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DRAFT
BRITISH STANDARD RECOMMENDATIONS FOR THE CARRIAGE OF LIVE ANIMALS BY AIR
FISH, AMPHIBIANS AND INVERTEBRATES

This is a draft and should not be regarded or used as a British Standard

COMMENTS TO BE SENT BY 8th NOVEMBER 1962 TO

BRITISH STANDARDS INSTITUTION
BRITISH STANDARDS HOUSE
2 PARK STREET, LONDON, W.1

BRITISH STANDARDS INSTITUTION
INCORPORATED BY ROYAL CHARTER
BRITISH STANDARDS HOUSE, 2 PARK STREET, LONDON, W.1

25th September, 1962

Draft British Standard Recommendations

for the

CARRIAGE OF LIVE ANIMALS BY AIR
FISH, AMPHIBIANS AND INVERTEBRATES

(to be B.S.3149: Part 9)

This draft British Standard has been prepared by Technical Committee P/183 - Carriage of Live Animals by Air and Sub-committee P/183/3 - Carriage of Fish, Amphibians and Invertebrates, and in accordance with the procedure of the Institution, is now being circulated for technical comment to industry and others concerned and also to members of those Committees of the Institution listed below, who may be interested in the draft, either in whole or in part.

The Committee would appreciate any views on this document, which should be submitted before

THURSDAY, 8TH NOVEMBER, 1962.

It would also be helpful if those who have no specific comments to make but find the draft generally acceptable would kindly notify us accordingly.

This draft should not be regarded or used as a British Standard.

All communications should be addressed to the Committee Secretary, Mr. D. Johnston.

H.M. GLASS,
Technical Director.

B.S.I. Committees to whose members the above draft has also been sent:-

Packaging Standards Committee - P/-
Sub-committee P/183/3 - Carriage of Fish, Amphibians and Invertebrates
Aircraft Industry Standards Committee - ACE/-

Technical Committee P/183 - Carriage of Live Animals by Air

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Mr. Gerald Scott	Accredited Poultry Breeders Federation of England and Wales Limited.
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Mr. F. Fidler	British Carton Association.
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Mr. W.R. Mitchell	British Paper Box Federation.
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D 62/6724

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Sub-committee P/183/3 - Carriage of Fish, Amphibians and Invertebrates

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BRITISH STANDARDS INSTITUTION

Sub-committee P/183/3 - Carriage of Fish, Amphibians and Invertebrates (of Technical Committee P/183 - Carriage of Live Animals by Air)

Draft British Standard Recommendations for the CARRIAGE OF LIVE ANIMALS BY AIR FISH, AMPHIBIANS AND INVERTEBRATES

(to be B.S.3149: Part 9)

CONTENTS

PACKAGING

3. a. Containers. The fish should be packed with oxygen and water into polythene bags of 0.0250 gauge; heavier material is difficult to seal and a lighter gauge would be too porous. Each bag should be placed in an outer bag of similar gauge. Each bag should then be firmly closed with one or more elastic bands as illustrated in Fig. 1. It is recommended that on no account should polythene bags be fastened with staples. A number of bags, (see Clause 3d below), should be placed in an outer fibreboard packing case (see Clause 4) together with adequate cushioning, which serves both for physical protection and heat insulation. The outer containers should be sealed with gummed paper tape or twine*.

b. Water. Newly drawn chlorinated tap water should not be used and it is recommended that all water should be left to stand for 24 hours before use, during which time it should preferably be aerated. It is also recommended that a weak solution of methylene blue be added to the water (one drop of a 5 per cent solution per gallon). Sudden changes in the temperature, pH (acidity and alkalinity) and in hardness and softness of the water are detrimental to fish and should be avoided.

c. Oxygen. The air should be squeezed out of the bag and pure oxygen introduced at atmospheric pressure. The oxygen should NOT be 'bubbled' through the water. The oxygen should occupy 75 per cent of the volume of the bag, the remaining 25 per cent being fish and water together.

d. Density of fish. The number of fish packed into a bag with any given volume of water has a direct bearing on the length of journey which the fish can withstand.

Table 1 gives the numbers of different varieties of fish which may safely be packed into a bag with 1 gallon of water. In compiling this list consideration has been given to the varieties and sizes of the fish and to the economics of their carriage by air. The numbers sent within the range shown will depend upon the size of the fish, i.e. the greater numbers refer to small fish and vice versa. If the number of fish packed is within the limits given, and if the temperature is maintained at 70°F (21°C) throughout the journey, the fish will normally travel safely for 30 hours. The losses during that time will not generally exceed 1 per cent provided that the fish are healthy. For every hour of delay the rate of mortality will increase logarithmically. Dead fish reduce the amount of oxygen available to the living fish.

