

OBSIP Experiment Archive

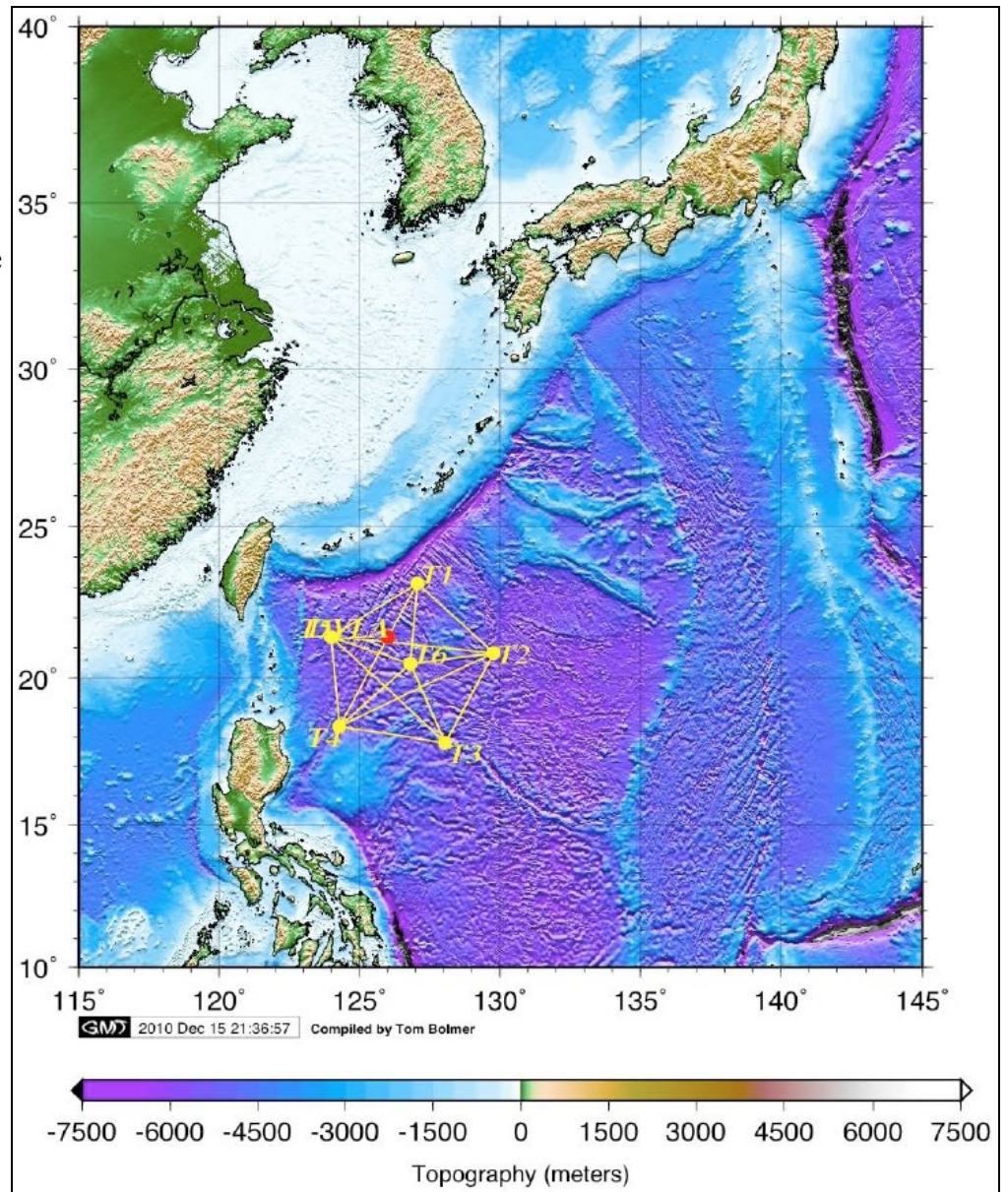
Year:	2011
Experiment Name:	Philippine Sea
Principal Investigator(s):	Ralph Stephen (WHOI)

Experiment Summary: Apr 19 - May 12—Active source experiment with 6 OBSs and shots over a 14 day period.

