UNCLASSIFIED NEDU-5-81

SAVAGE OF A USAF F-106 DELTA DART. (U)
JUL 81 C A KIDMAN, R A BORNHOLDT

END
NAVY EXPERIMENTAL DIVING UNIT

REPORT NO. 5-81

SALVAGE OF A USAF F-106 DELTA DART.

Submitted by:

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CDR, USN
Commanding Officer

Approved by:

R. A. BORNHOLDT
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Commanding Officer
As formally requested by the U. S. Air Force and under the official direction of the Chief of Naval Operations, the Navy Experimental Diving Unit (NEDU) directed the search, location and recovery of an F-106 DELTA DART which had crashed into the Gulf of Mexico in 80 FSW. The operation covered a span of 20 days. NEDU was assisted in the salvage effort at various times by local units from the Navy Diving and Salvage Training Center and the Naval Coastal Systems Center. The assistance provided by...
the Air Force in the way of an 85 foot drone recovery boat and three divers greatly reduced the overall cost of the operation. The out of pocket expenses incurred by NEDU ($15,000) included the purchase of braided nylon line and dive gear turned over to the Air Force to be used on future operations. Recycled airplane scrap metal recovered during the effort was estimated to be valued at in excess of $40,000.
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Acquisition Form

Report Documentation
NDDU	X
DISS	
Unclassified
JOINT

Availability Codes
DISS

Restricted

Approved

Distribution

Special
Abstract

As formally requested by the U. S. Air Force and under the official direction of the Chief of Naval Operations, the Navy Experimental Diving Unit (NEDU) directed the search, location and recovery of an F-106 DELTA DART which had crashed into the Gulf of Mexico in 80 FSW. The operation covered a span of 20 days. NEDU was assisted in the salvage effort at various times by local units from the Navy Diving and Salvage Training Center and the Naval Coastal Systems Center. The assistance provided by the Air Force in the way of an 85 foot drone recovery boat and three divers greatly reduced the overall cost of the operation. The out of pocket expenses incurred by NEDU ($15,000) included the purchase of braided nylon line and dive gear turned over to the Air Force to be used on future operations. Recycled air plane scrap metal recovered during the effort was estimated to be valued at in excess of $40,000.
I. INTRODUCTION

Naval Sea Systems Command message 141703Z JUL 81 assigned Commanding Officer, Navy Experimental Diving Unit (NEDU) as the Officer-in-Charge of the search, location and recovery of a USAF F-106 DELTA DART which crashed at sea 6 miles south of Crooked Island Cut, Panama City, Florida.

II. NARRATIVE

A USAF F-106 DELTA DART from Tyndall Air Force Base, FL, crashed in the Gulf of Mexico 6 miles south of Crooked Island Cut, FL on 9 July 1981. The pilot ejected and was rescued safely. On 10 July 1981, the Air Force Accident Investigation Board requested the U.S. Navy to coordinate a USN/USAF effort to locate and salvage the wreckage.

The Commanding Officer of the Navy Experimental Diving Unit (NEDU), CDR R. A. Bornholdt, USN was designated as Officer-in-Charge of Salvage. CPO(MDV) C. A. Kidman, Royal Navy of NEDU was appointed On-scene Commander. On 10 July a search for wreckage was initiated, representatives from NEDU, Naval Coastal Systems Center (NCSC) and Tyndall Air Force Base took part using side-scan sonar. After 24 hours of searching, the Air Force Watercraft Branch located the crash site and marked the largest item of debris. The depth was reported to be 80 feet-of-seawater.

13 July 1981

0800: A 9-man Dive Team consisting of CPO(MDV) C.A. Kidman (NEDU), LtCdr D.J. Smith (NCSC), CEl(DV) M. Anderson (NEDU), EN2(DV) R. Cantrell (NEDU), HMCS(DV) C. Blair (NEDU), MM2(DV) C. Wentzel (NCSC), TSgt(DV) J. Craft (Tyndall AFB), SGT(DV) C. Norris (Tyndall AFB), SGT(DV) J. Mollohan (Tyndall AFB) departed for the crash site on an Air Force Missile Recovery Craft.

