A Sound to Light Converter Using Flourescent Tubes by Daniel Fraser

This unit operates by applying high voltage pulses to a flourscent tube, causing the gas inside to ionize and to conduct, and thereby, causing the flourescent coating inside the tube to emit a flash of light. Also, since the heaters in the tubes are not used, this allowing the use of burned out or defective tubes that can usually be obtained at no cost.

In the circuit, the lamp on the input, and the resistors around it serves as an automatic gain control, while the transformer acts to isolate the circuit from your sound system for safety. The 4.7K pot sets the threshold level to fire the transistors, which The three transistors act as a switch to fire the ignition coil. When there is no audio input, the 1000uFd capacitor is charged through the 12 x 1S477 power resistors to about 35 VDC. When an audio signal triggers the transistors, the energy in the capacitor is dumped into the coil, which produces a high voltage pulse. This pulse then fires the tubes, giving us the flash of light. The tubes are wired in series, and though only two are shown, up the eight tubes could be wired in series, and still flash properly.

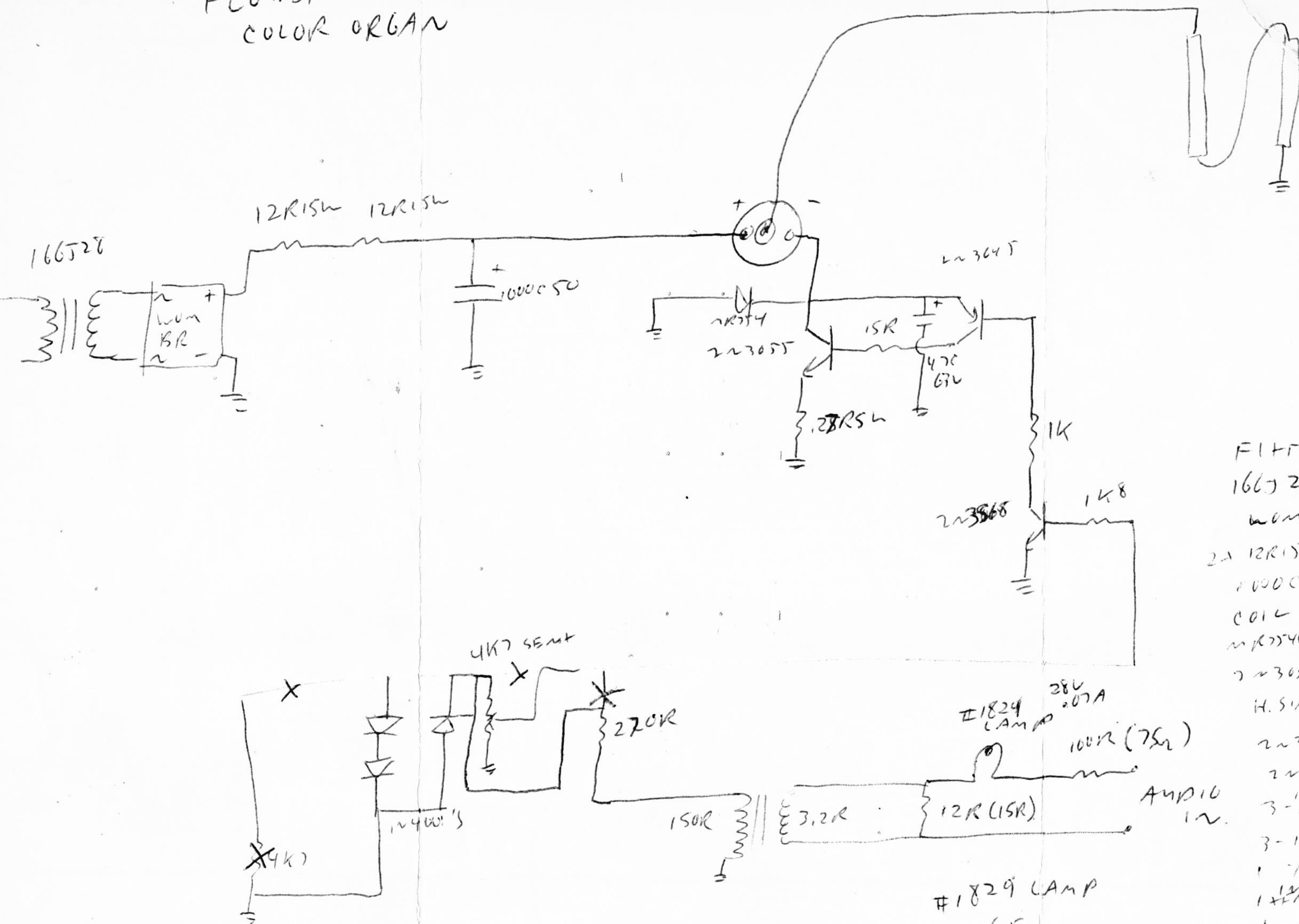
The type of coil is not important, and any 12 Volt type of coil should work properly. The coil I used was removed from a 1962 Plymouth Valiant and is a typical unit. They are available from auto wreckers for about $2.00(£1.00)

To hold the tubes, I obtained some old fixtures from a demolition company for $4.00(£2.00) each, and I removed the ballasts for scrap. Note that you should ask for the older fixtures requiring a starter, as no one uses this type any longer. the newer rapid start fixtures are in greater demand and command a much higher price, as no one wants the starter type any more.

