INCLUDED IN THIS DOCUMENT Bill-of-Materials, Build Plans and Costing to build this Fender-style 1x12 Speaker Cabinet

Bill of Materials

CABINET CONSTRUCION

- Wood for cabinet: one (8ft L x 10in W x 1in thick) solid pine board
- Wood for speaker baffle: one (16"L x 16"W x 3/8"thick) plywood board
- Wood for cabinet back enclosures: one (16"L x 16"W x 1/4"thick) board
- Wood for cabinet baffle and grill stops: two of each (1" x 1" x 14", 1" x 1" x 16") for a total of 60" of 1"x1" wood strips
- Screws: plenty of #8x 1-1/2" flathead wood screws
- Adhesive: Titebond III Ultimate wood glue
- Tools: dado blade set to make corner finger joints, circle cutting jig for hand trim/router

HARDWARE & MISCELLANEOUS

- Speaker: one 12" guitar speaker of your choice
- · Speaker Mounting Hardware: four to six wood screws and washers
- Handle: one Fender-style cabinet handle; https://www.speakerbuildersupply.com/
- Tolex: https://www.amplifiedparts.com/products/Tolex-wine-taurus-54-wide. The thickness of this Tolex is 0.6mm, 0.0236", 1/32".
- · Grill Cloth: Fender "Wheat"; source from Reverb.com
- · Fender 3D logo plate: Source from eBay or Amazon
- · Cabinet Corners: https://www.speakerbuildersupply.com/
- Screws & Finishing Washers: https://www.speakerbuildersupply.com/
- 1/4" Input Jack Plate: https://www.speakerbuildersupply.com/
- Spray Adhesive: one can of 3M Hi-Strength 90 Contact Cement spray adhesive to affix Tolex to cabinet
- Spray Paint: flat black or matte black spray paint for front speaker baffle plate

PROJECT: Fender-Style 1x12 Speaker Cabinet		VIEW: B.O.M
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CONSTRUCTION STEPS

- 1. Cut cabinet frame four equal pieces (17.5"L x 9.25"W x ³/₄"Thick)
- Cut the baffle stops four 1"x1" strips that are 14" long and four 1"x1" strips that are 16" long (two each for the front and two each for the back)
- 3. Cut finger joints on the long ends of each cabinet board. ³/₄" finger joint cuts are adequate. Be sure the dado cuts align!
- 4. Assemble, square-up and glue the cabinet frame. Let dry 4 hours.
- 5. Rough sand the entire cabinet frame with 120-grit sandpaper.
- 6. Cut front speaker baffle board 16" x 16". There will be a need to trim the sides down a 1/8th of an inch on all sides to accommodate the grill cloth wrap and still fit within the 16"x16" opening, which also has Tolex wrapped around it. Start with a 16"x16" square and trim accordingly just before the grill cloth is wrapped, in a later step. NOTE: Do not trim down to shape now.
- Cut back baffle board 16"x16"x3/8" plywood or fiberboard. Cut the 16"x16" square back baffle board into three equal sections – 5.33" tall x 16" wide.
- 8. Cut front baffle speaker circle. Use a jig saw or trim-router circle jig to cut out speaker hole. Speaker hole should be the size of the speaker cone, not the entire speaker frame.
- 9. Spray paint front speaker baffle plate and back baffle boards with matte black spray paint. Set aside and let dry at least 2 hours. Apply at least two coats.
- 10. Install the front baffle stops while the baffle board paint dries screw in 16"L baffle stops on opposite sides, indented ½" from the front edge of the cabinet. Screw in the 14"L in the same manner on the remaining opposite sides that need the baffle stops. This leaves room for the 3/8" front speaker baffle board, wrapped with speaker grill cloth, to sit in front speaker opening near flush with the Tolex-wrapped cabinet frame. Be sure to install the baffle stops so the 1" width forms the stops. (the baffle stop should be 1" tall from all mounted edges).
- 11. Install the back baffle stops install them in the same manner as the front baffle stops. Indent them 1/2" from the back edge of the cabinet to accommodate the Tolex-wrapped 3/8" back baffle board width, making the back baffle boards nearly flush with the back sides of the speaker cabinet.
- 12. Trim rout on all edges of the cabinet frame with a $\frac{1}{2}$ quarter-round router bit.
- 13. Cut the speaker baffle to final dimensions and insert t-nuts. Measure the inside dimensions of the cabinet frame they should be approximately 15-3/4" or so. Trim the front speaker baffle to fit the inside dimensions, less a 1/8 to 1/16" on all sides to accommodate the speaker grill cloth wrap. Center the trimmed baffle board in the front opening and clamp in-place. From the rear, drill holes through the baffle stops and through the front baffle board, in each corner, large enough to insert the ¼" t-nuts. Insert the t-nuts on the rear of the baffle board.

