CIVIL AVIATION AUTHORITY
OF PAPUA NEW GUINEA

Advisory Circular

AC92-2

Carriage of Dangerous Goods — VFR Unpressurised Aircraft 5700 kg MCTOW and Below

Initial Issue

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GENERAL

Civil Aviation Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

PURPOSE

This Advisory Circular provides methods, acceptable to the Director, for showing compliance with the exception for the carriage of dangerous in unpressurised aircraft with a MCTOW of 5700kg or below under VFR requirements of Part 92 and explanatory material to assist in showing compliance.

RELATED CAR

This AC relates specifically to Civil Aviation Rule 92.11.

CHANGE NOTICE

There was no previous issue of this AC, consequently no change is in effect.

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INTRODUCTION

Part 92 provides exceptions for the carriage by air of some dangerous goods. One exception allows the carriage of certain items in unpressurised aircraft at or below 5700 kg MCTOW on a VFR flight. The VFR operator will not have to comply with the extensive requirements that otherwise apply to the safe transport of dangerous goods by air.

It is important to appreciate that the requirements for the safe carriage of dangerous goods are applicable to all operators, irrespective of the operation being for hire or reward, or private.

Many aircraft engaged in VFR operations operate into areas not easily accessible by other means of transport and therefore dangerous goods are likely to be transported on these operations

It is important for aircraft operators, who transport these goods, to fully understand the rule provisions and how to comply with the rules. That understanding will ensure that the safety of the aircraft and its occupants is not put at risk.

The following provides guidance on methods and procedures that the operator can apply for the safe carriage of dangerous goods by air.

1. What are dangerous goods

Dangerous goods are articles or substances that are capable of posing significant risk to health, safety, or property when carried by air.

The most common item of a dangerous good is petrol. Petrol is a commodity that has been around for a long time. Most, if not all, of you will have handled petrol and had the safety precautions imbued in you by the likes of your parents. Precautions would be such as, it is highly flammable, don't smoke or have an open flame in its vicinity, keep it in a proper container with a tightly closed stopper, the fumes are hazardous and the like.

Many common items from the home or workshop, as well as a variety of industrial chemicals or substances, are potentially more hazardous to persons on board aircraft when they are carried by air.

2. Dangerous goods forbidden for carriage in aircraft

You need to be aware that certain items, due to their hazardous nature, are forbidden from carriage by air, and others can only be carried on cargo aircraft. Items such as explosives or explosive devices are obvious examples. But there are a number of other items that are liable to produce a dangerous source of heat or gas under the conditions normally encountered in an aircraft during flight. These types of items must not be carried in any circumstance!

3. Identification

Each operator who needs to take advantage of this provision in the rule, would have experience with the items associated with the needs of passengers for their recreational or sporting activities. The operator should identify these items that are acceptable for transport in their aircraft and provide this information to the operating pilots. They, then, do not have to make individual judgements on what might be carried.

The following is a list of typical items that may be carried:

(1) Refillable or disposal LPG gas cylinders of the type commonly associated with camping equipment.

(2) Small quantities of ammunition required for hunting or sporting purposes.

(3) Petrol, kerosene or other flammable liquid required for the replenishment of heaters, stoves,

lamps, and the like.

(4) Solid fuel for solid fuel burners, heaters, and the like.

(5) Divers air bottles, either full or empty.

(6) Batteries required for use by generators, back-up power supply, and the like.

If you come across an article or substance that appears to be a dangerous good either do not carry it or seek advice about it.

4. Segregation

Certain substances can interact dangerously producing toxic fumes, or even ignite, should they come into contact with each other. The precaution to be taken is to segregate such substances that can react dangerously with one another.

Segregation can be achieved by placing articles or packages of non-dangerous goods between them, or by physically placing the packages in different parts of the cargo or baggage compartment.

ICAO Technical Instructions contains a complete list of substances by class or division that are required to be segregated. As the purpose of this rule is for the carriage of restricted items of dangerous goods the following table covers those items that are likely to be carried. Should you come across a substance that is not included in the table you should seek advice from someone who is familiar with the complete ICAO listing.

