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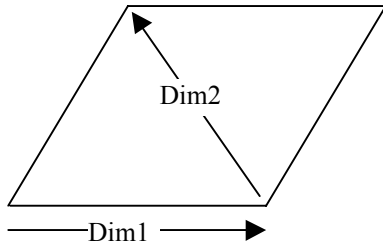
New Induction

Supplement #1

The Rhombus Experiment

The Rhombus Experiment

The wisdom behind using the rhombus to uncover the IEL is detailed in the paper “New Induction.” This section covers the construction of the rhombus and the use of the CRIM to measure it.



• Figure 0-1

To run the Rhombus experiment the following steps are followed:

- 1) Construct an 18-inch (Dim1) rhombus. This procedure is shown in next section.
- 2) Connect the rhombus to a calibrated CRIM. See NewIndSupThree.doc.
- 3) Collect data for at least 6 (the more the better) different variations in Dim2. The following list is recommended: 1, 1.5, 2, 3, 4, 6, 8, 12, 16, and 24 inches.
- 4) Enter the data into the CRIM input form found in the NEW_IND.TBK.
- 5) Save the data to a file.
- 6) From the CRIM inductance screen of NEW_IND.TBK import the file.
- 7) Make sure the “nH” button is clicked. It is desirable to express the results in nanoHenries. The reason for this is that the Hash-Search engine is already set up to process the results in nanoHenries. If you so desire, you can change the settings of the Hash-Search engine to process data in other units.
- 8) Click the compute Button, to convert the experimental data to Inductance values
- 9) Go to the HASH-SEARCH screen and click the “Import Data” button to get the data from the “CRIM Inductance” screen.
- 10) Click the “SEARCH and HASH” button to begin the Hash-Search algorithm. This may take a while to complete depending upon the speed of your machine.

The results should give you geometry 5,0,0,8 as the geometry with the lowest RMS error and geometry 5,0,7,9 as the second lowest. Geometry 5,0,0,8 states that the inductive effect is related by the cosine between the fragment directions.

For a more detailed description of the Hash-Search engine, consult NewIndSupFour.DOC that will be available soon.

Constructing the Rhombus

The Rhombus can be constructed in about 20 minutes from the following materials:



MATERIALS

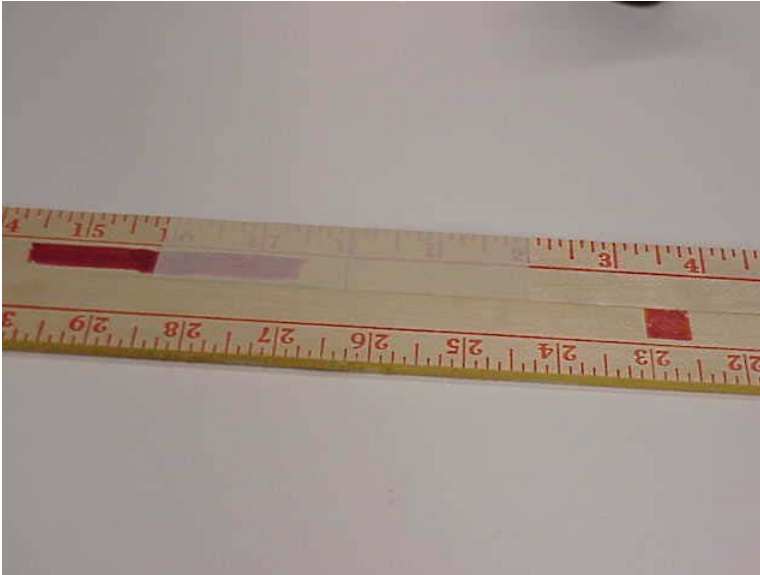
- 1) 2 Yardsticks of wood or plastic construction. Make sure they are strait. Cut them into four 18-inch sections.
- 2) A role of 22 AWG lacquer coated wire such as the type used in electric motor windings. Radio Shack sells a package of three rolls of different gauges packaged as "magnet wire".
- 3) A bottle of contact cement.
- 4) A role of 1-inch masking tape.

- 5) (OPTIONAL) A role of packaging tape.

