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

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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

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: Electrodynaminc (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

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

![Image of J15-3 Projector](image)

**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

DRIVER 1

DRIVER 2

DRIVER 3

PINS

6 CONDUCTOR CABLE

ORANGE
WHITE
BLACK
BLUE
RED
GREEN

RM6MS MOUNTED TO PROJECTOR

For series connection of driver assembly coils, connect pin 2 to pin 4 and pin 3 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.