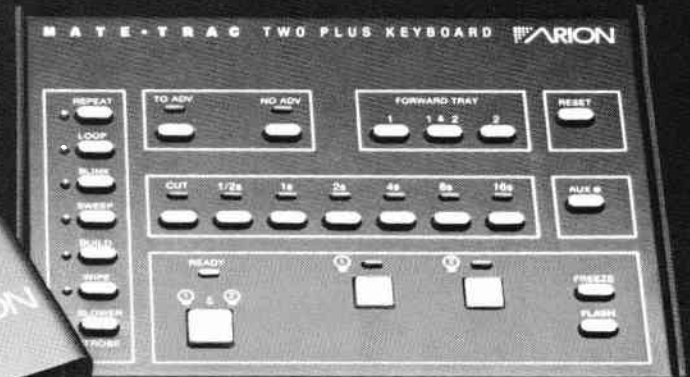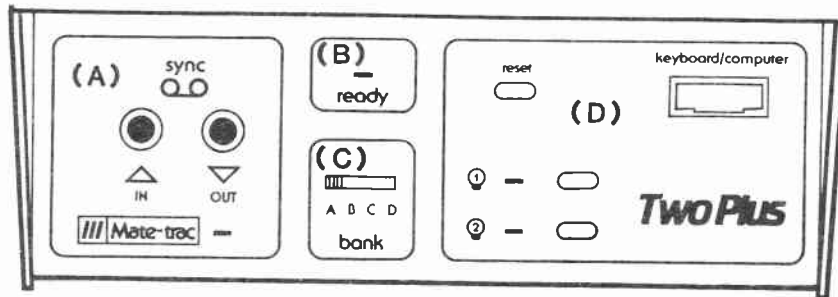# OWNER'S MANUAL

Deliver your message with the high impact of multi-image. One or two projectors and the TWO PLUS slide presentation system are all you need to excite, motivate and compel audiences to action. The TWO PLUS is the only two projector multi-image system that gives you nine pre-programmed effects, one touch operation and flawless performance reliability.

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TABLE OF CONTENTS

The front panel of the OMNI-MATE is arranged into four areas.

A] The first is the SYNC area. It contains two phone jacks labeled IN and OUT. They are used to send and receive the Mate-Trac signal. They are also used for daisy-chaining OMNI-MATES together (see page 7).

   Also in the SYNC area is a green indicator labeled Mate-Trac. When it is lit, this "confidence" indicator assures you that the Mate-Trac signal is being received loud and clear.

B] Next is the READY area. When lit, this amber indicator tells you that the projectors have completed cycling and are at rest.

C] Directly below is the BANK area. The BANK switch is used when daisy-chaining OMNI-MATES together (see page 7).

D] First, this area contains a RESET key which is used for resetting the trays to the starting position.

   The Lamp Keys (represented by   ) are used to turn on and off the projector lamps for focus and alignment purposes.

   The KEYBOARD/COMPUTER receptacle is used for interfacing to the TWO PLUS Keyboard. This keyboard turns your OMNI-MATE into a real-time programmer for two projectors.

   This receptacle also accommodates the Arion Computer-Mate interface card. The optional Computer-Mate software incorporates all the essential real-time programming features of the TWO PLUS KEYBOARD in leisure time. Plus you can store your programs on diskette.
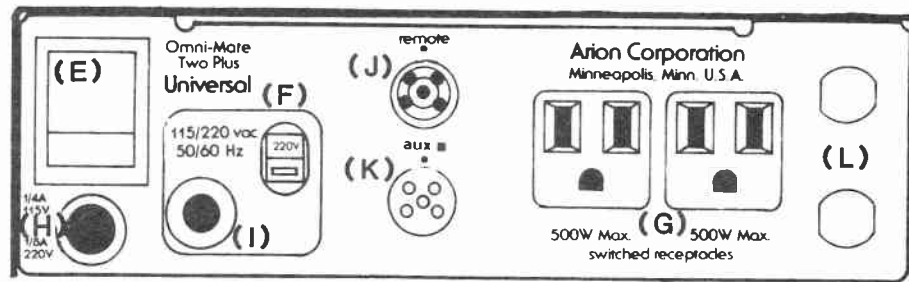
The rear panel of the OMNI-MATE is very simple and straight forward.

E] First is the POWER switch. When this switch is in the ON position, the amber indicator in the READY area is lit.

F] The voltage switch must be set to the correct position for proper operation. Check local power ratings then set the voltage switch accordingly.

G] For your convenience there are two switched AC outlets which are used for providing power to the projectors. These outlets also eliminate any power "phasing" problems.

H] The fuse for the OMNI-MATE protects the internal circuitry. For proper protection use only those fuse ratings printed on the rear panel.

I] The main power cord supplies power for the OMNI-MATE electronics and the projectors. It is for this reason that the maximum wattage of the projector lamps be limited to 500 watts each.

For projector lamps over 500 watts each see page 4.

J] The REMOTE Outlet facilitates standard Kodak EC Remote Controls for simple dissolve or mixed live and canned operation.

K] The Auxiliary Device Connector is used for controlling an auxiliary device.

L] There are two cords labeled 1 and 2. It is through these cords that the OMNI-MATE controls the projector lamp fading and tray movement. These are referred to as the control cords.

Projectors

The OMNI-MATE is compatible with most Kodak Ektagraphic, Carousel, and other
Slide Projectors that have a seven-contact remote-accessory receptacle. The
OMNI-MATE can control projectors equipped with up to 500-watt incandescent
lamps, when the projector power cords are plugged into the AC receptacles on
the rear panel.

With the projector power cords connected directly to a power source, the
OMNI-MATE can control projectors with up to 1200-watt incandescent lamps. Use
the following connection diagram for this application:

Junction box
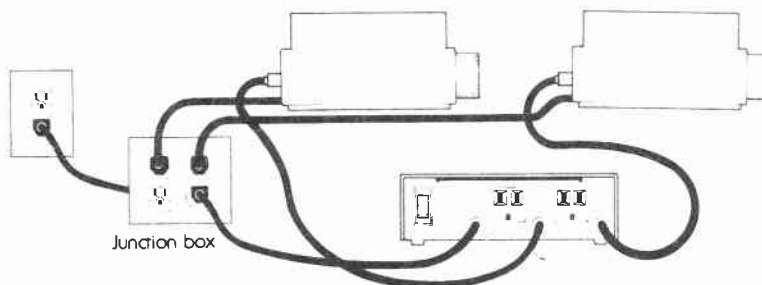
Trays

The OMNI-MATE is designed to work with slide trays holding a maximum of 80
slides. (These 80-slide trays are the popular choice for multi-image
presentations.) While 140 slide trays will advance properly, the Reset feature
will not operate correctly beyond the 40th tray position.

