

# Instructions for the construction of boxes suitable for the keeping of waders

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**Citation: Sheldon, J. & Williams, A. 1977. Instructions for the construction of boxes suitable for the keeping of waders. *Wader Study Group Bull.* 20: 21–24.**

These instructions should be used in conjunction with examination of the diagram of a completed box (fig. 2).

(Measurements are given here in feet and inches as materials are still commonly supplied in this way in Britain. Overseas readers may like to note that:

1 inch = 2.5 cm, 1 foot = 30.5 cm, approximately).

## Materials required

**Plywood:** one sheet (2 foot × 4 foot) of 3/8 inch outdoor ply.

**1 inch × 1 inch timber:** this is probably not available, but there is a timber metric equivalent which is slightly smaller but is as good for the job. It is usually available in 6 foot lengths which is suitable as 5 foot 4 inches is needed for each box made.

**Aluminium strip:** 1 inch wide. As far as I know it can only be bought in 6 foot lengths. Four strips are required for each box, the length depending on the height required for each box. (The large box I made had 16 inch strips, the small ones 9 inch strips).

**Bolts, wing nuts:** for each box, four 3/8 inches hexagonal headed bolts and washers either 5 inches or 6 inches long. With these are required four of the respective sized wing nuts and eight washers.

**Hop sack:** choose one of medium thickness and of dark material. The sack should obviously have as few holes in as possible.

**Varnish:** any outdoor wood varnish, i.e. the cheapest.

**Screws & nails:** all screws should be steel, brass ones are not strong enough. 12 × 2 inch screws. Ten screws for the lid, size depends on the thickness of the wood used for making the runners, see notes in assembly instructions. 8 × 1 inch nails (panel pins).

## Tools required

The only tools required that might not be found in the ordinary household tool kit (if such a thing exists) are:

- a 3/8 inch bit and a bit the size of the panel pins to be used. Both must be able to drill metal;
- a key-hole saw;
- a stout stapler;
- the availability of an electric drill, although not essential, will save a great deal of time and patience.

## Assembly instructions

The plywood should be sawn into 3 equal parts, 2 foot × 16 foot. Two pieces are used for the top and base of the box, the other piece being spare (but the correct size for constructing your next box, i.e. 2 pieces of plywood make 3 boxes). (Alternatively the base can be made of chipboard, covered with laminate. This can be washed very easily after use).

The hole for the lid should be cut in one of the pieces. This should obviously be large enough for the easy extraction of bird and hand together. I found 5 inch × 8 inch to be suitable. The best method I found of doing this was to mark out the hole, drill a hole with a large bit, then use a key-hole saw.

Next cut the 1 inch × 1 inch timber into 16 inch pieces. The six pieces of wood should now be varnished well, preferably with two coats.

Saw each bolt in half, place the wing nuts on the four bolt halves without heads, and by using a fairly hefty hammer, knarl the ends of the bolts so that the wing nuts cannot come off. They will not now be lost in the field (or mud) whilst in use.

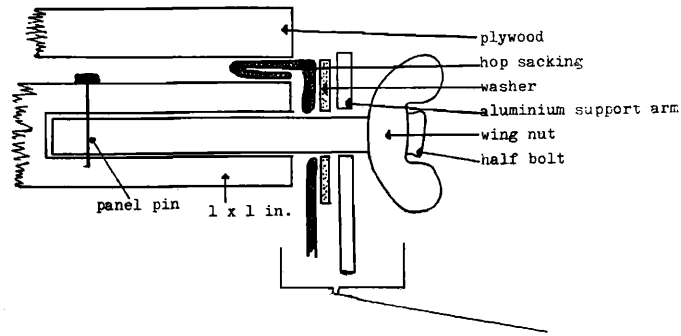
The 16 inch pieces of 1 × 1 should now be drilled at each end with the 3/8 inch bit. It is difficult to get the holes straight and the presence of someone else to guide would be advantageous. The holes need to be of the correct length (of course), two pieces of 1 × 1 will have the head halves of the bolts in either end, the other two the thread halves in either end. The amount of bolt left protruding is important, the diagrams will, I hope, explain.

Cut the aluminium strip into four pieces of the required length. Drill 3/8 inch holes in each end of the four aluminium support arms. Then for each support arm cut out a section from one end, file down the ends and any nasty corners, the aluminium support arms are now complete.

