Production and Sale of an Engine

ADDON.IDESISAD

Release 4.6C

SAP™

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Icons

Icon	Meaning
⚠	Caution
🗔	Example
💡	Note
🧭	Recommendation
SYN	Syntax

Typographic Conventions

Type Style	Description
Example text	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options.
	Cross-references to other documentation
Example text	Emphasized words or phrases in body text, titles of graphics and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
`Example text`	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, source code as well as names of installation, upgrade and database tools.
`Example text`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example text>`	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.
`EXAMPLE TEXT`	Keys on the keyboard, for example, function keys (such as `F2`) or the `ENTER` key

Contents

Production and Sale of an Engine

Purpose

You sell a large number of engines per year. You control the production of the engines by annual preplanning. Incoming sales orders are subtracted from the preplanning and planned requirements are replaced by actual requirements.

The engines are made-to-stock in your company. When a customer places an order, an engine is taken from stock and delivered.

Process Flow

You can find the data for this process under [?] [Page 7].

1. You plan the number of engines to produce in a certain period, without sales orders, based on experience.

   Planning for Make-to-Stock Production [Page 8]

2. The production is also to-stock, without reference to sales orders. Completed engines are put in the warehouse.

   Sales-Order-Neutral Production [Page 14]

3. Incoming sales orders are subtracted from your preplanning requirements to give an overview of planned and actual requirements.

   Incoming sales order processing [Page 20]

4. Incoming sales orders are satisfied from stocks.

   Sales Order Delivery and Billing [Page 27]

The following graphic shows the integration of the various enterprise areas in the business process in this example.

Production and Sale of an Engine

Business Process Integration and the Flow of the Example

Program Planning	Sales	Requirements Planning	Production Procurement	Sales
Preplanning	**Order**	**MRP**	**Production**	**Shipping**
Preplanning Requirements	Availability Check	Sales/ Preplanung Requirements	Production Order	Delivery
	Billing Plan	Planned Order	Confirmation	Goods Issue
		Secondary Requirements	Goods Receipt	Billing
		Conversion		FI / CO-PA
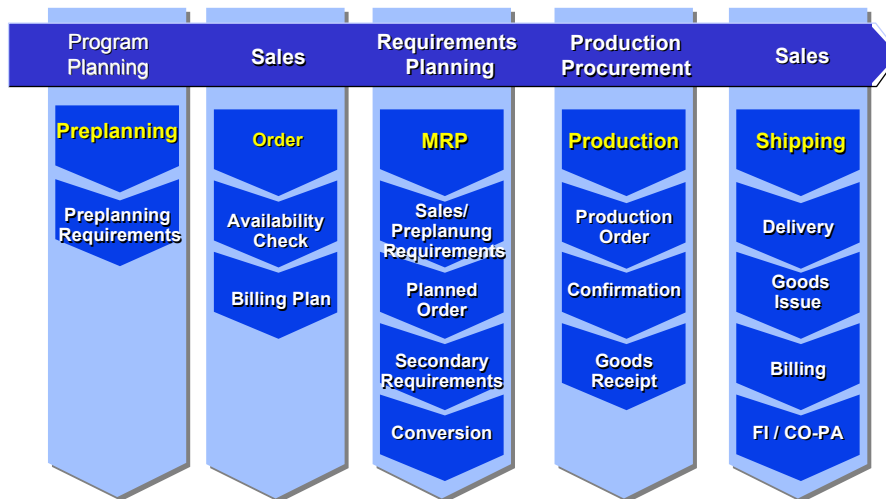
Data for This Example

Field	Data	Description
Material	IAD-3000	Engine PW100
Plant	3600	Wichita
Sales organization	3000	USA Philadelphia
Distribution channel	10	Final customer sales
Division	00	Cross-divisional
Customer	3251	PALO ALTO AIRWAYS INC.
Order type	TA	Standard order
Storage location	0001	Manufacturing
Movement type	101	
Shipping point	3600	
Warehouse number	360	Lean warehouse, Wichita
Document type	DZ	Customer payments
Company code	3000	IDES US INC
Currency	USD	
Customer account	3251	PALO ALTO AIRWAYS INC.
Special General Ledger flag (only for down payment)	A	Down payment
Bank account	113100	

Planning for Make-to-Stock Production

Purpose

You plan the number of engines to produce without sales orders, based on experience. Incoming sales orders are subtracted from the planned independent requirement in your preplanning.