Tape Recorders

The OMNI-MATE can be used in conjunction with virtually any make or model tape
recorder. Either cassette, reel-to-reel or cartridge, $1/2$ or $1/4$ track con-
figuration machines may be used.

The Mate-Trac frequency range is 1 Khz to 2 Khz allowing high speed duplication
with the use of noise reduction features of many tape machines (such as Dolby*
Noise Reduction circuitry).

*Dolby is a trademark of Dolby Laboratories
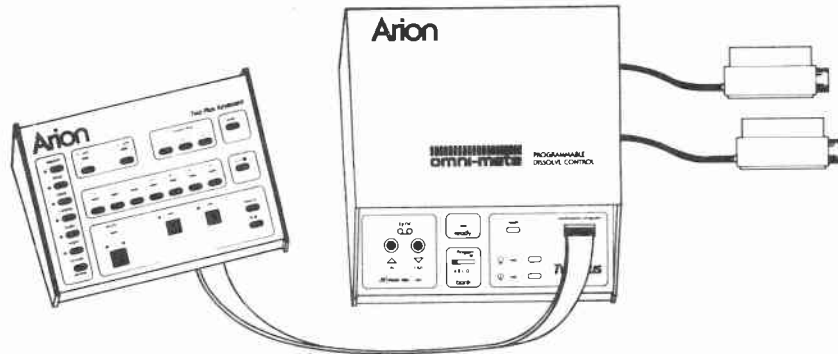
The connection for the OMNI-MATE to projectors is quick and easy.

1] Check that the Voltage-Selector Switch on the rear panel is set for the appropriate voltage: either "115 V" or "220 V". The OMNI-MATE operates on either 50 or 60 Hz power without any additional adjustment. (Be sure that the proper fuse is installed according to the ratings printed on the rear panel.

2] Make sure that the main power switch is off then, plug the main power cord into an AC grounded receptacle.

3] Plug the projector power cords into the switched ac outlets on the rear panel of the OMNI-MATE. (If using projectors with lamps greater than 500 watts each see page 4.)

4] Plug the control cords into the corresponding remote-accessory receptacles of each projector.

5] Move the power-selector switches of the projectors to FAN.

6] Set the BANK switch to the PROGRAM position.

7] Plug the Two Plus Keyboard ribbon cord into the receptacle labeled KEYBOARD/COMPUTER on the front panel of the Two Plus.

8] Move the POWER switch on the rear panel of the OMNI-MATE to the "ON" position.

You will notice that upon turning the power on, the red Lamp Indicators light, then two seconds later turn off. During this time, the OMNI-MATE checks to see that you have the projectors connected properly. If all the red Lamp Indicators do not light upon turning the power on the the OMNI-MATE, go through the connection steps once more and check all connections.

If all connections are proper and the red Lamp Indicators still fail to light, replace the projector whose indicator does not light.

The following is suggested procedure for focusing and aligning projectors.

1] Turn projector lamp number one on by pressing the number one Lamp key.
   The number one Lamp Indicator and the number one projector lamp turn on.

2] Focus the image on the image area.

3] Turn projector lamp number one off by pressing the Lamp key again.

4] Repeat steps 1-3 for each projector.

5] Align all the focused images on the center of the image area.

6] To turn all projector lamps off press RESET.

7] Set the trays to the starting position.

IMPORTANT

From this point on DO NOT manually move the trays. The OMNI-MATE automatically keeps the trays in synchronization relative to their starting positions. The only instance which you need to manually reset the trays is if power is lost to the OMNI-MATE during a show.

Follow the connection instructions found on page 5 for a complete procedure for connection to projectors. In addition do the following:

  1] Connect a shielded audio cable from the OMNI-MATE SYNC IN jack to the output channel of the tape recorder which contains Mate-Trac.

  2] Start the tape and adjust the Mate-Trac level until the green MATE-TRAC indicator is lighted (about 0db).

A steady Mate-Trac light indicates that the Mate-Trac signal is being received loud and clear. Absence of a steady Mate-Trac light indicates poor signal level and/or quality.
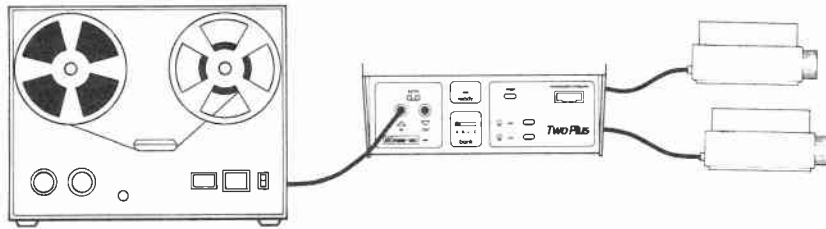
IMPORTANT

Form this point on DO NOT manually move the trays. The OMNI-MATE automatically keeps the trays in synchronization relative to their starting positions. The only instance which you need to manually reset the trays is if power is lost to the OMNI-MATE.

DAISY CHAINING

Up to four OMNI-MATES may be daisy-chained together. This is valid for shows which have been programmed with an ARION memory programmer. Daisy-chaining is done with shielded audio cable. The procedure is as follows:

  1] Connect a cable from the output channel of the tape recorder which contains MATE-TRAC to the SYNC IN of the first OMNI-MATE.
  2] Set the Bank switch to "A".
  3] Connect a cable from the SYNC OUT jack of the first OMNI-MATE to the SYNC IN of the next.
  4] Set the Bank switch on the second OMNI-MATE to "B".
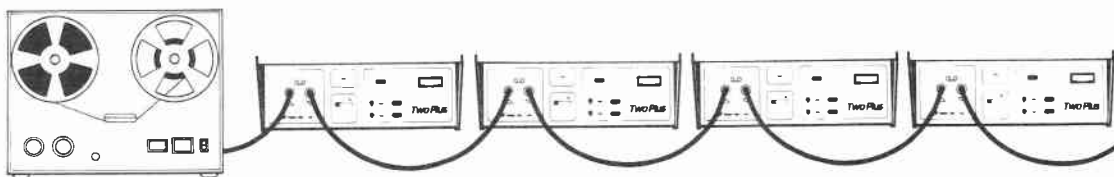
5] Repeat steps 3 and 4 for each additional OMNI-MATE,
setting each Bank switch to the subsequent letter (C & D).

