

# MCR Switching Power Supply Adapter

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**WARNING**

Although this upgrade has been tested and the techniques used will not directly cause harm to your game. If you do something wrong, you can very seriously damage the electronics! So...



...Please read the instructions.

### To perform this upgrade, you should:

- Have a working understanding of electronics.
- Be familiar with safe handling procedures for electronic components.
- Have basic soldering and electronic assembly skills.
- Can follow directions.

Anytime you start messing around with something (particularly something electronic) you accept a certain amount of risk that you may break something. This kit carries with it no guaranty of compatibility to your game. If you carefully follow these instructions, you will do fine and everything will work. If this looks like it is above your confidence level, please recruit someone locally to install the kit for you!

### Introduction

Before you begin to install the adapter, the switching power supply **must** capable of supplying +5v, +12v \*, and -5v and terminal order must be in the correct order. You must also choose a mounting place for the switching power supply and adapter that reaches your game harness.

Finally, before we get started, grab your favorite beverage, maybe something to snack on, and find a quiet place to read this manual so you fully understand what to do before you start tinkering around with your precious labor of love!

### Necessary Parts and Tools:

The following parts and tools needed for this upgrade:

- Switching power supply
- Phillips screwdriver
- Pliers

The following additional items/tools needed for this upgrade if you rather connect the adapter to a power supply with hookup wire:

- Hookup wire
- Soldering Iron & Solder
- Wire strippers

*\* Spy Hunter and EDOT games... We recommend using our Heavy-Duty power supply.*

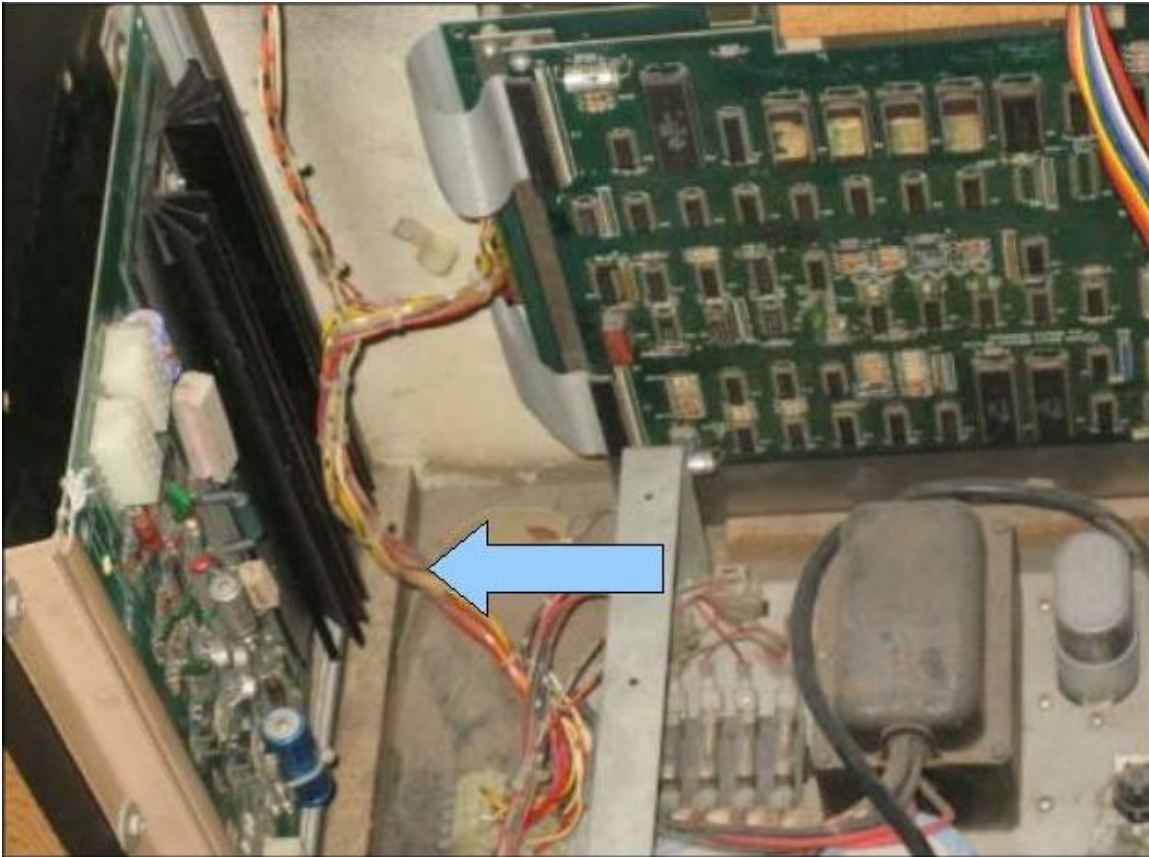
### Step One: Unplug the game from its power source!



