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Dave Campbell
Editorial Content Chief, *WOOD* magazine



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Construction-Grade Skid Loader



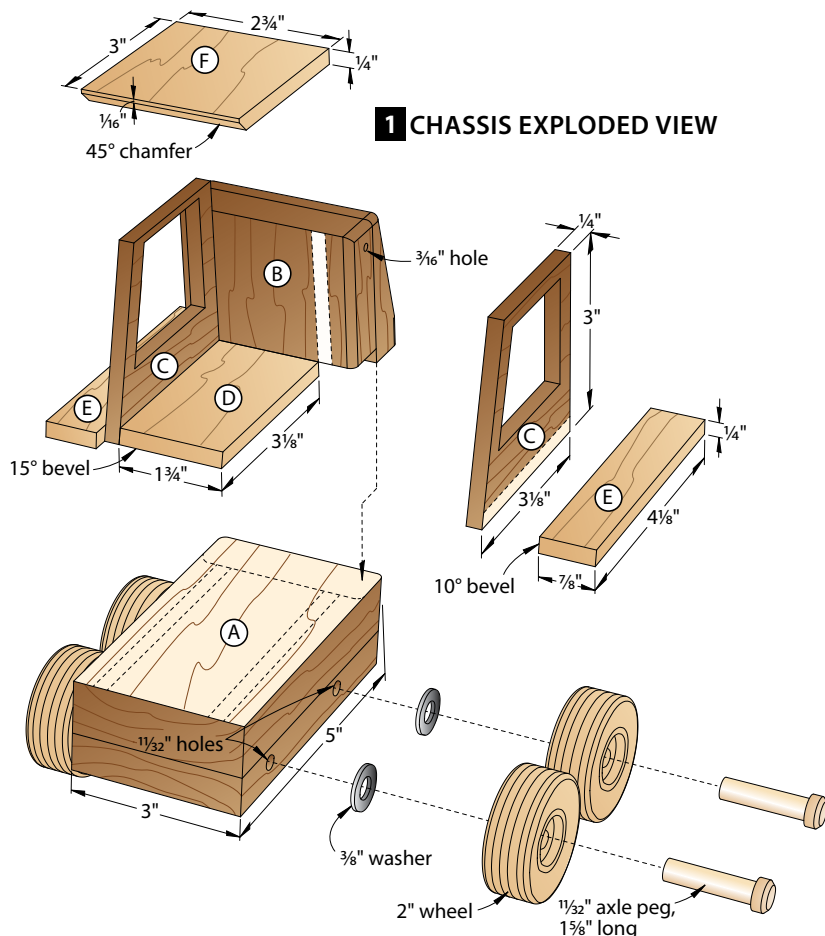
Dimensions: 8"L x 4 $\frac{5}{8}$ "D x 5 $\frac{3}{8}$ "H

From farmyards to building sites, a nimble skid loader squeezes into small spaces for all sorts of jobs: digging dirt, scooping snow, and moving all manner of materials. Just like on the real-life machine, the arms of this tabletop version raise and lower a tilting bucket. If you haven't built any of the toys in our Construction-Grade series (see *page 61*), this would be a good place to start. A kit [**Source**, *page 61*] provides the wheels and the hardware.

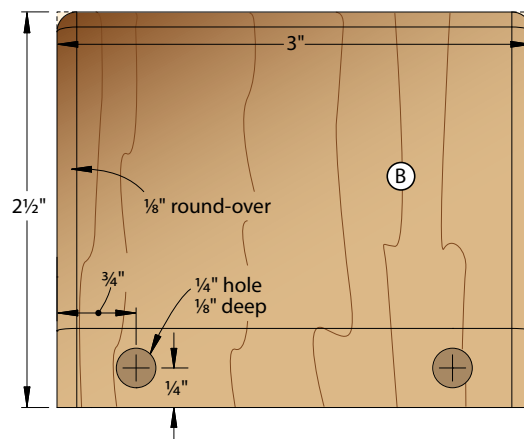
Build the body

1 Laminate two layers of $\frac{3}{4}$ " walnut to prepare a 1 $\frac{1}{2}$ ×3×12" blank. Along the edge of the blank, spray-adhere photocopies of the **Chassis Pattern** and **Engine Compartment Side-View Pattern** on *page 62*. Drill the $\frac{1}{32}$ " and $\frac{3}{16}$ " holes where shown, then crosscut the chassis (A) and engine compartment (B) from the blank. Miter each end of the chassis at 10°, following the lines on the pattern.

