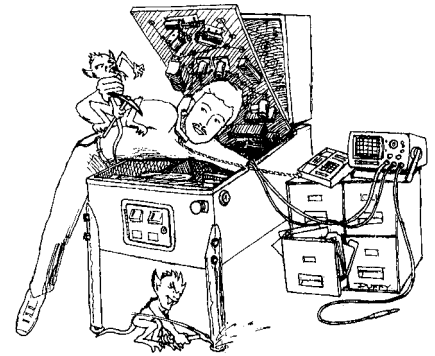




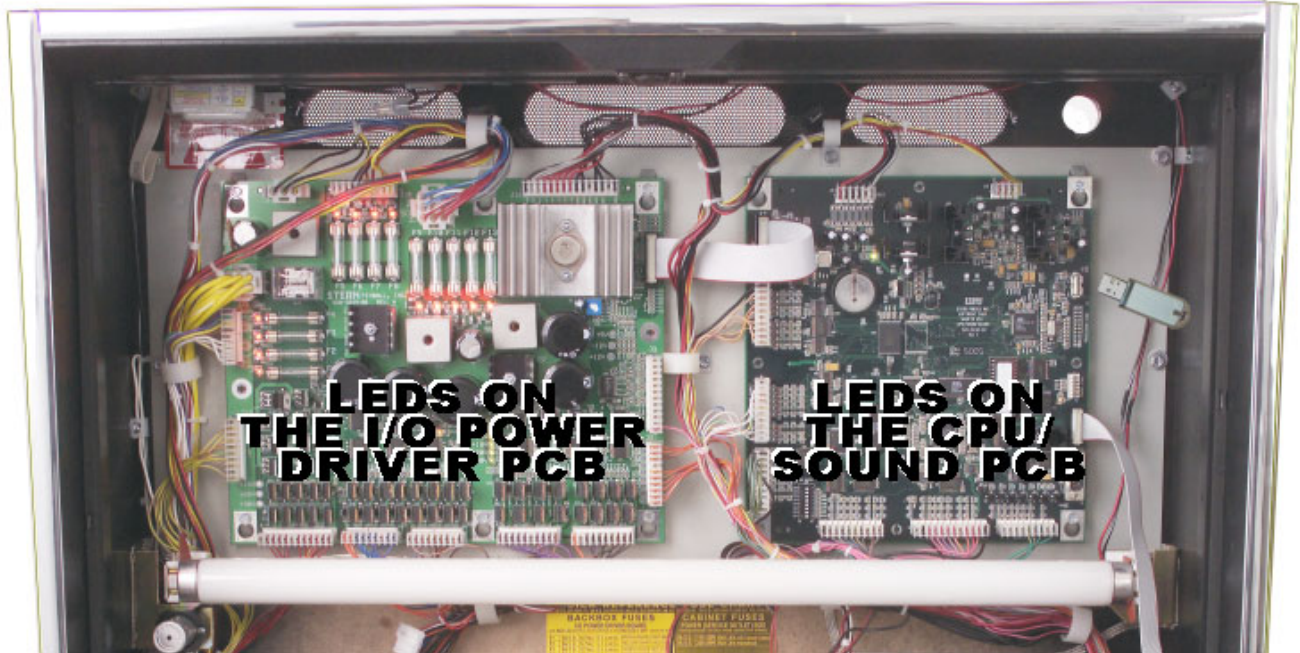
# Nº 167 Service Bulletin



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**TO :** Parts & Service Managers  
**DATE :** October 20, 2006

**TITLE :** FYI ~ Fuses, Voltages and Status LED Indicators on our S.A.M. System Games



*FYI, the S.A.M. System has LED Status Indicators on the CPU and I/O PCBs. The LEDs help technicians quickly localize system problems without the use of a meter. On the CPU, the LEDs indicate power and program status. On the I/O, the LEDs indicate communication status, if fuses are good and if power is present.*

**CPU / Sound PCB :**

**GREEN\* LEDs**

**LED1 POWER :** This LED is lit when there is power to the 5 Volt systems on the CPU/Sound PCB. The 3.3VDC and 1.8VDC are also derived from this 5 Volt source.

