

<b>Packaging Information for Vendors</b> <b>Hard Copies Uncontrolled. Verify Revision Prior to Use.</b>	Engineer	Approved	
	K. Sinders	D.A.Verfaillie	
Nomenclature General Vendor Packaging	Part or Drawing No. <b>PIV2000</b>	Date 17-Sep-19	Revision <b>M</b>
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**I. General Packaging Information**

- A. This specification is provided to inform vendors of Raytheon Systems Company's minimum packaging requirements. This document is superseded by any special requirements listed on drawings or specifications.
- B. The part shall be packaged in accordance with the latest revision of PIV6012 and this specification.
  - 1. The latest revision of PIV6012 covers the base packaging requirements.
  - 2. This specification provides additional packaging requirements and details beyond those covered in PIV6012.
- C. Failure to comply with the requirements specified herein may result in rejection and return of consignment(s) to the supplier at their expense.
- D. For questions related to the application of this Packaging Information, please contact the Raytheon Buyer.
- E. Any exceptions to this document must be authorized by the Supplier Quality Representative.

**II. Definitions**

- A. **Unit Container** - The first container applied to a single item or quantity thereof, or to a group of items of a **single part number**, which constitutes a complete or identifiable package. The unit container should be overpacked for shipment unless the unit container is specifically designed to provide shipping protection.
- B. **Intermediate Container** - A wrap, box, bundle or assembly which contains two or more unit containers of **identical items**.
- C. **Exterior Shipping Container** - A container, bundle or assembly which is sufficient by reason of material, design and construction to protect material during shipment and storage. This can be the **unit container** or a container with any combination of **unit or intermediate containers**.

**III. Cleaning and Preservation**

- A. **Cleaning** - Items shall be clean and free of contaminants. Any process may be utilized which will attain this condition without damage to the items.
- B. **Drying** - Items shall be thoroughly dried to remove cleaning solutions or residue moisture by any process which is not injurious to the items. The items must be dry, both internally and externally, if their configuration requires it. All entrapped cleaning fluid shall be completely drained from the items.
- C. **Preservation of Non-Electric Items** - Immediately after cleaning and drying of items, a continuous coating of contact preservative shall be applied to bare ferrous items which require protection against corrosion and deterioration.
  - 1. **Unpainted and Unplated Surfaces** of partially painted or plated surfaces shall be coated.
  - 2. **Completely Non-Ferrous, Painted or Plated Items** shall not require preservation.  
(Examples: gold plate, silver plate, cadmium plate, zinc plate, tin plate, stainless steel)
  - 3. **Complex Items** requiring interior preservation shall be sloshed, sprayed or dipped.
    - a) Preservation shall be applied in such a manner as to insure complete coverage of both interior and exterior surfaces.
    - b) The preservation shall be thoroughly drained to avoid entrapment of preservative, which could subsequently damage the package.
    - c) If openings cannot be sealed by design features, the openings shall be sealed with caps or plugs.
  - 4. **Castings or Forgings** shall be individually wrapped or separated.
  - 5. **Grease Fittings** - Items such as universal joints and flexible cables that are equipped with grease fittings shall be preserved with grease per MIL-PRF-10924.
  - 6. **Volatile Corrosion Inhibitor (VCI)** - In lieu of contact preservation, bare ferrous items may be protected with the following VCI materials:
    - a) VCI treated transparent bags per MIL-DTL-22020
    - b) VCI treated transparent barrier material per MIL-PRF-22019
    - c) VCI treated wrapping material per MIL-PRF-3420

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**IV. Part Surface Protection**

- A. Individual part protection is required if grouping together multiple items of these types (see list below, Section C) in the **same unit container**.
- B. Types listing a requirement for a heat sealed bag (see list below, Section C) must either:
  - 1. Bag and heat seal the group of parts **as a whole** utilizing the bag specified. If the item weighs over 1/2 pound, then the item must be individually bagged and heat sealed utilizing the bag specified.
  - 2. Individually bag and heat seal the parts utilizing the bag specified
- C. The following types of items shall be individually bagged or individually wrapped in a non-tarnishing and non-abrasive material to prevent tarnishing, scratching or abrasion:
  - 1. **Items weighing more than 1/4 pound**
    - a) Does not apply to hardware items (E.G. - nuts, washers, etc.)
    - b) Does not apply to threaded bolts as long as bolts are restrained from movement
    - c) Does not apply to raw stock material to be machined
  - 2. Items of a critical nature
  - 3. **Painted or Plated Items** which could be damaged by scratching or abrasion
  - 4. All precision finished items
  - 5. **Precious Metal Items**
    - a) **Wrapping Material:** If individually wrapping items, utilize lens paper per A-A-50177 or equivalent.
    - b) All items of this type shall be placed in a bag conforming to MIL-DTL-117, Class E or F and heat sealed to protect against tarnishing or corrosion.
  - 6. **Tin and Silver Plated Items** that can be soldered in subsequent assemblies
    - a) **Wrapping Material:** If individually wrapping items, utilize chemically neutral (non-corrosive) wrapping paper conforming to MIL-DTL-17667. Equivalent, non-tarnishing materials may be used.
    - b) All items of this type shall be placed in a bag conforming to MIL-DTL-117, Class E or F and heat sealed to protect against tarnishing or corrosion.
    - c) If necessary to prevent tarnishing, desiccant shall be placed inside the bag, but not in direct contact with the parts.
- D. **Silk-Screened Plexiglass Items** should have a protective tape placed on the item surface. The tape should not leave behind a residue.

