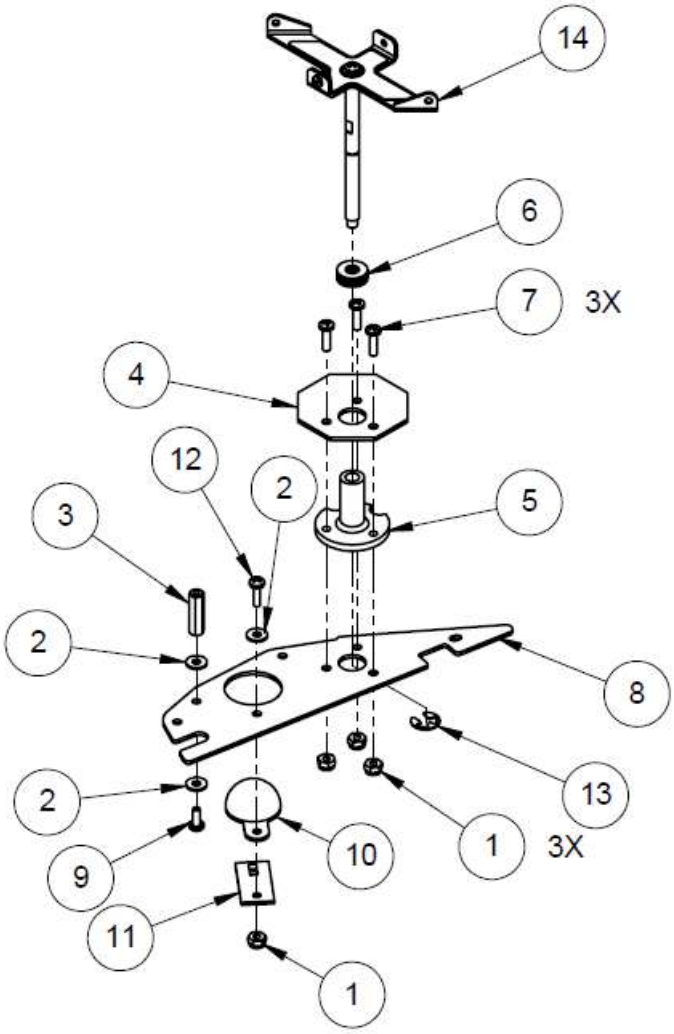
PINO PINBALL MODS

Installation Guide of the “Pino Pinball Mods” Helicopter Agusta 109 mod.

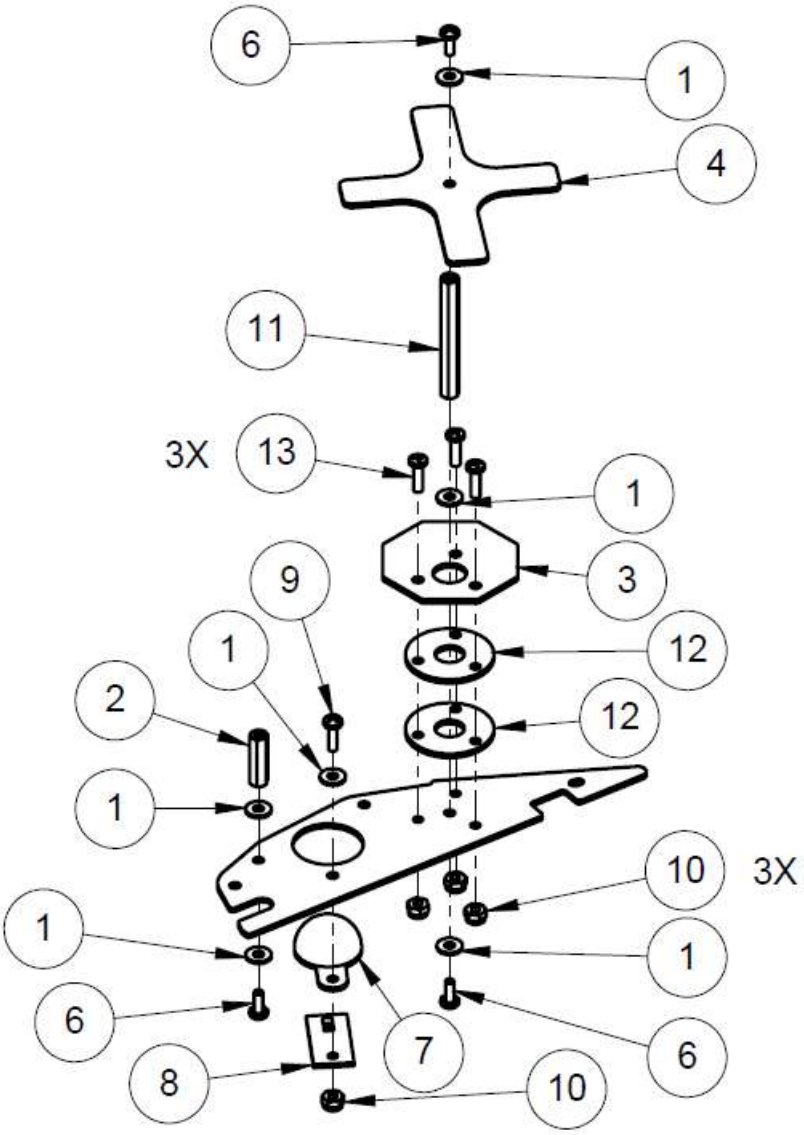
For All machine PRO/PREMIUM/LE machine.

Version 1.1f (24th August 2024, 07:03)

For the PREMIUM/LE machine here it is the plastic assembly:



For the PRO machine here it is the plastic assembly:



First, you have to remove carefully the glass of your pinball.

Image of the assembly on a PRO:

Image of the assembly on a PREMIUM/LE:

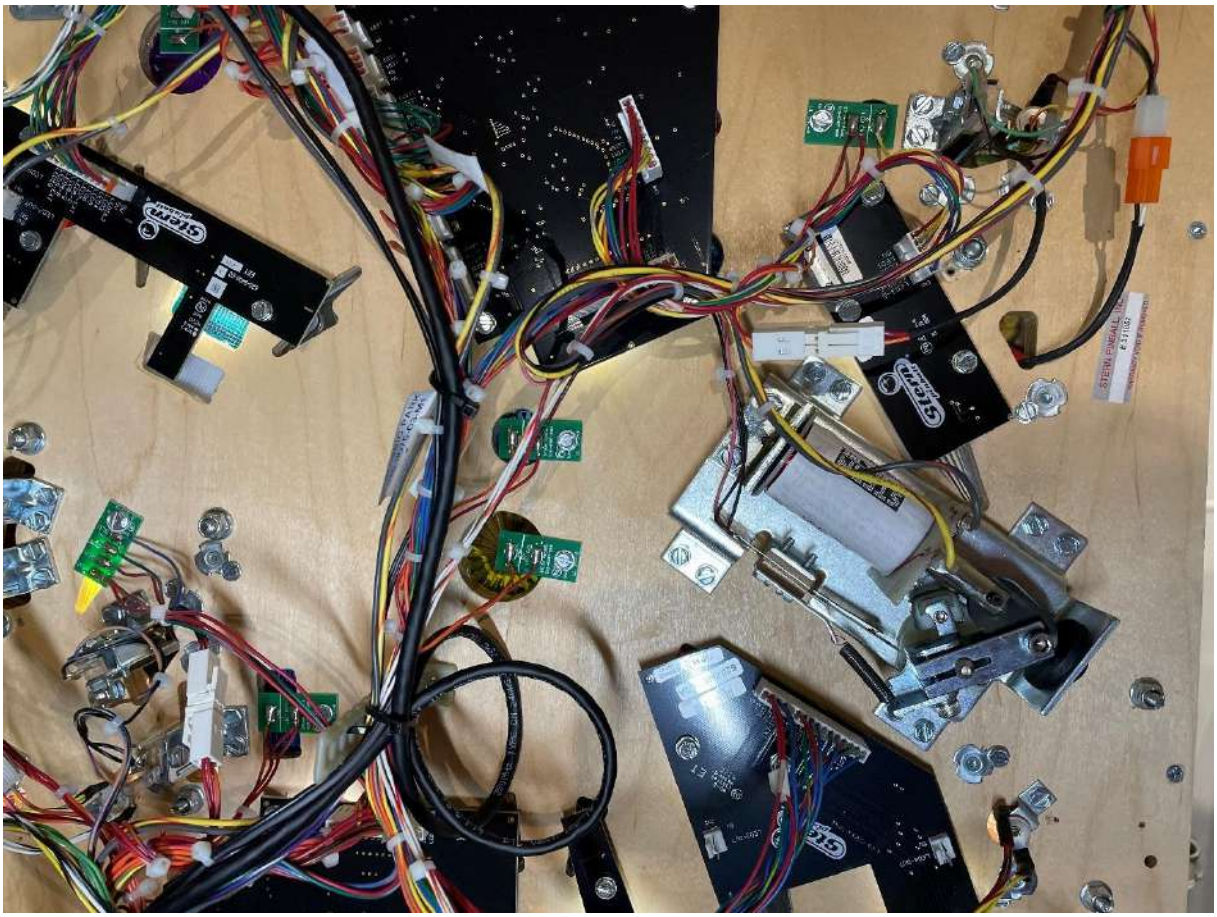
Unscrew the screw which holds the propeller:

Note : It is the same thing for the PREMIUM/LE machine. You have to unscrew the screw which maintains the iron blade. Be careful when you unscrew the screw, the iron blade rode probably will fall inside your cabinet. It doesn't matter, but if you don't want this, you have to maintain the iron rode under your playfield with your hand.

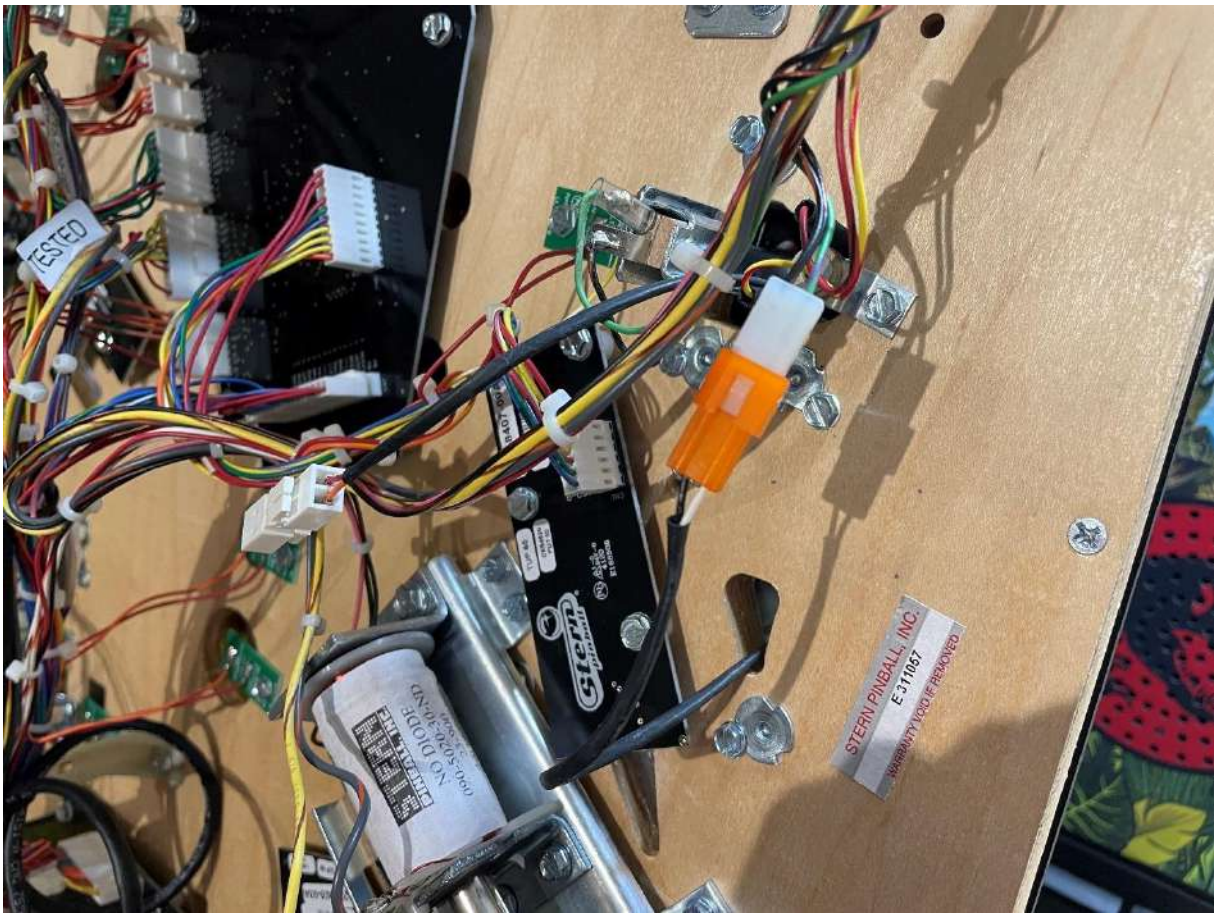
Under your playfield you have to disconnect:

1) the wire of the microswitch (orange/white molex connector)

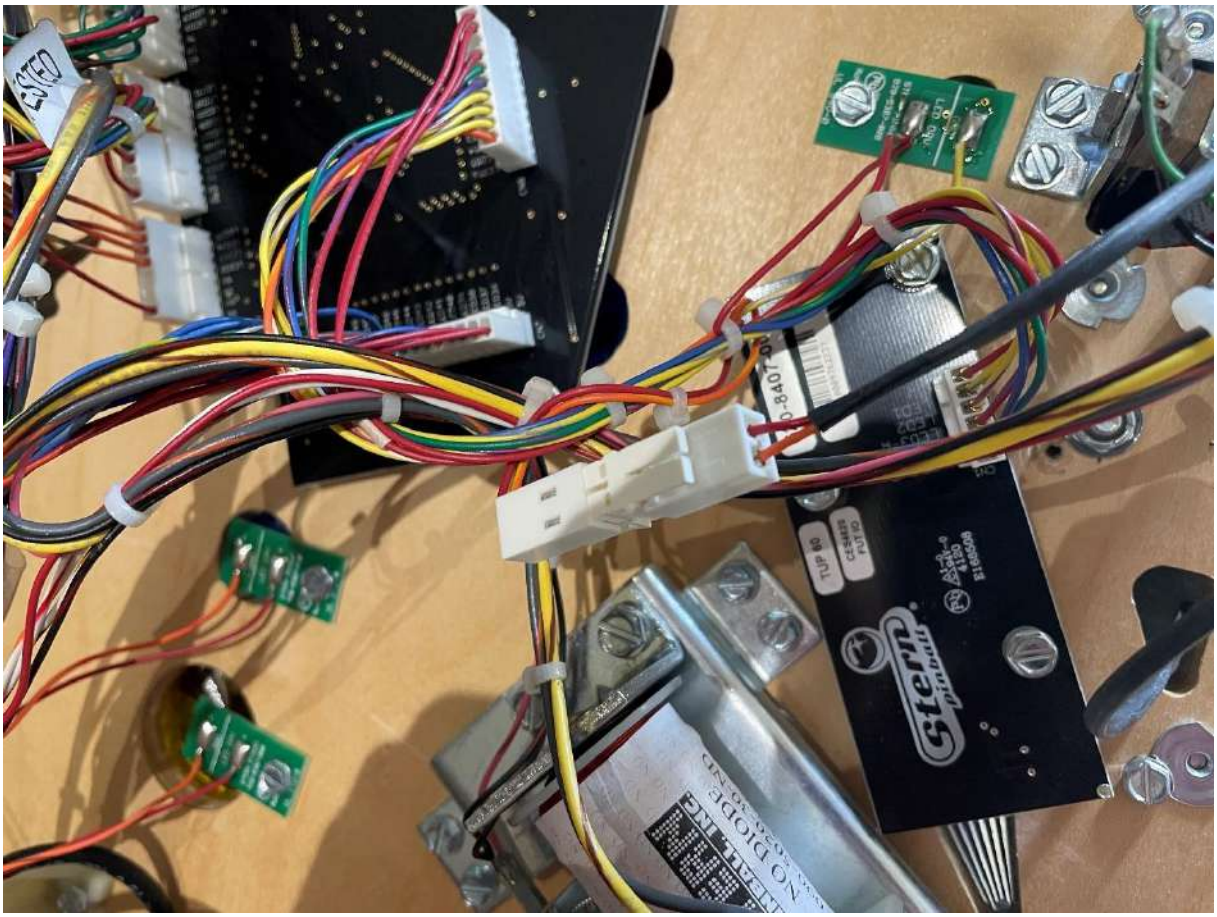
2) the wire of the red flasher (white/white)



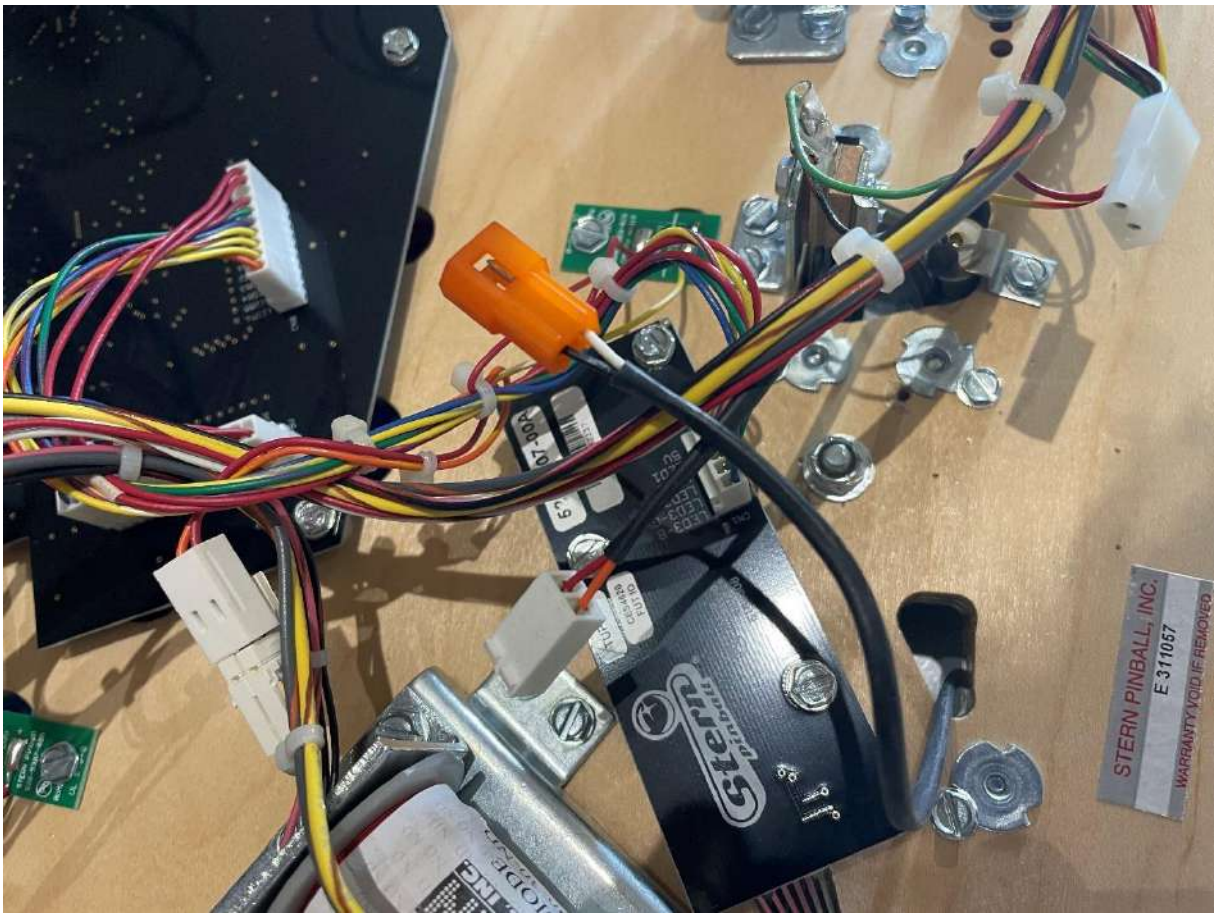
Microswitch connector connected:



Red flasher connector connected:



Two connectors each disconnected:

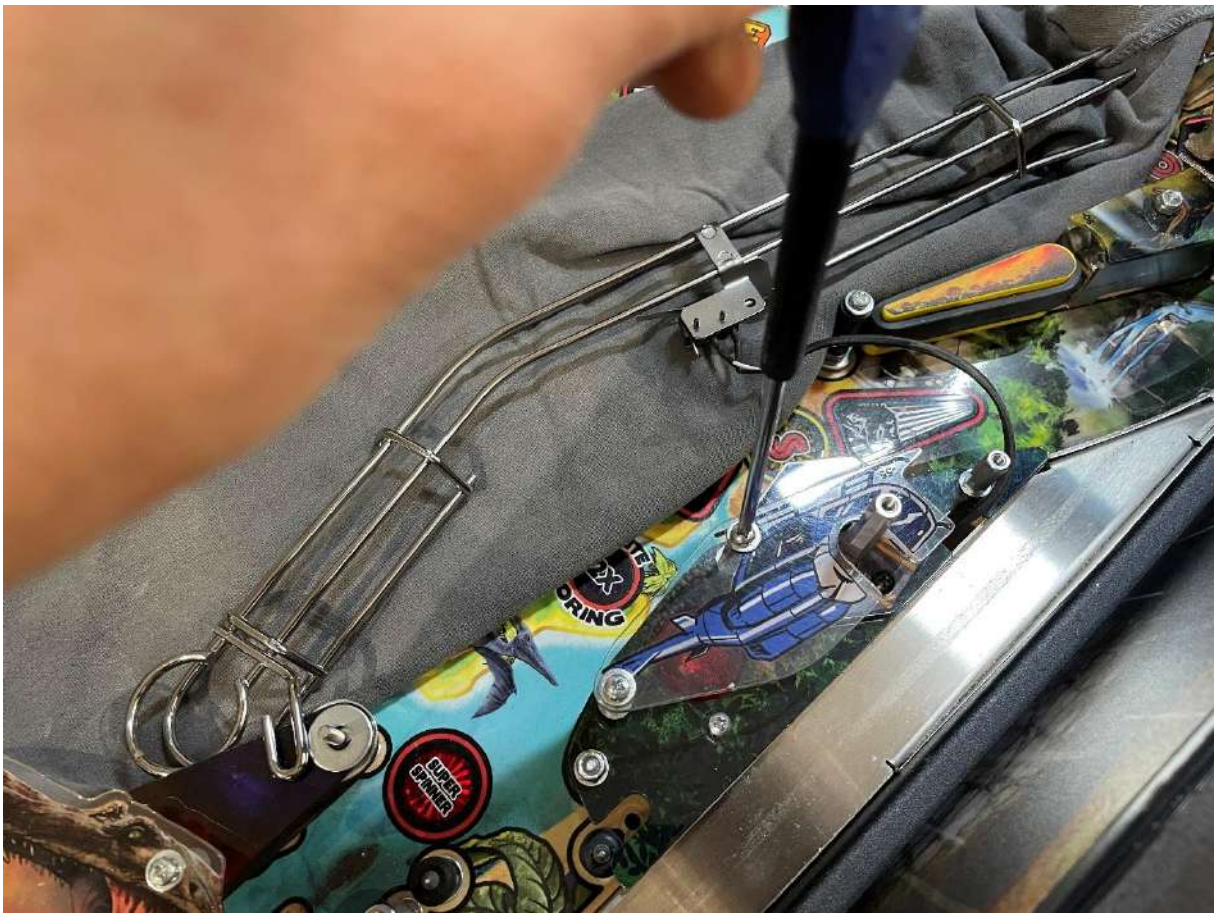


Unmount the ramp. For that you have 1 screw here. Follow the screwdriver to see where. These screw maintains also the microswitch of the ramp:

And 1 nut here:

Remove your ramp and put it on your playfield:

To remove the plastic of the 2D helicopter you have two screws to unscrew:


2X
RING
SUPER
CRANK

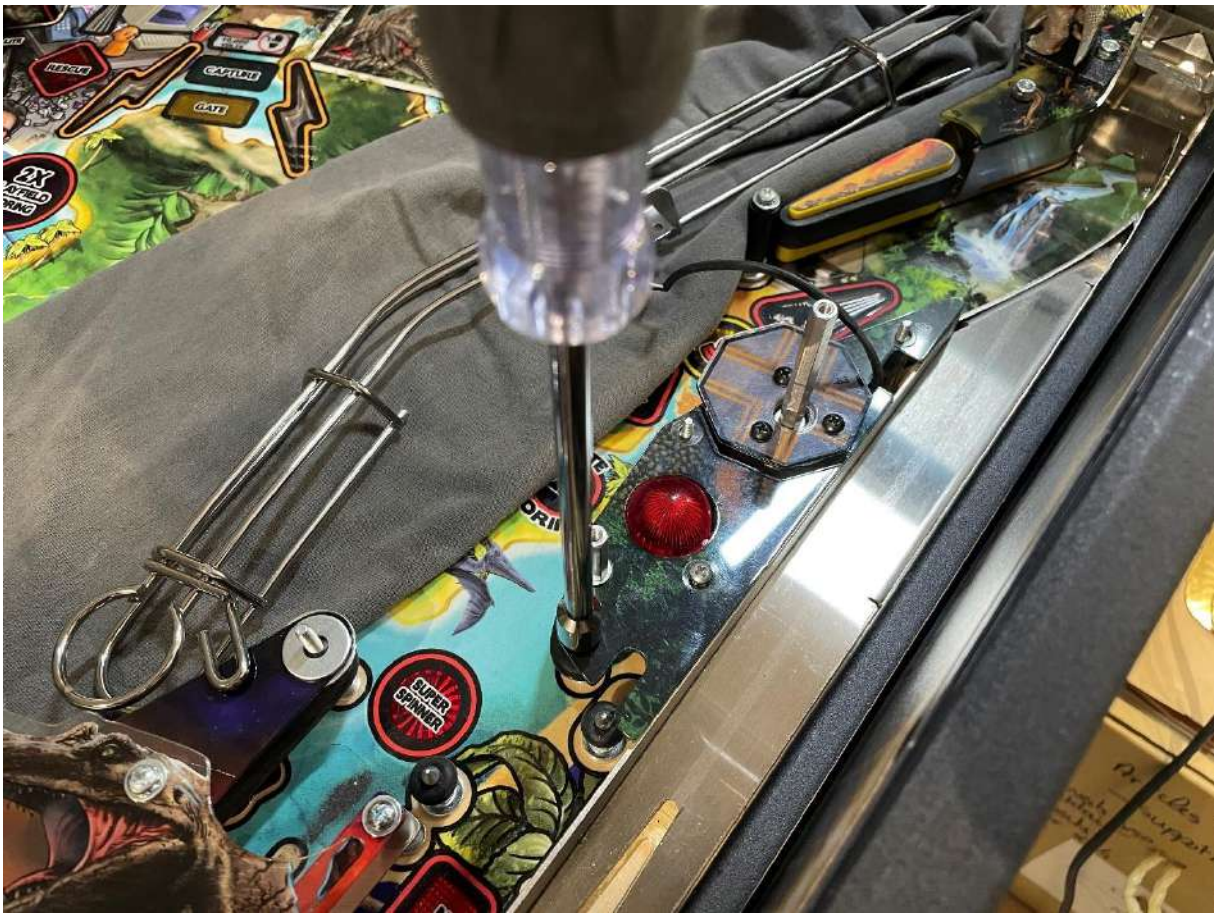

GATE
2X
RING
SUPER
CRANK

Be careful of the wire of the microswitch. Don’t try to remove the wire right now, wait 😊 :

