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Packaging and Palletization Requirements for Inbound/Inter-Plant/Outbound Shipments

Overview

This Specification defines the General Packaging Requirements and the Pallitzation Requirements for all material shipments into or from Oracle.

Audience

Oracle Packaging Engineering

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1 SCOPE

The objective of this document is to assure the deliveries of materials are in an undamaged, ready-to-use condition. These requirements apply to any material shipped to or by Oracle by any method, for any material shipped between Oracle designated facilities or to Oracle's customers. The document is designed to provide Oracle suppliers/shippers with the requirements for the protective packaging and palletization of materials. These requirements are intended to facilitate the material handling processes at Oracle.

In this document the term "Material" applies to any item, examples include: raw material, part, sub-assembly, X-option, conversion bill, finished goods, semi-finished goods or System to be packaged or shipped.

Use of this document, or its appearance on any Oracle specification or bill of materials, in no way implies design responsibility or oversight by Oracle Packaging Engineering.

1.1 Application

- **General Requirements:** The requirements in section 3.0 of this document apply to all materials received by Oracle or Oracle's customers.
- **Palletization/Unitization:** The requirements in section 4.0 of this document apply to all materials received by Oracle or Oracle's customers.
- **Inbound Shipments:** The requirements in sections 5.0 of this document define the minimum protective packaging requirements for materials received by Oracle.
- **Inter-Plant Shipments:** The requirements in sections 5.0 and 6.0 of this document define the minimum protective packaging requirements for materials transported between Oracle owned facilities.

Note: Supplier inter-plant requirements (design and quality) are owned by the supplier; example External Manufacturer to External Manufacturer.

- **Outbound Shipments/Finished Goods:** The requirements in section 7.0 of this document define the protective packaging requirements for Systems/FRUs/X-options shipped to Oracle customers.
- **External Manufacturer (EM) Shipments:** The packaging requirements for External Manufacturers depend on the location where the material will be shipped. Shipments to Oracle must meet the requirements of **Inter-Plant Shipments (Section 5.0 and 6.0)** and shipments directly to Oracle customers must meet the requirements of **Outbound Shipments/Finished Goods Shipments (Section 7.0)**.

2 APPLICABLE DOCUMENTS

Note: All requirements in this document shall meet or exceed the requirements established by the following reference documents.

425-1020-xx: Manufacturing and Inspection of Packaging Materials

425-1228-xx: Package Material Identification Marking

950-1685-xx: Specification for Materials Used to Close, Seal & Secure Packaging

950-3918-xx General Bagging Specification

Rule 41, Item 222 of the National Motor Freight Classification NMF 100-M

American Standard Testing Methods (ASTM D-257)

Department of Transportation (DOT-CFR-49)

Electronics Industries Association (EIA-556-A)

EU Directive 94/62/EC

Military Standards (MIL-B-81705)

International Air Transportation Association/International Civil Aviator Organization (IATA/ICAO)

2.1 Order of Precedence

Packaging requirements may be found in a number of documents. One or more may apply. In case of conflict, the following order of precedence shall apply:

- Purchase order.
- Individual part specification.
- This document.
- Oracle related documents.
- Other related or referenced documents.

3 GENERAL REQUIREMENTS

3.1 Scope/Application:

The requirements in this section apply to all materials received by Oracle or Oracle's customers.

The supplier/shipper is responsible for providing proper packaging to adequately protect materials from damage. If the need arises, Oracle may assist the supplier/shipper in the design of a packaging system.

Together, Oracle and its suppliers can eliminate the costly repackaging or replacement of damaged materials.

Environmental issues arising from the use of packaging materials are of great concern to Oracle. Suppliers are encouraged to use recyclable/reusable packaging whenever possible.

Copies of this document should be distributed to all personnel associated with the packaging and shipping of materials to Oracle.

3.2 Environmental Concerns

Eco-Responsibility & Environmental Considerations:

Packaging for Oracle materials will be designed to maintain the integrity of the material/product, assure safety, and comply with all legal and regulatory requirements while minimizing its effect on the environment.

Packaging designs may be reviewed on a regular basis to ensure they are based on the most current technology, information, and regulations. Packaging and marking shall meet or exceed local and regional regulations including but, not limited, to the EU Packaging Directive 94/62/EEC, China and Korea requirements.

Package Design for the Environment

Packaging delivered to Oracle or Oracle's Customers should follow Eco-Responsibility, Reduce, Reuse & Recycling guidelines:



Reduce:

Source Reduction: Oracle's packaging requirements allow Oracle and Oracle's Suppliers to achieve the minimum amount of packaging materials without exposure to product damage. The packaging materials can be minimized if the Product/Mechanical Team can improve and advance the product's durability.

- Minimize Packaging materials by design
- Promote the use of Kraft color corrugated fiber board
- Promote the use of water based inks
- Utilize Multi-Pack (finished goods) solutions when possible
- Design with space saving features such as collapsing or nesting packaging components when possible

Reuse:

Oracle's distribution system and Value Added Re-seller environment places high demands on packaging. Packaging solutions shall be implemented that allow the package to be reused within the distribution

system. The packaging must carry the product from manufacturing, to distribution centers, to re-sellers (where packages may be opened up for configuration and repacked into the existing packaging), and Oracle's end use customer.

The following packaging materials can be reused (when in serviceable condition):

- Corner & edge guards
- Pallet top protective cover
- Standard (non-integrated) wood pallets

Recycle:

- Maximum levels of recycled content are encouraged and specified when possible.
- Design for ease-of-use by Recycling Systems.
- Select packaging materials that have small impact on the environment.
- Minimize co-mingling of different packaging materials, however if materials are comingled, they should be easily separated to accommodate recycling.
- Mark packaging materials according to Oracle Specification 425-1228-XX and 412-1186-XX
PACKAGING MATERIAL IDENTIFICATION MARKING, AND 412-1186-XX: PACKAGING MATERIAL MARKING
ARTWORK to encourage recycling.

Hazardous Materials

All hazardous materials shall be packaged to comply with all International Air Transportation Association/ International Civil Aviator Organization (IATA/ICAO) and Department of Transportation (DOT-CFR-49) regulations concerning hazardous materials.



Toxic Metals: The intentional introduction of lead, cadmium, mercury or hexavalent chromium in any packaging or packaging component supplied to Oracle is prohibited. Packaging components include inks, dyes, pigments, adhesives, stabilizers and other additives.

The incidental (background) presence of lead, cadmium, mercury or hexavalent chromium in any packaging or packaging component supplied to Oracle should be limited to 100 parts per million total by weight.

Exemptions to the toxic metals requirement must be requested in writing and approved by Oracle. An exemption may be granted under the following circumstances:

- The toxic metals are required to comply with federal/state health and safety requirements.
- The toxic metals are essential for the protection, safe handling, or function of the contents and there is no feasible alternative, or
- The limit on toxic metals would not be exceeded except for the use of post-consumer (recycled) materials.

