

Reciprocity Coupler Standard

acoustic range managers are limited by the current field level hydrophone accuracy.

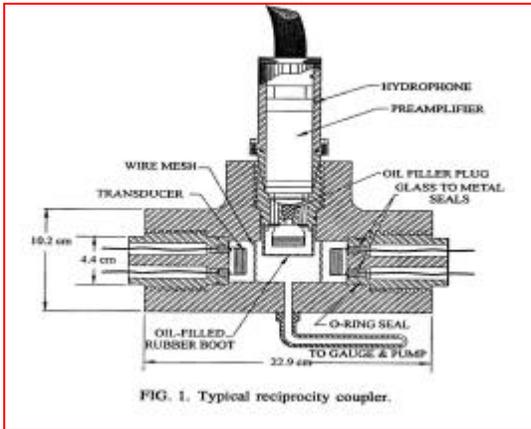


Figure 1 Typical Reciprocity Coupler

Coupler reciprocity calibrations are performed in small chambers where the temperature and hydrostatic pressure can be varied over a wide range of ocean operational conditions, typically from 2 to 40°C and 6 to 10000 psi. Hydrophones need to be specially designed and built to utilize coupler reciprocity calibration. This requirement excludes most field level hydrophones from being calibrated by this technique. However R&D facilities, which develop methodologies for processing hydrophone signals, need field level hydrophones with increased accuracy to fully implement their most advanced algorithms.



Figure 2 Typical Reciprocity Coupler

Hydrophone specifications provided to Navy platform program managers and



Figure 3 New High-Accuracy Transfer-Coupler

The Transfer Coupler Reciprocity System will be able to calibrate both field and Primary Navy Acoustic Standards at improved accuracies. The new system will be able to perform acoustic calibration of hydrophones at accuracies of 0.1 dB. At present the typical accuracy of hydrophone calibration is 0.5 dB with 0.3 dB being achieved under special circumstances.



Figure 4 New High-Accuracy Transfer-Coupler