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SANS 1884-3:2008

Edition 1

SOUTH AFRICAN NATIONAL STANDARD

Holding pens for temporary housing of animals

Part 3: Vehicles for the transportation of wild carnivores by road to holding pens and other facilities

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Table of changes

Change No.	Date	Scope

Foreword

This South African standard was approved by National Committee SABS SC 1040A, *Steering committee for nature conservation – Translocation of wildlife*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was published in December 2008.

A reference is made in 1.5 to “registered circus animals”. In South Africa this means animals registered in terms of the Performing Animals Protection Act, 1935 (Act No. 24 of 1935, as amended).

A reference is made in 4.1.1 to “the national regulations and statutory requirements for the protection of animals”. In South Africa this means the Animal Protection Act, 1962 (Act No. 71 of 1962, as amended).

A reference is made in 4.1.1, 5.1.1.1, 5.1.2.2.1, 5.3.1, and 5.4 to “the national road ordinances”. In South Africa this means the Road Traffic Act, 1996 (Act No. 93 of 1996, as amended).

A reference is made in 5.1.2.1 and 5.1.2.2 to the height and width of mass crates. In South Africa these dimensions are currently: maximum height 4,3 m, maximum width 2,6 m. The maximum overall length is 22 m if two joined trailers are used (including the horse), or 18,5 m for a single trailer and horse.

A reference is made in A.8.2 to “national regulations for the control of disinfectants”. In South Africa this means the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947, as amended).

Annexes A and D form an integral part of this standard. Annexes B and C are for information only.

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Holding pens for temporary housing of animals

Part 3: Vehicles for the transportation of wild carnivores by road to holding pens and other facilities

1 Scope

1.1 This standard specifies the requirements for vehicles used for road transportation of wild carnivores.

1.2 This standard covers vehicles, and vehicle trailers, fitted with fixed or detachable mass crates, or individual animal crates, which are specifically designed for the transportation of wild carnivores.

1.3 This standard covers specialised vehicles and containers.

1.4 This standard covers the transportation of indigenous and exotic animals. In particular it covers the transportation of:

a) large, medium and small cats (but not limited to those indigenous to Africa);

b) wild dogs, hyenas, jackals, foxes (but not limited to those indigenous to Africa) and wolves; and

c) crocodiles.

1.5 It does not cover the transportation of domestic animals or registered circus animals (see foreword).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. Information on currently valid national and international standards can be obtained from the SABS Standards Division.

2.1 Standards

SANS 1288, *Preservative-treated timber*.

SANS 1884-1, *Holding pens for temporary housing of animals – Part 1: Holding pens for wild herbivores at auctions and in quarantine facilities.*

SANS 1884-2, *Holding pens for temporary housing of animals – Part 2: Vehicles for the transportation of wild herbivores by road to holding pens and other facilities*.

SANS 10005, *The preservative treatment of timber*.

SANS 10331:2000 (SABS 0331), *Translocation of certain species of wild herbivore*.

SANS 10391, *The welfare of wild animals transported by sea*.

2.2 Other publications

Live Animal Regulations of the International Air transport Association (IATA).

3 Definitions

For the purpose of this standard, the definitions contained in SANS 1884-1, SANS 1884-2, SANS 10331 and the following apply.

3.1
catchnet
small net surrounded by a metal or a wooden hoop

NOTE A catchnet is used to restrain or manoeuvre an animal.

3.2
catchpole
lockable collar, fitted to a pole, used for catching small or young animals while in captivity

3.3
compartment
section or subdivision of a mass crate, achieved by the use of an internal partition which can be either fixed or moveable

3.4
competent
qualified by training or suitable experience

3.5
crate
container or cage, which can be fixed or be detachable from the vehicle, and which is purpose-designed and constructed for the temporary confinement of an individual wild animal for the purpose of transportation (see also 3.6 and 3.7)

3.6
individual crate
container designed for the transportation of a single, adult animal

3.7
mass crate
container, which can be fixed or be detachable from the vehicle, and which is purpose-designed and constructed for the temporary confinement of several wild animals for the purpose of transportation

3.8
pole syringe
syringe fitted to a pole that is used to inject animals from a distance

3.9
pushboard
device similar to a shield, generally made of wood or metal, that is used to physically manoeuvre an animal into a required position or direction

3.10
road
roadway, road verge, parking area, resting place, watering place, fuelling place, or toll gate to which the public has a right of access

NOTE The road may be a track, gravel surface or a pavement, and includes the entire road reserve whether maintained by a provincial authority, a private person or a private company.

3.11
skycrate
class of prefabricated, lightweight crate used for the transportation of small animals, normally by air

3.12
wild animal
animal that belongs to a species which is not a recognized domestic species, irrespective of the tameness or degree of apparent domestication, of a particular animal

4 Usage and types of transport vehicles and containers

4.1 General

4.1.1 Vehicles and containers constructed in accordance with this standard shall comply with the national regulations and statutory requirements for the protection of animals (see foreword), and with national road ordinances (see foreword).

4.1.2 The interpretation of this document shall be such that compliance with this standard is intended to ensure that no animals are conveyed or transported

a) under such conditions, or in such a manner or position, as to cause that animal unnecessary or avoidable suffering or stress, and

b) in conditions which do not provide adequate travelling comfort, shelter or ventilation, or in which such animal is excessively exposed to heat, cold, sun, rain, dust, exhaust fumes, noise, etc.

4.1.3 Wild carnivores shall be transported only in containers specifically designed and prepared for that purpose, with the few allowable exceptions given in 4.1.4 and clause 6.

4.1.4 Wild carnivores which have been anaesthetized, or chemically immobilized, may be transported on, or in, a conventional vehicle, provided that the procedure shall be supervised by a veterinarian who is competent in this type of procedure.

4.2 Usage of transport vehicles

4.2.1 Transport vehicles, which comply with this standard, shall be used to move animals by road, between any of the following locations:

a) the point of capture;

b) temporary holding pens;

c) game auction pens or carnivore enclosures;

d) quarantine facilities;

e) a release site (from where animals are released into a natural environment), or final destination; and

f) other relevant and approved destinations.

4.2.2 Further general usage requirements during transportation are given in annex A.

4.2.3 The following precautions shall be taken when containers are to be used for alternately transporting carnivores and herbivores:

a) Containers and trailers which have been used to transport carnivores shall not subsequently be used to transport herbivores unless thorough washing (see 4.2.3(b)) has been carried out to remove all traces (including smells) of the presence of carnivores.

NOTE Animals have been known to die from smell-induced stress.

b) It is essential that residual odours of carnivores are removed. Odours shall be removed by thorough washing using soap or a suitable detergent. If a residual odour persists, even after washing, the container shall not be used to transport herbivores.

NOTE Veterinary advice should be sought regarding suitable detergents.

c) Wooden crates shall never be used for alternate carnivore/herbivore transportation.

d) The strength properties of the container shall always be matched to the requirements for carnivores.

4.2.4 Carnivores shall be transported in individual containers or crates, or in separate compartments of a larger container or transport vehicle. The only exceptions allowed to this requirement are those given in 4.1.4 and in A.1.2.

4.3 Types of transport vehicles

4.3.1 The types of vehicles and trailers used may range from light vehicles and trailers to large articulated vehicles, provided that they are suited to their purpose, and comply with the requirements of this standard.

4.3.2 Cattle or sheep trucks shall not be used for the transportation of wild carnivores.

4.3.3 The use of multi-deck vehicles is prohibited (see also 6.7).

4.4 Types of transport containers

Containers and compartments used to transport animals may be of the following types:

a) **Fixed containers** (either mass crates or individual crates), built onto the chassis or flatbed of a vehicle or trailer. The container may be further subdivided into compartments for the conveyance of single animals.

b) **Detachable containers**, or mass crates, which can be carried on a variety of vehicle types (similar to the practice employed with shipping containers). The detachable containers may also be further divided into internal compartments.

c) **Individual crates**, into which a single animal will be placed. The crates are then loaded onto a suitable vehicle for transportation.

4.5 Attachment of containers to the vehicle

Detachable containers shall be securely attached to the transport vehicle, by the use of purpose-designed clamps, webbing, straps, ropes or other suitable means.