2 With a $\frac{1}{4}$ " Forstner bit, drill two holes $\frac{1}{8}$ " deep in the rear face of the engine compartment (B) [**Drawing 1a**]. Set your tablesaw blade $\frac{3}{4}$ " above the table and, with several passes, cut a notch in the engine compartment where shown on the pattern. Then bandsaw the taper along the rear face, and rout $\frac{1}{8}$ " round-overs where shown. Remove the patterns from the chassis (A) and engine compartment, sand the parts to 220 grit, then glue the parts together [**Drawing 1**].



1a ENGINE COMPARTMENT (Back view)



Get a load of the arms

1 Prepare two 1/4 x 2 1/2 x 5 7/8" maple blanks for the loader arms (G). Spray-adhere a **Loader-Arm Pattern** to one blank, stack them together, and drill the 3/16" holes where shown. Scrollsaw, or bandsaw, and sand the arms to shape.

2 Cut the cross brace (H) to size, adhere the **Cross-Brace Pattern** to it, and scrollsaw and sand it to shape. Rout the chamfers on the loader arms (G) and cross brace where indicated, then sand the parts to 220 grit.

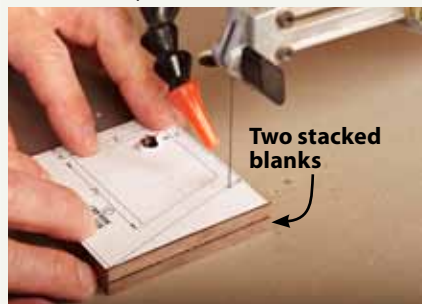
3 For the joint plates (I), prepare two 1/8 x 3/4 x 6" walnut blanks and stack them together with double-faced tape, keeping their ends and edges flush. Spray-adhere two copies of the **Joint-Plate Pattern** to the stack and scrollsaw the joint plates to shape. Remove the patterns and separate the plates. Finish-sand them to 220 grit, then glue them to the loader arms (G), with the upper edge of the joint plates aligned with the lower edge of the chamfer [Drawing 2].

3 From 1/4" stock, cut the cab sides (C) to size [Drawing 1]. Spray-adhere a copy of the **Cab-Side Pattern** to a blank [Shop Tip, below], and scrollsaw and sand the cab sides to shape. Drill a starter hole in the cab-side window and scrollsaw the window. Then remove the pattern and finish-sand the cab sides to 220 grit.

SHOP TIP

Stack-cut identical parts in no time

To make identical parts, such as the cab sides (C), loader arms (G), joint plates (I), and bucket sides (K), stack the blanks together with double-faced tape. Then cut and sand them to shape at the same time. Before separating the parts, dribble lacquer thinner into the seam to dissolve the tape adhesive.

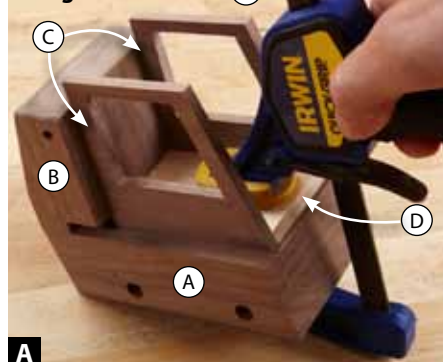


4 Cut the cab base (D) and fenders (E) to size, beveling their front ends [Drawing 1]. Glue the cab base between the cab sides (C). When this assembly has dried, glue it to the chassis (A), centered side-to-side [Photo A]. Then glue the fenders (E) to the chassis, butted against the cab sides and seated in the engine-compartment (B) notch.