Process Flow

1. Examine the engine BOM to get to know the structure of the engine and its components.
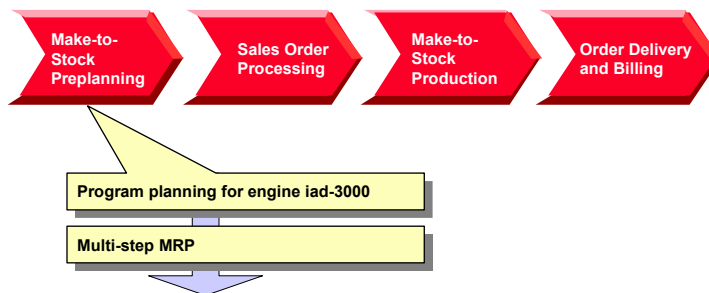   Display Engine BOM [Page 9]

   This step is not an essential part of the planning and production process.

2. Create a program plan for the *IAD-3000* engine.

   Preplan Engine Component Make-to-Stock [Page 10]

3. Perform a multi-step material requirements planning, expanding the engine BOM. Dependent requirements are created for the BOM components, the preplanning engine requirements are converted into planned orders.

   Perform Multi-Step Material Requirements Planning [Page 11]

   Check Effects of the Requirement Planning in Requirements/Stock List [Page 13]

Make-to-Stock Preplanning	Sales Order Processing	Make-to-Stock Production	Order Delivery and Billing

Program planning for engine iad-3000

Multi-step MRP

Display Engine BOM

1. Call the transaction as follows:

Menu Path	*Logistics → Production → Master Data → Bills of Material → Evaluations → BOM Explosion → Material BOM → BOM (Multi-Level)*
Transaction Code	CS11

2. Enter the following data:

Field	Data
Material	IAD-3000
Plant	3600
BOM application	pp01

3. Choose .

       The BOM is displayed expanded over several levels.

4. Choose until the overview tree appears.

Preplan Engine Component Make-to-Stock

Use

You know from experience that on average five of engine model *PW 100* are sold per month. You plan this quantity at assembly level.

Procedure

1. Call the transaction as follows:

Menu Path	*Logistics → Production → Production Planning → Demand Management → Planned Independent Requirements → Create*
Transaction Code	MD61

2. Enter the following data:

Field	Data
Material	IAD-3000
Plant	3600
Version	00
Planning period from	01. of the current month
to	01. in one year and one month
Planning period	M

3. Choose ✅.

4. Enter a monthly planned independent requirement of *5* for each of the next thirteen months.

💡

You can toggle between the columns with ◀ and ▶.

5. To check the current stock level, select the material *IAD-3000* in the planning table and choose the *Sched. lines* tab.

A requirement of 5 engines is displayed for each month in the planning period.

6. Choose 🔙.

7. Choose *Yes* in the dialog box.

8. Choose 🔙 until the overview tree appears.

Perform Multi-Step Material Requirements Planning

Use

You plan the material requirements for your plant *Wichita*. You determine the engine requirement deadlines and quantities. You plan on the basis of current material stocks, existing sales orders and expected requirements.

Procedure

1. Call the transaction as follows:

Menu Path	*Logistics → Production → MRP → Planning → Single-Item, Multi-Level*
Transaction Code	MD02

2. Enter the following data:

Field	Data
Material	IAD-3000
Plant	3600
Planning mode	3 (Delete and recreate plan data)
Also plan unchanged components	Select
Display material list	Select

          🔦

          Accept the default values for the other control parameters.

3. Choose 🟢 and confirm the warning message with ✅.

          The multi-step engine requirements planning is performed.

4. Choose 👤 *Materials*.

          The engine BOM is expanded in the requirements planning. The engine is listed in the first position with its components below.

5. Select the first item in the list (the engine) and choose 🔍 *Selected results*.

          You see the planning results based on the planned orders generated during MRP for the engine.