While installing this kit, electric shock is possible if power is present!

**Step Two: Remove the current MCR supply board:**

This is an easy one; the Power supply board is usually on the left side of the game looking at it from the back. There are 4 plugs on the board. Simply unplug the connectors, unscrew the top plastic retainer, and slide the board out.



### Step Three: Connecting the MCR Switching Power Supply Adapter:

#### Option A – Connecting the Adapter directly to the 15 AMP Power Supply:

1. Plug in J4, J5 and J6 connectors. (One of the connectors will not be used)
2. Secure the adapter to the Black power supply using connector PS1 on the Adapter.
3. Mount the power supply in the cabinet and be sure there is no tension on the harness.



-OR-

#### Option B – Connecting the Adapter directly to the Heavy Duty Power Supply:

1. Plug in J4, J5 and J6 connectors. (One of the connectors will not be used)
2. Secure the adapter to the silver power supply using connector PS2 on the Adapter.
3. Mount the power supply in the cabinet and be sure there is no tension on the harness.

Note: We recommend use our heavy-duty power supply for Spy Hunter and EDOT.



-OR-

#### Option C – Connecting the Adapter to the power supply with wiring:

- Wiring the adapter is straight forward, simply connect wires from each terminal on the power supply (+5, +12, -5 and both GND terminals) to the tabs on the Adapter. At least 18-gauge hookup wire is recommended for A/C power input.

#### **Step Four: Hooking up 120 V.A.C. power to the new power supply:**

Using hookup wire, connect the two ends to the A.C. terminals. Next, connect the other ends to the two wires feeding power to the monitor. Normally these are Black and White wires near the monitor.

**WARNING! DO NOT USE THE OUTLET** in the bottom of the game. Many people have done this, and frankly its wrong. The outlet is NOT switched on in all games, that means even if you turn the power off from the games normal power switch, the game will still be running. Only the monitor will switch off.

#### **Step Five: Check your work**

Now it may make perfect sense, but at this point you've done a lot of bending over into your game to do this wiring, and your probably anxious to see what the heck this board does in person. From years of experience... **CHECK YOUR WORK!**

#### **Step Six: All systems go?**

The power supply must be adjusted properly for your game to come up. Using a meter with the game board and adapter connected, power it all up and check the +5 voltages, I would recommend setting it for 5.1 VDC. Any higher risks damage to your game board.

After your game is up and running, we recommend you leave it powered on for at least eight hours so the on-board battery will fully charge.

That's it, time to play...

#### **Notes:**

With the power supply being the #1 problem with Midway MCR games, the second most widespread problem... MCR Ribbon cables! Over time they begin to fall apart and cause problems.

We offer a set of replacement ribbon cables for your board set. See our site: [arcadeshop.com](http://arcadeshop.com) we highly recommend replacing the ribbon cables when you upgrade the power supply.

#### **Troubleshooting:**

- There is a +12 Analog LED on board, if that light is out, you will probably not have any sound. Check the 3-prong connector and make sure it's in correctly. Using your meter, check to see if you have AC voltage between the Center and two outer pins. If you do not, there is a problem with the harness, fuse holders, connectors, or your transformer assembly in the bottom of the game.

### **Troubleshooting: (continued)**

- If your game resets, does not come up, seems 'flaky', you could have a bad board set or the connectors that you are plugging into the MCR adapter are bad. If your old power supply battery had leaked, you may have acid damage to the internal metal connectors of the plugs. Inspect the connectors and if you see any 'green' your connectors are bad. You can try cleaning them with contact cleaner, but in the end, you may have to replace some or all the pins in the connector.
- Check the output of your switcher, insure at least +5.1 VDC.
- If you hear a hum in the audio there are a couple probable causes:
  1. There are several different versions of boards sets and wiring harnesses, this combination may cause a hum in the audio. Installing jumper W3 on the cheap squeak board (Left side of cab, NOT on the CPU set) may remove it.
  2. The switching power supply you are using may not provide enough current to drive the two sound boards. We recommend you use a power supply with 3 amps or greater on the +12 rails.

### **Final Notes:**

This kit carries with it no guaranty of compatibility to your game. Although this kit has been tested with numerous MCR games and CPU boards, there is a possibility that some of them are different. This kit carries no liability protection for you game PCB, while there is no reason this kit should cause damage to your game, it is possible that incorrect or poor wiring can damage your game board set. Liability is limited to repair/replacement of the adapter only.