A-290 Wood Horn

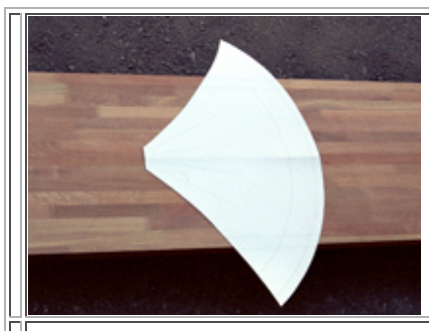
Grand Teton National Park, WY, USA (Photo by Yuichi)

A-290 Specifications

= Horn Type : Hyperbolic horn
= Cut-off frequency : 290Hz
= Frequency range : 600Hz to 20KHz
= Driver : 2 in or 5 cm throat Pioneer TAD 400x or JBL 244x or equivalent
= Size : W 656mm, H 230mm, D 405mm (inclu. 25mm throat adapter)
= Material : Chinese quince laminated lumbers (3.0cm thickness)
= Finish : Two coats of oil based clear polyurethane varnish
= Color : Not applied
= Others
- Four fins (separators) inside the horn

....Mar. 1989 MJ Magazine....

Building and assembly process



Transfer template on a laminated lumber by pencil.

Cutting of the lumber by hand circular saw

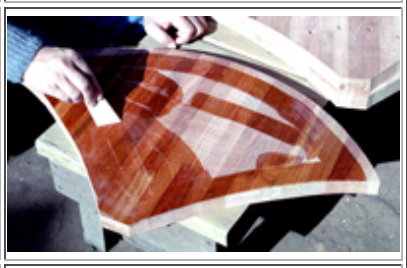
Addition of both wings

Application of glue by fixing wings

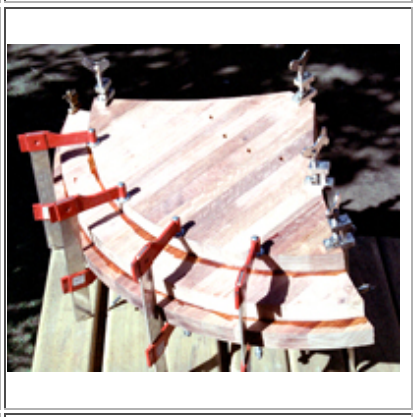
Completion of coarse formation process

Adjustment of side curve of the plates

Verification of side curve alignment among three



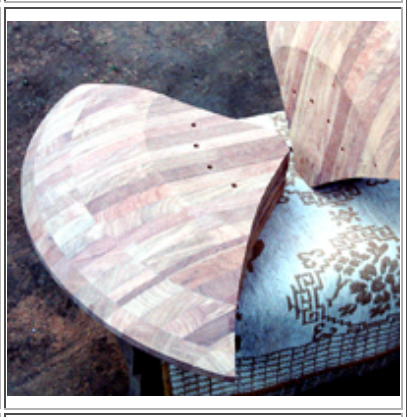
Application of epoxy glue (12 Hrs to cure)



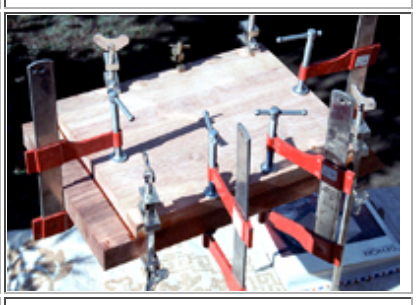
Lamination of three horn plates by fixing clamps and four screws

Obtain vertical contour by a electric plane

Fine adjustment by a rotary sander and a belt sander or sandpaper

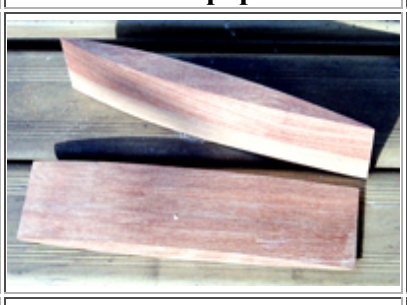


Completion of top and bottom horn pieces



Gaining thickness of the side horn walls

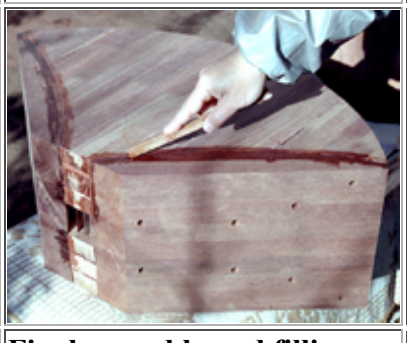
Contour making of the side walls of the horn



Completion of internal fins Belt sander may be used.

