

DAC60

Service Manual

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INCOMPLETE



Observe Precautions for handling
Electrostatic Sensitive Devices

WARNING

Compliance with Safety Regulations require that this unit is restored to its original condition and that parts are used as specified in this document.

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INCOMPLETE

TECHNICAL SPECIFICATION

Frequency Response	20Hz-20kHz +/-0.1dB at -10dB			
	<u>16Hz</u>	<u>1kHz</u>	<u>16kHz</u>	<u>20kHz</u>
Channel Balance				
Channel Separation				
THD vs level dithered				
Resolution				
Deemphasis accuracy				
SNR (A-wtd) without emphasis with emphasis				
Output Impedance			180R	
Peak Output level				

H x W x D (max ext dimensions)		90 x 422 x 290 mm		
Weight (unit only)		4.8 kg		
Mains Voltage	220-240V	210 to 265V	at 50 to 60 Hz	Fuse T250mA
	110-120V	103 to 135V	at 50 to 60 Hz	Fuse T500mA
	100V	90 to 116V	at 50 to 60 Hz	Fuse T630mA

WARNING

When the case of this unit is opened a mains voltage hazard exists. Appropriate precautions must be taken. Mains voltages ARE present on the PSU PCB.



WARNING

This unit contains Static Sensitive Devices. During handling of disassembled parts ensure an anti static environment with a high resistance (safety) link to the bulk of the unit, or ground.



WARNING

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Voltage Selection

WARNING:
DISCONNECT FROM MAINS
SUPPLY.
Remove the Power Supply PCB from
the chassis.

The voltage selections are:

100V	White
110-120V	Grey
220-240V	Violet

Select the appropriate 1 of 3 colour coded leads and solder into hole marked 'live'. Ensure that the other 2 leads are soldered separately into the holes marked 'spare'. These wires must not be shorted as they have mains voltages on them. Use an insulating adhesive to fix the wire to the PCB.

GUIDE TO UNIT DISASSEMBLY

Safety Warning: Mains voltages are available on the power supply PCB (6620-0044).

While every precaution has been taken to ensure that mains voltages are difficult to reach when the PCB is correctly seated in the chassis (to HD195), safety precautions should be observed. In addition particular care should be exercised at the mains inlet, fuse (F1), The transformer leads at the Y-W, 'live' and 'spare' locations, and the shrouded switch SW1. Mains is present on the terminals above switch SW1.

Note: The PCBs used in the DAC60 have plated through holes. Damage must be avoided. For component removal ensure the component lead solder is properly re-flowed or removed before attempting to remove the component.

Note: Anti Static precautions must be observed when handling the PCBs.

Disassembly

Disconnect the unit from the Mains and at the Digital Input/Analog Output.

Remove the 3 screws at the rear of the unit and the 4 screws on the base which fix the unit's lid.

Remove the lid.

To remove the DAC PCB (6620 0043)

While supporting the Digital Input and Analog Output Connectors from the rear, remove the screws attaching these connectors to the rear panel.

Remove the 10 way connector at the DAC PCB

Pull the front panel led from the sponge rubber support piece.

Remove the 3 screws which fix the PCB to the chassis. Remove the PCB while observing precautions for the handling of static sensitive devices.

Assembly is the reverse of removal.

At this time check the heatsinks on the regulators to ensure that the handling process has not unseated them or caused them to touch other parts of the circuit or heatsinks from other devices.

To remove the PSU PCB (6620 0044)

Disconnect unit from the mains supply.

Remove the 2 screws at the mains inlet and the single screw near the mains switch SW1.

Disconnect the earth strap from the rear panel.

Remove the bolt from the transformer and lift the unit from the chassis, taking care not to stress the leads to the transformer.

To Re-assemble, loosely fit the transformer bolt. Then fit the screw next to SW1 and ensure the unit is correctly aligned with the front panel.

Ensure the 2 mains inlet screws are refitted, as these provide an additional safety earth to the chassis.

Tighten the transformer bolt and lock into place with a small quantity of adhesive.

At this time check the heatsinks on the regulators to ensure that the handling process has not unseated them or caused them to touch other parts of the circuit or heatsinks from other devices.

Ensure that the earth strap is correctly re-seated, with a shake proof washer between the chassis and the crimp terminal.

Surface Mount

Please note that the surface mount components used in the DAC60 can be damaged by excess heat. They should not normally be soldered with a standard iron. A tip temperature of 360 C should not be exceeded.

Particular care should be taken when removing ICs as it is possible to damage the PCB pads by careless handling. If the correct desoldering tip for the IC is not available, then normally the legs should be cut off with a sharp knife, taking care not to damage the PCB tracks underneath the device. The pads are then cleaned by passing a soldering iron over with a blob of solder.

