U.P.C.* SYMBOL LOCATION GUIDELINES MANUAL

SEPTEMBER 1986
(UPDATED APRIL 1992)

*In this publication, the letters "U.P.C." are used solely as an abbreviation for the "Universal Product Code" which is a product identification system. They do not refer to the UPC®, which is a federally registered certification mark of the International Association of Plumbing and Mechanical Officials ("IAPMO") to certify compliance with the Uniform Plumbing Code as authorized by IAPMO.

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PREFACE

The Uniform Code Council, Inc. is providing these symbol location guidelines, which define the recommended areas to locate and print the UPC symbol on individual consumer packages, as a service to industry. This standard will facilitate the use of automated checkstands in retail stores where improper placement of the symbol on packaging results in loss of productivity and higher costs.

Although all reasonable precautions have been taken to assure that these guidelines are correct, no representation or warranty, express or implied, to that effect is made, and the Uniform Code Council, Inc. hereby expressly disclaims liabilities for errors in these guidelines. In addition, while efforts have been made to assure the reliability and technical accuracy of the guidelines, no warranty or representation is made that these guidelines will not require modification as experience and technological advances dictate. In fact, a Symbol Technical Advisory Committee (STAC) exists to assist in implementation of these guidelines and to update and change them as experience demands.

This document should be considered in conjunction with five companion documents:

- UPC Guidelines Manual
- UPC Symbol Specification Manual
- UPC Film Master Verification Manual
- UPC Shipping Container Symbol Specification Manual
- UPC Coupon Code Guidelines Manual

The *UPC Guidelines Manual* describes how to assign a numeric code to each product; the *UPC Symbol Specification Manual* describes how to translate a UPC product identification number into its standard machine-readable representation (symbol); the *UPC Film Master Verfication Manual* deals with the procurement and verification of the film master and provides a guide for space requirements in label design; the *UPC Shipping Container Symbol Specification Manual* describes the shipping container code and how to print the code in a machine readable symbol; and the *UPC Coupon Code Guidelines Manual* facilitates the development of systems containing routines which mechanize the handling of coupons at the checkstand.

An important reason for standardization is to increase productivity without substantially increasing cost to manufacturers for symbol printing. This manual sets forth UPC symbol location guidelines which are the best compromises that have evolved from industry-wide experience and discussion.

All companies participating in this voluntary standard are invited to suggest changes to the Uniform Code Council, Inc. Special cases which make it difficult or impossible to meet these guidelines should also be referred to the Uniform Code Council, Inc. so that the problem can be analyzed and eventually be codified in this manual.

The Council extends its appreciation to the hundreds, indeed thousands, of people who have actively participated and contributed in one way or another to this effort.

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INTRODUCTION

This UPC Symbol Location Guidelines manual has been designed to help manufacturers determine the proper location for the UPC symbol on individual consumer packages, by enumerating, as well as illustrating, symbol locations for specific family groups or container types. For the full benefits of UPC scanning to be realized, it is extremely important for manufacturers to adhere to these location guidelines.

In general, the more variation there is in symbol location from package to package, the more difficulty the checkout clerk will have in finding the symbol on the package in order to pass it across the scanner, and the less productive it will be for retailers.

Throughput efficiency at the point of sale depends not only on "in-spec" printing of the symbol, but also upon industry standardization of symbol location.

LOCATION GUIDELINE #1

BOTTOM-MARKING

The overriding consideration in symbol location is bottom-marking in a central location. However, to define the natural bottom of a container, one must take into account the geometry of that container as well as the orientation of the package graphics on the container. These, in combination, affect one's perception of "natural bottom."

With this in mind, many illustrations of bottom-marking are used throughout these guidelines, when applicable.

It will also be noted that there are guidelines which cover *exceptions* to this rule of bottom-marking. Such guidelines illustrate the exceptions by package or product type.

For rectangular containers additional guidance is given. If the panel on which the UPC symbol is to be placed has no dimension less than 6 inches, it is recommended that the symbol be centered in the lower portion of that panel.

LOCATION GUIDELINE #2

GOVERNMENT LABELING REQUIREMENTS

On items which are registered with the Food and Drug Administration (FDA), there may be mandatory requirements for labeling imposed by FDA which conflict with the guidelines contained herein. In addition, labeling requirements imposed by the Consumer Product Safety Commission, Department of Agriculture and other Federal or state agencies may also conflict. In such instances, these requirements will take precedence over the guidelines in this manual.

Note: In most cases, Government requirements specify the preferred location of information in the following order:

A. The right side panel (when looking at the main display panel);

B. The top panel (immediately adjacent to the main display panel);

C. The back panel (when other panels do not provide adequate space for information disclosure).

Unless the physical package prevents implementation of the above requirements, the UPC Symbol Location Guidelines in this manual *do not* impact on Government labeling specifications.

LOCATION GUIDELINE #3

SYMBOL-AREA REDUCTION

The variable-size symbol approach, in which printability requirements determine the minimum size symbol which can be used, may result in very large symbols when printing conditions are difficult. In some instances, there may not be sufficient label area to accommodate the minimum symbol size required. Similarly, even when the printing conditions are very good, the label area may be simply too small to accommodate a symbol.

Several methods are available to reduce the size of the symbol. These are listed below in order of preference:

a. The minimum magnification factor consistent with printing characteristics can be used to minimize symbol area (see Section 4.0 of the UPC Symbol Specification Manual and Appendix A to this manual).

b. Nearly a 50-percent reduction is available when the zero suppressed version of the symbol is used (see Section 2.3 of the UPC Symbol Specification Manual and Appendix A to this manual).

c. A reduction in total symbol area requirements can be achieved if the size of the human-readable numbers *only* is reduced. Since these numbers are not "read" by a scanner, this alternative does not have an adverse impact on symbol scannability. However, the net size reduction would be minimal since the symbol and specified clear areas occupy most of the space.

d. Where none of the three methods listed above (or any combination thereof) will adequately reduce the symbol size, the last and least desirable alternative to reduce symbol area is slicing (or truncation). Truncation is a reduction in the bar height of the symbol beyond that achieved by applying a reduced magnification factor. **It is important to note that truncation is not a part of the UPC Symbol Specification Manual.** It is listed here as the last, and least desirable method of obtaining symbol area reduction. Any degree of truncation, therefore, will reduce scanning performance at the checkstand since it negates the omnidirectionality of the symbol/scanner system.

LOCATION GUIDELINE #4

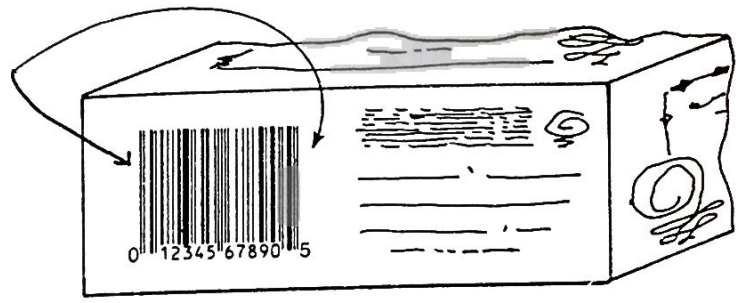
RIGHT-HAND AND LEFT-HAND MARGINS

The UPC Symbol Specification Manual specifies a minimum light margin on the left and right sides of the symbol (see Figure 1 and Drawing 2 in the UPC Symbol Specification Manual).

FIGURE 1

RIGHT!

Sufficient margin.



Care should be taken to ensure that this light margin is free of wording or other graphics, closures, perforations or scores. In addition, the symbol should be far enough from a package edge to provide for the required margin.

FIGURE 2

WRONG!

Insufficient right "light" margin due to symbol located too close to package edge.

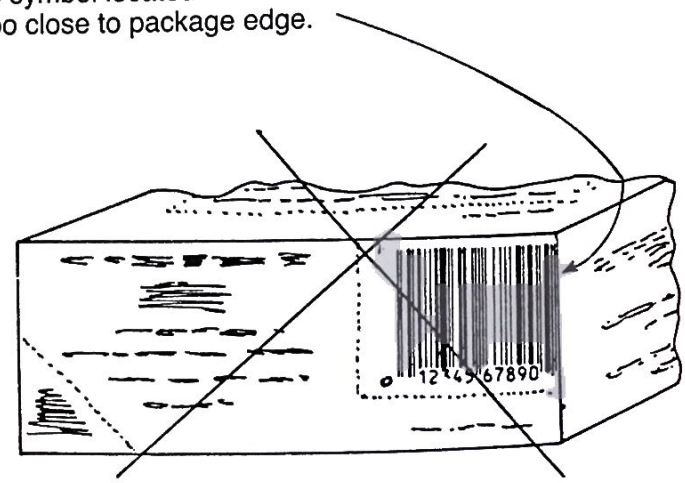


FIGURE 3

WRONG!

Insufficient right "light" margin due to symbol located too close to wording or other package graphics.

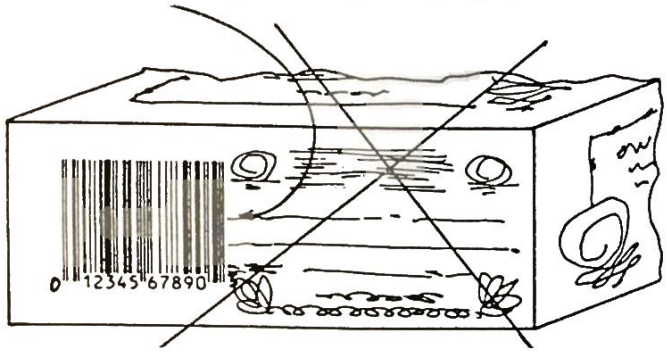


FIGURE 4

RIGHT!

Sufficient margin.

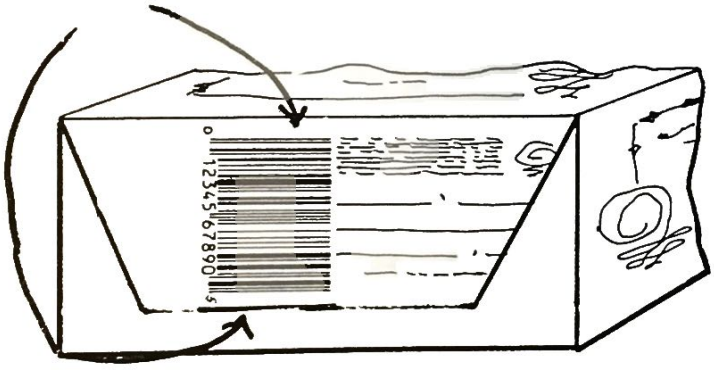
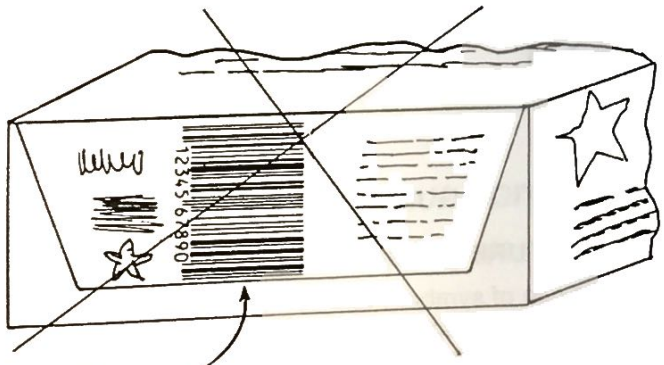


FIGURE 5



WRONG!

Insufficient left and right "light" margin due to symbol located too close to the edge of a flap and the package edge. Similarly, avoid locating the symbol too close to closures, perforations, scores, folds, seals, etc.

LOCATION GUIDELINE #5

NUMBER SYSTEM CHARACTER AND MODULO CHECK CHARACTER

The human readable character identifying the encoded check character will be shown in the right-hand margin of the symbol.

The following is recommended for locating the number system and the check digit character relative to the right and left hand guard bars:

1. *For Version A* (nominal size), reduce the size of the OCR-B number system and check digit characters to a maximum character width of .052 inches (4 nominal module widths) and a height that is proportional to the modified width. Position the right hand side of the number system .065 inches (5 nominal module widths) to the left of the left most guard bar and position the left hand side of the check digit .065 inches to the right of the right most guard bar. Position the digits vertically so that the bottoms of the number system and check digit are even with the bottom edge of the remaining full size OCR-B digits.

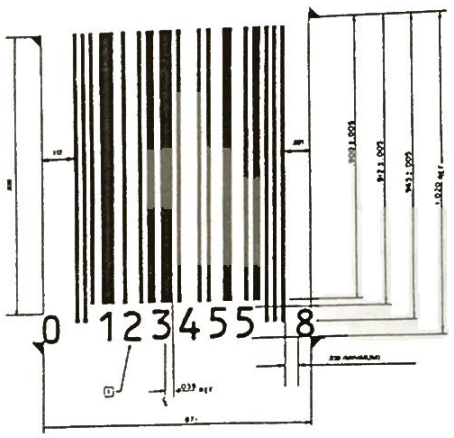
FIGURE 6



2. *For Version E* (nominal size), utilize the same size number system and check character as recommended for Version A. Position the right hand side of the number system .065 inches to the left of the left most guard bar. Position the right hand side of the check digit tangent with the right hand crop mark. This would make the spacing between the left edge of the check digit and the right edge of the right most guard bar a *minimum* of .039 inches. Align the bottom edges of all characters as recommended for Version A.

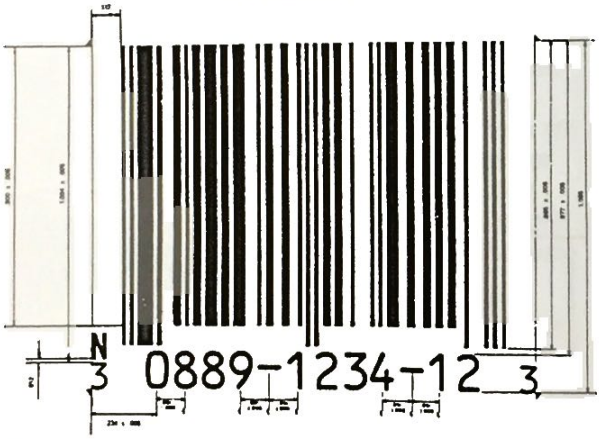
LOCATION GUIDELINE #5 (continued)

FIGURE 7



Note: If the *N and H for National Drug Code/Health Related Items* are used, these should be reduced by the same factor as the number system and placed .012 inches above the number system.

FIGURE 8



LOCATION GUIDELINE #6

SYMBOL-MARKING ON LIDS

With some products, the only available location is the top or lid and it is a suitable location.

For other products, however, this should be avoided. Such products are those, for example, whose contents could be "dumped" out if the package is turned upside down (see Location Guideline #12). Others are those which, because they are large or difficult to handle, such as a chilled half-gallon jar of orange juice, might easily slip out of a person's grasp if turned over for scanning.

For still other products, marking the lid with a symbol may not even be possible because of label area considerations. For example, small-neck bottles having only a foil cap or screw-on lid, and requiring mandatory nutritional labeling, may not provide enough area on the lid to allow for inclusion of the symbol. In such cases it may be advisable to apply a pressure-sensitive label.

Also, bear in mind that if different size products use the same size lid, some consumers may exchange lids to obtain a better price.

LOCATION GUIDELINE #7

RANDOM-WRAPPING

Because of the random nature of the wrapping on some products such as individual sticks of butter, a *complete* symbol may not appear on one panel. A part of the symbol may appear on one panel and the remainder on the adjacent panel. For such products it is acceptable to print the symbol with sufficient frequency so that a full symbol will appear on *at least one* of the panels (see Figure 9). Alternatively, the symbol may be printed with taller bars than required. This means that if the symbol were to fall on two panels, it would have sufficient height on one of the panels to be scanned omnidirectionally (see Figure 10). In addition, the symbol should be generally located in the center of the package, rather than near the ends.

FIGURE 9

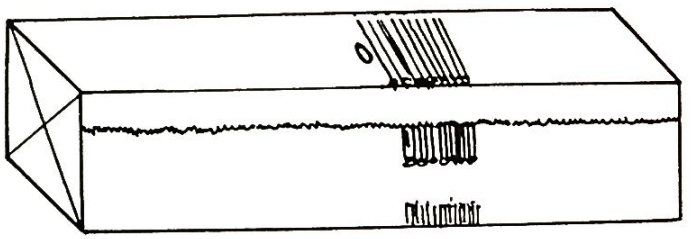
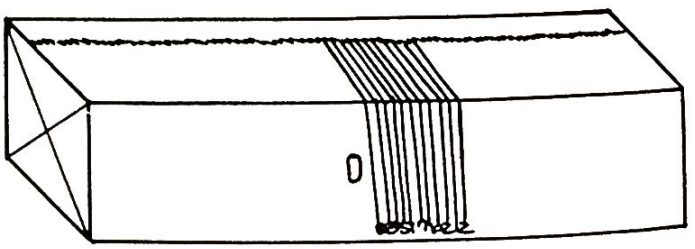


FIGURE 10



LOCATION GUIDELINE #8

PRESSURE-SENSITIVE LABELS

The use of symbol-marked pressure-sensitive labels is an acceptable alternative to incorporating the symbol into the existing package graphics or for use on *unlabeled* and *unpackaged* products such as some pots, pans and glassware. Labels used should be of a type which cannot be removed from the product without destroying the symbol. *For such products, symbol location should be consistent with the general guidelines herein.*

LOCATION GUIDELINE #9

DATE AND PRICE MARKINGS

The symbol must be located where a date stamp (either stamped in ink or blind-embossed) or a price mark (ink-stamped or sticker) is not likely to be placed over the symbol. Any such marking on the symbol, *regardless of the colors used,* should be expected to have an adverse effect on scanning.

