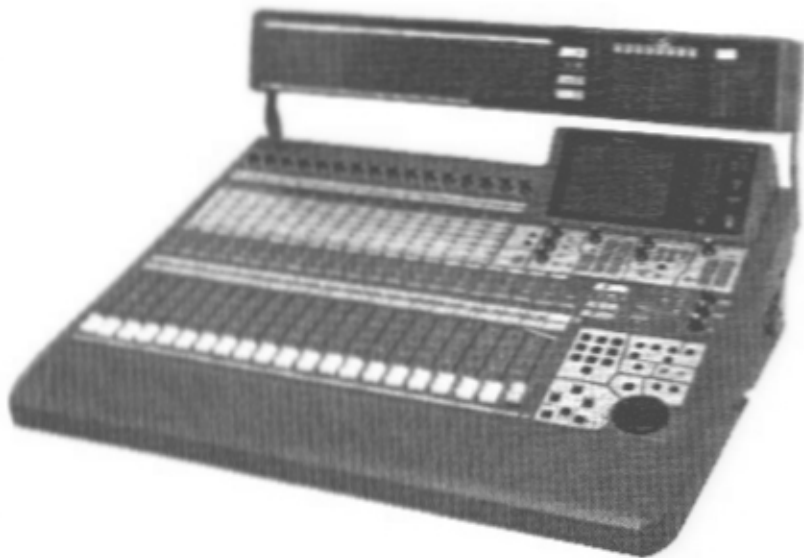


Panasonic®

Audio Mixer WR-DA7

RAMSA



*No photo is able to show in detail is one of our own accessories

Before attempting to connect or operate this product, read these instructions completely.

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For U.S.A

Warning:

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives EEC/73/23 and EEC/89/336.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit der folgenden Normen oder normativen Dokumenten übereinstimmt. Gemäß den Bestimmungen der Richtlinien 73/23/EEC und 89/336/EEC.

Nous déclarons sous notre seule responsabilité que le produit auquel se réfère cette déclaration est conforme aux normes ou autres documents normatifs conformément aux dispositions de la directive 73/23/CEE et 89/336/CEE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con las normas u otros documentos normativos siguiendo las estipulaciones de la directivas CEE/73/23 y CEE/89/336.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi conformi alle disposizioni delle direttive CEE/73/23 e CEE/89/336.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatieve documenten, overeenkomstig de bepalingen van Richtlijnen 73/23/EEC en 89/336/EEC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklARATION omhandler, er i overensstemmelse med den følgende standard eller andre normative dokumenter i følge bestemmelserne i direktivene 73/23/EEC og 89/336/EEC.

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklARATION hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framställs i Direktiv 73/23/EEC och 89/336/EEC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 73/23/EEC ja 89/336/EEC. säädöksiä.

Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som følger bestemmelsene i direktiven 73/23/EEC og 89/336/EEC.

For Australia

THIS APPARATUS MUST BE EARTHED.

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities. The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

For U.K.

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amp and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 5 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

WARNING: This apparatus must be earthed.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code.

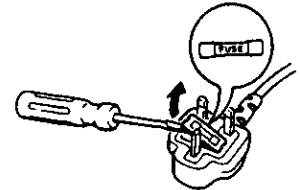
Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wire in the mains lead of this appliance 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 with the letter **E** or by the earth symbol \perp or coloured **green** or **green-and-yellow**.

The wire which is coloured **blue** must be connected to the terminal in the plug which is marked with the letter **N** or coloured **black**.

The wire which is coloured **brown** must be connected to the terminal in the plug which is marked with the letter **L** or coloured **red**.

**How to replace the fuse**

Open the fuse compartment with a screwdriver and replace the fuse.

Caution:

Before attempting to connect or operate this product, please read the label on the rear panel.

The serial number of this product may be found on the rear of the unit.

You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

WARNING:

TO PREVENT FIRE OR ELECTRIC SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Panasonic

RAMSA

Digital Mixer WR-DA7

Users' Guide

Version 1.0

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RAMSA
Digital Mixer WR-DA7
Users' Guide

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Chapter 1

Introduction

1-1 A New Beginning

The *Digital Mixer WR-DA7* sets a new standard for affordable automated audio mixing and audio production. The *DA7* has a number of features built into every channel that until recently were the privilege of only high-end production facilities. Every feature is either directly controlled or just a window away. As a *DA7* user, you've made the decision to become part of the future.

Functionality

The **Fader Layer** controls permit the user to adjust and monitor the 32 inputs, the 6 aux sends and the 6 aux returns, the 8 buses, and the unique user **CUSTOM/MIDI** layer with user-defined fader layouts and settings. Multiple LEDs provide instantaneous display of channel/bus/aux assignments, as well as automation recording status.

Automation has never been easier. The *DA7* allows you to automate your fader functions, from mixing and MIDI parameters, to dynamics and effects. By not tying up input channels for outboard effects, the dedicated aux send and aux return faders provide increased flexibility.

The *DA7* comes with internal memory to store fifty EQ libraries, fifty dynamics libraries, fifty channel libraries, and fifty different scene settings.

A 5.1 surround sound feature is built into the *DA7* with user-defined surround sound parameters edited directly on the LCD.

Option cards expand the uses of the *DA7*. For example, the ability to synchronize to videotape, using the SMPTE interface option card, makes it easy to score for film or television.

This *Users' Guide* details the functionality of the mixer — for studio or live band configuration, multi-microphone setups, digital multi-track recording, and post-production, using MIDI and/or timecode.

Simplicity

The *DA7* is simple to operate, so you can spend less time as an engineer and more time as an artist. Engineered for ease of use, the Human-Machine Interface (HMI) provides a variety of ways to access and assign the channel parameters for your sources. Every channel parameter is displayed on the 320 x 240 backlit LCD screen, providing a quick visual reference of every aspect of the mixer setup.

MIDI devices and MIDI remote control for peripheral gear can be controlled from the *DA7*. Or you can use the "To PC" terminal to connect a computer to the MIDI controls of the *DA7*. This interface allows integration of your existing sequencer or other related MIDI software to any of the *DA7* MIDI functions.

The Future is Now

The *DA7* is ready for computer-controlled digital mixing right out of the box. Connect it, and start recording. Everyone, from home musician to professional artists and producers, can now make music in the "Digital Domain" and create multi-track masterpieces using the *DA7* tools.

1-2 About This Manual

Document Notes

The first three chapters of the *DA7 Users' Guide* provide an introduction to the system and basic information for the system.

Chapter 1 Introduction

- general information about the *Users' Guide* and the system used to produce the document
- typical installation and usage scenarios for the *DA7*

Chapter 2 DA7 Tour

- Top Panel overview and a literal look at the Rear Panel connections setup
- illustrations that are referenced throughout the following chapters of the *Users' Guide*

Chapter 3 Quick Start

- modules designed to familiarize the user with a basic understanding of the tools incorporated in the *DA7* mixer









Chapters 4-16 each discuss a primary function of the *DA7*. The information follows a basic operational sequence. Some of the chapters will be divided into sections which discuss specific capabilities and/or functions of the chapter subject.

The sections in **Chapter 17 Options** describe various system configurations. The Appendices provide general information groups and detail the mixer's technical specifications.

A Glossary providing definitions for information associated with the *DA7* precedes the index for this document.

Symbols and Conventions Used in this Guide

The *DA7 Users' Guide* uses the icons and conventions listed below. Whenever possible, the way something appears in the *Users' Guide* is as it appears on the *DA7*.

-  Numbers in a triangle indicate a sequential step in a process.
-  Numbers in a circle indicate a list.
-  Square bullets indicate alternative ways to perform similar tasks or actions.
-  Round bullets indicate items or elements in a group.
- GAIN SUB** Text written in bold letters indicates the name of a knob, fader, button, or element on the Top Panel or the Rear Panel of the mixer. When panel labeling incorporates a background, the text will appear on a medium gray background.
- [STEREO]** Bold upper-case text contained in square brackets indicates the name of a window or a window area in the LCD.
- (color)* Color terms presented in italics and parentheses denotes the literal color of an LED button for a particular action or condition.
- CURSOR** In this document, **CURSOR** is used as both a noun and a verb. "Use the **ARROW** buttons to move the cursor", or "Cursor to the OFF button."
-   Text presented on a black background or contained in a border indicates buttons or elements that perform a function and appear in the LCD.
-  This warning symbol alerts you to an action you may want to avoid or, at least, seriously contemplate before executing.
-  This tip symbol indicates an important fact, procedure, and/or other beneficial information for the mixer operation or performance.

The term "area" refers to a window region in the LCD of the **Display Bridge** of the mixer.

The term "section" refers to a region on either the Top Panel or the Rear Panel of the mixer.

The term "soft knob" refers to a knob control in a window area in the LCD.

Section 1-3 Making the DA7 Work For You

Like most users, you'll want to play first and then look for those items in the manual that seem unclear. It would help your understanding of the *DA7* to read this *Users' Guide* from cover to cover, but we know you probably won't. It will, however, be beneficial to at least read through this section to avoid any confusion.

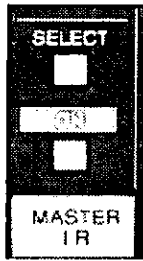
Although the *DA7* has some analog inputs, it should really be thought of as a digital mixer. Like most equipment, the *DA7* comes set with factory defaults, some of which may or may not provide the kind of operational preferences you'd like. You can't change the factory defaults, but when you have created settings that you like, they can be saved by making a snapshot of the setup and recording it in **SCENE MEMORY**. See **Chapter 15 SCENE MEMORY** for more information.

There are a few windows that you should acquaint yourself with before you start pushing all the buttons. They are the **[UTILITY>CONFIG]**, **[UTILITY>SOLO/MON]**, **[D I/O>INPUT SET]** and **[MIDI>BULK]** windows. Pressing the relevant Top Panel buttons for these features will display the windows in the LCD. Once you are in any window, you'll find the window group selection buttons on the bottom of the screen. These buttons show all the windows within the window group. The window group you're in is indicated on the top line of the **[taskbar]**. See page 2-20 for information on the LCD screen. CURSOR to the bottom of the current window, choose a window selection button, and press **ENTER** to bring that window into the LCD.

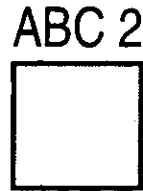
MASTER RESET

If you've pushed as many buttons as possible after powering up the *DA7* to see what it could do, you need to know about the master reset mode.

To normal the *DA7* back to factory presets, turn the power off, and then simultaneously press and hold the **MASTER LR Fader ON** LED button, the **MASTER LR Fader SELECT** LED button, and the number **2** button of the **Keypad**. While pressing the three buttons, turn the power on. Doing this will reset the *DA7* to the factory defaults. These settings can be found in **Appendix E**.



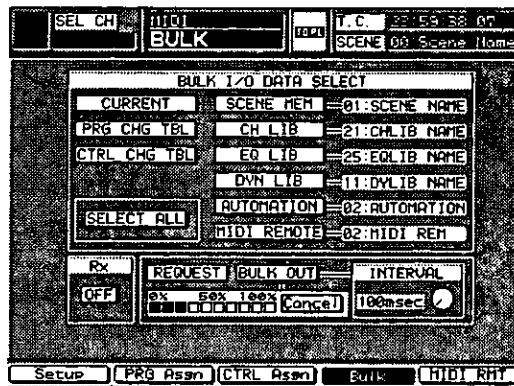
MASTER LR Fader Strip



#2 Button of the Keypad

BULK BACKUP

The first thing to think about is saving data. If you've started using the *DA7* straight out of the box for a major recording session, all of the mixer data for your new million selling CD data is stored in the *DA7* memory, **BACK IT UP!**

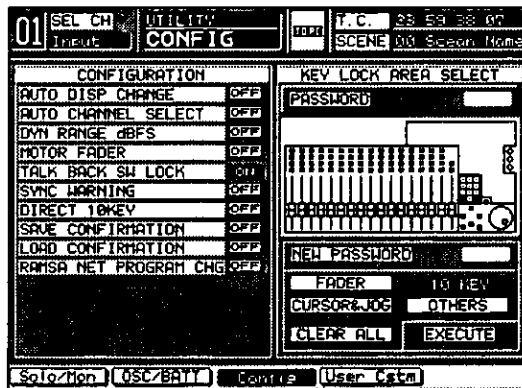


MIDI>BULK Window

The **[MIDI>BULK]** window can be accessed by pressing the **MIDI** button on the Top Panel. In the **[MIDI>BULK]** window, you'll find the **[BULK I/O DATA SELECT]** area. All of the information recorded in the system can be sent en masse to a Mac or IBM compatible computer. See **Chapter 11 MIDI**, page 11-2, for setting up the serial port output to a personal computer. Some previous background knowledge of MIDI and a personal computer would be helpful here. There is software on the market that readily captures bulk dump information. If you have questions, either visit a local music retailer, or visit one of a number of Web sites on the Internet for information.

CONFIGURATION

The [UTILITY>CONFIG] window can be accessed by pressing the **UTILITY** button on the Top Panel. This is where the [CONFIGURATION] selections are located. One of the features here is [AUTO CHANNEL SELECT]. When active, every time a fader is moved or a **SELECT** button is engaged, whatever window you're in will change to the [CHANNEL] window for that selected channel. If you're trying to set up parameters on different **Channel Strips**, it could get frustrating to have to go back and forth between windows. To render this feature inactive, make sure that the button is in the **OFF** mode.



UTILITY>CONFIG Window

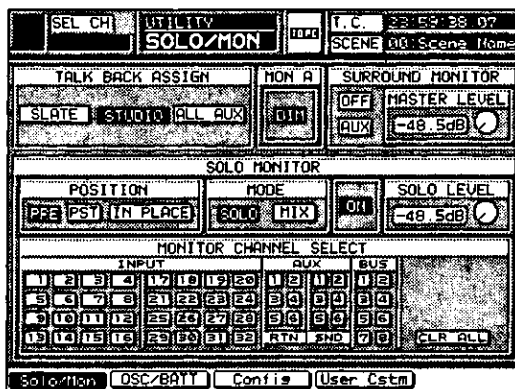
Another [CONFIGURATION] selection is [AUTO DISPLAY CHANGE]. When **ON**, whenever a parameter adjustment is made from the Top Panel, the LCD will change to that parameter window. If you tweak an **EQUALIZER**, **DYNAMICS/DELAY** or **PAN** knob on the Top Panel, but want to stay in the [CHANNEL] window, for example, make sure that the [AUTO DISPLAY CHANGE] selection is **OFF**.

Other items in the [CONFIGURATION] area are the [DYN RANGE DBFS] and [MOTOR FADER] buttons, which should all be set to **ON** as part of the DA7's system default.

For more information, see **Chapter 16 - UTILITY**, page 16-9. Also, see **Appendix E** for a listing of all the factory default conditions.

MONITOR SETUP

To customize the monitor setup of the *DA7*, access the [UTILITY>SOLO/MON] window by pressing the **UTILITY** button on the Top Panel. The **SOLO MODE** button on the Top Panel is a shortcut key to the [UTILITY>SOLO/MON] window.



UTILITY>SOLO/MON Window

The [MON A] area function mutes the **MONITOR A** speakers 20dB. When selected, the **ON** button will appear in inverse video, and the speakers will remain muted until the **ON** button is deactivated.

The [SOLO MONITOR] area is set to **ON** as the default. If you've managed to turn it **OFF**, when you try to use a **SOLO** button on the Top Panel, nothing will happen. Also check the [SOLO MONITOR] in the area. It is set to [PRE] (pre fader) and [SOLO] when the system is initialized. In a mix situation you may want to set the [SOLO MONITOR][POSITION] area to [IN PLACE], which is post-fader and post-pan, and set the [SOLO MONITOR][MODE] area to [MIX], which allows multiple channels to be solo'd.

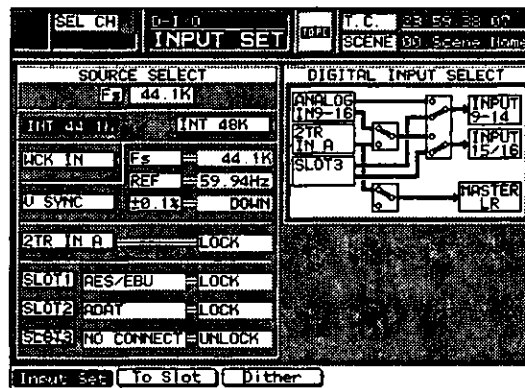
The [SURROUND MONITOR] area mode selection is important, too. When **ON**, sound is routed to the surround sound system. When the [SURROUND MONITOR] is in the [AUX] mode, it will send the surround bus 1 and 2 signals through **MONITOR A LR**, while aux sends 3 through 6 route the surround bus 3 through 6 signals. In the [MON] mode, the surround signal path uses the **MONITOR A LR**, **MONITOR B LR**, and **MASTER LR** outputs. If the [MON] mode is active, when trying to listen to another source in the system that is not assigned to the [SURROUND MONITOR], you'll find nothing coming out of the monitor speakers. The same condition could occur by selecting [SURR] for a channel in the [CHANNEL] window [ASSIGN] area.

For more information on the [UTILITY>SOLO/MON] window, see **Chapter 16 UTILITY**, page 16-2. To find out about the 5.1 surround sound monitor output, see page 16-3, and for more on the *DA7s'* surround sound features, see **Chapter 8 - PAN/ASSIGN SURROUND**.

D I/O Interfacing

With all the different devices on the market these days, getting all that gear to speak to one another can be quite a challenge. The *DA7* system wordclock is factory set to [INT 48K], with the option of setting it to [INT 44.1K]. All digital devices attached to the *DA7* must be set to the same wordclock sampling rate in order to operate properly.

Find the rate the devices all have in common and set the *DA7* to that rate, be it 44.1 or 48K. To set the *DA7s'* wordclock reference, press the **D I/O** button on the Top Panel to display the [D-I/O>INPUT SET] window.



D-I/O INPUT SET Window

When using the *DA7* as the master wordclock, there are two buttons in the [SOURCE SELECT] area for setting the sample frequency, [INT 44.1K] and [INT 48K]. CURSOR to the sample frequency that is common to your devices and press **ENTER** on the Top Panel to engage the appropriate sample frequency.

Or, if you prefer to use an external wordclock reference as the master wordclock, the external wordclock master must output a sample frequency that is common to all devices.

For additional information about sample frequency and setting the clock rate of the *DA7*, see **Chapter 12 - D I/O**, page 12-2.

Following this list of suggestions should make your life with the *DA7* easier. Read **Chapter 2 - DA7 Tour** and **Chapter 3 - Quick Start**, to get the most out of this *Users' Guide*, if you don't plan to read the whole thing.

Chapter 2

DA7 Tour

2-1 Overview

The tour begins with a brief description of the Human-Machine Interface (HMI) concept for the *DA7* mixer and then introduces the elements, functions, and features of the *DA7*.

What is the Human-Machine Interface (HMI)?

The Human-Machine Interface is an ergonomic concept incorporated into the design of the *DA7* mixer. Features and tools are built into the *DA7* to accommodate your individual approach to operating the mixer. The design elements provide quick access to mixer functions and promote better comprehension of the mixer status.

Hardware and software resources are integral parts of the ergonomic design. Functions are accessed via knobs, faders, and buttons on the Top Panel of the *DA7*. The LCD screen updates as selections are activated on the Top Panel. The **CURSOR** and the **JogDial** to navigate the window displayed can also be used. The LED indicators for the **Channel Strips** reflect the channel assignments, and their colors indicate current mode. Settings can be stored and recalled from onboard memory registers, so you don't have to remember a setup.

Shortcuts and alternative paths are provided, so you can develop an operating technique that suits your production style and methods. Create a preference that works best for you, by accessing via hardware or software, or a combination of both. You will develop a personal style of operation, and the tools and functions of the *DA7* will unobtrusively give you a level of confidence and performance that has not been attainable until now.

Chapter Notes

The remaining sections of this chapter present an overview of the functions, features, and tools of the Top and Rear Panels of the *DA7*. We have assigned numbers to the primary sections of the Top Panel. These numbers will be referenced on the title pages of the succeeding chapters and chapter sections in the *Users' Guide*, in case you need to return to the illustrations contained in this chapter.

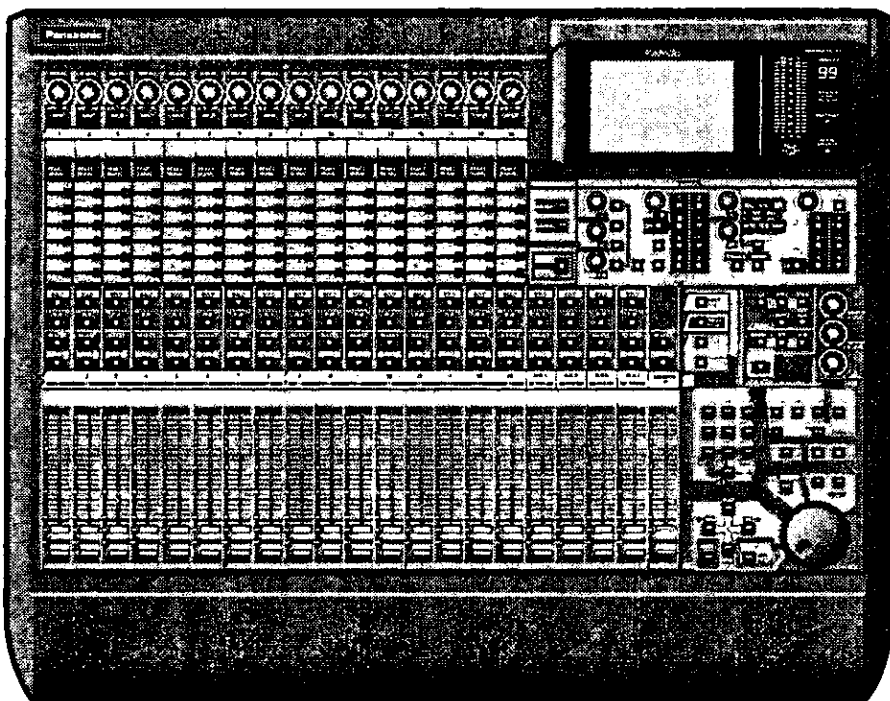
Section 2-2 Top Panel describes the controls and items of the *DA7* Top Panel. General information on the numbered sections follows the illustration key pages. Reference to respective chapters is included in these descriptions, so you can jump to the appropriate chapter for greater detail on the features and functions.

Section 2-3 Display Bridge details the elements of the **Display Bridge** of the *DA7*. The **Display Bridge** is your "window" to the features, functions, and tools of the mixer.

Section 2-4 Rear Panel describes the items and connections of the *DA7* Rear Panel. As with the section on the Top Panel, general information on the Rear Panel connections is provided, along with references to the appropriate chapters for more detailed information.

2-2 Top Panel

The illustrations on this page and the next depict the Top Panel of the DA7. The number assignments are reflected on the Top Panel cutaway view on page 2-4. Page 2-5, adjacent to the cutaway view, provides the numbering key descriptions for the Top Panel sections.

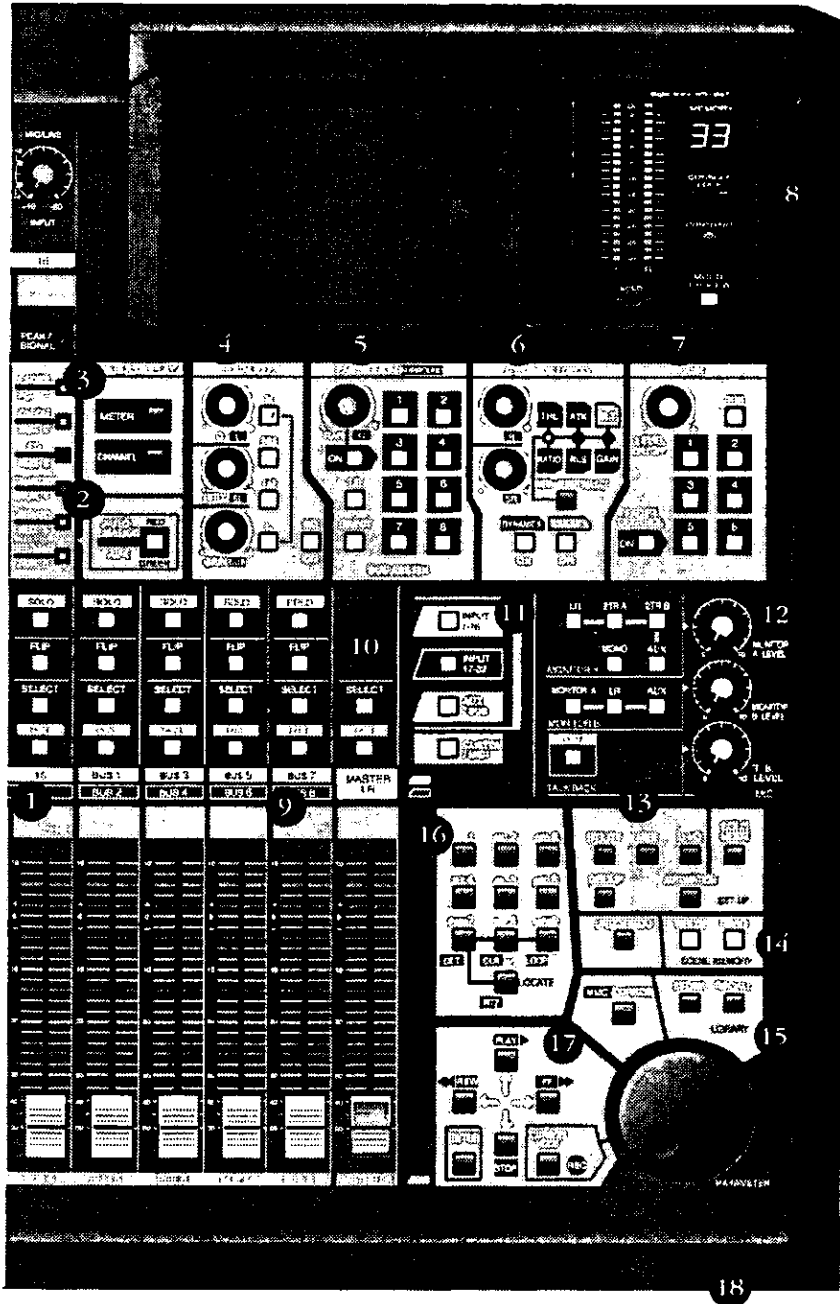


DA7 Top Panel

Illustrated Guide

Explanations of the numbered sections begins on the next page.

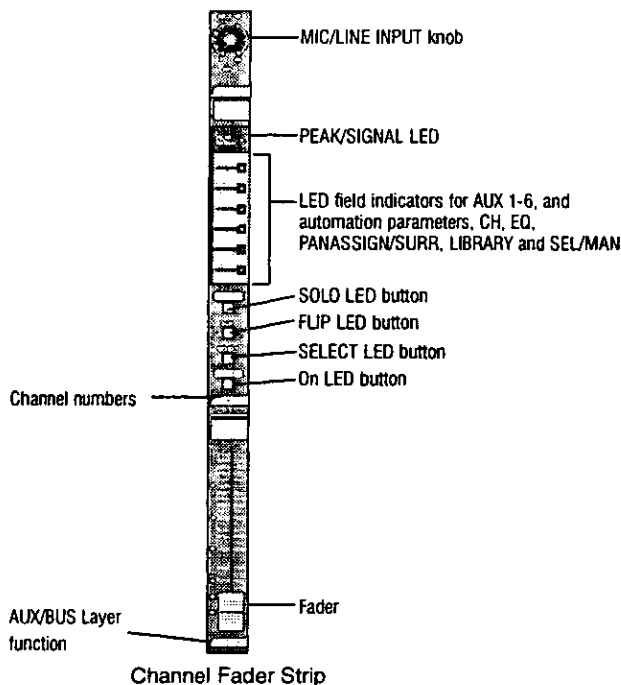
2 DA7 Tour



DA7 Top Panel

- 1 **Channel Strip** – input gain controls with channel control and status indicators. Also called a **Channel Fader Strip**.
- 2 **AUTOMATION/AUX LED** button – selects the display mode of the Channel Strip LED field indicators.
- 3 **MASTER DISPLAY** section – the **METER** and **CHANNEL** buttons are direct buttons to the respective LCD screen windows.
- 4 **EQUALIZER** section – controls for setting the equalization parameters for a selected channel.
- 5 **PAN/ASSIGN/SURROUND BUS ASSIGN** section – controls for setting the pan attribute and bus assignments for a selected channel.
- 6 **DYNAMICS/DELAY** section – controls for defining the onboard mixer processing characteristics for a selected channel.
- 7 **AUX** section – controls for routing channels to auxiliary processing devices and for defining the processing as either pre-fader or post-fader.
- 8 **Display Bridge** – contains the LCD screen, L/R meter display, and primary mixer display status indicators.
- 9 **BUS Fader Strip** – fader controls for BUS-assigned channel selections.
- 10 **MASTER L/R Fader Strip** – fader control for **MASTER** output gain.
- 11 **Fader Layer** section – selections for current fader assignment.
- 12 **MONITOR** section – volume and selection controls for monitoring.
- 13 **SETUP** section – mixer function, or display control buttons.
- 14 **SCENE MEMORY** section – buttons for writing and reading mixer setups.
- 15 **LIBRARY** section – buttons for storing and recalling effects setups.
- 16 **Keypad** – alphanumeric keys for entering numbers or text to various libraries.
- 17 **Cursor Control** section – buttons and controls for defining the **CURSOR** actions.
- 18 **Headset Control** section – the connection location for a headset to the **DA7** is immediately below the right front edge of the Top Panel.

1 Channel Fader Strip



There are sixteen **Channel Fader Strips** on the *DA7*. In conjunction with the **Fader Layer** controls, each strip directly controls two **INPUT** connections, the **AUX/BUS** function indicated on the bottom of the strip, and a user **CUSTOM/MIDI** function.

The **MIC/LINE INPUT** knob varies the channel input gain volume and adjusts for either a mic-level input or line-level input. There is no pad switch; the input knob range sets the input level.

The **PEAK/SIGNAL** LED indicates when an input signal is present (*green*), and when the input signal level is too high (*red*).

The LED field indicators reflect the various auxiliary (**AUX**) routing assignments and automation parameters for the input sources. The LED color signifies the **AUTOMATION/AUX** button selection; **AUX** (*green*), **AUTOMATION** (*red*).

The **SOLO** LED button toggles on (*red*) or off. When on, the channel output will be routed to the **MONITOR A** speakers overriding the **MONITOR A** input, and to the headphones.

The **FLIP** LED button flips the control of the **Channel Fader Strip** from one input layer to the other. The LED color indicates the current input selection and matches the **Fader Layer** control LED button colors, **INPUTS 1-16** (*green*) or **INPUTS 17-32** (*red*).

The **SELECT** LED button, when on (*orange*), identifies the channel as the current channel selected. Only one **Fader Strip** can be selected at a time unless it's in stereo or link mode.

See **Chapter 5, Channel, Library, and Meter Windows**.

The **ON** LED button toggles on (*red*) and off. When on, the channel output is active.

There are two channel numbers for each strip, indicating the **INPUT** connections on the Rear Panel of the *DA7* for the strip.

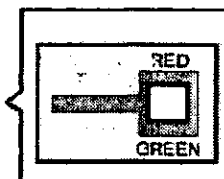
The fader is raised or lowered to set the output gain of the selected channel.

See **Chapter 16 Utility** for additional information.

The **AUX/BUS** label at the bottom of a **Channel Fader Strip** indicates its function when the **AUX/BUS Fader Layer** control is selected.

See **Chapter 6, Fader Layers and Channel Strips** for additional information.

2 AUTOMATION/AUX LED Button

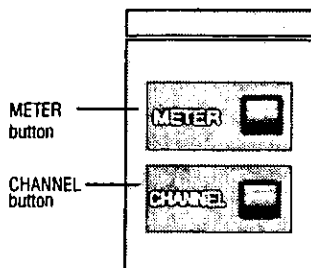


AUTOMATION/AUX LED Button

The **AUTOMATION/AUX** LED button toggles the display of the **Channel Fader Strips** LED field indicators. The LED color indicates the current selection.

See **Chapter 14 Automation** and **Chapter 10 AUX** for additional information.

3 MASTER DISPLAY Section



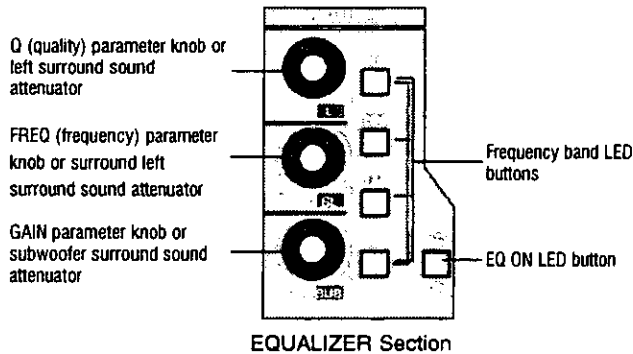
MASTER DISPLAY Section

Pressing the **METER** button will display the **[METER]** window group on the LCD screen in the **Display Bridge**. Pressing the **METER** button again will cycle the three window selections: **[METER INPUTS 1-32]**, **[BUS/AUX]**, **[SLOT/AUTO]**.

Pressing the **CHANNEL** button will display the **[CHANNEL]** window group on the LCD screen in the **Display Bridge**. The window displayed will reflect the current mixer strip selected, as well as the current window selection button at the bottom of the window. Pressing the **CHANNEL** button again will cycle between the two window selections: **[CHANNEL]**, **[CHannel LIBrary]**.

See **Chapter 5 Channel, Library, and Meter Windows** for additional information.

4 EQUALIZER Section



There are three parameter knobs and four frequency range LED buttons in the **EQUALIZER** section, which are used to modify the frequency characteristics of the currently selected channel. The **EQ ON** LED button toggles the **EQUALIZER** on (*green*) and off. When the controls are active, frequency adjustments can be made to the currently selected channel.

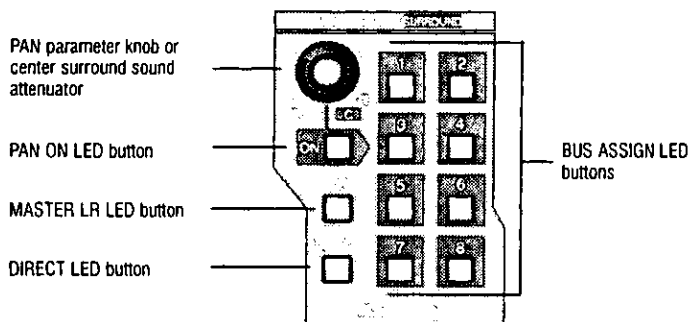
The three knobs are labeled **Q** (quality), **FREQ** (frequency), and **GAIN** (gain). The additional labeling of **[L]** (left), **[SL]** (surround left), and **[SUB]** (surround subwoofer) indicate the surround sound parameters that are controlled by the knobs when the **[SURROUND]** window is displayed.

The four frequency band LED buttons toggle on (*green*) and off, and are labeled **H** (high), **HM** (high-mid), **LM** (low-mid), and **L** (low).

Pressing the **GAIN** knob displays the **[EQUALIZER]** window group on the LCD screen. Pressing the **GAIN** button again will cycle between the two window selections: **[EQUALIZER]**, **[Equalizer LIBrary]**.

The **EQUALIZER** section is detailed in **Chapter 7** and the surround sound capabilities are discussed in **Chapter 8**.

5 PAN/ASSIGN/**SURROUND**, BUS ASSIGN Section



PAN/ASSIGN/**SURROUND**, BUS ASSIGN Section

Pan level, bus assignment, and surround sound parameters for the selected channel is set within this area. The pan control is always active for the **LR** bus, so you do not need to activate the **ON** button to pan across the Master stereo out. However, if you wish to pan between odd/even buses, you must push the **ON** button. Assignment to the **DIRECT** output is not affected by the pan control.

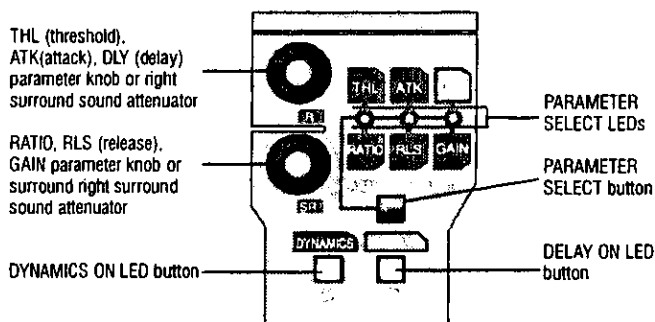
The additional labeling of **[C]** (center) indicates the surround sound parameter that is controlled by the knob when the **[SURROUND]** window is displayed.

The **LR**, the **DIRECT**, and the **BUS ASSIGN** LED buttons toggle on (*green*) and off. In addition to the eight bus selections, labeled **1 - 8**, selections for **LR** (master LR) output and **DIRECT** output are available. The **DIRECT** output works in conjunction with the option cards installed in the **DA7** Rear Panel, routing selected sources directly to the devices connected to the cards. The **DIRECT** output is detailed in **Chapter 12 D-I/O** (Digital Input/Output).

Pressing the **PAN** knob displays the **[PAN/SURROUND]** window group on the LCD screen. Pressing the **PAN** knob again will cycle through the three window selections: **[PAN1-16]**, **[PAN17-32]**, **[SURROUND]**. The surround sound function is activated in the **[SURROUND]** window of the **[PAN/SURROUND]** window group.

The **PAN/ASSIGN/SURROUND**, **BUS ASSIGN** section of the Top Panel is detailed in **Chapter 8**.

6 DYNAMICS/DELAY Section



DYNAMICS/DELAY Section

DYNAMICS/DELAY processing can be added to each of the **DA7 Channel Faders**. Pressing the **PARAMETER SELECT** button cycles the current parameter selections, which are grouped in pairs. The top knob adjusts the top parameter selection in the pair, and the bottom knob adjusts the bottom parameter selection in the pair. The **DYNAMICS ON LED** button toggles the dynamics processing attribute on (*green*) and off for the selected channel, and the **DELAY ON LED** button toggles the delay attribute for the processing on (*green*) and off.

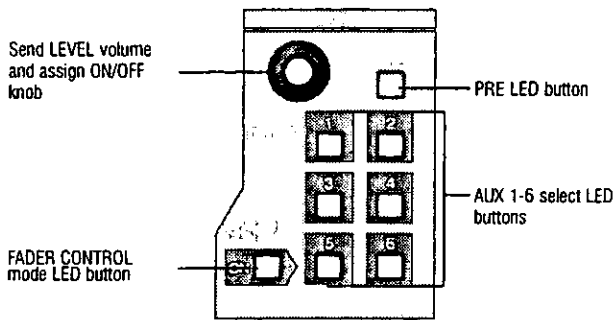
The additional labeling of **RR** (right) and **SR** (surround right) indicates the surround sound parameters that are controlled by the knobs when the **[SURROUND SOUND]** window is displayed. The surround sound function is activated in the **[SURROUND]** window of the **[PAN/SURROUND]** window group.

See **Chapter 8** for more information on surround sound.

Pressing the bottom knob displays the **[DYNAMICS]** window group on the LCD screen. Pressing the bottom knob again will cycle the window selections: **[DYNAMICS]**, **[DYNamics LIBrary]**.

For more information on the **DYNAMICS/DELAY** section of the Top Panel, see **Chapter 9**.

7 AUX Section



AUX Section

This section of the Top Panel contains controls for routing selected channels from/to outboard auxiliary processing and/or recording devices. These six aux routes are independent of the channel input connectors on the Rear Panel of the *DA7* and greatly expand the flexibility of the mixer. They can be used as six mono sends, or in stereo pairs (such as 1&2, 3&4, 5&6), and six mono returns or stereo pairs. There are two digital aux routes, **AUX 1/2**, and four analog aux routes, **AUX 3/4** and **AUX 5/6**. These are paired for convenience on the Rear Panel connectors.

With a channel selected, press an **AUX 1-6 LED button** (*green*) to select which aux route you wish to assign for the channel. The **LEVEL** knob performs two functions. By pressing the knob, you will assign the channel to the selected aux route, and by turning the knob, you can adjust the individual channel output to the aux selection. The LED field of the **Channel Fader Strips** will reflect the aux assignments for the channels.

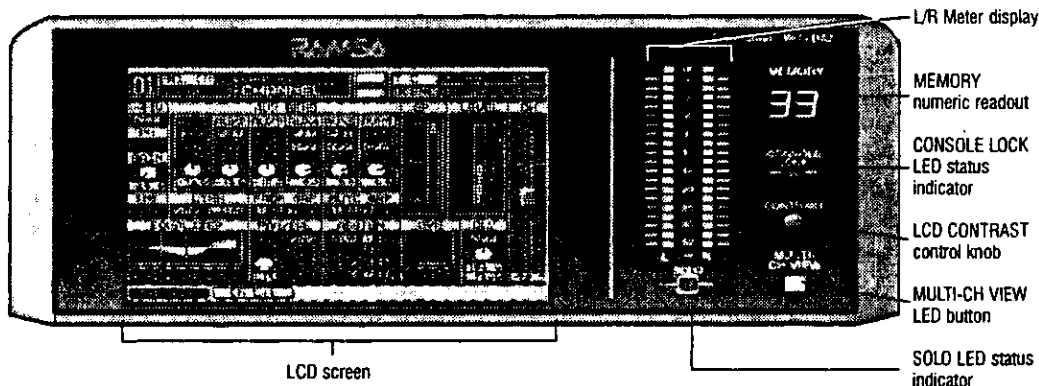
Aux routing is defaulted to a post-fader condition for the selected channel. Press the **PRE LED button** to select it (*red*) and change the aux routing function to a pre-fader condition.

Press the **FADER CONTROL LED button** to select it (*red*) and display the **[FADER CONTROL]** window group on the LCD screen. The window displayed will be determined by the current **AUX 1-6 LED button** selection. The channel fader status of the 32 input channels for the aux selected will be reflected in the **[FADER CONTROL]** window, and the **Channel Faders** will reset to their respective level positions for the aux selected.

The **AUX/BUS** designations at the bottom of the **Channel Fader Strips** identify the strip functions when the **Fader Layer AUX/BUS LED button** is pressed.

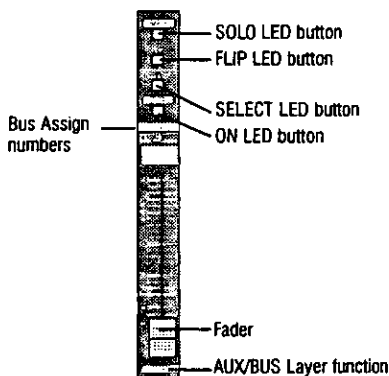
For more information on the **AUX** section of the Top Panel see **Chapter 10**.

8 Display Bridge



The **Display Bridge** contains the primary indicators for the current status of the **DA7** and the LCD screen. The various windows for the functions and features of the mixer are displayed on the LCD screen. Details on the elements in the **Display Bridge** of the **DA7** are discussed in **Section 2-3** of this chapter, beginning on page 2-20.

9 BUS Fader Strip



BUS Fader Strip

There are four **BUS Fader Strips** on the **DA7**. In conjunction with the **Fader Layer** controls, each strip directly controls the **BUS** outputs, or the **AUX/BUS** functions which are indicated on the bottom of the strip or a user **CUSTOM/MIDI** function.

The **SOLO** LED button toggles on (*red*) or off. When on, the selected bus output will be routed to the **MONITOR A** speakers and headphones, overriding the previous input.

There are two bus numbers for each strip, indicating the **BUS ASSIGN** selections that can be controlled by the strip.

The **FLIP** LED button flips the **BUS Fader Strip** from controlling one bus to controlling the other bus for the strip. The LED color (*red or green*) indicates the current bus selection.

The **SELECT** LED button, when on (*orange*), identifies the bus strip as the current bus strip selected. Only one **BUS Fader Strip** can be selected at a time.

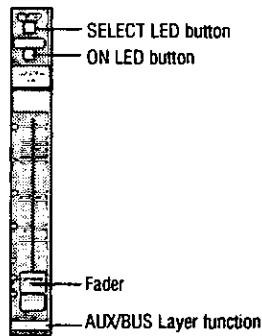
The **ON** LED button toggles on (*red*) and off. When on, the bus output is active.

The fader is raised or lowered to set the output gain of the bus.

The **AUX/BUS** indication at the bottom of the **BUS Fader Strip** indicates the strip function when the **AUX/BUS Fader Layer** control is selected.

See **Chapter 6 Fader Layers and Channel Strips** for additional information.

10 MASTER LR Fader Strip



MASTER LR Fader Strip

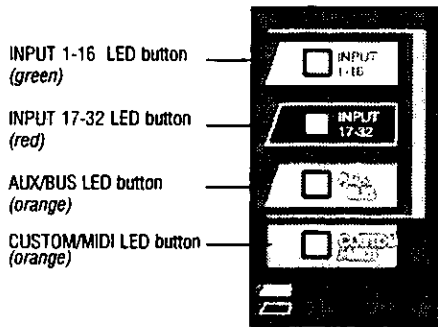
The **MASTER LR Fader Strip** controls the **DA7** master LR output. This is the primary output for the mixer.

The **SELECT** LED button, when on (*orange*), identifies the strip as the current fader strip selection.

The **ON** LED button toggles on (*red*) and off. When on, the master output is active.

See **Chapter 6 Fader Layers and Channel Strips** for additional information.

① Fader Layer Controls Section



Fader Layer Controls Section

The **Fader Layer** controls significantly expand the flexibility of the **DA7** mixer. The LED button selections define the current function for the fader strips. Through the use of the **Fader Layer** controls, the user can quickly configure and modify the fader setups and mixer settings, tailoring the functions to suit the production tasks.

LED button colors for the **Fader Layer** controls are integrated with the fader strips to assist you in determining or checking the current channel and bus fader settings on the mixer.

INPUT 1-16, when selected (*green*), resets the fader strips to control channel inputs 1 through 16, and buses 1, 3, 5, and 7. When selected, the faders shift to the respective positions reflecting the current settings for the layer, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press the **INPUT 1-16 Fader Layer** control button a second time.

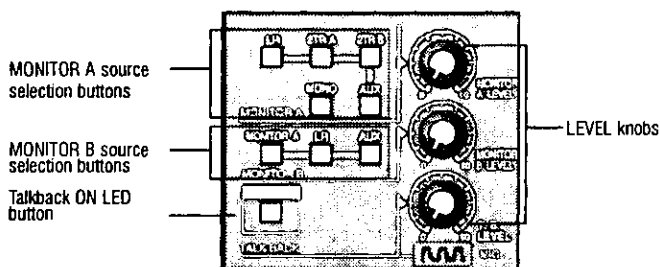
INPUT 17-32, when selected (*red*), resets the fader strips to control channel inputs 17 through 32, and buses 2, 4, 6, and 8. When selected, the faders shift to the respective positions reflecting the current settings for the layer, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press the **INPUT 17-32 Fader Layer** control button a second time.

AUX/BUS, when selected (*orange*), resets the fader strips to control the aux sends, aux returns, and bus outputs, while the faders shift to the respective positions reflecting the current fader settings for the layer.

CUSTOM/MIDI is a user-definable **Fader Layer** control, where all the functions are selectable.

See **Chapter 11 MIDI** for more information on the **DA7** MIDI feature, and **Chapter 6** for additional information on **Fader Layers** and **Channel Strips**.

12 MONITOR Section



MONITOR Section

The **DA7** provides controls for two monitor outputs and an operator talkback circuit. There are source selection LED buttons for the **MONITOR A** and **MONITOR B** outputs, and **LEVEL** knobs for both of the monitor outputs and the talkback circuit.

MONITOR A Controls

The **MONITOR A** selection LED buttons route the input selected (*green*) to the **MONITOR A OUTPUT (CR)** (Control Room) connections on the Rear Panel of the mixer and to the headphones. The selections are:

- **LR** routes the **MASTER LR** output to the monitors.
- **2TR A** routes the device output that is connected to **2TR A IN** on the Rear Panel to the monitors.
- **2TR B** routes the device output that is connected to **2TR B IN** on the Rear Panel to the monitors.
- **AUX** routes the **AUX SEND** outputs to the monitors. Press the **AUX** LED button to monitor the selections, beginning with **AUX SEND 1/2**, followed by **AUX SEND 3/4**, and **AUX SEND 5/6**. The **MEMORY** numeric readout on the **Display Bridge** will momentarily display the **AUX SEND** selections.

The **MONO** button, when on (*red*), sums the selected input and sends a monaural signal to the monitors. This will not affect the LR output stereo signal.

MONITOR B Controls

The **MONITOR B** selection LED buttons route the input selected (*green*) to the **MONITOR B OUTPUT (STUDIO)** connections on the Rear Panel of the mixer. The selections are:

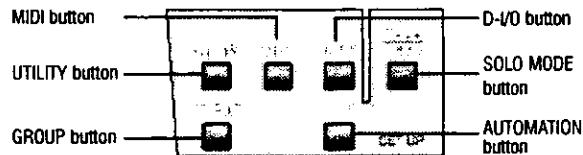
- **MONITOR A** routes the current **MONITOR A** selection to the studio monitors.
- **AUX** routes the **AUX SEND** outputs to the monitors. Press the **AUX** LED button to monitor the selections beginning with **AUX SEND 1/2**, followed by **AUX SEND 3/4**, and **AUX SEND 5/6**. The **MEMORY** numeric readout on the **Display Bridge** will momentarily display the **AUX SEND** selections.

TALKBACK Circuit

The **TALKBACK ON** button controls the talkback microphone installed in the Top Panel of the *DA7*. When on (*green*), the MIC is active and the **MONITOR A** speakers will be dimmed. This can be either a “push-to-talk” momentary interrupt type button, or a “push on/push off” type button. Utility settings allow you to determine the talkback functions, output, and button characteristics.

For additional information on the talkback circuit, see **Chapter 16 Utility**.

16 SETUP Section



SETUP Section

These are direct-action buttons that will display the respective windows in the LCD screen of the **Display Bridge**.

UTILITY Button

Pressing the **UTILITY** button will display the [**UTILITY**] window group on the LCD screen in the **Display Bridge**. The window displayed will be determined by the window selection buttons at the bottom of the window. Pressing the **UTILITY** button again will cycle the window selections: [**SOLO/MONitor**], [**OSC_BATT**], [**CONFIGuration**], [**USER CuSTom**].

See **Chapter 16 Utility** for additional information.

MIDI Button

Pressing the **MIDI** button will display the **[MIDI]** window group on the LCD screen in the **Display Bridge**. Pressing the **MIDI** button again will cycle the window selections: **[SETUP]**, **[PRoGram ASSiGN]**, **[ConTRoL ASSiGN]**, **[BULK]**, **[REMOTE]**.

See **Chapter 11 MIDI** for additional information.

D-I/O Button

Pressing the **D-I/O** button will display the **[D-I/O]** (Digital Input/Output) window group on the LCD screen in the **Display Bridge**. Pressing the **D-I/O** button again will cycle the window selections: **[INPUT SET]**, **[TO SLOT]**, **[DITHER]**.

See **Chapter 12 Digital I/O** for additional information.

GROUP Button

Pressing the **GROUP** button will display the **[GROUP]** window selections on the LCD screen in the **Display Bridge**. Pressing the **GROUP** button again will cycle the window selections: **[FADER GRouP]**, **[MUTE GRouP]**, **[STEREO]**.

See **Chapter 13 GROUP** for additional information.

AUTOMATION Button

Pressing the **AUTOMATION** button will display the **[AUTOMATION]** window group on the LCD screen in the **Display Bridge**. Pressing the **AUTOMATION** button again will cycle the window selections: **[EXECUTE]**, **[EVENt EDIT]**, **[SETUP]**.

See **Chapter 14 AUTOMATION** for more information.

SOLO MODE Button

This button is a shortcut to the **[SOLO/MON]** window in the **[UTILITY]** window group.

See **Chapter 16 Utility** for more information.

14 SCENE MEMORY Section



SCENE MEMORY Section

SCENE MEMORY allows you to store and recall complete mixer setups and functions. There are fifty registers, numbered 01 through 50, available for storage of mixer settings.

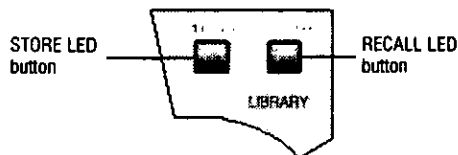
Press either the **WRITE LED** button or the **READ LED** button to select it (*orange*) and display the **[Read/WriTe]** window of the **[SCENE MEMORY]** window group on the LCD screen of the **Display Bridge**. There are two windows in the group: **[RD/WT]**, **[FADE TIME]**. The **[RD/WT]** window is always the initial window displayed when either button is selected. To change to the **[FADE TIME]** window, use the **ARROW** buttons to navigate to the respective window selection button and then press **ENTER**, or press either the **WRITE** or **READ LCD** buttons a second time.

When the **[RD/WT]** window is displayed, the **JogDial** is initially enabled to scroll the **[SCENE MEMORY]** list area of the window. This allows you to quickly access a previously stored register, locate an empty register, or locate a register to be overwritten. Pressing the **READ** button after a register has been located will activate the settings that had been stored at the memory location, and the mixer will immediately assume the state for the parameters recalled. The **MEMORY** readout display will flash the register number as the settings are being recalled before steadily displaying the scene memory location address.

While the **[RD/WT]** window is displayed, pressing the **WRITE** button will immediately overwrite the current register number with the settings on the mixer at the moment the **WRITE** button is pressed, unless the register is write-protected.

See **Chapter 15 Scene Memory** for additional information.

15 LIBRARY Section



LIBRARY Section

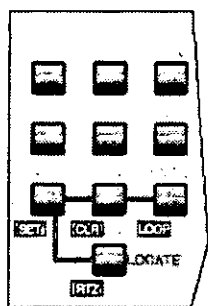
There are three mixer functions with associated libraries: **CHANNEL**, **EQUALIZER**, **DYNAMICS/DELAY**. The library feature allows you to store and recall individual function parameters to a separate function library. There are fifty registers for each library, numbered 01 through 50.

The **RECALL** button opens the library window for the selected function. Once a register has been located, press the **RECALL** button again to reset the current function to the settings stored in the register.

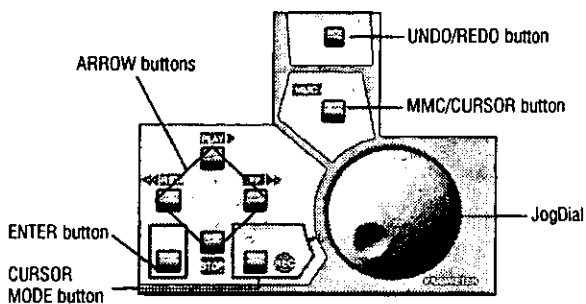
While the function library is displayed, pressing the **STORE** button will immediately store the current function settings to the current register location, unless the register is write-protected.

See the individual function chapters for additional information on the **LIBRARY** feature.

