



Early 1997, a drilling operation came to a halt when three tool bits were lost in the L-02 well located on the Dutch Continental Shelf. All efforts to recover them using standard down-hole equipment failed.

A special compact tool was developed in-house to recover such bits from a well. The tool included the following components: a hydraulic pliers/spreader, a guiding frame, a camera plus monitor and a remote control system.

After some "dry" runs, the actual job was performed successfully. Within

12 hours the recovery operation was completed and the drilling operation could be resumed.

This tool, named 'PAC MAN', has been used with several similar situations, each with the same positive result.

The 'PAC MAN' with its guiding frame will be positioned and operated by either divers or ROV. The subsea or surface 'PAC MAN' operator can operate the pliers accurately since a camera is installed near the pliers transmitting images to a surface monitor.

The 'PAC MAN' can either be deployed from a platform, jack-up rig or diving support vessel. The total weight of the equipment is  $\pm 300$  kg. The pliers/spreader is able to lift weights up to  $\pm 350$  kg.



# PAC MAN



*The 'PAC MAN' is being prepared for operation.*