Australian Government
Civil Aviation Safety Authority

Advisory Circular

AC 92.A-01(0) MARCH 2011

THE CONSIGNMENT AND CARRIAGE OF DANGEROUS GOODS ON ALL AIRCRAFT IN AUSTRALIAN TERRITORY AND ON AUSTRALIAN AIRCRAFT OVERSEAS: AN OVERVIEW OF THE LEGISLATIVE FRAMEWORK AND PROCEDURES

CONTENTS

Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.

Where an AC is referred to in a 'Note' below the regulation, the AC remains as guidance material.

ACs should always be read in conjunction with the referenced regulations.

1. REFERENCES

- International Civil Aviation Organization (ICAO) Annex 18 to the Convention on International Civil Aviation.
- *Civil Aviation Act 1988* sections 23, 23A and 23B – Dangerous Goods.
- Civil Aviation Safety Regulations 1998 (CASR) Part 92 – Dangerous Goods.
- ICAO Technical Instructions (TIs) for the Safe Transport of Dangerous Goods By Air: DOC 9284 (ICAO TI).
- Supplement to the ICAO TIs for the Safe Transport of Dangerous Goods By Air: DOC 9284 SUPPLEMENT (ICAO TI SUPP).
- ICAO Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods: DOC 9841 (ICAO ERG).
- International Air Transport Association (IATA) Dangerous Goods Regulations (IATA DGR).
- United Nations (UN) Recommendations on the Transport of Dangerous Goods - Model Regulations [ST/SG/AC.10/1] (TDG).
- UN Manual of Tests and Criteria [ST/SG/AC.10/11].

2. PURPOSE

2.1 This document provides general guidance and information to persons, companies and operators who wish to consign or carry dangerous goods (DG) on aircraft. It has been structured to provide a general overview of the DG air transport environment in Australia and to be an information primer, preceding a suite of Advisory Circulars (AC) which are more in-depth on specific topics pertinent to Australian Civil Aviation Dangerous Goods legislation and contemporary activities.

2.2 This AC also explains some of the inter-relationships and interconnectedness with International Conventions for the carriage of DG by air and may provide useful background for foreign operators wishing to carry DG into or out of Australia.

2.3 This AC is applicable to the carriage and consignment of cargo and DG to, from and within Australia and on Australian registered aircraft anywhere in the world unless specifically mentioned otherwise.

2.4 The guidance in this AC is applicable to both large and small aeroplanes and to helicopters unless the text specifically differentiates between them.

2.5 Occasionally reference has been made to the IATA DGR This is to facilitate reference by the reader to a document that is commonly used as an alternative to the ICAO TIs.

3. STATUS OF THIS AC

3.1 This is the first AC to be written on this subject.

4. ACRONYMS

AC	Advisory Circular
ADG Code	Australian Dangerous Goods Code
AMSA	Australian Maritime Safety Authority
ARN	Aviation Reference Number
CA	Competent Authority
CAAP	Civil Aviation Advisory Publication
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations
DG	Dangerous Goods
DGR	Dangerous Goods Regulations
EQ	Excepted Quantities
ERG	Emergency Response Guide to Dangerous Goods Incidents
GHA	Ground Handling Agent
IATA	International Airline Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LEA	Law Enforcement Authority
LQ	Limited Quantities
MSDS	Material Safety Data Sheet
n.o.s.	not otherwise specified
NATA	National Association of Testing Authorities
NOTOC	Notification to Captain
PIC	Pilot in Command
RFFS	Rescue and Fire Fighting Service
SARP	Standards and Recommended Practises
SDS	Safety Data Sheet (see also **MSDS)**
SOC	Statement of Contents
TIs	Technical Instructions
UN	United Nations

5. DEFINITIONS

ADG Code means: the Australian Code for the Transport of Dangerous Goods by Road and Rail and unless mentioned otherwise, is taken to be the current version as amended from time to time.

"Cargo Aircraft" means: some DG are restricted to transport on "cargo aircraft only". In this context such an aircraft can also carry persons who, for other reasons, may be regarded as passengers. They are:

- an authorised representative of an appropriate national authority (eg. CASA);
- a person accompanying a consignment or other cargo; and
- an operator's employee in an official capacity.

A member of the operator's staff in an official capacity is intended to mean that they have duties concerned with the preparation or undertaking of the flight, or on the ground once the aircraft has landed although not necessarily in connection with any aircraft. It is not a provision whereby employees may be carried to a destination for activities that are unrelated to the flight, the cargo or inconsistent with their duties with the employer.

"Dangerous Goods" means: the things specified in the Dangerous Goods List contained in the TIs. This list includes generic items which are identified via classification criteria and usually appended with not otherwise specified (n.o.s.) and the technical name of the goods ie. Hydrocarbons, liquid, n.o.s (Ethyl Cyclohexane).

"Excepted quantities" means: the provisions within the ICAO TIs that facilitate the consignment of very small quantities of certain classes of DG on passenger aircraft. Items packed under these provisions are still subject to certain requirements in respect of classification, quantity limitations, packing, package performance tests, marking, documentation, handling, training and incident reporting.

"Ground Handling Agent" means: a person or agency that performs, on behalf of an operator, the service of accepting, handling, loading, unloading, transferring, or otherwise processing cargo, passengers or baggage.

"Limited Quantities" means: the provisions within the ICAO TIs that facilitate the consignment of small quantities of certain classes of DG on passenger aircraft. Items packed under these provisions are still subject to some requirements in respect of classification, quantity limitations, packing, package performance tests, marking, labelling, documentation, handling, training and incident reporting.

SUPP means: the Supplement to the ICAO TIs for the Safe Transport of Dangerous Goods by Air

Technical Instructions means: ICAO DOC 9284 AN/905 – the Technical Instructions for the Safe Transport of Dangerous Goods by Air, as amended from time to time.

UN Number means: the four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances.

6. BACKGROUND

Note: This section sets out the general philosophy to the carriage of DG by air. It outlines the approaches to minimise risks to persons, property and the environment through identifying and classifying DG, limiting quantities specifying packaging requirements, systems for documenting and preparing for problems; training for those involved in handling the DG; and Regulatory reporting.

6.1 Regulation

6.1.1 The international aviation community has co-operated to create a generally consistent basis in order to carry and consign DG via air across national boundaries and to extend that platform into domestic operations. A number of safeguarding measures have been instituted to permit the carriage of DG in a manner whereby the safety of passengers, employees and property is not unduly eroded.

6.2 Classification

6.2.1 The International community, through the UN, has created a comprehensive list of individually identified articles and substances which are deemed to be DG. Each listing has a specified classification number (UN number) and a Proper Shipping Name. Since the listing of substances cannot be exhaustive, there are many generic or n.o.s. entries. Substances are classified into an n.o.s. entry where they meet certain testing criteria and the TIs includes a section on particular tests to determine whether the goods are dangerous and to be classified into an appropriate generic group.

6.2.2 Some DG have been identified as being too dangerous to be carried on any aircraft under any circumstances. Others are forbidden under normal circumstances but may be carried with specific approval from the respective national aviation authority of the states involved.

6.2.3 Some goods are restricted to carriage on cargo aircraft only, However, provided certain requirements are met, most can also be safely carried on a passenger aircraft.

6.3 Quantity limitations, packing, packaging and preparation of dangerous goods

6.3.1 DG are classified into one of nine hazard classes as to the nature of the hazard that they present. Some DG are further categorised into one of three packing groups according to the inherent degree of danger or into a hazard division that reflects their properties. Quantity limits per package are then applied. Where DG are prepared for carriage on a passenger aircraft, then smaller volumes/weights are permitted. Packaging is a critical component in the safe transport of DG by air. Regulations provide packing instructions for all DG which are acceptable for transport by air with a wide range of options for combination (consisting of inner and outer packaging) and single packagings. The packing instructions normally require the use of UN performance-tested specification packaging. UN specification packaging is not mandatory when very small quantities of DG are shipped under certain provisions relating to Limited Quantity (LQ) or Excepted Quantity (EQ) Packing Instructions.

6.3.2 There are a number of packaging suppliers in Australia who can provide UN specification packaging. Selecting packaging to contain DG where a combination package is required (ie. a number of small packagings inside a larger packaging) is not as simple as just choosing a box off a shelf and filling it with half a dozen bottles. The regulations generally require the packaging and the DG to be tested together to establish that it is a safe and appropriate package although there are some exceptions to this general rule.

6.4 Documentation of cargo

6.4.1 It is important to distinguish between “cargo” and “dangerous goods”.

6.4.2 With all air cargo, there is a requirement that anyone who consigns cargo **must either describe the contents or declare that the cargo does not contain dangerous goods**. In describing the contents of the cargo, those people who accept and handle the item at the airline and freight forwarder's premises will have a general idea as to the nature of the cargo. They are in a position to identify and remove items which may be inherently dangerous when carried by air. For example, a motor mechanic who deals with various DG as part of their daily work, may not consider a battery or a used carburettor to be dangerous; describing the items properly will enable a trained freight forwarder to determine the potential risks from the corrosive liquid or heat generating properties of the battery or the residual flammable liquid in the carburettor.

6.4.3 With most DG, there is also a requirement to complete a Dangerous Goods Transport Document, commonly referred to as a “Shipper’s Declaration for Dangerous Goods”. The proper declaration of DG by the shipper ensures that all parties involved in the transportation chain know what type(s) of DG they are transporting, how to properly load and handle them and to be prepared in the unlikely event an incident or accident occurs either inflight or on the ground.

6.4.4 It is also common for shippers to include a copy of the relevant Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) for the contents, with the Shipper’s Declaration.

6.4.5 The operator is required to complete a Notification to Captain (NOTOC) form which ensures that the pilot in command (PIC) is aware of the dangerous goods that the/aircraft is carrying, where they are stowed on the aircraft and the emergency response actions to be taken in the event of an emergency. The NOTOC must be signed by the PIC and a copy must be held in a flight file kept at the departing port for a minimum period of three months.

6.4.6 Some operators have chosen to implement a “NIL NOTOC” practice, whereby a NOTOC or other written statement is issued, even if it is advising the PIC that there are no DG on board. This will always be issued for every flight, even though more than 95% of flights will have nil DG. This measure is designed to counter the error whereby a NOTOC has been misplaced when DG are loaded onto an aircraft; effectively without the knowledge of the PIC and who would therefore be unaware of the specific emergency drills to be adopted in the event of an incident. Just as generating a DG NOTOC is a conscious process to be followed, the NIL NOTOC should also not be automated, but require the conscious ticking of a box or active completion of a field in an on-line system. This ensures a safer operation and enhanced communication.