1100: Dive Team arrived on site and set up SCUBA diving station.

1138: With the Missile Recovery Craft anchored over the wreckage site, diving commenced.

The first dive set descended on top of what was identified as the 7500 lb, J75 Pratt and Witney engine. After an initial survey of the wreckage area, it was reported that upon impact with the water the F-106 had disintegrated into hundreds of small pieces and only the engine remained in recognizable form. Further dives were performed and recovery of the ACMI, 20 mm Gatling Gun and other small pieces accomplished.

1700: Diving operations were secured, and the Team returned to NEDU. The Naval Diving Salvage Training Center was requested to assist with the provision of their diving tender YDT-15 for the engine recovery.
14 July 1981

0700: Dive Team departed for crash site onboard YDT-15.

1000: Arrived on-site, and set up mooring of YDT-15 over engine.

1139: First dive set left the surface and commenced stropping engine. The engine was embedded in 6 feet of hard sand at approximately a 60° angle.

1300: Lifted engine onto deck of the YDT-15; commenced recovery of smaller hydraulic units.

1700: Diving operations secured. It was decided, due to the remaining wreckage being small pieces, that the Air Force Missile Recovery Craft would be used for all further salvage operations. A 6' x 6' x 4' salvage skip basket was designed and constructed by NEDU to assist in the recovery.

15 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0900: Arrived at crash site.

0925: Commenced diving operations; recovered 3 baskets of miscellaneous small wreckage, pumps, motors and burnt skin sections.

1500: Diving operations secured.

16 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0900: Arrived at crash site.

0953: Commenced diving operations; continued collecting small items of wreckage, searching specifically for motors and pumps as designated by the onboard accident investigation personnel.

1430: Diving operations secured.

17 July 1981

Air Force Accident Investigation Team reviews findings at Tyndall AFB.

20 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0900: Arrived at crash site.
1000: Commenced diving operations; recovered 2 baskets of wreckage.

1500: Diving operations secured.

21 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft. (Due to dive workups in the Ocean Simulation Facility for DEEP DIVE 81, the Dive Team on following days consisted of a 6-man team.)

0900: Arrived at crash site.

1000: Commenced diving operations; priority was to locate and recover the right wheel bay landing gear and associated pumps and equipment.

1600: Diving operations secured.

22 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0900: Arrived at crash site.

1030: Commenced diving operations specifically to recover electrical components and burnt skin sections.

1500: Diving operations secured.

23 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0900: Arrived at crash site.

1020: Commenced diving operations; conducted 150' circular searches around crash site. The remainder of the wreckage ascertained to be in a 200' radius area.

1530: Diving operations secured.

24 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0900: Arrived at crash site. Bad weather and heavy seas prevented safe recovery of the skip basket on deck so salvage operations were terminated for the day.

PM: Accident Investigation Board notified On-scene Commander that starboard landing gear actuators and associated equipment were required for detailed investigation.
28 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0915: Arrived at crash site.

1030: Commenced diving operations searching specifically for starboard actuators and aileron linkage.

1400: Diving operations secured; linkage parts and one actuator recovered.

29 July 1981

0700: Dive Team departed NEDU in Missile Recovery Craft.

0900: Arrived at crash site.

1030: Commenced diving operations; conducted thorough jackstay search through wreckage to locate specific small items of debris.

1430: Diving operations secured. Investigation Board assessed they have sufficient wreckage to determine the cause of the malfunction and crash.

