

CONFIDENTIAL

BROOKS

MAY 1965

SLIDE 2 → General McConnell, we are indeed grateful to have this opportunity to discuss with you combat aircrew recovery in SE Asia.

SLIDE 3 → This presentation will briefly cover the background, review of the current situation, deficiencies which affect recovery operations, the corrective actions necessary to improve matters, and, finally, our recommendations.

SLIDE 4 → First, a few words on the background of combat aircrew recovery.

After Korea, the combat aircrew recovery resources of the Air Rescue Service were reduced and the combat crew recovery mission eliminated. The small numbers of helicopters were dispersed to all parts of the world to provide a peacetime rescue capability. The only combat crew recovery capability consisted of one group of long-range C-47s for deep penetration recoveries of SAC crews from behind-the-lines. In 1958, even this group was eliminated. Consequently, the development of combat recovery tactics did not keep pace with other developments in the tactical forces. By September of 1961, all recovery helicopters had been retired and Air Rescue Service was equipped with only 58 fixed-wing aircraft. Rescue Service efforts were directed toward peacetime tasks. In planning, it was envisioned that contingency tasks would be

MIRACODED

Reproduced on 10/19/79 by HRC
by authority of AFMPC. Reproduced
Copy # 1 of 1 copy(s)

DECLASSIFIED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS.
DDC DIR 2200.10

PROJECT CORONA HARVEST

DO NOT DESTROY

0005827

CATALOGED

WORKING PAPERS

PROJECT CORONA HARVEST

WORKING PAPERS

No. 17347

~~SECRET~~ CONFIDENTIAL

accomplished by an extension of the peacetime effort. The same equipment was to be used for both. It is important to note, however, that aircraft and equipment designed for peacetime will not always suffice for wartime, but aircraft designed for wartime will generally fulfill peacetime requirements.

SLIDE 5

→ With the Initiation of hostilities in SE Asia, the Air Force was not prepared to effectively accomplish the combat rescue mission. *all aircraft in the inventory were outdated.* Recovery tactics had to be developed as the war progressed, since no recorded operational doctrine or combat recovery manuals were available. Progress is being made, however, and the outdated equipment is being used to the best of our ability. The record shows there is a lot to be desired. Response is too slow; we are limited to daylight operation, and the Rescue equipment is not compatible with that of the forces being supported. These are deficiencies which must be corrected on an expedited basis.

SLIDE 6

→ The value of combat crew morale needs no amplification. When combat crews are assured of a reasonable chance of being rescued, certainly their effectiveness is enhanced. Although no one has ever been able to calculate the value of an airman's life, the cost of training combat crews and the time lost for training can be measured. Therefore, recovery represents a monetary value to this nation, and, more importantly, conserves this valuable trained resource.

~~SECRET~~

CONFIDENTIAL

~~CONFIDENTIAL~~

CONFIDENTIAL

SLIDE 7 → The Air Rescue Service was called on to provide a combat aircrew recovery capability in SE Asia in May 1964. However, the first published recognition of a wartime role was not contained in any document until it appeared in the USAF Wartime Guidance in March 1965. Since this publication receives limited distribution, the authority for support that Rescue needs to develop the combat capability is not ~~widely~~ widely recognized.

Under the present circumstances, the Air Force must take immediate steps to insure that all echelons recognize the combat role of the Rescue Service. With this background information, let's take a look at how the recovery forces were developed in SE Asia and where we stand today.

SLIDE 8 → This slide shows initial ARS forces in SEA from June 1964 through August of that year: **We had 7 aircraft,**

2 HU-16s at Da Nang

2 HU-16s at Korat

3 Unarmored HH-43Bs at Nakhon Phanom

SLIDE 9 → Since that date, we have improved the force structure. As of now, we have the 38th Air Rescue Squadron at Tan Son Nhut with 10 helicopter detachments in Viet Nam and Thailand. The detachments have a total of 28 short-range helicopters. The Binh Thuy and Pleiku detachments are authorized, but will not be physically in place until later this year. **[17 HH-43Bs, 9 HH-43Fs, 2 CH-3Cs]**

CONFIDENTIAL

for ref. only

~~SECRET~~

CONFIDENTIAL

From Udorn we operate 4 HC-54s and from Da Nang, 5 HU-16s.

