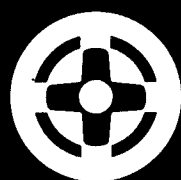


**Operating Information**

**DN3698**

**Hand Held**

**Remote Controller**



**KLARK TEKNIK**

a **MARK IV** company

SIGNAL PROCESSING BY DEFINITION

## CONTENTS

---

<i>After you have unpacked the unit</i>	<b>2</b>
<b>INTRODUCTION</b>	<b>3</b>
Operation/Connection	3
Battery Power	3
External Power Supply	4
Battery Charge	4
<b>INSTRUMENT FAMILIARISATION</b>	<b>5</b>
Display	5
Thumb Wheels	5
Frequency Keys	5
Mix Key pad	5
Functions Keys	6
- Solo Mode	6
- Rotary Swap	6
- Stereo Link	6
- Morphing	6
- RS232 Comms	6
- Solo Safe	7
Curve Fader	8
Gain	8
Flat	8
More EQ in/out	8
Hi-Pass	8
Notch - 1	8
Compare	8
Auto Gain	9
Bypass	9
Q	10
Lo - Pass	10
Notch - 2	10
Memory key pad	10
Save	11

***After you have unpacked the unit:***

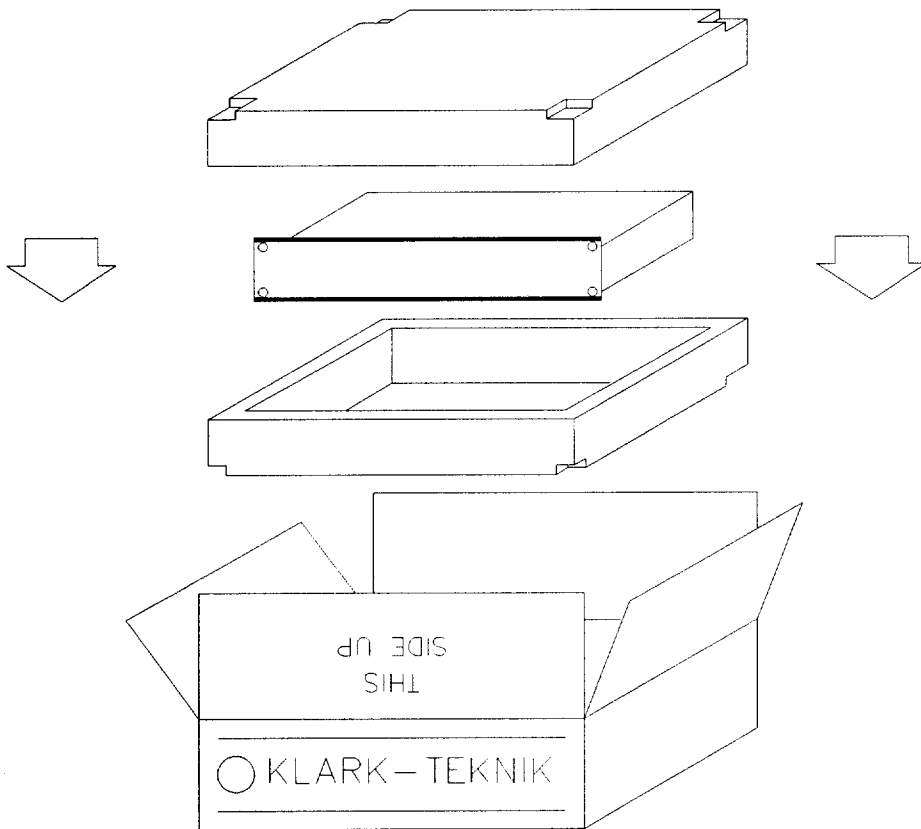
---

Save all the packing materials - they will prove valuable should it become necessary to transport or ship this product.

Please inspect this unit carefully for any signs of damage incurred during transportation. It has undergone stringent quality control inspection and tests prior to packing and left the factory in perfect condition.

If, however, the unit shows any signs of damage, notify the transportation company without delay. Only you, the consignee, may institute a claim against the carrier for damage during transportation.

If necessary, contact your supplier or as a last resort, your Klark Teknik importing agent, who will fully co-operate under such circumstances.



## **INTRODUCTION**

---

The Klark Teknik DN3698 is a rugged, portable, hand held remote control unit for the Klark Teknik DN3600 Programmable Graphic Equalisers and the DN3601 Programmable Slave Equalisers. It allows fast access to all the parameters and functions of up to 49 graphic equalisers (98 channels) from a single, enhanced control surface.

### **Operation/Connection**

---

Switch the unit on and off by pressing the power switch on the rear panel.

### **Connection**

---

The DN3698 can be connected to a Pro-MIDI loop of mixed DN3600 and DN3601 (see DN3600/3601 manual) units in one of 3 ways:

- . Connect the DN3698 unit into the Pro-MIDI loop as if it were a DN3600, using the Pro-MIDI in and out connectors on the rear panel. Cable length should not exceed 15 metres, unit to unit.
- . Connect the DN3698 unit to the optional, rack mounted Docking Station via the 5-pin XLR connector on the back panel, using the special 5-pin XLR cable provided. Cable length should not exceed 100 metres. Connect the Docking Station into the Pro-MIDI loop as if it were a DN3600, using the Pro-MIDI in and out connectors on the rear panel.
- . Use the optional wireless link between DN3698 unit and Docking Station. See wireless link manual for details.