6.5 Marking and labelling

6.5.1 The Regulations require that consignments containing DG be properly marked and labelled. This includes hazard labels, handling labels and marking of packages with the UN number and the proper shipping name of the DGs contained in the package. Marking and labelling enables people involved in handling the consignment to identify the nature of the risk and take appropriate precautions should there be damage or leakage.

6.6 Information to passengers & consignors of cargo

6.6.1 Passengers must be provided with information regarding "hidden DG" to assist them in recognising DG which they are not permitted to carry on their person or in their baggage and which may not be readily recognisable as being dangerous to the untrained eye. Information must also be given to persons who consign cargo.

6.6.2 Travel agents provide this information when tickets are sold, as do web-based agencies when using e-ticketing. Similarly information also appears with each passenger's ticket. Additional opportunities to convey information is achieved through the use of display cabinets in airport foyers and posters and signage at check-in counters, freight sheds and baggage collection areas.

6.7 Training

6.7.1 An essential element to ensure the safe transport of DG lies in appropriate training. This ranges from the shipper being trained to ensure any dangerous products are appropriately classed and packaged, to the aircraft operator's staff being trained in the acceptance and examination of cargo. It also includes how to identify potentially undeclared DG and to ensure that declared DG are packaged, prepared and handled in accordance with the proper instructions and that the accompanying documentation is correct.

6.7.2 The CASRs place DG related employees into six groups, each appropriate to the functions and responsibilities of the employee. Training of these employees is required for aircraft operators, ground handling agents, freight forwarders, security screening staff and shippers of DG.

6.8 Accident and incident investigation

6.8.1 DG incidents or accidents must be reported by aircraft operators to the relevant air safety authority. Investigations are carried out to establish the cause(s) of the incident so that corrective action can be implemented to prevent a re-occurrence.

6.8.2 It is worth noting that less than 5% of DG incidents involving cargo originate from declared DG and almost all of these are minor documentary deficiencies. It is the undeclared DG which cause most of the problems and present significant risk, including leakage and spillage of DG, to the safety of air navigation.

6.8.3 In Australia the reporting of DG accidents and incidents is mandatory. All DG accidents must be reported immediately to the ATSB and all incidents must be reported to CASA.

7. THE LEGISLATIVE HIERARCHY, INTERNATIONAL CONVENTIONS AND AUSTRALIAN LEGISLATION

7.1 International Conventions and Legislation. Australia is a signatory to the International Convention on Civil Aviation, administered by ICAO. Annex 18 to the Convention addresses the Standards and Recommended Practises (SARPs) relating to the carriage and consignment of DG. The ICAO Dangerous Goods Panel (ICAO DGP), comprised of international representatives, formulates the technical content, and amplifies the broad provisions of Annex 18, through the ICAO TIs for the Safe Transport of Dangerous Goods by Air.

7.2 The ICAO TIs are not designed in isolation but are derived from the UN Recommendations on the Transport of Dangerous Goods – Model Regulations [ST/SG/AC.10/1]. The responsible entity is the *UN Economic Council's Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals*.

7.3 These Model Regulations are also modified and applied by the International Maritime Dangerous Goods (IMDG) Code for transport by sea; and through the Australian Code for the Transport of Dangerous Goods by Road and Rail.

7.4 Australian Legislation. The governing legislation for transporting DG by air is the *Civil Aviation Act 1988* (the Act), which is supported by Part 92 of the CASRs. Guidance material is also produced in the form of ACs.

7.5 The Civil Aviation Act 1988 - In Australia, there are three aspects which are legislated for in the Act; Dangerous Goods (Section 23); Statements of the Contents of Cargo (Section 23A); and Training related to Dangerous Goods (Section 23B).

7.5.1 Carriage and Consignment of DG – Section 23. Detailed requirements and procedures for the carriage of DG by air are contained in the ICAO TIs. It is accepted in the Australian aviation industry that industry-based documents, such as Labelmaster's Air Shipper and IATA's Dangerous Goods Regulations are used as documents providing equivalent or more restrictive requirements to those in ICAO TIs. When conducting entry control, surveillance, compliance and enforcement activities, CASA will seek to ensure that the ICAO TIs are complied with. Operators may choose to operate to the more restrictive requirements of the other industry documents and will be held to those higher standards.

7.5.2 Statement of Contents – Section 23A. A person consigning cargo (as opposed to DG), is required to make a statement where the cargo may travel by air. There are penalties for the making of a false statement. Within Australia, traditional statements in respect of domestic cargo are made via the Consignment Note; and, in international freight with the Shipper's Letter of Instruction, the forwarders house air waybill and the operator's master air waybill. The nature of the statement to be made is contained in CASR Part 92 and is covered under more detail later in this AC. The Statement of Content provisions in the Act and Regulations apply to shippers, forwarders and operators.

7.5.3 Training – Section 23B. Apart from some exceptions, all persons handling, or involved in the handling, of cargo are required to undertake training in relation to DG. This is applicable to all cargo – even if the cargo is not DG. The essential component of the training requirement is a defensive mechanism to keep hidden and undeclared DG out of air cargo. More information about the foreign training provisions can be found in sub-sections 17.9 and 17.10 of this AC and information on Australian training courses and instructors can be found in AC 92-01 and AC 92-03.

7.6 Regulations. These three Sections of the Act are supported by CASR Part 92 which is separated into five subparts:

- Subpart A – General;
- Subpart B – Conditions for the Carriage etc of Dangerous Goods;
- Subpart C – Training;
- Subpart D – Limitation on the application of Subparts B and C; and
- Subpart E – Information to Passengers.

7.7 Advisory Material. The Advisory material designed to assist in the application of the DG aviation environment comprises:

- AC 92A-01(0) – The Consignment and Carriage of Dangerous Goods on all aircraft in Australian Territory and on Australian aircraft overseas: an overview of the legislative framework and procedures,
- AC 92-01(1) – Dangerous Goods Training – Employees,
- AC 92-02(0)– Dangerous Goods Manuals,
- AC 92-03(0) – Dangerous Goods Training Courses and Instructors,
- AC 92-04(0) – Applications for Permissions to carry or consign dangerous goods under Section 23 of the Civil Aviation Act 1988,
- CAAP 89I-1(2) – Safety Distances for Explosives Laden Aircraft. *This Civil Aviation Advisory Publication (CAAP) is currently under review and will eventually be replaced by AC 139-12*, and
- CAAP 262A-1(0) – Use of Compressed Oxygen: carriage of live aquatic animals in air transport. *This CAAP is under review and will eventually be replaced as AC 92-05.*

8. TECHNICAL DOCUMENTS

8.1 The ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air

8.1.1 The ICAO TIs and Annex 18 are recognised as the sole authentic legal source material in the air transport of DG in Australian airspace or on an Australian Registered aircraft, unless permitted otherwise by CASA. The TIs are generally re-issued every two years and addenda and corrigenda are occasionally issued to ensure that the TIs remain operationally up-to-date for the safe transport of DG.

8.2 Supplement to the ICAO Technical Instructions

8.2.1 The Supplement to the ICAO TIs (SUPP) is a technical document that is primarily for the relevance of Regulatory Authorities, such as CASA, in considering exemptions from the ICAO TI's to provide for the air transport of forbidden DG, particularly applicable quantity limitations and packing instructions. The SUPP is not restricted to those Authorities and is available for purchase from the ICAO Customer Service Unit at http://www.icao.int/sales or ICAO Customer Service Unit, 999 University Street, Montreal, Quebec, Canada, H3C 5H7,

8.2.2 The SUPP also contains guidance material for States in developing public awareness programs, audit programs of operators and DG incident reporting protocols.

8.2.3 This material is generally of limited interest to the majority of users of the ICAO TIs or IATA DGRs unless they require the additional information regarding the transport of DG normally forbidden for air transport.

8.3 Emergency response guidance for aircraft incidents involving dangerous goods

8.3.1 ICAO Doc 9481 AN/928, Emergency Response Guidance For Aircraft Incidents Involving Dangerous Goods (a book with a distinctive bright red cover and commonly called the ICAO Red Book) provides general and amplified guidance for operators in their preparation for, and handling of, in-flight incidents involving dangerous goods. It is available for purchase from the ICAO Customer Service Unit at http://www.icao.int/sales , 999 University Street, Montreal, Quebec, Canada, H3C 5H7.

8.4 IATA Dangerous Goods Regulations and other equivalent industry documents

8.4.1 The IATA DGRs have been developed as a practical operational document with a construction and attention that is designed to be more understandable and easier to use. It also contains some more restrictive operational provisions. The IATA DGRs are generally re-issued on an annual basis. There are procedures to ensure that ICAO TI corrigenda and addenda are notified to purchasers of the IATA DGRs. The IATA DGRs also capture the Emergency Drill Response Codes from the ERG but do not contain the Emergency Response Drill tables nor the amplified checklists or guidance material for DG spill kits.

8.4.2 Various companies also produce a document or software/data base program which is consistent with the ICAO TIs and some companies produce their own in-house documents.

8.4.3 When assessing organisations for Regulatory compliance, CASA will be primarily guided by compliance with the ICAO TIs. Where an Operator specifies in their Operations or DG Manual that another document or system is used and complied with; then CASA will assess the Regulatory compliance of that document or system to ensure those standards are equivalent to and not less restrictive than the ICAO TIs.

8.4.4 Occasionally other industry documents will inadvertently contain provisions which are less restrictive than ICAO. When discovered, the industry document is normally changed quickly. On discovering a difference between the preferred document and the ICAO TIs, Operators are expected to be proactive in raising any anomalies they identify with the appropriate entity.

9. CARRYING AND CONSIGNING DANGEROUS GOODS

9.1 DG may find their way into the aviation system through the following mechanisms:

- Consigned as cargo;
- Carried by a passenger or crew member on their person, in their carry-on baggage or in their checked-in baggage;
- As part of the Operator's on-board equipment; or
- Part of the Operator's role equipment.

9.2 Generally, these DG will be carried because:

- They are in accordance with the ICAO TIs;
- They are DG that are involved in activities that are not included within the ICAO TIs;
- They are subject to specific provisions made for certain categories (such as the provisions for passengers and crew);
- They are excluded from having to comply with the ICAO TIs; or
- Permission has been granted by CASA for the DG to be carried in a manner that does not comply with the ICAO TIs.

