GM 1738G

GENERAL MOTORS

INTERCONTINENTAL SUPPLY CHAIN PACKAGING AND IDENTIFICATION REQUIREMENTS FOR PRODUCTION PARTS

Revision 4.2

January, 2022

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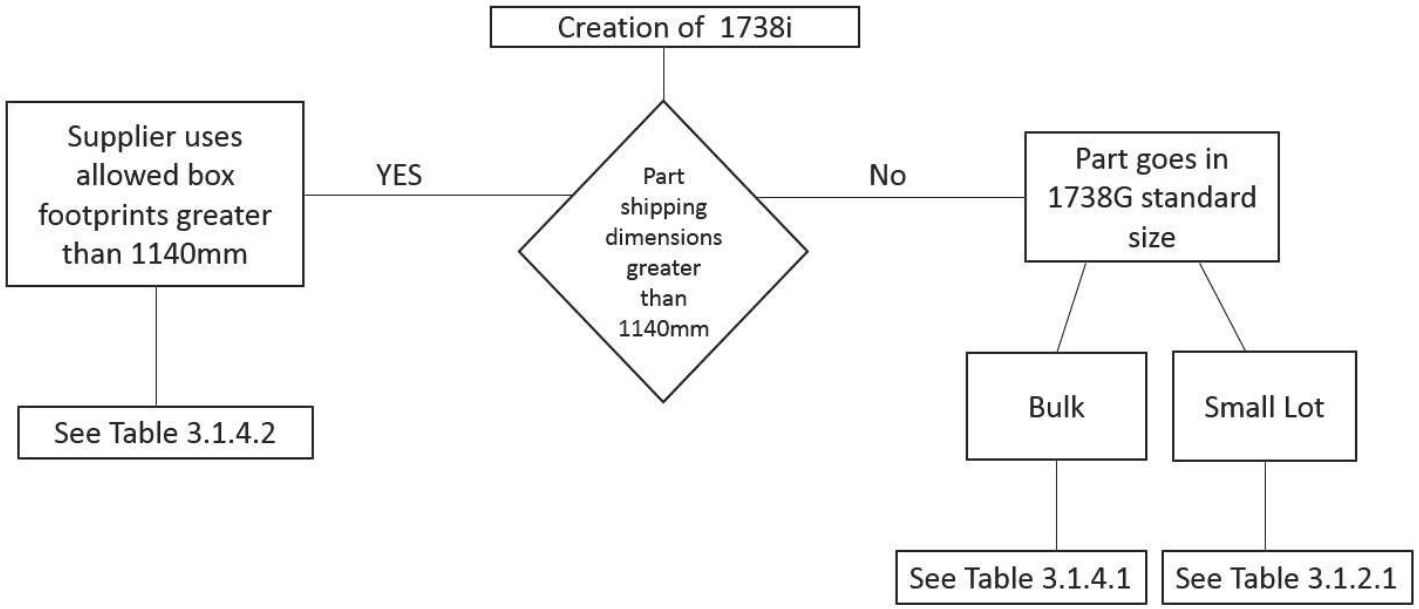
GM GLOBAL INTERCONTINENTAL PACKAGING REQUIREMENTS FOR PRODUCTION PARTS (GLOBAL GM 1738G)

REVISION LOG

DATE	REQUESTER	DESCRIPTION OF CHANGE
5/15/2012	Brian Harvey, GM Global Containers	Prior to being assembled, packaging materials need to be stored indoors and protected against the elements. (Section 2.1.3.1; Page 7)
5/15/2012	Brian Harvey, GM Global Containers	Modified Hand-Hold Requirements, limiting dimensions and features defined and listed in Standard Small-Lot Carton Table 3.1.2.1. (Section 3.1.3.1; Page 13)
5/15/2012	Brian Harvey, GM Global Containers	Stamp required being visible on a minimum of 2 sides of wood assemblies. (Section 4.1.1; Page 16)
5/15/2012	Brian Harvey, GM Global Containers	REQUIRED PALLET: ISPM-15 Stamped wood 9-Block Full Perimeter Pallet (1140mm x 980mm x 127mm). (Section 4.2; Page 17)
5/15/2012	Brian Harvey, GM Global Containers	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. (Section 6.7; Page 22)
5/15/2012	Brian Harvey, GM Global Containers	Best Practices for GM Powertrain parts, components and assemblies. (Section 8.2; Page 30)
6/5/2012	Brian Harvey, GM Global Containers	For parts that are larger than the standard footprint (1140 x 980mm) then the pallet needs to reflect the 9-Block full perimeter style, and the Width of the pallet and cartons need to be divisible to the width of a sea container. (Section 3.1.1.7; Page 11)
6/18/2012	Brian Harvey, GM Global Containers	Bulk container names and dimensions updated. (Section 3.1.4.1; Page 14)
6/22/2012	Brian Harvey, GM Global Containers	Update weight limit for manually handled containers to 15 kg with exceptions by specific locations (Section 3.1.2.1; Page 11)
10/18/2012	Brian Harvey, GM Global Containers	Update target weight for manually handled cartons to 12kg for GM Korea and Holden Powertrain, and 15kg for all other GM receiving locations.
2/14/2013	Nathan Klamerus, GM Global Containers	Update ISPM-15 Guidelines to include supplier responsibility for costs incurred by non-conforming wood dunnage and pallets.
5/24/2013	Nathan Klamerus, GM Global Containers	Update Section 2.1.3 Materials to include requirement for supplier to provide buyer with ingredients and materials list upon request.
1/24/2017	Steve Taglione GM Global Containers	Updated and streamlined entire document – Global Container team approved changes within document.
12/10/2019	Evan McCarthy GM Global Container	Added label placement requirements, fastener carton maximum weight, and 90% density requirements. Removed 2-4 hr guideline.
9/22/2021	Evan McCarthy	Various updates and added Parcel Shipment requirements

**NOTE:* Hyperlinks work best when logged into GM Supply Power before using links

QUICK REFERENCE: MANDATORY MINIMUM REQUIREMENTS



PACKAGING PERFORMANCE:

- The Supplier has the overall responsibility for the 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 is 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 that have the potential to corrode for a minimum of 120 calendar days from the time of shipment.
- All material must be palletized to permit handling with industrial fork trucks.
- Packs must be able to support a minimum stack height of 2.2 meters (86 inches) under dynamic loading with consideration for environmental conditions up to 60º Celsius (140º Fahrenheit) and 90% Relative Humidity.
- Packaging must support maximum sea container utilization (either standard or high cube). Unit pack (or pallet pack) dimensions should maintain an 1140 x 980 mm footprint, and a height limit of 1100 mm for standard, or 1250mm for high cube sea containers.
- 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 ***(reference Figure 6.7)***.
- Packaging must be 100% made from sustainable content and easily recyclable.
- All packaging plans are to be communicated using the ***GM 1738i Form*** or the OLCT for North America 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 ***ISPM-15 certified and stamped*** wood ***9-Block Full Perimeter*** design, with dimensions (1140mm x 980mm x 127mm). Deviations from this style of pallet require written GM Approval. Certified stamp must be on a minimum of two sides.

PRIMARY CARTON:

- All box styles are required to be Half-Slotted Containers ***(HSC)*** 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 inches) 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% made from sustainable content and easily 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.

1 INTRODUCTION

1.1 Purpose

The purpose of this document is to explain the contractual requirements and best practices for suppliers to create and maintain a robust intercontinental packaging plan to support GM production schedules.

1.2 Contractual Requirements

From the GM1700 Global – Global Supply Chain Requirements:

Section 1 General Information:

- These supply chain requirements are part of the terms and conditions of a supplier's purchase order with GM for all GM facilities around the globe unless otherwise agreed to in writing
- Any exceptions to any of the terms and / or requirements contained in this document must be approved, in writing, by General Motors.

Section 6.1 Intercontinental Packaging Overview (identifies Supplier's Responsibility)

- All intercontinental shipment of production parts / components must use expendable packaging.
- Part Quality is protected – parts and packaging are received in the same quality condition in which they were manufactured
- Suppliers must collaborate with GM to promote packaging methods to ensure production parts arrive at the assembly center in the same quality condition in which they were manufactured.
- This GM1738G Intercontinental Packaging Requirement for Production Parts supersedes all regional packaging specifications for intercontinental shipment of production parts and components.
- Refer to the Attached Links:
    - Global GM1738G Intercontinental Packaging Requirements for Production Parts
    - 1738i
    - OLCT

2 GENERAL REQUIREMENTS

2.1 Supplier's Responsibilities

** Note: The term "Supplier" can apply to GM Organizations such as "GM Propulsion" when applicable.*

The ***Regional / Business Unit Contact / Approver*** is the person at each receiving location that is ultimately responsible for approving the expendable packaging plan. Going forward in this document the term ***GM*** will refer to this person or group that can vary by region, business unit and facility. Their review of the 1738i Form is to understand dimensions, density, weight and part presentation to coordinate the implementation of the pack into their facilities' manufacturing process. Approval of the 1738i Form is confirmation of the general packaging plan (dimensions, density, weight and part presentation), the performance of the pack and quality of the parts is the Supplier's responsibility.