16 Keypad and 17 Cursor Control Section



Keypad



Cursor Control Section

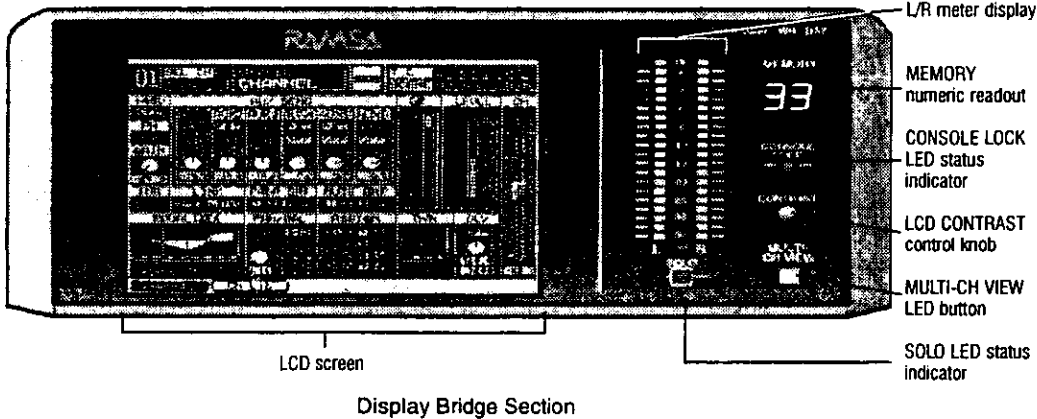
Details on the **Keypad**, **UNDO/REDO** button, **MMC/CURSOR** button, **ARROW** buttons, **ENTER** button, **CURSOR MODE** button, and **JogDial** elements of the **DA7** Top Panel are provided in **Chapter 4** of the manual.

18 Headset Control Section

A stereo headset connector and headset volume control are located under the right front edge of the Top Panel of the **DA7**. The current **MONITOR A** selection is always routed to the headset connector.

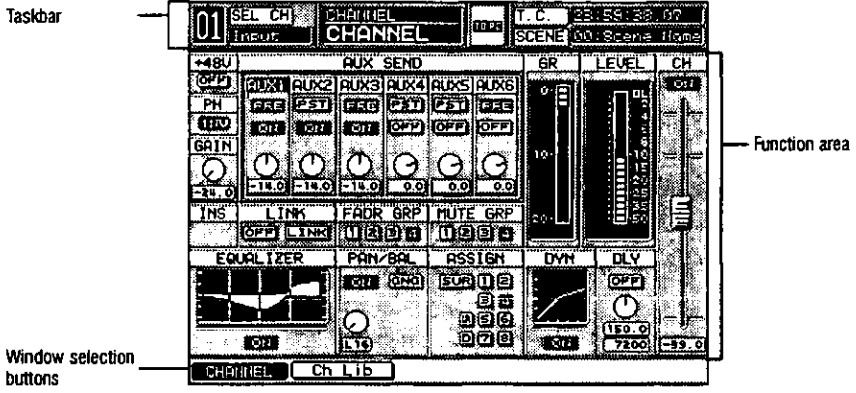
2-3 Display Bridge

2 DAY TOUR



The **Display Bridge** for the **DA7** is your "window" to the mixer functions and features. The elements comprising the **Display Bridge** are the LCD screen, the **L/R** meter display, the **MEMORY** numeric readout, the **CONSOLE LOCK** LED status indicator, the **CONTRAST** control knob, the **MULTI-CH VIEW** (multi-channel) LED button, and the **SOLO** LED status indicator.

LCD Screen

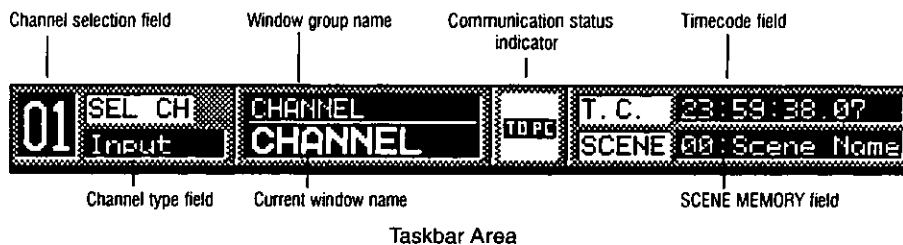


Sample Window Display (CHANNEL window displayed)

The LCD screen is the 320x240 backlit liquid-crystal display (LCD) element of the **Display Bridge**. The screen displays the various windows that reflect the tools and functions of the **DA7**. The windows contain areas and items that can be accessed with the various **CURSOR** control tools and that reflect the various operational states of the functions of the mixer.

There are three general areas for the windows displayed on the LCD screen: the **[taskbar]** area, the **[function]** area, the **[windows selection buttons]** area.

Taskbar Area



The **[taskbar]** area of a window contains information about the current window and the most recent mixer selections. Several of the items in the **[taskbar]** may remain unaffected when you change to another window, depending on the new window selection.

Channel Selection Field

This field reflects the most recently selected **Channel**, **BUS**, or **MASTER L/R** strip selection. When buses are paired, the field will reflect both numbers. The field will update when you press a **SELECT** LED button on the Top Panel.

Channel Type Field

This field reflects the most recently selected channel type. The field will update when you press a **SELECT** LED button on the Top Panel.

Window Group Name

The current window group name is displayed in this field.

Current Window Name

The name of the current window is displayed in this field.

Communication Status Indicator

This area of the **[taskbar]** displays the current communication status as configured in the **[MIDI>SETUP]** window. The selections are either **[TO PC]**, **[S I/O]**, or **[MIDI]**.

Timecode Field

This field reflects the most recent time code value executed with the mixer, as defined by the settings in the **[AUTOMATION>EXECUTE]** window.

SCENE Field

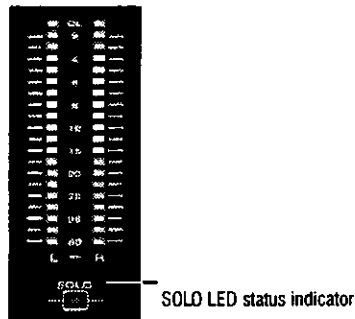
This field reflects the most recently read **SCENE MEMORY** register number and name.

Function Area

The **[function]** area of a window contains the various controls, buttons, settings, and values for the current window.

Window Selection Buttons Area

This area of a window contains the buttons for the windows that comprise the current window group. The button for the current window will be highlighted.

L/R Meter Display

L/R Meter Display

This meter reflects the current **MASTER LR** (left/right) output of the *DA7*, unless **SOLO** has been activated for a channel. If a **SOLO LED** button is selected on the mixer, the meter reflects the level of the solo'd channel(s) only.

In the **[METER>SLOT/CLIP]** window, the **[RESPONSE]** area lets you select between **[VU]** (Volume Units) and **[PPM]** (Pulse Position Modulation). When **[VU]** is selected, the **L/R Meter Display** will show the mixer output in Volume Units, and when **[PPM]** is selected, the Meter reflects the mixer output as Pulse Position Modulation.

SOLO LED Status Indicator



SOLO LED Status Indicator

Located below the **L/R** meter display, the **SOLO** LED status indicator will be illuminated (*red*) when **SOLO** has been activated for a channel on the mixer.

MEMORY Numeric Readout



MEMORY Numeric Readout

The two-digit numeric readout reflects the most recently accessed **SCENE MEMORY** register. Whenever an **AUX** monitoring selection button is activated for either **MONITOR A** or **MONITOR B**, the numeric display will momentarily display the **AUX** selections.

Also, whenever the **MMC/CURSOR** button is in **MMC** mode, the numeric readout will be reduced in height to one-half of the normal display size.

CONSOLE LOCK LED Status Indicator



CONSOLE LOCK LED Status Indicator

When illuminated (*red*), the password protection for an area or function of the mixer is engaged, and mixer operations cannot be performed.

See *Section 16-3, [UTILITY>CONFIG] Window* for more information.

CONTRAST Control Knob



CONTRAST Control Knob

This knob controls the contrast value of the LCD screen. Rotate the knob to adjust the contrast value of the LCD screen for optimum viewing and to suit the operating environment.

MULTI-CH VIEW LED Button



MULTI-CH VIEW LED Button

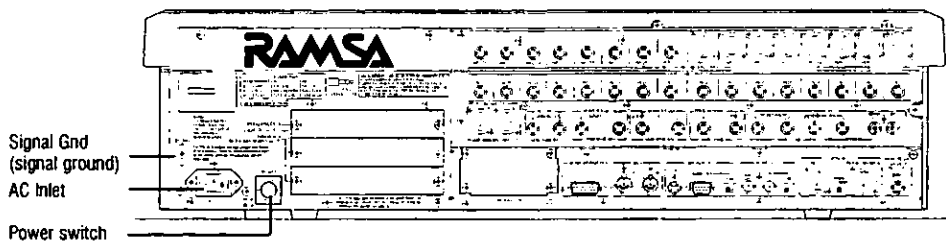
Press this LED button to activate the multi-channel viewing mode for the LCD screen. When on (red), the LCD screen will display the currently selected **Channel Fader** and one of 53 other sources that can be used to compare or copy information from/to the current selection.

See **Chapter 5 Channel, Library, and Meter Windows** for more information.

2-4 Rear Panel

Everything that goes in, out, and through the *DA7* happens on the Rear Panel, with the exception of the headphone connector. Let ingenuity be your guide. The *DA7* provides multiple ways for doing many things, so mix and match, explore, and let your imagination fly.

The rear of the *DA7* is configured in four rows. The top row contains analog **INPUTS 1-16** (inputs 1-8 are balanced XLR connectors and inputs 9-16 are balanced TRS (tip-ring-sleeve) phone plug connectors). Row 2 contains analog **INS 1-16** (inserts) (TRS phone plug connectors). Row 3 contains outputs for **MASTER OUT**, **REC OUT** analog, **MONITORS A&B**, and **AUX** returns and sends 1 through 6. The bottom row contains the **METER BRIDGE** connection, **MIDI IN/OUT**, **SERIAL PORT** (for direct connection to a PC or a Macintosh computer), **WORD CLOCK IN/OUT**, **DIGITAL IN/OUT**, and a **FOOT SW** (foot switch) connector.



DA7 Rear Panel

Power Switch

Turns the power on and off to the *DA7*.

AC Inlet

Plug the AC power cord here.

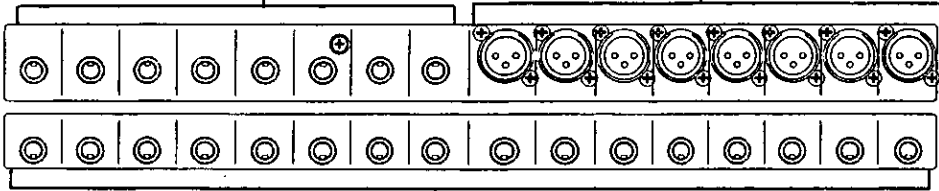
Signal Ground [SIGNAL GND]

Connect to a grounded source to stabilize the voltage levels of the connected devices, and to prevent hum and buzz created by ungrounded sources.

Rows 1 & 2 Connectors

Inputs 9-16 (TRS). Use these for balanced -60 to +10 signals

Inputs 1-8 (XLR). Use these for balanced -60 to +10 signals. Phantom powered



Channel 1-16 Inserts. These are TRS send and return connectors.

Cutaway of DA7 Rear Panel (Rows 1 and 2) Input and Insert Connectors

Connectors in these two rows are numbered from right to left on the Rear Panel.

INPUTS 1-8

These inputs are designed for XLR connectors. The input range is from -60dB to +10dB, 5k Ω BAL. Use the **MIC/LINE INPUT** knobs on the **Channel Strips** for adjustment of the incoming level. From the [CHANNEL] window, the +48V phantom power can be individually turned on or off via the screen.

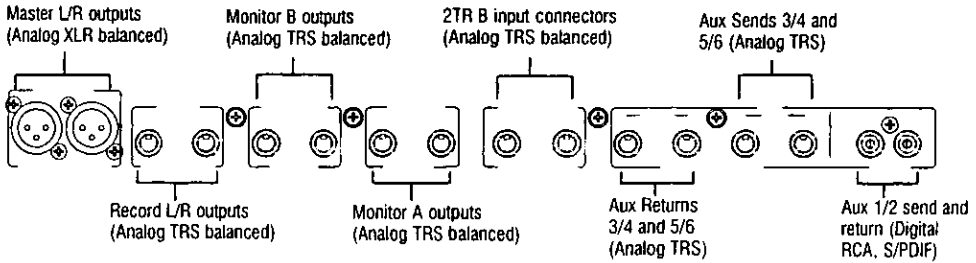
INPUTS 9-16

Use these inputs with a 1/4" TRS (tip-ring-sleeve) phone plug connector. Use the **MIC/LINE INPUT** knob to adjust the input level. The input range is from -60dB to +10dB, 5k Ω BAL. There is no +48V phantom power choice. Microphones used on these inputs must supply their own power.

INSERTS 1-16

These inserts are used for creating an effects loop. A 1/4" TRS phone plug, with a level of +4 dB, 10k Ω UNBAL, provides an output (tip) send to effects, or an input (ring) return from an outboard effects device.

Row 3 Connectors



Cutaway of DA7 Rear Panel (Row 3) Output Connectors

AUX SEND 1/2

Use RCA connectors to attach a digital effects device or another S/PDIF device to the **AUX SEND 1/2** and **AUX RETURN 1/2** digital terminals. **AUX/BUS Fader Layer** faders control the **AUX 1/2 SEND** and **RETURN**.

AUX SEND 3/4, 5/6

These terminals are 1/4" TRS phone plug connectors, at a level of +4dB, 10k Ω UNBAL. They can be used for attaching an outboard effects device for sending a feed to a stage monitor, or as part of a multitrack output setup. The **AUX/BUS Fader Layer** is the fader control for these connections.

AUX RETURN 3/4, 5/6

These terminals are 1/4" TRS phone plug connectors, at a level of +4dB, 10k Ω UNBAL. They can be used for attaching an outboard effects device. The **AUX/BUS Fader Layer** is the fader control for these feeds.

2-Track B Input

Connect an analog source strictly for monitoring purposes, as it does not appear as an input to the mixer. Connect a 1/4" TRS phone plug to the output signal from a cassette deck, for example. The input signals are sent to the **2 TR B IN** LED button in the monitor section. The level is +4dB, 10k Ω BAL.

Monitor A Out

These terminals are 1/4" TRS dual phone plugs at a level of +4dB, 600 Ω BAL, and connect the output of the **MONITOR A** source selection to an external amplifier for monitoring in the control room (**CR**).

Monitor B Out

These terminals are 1/4" TRS dual phono plugs at a level of +4dB, 600Ω BAL, and connect the output of the **MONITOR B** source selection to an external amplifier for monitoring in the studio.

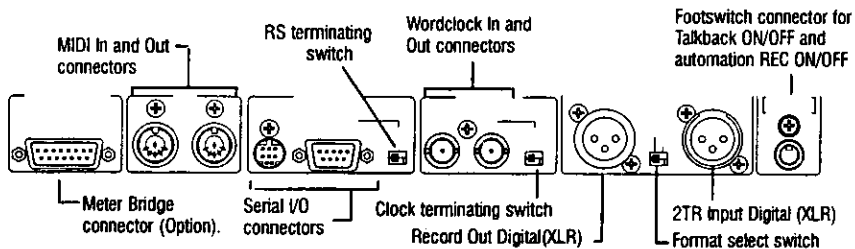
[REC OUT] Record Output

Use 1/4" TRS phone plugs, at a level of +4dB, 10kΩ BAL, to output signals for recording.

Master Output

Female XLR connectors send the **MASTER LR** program output to external speakers and/or a recording device of +4 dB, 600Ω BAL.

Row 4 Connectors



Cutaway of DA7 Rear Panel Row (4) Digital and Serial Connectors

Foot SW [Switch]

Connect a momentary or press-to-talk foot switch with a 1/4" TS phone plug for **TALKBACK** or automation record functions. Parameters are assignable in the **[UTILITY>MON SETUP]** window.

Digital Input [AES/EBU]

An XLR connector inputs an audio signal from a DAT or other digital source. Assignments can be made from the **[D-I/O>INPUT SET]** window. This incoming source can be monitored by selecting the 2TR A LED button as the **MONITOR A** source selection, or, on **Channel Faders 15 and 16**, when 2TR A is assigned in the **[D-I/O>INPUT SET]** window. The incoming source can also be directly assigned to the **MASTER LR** program output.

Digital Record Output [AES/EBU]

XLR connections of the **MASTER LR** digital output are for use in recording by a digital device with XLR digital input capabilities.

Format Select Switch

This switch is used to select the signal format of the connected device, either AES/EBU or S/PDIF. The digital input and output are both switched. For S/PDIF usage, an optional adapter is required.

Clock Terminating Switch

Next to the **WORD CLOCK IN** BNC connection, this 75 Ω **OFF/ON** switch is set to **ON** if the *DA7* is not the master clock source.

Clock Input

This is used to synchronize the *DA7* to an external word clock source. This allows the *DA7*'s internal clock to slave to another reference, such as a digital multi-track deck or other device. Use a BNC connection to attach an external wordclock source.

Clock Output

This is used to slave an external device, such as a digital multi-track machine, to the *DA7* internal clock. Using a BNC connector, other devices can synchronize to the *DA7* wordclock.

Serial Terminating Switch

Set the switch to **ON** if the *DA7* is the termination point of the RS-422/485 serial transmission path. The 110 Ω switch turns this function **OFF/ON**.

Serial Port [RS-422/485]

Use this serial port to connect an IBM compatible computer having an RS-422/485 port. Connect to the *DA7* with a D-SUB 9-pin connector.

Serial Port [TO PC]

This is where the host personal computer (Mac) is attached. Remote control software on the Mac can be used to control different MIDI and automation operations on the *DA7*.

MIDI IN

This is used to receive signals from peripheral MIDI devices. MIDI is an acronym which stands for Musical Instrument Digital Interface. It is an industry standard for communications between, not only musical instruments with this interface standard, but a variety of peripheral gear (keyboards, effects, digital recorders, digital mixers like the *DA7*, and even lighting consoles).

MIDI OUT

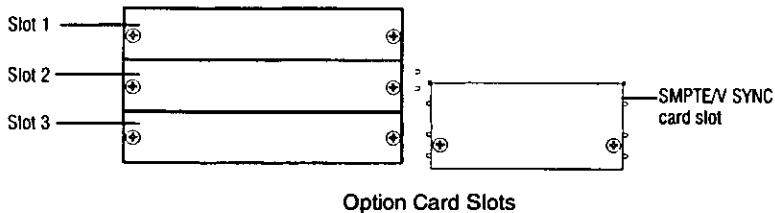
This sends signals to peripheral MIDI devices. The *DA7* can be used as a

controller for various MIDI devices.

METER BRIDGE Connector

This connects the Meter Bridge to the *DA7*.

See **Chapter 17 Options** for more about the Meter Bridge.



Option Card Slots

There are three slots for option cards, and one dedicated slot for the **SMPTE/V SYNC** card. The slots are located next to the **POWER** switch. The space for the **SMPTE/ V SYNC** card is located directly under the **MASTER OUT XLR** connectors. The other option cards can be used in any of the three slots, but for **TANDEM** operation, the **TANDEM** card must be in **SLOT 3**.

Video Sync Input [V SYNC]

This connects a vertical synchronizing signal from a video device.

See **Chapter 17 Options** for more about SMPTE/V SYNC.

Digital I/O Slot 1 [CH17-24/SLOT 1]

When an option card is in Slot 1, the output of the selected device is connected to the *DA7* through **Channel Faders 17 through 24**, and is controlled through **Fader Layer Inputs 17-32**.

Digital I/O Slot 2 [CH25-32/SLOT 2]

When an option card is in Slot 2, the output of the selected device is connected to the *DA7* through **Channel Faders 25 through 32**, and is controlled through **Fader Layer Inputs 17-32**.

Digital I/O Slot 3 [CH9-16/SLOT 3]

When an option card is in Slot 3, the output of the selected device is connected to the *DA7* through **Channel Faders 9 through 16**, and is controlled through **Fader Layer Inputs 1-16**.

Chapter 3

Quick Start

As with any mixer, the basics come first: Take it out of the box, plug it into a standard three-prong, 120v 60Hz electrical outlet, and turn it on. Once the novelty has passed of seeing all the colored lights and the faders going up and down when the **FADER LAYER CONTROL** button is pressed, your real fun can begin.

There are several basic functions that, when familiar, will make the *DA7* easy to use. This **Quick Start** is written for those with some knowledge of audio technology.

Four modules will give you a basic understanding of the primary functions of the system. MIDI and automation functions are not included and will be addressed later in this *Users' Guide*.

If you have already been pushing buttons, press the **Fader Layer INPUT 1-16 LED** button, turn off all the channels, and lower all the faders. Also, press the **CHANNEL** button to display the **[CHANNEL]** window.



To reset the *DA7* to default values, first select the **MASTER LR** channel, then simultaneously press the **MASTER LR Fader Strip SELECT** button and the **2** button in the **Keypad**. This will reset all the mixer functions and clear all the library and memory registers.

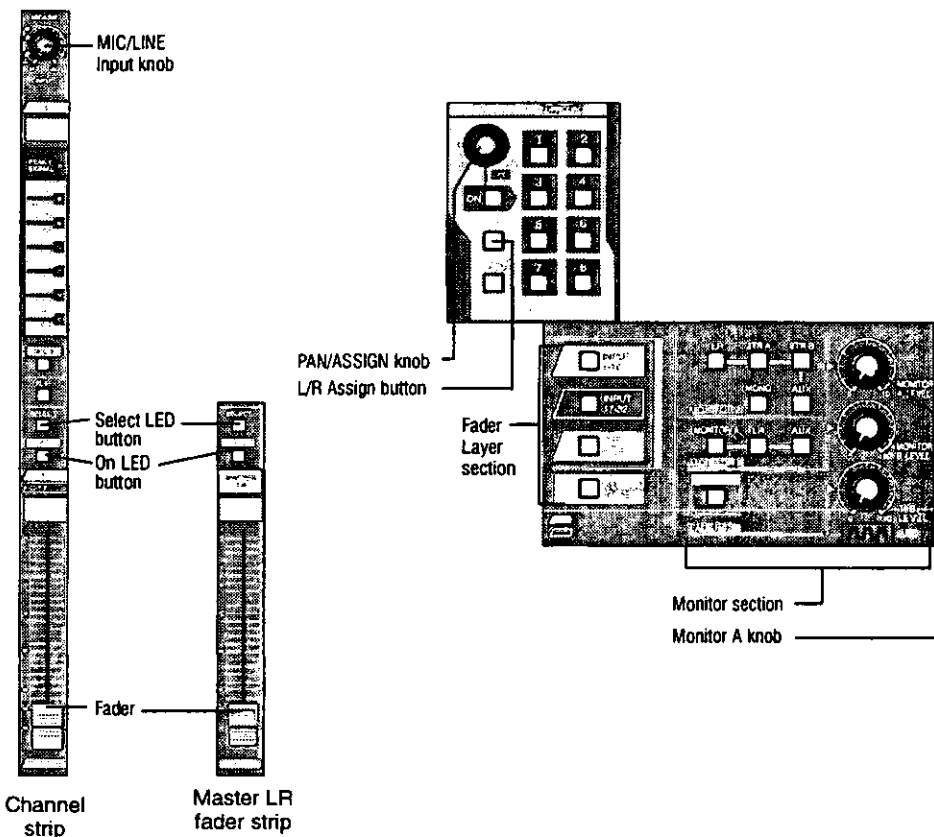
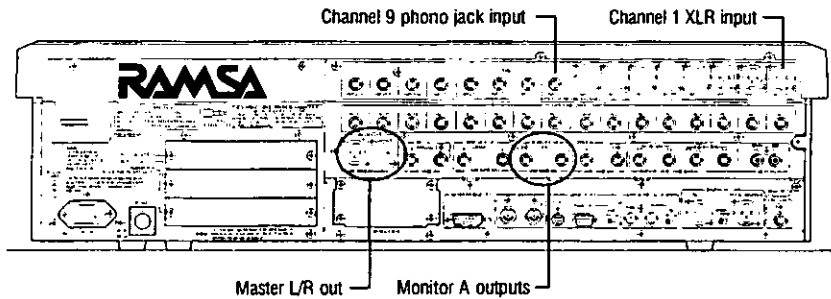


The "reset to default" procedure, in the tip above, will reset all the mixer functions and clear all the library and memory registers, just like we said. This is an irrevocable procedure. You can protect your data by copying it to a backup using the **[MIDI>BULK]** procedure described in *Section 11-4*.

3-1 Module A, Getting Sound Out

No Waiting . . . Join the 10 Step Program!

Look at the Rear Panel of the mixer. Everything that goes in and out of your DA7 comes through here. This Module describes the process for achieving sound output from the mixer.



- 1 Connect an input source – From the source to the Rear Panel of the **DA7**, connect an XLR connector to **INPUT 1**, or a 1/4" TRS phone plug to **INPUT 9**.
- 2 Attach an output monitor – In a production environment, attach the amplifier input to the **DA7 MONITOR A OUT** and press the **LR** selection button of the **MONITOR A** section. In a live mix situation, attach the amplifier input to the **DA7 MASTER OUT**.
- 3 Preset the **MASTER LR** – Raise the **MASTER LR** fader to zero. This fader sets the master output level.



When the **[MOTOR FADER]** selection in the **[UTILITY>CONFIG]** window is **ON**, simultaneously pressing the **SELECT** and **ON** LED buttons for the **MASTER LR** Fader will automatically raise the fader to the zero point on the **Fader Strip**. **CHANNEL** and **BUS** faders also can be raised to the zero point on the **Fader Strip** with this procedure.

- 4 Press the **MASTER LR ON** LED button – This LED button turns the **MASTER LR** channel strip on (*red*).
- 5 Press the **Fader Layer INPUT 1-16** LED button – This will assign the **Channel Faders** to inputs 1-16.
- 6 Activate **SELECT** – Above each **Channel Fader ON** LED button is an LED button labeled **SELECT**. Pressing this will turn it on (*orange*). Once selected, parameters can be assigned to the channel, such as EQ, dynamics, pan, or aux, if desired.
- 7 Press the **LR** LED button in the **PAN/ASSIGN** section – This is where you assign an output path. Pressing the **LR** LED button turns it on (*green*). This will assign the selected **Channel Fader** to the **LR** outputs of the mixer. Pan is always active on the **LR** output of the **DA7**.
- 8 Select **Channel Fader 1** or **9**, and then press the **Channel Fader ON** LED button to turn the channel on (*red*). Raise the Fader to zero.
- 9 Adjust the input gain – Turn the **MIC/LINE INPUT** knob on the **Channel Strip** to set the incoming signal type and level.

This is where you begin to set the gain structure for the mixer.

While sending a signal through the channel, look below the **MIC/LINE** knob, and you will find the **PEAK/SIGNAL LED**. This LED will light (*green*) when the signal is above -6 dBu and below +17 dBu.

Above +18 dBu it will light (*red*), showing that you are either close to or at an overload condition (something you should not do in digital recording), and you should reduce the level using the **MIC/LINE** knob.



With the **Channel Fader** and **MASTER LR Fader** set at 0, while watching the **PEAK/SIGNAL LED** of the **Channel Strip**, turn the **MIC/LINE INPUT** knob to adjust the level to “peak”. Generally speaking, “peak” is when the **PEAK/SIGNAL LED** flashes (*red*), which should be very rare!



Adjust the levels – With a source connected to the mixer, audio levels can be adjusted via:

MIC/LINE INPUT knob. This controls the channel input level.

Channel Fader. This controls the channel output level to the mixer.

MASTER LR Fader. This controls the **MASTER LR** output level of the **DA7**.

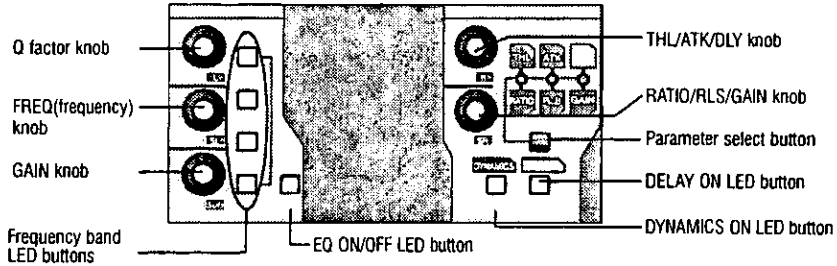
MONITOR A LEVEL knob. This adjusts the control room monitor volume without affecting the mixer output level.



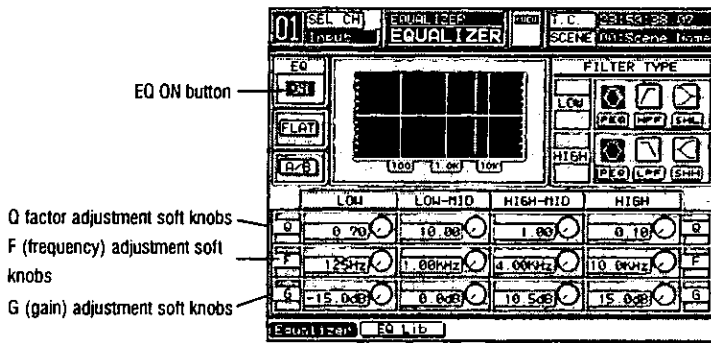
The **[GAIN]** soft knob in the **[CHANNEL]** window provides additional level control for the selected channel. **CURSOR** to the soft knob and rotate the **JogDial** to boost the audio level, when additional gain is needed. The **[GAIN]** soft knob range is -24dB to +12dB.

3-2 Module B, Onboard Tools

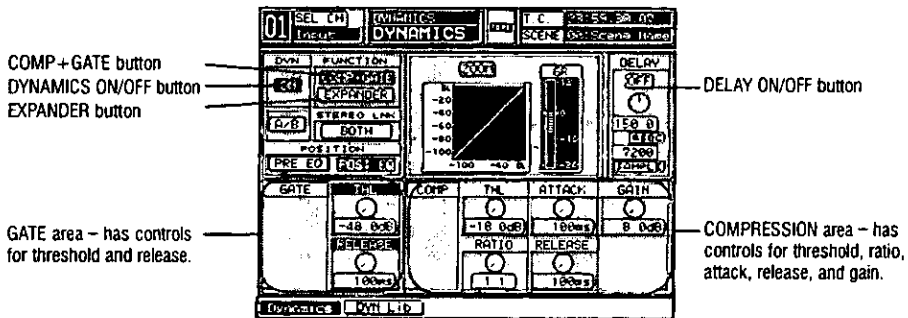
Each channel has the option of inserting a 4-band parametric equalizer and dynamics processing with or without delay to the channel. AUX 1-6 Returns have a 2 band equalizer.



Top Panel Sections



Equalizer Window



Dynamics Window

3 Quick Start



When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **ON**, the LCD screen will update and display the respective window for the EQ or dynamics/delay adjustment that is currently being performed.

Equalizer

The **EQUALIZER** section contains controls for the adjustment of the frequency characteristics for the selected channel.

- 1 Select a channel – Press the **ON LED** button (*red*) on a channel and press the **SELECT LED** button (*orange*) for the channel.
- 2 Display the **[EQUALIZER]** window – Press the **GAIN** knob, and the LCD screen will display the **[EQUALIZER]** window.
- 3 Press the **EQ ON LED** button – This button toggles EQ on (*green*) and off for the selected channel.
- 4 Select a frequency band button – Activate the **H** (high), **HM** (high-mid), **LM** (low-mid), or **L** (low) frequency band by pressing the respective LED button to turn it on (*orange*).
- 5 Adjust an EQ parameter – Rotating the **Q**, **FREQ**, or **GAIN** knobs will give you enormous control over the timbre of the sound.



An alternate method for adjusting EQ is to use the **ARROW** buttons to move the **CURSOR** to the **[EQUALIZER]** window soft knob controls, and then use the **JogDial** to adjust the parameters.

Dynamics/Delay

Each channel of the **DA7** can have unique dynamics and/or delay processing assigned to it.

- 1 Display the Dynamics window – Press the **SR** knob and the LCD will display the **[DYNAMICS]** window.
- 2 Activate the **DYNAMICS/DELAY** section – Press the **DYNAMICS ON LED** button, which turns it on (*green*).

3 Select a dynamics type – Cursor to either the **COMP+GATE** button or the **EXPANDER** button in the **[FUNCTION]** area of the **[DYNAMICS]** window, and press **ENTER**.

4 Either

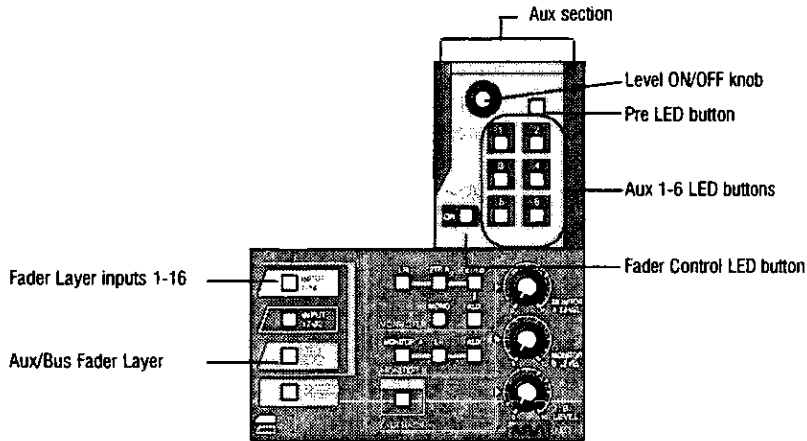
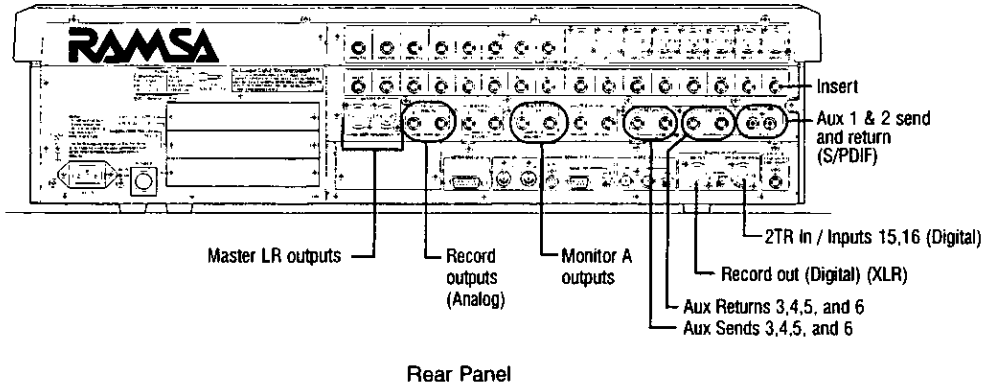
Adjust the Compressor+Gate – The **[COMP]** area has software control for **[THL]** (threshold), **[RATIO]**, **[ATK]** (attack), **[RLS]** (release), **[GAIN]**, and **[DLY]** (delay). The **[GATE]** area gives you control over **[THL]** and **[RLS]**.

Or,

Adjust the Expander – This is similar in appearance to the **[COMP]** area, except **[GAIN]** is replaced by **[RANGE]**.

3-3 Module C, Outboard Tools

The *DA7* includes tools for routing signals outside of the program mix bus. Using the aux sends and returns, along with tape inputs and outputs, signals can be conveniently passed around the system to provide mixing flexibility.



Top Panel Sections

Auxs (Auxiliaries)

The DA7 has six **AUX** sends and six **AUX** returns. **AUX1** & **2** are **S/PDIF** digital **IN+OUT**, while **AUX3** through **6** are analog.

They can be used as six mono sends or in stereo pairs (such as 1&2, 3&4, 5&6) and six mono returns or stereo pairs. These six returns can also be used as an additional six inputs to the mixer, bringing the total of inputs to 38. Additionally these six returns have a 2-band parameter EQ on each channel.

Aux selections and assignments are displayed in both the **[CHANNEL]** window and the appropriate **[FADER CONTROL>AUX]** window as well as the LED field. However, the **[CHANNEL]** window will initially be displayed when selecting and assigning aux functions.

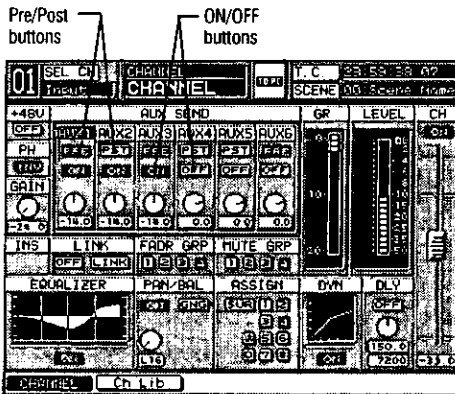
See **Chapter 10 AUX** for additional information.

How to send to an aux:

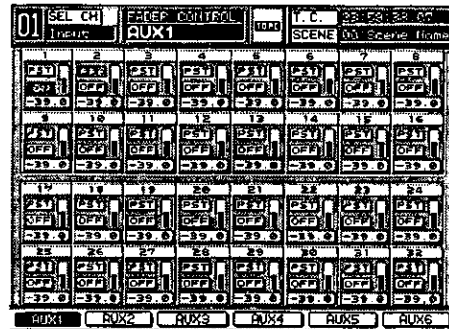
- 1 Select a channel – Press the **SELECT** LED button on the channel you want to assign to an aux send.
- 2 Assign the channel to an aux – Press one of the 1-6 LED buttons in the **AUX** section to turn it on (*green*).
- 3 Press the **LEVEL ON/OFF** knob – This toggles the selected channels' aux assignment on or off. As seen in the **[CHANNEL]** window, the software button will appear as **OFF**, changing to **ON** when engaged. Pressing the **AUX** knob while in any other window will change the LCD to the **[CHANNEL]** window.

You can also view the aux assignments on the LED field of the selected channel. You will see a *green* LED in the appropriate locations, when the **AUTOMATION/AUX** LED button is toggled to **AUX**.

- 4 Adjust the aux level – Rotating the **LEVEL ON/OFF** knob adjusts the channel level to the selected aux.
- 5 Press the **PRE** LED button to turn pre-fade on (*red*) – This button toggles the assignment for the selected aux from the default **POST** (post-fader) to **PRE** (pre-fader), as seen in the **[CHANNEL]** window.
- 6 Press the **FADER CONTROL** LED button – To see the aux assignment status of all 32 channels, press the **FADER CONTROL** LED button to turn it on (*red*), and the **[FADER CONTROL>AUX]** window group will be displayed. The faders can be used to adjust levels to the selected **AUX** Send.



CHANNEL Window



FADER CONTROL AUX Window

Effects

Outboard effects devices, such as a reverb unit or an effects processor, can be attached to the *DA7* in several ways. In conjunction with the aux sends and returns, one of the great features of the *DA7* is the **Fader Layer** controls, which expands the use of the channel faders. By designing the mixer this way, channel faders are not tied up with effects returns. This also permits effects assignment to groups, not just to individual sources.

Inserts can be used to add processing to a specific channel. Use the analog **INS** (insert) jacks on the Rear Panel to add outboard processing directly into a **Channel Strip**. This puts the effect device before anything else in the **Channel Strip**. Use a stereo cable that has a Y connector with two mono phono plugs (unless the effects device uses a stereo phono plug). For details on connector wiring see **Appendix E, Cables and Connections**.

Let's look at both setups.

Aux Send and Return

- 1 **Connect the output** – Connect the output of **AUX 5/6 SEND** on the Rear Panel of the *DA7* to the inputs of the effects device.
- 2 **Connect the input** – Connect the output of the effects device to **AUX 5/6 RETURN** on the Rear Panel of the *DA7*.
- 3 **Assign channels** – Either in the appropriate **[CHANNEL]** windows or in the **[FADER CONTROL]** window, assign the channels that you want to send to **[AUX 5/6]** for processing.

- 4 Adjust the aux send levels – Rotate the **LEVEL ON/OFF** knob for **AUX SEND 5** and for **AUX SEND 6** to set the channel levels for the aux sends.
- 5 Press the **AUX/BUS Fader Layer LED** button (*orange*) – This will activate the **Fader Layer** for **AUX RTN** and **AUX SND**.
- 6 Send the signal out – Press both the **AUX SND 5** and **AUX SND 6 Channel Strip ON** buttons, and raise the faders to send the signal out to the effects processor.
- 7 Bring the signal in – To hear the effects processors' signal, turn on the **AUX RTN 5** and **AUX RTN 6 Channel Strips**, assign them to an output, and raise the faders.

Inserts

- 1 Plug in the effects processor - Plug the send into the input of the effects device and plug the return into the output of the effects device.
- 2 Raise the source fader on the **DA7**. Adjust the mix balance from the effects device.

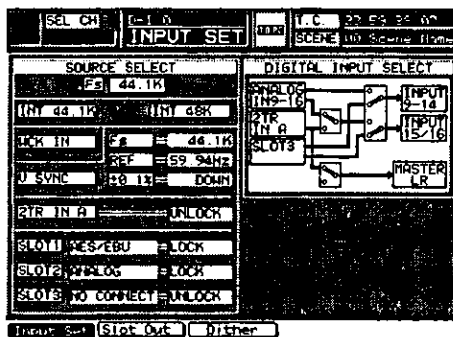
Digital Send and Return

- 1 Connect the output – Using an XLR cable, connect the **REC OUT** of the **DIGITAL IN/OUT** on the Rear Panel of the **DA7** to the recording device.
- 2 Connect the input – Using an XLR cable, connect the output from the digital recording device to the **2TR A IN / INPUT 15, 16 DIGITAL IN/OUT** of the **DA7**.
- 3 Send the signal out – This output is the same as the **MASTER LR** output.
- 4 Listen to tape playback – Optionally, you may return **2 TR IN A** as **INPUT 15, 16** on the mixer. To do this, go to the **[D-I/O>INPUT SET]** window and select **2 TR IN A** to **INPUT 15, 16**.

Or,

- 1 Connect the output – Connect the **AUX 1/2 SEND** to the input of a digital recorder, or to the input of a digital effects device.
- 2 Connect the input – Connect the stereo outputs of the digital device to the **AUX 1/2 RETURN**.

- 3 Press the **Fader Layer AUX/BUS** LED button.
- 4 Send the signal out – Turn on the **AUX SND 1** and **AUX SND 2 Channel Strips** by pressing the **ON** buttons (*red*), and raise the faders to send the signal to the digital device.
- 5 To listen to the return signal – Turn on the **AUX RTN 1** and **AUX RTN 2 Channel Strips**, assign an output, and raise the faders to hear the return signal.



[D-I/O>INPUT SET] Window

Additional TAPE Sends and Returns

The **DA7** is a very flexible mixer. Even though the **DA7** has 8 buses available in either digital or analog (through the option slots).

There is a way to use the mixer in a creative manner for analog recording.

Use the analog features of the **DA7** for analog multi-tracking. Your creativity here can produce wonders.

Analog 2-Track Tape Sends and Returns

- 1 Connect the output – Connect the **REC OUT** (analog) 1/4" TRS outputs on the Rear Panel of the **DA7** to the inputs of an analog recording device.
- 2 Connect the input – Take the outputs from the analog recording device and attach to either:
 - **INPUTS 9 and 10** (listen via the **MASTER OUTPUT**)
 - **2TR B IN** (listen to the **2TR B** source for **MONITOR A**)
 - **AUX RETURN 3/4 or 5/6** (listen via the **AUX/BUS** faders, or the **AUX** source for **MONITOR A**)
- 3 Repeat steps 1 through 2 under Analog 4-Track Sends and Returns which are listed on the following page.

Analog 4-Track Sends and Returns

- 1 Connect the output – Attach stereo 1/4" TRS connectors (with mono Y connections) to the **AUX SEND 3/4** and **5/6** outputs on the Rear Panel of the **DA7**. Connect the four mono connectors to inputs 1 through 4 of your 4-track machine.
- 2 Connect the input – Connect the output channels of the tape machine to **AUX RETURN 3/4** and **5/6** on the Rear Panel of the **DA7**. They could, alternatively, be connected to four separate input channels.
- 3 Assign channel outputs – In the **[CHANNEL]** window for each channel, assign the desired aux outputs and levels.
- 4 Activate the **AUX/BUS Fader Layer** – Press the **AUX/BUS Fader Layer** LED button (*orange*).
- 5 Send the signal out – Turn on the **AUX SND 3,4,5** and **6 Channel Strips** by pressing their **ON** buttons (*red*), and raise the faders to send the signal to your tape deck.
- 6 Record the source material on tape.
- 7 Listen to tape playback – Turn on the **AUX RTN 3,4,5** and **6 Channel Strips**, assign an output, and raise the faders to hear the tape signal.

3-4 Module D, Monitoring

There are several ways to listen to sources on the *DA7*. This section addresses **MONITOR A OUT (CR)** selections. The control room (CR) is where the *DA7*'s operator/engineer will usually sit. The amplifier should already be attached to the speakers before beginning.

- 1 Attach the output – Connect the **MONITOR A OUT** to the amplifier input.
- 2 Select the output – Press the **LR LED** button (*green*) in the **MONITOR A** section to route the **MASTER OUT LR** to **MONITOR A**.
- 3 Adjust the **MASTER LR Fader Strip** – Press the **ON** button for the **MASTER LR Fader Strip** and raise the fader to set the level.
- 4 Adjust the gain – Turn the **MONITOR A LEVEL** knob clockwise to increase the volume, and adjust for the listening environment.
- 5 Choose **2TR B** in the **MONITOR A** selections – Plug a source, such as a tape machine, into the **2TR B IN (ANALOG)** connections on the Rear Panel. This bypasses the mix bus of the *DA7*, and goes directly to the monitors.



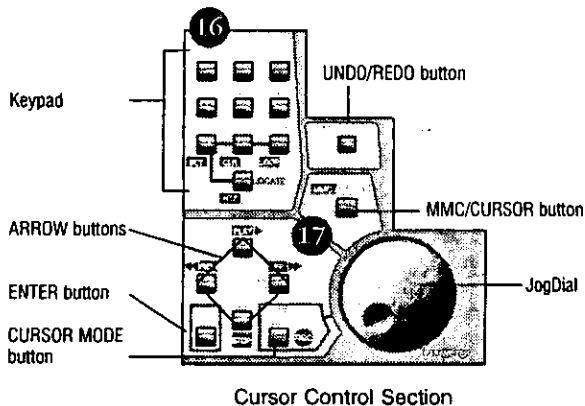
When using the optional meter bridge, the **MASTER LR** meter will not respond to a signal from **2 TR B**. This is because it is an analog signal, and the meter can only display a digital signal.

In conjunction with the digital send and return examples in the preceding Module C:

- 1 Listen to the tape playback – Turn on the **AUX RTN 1** and **2 Channel Strips**, assign an output, and raise the faders to hear the tape signal.
- 2 Select **AUX** in the **MONITOR A** selections – This permits monitoring of aux sends 1/2, 3/4, or 5/6. The selected auxs will appear in the **MEMORY** readout momentarily when the **MONITOR A AUX** LED button is pressed. Press the **AUX** button to toggle through them.
- 3 Choose **MONO** from the **MONITOR A** selections – This will sum any of the sources being monitored. Use this to check the output levels of **MASTER**, as well as to check for out of phase signals.

Chapter 4

Cursor Control



The **Cursor Control** section includes the **Keypad**, the **JogDial**, and the **UNDO/REDO**, **MMC/CURSOR**, **CURSOR MODE**, **ENTER**, and **ARROW** buttons. Use these tools to control the **CURSOR** in the LCD screen of the **Display Bridge**, and to add information to areas in the windows that are displayed on the LCD screen.

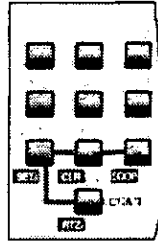


The **CURSOR** appears in the screen as a “highlight selection” device, not a typical pointer or arrow. As you use the controls to navigate around the LCD screen, the various areas, buttons, fields, and lists in the windows will be selected by a border or highlight designating the current area or item.

Several of the buttons in this section perform special functions when **MIDI** control is active. Special labeling - - text on a dark background - - identifies the buttons that also perform **MIDI** functions.

MIDI functions and operations are discussed in **Chapter 11 MIDI**.

Keypad



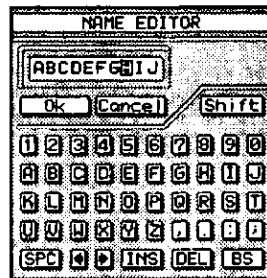
Keypad Display

Each of the ten **Keypad** buttons have several assigned characters (depending on the area or field selected in a window that is displayed on the LCD screen). The buttons are either numeric, symbolic, or alphanumeric.

When a selected area or field in the current window accommodates only numeric entries, the buttons only input the assigned numerals.

When a selected area or field in the current window accommodates alphanumeric entries, press the buttons to cycle the assigned letter, numeral, or symbol selections for the button, and then press the **ENTER** button to select the desired character. The character selected will be displayed in the window, and data entry will advance to the next character position for the area or field.

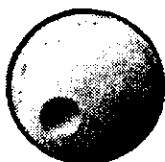
The three library windows - - [CH LIB], [EQ LIB], and [DYN LIB], the [SCENE MEMORY>RD/WT] window, the [MIDI>REMOTE] window, and the [AUTOMATION>SETUP] window - - each contains a **NAME** button. When a **NAME** button is selected in a window - - the [NAME EDITOR] window is added to the LCD screen display.



NAME EDITOR Window

Use the **CURSOR** controls to navigate to the various character and symbol buttons in the **[NAME EDITOR]** window, and press the **ENTER** button to update the highlighted character position in the window data entry field. Rotate the **JogDial** to select the highlighted character position. Press the **OK** button in the **[NAME EDITOR]** window to accept the data entry and close the window. You can use up to ten characters for a name.

JogDial



JogDial Display

The **JogDial** performs several functions, either directly or in conjunction with other controls on the **DA7**.

- While pressing the **CURSOR MODE** button, you can use the **JogDial** to rapidly navigate the **CURSOR** to the various buttons, areas, and fields in a window.
- When the **[SCENE MEMORY>RD/WT]** window is initially displayed, the **JogDial** is assigned to the register list area of the window and can be used to scroll the list.
- When an element is selected in the **[LIBRARY DATA]** area of the **[CH LIB]**, **[EQ LIB]**, or **[DYN LIB]** windows, you can use the **JogDial** to scroll the register list.
- When the **[list table]** element is selected in the **[AUTOMATION>SETUP]** window or the **[AUTOMATION>EVT EDIT]** window, you can use the **JogDial** to scroll the items in the list.
- When the **[list table]** element is selected in the **[MIDI>PRG ASGN]**, **[MIDI>CTRL ASGN]**, or **[MIDI>MIDI RMT]** window, you can use the **JogDial** to scroll the items in the list.
- When the **[fader]** element of the **[CHannel]** area of a window is selected, the **JogDial** can control the level setting of the **[fader]**. The **Channel Fader** will follow the **JogDial** level adjustments.

- When a [knob] is selected in a window, you can use the **JogDial** to adjust the respective value of that [knob].
- When a numeric field is selected in a window, you can use the **JogDial** to adjust the numeric value in that field.

The **JogDial** can be used to perform several functions while the [PAN/SURROUND>SURROUND] window is displayed.

See **Chapter 9 Pan/Assign/Surround** for additional information.

UNDO/REDO Button



UNDO/REDO Button

The **UNDO/REDO** functions are active when you store or recall data for **SCENE MEMORY**, **LIBRARY**, or **AUTOMATION** operations. The **UNDO** function of the **DA7** cancels the most recent memory-related action and returns to the previous condition. The **REDO** function cancels the cancellation.

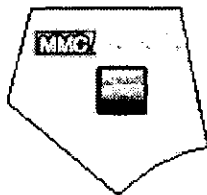
Press the **UNDO/REDO** button immediately after performing the memory-related operation to cancel the operation. Pressing the **UNDO/REDO** button again restores the operation condition that was undone.



For functions other than **AUTOMATION**, you must execute **UNDO** immediately after performing the memory-related action that you want undone. After you change to another register or change to another window display, you cannot execute the **UNDO** function.

For **AUTOMATION** operations, **UNDO** can be executed at any time for the current event only. **UNDO** cannot be performed if either the [UNDO] **BUF CLR** (clear buffer) or the [UNDO] **DISABLE** buttons in the [AUTOMATION>SETUP] window are executed.

MMC/CURSOR Button



MMC/CURSOR Button

MMC is an acronym for **MIDI MACHINE CONTROL**. Additional button labelling of text on a dark background identifies the buttons that perform the indicated functions when **MIDI** control is active.

Press the **MMC/CURSOR** button to switch the buttons from **CURSOR** control mode to the indicated **MMC** functions. Press the **MMC/CURSOR** button a second time to return the buttons to **CURSOR** control mode.

The **MEMORY** numeric readout on the **Display Bridge** will flash and be reduced in height to one-half normal size when **MMC** control is active.

See **Chapter 11 Midi** for additional information.

See **Chapter 14 Automation** for addition information on **MMC**.

CURSOR MODE/REC Button



CURSOR MODE Button

When **MIDI** control is not active, pressing and holding the **CURSOR MODE** button switches the **JogDial** functionality to control the **CURSOR** in the LCD screen.

When **MIDI** control is active, and the **MMC/CURSOR** has switched button functions, the **CURSOR MODE** button function is switched to the **REC** function. Pressing the button initiates recording on the associated **MIDI** device.

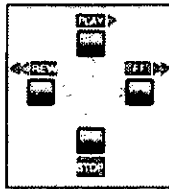
ENTER Button



ENTER Button

Press the **ENTER** button to activate functions and/or toggle buttons selected in the windows displayed on the LCD screen.

ARROW Buttons



ARROW Buttons Display

When **MIDI** control is not active, the **ARROW** buttons control the **CURSOR** movement in the LCD screen. The buttons move the **CURSOR** in the direction of the associated arrows.

- Press the **UP ARROW** button to move the **CURSOR** up in the display. When the **CURSOR** is positioned at the top of a window, pressing the **UP ARROW** button will move the **CURSOR** to the bottom of the window.
- Press the **RIGHT ARROW** button to move the **CURSOR** to the right in the display. When the **CURSOR** is positioned on the extreme right of the window, pressing the **RIGHT ARROW** button will move the **CURSOR** to the extreme left of the window.
- Press the **DOWN ARROW** button to move the **CURSOR** down in the display. When the **CURSOR** is positioned at the bottom of a window, pressing the **DOWN ARROW** button will move the **CURSOR** to the top of the window.
- Press the **LEFT ARROW** button to move the **CURSOR** to the left in the display. When the **CURSOR** is positioned on the extreme left of the window, pressing the **LEFT ARROW** button will move the **CURSOR** to the extreme right of the window.

When **MIDI** control is active and the **MMC/CURSOR** has switched button functions, the **ARROW** buttons are switched to the **MIDI** functions indicated.

- The **UP ARROW** button is switched to the **▶PLAY** function. Press the button to initiate playing of the active **MIDI** device.
- The **RIGHT ARROW** button is switched to the **▶▶FAST** function. Press the button to initiate fast forward shuttling of the active **MIDI** device.
- The **DOWN ARROW** button is switched to the **STOP** function. Press the button to stop the playing of the active **MIDI** device.
- The **LEFT ARROW** button is switched to the **◀◀REW** function. Press the button to rewind the active **MIDI** device.

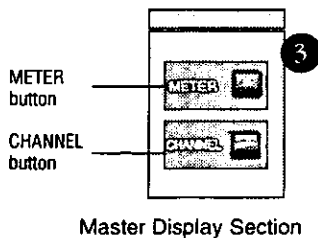
See **Chapter 11 Midi** for additional information.

Chapter 5

Channel, Library, and Meter Windows

5-1 Overview

This chapter provides information on the **MASTER DISPLAY** section of the Top Panel and the primary LCD screen windows for the *DA7*. The **MASTER DISPLAY** section is the “home base” when operating the mixer. Although you will be accessing and using the various functions and features comprising the *DA7*, the windows that are accessed via the buttons in the **MASTER DISPLAY** section provide a ready-reference for the current selections and settings of the mixer.



