



**Civil Aviation
Advisory Publication
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Use of compressed oxygen: carriage of live aquatic animals in air transport

This publication is only advisory, but it gives the CASA preferred method for complying with the Civil Aviation Regulations 1988 (CAR 1988).

It is not the only method, but experience has shown that if you follow this method you will comply with CAR 1988.

Always read this advice in conjunction with the appropriate regulations.

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The relevant regulations and other references

This CAAP should be read in conjunction with:

- *Civil Aviation Act 1988* (the Act) section 23;
- *Civil Aviation Regulations 1988* (CAR 1988) Part XIII, Dangerous Goods;
- Civil Aviation Advisory Publication (CAAP) No. 35-4; and
- the International Civil Aviation Organization (ICAO) Technical Instructions For The Safe Transport Of Dangerous Goods By Air (“The Technical Instructions”) and the Supplement to the Instructions.

Who this CAAP applies to

This CAAP applies to consignors of dangerous goods (Oxygen, compressed, UN 1072) associated with live aquatic animals and aircraft operators intending to carry those consignments.

Why this CAAP was written

The 1999/2000 edition of the ICAO Technical Instructions, in force from 1 January 1999, permits, with appropriate approval, the carriage of compressed oxygen in cylinders with the valves open as a means of providing life support to aquatic animals during air transportation. This CAAP is issued for the purpose of providing consignors and operators with the information necessary to undertake such operations.

Status of this CAAP

This is the first issue of CAAP 262A-1(0). The CAAP will remain current until it is either cancelled or superseded.

For further information

Contact the CASA Dangerous Goods Inspector closest to you (see page 8 of this CAAP for contact details).

Introduction

The term 'aquatic animal' has been used in preference to 'fish' because it embraces the entire aquatic species, any one of which may be carried.

A number of seafood processors in Australia saw an opportunity to export large quantities of live fish to Asian markets using compressed oxygen bubbled through the water. Oxygenation of the transport tanks ensures survivability and makes air transport economic in terms of the relative volumes of product and water. A subsequent submission to ICAO, recommending inclusion within the Technical Instructions of the use of oxygen in aircraft in this manner, was accepted by the ICAO Dangerous Goods Panel who agreed to amend the Technical Instructions.

Oxygen as dangerous goods

Oxygen, compressed, UN 1072, Hazard Division 2.2, is classified as Dangerous Goods. General packing requirements applicable to the carriage of compressed oxygen are contained in Part 3, Chapter 1 of the Technical Instructions with more specific requirements being in Part 3, Chapter 4, Packing Instruction 200.

Amendments incorporated in the 1999/2000 edition of the Technical Instructions and the Supplement to the Instructions permit the controlled release of compressed oxygen in flight, in appropriate equipment, for the life support of aquatic animals.

The Supplement to the ICAO Technical Instructions includes Special Provision A202 (ICAO SP A202) which prescribes the minimum ICAO requirements for the use of compressed oxygen in the air transportation of aquatic animals. The relevant sections of the Technical Instructions and Supplement are shown in full at Appendix 1 to this CAAP. (Users of the IATA Dangerous Goods Regulations should note that information contained within the Supplement to the Technical Instructions is not normally reproduced in the IATA document.)

Compliance with A202

ICAO SP A202 requires that the approval of the national authority of the State (Country) of Origin, State of Destination and State of the Operator be obtained before the consignment is carried on an aircraft.

State of Origin and **State of the Operator** are defined within the Technical Instructions as:

State of Origin — The country in the territory of which the dangerous goods are first loaded.

State of the Operator — The country in which the operator has his principal place of business.

Note: *The State of the Operator can be different to the State of Registry, which is defined as “the country on whose register the aircraft is entered”.*

Section 23 of the Civil Aviation Act 1988

Within Australia, section 23 of the Act covers the air transport of dangerous goods and it is through permissions issued by CASA officers holding delegations under section 23 that the State approvals required by ICAO are issued. Section 23 differs from requirements in some other countries in that a permission for the shipper to consign and a permission for the operator to carry the dangerous goods is generally required.

Applicants for permissions should note that CASA has a legal obligation to ensure that permissions issued under section 23 identify the consignor and the aircraft with a degree of particularity. This requirement will usually be met by provision of the company name (the legal identity) of the consignor and the operator and the aircraft type/s and registration number/s or the aircraft type/s and flight number/s.

This does not mean that an individual permission will necessarily be required for each consignment or flight. If the aircraft registration numbers or flight numbers on which it is intended to consign the dangerous goods can be identified it may be possible for CASA to issue a single consignment permission covering multiple consignments with several operators. Similarly, it may be possible for an operator to carry multiple consignments from several consignors on a number of nominated aircraft using a single permission if the consignors can be identified with the necessary degree

of particularity. Permissions may also be issued to cover an extended period of time.

