

TYPE F33 TRANSDUCER

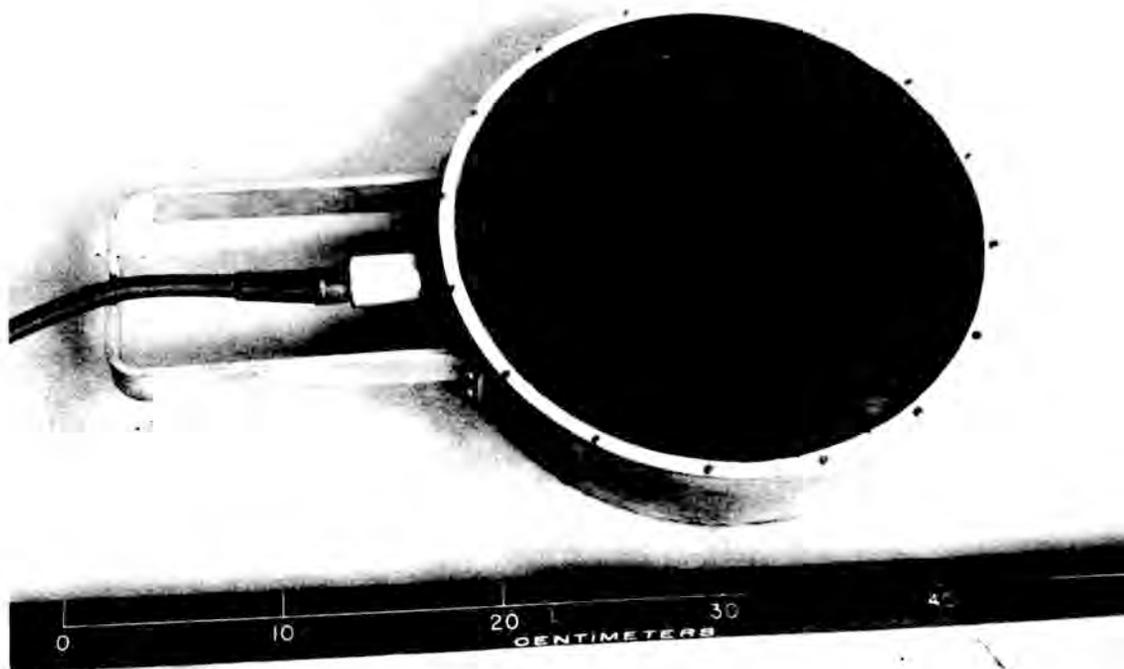


Fig. F33-1 - Type F33 transducer.

- FUNCTION:** A general-purpose directional transducer with two coaxial arrays that provide a bandwidth of over two decades. Reversible but designed and used primarily as a projector.
- DESIGN:** A small inner array consists of 12 PZT disks. The larger concentric array consists of 64 PZT squares (older units may contain barium titanate squares). The inner array is used at high frequencies and both are used simultaneously at low frequencies.
- FREQUENCY RANGE:** Both arrays: 1-50 kHz; Inner array: 15-150 kHz
- TVR:** See Fig. F33-2
- MAXIMUM DEPTH:** 340 m
- TEMPERATURE RANGE:** 0 to 35°C
- MAXIMUM DRIVING SIGNAL:** 200 V rms
- ELECTRICAL IMPEDANCE:** See Fig. F33-3
- DIRECTIVITY:** Patterns in the horizontal (XY) plane for both arrays are shown in Fig. F33-5, and for the inner array only in Fig. F33-6. Vertical (XZ) plane patterns are similar.
- WEIGHT:** 17.3 kg (38 lbs)
- SHIPPING WEIGHT:** 25 kg (55 lbs)
- NORMAL CABLE LENGTH:** 30 m

CABLE CODE:	Blue	outer array, high signal
	Red	outer array, low signal
	Black	inner array, low signal
	White	inner array, high signal
	Shield	ground

INSTRUCTIONS FOR THE USER: See Appendix D for preparation for use
 A hanger is a permanent part of the transducer
 The acoustic center is the mid-point of the acoustic window
 (see Fig. F33-4)