Container plan "approval" 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 or 1738i.

Any deviation in container type must be pre-approved via the OLCT or 1738i (for GMSA and GMIO) by the Containerization Central Office and then by GM Receiving Location(s). Deviations from the GM 1738 Specifications are highly discouraged.

2.1.1 Administrative Responsibilities

2.1.1.1 The supplier has the overall responsibility to ensure the part and packaging is received in the same quality condition in which they were manufactured, for a minimum of 120 calendar days from the time of shipment.

2.1.1.2 It is expected that the Supplier understands the nature of the part and its potential to rust in a high humid and large temperature swings in the environment for a prolonged period of time (minimum of 120 calendar days), and provide the appropriate level of corrosion protection for all parts, components and assemblies.

2.1.1.3 Suppliers are required to utilize the GM1738G Requirements for all intercontinental shipments of production parts and components. Failure to comply may result in Problem Reporting Resolution (PR/R) notices being issued.

2.1.1.4 The supplier must designate a single-point packaging contact for problem resolution. The individual's name, telephone number and email address should be documented in the Online Collaboration Tool or 1738i

2.1.1.5 GM Business Units may require different locations and quantities of identification labels. The Supplier is expected to work with each GM facility to a reasonable extent, understanding that if multiple facilities use the same part / pack, that a global approval is required.

2.1.2 **Packaging Costs**

2.1.2.1 **All expendable packaging related costs for the part, component or assembly, must be identified and integrated into the commodity piece price and submitted with the GM Global Purchasing quote package. Your GM Global Purchasing Buyer will negotiate the packaging cost during the contract establishment phase.**

2.1.2.2 **Price increases will not be granted for increased costs to correct defective and/or non-conforming packaging including Supplier-provided dunnage, containers, securement, pallets, etc.**

2.1.2.3 **Price increases will not be granted to Suppliers who fail to comply with the Global GM1738G Packaging Requirements.**

2.1.3 **Material**

2.1.3.1 It is the Supplier's responsibility to ensure that all wood packaging material (from the pallet to wood dunnage) is ISPM-15 compliant. ISPM-15 affects all wood packaging material (pallets, crates, dunnage, etc.) requiring that they be debarked and then heat treated or fumigated with methyl bromide and stamped or branded with a mark of compliance. Please visit web site: www.ippc.com (click on link**: IPPC Home**.) Suppliers that fail to comply with this requirement are liable for any and all costs and fines incurred by General Motors.

2.1.3.2 Wood assemblies (like pallets or crates) require a minimum of two whole visible stamps on opposite sides of the assembly.

2.1.3.3 Prior to being assembled, packaging materials need to be stored indoors and protected against the elements (rain, snow, and fog, excessive UV exposure, etc.) in order to maintain the materials quality and durability.

2.1.3.4 **Ingredients Disclosure-** Seller will promptly furnish to Buyer in such form and detail as Buyer may direct, a list of all ingredients and materials incorporated in all packaging.

2.1.4 Design and Development

2.1.4.1 The Supplier shall maintain responsibility for the design, procurement and implementation of any expendable packaging required for shipping parts to GM Receiving Locations.

2.1.4.2 The Supplier is required to work with GM at all times to optimize carton size, density, and dunnage (if required) to minimize logistics costs and repacking activities.

2.1.4.3 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.

2.1.5 Labeling and Logistics

2.1.5.1 Suppliers must pack, label and ship in compliance with the requirements of common carriers and follow all applicable dangerous goods (hazardous materials) transportation requirements from organizations like IMDG and IATA, including UN Hazard Communication Standards.

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

2.1.5.3 The Supplier must label containers in accordance with the GM Shipping Parts Identification Label Standard (GM1724) available in GM Supply Power.

2.1.5.4 The Supplier must properly pack and load expendable containers to ensure production part quality is not compromised and to comply with any other shipping instructions from the ***GM Approver***.

2.1.5.5 All containers must have 1724 labels applied 5 inches (12.7 centimeters) below the top of the container and label ends 1 inches (2.54 centimeters) prior to right edge of container. Label bar codes must be easily scannable and not obscured by any packaging materials.

2.1.6 **Continuous Improvement**

2.1.6.1 GM strives for continuous improvement from a packaging and supply chain perspective. Requests for changes of approved packaging may be made by the Supplier, to all of the receiving GM Business Unit Contacts / Approvers and to the appropriate GM Buyer.

2.1.6.2 All packaging changes need to be communicated using the Online Collaboration Tool. Packaging cost changes are submitted only to the appropriate GM Buyer.

2.1.6.3 Suppliers are encouraged to provide continuous improvement opportunities regarding packaging and to use the Supplier suggestion process (located in GM Supply Power) to get credit for continuous improvement.

2.2 GM Receiving Location or Business Units Responsibilities

2.2.1 The GM receiving plant is responsible to review the packaging plan proposal from the submitted OLCT or 1738i form to understand its dimensions, density, and presentation.

3 CHOOSING THE RIGHT CONTAINER

Throughout the GM1700 and GM1738G Requirements, it is documented that the Supplier is responsible to work with GM Receiving locations and Buyers to provide a robust intercontinental packaging. Failing to meet with any of these documented requirements will result in an issuance of a Problem Reporting and Resolution (PR/R) for cost recovery due to part damage, or waste in processing the non-conforming packaging and material through the supply chain. That makes the Supplier liable for a PR/R for every incident or unit load of non-conforming packaging.

The following section provides details and best practices to help the Supplier develop a robust expendable packaging design that will be able to survive an intercontinental supply chain and GM's manufacturing processes.

Definitions:

- ***Primary Packaging*:** The smallest modular carton or box used to contain a common quantity of parts; also considered to be the order quantity or the smallest common denominator.
- ***Secondary Packaging (or Unit Load):*** A palletized load of smaller modular cartons or primary packs
  - Primary packs and Secondary packs are the same thing when a bulk modular pack (or pallet carton) is used, or the Primary Pack is greater than ergonomic guideline at GM Business Unit
  - GM's standard Secondary Pack or unit load dimensions are 1140 x 980 x 1100mm for standard or 1250mm for high cube sea containers.
- ***Footprint:*** The length and width dimension of a container, carton or pallet. Represents the area of floor space of a single pack.

3.1 Design and Development: Primary Carton

3.1.1 General

3.1.1.1 The Supplier shall maintain responsibility for the design, procurement and implementation of any expendable packaging required for shipping parts to GM Receiving Locations per these GM1738G Requirements.

3.1.1.2 All box styles are required to be Half-Slotted Containers (**HSC**) with a removable lid. The preferred lid is a single layer or "gang-lid" tray design, roughly (1140 x 980 x 102mm).

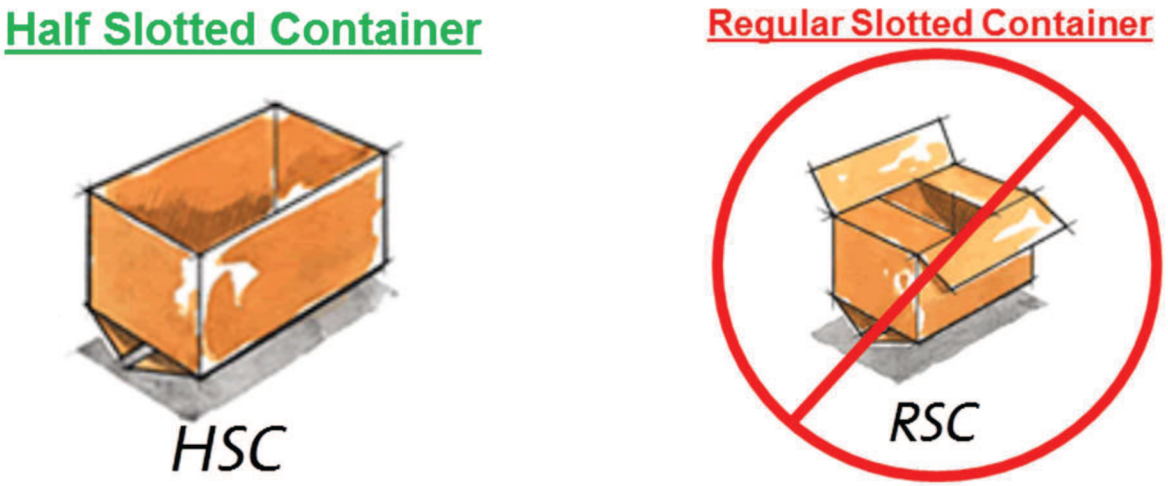


Figure 3.1.1.2: HSC vs RSC Style Boxes

3.1.1.3 Regular Slotted Containers (**RSC**) are strictly prohibited (exception: standard fastener cartons that have perforated top flaps for "rip-away" lid removal).