5 Cut the roof (F) to size and chamfer the front end [Drawing 1]. Sand the roof to 220 grit, then set it aside.

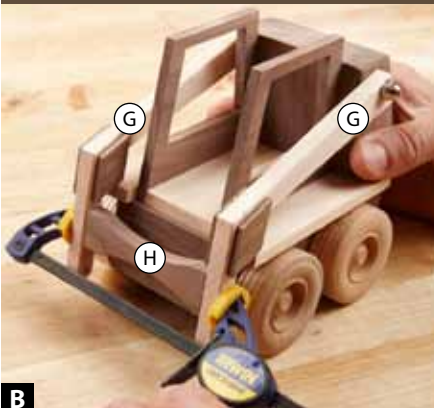
GLUE THE CAB TO THE CHASSIS

No glue on ends of (C).



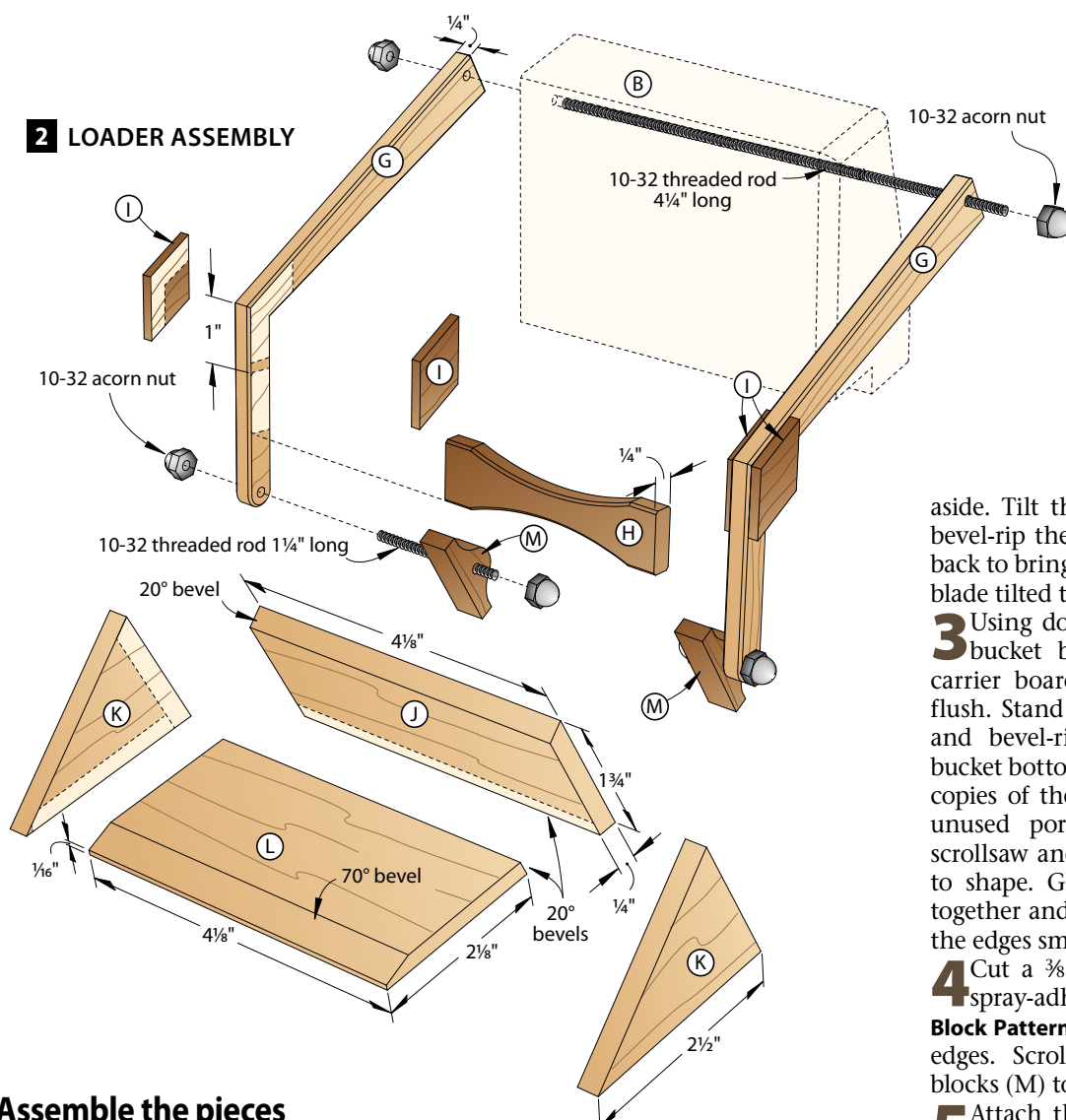
Apply glue to the bottom of the cab (C/D) but not the ends of the cab sides (C) to allow the engine compartment (B) to expand and contract.