With this force structure, the following tactics are employed to search for, locate, and recover downed combat personnel.

SLIDE 10 → ~~Direction~~ Direction for preplanned missions comes from the 2d AD Frag Order, ^{AND} The 38th squadron alerts and directs Rescue forces by ~~Frag Order transmitted by ground relay~~ ^{These} to meet mission requirements, ~~which~~ include:

SLIDE 11 → Fixed-wing orbits by HC-54s along the Thailand border, and HU-16 orbits in the Gulf of Tonkin area. These aircraft act as forward on-scene mission command posts to coordinate and control recovery activities as required. The Frag Order may also specify that the helicopters will be prepositioned at advanced locations that are as close as possible to the planned strike areas, such as Site 36 in Northern Laos. Within their limited range capabilities, the helicopters are scrambled by the orbiting Rescue fixed-wing aircraft as required. In addition to the helicopters operating forward, a scramble alert posture is maintained by each detachment to meet any emergency within their capability.

SLIDE 12 → RESCAP and hostile fire suppression are furnished by tactical forces. ~~Direct~~ Two-way radio communications are maintained between strike and ARS forces. Rescue aircraft in orbit maintain

~~SECRET~~

CONFIDENTIAL

CONFIDENTIAL

continuous radio contact with directing agencies.

As the tactical mission activity has rapidly expanded in SE Asia, the outdated equipment has seriously restricted our capability, and we have been forced to rely upon the HH-43 and HU-16 as our primary combat recovery vehicles.

The HH-43B was designed and procured specifically for the local base rescue mission. It was not envisioned to be used for the combat recovery role. This slide shows the short radius of the B and F models. The normal B radius is in green, the F in red. By carrying additional 55 gallon drums of fuel, the radius of the B model has been extended to equal that of the HH-43F, as shown here. The combat configuration of the -43F provides auxiliary self sealing tanks, however, this radius is still inadequate for recovery operations in North Viet Nam, even by staging out of forward sites in Laos. (Show Site 36 and Hue Phu Bi)

The emergency loan from TAC of 2 CH-3Cs has helped some, but does not fully meet the range, speed, and loiter requirements. However, staging from the forward locations in Laos, it can reach any point in the northern portion of North Viet Nam. Note the radius in yellow.

The HC-54 and HU-16 are not compatible to the combat recovery mission. Both are restricted in speed and ceiling, with no recovery capability over land. The HU-16 has a limited capability when daytime water conditions permit.

CONFIDENTIAL

CONFIDENTIAL

With these forces, Rescue has successfully saved 70 combat personnel, including:

36 USAF

15 USN

15 USA

4 VNAF

These were picked up at the locations shown. Of these 70 saves, 60 were combat crew members.

However, out of 177 requests, this gives us only a 34% effectiveness rating. We believe this percentage can be and must be improved.

Now, let's look at some of the major deficiencies hampering effective recovery operations.

Besides the limitations in range of the HH-43B helicopters, as previously shown, this small aircraft is limited to daylight VFR operations. Its top speed is 90 knots, there are no provisions for crew or aircraft protective armor, and it is single engine.

The HH-43F has been specially configured for aircrew recovery in SE Asia, with crew and component protective armor, an upgraded engine, and shatterproof glass. However, it is only marginally capable of limited instrument and night operations; the radius of actions is only 130 N miles; and no increase in speed has been achieved.

CONFIDENTIAL

~~CONFIDENTIAL~~ CONFIDENTIAL

SLIDE 20

→ The Ch-3C was bought by the Air Force as a general utility helicopter. This aircraft is not configured for combat operations, and does not have auxiliary tanks for extended range or loiter. In addition, there are no provisions for suppressive armament.

SLIDE 21

→ The HC-54 has no recovery capability, is over 20 years old, cruises at 140 knots, ^{AND} is not compatible with the tactical forces in terms of speed and altitude. It lacks a controller position with suitable communications to direct recovery operations. No back-up communications equipment is installed.

