Installation

XP-BLY2518-(18/49/100)

- **Installation Time:** About 20 minutes
- **Tools Required:** Pliers, wire strippers, wire cutters, multi-meter, Philips, or Flat screwdriver.

Congratulations! You have purchased the premier Classic Bally Rectifier board, the simplest to install in the pinball community! What makes it so simple is NO SOLDERING REQURIED!

1. Unplug the AC power from your pinball machine. Remove the games backglass.

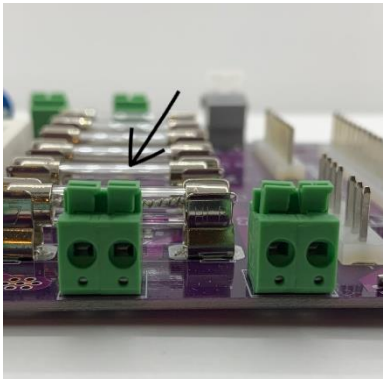
2. Using the pliers, pinch the end of the standoffs securing the OEM board to the metal mounting plate. These may be brittle with age and break, but don't worry, XPin is providing you new ones.
   NOTE: Depending on how many times this board has been repaired, there may be 3 screws through the bridge rectifiers that may need to be removed.

3. The OEM board will have wires leading from the transformer to the board. The OEM board will have silkscreen E1 through E12 located next to each wire. The table below associates the 'E' label with the wire color associated with them but should not be considered the final truth for your game. The colors shown are based on personal game collection. Considering that the assembly has been used in over 30 game titles, manufactured 30+ years ago, with total games manufactured over 200,000, there may be some differences. XPin suggests making a list as you remove the wires.

Xfrmr Terminal		Wire Color	Function
1*	E1	RED (heavy AWG)	AC In
9*	E2	YELLOW (heavy AWG)	AC Return
2	E3	RED (small AWG)	Solenoid AC IN
6	E4	White/Red Stripe	Solenoid AC Return
8	E5	GREEN (small AWG)	HV AC IN
10	E6	White/Green Stripe	HV AC Return
17	E7**	BLUE (heavy AWG)	GI AC IN
18	E8**	BLACK (heavy AWG)	GI AC Return
13	E9	ORANGE (heavy AWG)	SW Lamp AC IN
14	E10	GREEN (heavy AWG)	SW Lamp AC Return
15	E11	WHITE (small AWG)	LOGIC AC IN
16	E12	White/Black Stripe	LOGIC AC Return

*** NOTE1: Reference Power line Connection table on individual game transformer module schematic.**
****NOTE2: Later games will have 2 Blue and 2 Black wires. If you have an earlier version of the rectifier board with only a single terminal hook up, twist the two wires together and insert. Later revisions of the rectifier board will have terminals for both wires.**

4. Cut each wire as close to the original circuit board as possible.



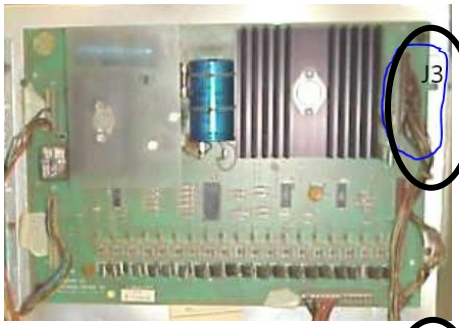
5. With wire strippers, strip ¼" insulation from each wire.

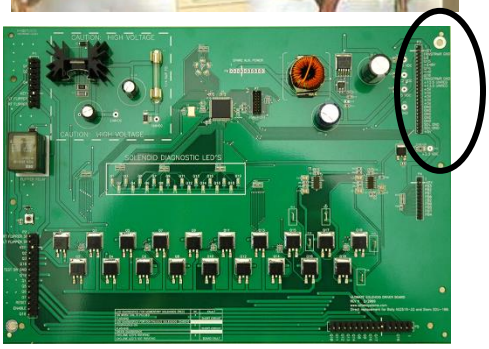
6. Each wire terminal on the XPin board has an associated 'E' number associated with it. To insert the wire into the terminal, PUSH down on the button of the terminal, then insert the wire.
   NOTE: Twisting the wire or tinning the wire ends will keep the individual wire strands together.

7. With wires attached to the terminals, mount the new standoffs provided to the mounting plate and mount the XPin board onto the plate.

ALMOST THERE!

Before turning power on let's make sure all the connections are correct.





8. Plug in J2 (10 pin connection). **NOTE: DO NOT plug in J1 or J3 yet.**

9. Unplug J3 of the Solenoid Driver Board which is in the upper right of the board. The pictures to the left show the original board or the improved Allteksystems Solenoid Driver Board J3.

