

## Re: Faulty Microwave Oven

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**From:** Chuck Harris (cf-NO-SPAM-harris\_at\_erols.com)

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Andy Cuffe wrote:

> *On Sat, 25 Sep 2004 23:18:31 GMT, "James Sweet"*

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>> *There may be some truth to this myth, but I've run microwaves without*

>> *anything in them a number of times as well as trying various metallic*

>> *objects in a discarded oven, never did have one damaged from it.*

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> *Running a microwave empty is bad for it because there's nothing to*

> *absorb the 700 Watts of microwave power coming out of the magnetron,*

> *so it all ends up going back into the magnetron. Eventually it will*

> *heat up enough to either trip the thermal breaker, or destroy the*

> *magnetron. Nothing will explode though.*

Nope! There is nothing inside the magnetron that can absorb power. All that happens to any microwaves that head back towards the magnetron cavity is they reflect back into the oven. Unless something that absorbs microwaves is put into the cavity, the 700W is never created. The oven is a resonant cavity with very high Q. What does happen when the cavity is left unloaded, is very high voltage nodes are setup in the cavity space. Depending on where they happen to be, some arcing might occur. The oven's designers were very careful to make sure that that doesn't happen. Modern ovens are designed to withstand being run empty indefinitely.

When you put metal objects into a microwave oven, again, you run the risk of causing localized areas of high voltage, that may cause arcing. You also will get localized areas of high current on the metal object which may cause parts of it to get extremely hot.

-Chuck