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(CLASSIFICATION)

I 771

SENSITIVE MATERIAL

WARNING

ACCESS TO THIS MATERIAL IS LIMITED TO A STRICT NEED TO KNOW BASIS ONLY!

EYES ONLY FOR: DR. Brown

General Jones

LTG Pustay

MG Vaught

ADD 2 FOR SATCOM SECURE VOICE

CLASSIFICATION REVIEW ED 12356
CONDUCTED ON 12 AUG 92
DERIVATIVE CL BY DDO NMCC
☐ DECL ☒ DOWNGR TO Secret
REVW ON OADR
DERIVED FROM JS

RETURN TO SOD, 2C840

G

ACTION OFFICER: [redacted] USAF

TELEPHONE: EXT 59409 **SECURE** 2825

~~TOP SECRET~~ ~~SECRET~~

(CLASSIFICATION)

SOD SUMMARY SHEET

TO:	CLASSIFICATION	SOD CONTROL NUMBER
CJCS	~~TOP SECRET~~	

SUBJECT:	ACTION			
	APPROVAL	SIGNATURE	INFORMATION	OTHER
HONEY BADGER FAD I	XX	XX		

REMARKS

1. The memo for Gen Jones w/attachments 1 thru 3, requested a FAD I be assigned for Project DOUBLESTAR (JCS).

2. Gen Jones requested an impact statement, included at Atch 4.

3. Memo to MG Vaught, Atch 5, conveys SECDEF approval of FAD I for PAVE LOW only, requests reclama if other assets are required to be included. *Reclama and impact statement at Atch 6.*

4. Inclusion of secure voice satellite terminals is required. Rationale and Mission Impact are at Atch 6.

5. Message at Atch 7 provided SECDEF approval for PAVE LOW only.

6. Message Atch 8 provides SECDEF approval of secure voice satellite terminals within FAD I.

ACTION OFFICER	INFORMATION/COORDINATION/APPROVAL						
[redacted]	OFFICE	NAME	OFFICE	INFO	COORD	NAME	EXTENSION
Col, USAF	J P						
JTD, J-6	EXEC						
Ext 59409	TM CHF						
	VCDPS						
	DPS						
DATE OF PREPARATION							
25 Jun 80							

~~TOP SECRET~~

THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

THE JOINT STAFF

MEMORANDUM FOR GENERAL JONES

SUBJ: (U) ~~(TS)~~ Request for FAD I, Project DOUBLESTAR ~~(C)~~ (U)

1. (U) ~~(S)~~ Project DOUBLESTAR ~~(C)~~ is presently one of the highest priority projects within the Department of Defense. The operations relative to the initial phase of the project are underway and, while progressing as anticipated, a critical problem has surfaced with regard to the Force Activity Designator (FAD) .(Specific examples are at Atch 1. A FAD I is urgently needed.

2. ~~(TS)~~ DOUBLESTAR ~~(C)~~ has been assigned a JCS Project Code by OJCS/J-4 and a FAD II by the Services. (The highest FAD that a service is authorized to assign is FAD II.) The Project Code and FAD II equate to a 2-1 priority, appropriate to the test program but absoutely not commensurate with the [redacted] A problem has not surfaced within the Army but Hq AFLC has advised the Air Staff that a FAD I is needed to avoid "running a real risk of denying needed assets." (Atch 2) Additionally, the 1st Special Operations Wing has advised of impending problems with Navy support. (Atch 3).

3. (U) ~~(TS)~~ At the onset, a FAD I was not pursued in order to maintain a low profile with regard to operations security. Ironically, the present requirement to seek emphasis on a FAD II project is frustrating our original intent as the reason for such high level interest is questioned. A FAD I rating would assure the proper level of support without questions being raised.

4. (U) The Secretary of Defense, with the recommendation of the Joint Chiefs, has authority to assign a FAD I.

5. (U) ~~(TS)~~ RECOMMENDATION: The Chairman recommend a FAD I designation for Project DOUBLESTAR ~~(C)~~.

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POINT PAPER
ON
PROBLEMS WITH FAD II, PROJECT DOUBLESTAR (C)

- (TS) The Force Activity Designator (FAD) assigned to project DOUBLESTAR (C) is not appropriate to the priority of the [redacted]

- (U) There are nine H-53 helicopters in the USAF inventory with a FAD I.
  - — Six are assigned to the Crested Rooster mission at Hickam.
  - — Three, to the ALCM/GLCM tests at Hill.

- (TS) The nine PAVE LOW III helicopters assigned to SNOWBIRD (TS) are working under the FAD II assigned to DOUBLESTAR (C), the [redacted] test and evaluation effort.

- (TS) With more than 20% of the inventory prioritized ahead of SNOWBIRD, needed assets are beginning to be denied. Specific examples follow;

  - — On 19 Jun, a starter motor needed at [redacted]burt was delivered to Hill.
  - — On 20 Jun, a requirement for engines at White Sands was forwarded but could not be filled without a FAD I.
  - — Mission essential gun parts manufactured for the H-53 were diverted to the Army.
  - — Warner-Robbins ALC has advised that scarce voice communications equipment connectors are not available for FAD II projects.
  - — Funding for DOUBLESTAR (C) support may require reallocation from approved high priority programs. FAD II does not provide an adequate base for competition for funding.

BOTTOM LINE:

(U) (TS) DOUBLESTAR (C) has done well, logistically, to date, based upon the considerable high level verbal support it has enjoyed. There is, however, mounting evidence that unless the verbal support is backed up by hard copy documentation of the real priority required, a real lack of adequate assets is faced.

~~TOP SECRET~~

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* [redacted] *
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PENTAGON TELECOMMUNICATIONS CENTER

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PRIORITY
P 191925Z JUN 80
FM HQ AFLC WPAFB OH//LC
TO HQ USAF WASH DC//DF/RD
BT

UNCLAS
SUBJ: HONEY BADGER SUPPORT
REF: HQ USAF/LEYE 171720Z JUN 80
1.(S)YOUR MESSAGE GAVE US JCS PROJECT CODE [redacted] WITH A FAD II. MUCH OF THE AF SUPPLY SYSTEM IS AUTOMATED WITH HIGHER FAD REQUISITIONS AUTOMATICALLY SHIPPED FIRST. WITH APPROXIMATELY ONE FIFTH OF THE USAF F-53 INVENTORY HAVING A HIGHER FAD THAN HONEY BADGER (CRESTED ROOSTER AND ALCM TEST), WE ARE RUNNING A REAL RISK OF DENYING HONEY BADGER NEEDED ASSETS IN FAVOR OF HIGHER FAD PROGRAMS.
2. REQUEST YOU PURSUE A FAD I ASSIGNMENT FOR HONEY BADGER WITH JCS AND ADVISE AS SOON AS YOU CAN.
3. WE ARE PURSUING WORKAROUNDS, BUT CANNOT GUARANTEE OVERCOMING THE HIGHER FADS IN ALL CASES.
BT

****
MESSAGE HAS BEEN SERVICED FOR INVALID OFFICE SYMBOL

ACTION RQ(2)

(F)
TOTAL COPIES REQUIRED 2

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* UNCLASSIFIED *
PAGE 01 OF 01
191925Z JUN 80

G J-3 [redacted]

[illegible]
[illegible] JUN 88
G [illegible] [redacted]
[illegible]

[illegible] T

[illegible] PROJECT CODE SWW

[illegible] SOW HAS BEEN NOTIFIED BY LT COL [redacted]
G [illegible], AUTOVON 468-[illegible], SYSTEM MANAGER HH-53, THAT
[illegible] NOT THE TOP PRIORITY ON HH-53 HELICOPTER. NINE
[illegible] CURRENTLY HAVE A HIGHER PRIORITY PRECEDENCE RATING
[illegible] THE 1 SOW. FOR EXAMPLE: COL [redacted] HAS DIRECTED
[illegible] THE 1 SOW/LGS SHIP [illegible] STARTER, NSN 2995-00-764-[illegible],
[illegible] AFB, UTAH FOR ALCM. HE ALSO STATED THAT HICKAM AFB
[illegible], "CRESTED ROOSTER" HAS A HIGHER PRIORITY PRECEDENCE
[illegible] THAN THE 1 SOW.

[illegible] NAVY IM AT PHIL. NAVY DEPOT (N321) STATED THAT
[illegible] COULD NOT SUPPORT 1 SOW REQUEST FOR PRIORITY SHIPMENT
[illegible] CAL GUN MOUNT PARTS PROMISED TO 1 SOW WEEKEND OF
[illegible] JUN 88, DUE TO FAD II DESIGNATOR.

[illegible] LONG TERM OPERATION OF THESE AIRCRAFT AT THEIR CURRENT
[illegible] RATE WILL REQUIRE INCREASING G
[illegible] ON NAVY ASSETS, THEREFORE, WE REQUEST YOU EN-
[illegible] AWARENESS OF THE PRIORITY OF THIS PROJECT AND THE DISSEM-
[illegible] OF PROJECT CODE SWW.

[illegible] YOU CONSIDER AUTHORIZING A FAD I FOR THE
[illegible] OPERATIONS BY 1 SOW.

[illegible]

IMPACT STATEMENT

Question: What impact would a DOUBLESTAR (C) FAD I have on other FAD I programs?

Air assets involved: MC/HC/AC-130, HH-53, UH-60

Assumptions: The driving necessity for a FAD I for DOUBLESTAR (C) is brought about by logistical problems with the PAVE LOW H-53 helicopters. The system is just being introduced into the inventory and has not been brought up to adequate strength with respect to supportability.

There are no significant problems with C-130 support.

Virtually all the UH-60 assets are under the operational control of DOUBLESTAR (C) and a FAD I would not affect other Army units.

Navy H-53s/UH-60's are not sufficiently common with Air Force H-53s/Army H-60s for a FAD I to have significant effect on Navy assets.

Discussion: There are two Air Force FAD I programs utilizing H-53s:

- Crested Rooster. 6 aircraft supporting the Western Test Range Satellite Reconnaissance Program.
  - -- Helicopters provide back-up to C-130 mid-air recovery of satellite packages
  - -- Two helicopters at a time are used as back-up recovery platforms.
  - -- The helicopters come into play when the C-130s miss. The C-130 success rate is in excess of 95%.

- ALCM/GLCM Test. Three H-53 helicopters at Hill providi mid-air recovery of Air/Ground Launched Cruise Missiles being tested over the Western United States.
  - -- Two ALCM sorties are scheduled for July, none in August. The first GLCM test is scheduled for March '81.
  - -- A day or two delay in one of the ALCM tests as a result of a helicopter shortage would not have an adverse effect on the program.
  - -- DOUBLESTAR (C) helicopters are scheduled to be in the area of Hill AFB during the next month. Lateral support could be provided when necessary.
- Total USAF H-53 inventory = 49 aircraft. Almost 20% enjoy FAD I.

Recommendation: Approve the recommendation for a DOUBLESTAR (C) FAD I for a period not to exceed ~~60~~ days.

D.C

TOP SECRET

OFFICE OF THE CHAIRMAN
Joint Chiefs of Staff

MEMO TO: Ellen Vaughn

Jim:

SECDEF has approved in principle assigning a FAD-I designation to Pave Low (HH-53) portion of Pave Low/Blackhawk rather than assigning designator for entire Pave Low program. If you have strong reclama please surface. In the meantime develop the necessary paperwork to permit SECDEF to take FAD-I designation action for the HH-53s.

John

J.S. PUSTAY, Lt Gen, USAF
Assistant to the Chairman

TOP SECRET

DOUBLESTAR (S) RECLAMA

(S) The approval in principle by the SECDEF to assign a FAD I only to the PAVE LOW helicopters would preclude the availability of vital secure voice satellite communications terminals required for each aircraft participating in HONEY BADGER tests. This point was not included in the request for a FAD I as it was assumed that all facets of DOUBLESTAR would be subsumed in one overall FAD. The lack of secure voice capability via satellite is a major limitation on special forces command and control. There are not enough assets available from any one service to meet this need. The combined service assets could be made available if DOUBLESTAR (C) were included in the FAD I. Strongly recommend that secure voice communications satellite terminals be included in FAD I.

IMPACT ON OTHER PROGRAMS

The Air Force will take delivery of 10 WSC-3 radios by 1 Sep 80 which are to be government furnished equipment for another contractor who has a fixed price incentive contract to build AN/TSC-102, contingency SATCOM terminals. (There are two WSC-3s in each TSC-102). The Air Force is to provide WSC-3s to the contractor by 1 Sep or the cost to the Air Force must be renegotiated. Estimate is less than $500K for non-delivery as specified. The operational impact would be to delay delivery of quick reaction packages for contingency communications support.

The Navy has three WSC-3s in bonded storage to be installed in ships destined for deployment to the Indian Ocean. The Navy may have two or three terminals in labs that could be made available.

The USMC has 30 WSC-3s which have been installed in 10 vans (three in each) to modernize USMC long haul communications capability. These vans will be married up with another equipment van by Navy avionics labs. Fielding will begin in Jun 80 and extend through Early 81. The operational impact would be negligible for the period of DOUBLESTAR tests.

The Air Force will receive 21 secure voice satellite communications terminals for aircraft by 16 Aug 80 which will reduce the number of WSC-3s that would be needed for DOUBLESTAR (C). Replacements for Service assets diverted to DOUBLESTAR (C) could be provided at the rate of about 11 per month beginning in 16 to 18 months after exercising the additional purchase option of the current Navy contract, (option must be funded by 31 Jul 80).

UNCLASSIFIED

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SECDEF WASHINGTON DC

JCS WASHINGTON DC

INFO CSA WASHINGTON DC//DALO-PLR//

CNO WASHINGTON DC

CSAF WASHINGTON DC//LEY//

CMC WASHINGTON DC

DLA CAMERON STATION VA

UNCLAS

SUBJ: FORCE/ACTIVITY DESIGNATOR ASSIGNMENT

FORCE/ACTIVITY DESIGNATOR (FAD) I IS ASSIGNED TO THE HH-53 SEGMENT OF PROJECT HONEY BADGER EFFECTIVE IMMEDIATELY AND EXPIRING 30 OCTOBER 1980.

NNNN

CJCS DJS SJCS J3

[redacted], MAJOR, USAF

J-3, JTD 55078

UNCLASSIFIED

01 01 00 UUUU

SECDEF WASHINGTON DC

JCS WASHINGTON DC

INFO CSA WASHINGTON DC//DALO-PLR//

CNO WASHINGTON DC

CSAF WASHINGTON DC//LEY//

CMC WASHINGTON DC

DLA CAMERON STATION VA

UNCLAS

SUBJ: FORCE ACTIVITY DESIGNATOR ASSIGNMENT

FORCE ACTIVITY DESIGNATOR (FAD) I IS ASSIGNED TO THE SECURE VOICE SATELLITE COMMUNICATIONS SEGMENT OF PROJECT HONEY BADGER EFFECTIVE IMMEDIATELY AND EXPIRING 30 OCTOBER 1980.

NNNN

051417Z JUL 80

5506

CJCS DJS SJCS J3

[redacted], COL, USAF
J-3, JTD, 59409

~~TOP SECRET~~

THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

L-165

18 September 1980

THE JOINT STAFF

MEMORANDUM FOR: MG VAUGHT
MG SECORD

Subject: After Action Report POTENT CHARGE

1. (U) ~~(TS)~~ Objectives:

a. Train to deployability-readiness a SNOWBIRD mission-capable force consisting of 5 HH/CH-53C's, 5 CH-47C's (HICAP), 10 UH-60A(s (HICAP).

b. Train a cadre of mission-ready crews for the purpose of conducting SNOWBIRD-oriented individual and unit training.

c. Articulate doctrine and procedures for the conduct of joint helicopter special operations missions, and document for the future.

2. (U) ~~(TS)~~ Concept:

a. Phase I, 6 to 8 Aug 80 - Conduct Joint Helicopter Operations Doctrine and Procedures Conference, sponsored by JTF. Attendees from HQ, JTF; HQ, 101 AVN GP; HQ, 1st ~~Special Operations~~ Wing; US Army Aviation Center; and Marine Aviation Weapons and Tactics Squadron One. Determine, in conference, using HONEY BADGER evaluations as a basis, doctrine and procedures for conduct of future helicopter special missions. Document procedures.

b. Phase II, 14 August to 4 Sep 80 - Conduct operational training of a mission package to refine and test doctrine and procedures. Conduct a SNOWBIRD-based mission-oriented exercise over realistic distances, in a type mission environment. Evaluate special mission package potential to successfully conclude a SNOWBIRD mission.

3. (U) ~~(S)~~ Assets:

12 - UH60 HICAP
5 - CH47 HICAP
9 - HH53H
5 - HH/CH53C/D

Classified By: ~~JCS~~ DDO NP
Declassified ON: OADR
Downgraded by: DDO NP
12 AUG 9

~~TOP SECRET~~

Select crew:

8 UH60, Army
4 CH47, Army
4 HH53H, Air Force
2 HH/CH53, Air Force/USMC

4. (U) (S) Operations Security was provided by [redacted] to cover the deployment of resources to Hurlburt. In general, the operation was explained as training missions in support of a military conference to develop doctrine for helicopter operations. The conference would be held at Hurlburt Field, Fla and would involve academic discussions as well as day and night flying. The crews were only aware of para 1c, doctrine and procedures development, and not the other objectives of the conference.

5. (C) Potent Charge - Phase I was convened at 0830, 6 August 1980, in the Command Balcony, Army Operations Center. Attendees are listed at Attachment 1. [redacted] who was invited as Chairman, outlined the conference methodology and divided the attendees into working groups to examine the procedural subject areas listed in Attachment 2.

The individual working groups, which consisted to the extent possible of members of each service, defined problem areas and proposed solutions to the entire group at intervals during the conference. These solutions, after they were affirmed by the entire group, were then documented as procedural guidance. This process proved extremely efficient. One of the most important ancillary results was the rapport which developed among the participants, and the appreciation they seemed to gain for the professionalism of the aviators in the respective services. This methodology forced the participants to recognize that specific differences in procedures used by the various services are the result of different missions and normal tactical environments, rather than qualitative differences in training programs.

The following products resulted from the conference:

- Planning criteria and checklists
- Briefing guides for type missions
- Enroute and formation procedures
- Terminal operations procedures

These products were assembled in the form of a Joint Helicopter Special Missions Procedural Handbook. This is to be a "living" document, intentionally kept in loose leaf

format, so that as increased experience in helicopter special missions is gained, service participants can improve the procedures in a doctrinally sound fashion, rather than looking at them as dogma.

At the conclusion of the conference, the attendees from Fort Rucker and Fort Bragg were dismissed, and those from Hurlburt and Fort Campbell convened a training planning conference at the direction of the JTD staff. They produced a training program for Phase II, which was affirmed by the staff with minor changes and was transmitted to the units (Attachment 3).

6. (U) (S) Conclusions - Potent Charge Phase I:

a. Interservice/interunit coordination and understanding has improved visibly. [redacted], 1SOW and [redacted] 101AVG, have been identified as helicopter planning POC's and have agreed to maintain continuous communication on all joint matters.

b. Instructor Pilots, Standardization Instructor Pilots, and Flight Examiners, who constitute the core of the mission select crews, were extremely enthusiastic about being asked to participate and contribute actively in the planning process and procedural development. They universally indicated considerable optimism with respect to future results if the training program continues in this fashion.

c. Some confusion at the operator level was evident. This confusion may be partly our fault, in that JTD probably tends to overclassify message traffic directed at the units, and may be directing it too high in the respective chains of command. JTD should make every effort to "scrub" training guidance down to the lowest level of classification possible, before issuing it to the unit planners.

7. (U) (S) Potent Charge Phase I objectives met:

a. Determination of doctrine and procedures for conduct of joint helicopter special missions.

b. Documentation.

c. Establishment of useful dialogue between unit planners and operators.

d. Establishment of unit coordinating POC's.

8. (U) Potent Charge - Phase II was reconvened at Hurlburt Field on 14 Aug 1980. The participants were the same individuals who participated in Phase I plus planners from the 101st AVBN and the 1st SOW. JTD presented the goals and requirements for the terminal training objectives along with a mission profile. Two days were spent reviewing and revising the procedures in preparation for the following week's flights. With JTD guidance, the conferees reexamined their training program and adjusted the training events slightly to fit the terminal training objectives.

9. (U) The flying portion of the exercise started on 18 August 1980 with a training/evaluation flight with Marine and Air Force pilots working exclusively on night vision goggle (NVG) training. The first night's training was postponed because of weather. The training was accomplished the following night. Major Jim Schaefer's evaluation indicated that the pilots were progressing nicely and had gained proficiency in the use of NVGs. Continued training is necessary to improve proficiency in the use of NVGs.

10. (U) The first four procedural flights were daylight training to test, evaluate, and practice the procedures. Training flights were task oriented into assault and support cells. The two assault cells each consisted of one HH-53H and four UH-60s. The two support cells each consisted of one HH-53H, one HH-53C, and two CH-47s. The crews were rotated between assault and support missions to have as many crews as possible fly and evaluate the procedures; and gain as much mission experience as possible. The crews flew mission profiles that included enroute navigation, formation procedures, air refueling, emergency procedures, communications, rapid refueling procedures, and terminal operations.

11. (U) The second week of the exercise was devoted to flying the procedures developed and practiced the first week, during the hours of darkness.

12. (U) On the night of 3-4 Sep, a terminal training mission (Atch 4) was flown to evaluate the aircrews ability to translate the procedures they had been developing and practicing into a mission scenario. The scenario was profiled against the helicopter portion of SNOWBIRD X. Mission activities were closely paralleled. Distances, times, fuel requirements, altitudes and LZ procedures were the same.

~~Depart Hurlburt, fly 100nm leg over water, then proceed inland over a 500 mile route to TAC X training LZ at Ft. Rucker.~~

- At TAC X, refuel from prepositioned 5,000 gal tankers provided by the 108th QM Bn, Ft. Rucker and pickup the Assault Force, two Ranger platoons (notional), represented by CCT and pathfinders already prepositioned at TAC X by 1st SOW helicopters.

- At TAC X, the force divides into two helicopter mission packages, each consisting of an assault cell composed of one HH-53H and four UH-60Hs; and a support cell composed of one HH-53H, two CH-47s, and one HH-53C. This is the last opportunity for CJTF to tailor his forces. They then proceed as separate flights to the assault zones.

- Air assaults on TAB 6 and LZ 75 in the Eglin range. After the assault landing, assault aircraft withdraw to holding area, then return to pick up ground forces, then return to TAC X for transshipment and refueling, then return to Hurlburt via the 650 mile egress route. Air refueling will be accomplished on egress.

13. (U) (C) The mission encountered several problems that could not be effectively planned for. Weather - The weather was not as forecast. The passage of a line of thunderstorms early in the mission threatened cancellation of the mission and caused deviation from planned course. Illumination - The first assault cell and support cell were scheduled to arrive at their assault and holding areas before moonrise with minimum illumination. Administration - The area used as a transshipment point was too small to land the entire force. Scheduling - Refueling activities were not scheduled with consideration for equipment capabilities.

14. (U) (TS) Mission execution - The first assault cell took off at 1945 local and was followed by the other cells as scheduled. Immediately after takeoff, the first and second cells encountered a line of thunderstorms on their intended course. The radar-equipped Pave Low aircraft were able to safely circumnavigate the weather and lead their cells to rejoin the route, and continue on schedule. One HH-53C crew, taking off into the weather, experienced severe vertigo and returned to Hurlburt. At the transshipment/RRP (TAC X), a problem was encountered with scheduling and refueling activity. Flights arrived on time but approach, landing, ground positioning, and refueling took longer than planned. The crews, CCT, and pathfinders effectively reacted to the problem. Traffic was efficiently handled by the CCT on arrival and on the ground; and transshipment/RRP actions were accomplished without incident. Assault and support elements then proceeded to their LZs. The assault and

holding LZ were not lighted; however, the illumination was not as big a problem as expected and the assault and recovery went without incident. On the egress route, the ground activity at TAC X was not as rushed because of route timing. The bottleneck experienced during the ingress was not a problem. The cells flew the egress route, accomplished an air refueling and returned to base without incident.

15. (U) ~~(S)~~ Aircraft maintenance problems on the terminal mission. All chalk positions took off on time. The following problems occurred after takeoff or sometime during the mission.

a. HH-53H, 648, chip light main gear box on landing at TAC X on the ingress route. Could not proceed to assault. Blackhawks went without him. On an actual mission, CJTF would have had the option of using a spare Pave Low or moving the support cell lead up to the assault cell.

b. UH-60 - fuel filter warning light on landing at TAC X on the egress route. The problem was corrected by the crew in less than 2 hours and they completed the mission.

c. HH-53H, 650, chip light #1 engine on landing at TAC X on the egress route. The problem was corrected by the crew. The aircraft was administratively returned to Hurlburt. It did not fly entire egress route because it could not accomplish aerial refueling because of tanker availability.

d. HH-53C, 795, on takeoff the pilot experienced vertigo, put his aircraft in some unusual altitudes. When he regained control, he returned to base so that maintenance could check the aircraft for stress.

16. (U) ~~(TS)~~ Objectives accomplished:

a. There is now a trained mission-capable crew force of 4 HH-53Hs, 2 HH-53Cs, 4 CH-47Cs and 8 UH-60As that can perform against the SNOWBIRD X parameters.

b. Each unit has a cadre of mission ready crews for the purpose of conducting SNOWBIRD oriented individual and unit training. (Atch 5)

c. Doctrine and procedures for the conduct of joint helicopter special operations missions, were documented in a Joint Helicopter Operations Directive. (Atch 6)

17. (U) Areas requiring further attention:

a. Potent Charge Maintenance Support H53:

Exercise Potent Charge - Phase II required four HH53Hs and two HH-53Cs to meet the daily flying schedule. Here is a summary of the activity. Specific information can be found in the maintenance evaluation in Attachment 7.

18 Aug Monday - Three aircraft were scheduled to fly all three were replaced with spares. Before they could be flown, the missions were cancelled because of weather.

19 Aug Tuesday - Three aircraft were scheduled to fly. Two took off on time and completed their training. One took off 20 minutes late and air aborted.

20 Aug Wednesday - nine aircraft were available to fly. Two took off on time and completed their training. One took off 20 minutes late and air aborted.

21 Aug Thursday - Five aircraft were available to cover six missions. One took off on time and completed training. One took off 22 minutes late and completed training. One was not provided and three aborted.

22 Aug Friday - Nine aircraft were available to fly. Four took off on time and completed their training. Five were maintenance deleted or cancelled.

23 Aug Saturday - Seven aircraft were available to fly. Five took off on time and completed their training. One was a maintenance delete and one cancelled.

25 Aug Monday - Eight aircraft were available. Two aircraft took off on time. Three took off late and completed their training.

27 Aug Wednesday - Eight aircraft were available. Two took off on time and completed training. One took off late and completed training. Two maintenance cancelled and one air aborted.

28 Aug Thursday - Eight aircraft were available. Six took off on time and completed training. Two returned to base for repairs then continued training. Two maintenance cancelled.

3 September - Scenario Day. Nine aircraft were available. Six took off on time. Four completed training. One aborted after 5.5 hours, before reaching objective,

(1) The long duration of the mission is a major concern. Doctor [redacted] briefed the crews on the effects of fatigue and means of combating the problem. As part of his after action, Doctor [redacted] will publish a pamphlet on the effects of long duration flights, the nature of those effects, and actions crews can take, either through diet or exercise, to overcome the effects. He is also examining the possibility of using amphetemines to overcome the effects of fatigue.

(2) Air crew medical support was examined by Doctor [redacted] He concluded that USAF Pararescue Specialists and USA Special Forces medics are the best qualified for mission support. Coincidently, both helicopter unit commanders have requested Pararescue Specialists to perform as scanners, gunners, crash rescue, and medical support aboard mission aircraft. This request coincides with our earlier recommendation in the Honey Badger after action report. As JHTF Flight Surgeons, Doctor [redacted] and Doctor [redacted] will train the PJs used for helicopter support. The training will consist of refresher instruction covering trauma, minor surgery, combat trauma, and crew duties.

(3) Medical configuration of aircraft. Doctor [redacted] demonstrated a medical configuration for the H-53. This configuration is ideal for special operations. It provides a flexible medical capability with light weight. The ability to immediately treat injuries before the transshipment point is a vital addition to the mission capability (Atch 8).

b. [redacted] Support. Members of the [redacted] designed, developed, and demonstrated an H-53 based [redacted] system that has a potential for greatly expanding mission capabilities, and markedly increasing the options for logistics support. The unique capability of the H-53 to [redacted] from ground units, CH-47s, other H-53s, and HC-130s gives the task force the ability to support forward units with [redacted] on a continuous basis and still recover the logistics support assets. Further development, and system safety evaluation is needed.

c. CCT - A helicopter mission qualified CCT composed of 1st SOW CCT and Pathfinders from Fort Rucker has been trained and developed. These units should be tasked to support RRPs and transshipment points and used as primary units when helicopters are involved.

[redacted]
Special Assistant
Army Aviation

[redacted]
Special Assistant
Helicopter Forces

[redacted]

[redacted]

POTENT CHARGE PHASE I CONFERENCE ATTENDEES

NAME		AUTOVON	TWX
[redacted]	COL	[redacted]	ATZQ-CD, USAAVNC
[redacted]	CPT	[redacted]	1SOW/HURLBURT
[redacted]	CPT	[redacted]	ATZQ-OT, USAAVNC
[redacted]	CPT	[redacted]	CDR C/158 AVB, 101AVG
[redacted]	CW3	[redacted]	SIP C/158 AVB, 101AVG
[redacted]	MAJ	[redacted]	HMX-1, MCAS QUANTICO
[redacted]	CW3	[redacted]	SIP D/158 AVB, 101AVG
[redacted]	CW3	[redacted]	SIP A/159 AVG, 101AVG
[redacted]	CPT	[redacted]	1SOW/HURLBURT
[redacted]	CW3	[redacted]	DES, USAAVNS
[redacted]	CPT	[redacted]	PFDR PLT, 82ABD
[redacted]	MAJ	[redacted]	1SOW/HURLBURT
[redacted]	MAJ		CDR CCT 437MAW
[redacted]	MAJ	[redacted]	1SOW (XPD)/HURLBURT
[redacted]	MAJ	[redacted]	AVN BD, USAAVNC
[redacted]	MAJ	[redacted]	JCS J-3/JTD/WASH
[redacted]	MAJ	[redacted]	JCS J-3/JTD/WASH
SCHAEFER, JAMES	MAJ	751-2132	MAWTS-1/YUMA

Attachment 1

[redacted]

[redacted]

listed non-effective. One aborted after the pilot experienced vertigo on take off and returned to land. Possible over "G", aircraft aborted for inspection. One experienced a problem after objective, was repaired in the field and administratively returned to Hurlburt, mission effective.

Compiled statistics for Potent Charge Phase II:

67 A/C scheduled to fly 51 sorties
46 HH-53H and 21 HH-53C
22 HH-53Hs took off on time - 48% (one abort in route) 46%
4 HH-53C took off on time - 19%
34 crew sorties were effective out of 51 scheduled - 67%

b. Equipment - The following equipment requirements need to be met to provide essential mission capabilities:

- Pave Low battery problems are in the process of being corrected by Canadian Marconi.

- Collective limit. The collective limit need to be adjusted to enable pilots to use all available power for flight.

- IR light and brackets are needed to improve night operations.

- 50 cal gun mounts. Presently at the manufacturer. This is another mission essential item in the acquisition process.

c. Training:

- Live fire of 50 caliber machine guns.

- Increase number of mission ready crews.

- Increase proficiency using night vision goggles.

- Operations in brownout conditions.

18. (U) (S) Additional capabilities:

a. Medical support - Doctor (LtCol) [redacted] Hulburt AFB, is functioning as JHTF Flight Surgeon with Doctor (Capt) [redacted] Fort Campbell, as his Deputy. They will act as points of contact for medical information related to JTF helicopter crews and activities.

DOCTRINAL/PROCEDURAL SUBJECT AREAS

1. Briefings:

   a. Briefing format/guide - mission-cell-aircraft
   b. Pre-mission data checklists
   c. Map/chart/flight log preparation
   d. Formation briefs
   e. Emergency procedures briefs
   f. Cell standardization
   g. Tactical situation briefs
   h. Mission note cards

2. Mission, profile, enroute phase -

   a. Ground abort procedures
   b. Communications plan - joint commplan
   c. Spare aircraft procedures
   d. Departure join-up
   e. Enroute link-up
   f. Lost lead link-up
   g. Formation visual signals

      (1) lead change
      (2) frequency change
      (3) position change
      (4) emergency
      (5) break

   h. NVG navigation check points - route selection - NVG procedures
   i. Lost comm
   j. Lost visual contact - signals and procedures
   k. Evasive maneuver battle drill
   l. Wing man abort
   m. Downed crew recovery
   n. Re-link procedures, enroute, holding area, LZ/PZ.
   o. IP procedures
   p. Holding area procedures
   q. Hides
   r. AR procedures

      (1) timing
      (2) missed AR
      (3) cell procedures
      (4) lighting
      (5) Visual signals

Attachment 2

3. Mission profile, terminal phase

a. ROE
b. Aircraft spotting in LZ/PZ/holding area
c. ROE/LZ status/threat/security
d. Rejoin by aircraft left in holding area
e. RRP closeout procedures - signals and counts
f. PZ closeout procedures - signals and counts
g. Authentication procedures
h. Evasive maneuver, re-link
i. Pax onload/offload procedures

(1) count
(2) control
(3) conform

j. Lost lead
k. LZ lost comm

(1) visual signals
(2) withhold

l. Rescue and recovery response procedures
m. Signals - compromise/pickup/proceed
n. Holding area communications -

(1) call forward plan
(2) re-link plan
(3) withhold plan
(4) NLT times

o. Passenger instructions
p. Transload area procedures

(1) pax instructions
(2) pax marking
(3) pax accounting
(4) ingress/egress
(5) lighting
(6) communications plan
(7) lost comm plan - signals
(8) control points/holding areas

q. RRP/LZ/PZ timing/traffic/holding
r. RRP/LZ/PZ HA procedures
s. Go around procedures
t. CCT/Pathfinder coordination

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TRAINING PROGRAM -- POTENT CHARGE PHASE II

14 Aug - Final planning conference begins 1300CDT, 1SOW Wing HQ, Hurlburt. All Phase I conference attendees in attendance.

15 Aug - Conference continues. Final joint operations document transmitted to Cdr and J-3, JTD, for approval.

18 Aug - Two HH53H, two HH53C NVG training sorties, USMC assisted. Each sortie 2.0 hours.

19 Aug - Crew rest/makeup training day.

20-13 Aug - Day multi-ship joint procedures training. Terminal Training Objective: all select crews thoroughly familiarized with procedures, tactics, and techniques.

25-28 Aug - Night multi-ship joint procedures training. Terminal Training Objective: all select crews special joint mission-ready.

2 Sep - Brief Terminal Mission. Crew/cell planning conducted. Concept/Oplan will have been issued to unit planners NLT 21 Aug.

3 Sep - Fly Terminal Mission.

TASK LIST - POTENT CHARGE PHASE II

18-21 Aug -
a. Mission Brief
b. Taxi/prelaunch communications
c. Formation takeoff and join-up
d. IMC breakup/rejoin
e. Formation enroute procedures
f. LZ landing/refueling/departure
g. Terminal procedures
h. Light signals/lost comm
i. Debrief

22-23 Aug -
a. Mission brief
b. Taxi/prelaunch communications
c. Formation takeoff and join-up
d. Formation battle drill
e. Aerial refueling
f. Formation landings/terminal emergencies
g. VMC breakup/evasive maneuver battle drill
h. Terminal procedures
i. Debrief

25-28 Aug - Same tasks performed at night.

Attachment 3

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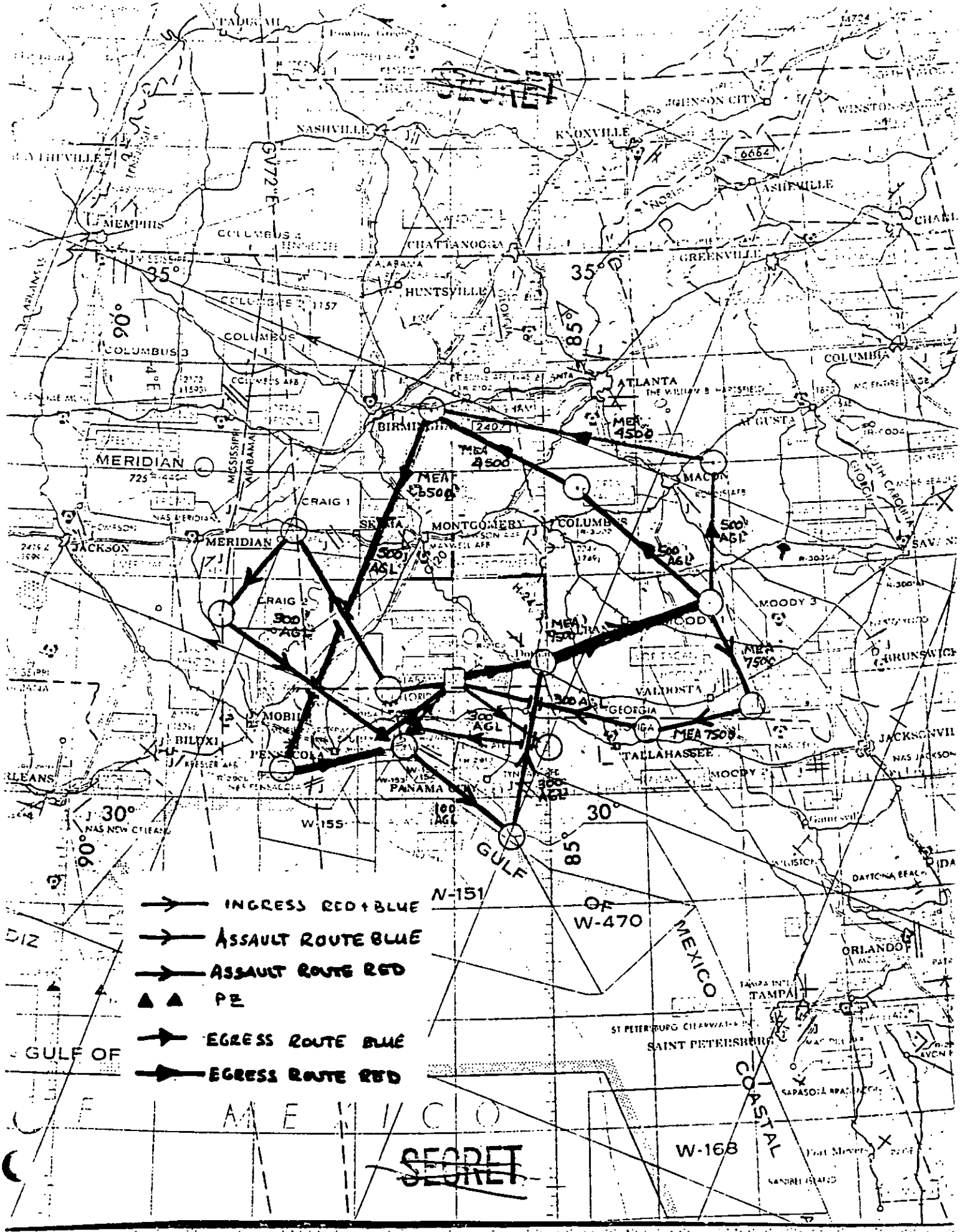
INGRESS RED + BLUE
ASSAULT ROUTE BLUE
ASSAULT ROUTE RED
PE
EGRESS ROUTE BLUE
EGRESS ROUTE RED
SECRET
ATCH 4

~~SECRET~~

MOOMJIAN

USA USAF

JOINT HELICOPTER

OPERATIONS DIRECTIVE

(DRAFT)

18 Aug 1980

~~SECRET~~

ATCHMENT 6

TABLE OF

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GENERAL		1
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FLIGHT DATA CARDS	ATCH	1

FROM: USA/USAF JOINT HELICOPTER OPERATIONS DIRECTOR 25 Aug 80

SUBJECT: Change 5 to USA/USAF Joint Helicopter Operations Directive (Draft)

TO: Whom it May Concern

1. Make the following page changes to subject directive:

REMOVE	INSERT
3-2 THRU 5-10	3-2 THRU 5-~~8~~ 7
6-1 THRU 6-2	6-1 THRU 6-2
FIG 7-4 THRU 7-4c	FIG 7-4 THRU 7-4c
8-5 & 9-1	8-5 & 9-1
10-2 & 10-3	10-2 & 10-3
ATCH 1-5 & 1-6	ATCH 1-5 & 1-6

2. Make the following pen and ink changes:

a. After removal and insertion of page changes, renumber pages 5-11, 5-12, and 5-13 to 5-8, 5-9 and 5-10 respectively.

b. Atch 1-8 add "22. Altimeter setting".

G

[redacted]

CHAPTER 1

GENERAL

The purpose of this manual is to establish standard operating procedures for joint USAF/USA/USMC helicopter operations involving H-53, H-60, and H-47 aircraft. Procedures are designed around a mission concept including night VMC, low level, communication (radio) out, night vision goggle (NVG), long range infiltration/exfiltration. The nature of the envisioned mission requires detailed briefing of all participants on all mission phases. However, no amount of planning, briefings and procedures can cover all situations and the discipline training and judgment of individual aircrews/planners may call for a necessary violation of procedures or concepts (i.e., breaking radio silence) in order to safely and effectively accomplish the mission. These procedures are designed to exercise both aircrew and aircraft through the full range of their capabilities; however, each aircraft commander must assess the limitations of himself, his crew and his aircraft on each mission and insure that these limits are not exceeded in pursuit of mission objectives. Fly safe.

DEFINITION OF TERMS

1. Airborne Mission Commander (AMC) - the designated airborne commander of joint mission elements.

2. Air Refueling Initial Point (ARIP) - A point located upstream from the area at which the RECEIVER aircraft initiates a rendezvous with the tanker.

3. Air Refueling Control Point (ARCP) - The planned geographic point over which the receiver(s) arrives in the observation/precontact position with respect to the assigned tanker.

4. Air Refueling Control Time (ARCT) - The planned time the receiver and and tanker will arrive over the air refueling control point.

5. Refueling Altitude - that altitude which meets the performance and operational requirements of both tanker and receiver.

6. Air Refueling Airspeed - An airspeed at which air refueling will be initiated.

7. Air Refueling Track - A track designated for air refueling.

8. Air Refueling Abort Point - A planned point along the air refueling track at which the receiver or tanker is directed to return to the recovery base in the event that fuel transfer is not successful.

9. Air Refueling Exit Point - THE PLANNED TERMINATION POINT OF AIR REFUELING OPERATIONS.

9a. CHALK - The number poisition of an aircraft in a formation; i.e., the second aircraft in a formation is CHALK TWO.

10. Rendezvous - A procedure to join-up two or more aircraft in flight.

11. Landing Zone - A specific zone within the objective area used for the landing of assault aircraft.

12. Laager Area - An encampment area or assembly point for ground vehicles or aircraft.

13. Pickup Zone - A landing site for onloading personnel or cargo.

14. Transload Point - A landing area provided for the transfer of personnel or equipment to other modes of transportation.

15. Rapid Refueling Point (RRP) - A ground refueling site designed for quick refueling from ground bladders or other aircraft.

16. Rapid Refueling Point Time (RRPT) - A control time for arrival at the rapid refueling point.

17. Beaconing - The use of radar beacons to provide homing or vector signals to aircraft arriving at a landing zone.

18. Rules of Engagement (ROE) - Directives issued by competent military authority which delineate the circumstances and limitations under which U.S. forces will initiate and/or continue combat engagements with other forces encountered.

19. Formation Leader - The designated leader of two or more flights of helicopters/aircraft.

20. Flight Commander - The designated leader of an integral flight of helicopters/aircraft.

21. Ground Commander - The designated on-ground commander of joint forces elements.

22. Enroute Control Time - An arrival time over an enroute way point used to control the sequence of air traffic.

23. Phase Lines - A geographical line used to control movement of mission elements, should be easily identifiable on the ground; normally used in conjunction with a control time.

24. Safe Areas - "Selected areas for Evasion." Used in conjunction with Escape and Evasion (E&E) procedures during search and rescue (SAR) operations.

25. D-Day - The day on which mission operations commence.

26. H-Hour - The Specific hour on D-Day on which hostilities commence. When used in connection with planned operations, it is the specific hour on which the operation commences.

27. Brevity Code - Code words or acronyms used to identify mission elements or execution directions.

28. Holding Area - An airborne or ground area used for planned delay of mission elements.

29. Combat Control Team (CCT) - USAF units formed to secure and control airfields or landing areas.

30. Pathfinders - US Army units formed to seek and secure forward area landing zones.

31. Join-Up Altitude:

A position 200 feet above air refueling altitude.

32. Radio silence air refueling:

Air refueling without the aid of verbal instructions.

33. Joint Operations Commander:

The designated operational commander of all assets committed to one particular joint operation.

34. L-Hour - The time of landing of the first wave of a helicopter borne unit.

35. AN/ALE 40 - Flare and chaff ejector system installed to deceive guidance systems in certain types of missiles.

36. AN/ALE 69 - Radar warning receiver, provides audio and video alerts to the pilot and copilot when the system detects threat radar signals.

37. KY 28 - Secure speech provided to pilot and copilot on FM and UHF radios.

NAVIGATION

1. The primary means of navigation is dead reckoning. All aircraft in a formation will prepare sufficient maps, charts, and mission data to provide positive location identification in the event navigation aids are lost. Navigation aids on board PAVE LOW will be used to the maximum extent to maintain track and timing accuracy.

2. PAVE LOW or other lead aircraft will attempt fly over of check points to assist update procedures for all aircraft. Lead aircraft will notify wingmen of approaching update points using light signals.

3. Navigation system failure.

a. PAVE LOW aircraft will normally retain formation lead in the event of PAVE LOW system's failure. If other considerations dictate a lead change, a lead change will be accomplished.

b. All aircraft in the formation will be notified of nav system's failure and will closely monitor navigational accuracy. Wingmen will notify lead aircraft of suspected gross navigational errors.

IMC OPERATIONS

Inadvertant IMC conditions will be avoided to the maximum extent possible. If IMC is encountered, SOP's will be followed to attempt regaining contact flight. Time, distance & heading dead reckoning will be used during IMC flight to retain as much navigational accuracy as possible. After IMC is regained aircraft will use all available means to fix their position and proceed along track.

CHAPTER 2

BRIEFING GUIDES

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CREW INTEGRITY, FLIGHT INTEGRITY

To maximum extent, on a given training exercise, crew integrity should be maintained. Flight integrity can vary ~~and~~ as necessary to suit the needs of the mission; however, for the immediate future, flight integrity appears advantageous. It provides familiarity between crew members and standardization of flight techniques. The flight leads command over the flight is similar in concept to the aircraft commanders' command over the crew; however, without communications between aircraft the flight commanders' job is more difficult and while some situations may conceivably warrant uncommanded actions by flight members flight discipline/integrity should be maintained except under the most extraordinary conditions.

CREW ROTATION/AUGMENTATION

- Except for ferry flights exceeding 14 hours augmented crews are not required.
- Crew members in heavy lift helos H-47 and H-53 have greater freedom of movement and some rotation of crew duties is possible. The H-47 navigator may rotate into pilot or copilot positions. H-53 flight engineers may rotate between cabin and cockpit positions.
- Crew members in H-60 aircraft have limited movement and crew rotation is impractical.
- Crew duty/rest limitations for respective components should be strictly observed by mission planning elements.

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PLANNERS CHECKLIST

1. Task Organization
2. Situation
   a. Friendly
      (1) Air
      (2) Ground
   b. Flight Assignments CARD 1
   c. Intelligence
   d. Weather (local, enroute, objective, egress, destination) Moon illumination, sea state, temperature.
3. Mission
   a. Primary
   b. Alternate
   c. D-Day - H-Hour.
4. Execution
   a. Prelaunch CARD 4
      (1) Start Time
      (2) Commo check - sequence & frequency
      (3) Taxi time
      (4) Special Equipment required
      (5) Fuel required
   b. Launch
      (1) Sequence
      (2) Take off heading
      (3) Formation
      (4) Go/no-go procedures (criteria)

c. Enroute

(1) Primary route with way points CARD 5

(2) Secondary route with way points

(3) Enroute formation

(4) Airspeed/altitude

(5) Air movement table

(6) Frequency change procedures/mission control measures

(7) Flight lead change procedures

(8) ARCP/RRP locations

(9) Link up procedures

(10) Known enemy locations

(11) Rules of engagement

(12) Hazards

d. Terminal/Objective area

(1) Primary PZ

(2) Alternate PZ

(3) Suppressive fires

(4) Holding area (include security)

(5) Call forward procedures/PZ control

(6) Landing heading

(7) Landing formation

(8) Rules of engagement

(9) Load-PAX/cargo

(10) Hazards

e. Egress

(1) Primary route with way points

(2) Alternate route with way points

(3) Destination

(4) Control measures

(5) Rules of engagement

(6) Emergency LZ

(7) Destination

(8) Fuel/medevac call up procedures

f. CCT Brief CARD 6

g. Emergency procedures

(1) Aborts

(a) System

(b) Weather

(2) Lost commo

(3) Escape and Evasion

(4) In-flight emergency/downed aircraft

(5) IMC

(6) SAR

h. Special Instructions

(1) POW

(2) Mission alternates

(3) Time hack (ZULU)

5. Service support

a. Refuel Procedures CARD 7

(1) Air (incl release time)

(2) Ground (incl release time)

b. Maps

6. Command and Signal CARD 2 & 3

a. AMC

b. Formation lead (NOTE: a, b, c, & d - include frequency and call signs

c. Flight lead

d. Ground commander

e. Recall procedure

f. Nav aids

g. Signals

h. Code words

i. Frequencies and call signs

SECRET

MISSION BRIEF

1. BRIEFER: _____
2. VISITORS: _____
3. ROLL CALL: _____ CARD 1

   (NOTE: By Flt Assignments & Tail #)

4. MISSION:
   a. Primary
   b. Alternate
   c. Objective Area
   d. General Routing
   e. LZ
   f. Onload Requirements
   g. D-Day H-Hour
5. TASK ORGANIZATION(s)
   a. Friendly situation
      (1) Air
      (2) Ground
6. CALL SIGNS CARD 2 & 3
7. COMMAND
   a. AMC
   b. Formation Leader
   c. Flight Leader
   d. Ground Commander
   e. Recall Procedures

SECRET

8. COMMUNICATIONS

   a. Control Agencies

   b. Frequencies Sequence

   c. Mission Control Procedures

   d. Nav Aids

   e. Signal

   f. Code Words

9. INTELLIGENCE:

   a. Briefer

   b. Rules of Engagement

   c. E&E Code Letters/Words

   d. Ordnance

   e. Authentication Procedures

   f. Safeguard/Destruction of Classified

   g. Personal Sterilization

   h. Route

   i. Threats

   j. Evasive Tactics/RHAW Indications

   k. Safe Areas

   l. LZ Description/Photography

   m. Cover Story

10. Weather

   a. T/O, Enroute, Terminal

   b. Pressure Altitude/Temperature/Wind/Altimeter Settings

   c. Alternate & Recovery Bases

   d. Sunrise & Sunset

   e. Moonrise, Moonset, % Illumination

   f. Sea State

11. MUNITIONS

a. Flares

b. Chaff

c. Very Pistols

d. Guns/Load

e. Personal Weapons

12. EXEUCTION (BRIEFED BY FORMATION LEADER) CARD 4

a. Prelaunch

(1) Start time

(2) Commo check time (include frequency and sequence)

(3) Taxi time/ Rulemus

(4) Special equipment required

(5) Fuel required

b. Launch

(1) Take off heading

(2) Formation

(3) Sequency

(4) Go/no go procedures

c. Enroute CARD 5

(1) Primary route with way points

(2) Alternate route with way points

(3) Formation

(4) Airspeed/altitude

(5) Air movement table

(6) Frequency change procedures/mission control measures

(7) Flight lead change procedures

(8) ARCP/RRP locations

(9) Link up procedures

(10) Known enemy locations

(11) Rules of engagement

(12) Hazards/NOTAMS

d. Terminal/Objective area

(1) Primary PZ

(2) Alternate PZ

(3) Suppressive fires

(4) Holding area (include security) / HIDES

(5) Call forward procedures/PZ control

(6) Landing heading

(7) Landing formation

(8) Rules of engagement

(9) Load-PAX/cargo

(10) Hazards/NOTAMS

e. Egress

(1) Primary route with way points

(2) Alternate route with way points

(3) Transload point

(4) Control measures

(5) Rules of engagement

(6) Emergency LZ

(7) Destination

(8) Fuel/medevac call up procedures

13. CCT BRIEF CARD 6

14. EMERGENCY PROCEDURES

a. Aborts

(1) Systems

(2) Weather

b. Lost commo

c. Escape and Evasion

d. In flight emergency/downed aircraft

e. IMC

~~f. SAR~~

3. Routing

15. REFUELING PROCEDURES

a. Air

CARD 7

ARCT—

b. Ground

RRPT

16. DEBRIEFING

a. Maintenance

b. Operations

c. Intelligence

~~d. Mass Debrief~~

17. SPECIAL ITEMS

a. Transportation

b. Messing

c. Life support

d. Mission update brief

18. TIME HACK (ZULU)

SECRET

INDIVIDUAL AIRCREW BRIEFING GUIDE

1. Mission

   a. Sequence of events

      (1) Take off
      (2) Enroute
          (a) Formations
          (b) AR
          (c) RRP's
      (3) Terminal area
      (4) Loading procedures
      (5) Egress

2. Timing

   a. AKC show times at aircraft.

   b. Start time

   c. T/O time

3. Call signs

   a. Aircraft

   b. Personnel

4. Intelligence

   a. Friendly

   b. Enemy

   c. Rules of engagement

5. Weather

6. NOTAMS

7. Crew duties

   a. Change of controls

   b. Scanners duties

   c. Crash landing responsibilities

SECRET

8. Emergency - Procedures -
   a. Basic aircraft
   b. Formation
   c. Air refueling
   d. Ground refueling
9. Special equipment
   a. Aircraft
   b. Personnel
   c. Mission kits/maps
10. Radio procedures
   a. Interplane
   b. Intraplane
   c. Visual signals
11. Escape and Evasion procedures
   a. Code words
   b. Safe areas
12. Recall procedures
13. Fuel
14. Weight and balance
15. Passengers manifested
16. Time hack

CHAPTER 3

RADIO COMMUNICATIONS

Radio communications will not be used except for communications check in, emergencies for which no comm out SOP exists, and planned communications' with CCTs, etc. The mission planning/execution should be accomplished to meet the following requirements:

a. CEOI must be published in a timely manner.

b. All users must input to CEOI development as early as possible.

c. All users will have the same CEOI.

d. Each pilot will carry the standard CEOI and an abbreviated frequency card which is also standard.

e. All flights will monitor the same HF, VHF, UHF & FM frequencies except individual flights will have alternate frequencies to allow communication within all flights simultaneously. [Return of all flights to the same mission frequency will be accomplished as soon as conditions permit. Normally only one radio will be used off the mission frequency]

f. Any absolute minimum number of frequency changes will be used during a mission.

g. Alternate frequencies will be identified so that only one digit must be changed (i.e., primary 243.0 would have an alternate of 253.0 or 244.0 or 243.1, etc.)

h. Each crewmember will have a PRC-90.

i. Each aircraft will carry a low power Motorola or Squad radio for ground holding point communication.

j. Call signs will be designed so that:

(1) Flights are designated by block numbers, i.e. 20, 30, 40.

(2) Chalk order is last number of call sign, i.e., 21, 31, 41, 51 are flight leads.

(3) First portion of call sign is code word, i.e., Bromo = Helicopter.

TAKEOFF

Takeoff/Join Up. These procedures are designed around the initial takeoff from a runway large enough to allow two clear lanes for rolling takeoffs. These procedures allow a single aircraft to abort a takeoff without any sympathetic aborts or any break in radio silence. There are many circumstances which may require deviations to these procedures such as narrow/short runways multiple aborts or aircraft emergencies. In all cases good judgment must be used by all flight members.

1. Engine Start/Taxi. Each A/C will start independently in order to arrive at a briefed taxi rendezvous point. Taxi should accomplish to arrive at rendezvous point 10 mins prior to T.O. time.

2. Comm Check. Comm check-in will be accomplished 10 minutes prior to T.O. Each radio will be checked by all flight members in both secure (green) unsecure (red) modes, i.e., "Shark 21 flight check-in Fox Mike Green.: Each flight member will respond with his flight position number i.e., "Two, ""Three,""Four."

3. There are many combinations of possible radio failures. Lead will direct an abort to a particular aircraft for comm failures if mission requirements make the abort necessary. At least one operable radio is required to preclude an abort prior to T.O. Total radio failure after T.O. does not require an aboft.

4. Line Up.

a. HH-53/UH-60. HH-53's taxi 1000' forward, on downwind side of active and perform hover checks. Line up on right side of direct headwind exists. H-60's will taxi into staggered formation position (left or rigt) depending on HH-53 line up position. Spacing should be 500' between the H-53 & H-60s and 200' between H-60s (See Figure 1).

TAKE-OFF LINE-UP

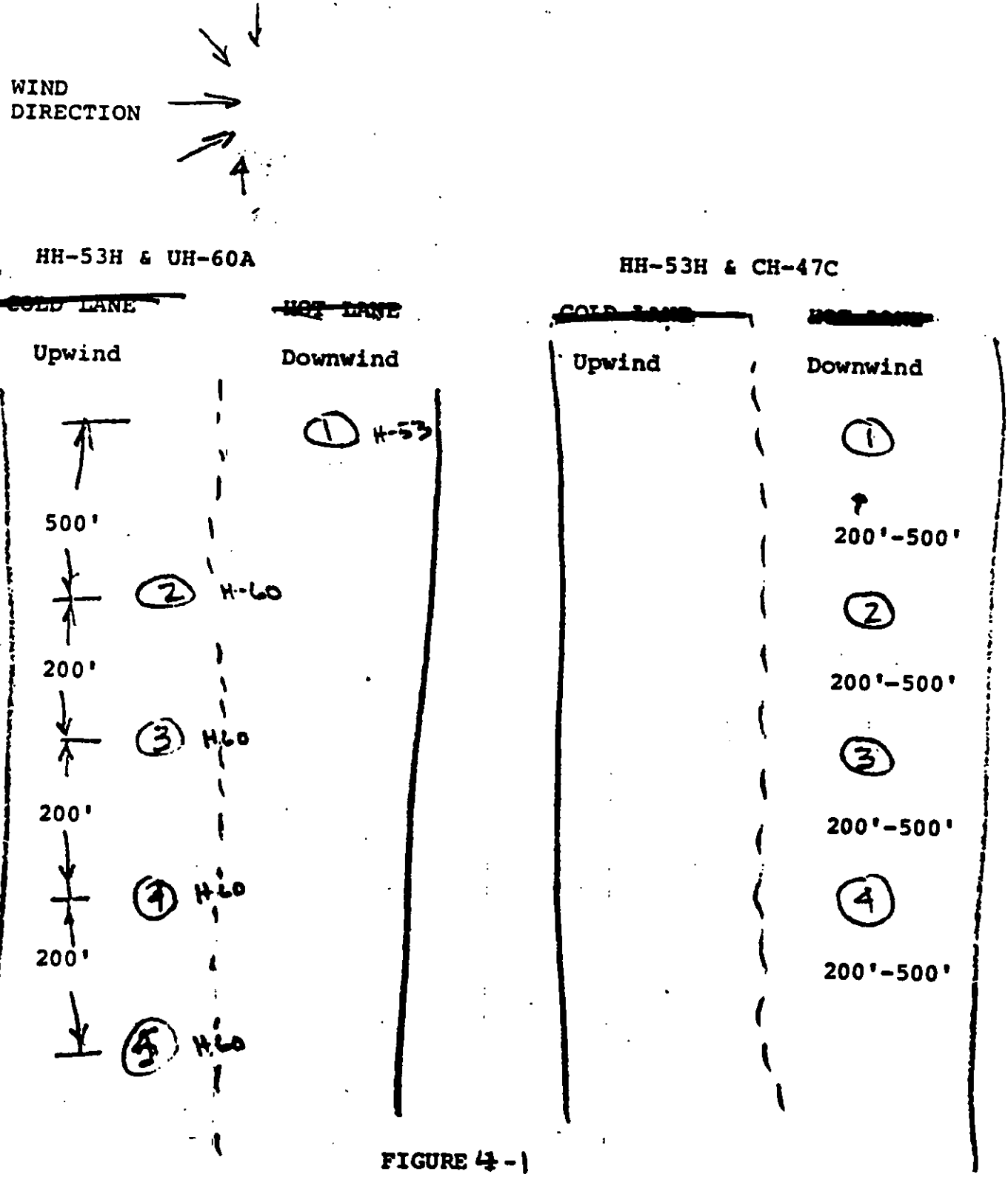


FIGURE 4-1

b. HH-53/CH-47. Flight elements will form on the downwind side of the runway in trail formation (See Figure 1). Maintain 200' separation for takeoff. Perform hover check.

5. T.O. Lighting. Each aircraft will call Ready for takeoff by extinguishing the anticollision lights. When lead is ready and all flight members have extinguished anticollision lights, lead will extinguish his anticollision lights, wait 5 seconds and initiate a rolling T.O. Anticollision lights will not be turned off prior to taxi on to the runway/takeoff area.

6. Takeoff/Join-Up

a. 53/60

(1) When the flight is ready, lead executes a running T.O. H-60 may delay up to 5 seconds between aircraft to initiate T.O. roll.

(2) H-60's takeoff in sequence climbing to stay above the lead flight path and moving to the ~~hot~~ downwind side of runway after reaching 50 KIAS (caution wake turbulence).

(3) Lead climbs out at 80 KIAS & 500 fpm.

(4) Flight joins up at 3-5 rotor disk separation.

(5) After join up, lead accelerates to enroute cruise speed (normally 110 knots ground speed under no wind conditions but D.A. and winds or mission time sequence will be used to determine enroute airspeed).

(6) If any individual aircraft aborts are encountered, the aborting aircraft will turn-on anti-collision light and move to the ~~cold~~ upwind side of runway dropping out of formation. The aborting aircraft is responsible to avoid any aircraft in front of him, ~~including aircraft which overtake him during the abort.~~

b. 47/53

(1) Lead executes a running T.O. when all flight members are ready.