The **CHANNEL** button is the “safety” or “*PANIC*” button for the *DA7*. Press this button to return the LCD screen to the **[CHANNEL]** window, from any other window that is currently displayed. This window reflects the current status of the primary features of the mixer.

Section 5-2 Channel Window, details the elements of the **[CHANNEL]** window and the controls that are accessible directly from the window.

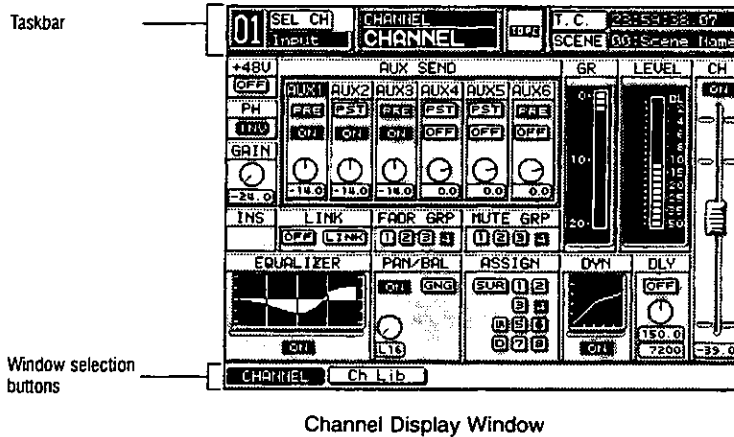
Section 5-3 Library Windows, provides information on the library windows of the mixer. Using the [CH LIB] (channel library) window as the example, the common elements found in all of the library windows are detailed in this section.

Section 5-4 Meter Group Windows, details the windows accessed via the METER button in the MASTER DISPLAY section of the Top Panel.

Section 5-5 Channel Window, Multi-Channel View, details the elements of the [CHANNEL] window in the multi-channel view.

5-2 Channel Window

The [CHANNEL] window is displayed on the LCD screen by pressing the [CHANNEL] button in the MASTER DISPLAY section of the Top Panel. When the [AUTO DISP CHANGE] selection in the [UTILITY>CONFIG] window is ON, you can also display the [CHANNEL] window by pressing one of the AUX section LED buttons, or adjusting the AUX section LEVEL ON/OFF knob. When [AUTO CHANNEL SELECT] in the [UTILITY>CONFIG] window is ON, you can display the [CHANNEL] window by pressing the SELECT button, or the ON button, or adjusting the fader for any channel.



The [CHANNEL] window areas reflect the current status of the selected channel, and include indicators and controls for the primary functions of the DA7. By using the SELECT buttons on a Channel Strip, any channel can be selected. The number of the selected channels appears in the [taskbar] area in the LCD, and the window information will reflect the newly selected channel.

The following areas in the [CHANNEL] window can be changed to user-selected parameters using the CURSOR controls:

Phantom Power [+48V] Area +48V OFF

A button is displayed when a Channel Strip for inputs 1 through 8 is selected, and should be engaged when the source microphone requires phantom power. To engage, CURSOR to the OFF button, and press ENTER. The OFF button will toggle to ON.

5 Channels, Library, & Meters

Phase [PH] Area



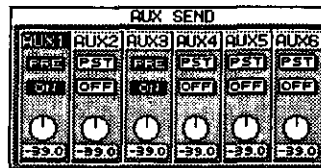
The phase normal and invert function switches the signal phase of the selected channel. CURSOR to the **NOR** (normal) button, and press **ENTER** to invert the signal. The **NOR** button will toggle to **INV** (invert).

[GAIN] Area



Using the **JogDial**, independent additional gain or trim can be added to the selected channel. CURSOR to the soft knob and rotate the **JogDial** to either boost or cut the level of the selected source. The **[GAIN]** value is displayed in the field below the soft knob. The adjustable range is -24dB to 12dB.

[AUX SEND] Area ([AUX1] to [AUX6])



[AUX SEND] Area ([AUX1] to [AUX6])

This area of the window is displayed when a channel with aux send capability is selected. Use the **ARROW** buttons and the **JogDial** to navigate to the various elements in the window area. The **PST** (post-fader) and **PRE** (pre-fader) buttons are toggled by pressing **ENTER**, after selecting them with the CURSOR. The **OFF** and **ON** buttons are also toggled by pressing the **ENTER** button, after selecting them with the CURSOR.

An **[AUX SEND]** level soft knob can be adjusted by rotating the **JogDial**, after selecting them with the CURSOR. Rotate the **JogDial** clockwise to increase the gain or counter clockwise to decrease it. The level value is displayed in the field below the level soft knob, and the level range is $-\infty$ to +10db.

Alternatively, selections made with the Top Panel **AUX** section controls will update the **[AUX SEND]** window area.

When a selected channel is set for monophonic and a target aux is set for stereo, CURSOR to the soft knob and turn the **JogDial**. A pan value appears in the data field from **L16 - C -R16**.

When a selected channel is set for stereo and a target aux is set for stereo, CURSOR to the soft knob and turn the **JogDial**. A balance value appears in the data field from **L16 - C -R16**.

[INS] Area

The insertion mode allows you to send a signal to an external device when an option card is installed in **SLOT 3** and the **[INSERT]** mode is selected for **[SLOT 3]** in the **[D-I/O>TO SLOT]** window. This signal is routed to an outboard device, and then it is returned to the **DA7** via **SLOT 3**. You can return to AUX returns 1 through 6, buses 1 through 8, or **MASTER LR**.

[LINK] Area

There are two buttons in the **[LINK]** area of the window, an **[OFF]** button and a **[LINK]** button. Cursor to the **[OFF]** button, and press **ENTER** to toggle the **[OFF]** button to an **[ON]** button. This will preset the link function for the channel. The **[LINK]** button toggles to the **[STR]** (stereo) button, if desired.

Activating link or stereo for an odd-numbered channel joins it with the channel to the right, while activating link or stereo for an even-numbered channel joins it with the channel to the left.

The link function joins adjacent channels to create a pair, while respecting the current individual channel settings, including fader position and value. The stereo function joins adjacent channels to create a stereo pair, and overwrites the even-numbered channel settings with the current odd-numbered channel settings for phantom power, phase, gain, aux send, fader group, mute group, equalizer, dynamics, delay, channel on or off, and fader.

When **[OFF]** and **[LINK]** are displayed, simultaneously pressing both channel **SELECT** buttons, or toggling to **[ON]** will link the channels. When **[OFF]** and **[STR]** are displayed, simultaneously pressing both channel **SELECT** buttons, or toggling to **[ON]** will create a stereo pair. Simultaneously pressing the **SELECT** buttons, once the channels have been joined, will cancel the setting.



If the **AUTOMATION/AUX** button is set to **AUTOMATION**, you will not be able to create or cancel the channel pair.

When the channels are joined either as a linked pair or a stereo pair, the **Channel Faders** will operate as a pair. Adjusting one of the faders will automatically adjust the other.

The channel area in the **[taskbar]** of the LCD screen windows will show both channel numbers.

The soft knob in the **[PAN/BAL]** area of the **[CHANNEL]** window controls the balance for the paired channels. When the stereo setting is switched off, the balance value returns to pan value, but the bus assignment status, if any, does not change.

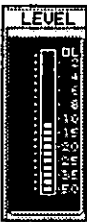
Gain Reduction Meter **[GR]** Area



The **[GR]** meter is displayed when you select a channel that supports dynamics. No adjustment can be made from the **[CHANNEL]** window; it is only a visual reference.

See **Chapter 9 Dynamics/Delay** for more on gain reduction metering.

[LEVEL] Area



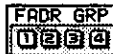
The level meter indicates the outgoing level of the selected channel to the **MASTER LR** output. When in stereo mode, left and right level meters are displayed.

The range of the level meter is **-50** to **OL** (overload).



Remember that the digital format is very unforgiving of overmodulation. Too high a level will create noise and distortion in the recording process.

[FADR GRP] Area



The **[FADR GRP]** (fader group) lets you tie together a selected group of faders. Operating one fader affects all the other channels in that group. To assign the current channel to a group, **CURSOR** to one of the **[1]**, **[2]**, **[3]**, or **[4]** buttons, and press **ENTER**.

To activate a fader group, select the **[GROUP>FADR GRP]** window, **CURSOR** to the group number status line in the **[FADR GRP]** window, and press **ENTER**.

Once you have grouped several faders, move one and see how it controls the others. When a fader in a **[FADR GRP]** is selected, all other fader group conditions are canceled.

See **Chapter 13 Group** for additional information.

[MUTE GRP] Area

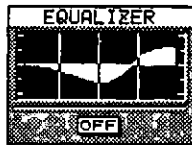
A mute group is similar to a fader group. When a fader is assigned to an already activated mute group, pressing the **ON** LED button of the current **Channel Strip** will affect the on and off status of all channels in that group.

To assign the current channel to a mute group, **CURSOR** to one of the mute group choices **1**, **2**, **3**, or **4**, and press **ENTER**.

To activate a mute group, change to the **[GROUP>MUTE GRP]** window, **CURSOR** to the group number status line in the **[MUTE GRP]** window, and press **ENTER**.

See **Chapter 13 Group** for more information.

[EQUALIZER] Area



[EQUALIZER] Area

The **[EQUALIZER]** area is displayed when you select a channel that supports equalization. The equalizer graph reflects the equalizer characteristics that you have set in the four-band parametric EQ, accessed by pressing the **[H]**, **[HM]**, **[LM]**, or **[L]** buttons in the **EQUALIZER** section, and turning the **[Q]**, **[FREQ]**, or **[GAIN]** knobs.

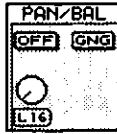
To activate the channel equalizer, **CURSOR** to the **OFF** button, and press **ENTER**. The **OFF** button will toggle to **ON**.

Alternatively, pressing the **EQ ON** LED button in the **EQUALIZER** section switches an equalizer for a selected channel off and on.

To view the **[EQUALIZER]** window, **CURSOR** to the equalizer graph displayed, and press **ENTER**. The LCD is switched to the **[EQUALIZER]** window for the selected channel. Or, you can reach the **[EQUALIZER]** window by pressing the **GAIN SUB** knob in the **EQ** section on the Top Panel. Also, when the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **ON**, you can display the **[EQUALIZER]** window by either pressing one of the LED buttons or by adjusting one of the knobs in the **EQUALIZER** section.

See **Chapter 7** for more information on the **EQUALIZER** section.

[PAN/BAL] Area



[PAN/BAL] Area

Use this area to set the pan or balance characteristics of the current channel. A monophonic channel can be panned. The soft knob controls the pan characteristics for the channel. When a stereo channel is selected, you can adjust its balance. The pan value appears in the field with values of **L16 - C - R16**.

When a channel is assigned to the **LR** output selection in either the **PAN/ASSIGN SURROUND** section or the **[ASSIGN]** area in the **[CHANNEL]** window, the pan controls are always active, regardless of the **OFF** or **ON** status in the **[PAN/BAL]** area of the **[CHANNEL]** window. The Pan only affects the buses, and not the **LR** output.

When a stereo channel (a channel set to **[STeReo] ON** or **[ASSIGN] LR**) is selected, the **[PAN/BAL]** area consists of the **ON** or **OFF** button, a **[BAL]** label, and one soft knob that controls the balance for the stereo pair.

To activate the **[PAN/BAL]** controls, **CURSOR** to the **OFF** button, and press **ENTER**. The **OFF** button toggles to **ON**. Alternatively, pressing the **ON LED** button (red) in the **PAN/ASSIGN SURROUND** section toggles the pan off and on for a selected channel. This does not affect the **LR BUS** or **Direct Out**.

The **GNG** (gang) button appears only when you select a monophonic channel. To activate gang, **CURSOR** to the **GNG** button, and press **ENTER**. The **GNG** button toggles to **GNG**.

When the **GNG** button is activated, the adjacent channel soft knob and a gang type button (**☐** is for normal clockwise direction and **☒** is for reverse direction), are added to the **[PAN/BAL]** window area.

To change the gang type, **CURSOR** to the **☐** or **☒** button, and press **ENTER**. The connective turn direction of the pan soft knobs for the ganged channels is now switched. When **☐** is visible, the **JogDial** performs a connective turn in the normal direction. When **☒** is visible, the **JogDial** performs a connective turn in the reverse direction.

If either soft knob is rotated to the end of its range under the ganged condition, it will not turn any more in the same direction.

When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **ON**, you can display the appropriate **[PAN/SURROUND]** window by pressing one of the **PAN/ASSIGN SURROUND** section LED buttons, or by adjusting the **PAN** knob.

Pan Adjustment for Selected Channel

Adjust the pan for a selected channel by selecting the pan soft knob with the **CURSOR**, and turning the **JogDial**.

Pan Adjustment of Adjacent Channel

When **ENG** is active, the knob for the odd-numbered channel appears on the left of the area, and the knob for the even-numbered channel appears on the right.

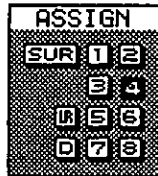
CURSOR to a soft knob, and turn the **JogDial**. A pan value appears in the data field.

Stereo Balance Adjustment

CURSOR to a balance soft knob, and turn the **JogDial**. When **[STEREO]** is **ON**, the balance soft knob is shown.

See **Chapter 8** for more information on **PAN/ASSIGN** **SURROUND**.

[ASSIGN] Area



[ASSIGN] Area

The bus assign off or on switching will send the selected channel to **BUS 1-8**, **MASTER LR**, or **DIRECT** (**DIRECT** works exclusively with the D I/O card). To select a bus assignment, **CURSOR** to the **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **L**, or **D** buttons in the bus assign area, and press **ENTER**. The selected bus assignment will toggle and become highlighted. Multiple bus assignments can be selected for a channel.

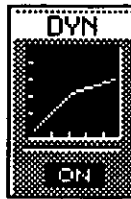
To disable or enable the surround sound function, **CURSOR** to the **SUR** button, and press **ENTER**. When the surround function is enabled, assignment to buses 1 through 6 is automatically activated.

The channels set to stereo are assigned to buses in odd/even order. The **[ASSIGN]** area will show the new assignment mode. When the channels are set for stereo assign to **L**, the odd-numbered channels are left and the even-numbered channels are right.

The buttons in the **[ASSIGN]** area mimic the LED buttons in the **PAN/ASSIGN** **SURROUND** section. For example, the **[1]** button in the **[ASSIGN]** area of the LCD has the same function as the **1** LED button in the **BUS/ASSIGN** section on the *DA7* Top Panel. When the assignment is active, the relevant LED is on (*green*). When the assignment is off, the related LED goes off. If a selected channel is set for stereo, bus numbers are paired in the **[ASSIGN]** area of the window.

See **Chapter 8** for more information on output assignments and surround sound functionality.

[DYN] Area



[DYN] Area

The **[DYN]** (dynamics) area is displayed for a channel with dynamics capabilities. Channels without dynamics are **AUX SND 1-6** and **AUX RTN 1-6**.

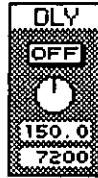
To turn dynamics on or off from the **[CHANNEL]** window, **CURSOR** to the **[ON]** or **[OFF]** button, and press **ENTER**.

The dynamics graph reflects the characteristics that are set in the **DYNAMICS/DELAY** section of the *DA7*.

To switch to the **[DYNAMICS]** window, **CURSOR** to the **[DYN]** graph, and press **ENTER**. The LCD will switch to the **[DYNAMICS]** window of a selected channel or, you can reach the **[DYNAMICS]** window by pressing the **[SR]** knob in the **DYNAMICS/DELAY** section. When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **[ON]**, you can also display the **[DYNAMICS]** window by either pressing one of the LED buttons or by adjusting one of the knobs in the **DYNAMICS/DELAY** section.

See **Chapter 9 Dynamics/Delay** for additional information.

[DLY] Area



DLY Area

The [DLY] (delay) area soft knob and data fields are seen only when channels 1 through 32 are selected.

Pressing the [DLY] area **ON** or **OFF** button will disable or enable delay for the selected channel. Use the **JogDial** to adjust the delay value for increased fine tuning. The range of the delay is from 0 to 300 msec.

You can input the values directly using the **Keypad** when the [DIRECT 10KEY] selection in the [UTILITY>CONFIG] window is **ON**. The input values are scrolled from right to left in the data field. To fix the value, press **ENTER**, move the **CURSOR**, and change the screen. If the fixed value is out of the adjustable range, the fixing operation is cancelled. The adjustable delay range is based on the related sampling frequency of either 48kHz or 44.1 kHz.

When the [AUTO DISP CHANGE] selection in the [UTILITY>CONFIG] window is **ON**, you can also display the [DYNAMICS] window by either pressing one of the LED buttons or by adjusting one of the knobs in the DYNAMICS/DELAY section.

See **Chapter 9** for more information.

[CH] Area



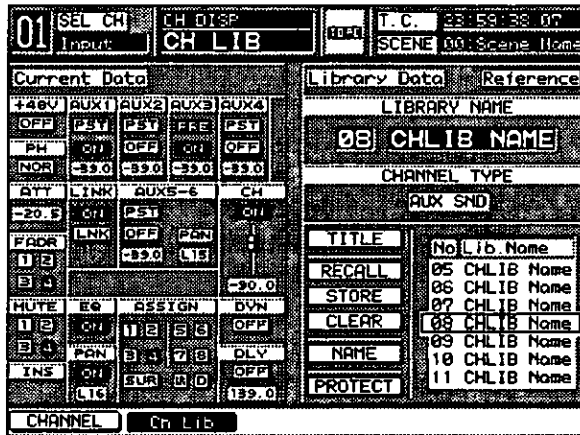
There are two parts to the [CH] (channel) area. **CURSOR** to on the **ON** or **OFF** button, and press **ENTER** to switch the channel off or on. The fader level adjustment can be made by turning the **JogDial**, after selecting the fader element with the **CURSOR**, or by actually moving the **Channel Fader** to the desired level. The fader level value is displayed in the field.

The adjustable range for the fader is $-\infty$ to +10dB.

5-3 Library Windows

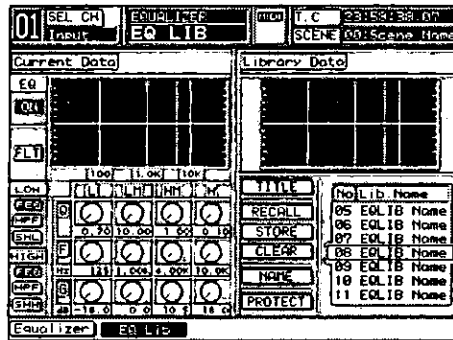
Each of the three libraries in the *DA7* contains fifty registers, the channel library, the equalizer library, and the dynamics library.

The library window shows the current settings of the selected channel. The channel information is displayed on the left side of the window, and the library data is displayed on the right. You can reset the indicated channel parameters. You can also store and recall data in a library register from these windows.



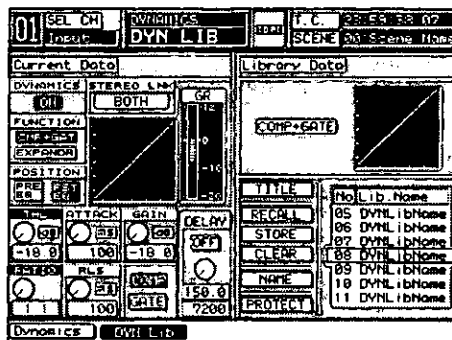
Channel Library Window

The [CH LIB] (channel library) window in the [CHANNEL] window group is displayed by pressing the **CHANNEL** button on the Top Panel. Depending on the window most recently displayed, you may need to press the **CHANNEL** button twice to display the [CH LIB] window. Alternatively, if the [CHANNEL] window is currently displayed on the LCD, pressing either the **STORE** or the **RECALL** button in the **LIBRARY** section of the Top Panel will display the [CH LIB] window.



EQ LIB Window

The [EQ LIB] (equalizer library) window is in the [EQUALIZER] window group, and is displayed by pressing the **GAIN** knob in the **EQUALIZER** section of the Top Panel. Depending on the window most recently displayed, you may need to press the **GAIN** knob twice to display the [EQ LIB] window. Alternatively, if the [EQUALIZER] window is currently displayed on the LCD, pressing either the **STORE** or the **RECALL** button in the **LIBRARY** section of the Top Panel will display the [EQ LIB] window.



DYN LIB Window

The [DYN LIB] (dynamics library) window is in the [DYNAMICS] window group, and is displayed by pressing the bottom knob in the **DYNAMICS/DELAY** section of the Top Panel. Depending on which window is most recently displayed, you may need to press the knob twice to display the [DYN LIB] window. Alternatively, if the [DYNAMICS] window is currently displayed on the LCD, pressing either the **STORE** or the **RECALL** button in the **LIBRARY** section of the Top Panel will display the [DYN LIB] window.

5 Channels, Library, & Meters

Library Window Elements

List Area

This area indicates the numbers and titles of the fifty library registers for the current library window.

TITLE	No Lib Name
RECALL	05 DYNL i bName
STORE	06 DYNL i bName
CLEAR	07 DYNL i bName
NAME	08 DYNL i bName
PROTECT	09 DYNL i bName
	10 DYNL i bName
	11 DYNL i bName

List Area

TITLE Button

Use this button to store library settings without displaying the Name Editor. When **TITLE** is activated, a setting is stored with the name **[NoTitle##A]**. This setting can later be recalled and renamed by using the **NAME** button. Data is automatically stored to the currently selected library register.

The **MEMORY** numeric readout on the **Display Bridge** blinks for three seconds, displaying the selected library register number during the storage process.

RECALL Button

Use this button to recall a previously stored register from the register list. Cursor to the **RECALL** button in the library window, and press **ENTER**. The current register settings will be recalled from the library listing. You can also press the **RECALL** button in the **LIBRARY** section of the Top Panel to recall the current register settings.

The **MEMORY** numeric readout on the **Display Bridge** blinks for three seconds, displaying the selected library register number during the recall process.

STORE Button

Use this button to store the current window settings in the selected library register. Cursor to the **STORE** button, and press **ENTER**. This function will overwrite any data that may have been in the register. You can also press the **STORE** button in the **LIBRARY** section of the Top Panel to store the current window settings.

The **MEMORY** numeric readout on the **Display Bridge** blinks for three seconds, displaying the selected library register number during the storage process.

CLEAR Button

This button clears the current register settings. Cursor to the **CLEAR** button, and press **ENTER** to delete the contents of the selected register.

NAME Button

This button opens the **[NAME EDITOR]** window where you can enter a name for the selected register, using up to ten characters. Cursor to the **NAME** button, and press **ENTER** to display the **[NAME EDITOR]** window.

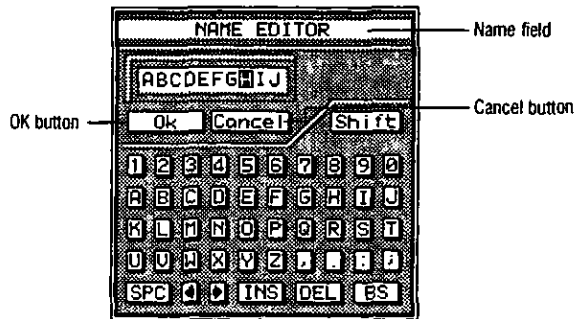
PROTECT Button

Activate the **PROTECT** button to prevent the accidental clearing of a selected library register. Cursor to the **PROTECT** button, and press **ENTER** to activate the protection function. The button will become highlighted.

Library Window Operations

Register Name Function

When the **[NAME]** button in a library window is activated, the **[NAME EDITOR]** window is displayed on the LCD, overlaying the current library window.



Name Editor Window

Enter a name for the current register selection, using the keyboard element of the **[NAME EDITOR]** window and/or the **Keypad** on the Top Panel. After the register name has been entered in the name field of the window, select the **OK** button in the window, and press **ENTER** to assign that name to the register. Selecting the **Cancel** button in the window cancels the name change.

5 Channels, thru 2 Meters

Library Register Selection

When an element in the [Library Data] area is selected with the **CURSOR**, you can rotate the **JogDial** to scroll the register list. Position the desired register in the current register field of the list area. Additionally, you can input a register number using the **Keypad** on the Top Panel. The desired register will move to the current register field of the register list in the window.

Library Reference Function

CURSOR to the [Reference] button in the [Library Data] area of the [CH LIB] window, and press **ENTER** to activate the reference function. The parameter settings stored in the current register are displayed on the right side of the library window. You can view the selected register data, and compare it to the selected channel data that remains displayed on the left side of the library window. With the **CURSOR** positioned on the [Reference] button, pressing **ENTER** deactivates the reference function and returns the library window to the previous display.

You cannot access or adjust any of the parameter settings indicated on the right side of the [CH LIB] window as the **CURSOR** cannot be moved into that area.



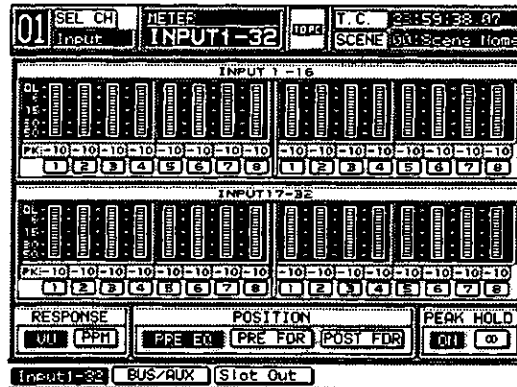
Data with a $-\infty$ (infinity) fader level and flat equalizer characteristics is stored to the library register number 01 when the **DA7** is delivered. Data with 0 dB fader level is stored to the other register numbers of the libraries. Library register number 01 has a title of [INIT OFF 1], and the other library registers have a title of [INIT 0 dB*] (* is a library number). The default type is INPUT.

5-4 METER Group Windows

INPUT 1-32 Meter Window

Pressing the **METER** button displays the last window used from the [METER] group, ([INPUT 1-32], [BUS/AUX], or [SLOT/CLIP]). Repeated presses of the **METER** button will display the windows in this order.

This window shows the meters for the 32 input channels and allows for level adjustments.



INPUT 1-32 Meter Window

[INPUT 1-16], [INPUT 17-32] Areas

These areas show the output levels of all 32 channels simultaneously.

[PK Lvl] Area

This data field, below the individual channel level meters, displays a numeric peak value when [PEAK HOLD] is **ON**.

[RESPONSE] Area

Select meter response of either **PPH** or **VU**.

[POSITION] Area

Cursor to the **PRE EQ** button, and press **ENTER** to meter the point immediately after analog-to-digital conversion before processing an input signal. Cursor to the **PRE FDR** button, and press **ENTER** to meter the point immediately before the channel **ON** LED button. Cursor to the **PRE FDR** button, and press **ENTER** to meter the point after the **Channel Fader**.

[PEAK HOLD] Area

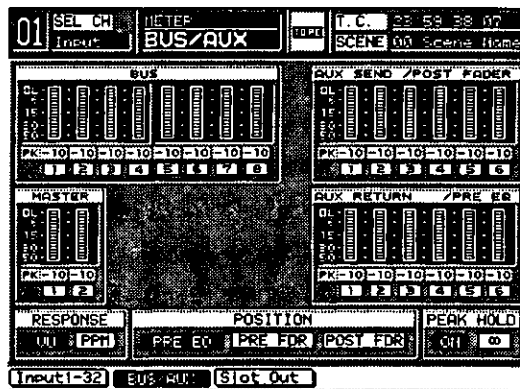
This area sets the peak hold **ON** or **OFF**. CURSOR to the selection button, and press **ENTER**. Peak hold dots will appear on the meter. The current peak hold levels appear in the data fields of the **[PK]** area. When **ON**, hold time is 0.3 seconds. When ∞ (infinity) is selected, the peak hold indicator remains until overwritten by a new peak level or is turned **OFF**.

When the **SELECT** LED button of any channel is pressed, the **[METER]** window for the selected channel appears.

CURSOR to the **[PPH]** or the **[UU]** button in the **[RESPONSE]** area, and press **ENTER**. The selected button will be highlighted. This setting is common to all of the input and output channel windows, the panel, and the **Display Bridge**. The setting from the factory when the **DA7** is first turned on is **[UU]**.

To cancel the peak hold function, CURSOR to the **ON** button, and press **ENTER**. The **ON** button will toggle to **OFF**.

[BUS/AUX] Meter Window

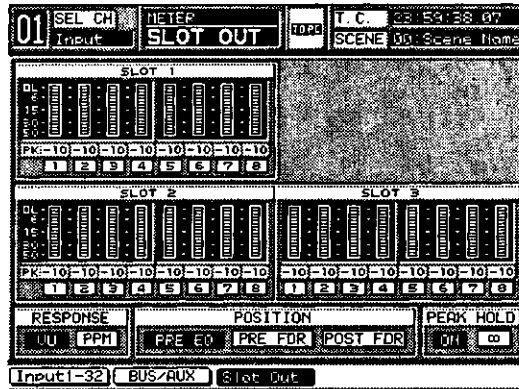


BUS/AUX Meter Window

This window has meters for **[BUS]**, **[AUX SEND]**, **[AUX RETURN]**, and **[MASTER]**, and permits meter operation modes adjustments for **[RESPONSE]**, **[POSITION]**, and **[PEAK HOLD]**.

The **[RESPONSE]**, **[POSITION]**, and **[PEAK HOLD]** operations are the same as in the **[INPUT 1-32]** window.

[METER>SLOT OUT] Window



METER>SLOT OUT Window

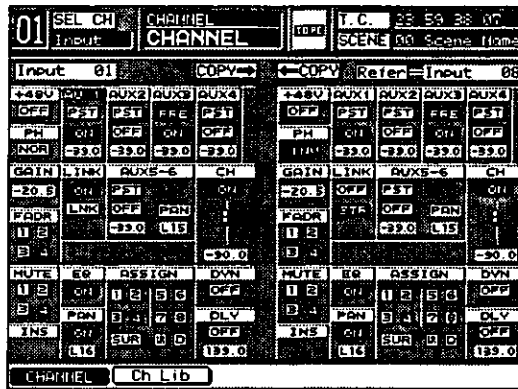
This window has meters for [SLOT 1], [SLOT 2], and [SLOT 3], and sets meter operation modes adjustments for [RESPONSE], [POSITION], and [PEAK HOLD].

For additional technical specifications, refer to **Appendix G Technical Specifications**.

The [RESPONSE], [POSITION], and [PEAK HOLD] operations are the same as in the [INPUT 1-32] window.

5 Channels, Library, & Meters

5-5 Channel Window, Multi-Channel View



[CHANNEL] Window, Multi-Channel View

In the Multi-Channel View window, which is selected by the **Multi CH View** button on the **Display Bridge**, the selected channel appears in a split screen. On the left side of the window you will see the selected channel, and on the right, you can choose a channel.

When a channel and its data are copied to another, all its attributes are transferred. Any conditions on the second channel will be overwritten, such as EQ, PAN, DYNAMICS/DELAY, AUX, and Channel On and Off.

The channel on the right side of the screen can be selected by moving the **CURSOR** to the field to the right of the **Refer** field. Once highlighted, use the **JogDial** to scroll through the channel choices: Inputs 1-32, AUX SND 1-6, AUX RTN 1-6, BUS 1-8, or MASTER.

Between the two input fields are two Copy buttons. The **COPY→** button copies the parameters from the selected channel to the reference channel. The **←COPY** button copies the parameters from the reference channel to the selected channel.

The Multi-Channel View window has all the functionality of the regular **[CHANNEL]** window. Because of the condensed space, several names have been abbreviated to accommodate the space restrictions:

[FADR] Button



This button selects a Fader Group, and has the same function as the **[FADR GRP]** area in the **[CHANNEL]** window.

[MUTE] Button



This button selects a Mute Group, and has the same function as the [MUTE GRP] area in the [CHANNEL] window.

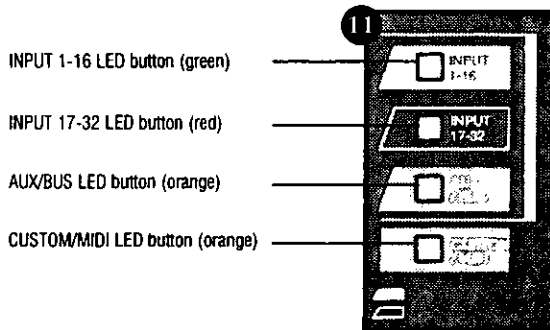
[ST] Button



This button has the same function as the **STR** button in the [LINK] area in the [CHANNEL] window. Selecting it will turn stereo pairing **ON** or **OFF**.

Chapter 6

Fader Layers and Channel Strips




Fader Layer Section

6-1 Fader Layers

The **Fader Layer** section is where you select the current function you want to use for the **Channel Strips**. When you change layers, the **DA7** updates the fader positions to reflect the current status of the channel levels for that layer. Any of the **Channel Strips** in that layer can now be edited.

The **INPUT 1-16** LED button when selected (*green*) controls analog inputs 1 through 16, and buses 1, 3, 5, and 7. The **INPUT 17-32** LED button when selected (*red*) controls digital inputs 17 through 32 (if there is an option card installed), and buses 2, 4, 6, and 8. The **AUX/BUS** layer controls aux sends 1 through 6, aux returns 1 through 6, and buses 1 through 8, and has an (*orange*) LED button. The **CUSTOM/MIDI** layer gives you a layer where all functions are selectable from the [UTILITY>USER CSTM] (user custom) window, and is also an (*orange*) LED button.

For additional information on utility functions, see **Chapter 16 Utility**.

INPUT 1-16 LED Button 

When you press this button on (*green*), the faders reset to control analog inputs 1 through 16, and buses 1, 3, 5, and 7, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press the **INPUT 1-16 LED** button a second time.

INPUT 17-32 LED Button 

When you press this button on (*red*), the faders reset to control inputs 17 through 32, and buses 2, 4, 6, and 8, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press the **INPUT 17-32 LED** button a second time.

These channels are for additional inputs only, and are not accessible unless you have installed one of the optional I/O cards.

For more information on adding additional inputs to the *DA7*, see **Chapter 17 Options**.

AUX/BUS LED Button 

When you press this button on (*orange*), the faders reset to control the six aux sends, the six aux returns and the eight buses as the active layer. The aux or bus designations are located immediately below the fader on the **Fader Strips**. This layer also becomes the active layer whenever you press the **FADER CONTROL LED** button in the **AUX** section.

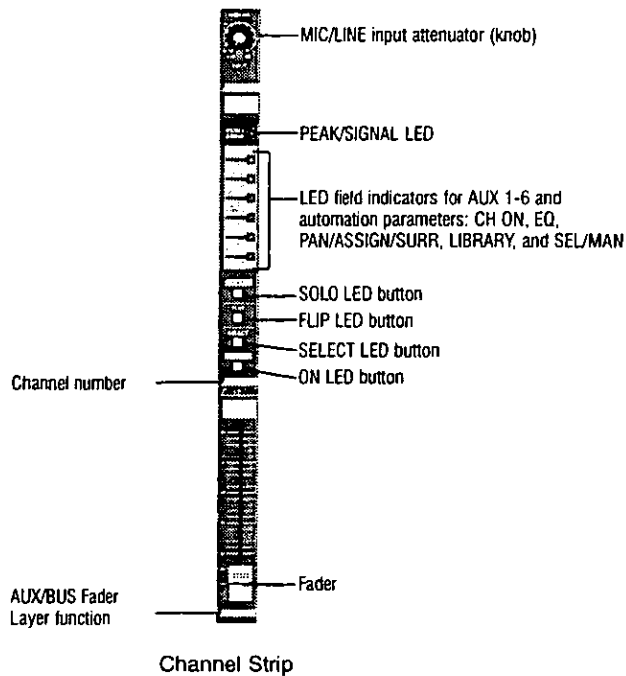
For more information on the **AUX** section, see **Chapter 10 AUX**.

CUSTOM/MIDI LED Button 

This is the fun layer. Press the **CUSTOM/MIDI LED** button and the faders will control 20 channels of audio and/or MIDI commands. An (*orange*) LED indicates when the **CUSTOM/MIDI** layer is active. The controls for programming the faders in this layer are in the **[UTILITY>USER CSTM]** (user custom) window.

For more information on the **CUSTOM/MIDI** layer, see **Section 16-4 UTILITY, User Custom Window**.

6-2 Channel Strip



Each Channel Strip has several tools that assign and control parameters for that channel.

MIC/LINE INPUT Knob



The **MIC/LINE INPUT** knobs, located at the top of each Channel Strip, adjust the channel input signal level. They only control analog inputs 1 through 16. When the Channel Strip is used in any fader layer except **INPUT 1-16**, the **MIC/LINE INPUT** knob has no effect, unless, when in the **CUSTOM/MIDI Fader Layer**, there are audio sources assigned to channels 1 through 16.

PEAK/SIGNAL LED



This LED indicates the channel input signal level (controlled by the **MIC/LINE INPUT** knob). The LED illuminates (*green*) when a signal is sensed. A (*red*) LED indicates that the input is close to clipping. Try to keep all signals below this point by adjusting the input gain via the **MIC/LINE INPUT** knob.

LED Status Indicators



These LEDs show whether **AUX 1-6** or automation parameters (**FADER**, **CH**, **EQ**, **PAN/SURR**, **LIBRARY**, and **SEL/MAN**) are on. The LED status indicators can be toggled by pressing the **AUTOMATION/AUX LED** button. The LEDs will flash (*red*) when **[AUTOMATION]** is enabled in the **[AUTOMATION>EXECUTE]** window. When an automation event is currently recording, the affected LEDs will remain illuminated (*red*). The LEDs will flash (*green*) when an automation is currently playing. Automation function indicators will take priority over the **AUX 1-6** indicators.

When an automation event is not active, and the **AUTOMATION/AUX** button is toggled to **AUX** (*green*), the LEDs will illuminate (*green*) to indicate the current **AUX** assignments.

Automation features and additional information can be found in **Chapter 14 Automation**.

FADER or AUX 1 LED

The LED color indicates whether the selected channel is assigned to either **AUX 1** or to **FADER** automation. When nothing is assigned, the LED is not lit.

CH or AUX 2 LED

The LED color indicates whether the selected channel is assigned to either **AUX 2** or to **CH ON** (channel on/off) automation. When nothing is assigned, the LED is not lit.

EQ or AUX 3 LED

The LED color indicates whether the selected channel is assigned to either **AUX 3** or to **EQ** (equalizer) automation. When nothing is assigned, the LED is not lit.

PAN/SURR or AUX 4 LED

The LED color indicates whether the selected channel is assigned to either **AUX 4** or to **PAN/ASSIGN SURROUND** automation. When nothing is assigned, the LED is not lit.

LIBRARY or AUX 5 LED 

The LED color indicates whether the selected channel is assigned to either **AUX 5** or to **LIBRARY** automation. When nothing is assigned, the LED is not lit.

SEL/MAN or AUX 6 LED 

The LED color indicates whether the selected channel is assigned to either **AUX 6** or to **SEL/MAN** (select/manual) automation. When nothing is assigned, the LED is not lit.

SOLO LED Button



Use the solo function to monitor a single channel or multiple channels via the **MONITOR A** outputs. When a **SOLO** LED button is on (*red*), the selected source is assigned to **MONITOR A** and all other signals are muted. When **SOLO** is selected, the **MONITOR A** source selection LED will turn off, indicating that **SOLO** is the source being monitored.

The **Display Bridge SOLO** LED turns on (*red*), and the output level of the channel being solo'd will be displayed by the **LR METER**.

The [**UTILITY>SOLO/MON SETUP**] window offers several solo configuration options. See **Chapter 16 Utility** for more information.

FLIP LED Button



The **FLIP** LED button on the **Channel Strip** shows whether that fader is controlling the input from **Fader Layer INPUT 1-16** or **Fader Layer INPUT 17-32**. When the **FLIP** LED is (*green*), inputs 1 through 16 are being controlled. When the **FLIP** LED is (*red*), inputs 17 through 32 are being controlled by the faders. For example, you can use channels 1 through 8 and 25 through 32 at the same time. Just raise all the **Channel Faders** and press the **FLIP** LED buttons for channels 9 through 16, which will turn the LEDs (*red*). Once they are (*red*), they will control channels 25 through 32.

When the [**MOTOR FADER**] selection in the [**UTILITY>CONFIG**] window is **ON**, pressing a **FLIP** button will update the respective **Channel Strip** to the appropriate settings for the **Fader Layer** selection and the fader will reset. When the [**MOTOR FADER**] selection is **OFF**, the fader will not reset but the flip function can still be performed.



Pressing the **FLIP LED** buttons is an easy way to access specific channels that are not in the current **Fader Layer** without flipping the whole board to a new layer.

SELECT LED Button



When a **SELECT LED** button is pressed on (*red*) a **Channel Strip**, it becomes the current channel in the LCD screen as displayed in the [taskbar]. If you are in any window except the [CHANNEL], [EQUALIZER], or [DYNAMICS] windows, pressing **SELECT** takes you to the [CHANNEL] window.

This button also sets stereo pairs if you press adjacent buttons simultaneously. To release the pair, press the same buttons again at the same time.

ON LED Button



The **ON LED** button simply turns the **Channel Strip** on or off so that no signal goes to the programmed bus. (*Red*) indicates that the channel is on, and no illumination means it is off.

Fader

The fader is used to adjust the output level of the **Channel Strip** during normal operation. Faders have a range of -∞ (infinity) to +10dB.

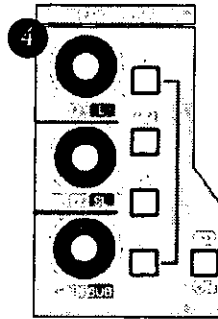
If you press the **FADER CONTROL LED** button in the **AUX** section, a fader will then adjust the selected aux send level. Pressing this button also updates the LCD screen to display the [FADER CONTROL] window, which shows metering and numeric values in the data field of the selected channel (1 through 32).

If you press the **FLIP LED** button to execute automation playback, change **Fader Layers**, change scene memories, or remotely control the **DA7**, the fader's position is automatically updated, unless [MOTOR FADER] is turned **OFF** in the [UTILITY>CONFIG] window.

If you are a MIDI enthusiast, you will love using the faders to send MIDI control change data to other MIDI devices. Faders can also be controlled by an external MIDI sequencer.

Chapter 7

Equalizer

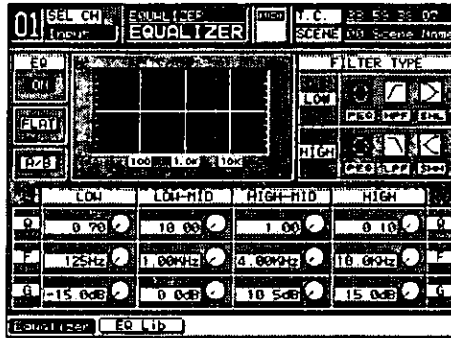


EQUALIZER Section

7-1 Overview

This chapter provides information on the **EQUALIZER** section of the Top Panel and the **[EQUALIZER]** window group selections. A 4-band parametric equalizer is available for each of the channels, each of the buses, and **MASTER LR** while a 2-band parametric equalizer is available for each of the six aux returns. There are no parametric equalizers provided for the six aux sends, which is no problem because you can apply equalization to the channel prior to assigning an aux send. Each equalizer band has controls for Q factor, frequency, and gain.

The **[EQUALIZER]** window provides filter type selections for refining the specific equalization settings. In addition to the default filter type of **[PEQ]** (parametric equalizer) filtering, high pass, low pass, shelf high, and shelf low filter types are available. The **[EQUALIZER]** window also contains an **[A/B]** function area which allows you to compare two equalizer settings for the selected channel, and a **[FLAT]** or "clear" function.



EQUALIZER window

Section 7-2 EQUALIZER Section details the controls and buttons accessible on the Top Panel of the DA7.

Section 7-3 EQUALIZER Window provides information on the various elements and areas of the [EQUALIZER] window. Since the [EQUALIZER] window is one of the selections in the [EQUALIZER] window group, we will refer to it simply as the [EQUALIZER] window, and not as the [EQUALIZER>EQUALIZER] window.

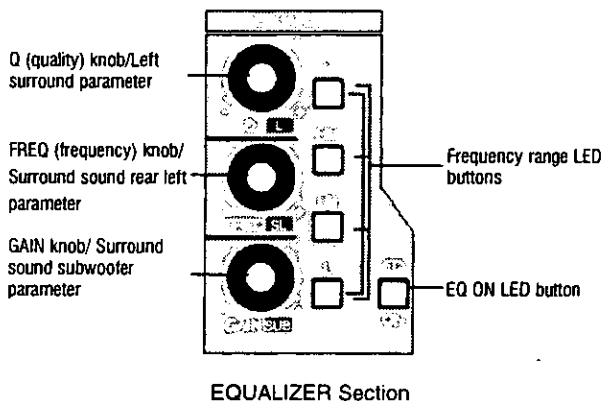
Section 7-4 EQUALIZER LIBRARY Window covers the library register functions that are available for storing and recalling equalizer settings.

Section 7-5 EQUALIZER Window, Multi-Channel View contains additional information that is unique to the multi-channel view for the [EQUALIZER] window.

7-2 EQUALIZER Section

The primary settings for the equalizer can be accessed on the Top Panel while the LCD screen continues to display the [CHANNEL] window. Although this [CHANNEL] window functionality is convenient when you are making general equalizer adjustments, to aid you in understanding the following information, please follow these steps to access and activate the controls in the EQUALIZER section:

- 1 Press the **GAIN** knob in the **EQUALIZER** section to display the [EQUALIZER] window. Or, cursor to the [EQUALIZER] area in the [CHANNEL] window, and press **ENTER** to display the [EQUALIZER] window. Or, when the [AUTO DISP CHANGE] selection in the [UTILITY>CONFIG] window is **ON**, press an LED button or adjust a knob in the **EQUALIZER** section to automatically display the [EQUALIZER] window.
- 2 Press a **SELECT** button to select the channel you want to adjust.
- 3 Turn the equalizer on by pressing the **EQ ON** LED button on the Top Panel, or cursor to the [EQ] area **OFF** button, and press **ENTER**.
- 4 Select a band to adjust by pressing one of the frequency band LED buttons, **H**, **HM**, **LM**, or **L**.
- 5 Adjust EQ parameters by turning the **Q**, **FREQ**, and **GAIN** knobs, or cursor to a soft knob and adjust with the JogDial. The EQ characteristics are displayed on the graph in the [EQUALIZER] window, and are also displayed in the [EQUALIZER] area of the [CHANNEL] window.



There are three knobs and four frequency band LED buttons in the **EQUALIZER** section, which are used to modify the frequency characteristics of the selected channel. The **EQ ON** LED button toggles the equalizer on (*green*) and off. When on, frequency adjustments set with the controls are active on the selected channel.

The three knobs are labeled **Q** (quality), **FREQ** (frequency), and **GAIN** (gain). The additional labeling of **L** (left), **SL** (surround left), and **SUB** (surround bass) identify the surround sound parameters that are controlled by the knobs when the **[SURROUND]** window is displayed. There are also four LED buttons on the Top Panel with which you select the EQ band to adjust.

EQUALIZER Section Elements

GAIN or **SUB** Knob

Pressing this knob, while in any window, will update the LCD to the **[EQUALIZER]** window group. Each time you press it, the **[EQUALIZER]** window and **[EQ LIB]** window are alternately displayed. Once you select one of the four bands (**H**, **HM**, **LM**, **L**), turning the **GAIN** knob adjusts the gain of the selected frequency.

This knob also works as a level adjustment in a surround sound mix. When the **[SEND VOL]** button in the **[MODE]** area of the **[PAN>SURROUND]** window is activated, the **SUB** knob controls the level for the surround sound subwoofer output by adjusting the send level of the selected channel to the surround sound BUS 4.

Q or **L** Knob

Turning the **Q** knob adjusts the width of the frequency range for the currently selected band, centered on the selected frequency. A very narrow setting can be used to pin-point a troubling frequency by acting like a notch filter. A wide setting will adjust a large range of frequencies. This function cleans up muddy audio, such as live mixes or narration.

This knob also acts as a level adjustment in a surround sound mix. The **L** knob controls the level for the surround sound left output by adjusting the send level of the selected channel to the surround sound BUS 1.

FREQ or **SL Knob** 

The **FREQ** knob sets the frequency point of the currently selected band. A vertical line will move across the graph as you rotate the knob, indicating where you are in the frequency spectrum.

This knob also makes level adjustments in a surround sound mix. The **SL** knob controls the level for the surround sound rear left output by adjusting the send level of the selected channel to surround sound BUS 5.

H, HM, LM, and L LED Buttons , , , and 

There are four discrete parametric equalizer bands in the **EQUALIZER** section. The LED buttons are labeled **H** (high), **HM** (high-mid), **LM** (low-mid), and **L** (low). The **H** and **HM** bands are adjustable from 50hz to 20Khz, and the **LM** and **L** bands are adjustable from 20hz to 20Khz.

Press the LED button for the respective band to select it (*green*). The **Q**, **FREQ**, and **GAIN** knobs can be used to adjust the selected parametric equalizer band. The selected EQ band is displayed in the **[EQUALIZER]** window in inverse video.

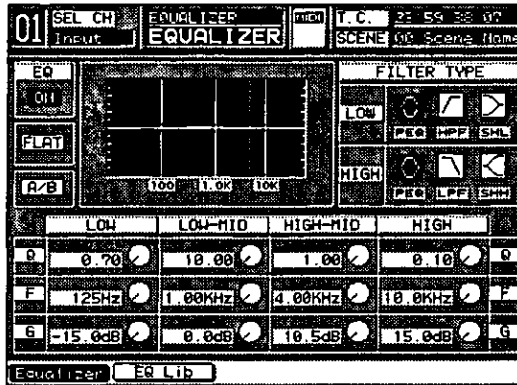
There are additional filter type selections in the **[EQUALIZER]** which augment or modify the selected equalizer band. See *Section 7-3 EQUALIZER Window* for descriptions of these filter types.

EQ ON LED Button 

Press this button to turn equalization on (*green*) or off for the selected channel.

For additional information on surround sound mixing, see **Chapter 8 PAN ASSIGN/SURROUND**.

7-3 EQUALIZER Window



EQUALIZER Window

The **[EQUALIZER]** window has several areas of functionality. Use the **ARROW** buttons or **JogDial** to access the parameters in the windows. The data fields, graph, and soft knob positions update in real time to show the adjustment results.

[EQ] Button

Using the **ARROW** buttons or **JogDial**, **CURSOR** to the **[EQ]** area, and press **ENTER** to switch the equalizer **ON**.

[FLAT] Button

If there are any adjustments in any of the EQ parameters, pressing the **[FLAT]** button will reset all of them to a flat reference (no equalizer attributes) for the selected channel.

[A/B] Button

The **[A/B]** function lets you compare two equalizer settings. **CURSOR** to the **[A/B]** button, and press **ENTER**. The equalizer graph will update to the most recently established temporary equalizer settings, and the **[A/B]** button will be highlighted momentarily. Toggle the **[A/B]** button to return to the current equalizer settings.

The temporary equalizer settings are retained in library register 00 until accessed and modified. You do not have to pre-select this register for comparison.



Filter Types

The *DA7* equalizer can be used in several modes, parametric, high and low pass filtering, and shelving. CURSOR to one of the filter type buttons, and press ENTER. [FILTER TYPE>LOW] has controls that work only for the [LOW] band, and [FILTER TYPE>HIGH] has controls that work only for the [HIGH] band.



PEQ Buttons

The  [PEQ] filter type is the default setting.



HPF Filter Button

The [HPF] (high pass filter) cuts off low frequencies and lets high frequencies pass. The Q factor is not applicable here, since everything below the assigned frequency is cut out. In the [LOW] band the  (gain) soft knob sets the filter on or off, and the  (frequency) soft knob selects the point at which the roll-off starts (selectable between 20 Hz and 1.6 KHz).



LPF Filter Button

The [LPF] (low pass filter) cuts off high frequencies and lets low frequencies pass. The Q factor is not applicable here, since everything above the assigned frequency is cut out. In the [HIGH] band, the  (gain) soft knob sets the filter on or off, and the  (frequency) soft knob selects the point at which the roll-off starts (selectable between 1 KHz and 20 KHz).

SHL Filter Button

Selecting the [SHL] (shelf low) filter type treats the lowest band (L) of the EQ much like a bass volume control. Again the Q factor is not applicable here and is unselectable. In the [LOW] band the  (gain) soft knob sets the gain of the selected frequency, and the  (frequency) soft knob selects the point at which the roll-off starts (selectable between 20 Hz and 1.6 KHz).

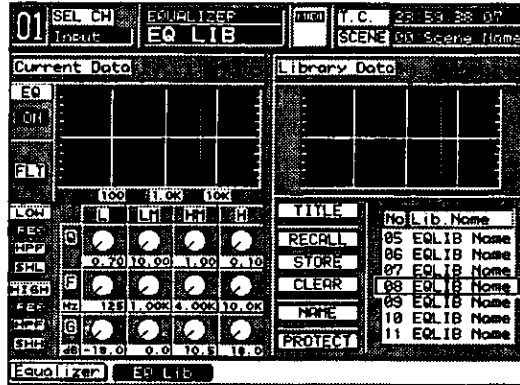
SHH Filter Button

Selecting the [SHH] (shelf high) filter type treats the highest band (H) of the EQ much like a treble volume control. There is no Q factor here either. In the [HIGH] band, the  (gain) soft knob sets the gain of the selected frequency, and the  (frequency) soft knob selects the point at which the roll-off starts (selectable between 1 KHz and 20 KHz).

7-4 EQUALIZER Library Window

This window shows the [EQ LIB] (equalizer library) functions and status of a selected channel. You can edit, store, and recall presets from the EQ library.

Pressing the **GAIN** knob twice on the Top Panel displays the [EQ LIB] window (unless it was the last window visited in EQ, in which case one push will bring up the window).



Equalizer Library Window

Library Window Elements

[TITLE] Button

Use this button to store library settings without displaying the Name Editor. When [TITLE] is on, a setting is stored with the name [NoTitle##A]. This setting can later be recalled and renamed by using the [NAME] button.

[RECALL] Button

Selecting this button and pressing **ENTER** recalls one of the fifty stored registers, along with all of the EQ settings. With the JogDial in the [No. Lib Name] area, scroll through the register lists and make a selection by pressing the [RECALL] button. The **MEMORY** numeric readout will flash for two seconds, indicating that a new preset is being loaded.

STORE Button

Activating this button stores the current EQ settings into one of the fifty registers. The **[NAME EDITOR]** window pops up, prompting you to name the new preset. After naming it, scroll to the **OK** button, and press **ENTER**. The **MEMORY** numeric readout will flash for two seconds, indicating that you have written to the register. The library comes with all presets named "INITIAL *".

CLEAR Button

Activating this button initializes the current register to the factory settings. When cursoring to this button, you should be thinking "back-up"!

NAME Button

Activating this button opens up the **[NAME EDITOR]** window, prompting you to name the new register. After naming it, scroll to the **OK** button in the **[NAME EDITOR]** window, and press **ENTER**. The **MEMORY** numeric readout will flash for two seconds, indicating that you have written to that memory location.

