

DMX Revision 3 Firmware / Memory Expansion  
Owner's Manual Addendum  
12/12/83

The DMX memory expansion board with Revision 3 software makes the DMX a more powerful ally of the composer/performer than ever before. The memory expansion increases the total number of events from 2000 to 5000, increases the number of sequences from 100 to 200 and increases the number of songs from 50 to 100. The Revision 3 software introduces:

More Uniform Operation by allowing access to important parameters while in play and record.

A Personalized Approach to basic operating features, giving the user the ability to tailor the DMX to his/her operating style.

Over 45 new features, several of them industry firsts.

We at Oberheim are committed to making our products even more valuable as time goes on, and hope you are as excited as we are about our DMX update package.

Briefly, here's what it all means:

Expanded memory means the ability to explore ideas without having to erase the steps between inspiration and completion. More memory lessens the chance of running out of memory during the creative process. More memory means more variety in your live set.

More uniform operation means the ability to change quantization, click value and swing amount during play and record without having to stop; the ability to change from song to sequence and back to song during play, and the ability to display length during play or stop.

A personalized approach means that certain functions are now under direct user control, allowing you to customize your DMX. These functions, for example, allow you to choose between two modes of count down. Beep on or off, Display tempo in Beats Per Minute or Frames Per Beat, Display click, and Song loop on or off. These choices are stored in memory until you change them.

New features include more reliable cassette operation, which allows damaged sections of tape to be ignored while the good sections are read without difficulty. Individual sequences and songs may be loaded from tape. Cue Tempo mode allows the DMX tempo to be set simply by tapping a button at the desired speed. And with Digital Splicing, as much as 1/2 note or as little as 1/192 note can be added or removed at any point in a sequence.

## \*\*\*\*\* DMX REVISION 3 OPERATION \*\*\*\*\*

IMPORTANT: This document is intended as a reference to the new features of the DMX and assumes that you have a working knowledge of the DMX. We suggest trying these features as you read them. If you have trouble understanding the following sections, please consult the DMX Owner's Manual which elaborates on the basic operation of the DMX. If an example in the manual doesn't work as described, please check the corresponding section in this addendum, as many functions have changed. We apologize for any inconvenience this may cause, but this is only temporary: a new manual is on the way.

## - EDIT PARAMETERS:

- Many parameters of the DMX may be set by the user. Access to these parameters is through the EDIT key, except while in Select Song mode where the EDIT key is used to create or display parts of songs. Use the < > keys to move between EDIT PARAMETERS, or type in the number of the parameter to be changed. Unless otherwise stated, the STEP key is used to change the parameters.

DISPLAY READS	PARAMETER DESCRIPTION:
0 AUTO START OFF	Auto-Start On/Off:
0 AUTO START ON	When this feature is on, external signals (EXTERNAL CLOCK IN or SYNC-TO-TAPE IN) will cause the DMX to enter play mode automatically. Because the DMX is always looking for a clock signal in this mode, any signal (even noise) that is present at the CLOCK IN or SYNC IN jacks will place the DMX into Play. This may cause occasional false starts. However, the DMX will not false start once the leader tone is present in SYNC IN. When Auto-Start is off, the DMX will not detect external signals until you press PLAY (see TABLE 1). You can only auto-start from Select Sequence or Select Song modes.
1 NO SYNC INPUT	Sync Input On/Off:
1 SYNC IN ON	Selects whether sync-to-tape tones are being used to clock the DMX. When nothing is plugged into the SYNC IN jack, the display reads "NO SYNC INPUT", and this control has no effect (see Table 1, below). When a sync input is connected and Auto-Start is enabled (Parameter 0), the SYNC INPUT is also enabled and the display reads "AUTO/SYNC ON".
1 SYNC IN OFF	
1 AUTO/SYNC ON	
2 SYNC OUT ON	Sync Output On/Off:
2 SYNC OUT OFF	Selects whether sync-to-tape tones will be generated while playing and recording.
3 REC COUNT ON	Record Count Down On/Off:
3 REC COUNT OFF	Enables or disables count down in record.