5 General requirements

5.1 Fixed and detachable mass crates and containers

5.1.1 General

5.1.1.1 Vehicles and containers shall comply in all respects with the requirements of national road ordinances (see foreword).

5.1.1.2 If it is intended to transport the animals further by sea or by air in the same container, then the containers shall comply with the requirements of SANS 10391 (for sea transport), or of the Live Animal Regulations of the International Air Transport Association (IATA), as applicable.

NOTE 1 Copies of IATA regulations can be downloaded from www.iata.com.

NOTE 2 The IATA regulations do not specify a maximum height for the crate. It is recommended that the sender verify in advance the maximum height that the aircraft loading hatch can accommodate.

5.1.2 Size of mass crate or container

5.1.2.1 Height (see foreword)

The height of the roof of the container shall be high enough to allow the largest animal for which the container is designed to stand naturally.

5.1.2.2 Width (see foreword)

5.1.2.2.1 The minimum width of the container shall be such that the largest animal for which the container is designed shall be able to turn around in it without becoming stuck. The maximum width shall comply with the requirements of national road ordinances (see foreword).

NOTE This requirement does not apply for crocodiles which are larger than 1,5 m (see 6.5.1).

5.1.2.2.2 The animal should be able to lie down comfortably, in a natural position.

5.1.3 Construction materials and methods

5.1.3.1 Strength

5.1.3.1.1 Containers shall be strongly constructed from durable materials, such as sheet metal, wood or fibre-reinforced polymers, and the construction shall be sufficiently robust to safely confine the wild carnivores, and (in particular) to withstand the jumping, chewing and clawing of large aggressive animals.

5.1.3.1.2 Expanded metal grilles, or other sharp-edged products, shall not be used as materials of construction (see also 5.1.5.3).

NOTE Teeth and claws can be broken off by sharp-edged metal grille materials.

5.1.3.2 Use of temporary materials

No part of a container shall be manufactured, or modified, by the use of temporary material such as wire mesh, netting, canvas, shade cloth, wooden or metal poles, or galvanized sheeting (for example, IBR sheet).

5.1.3.3 Protection from the elements

5.1.3.3.1 The materials used shall be able to provide protection for the animals against wind, rain, heat and cold.

5.1.3.3.2 Wherever possible, the materials used shall also be able to provide insulation against heat and cold.

5.1.3.4 Vibration effects

Walls, doors, compartments, roofing and hatch covers shall be so constructed, and of such materials as will eliminate, or at least minimize, vibration noise or rattling while driving on rough and corrugated gravel roads.

5.1.3.5 Controlled use of wire

5.1.3.5.1 Wire shall not be used to secure any part of a container, crate, door, compartment, loading ramp, sorting crush, or any other piece of equipment, in such a manner that the wire might cause injury to an animal during loading, transportation or off-loading.

5.1.3.5.2 Where wire is used, the following restrictions shall apply:

a) sharp or exposed ends shall not be able to come into contact with the animals;

b) the wire shall not form loops that can trap an animal's legs or paws;

c) all loose wires and off-cuts shall be removed from the container; and

d) only in extreme emergencies may wire be used to secure a door or panel (see also 5.1.7.3.3).

5.1.4 Floors

5.1.4.1 Floor area

5.1.4.1.1 The floor area shall be suited to the maximum number of individual animals of a particular age or height class, that the vehicle is designed to transport.

5.1.4.1.2 The floor area shall be such that each animal is able to lie down comfortably.

5.1.4.1.3 The following guidelines for determining the internal dimensions (of the animal carrying space) have been found to be generally suitable for most carnivore species:

a) Length of compartment = length of animal (nose to rump) + half of shoulder height dimension.

b) Width of compartment = 2 × shoulder width (for an unanaesthetized animal) or shoulder height dimension (for an anaesthetized animal).

c) Height of compartment = total height of standing animal (see also 5.2.5 and table 1).

NOTE See clause 6 for specific requirements regarding crocodiles.

5.1.4.1.4 Unless effectively anaesthetized, adult animals shall always be individually segregated during transportation (see also annex A).

5.1.4.2 Strength

Floors shall be strong enough to carry the mass of the animals. Due consideration shall also be given in the design to the corrosive nature of urine and faeces, and its effect on the load-bearing properties of the floor.

5.1.4.3 Drainage

5.1.4.3.1 Adequate drainage shall be provided to allow for the escape of urine and water during routine usage and cleaning.

5.1.4.3.2 Drainage may be provided by drilling holes, of maximum diameter 10 mm, in the floor at suitable intervals (at corners and in a line down centre, as typical).

5.1.4.3.3 Where veterinary export permit conditions are such that containers are required to be leakproof, the container shall be designed with an integral drain pan compartment in order to retain the liquids within the crate. The drain pan may incorporate an absorbent material or system.

NOTE Veterinarian advice should be sought regarding suitable absorbent materials.

5.1.4.4 Floor surfaces

5.1.4.4.1 The floor shall be free of any protrusions that could cause injury to the animals. Where battens or welded metal grids are used as non-slip devices, these shall not be able to become detached, or to have broken welds or become distorted to such an extent that animals might be injured, or have their paws or legs trapped.

5.1.4.4.2 The floor, including the lower sections of the walls and doors, shall have no unprotected openings or holes through which the animals might put their paws or claws, unless the openings are of such dimensions (see 5.1.4.3.2) that the animals cannot get their paws or claws caught.

5.1.4.5 Floor coverings

5.1.4.5.1 It is recommended that the floors be covered in straw or other suitable bedding material.

5.1.4.5.2 If rubber sheeting is used as a floor covering, it shall be securely fixed to the floor.

5.1.4.5.3 Loose mats shall not be used.

5.1.4.5.4 Systems of interlocking matting, which are commercially available, have been found to be satisfactory. A typical system comprises sections of mat, roughly 480 mm × 480 mm × 20 mm thick, which can be joined together like pieces of a jigsaw puzzle. The mats are moulded in a non-slip material and incorporate drainage holes.

The mats are secured in place using 25 mm × 3 mm flat, mild steel bars to cover the joint, and the bars are bolted through the mat and floor using round-headed 6 mm diameter bolts.

NOTE A suitable system is sold under the trade name Rubaloy[1)]. However, this does not exclude the use of other suitable systems which might be available.

5.1.5 Sides

5.1.5.1 Robustness of construction

The sides of crates and containers shall be of rigid and robust construction.

5.1.5.2 Avoidance of protrusions

5.1.5.2.1 There shall be no protrusions, sharp edges, brackets, hinges, handles, or locks on the inside of the container that could cause injury, bruising or lesions to the animals.

5.1.5.2.2 Where bolts are used to secure the cladding inside the container, the bolt heads shall be domed or recessed such that no sharp edges are presented.

5.1.5.2.3 No screw threads shall protrude beyond the nut thickness inside the container. Where possible, the head of the bolt should be on the inside of the container.

5.1.5.3 Openings

There shall be no holes or openings in the sides that are large enough to allow animals to put their paws or claws through. A maximum size of 25 mm diameter is recommended.

5.1.5.4 External colour

It is recommended that the exterior of the vehicle be of a light colour in order to reflect heat.

5.1.6 Compartments

5.1.6.1 General

5.1.6.1.1 Compartments within a container shall comply to the same requirements as the sides (see 5.1.5) and the doors (see 5.1.7) of a container.

5.1.6.1.2 All partitions within a container shall extend to the roof of the container to ensure that unsedated carnivores cannot get over them into other compartments of the container.

5.1.6.2 Moveable partitions

5.1.6.2.1 When the container is used as a mass crate, the compartment partitions shall either be able to be removed, or be able to be securely locked back against the walls. In the latter configuration, the compartment partitions, hinges, runners and locks shall not present any protrusions that could cause injury to the animals.

5.1.6.2.2 The use of grease or oil on hinges and runners is not recommended as it accumulates dirt and dust. Silicon sprays, or similar products, are preferred.

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1) Rubaloy is the trade name of a proprietary product. This information is given for the convenience of users of this standard and does not constitute endorsement by the SABS Standards Division of the product named. Equivalent products may be used.

5.1.6.3 Access to individual animals

Individual animals shall be accessible, for example, by veterinarians, without having to climb over other crates or containers.

