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# Air Rescue Service
# A Direction for the Twenty-first Century

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The Air Rescue Service was established in 1946 ... and has served the USAF proudly since its inception. Rescue's worth has been proven time and again--996 combat saves in Korea and 2,780 in Southeast Asia.... Since then, our rescue resources have slowly declined to the point that we have only limited capability.... We will continue to press forward on several fronts to ensure that the USAF has an effective rescue capability. Our goal is to again be able to say with confidence, "These things we do that others may live." -Gen Duane Cassidy Commander in Chief Military Airlift Command.

**THE** establishment of a new Air Rescue Service (ARS) in August 1989 at McClellan AFB, California confronts the US Air Force with the challenge of organizing and equipping a viable combat search and rescue [CSAR] arm for operations into the twenty-first century. Not only must the Air Force decide what type of aircraft the service requires but also which critical capabilities (e.g., air refueling, night/adverse weather capability, avionics for pinpoint navigation, active/passive detection, and defensive systems) are necessary to fulfill the CSAR mission. The command decisions made in the next two to three years will set the course of the ARS for the next 10 to 15 years. Throughout the history of the ARS, it has either received the necessary equipment/materiel to accomplish its mission or accepted something less. If the latter holds true, the burden for successful mission completion in hostile theaters of the next century would fall to aircrews limited by 1970s and 1980s technology. In order to understand the problems faced by the

ARS today, one must briefly review the history of this organization.

The establishment of Headquarters Air Rescue Service on 13 March 1946 was a response to the need for a peacetime search and rescue (SAR) capability involving USAF fixed-wing and rotary-wing assets. The aircraft inventory was a mixture of B-29s, C-47s, OA-10s, L-5s, R-5s (later H-5s), and AT-11s. In the succeeding three years. these assets would assist in disaster relief within the continental United States (CONUS) and overseas, as well as extend their mission to the recovery of downed US aircrews in areas such as Nicaragua, Greenland, and Bermuda.[1] With the outbreak of the Korean War in June 1950, the ARS was sent into Korea to conduct an ill-defined CSAR mission. By using a combination of sheer guts, good luck, and a learn-as-you-go mentality, the ARS logged hundreds of combat saves and was responsible for the evacuation of 9,898 United Nations personnel by the end of the war.[2]

During the war, the helicopter performed superbly in rapidly extracting downed aircrews and evacuating wounded or besieged personnel. Its performance led to a growing awareness and appreciation of the unique capabilities of rotary-wing aircraft for the conduct of CSAR operations on the battlefield. The development of the H-19 as a replacement for the H-5 expanded the helicopter's promise by providing a more capable and longer-range platform, dramatically demonstrated by the transatlantic crossing of two H-19s in July 1952.[3] With the cease-fire agreement in Korea came a drawdown of CSAR forces, and the ARS reverted to its more conventional role of peacetime SAR and disaster relief.

The postwar years, however, were not devoid of drama. In a number of cases, fixed-wing amphibious rescue assets recovered

both commercial and military flight crews shot down in the vicinity of the USSR and the People's Republic of China.[4] While fixed-wing aircraft enjoyed the spotlight, rotary-wing counterparts proved their worth in such diverse roles as providing support to avalanche victims in Austria and flood relief in Iraq.[5] The worldwide exploits and capabilities of ARS forces did not go unnoticed by authorities in the United States who recognized them by establishing the first National Search and Rescue Plan in March 1956.[6]

The object of the plan was to provide central coordination for all SAR operational assets within the CONUS. The worldwide employment of rescue assets not only provided good public relations in the world community, but also cultivated a talented cadre of fixed-wing and helicopter crew members. But the decision by Headquarters USAF to proceed with Operation Wring Out continued a cycle of drawing down CSAR capabilities in a peacetime environment while leaving little or no provision for the future employment or training of ARS assets for a hostile environment.[7] Indeed, the USAF enunciated this policy in a 1958 ARS directive that mandated reorganization:

ARMS will be organized, manned, equipped, trained, and deployed to support peacetime air operations.

No special units or specially designed aircraft will be provided for the sole purpose of wartime search and rescue.

Wartime rescue operations will be dictated by the capabilities of equipment used for peacetime SAR.[8]

By committing to a peacetime-only SAR force, the USAF displayed a lack of foresight and/or failure to recognize the need for viable CSAR.