DISPLAY READS	PARAMETER DESCRIPTION:
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4 PLAY COUNT ON	Play Count Down On/Off:
4 PLAY COUNT OFF	Enables or disables count down in play.
5 PLAY CLIK ON	Play Click On/Off:
5 PLAY CLIK OFF	Enables or disables metronome to the <u>mixed</u> output during play. The back panel CLICK OUT is not affected.
6 CNT SIGNATURE	Count 4 Clicks/Count Signature:
6 CNT 4 CLICKS	Determines what type of count down is given during play and record. One choice is to count down four clicks at the current click value. This is useful when synchronizing with the DSX. Alternatively, you can count down one bar at the current signature. For example, if the current signature is 7/8, the count down would consist of seven eighth-note clicks.
7 BEATS/MIN	Beats Per Minute/Frames Per Beat:
7 FRAMES/BEAT	Selects whether tempo will be displayed in Beats/Minute or in Frames/Beat. This does not change the actual tempo, but only the display. The number of Frames Per Second can be selected by pressing TEMPO while in any EDIT PARAMETER mode. (See TEMPO).
8 SONG LOOP ON	Song Loop On/Off:
8 SONG LOOP OFF	When on, a song will repeat when finished. When off, a song will stop when finished.
9 VAMP ON	Vamp On/Off:
9 VAMP OFF	This only affects songs. When Vamp is on, the current part of the song repeats. When off, the song advances to the next part. While a song is playing, the Vamp feature can also be controlled by the NEXT footswitch.
10 PROGRAM TEMPO	Programmed Tempo /Manual Tempo:
10 MANUAL TEMPO	When on, the tempo follows the value programmed for each sequence. When off, the tempo is under manual control. Note that the current tempo is <u>always</u> remembered when recording a sequence.
11 BEEP ON	Beep On/Off:
11 BEEP OFF	Allows the Beep sound (in erase, copy, etc.) to be turned on or off.
12 > REPEAT ON	Arrow Repeat On/Off:
12 > REPEAT OFF	When on, holding either of the < > keys for longer than half of a second will act as though that key was being pressed about three times a second as long as the key is held down. When off, the < > keys will have to be pressed each time you want them to do something.

DISPLAY READS	PARAMETER DESCRIPTION:
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13 NORM RESPONSE	Normal Response/Fast Response:
13 FAST RESPONSE	Selects the response time of the keyboard. Normal Response is about 20 msec. A response time of about 10 msec. is available by selecting Fast Response. Fast Response is especially useful for recording in Real Time and for recording flams manually. We recommend leaving your DMX set for Normal Response at other times.
14 BAR NUM ON	Display Bar On/Off:
14 BAR NUM OFF	Turns bar numbers on or off while playing.
15 DISP CLIK ON	Display Click On/Off:
15 DISP CLIK OFF	Turns on and off the flashing dot in the display that is a visual echo of the click.
16 CLICK ON ONE	Click On One/Steady Click:
16 STEADY CLICK	This selects between two modes of click. Click On One is the normal mode where there is always a click on the first beat of a sequence. Sometimes this mode causes the click to be uneven. For example: One bar of 7/8 with a 1/4 note click. Try it! Now select Steady Click mode, and the click will function like a traditional metronome and will not restart on the down beat.
17 SET PGMD CLIK	Set Programmed Click: Holding down any combination of drums firsts then <u>pressing RECORD</u> will cause a Click output in play, but only when that combination of drums occurs on the same beat. This allows the click to be used as a programmable trigger output. The normal steady metronome click will still be given in record mode. The click can be disabled entirely by hitting <u>RECORD while holding ERASE</u> . Note that this overrides all other click enables. Click can be set to normal by hitting <u>RECORD while holding no drums</u> . Note: all this affects the rear panel <u>CLICK OUT</u> as well as the mixed metronome.
18 SET DRUM OUTS	Set Drum Outputs: Hitting a drum button while holding RECORD enables the output for that drum. Hitting a drum button while holding ERASE disables that drum. Hitting RECORD while holding ERASE <u>enables all drums. Note that these drums can still be recorded and erased; only the audio is disabled.</u>
19 SET EXT TRIGS	Set External Triggers: Playing an external trigger while holding a drum button assigns that drum to that trigger. Playing a trigger while holding ERASE disables the trigger. Note: Since this particular Edit Parameter does not allow triggers to be played accurately in real time, only use this mode to set the triggers, not to play them.