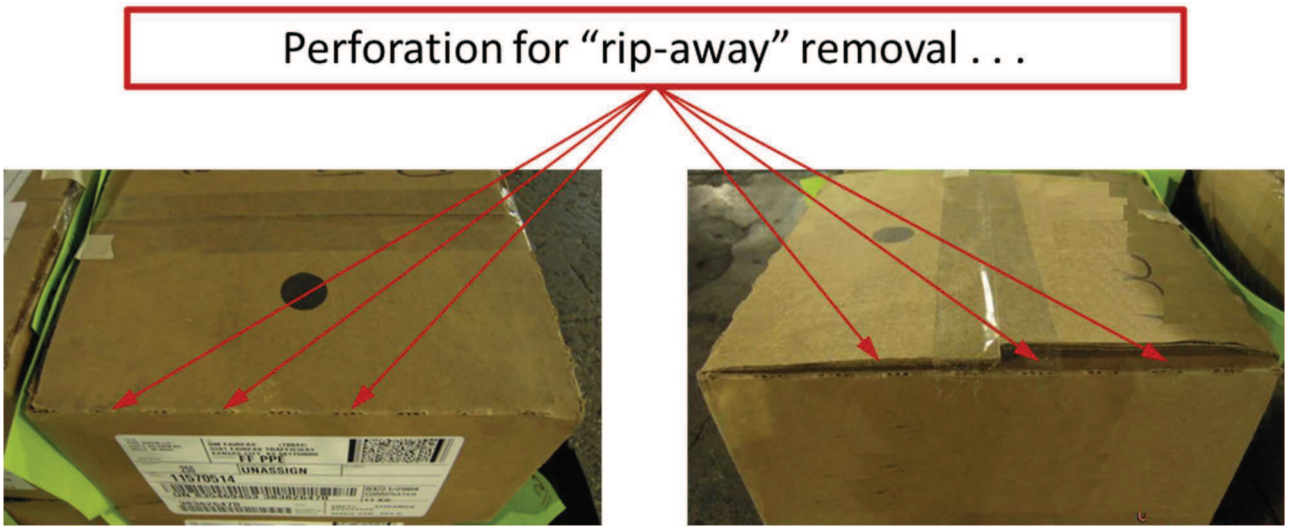


Figure 3.1.1.3: Example of Perforated "Rip-Away" Top Flaps on an RSC Carton

3.1.1.4 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

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

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

3.1.1.6 Cartons must be modular to the GM standard intercontinental pallet size of 1140mm x 980mm +0, -6.33mm (44.9"x 38.6" +0,-1/4") shipping footprint and reflect edge allowance.

3.1.1.7 For parts and components that are larger than the 1140 x 980mm footprint, the pallet design should reflect the 9-Block full perimeter pallet style, and the Width dimension of the pallet and cartons need to be divisible to the width of a sea container or 2280mm.

3.1.2 **Small Lot**

3.1.2.1 **Per 2016 GM-UAW Global Ergonomic guidelines:** A maximum weight limit of 18kg (40 lbs) for manually handled containers is the maximum recommended globally at GM. This limit represents a limit and not a target. This limit is intended to apply both to incoming material and to repacks done within a plant. The weight limits could be lower depending upon product, operations, etc.

3.1.2.2 For analysis and guideline purposes, the weighted average of the items handled on a route is one of the key indicators of the effort/exertion required. A weighted average takes into account not only the weight of a container but also the number of times it is handled in a given time period (generally a day or week). Past studies of CMA routes in North American operations have shown that target weighted averages between 13 & 14.5 kg (28 & 32 lbs.) are ergonomically acceptable given that the guidelines are followed.

3.1.2.3 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.

3.1.2.4 Ergonomic guidelines at the following GM Business Units further restrict this weight specification:

- GM Korea (all Business Units): 12kg (26 lbs.)
- GM Holden Powertrain (HEO): 12kg (26 lbs.)

3.1.2.5 **When determining carton size and construction, only use the GM approved intercontinental expendable packaging sizes (Table 3.1.2.1). These expendable containers are MANDATORY. GM will not accept sizes other than those listed in the tables below.**

Table 3.1.2.1: GM's Small Lot Carton Sizes (High Cube Sea Containers)

Carton Numbers	L	W	Layers per Pallet					Mullen Grade	Flute
			3	4	5	6	7		
			Height (mm)						
20CH	285	185	370	280	220	185	160	275#	C
10CH	365	285	370	280	220	185	160	275#	C
9CH	370	320	370	280	220	185	160	275#	C
8CH	480	280	370	280	220	185	160	275#	C
6CH	560	320	370	280	220	185	160	275#	C
5CH	560	370	370	280	220	185	160	275#	C
4CH	560	480	370	280	220	185	160	400#	CA
3CH	1120	320	370	280	220	185	160	400#	CA
980LID	1140	980	102					200#	C

980STD	1140	980	127

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

3.1.2.7 For optimum stacking performance a layer lid or "gang lid" is preferred (Figure 3.1.2.3a) however in some cases individual carton lids are required to maintain part quality from debris in the manufacturing environment (Figure 3.1.2.3b).

Figure 3.1.2.3a: Recommended Layer or Gang Lid

Figure 3.12.3b: Individual Carton Lids

3.1.3 **Hand Holds**

Figure 3.1.3.1: Example of Carton without Hand-Holds

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

- Length of carton is less than: 762mm or 30 inches
- Width of carton is less than: 406mm or 16 inches
- Height of carton is less than: 305mm or 12 inches
- Weight of carton is less than: 15 kg or 26.4 pounds

3.1.3.2 Based on the rules stated above, assuming that the weight of the cartons is 15 kg, then for the GM Standard sizes, the shaded carton numbers require hand-holds.

3.1.3.3 For cartons requiring hand-holds, they should not exceed 105mm (4”) length and 40mm (1.5”) height, and are located on the short side of the container.

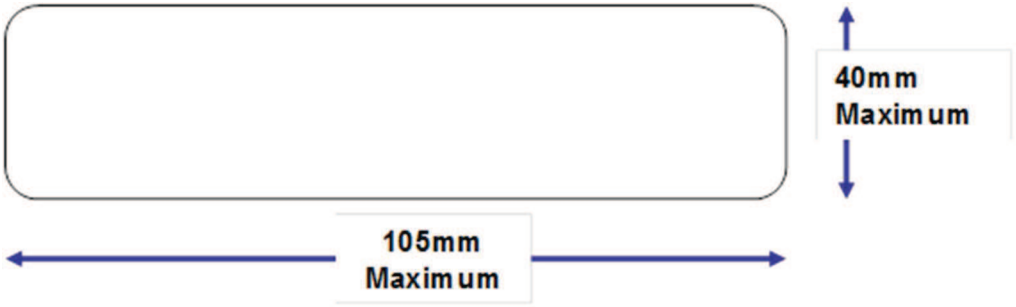


Figure 3.1.3.3: Hand-Hold Dimensions

3.1.3.4 The following is an example of the GM preferred expendable carton hand-hold design:

Figure 3.1.3.4: Two Views of a Perforated Hand-hold

3.1.3.5 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 to name just a few.

Bulk

3.1.4.1 Bulk containers (modular bulk boxes, pallet cartons, etc.) are used when manually handled cartons cannot accommodate part size or weight restrictions, see the Bulk section, and Table 3.1.4.1 for more details.

Table 3.1.4.1: GM's Bulk Carton Sizes

GM's High Cube Bulk Cartons

Carton Numbers	Exterior Dimension			Mullen Grade	Flute
	L	W	H		
560B1H	980	560	1100	1100#	CAA
560B2H	980	560	690	1100#	CAA
560B3H	980	560	480	1100#	CAA
560B4H	980	560	360	1100#	CAA
980B1H	1140	980	1100	1100#	CAA
980B2H	1140	980	690	1100#	CAA
980B3H	1140	980	480	1100#	CAA
980B4H	1140	980	360	1100#	CAA
980 LID	1140	980	102	350#	BC
980STD	1140	980	127		

Table 3.1.4.2:

GM's Oversized High Cube Bulk Cartons

Global Approved Deviation Sizes	L (mm)	W (mm)	H (mm)	Mullen Grade	Flute
1140B3H	1140	1140	480	1100#	CAA
1140B2H	1140	1140	690	1100#	CAA
1140B1H	1140	1140	1100	1100#	CAA
1320B3H	1320	1140	480	1100#	CAA
1320B2H	1320	1140	690	1100#	CAA
1320B1H	1320	1140	1100	1100#	CAA
1490B3H	1490	1140	480	1100#	CAA
1490B2H	1490	1140	690	1100#	CAA
1490B1H	1490	1140	1100	1100#	CAA
1700B3H	1700	1140	480	1100#	CAA
1700B2H	1700	1140	690	1100#	CAA
1700B1H	1700	1140	1100	1100#	CAA
1980B3H	1980	1140	480	1100#	CAA
1980B2H	1980	1140	690	1100#	CAA
1980B1H	1980	1140	1100	1100#	CAA
2280B3H	2280	1140	480	1100#	CAA
2280B2H	2280	1140	690	1100#	CAA
2280B1H	2280	1140	1100	1100#	CAA

3.1.4.4 All pallet cartons over 840mm (33") in height must have a scored drop side. Overall height can be either carton height + pallet or carton height + pallet + rotate dolly / lift table. 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 840mm from the floor. Perforation must be on 2 opposite sides.