Ozone Depleting Substances: The use of ozone depleting substances (ODSs) as blowing agents in the production of foam packaging supplied to Oracle is prohibited. ODSs include Class I substances (CFCs) and Class II Substances (HCFCs), as defined under Section 611 of the 1990 Clean Air Act Amendments.

- Exemptions to the ODS requirement must be requested in writing and approved by Oracle.

Wood Packaging Requirements (in addition to ISPM-15 Requirements specified in section 4.2 below)

ISPM-15 regulations alone are **no guarantee** that wood products will remain infestation free. Changes in moisture content, environment or exposure to other infested sources throughout the supply chain can result in cases of rapid, global infestation.

- Oracle suppliers shall implement continuous monitoring of wood product moisture content and environmental conditions upon receipt or while in storage. The acceptable moisture content levels will be determined by the supplier and/or the local environmental, regulating agency.
- Ongoing incoming and outgoing inspections for any evidence of insect damage or infestation on all wood products.
- Ongoing inspections for filler material used to conceal broken or damaged wood surfaces or specifically, bore holes left as a result of possible insect infestation.
- Evidence that these steps are documented in respective procedures and checklists.
- Established contacts and procedures outlining escalation steps for all warehouse and manufacturing personnel in the event a potential infestation is identified. This should include contacting a local Environmental Health and Safety representative and/or a local government official.

These requirements and quality records will be validated as part of Oracle's environmental audits.



3.3 Static-Sensitive Part Protection

Oracle has implemented an extensive Electrostatic Discharge (ESD) program throughout the corporation. It is imperative that Oracle receives static-sensitive parts free from any catastrophic or latent failures. To accomplish this, suppliers/shippers who handle static-sensitive parts must implement a complete ESD program.

Static-sensitive parts shall be handled/packed in ESD protective packaging throughout the distribution system. If parts must be removed from the protective packaging before shipment to Oracle, they shall only be handled at an ESD workstation as defined in EOS/ESD Association Standard for Protection of Electrostatic Discharge Susceptible Items (EOS/ESD-S6.1_2014).

Static-sensitive components shall be packaged in appropriate ESD protective packaging. The supplier/shipper is responsible for knowing the sensitivity of components they handle. Compliance to this shall be demonstrated by the supplier/shipper.

Avoidance of Static Generating Material

Packaging materials for many non-static sensitive parts are often used in manufacturing areas that have a high risk to ESD exposure. In such cases, non-static generating packaging materials may be required by Oracle. Individual part specifications will determine whether ESD protective materials are required.

ESD Material Requirements

In addition to the ESD protective qualities of the packaging materials, the materials shall meet the following requirements:

Humidity Independent

The chemical formulation or process that causes the material to have ESD protective qualities shall create a material that functions independently from relative humidity.

Polycarbonate Compatible

The material shall have no significant adverse effect on the properties or performance of the polycarbonate. Adverse effects include swelling, dissolving of the polycarbonate, stress cracking or crazing.

Free of Amines and Corrosive Salts

The material shall contain less than 10 parts per million (reference only) of the following compounds:

- Amines: N-octanoic acid, tertiary amines (ethoxylated)
- Aromatic hydrocarbons
- Esters
- Halogenated hydrocarbons: Freon, Ketones
- Corrosive salts: fluoride, chloride, sodium, sulfate, nitrate, phosphate

Non-Alkaline

The materials, after construction, shall not be strongly alkaline.

Non-Allergenic

Non-allergenic ESD materials shall be used where available.

3.3 Conductive Corrugated Fiberboard Material Requirements

See 425-1020-XX

3.5 Identification/Labeling/Bar Code Requirements

ORACLE REQUIRES THAT SUPPLIERS AND/SHIPPERS ACCURATELY IDENTIFY ALL CONTAINERS IN A CONSISTENT MANNER. LABELS MUST BE LEGIBLE WHEN RECEIVED.



INBOUND RAW AND SEMI-FINISHED MATERIALS: PURCHASED MATERIAL THAT ARE NOT ORACLE FINISHED-GOODS – USUALLY IDENTIFIED AS HW BUY IN ORACLE'S EBS – MUST BE LABELED ACCORDING TO ORACLE SPECIFICATION 917-1335-XX INCOMING PACKAGE LABEL REQUIREMENTS.

FINISHED GOODS: FINISHED GOODS – USUALLY IDENTIFIED AS HW FG BUY IN ORACLE'S EBS -- MUST BE LABELED IN ACCORDING TO ORACLE SPECIFICATION 950-1419-xx IDENTIFICATION LABELS FOR PACKAGED FINISHED GOODS.

INTER-PLANT: MATERIALS SHIPPED BETWEEN ORACLE FACILITIES MUST BE CLEARLY LABELED WITH FULL CONTACT INFORMATION FOR BOTH THE SENDER AND RECEIVER.

PACKAGING COMPONENTS MUST BE MARKED WITH A MATERIAL IDENTIFICATION MARK ACCORDING TO ORACLE SPECIFICATION 425-1228-XX: PACKAGING MATERIAL IDENTIFICATION MARKING, AND 412-1186-XX: PACKAGING MATERIAL MARKING ARTWORK.

MATERIAL IDENTIFICATION MARKING ON THE EXTERNAL PACKAGE MAY BE SATISFIED BY THE 950-1419-XX PACKAGED FINISHED GOODS BAR CODE LABEL APPLIED TO THE EXTERIOR PACKAGE.

Envelope Mailer Requirements

Envelope Mailer Requirements are defined in Oracle Specification 8208016.

3.6 Container Closure Methods

Methods and materials to close, seal and secure packaging are defined in Oracle Specification 950-1685-XX.

3.7 Bagging/Wrapping Requirements

All materials be bagged or wrapped as defined in Oracle Specification 950-3918-xx General Bagging Requirements.



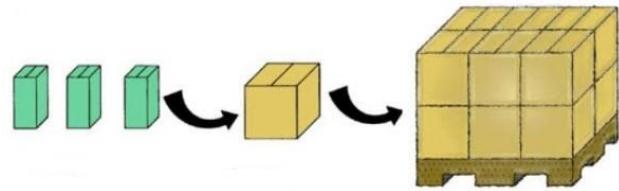
3.8 Replacement Packaging

Third parties which supply products for which Oracle has not provided Packaging Drawings (i.e., Oracle Container/Graphic Layout Specification Drawing) must provide Oracle with a means to obtain replacement packaging for packaging components which are damaged during transit.

This replacement packaging issue will be reviewed by product. The supplier will either be required to supply the replacement packaging or specification drawings so that the packaging may be sourced by Oracle.

4 PALLETIZATION/UNITIZATION REQUIREMENTS

4.1 Scope/Application:



This section defines the palletization and Unitization requirements for all materials received by Oracle or shipped to Oracle's customers.

This section of the document provides palletization requirements and guidelines for Inbound/Outbound shipments (to/from Oracle, External Manufacturers, OEMs, Remanufacturing Vendors, Repair Vendors and Storage and Distribution Center) of Oracle and/or 3rd party products. Pallet Size, Construction, Performance Requirements, Loading, Unitization and Stacking are defined.