KEYBOARD PROTECTION

The OMNI-MATE is an incredibly advanced unit taking advantage of tomorrow's
technology. This allows ARION to design the OMNI-MATE for simple fail-safe
operation. Your presentation is guarded by two powerful safeguards: Mate-Trac,
which keeps the trays in sync, and automatic keyboard protection.

Here is the way keyboard protection works:

Whenever the OMNI-MATE is receiving the Mate-Trac signal, the keyboard and Remote
Outlet are automatically disconnected. This protects your show from any curious
fingers.

The moment the OMNI-MATE stops receiving the Mate-Trac signal, the keyboard and
the Remote Outlet are automatically reconnected.

RESETTING A SHOW

To reset a show, first rewind the tape to the beginning. Press the RESET key to
move trays to the starting position.

Even after the power to the Omni-Mate has been interrupted,
whether by a blackout or simply someone accidentally switching
off the wrong circuit, the Mate-trac system makes it easy to
bring the slides and sound track back into synchronization.
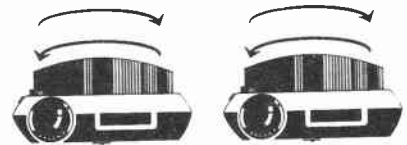
The power interruption means the tray-position memory has been
lost. So, to continue the show from this point, follow these
steps:

1] Stop the tape recorder but do not rewind the tape.

2] Press RESET.

3] Using either the forward button or SELECT control on the
slide projectors, turn both trays to their correct starting
positions.

4] Turn on the audio tape recorder and play the audiotape until
Mate-trac is received.
As the trays begin to move toward their correct positions, stop the
audiotape.

5] Wait until the trays reach their correct positions and stop cycling.

6] Then, resume playing the audiotape. The slides and sound track are
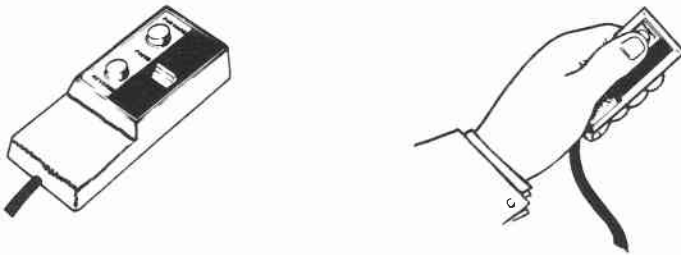now back in sync with each other.

REMOTE CONTROL

Standard Kodak EC Remote Controls can be connected to the REMOTE Outlet on the
rear panel of the OMNI-MATE. The forward button on the control will produce 1
second dissolves and the reverse button will produce a reverse dissolve. The
remote control cable may be extended up to 200 feet.

AUXILIARY DEVICE CONNECTOR

The Auxiliary Device Connector offers both normally open (NO) and normally
closed (NC) contacts. This connector makes it possible to control a wide
variety of equipment. You can start or stop a tape recorder, trigger a strobe
light, or use many other special-effects devices. The contacts of the Auxiliary
Connector are rated at a maximum current of 3 amperes and a maximum voltage of
30 volts AC.

Utilization of the Auxiliary Connector requires a cable which interconnects the
OMNI-MATE to the device being controlled. Use the following diagram to find the
proper connections for each application:

Pin 1: Normally closed
Pin 2: Common
Pin 3: No connection
Pin 4: No connection
Pin 5: Normally open
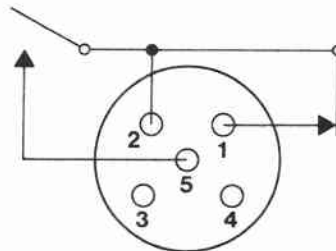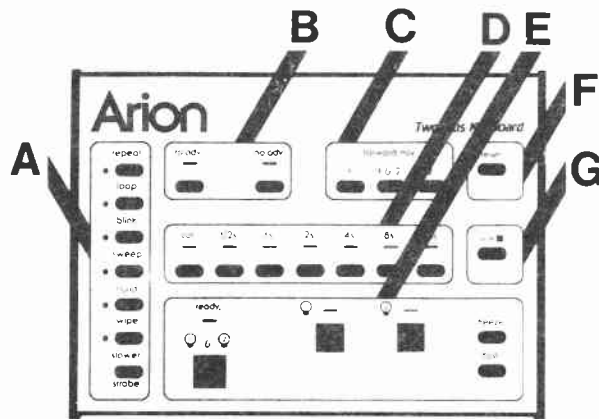
The ergonomic design of the Two Plus Keyboard allows simple implementation of even the most complex creations.

Here is a general description of the keys:

A] This first row of keys is referred to as the EFFECT keys. These keys are used to produce various patterns of lamp changes and animation effects. The speed and fade rate at which these effects perform is set when an effect is placed in motion. Both may be varied while the effect is in progress.

B] Next, the TO ADV and NO ADV keys are used to dictate whether the projector(s) whose lamp is fading off, will automatically move the tray forward by one position at the completion of the fade.

C] The FORWARD TRAY keys are used to move one or both trays forward by one position regardless of the state of the projector lamps (on or off).

D] The next row of keys is referred to as the RATE keys. These determine the rate at which the projector lamps fade on or off. The numbers represent time in seconds (the Cut rate is $1/4$ of a second).

E] These keys are referred to as the LAMP keys. They directly change the state of the projector lamps. These changes include fading on and off, starting and stopping of any effect, the holding lamps at partial intensity, etc.

F] The RESET key is used to turn off all lamps and return the trays to their starting positions. This also known as Homing the trays.