For removing the green plastic of the platform, you have two aluminium hexa to unscrew. One here:

A second one here:

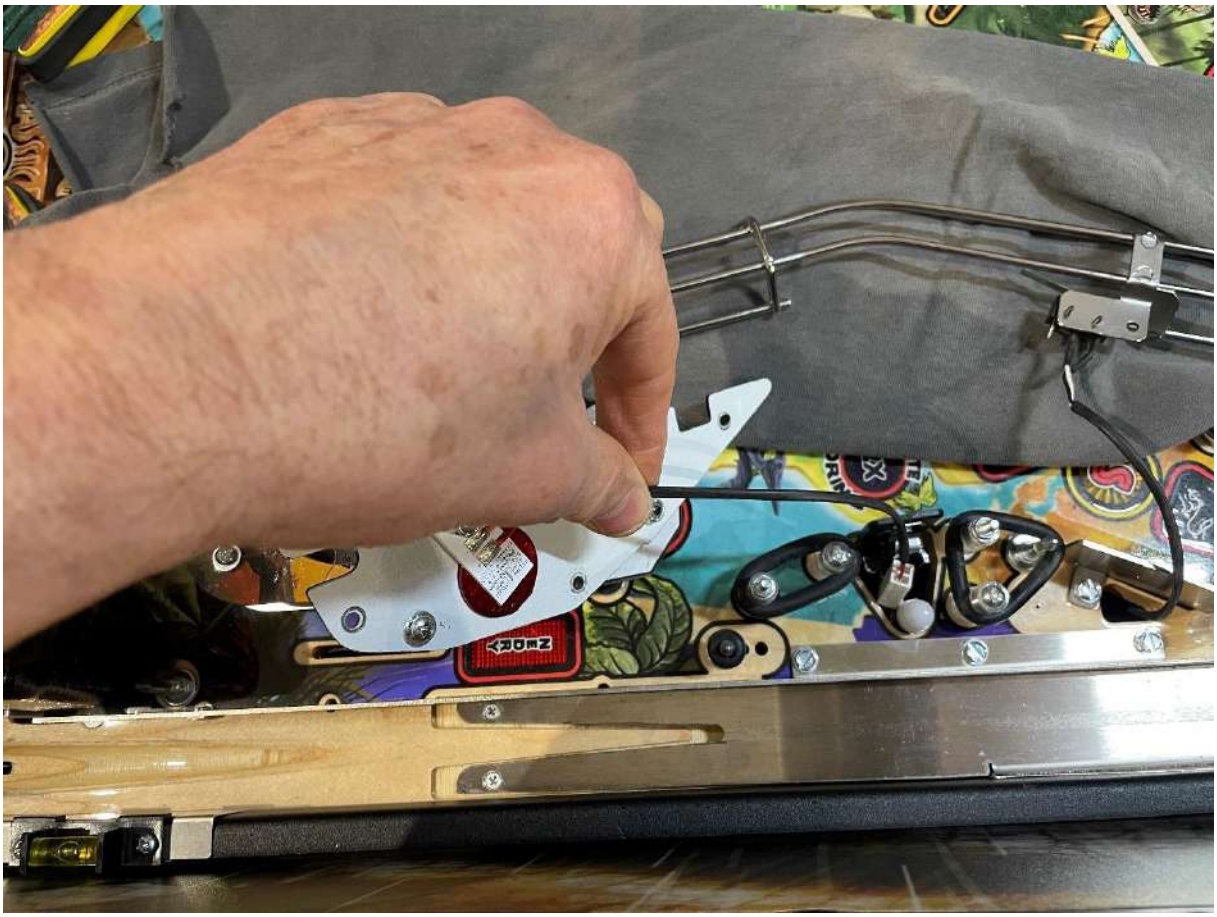
You have a nut to unscrew here:




ESCAPE NUBLAR
CAPTURE
GATE
RESCUE
2X
SUPER SPINNER

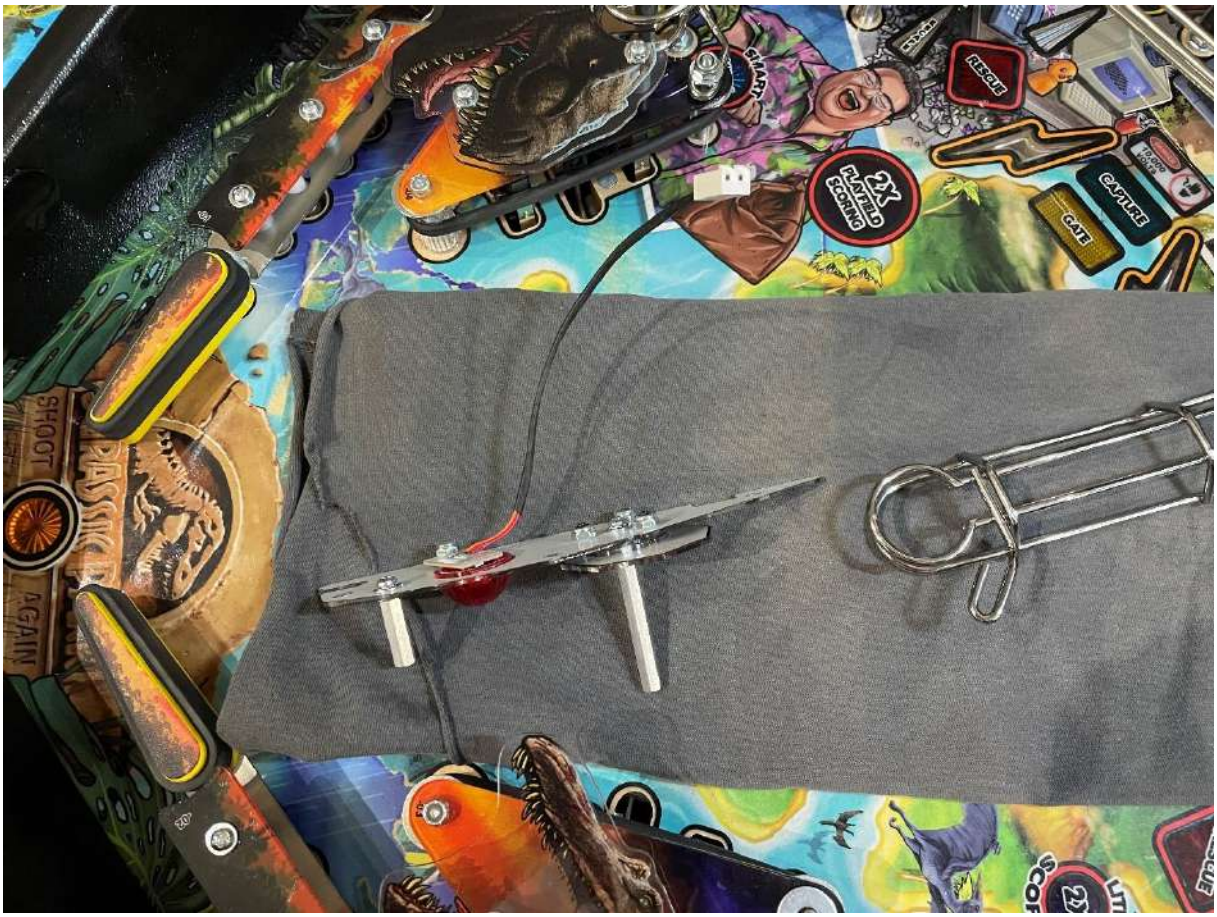
Remove your green plastic:

Remove the wire of the red flasher (white connector):



Remove the wire of the microswitch (orange connector):

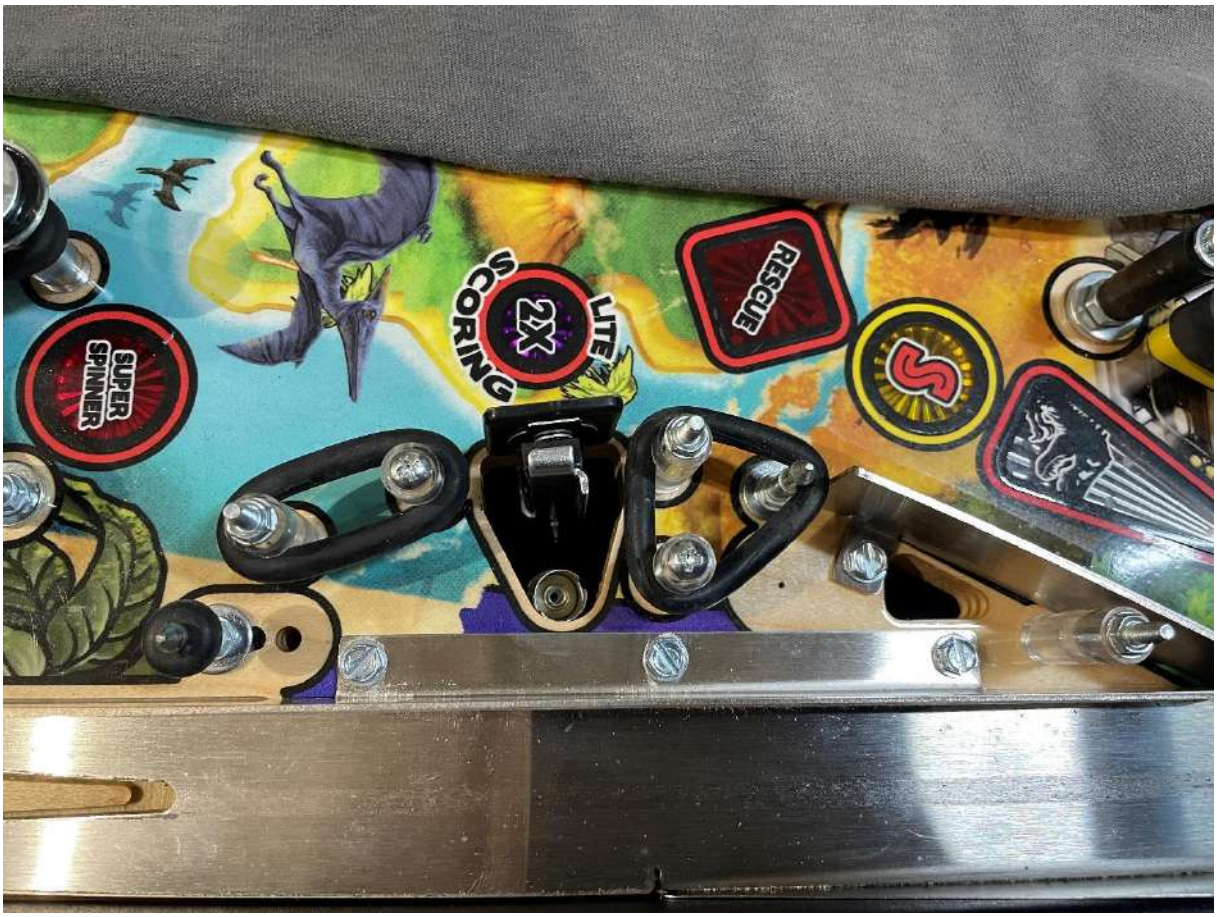
Put the plastic on your playfield:



And the ramp on your playfield:

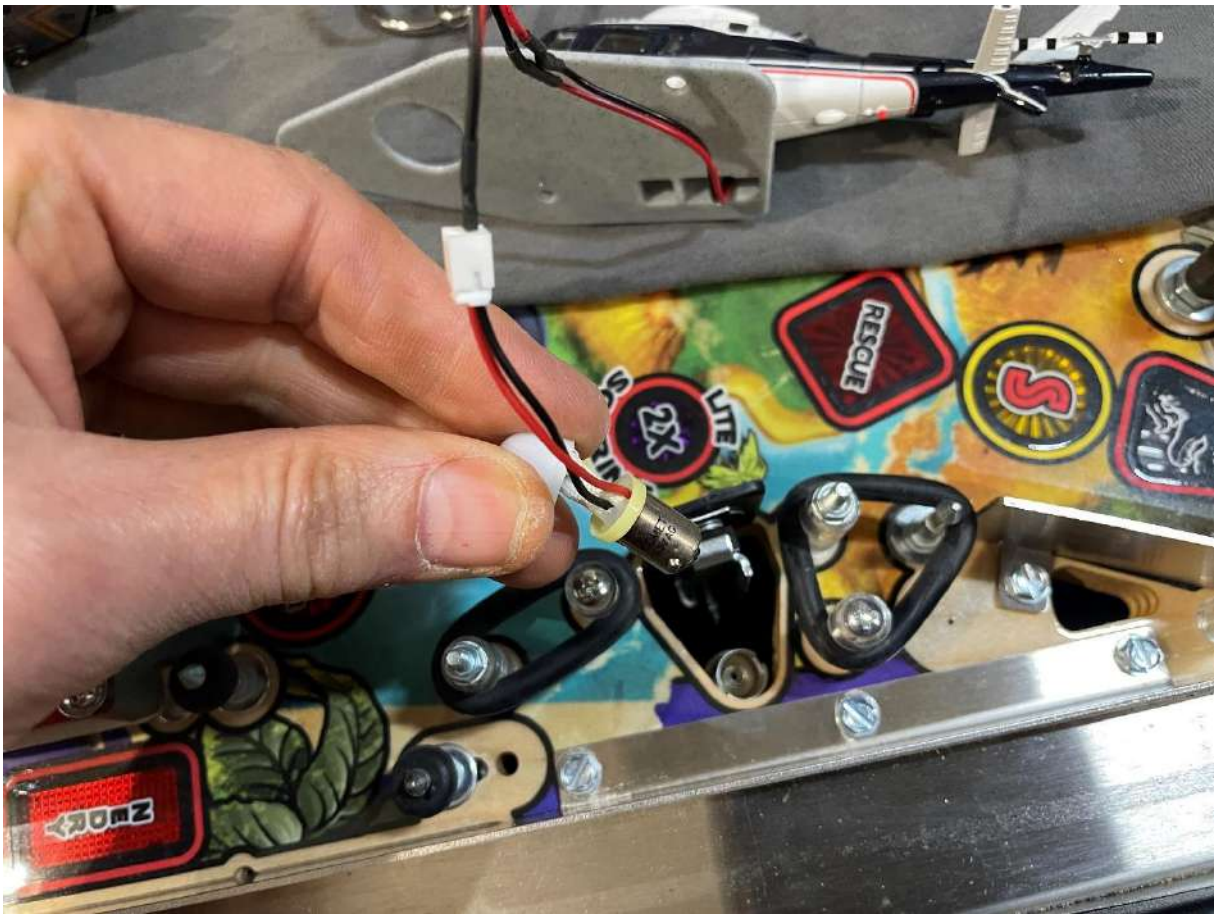
Localize the bulb to remove:

Remove the bulb:



Install the helicopter on your playfield:

Put the specifc bulb of the helicopter in the socket of the bulb removed:




2X
SCORING
LITE
SUPER
SPINNER

Unmount the hexagonal platform plastic on the green plastic where stands the red flasher:

On a PREMIUM/LE machine you have to unmount the white FLIPPER BUSHING:

You have 3 nuts to unscrew. On the PRO you have also to unscrew the central rode which maintains the axis of the original blade:

Look the tools we use to unscrew:

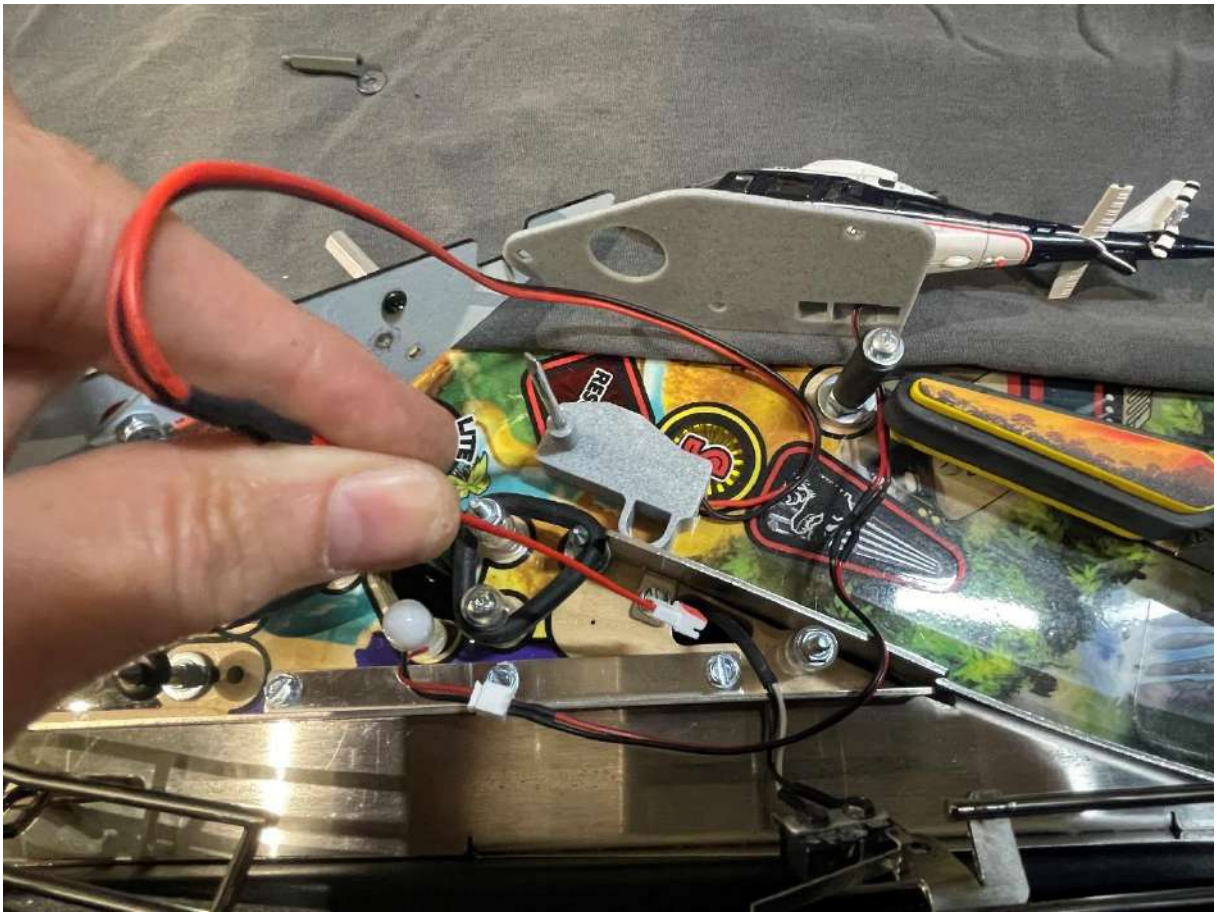
Here it is your green platsic removed:

Mount the aluminium hexa (goes on one of the three holes which maintains the helipad), respect the good one:

Put again your Helipad ramp on the corridor and pass the wire of it in the triangular hole as you can see in the photo.

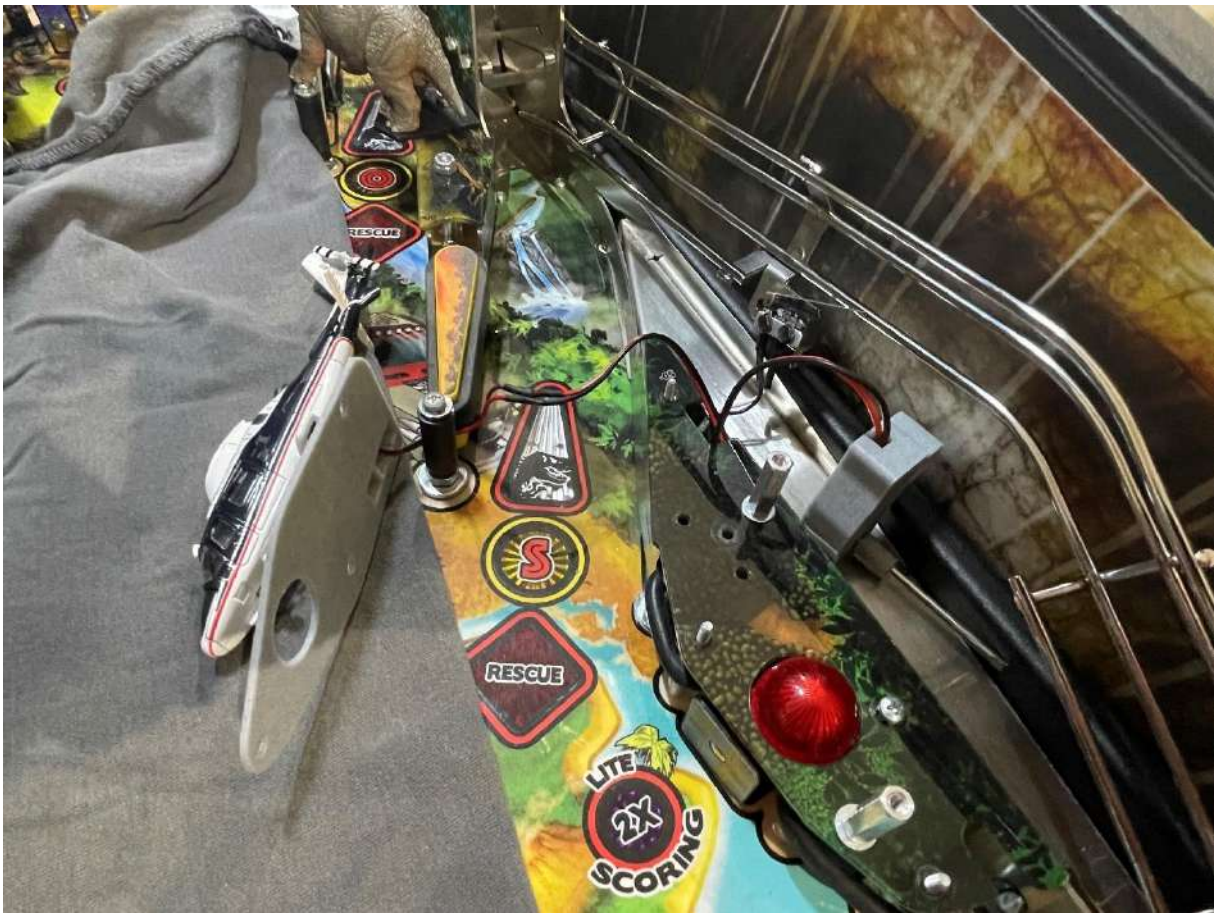
Note: Only for Premium/LE/30th Anniversary, if you have to install the mini board (option) you have to go on its documentation to install the second microswitch above the standard microswitch. You will save your time. Once you have mounted this second microswitch on the Helipad ramp, you have to pass its wire on the same triangular hole as the first microswitch. Just this step, you will install the mini board itself when you have finished to install the Helicopter mod.

Mount of motor, you have to pass the wire in hole where stands the wire of the microswitch:




RESCUE


RESCUE


RESCUE
RESCUE
LITE
2X
SCORING

Repositionning your green plastic with the three wires in the same rectangle hole:

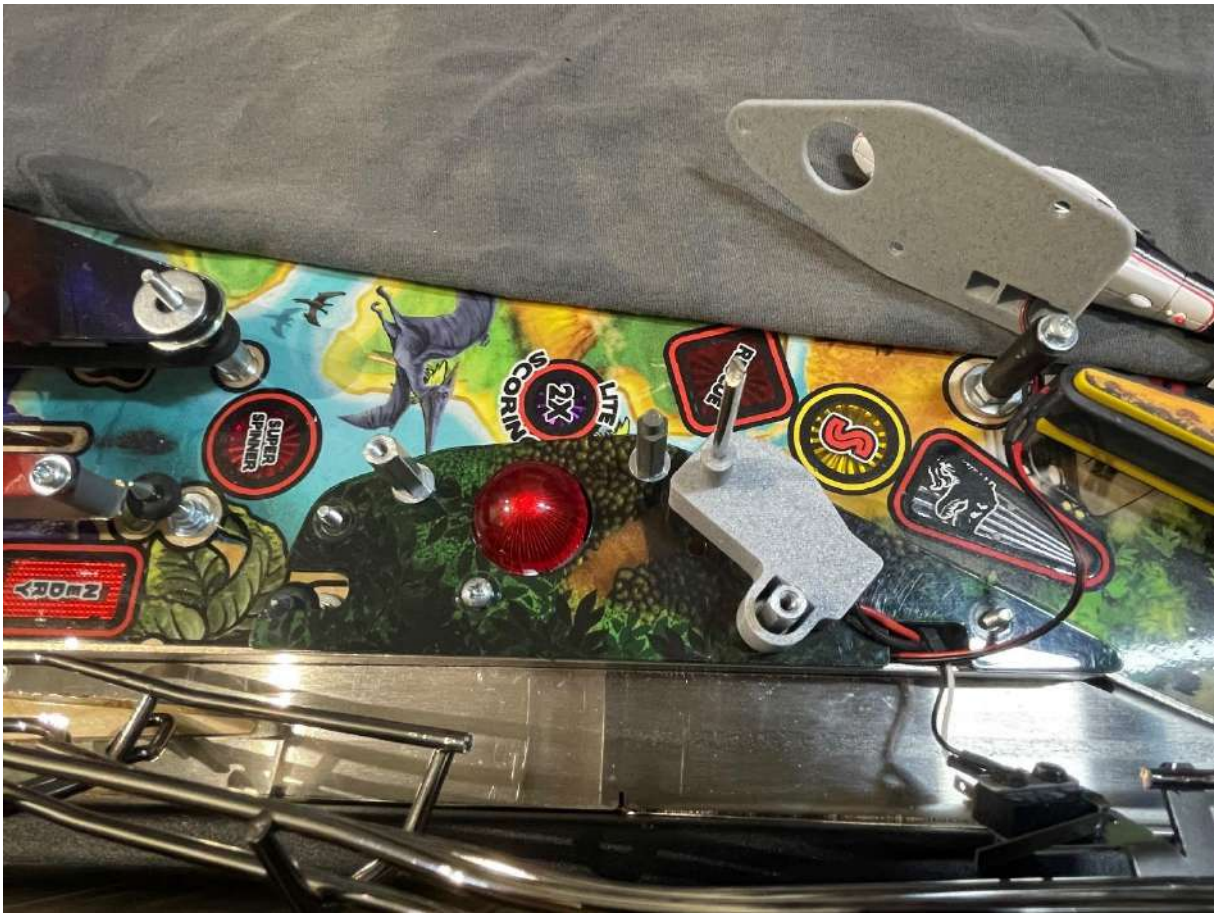
First remove the plastic hexagonal rod placed on the grey helicopter platform. It was placed on the platform of the helicopter in order to see where it was positioned. Don't hesitate to pull hard on it to remove it. You won't break anything 😀.