DISPLAY READS	PARAMETER DESCRIPTION:
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 Note: Parameters 20 through 23 have effect only in Play mode. Parameter 21 ("Set Swing/Flam") must be set before either 20 or 22 has any effect.

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|-------------------|--|
| 20 PLY SWING OFF  | Play Swing On/Off:   |
| 20 PLY SWING ON   | When on, all selected drums which fall on alternating quantize points are swung by the current swing amount. This just means that sequences which were recorded without swing can be played back with swing. For example, if you record a sequence quantized to 1/32nds, then set the quantizing to 1/16ths, drums which fall on every other 1/16th will be swung. |
| 21 SET SWING/FLAM | Select Swing/Flam Drums:<br>Selects which drums are to be swung or flammed in Play mode. Hitting a drum while holding RECORD selects that drum. Hitting a drum while holding ERASE deselects that drum. Holding ERASE and hitting RECORD deselects all drums so that no drums are swung or flammed in Play.  |
| 22 PLAY FLAM OFF  | Play Flam On/Off:  |
| 22 PLAY FLAM ON   | When on and play swing is off, all selected drums are flammed (repeated shortly after they are played). When play swing is on, the selected notes are delayed by the swing amount, and the undelayed versions of those drums are played as well. Again, try it!  |
| 23 LONG FLAM ON   | Long Flam On/Off:  |
| 23 LONG FLAM OFF  | When on, played and recorded flams will be 1/96 notes. When off, flams are 1/192 notes.  |

NOTE: The phrase "any combination of drums" used in this document means any combination of up to 8 drums with a limit of one drum per voice. Thus pressing KICK 2 and KICK 3 has the same effect as only pressing KICK 3 (on all columns of drum buttons, the lowest button pressed has priority)< Note that Swing/Flam Drums and Set Drum Outs work for individual drums, not just drum voices.

Table 1: External Clocks and Sync-to-Tape

Desired Timing Source	External Clock Input Connected	Sync-to-Tape Input Connected	Edit parameter SYNC IN	settings: AUTO START
Internal Clock	NO <sup>2</sup>	NO	NO SYNC INPUT	AUTO START OFF
Internal Clock	NO <sup>2</sup>	YES	SYNC IN OFF	AUTO START OFF
Sync-To-Tape	NO <sup>3</sup>	YES	SYNC IN ON	AUTO START OFF
Sync-To-Tape (w/Auto-start)	NO <sup>3</sup>	YES	AUTO/SYNC ON	AUTO START ON
External Clock	YES	NO	NO SYNC INPUT	AUTO START OFF
External Clock (w/Auto-start)	YES	NO	NO SYNC INPUT	AUTO START ON
External Clock	YES	YES	SYNC IN OFF	AUTO START OFF
External Clock <sup>3</sup> (w/Auto-start)	YES	YES	AUTO/SYNC ON <sup>5</sup>	AUTO START ON

## Notes:

1. The "Internal Clock" is the one that is controlled by the TEMPO key.
2. Any plug present in EXTERNAL CLOCK overrides the internal clock.
3. Any plug present in EXTERNAL CLOCK adds to any Sync input.
4. Plugging in a Sync cable turns SYNC IN ON.
5. Enabling Auto-Start with a Sync cable plugged in turns AUTO/SYNC ON. If Auto-Start is on, plugging in a Sync cable turns AUTO/SYNC ON.
6. Unplugging the Sync cable turns the sync input off ("NO SYNC INPUT").
7. If Auto-Start is enabled while in Step mode, external clock pulses will put the machine into Running Step mode, but the display will not advance except when arrow buttons are pressed.
8. The cassette cords should be disconnected when using Sync-to-tape.
9. Sync In and Sync Out cables should not be plugged in simultaneously to prevent feedback.
10. Sync tones should not be recorded while Auto-Start is on. This prevents glitches from appearing before the desired start of the sequence or song on playback.

