Truck

Finished size
Length: 28cm (11in); width 11.5cm ($4\frac{1}{2}$in); height 20.3cm (8in) including wheels.

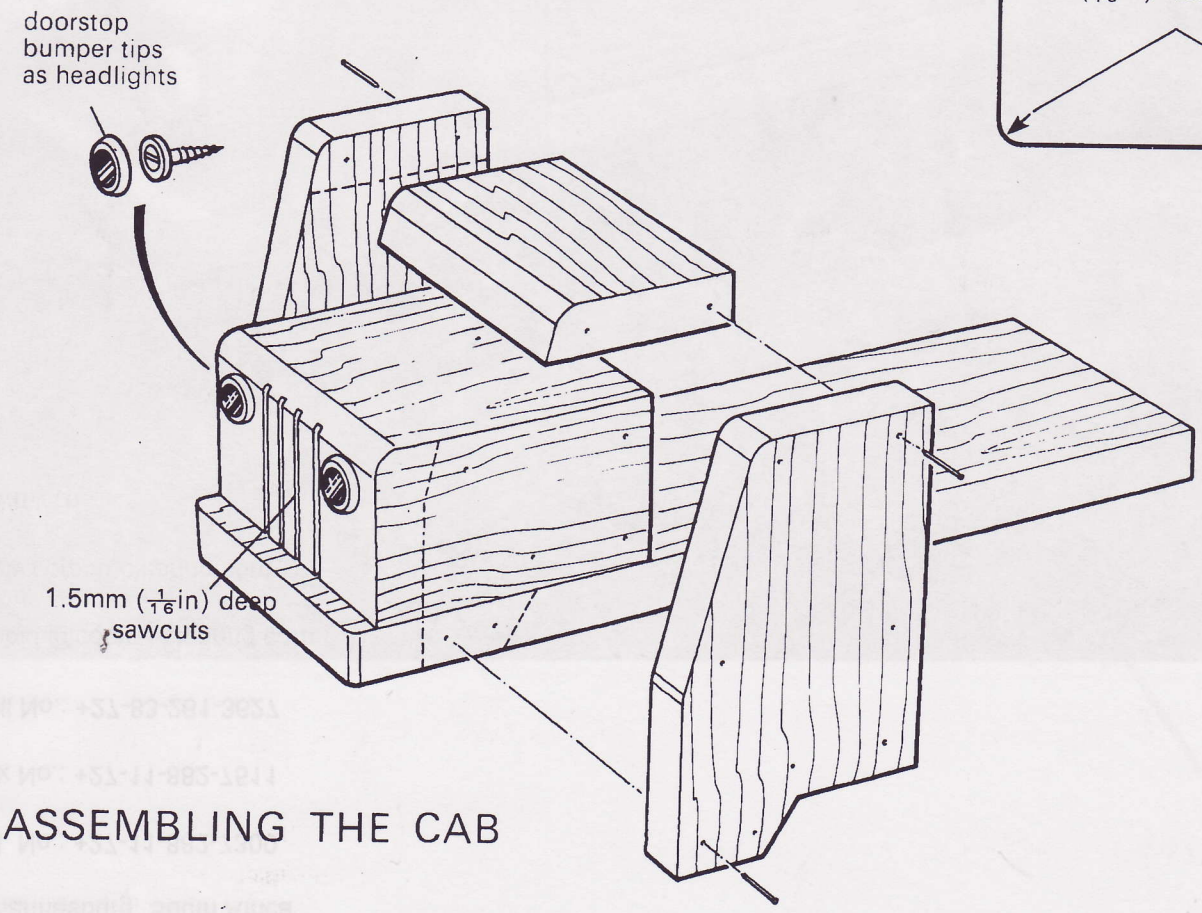
Tools required
Handsaw, tenon saw, try-square, drill and bits, hammer, punch, screwdriver, hacksaw, sanding block, paintbrush.