Screw our plastic hexagonal rod on this way. See the photo:

Look here all the hexa we have screwed on the green plastics. Respect the positioning:

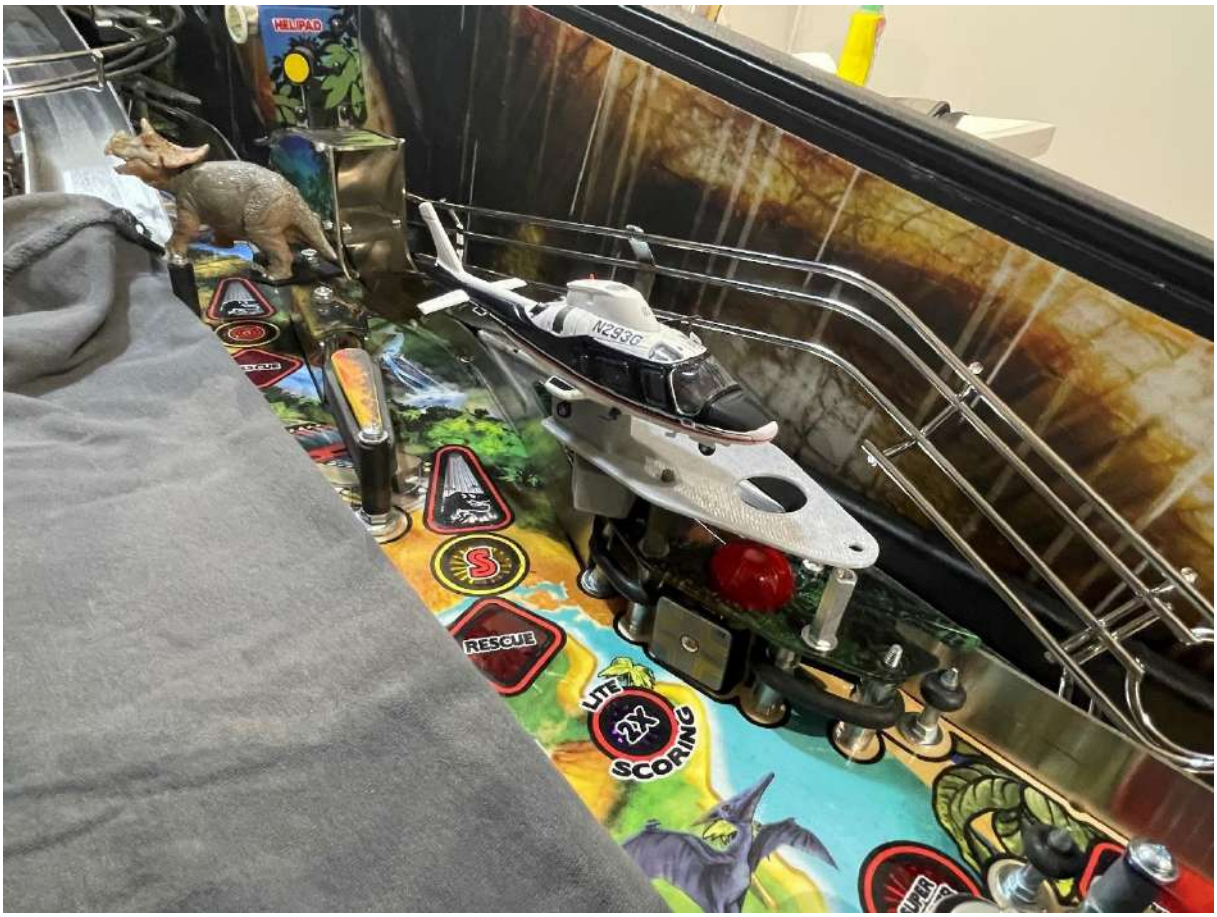
Mount the motor like on the photo on the correct hexa:

WARNING : Don’t stick the motor with the double tape on the green plastic now ! This step is optional and you have to do that clearly when all is installed properly. Run the propeller a long time to be sure your motor is aligned in his axis. This tips is described at the end of this documentation.



Mount of helicopter:

Mount the platform of the helicopter thru the iron rode in the correct hole:


HELIPAD
N293G
RESCUE
LITE
2X
SCORING

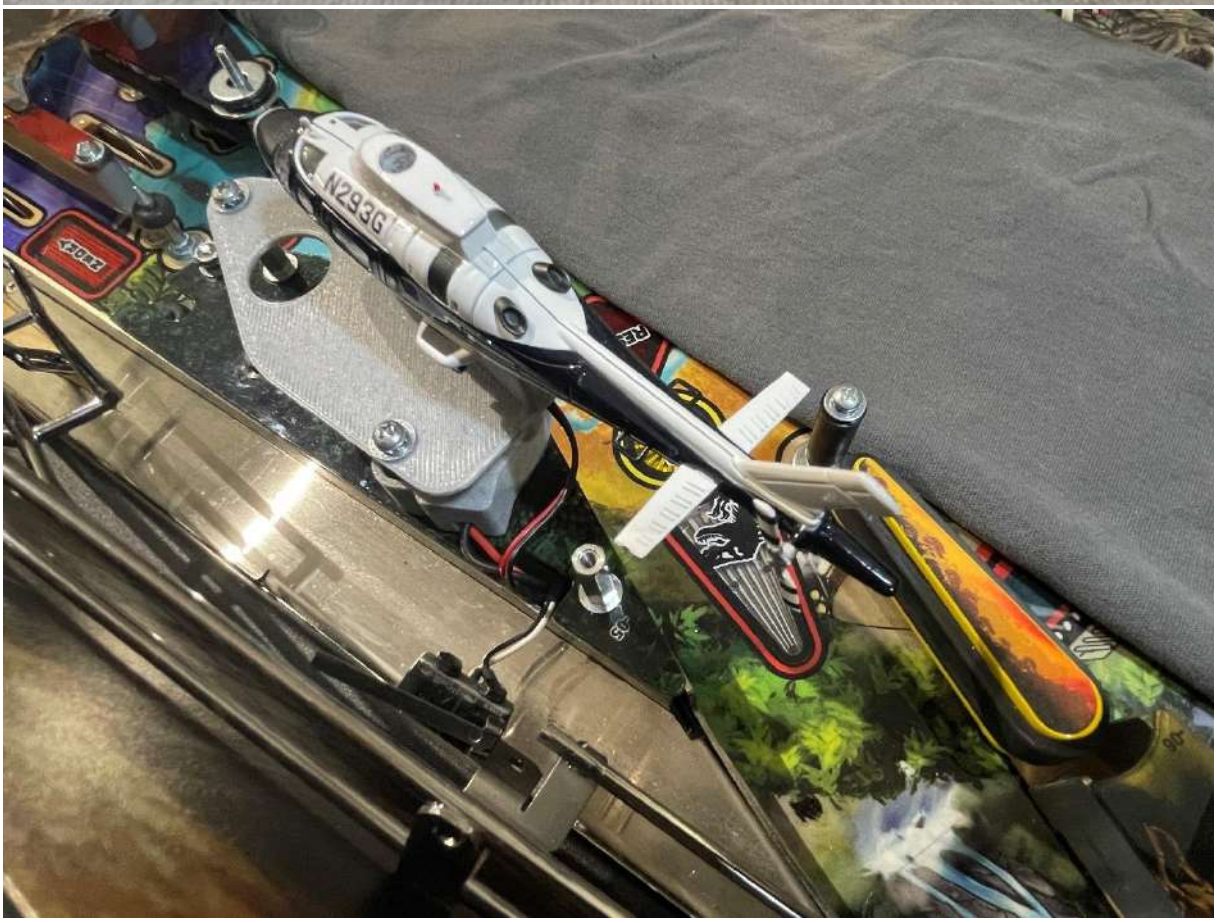
Maintain your platform with two screws. One here:

The secon one here :

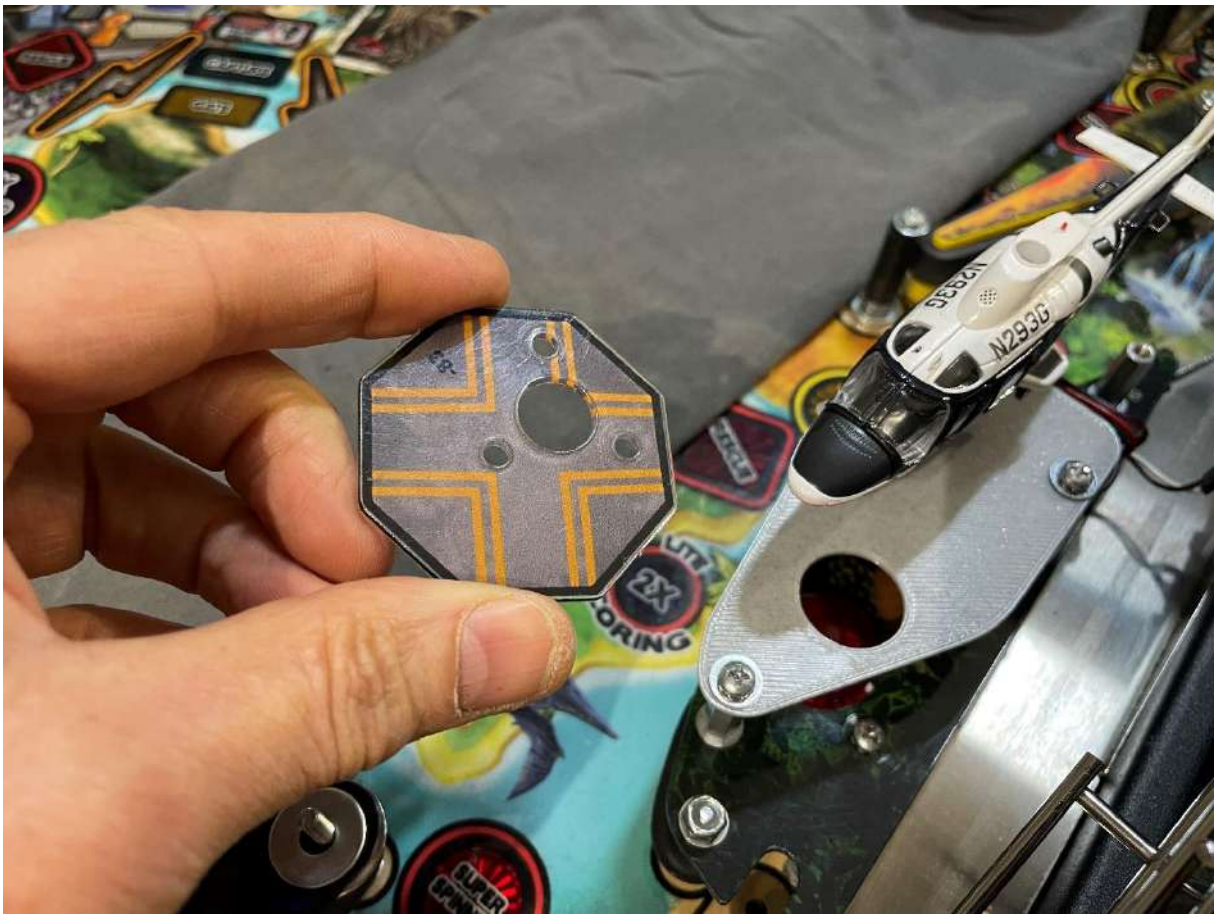
Don’t forget the ultimate nut which maintains the green plastic:

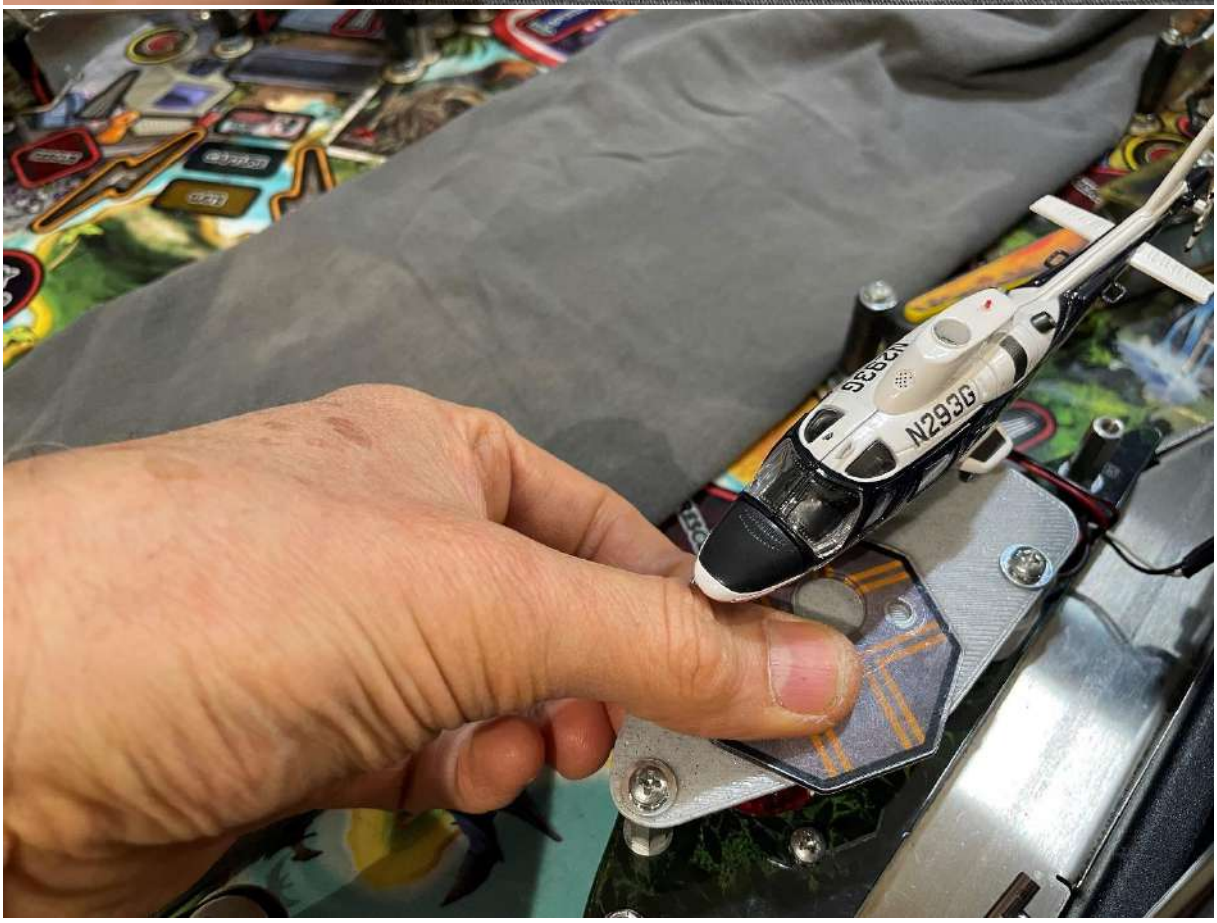
Screw the aluminium hexa (the small one of all) which maintains the ramp:

Your helicopter is positioning now 😊:


N293G

Stick the hexagonal grey orange platform with the double tape given:




N293G

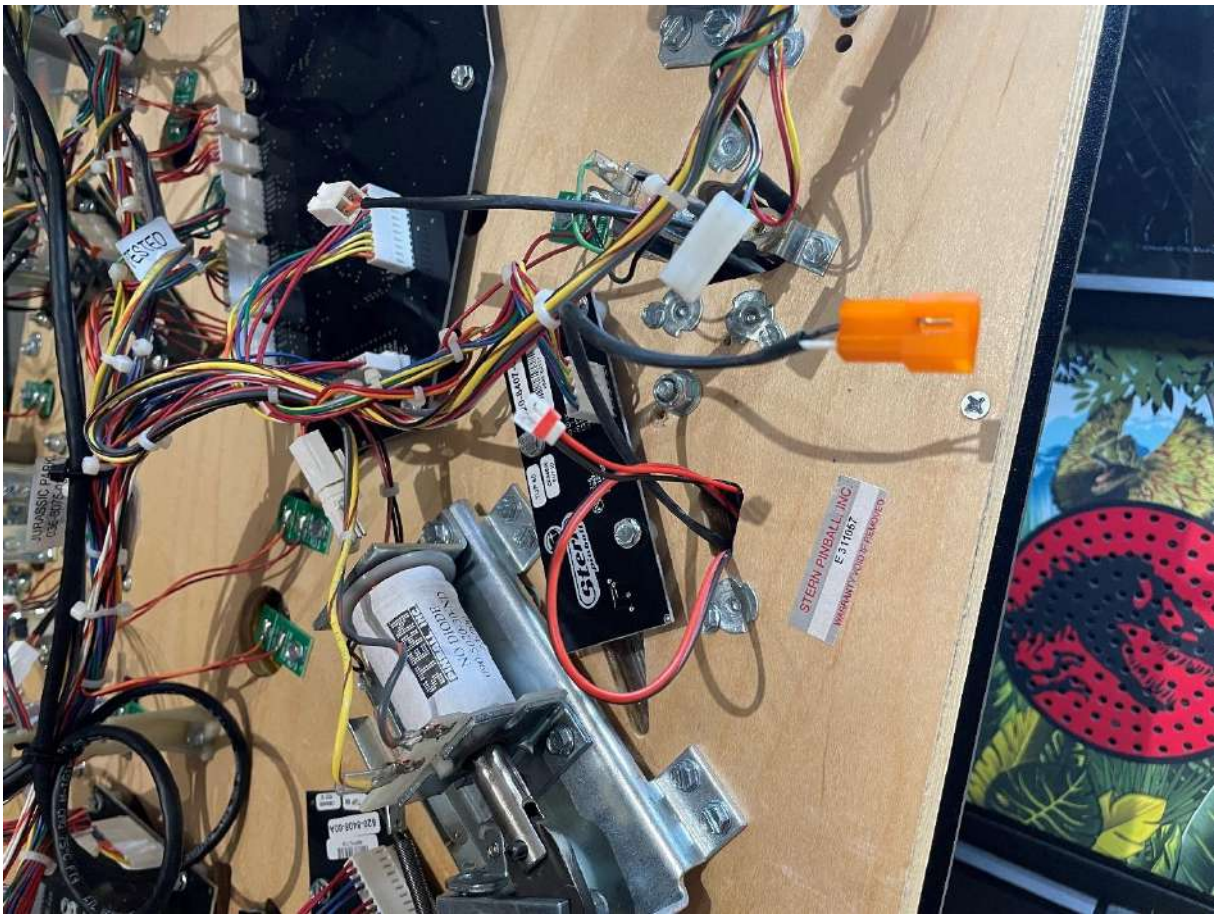

N293G
2X

Mount of the ramp again. Positioning it:

You have 1 screw here (close to the microswitch):

And one nut here (the largest of the nuts you have unmount):

Under your playfield you can see the red connector motor which goes to box red connector:

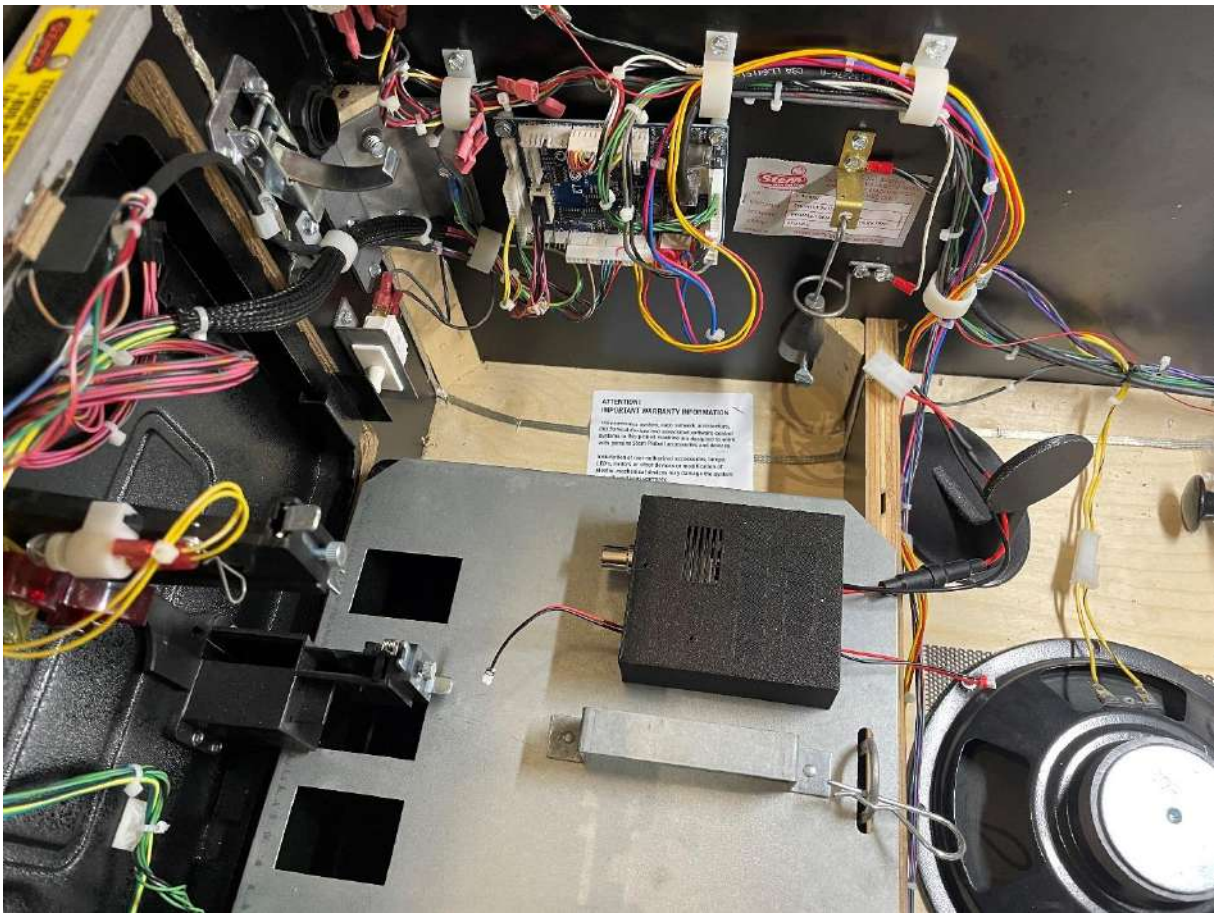


In the next paragraph, you have to follow the option you have chosen to install our box which contains electronic part and relay :

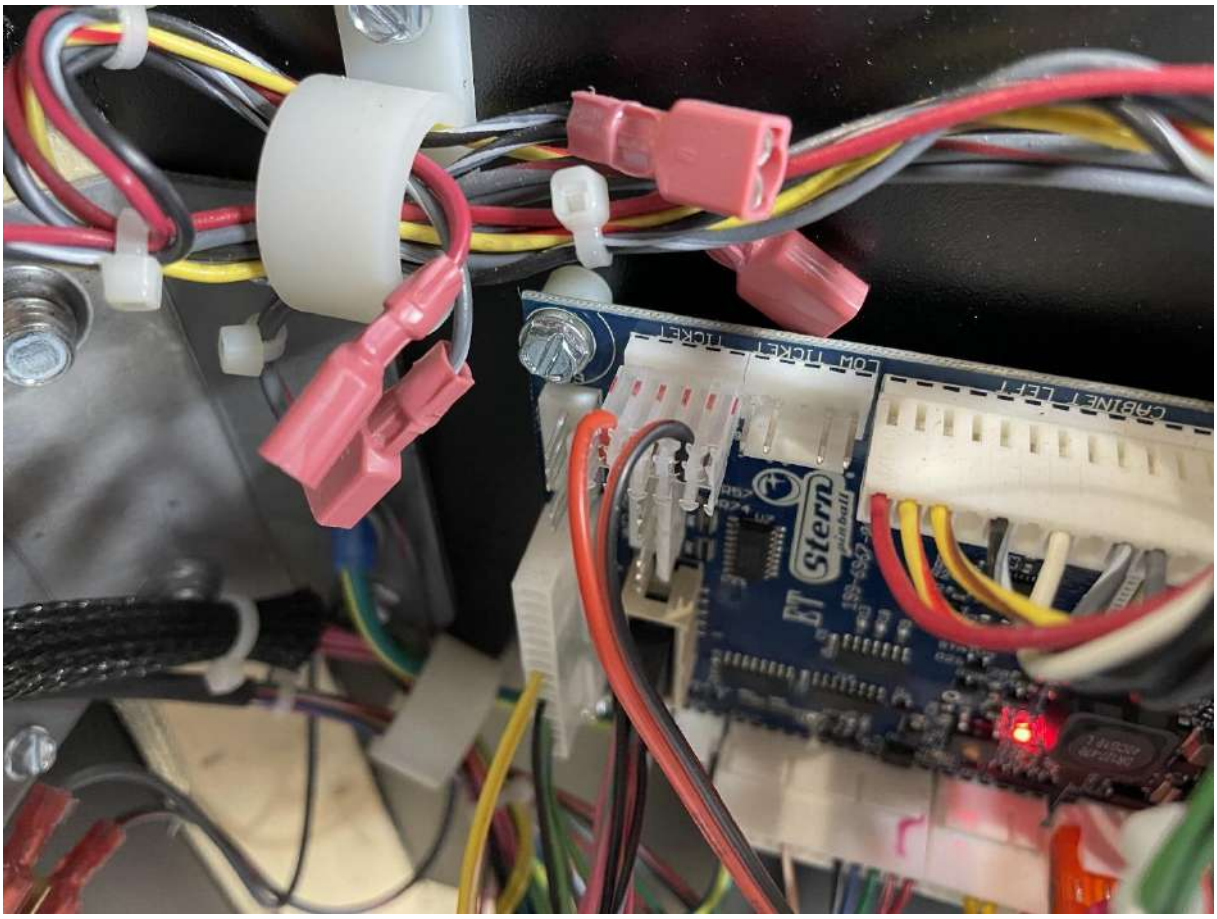
Option A : Coindoor Cabinet installation.

