



NOTICE: This publication is available digitally on the AFDPO WWW site at:
<http://afpubs.hq.af.mil>.

OPR: HQ AMC/DOVG (MSgt Harold Simpson)

Certified by: HQ AMC/DOV
(Colonel Jimmie L. Simmons)

Supersedes AMCH 11-214, 2 February 1998.

Pages: 50
Distribution: F

This handbook is published to provide AMC aircrews with a reliable quick reference for the proper handling and air transportation of hazardous materials. It consolidates procedures and restrictions found in diverse publications into a convenient single reference for aircrews. It will not be used in place of service and command directives or as the sole authority to displace or bump cargo. Each aircraft commander and loadmaster/boom operator is entitled to a copy of this handbook. Loadmasters/Boom operators will carry this handbook on all operational missions.

Chapter 1— GLOSSARY OF TERMS

	7
1.1. General.	7
1.2. Binary Munitions.	7
1.3. Certificate of Equivalency (COE).	7
1.4. Combination Packaging.	7
1.5. Compatibility Groups.	7
1.6. Competent Authority (CA).	7
1.7. Competent Authority Approval (CAA).	7
1.8. Composite Packaging.	7
1.9. Consumer Commodity.	7
1.10. Defense Transportation System (DTS).	7
1.11. Domestic Shipments.	7
1.12. Excepted Quantities.	7
1.13. Explosive.	8
1.14. Explosives.	8

1.15. Hazard Classes.	8
1.16. Hazardous Cargo.	8
1.17. Hazardous Materials.	8
1.18. Hazardous Substance.	8
1.19. Hazardous Waste.	8
1.20. Inhalation Hazard Zones.	8
1.21. Identification (ID) Number.	8
1.22. Individual Issues (Basic Combat Load).	8
1.23. Inner Packaging/Receptacle.	8
1.24. Interim Hazard Classification (IHC).	8
1.25. Kilopascal (KPA).	9
1.26. Kit.	9
1.27. Leaker.	9
1.28. Limited Quantities (LTD QTY).	9
1.29. Net Explosives Weight (NEW).	9
1.30. North America (NA) Number.	9
1.31. Outer Packaging.	9
1.32. Overpack.	9
1.33. Packaging Group (PG).	9
1.34. Passenger Prohibition ("P") Codes.	9
1.35. Performance Oriented Packaging (POP).	9
1.36. Proper Shipping Name (PSN).	9
1.37. Protected Cargo.	9
1.38. Remote Parking.	10
1.39. Reportable Quantity (RQ).	10
1.40. Secondary Hazards.	10
1.41. Single Packaging.	10
1.42. Special Provisions.	10
1.43. Subsidiary Risk.	10
1.44. Tactical/Contingency.	10
1.45. Technical Name.	10
1.46. Toxic Chemical Ammunition.	10

1.47. Toxic Substances.	10
1.48. Transportation Control Number (TCN).	10
1.49. Transporter's Number.	10
1.50. United Nations (UN) Serial Number.	10
Chapter 2—HAZARD CLASSIFICATION	11
2.1. General.	11
2.2. Class 1 (Explosive).	11
Figure 2.1. Division 1.1 Label	11
Figure 2.2. Division 1.2 Label.	12
Figure 2.3. Division 1.3 Label.	12
Figure 2.4. Division 1.4 Label.	12
Figure 2.5. Division 1.5 Label.	13
Figure 2.6. Division 1.6 Label.	13
2.3. Class 2 (Gases).	13
Figure 2.7. Division 2.1 Label.	13
Figure 2.8. Division 2.2 Label.	14
Figure 2.9. Division 2.3 Label.	14
2.4. Class 3 (Flammable Liquid).	14
Figure 2.10. Class 3 Label.	14
2.5. Class 4 (Flammable Solid).	14
Figure 2.11. Division 4.1 Label.	15
Figure 2.12. Division 4.2 Label.	15
Figure 2.13. Division 4.3 Label.	15
2.6. Class 5 (Oxidizers and Organic Peroxides).	15
Figure 2.14. Division 5.1 Label.	16
Figure 2.15. Division 5.2 Label.	16
2.7. Class 6 (Poisons and Infectious Substances).	16
Figure 2.16. Division 6.1 Labels.	17
Figure 2.17. Division 6.2 Label.	17
2.8. Class 7 (Radioactive Material).	17

Figure 2.18. Class 7 Labels.	18
2.9. Class 8 (Corrosives).	18
Figure 2.19. Class 8 Label.	18
2.10. Class 9 (Miscellaneous Dangerous Goods).	18
Figure 2.20. Class 9 Label.	19
2.11. Otherwise Regulated Material (ORM-D Consumer Commodity).	19
Figure 2.21. Consumer Commodity Labels.	19
Chapter 3— PACKAGING	20
3.1. General.	20
3.2. Performance Oriented Packaging (POP).	20
Figure 3.1. Typical POP Package Marking.	20
3.3. POP Exempted Packaging.	20
3.4. Palletized Cargo.	21
3.5. Overpack.	21
3.6. Grandfather Clause.	21
3.7. Fuel Levels.	21
3.8. Empty Packaging.	21
Figure 3.2. Typical UN Package Markings.	22
Chapter 4— MARKING AND LABELING	23
4.1. Marking.	23
Figure 4.1. Typical Marking/Labeling.	25
Figure 4.2. Typical Hazardous Waste Label.	25
Figure 4.3. Cargo Aircraft Only Label.	25
Figure 4.4. Magnetic Material Label.	26
Figure 4.5. Oxygen Label.	26
Figure 4.6. Empty Label.	26
Chapter 5— CERTIFICATION	27
5.1. Certification.	27
5.2. Certification References.	27
5.3. Documentation Requirements.	27

5.4. Hazardous Waste.	28
Figure 5.1. Shipper's Declaration for Dangerous Goods.	29
Table 5.1. Key Entries for Shipper's Declaration.	30
Figure 5.2. Dangerous Goods in Excepted Quantities Label.	32
Figure 5.3. Typical Manifest Summary Page.	33
Figure 5.4. EPA Hazardous Waste Manifest.	34
Chapter 6— AIRCRAFT LOADING AND PASSENGER MOVEMENT	35
6.1. General.	35
6.2. Segregation Table for Hazardous Materials.	35
6.3. Loading and Stowing.	35
6.4. Passenger Movement.	36
Table 6.1. Segregation Table.	38
Table 6.2. Compatibility Table.	40
Chapter 7— TACTICAL AND CONTINGENCY AIRLIFT	41
7.1. Definitions.	41
7.2. Applicability.	41
7.3. Certification.	41
7.4. Packaging.	41
7.5. Spare Fuel.	42
7.6. Fuel-In-Tank Limits.	43
7.7. Lithium Batteries.	43
7.8. Compatibility.	44
7.9. Captured Ammunition.	44
7.10. Transporting Foreign Troops.	44
7.11. Transporting Passengers.	44
7.12. Presidential Support Missions.	44
Chapter 8— AIRCREW RESPONSIBILITIES	46
8.1. General.	46
8.2. Briefings.	46
8.3. Border Clearance and Diplomatic (DIP) Clearances.	46

8.4. Flight Plans.	46
8.5. Departure/Arrival Notifications.	47
8.6. Aircraft Parking.	47
8.7. Leaking Cargo.	48
8.8. Jettison Authorization.	48
Table 8.1. Area Placard Required for Parked Aircraft Containing Hazardous Cargo.	49
Attachment 1— LEAKER LIST	50

Chapter 1

GLOSSARY OF TERMS

1.1. General. The following terms and definitions are commonly used during the preparation, documentation, and airlift of hazardous materials.

1.2. Binary Munitions. Munitions that contain two or more chemical agents that remain separated until use. When stored or transported separately, each agent is not considered a toxic chemical.

1.3. Certificate of Equivalency (COE). DOD approved packaging which meets or exceeds DOT standards.

1.4. Combination Packaging. One or more inner receptacles secured in an outer package and tested in this configuration as safe for transport.

1.5. Compatibility Groups. Alpha character that is part of hazard class/division assigned to explosives and ammunition, i.e., 1.1E, 1.4S, 1.3G, etc. Compatibility groups are used to determine those items that may be transported together without significantly increasing the probability of an accident or the magnitude of effects in the event of a mishap.

1.6. Competent Authority (CA). A national agency responsible under its national law for the control or regulation of hazardous materials transportation. The Department of Transportation (DOT) is the CA for the United States.

1.7. Competent Authority Approval (CAA). A written approval granted by the DOT that identifies specific methods of packaging for which the United Nations requirement has not been established.

1.8. Composite Packaging. An outer packaging and inner receptacle so constructed that once assembled remains an integrated single unit.

1.9. Consumer Commodity. A material that is packaged in small quantities intended or suitable for personal or household use. Identified by "ORM-D" classification for domestic shipment. Class 9 hazard classification is used for international shipments and may be used for domestic shipments.

1.10. Defense Transportation System (DTS). Military controlled or operated terminal facilities, aircraft, sealift and government controlled air and land transportation.

1.11. Domestic Shipments. Shipments between the United States (including Alaska and Hawaii) and territories or possessions, i.e., Puerto Rico, Virgin Islands, Guam, etc.

1.12. Excepted Quantities. Very small quantities of hazardous materials that are excepted from most testing, marking, loading, compatibility, and certification requirements necessary for other hazardous items.

1.13. Explosive. A substance or mixture of substances which under external influences are capable of rapidly releasing energy in the form of gas and heat.