Note: The following five sections will amplify each of these five dot points respectively.

10. THE CONSIGNMENT AND CARRIAGE OF DANGEROUS GOODS IN ACCORDANCE WITH THE ICAO TECHNICAL INSTRUCTIONS

10.1 For carriage and consignment of DG, legislative force is given, and compliance required, with the ICAO TIs through the Act. In turn, Section 23 of the Act requires that DG be carried in accordance with the Regulations; this is delivered through CASR Part 92. Part 92, in turn, calls up the ICAO TIs.

10.2 Operators who choose to carry DG in accordance with the ICAO TIs (or the IATA DGRs) do not require any specific permission, approval or other authorisation from CASA to carry out this activity. The authorisation is explicitly contained in CASR Part 92 at Regulations 92.005, with conditions at 92.020 and 92.025. Similarly, persons wishing to consign DG in accordance with the ICAO TIs are permitted to do so at CASR 92.005, with conditions at 92.020 and 92.035.

10.3 The TIs contain all the detailed requirements for carrying DG by air and they apply to all aircraft, both pressurised and unpressurised. Throughout the TIs "aircraft" is used: unless the context makes it apparent otherwise, it is intended that the requirements apply to both aeroplanes and helicopters.

10.4 The general requirements for an aircraft operator complying with CASR Part 92, other than compliance with the ICAO TIs, are;

- a Dangerous Goods Manual (or with DG material in the Operations Manual),
- appropriately trained employees,
- supporting documentation and records and the retention of those records,
- DG incident investigation, and
- decontamination and reporting procedures etc.

10.5 Further detail may be found in AC 92-02 – Dangerous Goods Manuals.

10.6 Operators are required to furnish a copy of their operations/DG manual to CASA prior to commencing the carriage of DG.

10.7 There are some holders of an Air Operators Certificate (AOC) with an operational specification clarifying the carriage of DG. The operational specification generally addresses one or more of three categories:

- limited DG – such as those for which provision has been made for passengers and crew in Part 8 of the ICAO TIs;
- DG that may be carried in accordance with the ICAO TIs; and
- DG that may be carried under a permission because the method of packing or the manner of carriage is not necessarily in compliance with the ICAO TIs.

10.8 Holders of an Australian domestic AOC that do not have an appended Operational Specification may carry DG in compliance with the ICAO TIs and their DG manual.

10.9 Foreign operators in Australian Territory are required to carry DG in accordance with the ICAO TIs and the laws of Australia in addition to the State of which the operator is registered.

11. OPERATIONS AND DANGEROUS GOODS THAT ARE EXCLUDED FROM THE ICAO TECHNICAL INSTRUCTIONS

11.1 This section is applicable to all operators, both foreign and domestic. Certain activities are specifically not included within the ICAO TIs and are therefore not subject to DG legislation unless specifically referenced. That is, these activities involve operations with DG; are permitted by the Act and Regulations, and for which the TIs are determined as not being applicable to DG carried for certain purposes, including:

- to provide medical aid to a patient in flight; this includes the positioning flight to collect the patient or the post-flight re-positioning after having carried the patient;
- to provide, during flight, veterinary aid or humane killer for an animal;
- for dropping in connection with agricultural, horticultural, forestry or pollution control activities; and
- the provision of aid in connection with Search and Rescue operations.

11.2 The DG are to be under the control of trained personnel at all times when they are in use on the aircraft and are to be stowed during take-off and landing and at all other times when deemed necessary by the pilot in command.

11.3 The DG may be carried on a flight either before or after a flight that is one of these non-included purposes, subject to certain conditions relating to the packing, loading, inspection, stowage, the approval of the operator and incident reporting requirements.

11.4 The operator is required to develop and implement procedures and instructions for these activities and is still subject to the requirements of the DG manual (CASR 92.040-92.055), training (Subpart 92.C) and DG incident reporting (CASR 92.065).

11.5 Dangerous goods of the operator

11.5.1 Articles and substances which are classified as DG and which are required to be aboard the aircraft in accordance with airworthiness requirements and operating regulations or that are authorised by the State of the Operator to meet special requirements. Examples would be aircraft batteries, emergency oxygen (airworthiness requirements) life rafts (operating regulations) and carriage of ammunition (authorised animal culling activities).

11.5.2 Where these types of items are being carried as replacement or replaced items, then unless authorised by CASA or the relevant State of the Operator, these items must be transported in accordance with the ICAO TIs, including marking, labelling, documentation, acceptance, inspection, stowage etc. The only concession is that specially designed packaging capable of meeting the requirements may be used. The usual examples are carrying replacement items out to an aircraft that has become unserviceable away from the main base, ie. such as aircraft batteries, tyres and fuel-related components.

11.5.3 Certain items which are being carried for sale or use on board the aircraft during a flight or series of flights, such as aerosols, perfumes and alcoholic beverages are also not subject to the ICAO TIs. Similarly dry ice used to keep food and beverage cold is also not subject to the TIs. However, replacement items are required to be carried in accordance with the ICAO TIs. That is, sale items and dry ice carried in a service trolley in the cabin are not subject to the TIs, but replacement items carried in the hold and which will be used to restock the service trolley on another aircraft must be consigned, packed, marked, labelled and carried as declared DG.

12. DANGEROUS GOODS THAT MAY BE CARRIED BY PASSENGERS

12.1 Baggage is considered to be a subset of “cargo” for which there are less stringent requirements where the baggage is to be carried on the same aircraft as the passenger.

12.2 The hazardous nature of DG and the safety concepts regarding the carriage of DG is that this should occur primarily as properly packed, marked, labelled and declared cargo. However, provisions have been made for certain DG to be carried by passengers and or crew on board an aircraft. The list of items is prescriptive and continues to evolve in light of operational experience. The broad concept is that it permits passengers to carry normal personal and toiletry items as well as some household items. Provisions also include certain types of DG that are normally required by business travellers and holiday makers, whilst providing for the safety of the other passengers.

12.3 The classification criteria of items of DG is still the same ie. an aerosol of deodorant carried by a passenger still meets the same classification criteria as a DG, but an allowance is made for a passenger to carry this item in a restricted amount; whereas, more stringent provisions will still apply if the aerosol is sent as cargo.

12.4 To ensure safety, some of the passenger permitted DG items still require the approval of the operator that will be carrying the passenger. The purpose of “operator approval” is to ensure that the airline is aware of those DG and can institute necessary measures to ensure that the goods are properly handled. Operators have developed documented procedures and trained their employees in the processes required for “operator approval” to be sought and given.

12.5 Operators usually publish on their websites the list of DG that passengers are permitted to carry. They also have access to copies at the check-in counter. A similar list is also published on the CASA website; however, passengers are always encouraged to contact the airline(s) that they will be flying with as any decision to carry DG is at the discretion of the airline involved.

12.6 If the goods do not meet the classification criteria as a DG, or if the ICAO TIs declare that the item is "not restricted", then the item is not a DG and can be taken by passengers in their checked-in or carry-on baggage.

12.7 Mishandled Baggage - Should the airline mishandle the baggage; then the normal provisions for dangerous goods carried by passengers will still apply and there is no need to remove the normally permitted personal effects and toiletries from the baggage.

12.8 Unaccompanied Baggage – Some cargo agents provide a service whereby passengers may arrange for their baggage to be collected and or delivered ahead of the flight. In these cases, the baggage is to be treated as cargo as it is not "baggage that is intended to travel with the passenger". Accordingly the unaccompanied baggage may not contain any DG. It is also subject to the Statement of Contents provisions that relate to declaring that the contents are not dangerous.

12.9 Excess Baggage Consigned as Cargo – With the rise of low-cost carriers and the penalty rates that are charged on passengers' excess baggage, there has been an increase in service providers that offer to transport the passengers' excess baggage as cargo. As the passenger has attended at the airport, presented at check-in, was intending to travel with the baggage on the aircraft, then the item may be still treated as passenger's baggage and the passenger provisions apply. If any of these criteria are not met, then the items are "Unaccompanied baggage".

12.10 Certain items for which "No other provisions of the TIs apply – A number of entries in the ICAO TIs are annotated such that if they are packaged in a certain manner, then "No other provisions of the ICAO TIs apply. This has lead to a wide variety of differing opinions as to whether passengers may carry these items. The approach adopted within Australia is to consider the risk posed by these DGs, when prepared and packaged as though they are freight, but carried by a passenger as baggage; as well as the philosophy that the Regulator should permit that which can be done safely with minimal Regulator interference. Operators are also entitled to impose more restrictive requirements. Accordingly, it is common practise that passengers intending to carry certain DGs, which are prepared in such a way that they are "not subject to other provisions of the ICAO TIs", are still subject to requiring the approval of the Operator. Approval is usually forthcoming when sought in advance, and is usually structured around being able to make advance notification arrangements to handling staff and aircraft crew.

13. OPERATIONS THAT ARE EXCLUDED FROM HAVING TO COMPLY WITH THE ICAO TECHNICAL INSTRUCTIONS

Note: Further amplifying information in respect of this section will be found in this AC under Section 23 – Subpart 92.D - Statutory Exclusions.

13.1 Within Australia, certain activities are expressly excluded, via a statutory regulation in the Australian legislation, from the normal requirements contained in the ICAO TIs. These activities and circumstances are found in CASR Subpart 92.D. Typical examples are:

- Aircraft operated by law enforcement authorities;
- helicopter slung loads;

- carriage of certain DG in main-deck cargo compartments;
- goods carried on sport parachuting operations;
- goods carried by private operators; and
- fuel in packing group II (ie. Avgas) which is carried in large containers (ie. 220 Litre drums).

13.2 The common themes within these statutory exclusions are an exclusion from the CASRs for ensuring that the packing, marking, labelling, documentation and/or acceptance checking are carried out in accordance with the ICAO TIs, whilst enabling less complex operations to achieve an equivalent level of safety to that sought through the TIs.

13.3 Whilst certain activities or requirements are excluded within each CASR Subpart D regulation; there are constraints which have been imposed in order to balance the relaxation of operational freedom with the need to maintain safety.

13.4 Whilst the individual regulations in Subpart D have been effectively excluded from the application of the ICAO TIs, the obligations under training (CASR subpart 92.C), the requirement for procedures and instructions (CASR 92.040-92.055), and the reporting of DG incidents (CASR 92.065) still apply.