By the end of 1960, the ARS was a skeleton command consisting of three squadrons and 1,450 personnel.[9] It continued to provide worldwide support in missions involving commercial/military aviation or shipping disasters, and emergency disaster relief. At home the ARS supported the National Aeronautics and Space Administration's fledgling space program and assumed the local base rescue (LBR) mission with the new HH-43-a small, lightweight rescue helicopter of the type called for by Operation Wring Out. The reemergence of a viable CSAR capability would again depend on the direct involvement of US forces in a theater of conflict: The US presence in Southeast Asia (SEA) prompted the organization of the most effective combat rescue capability that a wartime theater had ever known.

Following the Gulf of Tonkin incident in August 1964 and the ensuing rapid buildup of American forces in SEA, the Air Force tasked the ARS with establishing four provisional detachments, two to be stationed in the Republic of Vietnam (RVN) and two in Thailand. In the following 11 years, the ARS--subsequently the Aerospace Rescue and Recovery Service (ARRS)--flew a combination of HU-16s (amphibious aircraft), HH-43B/Fs, CH-3s (later HH-53s) and logged 4,120 saves, including 2,780 combat saves.[10] In so doing, it became one of the most decorated air-mission elements in the SEA theater, boasting one Medal of Honor and 38 Air Force Crosses awarded to its crew members.[11] In SEA the ARRS demonstrated the utility of daylight combat rescue operations involving combined fixed-/rotary-wing assets in a low-to-medium threat environment.[12]

In 1964, though, the ARS was ill prepared to conduct CSAR operations in Southeast Asia. CSAR tasking was left to the local base rescue assets--the HH-43Bs. Although well suited for LBR operations, this small, lightly armored, underpowered aircraft was completely inadequate for extended operations in a combat

environment, especially in the thin air of the Vietnamese highlands. The introduction of the HH-43F in September 1964 increased the capability of the airframe by providing an improved power plant, increased range, and additional armor protection for the crew and vital aircraft systems. Despite the introduction of the HH-43F, rescue forces were not adequately prepared for the conduct of CSAR operations in Vietnam, as Earl H. Tilford, Jr., explains in his history of the rescue effort in Southeast Asia: "Still [despite the HH-43F] the rescue mission in Southeast Asia suffered from inadequate forces, nonexistent doctrine , and ill-suited aircraft."[13] Not until July 1965 did the ARS receive its first CH-3C, an aircraft considered an adequate aircrew rescue vehicle."[14]

With the introduction of the air-refuelable HH-3E in June 1967 and the delivery of the HH-53 (the first helicopter specifically designed for CSAR operations) later that year, the ARRS began to build its reputation as the world's finest combat rescue force. However, the ARRS continued to be plagued by its own shortsightedness, even as new tactics and doctrine for combined rescue operations were developed. As late as October 1970, Col Frederick V. Sohle, commander of the 3d Aerospace Rescue and Recovery Group, would say, "Our development . . . has been a history of relearning lessons already learned by someone else, but who unfortunately could not or did not document it for others profit by."[15] This lack of documentation and the inability to integrate an institutional memory among ARRS forces (with the possible exception of the pararescue force) would detrimentally affect CSAR units into the 1980s. Consequently, the CSAR mission became subordinate to daily support and auxiliary mission roles. However, if one lesson can be drawn from the SEA conflict, it is that we needed an effective CSAR force. Unfortunately, we did not learn this lesson well because ARRS assets experienced

the same neglect and lack of funding which plagued its predecessor.

The withdrawal of US combat forces from the SEA conflict was reminiscent of the massive drawdown of CSAR assets that occurred following the Korean War. After Vietnam, a few notable rescue operations took place, such as the deployment of ARRS helicopters aboard the USS *Saipan* in June and August 1979, in support of a possible emergency evacuation of US personnel in Nicaragua following the Communist takeovers.[16] However, such missions occurred infrequently. Ironically, a classic contingency/rescue operation proved to be the death knoll of the ARRS. Even more ironically, no ARRS helicopter units participated in the operation.

