PA-012 Hand-turned exterior jar inspection cradle

Rotate a cool sealed jar gently to read its exterior label or inspect its outside without sliding the glass along a rough table.

Original bounded component build. Dimensions describe this example, not an approved structural, occupied-building or universal fit design.

US inches/feet control; metric figures are references. No physical build, load certification or animal trial performed.

Before cutting

Read the whole assembly and inspect its receiving space before cutting. Measure actual sheet thickness; nominal lumber labels do not control these joints.

Set aside straight, clean stock and allow it to acclimate. Keep fingers clear of blades, clamp work and use tool-appropriate eye/hearing protection.

Dry-fit moving pieces before final fastening; stop if a proposed dimensional substitution changes clearances. Purchased hardware dimensions and hole patterns below must match the actual item.

Materials and actual cuts

Part	Qty	Actual size	Material and special cut
A Base	1	12 x 9 x 3/4 in 304.80 x 228.60 x 19.05 mm	Sound untreated hardwood or exterior-bond plywood, actual measured thickness; reject split/warped stock Square ends; remove all splinters and burrs.
B End cheek	2	9 x 3 x 3/4 in 228.60 x 76.20 x 19.05 mm	Sound untreated hardwood or exterior-bond plywood, actual measured thickness; reject split/warped stock Square ends; remove all splinters and burrs.
C Roller	2	8 15/16 x 3/4 x 3/4 in 227.01 x 19.05 x 19.05 mm	Straight smooth 3/4 in round hardwood dowel Round stock diameter 3/4 in; finished length 8 15/16 in plus two actual 1/32 in thrust washers equals 9 in inside cheek spacing. Drill manufacturer-appropriate 1/4 in lag pilot 1 in deep into each end.
D Cheek foot	2	9 x 1 1/2 x 3/4 in 228.60 x 38.10 x 19.05 mm	Sound untreated hardwood or exterior-bond plywood, actual measured thickness; reject split/warped stock Square ends; remove all splinters and burrs.

Hardware and tools

6 x #8 x 1 1/4 in wood screw. A into feet

6 x #8 x 1 1/2 in wood screw. Feet into cheeks

4 x 1/4 in x 1 1/2 in hex-head lag screw. Plain roller journals; no rated bearing claim

4 x 1/4 in ID nylon thrust washer,actual 1/32 in thick. Two per roller; do not substitute an unmeasured nominal stack

Tape, square, pencil; clamped saw setup appropriate to the material; drill/driver and depth stop; countersink for wood fasteners; files/sanding block; clamps. Specific additional tools are noted in the steps.

Measured assembly reference

Coordinates refer to the illustrated pose: x left/right, y front/rear, z up. Positions are inches from the front-left underside datum. A negative position projects beyond that datum. The size vector gives the part orientation before any stated rotation; it is not a substitute for its cut profile.

Part / instance	Origin x, y, z	Size dx, dy, dz / rotation
A / 1	0, 0, 0 in 0.00, 0.00, 0.00 mm	12 x 9 x 3/4 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
D / 1	0, 0, 3/4 in 0.00, 0.00, 19.05 mm	1 1/2 x 9 x 3/4 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
D / 2	10 1/2, 0, 3/4 in 266.70, 0.00, 19.05 mm	1 1/2 x 9 x 3/4 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
B / 1	3/4, 0, 1 1/2 in 19.05, 0.00, 38.10 mm	3/4 x 9 x 3 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
B / 2	10 1/2, 0, 1 1/2 in 266.70, 0.00, 38.10 mm	3/4 x 9 x 3 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
C / 1	1 17/32, 2 1/8, 2 5/8 in 38.89, 53.97, 66.67 mm	8 15/16 x 3/4 x 3/4 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg
C / 2	1 17/32, 6 1/8, 2 5/8 in 38.89, 155.57, 66.67 mm	8 15/16 x 3/4 x 3/4 in Rotation x/y/z: 0.0000, 0.0000, 0.0000 deg

Numbered assembly

01. Use only cool intact cylindrical jars with body diameter 3 1/2-5 in and axial length no more than 8 in, tested empty first. Keep both hands near the jar; this cradle is not a lid-opening device.