Australia may be the State of Origin, State of Destination and State of the Operator, or only one or two of these classifications. Australia may also be only one of number of States whose approval is required. The one Australian permission will cover all appropriate Australian State approval requirements.

Information for consignors

STATE OF ORIGIN APPROVAL — CONSIGN

Upon receipt of an application, CASA may approve consignment of the dangerous goods. The approval will be in the form of a permission issued under section 23 of the Act. Only one consignor may be identified in each permission but several operators and aircraft may be included. It may also be possible to issue the permission to cover an extended period of time. Consignments will be subject to the normal documentation, marking and labelling requirements of the Technical Instructions. Consignors should also refer to the information under “trans-shipments”

The consignor will need to show that:

- packages meeting the legal requirements articulated in CAAP 35-2(0) will be used; and
- the relevant requirements of ICAO SP A202 are complied with.

Consignors are advised that operators may impose additional requirements to those listed in CASA permissions. Advice from the operator should be sought in this regard.

Consignors should also note that the limitation in ICAO SP A202 regarding the number of oxygen cylinders permitted in a particular cargo hold volume may affect the number of live fish transport units that can be accepted by an operator on any particular flight.

CASA may approve consignment and carriage in a manner different to that shown in CAAP 35-4(0) and the Technical Instructions under certain circumstances. For example, where an unpressurised cargo aircraft is being used, then the requirements relating to the ratio of cylinders to cargo hold volume may be varied.

CASA may approve a variation to the prescribed standards only where the operator/shipper provides

adequate justification. Note that any variation to the standards approved by CASA may make subsequent approval by another State more difficult.

TRAINING FOR EMPLOYEES OF CONSIGNORS

In cases where CASA believes that training for employees preparing these consignments is necessary, consignors may be determined by CASA, pursuant to regulation 262V of CAR 1988, to be Regular Shippers of dangerous goods.

In that event, consignor's employees involved in the preparation of the consignment for air transport will be required to undertake a CASA approved course relevant to their duties. Course content may include:

- instruction in the dangers associated with oxygen, including the need for components and materials used to be compatible with oxygen;
- instruction on the system of maintenance for the equipment;
- instruction in the preparation and assembly of the equipment; and
- preparation of air transport documentation for the consignments.

The information which a consignor should provide when applying to CASA for a permission to consign the dangerous goods is listed in Appendix 2.

Information for operators

STATE OF ORIGIN — APPROVAL TO CARRY

Upon receipt of an application, CASA may approve carriage of the dangerous goods. The approval will be a permission issued under section 23 of the Civil Aviation Act 1988. Where Australia is also the State of the Operator this permission constitutes State of Origin and State of Operator approval. As the conditions for carriage will primarily be the same regardless of the identity of the consignor, a permission for a particular operator may be valid for any number of consignments by any number of approved consignors on any aircraft listed in the permission.

Permissions may be issued only to the operator of the aircraft on which the goods are to be carried. That operator is required under section 23 of the Act to meet

the conditions of the permission. Where an operator contracts a second operator to conduct some or all of the operation on behalf of the first operator, an application to carry the dangerous goods must be submitted by the second operator. Operators should also refer to the information under “trans-shipments”.

The applicant operator will need to show that:

- procedures are in place to ensure packages carried meet the legal requirements articulated in CAAP 35-4(0); and
- the appropriate requirements of ICAO SP A202 are complied with; and
- except for non-commercial operations, appropriate instructions are included in the Dangerous Goods or Operations manual in respect to the transportation of live aquatic animals. In particular, instructions that cover the acceptance, checking and loading of containers served by compressed oxygen as well as appropriate emergency response information must be included in the manual.

TRAINING FOR EMPLOYEES OF OPERATORS

Operators will need to ensure that their cargo acceptance personnel have received adequate instruction regarding the acceptance of aquatic animal consignments containing oxygen. This may be accomplished by:

- an addition to the course approved by CASA under subregulation 262P(1) of CAR 1988 currently used by the operator; or
- a stand alone course; and
- the inclusion of detailed procedures in the company operations/dangerous goods manual.

The information which an operator should provide when applying to CASA for a permission is listed in Appendix 3.

Information for consignors and operators

STATE OF DESTINATION OTHER THAN AUSTRALIA — APPROVAL.

In addition to any CASA permission which may be issued, ICAO SP A202 requires the appropriate national authorities of the State of destination and the State of the operator to also approve the carriage of the dangerous goods. While it may be assumed that the State of destination will be aware of ICAO SP A202, it remains the sole prerogative of that State to approve or refuse an application.

AUSTRALIA AS THE STATE OF DESTINATION

An operator, who wishes to carry live fish consignments with compressed oxygen into Australia in accordance with ICAO SP A202, should apply in the manner prescribed in Appendix 3.

AUSTRALIA AS THE STATE OF THE OPERATOR

A CASA permission to carry the dangerous goods will be conditional on the legal requirements provided in ICAO SP A202, and those articulated in CAAP 35-4(0), being met.

