

**Operating and
service information**

DN735

Solid State Recorder

Introduction

The DN735 can record and play back short passages of stereo audio in synchronisation with other devices via an externally applied SMPTE time code (LTC). Its primary function is to add an extra two tracks of high quality audio to standard VTR machines in order to simplify stereo editing (where the audio is required to cross fade from scene to scene and not be edited with the video frames). Although normally a memory length of 20 seconds stereo would be sufficient for this application, plug in memory cards will allow up to 175 seconds stereo maximum, if required.

Several modes of operation enable the DN735 to be controlled manually via front panel controls like an analogue tape recorder, or by remote control. Alternatively, it can be controlled via the serial RS422 interface, the protocol of which is fully compatible with current broadcast serial control equipment.

The response time to achieve full lock up is extremely fast, with precise tracking. Lock up can be achieved from any position within the recorded section.

The time code reader recognizes time code during fast forward and rewind (at which time the outputs are muted). LED indicators show the relative position of the recorded section and the current time code is shown on the L.C.D display.

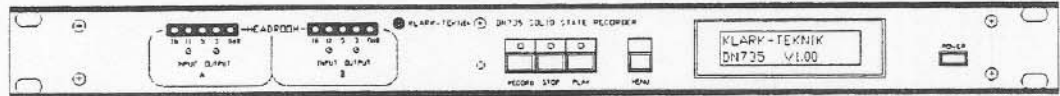
The menu facility allows various modes of operation to be set up by the user, thus adapting the unit to the users preferred method of working. Any international frame rate can be selected. The unit can be operated in mono mode, which doubles the storage time and can be programmed to include selected amounts of free-wheel which enables it to be used with machines which do not correct for time code errors. Multi segment operation is also user selectable, which extends the capabilities of the DN735 for uses such as time code triggered spot effects.

Reliability Control

Even with the advanced technology incorporated in this product, each instrument is given the full backing of Klark-Tekniks reliability control which proves each product against a specification consistent with the highest professional standards. Only top quality components are used and every unit is bench tested and aligned before a burn-in period and a final performance test.

Instrument Familiarisation

Front panel functions



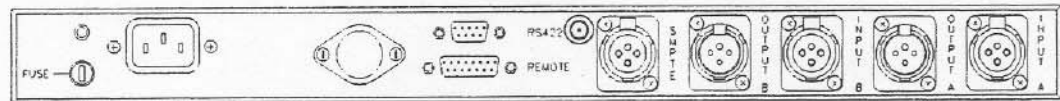
Input and output level presets These allow the user to operate the unit at any professional nominal level and headroom. To make optimum use of the dynamic range, the 3dB LED should illuminate on signal peaks.

Headroom indicators These are peak level indicators and are set up so that the 0dB LED illuminates 2dB below the digital full scale (digital clipping).

Record, Stop, Play and Menu switches These switch functions vary depending on the operating mode (see Using the DN735 for full description).

Display This is a 2 x 16 character supertwist LCD display with electroluminescent back lighting.

Rear panel functions



Mains Supplied via an IEC standard 3 pin connector. A compatible power cord is supplied with the unit.

Operating Voltage This is clearly marked on an adhesive label. See Installation for voltage change-over instructions.

Mains Fuse Located in a fuse holder fitted to the rear panel. Always replace with the correct type and rating of fuse, as indicated adjacent to the fuse holder.

Earth-lift link Located inside the unit. This disconnects the signal ground from the mains and chassis earth. This should be used if hum is attributable to earthloops and will generally solve the problem. It is also safe, unlike the practice of disconnecting the mains earth from the power cord.

Input and output connections Made via complementary XLR style connectors. For wiring details see Audio Connections.

Serial number Should be quoted in any correspondence concerning the unit.

Remote A 15 way DEE type connector. Three opto isolated inputs and three reed relay outputs allow totally isolated remote control.

RS422 Standard RS422 connector. The protocol is compatible with current broadcast serial control equipment and most of the popular editors will easily control the DN735.

SMPTE An electronically balanced time code input via standard XLR connector.

BNC A composite video sync reference input. This can be terminated with 75ohm via an internal link.

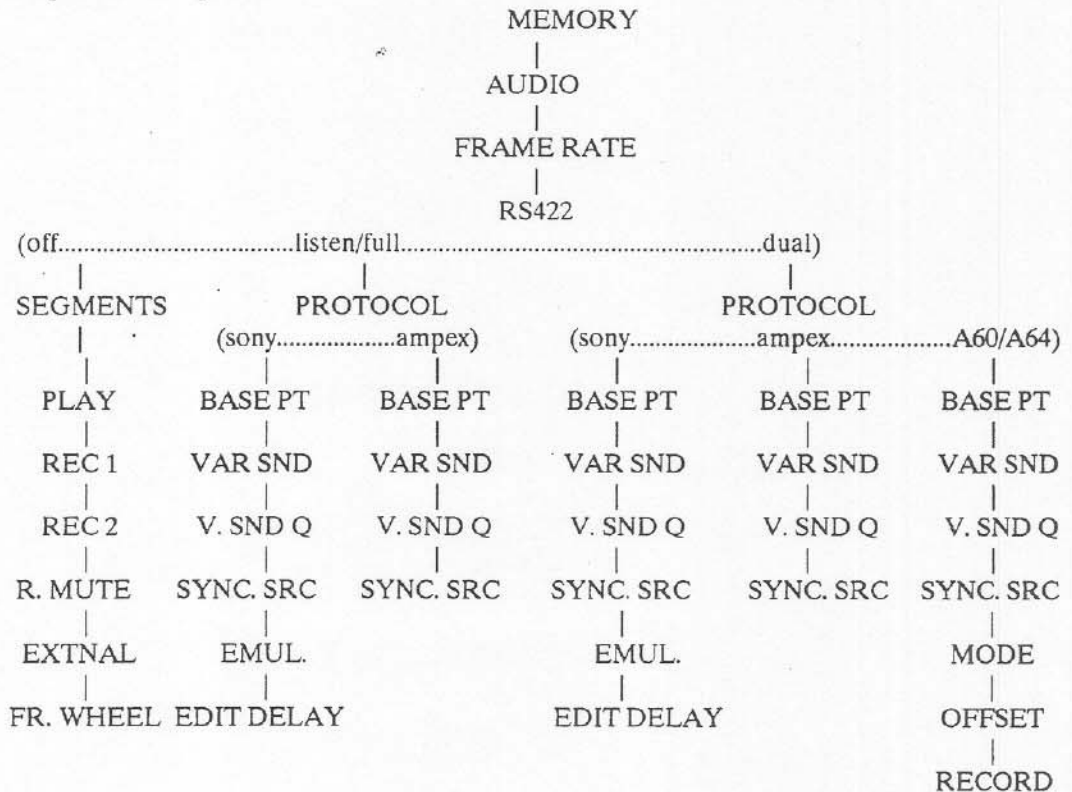
Using the DN735 Solid State Recorder

The flexibility of the DN735 allows it to be used in four distinct modes of operation.

- 1). Manual Lay off recorder.
- 2). RS422 controlled via a dedicated port on a video editor.
- 3). RS422 controlled by eavesdropping on a video editor to transport control link.
- 4). RS422 controlled by eavesdropping on a Abekas A60/A64 keyboard to mainframe link.

For RS422 modes of operation the unit requires a constant sync signal. This can be continuous time code via the SMPTE connector or a composite video sync (black burst) via the BNC connector. (For earlier units without a BNC connector an interface box is available.)

The operational modes of the unit are controlled by the parameters set in the System Options menu. The options displayed will depend upon the settings of major options RS422 and PROTOCOL. The following figure shows the sequence of options.



Menu Control

The MENU facility can only be accessed when the unit is in STOP and the STOP LED is illuminated. Pressing the MENU switch will enter the MENU mode and the display will show:

MENU MODE:

SYSTEM OPTIONS:

Pressing the switch again changes the display to:

MENU MODE:

SMPTE TEST:

A third operation will change the display to:

MENU MODE:

KEYBOARD TEST:

A fourth operation will return the display to SYSTEM OPTIONS i.e. pressing the menu switch scrolls round the main menu.

Pressing the STOP switch at any time exits the MENU mode and returns the unit to normal operation.

To select the particular function required, press the RECORD switch. So, to reconfigure the DN735, scroll the main menu to the SYSTEM OPTIONS position and press the RECORD switch. The SYSTEM OPTIONS sub-menu will now be displayed. To scroll round the sub-menu keep pressing the MENU switch.

Example - To change the frame rate being used

1. Scroll the sub menu by pressing the MENU switch until the display shows:
SYSTEM OPTIONS
FRAME RATE = 25*
2. Press the PLAY switch several times and the display will scroll round the alternatives available. Only the current setting will be followed by *.
3. When the required rate is displayed, press the RECORD switch. The * will now appear after the new selected setting.
4. If the MENU switch is pressed, the display will continue to scroll round the SYSTEM OPTIONS sub-menu and another function can be viewed and altered. A description of the options follows this section.

5. Pressing the STOP switch at any time will return the unit to normal operation.

To summarise -

1. Pressing the MENU switch enters the menu mode and scrolls round the menus.
2. Pressing the RECORD switch selects either a sub-menu or a function option (similar to the ENTER key on a computer).
3. Pressing the PLAY switch scrolls round the alternative options of the selected function.
4. Pressing the STOP switch returns the unit to normal operation.

System Options common to all modes of operation

1. MEMORY = [256k - 512k - 1M - 2M - 4M - 8M - 16M]
Selects the memory size in words i.e. 4M = 4 Megawords = 8 Megabytes, which gives a maximum recording time of 43.69 seconds stereo. This should, of course, be set according to the amount of memory installed.
2. AUDIO = [MONO - STEREO]
Selects mono or stereo operation. In mono the audio input is on channel A and the outputs on A and B. The maximum recording time is doubled.
3. FRAME RATE = [24 - 25 - 30 - 30D]
Selects frame rate in frames per second. [30D] is drop frame mode.
4. RS422 = [OFF - LISTEN - FULL - DUAL]
Selects the RS422 operational mode.
OFF = All RS422 commands ignored. Unit functions as a manual lay off device.
LISTEN = Unit follows RS422 commands but does not transmit any responses.
FULL = Normal RS422 protocol. (Not available in D version software.)
DUAL = Eavesdrop mode. Listens to both RS422 channels. (Not available on F version software.)

Applications - Mode 1. Manual Lay off recorder

For the manual lay off mode the RS422 option should be set to OFF. This will enable the following set of options to be displayed.

1. SEGMENTS = [ONE - MULTI]
Selects how the recorded sections are stored in memory.
ONE = Only the last recorded section is held in memory.
MULTI = The unit will hold up to eight different recorded sections each with its own time code tag. The memory is treated as a loop with new recorded sections eventually overwriting earlier recorded sections. During playback the sections are searched from the last recorded backwards until a valid time code match is found.

2. PLAY = [1 SHOT - CONTI]
1 SHOT = After replaying a recorded section the unit will go into STOP mode.
CONTI = Unit will remain in PLAY or PLAY READY mode until either the RECORD or STOP switches are pressed.

3. REC1 = [LOOP - FULL]
LOOP = Continues recording until the record function is terminated i.e. stores the last (n) seconds.
FULL = Records from the start of the memory to end. The record function is automatically terminated when the memory is full.
(Note. selecting SEGMENTS = MULTI will force REC1 = LOOP.)

4. REC2 = [PLAY - STOP - RECORD]
Selects the function which follows RECORD i.e. when in RECORD and time code stops, the unit will go into either the PLAY READY, STOP or RECORD READY mode.

5. RECORD MUTE = [ON - OFF]
Selects audio output mode during RECORD READY and RECORD modes.
ON = Audio outputs will be muted.
OFF = Audio outputs will be the same as inputs.

6. EXTERNAL = [OFF - FLASH - ON]
Selects the operation of the remote control connector.
OFF = Inputs ignored, outputs off.
FLASH = For use with the standard remote control unit.
ON = Inputs and outputs active (Duplicate front panel RECORD, STOP, PLAY switches and indicators).

7. FREEWHEEL = [0 - 5 - 10 - 15 - 30]

Selects the number of frames that will be automatically inserted by the unit if time code drops out. Set at the lowest number possible - it should be 0 unless dropouts become a problem.

The unit will normally be connected as shown in figure 1. The front panel controls operate as follows.

