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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 56TH SPECIAL OPERATIONS WING (PACAF)
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CC

30 December 1971

Improvements in Search and Rescue (SAR) Capabilities

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Op 1-1

7AF/CC

1. Recent SAR efforts have indicated the valuable contributions to rescue operations which can be made by certain new systems and capabilities now being utilized by the Air Force in SEA. In late November, the PAVENAIL FAC's of the 23rd TASS met with 1st SOS SANDY pilots, SAR on-scene commanders, to describe the PAVENAIL LASER and LORAN systems and their compatibility with similar F-4 systems.
2. On 10 Dec 71, an P-105 was downed by a SAM in Mu Gia Pass, and the resulting SAR saw not only the PAVENAIL but other new systems contribute dramatically to a successful rescue. This SAR brought together with the SANDY/JOLLY team the PAVENAILS, Task Force Alpha, and F-4 LORAN and LASER delivery systems to form a larger and more complex SAR team. After coordination with 7/13AF, the 56SOW hosted a conference designed to acquaint all those units involved in SAR's with these new capabilities.
3. This meeting enjoyed excellent response and participation and, within one week, the improved understanding and utilization of PAVENAIL, TFA, F-4's and potential night rescue capabilities had led to two more successful rescues. In all three SAR's, problems of weather and enemy resistance could have been fatal to the survivors were it not for the utilization of these capabilities.
4. The 56SOW gathered together the operational implications of these three rescues and presented a briefing on 21 Dec to 7/13AF Deputy Commander, Gen Searles. 7/13AF recommended that all appropriate command/control organizations at 7AF be briefed by the 56SOW team, and this was accomplished on 28 Dec 71.
5. The 56SOW believes that the PAVENAIL system, TFA, F-4 IFR bombing capability, the PAVE IMP night rescue system, and GUNSHIP potential have been successfully integrated into an improved day and night SAR concept. 7AF is currently taking the necessary steps to formally implement these concepts into their SAR manual. The attached notes indicate the specific capabilities which the SAR force has gained.

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Downgrade at 12 year
1 Atch intervals, not
Improved SAR capabilities(S)
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IMPROVED SAR CAPABILITIES

1. INTRODUCTION. The traditional A-1/CH-53/HC-130 SAR team has always been assisted in varying degrees by FAC's, strike aircraft and other air and ground support. Three factors, - weather, intense groundfire and darkness - accentuate the need for such assistance. Recent introduction of sophisticated navigation and ordnance delivery systems designed for IFR conditions, therefore, have major implications for USAF rescue capabilities.

2. SEARCH PHASE.

a. Upon notification that a SAR has been initiated, the 56SOW SARCO (SAR Coordinator) immediately contacts the 23rd TASS and scrambles or diverts a PAVENAIL. This LORAN- and LASER-equipped OV-10 works directly with the A-1 SANDYS in pinpointing the survivor. In VFR conditions, this includes a LASER "zap" which fixes the survivor's position in eight-digit LORAN coordinates. In IFR conditions where ceilings and terrain prohibit a low-level search, DF cuts and survivor vectors can be used to secure a general (1000-meter square) location.

b. If the groundfire threat permits a JOLLY GREEN hover search, the PAVENAIL can lead the helicopter directly over the survivor and provide a zero reference for the JOLLY's doppler navigation system. This technique permitted the rescue of ASHCAN 01 (10 - 11 Dec 71) from an area where the cloud base was at, or below, treetop level.

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c. Because of its LORAN and its airspeed compatibility with A-1's and CH-53's, the PAVENAIL can lead the SAR force into non-TACAN areas and save valuable search time by returning promptly to the exact survivor location. This proved invaluable in the ASHCAN 01 (10 - 11 Dec), GUNFIGHTER 82 (17 - 18 Dec), and FALCON 74 (18 - 19 Dec) SAR's.

