

SN6



Homepin Taiwan Company Limited

25th July 2025

Blues Brothers Pinball by Homepin

Service note six - (five pages)

Replace 5 x MOSFETS

Machines Affected:

All Homepin Blues Brothers machines built up to 24th July 2025.

Issue:

It has been reported that one of the flipper drive MOSFETS can randomly short causing the flipper to remain in the up position whenever power to the machine is switched ON.

Fix:

Replace the MOSFETS in the flipper control boards with a different type & also replace the lift gate control driver MOSFET. (detailed explanation at the end of this service note for those interested in more details).

NOTE: If you are unable to find these parts OR are unable to install them please contact us for other solutions (sales@homepin.com).

NOTE:

Remove the three balls FIRST using the following sequence with machine powered ON:

- (1) Press the "MENU" button on the inside of the coin door TWICE
- (2) Press the LEFT side flipper button on the outside of the cabinet TWICE

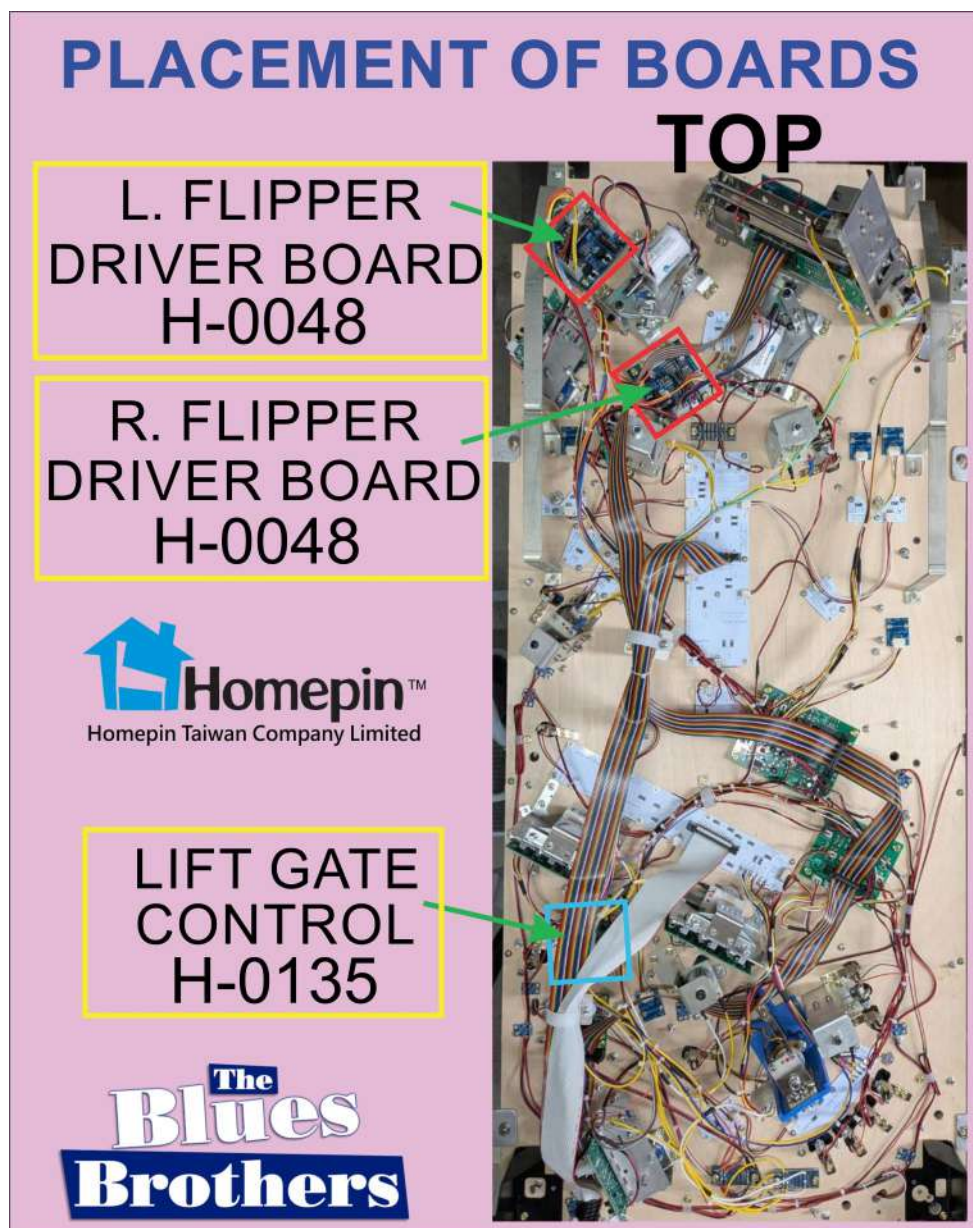
The machine will eject all three balls. Then turn the power to the machine OFF (using the mains power switch under the front right side near the front leg).