(2) Each flight member will delay up to 5 seconds and initiate takeoff roll. Staying on the ~~hot~~ downwind side of runway.

b. HH-53/CH-47. Flight elements will form on the downwind side of the runway in a staggered formation (left or right) (See figure 1). Maintain 200' separation for takeoff. Perform hover check.

5. T.O. Lighting: Each aircraft will call Ready for takeoff by extinguishing the anticollision lights or position lights. When lead is ready and all flight members have extinguished anticollision lights and/or position lights, -lead will extinguish his anticollision lights, wait 5 seconds and initiate a rolling T.O. Anticollision lights will not be turned off prior to taxi on to the runway/takeoff area.

6. Takeoff/Join-Up.

a. 53/60

(1) When the flight is ready, lead executes a running T.O. H-60 may delay up to 10 seconds between aircraft and initiate T.O. roll.

(2) H-60's takeoff in sequence climbing to stay above the lead flight path and moving to the downwind side of runway after reaching 50 KIAS (caution wake turbulence).

(3) Lead climbs out at 80 KIAS & 500 fpm.

(4) Flight joins up at 3-5 rotor disk separation.

(5) After join up, lead accelerates to enroute cruise speed (normally 110 knots ground speed under no wind conditions but D.A. and winds or mission time sequence will be used to determine enroute airspeed).

(6) If any individual aircraft aborts are encountered, the aborting aircraft will turn-on anti-collision light and abort straight ahead. The aborting aircraft is responsible to avoid any aircraft in front of him.

b. 47/53.

(1) Lead executes a running T.O. when all flight members are ready.

(2) Each flight member will delay up to 5 seconds and initiate takeoff roll.

TAKE OFF LINE-UP

~~SECRET~~

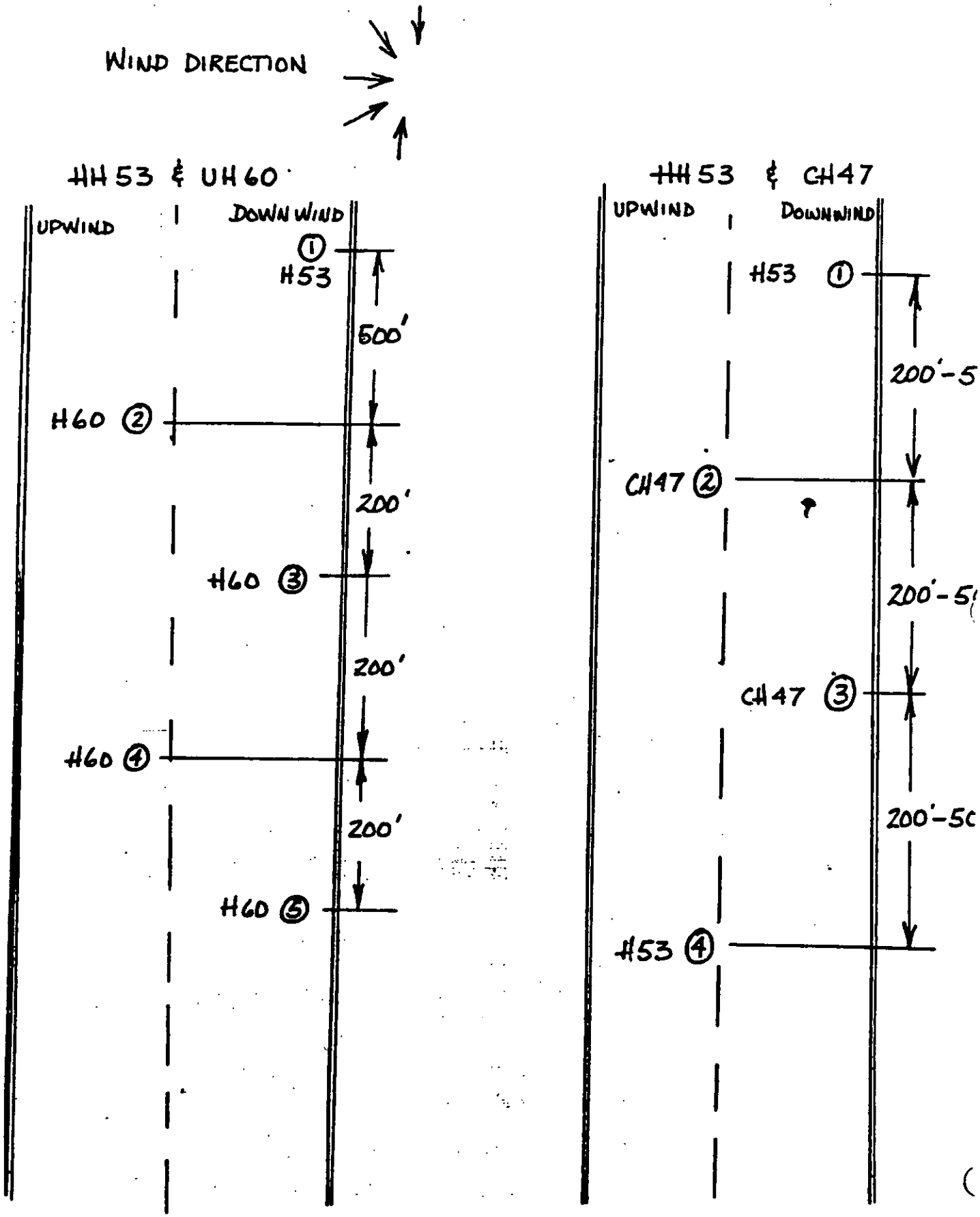


FIG 4-1

~~SECRET~~

(3) Each aircraft should lift to insure flight above the previous aircrafts flight path to avoid wake turbulence problems.

(4) Lead maintains 60 KIAS for join up and accelerates to cruise speed when the flight is joined.

(5) Join up will be at 3-5 rotor discs spearation.

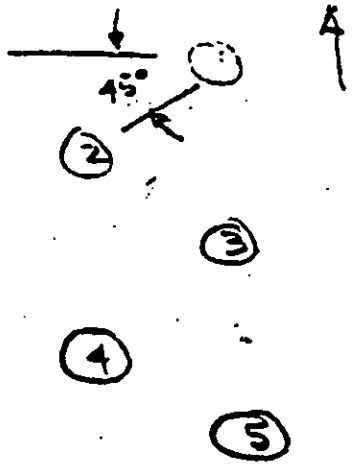
(6) Aborting aircraft will abort straight ahead on the runway with anti-collision lights on, maintaining clearance from all aircraft in front of him.

CHAPTER 5

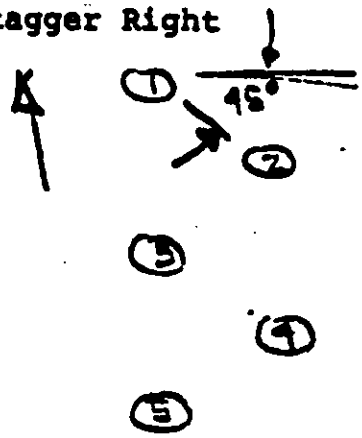
ENROUTE

Formations. Four formations are used: trail, staggered left, staggered right and echelon left. Spacing will be 3-5 rotor discs in all formations:

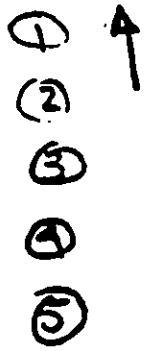
a. Stagger Left



b. Stagger Right



c. Trail*



* Each helo stacks slightly above helo in front.

FIG 5-1

d. Echelon

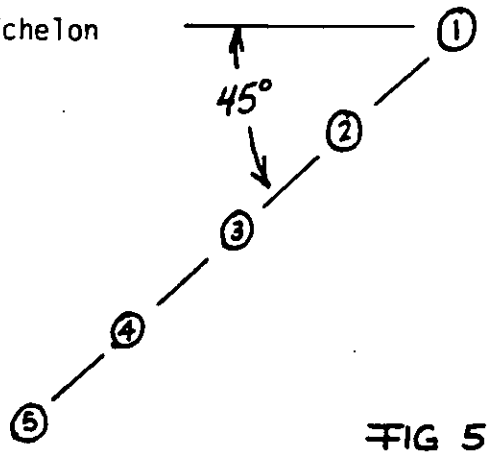


FIG 5-2

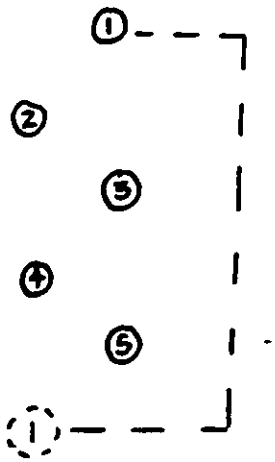
Formations are normally flown with a maximum of 5 aircraft to insure safe lost visual procedures, however, if VMC is assured and unusual circumstances require larger formations then larger formations may be used.

Changes in formations will be directed by light signals to the 2nd aircraft only.

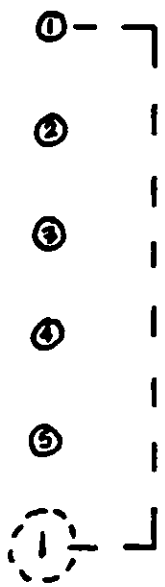
9. Lead Change: Formation lead changes can ONLY be executed by the lead aircraft. All lead changes will be directed by light signals. Lead changes will be acknowledged prior to execution by relay of light signals. All flight aircraft will acknowledge a lead change prior to execution. Lead changes and formation changes will not be accomplished simultaneously. However, a stagger formation will switch sides when #2 becomes lead without any repositioning of aircraft. The new lead may change formations after the lead change is completed. When lead has received acknowledgement of lead change from aircraft he will give an execute signal, immediately turn away from his number two wingman and when clear, decelerate so that the flight will pass. Lead will then fall back into formation as trail. Lead changes will not be executed from echelon formations. If a lead change is initiated from a trail formation, the lead will always clear to the right. Lead will use scanners to stay clear of the flight. After departure aircraft call signs will not change regardless of position inflight.

FIGURE 5-3 LEAD FORMATION CHANGES:

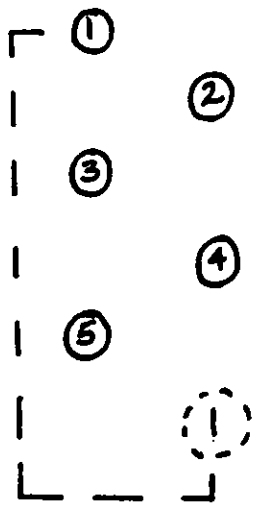
STAGGERED LEFT



TRAIL



STAGGERED RIGHT



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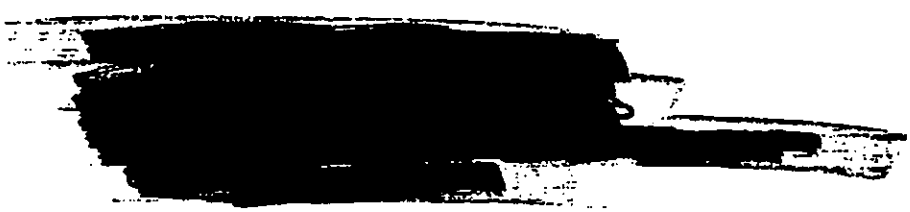
EXERCISE HONEYBADGER — OPERATION PHOENIX

AFTER ACTION REPORT



G

Inadvertent IMC Procedures - Every attempt to maintain VMC will be made. During Marginal VMC Mission lighting intensity will be increased to maintain flight integrity. IMC breakup will be initiated upon the command of the lead to "Execute". Due to the close proximity of aircraft to mountains for masking, a flight could enter IMC. The aircraft entering should alert lead by stating lead Bingo 21 is IMC. Lead will imediat say execute then state heading, altimeter setting, and minimum safe altitude for enrout segment. At this time aircraft perform break-up will turn their position light on. Lead will accelerate to 110 kts and climb to minimum safe altitude. Aircraft #2 maintain 100 kts & climb to 400' above MSA, #3 will decelerate to 90 kts and climb 600 feet above minimum safe altitude. Aircraft #4 will decelerate to 80 kts and climb 800 feet above minimum safe altitude. Aircraft #5 will decelerate to 70 kts and climb to 1(feet above minimum safe altitude. As each aircraft reaches his altitude. He will hold his airspeed and heading for 3 minutes then accelerate to 110 kts indicated airspeed or VNE which ever is lower and resume own navigation along route.

After completion of break-up, and lead determines that it is necessary, the flight will contact ATC facilities for approach to the nearest facility. When ATC facilities are not available. Lead will determine a location by waypoint number or distance short of waypoint, and the altitude and flight can decend to indicated MSL. As #2 aircraft reaches this point he will report altitude departing and descend at 500' perminute until reaching the MDA. After reaching VMC he will report clear and accelerate to catch lead. He will insure all his navigation lights are on at this time. One #3 hears that #2 is VMC and he has reached the designated letdown point he will follow the same letdown procedures as #2. When #4 hears that #3 is VMC and he has reached the designated letdown point he will follow the same procedures as #2. When #5 hears that #4 is VMC and he has reached the designated letdown point he will follow the same letdown procedures as #2. As the flight rejoins every aircraft will go to mission lighting except trail. Once the entire flight is rejoined all aircraft will go to mission lighting ~~except trail. ONe the entire flight is rejoined all aircraft will go to mission lighting~~. If any aircraft does not achieve

VMC at the MDA he will imediately climb back to his assigned altitude and advise lead. A a general guide lead will not clear the flight down until he has a 500' ceiling.

Enroute Abort (Downed Aircraft):

a. Signal other aircraft per light signals.

b. If lead aircraft abofts #2 assumes lead and flight continues.

New lead will pass to airborne mission control coordinates of the downed aircraft, and maintenance status/condition of the aircraft. If no immediate emergency aid is required, SAR dedicated aircraft will respond with maintenance or recovery forces.

10. Evasive Maneuver Battle Drill

a. General: No rigid set of procedures can ever be given to cover all tactical situations since the maneuvers used by a helicopter force vary according to the threat and tactical situation. However, in all situations, a decision must be made promptly whether to take or not take evasive action. Once the decision to take evasive action has been made, action must be initiated immediately.

b. Attack Warning: A successful evasion depends on the timely receipt of a warning of the attack. Warning of an attack depends in turn on effective lookout techniques and rapid communications.

c. Lookout Doctrine: Each aircrewman shall be assigned a sector of lookout responsibility. Within the limitations of aircraft configuration, the aggregate of such sectors shall provide 360 degrees of lookout around the aircraft. Lookout sectors shall be designated by clock coding with twelve o'clock coding [redacted] oriented on the nose of the aircraft. Vertical sectors shall be designated with reference to the horizon; so that level shall refer to a position on the horizon, High to a position above the horizon, and low to a position below the horizon. Sectors shall overlap when possible. Individual lookout sectors and responsibilities shall not be modified or relaxed when a helicopter is operating in a flight.

d. Communication. Intraplane and interplane communications must be prompt, concise, and accurate. The communication of any threat will contain - in the following order:

(1) type of threat.

(2) Threat location as relative bearing in clock code.

(3) Altitude of threat in relation to horizon (aircraft threat only)

(4) Distance, if known, in meters for ground threat.

(5) Desired evasive maneuver if attack is imminent.

e. Evasive maneuvers: when engaged by enemy fire, the pilot should remember the standard actions on contact.

(1) Warn the flight (bandit break)

(2) Deploy to cover

(3) Terrain flight: Immediately change flightpath to place masking negotiation or terrain between aircraft and enemy location. Once masked, and enemy contact broken, change direction and proceed to rendezvous point.

(4) Evasive actions consist of those helicopter maneuvers necessary to avoid being hit by hostile fire. The particular technique or manevuer required will depend upon the type of hostile fire encountered.

(5) Use of M130 CHAFF

(6) Use of ALE40 or Very Pistol

f. Bandit break: After receipt of "Bandit break" all aircraft will turn away from the flight and descend to NOE. The first consideration must be given to evasive maneuvering and terrain masking to break enemy contact, the following are general examples only.

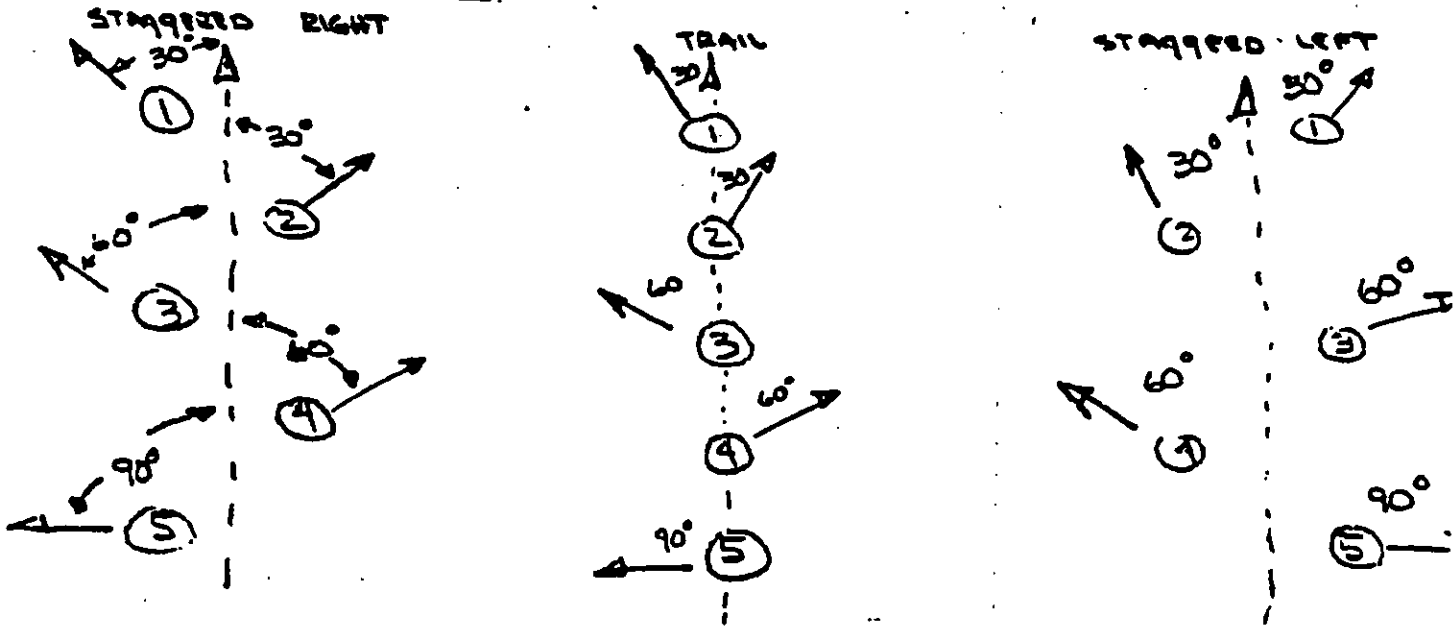


FIG 5-7

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After initial break-up turns are clear of each other each helicopter will maneuver as required to avoid being destroyed.

When the enemy threat has passed, the aircraft will proceed to the rendezvous point, (The Second Check Point).

g. At the rendezvous point, the aircraft will either enter a standard rate turn or land if conditions permit. After 10 minutes lead will announce departing the rendezvous point and proceed either enroute or RTB with the remaining aircraft. All aircraft that have not rejoined at this time will proceed on their own on the route and attempt joint-up enroute.

(S) h. M130; AN/ALE-40

(1) Equipment settings

[redacted]

11. Air Refueling. Air refueling operations between HC-130 and H-53 may be conducted with H-60 helo's in formation. Prior to rendezvous with the HC-130, the H-53 lead will turn on anticollison light to allow the tanker to join-up on the flight. When the anticollision lights come on in the area of the planned refueling, the H-60's will move to echelon left formation. The tanker will pass right and below the formation becoming formation lead. The H-53 will then move to "observation position", about 2 rotors from the tanker. At this point, the H-60's will increase

separation from the H-53 to 5 rotor discs and maintain position off of the tanker. This will allow the H-53 room to maneuver into contact and refueling positions and back to observation position without safety compromise. When refueling is finished, the H-53 will move away from the tanker (probably descending) and the flight will rejoin and continue with the mission.

2. When an element of H-53 and H-47 helicopters need to accomplish air refueling of the H-53, slightly different procedures are needed. The support element may also require air refueling support. Formation changes to accomplish the air refueling will be as follows:

a. Flight goes to echelon left when lead PAVE LOW signals with light/rotating beacon and tanker moves up on right side into formation lead.

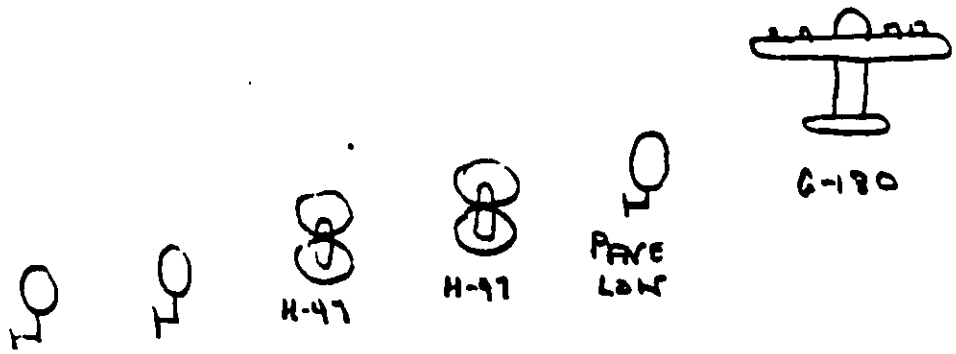


FIG 5-8

b. PAVE LOW will go to observation position (2 rotors from the tanker) while the rest of the flight moves well clear (7 rotors) from the refueling formation.

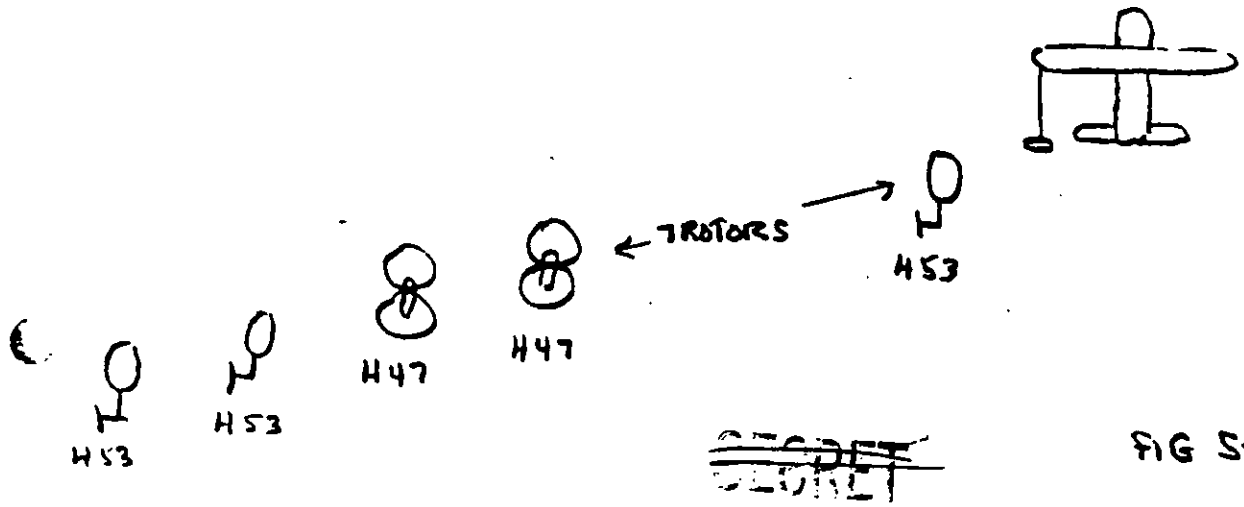


FIG 5-9

c. While PAVE LOW moves to observation position and prepares for refueling the other H-53's (CHALK 4 and 5) will crossover behind the H-47s and the tanker and move to wide right observation position (CHALK 5 will crossover on CHALK 4). CHALK 1 will leave anticollision light on until CHALK 4/5 are in right observation.

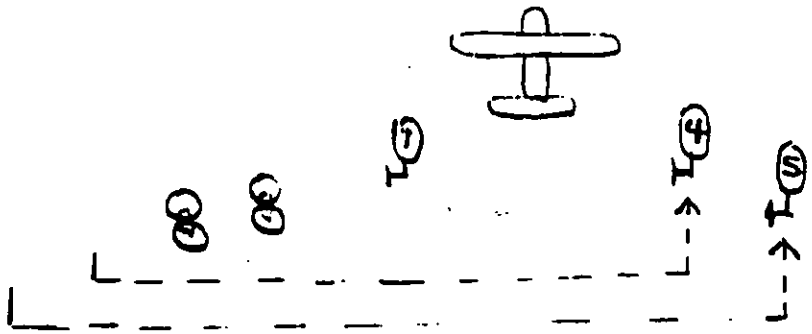


FIG 5-10

d. When CHALK One finishes refueling he will move back to lead on the H-47s and CHALK 4 will request ~~consover~~ crossover using SOP to refuel off the left hose.

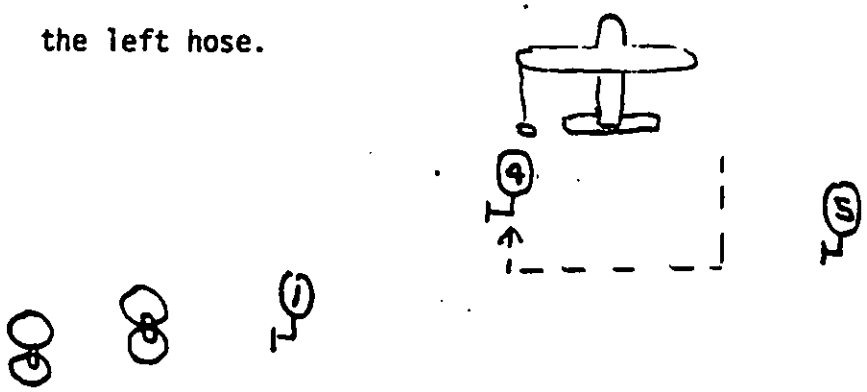


FIG 5-11

e. When CHALK 4 finishes refueling he moves straight back and joins the rear of the echelon.

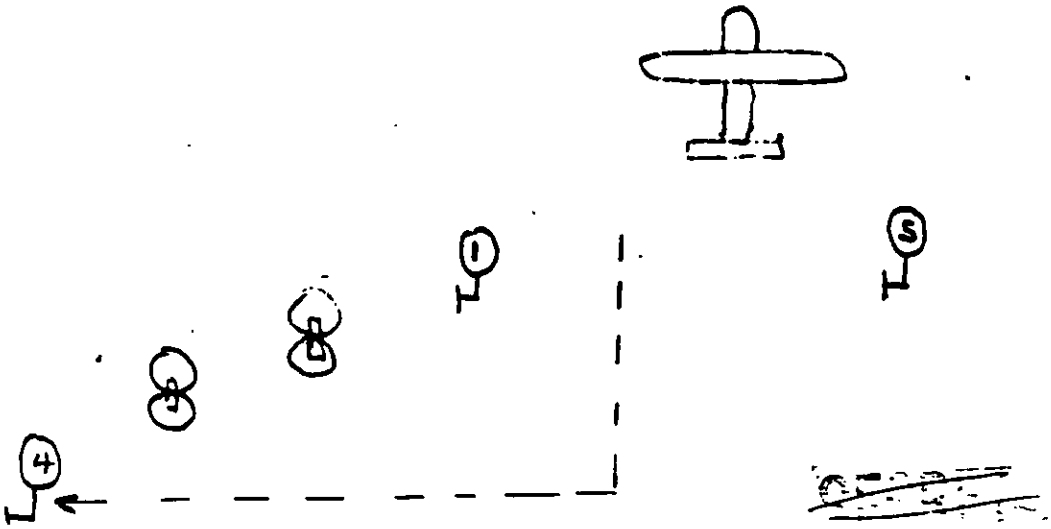


FIG 5-12

f. CHALK 5 crosses over using SOP and refuels.

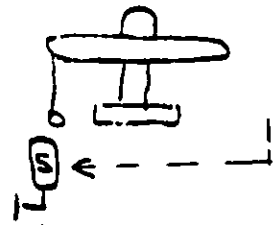
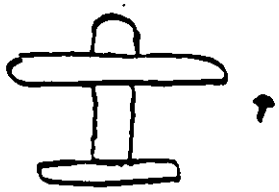


FIG 5-13

g. When CHALK 5 finishes he moves straight back and joins at the rear of the echelon.



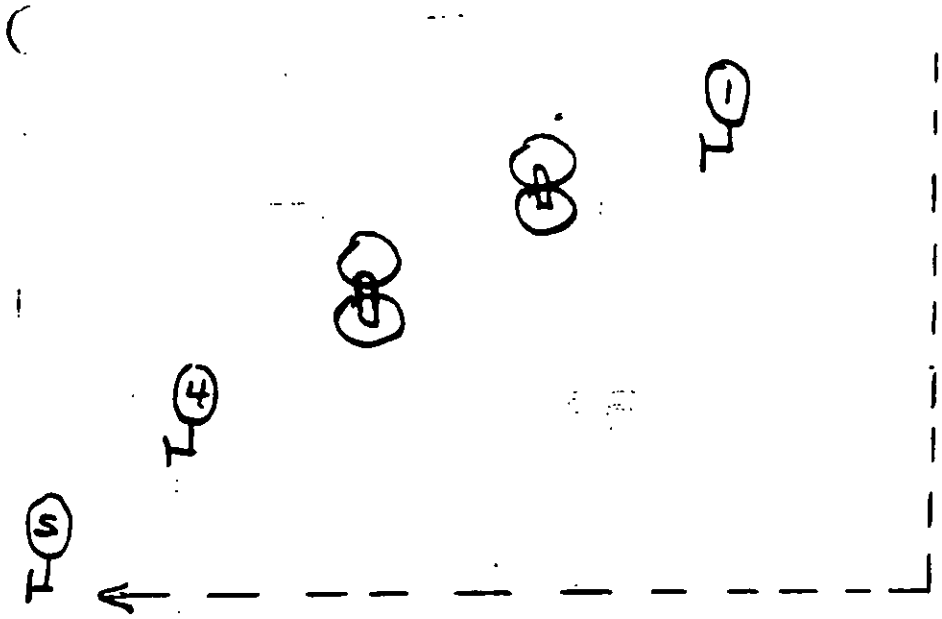


FIG 5-14

CHAPTER 6

LANDING

SECRET

FORMATION APPROACH AND LANDING

1. Formation approaches and landings will be executed as prebriefed with regards to ty of formation and landings directions. The following procedures will be employed.

2. When approximately three miles from the intended landing area lead will adjust flig to the appropriate landing direction and [redacted] lower landing g The flight will complete before landing checks. The flight will then take 10-25 second spacing from the lead H-53. Spacing may not be required if the H-53 is not in lead. As spacing is being taken visual contact will be maintained between lead and the rest o the formation at 2 miles from the LZ lead and flight will begin decelerating for landin

3. When the ground lighting is identified and proper flight separation is viewed, lead will begin decent for landing. The landing will be made to the ground if at all possible with minimum ground roll using constant deceleration. Each PIC will select his individual landing spot based on photography obstacles, barriers, terrain, dust conditions, gross weight and what the gorund personnel have identified as their suggeste landing spot.

4. [redacted]

5. If a flight consists of H-53s and CH-47s the following options are available when landing in an LZ that has not been set up previously. [redacted]

[redacted]

A

(S) 6. The other option is for the entire flight to land at the same time. The procedure for this is as follows. [redacted]

A

GO AROUND PROCEDURES FORMATION & SINGLE SHIP

(S) 1. Lead will initiate the formation go-around [redacted]

A [redacted] He then will accelerate as required to 80 KIAS simultaneously establishing a minimum rate climb to assure obstacle clearance and maint terrain definition. Lead will then initiate a standard rate turn to the right: terrai and threat permitting, and attempt another approach. [redacted]

A [redacted] All aircraft in

the formation will maintain visual separation with the flight.

2. If an individual aircraft within the formation needs to make a single ship go-around the following procedures will apply:

a. The aircraft initiating the go-around will turn off his IR light then climb and clear away from the formation. The responsibility for aircraft clearance belongs to the aircraft initiating the go-around. THe go-around aircraft will then reposition himself to make another approach and landing rejoining on the rear of the flight on the ground.

If lead has made a single ship go-around then after takeoff he will reposition himself into the lead position in the following manner. After the entire flight is airborne, the original lead will then pass the flight on the right until he is abeam #2 at which time the original lead will signal "abeam" and the assume all leads duties. If the flight is in staggered right then he will pass on the left.

If any other aircraft makes a single ship go-around he will remain as the last aircraft in the flight for the remainder of the mission or until firm coordination can realign the flight, i.e., face to face or radio communications.

SINGLE SHIP LZs

If the LZ is too confined or otherwise restricted from ultiple ship landings the following procedures will apply.

If it is known before hand that a single ship LZ is to be used then an aircraft holding area will be used.

If an airborne holding area is used then each aircraft will fly to the PZ using his own navigation equipment. After departing the PZ the aircraft can either fly to another holding area and wait for the remainder of the flight or return to the original holding area. The preferred way is to have a different holding area. Either timing or radio communications may

be used to call in the aircraft but it is imperative that the signal be thoroughly prebriefed.

If a ground holding area is used then each aircraft again will fly to the PZ using his own navigation equipment. The subsequent aircraft will follow at a prebriefed time. After each aircraft leaves the PZ he will proceed to a different holding area and wait, either in the air or on the ground. The best option is to land and wait until a given time then depart in formation. Once the 1st aircraft lands he can set up the LZ for the remainder of the flight.

AIR/GROUND FORMATION JOIN-UP PROCEDURES

If conditions permit aircraft join-up may be performed on the ground by having the airborne aircraft land to pick-up individual flights on the ground. However, threat, time, terrain, fuel, and multiple aircraft mission requirements may require multiple air/ground formations to join-up. The following procedures will be employed to preclude an otherwise hazardous situation.

a. Airborne aircraft initiating join-up with aircraft on the ground will establish a holding pattern with standard rate turns to the right at a predesignated initial holding point in the vicinity of aircraft on the ground (1-2 mi.)

b. If multiple formations must be rejoined, the first lead aircraft will depart holding at a predesignated time if possible, enroute to the aircraft awaiting on the ground. Ground aircraft will be run up and prepared for takeoff at a predetermined join-up time (-0+10 minutes).

c. All aircraft will execute their internal FM flight frequencies at join-up time (-0+05 minutes), but maintain no comm if at all possible.

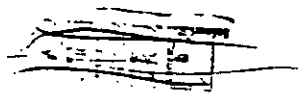
d. The first lead aircraft inbound for pick-up will overfly the LZ in a prebriefed direction of take-off at 70 KIAS maintaining an altitude commenserate with terrain definition as obsticale clearance with IR landing light on (150 ft. AGL optimum).

e. As lead overflys the LZ and a visual of lead by the ground aircraft awaiting the first rejoin is achieved the flight will execute a running take-off (conditions permitting), and join on lead who will be enroute to a second holding point.

f. Lead will hold flight at that holding point and depart when the rest of his flight is rejoined (unless join-up is achieved) prior to reaching that holding point.

g. The second airborne aircraft will depart the initial holding point for pick-up of its aircraft on the ground in the same manner described above. Except on a different heading with a maximum of 5 minutes between pickups is desired).

h. This procedure will be repeated sequentially until all aircraft on the ground have been rejoined. sufficient space must be provided on the ground between flights. Recommend minimum ONE KM [redacted] so that each flight can maintain flight integrity and still have spacing between cells.



CHAPTER 7

RECEPTION SITE PROCEDURES

CONSIDERATIONS FOR TRANSLOAD PROCEDURES

1. The CCT/ground commander will develop the pax transload procedures in concert with aviation assets.
2. Aircraft proceeding inbound to the pickup zone will alert the CCT/ground commander to the number of aircraft available for Pax pickup.
3. After departure from the pickup zone report number of pax on board to flight lead. Flight lead will transmit total number of pax extracted to the command and control element.

RECEPTION SITE PROCEDURES

A reception site is a pre-selected location for receiving aircraft, personnel, supplies, etc. The site is selected to meet the minimum criteria dependent upon a particular mission. A reception site normally consists of a helicopter landing zone (HLZ) manned and controlled by the reception committee under direction of a reception committee leader (RCL). The RCL may be responsible to a ground commander who is on scene and in charge of the particular mission the reception site supports. The reception site for helicopter operations may be utilized as a pickup zone (PZ), rapid refueling point (RRP), transload point, hide location or whatever the mission requires. In all cases, HLZ criteria (dimensions, approach/departure path clearance, marking/night lighting patterns), communications, air traffic control, marshalling procedures will be in accordance with this chapter. In addition, guidelines for special purpose missions are provided but may require modification based on particular mission peculiarity.

7.1. HELICOPTER LANDING ZONE (HLZ) CRITERIA. This chapter will address night criteria only. The touchdown area of an HLZ will be the center of a 50 meter circle cleared to ground level. This area will be cleared of all rocks, debris or other obstructions and be a relatively firm, compacted surface. It will be bordered by an area 20 meters wide which is cleared to within 3 feet of ground (Fig 7-1). There must be an approach/departure path clearance 75 meters wide with a glide/climb ratio of 1:5 (Fig 7-2).

Helicopter landing zones will normally be marked by a 5 light Y. All lights should be white or nonvisible (NV) except the light at the base of the Y which may be a strobe or rotating beacon (Fig 7-3). Type of lights used will depend on the intensity required based upon geographical terrain, night illumination and aircrew proficiency. The Y should be oriented so that landing/takeoff is into the wind and obstruction clearance is maintained. In addition, an electronic beacon may be used to mark the HLZ. It will normally be placed at the base of the Y and offset to one side, but may be positioned at a pre-briefed location to enhance signal reception.

7.2. COMMUNICATIONS.

Effective communications is absolutely essential to successful reception site operation. The particular mode of communication will depend on many factors to be considered during mission planning. Communication procedures consist of exact execution of prebriefed actions, light signals (visible or nonvisible), secure voice radio or clear voice radio contact. It is most preferable that missions are rehearsed and executed so that prebriefed actions are followed with only a minimum of light signals. However, experience shows that voice communication must be planned for and used if necessary. For secure voice radio communications, mission planners must insure joint aircrews and reception committees use same codes and changeover procedures. Standard light signals and radio phraseology will be utilized (para 7.3).

7.3. AIR TRAFFIC CONTROL (ATC).

Control of aircraft at the reception site will follow standard air traffic control guidelines. Communications with aircract is normally necessary because positive control must be maintained due to the complexity of the operation or unexpected problems. Actions to be followed by aircraft will normally be communicated by marshallers using the standard ground movement signals (Fig 7-4). Voice communications, when necessary, will be kept to a minimum and utilize short, concise ATC phraseology.

7.4. SPECIAL OPERATIONS.

(U)

7.4.a. Formation Landings/Takeoffs. Landing operations will be in accordance with chapter 6. Single ship HLZs will be marked as described in para 7.1. For multiple ship formations it is usually advantageous to have the flight land and takeoff as a formation. This situation, though desirable, requires a much longer area for establishment of the HLZ and additional marking for each aircraft touchdown area. In all cases, the lead aircraft will land into the standard marked Y (Fig 7-3). The remaining flight will land according to a particular landing formation (stagger left or right, trail, echelon left or right) dependent upon HLZ size. The stagger left formation is considered most desirable and will be used unless another formation is prebriefed or the flight is advised before landing. Each touchdown area will be marked by a single light (visible or NV) or IR reflective panel (Fig 7-4). HLZ dimensions and approach/departure clearance must be insured for each aircraft. Spacing between aircraft touchdown zones will be as depicted in Fig 7-4a, b, c. If

multiple ship HLZ criteria cannot be met aircraft will land as single ship and taxi (see para 7-4b) under positive control to ground holding area. If ground holding area is not available aircraft will follow procedures in chapter 6 for airborne holding area.

7.4.b. Taxiing. If possible, landings and takeoffs will be accomplished as a formation and taxiing will not be required. However, for refueling operations, some transload operations and other cases where ground holding areas are utilized taxiing will be unavoidable. In all cases, taxiing will be done under positive control of a marshaller using the standard ground movement signals (Fig 7-4). Taxi instructions (ground movement signals) will be directed at aircraft in accordance with their flight order. For example, after a flight has just landed in "LEAD ON Y, STAGGER LEFT", the first set of signals would apply to aircraft 1, second set of signals to aircraft 2, etc. Since for most operations, a ground holding area will be located at the base of the Y, no aircraft will taxi beyond the Y unless specifically directed.

7.4.c. Holding Areas. Helicopters will be under positive control when moving into a ground holding area. Marshallers will insure aircraft and rotar clearance. In some cases, helicopters will be able to takeoff directly from their position in the holding area, but usually will be repositioned into their takeoff formation before the flight receives clearance for takeoff. Parking in the holding area will be as directed by the RCL to best meet mission and security requirements.

7.4.d. Considerations for Rapid Refueling Procedures. Procedures for refueling are described in chapter 8, however, planning must consider number of helicopters to be refueled and number of refueling points. The most desired method for refueling is to land the flight "Y LEAD, STAGGER LEFT". The helicopters are then marshalled into the refueling area, refueled, taxied into takeoff position and then when all are refueled, cleared for takeoff. Figure 7-5 depicts a typical refueling operation. Note that the refueling points are beyond and to the left of the Y. Also note the spacing between refueling points, which may be fuel trucks, blivets, or other helicopters.

7.4.e. Considerations for Transload Procedures.

(1) The RCL/ground commander will develop the pax transload procedures in concert with aviation assets.

(2) Aircraft proceeding inbound to the reception site will alert the RCL/ground commander to the number of aircraft available for pax pickup.

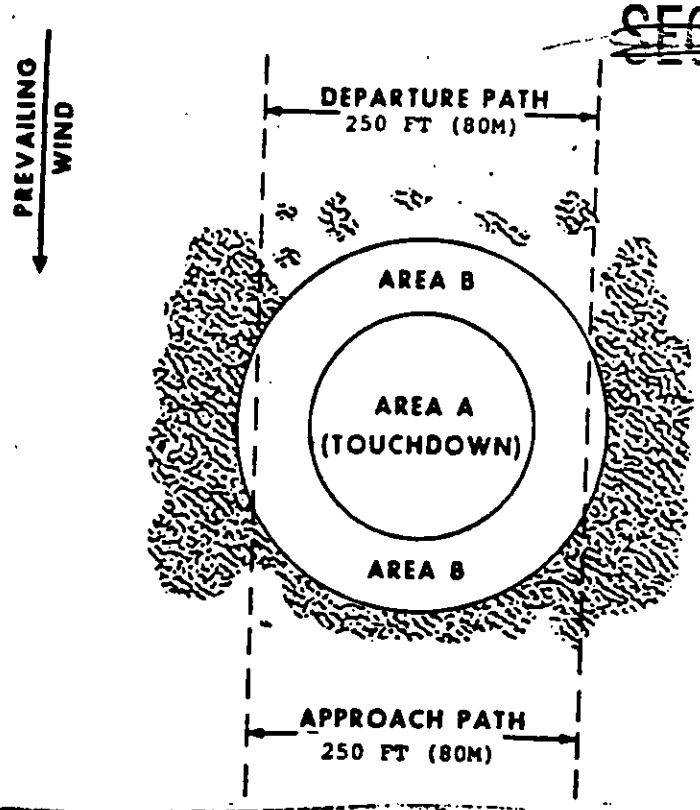
(3) After departure from the reception site report number of pax on board to flight lead. Flight lead will transmit total number of pax extracted to the command and control element.

(4) Pax may be received or discharged by each aircraft at its touchdown zone or may be taxied into a holding area for more effective pax control.

(5) It is important that pax <u>are discharged only</u> at the particular point so designated by the RCL. This may or may not be at touchdown (as noted (4) above).

7.4.f. Miscellaneous. Dimensions of helicopters are depicted in figures 7-6a, 7-6b, 7-6c, and 7-6d. Gross weights are in figures 7-7a, 7-7b, 7-7c, and 7-7d.

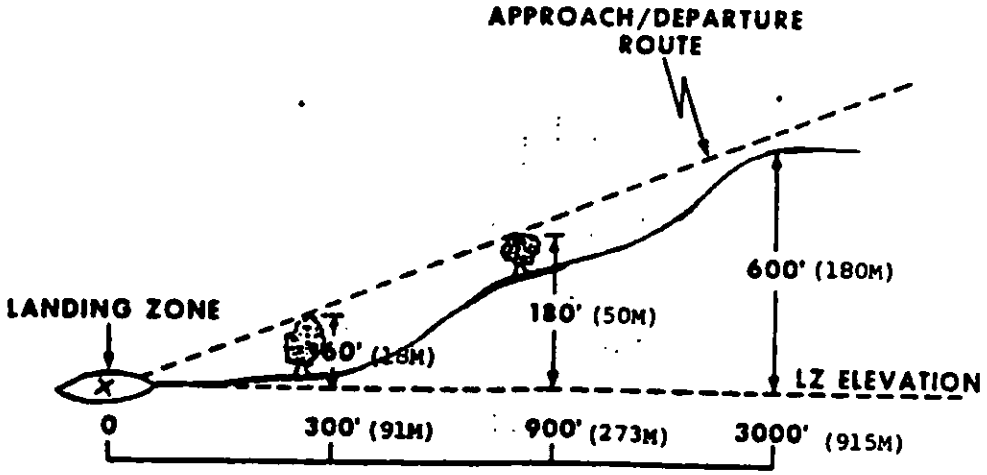
Brief card #6 should be completed before any reception site operation. If possible, the reception committee leader should attend the aircrew premission brief.



NOTES:

1. AREA [redacted] FEET (50M) IN DIAMETER, CLEARED TO GROUND LEVEL
2. [redacted] IN WIDTH CLEARED TO WITHIN 3 FEET (1 METER) OF GROUND

Figure 7-1 ~~Necessary Wording~~ HELICOPTER Landing Zone (Night)



NOTE: GLIDE/CLIMB RATIO 1:5

Figure 7-2 [redacted]

[redacted]

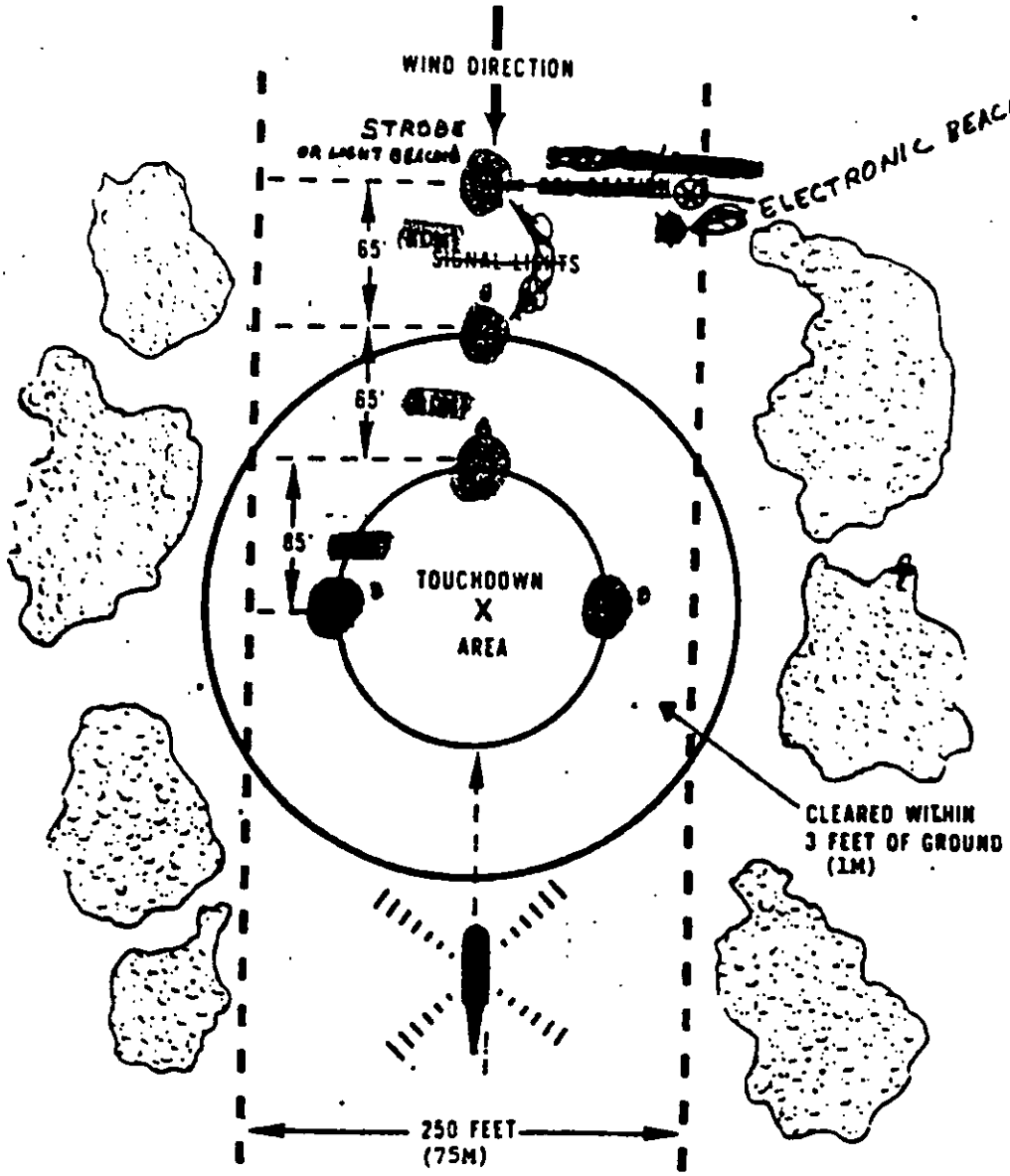


Figure 7-83. Typical Helicopter Landing Zone Marking Pattern Night Operation

INTERNATIONAL AIRCRAFT MARSHALLING SIGNALS

Signals contained in this attachment are established in accordance with international standardization agreements (STANAG's) and where possible conform to ICAO signals.

General Instructions:

a. When the marshaller signals an aircraft on a movement area, he is to face it, standing [redacted] FULL VIEW OF THE PILOT. WITHIN

(1) For fixed wing aircraft: [redacted], within full view of the pilot.

(2) For helicopters: within full view of the pilot (pilot is on the right side of the helicopter.

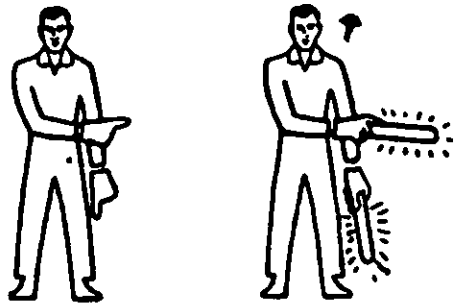
b. For night operations the wands will be used in pairs of the same color and not too bright. [redacted] parking the pilot will stop immediately if one or both [redacted]

Part A - Ground Movement Signals for all Aircraft - Signals 1 through 43
Part B - Additional Signals for Hovering Aircraft - Signals 44 through 70

PART A - GROUND MOVEMENT SIGNALS FOR ALL AIRCRAFT

1. PROCEED TO NEXT MARSHALLER

Right or left arm down, other arm moved across the body and extended to indicate direction of next marshaller.



2. THIS MARSHALLER

Arms above head in vertical position with palms facing inward.

Conforms to ICAO and NATO signal "THIS WAY."

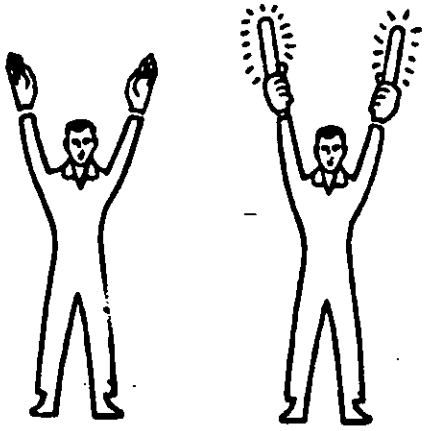


FIG 7-4.

SECRET

APPROXIMATELY 140 M x 310 M

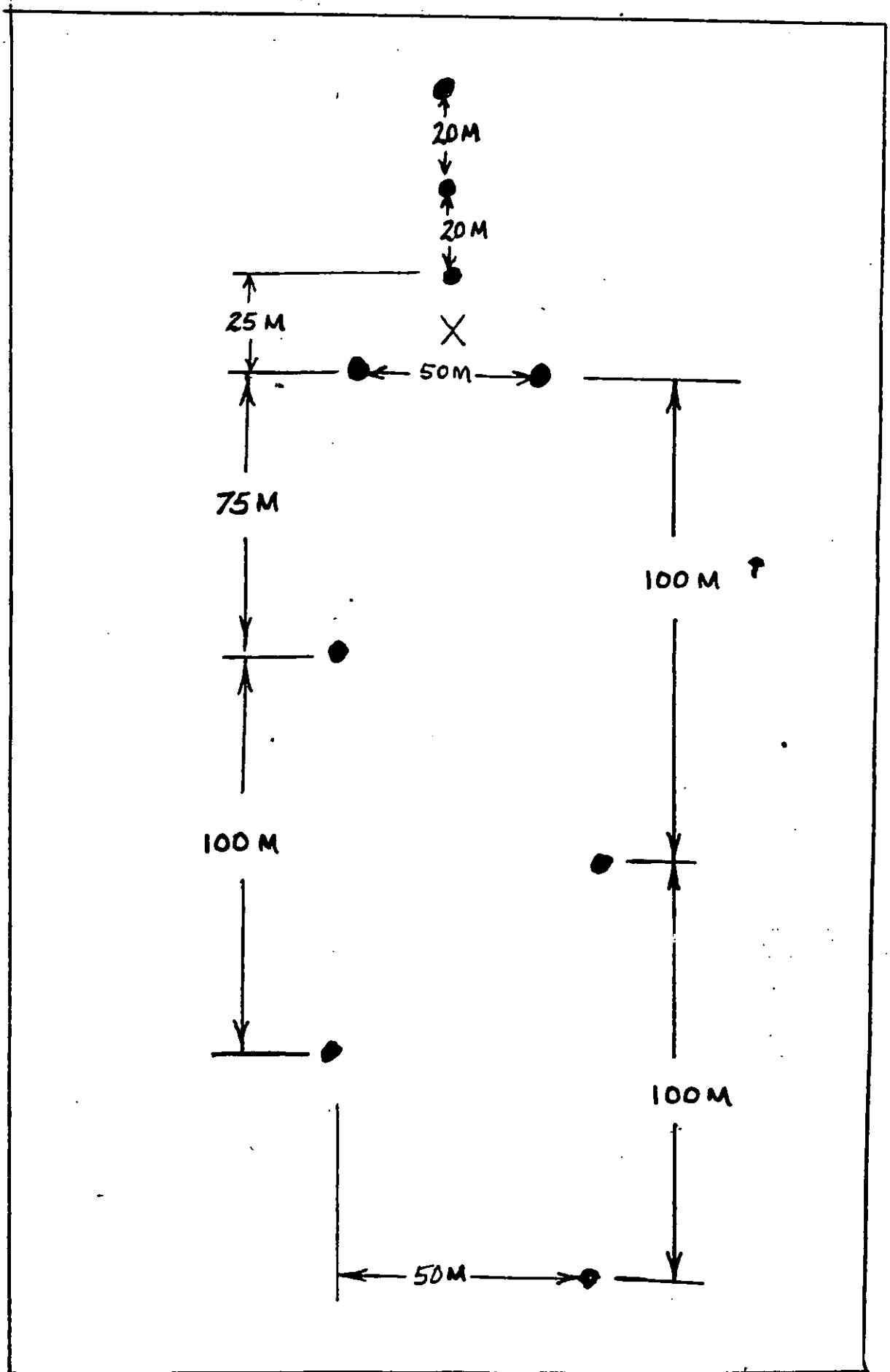


FIG 1 - FORMATION LANDING MARKERS

SECRET

~~SECRET~~

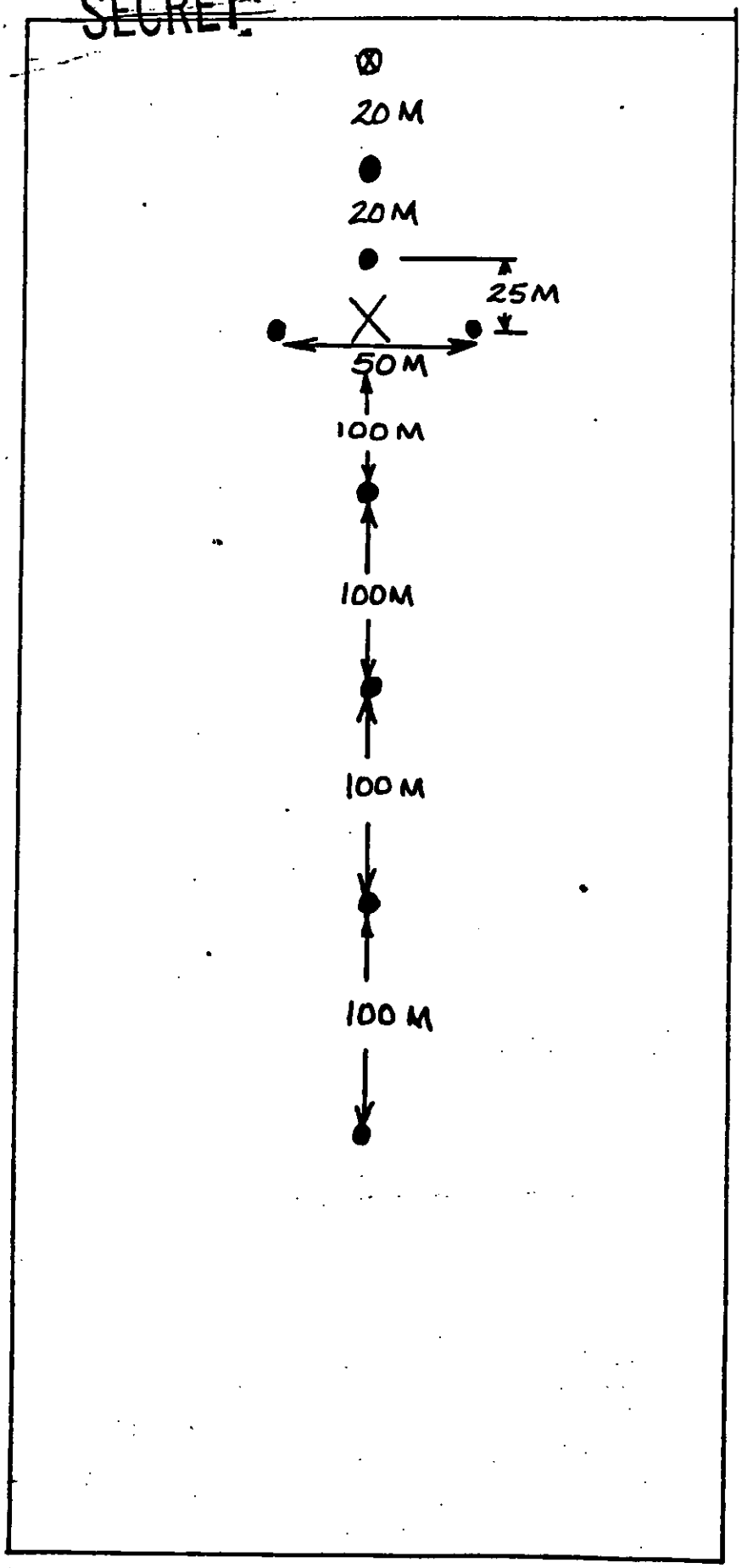


FIG 7-46 "LEAD ON Y, TRAIL FORMATION"

~~SECRET~~

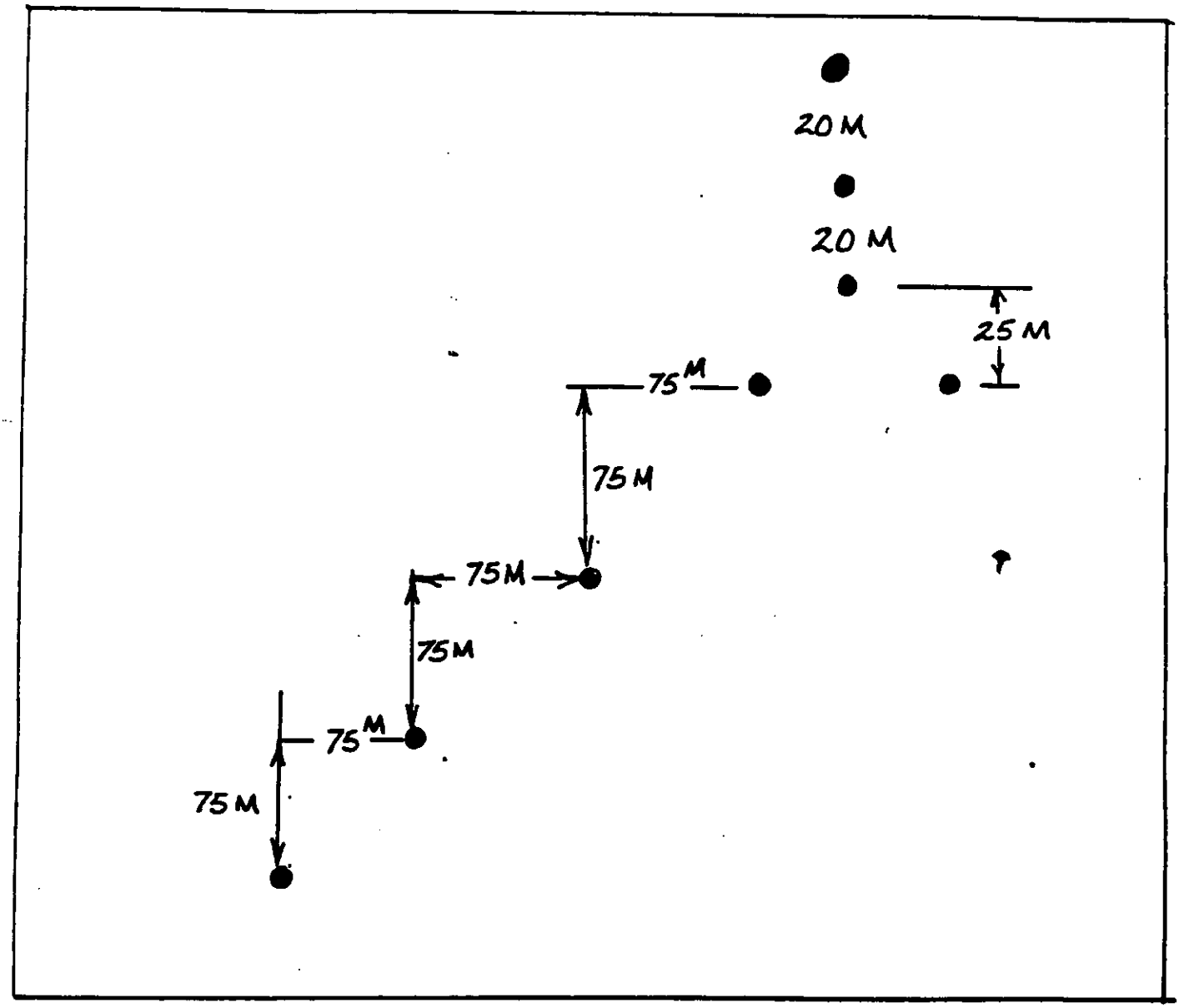


FIG 7-4 C "LEAD ON Y, ECHELON LEFT FORMATION"

~~SECRET~~

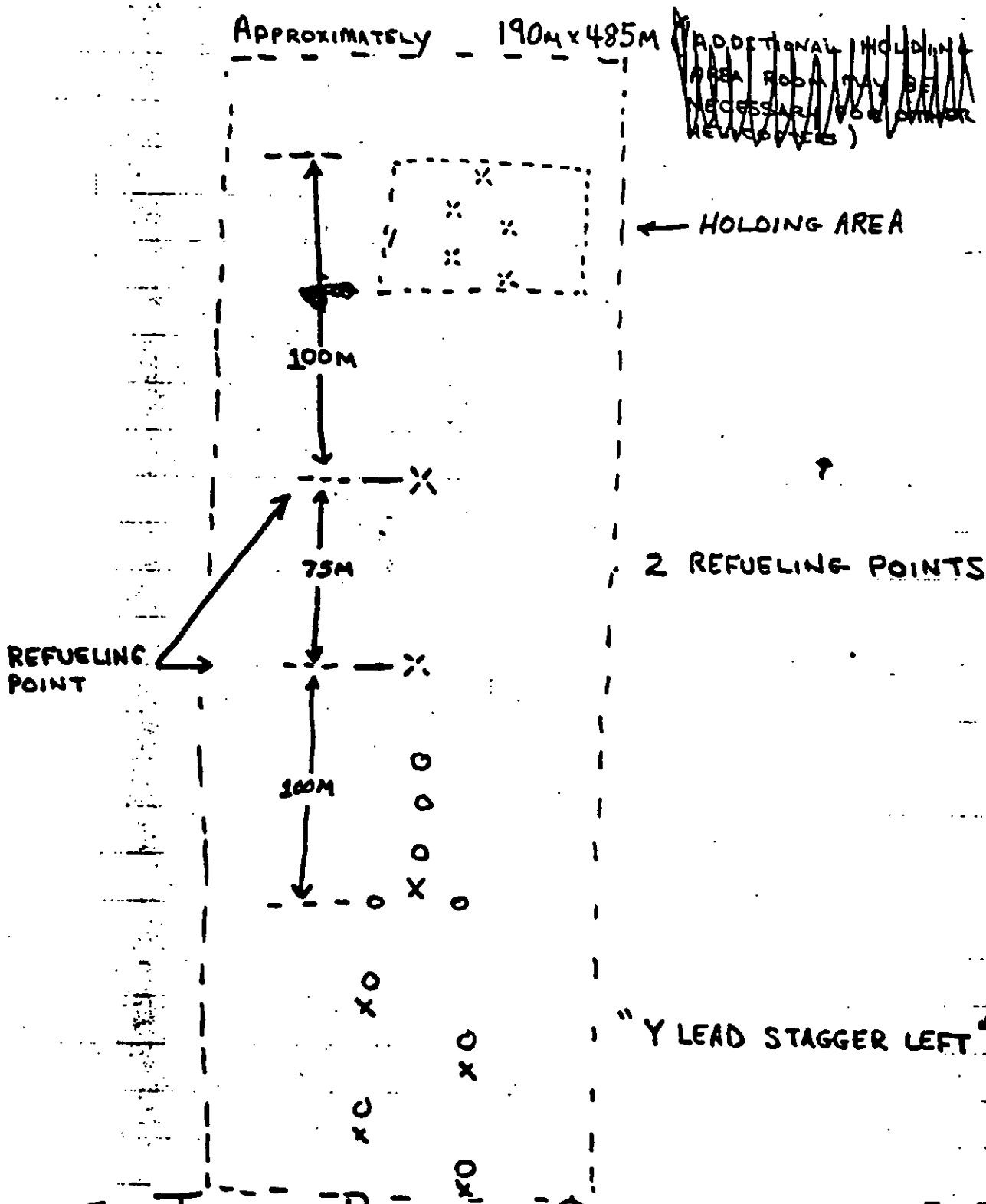
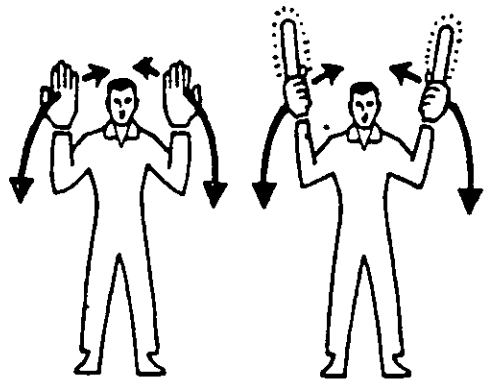


FIGURE 7-5 TYPICAL REFUELING OPERATION

~~SECRET~~

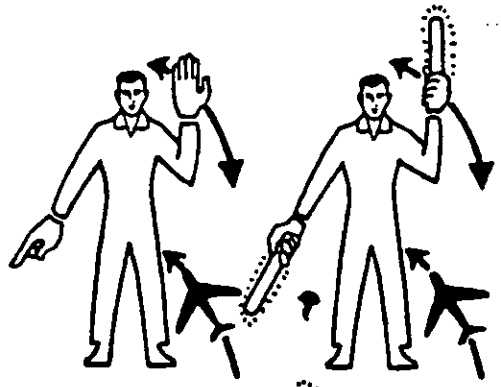
3. MOVE AHEAD

Arms a little aside, palms facing backwards and repeatedly moved upward-backward from shoulder height.



