

AD-A284 709



①

# Combat Search And Rescue: A Lesson We Fail To Learn

A Monograph  
by  
Major Rickey L. Rife  
Aviation



DTIC  
ELECTE  
SEP 22 1994  
S G D

School of Advanced Military Studies  
United States Army Command and General Staff College  
Fort Leavenworth, Kansas

Second Term AY 93-94

Approved for Public Release; Distribution is Unlimited

# **ABSTRACT**

**COMBAT SEARCH AND RESCUE: A LESSON WE FAIL TO LEARN** by MAJ Rickey L. Rife, USA, 49 pages.

Our National Military Strategy is based on rapid introduction of overwhelming combat power to achieve decisive results with minimum casualties. Air power is a key component of this strategy. To effectively employ air power requires an inherent capability be resident in the force structure which can conduct deep interdiction rescue operations to recover downed aircrews. Currently, Combat Search and Rescue is an individual service responsibility which fails to adequately support air campaign requirements, and as a consequence the warfighting CINC's operational objectives.

Combat Search and Rescue is an emotional, often controversial issue with historical roots over fifty years old. From its inception in World War II through current force structure capability, CSAR has been the victim of diminishing budgets, leadership apathy, and decreasing resources. Joint doctrine is flawed, there is duplication of effort resulting in wasted manpower and resources, no centralized direction, and little interoperability. Service parochialism also impedes attempts to resolve this critical problem.

This paper examines historical lessons, joint doctrine, individual service doctrine, and the National Military Strategy. It then recommends an alternative solution which provides the theater CINC's with a robust CSAR capability.

Accession For	
NTIS	CRA&I <input checked="" type="checkbox"/>
DTIC	TAB <input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification .....	
By .....	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

## TABLE OF CONTENTS

	PAGE
INTRODUCTION . . . . .	1
HISTORY . . . . .	3
WORLD WAR II . . . . .	4
KOREAN WAR . . . . .	8
VIETNAM . . . . .	10
POST-VIETNAM . . . . .	15
JOINT DOCTRINE . . . . .	19
SERVICE DOCTRINE . . . . .	23
ARMY . . . . .	23
MARINE CORPS . . . . .	25
NAVY . . . . .	26
AIR FORCE . . . . .	28
COAST GUARD . . . . .	29
JOINT AND SERVICE DOCTRINE CONCLUSIONS . . . . .	30
ALTERNATIVES . . . . .	32
ASSIGN THE CSAR MISSION TO SOCOM . . . . .	33
ESTABLISH A JOINT CSAR COMMAND . . . . .	34
ASSIGN CSAR TO ONE SERVICE . . . . .	35
THE "STATUS QUO" OPTION . . . . .	36
CONCLUSIONS . . . . .	37
ENDNOTES . . . . .	40
BIBLIOGRAPHY . . . . .	46

As a result, Air Rescue Service capability continued to decline in the period of interwar years between Korea and Vietnam. Concentration of support for the national space effort, emphasis on peacetime search and rescue, and no official wartime mission left the ARS without a viable rescue capability at the outset of the Vietnam War. In fact, the ARS transferred most of their helicopters to other service components, because they were unable to meet global requirements.<sup>35</sup>

Essentially, the services abandoned Combat Search and Rescue as a mission, forcing the repeat of painful lessons learned in just ten years. These lessons were to cost more when the relatively permissive environments of Korea and World War II were replaced with the increased air defense threat of Vietnam.

#### VIETNAM

In December 1961, a covert search and rescue center was established at Tan Son Nhut Air Base to coordinate SAR operations in Vietnam. Initially, the ARS was precluded from entering the country in order to limit the magnitude of U.S. involvement in Vietnam. It was not until April 1962, as the pace of air operations (and aircraft losses) increased, that Detachment 3 (eventually becoming the 38th Air Rescue Squadron), Pacific Air Rescue Service was officially established. Although formally present, at least in name, there were few resources available. The ARS was able to overcome some limitations through agreement with the Army to borrow helicopters- provided they weren't needed elsewhere.<sup>36</sup>

Rescue operations were also enhanced through the Joint Vietnamese/U.S. Search and Rescue Agreement in 1962, which outlined recovery responsibilities in the Republic of Vietnam. This, however, did little to meet the deficiencies in trained recovery

personnel and equipment that were so desperately required. Vietnam also saw the introduction of surface-to-air missiles and concentrated antiaircraft artillery, both of which complicated CSAR operational success. As threat system lethality increased, CSAR operations were modified to ensure a survivable rescue capability.