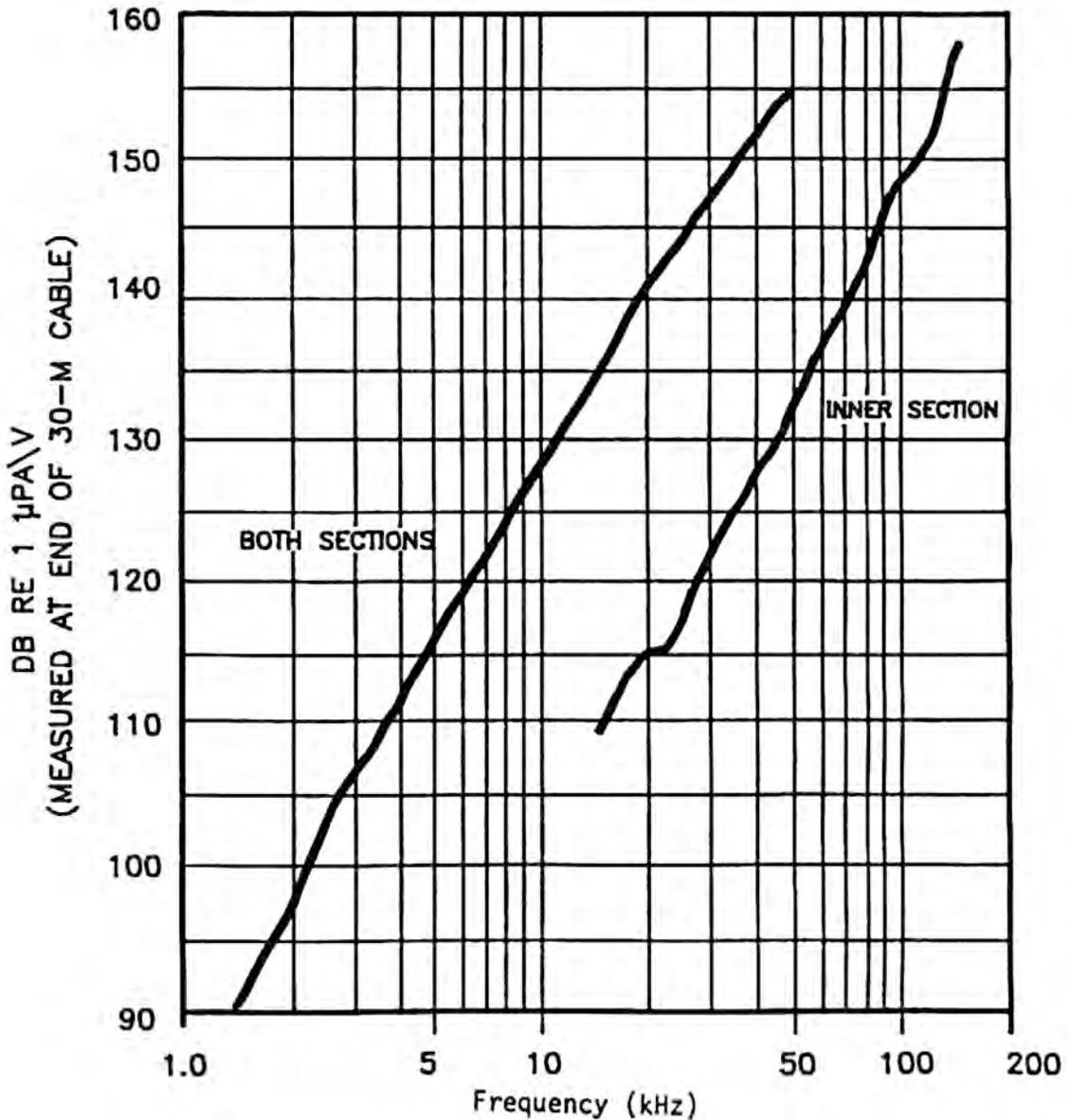


Fig. F33-2 - Typical TVR for Type F33 transducer.

