Options

In This Chapter

This chapter provides detailed instructions for operating all D/ESAM® 400 mixer options. Following is a partial list of topics included in this chapter, with reference page numbers provided. For a complete list of topics, please refer to the **Table of Contents**.

Note that all D/ESAM 400 options are operated entirely from the Control Panel. External and auxiliary Control Panels are not required. For complete installation instructions on all D/ESAM 400 options, refer to the ***D/ESAM 400 Installation Guide***.

Equalization (EQ) Option

The D/ESAM 400's Parametric Equalizer option allows you to add EQ effects to any or all 16 active mixer sources. All adjustments are performed on the **EQ Menu**, as accessed from the **Channel Function Menu** softkeys.

Three bands of EQ are provided (**Low**, **Mid**, and **High**), but only *one band* can be adjusted at a time. The «**BAND**» softkey is used to switch between individual bands.

Each equalization band, in turn, can be set to the exact type of EQ or filtering desired, but only *one type* of function can be active (per band) at a time. A "toggle" softkey, which changes labels as it is pressed, is used to switch between EQ functions as follows:

- The **Low Band** is switchable between **Shelf**, **Peak**, and **Notch**.
- The **Mid Band** is switchable between **Peak** and **Notch**.
- The **High Band** is switchable between **Shelf**, **Peak**, and **Notch**.

The table below lists the ranges of adjustable parameters when any of the three bands is set to **Peak**:

Peak Adjustment Parameters

EQ Band	Level Adjustment	Frequency Selection	Q (narrow to wide)
Low	±14.0 dB	20 Hz to 1 KHz	5 to .26
Mid	±14.0 dB	63 Hz to 10 KHz	5 to .26
High	±14.0 dB	1 KHz to 20 KHz	5 to .26

The three EQ functions themselves (**Shelf**, **Peak**, and **Notch**) are adjusted using the **Rotary Knobs** beside the display, and each individual function has its own set of adjustable parameters:

- When **Notch** is selected, the Rotary Knobs control **Frequency** and **Q** (width), but **Level** is fixed at –∞.
- When **Shelf** is selected, **Frequency** and **Level** can be set, but **Q** is not adjustable.
- When **Peak** is selected, **Level**, **Q**, and **Frequency** can be set.

The table below summarizes the D/ESAM 400's overall EQ capabilities. The left-hand columns list the specific equalization and filtering functions available for each band. The right-hand column lists the specific parameters that are adjustable for each function.

EQ Function Summary

EQ Band	Available Functions	Adjustable Parameters Level	Freq.	Q
Low	Shelf	X	X	
	Peak	X	X	X
	Notch		X	X
Mid	Peak	X	X	X
	Notch		X	X
High	Shelf	X	X	
	Peak	X	X	X
	Notch		X	X

In addition to the direct EQ functions listed above, the following associated functions can also be performed on a per-channel basis:

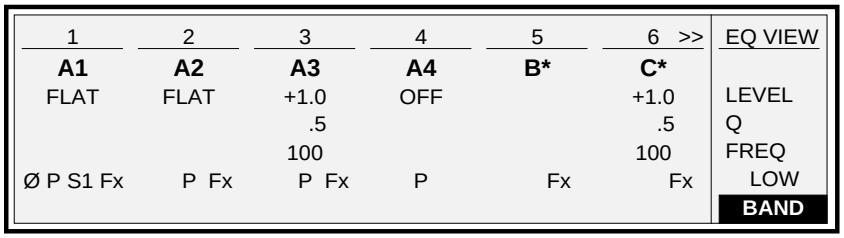
- **Copy EQ** values from one channel to another.
- Set an individual band to **Flat**.
- Set all bands to **Flat**.
- Turn equalization for an individual channel **On** or **Off**.
- Turn equalization for all channels **On** or **Off**.

Once entered on the **EQ Menu**, all EQ values can be viewed using the **EQ View** — at any time during system operations. Refer to the "**EQ View**" section in Chapter 3 for instructions on switching to the **EQ View**. Note that the **EQ View** is "view only," and adjustments can *not* be made.

All EQ parameters follow the Logical machine, and thus can be stored and recalled using D/MEM registers. Refer to the "**D/MEM Overview**" section in Chapter 3 for instructions on D/MEM registers.

EQ Menu Display Conventions

The **EQ Menu** and the **EQ View** are virtually identical, and thus, the display conventions used on one apply to the other. The sample **EQ View** shown below illustrates many different types of EQ data for the current group of channels:



Sample EQ View

As a review, the following EQ-specific labels can be shown for a channel, in both the **EQ View** and the **EQ Menu**:

- The **Fx** label shows that EQ (and/or delay) is being processed:
  - If **Fx** is on, values are actively being processed.
  - If **Fx** is off, values are preset — but not actively processed.

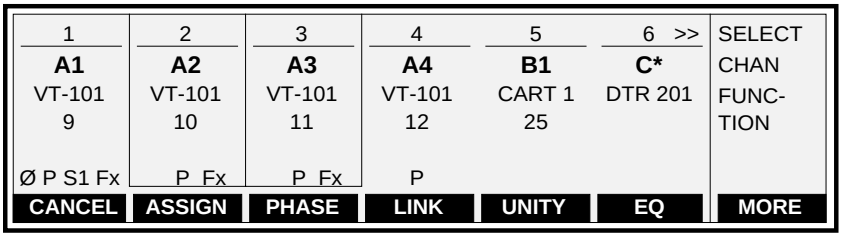
  Press **FX OFF** button to enable or disable effects accordingly. The button's illumination reflects the current state of the system. Refer to the "**Effects Processing**" section in Chapter 3 for instructions on enabling and disabling effects.
- The label "**FLAT**," indicates that the displayed band is flat, but *other bands* (for that channel) may have values dialed in.
- The label "**OFF**" indicates that all EQ processing is turned off.
- In a grouped channel, if *all* EQ parameters for the selected band are identical, values are shown. If EQ parameters for the band are *not* the same, the "not equal" symbol (≠) appears. The standard rules for expanding a grouped channel apply (see the "**Expanded Views**" section in Chapter 3), but grouped channels must be "ungrouped" before EQ parameters can be adjusted.

Refer to the "**EQ View**" section in Chapter 3 for more information on the **EQ View**.

Equalizer Operations

Use the following procedure to equalize a channel or channels:

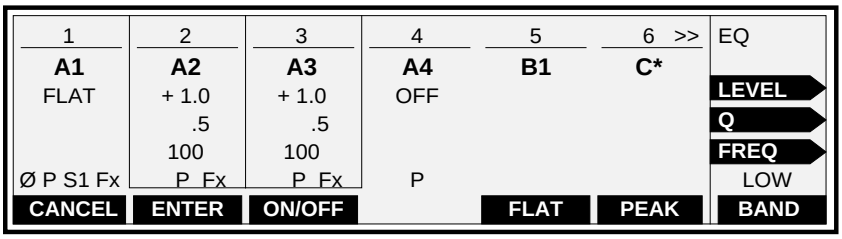
1. Press the **SELECT** buttons for the channel(s) that you wish to equalize. The **Channel Function Menu** softkeys appear, and the selected channels are outlined on the display:



Channel Function Menu Softkeys

The standard set of rules regarding the **SELECT** buttons apply. Refer to the "**Select Section**" area in Chapter 3 for details. If you wish to EQ a *grouped* channel, if must first be ungrouped.

2. Press «**EQ**» to display the **EQ Menu**, as shown below:



EQ Menu

The **EQ Menu** (which is similar to the **EQ view**) allows you to make EQ adjustments to the active channels. In the right-hand column, the previously selected EQ band is shown, while the three labels (**Level**, **Q**, and **Freq**) name the available adjustment parameters. These labels also name the adjacent lines in the six-channel window area to the left.