## KEYPAD:

- Three digits need not always be entered to select a given sequence or song. Digits entered within one second of each other are assumed to be part of the same number. This means that sequence 7 can be selected by typing only "7". Sequence 17 can be selected by typing "17", sequence 117 can be selected by typing "117" if each digit is entered within one second of the previous one. Leading zeros can be entered if desired, but are suppressed on the display.
- It is possible to use the KEYPAD to switch between sequences and songs during play. Here are some examples:
  - Suppose you're playing sequence 0. Typing "10" will cause the DMX to play sequence 10 after completing sequence 0. The display will read "SEQ 0 / 10" to show that sequence 0 is currently playing and that sequence 10 will be played next.
  - If you're playing sequence 0 and you press the SONG key followed by "10", the DMX will, after completing sequence 0, enter song mode and play song 10. The display will read "0 / SONG 10" to show that sequence 0 is currently playing and that song 10 will play next.
  - While playing song 0, typing "10" will cause the DMX to play song 10 after completing song 0. During the first beat of each part, the current part number and sequence will be displayed. During the rest of the sequence, the display will read "SONG 0 / 10" to show that song 0 is currently playing and that song 10 will be played next.
  - If you're playing song 0, pressing the SONG key followed by "10" the DMX will, after completing the current part of song 0, exit the song mode and play sequence 10. The display will read "0 / SEQ 10" to show that the song 0 is currently playing and that sequence 10 is to be played next.

## RECORD:

- Holding RECORD while in Select Sequence or Select Song displays the percentage of memory available to record the current sequence. The percentage of memory available at a given time varies depending on the length of the sequence to be recorded.
- Holding RECORD and pressing TEMPO while in Select Sequence enters Cue Tempo mode as described below under Tempo.
- In select sequence mode, holding RECORD and pressing LENGTH allows the length to be set on the fly: the point in the sequence at which the STOP button is pressed defines the length of the sequence (see LENGTH).
- Holding RECORD and pressing PLAY while recording a sequence "Punches Out" into Play mode. Once you have "Punched Out" of a sequence, if you have not changed sequences, you can "Punch In" by again holding RECORD and pressing PLAY. You can punch in any time, but you won't enter record mode again until the sequence loops back to the beginning.
- Holding the RECORD key and hitting a drum key while recording in 1/96 or 1/192 quantization records a flam. In 1/192 quantization the length of the flam is selectable (see Long Flam On/Off above).

## ERASE:

- While recording a sequence, holding ERASE and any combination of drums buttons will erase those drums from the sequence while the buttons are held. This replaces the "erase-on-the-fly" mode of the Revision 2 DMX. Holding ERASE and RECORD while recording a sequence will erase all drums while the buttons are held. The erased drums will not sound.
- In Stop, holding ERASE while pressing RECORD once erases all notes from the sequence, but retains length, tempo, and time signature information. At this point you may re-program the sequence, or use this feature to program blank spaces into songs. Erasing the sequence a second time re-sets the sequence to the standard default condition of 2 bars, 80 beats per minute, 4/4 time signature. The display will verify that this has happened by reading: "SEQ XXX DELETED", and will completely remove the sequence from memory.
- In Song mode, a song is erased by holding ERASE and pressing RECORD (as in sequence mode).
- To ERASE EVERYTHING, hold ERASE and press both < > buttons. The display will show the message "PRESS < > TO EMPTY". Again, press both < > buttons. This will clear all of memory, but will have no effect on the EDIT PARAMETERS.
- Failsafe Erase Mode: Under certain circumstances many computer based products may lock up. In particular, if the messages "INTERNAL ERROR X" and then "PRESS < > TO EMPTY" appear unexpectedly, the DMX has gotten lost. In this instance clearing memory will solve the lock up problem, but you will lose all your work too! If this condition ever happens, we STRONGLY ADVISE recording your memory on a cassette. Immediately enable cassette mode on the back panel and follow the directions in your DMX Owners Manual if you have any questions. When your memory is safely on cassette, proceed as follows: Press any key and the DMX will attempt to proceed. It will usually succeed, but will occasionally lock up once again. If it locks up again, even turning the power off and then on again may not help.