### **Battery Power**

---

The DN3698 is powered in operation by 4 rechargeable Ni-Cad "D" cells. Should they need replacing, they can be accessed via the quick release battery covers on either side of the unit. Use a coin to release the covers. Klark Teknik endorse the use of no cells other than those supplied with the DN3698 unit or by Klark Teknik, and accept no responsibility for loss, damage or personal injury due to use of incorrect battery cells.

## **External Power Supply**

---

The DN3698 can also be powered in operation from the supplied power supply unit. This will work from between 90 and 250 volts ac and at 50 to 60Hz and requires an IEC type mains lead / line cord. The primary function of the power supply unit is to drive the internal battery charger in the DN3698. Charging takes place automatically when the PSU is connected to the unit and takes approximately 2 hours. Klark Teknik endorse the use of no power supply unit other than that supplied with the DN3698 unit or by Klark Teknik, and accept no responsibility for loss, damage or personal injury due to use of any other power supply unit.

## **Battery Charge**

---

Battery life is up to 6 hours on one charge. Full battery recharge takes approximately 2 hours. The DN3698 is equipped with an intelligent battery management system, designed to avoid the problems of "memory effect" often encountered with rechargeable Ni-Cad cells. The unit will warn if low battery charge via the "Battery Low" indicator light. If the "Recharge Now" indicator also lights, together with its on-screen warning, you must power the unit from the mains supply now in order to continue working. When recharging, the "Recharge Now" indicator alone is lit.

## **INSTRUMENT FAMILIARISATION**

---

### **1. Display**

The DN3698 incorporates a backlit, 480x64 dot matrix LCD screen to display information to the user. The display contrast can be adjusted via a preset, reached through a small access hole in the rear panel.

The display normally shows 30 faders, representing the faders of whichever Mix is being addressed - see "Mix Key pad" below. Any fader that is selected for adjustment is highlighted, and its frequency and level are shown in text form at the top of the display.

### **2. Thumb Wheels**

The thumb wheels are used for selecting and adjusting faders. As a default, the left thumb wheel is for frequency and is used to cycle through the 30 faders. The right thumb wheel is used to adjust the level of the selected fader up and down. Each fader has a range of +/-12dB in 1/2dB steps. Faders move up in 1/2dB steps, down in 1dB steps.

The thumb wheel functions can be swapped over - for left handed users, for example - so that left is fader level; right is fader selection. See "Functions" below.

### **3. Frequency Keys**

Faders can also be selected by pressing the appropriate frequency keys. A range of adjacent faders can be selected by pressing two keys at the same time, at either end of the desired range. If a range of faders is selected, the level readout shows an average level for the range.

### **4. Mix Key pad**

Although the DN3600 and DN3601 units under control are dual channel devices, the DN3698 treats the system as independent, single channel equalisers, each referred to as a "Mix". Six connected units, therefore, would be treated as 12 separate Mixes. Unit 1, channel A would be Mix 1; Unit 1, channel B would be Mix 2; Unit 2, channel A would be Mix 3; Unit 3, channel A would be Mix 5 etc. The DN3698 can connect to 49 DN360x units, giving control of 98 separate Mixes.

To select a Mix for adjustment, just dial in its number on the Mix key pad. The DN3698 takes a few moments to pull in the settings from the equaliser, and the Mix number will be shown by the red numeric display. The LCD display now shows all the settings of the selected Mix. Now you can adjust the faders or whatever. To select another Mix for adjustment, just dial in the number.

To address all the Mixes at once and make a global change, dial in 99. Mix 99 is known as "Global".

It is possible at any time to deselect the current mix and lock the remote, useful just prior to power down, and for setting up a "scratch-pad" mix. This will allow a "virtual" mix to be created without affecting any "real" mixes, and then copied to the desired "real" mixes when required. To enable this feature, just press "0" on the Mix key pad when the main fader screen is displayed. Confirmation of this is given by a window displaying the type of connection currently used, the Mix number displaying "00" and the number of Mixes available being shown on the top line of the display.

## 5. Functions Key

Press the functions key to bring up a number of configuration type items for adjustment. Two pages of functions are available, and are selected by moving either thumb wheel up for page 1 and down for page 2.

### *Page 1: Solo Mode*

When solo mode is on, all Mixes are muted apart from the selected Mix. When you dial in another mix, the old Mix will be muted, and the new Mix will un-muted. The un-selected mixes will continue to be muted until you switch solo mode off. Linked pairs of Mixes will un-mute together if selected.

After pressing "Functions", press any frequency key under the Solo Mode window to turn solo mode on or off. Now press "Functions" again to return to normal operation. If you have switched solo mode on, the DN3698 scans all the connected units to collect their gain settings. This takes about 500 milliseconds per Mix. A window appears on the display to inform you that this is happening. Holding the "Functions" key during solo set-up will abort the operation. The red Mix number display flashes and an Icon appears on the display to show if Solo mode is on.

