

4. SURVEY METHODS AND PROCEDURES (Cont'd)4.5 Analogue Systems (Cont'd)4.5.3 Seismic Reflection Profiling (Cont'd)

Magnetic fields caused by the flow of current in the coil repel the backing plate on the boomer, thereby creating a short-duration, multi-frequency shock wave which travels downwards towards the seabed.

The boomer was fired every 3 seconds.

The sparker was towed astern from the port side of the survey boat and the hydrophone was suspended from a boom on the starboard side, to ensure it was well out of the vessel's wake. Before commencement of the survey, several trial runs were made to test the effect on record quality of various filter and amplifier settings. The filter bandpass was eventually optimised at 600 - 4000 Hz. Before presentation to the recorder, the seismic signals were passed through a two stage T.V.G. (Time-Variable-Gain amplifier). This enables the gain to be kept very low until the seabed echo is received, thereby minimising the obscuring effect of the direct sparker-hydrophone arrival on the part of the record representing the water column. The seabed return is then employed to trigger a second amplifier ramp which is used to compensate for spreading loss and absorption on the sub-seabed material.

Additional processing of the seismic signal was carried out with an electronic swell filter. This device retards or advances each sweep of the recorder to compensate for the vertical motion of the sound source