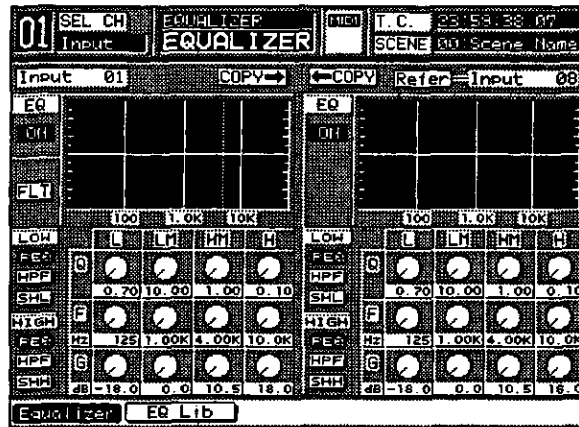
PROTECT Button

Select this button, and press **ENTER** to protect the current register from being cleared or over-written.

Library selections are made when the **CURSOR** is within the **[Library Data]** area by rotating the **JogDial**. Rotating it clockwise moves the **CURSOR** through the library numbers from low to high (1-50), while turning it counter-clockwise moves through the library from high to low (50-1).

7-5 EQUALIZER Window Multi-Channel View

While an [EQUALIZER] window is displayed on the LCD screen, press the **MULT CH** button on the **Display Bridge** to change the display to the multi-channel view. This window shows the selected channel on the left side of the LCD and a reference channel on the right. Only the selected channel can be modified. However, you can copy entire settings either way.



Equalizer Window (Multi-View)

Multi-channel View Window Elements

COPY→ Button

Activating this button copies the EQ parameters from the currently selected channel to the reference channel.

←COPY Button

Activating this button copies the EQ parameters from the reference channel to the currently selected channel.

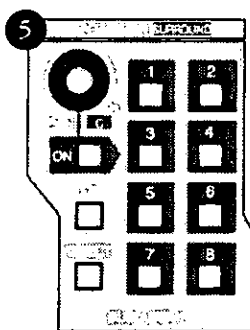
Refer Field

The **Refer** field displays the name of the channel being auditioned (**INPUTS 1-32, AUX RTN 1-6, BUSES 1-8, and MASTER**). When this field is active, use the **JogDial** to scroll through all of the input channels to select the EQ settings you want to use.

Chapter 8

Pan/Assign, Surround, Bus Assign

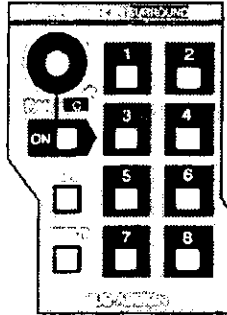
8-1 PAN/BUS ASSIGN Controls



PAN/ASSIGN/SURROUND Section

This section explains access to the **PAN** and 5.1 surround sound controls, and the assignment of **LR**, **DIRECT**, and **BUSES 1-8** for a selected channel. The **ON** LED button in this section switches the pan on (*red*) or off for odd and even selected buses. Pressing the **PAN** knob displays the [**PAN/SURROUND**] window group in the LCD. It also controls the level for the center output in surround sound mode, going out on surround sound **BUS 3**. Pan will always affect the **MASTER LR** output, regardless of the position of the pan **ON** button, but does not affect the **DIRECT** outputs.

BUS ASSIGN Controls



BUS ASSIGN Control Area

Use the **BUS ASSIGN** section to assign a channel to an output. Once a channel is selected, select either **MASTER LR**, **DIRECT**, or **BUS 1, 2, 3, 4, 5, 6, 7, or 8** by pressing the corresponding LED button.

BUS LED Buttons

These buttons switch on (*green*) or off the indicated assignment to that bus for the selected channel. Press the LED button to turn it on from the Top Panel, or **CURSOR** to the **[ASSIGN]** area of the **[CHANNEL]** window, and press **ENTER**.

LR LED Button

This button switches the selected channel on (*flashing green*) or off to the **MASTER LR OUTPUT** of the **DA7**.

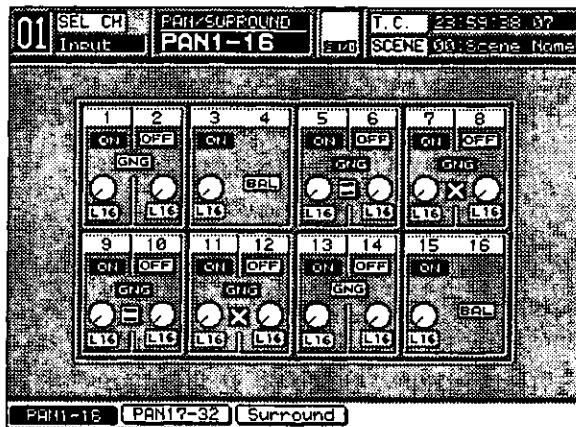
DIRECT LED Button

This button switches the selected channel on (*flashing green*) or off to the **DIRECT** output of the **DA7**. When on, the LCD will display the **[D-I/O > TO SLOT]** window.

See **Chapter 12 D-I/O** for additional information.

8-2 [PAN 1-16] and [17-32] Windows

The [PAN 1-16] and [PAN 17-32] windows in the [PAN/SURROUND] group show the current status of the pan and balance functions on input channels 1-32. The parameters can be set in the window using the **ARROW** buttons, or you can use the **JogDial** to **CURSOR** to a selected operation, and press **ENTER**. Pressing the **PAN** knob on the Top Panel displays the [PAN/SURROUND] window group in the LCD. Pressing the **PAN** knob cycles the user through the windows, [PAN 1-16], [PAN 17-32], and [SURROUND].



PAN 1-16 Window

Elements in the Windows

ON Button

Each channel area in the [PAN 1-16] and [PAN 17-32] windows has a button that toggles from the default **OFF** to **ON**. To engage or disengage the pan function, **CURSOR** to the **ON** or **OFF** button, and press **ENTER**. This button is for the 8 Buses only.

GANG Button

The gang function enables you to tie two faders together, but only in regard to their panned relationship. (When in stereo or linked, the fader controls physically tie the faders together; move one and they both move.) When assigning ganging to a **Channel Fader**, the **DA7** will determine whether the selected fader is an odd or even number, and will assign the attributes (Odd# = left channel and Even# = right channel) to the adjacent fader.

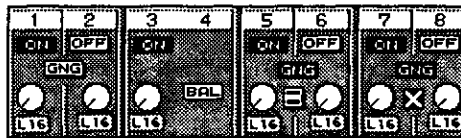
[PAN/BAL] Soft Knobs

The [PAN/BAL] soft knob sets the pan or balance of a selected channel.

To set pan or balance, rotate the JogDial. Cursor to the [PAN/BAL] soft knob, and press ENTER. Or, you can use the PAN knob on the Top Panel. The range for pan or balance is from L 16 - C - R 16. The Pan only affects the buses, and not the LR output.

Ganging

Ganging can be set by moving the CURSOR to the selected channel's **GNG** button. **ON** will appear as inverse video when ENTER is pressed.



Four States of the Pan/Surround Window

To interlock the pan or balance between adjoining odd and even channels, cursor to the **GNG** button, and press ENTER. The **ON** button is displayed in reverse video, and the visual division between channels disappears.

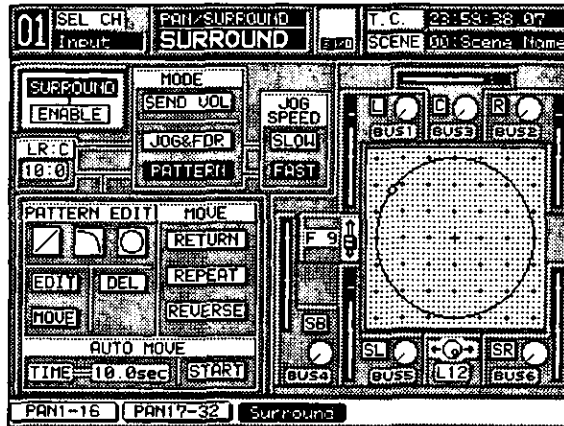
The ganging modes are interlocking when **ON** appears between the two soft knobs, and counter-interlocking when **X** is visible. Move the CURSOR to the **GNG** button, and press ENTER to display the area.

If either soft knob is rotated to the end of its range under the ganged condition, it will not turn any more in the same direction.

When the selected channel is in **ON** mode, and panned full to left and right, the gang pan value cannot be affected. (Only the **X** mode is operational in this function).

8-3 SURROUND Window

The parameters for surround sound are set in this window.



SURROUND Window, Single Channel View

The computer age has made surround sound much easier to create. The phrase 5.1 is a little misleading since there are six discrete channels. The channels are Left Front, Center, Right Front, Left Surround, Right Surround, and Subwoofer, (which is the “.1”).

Several of the better known surround sound formats are Dolby Pro Logic Surround, Dolby Digital, DTS (Digital Theater Systems), and SDDS (Sony Digital Dynamic Sound).

SURROUND Button

The surround sound function can be turned on both from the **[PAN/SURROUND>SURROUND]** window and the assign switch on the **[CHANNEL]** window. Move the cursor to the **SURROUND** button, and press **ENTER**. The button appears as inverse video when engaged, and the data field below it changes from **DISABLE** to **ENABLE**.

[LR:C] Field

This field sets the ratio of the left or right output level versus the center output level. Select the **[LR:C]** field with the cursor, and use the JogDial to change the values from 0:10 to 10:0.

The value of 0:10 will create a “center emphasis” pan, whereas a value of 10:0 will have no “centering” effect.

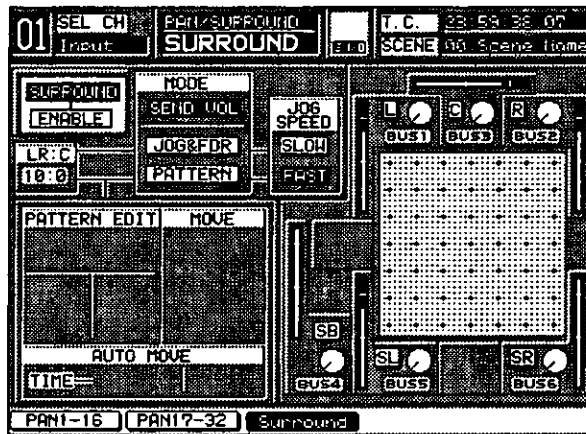
Surround Sound [MODES] Area

The *DA7* has three modes for setting surround sound mixing: a live interaction mixing using the *DA7* surround sound knobs; a graphical mode using the *JogDial* and **MASTER LR** fader; and a set of vector-based drawing tools to create a sound path. Only one mode per channel can be selected at a time.

Send Volume Mode

The **SEND VOL** button selects the surround operation send volume mode. Cursor to this button, and press **ENTER**.

In this mode you can operate the surround sound feature in the window and directly control each of the six output levels using the *DA7* Top Panel surround sound knobs.



Surround Window (Send Vol Mode)

Operations in the **SEND VOL** (Send Volume) Mode

To operate the **[SEND VOL]**, press the **C** knob to display the **[SURROUND]** window. Select the **[SURROUND]** button to set each source to **BUSES 1-6** to on status (visible from the Top Panel). Adjust the image movement by operating each knob, either with the window soft knobs or the Top Panel knobs **L**, **SL**, **SUB**, **C**, **R**, and **SR**.

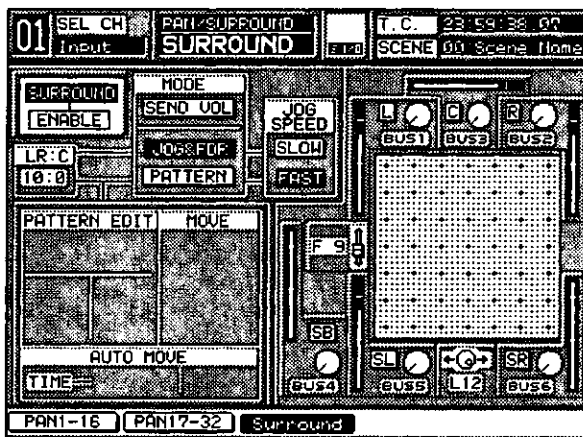


If you have enabled automation to [REC], the knob adjustment data set in the [SURROUND] window will be recorded in automation memory.

JogDial and Master LR Fader Mode

Press the **JOG&FDR** button to select JogDial & Master LR fader operation mode. Operating the JogDial (left to right) and the MASTER LR fader (front to rear), enables them to work together to move the sound point on a graph anywhere in the surround sound spectrum.

Adjust the [LR:C] parameter in the window to set desired output balance.



Surround Window (JOG&FDR Mode)

Operations in the JogDial and Master LR Fader Mode

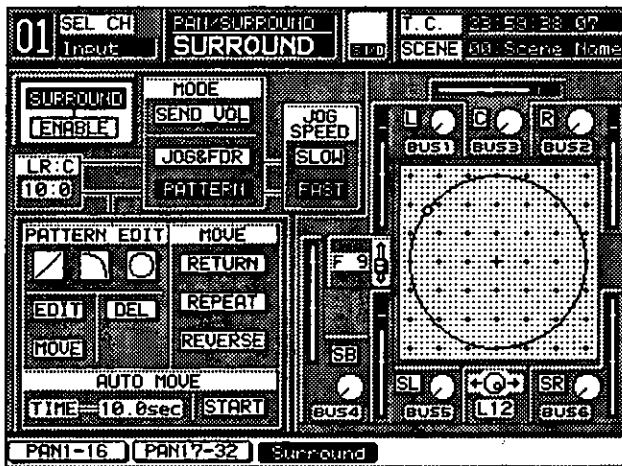
Select the **JOG&FDR** button in the [SURROUND] window. A dot showing the sound point will appear in the graph in the front center position, and the MASTER LR fader will automatically move to the top position. The front or rear direction is adjusted by the MASTER LR fader, with the fader up as front and fader down as rear. The left or right direction is adjusted with the JogDial. Turning clockwise is left and counter-clockwise is right.

Pattern Mode

Press the **[PATTERN]** button to select the pattern mode for surround sound placement. Three new areas – **[PATTERN EDIT]**, **[MOVE]**, and **[AUTO MOVE]** – become available.

This mode lets you draw vector paths that move over time. You can combine up to five shape elements when designing the sound path. You can make moves occur automatically by setting the **[TIME]** value in the **[AUTO MOVE]** area.

Adjust the **[LR:C]** parameter in the window, and set the desired output balance adjustable from 0:10 - 10:0.



Surround Window (Pattern Mode)

[PATTERN EDIT] Area

Straight Line Mode Button

With this button you can draw a straight line. Once selected, use the **MASTER LR** fader and the **JogDial** to define a placement, and press **ENTER**. This control point marks the beginning of the path. Select the place for the next control point, and press **ENTER** to connect the points. Alternate pressings on the **ENTER** button lets you set the second control point or reselects the mode button.

Curved Line Mode Button

With this button you can draw a curved line. The curved line can be selected in 1/4 arc shapes. Up and down specifications can be changed by pressing the **ENTER** button and the **CURSOR MODE** button simultaneously. Again, alternate pressings on the **ENTER** button lets you set the second control point or reselects the mode button.

Circle Mode Button

This tool lets you draw a circle or an oval.

The default direction is clockwise. To draw counter-clockwise, press the **REVERSE** button in the **[MOVE]** area. This pattern cannot be combined with others. A dot flashes to indicate the surround screen graph starting point.

Adjust the starting point of the location by using the **JogDial** for left and right direction and the **MASTER LR** fader for front and rear direction. Slowly pull down the **MASTER LR** fader, while rotating the **JogDial** clockwise, and holding down the **ENTER** button.

Once you are happy with the circle drawn on the graph, release and press **ENTER** to lock the pattern into memory. Confirm the beginning and end points of the pattern by rotating the **JogDial**, and watch it move around the shape.

MOVE Button

Once a pattern has been made, the **MOVE** function selects an entire pattern and moves it. It is not possible to move beyond the graph range.

The location source center position can be adjusted by using the **JogDial** for left or right direction and the **MASTER LR** fader for front or rear direction. The pattern will show a dotted box around it when **MOVE** is selected. When the pattern has been moved to a preferred place on the graph, press **ENTER** again to set the new location.

To change a move, press **ENTER** again, and the pattern will once again move to a highlighted point on the graph. Repeat the preceding process for moving the pattern to a new location.

To delete the pattern, **CURSOR** to the **DEL** button, and press **ENTER**.

EDIT Button

This button lets you edit the currently selected control point.

Press the **EDIT** button. Select a control point by moving the **CURSOR** along the path with the **JogDial**. Stop at the point you want to adjust, and press **ENTER**. The selected control point blinks indicating that it is being edited. Adjust the control point by using the **JogDial** and the **MASTER LR** fader, and press the **ENTER** button again. When complete, the blinking control point stops and returns to the dot indication. While in this mode, you can keep adjusting points by repeating this process. The graph will show the moving operation during the adjustment.

[DEL] Button

Use this button to delete the most recent control point created in **[PATTERN]** mode, which will delete the whole line.

JogDial

Adjust sound location by turning or rotating the **JogDial**.

[MOVE] Area**[RETURN] Button**

When Return is on, appearing as inverse video, the **CURSOR** movement repeats from the starting point —> to the end point —> to the starting point —>. When Return is off, it simply moves the **CURSOR** from the starting point —> to the end point.

[REPEAT] Button

This button moves the source location **CURSOR** from the starting point —> to the end point and the end point —> to the starting point when off. When on, it will repeat the movement continuously.

[REVERSE] Button

Reverse will move the source location **CURSOR** in the opposite direction, from the end point —> to the starting point when on. When Reverse is off, the **CURSOR** moves in a normal or clockwise direction.

[AUTO MOVE]

Here you can program the duration of an automatic move of the source/location. Use the **JogDial** to select a duration for the move from 0.0 sec to 30.0 sec. The function will begin when the **[START]** button is pressed. This mode follows the same conditions as in **[MOVE]**. The **CURSOR** will move, in the time set, from the starting point to the end point (or, the end point to the starting point when in reverse).

Pressing **[START]** a second time stops the movement. The knob-adjusted data will be recorded automatically when adjusting during automation **[REC MODE]**. This action can be reset repeatedly by going back into **[REC MODE]** and redoing the automation mix for the effect.

[TIME] Field

In the **[AUTO MOVE]** area you can set the automated move time. Cursor to the field and rotate the **JogDial** to set a time value. The **[TIME]** field has a duration range of 0.0 sec to 30.0 sec.

[START]

This button starts and stops the automated move time. Press **ENTER** to toggle the setting.

BUS Outputs

Buses 1 through 6 can be toggled on and off by moving the cursor to a soft knob and pressing **ENTER**. The following chart shows the **DA7** surround knobs and their correlating soft knobs.

Left front**[L/BUS 1]****Q L** **EQUALIZER** section
 Right front**[R/BUS 2]****R** **DYNAMICS/DELAY** section
 Center**[C/BUS 3]****PAN C** **PAN/ASSIGN** section
 Sub**[SB/BUS 4]****GAIN SUB** **EQUALIZER** section
 Left rear**[SL/BUS 5]****FREQ SL** **EQUALIZER** section
 Right rear**[SR/BUS 6]****SR** **DYNAMICS/DELAY** section

The bus assignment for any selected channel can be seen in the **[ASSIGN]** area of the **[CHANNEL]** window.

[JOG SPEED] Area

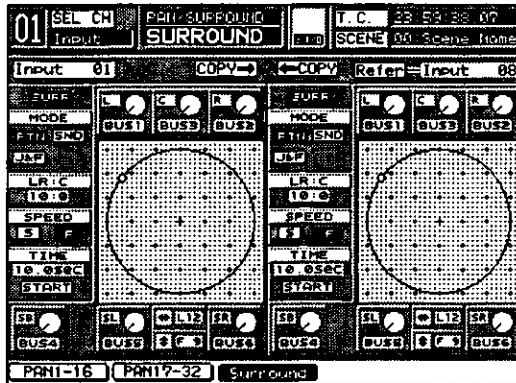
These settings determine the speed range of the **JogDial** when moving a sound point on the graph, or during setup mode. Set the **SLOW** and **FAST** before, after, or during any movement. The speed actions are slow (.5X normal speed) and fast (2X normal speed). These are only operational when either **JOB&FOR** or **PATTERN** modes are selected.

Output Level Meter

To view all of the bus output levels, display the **[METER>BUS/AUX]** window. The meter point reflects the bus output. The **[RESPONSE]** area selections in the **[METER>BUS/AUX]** window permit a response assignment of either **UJ** or **PPH**, which is interlocked with the setup in the Meter window.

8-4 SURROUND Window, Multi-Channel View

In this view, you can display the current channel on the left of the window and another channel on the right. Parameters can only be adjusted on the currently selected channel, but the surround sound parameters can be copied in both directions between the two channels displayed.



SURROUND Window, Multi-Channel View

The **[SURROUND]** multi-channel view window has all the functionality of any multi-channel view window.

For more details, refer to *Section 5-4, CHANNEL Window, Multi-channel View*.

The **[SURROUND]** window multi-channel view has almost all of the functionality of the regular **[SURROUND]** window, with the following button names modified to save window space:

[SURROUND]**[SURR]**

[SEND VOL]**[SND]**

[JOG&FDR]**[J&F]**

[PATTERN]**[PTN]**

[SLOW]**[LO]**

[HIGH]**[HI]**

These following functions are not available when the **[SURROUND]** multi-channel view window is displayed:

[RETURN]

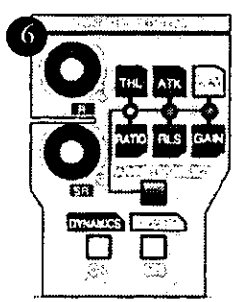
[REPEAT]

[REVERSE]

Selection of Reference Channel

The **[REFER]** (reference) field displays the name of the channel being auditioned (inputs 1 through 32 and aux returns 1 through 6).

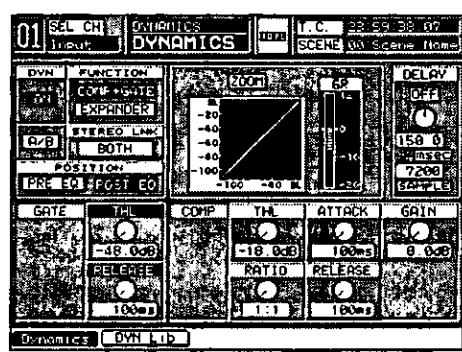
Chapter 9 Dynamics/Delay



Dynamics/Delay Section

9-1 Overview

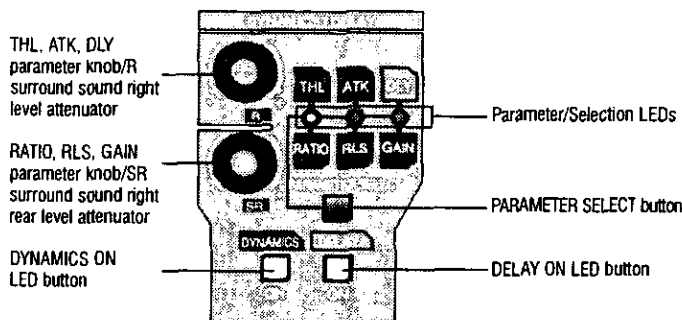
The DA7 provides a built-in dynamics processor. Channels 1 through 32, buses, and MASTER LR can all have either compression + gating, or expansion. Delay attributes can also be added to Channels 1 through 32. A [DYNAMICS] library has been added so that you can create and archive custom presets and instantly recall them.



DYNAMICS Window

Section 9-2 DYNAMICS/DELAY Section Controls explains how to use the DA7 Top Panel controls to edit parameters. **Section 9-3 DYNAMICS Window** and **Section 9-4 DYNAMICS Window, Multi-Channel View** describe the software functions. **Section 9-5 DYNAMICS Library Window** explains how to save and recall presets from the dynamics library.

9-2 DYNAMICS/DELAY Section Controls



DYNAMICS/DELAY Section Controls

Users can discretely provide dynamics processing to a selected channel. The two knobs in the **DYNAMICS/DELAY** section of the Top Panel are labeled **R** and **SR**, which correspond to surround sound parameters, but are also used to adjust the various dynamics attributes as indicated.

SR Knob

The **SR** knob adjusts the **RATIO**, **RLS** (release), and **GAIN** parameters. When the **SEND VOL** mode is selected in the **[SURROUND]** window, the knob adjusts a send level from a selected channel for the **SR** (surround right rear) output to **BUS 6**.

R Knob

The **R** knob adjusts the **THL** (threshold), **RLS** (release), and **DLY** (delay) parameters. When the **SEND VOL** mode is selected in the **[SURROUND]** window, the knob adjusts a send level from a selected channel for the **R** (surround right) output to **BUS 2**.

PARAMETER SELECT Button



Pressing the **PARAMETER SELECT** button changes the parameters to be adjusted by the **R** and **SR** knobs. Repeated pressing of this button cycles the four choices: threshold or ratio—>attack or release—>delay or gain—>threshold or release. The appropriate LED will light (orange) showing which set of parameters are in use: **THL** and **RATIO**, **ATK** and **RLS**, **DLY** and **GAIN**. No LED will light when the **THL** and the **RLS** are in **GATE** mode.

THL and RATIO LED Button

When this LED is illuminated (*orange*), **THL** (threshold) and **RATIO** attributes can be edited. The **R** knob adjusts the threshold level, and the **SR** knob adjusts the ratio level. These parameters can also be adjusted in the **[DYNAMICS]** window by highlighting the selection soft knob and turning the **JogDial** to change the level.

ATK and RLS LED Button

When this LED is illuminated (*orange*), **ATK** (attack) and **RLS** (release) attributes can be edited. The **R** knob adjusts the attack level, and the **SR** knob adjusts the release level.

DLY and GAIN LED Button

When this LED is illuminated (*orange*), **DLY** and **GAIN** attributes can be edited. The **R** knob adjusts the delay time of the channel, and the **SR** knob adjusts the gain.

DYNAMICS ON LED Button

This LED button switches the dynamics for a selected channel on (*green*) or off. Press the **DYNAMICS ON** LED button to toggle between on and off.

DELAY ON LED Button

This LED button switches the delay for a selected channel on (*green*) or off. Press the **DELAY ON** LED button to toggle between on and off.

THL and RLS LED Button

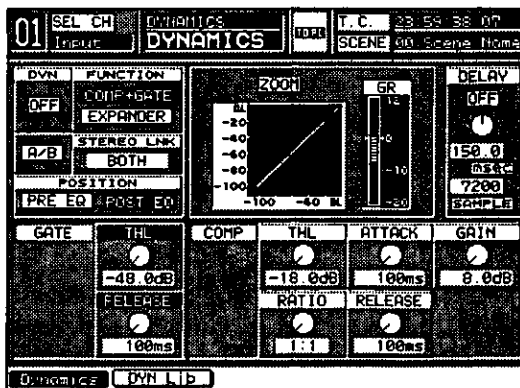
In the parameter select area, if there is no LED illuminated, the **THL** and **RLS** attributes can then be edited for **DYNAMICS** in the **[COMP+GATE]** mode.

9-3 DYNAMICS Window

Press the **SR** knob in the **DYNAMICS/DELAY** section to display the **[DYNAMICS]** window. Or, **CURSOR** to the **[DYN]** area graph in the **[CHANNEL]** window, and press **ENTER** to display the **[DYNAMICS]** window. Or, when the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **ON**, pressing an LED button or adjusting a knob in the **DYNAMICS** section will automatically display the **[DYNAMICS]** window.

The **[DYNAMICS]** window reflects the current dynamics settings for the selected channel and contains the controls for adjusting the dynamics and delay attributes for the channel.

Dynamics has two modes, compressor + noise gate, or expander. You can also set the channel delay time from this window.



DYNAMICS Window

[DYNAMICS] Window Elements

[DYN] **OFF** Button

Toggle this button to switch the dynamics **ON** or **OFF** for the currently selected channel.

[R/B] Button

This button permits you to compare two different dynamics settings. Toggle the **[R/B]** button, and the two settings can be listened to sequentially.

[FUNCTION] Area

This area is where you choose either compressor + gate mode, or expander mode. Activate the **COMP+GATE** button to control the parameters for the compressor + gate. Activate the **EXPANDER** button to control the parameters for the expander.

[STEREO LINK] Area

The stereo link setting defines the relationship between channels in a stereo pair when making gain adjustments to the channels. **CURSOR** to this area and use the **JogDial** to scroll the stereo link selections in the data field. The stereo link options are:

● OFF

When OFF is the stereo link selection, gain adjustments made to either channel in the stereo pair will be independently applied to the channels. This will cause the stereo imaging to shift in favor of the channel with the higher level.

● LEFT

When LEFT is the stereo link selection, gain adjustments made to the left channel in the stereo pair will automatically be applied to the right channel. The stereo imaging will remain centered, regardless of the level.

● RIGHT

When RIGHT is the stereo link selection, gain adjustments made to the right channel in the stereo pair will automatically be applied to the left channel. The stereo imaging will remain centered, regardless of the level.

● BOTH

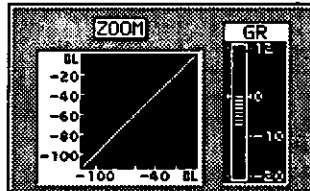
This is the default setting for the stereo link function. When BOTH is the stereo link selection, gain adjustments made to either channel in the stereo pair will automatically be applied to the second channel. The stereo imaging will remain centered, regardless of the level.

[POSITION] Area

The dynamics circuit can be patched in either before or after the EQ. Select the **PRE EQ** button, and press **ENTER** to put the dynamics ahead of the EQ. Select the **POST EQ** button and press **ENTER** to put the dynamics after the EQ. Let experimentation be your friend here. Boosting EQ in front of dynamics can lead to some outrageous dynamic effects.

[ZOOM] Button

When the **[ZOOM]** button is on, it will appear as inverse video, and change the scale of the dynamics graph from OL to -100, to OL to -50. Any changes to the dynamics settings will appear in the graph area beneath the **[ZOOM]** button.

[GAIN REDUCTION] Area

GAIN REDUCTION Area

When a selected signal is input in the **[COMP+GATE]** mode, gain reduction for that input signal is graphically displayed on the **[GR]** Meter. The amount of gain is referenced by twin arrows on either side of the gain bar scale, which slide up and down in relation to the amount of gain reduction. The reference is connected to the **[GAIN]** knob. Adjust the gain level with the **[GAIN]** knob. The scale will show gain reduction from +12dB to 0dB, the same as the range of the **[GAIN]** knob.

[THL] Area

Threshold sets the level at which the gate opens and closes. Signals below the threshold point will close the gate and prevent the signal from passing. Signals above the threshold point will pass through the gate. Values for the threshold are -40.0dB to 0.0dB for the compressor, -80.0dB to -40.0dB for the gate, and -80.0dB to -40.0dB for the expander.

[RATIO] Area

The ratio parameter sets the amount of compression (amount of output signal change compared to the amount of input signal change). A typically used 2:1 ratio would take a 10dB change in input and cause a 5dB change in output. Values for ratio are from 1:1 to ∞ :1 for the compressor and 1:1 to 1: ∞ (infinity) for the expander.

[ATTACK] Area

The attack time is how long it takes for the compressor to kick in after the signal has triggered it. A short attack of around 1-5 ms is a good starting point. Values for attack time are from 0 ms to 32 ms for the compressor and 0 msec to 32 msec for the expander.

[RELEASE] Area

The release time is how long it takes for the compressor to return to its default level after the signal falls below the threshold point. Too short of a release time causes the signal to return to the default gain too quickly and can create audio spikes. A long release time could cause the compressor to work too hard and over-compress signals. Values for release time are from 50 msec to 2000 msec.

[RANGE] Area

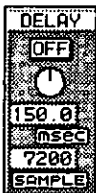
This parameter is only available in the expander mode. The gate parameter is usually on or off. However, you can set a range so the gate does not completely close and dynamically adjust the signal level coming through the gate. Values for range are from 0 dB to 40 dB.

[GAIN] Area

This option sets the output level gain for the compressor and is only available in compressor+gate mode. Values for gain are from 0 dB to 12 dB.

DELAY Button

This button switches the delay ON or OFF.

[DELAY] Area Controls

The channel delay is inserted after the EQ and dynamics and before the fader in the audio path, thus delaying a signal. This function could be useful for fixing timing differences on different sources or intentionally off-setting the time of a track to create an effect.

Adjust the delay value from 0.0 msec/0 sample to 300 msec/14400 sample. **DLY** value [msec] = sample value divided by the number left by removing kHz from a sampling frequency. Example: When the sample value is 7200 and the sampling frequency is 48 kHz, the **DLY** value = 7200 divided by 48 = 150 msec.

Compressor Operations

- ▲ Display the **[DYNAMICS]** window by pressing the **[SR]** knob in the **DYNAMICS/DELAY** section. Or, cursor to the **[DYN]** area graph in the **[CHANNEL]** window, and press **ENTER** to display the **[DYNAMICS]** window. Or, when the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **ON**, pressing an LED button or adjusting a knob in the **DYNAMICS** section will automatically display the **[DYNAMICS]** window.

- 2 Press the **SELECT** button for the channel you want to edit. The **[DYNAMICS]** window updates to the selected channel.
- 3 Turn the dynamics on (*green*) by pressing the **DYNAMICS ON LED** button on the Top Panel, or the **[ON]** button in the **[DYNAMICS]** window.
- 4 Cursor to the **COMP+GATE** button in the **[FUNCTION]** area and, press **ENTER** to engage the compressor. When the **COMP+GATE** button is pressed, **EXPANDER** is disabled.
- 5 Cursor to the **[STEREO LINK]** and select a mode by using the **JogDial** when the channel is in stereo pair.
- 6 Select a parameter you want to adjust by moving the **CURSOR** through the window, or by using the **PARAMETER SELECT** button on the Top Panel.
- 7 Adjust the parameter by rotating the **JogDial**, or use the **[R]** knob for threshold, attack, and delay, and the **[SR]** knob for ratio, release, and gain. The parameter title will then be indicated in reverse video. Use the **JogDial** and knobs to select the parameter independently. The adjusted parameter is graphically displayed on the screen.
- 8 When a signal is input, gain reduction for the input signal is indicated in the **[GR]** meter, and the reference point of the **[GR]** meter is highlighted. The reference is connected to the **[GAIN]** parameter. After adjusting the compressor, adjust the level so that the peak of the reduction is close to 0 dB on the **[GR]** meter in the **[DYNAMICS]** window.

Gate Operations

- 1 Set the status in the same way you selected **COMP+GATE** mode in the **[DYNAMICS]** window.
- 2 Cursor to **[THL]** or **[RELEASE]** in the **[GATE]** area and adjust the parameter using the **JogDial**. The adjusted parameter is graphically displayed on the screen. When a signal is input, gain reduction for the input signal is indicated in the **[GR]** meter.

Expander Operations

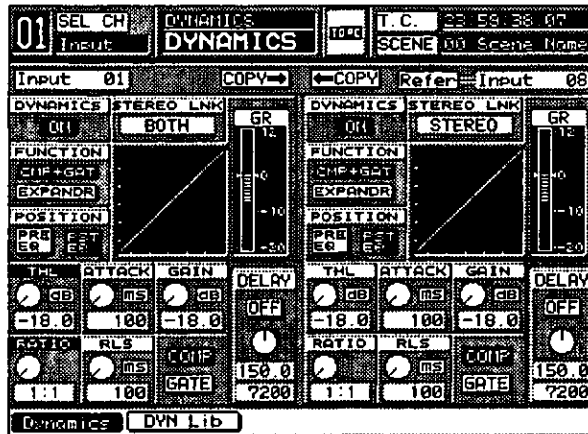
- 1 Cursor to the **[EXPANDER]** button in the **[FUNCTION]** area, and press the **ENTER** button to engage the expander.
- 2 When the **[EXPANDER]** button is pressed, the **[COMP+GATE]** is disabled.
- 3 Select a parameter you want to adjust by operating the **CURSOR** on the screen or the **PARAMETER SELECT** button on the Top Panel.
- 4 Adjust the parameter by rotating the **JogDial**, or use the **[R]** knob for threshold, attack, and delay, and the **[SR]** knob for ratio, release, and range. The parameter title will be indicated in reverse video.
- 5 The adjusted parameter is graphically displayed on the screen. When a signal is input, gain reduction for the input signal is indicated in the **[GR]** meter, and the reference point of the **[GR]** meter is highlighted.

Delay Operations

- 1 Press the **DELAY ON LED** button (*green*) on the Top Panel or the **DELAY ON** button in the **[DYNAMICS]** window to activate the delay function.
- 2 Move the **CURSOR** on the screen or press the **PARAMETER SELECT** button to select the **[DLY]** parameter.
- 3 Adjust the parameter by using the **JogDial** or the **[R]** knob. The parameter title will then be indicated in reverse video.

9-4 DYNAMICS Window, Multi-Channel View

This window shows the selected channel on the left side of the LCD and a reference channel on the right. Only the currently selected channel can be modified. However you can copy entire settings either way.



DYNAMICS Window, Multi-Channel View

This window is the same as the [DYNAMICS] window, except for the following items:

[COMP] Button

Pressing the [COMP] button updates this area to give you controls for compression settings only.

[GATE] Button

Pressing the [GATE] button updates this area to give you controls for gating settings only.

Settings in both windows update synchronously. Repeated pressings of the [ENTER] button on either one of these buttons will toggle the settings.

Several functions have abbreviated names in the multi-channel view to save window space:

[COMP&GATE] . . . [CMP+GAT]

[EXPANDER] . . . [EXPANDR]

[MSEC] . . . [MS]

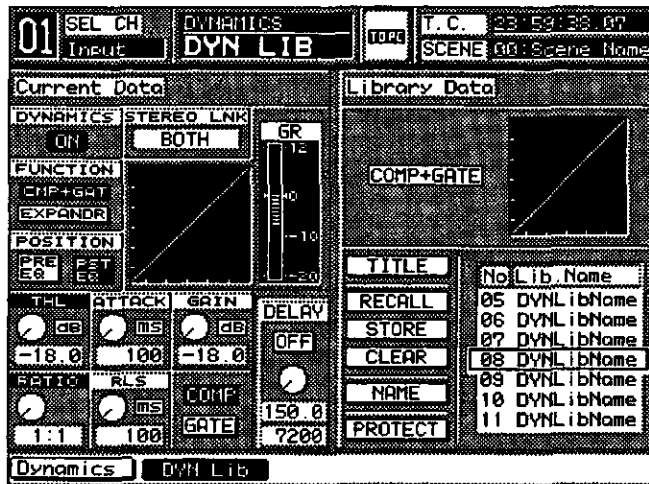
Refer Field

The **Refer** (reference) field displays the name of the channel being auditioned (**INPUTS 1-32, AUX RTN 1-6, BUSES 1-8, and MASTER**). When this field is active, use the **JogDial** to scroll through all of the input channels to select your dynamics settings.

9-5 DYNAMICS Library Window

Press the **SR** knob twice on the Top Panel to display the **[DYN LIB]** window (unless it was the last window visited in dynamics — then one push of the **SR** knob will bring up the window).

This window shows the **[DYN LIB]** (dynamics library) functions and status of a selected channel which is still editable. You can also store and recall dynamics settings from the dynamics library.



DYNAMICS Library Window

This window has all of the controls that the **[DYNAMICS]** window has, with a few additions. They are:

TITLE Button

Use this button to store library settings without the Name Editor. When **TITLE** is on, a setting is stored with the name **[NoTitle##A]**. This setting can later be recalled, and renamed by using the **NAME** button.

RECALL Button

Select this button, and press **ENTER** to recall one of the fifty library registers containing dynamics settings. The **MEMORY** numeric readout will flash for two seconds, indicating that a new library register is being loaded.

STORE Button

Activating this button stores the current dynamics settings into one of the fifty library registers. The **[NAME EDITOR]** window pops up, prompting you to name the register. After naming it, CURSOR to the **OK** button in the **[NAME EDITOR]** window, and press **ENTER**. The **MEMORY** numeric readout will flash for two seconds indicating that you have written to the library register. The library comes with all registers named "INITIAL *".

CLEAR Button

Activating this button clears the current library register and resets it to the factory settings. When accessing this button, you should be thinking "back-up."

NAME Button

Activating this button opens the **[NAME EDITOR]** window, prompting you to name the register. After naming it, CURSOR to the **OK** button in the **[NAME EDITOR]** window, and press **ENTER**. The **MEMORY** numeric readout will flash for two seconds, indicating that you have written to the library register.

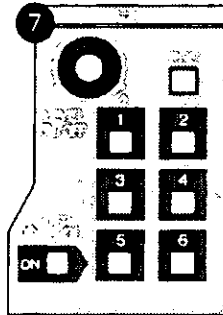
PROTECT Button

CURSOR to this button, and press **ENTER** to protect the current dynamics library register from being cleared or overwritten.

Library register selections can be made, when the CURSOR is within the **[Library Data]** area, by rotating the **JogDial**. Rotating it clockwise moves the CURSOR through the library numbers from low to high (1 through 50), while rotating the **JogDial** counter-clockwise moves the CURSOR through the library from high to low (50 through 1).

Chapter 10

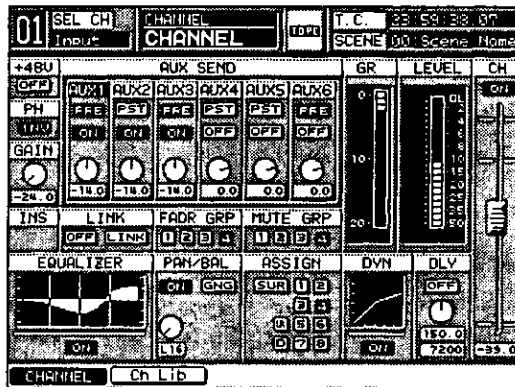
AUX



AUX Section

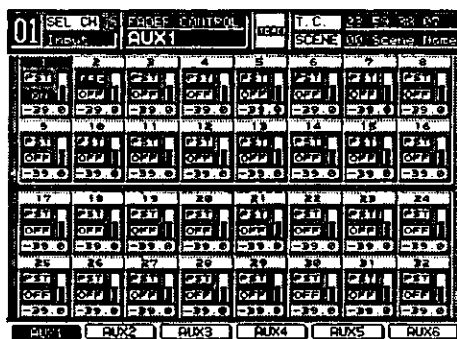
10-1 Overview

The **AUX** section and **[FADER CONTROL]** windows give you access to the auxillary functions on the **DA7**. Many of the user adjustments can also be made from the **[CHANNEL]** window, where auxes can be assigned on or off, and be designated as pre-fader or as post-fader. The level of the selected aux can also be adjusted in the **[CHANNEL]** window.



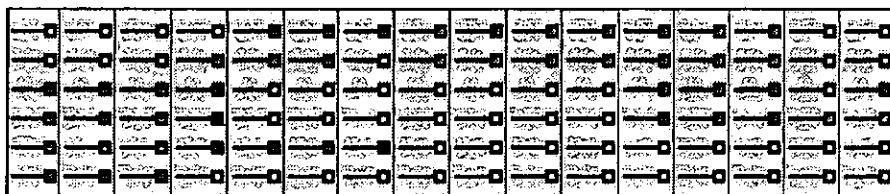
CHANNEL Window

When the **FADER CONTROL** LED button on the Top Panel is pressed (*red*), one of the **[FADER CONTROL]** windows will be displayed. These windows show the status and level of the selected aux send assignments to input channels 1 through 32.

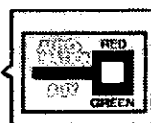


FADER CONTROL Window

There are LED field status indicators for **AUX 1-6** on each **Channel Strip**. When on (*green*), the channel is routed to the aux send indicated, and there can be multiple assignments for the channel.



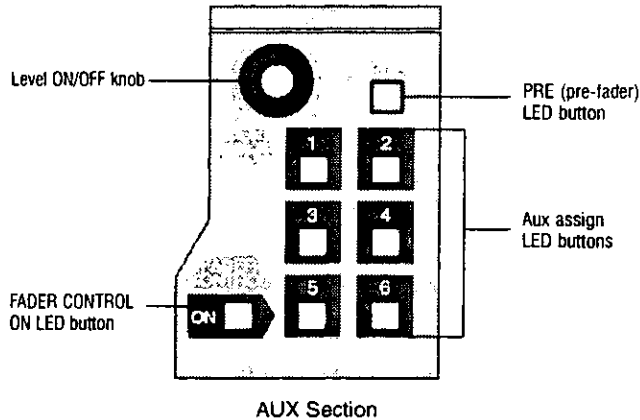
Channel Strip LED Field



Automation/AUX Button

The **AUTOMATION/AUX** button on the Top Panel controls the LED field status indicators of the **Channel Strips**. When **AUTOMATION** is selected for this button (*red*), the LED field indicators reflect the automation parameter assignments for the channels. When **AUX** is selected for this button (*green*), the LED field indicators reflect the auxiliary (**AUX**) routing assignments for the channels. Pressing the **AUTOMATION/AUX** button toggles the status indicators.

10-2 AUX Section Controls



The **AUX** section contains a **LEVEL ON/OFF** knob and LED buttons for **AUXs 1-6**, **PRE (pre-fader)**, and **FADER CONTROL**.

[LEVEL] ON/OFF Knob



To assign an aux to a selected channel, press one of the **AUX 1-6** LED buttons to select it (*green*), and then press the **LEVEL ON/OFF** knob to activate the aux assignment. **OFF** or **ON** status is shown in the **[CHANNEL]** window, and in the respective **[FADER CONTROL>AUX]** window. The **AUX LED** field of the respective **Channel Strip** also reflects the aux assignment.

Turn the **LEVEL ON/OFF** knob to adjust the aux send level for the selected channel to the specified aux. The level is expressed in a numeric value in the associated window data field.

PRE LED Button

Press the **PRE (pre-fader)** LED button (*red*) to enable the pre-fader condition for the selected channel. This operation uses the signal before the fader and sends it to the selected aux output. When the **PRE LED** button is off, the **DA7** defaults to **POST** (post fader) condition for the selected channel and uses the signal after the fader as the send to the selected aux output.

FADER CONTROL LED Button

When active (*red*), a window from the **[FADER CONTROL]** window group is displayed in the LCD. When the **FADER CONTROL LED** button is activated, the **[AUX]** window last used, when the control was on, is displayed in the LCD.

When the **FADER CONTROL LED** button is off, parameter adjustments can be seen in the **[CHANNEL]** window.

When a **[FADER CONTROL]** window is displayed, press an **AUX 1-6 LED** button to display the respective **[AUX]** window in the LCD. Level adjustments for the selected channel can be made with the **Channel Fader** when the **FADER CONTROL LED** button is on (*red*), or with the **LEVEL ON/OFF** knob in the **AUX** section.

AUX 1-6 LED Buttons

Press one of the **AUX 1-6 LED** buttons to select it (*green*). Once selected, assign the **AUX** to the current channel by pressing the **LEVEL ON/OFF** knob.

AUX/BUS Fader Layer

The **AUX/BUS Fader Layer** gives you fader control for aux sends 1 through 6 and aux returns 1 through 6. The **AUX/BUS Channel Strip** designations are labeled at the bottom of the strip. The first six faders are the output controls for the aux send mix from the **DA7**. You can adjust the following parameters for aux sends:

[STEREO] [ON], [OFF], and [MONO].

[MUTE GRP] [1], [2], [3], and [4]

Faders 7 through 12 are for aux returns 1 through 6. The parameters you can adjust for aux returns are the same as in aux sends, with the addition of:

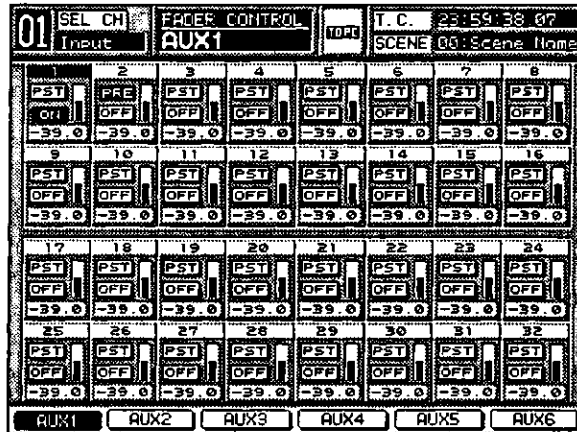
[GAIN]

[FADR GRP] (fader group)

[EQUALIZER]

[ASSIGN]

10-3 FADER CONTROL Window



FADER CONTROL Window

This window displays the aux sending status of all the input channels. You can set pre-fader or post-fader selections and the aux send on or off status of each channel from this window. This window is displayed when the [FADER CONTROL] LED button is activated (*red*). The [FADER CONTROL>AUX] window displayed will change when you press any of the AUX 1-6 LED buttons.

[FADER CONTROL] Window, Elements

[PST] and [PRE] Buttons

The post-fader and pre-fader selection buttons toggle for the selected aux send. Cursor to the button in the window, and press **ENTER** to toggle the selections. They can also be seen (and activated) from the [CHANNEL] window.

[ON] and [OFF] Buttons

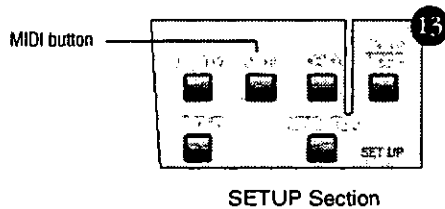
When the respective channel is selected, cursor to the current button in the window, and press **ENTER**. You can also press the LEVEL ON/OFF knob to toggle the aux send status.

[Level Meter] Display

Aux send level meters on the right of the individual channel areas display the aux send level for the selected channel. All 1 through 32 send levels can be monitored from the **[FADER CONTROL]** windows. Moving the fader for the selected channel will control the send output level of the respective aux send. Rotating the **LEVEL ON/OFF** knob will also adjust the selected level. If the **[UTILITY>CONFIG]** window **[AUTO DISP CHANGE]** item is set to **ON**, the LCD display will change to the **[CHANNEL]** window when the **LEVEL ON/OFF** knob is rotated.

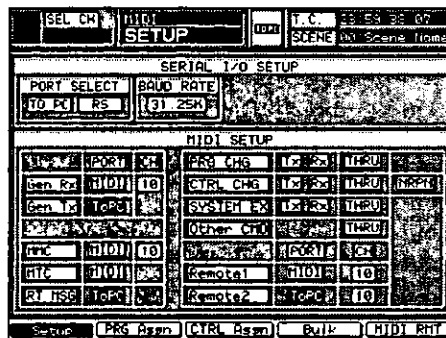
Chapter 11

MIDI



Press the **MIDI** button in the **SETUP** section of the Top Panel. A window from the **[MIDI]** window group will appear in the LCD. Each time you press the **MIDI** button, the **[SETUP]**, **[PRG ASGN]**, **[CTRL ASGN]**, **[BULK]**, and **[MIDI RMT]** windows are shown in sequence in the LCD.

11-1 MIDI, SETUP Window



SETUP Window

The **[MIDI>SETUP]** window shows the configuration settings for MIDI operations.

The **DA7** has ports for **MIDI IN** and **MIDI OUT** and serial ports for connection to a personal computer. Use the **TO PC** serial port to connect to a Mac or an IBM compatible, and use the **RS422/485** serial port to connect to

an RS422/485 device.

The window has receive indicators in the [taskbar]. A **[MIDI]** indicator blinks when data is received at the **MIDI IN** connection, an **[RS]** indicator blinks when data is received at the RS 422/485 terminal, and a **[TO PC]** indicator blinks when data is received at the **TO PC** terminal.



SERIAL I/O SETUP Area

[SERIAL I/O SETUP] Area

[PORT SELECT] Area



The **DA7** has a **TO PC** connector port and an **RS422/485** serial port on the Rear Panel. These ports are used for attaching a Mac O/S or Windows O/S computer platform to the **DA7**. Only one port can be used at a time. The user must select either **[TO PC]** or **[RS]** in the **[PORT SELECT]** area of the window. The default setting is **[TO PC]**.

[TO PC] Button

This button selects **TO PC** on the Rear Panel for the serial I/O port. Cursor to the button, and press **ENTER**. The Mac HSKO 1Mhz clock is active for this selection.

[RS] Button

This button selects RS485 for the serial I/O port. Cursor to the button, and press **ENTER**.

[BAUD RATE] Area



This area offers baud rates for the serial I/O port. To set a baud rate, cursor to the **[BAUD RATE]** area, select either **[31.25K]**, **[9.6k]**, **[19.2k]**, **[38.4k]**, **[62.5]** or **[125k]** using the JogDial, and press **ENTER**. The **DA7** sends a wordclock signal only when **[31.25]** is selected. The initial setting is **[31.25k]**. When **[31.25k]** is selected, a clock is transmitted. Transmission of the 1Mhz clock turns the serial port off or on. For RS485, **[31.25k]** cannot be set; the initial setting for RS485 is **[38.4k]**.

[MIDI SETUP] Area

MIDI SETUP									
		PORT	CH	PRG CHG	Tx	Rx	THRU		
Gen. Rx	MIDI	10		CTRL. CHG	Tx	Rx	THRU	NRPN	
Gen. Tx	ToPC			SYSTEM EX	Tx	Rx	THRU		
				Other CMD			THRU		
MHC	MIDI	10					PORT	CH	
MTC	MIDI			Remote1	MIDI	10			
RT MSG	ToPC			Remote2	ToPC	10			

MIDI SETUP Area

Here, the direction of messages (serial data) coming from and going to **MIDI IN**, **MIDI OUT**, and **TO PC** is set. Select one of these four combinations to set the direction of data:

- ① Status 1: When **Gen. Rx** is set to **MIDI** and **Gen. Tx** is set to **MIDI**, the **DA7** cannot communicate with the personal computer. Data can be transmitted and received between the **DA7** and a MIDI device. A message is input from the MIDI device to the **MIDI IN** terminal, while the **DA7** outputs a message to the MIDI device from its **MIDI OUT** terminal.
- ② Status 2: When **Gen. Rx** is set to **MIDI** and **Gen. Tx** is set to **To PC**, the **DA7** can receive messages from the MIDI device and transmit messages to the personal computer. The personal computer and MIDI device can communicate with each other via the **DA7**.
- ③ Status 3: When **Gen. Rx** is set to **To PC** and **Gen. Tx** is set to **MIDI**, the **DA7** can receive messages from the personal computer and transmit messages to **MIDI OUT**.
- ④ Status 4: When **Gen. Rx** is set to **To PC** and **Gen. Tx** is set to **To PC**, the **DA7** can communicate only with the personal computer.

Gen. Rx Button

Set the **MIDI** input port by pressing **ENTER**. Rotate the **JogDial** to set **MIDI** **CH**. Cursor to **PORT** on the **Gen. Rx** line, and press **ENTER** to display either **MIDI** or **To PC**.

Cursor to **CH** on the **Gen. Rx** line, and rotate the **JogDial** to display one of the channels, 1 through 16 for the **DA7**. The **DA7** is controlled by a message from the selected port, either **[MIDI]** or **[ToPC]**.

Gen. Tx Button

Set the **MIDI** output port by pressing **ENTER**. Use the same **[MIDI]** **[CH]** with the **[Gen. Rx]**. Cursor to **[PORT]** on the **[Gen. Tx]** line and perform the same step described in **[Gen. Rx]** setting.

Cursor to **[CH]** on the **[Gen. Tx]** line and perform the same step described in **[Gen. Rx]** setting. The **DA7** sends a message to the selected port, either **[MIDI]** or **[toPC]**.

PRG CHG Button

Activate the program change command by pressing **ENTER** to set pass-through of receiving, transmitting, and inputting signals on or off.

CTRL CHG Button

Activate the control change command by pressing **ENTER** to set pass-through of receiving, transmitting, and inputting signals on or off.

NRPN Button

Activate this button by pressing **ENTER** to establish a non-registered parameter number (NRPN), type command.