There are certain species, however, which are especially sensitive to temperatures lower than 70°F (21°C) and for these species the safe survival times at 65°F (18°C) are given in column 2 of Table 1. If carried for longer periods than these at 65°F (18°C) their vitality will rapidly deteriorate and heavy mortality is likely to occur.

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*Attention is drawn to B.S.1133, 'Packaging Code', Section 13, 'Twines and cords for packaging', and 14, 'Adhesive closing and sealing tapes', which give guidance on the use of these materials for packaging'.

TABLE 1

NUMBER OF FISH PER GALLON (ACCORDING TO SIZE) FOR 30 HOUR SAFE TRAVEL PERIOD AT 70°F (21°C), AND MAXIMUM SAFE TRAVEL PERIOD AT 65°F (18°C) FOR SOME SENSITIVE SPECIES

(1)	(2) Maximum travel period at 65°F (hours)	(3) Number of fish per box containing 1 gallon of water according to size (30 hours at 70°F (21°C))
Acanthocerus spinosissimus	10	100-200
Acanthophthalmus semicinctus		600-900
Aequidens curviceps		100-200
latifrons		100-200
maronii		100-200
portalegrensis		100-200
pulcher		100-200
Alestopetersius caudalis	6	150-250
Ambassis lala		200-300
buruensis		200-300
Anabas testudineus		150-250
Anoptichthys jordani		250-350
Anostomus anostomus	10	50-200
trimaculatus	10	50-200
Aphyocharax rubropinnis		400-500
Aphyosemion arnoldi		150-250
australe		150-250
bivittatum		150-250
calliurum		150-250
cognatum		150-250
gardneri		150-250
sjoestedti		150-250
Apistogramma agassizi		200-300
pertense		200-300
ramirezi		200-300
reitzigi		200-300

(1)	(2) Maximum travel period at 65°F (hours)	(3) Number of fish per box containing 1 gallon of water according to size (30 hours at 70°F (21°C))
Aplocheilichthys macrophthalmus		400-600
Aplocheilus blocki		400-600
dayi		200-400
lineatus		200-400
panchax		300-500
Arnoldichthys spilopterus		100-200
Astronotus ocellatus (Marbled Cichlid)		100-200
Astyanax bimaculatus		250-350
fasciatus		250-350
Badis badis		300-400
Balanteocheilus melanopterus	6	50-150
Barbus bimaculatus		200-300
binotatus		150-250
conchonius		200-300
cumingi		150-250
everetti		200-300
fasciatus		200-300
filamentosus		200-300
gelius		400-600
hexasona		200-300
lateristriga		200-300
nigrofasciatus		150-250
oligolepis		200-300
partipentazona		200-300
pentazona		200-300
sachsi		200-300
schwanenfeldi		60-120
semifasciolatus		200-300
stoliczkanus		200-300
tetrazona (Tiger Barb)		200-300

(1)	(2) Maximum travel period at 65°F (Hours)	(3) Number of fish per box containing 1 gallon of water according to size (30 hours at 70°F (21°C))
Barbus ticto		200-300
titeuze		300-400
titteya		150-300
vittatus		200-300
Barilius christi		100-200
Belonesox belizanus		100-150
Bedotia gayi		200-300
Belontia signata		150-250
Betta bellica		150-250
brederi		150-250
picta		150-250
splendens		150-250
Boleosoma nigrum		150-250
Botia almorhae	6	150-250
horae	6	150-250
hymenophysa	6	50-150
macracanthus	6	50-150
modesta	6	150-250
strigata	6	100-150
Brachydanio albolineatus		300-400
nigrofasciatus		300-400
rerio		400-600
Brachygobius doriae		300-500
xanthazonus		300-500
Bunocephalus coracoideus		80-120
Carnegiella strigata	10	200-300
marthae	10	200-300

(1)	(2) Maximum travel period at 65°F (hours)	(3) Number of fish per box containing 1 gallon of water, according to size (30 hours at 70°F (21°C))
Channa asiatica		150-250
orientalis		150-250
wolffi		150-250
Cheirodon axelrodi (Cardinal Tetra)	10	400-600
Chilodus punctatus	10	80-200
Chriopeops goodei		150-250
Cichlasoma aureum		200-250
biocellatum		150-250
festivum		200-300
meeki		200-300
nigrofasciatum		200-300
severum		200-300
Colisa fasciata		200-300
labiosa		200-300
lalia		200-300
Copeina arnoldi	10	150-250
callolepis	10	150-250
guttata	10	150-250
Corydoras aeneus		150-250
agassizi		150-250
Corytheichthys fasciatus		100-200
Corydoras arcuatus		180-300
auratus		80-150
barbatus		80-150
brevirostris		80-150
elegans		80-150
hastatus		250-350
julii		80-150
melanistius		80-150