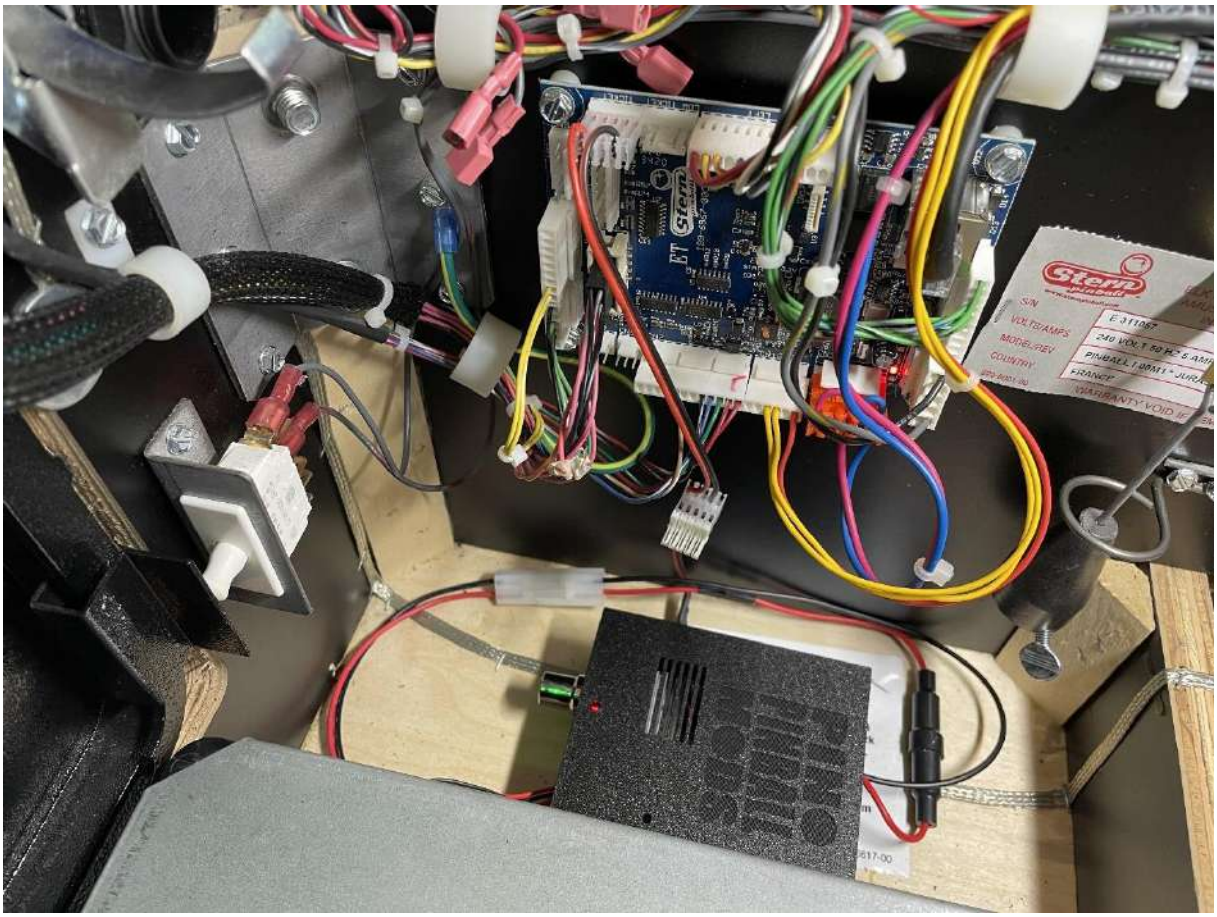
Option B : Backbox installation.

Option A - Box Mount (inside Cabinet):

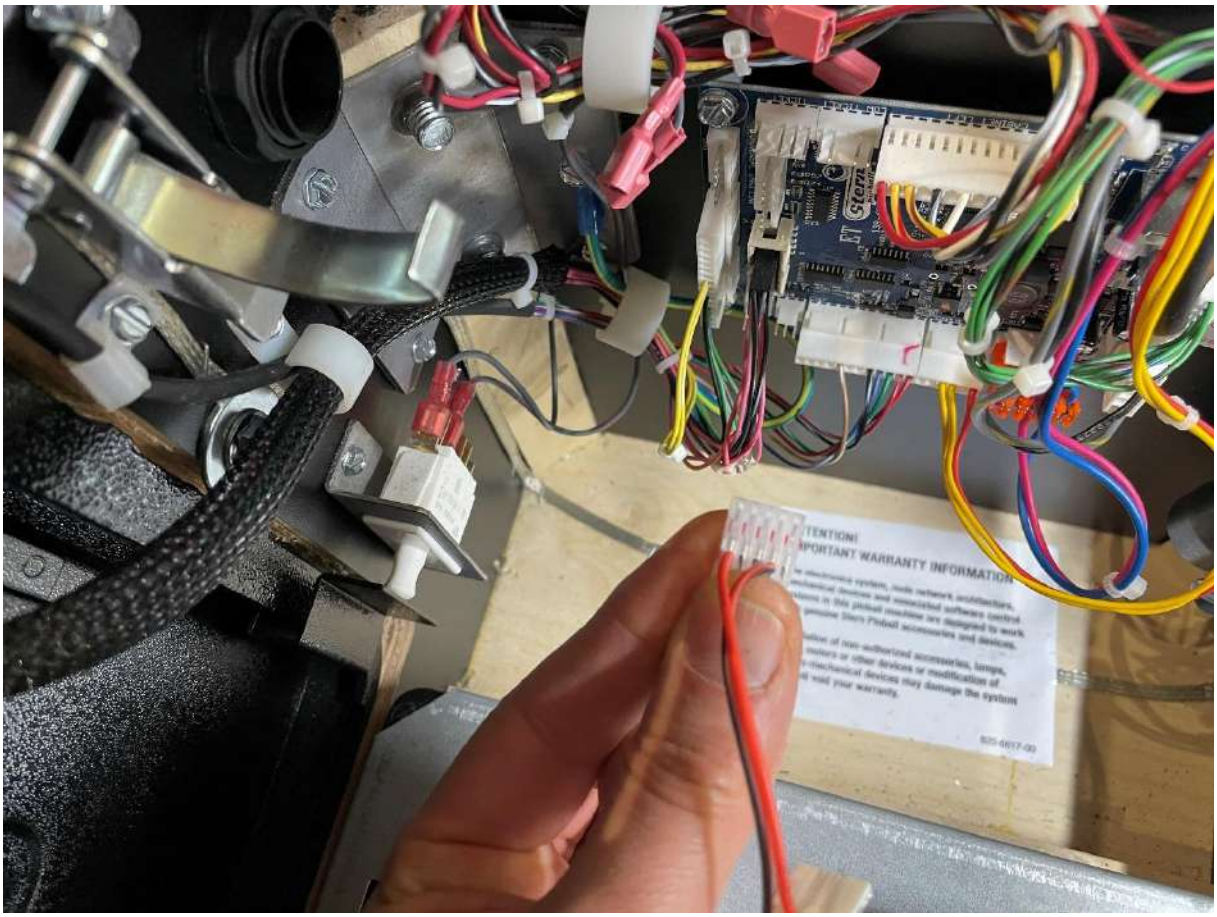


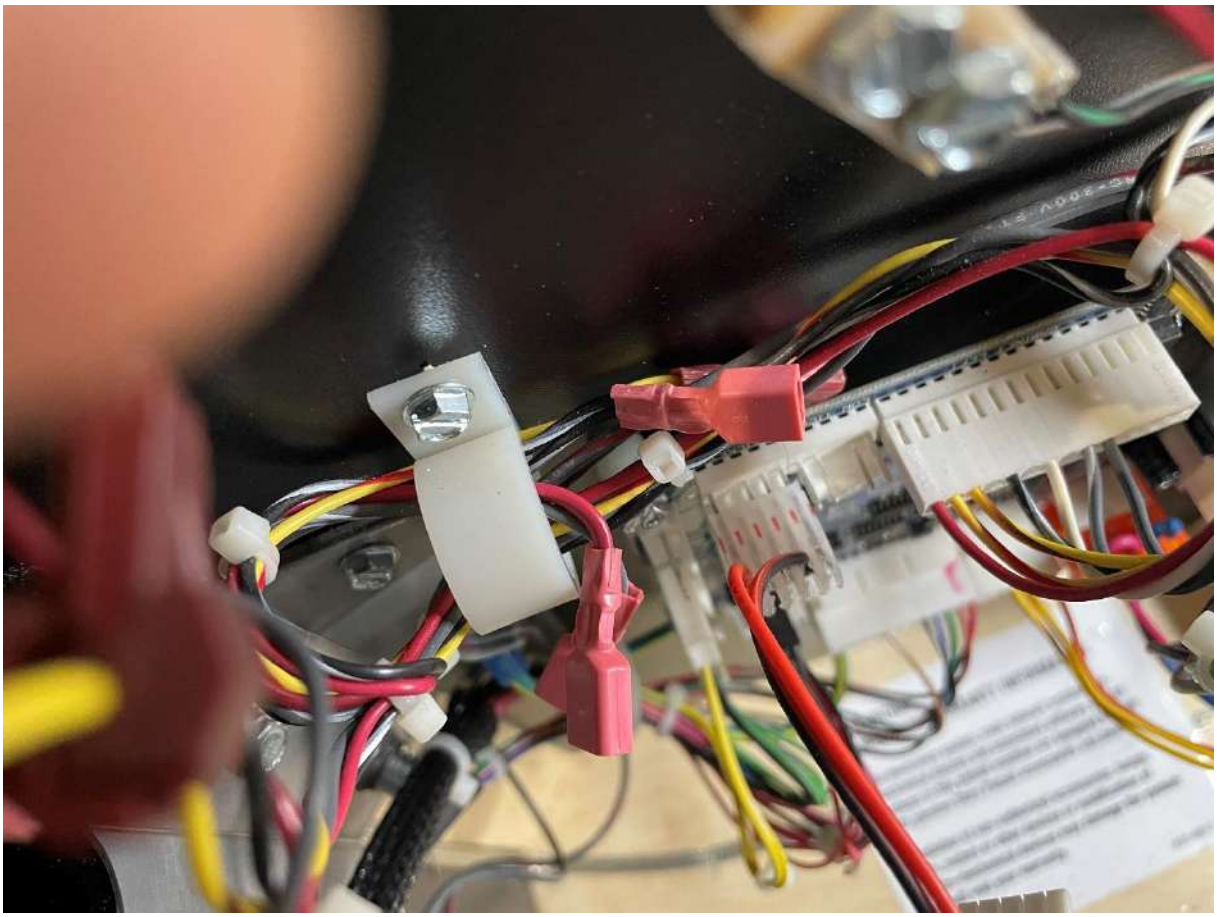
You take the 12v here in the first connector of coindoor card. Name “ticket”. Respect the correct pin (x5):



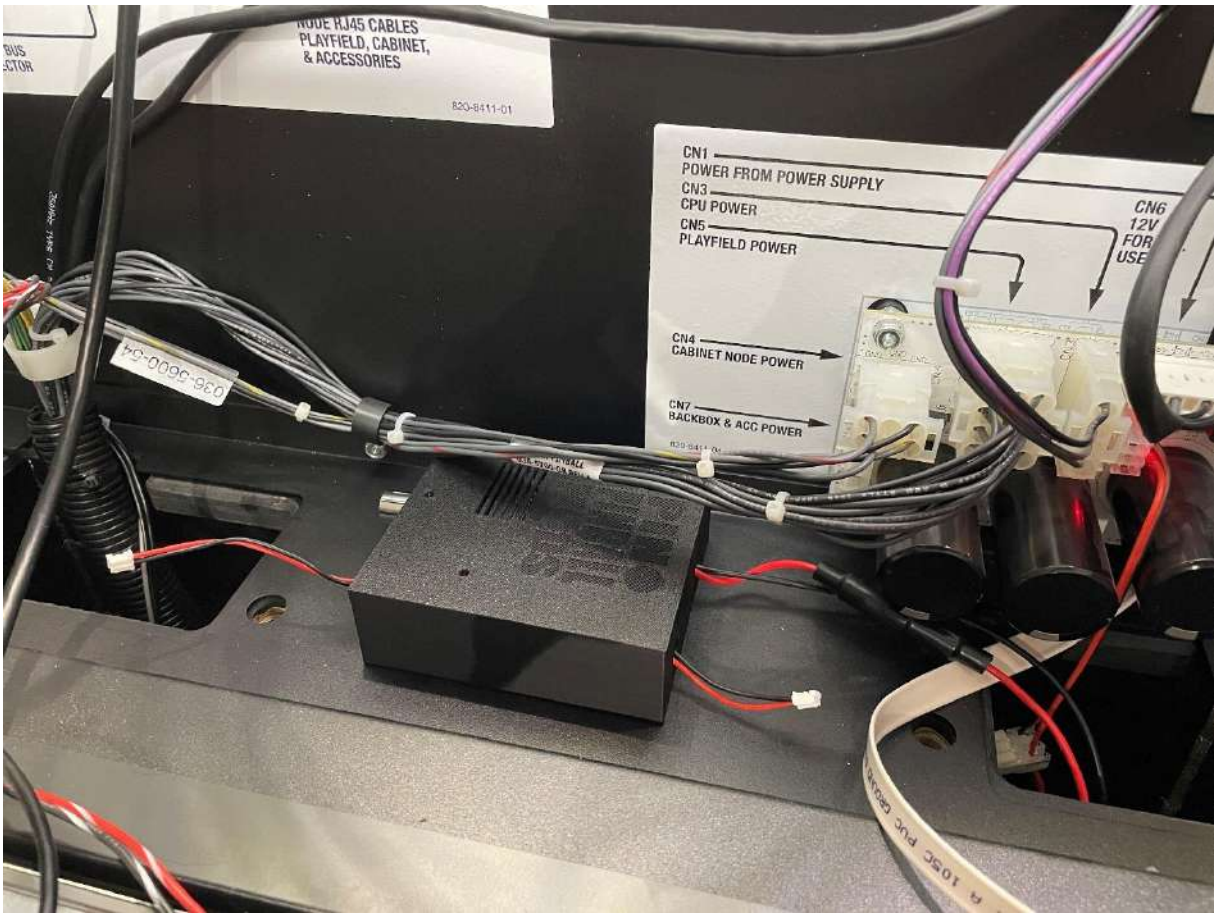

Stern
SIN
VOLTS/AMPS
MODEL/REV
COUNTRY
E-311067
240 VOLTS 50 HZ 6 AMPS
PINBALL MM1 - JURASSIC PARK
FRANCE
WARRANTY VOID IF

Red line (x5) of the connector on the top:

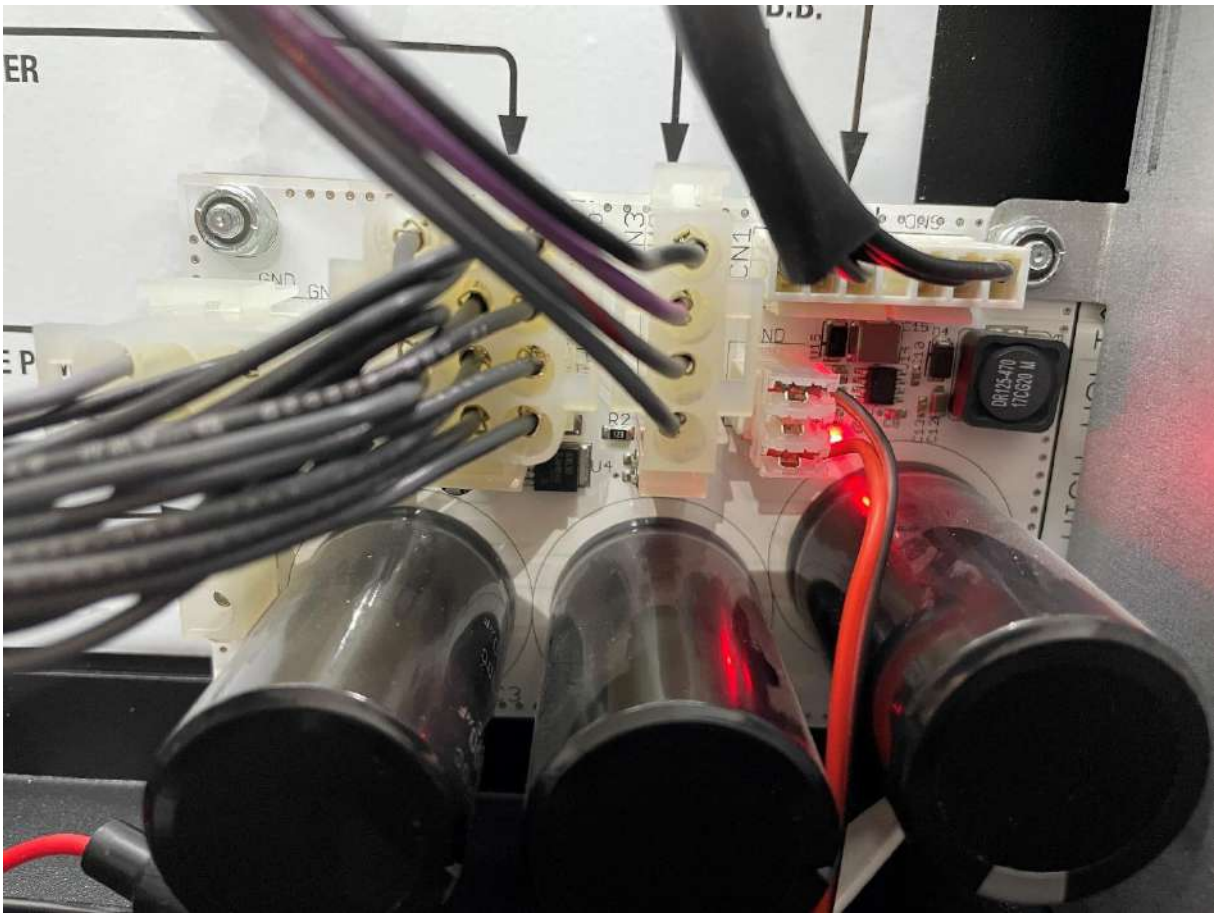




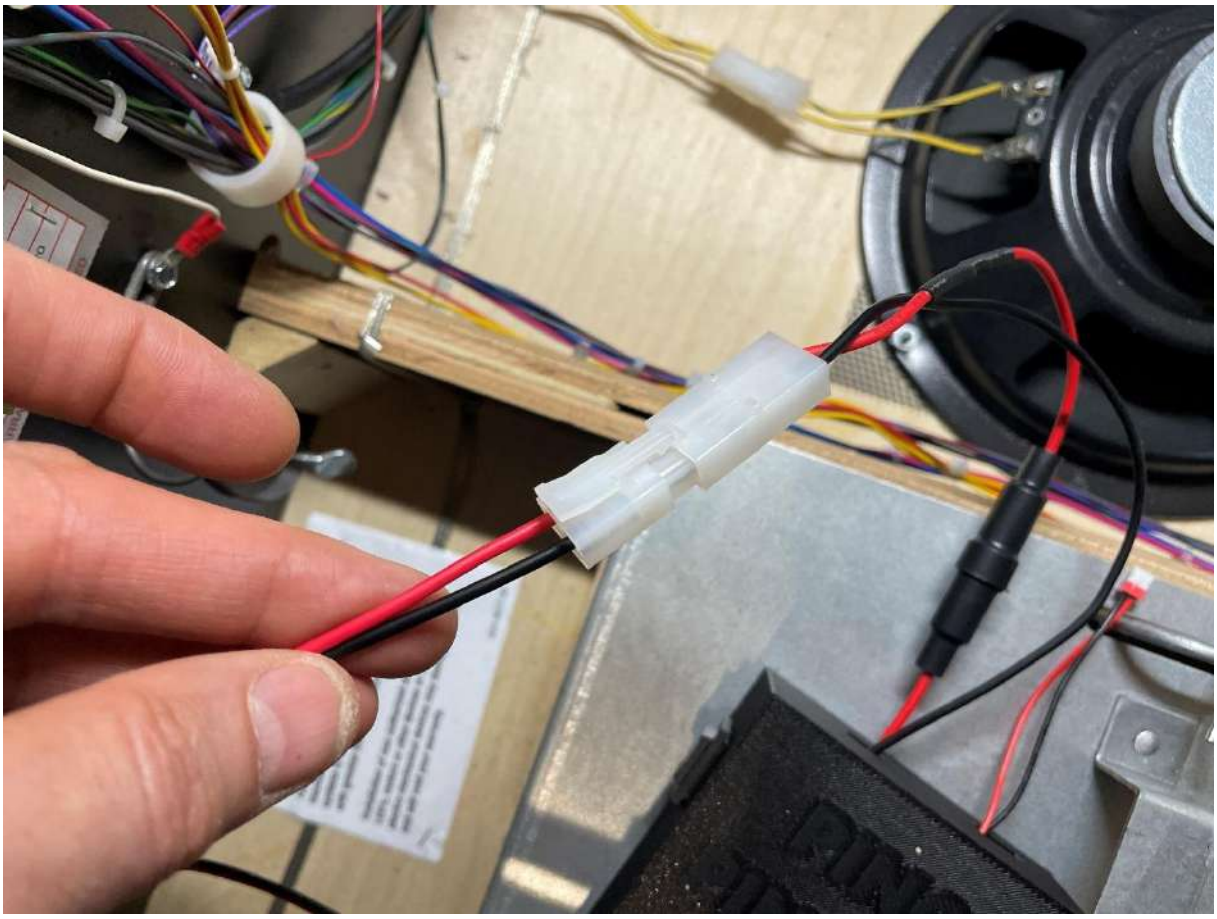
Option B - Box Mount inside Backbox:



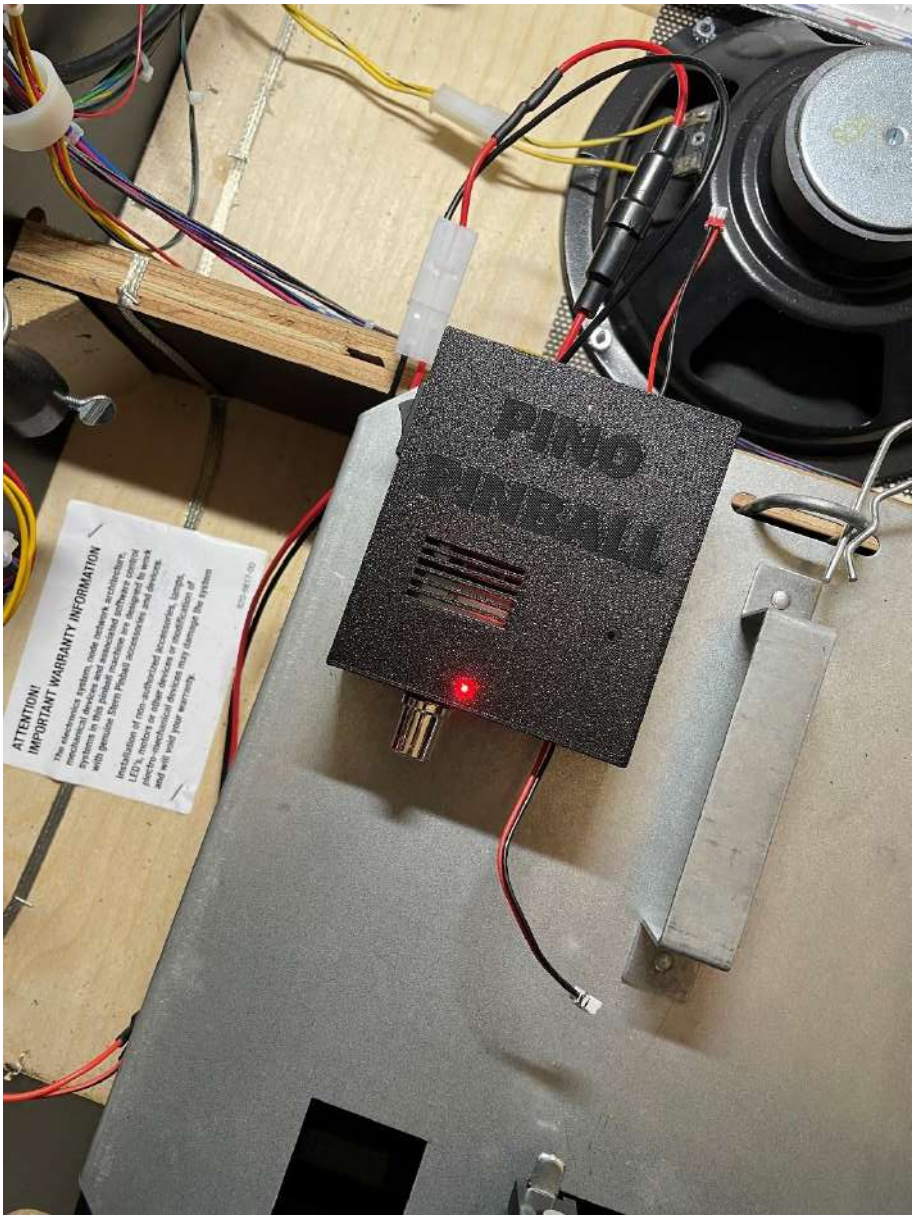
The 12v connector inside your Backbox:



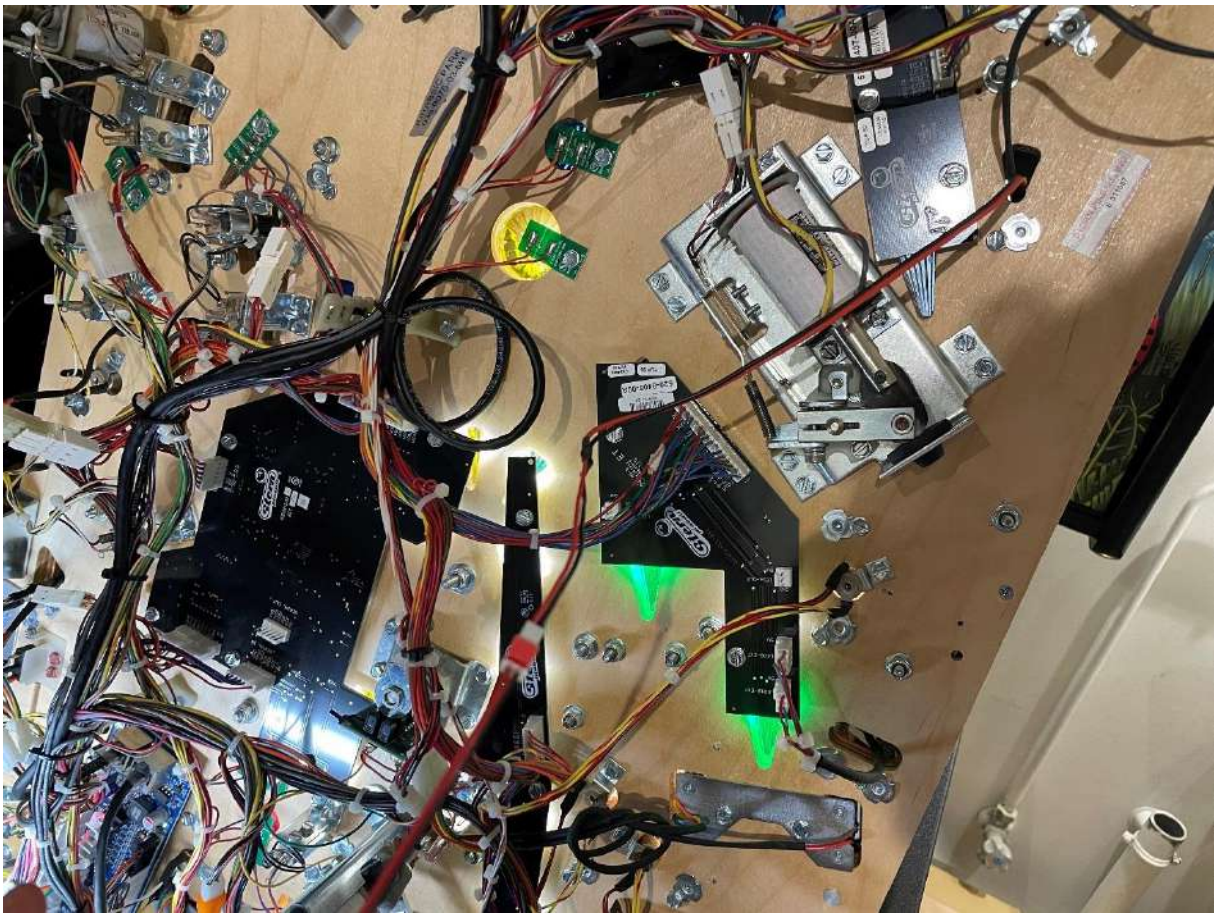
Connexion of our box to the wire we have installed of the 12v connector:



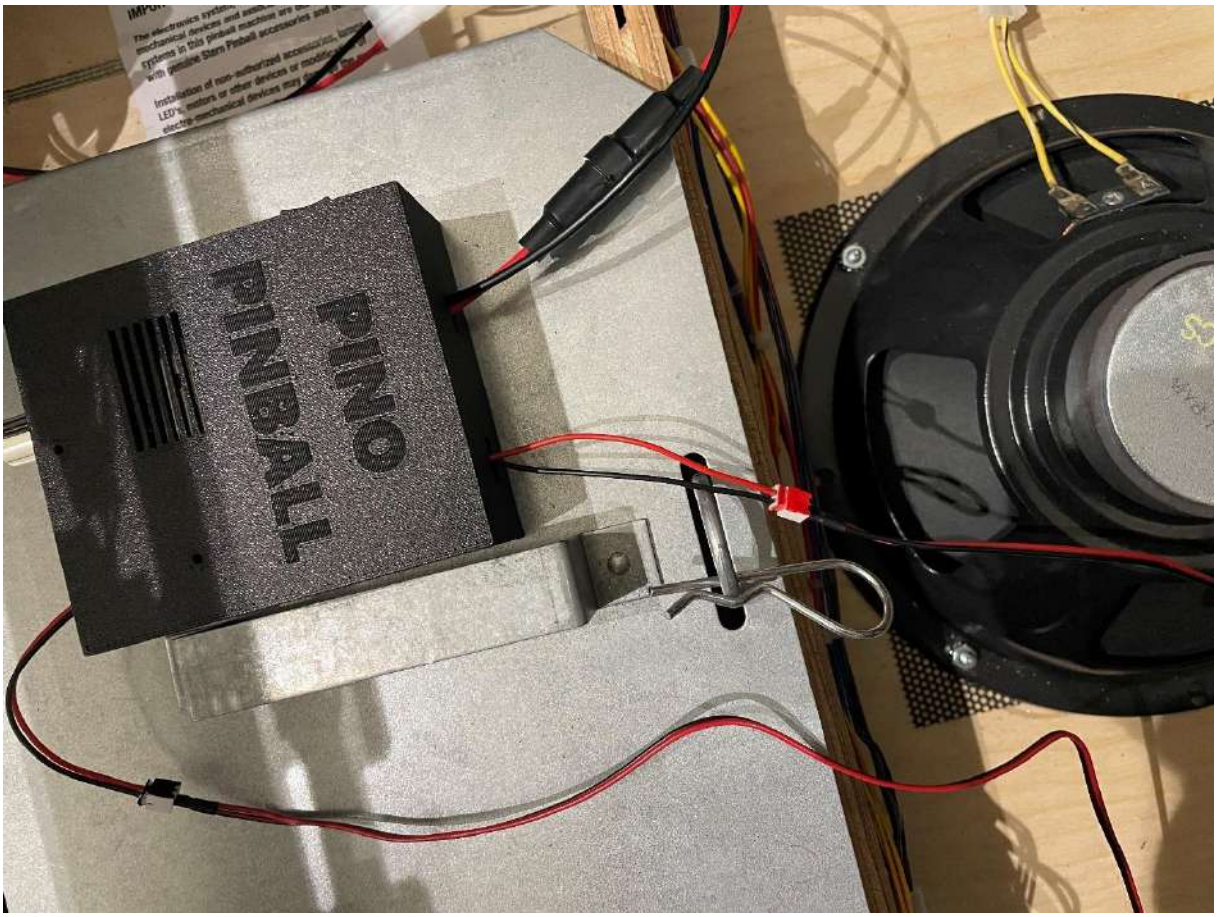
Red small light on the box indicating box functionning. Turn the button to activate the light, you can turn the button to adjust the speed you want:



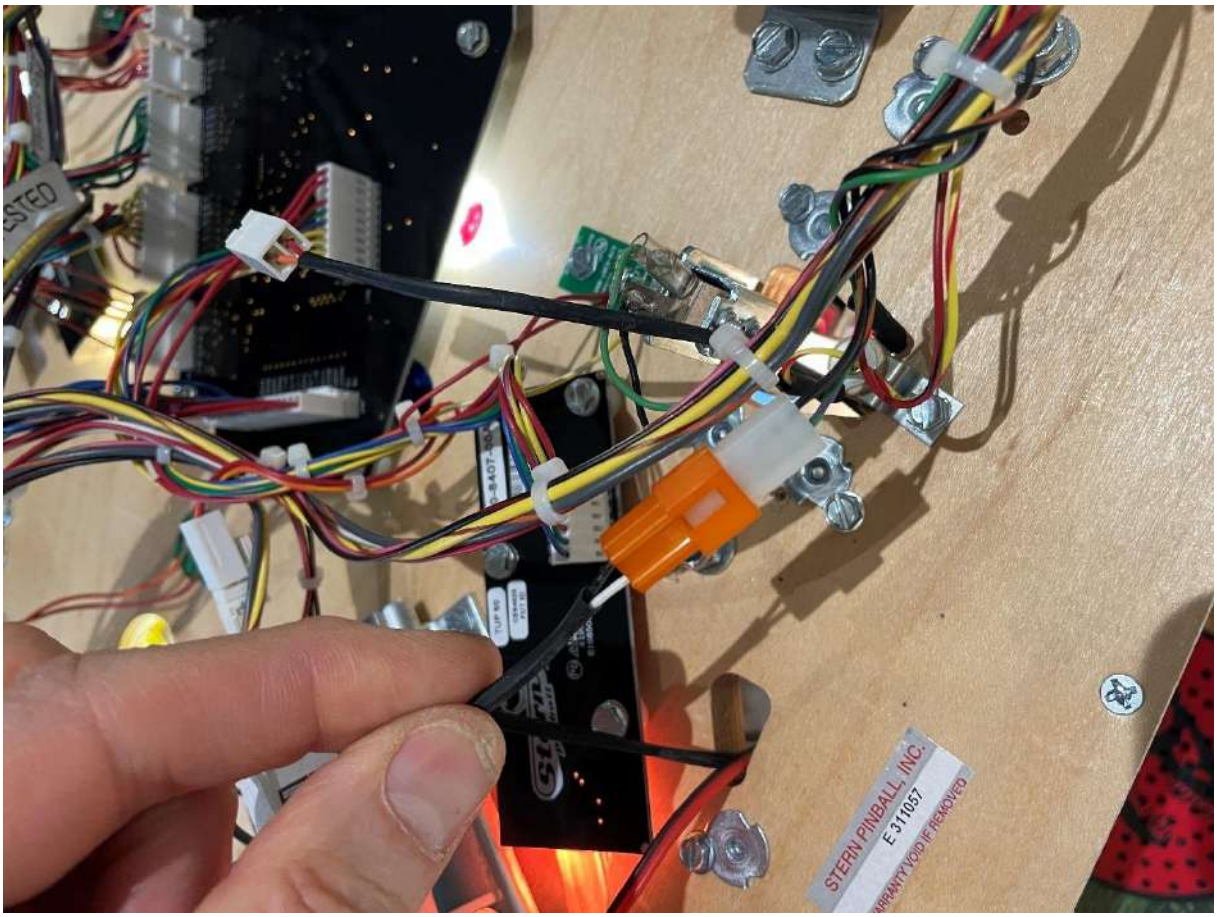
Motor Connexion (red to red connector):



Red connector on our box (motor connexion):



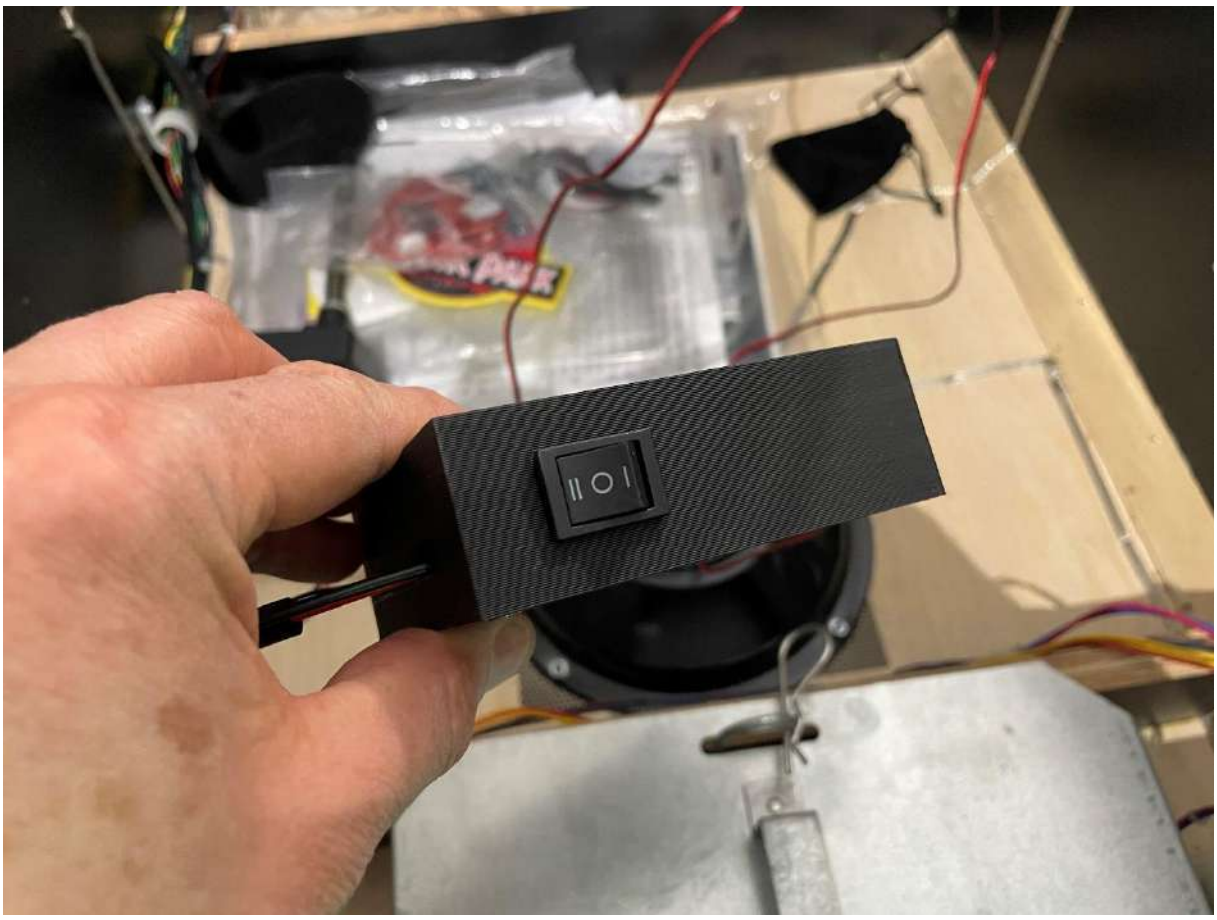
Flasher reconnexion:

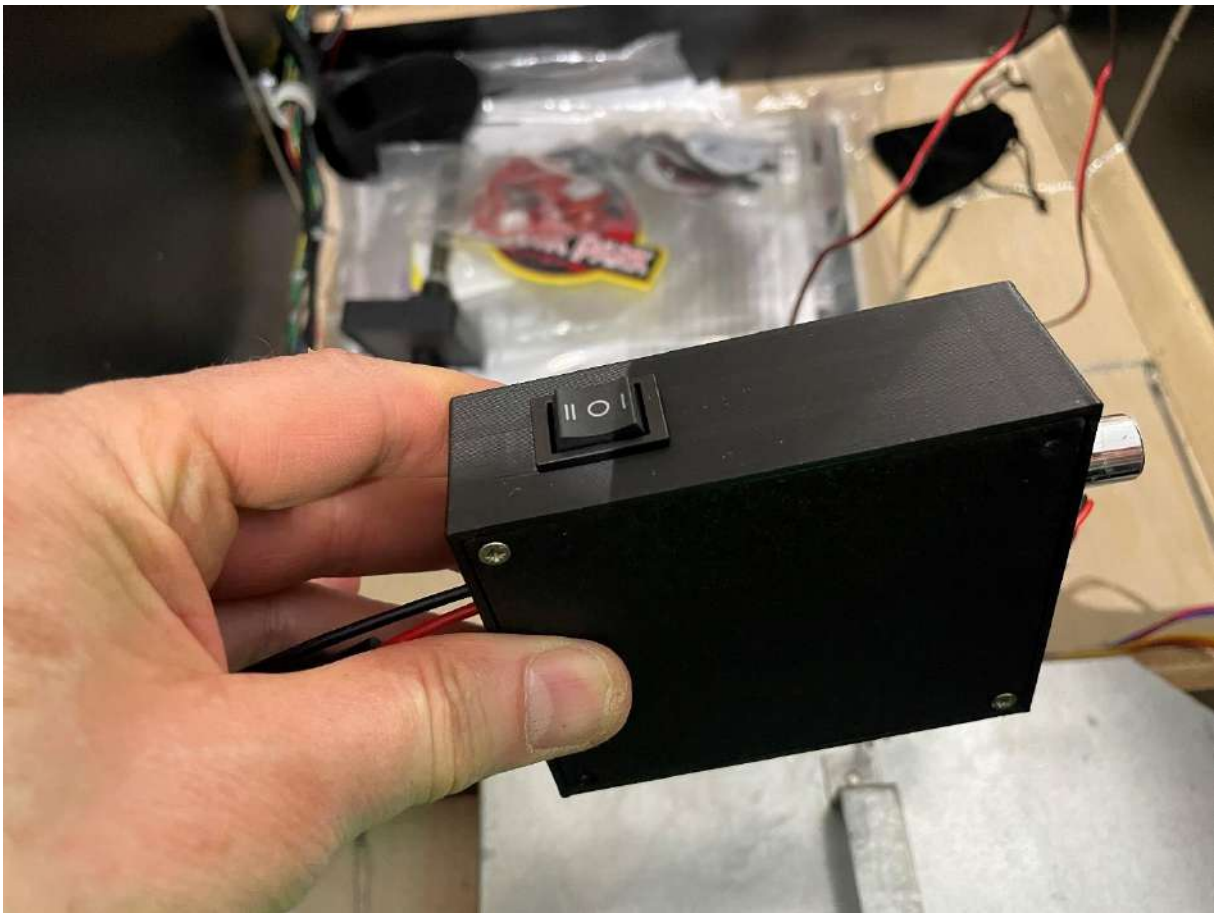


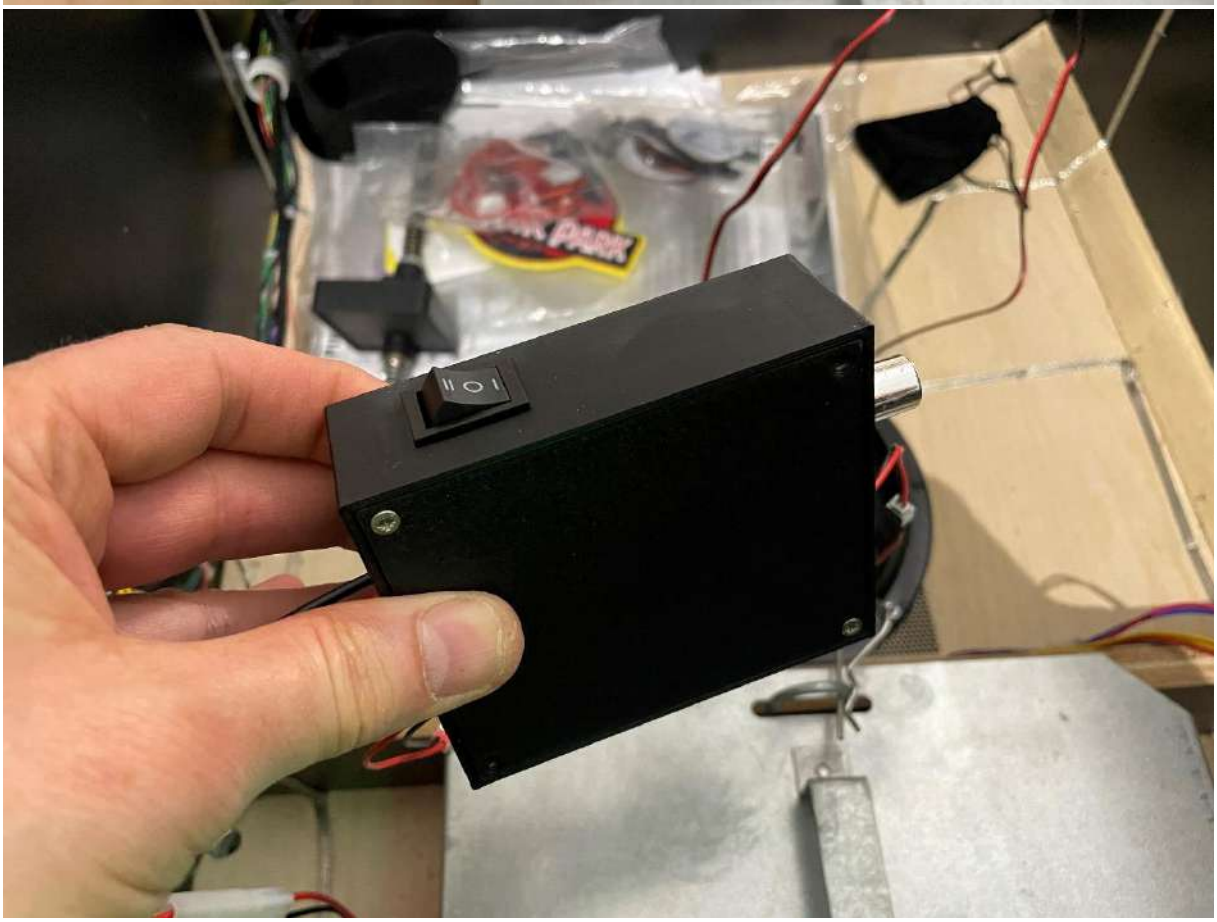
Switch positioning « I O II ». Three positions.

- **O, the propeller is stopped.**
- **I, the propeller runs with the option you have chosen to interact with the propeller (Red flasher ou Yellow Helipad Light),**
- **II, the propeller run always.**

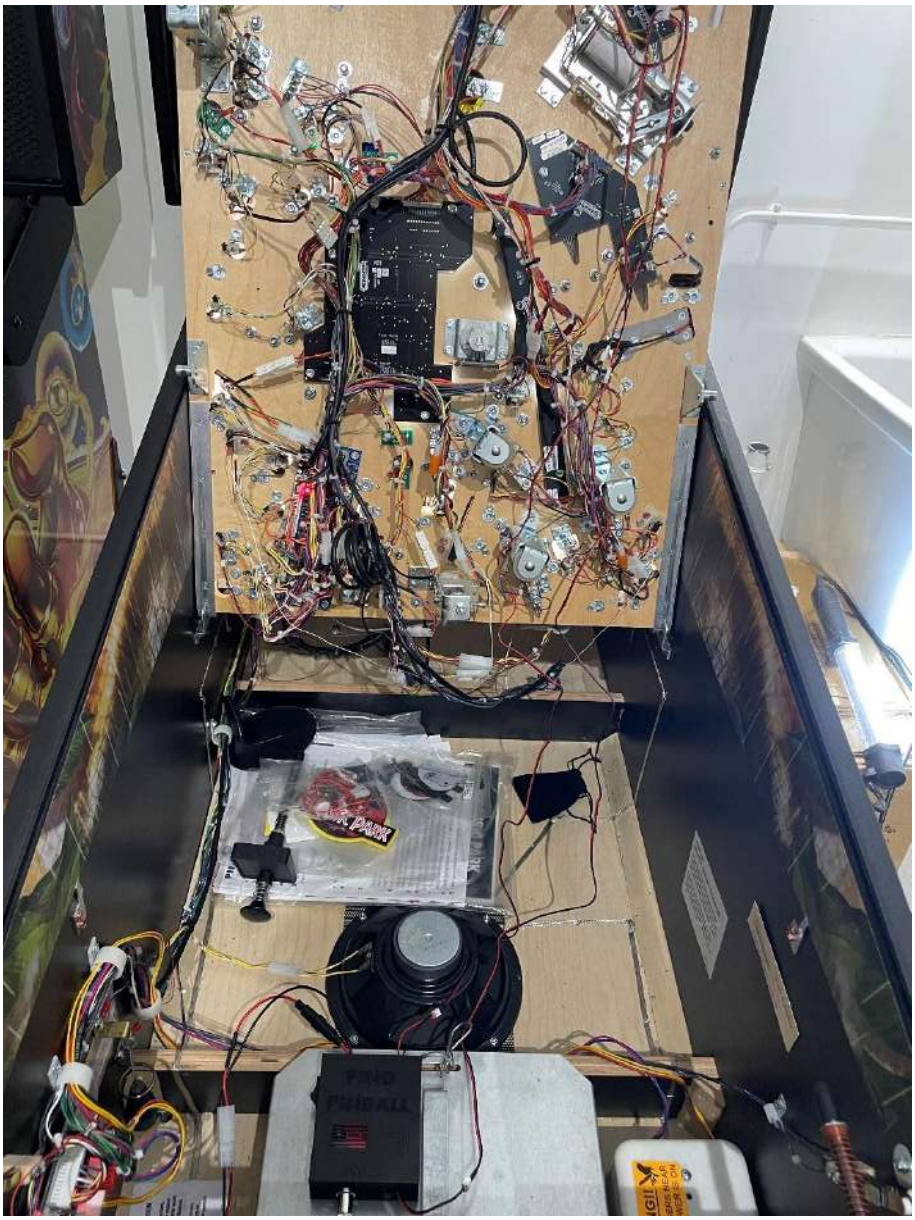
Note: sometimes, I or II can be switched 😀







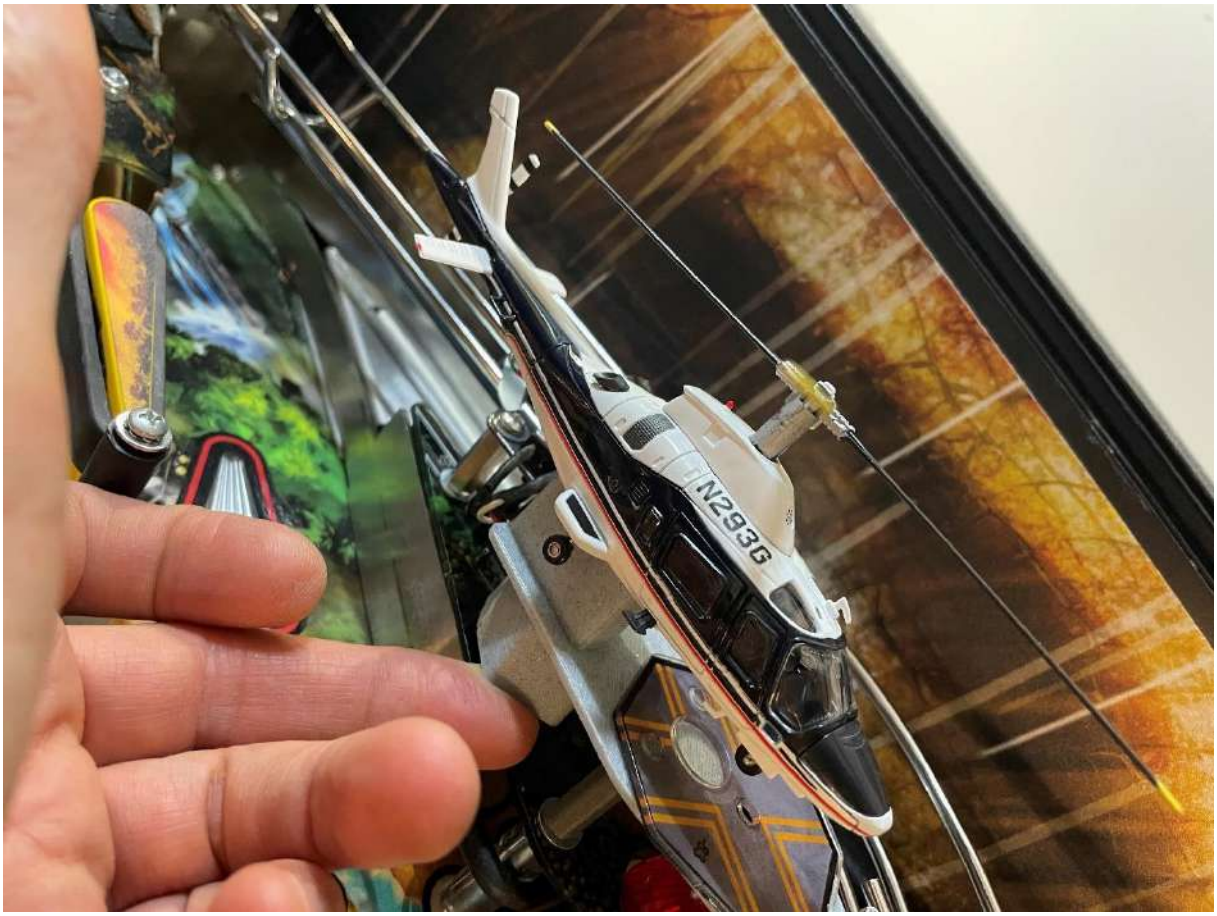
General Overview:



Propeller mount:

Put your finger like on the photo to push the motor up and see iron rode on the top of your helicopter:

Positioning the propeller in the hole with your other hand:



And push with your other hand to attach propeller to iron rode. It is like a rode of a screwdriver 😊 :

You helicopter is now installed 😊 !

To do interaction with the game, you have two options.

Red flasher or Yellow Helipad light. See below to understand how to connect theses different options. You can test the two if you have the two wires. But there is only one running at one time. At the end of the wire, there is a small black connector which goes on a small black connector to our box (front). You have to respect that on the box. For reminder red is for connecting the motor and the black is for connecting the light which pilots the propeller.