The aborted mission to rescue the hostages in Iran dramatically demonstrated the need for close, realistic coordination and planning of joint-service operations. As usual, it is easy to speculate after the fact about what we could have done differently to make the mission successful. No doubt, the ARRS Pave Low III aircraft was better suited to the operation. But the modified Marine Corps H-53 was used instead, for two possible reasons: either the Pave Low system was not yet ready for this type of mission because it had just finished lengthy operational testing or the H-53 was used to placate the Marine Corps.[17] Certainly, one must concede that Pave Low aircrews, who were trained in the CSAR arena and routinely relied on C-130s in their daily operations, were the logical choice for this type of mission and had a better aircraft with which to conduct it. Whatever the case, one point is clear--the entire operation was critically dependent on helicopters. As a result of the botched operation, the Air Force transferred all ARRS HH-53Hs (Pave Low III aircraft) to the 1st Special Operations Wing (SOW) in May 1980. This transfer signaled the end of the ARRS's role in CSAR and

precipitated the present enmity between "rescue drivers" and "special operators."

Thus, the ARRS was left with an aging fleet of UH-1 (various series), CH-3, and HH-3 aircraft. In effect, the ARRS had no means to accomplish the CSAR mission in the threat environment of the 1980s and 1990s. Just as the Polish cavalry of 1939 was all effective force within its own borders but completely inadequate when confronted by German tanks, so too had the ARRS become an anachronism in a world where contingency and rescue operations relied on high-tech avionics and split-second timing. A 20-year-old aircraft like the H-1, with 1960s and 1970s avionics, was no longer useful. Nevertheless, the HH-3 continued to provide a measure of effectiveness because of its air-refueling capability and the use of night vision goggles (NVG). The latter allowed aircrews to operate under the cover of darkness, thus decreasing their vulnerability in low-to-medium threat environments.

Although ARRS no longer had the aircraft to conduct modern CSAR operations, it did at least have the foresight to continue to train crews in the CSAR environment, with emphasis on NVG operations. However, the inactivation of the H-1 CSAR units in September 1987 closed a valuable pipeline of CSAR-trained aircrew members and limited the combat rescue role to a total of four overseas HH-3 units and a stateside MH-60 squadron. Furthermore, the latter was unsure whether it would be affiliated with ARRS or special operations. This is the situation in which the new ARS finds itself today. Questions must be answered about the training, manning, and equipping of planned ARS units. Perhaps the most important question is whether to employ these assets in a theater of conflict or in support of contingency operations.

When I look forward, I see conventional warfare--low-intensity conflict in particular--as the most likely battlefield of the future. –Gen P. X. Kelley Commandant of the Marine Corps

The primary mission of the ARS is to conduct search and rescue operations during both peacetime and wartime. This mission requires a global capability, which, in turn, mandates a long-range rotary-wing or vertical takeoff and landing (VTOL) aircraft (e.g., V-22). Because the Air Force withdrew from the V-22 program in favor of the MH-60, the long-range requirement will have to be met by an air-refueling capability. Further, the likelihood of flying long distances and the probability of operating in and from remote third-world areas require a precise navigation capability independent of civil/commercial systems. And if crews are to operate at night or in bad weather in unfamiliar--possibly mountainous--areas without detailed charts or maps, they must rely on the global positioning system (GPS) for satellites. Specifically, the Navigation Satellite Tracking and Ranging (NAVSTAR) system is vital to a rescue force looking to pursue worldwide operations into the twenty-first century. Clearly, the present generation of night vision goggles will not be adequate for rescue operations past the mid-1990s.

But advances in NVG technology have improved aircraft night operations. In fact, the development of NVG for jet aircraft has provided better in- and out-of-cockpit technologies which can substantially increase rotary-wing crew performance. However, we must not tailor the helicopter CSAR mission to rely solely on NVG technology. Rather, we must integrate terrain following radar (TFR) forward looking infrared (FLIR), and--most importantly--low altitude navigation and targeting infrared system for night (LANTIRN) technology into the CSAR force. LANTIRN is now available to the fixed-wing force (e.g., F-16)

and--with further modifications for helicopters--could provide a vital upgrade to CSAR aircraft in the mid- to late 1990s.

Capabilities such as air refueling, TFR, GPS navigation, improved NVG and/or LANTIRN will permit sustained CSAR operations in current and future threat environments. Further, these capabilities must be enhanced by an avionics package designed to detect threats. Daylight rescue operations in SEA were protected by a search and rescue task force (SARTF), which used supporting fixed-wing aircraft to locate survivors and suppress hostile fire. Although SARTF may still have a place in certain threat environments, we must recognize that the proliferation, improved lethality, and portability of surface-to-air missiles (SAM) and antiaircraft artillery (AAA) jeopardize this method of recovery. A night-adverse weather capability, however, meets these challenges. Aircraft operating at night and/or in bad weather are less susceptible to threats from visually targeted systems. Furthermore, upon penetration to the recovery area, CSAR helicopters must be able to identify radar-directed SAM and AAA threats. This would allow recovery crews to use terrain masking or ingress/egress route deviations to avoid or reduce threat exposure. Finally, we should augment this passive capability with active electronic countermeasures (ECM), either in-cockpit or in conjunction with standoff, fixed-wing assets used during the recovery portion of the CSAR operation.

