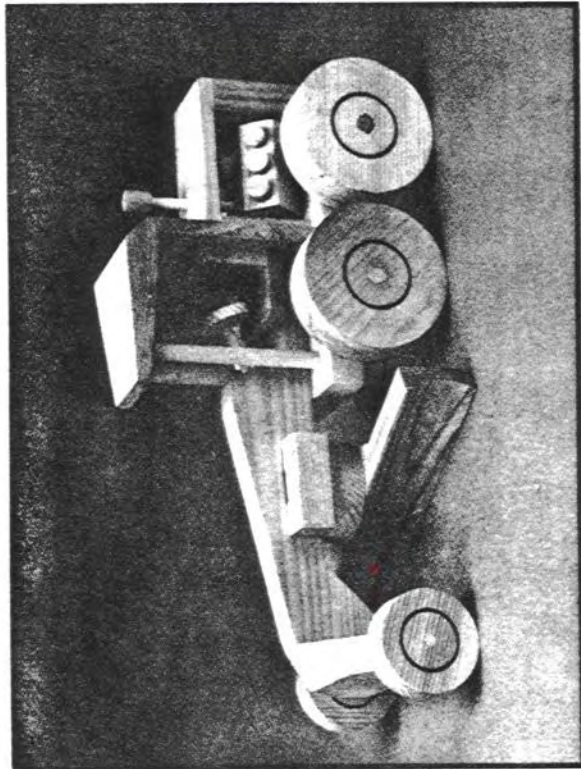


ROAD GRADER

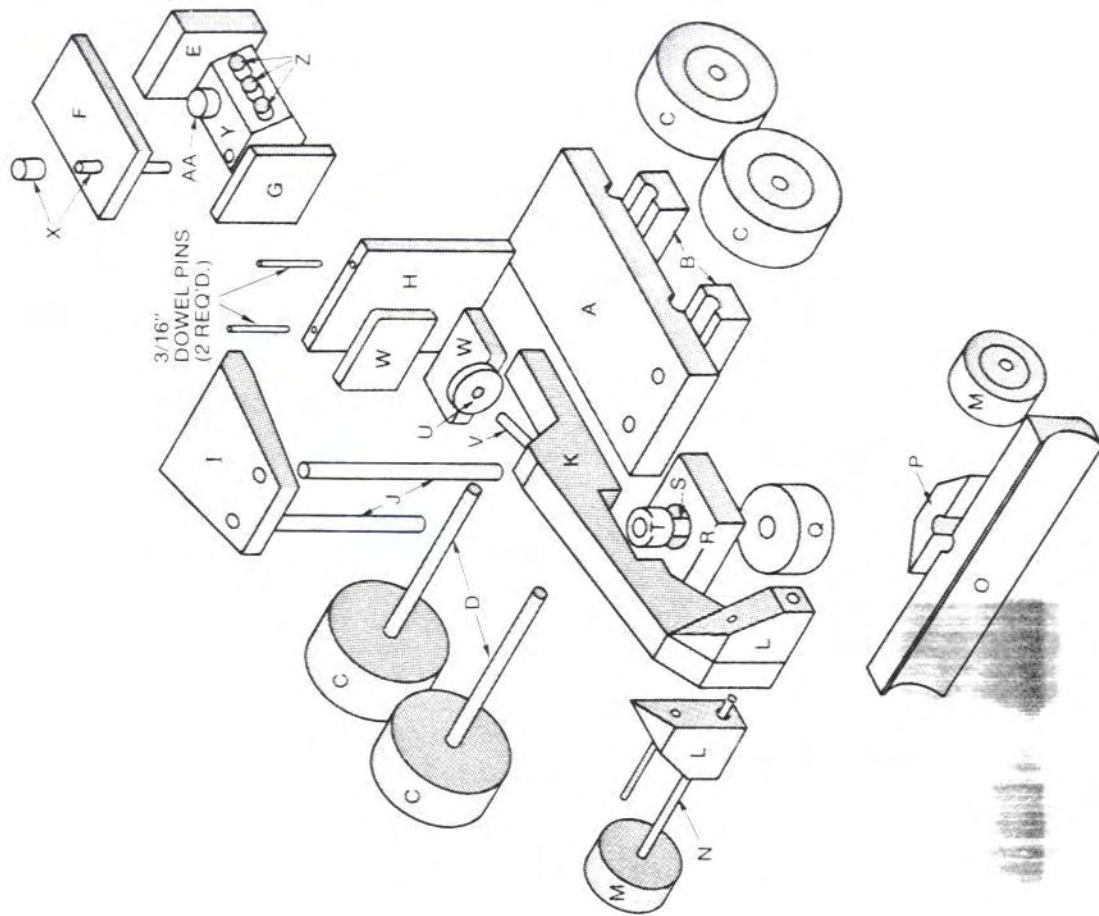


After the bulldozer has cleared a building site, the road grader comes in for the final leveling—just before the final smoothing with the steamroller. This plan for building a road grader has all the right ingredients: simple woodworking, realism, and a lot of playability.

The design features a movable blade that can be positioned straight across or moved to the right or left. Another feature is the optional open-sided engine compartment with the engine visible. Build this engine or just fill in the space with a block of wood.

