Stake-supported split air-layer cradle

Support a small air-layer package in a book-opening cradle so its moist medium does not hang entirely from a slender branch. Two halves open around the still-attached stem.

Capacity and fit

One sealed rooting package no more than 3 1/4 in wide and 4 3/4 in high, around a stem no more than 3/8 in (9.5 mm) diameter. Top opening 3 1/2 in square; bottom stem opening 1 in square. Support comes from a separate ground stake, not a tight branch tie.

Limits

This cradle does not prescribe girdling, hormones, medium or rooting time; select an appropriate species and propagation protocol.

The branch must remain free within the stem opening. Do not suspend the cradle by the stem or tighten straps around living bark. No wind or load rating.

Finished component envelope

5 x 5 x 5 3/4 in / 127.0 x 127.0 x 146.0 mm (x, y, z). Solid-part envelope; operating sweep and loose purchased accessories excluded. Axes: x left-right, y front-back, z up.

Cut list - actual dimensions

Part / quantity	Finished L x W x T / material
P01 / Front lower half / 1	5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm. Exterior plywood actual 3/8 in
P02 / Rear lower half / 1	5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm. Exterior plywood actual 3/8 in
P03 / Front upper half / 1	5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm. Exterior plywood actual 3/8 in
P04 / Rear upper half / 1	5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm. Exterior plywood actual 3/8 in
P05 / Upright / 8	5 x 3/4 x 3/4 in / 127.0 x 19.0 x 19.0 mm. Untreated pine; nominal 1x.

Hardware and consumables

- Sixteen #6 x 1 in wood screws and exterior wood glue for post ends

- One 5 in piano hinge no wider than 1 1/2 in open, with six #6 x 3/8 in screws

- One small draw latch with four #6 x 3/8 in screws; latch open and closed sweep must clear the rooting package

- Two 12 in web straps with cam buckles; one separate sound garden stake appropriate to the site

- One purchased or prepared sealed air-layer package to the capacity envelope

Tools

Tape measure and combination square; Pencil, clamps and safety glasses; Saw with wood blade; drill/driver and piloting bits; 120- and 180-grit abrasive; Jigsaw or coping saw.

Fastener direction and joint schedule

- Post screws cross 3/8 in plate and enter the 5 in post 5/8 in. Hinge and latch screws enter only 3/8 in into 3/4 in post thickness; mark their positions to avoid the vertical post-end screws.

Build sequence

01. Cut the four half-plates. Mark front and rear mating edges before cutting any openings so opposite notches face one another.

02. Cut the 1 x 1/2 in notches in the lower halves. Closed together, they must form one centered 1 x 1 in stem opening.

03. Cut the larger upper notches. Leave 3/4 in-wide side and outer rails; closed together they form a 3 1/2 in square opening.

04. Cut eight 5 in posts. Dry-fit four posts in each half at its two outer corners and two mating-edge corners.

05. Glue and screw each half-plate to its posts, using one 1 in screw centered in every post end. Clamp the two subassemblies square while the glue cures.

06. Stand halves closed and align their mating edges. Fit the vertical piano hinge on the left pair of center posts, knuckle outside x = 0; use six 3/8 in screws.

07. Fit the draw latch on the right center posts. Cycle the empty cradle through opening and closing without forcing the thin upper rails.

08. Install the separate stake first, clear of major roots. Strap the rear cradle half to it at two heights, with the base supporting the package rather than the stem.

09. Open the front half around the attached stem and place the sealed package inside. Verify clearance at both openings before latching.

10. Observe through a normal day and after watering. Reposition the stake or cradle if the package sags, the stem touches an opening edge or straps loosen.

Acceptance checks

- Hinge axis is vertical; both halves open around the stem without lifting it.

- Minimum 5/16 in clearance per side around a centered 3/8 in stem in the 1 in lower opening.

- Stake straps carry the cradle; no tie encircles living bark and no latch edge contacts the rooting package.

