

## Ejection System for GPS Recovery Aid

### 1. Brief Introduction:

During the practice firings of a Torpedo, the Warhead will be replaced by **Exercise Head**. The main functions of **Exercise Head** are to enable the recovery of the weapon and provide data for analysis. During the development phase of the torpedo, performance evaluation is done offline as on line data transmission is not possible in underwater scenario. Therefore on completion of mission or exercise, it is essential to recover the torpedo to retrieve the data. There should be recovery systems/aids to locate the torpedo once it is surfaced. After recovery of the torpedo/ underwater vehicle, the data stored in the recording system will be retrieved to analyze its performance.

The conventional recovery systems like smoke marker, noise maker and colour dye, use audio/visual schemes which constrain the range and time of exercise as well as recovery process of underwater vehicle. So it becomes difficult to find out location of torpedo/under water vehicle. The GPS Recovery Aid with Ejection System provides a solution by transmitting latitude, longitude and time along with few critical parameters of mission at pre-defined intervals, at ground based Hub through satellite link. When torpedo reaches a pre defined depth after run termination, the housing consisting of antennas, ejects out from the recovery system, extending above the surface of water.

### 2. Description of Operation of Ejection System:

Mass of the total unit is 5 kg. Overall dimensions are: 327x130x100 mm. The major dimension of the assembly unit is along the perpendicular to the longitudinal axis of the Torpedo. The GPS and Transmission antennas housing is fastened to the Torpedo shell with screws. The O rings present in the sliding housing prevents the sea water getting into the shell of the torpedo. The GPS antenna holding assembly keeps the unit locked into the shell. The spring has to hold the pin in position in the groove to lock the Housing from ejecting out. When a squib in the GPS holding device is fired, the spring is compressed back to retract the pin from the groove thereby releasing the housing to eject out. The Stopper restricts the unit from completely ejecting out of the torpedo.