Science Objectives:

- 1) Study the coherence and depth dependence of deep-water ambient noise and signals.
- 2) Study the relationship between seafloor pressure and seafloor particle motion for both ambient noise and short- and long-range signals.

Datasheet for the J15-3 acoustic source is attached.



Extra Material for 2010-095 on the J15-3 Acoustic Source

Ralph Stephen

26 October, 2010

The J15-3 that was deployed on the MOPS cruise from R/V Revelle in July 2010 is shown in Figure 1. On the April-May 2011 cruise (2010-095) we plan to use the same basic configuration. Specifications for the actual J15-3 source are given in the Appendix, pages 4-6. The source will be deployed no deeper than 100m, sometimes at a fixed station, sometimes drifting and sometimes towed. The maximum source level of this device is 180dB re: 1 microPascal@1m over the frequency band from 50-200Hz (see Figure J15-3, No.3 in the Appendix).

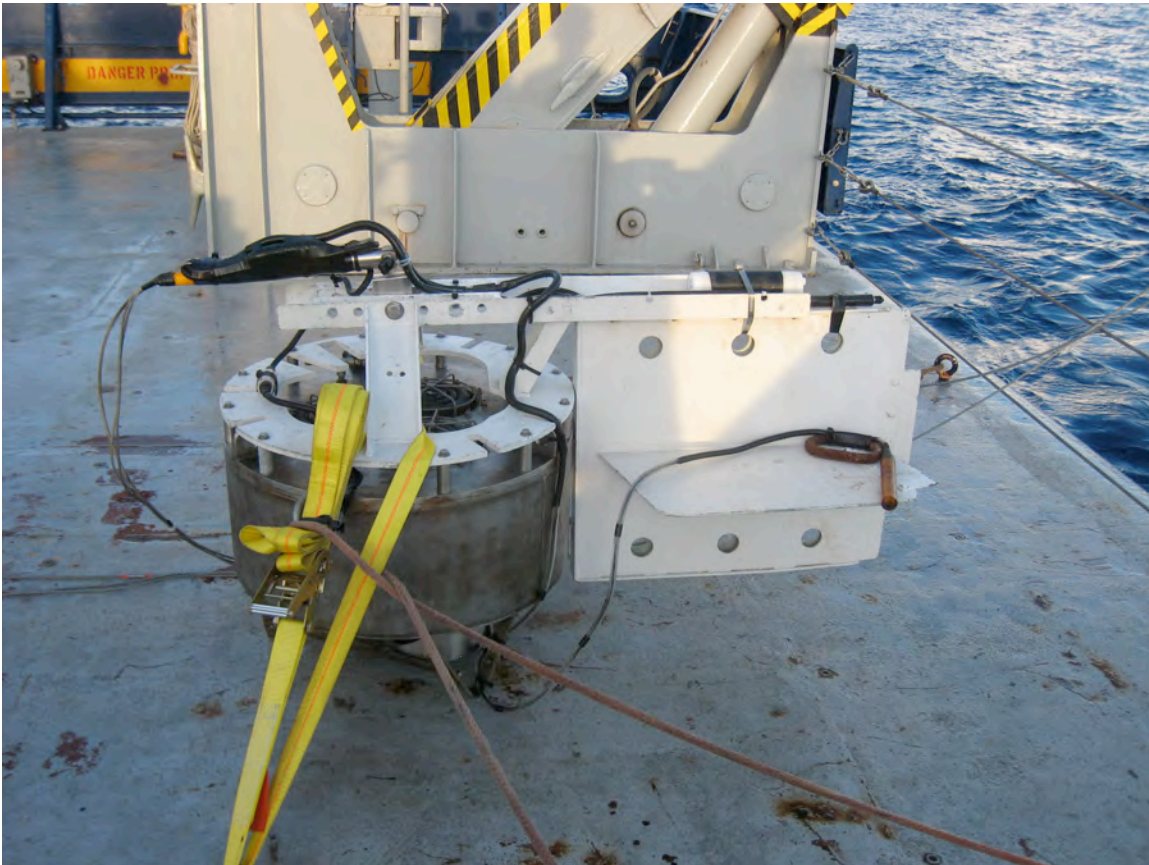


Figure 1: The J15-3 as deployed in July 2010.

TYPE J15-1 PROJECTOR

Post-It™ brand fax transmittal memo 7671		# of pages ▶ 6
To Dr. P. Worcester	From K. Jenne	
Co Scripps	Co	
Dept.	Phone # (401) 832-5317	
Fax # 858 534-6251	Fax #	

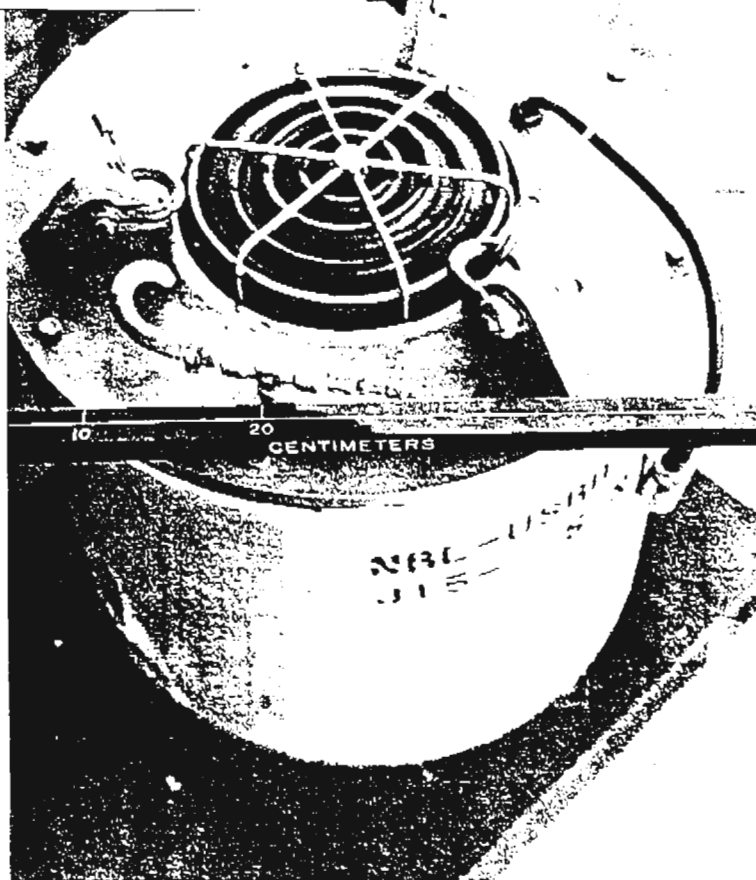


Fig. J15-1, No. 1 - Type 15-1 projector.

FUNCTION: A transducer for the low-audio and intrasonic frequency range with extra depth capability. Reversible but designed and used only as a projector.

DESIGN: Electrodynamic (or moving coil) with an extra-large passive compensation system for hydrostatic pressures and an upward vertical acoustic axis.