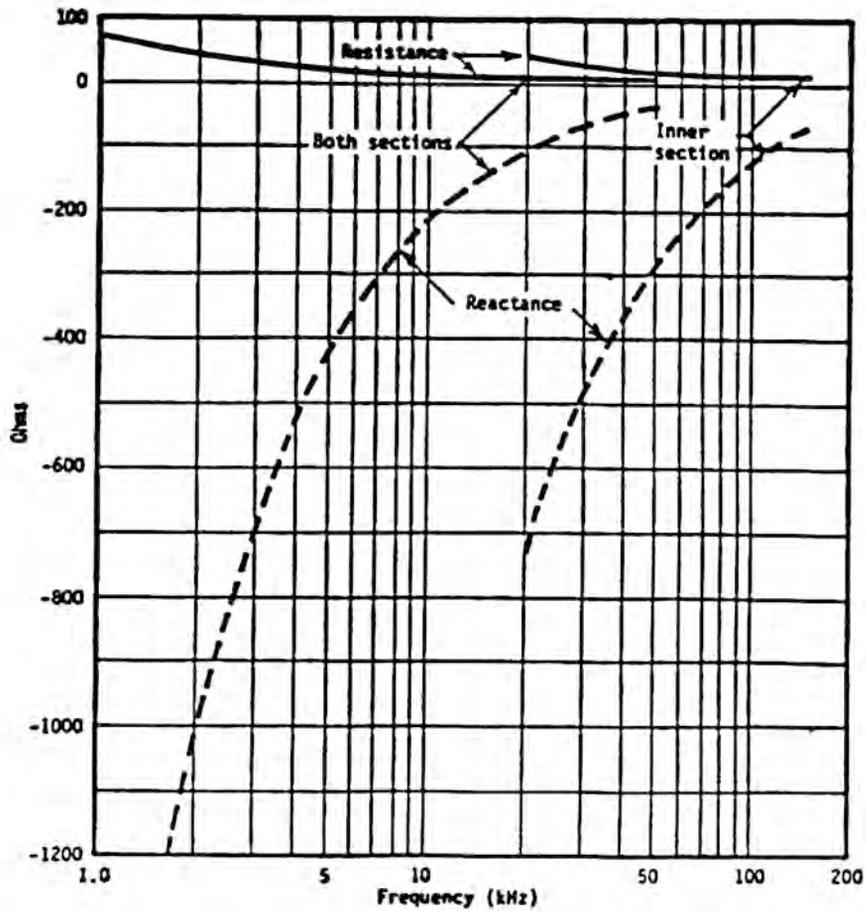
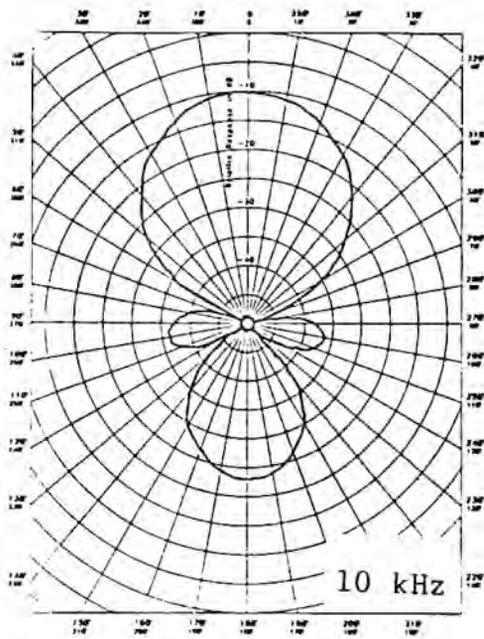
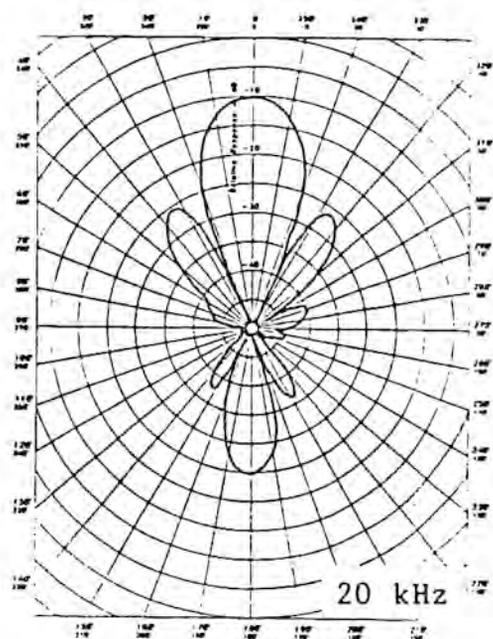