When arrows appear, they point to the active rotary knobs, and indicate that the corresponding functions can be adjusted. If no arrow is shown, the corresponding function can not be adjusted in the current mode. The arrows are enabled and disabled automatically, depending upon the function selected for the active band.

NOTE

When «**EQ**» is pressed to access the EQ Menu, if the selected channels' EQ values are different, «**COPY**» appears which allows you to copy EQ values from one channel to another. If the selected channels' EQ values are identical in all respects, the Copy function is skipped. Refer to the "**Copy EQ**" section for EQ Copy instructions.

Note also that when the **EQ Menu** is first accessed, all EQ processing remains in its *current state*.

3. Select an EQ band, and select an EQ function for that band:
   - Press «**BAND**» to select the band that you wish to adjust: **Low**, **Mid**, or **High**. The values listed under *all channels* change to reflect the current band.
   - For the **Low** and **High** bands, toggle between «**SHELF**», «**PEAK**» and «**NOTCH**».
   - For **Mid** band, toggle between «**PEAK**» and «**NOTCH**».

   The active arrows *change* depending upon your selection.
4. For the selected band and function, adjust EQ values as desired with the "active" Rotary Knobs. The following rules apply:
   - If «**PEAK**» is selected for the **Low**, **Mid**, or **High** band, use the Rotary Knobs to select the center **Frequency**, adjust **Level**, and set the **Q** value. Note that when level is set to 0 (zero), the selected band is *off*.
   - If «**NOTCH**» is selected for the **Low**, **Mid**, or **High** band, use the knobs to select the **Frequency** of the notch and the **Q** value. Remember that **Level** is fixed at –∞ in this mode.
   - If «**SHELF**» is selected for the **Low** or **High** band, use the knobs to select the **Frequency** and of **Level** of the shelf. Remember that **Q** can not be adjusted in this mode.

   In each case, as you adjust a band and function, the values listed under all selected (outlined) channels track the parameter that you're adjusting. This rule applies to single or multiple channels.
5. If desired, for any selected band (and highlighted channels), press «**FLAT**» *once* to clear all values and make the *current band* flat. The label "**FLAT**" appears under the channel's logical machine label. «**FLAT**» has an alternate action, thus pressing «**FLAT**» once again will return previously set EQ values. Note that other bands *may* have values dialed in (press «**BAND**» to verify the status of other bands).

To make *all bands flat* for the selected channel(s), press and hold «**FLAT**» for 1.5 seconds. *All values* are cleared for the channel, and "**OFF**" label is shown in the display.

NOTE

For the selected channel, the "**FLAT**" label remains on the display until EQ is adjusted (boosted or cut) in any manner. Once adjusted, the label is cleared.

6. If desired, press «**ON/OFF**» to toggle EQ on or off for the selected channel(s). When EQ is off, the label "**OFF**" appears in the selected channels' column, and all EQ values are hidden.

   These hidden values remain as "presets" until re-enabled. When EQ is turned on again (by pressing «**ON/OFF**», the preset EQ values are re-enabled — and reactivated.

NOTE

Disabling a channel using «**ON/OFF**» permanently turns EQ off, until it is re-enabled in the same manner. When a channel is off, it is *not* affected by the state of the **FX OFF** button located by keypad.

7. If desired, press a **SELECT** button to connect or disconnect a channel to the current adjustment group. Outlines appear and disappear accordingly.

NOTE

If you re-connect a channel that has different EQ values, «**COPY**» appears. See the "**Copy EQ**" section for **Copy EQ** instructions.

8. To exit from the **EQ Menu** and accept all new EQ values, three methods are available:
   - De-select all lit **SELECT** buttons.
   - Press the «**ENTER**» softkey on the **EQ Menu**.
   - Press **ENTER** on the keypad.

   Once pressed, the system clears all outlines, returns to the previous view, and applies all new EQ values. All parameters remain until changed.

   To exit from the **EQ Menu** *without* accepting any new EQ values, press, «**CANCEL**» or **UNDO**. EQ values which were changed but not "accepted" return to their previous values.

The table below summarizes the steps used to equalize channels.

Channel EQ Summary

Step	Description
1.	Press the **SELECT** buttons for the channel(s) to equalize.
2.	Press «**EQ**» to display the **EQ Menu**.
3.	Press «**BAND**» to select an EQ band. To select a function, toggle between «**SHELF**», «**PEAK**», and «**NOTCH**».
4.	Adjust EQ values as desired with the "active" Rotary Knobs.
5.	If desired, press «**FLAT**» once to clear the *current band*, or press and hold to clear all bands for the selected channel.
6.	If desired, press «**ON/OFF**» to toggle EQ on or off.
7.	If desired, press **SELECT** to connect or disconnect a channel.
8.	To exit and accept all values, press «**ENTER**».

Note the following important points regarding EQ adjustment:

- While using the **EQ Menu**, to turn an individual channel off and continue adjusting other channels, press «**ON/OFF**», disconnect the desired channel (using its **SELECT** button), and then press «**ON/OFF**» again to re-enable channels.
- During normal operations, to turn EQ off for one channel but retain EQ processing for other channels, press **SELECT** for the desired channel, press «**EQ**», toggle the channel «**ON/OFF**», then de-select the channel to exit the **EQ Menu**.
- To turn *all effects* processing on or off from any view, press **FX OFF**. Refer to the "**Effects Processing**" section in Chapter 3 for instructions.
- For the **EQ Menu**, there is no "time limit" for adjustment. You do *not* have to press «**ENTER**» within 60 seconds.
- Pressing and holding «**FLAT**» for 1.5 seconds is a "full" reset for the selected channel(s). This reset returns all **Frequency** bands to center, all **Levels** to 0 (zero), and all **Q** values to .26.
- EQ assignments stay with the logical machine. If you swap machines during a session, (e.g., **A-VTR** and **R-VTR**), EQ values previously set for **A** now belong to the *new* **A-VTR**. Values previously set for **R** now belong to the *new* **R-VTR**. Use care during these situations, or use **EQ COPY** to copy previous EQ values to the new logical machine.

- The D/ESAM 400 does not provide the ability to automatically change EQ settings (for a logical machine) over the course of a transition. If you wish to perform this function, it can be accomplished manually, or by setting up a "duplicate" logical machine, that is, assigning two different logical letters to one virtual machine. This process allows you to dissolve from machine to machine (identical *virtual* machines with different *logical* letters) and thus change EQ during the transition.
- Effects processing (using an EQ mix source) *only* occurs when EQ is assigned to a channel, when that channel is enabled (**FX** on), and when the channel is routed to at least one output bus. For example:
  - If a channel is assigned to a fader, the **FX** is on, and the channel is assigned to one or more output buses, effects processing is taking place.
  - If a channel is assigned to a fader, the **FX** is on, but the channel is **OFF**, effects processing is *not* occurring.
  - If a channel is removed from the panel with **FX** on, and the channel is *not* selected on the **Preview Switcher**, effects processing does *not* occur.
  - If a channel is removed from the panel with **FX** on, and the specific channel *is* selected on the **Preview Switcher**, effects processing is taking place.

Copy EQ

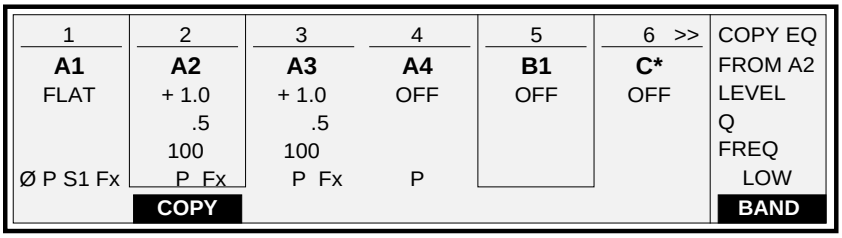
EQ parameters can be copied from a "source" channel to one or more "destination" channels. The **EQ Copy** mode is automatically initiated whenever two or more channels are selected which have *different* EQ values. This process can occur at two different points — when you first enter the **EQ Menu**, or while the **EQ Menu** is already in use:

- When «**EQ**» is pressed to access the **EQ Menu** *initially*, if the selected channels' EQ values are different, the «**COPY**» softkey automatically appears.
- During EQ operations (while the **EQ Menu** is in use), if you connect a new channel that has different EQ values to the current group under adjustment, the «**COPY**» softkey appears.

