



Rolls-Royce Solutions America Inc.

North America Container Label Specification

By Rolls-Royce Solution America Packaging Engineering Revsion-01

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This Rolls-Royce Solutions America (previously MTU America) specification is an extraction of the AIAG Shipping/Parts Identification Label Standard (AIAG-B3) developed by the Automotive Industry Action Group. RRSA variances or additions to the AIAG standard are denoted by **. North America Container Label Specification applies to all external and inter-company shipments of material to RRSA.

This specification will be maintained and updated by the Rolls-Royce Solutions America Logistics Department. Any revisions or changes to this specification must be authorized by the Rolls-Royce Solutions America Logistics Department.

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Contents

1.0	Scope	5
2.0	System Recommendations	5
3.0	Definitions	6
4.0	Size and Materials	8
4.1	Labels	8
4.2	Tags	8
5.0	Data Area Characteristics	8
5.1	Data Areas and Titles	9
5.2	Data Identifier Codes	9
5.3	Part Number Area	10
5.4	Quantity Area	10
5.5	Supplier Number	11
5.6	Serial Number Area	11
5.7	Special Data Areas	11
5.7.1	**Purchase Order Number	12
5.7.2	**Engineering Change Level	12
5.7.3	**Date of Manufacture	12
5.7.4	**Parts Description	12
5.7.5	**Extra Field	13
5.7.6	**Advance Ship Notice (ASN)	13
6.0	Bar Code Symbology	13

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6.1	Code Configuration	13
6.2	Code Density and Dimensions	13
6.3	Check Digits	14
6.4	Activity and Contrast	14
6.5	Quality Assurance Requirements	14
7.0	Label Location and Protection	14
7.1	Label Location	14
7.2	Label Protection	14
8.0	Special Labels	15
8.1	Multiple, Common Item Packs - Master Label	15
8.2	Mixed Item Load	16
9.0	Figures	17

A Rolls-Royce solution



1.0 Scope

To provide a guideline for printing and applying a bar coded Shipping/Parts Identification Label. The label has been designed to improve the productivity and controls at both the suppliers and customers by allowing effective and efficient methods for data required in: Production Control, Warehouse Input/Output, Cycle Checking, Shipper Generation, Freight Transfer Control, Receiving and Shipping, as well as other inventory controls. Strict adherence to these specifications will reduce implementation costs and increase benefits throughout the industry. This specification is part of the terms and conditions of a supplier's purchase order contract with Rolls-Royce Solutions America Inc.

This publication, document North America Container Label Specification, Revision 01 replaces all previous labeling guidelines including, but not limited to # CD-TMGL-003 and CD-TFL-004.

In this document, the word **"SHALL"** indicates a requirement and the word **"SHOULD"** indicates a recommendation.

Questions related to RRSA packaging and labeling should be directed to the purchasing or packaging department.

2.0 System Recommendations

Rolls-Royce Solutions America is recommending the following:

A personal computer with the appropriate bar code software, which will allow flexibility in the generation and modification of the AIAG bar code label. A bar code printer shall meet the AIAG specifications, which will produce bar code label and or







tags for identification. It is strongly suggested that dot matrix printers not be used. Thermal or laser printers produce a higher quality label.

This system should allow you to produce bar code labels and/or tags to meet our specifications, as well as those of a variety of your other customers. This documentation will allow you to modify the bar code and label terminology to meet a variety of labeling requirements, with the flexibility of expanding this basic system to meet your own in-house data collection, tracking and inventory system.

This new method of identification will enable us to identify your shipments by scanning the labels and or tags attached at a predetermined location. This will allow immediate verification of all shipments at our receiving docks. Your labels and tags will also be used in our facility to verify that the correct part(s) are being used and assembled at the proper assembly station(s) within the plant.

3.0 Definitions

Common Item Pack

A pack which contains "ALL LIKE ITEMS", i.e., same part/item numbers.

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A single part or material purchased, manufactured and/or distributed.

Label

A card, strip of paper, etc. marked and attached to an object to indicate its nature, contents, ownership, destination, etc.

Master Label

A label used to identify and summarize the total contents of a multiple pack.

Mixed Item Pack

A pack containing items with different part/item numbers.

Mixed Load Label

A label used to designate mixed item(s), shipping packs.