G] The AUX key is used to activate the relay in the Two Plus or Four Plus Programmable Dissolve Controls. Each push causes a momentary closure (0.5 seconds) of the auxiliary relay.

The following is a detailed description of each key operation of the Two Plus
Keyboard. Each section begins with a definition, the procedure to implement
the effect, and an example. Use the examples to familiarize yourself with the
keyboard. Press RESET before beginning any examples.

FADE

The word Fade relates to the increasing or decreasing intensity
of a lamp. The rate at which the lamp increases or decreases
in intensity is know as the Fade Rate.

The keys used to Fade are the #1, #2 and #1&2 keys. Fading may
be done at any of the seven rates which are, Cut (.25 second), $1/2$,
1, 2, 4, 8, and 16 seconds.
The procedure to Fade is:

      1] Select TO ADV or NO ADV (optional)
      2] Select a Rate key (optional)
      3] Press #1, #2 or #1&2 Lamp key
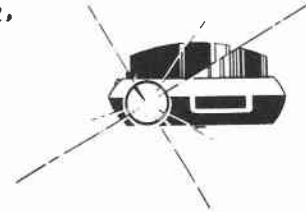
Note: To Fade with the #1&2 key both lamps must be either on or off. If either
      lamp is on, pressing the #1 & 2 key will render a dissolve effect.

EXAMPLE

      1] Select the 1 second Rate
      2] Press #1 Lamp key
         Lamp #1 fades on at a 1 second rate

      3] Select the 4 second Rate

      4] Press #1 Lamp key
         Lamp #1 fades off at a 4 second rate and the tray automatically
         advances.

      5] Press #1&2 Lamp key
         Both lamps fade on at a 4 second rate

      6] Select the $1/2$ second Rate
      7] Press #1&2 Lamp key
         Both lamps fade off at a $1/2$ second rate and the trays automatically
         advance.

Dissolve is the effect produced when one image is fading up while another is fading down.

The Two Plus Keyboard allows you to choose from 7 precision rates of dissolve. They are Cut (.25 second), $1/2$, 1, 2, 4, 8 and 16 seconds. The rate at which the images will dissolve is shown by a lighted indicator directly above a Rate key.

A prerequisite to performing a Dissolve is one of the two lamps must be already on. To perform a Dissolve:

       1]   Select TO ADV or NO ADV (optional)
       2]   Select a Rate key (optional)
       3]   Press #1&2 Lamp key
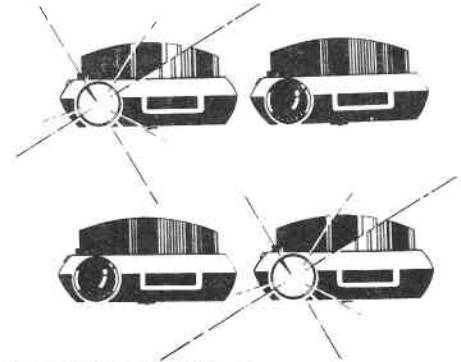
EXAMPLE

       1]   Select the 2 second Rate
       2]   Press #1 Lamp key
            Lamp #1 fades on at a 2 second

       3]   Select the $1/2$ second Rate
       4]   Press #1&2 Lamp key
            Lamp #1 dissolves to lamp #2; tray #1 automatically advances

       5]   Select the 4 second Rate
       6]   Press #1&2 Lamp key
            Lamp #2 dissolves to lamp #1; tray #2 automatically advances

       7]   Select the 1 second Rate
       8]   Press #1&2 Lamp key
            Lamp #1 dissolves to lamp #2; tray #1 automatically advances

       9]   Press #2 Lamp key
            Lamp #2 fades off then automatically advances

Superimposition is the effect produced when one image is projected over another.

The keys that allow you to superimpose are #1 and #2. Superimposing can be done at any of the seven rates. To produce a superimposition effect, one lamp must be already on. The procedure is as follows:

1] Select TO ADV or NO ADV (optional)
2] Select a Rate key (optional)
3] Press either #1 or #2 Lamp key
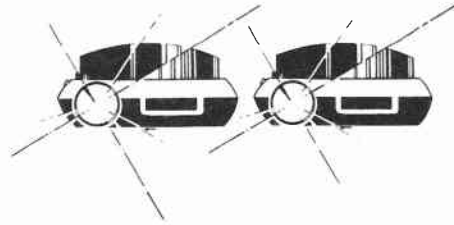
EXAMPLE

1] Select the 2 second Rate
2] Press #1 Lamp key
Lamp #1 fades on at a 2 second rate

3] Select the 1/2 second Rate
4] Press #2 Lamp key
Lamp #2 fades on at a 1/2 second rate, superimposing lamp #1

5] Select the 1 second Rate
6] Press #2 Lamp key
Lamp #2 fades off at a 1 second rate then the tray automatically advances

7] Press #2 Lamp key
Lamp #2 fades on at a 1 second rate

8] Press #1&2 Lamp key
Both lamps fade off then the trays automatically advance

Advance is the term given to the automatic forward movement of
the slide tray by one position at the completion of a lamp fading
off.

The Two Plus Keyboard gives you the option of enabling or
disabling the Advance feature. This is useful for super-
imposition and animation effects.
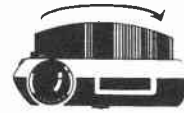
EXAMPLE

    1] Select the 4 second Rate
    2] Press #1 Lamp key
       Lamp #1 fades on at a 4 second rate

    3] Press #1 Lamp key
       Lamp #1 fades off and the tray automatically advances

    4] Wait for the Ready Indicator to light then press #1 Lamp key
       Lamp #1 fades on at a 4 second rate

    5] Select NO ADV
    6] Press #1 Lamp key
       Lamp #1 fades off but the tray does not advance

FORWARD TRAY

Forward is the movement of the projector tray by one or more
positions independent of lamp fading.

For some effects you may find it necessary to manipulate the
forward movement of the trays regardless if lamps are on or off.
The FORWARD keys allow you to selectively forward one or both
trays.