1.14. Explosives. All ammunition, explosive fillers, demolition material, solid rocket motors, liquid propellants, cartridges, pyrotechnics, mines, bombs, warheads, grenades, and components of assembled kits, missile, and space systems. These are also referred to as munitions. Under United Nations system explosive cargo is hazard class 1.

1.15. Hazard Classes. Hazardous materials that are grouped together based on similar chemical and physical characteristics.

1.16. Hazardous Cargo. Hazardous materials in quantities that require their identification on flight plans, messages, and as part of arrival/departure notifications. This information is used for selecting an appropriate aircraft parking location and/or to alert emergency response forces of hazards involved in the event of a mishap.

1.17. Hazardous Materials. Substance or materials that are determined to be capable of posing an unreasonable risk to health, safety, and property during movement through the DTS. These materials are also sometimes referred to as "HAZMAT" or dangerous goods.

1.18. Hazardous Substance. A material that, if spilled, could adversely affect the environment. Also see "Reportable Quantity."

1.19. Hazardous Waste. Any material that is discarded, manufactured, or produced as a by-product or no longer serves its intended purpose and has characteristics of ignitability, corrosivity, reactivity, or toxicity as defined by 40 CFR 261.3. Also see Transporter's Number.

1.20. Inhalation Hazard Zones. Identifies hazardous materials (gases and liquids) in relation to the inhalation toxicity of the material or substance into four zones. Zone A represents the greatest toxicity hazard, Zone D the least.

1.21. Identification (ID) Number. A four digit number preceded by "ID"; i.e., ID 8004, used to identify those hazardous materials or articles, not designated by the UN or DOT, which may pose a hazard during air transportation. These numbers are used during commercial air transportation. ID numbers are acceptable for military airlift.

1.22. Individual Issues (Basic Combat Load). Amount or types of munitions required and controlled by an individual to perform his/her unit's designated operations committed mission.

1.23. Inner Packaging/Receptacle. A container that requires an outer packaging to be acceptable for air transportation.

1.24. Interim Hazard Classification (IHC). Temporary classification assigned by the DOD to commercial explosives or to explosives under development in order to satisfy hazard communication requirements during military transportation and storage. A copy of the IHC accompanies each shipment until a final hazard classification is determined.

- 1.25. Kilopascal (KPA).** Internationally acceptable measurement of pressure.
- 1.26. Kit.** A set of materials or articles used for specific purpose, shipped as a single item and assigned a single stock number. Items, by hazard classification, within the kit may or may not be compatible.
- 1.27. Leaker.** A vehicle, unit of self-propelled equipment, or support equipment which has been determined by testing or by history to have a high risk of having an in-flight leak of fuel or other hazardous materials. Items identified as leakers require restrictions on fuel quantity within the item and may also require specific loading configurations. See [Attachment 1](#) for a list of items known to be Leakers.
- 1.28. Limited Quantities (LTD QTY).** Certain types of hazardous materials, in small quantities, that may be placed in good quality packaging and not tested or marked IAW Performance Oriented Packaging requirements. Certification and compatibility requirements still apply.
- 1.29. Net Explosives Weight (NEW).** Total quantity of all explosive material to include primary explosives, secondary explosives, pyrotechnics, and propellants in a container or package.
- 1.30. North America (NA) Number.** A four-digit number preceded by "NA" used to identify a hazardous material; i.e., NA 2291. The number may be cross-referenced to a specific PSN. NA numbers are only acceptable within the United States and Canada.
- 1.31. Outer Packaging.** The outer protection of a composite or combination package.
- 1.32. Overpack.** (1) One or more packages placed in a single container for convenience of handling or storage. (2) Placement of containers which do not meet pressure requirement in an approved outer package.
- 1.33. Packaging Group (PG).** Indicates degree of danger presented by a hazardous material. Roman numerals, I, II, and III are used to represent "Great," "Medium," and "Minor" danger, respectively. PG designation determines type and level of packaging required for a specific hazardous material.
- 1.34. Passenger Prohibition ("P") Codes.** Identifies whether passengers are acceptable to be carried on aircraft with hazardous materials.
- 1.35. Performance Oriented Packaging (POP).** Type of packaging based on its ability to perform to a specified level of integrity during performance tests. Packages must pass drop, leak, pressure, stacking, and vibration tests, as appropriate, for the type of contents.
- 1.36. Proper Shipping Name (PSN).** The name assigned to a hazardous material to describe an article or substance on shipping documents, packaging, flight notifications, etc.
- 1.37. Protected Cargo.** Items that are required to be secured, identified, segregated, handled, or accounted for in such a manner as to ensure their safeguard or integrity. Protected cargo may be either classified, controlled, pilferable, or sensitive items.

1.38. Remote Parking. Commonly called a "Hot Spot." An aircraft parking location that is so situated as to minimize damage to property and injury to personnel if a mishap should occur during loading/unloading of certain hazardous materials or aircraft handling.

1.39. Reportable Quantity (RQ). Specified quantities of a hazardous substance that, if spilled, may require reporting through environmental channels.

1.40. Secondary Hazards. An additional hazard that is part of or attached to a hazardous material or item, i.e., fuel in a vehicle, hazardous materials in a life raft, etc.

1.41. Single Packaging. A package/container designed and tested to contain a hazardous material without inner packaging.

1.42. Special Provisions. Codes from AFMAN 24-204(I) used to further identify or provide amplifying information concerning a proper shipping name.

1.43. Subsidiary Risk. A hazardous material which upon classification is determined to meet criteria for more than one class. In such cases, a primary hazard classification and a subsidiary risk is assigned.

1.44. Tactical/Contingency. See [Chapter 7](#).

1.45. Technical Name. A chemical or scientific name used to further identify a generic or Not Otherwise Specified (N.O.S.) proper shipping name; i.e., Corrosive Liquids N.O.S. (Caprylyl Chloride).

1.46. Toxic Chemical Ammunition. Includes nerve, blister, and incapacitating (physiological) or other chemical warfare agents with or without explosive components. Normally, such items will be found in Compatibility Group K. This term does not apply to binary chemical weapons when components are transported on separate aircraft.

1.47. Toxic Substances. Hazardous materials, other than chemical ammunition, which pose a highly toxic inhalation, ingestion, or absorption hazard. This includes Division 2.3, Zone A, poison gases and Division 6.1, Packing Group (PG) I, poison liquids.

1.48. Transportation Control Number (TCN). A 17-position alphanumeric data element assigned to control a shipment throughout the DTS.

1.49. Transporter's Number. Approval by State or Federal Environmental Protection Agency (EPA) to transport hazardous waste. EPA Transporter's Number is assigned to the airlift wing's home base. Enter your base's number _____ for future reference. Flying units assigned to bases without an assigned number may not accept hazardous waste for transport into or out of domestic locations.

1.50. United Nations (UN) Serial Number. A four-digit number preceded by "UN" used to identify a hazardous material, i.e., UN 3166. The number may be cross-referenced to a specific PSN. UN numbers are acceptable worldwide for all modes of transportation.

Chapter 2

HAZARD CLASSIFICATION

2.1. General. Nine classes of hazardous materials have been established under the UN classification system. Hazard classifications are based on the chemical and physical characteristics of material and its reaction under various test conditions. Items or articles possessing more than one hazardous material or hazard are classed based on the highest hazard presented by the materials or combination of materials. Some materials are further subdivided into divisions to specifically identify the character and predominance of associated hazards. Below is the list of hazard classes and divisions with an illustration of each associated label.

2.2. Class 1 (Explosive).

2.2.1. Division 1.1. Materials in this division have a mass explosion hazard. An explosion would likely affect the entire load instantaneously. Examples: Charges; Demolition Charges, Shaped; Explosive, Blasting, Type A.

Figure 2.1. Division 1.1 Label



2.2.2. Division 1.2. Materials in this division present a fragment hazard. This cargo will not mass detonate, however, explosions may occur individually or in combination. Examples: Ammunition, Smoke; Ammunition, Illuminating.

Figure 2.2. Division 1.2 Label.



2.2.3. Division 1.3. Materials in this division present a mass fire hazard. Cargo loads consisting of this material may burn vigorously and be difficult to extinguish. Examples: Rocket Motors; Aerial Flares, various Fireworks.

Figure 2.3. Division 1.3 Label.



2.2.4. Division 1.4. Materials in this division present a minor hazard. Cargo loads consisting of this material present little or no hazard other than that associated with a fire. Examples: Cartridges for Weapons; Fuse, Safety; Hand Signal Device.

Figure 2.4. Division 1.4 Label.



2.2.5. Division 1.5. Materials in this division include very insensitive explosives which have little probability of initiation or of transition from burning to detonation. Example: Explosive Blasting, Type B or Blasting Agents.

Figure 2.5. Division 1.5 Label.

2.2.6. Division 1.6. Materials in this division are extremely insensitive articles which do not have a mass explosive hazard. Example: Articles, Explosive, Extremely Insensitive.

Figure 2.6. Division 1.6 Label.

2.3. Class 2 (Gases).

2.3.1. Division 2.1. Materials in this division are flammable gases which may be ignitable when in a mixture with air. Examples: Acetylene, Liquefied Petroleum Gases, Aerosols (flammable).

Figure 2.7. Division 2.1 Label.

2.3.2. Division 2.2. Materials in this division include nonflammable, nonpoisonous compressed gases which either replaces oxygen normally in the atmosphere or provides oxygen to support combustion. Examples: Helium, Fire Extinguishers, Aerosols (nonflammable).

Figure 2.8. Division 2.2 Label.



2.3.3. Division 2.3. Materials in this division present a poison (toxic) or corrosive inhalation hazard to humans. Degree of toxicity or inhalation hazard is described by zones. Zone A is the most hazardous. Examples: Arsine; Carbon Monoxide; Ethylene Oxide. (See [Figure 2.9](#) for label.)