WHEN ALL ELSE FAILS, TURN THE POWER OFF. THEN, WHILE HOLDING DOWN THE ERASE, KEY, TURN THE POWER ON AGAIN. THIS WILL CLEAR ALL OF MEMORY AND RESET THE EDIT PARAMETERS TO THEIR "DEFAULT VALUES" THE MEMORY PROTECT SWITCH IS IGNORED.



## TEMPO:

- Tempo can be displayed in Beats/Minute or Frames/Beat, selectable in the EDIT PARAMETER mode.
- Frames/Second can be changed over a range of 1 to 99 by pressing TEMPO while in EDIT PARAMETER mode. This allows the Frames/Beat indication to be accurate for a wide variety of applications. For example, 24 Frames/Second for film and 30 Frames/Second for television in North America and Japan; or 25 Frames/Second for film and television in most of the rest of the world. Changing the Frames/Second does not change the tempo, but only the display of the tempo.
- While stopped, Tempo also displays length of current sequence or song in minutes and seconds.
- While playing or recording, Tempo also displays cumulative running time in minutes and seconds followed by an exclamation point "!" if the running time is not exactly accurate. This inaccuracy occurs when the current tempo is not equivalent to an even number of 1/192nd beats per second. Even with the "!" it is close. Note that the cumulative running time will not be accurate when clocking from EXT CLOCK or SYNC IN.
- Hitting TEMPO while holding RECORD in Stop mode enters Cue Tempo mode: Tempo may be set by pressing the STEP button or playing any external trigger in quarter notes at the desired speed. The tempo will be set to match that rate. While in Cue Tempo, the TEMPO key will exit to Stop, or the PLAY and RECORD keys may be used to enter Play or Record modes (PLAY key goes to play, PLAY+RECORD goes into record).

## LENGTH:

- In Sequence mode, length is displayed in bars. To change the length of the current sequence press LENGTH. Then, using the arrow buttons or the number keys, choose the new length. The new length will only be entered in memory if the LENGTH key is pressed again. If any other key is pressed, the length will not change.
- In Song mode, length is displayed in parts.
- Maximum length of a sequence is 5000 bars.
- Maximum length of a song is 254 parts.
- Length-on-the-Fly: Holding RECORD and pressing LENGTH accesses Length-on-the-Fly mode. The display reads "STOP SETS LENGTH". The DMX goes into record but does not loop, waiting for the end point of the sequence to be set by pressing STOP. All functions that can be accessed in regular Record mode are available including Step mode, which is useful in setting a particular length. No matter what mode is accessed after Length-on-the-Fly, the length of the sequence is not set until STOP is pressed. The ending is quantized according to the current quantizing amount. Neither click nor the quantizing value may be set to 1/192 while in Length-on-the-Fly.

## SIGNATURE:

- The time signature can be changed whether a sequence is empty or not. Changing the time signature of an empty sequence will not change the number of bars of the sequence, but will change the actual length of the sequence. Thus, if you change the signature of an empty sequence that is four bars long it will stay four bars long. However, changing the time signature of a sequence which contains some drum events, does not change what you have recorded, it only causes the length to be redefined in terms of the new time signature. For example, if a sequence of 5 bars of 4/4 (12 quarter notes) is changed to be 3/4, the length will be recalculated to become 4 bars of 3/4 (12 quarter notes).
- Click value may be any of 1/2, 1/3, 1/4, 1/6, 1/8, 1/12, 1/16, 1/24, 1/32, 1/48, 1/64, 1/96, 1/192 (real time).
- Beat value has same range as click value.
- Beats/Bar may be any value from 1 through 99.

## QUANTIZE:

- The quantize level can be set at to any value given above for click value (1/192 = quantize off).

## SWING:

- May be used while in any quantizing level from 1/2 to 1/48.
- Number of Swing steps depends on quantize level. Larger quantizing steps allows more levels of swing.
- Swing is reset to 50% whenever the quantize level is changed.
- Swing is also available in play (see EDIT PARAMETERS).