Regardless of the entry method, in both cases the procedure used to copy EQ values is virtually identical, as follows:

1. Press the **SELECT** button for the channel whose EQ values you wish to copy. Because it was selected first, this channel becomes the EQ *source*.
   - If the source channel is selected *prior* to entering the **EQ Menu**, (during normal mix mode), the **Channel Function** softkeys appear in the normal manner.
   - If the source channel is selected while the **EQ Menu** is already active, the EQ softkeys remain on the display. Often, in this situation, the source channel is simply the last channel that you were adjusting, and thus no special "select" action is required.
2. Press the **SELECT** button(s) for the channel(s) onto which you want to copy the EQ values. These become "destination" channel(s).
   - If destination channels are chosen before you enter the **EQ Menu**, the **Channel Function** softkeys remain in their current state on the display.
   - If destination channels are chosen while the **EQ Menu** is already active, the «**COPY**» softkey appears, provided that source and destination channels have different EQ values. Note that the «**COPY**» softkey does not appear if source and destination values are the same.
3. For source and destination channels selected during normal mix mode, access the **EQ Menu** by pressing «**EQ**». The «**COPY**» softkey appears, provided that source and destination channels are different.

The figure below illustrates the **Copy EQ Menu**, which appears the same, regardless of the method used to initiate the copy process:



Copy EQ Menu

The «**COPY**» softkey appears directly below the *source* channel — the *first* channel selected, and the selected machine name and track also appears in the status column. The «**BAND**» softkey is active, allowing you to view different bands, but no EQ adjustment can occur at this point. All "destination" channels are outlined in the normal manner.

NOTE

If you do *not* wish to copy at this point, de-select the destination channel(s) and proceed with EQ in the normal manner, or press **UNDO** to exit the menu and return to the previous view.

4. Press «**COPY**» to copy the highlighted source channel's EQ values to all selected destination channels. The system advances to the EQ "adjustment" menu, and the arrows appear to indicate the active rotary knobs and the corresponding functions that can be adjusted.

The table below summarizes the steps used to copy EQ values. The procedure assumes that the user starts in normal mix mode.

Copy EQ Summary

Step	Description
1.	Press **SELECT** for the channel whose EQ values you wish to copy.
2.	Press the **SELECT** button(s) for the channel(s) onto which you want to copy the EQ values.
3.	Press «**EQ**» to display the **EQ Copy Menu**.
4.	Press «**COPY**» to copy the highlighted source channel's EQ values to all selected destination channels.

Remember the following important points regarding the EQ Copy procedure:

- When the EQ copy mode is active, EQ adjustments are not allowed.
- When the «**COPY**» softkey is shown, press **UNDO** to clear outline(s), turn off all lit **SELECT** buttons, and return to the previous view safely, without copying EQ values.
- When «**COPY**» is shown, de-select all destination channels to proceed with EQ adjustment on the remaining channel(s) in the normal manner. The "**COPY EQ FROM**" label *clears* only when channels remain that have identical EQ values.
- You can copy to two or more destination channels.

CAUTION

When grouped channels have different EQ values, the **EQ Copy** procedure causes channel 1's EQ values to be copied to all remaining channels in the group. If you wish to adjust just one channel's values individually, ungroup channels in the normal way.

Delay Option

The **D/ESAM 400 Digital Delay Option** allows you to re-time audio signals to video signals which have been delayed — typically, due to special effects devices or normal delays inherent in digital video tape recorders and digital switchers. The **Delay Option** offers three different types of delay that can be added to the D/ESAM 400's audio path:

- **Virtual Machine Delay**

  This type of delay attaches a *default* delay value to a virtual machine. The value is entered via the Maintenance Terminal, and is designed for *permanent* situations in which the delay value never (or rarely) changes. For example, a digital video tape recorder that includes a constant one-frame delay (due to a video frame buffer), would be an excellent machine on which to set a one-frame virtual machine delay. Thus, every time the virtual machine is placed on the D/ESAM 400 panel, the default delay is automatically assigned.

  During operation, "standard" virtual machine delay values are shown on the **Delay View**, but can only be changed via the Maintenance Terminal.

- **Logical Machine Delay**

  This type of delay is assigned to a logical machine via the D/ESAM 400 control panel, on an "as-needed" basis. For example, logical machines A, B, and C can each have their own individual delay values, which move with the logical machine as it is assigned to different virtual machines. If a VTR needs to be routed through an effects device for one edit, and removed from the path for the next, the editor can quickly assign (and subsequently remove) the logical machine delay.

  During mixer operation, logical machine delay values are shown on the **Delay View**, and can be changed using a simple control panel dialogue.

- **Output Delay**

  Output delay is an *overall* delay value placed on the output of the entire mixer, thus affecting *all active signals* on the D/ESAM 400 panel. Similar to logical machine delay, the "global" output delay value can be entered and removed "as-needed." Output delay is typically used to compensate for digital video switchers that have a default system delay.

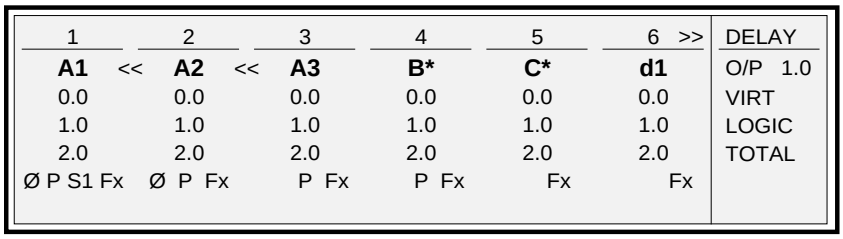
  During operation, the output delay value is shown on the **Delay View**. It can be changed using a simple control panel dialogue.

The **Delay Menu** and the **Delay View** are virtually identical, and thus, the display conventions used on one apply to the other. The table below lists the ranges of adjustable delay for each type of delay. Specifications for 525 and 625 standards are included. All values are listed in frames.

Delay Parameters

Standard	Virtual	Logical	Output	Total
525	0.0 to 7.0	0.0 to 9.9	0.0 to 9.9	10.0
625	0.0 to 7.0	0.0 to 8.4	0.0 to 8.4	8.4

The sample **Delay View** shown below illustrates the three different types of delay values:



Delay View

The following rules apply to both the **Delay View** and the **Delay Menu**:

- The **Fx** label shows that Delay (and/or EQ) is being processed:
  - If **Fx** is on, all delay values are actively being processed.
  - If **Fx** is off, logical machine values are preset — but not actively processed.

  Press **FX OFF** button to enable or disable effects accordingly.
- At the top of the status column, the current output delay is shown following the label "**O/P**." Below, labels are provided for the rows to the left: virtual machine delay (**VIRT**), logical machine delay (**LOGIC**), and total path delay (**TOTAL**).

  All three types of delay are *additive*. If a specific virtual machine has a default "**Virtual Machine Delay**," for which the user then assigns a "**Logical Machine Delay**," and subsequently assigns an "**Output Delay**," to the entire mixer, the three values are added together, and thus affect the signal accordingly.

  During operation, the *total* delay is shown on the **Delay View**. This value changes when the individual **Logical** and **Output** delay values are changed. Remember that the virtual machine delay can only be changed at the Maintenance Terminal.

