



# digital delay

OPERATION MANUAL  
SUPPLEMENT

## DIGITAL DELAY OPERATIONS MANUAL SUPPLEMENT

August 1, 1978

### MULTIPLE MEMORY BOARDS

As mentioned in the Digital Delay Operation Manual, if the Digital Delay is equipped with more than one memory board the time delay for any chosen delay setting increases. A sticker placed on the front panel illustrates the increase in delay. The amount of delay for a given setting is the number of memory boards times the delay obtained with a stock (one board) unit.

Figure 1, on the following page, shows the front panel markings for 1, 2, 3, or 4 boards.

### FLANGING

When a Digital Delay is equipped with more than one memory board, the shortest delay range is not as short as a stock one board unit. For most applications this is not a problem. The shortest delay range in a Digital Delay with four memory boards is 1.3 msec., which is a good range for flanging. Special cases may call for a shorter delay range, however, as in flanging sounds having a large treble content such as cymbals. For these applications it is possible to achieve a shorter delay than is normally available by depressing the two left buttons simultaneously. This has the effect of an eleventh button to the left of the ten existing buttons. The delay range produced with the two leftmost buttons selected is equal to one-half the shortest range. With a four board Digital Delay and the last two buttons depressed the range would be one-half of 1.3, or approximately .63 msec.

There is a specific reason why an eleventh button is not available on the Digital Delay, and caution is advised when using the "two button" range. The Digital Delay uses a storage system requiring refreshing to insure that stored data remains intact. The two button, or eleventh, position

	1.3	2.5	5	10	20	40	80	160	320	640
4 boards	1.3	2.5	5	10	20	40	80	160	320	640
3 boards	.93	1.9	3.8	7.5	15	30	60	120	240	480
2 boards	.63	1.3	2.5	5	10	20	40	80	160	320
1 board (stock)	.31	.63	1.3	2.5	5	10	20	40	80	160

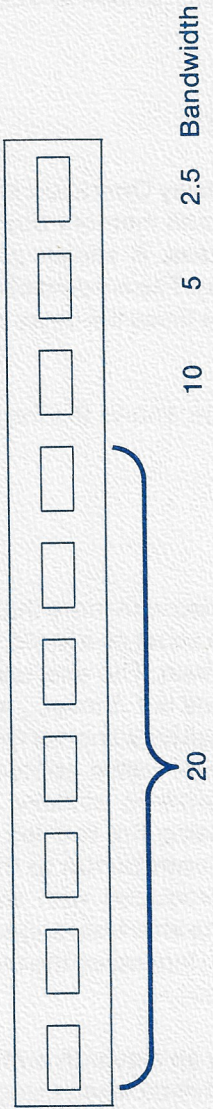


Figure 1

NOTE: At any range setting the Bandwidth remains the same regardless of the number of boards.

defeats some of this refreshing activity. The lack of refresh becomes apparent when the range position is changed from the two button position and unrefreshed memory is used, possibly creating loud sounds until more reasonable information is stored in memory. This can go unnoticed if the delay is bypassed by the foot-switch and one of the last four buttons on the right is selected for a time equal to the new delay length selected. Another method achieving the same result is to turn the Mix control counterclockwise to Dry and Regeneration counterclockwise to Off, and selecting one of the last four buttons as above.

#### DELAY RANGE SWITCHES (Additional Information)

The two button delay length setting mentioned previously is the only potentially useful multiple button position. Other multiple button combinations will only result in delay ranges that are already available with a single button or lower bandwidth short delays.

When all buttons are out it is equivalent to depressing the fourth button from the right (maximum delay with 20KHz bandwidth). No combinations of delay range buttons can harm the Digital Delay in any way. However, experimentation with multiple button positions is not recommended due to the loud sounds which may result when changing ranges.

#### FUSES

The Digital Delay is fused so that under all but the most extreme conditions the internal AC power fuse will not blow unless there is an internal failure to the Digital Delay. Should the internal fuse ever blow, it should be replaced with a ½ amp slow blow fuse for units operating on 110-120 VAC or ¼ amp slow blow fuse for units operating on 220-240 VAC. Under no circumstances should a higher rating be used.

If a proper fuse value is unavailable, a lower rating may be used until the proper fuse size is available.

UNITS AFTER DOMESTIC SERIAL NUMBER 13-001250 AND FOREIGN  
SERIAL NUMBER 13F-000220

An internal switch has been added to more effectively utilize the external bypass feature of the Digital Delay. This switch only affects the signal at the output when the unit is bypassed.

Normally, when the Digital Delay is bypassed the signal at the output is the signal at the input. This may be changed by the internal switch so that when the Digital Delay is bypassed no signal comes out. An application in which this may be useful is when it is used in the echo buss of a P.A. mixer. When used in the echo buss, dry-delay mixing may be done using the echo return level as a mix control with the Digital Delay Mix clockwise on "Delay." All other settings remain as they would for the same effect as when the Digital Delay is not used in echo buss. The effect may now be switched In and Out using the Delay Bypass footswitch rather than reducing the Echo Return level. Using the footswitch has the added advantage of also defeating regeneration when the Delay is bypassed. This is true in either position of the internal switch.

The regeneration is normally defeated when the Delay is bypassed regardless of the position of the internal switch.

1 2 3 4



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