The high-tech capability outlined here is available today and could enhance CSAR operations considerably. It facilitates penetration of the threat environment without extensive MiG combat air patrol (MIGCAP), forward air controller (FAC), and A-lE ("Sandy") firepower support, which were so typical and necessary in SEA. Additionally, it makes possible single or two-ship helicopter CSAR operations at night or in adverse weather--environments which significantly decrease the detectability of

rescue assets. Finally, when recovery crews use this capability in conjunction with in-cockpit ECM and/or standoff threat assistance by ECM or airborne warning and control system (AWACS) aircraft, they dramatically improve their chances for successful recovery of a downed aircrew.

Properly equipping and training CSAR personnel to operate independently in a hostile environment gives us the extra benefit of having a force which would be ideally suited for such secondary missions as the evacuation of US military personnel and/or civilians in flash points throughout the world. Additionally, this force could perform low-visibility and clandestine operations as well as support the National Search and Rescue Plan as it pertains to peacetime operations involving the civilian population. However, the CSAR force's aptitude for clandestine operations may renew a long-standing rivalry between the rescue and special operations communities.

ARS and special operations must recognize that cooperation is essential. For example, some missions come exclusively under the purview of special operations, but others require ARS assets (e.g., helicopters). Thus, rescue forces could provide capable assistance in operations such as embassy evacuations, weather/ reconnaissance team insertions or extraction's, and so forth. Certainly, both forces would benefit from mutual trust and cooperation. However, it is not their rivalry that poses the greatest barrier to achieving a viable CSAR capability.

Since the introduction of rotary-wing aircraft into the Air Force inventory, many people have been reluctant to regard helicopter pilots and their aircraft as "real pilots or real aircraft." The tendency to focus on the needs of the fixed-wing force has often left the rescue service--particularly its helicopter assets--out in the cold. The type of rescue force outlined here requires a

significant outlay and investment of Air Force funds. However, one of the political realities of the 1990s is that the Department of Defense will once again have to do more with less. The tightening of fiscal resources will require planners at the highest echelons of the fixed-wing force to have enough foresight to commit resources that will enable the Air Force to continue a viable CSAR capability into the twenty-first century. One thing is certain: we can no longer afford to have our CSAR aircrews operate only with area maps, NVG, unsecure radios, and a basic, commercial instrument/navigation package. Thus equipped, no one could be expected to perform successful recoveries in a threat environment. We can no longer conduct CSAR operations in the style of the Vietnam era. Instead, we must now prepare our forces for combat in the increasingly complex and lethal environment of the twenty-first century.

**Notes**

1. Donald D. Little, *Aerospace Rescue and Recovery Service, 1946-1981* (Scott AFB, Ill.: Office of History, Military Airlift Command, 1983), 1.
2. Ibid., 3.
3. Ibid., 8.
4. Ibid., 11.
5. Ibid.
6. Ibid., 12.
7. Operation Wring Out provided for the establishment of a number of small detachments equipped with lightweight helicopters to perform local base rescue.

8. Earl H. Tilford, Jr., *Search and Rescue in Southeast Asia, 1961-1975* (Washington, D.C.: Office of Air Force History, 1980), 16.

9. Little, 18.

10. Ibid., 24.

11. Ibid., 26.

12. Although the ARRS attempted a few night rescues, they succeeded only under the most advantageous circumstances. The HH-53 Pave Low III system was thus developed to meet the need for a night/adverse weather capability.

13. Tilford, 61.

14. Ibid., 69.

15. Ibid., 94.

16. Little, 56-57.

17. A group headed by Adm J.L. Holloway, former chief of naval operations, reviewed the rescue attempt. It found that "the appropriate helicopters and their maintenance capability should have been joined with an operational unit compatible with mission requirements," *Aviation Week & Space Technology,* 1 September 1980, 44-46.

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