(1)	(2) Maximum travel period at 65°F (hours)	(3) Number of fish per box containing 1 gallon of water, according to size (30 hours at 70°F (21°C))
Corydoras myersi		80-150
nattereri		80-150
paleatus		200-300
rabauti		80-150
reticulatus		80-150
Cteropoecilus spilurus		300-600
Cyrtocharax bellotti		150-250
nigripinnis		150-250
Danio devario		150-300
malabaricus		150-300
Dorichthys ocellatus		100-200
Elassoma everglades		400-600
Epalzeorhynchus kallopterus	10	40-80
siamensis	10	40-80
Epiplatys chaperi		200-300
Esomus danrica		250-350
malayensis		250-350
Etropiella debauwi	6	150-350
Etroplus maculatus		80-200
suratensis		80-200
Gasteropelecus levis	6	150-300
Gnathonemus petersi	10	30-80
Gymnocorymbus ternetzi	10	400-500
Gyrinocheilus aymonieri		150-300
Gobius viamosa balentia		150-250
Haplochromis multicolor		200-300
Helostoma rudolphi) Kissing		80-250
temmincki) Gouramis		80-250
Hemichromis bimaculatus		250-400

(1)	(2) Maximum travel period at 65°F (hours)	(3) Number of fish per box containing 1 gallon of water, according to size (30 hours at 70°F (21°C))
Nannostomus unifaciatus	6	400-600
Neolebias ansorgei		300-400
Nemacheilus sp.		200-300
Oryzias javanicus		400-600
latipes		400-600
Osphronemus goramy	6	150-250
vittatus	6	150-250
Osteochilus vittatus	6	150-250
Otocinclus arnoldi		200-300
Otocinclus affinis		150-250
vittatus		150-250
Pachypanchax playfairi		200-300
Pantodon buchholzi	6	100-150
Pelmatochromis arnoldi		100-150
guntheri		100-150
kribensis		100-150
Phenacogrammus interruptus	6	150-250
Pimlocella chagresi		100-150
gracilis		100-200
Pimelodus clarias		100-150
Platypoecilus maculatus (Platy)		150-250
variatus		150-250
Plecostomus plecostomus	10	150-250
Poecilobrycon auratus	6	300-400
espei	6	300-400
harrisoni	6	300-400
unifasciatus	6	300-400
Polycentropsis abbreviata		150-250

(1)	(2) Maximum travel period at 65°F (hours)	(3) Number of fish per box containing 1 gallon of water according to size (30 hours at 70°F (21°C))
Polycentrus schomburgki		150-250
Pristella riddlei		400-600
Pterophyllum altum	10	100-200
eimekei) (Angel	10	100-200
scalare) Fish)	10	100-200
Rasbora elegans	10	200-300
heteromorpha	10	400-600
maculata	10	600-900
pauciperforata	10	200-300
dorsiocellata	10	400-600
Rivulus cylinkdraceus		150-250
harti		150-250
strigatus		150-250
Scatophagus argus (Argus Fish)	6	40-150
rubrifrons	6	40-150
Serrasalmus spilopleura (Piranha)		40-150
Sphaerichthys osphromenoides	6	100-200
Symphysodon discus (Pompadour Fish)	6	10-50
Synodontis nigroventris	6	75-150
schoutedeni	6	75-150
Tanichthys albonubes (White Cloud Mountain Minnow)		400-600
Tetraodon fluviatilis		150-300
Thayeria obliqua	10	400-600
sanctae-mariae	10	400-600
Therapon jarbua		100-200
Tilapia mossambica		200-300
Toxates jaculator (Archer Fish)	6	60-120
Trichogaster leeri		150-200
microlepis		150-200

(1)	(2) Maximum travel period at 65°F (hours)	(3) Number of fish per box containing 1 gallon of water, according to size (30 hours at 70°F (21°C))
Trichogaster pectoralis		150-250
trichopterus		150-200
Trichopsis pumilus		200-300
vittatus		200-300

OUTER CONTAINER

4. The outer container should be a fibreboard packing case of adequate strength to carry a weight of 10 kg. (22 lb), allowing for the fact that up to six filled containers may be stacked one upon the other.

It is recommended that the container should be a one-piece solid or corrugated fibreboard case (see Fig. 2), with the inner flaps not meeting and the outer flaps meeting. The internal dimensions should be 17½ x 11¾ x 11¼ in (445 x 300 x 285 mm).

For the solid board, typical specifications would be: a caliper of not less than .075 in (1.8 mm), and a weight of not less than 290 lb per 1000 ft^2 (1315 g/m^2). The corrugated board should be B flute (50 - 56 corrugations per foot - 305 mm; height of corrugations 0.095 to 0.112 in - 2 to 3 mm). The outer and inner facings of the board should have a caliper of not less than 0.017 in (0.4 mm) and a weight of not less than 64 lb. per 1000 ft^2 (310 g/m^2) and the fluting should be of strawpaper (or paper made from semi-chemical pulp), having a caliper of not less than 0.009 in (0.2 mm).