Please note also that Q1, the 2N3055 gets warm, and should be mounted in a heatsink of at least 40 Square inches of aluminum, preferabl finned. Due to the simplicity of the circuit, The whole thing was wired up on a small piece of veroboard, with the power resistors mounted between two terminal strips. Use a .25A Line fuse with a 220Volt wer line. This project uses high voltage, and caution is recommended, though it is below a lethal level, but it can still sting pretty used an old spark plug cable to make the high voltage to the coil. The audio input with copper wire connects to the speaker one channel of your amplifier.

Nov. 1/77

FLOURESCENT LAMP
COLOR ORGAN

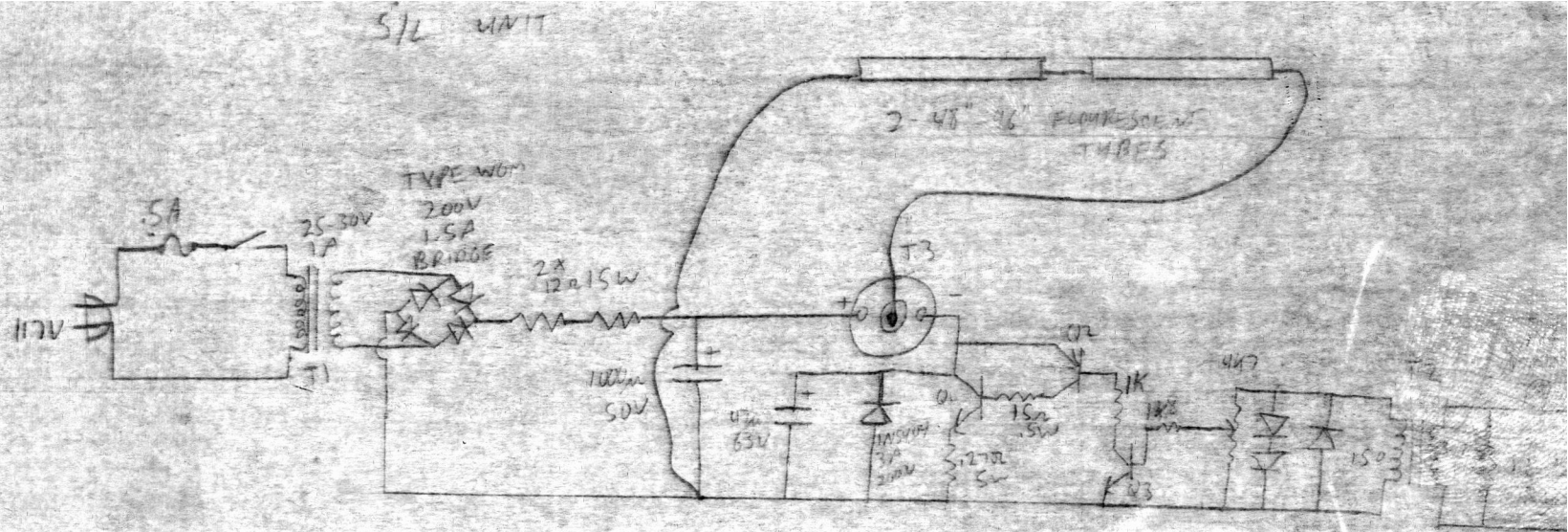


#1829 LAMP
6E
28V .07A

FIXTURE	4.00
166J28	7.00
WOM	.40
2- 12R15W	1.50
1000C50	1.00
COIL	2.00
MR754(1N4003)	.10
2N3055	.90
H. SINK	.75
2N3645	.20
2N3568	.20
3-1/2W R'S	.10
3-1N4001	.20
1-POT	.75
1 LAMP	1.50
1- RAMP	.50
1-100R 5W	.50
1-12R 2W	.15
HDWE	1.50
BOARD	1.50
INPUT JACK	.20
CORD	.80
FUSE & HOLDER	1.00
2 TUBES	3.00
	29.75

July 15/77
D. 7

S/L UNIT



T1 - POWER TRANSFORMER
25-30V @ SECONDARY

T2 - 3.2Ω 15Ω AUDIO TRANSFORMER 500mW POWER CAPACITY

T3 - 12V AUTO IGNITION COIL

Aug 21

Q1 - 2N3055 - TIP 33A

A Sound to Light Converter Using Elourescent Tubes by Daniel Fraser

This unit operates by applying a high voltage pulse to a flourescent tube, causing the gas inside to ionize, which makes the coating on the inside of the tube to emit a flash of light. Since the heaters of the tubes are not used, faulty or burned out tubes may be used, which may usually be obtained at zero cost.

