GM 1738NA

GM PACKAGING AND IDENTIFICATION REQUIREMENTS FOR PRODUCTION PARTS

REVISION 4.0

Table of Content

REVISION LOG

DATE	REQUESTER	DESCRIPTION OF CHANGE
Prior to 2008	Various	All revisions prior to 2008 available upon request
2/22/2008	Peggy Blood, Powertrain Future Programs, Global SC Containerization	Add 4.2.9 and 4.2.10 to Section 4.2 Supplier Responsibility
4/7/2008	Gustavo Perezrios, Orion Plant & Tom Su, Containerization	Clarify Section 5.5 #2 Banding Requirements: a minimum of two bands lengthwise and widthwise; 5/8" x 0.035" Smooth Green Polyester Straps; welded
6/15/2013	M. Frye GM Global Containers	Section 7.4 LOADING MATRIX: MAC01041 Twin Sheet Pallets Matrix capacity update.
5/7/14	Abbie Swoboda/ Jeff Lazarz GM Global Containers	Added required NA GM1738 Form for all backup packaging
4/14/15	Abbie Swoboda/ Jeff Lazarz GM Global Containers	Various updates and improvements , please review the entire document
2/28/2017	Steve Taglione GM Global Containers	Various updates and improvements , please review the entire document
6/10 /2018	Steve Taglione GM Global Container	• NA1738 Packaging Plan submission form is no longer necessary. All packaging plans to be submitted through On Line Collaboration Tool • Updated standard expendable and returnable containers list • Gluing cartons to pallet no longer permitted • Fastener packaging exempt from 4 high warehouse stack. 2 high mandatory
12/10/2019	Evan McCarthy GM Global Container	• Added information on minimum 90% part density per container • 2-4 hour or 20-40% of shift removed • Added 1724 label placement specifications • New section 4.1.3 relating to container delivery dates and quantities
12/10/2019	Thomas Teagan	Updated Container Flow information and processes

1.0 INTRODUCTION

Supply partners must collaborate with General Motors to promote packaging methods to ensure production parts and packaging arrives at the assembly plants in the same quality condition in which they were manufactured. Suppliers are encouraged to work with the assembly plants to continually improve packaging strategies. Changes in plant facilities, sales volumes, part designs and packaging/handling technologies, etc., demand constant attention to guarantee the safest and most economical packaging is consistently utilized.

Packaging is to be designed and used to:

- contain and protect the production parts
- help reduce inventory requirements (e.g. via small-lot ordering)
- promote efficient part access for the operator
- allow workspace flexibility
- minimize operator walk time
- provide efficient and ergonomically acceptable manual and/or mechanical handling
- provide for effective use of plant space, trailers and railcars, e.g., high density packing
- provide for final disposition of obsolete packing materials by maximizing recycling and minimizing disposal. It is mandatory for s*uppliers to maintain production containers at their designated facilities until the end of a model year program.*

GMNA Containerization (GMNAC) will provide returnable containers for parts shipped from Tier 1 Suppliers to GMNA Plants or directed receiving location. Refer to the GM1700 for guidelines relative to suppliers located outside of North America. Optional bids may be submitted suggesting a different container.

It is mandatory for suppliers to keep production containers at their facilities until the end of the program. Once production has stopped, suppliers are still responsible for accepting all empty container return shipments. When no future usage is seen, either at or near program conclusion, the supplier must submit a GM Container Recycle Request in ConDOR.

Back-up expendable packaging is for use at specified build events prior to production or when returnable containers are not available. Suppliers must quote, develop, test/validate and obtain approval from the receiving plant. The alternate container must be of equal or less dimensions with the same part density and part presentation in production. Failure to comply may result in creation of a Supplier Practical Problem Solving (SPPS) record, formerly known as Problem Report and Resolution (PR&R).

Container plan "acceptance" is an acknowledgement of receipt. It is the responsibility of the supplier to ensure compliance to the GM1738 Packaging Specifications at all times. Obtaining the acknowledgement of a completed packaging plan is a PPAP requirement. Any change in the packaging plan must be obtained in OLCT.

Additional requirements within GM Supply Power Document Library (http://www.gmsupplypower.com/), are specified in the following documents:

- GM1700 GMNA "Regional Supply Chain Requirements"
- GM1724 "Label Template" document
- Online Collaboration Tool (OLCT)
- Supplier Responsibilities for GM Container Flow
- GM Supplier Process for Container Flow Issues
- CLIPS
- ConDOR

2.0 GENERAL REQUIREMENTS

The supplier must designate a single-point packaging contact for problem resolution.

2.1 Suppliers are responsible for maintaining clean returnable containers. This includes removing residue from pouch bag racks and expendable dunnage as required, and prior to usage. Returnable containers must be cleaned of all one time shipment labels. Suppliers are responsible for storing containers in a manner that will allow for ease of inventories, maintain cleanliness, and protection from excessive environmental exposure until ready for use.

2.2 Suppliers must ship production parts in the container, and with the standard pack quantity, designated on the GM 862 Ship Authorization. Any deviation in container type (such as the use of a backup expendable container, as defined in the OLCT, by suppliers), must be pre-approved via the **SMART Ticket System** by GM Receiving Location(s). Deviations from the GM 1738 Specifications are highly discouraged. *Failure to do so will result in the issuance of a Problem Reporting Resolution (PR/R).*

2.3 Suppliers must pack, label and ship in compliance with the requirements of common carriers (i.e., Uniform Freight Classification and/or National Motor Freight Classification, etc.), and follow all applicable "Hazardous Materials Transportation Regulations," including Occupational Safety and Health Administration (OSHA) and UN Hazard Communication Standards. Federal Motor Vehicle Safety Standards (FMVSS) or On-Board Diagnostics (OBD) designated parts may require special packaging and approval.

2.4 Suppliers must label containers in accordance with the GM Shipping Parts Identification Label Standards available in GM Supply Power (Document Library):

- GM1724A- Individual AIAG Shipping Labels
- GM1724B/C- Master Load Label

2.5 All material must be palletized to permit handling with industrial trucks when sufficient part quantities are to be shipped. All four corners of the pallet should be supported with product. Where the 4 corners are not supported, the LLP (Lead Logistics Provider) will provide a pallet for the collection of individual containers.

2.6 Suppliers must properly load and unload containers as directed by the LLP (Lead Logistics Provider) / GM Logistics Group**,** to ensure production part quality is not compromised and to comply with any other shipping instructions from the destination plant's Logistics Group.

2.7 At all times, a supplier must maintain and be able to provide accurate shipping and receiving records for GM-owned containers and equipment on consignment. This includes outbound shipments by container and location, maintaining in plant inventories, and updating the CLIPS Supplier Receipt with actual container physical counts and a receipt dates.

2.8 Supplier agrees to the aforementioned, and to adhere to guidelines for managing container inventories as specified in the current Three Step Process located in GM Supply Power (Document Library), CLIPS Supplier Receipt Requirements, and in the current GM1700 (Order to Delivery: Standard Supply Chain Requirements).

2.9 Import Requirements for Wood Packaging Material (including dunnage)

All wood packaging material (including dunnage) that is imported for General Motors into the United States, Canada and Mexico MUST comply with the ISPM 15 (International Standards for Phytosanitary Measures- Guidelines for Regulating Wood Packaging Material in International Trade).

It is the supplier's responsibility to conform to the requirements. Proof of this treatment will need to be marked accordingly on the outside of the packaging material. Please visit web site: ***http://www.ippc.int*** Suppliers who do not comply with this requirement are liable for any and all costs and fines incurred by General Motors. These costs could include additional costs to clear the material for import (such as fines, fumigation costs, re-inspections costs, etc.) and costs that may be needed to cover production requirements during any delay to get material cleared through customs (such as expediting costs for additional material to maintain production).

The shipment of wood packaging material into major U.S. trading partners shall follow their countries regulations. Shipments from the United States to Canada and from Canada to the United States are exempt from ISPM 15.

3.0 REQUIREMENTS FOR CHOOSING THE RIGHT CONTAINER

GMNAC with the input of the affected assembly plant and logistics will determine the use of returnable containers.