RECORD When pressed the unit goes into RECORD READY state, the record lamp will flash and the audio output will normally follow the audio input. As soon as valid time code is detected the unit starts recording and the record lamp stays permanently on. Current time code will be shown in the display.

STOP The unit will ignore SMPTE time code and the audio outputs will be muted. The display will show the length in frames of the last recorded section. If the MULTI-SEGMENT mode is on, the display will also show the number of segments currently in the store.

PLAY When pressed the unit goes into the PLAY READY mode, the play lamp will flash and the audio outputs are muted. As soon as valid time code is received which is within a recorded section, the unit commences replaying. The play lamp stays permanently on. Current time code will be shown on the display and if the MULTI-SEGMENT mode is on the segment number currently being replayed will also be displayed. If the PLAY button is pressed again, the unit will replay the last recorded section without time code being valid i.e. a play PREVIEW facility.

NB Any of the above machine states can be changed instantly by pressing one of the other switches - the RECORD and PLAY states will terminate automatically when the time code stops or is invalid.

Valid time code = Forward and within 2% of correct speed.

DN735 Remote Control

The remote control incorporates three switches - RECORD, STOP and REPLAY. These function in the same manner as the ones on the front panel with the following exception:

- 1) The STOP switch has no indicator (LED)
- 2) The PLAY switch has 2 LEDs - when depressed and without valid time code, both LEDs flash. When time code is valid but outside the relevant recorded section, one LED flashes dependant on the direction that the time code needs

to travel.

When the time code is within the relevant recorded section, both LEDs stay permanently on.

Typical audio set up for 2 machine stereo V.T. editing

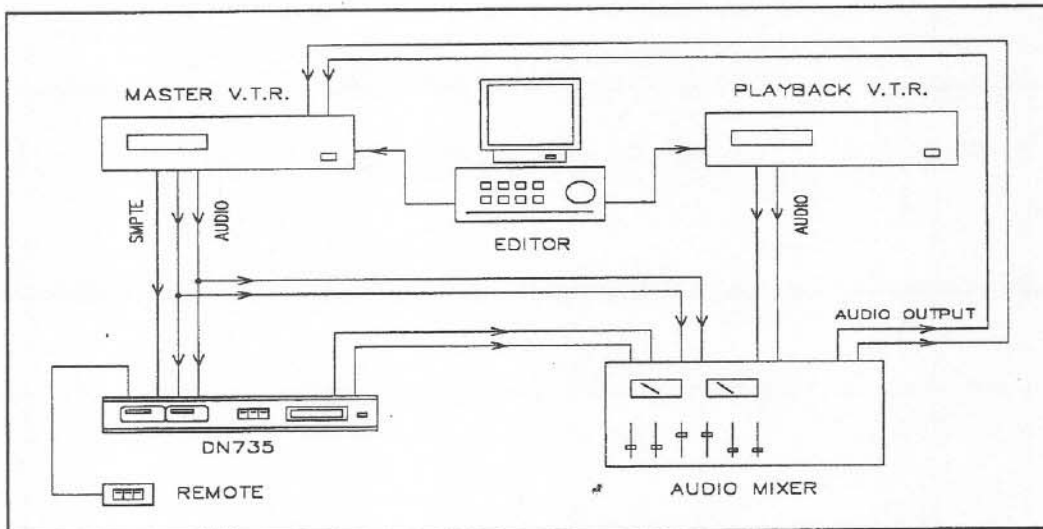


Fig. 1 Manual Lay Off Mode

At the required edit point, the Master V.T.R. will drop into record and record the video from the Playback V.T.R. or any second video source such as logo generator etc. The audio will usually require different treatment, such as being faded out over a few seconds while the audio from the new scene is faded in. To accomplish this, a section of audio is recorded into the DN735 (laid off). This should start any time before the edit point and continue for as long as the fade out is required. Press the RECORD switch at the appropriate time whilst monitoring the master V.T.R. and stop the master V.T.R. at the end of the required section. The DN735 will automatically drop into the PLAY READY mode, waiting for the V.T.R. to be rewound. If the REPLAY switch is pressed, the recorded section will be replayed without time code in order to ensure that the recording was correct. Whenever the master V.T.R. plays back the relevant section, the DN735 will replay the audio in complete synchronisation. This is then mixed with the new audio from the Playback V.T.R. and re-recorded on to the Master V.T.R. More complex audio manipulation can be achieved by controlling the DN735 from the editor.

Applications - Mode 2, 3 and 4. RS422 Controlled

For RS422 control the RS422 option should be set to LISTEN, FULL or DUAL. This will enable the RS422 control options to be set.

System Options common to all RS422 modes of operation

1. PROTOCOL = [SONY - AMPEX - A60 - A64]

Selects the RS422 protocol to use.

SONY = Standard Sony protocol for use with Sony editors.

AMPEX = Standard VPR-3 Ampex protocol for use with editors running VPR-3 protocol.

A60 = Abekas A60 protocol, for use with A60s NOT connected to editors.

A64 = Abekas A64 protocol, for use with A64s NOT connected to editors.

(NB The A60 and A64 options are only available with the RS422 option set to DUAL.)

2. BASE PT. = [0 - 1 - 2 - 5 - 10 - 12hrs]

Sets the start time of recordable memory i.e. 10hrs = 10:00:00:00 as the first recordable frame.

3. VAR SND = [OFF - 1 - 5 - 10]

OFF = No sound during variable speed modes (Jog, Shuttle, etc.).

1,5,10 = Duration of sound in frames during variable speed modes.

4. V.SND Q = [1 shot - 10frms - 15frms - 20frms - 25frms]

1 shot = Sound is output once for each new frame.

10,15,20,25 = Duration of quiet passages in frames during stationary variable speed modes.

(NB The V.SND Q option is irrelevant if VAR SND = OFF).

5. SYNC SRCE = [TC - VIDEO]

Sets sync reference source.

TC = Unit synchronises to time code on the SMPTE socket.

VIDEO = Unit synchronises to a composite sync video signal on the BNC socket (or via an interface box).

Extra options for PROTOCOL = SONY

6. EMUL. = [OWN - ABEKAS - QUESTECH - BVH3000 - BVU800 - BVU900 - BVW40 - DVR1000]

Sets emulation of a machines ballistics and Sony ID code.

OWN = Optimum ballistics. For editor definable parameters. (Set BVE-9000 parameters as table 1). (ID F110/F010).

ABEKAS = Emulates Abekas A60 ballistics (ID F105/F005).

QUESTECH = Uses optimum ballistics and allows sound on CUE UP with data commands. For use with a Questech SSVR.

BVH3000 = Emulates a BVH3000 series (ID 0150/0050).

BVU800 = Emulates a BVU800 series (ID 1100/1000).

BVU900 = Emulates a BVU900 series (ID 111C/101C).

BVW40 = Emulates a BVW40 series (ID 2100/2000).

DVR1000 = Emulates a DVR1000 series (ID 3100/3000).

7. EDIT DELAY = [OFF 0...15]

Allows adjustment in frames of the edit delay i.e. the time between the edit command being sent and it actually happening.

OFF = Edit delay set by the emulated machines ballistics.

0-15 = Edit delay in frames.

Extra options for PROTOCOL = A60 or A64

8. MODE = [TRACKING - SYNC RUN]

Sets the operational mode of the unit when the A60/64 is in PLAY mode.

TRACKING = The unit will track the A60/64 frame for frame.

SYNC RUN = The unit will synchronise to the first frame when the A60/64 enters PLAY mode and will then replay from its own store regardless of the A60/64s frame number while the A60/64 is in play mode.

9. OFFSET = [MANUAL - KEYBOARD]

Selects whether the frame offset between the unit and the A60/64 can be set via the A60/64s keyboard.

MANUAL = The offset can only be set manually on the unit.

KEYBOARD = The offset can be set via the A60/64s keyboard as well as manually.

10. RECORD = [OFF - LOCKOUT - REC KEY]

Selects the recording mode of the unit.

OFF = The unit ignores all record commands from the A60/64.

LOCKOUT = The unit follows all record commands including lockout segments from the A60/64.

REC KEY = The unit follows all record commands and ignores lockout segments from the A60/64.

Front panel controls during RS422 modes

While the unit is under external RS422 control the only operative switch is STOP. Pressing the STOP switch will put the unit into LOCAL STOP. In this mode the unit will ignore all commands from the RS422 port. Pressing the STOP switch while in LOCAL STOP will put the unit back under RS422 control. Pressing the RECORD switch while in LOCAL STOP will put the unit into LOCAL RECORD and record the entire memory. The first frame recorded will be XX:00:00:00 (XX = Base hrs). Pressing the PLAY switch while in LOCAL STOP will put the unit into LOCAL PLAY and the unit will replay the entire memory. Pressing the MENU switch while in LOCAL STOP will allow the system options to be set.

(NB When PROTOCOL = A60 or A64 pressing the STOP switch while in LOCAL STOP will put the unit into Offset adjust mode. The offset can be adjusted using the RECORD and PLAY switches. Pressing the STOP switch will put the unit back under RS422 control.)

Specific Applications

1). Sony BVE-9000/900 editors using a dedicated port.

Connect the DN735 as figure 2.

Set options as follows:

RS422 = FULL (NB not available on version D software.)

PROTOCOL = SONY

BASE PT. = as required (0/1/2/5/10/12hrs)

VAR SND = 5 or as required (OFF/1/5/10)

V.SND Q = 1 shot or as required (1 shot/10/15/20/25)

SYNC SRCE = VIDEO

EMUL. = BVH-3000 or use OWN and reset editor parameters as table 1 for optimum performance.

EDIT DELAY = OFF or as required.

Table 1. Sony editor parameters for EMUL. = OWN

Data No.	Set-up Items	Value (Hex.)
1 CONSTANT 1	1 Device Type Hi-byte	F1*
	2 Device Type Lo-byte	10
	3 Preroll Time Hi-byte	00
	4 Preroll Time Lo-byte	4B
	5 Edit Delay	01
	6 EE Delay	01
	7 Overrun	00
	8 Trajectory	82
2 CONSTANT 2	1 TC Read Delay	05
	2 Start Delay	02

3	After Sync Delay -	FC
4	After Sync Delay +	00
5	Mode 1	C3
6	Mode 2	3C
7	Max PRRL Speed	FF
8	Quick PVW PRRL Time	3B

(* - F0 When using 30 or 30 drop frame rate)

Unit will perform like a normal VTR device. The units memory can also be completely erased by sending an EJECT command.

2). Grass Valley editors using a dedicated port.

Connect the DN735 as figure 2.

Set options as follows:

RS422 = FULL (NB not available on version D software.)
 PROTOCOL = SONY
 BASE PT. = as required (0/1/2/5/10/12hrs)
 VAR SND = 5 or as required (OFF/1/5/10)
 V.SND Q = 1 shot or as required (1 shot/10/15/20/25)
 SYNC SRCE = VIDEO
 EMUL. = Set to a VTR series supported on the editor.
 EDIT DELAY = OFF or as required.

Unit will perform like a normal VTR device.

3). Ampex and VPR-3 type editors using a dedicated port.

Connect the DN735 as figure 2.

Set options as follows:

RS422 = FULL (NB not available on version D software.)
 PROTOCOL = AMPEX
 BASE PT. = as required (0/1/2/5/10/12hrs)
 VAR SND = 5 or as required (OFF/1/5/10)
 V.SND Q = 1 shot or as required (1 shot/10/15/20/25)
 SYNC SRCE = VIDEO

Unit will respond as an A62 and perform like a normal VTR device.