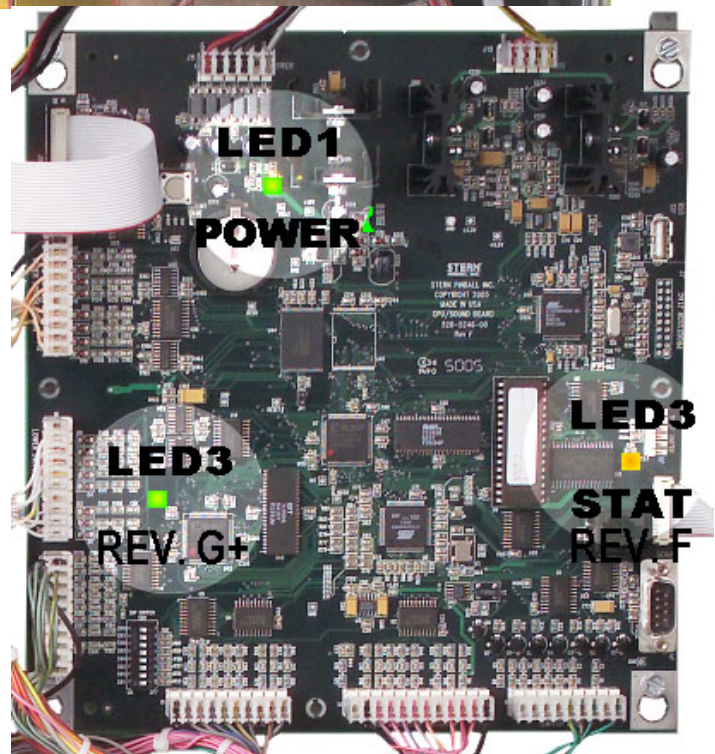
**LED3 STATUS :** This LED will flash when the CPU/Sound PCB is running the game program.

*\*Note: LED3 (STAT) on the Rev. "F" PCB (WPT™) is a Yellow LED, located on the right side of the PCB (works in the same way).*

**I/O POWER DRIVER PCB :**

**YELLOW, RED & GREEN LEDs**

LEDs on the I/O Power Driver PCB on the next page.



## I/O POWER DRIVER PCB :

### YELLOW LED

**L18** : This Yellow LED will flash when communication with CPU/SND PCB is broken; in normal operation this will be lit solid.

### RED LEDs

**MULTIPLE LEDs (see below)** : These Red LEDs are used to check the status of all of the fuses required for proper operation. Make sure your *Coin Door* is **CLOSED** or if the *Coin Door* is **OPEN**, ensure the Power Interlock Switch is **pulled out** (enabled). If the LED is lit, the fuse is good\*\*.

### Power to Bridge Rectifiers (A.C. input from the main transformer) :

- L17** F5 : 7A 250V SLO-BLO, 48VAC feed to BRDG 1 / 50VDC Coils / Flippers
- L7** F9 : 8A 250V SLO-BLO, 13VAC feed to BRDG 4 / 18VDC Controlled Lamps
- L5** F10 : 5A 250V SLO-BLO, 16VAC feed to BRDG 2 / 20VDC Coils /