The bursting strength of the solid board and of the corrugated board should not be less than 250 lbf (111 kgf) when tested by the method described in Appendix A.

This container should be provided with adequate cushioning of a type suitable for temperature conservation; double kraft paper with layers of ½ in (12 mm) cotton wool is recommended.

If the temperature in the hold of the aircraft is likely to fall below 70°F (21°C) then more insulating material should be provided.

Other types of container have been used satisfactorily, but if the above specification is not followed in detail, it is recommended that B.S.1133 'Packaging Code', Section 7 , 'Paper and board wrappers, bags and containers', particularly Section 7 a, should be consulted in regard to the choice of case; particular attention should also be paid to the recommendations given in Clauses 5, 6 and 7 of these recommendations.

LABELLING

5. All packages should bear the label adopted by the International Air Transport Association, "This side up" and also a label "Tropical Fish".

They should also be labelled "Living tropical fish - maximum temperature 80°F (26°C) - minimum 70°F (21°C)".

STOWAGE IN AIRCRAFT

6. Tropical fish should not be allowed to travel in the unheated belly - holds of aircraft and should not be subjected to any sudden fall in temperature. The optimum travelling temperature for tropical fish is 70°F (21°C).

Some airlines provide insulated outer containers in which a number of fibreboard packing cases are packed together. If these are used, fish can travel safely in partly heated holds, provided that an adequate amount of cushioning material, as recommended in Clause 4, has been used in the fibreboard case.

If for Customs or other reasons, it is imperative to empty the box completely, this should be done with minimum delay, keeping the tier of egg trays covered with the ice trough to keep the eggs cool and moist whatever may be done with insulation material. Eggs should be replaced in same position in the box with insulation exactly as on opening.

Consignor's own directions for ice-renewal should be followed closely. Normally, it is preferable to transport or store a box of eggs under optimum conditions and not to open up to inspect or add extra ice.

However, if on opening, there appears to be insufficient ice left for the journey, the ice trough may be replenished with pieces of clean wet ice, preferably the size of apples, or one entire block, but not with many small pieces. "Dry ice" (solid carbon dioxide) should NEVER be used. Over-heavy icing can chill and harm.

It is essential that if any box has to be opened, it should be closed again with the minimum of delay - to keep cool and conserve moisture.

Customs authorities should be requested to expedite clearance (see Clause 22)

SECTION 4 : AMPHIBIANS

CARE AND PACKAGING.

15. Frogs, toads, newts and salamanders should be kept damp in order that they may breathe through their skins; if their skins are allowed to dry, the animals die quickly. They should, therefore, be packed in tins or other containers with sponges or balls of crushed blotting paper, which should be saturated daily with water to maintain a moist atmosphere. Moss may be used for very short journeys, provided that it is clean.

All containers should have ventilation holes at one end , covered by perforated zinc or wire gauze. If tins are used, great care should be taken to ensure that ventilation holes are punched from the inside outwards, so that there are no sharp edges.

Very large frogs, such as bull frogs, should be packed specially to prevent damage to their noses by jumping or rubbing. They are best placed in wooden or plywood tubs with sacking covers with about 2 inches (50 mm) of fresh water, which should be changed when necessary; alternatively each frog may be placed in a separate bag.

Forcible feeding is dangerous and unnecessary, but small cockroaches and flies may be offered.

Axeloths should be carried in the same conditions as goldfish (see Clause 2).

SECTION 5: SHELLFISH

PACKAGING

16. The only shellfish for which there is any appreciable volume of trade for air transport at present are lobsters, although crabs and oysters are sometimes carried.

a. Lobsters. The recommended pack is a fibreboard case measuring bout 19 x 12 x 12 in (480 x 305 x 305 mm); from 30 to 35 lb. (13 to 16 kg) of obsters are packed into each case. To prevent leakage, a sheet of rease-resistant paper or polythene sheeting should be placed in the case o cover the bottom and half of the side walls. A layer of wood-wool* s placed at the bottom and on to this is laid a polythene bag containing crushed ce. A further layer of wood-wool is then added and on top of this the obsters are carefully packed in rows, head to tail, closely enough to revent movement. This operation is repeated so that there are two layers f wood-wool and two of shellfish. The top layer of lobsters is then vered by another layer of wood-wool, another polythene bag with crushed ce and more wood-wool. Seaweed should not be used for cushioning. The se is then closed and sealed with adhesive or gummed tape. The bottom f the case should be fully sealed to prevent any liquid seeping from the se but there should be breather holes in the top. Claws should be ecured either by tying with twine or with an elastic band. All packages ould bear labels, i.e. "Lobsters - This side up".

Recommendations for a suitable fibreboard case are given in Clause 17.

b. Crabs. Conditions should be the same as for lobsters.

c. Oysters. Oysters should be packed in shallow wooden boxes or in small sks with moistened sacking at the top and bottom to keep them moist and irmly held. The oysters should be placed in the containers curved shell wnwards.