EXAMPLE

    1] Press FORWARD TRAY #1
       Tray #1 moves forward one position

2] Press FORWARD TRAY #2
   Tray #2 moves forward one position

3] Press FORWARD TRAY #1&2
   Both trays move forward one position

4] Press #1&2 Lamp key
   Both #1&2 lamps fade on

5] Press FORWARD TRAY #1
   Tray #1 moves forward one position with the lamp on

6] Press FORWARD TRAY #2
   Tray #2 moves forward one position with the lamp on

7] Press FORWARD TRAY #1&2
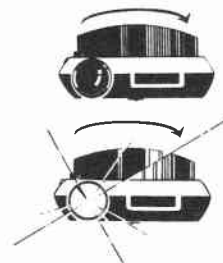   Trays #1 & #2 move forward one position with lamps on

8] Press #1&2 Lamp key
   Both #1&2 Lamps fade off then automatically advance

RESET

To RESET is to turn off all lamps and return the trays to the
starting positions. This is also commonly refered to as Homing.

The RESET control makes it very easy to get your slide trays back
to the beginning automatically after each showing. Just rewind
the audiotape to the beginning and press the RESET key. The
Omni-Mate will rotate the trays until they reach the correct
starting positions.

Normally, you will begin Omni-Mate programs with both trays at slide position 1.
However, no matter what starting position you use, the RESET key will return
both trays to that position.

FLASH

Flash Fade is the term given to the effect of a lamp increasing
or decreasing in intensity while the lamp is flashing on and off.

The Flash feature may be implemented with one or both lamps
either on or off. Both lamps flash in unison at a set rate of 5
times per second.
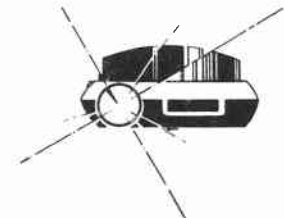
Any of the seven fade rates may be used to fade or dissolve with the flash feature in effect. Also, any of the special effects may be combined with the Flash feature. (Combination of different effects is explained in a later section.) The procedure for implementing the Flash feature is:

      1] Press FLASH to start flashing
      2] Press FLASH to stop flashing

EXAMPLE

      1] Press FLASH
         The flash feature is started, however with both lamps off

      2] Select the 4 second Rate
      3] Press #1 Lamp key
         Lamp #1 fades up flashing

      4] Press #1&2 Lamp key
         Lamp #1 dissolves to lamp #2 while both lamps are flashing

      5] Press #1 Lamp key
         Lamp #1 fades up

      6] Press FLASH
         Both lamps stop flashing

      7] Press #1&2 Lamp key
         Both lamps fade off then automatically advance

FREEZE

Freeze is the interruption of a fade or dissolve causing the lamps to hold at a selected intensity.

The FREEZE feature is used when either one or both lamps are in the process of fading or dissolving. Lamps may be frozen at any desired intensity. It is possible to FREEZE a lamp fading up or fading down.

      1] Begin a fade or dissolve
      2] Press FREEZE when lamp reaches desired intensity
      3] Select a fade rate (optional)
      4] Press FREEZE to continue fade or dissolve
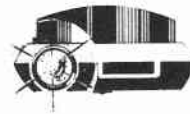
EXAMPLE

     1] Select the 8 second Rate
     2] Press #1 Lamp key; wait approximately 2 seconds then press FREEZE
         Lamp #1 begins to fade up at a 8 second rate. This freezes lamp #1.

     3] Select the 2 second rate
     4] Press FREEZE
         This allows the dissolve to continue in the same direction however,
         at a 2 second rate

     5] Select the 8 second Rate
     6] Press #1&2 Lamp key; wait approximately 2 seconds then press FREEZE
         This freezes the dissolve.

     7] Select the 1 second Rate
     8] Press #2 Lamp key
         Lamp #2 fades off and lamp #1 remains frozen

     8] Press FREEZE
         This allows lamp #1 to complete fading

REPEAT

Repeat and Loop are very similar. However, there are subtle
differences which justify having separate keys.
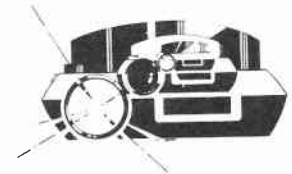
First, the Repeat feature operates in conjunction with the Ready
light. This means that there will be a change in the lamp status (on
or off) only when the projector is ready. Projector readiness is
deemed as lamps being fully on or off and tray cycling is complete.

Another unique capability of the Repeat feature is the ability to allow the
trays to advance to a new slide each time a lamp fades off. This is done by
selecting TO ADV. This is useful for creating an automatic dissolve effect.
Choosing NO ADV would result in the same visual being projected each time the
lamps fade on. The main point to remember with the Repeat feature is that lamp
changes occur only when the projector is "ready".

The procedure for implementing the Repeat feature is as follows:

     1] Select REPEAT
     2] Select a Rate key (optional)
     3] Press #1, #2, or #1 & 2 Lamp keys, twice, to place the
         effect in motion.

EXAMPLE

    1] Select the 1 second Rate

    2] Press #1 Lamp key
        Lamp #1 fades on at a 1 second rate

    3] Press REPEAT

    4] Press #1 & 2 Lamp key wait for the Ready indicator to light then
        press #1 & 2 again. This places an automatic dissolve effect in
        motion.

    5] Select the Cut Rate
        The Repeat feature continues, however the fade rate has been
        changed to Cut.

    6] Press STROBE
        Anytime an effect key indicator is lit steadily, the Strobe key is
        used to slow the speed of the effect. Press the Strobe key again.
        Each time it is pressed, the effect is slowed by 1/3.

    7] Press REPEAT
        Pressing Repeat when the Repeat indicator is lit causes the effect to
        increase speed by 1/3. Press Repeat again. Since the Repeat feature
        works in conjunction with the Ready indicator, the fastest speed of
        the effect is limited by the fade time of the lamp and/or the cycle
        time of the projector.

    8] Press #1 & 2 Lamp key
        This stops the Repeat feature ending with both lamps off.

LOOP

The Loop feature provides repetitive lamp changes without tray advances. This
feature does grant the option of an automatic advance at the conclusion of the
effect. This is done with the TO ADV and NO ADV keys. Selection of either TO
ADV or NO ADV has no effect while Loop is in motion. The procedure for imple-
menting the Loop feature is as follows:

    1] Select LOOP

    2] Select a rate key (optional)

    3] Press #1, #2 or #1&2 Lamp key to set
        the speed and, place the effect in motion
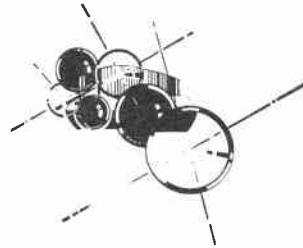
EXAMPLE

   1] Select LOOP

   2] Press #1 Lamp key twice to set the speed and, place the effect in
       motion.
       Lamp #1 starts flashing at a Cut rate.

