Amana Control Board Repair

Mosfet Repair

Affected Boards

- RSKP0014
- RSKP0013
- RSKP0012
- RSKP0010

Necessary Equipment

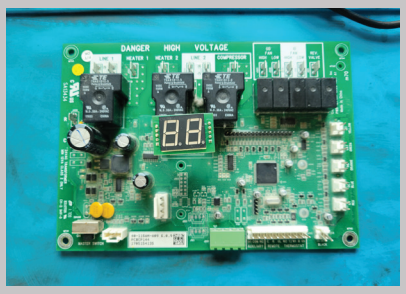
- Hot Air Soldering Gun
- Soldering Iron
- Tweezers
- Small Soft Brush
- Multi-Meter

Material List

- [DC Converter - Mosfet]
- [Diode]
- Solder
- Soldering Flux
- 99% Isopropyl Alcohol
- Solder Wick

Optional Step

Using a Silicone Conformal Coating, apply the coating in the area where the repair was made. This will restore the waterproof coating to the board.



Version	Author
1.1	Joshua O.

Introduction

Amana PTAC control boards have had a common fault that has spanned multiple generations of boards. These boards all suffer from a shorting out Mosfet. This failure leads to many techs having to swap these boards. While this is fine, there is a way to fix them. This repair is best suited for someone with at least a basic understanding and working knowledge of pcb repair.

Warning: Ensure the control board is disconnected from all power sources before beginning any repair work.

Safety Precautions

It should be noted that these boards run off 24vac and in some cases can distribute voltages up to 277vac. It is important to use extreme caution when performing any work on these. We am not responsible for any damages from this repair.

Symptoms of Mosfet Failure

After determining the control board is the fault you will want to look for a few key things to determine if the Mosfet is bad.
- No power to display
- No signs of life

Diagnosis

Follow these steps to diagnose Mosfet failure:

1. Locate Components
   -Locate the Mosfet and the diode on the left side of the control board. (Q400 & D406)
2. Set Multimeter to Diode
3. Test Diode (D406)
   - Place the probes on the diode terminals and record the reading.
   - Reverse the probes and record the reading again.
   (A shorted diode will typically show a reading close to zero in both directions.)
4. Determine Fault
   -If the diode is shorted, replace both the Mosfet and the diode.

Parts List

Components	Board Identifier	Part Number	Quantity
Mosfet	Q400	DMP6180SK3-13	1
Diode	D406	B260-13-F	1

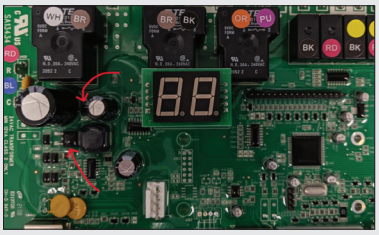
Disclamer: All repairs should be inspected. We are not responsible for repairs.

Amana Control Board Repair

Mosfet Repair

Mosfet Repair Guide

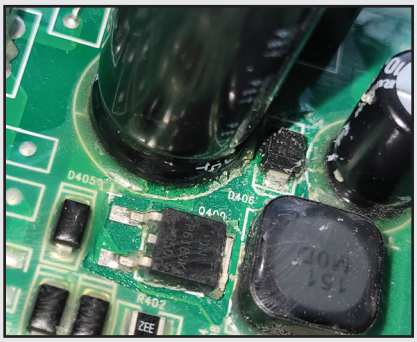
After you have verified that the problem is in fact the Mosfet then we can continue with the repair. Follow the instructions below.



Step 1: Locating the Components

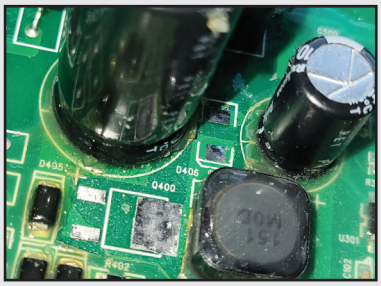
Both of the components are located on the left hand side of the board. The diode is between two capacitors and the Mosfet is directly below it. (Q400 & D406)

Step 2: Prepping the Board



After you have located the 2 components you will need to prep the board. This board has a waterproof gel coating that will need to be removed. You will need to scrape this coating away gently. Be careful not to hurt the board or any traces. After removing the coating around the components you can then use isopropyl alcohol and a brush to clean the area.

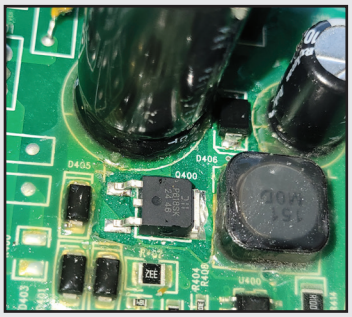
Step 3: Removing the Faulty Components



Now that the coating is gone you can set you hot air soldering gun to 420F and start to remove the Mosfet. Using flux will make his process go smoother. You can then us a soldering iron to remove the diode positioned between the two capacitors. After that it is recommended to wick the old solder up and clean the area.

Step 4: Soldering in the Components

Now that the board is clean you will want to re-tin the pads with solder and set the new components in place. Using the hot air gun and iron, you can go ahead and solder in both components. Ensure the line on the diode is nearest to the mosfet.(Pointing down) Do one final cleaning and your board is ready to test.



Board Identifiers

Name	Board #
Mosfet	Q400
Diode	D406

Basic Troubleshooting

Problem	Solution
No Power	- Check Master Switch - Check Solder Connections (Reflow Solder) - Check for shorts (Further Repairs may be necessary)
Output Stuck On	- Stuck Relay (Needs new relay) - Shorted Solder Connection
Damaged Board	-Check Traces and Determine Repairability. - Replace Board