LOCATION GUIDELINE #10

FOLDING CARTONS

The majority of folding cartons are easily adapted to the general rule of bottom-marking as it is set forth in Location Guideline #1.

The following illustrations are provided to assist the packaging designer in selecting the appropriate panel for symbol location on a variety of folding cartons. While a particular product may not be listed, the folding carton which best matches that used for the particular product should be found and its symbol location noted.

FIGURE 11

Cereals, Cake Mixes, Paper Cups, etc.

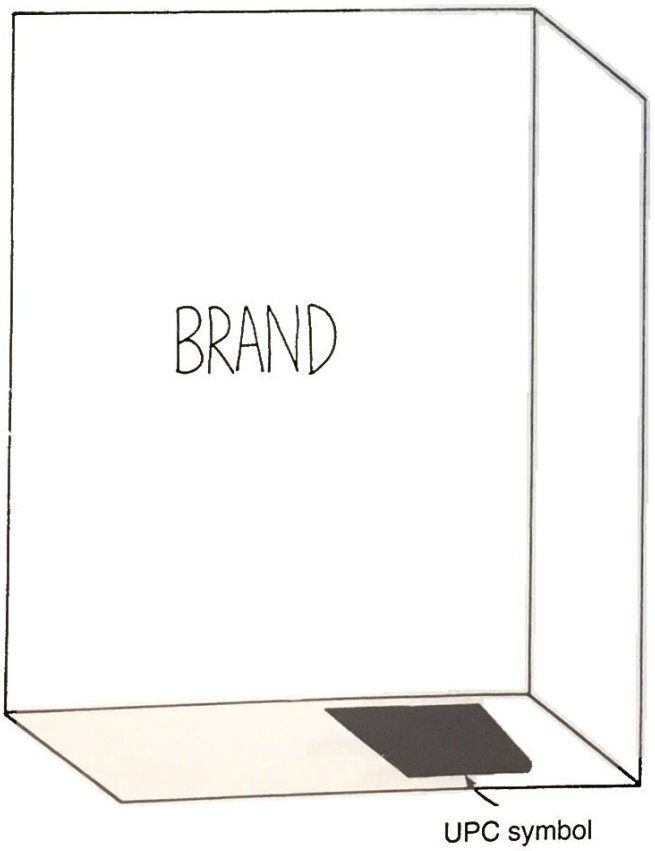


FIGURE 12

Crackers, Tissue, Toys, etc.

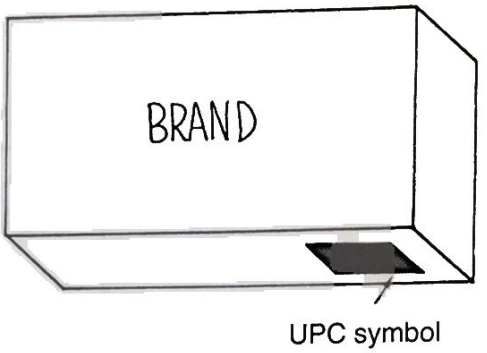
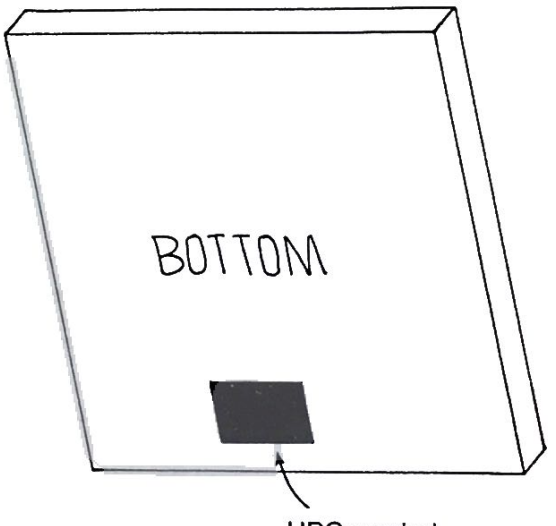


FIGURE 13

Pizzas, Packaged Meats, Frozen Vegetables, TV Dinners, Frozen Confections, Dishes, Puzzles, etc.



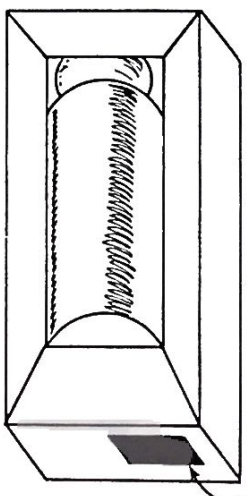


FIGURE 14

Health & Beauty Aid Items, Shadow Boxes, Small Housewares, etc.

UPC symbol

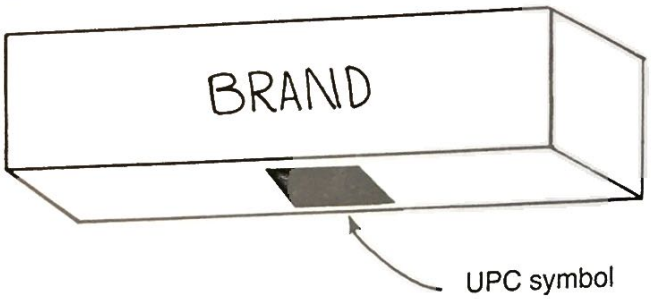


FIGURE 15

Toothpastes, Pet Supplies, etc.

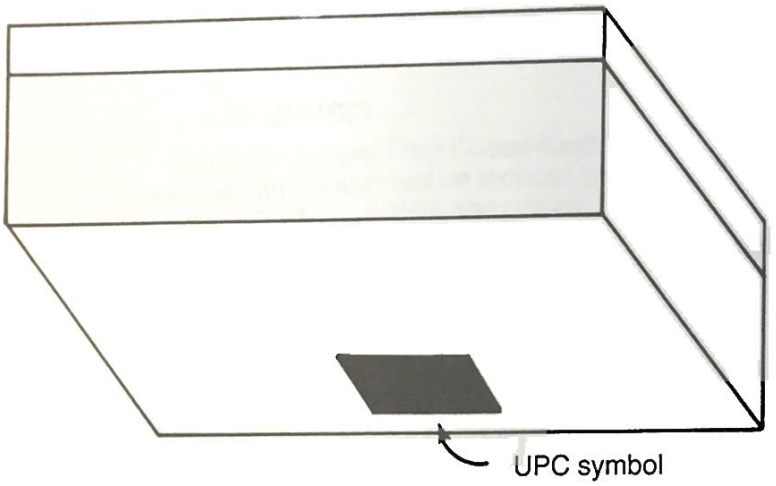


FIGURE 16

Candy, Cakes, Dishes, etc.

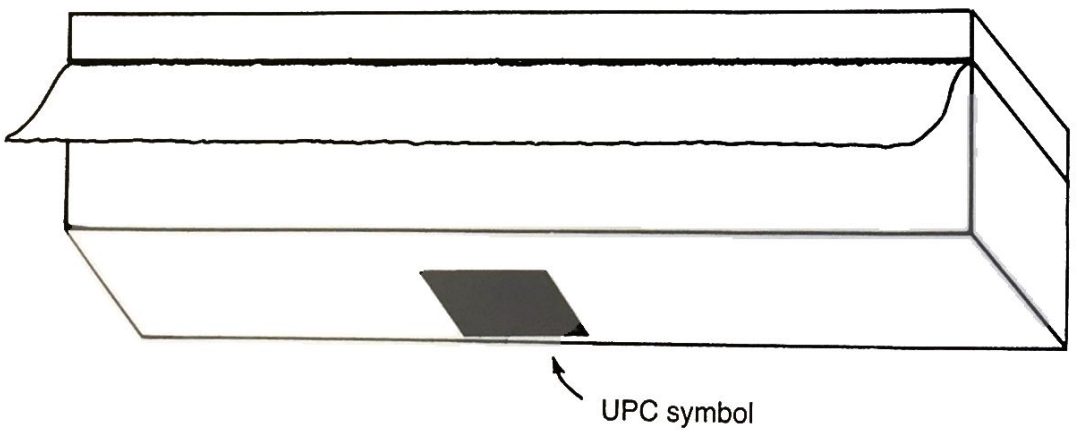


FIGURE 17

Foil, Film Wraps, Wax Paper, etc.

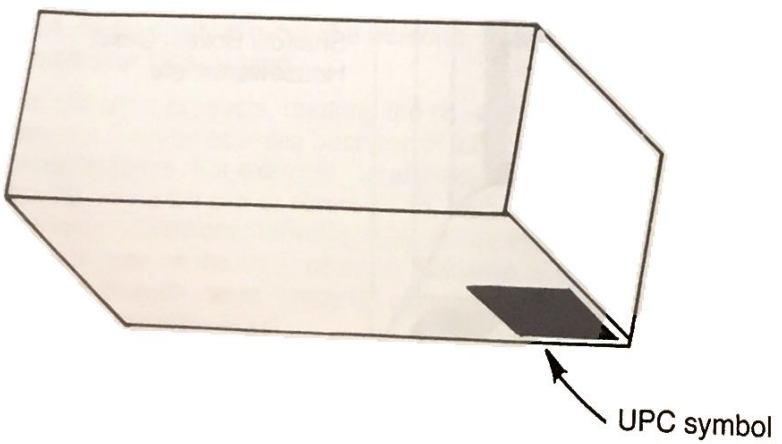


FIGURE 18

Butter, Margarine, Housewares, Toys, etc.

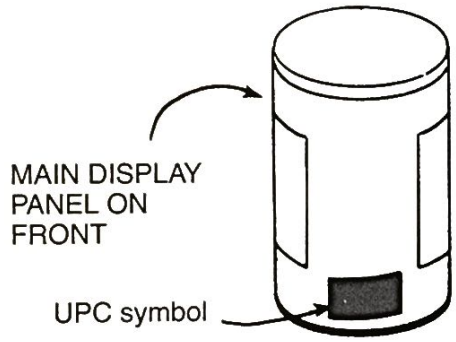
LOCATION GUIDELINE #11

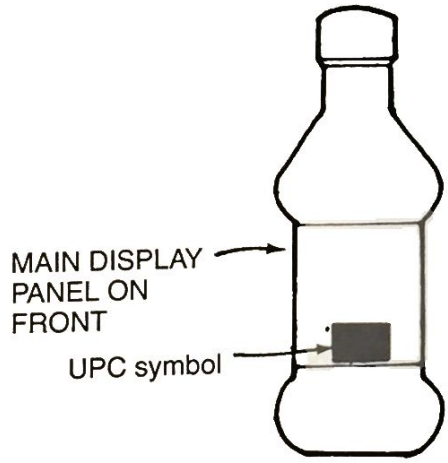
CANS, GLASS AND PLASTIC BOTTLES

Because of the high cost of placing additional labels on the bottoms of cans, glass and plastic bottles, the symbol may be printed on the side of these containers within their current package graphics.

a. On containers with a *single display panel* (for beaded cans, see h, page 20), it is recommended that the symbol be located in the lower 25% of the back label area or back of the container.

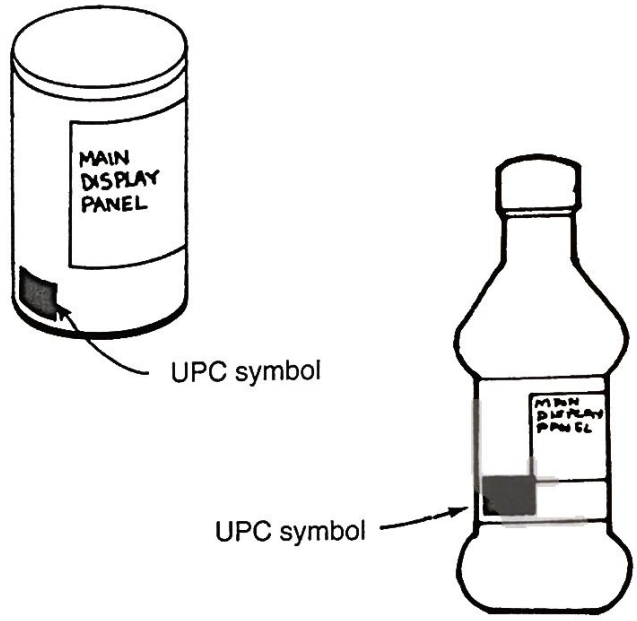
FIGURE 19





If the back is not available, it should be located to the lower left of the main display panel on the lower 25% of the container.

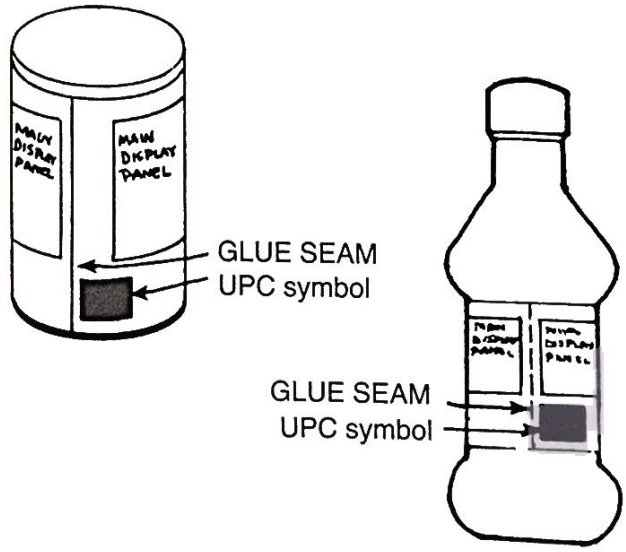
FIGURE 20



NOTE: For economic reasons, where a printed label is used, the UPC symbol should be printed as part of the label, if possible.

b. On cans or bottles with a *full wraparound* label and a *double display panel,* the symbol should be located close to the bottom in the space between the two display panels adjacent to the glue seam. It is recommended that the symbol be printed on the *overlap* end of the label with more than adequate clearance for die cutting errors or shifts. If it is printed on the underlap end, care should be taken to ensure that a portion of the symbol is not covered by the overlap end.

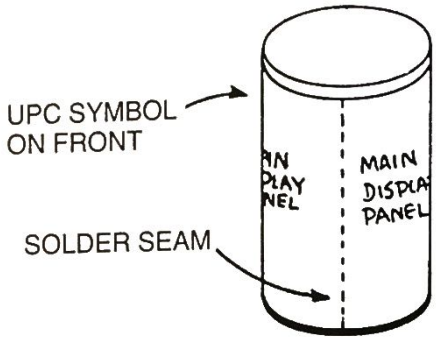
FIGURE 21



LOCATION GUIDELINE #11 (continued)

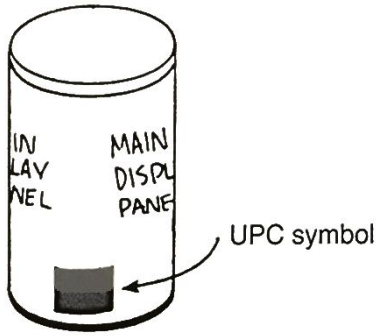
c. On three-piece *metal decorated* cans with *two main display panels*, the symbol should be placed in the space between the panels which is opposite the solder seam. Again, it should be located close to the bottom. (For beaded cans, see h, page 9).

FIGURE 22



d. On two-piece cans with *two main display panels*, the symbol should be located close to the bottom on the midway point between *either* of the two display panels.

FIGURE 23



e. If a bottle has a *single spot label* rather than a full wraparound label, the symbol should be located at the lower left of the label. If *two spot labels* are used, the preferred location is at the lower part of the back panel label, preferably centered.

FIGURE 24

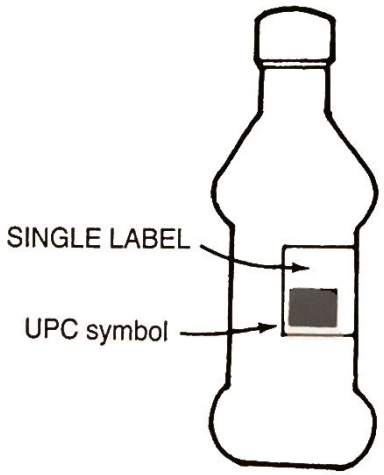
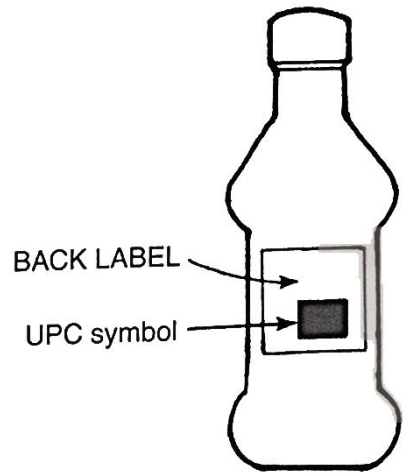
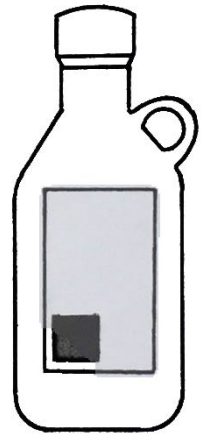


FIGURE 25



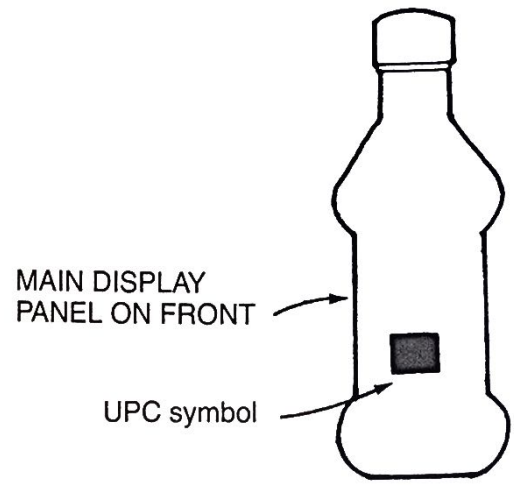
f. On plastic bottles with built-in handles, e.g., liquid detergents, place the symbol on the back label in the lower quadrant opposite the handle.

