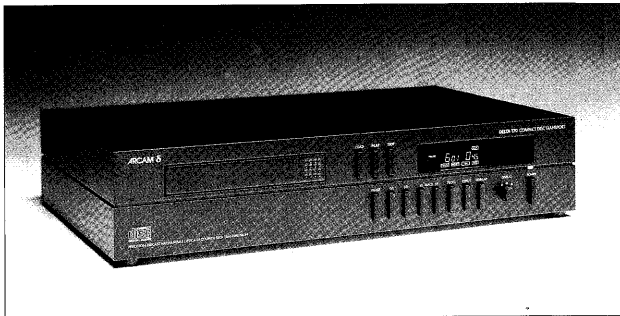Audiophile products
from A&R Cambridge

Delta 70.2 CD player and
Delta 170 CD transport handbook

Introduction

The Arcam Delta Compact Disc playing systems have been designed to provide the best possible sound quality from Compact Disc.

Combine the Delta 70.2 CD player or Delta 170 CD transport with an Arcam Delta range amplifier, tuner and digital to analogue converter, plus a pair of Arcam loudspeakers to complete a formidable, British made hi-fi system.

The Delta 70.2 CD player is a direct development of the widely acclaimed Delta 70 and offers the excellent sound quality and comprehensive range of features expected of a machine with such a pedigree. New features include twin transformer power supplies, an improved display (which can be switched off or dimmed) plus a remote control handset which includes volume and direct track access facilities.

The Delta 170 CD transport is a top quality CD player without the D/A converters and analogue output stages. It is perhaps analogous to a top quality turntable motor unit to which an arm and cartridge of the user's choice are added. It is simply designed to provide a digital output signal of the highest quality and integrity. The Delta 170 must be used with an outboard D/A converter or with DAC equipped amplifiers or pre-amplifiers.

With the exception of the remote control volume facility, the Delta 170 includes all the features found on the Delta 70.2. To obtain the very best performance the Delta 170 also includes a CDM1 Mk 2 die cast transport and twin digital outputs (one optical and one co-axial), fed from their own transformers and power supplies. To ensure the best possible isolation from external vibration the Delta 170 comes complete with a set of AudioQuest sorbothane feet.

Please study this manual carefully to ensure you get the best results from your CD machine. Remember that your dealer is there to help you. He has a full knowledge of all Arcam products and considerable experience of their use in a variety of systems. If, however, he is unable to answer your query then please do not hesitate to contact us at the factory.

Important Notice

1 Prior to installation it is essential to remove the two large metal transit screws which protrude from the base of your machine.

These can be safely stored in the holes provided on the back panel of both the Delta 70.2 and the Delta 170.

DO NOT transport either machine without re-fitting and tightening up the transit screws.

2 Please retain the carton and all packing materials (including the transit screws) provided with your player so that it may be re-packed correctly if it ever becomes necessary to transport the unit or to return it for service.

3 If servicing is required then the equipment should be fitted with its transit screws, properly packed and returned to the dealer from whom it was purchased. It is essential to include a covering letter, giving your name and address and a brief but thorough description of the fault.

Installing and using your Delta 70.2/Delta 170

Mains Supply

The Arcam Delta 70.2/Delta 170 may be supplied to work on any of the following a.c. voltages: 240V, 220V, 120V, 110V, 100V. Check that your local mains supply voltage agrees with the voltage setting indicated on the back panel of the player. If not, please contact the factory or your national distributor for details of how to proceed further.

A detachable mains lead is supplied with the player. The cores of this lead are coloured in accordance with the following code:

Green and Yellow – Earth
Blue   – Neutral
Brown   – Live

Note: Export units for certain markets have moulded mains plugs fitted as standard.

As the colours in the mains lead may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN AND YELLOW must be connected to the terminal in the plug which is marked by the letter E or to the safety earth symbol or coloured GREEN or GREEN AND YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked by the letter N or coloured BLACK or BLUE. The wire which is coloured BROWN must be connected to the terminal which is marked by the letter L or coloured RED or BROWN.

Fuses

If the mains plug is fused fit a 3 amp fuse. All versions of the Delta 70.2 and Delta 170 are fitted with an anti-surge mains fuse, rated at 315mA for 220/240V players and 630mA for 100/110/120V players.