Figure 2.9. Division 2.3 Label.



NOTE: Either Label is appropriate.

2.4. Class 3 (Flammable Liquid).

2.4.1. No Divisions. There are no divisions assigned to this class. Any liquid having a flashpoint of not more than 60.5 degrees C. or 141 degrees F. Examples: Gasoline, Diesel, Isopropanol.

Figure 2.10. Class 3 Label.



2.5. Class 4 (Flammable Solid).

2.5.1. Division 4.1. Materials in this division include wetted explosives, self-reactive material, and readily combustible materials. Examples: Celluloid, Sulfur, Titanium Hydride.

Figure 2.11. Division 4.1 Label.



2.5.2. Division 4.2. Materials in this division are solids which are spontaneously combustible, pyrophoric or self-heating. Examples: Carbon; Maneb, Hafnium Powder.

Figure 2.12. Division 4.2 Label.



2.5.3. Division 4.3. This division includes any materials which become flammable or give off a flammable (or toxic) gas when it comes in contact with water. Examples: Magnesium, Cerium.

Figure 2.13. Division 4.3 Label.



2.6. Class 5 (Oxidizers and Organic Peroxides).

2.6.1. Division 5.1. This division includes any material that may by yielding oxygen, cause or enhance the combustion of other materials. Examples: Zirconium Nitrate; Strontium Perchlorate; Sodium Chlorate.

Figure 2.14. Division 5.1 Label.



2.6.2. Division 5.2. This division includes substances susceptible to exothermic decomposition when exposed to heat, impurities or impact. Examples: Organic Peroxide; Type D, Solid; Organic Peroxide; Type D, Liquid.

Figure 2.15. Division 5.2 Label.**2.7. Class 6 (Poisons and Infectious Substances).**

2.7.1. Division 6.1. This division includes any material other than a gas, which is poisonous or toxic to humans if ingested, inhaled, or by skin contact. Examples: Barium Cyanide; Cyanide Solutions; Potassium Arsenate. Label for this division may be skull and crossbones for poisons or for pesticides, an "X" over an ear of wheat, an "X" over an ear of wheat.

Figure 2.16. Division 6.1 Labels.

2.7.2. Division 6.2. Infectious Substances, sometimes called Etiologic Agents, with microorganisms (or their toxins) known to cause disease in humans or animals. Includes diagnostic specimens containing a virus or bacteria. Example: Infectious Substances, Affecting Humans.

Figure 2.17. Division 6.2 Label.



2.8. Class 7 (Radioactive Material).

2.8.1. No Divisions. There are no divisions assigned to this class. Radioactive material is any material having a specific activity greater than 0.0002 curies per gram. The level of radiation emitted from the container is identified by the appropriate label.

Figure 2.18. Class 7 Labels.



2.9. Class 8 (Corrosives).

2.9.1. No Divisions. There are no divisions assigned to this class. A corrosive is a liquid or solid which causes visible destruction or irreversible alterations to human skin or causes severe corrosion to steel or aluminum. Examples: Batteries, Wet, Filled with Acid; Copper Chloride Hypochlorite solutions.

Figure 2.19. Class 8 Label.



2.10. Class 9 (Miscellaneous Dangerous Goods).

2.10.1. No Divisions. There are no divisions assigned to this class. Includes items that are anesthetic, noxious, or have properties that are not covered by any other hazard class or cause annoyance or discomfort to passengers or aircrew. Example: Engines, Internal, Combustion; Dry Ice; Lithium Batteries, Consumer Commodity (for international shipment).

Figure 2.20. Class 9 Label.



2.11. Otherwise Regulated Material (ORM-D Consumer Commodity).

2.11.1. This is not a hazard class. This designation may only be used for shipments between domestic locations. Includes material packaged in small quantities suitable for retail sale to individuals for personal care or household use.

Figure 2.21. Consumer Commodity Labels.



Chapter 3

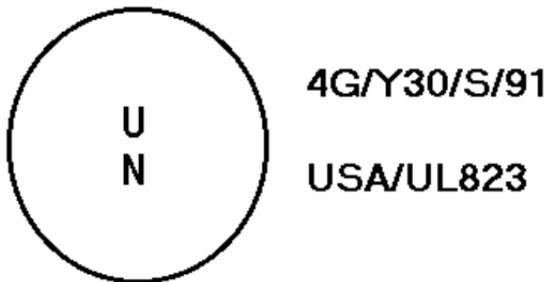
PACKAGING

3.1. General. Packaging is not a direct responsibility of the aircrew. However, it is important that individuals have a basic understanding of packaging requirements.

3.2. Performance Oriented Packaging (POP).

3.2.1. The most significant change with the adoption of the international system involves packaging. Previously, hazardous material packaging was based on DOT specifications. Few substitutions were allowed. In contrast, UN recommendations are based on testing effectiveness. The acronym "POP" (Performance Oriented Packaging) is used to identify containers designed to meet specified levels of integrity and safety when subjected to performance tests. This testing is done at an approved facility and tested containers are then marked IAW internationally recognized codes to indicate compliance. For example:

Figure 3.1. Typical POP Package Marking.



NOTE: See [Figure 3.2.](#) for additional information.

3.3. POP Exempted Packaging. Not all hazardous materials containers require POP testing. While not regulated by international requirements, each country is expected to set standards for safe transport of exempted material. AFMAN 24-204(I) provides specific packaging criteria for hazardous items that are exempted. Examples of POP exempted packaging include, but are not limited to:

- 3.3.1. Dry Ice
- 3.3.2. Life-Saving Appliances
- 3.3.3. Class 2 Compressed Gas Cylinders
- 3.3.4. Class 7 Radioactive Materials
- 3.3.5. Magnetized Material
- 3.3.6. Packaging Which Exceeds 400 Kgs (882 Lbs) Net Mass
- 3.3.7. Packages Whose Capacity Exceeds 450 L (119 Gals)
- 3.3.8. Other Items Identified in AFMAN 24-204(I)

3.3.9. NOTE: Materials identified as being in Excepted or Limited Quantities require a different level of testing and are not POP marked.

3.4. Palletized Cargo.

3.4.1. Bulk hazardous materials, without POP markings on individual containers, that are placed on warehouse pallets or skids as a unitized load, may have POP markings and other required markings and/or labels located on a marking board.

3.4.2. Unitized loads consisting of similar items which have POP markings on individual containers, should have at least one container with the markings facing to the outside.

3.5. Overpack.

3.5.1. Single or multiple POP approved containers may be placed in a single outer container for convenience or ease of handling, provided the materials are compatible.

3.5.2. The outer overpack container does not require POP testing but must be marked with the following statement, **"INSIDE (or INNER) Packages Comply With Prescribed Specifications."**

3.6. Grandfather Clause.

3.6.1. Hazardous materials packaged prior to 1 January 1990 need not be in POP approved containers. Hazardous materials packaged prior to 1 January 1990 will have shipping papers, i.e., cargo manifest annotated **"Government owned goods packaged prior to 1 January 1990."** There is no requirement to mark containers with this statement.

3.7. Fuel Levels.

3.7.1. Specific instructions for preparing motor vehicles, self-propelled units, and engine powered support equipment for air shipment is found in service technical manuals. The following fuel in tank requirements apply (see [Chapter 7](#) for exceptions):

3.7.1.1. Vehicles and self-propelled equipment are not to exceed one half tank of fuel.

3.7.1.2. Engine powered support equipment must be completely drained of fuel.

3.7.1.3. LPG, natural gas or other flammable gas powered vehicles must have the gaseous fuel emptied from fuel tank, lines, and regulator. Purging is not required.

3.7.1.4. Boats (or other watercraft) will be drained.

3.7.1.5. When external fuel tanks are transported as cargo they will be drained and purged and documented as such.

3.8. Empty Packaging.

3.8.1. The following items may be shipped as "Empty" if no other hazardous materials are present (i.e., wet-cell batteries).

3.8.1.1. Aircraft engines and internal combustion engines that have been drained and purged of flammable fuel. Purging fluid remaining within the engine will resemble and smell like fuel.