- The standard set of rules apply when "grouped" channels are shown in the **Delay View**. Note that *all* delay parameters are shown because logical machine delay is *equal* for all channels of an individual machine.
- The **Delay View** is "view only." Adjustments can *not* be made. To make adjustments, use the Maintenance Terminal to adjust Virtual Machine Delay, or use the Control Panel's **Delay Menu** to adjust **Output Delay** and **Logical Machine Delay**.

Refer to the "**Delay View**" section in Chapter 3 for information about the **Delay View**. The following sections provide instructions for each type of delay.

Delay Operation

This section provides instructions for using the Delay Option. The following topics are discussed:

- **Virtual Machine Delay** (refer to the "**Virtual Machine Delay Setup**" section)
- **Output Delay** (refer to the "**Output Delay**" section)
- **Logical Machine Delay** (refer to the "**Logical Machine Delay**" section)
- **Delay Limitation** (refer to the "**Delay Limitations**" section)

NOTE

If the delay option is not yet installed, please refer to the ***D/ESAM 400 Installation Guide*** for instructions. In addition, ensure that the **DELAY** button is properly installed in the Keypad area, immediately to the left of the **RCL** button.

Note that all delay values (including **Virtual Machine Delay**) can be viewed on the **Delay View**. Refer to the "**Delay View**" section in Chapter 3 for instructions.

Virtual Machine Delay Setup

Setting default virtual machine delay values is accomplished with the Maintenance Terminal, using the **Virtual Machine Operations Menu 1**, as shown below. Although this procedure is primarily a maintenance function, it is included in this chapter for your reference only.

NOTE

Only qualified personnel should adjust Virtual Machine Delay values.

```
                    D / E S A M  4 0 0
                     Maintenance menu
                Virtual Machine Operations - 1

0     Return to Main menu - 0
1     Edit / Define Machine
2     List Machines
3     List Inputs
4     Wipe Out All Virtual Machine definitions
5     Re-calculate Virtual Machine Checksum
```

Virtual Machine Operations Menu - 1

Use the following steps to set default virtual machine delay values:

1. If your Maintenance Terminal has not been connected, refer to the ***D/ESAM 400 Installation Guide*** for instructions.
2. From the **Main Menu**, press **1** to access the **Virtual Machine Operations Menu**.
3. Press **2** (**List Machines**) to list all current Virtual Machine assignments and their associated D/ESAM inputs. The **List Machines** display appears as shown below, with the "delay" column located at the far right:

```
Name   Number   1   2   3   4   5   6   7   8   9   Delay
VTR1   1        1   2   3   4   0   0   0   0   0   0.0
VTR2   2        5   6   7   8   0   0   0   0   0   0.0
VTR3   3        9   10  11  12  0   0   0   0   0   0.0
VTR4   4        13  14  15  16  0   0   0   0   0   0.0
ATR1   5        17  18  19  20  21  22  23  24  0   0.0
CD1    6        30  31  0   0   0   0   0   0   0   0.0
```

List Machines Display

If more machines are assigned than can fit on one screen, you will be prompted to "**`Type any key to continue`**" to display additional screens.

4. Check the listing for any *unexpected* delay values, and if found, note the associated virtual machine name. Upon initial installation of the Delay Option, all virtual machine delay values *should* be **`0.0`**.
5. Press **ESCAPE** to return to **Menu 1**.
6. Press **1** (**Edit / Define Machine**) to set default delay values for existing Virtual Machines. Note that this is the *same process* used to define new virtual machines, with an extra step added for delay values. The following display appears:

```
Enter machine name or virtual machine number ...
```

7. Enter the name or number of the Virtual Machine for which you want to define a default delay, and press **RETURN**. The display shows a heading with the selected Virtual Machine name and number, followed by a listing of the machine's current input-to-track assignments.
8. For the selected machine, press **TAB** to advance to last field, "**Delay**."
9. Enter the desired delay value, in "frames" and "tenths-of-frames." The valid range is from 0.0 to 7.0 frames, in both 525 and 625 standards.
10. Press **RETURN** to accept the new default virtual machine delay.
11. To enter default delays for additional virtual machines, repeat the procedure starting at step 7 above.
12. When all entries are complete, press **ESCAPE** to return to menu 1. If desired, you can view the new delay values using the "**List Machines Menu**." Changes are active as soon as they are entered.

Remember the following points regarding virtual machine delay:

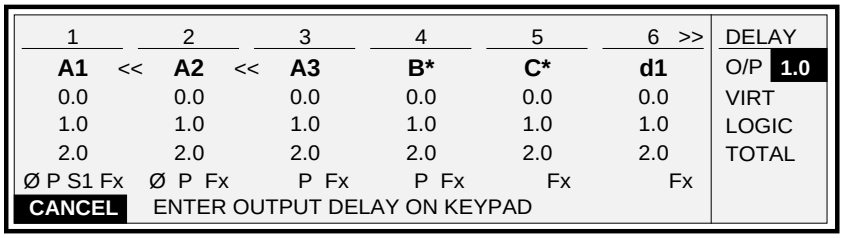
- During mixer operation, virtual machine delay values can be viewed on the **Delay View**, but can *only* be changed via the Maintenance Terminal.
- Virtual Machine assignments (and their associated delay values) are stored in register 0, but not in D/MEM registers. Refer to "**D/MEM Overview**" section in Chapter 3 for information on Register 0.
- Refer to the "**Delay Limitations**" section for important information on delay limitations.

Output Delay

Output Delay is an *overall* delay placed on the output of the entire mixer, affecting *all active signals*. Output delay can be entered and removed as-needed, but can *not* be placed on the "R" machine.

Use the following steps to enter (or change) the output delay value:

1. Press **DELAY**. The **DELAY** button lights, and the display automatically switches to the **Delay Menu**. The label "**O/P**" (output) appears on the delay entry line, and the current output delay value is highlighted to indicate that it is *active*. The softkey line prompts you to action:



Delay Menu - Adjust Output Delay

2. To accept the *current* output delay, press **DELAY** or **ENTER**. This concludes the procedure, and returns to the previous view.
3. To enter a *new* output delay, type the number in "frames" and "tenths-of-frames" notation. The valid range is from 0.0 to 9.9 frames in 525 standard and from 0.0 to 8.4 frames in 625 standard. Note the following points regarding numeric entry:
   - Numbers "shift left" as they are entered.
   - If you make a mistake, press **CLEAR** to return the display to the "stored" output delay value.
4. When data entry is complete, press **ENTER** to confirm the new output delay value. The system returns to the previous view.

The table below summarizes the steps used to adjust output delay.

Output Delay Summary

Step	Description
1.	Press **DELAY** to access the **Delay Menu**.
2.	To accept the *current* output delay, press **DELAY** or **ENTER**.
3.	To enter a *new* output delay, type the number on the keypad, in "frames" and "tenths-of-frames" notation.
4.	Press **ENTER** to accept the new value.

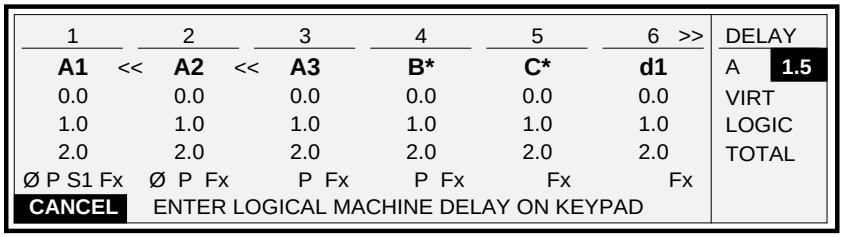
Remember the following important points regarding output delay:

- You must press **ENTER** to accept the new output delay value. If you do not press **ENTER** within 60 seconds, the sequence is canceled.
- Press **CLEAR** during the dialog to return to the original "stored" value.
- To exit from the **Delay Menu** *without* accepting any new Delay values, press «**CANCEL**» or **UNDO**. Delay values which were changed but not "accepted" return to their previously stored values.
- Press **UNDO** *after* pressing **ENTER** to undo the entry and return to the previously stored output delay value.
- To clear the output delay only, use the procedure outlined above and enter 0.0 as the value. To clear the output delay *and* all logical machine delay values, press **DELAY**, **CLEAR**. Note that this procedure can be "undone" by pressing **UNDO**.
- The Output Delay value is automatically stored in D/MEM registers in the normal manner.
- Pressing **FX OFF** button does *not* affect output delay.
- Output delay can *not* be assigned to the "R" machine.
- The **DELAY** button will *not* light if the option is not installed.
- All delay values can be verified at any time during mixer operations by switching to the **Delay View**. Refer to the "**Delay View**" section in Chapter 3 for instructions.
- Refer to the "**Delay Limitations**" section for important information on delay limitations.