FREQUENCY RANGE: 30 to 900 Hz

TVR: See Fig. J15-1, No. 2

MAXIMUM DEPTH: 165 m
TEMPERATURE RANGE: 0 to 35°C
MAXIMUM DRIVING SIGNAL: Approximately 3 A, but monitor acoustic output signal for distortion
ELECTRICAL IMPEDANCE: See Fig. J15-1, No. 3
DIRECTIVITY: Approximately omnidirectional within 2 dB to 1 kHz
WEIGHT: Aluminum Housing - 46 kg (101 lbs)
 Stainless Steel Housing - 111 kg (245 lbs)
SHIPPING WEIGHT: Aluminum Housing - 80 kg (176 lbs)
 Stainless Steel Housing - 145 kg (320 lbs)
NORMAL CABLE LENGTH: 30 m
CABLE CODE: white high signal output
 black low signal output and ground
 shield low signal output and ground
INSTRUCTIONS FOR THE USER: See Appendix D for preparation for use
 See Fig. J15-1, No. 4 for acoustic center
 Diaphragm must face upward

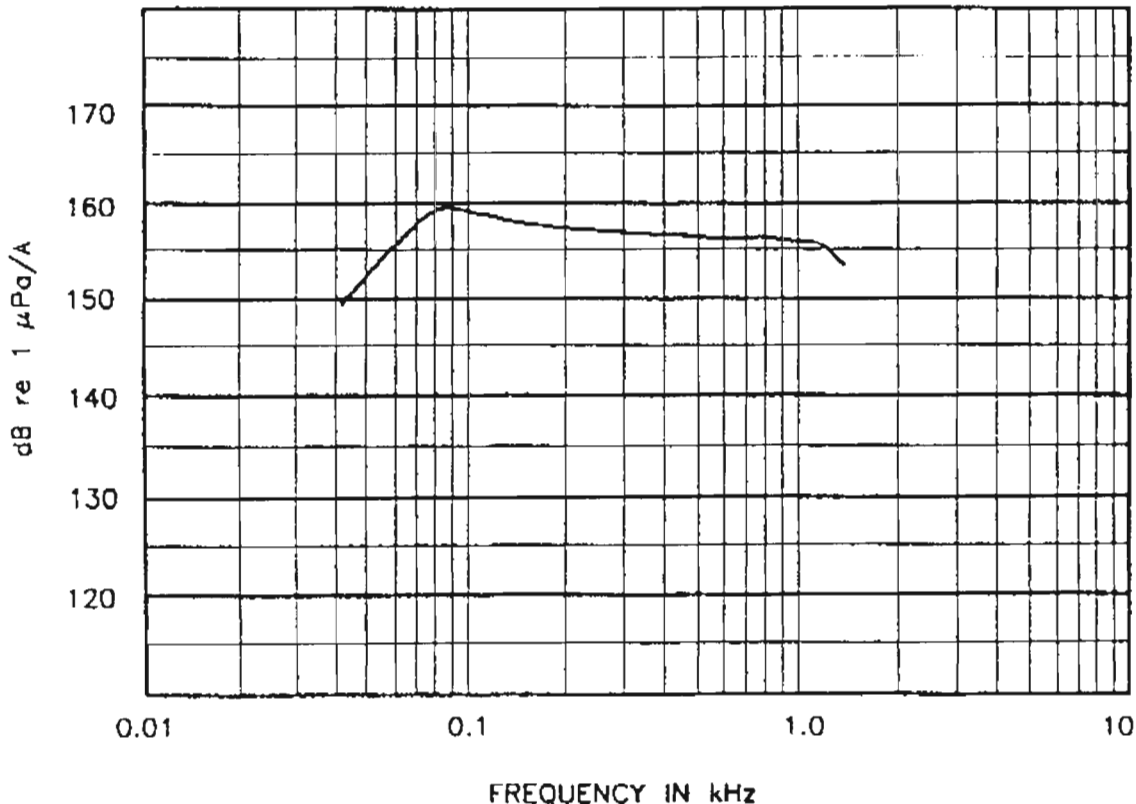


Fig. J15-1, No. 2 - Typical TCR for Type J15-1 projector.