INSTALL THE CROSS BRACE



Glue the cross brace (H) 1" below the corner of the arms (G). After clamping, lower the arms to rest on the bench to keep them even.

2 LOADER ASSEMBLY



Assemble the pieces

1 Dry-fit the wheels and axle pegs to the chassis (A) [Drawing 1]. Cut a 4 1/4" length of 10-32 threaded rod and attach the loader arms (G) to the engine compartment (B) [Drawings 2, 3]. Secure the rod with acorn nuts. Glue the cross brace (H) between the arms [Photo B].

2 To make the bucket back (J), sides (K), and bottom (L), bevel-rip at 20° one edge of a 1/4 x 2 1/4 x 14" maple blank. Return the blade to 90°, crosscut the bucket back and bottom to length [Drawing 2], and set the rest of the blank

aside. Tilt the blade to 20° again, and bevel-rip the square edge of the bucket back to bring it to final width. Leave the blade tilted to 20° for the next step.

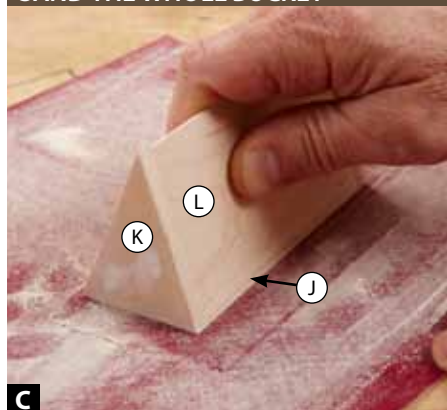
3 Using double-faced tape, attach the bucket bottom (L) to a 3/4 x 3 x 12" carrier board with their square edges flush. Stand the carrier board on edge, and bevel-rip the front edge of the bucket bottom [Drawing 2]. Spray-adhere copies of the **Bucket-Side Pattern** to the unused portion of the blank; then scrollsaw and sand the bucket sides (K) to shape. Glue and clamp the bucket together and, when the glue dries, sand the edges smooth and flush [Photo C].

4 Cut a 3/8 x 1 1/2 x 2" walnut blank and spray-adhere two copies of the **Pivot-Block Pattern** to it, aligned on opposite edges. Scrollsaw and sand the pivot blocks (M) to shape.

5 Attach the pivot blocks (M) to the arms (G) with threaded rod and acorn nuts [Drawings 2, 3]. Apply glue to the flat faces of the pivot blocks, and press the bucket (J/K/L) against them, centered [Photo D].

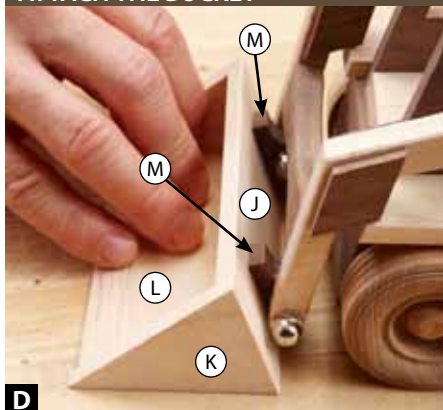
6 Retrieve the roof (F) and glue it to the cab sides (C), centered [Photo E].