Logical Machine Delay

Logical Machine Delay is a value assigned to "individual" logical machines via the control panel, on an "as-needed" basis. For example, logical machines A, B, and C can *each* have their own individual delays. Use the following steps to enter (or change) logical machine delay:

1. Press **DELAY**. The **DELAY** button lights, and the display switches to the **Delay Menu**. The softkey line prompts you to action for *output delay*. Do not enter any values at this point.
2. Using the buttons in the AUTO TRANSITION GROUP, press the letter of the logical machine to which you want to assign a delay. Once pressed, the delay entry line changes to the letter (and current value) of the selected logical machine:



Delay Menu - Adjust Logical Machine Delay

3. To accept the *current* logical machine delay, press **DELAY** or **ENTER**. This exits and returns to the previous view.
4. To enter a *new* logical machine delay, type the number in "frames" and "tenths-of-frames." The valid range is from 0.0 to 9.9 frames in 525 standard, and from 0.0 to 8.4 frames in 625 standard. Note the following points regarding numeric entry:
   - Numbers "shift left" as they are entered.
   - If you make a mistake, press **CLEAR** to return the display to the "stored" output delay value.
5. When entry is done for the first machine, you have two options:
   - Press **ENTER** to confirm the new delay value for the *selected* machine, and exit the dialogue completely, or
   - Press the letter of the *next* logical machine to which you want to assign a delay, and repeat from step 4. When you select a new machine, values for the *previous* machine are stored. In this "batch" mode, you can continue to select machines and assign delays, and when finished, press **ENTER** to confirm the most recent entry.

   When **ENTER** is pressed, the **FX** label turns *ON* for the selected machine.

The table below summarizes the logical machine delay procedure.

Logical Machine Delay Summary

Step	Description
1.	Press **DELAY** to access the **Delay Menu**.
2.	Select the desired machine in the AUTO TRANSITION GROUP.
3.	To accept the *current* logical machine delay, press **DELAY** or **ENTER**.
4.	To enter a *new* logical machine delay, type the number on the keypad, in "frames" and "tenths-of-frames" notation.
5.	Press **ENTER** to accept the new value and exit, or press the letter of the *next* logical machine and repeat the process from step 4. Press **ENTER** to confirm after the new value is entered.

Remember the following points regarding logical machine delay:

- You must press **ENTER** to accept the new delay value(s). If you do not within 60 seconds, the sequence is canceled.
- Press **CLEAR** during the dialog (of any individual logical machine) to return to the machine's original "stored" value.
- Press «**CANCEL**» or **UNDO** at any point in the logical machine delay dialog to exit. The delay value for the *current* machine will not be changed, however, values entered previously (in the "batch" mode) are *already* stored in memory.
- Press **UNDO** *after* pressing **ENTER** to undo the last entry, and return to the previously stored delay value.
- To clear a logical machine delay value *individually*, use the procedure outlined above and enter 0.0 as the value. To clear *all* logical machine delays, *and* the output delay value, press **DELAY**, **CLEAR**. Press **UNDO** to restore previous values.
- Logical Machine Delay values are automatically stored in D/MEM registers in the normal manner.
- Pressing **FX OFF** button enables and disables logical machine delay along with equalization.
- Logical machine delay *can* be assigned to the "R" machine.
- An assigned logical machine delay value moves with the logical machine, as it is assigned to different virtual machines.
- The **DELAY** button will *not* light if the Delay option is absent.
- All delay values can be verified at any time during mixer operations by switching to the **Delay View**.
- Refer to "**Delay Limitations**" for additional information.

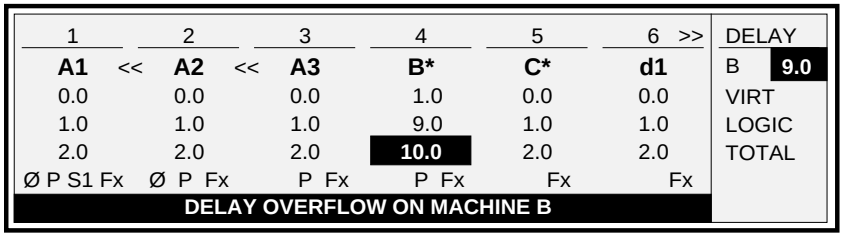
Delay Limitations

Depending upon the system standard, the D/ESAM 400 provides an overall limit to the amount of delay:

- 10 total frames in 525 standard
- 8.4 total frames in 625 standard

Because of this delay limitation throughout the system, the "**Total Delay**" row (in the **Delay Menu**) is important to check periodically during production situations in which many "delay" processes are in use.

The "total" delay equals the sum of a machine's logical, virtual, and output delay values. If, during delay value entry, the total delay exceeds the overall system limit for an individual machine, the "**OVERFLOW**" User Limit Message appears as shown below, and the overflow value itself is highlighted:



Delay Menu - Overflow Indication (525)

In this situation, individual delay values are listed as entered, but the total delay clips at 10 frames (the maximum limit for 525 systems). To fix the problem, clear or enter new delay values in the normal manner.

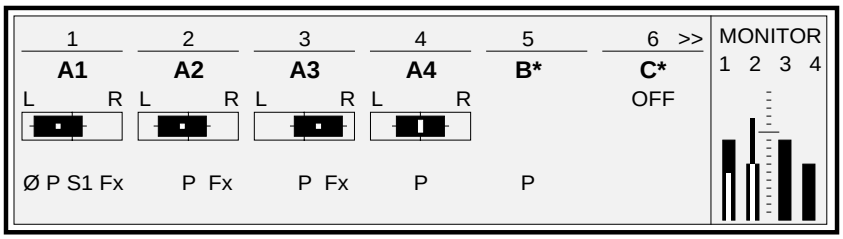
Pan Feature

The **D/ESAM 400 Pan** feature allows you to take one or more sources and position them within their respective stereo pairs. In the AES digital standard, a stereo pair is defined as program outputs 1 and 2 (left and right), and program outputs 3 and 4 (left and right). The **EQ Option** must be installed in order for Pan to work.

The following rules must be met in order to pan channels:

- The channels must be assigned to faders.
- If a single assigned channel is selected, pan can be adjusted.
- If multiple channels are selected and their pan values are identical, pan can be adjusted.
- If multiple channels are selected and their pan values are *different*, the «**COPY**» softkey appears. This allows you to copy pan values from one channel to another, with rules similar to copying EQ from channel to channel. When «**COPY**» is pressed, multiple channels can be panned.
- If multiple channels are selected and «**COPY**» appears, you can de-select channels until only one remains, whereupon you can pan the single channel.
- Output bus assignments do not affect the pan function. When pan is applied to a channel, *all buses* pan concurrently.

The **Pan Menu** and the **Pan View** are virtually identical, and thus, the display conventions used on one menu apply to the other. A sample **Pan View** is shown below:



Pan View

On the display, pan data is shown as follows:

- Each of the six left-hand columns displays pan data for each logical machine channel. A sliding bar graph shows the channel's relative position, with a vertical black reference line indicating "center." Above the graph, the labels **L** and **R** indicate "Left" and "Right" pan directions. On the bar, when a channel is centered, a vertical *white* reference line appears.