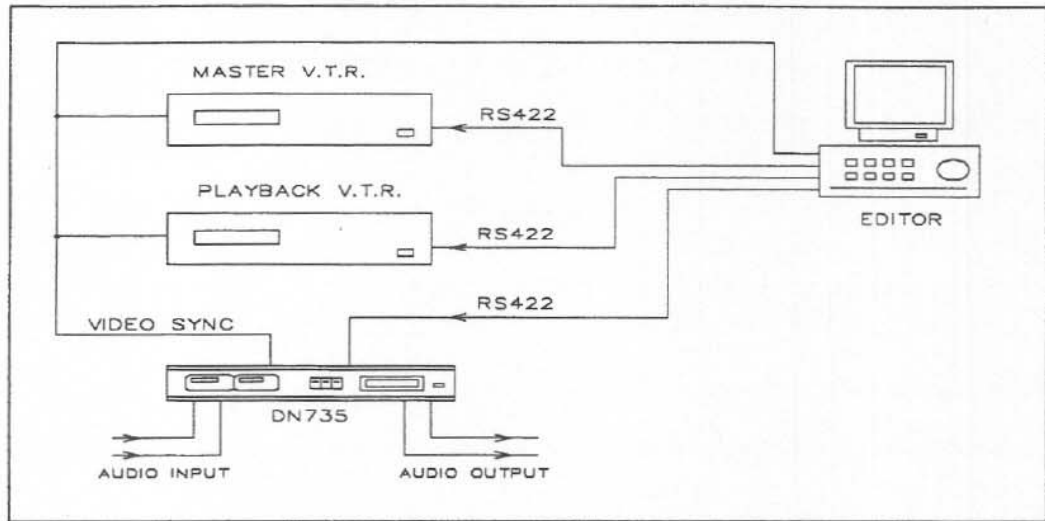


Fig. 2 RS422 Controlled using a dedicated port

4). Questech SSVR using its dedicated port.

Connect the DN735 to the Questechs control port.

Set options as follows:

- RS422 = FULL (NB not available on version D software.)
- PROTOCOL = SONY
- BASE PT. = 10hrs or as required (0/1/2/5/10/12hrs)
- VAR SND = 5 or as required (OFF/1/5/10)
- V.SND Q = 1 shot or as required (1 shot/10/15/20/25)
- SYNC SRCE = VIDEO
- EMUL. = QUESTECH
- EDIT DELAY = OFF

Unit will perform like a normal VTR device.

5). Sony editor to Abekas A60/A64 eavesdrop mode

Connect the DN735 as figure 3.

Use a RS422 compatible eavesdrop cable adapter. (see figure 5.)

Set options as follows:

- RS422 = DUAL (NB not available on version F software.)
- PROTOCOL = SONY
- BASE PT. = 0hrs or as required (0/1/2/5/10/12hrs)
- VAR SND = 5 or as required (OFF/1/5/10)
- V.SND Q = 1 shot or as required (1 shot/10/15/20/25)
- SYNC SRCE = VIDEO
- EMUL. = ABEKAS
- EDIT DELAY = OFF or as required.

Unit will add two audio tracks to an A60/A64 without using another editor port

and will stay in sync with the A60/A64 even during shuttle and jog modes. The units memory can also be completely erased by sending an EJECT command.

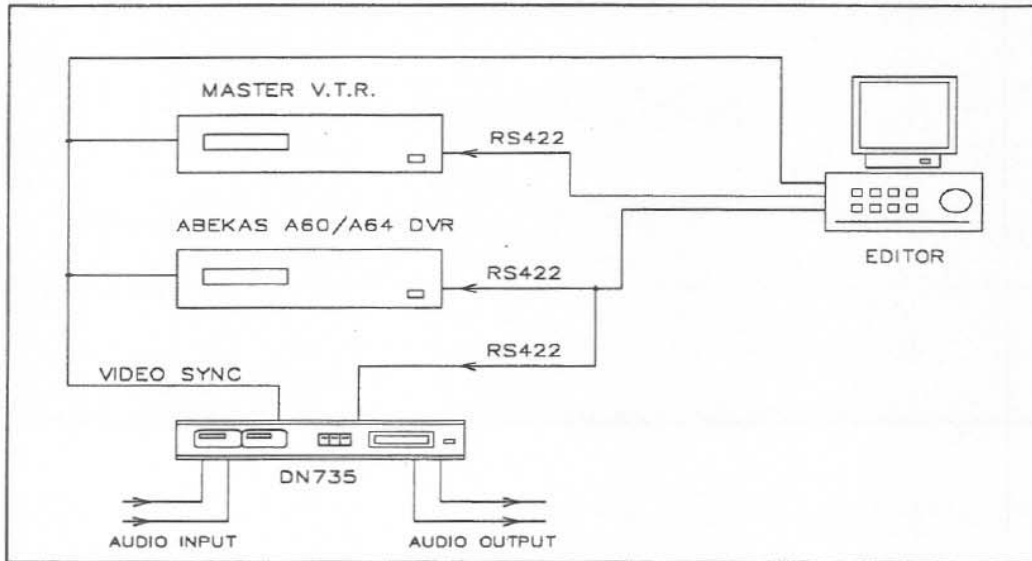


Fig 3. RS422 Controlled using eavesdrop mode

6). Ampex and VPR-3 type editors to Abekas A60/A64 eavesdrop mode

Connect the DN735 as figure 3.

Use a RS422 compatible eavesdrop cable adapter. (see figure 5.)

Set options as follows:

RS422 = DUAL (NB not available on version F software.)

PROTOCOL = AMPEX

BASE PT. = 0hrs or as required (0/1/2/5/10/12hrs)

VAR SND = 5 or as required (OFF/1/5/10)

V.SND Q = 1 shot or as required (1 shot/10/15/20/25)

SYNC SRCE = VIDEO

Unit will add two audio tracks to an A60/A64 without using another editor port and will stay in sync with the A60/A64 even during shuttle and jog modes.

7). Abekas A60/A64 Stand alone eavesdrop mode

Connect the DN735 as figure 4.

Please note that the A60/A64 keyboard cable connections are NOT RS422 compatible and a special eavesdrop cable adapter is required to connect it to the DN735. (see figure 6.)

Set options as follows:

RS422 = DUAL (NB not available on version F software.)

PROTOCOL = A60 or A64

BASE PT. = 0hrs

VAR SND = 5 or as required (OFF/1/5/10)

V.SND Q = 1 shot or as required (1 shot/10/15/20/25)

SYNC SRCE = VIDEO

MODE = as required (TRACKING/SYNC RUN)

OFFSET = as required (MANUAL/KEYBOARD)

RECORD = as required (OFF/LOCKOUT/REC KEY)

The DN735 will normally track the A60/A64 frame for frame and if the VAR SND option is ON the audio will be heard. When the A60/A64 goes into Play forward at 1X speed so will the DN735. If the MODE option is set to TRACKING, the DN735 will follow the A60/A64 during Segment Play and Looping. With the MODE option set to SYNC RUN, the DN735 will sync to the first play frame but will then continue to play from its own memory, providing the A60/A64 is in play mode.

The DN735 is capable of offsetting the audio from the video. This can be set manually by going to the Local Stop mode in the DN735. Pressing STOP while in Local Stop will show the current offset in frames. This can be adjusted with the RECORD and PLAY switches (the menu switch will zero the offset). Press the STOP switch to return control to the A60/A64. When the OFFSET option is set to KEYBOARD, the offset can be set from the A60/A64s keyboard. This is achieved as follows:

- 1) Move the video to a reference frame using the tracker ball.
- 2) Select the FREEZE function.
- 3) Continue moving the audio with the tracker ball (VAR SND must be ON).
- 4) When the audio is at the correct point with regard to the video reference, press the TRIM key on and off (with A64's select the 'NORM PLAY' menu before pressing the TRIM key).

The offset has now automatically been set - this can be fine tuned using the manual method if required.

Recording the audio into the DN735 can be achieved in various ways, depending on the RECORD option. When set to OFF, the DN735 will ignore all record commands from the A60/A64. Setting the option to LOCKOUT will allow the DN735 to record whenever the A60/A64 is actually recording. Like the A60/A64, the DN735 will not record over record lockout segments. With the RECORD option set to REC KEY, the DN735 will record whenever the A60/A64 is in the record mode, irrespective of record lockout segments. This allows the audio to be recorded after the video by setting the entire disk(s) as a record lockout segment after the video is recorded. With all these modes it is possible to record the audio using the Local Record function of the DN735.

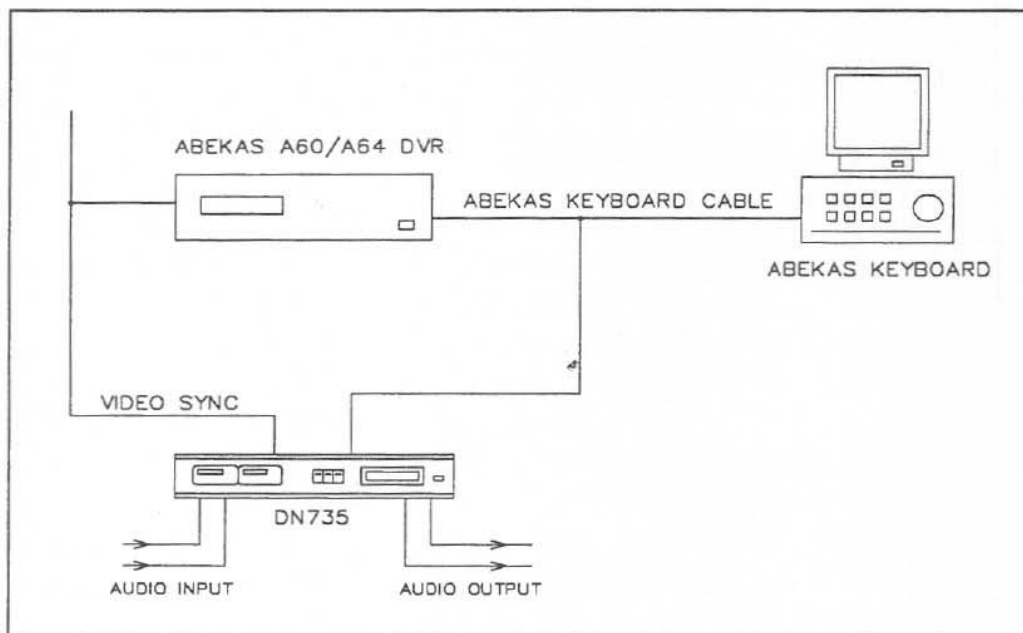


Fig 4. Abekas A60/A64 Stand alone eavesdrop mode

GPI Inputs and Outputs

The DN735 supports 6 independent GPI (General Purpose Interface) lines on its remote connector. Three are inputs and replicate the RECORD, STOP and PLAY switches, the three others are outputs and replicate the indicators of the three switches. The EXTERNAL option must be set to ON to enable the GPI lines. The output GPIs are relay contacts (normally open) and the inputs are opto-isolated. These can be driven via a 5 volt signal across the (+) and (-) inputs or connect the (+) input to pin 7 and place a switch across the (-) input and pin 15.

The Remote connector pin listing

Pin 1.....	Record Output +
Pin 2.....	Stop Output +
Pin 3.....	Play Output +
Pin 4.....	Record Input +
Pin 5.....	Stop Input +
Pin 6.....	Play Input +
Pin 7.....	+5V
Pin 8.....	NC
Pin 9.....	Record Output -
Pin 10.....	Stop Output -
Pin 11.....	Play Output -
Pin 12.....	Record Input -
Pin 13.....	Stop Input -
Pin 14.....	Play Input -
Pin 15.....	0V (circuit ground)