Multiple Pack

A pack container smaller packages (sup-packs) of items.

Non-Standard Quantity Pack

A pack which contains variable quantities of like items.

Pack, Package or Load

A unit which provides protection and containment of items plus ease of handling by manual or mechanical means.

Shipping/Part Identification Label

A label used to identify the contents of a shipping pack.

Standard Quantity Pack

A pack which contains the same quantity of like items.

Subpack

One of the smaller packs (which may be a standard quantity or non-standard quantity pack) that makes up a larger multiple pack.

Tag

A label that is hung from an object, usually with a wire placed through a reinforced eyelet in the label/tag.

**Warning Label

A label used to identify the material as dangerous, hazardous (MSDS), flammable, etc. Use of the shipping label does not relieve the supplier from the responsibility of affixing these labels. The label MUST continue to be applied to applicable shipments.





4.0 Size and Materials

4.1 Labels

The MINIMUM label size shall be 3.9375 in. (102 mm) high by 6.0 in. (152 mm) wide. See Fig. I.

Long part numbers and large shipping quantities may require a larger label width. A 4.0-inch (102mm) X 6.5 inch (165 mm) should handle all known conditions. See Fig. II.

The label paper shall be white or buff in color with black in color printing.

Adhesive labels can be pressure sensitive or dry gummed as long as adherence to the package substrate is assured and application is wrinkle-free.

**If the container has provisions specifically designed to hold labels, these may be used as long as adherence to the container is assured

**If the specified label cannot be affixed to the package/container because of container size or design, special arrangements shall be required.

4.2 Tags

The tag size shall be the same as illustrated in Figure III plus the material necessary to add a reinforced eyelet (See figure IV). The tag should be durable enough to assure readability at its destination.

5.0 Data Area Characteristics

The part number, quantity, supplier number, label serial number, and purchase order number shall be included on each label in the designated date areas and shall be displayed in both human readable characters and bar code symbols. The part description, engineering change level and manufacture date shall appear in human readable characters only, in the special data area. Fig. III shows a sample label.

The maximum length of any bar-coded symbol should not exceed 5.5 in. (140 mm).





5.1 Data Areas and Titles

There are five data areas for each level: PART NUMBER, QUANTITY, SUPPLIER NUMBER, SERIAL NUMBER, and SPECIAL DATA. Within the SPECIAL DATA area, PURCHASE ORDER NUMBER shall be included on each label and shall be displayed in both human readable characters and bar code symbols. Also, within the SPECIAL DATA area, the PART DESCRIPTION, ENGINEERING CHANGE LEVEL, and MANUFACTURE DATE shall be included on each label and be displayed in human readable characters ONLY.

Data areas shall be separated by horizontal thin lines and shall contain their respective titles in the upper left corners. Vertical separation lines and outer borders are optional. If vertical lines are not used, the human readable data in adjoining fields should be clearly separated. See Fig. V.

Titles should be .1 in. (2.25 mm) high. The titles are as follows: PART NO., QUANTITY, SUPPLIER, SERIAL, PURCHASE ORDER NO., ENG. CHG., DATE OF MRF., and DESCRIPTION.

5.2 Data Identifier Codes

An identifier code starting in the first position following the start code of the bar code symbol shall be used to identify the information to follow. This character(s) is not to be included in the human readable line but is shown in human readable characters under the title for the appropriate data area. See Figure IV. The following identifier codes are assigned for the different types of data:

- P Part Number (Customer)
- 1P Part Number (Supplier)
- C Continuation of long part numbers, if required
- Q Quantity
- V Supplier Number
- S Unique Serial Number Shipping/Parts Identification Label
- 4S Unique Serial Number Master Label
- 55 Unique Serial Number Mixed Load Label
- K Purchase Order Number





5.3 Part Number Area

The human readable part number characters shall be bold and a minimum of 0.5 in. (13 mm) high.

The bar code symbol for the part number shall be directly below the human readable characters. It shall be a min 0.5 in. (13 mm) high and shall contain the data identifier (P for customer part #s or 1P for supplier numbers). Depending on the nominal dimension of the narrow bar code elements, part #s of varying lengths can be printed on one line. The max length for the part number characters is 15 plus the data identifier (P or 1P).