10. Turn on the game on. What you should see is many of the General Illumination lights should be lit. Also, under each fuse of the XPin board (except F6) is an LED that should be lit. These LED's indicate that the fuse is good. If a fuse is not lit, then the fuse has blown and needs to be replaced. Only replace with the fuse size indicated below the fuse. **DO NOT OVERFUSE!**

    With your multi-meter, set to DCV measurement. Place the black test lead on the GND test-point and using the red test lead check each one of the other test-points. Voltages measured should be +/- 2V, except from the +230V which should be ~+165V. It will measure ~+230V when you plug J3 into the Solenoid Driver Board.

11. With everything verified, turn the game off and plug J1 and J3 into the XPin board. Plug J3 into the Solenoid Driver Board. **NOTE: This board is Universal in nature. The -18 version of the rectifier board had 8 pins, the -49 version had 9 pins. This is not an issue because the key slot remained the same. See extra Notes if your still confused.**

12. Turn the Game ON and Play!

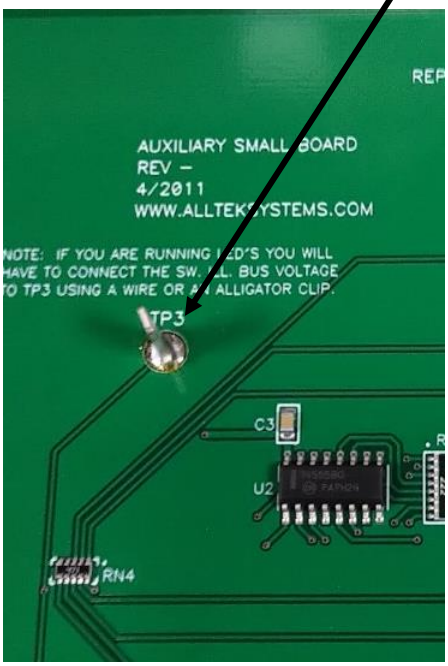
Enjoy!

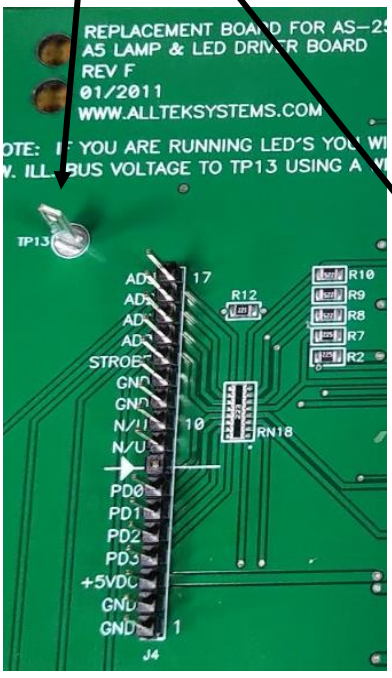
If you have any questions, feel free to contact the designer and manufacture of the XPin board at support@xpinpinball.net or me at MPUSUPPORT@ALLTEKSYSTEMS.COM

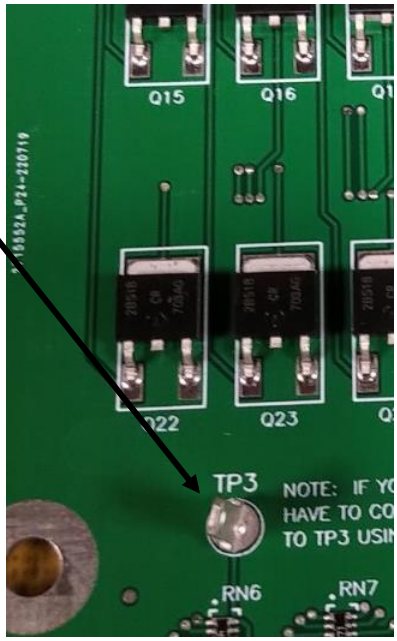
Extra Notes:

- The J1 connector can be one of the most confusing connectors because this board you purchased is setup to work with several versions of games. Most of them use only the first 8 pins and some use all 9 pins. Over the last 40 plus years connectors have been reworked on the machines meaning lots of times the key pin has not been replaced in the 4th position to prevent this connector from being incorrectly seated and causing the game to get the wrong voltages.. There are only 3 games that this is an issue, Future Spa, Kiss, and Space Invaders. Please pay attention.

- If you have Allteksystems LED/Lamp Driver or the Aux LED/Lamp Driver, you can also attach the LED wire directly from the board to one of the 2 lugs in the corner of the new rectifier board.







- There are 3 unusual Bally Games that need fuse changes. Most likely the fuse in your old board is OK so swap out that into the new board.

  Future Spa, Kiss, and Space Invaders uses a 20amp Fast Blow fuse at location F1.

  Space Invaders uses a 5amp Slow Blow fuse at location F6.