Should a mains fuse fail, SWITCH OFF THE PLAYER AND DISCONNECT IT AT THE WALL SOCKET. The fuse always remains live when the machine is plugged into the mains. Remove the top plate from the player by unscrewing the two screws at the top of the rear panel using a No 1 'Posidriv' screwdriver. Lift the top plate vertically and pull it backwards slightly to release it. Fit a new fuse of the same type and value in the fuse holder close to the mains inlet.

You should find a spare mains fuse in the spares kit provided with the player or, alternatively, fitted inside the machine close to the mains inlet.

If the new fuse fails we recommend that you return the player to your dealer for investigation and possible repair.

Interaction with other equipment

Although the transformers used in the Delta CD machines have a low and well controlled level of magnetic field radiation it is possible that they may occasionally interfere with nearby sensitive equipment, such as the cartridge inputs of an amplifier or the replay circuitry of a cassette recorder. This interference normally manifests itself as a low level background hum, present when using the appropriate equipment, but which disappears when the CD machine is turned off. If this situation occurs and is annoying it can be eliminated by changing the relative position of the interacting items or, in extreme cases, switching off the CD player when other items are in use. (It may be useful to know that the transformers in the Delta 70.2 and Delta 170 are located to the right of the units.)

A CD player may also radiate some r.f. (radio frequency) signals, derived from its digital circuitry. Although within statutory limits this can cause interference with nearby tuners and radios, especially on

the AM (Medium and Long) wavebands. To solve this problem move the aerial of the tuner or radio away from the CD player, or re-orient it for minimum interference pickup. In extreme cases switch off the CD player when using your tuner or radio.

Disc Maintenance

Treat your CDs with care. If you always pick up a disc by its edge and put it back in its case after use, cleaning should not be necessary. Should fingerprints, dust or dirt appear, you can remove them with a soft, lint free cloth, wiping the disc in a straight line from centre to edge. Breathe on the disc lightly if necessary but do not use detergent, abrasive cleaning agents or solutions designed for use on records.

Never write on the disc label; this can cause irreparable damage as corrosive components present in inks can etch their way through and destroy the information layer of the disc.

Player Maintenance

Clean the cabinet, when necessary, with a soft, damp cloth. Do not use cleaning agents containing alcohol, spirits, ammonia or abrasives. (For stubborn stains or fingermarks we have found the careful application of 'Windolene' to be particularly effective). Keep the disc tray free of dust. With the exception of changing a fuse, do not attempt to adjust or modify anything inside the player – this will void your warranty.

In Case of Difficulty

Although the Arcam Delta CD machines have been manufactured to the highest standards, the possibility remains that a fault could appear. However the cause of a problem will not always be the player – apparent faults can arise because you are not yet fully familiar with a complex new product, or simply from faulty discs.

There follows a list of possible faults and their causes (see pages 10–11). If you are unable to solve a problem after following our guidelines, stop your investigation, disconnect your machine from the mains and contact your dealer.

Delta 70.2 Rear Panel Connections
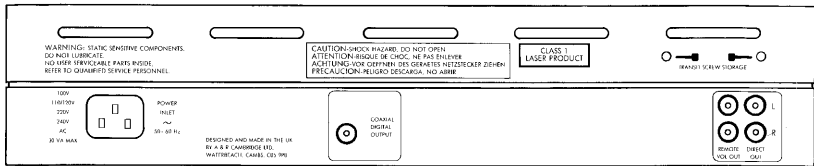
Audio Outputs

Two pairs of audio outputs to your amplifier are available via standard RCA type phono sockets, marked left and right. A pair of phono to phono leads should be used to connect the player to your amplifier. A basic cable of reasonable sound quality has been provided with the Delta 70.2 to 'get you going' (but see notes on connecting cables below).

The average output level of both audio outputs is 500mV (2V RMS peak). You should connect the Delta 70.2 output to the CD or AUX input of your amplifier.

The direct outputs on the Delta 70.2 offer the most direct path from the internal D/A converter circuitry and hence give the best sound quality.

The variable outputs, by offering a remote control volume facility, give convenient armchair command over a useful but limited range of 21dB with only a slight loss in audio quality.

Note: A set volume level will be lost when the power to the player is switched off. When the player is switched on again the volume will be set at normal full output level. Any other required listening level will therefore need to be reset using the remote handset.

