

**Exercise 2-16** Solution file from Kelton/Sadowski/Zupick, *Simulation With Arena*, 6th edition, McGraw-Hill, 2015

As noted in the text, the mean of the ten given interarrival times is 4.08 minutes, and the mean of the ten given service times is 3.46 minutes. In Exercise 2-4, each service time was to be increased by 3 minutes, so of course the mean of these ten new service times would be  $3 + 3.46 = 6.46$  minutes. Now this is greater than the 4.08-minute mean interarrival time, so that it takes (on average) longer to serve a part than the average time between successive part arrivals, so over a long time period the system will just get more and more full, i.e. it will “explode,” and will grow without bound. So in the long run this system is unstable and wouldn’t operate in any sort of acceptable way.