The sliding bar *also* serves as a level indicator. When buses are balanced, equal parts of bar appear on both sides of the reference line. Similarly, when you pan left, more of the bar appears on the left than the right, thus indicating relative levels as well as position.

- On the Status Line (for each channel) the label "**P**" indicates that a channel has pan turned on. If the "**P**" is not shown, pan is turned off for that channel, but the pan value remains as set.

The **Pan View** is "view only," and no adjustments can be made. Refer to the "**Pan View**" section in Chapter 3 for additional information about the **Pan View**. To pan a channel, the **Pan Menu** must be accessed via the **Channel Function Menu** softkeys.

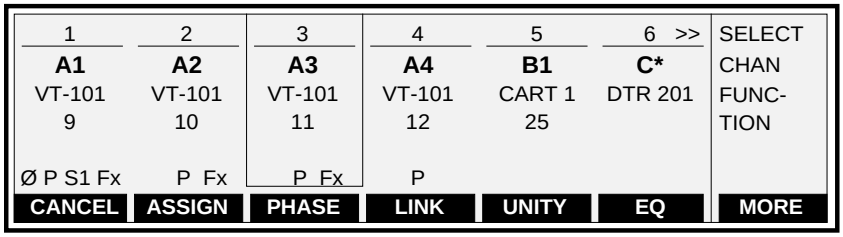
When "grouped" channels are shown in the **Pan View**, standard rules for expanding channels apply. Refer to the "**Expanded Views**" section in Chapter 3 for additional information about expanding channels.

The following sections provide instructions for panning channels, and copying pan values from channel to channel.

Pan Operations

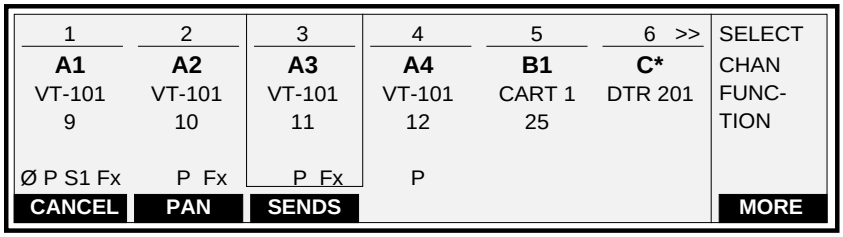
Use the following steps to pan channels:

1. Press the **SELECT** buttons for the channel(s) that you wish to pan. The **Channel Function Menu** softkeys appear, and the selected channels are outlined as shown below.



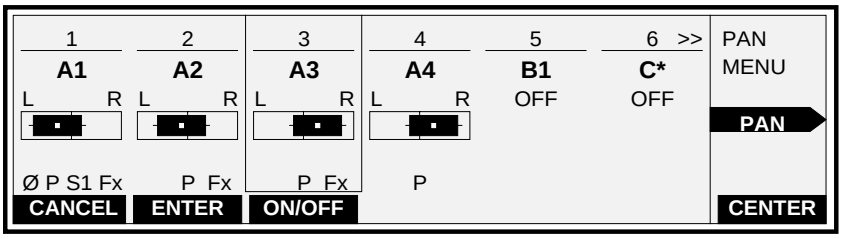
Channel Function Menu Softkeys

2. Press «**MORE**» to display **Channel Function Menu 2**:



Channel Function Menu 2 Softkeys

3. Press «**PAN**» to display the **Pan Menu**:



Pan Menu

NOTE

When «**PAN**» is pressed to access the **Pan Menu**, if the selected channels' Pan values are different, the «**COPY**» softkey appears which allows you to copy Pan values from one channel to another. If the selected channels' Pan values are identical in all respects, the system skips the Copy function. Refer to the "**Copy Pan Values**" section for Pan Copy instructions.

4. As required, press «**ON/OFF**» to enable or disable panning for the selected channel(s), but leave the pan value as set. The label "**P**" appears on the status line when turned on, otherwise **"OFF"** appears.
5. Turn the Rotary Knob clockwise or counter-clockwise to pan the selected channel(s). The sliding bar moves accordingly.
6. As required, press «**CENTER**» to "center-up" the channel, return the sliding bar to center. Alternately pressing «**CENTER**» will return previously set values. For monitoring purposes, this function allows you to quickly listen to the channel with or without pan values.
7. To exit from the **Pan Menu** and accept all new values, three methods are available:
   - De-select all lit **SELECT** buttons.
   - Press the «**ENTER**» softkey on the **Pan Menu**.
   - Press **ENTER** on the keypad.

   Once pressed, the system clears all outlines, returns to the previous view, and applies all new Pan values. All Pan parameters remain until changed.

   To exit from the **Pan Menu** *without* accepting any new values, press «**CANCEL**» or **UNDO**. Pan values which were changed but not "accepted" return to their previously stored values.

The table below summarizes the steps used to pan channels.

Pan Channels Summary

Step	Description
1.	Press the **SELECT** buttons for the channel(s) you wish to pan.
2.	Press «**MORE**» to display **Channel Function Menu 2**.
3.	Press «**PAN**» to display the **Pan Menu**.
4.	As required, press «**ON/OFF**» to enable or disable panning for the selected channel(s), but leave the pan value as set.
5.	Turn the Rotary Knob clockwise or counter-clockwise to pan the selected channel(s) left or right.
6.	As required, press «**CENTER**» to "center-up" the channel or alternately to compare a channel with and without pan.
7.	Press «**ENTER**» or **ENTER** to accept all changes.

Note the following important points regarding Pan adjustment:

- While using the **Pan Menu**, to turn an individual channel off and continue adjusting other channels, press «**ON/OFF**», disconnect the desired channel (using its **SELECT** button), and then press «**ON/OFF**» again to re-enable channels.
- During normal mixer operations, to turn Pan off for an individual channel but retain values for other channels, press **SELECT** for the desired channel, press «**MORE**», press «**PAN**», toggle the channel «**ON/OFF**», and then de-select the channel to exit the **Pan Menu**.
- To turn *all effects* processing (including Pan) on or off, press **MENU**, then toggle the **FX OFF** button as desired. Refer to the "**Effects Processing**" section in Chapter 3 for instructions.
- For the **Pan Menu**, there is no "time limit" for adjustment. You do *not* have to press «**ENTER**» within 60 seconds.
- Press «**CANCEL**» or **UNDO** at any point in the pan procedure to exit the **Pan Menu** without accepting changes.
- Press **UNDO** *after* pressing **ENTER** to undo the last entry, and return to the previously stored pan values.
- Pan assignments stay with the logical machine. If you swap machines during a session, (e.g., A-VTR and R-VTR), Pan values previously set for A now belong to the *new* A-VTR. Values previously set for R now belong to the *new* R-VTR. Use care during these situations, or use the **Pan Copy** mode to copy pan values.

- The D/ESAM 400 does not provide the ability to automatically change Pan settings (for a logical machine) during a transition. If you wish to perform this function, it can be accomplished manually, or by setting up a "duplicate" logical machine, that is, assigning two different logical names to one virtual machine. This allows you to dissolve from machine to machine (identical *virtual* machines with different *logical* names) and thus change Pan settings during the transition.
- When you pan, the sum of the left and right buses remains constant for the selected channels.
- The standard rules for grouped channels apply. If a channel is grouped and "**P**" is shown to indicate panning is enabled, you must place individual channels back on the panel to adjust pan values. Grouped channels can be expanded in the normal manner.

NOTE

During **Pan** mode, channel levels are dropped by 3db. This occurs because audio signals (during Pan mode) appear on two buses concurrently, producing the same level as a single bus assignment that is *not* in Pan mode.