TRACE PATTERN
1 FOR CAB SIDE

2a CAB ROOF
4.5cm ($1\frac{7}{8}$in)
8.4cm ($3\frac{3}{8}$in)

3 ENGINE BLOCK
7.8cm ($3\frac{1}{8}$in)
8.4cm ($3\frac{3}{8}$in)

2b CHASSIS
3.75cm ($1\frac{1}{2}$in)
25cm (10in)
8.4cm ($3\frac{3}{8}$in)
axle
5mm ($\frac{3}{16}$in) radius
5.6cm ($2\frac{1}{4}$in)



4 ASSEMBLING THE CAB

Techniques involved

Marking out and measuring; sawing; shaping; screwing and gluing; pinning and gluing; wheels; finishing.

Materials

NB All 16mm ($\frac{5}{8}$in) softwood is planed and should have an approximate finished thickness of 13mm ($\frac{1}{2}$in). All these parts can be made from 12mm ($\frac{1}{2}$in) plywood instead.

140cm (55$\frac{1}{8}$in) of 125 × 16mm (5 × $\frac{5}{8}$in) softwood

17.2cm (6$\frac{3}{4}$in) of 3.2 × 2.5cm (1$\frac{1}{4}$ × 1in) softwood

7.8cm (3$\frac{7}{8}$in) of 10 × 2.5cm (4 × 2in) softwood

8.4cm × 5cm (3$\frac{3}{8}$ × 2in) of 6mm ($\frac{1}{4}$in) plywood

64cm (25$\frac{1}{4}$in) of 5cm × 5cm (2 × 2in) softwood

32cm (12$\frac{5}{8}$in) of 5cm × 2.5cm (2 × 1in) softwood

4 × 5cm (2in) diameter plastic model wheels with hub caps

4 steel washers 5mm ($\frac{3}{16}$in) internal diameter

4 × 38mm (1$\frac{1}{2}$in) No. 8 (4.2mm) countersunk woodscrews

4 × 45mm (1$\frac{3}{4}$in' No. 8 (4.2mm) round headed chipboard screws

2 × 19mm ($\frac{3}{4}$in) No. 8 (4.2mm) round headed chipboard screws

2 × 12mm ($\frac{1}{2}$in) No. 8 (4.2mm) countersunk chipboard screws

PVA woodworking adhesive

19mm ($\frac{3}{4}$in) panel pins

12mm ($\frac{1}{2}$in) panel pins

2 No. 8 (4.2mm) plastic screwhead covers

polyurethane lacquer

silver enamel paint

glasspaper.

As an extra surprise, the top of the box body slips off easily to reveal a nest of polished wooden building blocks inside. The thirteen blocks are fashioned in a variety of shapes and sizes to fit exactly into the back of the truck. There are eight square ones and five long ones in different lengths and widths so that they can make different patterns.

Following the full-size plans in fig. 1, trace off patterns for the chassis, cab sides and cab roof. Transfer them on to 12mm ($\frac{1}{2}$in) softwood or plywood and cut out with a hand saw and tenon saw. Round off the corners where indicated using glasspaper, and sand all the edges smooth. Drill 4.5mm ($\frac{3}{16}$in) clearance holes for No. 8 (4.2mm) chipboard screws as indicated in the chassis.

Enlarge the pattern in fig. 3 for the engine block. Transfer on to 10cm × 5cm (4 × 2in) softwood and cut out using a tenon saw. Round off the bonnet as shown using glasspaper. Sand the cut ends smooth. Make four 1.5mm ($\frac{1}{16}$in) deep sawcuts as indicated to form the radiator grille. Drill 12mm deep 1.5mm ($\frac{1}{16}$in) pilot holes for the headlight screws and 16mm deep 1.5mm ($\frac{1}{16}$in) pilot holes for the fixing screws where indicated.

Cut 86mm (3$\frac{3}{8}$in) lengths of 3.2cm × 2.5cm (1$\frac{1}{4}$ × 1in) softwood to form the wheel bearers. Sand the cut ends smooth with glasspaper and drill 1.5mm ($\frac{1}{16}$in) pilot holes 16mm deep at the position indicated. Round or chamfer off the two lower edges. Drill 4.5mm ($\frac{3}{16}$in) clearance holes for No. 8 (4.2mm) fixing screws at the positions indicated.