The Air Force personnel were as follows:

1. The On-site Coordinator

   SMSGT Phillip Fessenden
   82nd Tactical Aerial Target Squadron
   Tyndall AFB, Florida

2. Missile Recovery Craft

   TSgt L. Rosenberger
   SSgt W. Grimes
   TSgt R. Basarich
   TSgt G. Medlock
   TSgt S. Diemer

Total Dives: 88

Total Bottom Time: 59 Hours
Dive Team: CPO(MDV) Kidman, MMCM(MDV) Yarley, HMCS(DV) Blair, ENZ(DV) Cantrell, CE1(DV) Anderson, TSGT Craft, SGT Norris, and SGT Mollohan

Attaching steadying lines to the F-106 Pratt and Witney engine (7500 lbs), prior to lifting on to YDT-15.
One of two emergency hydraulic pumps (secondary hydraulic system) found and recovered.

Recovery area on the USAF Missile Recovery Craft and NEDU 22' Diving Safety Boat.
III. MESSAGE TRAFFIC


NNNN

CZCGMA283
PITUZYM RUCIPGA0760 1921632-uuuu--RUCLYGA.
ZNRRUUUU
P 111500Z JUL 81
FM 325FW TYNDALL AFB FL//CC//
TO RUCIPBA/ADTAC LANGLEY AFB VA//CD/DO/DR/SE//
INFO RUSEAA/CNO WASHINGTON DC
RUCSSA/COM NAV SEA SYSO Washington DC//
RUCNAS/CHIEF SEA NAV MAT WASHINGTON DC//
RUCMGA//NCSC PANAMA CITY FL//
RULCRJ/NAVXDIVV PANAMA CITY FL//
RUCIPBA/HC TAC LANGLEY AFB VA//SE//
AF-ACXJRF
BT
UNCLAS
SUP: SALVAGE ASSISTANCE, ACCIDENT INVESTIGATION
RFF: TELCON L/C RHODES, 89 TATS/CC AND CMDR BORNHOLT EXPERIMENTAL DIVE UNIT (EDU)
1. REQUEST YOUR IMMEDIATE ACTION IN OBTAINING CNO, WASHINGTON DC
   APPROVAL FOR LOCAL NAVY UNIT SUPPORT OF A WATER SALVAGE OPERATION
   AND RECOVERY OF A CRASHED F-166 AIRCRAFT AND COMPONENTS SEVEN MILES
   SOUTH OF TYNDALL AFB. WRECKAGE IS REQUIRED IN SUPPORT OF AIRCRAFT
   ACCIDENT INVESTIGATION.

PAGE 2 RUCIPGA2762 UNCLAS
2. PER REFERENCE CONVERSATION, LOCAL NAVY ASSETS ARE AVAILABLE TO
   SUPPORT THIS SALVAGE OPERATIONS. ACTIVITY WOULD BE IN COORDINATION
   WITH TATS WATERCRAFT RESOURCES.
3. 89 TATS WATERCRAFT DIVERS, WITH NAVY EQUIPMENT SUPPORT, LOCATED
   AND MARKED THE ENGINE IN 66 FEET OF WATER LATE 10 JUL 81. SONAR
   INDICATES OTHER COMPONENTS IN NEAR VICINITY AND EXPECT THEM TO BE
   LOCATED/MARKED ON 11 JUL 81.
4. TIME IS CRITICAL DUE TO OTHER COMMITMENTS OF THE EDU IN LATE
   JULY 81. RECOVERY OPERATIONS COULD BEGIN MONDAY 13 JUL 81 PROVIDED
   NAVY APPROVES EDU PARTICIPATION.
BT
#u762
UNCLAS