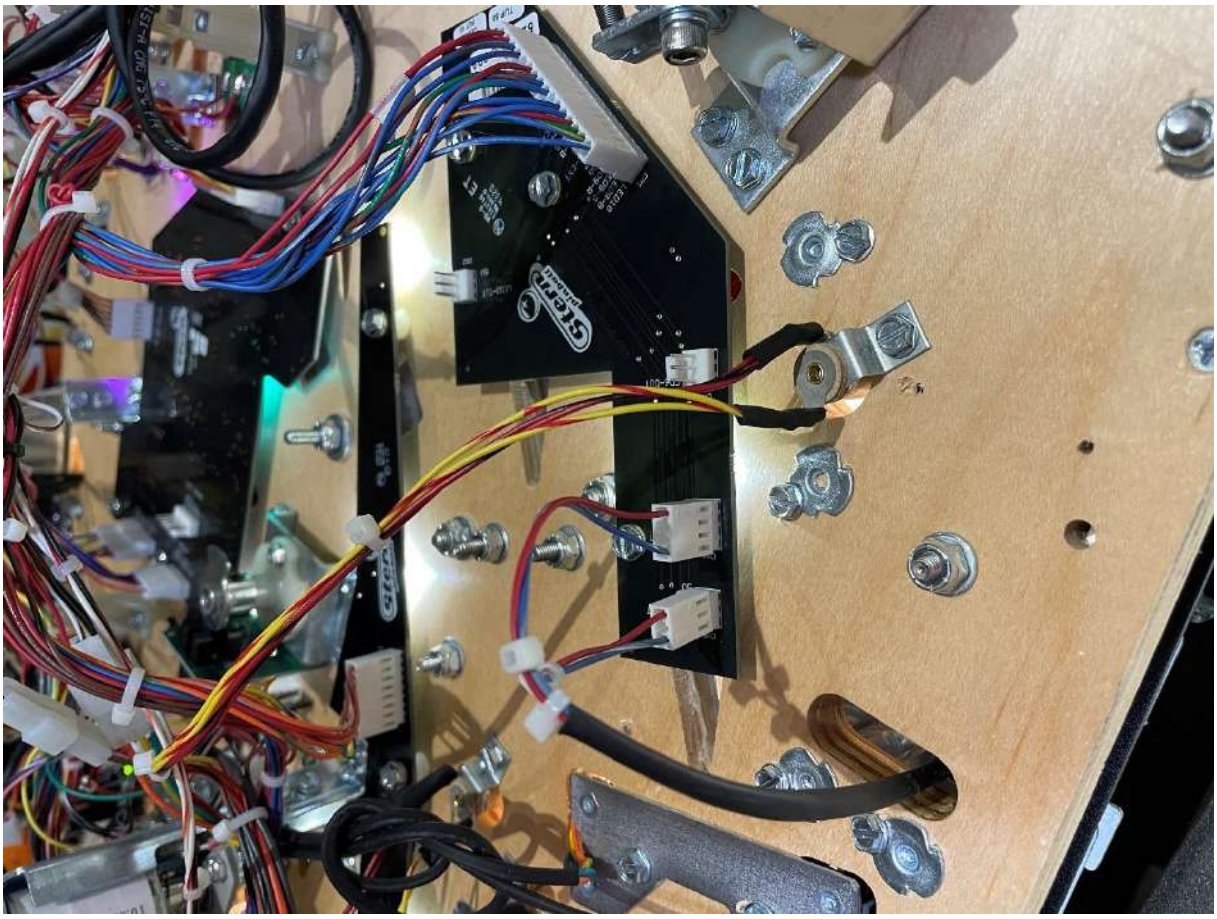
Important note: When the motor is running it is normal for the motor body to lift slightly. This is done on purpose so that there is no stress on the iron axis connected to the propeller.

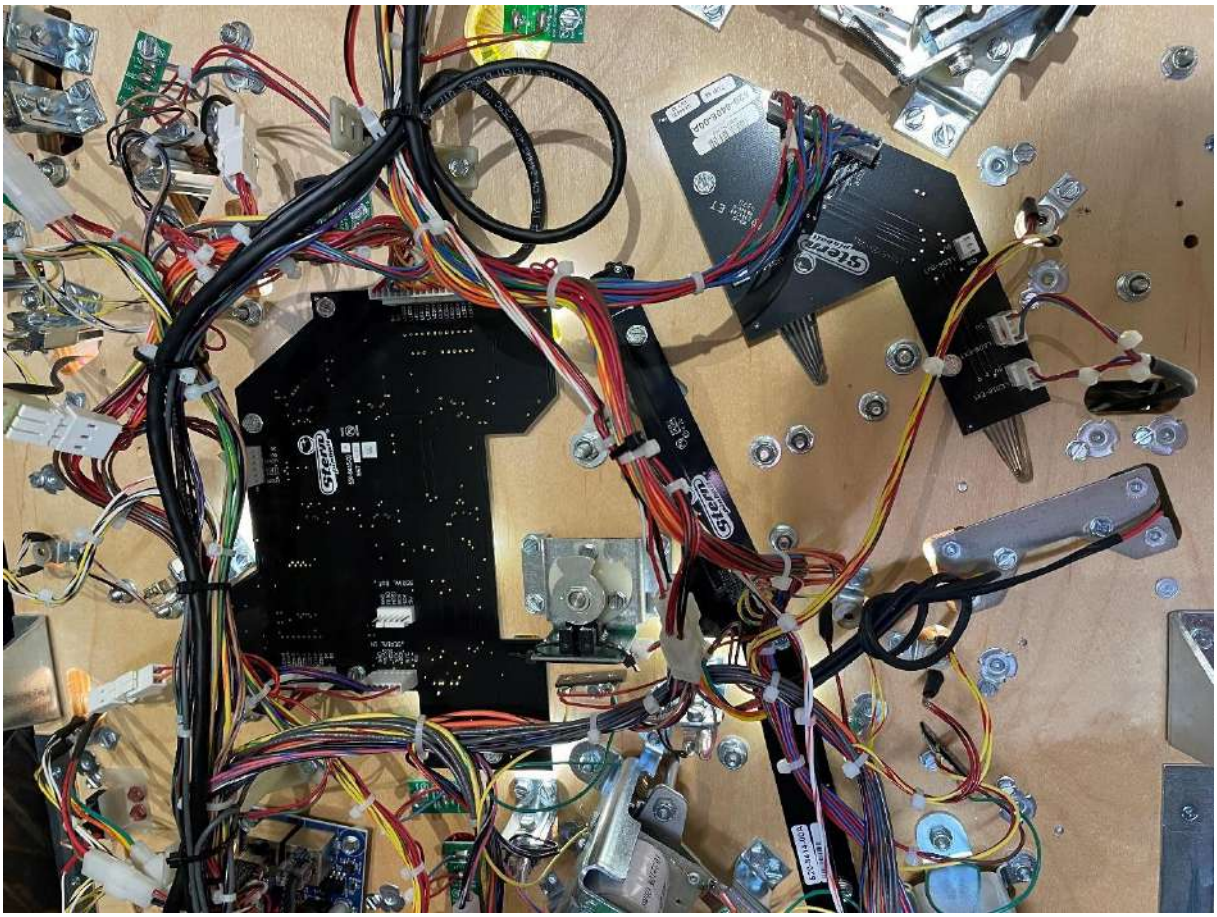
In the following paragraph you must choose one of the cables that was given to you. Either the cable called "red flasher", or the cable called "yellow helipad light". You can put the two cables in your pinball machine following the instructions which follow but only one of the small black connectors will go on the "control box".

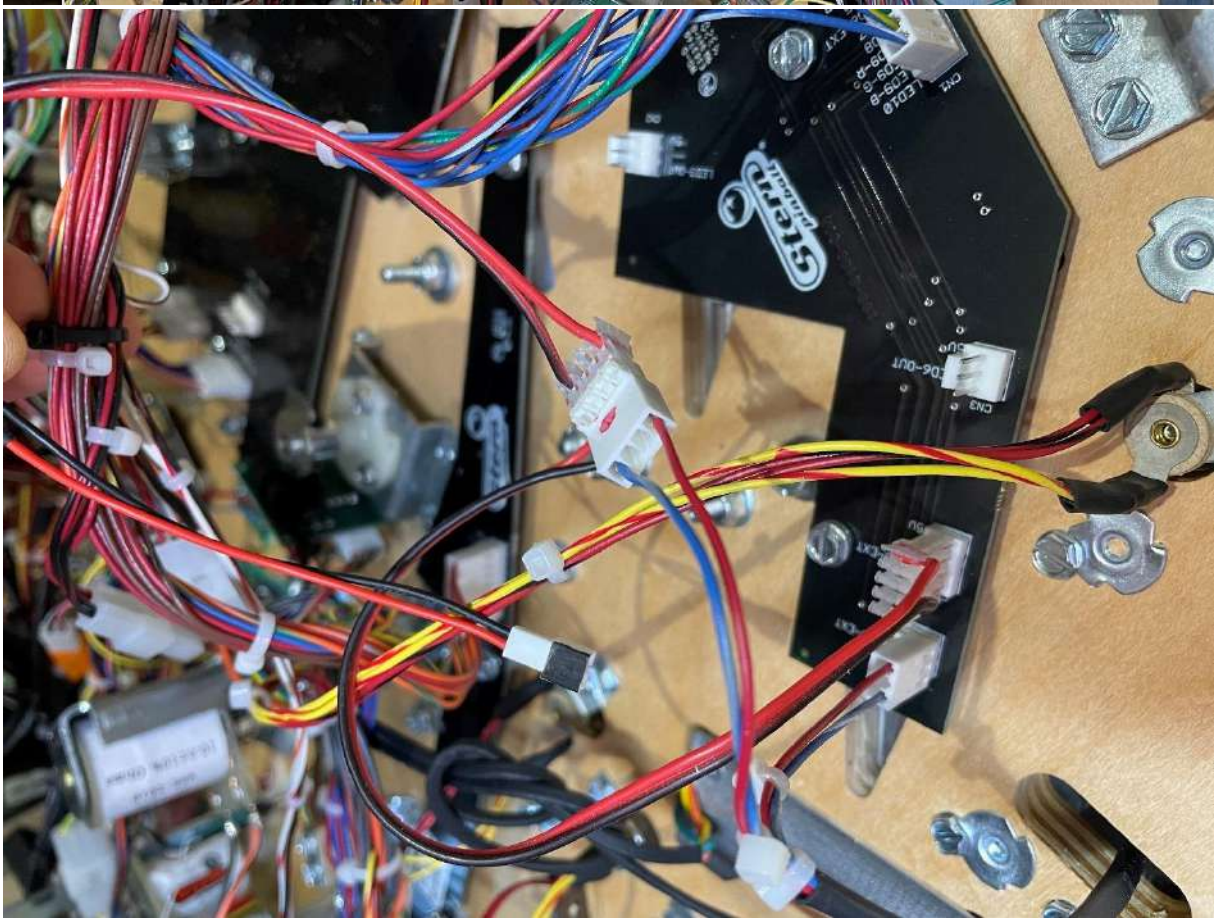
Option 1: Yellow helipad light.

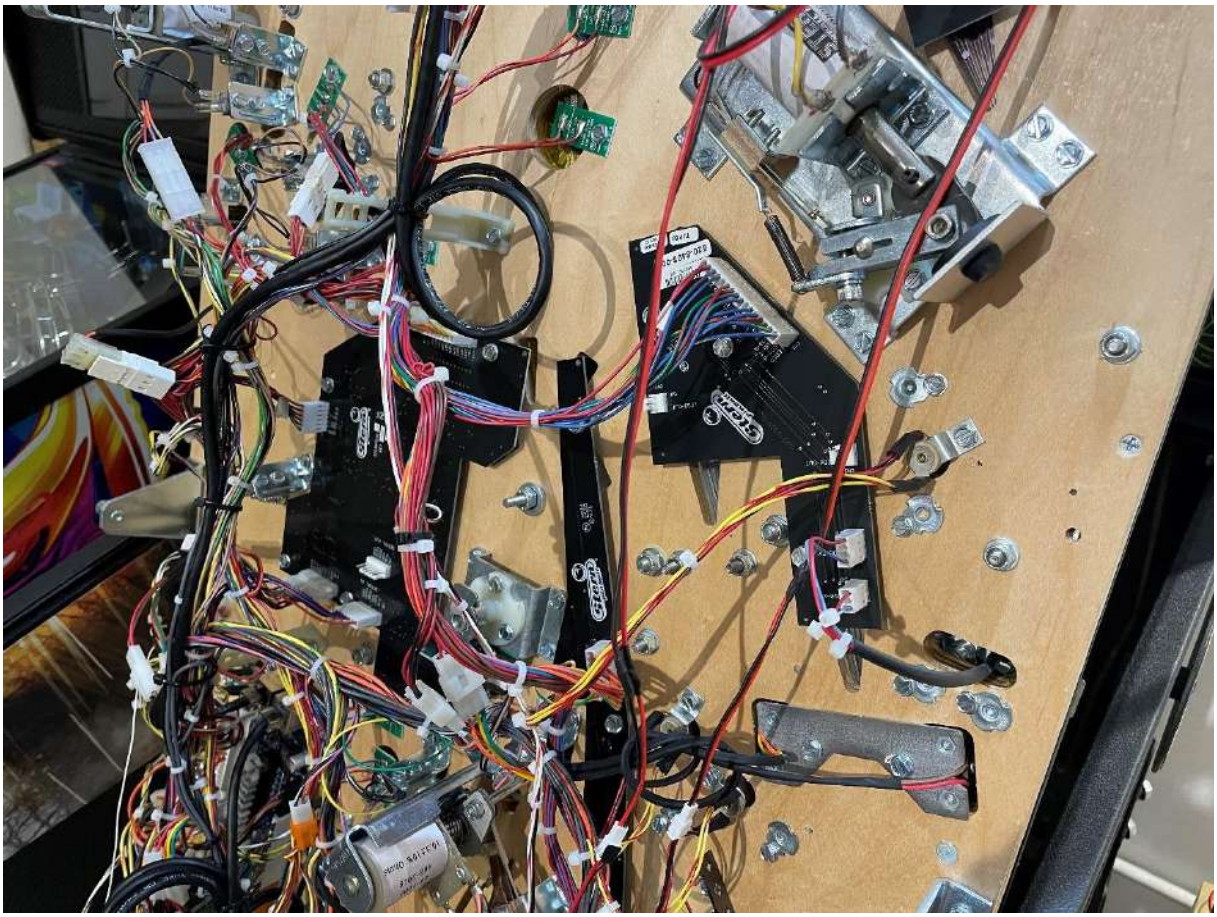
Option 2: Red flasher.

Option 1: Yellow Helipad Light Interaction mount (black to black connector):

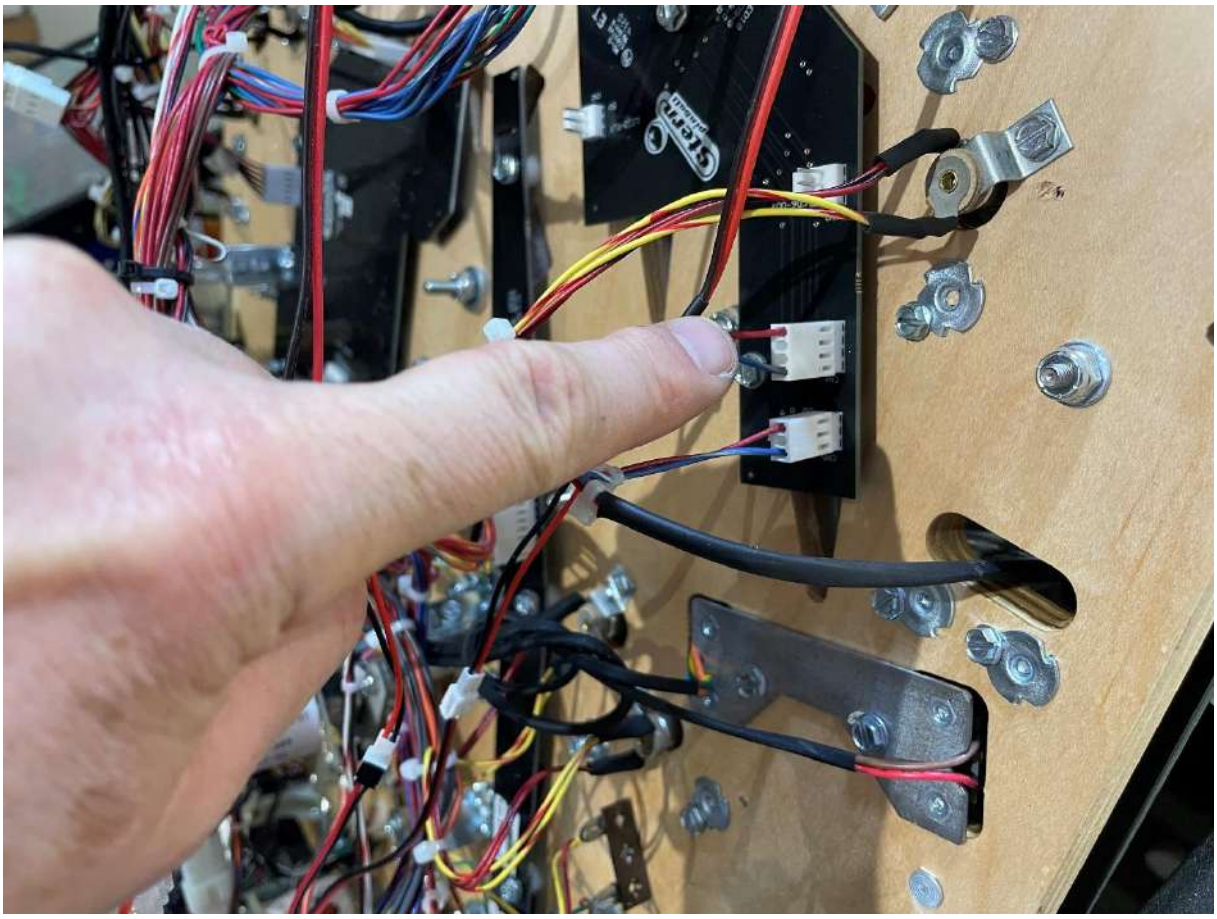




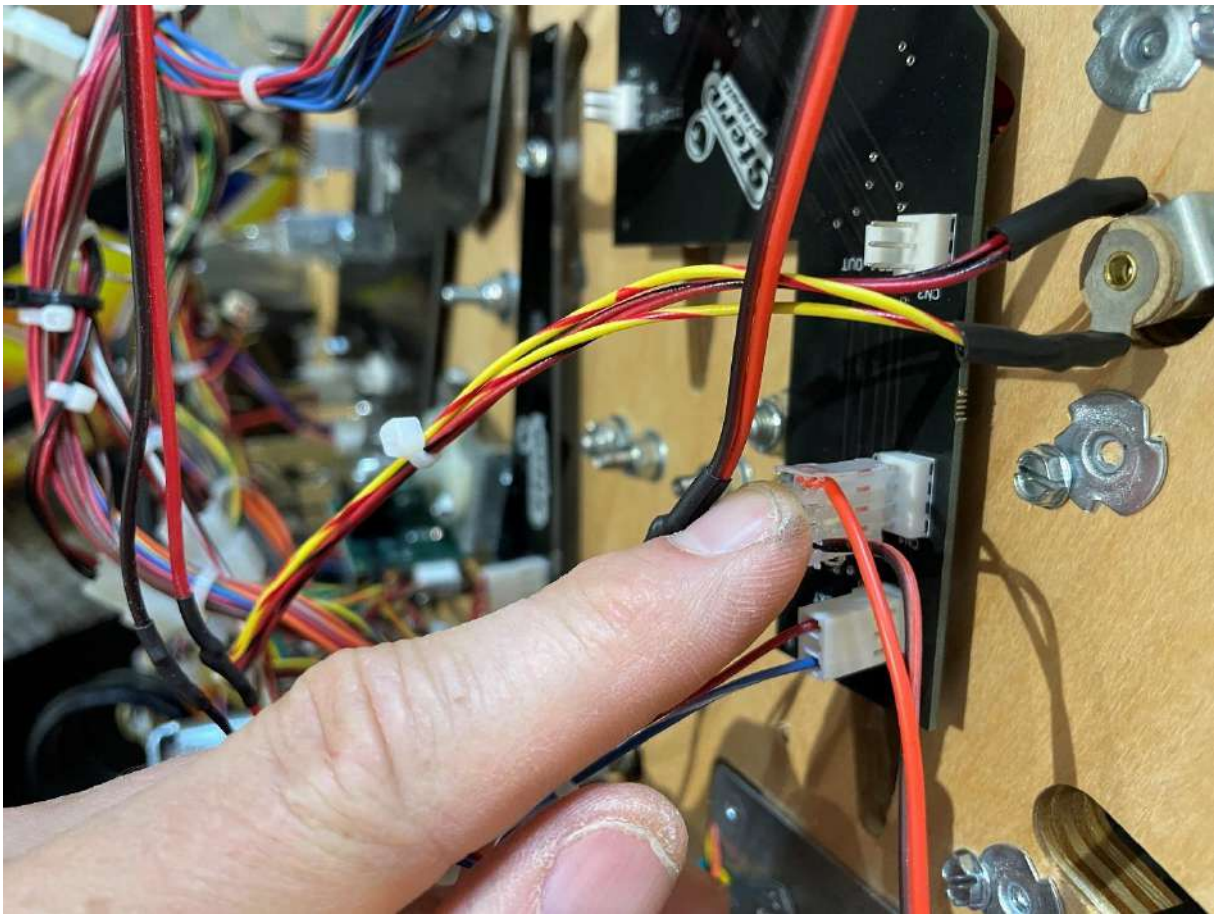




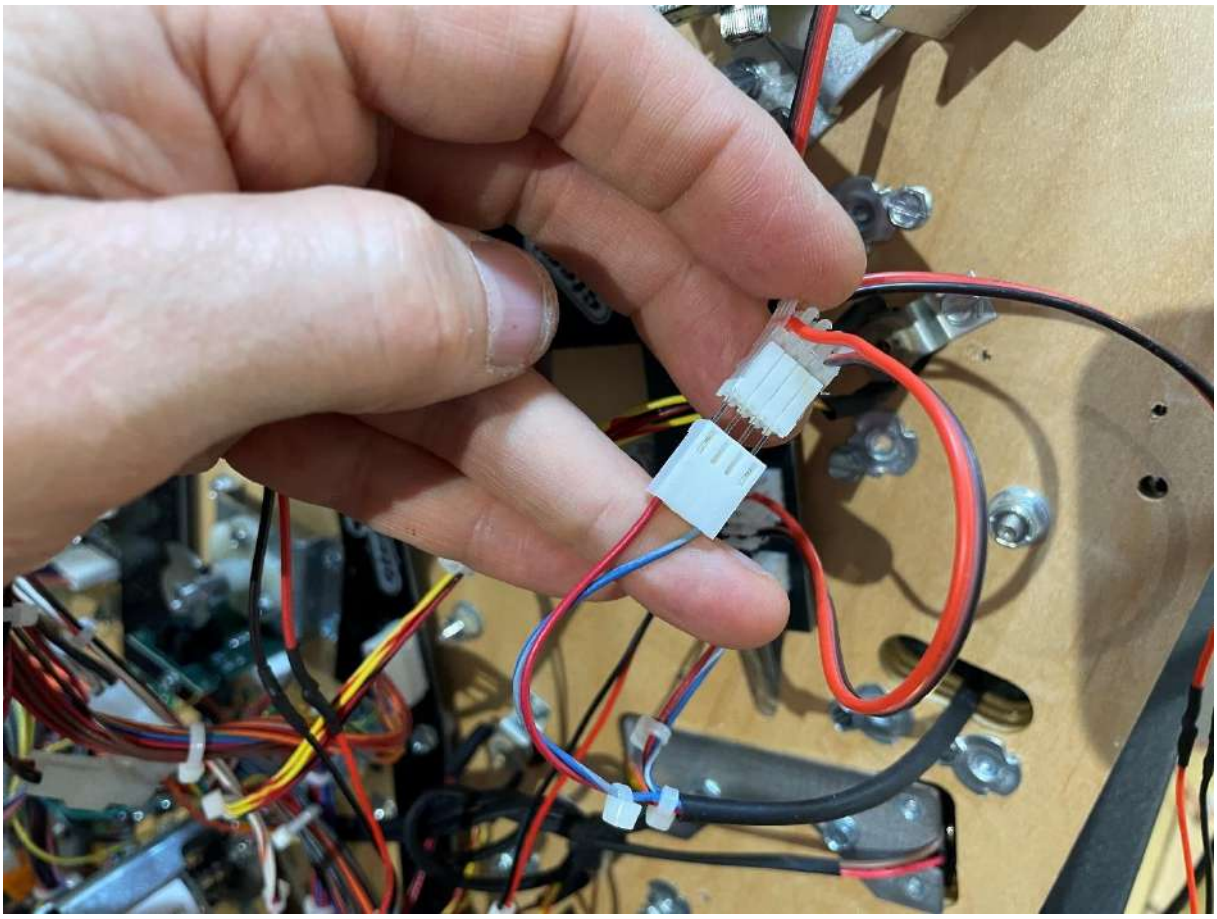
The connector (follow my finger) which we have to plug on it. Remove first this connector:



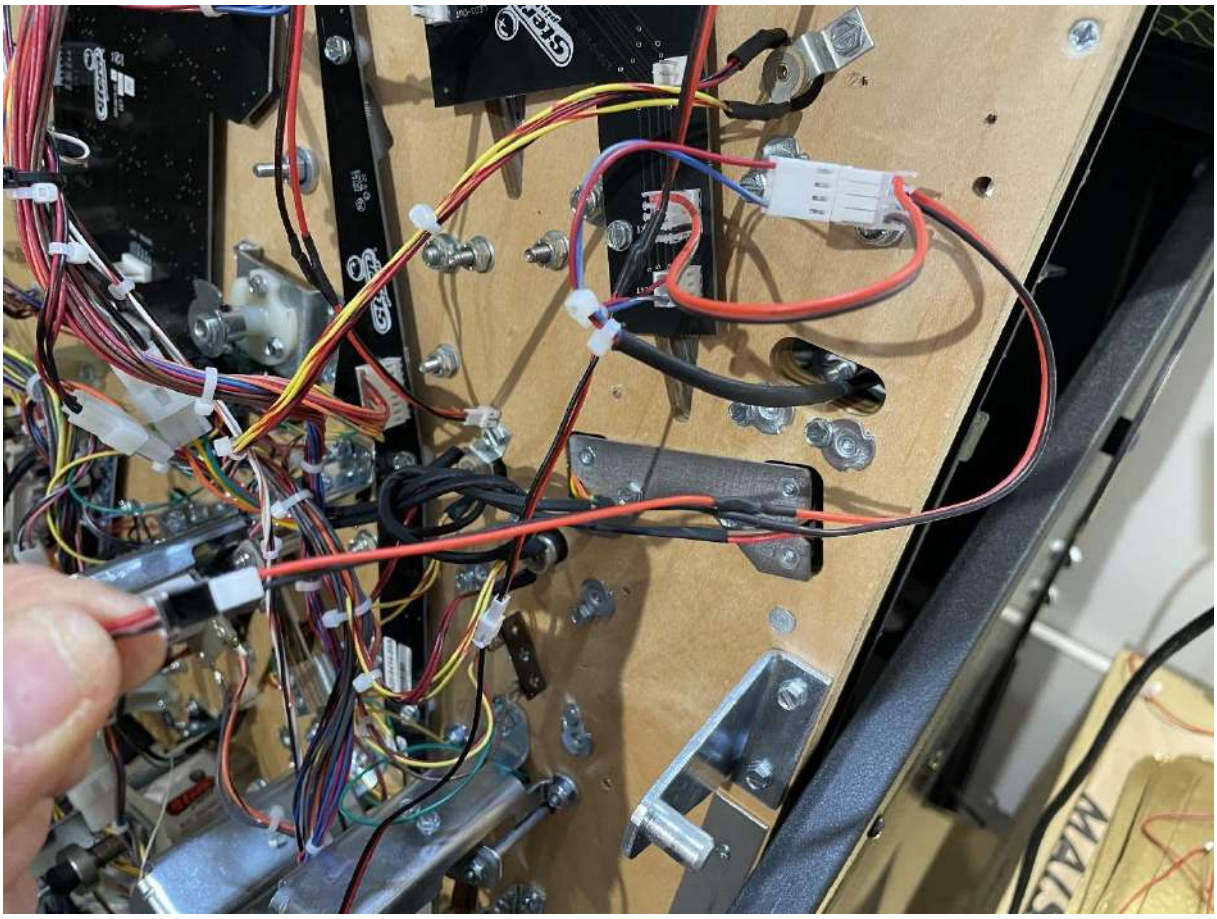
Plug our wire. Respect the correct positioning of the connector (red at the top):