FIGURE 26



g. On glass or plastic bottles with graphics applied directly (e.g., Applied Color Labeling [ACL] or silk screen, decals or heat-transfer labels), recommended location is close to the bottom on the back of the container consistent with the geometric configuration (unless covered by one of the previous guidelines). Locating the symbol on the seam of any such containers must be avoided.

FIGURE 27

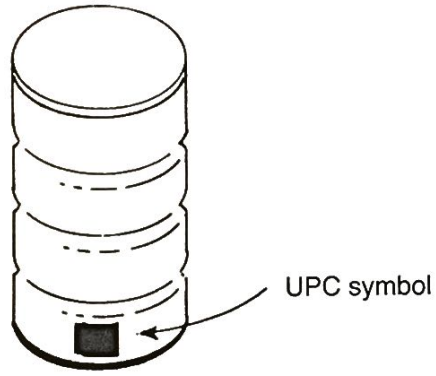


LOCATION GUIDELINE #11 (continued)

h. In addition to the above, the following guidance is provided for metal decorated beaded cans (i.e., a can with one or more circumferential indentations in the wall surface of the can).

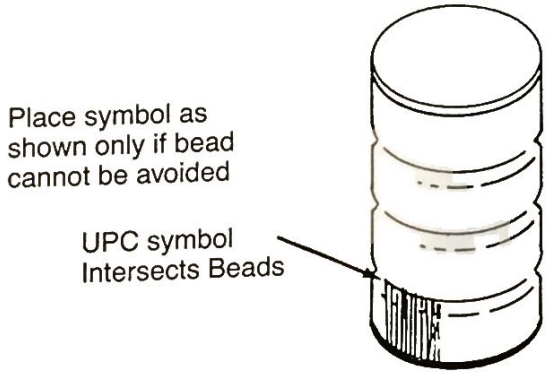
It is felt that any bead is detrimental to scanning and that the requirements for bead radius for scannability and for structural strength are diametrically opposed. Therefore, any intersection of the symbol and the bead must be avoided.

FIGURE 28



If the bead cannot be avoided, the symbol *must* be oriented so that the bars are at right angles to the bead. If the symbol and bead must intersect, locate the symbol so as to maximize the length of the bars uninterrupted by the bead.

FIGURE 29



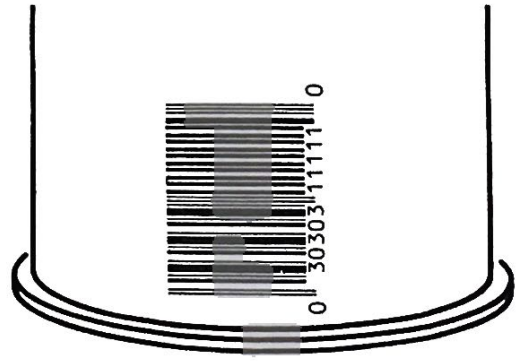
In all cases, the symbol must be located as low as possible on the package, within the above guidelines. This is not only to assist standardization of location to achieve checkout counter productivity, but also to allow for the possibility of side scanners.

The symbol should be oriented on the package to best accommodate printability requirements. Printing the bars of the symbol parallel to the press direction normally enhances symbol printability. Figure 30 or 31 orientation should be followed provided the printability gauge permits and provided that in the case of beaded cans, the symbol does not intersect the bead.

FIGURE 30



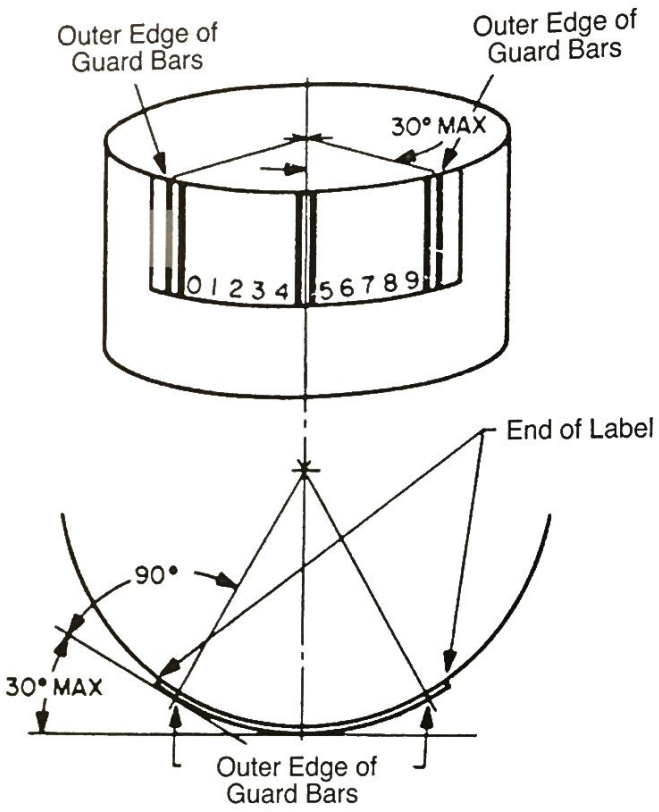
FIGURE 31



If the printability gauge constraints or bead intersection do not permit symbol orientation as shown in Figure 30 or 31, then symbol orientation as shown in Figure 32 can be used, provided the requirements of Table 1 (page 10) are followed.

LOCATION GUIDELINE #11 (continued)

FIGURE 32



When the symbol is oriented with the bars as shown in Figure 32, then the curvature of the cylinder causes narrowing of bars and spaces in the projection of the symbol as seen by scanners. Table 1 sets out the maximum magnification factors for items of various diameters when the symbol is oriented as in Figure 32. An asterisk (*) indicates that the package diameter is too small to permit the symbol orientation of Figure 32 and the symbol must be rotated 90 degrees (as shown in Figure 30 or 31).

TABLE 1

PACKAGE DIAMETER	MAGNIFICATION FACTOR VERSION A (REGULAR) SYMBOLS	VERSION E (ZERO SUPPRESSION) SYMBOLS
1.0 inch (25 mm)	*	*
1.2 inch (30 mm)	*	0.92
2.0 inch (51 mm)	*	1.58
2.2 inch (56 mm)	0.92	1.72
2.5 inch (64 mm)	1.06	1.98
3.0 inch (76 mm)	1.27	2.00
3.5 inch (89 mm)	1.48	2.00
4.0 inch (102 mm)	1.70	2.00
4.5 inch (114 mm)	1.90	2.00
4.7 inch (119 mm) and larger	2.00	2.00

LOCATION GUIDELINE #12

TUBS

Because special labeling would be required for bottom-marking on plastic tubs such as those used for margarine, ice cream, toppings, tile grout, wallpaper paste, etc., the symbol should be placed on the side of the container. The symbol should also be positioned as on cans, glass and plastic bottles with respect to the display panels and package curvature (see Location Guideline #11).

FIGURE 33

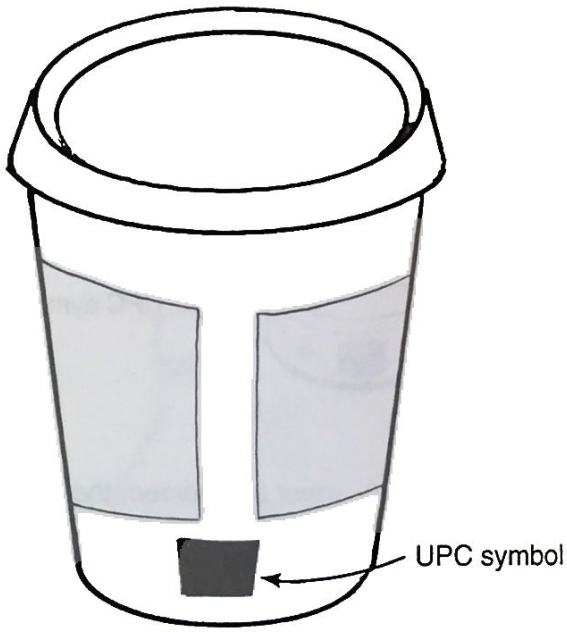
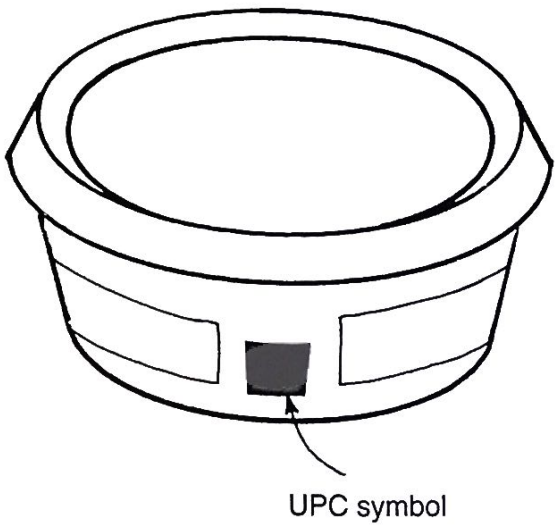


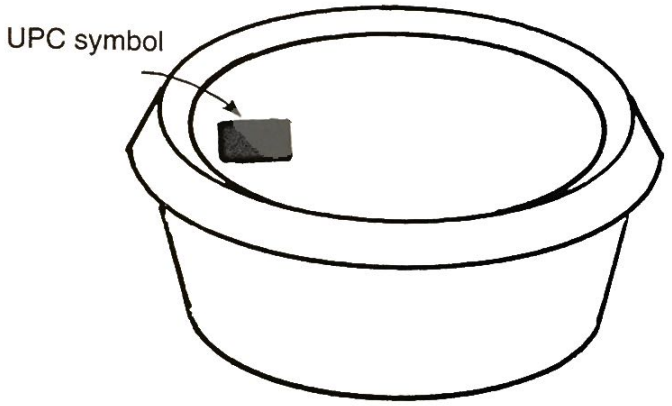
FIGURE 34



LOCATION GUIDELINE #12 (continued)

If it is not feasible to print on the side, or utilize spot labeling, placement of the symbol on the lid is an acceptable alternative, *provided the depth of the lid does not exceed 0.5 inches (13 mm).* However, *this should not be done* if there is a possibility of the product spilling or dumping when it is turned over for scanning.

FIGURE 35

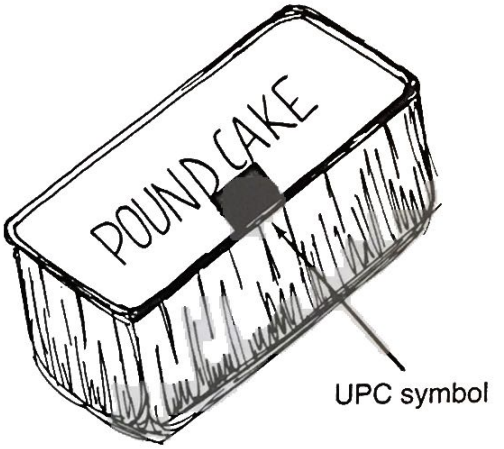


For foil tubs having graphics only on paperboard lids, the recommended location is on the lid. Care should be taken to avoid obscuring the symbol in the final formed container.

FIGURE 36



FIGURE 37



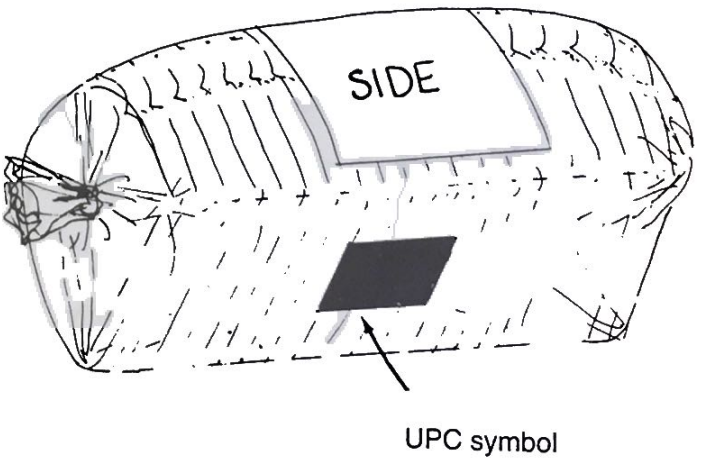
Tubs which are placed in a paperboard sleeve or folding carton need not be symbol-marked if they are not intended to be sold outside of the sleeve/carton. The symbol should be placed on the bottom of the sleeve or carton.

LOCATION GUIDELINE #13

BAGS AND POUCHES

Breads, rolls, muffins, etc., which are packed in bags and have a natural bottom should be symbol-marked on the bottom.

FIGURE 38



LOCATION GUIDELINE #13 (continued)

On bags such as those used for flour, sugar, corn meal, etc., the symbol should be placed on the natural bottom if space permits. If not, it should be placed on the back panel, near the lower edge, and centered horizontally.

FIGURE 39

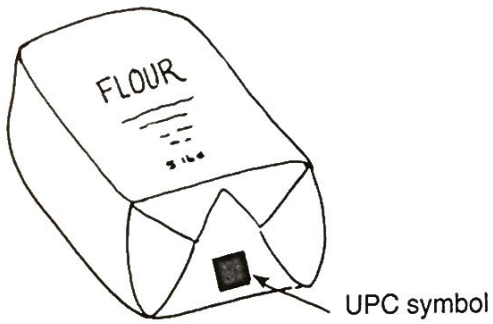
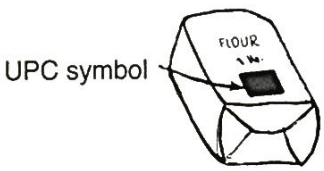


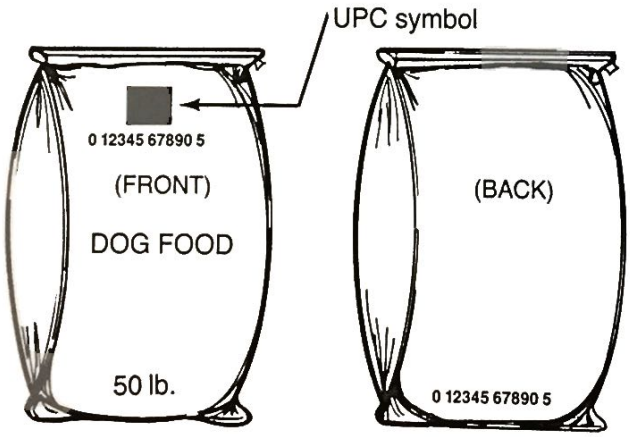
FIGURE 40



Very large, heavy bags sold at any retail outlet, such as dry pet food, granular fertilizers and insecticides, feed, seed, sand, gravel, soil, etc.

FIGURE 41A **FIGURE 41B**

Products Sold at Grocery and Other Retail Stores

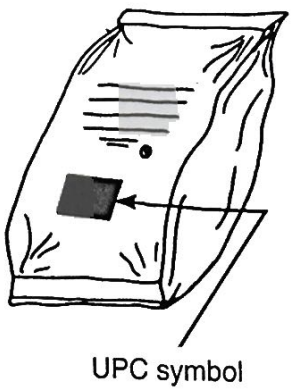


For these large and heavy bags, code and symbol locations are recommended for ease of processing at the retail checkout. The UPC symbol and the human-readable numbers should be printed near the top front of the bag, but below any seam or fold. Additionally the human-readable UPC number should be printed near the bottom back of the bag, but above any seam or fold. The human-readable code should be printed in 1-5-5-1 format in digits at least 5/8" high. This facilitates easier capture of the UPC without the requirement of picking up the bag and moving it across the scanner.

As an alternative, a perforated extension of the top flap containing a scannable UPC symbol may be added. In this case, the extension is removed and scanned at the point of sale. Careful attention must be given to the design of this flap extension to discourage its removal by abrasion during transport or stocking.

Some packages (e.g., flexible bags and small pouches) do not have a natural bottom. As shown in Figures 42 through 44, the symbol should be incorporated onto the back panel of such a container, near the lower edge and centered horizontally. As is the case with many of these packages, the bag may bulge close to the lower edge, in which case the symbol should be moved up closer to the center of the bag. If there is a glue strip, seam, or seal running the length of the back panel, it is recommended that the symbol be set off to the right and, again, placed as low as possible, but high enough to be above the natural curvature of the package bottom (see Figure 43). In addition, if in its final filled form, sharp creases or wrinkles are common to an area of the bag or pouch, the symbol must be located to avoid such area but still be consistent with this guideline.

