viii(a) STREAMER DEPTH CONTROL NETWORK DESCRIPTION

The Digiscan system, as used on the M/V Magnificent Creek, consists of a Model 293 Operator Station and modem board. Model 396 compass/depth controllers were attatched to the streamer at regularly spaced intervals. A brief description of each functional unit follows.

The model 293 operator station is a 16 bit mini-computer containing 192 Kilobytes of memory. It acts as the system controller for communications with the host computer, the units on the streamer (compass/depth controllers) and the Digiscan graphics package.

The modem board is an independent micro-processor based unit that physically resides within the 293 operator station. The modem board facilitates communication down the streamer in two modes; the 293 control mode and the modem control mode. In the 293 control mode the modem board is transparent on the streamer and the 293 communicates "directly" with an individual sensor. This mode requires the complete attention of the 293 operator station and thus it is reserved for initialization procedures, diagnostic routines and housekeeping functions. In the modem control mode the operator station instructs the modem board to collect data from several units on the streamer, continues to perform other functions during the communications phase and returns to retrieve a batch of data from the modem memory. System configuration parameters are stored in memory on the modem board while the system is powered down. Each modem board is dedicated to a single streamer, thus extra boards can be installed for additional streamers.

The Model 396 compass/depth controller is a micro-processor based depth controller device, externally mounted on the streamer. A Model 321 heading sensor (compass) is also contained within the body of the unit. This allows depth, temperature and heading data, plus depth keeping ability, to be derived from one externally mounted device.

Communications with a maximum of 63 devices occur over a single twisted pair transmission line, using traditional inductive coupling techniques in a 27KHz FSK communications link. Each live section within the streamer contains a communications coil, located 12.5 metres forward of the end coupling, over which a depth controller can be located.