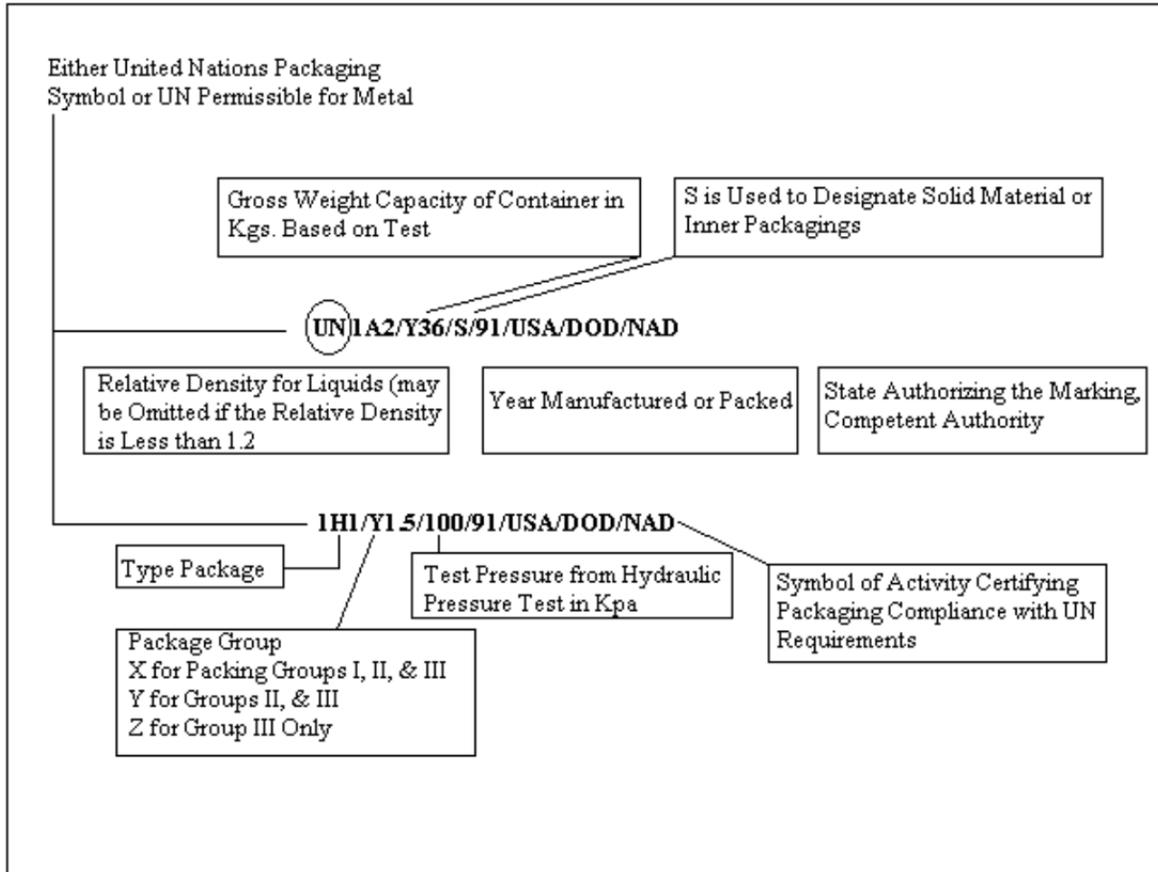
3.8.1.2. Compressed gas cylinders containing a nonflammable or nonpoisonous gas with a pressure reading at the gauge of 25 PSI.

3.8.1.3. Fuel tanks and other containers (i.e., jerricans) drained and completely purged of all fuel to include any residue.

3.8.2. An “EMPTY” label will be used on the outside of the container. Not required for vehicles or equipment unless crated or containerized.

3.8.3. A Shipper’s Declaration is not required if DD 1387, Military Shipping Label, attached to the item is marked “Non-Hazardous.”

Figure 3.2. Typical UN Package Markings.



Chapter 4

MARKING AND LABELING

4.1. Marking. Refer to [Figure 4.1](#) for an example of marking and labeling information.

4.1.1. MIL-STD 129 governs requirements for the uniform marking of military supplies and equipment for shipment to include hazardous materials.

4.1.2. AFMAN 24-204(I) and other approved certification documents may also require additional markings for air transportation.

4.1.3. General marking requirements.

4.1.3.1. As a minimum, the appropriate PSN and corresponding UN, NA, or ID number must be on the outside of a package for the content(s) within.

4.1.4. Other markings, as required:

4.1.4.1. **"RQ"** and/or **"Waste"** will precede PSN when appropriate.

4.1.4.2. **"POP"** markings are normally located on the opposite side of the package from other markings.

4.1.4.3. Flash point for flammable liquids in either Celsius or Fahrenheit.

4.1.4.4. **"Orientation"** arrows are required for combination packages containing liquids and will be located on opposite sides of the container. A rectangular border around the arrows is optional.

4.1.4.5. **"THIS END (or SIDE UP)"** will be marked on the top of a container when **"Orientation"** arrows are used.

4.1.4.6. **"AIR ELIGIBLE"** indicates that the inner containers of a combination package have met pressure testing standards. Similar markings, i.e., **"AIR APPROVED"** may be used.

4.1.4.7. **"INHALATION HAZARD"** identifies materials that pose an inhalation risk.

4.1.4.8. **"LIMITED QUANTITY"** or **"LTD QTY"** is used to identify materials that meet this definition.

4.1.4.9. **"INSIDE (or INNER) PACKAGES COMPLY WITH PRESCRIBED SPECIFICATIONS"** identifies that inside container(s), placed in an overpack, are in authorized or POP approved packaging. All other markings, as appropriate, will also be on the overpack container.

4.1.4.10. Hazardous materials packaged IAW a DOT Exemption or COE will be marked with the approval number, i.e., "DOT-E 6262."

4.1.5. Hazard Class and Handling Labels. Hazardous materials must have the appropriate label applied consistent with its hazard classification, unless exempted by regulation. Hazard labels are depicted in [Chapter 2](#).

4.1.5.1. General labeling requirements:

4.1.5.1.1. Hazard class label will normally be located on same side as PSN.

4.1.5.1.2. A label is required for each hazardous material when compatible items consisting of different classes are packed in the same packaging or outside the container (overpack).

4.1.5.1.3. A subsidiary risk label, when required by the certification document, will be located near the primary label.

4.1.5.1.4. Hazardous waste is identified by the waste generator's name, address, and waste manifest number in addition to EPA warning statement. This is normally accomplished by a label similar to [Figure 4.2](#).

4.1.5.1.5. "CARGO AIRCRAFT ONLY" label ([Figure 4.3](#).) is used to identify cargo which passengers, other than mission essential, may not travel.

4.1.5.1.6. "RADIOACTIVE MATERIAL" requires two labels that will be located on opposite sides of the package.

4.1.5.1.7. "EMPTY" label ([Figure 4.6](#).) identifies a container, cylinder, engine, or other receptacle that formerly contained a hazardous material. See Paragraph [3.8](#).

4.1.5.1.8. A **"MISCELLANEOUS DANGEROUS GOODS"** label is not required when the article is not enclosed in packaging and is readily identifiable. (motor vehicle, aircraft engines, wheeled support equipment, etc.)

4.1.5.1.9. A **"MAGNETIZED MATERIAL"** label ([Figure 4.4](#).) will be used in place of a Class 9 "Miscellaneous Dangerous Goods" label for material that has a specified magnetic field that could affect flight.

4.1.5.1.10. An **"OXYGEN"** label ([Figure 4.5](#).) may be used in place of a **"NONFLAMMABLE"** and **"OXIDIZER"** label for packages containing PSN: Oxygen, Compressed or Oxygen, Refrigerated Liquid.

4.1.5.2. Written text, i.e., **"FLAMMABLE GAS."** which indicates the nature of the risk is optional except for **"RADIOACTIVE MATERIAL," "Cargo Aircraft Only," "INFECTIOUS SUBSTANCES"** and **"MAGNETIZED MATERIAL"** labels.

4.1.5.3. Symbols, text, and numbers on labels will be black, except white may be used on labels which are green, red, or blue. Text and number on a "Corrosive" label must be white.

Figure 4.1. Typical Marking/Labeling.



Figure 4.2. Typical Hazardous Waste Label.



Figure 4.3. Cargo Aircraft Only Label.



Figure 4.4. Magnetic Material Label.



Figure 4.5. Oxygen Label.



Figure 4.6. Empty Label.



Chapter 5

CERTIFICATION

5.1. Certification. Hazardous materials may only be certified for airlift by personnel trained IAW AFMAN 24-204(I) and designated in writing by the installation or activity commander.

5.2. Certification References.

5.2.1. AFMAN 24-204(I) is the primary preparation and certification authority for hazardous materials transported by military airlift. However, other publications may be used, with certain restrictions:

5.2.1.1. International Air Transport Association (IATA), Dangerous Goods Regulation.

5.2.1.2. International Civil Aviation Organization (ICAO), Technical Instructions for the Safe Transport of Dangerous Goods By Air.

5.2.1.3. Title 49, Code of Federal Regulations (49 CFR).

5.2.1.4. Competent Approval Authority (CAA).

5.2.1.5. DOT Exemption (DOT-E) and DOD issued Certification of Equivalency (COE).

5.2.1.6. Waivers issued by service components.

5.2.1.7. IATA, ICAO, and 49 CFR include quantity per package limits for both passenger and cargo carrying aircraft which are not generally found in AFMAN 24-204(I). These regulations cannot be used when packaging limits dictate movement by "Cargo Aircraft Only" or for vehicles/wheeled support equipment.

5.2.1.8. A DOT-E or COE may be used for domestic shipments or items not required to meet POP requirements; i.e., compressed gas cylinders.

5.2.2. Whenever a shipment is certified to a CAA, DOT-E, COE, or waiver, a copy of the document must accompany shipment.

5.3. Documentation Requirements.

5.3.1. Shipper's Declaration For Dangerous Goods. Hazardous materials entering the Defense Transportation System destined for military airlift must be certified by a qualified individual using a "**Shipper's Declaration For Dangerous Goods**" (**Figure 5.1.**). A "Shipper's Declaration" is not required for material identified as being in "**Excepted Quantities.**" Excepted Quantities will be identified by the use of the form shown in (**Figure 5.3.**) which will be attached to the container.

5.3.2. A "Shipper's Declaration" must accompany each piece of cargo identified under one transportation control number (TCN). The "**Shipper's Declaration,**" attached to air cargo manifest, must have a vertical red hatch border.

5.3.3. The "Shipper's Declaration" may be completed either manually (handwritten) or mechanically (typewriter, computer, etc.). Certification may be completed by a combination of manual and mechanical means. All entries must be clear and legible.

5.3.4. Pen and ink changes may be made to any key by the original certifying official. Keys 2, 3, 4, 5, 8, 9, and 19 may be changed by aerial port, and other authorized personnel. **NOTE:** Key 16 may be

changed by aerial port when cargo is "split" to move on different aircraft. (See [Table 5.1](#) for explanation of keys).