## STEP:

- Advances through the current sequence or song by increments which are the same as the quantization value. If the quantization is off, this amounts to advancing by 1/192 note increments. Use either arrow key to advance to the next beat of the seq. Use both arrows to advance rapidly through the sequence -- a trick which can be used to "fast forward" in Running Step mode (see below).
- To record or erase in Step mode, STEP must be entered from Record Sequence or Select Sequence.
- Pressing STEP enters Step mode and plays the first step. Any combination of drums can recorded on the just-played step by pressing the desired buttons, or erased by holding ERASE while pressing the desired buttons. Either arrow button advances to the next step. Quantize can be entered and changed from Step mode. Changing the quantize value and pressing quantize again will leave you on the same step, but the display will reflect the new quantize value.
- Running Step Mode: This is a variation of the regular Step mode. While in Sequence mode (display reads "SELECT SEQ XXX"), press STEP to enter Step mode, then hold RECORD and press PLAY twice. The sequence will restart and the DMX will now be in Record mode, but the display will show the steps as they are played in real time. Pressing STEP "stops the clock" at the current step, and allows all normal step mode functions to resume. Pressing STEP again will continue the Running Step mode. Pressing STOP will return to Sequence mode.

## STEP: (continued)

- Digital Splicing: The following operations may only be used from Step mode when you have not entered Step from Play mode.
- While holding ERASE, press STEP to completely remove the step after the current one from the sequence, making the sequence one step shorter in length.
- While holding RECORD, press STEP to insert a one beat rest after the current step. You will not hear this rest until the next time through the sequence.
- While holding ERASE, press LENGTH to delete everything after the current step. The current step is now the last beat of the sequence. The DMX then automatically advances you to the first step of the sequence.

## COPY:

- Any sequence may be copied or appended to any sequence.
- Any song may be copied or appended to any song using the same procedures used for sequences.

## SONG:

- Song Tempo: While stopped in song mode, TEMPO displays the length of the current song in minutes and seconds. If Programmed Tempo is ON, the time for each sequence in the song is calculated at its programmed tempo. If Programmed Tempo is OFF, the time of the song is calculated at the current tempo. Note: Changing the tempo of songs requires the computer to do lengthy calculations. For long songs, this may slow the keyboard response until the calculations are completed. Also, the song tempo may not be changed while in Manual Tempo (see EDIT PARAMETERS), although the time display will be accurate.
- Song Edit: Press EDIT while in Select Song mode to enter Song Edit mode which is used to create new songs as well as restructuring existing songs. The arrow buttons step through the parts, looping around to the beginning after the last part.
  - Pressing number keys selects the sequence to be inserted. Pressing RECORD inserts that sequence after the current part, or creates a song with that sequence as its only part if the song is currently empty.
  - To change a part, press COPY to display the part to be changed, pressing any numbers selects the replacement sequence. Pressing COPY again executes the replacement.
  - Holding ERASE and pressing RECORD erases the current part.
  - To go immediately to a particular part of a song, press LENGTH. Then enter the desired part number and press LENGTH again. If you have specified a part that exists in the song, that part is selected.
  - The PLAY button starts playing at the current part.

## Song: (continued)

- Record Song: Holding RECORD and pressing PLAY goes to Record Song mode which plays the current sequence and then inserts it into the song. While the current sequence is playing, the next sequence to be played can be selected so that a song can be created by merely playing the sequences in the desired order. When you enter Record Song the first sequence inserted is the last sequence you have accessed. If the song is empty, this sequence will be inserted as the first part of the song. Otherwise, the last part of the song will be played as a lead-in and the "next" sequence will be inserted after the end of the song. If you enter from Edit Song mode, the current part will be played as a lead-in, and new parts will be inserted after that.
- Step mode advances through the song by the quantization value. Step can be accessed from Stop or Play, but not from Record Song.
- When stopped, the EDIT key allows song editing. While running, the EDIT key selects EDIT PARAMETERS.
- The maximum length of a song is 254 parts.
- While a song is playing, another song or sequence can be selected to be played when the current song has finished playing (see KEYPAD). Songs can also loop if the SONG LOOP switch is turned on (see EDIT PARAMETERS).