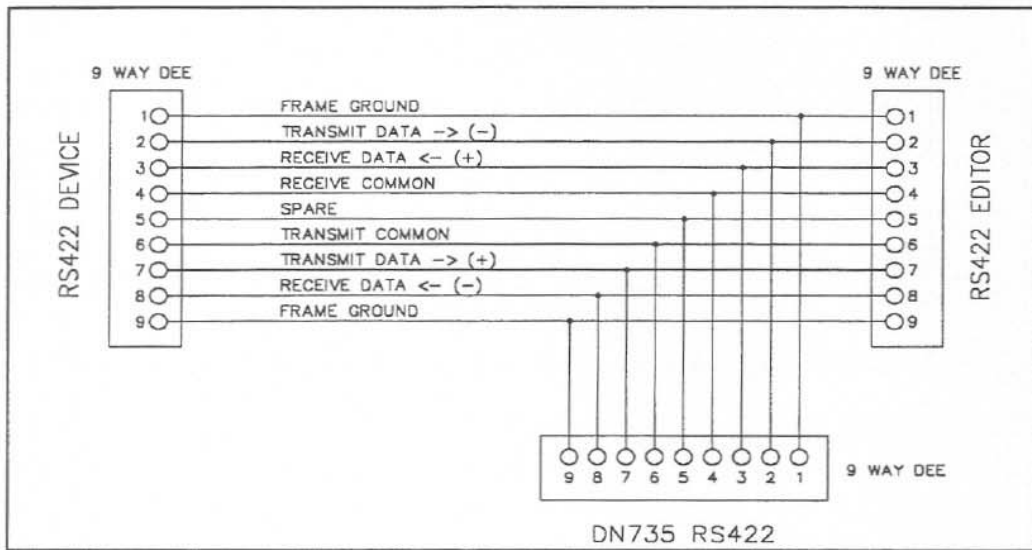


Fig. 5 RS422 Eavesdrop connection

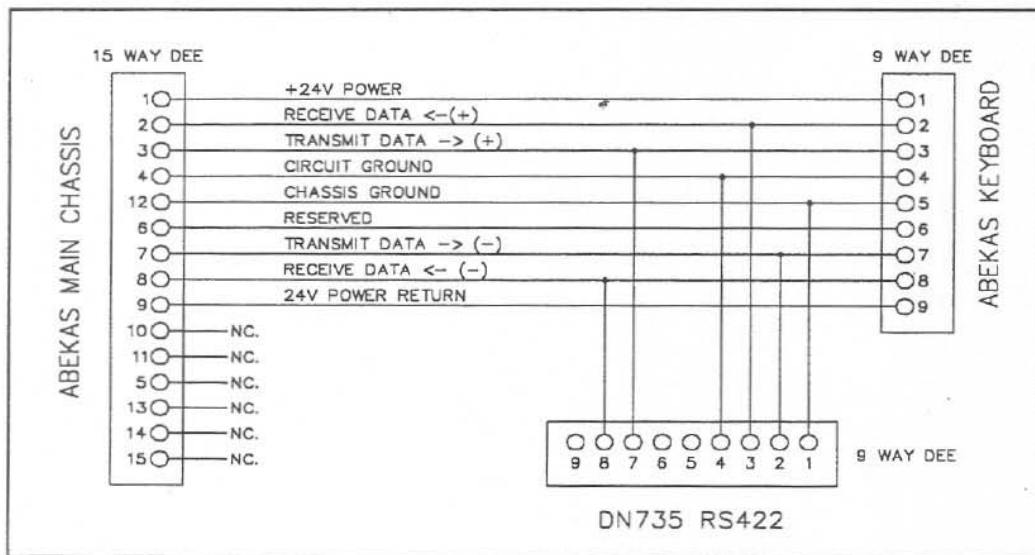


Fig 6. Abekas A60/A64 Eavesdrop connection

Audio Connections

Inputs

The input circuitry is a transformerless, electronically balanced design which achieves a symmetry of better than -50dB from 20Hz to 10kHz.

If transformer balancing of the input is required, this must be stipulated at the time of order, it is not retrofittable.

Output

The standard output is transformer balanced. The output circuit is capable of driving a 600 ohm load at a level of +18dBm.

Balanced Circuits

Transformer or electronically balanced connections have the benefit of common mode rejection which eliminates externally induced interference such as mains hum etc. Balancing is especially useful when long cable runs are used between pieces of equipment.

Transformer balanced circuits have the added advantage of being, full floating with the ground (earth) or screen being totally isolated from the signal. In installations where a difference in earth potential is likely to occur this isolation prevents grounding problems which can, in some cases, damage the equipment.

XLR Pin Connection (Input and Output)

Pin1	GND
Pin2	Signal
Pin3	Signal

Unbalanced

If used unbalanced, either Pin 2 or Pin 3 can be used for signal providing the unused Pin is connected to Pin 1.

A and the outputs on A and B. The maximum record length is doubled.

Installation

Mounting

The DN735 is designed for standard 19 inch rack mounting and is 44mm (1.75 inch) high and 300mm (11.75 inch) deep, excluding connectors. Observe the following when mounting:-

- 1) Use a well ventilated rack.
- 2) Do not mount on top of heat producing equipment.
- 3) Use fan assisted ventilation if rack exceeds 40C

Power Requirements

The factory set nominal operating voltage is clearly indicated on the rear panel. Power connection is made via a standard CEE power cable provided. The chassis to mains earth connection made by this cable must not be removed. Maximum power consumption of the unit is 20VA. For power cables using flying leads, the cables are colour coded as follows:-

BROWN..... LIVE
BLUE..... NEUTRAL
GREEN/YELLOW... EARTH

Voltage Change-Over

* NOTE: Noisy supply or insufficient mains voltage will cause the DN735 to operate in an intermittent manner.

The unit can be set to operate on 110, 120, 220 or 240 (nominal) VAC @ 50/60Hz, by changing the position of the two voltage selector switches inside the unit, adjacent to the mains power transformer. The range of supply voltages suitable for each switch position are as follows:-

Switch Position	Range
240V	215-250V @ 50Hz
220V	200-230V @ 50Hz
120V	105-130V @ 60Hz
110V	95-115V @ 60Hz

Voltage Switch Settings

To change the operating voltage, a qualified service technician or an approved Klark-Teknik dealer must carry out the following procedure:-

- 1) Remove the mains cable from the socket
- 2) Remove the four screws retaining the top cover
- 3) Set the voltage selector switches inside the unit to the appropriate positions

as shown

- 4) Replace top cover, refit and tighten all screws
- 5) Affix a label on the rear panel with the new voltage details

Mains fuse

The correct type is T500mA for all operating voltages.

Earth Lift

The DN735 has its internal 0V or signal GND connected to the mains earth/chassis via a wire link. This is adjacent to the output B XLR connector and is soldered to the Pin marked chassis on the main P.C.B. Disconnect this link if mains earth loops are encountered. For safety reasons, the chassis should always be connected to the mains earth (see page 2).

Specifications

Inputs

Type (two)	Electronically balanced
Impedance (ohm)	
Balanced	20k
Unbalanced	10k
Level	0dBu to +22dBu

Outputs

Type (two)	Transformer balanced
Min. Load Impedence	600 ohms
Source Impedence	< 60 ohms
Level	+8dBm nominal for maximum level, adjustable from -2 to +18dBm

Performance

Frequency response	+/- 0.25dB (20Hz-20kHz)
Total harmonic distortion	< 0.01% @ 1kHz < 0.05% @ 20Hz-20kHz (Distortion plus noise)
Dynamic Range	> 93dB (20Hz-20kHz unweighted)

Systems specifications

Headroom indicator	0-16dB (5 point LED)
A/D conversion	16 bit. 64 x oversampling
D/A conversion	16 bit. 4 x oversampling
Effective sample rate	48kHz
Storage time	Up to 175 seconds stereo (depending on memory option)
DIGITAL CONTROL	RS422
REMOTE CONTROL	GPIB

Time code reader

Input	SMPTE (LTC) Electronically balanced
Max. sensitivity	150mV RMS

Power Requirements

Voltage	110/120/220/240V @ 50/60Hz AC
Consumption	< 20VA

Weight

Nett	2.5kg
Shipping	4.2kg

Dimensions



Width	482mm (19 inch)
Depth	300mm (11.75 inch)
Height	44mm (1.75 inch)

Terminations

Inputs	3 Pin XLR
Ouputs	3 Pin XLR
Power	3 Pin CEE

DN735 PARTS LIST

Printed on 24.JUL.90

DN735 MAIN CIRCUIT BOARD

REF	ITEM	VALUE	QTY	KTR:NO
BT1	BATTERY NI CAD	NI CAD 3.6V PCB MAIN	1	E3-D0002
C1	CAP POLYPROPYLENE	1N 2.5%	1	B6-11000
C2	CAP POLYPROPYLENE	1N 2.5%	1	B6-11000
C4	CAPACITOR CERAMIC	82PF	1	B2-10082
C6	CAP ELECTROLYTIC RAD	47/16V	1	B4-DB247
C6A	CAPACITOR CERAMIC	47N	1	B2-2A047
C6B	CAP TANTALUM RADIAL	15/16V	1	B4-TB215
C7	CAPACITOR POLYESTER	2N2 5%	1	B1-12200
C8	CAPACITOR POLYESTER	MMK07.5 SER 5N6 5%	1	B1-15600
C9	CAPACITOR CERAMIC	330PF	1	B2-1A330
C10	CAP ELECTROLYTIC RAD	470/16V	1	B4-DB347
C11	CAP ELECTROLYTIC RAD	470/16V	1	B4-DB347
C12	CAP POLYPROPYLENE	1N 2.5%	1	B6-11000
C13	CAP POLYPROPYLENE	1N 2.5%	1	B6-11000
C15	CAPACITOR CERAMIC	82PF	1	B2-10082
C17	CAP ELECTROLYTIC RAD	47/16V	1	B4-DB247
C18	CAPACITOR POLYESTER	2N2 5%	1	B1-12200
C19	CAPACITOR POLYESTER	MMK07.5 SER 5N6 5%	1	B1-15600
C20	CAPACITOR CERAMIC	330PF	1	B2-1A330
C21	CAP ELECTROLYTIC RAD	470/16V	1	B4-DB347
C22	CAP ELECTROLYTIC RAD	470/16V	1	B4-DB347
C23	CAPACITOR CERAMIC	47N	1	B2-2A047
C24	CAPACITOR CERAMIC	47N	1	B2-2A047
C25	CAPACITOR CERAMIC	47N	1	B2-2A047
C26	CAPACITOR CERAMIC	47N	1	B2-2A047
C27	CAPACITOR CERAMIC	47N	1	B2-2A047
C28	CAPACITOR CERAMIC	47N	1	B2-2A047
C29	CAPACITOR CERAMIC	47N	1	B2-2A047
C30	CAPACITOR CERAMIC	47N	1	B2-2A047
C31	CAPACITOR CERAMIC	47N	1	B2-2A047
C32	CAPACITOR CERAMIC	47N	1	B2-2A047
C33	CAPACITOR CERAMIC	47N	1	B2-2A047
C34	CAPACITOR CERAMIC	47N	1	B2-2A047
C35	CAPACITOR POLYESTER	0.12MFD 5%	1	B1-20120
C36	CAPACITOR POLYESTER	0.12MFD 5%	1	B1-20120
C38	CAP POLYESTER	0.1MFD 10%	1	B1-70100
C39	CAPACITOR POLYESTER	1MFD 5%	1	B1-21000
C40	CAPACITOR CERAMIC	47N	1	B2-2A047
C41	CAPACITOR CERAMIC	47N	1	B2-2A047
C42	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C44	CAPACITOR POLYESTER	0.1MFD 5%	1	B1-20100
C45	CAPACITOR CERAMIC	82PF	1	B2-10082
C46	CAPACITOR CERAMIC	82PF	1	B2-10082
C47	CAPACITOR CERAMIC	47N	1	B2-2A047
C48	CAPACITOR CERAMIC	47N	1	B2-2A047
C49	CAPACITOR CERAMIC	47N	1	B2-2A047
C50	CAPACITOR CERAMIC	47N	1	B2-2A047
C51	CAPACITOR CERAMIC	47N	1	B2-2A047
C52	CAPACITOR CERAMIC	47N	1	B2-2A047
C53	CAPACITOR CERAMIC	47N	1	B2-2A047
C54	CAPACITOR CERAMIC	47N	1	B2-2A047