### Flashers

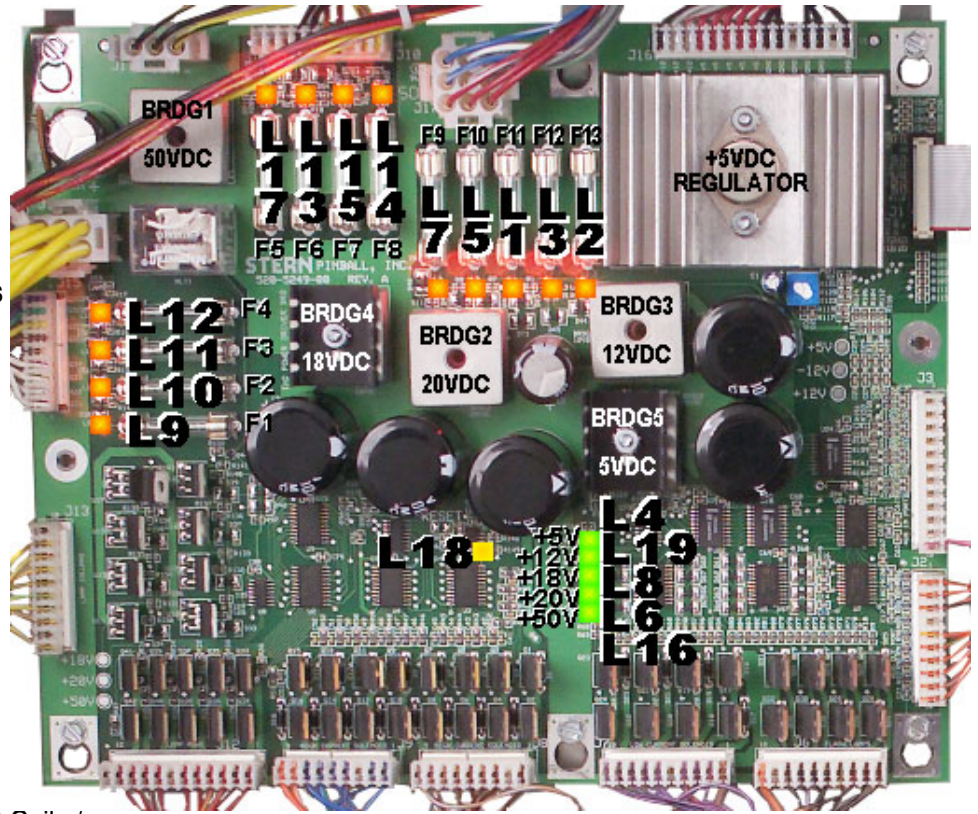
- L1** F11 : 4A 250V SLO-BLO, 8VAC feed to BRDG 5 / 5VDC Logic Power
- L3** F12 : 5A 250V SLO-BLO, 19VAC feed to BRDG 3 / 12VDC Audio
- L2** F13 : 5A 250V SLO-BLO, 19VAC feed to BRDG 3 / 12VDC Audio

### Power to General Illumination (G.I.s) (typically used to light screened plastics and to illuminate the playfield) :

- L12** F4 : 5A 250V SLO-BLO 5.7VAC VIOLET // WHITE-VIOLET circuit
- L11** F3 : 5A 250V SLO-BLO 5.7VAC GREEN // WHITE-GREEN circuit
- L10** F2 : 5A 250V SLO-BLO 5.7VAC YELLOW // WHITE-YELLOW circuit
- L9** F1 : 5A 250V SLO-BLO 5.7VAC BROWN-WHITE // WHITE-BROWN circuit

### Power Out (includes all D.C. voltages regulated / unregulated and 24VAC for motors) :

- L13** F6 : 3A 250V SLO-BLO, 24VAC Motor(s) or Special Application(s)
- L15** F7 : 4A 250V SLO-BLO, 50VDC Magnet(s) or Special Application(s)
- L14** F8 : 3A 250V SLO-BLO, 50VDC High Current Solenoids



### GREEN LEDs

**MULTIPLE LEDs (see below)** : These Green LEDs indicate power supply status for D.C. voltages; if the LED is lit voltage is present. Make sure your *Coin Door* is **CLOSED** or if the *Coin Door* is **OPEN**, ensure the Power Interlock Switch **pulled out** (enabled).

- L4** +5V : +5VDC, Logic Power (includes 3.3VDC and 1.8VDC)
- L19** +12V : +12VDC, Audio Circuits
- L8** +18V : +18VDC, Controlled Lamps & LEDs in the Lamp Matrix
- L6** +20V : +20VDC, Low Current Solenoids and Flash Lamps
- L16** +50V : +50VDC, High Current Solenoids

**\*\*Note:** With the *Coin Door* **OPEN** (Power Interlock Switch not pulled out), LEDs L17, L15, L14, L5, L6 & L16 will not be lit. This indicates normal operation, because 50VDC & 20VDC power circuits are disabled as a safety measure.

For Service Bulletins, Binary Code and other helpful information, visit our website [www.sternpinball.com/techsupport.shtml](http://www.sternpinball.com/techsupport.shtml) and click the appropriate links. Please phone or eMail with any questions or comments to the below address.