14. SEEKING PERMISSION TO CARRY AND/OR CONSIGN DANGEROUS GOODS IN A MANNER THAT DOES NOT COMPLY WITH THE ICAO TECHNICAL INSTRUCTIONS

Note: This section provides a short explanation of the ICAO subject matters "State Approval", "State Exemption", "Forbidden unless Exempt", "Forbidden under any Circumstance" and an explanation of the corresponding approach adopted in Australia.

Further information on Dangerous Goods Permissions and ICAO State Approvals and Exemptions can be found in AC 92-04.

14.1 Section 23 of the Act and CASR Part 92 require that the carriage and consignment of DG by passengers or as cargo is to be in accordance with the ICAO TIs.

14.2 Section 23 of the Act also provides for DG to be carried and/or consigned in accordance with permission from CASA. There are two general reasons where carriage requires a permission:

- The goods are already packaged in a manner that does not comply with the ICAO TIs and social, environmental and economic considerations preclude their repackaging; thus requiring an **exemption**; or
- The goods have been identified by ICAO as being in a form/manner of packaging that requires an additional **approval** before carriage.

14.3 State Approval under the ICAO TIs

14.3.1 A number of provisions within the ICAO TIs require the approval of the State of Origin and/or the State of the Operator for the carriage of certain DG. Typical examples are those of Special provisions A1, A2 and various packing instructions (ie. 200, 965) etc.

14.3.2 Where States have notified a variation to ICAO TIs, then additional approval from those States as a State of Transit, Overflight or Destination is usually required. Where States have not notified a variation requiring their advance approval; then approval need not be sought.

14.4 The TIs indicate that some DG are identified with Special Provisions A1 or A2. Under A1 or A2, and when the goods are to be carried on a passenger aircraft through, into or over Australia, and Australia is not the State of Origin for the goods, then specific approval is required from CASA.

14.5 Similarly if the goods are identified by special provisions A2 and the intent is that they be carried on a cargo aircraft, from, though, over or into Australia, or on an Australian aircraft, then specific approval is required from CASA.

14.6 State Exemption from the ICAO TIs

14.6.1 The ICAO TIs provide for the relevant Competent Authority (CA), in cases of extreme urgency or when other forms of transport are inappropriate or full compliance with the prescribed requirements is contrary to the public interest, to grant State exemption from the provisions, provided that in such cases every effort is made to achieve an overall level of safety in transport which is equivalent to the level of safety provided by the ICAO document.

14.6.2 Examples of exemptions from the TIs are: over-sized or overweight packages, non-UN specification packaging; different UN Specification packaging to that identified in the Packing Instructions for those DG; and DG that are forbidden unless exempt.

14.6.3 Forbidden Unless Exempt. Unless otherwise provided for, permission may be granted to permit the carriage or consignment of dangerous goods, which are identified in the columns headed “Passenger & Cargo Aircraft” and “Cargo Aircraft” of the ICAO TIs “List of Dangerous Goods” and listed as being FORBIDDEN.

14.6.4 For international flights requiring exemption from the ICAO TIs, exemption is required from the States (countries) of transit, overflight and destination of a consignment as well as approval from CASA. In the case of a foreign aircraft, approval is also required from the State of the operator.

14.6.5 The SUPP is for the benefit of regulatory authorities and provides guidance for considering exemptions from the ICAO TIs.

14.6.6 Forbidden Under Any Circumstance. Certain things are too dangerous to be carried by air. These entries are identified within the ICAO TIs with “forbidden” in the UN number column. The corresponding entries in the IATA DGRs will have the proper shipping name in light font and “forbidden” in the “Passenger and Cargo Aircraft” and/or “Cargo Aircraft Only” columns.

14.6.7 An example of these two forbidden categories can be found through the entries for “**2-Chloroethanal”** (forbidden unless exempt) and **“Bromosilane”** (forbidden under any circumstance). There are a number of opportunities for the carriage of “forbidden unless exempt” items in Subpart 92.D. There are no provisions for the carriage of “forbidden under any circumstance”.

14.6.8 ICAO Special Provision A1.

> *This commodity may be transported on passenger aircraft only with the prior **approval** of the appropriate authority of the State of Origin under the written conditions established by that authority. A copy of the document of approval, showing the quantity limitations and packing requirements, must accompany the consignment.*
>
> *\The commodity may be carried on cargo aircraft in accordance with Columns K and L of the List of Dangerous Goods in Subsection 4.2.*

Where States, other than the State of origin, have lodged a variation advising that they require prior approval of shipments made under this Special Provision, approval must also be obtained from these States, as appropriate.

14.6.9 ICAO Special Provisions A2.

This commodity may be transported on passenger aircraft and on cargo aircraft, only with the prior approval of the appropriate authority of the State of Origin under the written conditions established by the authority.

Where States, other than the State of origin, have lodged a variation advising that they require prior approval of shipments made under this Special Provision, approval must also be obtained from the States of transit, overflight and destination and of the State of the operator, as appropriate.

In each case, a copy of the document(s) of approval, showing the quantity limitations and the packing and labelling requirements, must accompany the consignment.

14.6.10 Four examples of ICAO Special Provisions A1 and A2 and "forbidden unless exempt" and "forbidden under any circumstance" are respectively exemplified in the representative table below:

1	2	3	4	5	7	10	11	12	13
						Passenger or Cargo Aircraft		Cargo Aircraft	
Proper Shipping Name	UN No.	Hazard Class	Sub Risk	Labels	Special Provisions	Packing Instructn	Max per Package	Packing Instructn	Max per Package
Isobutane	1969	2.1		Gas flammable	A1	FORBIDDEN **(State Approvals Required)**		200	150kg
Bromoacetone	1569	6.1	3		A2	FORBIDDEN **(State Exemptions Required)**		FORBIDDEN **(State Approvals Required)**	
2-Chloroethanal	2232	6.1				FORBIDDEN **(State Exemptions Required)**		FORBIDDEN **(State Exemptions Required)**	
Bromosilane	FORBIDDEN **(forbidden under any circumstance)**								

14.7 Australian Permissions and their relationship to ICAO State Approvals and State Exemptions

14.7.1 Where the ICAO TIs specify State Approvals or State Exemptions; then the Australian delivery mechanism is via permission under Section 23 of the Act.

14.7.2 Any person may apply to CASA for a permission to carry on board an aircraft, or consign for carriage on board an aircraft, DG that would otherwise not be permitted for carriage or consignment under the ICAO TIs for the Safe Transport of Dangerous Goods by Air.

14.7.3 In considering applications, public safety will be taken into account as well as the practical availability of alternative methods of transportation unless a level of safety equivalent to that provided by the TIs can be clearly achieved through packaging and handling procedures.

14.7.4 Where permission for an Australian State of Destination approval or exemption is sought; then the matter is more likely to be considered favourably and expeditiously where carriage and consignment is in accordance with the TIs and/or SUPP.

14.7.5 Where Australian State of Origin Exemption is sought for an International flight, then the operator and consignee will need to contact and seek the required exemptions from the other relevant States.

14.7.6 When a level of safety equivalent to that provided by the TIs is not achievable through packaging and handling procedures and the granting of an approval is justified, aircraft operating procedures that may be necessary to ensure public safety shall be prescribed. These may include an embargo on the use of certain aerodromes and runways, limitations on take-off and landing direction, definition of route to be flown, etc. In all cases a single-engined aircraft shall not be permitted to fly over cities, towns or populous areas. A multi-engined aircraft not capable of or not being operated to the performance requirements of Civil Aviation Order 20.7.1.B, shall not be permitted to take-off over cities, towns or populous areas and a multi-engined helicopter shall not be permitted to take-off or fly over such areas where it cannot maintain flight in the event of an engine failure.

14.7.7 A permission covering a State Approval or a State Exemption will not be issued to an Operator who does not have a Dangerous Goods Manual as part of its Operations Manual suite. Similarly those operators whose Operations Manual states that their company does not carry dangerous goods will not be issued permission.

14.7.8 If an operator has chosen to restrict their carriage of DG, then a discrete permission cannot be issued to that operator for the carriage of goods in accordance with the TIs ie. CASA will not give a permission for an activity that an operator is already permitted to do; but has chosen through policy and procedure to not conduct that activity.

> *Note: Further information on Dangerous Goods Permissions and ICAO State Approvals and Exemptions can be found in AC 92-04.*

15. COMPETENT AUTHORITIES

15.1 A Competent Authority (CA) is any body or authority designated or otherwise recognised as such. With Australia's composition of States, Territories and a Commonwealth, there are a several Competent Authorities with differing areas of responsibility. The transport of DG on Maritime and Aviation modes of transport are managed federally and designated to the Australian Maritime Safety Authority (AMSA) and CASA respectively. The transport of DG by road or rail is primarily handled by Australian State Government departments. The States are also the appropriate Competent Authorities for the classification of DG and packaging approvals (or package design approvals).

15.2 Responsibility for the air and sea transport of radioactive DG also falls to the CA responsible for the respective mode of transport. Within Australian State road and rail jurisdictions this may be an agency or Department related to Health. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is developing processes and procedures to become the coordinating CA of the package design approvals for radioactive materials in Australia.

15.3 Representatives of these Competent Authorities meet every six months at the Competent Authorities Panel, a group that meets under the Council of Australian Governments agreement.

16. STATEMENT OF CONTENTS

16.1 The purpose of requiring a Statement of Contents (SOC) when consigning cargo is that of a defensive mechanism to assist in the prevention of hidden and undeclared DG from entering the air cargo system. It also allocates responsibility and accountability to the person who is sending the cargo.

16.2 The SOC enables the freight forwarder, Operator and CASA to identify the person responsible for sending the cargo. People who send only cargo (and not DG) are not required to be trained in respect of DG whereas forwarders and operators are required to train employees in the types of things that may be DG.

16.3 Consequently, whilst a shipper may not be aware of every day items that are DG, requiring them to describe the contents enables the freight forwarder to make a judgment as to whether the contents may be dangerous.

16.4 An example is a car mechanic who deals with lead-acid batteries on a daily basis and for whom he may consider are not DG. Describing the contents as “battery” provides a safeguard through the forwarder being able to question the mechanic as to the type of battery involved and establishing whether it is DG.