3.1 Packaging must maintain part quality during shipping and handling.

3.2 The parts must be oriented to minimize unpacking effort and the packaging must allow unpacking without injury to the operator or damage to the parts.

3.3 The maximum weight of a manually handled container, including parts, must not exceed 33 pounds.

3.4 9x9x4/5/6 fastener and small parts boxes must not exceed 40 pounds.

3.5 Ultimately maximum weights are governed by Composite Lift Index (CLI) which measures the weighted average of items lifted on a route and the number of containers delivered. Deviations to the weight guidelines would be considered if GM Ergonomics agrees the CLI requirements are met.

3.6 Containers used must be modular to a 48" x 45", 30" x 32" or 32" x 36" shipping footprint and reflect edge allowance of approximately 1/2 inch. The actual design dimensions of any container will depend on the type and style of the container as well as the product to be packaged. Cartons must not over or under extend the edge of the pallet.

3.7 Bulk containers (pallet cartons, etc.) are used when manually handled containers cannot accommodate part size or weight restrictions. Bulk containers must be of 48" x 45" or 32" x 30" footprint.

3.8 When part size will not permit the use of GM standard modular or bulk packaging (48" x 45" or 32" x 30"), or the size of a standard basket, size the package length to the part length while maintaining the package width at 48" or 32".

3.9 Establish one standard quantity per container for each part. The smallest shippable container with a consistent piece count quantity per pack or container is the standard pack quantity and must be used in every shipment of this part regardless of Receiving Location.

3.10 Suppliers should work with GM to ensure a Part Density of at least 90% in each container. Density is defined by the percentage of volume in the container utilized by the parts relative to the available volume. The goal is to minimize the head space and side space while meeting all ergonomic and quality requirements.

3.10.1 Note: Plastic containers have a fill line to allow for stacking. Head space is defined as the area from the top of parts or dunnage to the fill line

3.10.2 Density Percentage = Total Parts Volume / Internal Container Volume X 100

3.11 Choose a container design, using returnable containers where applicable. The use of interior dunnage is discouraged, but when deemed necessary, the procurement, design, testing and validation of the expendable internal dunnage is the responsibility of the supplier. The financial impact of dunnage must be identified in the quote package. Price increases will not be granted for increased cost to correct defective and/or non-conforming packaging including supplier-provided dunnage, containers, securement, pallets, etc.

4.0 RETURNABLE CONTAINER SHIPPING SYSTEMS

A returnable container is defined as a design that can be used more than once in a defined supplier-customer system. The following responsibilities pertain to returnable containers and are the responsibility of GMNA Containerization and the suppliers.

4.1 GMNA & ASSEMBLY PLANT CONTAINERIZATION RESPONSIBILITIES

4.1.1 GMNAC coordinates business case studies to assure acceptable return on returnable container investments.

4.1.2 GMNAC will allocate returnable containers to support new programs. The established system size will be determined based upon assembly plant daily requirements and transportation modes. Suppliers will receive two days' worth of returnable containers (empty and full) for shipment to GM assembly plants. *The allocated quantity is not provided to store banks of production parts, work in process, scrap or salvaged parts, store Customer Care and Aftersales (Service Parts Operations) parts, or to store a safety bank prior to a BTAB (Business Transfer Approval Board) move.*

4.1.3 Container Delivery Dates and Quantities

4.1.3.1 GMNAC will deploy returnable container fleets based on program timing in two milestones; Initial needs and the remainder of the production fleet.

4.1.3.2 Initial Needs quantities will be based on the type of container and are meant to support the validation build events for specialized containers "run at rates." These quantities are calculated by:

Quantity
Specialized Containers = 400 vehicle sets + 1 day @ MCR Production Rate
Standard Containers = 20% of overall fleet

Program Timing

Body & Stamping Commodities:	Week -74
Propulsion Commodities:	Week -42
General Assembly Commodities:	Week -43

4.1.3.3 Production Fleet containers will be delivered complete by start of regular production (SORP) date. Shipments of the remaining fleet will commence after Week -6. Suppliers should expect to receive heavy shipments from Week -6 to Week -3.

4.1.3.4 Larger fleets of containers may start delivery earlier to ensure 100% of the fleets are deployed by SORP (Week 0).

4.1.3.5 All container deliveries must be received and stored in an appropriate location to ensure the containers are clean and ready for use.
Example: Class-A material containers must be stored indoors and in a clean location.

4.1.4 GMNAC coordinates returnable package design and testing to assure total system requirements (e.g., quality, cost, manufacturing, transportation, assembly, etc.) are met.

4.1.5 When returning empty containers, the assembly plant must assure the containers are free of debris and expendable packaging materials.

4.2 SUPPLIER RESPONSIBILITIES

Suppliers are responsible for understanding the eight (8) GM Container Flow Supplier Responsibilities found in GM Supply Power Document Library.
For detail and training, Search: "Supplier Resp"

1. Ensure users have access to GM Supply Power and GM Container Flow Applications
    - CLIPS (Container Logistics Information & Planning System)
    - ConDOR (Container-DailyOPS-Supplier)
2. Stay up-to-date with GM Supplier Bulletins in GM Supply Power.
3. Include Packaging Data on ASN sent to GMNA Plants.
4. Use CLIPS to receive ALL empty container shipments.
5. Use the "GM Supplier Process for Container Flow Issues" to communicate disruptions to the flow of returnable containers.
6. Use SMART # Process prior to shipping in backup expendable packaging.
7. Follow the Expendable Packaging Claim process to get reimbursed for backup expendable packaging.
8. Use ConDOR to submit Container Repair, Replacement, and Recycle Requests in order to prevent production disruption.

4.2.1 "Upon receipt of new GM-owned returnable packaging equipment, supplier must inspect and verify container quality and quantities" **It is the responsibility of the production part suppliers to know the location of General Motors containers at all times.**

4.2.2 It is the responsibility of the production part suppliers to inspect containers before use to ensure the containers are **safe to use** and have no damaged or missing container component. Suppliers are to inspect container numbers to ensure all containers, both new and reused, have correct container numbers. Production part suppliers are responsible to

perform minor repairs to containers in order to ensure safety and part quality in shipping and handling. (See Section 8 for major repair specifications)

4.2.3 Identify a designated individual to handle all packaging responsibilities as a **single point contact**. Packaging plans required in the **OLCT** for production parts, that are assigned common standard GM Containers and/or supplier planned expendable backup, should be submitted by this person.

4.2.4 Design, test, validate, plan and maintain sufficient supply of suitable back up expendable packaging that may be required for premium shipments, production run ahead programs, container outages, service orders, etc. (see section 4.4). Alternate pricing for expendable packaging costs must be pre-arranged with GM Purchasing and included in the cost breakdown as part of the award of business. Only in cases where part design changed after award and it is identified on the EWO for inclusion, are approvals for price granted.

4.2.5 Load production parts in containers and containers into transportation equipment in a manner that maintains part quality using only clean, undamaged containers. Handle damaged containers as directed per Section 8.1. Clean returnable containers of residue, including bags and dunnage, when required.

4.2.6 Returnable packaging must be cleaned of all one-time shipment labels (vs. permanent routing labels) by the supplier to ensure current part number, quantity and certification of material are correctly labeled.

4.2.7 Suppliers shall store containers in a manner that allows ease of inventories, maintains cleanliness, and protects containers from excessive environmental damage which would affect the performance of the container**.**

4.2.8 GMNAC will provide production part suppliers with a maximum of **'2 days'** worth of returnable containers for the supplier's finished goods manufacturing requirement based on the receiving plant(s) daily requirement for the returnable containers. The number of containers provided will be based on the total daily container requirements of all receiving plants for that part, and the contracted round trip of the carriers to move freight from the supplier's facility to GMNA plants and from the GMNA plants back to the supplier. Any supplier requirements greater than **2** days must be requested in advance and demonstrate a valid business need approved by GMNAC.

4.2.9 Specific commodities may require a different system size calculation due to production requirements or constraints.