DN735 MAIN CIRCUIT BOARD

REF	ITEM	VALUE	QTY	KTR:NO
C55	CAPACITOR CERAMIC	47N	1	B2-2A047
C56	CAPACITOR CERAMIC	47N	1	B2-2A047
C57	CAPACITOR CERAMIC	47N	1	B2-2A047
C58	CAPACITOR CERAMIC	47N	1	B2-2A047
C59	CAPACITOR CERAMIC	47N	1	B2-2A047
C60	CAPACITOR CERAMIC	47N	1	B2-2A047
C61	CAPACITOR CERAMIC	47N	1	B2-2A047
C62	CAPACITOR CERAMIC	47N	1	B2-2A047
C63	CAPACITOR CERAMIC	47N	1	B2-2A047
C64	CAPACITOR CERAMIC	47N	1	B2-2A047
C65	CAPACITOR CERAMIC	47N	1	B2-2A047
C66	CAPACITOR CERAMIC	47N	1	B2-2A047
C67	CAPACITOR CERAMIC	47N	1	B2-2A047
C68	CAPACITOR CERAMIC	47N	1	B2-2A047
C69	CAPACITOR CERAMIC	47N	1	B2-2A047
C70	CAPACITOR CERAMIC	47N	1	B2-2A047
C71	CAPACITOR CERAMIC	47N	1	B2-2A047
C72	CAPACITOR CERAMIC	47N	1	B2-2A047
C73	CAPACITOR CERAMIC	47N	1	B2-2A047
C74	CAPACITOR CERAMIC	47N	1	B2-2A047
C75	CAPACITOR CERAMIC	47N	1	B2-2A047
C76	CAPACITOR CERAMIC	47N	1	B2-2A047
C77	CAPACITOR CERAMIC	47N	1	B2-2A047
C78	CAPACITOR CERAMIC	47N	1	B2-2A047
C79	CAPACITOR CERAMIC	47N	1	B2-2A047
C80	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C81	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C82	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C83	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C84	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C85	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C86	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C87	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C88	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C89	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C90	CAP TANTALUM RADIAL	2.2/16V	1	B4-TB122
C91	CAPACITOR CERAMIC	47N	1	B2-2A047
C100	CAP ELECTROLYTIC RAD	1000/35V	1	B4-DD410
C101	CAP ELECTROLYTIC RAD	1000/35V	1	B4-DD410
C102	CAP ELECTROLYTIC RAD	6800/16V	1	B4-DB468
C103	CAPACITOR CERAMIC	47N	1	B2-2A047
C105	CAPACITOR CERAMIC	47N	1	B2-2A047
C106	CAPACITOR CERAMIC	47N	1	B2-2A047
D1	ZENER DIODE	6V2 400mW	1	D1-A06V2
D2	ZENER DIODE	6V2 400mW	1	D1-A06V2
D3	RED LED 3mm ROUND	GL-3AR2	1	D1-AL209
D4	DIODE	1N4002	1	D1-A4002
D5	DIODE	1N4002	1	D1-A4002
D6	DIODE	1N4002	1	D1-A4002
D7	DIODE	1N4002	1	D1-A4002
D8	DIODE	1N4002	1	D1-A4002
D9	DIODE	1N4002	1	D1-A4002

DN735 MAIN CIRCUIT BOARD

REF	ITEM	VALUE	QTY	KTR:NO
D10	DIODE	1N4002	1	D1-A4002
D11	DIODE	1N4002	1	D1-A4002
D12	DIODE	1N4002	1	D1-A4002
D13	DIODE	1N4002	1	D1-A4002
D14	DIODE	1N4002	1	D1-A4002
D15	DIODE	1N4002	1	D1-A4002
F1	FUSE HOLDER	PANEL PCB TERMINALS	1	E3-A0050
F1A	FUSE	500mA TIME DELAY	1	E3-BA500
F2	FUSE HOLDER	OPEN PCB MOUNT	1	E3-A0100
F2A	FUSE	1.6A TIME DELAY	1	E3-BA016
F3	FUSE HOLDER	OPEN PCB MOUNT	1	E3-A0100
F3A	FUSE	500mA TIME DELAY	1	E3-BA500
F4	FUSE HOLDER	OPEN PCB MOUNT	1	E3-A0100
F4A	FUSE	500mA TIME DELAY	1	E3-BA500
IC1	LINEAR IC DUAL	TLO72	1	D2-0L072
IC1S	DIL SOCKET	8 PIN	1	E2-ES082
IC2	LINEAR IC DUAL	TLO72	1	D2-0L072
IC2S	DIL SOCKET	8 PIN	1	E2-ES082
IC3	LINEAR IC DUAL	TLO72	1	D2-0L072
IC3S	DIL SOCKET	8 PIN	1	E2-ES082
IC4	MUTE SWITCH IC 2 ch	SSM 2402	1	D2-S2402
IC4S	DIL SOCKET	14 PIN	1	E2-ES141
IC5	LINEAR IC DUAL	TLO72	1	D2-0L072
IC5S	DIL SOCKET	8 PIN	1	E2-ES082
IC6	LINEAR IC DUAL	NE5532	1	D2-05532
IC6S	DIL SOCKET	8 PIN	1	E2-ES082
IC7	REGULATOR -5V	79M05 -5V TO220	1	D2-79M05
IC8	REGULATOR 5V	78M05 5V TO220	1	D2-78M05
IC9	COMPARITOR IC	LM311	1	D2-LM311
IC9S	DIL SOCKET	8 PIN	1	E2-ES082
IC10	SMPTE READER	DAK010	1	D5-MK010
IC10S	DIL SOCKET	28 PIN	1	E2-ES281
IC11	LOGIC IC HC SERIES	74HC590	1	D3-7E590
IC12	LOGIC IC HC SERIES	74HC04	1	D3-7E004
IC13	DUAL OPTO	HCPL 2730	1	D2-H2730
IC13S	DIL SOCKET	8 PIN	1	E2-ES082
IC14	DUAL OPTO	HCPL 2730	1	D2-H2730
IC14S	DIL SOCKET	8 PIN	1	E2-ES082
IC15	LOGIC IC LS	74LS374	1	D3-7A374
IC16	LOGIC IC	74C922	1	D3-7C922
IC17	LOGIC IC HC SERIES	74HC74	1	D3-7E074
IC18	LOGIC IC HC SERIES	74HC245	1	D3-7E245
IC19	LOGIC IC HC SERIES	74HC08	1	D3-7E008
IC20	RS422 INTERFACE	DS8921N	1	D5-N8921
IC20S	DIL SOCKET	8 PIN	1	E2-ES082
IC21	LOGIC IC HC SERIES	74HC04	1	D3-7E004
IC22	PSU SUPERVISOR	MAX691	1	D5-MX691
IC22S	DIL SOCKET	16 PIN	1	E2-ES161
IC23	MICROPROCESSOR	HD64180CP	1	D5-Z180C
IC23S	Chip carrier socket	68 PIN	1	E2-ES681
IC24	LOGIC IC HC SERIES	74HC138	1	D3-7E138
IC25	LOGIC IC HC SERIES	74HC04	1	D3-7E004

DN735 MAIN CIRCUIT BOARD

REF	ITEM	VALUE	QTY	KTR:NO-
IC26	LOGIC IC HC SERIES	74HC32	1	D3-7E032
IC27	8K X 8 CMOS SRAM	6264LP	1	D5-F6264
IC27S	DIL SOCKET	28 PIN	1	E2-ES281
IC28	32K X 8 EPROM	27256	1	D5-T7256
IC28S	DIL SOCKET	28 PIN	1	E2-ES281
IC29	LOGIC IC HCT	74HCT374	1	D3-7H374
IC30	LOGIC IC HC SERIES	74HC174	1	D3-7E174
IC31	LOGIC IC HC SERIES	74HC590	1	D3-7E590
IC32	512 * 8 PROM	28L42	1	D5-P2842
IC32S	DIL SOCKET	20 PIN	1	E2-ES201
IC33	LOGIC IC HCT	74HCT374	1	D3-7H374
IC34	LOGIC IC HC SERIES	74HC138	1	D3-7E138
IC35	LOGIC IC HC SERIES	74HC08	1	D3-7E008
IC36	LOGIC IC HC SERIES	74HC04	1	D3-7E004
IC37	LOGIC IC HCT	74HCT646	1	D3-7H646
IC38	LOGIC IC HCT	74HCT646	1	D3-7H646
IC39	LOGIC IC HCT	74HCT646	1	D3-7H646
IC40	LOGIC IC LS	74LS593	1	D3-7A593
IC41	LOGIC IC LS	74LS593	1	D3-7A593
IC42	LOGIC IC LS	74LS593	1	D3-7A593
IC43	LOGIC IC HCT	74HCT158	1	D3-7H158
IC44	LOGIC IC HCT	74HCT158	1	D3-7H158
IC45	LOGIC IC HCT	74HCT158	1	D3-7H158
IC46	LOGIC IC HCT	74HCT139	1	D3-7H139
IC47	LOGIC IC HC SERIES	74HC08	1	D3-7E008
IC48	LOGIC IC LS	74LS598	1	D3-7A598
IC49	LOGIC IC LS	74LS598	1	D3-7A598
IC50	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC51	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC52	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC53	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC54	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC55	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC56	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC57	SIMM SOCKET	30 PIN VERTICAL	1	E2-ES301
IC58	REGULATOR 15V	78M15 15V TO220	1	D2-78M15
IC59	REGULATOR 15V	78M15 15V TO220	1	D2-78M15
IC60	REGULATOR 5V 1.5A	7805 5V 1.5A T03	1	D2-7805K
IC60S	T03 SOCKET	T03 SOCKET	1	E2-ES031
IV1	EL INVERTOR MODULE	DAS 5V6	1	E5-INV01
LK1	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
LK1A	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
LK2	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
LK4	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
LK11	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
PC1	Brd 2714/2	DN735 Main Board	1	E6-02714
Q1	TRANSISTOR	BC184 OR EQUIV	1	D1-C184C
R1	1% RESISTOR	1K	1	A2-10100
R2	1% RESISTOR	10K	1	A2-11000
R3	1% RESISTOR	10K	1	A2-11000
R4	1% RESISTOR	10K	1	A2-11000
R5	5% RESISTOR	220R	1	A1-10220

DN735 MAIN CIRCUIT BOARD

REF	ITEM	VALUE	QTY	KTR:NO
R6	1% RESISTOR	1K	1	A2-10100
R7	1% RESISTOR	10K	1	A2-11000
R8	5% RESISTOR	220R	1	A1-10220
R9	5% RESISTOR	11K	1	A1-30011
R12	5% RESISTOR	10R	1	A1-10010
R13	5% RESISTOR	100K	1	A1-30100
R14	5% RESISTOR	2K2	1	A1-12200
R15	5% RESISTOR	4K7	1	A1-14700
R16	5% RESISTOR	560R	1	A1-10560
R17	5% RESISTOR	100K	1	A1-30100
R18	1% RESISTOR	2K74	1	A2-10274
R19	1% RESISTOR	2K74	1	A2-10274
R20	1% RESISTOR	2K74	1	A2-10274
R21	5% RESISTOR	1K	1	A1-11000
R22	5% RESISTOR	1K5	1	A1-11500
R23	5% RESISTOR	10K	1	A1-30010
R24	5% RESISTOR	56R	1	A1-10056
R25	1% RESISTOR	1K	1	A2-10100
R26	1% RESISTOR	10K	1	A2-11000
R27	1% RESISTOR	10K	1	A2-11000
R28	1% RESISTOR	10K	1	A2-11000
R29	5% RESISTOR	220R	1	A1-10220
R30	1% RESISTOR	1K	1	A2-10100
R31	1% RESISTOR	10K	1	A2-11000
R32	5% RESISTOR	220R	1	A1-10220
R33	5% RESISTOR	11K	1	A1-30011
R36	5% RESISTOR	10R	1	A1-10010
R37	5% RESISTOR	100K	1	A1-30100
R38	5% RESISTOR	2K2	1	A1-12200
R39	5% RESISTOR	4K7	1	A1-14700
R40	5% RESISTOR	560R	1	A1-10560
R41	5% RESISTOR	100K	1	A1-30100
R42	1% RESISTOR	2K26	1	A2-10226
R43	1% RESISTOR	2K26	1	A2-10226
R44	1% RESISTOR	2K26	1	A2-10226
R45	5% RESISTOR	1K	1	A1-11000
R46	5% RESISTOR	1K5	1	A1-11500
R47	5% RESISTOR	10K	1	A1-30010
R48	5% RESISTOR	56R	1	A1-10056
R49	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
R50	5% RESISTOR	10R	1	A1-10010
R51	5% RESISTOR	10K	1	A1-30010
R52	5% RESISTOR	10K	1	A1-30010
R53	5% RESISTOR	2K2	1	A1-12200
R54	5% RESISTOR	2K2	1	A1-12200
R55	5% RESISTOR	10K	1	A1-30010
R56	5% RESISTOR	10K	1	A1-30010
R57	5% RESISTOR	2K2	1	A1-12200
R58	5% RESISTOR	10R	1	A1-10010
R59	5% RESISTOR	1K5	1	A1-11500
R60	5% RESISTOR	1K5	1	A1-11500
R61	5% RESISTOR	1K5	1	A1-11500