Use

- Open only while supporting the package by hand. Inspect moisture through its own wrapping; the cradle does not seal or irrigate it.

Care

- Remove after the propagation operation. Dry the wood, check thin upper rails for cracks and replace worn straps or corroded hinge parts.

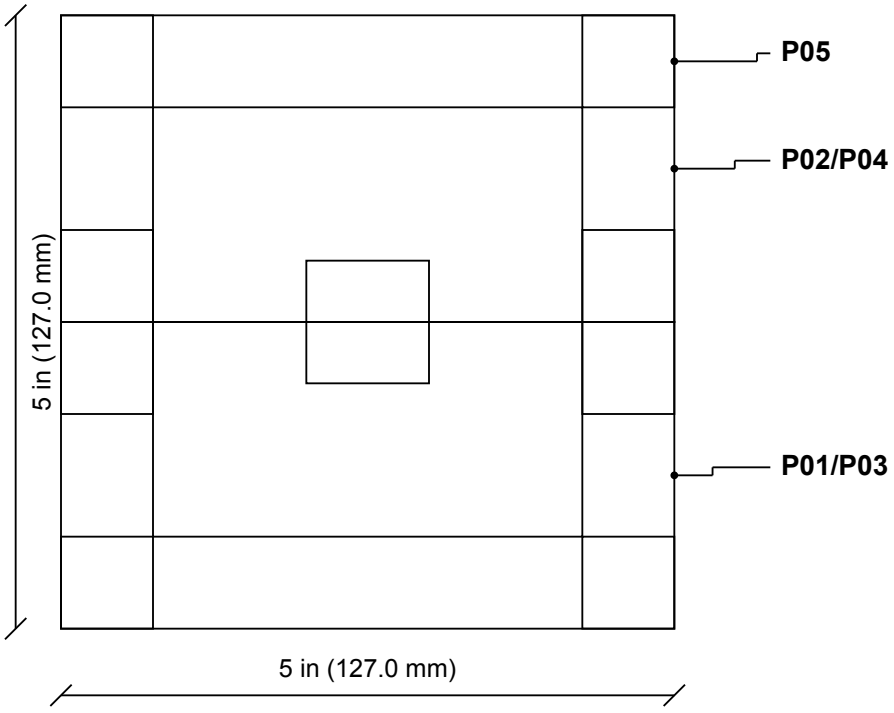
Primary context sources

University of Florida IFAS: Air Layering. Air-layer packages remain attached to the parent until rooting; crop method must be chosen separately.