### *Page 1: Rotary Swap*

After pressing "Functions", press any frequency key under the Rotary Swap window to swap the Thumb Wheel functions over. A moving LED next to the appropriate thumb wheel shows which one is assigned to level. Press "Functions" again to return to normal operation.

### *Page 1: Stereo Link*

It is possible to link Mixes within a unit so that they operate together as a stereo pair. Press any frequency key under the Stereo Link window to toggle this function. Press "Functions" to return to normal operation. If linkage has been enabled, a window will briefly appear displaying the message "Mixes nn and nn are Linked!". This will happen every time either Mix of the pair is selected.

### *Page 2: Morphing*

To allow settings from one mix to be gradually copied to another Mix (or a pair, or globally), a morphing option can be enabled which will introduce fader and gain changes slowly when "Compare" is pressed. Two speeds are selectable, by pressing any frequency key below the Morphing window. If enabled, when "Compare" is pressed, a window appears together with a "Progress Indicator" giving feedback of how long the "morph" will take. The closer the two curves are to each other, the quicker the "morph". The process can be stopped at any point by holding the "Functions" key.

### *Page 2: RS232 Comms*

To allow two wireless systems to operate on the same frequency at the same time, two channels are available when using the 5 pin XLR connector. This setting does **not** affect operation via the 3-pin XLR connectors. Select either the "<F1> RED"

channel or the "<F2> GRN" channel by pressing any frequency key below the window. If this channel is available, and communication is occurring via the 5-pin XLR the new channel will be used, with the same Mix selected as was on the other channel. If the channel cannot be found, a window will appear after eight seconds detailing the error, and the previous channel will be used. If a Mix on the new channel is requested that does not exist (i.e. if the channels have different numbers of Mixes available) a window will warn of this, and the "scratch-pad" Mix will be automatically selected.

The current communication channel is displayed on the main screen as an Icon - "Midi" for the 3-pin XLRs, "Grn" for the green docking station channel, and "Red" for the red docking station channel. For details of how to select the docking station channel please consult its manual.

### ***Page 2: Solo Safe***

Enabling the solo safe function will prevent inadvertent operation of the solo function. When enabled, it is always possible to exit solo mode, but impossible to re-enter solo mode. Select this function by pressing any frequency key under the window.



## **6. Curve/Fader**

Press "Curve/Fader" to select or deselect the curve display. The curve display is not an estimation. It is an accurate calculation of the frequency response of the selected Mix, derived from the fader positions, lo and hi-pass filter positions, notch filter positions and overall gain of the Mix, and is updated in real time.

## **7. Gain**

Press "Gain" to select the overall gain of the Mix for adjustment. Then adjust it with either thumb wheel. The gain is adjustable between +6 and -18dB. Below -18dB, the Mix is muted. An Icon appears on the display if the Mix is muted. Press again, or any other key, to deselect gain.

## **8. Flat**

Press "Flat" to flatten - i.e. set to 0dB - the selected fader(s). The whole Mix can be flattened by selecting all the faders (press the first and the last frequency key together) and pressing "Flat". Note that if only a single fader is selected, pressing "Flat" will reset the fader immediately. If more than one fader is selected, a warning and count-down occurs, allowing the key to be released.

## **9. More EQ in/out**

Each Mix is equipped with extra EQ filters in addition to the 30 graphic faders. This includes a lo-pass filter, a hi-pass filter and two notch filters.

Press "More EQ" to activate or deactivate the extra EQ filters on the selected Mix. An Icon appears on the display when the More EQ is in circuit.

## **10. Hi-Pass**

Press "Hi-pass" to select the hi-pass filter for adjustment. The frequency can be adjusted with either thumb wheel as usual. Frequency of the hi-pass filter is displayed in a window on the LCD screen. Press again, or any other key, to deselect hi-pass.

## **11. Notch-1**

Press "Notch-1" to select the first notch filter for adjustment. The frequency and level can be adjusted with the thumb wheels as usual. In addition, the frequency keys beneath the display can be used to quickly position the notch at third octave frequencies, fine tuning the frequency with the thumb wheel. Frequency and level of the notch filter are displayed in a window on the LCD screen. Press again, or any other (non-frequency) key to deselect Notch-1.

## **12. Compare**

Press "Compare" to flip the Mix from the current settings back to a preset reference point. Press "Compare" again to return to the current settings. The preset reference point is usually the last memory that was recalled for the selected Mix. You can set a new reference point, however, by re-selecting the current Mix. Pressing the "Flat" key will also update the "Compare" memory, allowing this action to be undone.

## **Copy**

The compare function can be used to copy the settings from one mix to another. To copy a Mix under **all** circumstances, proceed as follows.

- 1) Select the 'from' mix by typing in the Mix number.
- 2) Select the 'to' Mix by typing in the Mix number.
- 3) Press and hold the 'Compare' key.

Dependant on the setting of the morphing option (functions page 2) the Mix will then either copy immediately or morphing will commence.

An additional (optional) stage in the process allows Mixes to be selected, then **adjusted without affecting the original or the destination**, and then copied to the destination. This allows, for example, gain or 'more eq.' changes that are not required in the copy to be adjusted/removed prior to the transmission of the copied settings.