DAC60	17/12/92					
Value	(description)	Qty	TANNOY	Part Assy	Used By (PSU)	Used By (Main PCB)
33p	SMT 1206	2	C000			C2, C3
47p	SMT 1206	2	C001			C32, C59
100p	SMT 1206	1	C002			C11
150p, 1%	AXIAL	2	C003			C29, C56
1n	SMT 1206	2	C004			C38, C65
1n, 1%	AXIAL	2	C069			C31, C58
3n3	RADIAL	2	2606-0760		C22, C23	
4n7	SMT 1206	1	C006			C4
100n	SMT 1206	47	C007		C1, C2, C3, C4, C9, C10, C11, C12, C20	C1, C6, C7, C8, C10, C13, C15, C17, C19, C21, C22, C23, C24, C26, C28, C30, C35, C37, C40, C42, C44, C46, C48, C49, C50, C51, C53, C55, C57, C62, C64, C67, C68, C69, C70, C73, C76, C79
220n	RADIAL	5	2601-0053		C7, C8, C15, C16, C18	
1u	RADIAL	2	2601-0057			C33, C60
2u2,35V tant	TANT	1	C043		C19	
1u, 35V	RADIAL	7	C009			C20, C47, C66, C71, C74, C77, C80
100u,25V	RADIAL	25	C072		C24, C25, C26, C27	C5, C9, C12, C14, C16, C18, C25, C27, C34, C36, C39, C41, C43, C45, C52, C54, C61, C63, C75, C78, C81
470u,25V	RADIAL	1	C044		C17	
2200u,35V	RADIAL	3	C045		C6, C13, C14	
3300u,25V	RADIAL	1	C046		C5	
Mains Inlet	CM0033	1	C047		CN1	
Analog Out	YKC21-3071	1	3422-0004			CN2
Digital In	YKC21-3048	1	3422-0003			CN1
10 way Header	MKS3740-6-0-1010	2	3443-0016		CN2	CN3
10 way Conn	MKF17340-6-0-1010	2	3443-0017	Power Interconnect		
10 way Lead (m)	JC026810-FL	0.2	1053-0052	Power Interconnect		
M4, 1amp, 200V	SMT diode	16	C011		D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14	D1, D2
Fuse Cover	Fuse Cover	1	3469-0023		F1	
Fuse Holder	Fuse Holder	1	3469-0022		F1	
HeatSink	Heat Sink	6	1532-0007		HS1, HS2, HS3, HS4	HS1, HS2
MC74F86D	SMT soic14	1	C012			IC7
PC74HCT02T	SMT soic14	1	C013			IC6
SN74ALS195J	DIP16	1	C014			IC1
HEF4093BT	SMT soic14	1	C048		IC1	
DF1700P	DIP28	1	C015			IC3
LM317T	LM317T	2	3723-0038			IC12, IC14
LM337T	LM337T	2	3723-0039			IC13, IC15
LM340T-12	LM78XXL	1	C061		IC3	
LM340T-15	LM78XXL	1	C062		IC5	
LM340T-5	LM78XXL	1	C063		IC2	
LM7912CT	LM79XXL	1	3723-0036		IC4	
LM7915CT	LM79XXL	1	3723-0016		IC6	
NE5534D	SMT soic8	2	C016			IC8, IC10
OPA2604AU	SMT soic8	2	C060			IC9, IC11
PCM63K	DIP28	2	C017			IC4, IC5
YM3623B	DIP28	1	C018			IC2

