B1017: CONTROL TOWER TYPE 4 BUILDING INSTRUCTIONS

Introduction

This model is of a 1960s style concrete control tower. It is approximately 80 metres tall and topped with a large visual control room and surface movement radar.

General Notes

Read the general building instructions, and then these instructions, before commencing construction.

The diagrams always show the unprinted side of the card in grey.

Main Column

The main column is built up from a number of parts, as shown in Fig 1.

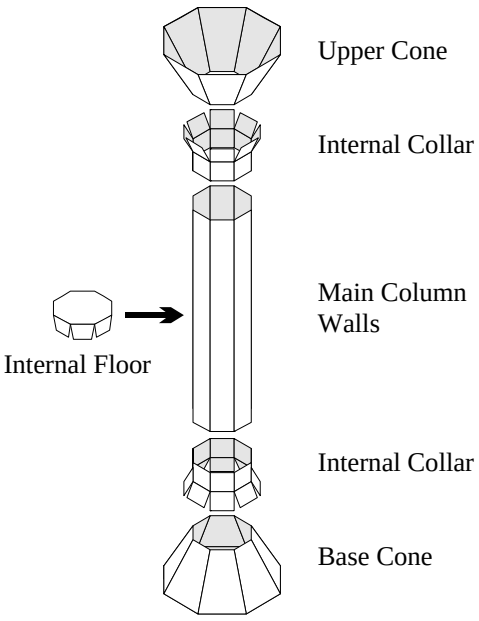

Fig 1 – Main Column Parts

Fold the main column walls and then lay them out flat, printed side down. Draw a feint pencil line straight across the unprinted side, about halfway between the top and bottom edges. This will act as a guide for fitting the internal floor. (One internal floor should be sufficient to make the column rigid, but both may be fitted if preferred, in which case they should be positioned at least a centimetre from the ends of the main column walls.)

Fold down the tabs on the internal floor and glue one tab to the walls, aligning it with the pencil line and making sure that the tab is centred on the wall section (see Fig 2). Fit the internal floor with its tabs pointing towards the bottom end of the walls, so that the top and bottom can be identified later.

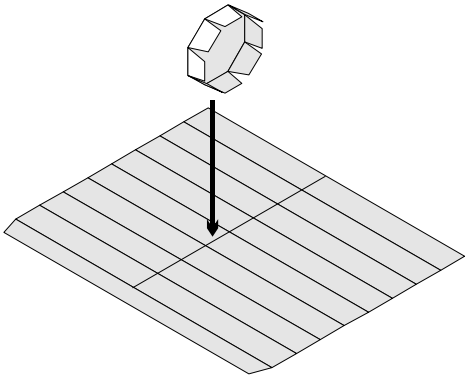

Fig 2 – Fitting the Internal Floor

Working towards the side with the tab, fold the wall sections one by one and glue to the tabs on the internal floor. Keep the internal wall level by aligning it with the pencil line, and ensure that the ends of the walls will be flush at the top and bottom when they meet. Glue the remaining wall sections to the internal floor in a similar manner, and glue the last one to the long tab, so that the column walls form an octagonal cylinder (see Fig 3).

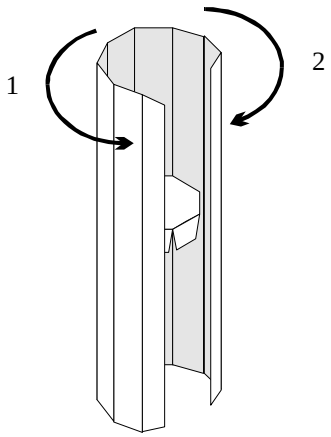

Fig 3 – Gluing Main Column Walls

Fold the base cone to form an octagonal cone shape and glue the tab under the opposite end (see Fig 4).

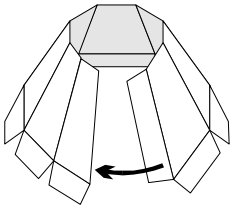

Fig 4 – Folding the Base Cone

Do not fold the tabs around the bottom of the cone at this stage.

Fold and glue the upper cone in a similar manner (see Fig 5).

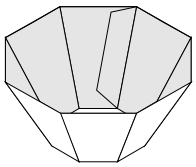

Fig 5 – Upper Cone

Score and cut out the internal collars. Note that each section should be scored halfway and then cut the rest of the way. (The internal collars are used to join the cones to the main column walls from the inside.)