Vietnam was also a period of tremendous CSAR innovation and growth, particularly equipment. Items such as the jungle penetrator, a helicopter "cockpit" trainer for emergency egress training, improved mobile communications equipment, homing devices, litter baskets, enhanced medical kits, and tremendous strides in helicopter development grew from obstacles encountered in Vietnam. Many of the same obstacles encountered in Korea a decade earlier.

Over the course of the war search and rescue tactics and doctrine evolved to satisfy mission requirements. It was not until 1965, that major doctrinal problems were solved with the adoption of the combat rescue task force. The Search and Rescue Task Force, SARTF, combined Tactical Air Force assets (Forward Air Controller, Combat Air Patrol, Close Air Support, orbiting C2 platforms, and air refueling tanker support) with armed recovery helicopters. It was generally abandoned following Vietnam due to the increased lethality of air defenses, enhanced night flying capability, and a decreasing apportionment of dedicated rescue support air strike assets. Storm.<sup>37</sup>

Although the Air Rescue Service was established to coordinate Search and Rescue operations; "there never was a single unified rescue command that controlled rescue operations, doctrine, training, and equipment. Rather, each service developed its own capability".<sup>38</sup> The problem was further exacerbated because the ARS had no official wartime mission.

In May 1964, a directive from the Joint Chiefs of Staff finally ordered the formal introduction of search and rescue forces into

Southeast Asia. Despite this and intensive crew training before arrival in Vietnam; "the rescue mission continued to suffer from inadequate forces, nonexistent doctrine, and ill-suited aircraft. Moreover, Air Rescue Service leaders knew that rescue had failed to meet the urgent needs of aircrews in combat."<sup>3</sup> One aspect of CSAR operations that aircrew's knew they could rely on was the willingness of rescue forces to attempt the recovery, and for the service to prioritize CSAR missions over all other missions.

In a major reorganization, the Air Rescue Service, became the Aerospace Rescue and Recovery Service (ARRS) on 8 January 1966. The Joint Search and Rescue Center was incorporated into this new organization with responsibility for rescue operations in the Republic of Vietnam, Cambodia, Laos, Thailand, and most of North Vietnam.<sup>4</sup> From its beginnings until it cased its colors on January 31, 1976 the ARRS expanded its organization, incorporated modernized aircraft systems, modified tactical procedures (to include the use of armed escort fighters and development of a search and rescue task force), and concentrated on intensive aircrew training. Elite parajumpers, the link between the rescue force and the downed aircrew member, also were conceived and employed to improve CSAR efficiency and effectiveness.

During its involvement in Southeast Asia, the U.S. Air force lost 2,254 aircraft in combat and normal operations. Aircrew members killed, captured, or missing totaled 1,763. The ARRS saved a total of 3,883 lives, while losing 71 SAR personnel and 45 helicopters and fixed wing aircraft, a rate of 1 CSAR aircraft per 4.8 rescues and a SAR personnel loss rate of 1 per 5.2 rescues.<sup>5</sup> Following Vietnam the Air Force maintained an adequate CSAR capability until the late 1980's.