4.2.10 Returnable equipment designed, owned, and provided by the supplier must be approved by GMNA Containerization before shipments commence. A returnable equipment bulletin, including maintenance and freight responsibility for the equipment must also be approved in advance. The supplier's name and container number must be clearly visible on two opposite surfaces of a returnable container in nominal 1½" contrasting letters.

4.2.11 Supplier is responsible to promptly inspect, verify quantities and document all receipts of new returnable packaging equipment owned by GM and delivered to suppliers as well as all production shipments and receipts during the life of the program.

4.2.12 Supplier shall allow GM, or its designee, to perform on-site reviews when deemed appropriate. GM reserves the right to audit suppliers to verify that GM owned containers are being properly managed in conformance to the GM1738 contractual obligation and CLIPS Supplier Receipt Report requirements.

4.2.13 Suppliers shall provide timely and accurate responses to such requests. GM, or its designate party, may request suppliers to provide inventory counts on GM returnable containers on supplier property.

4.3 CORROSION PROTECTION

4.3.1 Returnable & expendable packaging must maintain part quality during shipping, storage and handling. Corrosion protection and materials are the responsibility of the supplier

4.3.2 Corrosion protection is required for all parts and components with the potential to corrode during normal transit and warehousing times for the receiving location. Corrosion is defined as red and/or white corrosion. Additional material requirements may be specified on engineering documents or in the SOR.

4.3.3 Corrosion inhibitors which are applied directly to the part and expendable packaging, if required should be addressed during the part packaging development phase. Consideration should be made for returnable packaging design, shipping mode and transit time.

4.4 SECUREMENT - CONTAINER TO PALLET

4.4.1 All **returnable** containers shipped on pallets must be adequately secured to the pallets using the provided seat belt straps if applicable. Multiple containers must be properly stacked on and secured to pallets. Any mixed loads in a container or placing multiple containers on a pallet must be approved by packaging engineer PRIOR to packaging. Plastic strapping or plastic stretch wrap have been the acceptable method of securing cartons to a pallet. The assembly plants are working to recycle all packaging materials, including strapping and stretch wrap.

4.4.2 The following methods are to be used for securing **returnable containers or components** to a pallet:

- **Plastic (Non-metallic) Strapping -** A minimum of two bands lengthwise and two bands widthwise must be used. Polyester strapping is recommended due to its strength and recovery properties. Polyester strapping is recommended to be translucent green and

polypropylene strapping is recommended to be translucent clear. Non-metallic strapping must be joined with a "friction seal". Metal banding or buckles are prohibited unless approved by the GM Approver (high weight loads are not considered safe without the use of metal buckles.).

- **Stretch film -** Stretch film must be linear low-density polyethylene (LLDPE) and clear in color to maximize recycling potential. Polyvinyl chloride (PVC) film is not to be used.

4.5 EXPENDABLE BACKUP PACKAGING

4.5.1 The Supplier shall maintain responsibility for the design, procurement and implementation of any expendable packaging required for shipping parts to GM Receiving Locations in the event returnable packaging is not available. This includes back-ups for specialized and standard containers

4.5.2 Suppliers **must** submit a packaging plan to the OLCT for standard containers for review by the GM Plant Engineer at the GM Receiving Location(s) at a minimum of 52 weeks prior to Start of Regular Production (SORP)**.** Backup packaging plans for specialized containers should be submitted directly to the plant packaging engineer.

4.5.3 Suppliers will utilize the expendable backup packaging during the PPV (Product/Process Validation Vehicle) & Non-Saleable build events so that the GM Plant Approver can validate the packaging. Packaging shall be supplier funded per Section 6 of the GM1700. No claims through the 3-Step Process will be approved for these builds.

4.5.4 Expendable Backup Packaging must be of equal or less dimensions with the same part density and part presentation as the returnable production container.

4.5.5 When shipping with the expendable backup the Supplier must utilize the 3-Step Process that can be found on Supply Power. The Supplier will label the expendable backup with the required SMART# if available.

5.0 EXPENDABLE CONTAINER SHIPPING SYSTEMS

An expendable shipping system is comprised of contained components having a life expectancy of only one trip from supplier to customer. The Supplier shall maintain responsibility for the design and implementation of any expendable packaging. This includes both expendable containers and returnable containers with expendable dunnage. For returnable systems, the supplier is responsible for designing back up expendable packaging to be utilized to ship production parts in the event returnable containers are not available. The supplier is responsible for testing and validation of all expendable packaging using either ASTM D-4169 or ISTA 3E testing. This would include but not limited to: shock, vibration, compression and drop testing.

MANDATORY MINIMUM REQUIREMENTS - PACKAGING PERFORMANCE:

- The Supplier has the overall responsibility for the expendable packaging design, performance and the quality of the part through the supply chain for a minimum of 120 calendar days from the time of shipment.
- Part Quality must be protected – parts and packaging are received in the same quality condition in which they were manufactured, regardless of incoterms.
- Corrosion protection is provided for all parts and components with the potential to corrode during transit and warehousing from the time of shipment to the receiving location.
- All material must be palletized to permit handling with industrial fork trucks.
- Packs must be able to support a minimum stack height of 108 inches under dynamic loading with consideration for environmental conditions up to 140^0 Fahrenheit and 90% Relative Humidity.
- Packaging must support maximum truck trailer utilization (either conv or drop deck cube). Unit pack (or pallet pack) dimensions should maintain an 48 x 45" or 32 x 30" footprint, and a height limit of 25", 33", or 54" for conv truck, and 60" for super van.
- Dynamic and warehouse stacking guidelines must be stenciled on each pallet carton, or through the use of a label for a small-lot unit load, on a minimum of two sides of main fork entry.
- Packaging needs to be easy to unload and breakdown for recycling, to reduce labor.
- All packaging plans are to be communicated using the ***OLCT*** and submitted to the GM Receiving location at a minimum of 52 weeks prior to start of production (SORP)**.**

PALLET:

- GM's required pallet style is an ***ISMP-15 certified and stamped*** wood ***9-Block Full Perimeter or Stringer Style*** design, with dimensions (48 x 45 x 5" or 32 x 30 x 5). Deviations from this style of pallet require written GM Approval. Certified stamp must be on a minimum of two sides (see section 5.1.2).

PRIMARY CARTON:

- All box styles are required to be Half-Slotted Containers ***(HSC***) or Open Top Container with a removable lid. For all manually handled cartons, the preferred lid is a single layer or "gang-lid." DO NOT tape or secure lids to the boxes.

- Regular Slotted Containers (***RSC***) or Folded Top Container are **strictly prohibited**, except for fasteners and standard parts that utilize the standard fastener carton (9x9x4/5/6) that have perforated top flaps for "rip-away" lid removal. Fastener containers outside of a 9x9 footprint must follow GM standard box sizing and be HSC construction.

MATERIALS:

- All solid wood materials and assemblies must be ***ISPM-15 certified and visibly stamped*** (on a minimum of two sides for wood assemblies), no exceptions.
- All packaging materials need to be **100% recyclable to reduce costs for final disposal**.
- Minimize different materials used within the pack (corrugate paper, plastic, foam and wood).
- **Do not glue** foam or wood to corrugated material. Using adhesive on two different materials is strictly prohibited.

Expendable and standard containers with expendable dunnage must be validated by the Supplier prior to the first shipment to the GM receiving location, with documentation that proves validation tests have been successfully completed (reference test protocol: ASTM D4169 or ISTA 3E). These tests include shock and vibration tests to assure part / component quality, as well as a compression test validating the pack's stacking strength. Conditioning is **optional;** however the safety factor must be greater than 3.5. The safety factor is an index used to identify the minimum stacking strength a pack requires based on its own loaded weight. Compression testing on standard containers is not required.

> **EXAMPLE:** For a loaded pallet pack that weighs 300kg, the pallet pack must be designed and capable to withstand a minimum weight of 3.5 x 300kg = 1,050kg stacked on top of it.

In some cases, additional corrosion tests are required. The baseline testing of corrosion in shipping shall be 100% Relative Humidity at 100 ˚F for ½ of the shipping (including staging) time or 168 hours, whichever is longer. This requirement is for reference only. The engineering requirements supersede this baseline.