16.5 There are occasions where the sender knows that the item is not DG and may make a declaration that the contents are not DG. A common example is acrylic paint; and the shipper may choose to declare and send it as “acrylic paint” or “paint- not restricted”. The terminology “not restricted” is recognised within the industry as meaning that the shipper has researched and determined that the contents do not meet the classification criteria as DG. Consequently the term “not restricted” needs to be used carefully. If the same description was used when sending oil-based paint (which may be flammable and therefore DG), then the shipper is at risk of making a false statement and aviation safety may be compromised.

16.6 There are certain exclusions from the SOC provisions. These are:

- Cargo consigned from outside Australia;
- Checked baggage that is to be carried on the same aircraft as the person that checked in the baggage; this exclusion also applies to baggage that has been mishandled by the operator and has to be sent on a separate aircraft;
- The cargo is DG (and therefore properly declared and consigned as DG;
- CASA has granted an exclusion; or

- The cargo falls within certain dimensions and weights and is a postal article or document being sent between service centres of a document exchange service. Employees who handle only this last group of cargo are not required to undertake DG training; however, the forwarder, mail centre, or document exchange service needs to ensure that mail is not contaminated with "small parcels" and other items that are not exempt from the SOC provisions.

16.7 Where a forwarder presents a collection of SOC exempt items, i.e. an enclosed bag of mail items, then the collection is not exempt from the SOC provisions. A suitable description would be "Mail – SOC Exempt".

16.8 CASR 92.075 requires a freight forwarder to make a statement to the operator (and likewise for an operator on forwarding cargo to another operator) to make a statement that the cargo being presented is not DG. The purpose is to provide for a consignment to be traced and for the operator to comfortably rely on the statement by the handling forwarder/ operator that the consigned (and possibly consolidated) cargo is not DG.

16.9 If the operator/forwarder, makes a statement that there are no DG when presenting freight to the operator, and forwarder doesn't have an underlying statement to rely on, then responsibility for the offence rests with the presenting forwarder. It is therefore essential that freight forwarders have a robust quality assurance process to check that there is a SOC that describes the goods or a declaration that the contents are not DG.

16.10 Australian freight forwarder consignment note charging arrangements.

16.10.1 Certain Australian Freight Forwarders use their consignment notes as a basis for charging their clients and include a premium for conveying DG. This premium is for the extra resourcing required to check that the package is in compliance with the ICAO TIs.

16.10.2 There are some DG which are excluded from compliance with some of the provisions for consigning DGs. Typical examples are Excepted Quantities (EQ) and Infectious Substance Category B, UN3373. There are shippers who are concerned that they may be making a false statement if they send these goods and do not tick the box on the consignment note that "The contents are dangerous goods".

16.10.3 From an Australian Aviation Regulatory perspective, it is accepted that if a package is correctly marked and labelled and properly described in the "contents" section of the consignment note, then the consignor has attempted to comply and has adequately described the contents. For example, it will not be considered as a materially false statement if the contents are described as "Infectious Substance Category B, UN 3373", the consignment note is signed and the "Contents are Dangerous goods" box is **not** ticked.

17. TRAINING

17.1 Section 23B of the Act sets out the requirement for training and the imposition of penalty provisions. These are expanded upon in CASRs 92.085 – 92.130. The common principles behind the training requirements are that training is to be:

- in accordance with the ICAO TIs;
- undertaken before the employee commences duties; and
- undertaken every two years.

17.2 CASR 92.085 in Subpart C identifies six Australian defined DG employee groupings, comprising Groups A through F. The ICAO TIs identify 12 employee categories. The Australian employee groups were designed to be synonymous with ICAO's categories. When CASR Part 92 was constructed, a large commonality of functions and activities between the various ICAO employee categories was identified; which led to them being distilled into six basic levels of employee training that was required. The following matrix demonstrates the corresponding alignment between ICAO and Australia.

	Australian Legislation Employee Grouping					
ICAO Employee Categories	A	B	C	D	E	F
1. Shippers and Persons undertaking the responsibilities of Shippers						X
2. Packers						X
3. Staff of freight forwarders involved in processing dangerous goods	X					
4. Staff of freight forwarders involved in processing cargo, mail or stores (other than dangerous goods)		X				
5. Staff of freight forwarders involved in the handling, storage and loading of cargo, mail or stores					X	
6. Operator's and ground handling agent's staff accepting dangerous goods	X					
7. Operator's and ground handling agent's staff accepting cargo, mail or stores (other than dangerous goods)		X				
8. Operator's and ground handling agent's staff responsible for the handling, storage and loading of cargo, mail or stores and baggage					X	
9. Passenger handling staff					X	
10. Flight crew members and load planners			X			
11. Crew members (other than flight crew members				X		
12. Security Staff who deal with the screening of passengers and their baggage and cargo, mail or stores, e.g. security screeners, their supervisors and staff involved in implementing security procedures.					X	

17.3 Depending on the responsibilities of the person, the aspects of the training to be covered may vary from those covered in ICAO's tables. Training should be commensurate with the roles and responsibilities of the employee. More advisory information on training for employees can be found in AC 92-01.

17.4 Deemed Employees. These employees are personnel of outsourced agencies that are directly performing a function for and on behalf of an entity. For example, operator "X" contracts freight forwarder "Y" to perform the acceptance of DG for that operator. The employees of forwarder Y are deemed to be employees of operator X for that act of acceptance. Consequently, operator X is responsible for ensuring that the employees of forwarder Y are trained as Group A employees.

17.5 Dangerous Goods Courses. Courses for Group E employees do not require CASA approval, whilst courses for Groups A-D and F employee's courses do require CASA approval. Further guidance in respect of the content of approved DG, and those which do not require approval, can be found in AC 92-03.

17.6 Dangerous Goods Instructors. Instructors who are instructing on an approved course are required to be approved by CASA. Instructors of courses for Group E employees do not require approval, but must have undertaken a Group A or Group B course within the preceding two years. Further guidance in respect of DG Instructors can be found in AC 92-03.

17.7 Dangerous Goods Training Records. Up to date records are required to be kept by Australian Operators with employees in Australia; Australian Operators with Flight and Cabin Crew and Load Planners that are employed outside Australia; Ground Handling Agents and Freight forwarders with employees in Australia and screening authorities. Further guidance material in respect of DG Training Records can be found in AC 92-01.

17.8 Training – Australian Aircraft Operators. Employees in Australia and flight crew, cabin crew and load planners based overseas, are required to undertake Australian DG courses; unless the operator holds an exclusion from CASA to do otherwise.

17.9 Training – Australian Aircraft Operators – Foreign Employees. Other overseas employees of an Australian operator (ie. ground handling, freight acceptance, passengers check-in, etc) may be trained in accordance with the laws of the country in which they are based, or if there are no laws, then in accordance with the ICAO TIs. Operators that have overseas employees, who have completed a foreign training course, must include an evaluation of the training, at intervals of not greater than two years, in their audit program. The evaluation of each training program may well be of varying scope and take into account factors such as the operator's prior experience of the degree of regulatory oversight of training organisations in that country, a history of foreign employee errors resulting in non-compliance with operator procedures or the ICAO TIs, or whether the training is from an unknown or known provider.

17.9.1 An operator is required to ensure that foreign employees are made aware of the contents of the operator's DG manual so far as it is applicable and relevant to the employee's duties before the employee first performs those duties. This can be achieved by various mechanisms and it is up to the operator to determine the most effective method.

17.10 Training – Foreign Aircraft Operator with employees in Australia. These employees may undertake training that complies with the law of the State of the Operator's registered aircraft. If there are no requirements in that State, or if the Operator's aircraft are registered in a number states, then those Australian based employees must undertake a course that is in compliance with the Technical Instructions.

> *Note: Further information in respect of Dangerous Goods Training for Employees can be found in AC 92-01.*

18. OPERATOR'S DANGEROUS GOODS POLICY AND DANGEROUS GOODS MANUAL

Note: More information about DG manuals can be found at AC 92-02.

18.1 Operators tend to fall into one of two categories. Those that "will carry" DG and those that "will not carry" DG.

18.2 "Will not carry Dangerous Goods" operators

18.2.1 These operators have determined that the carriage of DG is not a business function that they wish to be involved in. They restrict their activities to carrying passengers and general cargo or aerial activities which do not require the carriage of DG. The only DG that they choose to carry are those for which there are normal provisions made for passengers and crew. The "Will not carry" operator still needs to:

- clearly state their DG policies;
- provide instructions, particularly in respect of DG provisions for passengers;
- comply with the Dangerous Goods Incident Reporting requirements;
- comply with the employee training obligations; and
- have in place emergency procedures for in-flight incidents involving DG

18.3 "Will carry Dangerous Goods" operators

18.3.1 Will carry operators tend to subdivide further into those that carry DG as cargo and those that carry DG as part of an aerial work role. Further information on statutory exemptions for certain aerial-work activities can be found under Section 19 of this AC.

18.4 The dangerous goods manual – for "will carry" & "will not carry" operators

18.4.1 As a condition of the permission issued to an operator to carry DG under CASR 92.040 and 92.050 for Australian operators and foreign operators respectively, operators engaged in commercial operations must have a DG manual. This applies even if the only DG are those personal effects that are permitted for passengers and crew. The DG manual may be incorporated within the operations manual.

18.4.2 Operators are required to have a DG manual if they are carrying DG. CASR 92.040 is comprised of three sub-regulations, of which subregulations (2) and (3) are a frequent source of requests for clarification. Subregulation (2) specifies that operators must have a DG manual **unless** they are covered by Subregulation (3). Subregulation (3) **only** applies to DG that are required to be on board an aircraft by a law in force in Australia (such as life jackets, fire extinguishers and supplemental oxygen) or DG that are carried on board for sale or use during the flight (such as alcoholic beverages, perfumes, aerosols for fumigation/disinsection). The effect of these two subregulations is that neither of these types of DG needs to be covered in the operators DG manual.

18.4.3 Subregulation (3) then goes on to explicitly exclude a number of activities and items; in particular replacements for those aircraft mandatory items (ie. replacement lifejackets, fire extinguishers, emergency oxygen etc), replacement sale items and DG involved in forestry, horticultural, pollution control and search and rescue activities. The carriage of these items, or carriage of DG in conducting these activities, therefore requires the matters to be addressed in the operator's DG/Operations Manuals. For example, an operator who needs to carry a replacement aircraft battery to another port for fitment onto another company aircraft which has become unserviceable with a defective battery will still require documented procedures to facilitate this lawfully. If the operator has "will not carry" policy and procedures but contravenes them and experiences a DG incident, then it is possible that the aircraft insurance may not be valid.