Digital Output

This single phono socket allows the Delta 70.2 user to reap the sonic benefits achieved by using the player with an outboard D/A converter, for example the Delta Black Box, or perhaps with a digital pre-amplifier or amplifier equipped with its own internal DACs.

DO NOT connect the digital output of the Delta 70.2 to the conventional inputs of any audio amplifier.


Connecting Cables

With high quality CD sources, such as the Delta 70.2 and Delta 170, the quality of the cables which carry the analogue signals between the player and the amplifier becomes of paramount importance. Remember a hi-fi system is only as good as the weakest link in the chain!

We strongly recommend that only first class interconnect cables be used with your hi-fi system. (Of course the same importance should also be attached to loudspeaker cables).

We have found interconnect and loudspeaker cables from the AudioQuest LiveWire range to be particularly suitable.

We suggest that you discuss the question of cables with your dealer. As a rule of thumb you might budget to spend between 5% and 20% of the price of your system on cable. This can be one of the most effective upgrades you can carry out on your system.

Delta 170 rear panel connections
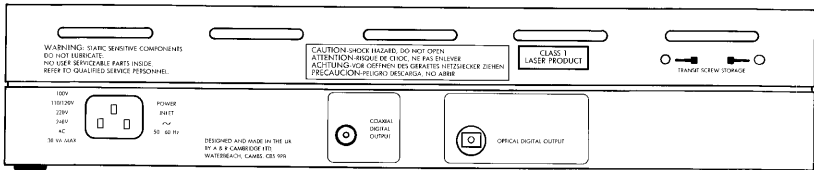
Digital Outputs

The Delta 170 is a transport only CD machine which must be used in conjunction with an outboard D/A converter or with DAC equipped amplifiers or pre-amplifiers.

Since the Delta 170 contains no D/A conversion stages of its own both outputs are digital.

One is a standard phono co-axial digital output, suitable for connection to the phono digital input of a D/A converter or DAC equipped amplifier/pre-amplifier.

A 0.75m, 75 ohm phono co-axial lead is supplied as standard with the Delta 170 for this purpose.

The second digital output is an optical output which allows the Delta 170 to be used with equipment possessing the TOSLINK optical connector. A fibre optic cable terminated with TOSLINK connectors should be used for optically connecting the Delta 170 to a D/A converter or DAC equipped amplifier/pre-amplifier. (A suitable cable is supplied with the Delta Black Box 2, or can be supplied on application to your dealer, distributor or the factory).

The Delta 170 has been designed primarily for use with the Arcam Delta Black Box D/A converter. Optimum results can be achieved by coupling the Delta 170 with the optically compatible Black Box 2.

Positioning your Delta CD player

Your CD machine should be placed horizontally on a flat, firm surface, not on a soft mat or similar which may limit ventilation. A Delta CD machine can be stacked but should preferably be placed either at the bottom or the top of the stack. (If you are using sorbothane feet under your CD machine and wish to place the player at the bottom of the stack bear in mind the weight capacity of the feet). Do not stand the player or sorbothane feet on any equipment (e.g. a power amplifier) which emits substantial amounts of heat.

Dedicated tables or other specialist supports are encouraged as they can improve the performance of your player by isolating it from external vibration. AudioQuest sorbothane CD feet are a particularly cost effective way of improving the performance of your player.

If siting the player in a cupboard or wall unit allow a minimum of 1" (25mm) above the machine to aid cooling.

Delta 70.2/Delta 170 Front Panel Controls and Displays
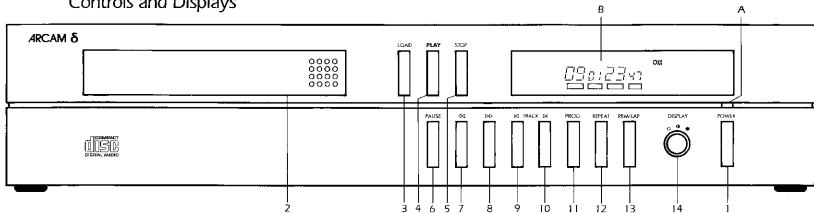
Your compact disc player should now be wired up and ready for use. Before attempting to operate it, we recommend that you familiarise yourself with the functions of the controls and the display as described below.

Function controls

1 POWER switch
Switches the unit on and off.

2 Disc loading drawer
When open, accepts a compact disc (label side up) for playing. Pushing in the open drawer approx. 1/4" (6mm) will activate its motorised closing function and load the disc. Note that the drawer is suitable for both 80 mm and 120mm discs.