SUBJ: SALVAGE ASSISTANCE, F-126 CLASS A MISHAP, 31-07-29, TYNDALL AFB, FL

REF: 325 FW MSG 111502Z JUL 81

1. REQUEST SALVAGE ASSISTANCE, AS REQUESTED IN REFERENCE MSG, BE PROVIDED. POC IS COL PERRY HUBBARD, GP 979-4556/4733.

2. REFER COSTS TO HQ USAF AFWC/PF FOR FUNDING ARRANGEMENTS.

#5191
Page 99 RUENAAA5763 UNCLASS

G. 395FM TYNDALL AFB FL//CC// 1115232 JUL 31 NOTAL

E. ATTAC Langley AFB VA//CD// 1317232 JUL 31 NOTAL

C. PHONCON CNO, OP-642 (CDR WEST)/NAVSEA, 000 (CDR MACKLIN) OF 13 JUL 31

D. OPNAVINST 4740.2D

E. PHONCON CNO, OP-642 (CDR WEST)/CLF (CDR SMITH)/CSSL (CDR SCHULTZ) OF 13 JUL 81

1. REF A AND B REQUEST U.S. NAVY ASSISTANCE IN RECOVERY OF F-106 AIRCRAFT SEVEN MILES SOUTH TYNDALL AFB. FUNDING TO BE PROVIDED BY 40 USEAF/AC/SM.

2. REF C INDICATES U.S. NAVY ASSISTANCE AVAILABLE AT EBD PAPAYA CITY, REG TAK FOR AC: DRAUTH/ALCO.

3. REF D PERTAINS, CINCLANTFLT/COMNAVSHRFLT CONCUR, REF E. CT

#5763
PTLZOW RULSSGG6360 1962043-UU-RRCLNGA.
ZNY WUUUU
P 151914Z JUL 81
FM COMNAVSEASYSCOM WASHINGTON DC
TO RUCLNGA/NAVXDIVINGU PANAMA CITY FL
INFO RUENAAG/CNO WASHINGTON DC
ZEN/CNNAVMAT WASHINGTON DC
RUCESSA/CINCLANTFLT NORFOLK VA
RUCESSA/COMNAVSHRFPLANT NORFOLK VA
RUCEPPA/CONSERVERGRU TWO
RULYLYA/CONSERVERGRU EIGHT
RULYLYA/CONSERVERGRU TWO FT STORY VA
RUCIPPA/AFTAC LANGLEY AFB VA//CD/
RUCIPPA/325FW TYNDALL AFB FL//CC/
RUCIPPA/HO TAC LANGLEY AFB VA//SE//AC/
RUCIPPA/AFSC NORTON AFB CA//SEP/
RUCLNGA/NAVCOASTSYSCEN PANAMA CITY FL
RUCLNGA/NAVDIVESALVTRACTEN PANAMA CITY FL
RULYLYA/HQ TWO
DT
UNCLAS //304740//
SUBJ: SALVAGE ASSISTANCE FOR USAF F-106

PAGE 02 PHILSSGG6360 UNCLAS
A. CNO WASHINGTON DC 141732Z JUL 81
1. CRIG TAKES REF A FORAC.
2. REQUEST NAVXDIVINGU TAKE REF A FORAC. DIRLAUTH ALCON. OBTAIN FUNDING DIRECT FM HC USAFADVC/EM.
3. REF INCLUDE ALCON AS ADDEES ON SITREPS.
DT
\#6360
VZCZCMQA979
RTIUYW RUCLM3AG11G 1992021-UUUU--RULSSAA RUENAAA RUCBSAA RULYEP
RULY LKA RUCIPA RUCIPGA RUIJASA RHMMDC.
ZRR UUUU
R 1829PZ JUL 81
FX RAVXDIVINGU PANAMA CITY FL
TO RULSSAA/COMNAVESASYSCOM WASHINGTON DC
INFO RUENAAA/CMO WASHINGTON DC
RULSSAA/CHNAVMAT WASHINGTON DC
RUCBSAA/CINCLANTFLT NORFOLK VA
RUCBSAA/COMNAVUSURFLANT NORFOLK VA
RULYEP/COXSERVGRU TWO
RULY LKA/COXSERVRON EIGHT
RULY LKA/COXSERVGRU TWO FT STORY VA
RUCIPGA/ADTAC LANGLEY AFB VA //CD//
PUCIPGA/325FW TYNDALL AFB FL //CC//
PUCIPGA/HQ TAC LANGLEY AFB VA //SL//AC//
RUIJASA/AFISC NORTON AFB CA //SEP//
ZEN/NAVCOASTSYSCOM PANAMA CITY FL
ZEN/NAVDIVESALVTRACER PANAMA CITY FL
RULY LKA/KCU TWO
RHMMDC/KCU ONE
RHMMDC/COXSERVRON FIVE
BT
UNCLAS //MAG74C/
SITJ: SALVAGE ASSISTANCE FOR USAF F-126
A. COMNAVESASYSCOM WASHINGTON DC 151914Z JUL 81 (NOTAL)
SITREP ONE
1. AS DIRECTED REF A LOCATED PLANE SALVAGED SAME.
2. DETAILS TO FOLLOW.
BT
#C116
SUBJ: SALVAGE ASSISTANCE FOR USAF F-106