The procedure is as follows.

- 1) Select the 'from' Mix by typing in the Mix number.
- 2) Select the 'scratch-pad' Mix by typing '0' for the Mix.  
This will de-select all the units and confirm the communication link with a window as before.
- 3) Adjust the Mix as required - no transmission of settings is occurring at this stage.
- 4) Save these new settings (locally) by pressing the "save" key. The '>Compare<' icon will briefly appear to confirm this.
- 5) Select the 'to' Mix by typing in the Mix number.
- 6) Press and hold the 'Compare' key.

Dependant on the setting of the morphing option (functions page 2) the Mix will then either copy immediately or morphing will commence.

## **13. Auto Gain**

Press "Auto Gain" to switch on or off the Auto Gain function for the selected Mix. With Auto Gain on, the Gain control of the Mix is adjusted automatically as you adjust the faders, in order to maintain unity gain through the equaliser. An Icon on the display appears if an adjustment is made automatically.

## **14. Bypass**

Press "Bypass" to bypass or un-bypass the selected Mix. An Icon appears on the display if the Mix is bypassed.

## 15. Q

Press "Q" to change the Q characteristic of the selected Mix. The options available are 360Q and 27Q. An Icon on the display shows which Q characteristic is selected.

360Q has identical filter shapes to Klark Teknik's industry standard DN360 Graphic Equaliser. Filters combine smoothly with the minimum of phase distortion.

27Q provides the narrower, sharper filter shapes identical to those of the older DN27 Graphic Equaliser - still preferred by many.

The effect of the Q settings can be seen in the Curve display.

## 16. Lo-pass

Press "Lo-pass" to select the lo-pass filter for adjustment. The frequency can be adjusted with either thumb wheel as usual. Frequency of the lo-pass filter is displayed in a window on the LCD screen. Press again, or any other key, to deselect lo-pass.

## 17. Notch-2

Press "Notch-2" to select the second notch filter for adjustment. The frequency and level can be adjusted with the thumb wheels as usual. In addition, the frequency keys beneath the display can be used to quickly position the notch at third octave frequencies, fine tuning the frequency with the thumb wheel. Frequency and level of the notch filter are displayed in a window on the LCD screen. Press again, or any other (non-frequency) key to deselect Notch-2.

## 18. Memory Key Pad

Each Mix has 66 user memory locations. EQ set-ups can be saved to or recalled from any of these.

Type in a memory number. The memory contents - fader positions, memory name and More EQ settings - are displayed on screen, but not recalled. Now you can use a thumb wheel to scroll up and down through the memories of the selected Mix, or dial in another memory number if you need to. You can return to normal operation at any time by pressing any other key.

Press "0" on either key pad to recall the displayed memory. It is only at this point that the audio will change.

Note: If the Mix currently selected is linked then pressing "0" will recall that memory on **both** Mixes. Pressing "Compare" when viewing memories on linked mixes will display the alternate Mix's contents - details of current Mix and memory are shown at the top of the display.