5.3.5. A "Shipper's Declaration" that is annotated or stamped "TRUE COPY" indicates the aerial port has replaced an original certification. A "TRUE COPY" must have the red border.

5.3.6. When packages containing items with different proper shipping names (PSN) are overpacked in a single container, a separate "**Shipper's Declaration**" must be available for each PSN. (See [Chapter 7](#) for exceptions).

5.3.7. A DD Form 1387-2 may be required for some protected cargo, including many explosives. **NOTE: The "Dash-2" will not be used as a certification document.**

5.3.8. When an item is determined to be "Empty" or nonhazardous, the address block of the DD Form 1387, Military Shipment Label, will be annotated "Nonhazardous." A "Shipper's Declaration" is not required.

5.3.9. The Air Cargo Manifest will also include a last page(s) that provide(s) a summary of all hazardous materials and additional information concerning the cargo ([Figure 5.3](#)).

5.4. Hazardous Waste.

5.4.1. Hazardous waste shipping requirements are similar to hazardous material shipping requirements with the same PSN, except shipments of hazardous waste must be accompanied with a hazardous waste manifest.

5.4.2. In addition to the "**Shippers Declaration**" hazardous waste must also be certified by use of a state or federal EPA "**Waste Manifest**" ([Figure 5.4](#)).

5.4.3. The aircraft commander or designated representative will need to sign the "Waste Manifest," in Block 17, and retain a copy.

5.4.4. Flying units assigned to bases without an assigned number may not accept hazardous waste for transport into or out of domestic locations.

Figure 5.1. Shipper's Declaration for Dangerous Goods.

SHIPPER'S DECLARATION FOR DANGEROUS GOODS					49-PS-C3 (Rev. 8/94)		
Shipper 1					Air Waybill No. 3		
Consignee 2					Page of Pages 4 Shipper's Reference Number 5 (optional) 6		
Two completed and signed copies of this Declaration must be handed to the operator					WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.		
TRANSPORT DETAILS This shipment is within the limitations prescribed for (delete non-applicable) 7 <table border="1"> <tr> <td>PASSENGER AND CARGO AIRCRAFT</td> <td>CARGO AIRCRAFT ONLY</td> </tr> </table>							
PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY						
Airport of Departure 8					Shipment type (delete non-applicable) <input type="checkbox"/> NON-RADIOACTIVE <input type="checkbox"/> RADIOACTIVE 10		
Airport of Destination 9							
NATURE AND QUANTITY OF DANGEROUS GOODS							
Dangerous Goods Identification					Quantity and type of packing	Packing Inst.	Authorization
Proper Shipping Name	Class or Division	UN or ID No.	Pack- ing Group	Sub- diary Risk			
11	12	13	14	15	16	17	18
Additional Handling Information 19							
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					Name/Title of Signatory 20		
					Place and Date 21		
					Signature (see warning above) 22		

Table 5.1. Key Entries for Shipper's Declaration.

SHIPPER'S DECLARATION ENTRIES
KEY 1: Shipper's address and telephone number.
KEY 2: Six-digit DODAAC or In-The-Clear geographical location of ultimate consignee. During tactical/contingency operations "Worldwide Mobility" may be shown.
KEY 3: Aircraft manifest number (Optional).
KEY 4: Page number and total number of pages, i.e., "Page 1 of 1 pages."
KEY 5: Transportation Control Number (TCN).
KEY 6: Inspection Stamp. Indicates location or unit, individual performing inspection, and date the cargo was inspected.
KEY 7: Identifies cargo as acceptable to be placed on either a passenger or cargo aircraft only IAW AFMAN 24-204(I).
KEY 8: Three-digit port of embarkation (POE) or In-The-Clear geographical location of departure airfield or base (optional).
KEY 9: Three-digit port of debarkation (POD) or In-The Clear geographical location of arrival airfield or base. During tactical/contingency operations "Worldwide Mobility" may be shown.
KEY 10: Identifies whether or not cargo is a Radioactive Material.
KEY 11: Identifies cargo by proper shipping name (PSN). The words "Inhalation Hazard" or "Dangerous When Wet" will also appear for items which meet these definitions. PSN may be preceded by "Waste" when appropriate. "RQ" may follow the PSN, if required.
KEY 12: The hazard class or division assigned to material, i.e., 3, 1.1, 4.2, etc. Some explosives have categories assigned such as (08) 1.2, (12) 1.2, (18) 1.1. Class/Division 1.2 may also have subdivisions assigned such as (i.e. 1.2.1, 1.2.2, or 1.2.3). These are used for aircraft parking. The letter following explosive class/divisions (1.1 <u>E</u> , 1.3 <u>G</u> , etc.) is used to determine compatibility.
KEY 13: United Nations (UN), North America (NA), or Identification (ID) Number assigned to a PSN, i.e., UN 3166, ID 8035, etc. NA numbers, i.e., NA 2291, may only be used for domestic shipments or between Canada and the United States.
KEY 14: Packing Group (PG) I, II, or III, if required.
KEY 15: Entry required when an item has a subsidiary risk assigned.
KEY 16: Identifies number and type of packaging.
Examples:
"3 metal cans X 20 kgs NEW"
4 wooden boxes X 1 liter"
Explosives will be identified by "Net Explosive Weight" (NEW) per package or pallet.
Radioactive Material will be identified by radionuclide name or symbol, form, and activity in each package.
Metric system measurements must be used. U.S. standards are optional.

SHIPPER'S DECLARATION ENTRIES
“Overpack Used” to identify items packaged for consolidation or ease of handling.
KEY 17: Gives paragraph from the authorized certification authority, identified in Key 6, used to prepare the package or material. When a separate letter, message, or other instruction, i.e., CAA is used, a copy must accompany the shipment. Packing group will also be included when required.
KEY 18: Limited Quantity" or "LTD QTY" when item meets this definition.
KEY 19: Additional handling information. May include, but is not limited to:
Quantity of fuel in vehicles and equipment.
Handling instructions when required.
Emergency response phone number. This number is to be used only when additional information is needed in the event of a leak or an accident.
PSN, hazard class, and quantity of each additional hazard for items with multiple hazards.
Note: This is not to be confused with subsidiary risk.
KEY 20: Name and title of the official signing the form.
KEY 21: Place and date the material was certified.
KEY 22: Longhand signature of the certifying official.

Figure 5.2. Dangerous Goods in Excepted Quantities Label.

DANGEROUS GOODS IN EXCEPTED QUANTITIES

This package contains dangerous goods in excepted small quantities and is in all respects in compliance with the applicable international and national government regulations and the IATA Dangerous Goods Regulations.

Signature of Shipper

Title _____ Date _____

Name and address of Shipper

This package contains substance(s) in Class(es)
(check applicable box(es))

Class: 2 3 4 5 6 8 9

and the applicable UN Numbers are:

Figure 5.3. Typical Manifest Summary Page.

UNCLASSIFIED

PREPARED: 00 JUN 05 20:27Z < 157 > FINAL AIR MISSION BRIEF SHEET < SUU > FCN: 0014DC628
 FOR MISSION ID: F906E500156

DP	HAZARD CLASS	UN/NA	PIECES	WEIGHT	CUBE	NEW	PROPER SHIPPING NAME	DOD EXEMPT	DOD(COE)	CA	WATER
APOD: NIK											
1 R0912401400775XXX	22	UN3159	1	6	1		2-TERRAFLUOROMETHANE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 R2153301471767XXX	8	UN1760	1	13	1		COMBUSTIBLE LIQUID NOS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 N00604013800K7XXX	22	UN1956	1	13	1		COMPRESSED GAS, N.O.S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 CL0KX301539736XXX	22	UN1956	1	24	1		COMPRESSED GAS NOS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 CL0KX3015386474XXX	8	UN1805	1	28	1		PHOSPHORIC ACID SOLUTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 CL0KX301537909XXX	8	UN2800	1	782	32		BATTERIES WET NONSPILLABLE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TOTAL:			6	868	37						

HAZARDOUS CARGO TOTALS:	PIECES	WEIGHT	CUBE
ORDINARY MAIL TOTALS:	6	868	37
SIGNATURE SERVICE TOTALS:	0	0	0
REGISTERED MAIL TOTALS:	6	650	81
	1	8	0

YES/NO PASSENGERS AUTHORIZED _____ 21
 NUMBER OF PASSENGERS: _____
 YES/NO ESCORTS/COURIERS/PROTECTIVE _____
 YES/NO SECURITY CARGO/HAZARDOUS MATERIAL _____

*****AIR TERMINAL INSPECTION CERTIFICATION STATEMENT*****
 ALL HAZARDOUS MATERIALS COVERED BY THIS MISSION HAVE BEEN INSPECTED AND FOUND TO BE PACKED IN THE PROPER OUTSIDE CONTAINER,
 FREE OF VISIBLE DAMAGE AND LEAKS, AND IS PROPERLY CERTIFIED.
 AIR TERMINAL REPRESENTATIVE SIGNATURE: [Signature] DATE: 5 JUN 00

*****AIR BRIEFING CERTIFICATION STATEMENT*****
 I HAVE BEEN BRIEFED ACCORDING TO AFRMAN 24-204, PARAGRAPH 1.2.9, ON HAZARDOUS CARGO COVERED BY THIS MISSION.
 AIRCRAFT CREWMEMBER SIGNATURE: [Signature] DATE: 5 JUN 00

UNCLASSIFIED
 Page 1 of 1
 PERSONAL DATA: (PRIVACY ACT 1974)

FCN: 0014DC628

Figure 5.4. EPA Hazardous Waste Manifest.

