



## SALVAGE OF SEAKING 525

- Capt SN Ghormade

1. I took over the command of Nireekshak on 02 Apr 03. The ship had returned after an unsuccessful attempt at recovery of a Seaking 42 B, which had ditched earlier, off Goa. She had been at sea for a prolonged duration and the officers and men were yearning for some time with their families. As I discussed the problem areas with my Officers, I pointed out that this was an opportunity for the ship to prove her worth, especially when an operational task beckoned her. Realising that leave was a major concern of all officers and men, I directed my HsOD that they could send the men on leave with immediate effect, as long as they could manage all the operational tasks with the available manpower.

2. The ship had earlier sailed from Kochi on PM 26 Mar 03, to search and salvage the ditched Seaking 42B on the datum established by Viraat. She arrived in the area on the morning of 29 Mar 03. The Dynamic Positioning System (DPS) was not operational, preventing the divers from undertaking saturation dives. As the sea state was 2/3 and the depth in the area around 70 meters, diving using compressed air in an improvised manner was carried out to locate the wreckage, by maintaining the ship's position manually within 05 meters of the diving site. The tail pylon of the aircraft was located at 1345 h on 29 Mar 03 and the divers secured a marker buoy to it. As the sea state went up to 3/4 and wind speed increased to 28 knots, further diving was abandoned

and the ship returned to Mumbai to effect repairs on the DPS.

3. On assuming the command of Nireekshak, I made a quick visit to Kunjali II with my Diving Officer and had a look at a Seaking in the hanger. The priority was to see the strong points and securing arrangements on the helicopter. Since salvage of an aircraft was being attempted for the first time, proper planning and visualisation of the entire evolution, in a sequential manner was a must. The air publication prescribed method for lifting a seaking, recommended connecting the aircraft lifting slings on to certain specific points on Main Rotor Head (MRH). To undertake this, access to MRH was the key. The slots on MRH also had to be correctly identified. We noticed that the first connection slot was on the root of main rotor blade 1 and the other two were at one blade interval each. Thus, identification of blade No.1 becomes the most critical aspect. These points were below a mesh of wirings and were easily accessible, when the aircraft was stowed in the hanger upright. Underwater at a depth of 70 m, it was anybody's guess, as to how to access these points amongst the mesh of broken blades, and a lot would depend on the aspect of the aircraft underwater.

4. The next day, I called on the FOCINC (West), COS, FOCWF and FOMA. As I discussed the issue with them, I got some valuable advice that would come handy in the course of further operations to recover the helicopter. I addressed the ship's company and emphasised the need to take on this operational task with full zeal and enthusiasm. However, the safety of my men was uppermost in my mind. As the DPS was not fully available, saturation diving could not be conducted. We decided to undertake the operation using the four-point mooring method. The weather was an important factor in this method and the operation had to be completed before it worsened. Maintaining an accurate position was a must to conduct the saturation diving operations.

## The Search

5. We sailed from Mumbai on 04 Apr 03, with the DPS partially available. The concerted efforts of the ship's staff during the passage brought the second computer on line. This was a major achievement, as the OEM had quoted exorbitantly with an unreasonable timeframe to effect the repairs. The second operational computer meant that saturation diving could now be undertaken. But first, the DPS had to be tried out. On reaching the area, on 05 Apr, I obtained the necessary inputs from the Senior Officer Conducting Search (Nirdeshak) and proceeded to test the DPS. Having overcome the first hurdle, a search pattern was planned and we commenced search on the positions provided by Nirdeshak. As the ship stopped at the probable position, a diver searched around this position in a circle of radius 20 m to the maximum length of his umbilical chord. Once this search was completed, the diver was called back into the bell and the ship moved on DPS, by 20 m. The diver again came out of the bell and repeated the circular search. This ensured a sufficient overlap, as we maintained an accurate plot. A total of 9.5 h of diving was carried out and an area of 3900 Sq meters was searched on the first day. However, no significant wreckage was found. At the end of the day, with the divers back in the DDC, debrief on the day's activities was conducted and plan of action for the next day, was finalised.

6. The next day, we searched the areas left out due to the intermittent failure of the Dynamic Positioning System, while commencing diving operations from the same position where the last search had been terminated. A few parts, such as the nose door, pilot side window, pieces of rotor blades and few pieces of wreckage were found. All the positions indicated by Nirdeshak had been searched and the major part of the fuselage still eluded us. Anxiety began to set in. In addition to the physical search being undertaken we also used underwater camera to effect augmentation of search. As the camera search



gained momentum, misfortune struck us with the camera cables getting chafed and the camera becoming non-operational. The Electrical sailors quickly got into action, to repair the camera.

7. By 1530 h, 11-1/2 h of diving operations were carried out and an area of 5200 sq meters was searched. I had a quick look at the search area and decided to move in the opposite direction of the set from the position of the tail pylon. This was away from the indicated positions. Meanwhile, the under water camera was repaired and lowered again. At 1615 h, the main fuselage was sighted at a distance of 110m from the tail pylon. The divers were euphoric. As we sighted the fuselage on the TV screen, our joy knew no bounds as this was found after a sustained diving effort of 19 h. The ship was immediately positioned on top of the main fuselage by the DPS. The diver soon secured a marker buoy to the fuselage. This line was taken onboard and a close watch was kept to prevent it from snapping in case of a runaway emergency of the DPS. The divers were then directed to carry out a detailed underwater video recording of the main fuselage. This activity took another hour and a half. The divers were called back as the underwater visibility dropped.