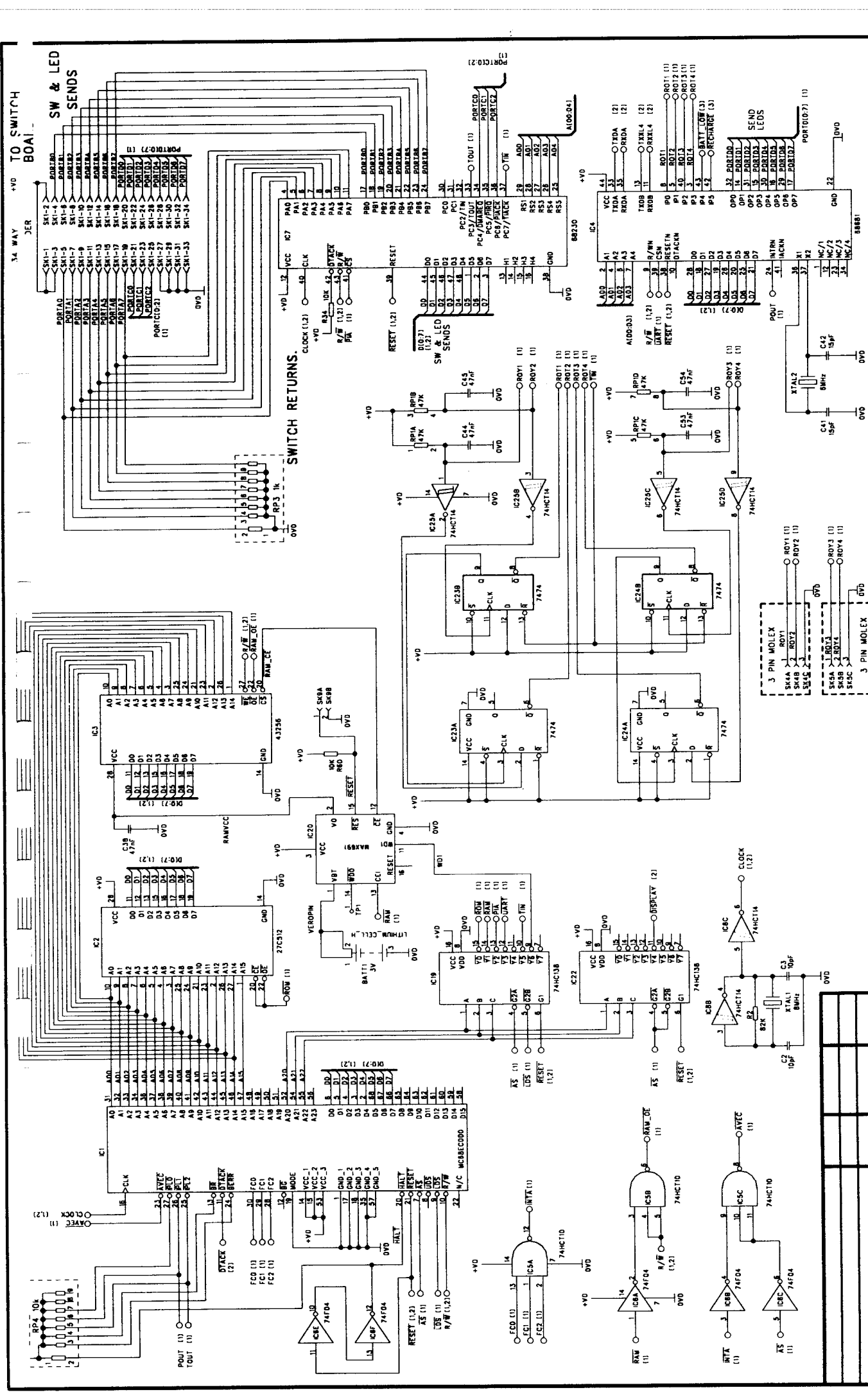
### **19. Save**

Press "Save" if you wish to store the current EQ settings in a memory. If you do not want to use the last recalled memory location, use a thumb wheel to scroll through the memory numbers. Now, if you want to change the memory name, type in a new name using the frequency keys (letters and symbols - as shown on the LCD display) and