5.1 EXPENDABLE PALLET SIZE AND CONSTRUCTION

5.1.1 Standard truck mode footprints are:

Length		Width	Tolerance
48"	x	45"	+ 0, -1"
30"	x	32"	+ 0, -1"

- Alternate dimensions are not accepted without written approval for the deviation.
- This footprint is in alignment with VDA (4525) and AIAG (RC-12) standards
- Space between pallet boards to be no greater than 3 inches.

5.1.2 Solid Wood 9 – Block Full Perimeter (Primary Design)

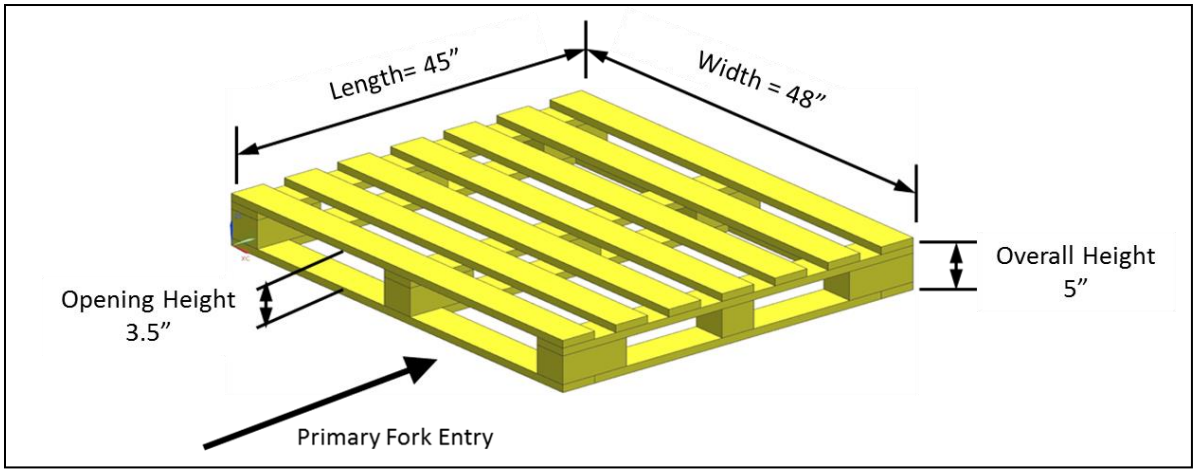


FIGURE 5.1.2: Example of a 9 Block Full Perimeter Pallet

Solid Wood 9-Block Full Perimeter Pallet Details:

(Pallet length) x (Pallet width) x (Pallet height)

- **Pallet length:** Direction of the longest blocks used in the base of the pallet; can also be considered the depth of the pallet, because it is the dimension of the pallet that is perpendicular to the width of the logistics equipment
- **Pallet width:** The length of the deck boards which should be divisible to the width of the primary logistics equipment used for transportation.
- **Pallet height:** The vertical distance from the floor to the top of the deck.
    - Thus, a 48" x 45" x 5" pallet has 48" deck boards, and the top of the deck is 5" above the floor.
        - ➢ This will orient the pallet in the truck trailer with the primary opening of 3.5" for the fork trucks to handle the pallet.

5.1.3 Stringer Style Four-Way Entry Pallets Stringer Design

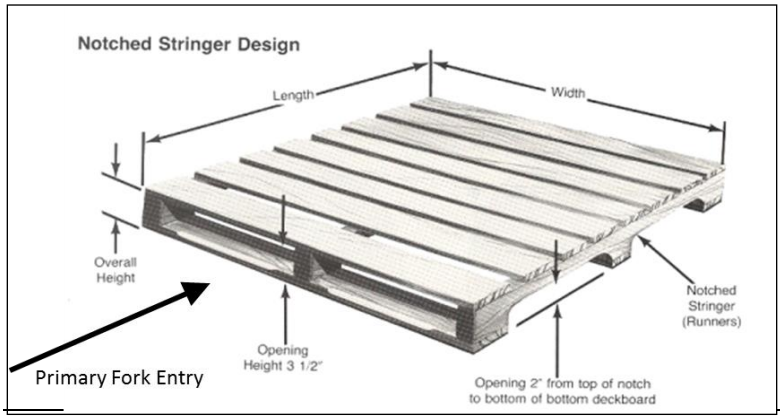


FIGURE 5.1.3: String Style Wooden Pallet

Stringer Style Pallet Details:

(Pallet length) x (Pallet width) x (Pallet height)

- **Pallet length**: The length of the stringer.
- **Pallet width:** The length of the deck boards which should be divisible to the width of the primary logistics equipment used for transportation

- **Pallet height:** The vertical distance from the floor to the top of the deck.
  - 48" x 45" x 5" pallet has 45" stringers, 48" deck board, and the top of the deck is 5" above the floor.
  - 48" x 69" x 5" pallet has 69" stringers, 48" deck board, and the top of the deck is 5" above the floor
    - This will orient the pallet in the truck trailer with the primary opening (not the notched stringers) for the fork trucks to handle the pallet.

5.1.4 Alternate Material Styles

- Alternate pallet style designs and materials require written approval from the *GM Approver* prior to shipment.
- For pallet load weighing *less than* 500 lbs., corrugated or fiberboard pallets are acceptable – but still require a written deviation.
  - Structural members of the pallet should be compatible with the carton by supporting the edge and corners.
  - A solid corrugated bottom and top deck is required for corrugate or composite materials.
- Plastic pallets are also allowed, if they comply with the following design requirements:
  - Are made from polyethylene or polypropylene materials that are 100% recyclable.
  - Do not have "cone shaped" legs or details.
  - Plastic pallets need to have simulated deck boards that optimize the surface area to transfer the pallet loads weight when stacking, and ensures robust stacking performance.
  - Note that these are expendable and will be recycled, not returned.

5.2 REQUIREMENTS FOR WOOD PACKAGING MATERIAL

5.2.1 All wood packaging material (including dunnage) that is imported/exported for General Motors MUST comply with the ISPM -15 (International Standards for Phytosanitary Measures- Guidelines for Regulating Wood Packaging Material in International Trade).

5.2.2 It is the supplier's responsibility to conform to the requirements. Proof of this treatment and use of a certified treatment supplier will need to be marked accordingly on the outside of the wood packaging material on a minimum of two, opposite sides of the pallet- NO EXCEPTIONS. Please visit web site: ***http://www.ippc.int*** for detailed guidelines.

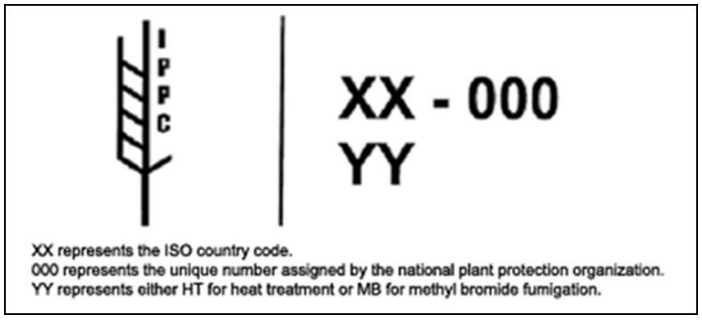


Figure 5.2.2: Certified ISPM-15 Stamp

Pallets may bear the correct markings, but due to improper storage, treatment will be negated.

Improper storage can be defined as:

- Length of time stored allows for pallet degradation and decomposition
- Manner of storage allows pallet to come into contact with moisture negating the treatment requirements for ISPM 15

Common business & housekeeping practices to assist in the compliance with the standard:

- Ensure the ISPM-15 stamp is applied and is visible for inspection, on a minimum of two sides of the packaging
- Store your solid wood products in a stable environment, off the ground & away from moisture
- Visible wood bark shall not exceed 3 cm in width on any piece of solid wood integrated within the packaging
- Use trusted solid wood suppliers with proven track records following the ISPM-15 standard

****** Suppliers who do not strictly adhere to the ISPM guidelines and material is rejected by customs will receive a Problem Report and Resolution (PR/R) for EVERY offense ******

5.2.3 Used wood pallets that meet GM 1738NA requirements will continue to be acceptable. The responsibility for quality and performance rests with the supplier. To assist recycling, wood pallets must have the pallet size marked on the pallet stringer or runner in 1" minimum characters.