## CASSETTE INTERFACE:

- Play and check can detect Revision 2 (2000 notes) cassettes automatically, but individual sequences and songs can only be read from Revision 3 cassettes. When Revision 2 data is read successfully by the cassette interface, display reads "REV 2 -> REV 3". The cassette interface always writes data to tape in the Revision 3 format, so Revision 2 data can be converted to Revision 3 data by loading it in the DMX, then re-recording it onto the cassette. This will then allow you to read individual sequences and songs. Note that a Revision 2 DMX cannot read Revision 3 tapes.
- Load a Single Sequence by holding TEMPO then pressing CASSETTE PLAY (the EDIT key). The DMX will display "COPY FROM SEQ XXX" at which point you can enter the desired sequence to be loaded from tape (much like copying a sequence). Press TEMPO again, and the display will change to read "TO SEQ XXX" and you can enter the desired location in memory for the sequence to go. Press TEMPO a third time and the display will change to read "START DATA TAPE".
- Load a Single Song by holding SIGNATURE then pressing CASSETTE PLAY. The DMX will display "COPY FROM SONG XX" at which point you can enter the desired song to be loaded from tape (much like copying a sequence). Press SIGNATURE again, and the display will change to read "TO SONG XX" and you can enter the desired location in memory for the song to go. Press SIGNATURE a third time and the display will change to read "START DATA TAPE". NOTE: LOADING A SONG LOADS ONLY THE LIST OF SEQUENCES CONTAINED WITHIN THE SONG, NOT THE ACTUAL SEQUENCE DATA.

## Cassette Interface: (continued)

- Inverted playback is still selected with the "0" key.
- The stop key now always cancels any cassette function in progress, but when the leader is detected, memory is cleared to make way for incoming data.
- When data is done playing, either "DATA COMPLETE" or the count of errors detected is displayed. An error will usually result in a single sequence or song being lost, but will occasionally have more far reaching effects. Errors involving the ID of a given song or sequence results in immediate abortion and the message "BAD TAPE ID". The cassette interface will try to get as much as it can from the tape, but 10 errors aborts it immediately.
- The displays used in cassette mode are now similar to those used in the DSX. In particular, the message "START DATA TAPE" will appear until the tape leader tone is detected.

## BACK PANEL: (see also under EDIT PARAMETERS above)

- NEXT Footswitch:
  - Pressing the NEXT footswitch while playing a song causes the DMX to vamp on the current sequence until the footswitch is pressed again. The message "VAMPING PART XX" will appear in Play Song mode except during the first beat of each part when the part and sequence number is displayed.
  - Pressing the NEXT footswitch while in Select Sequence or Select Song mode advances the current sequence or song number.
  - In Play Sequence mode, if a new sequence has been selected, but not yet begun (e.g. the display reads "SEQ 5 / 6"), the NEXT footswitch will immediately start the next sequence without waiting for the current one to finish.
- START Footswitch:
  - While playing a song, the START footswitch will stop the song in such a way that pressing the START footswitch again will continue it from the beat where it left off. When paused, the drum keys may be played, and the STOP key may be used to return to Select Song mode, but all other keys are ignored.
  - When in Select Sequence or Select Song mode, the START footswitch will play the sequence or song.
  - When in Play Sequence or Record Sequence, the START footswitch returns to Select Sequence mode.
- Each of the eight external Trigger Inputs can be programmed to trigger any of the 24 drum sounds. While in the "SET EXTERNAL TRIGGERS" section of the Edit Parameters, playing an external trigger while holding a drum key assigns that drum to that trigger. Note: CVs do not get re-assigned.
- The Click Output can be programmed to follow any combination of drums during play. While in the "SET PROGRAMMED CLICK" section of the edit parameters, while holding down the desired combination of drums, press RECORD. A click will then be generated only when that combination occurs on the same beat in the sequence being played.
- The Click Output and the Sync Input and Output can be turned on and off from the front panel.

**WHEW!!!**