a number key pad. The ← key is a "backspace". If you backspace past the start of an altered name, the old name will re-appear. You can abort the operation at any time by pressing "Functions".

Press "Save" again to store the EQ settings.

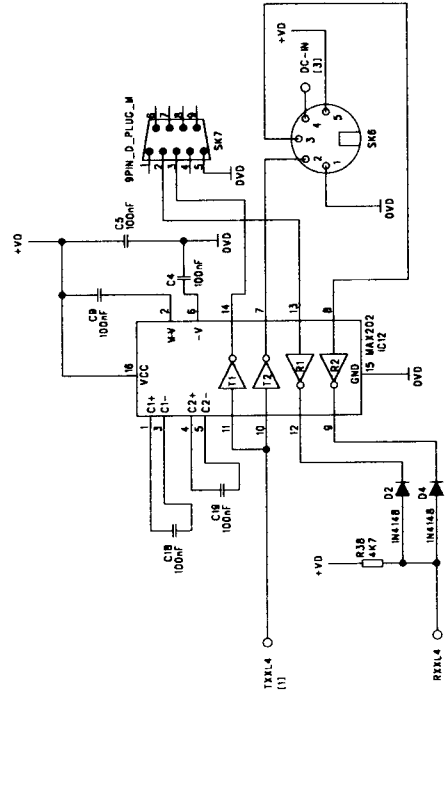
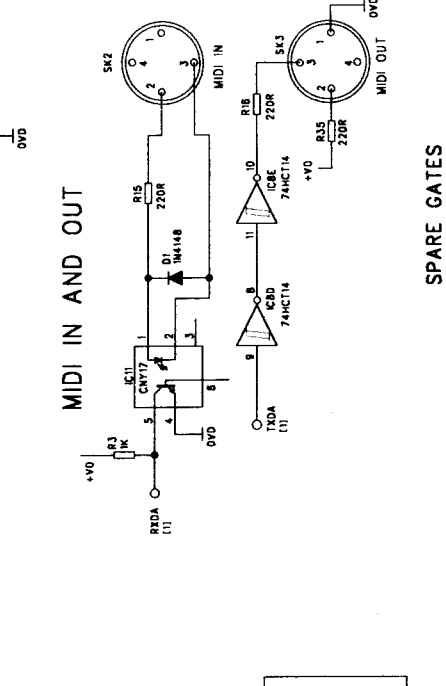
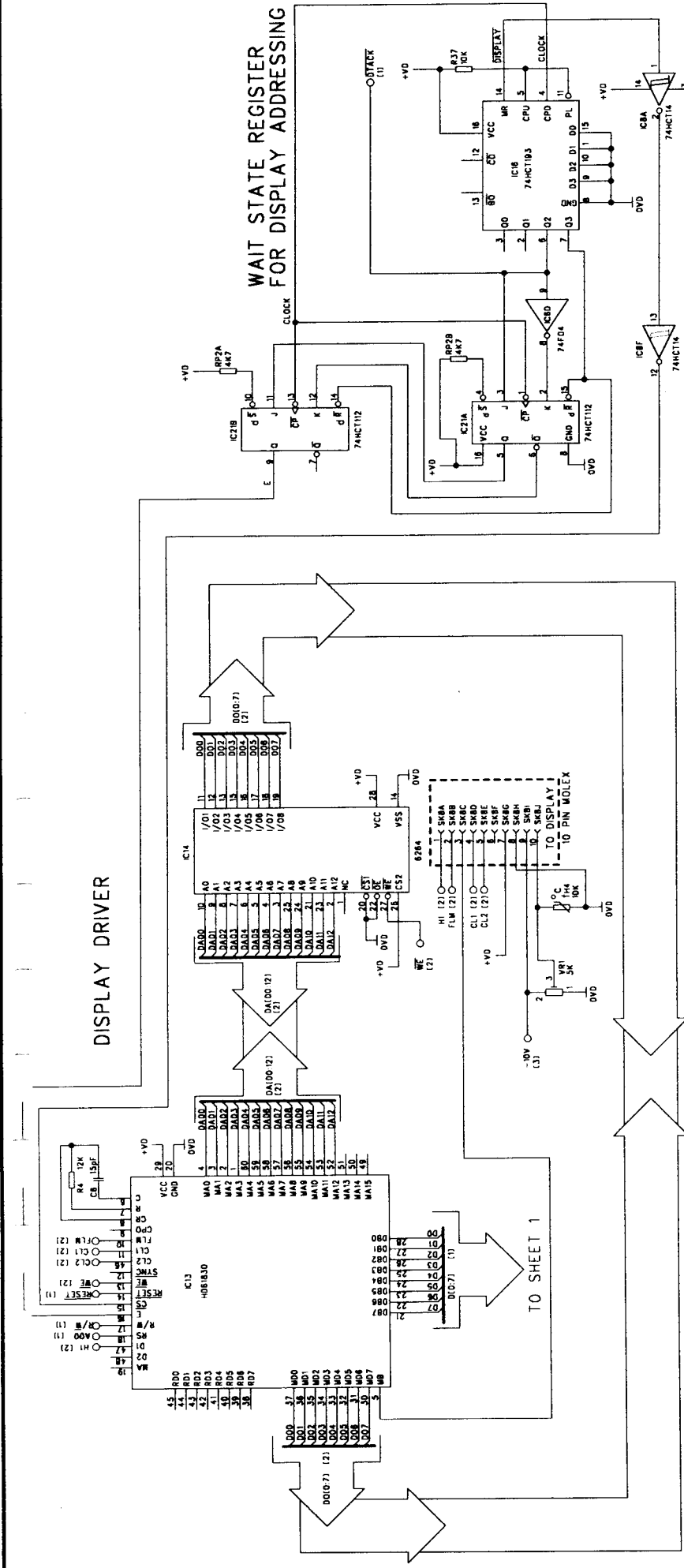
#### ***Note***