5.2.4 Recyclability of pallet is required.

5.3 EXPENDABLE CARTON SIZE AND CONSTRUCTION

5.3.1 All box styles are required to be Half-Slotted Containers (**HSC**) Open Top Container with a removable lid. The preferred lid is a single layer or "gang-lid," tray design, roughly (48" x 45" x 4"). Regular Slotted Containers (**RSC**) Folded Top Container are strictly prohibited (exception: standard fastener cartons that have perforated top flaps for "rip-away" lid removal).

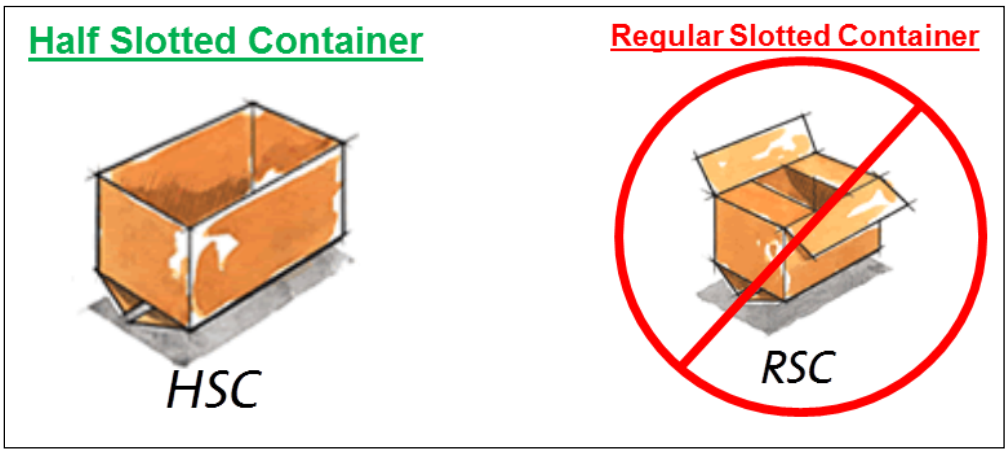


Figure 5.3.1: HSC vs RSC Style Boxes

5.3.2 Standard packs should hold enough material to support 2-4 hour's production for both small-lot and bulk containers, and refer to Section 3.8.

5.3.3 All material must be palletized to permit handling with industrial fork trucks.

5.3.4 Cartons must be modular to the GM standard North American pallet size of 48" x 45". Parts longer than the standard size pallets will require a container & pallet design to have one dimension to be 48" or 96".

Figure 5.3.4: UNACCEPTABLE- Cartons are NOT to extend over the edge of the pallet

5.3.5 Small Lot Carton

5.3.6 The target weight of a manually handled carton (or small-lot carton), including parts, must not exceed 33 pounds unless directed and approved by the GM receiving location.

5.3.7 Designs should fit the most parts into the smallest possible footprint without impacting part quality.

5.3.8 For optimum stacking performance, a layer lid or "gang lid" is preferred. In some cases individual carton lids are required to maintain part quality from debris in the manufacturing environment.

5.3.9 When determining small carton size and construction, only use the GM approved expendable packaging sizes.

Table 5.3.9: GM's Standard Small Lot Carton Sizes

Container Name	Type	Outside Dimensions of Box					
		Length (in)	Width (in)	Height (in)	Totes per layer	Flute	Mullen Grade
EX090904	TOTE	9.00	9.00	4.00	9	C	275#
EX090905	TOTE	9.00	9.00	5.00	9	C	275#
EX090906	TOTE	9.00	9.00	6.00	9	C	275#
EX120805	TOTE	12.00	8.00	5.00	12	C	275#
EX151205	TOTE	15.00	12.00	5.00	12	C	275#
EX151208	TOTE	15.00	12.00	8.00	12	C	275#
EX151210	TOTE	15.00	12.00	10.00	12	C	275#
EX241505	TOTE	24.00	15.00	5.00	6	C	275#
EX241508	TOTE	24.00	15.00	8.00	6	C	275#
EX241510	TOTE	24.00	15.00	10.00	6	C	275#
EX241515	TOTE	24.00	15.00	15.00	6	C	275#
EX242309	TOTE	24.00	22.50	9.00	4	C	275#
EX242311	TOTE	24.00	22.50	11.00	4	C	275#
EX242315	TOTE	24.00	22.50	15.00	4	C	275#
EX321508	TOTE	32.00	15.00	8.00	4	CA	400#
EX481508	TOTE	48.00	15.00	8.00	3	CA	400#

***These dimensions are outside dimensions. Shaded boxes 9x9x4/5/6 are for fastener use only. Must be RSC construction with perforated lid. NO EXCEPTIONS**

5.3.10 Hand Holds

- Cartons that meet the following requirements **do not** require hand-holds:

1. Length of carton is less than: 30 inches
2. Width of carton is less than: 16 inches
3. Height of carton is less than: 12 inches
4. Weight of carton is less than: 26.4 pounds

- For cartons requiring hand holds, they should not exceed 4" length and 1.5" height, and are located on the short side of the container.
    - Example: On 48" x 15" x 7" backup expendable tote, hand holds should be on the 15" sides.

Figure 5.3.7: Two Views of a Perforated Hand-hold

5.3.11 Hand-holds reduce the compression strength of any box, therefore if hand holds are used, other design features need to be used in order to maintain the minimum performance requirements. Some design accommodations to improve compression strength include, but are not limited to, increase the strength of box material, box construction, or internal dunnage to promote stacking strength.

5.3.12 Bulk Containers

- Bulk containers (modular bulk boxes, pallet cartons, etc) are used when manually handled cartons cannot accommodate part size or weight restrictions.

Table 5.3.12: GM's Standard Bulk Carton Sizes

Container Name	Type	Outside Dimensions of Box				
		Length (in)	Width (in)	Height (in)	Flute	Mullen Grade
EX323025	Bulk	32.00	30.00	20.00	CAA	1100#
EX323034	Bulk	32.00	30.00	29.00	CAA	1100#
EX363225	Bulk	36.00	32.00	20.00	CAA	1100#
EX363234	Bulk	36.00	32.00	29.00	CAA	1100#
EX483625	Bulk	48.00	36.00	20.00	CAA	1100#
EX483634	Bulk	48.00	36.00	29.00	CAA	1100#
EX484525	Bulk	48.00	45.00	20.00	CAA	1100#
EX484534	Bulk	48.00	45.00	29.00	CAA	1100#
EX544825	Bulk	54.00	48.00	20.00	CAA	1100#
EX544834	Bulk	54.00	48.00	29.00	CAA	1100#
EX564825	Bulk	56.00	48.00	20.00	CAA	1100#
EX564834	Bulk	56.00	48.00	29.00	CAA	1100#
EX624825	Bulk	62.00	48.00	20.00	CAA	1100#
EX624834	Bulk	62.00	48.00	29.00	CAA	1100#
EX694825	Bulk	69.00	48.00	20.00	CAA	1100#
EX694834	Bulk	69.00	48.00	29.00	CAA	1100#
EX723625	Bulk	72.00	36.00	20.00	CAA	1100#
EX723634	Bulk	72.00	36.00	29.00	CAA	1100#
EX784825	Bulk	78.00	48.00	20.00	CAA	1100#
EX784834	Bulk	78.00	48.00	29.00	CAA	1100#

***These dimensions are the outside dimensions of the box. A box and pallet will equal the standard heights of 25 inches and 34 inches. Highlighted containers require perforated doors on 2 opposite sides.**

5.3.13 All pallet cartons over 33" in height must have a scored drop side. Although normally on the longer side of the container, the location and size of the drop side is determined by part orientation and operator ergonomics. Work with the receiving plant packaging engineer to determine the appropriate side. The bottom of the drop side opening must be no more than 33" from the floor. Perforation must be on 2 opposite sides.