Take the engine block and one of the wheel bearers. Glue above and below the front end of the chassis using PVA woodworking adhesive. Screw through the holes with 4.5mm (1$\frac{3}{4}$in) round head chipboard screws.

Using PVA woodworking adhesive and 19mm ($\frac{3}{4}$in) panel pins, pin and glue one cab side to the chassis and engine block. Align the back edge of the side with the back of the engine block. Fit the other side of the cab in the same way and pin and glue the cab roof between the tops of the sides. Punch all pin heads below the surface and cover with wood filler. Allow assembly to dry, then sand smooth. Using 12mm No. 8 (4.2mm) countersunk chipboard screws and plastic screwhead cover caps, screw to the front of the engine block to form the headlights.

Making the box

Following the plans in fig. 4, enlarge the patterns for the sides, ends, base and top of the box. Transfer to 12mm softwood or plywood and cut out using a hand saw. Sand all the cut edges smooth and round off the edges of the top as shown. Drill 1.5mm ($\frac{1}{16}$in) pilot holes in the base where indicated. Cut two 8.4cm × 2.4cm (3$\frac{3}{8}$ × 1in) strips of 6mm ($\frac{1}{4}$in) plywood and sand smooth.

Using PVA woodworking adhesive and 19mm ($\frac{3}{4}$in) panel pins, pin and glue the ends of the box between the sides, taking care to keep the assembly square. Pin and glue the base in position. Punch all pin heads below the surface. Allow to dry, then sand smooth.

Pin and glue the two plywood strips to the underside of the lid using 10mm ($\frac{3}{8}$in) panel pins and PVA woodworking adhesive. Punch the pin heads below the surface, cover with filler and sand smooth

Position the box behind the cab. Fix with PVA woodworking adhesive and two 19mm ($\frac{3}{4}$in) No. 8 (4.2mm) round headed chipboard screws driven through the chassis. Glue the rear wheel bearer in position and fasten with two 4.5cm (1$\frac{3}{4}$in) No. 8 (4.2mm) round headed chipboard screws. Sand all surfaces and edges smooth, then finish the entire truck with at least two coats of polyurethane lacquer.