Location of four fins Epoxy glue is applied.

Side walls are assembled with epoxy and screws.

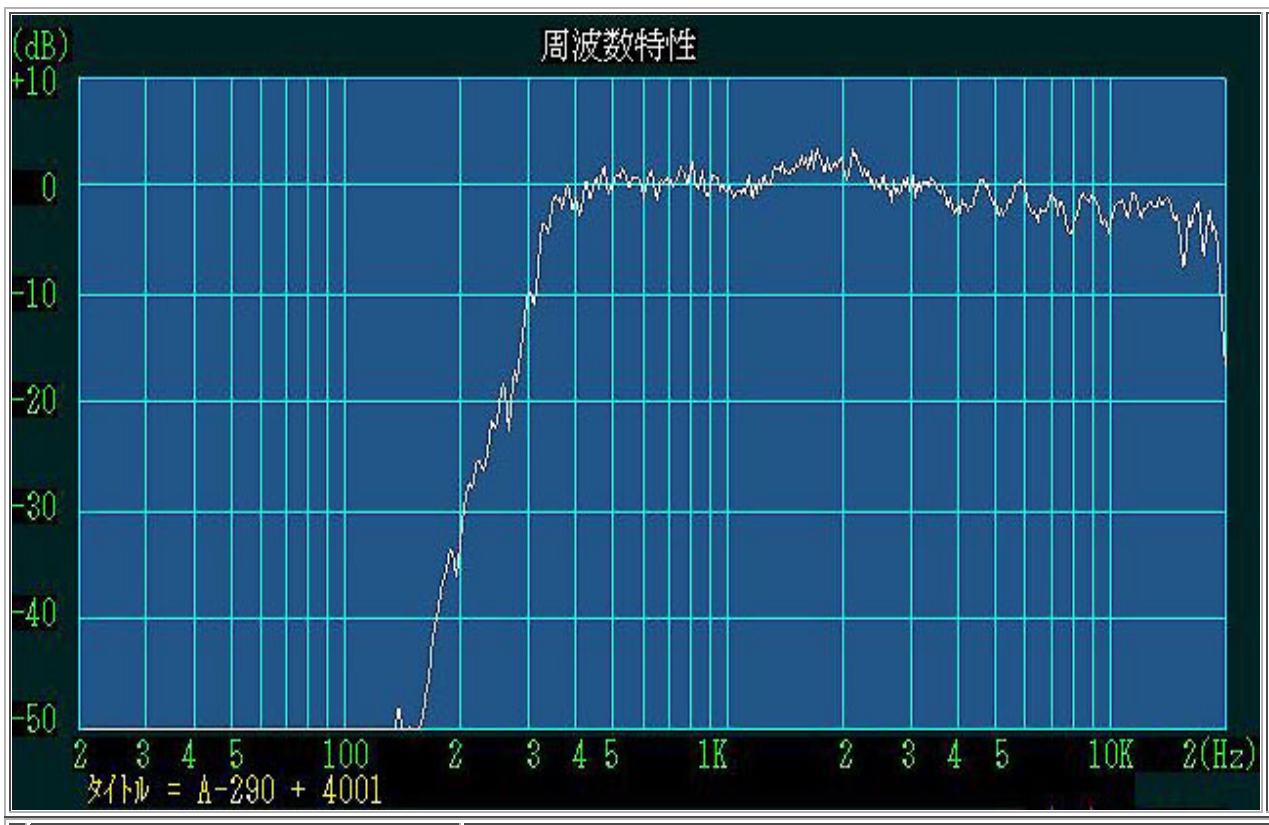


Final assembly and filling process by epoxy and wood powder mixture

Driver adapter (circle - square converter) Epoxy coating inside

Surface treatment by a hand router, a rotary sander and sandpaper

Measurement and Data



Left hand data is frequency response curve.