The technical and process related design parameters provided here are intended to allow the various Oracle manufacturing sites and 3rd party vendors to palletize "like products" in a manner which is compatible with Oracle's product protection, manufacturing, and distribution requirements.

This section of the document applies to Products which are intended to be re-shipped in the originally supplied shipping package materials.

This section of the document shall be superseded by any specific Oracle Palletization Drawing for a given product.

It is the vendor's/supplier's responsibility to provide to Oracle product and shipping container which is free of damage and cosmetic imperfections.

Palletization Requirements

Pallets are recommended whenever a single item or a pallet load is greater than:

- Total weight is 100 lbs (45.5 kg) or greater
-OR-
- Volume of 18 cubic feet or greater
e.g. Length 2.63 feet x Width 2.63 feet x Height 2.63 feet
(e.g. Length 801.6mm x Width 801.6mm x Height 801.6mm)

Pallets are required whenever a single item or a pallet load is greater than:

- Total weight is 150 lbs (68.2 kg) or greater
-OR-

- Volume of 27 cubic feet or greater :
e.g. Length 3.0 feet [914.4mm] x Width 3.0 [914.4mm] feet x Height 3.0 feet [914.4mm]

4.2 Pallet Sizes, Construction and Performance Requirements

Pallet size shall be selected from the following "preferred" table:

| Primary Dimension | Converted Dimension |
|-----------------------|-----------------------------|
| 1200mm x 1000mm | (47.2 inches x 39.4 inches) |
| 48 inches x 40 inches | (1219mm x 1016mm) |
| 48 inches x 45 inches | (1219mm x 1143mm) |
| 1200mm x 800mm | (47.2 inches x 31.5 inches) |
| 48 inches x 48 inches | (1219mm x 1219mm) |
| 48 x inches 56 inches | (1219mm x 1422mm) |

Note: For each size, the second dimension is the pallet's width. The width side of the pallet is designed to receive a pallet jack.
Refer to Pallet Construction: FIGURE 1.

Maximum Pallet Load - A pallet and its load shall not exceed:

Weight: 2000 pounds. (909.1 kg)
Height: 54 inches (1372mm). (including pallet).
Width: 48 inches. (1219mm)
Length: 56 inches. (1422mm)

Note: If packaged part dimensions exceeds the preceding mentioned pallet dimensions. A larger pallet shall be used to give full support. This in no way waives any other requirement of this specification.

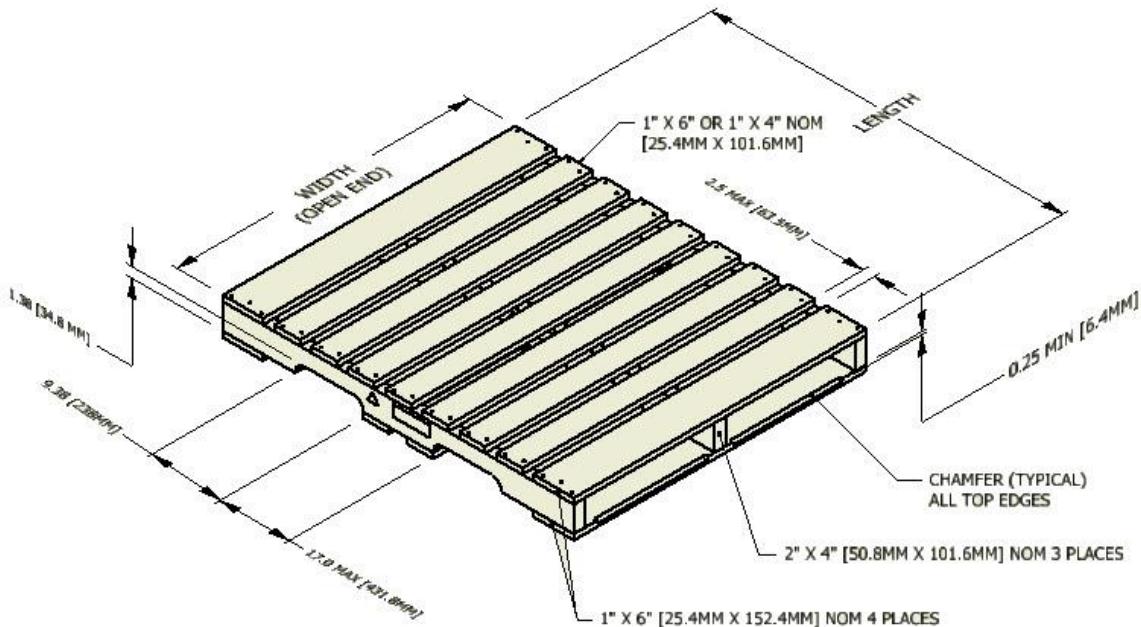


Figure 1. Pallet Construction

Custom Sizes

A "preferred" size pallet which offers the best cube utilization for the given product is recommended. If the selected pallet does not offer 85% pallet area utilization, a custom pallet size may be investigated.

A custom size pallet may be used for a given product if none of the "preferred" pallet sizes provide for proper palletization, per this guideline.

Pallet Set Back and Overhang

- The required minimum set back area (distance from edge of pallet to outside of container) shall be 0.50 inches (12.7mm) or larger on all sides
- Outside Packaged product shall never exceed or overhang the edge of the pallet.

Pallet Material Requirements

Pallets shall be manufactured from wood, plastic or metal. Pallets must be constructed of materials such that the pallets will be functional when received by Oracle. Oracle recommends wood pallets be manufactured from Grade 3 or better lumber per the Western Wood Products Association grading rules. Oracle requires wood pallets to be in compliance with all international wood packaging regulations (heat treatment) per Oracle specifications.

The pallet shall be a Four Way Entry Notched Stringer Design (See: Figure 1).

Pallet dimensions typically state the length of the notched stringer first and the width of the deck boards second.

Wood used in the construction of pallets shall be in accordance with MIL-STD-731, Groups I, II, III, and IV, standard (or better) grade. Lumber ≥ 2.5 inches [63.5mm] in both nominal dimensions (3x4, 4x4, 4x6 and larger) shall be Free of Heart Center (FOHC).

Nails used in the construction of pallets shall be annular ring/drive screw. 2 - 3 nails shall be used at each bearing point, depending on the width of the board. Nails shall be staggered to prevent component splitting. Minimum of 1.13 inches (28.7mm) of nail penetration into stringer is required.

All pallets must be marked with a material identification mark as defined in Oracle Specification 425-1228-XX and 412-1186-XX.

Pallet openings should be designed considering standard pallet jack dimensions. The width of the pallet openings should be based on 22 inches (560mm) and 27 inches (685mm) outside fork spread of the pallet jack. The height of the pallet opening should be at least 3.5 inches (89mm).

ISPM-15 Requirements

All pallets must comply with the standards outlined in ISPM-15 "Guidelines for Regulating Wood Packaging Materials in International Trade" (International Standard for Phytosanitary Measures). In addition, all regional and global regulatory requirements must be satisfied. A copy of ISPM-15 can be found on the IPPC website www.ippc.int.