In 1987, the ARRS transferred the preponderance of its aircraft to the newly formed Special Operations Command to secure a larger

role for the Air Force in this new and important command. This left only seventeen aircraft dedicated to the peacetime search and rescue mission, the lowest since the inception of ARS in 1946. In August 1989, the new ARRS headquarters was established under the Military Airlift Command (Air Combat Command) to provide a dedicated, modern combat CSAR capability. This is a difficult task since many of the assets currently reside in the reserves, (59 of 80 aircraft) or belong to the special operations community.<sup>42</sup>

Navy search and rescue capability resided on carriers in the Gulf of Tonkin and by 1965 were incorporated under the Joint Search and Rescue Center at Tan Son Nhut, which exercised overall direction for search and rescue operations in the Republic of Vietnam. Naval CSAR operations were considered a success by many and "... one of the few bright spots of the Vietnam War".<sup>43</sup> This, however, is contested by C.E. Lassen who received the Medal of Honor for his actions as a Naval CSAR helicopter pilot, who states: "The Navy's experience with Combat SAR in North Vietnam was a classic example of 'how not to do it', we were totally unprepared, untrained, and with few assets. As a consequence, the TACAIR and helicopter community paid dearly".<sup>44</sup>

The Navy made 27 CSAR rescue attempts in North Vietnam; they lost 19 aircraft and 15 SAR personnel while only recovering one-in-six of the aircrew members.<sup>45</sup> Across the Southeast Asia theater of operations the Navy alone lost one rescue aircraft for every 1.4 overland rescues and lost one crewmember for every 1.8 rescues. A total of 109 aircraft (27 were helicopters and 82 were supporting fixed-wing aircraft) were lost on CSAR missions.<sup>46</sup> Over 75% of the fixed-wing aircraft were lost to ground fire from either small arms fire or antiaircraft artillery (AAA). "These statistics do not in any way question the heroism of the rescue crews... But they serve to point out the painful waste of human and material assets when

lessons once learned are subsequently relearned."<sup>47</sup>

The unacceptable attrition of CSAR assets proved that dedicated highly trained rescue and recovery forces were required. Helicopter Combat Support Squadron (HC 7) was the organizational answer to fill this critical void. From its inception (1967) as a dedicated CSAR asset, HC 7 rescued over 150 pilots without the loss of one aircrew member due to enemy action.<sup>48</sup> The results obtained by HC 7 illustrate the importance of a dedicated, responsive, highly trained force with the sole mission of CSAR. Following Vietnam, HC 7 was split into HC 1, an active squadron, and HC 9 a reserve squadron. In 1978, HC 1 was retired from the active force structure and its assets were transferred to HC 9. HC 9 was deactivated in June 1990, with responsibility for CSAR assumed by HCS 4 and HCS 5 (Helicopter Combat Squadron). The reserve component thus assumed responsibility for all Combat Search and Rescue operations. Perhaps a more condemnatory thought concerns Naval preparedness for today's CSAR role; as Cdr. Lassen (ret) notes; "The Navy is less prepared now for SAR than at the outbreak of Vietnam."<sup>49</sup> This trend is indicative of the CSAR mission capability resident in each service, not just the Navy.

The failure to assimilate previous lessons learned, an increasing threat capability, lack of inter-service coordination, and inadequate training and doctrine resulted in excessive losses in Vietnam.

"The most important lesson (from Vietnam) can be summed up in the concept of readiness. Peacetime forces must be ready to perform combat search and rescue in a variety of situations".<sup>50</sup>

As the Vietnam War ended and the need for CSAR decreased, so too did the cooperation and individual Service interest. CSAR was once again a victim of the budget and priorities battle- a stepchild that continues to demand attention. As Admiral Gilcrist testified



before the House Armed Services Committee investigating Survival, Escape, Resistance and Evasion;

"Coming out of Vietnam, having learned much about survivability of aircraft in a modern threat environment, but with a very constrained budget to work with, the Navy was really faced with a choice to either put its resources into improved survivability or to modernize its rescue capability. The Navy elected the former. . . In a restricted funding environment when the hard choices have to be made, it is by far preferable to put your money where it will keep your crews in their cockpits and off the ground."<sup>51</sup>

