

Toy Train

MATERIALS LIST

Part	Dimensions	Quantity
Engine		
1. Base	$7/16" \times 2\frac{1}{4}" \times 7\frac{1}{4}"$	1
2. Sides	$7/16" \times 2\frac{5}{16}" \times 2\frac{3}{4}"$	2
3. Front	$7/16" \times 2\frac{5}{16}" \times \frac{7}{8}"$	1
4. Top	$7/16" \times 2\frac{1}{8}" \times 3\frac{1}{2}"$	1
5. Boiler	$1\frac{5}{8}" \text{ dia.} \times 3\frac{9}{16}"$	1
6. Stack	$1\frac{1}{8}" \text{ dia.} \times 1\frac{11}{16}"$	1
7. Horn	$\frac{5}{8}" \text{ dia.} \times 1\frac{1}{8}"$	1
8. Wheels*	$1\frac{3}{4}" \text{ dia.}$	16
9. Axle pegs*		16
Tender		
10. Base	$7/16" \times 2\frac{1}{4}" \times 5"$	1
11. Sides	$7/16" \times 1\frac{5}{8}" \times 3\frac{1}{4}"$	2
12. Front	$7/16" \times 1\frac{5}{8}" \times \frac{7}{8}"$	1
Cars		
13. Bases	$7/16" \times 2\frac{1}{4}" \times 6\frac{1}{2}"$	2
14. Sides	$7/16" \times 1\frac{9}{16}" \times 5\frac{1}{4}"$	4
15. Tops	$7/16" \times 1\frac{7}{8}" \times 6"$	2
Hardware		
16. Hooks**		3
17. Eye screws**		3

*Wheels and axle pegs are available from two sources:

1. Woodworker's Supply of New Mexico, 5604 Alameda Place NE, Albuquerque, NM 87113. Wheel is #110-163, and axle is #110-164.
2. The Woodworkers' Store, 21801 Industrial Boulevard, Rogers, MN 55374. Wheel is #B1463, and axle is #B1471.

**Instead of hooks and eyes, you can use $\frac{1}{2}$ -in.-dia. ceramic magnets, available from Cherry Tree Toys Inc., P.O. Box 369, Belmont, OH 43718. Magnets are #430, and roundhead annular nails to attach them are #410.

I based the design for this train on a toy made in the 1930s. The toy appeared to have been homemade, but I suppose it might have been mass-produced.

A few simple turnings are needed to make the engine, but otherwise the project is straight forward, using only butt joints. The original train was coupled with large hooks and eye screws between the cars, but I suggest substituting the ceramic magnets available from the source given in the Materials List. The magnets are a bit safe and are easier to use for little fingers. The wheels and axle pegs also can be purchased through sources given in the Materials List.