02. Cut A 12 x 9 x 3/4 in, B two 9 x 3 x 3/4 in and D two 9 x 1 1/2 x 3/4 in feet. Cut C two 8 15/16 in lengths of 3/4 in round hardwood dowel.

03. Mark B bearing axes 1 1/2 in above its lower edge and 2 1/2 and 6 1/2 in from one 9 in end. Both cheeks must carry the same pattern.

04. Clamp B together and drill 9/32 in through-holes at all four marks. Separate, deburr and confirm that a 1/4 in bolt slides freely without enlarging the hole into a slot.

05. Drill a centered lag pilot 1 in deep in each C end using the actual lag manufacturer's root-diameter guidance for the selected hardwood; test on scrap first. Reject any split or off-center bore rather than assuming one pilot fits all wood.

06. Before placing anything on A, assemble each B/D pair with D underside accessible. Set B on D at the shown lateral offset: left B x 3/4-1 1/2 on left D x 0-1 1/2 in; right B x 10 1/2-11 1/4 on right D x 10 1/2-12 in. Drive three #8 x 1 1/2 in screws upward through each 3/4 in D into B bottom edge at y 1,4 1/2,8 in. Center these at x 1 1/8 in left and x 10 7/8 in right; the 3/4 in bite runs up the 3 in cheek height. Countersink the D underside heads flush.

07. Now place the two B/D subassemblies on A with feet at x 0-1 1/2 and 10 1/2-12 in,y 0-9 in. From beneath A fasten into D with three #8 x 1 1/4 in screws per foot at y 1,4 1/2,8 in, x 3/8 in left and 11 5/8 in right. These axes are 3/4 in from the cheek screws and clear their flush heads. Each crosses A 3/4 in and bites D 1/2 in, leaving 1/4 in below the D top. Verify 9 in between cheek inside faces before installing rollers.

08. Set each C between B at z 3 in,y 2 1/2 or 6 1/2 in, with a measured 1/32 in nylon washer at each end. The specified 8 15/16 in roller plus 1/16 in total washers fits the 9 in inside span; reject an incompatible actual stack.

09. Drive one 1/4 in x 1 1/2 in lag screw through each cheek bearing hole and washer into the roller pilot. Tighten until supported, then back off enough for free hand rotation; do not crush or split the dowel end.

10. Turn both rollers through twenty revolutions. Any wobble, rubbing or screw loosening requires correction before a jar is placed on them; these are plain bearings, not rated machinery.

11. Place an empty matching jar horizontally across both rollers with its long axis parallel to x. Roll it a small amount by hand while preventing it from leaving either end.

12. Use only for exterior label viewing on a level table. Lift jars out before carrying the cradle and keep the roller surfaces clean/dry; stop if glass can strike a cheek or the base.

Acceptance and intermediate checks

Bearing holes share z 3 in assembled height and y 2 1/2/6 1/2 in centers.

Actual roller length includes the measured washer clearance between cheeks.

Both rollers turn by hand without end splitting or loose lag screws.

An empty matching 3 1/2-5 in body-diameter jar, no more than 8 in long, rests on both rollers and stays under manual control.

Use and maintenance

Exterior inspection only; not a lid-opening clamp, hot-jar carrier or food-safety test.

Keep hands on the jar. Rollers provide no automatic end restraint or load certification.

Keep the rollers dry and clean only their exterior by the actual finish/material guidance. Remove jars before checking any journal or base screw. Inspect lag pilots for splitting and recheck free hand rotation/washer clearance. To access cheek screws, remove the base-to-foot screws first and support the B/D subassembly; do not pry a cheek off the closed base.

Measured interface notes

Order is B-to-D first, then D-to-A. Cheek screw x 1 1/8 /10 7/8 in and base screw x 3/8 /11 5/8 in remain 3/4 in apart; no inaccessible screw must be driven after the base closes the underside.

