ISETTA 300 ENGINE CRATE FABRICATION

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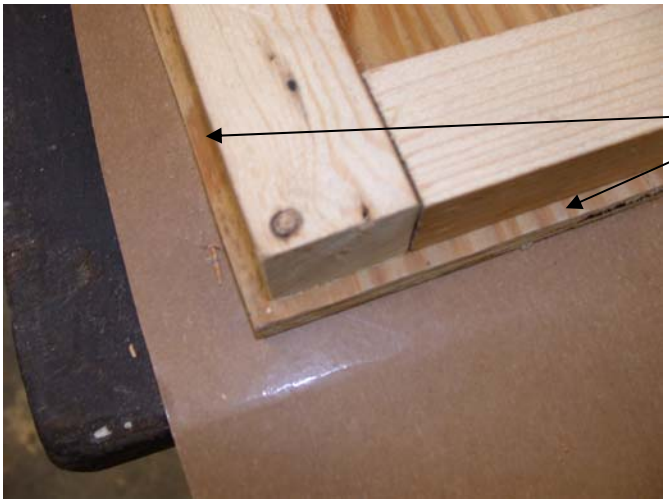
When shipping an Isetta engine it is very important to provide protection from the hazards that exist in the shipping industry. Failure to protect the engine can result in damage ranging from minor to a destroyed carburetor or other expensive engine component.

This document contains instructions on how to fabricate a crate that can be used to ship an engine across country and have some assurance it will arrive in one piece. In the case where you may be shipping an engine and transmission, it is best to break the two items into separate containers. This will considerably reduce your shipping cost. All carriers have a weight limit on the package they are willing to carry. The company with the highest weight limit is DHL. They will accept a package that weights up to 150 pounds. If the weight of the package is greater than this weight, it will have to be shipped by motor freight. Shipping an engine and transmission as one unit in a suitable container will exceed 150 pounds. An engine shipped in a crate as showed in this document will weigh around 125 pounds. Shipping a 125-pound package by DHL about 1000 miles, will cost you less than $75.00. Shipping a 180-pound crate (with engine and transmission) by motor freight the same distance can cost over $200.00.

I start out by fabricating a base using ½" plywood. Cut a piece of ½" plywood 19" x 24". You will also need about 19' of corner material. This can be any thickness that is handy. I have found that these pieces vary at different lumberyards, so your measurements of these pieces may be slightly different. I used old 2"x4" or 2"x6" material cut down to size for my corner braces. All measurements in this document are based on 1-1/2" x 1-1/2" material.

Using 1-1/2" x 1-1/2" material cut two pieces 23-1/2" long and two more pieces 15-1/2" long. This will make the perimeter braces on the base of the crate bottom. These pieces should be spaced ¼" in from the perimeter of the base's edge. Using sheetrock screws 1-5/8" long; secure these four pieces with these screws through the bottom of the base board.



Once all four edge pieces are in place, rip two pieces of 2"x6" down to 2"x4" by 11" long. These will be attached to the base with four 2-1/2" decking screws in the locations shown in the next photograph.

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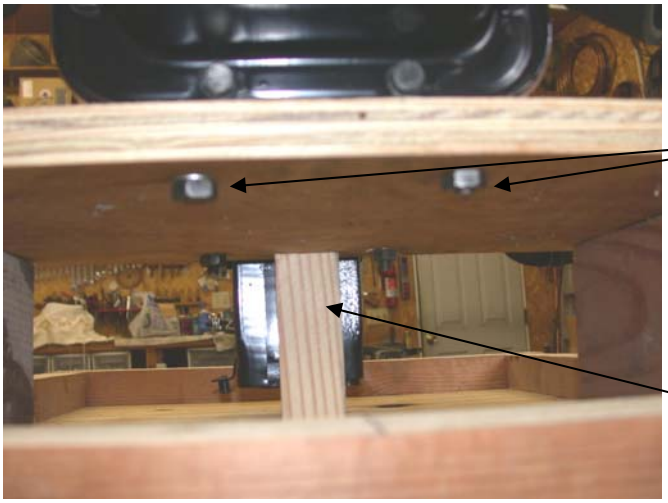
Install the (2) 2”x4”x11” boards in the corners of one end of the box as shown. The 4” height of this board must be at least 4” (not 3-1/2”).