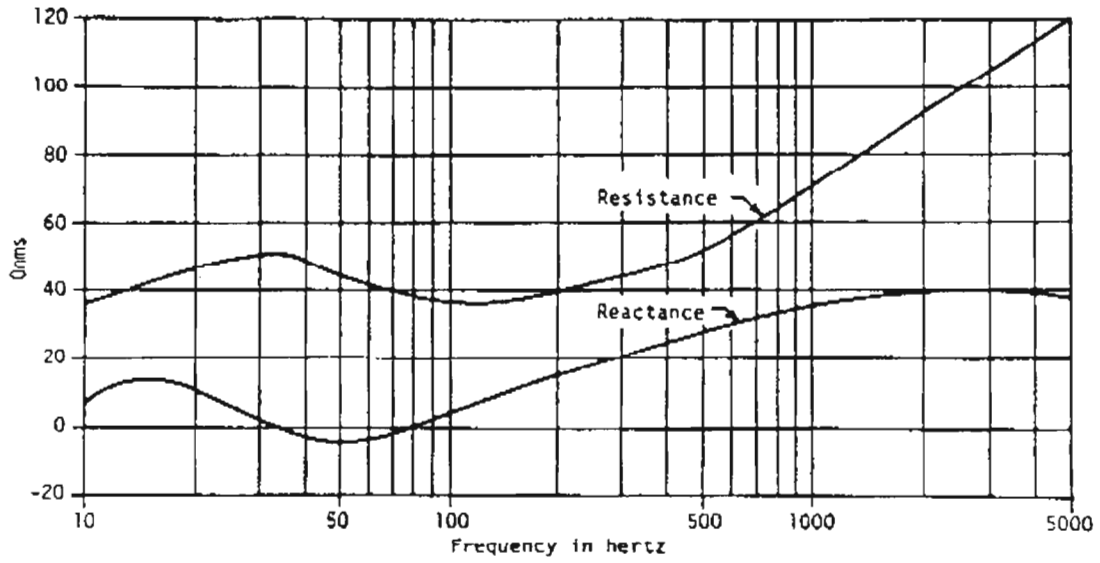


Fig. J15-1, No. 3 - Typical impedance for Type J15-1 projector.

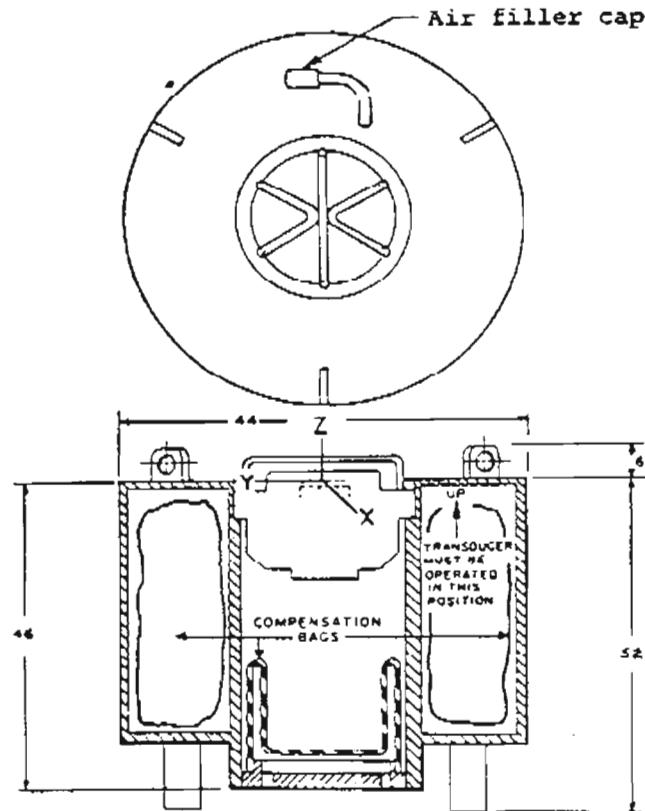


Fig. J15-1, No. 4 - Dimensions (in cm) and orientation of Type J15-1 projector.