NOTE See clause 6 for specific requirements regarding crocodiles.

5.1.7 Doors

5.1.7.1 Types of doors

Doors may be of a sliding or hinged design.

5.1.7.2 Size of doors

5.1.7.2.1 Door openings shall be large enough to allow the unrestricted entrance and exit of the animals, with a recommended minimum width of 750 mm for crates designed to carry large carnivores.

5.1.7.2.2 Where it is anticipated that individual crates will be hand-loaded into the vehicle, the minimum door width shall be 1,5 m.

5.1.7.3 Locks

5.1.7.3.1 All doors, external and internal, shall be secured by two locking devices, i.e. a primary and a secondary (back-up) locking device, which may be of the same type or of different types.

5.1.7.3.2 Door locking mechanisms shall be secure and designed in such a way that they cannot be opened by wind or road vibration while the vehicle is in motion.

NOTE Additional locking pins are strongly recommended.

5.1.7.3.3 The use of wire as a primary door locking device is prohibited.

5.1.7.4 Prevention of rattles and noise

5.1.7.4.1 Doors shall close firmly and not cause rattles while the vehicle is in motion. An anchor bolt device suitable for clamping the door while the vehicle is in motion is shown in figure 1.

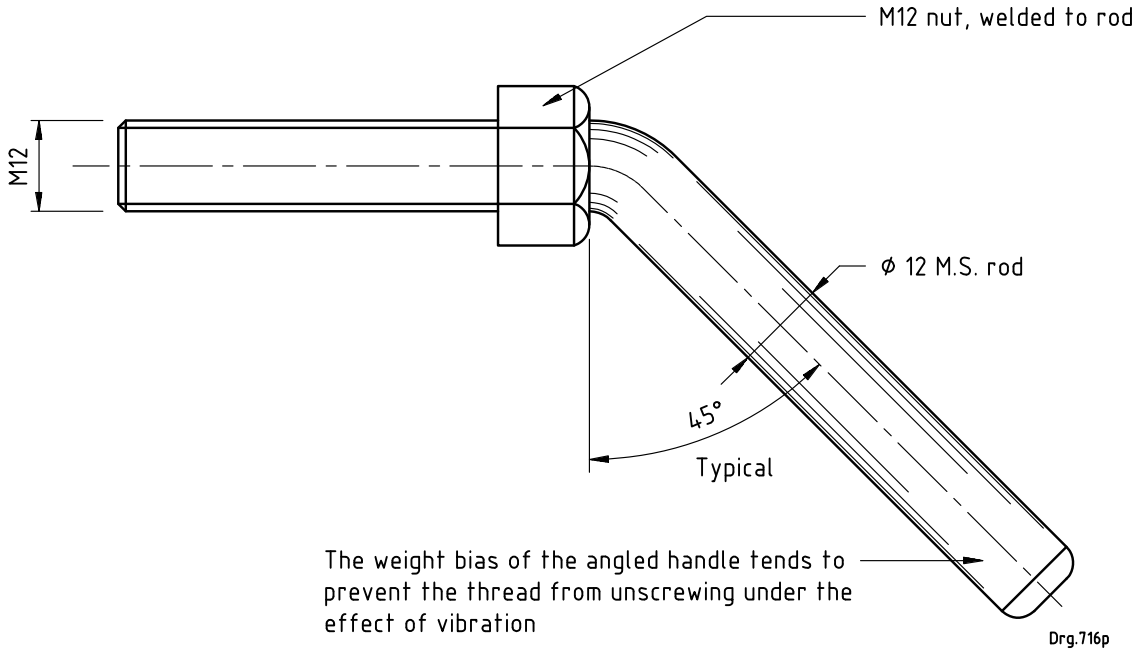

Figure 1 — Typical anchor bolt

5.1.7.4.2 Door-locking mechanisms and similar devices shall be able to be opened without the use of hammers, crowbars or any means that would cause excessive noise.

5.1.7.5 Ease of operation and movement

Doors shall be designed in such a way that they will open easily and quietly, and cannot become jammed by floor coverings, soil or dung, or will not require the use of excessive force or hammering in order to be opened.

5.1.7.6 Protrusions

Doors and open doorways shall be free of any protrusions (projections), especially on the sides, due to hinges, locks, runners, bolts or rough edges.

5.1.8 Roof

5.1.8.1 Access (or inspection) hatches

5.1.8.1.1 The roof of all mass crates or containers shall be provided with openings or hatches for the purpose of providing ventilation, observation (see 5.1.10) and easy access from above.

5.1.8.1.2 Hatch covers may be of the hinged or sliding type.

5.1.8.1.3 Hatch covers shall be able to be secured in both the open and closed positions to prevent vibration, noise and inadvertent opening or closing.

5.1.8.1.4 Hinged hatch covers shall hinge open to the rear (relative to the direction of vehicle motion) or to the sides of the vehicle only, and not to the front of the vehicle.

5.1.8.1.5 The maximum size of the hatch opening shall be 250 mm × 250 mm.

5.1.8.1.6 Observation hatch openings shall be protected by a steel mesh (see 5.1.10.2).

5.1.8.1.7 An observation hatch shall be provided over each individual compartment or partitioned area.

5.1.8.2 Roof construction

5.1.8.2.1 Roofs shall be fully-closed (other than for observation hatches (see 5.1.8.1)).

5.1.8.2.2 Roofs shall be of robust and rigid construction.

NOTE It is not uncommon to have several people standing on a roof at one time.

5.1.8.3 Use of tarpaulins as protection from the elements

5.1.8.3.1 In conditions of extreme cold, tarpaulins may be used to cover vehicles in motion, where the extra protection against cold or public curiosity provided by the tarpaulin would outweigh the detrimental effect of flapping.

5.1.8.3.2 In order to prevent flapping, the tarpaulin shall be provided with sufficient eyelets, or other devices, to allow it to be adequately secured.

5.1.8.4 Roof colour

It is recommended that the exterior of roofs be of a light colour, preferably white or cream, in order to reflect heat.

5.1.9 Ventilation

5.1.9.1 General

Adequate ventilation of compartments is essential for respiration, cooling, thermoregulation and the removal of vapours and fumes. A balance shall be found between the provision of good air circulation and protection from adverse weather conditions.

NOTE For further aspects to be considered when designing or using ventilation facilities in transport vehicles see annex B.

5.1.9.2 Aperture shape and depth

5.1.9.2.1 Aperture shape

For ventilation purposes, slots or elongated openings are preferable, as opposed to round holes.

5.1.9.2.2 Aperture depth

Ventilation slots shall not be so deep as to allow an animal's teeth or paws to become trapped or injured. A maximum depth of 20 mm is recommended (see figure 2).

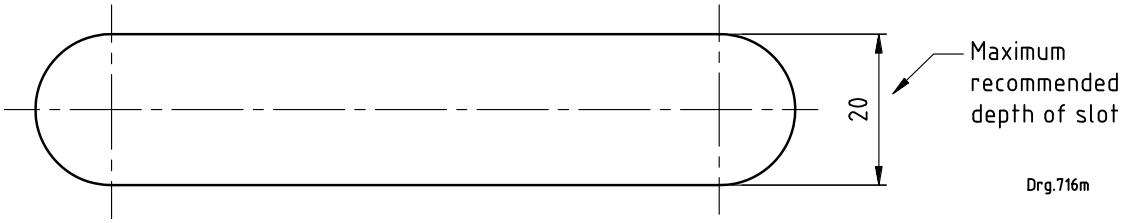

Figure 2 — Depth of slots

5.1.9.3 Positioning of ventilation slots

5.1.9.3.1 Low level slots

5.1.9.3.1.1 Except as described in 5.1.9.3.1.4, the lowest ventilation slot shall be positioned approximately 200 mm above floor level.

5.1.9.3.1.2 An alternative design (instead of a continuous slot) which has been found to be effective, is to provide a number of specially constructed vent plates. These vent plates are generally constructed from steel plate, and are welded into the sides of the container at a low level. The plates are usually 700 mm long × 500 mm deep × 2 mm thick, and incorporate a series of elongated apertures, each approximately 35 mm long × 10 mm deep, which are punched out of the plate.

