



## BellHawk Data Sheet Composite Part Numbers

### Introduction

For those users of BellHawk who make semi-custom and custom products, the ability to track parts and containers of material using generic part numbers and attributes such as length, width, color, and size is very powerful. This is because this method can dramatically reduce the time to setup Item Master part records in BellHawk and in their accounting or ERP system.

One issue, however, that arises with the use of generic parts with user defined attributes to track materials, is how to report inventory.

While BellHawk may track the fact that there are many boxes of T-shirts, for example, in many different sizes and colors, it is not very helpful to simply list the fact that there are 57 T-Shirts in stock. What the user wants to know is how many of each size and color there are in stock.

BellHawk cannot simply list the inventory by part number and include the user defined attributes description of the inventory, as there may be many different attributes for different materials with the same part number. Instead we need to list the quantities of like parts, with the same user defined and standard attributes, on the same line but not list the contents of each container separately.

But not all user defined attributes may be important to grouping of like items for inventory tracking purposes. For example, a user defined field containing the name of the quality inspector may be useful information to carry along for the material in each container but is not useful when used to group like inventory items together.

As a result, we use the concept of listing inventory by composite part number. These composite part numbers are created "on-the-fly" for reporting purposes. An example is "TShirt-B-L-UM" for a large, blue T-shirt with a U-Mass Logo.

Using Excel imports, users can define how to translate the part number and user defined attributes into composite part numbers for each type of material in their inventory. Inventory is then listed and grouped by composite part number, which makes it easy to see how many of each T-Shirt or other custom parts are in stock.

This same principle is used on "reports" such as picking sheets, work orders, packing lists, and Bills of Lading, where listing like-items with quantities on an 8.5" x 11" sheet of paper requires a concise description. It is also used when exporting Excel "reports" of inventory.

### Specifying Composite Report Numbers for Reporting Purposes

The conversion between a generic part number, with user defined attributes, and the composite part number that appears in the Item Number column in the reports is specified in a Mask field that has been added to the Material HLDO. This allows differently structured part numbers to be used for different materials without needing to set up a Mask for each Item Master part record.

The Mask column in the Material HLDO setup contains entries such as "[Item]-[size]-[color,3]", where:

- [Item] is a predefined pseudonym for the item number - can be omitted
- [size] is a the parameter value for the part UDP parameter "size".
- [color,3] is a parameter value for the part UDP parameter "color" with a maximum number of characters of 3. If the UDP parameter value exceeds the designated number of characters, after eliminating any spaces, then the field will be truncated, by dropping trailing characters, to the designated number of characters.
- Everything else in the Mask is separator characters, which will appear in the composite part number. These must be valid TEXTID data type parameters. It is not necessary to use separators but these may help clarity.

When generating a report that lists items, such as "Items in Stock", BellHawk first generates an in-memory data set containing all the active containers records in inventory that meet the pre-selector criteria, such as Item Number, Category, or Material Type. As BellHawk is reading each record from the containers table, it replaces the Item Number column with the composite part number for each container based on the Item and the UDP parameters specified in the Mask for Item Material Type.

The data set will have columns for length and width. If the Item is dimensioned then we will add in the values for length and/or width, if specified.

BellHawk then sorts these by composite part number and adds up the quantities all entries with like composite part numbers and the same length and width and report the quantities of each composite part number having the same length and width values (within plus or minus .01).

Note that:

1. If there is no Mask for the Item's Material Type or UDP is not licensed then the default mask of "[Item]" will be used for the composite part number. This will ensure compatibility with systems not using UDP parameters and with items that are using specific and not generic part numbers.
2. In generating composite part numbers all spaces will be eliminated. Entries in the composite part number field can contain any valid UDP parameter.
3. For Choice UDP parameters, the choice values will be used in making up the composite part numbers. Thus color choices may be "Red", "Green", and "Blue" but the composite part number color field will contain the corresponding R, G, and B values.
4. Option type UDP parameters will appear as Y or N in the composite part number. If more meaningful values are required in the composite part number then these should be changed to Choice parameters.
5. Only parameters listed in the Mask will be shown in the composite part number. There may be other parameters such as the name of the inspector for the container that are not shown in the composite part number.

6. A composite part number, should:
  - a. Not exceed 50 characters (same as a regular part number).
  - b. Be a valid TEXTID type string
7. If a specified parameter value in the Mask is not available then its value is replaced with a # symbol and a warning message is written into the log file.

## **Reports Affected**

All of the BellHawk reports and their Excel export counterparts that use Item Numbers can now have the Item Number column contain composite part numbers. These include:

- Inventory (in various formats)
- Material Transaction report (in various formats)
- Receiving and Shipping Reports
- Expired Materials Report
- Receiving sheet
- Ship Order acknowledgement
- Picking sheet
- Work Order traveler
- Packing List
- Bill-of-Lading
- Load Report

## **Commentary**

For those clients using BellHawk to track large numbers of different parts, the use of generic part numbers with user defined parameters can make the difference between being able to use an automated tracking system and being stuck with using paper forms. This addition of composite part numbers enables such users to be able to see their inventory presented in the way they want to see it while retaining the advantages of using generic part numbers.

Through the use of composite part numbers, we are also able to avoid the need to create custom reports to list inventory by user defined attributes.

For more details on the advantage of using generic part numbers, please see the white paper "Solving the Parts Number Explosion Problems for Make-to-Order Manufacturers", which is available from the White Papers link at the bottom of [www.BellHawk.com](http://www.BellHawk.com).