FIGURE 42 **FIGURE 43**



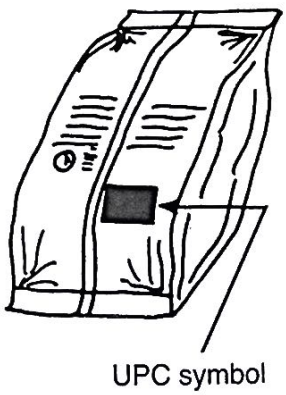
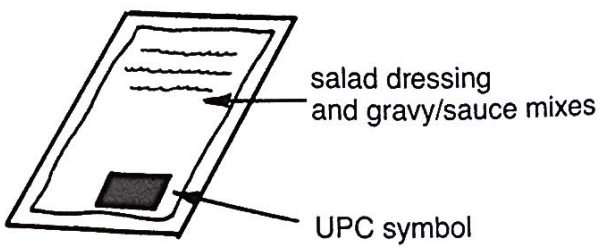


FIGURE 44

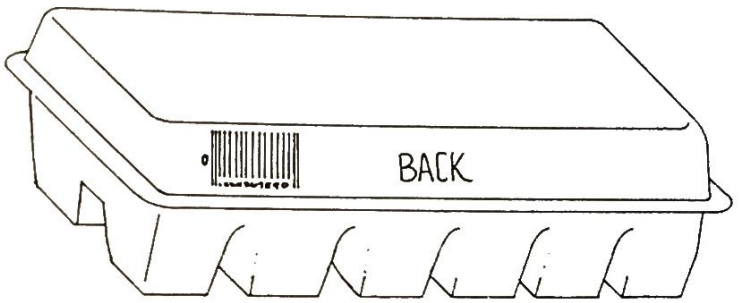


LOCATION GUIDELINE #14

MOLDED PULP AND PLASTIC FOAM EGG CONTAINERS

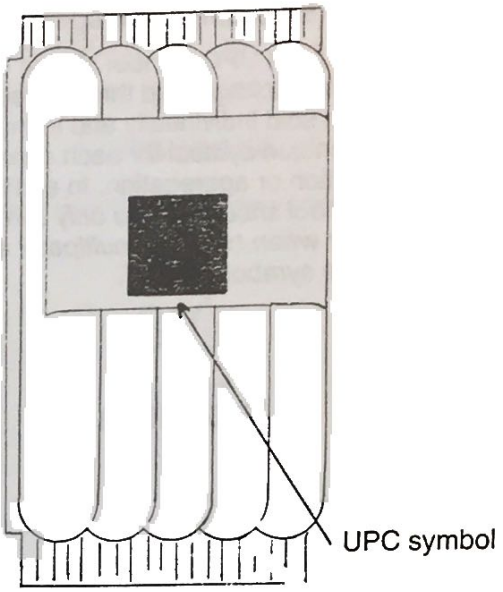
The recommended symbol location on molded pulp, foam or plastic egg cartons is the left rear side panel, with the bars of the symbol oriented perpendicularly to the base of the container.

FIGURE 45



For those egg cartons which have insufficient surface on the side panel because of structural characteristics, the alternative location is the top surface of the carton.

FIGURE 46



LOCATION GUIDELINE #15

SHRINK FILM/VACUUM-FORMED PACKAGING

On products packaged in shrink film, or which are vacuum-formed, the symbol should, if possible, be located on a flat surface and in an area free of creases, wrinkles or other types of distortions. If a flat surface is not available and the symbol must be located on a curved surface, the bars should be oriented in such a way that the requirements of Location Guideline #11 are met.

FIGURE 47

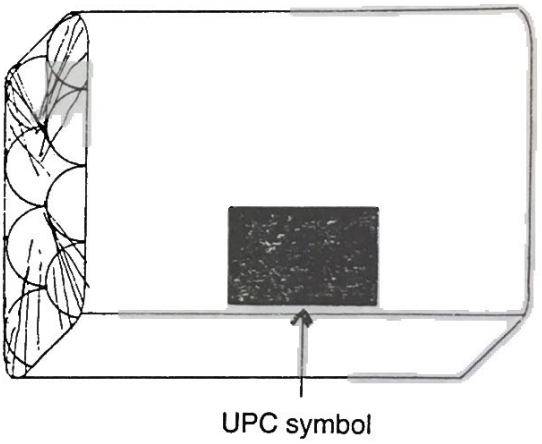
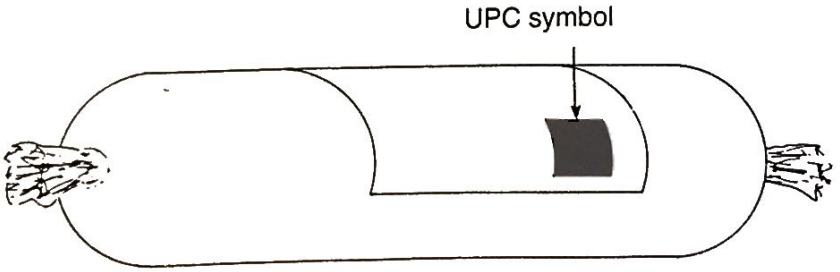


FIGURE 48



LOCATION GUIDELINE #16

MULTIPACKS (Excluding Beverages)

As a general rule, a UPC symbol should be placed on every consumer package sold through retail stores. Thus, products sold individually and in multipacks must carry a unique symbol for each consumer package variation or aggregation. In addition, *the multipack symbol should be the only symbol visible to the scanner when both the multipack and individual item are symbol-marked.*

The following are exceptions to this guideline:

a. Symbols are not required on individual light bulbs sold in cardboard sleeves.

b. A symbol need not appear on individual packages which are not intended to be sold outside the multipack.

c. See Location Guideline #17 for overwrapped packages.

d. See Location Guideline #20 for special guidelines applicable to beverages.

FIGURE 49

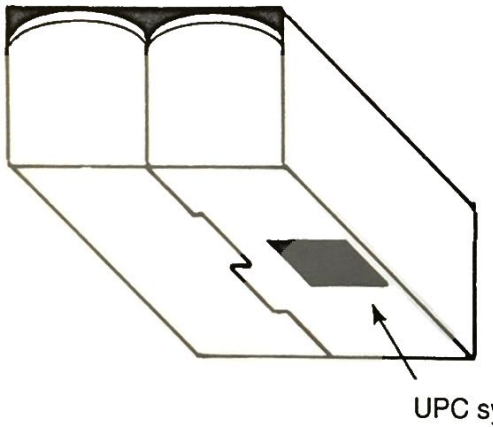


FIGURE 50

Right!

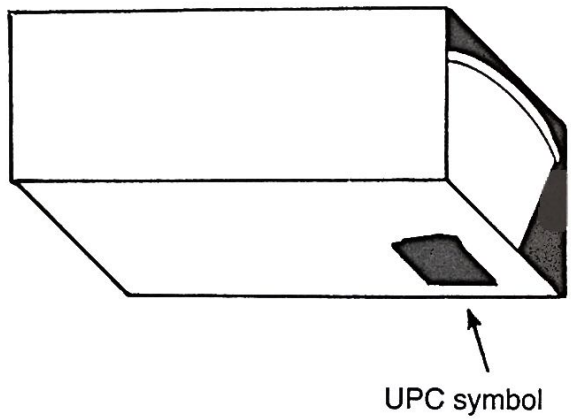
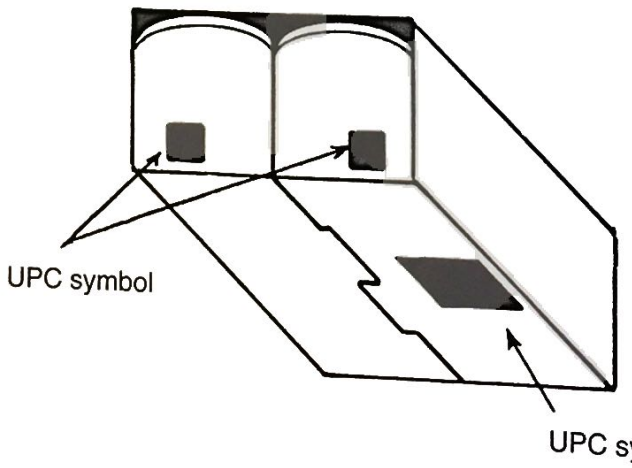


FIGURE 51
Wrong!



The multipack UPC symbol must be the only symbol visible to the scanner when both the multipack and individual items are symbol marked.

LOCATION GUIDELINE #17

OVERWRAPPED PRODUCTS

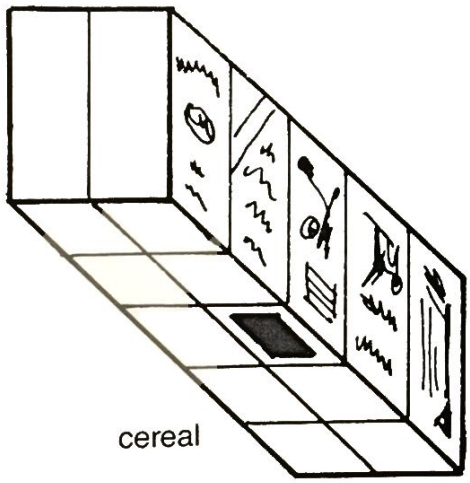
Some packages are packed with clear overwraps which may or may not be printed. Examples would include small cereal boxes packed 10 to a tray and candy bars packed 10 to a bag. The following guidelines apply to these packages:

a. If a single unit packed in the bag is rarely sold individually or is too small to carry a symbol, the symbol should be placed only on the multipack version (i.e., on the bag of candy bars or on the bottom of the tray holding the small cereal boxes).

b. If a single unit can be sold separately and the manufacturer wishes to maximize savings for the retailer, one symbol should be placed on each single unit and another symbol (encoding a different number to designate the multipack) should be placed on the outer multipack. *However, the multipack container must completely obscure the symbols on the single-pack units within.*

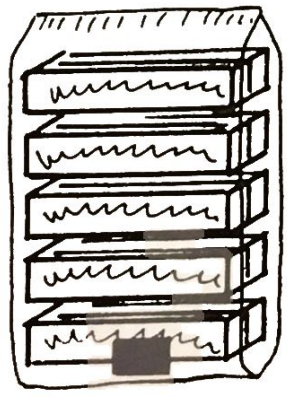
c. Any time a clear overwrap is used, the symbol should be located so as to avoid heat seals, seams, or wrinkles in the overwrap which would adversely affect scanning.

FIGURE 52



cereal

FIGURE 53



candy bag

LOCATION GUIDELINE #18

CARDED PRODUCTS

The symbol should be printed on the back of the card.

FIGURE 54



UPC symbol

FIGURE 55

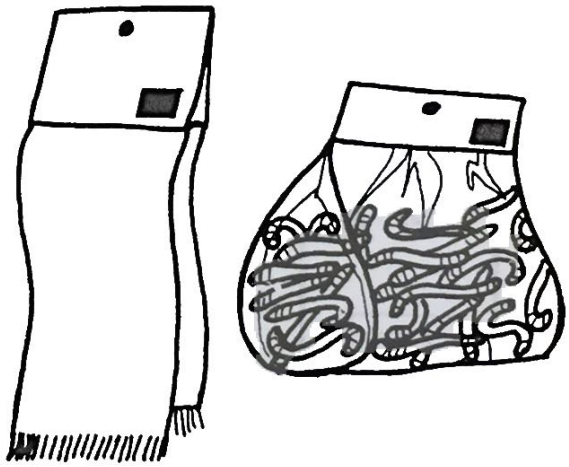
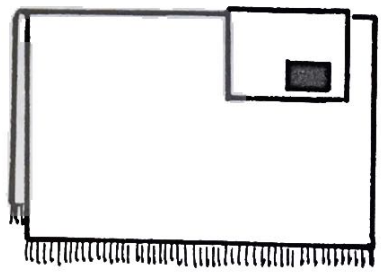


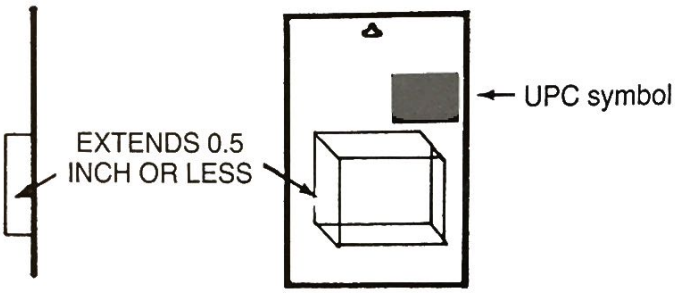
FIGURE 56



LOCATION GUIDELINE #18 (continued)

If the back is not printed, the symbol may be located on the face of a carded product, provided it is not more than 0.5 inch (13 mm) from a flat surface when the package is facing such surface (i.e., the scanner).

FIGURE 57 **FIGURE 58**



This may be a problem for large, bulky carded products where the product or the blister housing is thicker than 0.5 inch (13 mm) and therefore the symbol printed on the face of the card would be too far from the scanner.

For those products, it may be possible to position the symbol on the card far enough from the bulge so that tilting the product will bring the entire symbol within 0.5 inch (13 mm) of the scanner window (see Figure 60).

FIGURE 59

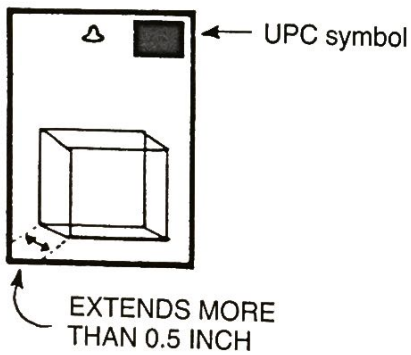
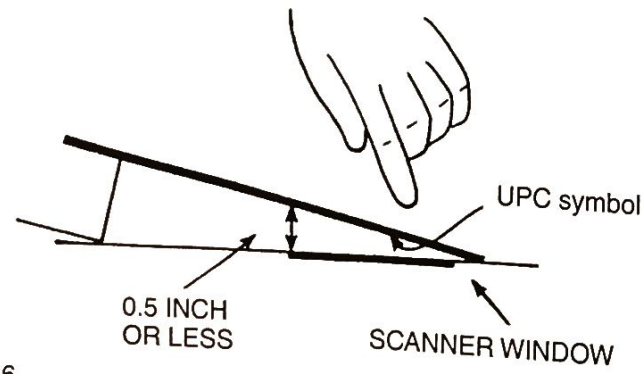


FIGURE 60



LOCATION GUIDELINE #19

CONCAVE PRODUCTS

For those symbols that cannot be passed over the scanner within 0.5 inches of the surface as specified in this Guideline, refer to Appendix B.

Do not place the symbol in the inside bottom of a cake pan, dish pan, or other types of household items or concave products. This applies no matter how the product is packaged. The concave shape of the product will not allow the symbol to be close enough to the scanner to scan effectively.

FIGURE 61
(cake pan)

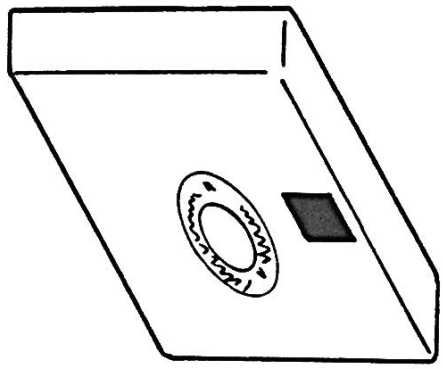
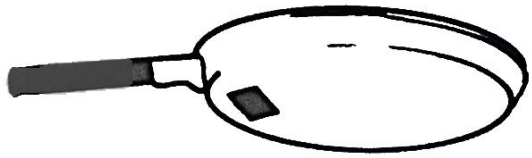
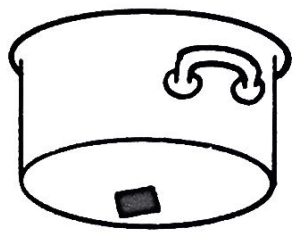


FIGURE 62
(cooking utensils)





LOCATION GUIDELINE #20

PRODUCTS WITH HANG TAGS OR PINS

Products which are marked *only* with tags or pins, with no other existing graphics, should incorporate the symbol on the tag or pin.

FIGURE 63

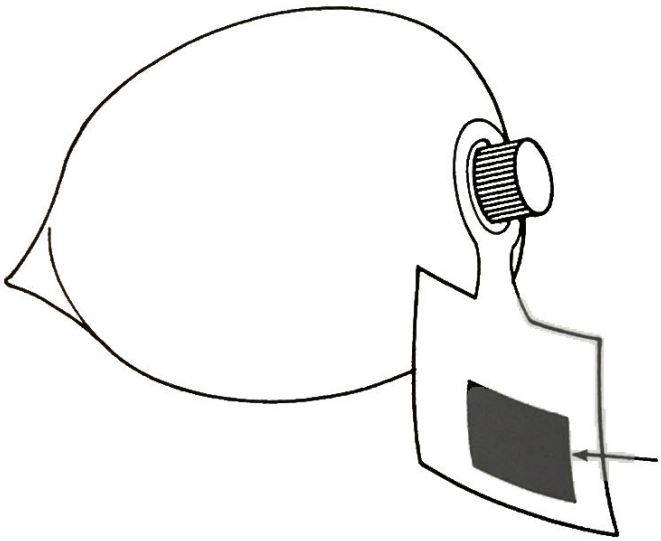
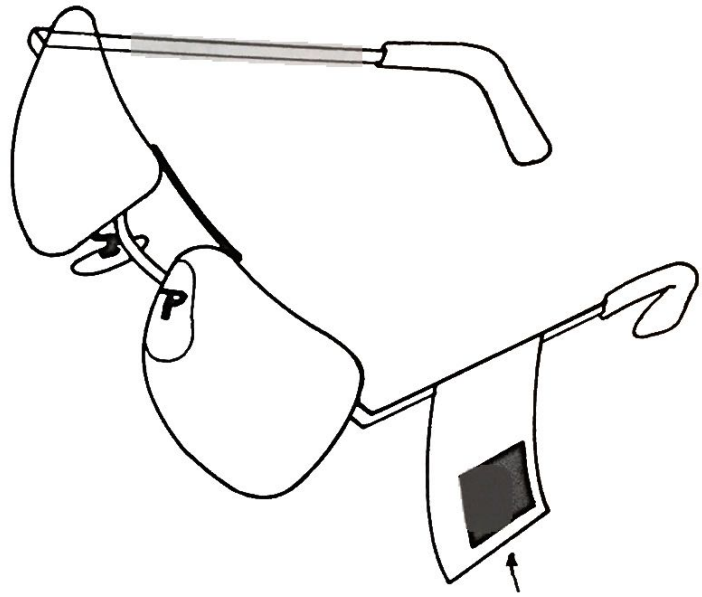
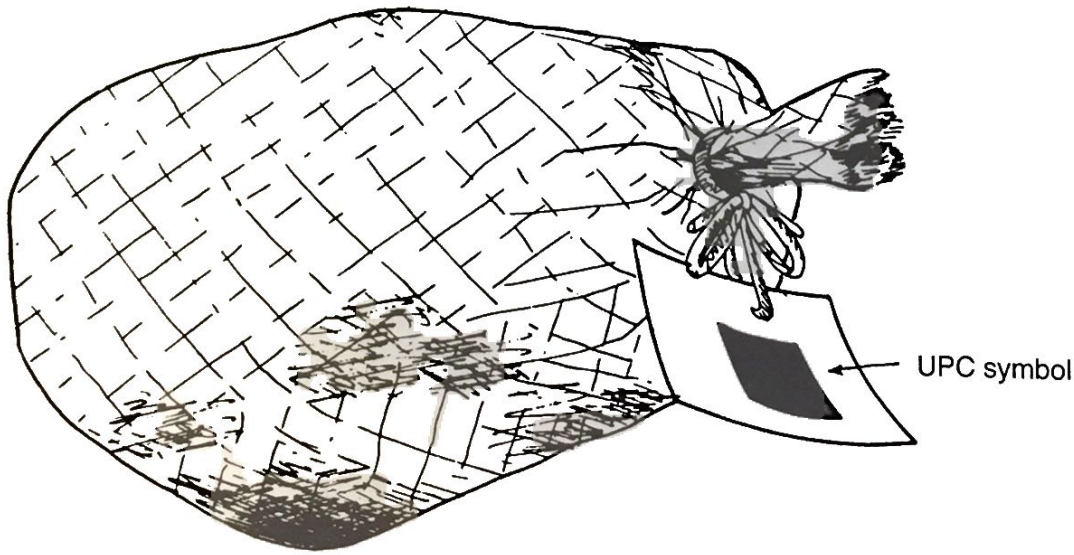


FIGURE 64



(If sunglasses are sold on a rack, then the hang tag may be placed on the nosepiece.)