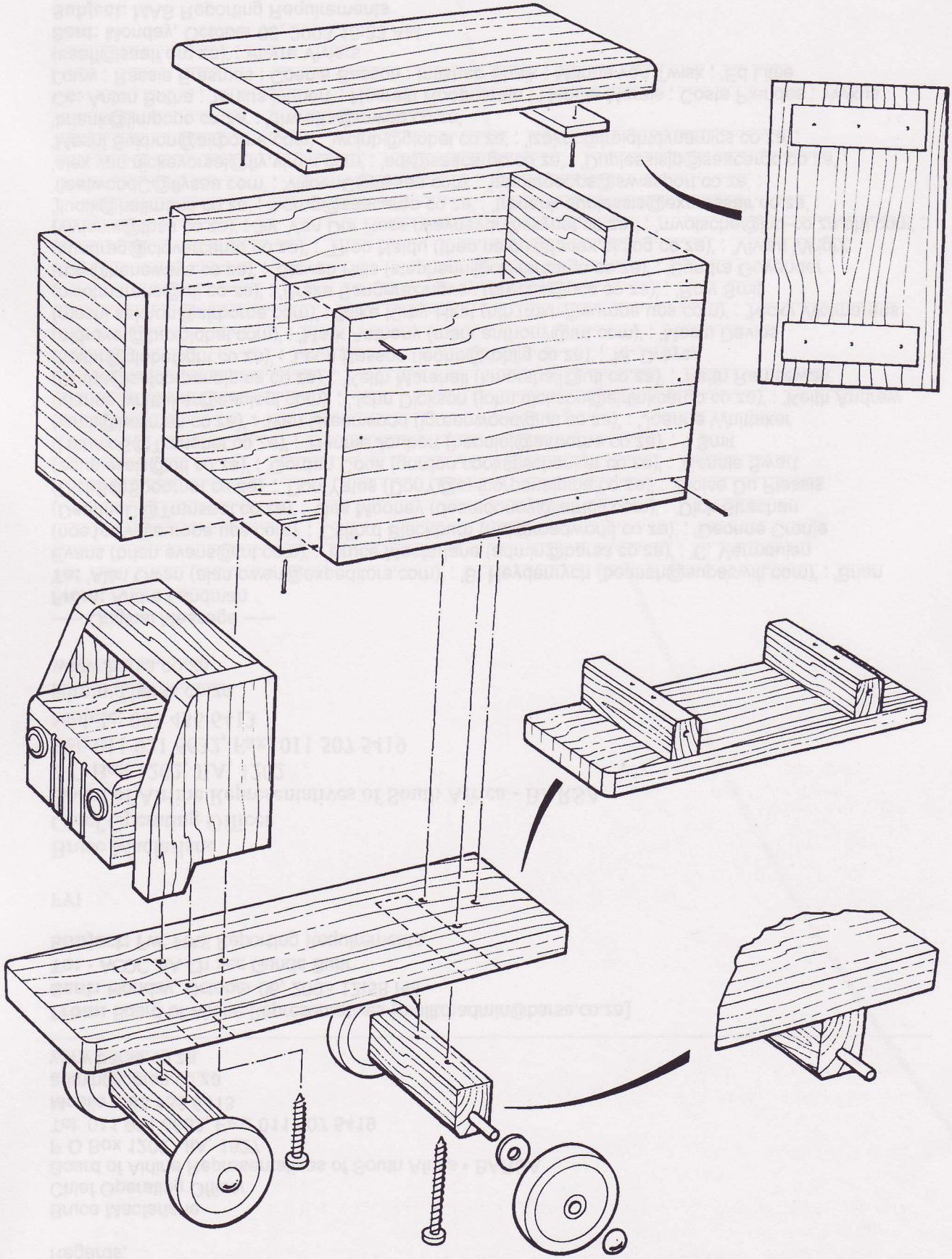
Fixing the wheels

The wheels are 5cm (2in) diameter truck wheels from model or toy shops. If these are not available, you can use 5cm (2in) diameter wooden wheels cut from 12mm ($\frac{1}{2}$in) plywood using a hole saw. These should be fixed with a domed head screw driven through the centre hole.

Drive 3.8cm (1$\frac{1}{2}$in) No. 8 (4.2mm) woodscrews into the ends of the wheel bearers, leaving the shank projecting. A little adhesive smeared on to the thread will provide a more secure fixing. After fitting the screws, cut off their heads with a hacksaw. Fit a washer to each, then slip on the wheels. Retain them with snap or fixing hub caps.

All the blocks are made from lengths of 5cm × 5cm (2in × 2in) or 5cm × 2.5cm (2in × 1in) softwood. In order for the blocks to fit accurately inside the truck, however, these sizes must be trimmed somewhat. This is best done with a plane, but can be done with a planer-file and sandpaper. You will need timber with a finished size of 4cm × 4cm (1$\frac{9}{16}$ × 1$\frac{9}{16}$in) and 4cm × 2cm (1$\frac{9}{16}$ × $\frac{3}{4}$in). Cut to the lengths shown in fig. 5 and sand all edges and surfaces smooth. Finish each block with at least two coats of polyurethane lacquer and allow to dry. Fit the blocks together as shown inside the box and fit the lid in place. It is retained by the two plywood strips.

ASSEMBLING THE TRUCK



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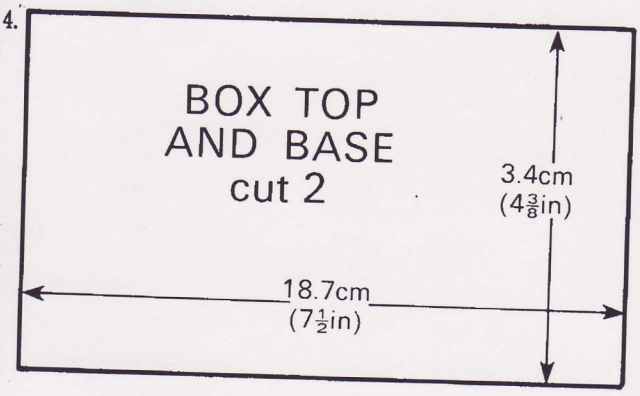