**The supplier part number shall be used only when authorized by Rolls-Royce Solutions America.

**The part number in both the human readable characters and the bar code symbols shall be printed exactly as it appears on the purchase order. This includes lead and trailing zeros, symbols, etc.

THE PART NUMBER SHALL BE DESIGNATED BY THE CUSTOMER, Rolls-Royce Solutions America.

5.4 Quantity Area

The human readable quantity characters shall be a minimum of 0.5in. (13 mm) high.

The bar code symbol for the quantity shall be directly below the human readable characters. It shall be a minimum 0.5 in. (13 mm) high and shall contain the data identifier (Q).

The maximum length for the quantity area is six (6) numeric characters plus the data identifier (Q). The length of this area (the line separating the quantity area from the special area) may be adjusted to handle specific needs of the supplying location and/or RRSA for information required in the special data area of the label.

**When the unit of measure is pieces, no notation is required. When the unit of measure is NOT pieces (i.e. pounds, gallons, feet, etc..), it shall be noted in human readable form only. When used, the unit of measure shall be directly to the right of the human readable quantity and shall be a minimum of 0.2 inches (5 mm) high. The unit of measure SHALL NOT be bar coded. Unit of measure abbreviations as defined in the ANSI ASCX 12.3 Data Element Dictionary shall be used. See Fig. IX.





5.5 Supplier Number

The human readable supplier number characters shall be a minimum 0.2 in. (5 mm) high

The bar code symbol for the supplier number shall be directly below the human readable characters. It shall be a minimum 0.5 (13 mm) high and shall contain the data identifier (V)

THE SUPPLIER NUMBER SHALL BE DESIGNATED BY THE CUSTOMER, Rolls-Royce Solutions America.

5.6 Serial Number Area

The human readable serial number shall be bold and minimum 0.2 in. (5 mm) high.

The bar code symbol shall be directly below the human readable characters. It shall be a minimum 0.5 in. (13 mm) high and shall contain the data identifier (S). The maximum length of the serial number shall be nine (9) alphanumeric characters, plus the data identifier (S).

The serial number shall be a unique number assigned by the supplier, not the customer. Suppliers shall avoid repeating serial numbers within any calendar year.

The supplier name, city, state, and zip code shall be directly below the bar code symbol and should be a minimum 0.1 (2.5 mm) high.

5.7 Special Data Areas

The special data areas shall consist of five fields. The data elements shall be arranged in the following manner: Purchase Order Number, Engineering Change Level, Date of Manufacture, and Description. The fifth field is available for the supplier's use. This field shall not contain a bar code.





5.7.1 **Purchase Order Number

The bar code for the purchase order shall be a minimum of 0.5 in. (13 mm) high and shall contain the data identifier (K).

The human readable purchase order number shall be directly below the bar code and shall be a minimum of 0.2 in. (5 mm) high.

The maximum length for the purchase order number is (9) alphanumeric characters, plus the data identifier (K).

5.7.2 **Engineering Change Level

The human readable engineering change level number shall be a minimum of 0.2 in. (5 mm) high. The engineering change level shall not be bar coded.

The maximum length for the engineering change level is four (4) alphanumeric characters.

THE ENGINEERING CHANGE LEVEL CODE WILL BE DETERMINED BY THE CUSTOMER, Rolls-Royce Solutions America.

5.7.3 **Date of Manufacture

The human readable date of manufacture is shown in this section of the shipping/parts identification label as MM/DD/YY. The minimum height of the human readable characters will be 0.2 in. (5 mm); the manufacture date shall not be bar coded.

5.7.4 **Parts Description

The human readable part description shall be a minimum of 0.2 in. (5 mm) high and shall describe the part identified by the part number (i.e. washer, nut, gasket, etc.). The supplier should use the part description provided on the purchase order. The part description shall not be bar coded.





5.7.5 **Extra Field

This field is an extra field and has no data requirements for RRSA. It may be used by the supplier for any type of information needed. This field SHALL not contain a bar code.

5.7.6 **Advance Ship Notice (ASN)

The data contained in the label shall be consistent with the data transmitted in the advanced shipment notification.