NOTE Vent plates constructed in this manner can also double as observation facilities (see 5.1.10).

5.1.9.3.1.3 Where vent plates (such as described in 5.1.9.3.1.2) are used, they shall be able to be closed off by hatch covers.

5.1.9.3.1.4 Irrespective of which method of low-level ventilation is used, an additional, continuous (with intermediate supports) slot should be provided at floor level to allow for drainage and additional ventilation. A typical arrangement is shown in figure 3.

NOTE This does not apply when transporting crocodiles.

5.1.9.3.1.5 In the configuration shown in figure 3, the gap between the floor covering and the wall shall be sufficiently small so that animals cannot trap their teeth and paws in it.

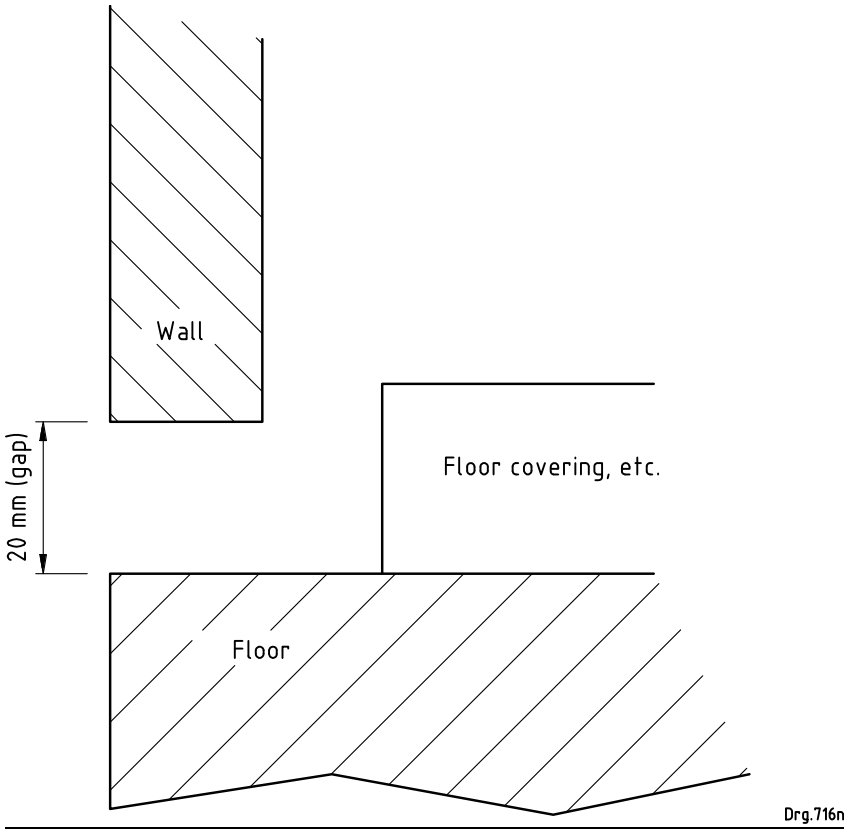

Figure 3 — Typical drainage and ventilation slot

5.1.9.3.2 High-level ventilation slots

5.1.9.3.2.1 A number of ventilation slots shall be provided in the top area of the side wall, within a depth of 500 mm from the roof.

5.1.9.3.2.2 Slots may be open, but a louvred construction is preferred.

NOTE It is generally considered desirable that animals should not be able to see out of the vehicle, and that they are more calm if transported in a semi-dark environment.

5.1.9.3.2.3 A typical high-level vent louvre construction is shown in figure 4.

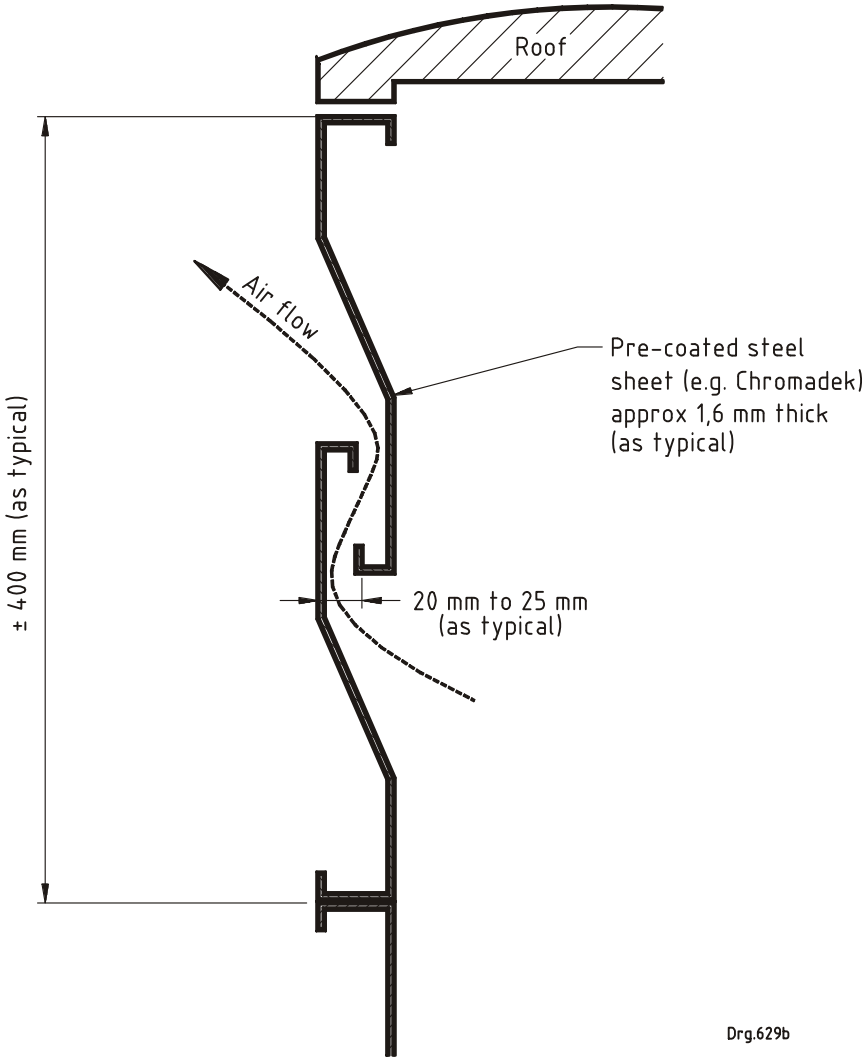

Figure 4 — Typical high-level vent louvre construction

5.1.9.4 Roof ventilation

Additional ventilation facilities may be provided in nominally closed roofs, provided that they can be closed off as necessary (see also 5.1.8.1.3).

NOTE Access hatches in the roof may also double as ventilation slots.

5.1.9.5 Spaces between individual crates

5.1.9.5.1 When individual crates are being transported inside a mass container, sufficient space shall be allowed between adjacent crates to allow air circulation to occur. A recommended minimum gap between crates is 100 mm.

5.1.9.5.2 Individual crates shall not be stacked on top of each other, except in the case of crocodiles (see clause 6).

5.1.9.6 Wind chill factor

A guide to wind chill factors experienced at various vehicle speeds and ambient temperatures is given in table I.1 of SANS 10331:2000.

5.1.9.7 Temperature monitoring devices

The use of temperature monitoring equipment is encouraged.

5.1.10 Observation facilities

5.1.10.1 Hatches

5.1.10.1.1 Hatches shall be provided in the roof (see 5.1.8.1) for observation purposes, and to facilitate easier handling and injecting.

5.1.10.1.2 Ventilation slots on the sides of the vehicle may also be used for observation purposes. Additional observation openings may also be provided, but these shall be fitted with a facility to cover them when not in use.

5.1.10.2 Steel mesh over openings

5.1.10.2.1 All observation hatch openings shall be protected by a steel mesh, fixed permanently in place over the opening.

5.1.10.2.2 The mesh should preferably be of a welded construction and made from 3 mm or 4 mm diameter steel rod, with a maximum size of mesh opening of 25 mm × 25 mm (or 25 mm diameter) (i.e. just wide enough to accommodate a pole syringe).