DN735 MAIN CIRCUIT BOARD

REF	ITEM	VALUE	QTY	KTR:NO
R62	5% RESISTOR	1K5	1	A1-11500
R63	5% RESISTOR	1K5	1	A1-11500
R64	5% RESISTOR	1K5	1	A1-11500
R65	5% RESISTOR	5K6	1	A1-15600
R67	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
R68	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
R69	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
R73	5% RESISTOR	680R	1	A1-10680
R74	5% RESISTOR	2K	1	A1-12000
R75	5% RESISTOR	5K6	1	A1-15600
R76	5% RESISTOR	10K	1	A1-30010
R77	5% RESISTOR	330R	1	A1-10330
R78	5% RESISTOR	5K6	1	A1-15600
R79	5% RESISTOR	5K6	1	A1-15600
R80	5% RESISTOR	5K6	1	A1-15600
R81	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
R82	5% RESISTOR	47R	1	A1-10047
R83	5% RESISTOR	100R	1	A1-10100
R84	5% RESISTOR	390K	1	A1-30390
R85	5% RESISTOR	5K6	1	A1-15600
RL1	RELAY	1 PIN 5V DIL	1	E5-R1102
RL2	RELAY	1 PIN 5V DIL	1	E5-R1102
RL3	RELAY	1 PIN 5V DIL	1	E5-R1102
RP1	4 ISOLATED RES PAK	47R	1	A3-C4047
RP2	4 ISOLATED RES PAK	47R	1	A3-C4047
RP3	4 ISOLATED RES PAK	47R	1	A3-C4047
RP4	4 ISOLATED RES PAK	47R	1	A3-C4047
RP5	4 ISOLATED RES PAK	47R	1	A3-C4047
RP6	4 ISOLATED RES PAK	47R	1	A3-C4047
RP7	4 ISOLATED RES PAK	47R	1	A3-C4047
ST1	XLR (3) INPUT	PANEL MOUNT PCB H	1	E2-AP034
ST2	MOLEX 6 PIN	0.1 * 6PIN LATCHED	1	E2-BP061
ST3	XLR (3) INPUT	PANEL MOUNT PCB H	1	E2-AP034
ST4	MOLEX 6 PIN	0.1 * 6PIN LATCHED	1	E2-BP061
ST5	MOLEX 4 PIN	0.1 * 4 PIN LATCH	1	E2-BP046
ST6	MOLEX 4 PIN	0.1 * 4 PIN LATCH	1	E2-BP046
ST7	MOLEX 6 PIN	0.1 * 6PIN LATCHED	1	E2-BP061
ST8	MOLEX 6 PIN	0.1 * 6PIN LATCHED	1	E2-BP061
ST9	XLR OUTPUT (3)	PANEL MOUNT PCB H	1	E2-AS034
ST10	MOLEX 6 PIN	0.1 * 6PIN LATCHED	1	E2-BP061
ST11	XLR OUTPUT (3)	PANEL MOUNT PCB H	1	E2-AS034
ST12	XLR (3) INPUT	PANEL MOUNT PCB H	1	E2-AP034
ST13	DEE SOC RT-PCB	15 WAY	1	E2-BS152
ST14	IDC HEADER SOCKET	10 PIN VERTICAL	1	E2-BP101
ST15	IDC HEADER SOCKET	10 PIN VERTICAL	1	E2-BP101
ST16	IDC SHROUDED SOCKET	16PIN SHROUDED	1	E2-BP161
ST17	MOLEX 2 PIN	0.1 * 2PIN LATCHED	1	E2-BP021
ST18	MOLEX 2 PIN	0.1 * 2PIN LATCHED	1	E2-BP021
ST19	MOLEX 2*4 PIN	0.1 * 2 * 4 VERTICAL	2	E2-BP045
ST19A	MOLEX 2 WAY PLUG	2W * 0.1 JUMP PLUG	2	E2-BS02A
ST20	DUAL PIN SOCKET	HARWIN 20Pin	1	E2-BS202
ST21	MOLEX 6 PIN	0.1 * 6PIN LATCHED	1	E2-BP061

DN735 MAIN CIRCUIT BOARD			
-REF-	ITEM-----	VALUE-----	QTY---KTR:NO-
ST22	IEC MAINS INPUT	PCB MOUNT (BULGIN)	1 E2-DS035
ST23	MOLEX 6 PIN	0.1 * 6PIN LATCHED	1 E2-BP061
SW1	LATCHING PUSH SWITCH	ALPS MAINS TYPE	1 E1-BF211
SW2	SLIDE SWITCH ITW VDE	2P2W VOLTAGE C/O V	1 E1-CE221
SW3	SLIDE SWITCH ITW VDE	2P2W VOLTAGE C/O V	1 E1-CE221
T1	MAINS TRANSFORMER	TOR DN700/701/716	1 E5-TM010
T2	AUDIO TRANSFORMER	OUT CANNED NUVOT	1 E5-TA007
T3	AUDIO TRANSFORMER	OUT CANNED NUVOT	1 E5-TA007
VP1	SMALL VERO PIN	SMALL VERO PIN	6 E2-N0001
VR1	72P TYPE PRESET	72P 500R	1 A3-E1500
VR2	72P TYPE PRESET	72P 500R	1 A3-E1500
VR3	PIHER VER PRESET	10K	1 A3-G2010
XT1	CRYSTAL 12M288	SM1 12M288	1 E5-A0008
ZA1	SCREW	M3 X 6 P/HD BZP	8 F1-GB062
ZA2	SCREW	M3 X 10 P/HD BZP	4 F1-GB102
ZA3	SCREW	M4 X 12 P/HD BZP	1 F1-GC122
ZA4	SCREW	No 4 SELF TAP	5 F1-KR049
ZB1	SHAKEPROOF WASHER	M3 BZP	8 F1-DB032
ZB2	SHAKEPROOF WASHER	M4 BZP	1 F1-DC042
ZB3	WASHER	NYLON WASHER	5 F1-CB035
ZC1	NUTS	M3 BZP	4 F1-AB002
ZD1	PILLAR 10MM HEX	M3 THREAD+TAPPED	4 E4-P3T10
ZH1	DN716 HEAT SINK	DN716 HEAT SINK	1 E8-H0716
ZH1A	MOUNTING KITS	T022 SILICONE WASH	2 H1-EA001
ZH1B	MOUNTING KITS	T022 INSULATING	2 H1-EB001
DN735 CONVERTOR BOARD			
C1	CAPACITOR CERAMIC	47N	1 B2-2A047
C2	CAPACITOR CERAMIC	47N	1 B2-2A047
C3	CAPACITOR CERAMIC	47N	1 B2-2A047
C4	CAPACITOR POLYESTER	10N 5%	1 B1-20010
C5	CAPACITOR POLYESTER	10N 5%	1 B1-20010
C6	CAP TANTALUM RADIAL	2.2/16V	1 B4-TB122
C7	CAPACITOR CERAMIC	47N	1 B2-2A047
C8	CAPACITOR CERAMIC	47N	1 B2-2A047
C9	CAP TANTALUM RADIAL	15/16V	1 B4-TB215
C10	CAPACITOR CERAMIC	47N	1 B2-2A047
C11	CAP TANTALUM RADIAL	2.2/16V	1 B4-TB122
C12	CAPACITOR CERAMIC	47N	1 B2-2A047
C13	CAP TANTALUM RADIAL	15/16V	1 B4-TB215
C14	CAPACITOR CERAMIC	47N	1 B2-2A047
C15	CAPACITOR CERAMIC	47N	1 B2-2A047
C16	CAPACITOR CERAMIC	47N	1 B2-2A047
C17	CAPACITOR CERAMIC	47N	1 B2-2A047
C18	CAPACITOR CERAMIC	47N	1 B2-2A047
C19	CAPACITOR CERAMIC	47N	1 B2-2A047
C20	CAPACITOR CERAMIC	47N	1 B2-2A047
C21	CAPACITOR CERAMIC	47N	1 B2-2A047
C22	CAPACITOR CERAMIC	47N	1 B2-2A047
C23	CAPACITOR CERAMIC	47N	1 B2-2A047
C24	CAPACITOR CERAMIC	470 PF	1 B2-1B147
C25	CAPACITOR CERAMIC	47N	1 B2-2A047

DN735 CONVERTOR BOARD

REF	ITEM	VALUE	QTY	KTR:NO
C26	CAPACITOR CERAMIC	47N	1	B2-2A047
C27	CAPACITOR CERAMIC	47N	1	B2-2A047
C28	CAPACITOR CERAMIC	47N	1	B2-2A047
C29	CAPACITOR CERAMIC	470 PF	1	B2-1B147
IC1	A/D Convertor O/S	CS5326(7)	1	D5-AS532
IC1S	IC Socket Turned Pin	28 Pin	1	E2-ES283
IC2	Over Sampling Filter	IC	1	D5-D7320
IC3	D/A Convertor Serial	PCM 56P	1	D5-DA56P
IC3S	DIL SOCKET	16 PIN	1	E2-ES161
IC4	D/A Convertor Serial	PCM 56P	1	D5-DA56P
IC4S	DIL SOCKET	16 PIN	1	E2-ES161
IC5	LOGIC IC HC SERIES	74HC74	1	D3-7E074
IC6	LOGIC IC HC SERIES	74HC74	1	D3-7E074
IC7	LOGIC IC HCT	74HCT74	1	D3-7H074
IC8	LOGIC IC HC SERIES	74HC04	1	D3-7E004
PC1	Brd 2711/1	DN735 Convertor Brd	1	E6-02711
R1	5% RESISTOR	56R	1	A1-10056
R2	5% RESISTOR	56R	1	A1-10056
R3	5% RESISTOR	51R	1	A1-10051
R4	ZERO OHM LINK	ZERO OHM LINK	1	A3-A0001
R5	5% RESISTOR	5K6	1	A1-15600
ST1	DUAL ROW PIN SET	20 Pin	1	E2-BP206
ST2	SMALL VERO PIN	SMALL VERO PIN	4	E2-N0001
ST3	SMALL VERO PIN	SMALL VERO PIN	4	E2-N0001
ST3A	MOLEX 4WAY SKT HSG	6442-R04Z	1	E2-CS041
ST4A	MOLEX 4WAY SKT HSG	6442-R04Z	1	E2-CS041

DN735 METER BOARD

C1	CAPACITOR CERAMIC	47N	1	B2-2A047
C2	CAP TANTALUM RADIAL	10/16V	1	B4-TB210
C3	CAP TANTALUM RADIAL	15/16V	1	B4-TB215
C4	CAPACITOR CERAMIC	47N	1	B2-2A047
C5	CAP TANTALUM RADIAL	10/16V	1	B4-TB210
C6	CAP TANTALUM RADIAL	15/16V	1	B4-TB215
D1	RED LED 3mm ROUND	GL-3AR2	1	D1-AL209
D2	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
D3	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
D4	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
D5	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
D6	RED LED 3mm ROUND	GL-3AR2	1	D1-AL209
D7	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
D8	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
D9	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
D10	GREEN LED 3mm	GREEN LED 3mm	1	D1-AQY99
IC1	LEVEL DISPLAY DRIVER	IR2E01	1	D2-IR3E1
IC1S	DIL SOCKET	16 PIN	1	E2-ES161
IC2	LEVEL DISPLAY DRIVER	IR2E01	1	D2-IR3E1
IC2S	DIL SOCKET	16 PIN	1	E2-ES161
P1	67W TYPE PRESET	10K 10T PRESET	1	A3-I2010
P2	67W TYPE PRESET	10K 10T PRESET	1	A3-I2010
P3	72X TYPE PRESET	72X 10K	1	A3-H2010
P4	67W TYPE PRESET	10K 10T PRESET	1	A3-I2010

DN735 METER BOARD

-REF-	ITEM	VALUE	QTY	KTR:NO-
P5	67W TYPE PRESET	10K 10T PRESET	1	A3-I2010
P6	72X TYPE PRESET	72X 10K	1	A3-H2010
PC1	PCB 2654	DN773 DISPLAY B	1	E6-02654
R1	5% RESISTOR	100R	1	A1-10100
R2	5% RESISTOR	10K	1	A1-30010
R3	5% RESISTOR	10K	1	A1-30010
R4	5% RESISTOR	47K	1	A1-30040
R5	5% RESISTOR	100K	1	A1-30100
R6	5% RESISTOR	4K7	1	A1-14700
R7	5% RESISTOR	22K	1	A1-30022
R8	5% RESISTOR	68K0	1	A1-30068
R9	5% RESISTOR	100R	1	A1-10100
R10	5% RESISTOR	10K	1	A1-30010
R11	5% RESISTOR	10K	1	A1-30010
R12	5% RESISTOR	47K	1	A1-30047
R13	5% RESISTOR	100K	1	A1-30100
R14	5% RESISTOR	4K7	1	A1-14700
R15	5% RESISTOR	22K	1	A1-30022
R16	5% RESISTOR	68K0	1	A1-30068
ST1	MOLEX 6WAY SKT IDC	0.1 *6 IDC SOCKET	1	E2-CS063
ST2	MOLEX 6WAY SKT IDC	0.1 *6 IDC SOCKET	1	E2-CS063
ST3	MOLEX 6WAY SKT IDC	0.1 *6 IDC SOCKET	1	E2-CS063