red/grn LED	EL204HGW	1	C064			LED
TWIN WIRE	red/white (m)	.330	C055			LED lead assy
PTFE sleeve	1.27mmX5m	.020	C056			LED lead assy
BC846B/T1	SMT sot23	1	C049	Q1		
BC856/T1	SMT sot23	1	C020			Q4
FMMTA42TA	SMT sot23	1	C019			Q1
J113	TO92	2	C021			Q2, Q3
0R	SMT 1206	1	C022			R2
22R	SMT 1206	2	C023			R39, R49
100R, 1%	SMT 1206	4	C025			R52, R54, R56, R58
120R	SMT 1206	15	C026			R1, R11, R12, R13, R14, R21, R22, R23, R24, R26, R27, R28, R29, R38, R48
150R	SMT 1206	1	C027			R8
220R	SMT 1206	2	C028			R32, R42
300R, 1%	SMT 1206	2	C029			R51, R53
750R, 1%	SMT 1206	4	C031			R4, R20, R55, R57
1K	SMT 1206	5	C032			R3, R5, R7, R16, R25
3K3	SMT 1206	1	C033			R18
4K7	SMT 1206	5	C034	R1		R17, R36, R46, R50
7K5, 1%	SMT 1206	2	C035			R30, R40
15K	SMT 1206	1	C036			R19
15K, 1%	SMT 1206	1	C050	R2		
18K, 1%	SMT 1206	2	C070			R34, R44
22K, 1%	SMT 1206	1	C037			R9
22K, 1%	SMT 1206	4	C038			R10, R15, R31, R41
33K, 1%	SMT 1206	2	C071			R35, R45
160K	SMT 1206	4	C039	R4, R6		R37, R47
1M	SMT 1206	3	C040			R6, R33, R43
2M2	SMT 1206	1	C051	R3		
MUTE	BT47_RELAY	1	C041			RL1
MAINS	SDS3P	1	C052	SW1		
Button	(mains switch)	1	6121-0060	SW1		
Acetate Foil	(mains switch)	1	4870-0131	SW1		
16.0MHz	A161A	1	C042			X1
Insulator	(crystal)	1	C068			X1
Transformer	TI60061	1	C053	TR1		
bolt	m5x40	1	4058-5140	TR1		
Ty Raps	100X2.5mm	4	4800-0001	2 ea per sec. set	TR1	
washer	m5 shakepruf	1	4044-5000		TR1	
washer	m5 zinc	1	4040-5000		TR1	
Case Base		1	6883-0080	Case Assy		
Case Front		1	6874-0083	Case Assy		
Case Lid		1	6883-0079	Case Assy		
screws	m3x6	18	4490-3206	Case Assy		
washer	m3 shakepruf	5	4044-1002	Case Assy		
feet	bump on	4	4825-0008	Case Assy (base)		
LED foam pad		1	6839-0304	Case Assy (front)		
suede vinyl	6mm x 390	1	1350-0001	Case Assy (front)		
MDF Spacer	(transformer)	1	9800-0992	Case Assy (psu)		
screws	m3x10	2	4058-3110	Case Assy (psu)		
Crimp	RED/M4	1	4783-0207	Earth Strap Assy		
nut	m4	1	4602-4104	Earth Strap Assy		
screws	m4x10	1	4058-4710	Earth Strap Assy		
washer	m4 shakepruf	1	4044-4000	Earth Strap Assy		
washer	m4 zinc	1	4040-4000	Earth Strap Assy		
Wire	yel/grn 32/.2	.080	1134-3240	Earth Strap Assy		
Silicone sleeve	Yellow	.015	C073	Earth Strap Assy		

CARTON		1	C065	Packaging		
Digital lead		1	C059	Packaging		
MANUAL		1	C058	Packaging		
PACKING	end cheeks	2	6735-6002	Packaging		
POLY BAG	large	1	6844-0056	Packaging		
poly bag	accessories	1	C066	Packaging		
Registration		1	C067	Packaging		
ser no	label	2	6407-0039	Packaging		
DAC ASSY		1	7200-0124	PCB main		
PSU Assy	220/240 V	1	7200-0125	PCB psu	Convert to Required Voltage	
UK	240V		8200-0319			
Generic Assy		1	8200-0318			
Mains cable (IEC-UK 3pin(5A fse))		1	C057	Mains (one only)		
250mA	FUSE(230V)	2	3461-0719		F1	
Carton Volts	label	1	6447-000x	Packaging		
Label (Amps)		1	6449-0117	Case Assy (base)		
Label (volt)		1	6449-0116	Case Assy (base)		
AUSTRALIA	240V		8200-0320			
Generic Assy		1	8200-0318			
Mains cable (WC5 IEC-Aus 3 pin)		1	3455-6001			
250mA	FUSE(230V)	2	3461-0719		F1	
Carton Volts	label	1	6447-000x	Packaging		
Label (Amps)		1	6449-0117	Case Assy (base)		
Label (volt)		1	6449-0116	Case Assy (base)		
EUROPE	220-240V		8200-0321			
Generic Assy		1	8200-0318			
Mains cable (WC17 IEC-Shuko)		1	3455-6002	Mains (one only)		
250mA	FUSE(230V)	2	3461-0719		F1	
Carton Volts	label	1	6447-000x	Packaging		
Label (Amps)		1	6449-0117	Case Assy (base)		
Label (volt)		1	6449-0116	Case Assy (base)		
US/CAN	120V		8200-0322			
Generic Assy		1	8200-0318			
Mains cable (WC12 IEC-US 3pin)		1	3455-6004	Mains (one only)		
500mA	FUSE(120V)	2	3461-0722		F1	
Carton Volts	label	1	6447-000x	Packaging		
Label (Amps)		1	6449-0118	Case Assy (base)		
Label (volt)		1	6449-0114	Case Assy (base)		
JAPAN	100V		8200-0323			
Generic Assy			8200-0318			
Mains cable (WC12 IEC-US 3pin)		1	3455-6004	Mains (one only)		
630mA	FUSE (japan)	2	3461-0723		F1	
Carton Volts	label	1	6447-000x	Packaging		
Label (Amps)		1	6449-0127	Case Assy (base)		
Label (volt)		1	6449-0113	Case Assy (base)		
KOREA	220V		8200-0324			
Generic Assy			8200-0318			
Mains cable (WC17 IEC-Shuko)		1	3455-6002	Mains (one only)		
250mA	FUSE(230V)	2	3461-0719		F1	
Carton Volts	label	1	6447-000x	Packaging		
Label (Amps)		1	6449-0117	Case Assy (base)		
Label (volt)		1	6449-0115	Case Assy (base)		