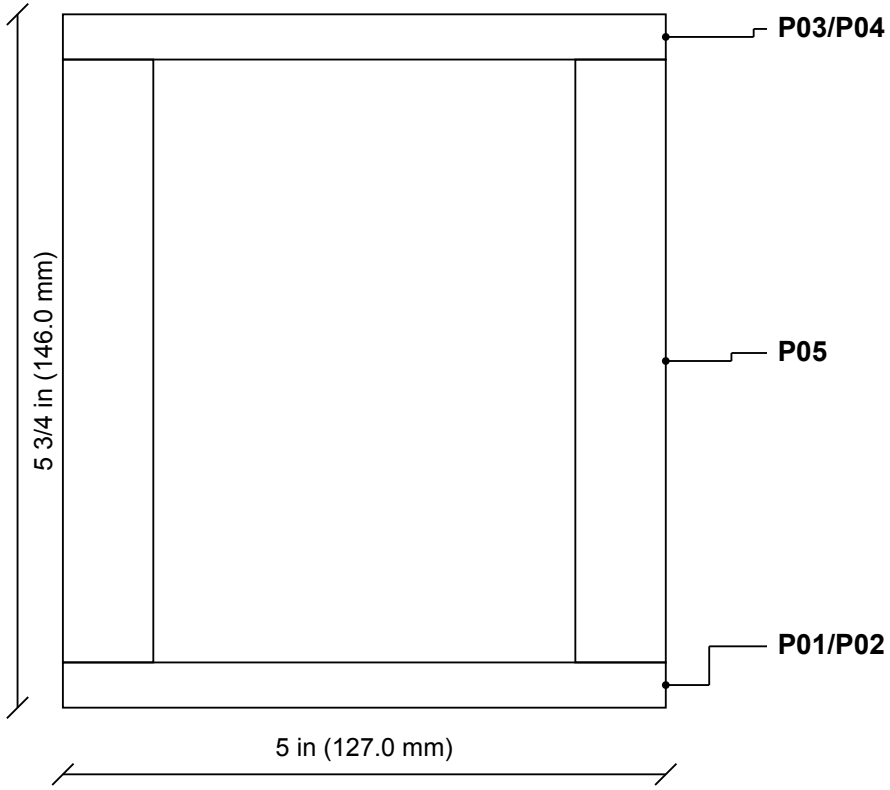
OR-002 / ASSEMBLY VIEWS

Combined tags mark coincident profiles. Repeated members share one callout. P-numbers match the cut list.

PLAN / x-y



FRONT / x-z

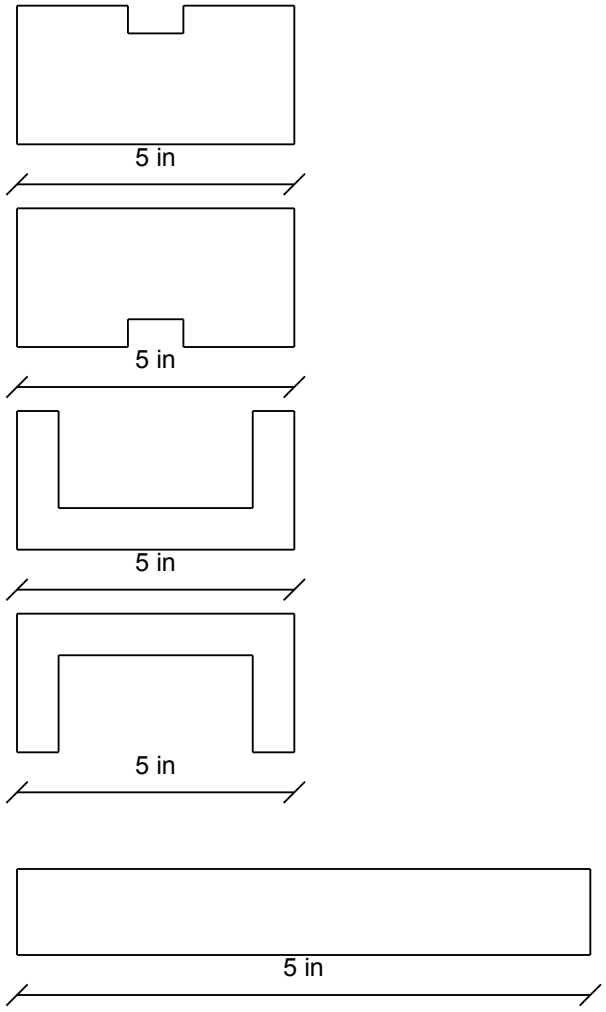


Geometry is schematic orthographic projection. Working clearances and fastener directions are specified in the text.

No scale measurement from this sheet. Use written dimensions. Unbuilt original design.

OR-002 / CUT AND MACHINING 1

Face view: length horizontal, width vertical. T = actual thickness. Square cuts unless stated.



P01 Front lower half / qty 1

5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm

Remove 1 x 1/2 in rectangle at face x=2..3, y=2..2 1/2 in.

P02 Rear lower half / qty 1

5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm

Remove 1 x 1/2 in rectangle at face x=2..3, y=0..1/2 in.

P03 Front upper half / qty 1

5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm

Remove 3 1/2 x 1 3/4 in rectangle at x=3/4,y=3/4 in; open to mating edge.