Please print or type. (Form designed for use on elite (12 Pitch typewriter))

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law						
GENERATOR	3. Generator's Name and Mailing Address:			A. State Manifest Document Number							
	4. Generator's Phone ()			B. State Generator's ID							
	5. Transporter 1 Company Name		6. US EPA ID Number		C. State Transporter's ID						
	7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone						
					E. State Transporter's ID						
					F. Transporter's Phone						
	9. Designated Facility Name and Site Address:			G. State Facility's ID							
				H. Facility's Phone							
RECEIVER	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number):			12. Combinations No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
	a.										
	b.										
	c.										
	d.										
J. Additional Description for Material Listed Above				K. Handling Code for Waste Listed Above							
16. Special Handling Instructions and Additional Information											
<p>14. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled and are in all respects in proper condition for transport by highway.</p> <p>If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to and that I can afford.</p>											
Printed/Typed Name						Signature			Month Day Year		
TRANSPORTER	17. Transporter 1 Acknowledgment of Receipt of Materials										
	Printed/Typed Name						Signature			Month Day Year	
TRANSPORTER	18. Transporter 2 Acknowledgment of Receipt of Materials										
	Printed/Typed Name						Signature			Month Day Year	
FACILITY	19. Discrepancy Indication Space										
	20. Facility Owner or Operator: Certification of receipt of hazardous material covered by this manifest except as noted in item 19.										
Printed/Typed Name						Signature			Month Day Year		

Chapter 6

AIRCRAFT LOADING AND PASSENGER MOVEMENT

6.1. General. When hazardous materials of various types or hazardous materials and passengers are loaded together on military aircraft they must be compatible for air transportation IAW AFMAN 24-204(I).

6.2. Segregation Table for Hazardous Materials. (See [Table 6.1.](#)) This table identifies those explosives and other hazardous materials which may be airlifted together. If any hazard class or division is not listed on the table or a blank space occurs at an intersection of horizontal and vertical columns this indicates no restrictions apply. The letter "X" at an intersection of horizontal and vertical columns indicates these materials must not be placed on the same aircraft unless permitted by a **NOTE**. The letter "O" at an intersection of columns indicates these materials must be separated by 88 inches in all directions. Only the primary hazard class or division is considered for compatibility. Subsidiary Risk and Secondary Hazards are not used to determine compatibility. The "*" at an intersection of the columns indicates required segregation among different **CLASS 1** explosives is identified in [Table 6.2.](#)

6.2.1. Compatibility Table for Class 1 (Explosive) Material. (See [Table 6.2.](#)) This table identifies those explosives which must be segregated from other types of explosive because of possible adverse interactions. Compatibility restrictions to be used during tactical/contingency operations are located in [Chapter 7](#) of this handbook. **NOTE:** Hazardous materials in "Excepted Quantities" are compatible with all cargo.

6.2.2. Should it become operationally necessary for incompatible items to be carried on the same aircraft, HQ AMC may issue a waiver. A copy of the waiver must accompany the cargo and all conditions of the waiver must be met.

6.3. Loading and Stowing.

6.3.1. Hazardous materials must be accessible in flight.

6.3.2. The aircrew will have access to any container except shipments accompanied by a letter signed by HQ AMC/DO.

6.3.3. Normally, hazardous materials will not be shipped in a conex milvan, or a similar type container when in-flight access is prevented by load configuration or container design. These containers may be used if access is not obstructed. The following items may be shipped in containers and tactical shelters:

Fire extinguishers in holders/brackets or in specified packaging.

Drained generators with non-spillable batteries.

Lifesaving appliances.

Class/Division 1.4S explosives.

Packaged nonflammable gases, aerosols, and consumer commodities.

Installed or properly packaged air conditioners/environmental control units magnetic material radioactive material and thermometers.

6.3.4. Recompression vans, support vans, and shelters used by underwater construction teams may be shipped by military aircraft.

6.3.5. Containers, unit loads, and pallets must be loaded so that hazard labels are visible.

6.3.6. Hazardous materials (except dry ice) must not be placed on the same aircraft pallet with food-stuffs, animal feed, or any other edible material.

6.3.7. Aircraft DASH 9 loading manuals provide additional specific information on the loading of aircraft with hazardous materials.

6.3.8. Special Assignment Airlift Missions (SAAMs) must be used for Class 6.1, PGI, Hazard Zone A; Class 2.3, Hazard Zone A (or any class identified as a Hazard Zone A), and Class 1 Compatibility Group K.

6.4. Passenger Movement.

6.4.1. Passengers may not travel with Special Provision 1- and 2-coded cargo. Passenger travel with "P3" cargo requires deviation approval by HQ AMC Tanker Airlift Control Center/Aerial Port Control Center (APCC). Aerial Ports may issue deviations for "P4"-coded cargo. When a deviation has been approved, the passenger manifest will be annotated with the following statement: "AUTHORITY TO MOVE PASSENGERS WITH CARGO AIRCRAFT ONLY CODED MATERIAL IS APPROVED. DEVIATION NUMBER: _____." **NOTE:** There is no requirement to enter "P" Codes on the Shipper's Declaration.

6.4.2. "P" codes apply as follows:

"P1" Transport on Special Assignment Airlift Missions only. Passenger deviations not authorized.

"P2" Transport on Cargo Aircraft Only. Passenger deviations not authorized.

"P3" Transport on Cargo Aircraft Only. Passenger deviations authorized.

"P4" Transport on Cargo Aircraft Only. Passenger deviations authorized.

"P5" No passenger restrictions.

6.4.3. Passenger deviation requirements do not apply to:

Guards.

Couriers.

Technical escorts.

Maintenance personnel for aircraft transporting hazardous materials.

AMC mission observers (AMO).

Mission essential ground personnel (MEGP).

Additional crewmembers (ACM).

Participants in tactical/contingency operations.

Other personnel designated in writing by HQ AMC.

Duty passengers with P4 coded cargo.

6.4.4. Passengers are authorized to hand carry or place in checked baggage small amounts of hazardous materials for personal use without the certification, marking, or labeling required for cargo.

Examples:

6.4.4.1. Alcoholic beverages.

6.4.4.2. Medicinal toilet articles.

6.4.4.3. Small oxygen or air cylinders for medical use.

6.4.4.4. Ammunition for sporting purposes. **NOTE:** This does not apply to government issued ammunition unless approved by HQ AMC/DONC.

6.4.4.5. **NOTE:** Contact passenger service personnel for any restrictions and additional information.

6.4.5. Aircrew members traveling as passengers may hand carry individual issued lifesaving appliances packaged in a strong fiberboard box or A-3 bag. Certification is required.

Table 6.1. Segregation Table.

AFMAN 24-204 (I), Table A18.1, Segregation Table for Hazardous Materials																				
Class or Division Note 7	Notes	1.1 and 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Gas Zone A	2.3 Gas Other than Zone A	3	4.1	4.2	4.3	5.1	5.2	6.1 Liquid PG I Zone A	7	8 Liquid Only	
		1 6	*	*	*	*	X		X	X	X	X	X	X	X	X	X	4	2 3	4, 5 6, 7, 8
1.1 and 1.2		1 6	*	*	*	*	X		X	X	X	X	X	X	X	X	X	X	X	X
1.3			*	*	*	*	X		X	X	X	X	X	X	X	X	X	X	X	X
1.4			*	*	*	*	O		O	O	O		O				O		O	
1.5			*	*	*	*	O		O	O	O		O				O		O	
1.6			*	*	*	*	O		O	O	O		O				O		O	
2.1	9	X	X	O	O				X	O			O	O	O	O	O	O	O	O
2.2																				
2.3 Zone A			X	X	O	O	X				X	X	X	X	X	X				X
2.3 Other than Zone A			X	X	O	O	O				O	O	O	O	O	O				O
3			X	X	O	O	O		X	O		O	O	O	O	O	X			
4.1			X	X					X	O	O						X		O	
4.2			X	X	O	O	O		X	O	O						X		X	
4.3			X	X			O		X	O	O						X		X	
5.1	1	X	X				O		X	O	O						X		O	
5.2		X	X				O		X	O	O						X		O	
6.1 Liquid PG I Zone A		4	X	X	O	O	O				X	X	X	X	X	X				X
7	2,3	X	X				O													
8 Liquid Only	4,5 6,7 8	X	X	O	O	O	O		X	O		O	X	X	O	O	X			

"*" See explosives compatibility table.

"X" Items must not be loaded or stored together.

"O" Items must not be loaded, stored, or transported together unless separated by 88 inches in all directions.

Segregation Table Notes:

1. Ammonium nitrate fertilizer may be loaded, transported, or stored with Class 1.1 materials.

2. Do not load, transport, or store fissile class III radioactive material (Class 7) on the same aircraft with any other hazardous material.
3. Normal uranium, depleted uranium, and thorium metal in solid form radioactive materials (Class 7) may be loaded and transported with Class 1.1, 1.2, and 1.5 (explosives).
4. Do not load, transport or store cyanides or cyanide mixtures (Class 6.1) with any Class 8 materials.
5. Separate nitric acid (Class 8) in carboys by 2.2 m (88 inches) in all directions from other corrosives materials in carboys when loaded on the same aircraft.
6. Do not load, transport, or store charged electric storage batteries (Class 8) on the same aircraft with any Class 1.1 or 1.2.
7. Ship the following materials with each other and with all other hazardous materials without compatibility restrictions (ensure compliance with notes 4, 5, and 6):
 - Class 6.1 toxic solids and liquids (other than PG I, zone A)
 - Class 8 solids
 - Class 9 (including ORM-D)
 - Excepted Quantities
 - Containers or articles drained but not purged containing 500ml (17oz) or less of Class 3
8. Class 8 corrosive liquids must not be loaded above Class 4 (flammable solid) material or Class 5 (oxidizing) material.
9. Class 2.1 aerosol cans may be shipped with other incompatible items when separated in all directions by a minimum of 88 inches.