5.1.10.2.3 The use of chicken wire is prohibited.

5.1.10.3 TV cameras and monitors

A desirable observational feature is a CCTV camera, which may be mounted in the container, with a monitor in the cab, to allow the animal carrying space to be observed during transportation.

5.1.10.4 Lighting

5.1.10.4.1 A dull red light should be fitted in the carrying space to allow observation of the animals at night (except in the case of crocodiles).

NOTE It is recommended that a white light also be fitted to provide illumination in emergencies.

5.1.10.4.2 Where fitted, lighting shall be suitably protected against damage.

5.1.10.4.3 The switches for such lights shall be located in the cab of the vehicle or at a secure location on the container.

5.1.11 Lifting eyes

Detachable containers shall be fitted with suitable lifting eyes, to facilitate safe lifting and manoeuvring by cranes.

5.1.12 Forklift access

Detachable crates should be provided with facilities to allow the usage of forklift and pallet trucks.

5.1.13 Spare wheels

5.1.13.1 The vehicle shall be provided with at least one spare wheel for each type or size of wheel used on the vehicle.

5.1.13.2 Additional spare wheels are strongly recommended.

5.1.13.3 Spare wheels shall not be carried in the compartment intended for animals.

5.1.14 Fuel tank capacity

An additional reserve tank should be fitted to the vehicle to double the fuel storage capacity.

5.1.15 Sleeping facilities

Where the vehicle is intended for long distance transport, it shall be fitted with sleeping facilities for the driver.

5.1.16 Fixed ladder

At least one, permanently attached ladder shall be provided on the side of the vehicle to allow easy access to the roof area.

5.2 Individual crates

5.2.1 General

5.2.1.1 Individual crates are recommended for the transportation of individual carnivores except in the case of small crocodiles (see clause 6).

5.2.1.2 Some examples of individual crates which are suitable for the transportation of various types of carnivores are shown in figures 5, 6 and 7.

NOTE This type of crate is suitable for the transportation of a single adult large carnivore or a number of cubs.

Figure 5 — Typical wooden individual crate

Figure 6(a) — Front view of a typical individual crate with bars and air holes

NOTE The inside walls of this crate are lined with metal sheets (see 5.2.2.4) to prevent chewing and clawing.

Figure 6(b) — View on the loading end of a typical individual crate

Figure 6 — Individual crates

NOTE 1 This type of crate would not be suitable for air transport or export (see 5.1.1.2).

NOTE 2 This crate is shown closed for travelling. The bars are covered by a thin plastic sheet. There are sufficient vent holes, but it is still protected from the weather. The white colour reflects the heat.

Figure 7 — Crate suitable for the transportation of cheetahs or wild dogs

5.2.2 Construction materials

5.2.2.1 Individual crates for smaller animals can generally be of lighter construction than mass crates.

5.2.2.2 Individual crates for large animals shall be of a suitably stronger construction.

5.2.2.3 Skycrates are made of glass-reinforced plastics (GRP) (see figure 8) and may be used for the transportation of small animals. These crates are most commonly used to transport animals by air, but are also suitable for road transport. They are available in a range of sizes to suit the particular animal being transported (see 5.2.5.2 and table 1). They also have an advantage in that they can be dismantled for packing or storage.

Figure 8 — Typical skycrate made from GRP material

5.2.2.4 Typical materials and material combinations used for the construction of individual crates are:

a) wood – generally 16 mm thick, solid or plywood;

b) metal – generally 1,6 mm to 2 mm thick with steel sheeting; or

c) wooden exterior lined with metal sheeting.

5.2.2.5 The construction method in 5.2.2.4 (c) is recommended for the housing of medium to large carnivores.

5.2.3 Doors

5.2.3.1 Doors for individual crates used for the transportation of wild carnivores shall preferably be of the vertical sliding type since this design also contributes to the structural strength of the crate.

5.2.3.2 If a narrow crate is used, the crate should have doors at both ends since it is very difficult for animals to reverse out of a crate.

5.2.3.3 Doors of release cages (from which large carnivores are released directly into the wild) shall be able to be opened remotely, by electrical or manual means.

5.2.3.4 When skycrates are used, the front grid shall be locked and covered in an opaque material during transportation.

5.2.4 Carry handles

5.2.4.1 Individual carnivore crates shall be fitted with carry handles on the sides or top (dependant on size) to allow for easy carrying and manoeuvring of the crate.

5.2.4.2 Carry handles on the sides of crates can also serve as physical spacers to provide ventilation gaps between crates.

5.2.5 Dimensions

5.2.5.1 The width of the individual crate shall be such that the animal can lie down comfortably.

5.2.5.2 Skycrates (see 5.2.2.3) of suitable size may be used to transport small to medium-sized carnivores such as black-footed cats, African wild cats, sub-adult servals or caracals and mongoose. Standard sizes for skycrates are:

a) large – 1 000 mm long × 750 mm wide × 650 mm high;

b) medium – 750 mm long × 550 mm wide × 550 mm high; and

c) small – 500 mm long × 400 mm wide × 400 mm high.

5.2.5.3 A guide to generally-accepted sizes for individual crates for the transportation of various species of medium-sized to large-sized carnivores is given in table 1 (see also 5.1.4.1.3).

Table 1 — Internal dimensions of individual crates for the transportation of some species of carnivores

Dimensions in millimetres

1	2	3	4
Type of animal	**Length**	**Width**	**Height**
African wild dogs	1 200	500	1 000
Bear (brown, as typical)	Animal length + 20 %	Width + 20 %	Shoulder height + 20 %
Cape clawless otter	600	400	600
Caracal	600	400	600
Civet	600	400	600
Cheetah (male and female)	1 200	500	1 000
Fox (bat-eared)	**Small skycrates recommended**		
Fox (cape)			
Gennet			
Honey badger	600	400	600
Hyena (brown)	1 200	700	1 000
Hyena (spotted)	1 200	700	1 200
Jackal	600	400	600
Jaguar (male and female)	1 800	600	1 000
Leopard (male and female)	1 800	600	1 000
Lion (female)	1 800	700	1 200

Table 1 *(concluded)*

Dimensions in millimetres

1	2	3	4
Type of animal	**Length**	**Width**	**Height**
Lion (male)	2 000	800	1 200
Puma (male and female)	1 800	600	1 000
Serval	600	400	600
Tiger (male and female)	2 000	800	1 200
Wolf	1 200	500	1 000
NOTE The requirements for crocodiles are covered in clause 6.			

5.3 **Trailers** (fixed and loose)

5.3.1 General

5.3.1.1 Constructional aspects of trailers shall comply with the requirements of national road ordinances (see foreword).

5.3.1.2 Mass limits and loading restrictions shall be as specified in national road ordinances (see foreword).

5.3.1.3 The braking system of the trailer shall be suited to the mass and carrying capacity of the trailer (see national road ordinances (see foreword) for details).

5.3.1.4 The vehicle pulling the loaded trailer shall be of sufficient mass and power for this purpose.

5.3.1.5 It is recommended that trailers be fitted with a notice at the rear with the following words:

"**WILD ANIMALS IN TRANSIT**".

5.3.2 Types

5.3.2.1 Mechanical horse and trailer (in the range 4 tonnes to 36 tonnes)

The requirements for trailers with rear axles, and equipped with goosenecks for connection to the horse, are the same as those given in 5.1.

5.3.2.2 Four-wheel trailers with towbar (up to 3,5 tonnes)

5.3.2.2.1 Where the wheels are at the corners of the trailer, the four-wheel trailer shall have fixed rear wheels and steerable front wheels.

5.3.2.2.2 Where the axles are grouped together, the requirement in 5.3.2.2.1 shall not apply.

5.3.2.2.3 All other requirements as given in 5.1 and 5.2 shall be applicable.

5.3.2.3 Small trailers (horse box type)

5.3.2.3.1 The construction of a small trailer is similar to that for horse boxes, i.e. two wheels and a drawbar or a triangular towbar.

5.3.2.3.2 All other requirements as given in 5.1 and 5.2 shall be applicable.

5.3.2.3.3 Standard horse boxes shall not be used for the transportation of carnivores.

5.3.2.4 Flatbed open trailers (in the range 1 tonne to 3,5 tonnes)

5.3.2.4.1 Unless the wheels are provided with independent suspension, flatbed open trailers shall preferably be of the four-wheel type since the two-wheel type tends to bounce around.