6. Choose 🖼 in the planned order row to select a planned order.

          You can analyze the planned order in the dialog box.

7. Choose ✔.

8. Choose 🔙 until the *Single-Item, Multi-Level* screen.

9. To investigate other secondary requirement planned orders, perform steps 5 - 8 with the following positions in the list.

10. Choose 🔙 until the overview tree appears.

Check Effects of Requirement Planning in Requirements/Stock List

1. Call the transaction as follows:

Menu Path	Logistics → Production → MRP → Evaluations → Stock/Requirements List
Transaction Code	MD04

2. Enter the following data:

Field	Data
Material	IAD-3000
Plant	3600

3. Choose ✅.

The *Stock/Requirements List* as *of XXX Hrs* shows you that the appropriate number of planned orders were created for each preplanning requirement.

4. Do not leave this screen.

Sales-Order-Neutral Production

Purpose

Your company produces several kinds of engines. You plan the sales of each type in a production plan.

The engine *PW100* should be in stock and ready for delivery when a customer order arrives.

Use the planning strategy *Preplanning with Final Assembly*, also known as *Strategy Group 40*. The system creates planned orders for making engines from the preplanning. In this process you convert one example planned order into a production order.

Process Flow

1. You convert one example planned order into a production order and release it for production.

    Convert Planned Order Into Production Order and Release [Page 16]

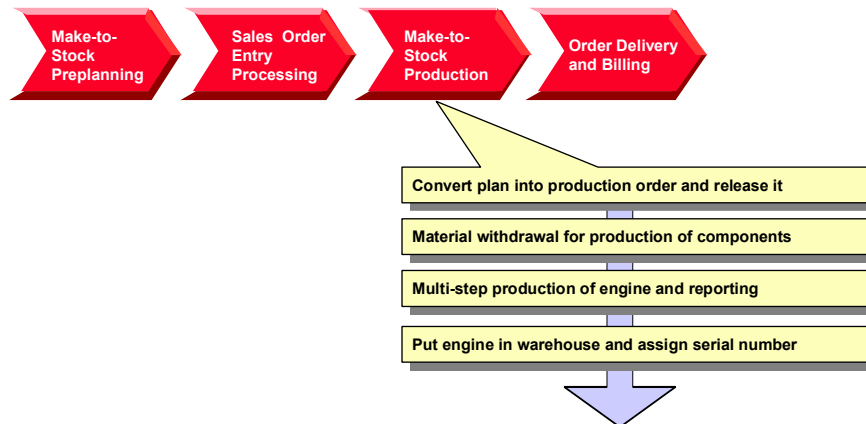2. You get the components for the engine from the warehouse.

    Post Material Withdrawal for Production of Components [Page 17]

3. You produce the engine in several production steps.

    Perform Multi-Step Production of Engine and Confirm [Page 18]

4. You put the finished engine in the warehouse and assign a serial number to it.

    Post receipt of Engine in Warehouse and Get Serial Number [Page 19]

Make-to-Stock Preplanning	Sales Order Entry Processing	Make-to-Stock Production	Order Delivery and Billing

Convert plan into production order and release it

Material withdrawal for production of components

Multi-step production of engine and reporting

Put engine in warehouse and assign serial number

Convert Planned Order Into Production Order and Release

Use

You convert a planned order into a production order and trigger the production of an engine.

Procedure

1. You are in the *Stock/Requirements List as of XXX Hrs.*

2. Choose in the row of the first planned order.

3. Choose *-> Prod.Orde*r.

    The production order network for the engine is displayed. The status *CRTD* is displayed in the *System Status* column for all production orders in the order network.

4. Position the cursor on the top element, *IAD-3000*.

5. To release the production order network, choose .

    The system status of all production orders changes from *CRTD* to *REL*.

6. Choose .

7. Make a note of the production order number.

8. Choose until the overview tree appears.

Post Material Withdrawal for Production of Components

Use

You get the components for the assembly of the engine from the warehouse, referring to the production order which you created for the engine.