SLIDE 22

→ The HU-16 is limited to VFR daylight water landings in relatively smooth sea conditions. This aircraft has been in the inventory since 1949, and like the HC-54, is slow and limited to low altitude operations. It is important to bear in mind that these aircraft were adapted for the peacetime rescue mission. None were bought or designed for combat aircrew recovery. The low speeds of all the aircraft delay recovery, and higher speeds are required to reduce the time interval between ejection and pickup.

SLIDE 23

→ In the personal survivor equipment area, there are serious deficiencies. For example, the URC-10 and URT-21 beacon have proven to be inadequate in battery life reliability and range. In addition, we have experienced shortages in supply and test equipment. A new type battery, plus test equipment, are being delivered in SE Asia at

~~CONFIDENTIAL~~ CONFIDENTIAL

~~CONFIDENTIAL~~ CONFIDENTIAL

at the present time. This is only a stop-gap measure, and recommendations will be made later as to positive corrective action. In addition to the improved batteries and test equipment, a pre-amplifier is being installed in rescue aircraft which will increase the reception range.

Slide 24

low Tiff.

→ The visual signaling devices have proven difficult to distinguish. The only available pen gun flares and strobe lights look like enemy groundfire from the air and this creates confusion in the recovery zone. Corrective action is being taken to develop a pen flare, with foliage penetration capabilities, and a star burst shell. In addition, a sleeve on the strobe light is being developed with a built in filter to make directional and flash changes so that it does not look like gunfire. This sleeve has been tested, approved by 2d AD, and deliveries are expected in November 1965. Again, these are only stop-gap measures.

Slide 25

→ In respect to the Avionics/Communications area, the lack of adequate NAVAIDS at the forward sites limits use to day VFR conditions. Our headquarters is investigating the possibility of providing a portable navigation beacon at forward sites, which ~~will~~ eliminate this problem. ~~At~~ At the present time, action is *also* underway to install a TACAN in Northern Laos.

Another lesson learned is that the pilot of the rescue fixed-wing aircraft can't control and plot the positions of recovery and

~~CONFIDENTIAL~~ CONFIDENTIAL

WORKING PAPERS

WORKING PAPERS

CONFIDENTIAL

SUMMARY
tactical aircraft and fly his own aircraft at the same time. When a recovery mission is in progress, the Rescue aircraft commander must coordinate and direct the activities of the recovery aircraft, direct RESCAP and fire suppression tactical aircraft, and maintain a complete current status of all aircraft involved. To effectively manage all facets of the mission, an additional mission controller's position is required in the control aircraft. At the present time, HC-54s are being JURYRIGG modified in the theatre to provide this extra control position.

SLIDE 26 → In order to reduce the access time to the area north and west of Hanoi, our helicopters have been staging from crude forward operating locations in Laos. Refueling from 55 gallon drums, with hand pumps, is incompatible with the current status of air technology, but these are conditions under which our recovery forces have been forced to operate. We are taking action at the present time to provide portable rubberized fuel cells, with powered fuel pumps, to facilitate operations from these sites. These forward bases have contributed, in great part, to several successful recoveries. A like capability on the east coast of North Viet Nam would also be desirable, ~~to decrease the time and distance required to reach the downed airmen.~~ Since there are no friendly forward bases to operate from in proximity to the eastern area of North Viet Nam, we are requesting the Navy to

CONFIDENTIAL

~~SECRET~~

~~CONFIDENTIAL~~ CONFIDENTIAL

provide information on the availability of a surface vessel with a helicopter landing pad. This ship would operate in the Gulf of Tonkin with helicopters aboard, and provide a more rapid response than is presently possible in the coastal areas of North Viet Nam. This would only be an interim measure, however, until receipt of the HC-130/HH-3 air-to-air refueling system, which will be discussed in a few moments.