Trans-shipments

The movement of a particular consignment from point of uplift to point of destination, within and external to Australia, may involve carriage by more than one operator. Consignors and operators should note that CASA permissions may only be valid for specific operators and aircraft. Such operators and aircraft will be identified in the permission.

Where the consignment originates in Australia, and trans-shipment takes place within Australian Territory, the consignor and each operator involved must apply to CASA for a permission.

Where the consignment originated in another State and the consignment is trans-shipped to another aircraft in Australian Territory, no subsequent permission to consign is required. Consignments that originate in Australia and involve trans-shipment outside Australia need no further CASA approval unless the aircraft to

which the consignment is trans-shipped is an Australian State of Operator aircraft.

Legal obligations in relation to permissions

While States may accept applications from either consignors or operators, an operator should ensure that all appropriate State approvals have been given prior to carriage of the dangerous goods. Consignors should note that the issue of a CASA permission is not contingent upon another State's approval. However, an operator may be inclined to not accept a consignment unless all approvals are in place prior to uplift because of the potential for delays.

Submission of applications to CASA

Consignors should submit applications to the Dangerous Goods Inspector in the CASA Region most convenient to them.

Operators should submit applications to the Dangerous Goods Inspector in the CASA Region from which their AOC was issued.

Dangerous Goods Inspector contact details

South East Region (NSW,VIC,TAS)Paul Steele
PO Box 409
Mascot NSW 2020
Tel: 02 93663120
Fax: 02 93663116

North East Region (QLD).....Bob Timmins
Level 2 527 Gregory Terrace
BOWEN BRISBANE QLD 4006
Tel: 07 3842 2521
Fax: 07 3842 2540

West Region (WA,SA,NT) Ben Firkins
130 Fauntleroy Avenue
PERTH AIRPORT WA 6105
Tel: 08 9366 2808
Fax: 08 9366 2810

Appendixes

Appendix 1 Special Provision A202 of the Technical Instructions

Appendix 2 Information to be included in consignor application

Appendix 3 Information to be included in operator application.

APPENDIX 1
SPECIAL PROVISION A202
TRANSPORT OF LIVE AQUATIC ANIMALS IN WATER FILLED
TANKS USING COMPRESSED OXYGEN

Technical Instructions. Part 3, 'Introductory' Notes.

Note 8. - *Carriage of aquatic animals with oxygen:* With the approval of the appropriate authority of the States of origin, destination and of the operator, for the purpose of providing life support of aquatic animals during transport, a cylinder containing oxygen, compressed, UN 1072, may be carried to oxygenate the water in accordance with the provisions of Table S-2-6 and Special Provision A202 (which appears in the Supplement).

Supplement to the Technical Instructions

For the purpose of providing life support for aquatic animals during flight, the appropriate national authority of the State of Origin, Destination and of the Operator may approve the carriage of a cylinder containing oxygen, compressed, UN 1072, with the valve(s) open to deliver a controlled quantity of oxygen through a regulator into water containing aquatic animals. The oxygen cylinder or cylinder valve must be fitted with a self-sealing device to prevent the uncontrolled release of oxygen should the regulator be broken, damaged or malfunction in such a way to cause a direct release of oxygen. The oxygen cylinder must meet those parts of Packing Instruction 200, which apply, except for the need to have the valve closed. In addition the following conditions must apply as a minimum:

- (a) The water container with the attached oxygen cylinder (transportation unit) must be engineered and constructed to withstand all anticipated loads.
- (b) The water container must be tilt tested to an angle of 45 degrees in four major directions from the upright for 10 minutes duration in each direction, with the oxygen supply operating, without leakage of water.
- (c) The oxygen cylinder and regulator must be restrained and protected within the equipment.
- (d) The oxygen regulator must have a maximum flow rate of not more than 5 litres per minute.
- (e) The oxygen flow rate to the container shall be limited to that sufficient to provide life support to the aquatic animals.
- (f) The quantity of oxygen provided must not exceed 150% of the oxygen required for the normal duration of air transport, and
- (g) Only one cylinder may be carried for each 15 cubic metres of gross cargo hold volume, and in no circumstances shall the regulator be set to release more than 1 litre/minute for each 5 cubic metres of gross cargo hold volume.

APPENDIX 2**INFORMATION TO BE INCLUDED IN CONSIGNOR APPLICATION**

Name of Company, name of contact within company and contact details.

Name of Operator/s , Aircraft type/s and registration number/s or aircraft type/s and flight number/s.

Verification of compliance with relevant requirements of CAAP 35-2(0) and Special Provision A202.

APPENDIX 3

INFORMATION TO BE INCLUDED IN OPERATOR APPLICATION

Name of Operator , Aircraft type/s and registration number/s or aircraft type/s and flight number/s.

Verification of compliance with relevant requirements of this CAAP, CAAP 35-2(0) and Special Provision A202