Table 1. Segregation of Dangerous Goods

Class or Division	Should be segregated from
Class 1 - Explosives	Class 8 - Corrosives
Class 3 - Flammable Liquids	Division 5.1 - Oxidisers Division 5.2 - Organic Peroxide
Division 4.2 - Substances liable to Spontaneous Combustion	Division 5.1 - Oxidiser Division 5.2 - Organic Peroxide Class 8 - Corrosives
Division 4.3 - Sub-stances which, in contact with water, emit flammable gases	Division 5.1 - Oxidiser Division 5.2 - Organic Peroxides Class 8 - Corrosives
Division 5.1 - Oxidiser	Class 3 - Flammable Liquid Division 4.2 - Substances liable to Spontaneous Combustion Division 4.3 - Sub-stances which, in contact with water, emit flammable gases Class 8 - Corrosives
Division 5.2 - Organic Peroxide	Class 3 - Flammable Liquid Division 4.2 - Substances liable to Spontaneous Combustion Division 4.3 - Substances which, in contact with water, emit flammable gases Class 8 - Corrosives
Class 8 - Corrosives	Class 1 - Explosives Division 4.2 - Substances liable to Spontaneous Combustion Division 4.3 - Substances which, in contact with water, emit flammable gases Division 5.1 - Oxidiser

	Division 5.2 - Organic Peroxide

Some of the substances or articles listed are readily identified, others not so. Table 2 contains examples of items in each class or division.

Table 2. Examples of dangerous goods classes or divisions

Class or Division	Examples
Explosives	Ammunition in the form of cartridges with inert projectile
Corrosives	Battery acid, mercury
Flammable liquids	Petrol, kerosene and the like
Flammable solids	Matches, red phosphorous, magnesium ribbon, celluloid, camphor
Oxidiser	Swimming pool chlorine, peroxides
Substances liable to spontaneous combustion	White or yellow phosphorus, sulphur
Substances which in contact with water emit flammable gases	Calcium carbide, powdered aluminium or iron, sodium metal

5. Proper condition

Each operator who carries items under the provision of this rule should ensure that they are in a proper and safe condition by checking that the packages or containers have not been damaged or show signs of leakage. Metal containers should not show any signs of corrosion. If applicable, the testing dates of gas cylinders and diving tanks should be checked to ensure that the validity date has not expired. Caps or valves on Containers should be checked for security. Packages containing ammunition should not be torn or damaged in such a way that may allow the ammunition to move or fall out.

6. Stowage security and packing

The ICAO packing requirements are not applicable to this rule, but all articles or substances should be carried in containers or receptacles that are specifically designed for that purpose. For example, petrol should only be carried in containers that have been designed to hold petrol. Glass or plastic bottles would not be acceptable. Ammunition should only be carried in containers specifically designed for that purpose. Ammunition lying loose in a plastic bag or in the pocket of a pack will be hazardous.

All articles should be secured and stowed to minimise the risk of damage to the container during normal flight. Gas cylinders should not be attached to a stove, lantern, burner, or the like, and any regulators or hoses should be removed prior to loading. Diving bottles should not have air hoses or regulators fitted. Single fuel-gas cylinders or small quantities of dangerous goods may be securely packed in suitcases or packs and surrounded by clothing and the like. For larger quantities of dangerous goods, it may be advisable for these to be placed in another container that can then be securely restrained to the aircraft.

7. Safety precautions

Passengers should be advised that dangerous goods are being carried, and, if applicable, the nature of the hazard and of any precautions that should be taken during the flight. This would include–

- banning of smoking in or around the aircraft should flammable goods be involved,
- careful handling of baggage and goods should the passengers be involved in their loading and unloading.

8. Emergency procedures

Each operator who carries dangerous goods under this rule should identify those goods that are acceptable for carriage in their aircraft. The operator should provide the pilot with information on the procedures to be carried out should an emergency associated with the carriage of dangerous goods occur during the flight.

A likely emergency could be the presence of smoke or fumes in the aircraft cabin. In this circumstance the procedures should be to—

- land as soon as possible
- if prescribed, use the appropriate smoke removal emergency procedures in the aircraft flight manual
- operate the air conditioning systems at maximum capacity to vent cabin air overboard to reduce the concentration of any contamination in the cabin

More information is contained in ICAO Doc 9481-AN/928 Emergency Response Guidance For Aircraft Incidents Involving Dangerous Goods. The operator can extract those procedures applicable to the type of dangerous goods allowed to be carried. As an example, an operator allowing the carriage of LPG gas cylinders for campers may lay down the requirements for Drill Code 10L, applicable for UN2037, Receptacles Small, Containing Gas.