Figure 5.2.7: Bulk Carton with Access Panel

5.3.14 Scored panels or details reduce the compression strength of any box, therefore if a scored access panel is used, then other design features need to be developed in order to maintain the minimum performance and stacking requirements. Some design accommodations to improve compression strength include, increase the strength of box material, box construction, or internal dunnage / stacking posts to enhance stacking strength of the carton design.

Figure 5.3.10: Example of Corrugate Corner

5.3.15 Federal Motor Vehicle Safety Standards (FMVSS) and On Board Diagnostics (OBD) designated parts may require specific packaging to preclude the use of sharp instruments and provide for easy opening.

5.3.16 Corrugated material used in shipping containers must have adequate strength to withstand the test of usage. The parts and container must arrive in satisfactory condition at the usage

point. A minimum of 44 pounds per inch width edge crush (ECT) or 275 pounds per square inch burst test is required for all corrugated material.

5.3.17 All containers must be recyclable.

5.3.18 All containers must be constructed with an outside tab style manufacturer's joint. A stitched manufacturer's joint is recommended, and will be required if a glued or other type joint proves inadequate.

5.4 DUNNAGE AND DEVELOPMENT: INTERNAL PACKAGING

5.4.1 Dunnage should be discouraged whenever possible and used only when part-to-part contact must be eliminated to prevent damage in shipping and handling. Suppliers are responsible for the design, performance, and procurement of all expendable dunnage. Expendable internal dunnage is main stream, and must be included in the supplier's quotation.

5.4.2 Ensure parts are contained and protected to sustain their quality through the supply chain for a minimum of 120 calendar days from the time of shipment.

5.4.3 Corrosion protection is provided for all parts and components with the potential to corrode during transit and warehousing from the time of shipment.

5.4.4 Packaging design should maximize the cubic density in the carton but not sacrifice part quality.

5.4.5 Minimize the different types of materials used for box and dunnage to ease recyclability.

5.4.6 Minimize the quantity of internal dunnage.

5.4.7 Do not glue foam or wood to corrugated material. The use of adhesive between two different types of material (i.e. plastic foam to paper corrugate) is strictly prohibited. Use an integrated dunnage design to help eliminate the need to use adhesive between different materials.

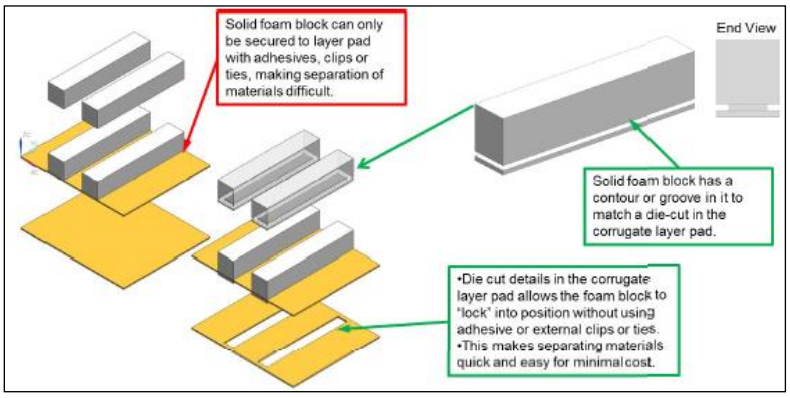


Figure 5.4.7: Die Cut Foam Design Allows the Foam Block to "Lock" into the Die Cut Layer Pad without Using Adhesives

5.4.8 Parts must be easy to access without the use of a mechanical tool or device. Avoid individually wrapping parts in sealed bags or wraps.

5.4.9 Partitions and layer pads that need to be removed from the carton need to be designed as a single piece to be handled by the Operator to reduce labor and waste. Provide hand-holds on the dunnage assembly to help with handling.

5.4.10 All packaging materials are required to be 100% Recyclable to reduce costs for final disposal. If packaging is found to be non-recyclable the supplier will be charged back for disposal costs.

5.4.11 Parts must be oriented to minimize unpacking effort and the packaging must allow unpacking without injury to the operator or damage to the parts.

5.4.12 Packaging must be easy to unload and breakdown in order to reduce labor.

5.5 CLOSURE

5.5.1 Containers must be adequately sealed to ensure they do not open during shipping or handling.

5.5.2 Lids for HSC cartons and boxes are tray styles. Deeper trays have more surface contact than shallow trays and are more likely to stay in place. Most layer lids use 4" deep tray style lid.

5.5.3 Do not tape lids to their boxes. This taping requires a mechanical tool or knife to cut and open which is counterproductive to HSC style box.

5.5.4 Packaging materials containing asphalt, such as asphalt sealing tapes, must not be used. Environmentally, paper type (repulpable) is preferred over plastic film tapes where sealing performance is not compromised.

5.5.5 FMVSS and OBD designated parts may require special closure methods that allow opening without the use of sharp instruments.

5.6 SECUREMENT - CONTAINER TO PALLET

5.6.1 All expendable containers shipped on pallets must be adequately secured to the pallets. Multiple containers must be properly stacked on and secured to pallets. Any mixed loads in a container or placing multiple containers on a pallet must be approved by packaging engineer PRIOR to packaging. Plastic strapping and plastic stretch wrap have been the acceptable method of securing cartons to a pallet. The assembly plants are working to recycle all packaging materials, including strapping and stretch wrap.

5.6.2 One of the following methods is to be used for securing cartons to a pallet:

- **Plastic (Non-metallic) Strapping -** A minimum of two bands lengthwise and two bands widthwise must be used. Polyester strapping is recommended due to its strength and recovery properties. Polyester strapping is recommended to be translucent green and polypropylene strapping is recommended to be translucent clear. Non-metallic strapping must be joined with a "friction seal". Metal banding or buckles are prohibited unless approved by the GM Approver (high weight loads are not considered safe without the use of metal buckles.).

- **Stretch film -** Stretch film must be linear low-density polyethylene (LLDPE) and clear in color to maximize recycling potential. Polyvinyl chloride (PVC) film is not to be used.

5.6.3 Wire bound wood pallet boxes or wood and wood composite crates are not acceptable.

5.7 STACKING CHARACTERISTICS

5.7.1 Maximum weight of any load over 2000 pounds requires approval by GMNA Containerization.

5.7.2 Container packs must have sufficient strength to stack four packs high, or to a height of 10.5' feet (whichever is greater in house). Also, container packs must have sufficient strength to stack to a height of 108 in. in a trailer under dynamic weight loading (which generally is at least three times the static load). Fasteners must be able to stack two unit loads high in transit and warehouse.

5.7.3 Corner Stacking Posts - All corrugated cartons are to be recycled after use. Any contaminant such as wood that is fastened to the corrugated material requires intensive and costly labor to separate. When stacking posts are used, it is important that the following requirements are met:

- Eliminate the use of wooden supports where possible. The carton strength may be currently acceptable. Or increase the corrugated test strength of the container to a double or triple wall thickness.
- Replace the wood with formed paper corner structures, or corrugated supports. These paper corners may be stapled in place, since they can be recycled with the sleeve. The use of "angle board" with a white clay coating and non-water soluble adhesive is not allowed. The cross-sectional area allows virtually no surface to support a load.
- The location of the stacking posts are completely supported by wood details of the pallet (i.e. wood blocks and deck boards completely support the area under the stacking post).
- As a last resort, wood may be used as a corner support, but must **NOT** be fastened to the corrugated sidewalls of the container. Other methods of holding the wood in place must be used, allowing ease of wood removal. Corner "kick-ins" or corrugated pockets will suffice.

- All solid wood posts are ISPM-15 certified and stamped

5.7.4 Corrugate Corner Support

5.7.5 Round Corrugate Corner Support

5.7.6 Wood Corner Support

5.7.7 Expendable containers must be validated by the Supplier prior to the first shipment to the GM receiving location, with documentation that proves validation tests have been successfully completed (reference test protocol: *ASTM D4169 or ISTA 3E*). These tests include shock and vibration tests to assure part / component quality, as well as a compression test validating the pack's stacking strength. Conditioning is optional; however the safety factor must be greater than 3.5. The safety factor is an index used to identify the minimum stacking strength a pack requires based on its own loaded weight.

