

PRODUCT DESCRIPTION DOCUMENT

EBW Detonator based Exploder System for Naval Warheads



Exploder is a critical subsystem of Naval warhead, which ensures safety of the warhead in transportation, handling, storage and operations. Exploder prevents inadvertent arming and detonation of warhead by removing all safety interlocks and initiating explosive train only when intended.

As part of the Torpedo and Sea Mines development program taken up by NSTL, TBRL has designed and developed Exploder and Warhead for Light weight torpedo TAL and Exploder for Heavy weight torpedo VARUNASTRA and Multi Influence Ground Mine(MIGM)

EBW detonator based Exploder for HWT VARUNASTRA and MIGM is a new generation Exploder system that besides incorporating various safety interlocks, houses a high voltage unit for initiating high energy detonators. It has modular design with no moving component and significant reduction in number of components as compared to traditional exploder system. Exploder mechanism provides various prescribed safeties to prevent inadvertent initiation of warhead during storage, transportation, handling and operations. Safeties provided by exploder are mentioned below:

- A)** Storage and Transportation Safety
 - i. Detonator holder is kept separate from exploder and need to be placed only for War shot torpedo
- B)** Handling Safety
 - i. EBW detonator needs high voltage short pulse supply to function

- ii. Exploder does not have any battery
- iii. +28V is made available when torpedo enters water

C) Depth Safety

- i. Depth sensor is normally shorted so that power supply doesn't reach second stage. At $3m \pm 1m$ depth sensors operates

D) Course Safety

- i. Another safety break is provided that open only when Enable switch is closed by torpedo's OBC
- ii. Final safety break is impact switch and proximity switch that closes only on an impact of 3g or higher.

Fig1. Shows sequence of operations of Exploder system

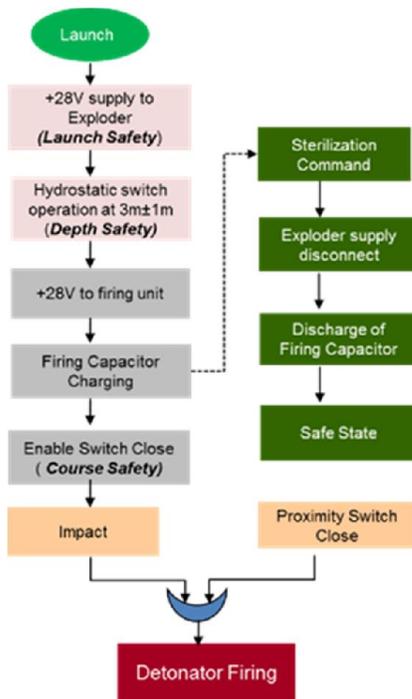


Fig 1: Exploder Sequence of Operations

EBW detonator based Exploder is immune to spurious stimulus pulses like EMI and EMP and initiates the Warhead on proximity or impact to the target. Exploder has qualified all QT and AT level tests and ready for warshot trials. As this exploder uses state of the art technology, it can be used in all future Naval weapons warhead like Torpedoes and Multi Influence Ground Mine.