   3] Press STROBE
       This causes the effect to slow down by 1/3. Continue to press
       Strobe to reduce the speed of the effect.

   4] Select the 1/2 second Rate
       The lamp continues to flash, however the lamp now fades at a 1/2
       second rate.

   5] Press LOOP
       Pressing Loop when the yellow indicator is lit causes the effect to
       increase in speed by 1/3. Continue to press Loop.

   6] Press #1 & 2 Lamp key
       This stopped the effect with both lamps off. You will also notice
       that the trays automatically advance. This may be defeated by
       selecting NO ADV prior to stopping the Loop effect.

STROBE

The Strobe feature allows the fading of lamps on and off with the single push of
a button. This is similar to the effect of a photographic strobe light. Each
time the Strobe feature is used, there are always two changes to the lamp status
(on and off).

The first change that takes place is preset to the Cut fade rate. The fade rate
of the second change can be selected from any of the seven rates available with
the Two Plus Keyboard.

The procedure for using the Strobe feature is as follows:

   1] Select a fade rate key (optional)
   2] Press and continue to hold down STROBE
   3] Press #1, #2, or #1&2 Lamp key
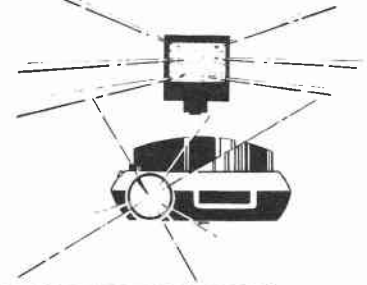
EXAMPLE

1] Select NO ADVANCE
2] Press and continue to hold down STROBE

3] Press #1 Lamp key
   Lamp #1 fades on then instantly fades off at a Cut rate.

4] Select the 2 second Rate
5] Press and continue to hold down STROBE
6] Press #1 Lamp key
   Lamp #1 fades on at a Cut rate then instantly begins to fade off
   at a 2 second rate.

7] Press #1 Lamp key
   Lamp #1 fades on at a 2 second rate

8] Press and continue to hold down STROBE
9] Press #1 Lamp key
   Lamp #1 fades off at a Cut rate then instantly begins to fade on
   a at 2 second rate (reverse strobe effect).

10] Press and continue to hold down STROBE

11] Press #1&2 lamp key
    Lamp #1 fades off and lamp #2 fades on at a Cut rate.
    Then, instantly Lamp #1 fades on and Lamp #2 fades off at a 2
    second rate.

12] Press and continue to hold down STROBE
13] Press #2 Lamp key.
    Lamp #2 fades on at a Cut rate superimposing over lamp #1. Lamp #2
    then instantly fades off at a 2 second rate.

14] Press #1 Lamp key
    Lamp #1 fades off at a 2 second rate

NOTE: When using the Strobe feature, the lamp fading off may be allowed to
       advance. This is done by selecting TO ADVANCE. The above example was
       done with NO ADVANCE.

EFFECT KEY INDICATORS

Adjacent to the row of Effect keys are yellow and red indicators; one indicator
per key (all except Strobe). The initial push of an Effect key results in the
rapid flashing of that indicator. This means that the effect is ready to be
placed in motion. When the effect is in motion the flashing indicator is lit
steadily.

Pressing any of the Lamp keys when an effect indicator is lit steadily, stops
the effect. The indicator begins flashing until the effect has completely
stopped.

Those effects that have the red indicators always involve both lamps. The Two
Plus Keyboard allows you to switch between these effects anytime any one is in
motion. Simply press the effect you want.

EXAMPLE   1] Select BLINK
                   The Blink indicator begins flashing

               2] Press #1&2 Lamp key twice
                   This places the Blink effect in motion. Also notice
                   that the Blink indicator is now lit steadily.

               3] Select SWEEP
                   The pattern changes to Sweep

               4] Select BUILD
                   The pattern changes to Build

               5] Select WIPE
                   The pattern changes to Wipe

               6] Press #1&2 Lamp key
                   This stops the effect; the indicator turns off and the lamps
                   fade off then automatically advance.

STARTING EFFECTS

The process of starting any effect is always the same. The keys that are used
for starting effects are the #1, #2 or #1&2 Lamp keys. The procedure for
starting an effect is as follows:

1] Select the effect
2] Select a fade rate (optional)
3] Press #1, #2 or #1&2 twice to set the speed and, place the effect in motion.

The Repeat and Loop effects can involve one or both lamps. Anytime the #1&2
Lamp key is used for starting an effect, that causes both lamps to be included
in the effect.

EXAMPLE
          1] Select NO ADVANCE
          2] Select LOOP
          3] Press #1 Lamp key twice to set the speed and, place the effect in
              motion.
              Lamp #1 begins flashing at a Cut rate

          4] Press #1&2 Lamp key
              Lamp #1 stops flashing

          5] Press #1 Lamp key
              Lamp #1 fades on at a Cut rate

          6] Select LOOP
          7] Press #1&2 Lamp key twice to set the speed of and, place the effect
              in motion. Now lamps #1 and #2 begin alternating. This is because
              the #1&2 lamp key was used to start the effect.

          8] Press #1&2 Lamp key
              Both lamps stop flashing

The Blink, Sweep, Build and Wipe effects are preset lamp change patterns. These effects always involve both lamps. These effects may be started by using any of the Lamp keys. The following shows the different possible ways of starting effects. (on or off).

Beginning with these lamps	This is the pattern that will be performed

BLINK	
No lamps on	1 on, 1 off, 2 on, 2 off
Lamp #1 on	1 off, 2 on, 2 off, 1 on
Lamp #2 on	2 off, 1 on, 1 off, 2 on
Both lamps on	1&2 off, 1 on, 1 off, 2 on, 2 off

SWEEP	
No lamps on	1 on, 1 off & 2 on, 2 off
Lamp #1 on	1 off & 2 on, 2 off
Lamp #2 on	2 off & 2 on, 1 off *reverse direction
Both lamps on	1&2 off, 1 on, 1 off & 2 on, 2 off

BUILD	
No lamps on	1 on, 2 on, 1&2 off
Lamp #1 on	2 on, 1&2 off, 1 on
Lamp #2 on	1 on, 1&2 off, 2 on *reverse direction

(Build cont.)