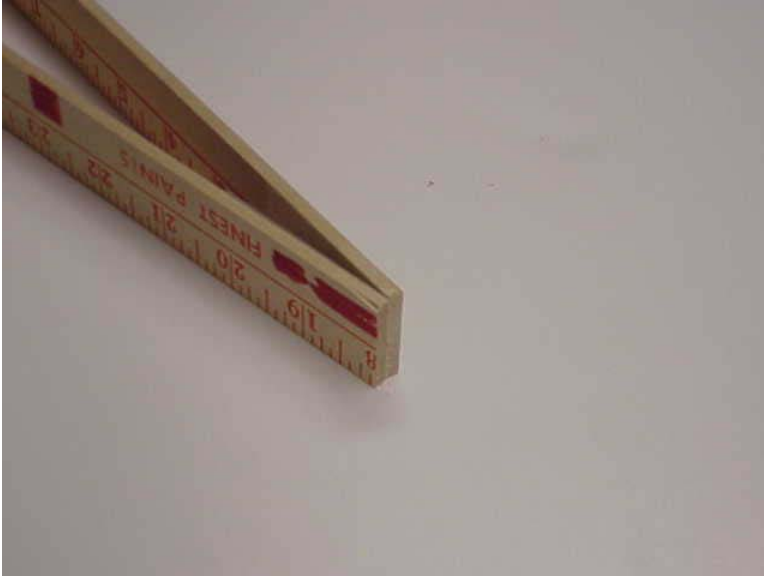
Construction



- 1) Butt two sections together using another section to keep them aligned.



- 2) Place a layer of tape across the joint. This tape forms one side of the hinge that will hold the rhombus together and will end up on the inside of the rhombus when it is complete. For best results, you should use the thin film packaging tape here. The thin film packaging tape does not stretch as much as masking tape and functions better as a hinge.



3) Bend the joint back exposing the ends of the yardstick segments.

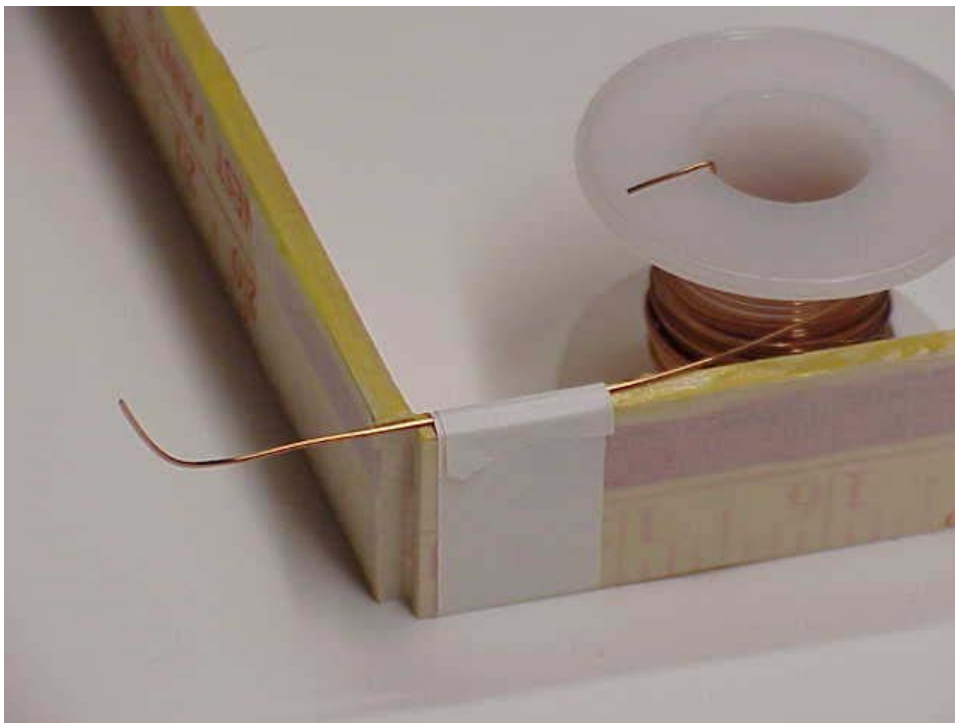


4) Place masking tape (Packaging tape preferred here as well) as shown in the photo above.

5) Repeat the above two steps for the other three corners.