5.3.2.4.2 Some guidelines to good trailer design are given in annex C.

5.3.2.5 Flatbed open trailers (less than 1 tonne)

It is recommended that these trailers be of the double-axle type and be equipped with an inertial (for example, plunger-operated) braking system. See figures 9 and 10.

NOTE Notice the nose-cone toolbox and the inertial brake.

Figure 9 — Typical flatbed open trailer

NOTE Notice the extra toolbox, permanently mounted in the centre, above the axle.

Figure 10 — Flatbed trailer carrying four cheetah crates

5.4 Registration of vehicles, containers and trailers

The constructed vehicle, container or trailer shall be roadworthy in terms of the national road ordinances (see foreword) and suitably registered under the same Act, before being placed in service.

6 Specific requirements for crocodiles

6.1 General

6.1.1 For transportation purposes, crocodiles are generally graded in accordance with size, measured from the tip of the snout to the tip of the tail (i.e. total length) as follows:

a) adults – of length longer than 2 000 mm;

b) juveniles older than one year – of length from 750 mm to 2 000 mm; and

c) hatchlings (first year of life) – of length generally increasing up to 750 mm as the year progresses.

6.1.2 With the exception of animals being transported for slaughter, crocodiles shall not be transported between the months of May and August.

6.1.3 There are several methods available for transporting crocodiles and the choice of container and constraint method shall take into consideration the size of the crocodile and the distance and time of transportation involved.

6.1.4 Regular monitoring of the crocodile's welfare shall take place during transportation, and the time from capture to release shall be kept to a minimum.

6.1.5 The provision of adequate ventilation and monitoring of temperature is of special importance during the transportation of juvenile crocodiles and hatchlings.

6.1.6 Crocodiles shall not be fed or given drinking water during transportation.

6.1.7 After each transportation, crates shall be washed and disinfected (see also A.8.2 and A.8.3). It is recommended that the disinfectant be of a quaternary-ammonia (QAC) type. Specific recommendations can be obtained from the South African Crocodile Farmers Association (SACFA).

NOTE The SACFA website address is www.sacfa.co.za.

6.2 Construction requirements

6.2.1 Containers shall be sturdily constructed of waterproof materials, for example, 20 mm thick wood with steel cladding.

6.2.2 The sides and the roof may be of slotted or solid construction.

6.2.3 Timber products shall be treated in accordance with SANS 1288 and SANS 10005. The use of creosote is prohibited.

6.2.4 The interior of the containers shall be smooth and without sharp edges which might harm the animal during transportation.

6.2.5 Containers for the on-going translocation of crocodiles by air freight shall comply with IATA regulations (see also 5.1.1.2).

6.3 Temperature requirements

6.3.1 The ambient temperature during transportation should ideally be maintained at between 25 °C and 30 °C.

6.3.2 The maximum temperature during transportation shall not exceed 32 °C (35 °C is lethal) and the minimum temperature shall not be less than 20 °C.

6.3.3 The temperature may be reduced by spraying the crocodiles with water during stoppages (see D.3.(f)). This also helps to prevent dehydration.

6.3.4 If metal floors are used, thick straw bedding shall be provided for thermal insulation. This is not necessary with wooden floors. Conveyor belting may be used to provide a smooth surface.

6.4 Ventilation requirements

6.4.1 Crocodiles do not produce metabolic heat, therefore ventilation for cooling purposes is not required unless radiant heat is involved.

6.4.2 Adequate ventilation, space and acceptable temperature ranges shall be maintained during transportation in order to ensure that crocodiles do not become overheated or excessively cool (see 6.3.2).

6.5 Type and size of containers

6.5.1 Adult crocodiles shall be crated individually. The crate shall be sufficiently narrow to prevent the crocodile from injuring itself by being able to move around too much. The interior crate width should just fit comfortably across the hind legs, which is the broadest part of the animal.

6.5.2 Mass crates may be used for the transportation of juvenile crocodiles or hatchlings.

6.5.3 A crate of dimensions 1 200 mm length × 800 mm width × 250 mm depth could typically accommodate 5 juvenile crocodiles or 20 hatchlings (see also 6.5.2).

6.5.4 The size of crate to be used shall be such that the maximum number and size of crocodiles for transportation shall only be sufficient to cover the floor in a single layer (see figure 11). They shall not be loaded as multiple layers.

NOTE Once loaded, the crocodiles may be allowed to climb on top of each other.

Figure 11 — Juvenile crocodiles laid in a single layer

6.5.5 If small boxes are used as in 6.5.7, the maximum loading density shall not exceed that as described in 6.5.4.

6.5.6 PVC pipes of suitable size (see 6.5.1) may be used for all sizes of crocodiles that are transported individually (see figure 12). When PVC pipes are used, care shall be taken that the ends of the pipe are securely closed and that sufficient ventilation is provided.

Figure 12 — Crocodile transported in a PVC pipe

6.5.7 For small hatchlings, suitable plastic or wooden boxes may be used, for example, styrofoam meat-packing boxes with ventilation holes in the lid and on the sides. Styrofoam boxes, of suitable size, may be used for multi-layer transportation (see 6.5.8).

6.5.8 Where hatchlings are transported in styrofoam boxes in multiple layers, the container shall:

a) be a box of suitable size (see figure 13);

b) be modified to incorporate three intermediate shelves of corrugated plastic construction suitably supported on siderails, or similar, with a minimum spacing between shelves of 100 mm; and

c) have small-diameter ventilation holes (in the range 6 mm to 10 mm) drilled on the sides of the box above each shelf position.

NOTE Notice the three lines indicating the shelf positions, and the additional rows of ventilation holes.

Figure 13 — Styrofoam boxes for the transportation of crocodile hatchlings

6.5.9 The styrofoam box shall be loaded using the following method:

a) load the first batch of hatchlings onto the bottom of the box, sufficient only to cover the floor surface area;

b) insert the first shelf, sliding on the siderails;

c) load the next batch of hatchlings (as a single layer) onto the shelf;

d) repeat the procedure in 6.5.9(b) and (c) for the subsequent shelves until the box is full; and

e) place and secure the box lid in position by suitable means, for example, by strong tape.

NOTE The method described in 6.5.9 is suitable for transportation of ± 100 hatchlings, each weighing ± 100 g, for up to 24 h.

6.5.10 The closed boxes shall then be transported in suitable vehicles with closed sides to exclude draughts and, if necessary, a top cover to provide shade (see also 5.1.8.3).

6.5.11 Typical boxes and suitable vehicles for the transportation of juvenile crocodiles are shown in figures 14 and 15. Each box can contain up to 10 crocodiles (at ± 1 m long).

NOTE Notice the ventilation spaces between the boxes, and the securing method.

Figure 14 — Typical boxes for the transportation of juvenile crocodiles

NOTE The vehicles have been modified to incorporate the following improvements:

a) fairings have been fitted to improve the aerodynamics of the vehicle and to improve the handling of the vehicle; and

b) the exhaust pipe outlet positions have been moved to ensure the exhaust fumes do not pass over the animals.

Figure 15 — Suitable vehicles for the transportation of juvenile crocodiles in boxes

6.6 Restraint, protective and handling methods

6.6.1 The main precautions to be taken against injury to the animal or its handlers during transportation are:

a) prevention of undue writhing or struggling, especially of juveniles and hatchlings;

b prevention of injury from attempts to struggle (see 6.5.1 and 6.6.2);

c) prevention of the possibility of injury to handlers through biting (see 6.6.2 and 6.6.4); and

d) minimization of visual, auditory or mechanical stimulation during transportation (see 6.6.5).

6.6.2 Crocodiles may be immobilised by either

a) chemical means, which lasts for several hours, or

b) electro-stunning (see 6.6.3), which lasts for approximately 5 min.

6.6.3 If electro-stunning is used, the stunning device shall be purpose-made for stunning crocodiles. Further information on suitable devices can be obtained from the South African Crocodile Farmers Association (SACFA).

6.6.4 If the crocodile has been immobilised as in 6.6.2(a) and it has eaten within the previous 48 h, a stick shall be placed horizontally between its jaws to allow regurgitation.