SAND THE WHOLE BUCKET



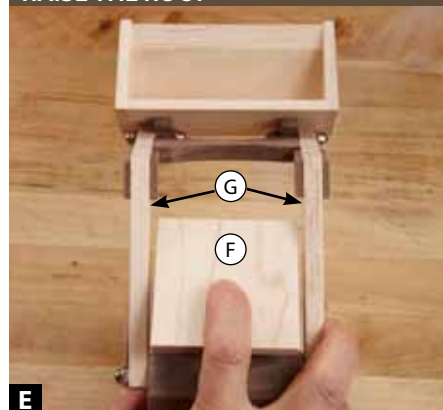
C Lay a piece of 220-grit sandpaper on your bench and sand the edges of the bucket sides (K) flush with the faces of the back (J) and bottom (L).

ATTACH THE BUCKET



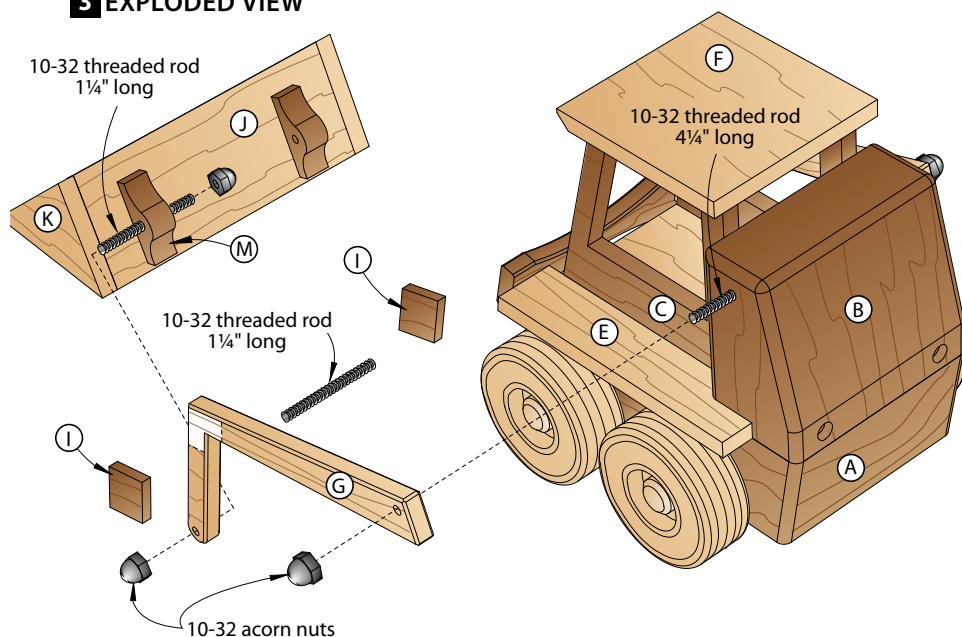
D Hold the bucket (J/K/L) against the pivot blocks (M) for 2 minutes, then let the assembly sit undisturbed while the glue dries.

RAISE THE ROOF



E After gluing the roof (F) in place, raise and lower the loader arms (G) to ensure they clear the sides of the roof.

3 EXPLODED VIEW



7 After the glue dries, remove the hardware, tape off the tapered ends of the axle pegs, and apply a finish. (We sprayed on three coats of satin polyurethane, buffing lightly between coats with a 320-grit sanding sponge.) After the finish dries, remove the tape

and reassemble the skid loader, gluing the axle pegs in place. Use a drop of blue thread locker on each acorn nut. 🌲

Produced by **Craig Ruegsegger** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Lorna Johnson**