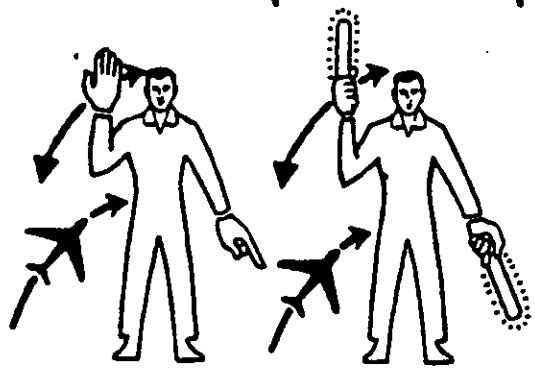
4. TURN TO PORT (LEFT)

Point right arm downward, left arm repeatedly moved upward-backward. Speed of arm movement indicating rate of turn.



5. TURN TO STARBOARD (RIGHT)

Point left arm downward, right arm repeatedly moved upward-backward. Speed of arm movement indicating rate of turn.



6. SLOW DOWN

Arms down with palms toward ground, then moved up and down several times.

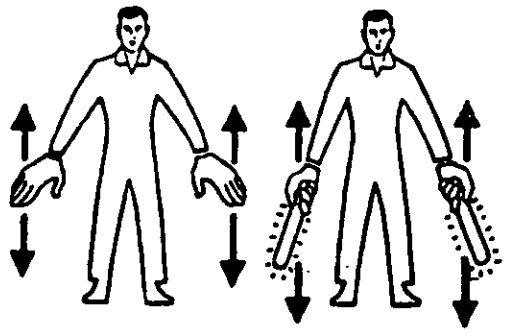
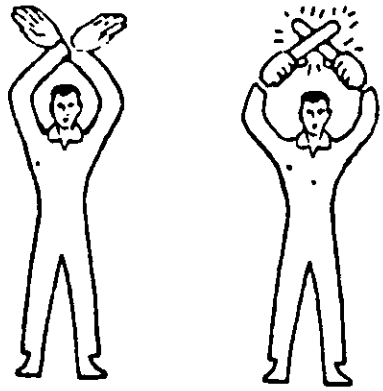


FIG 7-6

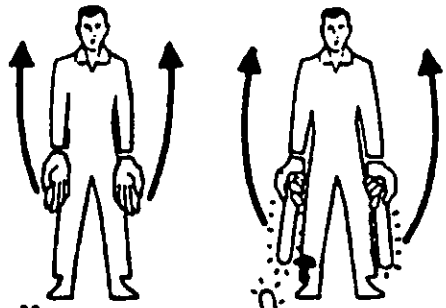
7. STOP

Arms crossed above the head, palms facing forward.



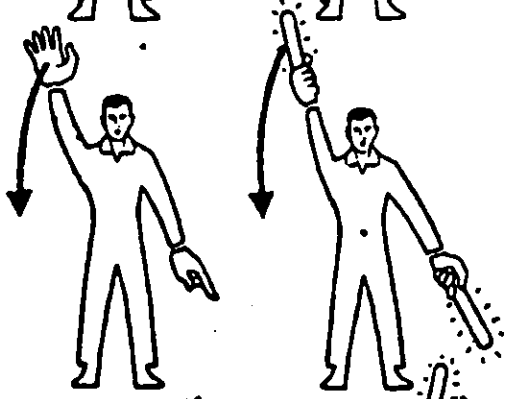
8. MOVE BACK

Arms by sides, palms facing forward, arms swept forward and upward repeatedly to shoulder height.



9. TURN WHILE BACKING—TAIL TO STARBOARD (RIGHT)

Point left arm down and right arm brought from overhead, vertical position to horizontal forward position, repeating right arm movement.



10. TURN WHILE BACKING—TAIL TO PORT (LEFT)

Point right arm down and left arm brought from overhead, vertical position to horizontal forward position, repeating left arm movement.

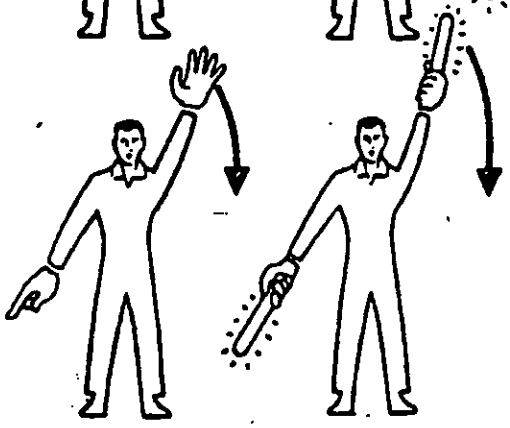
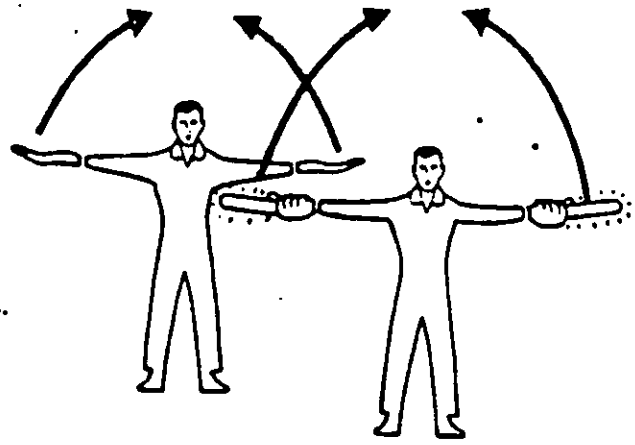


FIG 7-7

11

45. VERTICAL MOVEMENT—MOVE UPWARD

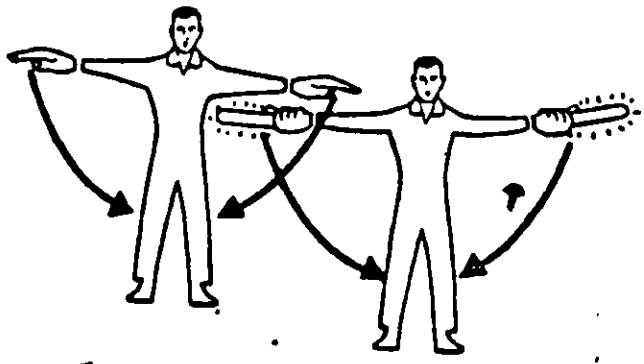
Arms extended horizontally sideways beckoning upwards, with palms turned up. Speed of movement indicates rate of ascent.



12

46. VERTICAL MOVEMENT—MOVE DOWNWARD

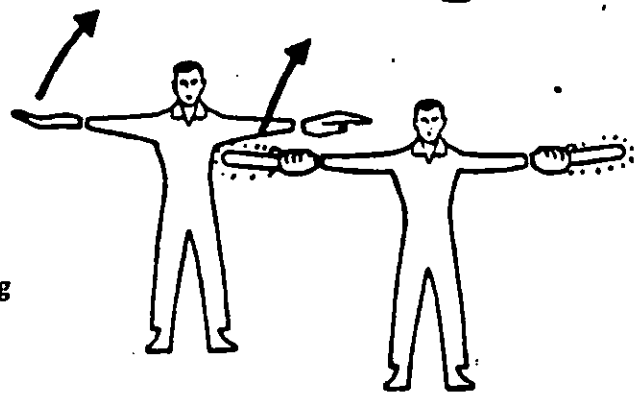
Arms extended horizontally sideways beckoning downwards with palms turned down. Speed of movement indicates rate of descent.



13

47. HORIZONTAL MOVEMENT—MOVE TO RIGHT (STARBOARD)

Left arm extended horizontally sideways in direction of movement and other arm swung over the head in same direction, in a repeating movement.



14

48. HORIZONTAL MOVEMENT—MOVE TO LEFT (PORT)

Right arm extended horizontally sideways in direction of movement and other arm swung over the head in the same direction, in repeating movement.

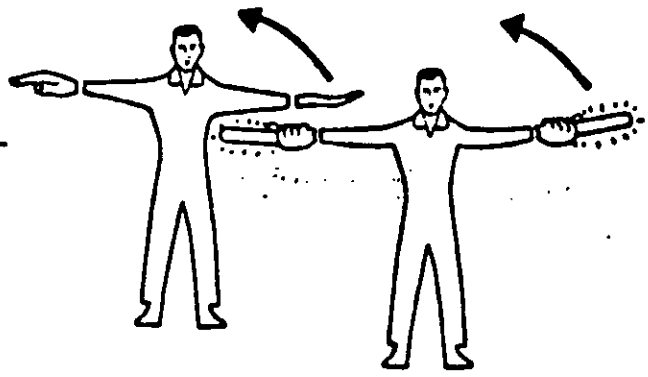
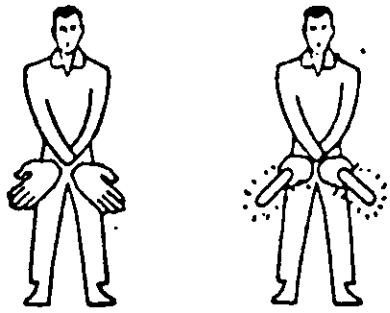


FIG 2-8

15

LAND

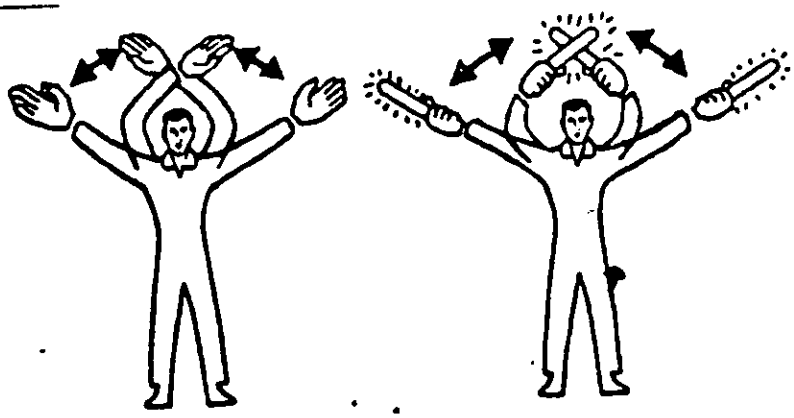
Arms crossed and extended downwards in front of the body.



16

50. WAVE OFF

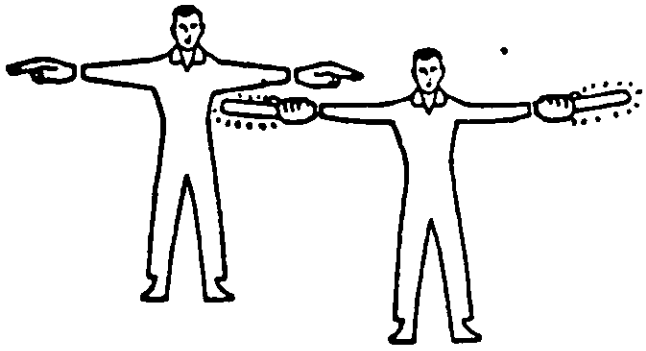
Waving of arms over the head.



17

55. HOVER

Arms extended horizontally sideways, palms downward.



18

65. TAKE OFF THIS WAY (at pilot's discretion)

Marshaller conceals left hand and makes circular motion of right hand over head in horizontal plane ending in a throwing motion of arm towards direction of take-off.

No ICAO signal.

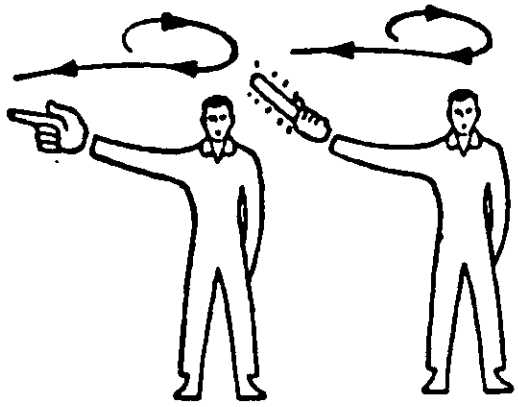


FIG 7-9

CHAPTER 8

HOT REFUELING

HOT REFUELING PROCEDURES

(S) 1. GENERAL: HH-53 hot refueling may be required for quick turns or in the field during Tactical Operations if it is not feasible to air refuel. Refueling may be accomplished by utilizing bladders, CH-47s, or refueling trucks. Extreme caution must be exercised and procedures herein must be complied with. Crews and CCT members must be highly qualified prior to accomplishing night light out refueling.

(S) 2. EQUIPMENT REQUIRED:

a. Probe Adapter
b. Grounding Wire
c. IR Wands (Gnd Team/CCT)
d. Marine S.P. Adapter (CH-47s)
e. NVG (Crew & Gnd Team)

NOTE: If a sufficient number of adapters are available, the ground refueling stations should be equipped. HH-53s should also carry an adapter in case the ground refueling station's adapter malfunctions.

3. BRIEFING: The ground team will prepare diagrams of the refueling site and will be available to brief crews on the site, procedures lighting and frequencies to be utilized.

4. PROCEDURES: When hot refueling is required, the refueling team will be prepared to accept the receiver at least five minutes prior to their ETA.

a. If an adequate number of adapters are available, the adapter will be connected to the refueling host prior to the receivers' arrival. When this situation exists, the following procedures will apply.

(1) The lead aircraft will land at the prebriefed landing spot and hold his position until the marshaller displays his IR wands. The remaining formation aircraft will obtain spacing, land, and hold their positions.

(2) All aircraft will extend their probes immediately after landing and complete the following hot refueling procedures after maneuvering the helicopter to the refueling position.

(3) The pilot must proceed forward on the direction of the marshaller and exercise caution. He must absolutely follow the marshaller's directions. The final phase of taxi should be slow but expeditious. Taxi so as to position the probe at the marshaller's chest and stop on his direction

(4) While taxiing into position, the scanner will ensure he is on the long cord, has the door open, and is ready to deplane with the grounding wire. For night lights out operations will wear NVGs securely attached to his head for hands-off use.

(5) When the aircraft stops ,the marshaller will maintain his position at the probe. The right scanner will deplane, attach the grounding wire to the aircraft, then proceed to the probe and give the grounding wire to the marshaller who makes the final grounding. The marshaller then connects the adapter to the probe and awaits clearance from the crew to transfer fuel.

(6) The pilot will advise the right scanner when the aircraft is ready to receive fuel. The scanner will give the marshaller a thumbs up for fuel transfer. The CP/RE will turn the fuel transfer switches off when the programmed amount of fuel has been received. When transfer is completed, the scanner will be advised and he will give the "cut" signal (a lateral motion of the hand across the throat) to the marshaller to indicate transfer is completed. Fuel pumps will be turned off, the adapter will be removed, and the grounding wire disconnected and handed to the scanner. The scanner will gather up the grounding wire, disconnect it from the aircraft, board the aircraft and close the door.

(7) The marshaller will direct the aircraft to taxi and will ensure safe clearances are maintained. When clear of obstacles, the marshaller

will release the aircraft for takeoff as pre-briefed.

(8) Other aircraft in the formation will follow the procedures noted herein. However, subsequent aircraft will not be taxiied receiving marshalling signals.

b. If adapters are not available at the refueling site and adapter carried on board the aircraft must be used, the following procedures apply:

(1) Same as 4a(1)

(2) Same as 4a(2)

(3) Same as 4a(3)

(4) While taxiing into position, the right scanner will ensure he is on the long cord, has the door open, and is prepared to deplane with the refueling adapter. The scanner will be prepared to deplane with the grounding wire.

(5) When the aircraft stops, the marshaller will maintain his position at the probe. The right scanner will deplane with the adapter & assist the marshaller in connecting it to the refueling hose. The left scanner will deplane, attach the grounding wire to the aircraft, then move forward and hand the wire to the marshaller who will make the final grounding connection. The marshaller will then connect the adapter to the probe and await clearance from the crew to transfer fuel.

(6) All procedures will be as stated in 4a(6) with the following exceptions. The adapter will be removed after the pumps are turned off, the grounding wire will be disconnected and handed to the left scanner who will gather it up, disconnect it from the aircraft, and board the aircraft. The marshaller will disconnect the adapter & give it to the right scanner who will board the aircraft with it, secure it, & close the door in preparation for flight.

(7) Same as 4a(7)

(8) Same as 4a(8)

5. When refueling from [redacted] procedures will be as stated in para 4a & 4b. However, the [redacted] must have a Marine adapter in order to make a compatible connection between the hose and the probe adapter.

6. If hot refueling for a quick turn, the following procedures will apply:

a. When an aircraft is scheduled for hot refueling, the refueling adapter will be carried on the aircraft.

b. When the aircraft lands the ground marshaller will marshal the aircraft to the refueling point and then marshal the refueling truck into position (if a refueling truck is to be used).

c. The left scanner will leave the aircraft. He will ensure that grounding takes place according to the following sequence:

(1) First ground the aircraft to ground.

(2) Second ground refueling truck to ground.

(3) Third ground refueling truck to aircraft.

d. The right scanner (on intercom) will depart the aircraft with the refueling adapter. Once grounding has been completed, he will prepare the aircraft for refueling according to the following sequence:

(1) Connect the adapter with assistance from the refueling man (POL or CCT) to the single point pressure refuel nozzle.

(2) Connect the refueling adapter to the end of the probe and ensure that it is secure.

(3) Commence pressure refueling.

e. Once refueling is completed, removal of equipment and ground will be according to the following sequence:

(1) Remove the probe adapter

(2) Disconnect the pressure refueling nozzle form the probe adapter.

(3) Disconnect both the ground wires from the refueling truck.

(4) Once the right scanner has reentered the aircraft and the refueling truck is clear, the left scanner will remove the aircraft-to-ground wire and reenter the aircraft.

7. CONCLUSION: Extreme caution & care must be exercised during ground refueling operations. It is of paramount importance the pilot and crew follow all directions of the CCT marshaller. A comprehensive briefing and compliance with procedures stated herein will ensure an expeditious but safe refueling operation. All CCT marshaller will have hearing protection and eye protection and eye protection during all refueling operations. Marshaller must use caution to remain clear of the rotor plan when giving hand and arm signals.

CHAPTER 9

SEARCH AND RECOVERY (SAR)

The purpose of this chapter is to describe basic search and recovery standard operating procedures to be utilized in the event a recovery of downed personnel is necessary.

1. SARTF (Search and Rescue Task Force) will vary with mission requirements but may include:

a. The HH-53 "Slick" will be assigned the primary responsibility for the SAR mission.

b. The possible use of a HH-53H "PAVE LOW" to lead the "Slick" recovery aircraft will enhance the terrain avoidance and navigation capabilities of the SAR force.

c. RESCORT aircraft may be utilized and could consist of fighters and or gunships with a variety of ordinance capabilities.

2. SAR aircraft crew and configuration:

a. Each SAR HH-53 "Slick" will have a crew consisting of 2 pilots, 2 flight engineers, and 2 pararescue specialists. In addition, SAR dedicated aircraft will probably carry a flight surgeon.

b. SAR dedicated aircraft should be configured with a minimum of 2 collapsible "D Ring" 1 Hers, 1 Stokes, 1 Her (with cable harness), 1 forest penetrater with flotation collar, and sea dye markers for water SAR use. In addition, 2 pararescue medical kits should be carried along with other specialized medical equipment and supplies as dictated by the doctor on board. If possible the use of oxygen supplied or powered resucitation equipment should be avoided since hits by enemy fire may result in explosions inside the helicopter.

3. Individual SAR Related Personnel Requirements:

a. All aircrew personnel should be equipped with at least a minimum of SAR related survival equipment to include a PRC-90 radio, a strobe light with IR cover, and mark 13 day/night pyrotechnics. Personnel should be briefed on the use of the forest penetrator and the need to allow the penetracter to ground itself before touching it should be emphasized.

b. All aircrew personnel should insure that they have completed a DD Form 1833, Personal Authenticator Card as this will be the primary means of authentication of downed aircrews, Intelligence personnel will be responsible for maintaining these cards and insuring that they are completed in the proper manner.

4. SAR Information (Clandestine):

Every SAR requires certain information to insure success. The following information represents the optimum that the downed crew should provide and that the SAR crew should obtain. Naturally the more of this information that is available to the SAR crew the better the chances for success. SAR information should include:

a. Call Sign, Type Aircraft (If applicable), Number of Personnel.

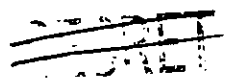
b. Location/last known position.

c. Personnel's planned CE (contingency and evasion) routes (if applicable). What briefings were received by the personnel prior to launch?

d. Condition of personnel (if known)/medical, equipment, weapons).

e. Personnel's knowledge of area and SAFE areas (if applicable). What maps and charts were thepersonnel carrying?

f. Personnel's knowledge of overt/covert/clandestine operations in the area.



g. Personnel's secrets/pre-briefed authentication procedures/ personal authenticator information.

Remember, a SAR can be flown with no information, a little information, or a lot of information. This can influence whether no personnel are recovered, a few are recovered, or all are recovered.

6. SAR Procedures:

a. Specific operational requirements will dictate whether downed aircrews will be recovered immediately or wait for a later recovery by SAR dedicated aircraft. When operational requirements permit radio traffic the location of downed aircraft or personnel should be passed to SAR forces. This is generally done through the Airborne Mission Commander (AMC). Locations should be passed in lat/long or UTM coordinates. An alternate, but less exact, method which can be utilized under such circumstances as ground evading is to reference location by mag heading and distance in miles from the pre-briefed navigational way points: In addition, PAVE LOW aircraft can pass location coordinates in "Grid" form. Since only other PAVE LOW aircraft can interpret such a location, such coordinates need not be passed by secure or encrypted means.

b. Naturally, the location of downed aircraft and crews is not a subject for "public dissemination." Therefore, location coordinates should be passed by secure radio or encrypted means if non-secure communications are used. A simple encryption system is contained in the attachment to this chapter. A copy of such a system should be issued to each aircrew member. Coordinates and other information can then be transmitted via non-secure communications (i.e., PRC-90) with only a limited chance of compromise.

c. SARs should be initiated over the pre-briefed mission frequency. When communication procedures permit. The use of the Guard Channel (243.0) should be limited to critical emergencies since it is monitored almost universally. SAR forces should insure that downed crews transmitting on Guard are instructed to switch over to 282.8 as soon as possible.

d. When SAR forces arrive near the SAR location they may request assistance from the downed personnel in the form of vectors or radio "hold downs." The latter enables the H-53 to utilize its direction finding (DF) and electronic location finding (ELF) equipment. Obviously, this use of radios will depend on mission communication constraints. The ELF operates only on 243.0 or 282.8 and not all HH-53 aircraft are ELF equipped. Hostile five should be transmitted to SAR aircraft so that RESCORT aircraft (if available) can be requested to suppress it.

e. The primary method of recovery will be by landing. If terrain does not permit then the rescue hoist and forest penetrator will be utilized. The HH-53 can lift 600 lbs with its rescue hoist. A maximum of 3 personnel can sit on the forest penetrator but no more than 2 are recommended.

f. Before the pickup is made authentication of the personnel on the ground may be requested by the SAR aircraft on the AMC. Such authentication will probably be in the form of short questions based on the information contained in the downed personnel's personal authentication cards. For example let's consider that BONZO 21 is down. The SAR aircraft requests from the aircraft commander (BONZO 21 A) the sum of his first two numbers. This refers to the first two digits of the four digit number on the front of the 1833. In addition, the SAR aircraft may request authentication

based on the personal questions on the back of the card. Once the proper answers are received and confirmed by the AMC this can be completed.

g. If time permits, SAR crews should insure that collection and or destruction of classified information and materials has been accomplished by the recovered personnel.

h. Naturally, the information contained in this chapter provide only a rudimentary explanation and SOP of SAR procedures. Mission requirements may dictate changes which would be pre-briefed to all personnel.

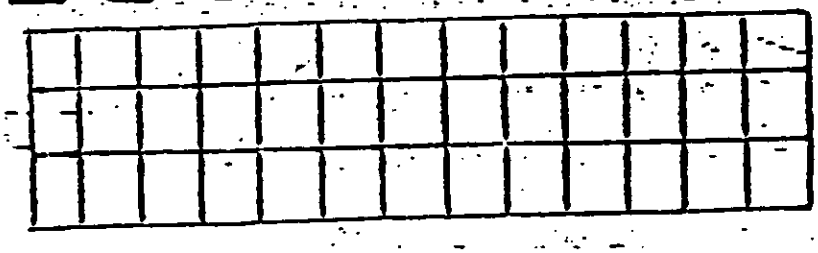
2 Atch
1. Emerg. Encoding Chart
2. Auth. Card

~~SECRET~~

0	1	2	3	4	5	6	7	8	9			
F	Q	X	G	K	W	H	R	L	A	V	M	B
J	C	O	U	P	D	T	Y	E	N	S	I	Z

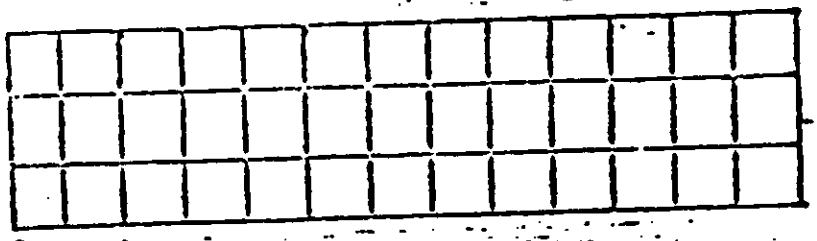
INSTRUCTIONS

TO PASS NUMBERS: USE ONE LETTER IN EITHER ROW TO REPRESENT A DIGIT.
EXAMPLE: X U K T =2346
TO PASS LETTERS: USE THE LETTER IN THE OPPOSITE ROW.
EXAMPLE: K J B X = PFZO
TO CHALLENGE: SELECT TWO LETTERS IN ONE ROW AS THE CHALLENGE. THE LETTER IN THE OTHER ROW, OVER OR UNDER THE LAST LETTER OF THE CHALLENGE, IS THE RESPONSE. EXAMPLE: Z C =Q , OR Y N = A.



INSTRUCTIONS

TO PASS NUMBERS: USE ONE LETTER IN EITHER ROW TO REPRESENT A DIGIT.
EXAMPLE: X U K T =
TO PASS LETTERS: USE THE LETTER IN THE OPPOSITE ROW.
EXAMPLE: K J B X =
TO CHALLENGE: SELECT TWO LETTERS IN ONE ROW AS A CHALLENGE. THE LETTER IN THE OTHER ROW, OVER OR UNDER THE LAST LETTER OF THE CHALLENGE, IS THE RESPONSE. EXAMPLE: Z C = , OR Y N =



INSTRUCTIONS

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TO CHALLENGE: SELECT TWO LETTERS IN ONE ROW AS THE CHALLENGE. THE LETTER IN THE OTHER ROW, OVER OR UNDER THE LAST LETTER OF THE CHALLENGE, IS THE RESPONSE. EXAMPLE: Z C = , OR Y N = .

~~SECRET~~

CONFIDENTIAL (When Filled In)

~~SECRET~~

PERSONAL AUTHENTICATOR CARD

1. NAME (Last, first, middle)		2. AUTHENTICATOR NO.
3. GRADE	4. SOCIAL SECURITY ACCOUNT NO.	
5. BLOOD TYPE	6. HEIGHT	7. WEIGHT
8. COLOR OF HAIR	9. COLOR OF EYES	
10. SCARS, BIRTHMARKS, TATTOOS, ETC.		
11. PHOTOGRAPH (Front view)		12. PHOTOGRAPH (Profile view)
13. DATE OF BIRTH	14. PLACE OF BIRTH	
15. UNIT OF ASSIGNMENT		
16. DATE ASSIGNED	17. MISSION	
18. DUTY	19. TYPE AIRCRAFT	
20. ESCAPE AND EVASION AIDS ISSUED		
A. BLOOD CHIT NO.	B. WEAPONS TYPE	
21. JPRC FILE NO.	22. DATE (Captured)(MIA)	
C. WEAPONS NO.	D.	
23. COORDINATES/LOCATION (Captured)(MIA)		
E.	F.	

DD FORM 1 OCT 71 1833

CONFIDENTIAL (When Filled In)

CONFIDENTIAL (When Filled In)

24. QUESTION	25. ANSWER
26. QUESTION	27. ANSWER
28. QUESTION	29. ANSWER
30. QUESTION	31. ANSWER

32. FINGERPRINTS

A. RIGHT THUMB	B. RIGHT INDEX	C. RIGHT MIDDLE	D. RIGHT RING	E. RIGHT LITTLE
F. LEFT THUMB	G. LEFT INDEX	H. LEFT MIDDLE	I. LEFT RING	J. LEFT LITTLE

33. DATE REVIEWED	34. DATE SIGNED	35. SIGNATURE

GPO : 1972 O - 460-061

CONFIDENTIAL (When Filled In)

CHAPTER 10

LIGHT SIGNALS

This chapter covers external lighting configurations and communication light signals between H-60 & H-53 helicopters and H-53/C-130 aircraft when using light signals. A dot should be a brief flash less than one second and a dash should be longer than two seconds.

STANDARD AIRCRAFT LIGHTING CONFIGURATIONS

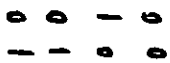
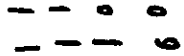
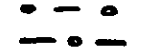
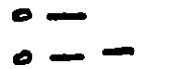
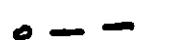
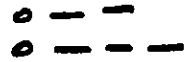
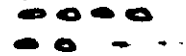
EVENT	LIGHTING CONF.	AIRCRAFT TYPE HH-53	CH-47	UH-60
Daylight/ Dusk	Anticollision	on	on	on
	position	steady bright	steady bright[1]	steady bright
	formation	max intensity (6)	max intensity	max intensity
(Taxi)	blade tip	max intensity (6)	NA	NA
night (taxi)	Anticollision	on	on	on
	position	off	steady dim[1]	steady dim[2]
	formation	50% (3)	dim	50% (3)
	bladetip	50% (3)	NA	NA
enroute (day)	Anticollision	off	off	off
	position	off	off	off
	formation	off	off	off
	bladetip	off	NA	NA
enroute (night)	Anticollision	off	off	off
	position	off	steady dim[1]	off[2]
	formation	50% (3)	dim	50% (3)
	bladetip	50% (3)	NA	NA

1. CH-47 position lights will be covered with one layer of green duct tape.

2. UH-60 position lights will be covered with multiple layers of green duct tape over the top half of the lenses.

~~SECRET~~

LIGHT SIGNALS

SIGNAL	MEANING
	PROBLEM
	Mechanical
	Electrical
	Hydraulic
	Fuel
	~~I'm Lost~~ Nav Failure
	Your Lost
	ACTION
	RTB - Return to Base
	Continue on - attempt repair on landing
	Continue on - abandon A/C on landing
	FORMATION
	Trail - execute signal
	Stagger left - execute signal
	Stagger right - execute signal
	Echelon - execute signal
	Lead change - execute signal
	Slow down
	Speed up
	Lights - increase intensity
	Lights - decrease intensity
	Lights - check condition
	Execute
	Tally Ho
	Update - execute signal at waypoint
	Morse Code message to follow

Execute Signal - turn on aft rotating beacon (covered with IR paper)

Attention Signal - circular motion

Echo all signals to sender

~~SECRET~~

LIGHT SIGNALS

RADIO COMM OUT AR [redacted]

STANDARD LIGHT SIGNALS ARE:

A. (FROM RECEIVER TO TANKER)

(1) During joinup white flash light from cabin - Tally Ho and Hot armament safety check complete.

(2) 3 second white light from cabin any time except join up - reset hose response.

(3) Collision lights off - in observation position after join up or crossover.

(4) Collision lights on - request crossover.

B. (FROM TANKER TO RECEIVER)

(1) Collision lights off - acknowledge observation position.

(2) Collision lights on - cleared for crossover.

(3) Aldis: 2 greens - clear for multiple dry contacts.

(4) Aldis: 1 green - clear for wet contact.

(5) Aldis 2 whites - go to observation position (do not turn on collision lights unless requesting crossover).

(6) Aldis red - breakaway.

(7) Aldis amber - turn coming (go to observation unless in contact all turns (180°) will be left.

(8) ALDIS 2 AMBER - TANKER IS UNABLE TO PASS FUEL, TANKER SPARE IS NOW PRIMARY.

CHAPTER 11

MISCELLANEOUS

HH-53 CREW DUTIES

1 Pilot - Normally right seat, responsible for briefing crew, directing inflight operations, performs pilot duties.

1 Copilot - Assists pilot, performs navigation duties.

2 Flight Engineers. Flight station is the jump seat located between and slightly aft of pilot stations. Duties include aircraft preflight, starting engines, ground checks, monitors engine and systems instruments, performs PAVE LOW navigation duties. The second flight engineer performs cabin duties as scanner/gunner and rotates with flight engineer in the forward seat.

2 Observors/Gunners - Positioned in cabin to operate weapons and scan for inflight/landing operations. These crew members have limited PAVE LOW systems knowledge and generally cannot be substituted for flight engineers

Total crew is 6 for actual combat mission. Frequently flown with 5 crew for training flights or missions without weapons.

UH-60 - CREW 5

Pilot - Fly the aircraft (hazard and obstacle avoidance)

Assist in navigation by pointing out significant features to the navigator

Follow navigational instructions issued by the navigator

Monitor radios and make radio calls as appropriate.

Designate specific crew duties

Command his aircraft.

Execute mission as briefed.

Maintain position in formation

Responsible for camouflage and local security when on the ground.

Copilot - Assist the pilot in hazzard and obstacle avoidance by telling him what is ahead - hazzard and obstacle avoidance.

Monitor aircraft heading/and altitude.

Monitor aircraft engine and flight instruments.

Monitor radios and make radio calls as appropriate.

Navigator - Navigation known the location of the aircraft at all times.

Aid in fuel transfer.

Monitor radios.

~~Relief pilot for long range flights~~.

Crew Chief/Gunner

Monitor mechanical condition of aircraft.

Assist in navigation by pointing out significant features to the navigator.

Observe for obstacle and hazzard clearance during hovering and landing operations.

Perform any other specific tasks directed by the pilot.

~~Check and see if~~

Responsible for aircraft servicing.

Gunner/Observors

See - H-53

Also assists CE refuel.

CH-47 Crew Duties - Same as H-60 except as noted.

1. Pilot
2. Copilot
3. Navigator
4. Crew Chief/Gunner (3 ea. on A/C)

+ assist in fuel transfer in flight

+ assist pathfinder in establishing & running refueling point.

ATTACHMENT 1

FLIGHT DATA CARDS

BRIEF CARD #1

FLIGHT SCHEDULE

FLT	CALL SIGN	TAIL #	TYPE A/C	AIRCRAFT COMMANDER (PIC)

BRIEF CARD #2

CALL SIGNS

AGENCY/PLAYERS	CALL SIGNS

BRIEF CARD #2
(Continued)

BREVITY CODE (DEFINE TERMS)	CALL SIGN

SECRET

BRIEF CARD #3

FREQUENCY WORKSHEET (CEOI)

GROUND CONTROL	UHF/ CODE	VHF/ CODE	FM/ CODE	HF/ CODE	REMARKS
TOWER					
OPERATIONS					
INTERPLANE					

	ENROUTE FREQUENCIES					
	UHF/ CODE	VHF/ CODE	FM CODE	HF CODE	CHG-OVER PT./TIME	CALL-SIGN
INTERPLANE (P) INTERPLANE (S)						
AIR REFUELING (P) AIR REFUELING (S)						
PICKUP ZONE (P) PICKUP ZONE (S)						
TRANSLOAD PT (P) TRANSLOAD PT (S)						
RRP (P) RRP (S)						
BEACONING (P) BEACONING (S)						
EMERGENCY (P) (S)						
COMMAND (P) NET (S)						

OTHER P
S

IFF MODE 1 MODE 2 MODE 3 MODE

~~SECRET~~ BRIEF CARD #4

FLOW CHART

TIME ZULU	PARTICIPANT	ACTION
A.		
B.		
C.		
D.		
E.		
F.		
G.		
H.		
I.		
J.		
K.		
L.		
M.		
N.		
O.		
P.		
Q.		
R.		
S.		
T.		
U.		
V.		
W.		
X.		
Y.		
Z.		

BRIEF CARD #5

NAVIGATION CARD

Scheduled T/O TIME (Z)

* From Scheduled T/O Time

Formation #1	Formation #2
Flt #1 _____	Flt #1 _____
Flt #2 _____	Flt #2 _____
Flt #3 _____	
Flt #4 _____	

Waypoint #	Lat / Long / UTM	True Head	Var	ETA / ATA	Time Rem	KM Dist Rem	NM Dist Rem	Leg Fuel	Emer Safe Alt	Nav Aids / Freq	

20 SOS/DA TO BE USED FOR EXERCISE POTENT CHARGE. EXPIRES 22 AUG 80.

~~SECRET~~

BRIEF CARD #6

RCL
~~CCP~~ BRIEF CARD

Landing Zone Brief
LZ _____ (5 LETTER CODE & NAME)

UTM Coordinates _____, GEOGRAPHIC COORDINATES _____

Call Sign (RCL ~~CCP~~) _____

Frequency
Primary UHF _____ Secondary _____
Primary VHF _____ Secondary _____
Primary FM _____ Secondary _____

LZ Marking & ~~ID~~ AUTHENTICATION

Wind Velocity Forecast _____ Actual _____

Elevation _____

Size _____

Obstacles _____

Terrain Features _____

Approach Direction _____

Taxiing Instruction _____

Departure Routes _____

Landing Pattern _____

Nav Aids _____ Radial _____/DME _____

Alternate landing site _____

Holding points and procedures _____

Hand and arm (No commo procedures) _____

Light Signals _____

BEACON _____

~~SECRET~~

ATCH 1-7

BRIEF CARD #7

AR PREDEPARTURE BRIEF

1. ARIP
2. AR TRACK
3. ARCP
4. ARCT
5. AR ALTITUDE
6. AR AIRSPEED
7. ABORT POINT
8. EXIT POINT
9. TYPE RENDEZVOUS
10. FUEL ONLOAD/OFFLOAD RQMTS
11. EMERG/RECOVERY BASES
12. ATC CLNC LIMITS
13. TANKER CALL SIGNS
14. RECEIVER CALL SIGNS
15. STANDBY TANKER RQMTS
16. TACTICS
17. RADIO FREQUENCIES
18. BEACON/IFF SETTINGS
19. TACAN SETTINGS
20. COMM OUT
21. AIRCRAFT LIGHTING
22. ALTIMETER SETTING.

~~SECRET~~

MAINTENANCE PROBLEMS

The rapid deployment of the HH-53H/C to Hurlburt put the weapon system into a new command structure and placed increased mission requirements on the system. To compound the problems, the aircraft and crews deployed on Exercise Honey Badger. The HH-53H/Cs were exposed to austere conditions, expanded flying requirements while being supported by an undeveloped supply system. The OT&E was discontinued and maintenance support organizations were rapidly formed. When the HH-53H/C returned to Hurlburt, the aircraft were not cleaned, maintenance personnel were sent home on leave or to complete PCS actions, and the supply system support was relaxed. Several problem areas have developed in the maintenance and logistics support system that are keeping the 1st SOW from properly performing its mission and developing a viable logistics support system.

OT&E - The OT&E program that was curtailed, stopped the evaluation of the weapon system and the collection of supply demand data information. The aircraft are not flying within the time structure of an established support system. Information for a 20-hour per week aircraft utilization cannot be doubled to support a 40-hour per week aircraft utilization. The supply support for the Pave Low need to be reprovisioned to support unit mission and support requirements. Capt [redacted] is presently working with Maj [redacted] at Hurlburt to reestablish the OT&E. They have requested that Capt [redacted] and [redacted], who were part of original OT&E developed group, be tasked to assist them. Their participation is essential for the efficient, timely retrieving, compiling and evaluation of data to establish a logistics system to support the Pave Low III mission and evaluate mission capabilities. Their expertise will also be necessary in developing the Follow-On Operational Test and Evaluation (FOT&E).

Action: Immediate tasking of Capt [redacted] and Mr [redacted] to work with Capt [redacted] and Maj [redacted]. This group should establish an adjusted OT&E compensated for the different mission requirements found in TAC. They have worked extensively with developing, publishing, and monitoring the OT&E presently in use and are eminently qualified to adjust and augment the present OT&E.

Maintenance Support - In my evaluation of the maintenance/logistics organization, five items continually surfaced. Lack of parts, aircraft condition, lack of people, and supervision.

~~SECRET~~

Attachment 7

-The parts problem is the critical factor in the maintenance support problem. There are presently three mission aircraft out of commission because of cannibalization parts. Two, one HH-53H and one HH-53C, are being used for parts to support the other aircraft and systems. The third was used as a CAN aircraft and is in the process of being rebuilt. There is apparent progress being made. This is misleading for two reasons. One, it does not indicate the length of time between ordering a part and receiving the part; and secondly, the list of needed parts that have to be provided by the manufacturer is increasing. I interviewed the Supply Squadron Commander, [redacted] concerning the parts problem. As far as he knew, parts were not being taken from other DOD operational aircraft to support the 1st SOW requests. As a result, maintenance cannibalized 1st SOW aircraft. This problem is being compounded by the absence of accurate demand data for support of 1st SOW HH-53H/C operations. Traditional H-53 operations have proven to be inadequate for supply support. As mentioned in the OT&E section, there is no base demand data available for the mission demands of the 1st SOW. The mission requirements of the JTF require nine HH-53Hs and four HH-53Cs be mission ready. The system does not demand parts from operational aircraft in other units. Cannibalizing mission aircraft to fly training missions is not acceptable.

Action: Streamline the logistics system supporting the 1st SOW and especially the HH-53 aircraft. A central point of contact with necessary staff should be established in the Program Managers Office at Warner Robins ALC, to act as central point of contact, dedicated to the supply requirements of the HH-53. He should have direct contact with AFLC and the Defense Logistics Agency. He should also have access to all H-53 resources in DOD. His responsibilities would include, but not be limited to, the immediate location and shipment of needed parts to the 1st SOW/DCM. Response time for this system should be 12 hours or less. This would be a short term solution to the parts problem and should be used until accurate demand data, WRSK kits, and mission requirements are established to their required level of readiness (Atch 1).

- The aircraft condition has deteriorated over the past four months. When the Pave Low III system was developed, the H-53 aircraft used as the system bed were given an expanded phase inspection to insure their quality. When the weapon system was given to TAC, they were deployed to the desert to evaluate their high altitude, desert capability. They received extensive abuse from the flying schedule and the dusty environment. After the exercise, the aircraft were returned to Hurlburt. The facilities at Hurlburt were not sufficient to clean them. In addition, TDY maintenance personnel were sent home and the aircraft sat, unwashed, until they returned.

When 1st SOW personnel returned from leave, a flying training schedule was started. The aircraft were flown dirty. Bearings, fitting, servos, and other exposed moving parts are still being effected by the dust and are being replaced when they fail.

Action: The aircraft need a complete refurbishing. Depot level maintenance support should be sent to Hurlburt to perform an expanded phase inspection and replace or repair faulty parts. Preventative maintenance should aso be accomplished by replacing the exposed moving parts that suffered damage from the abrasive effects of the dust and sand.

- A shortage of qualified personnel. The technical support problems at the 1st SOW are two fold. First, the people are not on station because of PCS requirements; and second, the level of expertise is low. The 1st SOW is experiencing the same problems as the rest of the Air Force and other Services shortages of people and retention. The experience level of the technicians is decreasing. It has been decreasing steadily over the years. In order to fill operational slots, basic training programs have been cut to a minimum. We rely heavily on our OJT programs to take up the training deficit. Unfortunately, supervisory personnel do not have the time to spend with the trainee. There are people working the flightline that have little or no experience working with the H-53 or its systems.

Action: Closer active supervision by line chiefs and section chiefs. These individuals must spend more time on the line to expedite repairs and assist the inexperienced technicians in completing their jobs and provide useful on-the-job training. And, send additional experienced personnel to the unit for the short term, and establish a training program to handle the long term requirements.

- In addition to the shortage of technical expertise in the maintenance organization, the technical representatives who were assigned to the Pave Low III are being reassigned. Responsibility for the HH-53H and Pave Low III weapon system is shifting from ASD to WR-ALC. The airframe responsibilities transferred 30 April and the engineering responsibilities will transfer on 30 Sep. Without follow through assistance these transfers will have a detrimental effect on operations. The Pave Low III system is in its operational infancy. The technical expertise is still in ASD. The rapidity with which the aircraft, maintenance, and supply organizations were established and the urgency of mission requirements are problems that are going to be compounded because of the loss of ASD technical representatives.

Action: It is imperative that the ASD expertise vested in [redacted] and [redacted] be made available to the Program Manager (PM) and the 1st SOW. This assistance is needed to direct, advise, and provide an orderly transfer of responsibilities from ASD to WR-ALC. Also recommend the Pave Low III PM at WR-ALC come to Hurlburt to learn the unique problems of Pave Low III. (ATCH 2)

- Maintenance support - the training schedule required four HH-53Hs, eight UH-60s, four CH-47s, and two HH-53Cs. The following Air Force assets were provided for each nights mission. An aircraft was considered late if it could not take off within 15 mins of scheduled T.O. time. It was considered as no take off if it returned immediately.

DATE	AIRCRAFT	T.O. TIME SCHEDULED/ACTUAL	FLIGHT TIME	MISSION EFF	REMARKS
18 Aug MONDAY	~~649~~ 647				TRAININ
	~~651~~ 791				CANX
	~~795s~~ 432s				WEATHER
19 AUG TUESDAY	647	1930/1940	3.6	EFF	
	791	1930/1935	3.7	EFF	
	432s	.1930/1950*	.5	N-EFF	AIR ABO

One late take off
wo crews of three flew effective sorties 2-3
Two aircraft of three scheduled flew 2-3

20 AUG WED	~~651~~ 433	1500/1516*	3.5	EFF	
	~~648~~ ~~650~~ 652	1515/-		N-EFF	MX CANX
	649	1530/1543	3.0	EFF	
	647	1545/1540	2.7	EFF	
	432s	1500/-		N-EFF	MX CANX
	795s	1515/-		N-EFF	MX CANX

One late takeoff
Three crews of six flew effective sorties 3-6
Three aircraft of nine scheduled flew 3-9

DATE	AIRCRAFT		T.O. TIME SCHEDULED/ACTUAL	FLIGHT TIME	MISSION EFF	REMARKS
21 AUG THUR	648		1315/-		N-EFF	MX CANX (REQ FCF)
	650		1300/1322*	2.3	EFF	
	647		1345/1345	2.7	EFF	
	649		1330/-		N-EFF	MX CANX
	432s		1315/-		N-EFF	MX CANX
	---s				N-EFF	MX DELET
22 AUG FRI	~~648~~	791	1030/1030	3.5	EFF	
	~~649~~	650	1100/1115	2.1	EFF	
	652		1115/1125	2.6	EFF	
	647		1145/1145	2.3	EFF	
	432s		1100/-		N-EFF	MX CANX
	~~795s~~	431s	1145/-		N-EFF	MX CANX
23 AUG SAT	647		1030/1030	2.9	EFF	
	433		1100/1107	2.7	EFF	
	791		1115/1117	4.0	EFF	
	652		1145/1148	2.4	EFF	
	~~432s~~	431s	1100/1107	2.8	EFF	
	795s		1145/-		N-EFF	MX CANX
25 AUG MON	~~791~~	649	2000/2100*	2.7	EFF	MX DELAY
	652		2015/2130*	2.5	EFF	MX DELAY
	433		2023/2050*	2.6	EFF	MX DELAY
	~~648~~	650	2045/-		N-EFF	(648 REQ FCF MX CANX
	~~432s~~	431	2000/2011	3.6	EFF	
	795s		2015/2240*	2.6	EFF	MX DELAY

One late takeoff
Two crews of six flew effective sorties 2-6
Two aircraft of five scheduled flew 2-5
One line was not covered

Four crews of six flew effective sorties 4-6
Four aircraft of nine scheduled flew 4-9

Five crews of six flew Effective Sorties 5-6
Five aircraft of seven scheduled flew 5-7

Four late takeoffs
Five crews of six flew effective sorties 5-6
One aircraft of nine took off on time 1-9
Five aircraft of nine scheduled flew 5-9

DATE	AIRCRAFT		T.O. TIME SCHEDULED/ACTUAL	FLIGHT TIME	MISSION EFF	REMARKS
26 AUG TUES - H53 GROUNDED FOR TAIL BOOM PROBLEM						
27 AUG WED	650		2145/2233*	3.2	EFF	
	~~648~~	649	2215/2216	3.5	EFF	648 REQ FC
	652		2230/2230	4.3	EFF	
	433		2300/-		N-EFF	MX CANX
	~~432s~~	431s	2215/-		N-EFF	MX CANX
	795s		2300/2258	.5	N-EFF	AIR ABOR
28 AUG THUR	652		2230/2245	4.0	EFF	
	~~649~~	651	2300/2300/0100**	2.3	EFF	RETURNED FC MX 2345
	433		2345/2340	3.7	EFF	
	650		2315/2315	4.0	EFF	
	795s		2300/2300/0055**	2.6	EFF	RETURNED FC MX 2355
	~~432s~~	431s	2345/2348	3.7	EFF	
3 SEP WED	~~791~~	~~433~~ 650	1945/1945	5.5	N-EFF	
	~~649~~	~~650~~ 433	2015/2016	9.1	EFF	
	~~652~~	651	2000/2000	12.0	EFF	
	795s		2040/2036	13.1	EFF	
	432s		2015/2016	.3	N-EFF	
			2040/2036	14.0	EFF	

One late takeoff
Three crews of six flew effective sorties 3-6
Three aircraft of eight scheduled flew 3-8

Two aircraft returned for maintenance
Six crews of six flew effective sorties 6-6
Four aircraft of eight flew as scheduled 4-8

Five crews of six flew. Four aircraft of eight flew as scheduled
One air aborted immediately after T.O.
One aborted in route

	AC Sched/Required	HH-53H/HH-53C	T.O. on Time	Late	Abort MX
MON	6/3	4/2	WX	CANX	
TUES	3/3	2/1	2/0	0/0	0/1
WED	9/6	7/2	2/0	1/0	4/2
THRU	5/6	4/1	1/0	1/0	2/2
FRI	9/6	6/3	4/0	0/0	2/3
SAT	7/6	4/3	4/1	0/0	0/2
MON	9/6	6/3	0/1	3/1	3/1
TUES	NO FLY H-53 GROUNDED				
WED	8/6	5/3	2/0*	1/0	2/3
THUR	8/6	5/3	3/1	1/1**	1/1
WED	9/6	7/2	4/1#	0/0	3#/1
TOTALS	67/51	46/21	22/4	7/2	16/17

* Take off on time but returned to base immediately

** A/C took off on time but returned for maintenance then took off again

\# One aircraft aborted on take off
One aircraft aborted enroute

67 aircraft were scheduled to fly 51 sorties
46 HH-53Hs and 21 HH-53Cs
22 HH-53Hs took off on time - 48%
4 HH-53Cs took off on time - 19%
34 of 51 crew sorties were effective = 67%

Modifications:

There is an extensive modification program in progress for the HH-53H. The programs inlude both short range mission essential items and long range system improvements. LtCol Ernest is monitoring these programs.

- Pave Low III battery problems
- Collective limit problem
- IR light and bracket procurement and installation
- 50 cal gun mounts
- Five channel radar malfunction indicator
- SUAR Switching Unit for Altitude Reference

- FLIR heat sink

- Radar antenna receiver to adjust range of dynamic terrain following

- T.O.'s for Pave Low III and component parts have not been verified.

Action Underway:

Short term mission essential:

- Battery problems are being resolved by Canadian Marconi.

- Collective limit problem is awaiting availability. The tests will be conducted by Warner Robins -ALC and will take 4-5 months.

- IR light and brackets. Presently on order, only five units have been located. More emphasis on the procurement of this item is needed. It is vitally important for mission accomplishment.

- 50 cal gun mounts. Presently at the manufacturer for improvement and repair of the frame. Mission essential.

Recommendation: Immediate action should be taken on the IR light procurement, and the .50 cal mounts. These two items have profound effects on mission capabilities. The HH-53 system manager at WR-ALC should closely monitor these activities and expedite their completion.

Long Term Improvements:

- Five channel malfunction indicator is installed in aircraft 790 and will be tested when 790 returns from Phase. If the tests are successful, unis will be put in all aircraft.

- SUAR is installed in Aircraft 433 and needs one more flight test. If the unit proves useful, a procurement program will have to be initiated. No other units are available.

G - FLIR heat sink - [redacted] a Texas Instrument Tech Rep is on contract to solve the problem. A message to TAC outlining the problem with ASD and Warner Robins-ALC has been sent.

G - Radar antenna receiver - [redacted] a Texas Instrument Tech Rep, is on contract until 3 Sep. One aircraft will be needed 5-15 Sep for testing. There is money to modify and test one aircraft. There is no money allocated for follow-on buys and test nor for more technical assistance. A decision will be made after testing to purchase the sets or redesign the sets for better capability.

OPINION - In a time of apparent superiority, the US military began increasing its use of computers to develop a cost effective supply system. This demand supply system allowed units to keep minimum stock levels on hand and not purchase items that would not be used. Industry was released as the burden of maintaining inventories that would be taxed. Cost wise, the system functioned very well. The DOD did not purchase parts it did not need, industry did not have to produce a taxable inventory part that would not be purchased. We have developed a cost effective system. The use of computers has permitted us to spend the minimum amount of money on parts by closely monitoring usage rates, projecting usage rates, and evaluating those rates. As a result, we have succeeded in creating a dangerous situation. Our ability to handle the surge requirements of Honey Badger is going to be nothing compared to the problems we will face if a war starts. The capability of this nation to mobilize its industry must be closely examined. Our supply systems ability to maintain sustained conflict must be examined. I fear we are entering an era where the lag time between last bullet fired and the first bullet delivered will be up to 18 months. We need to establish realistic war reserves to cover the lead time necessary to mobilize the industrial might of this nation to fulfill our operational requirements. These problems manifest themselves in low density weapon systems like the H-53 that don't have an extensive supply system to support them.

Attachment 1 - Maintenance Problems
Attachment 2 - Message - Pave Low III Program Status

~~TOP SECRET~~

THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

8 September 1980

THE JOINT STAFF

MEMORANDUM FOR: Major General Vaught
Major General Secord

Subject: Maintenance Problems

Maintenance and logistics support problems have degraded the mission capabilities of the 1st SOW helicopter forces to a point where they cannot reliably participate in JTD activities. 1st SOW/DCM cannot provide mission ready aircraft to the aircrews. The PAVE LOW aircraft fly with degraded systems and, in many cases, have no more capability than the HH-53Cs that are on loan from MAC. Immediate action must be taken at all levels of the logistics structure to solve this problem. The following actions must be taken to bring all the HH-53s to mission ready status quickly enough to support JTD mission requirements.

1. [redacted] should be established as onscene Program Manager from the H-53 PM office at WR-ALC to direct and monitor all logistics related activities, and to expedite those activities to insure rapid completion of every activity.

2. Send depot level and contractor maintenance support to refurbish the aircraft. This refurbishing will include replacing worn or inoperative parts, installing modifications, cleaning the aircraft, and preparing them to accomplish mission requirements. This project should be completed within two weeks from start and should be completed prior to the 27 Sept exercise.

3. Streamline the logistics support system. LtCol [redacted] WR-ALC, should be appointed as central point of contact with necessary staff to function as expediter. He will be dedicated to supporting the logistics/parts requirements of the 1st SOW. He should have liaison with HQAFLC and DLA. His responsibilities would include the immediate location and shipment of needed parts to the 1st SOW within 12 hours of a request.

4. This system should be established to support LtCol [redacted] in accomplishing his actions:

~~TOP SECRET~~

1. Maintenance identifies parts requirement.

2. Query supply - no response order part via supply channels.

3. Establish a document no. and parts information.

4. Contact LtCol [redacted] with document no. and parts info.

5. LtCol [redacted] locates part and immediately ships part to 1st SOW/DCM.

6. 1st SOW/DCM informs supply of receipt, and completes paperwork loop.

5. The H-53 is a low density weapon system. By making all DOD H-53 units available to support the 1st SOW, the logistics base will be expanded.