18.4.4 Irrespective of the amount of dangerous goods that an operator decides to permit, even if it's just the provisions for passengers and crew, then the Operator's DG manual must provide the employees with the necessary instructions and information which enables them to safely perform the task of handling and carrying DG for the operator. The operator should identify particular areas of risk, based on the Operator's experience as well as local knowledge of potential shippers and what may be offered for carriage.

18.4.5 The DG manual needs to be relevant to the processes and procedures of the operator and its employees and not a generic off-the shelf version. There are reputable DG manual producers who will tailor a manual to suit the needs of the operator. The DG manual needs to be a living document which should be reviewed annually, preferably in November/December each year against the ICAO TIs or other relevant up-to-date industry document and amended as required.

18.4.6 The DG manual is to be "readily accessible" to employees. A manual that is available in a terminal building on the other side of the airport cannot be considered to be readily available, nor is one which is locked in the supervisor's office outside of normal business hours.

18.4.7 The dangerous goods manual should contain:

- Company policy eg. whether or not DG may be carried and under what circumstances;
- Whether a permission to carry certain DG is held;
- identification eg. labels and markings;
- acceptance, handling and stowage including the location and numbering system of cargo compartments;
- the maximum number of transport indices (for radioactive materials) permitted in each compartment;
- the maximum amount of dry ice permitted in each hold;
- procedures for responding to emergency situations;
- duties of all involved;
- carriage of operator's staff with dangerous goods;
- notification requirements in the event of an accident, serious incident or incident when DG are being carried;
- reporting of DG accidents and incidents; and
- training.

18.5 Foreign Aircraft Operators may have a DG manual that is in compliance with the laws of their State.

18.6 CASA may issue directions requiring:

- an amendment to the DG manual;
- for certain people to be included within the distribution of the manual; or
- for the manual to be brought up to date.

19. DG INCIDENT MANAGEMENT AND EMERGENCY RESPONSE

19.1 If an accident or serious incident happens to an aircraft, it is essential for information about any DG on board to be passed quickly to responders to ensure the safety of persons who are involved, or likely to be involved, in dealing with the accident or serious incident and to minimise the hazard to persons, property and the environment.

19.2 If there is an aircraft incident, information about the DG onboard may be needed in order to minimise any hazard to persons, property and the environment. Whilst information must be provided if it is requested; depending on the seriousness of the incident and what is being carried, giving the information without waiting to be asked may assist in the early stages of managing the incident. In the first instance the information is to be given directly to the emergency services, air traffic control or to whoever is collating information for their use. As soon as possible the information is also to be given to the aviation authority of the State where the accident or serious incident occurred, or as directed by that State, as well as to the State of the Operator.

19.3 The information required is that which is on the NOTOC for the relevant flight. The information can be forwarded expeditiously to the emergency responders. Some DG in cargo would not be notified since they do not appear on a NOTOC (eg. excepted radioactive materials, Biological Substances category B, hidden DG). Likewise, hidden DG carried into the cabin will also not be documented.

19.4 If there are copies of the DG transport documents available, these may be useful at a second stage, when it may be necessary to identify more precisely what is in a particular package. Since it is important to ensure that any DG on an aircraft involved in an accident or serious incident are notified without delay, there should be procedures in place and reference made to them in the contingency plan for responding to accidents and serious incidents.

19.5 In managing the environment around the incident and ensuring the safety of personnel in the vicinity, some procedures should be developed and documented which anticipate the hazards presented by leaking or reacting goods.

19.6 The prior preparation should go to planning for spillage and leakage of the types and quantities of DG that might be ordinarily found in the premises and on the aircraft. A significant part of the preparation should be:

- planning the location of the DG storage area (ie. away from emergency exits and not adjacent to emergency equipment);
- catering for incompatible goods ensuring that they are not going to be stored in contact with each other;
- the creation of spill kits, (dyking material, absorbent material, shovel, DG recovery bins);
- provision of personal protective equipment (mask, gauntlets, overalls);
- signage;
- the development and delivery of practical training; and
- the documenting of procedures.

19.7 Guidance in preparing and developing should be taken from responsible material such as HB76:2004 – Dangerous Goods: Initial Emergency Response Guide (Standards Australia). Consideration should be given to:

- secure area, safeguard life & property;
- obtain information;
- seek assistance;
- commence clean-up;
- secure evidence;
- notify Emergency Authorities where health, safety or occupational welfare necessitates it; and
- report to Regulatory Authorities where it is mandatory or conforms to good operational practice.

20. INCIDENT REPORTING AND POST-INCIDENT INVESTIGATION

20.1 DG incidents and accidents are captured under two ICAO annexes. Annex-13 – Aircraft Accident and Incident Investigation (Annex 13) and Annex 18 – Safe Transport of Dangerous Goods (Annex 18).

20.2 Section 23 of the Act prohibits the carriage of dangerous goods on aircraft unless the person carrying or consigning the goods complies with the regulations (among other things), including any condition imposed by the regulations. CASR 92.065 imposes a condition stipulating that commercial operators must report DG incidents within two working days after the incident occurs. Failure to comply with the condition is a breach of Section 23 of the Act and the offender is subject to the penalties specified in Section 23.

20.3 During the initial enquiries by the operator, there may be a reasonable belief that the item concerned is not dangerous. CASA would still prefer to receive details of the circumstances as and when they come to hand. It is common that whilst the goods were not dangerous, the circumstances that led to belief that an incident may have occurred are illustrative of deficiencies and safety related failures within the air freight systems.

20.4 Whilst the only mandatory reporting is by commercial operators, common practise is for freight forwarders, consignees and ground handling agents to also report incidents to CASA.

20.5 Generally, unless there has been a deliberate attempt to circumvent the protective and defensive mechanisms to keep undeclared DG out of the air freight system, the adoption of a pro-active safety and education stance is preferred.

20.6 Where the incident appears to have risen through deliberate acts and activities, negligence or recklessness, then the matter is more likely to be investigated and may be referred for a formal investigation.

20.7 Incident reports should be made, irrespective of where the incident has been discovered; whether it is from passenger's bags, carry-on items or in the mail or general cargo. Operators are not obliged to report to CASA when the incident was detected prior to acceptance for carriage; primarily the detection of these DG indicates that the defensive processes are working. However, where an operator feels that the passenger, consignor, forwarder or employee is making a deliberate attempt to unlawfully consign DG, then the matter should be referred to CASA.

20.8 The reporting of DG incidents under CASR 92.065 to CASA is in accordance with the requirements of ICAO Annex 18 and the TIs. This reporting is additional to the incident reporting requirements of Annex 13.

20.9 Reports may be lodged via email to dg@casa.gov.au, fax to 1300 857 851 or via mail to GPO Box 2005, Canberra ACT 2601.

Note: Submitting a report by mail is unlikely to achieve notification within the two working day timeframe.

20.10 Often an operator's procedures will stipulate that any DG involved in an incident are not to be released until an investigation has been concluded. Where the DG are necessary for life-saving purposes, such as radiomedical isotopes, then where the integrity of the package has not been comprised, the consignment should not be delayed.

21. PACKAGING

*Notes: **Packaging** is the material that is used to enclose the goods. **Packing** is the act of enclosing the goods. **Package** is the resultant combination of packaging and goods.*

- *Packaging may be a single enclosure ie. a steel drum, or a combination of an inner and an outer material, ie. a plastic jerrican inside a wooden box.*
- *Whilst single packagings may be acceptable for Cargo Aircraft Only operations, consignments of DG on passenger aircraft are usually required to be packed in combination packagings.*

21.1 Non UN Specification packaging

21.1.1 Packaging which has not been tested to UN specified standards, may nevertheless be used to package DG in small quantities under the provisions for limited quantities and excepted quantities.

21.1.2 It is possible for non-UN specification packagings to be more robust and stronger than UN tested packages, nevertheless, smaller quantity limits will still apply.

21.1.3 Some entries in the ICAO TIs call for "Strong Outer Packagings". Whilst the term is not defined, the packagings should be sturdy, robust and strong enough to withstand the normal rigours encountered in air transport. This includes variations in temperature and pressure, exposure to vibration, moisture and the impacts that are encountered in normal manual handling, including dragging, sliding, throwing and dropping. Some guidance for consideration of the suitability of outer packaging to be deemed as "strong outer packaging" and conforming to various parts of the ICAO Technical Instructions are where the completed package should be capable of withstanding, without breakage or leakage of any inner packaging and without significant reduction in effectiveness:

21.1.4 The following free drops onto a rigid, non-resilient, flat and horizontal surface from a height of 1.8 m:

- one drop flat on the bottom;
- one drop flat on the top;
- one drop flat on the long side;
- one drop flat on the short side; and
- one drop on a corner at the junction of three intersecting edges.

21.1.5 A force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the test sample).

Note: Operators should not undertake this test on a completed package which has been presented for transport as it may contain delicate machinery or other fragile cargo. The guidance is provided more as an objective guide for the shipper and a subjective observational assessment criteria for the operator/forwarder.

21.2 UN Specification Packaging Approvals

21.2.1 Packagings may be designed as a single packaging (one container) or a combination packaging (an inner container or multiple inner containers which are within an outer package).

21.2.2 The United Nations Economic & Social Council's Committee of Experts formulates the Manual of United Nations Tests & Criteria.

21.2.3 In Australia packaging approvals are issued by assigned State and Territory Government agencies who are the designated Competent Authorities.

21.2.4 The National Association of Testing Authorities (NATA) is the entity responsible for a comprehensive national laboratory accreditation system which prescribes the conditions to be met for accreditation and examines test facilities to ensure that their quality management systems and laboratory codes of practice conform to national and international test standards.

21.2.5 A 'UN approved package' is a package that has been designed and tested "prepared exactly as to be used in transport" in accordance with the requirements of the ADG Code; the ICAO TIs (or the IATA DGRs) or the IMDG Code. This procedure ensures that the package is suitable and likely to withstand the normal rigours of transport.

21.2.6 The components that constitute a package design can include:

- Method and materials of construction;
- Type of sealing mechanism and closure;
- Dimensions, weight and capacity;
- Whether it is for transport of liquids or solids;
- The relative density for packages designed to contain liquids;
- A tested and certified inner packaging with the closure (cap or lid) with which it has been tested and certified for combination packages;
- An intermediary package for combination packages;
- An outer packaging for combination packages;
- The type of inserts which hold the inner inside the outer in a stable position (if required) for combination packages;
- Absorbent/cushioning material for combination packages; and
- With combination packages - the configuration of the internal packaging components, the construction of the external seal to be applied to the outer packaging and the method of sealing the package.