TAD 4001, 2 in throat, driver is mounted. The response shows very flat sound pressure level from 350Hz to almost 20KHz.

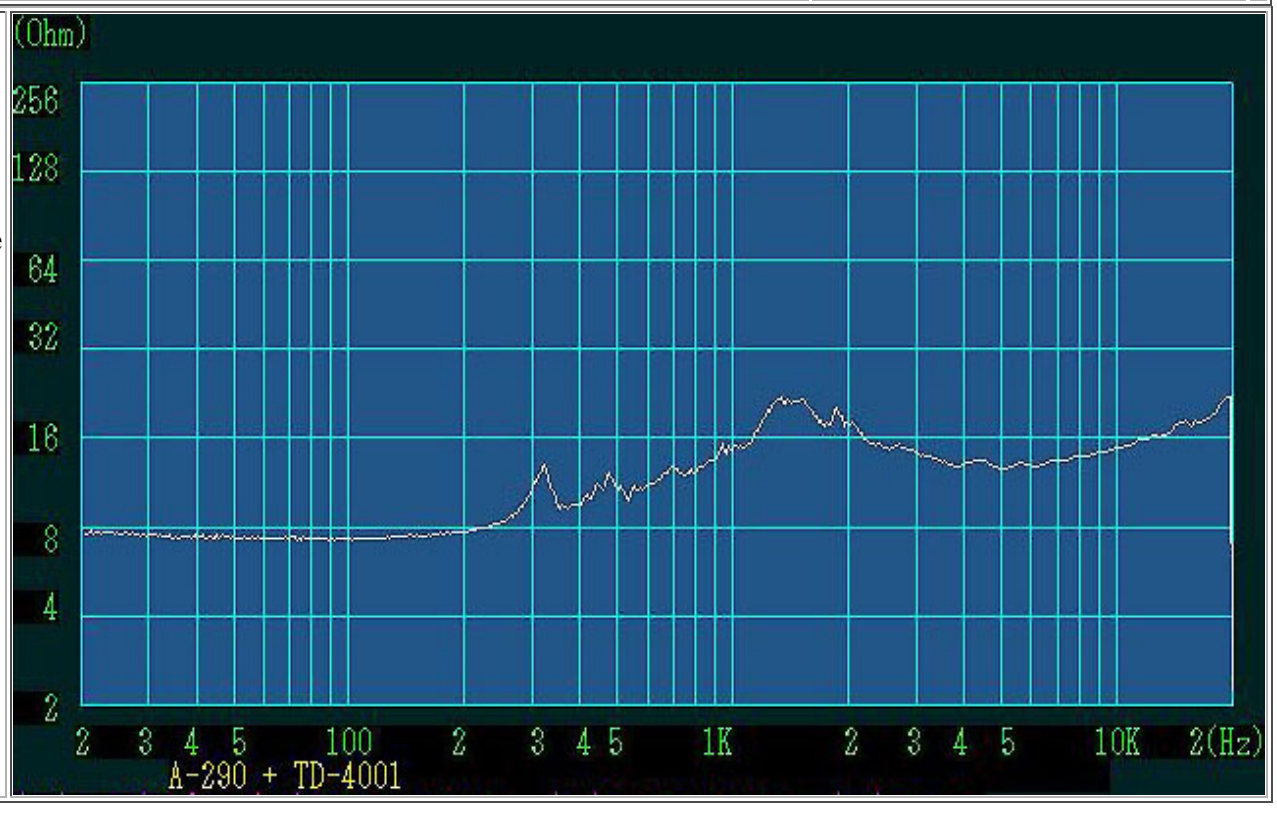
This horn with TAD 4001 or JBL 2441 or equivalent driver covers mid to high frequency range in 2 way or 3 way construction. However, very high frequency response depends upon the driver capability.

To set the crossover frequency as 300 to 400Hz is a little risky. Therefore, 600Hz above is safe to use.

Right hand data is a impedance curve.

This data shows that the diaphragm of the driver is horn loaded from 320Hz.

Therefore, it is a good idea to use this horn from 600Hz with enough guard band.



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