A synopsis of the Heat treatment/Kiln Drying and Fumigation requirements are below. However, verify these specifications with IPPC website as IPPC requirements supersede this document.

Heat Treatment / Kiln Drying

All solid wood materials shall be heat treated or kiln dried, per the requirements in ISPM-15, to a required minimum core temperature for a specific duration of time.

Fumigation

Fumigation with methyl bromide may be substituted for Heat Treatment / Kiln dried (as per ISPM-15).

Heat-Treatment /Fumigation Certification Stamp

All wood products must display the officially approved Heat Treated, Kiln Dried or fumigation marking (as per ISPM-15).

This marking shall preferably appear on opposite sides of the wood products and shall be clearly legible.



4.3 Pallet Unitization Loading

Pallet Unitization is the bringing together of several containers (all of same part number) to form a single stable load.

Container overhang is never permitted - either in shipment or in the warehouse. Oracle recommends a 0.5 inches (12.7mm) minimum container set-back from the pallet edge on all 4 sides.

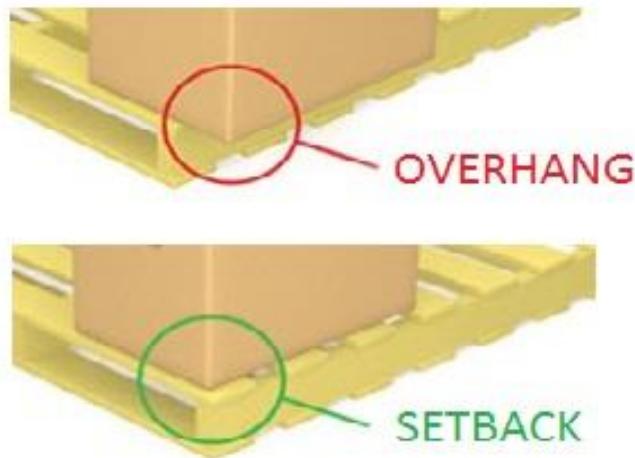


Figure 2. No Pallet Overhang

NOTE: Leaning, staggering, bulging, unstable and/or overhanging pallet loads are NOT acceptable.

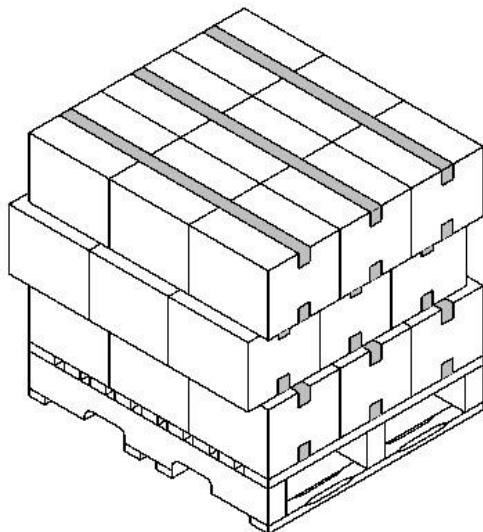


FIGURE 3. Misalignment

NOTE: It is preferred that multiple containers on pallets shall have flat surfaces, with the unified load taking the shape of a cube. Empty containers, clearly marked as such, may be used to fill spaces to "cube out" pallets.

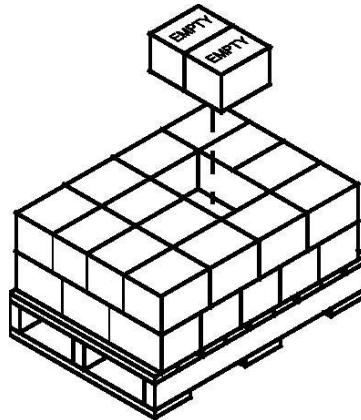


Figure 4. Empty Containers

Only one (1) Oracle Part Number per pallet. If mixed pallet loads are necessary, prior written approval from the specific Oracle "Ship-To" designate on the pallet shipping label is required.

Whenever possible the Column Loading configuration (figure 4) of containers shall be utilized. Other loading configurations (spiral or interlocking) can reduce container compression strength by up to 50%. In addition to loading configuration, container misalignment reduces compression strength by up to 30%. Long term storage and high humidity are other factors which can affect compressive strength (See: Figures 5, 6, & 7).

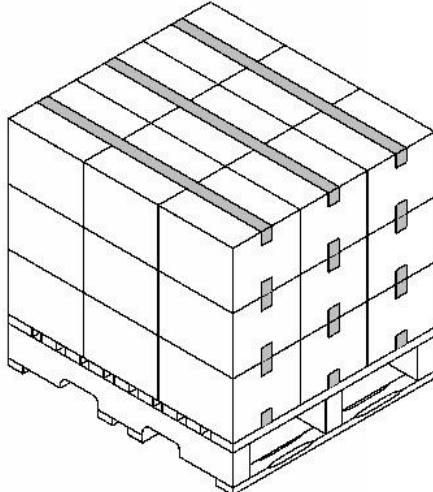


FIGURE 5. Column Loading

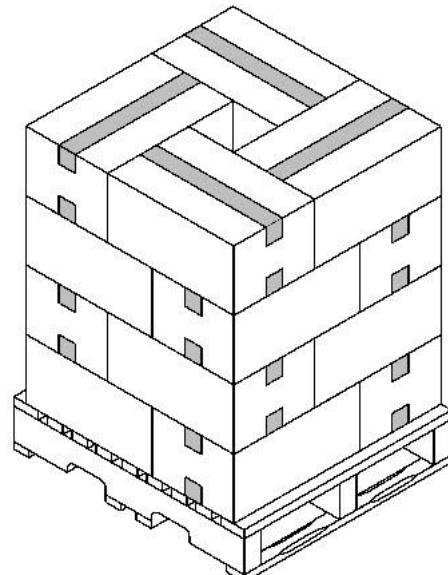


FIGURE 6. Spiral Loading

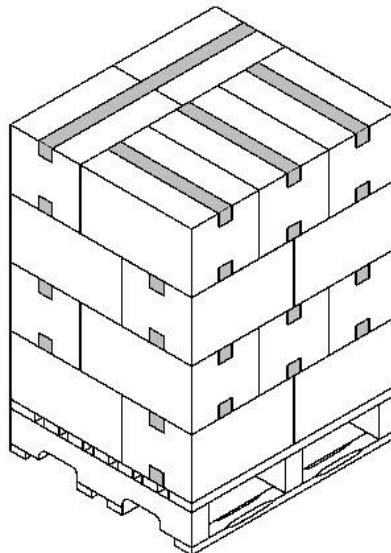


FIGURE 7. Interlocking Loading

FIGURE 8. Overbox Small Containers

Containers shall be positioned on the pallet so that the Part Identification Label on several containers is visible from the side of the pallet (See: 950-1419-XX).