TYPE J15-3 PROJECTOR

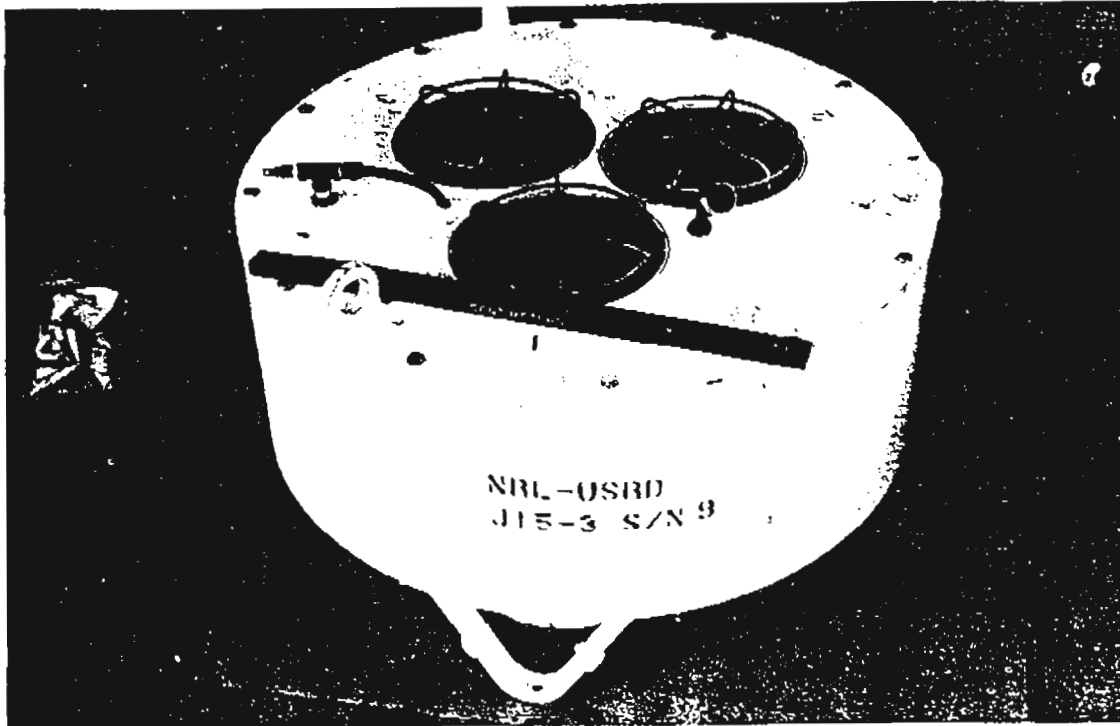


Fig. J15-3, No. 1 - Type J15-3 projector

FUNCTION: A transducer for low-audio and infrasonic frequencies, for extra depth, and with a capability of transmitting three different signals simultaneously. Reversible but designed and used only as a projector.

DESIGN: Electrodynamic, with an extra-large passive compensation system and an upward vertical acoustic axis - essentially three J15-1's in a specially built housing, but with a common compensation bag.

FREQUENCY RANGE: 20 to 600 Hz

TCR: See Fig. J15-3, No. 3

MAXIMUM DEPTH: 100 m

TEMPERATURE RANGE: 0 to 35°C

MAXIMUM DRIVING SIGNAL: Approximately 3 A. but monitor acoustic output signal for distortion

ELECTRICAL IMPEDANCE: See Fig. J15-3, No. 4

DIRECTIVITY: Approximately omnidirectional within 2 dB to 400 Hz

WEIGHT: Aluminum Housing - 170 kg (374 lbs)

Stainless Steel Housing - 223 kg (492 lbs)

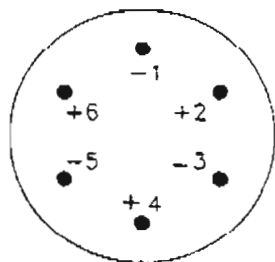
SHIPPING WEIGHT: Aluminum Housing - 223 kg (492 lbs)

