the main lever.

CURE : The problem can be solved by cutting a section of the inside arm of the switch bracket as indicated below:



REMARKS : The phenomenon can be simulated by tilting the set at either side for 1cm or more.

01.15 TYPENUMBER(S): **FW335, FW355C, FW365C, FW375P, FW710C, FW725C, FW730C, FW745C, FW750C, FW770P, FW780P, FW790P**

SYMPTOM : **IRIS CODE 1 5 4 1**
Hum & crackling sound problem

CURE : The problem is caused by defective capacitors at positions 2617 and 2618 on the AF3-board.
It is resolved by replacing them with new ones.

REMARKS :

01.16 TYPENUMBER(S): **FW362, FW363, FW372C, FW373C, FW395C**

INFORMATION : Correction to the Service Test Program
To enter the Service Test Program hold buttons B1 & C4 depressed while powering-up the set.
B1 = Program (interactive display - top right vertical button)
C4 = Tuning Up (interactive display - far right horizontal button)

REMARKS :

GUIDANCE FORM

REPAIRABLE UNIT 4822 691 10737

Please fill in this form and return it with the defective unit.

Typenumber (unit demounted from set) : **CDR760/.....**
or : **CDR.....**
Serial number :
Unit serial number (CDR Module) : **CDL3610/01;....VO.....**

Warning: Only Returned Loader with filled in Guidance form are accepted.

In case CDR-disc has been damaged, please include this damaged disc with the exchanged CDR Module.

DISC DAMAGED?	Y/N
DISC INCLUDED?	Y/N

INFORMATION GATHERED VIA SERVICE TEST MODE

Switch POWER ON,
 Activate OPEN/CLOSE,
 Insert test disc SBC444A, or any other CD-Digital Audio disc;
 switch POWER OFF,
 <PLAY>+<NEXT>+<POWER ON> keep all keys pressed for 2 seconds
 During test:
 Blinking 'D' on display (about 2 minutes!!);
 Blinking 'B' on display (for some seconds).

ERROR INDICATION (on display) according to table below: Y/N

	ON DISPLAY	IRIS SYMPTOM CODE	YES *)
DISPLAY TEST RESULT			
RAM error	DERR 1	15....	**)
ROM error	DERR 2	16....	**)
EEPROM error	DERR 3	16....	**)
DAIO error	DERR 4	15....	**)
BASIC ENGINE TEST RESULT			
Communication bus error	BERR 1	15....	
Basic Engine error	BERR 2	15....	
Disc test error	BERR 3	16....	

*) insert cross at seen display result

**) replace concerned mainboard

**IN CASE OF NO ERROR INDICATION;
OTHER PROBLEMS OCCURED AT:**

PLAYBACK	CD	CDR Unfinalised	CDR Finalised	CDRW Unfinalised	CDRW Finalised
Y/N					
RECORDING	CD	CDR Unfinalised	CDR Finalised	CDRW Unfinalised	CDRW Finalised
Y/N	-----				

IRIS CONDITION CODE:

DESCRIPTION	CONDITION CODE
Constantly	1...
Intermittently	2...
After a while	3...
In a hot environment	4...
In a cold environment	5...

IRIS SYMPTOM CODE CONCERNING AUDIO

Audio	Audio	Audio	Audio	Audio
No sound	Level	Quality	Noisy	Poor recording
.51.	.52.	.53.	.54.	.56.

OTHER COMPLAINT DESCRIPTION :
(IRIS SYMPTOM CODE:)

Return the defective module complete assembled in original package to:

Invoice to:
Philips Consumer Electronics B.V. 670005
Philips Consumer Service - F&A Reporting
Glaslaan 2, Building SBP5
5616 LW Eindhoven
The Netherlands

Ship to:
Philips Consumer Electronics B.V. 676723
LO PCS WAREHOUSING
Glaslaan 2, Building SBI p
5616 LW Eindhoven
The Netherlands
ATT: Mr. C. Lieberwirth

CORRECTIVE ACTION/SOLUTION
(to be filled in at central repair workshop):

Report number:.....