DN735 SWITCH BOARD

PC1	Brd 2717/1	DN735 Switch Board	1	E6-02717
ST1	10WAY TRANSISION	2x5x0.1 TRANSISION	1	E2-CP101
ST1A	MOLEX IDC PLUG	10 Pin	1	E2-CP102
SW1	Momentary PushSwitch	Digitast RED+LED L	1	E1-BA113
SW2	Momentary PushSwitch	Digitast GREY+LED L	1	E1-BA114
SW3	Momentary PushSwitch	Digitast GREEN+LED L	1	E1-BA115
SW4	Momentary PushSwitch	Digitast BLACK Small	1	E1-BA116

DN735 CHASSIS ASSEMBLY

CA1A	6WAY CABLE+PLUG+PLU	6 WAY 0.1 TYPE	1	E2-GS061
CA2	MOLEX IDC PLUG	10 Pin	1	E2-CP102
CA2A	DEE SOCKET	9 Pin IDC	1	E2-CP091
DP1	LCD DISPLAY BACK LIT	2 * 16 Chars. EL	1	D2-LCD21
DP2A	16 WAY SOCKET	16WAY SOC STD RIBB	1	E2-CP161
DP2B	MOLEX 2WAY SKT HSG	0.1 2WAY SOCKET HSG	1	E2-CS021
DP2C	MOLEX SOCKET TERM	MOLEX TERMINAL	2	E2-CS011
K1	RECTANGULAR CAP	SMALL RED	1	E4-B2003
ZA1	SCREW	M3 X 6 P/HD BZP	10	F1-GB062
ZA2	SCREW	M3 X 10 P/HD BZP	4	F1-GB102
ZA3	SCREW	M3 X 6 RSD CSK CHR	9	F1-FB061
ZA4	SCREW	M3 X 10 RSD CSK CHR	6	F1-FB101
ZA5	SCREW	M4 X 6 P/HD CHROME	8	F1-GC061
ZA6	TAMPERROOF SCREW	M3 * 12MM	1	F1-PB122
ZB1	SHAKEPROOF WASHER	M3 BZP	7	F1-DB032
ZB2	SOLDER TAG	M3 TIN	2	F1-TB004
ZC1	NUTS	M3 BZP	4	F1-AB002
ZC2	LOCKNUT M3	LOCKNUT M3	1	F1-AB202
ZD1	PILLAR 18MM	M3 THREAD + THR	2	E4-P3B18

DN735 CHASSIS ASSEMBLY

-REF-	ITEM	VALUE	QTY	KTR:NO-
ZD2	PAIR DEE TYPE SCREWS	FEMALE	2	F1-Z0004
ZD3	PILLAR 10mm HEX	M3 HEX PILLAR	2	E4-P3B10
ZH1	CHASSIS	DN735	1	E8-A0039
ZH2	FRONT PANEL	DN735	1	E7-F7351
ZH3	DN716 COVER	DN716 COVER	1	E8-B0016
ZH4	BEZEL	DN735	1	E4-D0005
ZI1	INSULATING SHEET	DN716/1	1	H1-H0001
ZW1	MOUNTING KITS	T03 SILICONE WASH	1	H1-EA002
ZW2	CABLE CLIPS	STICKY RS TYPE	2	H1-G0001
ZW3	TYRAPS	SMALL TYRAPS	4	H1-CA001

DN735 PACKING KIT

BX1	CARDBOARD BOX	1U SIZE	1	H1-CB090
F1	FUSE	1.6A TIME DELAY	1	E3-BA016
F2	FUSE	500mA TIME DELAY	3	E3-BA500
PL1	MAINS PLUG LEAD	MAINS LEAD IEC/FRE	1	E2-DP031
PX1	POLY PACKS	TYPE C 1U	1	H1-PPC1U

***** END OF LIST *****

Warranty

This product is manufactured by Klark-Teknik and is warranted to be free from defects in components and factory workmanship under normal use and service for a period of one year from the date of purchase.

During the warranty period, Klark-Teknik will undertake to repair or at its option, replace this product at no charge to its owner when failing to perform as specified, provided the unit is returned shipping pre-paid, to the factory or authorised service facility.*

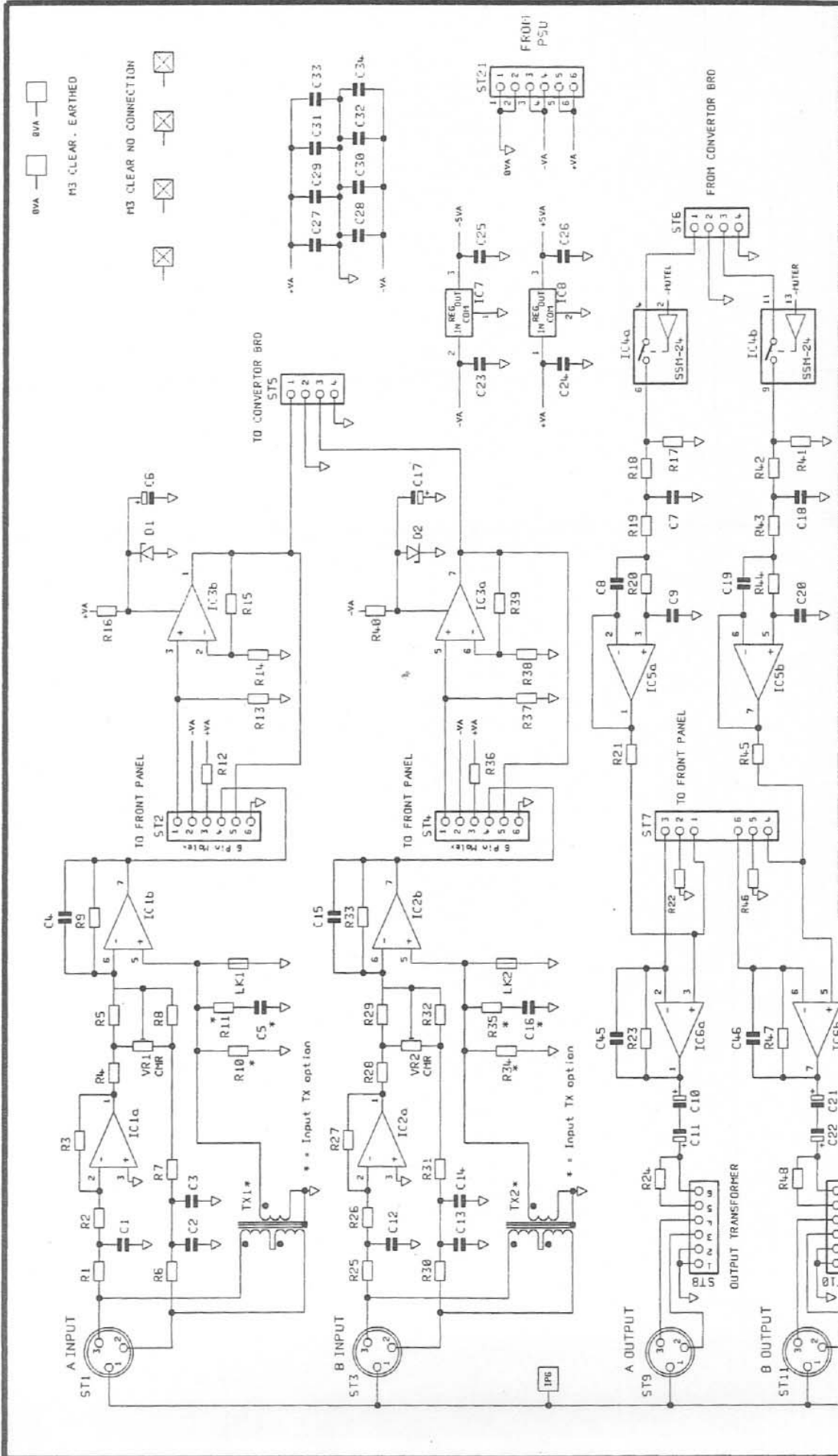
No other warranty is expressed or implied.

This warranty shall not be applicable and be void when this product is subjected to:

- a) Repair work or alteration by persons other than those authorised by Klark-Teknik in such a manner as to injure, in the sole judgement of Klark-Teknik, the performance, stability, reliability or safety of this product.
- b) Misuse, negligence, accident, act of God, war or civil insurrection.
- c) Connection, installation, adjustment or use otherwise than in accordance with the instructions provided by Klark-Teknik.

* See enclosed service request form.

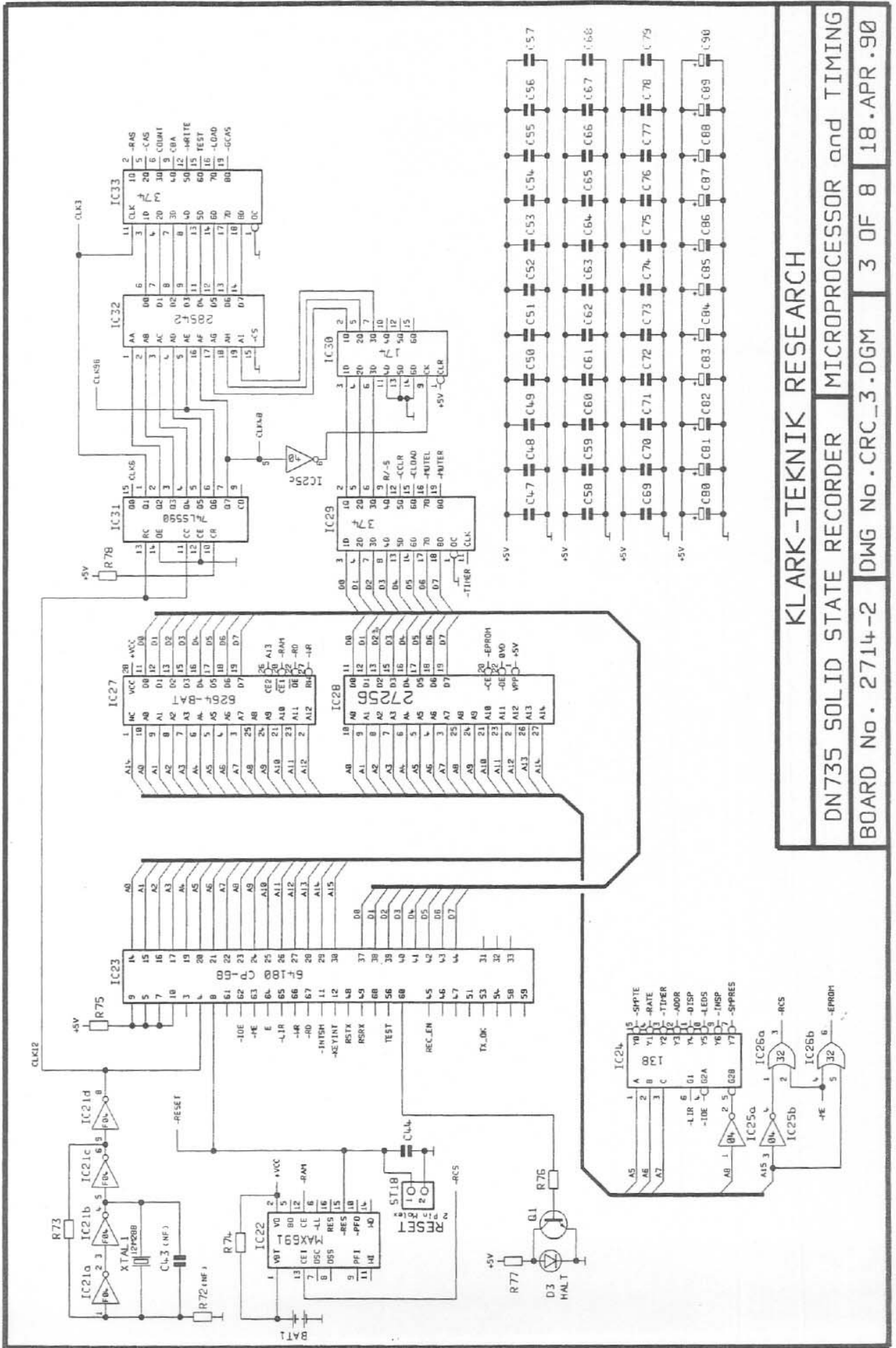
Klark-Teknik reserves the right to alter specifications without notice. This warranty does not affect the statutory rights of the UK customer.