Access the underside of the playfield by removing the lock down bar, slide out the glass and place vertically in a safe place such as on a carpeted floor or cloth placed on

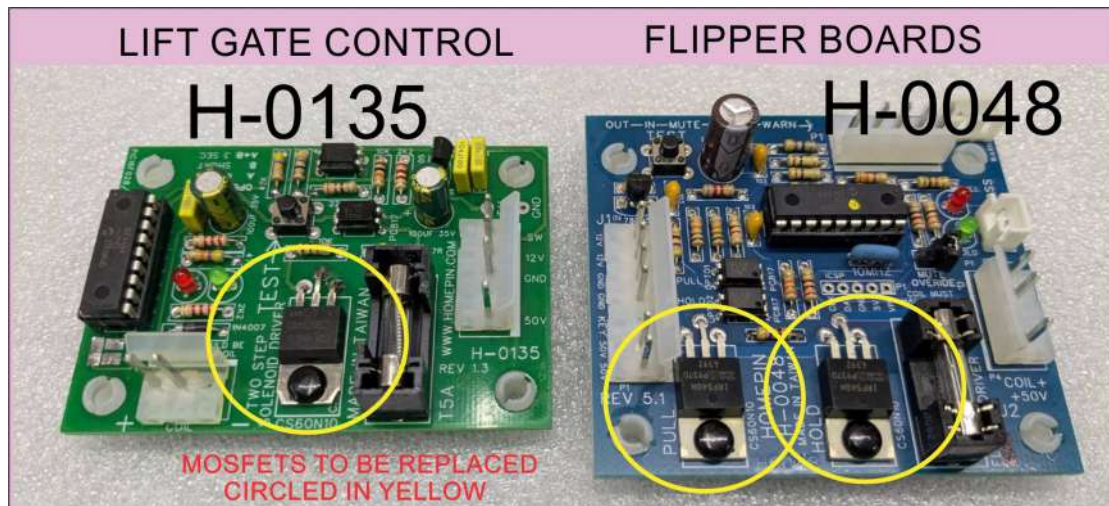
the floor so the bottom of the glass does not make contact with any hard floor surface such as tiles.

Grasp the inside of the metal apron (where the balls drain during normal game play) and lift the playfield vertically. As you lift, pull the entire playfield towards you (it will roll easily) and lift it all the way up and lean it back against the backbox.

Locate the three boards screwed under the playfield shown in the picture below. They are 2 x H-0048 flipper control and H-0135 lift gate control. Unplug the cables connecting to these boards and remove them from the playfield. Each board is held to the playfield with 4 x gold screws.



These are the boards you should now have removed from the machine.



With the boards on a workbench, remove the two piece plastic retaining clips as below.



The easiest way to remove the old parts is simply cut the legs and use a soldering iron and pointy nose pliers to remove each cut leg one-by-one.

Suitable replacements are IRF540N (note the “F” in the part number – NOT an IR-L-540N). Please don't buy these from dodgy online vendors such as Amazon, Ali-Baba, eBay etc as they are very likely to be fakes and you will only create more problems than you fix by using these parts.

Fit the replacement MOSFETS and fix them in place with the plastic clip before soldering and trimming the legs.

Check the fuses installed. The flipper boards should have a T3A (3 amp slow blow) and the lift gate board is a T5A.

Re-install the boards to the machine and confirm all plugs are in the correct positions. Note, the small 3 pin socket marked P5 on the flipper boards is not used in Blues Brothers (it remains empty).

(FINISH) Reverse the above procedure, putting the playfield down into position, drop the three balls in the machine via the ball drain hole – one by one. Slide in the glass, fit and latch the lock down bar.

Enjoy your game!

Supplementary information/explanation

After several reports of MOSFETS shorting in various Blues Brothers pinball machines we conducted an extensive investigation and found that only in circuits where the MOSFET was driven by a 12V source, the MOSFET could randomly and unpredictably fail (short circuit).

These circuits are where we have optically isolated the MOSFETs from the driving circuitry - the flipper control boards and the lift gate control board only. **All other positions and applications of this part are not affected.**

When designing these control circuits it was well known that one of the most faked parts in the marketplace is the IRL540N so we decided to purchase alternative parts direct from a semiconductor factory to avoid this problem. We chose the CS60N10 as it has higher specifications to the IRL540N and is in the same package.

The first few batches of these have worked well without problems however, recently, a few owners have reported the shorting MOSFET issues explained in this service note. After much discussion with the engineers at the semiconductor factory it was determined that one batch of these parts was miss-labeled and, instead of having a 20 volt gate drive maximum, the gate drive was just 13 volts. This is right on the edge of our circuit design and explains the random, occasional failures of this part.

Your machine may not have this issue and may never have a problem like this but we suggest replacing the five MOSFETS to avoid possible issues in the future.

In the end, we managed to avoid fakes but didn't avoid problems!



END