Iris repair code:.....

GUIDANCE FORM

REPAIRABLE UNIT 4822 691 10644

Please fill in this form and return it with the defective unit.

Typenumber (unit demounted from set) : CDR870/.....
or : CDR.....
Serial number :
Unit serial number (CDR Module) : CDL3610/01; ...VO.....

**Warning: Dismantling of the CDR Module is not allowed. Guarantee will be invalidated.
Only Returned Modules with filled in Guidance form are accepted.**

In case CDR-disc has been damaged, please include this damaged disc with the exchanged CDR Module.

DISC DAMAGED?	Y/N
DISC INCLUDED?	Y/N

INFORMATION GATHERED VIA SERVICE TEST MODE

Switch POWER ON,
 Activate OPEN/CLOSE,
 Insert test disc SBC444A, or any other CD-Digital Audio disc;
 switch POWER OFF,
 <PLAY>+<NEXT>+<POWER ON> keep all keys pressed for 2 seconds
 During test:
 Blinking 'D' on display (about 2 minutes!!);
 Blinking 'B' on display (for some seconds).

ERROR INDICATION (on display) according to table below: Y/N

	ON DISPLAY	IRIS SYMPTOM CODE	YES *)
DISPLAY TEST RESULT			
RAM error	DERR 1	15...	
ROM error	DERR 2	16...	
EEPROM error	DERR 3	16...	
DAIO error	DERR 4	15...	
GDIN error	DERR 5	15...	
BASIC ENGINE TEST RESULT			
Communication bus error	BERR 1	15...	
Basic Engine error	BERR 2	15...	
Disc test error	BERR 3	16...	

*) insert cross at seen display result

**IN CASE OF NO ERROR INDICATION;
OTHER PROBLEMS OCCURED AT:**

PLAYBACK	CD	CDR Unfinalised	CDR Finalised	CDRW Unfinalised	CDRW Finalised
Y/N					
RECORDING	CD	CDR Unfinalised	CDR Finalised	CDRW Unfinalised	CDRW Finalised
Y/N	-----				

IRIS CONDITION CODE:

DESCRIPTION	CONDITION CODE
Constantly	1...
Intermittently	2...
After a while	3...
In a hot environment	4...
In a cold environment	5...

IRIS SYMPTOM CODE CONCERNING AUDIO

Audio	Audio	Audio	Audio	Audio
No sound	Level	Quality	Noisy	Poor recording
.51.	.52.	.53.	.54.	.56.

OTHER COMPLAINT DESCRIPTION :
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5616 LW Eindhoven
The Netherlands

Ship to:
Philips Consumer Electronics B.V. 676723
LO PCS WAREHOUSING
Glaslaan 2, Building SBI p
5616 LW Eindhoven
The Netherlands
ATT: Mr. C. Lieberwirth

CORRECTIVE ACTION/SOLUTION
(to be filled in at central repair workshop):

Report number:.....

Iris repair code:.....

**IN CASE OF NO ERROR INDICATION;
OTHER PROBLEMS OCCURED AT:**

PLAYBACK	CD	CDR Unfinalised	CDR Finalised	CDRW Unfinalised	CDRW Finalised
Y/N					
RECORDING	CD	CDR Unfinalised	CDR Finalised	CDRW Unfinalised	CDRW Finalised
Y/N	-----				

IRIS CONDITION CODE:

DESCRIPTION	CONDITION CODE
Constantly	1...
Intermittently	2...
After a while	3...
In a hot environment	4...
In a cold environment	5...

IRIS SYMPTOM CODE CONCERNING AUDIO

Audio	Audio	Audio	Audio	Audio
No sound	Level	Quality	Noisy	Poor recording
.51.	.52.	.53.	.54.	.56.

OTHER COMPLAINT DESCRIPTION :
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The Netherlands
ATT: Mr. C. Lieberwirth

CORRECTIVE ACTION/SOLUTION
(to be filled in at central repair workshop):

Report number:.....

Iris repair code:.....