> **EXAMPLE:** For a loaded pallet pack that weighs 300kg, the pallet pack must be designed and capable to withstand a minimum weight of 3.5 x 300kg = 1,050kg stacked on top of it.

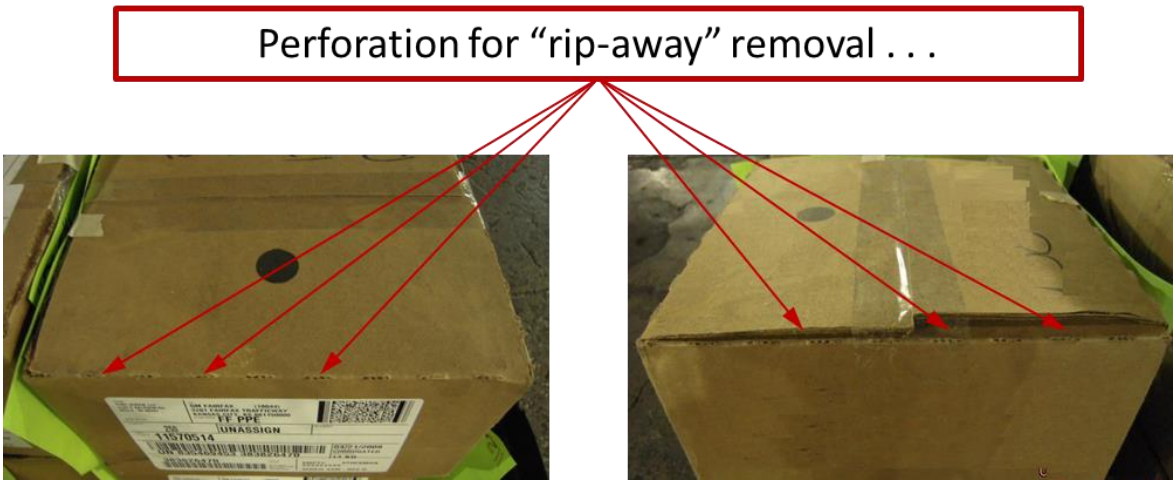
5.7.8 Airfreight shipments, LTL (less than truck load), and other special shipments are subject to abnormal handling and require more substantial packaging.

6.0 STANDARD PARTS

6.0.1 "Standard Parts", are defined as small parts or fasteners such as nuts, bolts, screws or washers. Miscellaneous small attachment-type items, such as clips and clamps are also included within that definition. Standard parts are to be shipped in expendable containers sized (9" x 9" x 4, 5 or 6"), and are primarily of the following designs:

Mainstream is RSC (regular slotted carton) with a perforated top.
Other options include:

- Full telescopic
- Regular slotted, with an inner liner, when necessary



- **Figure 6.1:** Example of Perforated “Rip-Away” Top Flaps on an RSC Carton

All standard parts are shipped on a 30” x 32” wooden pallet footprint per industry standards. Maximum load height must not exceed 33”. Two-way entry is acceptable for 32” x 30” pallets.

6.0.2 Each 9” x 9” container must be identified with two (2) General Motors Standard Identification Label. All containers are to be loaded onto the wooden pallet so that their labels are visible (faced outward), where possible.

7.0 IDENTIFICATION LABELS

The following are general guidelines to be followed when placing labels on all containers. For complete label specifications, refer to GM Shipping Parts Identification Label Standard (GM1724 A, B and C) located in GM Supply Power (Document Library). For questions pertaining to the GM1724, refer to the Regional Contact list located in GM Supply Power.

7.0.1 Every container must be labeled in accordance with the GM1738G and GM1724

7.0.2 All containers, expendable and returnable, must have two **adhesive backed** labels per container in the upper right hand corner on opposite sides. Suppliers must work with plants to ensure labels are applied to presentation side of container.

7.0.3 All containers must have 1724 label applied 5 inches (12.7 centimeters) below the top of container and label ends 1 inch (2.54 centimeters) prior to the right edge of the container.

Figure 7.0.3.1: Label Location Requirement for Expendable Packaging

Figure 7.0.3.2: 1724 Label Location Non-Compliant vs Compliant

Master Label needs to be located in upper right quadrant of container

Need to locate 1724 AIAG label on right side when two indented areas exist on same side

7.0.4 Totes are considered an individual container even though they are palletized, and require two labels per tote with the pack having "Master" labels per the GM1724. The master label must also be placed in the upper right hand corner.

7.0.5 For Powertrain parts, each tray in a tray pack shall be labeled as a container with the pallet pack having "Master labels" per the GM1724. Specific plant error proofing processes may require machine readable labels on each tray.

7.0.6 Handwritten or stenciled label information is prohibited, except for packer/inspector initials where applicable.

7.0.7 When containers of different part numbers are shipped on a single pallet, the special "Mixed Load" label must be used.

7.0.8 Quality of bar codes on the label must be regularly verified as being easily and accurately scanable.

7.0.9 All containers and multi-wall tubes must have a box maker's certificate visible on the assembled container, and displaying ECT, BCT, or Puncture test.

7.0.10 Federal Motor Vehicle Safety Standards (FMVSS) or On-Board Diagnostics (OBD) designated parts may require special packaging and approval.

7.0.11 GMS (Global Manufacturing Systems) requires all containers have shipping labels.

7.0.12 Dynamic and warehouse stacking guidelines must be stenciled on each pallet carton, or through the use of a label for a small-lot unit load, on a minimum of two sides.

7.1 HANDLING PLASTIC RETURNABLE CONTAINERS

The following briefly explains the handling of plastic returnable containers. Included in this section is information on the following:

- **Guidelines and Tips** - covering guidelines for handling plastic returnable containers (Section 7.1.1 to 7.1.18)
- **Inspection Sheet** - detailing what to look for when inspecting the containers and when to remove them from the system for repair.
- **Pallet Loading Matrix** - detailing how high to load AHB70201 twin sheet pallets (Section 7.3)

Guidelines and Tips

7.1.1 25" high plastic bulk containers should be stacked no greater than 4 high in transit.

7.1.2 34" high plastic bulk containers should be stacked no greater than 3 high in transit.

7.1.3 Plastic bulk containers should be stacked no more than 6 high in storage.

7.1.4 Plastic bulk containers should not exceed 500# net weight.

7.1.5 Refrain from pushing plastic pallets, tray packs, or bulk containers with the tips of the forks. This can damage the containers and/or the parts inside. Plastic bulk containers, pallets, or tray packs should be picked up in order to move them.

7.1.6 When transporting containers, the fork truck should travel in the direction opposite the forks. This is to prevent containers from falling off from the forks if the fork truck has to stop quickly. Loads must be stable and secure. When using pallets equipped with "seat belts", the belts must be fastened before moving the load.

7.1.7 When transporting containers, the forks should be completely engaged under the container fork openings before lifting, but when containers are being stacked/ unstacked against other containers, the driver must make sure the forks do not extend beyond the container. If the forks extend past the containers in this situation, they can damage the rear containers.

7.1.8 Only stack containers that are compatible and have the same footprint.

7.1.9 Do not carry bulk containers two deep on the forks.

7.1.10 Access doors and gates must be closed when a bulk container is being moved.

7.1.11 Fork center-to-center distance must be adjusted to match the fork opening distance of the container being moved.

7.1.12 The fork truck operator needs to be careful when engaging a stack of containers, to avoid pushing the top container through the sidewall of the bottom container.

7.1.13 AHB70201 (formerly UP484507) plastic returnable pallets should be loaded according to the AHB70201 Pallet Loading Matrix. (Refer to section 7.3)

7.1.14 GM currently uses two 48"x45" plastic returnable pallets, a twin sheet and a single sheet pallet. The single sheet pallets are to be phased out through future production.

7.1.15 If a damaged container or pallet is detected, immediately take it out of the system. Containers with minor damage - repair the containers on site with container components supplied by GM. Containers with major damage - contact the appropriate GMNA Containerization personnel for repair. (refer to Section 8).

7.1.16 Utilize the width of the trailer when shipping to keep loads stable, to minimize transportation, and to reduce the chance of containers tipping over.

