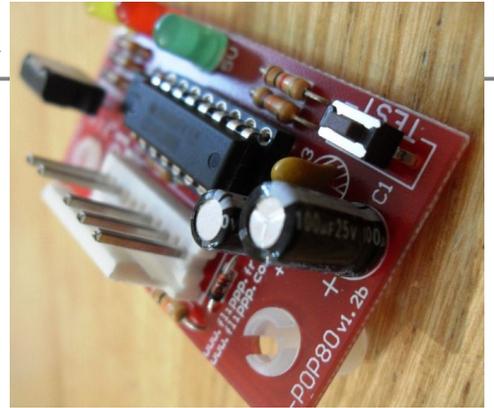


PI-POP80 Pop bumper board

The **PI-POP80** board is a direct, 100% compatible replacement board for the original Gottlieb *pop bumper driver board* (PBDB). Modern, compact, reliable, it has been redesigned from scratch and improved. Its rugged design provides the highest tolerance against badly adjusted +5V power supplies, as well as advanced hardware protections against electrical failures.

A doubt about your game? Refer to the [compatibility list](#) below!



SET-UP AND PRELIMINARY INSTRUCTIONS

1. Turn the game off !!!
2. Open the coin door. Move the lever down to unlock & remove the lock bar. Remove the playfield glass and carefully place it in a safe position. Lift the playfield, and use the prop-stick to hold it in up position.
3. If an original pop bumper driver board is in place, unplug its female Molex connector (by pulling on the plastic case of the connector, and not on the wires!). Then remove the 4 wood screws that hold it.
4. Install the new **PI-POP80** board in its place, with just 2 of the 4 screws, one on each side of the mating male Molex connector on the board.
5. Carefully check that the following items are in good, working condition, both electrically and physically:
 - the female Molex connector: no broken pin or wire,
 - the fuse: correct rating (in amperes) and *slow-blow* blowing speed,
 - the coil: not melted, not cut, not in short-circuit, the plunger moves freely,
 - the diode across the coil: desolder one leg of the diode (otherwise the coil in parallel with the diode would corrupt the measurement), then measure the coil on lowest resistor setting THEN the diode with a multimeter ("200 ohms" or lowest resistor setting for the coil, "diode" setting for the diode).
6. Plug the female Molex connector to the new **PI-POP80** board: a fixed coded key on pin 3 ensures correct positioning. Do NOT force! This would otherwise mean that the connector is shifted, reversed or broken.
7. Turn the pinball game back on (with the playfield still lifted) and check the **normal** condition of the 3 status LEDs :



Fuse OK

**Energized
Coil**

**+5V Power
Supply**

Coil Test

- ✓ the **yellow** LED:
 - **off** as long as a game is not started (GAME OVER relay off),
 - **on** after = +24V coils power is activated
- ✓ the **red** LED: **off** = bumper cup switch normally open
- ✓ the **green** LED: **on** = +5V power is on

MANUAL TEST

Pressing the « **TEST** » button acts like closing the cup switch under the *pop bumper*: the coil **must be energized**. The **red** LED will blink once and the **yellow** LED briefly turn off.

DIAGNOSTICS

The **green** LED remains off: +5V power supply issue:

- downstream on the **PI-POP80** board's connector (pin 5),
- upstream on **A1J6** connector (pin 18) on the CPU board in the front head.

The **red** LED remains off when the ball hits the *pop bumper* during a game in play, however the « **TEST** » button works fine and the coil reacts:

- cup switch broken or open too widely (badly adjusted),
- broken wire between the *pop bumper* and the **PI-POP80** board

The **red** LED remains off when the ball hits the *pop bumper* and the « **TEST** » button does not work at all:

- cup switch permanently closed (badly adjusted)

The **yellow** LED remains off during a game in play: +24V coils power supply issue:

- check the fuse dedicated to that *pop bumper* (under the playfield),
- check the general coils fuse (in the cabinet next to the transformers),
- check that the GAME OVER relay (Q) is duly energized when a game is started,
- check that the coil is not in short-circuit (measure its diode in parallel as explained before)

In all cases, inspect the female Molex connector downstream for broken pins or wires.

FULL COMPATIBILITY

As a reminder, the board goes without any modification in all 3 **System-80/80A/80B** pinball games series:

SYSTEM-80

Spiderman (2)
Panthera (2)
Circus (2)
Counterforce (2)
Star Race (2)
James Bond (3)
Time Line (3)
Force II (3)
Pink Panther (4)
Mars God of War (4)
Volcano (4)
Black Hole (6)
Eclipse (4)
Haunted House (4)
+ *multiball* (4)

SYSTEM-80A

Devil's Dare (3)
Caveman (3)
Rocky (4)
Spirit (1)
Punk (5)
Striker (4)
Krull (3)
Q*bert's Quest (2)
Super Orbit (3)
Royal Flush Deluxe (1)
Goin Nuts (7)
Amazon Hunt (3)
Rack 'Em Up (3)
Ready Aim Fire (5)
Jacks to Open (3)
Alien Star (3)
The Games (4)
Touchdown (4)
El Dorado (2)
Ice Fever (4)

SYSTEM-80B

Chicago Cubs Triple Play (3)
Bounty Hunter (2)
Tag Team (3)
Raven (4)
Hollywood Heat (1)
Genesis (3)
Gold Wings (4)
Monte Carlo (3)
Spring Break(3)
Amazon Hunt II (3)
Victory (1)
Diamond Lady (3)
TX Sector (3)
Amazon Hunt III (3)
Robo-War (3)
Excalibur (1)
Bad Girls (3)
Hot Shots (1)
Big House (3)
BoneBusters Inc. (1)

Note : **System-80B** Rock, Rock Encore and Arena games are not concerned, as they are not equipped with any *pop bumper*.

