

Motor start capacitors degrade over time

Based on recent experience, I wonder how many whitegoods finish up in landfill for the sake of a \$5-10 part.

I recently had the impression our freezer was “hard-starting”. Measuring with SC’s Energy Meter (upgraded using Geoff Graham’s firmware) showed a starting power of 1500W averaged over the one second update period – this for a device that draws only 100W when running!

Further investigation showed the compressor was driven by a permanent split-capacitor motor and the run capacitor, labelled as 4 μ F, had dropped to a measured value of only 0.5 μ F.

A replacement capacitor, purchased from either element14 or RS components, measured 4 μ F and dropped the start power to 600W. That’s still a lot but at least more reasonable.

So, went on to check (then fix) the fridge, where the capacitor had dropped from 4 μ F to 2 μ F and this had halved the starting current.

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Leo comments: We suspect that faulty motor-run capacitors are the reason many appliances with induction mo-

tors are discarded. Just recently I found that my pool pump motor was reluctant to start and it occurred to me that the bearings might be dry and needing lubrication.

However, at around the same time, a reader I was trying to assist (with problems with our Induction Motor Speed Controller) found that his problem was caused by a faulty motor run capacitor; down from 25 μ F to 17 μ F.

I duly checked my pump (as part of a sand filter re-install) and found that its run capacitor had dropped from 20 μ F to 13 μ F. I replaced it with a capacitor from Jaycar (Cat RU-6606 @ \$16.95) and that fixed it.

Incidentally, both Jaycar and Altronics have a small range of suitable motor-run capacitors but they erroneously list them as “motor-start”. The good thing is that Jaycar and Altronics stores are open seven days, which is great for “weekend warriors” – that probably applies to most DIYers.