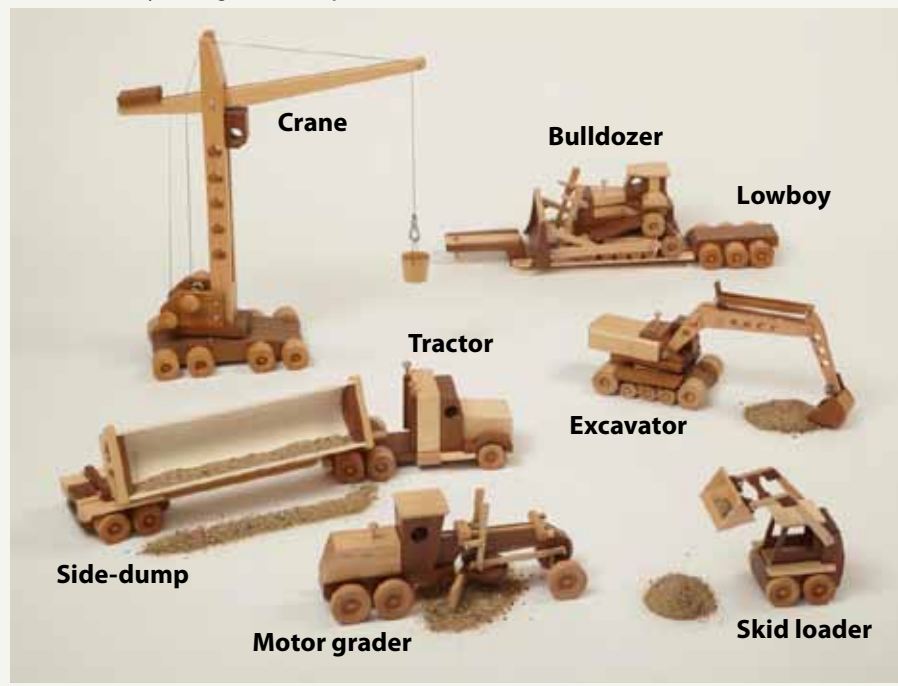
Build the whole set

With this skid loader, the Construction-Grade toy collection, shown *below*, expands to eight pieces. The crane (issue 185, September 2008) lifts and lowers its bucket and spins. Reach and scoop with the articulated boom of the excavator (issue 194, November 2009). Move dirt around with both the bulldozer (issue 199, September 2010) and motor grader (issue 208, November 2011). For heavy hauling, the tractor pulls both

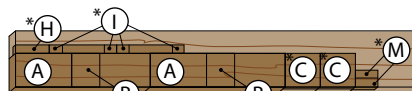
the side-dump and lowboy trailers. (Find all three pieces in issue 205, July 2011.) The bulldozer, excavator, motor grader, and skid loader each fit on the lowboy.

If you don't own these issues, you can download plans for these projects for a small fee at woodmagazine.com/cgtoys.

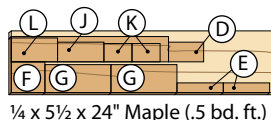
And there's more: Look for plans for a dump truck in a future issue.



Cutting Diagram



3/4 x 5 1/2 x 36" Walnut (1.5 bd. ft.)
*Plane or resaw to the thicknesses listed in the Materials List.



Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
Chassis and cab					
A* chassis	1½"	3"	5"	LW	1
B* engine compartment	1½"	3"	2½"	LW	1
C cab sides	¼"	3"	3⅝"	W	2
D cab base	¼"	1¾"	3⅝"	M	1
E fenders	¼"	⅞"	4⅝"	M	2
F roof	¼"	2¾"	3"	M	1
Loader/bucket assembly					
G* arms	¼"	2⅝"	5¾"	M	2
H cross brace	¼"	¾"	3"	W	1
I* joint plates	⅛"	¾"	1¼"	W	4
J* bucket back	¼"	1¾"	4⅝"	M	1
K* bucket sides	¼"	1⅝"	2½"	M	2
L* bucket bottom	¼"	2⅝"	4⅝"	M	1
M* pivot blocks	⅜"	½"	1¼"	W	2

*Parts initially cut oversize. See the instructions.

Materials key: LW—laminated walnut, W—walnut, M—maple.

Supplies: Double-faced tape, spray adhesive, blue thread locker.

