# FMX Circuit Breaker Upgrade

# Redbird Flight Simulations Inc., 2012

# Rev. 1

Parts included:

- Switch Panel board with mounting pads
- 5 – ETA circuit breakers
- Red daisy-chain power cable
- 1 black ground wire
- 5-conductor circuit breaker cable
- Zip-ties
- 4 PCB mounting pads

Tools required:

- Flat-head screwdriver
- Philips-head screwdriver
- Pliers

\* Two people needed for installation.

1. Power down the computer and motion platform and unplug the power from the wall outlet.
2. Remove the nose (requires a 2$^{nd}$ person to help lift).
3. Remove the USB and Amphenol cables from the switch panel board, and remove the board. The Amphenol cable has a Philips-head screw on the right side. The top right (looking from the back) mounting pad can be reused. The top middle, bottom right, and bottom middle pads need to be pried off.

4. Unscrew the breakers. Use pliers to twist the ring on the front of the breaker. Electrical or painters tape on the metal of the pliers will help prevent the switch panel face from being scratched.



Twist ring counter-clockwise.

AVNCS   LDG GEAR   FLAPS   AUTO PILOT   PITOT HEAT
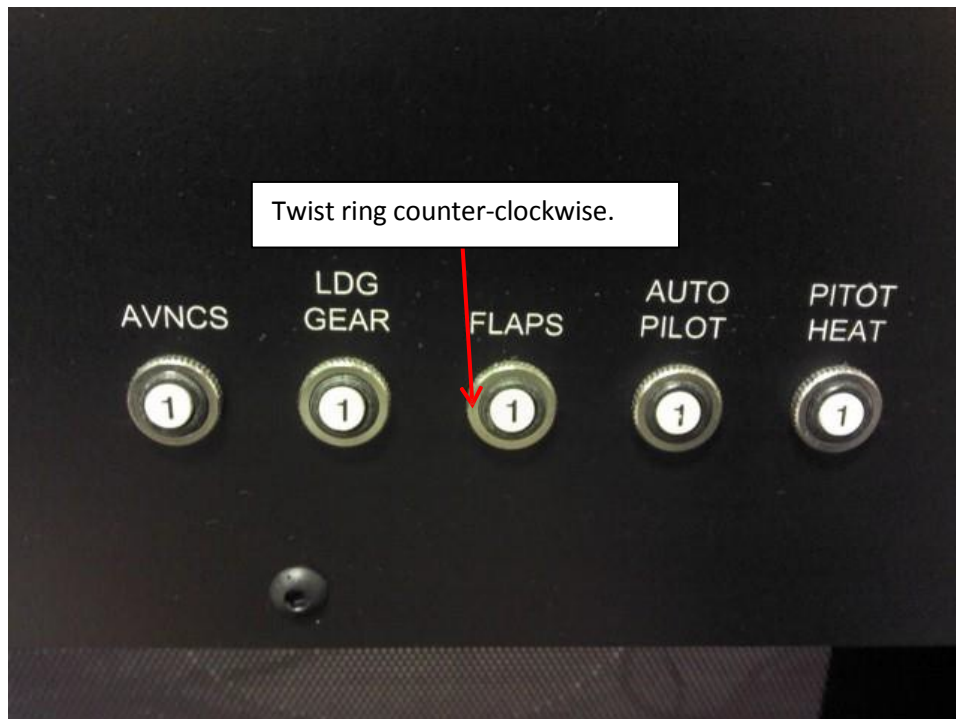
5. Remove the four cables going into the gray box, and remove the gray box. Looking from the cockpit, there are four Philips-head screws on the under-side of the perforated metal that hold the base of the box to the frame underneath. Discard the green cable going to the "Circuit Breaker" location of the gray box.
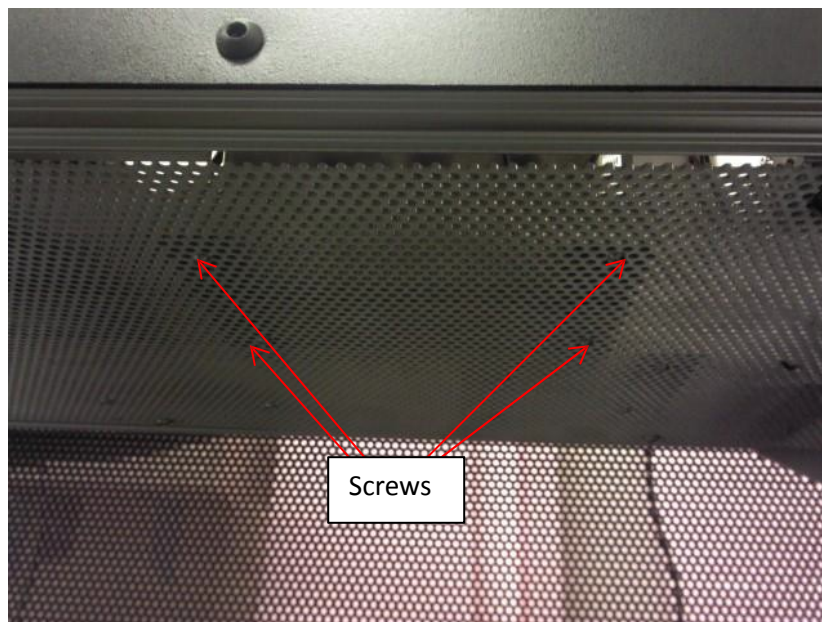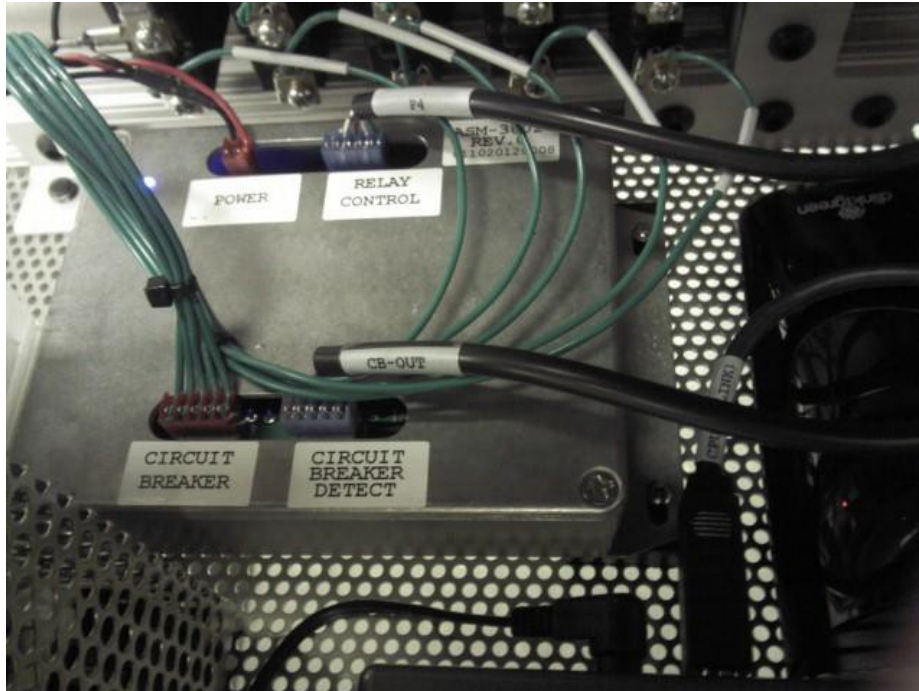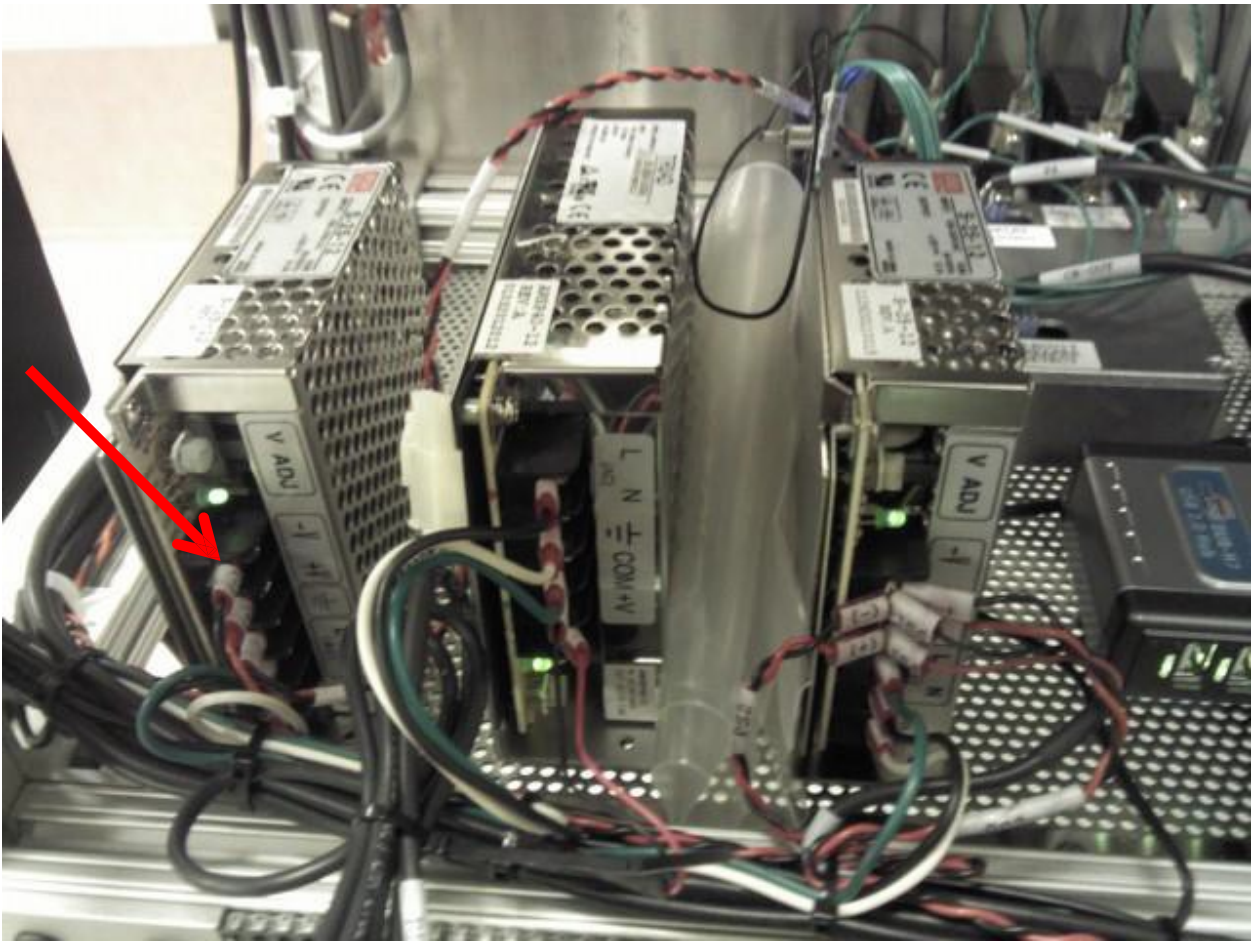