3 LOAD button
Opens and closes the disc loading drawer.

4 PLAY button
Plays a disc from the beginning (after first automatically closing an open disc drawer). If a particular track or full program has

been loaded into the player, the disc will start at the first chosen place. If PLAY is pressed while a disc is actually playing, the track in progress will be replayed from the start.

5 STOP button
If playing a disc, your machine can be stopped by pressing this button once. Any material programmed into the memory will remain. By pressing the STOP button once again the memory can be cleared.

6 PAUSE button
This button interrupts and mutes the program whilst continuing to track the disc at the point of interruption. Pressing PAUSE again will resume play.

7 SEARCH (Reverse) button
Moves the laser tracking head towards the beginning of the track/disc.

8 SEARCH (Forward) button
Moves the laser tracking head towards the end of the track/disc.

9 PREVIOUS TRACK button

This button selects the track number by counting down the displayed digits.

10 NEXT TRACK button

This button selects the track number by counting up the displayed digits.

In general the TRACK buttons are used to find the track number you want to start with and for selecting track numbers when compiling a program. They can also be used for returning to a previous track number or for moving on to a later one while the disc is playing.

11 PROGRAM button

This button stores the track numbers of a program (up to 20 tracks in any order may be stored) and also produces a sequential display (review) of the stored program.

12 REPEAT button

This button repeats a whole disc or selected program.

13 REM/LAP button

This button switches between displays indicating the remaining (REM) time of a disc and the elapsed (LAP) time of the track playing.

14 DISPLAY Control

This control adjusts the brightness of the display.
The switch has three positions:

Fully clockwise — Normal
Centre — Dimmed
Fully anti-clockwise – Off

It has been observed that a better sound can be achieved when the display is either dimmed or is completely off.

Visual Displays
(A) Power on LED

Glows green when mains power is applied and the player is switched on.

(B) Main Display

This comprehensive display indicates all the information necessary for the operation of your machine. The basic display indicates track numbers, index numbers and all timing details in minutes and seconds.

The display also indicates in detail which of the machine's various functions are in operation. Headers denoting REPEAT, PAUSE, REVIEW, PROGRAM, REM/LAP time, DISC and ERROR appear around the basic display when a particular function is being used.

Operating the Player

Mains power

The player is turned on by depressing the POWER switch (1). The adjacent power LED (A) will glow green. The display (B) will light up, assuming the display control knob is in the on or dimmed position.

If there is no disc in the machine at switch on, the DISC header on the display will flash for a few seconds, the ERROR header will light up (signifying that there is no disc to play) and the display will indicate a series of noughts.

If there is a disc in the machine the DISC header will flash for a few seconds before the display indicates the total number of tracks on and total playing time of the disc.

Loading and Unloading

Push the LOAD button (3) once to open the disc loading drawer. Ensure the drawer is not obstructed.

Holding the disc horizontally by the edge place it, label side up, in the drawer – make sure the disc is properly in place or else it may be damaged when the drawer is closed. Push the LOAD button (3) once again or, if preferred, push in the drawer mechanism approx. 1/4" (6mm) to activate the drawer motor.

Once the disc is in the player the DISC header will glow for a few seconds and then the display will indicate the number of tracks on and the total playing time of the disc.

To unload the disc press the LOAD button (3) and when the tray is fully out remove the disc.

Playing a complete disc

The complete disc may be played in one of the following ways:

(a) If the disc is not loaded: open the drawer, load the disc and press the PLAY button (4).

(b) If the LOAD button (3) is pressed instead of the PLAY button (4), then the disc information (number of tracks + total time) may be read before pressing the PLAY button (4).

(c) If the disc is already loaded in the machine: simply press the PLAY button (4).

The disc may be stopped at any time by pressing the STOP button (5). If this is done then the player will revert to playing the disc from the beginning again when the PLAY button (4) is next pressed.

Playing from a specific track

Load the disc and then select the desired track number by pressing the TRACK buttons (9) and (10) to decrement or increment the TRACK display (B), until the desired track number is shown. (These buttons may either be pressed repeatedly or held down for a steady count, as desired).

You can simplify this operation by using the 0–9 direct entry keypad on the CR10 remote control handset (see below).