NOTE: PLYWOOD AND 2”x4” BOARD IN THIS PICTURE IS ONLY 10” LONG – YOUR PLYWOOD BOARD SHOULD BE FLUSH TO END OF 2”x4” SUPPORT BOARD.

With the 2”x4”x11” board secured to the base, cut a ¾”x15-1/2”x11” piece of plywood for mounting the engine. The best way to mark these holes is to temporarily attach the plywood board to the 2”x4” supports and then place the engine on top of the plywood. Center the engine to the crate and mark your holes using the engine studs as a guide. Remove the engine and drill four mounting holes in this board 3/8” in diameter. The upper mounting holes should be approximately 1” down from the top of the plywood. After drilling the holes, check to make sure the alignment to the engine studs is correct. Permanently attach the plywood to the supports with eight 2-1/2” decking screws (four on each side). On this crate, I installed a 1-1/2” x 1-1/2” x 4” center support near the upper engine mounting holes. This support was secured with two 1-5/8” sheetrock screws, one from the bottom and the other through the ¾’ plywood. See photo below:



Secure the engine to the ¾” plywood with the engine mounting nuts and washers (four locations)

Center support near the upper engine mounting screws

Cut the four sides and top from ¼’ plywood or chip board as available. The sides and top pieces should be cut to the following sizes: two pieces 19” x 19” x ¼”, two pieces 23-1/2” x 19” x ¼” and one piece 18-1/2” x 23-1/4”.

Using the picture on the following page as a guide and the pieces cut as indicated above, fabricate a top that will slip over the base.

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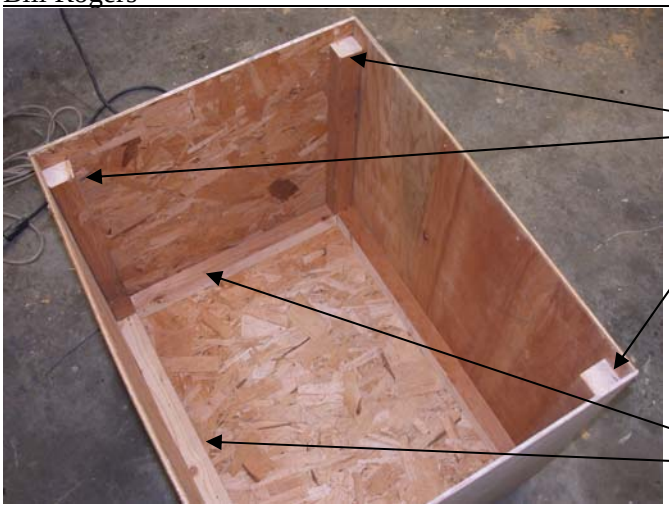

Be sure to leave 1-1/2” space at bottom for the base’s 1-1/2” boards

Install 1-1/2” bracing all around inside of crate top.

When building the top of the crate, I normally will assembly it onto the base. Do this by taking one short and one long side piece and screwing them to the perimeter 1-1/2”x1-1/2” (on the base). Cut the corner vertical brace to fit (be sure to leave a ¼” gap between the top of the side pieces and the 1-1/2”x1-1/2” corner brace – this will be needed to allow the top piece to recess into the top). Continue doing this around the crate until all four sides and corner 1-1/2”x1-1/2” braces are in place. Then fill in the horizontal 1-1/2”x1-1/2” 1/4” below the top of the sides. At this point, the top sheet of plywood can be put in place and secured with screws. Use 1-5/8” sheetrock screws for all attachments. These same size screws are used to secure the top of the crate to the base.