INTEGRATED STROBE SYSTEM

THE INTEGRATED STROBE IS A DEVICE WHICH CAN OPERATE
A XENON FLASHTUBE AT A PERIODIC RATE OR, WHEN
CONNECTED TO AN B @ SIGNAL SOURCE, OPERATE THE
TUBE TO THE "BEAT" OF THE MUSIC. THE PRINCIPLES
OF OPERATION AND SCHEMATIC ARE INCLUDED IN AN
ADDITIONAL FOLDER.

A) OPERATION WITH A MUSIC-COMBO.

IT IS ADVISABLE TO OBTAIN THE MUSIC SIGNAL
FOR TRIGGERING THE STROBE BEFORE THE AMPLIFIER STAGE
SO THAT CHANGES THE PERFORMER MAY MAKE IN THE VOL-
UME LEVEL OF THE AMPLIFIER WILL NOT AFFECT THE
STROBE TRIGGERING LEVEL. SIGNAL PICKUP FROM INSTRUMENTS
MAY BE MADE VIA A "T"-CONNECTER ON THE INPUT
OF THE AMPLIFIER. SIGNAL CAN BE BROUGHT TO THE
STROBE TRIGGERING SELECTOR THROUGH SHIELDED CABLE
OF A MAXIMUM LENGTH OF 30' SO AS TO MINIMIZE LOSS.
Percussion signals may be obtained by placing
microphones directly at the trap-set and then
passing the signal through a low- or band-
pass filter to eliminate the cymbals and back-
round noise and pass only the essential
information of the bass drum or tom-tom signal.
(See diagram 1.)
(B) Trigger Selection Box

It will be necessary to be able to isolate the instrumental signals so that the strobe control unit will have signals containing only essential information about the "beat" and also so that the strobe may be used in other capacities, i.e. follow a guitar lead. The trigger selector box is quite simple, consisting only of switches to connect the mixer inputs to either musical signals or ground. (See Diagram 2.)

(C) Mixer

The mixer is necessary to provide optimum sensitivity of the strobe control unit and to accommodate differences in signal levels between instruments. The low power amplifier gain control and the strobe unit control adjust threshold level while the mixer places the individual signals at the proper desired level to the threshold.
All plugs are RCA-type phono jacks
All switches are miniature SPDT

**D** LOW-POWER AMPLIFIER

The strobe control unit requires about 1 watt of power from an 8Ω source in order to trigger consistently. Since one side of the strobe is connected directly to one side of the line, it is also a good safety precaution to isolate the strobe from the instruments thru the output transformer of the amp. If no output transformer is used as in the case of a solid state amplifier, an isolation transformer between the strobe and the amp or the strobe and the line should be used. (More on this topic in the next section.)
AS MENTIONED IN SECTION (C) THE AMPLIFIER
VOLUME CONTROL CAN BE USED IN CONJUNCTION
WITH THE STROBE TRIGGER/RATE CONTROL AS A
FLASH THRESHOLD ADJUSTMENT. MIXER LEVELS ON
INDIVIDUAL INSTRUMENTS CAN BE ADJUSTED WITH
THE AMP-GAIN FIXED TO TRIGGER THE STROBE
AT AN AVERAGE PLAYING LEVEL. DURING THE
PERFORMANCE THE STROBE OPERATOR CAN ADJUST
THE GAIN & TRIGGER CONTROLS FOR THE DESIRED
EFFECT.

(E) STROBE CONTROL UNIT AND FLASHER.