SYSTEM EX Button

This button sets the system exclusive command. Press **ENTER** to set pass-through of receiving, transmitting, and inputting signals on or off.

Other CMD Button

This button sets the commands other than the program change, control change, parameter change, MTC, or realtime message commands. Press **ENTER** to set a pass-through on or off.

MTC Button

This button sets the **MTC** (MIDI timecode) input port. Activate a port to receive the **[MTC]** message that is used to synchronize the **DA7** with other devices. Cursor to the **[PORT]** column, and press **ENTER**.

RT MSG Button

Set the realtime message input and output port by pressing **ENTER**. Activate a port to send and receive MIDI clock and other realtime messages.

Cursor to the **[RT MSG]** line, and press **ENTER** to display either **[MIDI]** or **[TO PC]**.

MMC Button

This button sets the **MMC** (MIDI machine control) output destination, either **MIDI** or **TO PC**. Cursor to the **[PORT]** column, and press **ENTER** to toggle the selections. Cursor to the **[CH]** column, and rotate the **JogDial** to select a MIDI channel to match the external MIDI device.

Remote1 Button

Set the transmitting port of the MIDI Remote 1 by pressing **ENTER**. Rotate the **JogDial** to select the same MIDI channel that matches the external MIDI device.

Remote2 Button

Set the transmitting port of the MIDI Remote 2 by pressing **ENTER**. Rotate the **JogDial** to select the same MIDI channel that matches the external MIDI device.

Rx Button

Switch the settings of the **DA7** on or off when receiving a command.

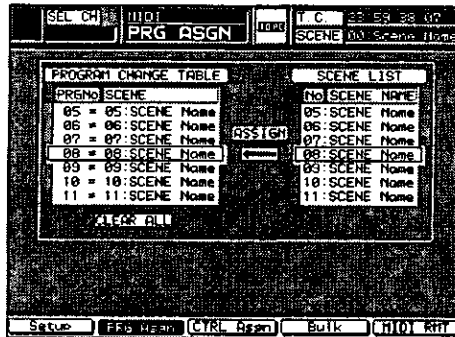
Tx Button

Switch command transmission on or off when operating the **DA7**.

THRU Button

Switch pass-through of a MIDI input signal to an output on or off.

11-2 MIDI, PRG ASGN (Program Assign) Window

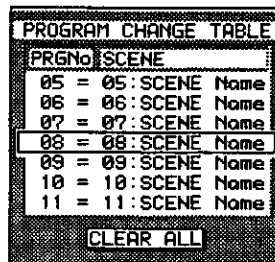


PRG ASGN (Program Assign) Window

Assign scene memory numbers to the change table to be used by the *DA7* in the **[PROGRAM CHANGE TABLE]** area. This is convenient when you are exchanging the existing scenes for new scenes.

To execute **[PRG CHG]**, as in calling up a mixed scene, check the **[PRG CHG]** settings on the **[MIDI>SETUP]** window again.

[PROGRAM CHANGE TABLE] Area



Program Change Table

Select a program change table. Rotate the **JogDial** to select a program change number from 1 through 128. The initial setting is 1 through 50. **[NO ASSIGN]** is set to the scene memories of 51 through 128.

- 1 Press the **MIDI** button in the **SETUP** section of the Top Panel to display the **[MIDI>PRG ASGN]** window on the LCD.
- 2 Cursor to the **[PROGRAM CHANGE TABLE]** area. Rotate the **JogDial** to move the **CURSOR** to the destination line.

- 3 Press the right **ARROW** button to **CURSOR** to the **[SCENE LIST]** area.
- 4 Rotate the **JogDial** to **CURSOR** to the source line.
- 5 Press **ENTER**. The **[ASSIGN]** button located between the two tables is shown in black for two seconds. The selected line in the **[PROGRAM CHANGE TABLE]** changes, for example, from 51=NO ASSIGN to 51=0.8:SCENE NAME.

[SCENE LIST TABLE] Area

SCENE LIST	
No:	SCENE NAME
05:	SCENE Name
06:	SCENE Name
07:	SCENE Name
08:	SCENE Name
09:	SCENE Name
10:	SCENE Name
11:	SCENE Name

Scene List Table

Rotate the **JogDial** to select a scene memory number.

[ASSIGN] Indicator



An arrow indicates a status of registration. The scene memory is registered to the selected table by pressing **ENTER**. At that time, the arrow symbol is highlighted and shows the execution.

[CLEAR ALL] Button

Initialize the table. **CURSOR** to the **[CLEAR ALL]** button, and press **ENTER**. This function returns all the data in the change table to the state of default.

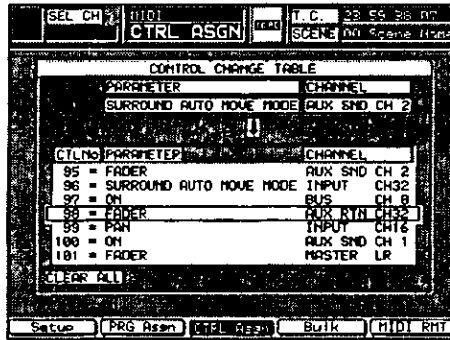
Setting of Registration

- 1 **CURSOR** to the current indication under **[PROGRAM CHANGE TABLE]** and select a program change number by rotating the **JogDial**.
- 2 **CURSOR** to the current indication under **[SCENE LIST]** and select a scene memory to register by rotating the **JogDial**.
- 3 Press **ENTER** to execute a change.

The arrow is momentarily highlighted to show the execution. The **[SCENE]** part of the **[PROGRAM CHANGE TABLE]** shows the description of the selected scene memory.

Refer to **Appendix H MIDI Implementation Chart** for the control change table and the control change parameter list.

11-3 MIDI, CTRL ASGN (Control Assignment) Window



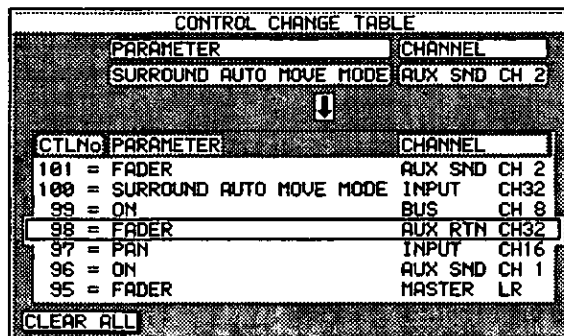
CTRL ASGN (Control Assignment) Window

Change the *DA7*'s input and output channel assignments, fader position, etc. with this window.

The [CONTROL CHANGE TABLE] consists of three columns: for item numbers, for parameters, and for channels. The change table has item numbers 1 through 119, of which 6, 26, and 96 through 101 cannot be used. The data of the control change table can be stored in an external device as backup data by the MIDI bulk dump function.


To execute [CTRL CHG] in calling up a mixed scene, for example, check the [CTRL CHG] settings again on the [MIDI>SETUP] window.

[CONTROL CHANGE TABLE] Area



Control Change Table Area

Select a control change table (in the current indication area). Rotate the **JogDial** to select a control change number from 0 through 5, 7 through 25, 27 through 95, or 102 through 119.

- 1 Press the **MIDI** button on the Top Panel to display the **[MIDI>CTRL ASGN]** window on the LCD.
- 2 Cursor to the **[CONTROL CHANGE TABLE]** area. Turn the **JogDial** to move the **CURSOR** to the line to be rewritten.
- 3 Press the up **ARROW** button to move the **CURSOR** to **[PARAMETER]** in the top part of the window. Rotate the **JogDial** to display the desired parameter.
- 4 Press the right **ARROW** button to move the **CURSOR** to the field below **[CHANNEL]** near the top of the window, and rotate the **JogDial** to display the desired channel.
- 5 Press **ENTER**. The **[Assign **] element is shown in black for two seconds. The selected item is written on the specified line.


 Button

Select a parameter to be registered in the **[CONTROL CHANGE TABLE]** by rotating the **JogDial**.

 Button

Select a channel to be registered in the **[CONTROL CHANGE TABLE]** by rotating the **JogDial**.

****[Assign **] Element**

This area indicates a registration status. The parameter and channel are registered to the selected table by pressing **ENTER**. At that time, the **[Assign **] is highlighted and shows the execution. If a combination of the selected parameter and channel is not acceptable for registration, the arrow is distorted, showing that the parameter and channel cannot be registered.

 Button

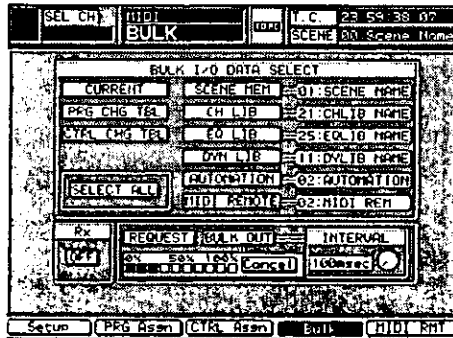
Initialize the table. Cursor to the **** button, and press **ENTER**.

Setting of Registration

- 1 ▲ Cursor to the current indication area under **[CONTROL CHANGE TABLE]**, and make a selection by rotating the **JogDial**.
- 2 ▲ Cursor to the parameter list under **[PARAMETER]**, and choose a parameter to be registered by rotating the **JogDial**.
- 3 ▲ Cursor to the channel list under **[CHANNEL]**, and select a channel to be registered by rotating the **JogDial**. The initial setting is **[FADER]** and **[INPUT CH1]**.
- 4 ▲ Cursor to the current indication area or one of the two lists, and press **ENTER**.

The arrow is momentarily highlighted to show the execution. The **[PARAMETER]** and **[CHANNEL]** parts of the **[CONTROL CHANGE TABLE]** show the description of the selected parameter and channel.

11-4 MIDI, BULK (Bulk Out) Window



BULK Window

Data is sent and received between two *DA7*s, or between the *DA7* and a MIDI datafile, or a personal computer. [**MIDI>BULK**] may be used to save and read *DA7* settings and library data from/to other devices as backup data, or to exchange data between two *DA7*s to create common settings and library data.

Sending

Display the [**MIDI>BULK**] window.

- 1 Press the **MIDI** button to display the [**BULK**] window.
- 2 Cursor to the desired data type using the **ARROW** buttons, and press **ENTER**. The selected button is shown as inverse video.
- 3 Press the **ARROW** button to move the **CURSOR** to the right. Rotate the **JogDial** to display the desired data name, and press **ENTER**.
- 4 Enter the table here. The data type, range, and data details are shown here.
- 5 To receive or send data collectively, cursor to the **SELECT ALL** button, and press **ENTER**. This setting permits simultaneous sending or receiving of the nine kinds of data shown on the window.

Executing Receiving/Sending

- 1 To receive data from another device, CURSOR to the **REQUEST** button. To send data from the DA7, CURSOR to the **BULK OUT** button.
- 2 Press **ENTER** to receive or send data.
- 3 If the **REQUEST** button is pressed, the DA7 sends a MIDI bulk dump request message to the device, which sends the requested data to the DA7.
Or,
- 3 If the **BULK OUT** button is pressed, the DA7 sends the data specified by the above operation to the device.

[BULK I/O DATA SELECT] Area

If the device has a small capacity receive memory buffer, set a short interval (for example, 100 ms). Intermittent transmission prevents the receive memory buffer from overflowing. Intervals can be set at 50-ms increments. A 0-ms interval is acceptable in mutual communication between two DA7s.

Data being received or sent is shown every 10% during **REQUEST** or **BULK OUT** communication. To cancel communication press **ENTER**.

CURRENT Button

Select setup data of the current device by pressing **ENTER**.

SCENE MEM Button

Select a scene memory by pressing **ENTER**.

[Scene memory number **01:SCENE NAME**]

Select a scene memory number by rotating the JogDial. Choose ALL or 1-50. The initial setting is ALL.

CH LIB Button

Select a channel library by pressing **ENTER**.

[Channel library number/title **21:CHLIB NAME**]

Select a channel library number by rotating the JogDial. Choose ALL or 1-50. The initial setting is ALL.

EQ LIB Button

Select an EQ library by pressing **ENTER**.

[EQ library number/title **25:EQLIB NAME**]

Select an EQ library number by rotating the **JogDial**. Choose ALL or 1-50. The initial setting is ALL.

DYN LIB Button

Select a dynamics library by pressing **ENTER**.

[Dynamics library number/title **11:DYLIB NAME**]

Select a dynamics library number by rotating the **JogDial**. Choose ALL or 1-50. The initial setting is ALL.

AUTOMATION Button

Select automation event data by pressing **ENTER**.

[Automation event number/title **02:AUTOMATION**]

Select an automation event number by rotating the **JogDial**. Choose ALL, CURRENT, or 1-4. The initial setting is ALL.

MIDI REMOTE Button

Select MIDI remote setup data by pressing **ENTER**.

[Remote number/title **02:MIDI REM**]

Select a MIDI remote number by rotating the **JogDial**. Choose ALL or 1- 10. The initial setting is ALL.

PRG CHG TBL Button

Select a program change table by pressing **ENTER**.

CTRL CHG TBL Button

Select a control change table by pressing **ENTER**.

SELECT ALL Button

Select all data by pressing **ENTER**.

[Rx]

Switch bulk command reception **ON** or **OFF** by pressing **ENTER**.

[REQUEST] Button

Execute bulk data reception from an outside device by pressing **ENTER**.

[BULK_OUT] Button

Execute bulk data transmission to an outside device by pressing **ENTER**.

[INTERVAL] Area

Set a data transmission interval to match the processing speed of the receiving device. **CURSOR** to the soft knob, and rotate the **JogDial** to set the internal time within 0-300 ms (by 50 ms steps).

[Cancel] Button

Stop bulk data transmission or reception by pressing **ENTER**.

Data selection

CURSOR to the button(s) to select the desired bulk data in the **[BULK I/O DATA TYPE SELECT]** block, and press **ENTER**. Multiple buttons can be selected. Selected button(s) are highlighted.

Pressing the **[SELECT ALL]** button selects all the buttons that appear in the block.

Setting of Bulk Command Reception

Switch the setting **ON** or **OFF** to receive a bulk out transmission request from outside or bulk data by pressing **ENTER**.

You can choose whether or not to ignore a request made by other devices. **CURSOR** to **[Rx]**, and press **ENTER**. Each time the button is pressed, **ON** and **OFF** toggles.

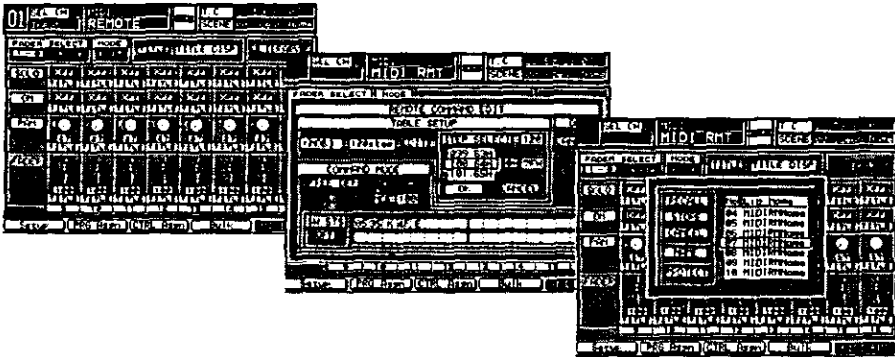
Data Transmission Request and Transmission

Press the **REQUEST** button to request transmission of selected data from an outside device, and load the data. Cursor to the **Cancel** button. To cancel the operation press **ENTER**. When the operation is completed, the indication of "during execution" disappears and the **REQUEST** button appears as inverse video.

Press the **BULK OUT** button to transmit selected data to a device.

Cursor to the **Cancel** button. To cancel the transmission, press **ENTER**. When the transmission is completed, the indication of "during execution" disappears and the **BULK OUT** button appears as inverse video.

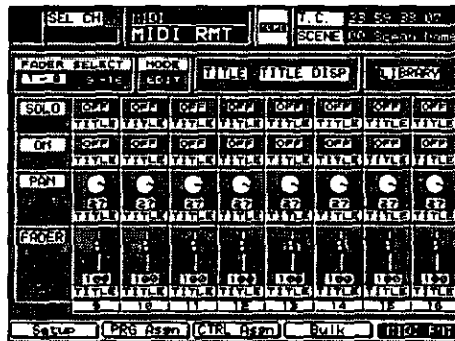
11-5 MIDI, REMOTE Windows



REMOTE Windows

These windows display and set MIDI remote operations and select and edit MIDI remote libraries. Set registration of the MIDI remote to the fader layers on the User Customize Window. Execute the MIDI remote by using the MIDI control change command.

[REMOTE] Window



REMOTE Window

[FADER SELECT] Area



Choose a page for remote by selecting either the **1-8** or **9-16** button and pressing ENTER.

[EDIT]

This button sets the edit mode.

[TITLE]

This area displays a remote library title.

[LIBRARY] Button

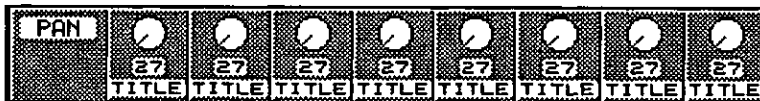
This button calls up the MIDI Remote Library window.

[SOLO]

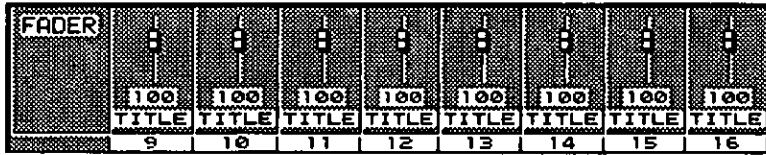
Use the **[SOLO]** switch for normal operations and to set functions in the edit mode by pressing **ENTER**.

[ON]

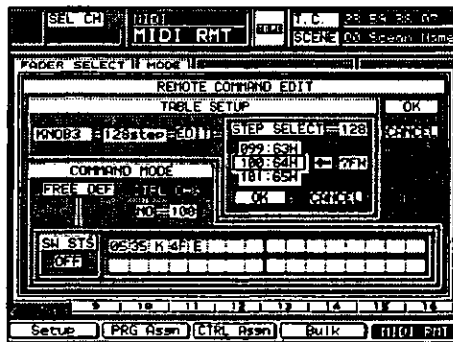
Use the **[ON]** switch for normal operations and to set functions in the edit mode by pressing **ENTER**.

[PAN]

Use the **[PAN]** knob for normal knob operations and to set functions in the edit mode by pressing **ENTER**.

[FADER]

Use the **[FADER]** for normal fader operation using the JogDial. Use the **[FADER]** to set functions in the edit mode by pressing **ENTER**.

[Edit] Window

Edit Window

[TBL EDIT]

Here the data from a selected table can be edited. No other functions can be performed until **OK** is selected and the table edit window closes.

EDIT of MIDI REMOTE**Selecting a Table**

After turning on the **EDIT** button in the **{MIDI>RMT}** window, **CURSOR** to a channel, **[SOLO]** or **[ON]** button, a **[PAN]** soft knob, or a **[FADER]**. Press **ENTER**, and the pop up window **[REMOTE COMMAND EDIT]** **[TABLE SETUP]** will appear.

With the cursor highlighting **[SW1]**, rotating the JogDial will scroll through the selections **[SW1]**, **[SW2]**, **[SW3]**, **[KNOB1]**, **[KNOB2]**, **[KNOB3]**, **[FADER1]**, **[FADER2]**, and **[FADER3]**. The Step number of the table, which is located in the field immediately to the right, is displayed automatically. If the selected function is **[SOLO]** or **[ON]**, only **[SW1]**, **[SW2]**, and **[SW3]** can be selected. If the function is a knob or a fader, all choices can be selected.

Edit of Data Table

- 1 ▲ Set a table step number to the **STEP SELECT** part.
- 2 ▲ When the data table is for a Switch, the step number is fixed to 2. When the data table is Pan Knob or Fader, select a step number from 2, 32, 64, or 128. Even division is set for divided data tables. (With the number of 2, the center position of the Pan Knob or Fader divides the data area into two.) The initial value is 32 for the Knob and 128 for the Fader.
- 3 ▲ Edit the table.
- 4 ▲ Select the data with the scroll selector.
- 5 ▲ Select newly set data in the Letter Box on the right side.
- 6 ▲ Press **ENTER** to save the new data as the selected data.
- 7 ▲ The scroll selector shows the current data table. Select the step number by using the **JogDial**.
- 8 ▲ Pressing the **CURSOR MODE** switch on the Top Panel operates the **JogDial**. The initial settings for the Switch, Knob, and Fader are registered to each table. Switches have two steps, On and Off, and are indicated by 00H for On and 7FH for Off. The Pan knob has 32 steps from 00H to 1FH, and Fader has 128 steps from 00H to 7FH.
- 9 ▲ Cursor to the **[DATA]** button, and set the data by using the **JogDial**. The data range is from 00H to 7FH.
- 10 ▲ Press **ENTER**.
The data is reflected in the **[DATA TBL]** area.

OK Button

This button fixes the table and ends the edit.

Cancel Button

This button cancels the edited table information and ends the edit.

End of Edit

Once you have pressed the **OK** or **Cancel** buttons, shut off the **[REMOTE COMMAND EDIT]** window.

Operator Title Input

Cursor to the **EDIT** button, and press **ENTER** to set the edit mode. (Remote operation is not allowed in the edit mode.) Cursor to the title of the relevant operator, and press **ENTER**. The Name Edit Window appears. Input the title.

See *Section 5-2 Library Windows*, for more information on the **[Name Edit Window]** for title input operations.

[COMMAND MODE] Area

From this area you can switch the modes between control change and free definition by users. Press the **CTRL CHG** button to select the control change mode. Press the **FREE DEF** button to select the user definition mode.

CTRL CHG Button

Indicate and set a control change number.

Selecting [COMMAND MODE]

Cursor to the **[COMMAND MODE]** area. Select either **FREE DEF** or **[CONTROL CHANGE]**. Select the control change number with the **JogDial**. In **FREE DEF** the message can be edited.

When the selection is **[SOLO]** or **[ON]**, two messages for each status, on and off, must be edited. When this is done, select **ON** or **OFF** in the **[SW STS]** area.





Messages can be edited by using the cursor and **JogDial**. Select **00 - F8**, **FA - FF(hex)**, **K (knob)**, **F (fader)**, or **E (end)**.

K means the present value of the knob will be sent.

F means the present value of the fader will be sent.

When you have finished editing the **MIDI REMOTE** information, cursor to the **OK** button, and press **ENTER**. If you decide not to keep your changes, cursor to the **Cancel** button, and press **ENTER**.

Edit the Control Change

- 1  Cursor to the [CTRL CHG NO] area, and select a control change number to be assigned to the operator using the JogDial.
- 2  Select a number from 00H – 77H. The initial setting is 00H.
- 3  Cursor to the [DATA TBL] area, and select a data table to be assigned to the operator using the JogDial.
- 4  The table name and step number are indicated. Select the data table from [SW1], [SW2], [SW3], [KNOB1], [KNOB2], [KNOB3], [FADER1], [FADER2], or [FADER3]. The initial setting is [SW1]. The [KNOB] and [FADER] tables cannot be assigned to Switch operators. Any tables can be assigned to Knob and Table operators.

Button





Edit transmission data in the user definition mode.

[SW STS] Area



Switch the status of the buttons.

Edit of User Definition Data

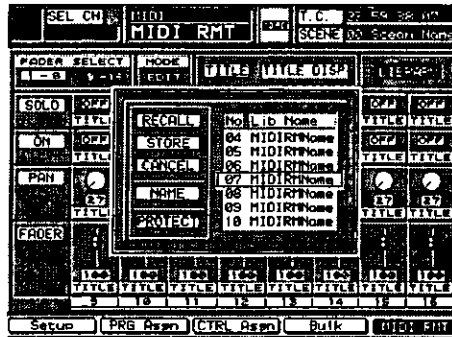
The [SW STS] area works when using the JogDial. Switching the button  or  sets transmission data rows separately with the objective operator  and .

For data row input parts, cursor to the data by one byte and select a value using the Jog Dial. At that time, the cursor can move to the sector where the data exists and the next sector of the last data.

Selectable data is 00H – F8H, FAH – FFH, KNOB, FDR, or END.

The KNOB transmits the value the Knob indicates. The FDR transmits the value the Fader indicates.

[Library Selection] Window



Library Selection Window

[LIBRARY] Button

Select a MIDI remote library.

[NAME] Button

Display the **[NAME EDITOR]** window.

[STORE] Button

Store a library.

[RECALL] Button

Call a library.

[PROTECT] Button

Indicate and set the protection status of a selected library.

Set registration of the MIDI remote to the panel in the **[MIDI>SETUP]** window.

Select a channel set for the MIDI remote, and press **SELECT**. The **[MIDI>REMOTE]** window will appear.

[SOLO], **[ON]**, and **[FADER]** directly operate each channel. For **[PAN]**, select each channel by pressing **SELECT**, and rotate the **[PAN]** knob.

The **[MIDI>REMOTE]** window is displayed every eight channels. If you operate a channel which is not shown while the **[MIDI>REMOTE]** window is displayed, another window for the channel operations appears. The **[FADER SELECT]** area on the **[MIDI>REMOTE]** window can switch the window.

Calling of [MIDI>REMOTE] Library

- 1 ▲ Press the **LIBRARY** button on the window, and the library window will appear.
- 2 ▲ Cursor to the scroll part, and rotate the **JogDial** to select a library.
- 3 ▲ Cursor to the **RECALL** button, and press **ENTER**.
- 4 ▲ Calling is executed. The library window closes, and the title of the called library appears on the **TITLE DISP** part on the [MIDI>REMOTE] window. Select a library from 1 through 5.

Registration of [MIDI>REMOTE] Library

- 1 ▲ Cursor to the scroll selection field, and select a library for registration by using the **JogDial**.
- 2 ▲ Cursor to the **STORE** button, and press **ENTER**.
- 3 ▲ Cursor to the **NAME** button, and press **ENTER**.
- 4 ▲ The name edit window appears. Input the title of the selected library. See *Section 5-2 Library Windows*, for more information on the [Name Edit Window] for title input operations.

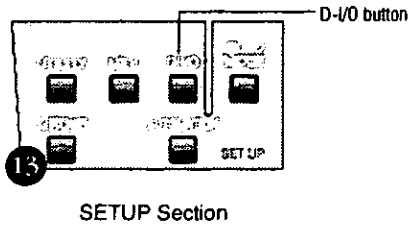
Registration is executed. The title of the stored library appears in the **TITLE DISP** field. The library window closes, and the [MIDI>REMOTE] window appears.

Edit of [MIDI>REMOTE] Library

- 1 ▲ Cursor to the **EDIT** button, and press **ENTER**. (Remote operations are not allowed in the edit mode.)
- 2 ▲ Cursor to an operator you want to set, and press **ENTER**. The Edit Window appears.
- 3 ▲ Select the [COMMAND MODE]. Then select either of the **CTRL CHG** and **FREE DEF** buttons in the [COMMAND MODE] field. (The initial setting is **CTRL CHG**.) The edit area in the unselected mode is indicated in dither, and you can't operate the area.

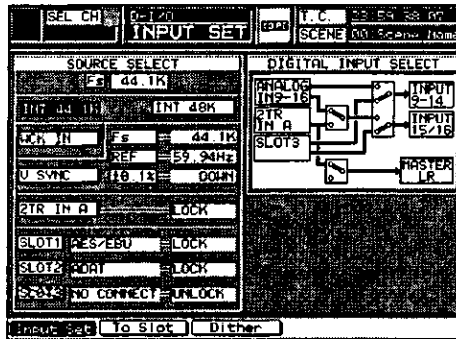
Chapter 12

D-I/O



Pressing the **D-I/O** (Digital Input/Output) button on the Top Panel displays the most recently accessed [**D-I/O**] window group selection. These windows give you control over the digital input and output features of the **DA7**. Pressing the **D-I/O** button cycles the windows in this group: [**INPUT SET**], [**TO SLOT**], and [**DITHER**].

12-1 D-I/O, INPUT SET Window



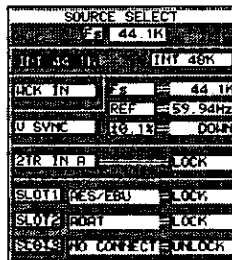
INPUT SET Window

Here you can define the sample frequency and route digital sources to the faders, and get a visual reference for which option cards are in which slots.



When a source field or button is “crosshatched” and/or cannot be selected, that means the source or slot is either improperly connected, or the attached external device is not presently turned on.

[SOURCE SELECT] Area



SOURCE SELECT Area

The settings selected in the [SOURCE SELECT] area define the sampling frequency, wordclock reference, and reference source for the mixer. Cursor to the selection button, and press **ENTER** to activate the selection.



It is imperative that the sampling frequency settings for the *DA7* and all digital peripheral devices connected to the *DA7* be set to the same sampling frequency. The devices cannot perform properly if the frequency settings do not match. The *DA7* does not convert from one sample frequency to the other.

[Fs] Field

The [Fs] (frequency sample) data field shows the current frequency selected, 44.1k or 48k.

INT 44.1K Button

When you select the internal sample frequency of 44.1k, this button will appear as inverse video in the window. The *DA7* becomes the master wordclock source, and generates the sample frequency reference of 44.1kHz.

INT 48K Button

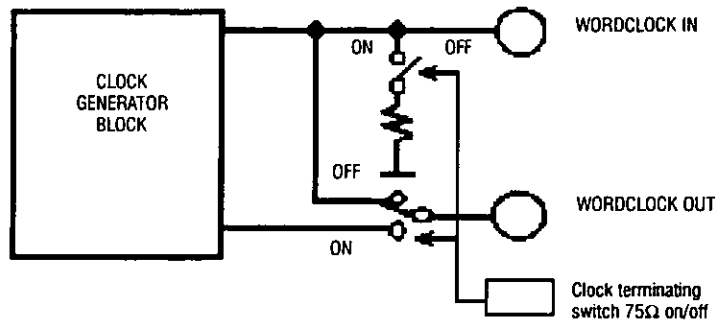
When you select the sample frequency of internal 48k, this button will appear as inverse video in the window. The *DA7* becomes the master wordclock source, and generates the sample frequency reference of 48kHz.

Wordclock operations

The wordclock feature of the *DA7* is an internal synchronizer that provides a reference for the *DA7* and a reference for devices external to the *DA7*. You can set the internal wordclock to synchronize to either 44.1 or 48K, selectable from the [D I/O>INPUT SET] window.

The *DA7* has wordclock IN and OUT ports on the Rear Panel. The wordclock is not timecode. When the LOCK IN button is selected in the [D-I/O>INPUT SET] window, the *DA7* works as a slave unit to an external clock device.

The wordclock IN port on the *DA7* has a 75Ω termination on/off switch located on the Rear Panel next to the wordclock IN BNC connector. With this switch you can create a termination point for the wordclock input signal. Refer to the graphic diagram for the switch routing.



WORD CLOCK GENERATOR BLOCK GRAPHIC

When the *DA7* is the last device in a wordclock chain, the termination switch must be on. In the [D I/O>INPUT SET] window, CURSOR to the **WCK IN**, and press **ENTER**.

When the *DA7* is connected between devices, the wordclock termination switch must be off. A wordclock signal will pass through the mixer, relaying the signal to the next device in the chain. The **WCK IN** button must be selected when the *DA7* is relaying the wordclock reference.

When the *DA7* is the master wordclock source, a BNC termination connector must be attached to the IN port. The **WCK IN** button is not selected.



Remember to attach a BNC termination connector to the WORD CLOCK IN port on the Rear Panel whenever the *DA7* is the master wordclock source. Do not activate the wordclock termination switch on the Rear Panel to perform this termination function.

The input and output wordclock signal specifications are provided in the technical specifications appendix.

WCK IN Button

Select this button when an external clock reference will be used to slave the *DA7*. CURSOR to the button, and press **ENTER**. The button will appear as inverse video when engaged.

Video Sync Operations

When the *DA7* is using the optional SMPTE/V SYNC card, it can receive a video input signal from an external device and use it to drive the internal wordclock. The video sync input port has a built-in 75Ω resistor for termination.

U SYNC Button

A video sync signal into the SMPTE option card can be used as an incoming clock source to the DA7. The DA7 can then be slaved to a video controller for video production applications. When the **U SYNC** button is selected, you can choose:

- [Fs] (sampling frequency) of 44.1kHz or 48kHz
- [REF] (reference)- 50Hz, 60Hz, or 59.94Hz
- [+0.1%] - 0/UP/DOWN



When producing material for use with a video production, reference the DA7 to an incoming video signal. Do this during all stages of the production. You will need to know the video reference characteristics for the production, so that you can reference the DA7 correctly.

The following chart delineates the various settings for the [V SYNC] area, when a synchronizing signal is connected to the DA7, and [V SYNC] is selected as the reference.

Source	Fs	REF	UP/DOWN	Wordclock
Film	44.1kHz	60	0	44.1kHz
	48kHz			48.0kHz
PAL	44.1kHz	50	0	44.1kHz
	48kHz			48.0kHz
NTSC color	44.1kHz	59.94	0	44.1kHz
	48kHz			48.0kHz
NTSC B/W	44.1kHz	60	0	44.1kHz
	48kHz			48.0kHz

The V SYNC reference signal input specifications are:

- signal format: composite (NTSC or PAL)
- input level: 1Vp-p \pm 8mv (no load resistor)
- source impedance: 75 Ω

You may find that you need to “pitch up” or “pitch down” the output of the *DA7* to compensate when you did not utilize a video signal as the reference input to the *DA7*, and you are now trying to synchronize the audio and video components of a production. The ability to adjust the pitch of the *DA7* audio is determined by the value entered in the [$\pm 0.1\%$] field of the [V SYNC] area of the [D-I/O>INPUT SET] window. The following chart reflects the up or down variables that can be entered in the field and the resulting reference frequency.

Fs	UP/DOWN	Adjustment	Frequency
44.1kHz	UP	+ .01%	44.144kHz
44.1kHz	DOWN	- .01%	44.056kHz
48kHz	UP	+ .01%	48.084kHz
48kHz	DOWN	- .01%	47.952kHz

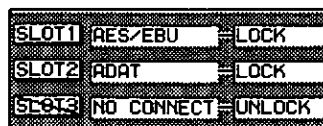
[2 TR A] Areas



2 TR A Status Area

A status field shows whether or not there is a source connected to the 2 TR A input (UNLOCK when there isn't; LOCK when there is). When in the LOCK mode, the 2TR A input signal can be selected as the master wordclock. Cursor to the 2TR IN A button, and press ENTER.

[SLOT] Area



SLOT Status Area

[SLOT1] Fields

The left status field shows which option card is presently in the slot. The UNLOCK status field will change to LOCK when the option card is inserted in the *DA7*. When the status field shows LOCK, the signal into the slot can be selected as the master wordclock. Cursor to the desired slot button, and press ENTER.

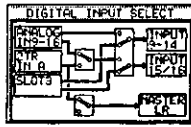
[SLOT2] Fields

These fields operate the same as the [SLOT1] fields.

[SLOT3] Fields

These fields operate the same as the [SLOT1] fields.

[DIGITAL INPUT SELECT] Area



DIGITAL INPUT SELECT Area

This area depicts the routing system for digital sources in the *DA7*. There are three boxes inside the [DIGITAL INPUT SELECT] area that are used for routing the audio signal.

[ANALOG IN 9-16]

This permits assignment of analog inputs 9 through 16, to the inputs 9 through 14 and 15/16. Inputs 15/16 will receive the digital input from [2 TR A] when toggled to that connection.

For **ANALOG IN 9-16**, cursor to the square box to the right of the **ANALOG IN 9-16** and **2TR IN A** areas, and press **ENTER** to toggle the switch into either the up or down position. The up position allows the **ANALOG IN 9-16** audio signals to travel through to **INPUTS 9-16**. Cursor to the right to the next box, and again press **ENTER** to toggle the switches up or down. In the up position, it completes the routing of **Analog 9-16** to **INPUTS 9-14, 15/16**.

[2TR IN A]

The [2 TR A] inputs can be channeled to **INPUTS 15/16, MASTER LR**, or routed directly to **MONITOR A**.

To route the **2TR IN A** audio signals to **INPUT 15/16**, cursor to the square outlined box to the right of the **2TR IN A** area, and press **ENTER** until the switch toggles into the down position. Cursor to the right, and toggle the next square outlined box to the up position. The audio signal from the **2TR A IN** will output to **INPUT 15/16**.

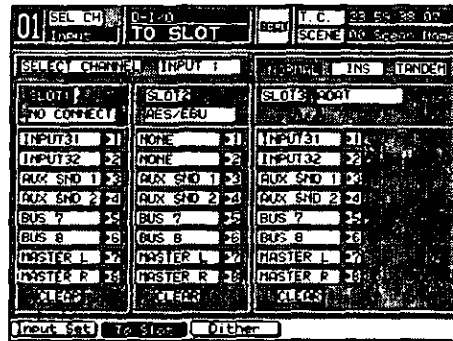
The square box near the bottom of the [DIGITAL INPUT SELECT] area, when toggled up, will route the **2TR A IN** audio signal directly to the **MASTER LR** output. When toggled to the down position, it stops the send to **MASTER LR**.

[SLOT3]

Digital Slot 3 can have its inputs routed directly to Inputs 9 through 16. On the Top Panel of the *DA7*, inside the label strip for Inputs 9 through 16, it also says **SLOT 3**. When there is an option card in **SLOT 3**, these faders become inputs for that option card.

To send the **SLOT 3** input to **INPUTS 9-14** and **15/16**, cursor to the far right box, and press **ENTER** to set the switches in the down position. This will route the **SLOT 3** audio signals to **INPUTS 9-14, 15/16**. The **FLIP LED** buttons for the associated **Channel Strips** will be (*yellow*), when selected.

12-2 D-I/O, TO SLOT Window



TO SLOT Window

The [TO SLOT] window functions as a “patch bay” for the DA7. From the [TO SLOT] window, direct output assignments can be made to option cards. Eight discrete sources can be sent to each option card. The eight source choices can be from INPUT 1-32, AUX SND 1-6, BUS 1-8, MASTER L, or MASTER R.

Each SLOT name appears above the column for the respective slot. When a column is being addressed, the SLOT # appears as inverse video in the window, with the name of the option card underneath it.



When the [AUTO DISP CHANGE] selection in the [UTILITY>CONFIG] window is **ON**, the DIRECT LED button in the PAN/ASSIGN/ **SURROUND** section of the Top Panel is a shortcut to the [TO SLOT] window.


SELECT CHANNEL Status Indicator

This status indicator shows what Channel Strip is currently selected. The name of the channel appears in the data field to the right of the **SELECT CHANNEL** status indicator.

[SLOT1]

SLOT1	
NO CONNECT	
INPUT31	▶1
INPUT32	▶2
AUX SND 1	▶3
AUX SND 2	▶4
BUS 7	▶5
BUS 8	▶6
MASTER L	▶7
MASTER R	▶8
CLEAR	

SLOT 1

Cursor to the top of this area , and use the **JogDial** to scroll through the available inputs. The data field will change as the choices are scrolled. Repeat the process of assigning sources to the eight digital outs as needed. Or, you can CURSOR to one of the eight selection fields, and press **ENTER**, which will automatically assign the currently selected channel to that output.

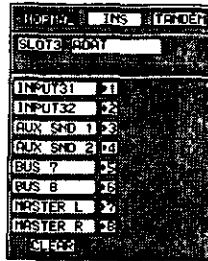
[SLOT 2]

SLOT2	
RES/EBU	
INPUT31	▶1
INPUT32	▶2
AUX SND 1	▶3
AUX SND 2	▶4
BUS 7	▶5
BUS 8	▶6
MASTER L	▶7
MASTER R	▶8
CLEAR	

SLOT 2

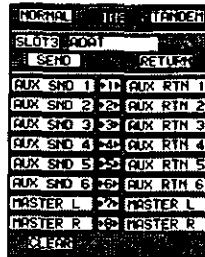
Cursor to the top of this area, and use the **JogDial** to scroll through the available inputs. The data field will change as the choices are scrolled. Repeat the process of assigning sources to the eight digital outs as needed. Or, you can CURSOR to one of the eight selection fields, and press **ENTER**, which will automatically assign the currently selected channel to that output.

[SLOT3]

NORMAL Mode

SLOT 3 in NORMAL Mode

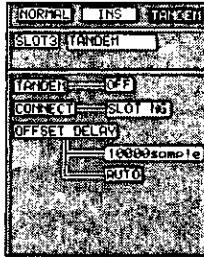
In **NORMAL** mode, [SLOT 3] is similar to [SLOT 1] and [SLOT 2].

INS Mode

SLOT 3 in INS Mode

The insertion mode allows you to send a signal to an external device (using either the **AES** or **ADDA** cards). You would then route this signal to any outboard device, and return it to the **DA7** via **SLOT 3** (using either the **AES** or **ADDA** cards). You can return to aux returns 1 through 6, buses 1 through 8, or **MASTER LR**.

12 b/w

TANDEM Mode

SLOT 3 in TANDEM Mode

The **DA7** can slave another **DA7** through the TANDEM option card.

OFF and **ON** Buttons

Enable the **[TANDEM]** connection by moving the CURSOR to the **OFF** button, and pressing **ENTER**. The **OFF** button will toggle to **ON**.

CONNECT Data Field

CONNECT indicates whether the **[TANDEM]** mode can be activated. This information appears inside the data field.

OFFSET DELAY Data Field

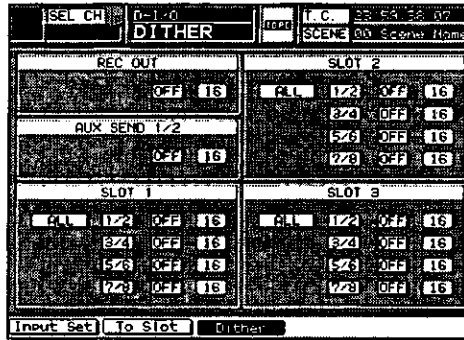
The **[OFFSET DELAY]** between the **DA7** and the slave mixer can be set from this data field. When the field is highlighted, you can set the value for the delay with the **JogDial**.

AUTO Button

When the **AUTO** button is selected, the **DA7** sets the delay value automatically.

12 D-I/O

12-3 D-I/O, DITHER Window



DITHER Window

This window shows and sets the status of Dither addition to digital signal output. Dither permits the user to select a bit number to be added to each terminal individually. The bit number is set to a DA converter in a device connected to the *DA7*.

The digital audio signals output from the *DA7* is 24 bit processing. If the D/A converter of a device connected to the *DA7* operates at fewer than 24 bits, the bit in the least significant digit is partially removed in the device on the receiving side, possibly resulting in unnatural sounds.

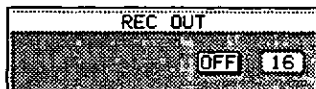


If the correct dither adjustment is not applied to the signals output from the *DA7*, the integrity of the audio will be diminished. The dither adjustment required is determined by the bit rate of the receiving device. Set the dither characteristic to match.

This kind of aberration can be reduced by adjusting the digital audio signals from the *DA7*. Cursor to the bit field, and change the value by rotating the **JogDial**, setting the bit rate to the same as the receiving device. The setting is adjustable in one bit increments up to 23. Then cursor to the **OFF** button, and press **ENTER** to activate the setting. The **OFF** button will toggle to **ON**.



When the **OFF** button is displayed for an area in the **[DITHER]** window, the bit rate output is 24 bit. Failure to toggle the **OFF** button to **ON** will cause the default bit rate of 24 bit to be output for the signal, regardless of the bit rate setting for the area.

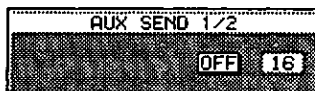
[REC OUT] Area

REC OUT Area

This sets dither for the digital **REC OUT** terminal.

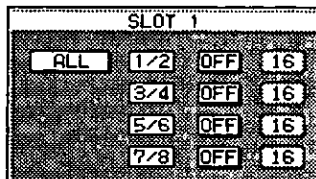
OFF and ON Buttons

Determines the **OFF** and **ON** status of **[REC OUT]**. A dither setting of 16 thru 23 can be selected by rotating the **JogDial**, once that field is highlighted, until the desired dither volume appears.

[AUX SEND 1/2] Area

AUX SEND 1/2 Area

This sets the dither volume for **AUX SND 1/2**. A dither setting of 16 thru 23 can be selected by rotating the **JogDial**, once that field is highlighted, until the desired dither value appears.

[SLOT 1] Area

SLOT 1 Area

This sets the dither value for the eight channels of the **SLOT 1** terminal.

ALL Button

Pressing the **ALL** button sets eight channels at the parameter set to channels 1/2. At the moment the **ALL** button is selected, the parameters set to channels 3 thru 8 are replaced with the parameter set to channel 1/2. When **ALL** is selected, turning 1/2 on will turn on 3/4, 5/6 and 7/8 simultaneously.

12 D-I/O

[SLOT 2] Area

SLOT 2			
ALL	1/2	OFF	16
	3/4	OFF	16
	5/6	OFF	16
	7/8	OFF	16

SLOT 2 Area

This sets the dither value for the eight channels of the **SLOT 2** terminal. The functions are the same as **SLOT 1**.

[SLOT 3] Area

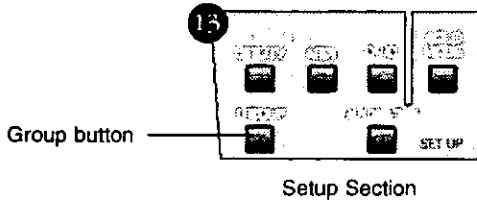
SLOT 3			
ALL	1/2	OFF	16
	3/4	OFF	16
	5/6	OFF	16
	7/8	OFF	16

SLOT 3 Area

This sets the dither value for the eight channels of the **SLOT 3** terminal. The functions are the same as **SLOT 1**.

Chapter 13

Group

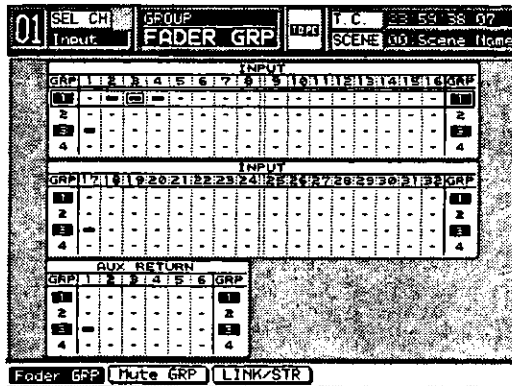


13-1 Overview

The **GROUP** button is one of the display control buttons in the **SETUP** section of the Top Panel. Press the **GROUP** button to display the most recently selected window for the window group.

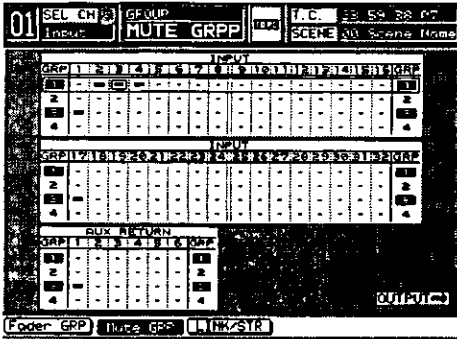
The **[GROUP]** window selections are **[FADER GRP]**, **[MUTE GRP]**, and **[STEREO]**. The **[MUTE GRP]** functions are split between two windows. One shows input selections and the other shows output selections.

Section 13-2 FADER GRP (Fader Group) Window details the elements and operations of the **[FADER GRP]** window.

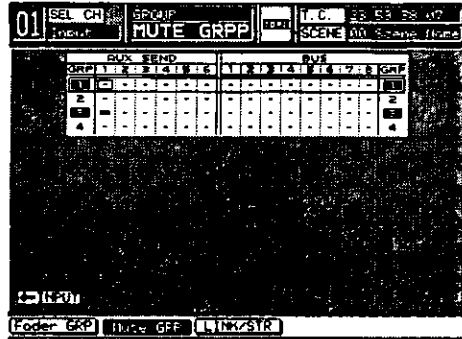


FADER GROUP Window

Section 13-3 MUTE GRP (Mute Group) Windows details the elements and operations of the [MUTE GRP] windows.

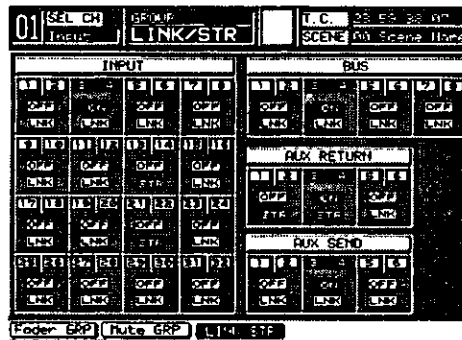


MUTE GROUP Output Window



MUTE GROUP Input Window

Section 13-4 LINK/STR Window details the elements and operations of the [STEREO] window.

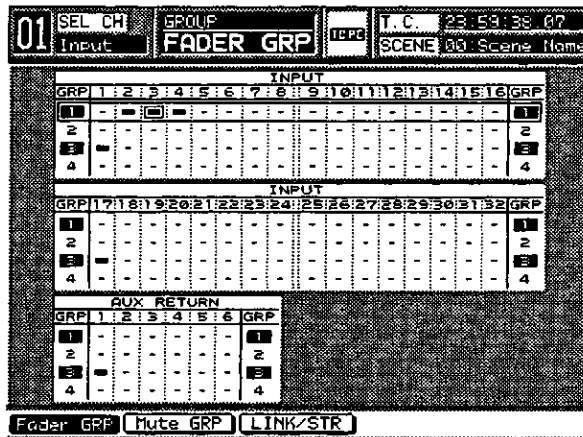


LINK/STR Window

13 Group

13-2 FADER GRP (Fader Group) Window

Use the [FADER GRP] window to register channels to a group so that multiple faders can be controlled by operating one of the faders in that group. Up to four groups can be defined.



FADER GROUP Window

Window Elements

Group Selection Marker

The group selection marker is a frame which spans the columns in the tables displayed in the window. The marker is positioned on [GRP 1] at the top of the [INPUT 1-16] table whenever the [FADER GRP] window is initially displayed. The marker delineates the current group selection.



Rotate the **JogDial** to shift the marker from group to group and from table to table. Rotate clockwise to shift the marker up, and rotate counterclockwise to shift the marker down. Continue to rotate clockwise when the marker reaches the bottom of the third table to jump the marker to the top of the first table in the window. Continue to rotate counterclockwise when the marker reaches the top of the first table to jump the marker to the bottom of the third table in the window.

Press **ENTER** to enable or disable the currently selected group. The group number of an enabled group is highlighted in reverse video.

Selection Cursor

Rotate the **JogDial** while pressing the **CURSOR MODE** button to display the **CURSOR** within the group selection marker, and to move the **CURSOR** from left to right inside the marker. When the **CURSOR** is positioned on the right end of a table, rotate the **JogDial** clockwise while pressing the **CURSOR MODE** button to jump the **CURSOR** to the left end of the next table and jump the group selection marker to the same group in the next table. When the **CURSOR** is positioned on the left end of a table, rotate the **JogDial** counterclockwise while pressing the **CURSOR MODE** button to jump the **CURSOR** to the right end of the previous table and jump the group selection marker to the same group in the previous table.

Registration Marks

The status of a channel is indicated in the columns of the tables in the window:  shows a registered channel, and  shows an unregistered channel.

A channel cannot be registered to multiple groups. When a channel is registered to a group, any previous registration for it is cancelled automatically.

Creating a Fader Group

There are two methods for assigning a channel to a fader group while the **[FADER GRP]** window is displayed.

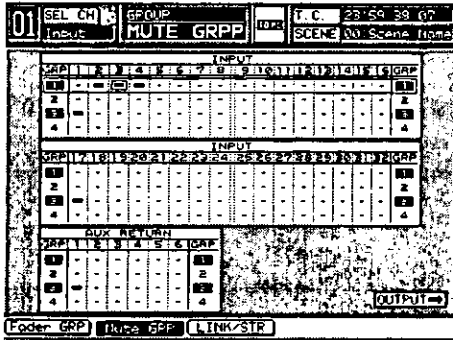
- Pressing a channel **SELECT LED** button on the Top Panel to select the channel (*orange*) will add the channel to the current fader group. If the group selection marker is not positioned within the table which includes the selected channel, the marker shifts to the relevant table automatically. A registration mark will be displayed in the **[FADER GRP]** window table, denoting the channel selection for the respective group.
- Pressing the **ENTER** button while the **CURSOR** is positioned on the desired channel number will register the channel to the current fader group. A registration mark will be displayed denoting the channel selection for the current group.



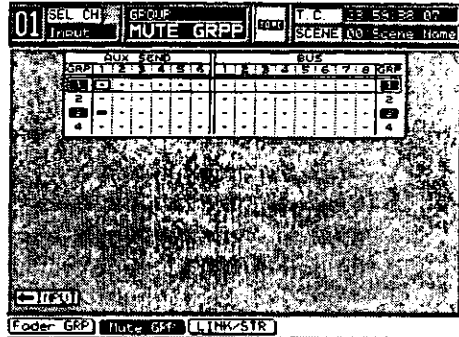
Once the groups have been activated in the **[FADER GRP]** window, the window does not have to be displayed when you want to register a group. Use the fader group selection buttons in the **[CHANNEL]** window to register the channel to a group.

13-3 MUTE GRP (Mute Group) Windows

The [MUTE GRPP] functions are split between two windows. One window depicts the input selections for the function, and the other depicts the output selections. There are "go to" buttons in each of the [MUTE GRP] windows, indicating the appropriate **ARROW** button that can be pressed to change the current [MUTE GRP] window displayed.



MUTE GROUP Window, Inputs 1-32 and Aux Returns



MUTE GROUP Window, Aux Sends and Buses

Use the [MUTE GRP] windows to register channels to a group in which multiple channel **ON** LED buttons can be controlled by operating just one of the buttons in the group. Up to four groups can be defined.

The group selection marker, **CURSOR**, and registration mark functions in the [MUTE GRP] windows operate as described in *Section 13-2 FADER GRP (Fader Group) Window*.

13 Group

Creating a Mute Group

There are two methods for assigning a channel to a mute group while the [MUTE GRP] windows are displayed.

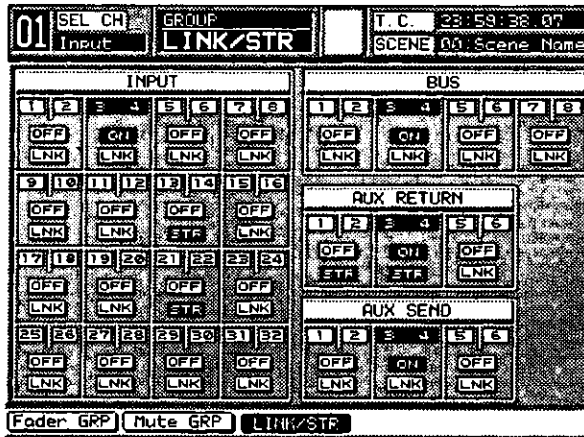
- Pressing a channel **SELECT LED** button on the Top Panel to select the channel (*orange*) will add the channel to the current mute group. If the group selection marker is not positioned within the table which includes the selected channel, the marker shifts to the relevant table automatically. A registration mark will be displayed in the appropriate [MUTE GRP] window table denoting the channel selection for the respective group.
- Pressing the **ENTER** button while the **CURSOR** is positioned on the desired channel number will register the channel to the current mute group. A registration mark will be displayed denoting the channel selection for the current group.



Once the groups have been activated in the [MUTE GRP] windows, the window does not have to be displayed when you want to register a group. Use the mute group selection buttons in the [CHANNEL] window to register the channel to a group.