6.6.5 If possible, adult crocodiles shall be secured or bound to prevent movement during transportation. Suitable methods and precautions are indicated in 6.6.6 and 6.6.7.

6.6.6 The crocodile may be wrapped in a cargo net, of mesh not exceeding 50 mm × 50 mm. If animals wrapped in nets are transported side-by-side, the nets shall be lashed to each other by a rope and the ends of the rope securely tied to the sides of the container.

6.6.7 Other binding materials which have been found to be suitable are:

a) soft nylon ropes;

b) crepe bandages; and

c) plastic cable ties.

6.6.8 The use of rubber bands as a binding method is prohibited. Rubber bands act as a tourniquet and inhibit blood flow. Also, if swallowed, the bands expand in the animal's stomach.

6.6.9 The crocodile's legs shall not be bound behind its back.

6.6.10 Padding and blindfolding should be applied in accordance with the following guidelines:

a) Padding around the snout is recommended for larger crocodiles in order to minimize the possibility of snout damage. However, care shall be taken that the animal's nostrils are left open and unobstructed.

b) The eyes and ears of adult crocodiles and juveniles longer than 1 m shall be covered for the duration of transportation (this also has a calming effect). Recommended methods are by using cotton wool pads or cheese cloth, held in place with duct tape.

6.6.11 Hatchlings should not have their jaws or eyes bound or covered.

6.6.12 When crocodiles are moved manually, the following precautions shall be observed:

a) the crocodile shall be adequately supported at all times (for example, the crocodile might be tied to a ladder and the ladder carried between two people);

b) the crocodile shall not be dragged;

c) the crocodile shall not be carried by its legs; and

d) the crocodile shall not be dropped.

6.7 Transportation of crocodiles using multi-deck vehicles

6.7.1 Although the use of multi-deck vehicles for the transportation of carnivores is generally prohibited, they may be used for the transportation of crocodiles provided that the vehicles are modified as follows:

a) the floors shall be of smooth, solid construction and without gaps; and

b) a roof shall be fitted.

6.7.2 Suitable bedding shall be provided, for example, straw (which will also act as a thermal insulator).

6.7.3 Loading ramps shall not be used. For loading onto the top deck, the crocodile shall be laid on a pallet or stretcher and suitable lifting equipment shall be used to raise it to the required height.

7 Auxiliary equipment

The auxiliary equipment listed in (a) to (c) shall be provided (as minima) on vehicles used for the transportation of wild carnivores.

a) **Handling equipment**

- Pushboards (recommended minimum of two to be provided).
- Pole syringes (recommended minimum of two to be provided).
- Marking device, with a range of dyes (colours).
- Electric prodder (standard livestock prodder); the voltage of prodders shall not be boosted by auxiliary power sources.
- Rope (cotton) (recommended minimum diameter 16 mm and minimum length 10 m).
- Catchnet or catchpole.

b) **Vehicle equipment**

- Communication equipment, for example, a radio or a cellphone.
- Winch, preferably attached to the vehicle.

- Shovels (recommended minimum of two).
- Tool box.
- Jack.
- Jumper leads (electric jumper cables).
- Torches (recommended minimum of two), with spare batteries.
- Towing cable or chain, with shackles.
- Tyre pump.
- Tyre levers.
- Wheel spanner.

  NOTE Ensure that the spanner is of correct size for wheelnuts on the vehicle and trailer.

- Tarpaulin.
- Water container (minimum of 20 L capacity).
- Suitable signage with the wording “WILD ANIMALS IN TRANSIT”, or similar.

c) **Medical equipment**

- A standard medical First Aid box, suitable for the treatment of small wounds, injuries or abrasions.
- Veterinary drug box, the type, size and contents of which shall be decided by a veterinarian who is competent in wildlife translocation.

Annex A
(normative)

Care of animals during transportation

A.1 Separation of animals

A.1.1 Wild carnivores shall always be transported in separate compartments (see also A.1.2).

A.1.2 Unweaned siblings or juveniles of the same species may be transported together, but not in the same compartment as an adult (not even their mother).

A.2 Anaesthesia

A.2.1 Anaesthesia may be applied, where necessary, for the safe handling of animals during transportation.

A.2.2 Aneasthesia shall only be administered under the supervision or instructions of a competent wildlife veterinarian.

A.3 Tranquilization

A.3.1 Where necessary, animals shall be tranquilized before and during transportation.

A.3.2 Tranquilization shall be conducted in accordance with the instructions of a wildlife veterinarian.

A.4 Pregnant animals

Female animals shall not be transported during the last third of their term of pregnancy, or if perceived to be heavily pregnant.

A.5 Inspections *en route*

A.5.1 When animals are to be transported over long distances that require several days' travel, the first stop shall be made within an hour after departure to check the condition of the animals.

A.5.2 Stops shall be made regularly thereafter, at intervals of 3 h to 4 h, to ensure that the animals are well and calm.

NOTE It is recommended that the condition of the vehicle and trailer also be checked during these stoppages.

A.5.3 All stops shall be made on a level surface, and in the shade (where possible).

A.5.4 Inspections shall be carried out in such a way as to minimize disturbance to the animals, using the inspection hatches provided.

A.6 Food and water *en route*

A.6.1 For journeys of less than 24 h duration, feeding and watering *en route* is not necessary, however, feeding (with an appropriate feed (see A.6.2) and with the exception of crocodiles) is essential in the event of unexpected delays in the journey.

NOTE See 6.1.6 for specific requirements regarding crocodiles.

A.6.2 Any feed given shall be the same as that to which the animals are accustomed.

A.6.3 Fixed water containers are not permitted within the compartments as they might injure the animals. Any water spillage (which might cause animals to slip, with resultant injuries) shall also be cleaned up before resuming the journey.

A.7 Extreme weather conditions

A.7.1 Animals shall not be transported over long distances in extremely cold conditions. Hypothermia can occur even at low speeds (see B.3.2 and B.3.3).

A.7.2 Wind chill factors shall be taken into consideration (see 5.1.9.6).

A.7.3 It is generally not recommended that animals be transported in extremely hot conditions, however, if this is unavoidable, care shall be taken that adequate ventilation is provided (see also B.3.1).

A.7.4 When transporting animals in hot weather conditions, good ventilation will normally provide sufficient cooling while the vehicle is in motion. However, an adequate supply of water should be carried, for the purpose of hosing down the animals or allowing them to drink, in case the vehicle breaks down or is forced to stand stationary for lengthy periods.

NOTE See 6.1.6 for specific requirements regarding crocodiles.

A.8 Cleanliness and housekeeping

A.8.1 Containers and crates shall be thoroughly cleaned after each journey, and before reuse.

A.8.2 Containers and crates shall be disinfected after each use. Only disinfectants which are registered under national regulations for the control of disinfectants (see foreword) shall be used. The disinfectant manufacturer's instructions regarding usage shall be followed.

NOTE Many disinfectants are very corrosive to metal.

A.8.3 Care shall be taken that all residual odours from disinfection have dissipated before the crate is put back into service.

A.8.4 Loose items, such as wire, capture equipment, baggage, loose tools, tool boxes and fuel containers shall not be carried in the same compartment as the animals.

A.8.5 Fuel containers shall not be stored in such close proximity to animals that the latter can be affected by fumes or spillage.

A.9 Driver etiquette

A.9.1 The vehicle shall be accelerated away slowly, with a smooth changing of the gears.

A.9.2 The brakes shall always be applied gently and smoothly. Sudden braking shall be avoided at all times (see also A.9.3).

A.9.3 If sudden braking is unavoidable, the vehicle shall be stopped immediately thereafter and inspection made regarding the welfare of the animals.

A.9.4 On hot days, the driver should travel as fast as possible, but always within speed limits, and with due regard to the safety and welfare of the animals.

A.9.5 On hot days, stops shall be minimized (but see also A.5) and, wherever possible, shall be in the shade.

A.9.6 The driver shall never rush or drive when tired.

A.9.7 The driver shall exercise caution at all times, especially if driving on bad or unfamiliar roads.

A.9.8 Further responsibilities of owners and drivers are given in annex D.

