Space Age Furniture Company The Space Age Furniture Company manufactures tables and cabinets to hold microwave ovens and portable televisions. These products are made in various sizes and with various features, but all follow basically the same production and assembly operations. However, two of these products—the Saturn microwave stand and the Gemini TV stand—have a part (no. 3079) that requires machining on a special lathe used only for making that part. At present the machine is run by Ed Szewczak, a machinist who also operates other machines in Space Age’s shop. Once set up and started, the lathe can run nearly unattended. However, the machinist must be present (even if not actually attending the machine) any time one of the machines, including the lathe, is in operation. At present, Ed works a regular 40-hour week. However, due to the workload for producing part 3079, it has been necessary to schedule frequent overtime for him in order to finish the necessary parts on time.

Coral Snodgrass, operations manager for Space Age, has just heard from Ed’s foremen that Ed is becoming unhappy about so much overtime. As Coral knows, Ed has been with the company a long time and is an excellent, reliable employee. Skilled machinists with Ed’s experience and employment record are extremely difficult to find. Coral wonders what can be done to alleviate this problem.

Recently, Space Age began using an MRP system that has helped reduce inventories greatly and improve on-time deliveries. In fact, Space Age carries no finished-goods inventory. Instead, everything in the master schedule is being produced for customer orders, so all products are shipped almost immediately. Previously Space Age had estimated that it cost $1.25 per week to store each Gemini and $1.50 per week to store each Saturn that wasn’t shipped immediately. The master schedule for producing these two items for the next six weeks is shown below.

Master Schedule

Week 1 2 3 4 5 6 Gemini 600 400 700 500 400 600 Saturn 300 400 400 600 300 300

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CHAPTER 9Discussion Questions

The part in question, 3079, is used in two different subassemblies: no. 435, which is used in the Gemini TV stand, and no. 257, which is used in the Saturn microwave stand. One of part 3079 is used in each subassembly, and one of each subassembly is used in each of the final products.

Part 3079 may be produced in any quantity since the lathe that makes it is not used for anything else. However, both of the subassemblies are produced using the same equipment. To minimize change over time, Space Age has decided that these subassemblies should be made in minimum quantities of 1,000 at a time, although there is no problem with capacity on the equipment that makes them. In fact, an order for 1,000 of subassembly 435 is due to be received in week 1, as is an order for 1,000 of subassembly 257. Lead time for both these subassemblies is one week, and no inventory is expected to be on hand for either part at the beginning of week 1. There is not any on-hand inventory of part 3079, and there are no orders in process.

Ed Szewczak earns $22 per hour and gets a 50% premium for any overtime work. Whenever part 3079 is made, there is no set-up time, but processing takes 0.03 hour per unit. It costs $0.25 per week to hold any of these parts over from one week to the next. The cost of holding each subassembly in inventory is $0.75 per unit per week.

1. What options are open to Coral to address this problem? 2. How would reducing the minimum quantity of subassemblies help? 3. What are the costs of carrying excess items in inventory at each stage? 4. What is the trade-off between overtime costs and inventory costs?