EX: 725mm Tall Unitload + 407mm Rotate Dolly = 1132mm → *Drop Panel Required*

Bulk Carton with Access Panel

3.1.4.5 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 3.1.4.4: Example of Corrugate Corner Posts to be used with Bulk Cartons with Access Panels to Maintain Stacking Strength

3.2 Design and Development: Internal Packaging

3.2.1 Ensure parts are contained and protected to sustain their quality through the intercontinental supply chain for a minimum of 120 calendar days from the time of shipment which utilizes different modes of transportation including truck, sea and rail freight.

3.2.2 Corrosion protection is provided for all parts and components that have the potential to corrode for a minimum of 120 calendar days from the time of shipment.

3.2.3 Packaging design should maximize the cubic density in the carton, but does not sacrifice the quality and protection of the part. 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.

3.2.4 Minimize the different types of materials used for box and dunnage (i.e.: paper corrugate, poly bags, plastic foam, wood corner posts, etc.)

3.2.5 Minimize the quantity of internal dunnage (minimize elements of the design to efficiently package and protect the part)

3.2.6 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, reference Figure 3.2.6 below:

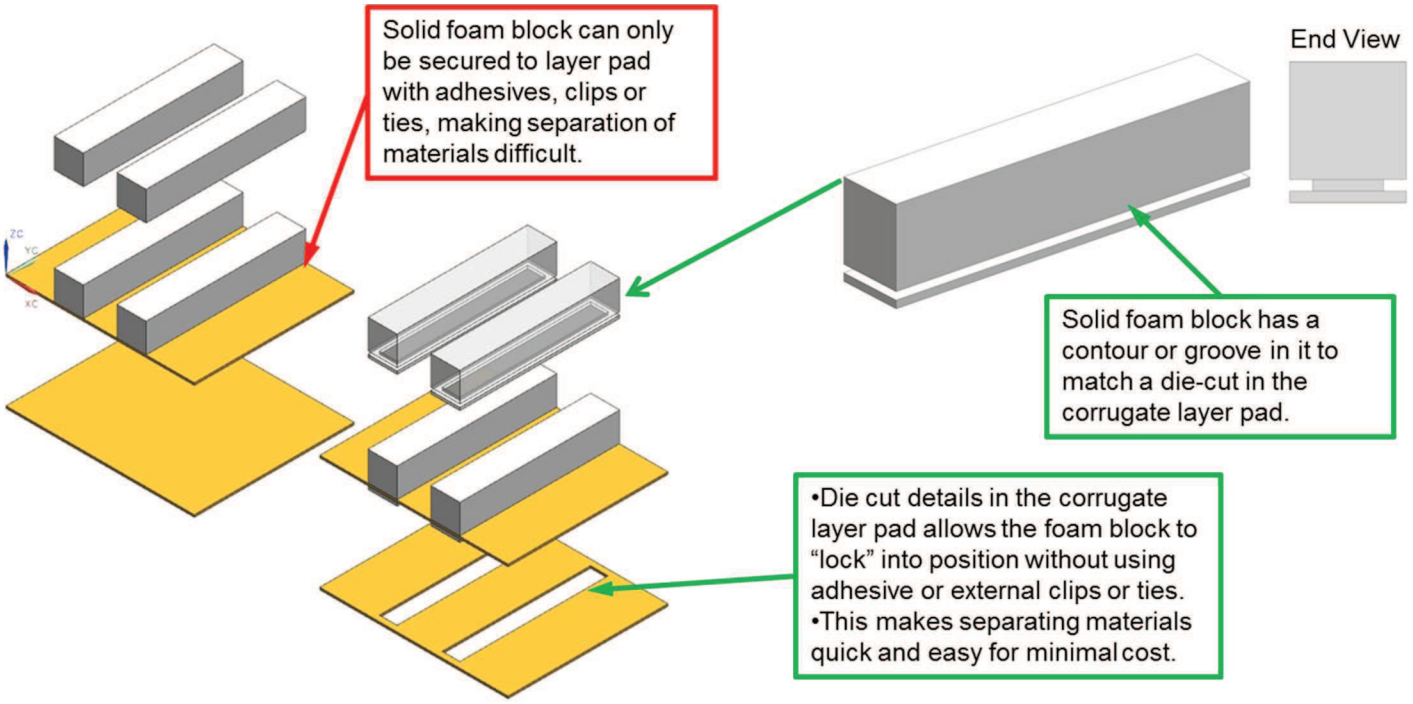


Figure 3.2.6: Die Cut Foam Design Allows the Foam Block to "Lock" into the Die Cut Layer Pad without Using Adhesives

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

3.2.8 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.

3.2.9 All packaging materials are required to be 100% made from sustainable content and easily recyclable to reduce costs for final disposal. If packaging materials cannot be economically recycled the supplier will be charged for labor and disposal costs

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

3.2.11 Packaging needs to be easy to unload and breakdown in order to reduce labor

3.3 Carton Closure

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

3.3.2 Lids for HSC cartons and boxes are tray styles. Deeper trays have more surface contact than shallow trays, therefore are more likely to stay in place. For most layer lids please use a 102mm or 4 inch deep tray style lid.

3.3.3 Do not mechanically fasten (tape, staple, glue, etc) lids to their boxes. Lids should have the ability to be easily removed without the use of tools as this is a safety concern and counterproductive to HSC + Lid style cartons

3.3.4 Packaging materials containing asphalt, such as asphalt sealing tapes, must not be used. Sustainable, re-pulpable, kraft (paper) tape where sealing performance is not compromised is preferred over plastic film tapes.

4 INTERCONTINENTAL STANDARD PALLET

4.1 GM Standard Footprint: 1140 x 980 x 127mm

4.1.1 Import Requirements for Wood Packaging Material (Including Dunnage):

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).

It is the supplier's responsibility to conform to the requirements. Proof of this treatment and use of a certified treatment supplier must 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: www.ippc.int for detailed guidelines.

Suppliers that do not comply with this requirement are liable for any and all costs and fines incurred by General Motors. These costs include, but are not limited to, 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).

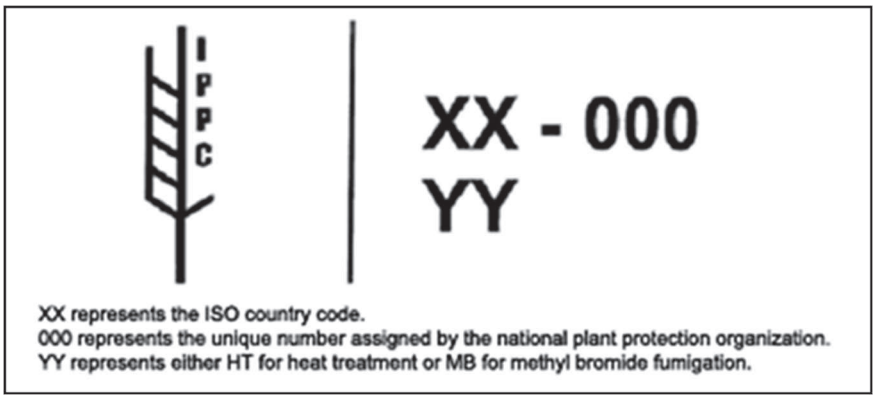


Figure 4.1.1: Certified ISPM-15 Stamp

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, preferably on 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 ******

4.1.2 To facilitate the recycling of used, expendable packaging, pallet cartons fastened to the pallet must be constructed with a breakaway" feature or other method to allow easy separation from the shipping pallet.

4.1.3 Alternate dimensions are not accepted without written approval for the deviation.

4.1.4 This footprint is in alignment with VDA (4525) and AIAG (RC-12) standards

4.1.5 For a four-way entry pallet, openings are required on all four sides of the pallet.

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

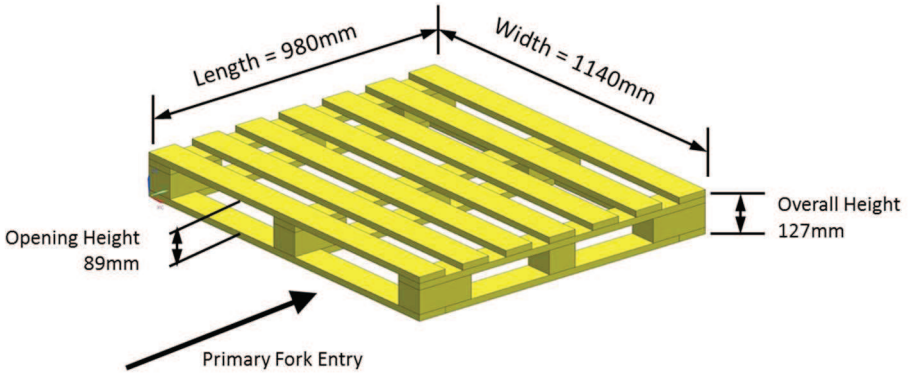


FIGURE 4.2: Example of a 9 Block Full Perimeter Pallet

4.2.1 Pallet dimensions are stated as follows:

(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:** **t**he 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, an 1140mm x 980mm x 127mm pallet has 1140mm deck boards, and the top of the deck is 127 mm above the floor. This will orient the pallet in the sea container with the primary opening of 89mm for the fork trucks to handle the pallet.

