"ACME Stamping" Data Set

Acme Stamping Company produces several components for vehicle assembly plants. This case concerns one product family: a steel instrument-panel bracket subassembly in two types: one each for left-hand and right-hand drive versions of the same automobile model. These components are sent to the State Street Vehicle Assembly Plant (the customer).

CUSTOMER REQUIREMENTS:

- 18,400 pieces per month
  12,000 per month of Type "LH"
  6,400 per month of Type "RH"
- Customer plant operates on two shifts
- Palletized returnable tray packaging with 20 brackets in a tray and up to 10 trays on a pallet. The customer orders in multiples of trays.
- One daily shipment to the assembly plant by truck

WORK TIME:

- 20 days in a month
- Two shift operation in all production departments
- Eight (8) hours every shift, with overtime if necessary
- Two 10-minute breaks during each shift
  Manual processes stop during breaks
  Unpaid lunch

"ACME Stamping" Data Set *(continued)*

PRODUCTION PROCESSES:

- Acme's process for this product family involves stamping a metal part followed by welding and subsequent assembly. The components are then staged & shipped to the vehicle assembly plant on a daily basis.
- Switching between Type "LH" (left-hand drive) and Type "RH" (right-hand drive) brackets requires 1 hour changeover in stamping and 10-minute fixture change in the welding processes.
- Steel coils are supplied by Michigan Steel Co.
  Deliveries are made to Acme on Tuesdays and Thursdays.

ACME PRODUCTION CONTROL DEPARTMENT:

- Receives State Street's 90/60/30-day forecasts and enters them to MRP
- Issues Acme 6-week forecast to Michigan Steel Co. via MRP
- Secures coil steel by weekly faxed order release to Michigan Steel Co.
- Receives daily firm order from State Street
- Generates MRP-based weekly departmental requirements based upon customer order, WIP inventory levels, F/G inventory levels, and anticipated scrap and downtime
- Issues weekly build schedules to Stamping, Welding, and Assembly processes
- Issues daily shipping schedule to Shipping Department

"ACME Stamping" Data Set *(continued)*

PROCESS INFORMATION:
All processes occur in the following order and each piece goes through all processes.

1) STAMPING
(The press makes parts for many Acme products)
- **Automated 200 Ton press with coil** (automatic material feed)
- **Cycle Time: 1 second** (60 pieces per minute)
- **Changeover time: 1 hour** (good piece to good piece)
- **Machine reliability: 85%**
- **Observed Inventory:**
  - **5 days of coils before stamping**
  - **4,600 pieces of Type "LH" finished stampings**
  - **2,400 pieces of Type "RH" finished stampings**

2) SPOT-WELD WORKSTATION I
(dedicated to this product family)
- **Manual process with one operator**
- **Cycle Time: 39 seconds**
- **Changeover time: 10 minutes (fixture change)**
- **Reliability: 100%**
- **Observed Inventory:**
  - **1,100 pieces of Type "LH"**
  - **600 pieces of Type "RH"**

3) SPOT-WELD WORKSTATION II
(dedicated to this product family)
- **Manual process with one operator**
- **Cycle Time: 46 seconds**
- **Changeover time: 10 minutes (fixture change)**
- **Reliability: 80%**
- **Observed Inventory:**
  - **1,600 pieces of Type "LH"**
  - **850 pieces of Type "RH"**

4) ASSEMBLY WORKSTATION I
(dedicated to this product family)
- **Manual process with one operator**
- **Cycle Time: 62 seconds**
- **Changeover time: none**
- **Reliability: 100%**
- **Observed Inventory:**
  - **1,200 pieces of Type "LH"**
  - **640 pieces of Type "RH"**

5) ASSEMBLY WORKSTATION II
(dedicated to this product family)
- **Manual process with one operator**
- **Cycle Time: 40 seconds**
- **Changeover time: none**
- **Reliability: 100%**
- **Observed Finished-Goods Inventory in Warehouse:**
  - **2,700 pieces of Type "LH"**
  - **1,440 pieces of Type "RH"**

6) SHIPPING DEPARTMENT
Removes parts from finished goods warehouse and stages them for truck shipment to customer.