6. Technical assistance continuity must be maintained by making [redacted] and/or [redacted] available to interface with WR-ALC personnel during the transfer of weapon system responsibilities from ASD to WR-ALC/PM.

[redacted]
Major, USAF

ROUTINE [redacted]

	A	I		A	I		A	I
							COMD SECTION ONLY	
CSA		✓	DC			JA		
CSP			DE		✓	LG	✓	
CWS			DO		✓	LRC		
RE			DP		✓	PA		
HO		✓	DR			SE		
AC		✓	HC			SG		
AD			IG			SP		
CP			IN			WE		
DA			INDI			XP		✓
RTR			CYS			REPRO		

9AF/CC	
12AF/CC	
USAFSO/CC	
TFWC/CC	
TAWC/CC	
552AWACW/CC	
1TFW/CC	
ADTC/CC	
CS.	

DC G 01706 247 2352:18

RAAUZYUW RUCLHUA1644 2472235-UUUU--RUCIPBA.

ZNR [redacted]

R 032225Z SEP 80

FM 1 SOW HURLBURT FLD FL //DO//

TO RUCIPBA/9AF SHAW AFB SC//DO/LG//

INFO RUCJERA/HQ TAC LANGLEY AFB VA//LGM/DRP/DOR/

RUEAHQA/HQ USAF WASH DC//RDQL//

RUEOAWA/HQ AFSC ANDREWS AFB MD//SDN//

RUVRAAA/HQ AFLC ROBINS AFB GA//MMS//

RUVAAAA/HQ AFLC WRIGHT PATTERSON AFB OH//ALOA//

RUVAAAA/ASD WRIGHT PATTERSON AFB OH//AEA//

BT

[redacted]

SUBJ: PAVE LOW III PROGRAM STATUS

REF: ASD/AEA 141810Z AUG 80 (NOTAL 9AF) CNAI

5 SEP 1980

1. TRANSFER OF HH-53H TO TAC HAS NECESSARILY BEEN ACCOMPANIED BY INTERRUPTIONS IN ON-GOING DEVELOPMENT/IMPROVEMENT PROGRAMS FOR PAVE LOW. FULL REALIZATION OF UNIQUE PAVE LOW CAPABILITIES REQUIRES CONTINUING AVAILABILITY OF TECHNICAL EXPERIENCE AND EXPERTISE OF PAVE LOW DEVELOPMENT AGENCIES. AGE OF SPECIAL OPERATIONS SYSTEMS/PROGRAMS INCLUDING HH-53H. HAS PRECLUDED RETENTION OF SPECIAL OPERATIONS FUNCTIONAL MANAGEMENT WITHIN RECENT AFSC

PAGE 2 RUCLHUA1644 UNCLAS

REORGANIZATION. THE FEW HIGHLY EXPERIENCED PERSONNEL ASSOCIATED WITH OUR SMALL PROGRAMS HAVE BEEN, OR SOON WILL BE, REASSIGNED TO OTHER FUNCTIONAL RESPONSIBILITIES. REQUEST YOU EXPLORE POSSIBILITY OF RETAINING CORE EXPERTISE WITHIN ASD.

2. FOLLOWING COMMENTS ARE INDEXED TO REF MSG:

A. REF PARA 2A: PROCUREMENT OF ADDITIONAL FUNDS FOR ASD TO CONTINUE WORKING PAVE LOW PROBLEMS SHOULD BE CONSIDERED. ACCORDINGLY, CONSIDERATION SHOULD BE GIVEN TO DELAYING PMR TRANSFER UNTIL THE PROBLEMS ARE RESOLVED. SUCCESSFUL DEPLOYMENT OF THE PAVE LOW MODIFICATION STILL DEPENDS ON ASSISTANCE FROM THE PAVE LOW SPO.

SECRET

ROUTINE

AP-1379 PAGE

B. REF PARA 2B(1): THE NEW SWAR MODIFICATION HAS BEEN ACCOMPLISHED ON A/C 433. ANTICIPATE MOD TESTING WILL NOT BE COMPLETED FOR ALL AIRCRAFT PRIOR TO 30 SEP. DUE TO AIRCRAFT AND PARTS AVAILABILITY. PRESENT EL LIGHTING MODIFICATION DOES NOT MEET REQUIREMENTS; ADDITIONAL TESTING AND FOLLOW-ON IMPROVEMENTS ARE REQUIRED. DUE TO AIRCRAFT AVAILABILITY AND ENGINEERING ANALYSIS, COMPLETION OF THE EL TESTING BY 30 SEP IS VERY OPTIMISTIC. RADAR WARNING ALARM MONITOR SYSTEM DOES NOT OPERATE SATISFACTORILY. ON THE ONE FLIGHT FLOWN TO EVALUATE THE SYSTEM, ALL FIVE ALARM MODES INDICATED A FAILURE. PROTOTYPE AIRCRAFT, 790, WAS IN REPAIR AT

HILL AFB FOR AN EXTENDED PERIOD AND IS NOW UNDERGOING MODIFICATION AT PENSACOLA. DELAYS PAST 30 SEP ARE EXPECTED.

C. REF PARA 2B(2): WE DO NOT ANTICIPATE BEING ABLE TO SUPPORT THE TESTING OF THE TF RADAR ANTENNA RECEIVER MOD UNTIL THE LATTER PART OF NOVEMBER. TEST CREW SELECTION WILL BE MADE WHEN THE AIRCRAFT IS AVAILABLE. CONCUR WITH KIRTLAND AFB TEST SITE SELECTION. THE RADAR MOD IS IMPORTANT, BUT PRESENT MISSION COMMITMENTS PRECLUDE IMMEDIATE ACTION. IN ADDITION, COMPLETING THE TEST IN 30 DAYS IS AN OPTIMISTIC ESTIMATION.

D. REF PARA 2C: CONCUR WITH THE RECOMMENDATION FOR ACCEPTANCE OF ACFT 73-1647. DO NOT CONCUR WITH THE ACCEPTANCE OF ACFT 66-14433. ACFT 433 WAS PREMATURELY ACCEPTED FROM PENSACOLA NARF TO SUPPORT MISSION REQUIREMENTS AND STILL HAS MAJOR WIRING AND COMPUTER PROGRAM PROBLEMS. PROBLEMS HAVE BEEN DOCUMENTED, BUT NOT CORRECTED. INSTALLATION OF THE MODIFIED TF TRANSMITTER RECEIVER WILL NOT SOLVE THE PROBLEMS.

E. REF PARA 2D: CONCUR WITH MAINTENANCE T.O. VERIFICATION SCHEDULE. PERMANENT ASSIGNMENT OF EXPERIENCED PERSONNEL REMAINS A PROBLEM. WE WILL DO OUR BEST TO SUPPORT THE ASD SCHEDULE. COMPLETION OF FLIGHT MANUAL VERIFICATION BY 30 SEP IS, AGAIN,

VERY OPTIMISTIC. SIGNIFICANT CHANGES ARE REQUIRED TO ACCOMMODATE RECENT MODIFICATIONS.

THE FOLLOWING PROBLEMS HAVE SURFACED DURING THE PAST THREE MONTHS (SOME ARE NEW, SOME WERE PREVIOUSLY IDENTIFIED):

A. TWENTY-SIX (26) VAC REFERENCE VOLTAGE MUST BE TESTED. SPIKES IN VOLTAGE CONTINUE TO DESTROY THE A3 CARDS IN THE TF COMPUTER.

B. FLIR HEAT SINKS CONTINUE TO OVERHEAT TO FAILURE DURING FLIR OPERATION.

C. DOPPLER BATTERY LIFE DOES NOT CONFORM TO SPECIFICATIONS.

D. CENTRAL AVIONICS COMPUTER BUTTON RELAYS ARE NOT RELIABLE.

E. SYMBOL GENERATOR A1 CARDS FAIL ON A REGULAR BASIS.

F. THE UHF RADIO CONTINUES TO CAUSE TF RADAR EMI PROBLEMS. SPECIFICALLY - RANGE STEP AND TF FAIL INDICATIONS. (OUR CURRENT WORKAROUND IS WITH RADIO COMM PROCEDURES.)

Medical Configuration-

A,C [redacted] surgeon, recommends the following configuration for use in the medical mission.

Photo:

1. Stanchions and litter stowed.
2. Stanchions erect.
3. Litter in place on stanchions, anchored to tie-down rings.
4. Working space with passengers seated.
5. Working space with litters installed.
6. Cramped working area with stacked litters.
7. Easy access with litter on stanchions.
8. Cramped cross body work area.
9. Easy access to cross body areas.
10. Work space for doctor and assistant or two PJs.

- This operating table can be stowed when not in use.
- The patient does not have to be transferred from his litter to the table. His litter is the table.
- Position allows for easy access to the patient.

ATCHMENT 1: PHOTOGRAPHS

2: ILLUSTRATIONS

[redacted] DURING THE PAVE LOW MOD - TCTO 1H-53-622-A MODIFICATION TO ALLOW THE RESETTING OF THE CHIP CAUTION LIGHT USING THE MASTER CAUTION LIGHT WAS DEACTIVATED. ENGINEERING IS REQUIRED TO SOLVE THE DEFICIENCY.

[redacted] ADDITIONAL FOT AND E TEST TIME IS REQUIRED TO CHECK TF OPERATION IN CIRCULAR POLARIZATION MODES. IN WEATHER PAVE LOW OPERA-

TIONS DEPEND ON THIS TEST.

[redacted] IMPROVEMENTS TO THE NOSE LANDING GEAR DOOR ARE STILL REQUIRED. REMOVING THE DOOR CONTINUES TO CAUSE AIRCRAFT NOISE AND VIBRATIONS PROBLEMS.

G. LOSS OF ASD REPRESENTATIVE [redacted] WILL DEGRADE UNIT EFFECTIVENESS. WE REQUIRE AN INDIVIDUAL WHO IS KNOWLEDGEABLE OF THE H-53 AND PAVE LOW MOD TO COORDINATE ACTIONS BETWEEN TAC, ASD, AFSC, AFLC AND VENDORS. RECOMMEND [redacted] BE RETAINED IN HIS PRESENT POSITION.

H. REF D IS AT MISTER OPENERS AFP/GA MMS MSG 191440Z AUG 80. H-53 AIRCRAFT FOR AUTOROTATION RIGGING TEST. WE ARE UNABLE TO PROVIDE AN H-53H FOR SUBJECT TEST UNTIL JAN 81. DURING PRELIMINARY TESTS AT KIRTLAND, PAVE LOW PERSONNEL FOUND THAT REDUCING THE AUTOROTATION RPM BY FOUR PERCENT WOULD ALLEVIATE THE COLLECTIVE LIMITING PROBLEM. A FOUR PERCENT RPM REDUCTION WILL NOT DETRACT FROM SAFE FLIGHT AT OUR NORMAL MISSION GROSS WEIGHTS. IF TESTING IS REQUIRED, WE ANTICIPATE JAN AS THE EARLIEST DATE FOR TEST INITIATION.

I. [redacted] PAVE LOW CONTACT IS [redacted] AV [redacted] HQ PACAF.

ET

#1644

NNNN

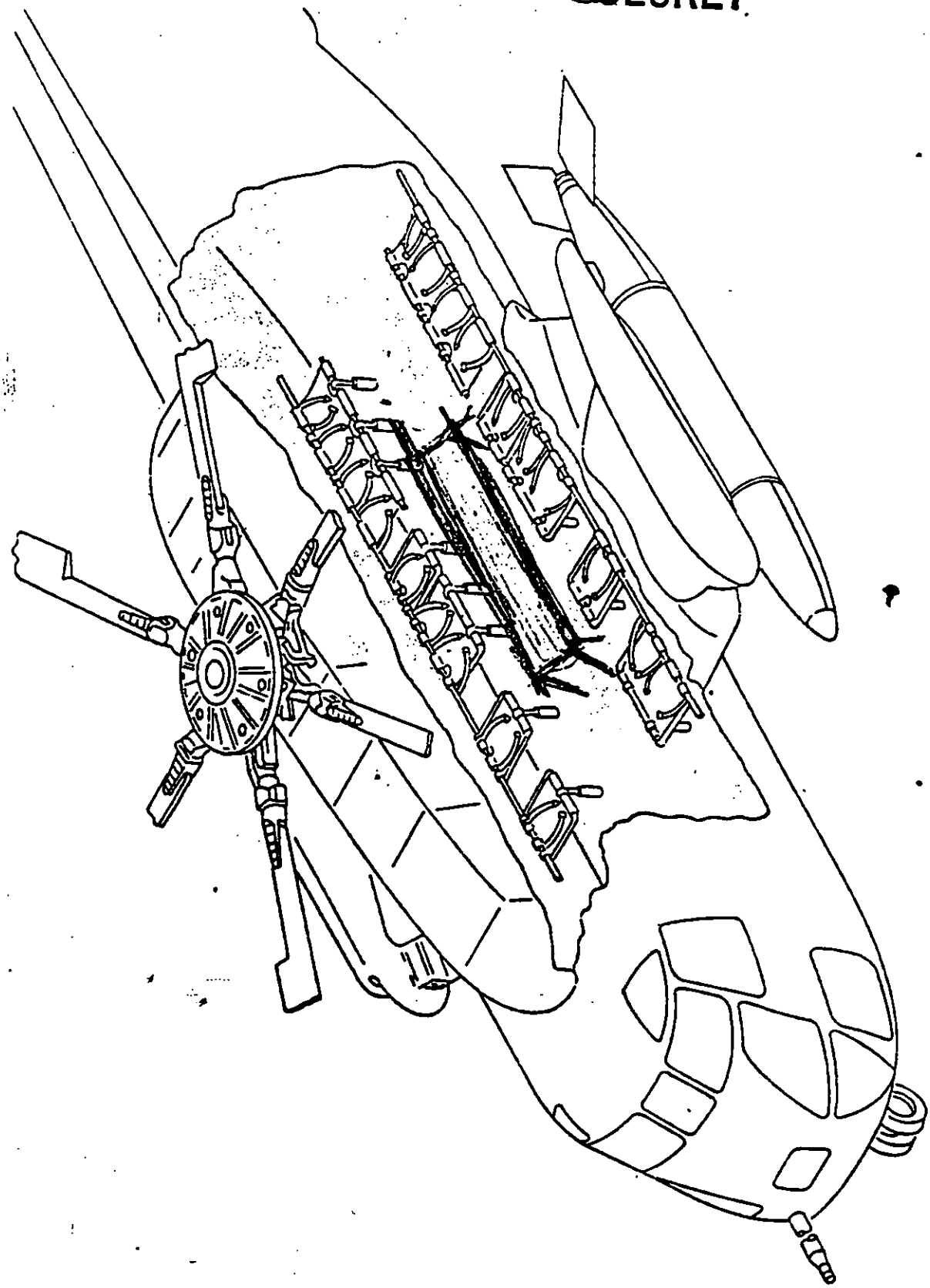


Figure 4-27. Troop Seats (HH-53B/C Helicopters)

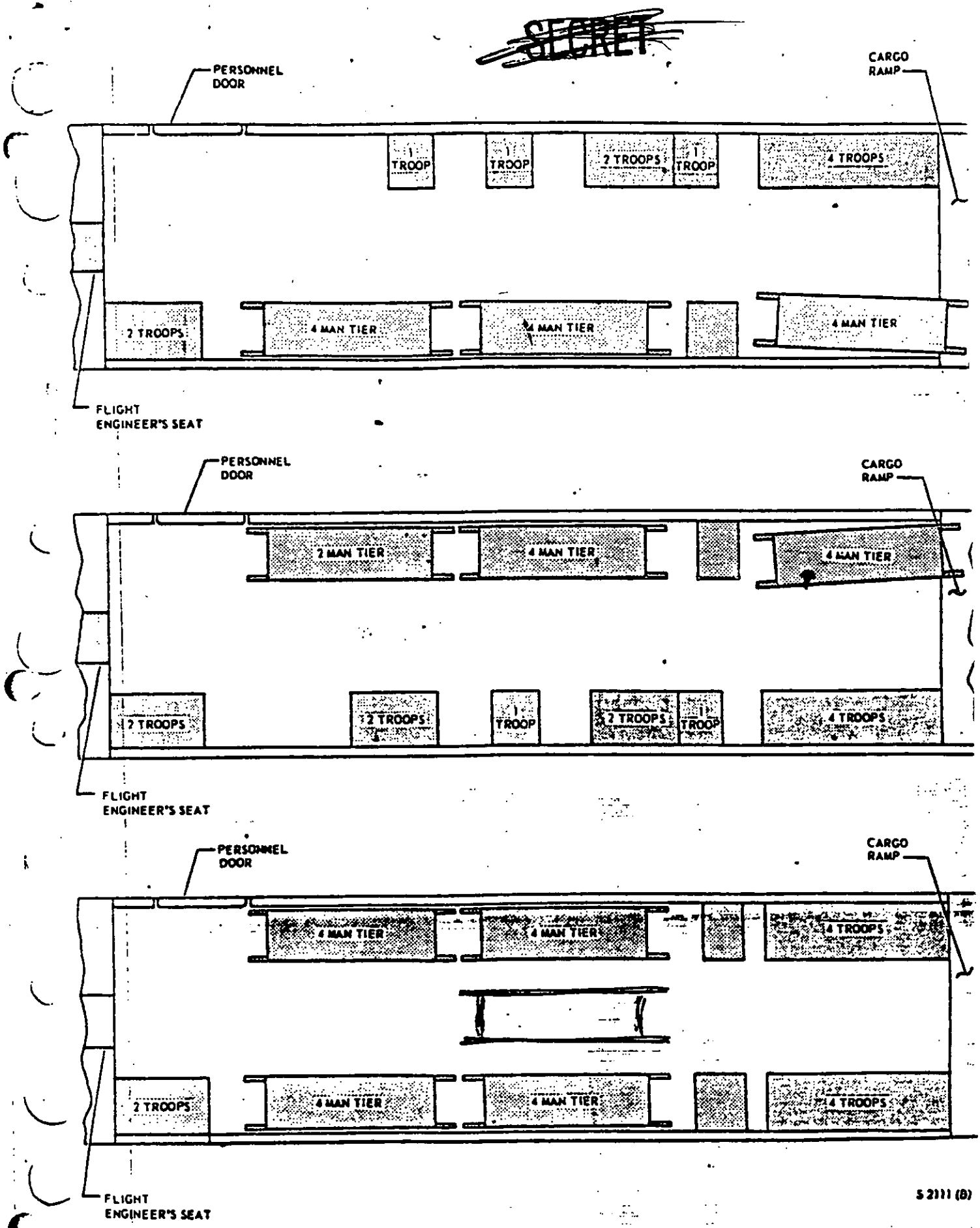


Figure 2-9. Combination of Troop Seats and Litters (Typical)

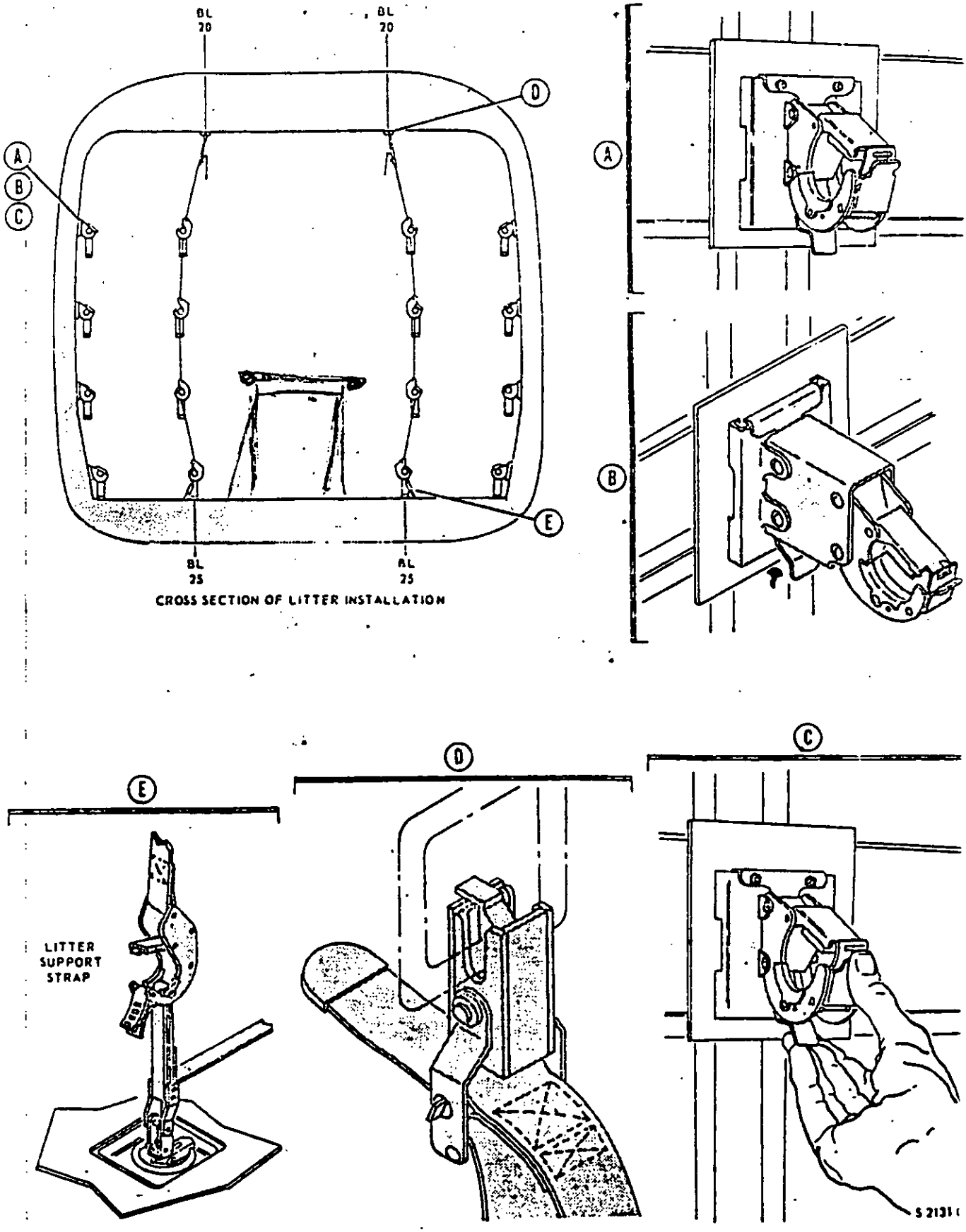


Figure 3-8. Litter Support Installation

~~SECRET~~ 1-746

THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

THE JOINT STAFF

28 July 1980

G MEMORANDUM FOR LIEUTENANT COLONEL [redacted]

Subject: Detachment One, JTD HONEY BADGER

1. This memorandum recognizes the establishment at [redacted] of Detachment One of the JCS-J3 Joint Test Director's Office. Since much of the USAF activity in this project will involve [redacted] resources, it is deemed most efficient to temporarily co-locate a JTD office with this wing. It is envisioned that this requirement will exist for one year.

2. The overall function of Detachment One will be to assist in the effective and secure execution of assigned test and evaluation projects. Tasking and guidance will be provided from the Joint Test Directorate (JTD) established within JCS-J3. The JTD in turn receives its tasking and guidance from the Director of Defense Test and Evaluation within the Office of the Under Secretary of Defense for Research and Engineering.

3. Among the specific responsibilities of the JTD Detachment One are the following:

a. Establish an office to represent the JTD at [redacted]

b. Assist with the planning, coordination, administration, and execution of tests and evaluations involving USAF resources. This will include but not be limited to:

(1) Developing supporting plans for the execution of tests tasked by the JTD.

(2) Identifying the resources necessary to perform specific tests.

(3) Assisting in the necessary logistics and aircraft modification activities.

(4) Collecting and assembling data pertinent to the tests. Of particular interest will be establishing a data base on key test vehicles. The following data will be necessary: designed mean failure rate, condition of equipment at the beginning of the test, performance during the tests, and pertinent test conditions.

Declassified by: DDO NMCC ~~SECRET~~
12 Apr 93

Classified By: JCS
Declassified ON: OADR

4. In fulfilling these tasks the detachment is authorized continual direct liaison with the [redacted]. In addition for specific events the detachment will be periodically authorized direct liaison with other units or offices.

G [redacted]

Colonel, USA
Joint Test Director

~~SECRET~~

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 1ST SPECIAL OPERATIONS WING (TAC)
HURLBURT FIELD, FLORIDA 32544

REPLY TO
ATTN OF: CV

1 Aug 80

SUBJECT: HONEY BADGER After Action Report

TO: JTD

1. Enclosed is the HONEY BADGER After Action report and includes OT&E reports/requests.

2. The comments of detachment commanders concerning the exercise are valid and serve to illustrate many of the problems encountered. These problems can be eliminated with pre-planning and coordination with all the forces involved.

3. We will need your assistance with the recommendations given in the OT&E Activity Reports. Request your comments.

[redacted]

1 Atch
HONEY BADGER After Action Report

I-739

Readiness is our Profession

DDO NMCC
Classified By: ~~JCS~~
Declassified ON: OADR
2 AUG 92

~~SECRET~~

[redacted]

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 1ST SPECIAL OPERATIONS WING (TAC)
HURLBURT FIELD, FLORIDA 32544

REPLY TO ATTN OF: AFSOB/CS

30 July 1980

SUBJECT: HONEY BADGER After Action Report (U)

G TO: [redacted]

1. (S) GENERAL COMMENTS: Operation HONEY BADGER was the overall code name for a three-phase Operational Test and Evaluation (OT&E). The number of 1 SOW personnel and aircraft varied as requirements dictated, with up to 22 aircraft, and in excess of 600 personnel deployed at times. The H-53 helicopters initially deployed to Oro Grande, NM on 15 June, then moved to Michael AAF on 4 July. The MC-T30, AC-130, and EC-130 aircraft deployed to Condron AAF on 5 July and an AFSOB was established at Oro Grande, NM. Following is a brief overview of each phase of the operation:

a. (S) HONEY BADGER: This, the first phase, was essentially a deployment and training period. The C-130 aircraft trained both unilaterally and in conjunction with [redacted] and the H-53 helicopters trained both unilaterally and with the US Army H-60 Blackhawks. Primary emphasis was on [redacted] night low level in mountaineous terrain, dissimilar aircraft formation, night low level flying, silent refueling, blivet refueling, static loading of various personnel and equipment combinations, airdrop of unusual loads, use of Night Vision Goggles (NVGs) and secure communications gear and procedures.

b. (U) ~~(S)~~ RUSTY BADGER: In this second part, all the above mentioned techniques/procedures/equipment were integrated into a single scenario, and tested/evaluated in a large operation the night of 16/17 July at two locations, Tonopah and Fallon airfields. Upon termination of this phase, the helicopters redeployed to home station.

c. (S) GRIZZLY FUR: The final phase was a Ranger/1 SOW seizure of an airfield (Reese AFB, TX), occurring on the night of 20/21 July.

2. (C) HONEY BADGER OT&E reports submitted during this period are attached.

[redacted]

4 Atch
1. Specific Events (AF Forms 3199 & Daily Activities Summaries ~~(S)~~
2. Problems, Discussions, & Recommendations ~~(S)~~
3. OT&E Reports ~~(S)~~
4. HONEY BADGER, 1 SOW Det Cmdr Comme (S)

[redacted] (S)

Readiness is our Profession

Cy to: [redacted]

~~SECRET~~

[redacted]

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AC-130H (S) A

DATE	CALL SIGN	ACFT COMMANDER	ETD / ATD	ETA / ATA	TAIL NUMBER	LNDGS	SORT	FLYING TIME	CUM TIME	MSN # + TYPE MSN	TOT	781	
5 JUL		[redacted]	A/R 1457	A/R 1910	6567	1	1	4.2	4.2	Deploy [redacted]		✓	
6 JUL	POSSE 13		A/R 1642	A/R 2047	6570	1	1	4.1	8.3	Deploy [redacted]		✓	
7 JUL	[illegible]		0430 0437	0830 0856	6567	1	1	4.3	12.6	AC-001 [redacted]	0700-0830	✓	
7 JUL			A/R 1440	A/R 1901	6569	1	1	4.4	17.0	DEPLOY [redacted]		✓	
8 JUL	DEED 01		0430 0455	0830 0830	6570	1	1	3.6	20.6	AC-002 [redacted]	0700-0830	✓	30M F
9 JUL	ROAR 20		0130 0115	0300 0240	6570	7	1	1.4	22.0	PILOT PRD.	N/A	✓	20M F
9 JUL	ROAR 33		0430 —	0830 —	6569	0	0	0	22.0	AC-004 [redacted]	0700-0900	—	28M FUE
9 JUL	ROAR 41		0500 —	0800 —	6570	0	0	0	22.0	AC-005 [redacted]		—	30M FUE
10 JUL	KID 11		0430Z 0429Z	0830Z 0825	6570	1	1	3.9	25.9	AC-006 [redacted]		✓	30 M F
10 JUL	KID 16		0330Z 0341	0830Z 0646	6569	1	1	3.1	29.0	AC-007 [redacted] AR	ARZ 2255L BAR 03	✓	28 M F
11 JUL	GALEN 22		0115Z 0116	0815 0900	6569	1	1	7.7	36.7	[redacted] 29000#		✓	
11 JUL	GALEN 45		0115Z 0111	0530 0512	6567	1	1	4.5	41.2	AC-009 [redacted] FR 5000#		✓	
11 JUL	GALEN 13		0830Z 0824Z	1130Z 1204	6567	1	1	3.7	44.9	AC-009A [redacted]		✓	
12 JUL	ACME 26		0115Z 0127	0815Z 0901	6570	1	1	7.6	52.5	AC-010 1FR 20000# [redacted]		✓	
12 JUL	ACME 30		0115Z 0119	0530Z 0525	6569	1	1	4.1	56.6	AC-011 1FR 5000# [redacted]		✓	
12 JUL	ACME 15		0830Z 0818	1130Z 1158	6567	1	1	3.7	60.3	AC-011A [redacted]		✓	
[illegible]	FUSTY 12		2315 2320	0150 0155	6567	2	1	2.6	62.9	AC-012 LIVE FIRE TWEEK OWNS/DEMO		✓	GEN M
[illegible] JUL	SUTRA 40		0350 0356	1415 1411	6569	1	1	10.3	73.2	AC-013 LL AIR REFUEL [redacted]	0810-1015	✓	FUEL [illegible]
[illegible]	[illegible]		0450 0348	141[illegible] 1[illegible]7	6570	1	1	[illegible].3	79.5	AC-014 VIDEO RECCE	[illegible]	[illegible]	

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G AC-130H (S) A

DATE	CALL SIGN	ACFT COMMANDER	ETD / ATD	ETA / ATA	TAIL NUMBER	LNDG	SORT	FLYING TIME	Cum TIME	MSN # + TYPE MSN	TOT	781	
16 JUL	SUFKIN 42	[redacted]	0350 / 0453	N/R / 1413	6567	1	1	9.3	88.8	AC-015 AIR REFUEL AIRBORNE SPARE	BOTH	✓	FUEL
18 JUL	CLOCK 15	[redacted]	2000 / 1955	2230 / 2230	6567	1	1	2.5	91.3	MSN AC-016 LIVE FIRE		✓	25mm
18 JUL	CLOCK 17	[redacted]	2100 / 2045	2330 / 2325	6570	1	1	2.7	94.0	MSN AC-017 LIVE FIRE		✓	25mm
19 JUL	KADAR 19	[redacted]	0030 / 0035	0430 / 0426	6567	1	1	3.8	97.8	MSN AC-018 [redacted] /NIGHT/AIR REFUEL	RZ 0244	✓	25mm
19 JUL	KADAR 21	[redacted]	0115 / 0116	0515 / 0516	6570	1	1	4.0	101.8	MSN [redacted] [redacted] /NIGHT/AIR REFUEL	RZ 0245	✓	25mm
21 JUL	RAZOR 41	[redacted]	0140 / 0135	0800 / 0750	6567	1	1	6.3	108.1	AC-020 CAS		✓	
21 JUL	RAZOR 42	[redacted]	0145 / 0139	0820 / 0758	6569	1	1	6.3	114.4	AC-021 CAS		✓	
21 JUL	RAZOR 43	[redacted]	0150 / 0150	0930 / 0900	6570	1	1	6.2	120.6	AC-022 CAS		✓	
22 JUL	GADGET 01	[redacted]	1400 / 1356	2128	6567	2	2	5.4	126.0	[redacted] REDEPLOYMENT		✓	
22 JUL	GADGET 02	[redacted]	1400 / 1401	2115	6569	2	2	5.2	131.2	[redacted] REDEPLOYMENT		✓	
22 JUL	GADGET 03	[redacted]	1400 / 1402	2120	6570	2	2	5.1	136.7	[redacted] REDEPLOYMENT		✓	

[redacted]

ZULU G 2 MC-130 E A

DATE	CALL SIGN	ACFT COMMANDER	ETD / ATD	ETA / ATA	TAIL NUMBER	LNDG	SORT	FLYING TIME	CUM TIME	MSN # + TYPE MSN	TOT	781	
6 JUL	KIND 24	[redacted]	A/R 1653	A/R 2053	0572	2	1	4.0	4.0	Deploy [redacted]		✓	
7 JUL	N/A	N/A	- -	- -	0572	-	-	-	4.0	MC-001 STATIC LOAD TNG		—	
7 JUL	N/A	N/A	- -	- -	0572	-	-	-	4.0	MC-002 STATIC LOAD TNG		—	
7 JUL	BEAR 22	[redacted]	A/R 1931Z	A/R 2330Z	Ø567	1	1	4.0	8.0	Deploy [redacted]		✓	
7 JUL		[redacted]	1421Z	2243Z	7785	2	2	(8.3)	16.3	Deploy [redacted]		✓	ENROU LAND
8 JUL	VINU 22	[redacted]	0300Z 0300Z	0700 0700	Ø572	4	1	4.0	20.3	MC-003 A/R TNG SHORT FLD OPS	CONDRON 0500-0700	✓	SATCO
8 JUL	VINU 22	[redacted]	0700 Ø730	0900 Ø919	Ø572	1	1	1.8	22.1	MC-004 SHORT FLD OPS	CONDRON 0700-0900	✓	ENG
9 JUL	GILES 37	[redacted]	0301 0258	0920 0807	Ø572	2	2	1.0	23.1	MC-005 BLIVET 21,000# COMBAT OFF LOAD	1151	✓	JUST # RECEIVER
9 JUL	GILES 42	[redacted]	0340 0330	1020 0755	Ø567	1	1	4.4	27.5	MC-006 BLIVET COMBAT OFF LOAD 21,000#	1230	✓	
9 JUL	—	—	- -	- -	7785	—	—	—	27.5	MC-007 STATIC LOAD TNG		—	MD-3
9 JUL	GILES 45	[redacted]	0530 Ø201	0730 Ø735	Ø564	2	2	5.0	32.5	MC-008 SHORT FLD OPS	0530-0730	✓	QT F ADMW
9 JUL		[redacted]	A/R 1830	A/R 2230	Ø564	1	1	4.0	36.5	Deploy [redacted]		✓	
9 JUL	GILES 28	[redacted]	A/R 1659	A/R 2040	EC-130 1818	1	1	3.7	3.7	Deploy [redacted]		✓	
9 JUL	GILES 26	[redacted]	A/R 1605	A/R 0119	1843	3	3	8.1	44.6	Deploy [redacted]		✓	INTERM
10 JUL	SANE 37	[redacted]	0230Z 0233	0700 0725Z	Ø572	1	1	4.9	49.5	MC-009 LL/IFR/[redacted]	OLD COE 0540 DROP AR 0355Z	✓	
10 JUL	SANE 42	[redacted]	0330Z 0330Z	0830Z 0400	1843	1	1	.5	50.0	MC-010 FORM AC-130, IFR, SHORT FLD OPS	CONDRON 0705Z AR 0455Z	✓	AIR AB FUEL
10 JUL	SANE 29	[redacted]	0630Z 0630	0930 0709	EC-130 1818	1	1	.6	4.3	MC-011 [redacted] SHORT FLD OPS	OLD COE 0730	✓	AIR AB (PREPE
10 JUL	SANE 30	[redacted]	0230Z 0300	0910Z 0846	7785	2	2	5.2	55.2	MC-012 BLIVET COMBAT OFF LOAD 21,000#		✓	LAND
10 JUL	SANE 33	[redacted]	0315Z 0316Z	1000Z 1000	Ø567	2	2	6.1	61.3	MC-013 BLIVET COMBAT OFF LOAD 21,000#		✓	

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MC-130 E (S) A

DATE	CALL SIGN	ACFT COMMANDER	ETD / ATD	ETA / ATA	TAIL NUMBER	LNDG	SORT	FLYING TIME	CUM. TIME	MSN # + TYPE MSN	TOT	781	(C) A
11 JUL	NINNY 23	[redacted]	0245Z / 0254	1045Z / 1135	7785	7	1	8.7	70.0	MC-014 ASST. LNDG LL/PER DROP/INFIL	DIVAD 0315, 0450 LZ DIVAD 0700, 1000Z	✓	
11 JUL	NINNY 26	[redacted]	0300Z / 0305	0800Z / 0705	1843	2	2	3.0	73.0	MC-015 LL/COMB. DROP, IFR	OLD COE 0330Z OLD COE 0530Z	✓	
11 JUL	NINNY 29	[redacted]	0335Z / 0335	1100Z / 1125	0564	7	1	7.8	80.8	MC-016 AIRDROP LL/[redacted]/INFIL	DIVAD 0400Z, 0615Z LZ 0750Z, DIVAD 1000Z	✓	
11 JUL	NINNY 21	[redacted]	0345Z / 0346	1120Z / 1205	0567	7	4	5.4	86.2	MC-017 AIRDROP LL/[redacted]/INFIL	DIVID 0403Z, 0703Z 0915Z, 1050Z	✓	
11 JUL	NINNY	[redacted]	A/R / 0515Z	A/R / 0615Z	1818	1	1	1.0	5.3	—	—	✓	FERRY EL PAO
12 JUL	COE 14	[redacted]	0245Z / 0245	1045Z / 1120	0572	10	1	8.6	94.8	MC-018 L/L/INFIL PER DROP/[redacted]	DIVAD 0315Z, LZ 0450Z DIVAD 0700, 1003Z	✓	
12 JUL	COE 15	[redacted]	0300Z / 0300	0545Z / 0552	1843	2	1	2.9	97.7	MC-019 IFR L/L COMBO DROP	OLD COE 0330Z, 0430, 0530	✓	TANK
12 JUL	COE 18	[redacted]	0335Z / 0730	1100Z / 1209	1843	4	2	3.2	100.9	MC-020 INFIL L/L [redacted]/AIRDROP	DIVAD 0400Z, 0703, 0915, 1050 LZ	✓	
12 JUL	COE 20	[redacted]	0345Z / 0420	1120Z / 1200	0567	8	3	6.2	107.1	MC-021 AIRDROP L/L [redacted] INFIL	DIVAD 0403Z, 0615 LZ 0750, 1000Z	✓	
12 JUL	COE 17	[redacted]	1800Z / —	A/R / —	0572	—	—	—	107.1	MC-022	—	—	OCF
12 JUL	TEST 01	[redacted]	A/R / 0118	A/R / 0258	0572	1	1	1.7	108.8	MC-022 OCF		✓	MX ADD
13 JUL	TEST 01	[redacted]	1700Z / 1721Z	A/R / 1850	0572	1	1	1.5	110.3	MC-024 OCF			FUEL 32
14 JUL	KILTS 69	[redacted]	0200 / 0155	0830 / 0810	0562	3	1	6.3	116.6	MC-023 VIP DEMO	0225/0250	✓	[redacted]
14 JUL	GROG 59	[redacted]	A/R / 1600Z	A/R / 1735Z	0572	2	1	1.9	118.5	MC-027		✓	OCF - TF
	GROG 59	[redacted]	A/R / 2229	A/R / 0056	0572	1	1	2.5	121.0			✓	OCF
15 JUL	NIPA 09	[redacted]	1400	16/2115	EC-130E 1812				SEE BAYON 15 09	MC-028 ADMIN SUPPORT	1615Z		RON-FA
15 JUL	BAYON 14	[redacted]	0405 / 0405	1345 / 1506	1843	2	2	10.4	131.4	MC-029 COMBINED DROP [redacted]	0640Z	✓	FULL RA
15 JUL	BAYON 13	[redacted]	0410 / 0413	1355 / 1445	0567	2	1	14.5	141.9	MC-030 AIR DROP + AIR LAND ASSIST	0645Z	✓	DOOR R
15 JUL	BAYON 11	[redacted]	0500 / 0502	1405 / 1420	0562	2	1	9.5	151.4	MC-031 AIRLAND [redacted]	0735Z	✓	DOOR RA

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MC-130E

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DATE	CALL SIGN	ACFT COMMANDER	ETD / ATD	ETA / ATA	TAIL NUMBER	LNDG	SORT.	FLYING TIME	CUM. TIME	MSN # TYPE MSN	TOT	781	
16 JUL	BAYON 12	[redacted]	0503 / 0507	1415 / 1456	Φ568	2	2	8.8	160.2	MC-032 AIRLAND [redacted]	0738	✓	DOOR RA REMOVED
16 JUL	BAYON 22	[redacted]	0517 / Φ526	1325 / 1400	Φ564			8.6	168.8	MC-033 FLIR PASS [redacted]	0734		SATCOM
16 JUL	BAYON 21	[redacted]	0520 / Φ525	1335 / 1405	Φ572	2	1	8.7	177.5	MC-034 FLIR [redacted]	0735	✓	DOOR REMOVE
16 JUL	BAYON 61	[redacted]	1830	2330	Φ572			—	—	MC-035 [redacted]		—	32m
[illegible]	BAYON 62		1900	0000	1857			-	—	MC-036 [redacted]		—	32m
16 JUL	BAYON 09	[redacted]	A/R 15/1400	A/R 16/2125	EC-130E 1318	5	5	9.9	15.2			✓	
17 JUL	WIDOW Φ1	[redacted]	1400E / 1545	1850	Φ567			—	—	[redacted] LOG		—	[redacted]
19 JUL	NAG Φ1	[redacted]	0030	0500	1843	1	1	4.1	181.6	MC-038 [redacted] IFR	0600	✓	32m FLI
19 JUL	NAG Φ2	[redacted]	0115 / 0110	0615 / 0509	Φ562	1	1	4.0	185.6	MC-039 [redacted] IFR	0600	✓	32m FLI 40 PAX
19 JUL	NAG-3Φ	[redacted]	1900 / 1910	A/R / 2245	Φ567	1	1	3.6	189.2	Deploy HRT. OLA		✓	
19 JUL	NAG 32	[redacted]	1930 / 1947	A/R / 0124	7785	3	3	9.2	198.4	Deploy [redacted] OLA			
[illegible]	NAG 33	[redacted]	2000 / 2100	A/R / 0115	Φ572	1	1	4.3	202.7	Deploy [redacted]		✓	
19 JUL		[redacted]	— / 1316	— / 1650	EC-130E 1825	1	1	3.6	18.8	Deploy [redacted]		✓	
19 JUL	—	—	— / 1412	— / 1916	EC-130E 1857	3	3	5.1	23.9	Deploy [redacted]			
21 JUL	SLOTH 11	[redacted]	0210 / 0210	0945 / Φ838	0564	2	1	6.5	209.2	MC-041 [redacted]		✓	36 PAX
21 JUL	SLOTH 12	[redacted]	0216 / 0216	0950 / Φ820	0572	2	1	6.1	215.3	MC-042 [redacted]		✓	33 PAX
21 JUL	SLOTH 13	[redacted]	0222 / 0220	0955 / 0835	0562	2	1	6.3	221.6	MC-043 [redacted]		✓	37 PAX
21 JUL	SLOTH 14	[redacted]	0228 / 0228	1000 / Φ906	1843	2	2	3.4	225.0	MC-044 [redacted]			40 PAX
21 JUL	SLOTH 15	[redacted]	0234 / 0234	1005 / Φ915	0568	2	1	6.3	231.3	MC-045 [redacted]			43 PAX

MC-130E

DATE	CALL SIGN	ACFT COMMANDER	ETD / ATD	ETA / ATA	TAIL Number	L N D G	S O & T	Flying TIME	Cum TIME	MSN # + TYPE MSN	TOT	TBL	
21 JUL	SLOTH 26	[redacted]	0240 / 0240	1010 / 0900	EC-130E 1818	2	1	6.3	2376	MC-046 [redacted]		✓	1 [redacted] 17 pax 3
21 JUL	SLOTH 27	[redacted]	0246 / 0246	1016 / 0852	EC-130E 1825	2	1	6.1	243.7	MC-047 [redacted]		✓	1 [redacted] 19 pax
21 JUL	DERRY 10	[redacted]	1830 / 1550	1940	1843	1	1	3.8	247.5	MC-048 Re-DeP			
21 JUL	DERRY 11	[redacted]	1845 / 1611	2100	0564 ~~7785~~	1	1	3.8	251.3	MC-049 Re-DeP			
21 JUL	DERRY 12	[redacted]	1900 / 1639	2131	7785 ~~0564~~	1	1	3.9	255.2	MC-050 Re-DeP			
21 JUL	DERRY 13	[redacted]	A15 / [illegible]	2225	0562	1	1	~~3.9~~	259.1	MC-051 Re-DeP			
21 JUL	DERRY 14	[redacted]	1930 / 1835	2235	0567	1	1	4.0	263.1	MC-052 Re-DeP			
21 JUL	DERRY 15	[redacted]	1945 / 1841	[illegible]	0568	1	1	3.8	266.9	MC-053 Re-DeP			
21 JUL	DERRY 16	[redacted]	2000 / 1810	2200	0572	1	1	3.8	270.7	MC-054 Re-DeP			
21 JUL	DERRY 17	[redacted]	2015 / 1852	2231	1857	1	1	3.6	274.3	MC-055 Re-DeP			
21 JUL	DERRY 18	[redacted]	2030 / 1745	2125	1818	1	1	3.7	278.0	MC-056 Re-DeP			
21 JUL	DERRY 19	[redacted]	2015 / 1850	2230	1825	1	1	3.7	281.7	MC-057 Re-DeP			

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HELICOPTER MISSION ACTIVITY

ACFT	SORTIES	DEPLOY	EXERCISE	REDEPLOY	TOTAL
433	11	13.1	6.5	8.8	28.4
647	17	10.2	33.7	8.6	52.5
648	35	0	92.6	8.8	101.4
649	10	12.5	10.3	8.7	31.5
650	48	0	136.4	9.5	145.9
651	24	10.2	53.3	8.7	72.2
652	21	0	39.8	8.6	48.4
790	8	13.4	7.1	-	20.5
791	36	0	78.2	8.8	87.0
SUBTOT	210	59.4	457.9	70.5	587.8
		SLICK			
431	13	13.1	21.3	9.1	43.5
432	29	13.2	40.4	10.0	63.6
786	10	12.6	13.9	-	26.5
795	29	9.8	67.6	10.0	87.4
SUBTOT	81	48.7	143.2	29.1	221.0
TOTAL	291	108.1	601.1	99.6	808.8

[redacted]

AFTER ACTION REPORT
HONEY BADGER

1. (U) AREA: Operations Planning

2. (U) TOPIC: Planning

3. (U) DISCUSSION:

a. (U)(S) Insufficient lead time for operations conducted to date led to inadequate detailed mission planning by all concerned. Tasking to the components was detailed too late to accomplish a proper plan of execution. Planning was provided to the components in a very sketchy form the day prior to execution with added details and numerous significant changes flowing continually up to the crew briefing prior to launch. Eleventh hour changes were verbal, which probably led to information loss. The best the aircrews can accomplish in this environment is to plan a safe execution for their type aircraft. Since the exercise involved four dissimilar aircraft types, CCT and ground force operating from three separate locations, on scene schedule changes compounded by severe communications restrictions can only lead to mis-coordination and unforeseen occurrances. Continuation of this late planning could result in a MAJOR MISHAP. We had a serious near miss (MC-130E BAYON 11/UH-60 on final approach 100') on 16 July. Preliminary indications from 16 July operations shows that numerous visual course changes had to be made to avoid other mission aircraft.

b. (U)(S) The problem was further compounded by the lack of pre-coordination with FAA, SAC, MAC, Range Facilities and various divert airfields and their control agencies. We thought pre-coordination had been accomplished but found that the coordination consisted only of a general agreement to support HONEY BADGER on a priority basis over a general time frame. This resulted in another eleventh hour rush to accomplish the necessary coordination. This approach fails to suffice for the execution and conduct of air operations when radio frequencies, specific time frame, range clearances and call signs are required. At a minimum, controlling agencies need to know when we will be using the airspace, be reassured that we are on listening watch on a pre-coordinated frequency for purposes of flight and range safety. We can do that coordination given sufficient time, accurate information and provided with access to communication channels that are useable and can reach the outside world.

4. (S) RECOMMENDATION: The obvious solution to the problem is to establish a Joint Mini-Control Group composed of experts in the necessary areas such as Comm, Logistics, FAA/ATC, and the various weapons/support systems, with these individuals reporting directly [redacted] This group would be responsible for necessary coordination with outside agencies, and for publishing an OPLAN, (containing CEOI, etc.), at least a couple of days prior to the OT&E/Exercise. As operations progress, the group could produce OPLAN changes/revisions on a timely basis, incorporating feedback from both the components and [redacted] Commander. Another possibility would be to [redacted] staff sufficiently to handle above mentioned tasks in addition to their "player" roles. The problems inherent in attempting both "player" and "controller" roles simultaneously make this the least desirable of the alternatives.

A

[redacted]

[redacted]

AFTER ACTION REPORT
HONEY BADGER

1. (U) AREA: Operations

2. (U) TOPIC: Air Component Headquarters

3. (S) DISCUSSION: The essence of success for the air portion of an operation such as RUSTY BADGER is derived from comprehensive planning and detailed coordination among all air elements. Diverse locations, dissimilar aircraft and absence of reliable secure comm between all air players, prohibit accomplishment of required level of planning and coordination. Establishment of a [redacted] North and a [redacted] South led to two Air Component Commanders. With the exigency of keeping to the time schedule, a coordination meeting between the two factions was scheduled but never held. The meeting would have helped to deconflict traffic and resulted in better coordinated effort.

4. (S) RECOMMENDATION: The Air Component should be a single headquarters under [redacted] with all air assets represented. For non Air Force assets such as Army helicopters and for assets only in support such as KC-135 tanker force, the headquarters representation should consist of one highly qualified liaison officer. For support forces, this liaison should be qualified in the aircraft and come from the MAJCOM or one of it's Numbered Air Forces. For air assets under OPCON of [redacted] OPCON should be exercised through the commander of the Air Component Headquarters.

[redacted]

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AFTER ACTION REPORT
HONEY BADGER

1. (U) AREA: Maintenance (Logistics).

2. (U) TOPIC: Daily Air Shuttle.

3. (U) DISCUSSION: The air support of the mission was absolutely essential and was well run. We could not have succeeded without it.

4. RECOMMENDATION: Continue the shuttle.

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HONEY BADGER

AFTER ACTION REPORT

1. AREA: Maintenance (Communications).

2. TOPIC: Non Tactical Secure Radios.

3. DISCUSSION: We have an urgent need for new radios in greater quantities. Recent deployments have proved that we operate Talons and Gunships in two separated areas and need double sets of radios. In addition, we had to provide a radio for the tower to help control vehicle traffic on the runway. The radios we had either failed totally or were not adequate to reach a relatively small distance and were not secured.

4. RECOMMENDATION: Must have a base station for Job Control and ten quality secure radios with range longer than three miles in maintenance.

HONEY BADGER

AFTER ACTION REPORT

1. (U) AREA: Communications.

2. ~~(U)~~ ~~(S)~~ TOPIC. Secure Communications Interface.

3. ~~(S)~~ ~~(S)~~ ~~(S)~~ DISCUSSION: During the OT&E, situations arose which required establishing secure comm with parties outside [redacted], SATCOM/KY-70/ Parkhill nets. The Pentagon interface was superb when interfacing KY-70 and other wide band systems, but simply [redacted] (such as the KY-3 system). Unfortunately, only MAJCOM, or higher, headquarters have wide band systems.

A, B

4. ~~(S)~~ ~~(S)~~ ~~(S)~~ RECOMMENDATION: Procure/establish some interface system that will permit secure communications [redacted] systems.

A, B

AFTER ACTION REPORT
HONEY BADGER

1. (U) AREA: COMMUNICATIONS

2. (U) TOPIC: HF COMMUNICATIONS FREQUENCY ASSIGNMENT (RUSTY BADGER)

3. (U) DISCUSSION: HF frequency assignments for the mission were in the 17-21 MHZ range. This frequency range is most useful for very long haul communications between the 1000-1400L time frame. Since all of the test missions were flown during nightime and early morning hours (2300-0800L) the assigned frequencies were unusable.

4. (U) RECOMMENDATION: Contact AFCC frequency management office Scott AFB, IL for a most usable frequency range by area and time of usage. Select assigned frequencies within that range for future missions.

AFTER ACTION REPORT
HONEY BADGER

1. (U) AREA: COMM

2. (U) TOPIC: COMSEC MATERIALS (RUSTY BADGER)

3. (U) DISCUSSION: COMSEC material guidance in terms of authenicators, encode/decode, and operations code were never provided. Supplied brevity codes, furnished a few hours before crew brief, were inadequate for passing desired information. This mandated utilization of AKAC [redacted] pass air operations information with non-secure transmissions. Supplied brevity code was oriented only to command and control mission deviation information.

4. (U) RECOMMENDATION: [redacted] coordination with components, detail COMSEC materials to be used or those available. The air component must be coordinated with to ensure thos safety of flight codes and command and control codes which the aircrew/CCT need are included.

AFTER ACTION REPORT
HONEY BADGER

1. (U) AREA: COMMUNICATIONS

2. (U) TOPIC: DETAILED COMM PLAN (RUSTY BADGER)

3. (U) DISCUSSION: There wasn't one. The much heralded CEOI arrived less than 24 hours prior to mission execution and proved totally inadequate. CEOI contained limited number of three place alpha numeric call signs totally insufficient in quantity of call signs and completely inappropriate for aircraft usage. Aircraft call signs must be pronounceable and not exceed five letters. Frequencies also arrived late, within 12 hours of execution, and were only listed by geographical area not function. This forced each unit to formulate its own comm plan and disseminate it to remaining players. Late receipt of above information created a time constraint precluding adequate coordination and deconfliction of comm plans. The combination of these factors ensured comm difficulties, confusion and absence of adequate communications. The implications for both safety and mission success are severe.

4. (U) RECOMMENDATION: Coordinate with components for CEOI and comm plan requirements. Disseminate in suffient time to allow components to develope unit comm plans to include air field traffic control and coordinate those plans with FALCON. A minimum of 3-4 days should be allowed.

[redacted]

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HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and/or technique to be tested:

a. The MC-130E Combat Talon aircraft should be equipped with a state-of-the-art fully integrated navigation system consisting of dual (redundant) inertial navigation systems (INS), Forward Looking Infrared (FLIR), and a Low-light Level Television (LLLTV). Additionally, cockpit displays require improvement to include the addition of a Heads-up display (HUD) at both pilot positions.

b. Present Combat Talon navigation systems include a single INS (LN-15J) which has an excessive drift rate (0.5-1.0nm/hour), when compared to todays modern inertial navigation systems, and a low mean-time-between-failure rate (70 hours, estimated). Additionally, Talon is equipped with the AN/ASN-153 Doppler (and AN/ASN-25 computer), which is not sufficiently accurate to suffice as an adequate backup system for the single INS, should it fail inflight, especially during terrain following/terrain avoidance (TF/TA) flight in mountainous terrain. Half of the Combat Talon fleet (7 of 14 aircraft) are equipped with the S-3A FLIR which has system limitations to include no capability to operate the system in the landing configuration (gear down). Combat Talon are not equipped with a Low-light Level Television, nor a HUD in either pilot position. A discussion of the systems proposed in paragraph a. above follows:

(1) INS: Recommend that Combat Talon aircraft be retrofitted with a dual state-of-the-art INS such as the Honeywell AN/ASN-136 Standard Precision Navigation/Gimballed Electrically suspended gyro Aircraft Navigation System (SPN/GEANS). [Air Force has selected this system for upgrading the navigation capability of the SAC B-52 fleet and over 720 systems have been ordered.] During recent testing the system has demonstrated drift rates on the order of 0.06nm/per hour (10 times the accuracy of the current Talon system) and an MTBF rate on the order of 1750 hours with a Mean-Time-to-Repair (MTTR) of 20 minutes. Combat Talon,in order to perform its mission,requires a highly reliable, self-contained navigation system that will permit autonomous operations and allow precision flight to an objective. The level of performance demonstrated by the SPN/GEANS system would permit little or no reliance on other navigation aids and would provide Talon with a truly enhanced self-contained capability. Such a system would provide improved land-fall accuracy after long-duration overwater flights, precision cueing during low-level penetration missions, highly accurate air drop and rendezvous capabilities, non-degraded performance during extended turbulent flight at very low altitudes, and overall increased operational flexibility. Additionally, this system should be integrated with other Combat Talon subsystems such as the doppler radar, FLIR, and ground mapping and TF/TA radar. Regardless of the INS chosen to upgrade the Combat Talon, general system requirements are as follows:

(a) The system chosen should have a 3-axis accelerometer. With dual systems, this would provide a redundant flight vector input to the TF computer and eliminate the need for an angle-of-attack system, improving reliability and simplifying operational checkflights. The systems should be fail-safed so as to automatically switch to backup in event of a component failure, and any combination of primary and secondary platform, computer, and control-indicator unit should be available. Programming by tape cassette should be possible, and the two systems should be separately programmable. Waypoint and radar capacity should be expanded (from the present 20) to 40 each in order to eliminate reprogramming. Waypoint programming should be checkable by displaying magnetic course and distance between any two specified points (similar to ASN-24 and ARN-131 computers). Steering programming should be basically as on the LN-15J, but modified so as to allow a combination of sequential and point-to-point steering. For example, the navigator should be able to program steering from 0 sequentially to 20 direct to 29 direct to 11 sequentially to 0 in one entry. Waypoints should be insertable as Lat/Long, UTM, or range/bearing from a given point. Present position and any waypoint or radar target should be readable as latitude/longitude coordinates, UTM coordinates, or range/bearing from a given point. Two sets of dest/data switches should be provided, one to control the radar cursors and one to control waypoint and radar target insertion/display. Radar and visual pos/fix procedures should be as on the LN-15J. The Kalman filter feature (as on the LN-15J) should be retained however, an "override" capability should exist so that when the navigator is positive of the accuracy of his chosen fix, the system will accept the fix at 100 percent value, thereby insuring position accuracy. The "Altitude calibration" feature of the LN-15J should be retained and its accuracy improved. Automatic Computed Air Release Point (AUTOCARP) options should be as on the LN-15J, with the exception that the LORAN C autocarp feature (4XX) should be eliminated and replaced with a variable delay beacon autocarp capability. Since non-sequential steering programming may be used, initial point (IP) and drop zone (DZ) designators would not need to be consecutive numbers. A drop wind should be manually insertable. The computer should be able to solve a 3-vector High Altitude Release Point (HARP) using INS or manually inserted winds for each vector as selected by the navigator Readout of Forward Travel Distance (FTD), Total Time of Fall (TTF), and drift should be possible as on the LN-15J. Interface with pilots HSI: same as on LN-15J except that pilot should be able to set leg course in the course window so that steering geometry is preserved. Range window should display INS distance-to-go instead of TACAN DME. The INS computer should be reprogrammable by tape using a portable programmer in the event of a computer program dump. With regard to INS tie-in to the AN/APQ-122V(8) radar system, an option should be provided as to whether DZ-up (physically seen at the top of the scope) radar stabilization will occur automatically, and this option should be able to select course-up radar stabilization without giving the pilot sensitive steering. Radar cursor sensitivity for autocarps should be lowered so that full cursor control deflection with the rate switch on "low" produces about 0.5cm/sec cursor travel on the scope face.

(2) FLIR: As discussed in par 1b, due to a shortage of systems, only half of the Combat Talon fleet is equipped with FLIR. All aircraft are wired to accept the system and the first recommendation would be to acquire additional FLIR sets. A present limitation of the FLIR, due to location in the aircraft (immediately aft of the nose landing gear door) is that the FLIR cannot be used when the landing gear is extended (down)- as would be the case when the aircraft is configured for landing. This limitation prevents use of the FLIR to positively locate and identify blacked out airstrips/landing zones in total darkness. Present technique used is to retract the FLIR well prior to configuring the aircraft for landing and for one pilot to use Night Vision Goggles (NVG) to execute the landing, as assisted by the other pilot (on instruments) and the navigators using the aircraft radar to perform an airborne radar approach (ARA). During recent Honey Badger joint training exercises, Talon aircraft were tasked to land at a large, blacked out, multi-runway airbase at night [redacted] A, B [redacted] further complicating the operation. Two aircraft made go-arounds as a result of these difficulties. This produced an unfortunate situation because one of the primary objectives of the joint training scenario was to land on one of two parallel runways at a predetermined time landing interval and sequence because of different loads to be delivered. The use of a FLIR (capable of being extended during final approach) or a LLLTV (addressed in par (3) below) could have prevented these go-arounds and enhanced the overall operation. Recommend the following actions be taken regarding the FLIR.

(a) Procure additional FLIR sets for those Combat Talon not equipped with the system.

(b) Relocate the FLIR turrent from its present position so that the system may be used with the landing gear in the down position or...

(c) install a small, forward-looking FLIR detector at some other location on the aircraft such as in one of the external pylon fuel tank bullnoses, to augment the existing system which would be retained for updating the INS (assuming a FLIR-INS interface, see par (e) below) and for airdrop and sea surveillance operations.

(d) Install a high-intensity IR light source at a location on the aircraft (e.g. the other pylon fuel tank bullnose) that could be used in conjunction with the additional FLIR detector mentioned above.

(e) Modify all existing FLIR sets with a radar interface capability, which would allow the navigator to position his radar cursors on a target and have the FLIR slew to a position so as to view that target or, conversely, slew the FLIR to view a visual target and have the radar cursors follow in like fashion. Previous testing of the first capability mentioned has been accomplished as far back as Feb 1977 and production/installation of the interface unit is still

awaiting funding.

(f) Modify the navigator's station in the Combat Talon as follows:

1 Remove the LORAN C equipment from the aircraft and reposition the FLIR monitor and controls to the left navigator's position.

2 The left navigator should be given a duplicate set of the right navigator's radar cursor control (or a single control moved to a central location) so that the left navigator may operate the FLIR when it is tied to the radar cursors.