4.2.2 **This is the Primary style of wooden pallet for the following reasons:**

- Allows four-way fork entry
- Provides the most surface area of bottom deckboards to transfer the weight of the pallet when stacking
- The blocks are reinforced with bottom deckboards in both the Length and Width dimension, making them more robust to be handled by industrial fork trucks
- This style pallet has been consistently the most reliable to survive Intercontinental supply chains and the GM manufacturing process.

4.2.3 The primary opening is required to be 89mm or 3.5 inches.

4.2.4 Maximum gap between top deckboards no greater than 76mm or 3 inches

4.2.5

4.3 Stringer Style (See regional requirements for GMSA and GMK pallet guidelines)

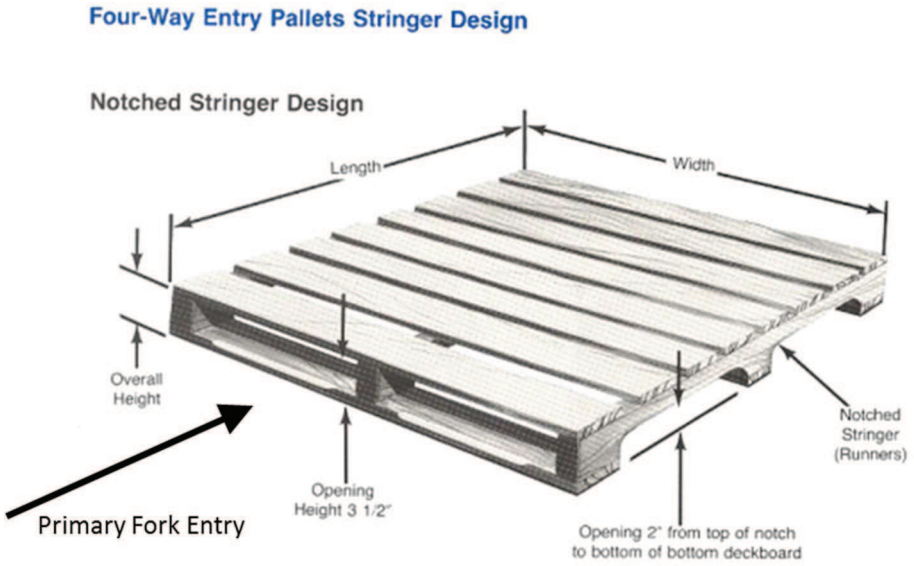


FIGURE 4.3: String Style Wooden Pallet (1140 x 980 x 127mm)

Stringer style pallet details:

- **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.

✓ Thus, an 1140mm x 980mm x 127mm pallet has 980mm stringers, 1140mm deck board, and the top of the deck is 127 mm above the floor. This will orient the pallet in the sea container with the primary opening (not the notched stringers) for the fork trucks to handle the pallet.

4.4 Alternate Materials and Styles

4.4.1 Alternate pallet style, designs and materials require written approval from the *GM Approver* prior to shipment.

4.4.2 For pallet load weighing less than 220 Kilograms (500 pounds), 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 corrugated or composite materials.

4.4.3 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

5 STACKING PERFORMANCE REQUIREMENTS

5.1 Pallet cartons must have sufficient stacking strength to cube out an ISO sea container, to a minimum of 2.2m or 2.5m based on sea container (standard or high cube) under dynamic weight loading, and a minimum of four unit loads high in warehouse conditions. Fasteners must stack 2 full pallets high in the warehouse.

5.2 Expendable unit loads should be certified to maintain stacking strength for up to 120 calendar days from the time of shipment. Design the unit load to perform under environmental conditions up to 60^0 C (140^0 F) and 90% Relative Humidity, or a minimum safety factor greater than 3.5 (multiplier of the weight the pack is expected to support during transit and warehouse activities).

5.3 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.

When stacking posts are used, it is important that the following requirements are met:

- Stacking posts are physically held in place and not “glued” to the box

- 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)
- Whenever possible, corrugated stacking posts are used before wood posts
- All solid wood posts are ISPM-15 certified and stamped

5.4 Alternate materials that improve stacking strength in place of stacking posts:

5.4.1 Fiber board edge protectors & Paperboard Cylinder Supports

Figure 5.4.1: Example of Edge Protectors

Figure 5.4.2: Paper Fiber Cylinders or Tubes for Corner Support

6 PARCEL SHIPMENTS

- **Parcel (non-palletized) shipments can only be utilized with written consent from the General Motors receiving facility**

6.1.1 Shipments below 13.6 kg (30 lbs.) should ship in minimum standard 200# burst / 32 ECT singlewall corrugated RSC boxes.

6.1.2 Shipments 14-18.2 kg (31-40 lbs.) should ship in minimum 250# burst / 40 ECT singlewall corrugated RSC boxes.

6.1.3 Inner packaging:

- Parts shall be protected with paperfill or other easily recyclable packaging materials such that shifting within the box is restricted
- Inner packaging also prevents the top and bottom flaps from compressing inwards, thereby compromising tape / closure.
- Liquids are recommended to use thermal foil seal, or have caps secured tightly and taped down, and bagged inside the box with absorbent material to contain small spills.

6.1.4 Taping and Labeling

- Seal Boxes with pressure sensitive plastic tape in an H pattern (See Photo below)
- Place label on flat portion of box, **NOT** across seams or corners
- Wipe down tape and label to prevent any curling back of edges
- If water activated tape is used, ensure machines are properly maintained for proper wetting of adhesive.

7 LABELING

7.1 The following general guidelines must be followed when placing labels on all containers.

7.1.1 Every container must be labeled in accordance with the GM 1724.

7.1.2 Each container requires two labels on opposite sides of the container

7.1.3 The location of the labels must be on the side of the container that is proportionate to the width of the sea container (factor of the 1140mm dimension).

7.1.4 Labels must be adhesive and secured to the container to prevent peeling during transportation and storage.

7.1.5 All information on the labels must remain visible and readable.

7.1.6 Label height must be reduced to fit the side of the carton when the carton's height is less than 4 inches or 102mm.

7.2 The Supplier must label containers in accordance with the GM Shipping Parts Identification Label Standard (GM1724) available in GM Supply Power.

7.3 Suppliers must pack, label and ship in compliance with the requirements of common carriers and follow all applicable dangerous goods (hazardous materials) transportation requirements from organizations like IMDG and IATA, including UN Hazard Communication Standards.

7.4 All containers and multi-wall tubes must have a box maker's certificate visible on the assembled container, and displaying edge crush, bursting or puncture test

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

7.6 The Supplier must properly pack and load expendable containers to ensure production part quality is not compromised and to comply with any other shipping instructions from the *GM Approver*.

7.7 Any unit load weighing over 500 kilograms (1100 pounds) requires an identification labels on two opposite sides of the unit load, a minimum of 150mm x 100 mm (6" x 4") in size, and "Red" in color. Figure 3.3.1 is a sample label.

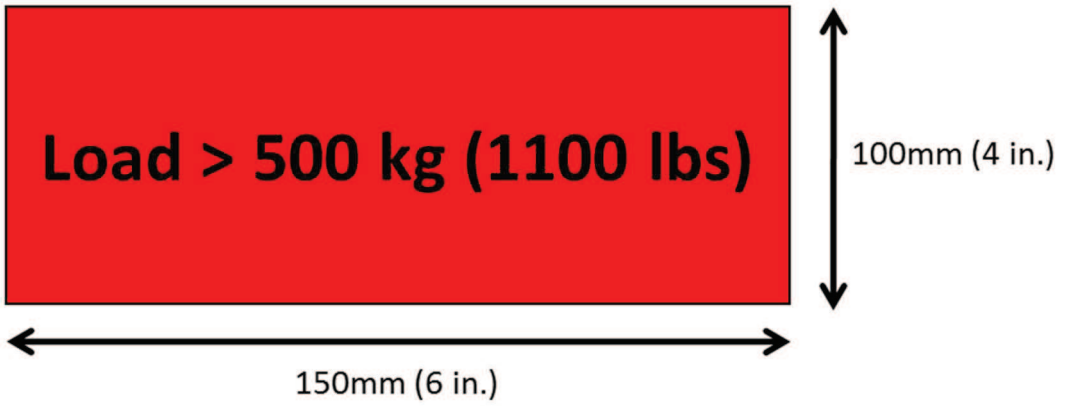


Figure 6.7: Example of Heavy Unit Load Label (minimum size)

7.8 Dynamic and warehouse stacking guidelines must be stenciled on each pallet carton on a minimum of two sides.

Example of preferred stenciling:

- Lists the loaded weight of each pallet carton
- Graphically shows the certified stacking guidelines for transit and warehousing
- Stencil is located on the opposite long sides of the pallet carton
- Stencil is 150 - 200mm high and easy to understand

Figure 6.8: Preferred Stacking Guideline Stencil

- For small-lot unit loads – this type of stencil should be on a label, and posted to the unit load on both long sides of the pallet pack

8 LOADING CARTONS TO A PALLET

8.1 Cartons are not to extend over the edge of the pallet.

Figure 7.1: UNACCEPTABLE – Cartons Are NOT to Extend Over the Edge of the Pallet

8.2 By utilizing the GM Intercontinental expendable cartons and modular pallet, mixed unit loads of different carton sizes and / or part numbers is permitted if properly labeled (see GM1724 for requirements).