Copy Pan Values

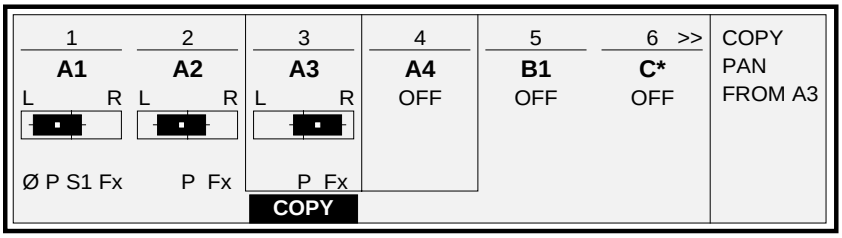
Pan settings can be copied from a "source" channel to one or more "destination" channels. The **Pan Copy** procedure is automatically initiated whenever two or more channels with *different* Pan settings are selected. This process can occur at two different points — when you first enter the **Pan Menu**, or while the **Pan Menu** is already in use:

- When «**PAN**» is pressed to access the **Pan Menu** *initially*, if the selected channels' Pan settings are different, the «**COPY**» softkey automatically appears.
- During Pan operations (while the **Pan Menu** is in use), if you connect a new channel that has different Pan settings to the current group under adjustment, the «**COPY**» softkey appears.

Regardless of the entry method, in both cases the procedure used to copy Pan values is virtually identical, as follows:

1. Press **SELECT** for the channel whose Pan settings you wish to copy. Because it was selected first, this channel becomes the Pan *source*.
   - If the source channel is selected prior to entering the Pan Menu, (during normal mix mode), the Channel Function softkeys appear in the normal manner.
   - If the source channel is selected while the Pan Menu is already active, the Pan Menu softkeys remain on display. Often, in this situation, the source channel is simply the last channel that you were adjusting, and thus no special "select" action is required.
2. Press the **SELECT** button(s) for the channel(s) onto which you want to copy the Pan settings. These become "destination" channel(s).
   - If destination channels are chosen before you enter the **Pan Menu**, the **Channel Function** softkeys remain in their current state on the display.
   - If destination channels are chosen while the **Pan Menu** is already active, the «**COPY**» softkey appears, provided that source and destination channels have different Pan settings. Note that the «**COPY**» softkey does not appear if source and destination values are the same.
3. Press «**MORE**» to display **Channel Function Menu 2**.
4. For source and destination channels selected during normal mix mode, access the **Pan Menu** by pressing «**PAN**». The «**COPY**» softkey appears, provided that source and destination settings are different.

The figure below illustrates the **Pan Copy Menu**, which appears the same, regardless of the method used to initiate the copy process:



Pan Copy Menu

The «**COPY**» softkey appears directly below the *source* channel — the *first* channel selected, and the selected machine name and track also appears in the status column.

Pan adjustment can not occur at this point. All "destination" channels are outlined in the normal manner.

NOTE

If you do *not* wish to copy at this point, de-select the destination channel(s) and proceed with Pan adjustment in the normal manner, or press **UNDO** to exit the menu and return to the previous view.

5. Press «**COPY**» to copy the highlighted source channel's Pan settings to all selected destination channels. The system advances to the Pan "adjustment" menu which can be used in the normal manner.

The table below summarizes the steps used to copy Pan settings. The procedure assumes that the user begins in normal mix mode.

Copy Pan Summary

Step	Description
1.	Press the **SELECT** button for the channel whose Pan settings you wish to copy.
2.	Press the **SELECT** button(s) for the channel(s) onto which you want to copy the Pan settings.
3.	Press «**MORE**» to display **Channel Function Menu 2**.
4.	Press «**PAN**» to display the **Pan Copy Menu**.
5.	Press «**COPY**» to copy the highlighted source channel's Pan settings to all selected destination channels.

Remember the following points regarding the **Pan Copy** procedure:

- When the **Pan Copy** mode is active, pan adjustments are not allowed.
- When the «**COPY**» softkey is shown, press **UNDO** to clear outline(s), turn off all lit **SELECT** buttons, and return to the previous view safely, without copying pan settings.
- When «**COPY**» is shown, de-select all destination channels to proceed with pan adjustment on the remaining channel(s) in the normal manner. The "**COPY PAN FROM**" label *clears* only when channels remain that have identical pan settings.
- You can copy to two or more destination channels.

CAUTION

When grouped channels have different Pan settings, the Pan Copy procedure causes channel 1's Pan settings to be copied to all remaining channels in the group. If you wish to adjust just one channel's values individually, ungroup channels in the normal way.

Sends Feature

The **Sends** feature provides four "Send" bus outputs (two AES/EBU pairs) that allow you to send a maximum of four logical machine tracks to external audio processing devices. The **EQ Option** must be installed in order for Sends to work.

When a logical machine track is routed to a Send bus, the signal that leaves the mixer has the following attributes:

- Pre-fader
- Post-EQ
- Post-Delay
- Unity level
- AES/EBU format

NOTE

There are no dedicated "Return" inputs provided on the D/ESAM 400 mixer, therefore *any* standard input may be used for the return signal.

A Word About Returns

If an AES/EBU "Sends" signal is processed by an external *digital* device, return the signal through a standard digital input on the D/ESAM 400. If external D/A (digital to analog) conversion is used to feed an analog audio processor, return the signal through a standard analog input.

The following rules apply regarding Returns:

- Send outputs may be used as auxiliary feeds and never returned to the mixer.
- If a *standard* virtual machine assignment is used, the returned signal is treated in the *same way* as any other input signal. The original signal (as well as the externally processed signal) can contribute to a mix simultaneously.
- If a special "**RTN**" virtual machine assignment is used, the selected input channel is designated as a *return* — and therefore does *not* have output delay applied to it.

  This situation avoids adding output delay to a signal *twice* — once when the signal is sent and again when it is returned. The **RTN** designation allows returned signals to contribute to a mix with the *correct timing relationship* to all other mixed signals.

Please note the following points regarding the special **RTN** virtual machine assignment:

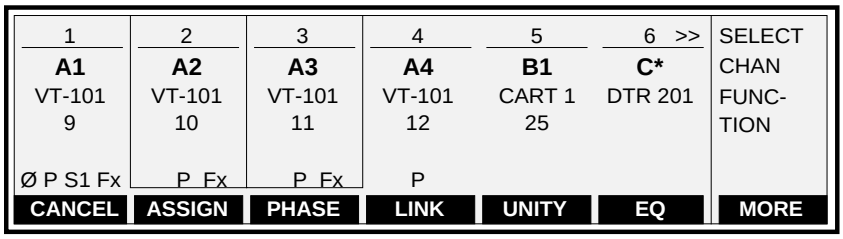
- **RTN** virtual machines *do not* have any output delay regardless of the mixer setup. The machine, in effect, is *masked* from output delay.
- **RTN** virtual machines *can* have **Logical Machine Delay** assigned.
- **RTN** virtual machines are assigned using the standard **Machine Assignment** procedure on the Control Panel.
- **RTN** virtual machines are defined with the **Maintenance Terminal** as part of the standard virtual machine definition procedure. They have the designation "**RTN**" plus any numeral from **1** through **9**, for example, **RTN1** or **RTN4**.

In Chapter 2 of the ***D/ESAM 400 Installation Guide***, refer to the "**Virtual Machine Operations - Menu 1**" section for instructions on configuring virtual machines.