Table 6.2. Compatibility Table.

AFMAN 24-204 (I), TABLE A18.2, Compatibility Table for Class 1 (Explosive)														
Compatibility Group		A	B	C	D	E	F	G	H	J	K	L	N	S
A	Notes	A	X	X	X	X	X	X	X	X	X	X	X	X
B	1,2	X		X	X	X	X	X	X	X	X	X	X	
C		X	X				X	X	X	X	X	X		
D		X	X				X	X	X	X	X	X		
E		X	X				X	X	X	X	X	X		
F	3	X	X	X	X	X		X	X	X	X	X	X	
G	4,5,7	X	X	X	X	X	X		X	X	X	X	X	
H		X	X	X	X	X	X	X		X	X	X	X	
J		X	X	X	X	X	X	X	X		X	X	X	
K		X	X	X	X	X	X	X	X	X		X	X	
L	6	X	X	X	X	X	X	X	X	X	X		X	X
N		X	X				X	X	X	X	X	X		
S	7	X										X		

Compatibility Table Notes:

- Group "B" explosives UN0255, 0257, UN0267, and UN0361 may be loaded and transported with groups "C," "D," and "E" explosives.
- Group "B" explosives packaged in an EOD MK 663, MOD O container may be loaded and transported with groups "C" through "H" and group "S" explosives.
- Group "F" explosives UN 0292 may be loaded and transported with groups "C," "D," and "E" explosives.
- Group "G" explosives UN 0019, UN 0300, UN 0301, and UN 0325 may be loaded and transported with all other explosives compatible with group "S" explosives.
- Group "G" explosives UN 0009, UN 0018, UN 0314, UN 0315, UN 0317, UN 0319, and UN 0320 may be transported with groups "C," "D," and "E" explosives.
- Group "L" explosives must only be loaded and transported with an identical item.
- Class 1.1 and 1.2 explosives may not be packed with the following explosives: UN 0333, UN 0334, UN 0335, UN 0336, and UN 0337.

Chapter 7

TACTICAL AND CONTINGENCY AIRLIFT

7.1. Definitions.

7.1.1. Tactical. The movement of personnel, equipment, and supplies belonging to an organization or unit, so they may accomplish their immediate combat objective.

7.1.2. Contingency. The advance movement of personnel, equipment, and supplies belonging to an organization or unit, so they may be ready for an event that is of possible but uncertain occurrence.

7.1.3. Emergency. The movement of personnel, equipment, and supplies belonging to an organization or unit so they may respond to a noncombat event; i.e., a natural disaster, civil disturbance, etc., which requires special or immediate action. This includes movement of other federal, state, local, and/or private agencies.

7.2. Applicability.

7.2.1. AFMAN 24-204(I), Chapter 3 allows for some relaxation of the requirements for preparing, packing, and certification of hazardous materials during Tactical, Contingency or Emergency operations. These operations are commonly referred to as "Chapter 3" movements.

7.2.1.1. Chapter 3 movements impose an increased risk to the aircraft, crew, and deploying unit's mission accomplishment.

7.2.1.2. Need is determined by service validator.

7.2.1.3. Chapter 3 procedures may be also used during exercises designated to simulate and evaluate responsiveness to Tactical, Contingency, or Emergency situations.

7.3. Certification.

7.3.1. Palletized, packaged, or containerized hazardous materials not hand carried as individual issue must be certified using the "Shipper's Declaration."

7.3.2. Vehicles and support equipment require a "Shipper's Declaration."

7.3.3. Multiple items may be listed on one "Shipper's Declaration" if pallet is assigned a single TCN.

7.3.4. A "Shipper's Declaration" is not required for hand carried individual issue hazardous materials. The troop commander or team chief is responsible to brief the aircrew on any handcarried hazardous items.

7.3.5. A "Shipper's Declaration" is required for airdrop loads containing hazardous materials.

7.3.6. Hazardous materials may be accepted by the aircraft commander without the normally required certification documents during a combat situation which would prevent proper documentation.

7.4. Packaging.

7.4.1. Unless otherwise exempted, POP marking and labeling requirements apply to palletized, packaged, and containerized hazardous materials.

7.4.2. Hazardous materials may be removed from applicable POP packaging when approved by air-drop rigging manual.

7.4.3. Hazardous materials may be removed from authorized shipping container(s) and placed in approved tactical vehicle or equipment racks IAW authorized technical publications.

7.4.4. Individual Issue (Basic Combat Load). Hazardous materials may be removed from approved packaging when personnel will immediately engage an enemy force upon deplaning (includes air-drop) if:

Safe from accidental initiation.

Consolidated in one central location or as directed by the loadmaster/boom operator. Items will be distributed upon landing or prior to jump.

Small arms type ammunition; nuclear biological and chemical (NBC) equipment and first aid kits may be retained provided they remain within individual carriers, i.e., pouches, mobility bags, etc.

NOTE: Individuals rigged for airdrop prior to takeoff may retain their basic load.

Troops not immediately engaging hostile forces but assuming a tactical role upon arrival will have all hazardous materials collected and consolidated at the direction of the loadmaster/boom operator.

7.4.5. Mobility bins or similar containers may be used provided hazardous materials are:

Packaged in approved containers which are properly marked and labeled.

Compatible.

Accessible in flight.

The outside of mobility bins or containers containing hazardous cargo will be marked and labeled for contents."

7.4.6. Hazardous materials (except Divisions 2.3, 6.1, and 6.2) may be placed on the same pallet with meals ready to eat (MRE) if separated by at least 44 inches and not placed above MREs. This restriction does not apply to Class 1 explosives.

7.5. Spare Fuel.

7.5.1. Spare fuel for vehicles and equipment must be transported in approved POP tested and marked containers. Bulk flammable liquids may also be transported in airworthy collapsible fabric drums (500 gallon fuel bladders).

7.5.2. Containers secured in permanent authorized racks mounted on or to a vehicle or wheeled support equipment do not require separate certification.

7.5.3. DOT-5L metal jerricans are not POP approved and may only be used when secured in approved racks. Amount of fuel in DOT-5L when combined with fuel in vehicle or equipment tank must not exceed a two-full tank supply. Non-POP containers may be shipped floor loaded or palletized when drained of flammable liquids (purging is not required). A "Shippers Declaration" is required.

7.5.4. POP approved jerricans do not share the restrictions of the DOT-5L and may be floor loaded, palletized, or secured in/on vehicles and equipment without regard to quantity limits.

7.6. Fuel-In-Tank Limits. Fuel quantities identified in this paragraph are for deployments based on requirements established by the operational commander. Fuel levels for redeployments will not exceed fuel-in-tank limits established for channel missions (see [Chapter 3](#) of this handbook) unless unit mission requirements dictate they remain in an operational mode.

7.6.1. Vehicles/self-propelled units and support equipment. *NOTE:* See [Attachment 1](#) for "Leaker List."

7.6.1.1. Vehicle fuel level will not exceed 3/4 tank capacity when placed on aircraft cargo floor and 1/2 full tank loaded on cargo ramp.

7.6.1.2. When vehicles are loaded on aircraft with steep angles of ascent, (KC-135, KC-10, etc.) the limit will be 1/2 full tank.

7.6.1.3. Engine powered wheeled support equipment will not exceed one half full tank.

7.6.1.4. If palletized, draining is required unless palletized to meet aircraft subfloor requirements.

7.6.1.5. Equipment mounted on a single axle disconnected from its prime mover and loaded with tongue resting on aircraft floor must be drained (purging is not required).

7.6.1.6. Engine powered ground support equipment (non-wheeled) must be drained, but no purging is required. This also applies to equipment carried as a "Secondary" load on trailers or vehicles.

7.6.2. Bulk transporters.

7.6.2.1. Servicing trucks, trailers, and semitrailers containing bulk flammable fuel with a flashpoint of 100 degrees F (38 degrees C) or less or another hazardous material must be purged prior to airlift.

7.6.2.2. Bulk tanks containing a flammable liquid which has a flashpoint above 38 degrees C (100 F) or a nonhazardous material must be drained. However, purging is not necessary.

7.6.2.3. Tanks tested to transport bulk nonhazardous materials are excepted from above restrictions.

7.6.3. Boats and other watercraft must be drained unless rigged for airdrop.

7.7. Lithium Batteries.

7.7.1. Batteries (new or used) may be transported when installed in electronic equipment. Handcarried equipment does not require certification.

7.7.2. Spare batteries needed to meet mission requirements, which are in their original or nonconductive wrapping, may be carried in pockets, rucksacks, etc. Certification is not required.

7.7.3. Packaged batteries must be in approved shipping containers.

7.7.4. Used batteries may be airlifted when wrapped in nonconductive material. Batteries must be properly packaged prior to further airlift on channel missions.

7.7.5. Batteries which are deactivated by a built-in complete discharge devices (CDD) are considered nonhazardous.

7.7.6. Damaged batteries will not be airlifted without waiver approval.

7.8. Compatibility.

7.8.1. Compatible hazardous materials ([Table 6.1.](#) and [Table 6.2.](#)) may be transported without restriction.

7.8.2. The load planning function is responsible to ensure incompatible hazardous materials are separated by the maximum distance possible and still meet mission requirements consistent with operating plans.

7.8.3. Air Force approved assembled munitions packages (STAMP/STRAPP, TARPP, Complete Round Rigging, etc.) have been previously reviewed and approved to allow noncompatible explosives on the same pallet.

