Tech Tip
Capacitors Part 1

Because of recent truck stock changes it has become apparent that service techs need to add a calculator to their toolboxes.

By wiring a capacitor in parallel most techs know that the uf ratings add up.
For example if he has a 30 uf 440 volt and a 15 uf 440 volt wired in parallel the resulting capacitance would be 45 uf 440 volt (30 + 15 = 45).

But what about if he needed something smaller than he has on his truck?

Let's go on a call with Rick.

9:00 pm, Rick gets a call that Mrs. Boudreaux's unit is out and we did a preventive maintenance call on it 1 month ago.

Rick quickly identifies the condenser fan motor is running backwards and upon further investigation finds the 3uf 370 volt capacitor is causing the problem.

Rick realizes the capacitor he needs is not among the stock on his truck.

Out comes the calculator…
Rick knows that by using the formula $\frac{C1 \times C2}{C1 + C2}$ for capacitors in series, he can get the new capacitance to be lower than either one of the capacitors he uses.

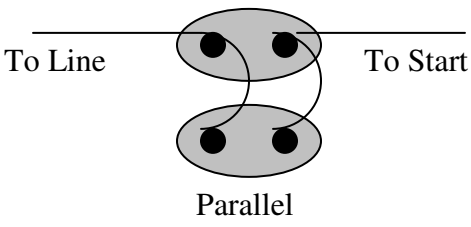
Rick knows he has a 5 uf 440 volt and a 7.5 uf 440-volt capacitor on his truck so he applies the math.

5 X 7.5 = 37.5 (C1 x C2) and 5 + 7.5 = 12.5 (C1 + C2)
Therefore 37.5 divided by 12.5 = 3

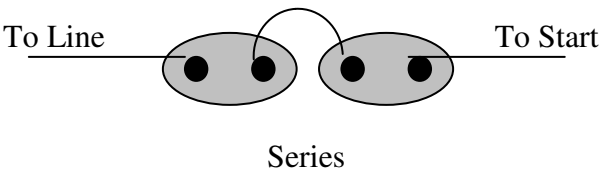
The 2 capacitors he has on his truck will allow him to make a 3uf 440volt capacitor that can be used on Mrs. Boudreaux's home without having to make a second trip.

This does not jeopardize the quality of the parts being installed or the quality of the job. Because most technicians do not know this, a note to future technicians may be attached to the capacitors for reference.

Second trips cost your company approximately $200 each time you don't complete the job the first time.



Parallel



Series