6.0 **Bar Code Symbology**

Bar codes shall be the 3-of-9 code (39) type and shall conform to the B-1 "Bar Code Symbology Standards for 3-of-9 Bar Codes" published by the Automotive Industry Action Group. (AIAG)

6.1 **Code Configuration**

The four (4) characters (, /, +, %) of the 3-of-9 symbology SHALL NOT be used on the shipping/parts identification label.

6.2 **Code Density and Dimensions**

The bar heights shall be a minimum of 0.5 in. (13 mm). The average width of the narrow elements shall be within the range of 0.013 to 0.017 inches (0.33-0.43 mm). The ratio of the average width of the wide elements to the average width of the narrow elements shall be 3:1, with an allowable range of 2.8:1 to 3.2:1.

For optimum scanning, a leading and trailing quiet zone shall be provided for each symbol. It shall be a minimum of 0.25 in. (6.4 mm).





6.3 Check Digits

Check digits SHALL NOT be used in the bar codes.

6.4 Activity and Contrast

The printed bar code symbol shall meet the reflectivity and contrast requirements at all electromagnetic wave lengths from 660 ± 30 nanometers (visible light). The prime contrast signal shall be greater than 75 percent.

**In accordance with ANSI X3.182 print quality, the minimum print quality grade shall be 1.5 (C), and the measurement apertures shall be 0.010 in. (0.254 mm).

6.5 Quality Assurance Requirements

It is the responsibility of the supplier to provide bar code labels that meet these specifications. Equipment is available to verify that bar code symbols meet these requirements. ALL SUPPLIERS WILL BE REQUIRED TO SUBMIT LABELS FOR APPROVAL AND VERIFICATION BEFORE ANY SHIPMENTS ARE MADE USING THE NEW LABEL(S). Use of statistical process control techniques to minimize printing variability is recommended.

7.0 Label Location and Protection

7.1 Label Location

Illustrations of the most common shipping packs and recommended label locations are shown in Figures VIII. In most cases, two labels are specified. When possible, the top edge of the label should be parallel to the top of the package/container. To facilitate automatic readings of bar code symbols, the top edge of the label should not be more than 20 inches from the bottom of the container. Wrap around labels are acceptable as long as quiet zones are within specifications.

7.2 Label Protection

Label protection against moisture, weathering, abrasion, etc., may be required in







harsh environments and is encouraged whenever practical. Laminates, sprays, window envelopes, and clear plastic pouches are examples of possible protection methods. In choosing any protection method, care must be taken to assure that labels meet reflectivity and contrast requirements and can be scanned with contact and noncontact devices. Suppliers should be aware that environmental conditions may affect the label and its

print quality/readability (i.e. extreme temperatures, sunlight, etc.). All of these conditions may conversely affect the readability of the bar code label.

8.0 Special Labels

While these specifications will cover most situations, there will be circumstances where requirements will dictate special arrangements between customers and suppliers. Every effort to minimize these situations should be a goal of all so that complexities and costs are not added. Supplier and customer will work together for any special circumstances not covered in these standards.

There are two situations where special labels may be needed for better handling of multiple and mixed item packs. Sections 8.1 and 8.2 describe the accepted practice for these situations. They are to be used ONLY when supplier and RRSA mutually agree.

8.1 Multiple, Common Item Packs - Mater Label

A master label, as shown in Fig. VI, shall be used when the pack contains multiple sub packs of the same part number. Each sub pack of the multiple pack should be identified with a Shipping/Parts Identification Label. The total contents of a multiple, common, item pack shall be identified with a master label placed on the pack in such a manner that when the pack is broken apart the label is discarded (e.g., hang master label from banding or attach to stretch wrap).

At the top of this label, the heading "MASTER LABEL" should be printed in bold 1.0 inch (25.4 mm) letters. The balance of the label format should conform to the specifications for the shipping/parts identification label except that the data identifier for the serial number shall be "4S" instead of "S", the serial number, preceded by a "4S" in the bar coded form only, shall be a unique number, not to be repeated over the course of a year. The quantity on the master label shall be the total in all the sub packs.





8.2 Mixed Item Load

A mixed load label, as shown in Fig. VII, shall be used when the pack contains multiple sub packs/items of different part numbers. Each sub pack or item shall be identified with a Shipping/Parts Identification Label. The pack should be identified with a mixed load label placed on the pack in such a manner that when the pack is broken apart the label is discarded.