8.3 Properly load the modular pallet to create a level unit load with proper alignment of the cartons. Use of additional packaging and/or empty box (to level the unit load) is permitted. Empty boxes must be labeled (recommend 102 mm or 4" fonts) as "EMPTY" for inventory control.

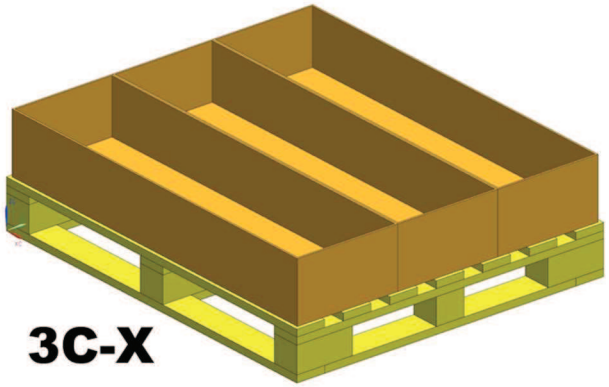
8.4 Do not allow the cartons to overhang the pallet.

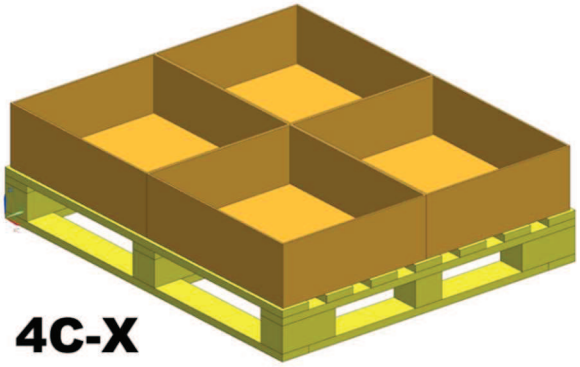
8.5 Boxes should come within 20 mm of the perimeter of the pallet, for all dimensions, in order to integrate the box and pallet for safe and robust stacking strength and optimum performance

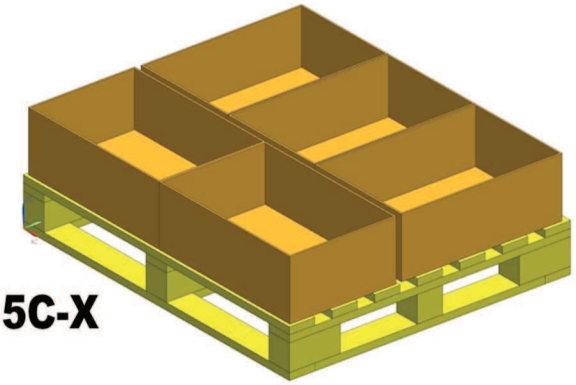
8.6 The following graphics provide a visual aid for proper loading and orientation of GM's Standard Small Lot cartons relative to the standard GM 980STD (1140mm x 980mm) intercontinental pallet.

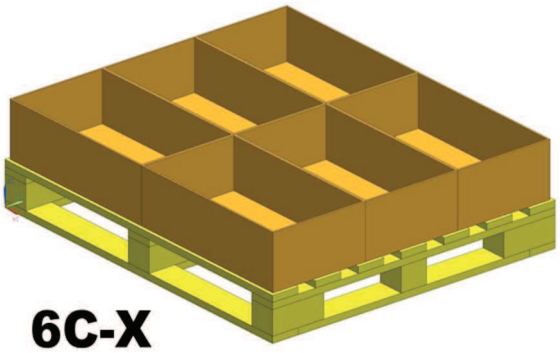
NOTE the "X" in the carton code for each of the sketches, represents the height of the carton based on how many layers will fit on a pallet for the standard 1140 x 980 x 1250mm unit load

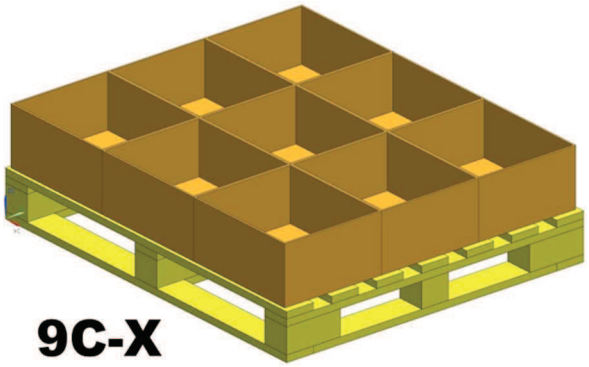
Table 7.7: Loading GM Standard Small Lot Cartons to the Standard Pallet

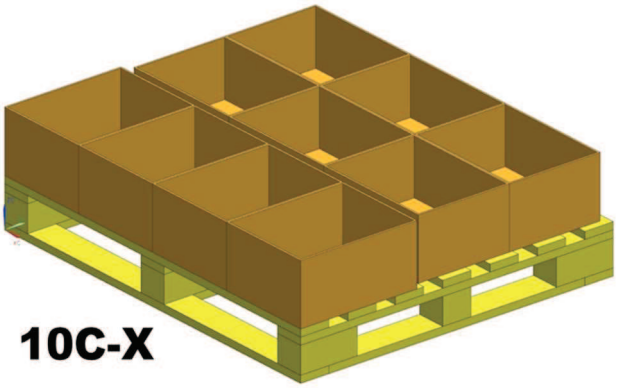


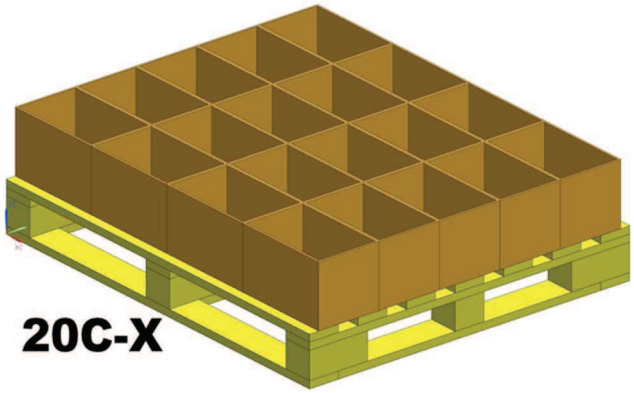












8.7 Securement of Cartons to the Pallet

8.7.1 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. Plastic strapping and/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.

8.7.2 The following methods are to be used for securing cartons to a pallet:

8.7.2.1 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.).

8.7.2.2 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.

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

9 BEST PRACTICES AND EXAMPLES TO AVOID

This GM1738G document provides details and methods for the Supplier to develop a robust intercontinental packaging plan for production parts. The following specifications should be followed to promote a pack that will maximize the cube utilization in an ISO Sea container, as well as fit into GM’s manufacturing processes.

The following points are considered the minimum requirements for expendable packaging performance and following these Best Practices and guidelines will help expedite the approval process and ensure compliance with GM’s best practices.

9.1 Best Practices for Vehicle Assembly Parts, Components and Assemblies

9.1.1 The Supplier has the overall responsibility for the packaging design, performance, recyclability and the quality of the part through the supply chain for a minimum of 120 calendar days from the time of shipment.

9.1.2 Part quality is protected; parts and packaging are received in the same quality condition in which they were manufactured, regardless of incoterms.

9.1.3 Corrosion protection is provided for all parts and components that have the potential to corrode for a minimum of 120 calendar days from the time of shipment.

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

9.1.5 Packs must be able to support a minimum stack height of 2.2 meters (86 inches) under dynamic loading with consideration for environmental conditions up to 60° Celsius (140° Fahrenheit) and 90% Relative Humidity.

9.1.6 All box styles are required to be Half-Slotted Containers (HSC) with a removable lid. For all manually handled cartons, the preferred lid is a single layer or “gang” lid.

9.1.7 Do not tape layer lids or HSC individual lids to their boxes.

9.1.8 Regular Slotted Containers (RSC) are strictly prohibited, except for fasteners and standard parts that have perforated top flaps for “rip-away” lid removal (Reference Figure 3.1.1.3, page 10).

9.1.9 Dynamic and warehouse stacking guidelines must be stenciled on a minimum of two of the long sides of each pallet carton.

9.1.10 GM’s required pallet style is a solid wood **ISPM-15 certified and visibly stamped** 9-Block Full Perimeter, with dimensions (1140mm x 980mm x 127mm). Certified stamp must be visible on a minimum of two sides. Deviations from this style and dimension pallet require GM written approval prior to shipment.

9.1.11 Unit load (or pallet pack) dimensions should maintain an 1140 x 980 mm footprint and a height of 1100mm for standard or 1250mm for high cube sea containers.

9.1.12 Packaging must support max sea container utilization (either standard or high cube).

9.1.13 Eliminate the need for repacking by minimizing internal dunnage, and making the pack easy to unload.

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

9.1.15 Packaging design should maximize the cubic density of the primary carton, but not sacrifice the quality and protection of the part.