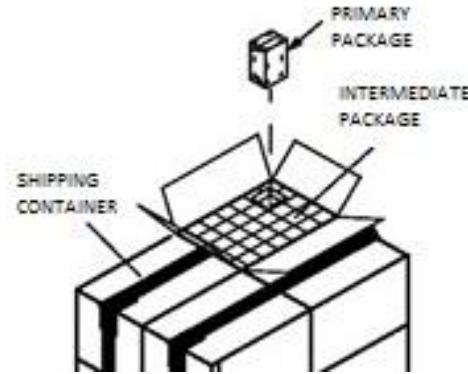
See: "Order of Assembly" (Figures 9 and 10).

4.4 Container Quantity Per Pallet

Maximum of 72 individuals container are permitted per pallet. If a shipment of more than 72 containers is required the containers must be overboxed (Figure 8).

Preferred container quantities shall be 5, 10, 20, etc.

Any odd quantity of containers shall be overboxed with the void filled with a material other than polystyrene "peanuts."



4.5 Integrated Palletized Products

Integrated Palletized Products (single system/product on a pallet). Integrated Palletized products are custom in nature and are generally used on products over 125 lbs (56.7 kg). The container must be protected from physical and cosmetic damage (See Section 6 for requirements).

Oracle recommends a 0.5 inches (12.7mm) container set-back from any edge of the pallet (all four sides).

Minimum of 2-way entry is required for integrated pallets and must be in accordance with the specification from section 4.2.

4.6 Protection of Unitization Pallet Load and Integrated Pallets

Pallet load shall be unitized to provide a shipping container free of damage and cosmetic imperfections. Stretch wrap, corner guards, plastic banding, edge guards and pallet top cover (e.g. pallet cap, slip sheet, corrugate sheet) are required to palletize in a manner compatible with Oracle's product protection, manufacturing and distribution requirements (See: Figure 7 and Figure 8).

Stretch wrapping is required (full-height of pallet load) to secure the load and provide protection (See: Figure 9 and Figure 10).

Corner guards are required (full-height of pallet load) on all four vertical corners to improve load stability and protect the product from damage (See: Figure 9 and Figure 10).

- Increase pallet unitization & stability.
- Protect container corners from damage.
- Provide additional compressive strength through improved load alignment.

Plastic Banding (per 950-1685-XX) and edge guards are required to secure the load and prevent banding from damaging the load. (See: Figure 9 and Figure 10).

- Increase pallet unitization & stability.
- Help prevent carriers from breaking pallet down.

A pallet top protective cover (pallet cap, corrugate sheet, slip sheet) is required to ensure a damage free delivery (See: Figure 9 and Figure 10).

- Provide increased protection to dirty environments.
- Provide increased protection to stacking damage.
- Increase pallet unitization & stability

Notes:

- Corner guards, edge guards, and pallet top covers may be reused if undamaged.
- Maximum of two corner guards may be utilized at each vertical corner to meet the (full-height of pallet load) requirement.
- See: "Order of Assembly" (See: Figure 9 and Figure 10).

Order of Assembly:

- 1) Top Cap/Sheet 2) Corner Guards 3) Stretch Wrap 4) Edge Guards & Plastic Banding.

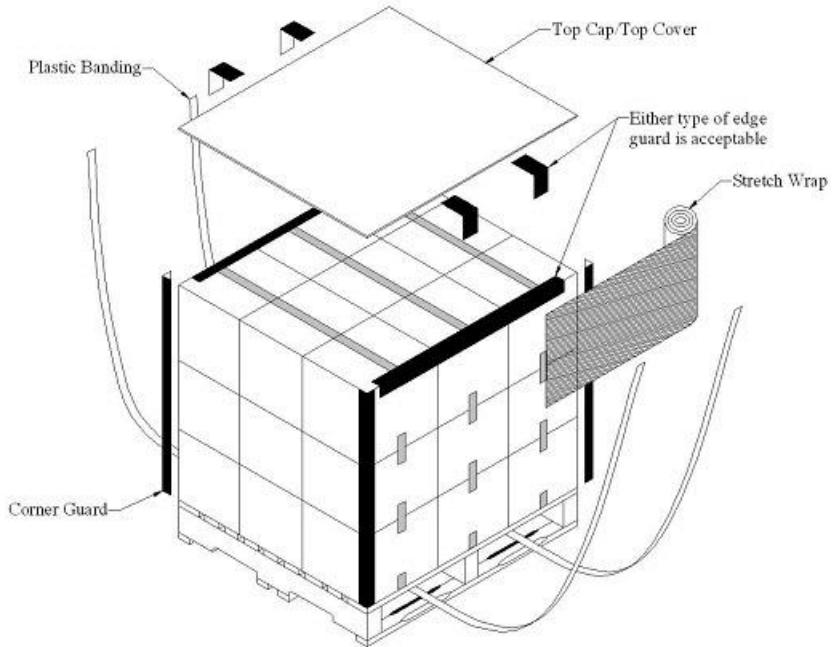


FIGURE 9. Pallet Unitization

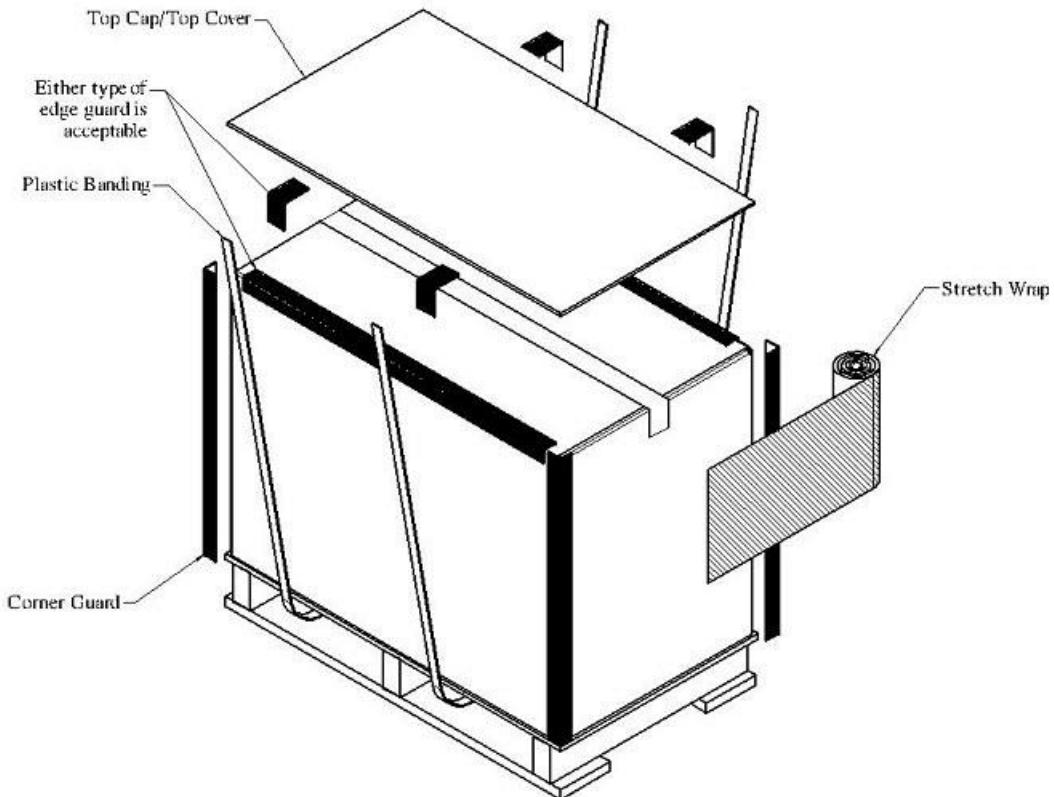


FIGURE 10. Integrated Palletized Products

4.7 Pallet Stacking

Pallet load compression strength shall be great enough to allow stacking of pallets to a maximum of 108 inches (2742mm) during distribution and 180 inches (4572mm) for warehousing.