In the DN3600 and DN3601 units, memory store and recall normally works for both channels at once. The DN3698, however, implements 66 memories per Mix. Memory names, therefore, are always the same for both mixes on one unit. For the same reason, memory save may produce a short EQ or level change (for about 200mS) on the other channel of the unit that contains the selected Mix. We recommend that the memory save function is not used during a critical performance.



# KLARK TEKNIK

UNIT: DN3600 REMOTE			
TITLE: MICRO BOARD (CPU)			
BOARD No. B2787 BOARD ISS. 2			
	DRAWN: JRC	DATE: 16-5-95	SHEET: 1 OF 3
AMENDMENTS	INIT.	DATE	SHEET Iss: 2 DRG No. 3602-01.SCH



SPARE GATES

DISPLAY DRIVER

WAIT STATE REGISTER FOR DISPLAY ADDRESSING

MIDI IN AND OUT

KLARK TEKNIK

UNIT: DN3600 REMOTE

TITLE: MICRO BOARD (DISP.DRIVER, MIDI & WAIT STATE REGISTER.)

BOARD No. B2787 BOARD Iss. 2

DRAWN: JRC

DATE: 16-5-95

SHEET: 2 OF 3

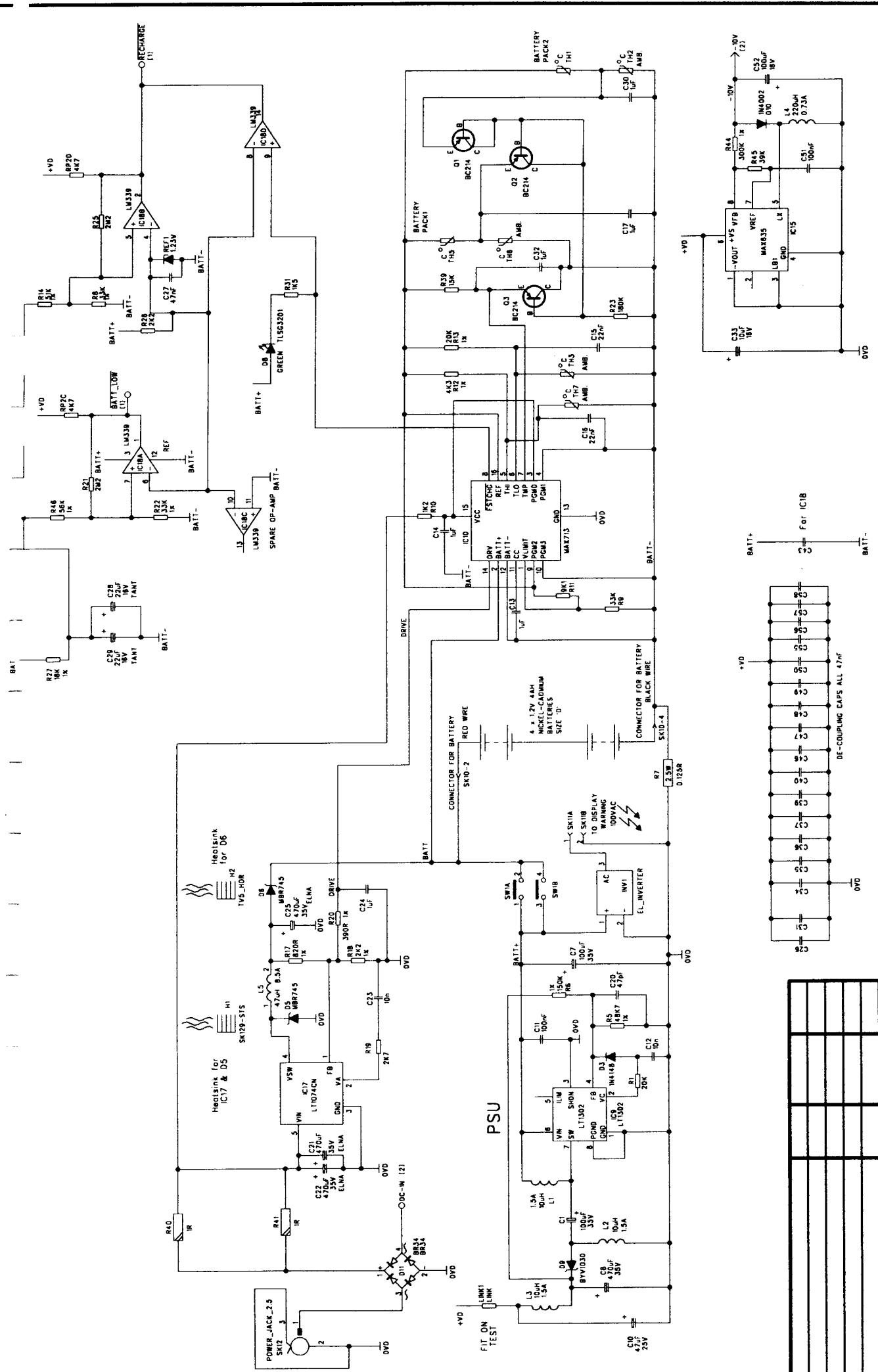
CHECKED:

SHEET Iss: 2

DRG No. 3602-01.SCH

AMENDMENTS	ISS.	INIT.	DATE.

TO SHEET 1

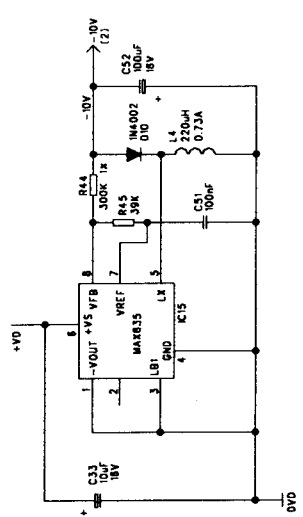
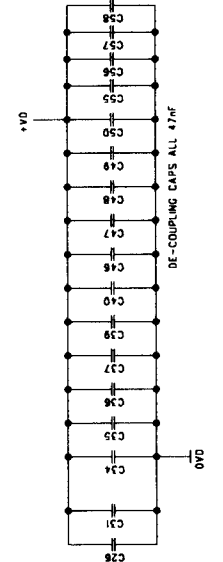


# KLARK TEKNIK

UNIT: DN3600 REMOTE

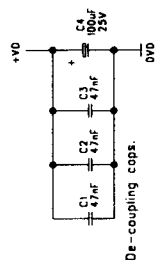
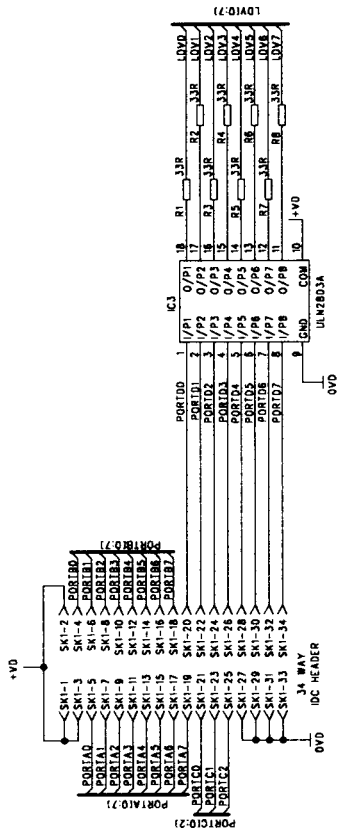
DATE: 16-5-95	SHEET: 3 OF 3
DRAWN: JRC	CHECKED:
BOARD No. B2787 BOARD ISS. 2	SHEET ISS: 2
DRG No. 3602-01.SCH	