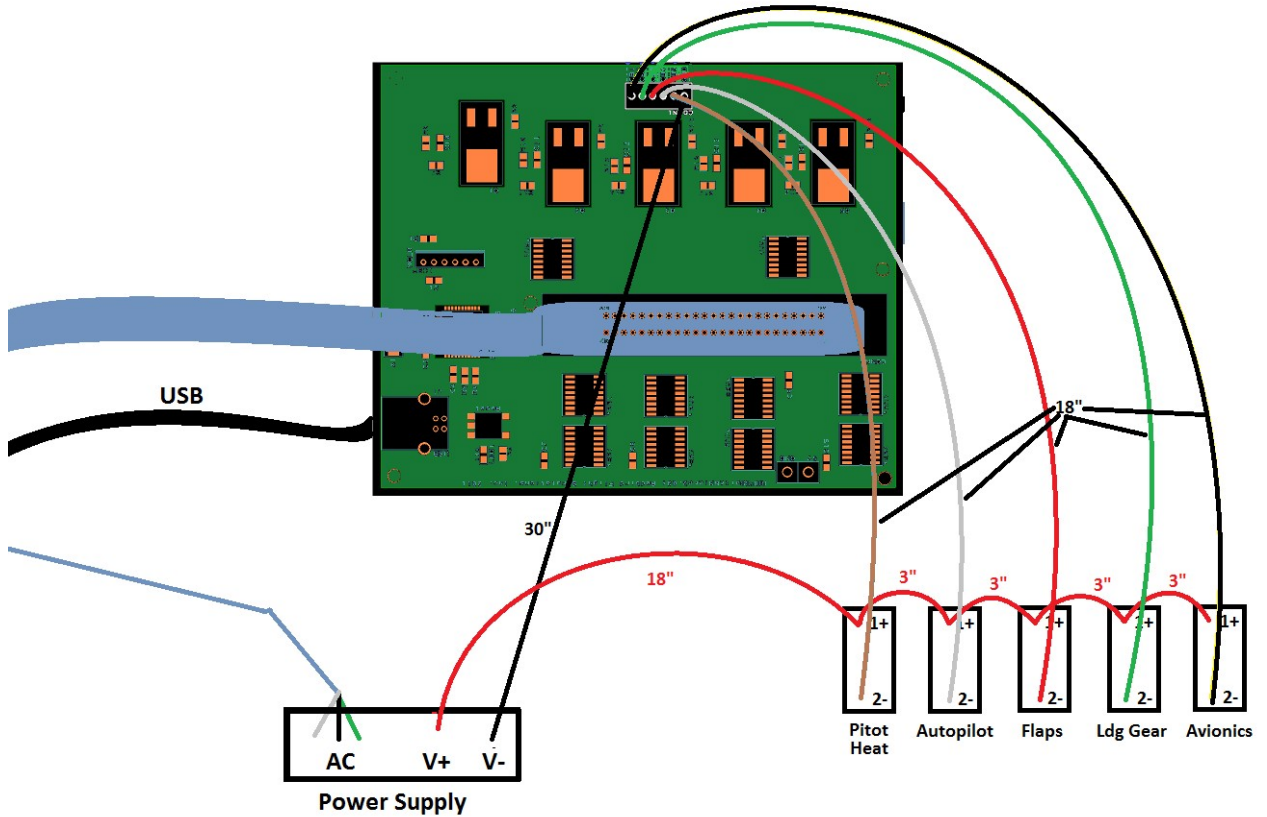Picture taken from the floor of the cockpit.