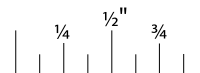
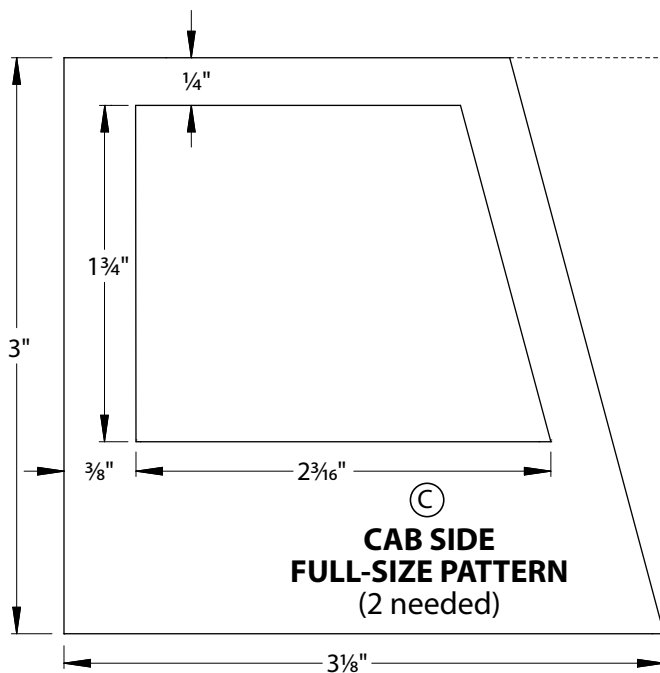
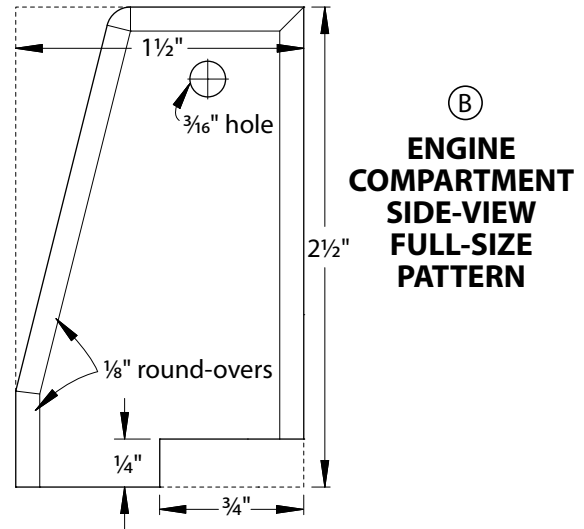
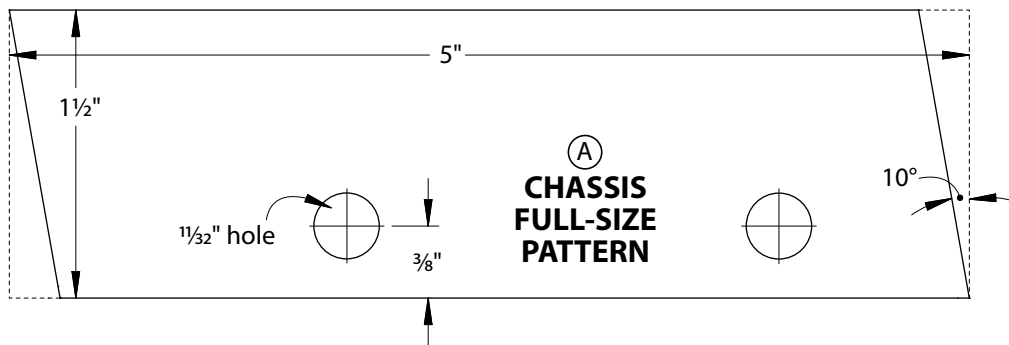
Bits: 45° chamfer, 1/8" round-over router bits; 3/16", 1/32" drill bits; 1/4" Forstner bit.