SLIDE 27 → The introduction of 6 HH-3^E helicopters in November of this year is the first major step to correct aircraft deficiencies. ~~THE HH-3E~~ ^{IT} is combat configured; equipped for IFR operations, and provided with an increased fuel capacity. The inclusion of Doppler radar permits precision navigation, under instrument conditions, to a pre-determined point. It is fitted with crew and critical component armor, communications equipment compatible with all aircraft currently operating in SE Asia, and a 240 foot hoist to penetrate dense jungle foliage. As shown on this slide, the increased range of the HH-3^E over the helicopters used to date, will offer a substantial increase in recovery capability. For example, ~~operating~~ operating out of Udorn or Da Nang, ^{IT} it can reach any point in North Viet Nam and return to home base. If operated from a forward location, such as Site 36 in Laos, the additional range capability can be converted to loiter time to provide ~~more~~ ^{more} rapid response to an emergency deep in North Viet Nam. To increase

10

~~CONFIDENTIAL~~ CONFIDENTIAL

WORKING PAPERS

WORKING PAPERS

~~CONFIDENTIAL~~ CONFIDENTIAL

*
SLIDE 29
GENERAL TROTS
loiter time to an even greater degree, and further enhance this capability, an air-to-air refueling system is being developed which will enable the HH-3 to remain on station for extended periods. This system is currently in the preliminary testing phase. If development and testing of this air-to-air refueling system can be accelerated, it is believed that an operational system can be employed in Viet Nam by July of 1966. Air-to-air refueling will eliminate the requirement for operations from Laotian sites.

Greatly
improved
SLIDE 30
GENERAL 005
With the introduction of the HC-130/HH-3 team in Viet Nam, a combat recovery system will be realized for the first time.

The major limitation will be in the numbers of aircraft available.

SLIDE 31
GENERAL 005
Not until late 1966, will the long range recovery helicopter force reach the level of 16. This force was planned prior to the March 1965 strikes in North Viet Nam, and was based on the level of tactical activities which existed prior to that time. In order to meet the recovery requirements based on the current level of conflict, and approved tactical attrition rates, 11 HC-130s and 32 HH-3 aircraft are required NOW.

The introduction of the HC-130 will provide an improved communications and control capability over the "make-shift" system which is now being installed in the HC-54. A built in manual plotting position, with redundant communications, will enable the recovery controller to plot the positions, call signs, ordnance, and

~~CONFIDENTIAL~~ CONFIDENTIAL

~~SECRET~~

CONFIDENTIAL

fuel conditions of participating tactical and recovery aircraft. This will result in a more effective direction of the effort. Until recovery controllers are completely familiar with tactical procedures and control, this position is expected to be jointly manned by recovery and tactical personnel.

SLIDE

32

→ The current lack of capability for night recovery will be ~~partially resolved~~ upon receipt of the HH-3 helicopters, operating in conjunction with the fixed-wing aircraft. The IFR Doppler equipped HH-3 will proceed to the pickup area after the survivor has been visually or electronically located by the fixed-wing aircraft. The helicopter will be vectored to the pickup point, and a flare drop pattern established by the fixed-wing aircraft. The helicopter will then proceed, as during daylight hours, with suppression fire provided by a RESCAP flight working under the flares.

SLIDE

33

→ This brings up the problem of protection for our own aircraft. The only armament currently provided to the helicopter crews for suppression fire is the M-16 automatic rifle. Many recoveries have been delayed awaiting fighter support to drive off enemy ground troops. An increased capability in suppression armament for the helicopter crews is required to permit a greater degree of self-reliance and protection. Lightweight automatic weapons are available which provide a rate of fire up to 6,000 rounds per minute. Immediate attention must be given to studying the feasibility of equipping recovery helicopters with this type weapon.

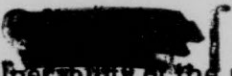
LESSON
LEARNED

12 WORKING PAPERS

~~SECRET~~

CONFIDENTIAL

WORKING PAPERS

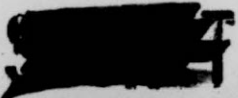
 **CONFIDENTIAL**

To reduce the vulnerability of the unarmed HH-43B to groundfire, action is being taken to provide self-sealing main tanks. As long as the B model must be used, the nature of the war in Viet Nam demands that this limited protection be provided to rescue crews. Procurement action has been initiated, and installation will be accomplished in the field.