FIGURE 65



LOCATION GUIDELINE #20 (continued)

FIGURE 66



FIGURE 67

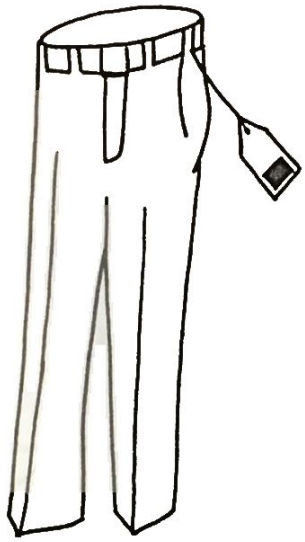


FIGURE 68

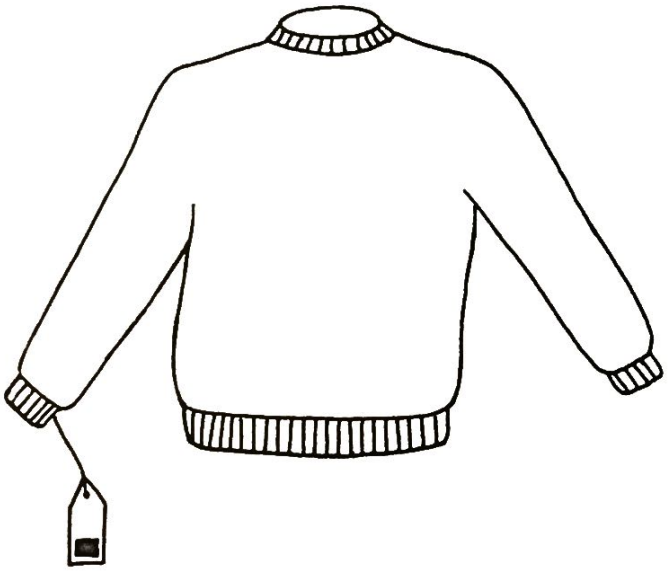
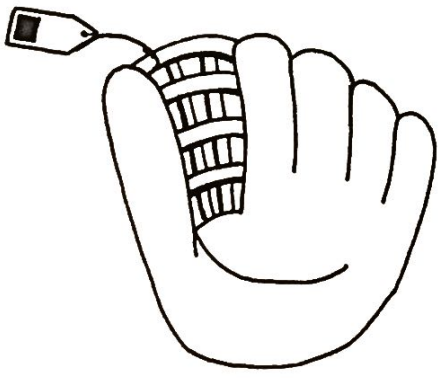


FIGURE 69



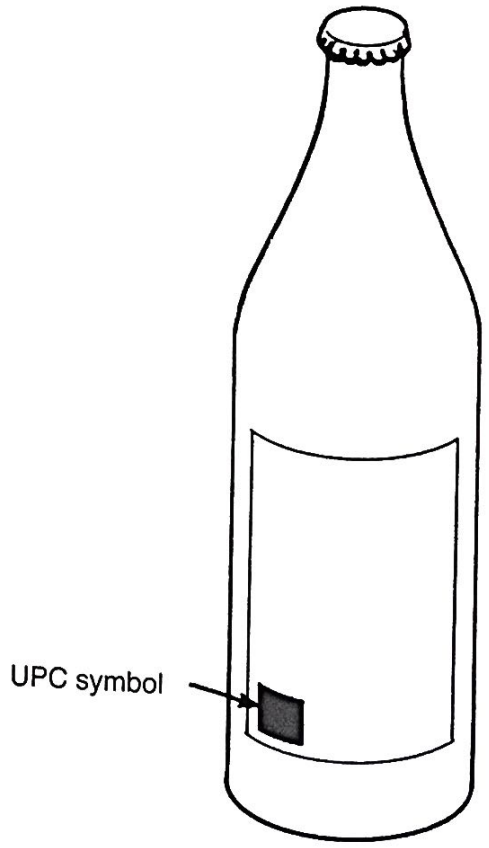
LOCATION GUIDELINE #21

BEVERAGES

The Beverage Industry has unique circumstances that warrant special guidelines.

a. For individual large-size returnable beverage bottles which are sold as single units, symbols applied to labels may be used. For returnable bottles in multipacks, the symbol is printed on the bottom of the carrier. Application of the symbol to a label on the neck of the bottle is to be discouraged. Although this practice was previously recommended, it has proven to be unwieldy at the checkout.

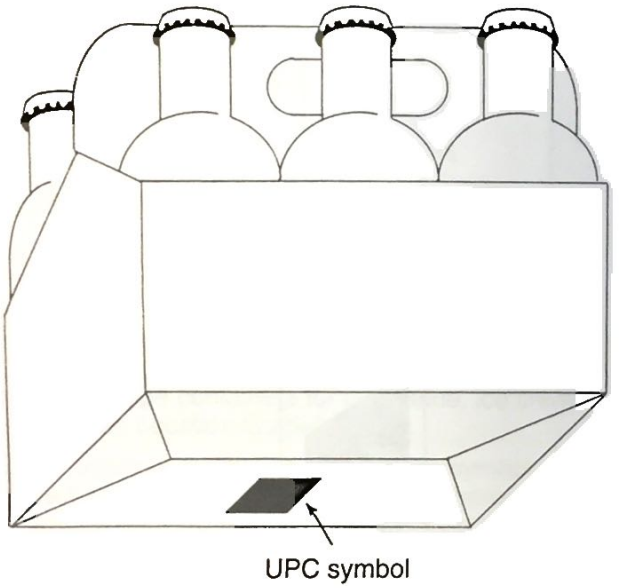
FIGURE 70



LOCATION GUIDELINE #21 (continued)

b. If bottles are not intended to be sold individually, symbols are not required on each bottle sold in a beverage multipack which utilizes a cardboard carrier. The symbol must, however, be printed on the bottom of the multipack carrier. The following should be considered when locating the symbol, however. The bottom of a bottle is normally concave, so that the full weight of the bottle rests on a circular ridge running the perimeter of the bottom. This circular ridge can produce a corresponding circular pattern of excessive wear on the bottom of the multipack carrier. Therefore, the symbol should be located so as to minimize the amount of symbol bar area intersecting the circular scuff or wear area.

FIGURE 71



c. On Hi-Cone Multipacks, the symbol must be placed on the sides of all cans, and such symbols will normally represent a single can and not the entire multipack.

(A current exception is the Hi-Cone 12-pack for cans on which the symbol represents the entire multipack, but may be accommodated in (1) and (2). Such a symbol shall be especially assigned to the Hi-Cone 12-pack and shall be different from the other 12-packs.)

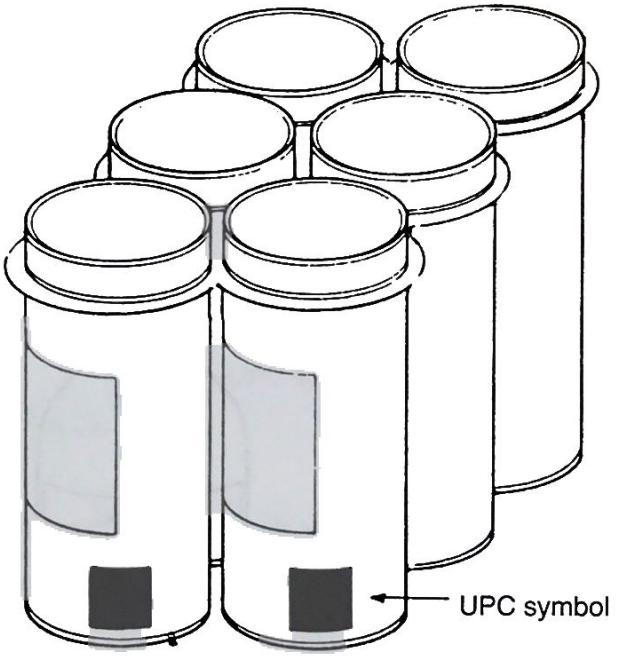
Until such time that a practical method is developed to symbol mark the Hi-Cone multipack (e.g., 6-pack), the following procedures for handling the Hi-Cone multipack at point of sale are recommended:

(1) The individual item symbol can be treated as identifying the *multipack* and broken packs can be treated as exceptions, with some sort of exception quantity key input.

(2) The same procedure as (1) except that each symbol identifies *the individual item* and all multiples must require manual input vie quantity key.

(3) The individual item within a multipack is scanned as many times as there are items in the multipack.

FIGURE 72



d. When beverages are packed in shrink-wrapped multipacks, symbols may be attached to inserts to identify the multipack rather than be direct-printed.

e. When trays are used, the symbol should appear on the bottom and designate the multipack.

f. On paperboard 12- or 24-pack multipacks, the symbol should be applied to the bottom of the carrier and designate the multipack.

g. A single code number and symbol will be acceptable on generic multipacks used for a variety of flavors in the Beverage Industry; e.g., a multipack carrying grape soda may be used again with the same symbol to designate orange soda, or a mix of flavors, as long as the code guidelines are met.

LOCATION GUIDELINE #22

ALCOHOLIC BEVERAGES

The most preferred location is on the back label (Figure 73). The second most preferred is on the front label (Figure 74).

Placement on the neck of the bottle has been removed as a recommendation due to poor scanning performance.

FIGURE 73

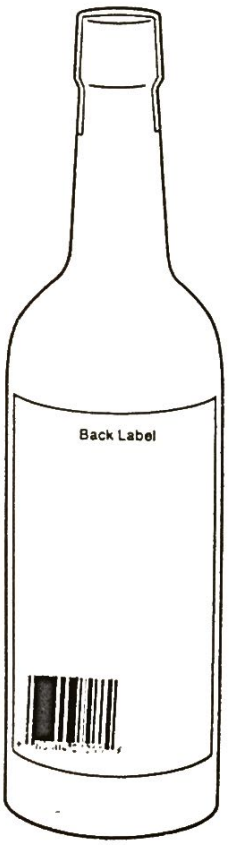
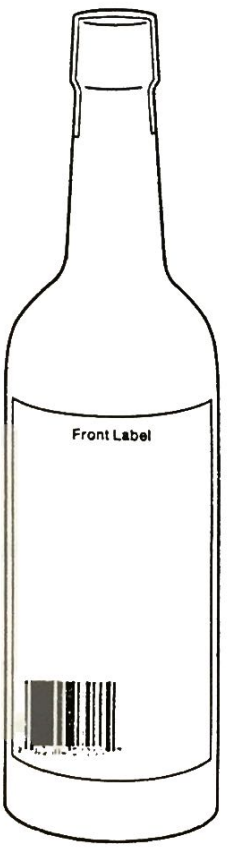


FIGURE 74



LOCATION GUIDELINE #23

MILK AND DAIRY PRODUCTS

There are several container types which are unique to milk and dairy products and, therefore, warrant special guidelines.

a. Because the paperboard containers used for milk, cream, batters and some juices cannot contain printing on the bottom, the recommended symbol location is on the lower portion of the panel under the spout.

FIGURE 75

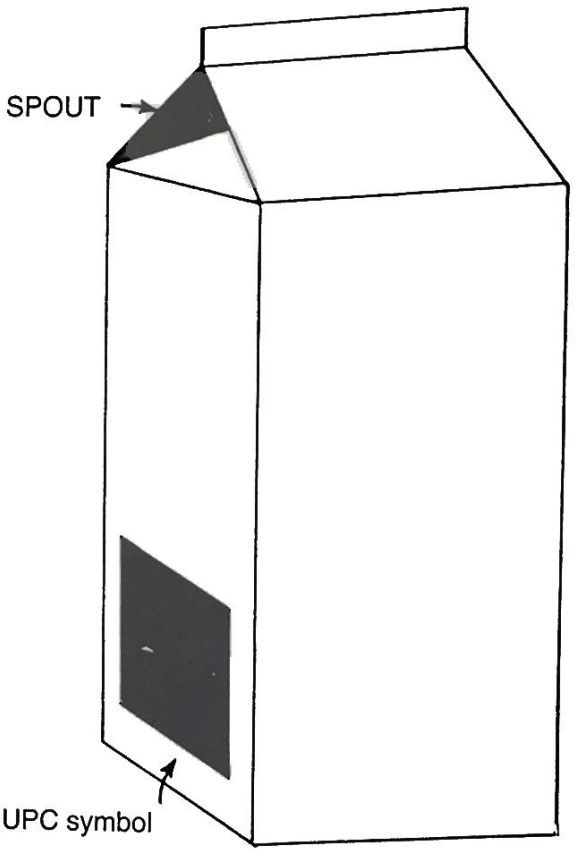
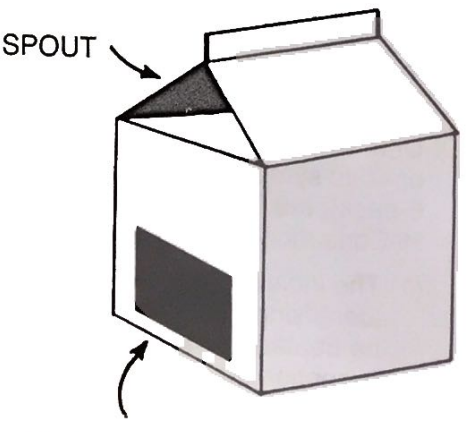


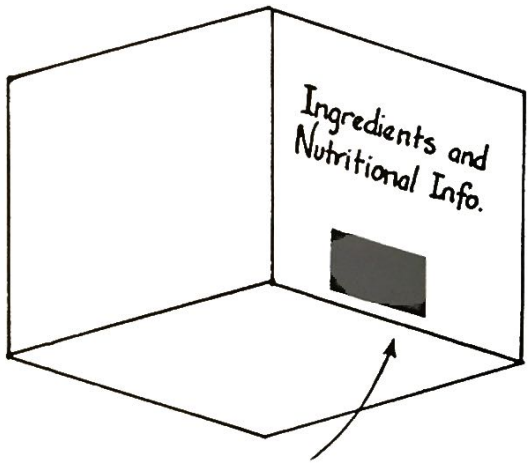
FIGURE 76



LOCATION GUIDELINE #23 (continued)

b. To achieve standardization in accommodating the many styles and graphic formats on rectangular and square ice cream containers, the product information panel (i.e., the panel containing mandatory ingredient and nutrition copy) is the recommended panel for symbol location. If the product information panel contains so much information as to prohibit the placing of the UPC symbol on this panel, then an alternate location would be the side panel.

FIGURE 77



UPC symbol

c. For tub-type containers for margarine, ice cream, etc., see Location Guideline #12.

d. For butter or margarine cartons, the symbol should be applied to the containers (see Location Guideline #10). For individual sticks of butter or margarine, they should be symbol-marked if they are intended to be sold separately (see Location Guideline #7).

e. For egg cartons, see Location Guideline #14.

LOCATION GUIDELINE #24

PAPER PRODUCTS

The symbol may be printed on the side of bathroom tissue and other similar products which utilize bottom closures that would lead to special labeling if bottom-marking were required.