Fold the internal collars to form an octagonal ring, and then fold the "petals" outwards at about 30 degrees (see Fig 6).

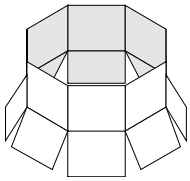

Fig 6 – Internal Collar

Check the fit of the internal collars inside the ends of the main column and trim if necessary.

Apply glue around the inside of one end of the main column walls. Insert one of the internal collars and fix it to the inside of the walls so that the petals protrude from the end.

Repeat with the other internal collar, fitting it to the other end of the column walls. See Fig 7.

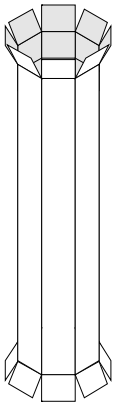

Fig 7 – Main Column Walls with "Petals"

Once the glue is dry, fold the petals straight again. Insert the petals into the hole in the top of the base cone, so that the cone is butted up against the end of the main column walls (see Fig 8).

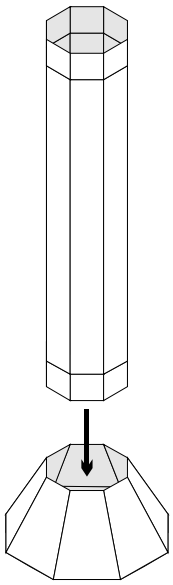

Fig 8 – Fitting Base Cone to Main Column Walls

One by one, glue the petals of the internal collar to the inside of the base cone. Ensure that the cone is held snugly in place against the column walls until the glue is dry. Fig 9 shows the petals fitted to the base cone, as viewed from underneath.

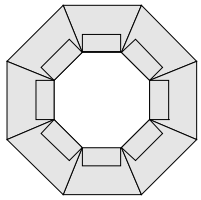

Fig 9 – Internal Collar Fitted to the Base Cone

Fit the upper cone to the main column walls in a similar manner (see Fig 10).

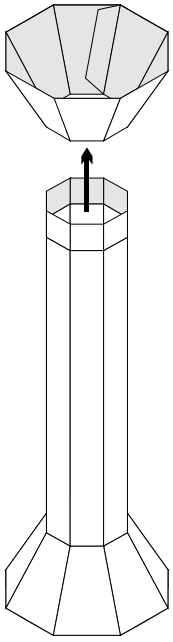

Fig 10 – Fitting Upper Cone to Main Column Walls

Fold in the tabs on the bottom of the base cone (see Fig 11).

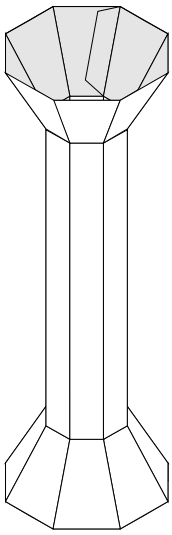

Fig 11 – Completed Main Column

Approach Control Room (ACR)

The approach control room houses the radar controllers. An alternative floor can be used which has a wider balcony with a handrail.

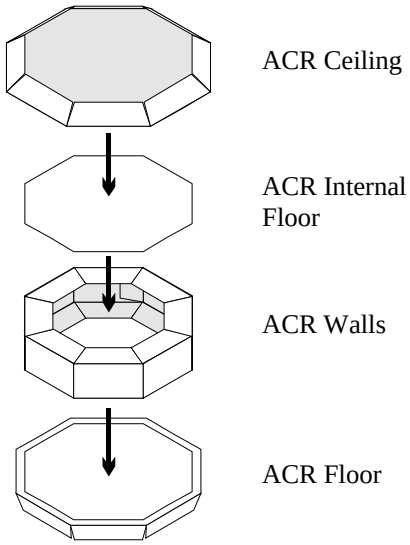

Fig 12 – ACR Parts

Fold the ACR walls around to form an octagonal ring and glue the end tab inside the opposite end. Fold the bottom tabs inwards.

Check the fit of the ACR internal floor inside the walls and trim if necessary.

Apply glue to the top (unprinted) side of the bottom tabs and fit the ACR internal floor (see Fig 13). The internal floor is intended to keep the ACR in the correct shape.