13-4 LINK/STR Window

Use this window to designate the adjacent channel pairs that are to operate as a stereo pair. Stereo pairs can be set for inputs, aux returns, aux sends, and buses.



LINK/STR Window

The channel pairs are established from left to right for the channel strips of the *DA7*, beginning with the lower-number, odd-numbered channel. You cannot establish a pair with channels 6 and 7, for example. Channel 6 can only be paired with channel 5.

The **LNK** and **OFF** buttons toggle in the **[LINK/STR]** window. When an existing **OFF** button in the window is selected with the cursor, pressing the **ENTER** button activates the associated channel pair, and the **OFF** button will be replaced by an **LNK** button in the window.

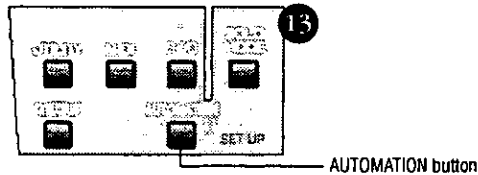
When a channel pair has been activated in the **[LINK/STR]** window, the settings of the odd-numbered channel are copied to the even-numbered channel, and the balance value is set to the center.



You can also create a stereo channel pair by simultaneously pressing the appropriate channel **SELECT LED** buttons, when the **[CHANNEL]** window **[LINK]** area is **OFF**. To cancel, simultaneously press the buttons a second time.

Chapter 14

Automation



SETUP Section

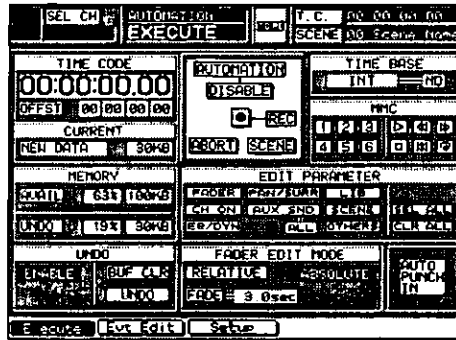
The automation function synchronizes to a timecode signal, and records and plays back mixes. You can also set it to synchronize to the timecode inputs from outside the *DA7*, such as MIDI timecode, MIDI clock, and SMPTE.

The parameters for automation that can be controlled by the system are EQ, dynamics, channel on and off, fader changes, panning, surround sound, aux send, balance, memory, library, and MIDI REMOTE.


The **AUTOMATION** button is one of the display control buttons in the **SETUP** section of the Top Panel. Press the **AUTOMATION** button to display the most recently selected window for the window group.

The [**AUTOMATION**] window group selections are [**EXECUTE**], [**EVT EDIT**] (event edit), and [**SETUP**].

14-1 AUTOMATION, EXECUTE Window



EXECUTE Window

Automation is principally controlled from the **[AUTOMATION>EXECUTE]** window. Recording and playback of automation are not possible until the **AUTOMATION** button is set to **ENABLE**. Automation recording is “armed” when the **REC** button is pressed, and recording begins when timecode starts running. Cursor to the **[MMC]** area **[Play 

While in record mode, the **[taskbar]** flashes the words Automation and Recording.**

[TIME CODE] Area



TIME CODE Area

The current timecode information appears in this area. Its appearance is determined by the time base currently selected (Internal, MTC, MIDI CLK, or SMPTE). See setting TIME BASE on page 14-4 for additional information.

[OFFSET] Area



OFFSET Area

To offset the timecode, **CURSOR** to the **[OFFSET]** area, and use the **JogDial** to change the values in hours, minutes, seconds, and frames.

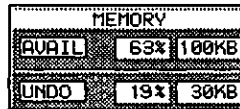
[CURRENT] Area



CURRENT Area

This area shows the amount of memory being used by current automation data. The **DA7** has a 160 kilobyte memory capacity which is shared between the current memories, the undo buffer, and the four event memories, as seen in the **[AUTOMATION>SETUP]** window.

[MEMORY] Area

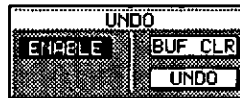


MEMORY Area

The available memory to the system is displayed in kilobytes and as a percentage of available memory remaining.

There is also a field that shows the **[UNDO]** buffer size in kilobytes and as a percentage of the system resources.

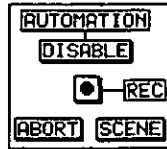
[UNDO] Area



UNDO Area

Here the user can apply **UNDO** to the memory buffer, clear the memory buffer **BUF CLR**, or **DISABLE** or **ENABLE** the ability to Undo.

14 Automation

[AUTOMATION] Area

AUTOMATION Area

[AUTOMATION] Button

Press this button to **[DISABLE]** or **[ENABLE]** Automation for the system.

[REC] Button

When the **[REC]** button is enabled, it will flash on and off to indicate recording. Using a foot switch plugged into the rear of the *DA7*, automation recording can be stopped or started.

[ABORT] Button

Press this button to abort the automation data being recorded.

[SCENE] Button

When selected, the **[SCENE]** button will execute recording of the present scene.

[TIME BASE] Area

TIME BASE Area

You can choose between **[INT]**, **[MTC]**, **[MIDI CLK]**, and **[SMPTE]** timecode to drive the system. The timecode area will change in appearance as it recognizes the time base status.

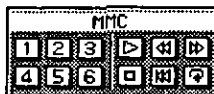
You can select:

- **[MTC]** MIDI timecode
- **[SMPTE]** SMPTE timecode (valid when the SMPTE option card is installed)
- **[MIDI CLK]** MIDI clock
- **[INT]** Internal timecode

Next to the **[TIME BASE]** selection field, a smaller selector button offers several options when SMPTE or MTC is selected:

- **[ND]**, 30 frames per second using non-drop frame timecode
- **[DF]**, 30 frames per second using drop frame timecode (in reality, 29.97 frames per second)
- **[25]**, 25 frames per second
- **[24]**, 24 frames per second

[MMC] Area



MMC Area

The **[MMC]** area provides controls for playing automations and sending commands to external machines that accept an MMC reference source.

[Play ▶] Button

Select this button to play the current event once the internal clock is selected and Automation and Record are enabled. When the **MMC/CURSOR** is in MMC mode, the up **ARROW** **PLAY** button on the Top Panel provides the same control.

[Stop ■] Button

Select this button to stop the automation recording. When the **MMC/CURSOR** is in MMC mode, the down **ARROW** **STOP** button on the Top Panel provides the same control.



[Return ⏮] Button

Select this button to rewind the timecode to the beginning of the automation recording. When the **MMC/CURSOR** is in MMC mode, the **[0]** button on the Keypad provides the same control.



[Repeat ◻] Button

Select this button to create a loop that will play the automation track continuously until stop is executed. When the **MMC/CURSOR** is in MMC mode, the **9** button on the Keypad provides the same control.

[Rewind ] Button



Select this button to rewind through the **[TIME CODE]** area until the **[Stop ]** button is pressed. When **MMC/CURSOR** is in MMC mode, the left **ARROW ** button on the Top Panel provides the same control.

[Fast Forward ] Button

Select this button to Fast Forward through the **[TIME CODE]** area until the **[Stop ]** button is pressed. When the **MMC/CURSOR** is in MMC mode, the right **ARROW ** button on the Top Panel provides the same control.

[1] - [6] Buttons

These buttons register timecode points for later location. When the **MMC/CURSOR** is in MMC mode, the **[1] - [6]** buttons on the Keypad provide the same control.

Each button selected in the **[MMC]** area transmits commands to external machines. The selected Time Base is internal, MMC is not sent, and the Internal timecode is controlled by operating the **MMC FUNCTION** buttons. When the Internal timecode is selected, **[Rewind ]** and **[Fast Forward ]** are removed from the window as choices.

Create Locate Points

When the **MMC/CURSOR** is in MMC mode, the **7** button on the Keypad lets you set Locate points. When you press the **7** button, the locator buttons will flash. As the individual buttons are selected, the current timecode will be registered to that button. The button, when selected, will blink in reverse video for two seconds.

Clear Locate Points

In MMC mode, the **8** button on the Keypad functions as the clear **LOCATE** button. When you press the **8** button the locator buttons will flash. When the individual buttons are selected, any previous point located by this button will be cleared and the button's appearance will return to normal video.





Operating MMC

To call back registered locate points, press one of the locator buttons, **[1] - [6]**, that have a registered location point. The MMC command to locate the timecode will be registered, and the external device will return to that point.





Return to Zero

Pressing the **0** button on the **Keypad** transmits an MMC command to the external devices, telling them to return to start or zero.




Operating the [Repeat] Button

The first time you press the [Repeat ] button, you set an in point for the loop. The second time, you set an out point for the loop. When the out point is set, the button will change to inverse video. While in this mode, when [Play ] is enabled, the MMC command will play the selected track from the in point to the out point repeatedly. To cancel the loop function, press the [Repeat ] button again. When canceled, the [Repeat ] button will appear as regular video.

Operating Other Functions

Pressing each of the buttons, [Play ], [Rewind ], [Fast Forward ], and [Stop ] transmits an MMC command for these functions, or controls the Internal timecode.

(Record) Button

The function of the  button, which is the MMC control side of the **CURSOR MODE** button, is to transmit an engage Record command to an external recording machine. This  button should not be confused with the  button in the [AUTOMATION>EXECUTE] window, which is strictly for enabling the internal Automation data record cycle.

[EDIT PARAMETER] Area



EDIT PARAMETER Area

Parameters that can be recorded by the automation are **FADER**, **CH ON**, **EQ/DYN**, **PAN/SURR**, **AUX SND**, **LIB**, **SCENE**, and **OTHERS**. The **SEL ALL** button chooses all the parameters, while the **CLR ALL** button removes the parameters from the recording sequence. When selected, the parameter will appear as inverse video.

[FADER EDIT MODE] Area

FADER EDIT MODE Area

Two modes, **RELATIVE** and **ABSOLUTE**, can be chosen along with a programmable fade time for fader automation.

ABSOLUTE Mode

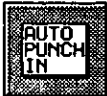
This mode selects an absolute or fixed value for fader automation.

RELATIVE Mode

This mode selects a relative level for fader automation. The fader moves to 0dB to set that standard as a relative position.

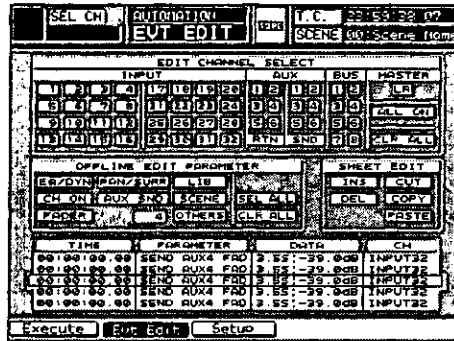
FADE Time

The fade time can be programmed into the automation sequence. A fade time from 0.0 sec to 3.0 sec can be set in .2 sec increments.

[AUTO PUNCH IN]

When engaged, **[AUTO PUNCH IN]** appears as inverse video. The channel is automatically selected by changing its parameters.

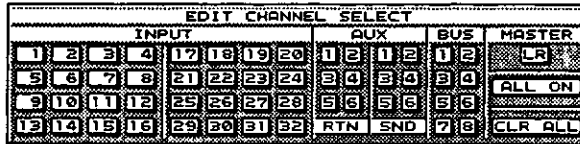
14-2 AUTOMATION, EVT EDIT (Event Edit) Window



EVT EDIT Window

Use the [EVT EDIT] (event edit) window to edit the event data in the current event (nonautomation mode).

[EDIT CHANNEL SELECT] Area



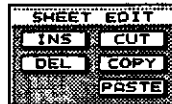
EDIT CHANNEL SELECT Area

Channels can be edited individually for [INPUT 1-32], [AUX RTN 1-6], [AUX SND 1-6], [BUS 1-8], and [MASTER LR]. To edit the channels collectively, cursor to **SEL ALL**, and press **ENTER**. All of the edit parameters will then appear as inverse video. To disable all the parameters, cursor to the **CLR ALL** button, and press **ENTER**.

[OFFLINE EDIT PARAMETER] Area

OFFLINE EDIT PARAMETER Area

Select the parameters to be edited in this area of the window. The parameters are **FADER**, **CH ON**, **EG/DYN**, **PAN/SURR**, **AUX SND**, **LIB**, **SCENE**, and **OTHERS**. The **OTHERS** button transmits program changes to devices outside the system and switches manual channels on and off. To edit all parameters, cursor to the **SEL ALL** button, and press **ENTER**. To remove all the parameters as a group, cursor to the **CLR ALL** button, and press **ENTER**.

[SHEET EDIT] Area

SHEET EDIT Area

These edit functions give you the ability to insert, delete, and copy events into the **[TIME]**, **[PARAMETER]**, **[DATA]**, and **[CH]** number columns. Much like the cut and paste functions in word processing, a little scrolling and jogging will provide control over automation.

INS Button

Insert the currently selected data into the event list.

DEL Button

Delete any data highlighted by the **CURSOR**.

CUT Button

Remove any data by selecting **CUT** and pressing **ENTER**. Data is stored in buffer memory until another event is cut or copied, and can be pasted to another field.

COPY Button

Copy any data to buffer memory by selecting **COPY** and pressing **ENTER**. The data will be copied into buffer memory for subsequent pasting.

PASTE Button

With a parameter selected in the event field, press **ENTER** with this function selected to paste data into the event field.

[TIME/PARAMETER/DATA/CH] Area

TIME	PARAMETER	DATA	CH
00:00:00.00	SEND AUX4 FAD	3.55 -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.55 -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.55 -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.55 -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.55 -39.0dB	INPUT32

TIME/PARAMETER/DATA/CH Area

An event to be edited is selected from this area. You can rotate the **JogDial** through the events and edit the event library for each item.

To edit, **CURSOR** to a desired event type: **[TIME]**, **[PARAMETER]**, **[DATA]**, or **[CH]**. Press **ENTER**. **CURSOR** to the desired processing type: **[INS]**, **[CUT]**, **[COPY]**, **[DEL]**, and **[PASTE]**.

[TIME]

Edit timecode from this area in hours, minutes, seconds, and frames. In MIDI clock, measures can be edited, but beats cannot. Beats appear in the far left of the **[TIME]** column, and can be changed in increments from 1 through 12. The beat change value is displayed at the head of the event list.

[PARAMETER]

The event parameters that can be edited appear here. Scroll through an ordered list in the same sequence as for the **[OFFLINE EDIT PARAMETER]** area.

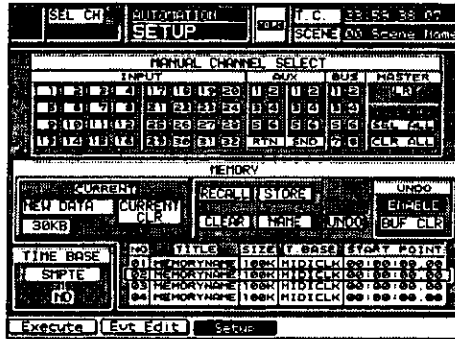
[DATA]

Data for parameters can be set in numerical values with either the **JogDial**, or the **CURSOR** and **ENTER** button.

[CH]

Here the user can select the channels where editing is desired. Scroll to a channel number with the **CURSOR**, and press **ENTER**.

14-3 AUTOMATION, SETUP Window



SETUP Window

Use the [SETUP] window to set up the automation, and to store or recall library automation events.

[MANUAL CHANNEL SELECT] Area

MANUAL CHANNEL SELECT												
INPUT				AUX				BUS		MASTER		
1	2	3	4	17	18	19	20	1	2	1	2	LR
5	6	7	8	21	22	23	24	3	4	3	4	
9	10	11	12	25	26	27	28	5	6	5	6	SEL ALL
13	14	15	16	29	30	31	32	RTN	SND	7	8	CLR ALL

MANUAL CHANNEL SELECT Area

This area permits you to select [INPUT 1-32], [AUX RTN1-6], [AUX SND 1-6], [BUS 1-8], or [MASTER LR] as manual channels. When selected as a manual channel, the selected fader is not part of the automation record, although changing a parameter is recorded as an automation event.

SEL ALL Button

Choosing **SEL ALL** assigns all the channels to the safety of manual control.

CLR ALL Button

When **CLR ALL** is selected, all channels transmit and receive automation data.

[MEMORY] Area

MEMORY					
CURRENT		RECALL	STORE	UNDO	
NEW DATA	CURRENT CLR	CLEAR	NAME	UNDO	ENABLE
30KB					BUF CLR
TIME BASE	NO	TITLE	SIZE	T. BASE	START POINT
SMPTE	01	MEMORYNAME	100K	MIDICLK	00:00:00.00
IND	02	MEMORYNAME	100K	MIDICLK	00:00:00.00
	03	MEMORYNAME	100K	MIDICLK	00:00:00.00
	04	MEMORYNAME	100K	MIDICLK	00:00:00.00

MEMORY Area

The **[MEMORY]** area is a library for the event list in the window. The **DA7** allows you to select from four automation data which can be stored into the library.

[RECALL] Button

Recall the automation library.

[STORE] Button

Store the automation library.

[CLEAR] Button

Initialize the automation library.

[NAME] Button

Display the **[NAME EDITOR]** window for the automation library.

[UNDO] Button

Cancel the immediately preceding operation that changed the memory.

[CURRENT CLR] Button

Clear all the current automation data.

[UNDO] Area

UNDO
ENABLE
BUF CLR

Turn the **[UNDO]** function on **ENABLE** or off **DISABLE**.

[BUF CLR] Button

Clear the **[UNDO]** buffer of any existing data.

[TIME BASE] Area

TIME BASE Area

The time base for Automation can be selected here, as well as in the [AUTOMATION>EXECUTE] window. See page 14-4.

Chapter 15

Scene Memory

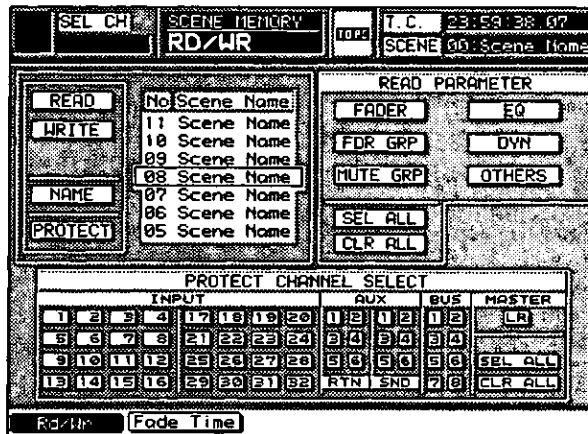


SCENE MEMORY Section

15-1 RD/WR (Read/Write) Window

The **SCENE MEMORY** section of the *DA7* is accessed from the Top Panel by pressing either the **READ** or **WRITE** LED buttons. When either function is on, its button will illuminate (*orange*). Press either button to display the [**SCENE MEMORY>RD/WR**] window. Press either of these buttons again to display the [**SCENE MEMORY>FADE TIME**] window.

Scene Memory records all parameters globally for the *DA7*. When a scene is recalled, the fader, fader group, mute group, EQ, and dynamics settings that were recorded to a specific Scene Memory file, will be recalled.



SCENE MEMORY Window

This window allows you to record to the Scene Memory. Individual channels do not read Scene Memory. Only specific library functions can be assigned to channels. Scene Memory can be recorded for all 32 input channels, aux send and return, buses, and master.

 READ Button

Once you are in the **[RD/WR]** window, scroll the **No. Scene Name** field with the **JogDial** to select the desired file. With the **CURSOR** on the **READ** button, press **ENTER** to activate a recall.

 WRITE Button

To record a Scene Memory, select a Scene Name number. With the **CURSOR** on the **WRITE** button, press **ENTER**.

 NAME Button

In the **[RD/WR]** window, **CURSOR** to the **NAME** button, and press **ENTER**. The **[NAME EDITOR]** window will display over the **[RD WR]** window. Input a Scene Memory name in the **[NAME EDITOR]** window, and press the **OK** button in the window.

 PROTECT Button

The protect function sets a specified Scene Memory into a status where nothing can be recorded to it. This function will protect all data.

 FADER Button

When this parameter is selected, access to fader information is turned on.

 EQ Button

When this parameter is selected, access to EQ information is turned on.

 DYN Button

When this parameter is selected, access to dynamics information is turned on.

 FDR GRP Button

When this parameter is selected, access to fader group information is turned on.

 MUTE GRP Button

When this parameter is selected, access to mute group information is turned on.

[OTHERS] Button

When this parameter is selected, access to other global information is turned on.

[SEL ALL] Button

All of the parameters in the **[READ PARAMETER]** area are selected on or off. Selected parameters appear as inverse video.

[CLR ALL] Button

All parameter selections in the **[READ PARAMETER]** area are deactivated.

[PROTECT CHANNEL SELECT] Area

Here you can identify which, if any, **Channel Strips** will be protected: **INPUT 1-32, AUX RTN 1-6, AUX SND 1-6, BUS 1-8, or MASTER LR.**

If a **SELECT** LED button is pressed, while in the **[SCENE MEMORY>RDWR]** window, that selected channel will be turned on in the **[PROTECT CHANNEL SELECT]** area. You can perform the same operation by moving the **CURSOR** to a selected channel, and pressing **ENTER**. The selected channel will appear in inverse video when protected.

Once you protect a channel, it will remain with all its attributes even after you recall a Scene memory.

Calling of Scene Memory

When the Keypad is on in the **[UTILITY>CONFIG]** window, Scene Memory can be recalled using the **Keypad**. Input the number of the Scene Memory location to be recalled. The **DA7** will automatically recall that configuration, setting channel on or off, fader levels, pan, balance, EQ, dynamics, fader group, and mute group assignments.

When the Keypad is off, and the **[READ]** button is on, Scene Memory can be selected using the **Keypad**. By pressing **ENTER**, the numeric readout will flash the selected Scene memory that you have recalled in the **MEMORY** Display. The selected Scene Memory is called to the panel. The number of the **MEMORY** display segment is rewritten to a selection number and dots of the segment lighten.

Dots indicate that the parameter has not been operated since the current scene memory was recalled. Dots go off at the point at which the parameter of the current memory is changed by selecting another scene memory.

15 Scene Memory

Writing a Scene Memory

Writing a Scene Memory uses the same procedure as read. Select a memory file number, move the CURSOR to the **[WRITE]** button, and press **ENTER**. The **MEMORY** display will flash for five seconds, indicating that the panel has written to the selected Scene Memory.

Input of Scene Memory Title

Press **ENTER**, when the CURSOR is over the **[NAME]** button, and the **[NAME EDITOR]** window will appear over the **[RD/WR]** window. Alpha-numeric characters can be input from the **Keypad** or the keyboard in the **[NAME EDITOR]** window.

Setting of Read Protection Channel

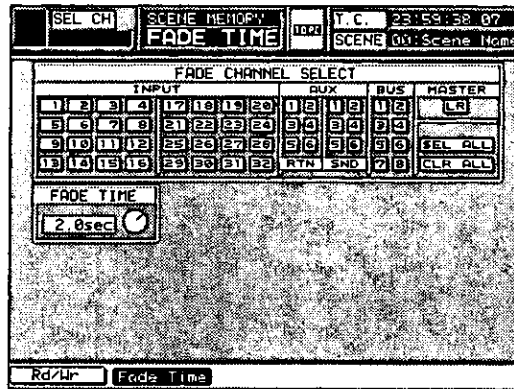
To activate read protection to a selected channel or all channels, CURSOR down to the **[PROTECT CHANNEL SELECT]** area in the window. If the **[SEL ALL]** button is selected and activated, nothing from the Scene Memory can be recalled into the system.

If you prefer to protect only a select group of channels, scroll through the channel numbers, and press **ENTER** on your choice. Pressing the **SELECT LED** button for the channels that are to be protected while in the **[RD/WR]** window will also engage the selected channel protection.

In the **[READ PARAMETER]** area there are several parameters that can be programmed on or off selectively, or collectively.

15-2 FADE TIME Window

Fade Time sets a programmable fade duration to be executed when a scene memory is changed. The fading function can be set to connect faders successively if the current fader levels and the scene memory are different at the execution of a **SCENE MEMORY** recall.



FADE TIME Window

[FADE TIME CHANNEL SELECT] Area

This area lets you select fade time of **INPUTS 1-32**, **AUX RTN 1-6**, **AUX SND 1-6**, **BUS 1-8**, and **MASTER LR**.

Selecting of Fade Channel

Cursor to any channel number button, and press **ENTER**.

SEL ALL Button

Here all of the channels in the **[FADE TIME CHANNEL SELECT]** area are turned on, and all of the channel buttons appear as inverse video.

CLR ALL Button

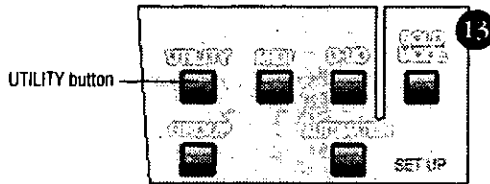
Here all of the channels in the **[FADE TIME CHANNEL SELECT]** area are turned off, and all of the channel buttons reset to default (off).

[FADE TIME SET] Area

Activate the soft knob and adjust the fade time by turning the **JogDial**. This adjusts the fade time for all channels selected for the current **SCENE MEMORY** file. The fade time is adjustable from zero to three seconds.

Chapter 16

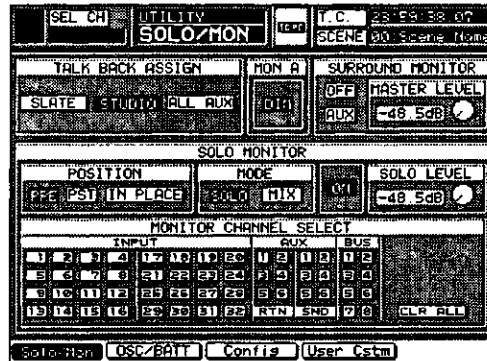
Utility



SETUP Section

The **UTILITY** button on the Top Panel of the *DA7* accesses function controls for the mixer. Pressing the **UTILITY** button displays the **[UTILITY]** window group in the LCD. From these windows, assignments can be made for Talkback, Surround Monitor, Solo Monitor, Oscillator, Locking Functions, Function Configuration, and Fader Layer Customization.

16-1 Utility, Solo/Monitor (SOLO/MON) Window



MONITOR SETUP Window

The [MON SETUP] (monitor setup) window provides controls for the monitoring functions of the *DA7*.

[TALK BACK ASSIGN] Area



TALK BACK ASSIGN Area

The destinations that will hear the Talk Back feature are assigned in this area. See *Section 16-3 [UTILITY>CONFIG] Window* for information on momentary and locking features of the Talk Back button. The user may assign Talk Back to any or all of the following buttons:

- [SLATE] Button

When you select this button, it will appear in inverse video. Talk Back will go out to the **MASTER LR** and **BUSES** to be recorded on the tape tracks.

- [STUDIO] Button

The [STUDIO] button routes the Talk Back to the **MONITOR B** outputs.

- [ALL AUX] Button

When you select [ALL AUX], all of the outgoing **AUX** channels will receive an interrupt from the Talk Back feature.

[MON A] Area



MON A Area

Engaging the **[MON A] DIM** button lowers the volume of the **MONITOR A** system by 20dB, regardless of talkback operations.

If the **[MON A] DIM** button is off, the monitor volume will be lowered by 20dB whenever the **TALKBACK** button on the **Top Panel** is on. The monitor volume will be restored when the **TALKBACK** button is turned off.

[SURROUND MONITOR] Area



SURROUND MONITOR Area

The surround monitor feature is toggled **OFF** or **ON** in this area of the window. The **AUX** button toggles with a **MON** button, which determines the assignment for the surround bus monitor outputs. Cursor to the **AUX** button, and press **ENTER** to toggle to the **MON** button. The surround bus assignments are reflected in the table below, as determined by the current selection.

	Surround bus 1 (L)	Surround bus 2 (R)	Surround bus 3 (C)	Surround bus 4 (SW)	Surround bus 5 (SL)	Surround bus 6 (SR)
AUX	Mon A (L)	Mon A (R)	Aux send 3	Aux send 4	Aux send 5	Aux send 6
MON	Mon A (L)	Mon A (R)	Mon B (L)	Mon B (R)	Master L	Master R

The outgoing **[MASTER LEVEL]** of the surround sound feature is also set in this area of the window. The soft knob controls the level for the surround sound monitoring system. The knob has a range of $-\infty$ to +10dB. Cursor to the **[MASTER LEVEL]** soft knob, and rotate the **JogDial** to raise or lower the surround monitor output level.

See **Chapter 8 Pan/Assign Surround** for additional information.

[SOLO MONITOR] Area

SOLO MONITOR Area

There are four operational parameters for the **[SOLO MONITOR]**:

[POSITION] Area Selections

SOLO can be assigned to one of three selections:

- **PRE** Button

When assigned to this button, the solo source monitoring is in a pre-fader condition. When enabled, the **PRE** button is displayed in inverse video.

- **PST** Button

When assigned to this button, raising and lowering the fader for a channel in the **SOLO** mode will change the level of the **SOLO** monitoring.

- **IN PLACE** Button

The **IN PLACE** button allows the user to listen to the selected **SOLO** channel, with panned attributes remaining assigned to the particular source.

[MODE] Area

Mode has two conditions that apply to **SOLO** monitoring:

- **SOLO** Button

Only one source at a time can be selected for **SOLO** monitoring.

- **MIX** Button

You have the option of selecting multiple **SOLO** channels simultaneously.

[OFF] or [ON] Buttons Area

In the **[SOLO MONITOR]** area the **ON** and **OFF** buttons toggle and enable or disable **SOLO** for the system.

[SOLO LEVEL] Area

The **[SOLO LEVEL]** can be controlled by the soft knob in the window. The current value appears in the field with a range of $-\infty$ dB - +10dB. When you position the **CURSOR** on the soft knob, rotating the **JogDial** will raise or lower the output level.

[MONITOR CHANNEL SELECT] Area

MONITOR CHANNEL SELECT														
INPUT								AUX			BUS			
1	2	3	4	17	18	19	20	1	2	1	2	1	2	
5	6	7	8	21	22	23	24	3	4	3	4	3	4	
9	10	11	12	25	26	27	28	5	6	5	6	5	6	
13	14	15	16	29	30	31	32	RTN	SND	7	8		CLR ALL	

MONITOR CHANNEL SELECT Area

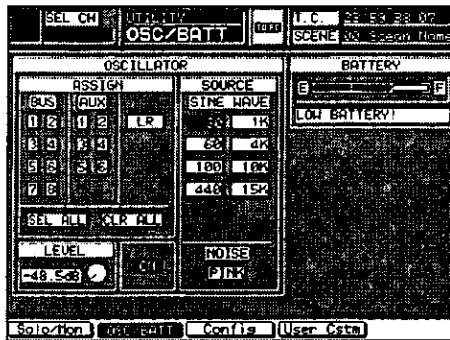
An extension of the **[SOLO MONITOR]** functions, the **[MONITOR CHANNEL SELECT]** area, is divided into several sections for discrete assignment of **SOLO** to **CHANNELS 1-32**, **AUX RTN 1-6**, **AUX SND 1-6**, and **BUS 1-8**, individually for **[SOLO]** mode, or collectively in **[MIX]** mode.

When a **SOLO** button is selected from the Top Panel, that action will cause the respective buttons in the **[MONITOR CHANNEL SELECT]** area to appear as inverse video.

CLR ALL Button

Selecting the **CLR ALL** button terminates the assignments for the **[MONITOR CHANNEL SELECT]** area buttons.

16-2 Utility, Oscillator/Battery (OSC/BATT) Window



OSC/BATT Window

These are great features to have on board the DA7. A reference [SINE WAVE] or [NOISE] generator can be assigned to the BUS, AUX, and LR outputs of the mixer.

[ASSIGN] Area Selections



ASSIGN Area

The Oscillator can be assigned to any one or all of the [BUS 1-8], [AUX 1-6], and [LR] outputs. **CURSOR** to the output selection button, and press **ENTER**. The selected button will appear as inverse video.

When you enable the **SEL ALL** button, it will appear as inverse video and apply the Oscillator to all of the BUS, AUX, and LR outputs.

The **CLR ALL** button performs the inverse function of **SEL ALL**. When it is selected, the Oscillator is no longer assigned to any of the outputs.

[LEVEL] Area



LEVEL Area

The **[LEVEL]** soft knob controls the output level. When the *DA7* is first turned on, the level is set to 0.0dB. Move the **CURSOR** to the knob, and rotate the **JogDial** to change the level from $-\infty$ to +10dB.

ON and OFF Buttons

Activating the **ON** or **OFF** buttons turns the Oscillator on or off for the system.

[SOURCE] Area



SOURCE Area

The tone output of the Oscillator is determined by selecting one of the eight frequency buttons in this area.

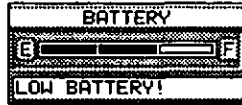
[NOISE] Area



NOISE Area

Instead of tone, activating the **PINK** button will output Pink Noise to the output of the selected sources. When selected, the **PINK** button will appear as inverse video.



[BATTERY] Area

BATTERY Area

A staged bar graph is displayed in the **[BATTERY]** area of the **[UTILITY>OSC/BATT]** window. The bar graph depicts the current battery strength, ranging from **[E]** (empty) to **[F]** (full). When the battery runs out, all memory will be erased from the mixer, when the AC power for the *DA7* is turned off.

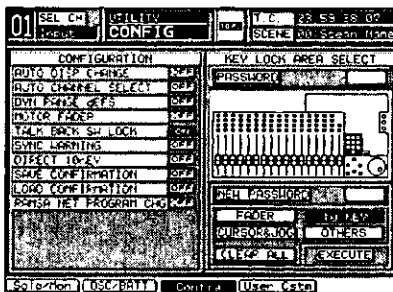
The message field is a text indicator of the battery status. If the battery needs to be replaced, the field will read **LOW BATTERY**. If the battery should run out, it will read **BATTERY EMPTY** until a new one is put in.

To replace the battery, contact the PANASONIC Service Center nearest you.



When the **[BATTERY]** graph displays "LOW BATTERY", back up the *DA7* memory by performing a bulk output routine from the **[MIDI>BULK]** window. Do not let the battery run out, or you may inadvertently lose the *DA7* memory.

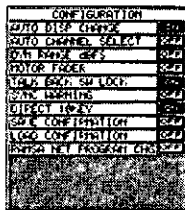
16-3 Utility, Configuration (CONFIG) Window



CONFIG Window

Use the settings in this window to define the configuration of various features in the *DA7*.

[CONFIGURATION] Area Selections



CONFIGURATION Area

The selections in this area are toggled **ON** or **OFF**. Cursor to the currently displayed button for the selection, and press **ENTER** to toggle **ON** or **OFF**.

AUTO DISP CHANGE

When this selection is **OFF**, operating knobs on the Top Panel will not call up other windows in the LCD. When **ON**, operating Top Panel knobs will change the LCD to the window of the knob being adjusted.

AUTO CHANNEL SELECT

Any time this selection is activated, when a fader is moved or **SELECT** for any channel is pressed, the **[CHANNEL]** window for the selected channel will appear in the LCD.

DVN RANGE dBFS

When this selection is **ON**, the range of the characteristics graph in the **[DYNAMICS]** window is set to **[dBFS]**, which is 0L to -100dB. When **OFF**, the range is set to **[dBu]**, which is +18 to -82 dB.

MOTOR FADER

This selection determines whether the motorized faders are active or not.

TALK BACK SH LOCK

This selection determines whether the **TALK BACK** button on the Top Panel is set to a momentary or locked position. In momentary, the button only operates when it is continually pressed. In locked mode, once pressed, the **TALK BACK** button will stay on until pressed again.

SYNC WARNING

When this selection is on, if the sync of the master wordclock becomes unlocked, a warning message is displayed.

DIRECT TO KEY

When this selection is on, pressing a **Keypad** number(s) sends a MIDI program change message and recalls a scene memory register corresponding to the number(s) selected. Also, when **ON**, recalling library register numbers will not work.

SAVE CONFIRMATION

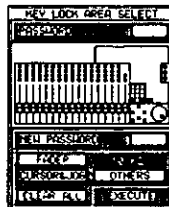
When this selection is on, a confirmation message is displayed when a library or scene memory register is saved via the **TITLE** button.

LOAD CONFIRMATION

If this selection is on, a confirmation message is displayed when a library, scene memory, or automation data is recalled.

RANSX NET PROGRAM CHG

This selection is unassigned and is for future use and applications.

[KEY LOCK AREA SELECT]

KEY LOCK AREA SELECT

The **[KEY LOCK AREA]** lets the user lock operational sections of the **DA7**, preventing anyone without the password from operating a section or sections of the mixer. The area diagram in the window shows areas that can be locked, which will appear in inverse video when locked.

In the **[KEY LOCK AREA]** the user will find two fields.

[PASSWORD] Field



PASSWORD Field

A 4-digit field where you enter the password for controlling access to the **DA7**. When the password is correct, both the **[NEW PASSWORD]** field and the lock section field can be operated.

[NEW PASSWORD] Field



NEW PASSWORD Field

When you enter the correct password in the **[PASSWORD]** field, a new 4-digit password can be entered in the field using the **Keypad**.

Areas that can be locked by selecting the respective buttons are

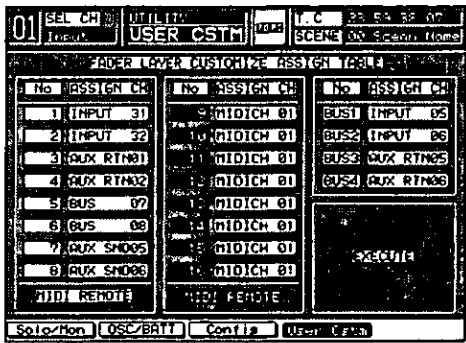
FADER, **CURSOR&JOB**, **TO KEY** (keypad), and **OTHERS**. Selecting the **OTHERS** button locks the controls for the **EQ, DYNAMICS/DELAY, PAN/ASSIGN/SURROUND, BUS ASSIGN, AUX, MONITOR** (but not the **LEVEL** knobs), **SCENE MEMORY**, and **LIBRARY** sections of the Top Panel.

You retain control over the **UTILITY, MIDI, D-I/O, GROUP,** and **AUTOMATION** buttons and windows.

To activate the locking function, select which features are to be locked, cursor to the **EXECUTE** button, and press **ENTER**. The **EXECUTE** button will flash momentarily.

To disable locking features, select the **CLEAR ALL** button and press the **EXECUTE** button.

16-4 Utility, User Custom (USER CSTM) Window



USER CSTM Window

This window allows you to program which sources will be controlled by the 16 channels in the CUSTOM/MIDI Fader Layer.

The [FADER LAYER CUSTOMIZE ASSIGN TABLE] lets you assign sources to the channels. The [ASSIGN CH] (assign channel) selection can be any source, inputs 1 through 32, aux returns 1 through 6, buses 1 through 8, and aux sends 1 through 6. Cursor to the channel number that you want to change, and rotate the JogDial to select the desired source.

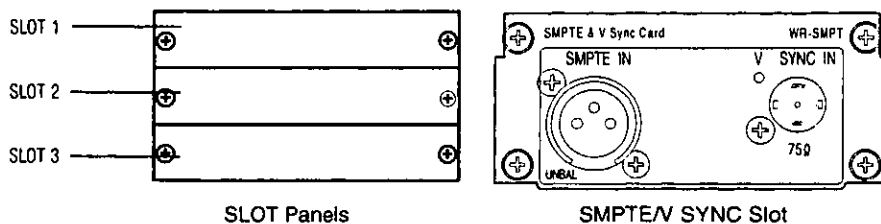
At the bottom of the channel assignment columns there is a [EXECUTE] (MIDI REMOTE) button. When selected, it changes to inverse video. When active, the columns will change from [ASSIGN CH] information to [MIDI CH#]. Each of these can be programmed to the desired MIDI channel selection and can be assigned to MIDI message in the [MIDI > MIDI RMT] window.

Cursor to the [EXECUTE] button, and press ENTER to activate the selections for use as the CUSTOM/MIDI Fader Layer assignments.

10
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Chapter 17

Options



The **DA7** has three option card slots on the Rear Panel. **SLOT 1** corresponds to **Channel Faders 17-24**, **SLOT 2** connects to **Channel Faders 25-32**, and **SLOT 3** appears as **Channel Faders 9-16**. Although **SLOT 3** has multiple functions when **SLOT 3** is being used to bring sources into the **DA7**, the **FLIP LED** buttons for those channels will illuminate (*yellow*). Routing of **SLOT 3** is assigned in the **[DIGITAL INPUT SELECT]** area of the **[D-I/O>INPUT SET]** window.

A separate slot is provided for the SMPTE & V Sync option card, as described in **Section 17-5**.



Be sure to note the wordclock requirements for the option cards. See **Section 12-1 D-I/O Input Set** for additional information.

17-1 ADAT Digital I/O Card, WR-ADAT



ADAT Digital I/O Card

You can use the **ADAT** card with the **DA7** to connect an external ADAT recorder.

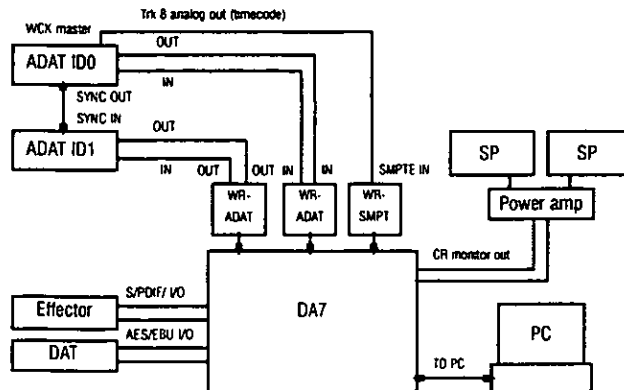
Attach the **ADAT** card to an ADAT recorder, with a pair of fiber cables, from the In and Out of the **ADAT** card to the Out and In of the ADAT recorder.

To send a signal to the ADAT recorder, the **[DIGITAL INPUT SELECT]** area of the **[D-I/O>INPUT SET]** window must be assigned to reflect the routing being used to feed the ADAT recorder. When the **ADAT** card is used in **SLOT 3**, it replaces analog inputs 9-16, and the **FLIP** buttons are illuminated (*yellow*). Go to the **[D-I/O>INPUT SET]** window and toggle the path of the **SLOT 3** card to the inputs of **Channels 9-16**.

ADAT + DA7

Use this diagram when setting up the **DA7** with an ADAT recorder. This will provide the **DA7** with a connection to 16 tracks of digital recording. When using a Word Clock reference source, all 16 tracks are available for recording.

To verify that the setup is properly connected, go to the **[D I/O>INPUT SET]** window. On the lower left, where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.



ADAT + DA7 GRAPHIC

Connections

Insert two optional ADAT cards into **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the *DA7* so they are properly grounded. Each ADAT machine is connected to an option card via two optical cables, one In and one Out. The 8-track ADAT signal in **SLOT 1** is assigned to inputs 16-24, and the 8-track ADAT signal in **SLOT 2** is assigned to inputs 25-32.

The output sources into the ADAT can be selected from the [D I/O>SLOT OUT] window.

Refer to **Chapter 12 D I/O** for additional information.

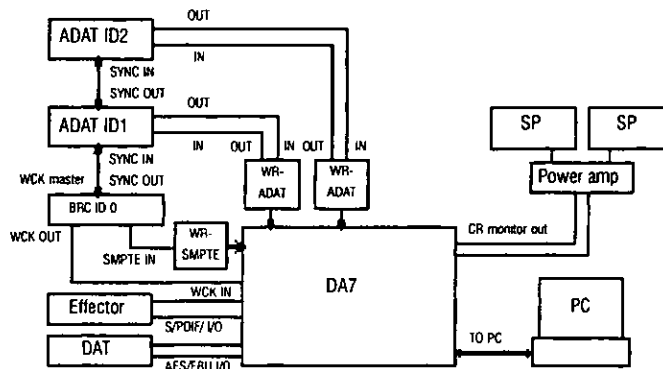
Wordclock Setup

The wordclock master is the ADAT attached to **SLOT 1**, and the ID setting must be set to zero. From the [D-I/O>INPUT SET] window scroll to **SLOT 1** and select it as the wordclock master source. This will tell the *DA7* that the device in **SLOT 1** is the Word Clock master.

ADAT + BRC + DA7

This diagram shows how to attach an ADAT and BRC Clock master to the *DA7*.

To verify that the setup is properly connected, go to the [D I/O>INPUT SET] window. On the lower left, where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.



ADAT + BRC + DAT GRAPHIC

Connections

Insert two optional ADAT cards into **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the *DA7* so they are properly grounded. Each ADAT machine is connected to an option card via two optical cables, one In and one Out. The 8-track ADAT signal in **SLOT 1** is assigned to inputs 16-24, and the 8-track ADAT signal in **SLOT 2** is assigned to inputs 25-32.

The output sources into the ADAT can be selected from the [**D I/O>SLOT OUT**] window.

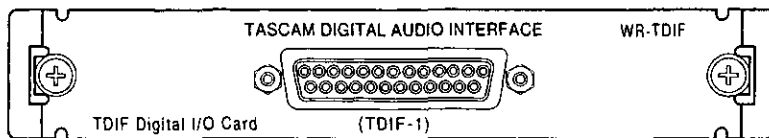
Refer to **Chapter 12 D I/O** for additional information.

Wordclock Setup

The wordclock master for this example is an Alesis BRC and the ID setting must be set to zero. Both ADATs and the *DA7* operate as slaves to the BRC. The wordclock signal from the "WC OUT" of the BRC attaches to the **WORD CLOCK IN** of the *DA7* Rear Panel. Set the terminate switch on the *DA7* to on.

The *DA7* clock must be set from the [**D-I/O>INPUT SET**] window by selecting [**WCK IN**].

17-2 TDIF (TASCAM Digital Audio Interface) Card, WR-TDIF

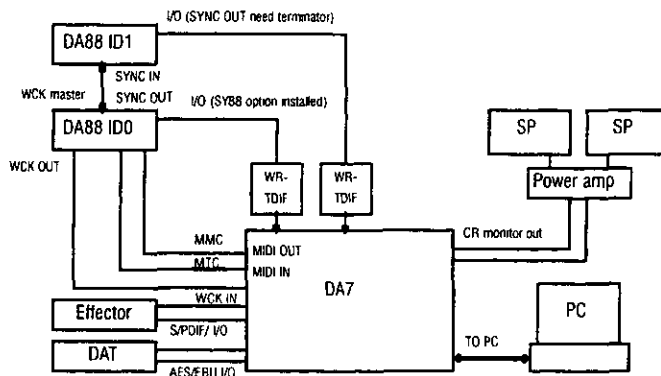


TDIF Digital I/O Card

Use the **TDIF** card with the **DA7** to connect an external digital tape recorder, such as the TASCAM DA-88.

DA88 + DA7

This diagram will help you set up a pair of DA88 DTRs with the **DA7** using one of the DA88s as the Word Clock master.



DA88 + DA7 GRAPHIC

Connections

Insert a TDIF option card into both **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the **DA7** so they are properly grounded. The DA88 8-track signal from **SLOT 1** is assigned to inputs 16-24. The DA88 8-track signal from the **SLOT 2** card is assigned to inputs 25-32.

The output sources into the DA88 can be selected from the **[D-I/O>SLOT OUT]** window.

Refer to **Chapter 12 D I/O** for additional information.

To verify that the setup is properly connected, go to the **[D-I/O>INPUT SET]** window. On the lower left, where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.

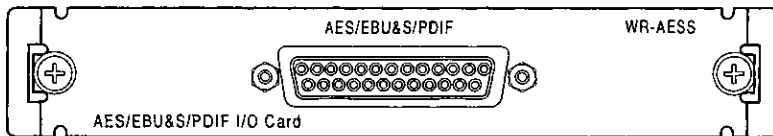
Wordclock Setup

The wordclock master in this setup is the DA88 that is attached to **SLOT 1** of the **DA7**. The other DA88 and the **DA7** operate as slave units. The wordclock signal from the "WORD SYNC OUT" of the SY88 (which is an option card for the DA88) goes to the **WORD CLOCK IN** of the **DA7** Rear Panel. Set the termination switch on the **DA7** to On.

When using the TASCAM DA88 setup, the TDIF card has a pair of dip switches physically mounted on it. From the factory both switches are set to Off. This setting permits operation between the **DA7** and the DA88. If you use either a DA38 or DA98, switch 1 must be set to On for proper operation.

Switch 2 has no specific function and should not be changed from its Off status. Changing it could create communication protocol problems and conflicts, and should be avoided.

17-3 AES/EBU & S/PDIF Card, WR-AESS



AES/EBU & S/PDIF I/O Card

AES/EBU (Audio Engineering Society/European Broadcasting Union) is a digital audio interface standard used in most modern professional equipment. S/PDIF (Sony/Phillips Digital InterFace) is the standard interface used by many consumer-level components. This option card has four toggle switches, located on the card itself, to choose either the **AES/EBU** or **S/PDIF** interfaces.

AES/EBU & S/PDIF are communication protocols. If not properly set before being used, disruption of the signal transmission will occur.

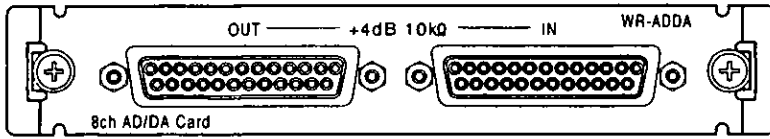
This **AES/EBU & S/PDIF** card can be used as an interface between digital equipment and the **DA7**. If you need to send audio signals to an external recorder, use a breakout cable with a connector which attaches to the **AES/EBU & S/PDIF** card and eight male XLR connectors which make up the other end, or the tail. When doing this, make sure the four toggle switches on the option card are set to **AES/EBU**.

The **[D-I/O>TO SLOT]** window shows which card is connected to what **SLOT**, and allows the user to program the **DA7** to output up to eight different sources to the external recorder. Simultaneously, by using female XLR connectors (or turnarounds on the male XLR connectors) from the external device, the eight tracks of the recorder can be routed back as inputs to the **DA7**.

If attempting to connect a consumer level recorder to the **DA7**, the same procedure will work, but the breakout cable should have RCA connectors on the tail. When connecting with the RCA plugs, be sure to set the four switches on the option card to **S/PDIF**.

See **Chapter 12 D-I/O**, and **Chapter 2 DA7 Tour** for additional information on connecting and using the three option card slots on the Rear Panel of the **DA7**. Pin assignment of this card is shown in **Appendix F Cables & Connections**.

17-4 AD/DA Card, WR-ADDA



AD/DA Card

The **AD/DA** card is an analog-to-digital/digital-to-analog converter. Use this card to input an external analog device to the **DA7**. Since the **DA7** only has 16 analog inputs accessible from the Rear Panel, using the **AD/DA** card in the D-I/O slots permits routing additional sources into **Fader Layer INPUTS 17-25** and **26-32**.

The **AD/DA** card has two DB-25 connectors, one for input signals and one for output signals. There are several possible scenarios for connecting external devices with the **AD/DA** card.

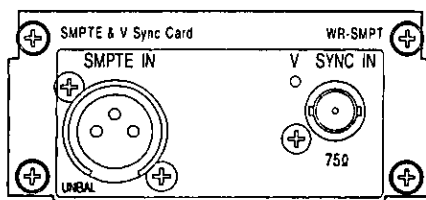
A serial port to serial port connection can be made for certain external devices. If so, the output connection on the **AD/DA** should be attached to the input of the external device, while the input to the **AD/DA** option card should be connected to the output of the external device.

The **[D-I/O>TO SLOT]** window shows which card is connected to what **SLOT**, and allow the user to program the **DA7** to output up to eight different sources to the external recorder. Conversely, eight channels of the external device can be routed back as inputs to the **DA7**.

See **Chapter 12 D-I/O**, and **Chapter 2 DA7 Tour** for information on where D-I/O input signals from the slot cards come into the **DA7**.

A breakout cable, like the ones used in **Section 17-3** for the **AES/EBU & S/PDIF** card, may be needed. If you are using a small external mixer for a drums submix, those eight channels could come back into the **DA7** through a breakout cable. Or, the output from the **AD/DA** card can be used to send eight discrete signals to an analog recorder.

17-5 SMPTE Card, WR-SMPT



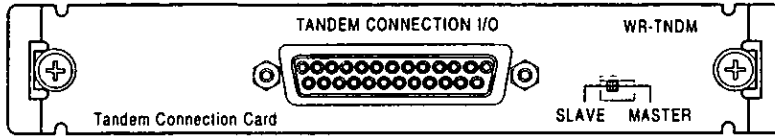
SMPTE & V Sync Card

The **SMPTE** (Society of Motion Picture and Television Engineers) & **V Sync** (Vertical Sync) option card lets external time code, usually from a video source, control the **DA7s'** Automation functions. When using the **DA7** in a video post-production environment, the video controller will slave the **DA7** to its time code, which can be preset in the **[AUTOMATION>EXECUTE]** and **[AUTOMATION>SETUP]** windows.

The SMPTE connection is made to the **DA7** with a male XLR plug, while the V Sync signal attaches to the Rear Panel with a BNC connector.

SMPTE time code is longitudinal, or LTC. Although often generated by a video player, SMPTE time code can be generated by a number of devices, non-video in nature. The V Sync signal allows the **DA7** to synchronize to an incoming composite video signal by reading the video sync pulse.

17-6 TANDEM Card, WR-TNDM

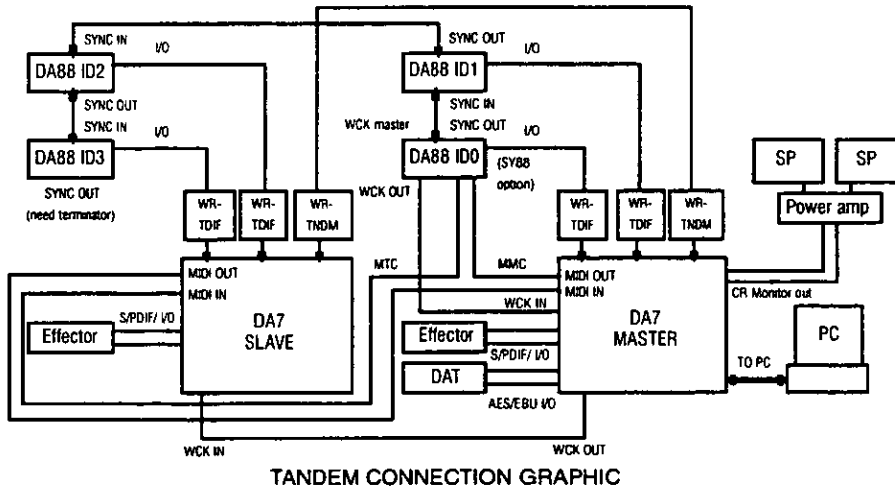


TANDEM Connection Card

The **TANDEM** card is for use only with **SLOT 3** on the Rear Panel of the **DA7**. **SLOT 3** has the options of [NORMAL], [INS], or [TANDEM] mode. When the **TANDEM** button is selected, the **SLOT 3** column of the [D-I/O>SLOT OUT] window changes to recognize which option card is in the slot. When you assign [TANDEM] on or off, a data field in the window will confirm connection. Another data field is used to program an [OFFSET DELAY] value to the slave **DA7**.

TANDEM Connection

This diagram shows how to connect two **DA7**s with four **DA88**s, with a **DA88** operating as the Master Clock source.



