LED Flashers

For simulated guns on WWI Replicas

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LED Flasher Circuits

- The following schematics can be used to flash a high-intensity LED array to simulate machine-gun firing
- Two types of schematics:
  - Fairly simple one that can generate the flash
  - More-complex one that generates a flash based on an audio input file (e.g., audio file of actual gun)
- All parts except for high-intensity LED are available from Radio Shack

High-Intensity LED

- The LED used was a model MR16 GU5.3, available from Amazon and other vendors – cost ~$8
  - It appears to be primarily designed as a landscaping/track light.

- 12 volt power, about 400 ma (0.4 amp)
- Contains five hi-intensity LEDs in a cone-like shape somewhat reminiscent of the flash hider on some guns
- Looks bright enough in daytime…see last half of this video

http://www.bowersflybaby.com/test_vid.wmv

Basic Flasher

- This was designed to be a very basic circuit that flashes the LED at roughly 600 Hz (e.g., 600 rounds per minute, typical of WWI machine guns).
- Schematic includes optional additional outputs
  - Small LED that lets you view circuit operation without connecting the large high-intensity LED
    - The large LED requires a big battery, without it, can run on ordinary 9V battery
  - Audio output for on-plane amplifier
    - Gives a "popping" noise in sync with the flash
    - May need to add a transformer when connecting it to an amplifier (hasn't been tested)