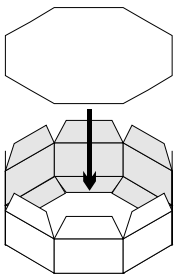

Fig 13 – Fitting ACR Internal Floor

Apply glue to the underneath of the bottom tabs and fit to the printed side of the ACR floor, ensuring that the walls are aligned with the octagon printed on the floor.

Fold down the tabs on the top of the walls and glue them to the printed side of the ceiling, again ensuring that the walls are aligned with the printed octagon.

Fold the tabs around the edge of the ceiling inwards.

The finished ACR should appear as in Fig 14.

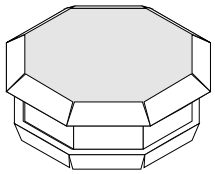

Fig 14 – Completed ACR

Alternative ACR Floor

The alternative floor of the ACR consists of two parts, as shown in Fig 15.

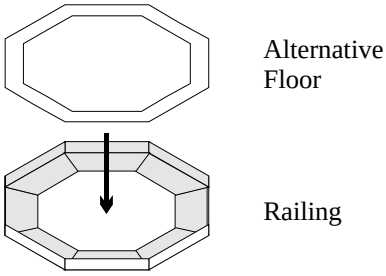

Fig 15 – Alternative Floor Parts

Fold the railing around to form an octagonal ring and then fold the bottom tabs inwards at 90 degrees. One by one, glue the tabs to the bottom (unprinted side) of the alternative floor, with the railing fitting snugly around the edge (see Fig 16).

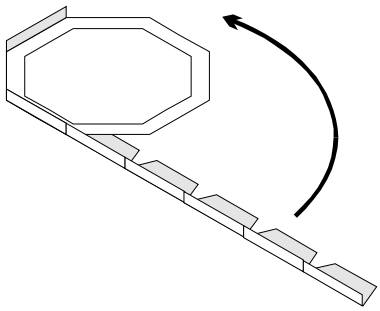

Fig 16 – Fitting the Handrail

Fit the walls to the alternative floor, aligned with the inner-most octagon (see Fig 17).

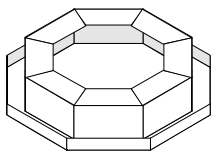

Fig 17 – ACR with Alternative Floor

Complete construction of the ACR as described above, initially by fitting the alternative floor to the top of the ACR floor, ensuring that it is correctly centred.

Visual Control Room (VCR)

The VCR is a glass-sided octagonal room that gives the air traffic controllers an unobstructed view over the aerodrome.

Fold the sides of the VCR frame downwards (see Fig 18a). Push them inwards so that their edges meet, and then fold the bottom tabs flat across the bottom (see Fig 18b).

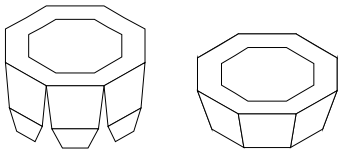

Fig 18 – Folding the VCR Frame

Fold the VCR walls to match the shape of the frame. Glue the first wall section to the frame, ensuring that it is centred and flush with the frame at the top and bottom (see Fig 19).

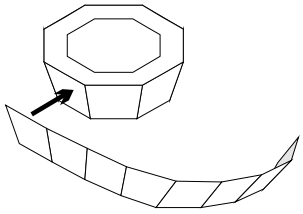

Fig 19 – Fitting the First VCR Wall

Glue the remaining VCR walls to the frame, wrapping them around the frame one-by-one, and ensuring each one is flush at the top and bottom edges (see Fig 20).

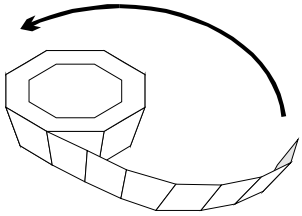

Fig 20 – Fitting the Remaining VCR Walls

Glue the VCR wall joiner on the inside of the VCR frame, to close the gap where the walls meet.

Apply glue to the tabs on the bottom of the VCR and fit to the VCR floor. Ensure that it is centred on the octagon printed on the floor, and that it maintains the correct shape.

Bend the top cone around and glue together with the end tab. Bend the top tabs inwards.

Apply glue to the tabs on the top cone and fit the VCR floor to it. Ensure that the VCR floor is centred and take care not to crush the cone. See Fig 21.