Procedure

1. Call the transaction as follows:

Menu Path	*Logistics → Production → Production Control → Goods Movements → Goods issue*
Transaction Code	MB1A

2. Choose To order...

3. Enter the following data:

Field	Data
Order	The number of your production order
Storage location	0001

4. Choose ✔.

5. Choose *Adopt + details*.

6. To confirm any warning messages that may appear, choose 🗹.

7. Choose *Goods issue → Post*.

8. Choose ↩ until the overview tree appears.

Perform Multi-Step Production of Engine and Confirm

Use

Confirm the finished components and assembled engine. You do not need to post the individual finished components in a BOM level back into the warehouse before assembling the engine because you post in a *Production order network*.

Procedure

1. Call the transaction as follows:

Menu Path	*Logistics → Production → Production Control → Order → Display*
Transaction Code	CO03, CO15

2. Enter the following data:

Field	Data
Order	The number of your production order
Display Overview	Select

3. Choose ⊘.

    Report the completion of the components:

4. Select the component *IAD-3400* and choose *Environment → Confirmation → Create for order*.

    You go to *Conformation of Production Order Create: Actual*.

5. Enter the following data:

Field	Data
Final conf.	Select

6. Choose 💾.

7. Confirm the completion of the other components (*IAD-3300*, *IAD-3200*, *IAD-3100*) as described in 4 - 7.

8. When the components have been produced, the engine can be assembled. Confirm the completion of the *IAD-3000* engine by End confirmation message as described above.

9. Choose ⟲ until the overview tree appears.

Post Receipt of Engine in Warehouse and Get Serial Number

1. Call the transaction as follows:

Menu Path	Logistics → Materials Management → Inventory Management → Goods Movement → Goods Receipt → For Order
Transaction Code	MB31

2. Enter the following data:

Field	Data
Movement type	101
Order	The number of your production order
Plant	3600
Stor. location	0001

3. Choose 🗔.

4. To ignore the warning message, choose ✅.

> 💡
>
>   A serial number profile is entered for the engine in the material master. You must assign a serial number when you post the receipt of the engine in the warehouse.

5. Choose *Create Serial number automatically* in the dialog box.

6. Choose ✔ in the dialog box.

7. Select the proposed serial number and choose ✔.

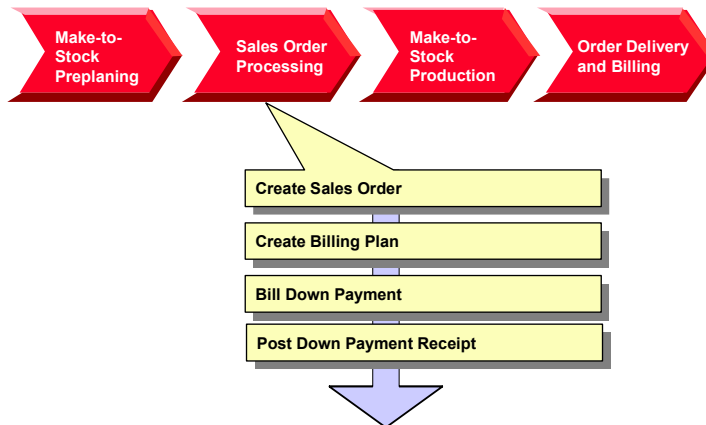8. Choose 💾.

9. Choose ↺ until the overview tree appears.

Incoming Sales Order Processing

Purpose

You receive sales orders with a desired delivery date, usually six months in the future. As the production times for an engine are relatively long and they are high-value products, you require a down payment of 20% of the order price when the order is placed.

Process Flow

1. Creating a Sales Order [Page 21]
2. Create Billing Plan [Page 23]
3. Bill Down Payment [Page 24]
4. Post Incoming Down Payment [Page 25]
5. Display Customer Order and Preplaning Requirement Adjustment [Page 26]

Make-to-Stock Preplaning → Sales Order Processing → Make-to-Stock Production → Order Delivery and Billing

Create Sales Order

Create Billing Plan

Bill Down Payment

Post Down Payment Receipt

Creating a Sales Order

1. Call the transaction as follows:

Menu Path	*Logistics → Sales and Distribution → Sales → Order → Create*
Transaction Code	VA01

2. Enter the following data:

Field	Data
Order type	TA
Sales organization	3000
Distribution channel	10
Division	00