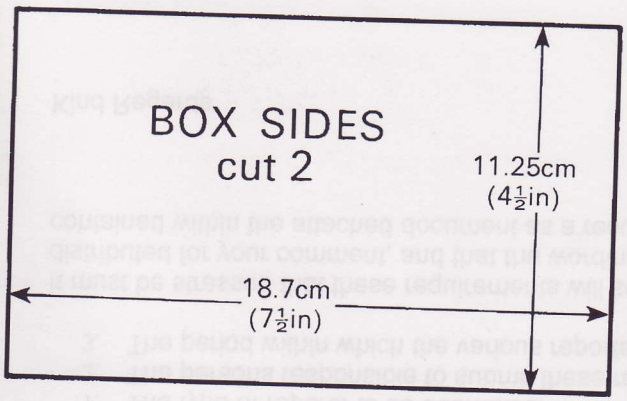

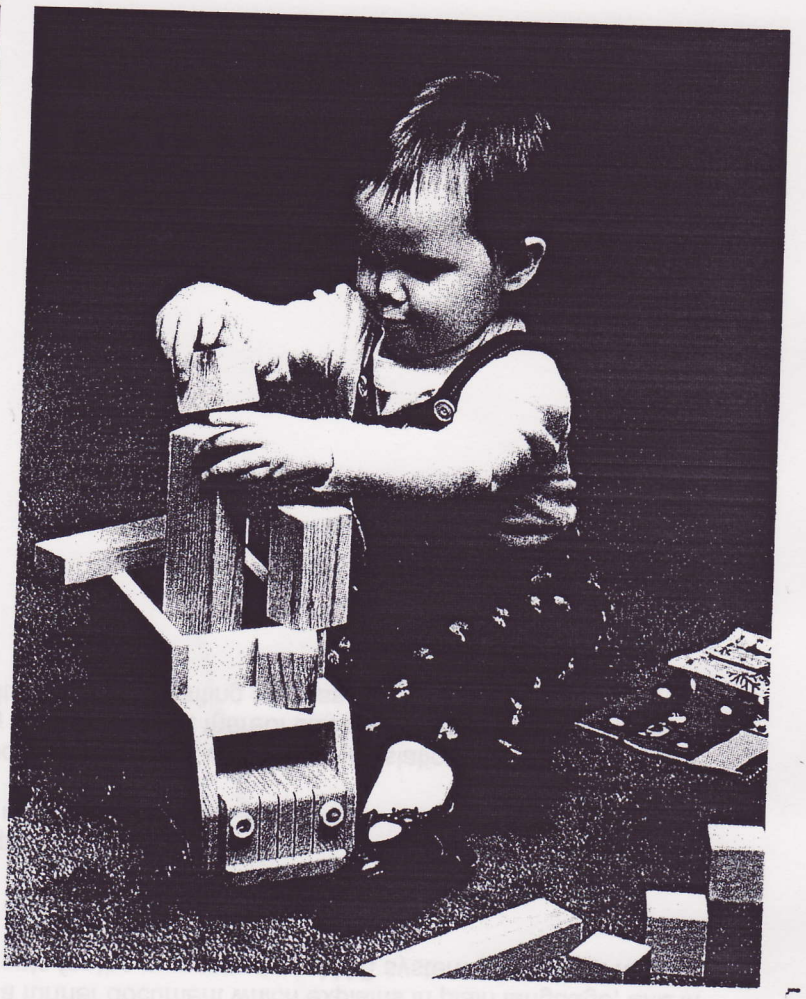

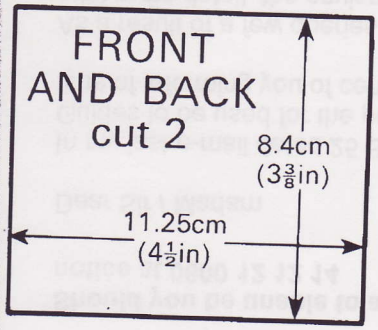

5 ASSEMBLING THE BLOCKS