Stainless Steel Housing - 339 kg (745 lbs)

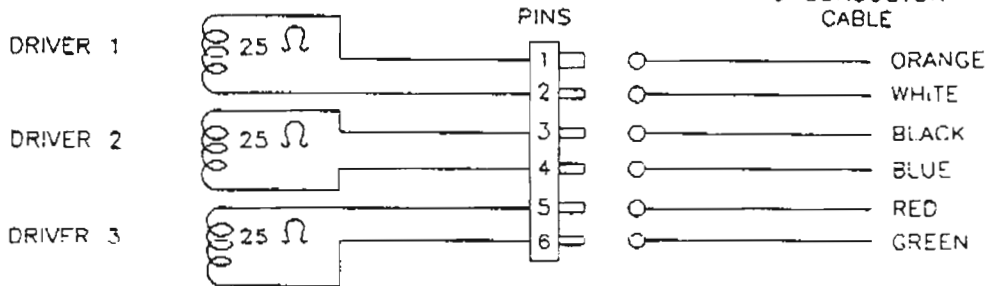
NORMAL CABLE LENGTH: 1 m with mating 1 m cable for splicing

CABLE CODE: See Fig. J15-3, No. 2

INSTRUCTIONS FOR THE USER: See Appendix D for preparation for use
See Fig. J15-3, No. 5 for acoustic center
Diaphragms must face upward



**RM6MS
MOUNTED TO PROJECTOR**



For series connection of driver assembly coils, connect pin ⁽²⁾ to pin ⁽³⁾ and pin ⁽⁴⁾ to pin ⁽⁵⁾. The input then will be pins 1 and 6.

The dc resistance for series connection is 75 Ω .

The drivers must be in phase. Check this by gently pressing on each head and reading the deflection on a meter. The three heads must deflect in the same direction.

Fig. J15-3, No. 2 - Cable connections for Type J15-3 projector.

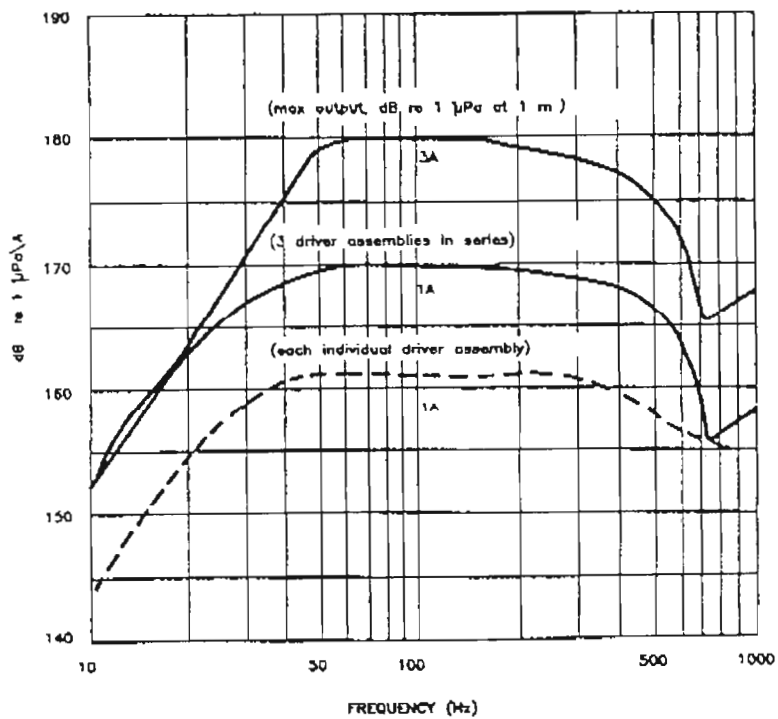


Fig. J15-3, No.3 - Typical TCR for Type J15-3 projector.