Additional insulation is advisable when fluctuating temperatures are ticipated.

CASE FOR LOBSTERS

17. The container should be a fibreboard packing case of adequate trength to carry a weight of 40 to 45 lb (18 to 20 kg), allowing for the ct that filled cases may be stacked one upon the other.

It is recommended that the case should be a one-piece solid or corrugated ibreboard case (see Fig. 1), with the inner flaps not meeting and the outer aps meeting. The internal dimensions should be 19¼ x 11¾ x 12 in 90 x 300 x 305 mm). The bursting strength of the board should be not ss than 300 lbf (134 kgf) when tested by the method described in Appendix A.

Typical specifications for such board would be:

Solid board: a caliper of not less than 0.090 in (2mm) and a weight of not less than 360 lb per 1000 ft^2 (1760 g/m^2).

Corrugated board : for both the outer and inner facings, calipers of not less than .023 in (.6842 mm), and weight of not less than 90 lb per 1000 ft^2.

Other types of container have been used satisfactorily, but if the above ecification is not followed in detail, it is recommended that B.S. 1133, ckaging Code', Section 7, 'Paper and board wrappers, bags and containers', uld be consulted in regard to the choice of case.

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*Attention is drawn to B.S. 2548 'Wood-wool for general packaging purposes'.

CARE OF LOBSTERS, CRABS AND OYSTERS

18. a. Lobsters All lobsters despatched as recommended in Clause 16 should be of high quality and NOT previously stored out of water for any length of time and never overpacked. High rates of mortality are usually due to the lobsters being in an insufficiently strong condition to travel prior to packing.

The best temperatures during transport are between 45°F and 50°F (7°C and 10°C) and should not be outside the range of 41°F to 60°F (5°C to 16°C). Rapid changes in temperature, either up or down, are more harmful than greater changes occurring slowly. This is why insulation is important.

With packing as recommended in Clause 16, conditions are usually suitable in luggage or goods compartments of passenger or freight aeroplanes for short distance flights where the aircraft do not fly high. If lobsters are subjected to a rapid change of pressure they suffer from 'bends'. It has been found that where aircraft climb to fairly high altitudes quickly, lobsters have died, and if at all possible this should be avoided.

On long distance flights at considerable heights, lobsters should be carried in a pressurized cabin.

b. Crabs. Crabs require similar conditions to lobsters.

c. Oysters. Oysters and other molluscs will not stand transportation in unpressurized freight compartments of high-flying aircraft, but with suitable packing they may be carried safely on short flights at low levels.

The temperature is best near the lower end of the range of 35°F to 50°F (2°C to 10°C) and should never be outside the range of 32°F to 60°F (0°C to 15°C).

d. Delay If delay occurs in transit, shellfish should be kept cool, but "Dry ice" (solid carbon dioxide) should not be used. Attention is drawn to Clause 8 regarding expeditious handling on arrival.

SECTION 6: HONEYBEES

GENERAL

19. The following units of honeybees are commonly transported by air:

a. A QUEEN and a few attendant workers together in a small cage, together with a food supply (more occasionally drones instead of a queen);

b. PACKAGE BEES, consisting of 2 or 3 lb (1 or 1.5 kg) honeybees in a box which also contains a caged queen, with a food supply;

c. A COLONY or NUCLEUS, consisting of bees (including a queen) on combs which contain both brood and food. (Colonies are not normally sent by air between one country and another).

PACKAGING

20. Queen cages and package bee boxes should be specially designed for transport and have one or two sides of wire gauze to provide ventilation. A colony or nucleus should be sent in a special box (not a hive), with a wire gauze base kept about 1 inch (25 mm) above a separate base fixed by corner spacers, and a top also of wire gauze, protected by a wooden lid, say 1 inch (25 mm) above it and with free air access round the edges. Wire gauze panels may also be inserted in the sides. Gauze of 1/16 inch (1.5 mm) mesh is suitable; it should be strong.

Several types of containers have been found satisfactory provided they meet the above requirements. The diagram in Fig. 3 is an example of suitable construction and dimensions.

The queen should be placed in a queen mailing cage which is hung in the package of bees by a fine wire stapled to the queen cage.