If stacking height is not specified on the boxes, then the box strength of the unitized load must meet or exceed the 180 inches (4572mm) stacking height.

5 INBOUND REQUIREMENTS



5.1 Scope/Application:

The requirements in this section apply to two shipping types:

- 1) Shipments from
- 2) Oracle Suppliers or Oracle EM's to Oracle.
- 3) Shipments from one Oracle OWNED Plant/Facility to another Oracle OWNED Plant/Facility.

Suppliers and Oracle EM's are responsible for designing and qualifying all packaging and meeting Oracle's Inbound Requirements.

The requirements in this section do not apply to shipment of Finished Goods to Oracle's Customers; see section 7.0.

Oracle Supply Chain Operations is responsible for implementation and supplier adherence to the requirements in this section of the document. Unique packaging requirements may be mandated by Oracle Supply Chain Operations.

5.2 Compliance

Compliance to the Oracle packaging requirements and guidelines of this document or any other Oracle document will be enforced.

All inbound shipments are inspected by Oracle for packaging compliance and material damage. In the event a shipment is received damaged, crushed, without proper paperwork or markings, or packaged in a manner other than described in the appropriate document, a corrective action will be initiated to resolve the problem.

Corrective action will be within the terms and conditions of the purchase agreement. Such actions may include:

- Cancellation of future orders
- Rejection and return of shipments
- Repackaging at the supplier's expense

Ownership of Packaging

All packaging materials become the property of Oracle at the time of acceptance unless otherwise specified on the purchase order or part specification.

Communication

All supplier packaging questions and communications shall be coordinated through the Oracle Purchasing Department.

5.3 Containment

All parts shall be boxed or containerized. Containers are classified into four categories:

Primary Package: The primary package is the first bag, tube, container, etc., that constitutes a complete identifiable pack. A primary package may contain single or multiple quantities of the same item.

Intermediate Package: An intermediate package houses one or more primary packages of the same item. This is usually a box or a bag.

Shipping Container: A shipping container is used for the transportation and protection of primary and/or intermediate packages, and must withstand the potentially damaging hazards of the distribution environment.

Pallet Load: A pallet load is a number of shipping containers that are securely held together on a pallet for transportation, stacking, and storage. A pallet load is used to assist in the mechanical handling of the shipping containers.

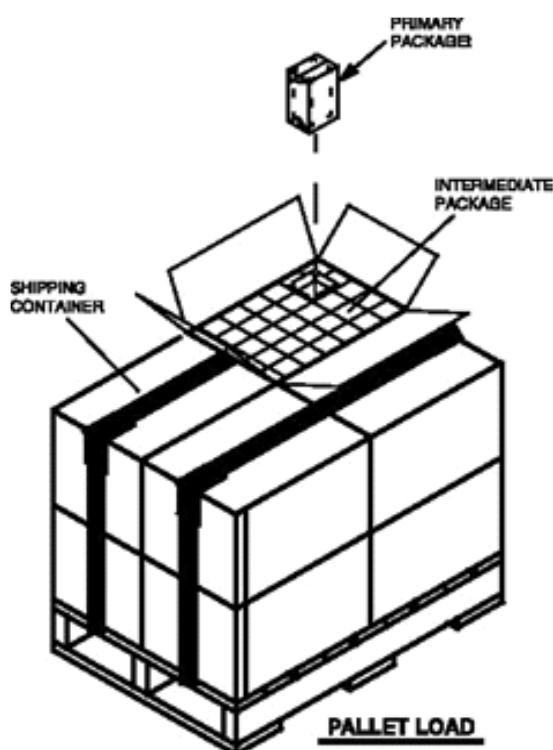


FIGURE 11. Integrated Palletized Products

Uniform Packaging

Parts must be packaged consistently, both in terms of the containers used and the quantity of parts per container for a given part number (Item ID).

Oracle's internal processes require the use of specific package quantities. Oracle will inform the supplier of the required quantity per container. If the total delivered quantity is not evenly divisible by the specified package quantity, the remaining parts shall be packaged and identified with quantity and marked "partial."

Part numbers shall not be intermixed within primary, intermediate or shipping containers.

Different part numbers, as well as different purchase orders, may be consolidated on the same pallet with a single bill of lading.

Production and non-production materials shall NOT be placed on the same pallet.

Export Containers: Purchased materials which will be subjected to export shipment shall be packaged sufficiently to withstand ocean container shipment (see Section 6.7).

Shipping Containers

It is extremely important that shipping containers be strong enough to withstand large stacking loads. The following containers are approved as shipping containers:

- Corrugated fiberboard containers
- Wood crates and boxes
- Wire-bound crates and boxes
- Fiberboard drums (maximum 50 gallon)
- Specialized containers (Oracle Packaging Engineering approval required for all specialized containers)

Corrugated fiberboard shipping containers must meet or exceed the requirements in Item 222 of the National Motor Freight Classification and Rule 41 of the Uniform Freight Classification (UFC).

All large corrugated containers (over 5 cubic feet or containing over 35 lbs.) shall have stitched manufacturer's joints.

Oracle recommends that suppliers use double-wall shipping containers.

Suppliers may substitute double-wall containers with equivalent strength single-wall full telescope containers.

Materials that are delivered locally and consumed locally (not intended for international shipment) may be granted deviation from the double-wall material requirement.

5.4 Fundamental Protection

Every package must provide an adequate, safe, and cost-effective method of shipping and handling to, and at, Oracle and Oracle's supplier's facilities. Suppliers must provide a package that can protect the parts by preventing damage from impacts, vibration, rubbing, contamination, or corrosion. All parts must be examined to determine the level of protection required for each of the previously listed hazards. Several part protection techniques are shown in Appendix A of this document.

Fragile Parts

Fragile parts require protection from shock and vibration induced damage. Cushioning material is required. Protection methods include wrapping, full enclosure, end caps, separation, etc.

Minimal Void Space

Contents must fill the container with a minimum amount of empty space. Sufficient dunnage may be added to the container only if required to prevent damage to the product.