7.1.17 When plastic and steel containers are loaded together, they should be loaded according to the loading matrix provided by the transportation provider.

7.1.18 Tray packs should be stacked according to the specifications designated by the container bulletin.

7.2 CONTAINER INSPECTION SHEET FOR PLASTIC BULK CONTAINERS AND PLASTIC RETURNABLE PALLETS

7.2.1 PLASTIC BULK CONTAINERS

The following items are to be checked when inspecting plastic bulk containers:

- Cracks in the corner joints
- Missing or broken access gate hinges
- Missing or broken clips
- Extensive damage to the base
- Broken pieces of corner joints
- Pierces or cuts due to fork mishandling
- Bowing sidewalls

The container should immediately be taken out of the system for repair, if any of these types of damage are discovered on a plastic bulk container.

7.2.2 PLASTIC RETURNABLE PALLETS

The following items are to be checked when inspecting plastic returnable pallets:

- Extensive damage to the feet of the pallet (crushing and/or piercing)
- Cargo belts have been cut
- Cargo belt retractor mechanism is missing or malfunctioning
- Cargo belt buckle/receiver is missing or malfunctioning
- Cargo belt end clasp is not accessible due to retraction into the pallet leg

The pallet should immediately be taken out of the system for repair or replacement, if any of these types of damages are discovered on a plastic returnable pallet

7.3 LOADING MATRIX: AHB070201 (formerly UP484507) Twin Sheet for Assembly Plants or MAC29248 Twin Sheet Pallets for

Figure 7.3: Pallet AHB70201 Key Features

The following chart provides the recommended number of layers by tote weight and size for 48x45 twin sheet pallet:

							15<W=<25																													
Weight-	W=<15						W=<20						20<W=<25						25<W=<30						30<W=<35						35<W=<40					
Layers-	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Tote ID																																				
151205	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*
151208	R	R	R	R	R*		R	R	R	R*			R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*	
151210	R	R	R	R	R*		R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*		
241505	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R*		R	R	R	R	R	R*	R	R	R	R	R	R*
241508	R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R*			R	R	R	R	R*		R	R	R	R	R*	
241510	R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*		
241515	R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*		
242309	R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*	
242311	R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*		R	R	R	R	R*	
242315	R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*			R	R	R	R*		
481508	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*	R	R	R	R	R	R*

Note: R* = Reaching 2000 lbs. capacity

To ensure fast, accurate disposition of production parts material damaged because of packaging, each supplier must arrange directly with the receiving plant for resolution. For containers, suppliers are responsible for all necessary corrective action, damaged material, sorting costs-and any premium freight required for replacement of the parts to maintain production requirements. Damage determined as carrier responsibility will be filed against the delivering carrier. On an exception basis only, GMNA Containerization will assist in talks between purchasing, plants, and suppliers to resolve an impasse.

When rejected material is returned to the supplier, it is to be packaged and labeled in such a manner that it does not receive further damage during the return shipment.

8.0 REPAIR SPECIFICATIONS FOR GM CONTAINERS

Production part suppliers are responsible for identifying GM owned containers at their facility in need of major or minor repair. For plastic knock-down containers inspection and minor repair; please see GM Supplier Power Bulletins. All other container repair issues, the following specs apply:

If requesting GM payment for performing repairs, a separate P.O. must be obtained prior to commencing any work. When the supplier is approved for container repair as directed by GMNA Containerization, the following applies:

8.1 DAMAGED CONTAINERS

8.1.1 When an assembly plant returns damaged containers, the containers are to be photographed, while still on the trailer or in the rail car, and forwarded to GMNA Containerization with the following information:

- Name of assembly plant returning containers
- Damaged container number
- Quantity of damaged containers
- Trailer number and date
- Description of damage
- Number of component parts required to repair the damage

8.1.2 If a railcar or truck trailer is involved in a derailment, theft or truck accident, the supplier is to contact the responsible carrier for inspection. Notify GMNAC and NA Logistics for instructions on filing a claim**.**

8.1.3 Damaged containers are to be segregated, and tagged with NLOC 1170 green, adhesive backed 'Damaged Container Repair Tag'.

8.2 CONTAINER REPAIR

8.2.1 Maintain a cost effective returnable packaging repair program as approved by GMNA Containerization & Global Purchasing.

8.2.2 The supplier is to request and maintain a current set of blue line drawings (GMNAC provided) of each returnable shipping container, for use when performing repair.

8.2.3 GMNA Containerization will coordinate with supplier to develop necessary repair Supplier bid lists.

- Supplier submits container repair bid package to Global Purchasing with a copy to GMNA Containerization.

8.2.4 Repair work will be assigned by Global Purchasing to the most cost effective supplier (either supplier's facilities or qualified outside business concern).

8.2.5 Repair justification required:

- Repairs are required to support current assembly plant production volumes.
- Damaged containers in excess quantity of current production requirements need to be communicated to GMNA Containerization using the NAC1120 scrap/recycling form. The containers will be re-allocated or required to be held by supplier until the need arises, at which time repairs would commence.

8.2.6 Suppliers must remove any Returnable Dunnage from knockdown containers and collapse them prior to shipment to repair facilities. Suppliers must also remove Returnable dunnage from baskets, tubs, totes and similar containers before shipping for repair. This Returnable Dunnage must be kept by the supplier and added to the containers when returned from the repair facility.

8.2.7 The supplier shall be responsible for properly identifying containers scheduled for repair with repair source. Any containers shipped that are different from the specified container shall be returned to supplier at the supplier's expense.

8.2.8 Upon the return of the containers, the containers should be reviewed to ensure all necessary repairs are completed; trash, loose dunnage, and wood removed and the repair service painted their repair code and the month and the year on the inside of a corner post.

8.2.9 It is the responsibility of the supplier to inform GM of containers needing repair. Failure to do so may result in PR/R and will impact the expendable claims process.

8.3 REPAIR INVOICING REQUIREMENTS

8.3.1 Reference the Information segment of https://www.gmcontainers.com/ to access the guidelines and the mailing address to be used when submitting monthly repair invoices.

8.3.2 Invoices must include the following:

- Container design number (and serial number if on container) and quantity of each container type repaired.
- Time required for the repair by container.
- Purchase Order number; if applicable, P.O. release number.
- Copies of delivery receipts invoices for materials, transportation, or other associated expenses.
- Other specific requirements as noted in repair RFQ and/or repair P.O.

8.3.3 Other specific items may be required and should be discussed when returnable programs are established. Refer to GMNA Containerization for specific details prior to performing repair.

8.4 SPECIFICATIONS FOR METAL CONTAINER REPAIR

8.4.1 The original specifications on the container drawings also apply to container repair.

8.4.2 Repairs to broken welds and new welds must conform to commercial practices of workmanship governed by the American Welding Society. Weld penetration must be a minimum of 60% of the lightest gauge of the two joined details.

8.4.3 Broken welds should only be ground off and re-welded when a reinforcing repair plate/gusset cannot be used. At no time should these repair plates/gussets interfere with loading/unloading of parts from the container nor add to the overall outside dimensions of the container.

8.4.4 The container must position squarely on a predetermined leveled surface with the container sides at each end perpendicular to that surface within +/- 1/16 in.

8.4.5 The diagonal measurement across the corners of the container shall not have a difference greater than 3/8 in.

8.4.6 All details and weldments shall not project beyond the dimensions defined on the blueprints for the container.

8.4.7 The permanent stacking plugs are to be welded completely and squarely to the end post. All repaired containers are required to have four (4) good stacking plugs. The repair source shall be responsible for replacement as required.

8.4.8 Repaired areas shall be cleaned and washed free from dirt, grease and loose paint. Materials used for cleaning may be similar to industrial phosphate spray wash materials. The container repair areas shall be repainted to match the containers normal color.

8.5 GM'S RIGHT TO AUDIT

The following clause will be applicable only when resolving disputes regarding the responsibilities by GM for the payment repair costs incurred against GM-owned racks and containers.

By acceptance of the purchase order, the supplier grants to General Motors Corporation access to all relevant ledgers, payroll data, books, records, correspondence, written instructions, drawings, receipts, vouchers, and other documents for auditing the charges.