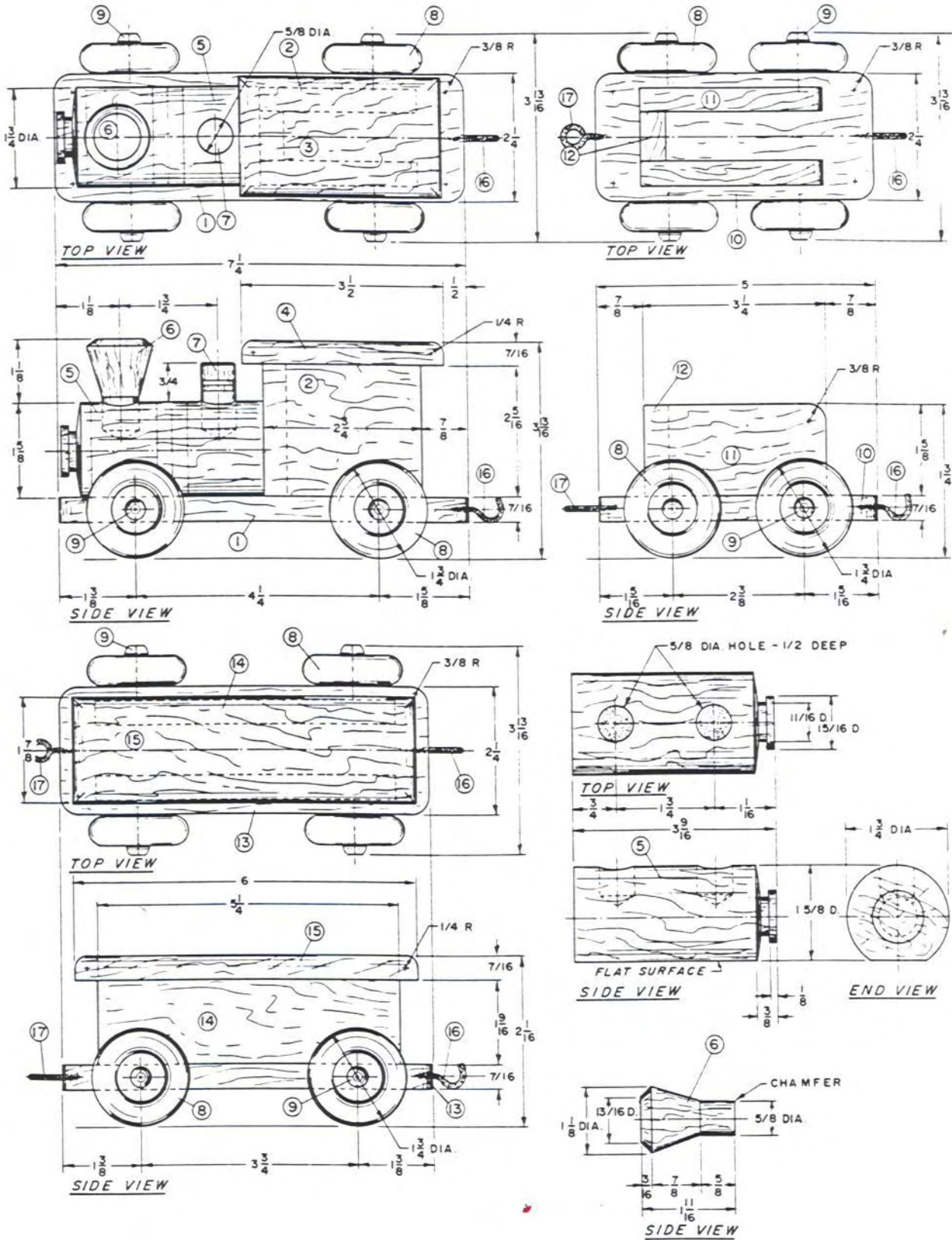
1. Select the stock and cut the parts. Any wood will do for this project. Cut the parts to the sizes given in the Materials List.

2. Turn the engine parts. Turn the boiler (part 5), stack (part 6), and horn (part 7). Lay out and drill the holes in the boiler, as shown in the top view of the boiler. Make the flat spot on the bottom of the boiler by sliding it over sandpaper; take off $\frac{1}{8}$ in. or so, as shown.

3. Drill the axle holes. The trickiest task is to accurately locate and drill the holes for the axle pegs (part 9). The holes must be drilled exactly the same distance from the bottom surface of the bases (parts 1, 10, and 13), or the cars will not all sit on the same level. Use a self-centering doweling jig, if possible. (I didn't, and my string of cars is not level.)

4. Assemble the cars. Assemble the cars, as shown in the exploded view. Round the corners

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as shown. Glue the axle pegs in place, leaving enough space for the wheels to turn freely. If you will be painting the train, do so before adding the axles and wheels.

5. Apply finish. Use bright, cheerful colors of nontoxic paint. Add the hooks and eye screws or the magnets. When attaching the magnets, make sure to have all of the magnets of one pole at the same end of the cars, or the cars won't couple.