Replay

To restart a track which is already playing, simply press the PLAY button (4). This will replay the track from the beginning.

Holding Play/Interrupting Play

Pressing the PAUSE button (6) while playing will interrupt play and mute the output. The laser head will continue to track the disc at the precise point of interruption until the PAUSE button (6) is pressed again, when the program will start from exactly the same point.

Whenever the player is in the pause mode the PAUSE header on the left of the display will be illuminated.

Cueing and Searching

In order to cue the laser head silently to an exact (known) point on the disc, load the disc, press the PLAY button (4) and the press the PAUSE button (6) as soon as the first track is ready to play (indicated by TRACK-01 on the display). Select the track required by using the TRACK controls (9) and (10). Then use the SEARCH buttons (7) and (8) to arrive at the exact timing point required. Press the PAUSE button (6) when you are ready to start playing.

The above process allows you silently to access a known place on a disc (track and elapsed time on that track) to an accuracy of one second. The same process can be carried out with audible cueing by omitting to use the PAUSE function.

Note that the SEARCH process has three operational speeds dependent on how long the SEARCH buttons (7) and (8) are kept depressed.

Programming

The Arcam Delta CD machines can be programmed to play up to 20 pre-selected tracks from a disc in any order. Each track can be anywhere in the range 1–99. (NOTE – although tracks in the range 1–99 can be programmed, only those in the range 1–26 give a time indication on the display).

Programming must be carried out with the disc loaded, so that the player first knows the actual number of tracks recorded on the disc. It is not possible to program index points, although they do remain accessible from the remote control handset during the play of a program, except when you have programmed only one track number.

To store the track numbers you want to include in a program, refer to the disc holder and bring up each track number in turn using the TRACK buttons (9) and (10) to move up or down through the track numbers, whichever is quickest. It is of course even quicker to use the 0–9 direct entry key pad on the CR10 handset (see below). The TRACK display header below the track number will flash on and off. You can then store a track by pressing the PROGRAM button (11). When a track has been stored the TRACK header will stop flashing and the PROGRAM

header will light up. The time indicator will also show how much cumulative time has been programmed.

In the programming mode, when TRACK is not flashing, the TRACK display shows the number (quantity) of tracks you have programmed. When TRACK is flashing, the TRACK display shows the track number (position) currently selected by the PREVIOUS and NEXT TRACK buttons (9) and (10).

Do not allow more than six seconds to elapse between pressing the TRACK buttons (9) and (10) to select a track and pressing the PROGRAM button (11). After this time the TRACK header will stop flashing and the microprocessor in the player will assume that you have changed your mind; the track can then no longer be stored. The display will revert to detailing the number of tracks and total time of the disc. To program any 'missed' track simply repeat the process described above.

A program can be erased if the machine is not playing a disc by pressing the STOP button (5) once. If the machine is playing a disc then STOP must be pressed twice – once to stop the disc and once again to erase the program. A program can also be erased if the drawer is opened by pressing the LOAD button (3).

Reviewing the stored program

During or after programming you can check the contents of the memory by pressing the PROGRAM button (11). All the stored track numbers will then cycle through the track number display, in your own chosen order of play at the rate of about one per second. The REVIEW display header will light up while a review is in progress.

Playing a program

To play a complete program press the PLAY button (4).

During a programmed play, all functions operate as normal except those associated with locating a specific track or index number. Here you are limited to playing only the tracks you chose to program and when you push the TRACK buttons (9) and (10), the player will only access these chosen tracks, in the order in which you programmed them. Trying to go outside the limits of the program is not possible and will cause the ERROR header on the display to light up.

The SEARCH buttons (7) and (8) will only operate in the space between the beginning and the end of the track being played –

you cannot move the laser head outside these limits. Arrival at either limit is indicated by the ERROR header lighting up, whereupon the laser head will stop until you release the SEARCH button.

At any time during play it is possible to review the part of the stored program that remains to be played by pressing the PROGRAM button (11). The display will cycle through a list of the remaining tracks before reverting to indicating track number, index number and the remaining or elapsed time of the program.

When all the tracks have been played the disc stops. However the program will remain in the memory until you press the STOP button (5), open the drawer or turn off the player – it is then erased.

Remote Control Handset Type CR10

This unit duplicates all the functions of the player with the exception of LOAD, POWER (on/off) and the display brightness control. It also offers some useful extra features.