9.1.16 Minimize different materials used within the pack (corrugate paper, plastic, wood, etc.)

9.1.17 Do not glue foam or wood to corrugate material. Using adhesive on two different materials is strictly prohibited.

9.1.18 All expendable packs must be easy to unload and breakdown to reduce labor for recycling.

9.1.19 All packaging materials need to be 100% made from sustainable content and easily recyclable to reduce costs for final disposition.

9.2 Best Practices for GM Powertrain Parts, Components and Assemblies (in addition to items mentioned in 8.1)

9.2.1 Rubber or plastic seals and O-rings must be protected against part deformation or set. Some materials may require barrier protection for humidity control and contaminating environments.

9.2.2 Precision and delicate parts may require additional shock and vibration protection.

9.2.3 Openings may require caps, sealant or compatible preservatives applied to critical surfaces.

9.2.4 Springs, bushings, rings and other parts that have a tendency for tangling may require separation ease unloading.

9.2.5 Gaskets must have facial orientation and should be bundled to facilitate handling and maintain shape (protection from deformation or set).

GM Korea Regional Best Practices

Design and Development

1. When developing packaging design for newly developed/modified parts, if there is any special requirements from GM Korea such as returnable/benchmarking idea or any other strategic requirements, supplier shall consider it during package design development phase.
2. If packaging passed validation test, but damage has being found at GM Korea destination, supplier has to provide documentation that packaging is strong enough to withstand the impact during transportation and supply chain.
3. Supplier support in continuous improvement activities. This includes packaging changes to support logistics optimization.

Small Lot (Primary Box.)

1. GM Korea ergonomic weight limit is 12kg
2. GM Korea prohibits the use of Gang lid (Layer lid) due to the box stack delivery issue.
3. Including Lid, Cartons must be modular to the GM standard intercontinental pallet size of 1140mm x 980mm +0, -6.33mm (44.9”x 38.6” +0,-1/4”) shipping footprint and reflect edge allowance.

Secondary Box

1. GMK prohibits the use of stringer style pallets

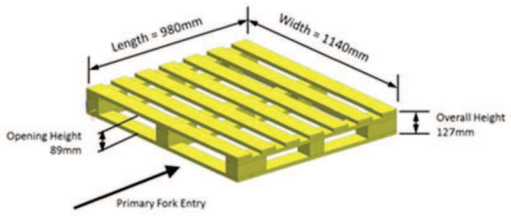


FIGURE 4.2: Example of a 9 Block Full Perimeter Pallet

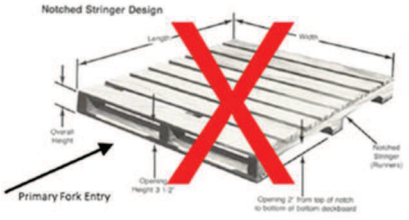


FIGURE 4.3: String Style Wooden Pallet (1140 x 980 x 127mm)

2. Including all of securements such as Lid, Bottom wooden pallet, Stretch film and Corner supporters, the size of Completed Secondary pallet must be equal to the GM standard intercontinental size of 1140mm x 980mm +0, -6.33mm (44.9”x 38.6” +0,-1/4”)

Loading pallets to a Sea-container

1. All of pallets should be loaded into a Sea-container by 1140 mm width in a row.
2. Supplier must validate to load the correct amount of secondary pallets into sea-container as the way of 6 deep into 20ft or 12 deep into 40ft.

(Ex. If 1140*980*1100 pallet, 24 plts in 20ft and 48 plts in 40ft)

3. Supplier should guarantee the packaging not to be deformed which deformation could prevent the correct amount of pallets loading.

GM South America Regional Best Practices

1. GMSA Prohibits the use of stringer style pallets.

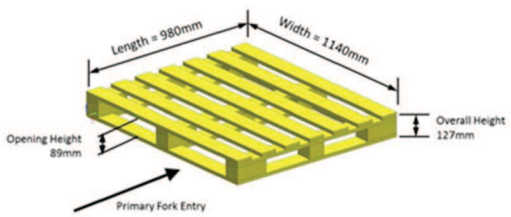


FIGURE 4.2: Example of a 9 Block Full Perimeter Pallet

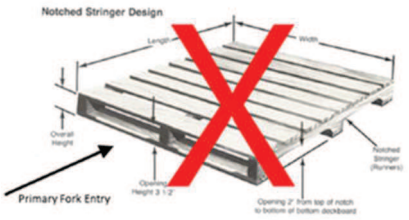


FIGURE 4.3: String Style Wooden Pallet (1140 x 980 x 127mm)

2. GMSA supports the use of plastic pallets for all parts being imported from other countries. Due to strict receiving practices (MAPA Audit) for wooden pallet imports by the Brazilian Government, one-way plastic pallets are preferred by GMSA. These pallets must be 100% made from sustainable content, easily recyclable, and have full perimeter construction. These pallets must support the same stacking requirements as their wood counterparts. Plywood pallets are also acceptable following the same complaint construction of solid wood pallets.

9.3 Communicating Packaging Plans

All packaging plans are to be communicated using the 1738i or Online Collaboration Tool (for North America) and are required to be submitted to the GM Receiving Location(s) a minimum of 52 weeks prior to the start of production. Links to this form are included throughout this document as well as a blank version and completed sample form have been included in the appendix of this document (refer to Exhibits #1 and #2).

9.4 Examples to Avoid

9.4.1 Do not use wood crates and outer packs that require disassembly and mechanical tools to open.

Figure 8.4.1: ***UNACCEPTABLE*** Wood Crating

DO: Integrate 100% sustainable content and easily recyclable materials and features within the pack discussed in Section 5: Stacking Performance Requirements

9.4.2 Maximize the density within primary cartons; reduce the amount of “air” or “space” within a pack by either filling it with more parts in a different orientation or by using a smaller carton.

Figure 8.4.2: ***UNACCEPTABLE*** – Partially Filled Carton

DO: Either pack more parts into the same size carton – or – pick a smaller carton.

9.4.3 Pyramid packs are unacceptable; ensure level palletized unit loads for shipments.

Figure 8.4.3: ***UNACCEPTABLE*** Pyramid Pallet Packs

9.4.4 Use additional packaging material to level a unit load. For example, empty boxes properly labeled (see Figure 8.4.4b) to help GM control inventory and part counts, can be used to level out partial pallet loads.

Figure 8.4.4a: ***UNACCEPTABLE*** Pyramid Pack next to ***ACCEPTABLE*** Level Pack

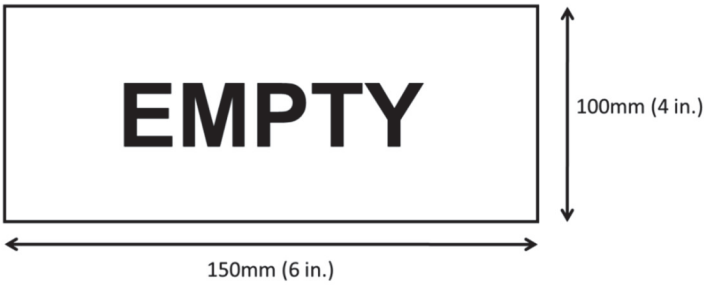


Figure 8.4.4b: Example of an EMPTY Box Label Used to Create a Level Unit Load

10 RETURNABLE CONTAINERS

10.1 For commodities that GM elects to use returnable containers for intercontinental shipment of parts or components, the Supplier is required to follow the receiving location's General Requirements and Returnable Container Systems documented for each region.

10.2 In the event returnable containers are not available to support production schedules, a back-up expendable pack should be used. The Supplier must design, develop, validate and procure the back-up expendable pack to meet the following requirements:

- The pack must meet the same requirements listed throughout this document
- The Supplier holds the same responsibilities listed earlier in this document, including documenting the back-up expendable pack via the 1738i Form
- Pack dimensions must be less than or equal to the returnable container
- It must have the same standard pack, part orientation and part access as the returnable container

11 CUSTOMER CARE AND AFTERSALES (SERVICE PARTS)

For packaging standards and guidelines for service parts, please refer to the latest document from this link:

Packaging Standards and Guidelines

12 CKD AND IPC OPERATIONS

GM Locations receiving material from CKD or IPC Business Units are bound by that supplier agreement, and should consult that document for packaging specifications and requirements.