#### POST-VIETNAM

Two weeks after the evacuation of Saigon, May 12, 1975, Cambodian communist forces boarded and seized the American registered container ship SS Mayaguez and its crew in international waters near the Cambodian owned Poulo Wai islands located in the Gulf of Thailand. A rescue force consisting of eight HH-53's from the 3d Aerospace Rescue and Recovery Group and eight CH-53's from the 21st Special Operations Squadron was assembled on Utapao, in the Gulf of Thailand, to conduct the hostage rescue. On 15 May, under Presidential order, five CH-53's and 3 HH-53's (12 were eventually used) would shuttle up to six hundred Marines to capture the island of Koh Tang, where the crew was suspected of being held. The tragic result of this operation (the last engagement of the Vietnam War) was 15 KIA's, 3 MIA's, 30 wounded, 3 helicopters destroyed, and 9 damaged. Ironically, while the rescue was unfolding the crew of the Mayaguez was making its way seaward in a Thai fishing boat and was rescued by the USS Robert L. Wilson.<sup>52</sup>

The Mayaguez incident served to illustrate the high vulnerability of helicopters in the CSAR role. Recovery operations in high threat environments are extremely hazardous due to the helicopter's slow speed, large size, lack of sufficient armor

protection, and limited self defense capability. It also highlighted the value of training, "those HH-53 crews trained in CSAR tactics were twice as successful as the logistical support CH-53 helicopter crews".<sup>53</sup>

Desert One, the unsuccessful attempt to rescue the American hostages held in Iran, underscored the need for dedicated equipment and training to conduct special operations such as CSAR. RH-53D Navy minesweeper helicopters (because of their long endurance) were flown by Night Vision Goggle (NVG) qualified Marine Corps CH-53 pilots because there was not sufficient time to train the RH-53D pilots on NVG's, low level navigation, and hostile environment operations<sup>54</sup>

Lebanon provides an example of the shifting importance of CSAR operations. In 1984, HC 9, the reserve squadron providing the Navy's only CSAR capability, had a detachment supporting air strikes in Lebanon. Recovery was made of all downed aircrewmembers, except Lt Goodman, whose picture quickly appeared on national media. His capture was used as a politicized statement when he was subsequently released during the Presidential campaign to Jesse Jackson, the rival candidate of President Reagan.

The recent Persian Gulf War provides another example of unpreparedness and the results of service reluctance to correct this known deficiency in operational capability. CINCCENT designated CENTAF as the theater CSAR coordinator; "In the high threat, Iraqi-controlled territory, Schwarzkopf firmly believed that he needed special crews to rescue downed pilots."<sup>55</sup> CENTAF, as the executive agent, established and operated the Joint Rescue Coordination Center (JRCC). CINCENT, subsequently, tasked SOCCENT with responsibility for 24-hour, on-call CSAR for Coalition aircrews across Iraq, Kuwait, and an area that extended 12 miles into the Arabian Gulf where the Navy assumed responsibility. As noted earlier the ARS was

not prepared to assume the mission.

Equipment shortages such as PRC-112 radios, and limited special operations aircraft made recovery missions difficult. Of the 38 downed Coalition aircraft, only seven CSAR missions were launched; three of these were successful. Typical of the mission profiles flown was a 3/160th SOA mission conducted on 17 Feb 91. An F-16 pilot was shot down sixty miles north of the Iraqi-Saudi border, his chute was observed by his wingman and voice contact was established with him on the ground. CSAR crews from 3/160th received the recovery mission, launched under NVG's, established contact with AWACS orbiting overhead, and flew at twenty feet AGL and 140 knots to the downed pilots location. An infrared strobe guided the CSAR crew to the pilot's position. On-board special forces personnel provided local security and medical attention. The entire mission was monitored and tracked by the battalion TOC through the Target Information Broadcast System (TIBS), connected electronically into Rivet Joint. During egress, the aircraft was acquired, tracked, and fired upon by enemy air defense systems.<sup>56</sup>

As a consequence of using SOF aircraft for the CSAR role, and normal SOF mission requirements, these aircraft sustained one of the higher utilization rates in theater and had little room for contingency missions.<sup>57</sup> On one occasion, when no special operations capability was available, a CSAR mission was flown by the Army:

"Sometimes, however, conflicting missions prevented SOF aviators from accepting a CSAR mission. In one case, an Air Force F-16 pilot was shot down near Basrah. Although he suffered a broken leg, he managed to hide long enough to come up on the radio. When the CSAR request came into SOCCENT, Johnson had nothing available so he asked the other Service's if they could pick up the pilot. The Army said yes. . . Agreeing to take the CSAR mission, the battalion launched the UH-60 with two AH-64 escorts. . . The Iraqi's shot down the Blackhawk, which crashed almost directly into their position at about 130 knots and disintegrated."<sup>58</sup>

Of the eight on board, five were killed and three taken prisoner. "Our experiences in Operation Desert Storm . . . brought into focus the lack of capability and interoperability of service Combat Rescue Forces operating as an integral team".<sup>59</sup>

Other examples of post-Vietnam incidents where valuable CSAR lessons were learned (potentially) include: *Falklands* (1982), requirement for superior logistics and the capability to operate in Arctic conditions; *Grenada, Urgent Fury* (1983), no dedicated CSAR forces and significant helicopter losses against a relatively benign threat; *Beirut* (1986), Go/No Go criteria must be fully understood by rescue forces and accurate survivor location is critical before launch.<sup>60</sup>

The most recent example of helicopter vulnerability and the political impact of downed aircrews was played out on national media when CW2 Durant was captured by Somali gunmen while supporting an operation to capture Somali clan leader Mohammed Farrah Aidid, 3 October 1993. It was a tragic mission in which seventeen soldiers died, seventy-seven were wounded, one soldier was unaccounted for, and Durant was captured.<sup>61</sup> During the mission three helicopters were downed by intense small arms fire, machine guns, and rocket propelled grenades. "What they (Americans) did see were ghastly photos of a white body, naked except for green underwear- apparently the corpse of a downed helicopter crewman- being dragged through the street while Somalis kicked and stamped at him, plus TV footage of a terrified helicopter pilot, Michael Durant, being questioned by Somali captors".<sup>62</sup>

Eliot Cohen and John Gooch, in their book *Military Misfortunes*, provide a method for explaining military failure; "There are three kinds of failure: failure to learn, failure to anticipate, and failure to adapt. . . When two kinds of misfortune occur together we are in the presence of aggregate failure. . . When all three kinds

of failure occur together, catastrophe results." They go on to say that, "The failure to absorb readily accessible lessons from recent history is in many ways the most puzzling of all military misfortunes".<sup>43</sup>

The preceding fifty year history of failing to learn CSAR historical lessons, and the failure to anticipate future requirements, by definition, is aggregate failure. A policy of adapting to contingency CSAR requirements, instead of preemptively correcting the problem will continue to be costly in terms of aircrew lives and equipment.

#### JOINT DOCTRINE

"At the very heart of war lies doctrine. It represents the central beliefs for waging war in order to achieve victory. . . It is the building material for strategy. It is fundamental to sound judgment." <sup>44</sup>

During the Survival, Resistance, and Escape (SERE) hearings conducted by the House Arms Services Committee, Readiness Subcommittee, Mr Daniel (chairman) stated; "the time to keep faith with our service personnel is not after they are captured, but in providing the training, doctrine, and equipment to try to see that the capture never occurs in the first place".<sup>45</sup> The joint doctrine that is intended to answer the concerns expressed by Mr Daniel, while integrating the CSAR capabilities of each service into a joint command the theater CINC can employ was released as Joint Pub 3-50.2; Doctrine for Joint Combat Search and Rescue. This recent Test Pub (20 December 1991), assigns lead agent responsibility to the US Navy, while also setting forth doctrine and joint tactics, techniques, and procedures for the planning and conduct of joint combat search and rescue. It is authoritative but not directive.