**V. Cushioning**

- A. **Fragile and Delicate Items** shall be cushioned to prevent damage.
- B. **Blocking and Bracing** of items within their shipping containers shall be accomplished by utilizing cushioning to prevent movement and damage.
- C. Cushioning shall conform to:
  - 1. Cellulosic Cushioning: A-A-1898
  - 2. Corrugated Fiberboard: ASTM D4727
  - 3. Flexible Closed Cell Plastic Film: PPP-C-795
  - 4. Foam Sheet: A-A-59135, Class 1 (polyethylene) or Class 2 (polypropylene), Grade A (standard) or Grade B (static dissipative)
  - 5. Polyethylene Foam Plank: A-A-59136, Type I, Class 1, Grade A (standard) or Grade B (static dissipative)
  - 6. Paperboard Wrapping and Cushioning: A-A-1051
  - 7. Flexible Open Cell Plastic Film: A-A-3129, Type I, Style B, Class 2, Grade B
  - 8. Polyurethane Foam: MIL-PRF-26514, Type III, Class 2, Grade B
    - a) **Foreign Object Debris (FOD)** - Due to the nature of **conductive polyurethane foam** and **ester polyurethane foam** disintegrating over time to create FOD, they are **NOT ACCEPTABLE**.
    - b) **Ether polyurethane foam** is **ACCEPTABLE** because it does not disintegrate over time.
  - 9. Semi-Rigid Foam-In-Bag: MIL-PRF-83671, Class 3
  - 10. 3-Ply Kraft Paper: A-A-59311

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**VI. Unit Container**

- A. Size** - The size shall provide a snug fit for the item.
- B. Separation** - Items requiring separation from each other because of a delicate nature shall be packed in a compartmentized unit container to prevent shifting or movement of the items.
- C. Multiple Quantities** - Containers with multiple quantities shall allow easy access to the individual parts without disturbing the remaining items.
- D. Maximums** - When practical, the unit packages shall not exceed fifty (50) pieces or twenty-five (25) pounds, whichever occurs first. One kit, one set or one pair of items shall always be utilized as one (1) regardless of weight.
- E. Bulk Items** - The unit container quantity for bulk items shall be specified on the purchase order.
- F. Matched Pair Items** - Matched pair items or items that come in matched sets shall be packaged so as to keep the sets separated from one another.
- G. Unit Containers** shall conform to the following, equivalent or better than:
  - 1. Folding Paperboard Box: PPP-B-566
  - 2. Set-up Box: PPP-B-676
  - 3. Heat Sealable Bag: MIL-DTL-117
  - 4. Fiberboard Box: ASTM D5118

**VII. Intermediate Container**

- A.** Use of intermediate containers are preferred but not mandatory for large quantities of small items.
- B. Limitations**
  - 1. **Quantity:** one hundred (100) unit containers
  - 2. **Weight:** a maximum net load of forty (40) pounds
  - 3. **Size:** a maximum size of 1.5 cubic feet
- C.** Any remaining quantities over the above restrictions shall be placed in the smallest container which will accommodate the unit packages.
- D.** Intermediate containers shall conform to ASTM D5118.

**VIII. Exterior Shipping Container**

- A.** Exterior shipping containers shall be of a minimum size to contain the packages.
- B.** Exterior shipping containers shall conform to the list of **usable container specifications** for **shipping containers** stated in the latest revision of **PIV6012**.
- C. Parcel Post Shipments** - Containers shall conform to any container capable of meeting postal regulations. The container must be of sufficient strength to retain and protect its contents from the weight of other mail shipments.
- D. Palletized Loads**
  - 1. **Efficient Pallet Utilization** - When four (4) or more exterior shipping containers (except skidded containers) are being shipped to the same destination, the pallet load will utilize eighty-five (85) percent of the pallet base to a minimum height of thirty-five (35) inches, including the height of the pallet.
  - 2. **Maximum Load Height** - The load shall not exceed a height of forty-one (41) inches maximum, including the height of the pallet.
  - 3. **Balanced Loading** - Containers which are stacked during shipment shall have the weight of the top container evenly distributed over the top of the lower container.

**IX. Marking** - Per the latest revision of PIV6012