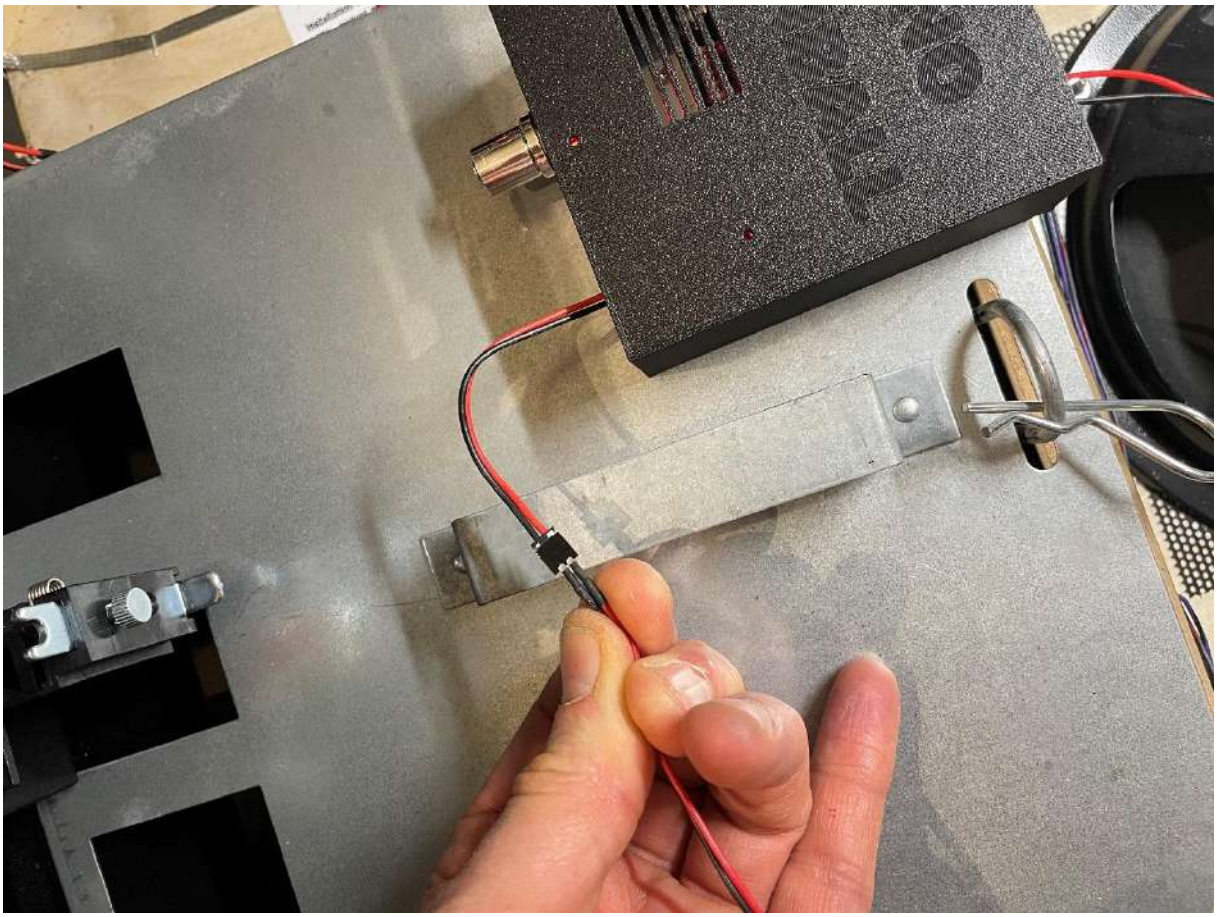
Respect the color connection, red with red, and black with blue. See the photo below:



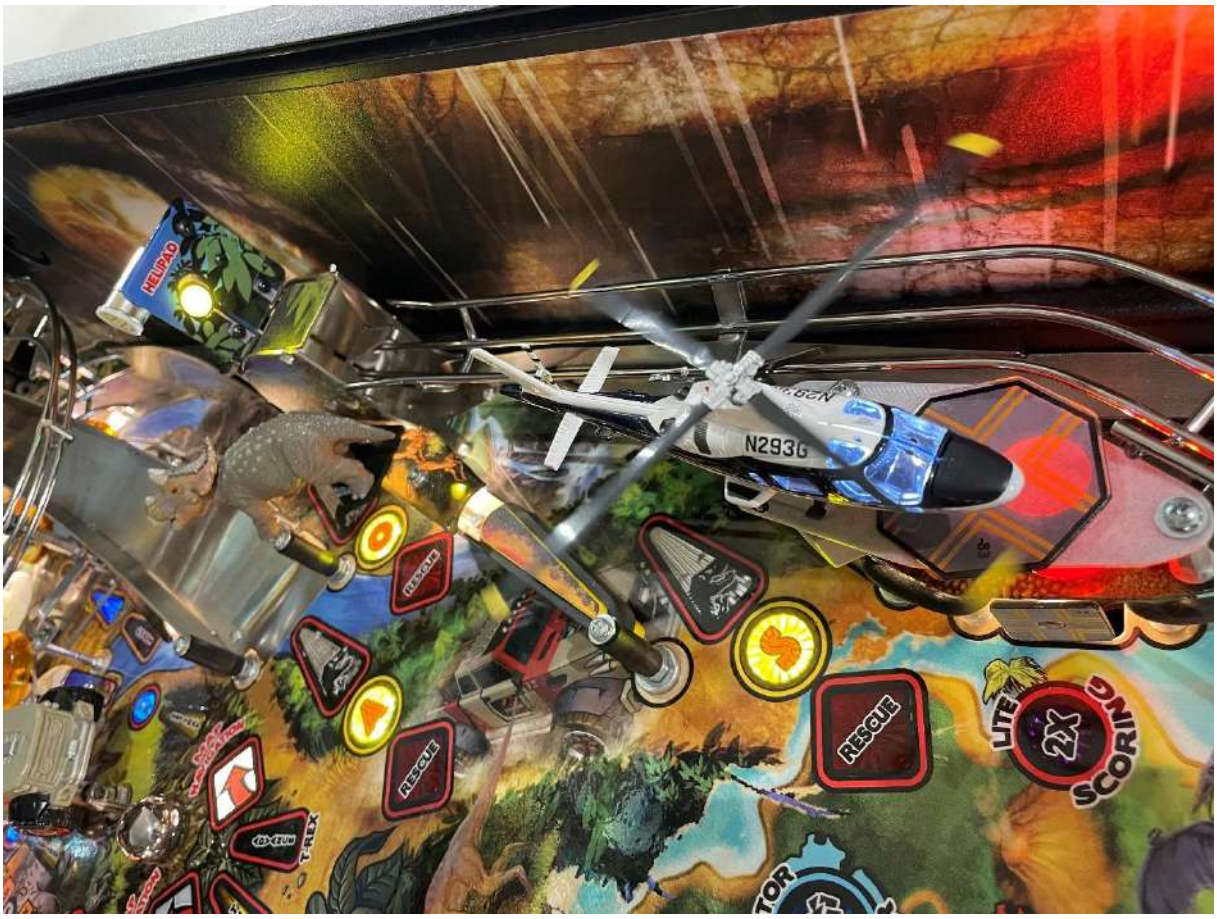
And connect the small black connector to the small black connector on the box:



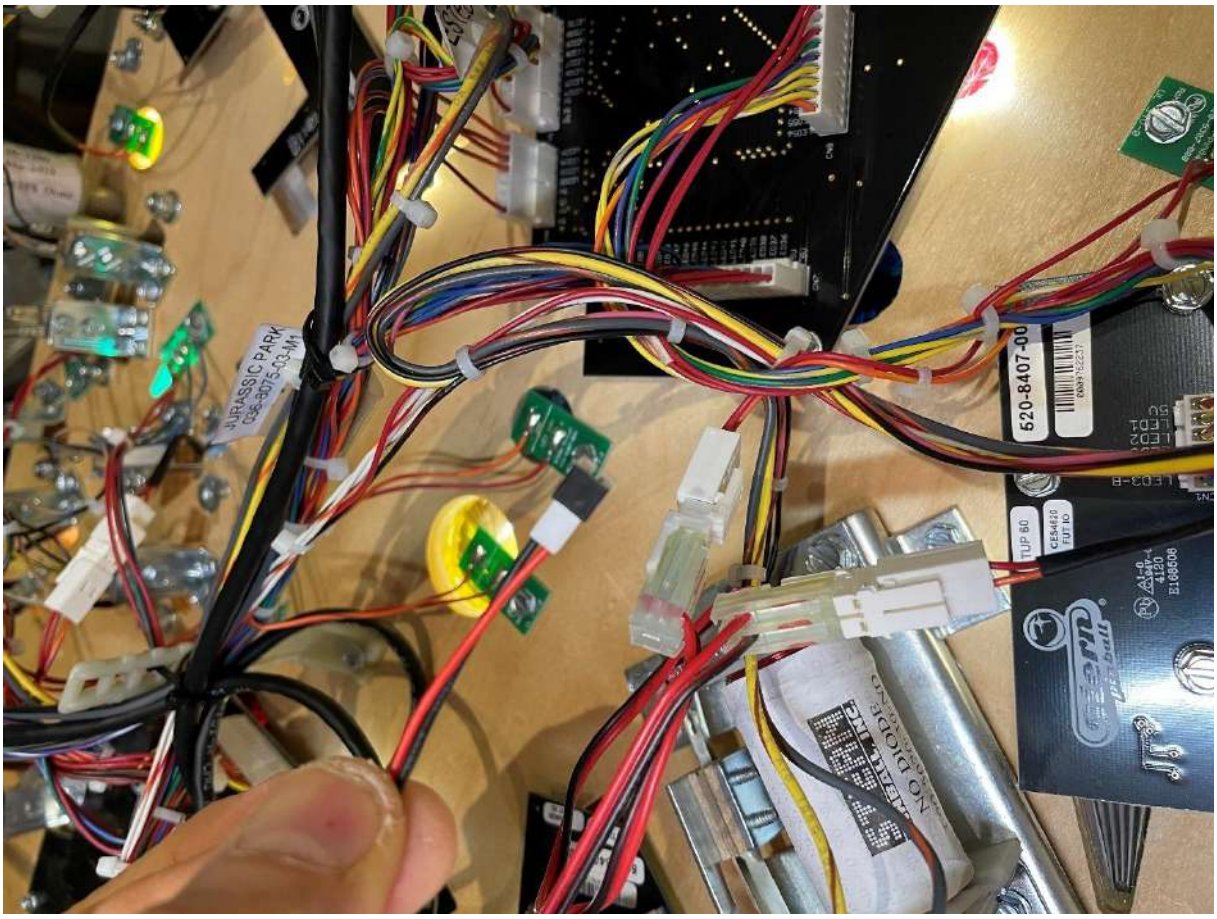
On this smallblack connector :

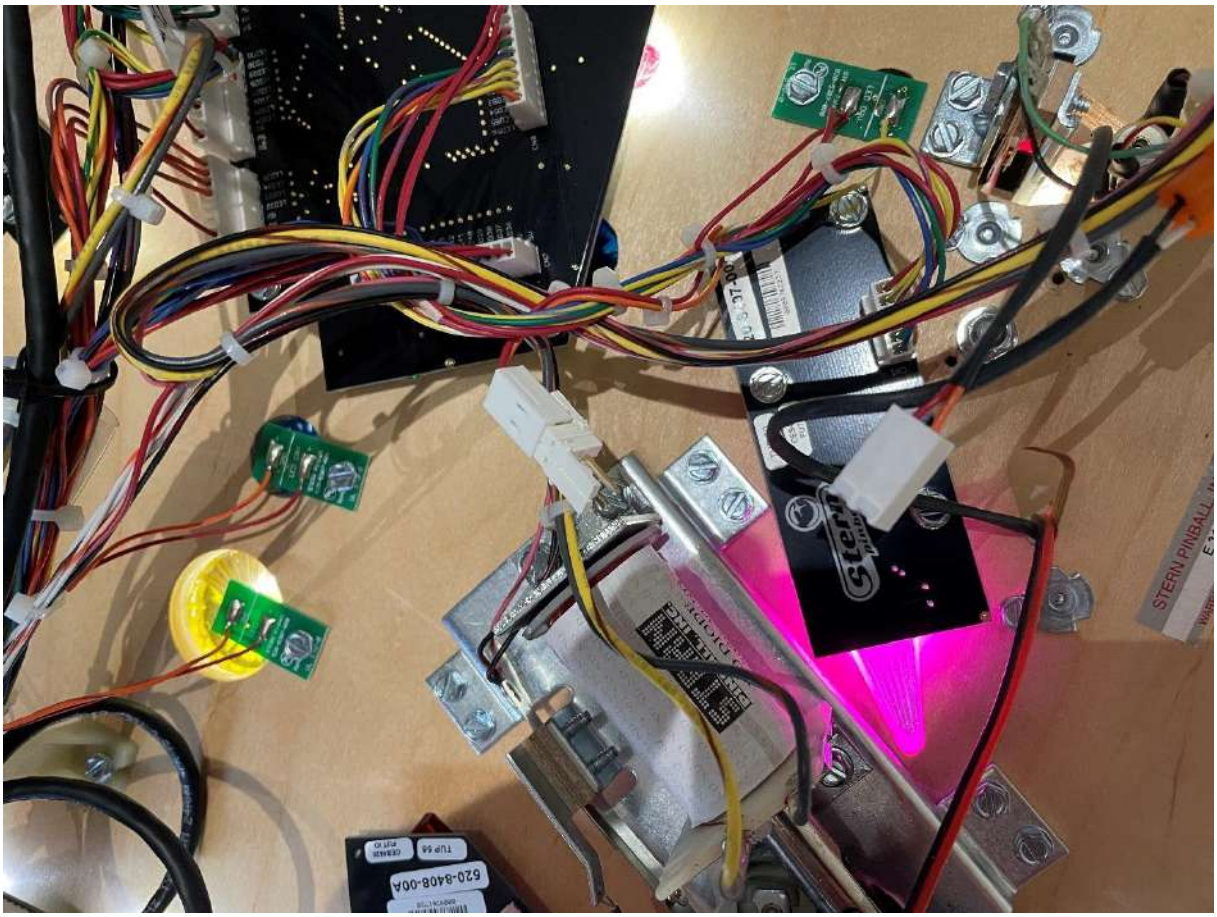


You can see in this mod. When the yellow helipad lights turns on, the propeller runs:

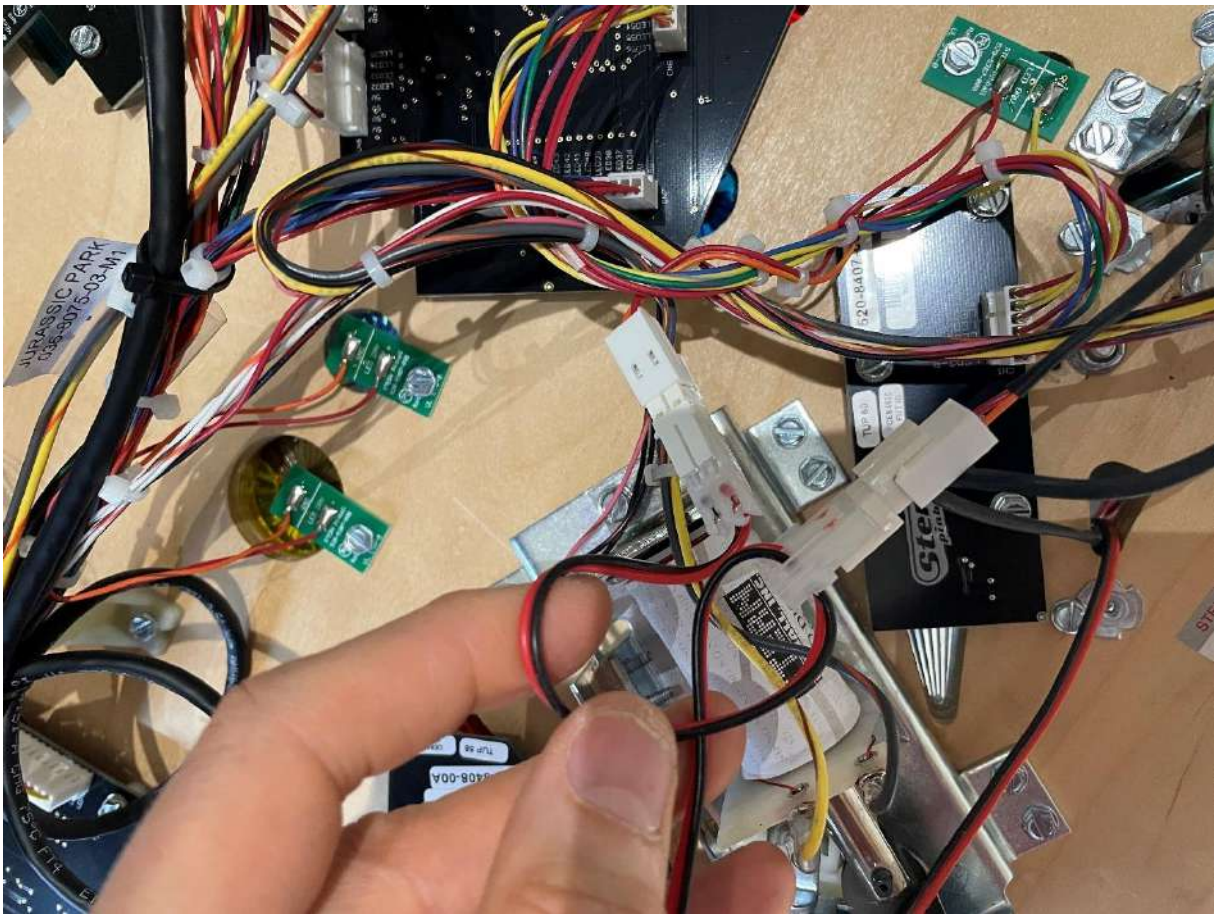


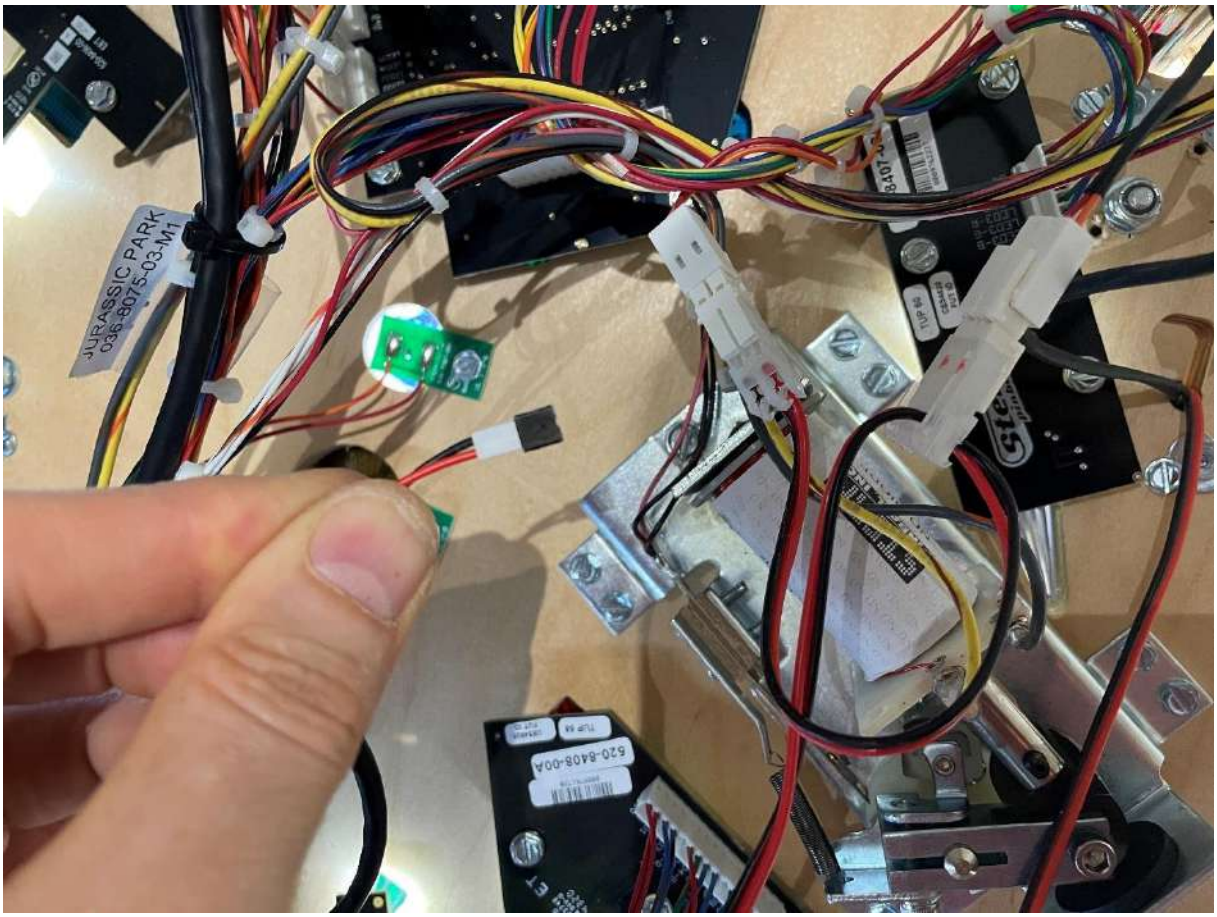
Option 2: Flasher Interaction mount (black to black connector):

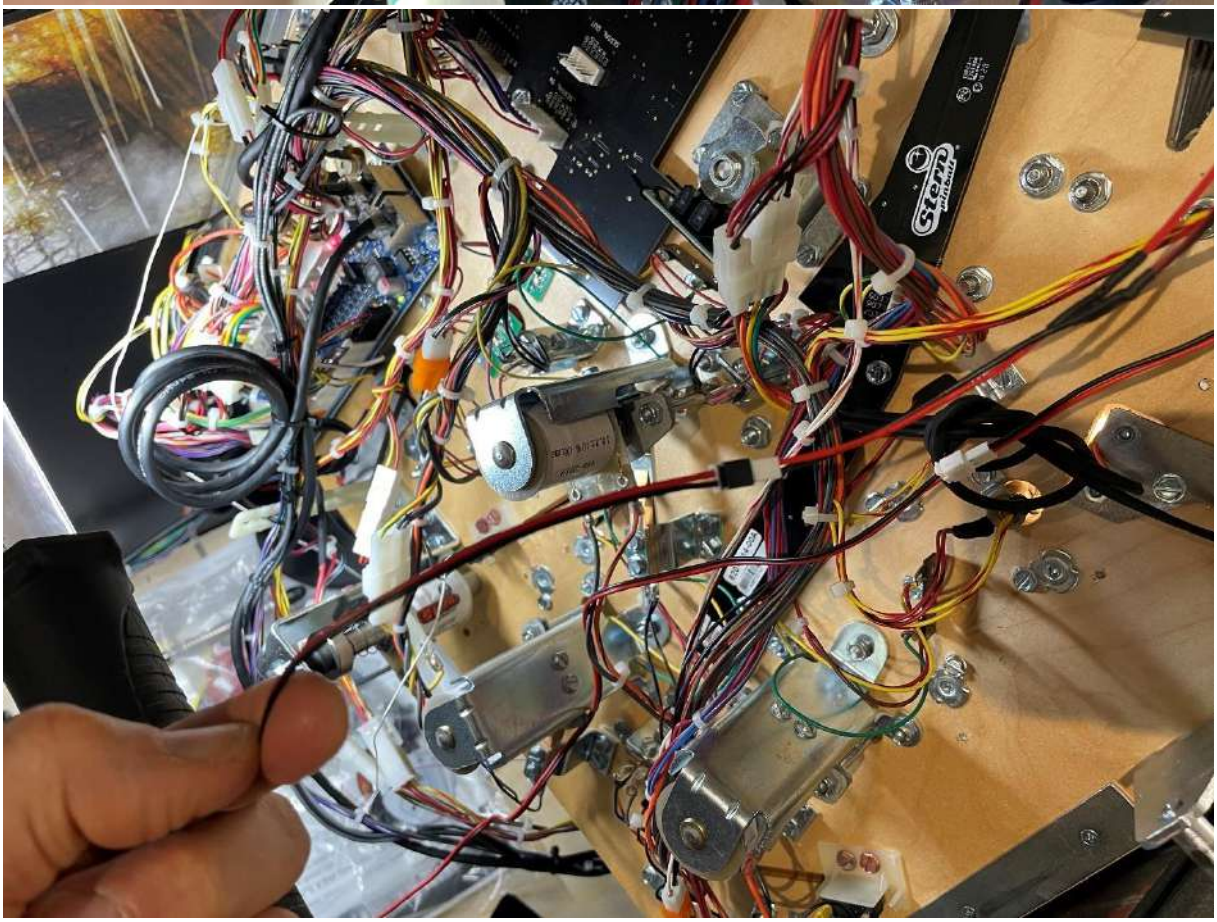



STERN PINBALL

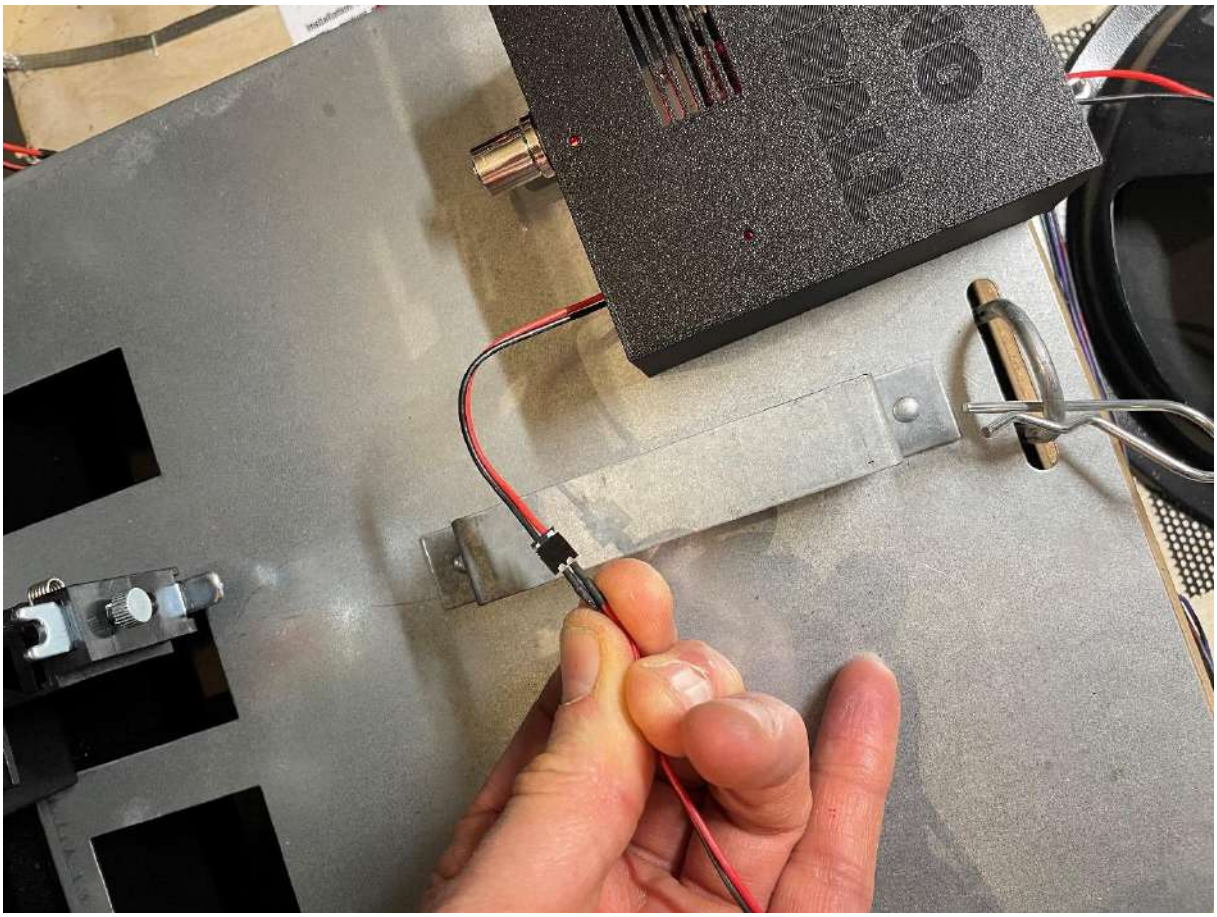
Install our wire between the white connector of red flasher.
Respect the color of the wire when you connect the connector.
Red electrical wire goes to the red electrical wire:

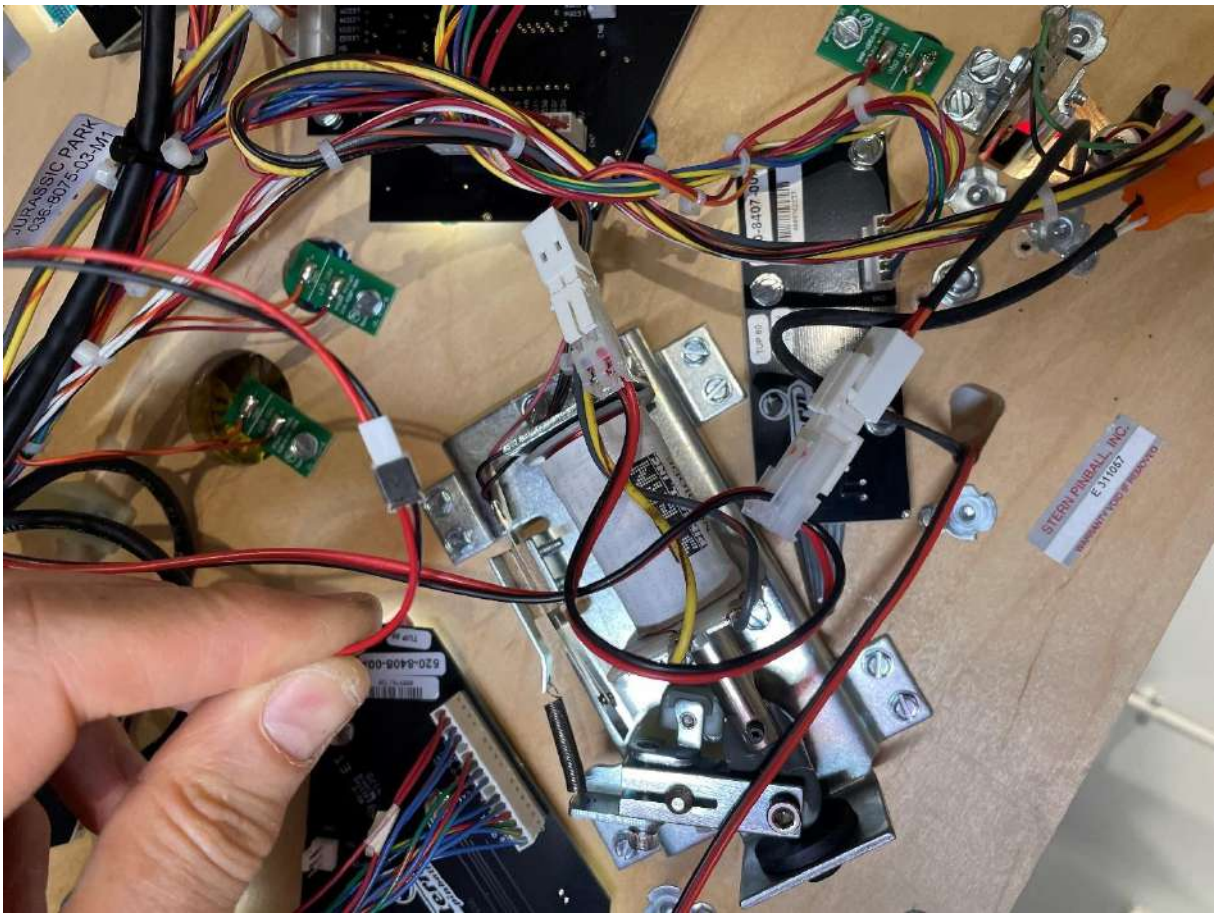



JURASSIC PARK
036-8075-03-M1
520-8408-00A


Stern

Connect the small black connector to the box:




JURASSIC PARK
STERN PINBALL, INC.

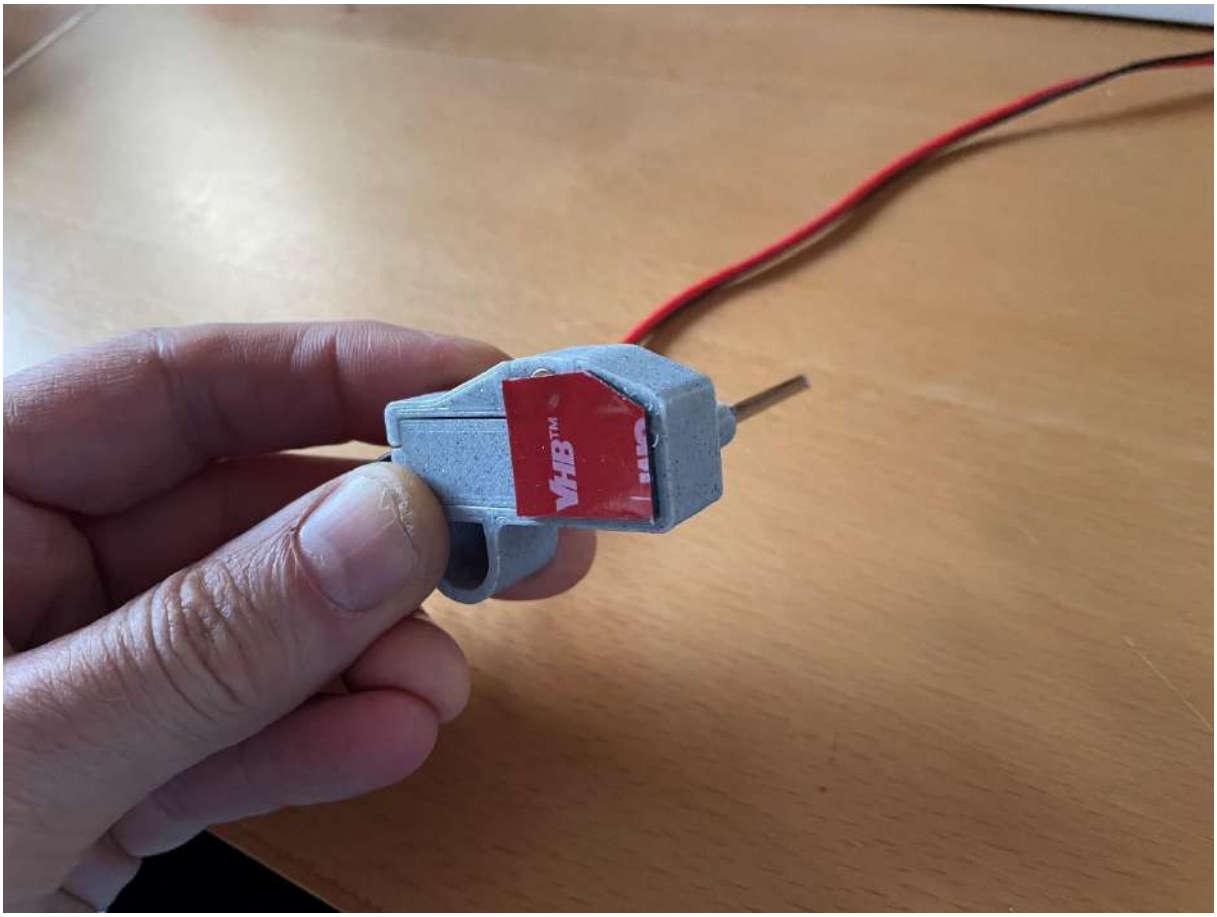
You can see in this mod. When the red flasher turns on, the propeller runs:

That’s All Folks ! Enjoy you new mod !

<u>Tips and tricks :</u>

Once your propeller shaft is well centered in the hole where you put the propeller, you can still attach your motor with double-sided tape to the green plate that supports the motor. Your engine will no longer move like this 😊 .

See the photo below :



Important Note :

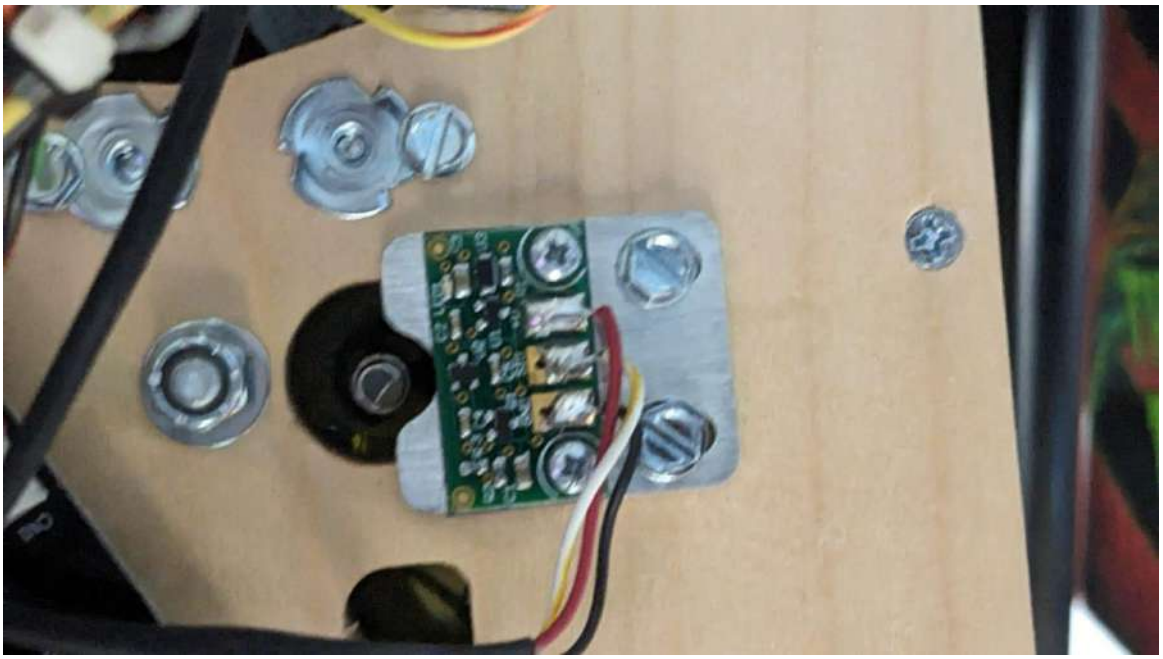
You have also an option for Premium/LE/30th Anniversary. Not for a Pro. For these machines we have developed a small mini-board in replacement of the stern original one. It is plug and play. This mini-board has been developed to retrieve sounds and points made with the original stern iron blade which is unmounted when you install our Agusta helicopter mod.

Augusta 109 helicopter mod (Sound and Points mini board)

Installation Guide version 1.0f (08/24/2024)

To install the replacement card. All you have to do is replace the small electronic card which is located directly above the original propeller.

See the photo below:

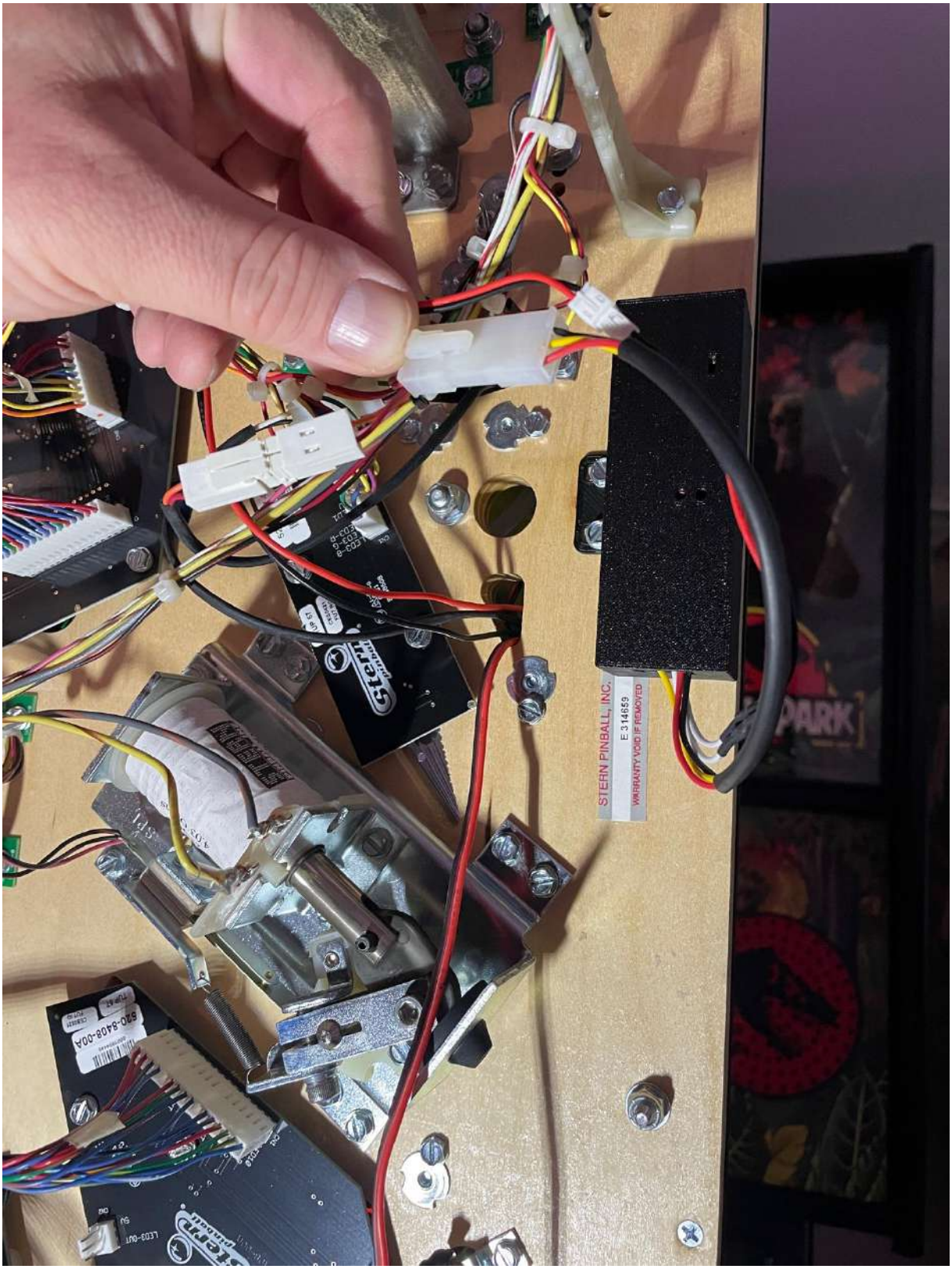


Unscrew the two small nuts that hold the small card to your tray.

Then disconnect the cable coming from this small card from the connector having 3 wires (red, black and yellow/white).

Replace this small card using our new card. And take the two screws to fix our card in the same place. Reconnect our card to the same connector.

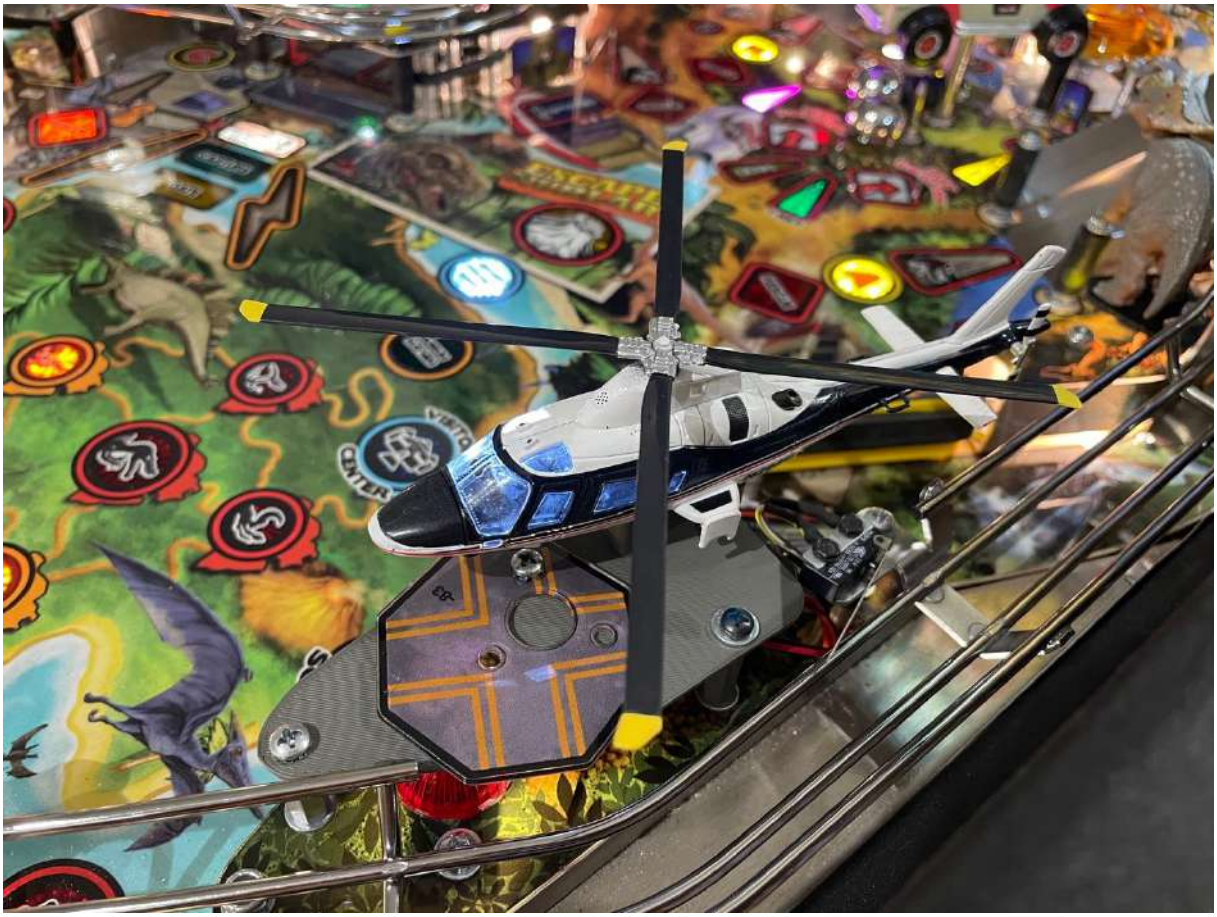
In this photo you see the 3-wire cable that must be



reconnected.

Lower your playfield and look at the switch which triggers the red flasher on the right ramp.

It is located here see photo below :



Unscrew the two small black nuts that hold the microswitch. Once the microswitch has been unmounted, already change the iron tab which acts as contact with the ball. To do that use a very small screwdriver to unmount this small piece of iron. This change will allow you to have perfect alignment with the

other microswitch that you must mount on the original switch. New small, longer screws are provided and will allow the two microswitches to be fixed and aligned one above the other with the same alignment of the two contact tabs.

Secure the two microswitches together with our new screws provided.

See what you should get as a result by looking at the following

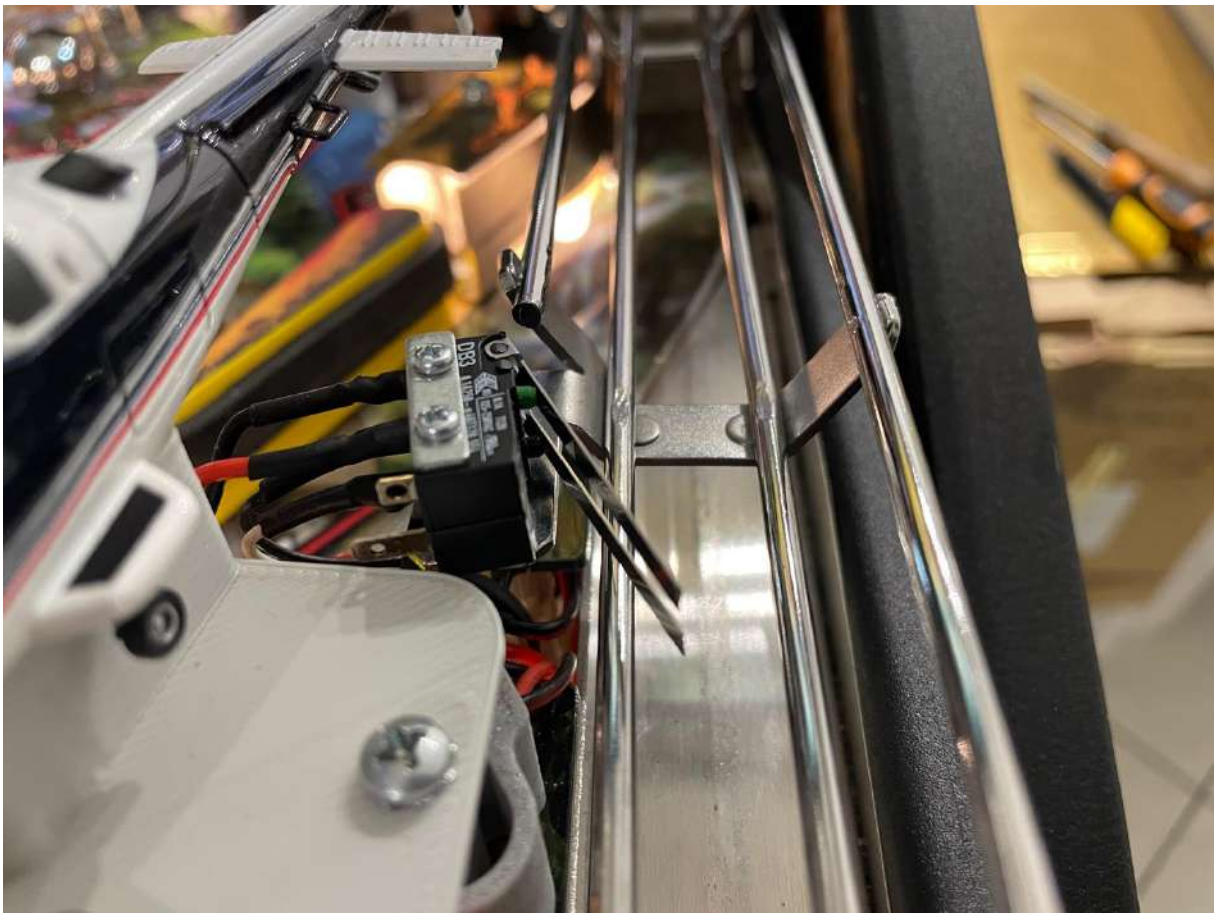


photo :

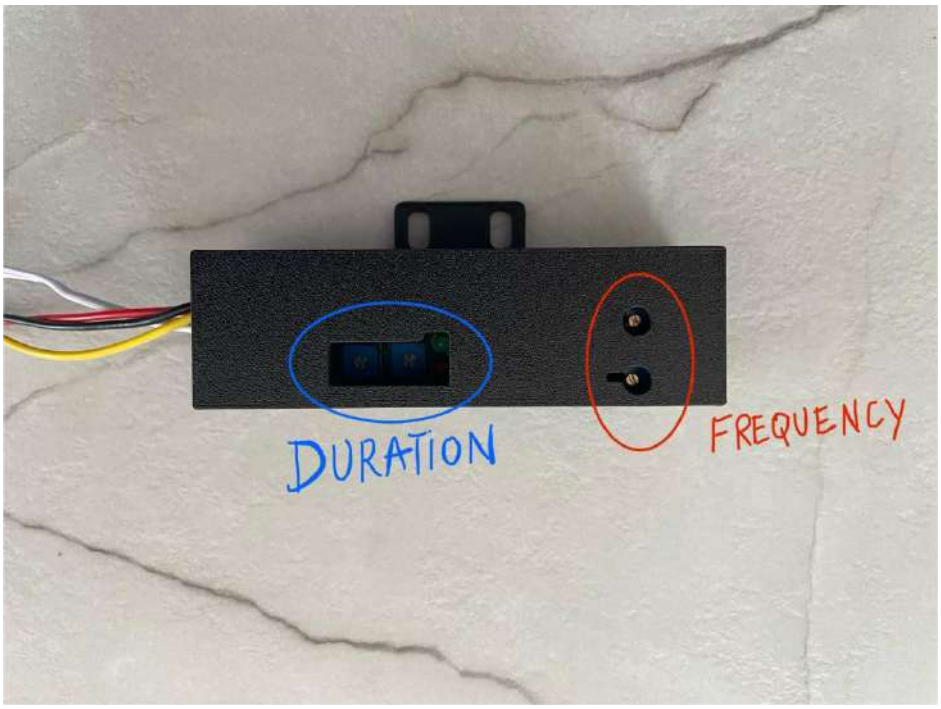
Another image of the result :

All you have to do is pass the cable coming from our microswitch through the playfield, passing through the same small hole as the microswitch cable which is fitted as standard on your pinball machine. Once the cable has been passed, lift your playfield again and make the connection to the other small blue connector remaining available on the small replacement card that you have attached.

When your ball passes on the ramp it will contact the two microswitches at the same time. Our microswitch will trigger a standard 7 second delay and send the signal to the pinball motherboard to simulate 12 propeller turns.

Which will generate the sound and associated points.

You can adjust the time delay and the number of revolutions using the small potentiometers on our card. See the photo below:



For a better understanding about the settings:

1. **Clockwise, frequency increase**
2. **Clockwise, duty cycle decreases**
3. **N/A**
4. **Clockwise, duration (turn on time) increases**


PWM SIGNAL
Duty = 40%
5V
2V
Mean Output
T = 100 µs
f = 10 kHz
1
2
3
4

And now your option is installed! Enjoy it !