0VA — 0VA —
 M3 CLEAR . EARTHED
 M3 CLEAR NO CONNECTION

KLARK-TEKNIK RESEARCH
 DN735 SOLID STATE RECORDER AUDIO INPUTS & OUTPUTS
 BOARD No. 2714-2 DWG No. CRC_1.DGM 1 OF 8 18.APR.90

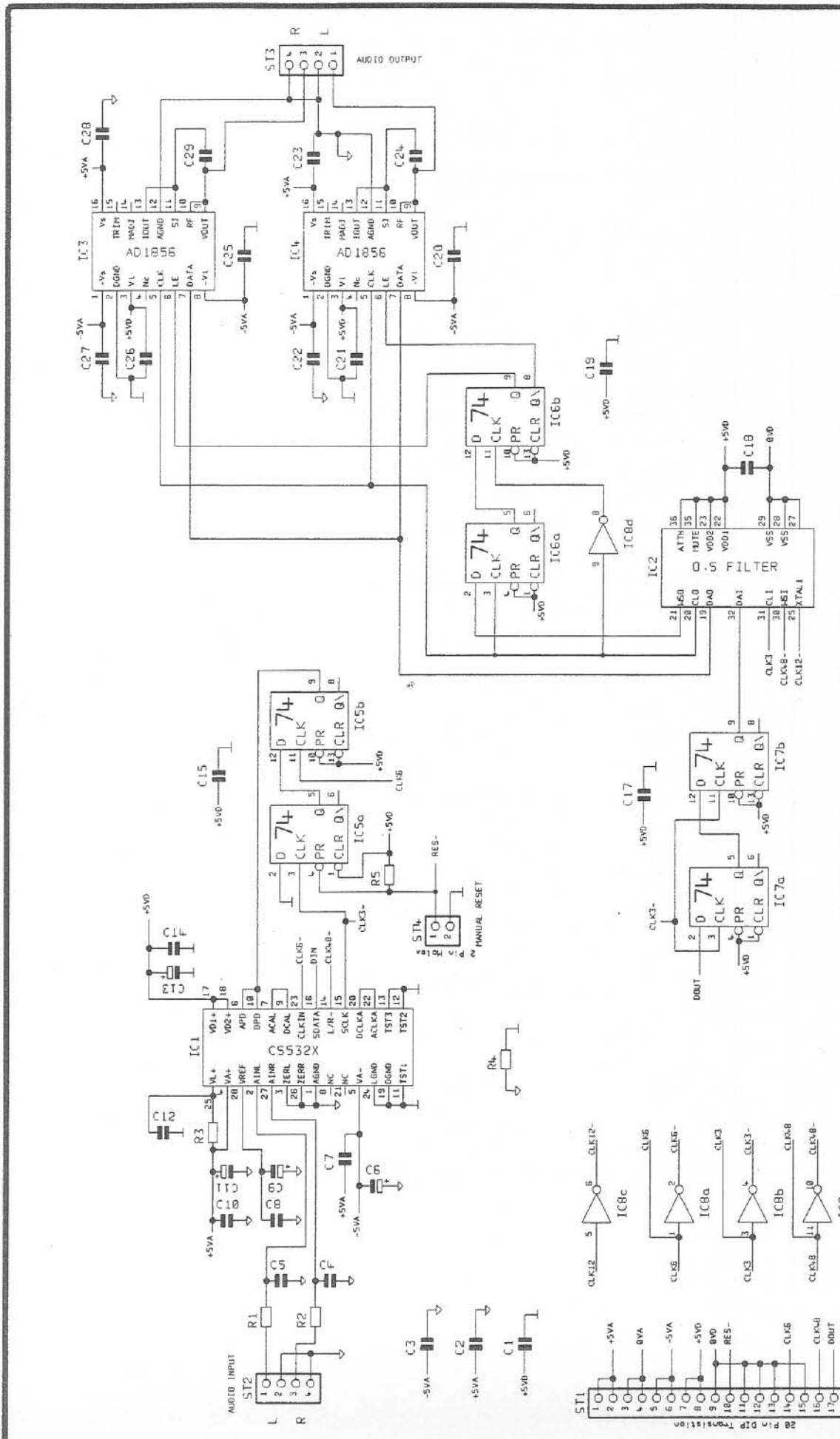
CHASSIS



KLARK-TEKNIK RESEARCH

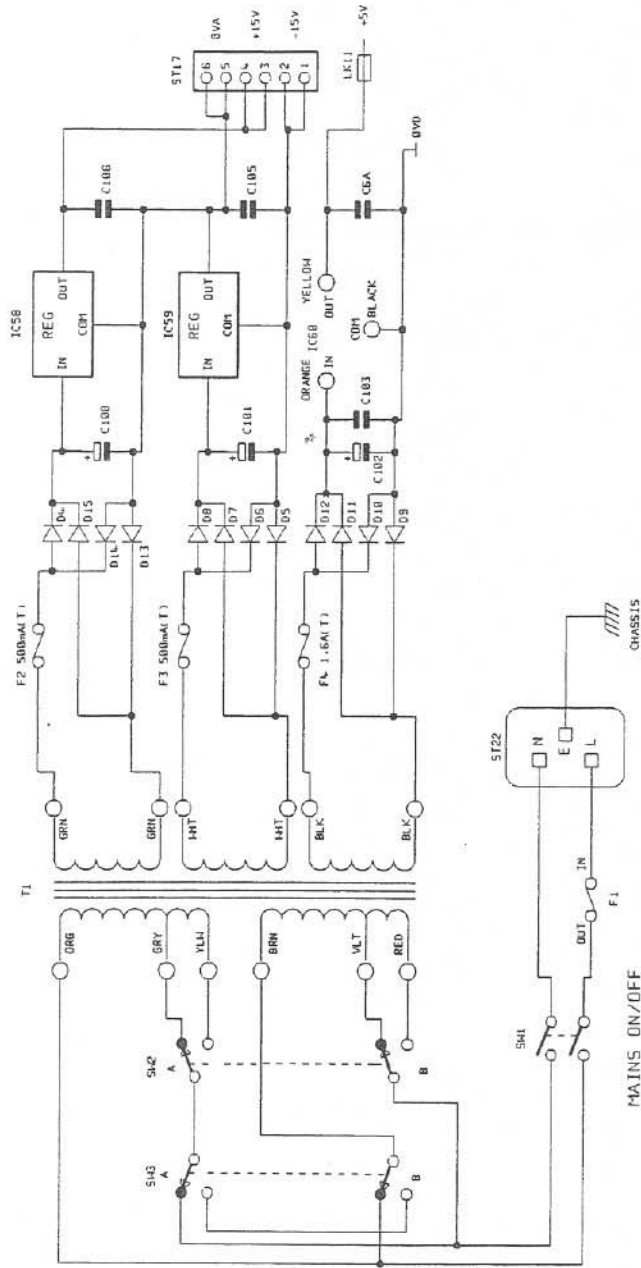
DN735 SOLID STATE RECORDER MICROPROCESSOR and TIMING

BOARD No. 2714-2 DWG No. CRC_3.DGM 3 OF 8 18.APR.90



KLARK-TEKNIK RESEARCH
DN735 SOLID STATE RECORDER
CONVERTOR BOARD

BOARD No. 2711-2 **DWG No. CRC_6.DGM** **6 OF 8** **26.Mar.91**



KLARK-TEKNIK RESEARCH

DN735 SOLID STATE RECORDER

POWER SUPPLY

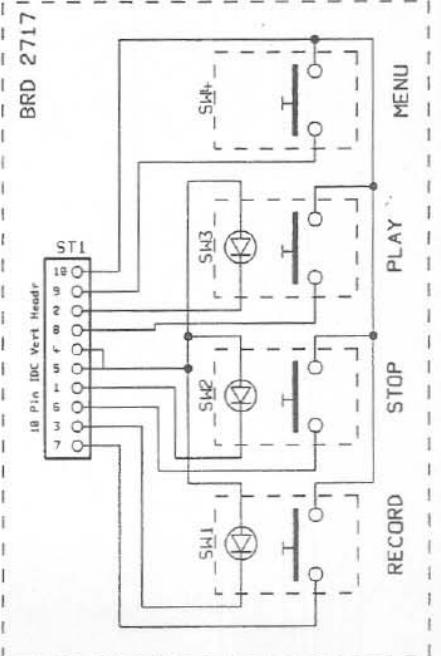
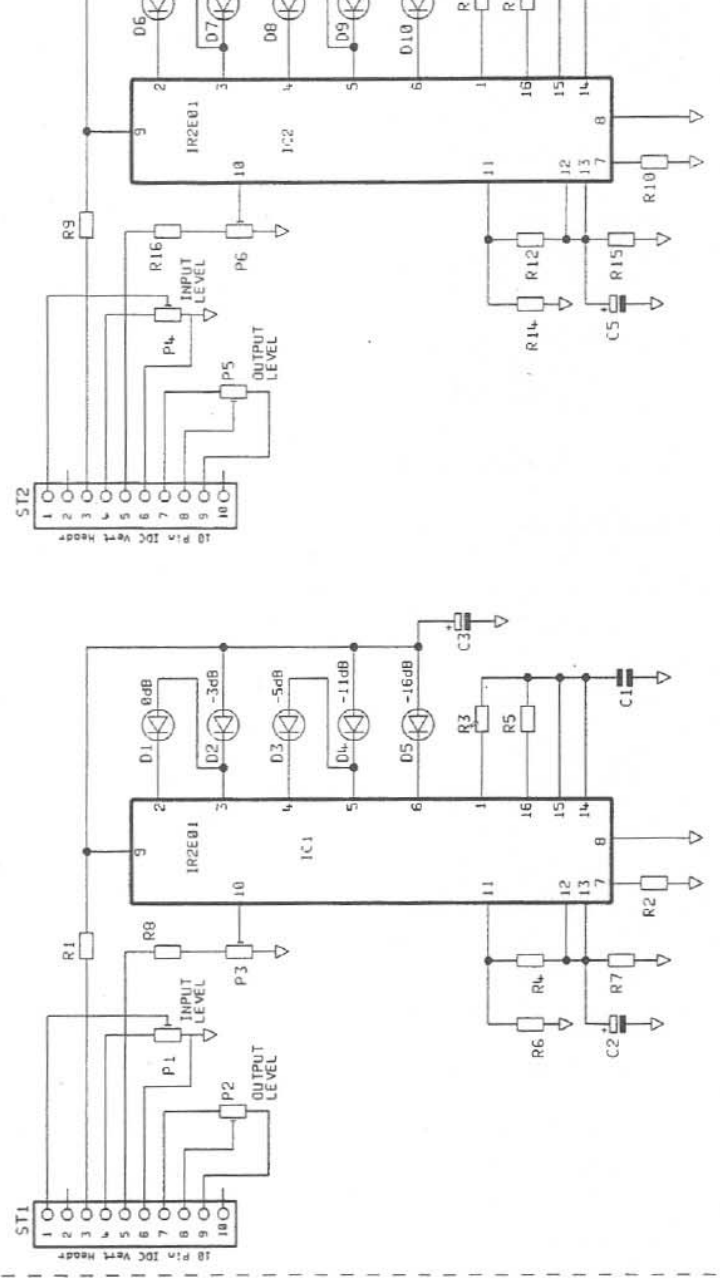
BOARD No. 2714-2

DWG No. CRC_7.DGM

7 OF 8

18.APR.90

BRD 2654



KLARK-TEKNIK RESEARCH

DN735 SOLID STATE RECORDER METER AND SWITCH BOARDS

BRDS 2654-2 2717 DWG No. CRC_8.DGM 8 OF 8 18.APR.90