FIGURE 78

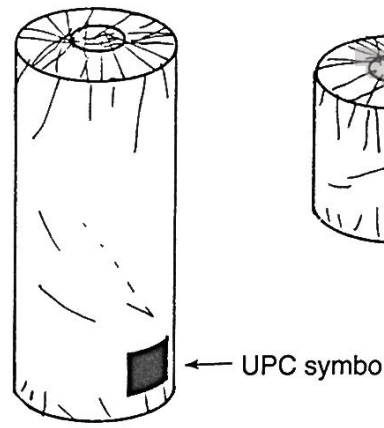
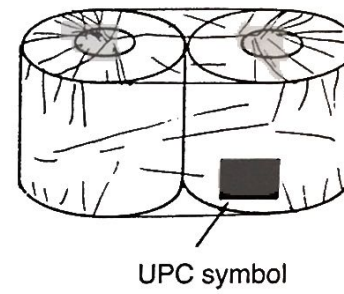


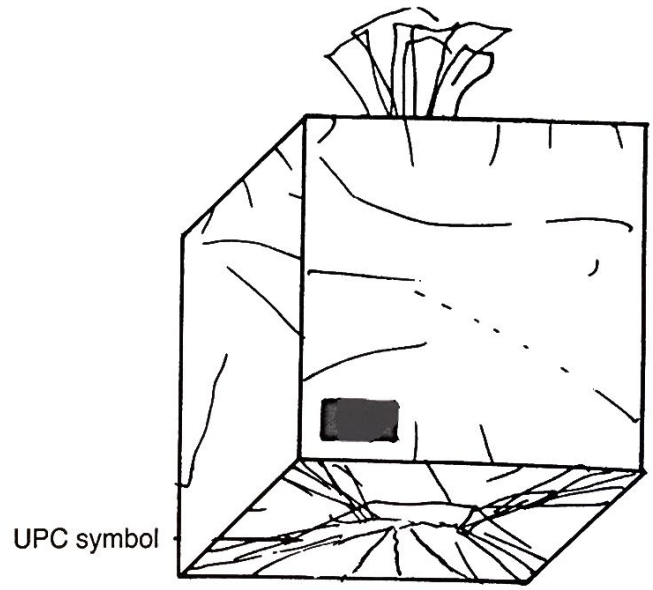
FIGURE 79



UPC symbol

On boxed paper products which are film overwrapped, the symbol should be located on the natural bottom if the closure does not interfere with the symbol. If the symbol could be distorted by the overwrap (i.e., wrinkles, seals, etc.), then the symbol should be located on the side of the box.

FIGURE 80



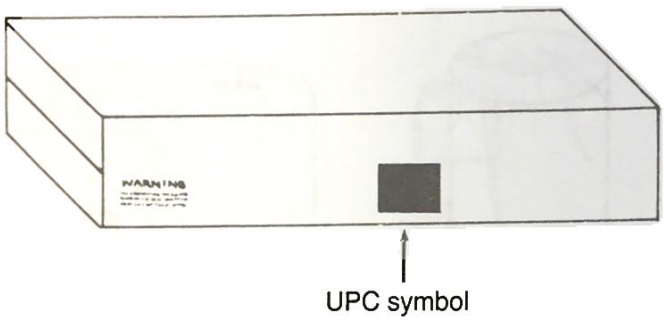
UPC symbol

LOCATION GUIDELINE #25

TOBACCO PRODUCTS

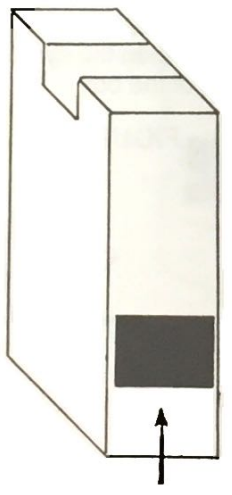
Cigarette cartons should carry the symbol on the "Surgeon General" panel and it should be centered horizontally.

FIGURE 81



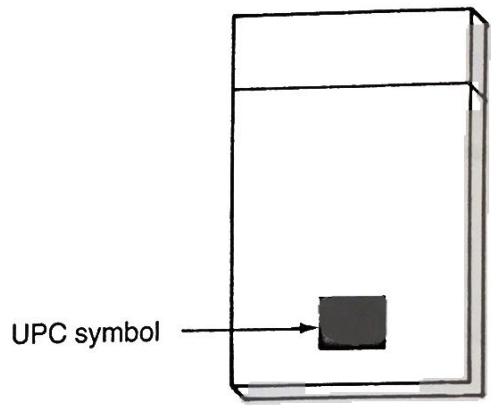
The symbol on individual cigarette packs should be located on the side panel *opposite* the "Surgeon General" panel.

FIGURE 82



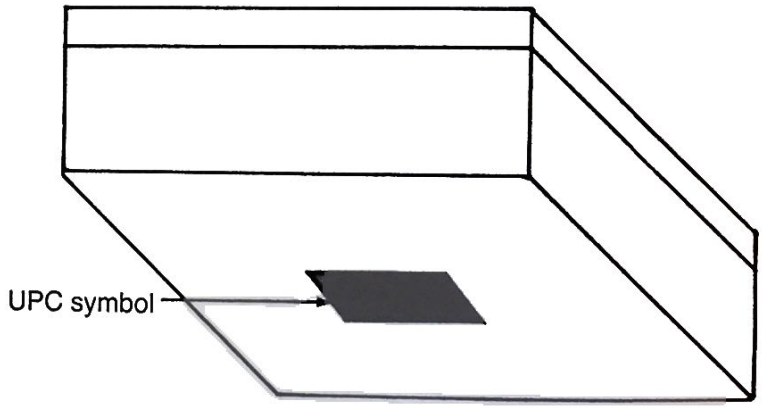
Small packages of cigars should be symbol-marked on the lower back of the package.

FIGURE 83



Large cigar boxes should be symbol-marked on the natural bottom.

FIGURE 84



For tobacco products in cans, see Location Guideline #11.

For tobacco products in pouches, see Location Guideline #13.

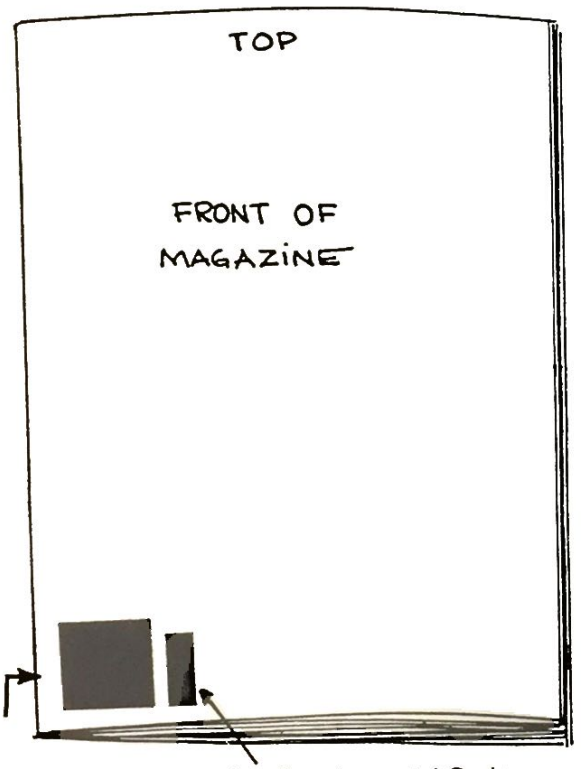
LOCATION GUIDELINE #26

MAGAZINES/PAPERBACK BOOKS

Figures 85 and 86 illustrate the recommended locations for the UPC symbol on magazines and paperback books. It is important to note that supermarket scanners are designed to read the UPC symbol omnidirectionally. However, it may be that this is not the case for scanners used in return counting operations. If one is planning to use such scanners, it would be advisable to review symbol orientation with the return counting firm and the printer before deciding upon the orientation to be used.

On magazines, the symbol should be printed on the *front* cover in the lower left-hand corner.

FIGURE 85

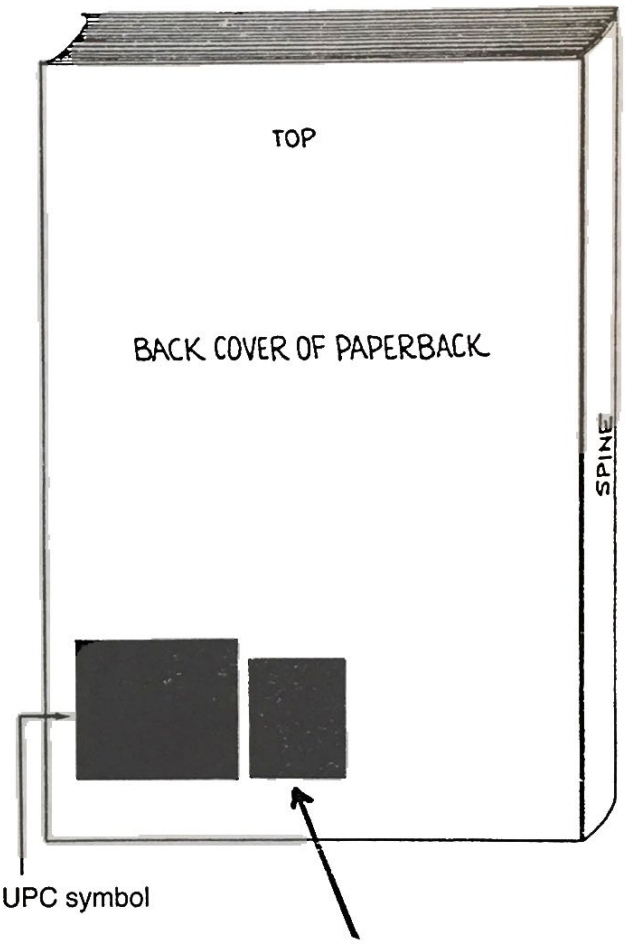


UPC symbol

2 Digit Supplemental Code
(See Symbol Specification Manual,
Appendix E)

On paperback books, the UPC symbol should be in the lower left-hand corner of the back cover. The same location is recommended for hard cover books which contain the UPC symbol.

FIGURE 86



UPC symbol

5 Digit Supplemental Code
(See UPC Symbol Specification Manual,
Appendix E)

ISBN/Bookland–If this code and symbol are required, contact: International Standard Book Numbering, United States Agency, 205 East 42 Street, New York, NY 10017.

LOCATION GUIDELINE #27

OFFICE PRODUCTS (SEE SEPARATE SECTION FOR FURNITURE)

Consumer items in boxes, cartons or other packages must be marked with a UPC symbol using the location specifications presented in this manual. For retail products that are packaged in cartons *and will not be scanned on slot scanners,* the UPC symbol may be placed on the side of the carton rather than the bottom of the carton. This will facilitate scanning at retail and commercial office products businesses.

Paper products, e.g., file folders, manila folders, filing supplies, binders, labels, office papers, book-keeping supplies, time cards, accounting forms, pads, etc., should have a UPC symbol printed or labeled on the carton or overwrap of the consumer unit. For example, the UPC number and symbol located on the carton for a 500 sheet ream of paper represents all 500 sheets, not single sheets. The symbol should be located on the label for the product, at the bottom of the label area.

Binders, account books, etc., must each contain a UPC number and symbol on the back of the book, binder, etc., near the bottom. If there is an overwrap with a label, the UPC marking may be included on the label in the same position. If there is no practical method of placing the symbol on the back of the product, place it on the front or the spine.

Pens, pencils, erasers, and other similar items. The package which contains pens or pencils should contain a UPC number and symbol. The symbol must be located on the back of the package near the bottom.

Individual pens, pencils, or other items from an intermediate package, may be assigned a UPC number (unique from the package number) which can be key entered at the point of sale.

Products sold in multi-packs should be handled as in UPC Symbol Location Guidelines #16 and #21.

For **commercial products** which will not normally be scanned at the cash register, the UPC shipping container code and symbol should be used to identify master cartons. Location and other specifications are included in the UPC Shipping Container Code and Symbol Specification Manual.

FIGURE 87

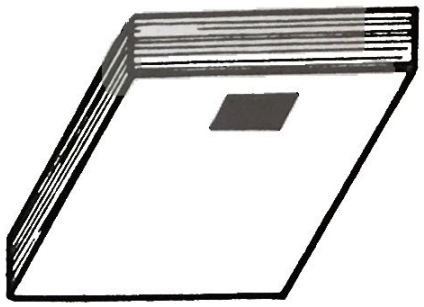


FIGURE 88

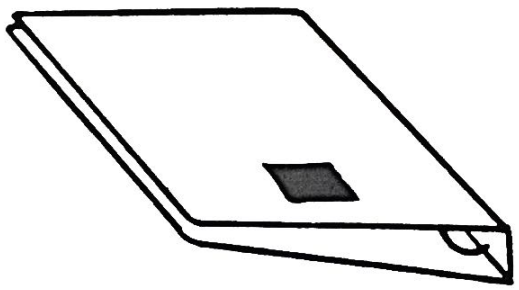
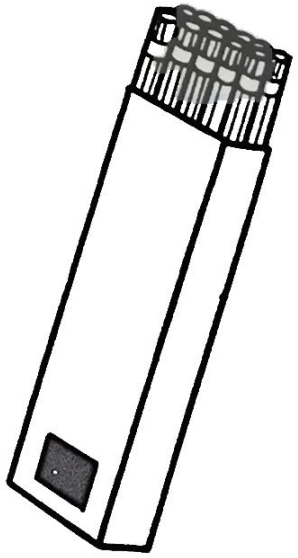


FIGURE 89

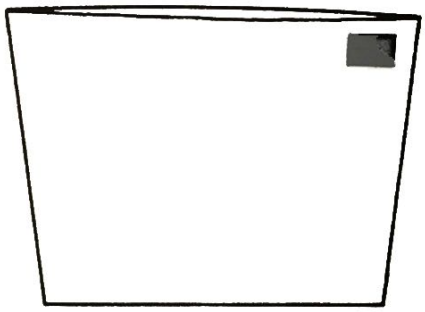


LOCATION GUIDELINE #28

RECORDS

Place the UPC symbol in vertical (picket fence) orientation in the upper right-hand quadrant of the back of the LP jacket near the top edge and back spine, but no closer than ¾ inch from the spine. This is to avoid scanning difficulties sometimes caused by plastic shrink wrap corner crinkling or loose wrap. This positioning facilitates hand-held portable wand or laser scanning, as well as slot scanning at distribution centers.

FIGURE 90



CASSETTES

On cassettes, position the UPC symbol on the back flat side of the graphics in the area that shows through the clear window of the box. Vertical (picket fence) orientation of the symbol places the bars and spaces perpendicular to the long edge of the package. Preferred placement on several variations of a larger package, into which the plastic box is placed, is similar to the LP jacket, on the back side in the upper right-hand quadrant, but no closer than ¾ inch to the top and side.

FIGURE 91



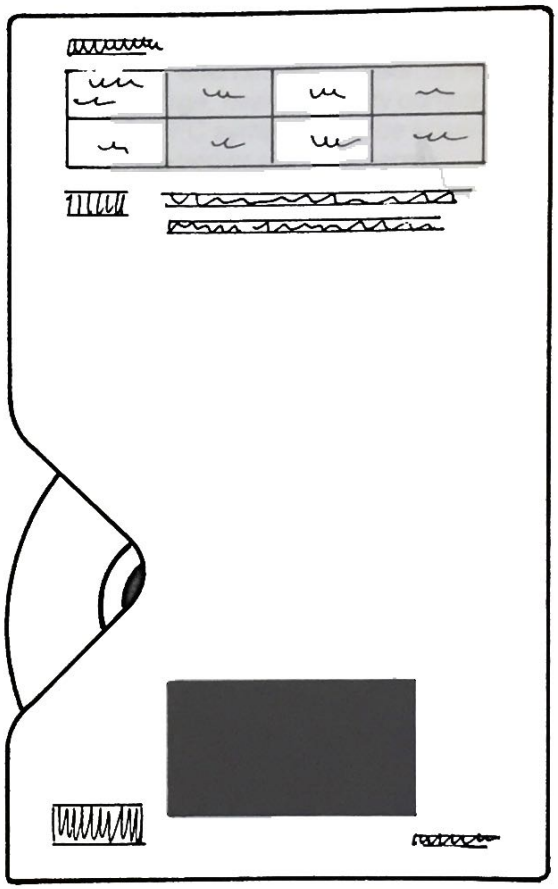
LOCATION GUIDELINE #29

VIDEO SOFTWARE

On ½ inch VHS, Beta and laser disc packaging, place the UPC symbol on the back of the package near the bottom.

On smaller packages, place the UPC symbol on the back of the package.

FIGURE 92



LOCATION GUIDELINE #30

UNBOXED PLANTS AND NURSERY PRODUCTS

UPC symbol location is limited to hang tags connected to the plant and tags which are stuck into the dirt which surrounds the plant, tree, shrub, or other nursery product.

Note that since a tag that is stuck into the dirt can be moved by a consumer or jarred loose and lost, it is important for the checkout person to identify the product at the point of sale.

FIGURE 93



FIGURE 94



FIGURE 95



LOCATION GUIDELINE #31

FURNITURE

Most furniture is shipped in cartons. Place the UPC symbol on the carton on a label near the other product and shipping information. If a product can be sold either in or out of the carton, the UPC symbol must appear on both the carton and on the item itself. (See also Location Guideline #32, paragraph 3.)

If the piece of furniture is covered by plastic only, place the UPC symbol on a tag which is affixed to the plastic bag covering the chair or other piece of furniture.

If the furniture is shipped with no outer covering, place the UPC symbol on a hang tag or other type of tag affixed to the piece of furniture.

Using one of these three methods, the distributor may warehouse the inventory without unboxing it and then remove the UPC label/tag before blanketing and delivering. The label may be cut off and taped to the furniture for delivery.

Note: Systems Furniture is typically not cartoned. The UPC symbol must be affixed to the shipping label on the plastic wrap which surrounds the panels. This allows for a bar coding receiving application at the job site where systems furniture is delivered directly from the manufacturer.

Note: Accessories, e.g., lamps, are typically shipped and distributed in boxes. The UPC symbol must be placed on the box according to specifications.

Note: File Cabinets must contain a UPC symbol on the tag which contains product and shipping information.

Note: If a piece of **knockdown furniture** is assembled by the retailer and sold in one assembled piece, the retailer should assign a unique UPC number to the assembled product.

Note: Items sold in **"put together" boxes** where the major portion is in one box and the other parts are in separate boxes should be handled as follows: Locate the UPC symbol on the box containing the major part of the item. Mark the other boxed parts or components with the human readable numbers only, i.e., the same number that is in symbol and human readable form on the major part of the item.