3. Choose 🅥.

4. Enter the following data:

Field	Data
Sold-to party	3251
Purch. order no.	Any
Req.deliv.date	in 9 months
Material	IAD-3000
Order quantity	1
Plnt	3600

5. Choose 🅥.

6. In the dialog box, choose ✔.

7. Select the item, then choose 📊.

8. Select your item, then choose 🔍.

9. Choose the *Shipping* tab.

10. Make a note of the material availability date which you will need as a selection criterion to create the delivery.

    💡

    If the Transport planning date is earlier than the material availability date, you can create the delivery on this date.

11. Choose 💾.

12. Make a note of the order number.

13. Choose 🔙 until the overview tree appears.

Creating a Sales Order

14. In the dialog box, choose *No*.

Create Billing Plan

Use

You use a Billing Plan, which you create with the order, to control invoicing. The Billing Plan contains the percentage invoiced amounts and due dates.

Procedure

1. Call the transaction as follows:

Menu Path	*Logistics → Sales and Distribution → Sales → Order → Change*
Transaction Code	VA02

2. Enter the sales order number and choose ![icon].

3. Select the order item and choose ![icon].

4. Choose the *Billing Plan* tab.

    ![lightbulb icon]

    The sales order already has a template billing plan. You want to invoice a 20% down payment and a final invoice for the remaining amount.

5. Change the *Down Payment* to 20%.

6. Select *Engineering/D* in the Billing Plan and choose ![icon].

    The invoice amounts of the down payment and final invoice change as you change the Billing Plan and add up to the price of the engine.

    ![lightbulb icon]

    Ensure that the down payment is not locked (in the *Block* column). You can not invoice an item in the Billing Plan if the lock flag is set. You must delete it manually before creating the invoice.

7. Choose ![icon] until the *Change Standard Order XXX: Overview* screen appears.

8. Choose ![icon].

9. Choose ![icon] until the overview tree appears.

Bill Down Payment

Use

You create a request for payment from your customers.

Prerequisites

The down payment is not blocked in the billing plan.

Procedure

1. Call the transaction as follows:

Menu Path	Logistics → Sales and Distribution → Billing → Billing Document → Create
Transaction Code	VF01

2. Enter the following data:

Field	Data
Document	Your sales order number

3. Choose 🕐.

    The billing item overview shows that a request for payment, not an invoice, was created.

4. Choose 💾.

5. Choose 🔙 until the overview tree appears.

Post Incoming Down Payment

Use

You have requested a down payment of 20% of the order price from your customer and are now posting the receipt.

Procedure

1. Call the transaction as follows:

Menu Path	Accounting → Financial Accounting → Accounts Receivable → Document Entry → Down Payment → Down Payment
Transaction Code	F-29

2. Enter the following data:

Field	Data
Document date	Today's date
Document type	DZ
Company code	3000
Posting date	Today's date
Currency/rate	USD
Customer: Account	3251
Special G/L ind	A
Bank: Account	113100
Amount	50000

3. Choose *Requests*.

   This refers to a down payment request.

4. Select a down payment document number and choose *Create down payment*.

5. To post the document, choose 💾.

6. Choose 🔄 until the overview tree appears.

7. In the dialog box, choose *Yes*.

Display Customer Order and Preplanning Requirement Adjustment

Use

When you have created a customer order for the engine, you want to check how the customer order affects your monthly preplanning of engines.

Procedure

1. Call the transaction as follows:

Menu Path	Logistics → Production → MRP → Evaluations → Stock/Requirements List
Transaction Code	MD04

2. Enter the following data:

Field	Data
Material	IAD-3000
Plant	3600

3. Choose ✅.

> In the period in which the material availability date for the customer order for your engine falls, the preplanning requirement is reduced by the order quantity in the customer order item for the engine.

4. Choose 🔄 until the overview tree appears.

Sales Order Delivery and Billing

Purpose

Your sales order is fulfilled from stock. You create the delivery papers and pick the delivery quantity analogously to the sales order. Invoice the remaining 80% of the order value and post the receipt of the payment.