Assigning Channel Sends

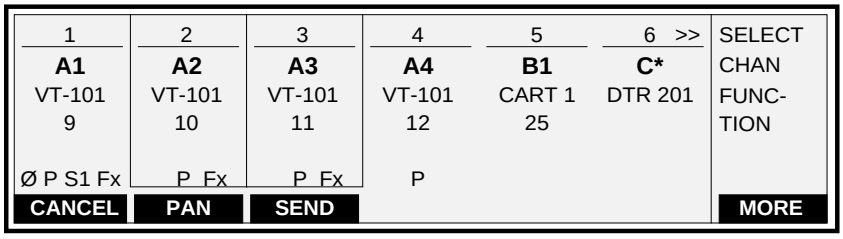
Use the following steps to assign channels to "Send" bus outputs:

1. Press the **SELECT** buttons for the channel(s) that you wish to route to "Send" bus outputs. The **Channel Function Menu** softkeys appear and the selected channels are outlined:



Channel Function Menu Softkeys

2. Press «**MORE**» to display **Channel Function Menu 2** which includes the «**SEND**» softkey.

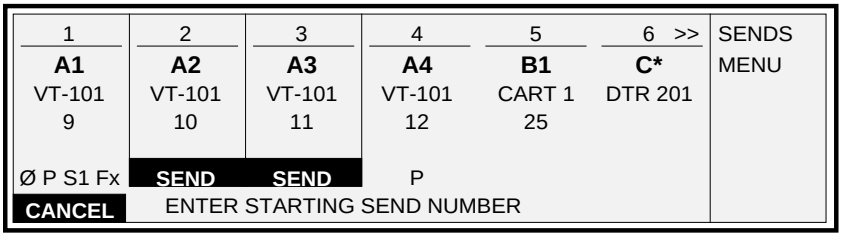


Channel Function Menu 2 Softkeys

Note the following points regarding channel selection:

- A maximum of 4 (four) channels may be selected to *send*. Channels can be toggled on and off in the normal way.
- If a *fifth* channel is selected, the «**SEND**» softkey does not appear. If the number of channels is reduced to four or less, the «**SEND**» softkey reappears.
- Grouped machines may be included. However, if the total number of logical tracks selected exceeds four, only the first four tracks will be assigned Sends.

3. Press «**SEND**» to display the **Sends Menu**:



Sends Menu

When «**SEND**» is pressed, the following actions occur:

- On the **Status Line** for the *selected channels*, the label **SEND** appears in reverse video and a prompt appears on the bottom line.
- On the keypad, a specific combination of buttons **1** through **4** light *dimly* to indicate the current *valid* starting numbers for the Send bus outputs. The table below indicates the available combinations:

Valid Send Bus Output Starting Numbers

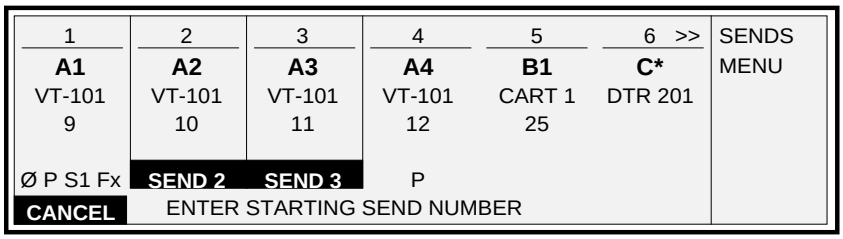
# Channels Selected	Valid Starting Numbers (Lit Keypad Buttons)
4	1
3	1, 2
2	1, 2, 3
1	1, 2, 3, 4

Only lit keypad buttons can be selected.

Note the following points regarding channel selection:

- If a channel was *not selected* but already assigned to a Send bus output, its status line display remains unaffected.
- Channels may be selected or deselected while the **Send Menu** is active. If *all channels* are deselected, the system exits the mode. If *more* than four channels are selected, the extra channels (beyond the fourth one selected) are ignored.

4. Use the keypad to select a starting Send bus output (**1** through **4**) for the highlighted channels. On the display, the starting numbers are filled in for the selected channels:



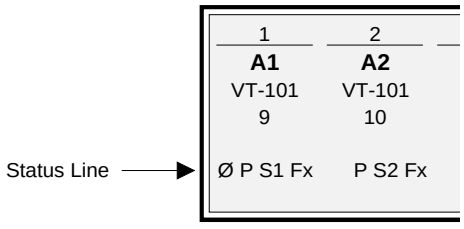
Sends Menu – Bus Outputs Selected

Note the following important points:

- If you make a mistake, press **CLR** to clear the starting numbers on the display. Re-enter the number as required.
- If you select or de-select channels, the starting numbers are automatically reset on the display.
- If you enter a starting number that conflicts with a "Send" already assigned on the panel, the new assignment always takes priority. See the note below for additional details.

5. Press **ENTER** to accept the new assignments, or «**CANCEL**» or **UNDO** to exit without assigning Sends.

   When **ENTER** is pressed, all new Send assignments are activated. On the status line, the label "**S**" (plus a number from **1** to **4**) indicates a Send bus output assignment:



If Sends are removed or assigned to another channel, the "**S**" (plus number) is removed from the status line.

NOTE

When **ENTER** is pressed, s*elected channels* have priority over other Send assignments elsewhere on the Panel (those not selected). If a conflict exists, selected channels will always *overwrite* existing assignments. For example, if channels 9 through 12 are assigned to the four Sends and you select channels 1 through 4 for new assignments, channels 9 through 12 will be *deselected* when **ENTER** is pressed. Similarly, if you only select channels 1 through 3 for new assignments, the remaining channel (in the 9 through 12 group) that does not conflict with the new assignments remains connected to a Send output bus.

Remember the following points regarding Sends:

- You must press **ENTER** to accept the new Send bus output assignments. If **ENTER** is not pressed within 60 seconds, the sequence is canceled.
- Press «**CANCEL**» or **UNDO** at any point in the procedure to cancel the process and exit the menu safely.
- Press **UNDO** *after* pressing **ENTER** to restore the previous assignments.

TIP

A "Send" does not have to appear on the panel to be active. Even though there are only 12 faders, there are 16 mixing *processes* available. For example, if Sends are assigned to machine **C** in channels 9 through 12, and you subsequently assign machine **D** to channels 9 through 12, machine **C** is moved off the panel — but nevertheless remains active. This configuration allows you to maximize the 12 faders and retain full send processing and monitoring capabilities.

The table below summarizes the steps used to assign Sends.

Assign Sends Summary

Step	Description
1.	Press the **SELECT** button for the channel(s) that your wish to route to "Send" bus outputs.
2.	Press «**MORE**» to display **Channel Function Menu 2**.
3.	Press «**SEND**» to display the **Sends Menu**.
4.	Select a starting Send bus output (**1** through **4**) number.
5.	Press **ENTER** to accept the new assignments.

Clear Channel Sends

Use the following steps to clear (remove) one or more channels from a "Send" bus output assignment:

1. Press the **SELECT** buttons for the channel(s) that you wish to remove from "Send" bus outputs. A maximum of four channels may be chosen.
2. Press «**MORE**» to display **Channel Function Menu 2**.
3. Press «**SEND**» to display the **Send Menu**. Do *not* enter a starting number.
4. Press **ENTER** to clear all *selected* channels from Send output bus assignments, or «**CANCEL**» or **UNDO** to exit.
   - If **ENTER** is pressed, the softkeys clear and all selected Send assignments are cleared.
   - If **UNDO** is pressed, the system reverts to previous assignments.

The table below summarizes the steps used to clear Send assignments.

Clear Sends Summary

Step	Description
1.	Press the **SELECT** button for the channel(s) that your wish to clear from "send" bus outputs.
2.	Press «**MORE**» to display **Channel Function Menu 2**.
3.	Press «**SEND**» to display the **Sends Menu**. Do *not* enter a starting number.
4.	Press **ENTER** to clear all selected channels.

Mixing and Monitoring Notes

Note the following important points regarding the monitoring

- Remember that a signal routed to a "Send" bus output can be used in its *unprocessed* form (simply by bringing up the Send's fader) as well as the processed form that is "returned" to another mixer input. In this situation, you have the option of mixing or *balancing* between the two signals.
- Use the buttons in the **Preview Section** to monitor and meter the send and return signals. For example, if a Send is assigned to logical machine **C** and a return is assigned to **D**, toggle between **C** and **D** in the **Preview Section** as required to monitor each signal.