Primary context references

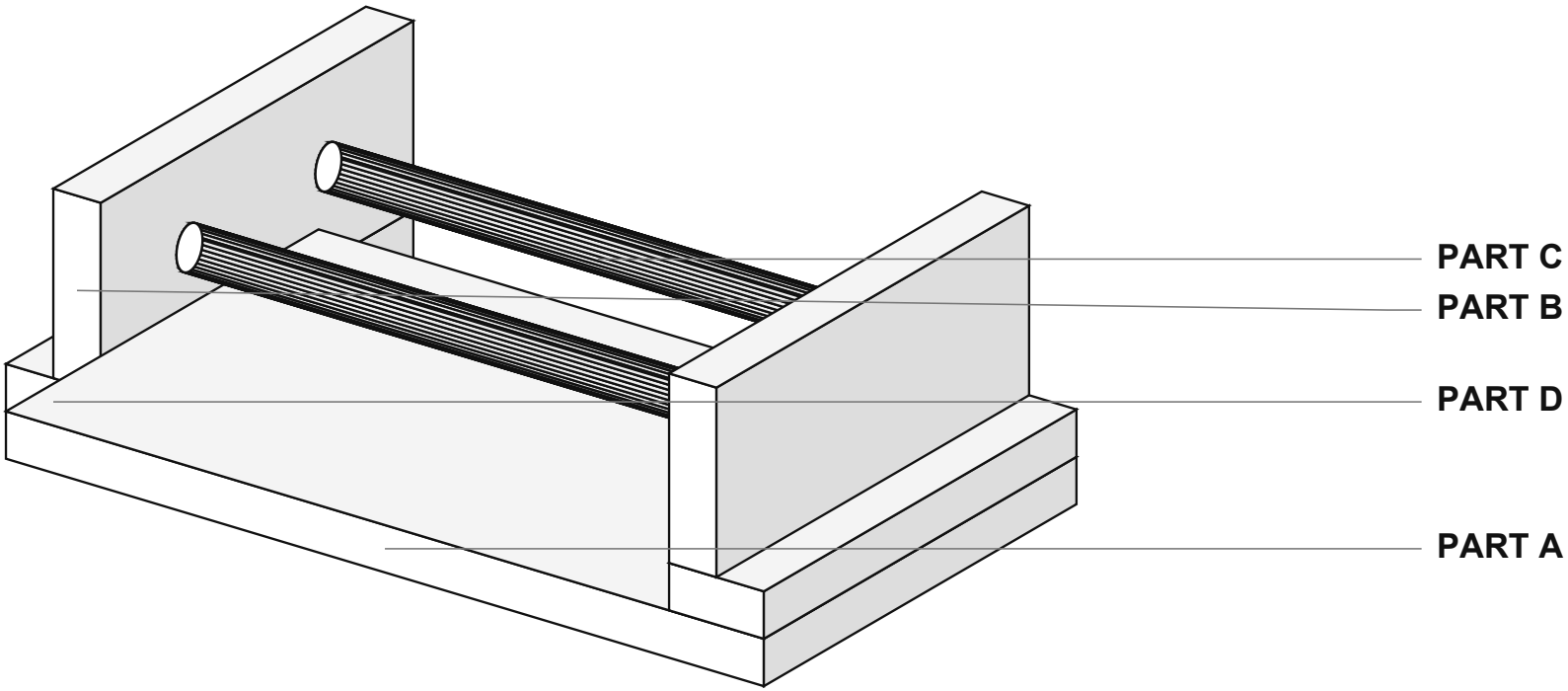
S4: Purdue University Extension, Wood drying: FNR-37. https://extension.purdue.edu/extmedia/FNR/FNR-37.html

S5: Utah State University Extension, Food Storage in Home.
https://extension.usu.edu/preserve-the-harvest/research/food-storage-in-home

S6: King Plastic Corporation, Food Service sheet materials. https://www.kingplastic.com/industries/food-service/

PA-012 | ASSEMBLY AND ORIENTATION

x = left/right; y = front/rear; z = height. Match part letters to the cut list.