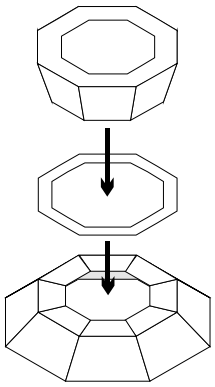

Fig 21 – Fitting the VCR Floor and Top Cone

Apply glue to the tabs on the top of the ACR ceiling and fit the VCR to it (see Fig 22). Ensure that the tabs go inside the top cone and that the VCR assembly is straight and level, and centred on the ACR. Take care not to crush any part of the assembly.

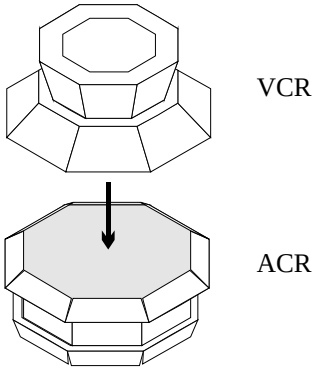

Fig 22 – Fitting the VCR to the ACR

Surface Movement Radar

The surface movement radar consists of an equipment housing and radome which fit on top of the VCR. If these parts cause difficulty during construction, due to their small size, they can be omitted from the model.

The equipment housing is constructed in a similar manner to the VCR. Fold down the sides of the frame and glue the walls around the outside, ensuring they are flush at the top and bottom (see Fig 23).

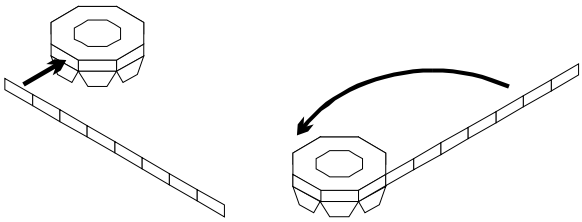

Fig 23 – Fitting the Equipment Housing Walls

Glue the equipment housing wall joiner on the inside of the VCR frame, to close the gap where the walls meet. Fold the bottom tabs inwards at 90 degrees.

Construct the radome in a similar manner (see Fig 24), and fold its bottom tabs inwards.

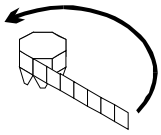

Fig 24 – Fitting the Radome Walls

Apply glue to the tabs around the bottom of the radome and fit to the top of the equipment housing. Then glue the equipment housing to the top of the VCR. See Fig 25.

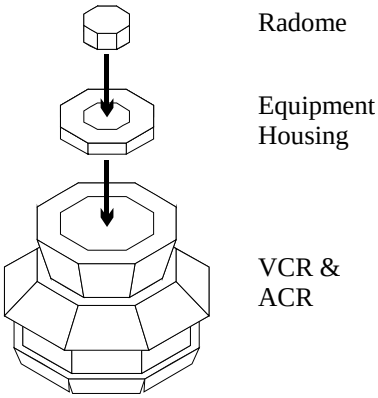

Fig 25 – Fitting the Radar to the VCR

Final Assembly

Apply glue to the tabs on the bottom of the ACR floor and fit into the upper cone (see Fig 26). Ensure that the tabs go inside the upper cone and that the VCR/ACR assembly is straight and level. Take care not to crush any part of the model.

If the alternative ACR floor has been used, the ACR/VCR assembly should be fitted to the upper cone in a similar manner.

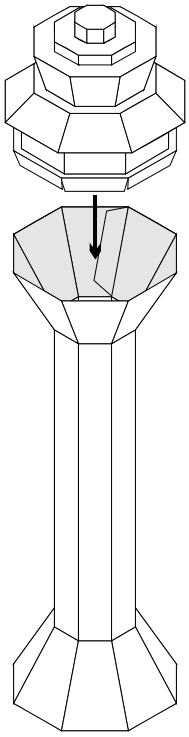

Fig 26 – Final Assembly

Variations

The ACR can be omitted and the VCR fitted to the ACR floor (see Fig 27).

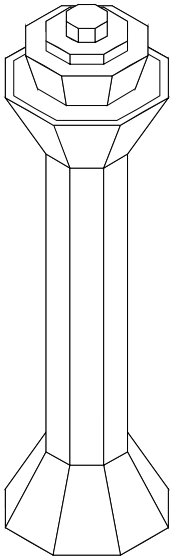

Fig 27 – Tower without ACR