(g) The FLIR system, if boresighted, could provide a secondary, [redacted] in areas where the [redacted]

(3) LLLTV: If it is not feasible to relocate the existing FLIR turret as addressed in par (2)(b), another solution would be augment the FLIR system with a chin-mounted LLLTV, that would permit, among other operations, acquisition and tracking of an intended landing area through the entire approach-landing/touchdown sequence. Suggested location for the LLLTV would be directly under the aircraft nose radome (chin-mounted). The LLLTV system should have a [redacted] and a laser range finder capability. Addition of this system would greatly increase our ability to positively locate and identify blacked out airstrips/landing zones. The GLINT could be used during the approach phase, in conjunction with NVGs, to locate the touchdown zone of the airfield.

(4) HUD: Current techniques [redacted] approaches/ landings are as described in par 1(b)(2). The pilot on NVGs executing the landing (left seat) is presently unable to monitor flight instruments due to the fact that his NVGs are focused at infinity (outside the aircraft). Present generation NVGs are manually focused for near or distant vision. Third generation NVGs will eventually have an automatic focusing capability. The pilot in the right seat must continually cross check several flight instruments during the descent phase and call out airspeed and rate of descent to the pilot in command. The navigator calls out distance to touchdown (as determined from his radar) and height above ground (as determined from the INS). Addition of a HUD, capable of normal and IR light operations, in both pilot positions, would greatly facilitate [redacted] operations, streamline instrument crosscheck procedures, and enhance flying safety. The HUD should display the following flight parameters as a minimum:

(a) airspeed (indicated)

(b) vertical velocity

(c) altitude (MSL/AGL)

(d) bank & pitch angle

(e) steering/track angle

A system similar to the Electro Viewing system (EVS) used on the B-52 would be a possible candidate system. Dual screen capability (both pilots) is desired.

2. Desired Goal: Addition of the systems desired in paragraph 1 above would provide a quantum jump in the capability of the aircraft to navigate precisely and reliably to a specified drop or landing zone and perform the assigned insertion or extraction mission under conditions of [redacted] using an integrated, self-contained navigation system [redacted]

3. Applicable conditions: e.g. lighting, density, altitude, temperature, etc: Total darkness.

4. Results: N/A

5. Recommendations: As per par 1 above

6. Additional Remarks: Combat Talon aircraft have been in service since 1964 and the aging process has been accelerated by considerable service in Southeast Asia. The current single INS represents 1960s technology, fails excessively, and is not capable of the degree of accuracy required for the UW missions of the 1980s. The lack of FLIR and LLLTV (and any other devices designed specifically for conditions of darkness) further debilitates our capability to perform night landing operations safely and effectively. Since it is envisioned that the basic C-130 airframe of the Combat Talon will remain with us for the immediate (and distant) future, it is imperative that our night capability be enhanced with systems that are extant and as described in the preceding paragraphs.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and/or technique tested: MC-130E Combat Talon Avionic Intermediate Maintenance Shop Capability. System consists of three trailers each capable of deployment on a slick C-130 aircraft. Trailers have not been updated to state-of-the-art since early 1970's. One trailer for radar/navigation, one for ECM, one for Comm/Nav. Trailers are climatically equipped (air conditioning/heat) powered by generators.

2. Desired Goal: Shop capability required when operating bare base and away from supply system. Additionally, removing and replacing black boxes is not a total solution. State-of-the-art electronics is adaptable for quick fix/repair/alignment/fine tuning in the shop. Latest HONEY BADGER exercise showed degradation of electronic subcomponent leading to PMC (Partial Maintenance Capability) status as time went on. Trailer capability could have reversed this trend.

3. Applicable conditions: e. g., lighting, density, altitude, temperature, etc.: Avionics Trailer Maintenance provides a much needed shop capability for bare base operations, and is especially suited for future JTD or RDJTF operations. During Exercise RUSTY BADGER and GRIZZLY FUR, requests for parts were sent directly to the parent wing at Hurlburt. This luxury of daily support here in our CONUS location tends to engender a false sense of security. It must be realized that things would be very different if we operated overseas at an isolated location. An Avionics Shop Repair Capability would alleviate requirement for daily avionics parts replacement, and would provide on-site capability for calibration and alignment.

4. Results: Trailers were deployed in early 1970's to JCS Exercises FLINTLOCK, (UK, 1971), and JACK FROST, (Alaska, 1973). The trailer units operated as designed, and afforded a shop capability and a shirt sleeve working environment in very adverse climatic conditions.

5. Recommendations: Return trailers presently located at 1 SOW Hurlburt Field FL to custody of Det 4 AFLC Ontario, California to be refurbished and brought up to date. Trailers should be kept at Det 4 AFLC and be made available for world wide deployment by MAC airlift. Each trailer constitutes one C-130 load.

6. Additional remarks: Cost effective, as trailers and partial systems are already available. MC-130E Combat Talon Avionic/Electronic system effectiveness would be greatly enhanced when operating from bare base locations. Specifically suited [redacted] or RDF concept of bare base operations.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment and/or technique to be tested: DUAL RAIL SYSTEM/EWO Equipment Rack modification. Requirement exists to modify the cargo compartment of all Combat Talon aircraft to provide an additional eighty (80) inch extension of the Dual Rail System to accommodate two (2) additional locks. and possibly three (3), depending on area required for ratchet and simul controls. To accommodate the needed dual rail modification. the present equipment racks must be re-designed/moved to provide the eighty (80) inches of space. Additionally, the EWO/RO console itself may have to be reconfigured/moved.

2. Desired Goal: Installation of a modified dual rail system with an additional two and possibly three (3) locks. This modification will enable the cargo compartment to carry and airdrop loads in the 30,000 pound class with fuel load and C.G. limitations required to support HONEY BADGER missions. Present rail system limits load weight to 20,000 pounds (even though the cargo compartment is not cubed out). Reason is the insufficient number of locks to restrain the load and the floor positioning of the load within the crew compartment.

3. Applicable conditions: Present HONEY BADGER concepts require the long range penetration and air delivery of cargos in the 27,000 pound weight class, rigged on 20 foot pallets. With the present dual rail system, we are unable to takeoff (Rear C.G. out of limits), and even less able to fly long distances and airdrop the load.

4. Results: With present rail system installed in Combat Talon aircraft, we were unable to test, evaluate and validate certain concepts required to support HONEY BADGER scenarios.

5. Recommendations: Modify Dual Rail System on Combat Talon aircraft to provide an additional 80 inches and 2 - 3 more locks.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique to be tested:

Requirement for dual UHF and/or FM secure capability on MC-130E aircraft.

2. Desired Goal: To modify MC-130 type aircraft to allow simultaneous use of UHF/FM secure or either dual UHF or dual FM transmissions/ receptions. Additionally, the FM/UHF radios must be capable of transmitting/receiving Data Burst message traffic.

3. Applicable conditions: Night and/or adverse weather in a clandestine environment in either a TF/TA operation mode or other modes of operation.

4. Results: During Honey Badger OT&E there were times when the MC-130 aircrews were required to monitor/talk with ground controlling parties and airborne command/control or strike (AC-130) aircraft. Aircrews were required to maintain formation integrity (proper landing sequences and/ or timing separation) by effecting interplane comm. With the present radio set up, the aircrews had to time share in each mode of operation by constantly changing from UHF secure to FM secure, or making non-secure radio calls when the other system was in use receiving critical information. Additionally, certain FM freqs are unusable when operating in the TF/TA mode. Any transmission causes a fail/fly-up indication on the pilots CDI due to interference with the TF receiver.

5. Recommendations:

a. Modify MC-130 fleet with dual secure FM/UHF capability.

b. Ensure modified UHF/FM radios are capable of receiving/transmitting Data Burst.

c. Correct FM signal interference which cause fails/fly-up when operating in TF/TA modes.

6. Additional remarks: None.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment and or technique tested:

Internal modified Benson Tank System (evaluated earlier as part of other project).

2. Desired Goal: To have sufficient Benson Tank Systems and spares for Talon aircraft assigned (TAC and PACAF).

3. Applicable conditions: All deployment/redeployments and night/adverse weather clandestine situation (during certain tactical ops).

The addition of the modified Benson Tank System to Talon fleet will enable MC-130 aircraft to make inter-continental deployments when tanker support is unavailable or their use would be inadvisable. Also, in the tactical mode the addition of Benson Tanks will allow greater operational ranges or provide refueling support to other air frames (HH-53s and etc.).

4. Results: Presently there are two modified sets of Benson Tanks and fittings/etc. for a third. The use of the modified Benson System proved very effective in earlier evaluations.

5. Recommendations:

a. Seven (7) modified Benson Tank Systems be provided immediately to 1 SOW (six (6) operational, one for each assigned aircraft and one (1) spare).

b. Five (5) modified Benson Tank systems be provided at a latter date to PACAF (one system for each aircraft plus a spare).

6. Additional remarks: Presently aircraft 559 is in PDM at Det 4, LAS for IFR modification and proto-type fitting of external refueling pods. If this system proves feasible additional air frames will be modified. Talon assets with this capability will be able to In-Flight refuel the HH-53/CH-53 Helo presently assigned, during deployments and infiltration missions. As such the Wing will require the Benson Tanks to support this concept.

[redacted]

HONEY BADGER OT&E ACTIVITY REPORT

(C) 1. Concept, equipment, and or technique to be tested:

A [redacted]

(C) 2. [redacted]

A

A (S) 3. [redacted]

(U) 4. Results: During the Honey Badger OT&E, White Elko lights (visible spectrum) were used to mark DZs and LZs. Although effective, the use of visible light source would compromise the DZ/LZ location if observed by unfriendlies.

(C) 5. Recommendations:

A [redacted] with the characteristics described above be immediately procured. If said Emitters do not exist that accelerated development/ procurement commence.

(C) 6. Additional remarks: As an interim fix, [redacted] of sufficient

A intensity/range be sought which can be operated by the DZ/LZ crew. Also, the proposed [redacted] must be portable and small enough to allow a single paratrooper to carry sufficient [redacted]

[redacted]

HONEY BADGER OT&E ACTIVITY REPORT

(U) 1. Concept, equipment, and/or technique to be tested: A small computer for use in mission planning for Combat Talon low-level missions. This computer would have to be small enough and light enough for deployment to FOLs. [redacted] for each one tenth to one twentieth of a square nautical mile for the entire area of operations. The resultant product would allow for undetected penetration of a hostile area. The computer would be used by the mission planner utilizing an electronic designator and a large 1000 line per inch resolution tablet. Additionally, the computer could provide flight plans, fuel plans and strip charts as an incidental function. The following equipment would be required to provide such a system. Estimated costs are as shown:

Unit	Estimated Cost
1/Micro-Computer (Example: Apple III)	$5,000
2/Disk drives (Floppy Disks)	1,500
1/Cathode Ray Tube (CRT) Display	800
1/High Speed Dot Matrix Printer	2,500
1/40" x 60" input tablet (1000 lines/inch)	Unknown
2/Hard Mass Disk Storage Units (Example: Corvus)	5,000
Software*	5,000
Total Cost	$19,800

* Requires close coordination with users to assure system performs as desired.

Equipment above would have to be capable of being moved by aircraft. Estimated total system weight 500 - 750 lbs. The EWTAP computer system (Walter V. Sterling Corp) presently under study for Air Force users is not acceptable as it will not perform sufficient terrain masking calculations, cannot compute data for AGL flying operations (as performed by Combat Talon) and is not sufficiently transportable for special operations/FOL locations. The suggested technique for using this system is as follows:

Step 1 - A standard aeronautical chart of the area of operations is taped on the 40" x 60" input tablet.

Step 2 - The computer is given (via keyboard and electronic designator) the coordinates (latitude/longitude) of the two corners of the chart.

Step 3 - The computer asks for the required floppy disks of terrain data for the indicated area. This data then goes into hard mass storage disks.

Step 4 - Computer asks for the proper electronic order of battle (EOB) floppy disk.

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Step 5 - The operator inputs the Terrain Following (TF) altitude for the proposed operation, airspeed, type aircraft and other pertinent flight data.

Step 6 - The computer calculates three types of areas for the entire area of operations, based on all the emitters in the EOB. These areas are:

a) [redacted]

A

c) Areas where the aircraft cannot [redacted] (This calculation will take approximately one hour).

Step 7 - Using the designator, the operator inputs the way points of the flight profile into the computer.

Step 8 - Computer provides flashing dot on CRT to tell mission planner where his position figures out and prints a flight plan in the proper format.

Step 9 - Computer will figure out and print a fuel plan for the mission.

Step 10 - Flight profile strip charts can be produced if desired.

Using either 400 data points per square mile (desired) or 100 data points per square mile, the following estimated numbers of Diskettes (software) would be required to support flight planning operations in the following countries:

400 Data Points	Country	100 Data Points
45,560	Asia	11,390
25,120	N. America	6,280
18,320	S. America	4,580
10,200	Europe	25,500
7,923	Australia	1,981
520	Spain	130

The above numbers were calculated using 150K/diskette. Defense Mapping Agency could be queried for terrain data for the area of operations in question. Formula for calculation of the numbers of diskettes (computer software) required for each operation is: Square miles x 400 (data points) divided by 150,000. In summary, software production would require the greatest amount of developmental effort in this suggested computer system.

2. Desired Goal: To improve the reliability of Combat Talon mission planning and significantly shorten the time required to plan a mission from the present 48 to 72 hours required to manually plan the mission to approximately 1 to 2 hours At present, Combat Talon missions require a lengthy threat analysis to determine

A the enemy order of battle and then development of a mission profile that will [redacted] that will give the mission a reasonable chance of success. In short, Combat Talon is not a quick response force and this computer would enhance response time.

3. Applicable conditions: e.g., lighting, density, altitude, termperature, etc.: Ground operations for pre-mission planning. No excessive cooling requirements, as suggested unit is self-cooling. Room temperatures to 100°F do not adversely affect these systems. Power requirements will be 120 volts, 60 HZ current (standard house current).

4. Results: NA.

A 5. Recommendations: That one full system be bought and the required software be developed in close coordination with the using units [redacted] to assure system performance. If system tested proves adequate, suggest 3 - 4 additional systems be purchased for all Combat Talon units.

6. Additional remarks: This suggested test has crossfeed potential to any unit (e.g. F-111 units) that must deploy and then penetrate at low altitude to accomplish it's mission. Use of this system would improve operations security (OPSEC) and compartmentalize details of a particular operation as fewer agencies would have to be queried for information pertaining to a particular area. Point of contact regarding this proposed system is

G [redacted]

HONEY BADGER OT&E ACTIVITY REPORT

1. (S) Concept, equipment, and/or technique to be tested: Requirement to modify and retest Dynafix ECCM System for Combat Talon AN/APQ-122 radar. System was designed and only partially tested in 1977/1978. Combat Talon's [redacted] may be found in third world countries.

2. [redacted] is designed, partially tested and requires minor modifications and test of modified equipment (flight test) against [redacted]

3. (S) Applicable Conditions: e.g., lighting, density, altitude, temperature etc.. System, once modified, could be tested at Eglin [redacted] to initially prove equipment. Further testing would be required in mountainous terrain (such as Nellis ranges) to prove ability to: [redacted]

4. (S) Results: Two sorties using [redacted] were encouraging but not conclusive since problems in the equipment necessitated minor engineering changes. The contractor has since then, designed an engineering change, known as a [redacted] Original contract for one production prototype system expired in April 1980.

5. (S) Recommendations: Airstaff direct AFLC/MAZ/LOD to retest modified [redacted] and supply appropriate funding. Estimated cost from contractor is 50-60K to modify system. New contract is required. Return of all [redacted] Line Replaceable Units (LRUs) from storage location at LAS, Ontario, CA to [redacted] for modification. Estimated time to modify - 7 days. Drawings for group A wiring/connectors are located at LAS Ontario. Group A wiring/connectors are located on one Talon aircraft (original test aircraft in 1978), tail number [redacted] Removal of wiring/connectors from this aircraft and shipment to CONUS could save considerable time. Direction to USAFTAWC (and appropriate test plan) to test [redacted] Coordination to test system against [redacted] (level terrain) and Nellis (mountainous terrain) is required. Assistance from LAS Ontario in providing airborne videotape instrumentation of the testing is also required. Once testing complete, and if successful, recommend retrofit of Talon fleet (14 aircraft) with [redacted]

[redacted]

(C)
5. (S) ADDITIONAL REMARKS: Previous background:
1976 - [redacted].

1978 (July) - Two sorties flown [redacted]; some engineering changes required. Test partially successful.

10 Dec 1979 - [redacted]

7 Mar 1980 - 1SOW/DO letter to 9th AF/DO requesting further testing.

18 Mar 1980 - 9th AF/DO letter to TAC/DOR restating our requirements for further testing. (No action to date).

26 Jun 1980 - 1SOW meeting (second meeting) with [redacted] and Combat Talon representatives to discuss continuing requirements to test modified Dynafix system.

Once tested, and if successful, estimated production cost for sixteen systems (14 Talon aircraft plus 2 spares) to include test equipment and technical data, but not Group A wiring is 1.8 million dollars. [redacted] is currently refiguring production costs. Once all testing complete, [redacted] estimates they could have eighty percent of Talon fleet (11 aircraft) retrofitted with Dynafix in nine months.
SRL point of contact: [redacted]

[redacted]

HONEY BADGER OT & E ACTIVITY REPORT

CONFIDENTIAL

1. (U) (C) Concept: To determine the effectiveness of the AC-130H Fire Control System on unimproved surfaces and under desert type environment.

2. (U) (C) Desired Goals:

A. The ability to operate from unimproved areas.

B. To provide better interface with sensor/navigation systems.

C. Decrease target acquisition time.

3. (U) (C) Applicable Conditions:

The current fire control computer is a digital, tube type using 1960 technology. The system must be treated gently to preclude the computer from dumping part or all or its program, or damaging some tubes. There is currently no way to reprogram the computer during flight. If the system dumps, it must land to be programmed. It is also impossible to determine if the computer has dumped a portion of the program until firing geometry is achieved and rounds expended.

4. (U) (C) Results:

On two specific live fire missions the computer could not solve the fire control problem. It is unknown at the present if the computer dumped some of its program or the turbulance associated with unimproved short field or desert environment caused the problems.

5. (U) (C) Recommendations:

Replace the current fire control computer with a solid state, easily programmable, newer generation computer with increased memory storage. New system must be programmable in flight.

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HONEY BADGER OT & E ACTIVITY REPORT

CONFIDENTIAL

1. (C) Concept: To determine the cability of the AC-130 to operate in a clandestine environment using a single secure speech system (KY-28).

2. (C) Desired Goal: To show that the AC-130 can operate effectively in a clandestine environment using a single secure speech system.

3. (C) Applicable Conditions: Night, clandestine operations.

4. (C) Results: The results from training flights on 10, 11, and 15 July 80 proved to be unsatisfactory. With the single secure speech system (KY-28) present on the AC-130, the crew is forced to operate in either the UHF or the FM frequency band, not both simultaneously. With the ground parties and other mission aircraft often operating on both secure UHF and FM simultaneously, the AC-130 crew is forced to choose which frequency band to monitor. This is completely unacceptable if the AC-130 is to effectively perform its mission. Also, sensor operators in the booth of the AC-130 do not have the capability to monitor secure FM. This results in an increase in crew communications, and, hence, a delay in AC-130 reactions to ground parties' requests. This problem jeopardizes the very success of the mission.

5. (C) Recommendations: The AC-130 requires two (2) secure speech systems to allow the crew to monitor both the UHF and the FM frequency bands, simultaneously. Also, the interphone system in the booth of the AC-130 needs to be modified to allow the sensor operators to monitor secure FM.

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HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Use of PAVE LOW in a Pathfinder role. Demonstrated capability to use PAVE LOW helicopters as the pathfinder in desert and mountainous terrain for both the HH-53 B/C Slicks and the UH-60 Black Hawk.

2. Desired Goal: To allow additional aircraft to benefit from the PAVE LOW's capability for terrain following and terrain avoidance (TF/TA) during night low level navigation missions. This concept required absolute formation discipline and use of night vision goggles (NVG) to maintain position; and comm-out procedures are desired.

3. Applicable Conditions: Moon illumination was as low as zero and altitudes were flown up to 10,000 feet MSL. Formation cells varied from two to four ships with combinations of Slick HH-53 and Black Hawk.

4. Results: Successful.

5. Recommendations:

a. Improved exterior IR lights are needed for positioning and signals while in formation. The Black Hawks and any other helo should be fitted with "SLIME" and blade tip lights to assist in maintaining proper formation position.

b. Must practice formation break-up and rejoin procedures that might be caused by inadvertant weather penetration or other unfavorable conditions. More than two helos flying close formation in the weather is not recommended regardless of available lighting due to the instability of individual aircraft.

6. Additional remarks: N/A

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Extended Range Low-Level Navigation. Demonstrated capability to fly PAVE LOW helicopters over extremely long distances at low-level while using terrain masking to avoid detection by enemy defenses.

2. Desired Goal: Establish radius of action in excess of 500 nautical miles for the H-53s by using ground/aerial refueling, 650 gallon external tip tanks, and/or three internal auxiliary fuel tanks. Evaluate aircrew fatigue factors when operating over such extended ranges continuously below [redacted] absolute altitude.

3. Applicable conditions: Moon illumination was as low as zero and [redacted]

4. Results: Successful.

5. Recommendations: Improved facilities are required to alleviate aircrew fatigue during such long range missions. This is especially true for the gunners/scanners who must stand near the door and windows in the cargo cabin for long periods of time. Incomplete tests were conducted by using padded stools and chairs plus regular bed mattresses.

6. Additional remarks: These long range missions conclusively proved the PAVE LOW's superior capability for precise navigation and terrain masking without severely taxing aircrews with the usual map reading and visual obstacle avoidance duties.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Ground Refueling from CH-47 and/or Blivets. Demonstrated capability to rapidly refuel HH-53s in remote areas while avoiding unwanted attention.

2. Desired Goal: Extend maximum range of HH-53s when aerial refueling is not available or feasible.

3. Applicable Conditions: Conducted comm-out and blacked out at night while using NVGs for all crewmembers, marshallers, and refueling crews.

4. Results: Successful. Single point refueling was accomplished through the extended air refueling probe as an added safety factor. Two different adapters were needed due to configuration of the CH-47 hose.

a. The "Marine Adapter" was used to convert an over-the-wing nozzle for single point use.

b. The "Probe Adapter" allows single point refueling through the air refueling probe.

5. Recommendations: Need expedited delivery of both the Marine and probe adapters to equip each assigned HH-53.

6. Additional Remarks: Refueling speed is a function of personnel training and proficiency.

SECRET

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Extensive Night Vision Goggle (NVG) Operations. Demonstrated capability to accomplish all mission tasks from initial takeoff through final landing during the hours of darkness.

2. Desired Goal: Conduct night operations including taxi, takeoff, air refueling, ground refueling, low-level navigation dissimilar formation, and remote area approaches/landings without the use of normal landing or search lights.

3. Applicable Conditions: Moon illumination varied from 80 percent down to zero.

4. Results: Partially successful.

a. Currently using "LIDS" (close-out curtains) which prevent cockpit glare from distracting/blinding the pilot flying the helicopter. Unfortunately the LID reduces the pilot's field of vision and can only be satisfactorily installed around the right seat.

b. Present searchlight filters consisting of IR paper between two pieces of clear glass "burn out" frequently due to heat buildup. This allows white light to be detected by the naked eye; and any light so adapted cannot be used by the aircrew unless they are wearing NVGs.

c. Presently available NVGs become very heavy and fatiguing when worn for extended periods on long range missions.

5. Recommendations:

a. Continue to evaluate and improve installation of Electro-luminescent (EL) cockpit lighting which eliminates glare and allows NVG operation without the LID.

b. Install dual IR illuminators (one for each scanner) to provide adequate controllable light sources for hover/landing operations without negating the availability of normal landing and searchlights when not using the NVGs.

c. Expedite development and delivery of third generation NVGs which are much lighter in weight and function satisfactorily with much lower illumination levels.

d. Develop a suitable method to reduce weight of present NVGs to reduce neck strain and fatigue during extended range missions. Crews successfully experimented with elastic bands fastened to overhead fixtures in the cockpit.

6. Additional Remarks: Completion of the above recommendations would allow all crewmembers to function on NVGs simultaneously and greatly improve crew coordination.

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HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

"Dust out" landings at night using NVGs. Demonstrated capability to land a single helicopter or formations in extremely dusty landing zones (LZs). Techniques varied from roll-on landings at groundspeeds well above translational lift to a vertical descent from 50-100 feet AGL while using the hover coupler.

2. Desired Goal: Safe, expeditious night landings for infil/exfil.

3. Applicable Conditions: Moon illumination was as low as zero. Various combinations of standard "Y" lighting system, radar beacons, IR illumination, night vision goggles, and the FLIR were used to locate, identify, and approach the designated LZ.

4. Results: Partially successful.

a. Swiveling of the HH-53 nose wheels while rolling slowly across soft terrain caused problems. Nose tires blew out on several occasions when they were pinched away from the rims after the nose gear cocked 90 degrees during roll-out. The most serious incident involved aircraft damage when the nose strut collapsed and tore out the cockpit floor under the flight engineer's seat.

b. Total brown out conditions were frequently created by the excessive HH-53 rotor downwash. This sometimes necessitated an instrument go-around by the HH-53, and often prevented Black Hawk landing due to complete loss of visual references.

5. Recommendations:

a. Develop a nose gear centering mechanism for the HH-53 to insure proper position prior to roll-out landing. The nose gear often becomes "cocked" if the aircraft moves slightly during liftoff and remains in that position without the aircrew's knowledge. This is generally not serious when landing on a hard surface, but becomes a definite hazard in the soft desert sand.

b. Install a nose gear locking device similar to that on the H-3 helicopters. Such a device would preclude turning of the nose wheels on soft terrain during rolling landings or slope landings. It would drastically reduce the potential for blown nose tires and/or collapsed nose struts.

c. Must continue to practice and develop procedures for safely landing all aircraft in a formation during extremely dusty conditions. Possible solutions include greater distance between landing aircraft on large LZs or establishing spacing between formation aircraft over a known point such as the IP to allow time for the dust to clear before each subsequent aircraft begins its approach.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

High Altitude Heavyweight Operations. Demonstrate capability to operate the HH-53 helicopters in excess of current technical order gross weight limitations.

2. Desired Goal: Operate at gross weights up to 47,500 pounds to provide extended range and/or increased payload capability.

3. Applicable Conditions: Conducted at night under varying illumination conditions and tested all flight regimes including low-level navigation, air refueling, and remote area operations.

4. Results: Successful.

5. Recommendations:

a. Modify all assigned Slick HH-53 B/C helicopters with - 7A engines at the earliest opportunity to improve performance and capability.

b. Install "Low Stress" main rotor blades on all assigned HH-53 helicopters at the earliest possible opportunity.

c. Establish a program to strengthen the tail boom and landing gear support structures on all assigned HH-53 helicopters. Marine and other RH-53 helicopter have already been modified.

6. Additional Remarks: Testing conducted in this area was not extensive enough to determine if continuous heavyweight operations would cause any abnormally high component failure rates and/or fatigue/stress failure problems. Follow-on heavy-weight testing should be conducted under strictly controlled conditions and increased inspection requirements.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Camouflage/Concealment Techniques. Demonstrate capability to prevent detection of H-53 helicopters while parked in a desert or mountainous environment.

2. Desired Goal: Conceal H-53s from high speed reconnaissance aircraft.

3. Applicable Conditions: Full daylight under optimal VMC.

4. Results: Incomplete. Only one exercise was conducted using a Slick HH-53B. Unable to conduct further testing due to other mission commitments and a lack of sufficient camouflage equipment.

5. Recommendations: Obtain additional camouflage equipment and complete the testing at earliest possible convenience.

6. Additional Remarks: N/A

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Landing Zone Radar Beaconing. Demonstrate capability to use PAVE LOW TF/TA radar to locate a remote landing zone identified/marked only with a beacon.

2. Desired Goal: Elimination of visual markings and/or voice communications when using remote landing zones.

3. Applicable Conditions: Moon illumination was as low as zero.

4. Results: Partially successful. Because the beacons are a line-of-sight device, detection varied from very close range to in excess of 17 miles on one occasion.

5. Recommendations:

a. In hilly or mountainous terrain, the beacon should be placed on the highest point in the area as an offset with distance and azimuth to the LZ known by the aircrew.

b. On flat desert terrain the beacon should be elevated above ground level by any available means such as simply taping it to a short stake. Only a few feet of elevation will significantly increase detection range because of the extremely low altitudes being flown by the helicopters during their approach into the area.

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FORMAT

HONEY BADGER OT & E ACTIVITY REPORT

1. (U) Concept, equipment, and or technique tested: Evaluate tactical communications support of Air Force component.

2. (U) Desired Goal: Reliable, secure tactical communications from Air Force component Headquarters to:
[redacted]her higher HHq.
2) Lateral components.
3) Subordinate headquarters (FOLs).
4) Airfield locations.
5) Tactical airborne aircraft on secure HF/UHF/FM.

3. (U) Applicable conditions: e.g., lighting, density, altitude, temperature, etc. Required under all environmental/meteorlogical conditions.

4. (S) Results:
A. Communications to non-collocated higher and subordinate headquarters were provided by SATCOM which was excellent except during net saturation prior to Rusty Badger and during Rusty Badger/Grizzly Fur execution. There was no intel traffic.
B. Communications to colocated elements such as [redacted] was provided by TAC Switch with excessive line loss and was non-secure. Unsatisfactory.
C. Communications to airfield Job Control was provided by Parkhill secured class C telephone line which was excellent. Need for added secure line to airfield tower was evident.
D. Communication with aircraft on secure UHF/FM/HF was generally unsatisfactory.
1) FM secure - excellent.
2) UHF secure - did not have.
3) HF secure - inadequate; only 20 watts with limited frequencies. (Only three contacts on Rusty Badger, all within 20NM).

5. RECOMMENDATIONS:
A. Provide [redacted] each component with two SATCOM terminals. With separate geographical locations, net usage indicated it would not sustain the addition of INTEL traffic.
B. Provide Air Force component with minimum of two secure land lines (Parkhill or Broad band UHF channels) to airfield for communication with Job Control and tower.
C. Ground to air secure HF/UHF/FM communications. This is an essential requirement to handle aircraft flow, emergencies, and ensure aircraft have functional equipment. Additionally it provides primary or backup command and control capability for deployment and enroute flight operations.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and/or technique to be tested: AN/AVS-6 Night Vision Goggles (NVGs). Limited number of pre-production prototypes currently available at ITT, Electro-optical Products Division, Roanoke, VA. Current HONEY BADGER concepts/missions require operations under blackout conditions to include assault landings by Combat Talon aircraft. Presently used AN/PVS-5A NVGs have operational limitations which are addressed in para 3 below.

2. Desired Goal: Replace currently used Litton AN/PVS-5A NVGs with newer, light weight AN/AVS-6s which provide a significant enhancement of aircrew night vision capability. Current estimates are that the AN/AVS-6s provide a 1000% improvement in light amplification capability over NVGs presently used. These newer model NVGs would provide a capability for HONEY BADGER forces to operate under conditions of total darkness and nearly all-weather conditions (excluding fog).

3. Applicable conditions: e.g., lighting, density, altitude, temperature, etc.: Currently used AN/PVS-5A NVGs are heavy (28 oz), [redacted] and must be manually refocused for near (cockpit) or far (outside references) vision. Newer AN/AVS-6 NVGs are lightweight (14 oz) and therefore can be comfortably worn for longer periods of time, require no moonlight or starlight to operate effectively, and have an improved capability to automatically focus for near and distant vision.

4. Results: NA.

5. Recommendations: Provide available sets of AN/AVS-6 Night Vision Goggles to the 1st Special Operations Wing at Hurlburt Field, FL for testing under operational flight conditions. Sufficient sets should be made available to allow aircrews on MC-130E, AC-130H, HH-53, and UH-1N aircraft to test these devices in each aircraft's own unique flight environment. A minimum number of 20 sets would be desired for testing. 1 SOW POCs are [redacted]

6. Additional remarks: Special Operations Forces, in conjunction with HONEY BADGER operations are presently making significant progress in the development of tactics and techniques under blackout conditions. Current limitations include the requirement for certain minimum levels of illumination to operate using currently possessed night viewing systems. Acquisition of these "third generation" AN/AVS-6 Night Vision Goggles would insure continued progress in these operations under conditions of total darkness, provide an increased safety margin for aircrews, and allow for development of additional blackout tactics and techniques.

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HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested: Parapoint Automatic Aerial Delivery System - currently available at Paraflite Systems, 5801 Magnolia Ave, Pennsauken, NJ 08109. Tel (609) 663-1275/1276. System consists of the MT-1 Tactical Gliding Parachute, the Airborne Guidance Unit, and the transmitter/ controller.

2. Desired Goal: Capability to automatically deliver cargo dropped from an aircraft to within 200 feet of a ground point marked by a radio beacon. Current parapoint payload capability is a suspended weight of 550 lbs., however, system has growth potential to 2,000 lbs. A team, using the MT-1 Tactical Gliding Parachute System, could be covertly inserted into an objective area, from considerable standoff ranges, and have their supplies/equipment "fly" with them to the objective area (automatically homing to the transmitter/ controller unit).

3. Applicable conditions: e.g., lighting, density, altitude, temperature, etc. System can be deployed from 2,000 feet AGL to 30,000 feet MSL and at indicated airspeeds up to 200 KIAS. System designer claims this unit could track up to 40 NM along the ground when airdropped from 25,000' MSL, under the proper wind conditions. System has distinct night/all-weather possibilities. Successful homing of the parachute has been demonstrated at slant ranges of up to 15 miles.

4. Results: Demonstration at Hurlburt Fld, FL (1 SOW) on 10 June 1980 using C-7A airdropping 550 lb supply bundle from 10,000' MSL, 4 nautical miles north of airfield resulted in 50' CEP with Airborne Guidance Unit automatically homing to the ground based transmitter/controller. Transmitter unit is light weight (5 lbs) and compact (3 x 3 x 13 inches) and could be carried by a parachutist, allowing supply bundle to home to an airborne jumper and "fly" with him to a desired point of impact on the ground.

5. Recommendations: Immediate acquisition of several Parapoint Systems for testing under field conditions. Acquisition of the MT-1 Tactical Gliding Parachute System for the [redacted]. The emergency parachute of the MT-1 is identical to the main parachute, which means that if during an airdrop insertion, a team member had to jettison his main canopy (due to a malfunction) team integrity would be still maintained due to the identical reserve canopy system.

6. Additional remarks: Estimated cost per system - $14,000. (MT-1 Tactical Gliding Parachute - $2,000/each; transmitter unit - $12,000/each). System has been developed, tested and is currently available at Paraflite Systems. See para 1 for points of contact. Airborne Guidance Unit is the airborne steering unit for the cargo carrying parachute. The AGU mechanically manipulates the parachute steering lines so the parachute homes on a source of RF energy on the ground. AGU is housed in a metal case (16 x 11 x 8 inches) and weights approximate 34 lbs., meaning that cargo loads of up to 514 lbs could be airdropped (max. suspended wt is 550 lbs). RF energy from transmitter/controller unit is 360.4 MHZ. An operator on the ground, using the transmitter/controller has the option to discontinue automatic homing and manually steer the cargo carrying parachute to a location other than the transmitter site. The operator can also "flare" the parach just prior to touch down permitting "softer" landings. Infrared strobe lighting attached to an airborne package would allow a ground operator using Night Vision Goggles (NVGs) to manually steer the airdrop load to any location desired.

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Weather data from HF intercept teletype, facsimile, and satellite imagery should be available at the AFSOB.

2. Desired Goal: Improved forecasting capability using existing meteorological HF intercept data, observations from employed observing teams, and satellite imagery.

3. Applicable Conditions: N/A

4. Results: N/A

5. Recommendations: Air Weather Service procure or develop compact, lightweight, highly reliable HF intercept and satellite imagery readout equipment for use by the AFSOB forecasters.

6. Additional Remarks: The equipment would give the AFSOB forecasters an immediate data source at deployed locations and could be used throughout the tactical control system.

HONEY BADGER OT&E ACTIVITY REPORTS

1. Concept, equipment, and or technique to be tested:

The [redacted] required four night vision goggles to ensure clandestine movement and improve their capability to take night weather observations.

2. Desired Goal: Requests be approved and supply action be fulfilled ASAP.

3. Applicable Conditions: N/A

4. Results: Awaiting approval.

5. Recommendations: N/A

6. Additional Remarks: N/A

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

The SOWT requires a burst transmission device, compatible with their four PRC-47 and PRC-104 radios, to ensure clandestine radio communications. The "Digital Message Device Group" has been developed for the U.S. Army Special Forces by RACAL Communications to fulfill this requirement.

2. Desired Goal: Requests be approved and supply action be fulfilled ASAP.

3. Applicable Conditions: N/A

4. Results: Awaiting approval.

5. Recommendations: N/A

6. Additional Remarks: N/A

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HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Front line ambulance - 4 wheel drive jeep with litter support on back and canvas cover.

2. Desired Goal: Highly maneuverable, small, lightweight, all-terrain patient transport vehicle able to be transported on Wing aircraft. To be used to enhance the capabilities of the [redacted] Air Transportable Clinic and provide extraction and recovery of air assault missions, parachute jumps, infield support of air deployed strike forces required for real-life support of blacked out night aircraft operations from remote unimproved airfields.

3. Applicable conditions: e.g., lighting, density, altitude, temperature, etc.

Useable in all types of climate and terrain.

4. Results:

5. Recommendations: 1 vehicle in 8th SOS (1 SOW) Air Transportable Clinic

6. Additional remarks: POC - [redacted]

HONEY BADGER OT&E ACTIVITY REPORT

1. Concept, equipment, and or technique tested:

Build-a-board with lower torso section and extension headboard & patient restraints by Dyna Med (combination spine board and scoop stretcher)

2. Desired Goal: To extract and move patients from aircraft accidents; to transport patients in field problems, paradrops; to be able to be stored on aircraft with minimal space used. Less awkward to carry when broken down than a conventional litter. Can also be used as a backboard for spinal injuries.

3. Applicable conditions: e.g., lighting, density, altitude, temperature, etc.

N/A

4. Results: Helps immobilize victims with suspected spinal injury and permits extrication of accident victims in a seated position. Can be broken down to carry to victim by hand in a convenient package; normal litter is 7 ft long, backboard is 18x72 inches and awkward to carry particularly aboard a conjested aircraft.

5. Recommendations:

2 in air transportable clinic, and ultimately one aboard each of certain 1 SOW aircraft.

6. Additional remarks: POC [redacted]

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HONEY BADGER - 1 SOW DETACHMENT COMMANDER COMMENTS

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A

HONEY BADGER

1 SOW DETACHMENT COMMANDER HELICOPTER FORCE SUMMARY

15 Jun - 5 Jul 80

Deployment: Unit deployed 15 June 80 by C-141 and C-5. We were not ready for deployment due to the frenzied pace we had maintained for the preceding month. Aircraft teardown began 13 June and was completed the evening of 14 June. Loading of first HH-53 on C-5 began at 1245Z 15 June. Two helicopters arrived at Biggs AAF 0010Z 16 June; second two at 0325Z 16 June. The first aircraft to be offloaded experienced nose gear strut failure at a critical point (over the nost ramp of the C-5). Two maintenance personnel experienced minor injuries and were taken to the Ft Bliss hospital. They were released for duty the same evening. Offload operations were delayed approximately three hours. All helicopters were offloaded by 0945Z 16 June. Three aircraft were built up by 1245Z 17 June; the fourth (nose gear strut failed) by 2130Z 17 June. First two aircraft flown to Oro Grande 1930Z and 2205Z on 17 June. We planned to turn for training sorties, but a near accident (dust-out) on the dirt parking pad required us to terminate flying. Pad was enlarged and training began 18 June. Second two aircraft were delayed due to numerous unrelated maintenance problems and did not arrive at Oro Grande until 0230Z 20 June.

Beddown: Significant problems encountered in beddown at Oro Grande were the unsafe helicopter landing area, POL problems, lack of fire/crash support and totally inadequate communications. We did not have operable secure voice until 19 June. Autovon access was unrealiable and severely limited during the period 17-19 June 80. Coordination with the civilian contractor led to enlargement of the helicopter pad to double its original dimensions. Around the clock support of watering trucks was required to keep the dust to air acceptable level throughout the Oro Grande helicopter operation. Periodic grading and compaction were required throughout this period.

Training/Employment: First training missions were flown 18 June 80. Initial training was devoted to area familiarization and Pave Low upgrade rides. Major training difficulties concerned lack of planning time for aircrews. Majority of planning was necessarily done by mission planners rather than aircrew due to crew rest constraints. First extended nav legs flown by three ship formation 20-21 June to Laguna AAF. Spare crews were left at Laguna to RON; deadhead crew flew aircraft back to Oro Grande. These crews then flew out three ships to Laguna 21-22 June; rested crews flew back. Unable to accomplish hot ground refueling due to lack of prior coordination by JTD. Two Pave Low, two slicks deployed from Hurlburt to Oro Grande 22 June. Five ships out and back flown 24-25 June using three

Pave Low and two Slicks. Slicks flew NVG formation on Pave Low with no problems (included air and ground hot refueling). All crews at Oro Grande accomplished the out and back to Laguna at least once. Other training conducted included dust-out landings, comm out/minimum lighting air refueling, rapid hot ground refueling using probe adaptors, and NVG formation. On 1 July, aircraft 651 experienced a suspected hard landing. Two flight engineers suffered minor injuries. Cause of incident was nose wheel cocking 90° as it rolled across an approximately six inch high pile of dirt. Damage was limited to three blown tires. Missions were flown through 2 July, with 3 July devoted to maintenance stand-down. Aircraft deployed to Michael AAF on 4 July. Personnel and equipment moved over-the-road to Biggs AAF on 4-6 July for airlift to Michael.

Summary: Operations at Oro Grande were a highly necessary part of Honey Badger training. Valuable lessons were learned in deployment/employment. Dust-out landings, NVG operations, and ground refueling operations highlighted known shortfalls in our previous training. The isolation imposed by Oro Grande operations was excellent for building the desired team of operations, maintenance and support personnel. Many of the difficulties experienced were directly attributable to lack of prior coordination (POL, crash/rescue, fueling at Laguna). Lack of an adequate cover story caused a great number of problems, both in the management of personnel and in necessary coordination with other agencies. Pave Low training benefited from the excellent training area; however, the equipment suffered from prolonged exposure to the dusty parking environment. Equally effective training could have been accomplished from a hard surface.

5 Jul - 19 Jul

Deployment: The deployment from Oro Grande to Michael AAF began 4 July with the launch of six Pave Lows and one Slick. A near accident occurred when the last Pave Low drooped the rotor on take-off through the dust. Quick reaction by the crew averted almost certain loss of an aircraft. The movement from Biggs AAF was marked by an uncertain airlift schedule and lackadaisical performance by the assigned ALCE. Two Pave Low and two slick helicopters deployed from Hurlburt to Michael 5 July.

Employment: With the exception of the camouflage/concealment task, employment was keyed directly to the training strawman as amended. Integration of Pave Low, slick, Blackhawk and Chinook helicopters was a major task and one that was compounded by rapidly decreasing available moonlight. Dust-out landings in particular created problems for Blackhawk crews following Pave Low leads to a landing. "Blivet" refueling accomplished 9 July, indicated need for thorough planning and extensive practice by ground refueling team. Beaconing was practiced extensively with mixed results. Planned central management of CCT tasking did not work that well and last minute tasking continued to plague their operations. The employment of Pave Low/Blackhawks at Oro Grande 13-15 June for Ranger orientation was beset by inadequate coordination, planning time available to aircrews, and changing requirements. Our request for an additional day between the Oro Grande deployment and the start of Trainex Phoenix was denied. Trainex Phoenix, 16-17 July was a highly

complex, poorly coordinated effort which demanded far more preparation time than it was given. Late and confusing CEOI, late schedule of events (not received by 1 SOW until after the exercise), late LZ/airfield photography (after mission brief started) and little guidance contributed to confusion. Human error contributed to the confusion (Pave Low lead's Blackhawk element departed the established/briefed holding area prior to arrival of lead). Forty-eight hours prior to take-off should be establishe as a minimum for planning, preparing and briefing a mission of this complexity.

Beddown: Communications were extremely limited, transporation was inadequate, and operations were adversely affected by distance from operations to flight line and to quarters (only maintenance/CCT stayed at Michael). Lack of flight planning, briefing and life support space at Michael was alleviated by moving these functions to Dugway. Separation caused delays in passing mission changes and other information to planners (no secure voice). Co-location with HC-130 did work well, although crowding was a problem.

Summary: Honey Badger deployment provided a great deal of excellent training for Pave Low and Slick aircrews as well as maintenance and support personnel. A total of 809 hours were flown in 33 days in highly demanding environments. Some quality of training was sacrificed due to the schedule and many of the events practiced require more work and coordination. Major lesson learned is that more time is needed for planning by all concerned. JTD did not provide adequate, timely guidance for units to prepare for execution of Trainex Phoenix. All elements involved in the exercise suffered from late incomplete planning guidance. Night, high density altitudes, NVG, dissimilar formation and ground hot refueling operations all pose significant, often hazardous, problems for helicopter aircrews. These missions must be thoroughly planned and carefully executed if we are to successfully expand our capabilities.

[redacted]

HONEY BADGER

1 SOW DETACHMENT COMMANDER MC-130E COMBAT TALON SUMMARY

6 July - 21 July 80

1. Old Coe - Divad Exercise.

A. GENERAL. [redacted]

The Divad mission scenario involved multiple shuttles from Condron and was performed 3 times -- [redacted] The whole exercise was performed twice.

B. PROBLEMS ENCOUNTERED.

(1) Scenario Complexity. The Divad mission -- performed three times in one night -- was too much for one evening. Not enough time was allowed between the airdrop and the first aircraft landing; this resulted in go arounds, confusion, slips in schedules, and excessive fuel consumed. Aircraft had to be refueled before the third company's exercise which pushed the exercise termination into daylight hours.

(2) Lack of a CEOI. No CEOI was provided. This resulted in poor communications command and control, and several OPSEC violations due to lack of code words and the necessity to address delays, go arounds, etc., in clear text.

(3) Ranger Company-to-Company differences. Each Ranger Company desired minor differences in loading and unloading procedures. For ease of aircrew training, all procedures for loading and unloading should be standardized.

(4) CCT knowledge of Exercise Scenario. CCT involvement in this exercise was not as thorough as it should have been. CCT was not prepared to deal with deviations from the exercise scenario. This was corrected in later exercises.

(5) Divad Coordinates/Runway Orientation. Divad Airstrip did not appear on any maps or charts available to aircrews. Therefore, exact coordinates and runway magnetic course -- absolutely essential for precision blind drops and blackout landings -- were not available. Some of the early drops and landings were affected by this nonavailability of data.

C. RECOMMENDATIONS.

(1) A 3-company exercise of the complexity of the Davad operation should not be planned for one night's operation.

[redacted]

(2) Ranger loading/unloading procedures should be standardized from company to company.

(3) No airfield or drop zone should be selected for an exercise unless exact coordinates and other airdrome data are available to aircrews.

(4) A CEOI should be prepared for every exercise performed.

2. TONAPAH - Fallon Exercise.

A. GENERAL. The Tonapah-Fallon exercise involved simultaneous [redacted]. The Fallon raid included [redacted], and CCT followed by an air-land force of 4 MC-130E aircraft and one C-141. The Tonapah raid involved two MC-130E aircraft landing blacked out followed by a C-141 landing with normal runway lighting.

A, B

B. PROBLEMS ENCOUNTERED.

(1) C-141 errors. The C-141 scheduled to land at Fallon did not land because helicopter delays resulted in the C-141s return to base for fuel reasons. The C-141 that did land at Tonopah landed on the opposite runway from that which was briefed and was not monitoring the assigned frequency. It was evident that neither C-141 crew had been properly briefed on their mission.

(2) No CEOI. The original CEOI provided was only a Voice Call Sign listing which consisted of Alpha numeric characters rather than word call signs. An effort was made to piece together a CEOI by several agencies sending out piece-meal communications instructions. This proved totally inadequate.

(3) Insufficient Planning Time. Mission Planning data were not available in sufficient detail early enough to do adequate planning for this mission. Aircrews were forced to accomplish the planning during the time normally allotted to crew rest. All mission planning factors should be firmed up 72 hours in advance so that aircrews can adequately plan during the period 72 to 24 hours prior to takeoff.

(4) Helicopter early arrival at Fallon. The helicopters arrived at 0858Z rather than 0915Z as expected at Fallon. The C-141 was supposed to have landed at 0900Z but returned to departure base due to fuel requirements, at 0858Z the MC-130E cadre were performing their landing phase after a go-around caused by excessive time needed to clear the runway. The early arrival of helicopters without establishing radio contact with CCT caused a near miss with one of the MC-130s on final approach. The MC-130 estimates he missed the helicopter by 50 feet. Poor radio and flight discipline by the helicopters were the primary reason for the near miss.

C. RECOMMENDATIONS.

(1) A proper CEOI should be prepared for all exercises.

(2) C-141 aircrews should be under the operational control of the 1 SOW mission commander and should deploy to a base close enough to the 1 SOW deployment base to allow face-to-face briefings.

(3) Adequate planning data should be provided to aircrews 72 hours in advance of takeoff.

(4) Helicopter representatives should be available for face-to-face premission briefings.

3. Reese AFB Raid (Grizzly Fur).

A. GENERAL. [redacted]. A procedure was developed whereby any or all aircraft could be made to delay at an orbit point for a specified number of minutes. The procedure was to be initiated by CCT calling "Calamity Jane X at Y" with "X" being the number of minutes delay and "Y" being the time along the route at which each aircraft was to delay. CCT did use "calamity Jane" to delay the 6 C-141s 10 minutes; the procedure worked without incident.

B. PROBLEMS ENCOUNTERED.

(1) Availability of charts/maps. Blind drops and blackout landings require extremely accurate coordinates which can come only from proper maps/charts. Army Mapping Service (AMS) Charts (1:50,000) are the best, but were unavailable for the Reese AFB area. The next best are Joint Operations Graphic (JOG) (1:250,000) but only two copies of the JOG which covers Reese AFB were available. Erroneous coordinates of a tower used as a radar update resulted in most of the MC/EC aircraft coming in from the right and resulted in a go around for a MC. The EC go around was primarily due to the inadequacies of the APN-59 radar for blackout landings and precision Airborne Radar Approaches (ARA).

(2) CEOI Improvement. The CEOI was better but still can be improved. The following changes should be incorporated in future CEOIs.

(a) The brevity code section should contain every code word associated with the exercise, including those in the Ops Plan.

(b) Aircraft Call Sign suffixes should be single numbers (e.g., 1, 2, 3...X rather than 11, 12, 13...X).

(c) The chronology of exercise events should be included in the CEOI.

(d) Interplane nets should have VHF frequencies assigned.

(3) Airfield Lighting. The residual lighting at Reese AFB -- primarily perimeter obstruction bright red lights -- were on during the blackout landings. Aircrews had considerable difficulty in picking out the dim portable runway landing area lights because of the blooming effect of the perimeter lights in their NVGs.

C. RECOMMENDATIONS:

(1) A permanent liaison should be established between Defense Mapping Agency (DMA) and the JTD to deal with the map/chart issue. JTD should use availability of proper maps/charts as a criterion in selection of an airfield for an exercise. An airfield covered by AMS charts is preferred for exercises.

(2) The CEOI for future exercises should incorporate the changes listed above.

(3) Site survey teams should view prospective exercise airfields at night and arrange for excessive lighting (especially on approach end of runway) to be extinguished.

(4) The "Calamity Jane X" go around procedure should be permanently included in exercise planning.

HONEY BADGER

1 SOW DETACHMENT COMMANDER AC-130H GUNSHIP SUMMARY

6 July - 21 July 80

1. AC-130 training during this deployment consisted of unit training [redacted]

2. [redacted] Aircrews will not require training in this event. Written procedures and a face-to-face briefing will suffice. [redacted] The Divad exercise was a misuse of the

3. The next two exercises were progressively better as the ALOs and AC-130 crews began to understand one another. Access to all stages of mission planning of the ground tactical plan would be very useful to the crews. To give maximum support to the ground commander it is vitally necessary to understand the priorities and objectives of the ground forces. Frequent practice with the ALOs will increase our ability to provide timely support.

EXECUTIVE SUMMARY

1. On this exercise, six HC-130 tankers were tasked to refuel nine HH-53 receivers inbound to their operational area and six during their exit. All planned (plus some unplanned) air refueling requirements on this mission were fully met. Mission details follow.

2. Forces:

a. Tankers (six HC-130s).

(1) Three HC-130s (two primary, one spare) were tasked for the southern track. Practically all receivers on the first air refueling required larger than planned fuel on-loads. Consequently, two tankers were recycled to Michales in order to have sufficient fuel for the egress refuelings.

(2) Two HC-130s (one primary, one spare) were tasked for the northern track.

(3) One HC-130 was tasked to support command and control requirements for the component commanders (ABCCC). In addition, it was available to perform Airborne Mission Commander duties in the event of a real world Search and Rescue, or if required, provide spare refueling capability.

b. Receivers (nine HH-53s).

(1) Scheduled on-loads 15; Actual on-loads 14.

(2) Fuel on-load: Scheduled 69,000 lbs; Actual 79,800 lbs.

c. Comments:

(1) All tankers were launched on time.

(2) Shortly after take off, the ABCCC aircraft air aborted because of hydrualic problems. The aircraft returned to Michaels and after a broken actuator was replaced it relaunched (total two hours ten minutes ground time) and completed its assigned mission.

(3) The recycling tankers took on an additional 48,000 pounds of fuel (55 minutes ground time).

(4) The six aircraft accumulated 48.5 hours flying time.

3. Problems and Recommendations:

a. Planning Data.

[redacted]

(1) Problem: The HC-130 was not properly equipped to fly the required mission profiles. [redacted]

AB

(2) Recommendation: Continue to pursue the modifications of HC-130s as described in earlier correspondence which include:

(a) Dual read out INS.

(b) Upgrade RADAR.

(c) RHAW.

(d) ALE 40.

(e) Additional night vision goggles.

(f) Interior lighting modifications.

(g) Black-out curtains.

(h) Improved radar altimeter.

f. Secure Communication.

(1) Problem: Secure communication with the tanker force parent command was available only on an extremely limited basis and then only through several intermediaries. This precluded appropriate and proper coordination especially with respect to supplies and maintenance and increased the potential of OPSEC problems.

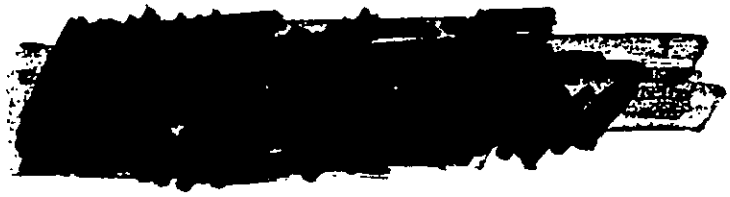
(2) Recommendation: All operating agencies be afforded direct secure access to their command channels.

g. Aircraft Lighting and Beacon Procedures.

(1) Problem: All helicopters and tankers did not use the established standard lighting procedures or IFF codes. This led to confusion and misidentification by the tankers.

(2) Recommendation: Helicopter and tanker crews be thoroughly briefed on the importance of proper settings. In addition, this data should be added to appropriate checklists and briefings. Schedulers must assure adequate time for face-to-face meetings between the tanker and helicopter aircrews.

4. Conclusion: The HC-130 tanker force accomplished its mission during Operation Phoenix. It provided sufficient fuel when and where it was needed. However, if the problems encountered were extrapolated into a possible hostile environment the outcome could have been less successful. We have identified several significant problems, e.g., planning, aircraft equipment, procedures, which must be acted upon. We are going to continue to work these problems, ensure their timely resolutions and do everything possible to achieve the level of readiness that will fully support missions such as Operation Phoenix.



G

(1) Problem: Essential mission data was not available in sufficient time to accomplish proper coordination and the necessary detailed planning. As a result, mission options were not firmed up early enough to permit proper planning, especially for the egress. Compression of this critical phase led to confusion during the aircrew mission briefing and adversely effected crew confidence in other phases of the operation.

(2) Recommendation: Establish flow schedules that allow sufficient time for all phases of planning. The more complex the operation, the more time is required for aircrew preparation. The implementation phase requires significantly more time than the conceptual phase, especially when there are a lot of players involved. The ultimate result of a mission is normally a function of the planning phase and is directly proportional to its thoroughness.

(C) b. Intelligence Data (subset of a., Planning Data).

(1) Problem: No intelligence data was provided on real or simulated threats. There was no criteria for determining routes or altitudes.

(2) Recommendation: Realistic summaries, charts, and diagrams of radar coverage, SAM locations, and MIG coverage should be made available for planners and flight crews. We should practice for real world threats.

c. Encode/Decode Documents (subset of a., Planning Data).

(1) Problem: Documents needed to encode/decode call signs and identifiers were not available to crewmembers early enough to be used on this mission. Three separate pieces of data were required to determine a call sign: unit assigned aircraft number, aircraft number encoder, the total encoder. No instructions or hands-on training were given to any Air Force crews in the use of these documents.

(2) Recommendation: Encode/Decode documents not be used because they are too cumbersome and time-consuming -- especially if secure voice radio equipment is available. However, if they must be used, they should be greatly simplified and appropriate training accomplished before the mission starts.

d. Frequency allocation (subset of a.. Planning Data).

(1) Problem: Identical primary, secondary and tertiary frequencies were allocated for air refueling and south sector air-to-air communications. After radio silence was broken, extreme congestion was encountered which seriously degraded the capability of tankers to coordinate with their receivers on the egress sorties.

(2) Recommendation: Dedicated frequencies should be assigned to specific air refueling tracks. No more than one tanker and receiver frequency should be active at the same time.

e. HC-130 Equipment.

DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380

CONFIDENTIAL

IN REPLY REFER TO
PL22-JKV-cak
14 JUL 1980

[redacted]

From: Commandant of the Marine Corps
To: Joint Test Director, J-3, Joint Staff

Subj: Honey Badger Support Requirements (U)

Ref: (a) Joint Test Director memo to CMC dtd 16 June 1980
(b) Joint Test Director memo to CMC dtd 7 July 1980

1. (U) Reference (a) and (b) requested various items of support from the Marine Corps for the Honey Badger test plan. All the support requested by reference (a) has been provided except for those items that are no longer required.

2. (C) Reference (b) requested the temporary loan of 27 WSC-3 terminals. This request can not be fulfilled since the Marine Corps presently has no WSC-3 terminals. The 30 AN/WSC-3 radios currently earmarked for the Marine Corps are in various stages of installation in connection with fabrication of AN/TSC-96 terminals, due for delivery to the Marine Corps during the latter half of CY 1980.

A. G. SCHWENK
Lieutenant General, U. S. Marine Corps
Deputy Chief of Staff for Plans, Policies, and [illegible]

Classified by: ~~Dir, J-3~~
Declassify on: ~~14 Jul 1986~~

Declassified by:
DDO NMCC
12 AUG 92

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INCLOSURE TEN: UH-60 EVALUATION

i-736

HONEY

BADGER

UH-60

STATS

Classified By: JCS
Declassified ON: OADR

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Declassified by: DDO NMCC
12 AUG 92

1. Phase 1 for all three companies involved in the exercise began with deployment.

A/159	CH-47	446.4
C/158	UH-60	714.6
D/158	UH-60	792.2

2. Phase II began on 5 July and ended 16 July.

A/159	CH-47	173.6
C/158	UH-60	547.6
D/158	UH-60	426.7

3. Redeployment Phase 18-20 July 80.

A/159	CH-47	105.1
C/158	UH-60	156.4
D/158	UH-60	173.9

4. Total per Company during exercise.

A/159	CH-47	725.1	av. 90
C/158	UH-60	1418.6*	
D/158	UH-60	1392.8*	av. 93

5. Total Honey Badger hours flown: 3526.5

* 426.7 hours flown from 3rd quarter allocation, remainder from 4th quarter.

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STATUS REPORT

INITIAL	STARTED	COMPLETE	IN PROGRESS
Tech Inspection	30	30	
RE MWO INT. AUX. TANK MOD.	30	30	
KY-75 Mount		12 to be Comp by COB 25 Jul	29
HF-Receiver	16	12	4
Bifilar Bolts (Mod-044)	25	25	4 Previously applied 1 no parts (997)
Eng Borescope	5	5	

INITIAL DEFICIENCIES (GENERAL AREAS)

Avionics	96
Electrical	66
Engine	14
General	165
Hydraulics	2
Powertrain	50
Prop and Rotor	28
Sheet Metal	58
Total	499

TASK ORGANIZATION, AIRCRAFT and NUMBER of PERSONNEL:

UNIT	OFF	WO	ENL	#AC
HHC 158	12	6	72	0
C 158	10	29	72	15 UH-60
D 158	9	32	65	15 UH-60
ATC	0	0	4	0
Pathfinders	1	0	11	0
A 159	6	18	86	8 CH-47
TOTAL	38	85	310	30 UH-60 8 CH-47

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CURRENT A/C STATUS as of 1000 hrs 25 JULY 80

4 A/C With All Red Xs Worked Off

5 A/C Work Stoppage for Parts

FMC PROJECTIONS

All Red Xs worked off NLT 29 July except those that are NMCS.