LOCATION GUIDELINE #32 LARGE, HEAVY OR BULKY CONTAINERS

#32A LARGE BOXES WHICH CONTAIN ONE CONSUMER UNIT (TELEVISION, STEREO SETS, APPLIANCES, LAWN MOWERS, READY-TO-ASSEMBLE FURNITURE, LAWN OR BABY FURNITURE, ETC.)

Many large boxes are too awkward and heavy to be passed over a scanner. The checkout person must enter the UPC number through a keyboard, or scan it with a wand or gun type scanner.

The UPC consumer item symbol and human readable number should be placed on a label or printed (meeting specifications) on the top of the box. In addition, the twelve-digit human readable number should be printed on the top panel of the box in figures 5/8 inch or larger. (Figure 96A)

If the box doubles as a shipping container and will be scanned in the warehouse environment, the UPC shipping container code and symbol should be printed on the lower part of the side and end panels according to the specifications outlined in the UPC Shipping Container Code and Symbol Specification Manual. (Figure 96B)

FIGURE 96A

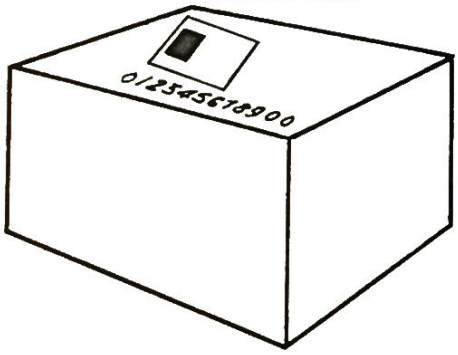
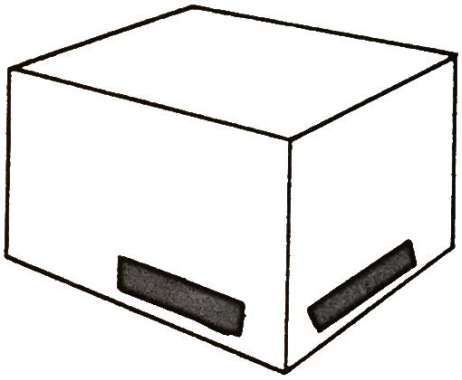


FIGURE 96B



Note: Items sold in "put together" boxes (e.g., wheelbarrows, storage sheds, components of a stereo set, etc.) where the major portion is in one box and the other parts or components are in separate boxes should be handled as follows: Locate the UPC symbol on the box containing the major part of the item. Mark the other boxed parts or components with the human readable numbers only, i.e., the same number that is in symbol and human readable form on the major component of the item.

ALTERNATE METHOD FOR MARKING LARGE BOXES

The preceding section of Location Guideline #32A provides for large human-readable numbers by which the UPC can be key-entered at the point of sale. Scanning is possible only with a handheld scanner with a long cord. Another alternative has been developed for marking these large, heavy or bulky consumer items so that their UPC symbols may be scanned in stores with fixed flat-bed or slot scanners.

THE DOUBLE LABEL WITH TEAR-OUT UPC

A special label may be applied to large, heavy or bulky consumer items; those that are too heavy or too awkward to pick up and pass over a fixed scanner. This label has one section that is permanently adhered to the consumer item's box (or to a hangtag or card if the item is not boxed). This section has a human-readable vendor stock number and item description printed above a full-size (100% magnification) UPC Version A symbol. The 12 digit UPC code is printed immediately below the symbol as specified in the *UPC Symbol Specification Manual*. Beneath a perforation, a second section contains exactly the same human-readable information and an identical full-size UPC symbol. The two sections are virtually identical except that the section below the perforation has no adhesive on its back. All dimensions and scannability aspects of the UPC symbol must be as stated in the *UPC Symbol Specification Manual*.

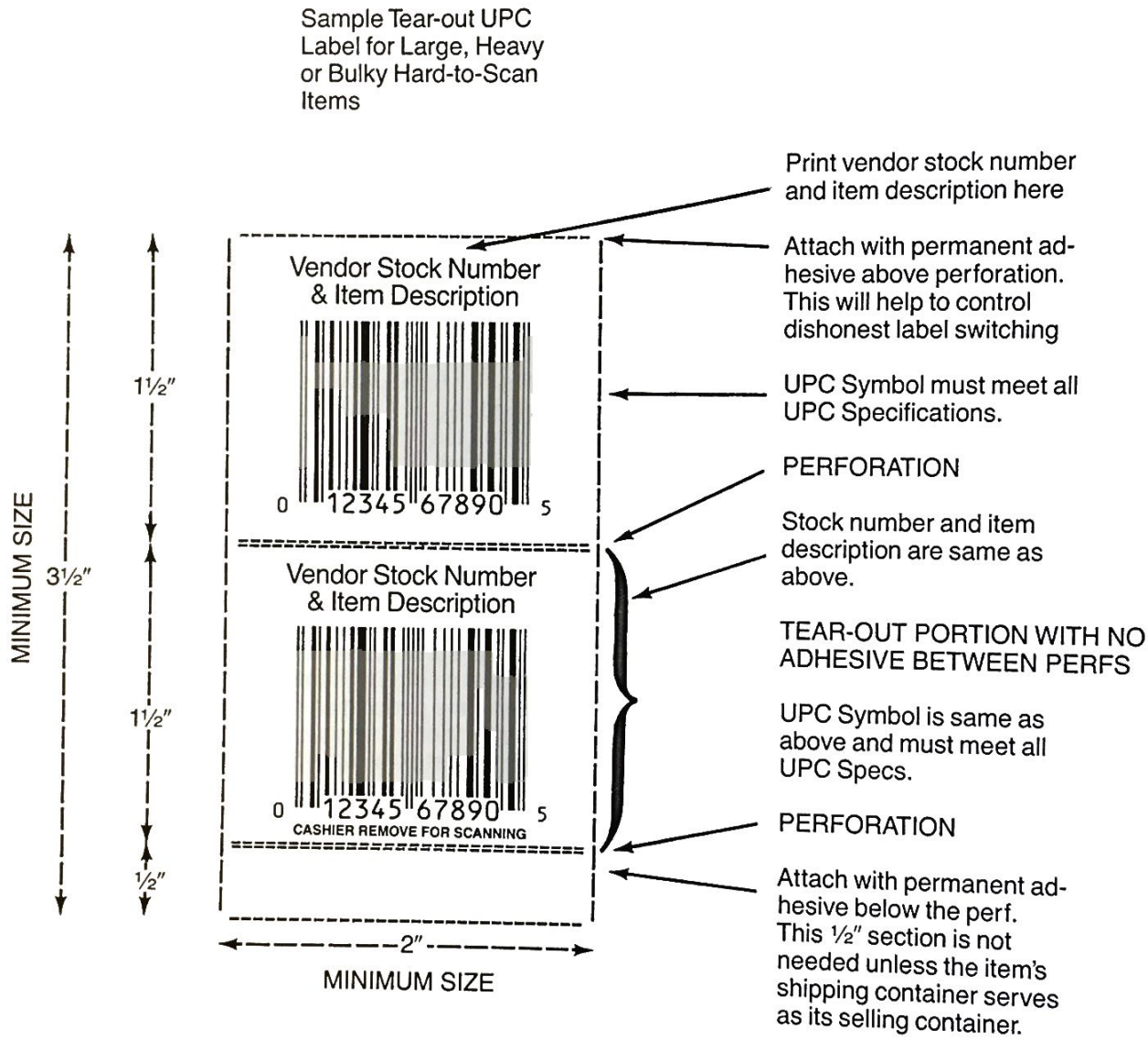
When the item is brought to the point of sale, either the customer or the cashier removes the lower half of the label below the perforation. The cashier then scans the label, tears it in half and discards it. If the symbol cannot be scanned, the cashier can key-enter the human-readable code beneath the symbol, then destroy and discard it. The top label remains attached to the item or its box and can be used for customer returns if the need arises.

In the instances where the large, heavy or bulky item is displayed and sold in its shipping container, a third section of label is recommended. Beneath the "tear-out" label, a second perforation and a ½" section with permanent adhesive should be added. This provides a more secure vehicle for the tear-out section and makes it less likely to tear off in transit.

Retailers will need to determine their own internal security arrangements and cashier awareness instructions to thwart the prospect of unscrupulous persons presenting a tear-off symbol from a less expensive item while taking a more expensive item to the point of sale.

LOCATION GUIDELINE #32A (continued)

SAMPLE ILLUSTRATION OF THE DOUBLE LABEL WITH TEAR-OUT UPC



TEAR-OUT SYMBOL LOCATION ON BOXED PRODUCTS

Flat boxes (such as ready-to-assemble furniture) - Upper right quadrant of the top "primary" panel.

Large cubical boxes (lawn mowers, TVs, etc.) - On the primary *vertical* panel; the one with all of the product information.

Note that some large consumer product boxes contain more than one barcode in different symbologies. Some of these are meaningless at the point of sale but have other uses such as serial number, model number, batch, lot, etc. The UPC symbol, whether removable or not, must carry some instruction such as "Scan at Point of Sale", or "Universal Product Code".

Human-Readable UPC Numbers on Large Boxes—It is recommended that the human-readable UPC number be printed in the upper left quadrant of *all four* vertical panels. All twelve digits should be printed in characters at least ⅝" high.

LOCATION GUIDELINE #32 (continued)

#32B - LARGE, HEAVY AND BULKY TUBS OR PAILS (POOL CHEMICALS, DRIVEWAY SEALER, ETC.)

One scannable UPC symbol should be incorporated into the container label, near the label's bottom. Human-readable digits should be placed in the top portion of the label, at least ½" below the bottom of the lid when the pail/tub is in its final configuration. All twelve digits should be printed in characters at least ⅝" high.

If feasible, the tear-out label described in Location Guideline #32A may be added to the lid itself, insuring adequate adhesion of the label to the lid surface.

FIGURE 97



#32C - HARDER-TO-MARK ITEMS (PATIO BLOCKS, BRICKS, STONES)

Some categories of merchandise remain more difficult to mark than others. In these categories manufacturers and retailers should work together to develop acceptable item identification options that may not involve physical marking of the product. Point-of-sale catalogs or flip-books may be developed in which a UPC symbol is printed adjacent to a photograph, illustration or description of the corresponding item. Catalogs may be divided by manufacturer, classification or type of merchandise.

LOCATION GUIDELINE #33

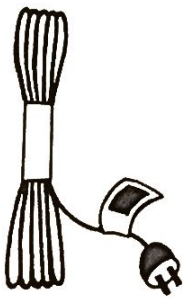
BANDED PRODUCTS (YARN, EXTENSION CORDS, ETC.)

Locate the UPC symbol on the back of the banding material, on a tag affixed to the label or on an extended label.

FIGURE 98



FIGURE 99



LOCATION GUIDELINE #34

LINEN/DOMESTIC PRODUCTS (E.G. PILLOWS, TOWELS)

The UPC symbol may be printed on the back of a sewn-in label or affixed to the product using a pin ticket. If a sewn-in label is used, it should be placed on the side or end hem. The manufacturer must ensure that all UPC specifications are met when printing on any substrate; however, printing on cloth requires additional caution.

FIGURE 100

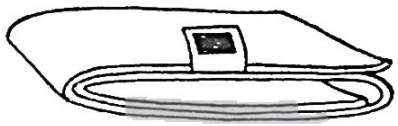
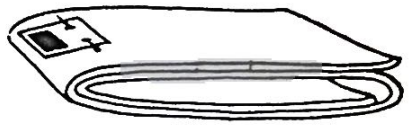


FIGURE 101



If the product is in a plastic bag or plastic overwrap, the UPC symbol should appear on the bag or on an insert inside the overwrap. It should be located in the back, lower right corner of the package.

FIGURE 102

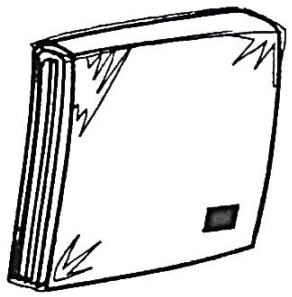
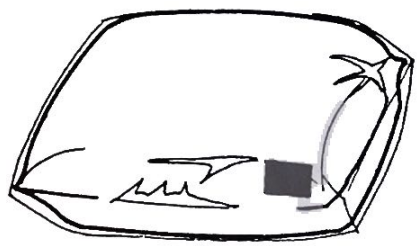


FIGURE 103



LOCATION GUIDELINE #35

PRODUCTS WITH A HANDLE, OR SOLD IN SLEEVES

Place the UPC symbol on the handle in vertical, "step ladder" format. A label should be used to ensure that specifications are met. Anticipate how the checkout person will scan the product, and place the symbol to facilitate scanning. If the handle is too narrow to include an "in-spec" UPC symbol, use a hang tag.

FIGURE 104

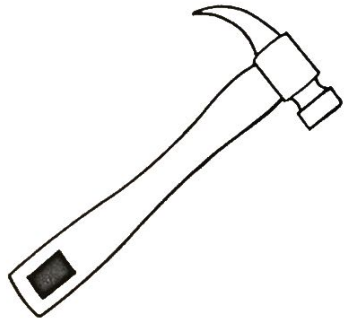


FIGURE 105

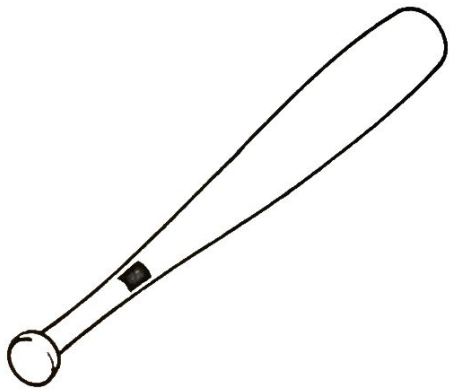
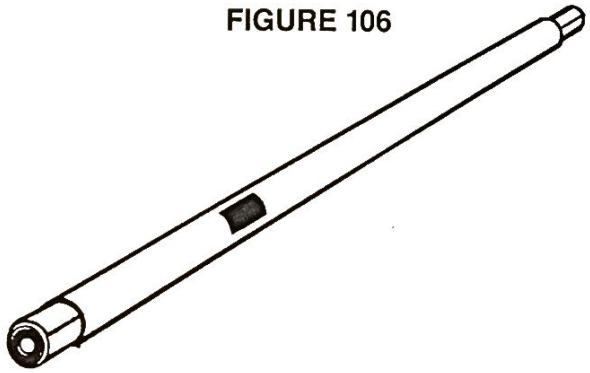


FIGURE 106

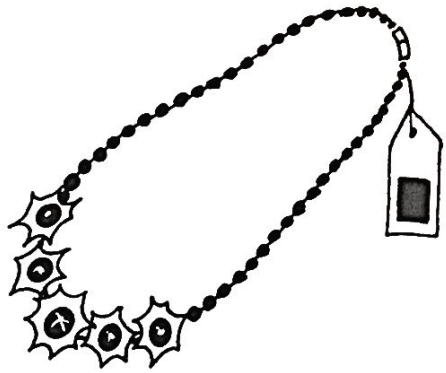


LOCATION GUIDELINE #36

NON-PACKAGED JEWELRY

Each jewelry product must be assigned a 12-digit UPC number. The UPC symbol is placed on a hang tag. If this is not done, the UPC number must be entered manually.

FIGURE 107

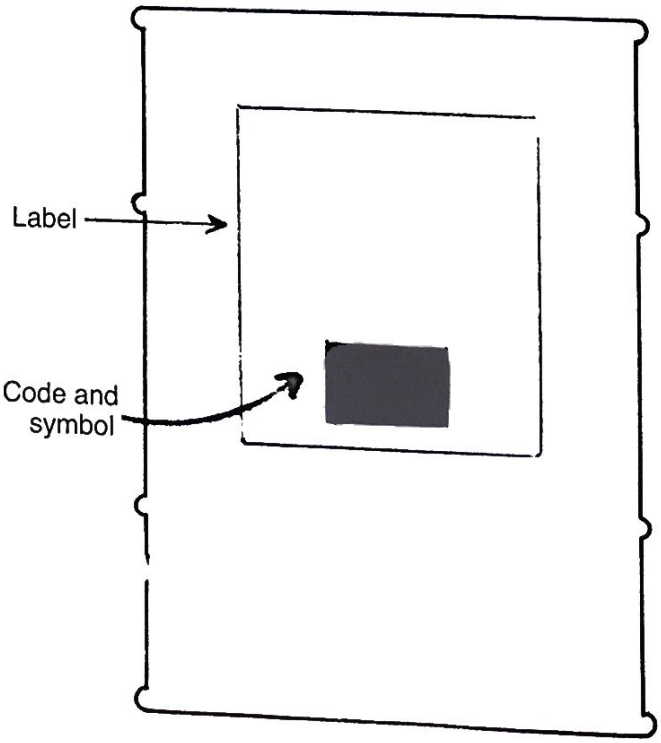


LOCATION GUIDELINE #37

FOODSERVICE

Large metal or fibre drums (e.g., 55 gallon) used for foodservice and industrial products should carry the human readable code and symbol on the label in a larger than nominal size for easier scanning by a wand or gun type scanner.

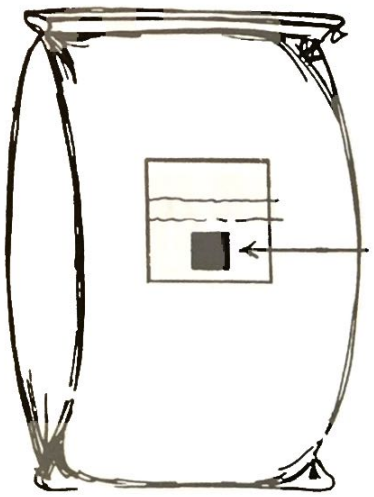
FIGURE 108



LOCATION GUIDELINE #37 (continued)

For very large bags sold through foodservice and industrial areas, place the UPC symbol on the label, or with the product information on the bag.