CARE IN TRANSIT

21. a. Stowing. Boxes containing honeybees should not be stacked in such a manner that air flow through the wire gauze is prevented; it is usual for boxes of package bees to be fastened together in fours by battens which keep the gauze sides of adjacent boxes apart.

b. Pressure, temperature and humidity. Bees should not be subject to extremes of pressure, and should therefore travel in a pressurized compartment where this is provided for passengers or crew. A reasonably constant temperature is desirable; the optimum is around 30°C (86°F) for queens and drones and they cannot survive long below 20-25°C (68-77°F). Package bees or colonies generate considerable heat and travel best at about 15°C (60°F). Temperatures above 35°C (96°F) are likely to kill all bees (see also d below). Bees regulate their temperature by evaporating water, this being speeded by up fanning to produce air currents. A high humidity can, therefore, be dangerous if the temperature is high, because it prevents evaporation, more especially with large units of bees. Bees should not be subject to excessive vibration.

c. Provision of food. Pure sugar for food should be provided by the sender, specially prepared. Candy is the most convenient and least messy way of providing sugar.

d. Provision of water. Water is necessary as an insurance against damage by high temperatures, but it should not leak out so that it drowns bees. It is not usually provided for queens, but see f below. If syrup is provided, water can be dispensed with for short journeys (say 24 hours) but not in hot climates. Otherwise, it is safer to provide it in an inverted tin if pressure changes will not cause leakage, or in a "dummy feeder" for a colony, or in some other vessel with a float for package bees.

e. Security. To prevent the escape of bees.

(i) the wire gauze should be strong, and the edges not liable to fray off;

(ii) the gauze should be securely fastened to the wooden or other surround, which should be strong, and not subject to splitting by the nails fixing the gauze to it.

f. Treatment on the ground. (i) Spraying. It is essential that boxes should NOT be sprayed with insecticide. Certain local health regulations require aircraft to be sprayed and carriers should be consulted before consignments are despatched on routes that might be affected by such regulations. Boxes should be labelled "Live bees. Do not fumigate or spray".

(ii) Dryness. At stops of more than 45 minutes in dry or desert areas with a relative humidity of less than 20 per cent, for queen cages 3 to 5 drops of water should be put on the wire gauze, the cages then being put in a plastic bag; for packages and colonies, several spoonfuls (say 50 ml) of water should be sprinkled on the wire gauze. More may be needed during prolonged stops.

(iii) Storage. Any storage place should be well ventilated, free from draughts, and with no excessive temperatures.

SECTION 7: CARE ON ARRIVAL

GENERAL

22. On arrival, the consignee or his agent should ensure that immediate attention is given to the animals. The recommendations in Clause 7 relating to the trans-shipment of fish should be particularly borne in mind, and so far as live eggs of trout and salmon are concerned, attention is also drawn to Clause 14.

To facilitate Customs clearance on arrival, consignees should ensure that they have arranged beforehand for the attendance of a Customs officer, the production of all necessary documents and the provision of assistance for the examination of the animals by the Customs officer. On arrival of the animals the Customs should be asked to give clearance priority. If the animals are cleared on the tarmac, and immediate loading into vehicles is necessary, the airport and Customs authorities should be asked to allow the consignee's vehicles on to the tarmac for this purpose.

In some countries there are health regulations relating to the importation of certain fish, amphibians and invertebrates. Consignees are recommended to ensure that all necessary formalities are completed quickly, in order to avoid delay in removing consignments from airports.

APPENDIX A

METHOD FOR THE DETERMINATION OF THE BURSTING STRENGTH OF FIBREBOARD

1. Instrument for determining the bursting strength. The instrument used is a heavy duty hydraulic type similar to that described in B.S. 3137, 'Method for determining the bursting strength of paper'. A steadily increasing pressure is applied over a definite fixed area (1.20 in diameter) of the board under test until it bursts, the exact pressure at the moment of bursting, which represents the bursting strength of the sample at that particular area, being registered by a suitable pressure gauge. The machine may be either motor-driven or hand-driven.

2. Operation. a. Pressure application. Pressure shall be applied under the diaphragm by forcing a liquid, such as glycerine, along the barrel of the instrument by means of a piston operated by a screw attached to a handle or motor. Care should be taken that the apparatus is filled completely with liquid and that no air bubbles remain in the hydraulic system. Any suitable liquid may be used provided it does not attack either the rubber or the metal of which the tester is made. In the case of the hand-driven model, the pressure shall be applied by turning the operating handle in a clockwise direction at a steady rate of 120 r.p.m.

b. Choice of gauge. Gauges are supplied to cover various ranges (up to a maximum of 1000 lbf/in2) and it is important to select the range best suited to the board to be tested. The bursting strength readings should lie between 25 per cent and 75 per cent of the maximum scale readings of the gauge. If the gauge is accidentally used beyond its maximum scale reading it should be recalibrated before it is used again.

c. Clamping. The clamping pressure must be firm enough to prevent slipping, but not so heavy that the sample becomes damaged. (Slipping can be detected by the presence of creases after bursting and may be due either to insufficient clamping pressure or to non-uniform clamping due to the clamp faces not being quite parallel.)

3. Completion of test. Immediately the sample has burst the piston is returned to its original starting position either by turning the handle anti-clockwise as far as it will go in the case of the hand operated instrument, or by using the reversing gear provided on the motorized instrument.