Part Separation

All parts shall be adequately separated to prevent entanglement with one another (for example; springs, cables, etc.). If shifting or rubbing may cause damage to the part or package, separation is required.

Where possible, parts shall be oriented for presentation to the manufacturing line. In such cases, Oracle Packaging Engineering will work with the supplier to establish a packaging system.

Cleanliness

Materials shall be clean and free of dirt, dust, chips, oil, etc. prior to packaging. The cleanliness of the part must not be degraded by the packaging materials.

Corrosion/Moisture Inhibitor

Parts that are prone to corrosion or other moisture related problems require a corrosion/moisture inhibitor. A dry, non-dusting vapor type shall be used.

Excluded Packaging Materials

The following are unacceptable packaging materials at Oracle:

- Loose fill (free flow) materials (foam peanuts, popcorn, etc.).
- Shredded paper/newspaper
- Sawdust/shredded wood
- Excelsior
- Corrugated-polystyrene combination pallets

Export/Offshore Packaging

Materials delivered to overseas locations or materials delivered from an offshore location shall meet the following requirements:

- Pallet loads must be banded with a minimum of four bands. Materials must be banded using four way banding, two bands per side of the pallet.
- Corner boards/protectors shall be used on all vertical corners and top edges of all double-wall containers.

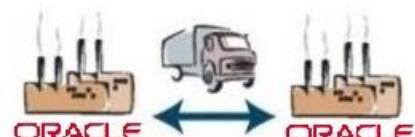
Package Integrity

Packaging materials delivered to Oracle must maintain structural integrity and containment throughout the distribution system. Additional packaging materials may be required to prevent crushing or punctures.

5.5 Reusable Packages

All reusable packages must be approved by Oracle Supply Chain Operations. Containers shall adequately protect the incoming materials from all potential hazards of the distribution environment. Suppliers must have a process for inspecting reusable containers and replace damaged or degraded containers as needed.

Suppliers that reuse containers shall ensure that there are no multiple labels, multiple logos, etc. visible on the container. All other specifications in this document must still be met.



6 ORACLE INTER-PLANT REQUIREMENTS

6.1 Scope/Application

The requirements in this section apply only to shipments from one Oracle plant/facility to another Oracle plant/facility. This section does NOT apply for shipments of Finished Goods to Oracle's Customers; see section 7.0. EM's shipments to Oracle must comply with the requirements in Section 5.0 and EM's shipments to Oracle's Customers must comply with the requirements in Section 7.0.

Note: Supplier inter-plant requirements (design and quality) are owned by the supplier; example External Manufacturer to External Manufacturer.

6.2 General Requirements

Released Products/Materials

Shipment of existing (ECO released) Products/FRU's/X-options between Oracle facilities requires the use of the items released packaging. Consult the materials Bill of Material for detailed requirements.

Non-Production

Shipment of non-production materials between Oracle facilities should follow the protection guidelines in packaging requirements defined in Section 5.0 and Appendix A.

Reused packaging materials must be inspected to insure that it meets the requirements in Section 5.0 and Appendix A and that the structural integrity of the materials meets the requirements of Oracle Specification 425-1017-xx: Rejectable Used Packaging Materials.

Local Deliveries

Deliveries (Building to Building and/or Warehouse) are exempt from these packaging requirements provided suitable protection is used.

6.3 Development Systems

In the development process prototype systems will need to be moved between facilities. Special care must be taken to ensure damage free shipments. Oracle Packaging Engineering can assist Program Teams to develop protective packaging for early shipments.

- Sometimes existing packaging may be able to be modified for similar systems.
- In other cases, new package designs can be developed by Oracle Packaging Engineering. The Program Team must provide a prototype of the system for the development of packaging. Typically these prototypes would be used for package development and not tested.

Protection Levels for Development Systems

Oracle Packaging Engineering recommends that extra levels of protection are used for high valve early shipments of Development Systems. Oracle Specification 7071171 defines increasing levels of protection:

Protection Level #1 – Adding Caution Labels (lowest protection level)

Protection Level #2 – Adding “Tip N Tell” Indicators

Protection Level #3 – Consolidation of Shipment and Enhancement of Packaging

Protection Level #4 – Distribution Modifications “White Glove” Shipments (highest protection level)

Consult Oracle Specification 7071171 for details

7 OUTBOUND/FINISHED GOODS REQUIREMENTS



7.1 Scope/Application

The requirements in this section apply to all finished goods shipped to Oracle's customers. Finished goods include systems, spare parts, x-options, FRUs, CRUs, upgrade kits and conversion kits.

7.2 Shipping Package Testing

The packaging for all Oracle finished goods must be qualified to Oracle Specification 950-1291-xx.

7.3 Package Design Documentation

Bill of Material: This documentation will define the protective packaging for finished goods. If packaging requirements are not defined, contact Oracle Packaging Engineering.

In cases where specific requirements are mandated, the individual part specifications and/or commodity specifications shall take precedence over this document.

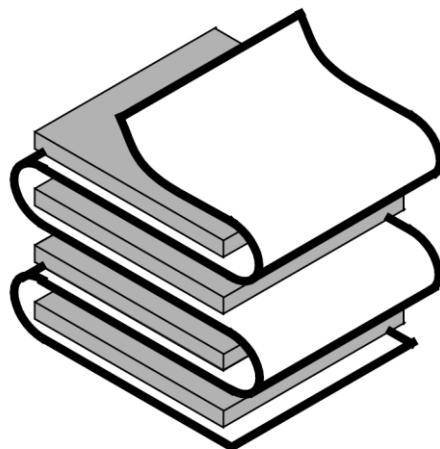
7.4 Palletization of Finished Goods

Oracle finished goods that require palletization will have a pallet defined on the bill of material. Finished goods that do not have a pallet defined may be unitized on a pallet following the requirements in section 4.0.

APPENDIX A – PROTECTION TECHNIQUES

Wrapping

Wrapping should be used for reasonably rugged, small, light parts. The parts may have critically finished surfaces.

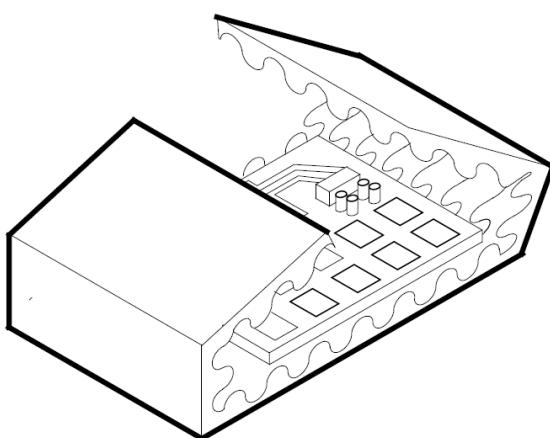


Interleaving

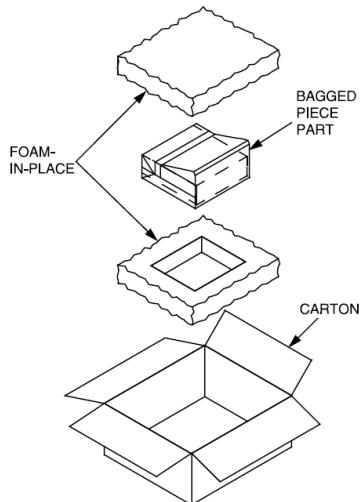
Interleaving should be used to prevent rubbing when parts require surface protection. Parts should be reasonably flat and not over one inch in thickness. The quantity of parts should be determined with respect to size and weight. Protective wrap material should consist of polypropylene foam, polyurethane foam, polyethylene foam, bubble wrap, or paper products.