TANDEM CONNECTION GRAPHIC

Connections

Insert a TDIF option card into both **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the **DA7** so they are properly grounded. The **DA88** 8-track signal from **SLOT 1** is assigned to inputs 16-24. The **DA88** 8-track signal from the **SLOT 2** card is assigned to inputs 25-32.

Insert a **TANDEM** connection card into **SLOT 3** of each of the *DA7s*. Connect using the customized table in the **[D-I/O>SLOT OUT]** window by selecting **TANDEM** from the **SLOT 3** column. Attach a serial cable between the two option cards. On the Master *DA7*, the **MASTER/SLAVE** switch on the **TANDEM** Connection I/O card should be set to **MASTER**, and on the Slave *DA7* set to **SLAVE**.

To know if the setup is properly connected, go to the **[D-I/O>INPUT SET]** window. On the lower left where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.

The output sources into the DA88 can be selected from the **[D-I/O>SLOT OUT]** window.

Refer to **Chapter 12 D I/O** for additional information.

Connect between the two *DA7s* and the wordclock master DA88 IDO using the **MIDI IN** and **OUT** ports on the Rear Panels of the *DA7s*.

Wordclock Setup

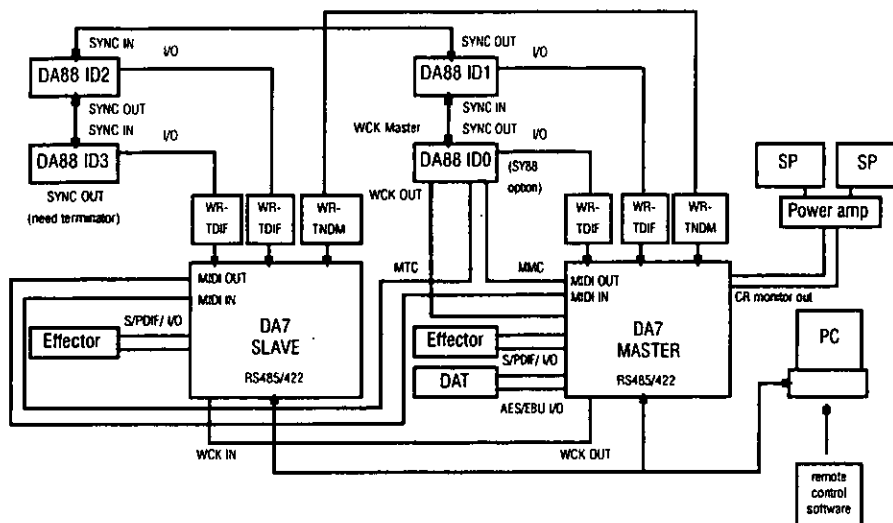
The wordclock master is one of the DA88s and the ID must be set to zero. All other devices in the chain are slaved to that clock master. Use the wordclock signal from the "WORD SYNC OUT" of the SY88 option card on the DA88, and attach it to the **WORD CLOCK IN** of the Master *DA7* Rear Panel. Set the terminate switch of the master *DA7* to Off.

Attach the wordclock signal from the **WORD CLOCK OUT** of the Master *DA7* Rear Panel to the **WORD CLOCK IN** of the Slave *DA7* Rear Panel, and set the terminate switch of the Slave *DA7* to on.

The Master and Slave *DA7*'s clock must be selected from the **[D-I/O>INPUT SET]** window by selecting the **CLOCK IN** button.

TANDEM Connection + Remote Control Software (future development)

This diagram depicts the **TANDEM** Connection setup using an external computer.



TANDEM CONNECTION + REMOTE SOFTWARE GRAPHIC

Connections

Follow the steps for setup as outlined in the TANDEM Connection diagram. Attach an RS485 interface card to an extension slot on the PC and set the 110Ω termination on the RS485 interface card. Connect between the *DA7* master, the *DA7* slave, and the PC using RS485 I/O connectors as the bus connection using D-sub 9-pin cables. Set the 110Ω terminate switch of the Master *DA7* to Off and the terminate switch of the Slave *DA7* to On.

The *DA7*s and the PC will communicate control signals and data between each other through this bus connection. The connection baud rate can be set up to 125kbps from the [MIDI>SETUP] window [PORT SELECT] area.

Wordclock Setup

The wordclock setup for this configuration is the same as the TANDEM Connection configuration.

The differences in operation from a single *DA7* are:

- 1 The **CHANNEL**, **CHANNEL Library**, **EQ**, **EQ Library**, **DYNAMICS**, **DYNAMICS Library**, **AUX Send**, **BUS** and **MASTER LR** cannot be operated from the master *DA7*. These functions on the slave *DA7* can all be operated individually and manually from the slave *DA7*.
- 2 **MONITOR** and **TALKBACK** do not function to the slave *DA7*.
- 3 The **SOLO** functions of the slave *DA7* can be controlled from the master *DA7*, but only if the slave *DA7*s' **SOLO** channels are manually selected.
- 4 The **OSCILLATOR** function on the slave *DA7* will not operate.
- 5 The **[TALK BACK SW LOCK]** and the **[DIRECT 10 KEY]** in the **[UTILITY>CONFIG]** window of the master *DA7* will not control the slave *DA7*.
- 6 The **[AUTOMATION]** functions of the slave *DA7* can be controlled from the master *DA7*; **[TIMECODE OFFSET]**, **[UNDO]**, **[UNDO ENABLE/DISABLE]**, **[UNDO BUFFER CLEAR]**, **[AUTOMATION ENABLE/DISABLE]**, **[REC]**, **[ABORT]**, **[SCENE]**, **[TIME BASE SELECTION]**, **[MMC]** functions and the **[FADER EDIT MODE]**.
The **[EDIT CHANNEL SELECT]** and **[MANUAL CHANNEL SELECT]** **INPUT Channels** and **AUX Return** can only be selected from the slave *DA7*. **AUX Send**, **BUS** and **MASTER LR** cannot be operated on the slave. **[SEL ALL]** and **[CLR ALL]** can be operated only from the master *DA7*.
- 7 The Dither control for the **[REC OUT]** and **[AUX SEND 1/2]** area of the **[D-I/O>DITHER]** window cannot be operated from the slave *DA7*. The **SLOT 1** and **SLOT 2** controls on the slave mixer can only be operated from the slave *DA7*. The **SLOT 3** controls for both the slave and master *DA7* cannot be accessed.
- 8 The **[METER>BUS/AUX]** window on the slave *DA7* does not display.
- 9 The **METER BRIDGE** of the slave *DA7* does not show the **AUX Send**, **BUS**, **MASTER LR** or **MONITOR A** levels.

- 10 The Read and Write functions of the **[SCENE MEMORY>RD/WT]** window cannot be controlled from the slave *DA7*.

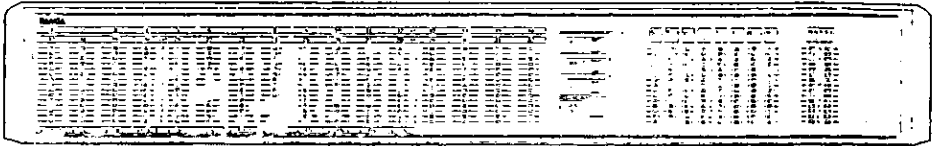
The **[READ PARAMETER]** area of the slave can be operated from the master.

The **[PROTECT CHANNEL SELECT]** and **[FADE CHANNEL SELECT]** areas on the slave mixer allow control of the INPUT Channels and **AUX Return**. The **AUX Send**, **BUS** and **MASTER LR** cannot be controlled by the slave. **[SEL ALL]** and **[CLR ALL]** can only be controlled from the master *DA7*.

The **[FADE TIME]** area of the **[SCENE MEMORY>FADE TIME]** window can be controlled from both the slave and master *DA7*.

- 11 Channel Strip functions **[ON]**, **[SELECT]**, **[SOLO]** and **Fader** can be operated from the Top Panel of both the slave and master *DA7*, as well as the INPUT Channels and **AUX Return**. The **AUX Send**, **BUS** and **MASTER LR** cannot be operated from the slave.

17-7 METER BRIDGE



METER BRIDGE

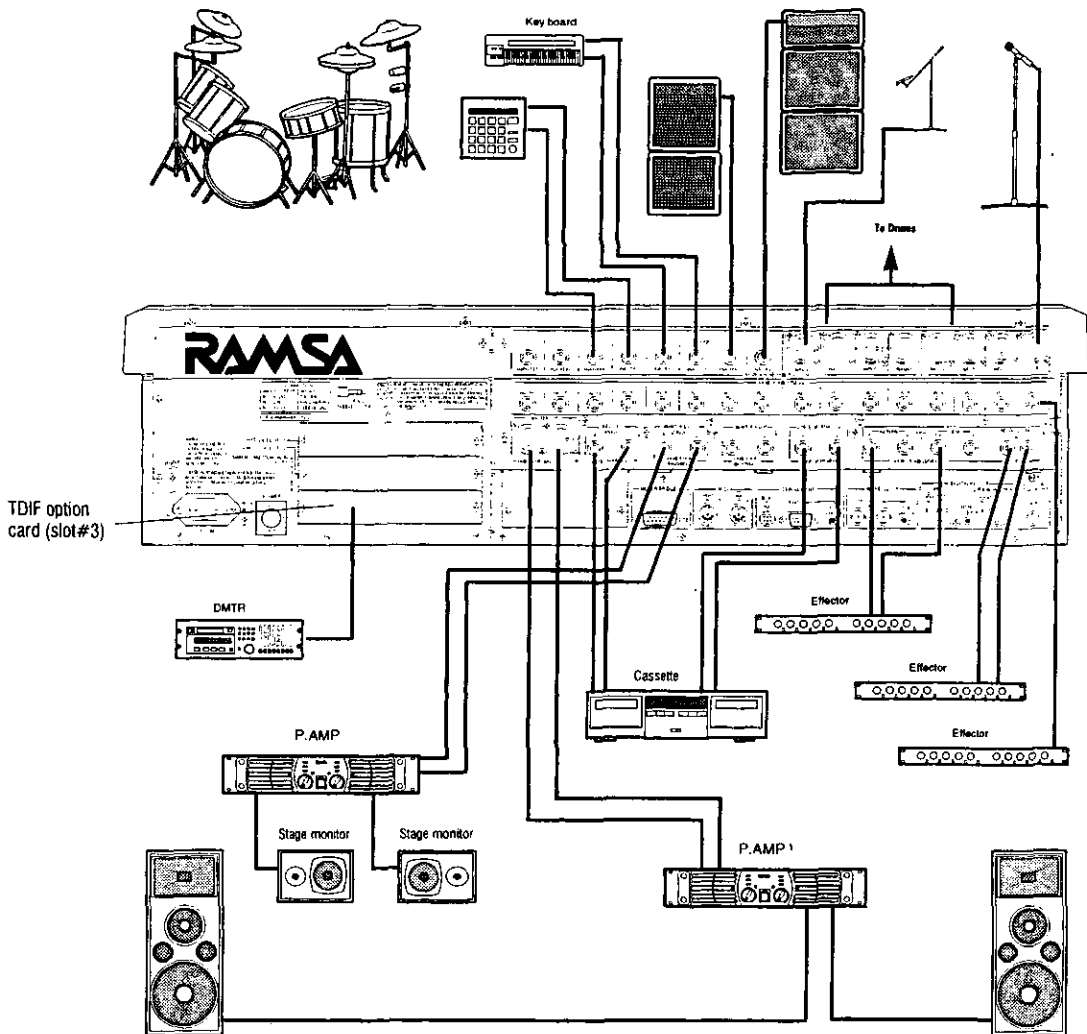
The **METER BRIDGE** option for the *DA7* provides a visual representation of the **[METER]** input window. The **METER BRIDGE** will show the 16 Channel Meters (1-16 or 17-32), or **AUX SNDS 1-6** and **AUX RTNS 1-6**. The **BUS 1-8** and the **MONITOR A LR** outputs are always displayed.

A **Fader Layer** selection LED pad is built into the **METER BRIDGE** and operates the same way as the **Fader Layer** section on the Top Panel of the *DA7*. The **CONSOLE LINK** LED button when selected (*red*), links the **METER BRIDGE** to follow the Top Panel **Fader Layer** selection.

Appendix A Setup Scenarios

The DA7 is a versatile mixer that can be used in many different production and performance environments. Use these as guidelines for integrating the DA7 into your own world.

The DA7 in a Live Environment



AUDIO INPUT

- Microphones **INPUTS 1-3** (only 1 shown)
- Drum microphones **INPUTS 4-7**
- Guitar microphone **INPUT 8**
- Guitar line **INPUT 9**
- Bass guitar **INPUT 10**
- Keyboards (analog) **INPUTS 11-14**
- Digital multi-track recorder (DMTR) .. **TDIF option card (slot #3)**
- Cassette player **INPUTS 15,16**

AUDIO OUTPUT

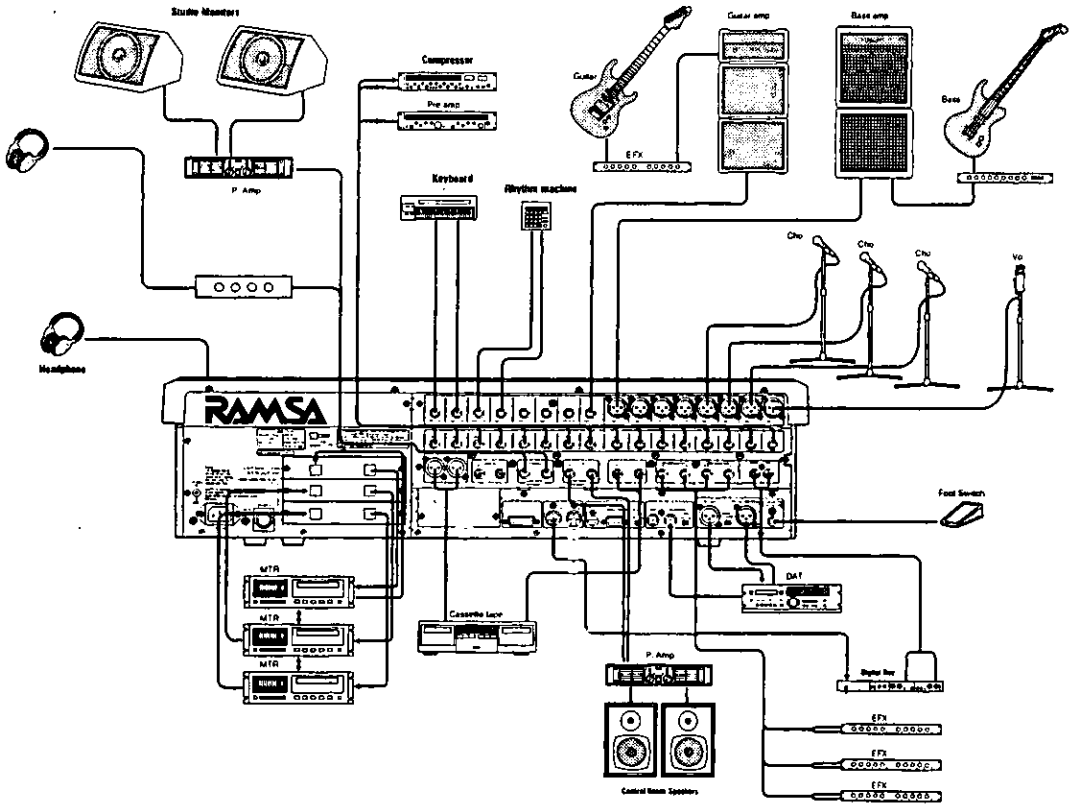
- PA system **MASTER LR OUT**
- Stage monitors **MONITOR B OUT**

AUXILIARY

- Digital effects processor **AUX 1 S/PDIF SEND and RETURN**
- Effect processor (analog) **SEND 3/4 and RETURN 3/4**
- Effects insert (analog) **CHANNEL 1 INS**
- Cassette tape recorder **REC OUT and 2TR B IN**

The DA7 provides an incredible amount of flexibility in the studio environment. Multi-track recording is easily achieved with option cards and some basic understanding of the studio process. There are no black and white rules to follow. Let creativity be your guide.

The DA7 in a Studio Environment



AUDIO INPUT

- Microphones **INPUTS 1-4**
- Bass guitar **INPUT 8**
- Guitar **INPUT 9**
- Drum machine **INPUTS 13, 14**
- Keyboard **INPUTS 15, 16**

INSERT

- Compressor/pre-amp **INS 1-16**

AUXILIARY

- Digital reverb **AUX 1/2 SEND and RETURN**
- EFX (Analog) **AUX 3/4, 5/6 SEND and RETURN**
- Cassette tape recorder **REC OUT/2TR B IN**
- DAT **DIGITAL IN/OUT**
- 3 Multi-track recorders **ADAT option cards in SLOTS 1, 2, and 3**

AUDIO OUTPUT

- Control room monitors **MONITOR A OUT**
- Studio monitors/headphones **MONITOR B OUT**
- Control room headphones **HEADPHONE OUTPUT**

Appendix B

Tips & Warnings

Chapter 3 - Quick Start

Page 3-1



To reset the *DA7* to default values, first select the Master LR channel, then simultaneously press the **MASTER LR Fader Strip SELECT** button and the **2** button in the **Keypad**. This will reset all the mixer functions and clear all the library and memory registers.



The "reset to default" procedure, in the tip above, will reset all the mixer functions and clear all the library and memory registers, just like we said. This is an irrevocable procedure. You can protect your data by copying it to a backup using the **[MIDI>BULK]** procedure described in *Section 11-4*.

Page 3-3



When the **[MOTOR FADER]** selection in the **[UTILITY>CONFIG]** window is **ON**, simultaneously pressing the **SELECT** and **ON LED** buttons for the **MASTER LR Fader** will automatically raise the fader to the zero point on the **Fader Strip**. **CHANNEL** and **BUS** faders also can be raised to the zero point on the **Fader Strip** with this procedure.

Page 3-4



With the **Channel Fader** and **MASTER LR Fader** set at 0, while watching the **PEAK/SIGNAL LED** of the **Channel Strip**, turn the **MIC/LINE INPUT** knob to adjust the level to "peak". Generally speaking, "peak" is when the **PEAK/SIGNAL LED** flashes (*red*), which should be very rare!



The **[GAIN]** soft knob in the **[CHANNEL]** window provides additional level control for the selected channel. Cursor to the soft knob and rotate the **JogDial** to boost the audio level, when additional gain is needed. The **[GAIN]** soft knob range is -24dB to +12dB.

Page 3-6



When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **ON**, the LCD screen will update and display the respective window for the EQ or dynamics/delay adjustment that is currently being performed.



An alternate method for adjusting EQ is to use the **ARROW** buttons to move the **CURSOR** to the **[EQUALIZER]** window soft knob controls, and then use the **JogDial** to adjust the parameters.

Page 3-14



When using the optional meter bridge, the **MONITOR LR** meter will not respond to a signal from **2 TR B**. This is because it is an analog signal, and the meter can only display a digital signal.

Chapter 4 - Cursor Control

Page 4-1



The **CURSOR** appears in the screen as a "highlight selection" device, not a typical pointer or arrow. As you use the controls to navigate around the LCD screen, the various areas, buttons, fields, and lists in the windows will be selected by a border or highlight designating the current area or item.

Page 4-4



For functions other than **AUTOMATION**, you must execute **UNDO** immediately after performing the memory-related action that you want undone. After you change to another register or change to another window display, you cannot execute the **UNDO** function.

For **AUTOMATION** operations, **UNDO** can be executed at any time for the current event only. **UNDO** cannot be performed if either the [**UNDO**] **BUF CLR** (clear buffer) or the [**UNDO**] **DISABLE** buttons in the [**AUTOMATION>SETUP**] window are executed.

Chapter 5 - Channel, Library, and Meter Windows

Page 5-1



The **CHANNEL** button is the “safety” or “*PANIC*” button for the **DA7**. Press the button to return the LCD screen to the [**CHANNEL**] window, from any other window that is currently displayed. This window reflects the current status of the primary features of the mixer.

Page 5-5



If the **AUTOMATION/AUX** button is set to **AUTOMATION**, you will not be able to create or cancel the channel pair.

Page 5-6



Remember that the digital format is very unforgiving of overmodulation. Too high a level will create noise in the recording process.

Page 5-16



Data with a $-\infty$ (infinity) fader level and flat equalizer characteristics is stored to the library register number 01 when the **DA7** is delivered. Data with 0 dB fader level is stored to the other register numbers of the libraries. Library register number 01 has a title of **[INIT OFF 1]**, and the other library registers have a title of **[INIT 0 dB*]** (* is a library number). The default type is **INPUT**.

Chapter 6 - Fader Layers and Channel Strips

Page 6-6



Pressing the **FLIP LED** buttons is an easy way to access specific channels that are not in the current **Fader Layer** without flipping the whole board to a new layer.

Chapter 8 - Pan/Assign Surround

Page 8-7



If you have enabled automation to **[REC]**, the knob adjustment data set in the **[SURROUND]** window will be recorded in automation memory.

Chapter 12 - D-I/O

Page 12-2



When a source field or button is “crosshatched” and/or cannot be selected, that means the source or slot is either improperly connected, or the attached external device is not presently turned on.

Page 12-3



It is imperative that the sampling frequency settings for the *DA7* and all digital peripheral devices connected to the *DA7* are set to the same sampling frequency. The devices cannot perform properly if the frequency settings do not match. The *DA7* does not convert from one sample frequency to the other.

Page 12-4



Remember to attach a BNC termination connector to the WORD CLOCK IN port on the Rear Panel whenever the *DA7* is the master wordclock source. Do not activate the wordclock termination switch on the Rear Panel to perform this termination function.

Page 12-5



When producing material for use with a video production, reference the *DA7* to an incoming video signal. Do this during all stages of the production. You will need to know the video reference characteristics for the production, so that you can reference the *DA7* correctly.

Page 12-8



When the [AUTO DISP CHANGE] selection in the [UTILITY>CONFIG] window is **ON**, the DIRECT LED button in the PAN/ASSIGN/ **SURROUND** section of the Top Panel is a shortcut to the [TO SLOT] window.

Page 12-12



If the correct dither adjustment is not applied to the signals output from the *DA7*, the integrity of the audio will be diminished. The dither adjustment required is determined by the bit rate of the receiving device. Set the dither characteristic to match.



When the **OFF** button is displayed for an area in the **[DITHER]** window, the bit rate output is 24 bit. Failure to toggle the **OFF** button to **ON** will cause the default bit rate of 24 bit to be output for the signal, regardless of the bit rate setting for the area.

Chapter 13 - Group

Page 13-4



Once the groups have been activated in the **[FADER GRP]** window, the window does not have to be displayed when you want to register a group. Use the fader group selection buttons in the **[CHANNEL]** window to register the channel to a group.

Page 13-6



Once the groups have been activated in the **[MUTE GRP]** windows, the window does not have to be displayed when you want to register a group. Use the mute group selection buttons in the **[CHANNEL]** window to register the channel to a group.

Page 13-7



You can also create a stereo channel pair by simultaneously pressing the appropriate channel **SELECT LED** buttons, when the **[CHANNEL]** window **[LINK]** area is **OFF**. To cancel, simultaneously press the buttons a second time.

Chapter 16 - Utility

Page 16-8



When the **[BATTERY]** graph displays "LOW BATTERY", back up the **DA7** memory by performing a bulk output routine from the **[MIDI>BULK]** window. Do not let the battery run out, or you may inadvertently lose the **DA7** memory.

Chapter 17 - Options

Page 17-1



Be sure to note the wordclock requirements for the option cards.
See *Section 12-1 D-I/O Input Set* for additional information.

Appendix C LCD Screen Displays

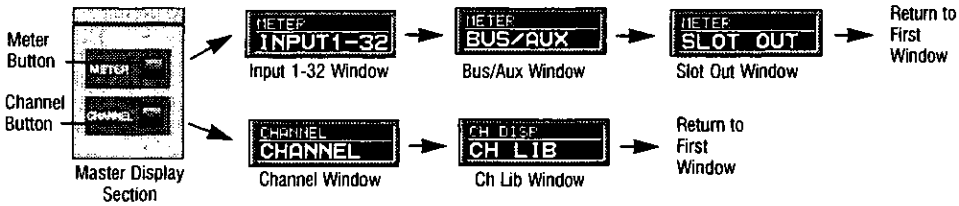
This appendix is designed to provide a ready-reference of the windows displayed on the LCD screen.

Pages C-2 and C-3 reflect the window titles for the window groups and the Top Panel selection method of displaying the windows.

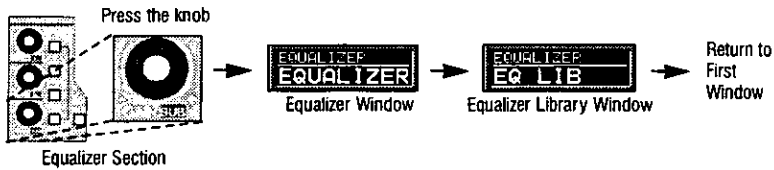
The remaining pages in this appendix reflect the windows for the window groups.

Refer to this appendix whenever you are unsure of how to access a particular window or window group.

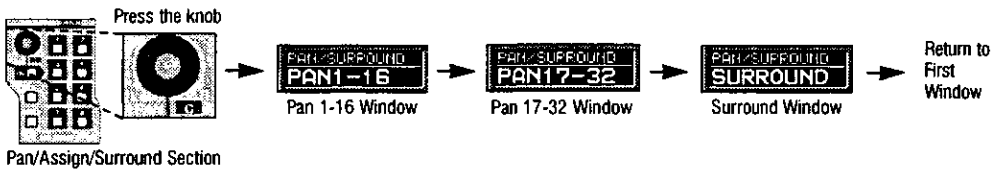
MASTER DISPLAY SECTION



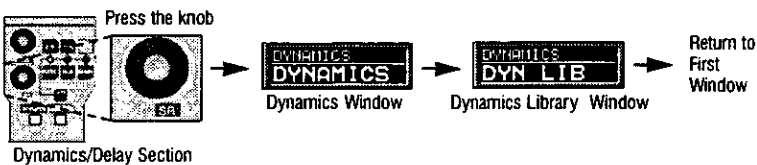
EQUALIZER SECTION



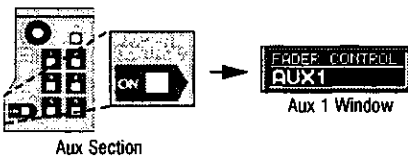
PAN/ASSIGN/SURROUND SECTION



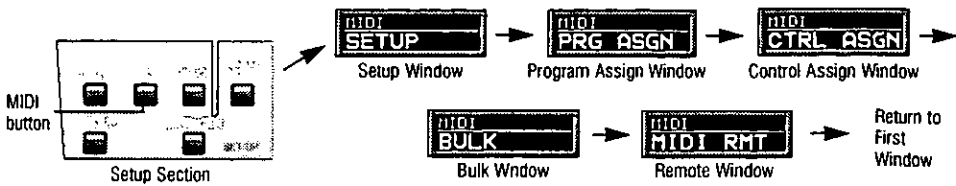
DYNAMICS/DELAY SECTION



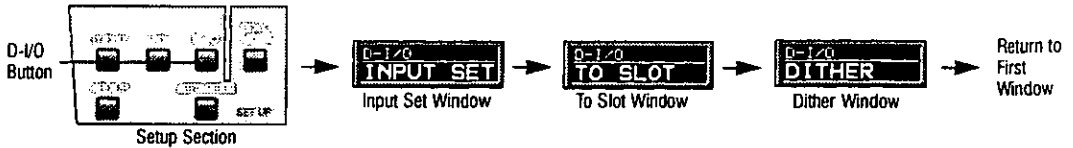
AUX SECTION



MIDI, SETUP SECTION



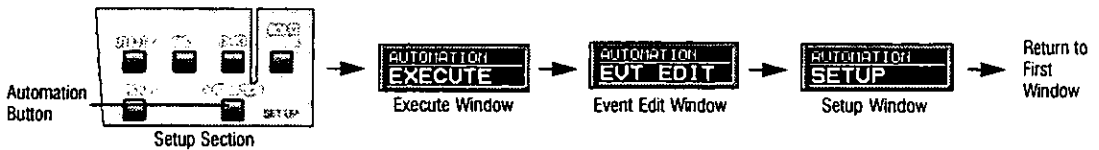
D-I/O, SETUP SECTION



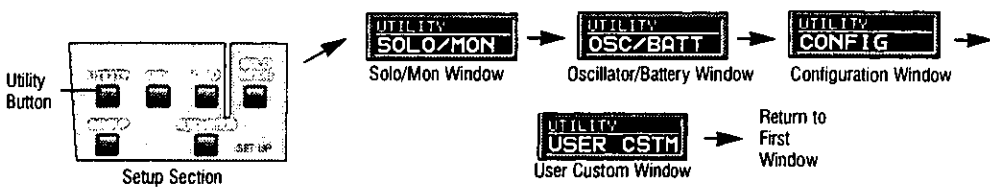
GROUP, SETUP SECTION



AUTOMATION, SETUP SECTION



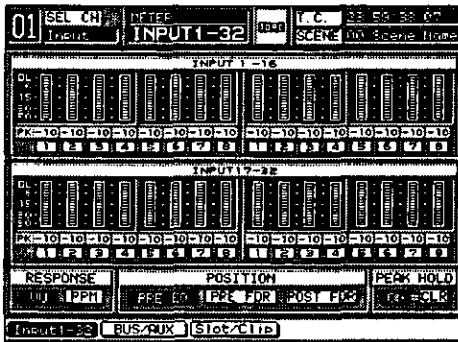
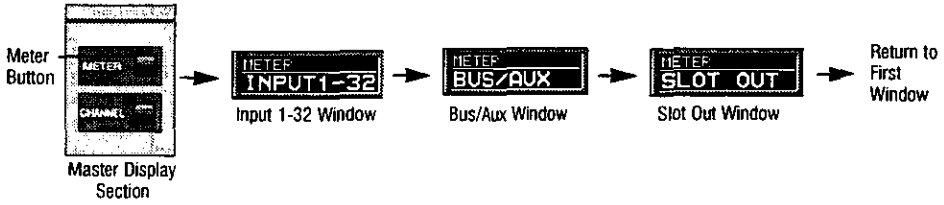
UTILITY, SETUP SECTION



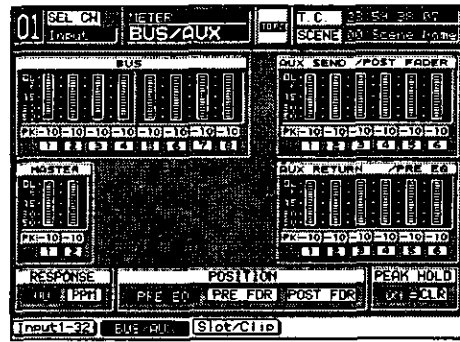
SCENE MEMORY SECTION



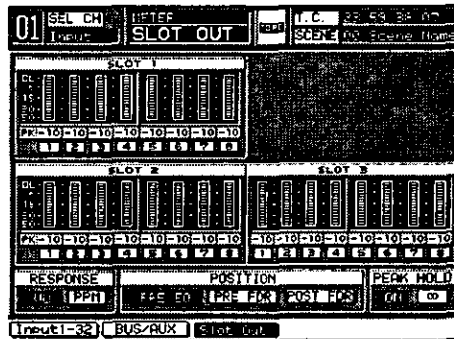
METER, MASTER DISPLAY SECTION



Input 1-32 Window

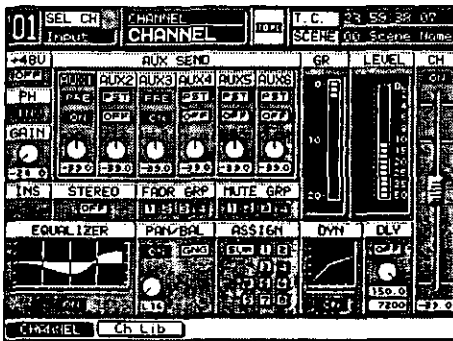
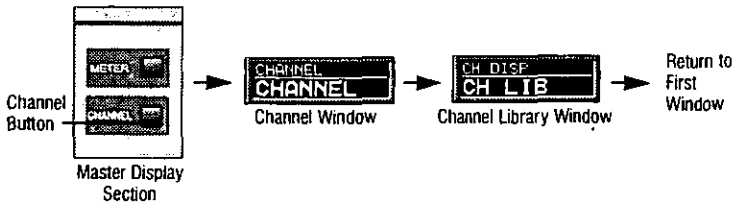


Bus/Aux Window

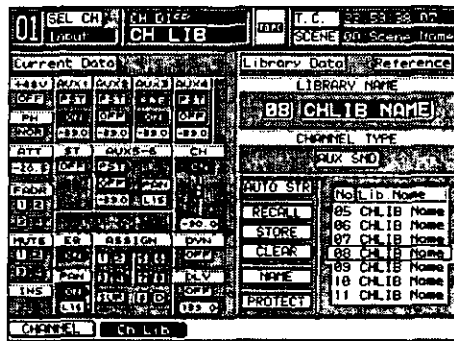


Slot Out Window

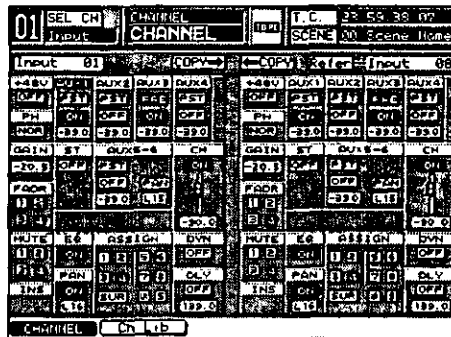
CHANNEL, MASTER DISPLAY SECTION



Channel Window



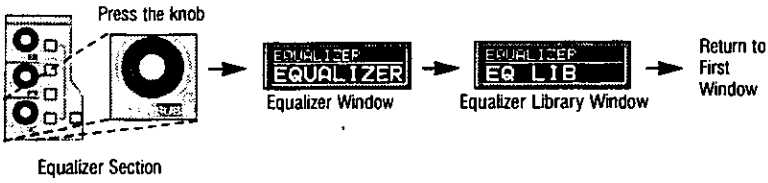
Channel Library Window



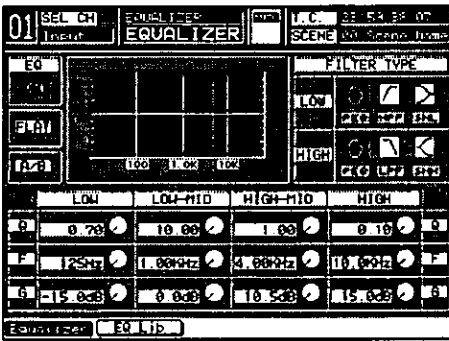
Channel Window, Multi-Channel View

LCD Screen

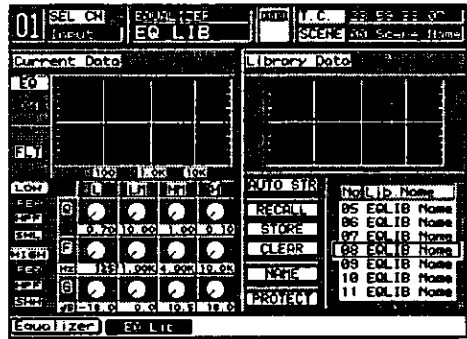
EQUALIZER SECTION



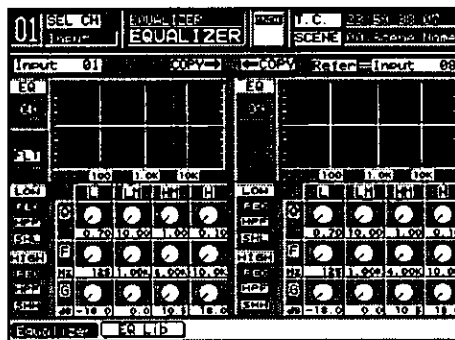
C
LCD Screen
Displays



Equalizer Window

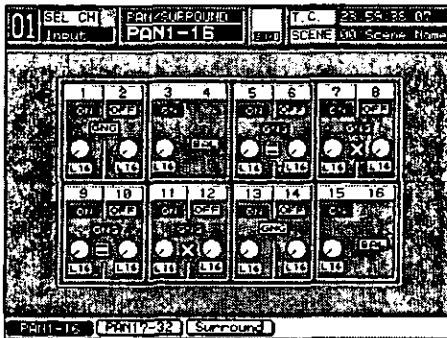
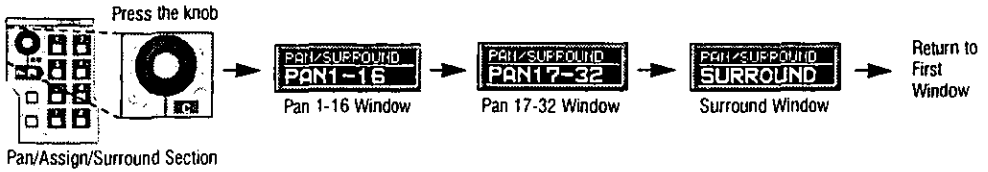


Equalizer Library Window

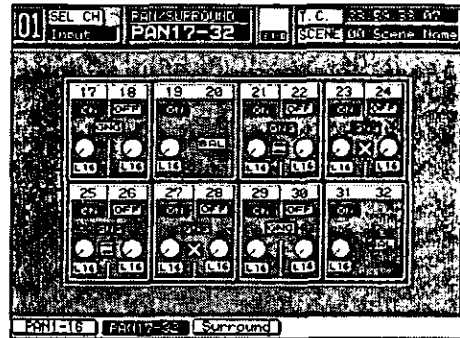


Equalizer Window, Multi-Channel View

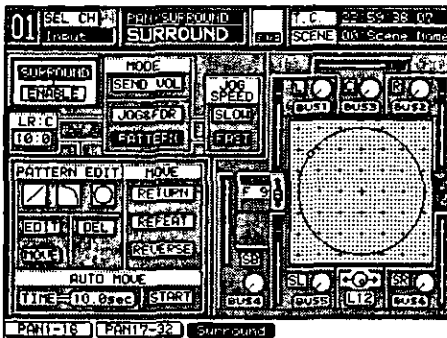
PAN/ASSIGN/SURROUND SECTION



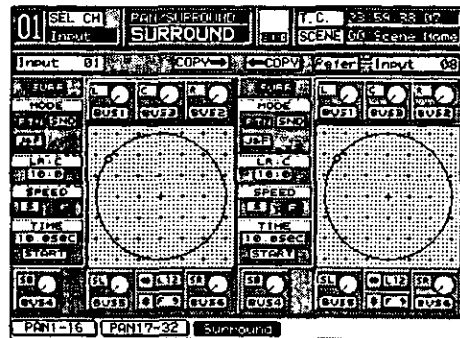
Pan 1-16 Window



Pan 17-32 Window



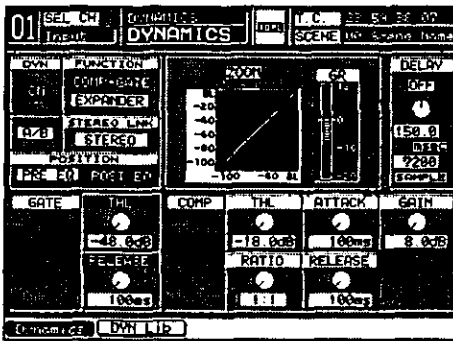
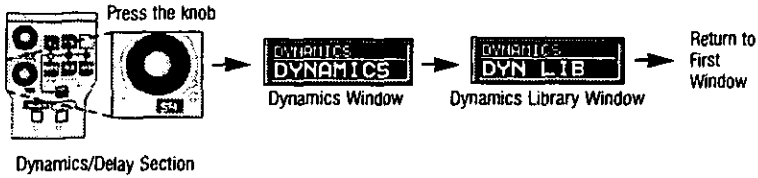
Surround Window



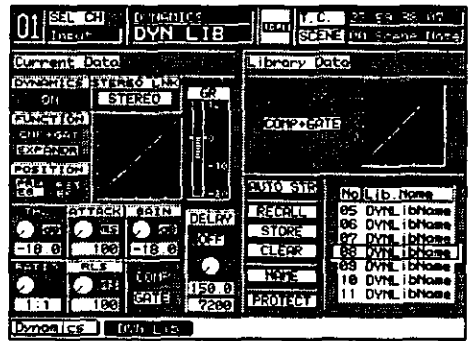
Surround Window, Multi-Channel View

LCD Screen

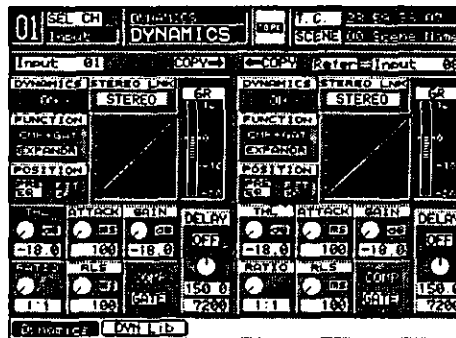
DYNAMICS/DELAY SECTION



Dynamics Window

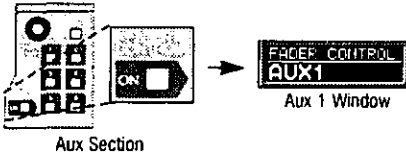


Dynamics Library Window



Dynamics Window, Multi-Channel View

AUX SECTION



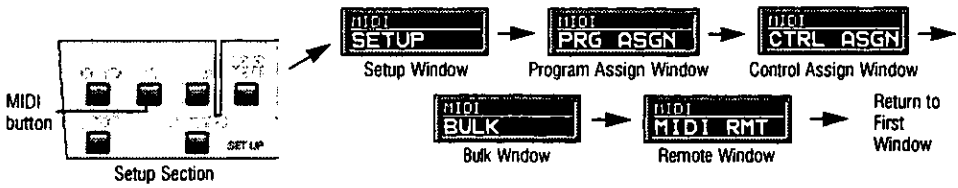
01	SEL CHN		FADE CONTROL		MEM	T. C.	33 54 38 00
	Input		AUX1			SCENE	01 Scene (Time)
1	2	3	4	5	6	7	
PSY	FAE	PSY	PSY	PSY	PSY	PSY	
OFF	OFF	OFF	OFF	OFF	OFF	OFF	
-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	
8	9	10	11	12	13	14	15
PSY	PSY	PSY	PSY	PSY	PSY	PSY	PSY
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0
17	18	19	20	21	22	23	24
PSY	PSY	PSY	PSY	PSY	PSY	PSY	PSY
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0
25	26	27	28	29	30	31	32
PSY	PSY	PSY	PSY	PSY	PSY	PSY	PSY
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0

Aux 1 Window

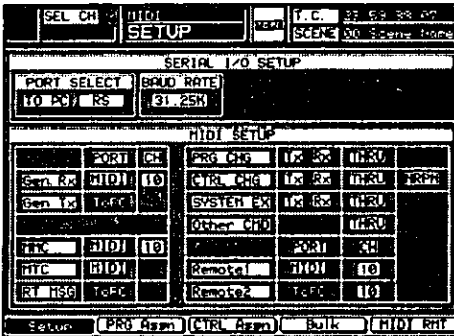
When the **FADER CONTROL ON** LED button is on (*green*), press the respective **AUX1-6** LED buttons to view other **AUX** windows.

LCD Screen

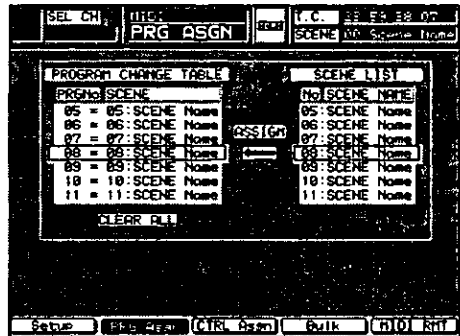
MIDI, SETUP SECTION



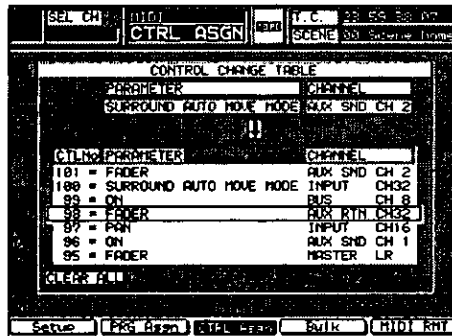
LCD Screen Displays



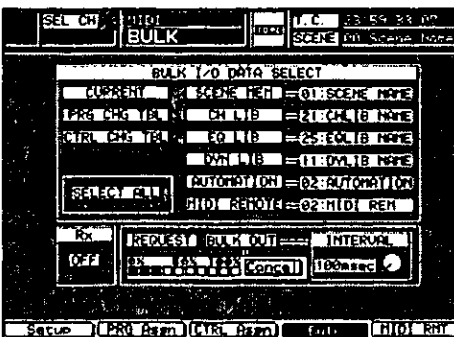
MIDI Setup Window



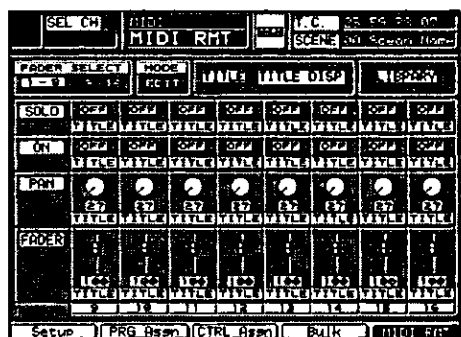
Program Assign Window



Control Assign Window

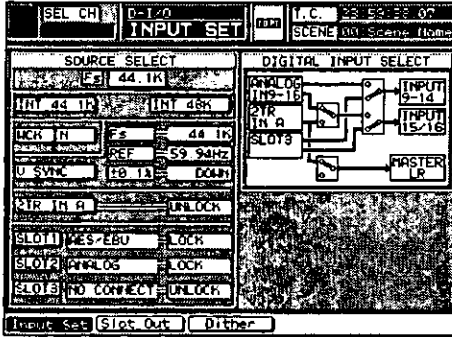
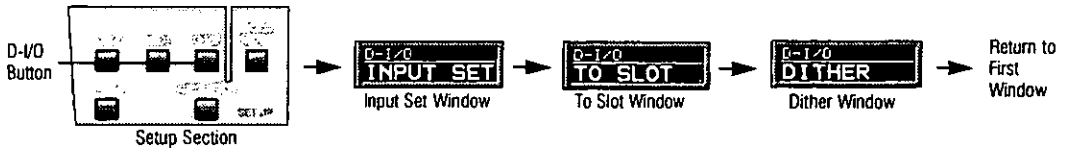


Bulk Window

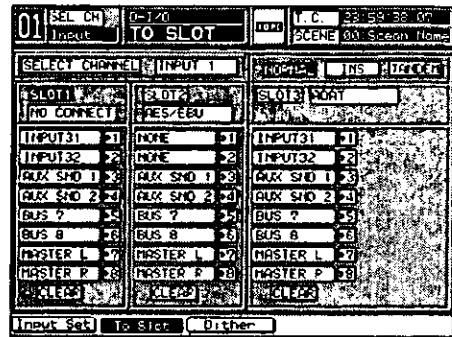


MIDI Remote Window

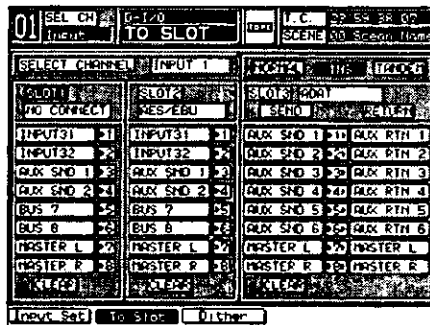
D-I/O, SETUP SECTION



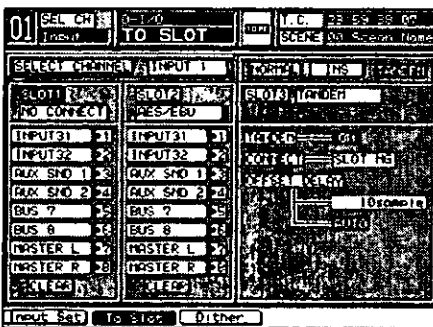
Input Set Window



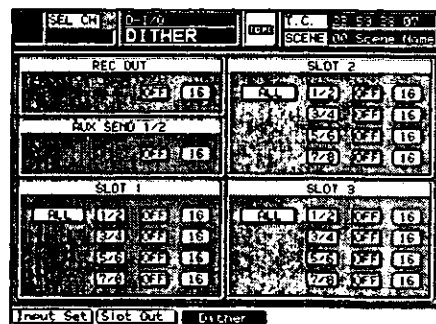
To Slot Window, Normal Mode



To Slot Window, Insert Mode

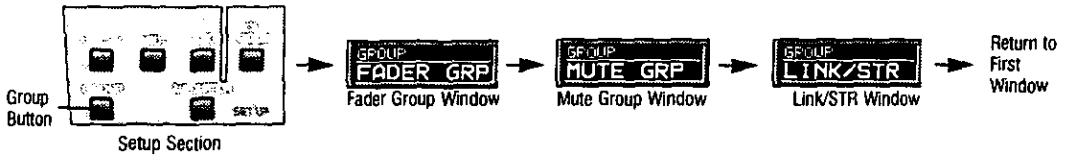


To Slot Window, Tandem Mode

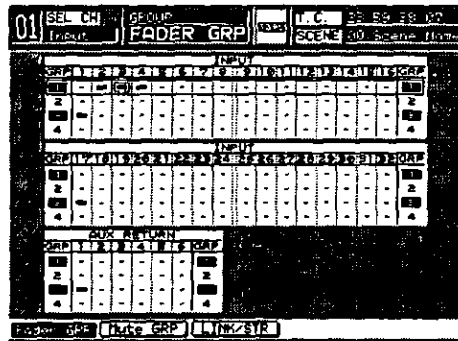


Dither Window

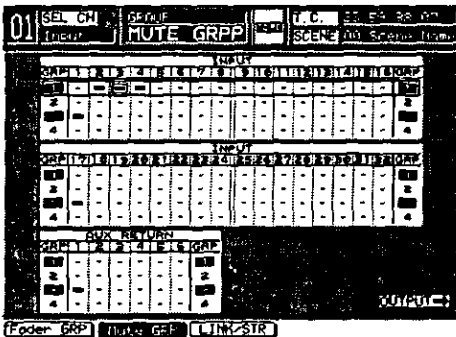
GROUP, SETUP SECTION



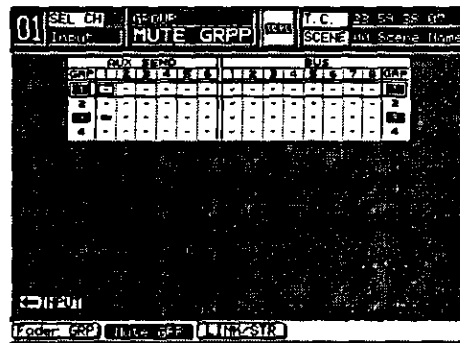
C LCD Screen Displays



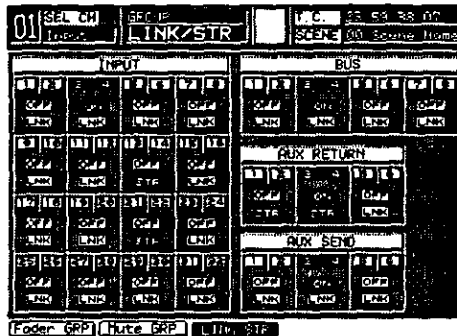
Fader Group Window



Mute Group Window

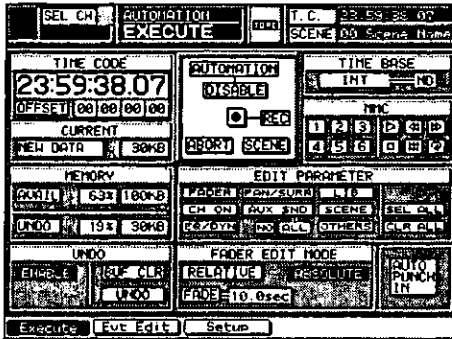
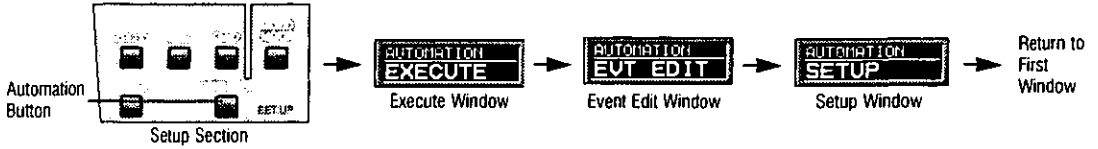


Mute Group Window

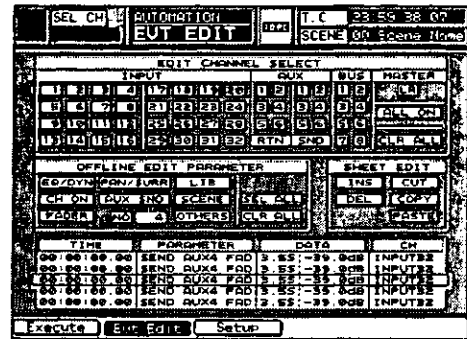


Link/STR Window

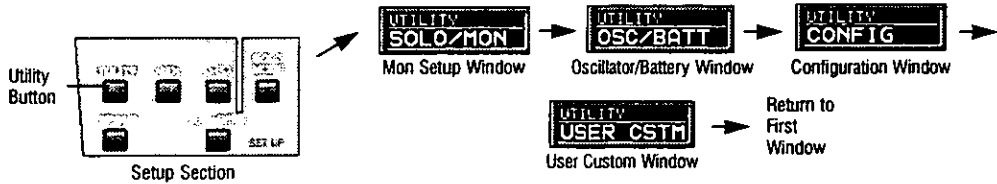
AUTOMATION, SETUP SECTION



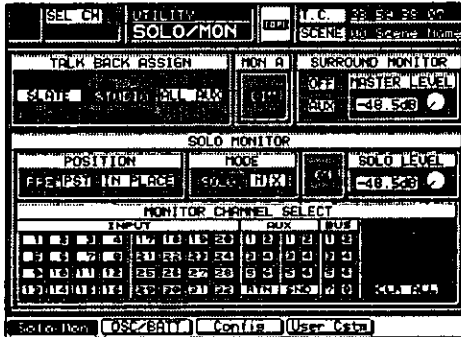
Execute Window



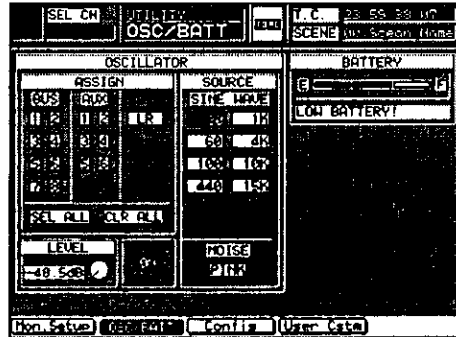
UTILITY, SETUP SECTION



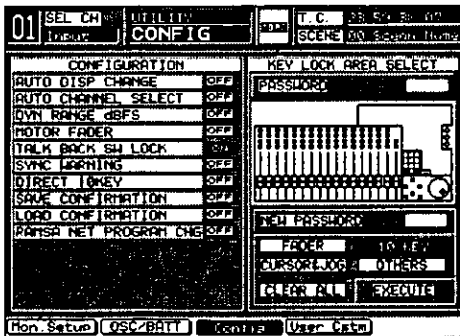
Low Screen Displays



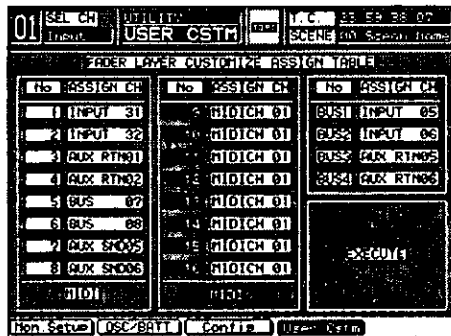
Solo/Monitor Window



Oscillator/Battery Window

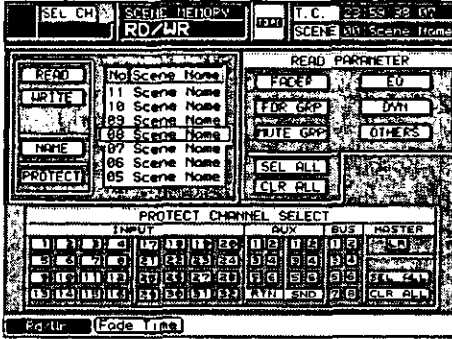


Configuration Window

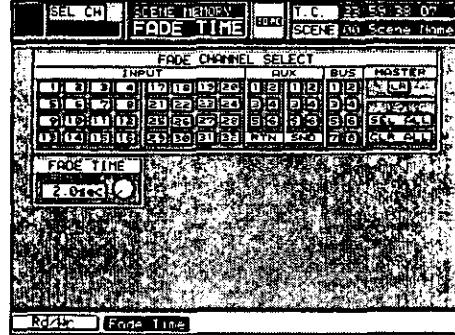


User Custom Window

SCENE MEMORY SECTION



Read/Write Window



Fade Time Window

LCD Screen

Appendix D

Abbreviations & Acronyms

A

AC	alternating current
AES/EBU	Audio Engineering Society/ European Broadcasting Union
ATK	attack
AUTO DSP CHANGE	auto display change
AUTOMATION/AUX	automation/auxiliary
AUTOSTR	auto store
AUX	auxiliary
AUX SEND	auxiliary send
AUX RTN	auxiliary return