Joint Publication 3-50.2 states that, "Joint Force Commanders

#### ENDNOTES

1. C.E.Lassen, "Combat SAR- Past and Future", Wings of Gold, Fall 1982, p.21.
2. William W.Epley, "Roles and Missions of the United States Army, Center of Military History, United States Army, Washington, D.C., 1991, pp.294-5.
3. Colin L.Powell, Chairman of the Joint Chiefs of Staff Report on the Roles, Missions, and Functions of the Armed Forces of the United States, Washington, D.C., 10 February 1993, pp. III-23-4.
4. Colin L. Powell, National Military Strategy- 1992, p.1.
5. Ibid, p.6.
6. Ibid, p.23.
7. Ibid, p.4.
8. DOD Dictionary of Military and Associated Terms (JP 1-02), The Joint Chiefs of Staff, Washington, D.C., 12 Jan 89, p.6.
9. James L. Stockesbury, A Short History of World War I, William Morrow and Company: New York, 1981, p. 251.
10. Ibid, p. 252.
11. Earl H. Tilford, Jr., Search and Rescue in Southeast Asia, 1961-1975, Office of Air Force History, USAF, U.S. Government Printing Office, Washington: D.C. Oct 1981, p.4.
12. Ibid, p.4.
13. Ibid, p.4.
14. Ibid, p.5.
15. Ibid, p.5.
16. FM 90-18, CSAR Multi-Service Procedures for Combat Search and Rescue, May 1991, p. XI.
17. Earl H. Tilford, Jr., p.5.
18. Ibid, p.5.
19. FM 90-18, p.XI.
20. Earl H. Tilford, Jr., p.6.
21. Ibid, p.6.
22. Ibid, p.7.
23. Ibid, p.7.

24. Ibid, p.7.
25. Ibid, p.8.
26. FM 90-18, p.XII.
27. Ibid, p.XIII.
28. Ibid, p.XII.
29. Earl H. Tilford, Jr., p.8.
30. FM 90-18, p.XIII.
31. Earl H. Tilford, Jr., p.13.
32. Ibid, p.14.
33. Ibid, p.15.
34. Ibid, p.16.
35. Ibid, p.37.
36. Ibid, p.38-40.
37. Initial Draft of Joint Pub 3-50.21, p.I-3.
38. FM 90-18, p.XIII.
39. Earl H. Tilford, Jr., p.37.
40. Ibid, p.73.
41. Ibid, p.155. Additional information contained in William A. Cain, "Strike Rescue: Achilles Heel of Naval Aviation", Naval War College, 1989, p.6.
42. Victor E. Renaut and Bryan D. Brown, Combat Search and Rescue: A Search for Tomorrow, US Army War College, Carlisle: PA, p.4.
43. Peter B. Mersky and Norman Polmar, The Naval Air War in Vietnam, Annapolis: Nautical and Aviation, 1981), p.120.
44. C.E. Lassen, p.19.
45. Kerry J. Sullivan, "Navy Combat Rescue: The Forsaken Mission", Newport: Rhode Island, Naval War College, 22 June 1984, p.4.
46. Michael J. McCartin, "Crossing the Beach... and Bringing 'em Back." Annapolis: U.S. Naval Institute Proceedings, February, 1988, p. 109. Additional information contained in TRADOC Air Land Forces Application (ALFA) Agency, Multi-Service Procedure for Combat Search and Rescue, Fort Monroe, VA and Langley AFB, VA, May 1991.
47. J.W. Mullarky, "Search and Rescue: Everybody's Problem", U.S. Naval Proceedings, U.S. Naval Institute, October 1990, pp.42-3.