Both lamps on	

WIPE	
No lamps on	1 on, 2 on, 1 off, 2 off
Lamp #1 on	2 on, 1 off, 2 off, 1 on
Lamp #2 on	1 on, 2 off, 1 off, 2 on *reverse direction
Both lamps on	1 off, 2 off, 1 on, 2 on

STOPPING AN EFFECT

The procedure for stopping any one effect is always the same. The keys which
allow you to stop an effect are the #1, #2 and #1&2 Lamp keys. The Two Plus
Keyboard gives you the freedom to select which lamps are to be
left on or off at the completion of an effect.

1] To stop with both lamps off, press #1&2 Lamp key

2] To stop with only lamp #1 on, press #1 Lamp key

3] To stop with only lamp #2, on press #2 Lamp key

NOTE: You may stop an effect and select a lamp which was not
         involved in the effect. The #1&2 Lamp key stops an
         effect with both lamps off no matter if one or both
         lamps were involved in the effect.

SPEED VS FADE RATE

These two terms in the context of this manual refer to two completely different
things. First, the word Speed refers to the frequency of lamp changes. It does
not relate to the rate at which lamps fade on and off. Quite simply, speed is
the interval between lamp changes (in leisure-time multi-image programming this
is referred to as the "wait" time).

Fade Rate refers to the rate at which lamps increase and decrease in intensity.
The Two Plus Keyboard gives you the flexibility of mixing and matching the speed
and the fade rate of effects.

The speed at which the effect performs is set when it is placed into motion. After an effect is placed in motion the speed may be increased or decreased.

Pressing the effect key whose indicator is lit steadily, causes the effect to increase in speed by 1/3. Pressing the key repeatedly increases the speed to a maximum of 8 lamp changes per second.

Pressing the Strobe key when an effect indicator is lit steadily causes the effect to slow down by 1/3.

CHANGING THE FADE RATE OF EFFECTS

The Two Plus Keyboard offers you the capability of selecting the fade rate of an effect prior to placing it in motion. You also have the luxury of changing the fade rate once the effect is in motion.

A point to keep in mind is that changing the fade rate does not change the speed of the lamp changes.

EXAMPLE

1] Select the Cut Rate
2] Press #1 Lamp key
   Lamp #1 fades on at a Cut rate

3] Select LOOP
4] Press #1&2 Lamp key twice very quickly
   Both lamps begin alternating back and forth

5] Select the 1/2 second Rate
   Notice the lamp indicators on the keyboard. Now look at the projector lamps. What is happening is the speed of the lamps changes are occurring faster than the lamps can fade on and off (remember the fade rate is now 1/2 second).

6] Press STROBE
   Watch the lamps and continue to press Strobe. This decreases the speed of the effect which will allow the lamps fade on and off more completely.
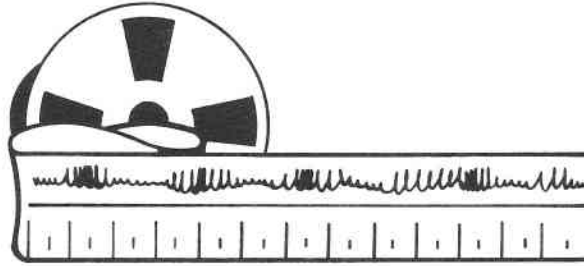
Mate-Trac™, ARION's unique digital signal, guarantees automatic self synchroni-
zation of slides to tape. With Mate-Trac you can start the tape at any point in
the show and the slide trays will automatically move to the proper positions.
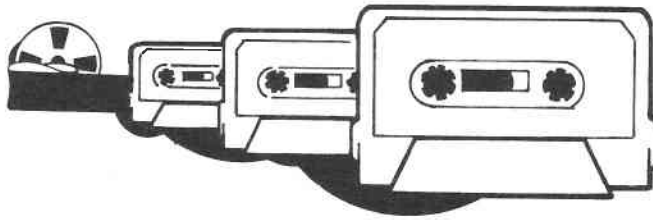
The Mate-Trac signal is recorded in real-time, on a channel separate from the
audio portion of the sound track.

Whether you rewind the tape to review a section or advance the tape to skip a
sequence, Mate-Trac will always keep the slides in sync. Even if you have to
relamp, unplug the sync cable, or even if the tape is stretched or damaged!

SHOW TAPE DUPLICATION

The Mate-trac frequency range is approximately 1000 to 2000 Hz. The signal
characteristics allow both the sound track and the Mate-Trac on program tapes to
be duplicated using two standard audiotape recorders (or one three head
machine), with appropriate ouput jacks from one connected to input jacks on the
other.

You may use high speed duplicators for duplicating your show tapes. The only
point to keep in mind is the machine you use has clean, properly aligned and
demagnitized tape heads. In testing, the Mate-Trac signal has withstood 15
generations of high speed duplication and still maintained reliability.*

*The high speed duplication test was done using duplicators acquired from audio
visual rental pools. This was done to best simulate the actual conditions under
which this type of equipment is used.
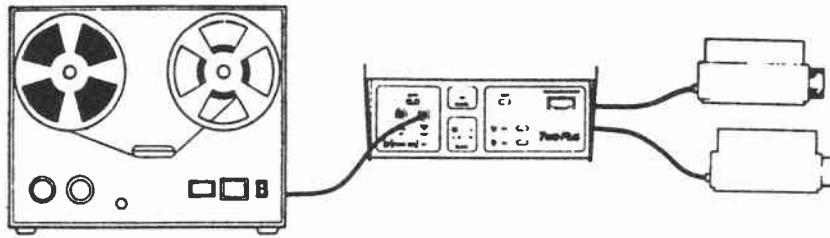
Follow the connection instructions found on page 5 for the complete procedure for connection to projectors. In addition do the following:

1] Connect a shielded audio cable from the OMNI-MATE SYNC OUT jack to the input channel of the tape recorder.