### **The Salvage Operation**

8. The Ops team thereafter carefully scrutinised the video recording of the main fuselage and the following important observations were derived from the footage:-

- Aircraft was resting on its port side.
- The MRH was partially embedded in the seabed.
- The undercarriage with wheel assemblies did not sustain much damage.
- Since the tail pylon had already parted, the aircraft could now be accommodated on the ship's quarterdeck on its undercarriage, if lifted safely.
- Further, since the blade number one does not have any hydraulic pipelines around its root, the divers

could identify the blade with this feature.

- In case of poor visibility, this feature becomes an easy aid for correct identification by feeling the root area of the blades by hand.

A plan was soon finalised and I briefed the Senior Officer Search who in turn took the necessary approval from HQWNC to undertake the salvage, in the early hours of 07 Apr.

### **Execution of the Salvage Plan.**

9. Diving operations commenced at 0730 h on 07 Apr 03. The underwater visibility was reported to be very low. Due to strong underwater current, managing own position and the cables running from the surface, was indeed a challenge for our divers. To add to their trauma, there were a large number of sea snakes. The first important evolution of the day for our divers was to connect up the lifting sling to MRH of the aircraft. There were a number of pipes and cables around the MRH and it was a Herculean task to locate the slinging points. As the Seaking lifting sling was lowered on a guideline to the diver, the heavy weight of the sling coupled with the prevailing strong underwater currents, prevented the attachment of the sling onto the MRH, despite repeated attempts. This halted the entire process. After an on the spot assessment, the surface salvage team came up with an innovative and an improvised slinging arrangement. The arms of the sling were disconnected and were connected to the lifting strops of the Submarine Rescue Bell, available onboard. This improvisation reduced the weight which the divers had to handle. Initially, two strops attached together were lowered to the diver this was followed by the third strop. This operation was done very systematically and in a seaman like manner. The diver succeeded in connecting the lifting sling to MRH by 1330 h.

10. The next task was to connect the rescue bell strop to the crane hook. This required placing the crane hook with a ponder ball weighing 250 kg, close to



the strop, so as to make it easy for a single diver to connect up. Hence, it had to be lowered exactly on top of the MRH. For this to happen, the ship had to maneuver on its DPS precisely, in tandem with the crane operation, obtaining inputs from the diver in the water. We accomplished this task without much ado and the diver connected the lifting sling to the crane hook and thereafter seized the complete assembly with additional ropes, to prevent accidental slippage during hoisting. As we commenced lifting, the main fuselage straightened and then stabilised on its undercarriage. A very deliberate, fully controlled and coordinated evolution was thereafter undertaken, where in the main fuselage was lifted in steps of two feet at a time, till it broke free from sea surface. The coordinated action culminated into lifting of the main fuselage from the seabed safely, without any damage. Excellent command and control, hands on experience on the DPS by the bridge team and the professional competence of the dive supervisor, were the key to the success.

11. In the meanwhile, the ships quarterdeck was prepared and MAZ tyres were placed to prevent damage to the recovered aircraft. It was an extremely difficult evolution to lower the main fuselage on the restricted space on the quarterdeck. The entire ships company was involved in this evolution. The Main fuselage did swing due to the swell and prevailing wind conditions, as it was lowered on to the quarterdeck. Finally, we managed to stow the aircraft on its undercarriage at 1510 h, with ground lock pins inserted and secured with six lashings. Additional MAZ tyres were placed below at places for support. The

aircraft was then washed down with fresh water and treated with Indrox solution.

12. The ship then shifted to the position of tail pylon, which was about 110 meters away from the main fuselage position. After effecting a change around of the divers, we commenced diving operation to recover the tail pylon. The tail pylon was secured with a strop around the tail rotor head. It was first video recorded prior to lifting, for the approval of surface team. Subsequently, it was lifted and was secured on quarterdeck at 1620 h. After this, we searched the area for some more time, where in an Observers brief case and few more pieces of broken blades were recovered.

13. The salvage operation was terminated on 07 Apr 03, after a total of 23 h of diving. The ship had successfully achieved the first full-fledged salvage operation of Indian Navy, recovering up to 99 percent of the aircraft from a depth of 70 meters. This was a major achievement for the Indian Navy, as its salvage capability was proved beyond doubt.



\*\*\*\*\*

### ABOUT THE AUTHOR

Capt SN Ghormade was commissioned into the Navy in Jan 84. An ND Specialist, the officer has graduated with distinction from US Naval Staff College, Newport, Rhode Island. The important assignments the officer has held include command of Nireekshak and Alleppey, Second in command Ganga and Deputy Director Financial Planning at NHQ. The officer has also graduated from the College of Naval Warfare, Mumbai and is presently the Director Naval Plans at IHQ MOD (Navy).