6. Take the five twisted green cables and the black cables that went to "Relay Control" and "Circuit Breaker Detect" on the gray box, and **use zip-ties to keep them out of the way. These cables will not be used.**

   **NOTE: Cutting/snipping any of these wires will break the ground of the wiring-harness, causing the breakers/switches on your system to malfunction.**

7.  The power cable from the gray box goes to the left-most power supply. Remove this cable and discard. Install the long end of the red cable at the V+ terminal, and the black wire at the V-terminal.

USB

30"

18"

3" 3" 3" 3"

18"

1+ 1+ 1+ 1+ 1+

2- 2- 2- 2- 2-

Pitot Heat | Autopilot | Flaps | Ldg Gear | Avionics
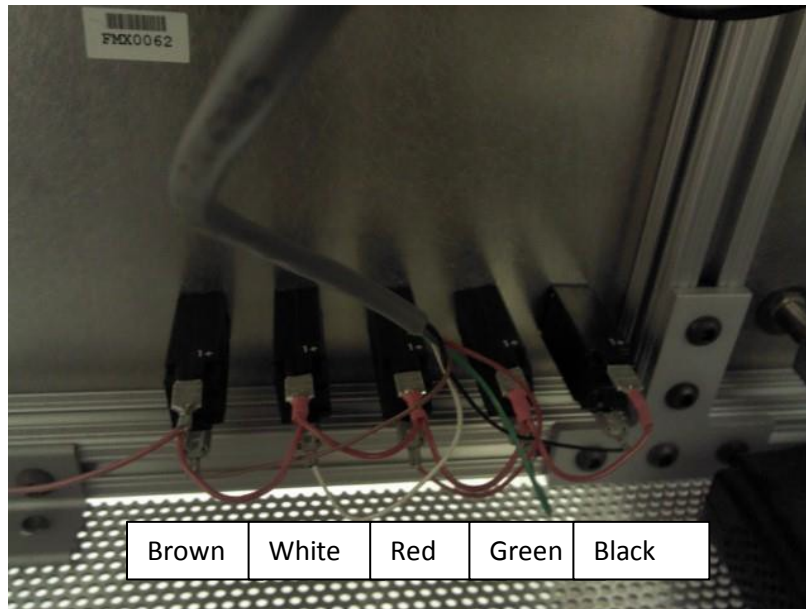
AC  V+  V-

Power Supply

Wiring – New Design (looking from the back of the unit)

8. Install the new circuit breakers with the 1+ indicator at the top. One person will need to hold the breaker body from the back, while the person in the cockpit tightens the nut.

9. Attach the red cable daisy-chain to the 1+ pin of each breaker.



| Brown | White | Red | Green | Black |

10. Screw the Black wire into the GND port of CONN1 on the Switch Panel board.
11. Screw the colored wires from the 5-wire cable into CONN1, matching the text at the port
    with  the label on the wire.
12. Install the new Switch Panel board. If the original top-right mounting pad is still in place,
    reuse it.  If not, before removing the paper on the adhesive, mark the location of the new
    board. Make  sure that the 50-pin Amphenol and USB cables will be able to reach the new
    location.



13. Attach the colored wires in the 5-wire cable to the breakers, in the order shown above.
    Make  sure these wires attach to the "2-" pin.

14. Plug the 50-pin Amphenol connector into the circuit board, install the screw, and plug in the USB cable.
15. Reinstall the nose.
16. Plug power back in and power on the simulator.