Estimated FMC for fleet 1 Aug 80 (optimistic)

PARTS STATUS (As of 1000 hrs 25 July 80)

Number of Parts Requested	159
Number of Parts Filled	69

SECRET

I = [illegible]

Z = Waiting Parts

AIRCRAFT	MODIFICATION	ASR-[illegible]	Radar [illegible]	NAC	[illegible]	ARCI[illegible]	KY-[illegible]	KY-28	APX-[illegible]	SITIA	OMEGA	O2	HOIST	FARE	L[illegible]	PRC	REMARKS
68-16018	A-1	X	X	I	Z	Z	Z	X	X	X	X	Z	/		X	100	Paint Locker
68-16013	A-2	X	X	I	Z	Z	Z	X	X	X	X	Z	/		X	[illegible]	Phase [illegible]
68-15[illegible]	A-3	X	X	I	Z	Z	Z	X	X	X	X	Z	/		X	27	TBO Completed
[illegible]	A-4	X	X	I	Z	Z	Z	X	X	X	X	Z	X		X	[illegible]	Phase completion 29 July
6[illegible]-15834	A-5	X	X	I	Z	Z	Z	X	X	X	X	Z	/		X	64	
67-18527	A-6	X	X	I	Z	Z	Z	X	X	X	X	Z	/		X	57	
68-15825	A-7	X	X	I	Z	Z	Z	X	X	X	X	Z	X		X	100	TBO Complete. Phase complete 29 Ju[illegible]
68-15863	A-8	X	I	I	Z	Z	Z	X	X		Z	Z	/		X	100	
68-15816	A101	X	I	I	Z	Z	Z	X	X		Z	Z	/		X	[illegible]	
79-23399	A102	X	X	I	Z	Z	Z	X	X		Z	Z	/		X	100	
79-23400	A103	X	X	I	Z	Z	Z		X		Z	Z	/		X	100	
79-23401	A104	X	X	I	Z	Z	Z		X		Z	Z	/		X	100	
79-23397	A105	X	I	I	Z	Z	Z		X		Z	Z	/		X	[illegible]	
74-22294	A106	X	X	I	Z	Z	Z		X		Z	Z	/		X	100	Phase Complete 29 July
68-18515	A107	X	I	I	Z	Z	Z		X		Z	Z	/		X	93	
68-15817	A108	X	I	I	Z	Z	Z		X		Z	Z	/		X	53	

B4 Awaiting Float Switch

B5&6 Fabricating Shelves + awaiting misc parts

G

POC: [redacted] AV 977-6144/6127/6516
Motel (717) 774-2721 Ext 291

SECRET

~~SECRET NOFORN~~

I-766

THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

29 July 1980

THE JOINT STAFF

MEMORANDUM FOR: Major General Vaught
Major General Secord

Subject: Evaluation - HONEYBADGER - H-53 Participation

This evaluation of the 1st SOW/H-53 participation in Operation HONEYBADGER deals primarily with problem areas encountered with Personnel, Organization and Material. Since it does deal with problem areas, I would like to mention some of the successes before proceeding. Had this been an actual mission it would have accomplished its objective. The success is totally attributable to the professionalism and skill of the individual aircrews and maintenance support people. Their response to unplanned and unbriefed events was the primary factor leading to the successful pickup and return of the precious cargo.

(U) The maintenance personnel compiled an impressive record in keeping the aircraft flying to meet the demanding schedule; and the crews planned, briefed, and flew complex missions on a daily basis. The H-53 section completed the complex training and upgrade of several individuals in the Pave Low system, and started with the special mission requirements. All the requirements have not been met but the progress has been impressive.

The personnel problems developed because of the rapidity with which the Pave Low aircraft were transferred to the 1st SOW. The quick decision and rapid transfer went against a system that had been established by MAC to equip, maintain and man the Pave Low aircraft. Individuals were brought in TDY from 14 different locations to participate in the new organization. These people are on an extended TDY and have a strong desire to return "Home." The aircraft are now "Home" at Hurlburt but the personnel are still TDY.

Recommendation: Offer two choices to the individuals involved with the Pave Low program. (1) Transfer PCS to the 1st SOW, or (2) Remain in extended TDY status until replacements can be processed and trained. This process should have been started several months ago but was not. This problem must be aggressively pursued by the AFMPC and 1st SOW.

I-766

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Classified By: DDO NMC
Declassified ON: OADR

In addition, present crew manning is inadequate. The crew force must be expanded to at least 12 qualified crews to meet the extensive mission, training, and TDY requirements of the 1st SOW.

(U) A great deal of equipment and clothing was damaged while working in the austere conditions. The enlisted personnel are going to have to replace these items from their own funds.

(U) Recommendation: Expend the funds to replace damaged clothing and equipment. The enlisted personnel have seen millions being spent on aircraft and nothing being spent on them. I feel this will cause long-term retention problems. There is a procedure where unit commanders can declare the items lost or destroyed in mission accomplishment so they can be replaced.

(U) Personnel training deficiencies were compounded because this unit was not formed in the traditional manner - select a cadre, train the cadre, then build the unit around the cadre. The Pave Low aspects of the training, although disjointed, run in line with this concept, but were not allowed to meet fruition before the unit was deployed to the field. In addition to the special operations procedures and joint operations procedure, the crews had to perform initial qualification and upgrade in the Pave Low system.

In regard to Special Operations, the H-53 unit will be reinventing the wheel. H-53 special operations experience was diluted in 1974 when the 21st SOS was decommissioned in Thailand and personnel were sent to other units in other aircraft. That experience was further diluted when the H-53 unit at Bergstrom was decommissioned and its personnel were reassigned to other units in other aircraft.

(U) Another factor that is complicating and compounding the training problem is the multi-service nature of the Rapid Reaction Force being developed. The different techniques, procedures, and habits developed by the different services adds to the confusion and prolongs training. Radio procedures, formation tactics, terminal area procedures and operations are all different for the participating services. The unique tactics and procedures required by special operations need to be developed from the basics.

Recommendation: Immediate formation of a special Test Group made up of components from 101st Air Assault, the 1st SOW, MAC and experienced Marine aviators whose task it will be to work and train together, then establish an interservice, coordinated training program. This group would then return to their units and provide the initial cadre that will train the respective units. This would accomplish four things: the development of an immediate capability for the deployment

of helicopter forces; the establishment of an upgrade and continuation training program to maintain readiness; consolidating the knowledge base for special operations; and establishing a coordination vehicle for further development of principles and tactics.

(U) Organizational and management problems noted are the ones that in some way hampered or interfered with the orderly flow of information, the development of goals, or coordination.

One of the major problems that was faced was the position of the 1st SOW in TAC. This is especially noteworthy when the helicopters are discussed. The 1st SOW, by their own admission, had minimum priority in TAC. Within the SOW itself the helicopter units had the minimum priority. Suddenly they are thrust to the forefront of attention, with new aircraft and different crews. The previously important resources - the C-130s - were suddenly not as important as the helicopters. The adjustments were not made.

Senior 1st SOW managers did not treat the SOW as an entity but as two separate units, the one at Alpha and the one at Mike. The only problem with this was that Mike, it appeared to me, was out of sight and out of mind. The wing continued to support its capital assets - the C-130s. Wing planners and staff were sent to Alpha to support the C-130 operations and no effort was made to assist or expand the sorely undermanned and inexperienced staff at Mike. This oversight was especially noteworthy considering the other problems the H-53 unit was already facing.

This lack of attention manifested itself in several ways. The administrative and personnel problems have been largely ignored by SOW managers. They are not aggressively pursuing the reassignment of personnel. Supply and maintenance requests were not immediately answered and requested items were not efficiently tracked through the system. Parts would sit in hangars at supply points until tracer requests were sent out. Mail deliveries, a tremendous morale factor, were not efficiently handled. A shipment of Gatorade, requested by the Flight Surgeon to cope with the effects of heat and dehydration, was stopped at Alpha and used there with little regard for the people at Mike. Individuals sent to supplement the support contingent handling KP duties were kept at Alpha and not deployed to Mike. As a result, Maintenance and Support personnel were required to fill the KP requirement.

There was a strong desire by 1st SOW helicopter managers to have someone tell them what to do. They lamented the absence of planners but took no steps to increase their planning staff. In essence, the helo staff sat around waiting for me or [redacted] to tell them what to do. In

many cases, I had to hand carry their planners and support people to briefings and planning meetings, and force coordination activities between Army and Air Force components to insure everyone was using the same planning data. I feel that commanders in situations such as this must show initiative and aggressively pursue the conception, initiation, development and execution of a training program to meet stated objectives.

(C) Organizational guidance was provided in the form of Intermediate Training Objectives (ITOs) or task objectives. ITOs are too specific and do not bridge the gap between specific tasks and the concept of operations. If a Terminal Training Objective (TTO) was provided, the unit should have been able to develop their own ITO to fulfill the TTO. For example: if the TTO was to participate in formation flight with designated units to navigate at night with [redacted] illumination, low level through mountainous terrain at elevations from [redacted] through hostile territory containing the following threats, radars, aircraft, population, to a confined area landing zone to insert personnel or extract seriously injured personnel, and then return to friendly territory, then the unit would have had better guidance to establish its intermediate training goals and would not have had to flounder around for guidance. The unit could have followed the training iteration of establishing a task performance level, instructing to that level, evaluating performance, then completing or continuing training, or reorienting the ITOs to better accomplish the TTOs.

A

(U) Recommendation: Provide proper TTO's to the Special Test Group so that a joint effort can be initiated to identify ITO and the ITO can be practiced to proficiency. Then the cadre can return to their units with universal TIO and specific ITO to train toward the same goal. The major benefit would be realized when the individual units were brought together for joint exercises. They would all be working from the same knowledge base toward the same goals, and the procedural problems encountered during Trainex Phoenix can be avoided.

(U) Recommendation: There should be one headquarters in charge of all joint activities. This staff should coordinate and direct the subordinate staffs and provide guidance from the JCS level. This commander and his staff should be placed above the assigned units so that participating units don't have to force lateral relationships. This position should be established where [redacted] and [redacted] are now. These pseudo-liaison jobs should be identified as a command position and function as such. The HQ staff, especially the plans section, should make use of subordinate unit expertise and personnel.

G

Recommendation: Special operations forces of the 1st SOW should be managed by the Military Airlift Command. There are several organizational, and personnel reasons for this.

1) MAC is the primary manager for the assets used by the SOW. Supply, maintenance and training organizations are already in place to handle the organizational and management aspects of the move with one command controlling the airframe resources, the special operations force could more easily expand and contract to meet mission requirements. MAC, as the single manager of SOW forces and like aircraft, could better absorb the ever changing airframe requirements.

2) The helicopter and C-130 operations have a higher priority in MAC and would receive more management attention on a continuing basis rather than as a surge requirement. Even after the enthusiasm for this mission decreases, MAC is better organized to maintain, equip, and train the Special Operations forces.

3) The SOW is one of the few units out of MAC that has helicopters. Career-oriented helo pilots are reluctant to leave MAC because of this. There are no opportunities in TAC for helicopter pilots to rise to levels of command higher than Squadron Commander. MAC on the other hand has extensive opportunities for helicopter pilots to progress to higher ranks and positions.

4) The perceived management problems that would be encountered by putting the SOW in MAC could be handled by the issuance of proper guidance to the command. The supply, maintenance, personnel and management problems that would be eliminated by consolidating helo, C-130 and HC-130 and C-141 operations under one manager are far greater.

Material problems and shortcomings were prevalent during the training. Many are in the process of being resolved. There are several that need immediate and continued attention. That will have a direct impact on the capability of the aircraft to perform effectively in the special operations environment.

The Pave Low nosewheel. The collapse of the nosewheel on the Pave Low aircraft showed a weakness in the system. The wheel is designed to be self-centering. The mechanism allows the wheel to caster in a turn then returns it to center. On hard soil or a runway this system works very well. In Sand, the wheel will bury itself in the sand and create unrealistic side loads which will caster the wheel to the 90 degree position. If the aircraft has any forward momentum, the gear might collapse.

(U) Recommendation: Immediate action involves a procedural change. The crews should be briefed to not make rolling landings or taxi in soft sand if at all possible. Realize that this is difficult because of the dust problem caused by the rotor blades. The long term solution would be a redesigned nosewheel steering system or a limiter that could be used to limit travel of the nose wheel to 10 or 20 degrees or less when operating on unprepared surfaces. This system would prohibit the wheel from castering out of position and collapsing because of the side loads.

(U) The H-53 cockpits are not configured or certified for use with night vision goggles (NVG). Present procedures require the pilot flying the aricraft to isolate himself from the rest of the cockpit while the copilot and flight engineer monitor the instruments, FLAIR, and TA scope. During this procedure, the pilots visibility outside the aircraft is decreased to a 22 degree wedge covering the right front of the aircraft. This is a hazardous situation when the aircraft is in hostile or hazardous LZs where scanning and crew coordination are critical factors.

(U) Recommendation: Modify cockpits of the H-53 Pave Low aircraft and HH-53 rescue aircraft for NVG certification and fabricate and install hoods on the TA and Pave Low screens to keep the glare from these units from flooding the cockpit with light.

(U) A major problem confronting planners and mnagers is the mobility of special operations helicopter resources. The units cannot fly far enough to self deploy and require several hours to dismantle, airlift, reconfigure and return to operations. Hours that could become a major Ops Sec problem.

(U) Recommendation: Folding blades and tail sections for H-53 aircraft will greatly increase the mobility of Special Operations units, provide a worldwide deployment capability, and help solve some of the ops sec problems faced with current deployment methods.

(U) The navigation system on the HC-130 aircraft needs to be upgraded immediately. The present radar and navigation systems do not provide the accuracy to refuel low level, at night, in mountainous terrain with any degree of safety.

(U) Recommendation: They need immediate procurement and installation of an advanced navigation system, or INS. As an option and immediate fix, a combat talon aircraft, acting as formation lead, could guide HC-130s to designated refueling points.

(U) The medical configuration of the SLICK H-53 aircraft is in progress.

(U) Recommendation: These aircraft should be manned with special operations trained rescue crews, especially Pararescue Specialist. The benefits of using the PJs are many. They are crew members, trained scanners, medically qualified in the treatment of combat/trauma injuries, and also trained gunners. In addition, these crews are trained in the recovery of downed crews and people and would be needed in the event the special ops forces are downed because of enemy action or equipment failure.

My final recommendation deals with the location of the 55th ARRWg at Eglin. It is my understanding that this unit's helicopters are being moved to another location. I feel we are missing a perfect opportunity to develop a closely coordinated effort to integrate the H-53 operations and qualify the members of the 55th ARRWg in special operations. The unique capabilities of the HH-53 and Pave Low aircraft make them both suitable for different aspects of special operations. Together they give us a capability far greater than each one can provide individually.

(U) The Pave Low has the pathfinder capability to penetrate, low level find an isolated area insert or extract personnel and return. The HH-53 has the capability of carrying tremendous loads, long distances and functioning as a logistics base for mission aircraft and providing a rescue/ medical evacuation capability.

(U) In addition, required HC-130s are assigned to the wing and are required for support of the long range missions envisioned for the special operations forces. The close proximity of these units greatly enhances the training interaction of the two units.

(U) As mentioned earlier, consolidating these two units into a special operations unit under MAC will serve to streamline management lines, organizational lines and control of the Special Operations assets.

G

[redacted]
Major, USAF

Attachments:
(1) Report from CCT South Refueling Point
(2) Mission Review
(3) Summary of H-53 Debrief
(4) Analysis of Training Requirements
(5) Special Test Group

~~SECRET/NOFORN~~

CCT-SOUTH

At approximately 0420L on 16 July 80, the first 2 UH-60s arrived at the main south refuel point. At that time, all markings were in place, operational and as briefed. All comm was operational and on correct frequencies. Sky conditions were clear and winds were 160 degrees at 5 kts. The first 2 UH-60's approached the "Y" and were sent to the refuel points as briefed. While the first 2 UH-60's were being refueled, 5 or 6 UH-60's landed to the NE of the CH-47's without any direction to do so. No contact was made with the GTA on UHF. Attempts were made by the personnel at the "Y" to marshal the UH-60's as briefed. While all the UH-60's were landing they were talking to each other on FM according to [redacted] the signalman at the "Y". At one time during refueling operations while there was a UH-60 at each refuel point one UH-60s, on his own and without guidance, taxied behind an aircraft being refueled and set down between the two CH-47s. Finally, the GTA and signalman at the "Y" marshalled all UH-60s to the refuel points. A total of 7 UH-60s were refueled. The only aircraft to attempt contact on UHF with the GTA was Bromo 80. He advised that 2 UH-60s were broken and that if we could account for 11 we could shutdown and RTB.

1 UH-60 went over with a CH-53

2 were broken

7 were refueled

1 landed at refuel point but didn't take any fuel

Attachment 1

~~SECRET/NOFORN~~

MISSION REVIEW - (TRAINEX PHOENIX)

PLANNING - There were several shortcomings in the planning phase including communications plan, and target data. The target data (PZ) did not arrive until one hour prior to helicopter brief times. The comm plan was finalized the night prior to launch but because of crew rest requirements, did not reach the crews until the 1600 briefing. Unilateral decisions to ignore the comm plan by the 1st SOW were not coordinated with the other units and created problems in the landing zones.

More aggressive research and preparation by planners in the individual units could have alleviated some of this confusion.

Problems of coordination with participating units occurred between AC-130 and HC-130s concerning on track spacing and usage. Coordination between units was difficult because of the varied locations and brake downs in communication - i.e. C-141's - mission profiles and objectives.

SUMMARY - JTD's responsibility was to task the organizations to carry out an Op Order and monitor and coordinate activities if units could not comply with the tasking. The units were responsible for jointly planning and coordinating activities for which they were tasked. There was very little planning and coordinating of activities and it led to some hazardous situations.

Attachment 2

BRIEFINGS - Proper lead time for helicopter briefing was not established. Realizing much of the necessary information was going to be late in coming, no effort was made to organize a professional briefing. When the briefing was given, it was disorganized, and incongruous. The briefer sat on the stage held up charts that people in the back rows could not read. Reference times were given in local times instead of ZULU which was confusing to the crews who were working in Z time. Information that was available was not presented or explained (Alpha Numeric call signs). Planners had no knowledge of specific landing zones although approximate locations were known - no one has a large scale map 1:25,000 to examine the approximate area. No prior familiarization had been done. Much of the study could have been accomplished beforehand and precise information acquired at the briefing. When the general briefing was covered, the SLICK AND C-47 crews began briefing themselves. The PL/Hawk crews had another briefing. It was impossible to continue the briefing until the commander cleared the disruptive crews from the auditorium. No comments were made by the commander to the entire force on the importance of the mission, any particular safety precautions to be taken, or emergency procedures. They were covered in response to inquiries by the crews.

Attachment 2

SUMMARY - The briefing lacked organization, did not specify a particular mission, was disjointed, and vague. It appeared as though no planning had occurred around the missing data.

CELL BRIEFINGS - Cell briefings were conducted by the individual PL flight leads. They were professionally handled and made use of applicable checklists. Comm, LZ and safety considerations were covered in detail for each flight. An important factor - if the lead in Cell #1 aborts the lead in Cell #2 moves up to take his place. Then 3 -- 2 4 -- 3 spare -- 4. This situation (which occurred) could put a Cell lead in change of a formation he had not briefed creating a lot of confusion. If this arrangement is going to be common practice, one cell brief for all crews should be made so everyone is starting from the same knowledge base.

FLIGHT - Comments on the flight phase were taken from personal observation, crew comments, and debriefings.

- More than one cell arriving late at ARCP and having to go to the last slot to refuel - 2 cells could be moving to the last slot simultaneously in blacked out conditions. A potential mid-air situation. We have lost B-52's doing this.

- Navigation - If Pave Low is lost I feel navigation would be extremely difficult. Charts I saw were missing basic navigation aids such as tic marks and additional checkpoints.

Attachment 2

Don't plan straight legs. It is difficult to control time on them, especially if you wingmen can't keep up. Plus it creats an Op Sec problem.

- Pilot felt the tanker was too dark.

- In LZ dust created an obscuration to hinder landing and to cloak the other landing or taxiing helo.

- Landing in LZ#1 was without incident, but the Pave Lows departed the area before being called in for the pickup. As a result, they orbited for over 30 minutes--an unrealistic danger in enemy or hostile areas. [redacted] The flight then (according to the CCT) arrived at the field 45 minutes early. There was confusion as to local/ZULU times. Apparently the CCT had briefed local times--the crew was on ZULU.

- A parking plan in the LZ needs to be established to maintain flight integrity.

- On egress from the area, the PL came out in a close trail formation and returned to the Holding area for their wingmen. I don't know if warning time for start was needed or if the start time was established for the Hawks. The H-53s orbited the LZ and waited for their wingmen. This is when talk on the radio started in earnest. For the next 30-45 minutes, there was much orbiting, light flashing and chatter on the radios. When this exrcise was over, the flight system had been destroyed. Our A/C found its three wingmen and several from other flights that had flown to a nearby field to be safe.

- Wingman consideration should be stressed. This is a joint operation - no weapon system involved can perform this mission alone.

- Confusion was added in this area considring this portion of the mission from the HP to PZ was changed four times.

- By this time in the flight, confusion was rampant. Follow-on refuelings were not carried on as briefed. Wingmen overflew refueling points fearing the same problem encountered at the HP. Proper spacing was not maintained, ground, directions and markings were not followed, and radio discipline was broken down.

-- Improper or no use of callsigns.

-- Profanity.

-- Irrelevant chatter.

-- Confusion on active frequencies the cell was using.

SUMMARY - The plan, briefings and execution had many shortcomings, and omissions. I give total credit to the crews for acting in a professional manner in a less than optimum environment and successfully completing the most important segment of the mission - the pickup of the PC.

CONCLUSION - The problem areas can be overcome by emphasis on the importance of proper planning for missions--all missions--and a comprehensive training program. The most important factor is the successful demonstration of capability of PL/Hawk team to ingress an area during minimum light conditions, with no navigation aids, and nondescript terrain; and precisely navigate to areas of interest and carry out their mission.

SUMMARY OF H-53 DEBRIEFING ITEMS: TRAINEX PHOENIX

The debriefing was conducted in the base theater with all the crews present. Most of the points listed were a concensus of the crews present. The crews will fill out and submit debriefing forms at a later date. The main areas discussed were organization, communications, enroute procedures, and miscellaneous.

Organization

JTD: JTD did not provide enough guidance. The staff felt they were forced into doing too much too fast. They were undermanned and had no planners working for them. The mission managers lacked familiarity with H-53 operations, and felt they needed 1-2 weeks to properly plan a mission of this type.

Command and Control: It was recommended that a single manager be appointed for air operations. He would have a staff and act as the focal point for air tasking, planning, and coordinating air activities. The planning staff should be under his control and be made up of members of particpating units. This staff would provide a focal point for interservice coordination of the formation of standardization criteria for all phases of operations. Especially communications and formation tactics. It was mentioned that written procedures should also be established for aircraft that might be used in special operations i.e., AH-1 cobra or A-10.

Attachment 3

Crew Complement: Hard crews are a good idea and should be expanded to the flights so that the crews in a flight or cell would always fly together.

Training: Too much, too fast and not enough guidance. No goals were established. There was no time to go through the training iteration -- identify requirements, establish procedures, perform event, debrief, evaluate, adjust, reevaluate, etc.

Security: [redacted] so that crews can respond and not attract attention if a helo goes down during training. For instance [redacted]

Communications

Alpha-numeric: No one understood, liked or used the system. One aircraft flew the mission with three call signs Bromo, Jolly, and C4X44. The crew said it worked out OK because no one called him.

Distribution: Communication plan should be distributed at least 48 hours prior to the mission.

Frequencies: Each cell should be assigned a discrete frequency. This will help with cell coordination, joinup, and area work.

CCT: Unit needs more work with CCT. Also suggested having a headset for ground personnel who need to communicate with the aircraft while it is on the ground.

Attachment 3

Lost Comm: Last comm procedures are needed for each stage of the mission. Especially the LZs and pickup zones.

Enroute

Discipline: People did not do what they were briefed to do. When a point of confusion was reached, radio discipline deteriorated, crews reverted to procedures they were used to, and ignored briefed procedures.

Lead Changes: Mass formation briefing is required if the Pave Low lead change procedures used during the exercise are continued.

Formation: More work needed in coordinating formation activities and more attention given to flight lead responsibilities and flight integrity.

Holding: Enroute hold points (air or ground) should be established. If lead aborts, the flight can wait for a new lead.

Interplane: Light/visual signals should be established for interplane communications.

Landing Zone:

Markings: Marking should be as large as possible--25 meter Y was most popular.

Landing Lights: More space is needed between landing lights. The dust obscures the forward aircraft as it lands. Then obscures it again as the follow-on aircraft create their own dust cloud.

Ground Management: Assign landing positions to each cell in the landing zone. This will help maintain flight integrity and lead control. This can be enhanced by having marshallers or CCT direct aircraft landing areas. Mark aircraft with lights or identifiable markings so flight and cell positions can be identified.

Timing: Space out landings to avoid congestion and dust problems. Land to the Y then taxi out to the park position.

Communications: Lost comm procedures for movement to pickup zone and other landing zones.

Safety: DO NOT OVERFLY OTHER AIRCRAFT!!!

Miscellaneous

Mission Cards: Design mission cards to consolidate pertinent mission information - navigation, comm, formation, and coordination actions plus any other information that should be readily available.

Ear Protection: Provide ear protection devices for passengers - it is uncomfortable to ride in an H-53 without ear protection.

Gross Weight: With all the extra equipment added to the airframe, no one knows exactly how much they weigh.

Personal Observations

Nose Wheel: Design and install a non-castering front wheel assembly for the nose gear; or a limit system that keeps the wheel from turning 90 degrees to direction of travel when operating in sand.

Uniform and Equipment: Find a way to compensate the airmen for uniforms and equipment that were ruined on the deployment. If we can spend 15 million in one week on aircraft, we can spend a couple of thousand dollars to replace ruined uniforms and equipment. The benefits of taking of these people cannot be over-emphasized.

Finance: Encourage local accounting and finance offices to be extremely liberal in their interpretation of the JTR's. I do not see the benefit of losing dedicated technicians for the saving of a few dollars. I can't help but feel we are being penny wise and pound foolish in this case.

Decorations: I recommend submitting the airmen for commendation medals.

Attachment 3

ANALYSIS

The potential to conduct any tactical mission, no matter how diverse from normal operations, lies with the understanding of the mission objectives; insuring of proper assets to conduct the mission; and to insure basic training has been accomplished prior to commencement of specific mission training.

The initial USAF construction of operation Honey-Badger included the utilization of Pave Low CH-53 and additional Heavy Lift HH-53 Air Force assets.

Phase I Training consisted of basic aircraft familiarization and pave low system crew qualification.

Under Phase II (Operation Training) a combined exercise with US Army Assets was formulated to accomplish various training objectives with combined assets. This phase required a high degree of experience in night flying, experience utilizing sophisticated navigational assets; an indepth understanding of associated night flying problem; and a thorough knowledge of night vision goggles use and operation.

In order to operate effectively within the scope of the designed exercise all of the previously stated objectives had to have been met.

What appears yet to be fully developed at the present time is sumed up in the following areas:

a) An overall lack of confidence concerning night time operations in a unfamiliar environment.

b) Necessary fundamental training to include the following:
   1. Unaided Basic Night Work
   2. Night Vision Goggle Work
   3. Non-Augmented Night "OR" Navigation
   4. Night Formation Flight
   5. Night Unprepared Area Landings
   6. IR Lighting Techniques
      i) Navigation Assist.
      ii) Formation Assist.
      iii) Landing Assist.

RECOMMENDED FLIGHT TRAINING PROGRAM: To complete the required capability development the following flight training program is recommended:

1. Unaided Basic Night Work
Moon Illumination ≥65%

2 Hr class room instruction to include:
a) Conduct of night operations (without augment systems)
Prepared Field Landings
.≤ 20 KT Roll on
.0 Airspeed, no hover LDGS to a precise spot
.Low Level Flight Techniques @200 AGL
.Minimal Cockpit Lighting.
Unprepared Surface Landings
.0 Airspeed no hover LDGS to a precise spot
.Confined Area Landings
Flight Instruction
3 Hr/2 Sorties to conduct the previous classroom instruction under actual flight conditions.

2. Night Vision Goggle Instruction
Moon Illumination ≥40%

5 Hr class room instruction to include
. Operation of NVG
. Cockpit Preparation for NVG Use
. CH-53 and NVG OPS
-Night VG Touch and Go (Prepared Site)
-Night VG OPS (Unprepared Site)
-Night VG Approaches
-NVG - Take off Techniques
-NVG - Navigation Techniques
. Cockpit Crew Coordination
. Emergency Procedures OPS w/ NVG.
. NVG/Vertigo Inducement
. Altitudes for NVG OPS.
. Review previous Basic Night OPS.

Flight Instruction
10 Hr/7 Sorties to conduct the previous classroom instruction under actual flight conditions to include
- -0 Airspeed/ No hover Landings
- -Unprepared Site LDGS.
- -NVG Approaches
- -NVG 0 Airspeed/No Hover Landings.
- -Cockpit Lighting Preparation
- -Cockpit Crew Coordination

3. Non Augmented Night "DR" Navigation
Moon Illumination ≥40%

3Hr class room instruction to include
a) Develop the capability to navigate a 300 NM NAV Route to arrive at pre-determined location at the pre-determined time. (± 30 sec)
b) Map preparation + types to use (1:50 vs 1:250)
c) Profile of Flight (Altitude Selection)
d) Selection of Checkpoints/Turn points.
e) Route Structure/Selection
f) NVG Use During Navigation
g) Crew coordination
verbal assist

Flight Instruction
20Hr/7Sorties to conduct previous classroom under actual flight conditions with designed goal to achieve objective (a) above.
- a) Sortie #1: Navigate a 100 NM NAV Route with minimum 3CPS Terminating at remote site.
  . CP Accuracy: ± 1 NM ± 1 MIN
- b) Sortie #2: Repeat #1
- c) Sortie #3 Navigate 200 NM NAV Route with NVG and IR Lighting
  . CP Accuracy ±. 5NM ± 1 MIN
- d) Sortie #4 Repeat #3
- e,f,g) Sortie #5 #6 #7: Expand Capability to achieve stated objective.

4. Night Formation Proficiency
Moon Illumination ≥20%

2 Hr classroom instruction to include:
A) Conduct of Night Formation Flight
B) Size of optimum formation
. 2 vs 4 sections of aircraft
. # of sections per division
C) NVG Formation Flight
. Bearing from Lead
. Distance " "
. Duration of Hop
D) NVG Landings in Formation
E) NVG T/O " "
F) Pave Low/NVG Interface

Flight Instruction
4 Hr/3 Sorties (additional sortie support may be included in previous NAV Sorties.)
a) Include previous classroom trng.
b) Sortie #1 Basic Night Formation Work
c) Sortie #2 NVG Formation with section Landings and approaches
d) Sortie #3 Review Sortie #2

5. Night Unprepared Landing Zone Techniques
Moon Illumination ≥50%

2 Hr classroom instruction to include:
a) Conduct Landings in Remote Sites
b) Landings in Dusty Environment
c) NVG Utilization
d) Cockpit Coordination
e) Aircraft Lighting.

Flight Instruction
3 Hr/3 Sorties to conduct the previous classroom instruction under actual flight conditions
a) Sortie #1 Rough/Remote Area Landings with NVG or LZ Lighting.
b) Sortie #2 Dust conditioned landings with NVG to a lighted LZ.
c) Sortie #3 Same as above without LZ Lighting (no Hover 0 airspeed landings).

6. Infa Red/NVG Compatable Lighting Techniques

2 Hr classroom instruction to include
a) Navigation assist with Infa Red (IR)Lighting
b) Formation with Illumination assist
c) Landing with IR Illumination assist.

Flight Instruction
To be included with prior training sorties.

CORRECTIVE TRAINING

The recommended training should be completed prior to further integrated training exercises. The successful completion of this endevour will greatly enhance the Air Force capability. Results should be immediately apparent in a higher confidence level of the involved aircrews; the capability of integrated improved pilot capabilities to the sophisticated pave low system resulting in a more effective mission capability; allow for more flexible and unique mission exploration for uses of Pave Low; and an independent mission enhancement of the HH-53 Slick Aircrews in a night time environment.

TRAINING REQUIREMENTS; SUMMATION

Class Room Instruction	16 Hours
Flight Instruction	30 Hrs 21 Sorties

The Basic Night Training with NVG incorporation into Pave Low/ HH 53 Slick training would involve approximately 3 wks dedicated training program. Seven sorties could be combined with other mission training sorties.

SPECIAL TEST GROUP

The intent of the group is to consolidate the present Special Operations knowledge and develop procedures that can be used by all participating units. Communications, Formation, Landing Zone, Holding area, and pickup zone procedures will be established. Also, emergency and contingency options will be discussed.

The Group will be made up of flight examiners and IPS from participating units. Their objective would be to develop joint procedures and policies for the employment of forces in the Special Operations missions.

The deployment schedule will be as follows:

1. Identify Army, Air Force, and Marine crews to participate.
2. Deploy aircraft UH-60, CH-47, H53 (Slick) and MX support.
3. Begin intensive IP-FE conferences to establish interservice procedures.
4. Begin intensive IP training program with UH-60, CH-47, H-53 crews to establish a cadre of highly qualified personnel trained in joint operations and provide an immediate mission capability.
5. After 7-10 day redeploy aircraft and crews to home station.
6. Cadre begins training home unit.

The short intensive training of selected crews would decrease the extensive training requirements for the large units and make the training more efficient, and compress the time necessary to produce a capability.

Attachment 5

[redacted]

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IMMEDIATE
O 252130Z JUL 80
FM PPRESIDENT AVN BD FT RUCKER AL //ATZO-OT-AU//
TO HQ DA WASH DC //DAMO-ROD//
BT

[redacted]

SECTION 01 OF 02
[redacted] PASS TO [redacted]
SUBJ: HONEY BADGER
1. THIS MESSAGE IS A SUMMARY OF FINDINGS WHICH RESULTED DURING EVALUATION OF THE FINAL EXERCISE CONDUCTED DURING PHASE II.
2. PILOT MISSION BRIEFINGS
A. NORTH ROUTE
(1) CONDUCTED BY 158 AVN BN
(2) ADEQUATE WITH SOME EXCEPTIONS
B. SOUTH ROUTE
(1) CONDUCTED BY USAF
(2) UNSATISFACTORY WITH THE EXCEPTION OF WEATHER AND CH-47 RAPID REFUEL OPNS. SITUATION, MISSION AND EXECUTION WERE PRESENTED IN A CONFUSED, UNCLEAR MANNER. NO LOGICAL FORMAT SUCH AS THE 5 PARA FIELD ORDER WAS USED. NUMEROUS CHANGES WERE MADE DURING THE BRIEFING; VISUAL AIDS WERE POOR.
(3) EXTEMPORANEOUS BRIEFINGS BY PIC'S OF FLIGHT LEADS MADE MISSION ACCOMPLISHMENT POSSIBLE.
C. GENERAL COMMENTS CONSOLIDATED BY EVALUATORS PRESENT AT BOTH PILOT MISSION BRIEFINGS:
(1) NUMEROUS FREQUENCIES AND CALLSIGNS UNKNOWN; SOME CHANGED DURING BRIEFING.
(2) SOME VISUAL AIDS WERE INADEQUATE.
(3) OCCUPATION OF LZ'S WAS NOT PROPERLY BRIEFED.
(4) LINK UP OF UH-60 AND CH-53 AT LZI SOUTH WAS POORLY PLANNED; CHANGED DURING THE BRIEFING.
(5) FRIENDLY/ENEMY SITUATION WAS NOT BRIEFED.

ACTION DAMO(12) (U,F)
INFO SAPA(3) DALO(6) DAMI(6) DAPE(3) DAAC(6)
ACC-DAMI WATCH(1)
TOTAL COPIES REQUIRED 27

MCN=80207/24141 TOR=8C207/2249Z TAD=80207/2249Z CDSN=PR5552

ARMY SECTIONAL MSG [redacted] PAGE 01
252130Z JUL 80

(6) NO CH-47 RPP TERMINATION TIME OR SECURITY PLAN WAS BRIEFED.
(7) LZ SECURITY PLAN WAS NOT BRIEFED.
(8) LZ STATUS AND RULES OF ENGAGEMENT WERE NOT BRIEFED.
(9) AUTHENTICATION TABLES WERE NOT BRIEFED/USED.
(10) THE FOLLOWING PROCEDURES WERE NOT ADDRESSED:
(A) EVASIVE MANEUVERS
(B) INSTRUCTIONS FOR PASSENGER DEBOARDING AT AIRFIELDS
(C) INSTRUCTIONS IN THE EVENT OF LOSS OF LEAD AIRCRAFT
(D) INSTRUCTIONS FOR LOST COMMS
(E) DOWNED CREW RECOVERY PROCEDURES
(F) SIGNALS FOR FORMATION CHANGE
(11) JOINT OPERATING PROCEDURES. STANDARDIZATION AND IMPLEMENTATION ARE ESSENTIAL TO MISSION ACCOMPLISHMENT.
3. PREMISSION PLANNING WAS POOR DUE TO THE FOLLOWING:
A. NAVIGATORS BRIEFED SEPARATELY AND PRIOR TO PILOTS: NUMEROUS CHANGES OCCURRED DURING PILOT BRIEFINGS.
B. 1:500,000 SCALE MAPS ARE INADEQUATE FOR SUFFICIENT DETAIL.
C. HAZARDS INFORMATION WAS NOT AVAILABLE.
D. COMPLETE, DETAILED CREW BRIEFINGS WERE NOT CONDUCTED DUE TO INSUFFICIENT TIME.
E. NUMEROUS INADEQUATE AIR NAVIGATION CHECKPOINTS WERE PROVIDED. (PLANNERS SHOULD UTILIZE AN NVG SIP DURING SELECTION OF CHECKPOINTS.)
4. MISSION EXECUTION
A. UH-60/CH-53 INGRESS TO HOLDING LZ'S
(1) THIS PHASE WAS GENERALLY WELL EXECUTED: ENROUTE NAVIGATION/PILOTAGE GOOD.
(2) SOUTH LZ WAS INADEQUATE: 1 INCH POWDERED DUST; SMALL; UH-60'S MADE GO AROUND.
(3) UH-60 CALL FORWARD PLAN WAS UNCLEAR.
(4) UH-60/CH-53 LINK UP PLAN WAS POORLY PLANNED AND EXECUTED.
B. CH-53 INGRESS TO PZ
(1) GENERALLY GOOD
(2) ONE AIRCRAFT MADE A GO AROUND
C. MOVEMENT TO AIRFIELDS
(1) LACK OF A COMPREHENSIVE PLAN AND EXPERIENCE RESULTED IN MUCH CONFUSION AND DISORGANIZATION WHICH RESULTED IN RELIANCE ON RADIO COMMUNICATIONS.

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(2) NUMEROUS AIRCRAFT IN THE VICINITY OF AIRFIELDS WERE FLYING IN VARIOUS DIRECTIONS WITH NO CONTROL AGENCY RESULTING IN NUMEROUS OVERFLIGHTS. NOT ALL PASSENGERS EXITED HELICOPTERS AT APPROPRIATE POINTS ON AIRFIELDS DUE TO LACK OF PROPER PLANNING. RT

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~~SECRET~~

FINAL SECTION OF 02

(3) MUCH OF FLYING WAS CONDUCTED IN EXCESS OF 1500 FT AGL.

(4) CONFUSION AND DISORGANIZATION RESULTED IN PILOTS USING POSITION LIGHTS, UNFILTERED LANDING LIGHTS AND EXCESSIVE RADIO TRAFFIC.

(5) AIRCRAFT OFTEN LOST SIGHT OF EACH OTHER DURING FORMATION FLYING UNDER NVG'S RESULTING IN STROBE LIGHTS BEING USED TO REGAIN CONTACT BETWEEN AIRCRAFT.

C. REFUELING AT CH-47 RRP'S

(1) ENROUTE PILOTAGE AND NAVIGATION WAS EXCELLENT.

(2) NORTH FLIGHT OVERFLEW THE RRP SITE AND CIRCLED THE AREA FOR APPROX 15 MINUTES TO LOCATE THE PROPER AREA.

(3) ONE CH-47 AT THE SOUTH RRP HAD TO BE REPOSITIONED APPROX 200 METERS DUE TO POORLY SELECTED TERRAIN.

(4) RRP SET UP WAS COMPLETED IN 15 MINUTES.

(5) REFUELING UH-60 WITH 500 LBS OF JP-4 TOOK BETWEEN 6 AND 11 MINUTES. ONE AIRCRAFT TOOK 19 MINUTES DUE TO CREWCHIEF BEING UNFAMILIAR WITH THE CCR NOZZLE.

(6) NUMEROUS PILOTS RECOMMENDED THAT UH-60 LANDINGS BE ACCOMPLISHED AT RIGHT ANGLES TO AND BEHIND CH-47'S FOR SAFETY IN THE EVENT OF REQUIREMENTS FOR GO AROUNDS.

(7) ONE CH-53 EXPERIENCED FAILURE OF THE NOSE GEAR AND UTILIZED WHITE LIGHT FOR 11 MINUTES TO TRY TO RESOLVE THE PROBLEM.

(8) ONE RRP PUMP FAILED; CREW MUST RELEASE PRESSURE IN LINES PRIOR TO CHANGING PUMPS; TIME DELAY WAS NEGLIGABLE.

5. MISSION EFFECTIVENESS

A. NAVIGATION EQUIPMENT ONBOARD AIRCRAFT OCCUPIED BY OBSERVERS WORKED WELL; GENERALLY NAVIGATION ERRORS WERE LESS THAN 0.5 MILES.

B. JOINT OPERATING PROCEDURES ARE NEEDED FOR STANDARDIZATION

[redacted]

PENTAGON TELECOMMUNICATIONS CENTER

AND MISSION EFFECTIVENESS IN THE EVENT OF UNEXPECTED OCCURRENCES.

C. AS AMBIENT LIGHT CONDITIONS DEGRADE, FLIGHT ALTITUDES INCREASE IN EXCESS OF 1500 FT AGL.

D. MORE PRACTICE IN FORMATION FLYING WHILE WEARING NVG'S IS REQUIRED.

E. SOME CREW MEMBERS ARE NOT FAMILIAR WITH CCP NOZZLE REFUELING.

F. CREW COORDINATION AND STANDARDIZATION SHOULD BE IMPROVED.

G. ALL CREW MEMBERS SHOULD BE PROVIDED WITH NVG'S; NOT ALL CH-47 ENLISTED CREW MEMBERS AND NAVIGATORS HAD NVG'S.

H. EXTENDED RANGE FUEL SYSTEMS WORKED WELL. (PREVIOUS COMMENTS AND RECOMMENDATIONS FOR MODIFICATION STILL APPLY.)

I. A BLACKOUT CURTAIN BETWEEN THE COCKPIT AND NAVIGATOR AND A COVER OVER THE DOPPLER WERE TESTED; CREW ACCEPTANCE WAS GOOD. CW3 ROSENGRANT HAS MATERIALS TO MAKE ADDITIONAL CURTAINS/COVERS.

J. COMPLETE TACTICAL MISSION BRIEFINGS TO INCLUDE GROUND SECURITY PLANS ARE ESSENTIAL.

K. ADEQUATE TIME MUST BE PROVIDED BETWEEN BRIEFINGS AND MISSIONS TO ALLOW FOR THOROUGH CREW PLANNING AND COORDINATION.

L. PATHFINDERS SHOULD BE INSERTED INTO FRP SITES AT LEAST 15-30 MINUTES PRIOR TO CH-47 ARRIVAL.

M. NOT ALL UH-60'S REFUELED AT THE FRP. CREWS SHOULD COMPLETE ALL REQUIRED TRAINING TASKS DURING EVERY MISSION TO INCREASE PROFICIENCY AND CONFIDENCE.

6. RECOMMENDATIONS

A. UH-60 HYDROMECHANICAL UNIT (HMU) AND APU PROBLEMS SHOULD BE DIAGNOSED AND RESOLVED (RESULTED IN ENGINE FAILURES AND APU FIRES/FAILURES, RESPECTIVELY).

B. LANDING LIGHTS FITTED WITH LIGHT DIFFUSERS OR MODIFIED BY ADDITION OF A LIMITED SWITCH TO PRECLUDE INADVERTENT OPERATION AND DAMAGE/MOTOR BURN OUT.

C. ADDITIONAL MISSION TRAINING OVER SHORTER ROUTES TO PERFECT MISSION EXECUTION.

D. DEVELOPMENT AND IMPLEMENTATION OF JOINT OPERATIONS.

E. ALL UH-60 AND CH-47 ACFT BE FITTED WITH CURTAINS BETWEEN NAVIGATORS AND COCKPITS.

F. PROVIDE 48 HOURS OR MORE BETWEEN MISSION NOTIFICATION AND EXECUTION.

7. TEST AND EVALUATION POC IS CPT(P) [redacted]

G

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Re-Occurring Comments from Pilot Debriefings

Phase I - Black Route

I. CREW COORDINATION:

A. Pilot or Co-Pilot must navigate while navigator is busy inside Aircraft. Recommend that two sets of maps be carried on the flight with the man not on the controls observing the map.

B. Crew integrity must be maintained throughout the period of training.

C. Crew Coordination and teamwork is a prerequisite for mission accomplishment and safety on this type mission.

II. AIRSPEED AND POWER:

A. Airspeed had to be dissipated to climb.

B. TGT was often in the high range.

C. Rotor droop was experienced while climbing to clear high terrain.

III. NAVIGATION:

A. [illegible]'s are not usable by navigator for map reading.

B. Navigators experienced a heavy work load.

C. Numerous incidents were noted in which Doppler was inaccurate or failed in flight.

D. Doppler worked well after alignment.

IV. TIME ALLOWED:

A. Planning time between briefing and takeoff was not adequate.

B. Navigators must be allowed to plan routes and airspeeds based only upon a target time. Problems with airspeed and power were encountered while trying to meet intermediate checkpoint times.

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V. CREW COMFORT:

A. Navigator's seating arrangement is extremely uncomfortable.

B. All crew seats became uncomfortable with prolonged flight.

VI. MISCELLANEOUS: Routes were too congested due to number of Aircraft and spacing.

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Appendix 2 (Phase II) to ANNEX B (Re-Occurring Comments from Pilots Debriefings) to Honey Hadger After Action

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REOCCURRING COMMENTS FROM

PILOT DEBRIEFINGS

(Phase II - Joint Operations)

I. FORMATION FLIGHT WITH U.S. AIR FORCE

H-53's:

A. UH-60's experienced problems with power and aircraft control when in formation with H-53's due to rotor wash.

B. H-53's tended to terminate approaches to a high hover in landing zones.

C. H-53's flight leaders did not follow route as planned or overfly checkpoints.

D. Communications problems existed due to numerous frequencies for each operation, a misunderstanding of CEOI's and callsigns, inoperative secure gear, and overloaded radio nets caused by confusion during missions.

E. Aerial Link-ups during missions create a mid-air collision hazard. All forming of flights should be done on the ground.

F. Formation lights and blade tip lights only should be used with NVG's.

G. Air Force briefing was incomplete, fragmented, and confusing. Briefing in detail is needed, to include contingencies. Some of the material briefed was not needed for the mission.

II. LAAGER AREAS AND RRP's:

A. Leaking fuel nozzles and low-pressure pumps were common at RRP's.

B. Laager/Holding Areas were difficult to identify. Specific sectors should be assigned to each flight to prevent overcrowding and confusion.

C. Lighting for landings at RRP's, P.Z.'s, and laager sites was generally poor. Radio contact with the ground party was difficult to establish, and air traffic control was often inadequate.

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III. CAMOUFLAGE:

A. Set-up times for camouflage nets ranged from 45 minutes during daylight to 2 hours at night. Camouflage teardown times ranged from 15-30 minutes.

B. Three to four camouflage systems are required to cover the aircraft.

IV. MISCELLANEOUS:

A. Identification of enroute checkpoints was difficult or impossible due to low illumination. Illumination was too low for NVG's to be effective.

B. Navigator briefings were sometimes insufficient, with minumal time allowed for mission planning.

C. UH-60's experienced rotor droop while hovering, during landing, and upon take-off. Rolling take-offs and landings are preferred when terrain permits.

D. Filtered searchlights on UH-60's is not adequate for mission requirements.

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OPERATION HONEYBADGER
PHASE II USA/USAF
OPERATING PROCEDURES
(HH-53H/UH-60A)

1. Engine Start: As briefed.

2. Aircraft Taxi: As briefed.

NOTE: UH-60's perform all operational hover checks prior to joining HH-53's on parallel.

3. Commo Check:

UHF tower frequency (unsecure) immediately following flight lead's request to take active. Call signs as per current CEOI.

4. Take Active:

NOTE: HH-53's taxi 1000' forward, downwind side of active if crosswind component is on the opposite side of taxiway and perform hover checks. Line up on center line if direct headwind exists. (Formation: Trail, with all anti-collision lights on.)

5. Take-Off Procedures (normal):

a. As lead aircraft completes hover checks, anti-collision light is turned off. Chalks 2-5 turn off anti-collision lights in sequence when ready.

b. When trail turns off anti-collision light, lead executes running takeoff (rotating well forward) UH-60's rotate earlier. (Caution: Wake turbulence)

c. Lead climbs out at 80 KIAS, 500 FPM climb angle until flight is formed with rotor blade separation of 3-5 disks.

d. Lead and flight accelerate to 110 knots ground speed.

e. Climb and formation changes are executed as required.

NOTE: If any individual aircraft problems are encountered, aircraft will leave anti-collision light on andmove to opposite side of active dropping out of formation.

6. Take-off Procedures (aborted):

Aircraft with eminent problem and/or emergency takes unused runway side and maintain clearance from flight members in front of him and attempt to execute a controlled run-on landing on upwind side of active runway.

NOTE: If direct headwind exists, aircraft attempts to fall out left of formation, then into wind.

7. Formation Changes in Flight:

Formation Changes will be acknowledged and executed upon reception of the following IR/flashlight/anti-collision light signals from flight lead:

Light Series	Formation
1	Staggered left
2	Trail
3	Staggered right

NOTES: 1. Changes from staggered left to right or vice versa, will always be executed through trail formation first.

2. If formation change is missed, lead gives signal again.

Lead and all aircraft in flight will leave light signal on for a minimum of 1 second each flash and off 1 second between flashes.

8. Formation Break-up (VFR):

If for any reason, formation break-up is required (i.e., ASE AA warning), all aircraft will break away visually from threat, JINK as required and descend. All aircraft monitor RWR to a lower altitude. If visual link-up cannot be re-established within a reasonable time period, all aircraft will initiate rendezvous join-up procedures as outlined below single ship.

NOTE: Secure communications to assist in aircraft avoidance may be initiated.

9. Aircraft Rendezvous/Link-Up Procedures (VFR):

a. Single-ship aircraft with navigator on course or direct to the next succeeding way-point (checkpoint) to initiate link-up (i.e., if break-up is encountered enroute between way-points 3 and 4, link-up will be attempted at way-point 5).

b. Lead or first aircraft to arrive at link-up point will make two left standard rate 360° turns at the link-up point. CAUTION: Numerous merging aircraft

c. Groundspeed of 110 will be maintained enroute to link-up point. If link-up is accomplished, each aircraft will join the rear of the flight regardless of previous position. If link-up is missed, proceed single ship to landing/rendezvous point.

10. Formation Approach (Tactical/Non-Tactical):

a. When on 3 mile final for designated landing area, lead will turn-on his IR landing light (steady on). Flight will take 30 seconds spacing, remaining in current formation position (i.e., staggered left).

b. When 2 miles from LZ, lead will decelerate for landing.

c. All aircraft will touch down with minimum ground roll.

NOTE: CH-53's will use a constant deceleration to a touch down point.

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11. Formation Approach "Go-Around" Procedure:

a. Lead will turn off IR landing light designating a go-around and accelera as required to 80 KIAS and climb to assure obstacle clearance and maintain terrai definition (NVG).

b. Lead will initiate a left hand standard rate turn (terrain permitting) and attempt another approach.

c. Aircraft in flight will maintain separation.

d. Lead will turn on IR search light for landing and decelerate when estab-lished on final.

e. Any UH-60's requiring go-around will extinguish IR light and do a single ship go-around, joining on rear of flight.

NOTE: If go-around is initiated because of inadequate LZ, preparation or landing conditions, a landing will not be made.

12. Air Refueling:

Left echelon will be established prior to the ARCP. During the air refueling of the MH-53's, the UH-60 will establish 10-disk separation from lead (or #2 MH-53) and then fly formation off the C-130 maintaining position to allow the 53's maneuvering room. When lead is finished refueling, UH-60's will rejoin and contir the mission. If two 53's are in the formation, each will go to the rear of the echelon formation, then both will pass the formation on the left with UH-60's maneuvering to the stagger left formation.

13. Inadvertent IMC (Lost Visual) Procedures:

Due to the close proximity of aircraft to mountains for masking, a flight could enter IMC. The aircraft entering should alert lead. Lead will state head-ing, altimeter setting, and minimum safe altitude for enroute segment. Lead will accelerate to 110 kts and climb to 400 feet above minimum safe altitude. Aircraft #3 will decelerate to 90 kts and climb 600 feet above minimum safe altitude. Aircraft #4 will decelerate to 80 kts and climb 300 feet above minimum safe altitude. Aircraft #5 will decelerate to 70 kts and climb to 1000 feet above minimum safe altitude. As each aircraft reaches his altitude, he should accelerat to 110 kts. As aircraft accelerate, they will make turns to increase separation. Aircraft #2 will turn 30° left for staggered left and trail formation and 30° right for staggered right. After completion of turn, fly 30 seconds, then return to entry heading. Aircraft #3 will turn 30° right for staggered left and trail formation and 30° left for staggered right. After completion of turn, fly 30 seconds, then return to entry heading.

Aircraft #4 will turn 60° left for staggered left and trail formation and 60° right for staggered right. After completion of turn, fly 60 seconds, then turn to entry heading. Aircraft #5 will turn 60° right for staggered left and trail formation and 60° left for staggered right. After completion of turn, fly 60 seconds, then return to lead heading.

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After completion of break-up, and lead determines that it is necessary, the flight will contact ATC facilities for approach to the nearest facility. When ATC facilities are not available, lead will determine a location that the flight proceed to and let down to VMC. Lead will give this location in LAT/LONG coordinates, and the altitude the flight can expect to break-out. Lead will also give a heading to fly from the coordinates. As each aircraft reaches the coordinates, he will start his let down to VMC.

NOTE: During IMC procedures, all aircraft will have navigation lights on bright, with no beacons. One crewmember will transition to instruments.

14. Enroute Abort (Downed Aircraft):

a. Lead aircraft aborts by flashing landing IR light and land with IR light or execute a standard rate turn 180° and RTB extinguishing IR light. #2 becomes lead and flight continues. Trail checks to insure a safe landing, renders assist required and continues mission. SAR cleanup will be as briefed prior to mission.

b. All other aborts will be similarly covered by trail.

c. Trail will be monitored by the helo in front of him, and that helo will escort trail to ground.

d. Use IR lights to indicate landing and no lights to indicate RTB.

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STAGGERED LEFT

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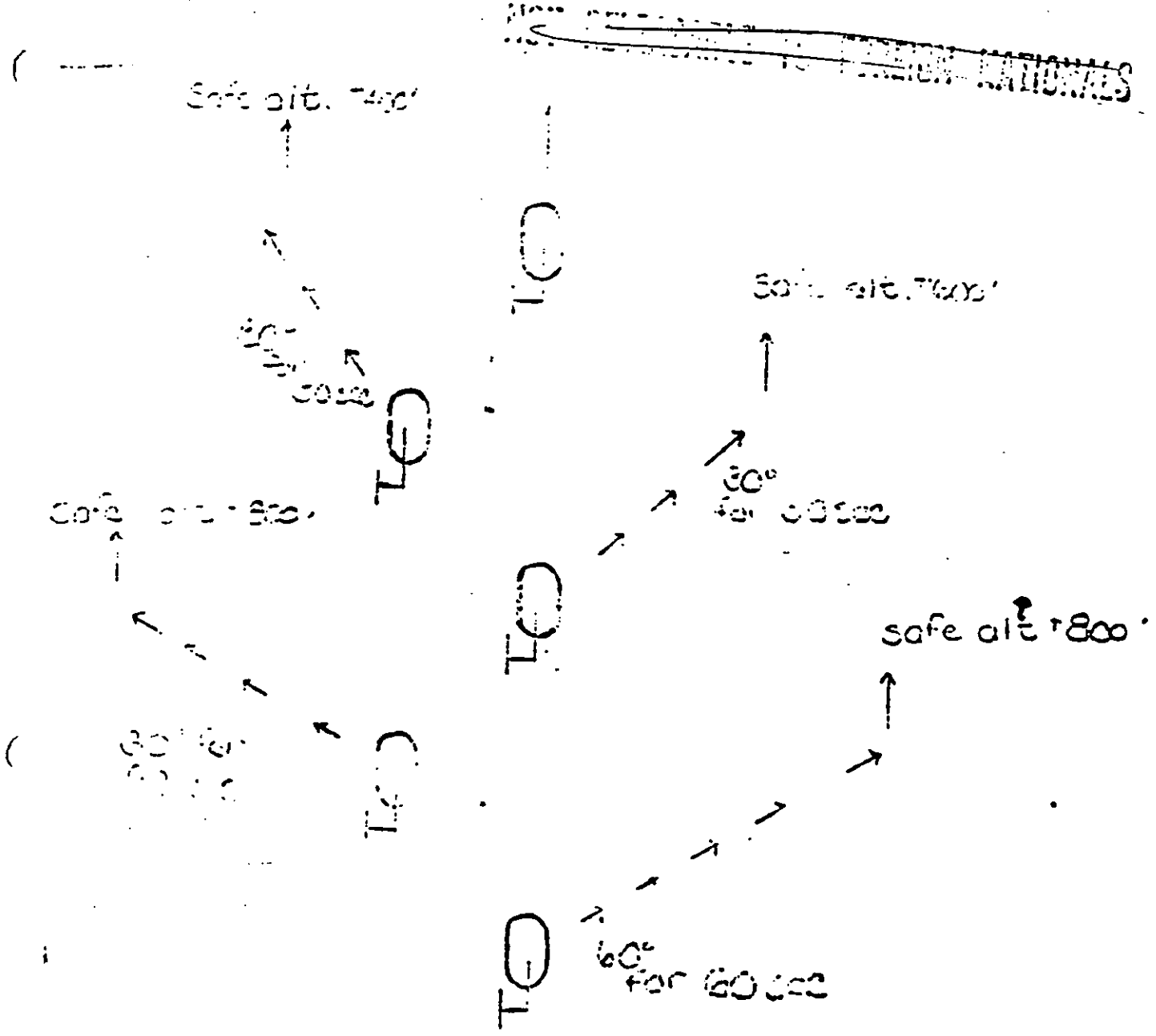

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STAGGERED RIGHT

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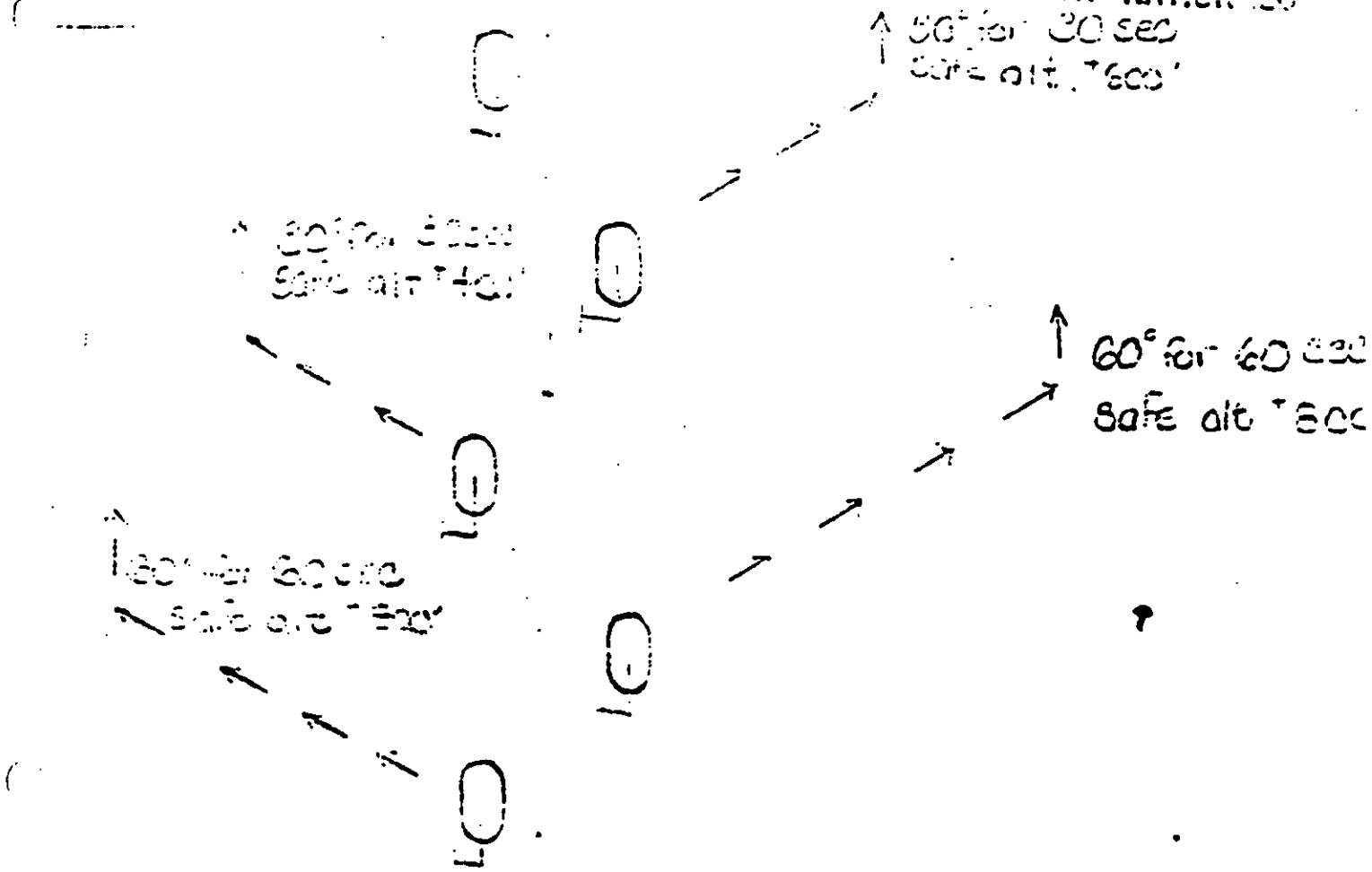

GLOSSARY

AMC - Air Mission Commander

ASE - Airborne Survivability Equipment

ARCP - Airborne Refueling Check Point

CCT - Combat Control Team

COLD SIDE (Of Active) - Downwind Side

HOT SIDE (Of Active) - Upwind

IMC - Inadvertent Meteorological Conditions

JINK - Displacement in any one or all the combinations of vertical, latitudinal, or longitudinal planes, usually to avoid effective enemy acquisition or engagement.