Source

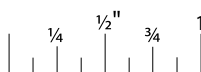
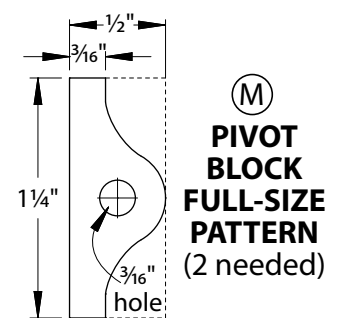
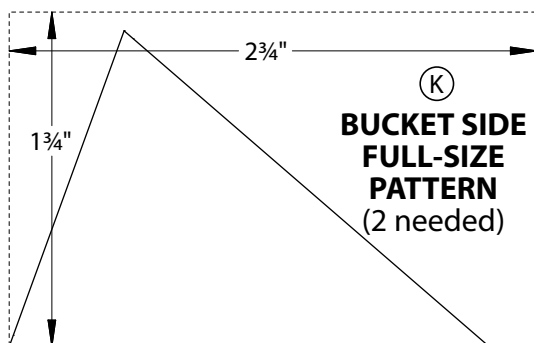
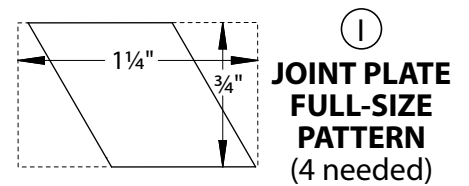
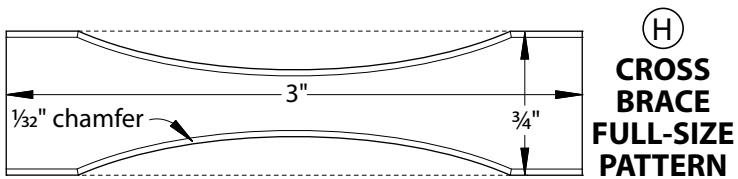
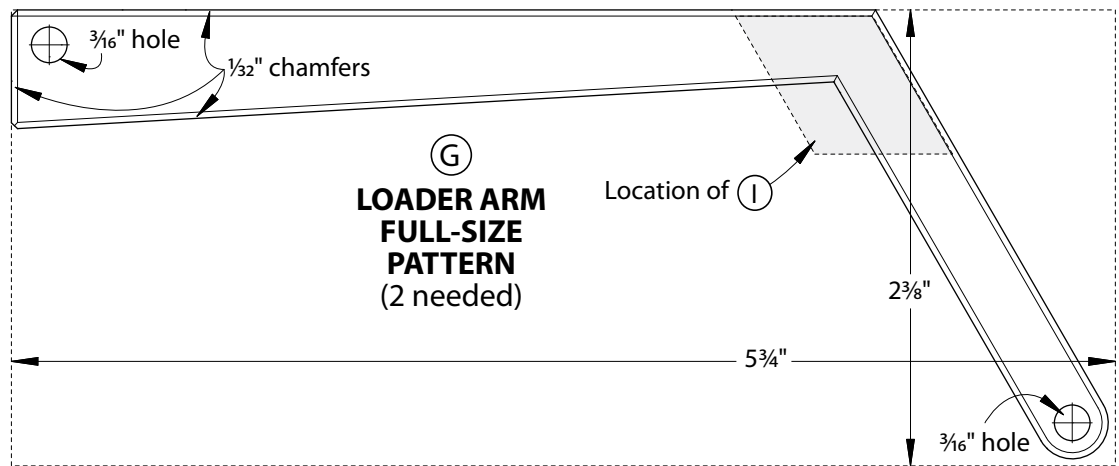
Hardware kit: Each kit contains 2" wheels (4), 1 1/8" axle pegs (4), 3/8" washers (4), 10-32 x 12" threaded rod, 10-32 acorn nuts (6). Order kit RS-00922, woodmagazine.com/skidloader

More Resources

- ▶ Get a free plan for a jig to help rout small parts safely on the router table: woodmagazine.com/routsmall
- ▶ Cut small parts safely on the tablesaw with these free tips: woodmagazine.com/sawsmall



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