21.2.7 All types of packaging are subjected to their relevant test regime prior to approval. After testing of a package, or inner packaging by a NATA accredited test laboratory, if the package passes the test program specific to it, a Test Certificate is issued by the laboratory that has performed the tests. The manufacturer then applies to the appropriate State-based Dangerous Goods Competent Authority for its registration, the issue of an approval certificate and approval number for the package. This is usually the State in which the company is registered.

21.2.8 The approval, together with the NATA Test Certificate details:

- the manufacturing specifications of the package;
- the terms and conditions under which the approval is issued; and
- the manufacturer(s) to whom the approval has been issued.

21.2.9 Any changes made to any of the design features of a package, whether to a single package, an inner packaging, or to a combination package, including the shape of the inner packaging, dimensions of inners or outer, or to the inner configuration, can change the dynamics of the combination package and failure of the package or packaging can occur. Without testing there is no guarantee of performance or confidence that the package is "safe". The changed package must be of equivalent performance, therefore any design variants must be re-tested and a new approval submission made to the CA.

21.2.10 The tests that completed packagings are submitted to include stacking and dropping, exposure to water and the ability of inner packagings to maintain a pressure differential at -40ºC and +55ºC. Furthermore, inner packagings should not be embrittled by the contents. The testing is an objective method to ascertain whether the packagings are likely to continue containing their dangerous contents when exposed to the normal rigours of air transport – including being packaged at various temperatures, experiencing an environmental decompression at altitude, being restrained under load or dropped whilst being handled.

21.2.11 The manufacturer is obliged to produce and provide a test report for users of the packaging. The report is required to contain at least the following particulars:

- Name and address of the test facility;
- Name and address of the applicant (where appropriate);
- A unique test report identification;
- Date of the test report;
- Manufacturer of the packaging;
- Description of the packaging type (eg. dimensions, materials, closures, thickness etc.) including method of manufacture (ie. blow moulding); drawings or photographs may be included;
- Maximum capacity;
- Characteristics of the test contents (eg. the viscosity and relative density for liquids and the particle size for solids);
- Test descriptions and results; and
- A signature and name and status of the signatory.

21.2.12 External UN Specification packagings will be marked with the following markings and there will be a "/" or space between each item:

- The letters "UN" enclosed in a circle;
- The code designating the type of package;
- The code designating the packaging group as to the level of danger; and
  - For single packagings for liquid contents – the rated specific gravity; and
  - for solids or combination packagings, the maximum gross mass, in kilograms, at which the design type has been rated;
- For single packagings containing liquids, the hydraulic test pressure to which the packaging was shown to withstand and for packagings intents to contain solids or combination packagings - the letter "S";
- The last two digits of the year in which the packaging was manufactured;
- The state authorising the allocation of the mark (in Australia this is represented by "AUS"); and
- The name of the manufacturer or other identification of the packaging specified by the appropriate national authority.

21.3 Reused, Cleaned and Empty packagings

21.3.1 Empty packagings - An empty packaging that has contained a dangerous substance must be treated in the same manner as is required by the Technical Instructions for a package filled with that substance unless adequate measures have been taken to nullify any hazard.

21.3.2 Cleaned packaings - Purging and thorough flushing of the packaging with a neutralizing agent is an acceptable method of nullifying the hazard.

21.3.3 Reused packaging – Where packagings are re-used on a number of ocassions, the structural integrity of the package may become compromised. For example in continually re-using a fibreboard box, the sidewalls, corners and edges become damaged through repetitive removal of adhesive tape. Where is this concern that the package will not withstand the normal rigours of air transport, then it should be not carried.

22. PACKING

Note: Persons involved in packing DG ie. enclosing the dangerous goods in packaging, affixing labels or completing the Shipper's Declaration ***must undertake an approved course for Group F employees****:*

- *This Section only covers a very brief overview of the act of packing, the applicable packing instructions and some requirements that exceed those of the packaging.*

22.1 Packing is more than the act of putting goods inside the packaging. In preparing a package, the person who signs the shipper's declaration is responsible for ensuring that the package has been assembled in the correct manner, that quantity limitations have not been breached and that only packaging permitted by the packing Instruction has been used. The accepted act of packing a dangerous goods consignment are considered to generally adopt the following steps:

- The classification of the goods;
- The determination of the appropriate specific packing instruction;

- The sourcing of appropriate inner packaging containers. The DG that are being enclosed in the inners must be compatible with the material of the inners. Similarly, persons who ship liquid DG should ensure that the inner packagings or the overall combination has passed the appropriate pressure differential test;
- Determining whether other general packing requirements apply, such as ullage (the amount or volume by which a container, especially one for liquids, is short of being full, in order to allow for the expansion of the liquid at reduced atmospheric pressure or different temperature), absorbent material, cushioning material or the provision of a leak-proof liner. The quality of the leakproof liner, where required, should be substantial and capable of holding the contents in the event of a leakage. For example a bio-degradable plastic shopping bag will not be adequate for the normal transport and containment function. If an accident or incident is caused by contents leaking, the liability to airline operators and freight forwarders and the investigation by Regulators will outweigh the expediency in using inadequate packaging. Failure to pack DG in accordance with the ICAO TI is an offence under Section 23 of the Act;
- The sourcing of appropriate external packagings. The external packagings must reflect the year of manufacture (as some manufacturers impose time life limits on their packages);
- Ensuring that the packaging meets the appropriate design requirements;
- Preparation of the package. Persons who ship DG must pay particular attention to the test report and establish that they are preparing their consignment in accordance with the packing instructions. Using inner packagings which are not the same as those specified in the test report, will potentially render the shipper liable should the goods be damaged in transit and leak;
- Application of package marking and labelling; and
- Preparation of the documentation – the shipper's declaration and the airwaybill or consignment note.

23. SUBPART 92.D – STATUTORY EXCLUSIONS

Note: This section is only applicable to Australian registered aircraft operating in Australian Territory.

23.1 Subpart D of CASR Part 92 contains a number of regulations where certain types of DG, involved in certain operations, are excluded from the requirements of the ICAO TIs. There are some general guiding principles to these regulations; principally:

- Only permitted in Australian Territory;
- Safety procedures to be devised, documented & implemented;
- The operating crew are to be aware of the DG;
- All passengers are to be informed of the DG on board and the implied right to refuse to travel aboard the aircraft;
- DG training is still required, other than for Private operators;
- DG incident reporting requirements also continue to apply; and
- Some of these legislative provisions include "forbidden unless exempt" DG.

23.2 A number of the regulations require that there be a DG manual and/or procedures. This manual/procedures are to be relevant to the operator and should not be an off the shelf generic document. It needs to be a living document which is reviewed, amended, issued and kept up to date. Furthermore, the employees are to be trained in the DG that are relevant to their operational activities.

23.3 CASR 92.160 - Aircraft Operated By Law Enforcement Authorities

23.3.1 The aircraft must be operated by the Law Enforcement Authority (LEA), the provisions of the statutory exclusion are not available to operators who are chartered or hired to carry personnel from the LEA or their goods. The appropriate mechanism for commercial operators wishing to be available for charter by an LEA is either via CASR 92.190 - Goods for use in emergency services, or a permission under section 23 of the Act.

23.3.2 For LEAs the goods must not be forbidden under any circumstance. Goods that are forbidden unless exempt may be carried without any additional permission from CASA. The goods must be in a proper condition for carriage by air. That is, they must be secured/restrained to prevent them from becoming a loose article and the DG must be appropriately contained such that they are unlikely to leak, ignite, activate or detonate in the normal course of the activity for which they are being carried. This would include the scenario of a heavy landing or survivable crash. DG prepared and packed according to the ICAO TI are considered to be in a proper condition for carriage by air and an equivalent level of safety is implied if packed differently.

23.3.3 The pilot in command is to be aware of the goods being carried and the LEA is to establish procedures in their DG manual. Furthermore, the operation is only permitted to carry essential personnel.

23.4 CASR 92.165 - Helicopter slung loads

23.4.1 The ICAO TIs apply to helicopters and loads that are slung under a helicopter.

23.4.2 This regulation is an exclusion that is only available in Australian Territory and on board Australian-registered aircraft. The DG in the slung load must be packed and stowed to prevent leakage and must not be incompatible with other goods in the sling, or if they are incompatible, must be securely separated.

23.4.3 The goods must not be “forbidden under any circumstance”; but may be “forbidden unless exempt”. The goods must also be in a proper condition for carriage. This regulation is utilised in Antarctic operations when ferrying supplies and dangerous goods from ship to shore. It is also used by inland helicopter operators who choose not to carry dangerous goods on board the aircraft. Importantly, the slung load must be able to be jettisoned in the event of an incident involving the DG.

23.5 CASR 92.170 - Cargo carried in main deck cargo compartments

23.5.1 Aircraft compartments are classified in some national airworthiness requirements, predominantly in large aircraft, as being one of five classes:

- Class A is one where the presence of fire would be easily discovered by a crew member whilst at his her stations and each part of the compartment is easily accessible in flight.

- Class B is one where there is sufficient access in flight to enable a crew member to effectively reach any part of the compartment with the contents of a hand fire extinguisher; and no hazardous quantities of smoke, flames or extinguishing agent will enter any compartment occupied by passengers or crew; and there is a separate approved smoke detector or fire detector system to give warning at the pilot or flight engineer station.
- Class C is a compartment which does not meet the requirements for either a Class A or Class B, but in which there is an approved smoke detector or fire detector system to give warning at the pilot or flight engineer station; there is an approved built-in fire extinguishing system controllable for the pilot or flight engineer station; there are means of excluding hazardous quantities of smoke, flames or extinguishing agent from any compartment occupied by the passengers or crew; and, there are means of controlling ventilation and draughts within the compartment so that the extinguishing agent used can control any fire that may start within that compartment.
- Class D is one in which fire occurring in it will be completely confined without endangering the safety of the aeroplane or the occupants; there are means of excluding hazardous quantities of smoke, flames or other noxious gases from any compartment occupied by the passengers or crew; ventilation and draughts are controlled within each compartment so that any fire likely to occur in the compartment will not progress beyond safe limits; and consideration is given to the effect of heat within the compartment on adjacent critical parts of the aeroplane.
- Class E is one where there is a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station; there are means of shutting off the ventilating flow to or within the compartment, and the controls of these means are accessible to the flight crew in the crew compartment; there are means of excluding hazardous quantities of smoke, flames or noxious gasses from the flight crew compartment; and, the required crew emergency exits are accessible under any cargo loading conditions.