RTB - Return To Base

RWR - Radar Warning Receiver

SAR - Search and Rescue

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OPERATION HONEYBADGER
PHASE II USA/USAF
OPERATING PROCEDURES
(HH-53C/CH-47)

1. This manual describes procedures for HH-53C/CH-47 communications out, night, NVG formation flight. Pre-flight briefings should be detailed, complete, and cove every aspect of the planned mission. Flight lead should brief the following as a minimum:

a. Call Signs: Brief individual tactical call signs for the entire flight.

b. Communications: Brief radio frequencies for the flight. If a frequency change is necessary, brief a geographic point or time when all members of the flight will automatically change frequencies. Identify which radio will be secure and for what portions of the flight they will remain secure (i.e., identify the point during the mission when or where everyone changes to unsecure communications

c. Start Time: Brief engine start time for all elements of the flight.

d. Taxi/Flight Formation/Communications Check: If taxi clearance is require each member of the flight calls for his individual taxi clearance. At a prebriefe time, form the flight at a designated spot near the runway (i.e., the parallel taxiway). Flight lead will make a positive communications check with all element of the flight prior to taxiing on the active runway (i.e., lead, Alpha Golf 78 check-in; flight numbers respond; Alpha Gulf 13, Alpha Gulf 95, etc.). Lead will request clearance onto the active as necessary. Flight elements will form on the downwind side of the runway in trail formation (See Figure 1). Maintain at least 200 feet for take-off. Perform hover check. When each element is ready for takeoff, he will turn his anti-collision lights off.

e. Aircraft Lighting and Flight Signals: For takeoff and flight, use the following aircraft lighting:

(1) Daylight Hours or Dusk: Formation lights - max intensity. Position light - max intensity (all position lights should have one layer of green duct tape covering the lens). Anti-collision lights - off.

(2) Night (NVG): Formation lights - dim. Position lights - dim (all position lights should be covered with one layer of green duct tape). Anti-collision lights - off.

(3) During Flight: Use a standard military flashlight to pass all light signals with red lens at night.

(a) Staggered left formation: 1 flash, 1 second duration.

(b) Trail formation: 2 flashes, 1 second duration, 1 second interval.

(c) Staggered right formation: 3 flashes, 1 second duration, 1 second interval.

(d) Formation signals can be given by lead or #2. #2 can set the formation as he desires. Do not acknowledge formation change signals with a return signal.

(e) Lead change: 1 flash, 5 second duration (See Figure 1). Only flight lead can direct a lead change. (Lead changes will be acknowledged by each wingman, i.e., lead signals #2, #2 returns signal to lead, #2 signals #3, #3 returns signal to #2, etc.)

(f) Prepare for landing: Lead turns IR searchlight on for 5 seconds

f. Takeoff/Abort/Join-up Procedures: After all elements have turned off their anti-collision lights, lead will make a running takeoff. Wingman will takeoff in trail, maintaining 200' separation for takeoff. Lead will maintain 60 kts until his scanners notify him that the flight is formed. Inflight, maintain 3-5 rotor disks separation between aircraft. If any member of the flight aborts during takeoff, he will move to the cold lane (downwind side of the runway) and land. Any aborting aircraft is responsible for separation from other aircraft that might abort in front of him. All other aircraft will proceed as normal. Do not break radio silence! (See Figure 2)

g. Type Formation: The flight will maintain stagger left, trail, or stagger right formation. Maintain 3-5 rotor disks between aircraft. Flight lead or #2 can direct formation changes. Change the formation every 20-30 minutes to reduce pilot fatigue. (If lead or #2 waives the formation occasionally, pilot can rest, navigate without the additional strain of flying cross cockpit formation.)

A [redacted]

2. Alternate Leader: The alternate leader will be the number two (2) CH-47 in the formation. HH-53's will lead only as a last resort.

3. Fighter/Ground Fire/AAA Evasion. If flight lead anticipates hostile fire, he is responsible for navigating the flight around the threat. If any aircraft encounters hostile fire notify the flight on primary secure interplane net. Each aircraft will break formation to take evasive action as necessary. When clear of threat proceed to the next checkpoint.

A,B [redacted] This maneuver gives the wingmen time to maneuver as necessary and rejoin the flight. (*Use scanners to maintain aircraft separation and terrain avoidance while maneuvering for evasion.

4. Lost Visual: Aircraft losing visual reference to the formation will call out on the secure primary interplane frequency "Call Sign, lost visual." Lead will turn on formation and position lights full bright and call out heading, altitude presently holding, and/or altitude climbing to for terrain clearance. Wingmen will also turn on formation and position lights full bright and follow heading, altitude, and airspeed changes as depicted in Figure 3. Joinup will be initiated as soon as visual contact and formation can be maintained. If you

TAKEOFF ABORT PROCEDURES

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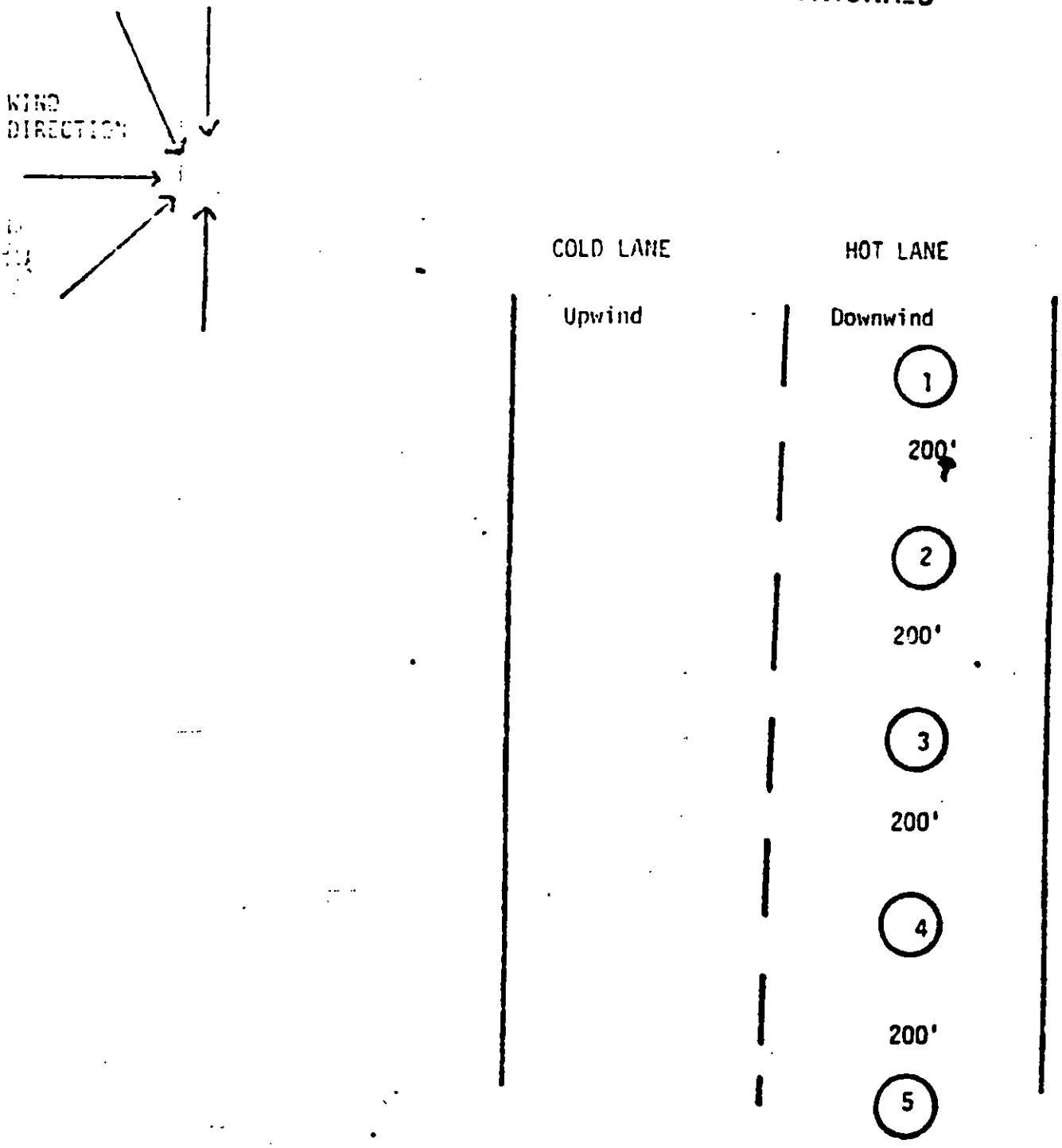


Aircraft aborting will call out on secure voice "Number in formation, Abort Abort Abort" and proceed to the cold lane. Other aircraft will remain clear.

FIGURE 1.

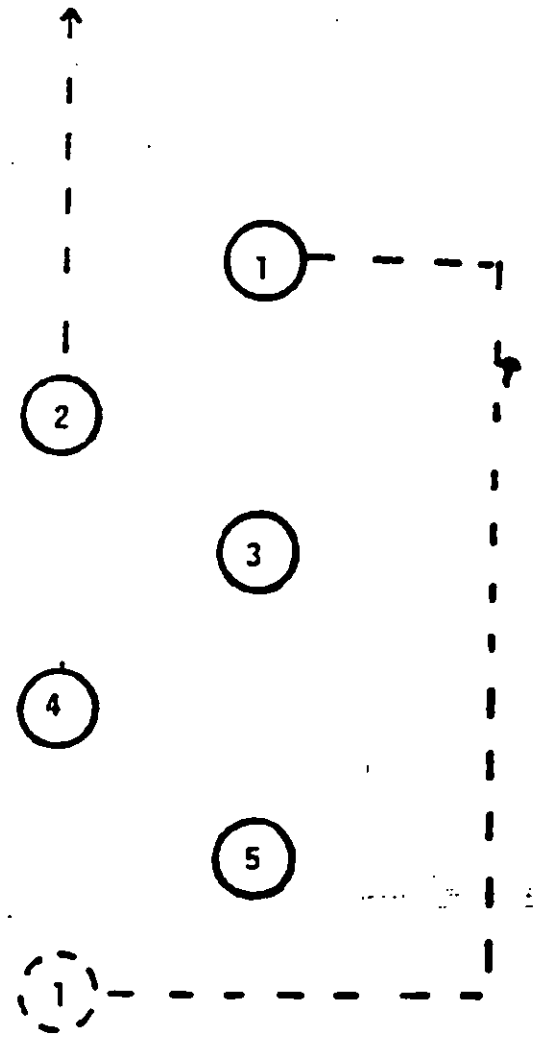
conditions prevail and visual contact with each aircraft is not made, lead will rejoin along track to the next checkpoint, execute two 360° left turns, then proceed along track to original destination. If rejoin is not accomplished by this time, wingman will further attempt rejoin along track to destination.

5. Emergency Procedures: If an aircraft experiences a malfunction in flight he has three (3) options: continue the flight, land, or return to base. If an aircraft elects to make a precautionary landing, he will flash his IR landing light, then leave it illuminated. The last aircraft in the flight will follow him to his landing site, note the position or retrieve the crew, then continue with the flight. If the last aircraft makes a precautionary landing, a predesignated aircraft will note his position or retrieve the crew. The flashing IR landing light should alert the rest of the flight that an aircraft is experiencing an emergency. If a member of the flight elects to return to base, he should flash his IR landing light to alert the other members of the flight, then extinguish his IR light.

[redacted] CHANGE

All lead changes will be initiated by lead only. For stagger left formation, #1 will signal #2 using 2 foot forward and aft movement of a flashlight on left side of aircraft. #2 will acknowledge repeating and relaying the same signal to #3. Each aircraft in tow will follow suit.

[redacted]



#2 will accelerate past #1 and assume lead upon passing #1's nine o'clock position. #1 will clear to the right of the formation, drop back and reposition himself as last man. Opposite directions apply for stagger right formation.

[redacted]

FIGURE 2

LOST VISUAL

1 Lead calls out heading and altitude and/or altitude climbing to for terrain clearance. Maintain 80 kts IAS.

2 Turn left 20° for 30 seconds then resumes lead's heading, climbs to lead's altitude + 200; maintain 80 kts IAS.

3 Turn right 20° for 30 seconds, then resumes lead's heading, climbs to lead's altitude + 200; maintain 80 kts IAS.

4 Turns left 40° for 30 seconds, then resumes lead's heading; climbs to lead's altitude + 400; maintain 80 kts IAS.

5 Turns right 40° for 30 seconds, then resumes lead's heading, climbs to leads altitude + 400; maintain 80 kts IAS.

FIGURE 3.

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i-745

THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

28 July 1980

THE JOINT STAFF

MEMORANDUM FOR THE AIR STAFF

Attention: AF/LERX

Subject: Aircraft Washing and Decontamination

1. Request temporary loan (120 days) of 1 ea aircraft washing and decontamination kit be made to the 101st Airborne (Assault) Division, Fort Campbell, Kentucky.

2. Item is required to support Honey Badger evaluations and is needed by 6 August 1980.

3. Point of contact at Fort Campbell is [redacted] Aviation Battalion, Fort Campbell, Ky, Autovon [redacted] Army will reimburse as required.

[redacted]
Joint Test Director

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Downgraded [illegible]

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THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

i-743

THE JOINT STAFF

29 July 1980

MEMORANDUM FOR RECORD

Subject: Deficiencies Noted During HONEY BADGER

Deficiencies or problem areas noted during HONEY BADGER/ TRAINEX PHOENIX.

- Personnel problems
  - The crew force is undermanned - JTD requires 12 qualified crews to man Pave Low aircraft.
  - TDY status of personnel - Crew members cannot be kept in TDY status indefinately.
  - Training and upgrade of new personnel in special operation procedures basic night nvg operations and Pave Low.
- Operations
  - See Atch 1, Atch 2, and Atch 3.
  - Basic special operations skills of helicopter pilots.
  - Inter-service coordination lacking
  - Mission briefings and briefing guides non-existant or inadequate for all phases of mission.
  - Terminal operations
    - Landing zone procedures
    - Pickup zone procedures
    - Holding area procedures
    - Refueling zone procedures
    - Transhipment zone procedures
    - Ground control
    - CCT activities
    - Lost comm
  - Planning staff inadequate
- Aircraft
  - Qualify H-53 cockpits for NVG operations
  - Camoflage techniques to hide aircraft during daylight
  - Development of medical evacuation capability and emergency pickup of downed aircrews.

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Classified By: ~~JCS~~
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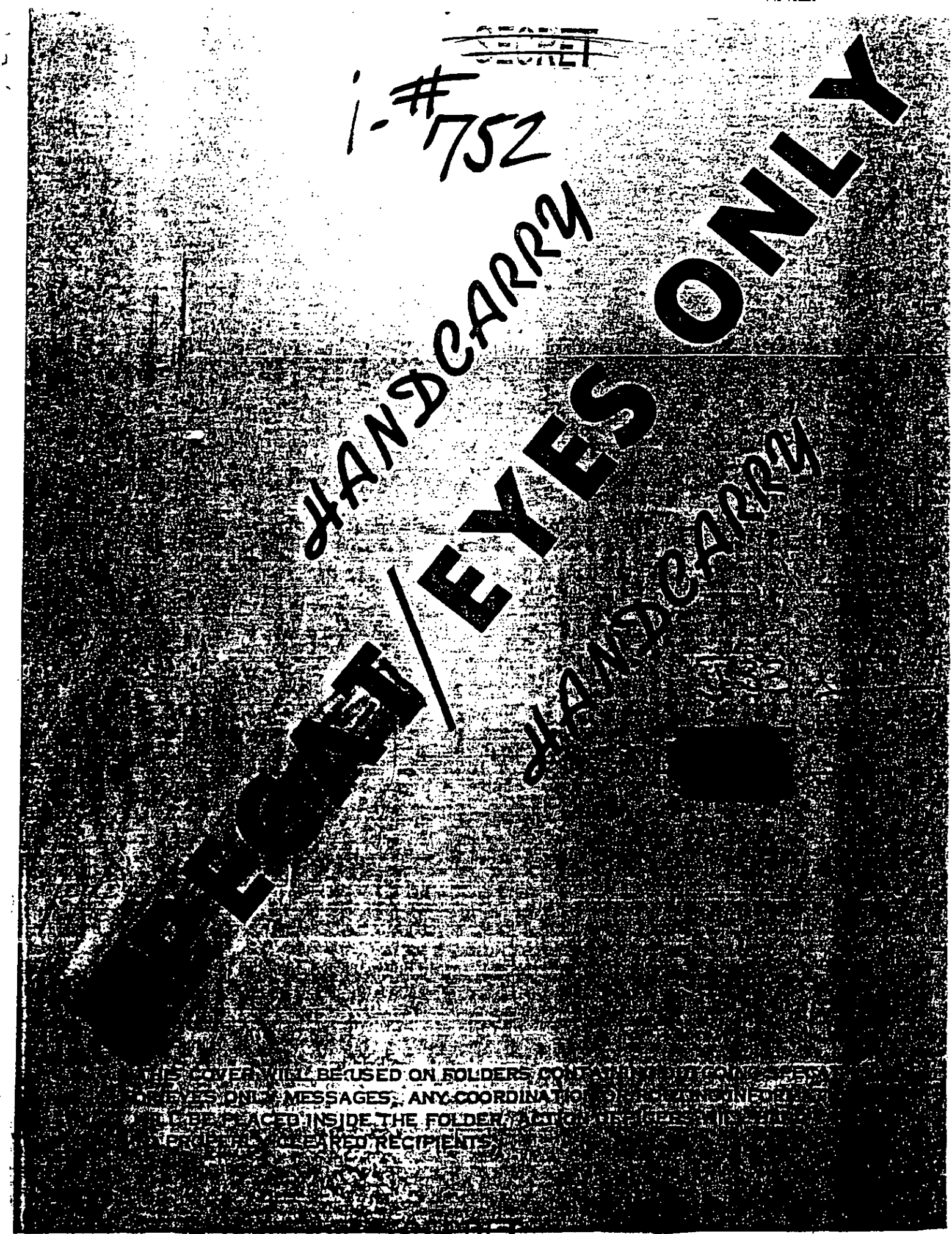
i-#752

HANDCARRY

EYES ONLY

EYES ONLY

HANDCARRY



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SECRET

THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

25 June 1980

THE JOINT STAFF

MEMORANDUM FOR THE JOINT TEST DIRECTORATE

Subject: Operational Test and Evaluation Objectives, Project HONEY BADGER

References: (1) Institute for Defense Analysis "Persian Gulf Contingency: Baseline Wargame" (S), 4 Feb 80
(2) USDRE "Report of the Independent Panel on Contingency Materiel" (S), 25 Mar 80

1. (U) (S) Background: On 23 May 80, the Director of the Joint Staff requested Defense Research and Engineering (DRE) for assistance in improving a number of capabilities that have been overlooked for the past ten years. Specific areas included both air and maritime surveillance as well as special operations. While the Services have understandably concentrated on building and maintaining a combat capability, surveillance and Special Operations may be the full extent of a US military involvement in the Middle East-Persian Gulf region. DRE agreed to assist and although funds were not immediately available, HONEY BADGER, an unprogrammed OT&E activity was launched.

2. (U) (S) Projection: The conditions under which an involvement of US military forces in the Middle East or Persian Gulf region might be made requires a close examination of innovative approaches. These conditions include:

a. The projection of forces across extreme distances, well beyond those encountered in Europe or Southeast Asia.

b. The likelihood that US forces, at least at the outset or deployment phase of a conflict, will be heavily outnumbered.

c. The likelihood that light US ground forces in a Persian Gulf or Middle East conflict would face a heavily armored threat.

d. The likelihood that Soviet or Soviet surrogate forces in the region would be initially successful in territorial conquest but would so alienate local populations that a resistance support role would constitute a major US strategy.

3. (S) Unit-Mission Tasks: From a study of reference 1 and 2, as well as other documents, the following mission tasks are considered to be both likely and currently beyond existing doctrinal and equipment profiles.

a. Air Mobile Forces: Extended Range Delay/Denial.

(1) Conditions. This unit-mission task envisions an overall condition of US assistance in the defense of Persian Gulf oil production facilities against a Soviet invasion of Iran from the USSR and Afghanistan. US forces are assumed to have elected to conduct interdiction and delaying operations against Soviet forces deep in Iran. The goal of US forces is to deny the region west of the Zagros mountains to the Soviets. Air Force elements are conducting interdiction operations as described in Reference 2, pages 94-97.

(2) Mission Profile. As described in Reference 2, pages 94-98, air mobile forces will be required to operate at extended ranges against armor forces. This will require UH60 night time flights of approximately 600nm to deliver or reposition ground elements. The type profiles involve clearing mountain passes of 8-9,000 feet within 100-150nm of the launch base. Temperature conditions will be up to 80 degrees F at the launch base, 60 degrees F in the mountains and 80 degrees F during the desert transit.

b. Special Operations: Resistance Support.

(1) Conditions. This unit-mission task involves the support of rebels. Forces committed to the operation include US Army Special Forces and US Air Force Special Operations elements. The initial deployment of forces is described in Reference 1. The subsequent mission-task is described in Reference 2, pages 55-65.

(2) Mission Profile. Supply and infiltration flights are to be conducted by MC-130 aircraft, supplemented by an enroute refueling capability. Additionally, there is a requirement to exfiltrate resistance forces and reposition in-country assets. This latter mission is to be accomplished by USAF Pave Low aircraft. Range, density/altitude and lift off conditions are similar to the Delay/Denial mission with the exception that the mountain ranges are encountered at the destination end of the flight path. Resistance by hostile aircraft is assumed to exist but to be a marginal threat.

c. Ranger Raid: Airfield Seizure

(1) Conditions. This unit-mission task is described in Reference 2, pages 103-112. It is envisioned that the airfield is obstructed and must be cleared by the Ranger force prior to the airborne assault. The air threat is again light.

(2) Mission Profile. MC-130 and C-130 aircraft are used to conduct the assault being staged from a base 800nm from the objective. Special Forces elements assist the Ranger force. Specific tasks are outlined on pages 109 and 110 of reference 2.

4. (S) The initial phases of the HONEY BADGER test and evaluation will concentrate on the long-leadtime doctrinal and materiel aspects. These are judged to be the adaptability of the UH60 to the Delay/Denial role, the Pave Low to the resistance support role and the Rangers to airfield seizure and clearance tasks. Subsequent phases will highlight long distance secure communications and surveillance tasks.

G [redacted]
Colonel, USA
Joint Test Director

DEPARTMENT OF DEFENSE

JOINT CHIEFS OF STAFF

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SUBJ: HONEYBADGER SUPPORT (U).

REF: JCS/J3 141955Z JUL 80, SAME SUBJECT (S).

1.(U) ~~(S)~~ MAC WILL SUPPORT REQUESTED REQUIREMENTS. HOWEVER, RUNWAYS MUST BE LIGHTED FOR MAC OPERATIONS SINCE ALL AIRCREWS HAVE NOT COMPLETED NVG TRAINING.

2.(U) ~~(S)~~ ALL AIRCREW MEMBERS WILL BE FROM THE SPECIAL IDENTIFIED AIRCREW FORCE.

3.(U) ~~(S)~~ ANTICIPATE LITTLE OR NO IMPACT IN QUALIFYING THE SPECIAL IDENTIFIED AIRCREW FORCE IN NVG/AIR REFUELING PROCEDURES AS STATED IN HQ MAC/CV 032320Z JUL 80 MSG.

4.(U) ~~(S)~~ COL [redacted] IS DESIGNATED MAC MISSION COMMANDER AND WILL BE IN PLACE AT BIGGS AAF NLT 192300Z JUL. REVIEW 14 JUL 2000.

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JTF CAPABILITY REVIEW

CLASSIFICATION REVIEW OF 12[illegible]
CONDUCTED ON 12 May 1992
DERIVATIVE CL BY DDO WMCC
☐ DECL ☒ DOWNGRADED TO SECRET
REVIEW ON OADR
DERIVED FROM Multiple Sources
[redacted]

Classified By DJSOA, 18 Oct 85
Declassified ON OADR

[redacted]

CLASSIFIED BY DIRECTOR, J-3
REVIEW 15 FEBRUARY 2001
EXTENDED BY DIRECTOR,
REASON: 5200.1R 2-301

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THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

11 May 1981

THE JOINT STAFF

MEMORANDUM FOR THE DIRECTOR, JOINT STAFF

SUBJECT: JTF Capability Review

1. Pursuant to standing oral instructions, the enclosed JTF Capability Review is forwarded for review and disposition by the Service OPSDEPs.

2. I wish to express my thanks to members of the Joint Staff who worked tirelessly to complete this important task.

JAMES B. VAUGHT
Major General, USA

[redacted]

Regraded Unclassified
when separated from
Classified enclosure

[redacted]

(S) After being tasked by the Joint Chiefs of Staff on 12 November 79 to develop a means for rescuing the hostages from Iran, I conducted a comprehensive review of capabilities available to accomplish such a mission. Those we had were adequate for conducting limited rescue operations in a friendly environment; however, they were totally inadequate for the mission that I had been assigned. To correct this situation I activated a Joint Task Force (JTF) dedicated to the development and execution of a military rescue option.

(S) In the ensuing months we developed what we considered a small but competent force to meet these goals. Since we had general intelligence information with respect to hostage location, i.e., Embassy Compound, Ministry of Foreign Affairs (MFA), we were able to devote our efforts to a single mission scenario: a long-range helicopter infiltration into Tehran. There, the helicopter force would support a ground assault force to extract the 53 hostages being held in the Embassy and the MFA. In retrospect I continue to believe that had it not been for the inexplicable mechanical failure of three helicopters, we would have succeeded in our initial rescue operation.

(S) Following this attempt in April 1980 the circumstances surrounding the hostages changed, but our responsibility to execute a rescue remained. Hostage security increased; their precise location became a question. This new situation forced the JTF to completely revise its philosophy as we set about assembling a new force.

(S) To protect further JTF activities and provide a cover for the SNOWBIRD (S) planning, the "DOUBLESTAR (C)" test program was conceived with the unclassified nickname HONEY BADGER. DOUBLESTAR (C)/HONEY BADGER was a USDR&E sponsored, high priority, test and evaluation program to enhance Department of Defense ability to conduct special operations and to support relatively small forces operating in the Middle East/Persian Gulf area.

[redacted] The JTF consequently had to assume that sufficient [redacted] and that, in order to be ready to properly execute the orders of the President, a force trained throughout the spectrum of potential mission scenarios had to be developed. This force would become proficient in every conceivable hostage rescue task and provide a range of capabilities from which the appropriate elements could be drawn [redacted] generated a workable mission scenario.

(S) Another aspect of the Iranian hostage episode that complicated rescue planning and training was the exploitation of the US news media by the militants who held the hostages, and various so called "Iranian government officials", as well as some US politicans, editorial moralists, and armchair strategists. This unprecedented act of governmental terrorism was an affront to civilization. It was a high interest news item from 4 Nov 79 through 20 Jan 81 and

for several weeks thereafter. Fact, fiction, and opinion carried in the news media created problems for the hostage families, diplomats, the intelligence community and rescue planners. Statements of various Iranian personalities were widely publicized coincident to changes in the policy and objectives of the terrorist who held the hostages. At times we were led to believe the hostages would be home soon. Shortly thereafter another "Iranian spokesman" would state that the hostages would be held indefinitely and that some or all were being considered for trial as spies to be executed immediately if all conditions for their release were not accommodated. This caused wide swings in the US public perception of the danger faced by the hostages and undue pain among the hostage families. It also caused US command authorities to unilaterally modify rescue planning and training. Before the April rescue attempt we were require to stop, modify or conduct accelerated training four different times. A better means of coordinating public/media comments made by US offical during a crisis situation must be found. Likewise a detailed analysis of foreign reporting actions must be made prior to making public comments on its veracity or impact.

(U) (S) Defining the necessary tasks involved analysis of a number of options, each based upon a series of assumptions with regard to hostage location. The basic force package available to the JTF was incorporated into each option, tailored to what would be a realistic operation--dependent upon the availability of good intelligence information.

(U) (S) Following option development, requisite individual tasks could be defined so that component units could begin necessary training to develop proficiency in those tasks. A sequence of training exercises was conducted, culminating in a realistic simulated mission execution. Training exercise locations were determined following site surveys to evaluate available facilities. Operational security considerations were balanced against the requirement for climatological and geographical realism.

(TS) Our efforts have borne fruit. We have now developed a prodigious array of capabilities, the best ever assembled for reaction to terrorist threats, regardless of location or immediate environment. We can project a force [redacted] non-stop or, with provisions for intermediate stops [redacted] bases, a force of some [redacted] either force is capable of blacked out night operations while maintaining full secure communications links to the NCA. It must be noted that the single most limiting factor in force composition is the small number of refuelable MC-130 aircraft in existence.

(U) This report provides details on how we have done what we have done, as well as discussing the problems and unfinished tasks. It is meant to serve as a guide for those who will follow. All components of the JTF staff were encouraged to find better ways to accomplish their missions by fully exploiting new technology and ideas. Many proven items of equipment were adapted to JTF requirements to improve, among other things, command and control,

communications, night operations, mobility and weapons systems. The potential effectiveness of the total JTF has increased significantly by the many innovations listed in this report.

(S) Throughout the entire period, rescue planning was severely constrained by [redacted] The composition and modus operandi of the [redacted] These voids caused planners to make worst-case assumptions and extensive safe-sided plans. Due to the sensitivity of some intelligence operations and associted techniques, a history of the intelligence support provided to planners has been prepared separately. However, it is essential to state in this document that the net product of the intelligence community was [redacted] Prompt corrective action must be taken in both the [redacted] or future counterterrorist efforts will prove equally frustrating to the NCA and rescue planners.

(U) The skills and abilities we have developed will quickly wither if not continually exercised with frequent, realistic, and innovative training. Our nation may well require employment of these capabilities in the future. We should therefore continue to explore every avenue to add other capabilities. We must be ready to professionally respond and respond quickly with fully trained forces to any future terrorist incident anywhere in the world.

JAMES B. VAUGHT
Major General, USA

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[redacted]

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7. Pathfinder Capability

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[redacted]

[redacted]

Modifications Accomplished/Required

9. CH-47 (PLUS)

10. AH-1

11. [redacted]

12. [redacted]

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15. H-53

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1. Rapid Offload of Assault Troops & Vehicles Developed

2. Procedures for Rigging and Dropping Motorcycles with Troops Developed

3. Major Modification to MC-130s Accomplished

AC-130 Operations:

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6. Fire Control Systems Evaluated

7. Firing With External Tanks Tested

8. Munitions Requirements Expanded

9. Major Modifications to AC-130s Accomplished

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11. Tanker & Receiver Coordination Procedures at Forward Operating Location Reviewed

12. Exercise/Contingency Planning Problems Examined

13. Navigator Manning Policy Recommendations Formed

14. Major Modifications to HC-130s Accomplished

[redacted]

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F. Air Defense:

1. Stinger Missile Improvements Accomplished

2. Vulcan Cannon Night Sight Developed

3. Command, Control & Communications Tailored to Special Operations Requirements

G. Command, Control & Communications:

JTF Command and Control:

1. Command Structure and Doctrine Developed, Tested

2. Forward Command Post C&C Package Established

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8. Senior Communications Operators Cadre Established, Trained

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(S) Fixed Base Communications:

10. Compartmented Garrison Communications Nets Established

11. NSA [redacted] Communications Access Provided

12. Base Stations Established at Component Headquarters for Unit Training

13. KY-70 Secure Voice Devices Obtained, Employed

Operational communications:

14. Long Range Communications System Developed

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4. Project Information Compartmented

5. Conference Security Improved

6. Dedicated, Secure Communications Established

7. HF Radio Frequencies Carefully Selected

8. Callsign Procedures Improved

9. Codeword Procedures Improved

10. Telephone Security Procedures Improved

[redacted]

CONFIDENTIAL

11. PARKHILL Traffic Analysis Reveals Problem Areas

12. PARKHILL Signature Problems Identified

13. Other Communications Problems Identified

14. Methods Developed for Handling Media Inquiries

J. INTELLIGENCE:

Extensive Intelligence Report Compiled and Distributed Separately.

[redacted]

[redacted]

GLOSSARY OF TERMS AND ACRONYMS

AAF	Army Airfield
ABCCC	Airborne Battlefield Command and Control Center
AFB	Air Force Base
AFCS	Automatic Flight Control System
AGE	Aerospace Ground Equipment
AGL	Above Ground Level
ALCE	Airlift Control Element
APP/APU	Auxiliary Power Plant/Unit
ART	Air Refuelable Tanker. Modified version of a tanker that can be refueled in flight
AWACS	Airborne Warning and Control System, E-3A Sentry Aircraft
AWS	Air Weather Service
BC	Black Crow, a sensor on the AC-130
BLIVET	500 gallon air-droppable fuel cell; provides 450 gallons of usable fuel
C&C	Command and Control
CAP	Combat Air Patrol
CAR-15	Submachine gun version of M-16 rifle
CCT	Combat Control Team. Air Force element specializing in air traffic control in forward areas.
CDS	Container Delivery System
CEOI	Communications Electronics Operating Instructions
CIA	Central Intelligence Agency
CJCS	Chairman, Joint Chiefs of Staff

COMBAT TALON	The unclassified code name for the MC-130, a specially modified C-130 aircraft
COMJTF	Commander, Joint Task Force
CONUS	Continental United States
CSE	Cryptologic Support Element
C^3S	Command, Control and Communications
CTF-70	Commander Task Force - 70
DIA	Defense Intelligence Agency
DMA	Defense Mapping Agency
DMSP	Defense Meterological Satellite Program
DOUBLESTAR (C) (U)	Classified code name for test and evaluation of special operations capabilities. Used to cover SNOWBIRD (S).
DR	Dead reckoning navigation by time and distance computations
DZ	Drop Zone
E&E	Escape and Evasion
ECM	Electronic Countermeasures
EEI	Essential Element of Information. Key questions of a mission critical nature which must be answered by intelligence before the mission can proceed.
ELF	Electronic Location Finder
ELINT	Electronic Intelligence
ELN	An Army project code
EMI	Electromagnetic Interference
FARE	Forward Area Refueling Equipment, kit for fuel transfer
FAARP	Forward Area Refueling/Rearming Point
FLIR	Forward Looking Infrared, aircraft mounted night vision equipment
GENDARMERIE	Iranian paramilitary field police force charged with preserving domestic order outside the cities; in-being since before the revolution

GLINT	Gated Laser Intensifier Night Television
GPM	Gallons per Minute
HF	High Frequency - 3-30 MHz
HLZ	Helicopter Landing Zone
HONEY BADGER	Nickname for the test and evaluation of special operations capability. Used as cover for Operation Snowbird (S).
HUMINT	Human Source Intelligence
IAF	Iranian Air Force, also IIAF for Imperial or Islamic Iranian Air Force
IFR	In-Flight Refueling
INR	Infrared
INS	Inertial Navigation System
IRCM	Infrared Countermeasures
JCS	Joint Chiefs of Staff
JCSE	Joint Communications Support Element
JP-4	Jet Petroleum Fuel
JTD	Joint Test Directorate
JTF	Joint Task Force
KEVLAR	Ballistic nylon used to make bullet-proof vests
KY-28 NESTOR	Voice encryption device mounted in aircraft
LAPES	Low Altitude Parachute Extraction System
LAW	Light Antitank Weapon
LLLTV	Low Light Level Television
LZ	Landing Zone
M-72 LAW	66mm singleshot antitank rocket
M-203	40mm grenade launcher which mounts under the barrel of an M-16 rifle
MAAG	Military Assistance Advisory Group
MAC	Military Airlift Command

MAG	Marine Air Group
MEDEVAC	Medical Evacuation
MFA	Ministry of Foreign Affairs - Iranian Foreign Ministry
MSL	Mean Sea Level
MULE	Small, light (1 man) air droppable cargo vehicle; designated M-274
NAS	Naval Air Station
NCA	National Command Authorities
NSA	National Security Agency
NVG	Night Vision Goggles
NWS	National Weather Service
OMEGA	A precision navigation system used in some mission aircraft
OPSEC	Operations Security. The sum total of all measures taken (Physical Security, Personnel Security, Communications Security, etc.) to prevent enemy foreknowledge of an operation
OR	Operational Readiness
OSD	Office of the Secretary of Defense
PARKHILL	KY-65 and KY-75 voice encryption device
PAVE LOW	HH-53H night/adverse weather helicopter
PHOTINT	Photo Intelligence
PI	Photo Interpreters
PINS	Palletized Inertial Navigation System
POC	Point of Contact. Usually for a base or organization.
POL	Petroleum, Oils, and Lubricants
PLL	Prescribed Load List
PSC-1	Portable Satellite Communications Terminal (manpack)

PT-25	A portable VHF, UHF radio, adapted for satellite use in this mission
RDF	Rapid Deployment Force
REDEYE	US made, man-portable surface-to-air missile system
RESCAP	Rescue Combat Air Patrol - See also CAP
RHAW	Radar Homing and Warning
RIVET WILDCAT	Air Force Logistics Command program to install, in minimum time, required equuipment in 1SOW aircraft
RMI	Radio Magnetic Indicator, an aircraft navigation instrument
RWR	Radar Warning Receiver
S-2	Unit Intelligence Officer (Army and Marine Corps)
SAC	Strategic Air Command
SAM/AAA	Surface-to-Air Missile/Antiaircraft Artillery
SAR	Search and Rescue
SATCOM	Satellite Communications
SIGINT	Signals Intelligence. Includes intercept and analysis of communications emitters (COMINT) and non communications (such as radar) emitters (ELINT)
SHF	Super High Frequency - 3-30 GHz
SLIME	Low intensity electroluminescent formation light
SNOWBIRD ~~(S)~~	Classified codeword for the hostage rescue operation
SOCCT	Special Operations Combat Control Team
SOD	Special Operations Division of J-3/JCS
SOF	Special Operations Force

SPECTRE	AC-130 Gunship
STABO	Emergency extraction system normally used to lift people out of areas where it is impossible to land a helicopter. System consists of a static rope with personnel attachment hooks suspended from the helicopter.
STAR	Surface to Air Recovery. Also known as "Fulton Recovery System;" method for pickup of personnel or equipment from ground by an airborne MC-130
TA	Terrain Avoidance
TAC	Tactical Air Command
TACAIR	Tactical air forces available to a force commander
TACAN	Tactical Air Navigation, a UHF air navigation aid
TACSAT	Tactical Satellite, a satellite communications system
[redacted]	[redacted]
TF	Terrain Following
TFR	Terrain Following Radar - APQ-122
TSARCOM	Troop Support and Avaition Readiness Command, U.S. Army.
UHF	Ultra High Frequency - 300-3000 MHz
VASI	Visual Approach Slope Indicator
VHF	Very High Frequency - 30-300 MHz
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VOR	Very High Frequency Omnidirectional Range

VSI	Vertical Speed Indicator, an aircraft flight instrument
WRSK	War Readiness Spares Kit
WSC-3	A satellite communications radio transceiver
YPG	Yuma Proving Ground, Arizona

OVERVIEW (U)

GENERAL (U)

1. (S) When the Joint Task Force was formed in November 1979, the ability of the United States to conduct special operations over extended distances was minimal. The ability to conduct even short range operations was limited. The highly complex techniques, requirements and support needed to conduct such operations appeared to be only marginally available or understood. The JCS provided the JTF with all resources requested as forces were assembled and trained to execute a mission. Planners were able to concentrate on a specific scenario because knowledge of hostage location was reasonably certain. The April rescue mission was the most difficult and challenging recorded in the annals of military operations. Few will fully appreciate the international, geophysical, security and operational complexities associated with this operation. The months of planning and training and available equipment did not and perhaps could not have enabled the JTF to succeed under the incredible circumstances encountered. Activities leading to the April mission have been covered in other documents and will not be detailed in this review, however, the post-April events represent a follow-on to the earlier activities.

2. (S) Following the April mission the JTF approached the problem from a different point of view. [redacted] the effort was greatly expanded and Operation SNOWBIRD (S) was born.

3. (S) Operation SNOWBIRD (S), the planning and preparation of a joint task force to rescue the American hostages in Iran, was tasked on 26 April, 1980, by the NCA. In order to provide the best operational security, a cover operation, HONEY BADGER, was approved on 23 May 80 and briefed to JCS on 3 June. All training and preparation for SNOWBIRD (S) was placed under this cover operation. [redacted] it was necessary for the Joint Task Force to design a number of possible options and train a wide spectrum of forces. These forces included more than 2,500 personnel and 150 various aircraft.

4. (S) This document recapitulates major training events, lessons learned, costs and continuing requirements, in order to provide reasonable assurances of future counterterrorist mission success. The HONEY BADGER exercises incorporated many of the training and validation tasks necessary to prepare the Joint Task Force to execute any of the various SNOWBIRD (S) options. Before and during the joint training, a number of increased aviation and communications capabilities were enhanced, a number of new techniques were developed, and a number of force deficiencies

were identified. Actions to correct these deficiencies were incorporated into the overall training program. An additional, separate activity was the coordination, planning, and use of [redacted] USN ships as launch platforms. Finally, this document includes conclusions and recommendations concerning more generalized special operations.

5. (U) HONEY BADGER: Exercise HONEY BADGER was the first major training exercise of Operation SNOWBIRD (S). The unclassified codeword HONEY BADGER became a generic name for the overall operation. The HONEY BADGER Training Program was developed by dissecting major SNOWBIRD (S) training tasks. These tasks were then assigned to specific mission units; training areas were identified and training dates assigned. Initial training was directed for individual elements; then time was provided for necessary joint training. Throughout the period, staff observation and unit briefbacks provided feedback to the commander.

6. (S) FORCES INVOLVED: The 2,500 personnel and 150 aircraft involved in HONEY BADGER and subsequent exercises were consolidated under operational units as follows:

Air:

101st Airborne Division
Ft Campbell, Kentucky

[redacted] UH-60
CH-47
AH-1

1st Special Operations Wing
Hurlburt Field, Florida

[redacted] MC-130
AC-130
EC-130
HH-53H PAVE LOW
HH-53C

552th Airborne Warning & Control Wing
Tinker AFB, Oklahoma

[redacted] E-3A

Military Airlift Command
Scott AFB, Illinois

[redacted] C-141B
HC-130

[redacted]

Tactical Air Command
Langley AFB, Virginia

Tactical fighters for Combat Air Patrol, as required

Strategic Air Command
Offutt AFB, Nebraska

KC-135 tankers, as required

NAS Miramar, California

F-14 fighters, as required

Ground:

[redacted]

A

600+ combat troops

[redacted]

A [redacted] Staff: 32

[redacted]

[redacted]

Oversight of the Joint Task Force (U)

1. (S) The JTF was exposed to two distinctly different oversight mechanisms during its lifespan. During RICEBOWL, the JTF received direct guidance and supervision from the CJCS. However, during SNOWBIRD(S), the Service Operations Deputies (OPSDEPs) fulfilled the oversight role. Each variation significantly affected the working efficiency and methodologies of the JTF.

2. (S) During the period 4 November 1979-July 1980, the JTF fell under the close and direct supervision of the Chairman of the Joint Chiefs of Staff; the Chairman visited frequently and issued command guidance directly. Other members of the JCS were kept informed by the Chairman by periodic briefings or personal visits to the planning area. This level of supervision provided immediate access to the NCA and allowed directives and requirements to be issued to the Services with almost no time lag. From the JTF viewpoint, this close supervision had several advantages: key guidance and policy questions could be quickly acted upon by the NCA, allowing the JTF to implement planning with minimal time loss; actions could be implemented immediately without delay or staffing by the Services; and, finally, due to the close-hold nature of the program, OPSEC was flawlessly preserved throughout this phase.

3. (C) However, this control approach had its drawbacks. The restrictive nature of program access occasionally resulted in a requirement for background work for the JTF staff (who lacked access to normal Service experts). Finally, this method made it very difficult to generate long range support for counterterrorist operational requirements, such as refuelable aircraft and related items normally tied to a budget/procurement cycle.

4. (S) After July, until the conclusion of the JTF, oversight was rendered by the Service Operations Deputies acting as a Senior Review Group. Though the JTF commander still had access to the CJCS and SecDef, normal planning, training and support was approved through the OpsDeps. This change of procedure had significant impact upon planning efficiency. The imposition of an extra layer between the Commander, JTF, and the NCA significantly increased the time required to gain decisions. Because of active Service and formal JCS involvement, the JTF staff was forced to become part of the normal institutional bureaucracy - a requirement it was not staffed to contend with. As each Service staff became formally involved and the volume of paperwork multiplied

the danger of adverse OPSEC increased significantly. Finally, as a normal consequence of institutional involvement, decision makers had to concern themselves with the effects of decisions on lower priority internal service programs and perceptions to the detriment of the JTF mission. The inherent nature of organizations and committees is to be cautious and deliberate, preferring to defer tough questions rather than forcing a timely decision and inviting criticism for adopting imperfect or risky plans which might not please all levels of the operations bureauracy. The JTF experience supports these perceptions.

5. (U) On the positive side, several advantages were gained with the OpsDeps control mechanism. Service involvement meant that long range funding could be accomplished. Experts throughout the Services could be quickly tapped for assistance and the knowledge and techniques gained by the JTF could be easily formalized into Service doctrine.

6. (U) In conclusion, the JTF experience indicates that highly sensitive, rapidly moving situations do not lend themselves well to committee-type oversight. However, for longer range programs and assured support, it is essential that all Services eventually become institutionally involved in the decision-making process.

BUDGETARY SUPPORT OF THE JTF (U)

1. (U) Because the JTF was not an established organizatior, the Services voted funds on a quarterly or project basis to the JTF. Fund distribution authority was held at Service level and not allocated to the JTF. This arrangement necessitated extensive briefings and justifications of projects as training and planning progressed. A key problem was that unprogrammed requirements, generated as a result of new intelligence or training developments, resulted in frequent returns to the Services for additional support. No solution was ever found that was satisfactory to both the Services and the JTF.

2. (U) The impact of this system was that the JTF had to utilize Service base facilities without normal funding coverage. This caused considerable distress at posts and bases that had to absorb the present cost and hope for later compensation. Though no lack of support resulted, local attitudes and feelings were unnecessarily strained. A significant problem was that these budgetary considerations reduced the planning flexibility of the JTF commander. If he desired to change the scope or duration of a training exercise he usually had to return to the Services for funding adjustments. This was unnecessarily burdensome and cumbersome for the Services as well as the JTF.

3. (U) RECOMMENDATIONS: Future JTF's should be given approximately one third of the O&M funds and ASIF funds allocated per quarter. Additionally, the JTF should be given a project code and a Class B agent from the outset. A service, or OSD should be designated as the Executive Agent for JTF operations.

SERVICE FOCAL POINTS (U)

1. (U) DISCUSSION: When the JTF was formed, only the Army had a cohesive focal point system that provided the JTF a point of contact for all coordination. Significant problems arose in this area concerning other Services' logistical support, funding and field coordination. The other three Services eventually developed multiple POC's for these problems but it was not until later that an attempt was made to develop a single Service POC.

2. (U) RECOMMENDATIONS: Each Service should provide a focal point officer to coordinate all special operations/JTF support. Additionally, each Service should have a knowledgeable Action Officer who can assist in funding, logistics support, base coordination and air support.

SUBJECT: Operations, General (U) Item No. A-1

OVERVIEW (U)

1. (U) INTRODUCTION:

a. (U) When the Joint Task Force was formed in November 1979, the ability of the United States to conduct special operations over extended distances was minimal. Thirteen months later, by December, 1980, the United States had a highly trained force capable of projecting itself anywhere in the world and conducting successful operations against precise targets. Most noteworthy was that the DOD had developed a data base for worldwide force preparation and projection. JTF had developed a "mix and match" technique to quickly tailor forces and capabilities to whatever scenario was presented.

b. (U) Participating units developed appropriate force mixes and trained together to the point where they were able to perform effectively, during complex mission scenarios. From the beginning, all commanders concerned recognized the necessity to work closely together for success. This was accomplished through numerous joint meetings and field exercises. No ground operation was attempted that did not involve full participation by "transporters and supporters." Concurrently, ground elements developed techniques that significantly enhanced other elements of the force; e.g., refueling operations and airfield seizures.

c. (U) To completely understand the breadth of development by the JTF, a comparison of capabilities by timeframe is indicated:

November 79

No trained helo crews

No NVG trained MC-130 crews

No low level trained AC-130 crews

Rangers not fully trained in:

NVG use

Airfield Seizure

[redacted]

CONFIDENTIAL

CLASSIFIED [redacted]

SECRET

DELTA only trained force

No trained strategic airlift

No integrated secure communications

No in-country support

Minimal intelligence infrastructure

April 80 (S)

RH-53 trained crews

MC-130 crews trained in NVG's

AC-130 Crews trained in modified low level

[redacted] Rangers trained in NVG use

Secure communications for 5 of 22 air assets, 18 ground sets

Better intelligence assets available

January 81 (S)

Trained helo assets:

[redacted]

* Modified for long range

[redacted] MC & [redacted] EC-130 crews fully trained in:

NVG use

[redacted]

AC-130's trained/equipped with [redacted] secure communications

[redacted]

[redacted]

A, B [redacted]ADA capability

A CCT developed significant capabilities [redacted] landing aids, ground management and mixed helo/fixed wing operations

Refuel options extended to blivets, bladders or off-helo with Night Vision devices under conditions of total darkness

C-141B's trained in:

Blackout landings

Fast fuel operations

Helo off-load

Extraction organization

Secure communications for 50 + terminals

AWACS with air superiority package fully trained and integrated

More fully developed intelligence options

Though the range of accomplishments does not directly refer to ground capabilities, all force improvements directly contributed to the success of ground operations. Without these force improvements, ground operations planning would have been severely restricted and high risk. It should be noted that the entire range of forces and capabilities has not been exercised jointly since October, 1980, and the continued lack of a comprehensive exercise program will severely degrade the critical skill level of all participants.

d. (U) Throughout the lifespan of the JTF, intelligence was recognized as the most important factor. Forces could move 15,000 miles with speed and secrecy but totally fail for lack of good data concerning the last kilometer. Accordingly, ground operations were driven by intelligence, or the lack thereof. In cases where good intelligence was not forthcoming, units trained on notional scenarios that could be rapidly shifted to specific training once hard data was available. However, without good target data, no commander could provide the NCA with reasonable assurance of success.

e. (U) Very early, the JTF recognized that the operation would be a high risk undertaking. Margins could be reduced by careful force selection, demanding training and by as much redundancy as available forces would permit. However, the normal "risk reducers" - mass and firepower, could rarely be applied. Accordingly, there was always a high risk incident to the operation. In subsequent operations this high risk fact of life must be recognized and accepted by authorities rather than yeilding to the normal inclination to force a JTF to attempt redundancy backup options that in fact only detract from the economy of force principle that must characterize the main effort.

f. (U) The JTF developed a very effective capability, however, this was not without cost in terms of dollars, manpower and equipment. The success of special operations requires deviations from normal conventional operations and frequently involves the disproportionate expenditure of resources when compared to a similarly sized conventional force.

g. (U) The requirement for extensive joint training meant high costs in the areas of flying hours, procurement and base support. Likewise, the highly selective nature of the program required unusual and specific personnel actions resulting in 100% manning of operational units with nominated individuals.

2. (U) (S) OPERATIONAL SCENARIOS

a. (U) (S) The JTF developed several operational scenarios with potential worldwide application. These scenarios involved several JTF force mixes and could easily be varied to fit local conditions. The major aspects of each plan were fully trained and rehearsed during the JTF joint exercises, in most cases over actual distance and with real time constraints. A synopsis of the scenarios follows:

b. (S) Scenario A

Forces Involved: [redacted]

Det
MAC C-141Bs
AWACS
Air Superiority Package (F-14/KC-135)

[redacted] launch a force non-stop from CONUS or a Third Country [redacted] strike a target and recover the force safely.

(2) (U) TECHNIQUE:

(a) (S) Lead-on elements [redacted] the vicinity (one hour flying time) of the ultimate target. Follow-on forces consisting of the [redacted] C-130 and C-141B aircraft [redacted] as soon as possible [redacted]

[redacted] introducing extra helos and assault forces as reserve.

(b) (S) Once the strike force completes its mission, it returns to the [redacted] and departs as each aircraft is loaded. [redacted] Throughout the operation, the AWACS provides command and control; [redacted] and the fighter package, air superiority.

c. (U) Scenario B

Forces Involved: [redacted]

101st Abn
UH-60/CH-47 Helicopters
MAC C-141Bs
AWACS
Air Superiority Package (F-14/KC-135)

(1) (U) REQUIREMENT: Take advantage of JTF helo assets and permit a direct helo assault with a large force.

(2) (U) TECHNIQUE:

(a) (U) Fixed wing elements with assault, airfield seizure, and reserve forces preposition at appropriate fixed wing bases in-theater. The helicopters are organized into a "Potent Charge" package and are separately prepositioned at a friendly base as near as possible to the target location.

(U) NOTE: "Potent Charge" refers to the cellular organization of helos where a PAVE LOW leads a section of UH-60s, HH-53s and CH-47s. This mix permits the force to take advantage of the PAVE LOW navigation ability while retaining the lift and mobility of the other helos.

(b) (U) Upon execution, the Potent Charge package [redacted] while the Pave Lows, H-53s and CH-47s remain on the ground, and the fixed wing aircraft depart.

(U) [redacted] lift off to conduct a direct [redacted] The remaining [redacted] and conduct refuel ops from C-141B support aircraft. These helos then form a reserve force for [redacted]

(d) (S) Extraction is initiated when [redacted] and departs as aircraft are loaded. The helo force conducts refuel ops and moves toward the nearest friendly location under [redacted] As before, the AWACS provides command and control; the fighter package provides air superiority.

d. (U) Scenario C

Forces Involved: [redacted]

MC/EC/AC-130s
101st Abn
UH-60/[redacted]AH1G
MAC
C-141B/C-5
AWACS
Air Superiority Package (F-14/KC-135)

(1) (S) REQUIREMENT: Take advantage of the lift capacity [redacted] an originally stated capability of the aircraft) as such, forces could launch from CONUS.

(2) (U) TECHNIQUE:

(a) [redacted] for the assault and loaded with the assault force. The helo force launches toward the objective and the C-5s return. NOTE: If range from the launch site is a problem, the UH60 force has the capability to conduct refuel ops with the other helos.

(b) (S) At H hour, the AH1Gs suppress targets of immediate threat [redacted] then [redacted] move to their supporting

[redacted] The extraction procedures remain the same as in previous scenarios except that the short-legged helos are destroyed in place.

(U) The AWACS provides command and control; the fighter package, in conjunction with the E-3A, provides an air umbrella for the operation.

e. Scenario D

Forces Involved: [redacted]

101st Abn
UH-60/CH-47 [redacted]
MAC
C-141B
AWACS
Air Superiority Package (F-14/KC-135)

(1) REQUIREMENT: Provide the JTF with the ability to strike [redacted] over widely separated terrain. This is the most complex of all scenarios and the most difficult to control in that it combines key aspects of all previous scenarios. The targets will be referred to as Targets [redacted]

(2) (U) TECHNIQUES:

(a) Target A - Forces aboard [redacted] force conducts its mission and returns to the extraction field. Personnel board the fixed wing and depart while the [redacted] The Potent Charge package launches from a friendly base [redacted] for extraction. The

personnel [redacted] refuel and fly out of country [redacted]. If distances are a problem, a second [redacted] the same actions take place for that package.

(c) (U) Command and control is provided by the AWACS; the fighter package provides air superiority for the operation.

NOTE: In all scenarios, the single most limiting factor is the small number of refuelable MC-130 aircraft in existence.

3. (U) JTF JOINT EXERCISES:

a. (C) After the various scenarios were developed, individual tasks required for mission execution were identified and appropriate training initiated at the component level. While unit training was underway the planners would then begin the development of a joint exercise to bring the force together operationally, in as realistic an environment as practical, for the purpose of concentrated training, logistical testing, and concept/scenario validation and refinement.

b. (U) Training sites were nominated after weighing the operational security considerations associated with JTF activity at the site; distances between targets, operating locations, support bases, etc.; geological and climatological realism; and operational availability. Site surveys were conducted in advance of final site selection to confirm preliminary data. The site survey teams consisted of a representative cross section of the JTF staff, operators and logisticians from the components and, in some cases, of advance party personnel who would remain on site as JTF representatives for administrative and OPSEC purposes. The surveys were extremely valuable in that they provided excellent insight into potential problem areas and established the necessary rapport with the locals who were invariably grossly inconvenienced by JTF activities but, with few exceptions, turned out to be totally cooperative.

c. (C) Joint exercise planning was conducted, for the most part, by component planners. The JTF staff would present the scenario, outlining the requirements in broad terms, and give the units freedom to develop the details. Because it was known that, once the required intelligence was provided, there would be very little time for final planning, exercise planning time was deliberately kept to an absolute minimum, never more than five days. Following plan development the operators would backbrief the JTF Commander, make necessary changes and, following publication of the order, execute the mission. The joint planning capability developed and demonstrated by JTF components during the course of the JTF's existence was truly remarkable. Exercises involving more than a hundred aircraft and well over a thousand people were planned in days (in one case, 24 hours) rather than the months required for conventional exercise planning.

4. (S) LESSONS LEARNED:

a. (U) Scenarios are complex, with timing delicate, component coordination critical and, above all the individual and combined skills perishable. Joint exercises are absolutely mandatory if the capabilities developed by the JTF are to be maintained.

b. (S) While exercise planning time requirements were demonstrated to be short (Exercise POISON DART, was replanned within 24 and executed within 48 hours of a weather related delay) the planning skills and logistical support system are as perishable as the operational skills. Lead time from a cold start to a plan development/ publication to a joint exercise execution would probably be at least [redacted] days. Timing from a cold start to mission execution of a mission such as SNOWBIRD (S) could be approximately [redacted]

c. (U) Planning techniques that evolved proved very successful and can be summarized as follows:

(1) (U) The JTF staff was too small to do detailed planning, however, details are best left to the component planners. The JTF passed the overall objectives and methodology of mission execution to the unit planners who performed all detailed planning.

(2) (U) Flawless coordination is absolutely essential and the press of time demands aggressive pursuit of that level of coordination from the first minute of planning. Any change in one unit's plan invariably affects others. As a result, it was best for all participating planners to conduct the planning as a group throughout the entire planning exercise including the final backbrief to the commander.

d. (U) In order to assure the JTF commander that the force was completely aware of his intentions, the final plan was backbriefed to the JTF commander by the individual unit commanders. (Intermediate backbriefs to the JTF operations officer at various phases of the planning cycle also proved valuable.) In this way, any potential mistakes in communications are uncovered during the feedback to the commander.

5. (U) A summary of JTF exercises is shown in the following chart.

SECRET

JOINT EXERCISES

TRAINEX	LOCATION	DATE	REMARKS
HONEY BADGER:			
UH-60	NORTON AFB, CA	8 JUN-3 JUL	ARMY COMPONENT TRAINING
H-53	ORO GRANDE BASE CAMP, NM	15 JUN-3 JUL	USAF COMPONENT TRAINING
JOINT	DUGWAY PROVING GROUNDS, UT	5-14 JUL	JOINT TRAINING
PHOENIX	DUGWAY	15-16 JUL	FULL FORCE
	ORO GRANDE		TWO TARGETS
	NAS FALLON/NV		TWO FORCES - TWO SEPARATE TARGETS)
	TONOPAH TEST RANGE, NV		
ICE BOX	REESE AFB, TX	20 JUL	AIRFIELD ASSAULT
SENTINEL SWORD	WESTERN US	12-13 AUG	E-3 COMPATIBILITY
	NAS POINT MUGU, CA		
POTENT CHARGE	HURLBURT FIELD FL	3-4 SEP	HELICOPTER ASSAULT PACKAGE
POWER PUNCH	REESE AFB, TX	13 SEP	AIRFIELD ASSAULT
POISON DART	FT HOOD, TX	28-29 SEP	FULL FORCE
	DUGWAY		
	CANNON AFB, NM		(WX CANX, 48 HOUR REPLAN)
	KIRTLAND AFB, NM		
POTENT CHARGE II	CAMP A. P. HILL VA	16 OCT	HELI PACKAGE
ISOLATE ALPHA	CUDDEBACK LAKE, CA	16-17 OCT	REMOTE LZ RECCE
STORM CLOUD	EDWARDS AFB, CA	20-21 OCT	C-5 OPTION
	INDIAN SPRING/ DESERT ROCK, NV		(OJCS CANX)
	MX SITE, NV		
TRADE WIND	WRIGHT-PATTERSON AFB, OH	11-13 DEC	COMMUNICATIONS CONCEPTS
	RICKENBACKER AFB, OH		
	CANNON AFB, NM		
	HOMESTEAD AFB, FL		
	MAXWELL AFB, AL		

SECRET

SUBJECT: Operations, General (U) Item No. A-2

NIGHT VISION DEVICES (U)

1. (S) PROBLEM: Mission requirements dictated operations under conditions of total darkness. At the onset of JTF operations only one force, consisting of less than 100 troops, was equipped and trained with that capability.

2. (S) IMMEDIATE SOLUTION: MC/AC/EC-130 aircrews, H-60/H-53/ [redacted] AH-1 helicopter crewmen, refueling operators, combat control team, and C-141 crews, as well as 800+ combat troops, were trained to a high degree of proficiency in night operations with Night Vision Goggles (NVGs). JTF-trained forces developed a capability to airland from long range, [redacted] and conduct operations from that airfield [redacted] without displaying a single white light. The capabilities attained with NVG's provided a range of operational options never before attained with Free World forces: a quantum leap forward in terms of the ability to project a special operations force on a worldwide basis and conduct an entire operation completely under the cover of darkness.

3. (S) UNRESOLVED PROBLEMS: Presently available AN/PVS-5A NVGs have several operational limitations. Current NVGs are heavy (28 oz), require minimum levels of astral or lunar illumination, and must be manually refocused for near (inside cockpit) or distant (outside references) vision.

4. (S) DISCUSSION: Newer model AN/AVS-6 NVGs are lightweight (14 oz), and can be comfortably worn longer, require no starlight or moonlight (Night Vision Lab estimates indicate a 1000% improvement in light amplification), and have an automatic focus for near or distant vision. They would provide a capability for operating under conditions of total darkness and in nearly all weather conditions except fog. Acquisition of these "Third Generation" NVGs would provide an increased safety margin, ensure continued progress in operations during total darkness, and allow development of additional blackout tactics and techniques.

RECOMMENDATION: (U) Provide available AN/AVS-6 NVGs to components for testing under operational flight conditions. As they become more readily available, replace all older model NGVs.

OTHER RELATED ITEMS: C-3, D-9-15, H-5.

PERSONNEL/UNITS INVOLVED: US Army Night Vision Lab
Fort Belvoir, VA

[redacted] CONFIDENTIAL

SUBJECT: Operations, General (U) Item No. A-3

LOADING/COMPATIBILITY (U)

TOPIC: C-5A/Tactical Helicopter Transportability Exercise (U)

SUMMARY:

1. (U) PURPOSE: Determine load and unload factors associated with tactical helicopter movement in the C-5A.

