ABSTRACT. Recent years have seen significant advances in ROV tooling techniques for the successful repair and maintenance of subsea cables. This paper outlines the developments which have been made, with particular reference to the advances which have been made to burial systems which are currently in use today. These burial systems allow cables to be rapidly buried, either during a repair process, or in post lay burial mode. The primary system is the use of water jetting systems. These ROVs can work in water Depths down to some 2,000m, and cut trenches upto 1m deep in soil strengths of upto 600 kpa, which is virtually a soft rock. This allows for cables to be successfully buried in the seabed, providing adequate protection from hostile seabed activity, such as fishing trawler boards or dragging anchors.

The development of the advanced burial systems has gone hand in hand with new technology developments in sensing and positioning equipment, which is allowing for precise and efficient repairs and maintenance of subsea cables. Subsea machines are becoming more reliable and durable and can be rapidly mobilised to undertake maintenance operations in as little as a 24 hour period. The proven success that the repair type ROVs have had of late has set up a new generation of rapid post lay burial machines. These machines bury surface laid cables and pipes by use of jetting tools or mechanical excavators. The advances are saving cable and pipe owners and users significant sums of money in terms of zero outage time and the resulting loss of production or communication downtime.

1 Introduction

Virtually all of today’s telecommunication and offshore umbilical and power cables will be buried wherever there is a risk of damage occurring. Submarine cable ploughs have been developed which sufficiently bury cables to a minimum depth of 600mm. Figure 1 shows a typical BT (Marine) Limited Plough and Figure 2 shows how a wedge of soil is lifted by the plough and the cable deposited at the base of the trench, before the wedge is then lowered to rest on the
1. A trapezoidal prism of soil is cut by the freely rotating disc cutter (1) inclined at 35 degrees from the vertical, and the sharp vertical knife (2).

2. The prism or wedge of soil so defined is gently lifted from below by a ramp or horizontal share, (3) rising along the sloping surface cut by the disc, and the cable (4) is placed underneath it.

3. The wedge of the seabed then rests on the cable.