SITREP TWO

1. 9 JULY - F-126 CRASHED INTO GULF OF MEXICO

2. 10 JULY - F-126 LOCATED 73 FT/SHLD, LAT 29°55'N, LON 89°58'W

3. 10-12 JULY - DISCUSSIONS WITH AIR FORCE ON FORMAL REQUEST FOR ASSISTANCE

4. 13 JULY - DIVE TEAM ON 85 FT AF BOAT RECOVERED ACMI POD, 260MM CUN, MISC SMALL PCS

5. 14 JULY - YCD 15 FROM NSDTC AND DIVE TEAM RECOVERED ENGINE, WING PCS, MISC SMALL PCS

6. 15 JULY - DIVE TEAM IN 85 FT AF BOAT RECOVERED 3 SKIP BOXES FULL OF MISC SMALL VESTIGE, PUMPS, SMALL PCS OF AIRCRAFT SKIN, MOTORS, ETC.

7. 16 JULY - SAME AS 15 JULY

8. 17-19 JULY - AF ACCIDENT TEAM REVIEW FINDINGS

9. 20 JULY - DIVE TEAM IN 85 FT AF BOAT RECOVERED 2 LARGE SKIP BOXES FULL OF SMALL PCS

10. 21 JULY - BAD WEATHER, AF ACCIDENT TEAM REVIEIVNG FINDINGS

11. COST TO DATE 15% DOLLARS. WILL CONTINUE TO SUPPORT EFFORT WITH AVAILABLE ASSET AS REQUIRED.

BT #293
VMC6069A282
FTUZXYXW RUCXGA2923 275151-UUUU--RULSSAA MUCRPA RUCKRPA RULYRPA
RULYRPA RUCIPDA RUCIPDA RUKJASA RUKYKXDC.
2415512 JUL 81
FM NAVDIVINGU PANAMA CITY FL
RULSSAA/CNO NAVALSEASYSCOM WASHINGTON DC
INFO MUCRPA/CNO WASHINGTON DC ORIG: NEDU
RULSSAA/CNO NAVALMAT WASHINGTON DC COG: NDSC 710
RUCBSSAA/CINCLANTFL NORFOLK VA INFO: 100 101 300 330 331 720 714
RUCBSSAA/COMNAVSURFLANT NORFOLK VA
RULYRPA/CONSERVON TWO
RULYRPA/CONSERVON EIGHT
RULYRPA/CONSERVON TWO FT STORY VA
RUCIPDA/ADTAC LANLEY AFB VA/CD/
RUCIPDA/NE)INVL TYNBALL AFB FL/CC/
RUCIPDA/HTC LANLEY AFB VA/SE/AC/
RUCIPDA/AFISCAF NORTON AFB CA/SEP/
ZER/NAVCOSTSYSCOM PANAMA CITY FL
ZER/NAVCOSTSYSCOM PANAMA CITY FL
RULYRPA/RCU TWO
RULYRPA/RCU ONE
RULYRPA/CONSERVON FIVE
BT
UNCLAS //NAV4742//
SUBJ: SALVAGE ASSISTANCE FOR USAF F-106
SITREP THREE
1. 22 JUL - GOOD WEATHER. DIVE TEAM IN USAF 85 FT BOAT
RECOVERED 2 ADDITIONAL LARGE SKIP BOXES FULL OF SMALL MISC
A/C PARTS.
2. 23 JUL - GOOD WEATHER PREVAILS. DIVE TEAM IN USAF 85 FT
BOAT RECOVERED VARIOUS LANDING GEAR DOCK HYDRAULIC ACTUATORS
AND OIL CENTER LOCK COMPONENTS AS PER BY ACCIDENT INVESTIGATORS.
SEARCH TO CONTINUE FOR LIKE PIECES AS CONSIDERED GEARAGE TO
CRASH INCIDENT.
BT
#2923