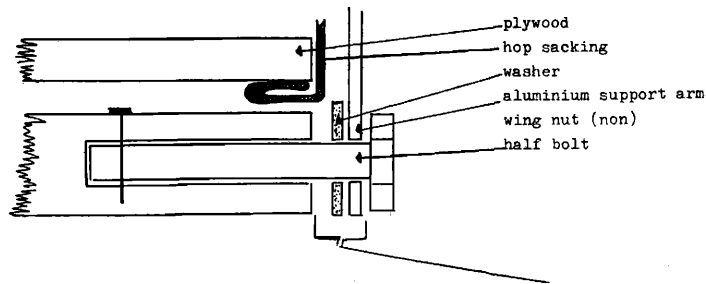
Now is the time to join the bolts and pieces of 1 × 1 inch timber. Before putting the half bolts into the holes in the timber, make sure the washers and aluminium support bars are in their correct positions on the half bolt. It is best to put some glue into the holes in the wood before inserting the half bolts, it gives a stronger finish. Now drill with small bit of panel pin size in the correct position. Try and get the hole through the centre of the half bolt, and then knock the panel pin in place. It is best to have the head of the panel pin in a position where it will eventually be against the plywood; then it cannot come out (figs 1a and 1b).

The hop sack should now be sewn (difficult). Cut a piece 80 inches long, (2 × 16 + 2 × 24) – plus a few inches spare. Its width should be the desired height of the box plus two inches for an attachment hem at top and bottom, i.e. add an extra four inches. Merely sew the two ends together to give a continual band of sack 80 inches long.





**Figure 1a.** Section through top bolt assembly. Protrudence from  $1 \times 1$  inch timber has to be enough for hop sacking, washer, width of aluminium strip and a certain amount of movement of the wing nut along the bolt, approximately 1 inch.



**Figure 1b.** Section through bottom bolt assembly. Protrudence from the  $1 \times 1$  inch in timber has to be enough for the washer and allow some play of the aluminium strip.

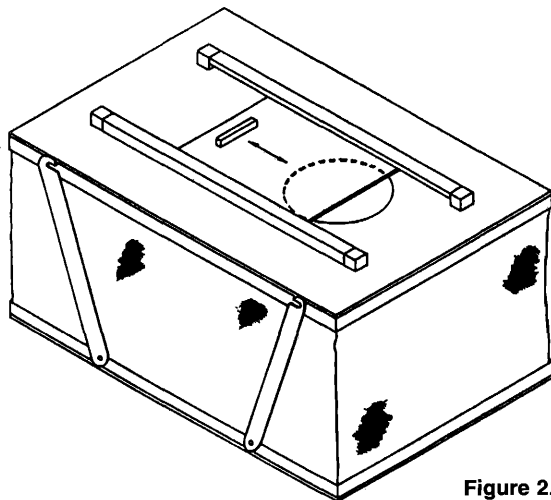
**IMPORTANT:** Before sawing the plywood, mark with a pencil and score along the line on both sides using a sharp knife, the wood should not then splinter as much.

You are ready to put the pieces together.

The  $1 \times 1$  inch pieces are attached by three 1 inch steel screws, these should be countersunk and once in place varnish over the screw heads a couple of times to prevent rusting.

The correct sequence of assembly is important; in fact I doubt very much if you could get the complete lot together in any other sequence.

- Firmly attach the two  $1 \times 1$  pieces with wing nuts to the top piece of plywood.
- Attach the other two pieces of  $1 \times 1$  to the bottom pieces of plywood, but only partially do up the screws as the sacking hem needs to go between the two yet.
- Staple the sacking to top and bottom, if the support arms are fixed in the open position at this stage things may go a little better.
- Now by placing your hand through the hole in the top, whilst holding a screwdriver the two bottom pieces of  $1 \times 1$  can be tightened up, with difficulty.



**Figure 2.** Collapsible carrying/keeping box. Scale: 1:5.

Once all these pieces have been put together all that remains to be done is the making of a sliding lid. For the construction, look at the diagram of a made-up box (fig. 2). If the runner parts are made of thicker wood than the door itself, then it will slide quite easily. Make sure that the screws used do not protrude into the box, or birds may damage themselves on the points.

You are now ready to make another box, aren't you? Have fun.