B

BAL	balance
BNC	bayonet nut connector
BUF CLR	buffer clear
BUS ASGN	bus assign

C

C	center
CH	channel
CH LIB	channel library
CLK	clock
CLR	clear
CMP+GAT	compressor and gate
CONFIG	configure

CR	control room
CTRL	control
CTRL ASGN	control assign
CTRL CHG	control change

D

D-I/O	digital input/output
DA7	Digital Mixer WR-DA7
DAT	digital audio tape
DATA TBL	data table
DEL	delete
DISP	display
DLY	delay
DMTR	digital master tape recorder
DYN	dynamics
DYN LIB	dynamic library

E

EFX	effects
EQ	equalizer
EQ ON	equalizer on
EQ LIB	equalizer library
EVT EDIT	event edit
EXPNDR	expander

F

FADR GRP	fader group
FDR	fader
FOOT SW	foot switch
FRQ	frequency
Fs	frequency sample

G

GEN RX	MIDI general receive
GEN TX	MIDI general transmit
GNG	gang
GR	gain reduction

H

H	high
HM	high-mid
HMI	human machine interface
HPF	high pass filter

I

INS	insert
-----	--------

J

JOG+FDR	jog and fader
---------	---------------

L

L	low
L/R	left/right
LCD	liquid crystal display
LED	light emitting diode
LM	low-mid
LO	low
LPF	low pass filter

M

MASTER L/R	master left/right
MEM	memory
MIC	microphone
MIDI	musical instrument digital interface
MIDI PRG ASGN	MIDI program assign
MIDI RMT	MIDI remote

MMC	MIDI machine control
MON SETUP	monitor setup
MONO	monaural
MTC	MIDI timecode
MTR	meter
MULTI-CH	multi channel
MUTE GRP	mute group

Q

OL PRTCT	overload protect
OSC/BATT	oscillator/battery
OTHER CMD	other command

P

PA	public address
PAN/BAL	pan/balance
PAN/ASSIGN/SURR	pan assign surround
PEQ	parametric equalizer
PH	phase
PINK	pink noise
PK LVL	peak level
POST EQ	post-equalizer
PPM	pulse point modulation
PRE FDR	pre-fader
PRE EQ	pre-equalizer
PRG CHG	program change
PRG ASGN	program assign
PST FDR	post-fader
PTN	pattern

Q

Q	quality
---	---------

R

RD/WT	read/write
REC OUT	record out
REC MODE	record mode
REMOTE	remote
RLS	release
RT MSG	realtime message
RTN	return
RX	receive

S

S I/O	serial input/output
S/PDIF	Sony/Phillips digital interface
S/N	signal (to) noise
SCENE MEM	scene memory
SEL/MAN	select manual
SEL ALL	select all
SEND VOL	send volume
SHH	shelf high
SHL	shelf low
SIGNAL GND	signal ground
SMPTE	Society for Motion Picture and Television Engineers
SND	send
SR	surround right
STEREO LNK	stereo link
STR	stereo
SUB	surround subwoofer
SUR	surround
SW	switch
SW STS	switch status
SYSTEM EX	system exclusive

T

TBL	table
TDIF	Tascam digital interface format
THL	threshold
TITLE DISP	title display
TO PC	to personal computer
TX	transmit

U

UNBAL	unbalanced
USER CSTM	user custom
UTILITY USER CSTM	utility user custom
UTILITY USER CONF	utility user configuration
UTILITY CONFIG	utility configuration

V

V SYNC	video synchronization
VOL	volume
VU	volume units

W

WCK IN	wordclock in
--------	--------------

Appendix E

Default Settings

<u>SCREEN/CATEGORY</u> CHANNEL	<u>PARAMETER</u>	<u>INITIAL VALUE</u>
	PHANTOM	OFF
	PHASE	NOR (normal)
	GAIN	0dB
	INSERTION	OFF
	LINK	LINK
	MODE	OFF
	ON/OFF	OFF
	FADER GROUP	OFF
	MUTE GROUP	OFF
	PAN/BAL	OFF
	ON/OFF	OFF
	Value	C (center)
	GANG	OFF
	CH ON	OFF
	FADER	-∞
	DELAY	OFF
	ON/OFF	OFF
	TIME	0 (sample)
	ASSIGN	OFF
	BUS1	OFF
	BUS2	OFF
	BUS3	OFF
	BUS4	OFF
	BUS5	OFF
	BUS6	OFF
	BUS7	OFF
	BUS8	OFF
	LR	OFF
	DIRECT	OFF
	SURROUND	OFF
	AUX SEND	OFF
	ON/OFF	OFF
	AUX1	OFF
	AUX2	OFF
	AUX3	OFF
	AUX4	OFF
	AUX5	OFF
	AUX6	OFF
	POSITION	OFF
	AUX1	PST (post-fader)
	AUX2	PST (post-fader)
	AUX3	PST (post-fader)
	AUX4	PST (post-fader)

Default Settings
E

			AUX5	PST (post-fader)
			AUX6	PST (post-fader)
		LEVEL	AUX1	-∞
			AUX2	-∞
			AUX3	-∞
			AUX4	-∞
			AUX5	-∞
			AUX6	-∞
		PAN/BAL	AUX1,2	C (center)
			AUX3,4	C (center)
			AUX5,6	C (center)
EQUALIZER	ON/OFF			OFF
	LOW BAND FILTER			PEQ
	HIGH BAND FILTER			PEQ
	LOW	Q	PEQ	1
		F	PEQ	125Hz
			HPF	125Hz
			SHL	125Hz
		G	PEQ	0dB
			HPF	OFF
			SHL	0dB
	L-MID	Q		1
		F		1KHz
		G		0dB
	H-MID	Q		1
		F		4KHz
		G		0dB
	HIGH	Q	PEQ	1
		F	PEQ	10KHz
			LPF	10KHz
			SHH	10KHz
		G	PEQ	0dB
			LPF	OFF
			SHH	0dB
DYNAMICS	ON/OFF			OFF
	FUNCTION			COMP+GATE
	STEREO LINK			OFF
	POSITION			POST EQ
	COMP+GATE	GATE	THL	-80dB
			RLS	100msec
		COMP	THL	-20dB
			RATIO	1:1
			ATT	10msec
			RLS	100msec
			GAIN	0dB
		EXP	THL	-60dB
			RATIO	1:6
			ATT	10msec

E
Default Settings

Default Settings

		RLS RANGE	100msec
CHANNEL LIBRARY	REFERENCE ON/OFF		0dB
	SELECT LIBRARY		OFF
EQUALIZER LIBRARY	SELECT LIBRARY		1
DYNAMICS LIBRARY	SELECT LIBRARY		1
MONITOR SETUP	TALK BACK	SLATE	OFF
		STUDIO	ON
		ALL AUX	OFF
	MONITOR A DIMMER		OFF
	SURR MON	ON/OFF	OFF
		ASSIGN	MON
		MASTER LEVEL	0dB
	SOLO MON	ON/OFF	ON
		POSITION	PRE (pre-fader)
		MODE	SOLO
		LEVEL	0dB
		CHANNEL SELECT	OFF (all ch)
OSCILLATOR	ON/OFF		OFF
	SOURCE		1K
	ASSIGN		OFF (all ch)
CONFIGURATION	CONFIG	AUTO DISP CHG	OFF
		AUTO CH SEL	OFF
		DYN RANGE dBFS	ON
		MOTOR FADER	ON
		TB SW LOCK	OFF
		SYNC WARNING	OFF
		DIRECT 10KEY	OFF
		SAVE CONFIRM	OFF
		LOAD CONFIRM	OFF
		RAMSA NET	OFF
	KEY LOCK	PASSWORD	blank (4 digits)
		FADER	OFF
		CURSOR & JOG	OFF
		10KEY	OFF
		OTHERS	OFF
CUSTOMIZE	ASSIGN CH	CH1	INPUT1
		CH2	INPUT2
		CH3	INPUT3
		CH4	INPUT4
		CH5	INPUT5
		CH6	INPUT6
		CH7	INPUT7
		CH8	INPUT8
		CH9	INPUT9
		CH10	INPUT10
		CH11	INPUT11
		CH12	INPUT12

		CH13	INPUT13
		CH14	INPUT14
		CH15	INPUT15
		CH16	INPUT16
		BUS1	BUS1
		BUS3	BUS3
		BUS5	BUS5
		BUS7	BUS7
MIDI SETUP	SERIAL I/O	PORT SELECT	TO PC
		BAUD RATE	31.25bps
	MIDI SETUP	GEN Rx	MIDI
		GEN Tx	MIDI
		GEN MIDI CH	1
		MMC PORT	MIDI
		MMC MIDI CH	1
		MTC PORT	MIDI
		RT MSG PORT	MIDI
		PROG CHG Rx	OFF
		PROG CHG Tx	OFF
		PROG CHG THRU	OFF
		CTRL CHG Rx	OFF
		CTRL CHG Tx	OFF
		CTRL CHG THRU	OFF
		CTRL CHG NRPN	OFF
		SYSTEM EX Rx	OFF
		SYSTEM EX Tx	OFF
		SYSTEM EX THRU	OFF
		Other CMD THRU	OFF
		Remote1 PORT	MIDI
		Remote1 MIDI CH	1
		Remote2 PORT	MIDI
		Remote2 MIDI CH	1
PROGRAM CHANGE	PROGRAM CHANGE TABLE		
CONTROL CHANGE	CONTROL CHANGE TABLE		
BULK OUT	SEL DATA	CURRENT	OFF
		PROG CHG TBL	OFF
		CTRL CHG TABLE	OFF
		SCENE MEM	OFF
		SCENE MEM NO.	ALL
		CHANNEL LIB	OFF
		CHANNEL LIB NO.	ALL
		EQ LIB	OFF
		EQ LIB NO.	ALL
		DYN LIB	OFF
		DYN LIB NO.	ALL
		AUTOMATION	OFF
		AUTOMATION NO.	ALL
		MIDI REMOTE	OFF

Default Settings

		MIDI REMOTE NO.	ALL
	BULK Rx		OFF
	INTERVAL TIME		0
MIDI REMOTE	FADER SELECT		1-8
	EDIT		OFF
	SOLO SW	STATUS	OFF (for every 16ch)
		TABLE	SW1
		MODE	CTRL CHG
		SW STATUS	OFF
		CTL CHG NO/FREE CODE	0
		TITLE	"TITLE"
	ON SW	STATUS	OFF
		TABLE	SW1
		MODE	CTRL CHG
		SW STATUS	OFF
		CTL CHG NO/FREE CODE	0 (32byte for every 16ch)
		TITLE	"TITLE" (for every 16ch)
	PAN KNOB	STATUS	OFF
		TABLE	KNOB1
		MODE	CTRL CHG
		SW STATUS	OFF
		CTRL CHG NO/FREE CODE	0
		TITLE	"TITLE"
	FADER	STATUS	OFF
		TABLE	FADER1
		MODE	CTRL CHG
		CTL CHG NO/FREE CODE	0
		TITLE	"TITLE"
	SELECT LIBRARY		1
DIGITAL INPUT	WORD CLOCK SOURCE		INT48K
	VSYNC	Fs	48 KHz
		REF	59.94 Hz
		±0.1%	0
	INPUT9-14		ANALOG 9-14
	INPUT15-16		ANALOG15-16
	2TR IN A → MASTER LR		OFF
SLOT OUT	SLOT1	CH1	BUS1
		CH2	BUS2
		CH3	BUS3
		CH4	BUS4
		CH5	BUS5
		CH6	BUS6
		CH7	BUS7
		CH8	BUS8
	SLOT2	CH1	BUS1
		CH2	BUS2
		CH3	BUS3
		CH4	BUS4

		CH5		BUS5
		CH6		BUS6
		CH7		BUS7
		CH8		BUS8
	SLOT3	MODE		NORMAL
		CH1/TNDM ON		BUS1
		CH2/TNDM DELAY		BUS2
		CH3/TNDM DELAY AUTO		BUS3
		CH4		BUS4
		CH5		BUS5
		CH6		BUS6
		CH7		BUS7
		CH8		BUS8
		TANDEM	ON/OFF	ON
			DELAY	0 (sample)
			DELAY AUTO	ON
DITHER	REC CUT	ON/OFF		OFF
		BIT		23
	AUX SND1/2	ON/OFF		OFF
		BIT		23
	SLOT1	CH1/2	ON/OFF	OFF
			BIT	23
		CH3/4	ON/OFF	OFF
			BIT	23
		CH5/6	ON/OFF	OFF
			BIT	23
		CH7/8	ON/OFF	OFF
			BIT	23
	SLOT2	CH1/2	ON/OFF	OFF
			BIT	23
		CH3/4	ON/OFF	OFF
			BIT	23
		CH5/6	ON/OFF	OFF
			BIT	23
		CH7/8	ON/OFF	OFF
			BIT	23
	SLOT3	CH1/2	ON/OFF	OFF
			BIT	23
		CH3/4	ON/OFF	OFF
			BIT	23
		CH5/6	ON/OFF	OFF
			BIT	23
		CH7/8	ON/OFF	OFF
			BIT	23
FADER GROUP	GROUP1	ON/OFF		ON
	GROUP2	ON/OFF		ON
	GROUP3	ON/OFF		ON
	GROUP4	ON/OFF		ON

Default Settings

MUTE GROUP	GROUP1 ON/OFF		ON	
	GROUP2 ON/OFF		ON	
	GROUP3 ON/OFF		ON	
	GROUP4 ON/OFF		ON	
INPUT METER	RESPONSE		VU	
	PEAK HOLD		ON	
	POSITION		PRE EQ	
BUS/AUX METER	POSITION		POST FDR	
AUTOMATION EXEC	OFFSET		0	
	AUTOMATION ENABLE		DISABLE	
	TIME BASE	FORM	INT	
		FRAME	ND	
	MMC LOCATE POINT	1	0	
		2	0	
		3	0	
		4	0	
		5	0	
		6	0	
	EDIT PARAMETER	FADER	OFF	
		CH ON/OFF	OFF	
		EQ/DYN	OFF	
	PAN/SURR	OFF		
	AUX SND	OFF		
	AUX SND NO.	ALL		
	LIB	OFF		
	SCENE	OFF		
	OTHERS	OFF		
	UNDO ENABLE		ENABLE	
FADER EDIT	MODE		ABSOLUTE	
	FADE	ON/OFF	OFF	
		TIME	0sec.	
	AUTO PUNCH IN		OFF	
AUTOMATION EVENT	EDIT CHANNEL SELECT	Each CH	OFF (all ch)	
		ALL ON	OFF	
	OFFLINE EDIT PARAM	FADER	OFF	
		CH ON/OFF	OFF	
		EQ/DYN	OFF	
		PAN/SURR	OFF	
		AUX SND	OFF	
		AUX SND NO.	ALL	
		LIB	OFF	
		SCENE	OFF	
		OTHERS	OFF	
		SELECT AUTOMATION MEMORY		1
	AUTOMATION SETUP	MANUAL CHANNEL SELECT		OFF (all ch)
SELECT DATA			1	
READ/WRITE	SELECT SCENE MEMORY		1	
	READ PARAMETER	FADER	ON	

		FDR GROUP	ON
		MUTE GROUP	ON
		EQUALIZER	ON
		DYNAMICS	ON
		OTHERS	ON
FADE TIME	PROTECT CHANNEL		OFF (all ch)
	FADE CHANNEL		OFF (all ch)
	FADE TIME		0
SURROUND	SURROUND ENABLE		DISABLE
	SURROUND MODE		SEND VOL
	LR:C		0:10
	JOG SPEED		SLOW
	MOVE MODE	RETURN	OFF
		REPEAT	OFF
		REVERSE	OFF
	AUTO MOVE TIME		10sec.
	SAVED PTN	TYPE	NO (all pattern)
	(for every 5	START	FR
	pattern)		LR
		END	FR
			LR
	SEND LEVEL	L (BUS1)	0dB
		R (BUS2)	0dB
		C (BUS3)	0dB
		SB (BUS4)	0dB
		SL (BUS5)	-∞
		SR (BUS6)	-∞
	CURRENT POSITION	FR	F16
		LR	C (center)
GENERAL	CURRENT SCREEN		CHANNEL(S)
	SELECT CHANNEL		INPUT 1
PANEL	AUTOMATION LED		AUX
	FLIP		OFF (all fader)
	LAYER		1
	MULTI CH VIEW		OFF
	MONITOR A SOURCE		OFF
	MONITOR A MONO		OFF
	MONITOR B SOURCE		OFF
	TALK BACK		OFF
	MMC/CURSOR		CURSOR

E Default Settings

Appendix F

Cables & Connections

The information in this appendix details cable pin wiring connections for use with the *DA7* and the various option cards noted in **Chapter 17 Options**.

SMPTE/V SYNC Option Card

Pin #	Name	Function
1	GND	ground
2	Signal in	SMPTE timecode signal in
3	GND	ground

TANDEM Option Card

Pin #	Name	Input/ Output	Function	Note
1	PWRFAILO	out	power status out	
2	FG		frame ground	
3	WCKO-	out	wordclock out negative	
4	256O-	out	256Fs clock out negative	
5	CASO3+	out	Tandem 3 out positive	serial audio data 4-times speed
6	CASO2+	out	Tandem 2 out positive	serial audio data 4-times speed
7	CASO1+	out	Tandem 1 out positive	serial audio data 4-times speed
8	WCKIN+	in	wordclock in positive	
9	256IN+	in	256Fs clock in positive	
10	FG		frame ground	
11	CASI3-	in	Tandem 3 in negative	serial audio data 4-times speed
12	CASI2-	in	Tandem 2 in negative	serial audio data 4-times speed

13	CASI1-	in	Tandem 1 in negative	serial audio data 4-times speed
14	PWRFAILI	in	power status in	
15	WCKO+	out	wordclock out positive	
16	256O+	out	256Fs clock out positive	
17	FG		frame ground	
18	CASO3-	out	Tandem 3 out negative	serial audio data 4-times speed
19	CASO2-	out	Tandem 2 out negative	serial audio data 4-times speed
20	CASO1-	out	Tandem 1 out negative	serial audio data 4-times speed
21	WCKIN-	in	wordclock in negative	
22	256IN-	in	256Fs clock in negative	
23	CASI3+	in	Tandem 3 in positive	
24	CASI2+	in	Tandem 2 in positive	
25	CASI1+	in	Tandem 1 in positive	

AES/EBU S/PDIF Option Card

Pin #	Name	Input/ Output	Function
1	TX4+	out	channel 7/8 out positive
2	SG		signal ground
3	TX3-	out	channel 5/6 out negative
4	TX2+	out	channel 3/4 out positive
5	SG		signal ground
6	TX1-	out	channel 1/2 out negative
7	RX4+	in	channel 7/8 in positive
8	SG		signal ground
9	RX3 -	in	channel 5/6 in negative
10	RX2+	in	channel 3/4 in positive
11	SG		signal ground
12	RX1-	in	channel 1/2 in negative
13	- not used -		
14	TX4-	out	channel 7/8 out negative
15	TX3+	out	channel 5/6 out positive

16	SG		signal ground
17	TX2-	out	channel 3/4 out negative
18	TX1+	out	channel 1/2 out positive
19	SG		signal ground
20	RX4-	in	channel 7/8 in negative
21	RX3+	in	channel 5/6 in positive
22	SG		signal ground
23	RX2-	in	channel 3/4 in negative
24	RX1+	in	channel 1/2 in positive
25	SG		signal ground

**AD/DA Option Card - for
CN2 Input Connector**

Pin #	Name	Function
1	CH 8	hot
2	GND	ground
3	CH7	cold
4	CH6	hot
5	GND	ground
6	CH5	cold
7	CH4	hot
8	GND	ground
9	CH3	cold
10	CH2	hot
11	GND	ground
12	CH1	cold
13	- not used -	
14	CH8	cold
15	CH7	hot
16	GND	ground
17	CH6	cold
18	CH5	hot
19	GND	ground

**AD/DA Option Card - for
CN3 Output Connector**

Pin #	Name	Function
1	CH8	hot
2	GND	ground
3	CH7	cold
4	CH6	hot
5	GND	ground
6	CH5	cold
7	CH4	hot
8	GND	ground
9	CH3	cold
10	CH2	hot
11	GND	ground
12	CH1	cold
13	- not used -	
14	CH8	cold
15	CH7	hot
16	GND	ground
17	CH6	cold
18	CH5	hot
19	GND	ground

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20	CH4	cold	20	CH4	cold
21	CH3	hot	21	CH3	hot
22	GND	ground	22	GND	ground
23	CH2	cold	23	CH2	cold
24	CH1	hot	24	CH1	hot
25	GND	ground	25	GND	ground

TDIF Option Card

The recommended cables for use with this card are PW-88D(1m) or PW-88DL (5m).

Appendix G

Technical Specifications

General

Power requirement	USA AC 120v 60Hz Japan AC 100v 50Hz/60Hz General AC 235v 50Hz
Power consumption	105w (with options)
Frequency response	20Hz ~ 20kHz, + 1dB ~ -2dB
T.H.D. (total harmonic distortion)	Less than 0.1% (input = +10dB/1kHz, output = +4dB/RL 600Ω)
Equivalent input noise	-128dB (Rs=150Ω Input sensitivity=-60dB typical)
Residual noise	-93dB typical
Maximum voltage gain	84dB: MIC/LINE(1-16) in ~ BUS out 84dB: MIC/LINE(1-16) in ~ MASTER out 84dB: MIC/LINE(1-16) in ~ AUX out
Common Mode Rejection Ratio	More than 80dB (1kHz)
Crosstalk	90dB typical (1kHz)
Dynamic Range (Fs = 48kHz, DIN audio filter)	113dB typical: DA converter (digital in ~ analog out) 112dB typical: AD converter (analog in ~ digital out) 110dB typical: AD+DA (analog in ~ analog out)
AD Converter	24 bit, 64 times oversampling (input 1-16) 20 bit, 64 times oversampling (aux returns 3 ~ 6)
DA Converter	24 bit, 64 times oversampling (MASTER, MONITOR A) 24 bit, 128 times oversampling (MONITOR B) 20 bit, 128 times oversampling (aux returns 3 ~ 6)
Internal signal processing	32 bit (Dynamic range 192dB)
Sampling Frequency (Fs)	Internal: 44.1kHz and 48kHz External: 44.1kHz ± 6% and 48kHz ± 6%
Signal delay	Less than 2.5ms, MIC/LINE input to MASTER out

Dynamics

Compressor

Threshold	-40dB ~ 0dB (1dB/step)
Ratio	1.0, 1.1, 1.3, 1.5, 1.7, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 8.0, 10, 20, ∞ (16 points)
Attack time	0ms ~ 32ms (1ms/step)
Release time	50ms ~ 2000ms (5ms/step)
Gain	0dB ~ +12dB (0.5dB/step)

Gate

Threshold	-80dB ~ -40dB (1dB/step)
Release time	50ms ~ 2000ms (5ms/step)

Expander

Threshold	-80dB ~ -40dB (1dB/step)
Ratio	1.0, 2.0, 3.0, 4.0, 5.0, 6.0, ∞
Attack time	0ms ~ 32ms (1ms/step)
Release time	50ms ~ 2000ms (5ms/step)
Range	0dB ~ +40dB (0.5dB/step)

Equalizer

LOW band PEQ (parametric equalizer) type:	Q = 0.5 ~ 50 (41 steps) F = 20Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
LOW band SHL (shelving low) type:	F = 20Hz ~ 1.6kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
LOW band HPF (high-pass) type:	F = 20Hz ~ 1.6kHz (1/12 oct step)
LOW-MID band PEQ type:	Q = 0.5 ~ 50 (41 steps) F = 20Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH-MID band PEQ type:	Q = 0.5 ~ 50 (41 steps) F = 50Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH band PEQ type:	Q = 0.5 ~ 50 (41 steps) F = 50Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH band SHH (shelving high) type:	F = 1kHz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH band LPF (low-pass) type:	1kHz ~ 20kHz (1/12 oct step)

Delay	0 ~ 14,400 samples/0 ~ 300ms (Fs = 48kHz), 0 ~ 326ms (Fs = 44.1kHz)
Phase	normal/reverse (switchable)
Stereo meter	Bar graph type LED, Left and Right, 20 points for each VU or PPM (selectable) Peak hold on/off, ∞
Fader	100mm motor fader (x21), + 10dB ~ -90dB ∞ dB
Display	LCD, 320x240 dot, with backlight

Technical Specifications

Memory	SCENE MEMORY(Snapshot)	50 registers
	CHANNEL library	50 registers
	EQUALIZER library	50 registers
	DYNAMICS library	50 registers
	AUTOMATION	4 mix
Ambient operating temperature		0° C ~ 40° C (32° F ~ 104°F)
Dimensions (mm)		698W x 244H x 549.5D
Weight (without options)		23kg (51lbs)
Finish		ABS resin (Top Panel), Blue black
Standard Accessories		Power Cord, Users' Guide, Warranty Card, Registration Card

Analog Inputs (0dB = 0.775 Vrms, 0dBV = 1 Vrms)

Input Type	Source Impedance	Signal Level (Nominal-before clipping)	Connector Type
CH inputs 1-8 5k Ω	mics, 50 Ω ~ 600 Ω	-60dB ~ -46dB	XLR 3-31 (bal)
	lines, 600 Ω	+10dB ~ +24dB	XLR 3-31 (bal)
CH inputs 9-16 5k Ω	mics, 50 Ω ~ 600 Ω	-60dB ~ -46dB	TRS phone jack (bal)
	lines, 600 Ω	+10dB ~ +24dB	TRS phone jack (bal)
CH Insertion Returns 1 ~ 16 10k Ω	lines, 600 Ω	+4dB ~ +18dB	TRS phone jack (unbal)
			TRS phone jack (bal)
2TR B IN(analog) 10k Ω	lines, 600 Ω	+4dB ~ +18dB	TRS phone jack (bal)
Aux returns 3~6 10k Ω	lines, 600 Ω	+4dB ~ +18dB	TRS phone jack (unbal)

Analog Outputs (0dB = 0.775 Vrms, 0dBV = 1 Vrms)

Input Type	Output Impedance	Adapted Load Impedance	Signal Level (Nominal-before clipping)	Connector Type
MASTER out L/R	150 Ω	lines 600 Ω	+4dB ~ +18dB	XLR 3-32 (bal)
Aux sends 3~6	75 Ω	lines 10k Ω	+4dB ~ +18dB	Phone jack (unbal)
INSERTION 1~16	10 Ω	lines 10k Ω	+4dB ~ +18dB	Phone jack (unbal)
REC OUT L/R(analog)	150 Ω	lines 10k Ω	+4dB ~ +18dB	TRS phone jack (bal)
MONITOR A out L/R	150 Ω	lines 600 Ω	+4dB ~ +18dB	TRS phone jack (bal)
MONITOR B out L/R	150 Ω	lines 600 Ω	+4dB ~ +18dB	TRS phone jack (bal)
Headphones	8 Ω	phones 40 Ω /8 Ω	400mW/100mW	Stereo phone jack (unbal)

Digital In and Out

2TR IN (INPUT 15,16)

in/out: In
 format: IEC 958 Professional (AES/EBU) or Consumer (S/PDIF) switchable
 Level: RS-422 (AES/EBU) or 0.5v [pp]/75Ω (S/PDIF)
 Connector: XLR 3-31

REC OUT

in/out: Out
 format: IEC 958 Professional (AES/EBU) or Consumer (S/PDIF) switchable
 Level: RS-422 (AES/EBU) or 0.5v [pp]/75Ω (S/PDIF)
 Connector: XLR 3-32

AUX RETURN 1/2

in/out: In
 format: IEC 958 Consumer (S/PDIF)
 Level: 0.5v [pp]/75Ω
 Connector: RCA pin jack

AUX SEND 1/2

in/out: Out
 format: IEC 958 Consumer (S/PDIF)
 Level: 0.5v [pp]/75Ω
 Connector: RCA pin jack

WORD CLOCK IN

in/out: In
 Level: TTL/75Ω switchable
 Connector: BNC

WORD CLOCK OUT/THROUGH

in/out: Out
 Level: TTL/75Ω, Pass-through (75Ω OFF) or termination (75Ω ON)
 Connector: BNC

MIDI IN

in/out: In
 Format: MIDI
 Connector: DIN Connector 5P

MIDI OUT

in/out: Out
 Format: MIDI
 Connector: DIN Connector 5P

TO PC

in/out: In and Out
Connector: Mini-DIN Connector 8P

RS422/485

in/out: In and Out
Connector: D-sub 9P

FOOT SWITCH

in/out: In
Level: TTL level, Normally Open (Unlatch type)
Connector: Phone jack

Optional Accessories

Meter Bridge

Type: Bargraph LED, 26 channels, 15 points for each
Format: RAMSA original Level NET II
Power: DC 7v
Connector: D-sub 15P

ADAT Interface card (8 in / 8 out)

Type: ADAT (DIRECT OUT / BUS / AUX / MASTER, Input 9-32)
in/out: In and Out
Connector: Optical

TDIF Card (8 in / 8 out)

Type: TDIF (DIRECT OUT / BUS / AUX / MASTER, Input 9-32)
in/out: In and Out
Format: TDIF-1
Connector: D-sub 25P (in and out)

AES/EBU Card (8 in / 8 out)

Type: AES/EBU/SPDIF
Signal type: RS422

A-D/D-A Card (8 in / 8 out)

Input 1 ~ 8 (balanced)

Indicated impedance:	10k Ω
Nominal source impedance:	50 Ω ~ 600 Ω
Nominal input level:	+4dB (1.23V)
Maximum input level before clipping:	+18dB (6.15V)
Connector type:	D-sub 25P

Output 1 ~ 8 (balanced)

Indicated impedance:	10k Ω
Nominal source impedance:	150 Ω
Nominal input level:	+4dB (1.23V)
Maximum input level before clipping:	+18dB (6.15V)
Connector type:	D-sub 25P

SMPTE/V SYNC Card

SMPTE IN

in/out:	In
Format:	SMPTE (LTC)
Signal type:	nominal -10dBV / 10k Ω
Connector:	XLR

V SYNC

in/out:	In
Format:	NTSC (B/W or color) / PAL
Signal type:	75 Ω , termination
Connector:	BNC

TANDEM Card (for running two DA7 mixers simultaneously)

Type:	TANDEM connection
in/out:	In and Out
Format:	RAMSA SSA
Signal type:	RS422
Connector:	D-sub 25P

Appendix H MIDI Implementation Chart

MIDI Implementation Chart

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1-16	1-16	Memorized
	Changed	1-16	1-16	
Mode	Default	x	OMNI ON/OFF	Memorized
	Messages	x	x	
	Altered	x	
Note Number	True Voice	x	x	
		x	
Velocity	Note ON	x	x	
	Note OFF	x	x	
After Touch	Key's	x	x	
	Ch's	x	x	
Pitch Bend		x	x	Assignable
Control Change	0 - 95, 102 - 119	o	o	
				Assignable
Program Change	True #	o: 0-127	o: 0-127	
System Exclusive		o	o	
Common	Song Pos	x	o	
	Song Sel	x	x	
	Tune	x	x	
System Real Time	Clock	x	o	
	Commands	x	o	
Aux	Local ON/OFF	x	x	
	All Notes OFF	x	x	
Mes-sages	Active Sense	x	x	
	Reset	x	x	
Notes	MTC quarter frame message is recognized. For MIDI remote, ALL message can be transmitted.			

Mode 1: OMNI ON, POLI Mode 2: OMNI ON, MONO o : Yes
 Mode 3: OMNI OFF, POLI Mode 4: OMNI OFF, MONO x : No

H MIDI Chart

MIDI Implementation Chart

MIDI Control Change Assign Table

Control No.	HEX	Parameter		
0	00	FADER	INPUT	CH1
1	01	FADER	INPUT	CH2
2	02	FADER	INPUT	CH3
3	03	FADER	INPUT	CH4
4	04	FADER	INPUT	CH5
5	05	FADER	INPUT	CH6
6	06	NRPN LSB DATA		
7	07	FADER	INPUT	CH7
8	08	FADER	INPUT	CH8
9	09	FADER	INPUT	CH9
10	0A	FADER	INPUT	CH10
11	0B	FADER	INPUT	CH11
12	0C	FADER	INPUT	CH12
13	0D	FADER	INPUT	CH13
14	0E	FADER	INPUT	CH14
15	0F	FADER	INPUT	CH15
16	10	FADER	INPUT	CH16
17	11	FADER	INPUT	CH17
18	12	FADER	INPUT	CH18
19	13	FADER	INPUT	CH19
20	14	FADER	INPUT	CH20
21	15	FADER	INPUT	CH21
22	16	FADER	INPUT	CH22
23	17	FADER	INPUT	CH23
24	18	FADER	INPUT	CH24
25	19	FADER	INPUT	CH25
26	1A	FADER	INPUT	CH26
27	1B	FADER	INPUT	CH27
28	1C	FADER	INPUT	CH28
29	1D	FADER	INPUT	CH29
30	1E	FADER	INPUT	CH30
31	1F	FADER	INPUT	CH31
32	20	FADER	INPUT	CH32
33	21	FADER	AUX RTN	CH2
34	22	FADER	AUX RTN	CH2
35	23	FADER	AUX RTN	CH3
36	24	FADER	AUX RTN	CH4
37	25	FADER	AUX RTN	CH5
38	26	NRPN MSB DATA		
39	27	FADER	AUX RTN	CH6
40	28	FADER	AUX SND	CH1
41	29	FADER	AUX SND	CH2
42	2A	FADER	AUX SND	CH3
43	2B	FADER	AUX SND	CH4
44	2C	FADER	AUX SND	CH5
45	2D	FADER	AUX SND	CH6
46	2E	FADER	BUS	CH1
47	2F	FADER	BUS	CH2
48	30	FADER	BUS	CH3
49	31	FADER	BUS	CH4
50	32	FADER	BUS	CH5
51	33	FADER	BUS	CH6
52	34	FADER	BUS	CH7
53	35	FADER	BUS	CH8
54	36	FADER	MASTER	LR
55	37	PAN	INPUT	CH1
56	38	PAN	INPUT	CH2
57	39	PAN	INPUT	CH3
58	3A	PAN	INPUT	CH4
59	3B	PAN	INPUT	CH5

Control No.	HEX	Parameter		
60	3C	PAN	INPUT	CH6
61	3D	PAN	INPUT	CH7
62	3E	PAN	INPUT	CH8
63	3F	PAN	INPUT	CH9
64	40	PAN	INPUT	CH10
65	41	PAN	INPUT	CH11
66	42	PAN	INPUT	CH12
67	43	PAN	INPUT	CH13
68	44	PAN	INPUT	CH14
69	45	PAN	INPUT	CH15
70	46	PAN	INPUT	CH16
71	47	PAN	INPUT	CH17
72	48	PAN	INPUT	CH18
73	49	PAN	INPUT	CH19
74	4A	PAN	INPUT	CH20
75	4B	PAN	INPUT	CH21
76	4C	PAN	INPUT	CH22
77	4D	PAN	INPUT	CH23
78	4E	PAN	INPUT	CH24
79	4F	PAN	INPUT	CH25
80	50	PAN	INPUT	CH26
81	51	PAN	INPUT	CH27
82	52	PAN	INPUT	CH28
83	53	PAN	INPUT	CH29
84	54	PAN	INPUT	CH30
85	55	PAN	INPUT	CH31
86	56	PAN	INPUT	CH32
87	57	ON	INPUT	CH1
88	58	ON	INPUT	CH2
89	59	ON	INPUT	CH3
90	5A	ON	INPUT	CH4
91	5B	ON	INPUT	CH5
92	5C	ON	INPUT	CH6
93	5D	ON	INPUT	CH7
94	5E	ON	INPUT	CH8
95	5F	ON	INPUT	CH9
96	60	NO ASSIGN		
97	61	NO ASSIGN		
98	62	NRPN LSB		
99	63	NRPN MSB		
100	64	NO ASSIGN		
101	65	NO ASSIGN		
102	66	ON	INPUT	CH10
103	67	ON	INPUT	CH11
104	68	ON	INPUT	CH12
105	69	ON	INPUT	CH13
106	6A	ON	INPUT	CH14
107	6B	ON	INPUT	CH15
108	6C	ON	INPUT	CH16
109	6D	ON	INPUT	CH17
110	6E	ON	INPUT	CH18
111	6F	ON	INPUT	CH19
112	70	ON	INPUT	CH20
113	71	ON	INPUT	CH21
114	72	ON	INPUT	CH22
115	73	ON	INPUT	CH23
116	74	ON	INPUT	CH24
117	75	ON	INPUT	CH25
118	76	ON	INPUT	CH26
119	77	ON	INPUT	CH27

MIDI Program Change Assign Table

Program No.	Initial Scene No.	User Scene No.	User SceneName	Program No.	Initial Scene No.	User Scene No.	User SceneName	Program No.	Initial Scene No.	User Scene No.	User SceneName
1	01			46	46			91	—		
2	02			47	47			92	—		
3	03			48	48			93	—		
4	04			49	49			94	—		
5	05			50	50			95	—		
6	06			51	—			96	—		
7	07			52	—			97	—		
8	08			53	—			98	—		
9	09			54	—			99	—		
10	10			55	—			100	—		
11	11			56	—			101	—		
12	12			57	—			102	—		
13	13			58	—			103	—		
14	14			59	—			104	—		
15	15			60	—			105	—		
16	16			61	—			106	—		
17	17			62	—			107	—		
18	18			63	—			108	—		
19	19			64	—			109	—		
20	20			65	—			110	—		
21	21			66	—			111	—		
22	22			67	—			112	—		
23	23			68	—			113	—		
24	24			69	—			114	—		
25	25			70	—			115	—		
26	26			71	—			116	—		
27	27			72	—			117	—		
28	28			73	—			118	—		
29	29			74	—			119	—		
30	30			75	—			120	—		
31	31			76	—			121	—		
32	32			77	—			122	—		
33	33			78	—			123	—		
34	34			79	—			124	—		
35	35			80	—			125	—		
36	36			81	—			126	—		
37	37			82	—			127	—		
38	38			83	—			128	—		
39	39			84	—						
40	40			85	—						
41	41			86	—						
42	42			87	—						
43	43			88	—						
44	44			89	—						
45	45			90	—						

H MIDI Chart

Glossary

A/D converter. An electronic device that converts analog signals into digital signals. D/A is the opposite, converting digital signals to analog.

AES/EBU. A specification using time division multiplex to send two channels of digital audio data via twisted pair and using XLR connectors.

analog. A continuously varying electrical signal. Direct transformation of sound or picture signal data into another form of electrical signal.

assign. To route or switch a signal to a particular or combination of signal paths.

attenuator. An electronic device used to reduce the value of an electronic signal. No attenuation results in maximum signal level. See fader and level.

audio. What people listen to; pertaining to audible sound, the broadcasting of sound, the reproduction of sound, and the sound portion of a production.

automation. Computerized methods replacing manual operations. Based on timecode, the *DA7* automation system will memorize fader positions, switch individual channels off and on, adjust equalization or pan positions and change the auxiliary sends. The *DA7* also allows you to record an entire mixing session and then edit the individual channel settings in multiple passes.

auxiliary send/auxiliary return/aux. The auxiliary send is used to feed signals from the output channels to external devices such as effects processors, amplifiers, or multi-track recording equipments. The auxiliary return is used to receive output channels from external devices. The *DA7* has six input sends and six output sends. Aux sends and returns are usually only used with peripheral processors.

balance/balanced. Adjusting of various sound levels on an audio mixing board to give a pleasant consistent result.

Balanced line. A cable that uses a twisted pair for the signal and is wrapped with grounded shield. Balanced lines have superior noise immunity.

Baud rate. A measure of the number of bits per second transferred by a MIDI, a modem or a serial port. Two devices must be at the same baud rate to transfer data.

Bandpass filter. See filter.

bit. The smallest unit of computer data, represented by a zero or a one. Eight bits form a byte.

BNC. Bayonet Nut Connector or a coaxial cable that has BNCs attached to the ends.

buffer. A temporary storage area in a computer's memory that holds information. In the *DA7* the buffer holds the current mix settings. When a scene memory is recalled, the mix setting of the selected scene memory is written to the buffer. When a scene is stored, the mix settings in the buffer are written to the selected scene memory.

bulk dump. The MIDI function that allows the transfer of system specific data between MIDI capable devices, i.e. sample files and mixer settings. The data is transmitted as MIDI System Exclusive messages.

bus. A point in an electronic circuit where many connections are brought together. In the *DA7*, a bus carries signals from a number of inputs or return signals to a mixing amplifier and/or output connectors. See mixing bus and data bus.

byte. A unit of information, consisting of eight bits, that is used in computer processing.

channel library. An area in the *DA7* memory used to access and store channel settings, stored as programs. The *DA7* has user programs to store your channel settings.

channel strip. The a vertical strip of controls depicting an audio channel on the front panel of the *DA7*.

clipping. An audio circuit overloaded with a signal that is too large causing the unwanted effect of distortion. Excessive gain caused by severe audio distortion where the peaks of the audio signal will rise above the capabilities of the amplifier circuit. When viewed on an oscilloscope, audio peaks will appear clipped off.

clock. In digital equipment, clock refers to the timing pulses used internally for timing and externally to synchronize the other equipment on the system. In audio, low frequency clock pulses are used for gates and triggers and for MIDI control.

Compressor. An automatic level control device which boosts low-level signals and cuts high-level signals, streamlining level settings by reducing the effective dynamic range. A device for reducing the dynamic range of an audio signal without imparting distortion.

console. A large, desk-like audio mixer.

Control Change. A MIDI message that provides real-time control such as Modulation, Volume and Pan.

D/A converter. An electronic device that converts digital signals into analog signals.

data. Electronic information that is used by a computer when running a program. Electronic data refers to files and databases, text documents, images, and digitally-encoded audio and video.

data bus. A bundle of wires that is used for parallel transmission of digital data. Also see bus and mixing bus.

dBu. A unit of measurement of an audio signal level in an electrical circuit. This term is commonly used to describe signal levels in modern audio systems.

decibel/Db. A unit used to measure sound intensity or volume level. 0 dBu A reference voltage equal to 0.775 Vrms. 0 dBV A voltage reference equal to 1.0 Vrms. 0 dBFS A reference level equal to "full scale" or maximum voltage level before digital clipping in A/D and D/A audio converters.

delay. An electrical or mechanical means of delaying the audio signal a short period of time. Most often used as the basis for special effects. Echo, reverb, phasing, flanging, doubling, slap back and chorusing are some effects that use time delay. Also see Dynamic Processor.

digital. Information that can be quantified and measured in discrete, exact values. The binary representation of audio information that can be stored, processed and copied.

dither. A process that allows high quality transfers between systems that have different digital word sizes. The use of dither greatly reduces distortion. Dither is a built in function of the *DA7*.

drop frame timecode. The method of timecode computation that accounts for the reality of there being only 29.97 frames of video per second. The .03 frame is visually insignificant, but mathematically very significant. A one hour video program will have 107,892 frames of video (29.97 frames per second x 60 seconds x 60 minutes). The drop frame time code method of accommodating reality was developed, where 2 frames are dropped from the numerical count for every minute in an hour, except for every 10th minute when no frames are dropped. See also non-drop frame timecode and timecode.

dry. A term used to describe unaltered audio with no processing. The opposite of wet. See Wet.

dynamic range. The ratio of the minimum signal to the maximum signal an audio system can handle without loss or distortion. It is expressed in decibels.

dynamic processor. A device used to correct or modify an audio signal. The *DA7* allows the use of pre and post fader dynamic processors to be inserted in the audio path.

D/A converter. An electronic device that converts digital signals into analog signals. A/D is the opposite, converting analog signals to digital.

Edit. To change or modify. The *DA7* has several editors to edit, store and recall setting, scenes, parameters, lists and names.

EMI Electrical Magnetic Interference. An unwanted signal caused by strong magnetic fields. Hum and buzz are the most common forms of this type of interference when audio signal cables are near power transformers or other high power equipment such as stage lights. Good quality, properly wired cables will reduce or eliminate EMI.

Equalizer or EQ. A device that is used to control or modify audio signals' frequency response. The *DA7* has separate 4 band parametric equalizers for each input. The gain, center frequency and Q are fully adjustable.

Equalizer library. Predefined commonly used equalizer settings that can be recalled. The *DA7* allows the creation of custom settings that can be saved and recalled.

equalization. The adjustment of the frequency response of an audio signal. See Equalizer.

EPROM Electrically Progammable Read Only Memory. A intergrated circuit memory chip that can store the instructions or programs needed to operate digital equipment. The *DA7* has two EPROM's which store the operating system for the mixer. The information stored on EPROM's is also known as firmware and eliminates the need for software stored on floppy or hard disks.

expander. A process that expands the dynamic range of an audio signal. The *DA7* has a fully controllable internal expander on each input as part of the dynamics processor.

fader. The slide control for adjusting audio signal levels.

filter. A device to remove certain bands of frequencies. The three types of common filters are: a low pass filter -passes only low frequency signals, high pass -passes only high frequency signals, band pass filters -passes only a certain band frequency signals. See Equalizer.

frequency. The characteristic of sound or an audio signal that determines pitch, measured in hertz (Hz). The *DA7*'s equalizer has controls that vary the center frequency of four separate filters.

gain. An increase in the level of audio signal, measured in decibels (Db) or volume units (vu). Gain controls on the *DA7* are used to adjust signal levels for optimal performance.

gate. A method of suppressing audio signals below a predetermined level. Gates are used to suppress unwanted low level noise. The *DA7* has a gate for every fader that allows signal processing.

ground. Also known as earth ground, is the electrical connections of equipment to the earth. By convention, earth ground is considered the 0 (zero) volt reference for electrical power. Equipment that does not have an earth ground is a potential source of dangerous electrical shock.

Ground loop. A type of interference in audio equipment that is grounded in more than one location, often through cables or connections, that can be the source of hum interference due to small currents that exist between the two pieces of equipment. Ground loop eliminator devices can prevent this type of hum. All equipment should be grounded for safe operation.

Hertz (Hz). The unit of measure of frequency. 1 hertz equals one cycle per second. 1KHz equals 1000 cycles per second. (K in the metric system is short for Kilo or 1000.)

Highpass filter. See filter.

I/O. An abbreviation for Input/Output.

initialize. To reset or bring to some predetermined condition.

K. The abbreviation of kilo in the metric system meaning 1000. See Hertz.

LED Light Emitting Diode. The *DA7* uses various color LED's as visual indicators in the buttons and the signal level meters for ease of use, long life and reliability.

level. A general term used to describe the audio signals strength, voltage, power or volume.

line level signal. The level of signal used by most audio equipment. Line level is -20db to +20db. In audio, it is known as a high-level signal.

loop. A sound that is played repeatedly. On the *DA7*, a software command that instructs a process to repeat.

Lowpass filter. See filter.

Low level signal. A signal that is less than -20dB is considered a low level signal. The output of microphones are generally low level. Generally, low level signals are more susceptible to hum and noise.

master. A device that controls all other devices. A master gain control controls the overall level of all the other controls under it.

metering. The *DA7* metering is precise and easy to read. LED signal indicators for inputs, outputs, bus and special effects monitoring.

MIDI. Musical Instrument Digital Interface. The musical instrument standard that allows MIDI capable devices to communicate with each other. The *DA7* can communicate with and control other MIDI devices.

MIDI Timecode. An addition to the MIDI Standard to allow the synchronization of audio equipment, such as the *DA7*, to MIDI equipped devices.

Mix. The combination of various audio signals. The *DA7* provides an almost limitless number of ways to combine audio signals. Complex settings can be saved as "scenes" and recalled later.

mixing bus. An audio mixer where signals from different microphones and/or preamps are connected and where mixing is actually done. Also see bus and data bus.

Mix scene. The various settings of the mixer for different requirements during a production. The *DA7* allows the saving and recalling of these settings in memory.

modulation. A method of varying the frequency or volume of an audio signal by applying a low frequency signal. Modulation can also be applied to controls, such as Pan, to create stereo or surround sound effects.

Mono or monophonic. A single source or channel of sound.

MTC. See MIDI Time Code.

Noise Gate. see Gate.

non-drop frame timecode. The method of timecode computation where there are 30 numerical frames per second of video. "There are 30 frames of video per second," you say. Wrong. There are only 29.97 frames of video per second. In a mathematical hour there would be 108,000 frames (30 frames per second x 60 seconds x 60 minutes). So, a mathematical hour of video is 108 frames longer than an hour of reality video. See also drop frame timecode and timecode.

ohm. A unit of electrical resistance for direct current or impedance for alternating current.

output. Signal connections that can be sent or connected to another device.

oscillator. A device that produces a continuous electrical wave or tone.

pan/panning. A method of positioning the sound in a stereo signal from any point between left and right. The *DA7* allows pan control positioning for each input signal.

peaking. A broad band equalizer process used to increase or decrease a wide band of frequencies. The *DA7* equalizer has 4 Q controls per input fader to adjust the frequencies affected from broad to narrow.

Phase. Signal connections. In-phase is a properly wired connections; signals can be mixed (added) to other signals. Out-of-phase is a connection that is reversed and causes cancelation of the signal to occur when mixed with other signals.

Phantom power. A method of sending power to certain microphones over standard balanced lines.

Phone Jack. A 1/4" connector used in audio. The *DA7* uses two types. The Tip Sleeve (TS) for single signal connections and the Tip Ring Sleeve (TRS) for dual signal connections. The Tip Ring Sleeve connectors are normally used for stereo pairs, or balanced signals where there is a plus, minus, and ground.

Phono Jack. A connector used on consumer and semi-professional audio and video equipment originally known as the RCA jack. Also used for digital signals (S/PDIF).

Pink Noise. A specific type of random noise with an equal amount of energy per octave. White Noise is random noise with an equal amount of energy per frequency band.

Post Fader. A point in the signal path after a fader. The *DA7* allows for both pre and post fader insertion. See Pre Fader.

Pre Fader. A point in the signal path before the fader. The *DA7* allows for both pre and post fader insertion. See Post Fader.

Program Change. MIDI command sent to MIDI devices to change the patch or settings.

Punch In/Out. The *DA7*'s automation controls allow Punch In/Out recording.

Q. The "quality" of a filter. A low Q affects a broad band of frequencies, while a high Q affects a narrow band of frequencies. On the *DA7*, Q is one of the parameters that can be controlled with the 4 band parametric equalizer. See equalizer.

Routing. The designation of inputs, faders, buses, outputs and proceses' of the signal. See Signal Path.

RS-422. A protocol for communication that specifies which pins in a 9-pin cable connector are supposed to do what.

Scene Memory. The part of the *DA7*'s memory used to store scene settings.

Serial port or interface. See RS-422.

Shelving. An Equalization process usually used to cut or boost either high or low frequencies. The name comes from the response curve, which looks like a shelf.

Signal. An electrical representation of sound in audio equipment.

Signal Path or Route. The course a signal travels through audio equipment.

Signal to Noise S/N. A ratio of the threshold level of noise to the normal signal level. Digital systems generally have a higher Signal to Noise ratio.

Snapshot. See Mix scene.

save. The action necessary to save a copy of your current file on the Hard Disk for storage. Until you save, any work you do is liable to disappear without notice.

serial port. Data is transmitted through a serial port one bit at a time. Transmission can be in both directions, but not simultaneously.

SMPTE. Society of Motion Picture and Television Engineers. SMPTE also refers to the timecode recorded on audio or videotape for synchronization purposes.

solo. Monitoring a single channel.

Surround sound. A multichannel audio format.

sync, synchronization. The coordination of a soundtrack with its corresponding picture.

System exclusive. A midi data format specification used to send information between digital devices.

Talk Back. A *DA7* feature that allows the person operating the mixer to talk to the studio from the control room.

TDIF/Teac Digital Interface Format. An 8-channel digital audio interface for use with DA-88 type digital multitrack recorders (DTRS).

timecode. An eight-digit number that identifies a specific frame in a tape. It is also an electronic timing signal, based on the 24-hour clock, that is recorded along the length of the tape and provides markers for locating specific program material. There are two types of timecode, non-drop frame and drop frame. Non-drop frame timecode is based on 30 frames of video per second. Drop frame timecode is based on 29.97 frames of video per second. For short amounts of time, this discrepancy is inconsequential. For longer periods of time, however, it is important. One hour of non-drop frame timecode will be 108 frames longer than one hour of real time. See also non-drop frame timecode and drop frame timecode.

undo. Cancels the last operation. You cannot undo a save.

VU meter Volume Units. A special type of volt meter designed and calibrated to follow perceived audio volume. 0 VU equals +4 dBu.

window. A rectangle frame of data on the display. It lets you "see" and work with programs, applications, or functions. Several windows can be open at one time.

write. To record data on a medium.

Wordclock. A reference synchronization pulse used in digital audio equipment to eliminate timing errors. The use of a dedicated wordclock line is more reliable. It is often used in more complex systems and multitrack recording to ensure proper synchronization.

XLR. A three pin audio connector.

zoom. Enlarging or reducing the size of an image or a display.

Handwritten scribbles or marks, possibly initials or a signature, enclosed in a rectangular box.

Panasonic

**Broadcast & Digital Systems Company
Professional Audio Division**

WESTERN REGIONAL OFFICE(Headquarters):
6550 Katella Avenue #17A-7, Cypress, CA 90630 (714) 373-7277

CENTRAL REGIONAL OFFICE:
1707 North Randall Road #E1-C1, Elgin, IL 60123 (847) 468-5130

EASTERN REGIONAL OFFICE:
One Panasonic Way #2E-2, Secaucus, NJ 07094 (201) 348-7394

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