

## Compost Units Series

# Compost Tumblers

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Manufactured tumblers are more expensive than bins or piles. They can be purchased or can be constructed by the homeowner. If you want a fast turnaround on your compost, this system may be the choice for you.

## Building a Compost Tumbler

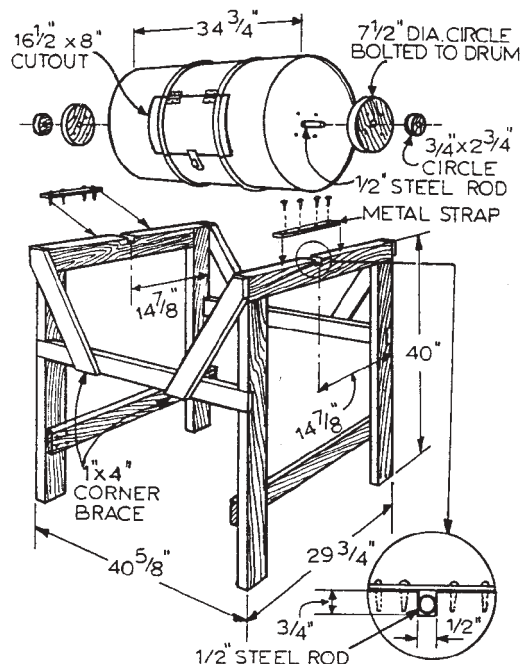
### Materials

- One 55-gallon drum (food grade)
- Four 40-inch lengths of 2 x 4 for frame uprights
- Four 29 3/4-inch lengths of 2 x 4 for frame horizontals
- Two 40 5/8-inch lengths of 1 x 4 for cross braces
- Four 23 3/4-inch lengths of 1 x 4 for corner braces
- Two 7 1/2-inch diameter x 3/4-inch plywood for bearings
- Two 2 3/4-inch diameter x 3/4-inch plywood for bearings
- Two 1 1/2 x 2-inch hinges
- One small hasp
- One 1/2 x 42-inch steel rod
- Eight 1/4 x 1 1/4-inch stove bolts
- Twelve 1/4 x 1-inch stove bolts
- Thirty-two 1 1/2-inch #10 wood screws
- Two metal straps, 1/8 x 7 inch
- One pint flat black paint
- Wood glue (construction grade, waterproof)
- Wood – cedar, pine painted with nontoxic wood preservative

### Baffles

- Nine 11 1/2-inch or longer 2 x 4 (length may need to be adjusted to drum length)
- Twenty-seven 1/4-inch x 4 1/2 - 5-inch bolts with flat and lock washers

1. Obtain a good 55-gallon drum that has not had any toxic chemical in it. Ask for a "food grade" barrel. It must be unpainted on the inside and de-rusted. Add a protective coating inside. A plastic drum can also be used.
2. Drill a 1/2-inch hole in the exact center of both ends of the barrel to accommodate the 1/2-inch steel rod.
3. Draw lines for the opening in the barrel, making sure to round the corners slightly. Drill a 1/4-inch hole somewhere along one of the lines to start the saber saw. If the barrel has ribs, as most do, you will have to cut a 1-inch vee notch



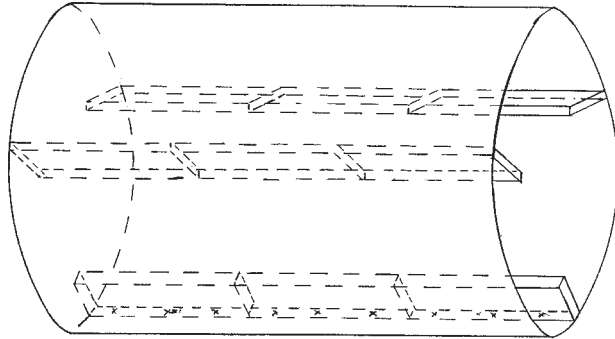
The steel axle rod fits into 1/2-inch holes in the horizontal 2 x 4s. Wooden bearing disks bolt onto the drum with four 1 1/4-inch stove bolts.

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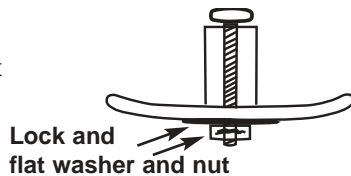
on each rib to facilitate opening the door. Attach the hinges and the hasp to the barrel and lid using 1 x 1/4-inch stove bolts.

4. Add baffles to facilitate the tumbling of materials when rotating the barrel. Three sets of baffles spaced equal distance from each other inside the barrel are recommended. Each baffle is made up



**Baffles spaced equal distance from each other inside the barrel.**

of three separate boards measuring 2 x 4 x 11 1/2 inches (length may need to be adjusted to drum length). Use three 1/4 x 4 1/2 - 5-inch bolts with flat and lock washers to attach each board to the inside of the barrel. Drill holes in the barrel to attach the bolts. Drill 1/4-inch hole through 2 x 4; place nuts and washers on outside of drum.



5. From 3/4-inch plywood, cut two circles 7 1/2 inches in diameter and two circles 2 3/4 inches in diameter. Drill a 1/2-inch hole in the center of each and apply waterproof construction grade glue to the 2 3/4-inch circles. This can be done easily if the circles are temporarily slipped over the 1/2-inch steel rod and clamped. After the glue has dried, remove the disks, insert the rod through the barrel and assemble as shown in the illustration on page 1, using four 1 1/4 x 1/4-inch stove bolts in each.

6. To build the support frame, cut the 2 x 4s to length and, using a corner lap joint, assemble with two 1 1/2-inch #10 wood screws in each joint. The uprights will also have to be dadoed (grooved lengthwise) 23 inches from the bottom to accept a 1 x 4-inch board. To make a corner lap joint, simply remove one-half the thickness of the stock to a length comparable to the width of the stock, on both ends of all pieces.

7. A 1-inch square notch to accommodate the rod will have to be sawed in the exact center of the top horizontal pieces. Set the 1/2-inch steel rod, with barrel attached, in these notches and screw the metal straps across the notch to hold the rod in place. Fasten with 1 1/2-inch #10 wood screws. Next cut the 1 x 4 x 23 1/4-inch piece at 45-degree angles at both ends, and attach with 1 1/2-inch #10 wood screws across corners as shown in the illustration.

8. Drill several rows of 1/4-inch holes along the bottom of the barrel exactly underneath the door opening to eliminate excess moisture. Paint the unit a flat black color.

## Adding Wastes

Collect enough waste to load the bin. Do not add wastes as they become available. Once loaded, a tumbler produces usable compost in as little as two to three weeks.

## Maintaining the Compost

All you have to do is turn the tumbler once a day. A good mix of materials with the optimum carbon to nitrogen ratio is recommended. Don't let the materials become dry. (See Composting fact sheet FSA 2087.) Some recommend leaving a bit of finished compost as a "starter" for the new batch.

Construction design adapted from "The Rodale Guide to Composting." Baffle design by Larry Estes, Mississippi Department of Environmental Quality, Recycling Office, Jackson, MS. Artwork by Richard DeSpain, former architectural draftsman, University of Arkansas Division of Agriculture, Cooperative Extension Service, Little Rock.

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