23.5.2 On aircraft carrying passengers, DG may only be carried in any main deck cargo compartment when this meets the certification requirements for a Class B or Class C cargo compartment. There are many aircraft in operation which do not have such a main deck cargo compartment eg. HS748, F27, Brasilia, Metro, and BK117. A list of DG was developed and made available in the SUPP and these present a low risk and were therefore considered suitable for transport in aircraft where the only available cargo compartment is on the main deck but it does not meet the requirements for a Class B cargo compartment. The dangerous goods are primarily:

- Division 1.4S explosives;
- Division 2.2 gases;
- A number of liquids and powders which are in Packing Group III and some articles of Classes 3, 8 and 9, Divisions 4.1, 5.1 and 6.1;
- Division 6.2 infectious substances; and
- Class 7 radioactive materials in excepted packages or those requiring White-I labels on the package.

23.5.3 In the event of leakage, none of the DG should produce fumes or any other reaction which could cause discomfort to passengers or prevent crew members from performing their duties.

23.5.4 The SUPP recognises that DG of the types shown above can be carried safely provided that the State of Origin exempt them to allow their carriage under certain conditions. The Regulations exempt operators who wish to carry DG but whose passenger aircraft has only main deck cargo compartments and these do not meet the Class B cargo compartment certification requirements.

23.5.5 The Regulation also calls up a requirement that "the cargo compartment is separated from the passenger cabin by a bulkhead or other barrier that will prevent fire and hazardous quantities of smoke or toxic gases from entering the passenger cabin or crew compartment". For example an Aircraft Flight Manual may require the fitting of a smoke curtain when carrying dangerous goods on the main deck. Some aircraft are equipped with removable bulkheads which will have a gap around the installed bulkhead. These may require a seal to prevent the ingress of hazardous quantities of fumes or smoke.

23.6 CASR 92.175 - Goods carried by private operators

23.6.1 This regulation permits aircraft owners and private operators to carry small quantities of items which meet the criteria of DG yet from a safety perspective, do not warrant the requirement of completing a shipper's declaration, filling out their own checklist and writing themselves a NOTOC. The private operator, as the carrier of the goods, should be able to make a reasonable judgement and self assessment of the risk presented by the DG that they intend to carry. The examples of goods that private operators carry under the provisions of this regulation are of recreational activities such as camping, hunting or daily living.

23.6.2 Other private activities which are covered by this regulation include farmers or tradespeople who are carrying their own goods on their own aircraft and companies who are transporting company personnel and DG on their own aircraft and do not require an AOC.

23.6.3 This regulation is not intended to facilitate commercial operators to carry DG on a private operation in support of commercial activities. The commercial operator either carries DG and has a DG manual, trained employees and acceptance processes; or the operator does not carry DG. If the operator wishes to only carry DG on flights where it does not carry passengers, then that is a policy decision which should be expressed in the company DG manual. The emphasis in the regulation is on private "Operator"; not private "operations".

23.6.4 The requirements for carrying DG by a private operator are that:

- the aircraft is unpressurised and has less than ten seats;
- the goods must be:
  - permitted in the ICAO TIs in either passenger or cargo only aircraft;
  - must be stowed to prevent movement and damage; and
  - incompatible goods must be segregated; and
- The pilot must ensure that every person on board the aircraft knows, before boarding, that the DG are on board. The rationale is that passengers can make an informed choice as to whether or not they wish to board and travel on the aircraft and they may be asked to assist in the event of an in-flight emergency.

23.6.5 The other consideration for private operators is to weigh up whether the proposed activity is safe rather than just whether it is legal. The precautions that the pilot ought to adopt should go further than just stowage to prevent movement, but should include consideration of the nature of the hazard and risk presented by the goods and where should they be stowed so that they are not subject to additional extremes (eg.if susceptible to temperature – away from direct sunlight).

23.6.6 There should also be some thought as to what will be done should the pilot encounter difficulties in flight and these thoughts communicated to the passengers as part of the pre-flight briefing, with particular regard to engine failure, engine fire and fire in the cabin.

23.6.7 The pilot should also carefully inspect the DG prior to loading and after unloading to check if there is any damage or leakage of DG packages.

23.7 CASR 92.180 - Goods carried for parachute operations

23.7.1 This regulation is primarily for the carriage of items in Hazard Division 1.4 (a particular category of Explosives), usually pyrotechnics worn and activated by the parachutist as part of a display after they have departed from the aircraft. The Australian Parachute Federation has developed procedures for their members to complement this regulation. Operators, pilots and parachutists must be operating in Australian aircraft and in Australian Territory; must brief each other as to the goods; the activation of the goods and the actions to be taken in the event of an inadvertent activation. If the operator is a commercial operator, then the operator must have a DG manual.

23.8 CASR 92.185 - Carriage of fuel in large containers

23.8.1 In a cargo only capacity, aircraft cannot carry fuel canisters of Packing Group II fuel (principally Avtur, Avgas and petrol) which exceed 60 litres unless permitted otherwise by CASA. This regulation was constructed to facilitate the transportation of aviation fuels and petrol in Packing Group II in large containers thus avoiding the need to decant fuel into smaller containers. The operator is excluded from complying with the TIs, however, the aircraft must be operating in a cargo-only capacity and the goods must be documented, labelled, stowed and segregated in accordance with the TIs.

23.8.2 The documentary requirements would include a NOTOC and associated emergency procedures but need not necessarily include the shipper's declaration or acceptance checklist.

23.8.3 The stowage requirements in the ICAO TIs for liquid DG is that they are stowed with caps upward. Regulation 92.185 does not permit the stowage of 220 litre (44 gallon) drums on their side.

23.8.4 Careful consideration also needs to be given to the aircraft's normal floor loading requirements. Load-spreaders or dunnage should be used to distribute the weight of the fuel and containers from the thin metal ring underneath the base of the drum onto a broader surface.

23.9 CASR 92.190 - Goods for use in emergency services

23.9.1 The regulation permits flexibility in the carriage of DG for emergency services purposes. Usual emergency service operations include transporting fire fighters and their equipment closer to the fire-front or retrieving them during or after the operation. Other activities include the carriage of police, military personnel and other emergency services personnel in support of civilian relief, rescue and first-aid personnel.

23.9.2 The aircraft is to be unpressurised, equipped in an approved passenger seat configuration with less than ten seats, operating in Australian territory; and if it is a helicopter, to discharge any static charge before loading or unloading passengers or cargo.

23.9.3 The allowable DG are necessarily restricted to certain classes and whilst the packaging standards are relaxed for more of those classes, flammable liquids are still required to be packaged in accordance with the ICAO TIs.

23.9.4 The operator is to establish safety and emergency procedures and publish those procedures in their DG manual. It is customary for operators and emergency service personnel to collaborate during the off-season and to establish procedures which are mutually acceptable to both parties. Once established, the procedures should be reviewed at least annually; and whenever new equipment or procedures are introduced; or as part of any post-incident investigation to ensure that the procedures are robust, remain up-to-date and reflect the dangerous goods carried by the emergency service personnel. The documenting of the procedures should be robust enough to cater for high employee turnover by both parties and the need to train, check, brief and operate at short notice.

23.9.5 The pilot in command is to be informed of the DG and where they are stowed.

24. THE PROVISION OF INFORMATION TO PASSENGERS AND CONSIGNORS OF CARGO

24.1 Information to passengers – CASR 92.200 is directed at owners and operators of airport terminals - those facilities where operators have little control over the provision of information to passengers. Where the operator does have control of the terminal facility, then the operator's obligation is required through CASR 92.025(2)(b)(xv).

24.2 One of the biggest problems faced by operators is passengers who take, or try to take on an aircraft, items of DG which they are not entitled to carry. In these circumstances there is the potential for an incident to occur in flight, with potentially disastrous results. To aid prevention, there are requirements for information to be provided with passenger tickets and for notices to be prominently displayed.

24.3 Notices warning passengers of the types of DG they are forbidden to transport on board on aircraft must be in sufficient number and prominently displayed so that passengers can see them easily during their normal progression through the departure procedures. They must appear:

- at any place where passengers check-in;
- at airports where tickets are issued;
- at airports where boarding areas are maintained; and
- are often displayed at baggage collection carousels as well.

24.4 Information with the ticket includes having it on the ticket, on the ticket wallet or on a separate leaflet. Where a conventional ticket will not be issued, such as when a booking has been made electronically, the information is to be given in some other manner providing the passenger receives it prior to the check-in process. Any suitable method of giving this information may be used, including having it as part of the general information in the computerised booking system, providing the passenger cannot by-pass the information during the booking process.

24.5 The notices and ticket information must warn passengers about the types of DG which they are forbidden to transport on an aircraft reference may also be made to those which are permitted. The information should be easily understood and may be conveyed by pictographs or similar and may be supplemented with text.

24.6 Providing visual information for passengers relies on them reading or seeing it, and experience suggests that sometimes they do not do so. Operators may benefit from supplementing the notices and ticket warnings with a verbal challenge. For instance, it is recommended that check-in staff be instructed to ask passengers a direct question by pointing to the notice and enquiring if passengers have any DG of the type depicted.

24.7 Making the information for passengers noticeable has always been a problem for operators. Whilst notices are the legal requirement, there may be other ways in which information can be provided that may attract the attention of passengers. One of the most effective methods is to have display cabinets in the public areas of an airport, containing items that passengers cannot take on aircraft and pointing out that incidents can happen if forbidden items are taken on board.

24.8 Information with tickets (other than aircraft operator). CASR 92.205 applies to travel agents, internet ticketing agents and third party passenger booking services/sellers. The information may be given electronically and a number of internet passenger retailing agencies use material provided by the CASA website. Similarly, a number of travel agents have produced pamphlets on pertinent information about dangerous goods which have been combined with other useful passenger travel and promotional information.

24.9 Information to consignors of Cargo. The ICAO TIs requires that information about the types of things that may be DG is to be made available to persons who consign cargo. The rationale is that this forms another safety defence mechanism against people inadvertently sending items which are DG. The method of making people aware is usually achieved through the display of posters and electronic signage at points where cargo is accepted and via the DG statement and declaration on the consignment note.

Executive Manager
Standards Development and Future Technology

March 2011

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