13
IV. TOTAL NEDU EXPENDITURES

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Boat fuel/oil NEDU 22 ft dive boat used as safety boat</td>
<td>$1,250.00</td>
</tr>
<tr>
<td>2. Diving Tender YDT-15 10 ton boom (1 day)</td>
<td>950.00</td>
</tr>
<tr>
<td>3. NCSC (civilian photographer one day on-site)</td>
<td>70.00</td>
</tr>
<tr>
<td>4. Diving equipment, coveralls, coral boots provided to Air Force</td>
<td>750.00</td>
</tr>
<tr>
<td>5. Trim, tilt, engine repairs to NEDU 22 ft boat</td>
<td>525.00</td>
</tr>
<tr>
<td>6. Renewal of lift wire</td>
<td>2,500.00</td>
</tr>
<tr>
<td>7. Diving equipment</td>
<td>498.60</td>
</tr>
<tr>
<td>8. Construction of skip baskets</td>
<td>1,250.00</td>
</tr>
<tr>
<td>9. Nylon line 3/4&quot;</td>
<td>563.66</td>
</tr>
<tr>
<td>10. Nylon line 1&quot; (braided) - delivered to Air Force</td>
<td>1,067.16</td>
</tr>
<tr>
<td>11. Nylon line 5/8&quot;</td>
<td>447.59</td>
</tr>
<tr>
<td>12. Nylon line 1/4&quot;</td>
<td>108.99</td>
</tr>
<tr>
<td>13. Repair of damaged transom to NEDU 22 ft boat</td>
<td>3,000.00</td>
</tr>
<tr>
<td>14. Work shop facilities</td>
<td>1,005.00</td>
</tr>
<tr>
<td>15. Boat fuel (for side scan operations)</td>
<td>514.00</td>
</tr>
<tr>
<td>16. Miscellaneous shackles, wire straps, buoys, small stuff, gloves, coveralls, blocks</td>
<td>500.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$15,000.00</strong></td>
</tr>
</tbody>
</table>

**NOTE:** For SUPSAL New York - $15,000 Air Force funding via NAS received in advance.
V. Chart of Seavops Site

Note: C

St. Andrews Bay Entrance
Channel is constantly shifting
Due to wind and currents NW

Actual Crash Site

Actual Depth 72 FSW
VI. LESSONS LEARNED

1. For the second time in less than a year, NEDU has salvaged a Tyndall AFB Weapons Center Aircraft from the Gulf of Mexico. Utilization of local cooperative military assets for operations of this nature is proving to be most cost effective. Additionally, it is consistent with NEDU's mission to provide a quick response fly-away diving and salvage organization.

2. The professional and responsive participation of the Navy-trained Air Force divers and the Missile Recovery Craft crew contributed measurably to the overall success and effectiveness of the salvage.

3. Initial investigations by the Accident Investigation Board suggest the cause of the crash was attributable to a fire in the starboard wheel bay, which ruptured control surface linkages rendering the aircraft uncontrollable.