4. Results. a. Number of readings. A minimum of six readings is required, half obtained with one face of the board uppermost and half with the other face uppermost.

b. Expression of results. The bursting strength shall be expressed as the arithmetic mean of the readings in pounds force per square inch.

APPENDIX B

CONSIGNOR'S INSTRUCTIONS REGARDING CARE OF LIVE EGGS OF TROUT AND SALMON

The consignor should acquaint himself with the probable travel schedule and should, in the light of his experience and the particular requirements for the journey in question, prepare instructions on the care of the eggs in the event of any unexpected delay, for example owing to fog. These should be attached to the Air Waybill and the label on the box should indicate their existence. The following indicates the broad outline of the form the instructions should take:-

In general:

1. If the box has to be emptied for any reason, do this quickly, keeping egg trays covered with the ice trough, and repack the eggs in the same position in the box with the insulation exactly as on opening. Close the box quickly.

2. If on opening the box it appears that the ice will not last for the remainder of the journey, replenish with pieces of clean WET ice, preferably the size of apples, or one entire block. Do not use small pieces. NEVER use "dry ice" (solid carbon dioxide).

If travelling in tropical conditions:

3. Keep the box in the shade and cover with a wet sack.

4. If stopping in tropical conditions overnight, hold the box unopened at approximately 35°F to 40°F (2°C to 5°C), for example in a cool vegetable store.

DO NOT KEEP BELOW FREEZING POINT.

5. Do not open the box to inspect or renew the ice unless delay extends beyond .....
(Time) (Date)

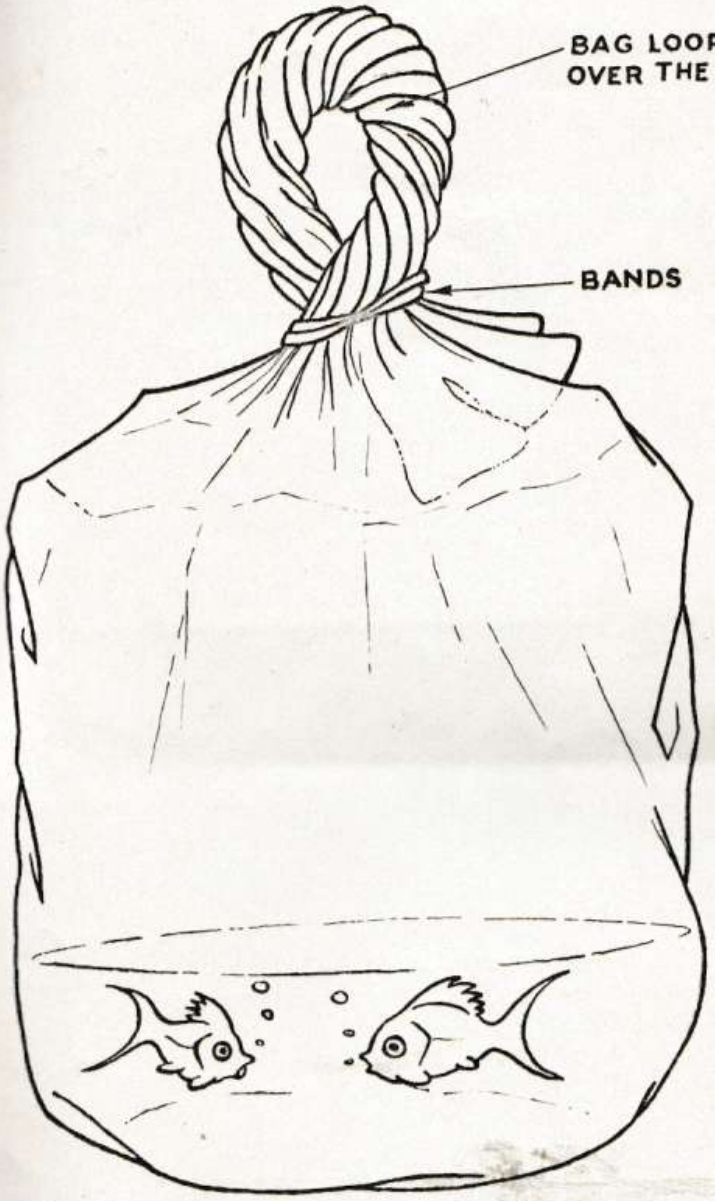
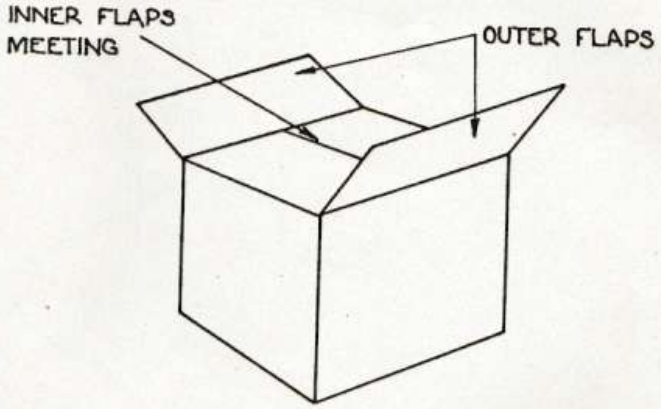