1 Volume Control (Delta 70.2 only)

By using the VOLUME buttons marked + and − it is possible to increase or decrease the listening level according to taste over a range of 21dB. (This facility is available on the variable outputs of the Delta 70.2 only).

2 Playing from index points

Index points are a method (occasionally) used by disc manufacturers to allow you to access defined points within a track. Think of them as tracks within a track.

By using the INDEX buttons it is possible to count up or down through the index numbers on a disc (assuming the disc is encoded with them – and very few are). When the required number is reached the disc can be played from that point by pressing the PLAY button.

3 Direct Dialling to a track

By using the numbered buttons on the handset it is possible to access a particular track directly, without using the track controls to work up or down through the track numbers. Simply enter the track number required and then press PLAY to play the track.

This facility makes programming via the remote control handset a very straightforward process. Simply use the 0–9 keypad to select the desired track numbers and press PROGRAM to store each track in the required sequence.

You should always point the handset directly at the front of the player for best results.

The CR10 uses three AAA type cells for power. These should be removed if the unit is not be be used for a long period of time.

Faults and their likely causes

[1] Pressing the POWER switch does not light up the display.

The POWER switch (1) was not pushed in far enough.

The I.E.C. mains socket on the mains lead is not pushed firmly home into the player's chassis mounted plug.

The mains plug is not properly plugged into the socket or its fuse is loose or defective.

There is no supply present at the mains socket.

The mains fuse in the player is defective.

The display switch is off.

[2] Pressing the LOAD button does not open the disc drawer.

The player is not switched on. Check the power LED (A) is on.

The transit screws have not been removed.

The microprocessor has not received the command properly. Check by pushing the STOP button (5) and then the LOAD button (3) again. If this does not work, try switching the player off and then on again 5 seconds later to see if this cures the problem.

[3] Pressing the LOAD or PLAY buttons will not close the disc drawer.

The player is not switched on or the mains supply has been interrupted. Check the power LED (A) is on.

The microprocessor has not received the command correctly. See section 2 above.

The drawer is jammed by a foreign object around the periphery of its slot, or the disc is not placed properly on its cradle.

[4] After closing the drawer, the ERROR header lights up or the disc information is not displayed.

The disc is loaded label side down or there is no disc in the tray.

The disc is dirty or badly scratched. The disc is defective.

The transit screws have not been removed.

There is a foreign object in the disc drawer (e.g. a piece of paper or a remnant of packaging.)

[5] The disc is playing but there is no sound.

The connection between the player and amplifier (or D/A converter) is broken.

The amplifier (or D/A converter) is not switched on or the volume control of the amplifier is at zero. The speakers are not connected.

The selector switch on the amplifier is set to the wrong source. Check the tape monitor switching too!

The amplifier (or D/A converter) input to which the player is connected is defective.

The amplifier (or D/A converter) or the speakers are defective. Switch to another sound source on your amplifier (e.g. vinyl disc, tuner or tape) to check this.

[6] Programming is not working.

The disc is dirty or badly scratched.

The microprocessor has not processed the commands properly. Erase the programme by pressing the STOP button (5) twice and store it again: restart play and check if the fault has cleared.

All 20 memory places are already occupied and you have missed the flashing ERROR header sign that indicates this.

(7) Playback does not begin with the first track number on the disc or of the program, but with another. Playback stops before the end of the disc or the program.

The microprocessor has not processed the command correctly. Check if switching the player off and on again, then restarting, clears the fault.

The disc is dirty or badly scratched. The disc is defective.
There is an unwanted object in the disc tray.

(8) The sound is poor or distorted, or skipping tracks.

The transit screws have not been removed.
There is an unwanted object in the disc tray.
The disc is dirty or badly scratched.
The player or your D/A converter is connected to the PHONO (pick up cartridge) input of the amplifier instead of the CD, AUX, TUNER or TAPE input.
The amplifier (or D/A converter) or speakers are faulty.
The interconnecting leads are defective or the RCA plugs are either dirty or not fully plugged home at the player or amplifier (or D/A converter).

(9) The sound can be heard through one channel only.

One interconnecting lead is defective, or the RCA plugs are either dirty or not fully plugged home at the player or amplifier (or D/A converter).
One channel of the amplifier (or D/A converter) or speakers is faulty. Check with another sound source.
You have used one direct and one variable output from the CD player.