TITLE: MICRO BOARD (PSU)	DATE: 16-5-95
ISS: 2	INIT: JRC
AMENDMENTS:	



## PSU

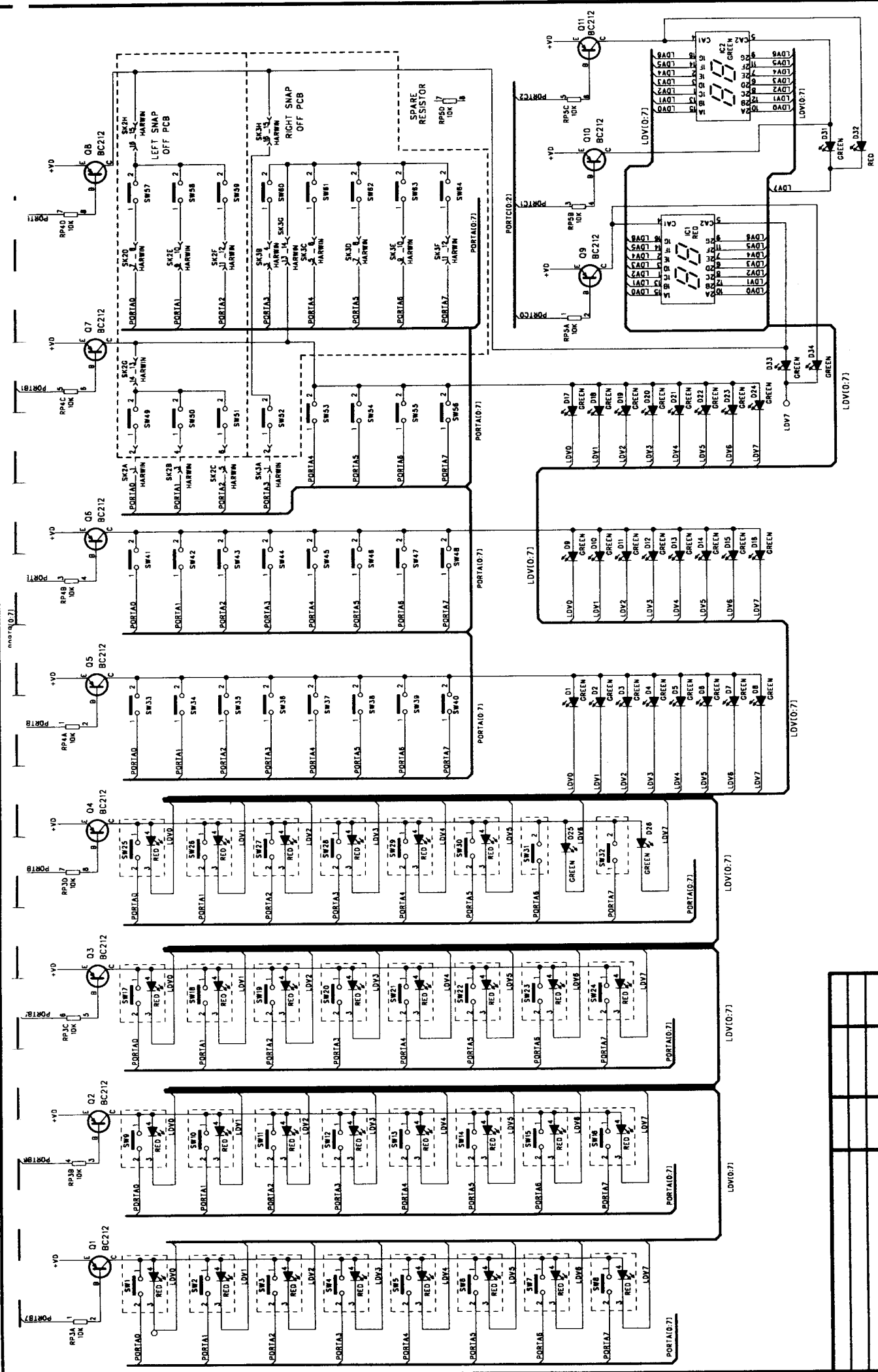
CHANGED H2 TO TWS HEATSINK  
AMENDMENTS



AMMENDMENTS	ISS.	INIT.	DATE.

<b>KLARK TEKNIK</b>	
UNIT: DN3600 REMOTE	DATE: 16--5--95
TITLE: SWITCH BOARD	SHEET: 2 OF 2
BOARD No. B2793 BOARD Iss. 2	DRG. No. 3602-02.SCH
DRAWN: JRC	CHECKED:
SHEET ISS: 2	





# KLARK TEKNIK

UNIT: DN3600 REMOTE

TITLE: SWITCH BOARD

BOARD No. B2793 BOARD ISS. 2

DRAWN: JRC

CHECKED:

DATE: 16-5-95

SHEET Iss: 2

SHEET: 1 OF 2

DRG No. 3602-02.SCH

ISS.	DATE.	INIT.	JRC.
2	16-5-95		

PIN SWOP ON SK3 PINS 14 & 16

AMENDMENTS