P04 Rear upper half / qty 1

5 x 2 1/2 x 3/8 in / 127.0 x 63.5 x 9.5 mm

Remove 3 1/2 x 1 3/4 in rectangle at x=3/4,y=0 in; open to mating edge.

P05 Upright / qty 8

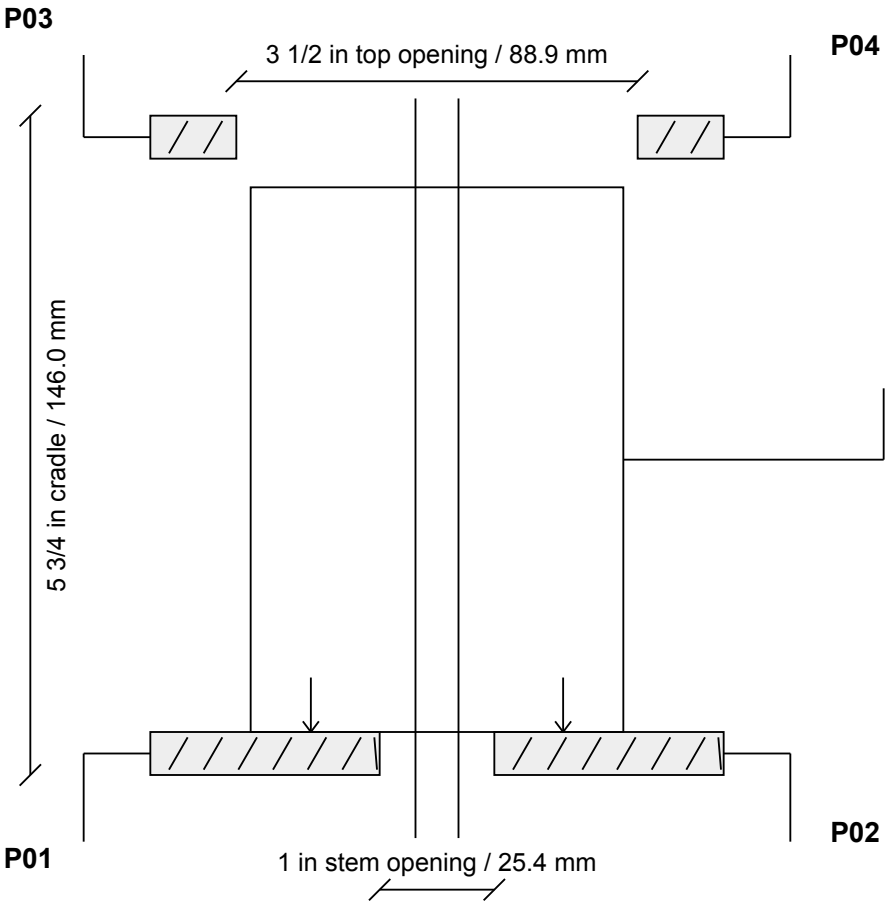
5 x 3/4 x 3/4 in / 127.0 x 19.0 x 19.0 mm

No openings or angled cuts; break exposed edges with sandpaper.

Dimensions in inches control; metric equivalents are in the cut list. Hole locations are measured from the stated face corner.

OR-002 / CENTRAL LAYER-SUPPORT SECTION

Section x=2 1/2 in. Posts, hinge, straps and independent stake are outside this central cut plane.



Rooting-package envelope

3 1/4 x 3 1/4 x 4 3/4 in

82.6 x 82.6 x 120.7 mm

Flat lower face shown bearing on P01 and P02.

Envelope is a fit limit, not another cut part.

Stem maximum diameter 3/8 in (9.5 mm).

Centered bottom clearance: 5/16 in (7.9 mm) per side.

Package top clearance: 1/4 in (6.4 mm).

Separate stake supports the rear half; see build step 8.

Support the package by hand while opening. Neither the opening edge nor a tight tie may carry the living stem.