2] Set the ABCD selector switch to "Program".

3] Adjust the Mate-trac record level to about 0db on the tape recorder VU meter (or 0 VU).

4] Place the tape recorder into Record and press the keys on the keyboard to record the visual changes.

IMPORTANT

From this point on DO NOT manually move the trays. The OMNI-MATE automatically keeps the trays in synchronization relative to their starting positions. The only instance which you need to manually reset the trays is if power is lost to the OMNI-MATE.

EDITING MATE-TRAC

Just as you can edit the sound track, you can also edit the Mate-trac if you make a mistake or decide that you prefer a different effect.

1] Connect the dissolve control for playback operation using the "SYNC IN" jack.

2] Play the tape until it is just past the last correct command, then stop the tape.

3] Change the connection to the "SYNC OUT" jack to record the Mate-trac; or use two cables for "SYNC IN" and "SYNC OUT".

4] Turn on the tape recorder. Correct the command you wanted to change, and continue recording as planned

5] If you're changing a command in the middle of the tape, rather than at the end, also rerecord the next one after the one you corrected. Then stop the tape.

6] If you are using a recorder that does not permit recording each track separately, you will need to edit the sound track as well as the sync track.

If you could see projector commands on audio tape, they might look like this; (1 represents 1-second dissolve, 4 represents 4-second dissolve, C represents 1/4-second dissolve):

```
11111111111111114444444444444444444444CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
```

To change the 4-second rate to 2 seconds would look like this:
```
11111111111111112222222222222222222222CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
```
▲Stop tape   ▲Press   ▲ Press   ▲Stop
begin to record   2 second   cut   record

This is what you would see if the change WAS NOT made correctly:

```
11111111111111112222222222222222244444CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
```
▲ Stop tape   ▲ Press   ▲Stop
begin to record   2 second   record

NOTE: Not all of the 4-second rate was recorded over. This could cause image "popping."

You may record as many changes as you wish, provided you do not record over the portion that you do not want changed or alter the tray positions, by adding slides or forward commands.

NOTE: If there are rapid lamp changes occurring in your program, it is necessary to rewind the tape to a point just before these changes occur for the lamps and trays to "update".

Storyboard Programming

Like building a house or baking a cake, ya' gotta' have a plan. This is espe-
cially true in creating a show using the Two Plus Dissolver.

Since the idea of the show was undoubtedly yours, you can see the show in your
mind. You have seen tne slides. You have heard the audio track. It's the
storyboard programming sheets that tie it all together. It shows you what keys
to press to get the image on the screen.

The sample storyboard sheet is a guide. You may copy it and use it as is, or
you may change it to work best for you. It must however, contain the basic
information shown.

In the area under the VISUAL heading, put in whatever information that will
indicate what image is on the screen at that cue. Use sketches, stickmen, short
word descriptions, anything as long as you know what is supposed to be there.

In the AUDIO column put in the word, music, sound effect or time that the visual
shown will appear. In the case of narration, put in several lead-in words or
sentences ahead of the synch word. This will give the programmer sone antici-
pation time leading into the synch word. Circle the synch word.

Under the PROGRAM heading notice the three little boxes. These boxes represent
the 3 yellow keys on the Two Plus Keyboard. Anytime you want a change in the
lamp status of both projectors, doodle in the box at the left. Anytime you
want a change in the lamp status of either 1 or 2, doodle in the box of the
appropriate projector.

While programming, position your thumb over the left key, your index finger over
the middle key, and your middle finger over the right key. During programming
you could care less how the keys are labeled or what's happening on the screen.
All you know is that at each sync point you are going to press with your thumb,
index or middle finger depending on which of the three boxes are doodled in.
The only time your fingers will ever leave this position is whenever it is
necessary to press a red key, which will not be very often. Your fingers will
return to the yellow keys immediately.

To indicate a change in dissolve rate, just doodle in the desired rate.
Remember, it is not necessary to enter a dissolve rate if the rate remains the
same. Doodle in a dissolve rate only if the rate changes. During actual
programming your hand will leave the yellow keys only long enough to press the
rate key.

Because effects like FREEZE, FLASH, LOOP, STROBE, etc. are not often used, they
are not listed in the PROGRAM column. If and when these effects are used they
can be noted in the space just below the projector boxes.

So when it comes time to push the keys while the tape is running, just listen
for the circled word, sound effect or whatever, and then press one (just one)
yellow key. To make it twice as simple get yourself a helper to watch and
listen for the audio sync points for you. You press the yellow key when your
helper touches you on the shoulder or says "now".

Once you try the storyboard method, you'll never do it any other way.

ARION

CUE NO.	PROGRAM (CUT · 1/2s · 1s · 2s · 4s · 8s · 16s)	AUDIO	VISUAL
1	4s (filled) / 16s box (filled)	Key sentences or phrases of the audio script relating to the sync points are written or typed here. *(audio script circled)*	Fade in / TITLE
2	2s (filled) / 1/2s box (filled)	Actual sync points are indicated by circling the word, music beat, or sound effect. *(word circled)*	Dissolve to CU / finger on phone dial
3	1/2s box (filled)	To record the signal on tape and see the action on screen, press the yellow key on the keyboard – – – *(press circled)*	Dissolve to LS / telephone poles & lines
4	1/2s box (filled)	– – – that corresponds to the filled-in boxes at the left. *(boxes circled)*	Dissolve to CU / hand lifting receiver
5	CUT (filled) / 8s box (filled)	Dissolve rate keys are pre-set. Nothing happens until a yellow key is pressed. *(keys circled)*	Cut to credit title supered on hand & receiver
6	4s (filled) / 1/2s box (filled)	Projectors will function while programming. *(Projectors circled)*	Fade to black

ARION

CLiENT _____ PAGE _____ TITLE _____ DATE _____

CUE NO.	PROGRAM	AUDIO	VISUAL
	CUT 1/2s 1s 2s 4s 8s 16s		
	CUT 1/2s 1s 2s 4s 8s 16s		
	CUT 1/2s 1s 2s 4s 8s 16s		
	CUT 1/2s 1s 2s 4s 8s 16s		
	CUT 1/2s 1s 2s 4s 8s 16s		
	CUT 1/2s 1s 2s 4s 8s 16s		