7.9. Captured Ammunition.

7.9.1. Captured ammunition may be airlifted on either tactical or nontactical missions if items are determined safe by Explosive Ordnance Disposal (EOD) personnel. A copy of EOD certification in addition to a "**Shipper's Declaration**" must accompany shipment.

7.9.2. Foreign ammunition must be airlifted in POP approved shipping containers.

7.10. Transporting Foreign Troops.

7.10.1. Hazardous materials belonging to non-U.S. military units may be transported using same guidelines as for US forces to include hand-carried items.

7.10.2. Packaged hazardous materials must be marked and labeled to properly identify contents.

7.10.3. Foreign certification documents may be used in lieu of the "Shipper's Declaration." As a minimum, the PSN (in English), UN Number, Hazard Class or Division, and packaging group (if required) must be shown on the certification document.

7.11. Transporting Passengers.

7.11.1. "Space-A" and duty passengers (not related to mission) may be transported on a tactical/contingency/emergency validated mission provided:

7.11.1.1. Troop carried individual issue handcarried hazardous materials is limited to small arms ammunition, NBC equipment, and first aid kits.

7.11.1.2. Other hazardous materials to include vehicles and wheeled support equipment, are in their proper shipping configuration or packaging which would allow transportation during channel airlift.

7.11.1.3. Passenger deviation approved by TACC/APCC or Aerial Port, as appropriate when required for P3- or P4-coded cargo.

7.12. Presidential Support Missions.

- 7.12.1. Shipper's Declarations are **not** required for "Phoenix Banner, Silver, and Copper Operations."
- 7.12.2. The aircrew will be briefed by shipper's representative on hazardous materials being shipped.
- 7.12.3. Fuel in tank limitations are the same as those found in paragraph **7.6**.

Chapter 8

AIRCREW RESPONSIBILITIES

8.1. General. Operational procedures for the airlift of hazardous materials are found in AFJI 11-204 and implemented in Vol 3 of AFIs 11-2C-5, 11-2C-17, 11-2C-141, 11-2KC-10, and 11-2KC-135 or others as appropriate. The following is an outline of some of your responsibilities:

8.2. Briefings.

8.2.1. As a minimum, the aircraft commander and/or designated crewmember must be briefed at the base of departure concerning onboard hazardous materials, including the following information:

8.2.1.1. PSN, Hazard Class or Division and UN, NA, or ID number.

8.2.1.2. Quantity of each hazard class by gross weight.

8.2.1.3. The NEW for Division 1.1 through 1.3 explosives.

8.2.1.4. NEW for Division 1.4 explosives will also be included for aircraft which transit the United Kingdom or Italy.

8.2.1.5. Total net quantity of any toxic chemical ammunition or highly toxic substances.

8.2.1.6. Location on aircraft.

8.2.1.7. Passenger restrictions.

8.2.1.8. Smoking restrictions.

8.2.1.9. Special requirements, i.e., couriers, protective equipment, etc.

8.2.1.10. Cargo being carried under DOT exemptions, COE, a CCA or a waiver.

8.2.2. If any of the above is omitted, request it before accepting cargo. Check air cargo manifest (and attached "Shipper's Declarations") before signing.

8.2.3. See [Chapter 7](#) of this handbook for procedures during tactical/contingency operations.

8.3. Border Clearance and Diplomatic (DIP) Clearances.

8.3.1. Aircrews are required to check the Foreign Clearance Guide (FCG) for DIP Clearance requirements prior to departure on international flights transporting Hazardous Materials. If DIP Clearance is required the crew will verify that clearance has been granted prior to departure. **NOTE:** Generally, DIP clearances are required for only "Hazardous Cargo" required for flight plan annotation IAW paragraph [8.4](#).

8.4. Flight Plans.

8.4.1. Flight plans will be annotated "Hazardous Cargo" when any amount of the following is transported:

8.4.1.1. Division 1.1 through 1.3 explosives.

8.4.1.2. Division 1.4 explosives which transit United Kingdom or Italy.

- 8.4.1.3. Toxic chemical ammunition (Compatibility Group K).
- 8.4.1.4. Highly toxic substances.
- 8.4.1.5. Division 6.2 infectious substances which require technical escorts and/or special protective equipment.
- 8.4.1.6. Nuclear weapons.
- 8.4.1.7. Class 7 Radioactive Material (Yellow III label).
- 8.4.1.8. All other hazardous materials, except Class 9 and ORM-D when aggregate gross weight exceeds 1,000 pounds (454 kgs).

8.5. Departure/Arrival Notifications.

- 8.5.1. Prior to departure, verify airfield controlling agency.
- 8.5.2. Forward hazardous materials information to emergency response agencies.
- 8.5.3. Include hazardous materials information in the departure message, if required.
- 8.5.4. If ETA is less than 1 hour, or other circumstances preclude message receipt at destination, provide hazardous information by priority telephone.
- 8.5.5. At least 30 minutes prior to ETA, check with destination to verify that hazardous material notification information, if required, was received.
- 8.5.6. If not, unless prohibited by the theater commander or FLIP planning, contact controlling agency at destination and provide as a minimum:
 - 8.5.6.1. PSN.
 - 8.5.6.2. Hazard class.
 - 8.5.6.3. UN, NA, or ID number.
 - 8.5.6.4. NEW for Divisions 1.1 through 1.3 explosives.
 - 8.5.6.5. NEW for Division 1.4 explosives if destination is in United Kingdom or Italy.
 - 8.5.6.6. Net quantity of chemical ammunition and toxic substances.

8.6. Aircraft Parking.

- 8.6.1. Parking of aircraft carrying hazardous materials is the responsibility of the host airfield.
- 8.6.2. The following is provided for information only:
 - 8.6.2.1. Aircraft transporting Division 1.1 and 1.2 explosives, nuclear weapons, and Hazardous Materials requiring a SAAM, i.e., Toxic Chemical Ammunition, are normally parked at remote (Hot) spots.
 - 8.6.2.2. Divisions 1.3/1.4 explosives may or may not require "HOT" spot parking depending on quantity of explosives.
 - 8.6.2.3. Transit aircraft with explosives, when cargo is not handled, may be parked at isolated locations other than "HOT" spots.

8.6.2.4. Other hazardous materials normally do not require remote or isolated parking.

8.6.2.5. Military installations are responsible for proper placarding of aircraft. If non-DOD airfields are used, it may be necessary for the aircrew to placard aircraft. Placards resemble hazard labels. See [Table 8.1](#).

8.7. Leaking Cargo.

8.7.1. Spill containment kits must be carried on all aircraft transporting liquid hazardous materials.

8.7.2. Notify destination of any inflight leaks and request maintenance, fire department or other personnel be available for clean up, as required.

8.7.3. Complete AMC Form 97, **AMC In-flight Emergency and Unusual Occurrence Worksheet**.

8.8. Jettison Authorization.

8.8.1. Do not jettison toxic chemical ammunition over land.

8.8.1.1. If authorized in movement plan, toxic chemical ammunition may be jettisoned at least 12 nautical miles offshore in open ocean, preferably beyond continental shelf.

8.8.2. For other hazardous materials requiring technical escorts, follow guidance provided by escorts.

8.8.3. Other hazardous materials may be jettisoned over land or water if essential to flight safety.

Table 8.1. Area Placard Required for Parked Aircraft Containing Hazardous Cargo.

Hazard Class/Division (Any Quantity)	Placard
1.1	Explosives 1.1
1.2	Explosives 1.2
1.3	Explosives 1.3
2.3	Poison Gas
4.3	Dangerous When Wet
6.1 (PG I, Inhalation Hazard Only)	Poison
7	Radioactive
Hazard Class/Division (1,000 Pounds or Gross Weight)	Placard
1.4	Explosives 1.4
1.5	Explosives 1.5
1.6	Explosives 1.6
2.1	Flammable Gas
2.2	Nonflammable Gas
3	Flammable
4.1	Flammable Solid
4.2	Spontaneously Combustible
5.1	Oxidizer
5.2	Organic Peroxide
6.1 (PG I or II, other than Inhalation Hazard)	Poison

NOTE: A “Dangerous” Placard may be used in place of separate placards for two or more categories of hazardous materials (other than those requiring mandatory placarding) when aggregate gross weight exceeds 1,000 pounds (454Kg).

LANCE D. CHRISTIAN, Colonel, USAF
Assistant Director of Operations

Attachment 1

LEAKER LIST

The following items are known to be "Leakers."	
ITEM	SHIPPING REQUIREMENTS
MC-1A and MC-2A Compressors.	Must always be shipped drained.
	NOTE: Model 2MC-1A (NSN 4310-01-060-0642) is not a "Leaker." Shipper must include number in Key 16 of "Shipper's Declaration for Dangerous Goods" and stencil "2MC-1A" on the item.
MA-3 Air Conditioner.	Must always be shipped drained.
Marine Corps River Assault Craft (RAC)	Must always be shipped drained.
Boston Whaler Boats	Must always be drained.
	NOTE: Unless rigged for airdrop, all boats and watercraft, except for the Navy Patrol Light (PBL), must be drained.
Commercial Support Equipment (CSE) to include rental equipment.	Must always be drained.
	EXCEPTION: Self-propelled commercial vehicles will have sufficient fuel in tank to facilitate on/off-loading operations. During Emergency operations (Chapter 3) fuel tanks may be one-half full based on operational requirements
Hobart Generator (Dash-86).	Fuel level must be no more than one-quarter full.
	When loaded on the KC-10, the filler neck must be facing forward.
H-1 Heater.	When loaded on the inclined ramp, the filler neck must be on the high side.