Displayed envelope (width x depth x height):

12 in x 9 in x 4 1/2 in

Metric: 304.8 x 228.6 x 114.3 mm

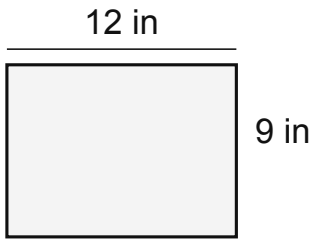
Locate joints and hardware using the numbered steps; view is not a full-size pattern.

Original B/W vector drawing - dimensions control - unbuilt / untested

PA-012 | PART SIZES 1 OF 1

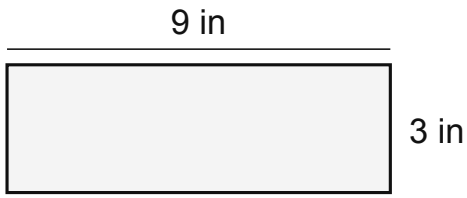
Actual dimensions; labels identify any stock blanks. Allow for saw kerfs between pieces.

A Base x1



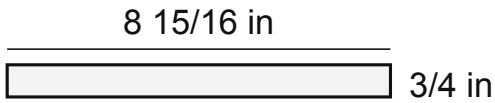
Face: 304.8 x 228.6 mm
Thickness: 3/4 in / 19.05 mm
Special cuts: see cut list and steps.

B End cheek x2



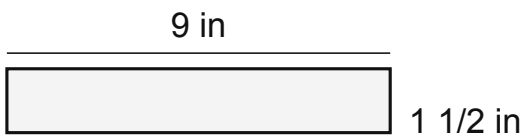
Face: 228.6 x 76.2 mm
Thickness: 3/4 in / 19.05 mm
Special cuts: see cut list and steps.

C Roller x2



Face: 227.0 x 19.0 mm
Thickness: 3/4 in / 19.05 mm
Special cuts: see cut list and steps.

D Cheek foot x2



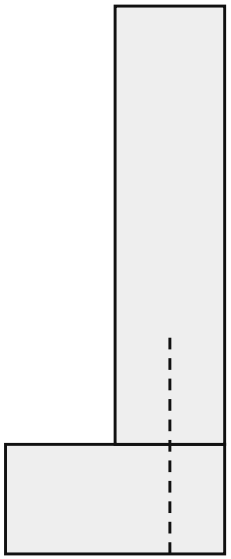
Face: 228.6 x 38.1 mm
Thickness: 3/4 in / 19.05 mm
Special cuts: see cut list and steps.

Original B/W vector drawing - dimensions control - unbuilt / untested

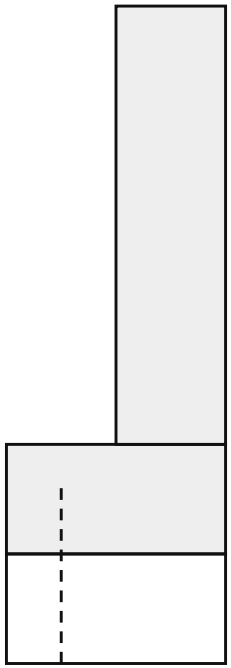
PA-012 | ASSEMBLE B / D BEFORE CLOSING WITH A

US dimensions control. Metric references are 25.4 mm per inch.

1. B-to-D: underside D accessible



2. Add A; drive A-to-D screws



Left assembly shown in end section; the right uses the mirrored lateral offsets. Cheek screws are at global x 1 1/8 in left /10 7/8 in right. Base screws are at x 3/8 in left /11 5/8 in right:3/4 in apart.

Both screw groups use y 1,4 1/2,8 in. B-to-D screws 1 1/2 in cross D 3/4 in and enter B by 3/4 in. A-to-D screws 1 1/4 in cross A 3/4 in and enter D 1/2 in, leaving 1/4 in beneath D top.

Do not install A first and attempt to drive hidden screws through it. To service the cheeks, remove the base/foot screws and support the separated B/D subassembly.

Original B/W construction detail - unbuilt / untested; not a print-scale template