FIG. 1 METHOD OF TYING BAG OF TROPICAL FISH

DRG.NO 7728/1
ISSUE 2



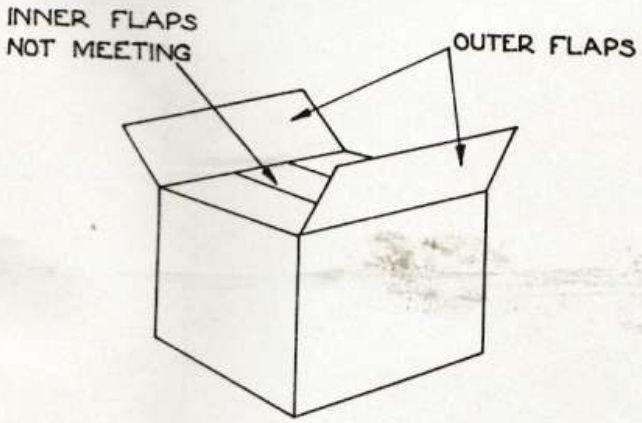


FIG. 2 ONE PIECE FIBREBOARD CASE

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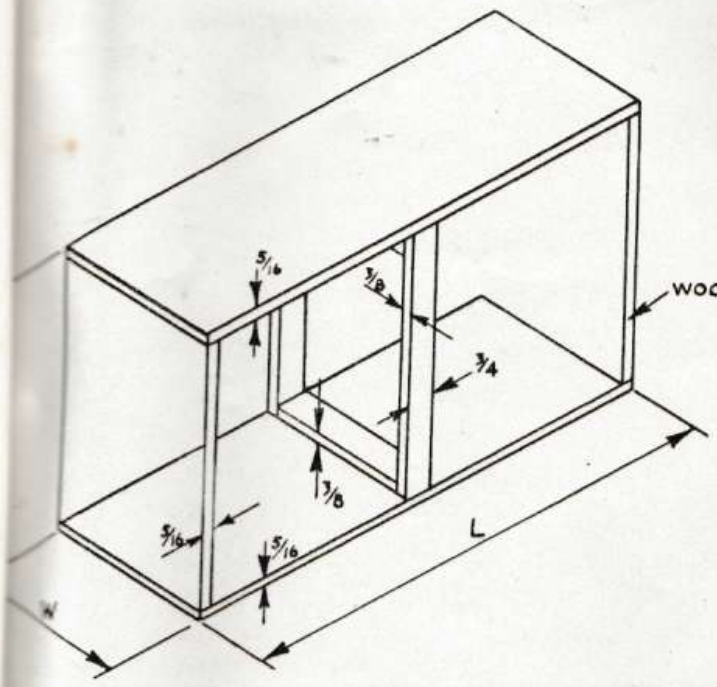
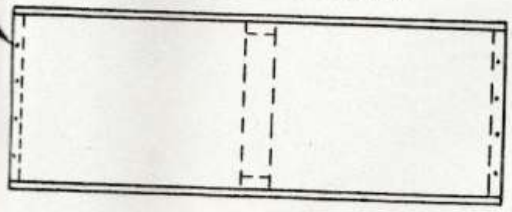
ISSUE 2



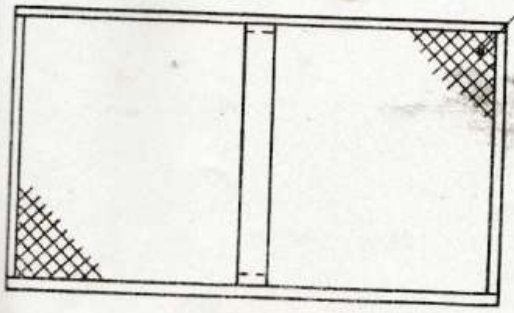
WOOD – WHITE PINE

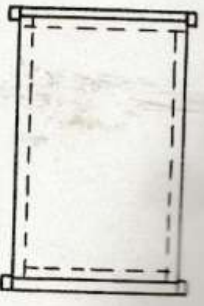
	No.2	No.3
L	14	16
W	4¾	5½
H	8	8

...LS TOP & BOTTOM (1⅛ – 1⅜ LONG)



SCREEN, 10 MESHES PER LINEAR INCH





SIDE ELEVATION

SCREEN SECURING STRIPS ⅜ x 3/16 SECURED BY ¾ NAILS

ALL DIMENSIONS ARE IN INCHES

DRG. No. 7728/3