In the circuit, the lamp on the input acts as a voltage variable resistor, giving us an AGC action, while the transformer, isolates the circuitry from your stereo system for safety purposes. The 4.7K pot acts as a threshold level control. When sufficient audio signal is present, the transistors turn on, dumping the energy stored in the 1000uFd capacitor into the coil, creating the high voltage pulse needed to fire the tube. The tubes are wired in series, and though only two are shown, more may be added in series. The connection to the coil is made with an old copper wire spark plug cable.

The type of coil is not important, and any 12Volt type will work. The coil I used was removed from a 1962 Plymouth Valiant, and is a typical unit. They are available at an auto wrecker for about $2.00(£1.00)

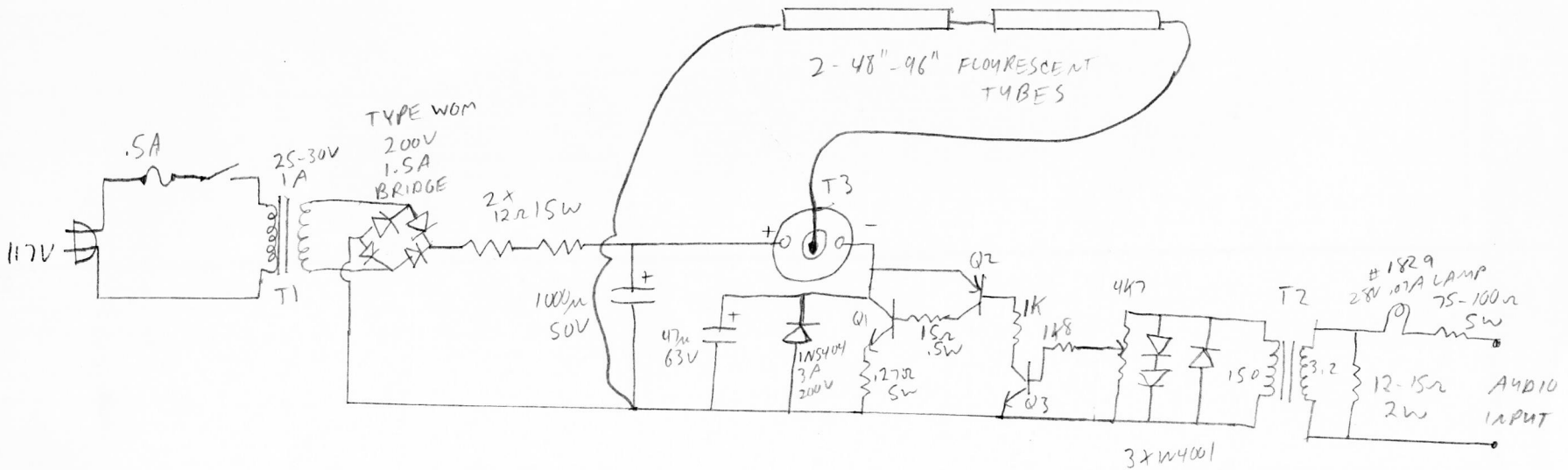
To hold the tubes, I obtained some old fixtures at a demolition yard for $4.00(£2.00) each, and I removed the ballasts for scrap. Always ask for the type that use a starter, as no one wants these any more. The newer rapid start fixtures command a much higher price.

Please note, that Q1, the 2N3055 gets quite warm, and should have at least 40 Sq.In. of aluminum heatsink, preferably finned. Due to the simplicity of the circuit, the whole thing was wired up on a small piece of Veroboard, with the power resistors mounted between two terminal strips. I used two 12ohm 15Watt resistors rather than a single 25ohm 30Watt unit as that is what I had on hand when building the prototype. With a 220Volt AC line, use a .25A line fuse. This project uses high voltage, and caution is recommended, and while the energy involved is below the lethal level, it can still sting pretty good. The audio input is connected to the speaker terminals of one channel of your amplifier.

This circuit may also be used with "black light" tubes, in darkened conditions, but is most effective with white or pink tubes. There is no wear on the tubes, and they should last indefinitely. If you build this circuit, it will give you years of service, and will amaze most people as few people realize there is more than one way to fire a flourescent tube.

Daniel Fraser
Dec.4/77
Prototype built July 1977

FLOURESCENT LAMP S/L UNIT



T1 - POWER TRANSFORMER
25-30V 1A SECONDARY

T2 - 3.2Ω - 15Ω AUDIO TRANSFORMER 500mW POWER CAPACITY

T3 - 12V AUTO IGNITION COIL

Q1 - 2N3055 - TIP 33A
Q2 - 2N3645 - TIP32A
Q3 - 2N3568 - 2N3904

Aug 24/77
D. Fraser