Specifications

Playback system
16 bit Compact Disc Digital Audio.

Optical read-out system

Laser type	semiconductor Al Ga As
Numerical Aperture	0.45
Wavelength	800 nm

Typical Audio Performance (Delta 70.2 only) 20Hz – 20kHz unless otherwise stated)

Frequency response	+/−0.1dB 10Hz–10kHz, −0.5 dB at 20kHz
Channel balance	+/−0.1dB
Channel phase balance	+/−0.5 deg.
T.H.D.	0.007% at 1 kHz, 0dB
Signal to noise ratio	101dB unweighted 105dB CCIR/ARM weighted
Dynamic Range	96dB
Channel Separation	100dB at 1kHz 95dB at 20kHz
Wow and flutter	Quartz precision control

Outputs (Delta 70.2 only)
1. Direct Output

Output level	2V rms at MSB (0dB)
Output impedance	22ohms
Minimum load impedance	5k ohm

2. Variable Output

Output level	2V rms maximum at MSB (0dB)
Range	−21dB nominal
Channel balance	+/−0.5dB
Output impedance	200ohm maximum
Minimum load impedance	5k ohm

Power Supply
Normally set to 240V AC 50 to 60Hz, with service solution for 110, 120 and 220V. 100V version available to special order. Maximum power consumption 25VA.
Meets IEC 65 electrical safety requirements as standard.

General

Width 430mm

Height 90mm

Depth 272mm (drawer closed and excluding rear panel connectors), 410 mm (drawer open and excluding rear panel connectors)

Delta 70.2   Weight 5.25kg Net   Delta 170 – 5.25kg Net
              Weight 6.3kg Packed   – 6.5kg Packed
                                    (inc. sorbothane feet)

Guarantee for UK sales

This equipment has been fully tested and a full record of these tests made before despatch from the factory. Both the workmanship and the performance of this equipment are (except as set out below) guaranteed against defects for a period of two years from the date of purchase provided that it was originally purchased from an authorised UK dealer under a consumer sale agreement. (The words 'consumer sale' shall be construed in accordance with Section 15 of the Supply of Goods (Implied Terms) Act 1973).

The manufacturers can accept no responsibility for defects arising from accident, misuse, wear and tear, neglect or through unauthorised adjustment and or repair, neither can they accept responsibility for damage or loss occurring during transit to or from the person claiming under this guarantee.

This guarantee covers both labour and parts and it is transferable to subsequent purchasers but the liability of the manufacturers is limited to the cost of repair or replacement (at the discretion of the manufacturers) of the defective parts and under no circumstances extends to consequential loss or damage.

Claims under this guarantee

This equipment should be packed in the original packing and returned to the dealer from whom it was purchased or, failing this, any other authorised Arcam dealer. If it is not possible to return the equipment by hand, then it should be sent carriage prepaid by a reputable carrier.

Should the original packing not be available, replacement packing can be purchased from the manufacturers. The equipment should not be sent by post.

DO NOT CONSIGN THE EQUIPMENT TO A&R CAMBRIDGE UNLESS YOU HAVE FIRST BEEN SPECIFICALLY REQUESTED TO DO SO BY THE MANUFACTURER'S TECHNICAL SERVICE DEPARTMENT. DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO DISASSEMBLE THE EQUIPMENT BEFORE DESPATCH.

If you have any difficulty complying with these requirements please contact the manufacturers at the following address.

A&R Cambridge Limited,

Pembroke Avenue,
Denny Industrial Centre,
Waterbeach,
Cambridge CB5 9PB, England.

Telephone: (0223) 440964
Fax (0223) 863384

In either case you should state clearly your name and address, the date and place of purchase together with a brief description of the fault experienced.

In the event of equipment being returned which on test is found to comply with the published specification the manufacturers reserve the right to charge a reasonable fee for testing the equipment and for return carriage.

Enquiries

The manufacturers are happy to answer any queries you may have regarding the use of this equipment on the condition that this enquiry is by letter and a stamped addressed envelope is provided. You should state clearly the serial number of the unit, the dealer from whom it was purchased and the date of purchase.

THIS GUARANTEE IN NO WAY VARIES OR REMOVES A PURCHASER'S STATUTORY RIGHTS.

PART NO. SH026A E&OE APRIL 1989