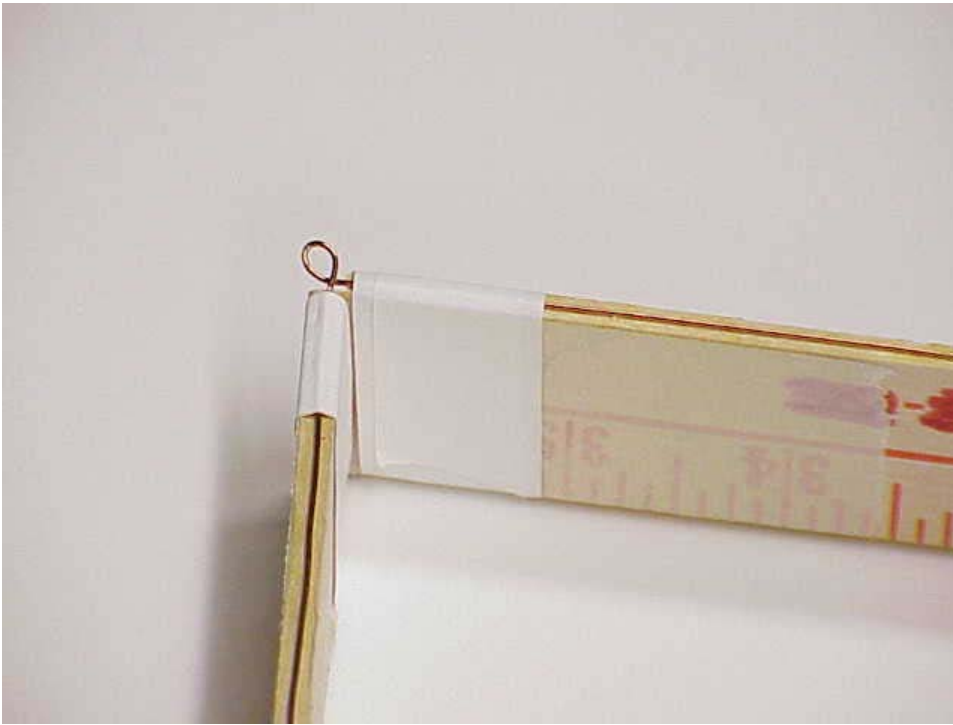
- 6) Coat the edge of the rhombus with contact cement and allow it to set as per the instructions that come with the contact cement.



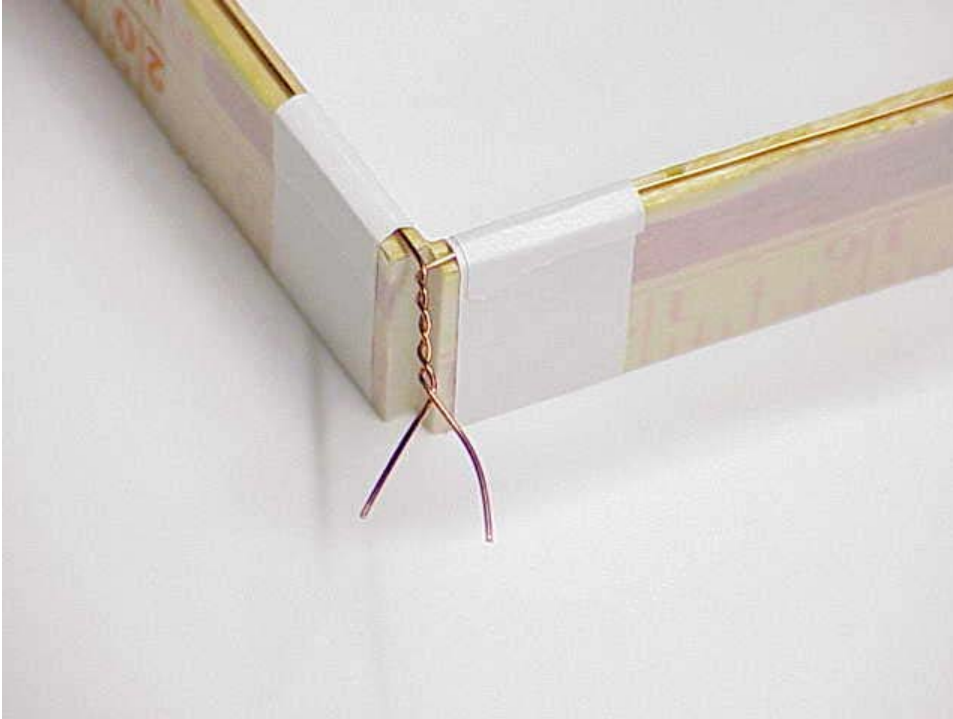
- 7) When the contact cement has set, start laying the wire. Leave a sufficient amount of wire off the end to act as a lead. Use a band of 1-inch masking tape to reinforce the lead and the hinge tape.



- 8) At the corners, leave a small loop to minimize fatigue to the wire as the shape of the rhombus is changed.



- 9) Reinforce the corners with bands of 1-inch masking tape.



10) Trim and twist the leads together.



11) The final step is to scrape the lacquer insulation from ends of the leads.

At this point the rhombus can be connected to the CRIM circuit and the rhombus experiment can be run.