SINCE THE STROBE UNIT IS A LINE OPERATED
DEVICE IT WOULD BE WISE TO PLACE AN ISOLATION
TRANSFORMER BETWEEN THE STROBE & THE LINE VOLTAGE.
THE FLASH TUBE AND ITS ASSOCIATED POWER CIRCUITS
WILL BE LOCATED REMOTELY AT 50'-100' FROM
THE UNIT CONTROL BOX, BOTH THE 500-700 VDC
SUPPLY AND THE 1500 VDC FLYBACK TRIGGER SUPPLY
WILL BE LOCATED AT THE TUBE MAKING IT
NECESSARY ONLY TO BRING 110 VAC AND THE TRIGGER
PULSES TO THE REMOTE LAMP UNIT. IN ORDER
TO PREVENT UNWANTED TRIGGERING OF THE FLASH
TUBE BY STRAY SIGNALS, THE LEAD CARRYING THE
TRIGGER PULSE SHOULD BE SHIELDED. THE REMAINING
TWO POWER LEADS SHOULD BE NO SMALLER THAN
#18. A conductor can be made by taping microphone cable to line cord. The flash tube will be based in a small metal box which houses the tube power supplies and which serves as a mounting for the male power/signal cable. See diagram.

![Diagram of strobe unit with female connector, flash tube, power supply housing/base, isolationXFMR, and trigger-rate control.]

**NOTES:**

(1) As ridiculous as it may be, this sign must be posted at the entrance of a room where the strobe is being used:

**CAUTION**

Intense white light - avoid looking directly at the lamp. Strobe effects may induce epileptic fits.
Resistor:
2-27K
2-180
2-220
2-10K
22K
100
2-100K/12W
2-120K/12W

Potentiometers
2-50K
100

Capacitors
0.02
2-0.047/600V
2-0.2
2-0.5/15V
2-100/150V
2-80/150V 1
4-40/150V 2
2-12/600V 2

Switch
2-SPST Toggle
2-SPDT Toggle
1-OP3S Toggle
1-OP3T Latching
4-NO SPST Pushbutton

Solid State
10-1N3196 Silicon
2-1N34
2-2N4910 Bipolar Unijunction
2-2N3528 SCR

Connectors
2-Phone Jacks
2-3 cord plugs
4-3 cord plugs
2-3 cord sockets
AC Line cord

Physcal
Vector board
Harness
Screws
Nuts
Spacers
Wires
Flex Clip
Cabinet

Special
1-x2-8415 Stinger
Power Strip
2-H8BT Flash tube

Tools
Soldering iron tips & elements
Flex clips

Open Hospital Cable
CONNECTORS: A

UNIT 1: TRIGGER

  AC+  AC-
  E    D

UNIT 2

  1  TRIGGER
  2  AC+
  3  AC-

FLASH UNITS 1 & 2

STROBE SYSTEM for "KALEIDESCOPE" 11-9-68
Steve Beck 10-24-68
Arlington Heights, Illinois
Dwg. 3
FLASH MODE:
1. MUTUALLY EXCLUSIVE FLASHING
2. FLASH WITH GEN. 1
3. FLASH WITH GEN. 2 (INTEGRATOR)

FREQUENCY:
1. LOW (4 Hz - 10 Hz)
2. HIGH (5 Hz - 20 Hz)

CONTROL SCHEMATIC

STROBE SYSTEM for "KALEIDESCOPE" 11-9-69
STEVE BECK 10-24-68
ARLINGTON HEIGHTS, ILL
DWS. 2
CAUTION

Prolonged use in darkened rooms may induce hallucinations or trigger undesired side effects. Lamp should not be used in the presence of anyone subject to epilepsy.

Steve Beck
April 1, 1968
STROBE FLASH UNIT for use in conjunction with
SEQUENTIAL STROBE LIGHT SYSTEM

(1) POWER SUPPLY

![Circuit Diagram]

(2) FLYBACK CIRCUIT

![Circuit Diagram]

NOTES:

(1) Colors indicate interconnecting wire codes.
(2) Power triggering connections to control unit are
made through J, using a 3-conductor phone jack and three
conductor cable, not to exceed 100' in length.

COMPONENTS:

- D1, D2 - IN 4005 silicon diodes
- C1 - 80 µF / 150 VDC
- C2 - 40 µF / 450 VDC
- C3 - 40 µF / 450 VDC
- C4 - 12 µF / 600 VDC
- T1 - 6.3 VAC / 110 WAC
- SW - normally open miniature push button switch
- J1 - 3 conductor phone jack
**Figure 1**: Strobe Control Unit

**Figure 2**: Flash Tube Unit

*IN CABLE*