



***Higher  
Design & Manufacture***

*Just In Time*

# ***Just In Time***

- ***Just in Time** Production was first pioneered by the Japanese to reduce stock levels and reduce cost.*
- *Products are made **quickly** and in the **exact quantities** needed to **meet demand**.*
- *Materials arrive ready for use exactly when they are needed.*
- *This means...*
  - *companies have less capital (money) tied up in raw materials*
  - *carry less stock and therefore require less storage space*
  - *there are no stockpiles of finished goods waiting to be dispatched.*



# *Just In Time*

- *JIT requires good relationships between manufacturers and suppliers.*
- *Suppliers will have to be flexible and respond immediately to the manufacturers demands.*
- *Manufacturers must plan carefully, having accurate estimates for each stage and efficient stock control systems.*



# Kanban

To help JIT Production to run smoothly a **'Kanban'** system is normally used, which **controls material flow**.

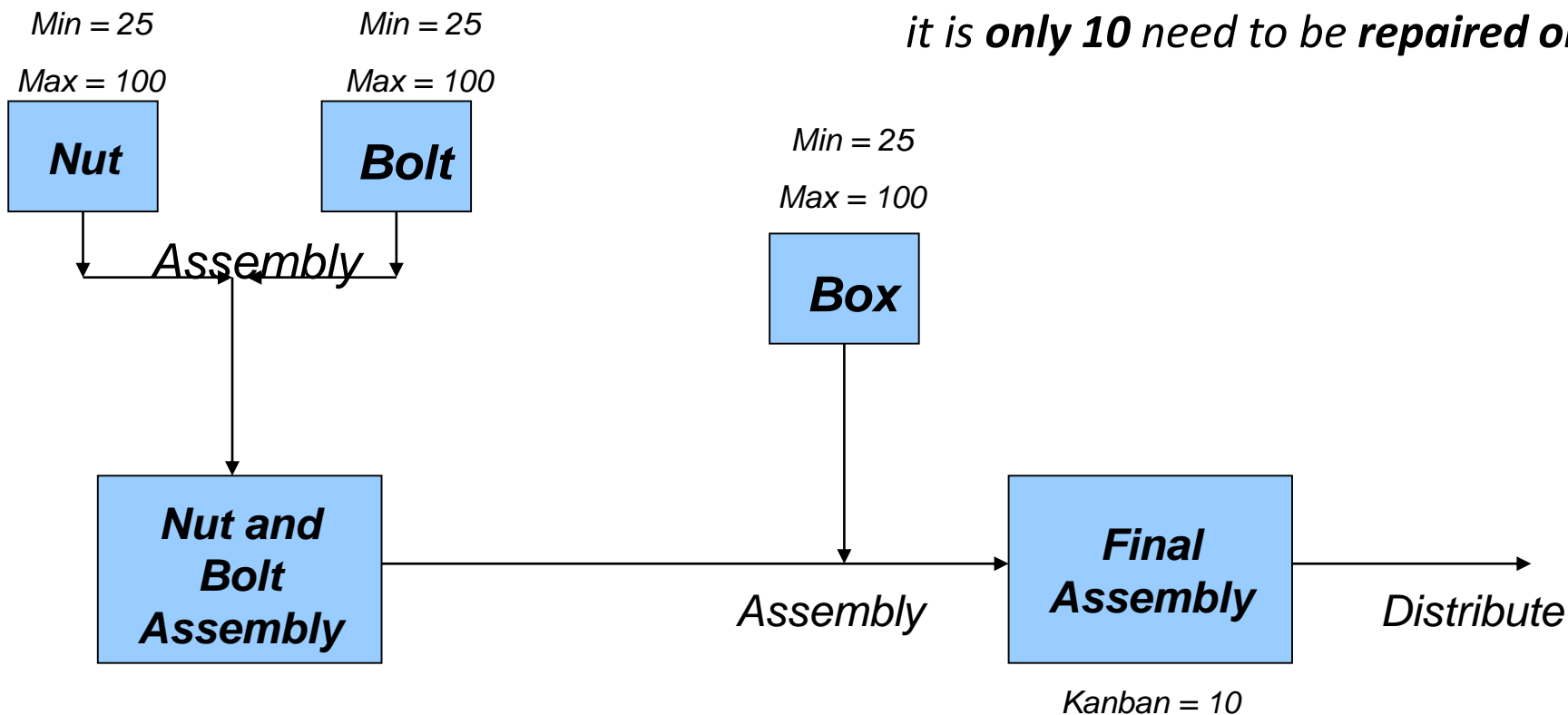
If a Kanban is set at **100**, then **max. of 100** components can be placed there at one time.

If **all 100 parts** are used then there will be **no stock available** to continue production. Therefore a **minimum level must be set** to signal when stock needs to be **replenished**.

This **visual signaling** of stock levels **reduces paperwork** and ensures all **'keep an eye'** on the stock levels.

# Kanban

This Kanban shows **2 assemblies** the first is a **nut and bolt**, the second putting these into a **box**. When the **min** is reached of any of the 3 products it should be **restocked** before it runs out and production has to stop. **Quality control** has been built in with a **Kanban of 10** being set. This means that if a batch is found to be **defective** in anyway it is **only 10** need to be **repaired or recycled**.



# ***When will JIT Production not work?***

- *When the delivery of parts is not reliable.*
- *When the distance between the supplier and factory is too great.*
- *When the quality of parts is not guaranteed.*
- *When production is unstable.*
- *When stock control is inefficient and poorly planned.*



# ***When will JIT Production not work?***

- *The goal of any JIT system is to achieve:*
  - *Zero Stock*
  - *Zero Lead Time (the time taken between an order being placed and delivery)*
  - *Zero Defects*
  - *Zero Breakdowns*
  - *Zero Paperwork*
- *These 'Five Zeros' are almost impossible to achieve but they are targets to aim at.*
- *Companies will carry a small amount stock, enough for a few days production just in case.*



# 2007 Q5

“Just in Time” production is used by car manufacturers to reduce costs.

(c) With reference to car manufacture, describe “Just in Time” production.

**3**

**(10)**



# 2007 Q5

“Just in Time” production is used by car manufacturers to reduce costs.

(c) With reference to car manufacture, describe “Just in Time” production.

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(10)

(c)	<p>JIT involves reducing stock levels within a factory to reduce costs.</p> <ul style="list-style-type: none"><li>• Car manufacturers would identify exact quantities needed to meet customer demand</li><li>• Many parts and materials are delivered by sub-contracting at the critical time required by the car manufacturer</li><li>• Production materials are delivered when and where they are needed according to the car manufacturers plan of production</li><li>• Therefore less capital is tied up in raw materials and less space is required to store materials/components</li></ul> <p>1 mark each valid point made in description. 3 @ 1</p>	3
	<b>Total</b>	<b>10</b>