Mixed item loads should have a label with the words "MIXED LOAD" in bold 1.0 inch (25.4 mm). The data identifier for the serial number on the mixed load label shall be "5S" instead of "S". See Fig VII.



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9.0 Figures



SHIPPING/PARTS IDENTIFICATION LABEL



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Fig. IV (not to scale)



FIG. V (not to scale)







ALIGNMENT WITHOUT VERTICAL RULES







FIG. VI (not to scale)







FIG. VII (not to scale)







LABEL LOCATIONS ON VARIOUS SHIPPING PACKS



FIG. VIII

Box or Carton

Identical labels should be located on two adjacent sides. (Wrap around label acceptable.) The upper edges of the labels should be as high as possible up to 20" from bottom of carton.



Cartons on pallets

Each carton should be individually labeled as described above. One master label or one mixed load label may be used as described in Sections 8.1 & 8.2.



Drums, Barrels, or Cylindrical Containers

Identical labels should be located on the top near the center of the side.







<u>Bales</u>

Identical labels should be located at the upper corner of an end and the adjacent side. (Wrap around label acceptable)



Bundle Identical tags should be located at each end.



Bag Place one label at the center of face of one end.









<u>Rack</u> Tag one visible piece near top and use a label holder on the container.





FIG. IX UNIT OF MEASURE APPBREVIATION (From ANSI ASC X12.3 - Data Element Dictionary - December 1989)

AS	Assembly
AY	Assembly
BB	Base Box
BC	Bucket
BD	Bundle
BE	Beam
BB	Board Feet
BB	Bag
BB	Brush
BB	Bar
BB	Band
BB	Book
BB	Bolt
BB	Bulk
BB	Bottle
BB	Barrel
BB	Basket
BB	Bushel
	Box
CFGHCIJKCLMNOCPRSTABCQUVWXYZ	Cubic Foot Card Container Cubic Inches Cone Connector Cylinder Centimeter Can Count Crate Cubic Meter Cassette Carton Case Carboy Cubic Centimeter Cartridge Cup Cover Hundred Pounds (CWT) Coil Cubic Yard Combo
DB	Dry Pounds
DC	Disk

DE	Deal
DP	Dozen Pair
DR	Drum
DS	Display
DT	Dry Ton
DZ	Dozen
EA	Each
EV	Envelope
FO	Fluid Ounce
FP	Pounds per Sq. Ft.
FT	Foot
GA	Gallon
GD	Gross Barrels
GH	One-Half Gallon
GR	Gram
GS	Gross
HD	Half Dozen
HI	Hundred Sheets
HU	Hundred
HY	Hundred Yards
IN	Inch
JR	Jar
JU	Jug
KA	Cake
KE	Keg
KT	Kit
LB LF LG LN LN LN LN LT LY	Pound Linear Centimeter Linear Foot Long Ton Linear Inch Link Liquid Pounds Length Lot Layer Liter Linear Yard
MA	Machine Unit

MG Metric Gross Ton ML Milliliter MM Millimeter MN Metric Net Ton MR Meter MT Metric Long Ton MΧ Mixed ND Net Barrels NG Net Gallons NL Load Trailer NT NV Vehicle OL Ounce Liquid ON Ounces/Sq. Yard PA Pail PC Piece PD Pad ΡE Pounds Equivalent PF Pallet PG Pounds Gross PH Pack ΡK Package PL Pallet/Unit Load ΡN Pounds Net PP Plate PR Pair PT Pint QD Quarter Dozen QR Quire QT Quart RA Rack RD Rod RE Reel RG Ring RL Roll RM Ream RO Round SA Sandwich SC Square Centimeter SD Solid Pounds SE Section SF Square Foot

SH Sheet SI Square Inch SJ Sack Split Tank Truck SK SL Sleeve Square Meter SM Square Rod SN SO Spool Shelf Package SP SQ Square SR Strip ST Set SU Short Ton sv Skid SW Skein Shipment SX SY Square Yard ΤВ Tube тс Truck Load ΤE Tote ТG Gross Ton ΤН Thousand ТΚ Tank Net Ton ΤN то Troy Ounce TΥ Tray UN Unit VI Vial WH Wheel WR Wrap YD Yard

SG

Segment