13 EXHIBIT 1: BLANK GM 1738i FORM

Supplier Information (Shipping):					
Company Name:				DUNS #:	
Company Address:		City:		Country Code:	
Pkg Contact Name:		Tel #:			
Email Address:		Fax #:			

Links *GM 1738G Document* *GM 1738i Global Contact List*

SELECT REGION	INTERCONTINENTAL	Shaded Cells Autopopulate	Shaded Cells Drive Calculations

Section 1: Program & Part Information

A.	GM Customer Region	GMIO			H.	GM Program(Code):					
B.	GM Plant(s) City, State, Country	1.		2.		3.					
		4.		5.		6.					
C.	MCR of Plant(s)	1.	2.	3.	4.	5.	6.				
D.	Part Description (Name)										
E.	Part Weight (kg): each				I.	Number of Parts / Vehicle:					
F.	Part Dimensions L x W x H (mm)				J.	Packaging Cost / Part:					
G.	Part Number(s)				K.	Corrosion Protection Require	No				

Section 2: Packaging Information

		1° Primary Packaging (Carton Pack)			2° Secondary Packaging (Unit Load)		
A.	Density (Quantity of parts)	0			0		
B.	Packaging Strategy						
C.	Carton Code	No Primary Cartons Used					
D.	Carton Type (design)						
E.	Material Type						
F.	Securement / Closure Type						
G.	Total Loaded Weight (kg - full)	0.00			0.00		
H.	Box Dimensions L x W x H (mm)	0	0	0	0	0	0
I.	Dunnage & Description	Any bags present in packaging?			Any bags present in packaging?		
		No			No		
J.	Labels (Quantity / Location)	2	Opposite Long Sides of Carton		2	Opposite Short Sides of Carton	
L.	Stack Description	Cartons/Layer:	0	Layers/Pallet: 0	Transit (Dynamic) Stack:	6	Warehouse (Static) Stack: 2
M.	Pallet Dimensions L x W x H (mm)	0	0	0			

Section 3: Shipping & Logistics (For Logistics Planning)

A.	Transportation Mode (predominant)	
B.	2° Unit Loads per Transit Mode	
C.	Hazard Class	Not Applicable

Schedule Pack:	*Unit Load Utilization of Transit Mode:*
-	0%
	Not Compliant
	Target > 85%

Section 4: Visual References (Pictures)

4-1. Part Only	4-2. Part + Dunnage + Primary box	4-3. Primary + Secondary Unit Load

A. Additional Details:

Section 5: Approval Information

A.	Dept / Function	Name / Signature	Date	Dept / Function	Name / Signature	Date
	Tier-1:					
	GM Pkg:					
	GM Mfg:					
	GM Envr:					

14 EXHIBIT 2: COMPLETED EXAMPLE OF GM 1738i FORM

Supplier Information (Shipping):					
Company Name:	ABC Auto Supply			DUNS #:	12345678
Company Address:	123 Compliance Blvd.	City:	Springfield	Country Code:	
Pkg Contact Name:	John Doe	Tel #:	123-456-7891		
Email Address:	email@supplier.com	Fax #:			

Links — GM 1738G Document — GM 1738i Global Contact List

SELECT REGION: INTERCONTINENTAL | Shaded Cells Autopopulate | Shaded Cells Drive Calculations

Section 1: Program & Part Information

A.	GM Customer Region	GM North America				H.	GM Program(Code):				
B.	GM Plant(s) City, State, Country	1. Arlington ASM., TX, USA		2. Flint ASM., MI, USA		3.					
		4. Fort Wayne ASM., IN, USA		5.		6.					
C.	MCR of Plant(s)	1.	2.	3.	4.	5.	6.				
D.	Part Description (Name)	Main Body Wiring Harness									
E.	Part Weight (kg): each	12.360			I.	Number of Parts / Vehicle:	1				
F.	Part Dimensions L x W x H (mm)	1118	317	235	J.	Packaging Cost / Part:	$3.100				
G.	Part Number(s)	1234865			K.	Corrosion Protection Require	No				

Section 2: Packaging Information

		1° Primary Packaging (Carton Pack)			2° Secondary Packaging (Unit Load)		
A.	Density (Quantity of parts)	6			72		
B.	Packaging Strategy	Expendable			Expendable		
C.	Carton Code	3C4 Carton 1120mm x 320mm x 240mm			980STD 1140mm x 980mm x 127mm		
D.	Carton Type (design)	Returnable Tote			Pallet		
E.	Material Type	Corrugated Paper DW			ISPM-15 Wood		
F.	Securement / Closure Type	Layer Lid					
G.	Total Loaded Weight (kg - full)	76.14 Over 15KG			903.53		
H.	Box Dimensions L x W x H (mm)	1120	320	240	1140	980	1087
I.	Dunnage & Description	Any bags present in packaging? No			Any bags present in packaging? No		
		Yes	Style: Cells / Dividers		No		
			Material: Corrugated- SW				
			Weight: 1.3				
J.	Labels (Quantity / Location)	2	Opposite Long Sides of Carton		2	Opposite Short Sides of Carton	
L.	Stack Description	Cartons/Layer: 3	Layers/Pallet: 4		Transit (Dynamic) Stack: 2	Warehouse (Static) Stack: 3	
M.	Pallet Dimensions L x W x H (mm)	1140	980	127			

Section 3: Shipping & Logistics (For Logistics Planning)

A.	Transportation Mode (predominant)	40' Standard ISO Container
B.	2° Unit Loads per Transit Mode	48
C.	Hazard Class	Not Applicable

Schedule Pack:	Unit Load Utilization of Transit Mode:
72	91% Compliant (Target > 85%)

Section 4: Visual References (Pictures)

4-1. Part Only

4-2. Part + Dunnage + Primary box

4-3. Primary + Secondary Unit Load

A. Additional Details:

Section 5: Approval Information

		Dept / Function	Name / Signature	Date	Dept / Function	Name / Signature	Date
A.	Tier-1:	Supplier Packaging Engineer					
	GM Pkg:	Plant Packaging Engineer					
	GM Mfg:						
	GM Envr:						

Obsolete GM standard box sizes

Table 3.1.4.1: GM's Standard Bulk Carton Sizes

CARTON NUMBER	EXTERIOR DIMENSIONS			MULLEN GRADE (lbs)	FLUTE	APPROXIMATE TARE WEIGHT		MIN PERFORMANCE REQUIREMENTS			
								COMPRESSION STRENGTH (BCT)	BURST STRENGTH (BS)	WEIGHT LIMIT	
	L (mm)	W (mm)	H (mm)			(kg)	(lbs)	(kg)	(kPa)	(kg)	(lbs)
560B1	980	560	970	1100#	CAA	6.8	15.0	2100	1200	300	660
560B2	980	560	600	1100#	CAA	4.8	10.5	4200	1200	300	660
560B3	980	560	420	1100#	CAA	3.8	8.4	6300	1200	300	660
980B1	1140	980	970	1100#	CAA	10.5	23.1	2100	1200	300	660
980B2	1140	980	600	1100#	CAA	6.9	15.2	4200	1200	300	660
980B3	1140	980	420	1100#	CAA	5.8	12.7	6300	1200	300	660
980LID	1140	980	102	350#	BC	1.6	3.5				

- Carton height dimensions ***DO NOT*** include pallet height or weight
- Standard Cartons are all meant to be used with GM's standard 9-Block Full Perimeter Pallet.
- HSC = Half Slotted Carton with individual or layer lid

Table 3.1.4.1: GM's Standard Bulk Carton Sizes

CARTON NUMBER	EXTERIOR DIMENSIONS			MULLEN GRADE (lbs)	FLUTE	APPROXIMATE TARE WEIGHT		MIN PERFORMANCE REQUIREMENTS			
								COMPRESSION STRENGTH (BCT)	BURST STRENGTH (BS)	WEIGHT LIMIT	
	L (mm)	W (mm)	H (mm)			(kg)	(lbs)	(kg)	(kPa)	(kg)	(lbs)
560B1	980	560	970	1100#	CAA	6.8	15.0	2100	1200	300	660
560B2	980	560	600	1100#	CAA	4.8	10.5	4200	1200	300	660
560B3	980	560	420	1100#	CAA	3.8	8.4	6300	1200	300	660
980B1	1140	980	970	1100#	CAA	10.5	23.1	2100	1200	300	660
980B2	1140	980	600	1100#	CAA	6.9	15.2	4200	1200	300	660
980B3	1140	980	420	1100#	CAA	5.8	12.7	6300	1200	300	660
980LID	1140	980	102	350#	BC	1.6	3.5				

- Carton height dimensions ***DO NOT*** include pallet height or weight
- Standard Cartons are all meant to be used with GM's standard 9-Block Full Perimeter Pallet.
- HSC = Half Slotted Carton with individual or layer lid

Table 3.1.4.2:

GM's Oversized Bulk Cartons

Global Approved Deviation Sizes	L (mm)	W (mm)	H (mm)	Mullen Grade	Flute
1140B3	1140	1140	420	1100#	CAA
1140B2	1140	1140	600	1100#	CAA
1140B1	1140	1140	970	1100#	CAA
1320B3	1320	1140	420	1100#	CAA
1320B2	1320	1140	600	1100#	CAA
1320B1	1320	1140	970	1100#	CAA
1490B3	1490	1140	420	1100#	CAA
1490B2	1490	1140	600	1100#	CAA
1490B1	1490	1140	970	1100#	CAA
1700B3	1700	1140	420	1100#	CAA
1700B2	1700	1140	600	1100#	CAA
1700B1	1700	1140	970	1100#	CAA
1980B3	1980	1140	420	1100#	CAA
1980B2	1980	1140	600	1100#	CAA
1980B1	1980	1140	970	1100#	CAA
2280B3	2280	1140	420	1100#	CAA
2280B2	2280	1140	600	1100#	CAA
2280B1	2280	1140	970	1100#	CAA