FIGURE 109



In general, individual foodservice products at the smallest level of packaging (e.g., one hamburger, or one jar of catsup) may be given a UPC number but will not be marked with a symbol. The symbol will be placed on the shipping container for the item, i.e., the symbol will identify each shipping container and the quantity contained therein.

The UPC Shipping Container Code and Symbol Specification Manual explains the location of the UPC shipping container symbol on shipping containers.

LOCATION GUIDELINE #38

COUPONS

For a complete description of the coupon coding process, please refer to the Coupon Code Guidelines Manual, published by the Uniform Code Council, Inc.

There are a number of formats used in couponing. For example, manufacturers' coupons are produced in several sizes, and for newspapers and magazines, there are one-, two-, and three-column size coupons.

Because there will be a number of elements included on the coupon by the manufacturer, such as those items required to communicate the coupon offer, as well as "legal" performance copy, the symbol must compete with these for space. Even for retailers with their private label and/or in-ad coupons, space is also at a premium. Taking this into account and noting that the small size of a coupon makes choices for symbol location very limited, the following recommendations are offered for locating the symbol on coupons:

Consider the following during the design of coupons:

- The symbol should be in picket fence (vertical format) in the lower right-hand corner of the coupon. See the examples at the end of this section.
- The UPC coupon symbol requires a minimum light margin or clear area on the left and right sides of the symbol. Care should be taken to ensure that this light margin is free of wording or other graphics, closures, perforations or scores. In addition, the symbol should be far enough from the edge of the coupon to provide for the required margin.

  The light margin for the UPC coupon symbol is the same as for the UPC standard Version A symbol:

  – left light margin at nominal size is 9 modules wide (0.117″)

  – right light margin at nominal size is 9 modules wide (0.117″)

  A UPC product symbol cannot appear on a coupon and a UPC coupon symbol cannot appear on any exposed surface of a product. This is because a scanner cannot selectively discriminate between the UPC coupon symbol and the UPC product symbol. If the coupon symbol were scanned rather than the product symbol, the customer would be credited for the value of the coupon instead of being charged for the product (if another item with the same family code had been purchased). Only the UPC product symbol should be visible on a product package.

LOCATION GUIDELINE #38 (continued)

- The UPC coupon symbol can be printed on "on-pack" coupons *inside* labels or packages as this placement will not conflict with the UPC product symbol on the outside of the package.
- Be careful not to surround a UPC *product* symbol with coupon offer graphics. If cut off the package by the consumer, this could appear to be a coupon symbol which if presented for redemption would scan as an item being sold.

EXAMPLES OF COUPONS CONFORMING TO TRADE PRACTICE RECOMMENDATIONS

FIGURE 110

Front Side of Two-Side Horizontal Coupon (3" x 2½")



FIGURE 111

One-Side Horizontal Coupon (3" x 2⅛")



FIGURE 112



One-Side Vertical Coupon 2½" x 6"

FIGURE 113



Front Side of Two-Side
Vertical Coupon 2 3/16" x 6"

FIGURE 114



One-Side Horizontal Coupon 6" x 2½"

FIGURE 115



Front Side of Two-Side Horizontal Coupon 6" x 2½"

APPENDIX A

A GUIDE FOR SPACE REQUIREMENTS IN LABEL DESIGN

In order to determine the smallest size symbol that can be printed in specification for a particular printing job, it is required that the average print gain, as well as the variance of this gain, be established. To aid in this determination, the UPC Symbol Specification Manual has included the printability gauge procedure.

Once the printability range has been established, the illustrations accompanying Tables 1-A and 2-A can be used to identify the minimum space requirements of UPC symbols of varying magnification factors.

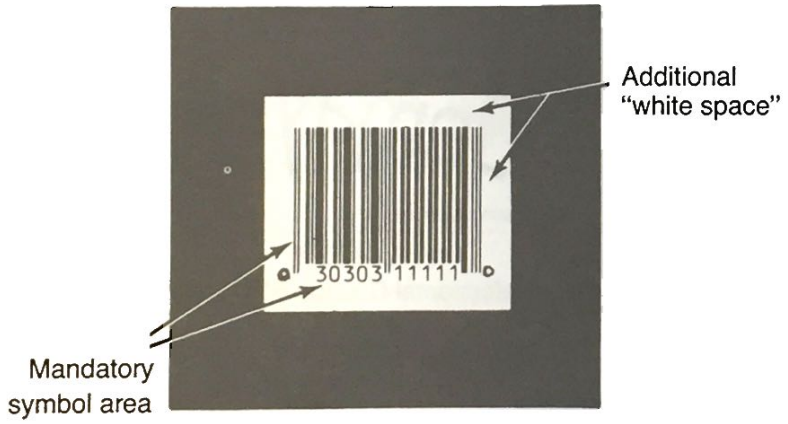
These illustrations are not all inclusive, since the symbol is infinitely variable in size between the extremes of 0.80 and 2.00 of nominal. However, they are typical of many of those shown in the UPC Symbol Specification Manual.

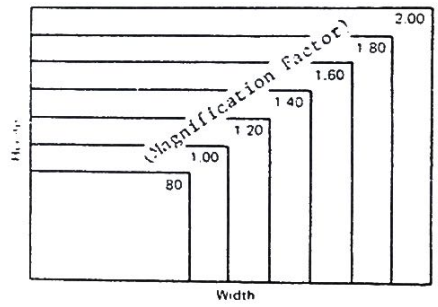
It is always good procedure to provide additional white space around the symbol area when a color which would effect scanning efficiency is used outside the area the symbol would normally occupy.

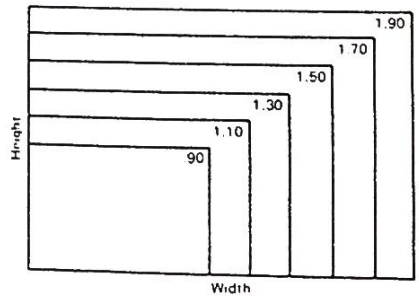
TABLE 1-A–DIMENSIONS OF VARIOUS SIZE SYMBOLS (VERSION A)

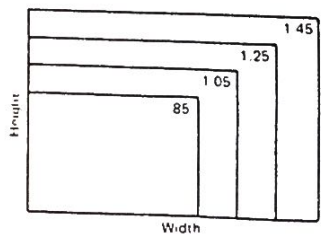
Magnification Factor		Dimensions Determined by Corner Marks	
		Height	Width
0.80		0.816″	1.175″
0.85		0.867″	1.249″
0.90		0.918″	1.322″
0.95		0.969″	1.395″
1.00	NOMINAL SIZE	1.020″	1.469″
1.05		1.071″	1.542″
1.10		1.122″	1.616″
1.15		1.173″	1.689″
1.20		1.224″	1.763″
1.25		1.275″	1.836″
1.30		1.326″	1.910″
1.35		1.377″	1.983″
1.40		1.428″	2.057″
1.45		1.479″	2.130″
1.50		1.530″	2.204″
1.55		1.581″	2.277″
1.60		1.632″	2.350″
1.70		1.734″	2.497″
1.80		1.836″	2.644″
1.90		1.938″	2.791″
2.00		2.040″	2.938″

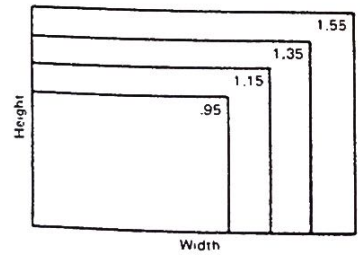
FIGURE 1-A







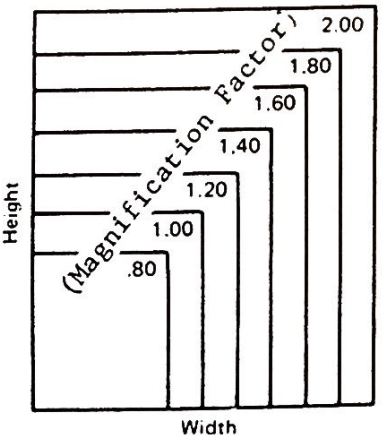


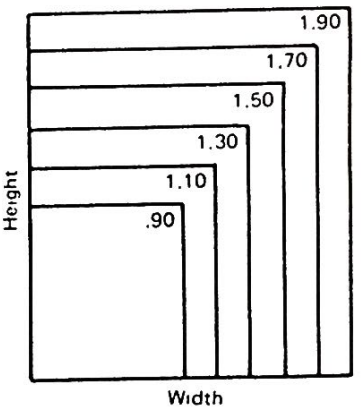


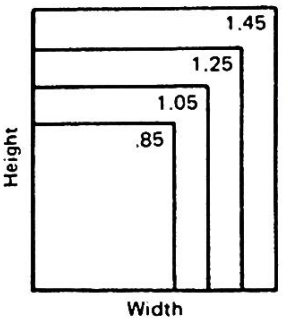
(NOT TO SCALE)

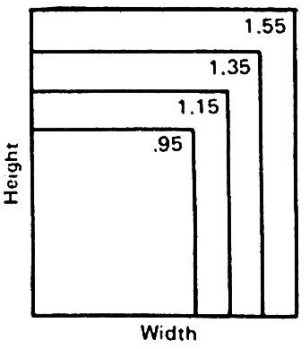
TABLE 2-A–DIMENSIONS OF VARIOUS SIZE SYMBOLS (VERSION E)

Magnification Factor		Dimensions Determined by Corner Marks Height	Width
0.80		0.816″	0.697″
0.85		0.867″	0.740″
0.90		0.918″	0.784″
0.95		0.969″	0.827″
1.00	NOMINAL SIZE	1.020″	0.871″
1.05		1.071″	0.915″
1.10		1.122″	0.958″
1.15		1.173″	1.002″
1.20		1.224″	1.045″
1.25		1.275″	1.089″
1.30		1.326″	1.132″
1.35		1.377″	1.176″
1.40		1.428″	1.219″
1.45		1.479″	1.263″
1.50		1.530″	1.307″
1.55		1.581″	1.350″
1.60		1.632″	1.394″
1.70		1.734″	1.480″
1.80		1.836″	1.568″
1.90		1.938″	1.655″
2.00		2.040″	1.742″









(NOT TO SCALE)

APPENDIX B

DEPTH OF FIELD

This Appendix sets forth the specifications for a symbol which cannot be passed over the scanner within 0.5 inches of the surface as specified in Symbol Location Guideline #18 and #19.

Physical access to the symbol shall be provided for contact reading with hand-held wand scanners.

There are three ways that the symbol specified by the general specifications can be modified to allow satisfactory reading at a distance greater than 0.5 inches from the scanner surface.

(1) Specify a symbol larger than otherwise would have been required.

(2) Specify more accurate printing for a nominal size symbol.

(3) Specify a larger symbol and more accurate printing.

Since it is not probable that any one of the three methods will be satisfactory in every case, all three methods are given. There is, however, a preferred order for uses of the three methods, as follows:

(1) Method #1 is the preferred method for use in all cases where the required magnification of the symbol is compatible with available real estate on the item to be identified. Print specifications are the same as those defined in Appendix A.

(2) Method #2 is the least preferred method and should be used only in cases where the use of Methods #1 and #3 are determined to be unsatisfactory. Method #2 is recommended only if:

(a) A magnification = 1 is the maximum symbol size that can be accommodated.

(b) Print tolerances tighter than those shown in Appendix A can be accommodated by the print technology used.

(3) Method #3 represents a combination of Methods #1 and #2 by specifying symbol magnifications that are somewhat smaller for a given "height above the window" than those specified by Method #1 and therefore requiring somewhat less real estate and by specifying looser print tolerances than Method #2, thereby imposing less stringent requirements on the print technology. This method is, therefore, next in preference to Method #1.

It should be noted, however, that Method #1 can be used to achieve a maximum "height above window" of 3.0 inches, Method #2 achieves a maximum height of 2.0 inches, and Method #3 achieves a maximum height of 3.5 inches. In some cases, therefore, requirements for maximum heights may preclude use of the most desirable method.

Method #1

The symbol magnification must be equal to or greater than that magnification obtained by use of the general specification (i.e. the "printability gauge," the "alternate method," or "Appendix A.") *OR* equal to or greater than that magnification obtained by use of Table 1 below, whichever is *greatest.*

Height Above the Window (inches)	Minimum Magnification
0.5 to 1.0	1.10
1.0 to 1.5	1.25
1.5 to 2.0	1.50
2.0 to 2.5	1.65
2.5 to 3.0	1.90

Table 1

Method #2

A nominal size (Magnificaiton = 1) symbol may be used at distance of more than 0.5 inches above the surface if the printing meets the requirements given in Table 2 below.

MAGNFICATION = 1

Height Above the Window (inches)	Bar/Space Tolerance Alternate Method Appendix A (MILS) ±
0.5 to 1.0	3.4
1.0 to 1.5	2.6
1.5 to 2.0	1.4

Table 2

Method #3

This method combines the advantages of Method #1 and #2. Where it is applicable a smaller symbol, or more easily achieved printing specification will result. The maximum height above the surface, tolerances, and the minimum magnification must all be within the specifications given in Table 3 below.

Height	Tolerances	Magnification
(Inches)	Bar/Space Tolerance (MILS) ±	(Minimum)
0.5 to 2.0	2.2	1.05
2.0 to 2.5	2.7	1.25
2.5 to 3.0	3.2	1.40
3.0 to 3.5	3.8	1.60

Table 3

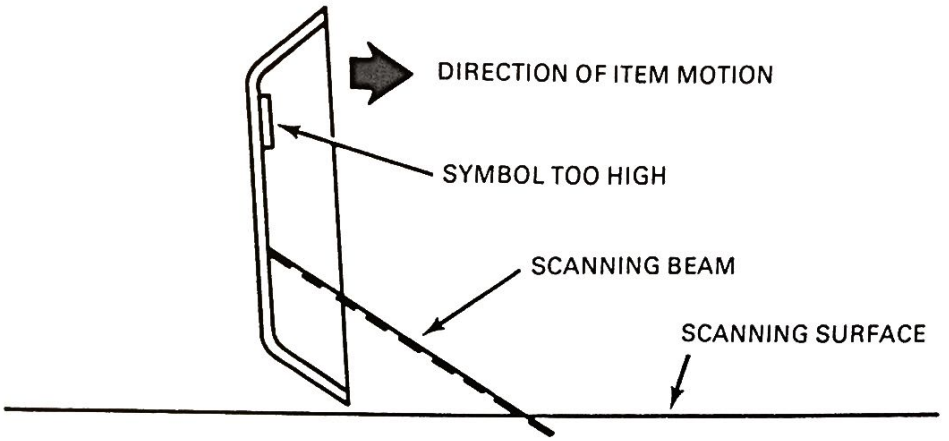


FIGURE 1

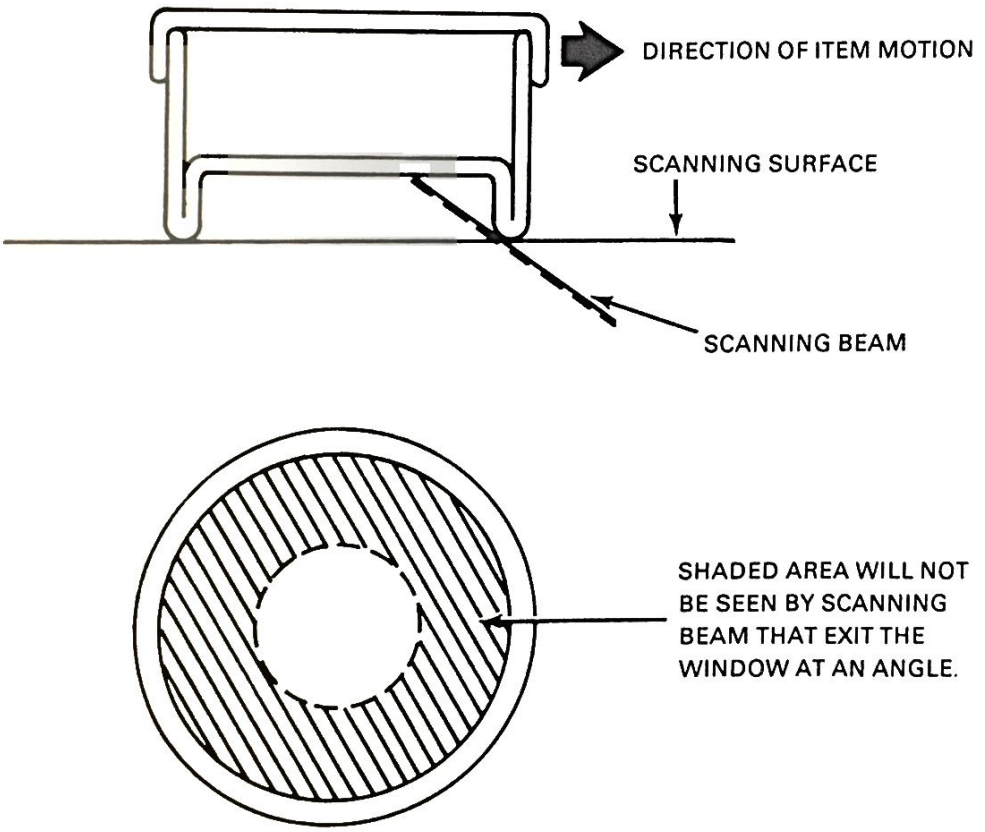


FIGURE 2

When determining the placement of the symbol, consideration should be given to the fact that some scanning beams exit the window at an angle of 45° relative to the horizontal scanning surface.

Figure No. 1 illustrates a symbol too high off the surface.

Figure No. 2 illustrates the shading effect that can occur with an item having a deep bottom when bottom scanned by beams that exit the window at an angle.