To get this toy from site to site, build a heavy equipment transporter for it just like the one used for the bulldozer. Follow the plans for the low-boy trailer, but make the trailer floor just a few inches longer.

Read through all the instructions here first to find the sequence for constructing this road grader. And, as with all the toys in this book—enjoy.



rear of the cab roof, drill holes for 3/16" dowels through the roof and cab rear panel. Glue the dowels in place. Since the dowels at the front and rear of the cab roof will protrude, sand them flush once the glue has dried.

6. FRAME

Transfer the design for the frame (K) to the stock and cut out with a bandsaw or scroll saw. Next, take the front axle supports (L) and cut the front profile of these pieces. Glue and clamp the axle supports to the frame. After the glue has dried, drill the 5/16" diameter axle hole as indicated. At the same time, drill a 1/4" diameter hole somewhere

above the axle hole for a reinforcing dowel pin; then, drill the 1/4" diameter steering column hole.

Finally, tilt the bandsaw table 45° and cut the front bevel on the axle supports.

7. BLADE

The blade (O) is made by one of two methods. The first method is to cover the stock using the table saw, a procedure described in many woodworking books. If you elect to cover the blade using the table saw, be careful to follow all of the manufacturer's safety instructions. When coving stock for the road grader, start with a

piece at least 18" long. Cut the stock to length after you've completed the cove.

Another method, one that's much safer, is to use the spindle end of either a hand-held or stationary belt sander. Use coarse sandpaper for this operation and, as in the previous method, begin with stock that's longer than required and cut it to length when the coving has been completed.

Next, take the blade back support (P) and cut bevels on each side of it. Glue the back support to the blade.

NOTE: The bottom of the blade and the back support are still square to provide a firm support for drilling.

After the glue has dried, glue and clamp the blade pivot ring (Q) to the blade assembly. Once the glue has dried, drill the 1/2" diameter hole for the blade pivot pin (S) as shown in the plans.

Complete the blade assembly by cutting or power sanding the bevel on the back of the blade and blade support.

8. SWIVEL ASSEMBLY

The blade on this road grader swivels from side to side. To make the blade swivel, take the blade retaining block (R) and, using a 1" drill bit, drill a hole in the center of the block to a depth of 1/2". Next, drill a 1/2" diameter hole through the

remainder of the stock. Once you've drilled the two holes, take the blade pivot pinlock (T) you made in step 2 and drill out the 1/4" pilot hole to 1/2". Glue the blade pivot pin (S) into the pivot pinlock (T).

Insert the pivot pin assembly (S,T) through the blade retaining block (R), then glue and clamp part R to the frame (K). Be careful not to get any glue in the pivot recess. Once the glue has dried, glue the blade pivot pin (S) into the blade assembly.

9. ASSEMBLY

Begin assembly by gluing the steering column (V) into the frame; then glue the steering wheel (U) to the column. Now glue and clamp the frame to the base. After the glue has dried, drill through the base and frame as indicated for dowel reinforcement. Glue the seat (W) in place and glue the wheels to the axles.

To make the exhaust stack (X), drill a 1/4" diameter hole in the engine hood and into the engine block; then glue the stack into place.

10. FINISHING TOUCHES

If you want to paint this toy, use equipment yellow on the body and inside the wheels. Use black on the wheels, engine, seat, blade, steering wheel, and exhaust stack.

MATERIALS

Part	Description	Pieces	Dimensions (finished dimensions in inches)
A	Base	1	3/4 x 3 x 6-1/2
B	Rear axle holders	2	3/4 x 1 x 3
C	Rear wheels	4	3 dia. x 1-1/8
D	Rear axles	2	3/8 dia. x 5-3/8
E	Engine radiator	1	3/4 x 2 x 2
F	Engine hood	1	3/8 x 2 x 3-1/2
G	Engine hood support	1	3/8 x 2 x 2
H	Cab rear panel	1	3/8 x 3 x 3-1/2
I	Cab roof	1	3/4 x 3 x 3-3/8
J	Cab front supports	2	3/8 dia. x 4-7/8
K	Frame	1	3/4 x 3-1/2 x 9
L	Front axle supports	2	3/4 x 1-1/2 x 2-1/2
M	Front wheels	2	2 dia. x 3/4
N	Front axle	1	1/4 dia. x 5-3/8
O	Blade	1	3/4 x 1-1/2 x 7-1/2
P	Blade back support	1	3/4 x 1-1/2 x 3
Q	Blade pivot ring	1	2 dia. x 3/4
R	Blade retaining block	1	3/4 x 2 x 2-1/4
S	Blade pivot pin	1	1/2 dia. x 2-1/4
T	Blade pivot pinlock	1	7/8 dia. x 1/2
U	Steering wheel	1	1-1/4 dia. x 1/4
V	Steering column	1	1/4 dia. x 2-1/2
W	Seat	1	3/8 x 1-1/2 x 2
X	Exhaust stack	1	3/8 x 1-1/4 x 2
Y	Engine block	1	1/2 dia. x 1/2
Z	Pistons	1	1/4 dia. x 2-1/2
AA	Carburetor/air cleaner	6	1-3/8 x 2-1/4 x 2
AB		1	1/2 dia. x 1/2
AC		1	3/4 dia. x 5/8