3. TARGETING AND ORDNANCE DELIVERY.

a. The presence of hostile forces in the area of the survivor requires that ordnance be delivered so as to prevent troop movement and silence AAA fire. When weather or darkness delays rescue, this targeting becomes more critical because enemy opportunities to capture the survivor increase with time.

b. The LORAN delivery capability of the F-4 force (with their own or PATHFINDER LORAN), coupled with PAVENAIL direction or Task Force Alpha real-time strike control, allows ordnance delivery under IFR conditions. In the GUNFIGHTER 82 SAR, sufficient ordnance was delivered IFR and at night to allow a completely unopposed survivor pickup in Mu Gia Pass some twelve hours after the SAR began. The ability to interdict roads and deliver area denial munitions at night greatly enhances survivor chances and protects the SAR force.

c. Certain area denial ordnance (CBU 42, CBU 49) can be used to construct a protective "fence" around a survivor, even under IFR conditions. If enemy capture of the survivor appears imminent, BLU-52 and CDU-14 may be delivered by F-4

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aircraft (A-1's can carry BLU-52, also) directly on top of the man. In the case of FALCON 74, this technique saved two crewmembers who had reported enemy within 50 feet. Both survivors suffered the temporary effects of BLU-52, but were otherwise unharmed. The CDU-14 did not land directly on the crewmembers but apparently hindered movement in their vicinity.

d. During night operations designed to protect a survivor until daybreak, TFA sector control greatly enhances the SAR team's control over targeting. Direct liaison between the 56SOW SARCO and the TFA HEADSHED controller allow selective strikes on preplanned targets near the survivor. PAVENAIL night on-scene commanders closely monitor and coordinate these strikes. In the ASHCAN and GUNFIGHTER SAR's, TFA sensor monitoring provided real-time targeting of traffic attempting to move through the route structure into the survivor's position.

4. INTELLIGENCE. Closer coordination between 56SOW and TFA has led to the availability of increased intelligence data from many sources for the rescue pilots. This information is passed to the SAR force by TFA Intelligence Liaison personnel who operate in the SAR Command Post during rescue efforts.

5. NIGHT OPERATIONS.

A. Protecting a survivor at night has never been an easy task. The most difficult problem has been in maintaining an accurate reference for the survivor's position. Unless this

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can be done, no ordnance deliveries may be made in the SAR area. PAVENAIL LORAN capability allows continuous survivor location, and this enables the FAC to act as on-scene commander. In this capacity, the PAVENAIL can direct continuous ordnance delivery within 1600 - 2600 meters of the survivor, depending upon the accuracy of the original location fix (LASER zap vs. IFR DF search).

b. Task Force Alpha control of the SAR sector (assuming the SAR occurs along the route structure) facilitates the protection of the survivor and suppression of hostile fire. Close TFA-56SOW-23TASS coordination allows MAXIMUM utilization of targeting information gained from on-scene aircraft and TFA sensors. The effectiveness of TFA sector control was proven in the GUNFIGHTER 82 SAR on 17 - 18 December.

c. The 40th ARRS at NKP recently acquired five CH-53's equipped with the Limited Night Recovery System (LNRS), or PAVE IMP. This system incorporates an automatic hover control, LLLTV system, advanced doppler, and night observation glasses to provide a night approach and hover capability. This system has never been utilized in a night combat situation, and would require a low-threat situation in relatively open terrain. Operational night rescue concepts have been developed, and a covert night pickup was planned on the GUNFIGHTER 82 SAR. This effort was aborted due to weather and terrain problems. Similar efforts were contemplated in the

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ASHCAN 01 and FALCON 74 SAR's, and both were cancelled due to clouds and rugged terrain. However, the pickup of ASHCAN 01 was accomplished in IFR conditions, and the PAVE IMP instrumentation proved invaluable in this situation.

d. An additional night SAR capability came to light as a result of the 56SOW SAR conference on 16 December. The AC-130 SPECTRE possesses a potent fire control system tied into a sophisticated navigation/detection capability which includes LORAN, IR, and LLLTV. The gunship could provide valuable close-in protection around a survivor at night. Assuming the SPECTRE could maintain a pinpoint location on the survivor, the gunship could deliver strafe ordnance very close to his position, discouraging enemy movement in the area. The major limitation here is the degree of AAA threat. While night gunship cover appears to be extremely valuable, all three recent SAR's have occurred in areas where the AAA/SAM/MIG threat has prevented gunship operation. In the future, however, this capability will be utilized in the night protection role whenever the situation permits.

6. CONCLUSIONS. The integration of these new concepts and systems into the SAR operation has necessitated the development of new tactics and command/control procedures. The 56SOW will continue to brief all organizations involved and refine these procedures. The overall SEA SAR control organization, the 3rd ARRG (JOKER) is currently preparing formal

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changes to the SAR manual (7AF, AFM 64-1). The 56SOW SAR Briefing Team is updating its presentations and will rebrief all SEA combat aircrews in the immediate future. The 56SOW believes that success in the three SAR's referenced above was due in great part to the integration of the concepts and systems described here, and that the SAR force now maintains a strengthened rescue capability.

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