Basic LED Flasher

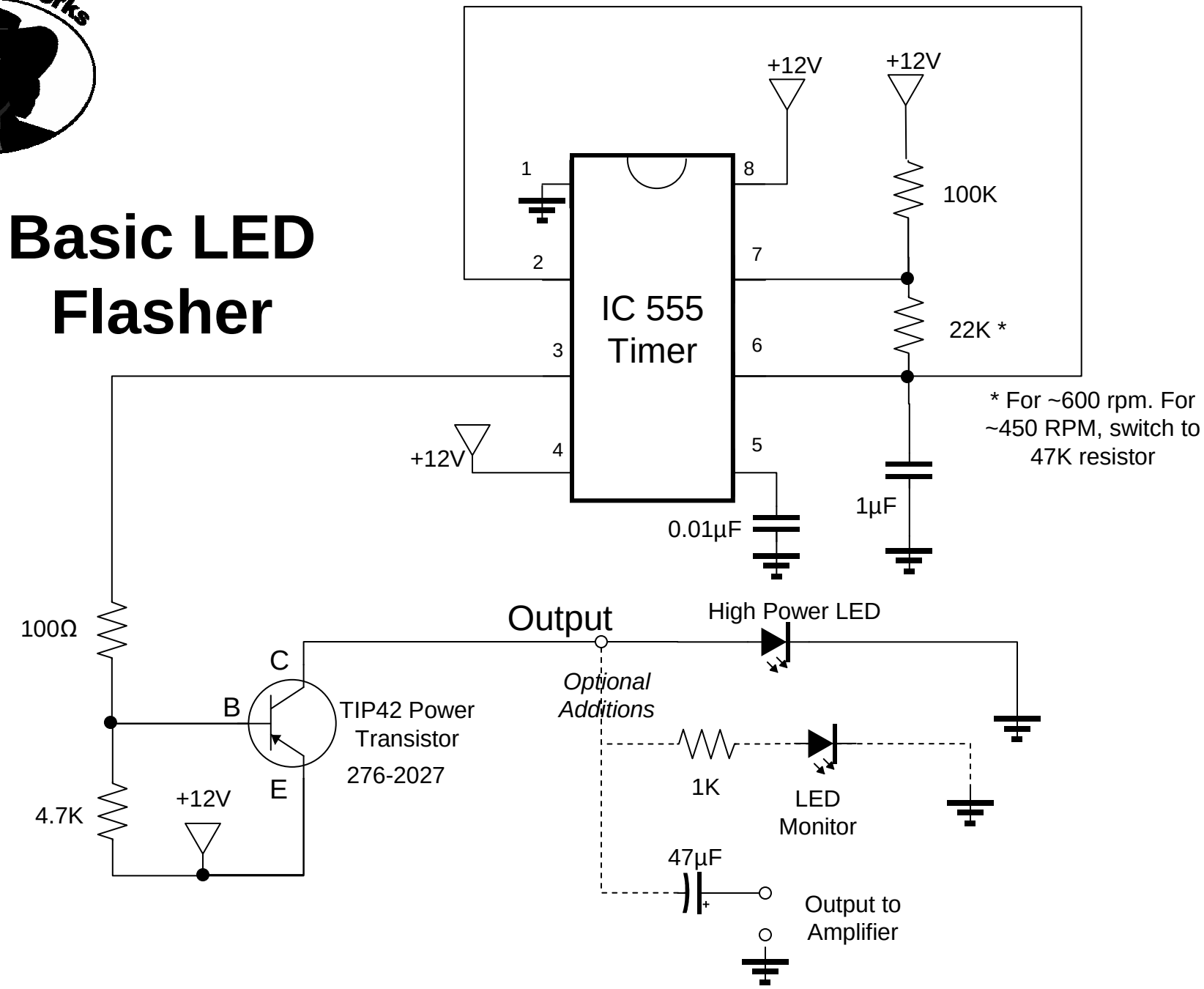
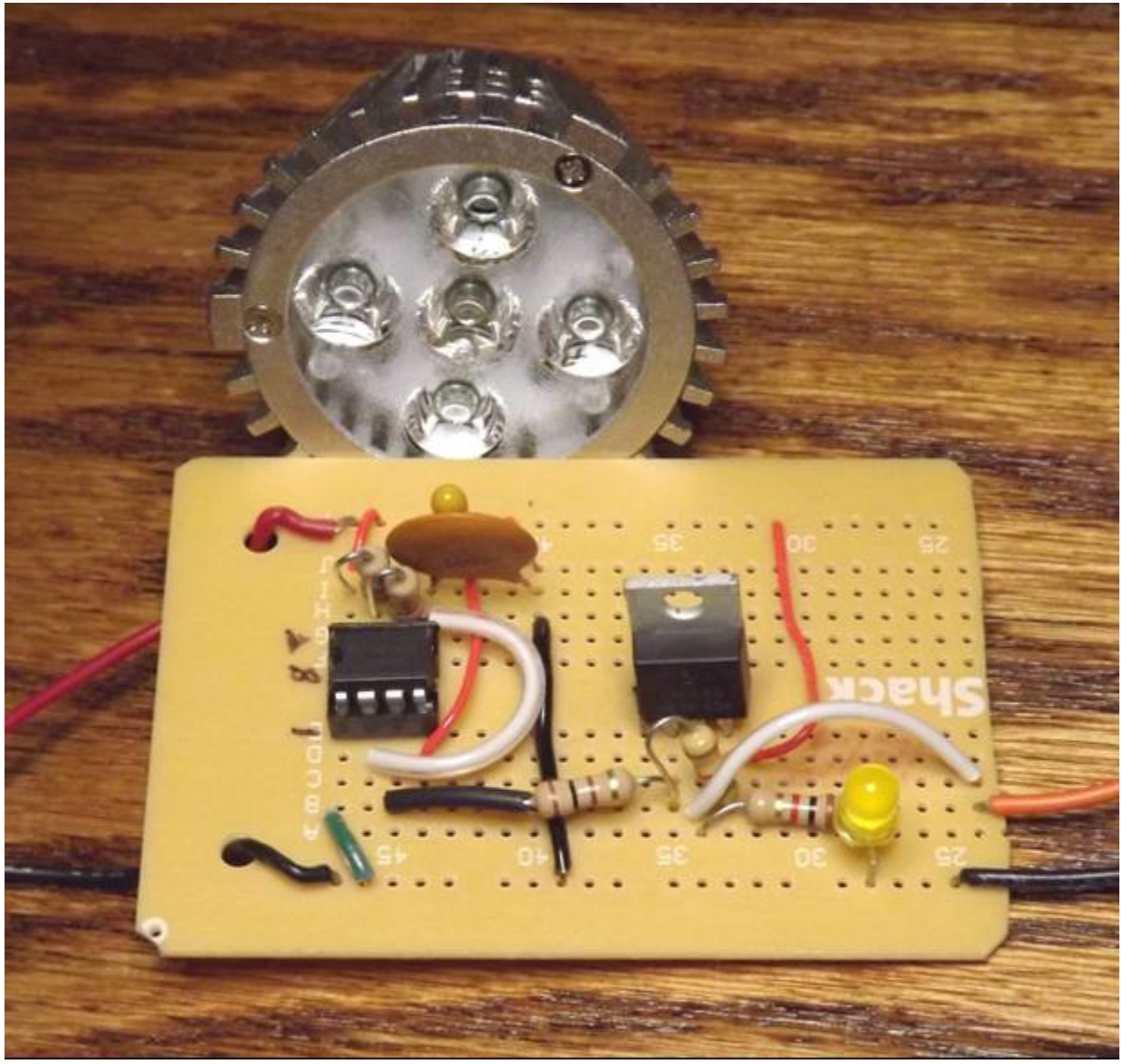
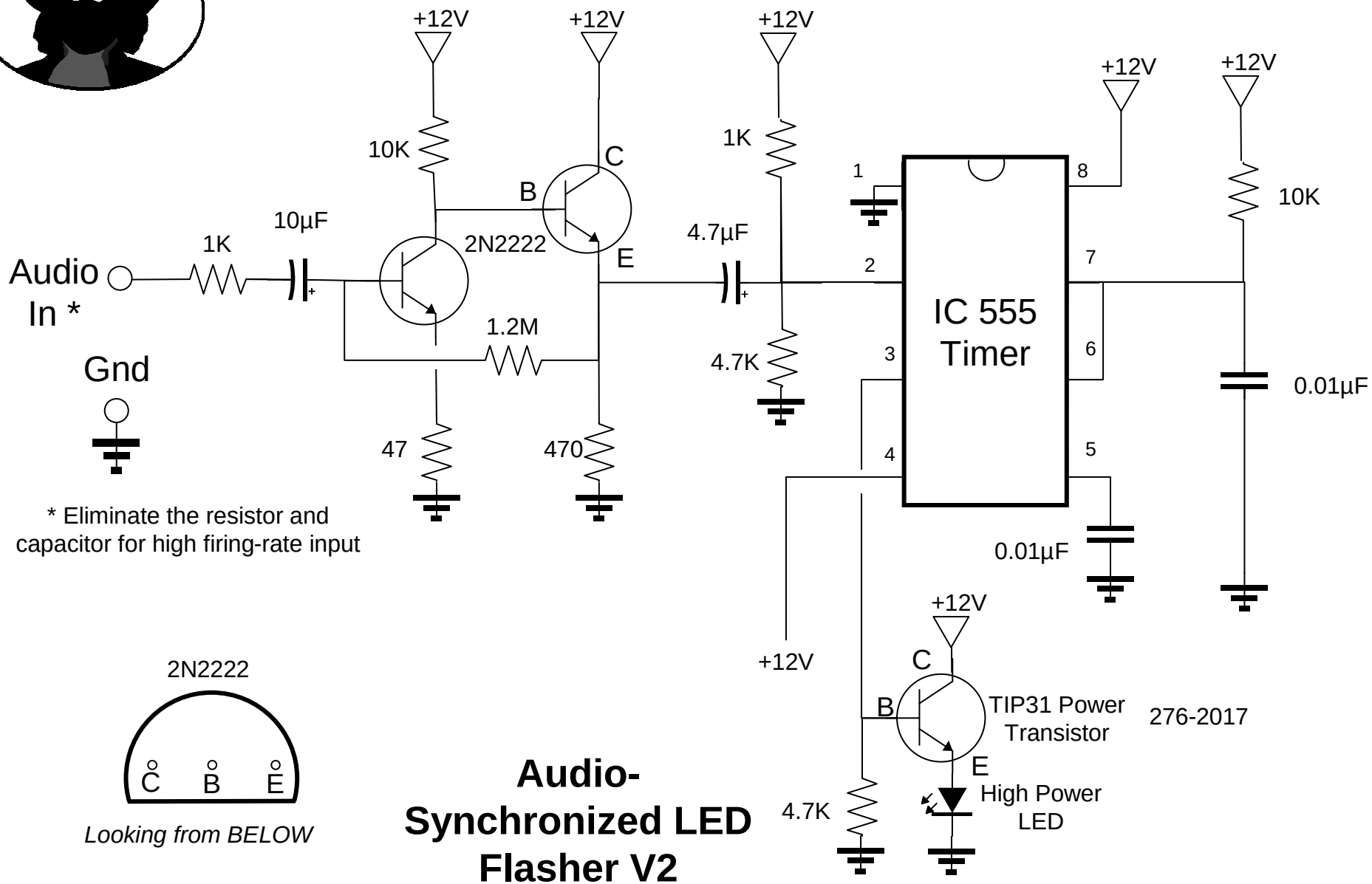


Photo of Basic Flasher



Audio-Synced Flasher

- This circuit takes an input audio file of gunfire and flashes the LED in time with the audio file
  - The thought is that the aircraft would have an external amplifier and speaker that would play the audio file with the flashing synchronous
- It requires an external source of audio
  - Ipod or Smart Phone
  - Need to "loop" audio so sound is continuous
- This circuit was a bit "finicky" and you may have to play with input audio levels, etc.
  - The capacitor and resistor at the input might need adjustment


+12V
+12V
+12V
+12V
+12V
10K
1K
10µF
1K
Audio
In *
Gnd
2N2222
B
C
E
4.7µF
1.2M
47
470
4.7K
IC 555
Timer
1
2
3
4
5
6
7
8
10K
0.01µF
0.01µF
* Eliminate the resistor and
capacitor for high firing-rate input
2N2222
C
B
E
Looking from BELOW
+12V
C
B
TIP31 Power
Transistor
276-2017
E
High Power
LED
4.7K
Audio-
Synchronized LED
Flasher V2