Annex B
(informative)

Further aspects to be considered when designing or using ventilation facilities in transport vehicles

B.1 Body temperature fluctuations

The normal body temperature of most mammalian wild carnivores is nominally 38,5 °C. However this can increase due to fear or stress (for example, at auctions, while feeding, or because of the presence of humans) to as high as 44 °C (at which point the animal will die), or it can fall as low as 35 °C due to low ambient temperature, draughts, dampness, etc. (at which point the animal will also die).

It is therefore important to ensure that the ambient temperature within the vehicle is regulated to ensure that the animal's body temperature remains within acceptable limits during transportation.

B.2 Importance of shelter

Data analysis has established the importance of providing adequate shelter at night for animals in order to reduce heat loss by radiation. Animals without shelter frequently experience very low body temperatures at night and their temperatures are usually lower than those of animals with shelter. Prolonged exposure to cold night air, combined with the stresses of transportation, enclosures and diet changes, might easily lead to death.

B.3 Aperture openings and settings

B.3.1 In hot ambient temperatures (typically above 30 °C), all ventilation apertures should be secured in the fully-open position.

B.3.2 In cold ambient temperatures (typically below 15 °C), all apertures should be closed to the minimum necessary for respiration in order to minimize heat loss from the container.

B.3.3 On cold days, the low-level drainage slot (see figure 3) should be closed off with straw, grass or similar porous material, to prevent draughts but still allow drainage.

Annex C
(informative)

Guidelines for the design of trailers in the range 1 tonne to 3,5 tonnes

C.1 Dynamic aspects

C.1.1 The stability of the trailer is greatly affected by the ratio of the dimensions from the front of the trailer forward to the connection point, and backward to the road wheels. A configuration which has proved successful is shown in figure C.1.

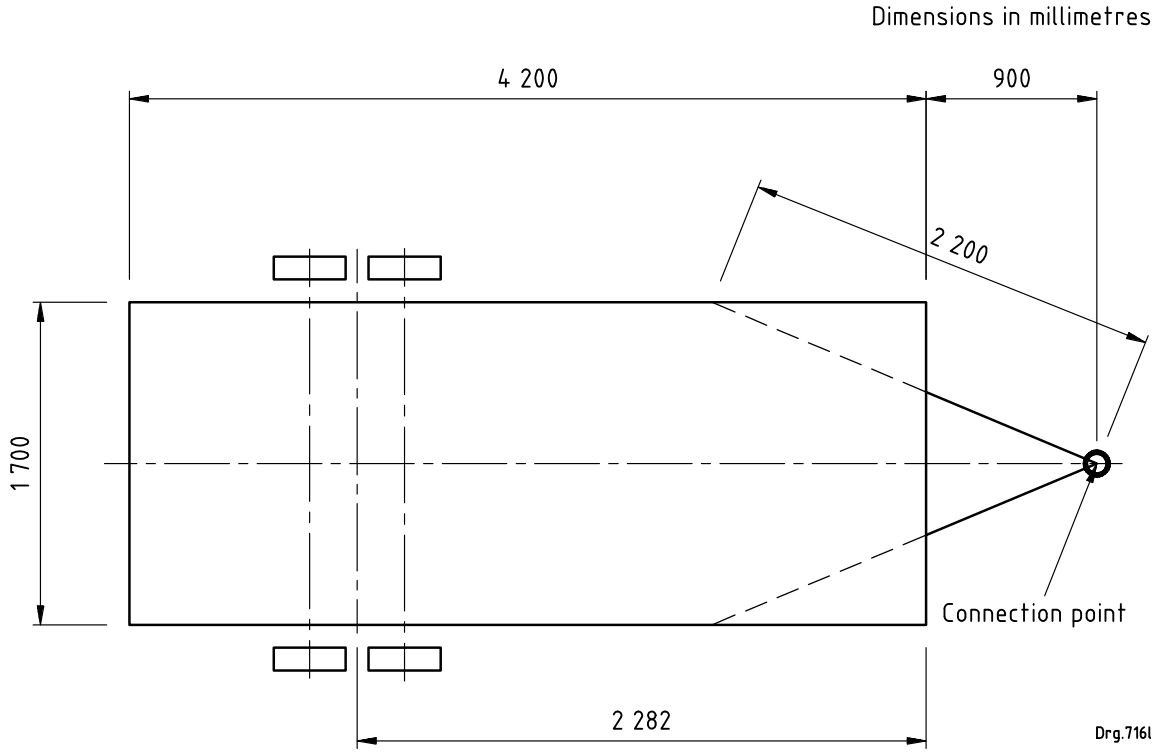

Figure C.1 — Schematic diagram of trailer construction

C.1.2 In figure C.1, the length from the front of the trailer to the road wheels is determined using an empirically derived formula (which is recommended by trailer manufacturers), as follows:

$$l = \frac{L \times 163}{300}$$

where

l is the length from the front of the trailer to the road wheels;

L is the overall design crate length.

NOTE The design crate length is multiplied by 163 and the product divided by 300.

C.1.3 The resultant length is then measured from the front of the trailer towards the rear, to the centre of the wheel axle if only one axle is used, or to a point midway between the axles if two axles are used.

C.2 Chassis construction

C.2.1 The chassis should be constructed from a strong channel framework, (for example, mild steel 100 mm deep × 20 mm wide × 3 mm thick). Rolled-lipped channel is preferred to hot-rolled or forged channel, as it is more flexible.

C.2.2 The floor supports can be of 40 mm diameter mild steel tubing, welded between the framework channels, on 350 mm centres.

C.2.3 The floor should preferably be constructed of mild steel plate, and be 4 mm thick in order to carry heavy animals.

C.2.4 It is recommended that the underside of the chassis and framework be treated with bitumen for protection against corrosion.

C.3 Height from ground

The recommended height from the ground to the centre of the connection ball is 560 mm.

C.4 Tyre dimensions

C.4.1 The recommended tyre outside diameter (O.D) is 582 mm and wheel rim size is 14”, with a low profile to minimize sway, for example, 205/55 R14 (as typical).

C.4.2 The tyres used shall be of the correct rating for the required loading.

C.5 Loading at connection point

If the trailer is constructed in accordance with the configuration described in C.1 to C.4, the resultant mass applied at the ball of the connection point will be between 75 kg and 100 kg (which is the desired loading for maximum stability in operation).

C.6 Nose cone

It is recommended that a nose cone be fitted to the front of the trailer to act as a wind breaker.

Annex D
(normative)

Responsibilities of owners and drivers of transport vehicles

D.1 It is the responsibility of owners and drivers of transport vehicles to ensure that the journey, and travelling conditions to which an animal is subjected, shall be of such a nature as to minimize discomfort and avoid causing suffering or stress to the animal.

D.2 The owners of transport vehicles shall ensure that their drivers are sufficiently trained for this purpose and are in possession of a valid drivers' licence appropriate to the type of vehicle being driven by them.

D.3 Some important basic responsibilities of the driver and the owner (before and during transportation) include, but are not limited to, the following:

a) Before commencement of the journey, the driver shall ensure that the vehicle is in a roadworthy condition and is adequately ventilated.

b) The driver shall ensure that he has all the necessary permits (conservation, veterinary, import/export, etc.) which are necessary for the particular consignment of animals being transported, and that these are available at all times.

c) Once the animals have been loaded, the transport vehicle shall depart with a minimum of delay and follow the shortest practical route to the destination.

d) For journeys which will exceed 8 h in duration, two drivers shall be used. It is also recommended that a competent assistant accompany the drivers to assist with taking care of the animals, opening and closing of gates, etc.

e) The driver shall ensure that he is equipped with suitable road maps, information regarding preferred routes and road conditions, and that his communication equipment (for example, cellphone) is in working order.

f) The driver shall plan the route to avoid large towns and cities as far as possible. Stops shall be limited to necessities, for example for inspections or refuelling, and the duration of stops shall be minimized. Wherever possible, stops shall be made at quiet places, preferably away from inquisitive onlookers.

g) Where applicable, the driver shall obtain information regarding possible cold fronts. Daily weather reports on radio or television should also be monitored for information on pending weather conditions.

h) Drivers shall be provided with emergency contact numbers for use in the event of breakdowns or other emergencies.

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