Now, a comment on organization. When the Air Rescue Service initially assigned resources to SE Asia, they were organized under a detachment of the Pacific Air Rescue Center on a TDY basis. As the requirements increased and activities were stepped up, it became apparent that we could not continue to support the TDY requirement. Therefore, we now have a permanent helicopter squadron with 9 detachments.

At the same time helicopter resources were being assigned to the area, we supported the fixed-wing requirement on a temporary duty basis. This requirement will continue for the foreseeable future, and we have recommended to your Hq, that a fixed-wing squadron be organized on a permanent basis.

At the same time, we reviewed the overall command and control structure, and found, that due to the stepped up activities, there is a requirement for a Senior Rescue-Qualified Officer with a small staff at Tan Son Nhut. This officer will be the Deputy to the Commander 2d AD for all rescue matters. He will command, supervise and control

 **CONFIDENTIAL**

CONFIDENTIAL

all recovery forces in the area. The reorganization proposal was submitted last month.

15 APR In addition to providing improved recovery mission control, the new organization will provide adequate staff personnel to continually review and update operational tactics and techniques. We have already initiated action, in conjunction with 2d AD, to document combat recovery doctrine and methodology. A brief of pertinent tactics, in brochure form, will be submitted to 2d AD for coordination. This brochure will be provided to rescue and tactical aircrews to insure clear understanding of combat recovery tactics by all concerned.

(PAUSE)

While it is realized that there are established channels for requesting improved and additional equipment, our inability to meet combat recovery requirements in SE Asia demands that extraordinary measures be taken to correct deficiencies in recovery aircraft and associated equipment.

(PAUSE)

We recommend that an Air Force level project be established to develop an improved combat aircrew recovery system, as a distinct mission of the Air Rescue Service. Action should be expedited, and this project must be provided with the necessary authority, priority and means.

(PAUSE)

We also recommend that:

CONFIDENTIAL

~~CONFIDENTIAL~~

SLIDE 39 →

1. The Systems Command be directed to rephase and expedite the development of air-to-air refueling for the HC-130 and HH-3. A minimum of 6 HC-130s and 11 HH-3s, in the air refueled configuration, to be operational in SEA by 1 July 1966.
2. The delivery of the 32 HH-3 aircraft for SEA be accelerated, with the last aircraft to be in place not later than December 1966.
3. Utilizing minuteman technology and Big Safari ^{TYPE} priorities, direct AFLC to expedite development and procurement of a new personnel survivor radio which combines the beacon features of the URT-21 and the voice capability of the URC-10. This radio should be rugged, and small enough to be carried securely on the crewmember when ejection or bailout is required.
4. That direction be given, and manpower be provided, for a ^{JOINT} ~~test~~ test detachment at Eglin ⁴⁴⁷² ~~for~~ for the evaluation of aircrew recovery techniques and recovery equipment. Each survivor item would be tested under simulated combat conditions for suitability prior to shipment to the field. This will minimize problems such as we've encountered with the pen gun flares and strobe lights.
5. That a decision be made to provide suppression armament for the HH-3 crews. There are several lightweight automatic weapons readily available which would be suitable for this purpose.

15 WORKING PAPERS

~~CONFIDENTIAL~~

WORKING PAPERS

~~CONFIDENTIAL~~

6. That the Air Rescue Service projected requirements study, presented to your staff in June of this year, be used as a basic guide. This will assure a balanced force and a complete system that will be capable of meeting the rescue and recovery requirements as we see them at this time.

SLIDE
40

→ FOR THE FUTURE, the project office should also be charged with establishing the parameters for a rotary wing or VTOL aircraft. It should be specifically designed and built for the combat recovery mission and should be fully compatible with the tactical forces.

FINALLY, combat aircrew recovery equipment must keep pace with tactical requirements and must be developed concurrently with new tactical systems. To this end, we are consulting with the manufacturers of Aircraft Weapons Systems to evaluate proposals for potential recovery vehicles. We will season and temper their recommendations with our experience.

IN CONCLUSION, the near term requirements are clear and urgent. In the long term, we must very carefully consider and evaluate the proposals for specific systems to meet future combat recovery requirements.

Sir, this completes the presentation.

CONFIDENTIAL

~~SECRET~~