Process Flow

1. Creating a Delivery [Page 28]

2. Create Delivery Transport Request and Post Goods Issue [Page 29]

3. Create a Final Invoice [Page 30]

4. Post Incoming Payment to Final Invoice [Page 32]
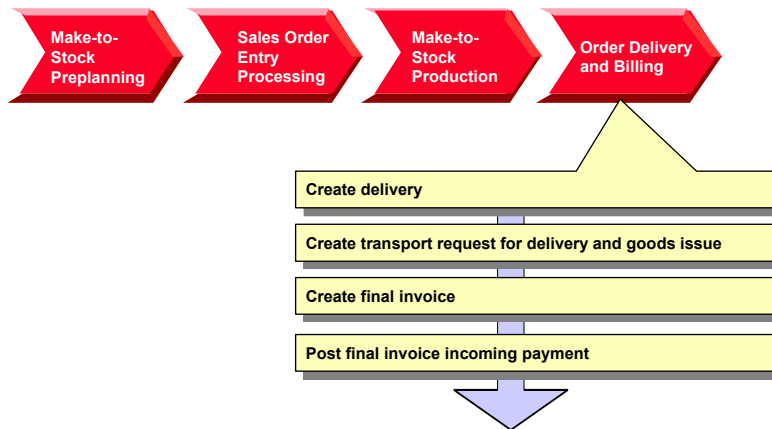
Creating a Delivery

1. Call the transaction as follows:

Menu Path	*Logistics → Sales and Distribution → Shipping and Transportation → Outbound Delivery → Create → Single Document → With Reference to Sales Order*
Transaction Code	VL01N, LT03

2. Enter the following data:

Field	Data
Shipping point	3600
Selection date	Material staging or transportation planning date
Order	Your sales order number

3. Choose .

4. Enter the following data:

Field	Data
Delivery quantity	1
Sloc	0001

5. Choose Extras → Serial numbers.

6. Choose .

7. Accept all settings and choose .

8. Select the item, then choose .

9. Select the selected serial number and choose .

10. Choose .

11. Choose until the overview tree appears.

Create Delivery Transport Request and Post Goods Issue

1. Call the transaction as follows:

Menu Path	From the *Shipping and Transportation* node choose *Picking* → *Create Transfer Order* → *Single Document*.
Transaction Code	LT03

2. Enter the following data:

Field	Data
Warehouse number	360
Delivery	Is proposed
Adopt picking quantity	2

3. Choose ✅.

4. Choose 💾.

> 💡
>
> The System posts the goods issue at the same time.

5. Choose ↩ until the overview tree appears.

Create Final Invoice

Use

You create a final invoice for the remaining amount due. First unblock the final invoice in the sales order.

Procedure

1. Call the transaction as follows:

Menu Path	From the node *Sales and Distribution* choose *Sales → Order → Change*
Transaction Code	VA02

2. Enter the following data:

Field	Data
Order	Your sales order number

3. Choose 🗸.

4. Select the order item and choose 🔍.

5. Choose the *Billing Plan* tab.

6. Delete the entry in the *Block* column in the closing invoice row.

7. Choose 🔄.

8. Choose 💾.

9. Choose 🔄 until the overview tree appears.

10. Call the transaction as follows:

Menu Path	From the node *Distribution and Distribution* choose *Billing → Billing Document → Create*
Transaction Code	VF01

11. Enter the following data:

Field	Data
Document	Your sales order number

12. Choose 🕒.

> All existing invoices – the down payment and the final invoice - with their net values are displayed.

13. Choose 💾.

14. Choose 🔄 until the overview tree appears.

Post Incoming Payment to Final Invoice

1. Call the transaction as follows:

Menu Path	Accounting → Financial Accounting → Accounts receivable → Document entry → Incoming payment
Transaction Code	F-29, F-28

2. Enter the following data:

Field	Data
Invoice date	Today's date
Company code	3000
Currency	USD
Bank account details	113100
Amount	250000
Select open account items	3251
Account type	C (Customer)

3. Choose *Process open items.*

4. Position your cursor on the final invoice document and choose ⬛.

5. Choose ⯐ *Items*.

6. Choose 💾.

7. Choose 🔄 until the overview tree appears.