Cushioning

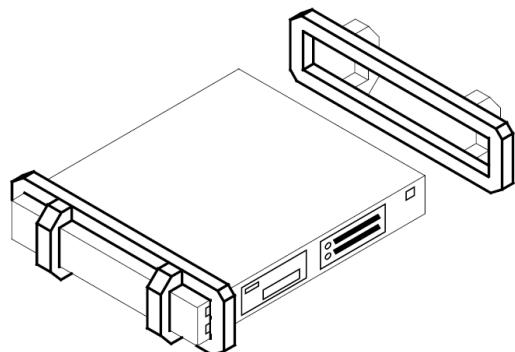
Fragile parts that require protection from impacts, vibration, or rubbing, need cushioning. Cushioned parts should be individually bagged or wrapped in film.



Full Enclosure: Moderately fragile parts can be fully enclosed in cushioning materials such as convoluted foams, free shot foams (foam-in-place), or expanded foams. Parts must still be easily removed and free of contamination.

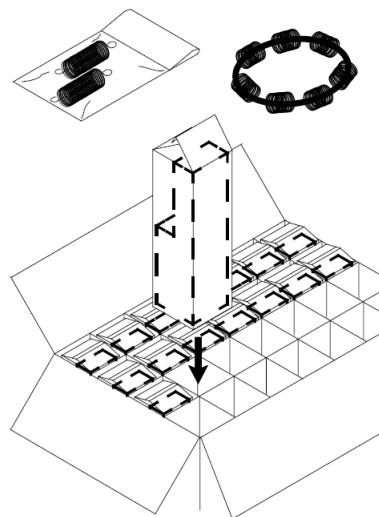


End Caps: Delicate parts that require isolation should use end caps for protection. End caps can be molded or fabricated depending on material and quantities.



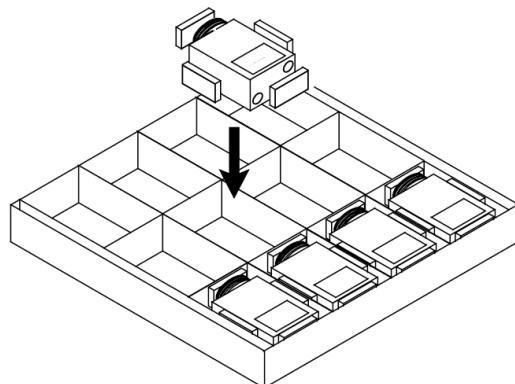
Separation

Close tolerance parts, painted parts, critically finished parts, and parts that can become tangled must be separated from each other to prevent damage.



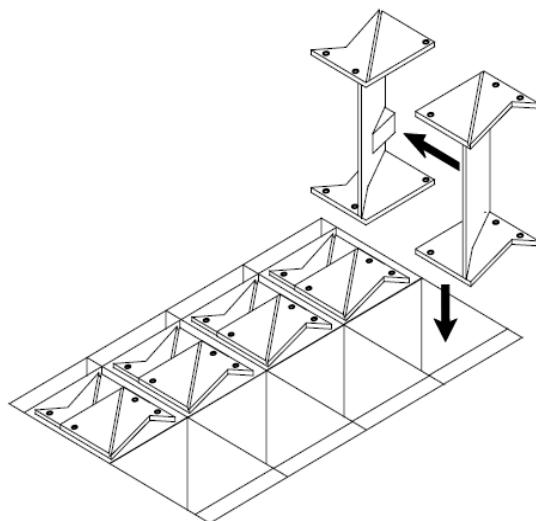
Blocking and Bracing

Parts that have unsupported fragile sections, or internal shock mounts require blocking and bracing.



Nesting

Noncritical parts can be nested to save space and prevent crushing.



Skin Packaging

Small light weight parts can be attached to paperboard backing to separate parts from each other.



Connectors

Parts with exposed or fragile electronic connectors may require additional protection.

Cable Connectors: Connectors may be covered with an appropriate connector cap, padded antistatic bag, or antistatic cushion material. Padded antistatic bag or antistatic cushion material should be secured over the connector with plastic or wire ties.

Circuit Board and Enclosed Module Connectors: Fragile or exposed connectors may be covered with an appropriate connector cap or antistatic cushion material. Antistatic cushion material may be layered and/or folded over and around connectors to provide adequate hold when placed into packaging. Cushion or blocking may be oriented to isolate and avoid direct contact with connector.

REVISION HISTORY

| DASH | REV | ECO NO. | DESCRIPTION | DATE | APPROVED |
|------|-----|----------|---|----------|----------|
| 01 | A | WO_02538 | Production Release | 02/21/92 | N/A |
| 01 | B | WO_34302 | Section 3.2 Changed from 45" to 54"; Section 3.6 Referenced 950-1419-XX; Section 6.1 Changed from 90" to 108"; Section 2.6 was added | 08/29/06 | N/A |
| 01 | C | WO_34991 | Section 2.6 Rephrased to require compliance for all pallets; Section 2.7 was added | 01/26/07 | N/A |
| 01 | D | WO_35440 | Section 2.4 add requirement for lumber 3x4 or larger to be Free of Heart Center (FOHC), Section 2.7 add 412-1186-XX. | 3/28/07 | N/A |
| 01 | E | WO_38496 | Section 5.0 Changed to require corner guards, plastic banding & edge guards and pallet top covers. "Order of Assembly" added to FIGURE 6 | 11/19/07 | N/A |

Packaging and Palletization Requirements for Inbound/Inter-Plant/Outbound Shipments

| | | | | | |
|----|----|----------|--|----------|-----|
| 01 | F | WO_40324 | Updated Section 2.6 Removed "Supplied to Oracle" to make it more clear that all pallets must comply with ISPM-15, regional, and global requirements. | 11/05/08 | N/A |
| 02 | 51 | WO_34302 | Updated Section 2, section 6, section 7 and added figure 7. | 09/22/06 | N/A |
| 02 | 52 | E0008952 | Change to Oracle Format, Add Section 5 and Update Section 2 | 09/22/06 | N/A |
| 02 | 53 | E0026950 | Add packaging requirements for Inbound and Inter-Plant Shipments | 9/17/15 | N/A |
| 02 | 54 | E56594 | Updated corporate format, additional input from owner | 1/3/22 | N/A |
| 02 | 55 | E60688 | Added Wood Packaging Requirements in section 3.2 | 8/3/23 | N/A |

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