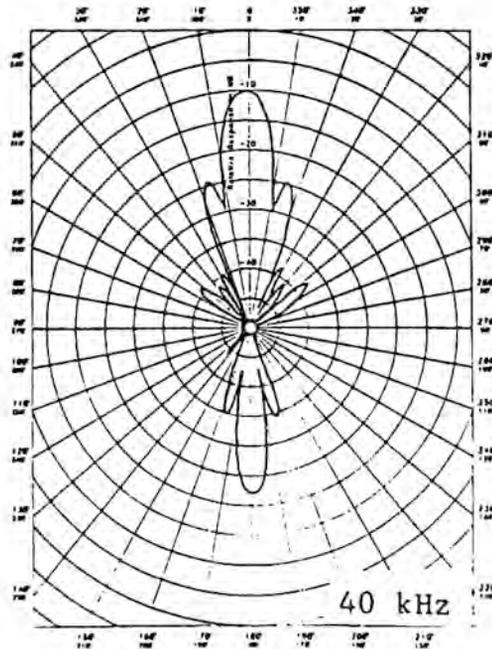
Fig. F33-3 - Typical equivalent series impedance for Type F33 transducer.



A

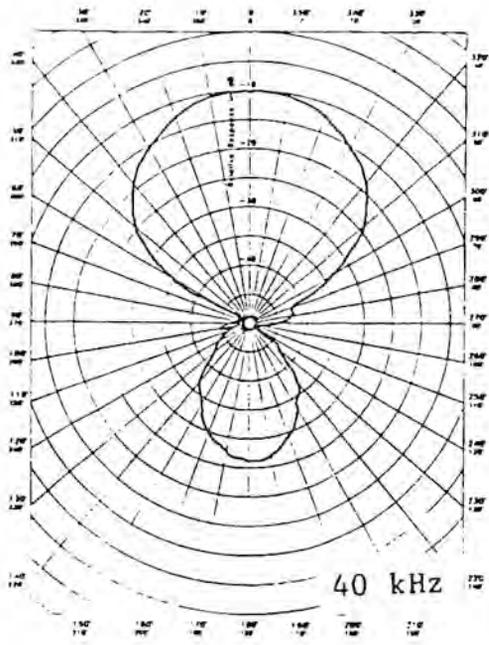


B

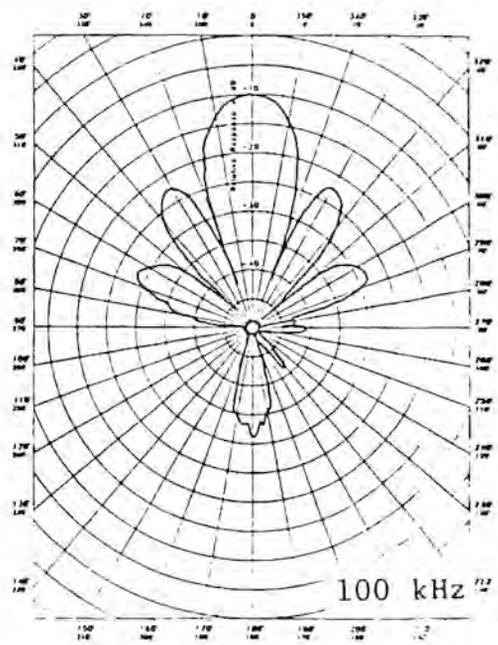


C

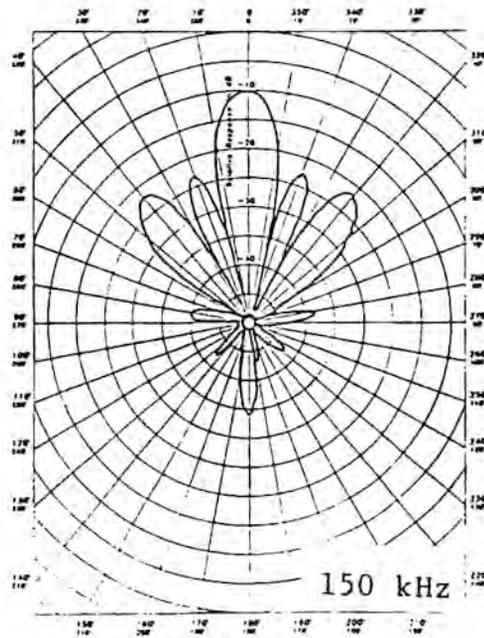
Fig. F33-4 - Typical directivity patterns in the horizontal (XY) plane for Type F33 transducer, both sections in parallel. Scale: center to top of grid in each pattern is 50 dB.



A

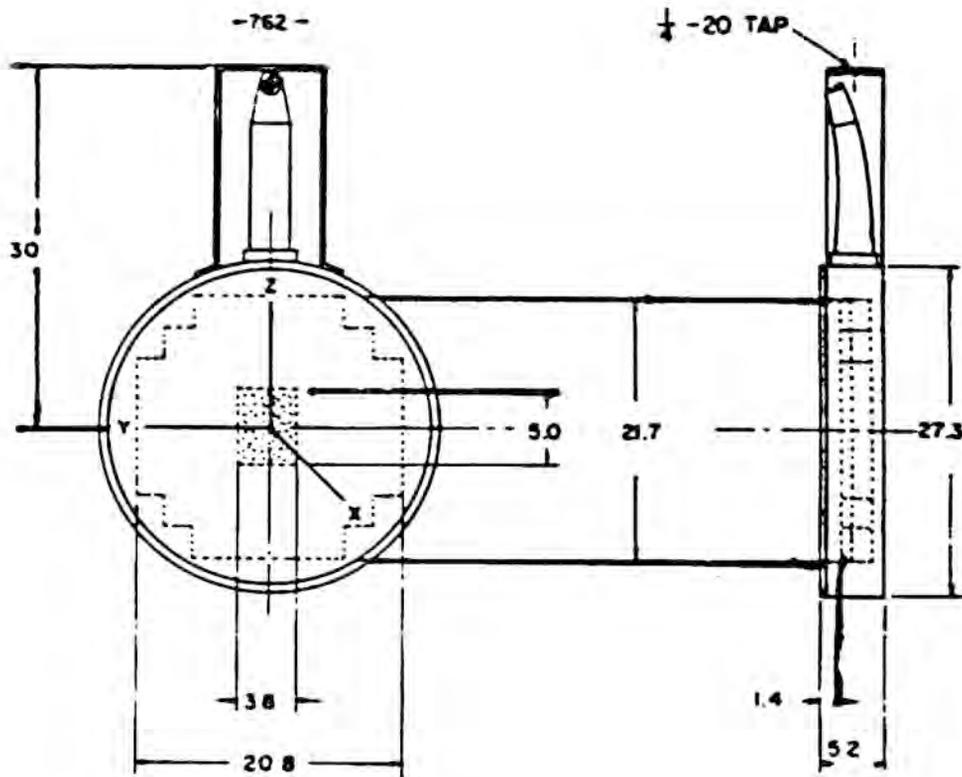


B



C

Fig. F33-5 - Typical directivity patterns in the horizontal (XY) plane for Type F33 transducer, inner section only. Scale: center to top of grid in each pattern is 50 dB.



ACTIVE ELEMENT

OUTER ARRAY

64 PZT-4 PLATES
(1.0 in. X 0.75 in. X 0.250 in. THICK)

INNER ARRAY

12 PZT-4 DISKS
(0.50 DIA X 0.10 THICK)

Fig. F33-6 - Dimensions (in cm) and orientation of Type F33 transducer.

- *NOTE:
1. Starting with S/N 132, the steel backing blocks are embedded in polyurethane.
 2. Transducers beginning with S/N 140 have stainless-steel housings rather than high copper alloy.
 3. Older units may contain barium titanate squares in outer array.