- 14. Install 1mm felt strips to the front facing edges of the baffle stops. This will help to dampen any wood-to-wood vibration that may occur.
- 15. Apply Tolex to the exterior cabinet frame. For one continuous wrap, pre-cut the Tolex to be 1" longer than the frame circumference approximately 71", to create a 1" overlap in an inconspicuous starting point on the frame (the underside for example). Ensure the width of the Tolex is at least 3" wider than the width of the frame, to accommodate a full wrap-over on the edges to the baffle stops. It's easy to cut off excess Tolex, but difficult to add it! Spray the contact cement on the frame and on the Tolex. Do this outside, as the overspray WILL get all over everything in a garage or home. Allow to dry a few minutes to a tack. Carefully align and wrap the Tolex around the frame by rolling the frame along a flat laid-out strip of Tolex. Be sure it is applied squarely on the frame. If you prefer to stay traditional the original wrap configurations of authentic Fender speaker cabinets, refer the wrap drawings on the next page.
- 16. Cut and apply Tolex to the back speaker baffle boards in the same manner as applying Tolex to the exterior cabinet frame in previous steps. Measure the inside dimensions of the cabinet frame they should be approximately 15-3/4" wide or so. Trim the rear speaker baffles to fit the inside dimensions, less a 1/32" to 1/16" on all sides to accommodate the Tolex over-wrap. If you have enough Tolex, fully wrap the back speaker baffle boards with Tolex, if not, it's OK to leave the inside exposed since they are painted black.
- 17. Install the corner protectors and bottom rubber feet.
- 18. Cut and apply the speaker grill cloth to the front speaker baffle, allowing for enough of the cloth to wrap completely around the baffle on all sides. Generously staple the cloth on the backside of the baffle. Line up the horizontal lines of the cloth on the front side to one of the edges and ensure the lines stay parallel with each other, introducing no warp from over-stretching the cloth in any direction. Firmly snug is all that is needed, no stretching should be required. Set aside for now.
- 19. Install the speaker and front baffle board. Lay the grill-cloth covered front baffle on the grill cloth, exposing the inside speaker circle. Using the pre-drilled holes, screw the speaker and baffle board down firmly, but not overtightened. Insert the front baffle board and speaker in place from the front and screw it in place directly to the baffle and grill stops from the rear/inside using the pre-fitted ¼" t-nut and ¼"-20 bolt. Drill pilot holes for the screws.
- **20. Install all back baffle boards** with wood screws and finishing washers. Pre-drill pilot holes for all screw points. Start with the top piece that has the ¼" jack. Once this board is in place, affix the wires to the appropriate speaker connections, then install the remaining baffle boards.
- **21.** Install the pre-wired ¼" speaker jack on the top 1/3rd baffle board. Place it where you want it, usually centered on the board, and drill a hole large enough to fit it in place and secure it in place.
- 22. Install the handle, centered on top.
- 23. And finally, install the Fender logo medallion on the front of the amp.

PROJECT: Fender-Style 1x12 Speaker Cabinet		VIEW: Build Procedures
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Bill-of-Material Costing

Item	Qty	Cost
WOOD, ADHESIVES & SCREWS		
Wood for cabinet: (8ft L x 10in W x 1in thick) solid pine board for cabinet and baffle stops	1	\$18.42
Wood for speaker baffle: one (16"L x 16"W x 3/8"thick) plywood board	1	\$0.87
Wood for cabinet back enclosures: one (16"L x 16"W x 1/4"thick) board	1	\$0.87
Screws: 16qty #8x 1-1/2" flathead wood screws	16	\$1.57
Back Panel screws and finishing washer - matte black	10	\$2.00
Adhesive: Titebond III Ultimate wood glue	1	\$1.59
Spray Paint: flat black or matte black spray paint for front speaker baffle plate	1	\$0.88
TOTAL		\$26.19
SPEAKER & FINISHING HARDWARE		
Speaker Mounting Hardware (screws & washers)	4	\$1.00
Handle: one Fender-style cabinet handle of your choice	1	\$7.99
Fender 3D logo plate: 1963 Fender SuperSonic/ToneMaster/VibroKing brown plate (Optional)	1	\$10.95
Cabinet Corners: Penn matte black amp corners	8	\$7.52
Felt liner strips	1" x 64"	\$0.33
¼" Input Jack Plate: pre-wired	1	\$6.99
TOTAL		\$34.78
TOLEX & GRILL CLOTH		
Tolex: https://www.amplifiedparts.com/products/tolex-wine-taurus-54-wide	5	\$26.62
Spray Adhesive: one can of 3M Hi-Strength 90 Contact Cement spray adhesive	1	\$7.49
Grill Cloth: Wheat	1	\$4.74
TOTAL		\$38.85
TOTAL Cabinet Build		\$ 99.8 :
PROJECT. And Style 1x12 Speaker Cabinet		

PROJECT: TEnder -Style 1x12 Speaker Ca	binet VIEW: BOM Costing	
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Tolex Wrap Options

1 Piece Wrap



- One continuous piece of Tolex
- One overlap point, usually on the underside
- Least amount of Tolex usage
- More difficult to apply perfectly straight without adjusting frequently as it is applied

2 Piece Wrap



- Two pieces of Tolex
- Two overlap points, usually on the underside left and right edges under the rubber feet
- Some Tolex waste due to 2 overlap points
- Somewhat difficult to apply the larger piece perfectly straight without adjusting frequently as it is applied

"Vintage Fender Method" 4 Piece Wrap



- Four pieces of Tolex
- Top and bottom pieces overlap the sides, overlapped by ½" -3/4"
- It's the most Tolex usage of the three options
- More cutting to do and more edges to treat
- Easiest to get things aligned since shorter sections are being worked at a time

The two side pieces (blue lines) extend around the corners by 1-3/8" (35mm). The top and bottom pieces (orange lines) overlap the side pieces by $\frac{1}{2}$ " to $\frac{3}{4}$ " (13 – 19mm)

PROJECT: Tender-Style 1x12 Speaker Cabinet		VIEW: Tolex Wrap Options
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Affix the front speaker board to the grill stops from the back side with screws.