48. Kerry J. Sullivan, p.155.
49. C.E. Lassen, p.21.
50. Kerry J. Sullivan, p.155.
51. House Armed Services Committee Testimony by Admiral Paul T. Gilchrist, Director, Aviation Plans and Requirements Division, Washington, D.C., April 5, 1983, p.679.
52. Earl H. Tilford, Jr., p.146-154.
53. Initial Draft of Joint Pub 3-50.21, Joint Combat Search and Rescue (CSAR) Tactics, 15 April 1993, p.I-2.
54. John B. Mills, "Navy Combat SAR. Past, Present, and Future", Air War College, Maxwell AFB: AL, April 1988, p.9.
55. Robert H. Scales, "Certain Victory: The US Army in the Gulf War", A Select Reprint US Army Command and General Staff College Press, Fort Leavenworth, KS, 1994, p.194-6.
56. Interview conducted by Dr. Richard Stewart, USASOC Historian, of CW3 Thomas A Montgomery.
57. Conduct of the Persian Gulf War, Final Report to Congress, Department of Defense, Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel benefits Act of 1991, April 1992, p.533-4.
58. Robert H. Scales, p.195.
59. Initial Draft of Joint Pub 3-50.21, p.I-3.
60. Ibid, p.VIII-5 to VIII-10.
61. Michael Elliot, "The Making of a Fiasco", Newsweek, October 18, 1993, p.34.
62. George J. Church, "Anatomy of a Disaster", Time, October 18, 1993, p.43
63. Eliot A. Cohen and John Gooch, Military Misfortunes, The Free Press, New York: NY, 1990, p.26-7.
64. Lemay, Curtis E., General, Air Force Manual 1-1, Basic Doctrine, Washington, D.C.; Department of the Air Force, 1984, frontispiece.
65. Survival, Evasion, Resistance, and Escape (SERE) hearings conducted by the House Armed Services Committee, Readiness Subcommittee, Washington, D.C. April 5, 1983.
66. Joint Test Publication 3-50.2, Doctrine for Joint Combat Search and Rescue, The Joint Staff, Washington, D.C., 20 December 1991, p. I-1.
67. Ibid, p.I-1 to I-3.
68. Ibid, p.I-2 to I-5.
69. Ibid, p.I-2.



70. Ibid, p.IV-5.
71. LTC Stanley L. Bushboom, Bat 21: A Case Study, Military Studies Project, U.S. Army War College, Carlisle Barracks, PA,; 1990, p.1.
72. Multi-Service Procedures for Combat Search and Rescue, FM 90-18, FMFRP 2-70, MACP 64-3, TACP 50-51, COMDTINST M6120.8, USAFEP 50-51, PACAFP 50-52, May 1991, p.1-2.
73. Ibid, p.1-4.
74. Ibid, p.1-4.
75. Initial Draft of Joint Pub 3-50.21, p.VI-6.
76. Ibid, p.VI-21.
77. Joint Pub 3-05, Doctrine for Joint Special Operations, Washington, D.C., 23 October 1992, p.II-14.
78. Ibid, p.II-7.
79. Ibid, p.F-1.
80. Multi-Service Procedures for Combat Search and Rescue, p.10-0 to 10-2.
81. Ibid, p.5-1.
82. Joint Test Pub 3-50.2, p.A-1.
83. Ibid, p.A-4 to A-5.
84. Multi-Service Procedures for Combat Search and Rescue, p.5-5.
85. Department of the Army, FM 1-100, Doctrinal Principles for Army Aviation in Combat Operations, (Washington, D.C.: US Government Printing Office, 1989, p.3-13.
86. Joint Test Pub 3-50.2, p.C-1.
87. Multi-Service Procedures for Combat Search and Rescue, p.6-0.
88. Joint Test Pub 3-50.2, p.C-3.
89. Multi-Service Procedures for Combat Search and Rescue, p.6-0 to 6-1.
90. Ibid, p.7-3.
91. Ibid, p.7-3 to 7-5.
92. Joint Test Pub 3-50.2, p.D-4.
93. Ibid, p.D-7.
94. Ibid, p.D-5.
95. Ibid, p.E-4.

96. Initial Draft of Joint Pub 3-50.21, p.IV-4.

97. David E. Jeremiah, "What's Ahead for the Armed Forces", Joint Force Quarterly, Institute for National Strategic Studies, National Defense University, Washington, D.C., Summer 1993, p.30.

98. Renuart and Brown, p.16.

99. Ibid, p.7.

100. Ibid, p.12-13.

101. Ibid, p.21.

102. John E. Watkins, "Overland Combat Search and Rescue: A Real Fix to an Old Problem", Naval War College, Newport, R.I., 1991, p.17.

103. Ibid, p.18.

104. Kerry J. Sullivan, p.1-2.