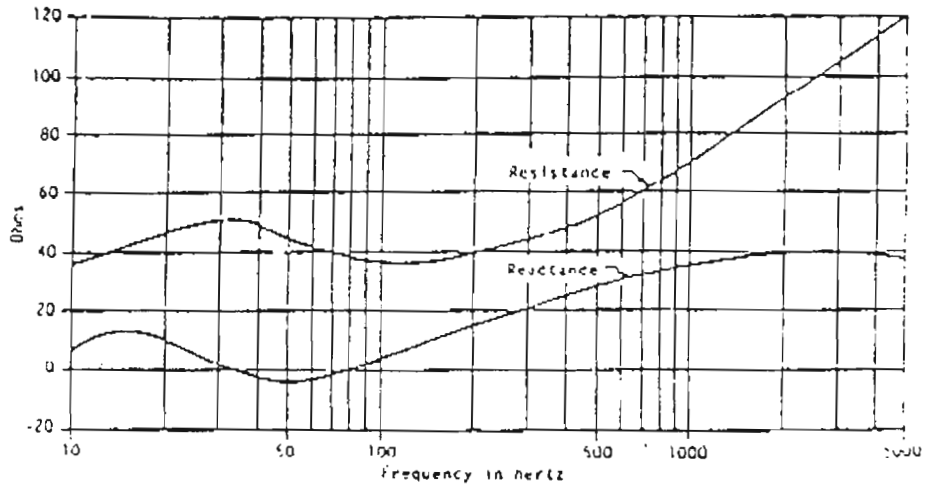


Fig. J15-3, No. 4 - Typical impedance for each of three drivers of Type J15-3 projector.

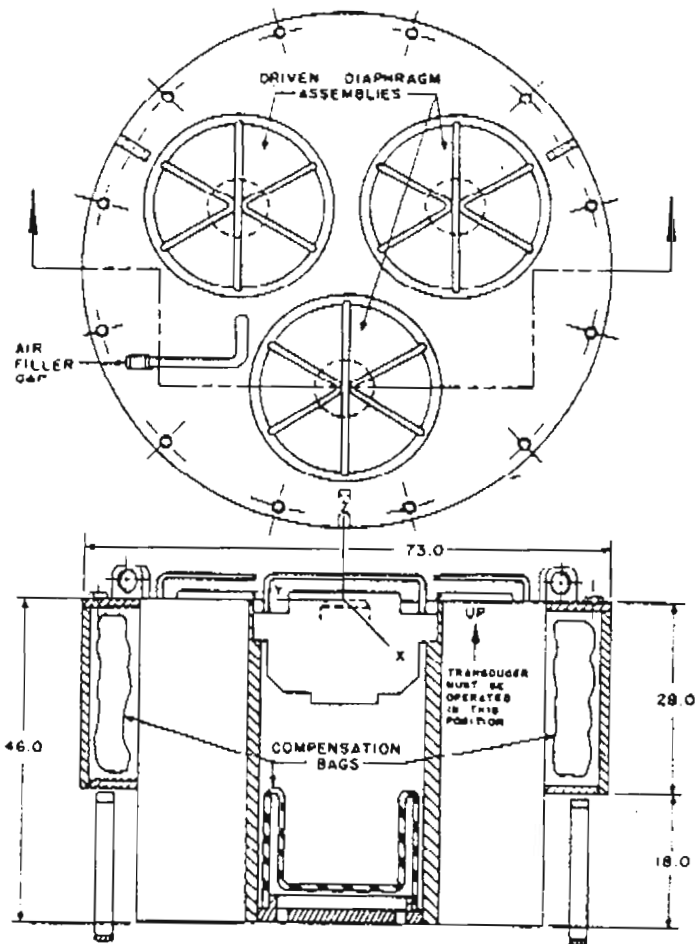


Fig. J15-3, No. 5 - Dimensions (in cm) and orientation of Type J15-3 projector.