2. (U) MAJOR POINTS: A C-5A air transportability exercise was conducted at Fort Campbell, Kentucky, and Eglin AFB (Hurlburt), Florida, during the periods 8-11 October and 28-29 October.

3. (C) LESSONS LEARNED: The following load/unload factors were identified:

- C-5 taxi/kneel time: 20 minutes.

- The Army exercise loaded three [redacted]

  -- Unload time: [redacted] from ramp down. Unloading and reassembly accomplished under blackout/red light conditions.

  -- AH-1 ready to fly immediately [redacted] and one hour and four minutes, respectively.

- The Air Force exercise loaded two [redacted] from ramp down.

  -- Unloading and reassembly accomplished under airfield portable light units.

  -- Reassembly time: [redacted] after unloading.

OTHER RELATED ITEMS: A-7

PERSONNEL/UNITS INVOLVED: [redacted] MAC

ATTACHMENTS: C-5A Helicopter Load Plan

[redacted]

SUBJECT: Operations, General (U) Item No. A-4

LOADING/COMPATIBILITY (U)

TOPIC: Test and Evaluation of Combat Loading of OH-58 Helicopters with Short Skids on C-130 Aircraft (U)

INTRODUCTION:

1. (U) A test loading of an OH-58A helicopter equipped with modified skids aboard an EC-130 aircraft (less console), was conducted at Hunter AAF, GA. The improved skids, specially designed and fabricated by Bell Helicopter, Inc., Amarillo, TX., were designed to reduce the height of the OH-58 enough to permit loading aboard a C-130 without removing the main rotor blades and mast. The height of the OH-58A was reduced from 115.3 inches to 107 inches.

2. (U) The objectives of the test were: (1) to determine minimum essential assembly and disassembly required to load the OH-58, (2) to determine the problems encountered in load and off-load, (3) to make recommendations for further skid modification, and (4) to determine the minimum time required to off-load the OH-58 and place it in operational configuration.

TEST DESCRIPTION:

1. (U) Preparation of the OH-58:

a. (U) The assembled modified skids were mounted on the OH-58A in 30 minutes. This operation required using a five ton wrecker to lift the helicopter since standard aircraft jacks will not fit under the OH-58 once the modified skids are installed.

b. (U) The FM radio antenna connectors were removed from the vertical fin, three of the four vertical fin retaining bolts were removed and the fin was rotated 90 degrees to provide maximium tail boom ground clearance. The tail rotor was aligned parallel to the tail boom and the main rotor was secured with the blade tie down. These procedures required four and a half minutes. (NOTE: It was later determined that the vertical fin should be completely removed as it was very fragile when secured by only one bolt.)

2. (U) Loading Procedure:

a. (U) A towing bridle was formed by securing a chain to each rear skid cross member and then to the C-130 winch cable. Ground handling wheels were placed on the skids and the aircraft was winched tail first to the top of the C-130 ramp. CAUTION: The main rotor must be controlled to preclude hitting the cargo compartment ceiling. Similarly, tail boom clearance at both the cargo compartment floor and the ceiling must be controlled to preclude damage as the OH-58 is winched up the ramp. (NOTE: It was determined that the UHF antenna mounted on the OH-58 chin would not clear the pavement as the aircraft moved up the ramp, so it was removed).

b. (U) The OH-58 was winched into the cargo compartment until the forward rotor blade was behind the upper cargo compartment door of the C-130. Ground handling wheels were removed, the forward rotor blade was secured and depressed six inches with a second rotor tie down and then the helicopter was secured in the cargo compartment of the C-130 with standard chains and a strap.

3. (U) Off-Loading Procedure: Aircraft tie downs were removed and the ground handling wheels reinstalled on the skids. The helicopter was then pushed down the C-130 ramp and clear of the C-130. The vertical fin was attached, the FM radio antenna was reconnected, the UHF antenna was remounted, and the aircraft was flown. The entire procedure required seven minutes and could be further reduced by three minutes if the UHF antenna were relocated to preclude the necessity for removal and reinstallation.

4. (U) Problems Encountered and Recommended Solutions:

a. (U) Securing towing chains to the aft skid cross member is hazardous, since the chains could slip up the cross member and damage the aircraft fuselage. Addition of tow rings at the rear of the skids is recommended.

b. (U) The shortened skids reduce UHF antenna ground clearance to four and a quarter inches. This creates a flight safety hazard and dictates that the antenna be removed prior to loading. Relocation of the antenna further forward on the chin or nose of the OH-58 is recommended as a solution to both problems.

c. (U) The break-under angle between the C-130 ramp extensions and the runway creates a problem during off-load. As the skids negotiate this angle, the ground handling wheels lose contact with the ramp and for fourteen inches of travel, aircraft weight rests on the forward and rear ends of the skids. The resulting

high drag can only be overcome by gathering considerable momentum when pushing the helicopter down the ramp to preclude it becoming stuck at the bottom. This problem could be reduced by either tapering the rear fourteen inches of the modified skids or by bending them up in a manner similar to the forward end. Longer ramp extensions for the C-130 would also alleviate the problem by decreasing the break-under angle.

d. (U) The rear anti-collision light on the OH-58 cleared the pavement during load and off-load by only one half inch. It is recommended that it be relocated higher on the aft fuselage to preclude damage.

e. (U) The ceiling lights on the C-130 cargo compartment are located along the aircraft centerline and represent the height restriction on the compartment. Loading the OH-58 off-center by about five inches increases masthead to ceiling clearance by about two inches which adds a significant safety margin. It is recommended that the OH-58 be loaded off-center to minimize the hazard to the ceiling lights on the C-130 and the masthead on the OH-58.

f. (U) As previously mentioned, the OH-58 vertical fin is very fragile when secured by one retaining bolt and rotated ninety degrees. Removal of the fin reduces potential damage and adds only seconds to helicopter disassembly/ reassembly.

5. (U) Operational Evaluation. The following comments concerning the operational impacts of the modified skids are based upon very limited flying hours (approximately four) but nonetheless seem intuitively valid:

a. (U) The low ground clearance (four and one quarter inches) on the UHF antenna is a hazard. Operating from soft or irregular surfaces would be dangerous. The antenna should be relocated from the underside of the aircraft.

b. (U) The low ground clearance for the rear anti-collision light poses a similar problem to the UHF antenna. It too should be relocated.

c. (U) Operation of aircraft is limited to hard, smooth surfaces. Since ground clearance is about four inches, small stones or sticks could puncture the fuel cell on landing.

d. (U) The skids flex on hard landings. Flex beyond three or four inches results in damage to the underside of the OH-58. As a result, autorotations could be very dangerous and there is no margin of error for initial pitch pull.

e. (U) The shortened skids permit operations closer to the ground, tree tops, etc., presenting a lower silhouette to the enemy.

f. (U) The unfamiliar height presents an initial safety hazard to individuals accustomed to working around "normal" OH-58 helicopters.

g. (U) The skids themselves present no new maintenance problems but the reduced aircraft height induces problems.

h. (U) Fuel samples are very difficult to collect. A short baby food jar is about the only collection vessel that will fit under the aircraft.

i. (U) The jacks for the aircraft will not fit under it with the shortened skids. A wrecker or crane must be used to lift the aircraft by the masthead eye.

j. (U) The engine and transmission are more accessible with the reduced height.

SUMMARY:

1. (U) The modified skids represent a milestone development in terms of OH-58 deployability. The substitution of short skids, a process which requires one half hour, permits loading one OH-58 aboard a C-130 aircraft. The OH-58 can be unloaded and flown within five minutes after the C-130 stops. Previously, loading aboard the C-130 was possible only after the main rotor and masthead were removed - a four hour operation. After off-loading, another four and a half hours were required to reassemble the helicopter. The short skids introduce some potentially severe hazards and operational constraints on the aircraft. These must carefully weighed against the mobility gains. A compromise would be to deploy the aircraft with the short skids and send the normal skids in a follow-on support package. The aircraft would thus be more immediately available for missions, with some constraints on landing surfaces, but could be rapidly converted to normal skids. The net saving in maintenance time would be about eight hours and a true air rapid deployment capability would be gained.

2. (U) While this test was conducted on a C-130 aircraft, the same height restrictions exist on C-141A aircraft and thus the increased OH-58 rapid deployment capability applies to it as well.

Other related items: A-5 (Note: Improved Skid)

PERSONNEL/UNITS INVOLVED: Maj William Robinson, USA

SUBJECT: Operations, General (U) Item No. A-5

LOADING/COMPATIBILITY (U)

TOPIC: [redacted]Transport/Off-load in C-130/C-141 (U)

1. (U) TASK: Transport [redacted]elicopters into forward operating areas with capability for immediate employment.

2. (U) DISCUSSION:

a. (U) Concept was developed, and planning initiated in early June 1980. Major problems encountered concerned rapid helicopter off-load with C-130s and preparation for flight in minimum time.

b. (U) Rapid off-load and rigging procedures were developed and tested; these resulted in the capability to load two [redacted] Numerous attempts to load the [redacted] resulted in modification of the aircraft skids. (A crank mechanism was attached to a telescoping skid assembly to permit manual lowering of the aircraft. Two types of skid assemblies were provided: a straight crosstube assembly, and a formed crosstube assembly. The formed crosstube assembly allowed the OH-58C to be lowered more than the straight crosstube assembly). Despite this modification, the OH-58C did not permit sufficient clearance for loading into the EC/MC-130. Future loading should be four OH-58Cs in the C-141B.

c. (U) A final capability provided for off-loading, rigging and takeoff within [redacted] Special care must be taken during off-load to align the ground handling wheels with the C-130 ramp extensions. MAC Headquarters is working on a ramp modification to preclude the ground handling wheels from missing the ramp.

d. (U) A detailed tactical On and Off-Loading SOP is being developed by the 101st Airborne Division (Air Assault).

3. (U) RECOMMENDATION: Continue training with ground tactical units and helicopter components to refine techniques and maintain proficiency.

PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Operations, General (U) Item No A-6

LOADING/COMPATIBILITY

TOPIC: H-53/C-5 Loading Test (U)

SUMMARY:

1. (U) 1SOW conducted test loading of the HH-53H on the C-5 in Oct 80 for the purpose of:

a. (U) Establishing breakdown time.

b. (U) Determining personnel and equipment requirements.

c. (U) Determining unload and reassembly time.

d. (U) Documenting of specific elements of H-53/C-5 air transportability.

2. (U) LESSONS LEARNED: Highlights of findings are summarized as follow:

a. (U) Breakdown time: [redacted] /aircraft.

Onload time: [redacted] aircraft.

b. (U) Number of aircraft maintenance personnel required for:

(1) (U) Teardown: [redacted]

(2) (U) Buildup and functional check flight: 10

(3) (U) Onload/Off-load: [redacted]

(NOTE: For multiple aircraft, special teams can be formed to accomplish specific teardown/buildup tasks. With an effective flow plan, less than [redacted] personnel per aircraft will be required.)

c. (U) Equipment Required:

(1) (U) Seven and a half ton crane.

(2) (U) Blade handler.

(3) (U)Air Transportability Kit.

(4) (U) Three-quarter inch, one-half inch, three-eighth inch torque wrenches.

(5) (U) Five ton jacks (2 each).

(6) (U) Jacking beam.

(7) (U) Blade racks.

(8) (U) High pressure air compressor (with servicing adapters).

(9) (U) Low pressure air compressor (with servicing adapters).

(10) (U) Main rotor head/gear box sling assembly.

(11) (U) Maxi tool kit.

(12) (U) Cargo straps.

(13) (U) Tow bar.

(14) (U) Aircraft tow vehicle.

d. (U) Off-load time: [redacted] aircraft.

(1) (U) Reassembly time: [redacted] aircraft.

(NOTE: Night conditions will have no effect provided adequate lighting is available. Accomplishing disassembly/reassembly without the C-5 interior light is considered too hazardous to attempt. Onload/off-load with internal C-5 lighting only is feasible but may require additional time. (Night time reassembly was not accomplished during this exercise.)

e. (U) Major Problems Encountered:

(1) (U) Nose gear axle was difficult to remove on one aircraft causing a delay of approximately one hour. Axle had not been painted, but fit excessively tight.

(2) (U) The winch on the C-5 aricraft broke during onload of the second aircraft. C-5 arrived with only one operational winch.

(3) (U) C-5 load plan for the HH-53H was not available to the aircrew. The aircrew stated that a load plan had been developed, but was not yet in the dash nine technical order.

(4) (U) Protrusion of the Doppler antenna below the belly of one aircraft delayed onload/off-load times due to increased strut servicing requirements.

f. (U) (U) LESSONS LEARNED:

(1) (U) The HH-53H 650 gallon external fuel tanks can be loaded on the HH-53 aircraft sponsons using mattresses and cargo straps for security. This eliminates the requirement for floor loading the tanks in dexion crates.

(2) (U) Maintenance personnel performing the onload/off-load and buildup were inexperienced. With trained/experienced personnel, onload/off-load times should be reduced by 30-40 percent.

(3) (U) Experience gained from this exercise has generated numerous local actions to reduce time and improve procedures. Assistance from the Navy representative and comments on the C-5 checklist are being developed and alternatives to excessive strut servicing are being pursued.

3. (U) RECOMMEND: Continue testing to further refine techniques. Insure documentation of procedures. Continue training to insure development and maintenance of an adequate number of mission capable personnel.

PERSONNEL/UNITS INVOLVED: 1SOW, MAC

SUBJECT: Operations, General (U) Item No. A-7

LANDING/COMPATIBILITY (U)

TOPIC: UH-60/C-5A Transport/Off-load Testing (U)

1. (U) PURPOSE: Determine load and unload factors associated with UH-60 movement in C-5 aircraft.

2. (U) DISCUSSION: Loading factors for the UH-60 that were developed during the initial acquisition of the weapon system were geared to strategic mobility only. As a result, the optimum loading configuration was defined as that which would provide for the movement of the greatest number of helicopters with no regard for quick tactical employment. The JTF requirement for rapid off-load and utilization forced helicopter operators and airlifters to re-examine existing data and methodology in search of improved methods. To that effect, several loading tests were accomplished and training conducted from which a tactical loading configuration was established.

3. (U) LESSONS LEARNED:

a. (U) The C-5 must kneel for loading/unloading operations. The time required for kneeling the C-5 is 20 minutes with aircraft engines running. With engines off, engagement of the APU requires 10 minutes resulting in a total engine off kneel time of 30 minutes.

b. (U) Front unloading is accomplished with aircraft in forward kneel position. This configuration results in a 12 degree front ramp angle and a 19.9 degree rear ramp angle (excessive ramp angle hampers rear door exit). The C-5 can unload from the rear but this requires the aircraft to go down to a full kneel (taking 10 minutes from front kneel position). Full kneel results in a 15.7 degree front ramp angle and a 14 degree rear ramp angle.

(C)
c. (U) It is possible to load [redacted] UH-60s on the C-5. However, this configuration requires [redacted] the UH-60s to have the stabilators removed. (In the strategic airlift mode, [redacted] can be disassembled and transported). When [redacted] UH-60s are carried, the unload time is [redacted] and the aircraft can be expected to be ready to [redacted] from the time the aircraft kneels and the ramp is lowered.

A

The best UH-60 tactical loading configuration is UH-60s. aircraft, no disassembly is required, only blade and tail rotor fold is necessary. With a load the time to flight ready is reduced to

e. (U) Optimum tactical helicopter loading configuration for the C-5 is UH-60s, This configuration does not add to UH-60 time and provides that is ready to fly offload and minutes.

f. (U) All unload/reassembly operations have been conducted under red light conditions. While total blacked operations would be possible with sufficient training, current precautions with regard to security of C-5 landing areas negate such a requirement.

4. (U) RECOMMENDATIONS: The importance of constant, realistic training cannot be overstated if units are to maintain proficiency in unload/reassembly operations. Training must continue on a regular basis.

OTHER RELATED ITEMS: A-3

PERSONNEL/UNITS INVOLVED: MAC/XOZ
101 Aviation Gp AF2B-KF-C
Ft. Campbell, KY

SUBJECT: Operations, General (U) Item No. A-8

LOADING/COMPATIBILITY (U)

TOPIC: UH-60/LHA, LPH, CV Compatibility (U)

SUMMARY:

1. (U) Introduction: From 18-20 August, personnel from the 101st Airborne Division (Air Assault) conducted a compatibility test of the UH-60A helicopter aboard Navy ships at Norfolk, VA. The purpose of the test was to determine systems compatibility prior to any operational training aboard the ships. In addition, the UH-60A positioning device fabricated by the Transportation Engineering Agency was tested. The following ships, docked at Norfolk, were used for the test: CV-62 Independence, LHA-2 Saipan and LPH-2 Iwo Jima.

2. (C) General Findings:

a. (C) Long range helicopter navigation to the ships presents potential problems. Navy ships rely on TACAN and ADF for long range aviation. The UH-60A is equipped with ADF and VOR, however the ADF frequencies are not compatible. It was determined that the only compatible system is IFF/Transponder. Several remedies to the problem were identified: (1) use of an E-2 to vector the UH-60A's, (2) temporary installation of an Army VOR beacon on the Navy ship, (3) making the ADF frequencies compatible or, (4) relying on IFF/Transponder and ship's radar.

b. (U) During landing of the UH-60A, the pilot's forward ground visibility is very limited. Landing Signalmen aboard Navy ships must be stationed well forward offset from the desired landing spot for the pilot to be able to see them.

c. (U) Lack of a rotor brake on the UH-60A could cause rotor coast down to be as long as 10 minutes in higher winds. This presents a safety hazard and a limit to rapid landings of large numbers of UH-60A since the aircraft cannot be towed until the rotors stop. According to Sikorsky, installation of rotor brakes would require a new transmission design and about 18 months to develop.

d. (U) Folding of main rotors requires that the rotor tips not extend over the side of the ship. To permit rapid folding after landing, the deck spots must be adjusted inboard to permit walking around the blades.

e. (U) Universal tow bars with small diameter wheel pins on the Navy ships are compatible with the tail wheel of the UH-60A.

f. (U) All ships have gravity and pressure fueling systems available as well as gravity de-fuel. (These are required for main and auxillary fuel systems on the UH-60A). Nozzles are compatible.

g. (U) Ships electrical systems and plugs are compatible.

h. (U) Maintenance facilities are generally better equipped than the 101st unit repair facilities. Army shop vans would probably not be required - only spare parts (to include avionics) would be required.

i. (U) Folding the UH-60A tail boom, which requires removal of the stabilator, is time consuming (approximately one hour) and would be extremely difficult or even impossible to accomplish if the ship were underway in moderate seas. Tail booms should not be folded.

j. (U) The specific number of UH-60's which could be deck spotted for launch is a function of many variables such as SAR requirements, sea state, weather, number of tow tugs and ships boats on deck, etc. Similarly, the number which could be stowed on the hangar deck depends on factors such as quantity and type of ground handling equipment, number of ships boats stowed on the hangar deck, other aircraft requirements, etc. Due to these variables, the actual numbers will vary by individual ship -- not just by ship type. Only operational testing and experience will yield firm numbers for both hangar and flight deck capacity.

3. (U) SUMMARY:

a. (U) The single most important element in a successful ship-based operation is crew training. Air crews must be thoroughly briefed on the operation, and on Navy procedures. As soon as it can be determined that ship-based operations are likely, units should begin to train crews on procedures found in TC 1-65, Helicopter Operations from Amphibious Assault Ships. Additionally, all crews must be thoroughly trained in blade folding operations. Crews should be trained as a team to perform folding operations in complete darkness and in adverse winds. Experience is the key to reducing the time required.

b. (U) If ship-based operations are expected, it is recommended that the unit be able to conduct a short exercise of three to four days at sea. If a ship-based exercise is not possible, crew training should include several take-offs from and landings onto a moving ship at sea. The unique and varied wind patterns experienced on a moving ship's flight deck cannot be duplicated on land or on a docked vessel.

c. (U) It must be emphasized that ships, unlike aircraft, are one-of-a-kind items, individually constructed and significantly variable. Operational/logistical parameters differ greatly between ships, even those of the same class. Operational planners must review characteristics of individual ships to the greatest degree practical when developing shipboard exercises.

PERSONNEL/UNITS INVOLVED: [redacted] Maj, USA
CDR [redacted]
COMNAVSURFLANT, N33

[redacted] DRAFT

SUBJECT: Operations, General (U) Item No.A-9

LOADING/COMPATIBILITY (U)

TOPIC: UH-60A, CH-47R and HH-53H [redacted]

SUMMARY:

1. (C) INTRODUCTION: [redacted] was given consideration during JTF mission planning. (Although actual flight test operations were not conducted, the background information assembled during preparation for testing will be of value during future planning.) [redacted]

2. (C) BACKGROUND:

[redacted]

A

[redacted] the HH-53H can be [redacted] (Since [redacted] of the [redacted] requires a considerable amount of [redacted] per aircraft) and extra equipment (blade racks/cranes) the HH-53H is not considered a candidate helicopter unless equipped with a [redacted] Engineering analysis indicates that the [redacted]

[redacted] cannot be operated while the [redacted] or if it is [redacted] more than 5 [redacted] on the [redacted] is restricted by 22 inch high [redacted] which run the length of [redacted]

b. (U) [redacted] Modifications:

(S) Since the [redacted] for helicopter [redacted] and maintenance crews would be needed, probably through the use of [redacted] is inadequate for helicopter [redacted] The existing [redacted] capacity could be doubled fairly easily but still may be insufficient to [redacted] requirements. Additional [redacted] would be difficult and expensive to provide but may not be required if [redacted] - not a difficult task. [redacted] for helicopter and maintenance crews could be [redacted] were installed) or in [redacted] As with the other [redacted] this option might require additional [redacted] capacity.

A,B

3. (U) DISCUSSION:

a. (S) Operational Considerations: In this type of operation it is critical that the helicopters not be [redacted] Therefore, potential employment areas are basically limited to the normal areas of operation [redacted] or a use pattern would have to be established, a time consuming undertaking. [redacted] dependent on specially built [redacted] a further limiting consideration.

b. (S) [redacted] Availability: All [redacted] are presently in continuous [redacted] use and not available for testing. A [redacted] could be arranged, dependent upon lead time given to [redacted] and the resultant impact on the [redacted] A "short" lead time for [redacted] is considered by the [redacted] could range from [redacted]

4. (S) CONCLUSION: The [redacted] have the greatest [redacted] for the mission but are less desirable than a [redacted] due to its greater operating potential. Furthermore, the [redacted] a larger variety of [redacted] thus increasing mission flexibility. Lead times in [redacted] for unit training and evaluation may preclude use [redacted]

5. (U) RECOMMENDATION: For any further considerations the [redacted]

A

PERSONNEL/UNITS INVOLVED: [redacted] A, G

SUBJECT: Operations, General (U) Item No. A-10

GROUND-TO-AIR PERSONNEL EXTRACTION (U)

TOPIC: Improvement to Fulton Recovery System (U)

SUMMARY:

1. (U) A requirement exists to find a short term improvement to the ground-to-air personnel extraction technique known as the Fulton Recovery System.

a. (C) Project Nite Fite investigated the possibility of using a hot air balloon system mated to existing in-flight satellite recovery techniques. The system would be capable of recovering 7-10 personnel in a single pass. Prior to commencing airborne testing of the system, a panel of Army, Navy and Air Force special operations officers reviewed the project.

b. (C) Test information indicated that the Nite Fite system would be inoperative in precipitation, surface winds above fifteen knots, and during midday in many areas due to high ambient air temperatures. The large size of the vehicle also limits its usefulness for remote area special operations.

c. (C) While the system has the potential for providing a near term improvement to existing capabilities, its usefulness is limited and is overshadowed by improvements in helicopter and fixed wing systems.

2. (U) RECOMMENDATIONS: Continue to pursue an improved ground-to-air recovery system.

(C) PERSONNEL/UNITS INVOLVED: [redacted]

~~SECRET~~ ~~SECRET~~

SUBJECT: Ground Operations (U) Item No. B-1

GENERAL (U)

TOPIC: Helicopter Operations (U)

SUMMARY:

1. (U) TASK: Develop various airmobile techniques to enhance ground operations in support of special operations.

2. (S) ACCOMPLISHMENTS: The JTF developed several techniques utilizing helos that made required ground operations possible. Even though these techniques are discussed in the Air Operations Sections, those items directly applicable to the ground forces are covered in this section, as shown.

[redacted]

- Helo Assault in Support of Seizure of an Urban Complex
- Transload Operations
- Refueling Options
- Camouflage of a Refuel Point

a. [redacted]

(2) (S) DISCUSSION: Many scenarios envision an airfield to be located in close proximity to the target objectives. Thus, a key to success is to be able to [redacted] providing necessary mobility and flexibility while reducing the threat reaction. The major problems associated with this approach are the requirement for [redacted] time for helicopter [redacted] prior to launch.

(3) (S) ACCOMPLISHMENTS: In order to overcome these disadvantages (associated with [redacted] and as an adjunct to the seizure capability, [redacted]

[redacted]

pilots [redacted] the helicopters were [redacted] Approximate time from [redacted] to the initial helicopter [redacted] was found that two [redacted] while the [redacted] target within [redacted] was developed and practiced. The assault force must be tailored in size to meet a tradeoff between the number of [redacted] the number of transport aircraft required for movement and the elements of surprise and speed.

A, B

(4) (U) RECOMMENDATIONS:

(a) (U) USAF and Army develop joint doctrine for this technique.

(b) (U) Army develop standard blade folding kits.

(c) (U) Army and USAF routinely train in this tactic.

(d) Future helo production provide for blade folding and strut lowering of small helos.

(e) (U) Examine the feasibility of using the more efficient [redacted] helicopter to reduce airframe requirement.

b. (U) Helo Assault in Support of Seizure of an Urban Complex:

A, B

(1) TASK: Develop an assault technique that will permit maximum shock effect and rapid movement of ground forces in an urban environment.

(2) DISCUSSION: The successful assault of a building complex requires the assault forces [redacted] in the absolute minimum time. Additionally, if the assigned mission is to secure the release of personnel from within the complex, assault forces must link up with the detainees as rapidly as possible. Conventional doctrine calls for selection of the "best" ground for the helicopter LZ, and a shuttle to position the entire force at the objective. This greatly extends the assault time and increases risk.

(3) (C) ACCOMPLISHMENT: To compensate for the unacceptable time requirements and risk of the conventional approach, the JTF developed [redacted] Key objective areas are selected without regard to [redacted] are then selected by area for each [redacted] requiring the pilots to train for [redacted] n a specific type of objective [redacted] [redacted] s close to [redacted] as possible. Command and control throughout the entire operation is accomplished by [redacted] elements at each objective, a master control with the assault commander and, if possible, a coordinator in an aircraft overhead. It should be noted that this technique requires considerable training and involves considerable risk, which means that crews must be thoroughly trained and screened to insure compatible attitudes/capabilities for such an operation.

A, B

(4) (U) RECOMMENDATION: Army routinely train special operations personnel in this technique and permit variations from standard helo operating criteria for training.

c. (U) Transload Operations:

(1) (U) TASK: Transfer personnel from fixed wing to helos or from one type of helo to another.

(2) (C) DISCUSSION: Lengthy, time consuming, long distance movements create stress on assault personnel. The effect of such moves can be reduced by using fixed wing aircraft for the bulk of the [redacted] by the [redacted] of the force to [redacted] near the objective.

A, B

(U)(3) (C) ACCOMPLISHMENT: The JTF ground elements developed several effective techniques in concert with helo and fixed wing forces. The key elements were; intensive by name management of the manifest, thorough

briefings of the pilots and CCT as to aircraft location, and realistic field rehearsals. Sub-elements of planning included; security positions, refuel assistance, DACO actions and control techniques.

(4) (U) RECOMMENDATION: Joint Army/USAF training and employment doctrine be developed.

d. (U) Refueling Options:

(1) (U) TASK: Develop various methods to refuel helos enroute to an objective.

(2) (C) DISCUSSION: Long flight legs require refuel operations during which normal procedures cannot be followed [redacted]

(3) (S) ACCOMPLISHMENT: The JTF developed, tested and validated several alternative refuel options which included:

- Ground refuel:
  - -- blivets (airdrop or airland)
  - -- fixed wing tanker
  - -- helicopter to helicopter
- Other possibilities to consider:
  - -- on-board a carrier or other naval vessel
  - -- [redacted]
  - -- [redacted]
  - -- [redacted]

A B

(4) (U) RECOMMENDATION: Appropriate Services maintain a doctrinal refuel capability in support of special operations.

e. (U) Camouflage of Refuel Point:

(1) (U) TASK: Adequately camouflage POL points in a desert environment.

(2) (C) DISCUSSION: Training exercises indicate that POL blivets, FARES and related equipment are highly visible on the flat desert plain. It was determined to be impossible to effectively paint the blivets

since flexibility of the material cracked the paint. Additionally, the shape of the system stood out in silhouette.

(3) (U) ACCOMPLISHMENTS: Desert pattern camouflage sheets were devised to wrap the blivets and FARE system while desert-pattern camouflage nets were used to cover the entire package to eliminate the silhouette. The standard refuel pod consisted of; pump and filter, hoses, 4 blivets, one mule and a sheet of plywood with two 2x4 timbers, camouflage net and poles.

(4) (U) RECOMMENDATION: Army develop a standard desert/wooded pattern camouflage sheet that can be used to cover objects.

OTHER RELATED ITEMS: D-5, D-14.

SUBJECT: Ground Operations (U) Item No. B-2

AIRFIELD SEIZURE (U)

SUMMARY:

1. (U) PROBLEM: Conduct an air assault and seizure of an airfield [redacted]

2. (U) ACCOMPLISHMENT: The JTF developed the capability to [redacted] seize an airfield [redacted] major ground element tasks are covered as follows:

- Intelligence in support of an airfield seizure [redacted]
- Airfield seizure [redacted] airfield seizure [redacted] airfield seizure [redacted]
- Vehicle starting

Note: Air Operations relative to airfield seizure are covered at Tab C.

a. (U) Intelligence in Support of Airfield Seizure.

(1) (C) REQUIREMENT:

(a) (C) Successful airfield seizure is predicated on absolutely accurate and timely information regarding [redacted] Additionally, intelligence sources must be prepared to provide adequate operational aids to the ground force. Essential Information includes:

- Immediate security force composition
- General forces in local area
- Airfield layout

[redacted]

(b) (C) Intelligence aids required:

[redacted]

- Accurate maps

[redacted]

(2) (C) RECOMMENDATIONS:

[redacted]

(2) (U) Unit S2/J2's continue to train and play this problem.

b. (U) Airfield Intrusion.

[redacted]

(2) (C) ACCOMPLISHMENT: Based upon the individual situation [redacted] one or more of the following JTF developed techniques would be employed:

[redacted]

[redacted]

(3) (U) REQUIREMENT: USAF refine basic doctrine for this technique. The criticality of precise timing of landing and taxi operations demands thorough training, intricate planning and precise execution. The importance of maintenance of skills in these areas cannot be overstated.

c. (U) Airfield Assault:

(1) (S) TASK: Assault and seize an airfield at night.

(2) (S) ACCOMPLISHMENT:

[redacted] cross-loaded aboard MC and EC-130 aircraft.

[redacted] equipped with night vision goggles. [redacted] were divided into teams with specialized missions to include:

[redacted]

- Reserve forces
- Command post team

[redacted]

(b) (S) Aircraft were cross-loaded with the intent to stop [redacted] In this manner, [redacted] would be adequately covered within [redacted] The aircraft conducted [redacted] immediately upon landing [redacted] loaded immediately

[redacted] Foot troops moved to fill key gaps and points [redacted] Subsequent landings brought in filler personnel. [redacted] At least two [redacted] were established.

(U) Key initial targets included:

[redacted]

(3) (U) REDOMMENDATIONS: Army develop standard tactical doctrine to cover this technique. [redacted] routinely train in this complex task.

d. (U) Combat Control Team (CCT) Control for Airfield Seizure:

[redacted] adequately in a [redacted] to permit ready identification by [redacted] or an [redacted]

(2) (U) ACCOMPLISHMENT:

(a) (U) The CCT developed, in concert with a [redacted] a family of IR beacons that were lightweight and capable of [redacted] These devices were either [redacted]

(b) (U) A key requirement was that the pilot be able to see the IR beacon at approximately the same distance at which he would see a white light beacon. This is particularly critical [redacted] where pilots must be able to differentiate between [redacted] The CCT developed a [redacted] that could be acquired [redacted] from touchdown point. As an adjunct, the CCT developed a beacon [redacted]

(c) These beacons could [redacted] mark near and far runway limits.

(3) (U) RECOMMENDATION: USAF develop production models of the CCT special equipment.

e. (U) CCT Operations [redacted]

(1) (C) TASK: Integrate the CCT landing and parking plan within the overall airfield seizure plan.

(2) (C) DISCUSSION: It is absolutely imperative that the CCT team be fully integrated into the airfield seizure plan. Successful [redacted] Additionally, the requirement to conduct the initial [redacted] makes it imperative that pilots and assault troops be thoroughly knowledgeable about each others intentions. The need to move aircraft [redacted] expeditiously requires a precise movement and parking plan.

(3) (U) ACCOMPLISHMENT:

(a) (C) The assault force designates priority targets and the sequences in which they must be taken. This concept is then translated into required forces, a load plan established and flow determined. The CCT then examines the [redacted] to determine the optimum traffic pattern [redacted] Once this has been determined, the CCT, assault force and aircraft pilots discuss the entire operation in detail, to include abort procedures. Finally, an OPORD is published and distributed to all three key elements.

(b) (C) CCT mobility is essential. It can be provided initially by including them in the [redacted] (if appropriate) or on the initial aircraft with motorcycles and/or jeeps. For the most effective command and control, the lead aircraft, all ground control personnel, CCT and assault forces should be tied into the same radio net. While the assault force [redacted] To accomplish this, the CCT is divided into teams with each team covering [redacted] The aircraft are passed from one team to another by signals until parked.

(4) (U) RECOMMENDATION: CCT techniques be fully developed by USAF doctrine and trained routinely with ground forces.

f. (U) Airfield Security:

(1) (U) TASK: Hold the seized airfield.

(2) (U) DISCUSSION:

(a) (U) Various techniques/concepts were developed to provide adequate airfield security. After considerable trial and error, it was determined that the primary threats against a securing force were:

[redacted]

(b) (U) Accordingly, it was determined that a ground security force could neither be prepared nor be expected [redacted]

A, B

(c) (S) Emphasis was given to mobile forces as connecting links between stationary posts [redacted] used for extra mobility. Observers in best locations would provide fire control and early warning.

A

(d) (U) As a rule of thumb, ground forces should expand [redacted] to add depth. Continuous communication should be maintained [redacted] for early warning and fire support.

(e) Unity of command/control was most successfully accomplished when the ground commander had total control of the ground and airspace around his designated area of operation and the [redacted] all space beyond that. Inherent is the mission of airspace control and deconfliction. The ground CCT must be directly responsive to the ground force commander. [redacted] ied in with airborne assets, would operate under ground force commander control.

(3) RECOMMENDATIONS: [redacted]

g. (U) Clearing a Blocked Runway:

(1) (U) TASK: Clear a blocked runway.

(2) DISCUSSION: Solution was to deploy [redacted] an MC-130. The MC-130's [redacted] and accomplishes a [redacted] The security force clears the runway and provides CCT terminal guidance for follow-on aircraft. [redacted] is capable of [redacted] It is imperative that accurate estimates of clearing requirements are available prior to initiation of a clearing operation.

Typical Composition

[redacted] CCT [redacted]

* On-call augmentation
** The threat on site dictates security force size.

(3) (U) RECOMMENDATIONS:

(a) Army purchase [redacted]

(b) [redacted] in this area.

h. Vehicle Starting:

[redacted] Airfields are routinely blocked with [redacted] These must be quickly cleared

(2) (U) ACCOMPLISHMENT: Personnel involved in airfield clearance received practical exercises [redacted] and expedient movement techniques for [redacted]

A, B, C

(3) (U) RECOMMENDATIONS: DIA retain a capability on [redacted] for a broad spectrum of likely [redacted]

OTHER RELATED ITEMS: B-4, C-3, C-4, C-5.

(U) PERSONNEL/UNITS INVOLVED: [redacted]

URBAN TARGETS (U)

SUMMARY:

1. (U) PROBLEM: Conduct operations against urban targets with minimal firepower and force disclosure.

2. (U) ACCOMPLISHMENT: The JTF developed some highly efficient techniques for entering urban complexes, occupying selected buildings and extracting friendly elements. [redacted] these several supportive points will be outlined:

- Urban threat intelligence
- Infiltration to urban targets
- Building penetration
- Hostage handling
- Hostage control

a. (U) Urban Threat Intelligence:

(1) (U) DISCUSSION:

(a) (C) Even though intelligence is covered in detail in a separate document, some non-sensitive points can be discussed in the context of direct support for ground operations. Specifically, while there is an excellent data base concerning Soviet Bloc equipment, there is very little data, outside of technical publications, regarding Western equipment. This shortcoming is particularly critical in operations that envision incursions into urban areas containing extensive quantities of Western military equipment.

(b) (S) Successful ground operations in urban areas must rely on [redacted] Of critical importance is the ability of [redacted] to operate [redacted] this requirement dictates the [redacted] Many nations in the Middle East and Africa have purchased large quantities of Western [redacted] communications systems [redacted]

[redacted]

b. (U) Infiltration to Urban Targets:

(1) (U) TASK: Move force [redacted] into the urban target area.

(2) (U) ACCOMPLISHMENTS: The JTF developed and trained in several methods to permit forces to enter [redacted] These include:

[redacted]

Command and control and navigation were primary areas of concern in these techniques. A secondary consideration was the possibility/impact of [redacted] local elements. In [redacted] Representative [redacted] were identified and isolated [redacted] systems were perfected.

(3) (U) RECOMMENDATIONS: Appropriate agencies should maintain representative [redacted] permit training with ground elements.

c. (U) Building Penetration:

(1) (U) TASK: [redacted]

(2) (U) DISCUSSION:

(a) (U) A major problem in a covert assault action is that normal demolitions create considerable

noise and are not particularly precise. An additional drawback is the slow emplacement when speed is essential.

(3) (U) ACCOMPLISHMENTS:

A,B [redacted]

depending upon time available and mass, present a greater problem.

A,B [redacted] For speed, it was found preferable to [redacted] once initial security teams were emplaced. For planning, [redacted] are generally [redacted]

A,B [redacted] use be funded as an ongoing program. [redacted] continue to develop other breaching devices. [redacted] routinely train with these devices.

d. (U) Hostage Handling:

(1) (U) TASK: Overcome the psychological phenomenon of hostage unwillingness to be rescued.

(2) (U) DISCUSSION: After extended periods of isolation and capture, some personalities become dependent upon their environment and will resist rescue. This resistance creates obvious problems for the rescuers in that they will have to handle both the threat and the target.

(3) (U) ACCOMPLISHMENT: Ground forces were trained in the use of [redacted]

A,B and a specific series of commands and hostage control techniques. [redacted] were considered to be counter-productive in that they created a dead weight problem.

(4) (U) RECOMMENDATION: Appropriate DOD medical personnel should develop an [redacted] but still permit [redacted] on the part of the [redacted]

A, B

e. (U) Hostage Control:

(1) (U) TASK: Insure that all hostages are properly accounted for and secured from release to extraction.

(2) (U) DISCUSSION: Hostage rescue operations are highlighted by intense pressure, fear and confusion--especially on the part of the rescued personnel. It is imperative that positive control techniques be developed and thoroughly trained in prior to mission execution.

(3) (U) ACCOMPLISHMENT: JTF doctrine included provision for control teams to be established at the objective collection points and at the extraction location.

A, B

[redacted]

(4) (U) RECOMMENDATIONS: This technique be published in standard Army doctrine and routinely practiced by appropriate personnel.

SUBJECT: Ground Operati[redacted] Item No. B-4

RAPID TROOP MOVEMENT (U)

TOPIC: Motorcycle Operations (U)

SUMMARY: (U) During the course of mission planning/training the motorcycle (Dirt Bike) was found to be an effective means of transport for certain ground forces. The following are possible missions employing motorcycles: [redacted]

A

1. (U) TRAINING: Ideally, individuals selected for bike training should already possess experience in order to eliminate basic learning requirements. As a minimum, the training should include the following:

- Introduction, and characteristics of bike being used.
- Preventive maintenance.
- Communications between bikes, to include arm and hand signals.
- On-road/off-road driving techniques, to include obstacle negotiating.
- Techniques of night driving, to include introduction/use of equipment (PV-5's and IR lens or headlights).
- Tactical applications, to include use of individual weapons.
- Operations from fixed wing aircraft and helicopters.

2. (U) MISSION:

a. (U) For planning purposes, a bike can carry two riders with combat loads, however, a single rider provides increased speed and mobility. Terrain limits range, since, although hard surface road driving at moderate speeds can attain 80 miles per tank of gas, cross country driving decreases that distance by one half. Maximum speed on hard surface roads will vary between 60-70 mph when carrying light combat gear and weapon.

A,B

b. (U) Each individual should carry the following items:

[redacted]

- small crowbar
- PVS-5 or PVS-4
- POW Kit

c. (S) Other riders should carry these additional items:

- wire cutters
- first aid kit
- radio (PRC-77 or MX-360)
- axe
- IR strobe with marker (18"x)
- flashlights
- tire pump

d. (S) Employment: Delivery by aircraft [redacted] departure upon landing. In view of this, the following time sequence would be appropriate for actual operations:

- 1 hr - Wake-up team and test start bikes.
- 20 min - Turn radios on, do not break squelch.
- 10 min - Test start bikes, equipment on.
- 6 min - PVS-5s turned on and turn redlights in aircraft off.
- 1 min [redacted]
- Touchdown - Brace and watch for ramp to lower.
- Stop - Leave aircraft on loadmaster's signal.

RECOMMENDATIONS: (U) Motorcycle equipment and skills be retained within the Special Operations community.

SUBJECT: Ground Operations (U) Item No. B-5

A [redacted]

TOPIC: AC-130 Night Tracking (U)

SUMMARY:

1. (S) TASK: Demonstrate that an AC-130 can [redacted] Demonstrate capability for [redacted] well the [redacted]

A

2. (S) DISCUSSION: [redacted] were equipped with [redacted] and UHF secure voice radios. [redacted] could only be identified by the [redacted]

A, B

[redacted] by AC-130 crewmembers using [redacted] then left [redacted] and turned off their [redacted] the way with the [redacted] It was found that the aircraft could easily [redacted] could be simultaneously, [redacted] additionally, in total dark situations, the [redacted] could successfully [redacted] As an adjunct, it was found that [redacted] This discovery has been integrated [redacted]

RECOMMENDATIONS:

A, B

[redacted]

A

3. (S) Develop modernized small [redacted] system.

4. (U) Use [redacted] during individual [redacted]

5. (U) Army and USAF conduct joint training in this area.

OTHER RELATED ITEMS: C-4, E-2.

(U) PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Air Operations, General (U) Item No. C-1

OVERVIEW (U)

SUMMARY: (S) The planning associated with the hostage rescue mission and ancillary training pointed vividly to the requirement for employment of air assets in any phase of an operation, and most frequently as the major player. During the planning for a swift, surgical, clandestine operation, air assets are essential to the ingress and/or egress, and mission conduct. The capability available during November 79, vividly illustrated the virtual void in this area when force projection is required for extended distances. This void was further amplified by the predominant conventional approach to the problem as opposed to the need for unconventional thinking/approach to the hostage rescue mission. This shortcoming then was the key impetus to the development/expansion of air techniques and equipment improvements. The air operations portion will address general areas of operations, helicopter and fixed wing, with addressal of specific items within each.

[redacted]

SUBJECT: Air Operations, General (U) Item No. C-2

COMMAND AND CONTROL (U)

TOPIC: E-3A Operations (U)

SUMMARY:

(C)
1. (C) E-3A involvement in special operations has demonstrated that the capabilities of an airborne warning and control system (AWACS) can be of substantial assistance in two primary roles: As a surveillance and communications platform, AWACS mission crews, managing a combat air patrol (CAP) package of friendly fighter and tanker aircraft, can establish and maintain a long-duration air superiority umbrella over other mission elements. As a command and control platform the E-3A provides the focus for the masses of tactical data that the [redacted] the progress of the overall mission.

(C) 2. (C) AWACS participation in JTF activities began in August on an exercise with the objective of evaluating the E-3A's control capabilities and management procedures for friendly fighters engaged in airfield interdiction and suppression of hostile aircraft. The favorable results of this initial air superiority exercise provided the impetus for continued E-3A participation in special operations. Subsequent JTF exercises developed the [redacted] concept in considerable depth; they demonstrated the advisability of [redacted] elements [redacted] in order to oversee crucial points of the operation and to provide detailed information to the commander. Minor modifications to mission crew configurations and communications layouts further enhanced AWACS ability to provide timely, accurate, and comprehensive tactical data [redacted] Specific points are summarized below.

3. (S) LESSONS LEARNED:

(U)
a. (C) E-3A management of the CAP package, particularly with respect to fuels allocation and effective reaction to hostile airborne threats, is the primary mission for AWACS in special operations. Except in extreme situations, however, this mission does not require the E-3A's full attention. Subject to the dynamics of the air-to-air environment, other missions can be performed on a priority basis.

b. [redacted] as necessary. Organic capabilities permit the E-3A to conduct such typical tasks as:

(1) (C) Flight following mission task forces during ingress and egress.

(2) (S) Overwatching [redacted] activity by [redacted]

(3) (C) Monitoring/recording/relaying key transmissions on several communications nets simultaneously. Such realtime inputs from AWACS enable the JTF battlestaff [redacted]

c. (C) [redacted] communications systems also permit its [redacted] to quickly [redacted] responses. AWACS can promptly react to such exigencies as:

(1) (U) Providing navigational assistance or position updates to individual elements.

(2) (U) Assisting preplanned aerial refuelings or expediting rendezvous between receivers and tankers during fluid situations such as force rollback.

(3) (U) Assisting as the initial control point for SAR or Medevac operations until an on-scene commander arrives.

(4) (C) Monitoring and relaying [redacted] via [redacted]

(5) (C) Providing point-outs of inbound hostile aircraft [redacted]

d. (S) In addition to the capabilities listed above, AWACS, with proper prior planning and coordination, can also support [redacted] by:

(1) (C) Assisting [redacted] with appropriate [redacted]

(2) (S) Providing long-range [redacted] warning to [redacted] teams, who currently must rely on [redacted] of targets.

(3) (S) Selectively initiating the [redacted]

(4) (S) Assisting [redacted] equipped with [redacted] their [redacted] in their [redacted]

RECOMMENDATION: (S) Continue AWACS participation in special operations activity. Refine procedures and maintain individual proficiency and unit interface.

OTHER RELATED ITEMS: F-1, F-3, G-3

PERSONNEL/UNITS INVOLVED: 552 AWAC Wing [redacted] Tinker AFB, OK [redacted]

SUBJECT: Air Operations, General (U) Item No. C-3

AIRFIELD SEIZURE (U)

TOPIC: Procedures (U)

SUMMARY:

1. (S) PROBLEM: Conduct an air assault and seizure of an airfield [redacted]

2. (S) ACCOMPLISHMENT: The JTF defined the procedures and developed the capability to air assault and seize airfields [redacted] Seizure can be [redacted] of total darkness. Major tasks of the air elements are covered as follows:

- Communications-Out Air Refueling
- Formation Procedures
- Precision Airborne Radar Approaches
- Minimum Light/Blackout Landings
- [redacted]

Note: Ground operations relative to airfield seizure are covered at Tab B.

a. (U) Communications-Out Air Refueling:

(1) (C) TASK: Comm-out air refueling is an operational necessity for penetration of hostile territory.

(2) (C) ACCOMPLISHMENT: Comm-out refueling rendezvous was impossible with established procedures; new procedures had to be developed. SAC and 1SOW coordinated these procedures, and are in the process of publishing a new technical order which includes them. Aircrew training has been conducted on a continuing basis. All refueling crews are regularly trained in comm-out procedures and practice them with excellent results.

(3) (U) REQUIRED: Close coordination must continue between SAC and the 1SOW to insure new requirements are developed and evaluated on a timely basis. A "talk-through-the-boom" capability would greatly enhance the

success of a comm-out air refueling because aircrews would not be dependent on visual signals for emergency separations, fore and aft calls, and toboggan calls.

(4) (U) RECOMMENDATIONS: Continue to develop and refine procedures. All tankers and receivers should be equipped with a "talk-through-the-boom" capability.

b. (U) Formation Procedures:

(1) (U) TASK: Formation flight in all types of special operations aircraft is required. The task is complicated by a requirement for combinations of night, low level, mixed types, TA/TF, communications out formations.

(2) (U) ACCOMPLISHMENT: Procedures were developed to insure safe and effective formation flying. Applicable portions of MAC Manual 55-130 formation procedures were reviewed and adopted. Talon (MC-130) and Gunship (AC-130) procedures have been coordinated. An effective training program has been established.

(3) (U) REQUIRED: Continued development, testing and training in dissimilar aircraft formation procedures is necessary. Regular maintenance and enhancement of the training program is mandatory.

c. (U) Precision Airborne Radar Approaches (ARA):

(1) (U) TASK: A self-contained precision terminal approach and landing system is required to guarantee a full night/adverse weather landing capability.

(2) (U) ACCOMPLISHMENT: New procedures for ARA were developed and implemented using MC-130 ground mapping radar. A formalized training program has been established which can be used or adopted for all C-130 and C-141 aircrews. Training of squadron personnel is conducted on a continuing basis.

(3) (U) DISCUSSION: The present MC-130 precision ground mapping radar is adequate for the terminal portion of the mission. Existing navigation equipment, however, is not adequate to accurately position the aircraft to a point under IFR conditions where this ground mapping radar can be used. As a consequence, VFR weather must exist or an external precision location device must be available.

(4) (U) REQUIRED: An improved long range precision navigation system is required to optimize the ARA technique.

(5) (U) RECOMMENDATIONS: Provide dual integrated intertial navigation systems in MC/AC/EC-130 aircraft.

d. (U) Minimum Light/Blackout Landings:

(1) (U) TASK: Conduct assault landings under conditions of [redacted]

(2) (U) ACCOMPLISHMENT: JTF aircraft to include MC/AC/EC/HC-130, C-141B, HH-53, CH-47, UH-60 [redacted] and OH-58 aircraft, developed the capability to conduct such landings under VFR conditions using Night Vision Goggles (NVG) and [redacted] Procedures were developed defining who would wear NVGs, who would focus inside the aircraft and who would focus outside, who would fly the airborne radar approach (ARA), how the transition to landing would be made, and numerous other problems. Training has been conducted within all JTF component units and has been expanded to include the EC-130 aircrews and C-141 aircrews. A formalized training program has been established to be used or adopted by any C-130 and C-141 crew. Training of component personnel is conducted on a continuing basis.

(3) (U) REQUIRED: The criticality of the requirement for totally blacked out landings requires continued reevaluation of both aircraft lighting systems and presently used N/PVS-5A NVGs. Two significant areas require improvement in order to further expand blackout landing capability:

(a) (U) Night Vision Goggle (NVG) Improvement: Current production NVGs require some ambient visible light (20% moon disk) in order to function. Advanced NVGs, now in prototype stage, will function in total darkness. The acquisition of these advanced NVGs is mandatory.

(b) (U) IR Lighting Improvement: Visible spectrum lighting from landing and taxi lights can be eliminated by covering the existing lights with IR filters. Filter covers have been designed which provide runway illumination through NVGs which is like normal overt lighting. Filters provide only a temporary solution, however, because they retain tremendous quantities of heat and crack or burn (allowing white light to pass) after only a few hours of operation. Additionally, a separate, dual IR/white lighting system is required so that special operations aircraft can conduct normal operations in airfield environments where blacked out approaches and taxi operations create OPSEC and safety problems.

~~CONFIDENTIAL~~

(4) (U) RECOMMENDATIONS:

(a) (U) Acquire improved NVGs

(b) (U) Improve IR lighting systems

e. (U) [redacted]

(1) [redacted] specific area with an initial [redacted] more C-130s are needed on the ground in minimum time.

(2) (U) ACCOMPLISHMENT: JTF components developed and repeatedly demonstrated the capability to [redacted] C-130 aircraft on [redacted] prepared to unload [redacted] Further, the capability to land C-141Bs [redacted] was developed.

A B

(3) (U) DISCUSSION: Training aircrews to fly NVG formation, and then transition to [redacted] proved a major problem. Lead aircraft had to line up early on proper runway approach, especially if the [redacted]

[redacted] Aircraft [redacted] landings fly in extended trail on low level [redacted] [redacted] landing. Aircraft landing [redacted] formation prior to the [redacted] landing, then obtain a horizontal spacing of [redacted] with the wingman positioned abeam or slightly aft of lead [redacted] sighted, both aircraft continue approach, touching down [redacted]

(4) (U) REQUIRE: [redacted] techniques require precise aircraft control and timing. Skills are extremely perishable and must be constantly practiced. Flawless accomplishment is mandatory in a combat environment. The requirement for concentrated training and practice cannot be overstated.

OTHER RELATED ITEMS: A-2, B-2, B-4, D-6

SUBJECT: Air Operations, General (U) Item No. C-4

COMBAT CONTROL TEAM OPERATIONS (U)

1. (C) SUMMARY: Combat Control Team (CCT) particpation began November 1979 when six men were deployed to [redacted] deployment. A team was also forward deployed in April 1980. These deployments, together with subsequent exercises, have surfaced problems and deficiencies; but they have also validated some concepts and demonstrated various strengths. The items listed below, which identified problems and deficiencies, improvements and strengths, or actions and recommendations, are covered in detail:

- Mission Planning
- Command and Control
- Communications Equipment
- Individual/Team Equipment Items
- Manning
- Beacons, Lights & Navigation Aids

2. (U) DISCUSSION:

a. (U) Mission Planning:

(1) (U) PROBLEM: CCT personnel were excluded from the mission planning function during the [redacted] This exclusion hampered team planning and preparation due to lack of information. Additionally, this exclusion removed CCT expertise from the original mission planning staff.

(2) (U) DISCUSSION: CCT officers and senior NCOs have Top Secret clearances and a definite need to know mission concepts and planning data. To increase CCT support for this type mission, the senior deployed CCT (Team Leader) should be a fulltime participant of the mission planning staff.

(3) (U) SOLUTION IMPLEMENTED: [redacted]

b. (U) Command & Control:

(1) (U) PROBLEM: In November 79, Combat Control participation in JTF efforts was undefined. Mission planners, including Air Staff personnel, were not aware of the roles, mission, or capabilities of Combat Control Teams.

(2) (U) DISCUSSION: Combat Control, especially the TAC Special Operations CCT (SOCCT), had no direct representation above Wing level. Until May 80 mission requirements and planning were so compartmentalized that CCT was unable to participate in the planning. After April 80 CCT was more directly involved in the planning, and higher level planners were made aware of CCT capabilities which led to a growing role in the operation. In August 80 command of all CCT assets was finally unified and dedicated to JTF; CCT was identified and tasked to develop basic procedures and train additional forces. 1SOW personnel participated in development of the USA/USAF Joint Helicopter Operations Directive (Draft) to standardize operational procedures. Utilizing these standard procedures, CCT trained US Army Pathfinders (101st Air Assault Div and C Company, 509 Infantry), US Army riggers and refueling specialists, and selected teams from other agencies. Training covered all aspects of helicopter ground operations, refueling, and transloading to/from fixed wing aircraft.

(3) (U) RESOLVED ISSUES: [redacted]

c. (U) Communications Equipment: ~~CONFIDENTIAL~~

(1). (C) PROBLEM: CCT lacked adequate communications in the areas indicated below:

(a) (C) CCT lacked an adequate, hand-held radio for intra-team communications, a truly portable high frequency radio, satellite communications equipment, and burst communications capability.

(b) Manpack UHF satellite radios and HF radios were obtained.

(c) (C) Hand held intra-team radios and accessories were proven inadequate during refueling and airfield operations.

1 (C) DISCUSSION: It is paramount for combat controllers to communicate with the commanmd post while moving about marshaling, refueling, and parking aircraft to insure a safe and expeditious airfield operation. Each CCT member was equipped with intra-team hand held radios; Motorola 500's, MX 360's, and PRC 68's, used with varying degrees of success. A combination of failures with the transceivers and accessories resulted in lost communications. This forces the team leader to communicate via the aircraft control net to check on refueling status, loading status, departure times, etc. with the obvious disadvantage being the possibility of detection and interference with aircraft take-off, landing, and taxi operations.

2 (U) UNRESOLVED PROBLEM: CCT needs a standardized hand-held radio with 2-3 mile range, capable of performing in and around numerous aircraft.

3 (U) RECOMMENDATION: USAF in conjunction with CCT should test candidate systems for overall operational effectiveness and suitability, and purchase suitable radios for the CCT mission.

d. (U) Individual/Team Equipment Items:

(1) (C) PROBLEM: CCT had deficiencies in the quality of equipment:

(a) (C) Only assigned weapons were individual GUA-5 (5.56mm) submachine guns and two .38 cal revolvers.

(b) (U) Present load-bearing equipment, rucksacks, knives and cold weather gear do not compare with items now available on the civilian market in weight, size, and warmth.

(c) (U) The requirement to work two radios simultaneously (squad radio and Air Traffic Control radio) dictated the need for headsets/boom microphones.

(d) (U) Desert uniforms were nonexistent; CCT personnel lacked desert camouflage fatigues, desert boots, and a lightweight cold weather (nighttime) desert field jacket.

(2) (U) SOLUTIONS IMPLEMENTED:

(a) (U) CCT was provided four Kawasaki 250 cc motorcycles and one Kawasaki three wheeled rough terrain vehicle. These vehicles enhanced mobility at the reception site and drastically cut establishment time. They are airdroppable and have been locally modified with non-visible lights.

A,B

(b) (U) Head sets/boom microphones that allow an operator to work two radios simultaneously were locally manufactured.

(3) (U) REMAINING PROBLEMS:

(a) (U) CCT needs the flexibility to tailor personal weapons to the specific mission. Magazine fed automatic pistols are required because they allow personnel to operate other equipment with both hands while maintaining the immediate availability of a weapon; the clip feed allows quick reload. Some missions, such as evading through jungle or woods, may require an [redacted] (like [redacted] o[redacted]. Additionally, access to some of the more sophisticated [redacted]

A,B

(b) (U) Lightweight, down-filled outer garments, several lightweight, strong, extremely flexible load carrying systems, and some very good knives and ruck sacks that are strong and lightweight are all available commercially.

(c) (U) Specific uniforms should be supplied for specific geographic areas.

e. (U) Manning:

(1) (C) PROBLEM: In November 79 there were no Combat Controllers directly tasked to support the project. By May 80 the need for CCT support was well recognized and both [redacted] were being tasked for planning and operations.

(2) (C) IMMEDIATE SOLUTION: US Army Pathfinders, US Army rigger/fuels specialists, and other personnel were trained and incorporated into the project to augment trained CCT. Recent additional remedies included: increased [redacted] authority for [redacted] to be permanently manned at 100%, [redacted]

(3) (U) RECOMMENDATION: USAF should provide adequate manning for CCT in special operations.

f. (U) Beacons, Lights & Navigation Aids

(1) (U) PROBLEM: As operations increased in complexity, the need for improvements in beacons, lights, and navigation aids became readily apparent. Two primary problems were identified: nonavailability of these items with improved capabilities and the lack of beacon-trained crews. Specific items are discussed below:

(a) (U) Lack of a compact, durable, electronic aircraft acquisition and rendezvous aid compatible with helicopter and fixed-wing assets.

1 (U) DISCUSSION/SOLUTION: A discussion of acquisition aids can be confusing since currently zone lighting aids also function as acquisition aids. An electronic acquisition aid is any device capable of providing timely and adequate data to enable zone (or aircraft) location, identification and subsequent alignment/positioning. Electronic navigational aids such as the SST-124 (GAR-I) and the TRN-41 (TACAN) have been used by CCT in the past. The use of a variety of aids coupled with a variety of air assets employed, often leads to operational incompatibility. The GAR-I transponder, while compact and durable, is only used in conjunction with an airborne radar receiver and only compatible with the Combat Talon.

While the TACAN is more versatile, it reduces covertness and its large size makes it undesirable in a special operations role.

2 (U) RECOMMENDATION/SOLUTION: Task (and fund) research and development to:

a (U) Reduce the size and weight of the TRN-41 (TACAN).

b (U) Test the survival avionics system (Motorola/Cubic Corp).

c (U) Install compatible electronic location finder (ELF) equipment in joint task force air assets.

(b) (C) Lack of a covert, distinguishable and identifiable LZ/DZ marking and lighting aid for air assault operations/

1 (C) DISCUSSION/SOLUTION: Tactical airlift forces depend heavily on ground marking and lighting aids during air assault operations--whether it's a helicopter approaching a DZ or a C-130 maneuvering to land. These aids serve a threefold purpose: following acquisition and identification, the aids signal "Here I Am" and are used for maneuvering and alignment with the objective area; they function as known ground reference points for aircraft positioning and timing; and they can be used as a backup method of communications. The lighting configuration provides a mission enabling function and are of paramount importance to mission effectiveness for visual airfield, pick-up zone and airborne operations. Lighting aids must have sufficient range to be useful and, in most instances, should be covert. Current zone lighting has adequate range in perfect viewing conditions, however, an increase in lighting and marking aid intensity will do little to solve the current problems. The area in which improvement is possible and desirable is in [redacted] A,B [redacted] has hampered night VMC approach and pick-up operations.

2 (U) The following current lighting/marking aids were assessed during the past year:

- Bean bag light
- ELCO marker light
- ELCO strobe light
- SDU-5E, 30E strobe light

[redacted] The average acquisition range was [redacted] and all had power source restrictions in terms of reliability and duration. With the exception of the bean bag light, all lights were within acceptable limits for size and weight, and with the exception of [redacted] all lights required IR paper or paint to operate in a covert role.

A, B

(c) (U) The need for a lightweight, durable "unique" acquisition light.

1 (U) The following operational considerations are applicable:

a (U) Optimal color and illumination pattern for easy identification.

b (U) Consideration of human eye sensitivities and perceptions.

c (U) Considerations for size, weight, and rugged design.

d (U) Consideration of power source restrictions reliability and maintainability.

e (U) Adaptable for covert use.

3. (U) RECOMMENDATION:

a. (U) DOD fully fund and explore the potential of proposed [redacted] currently being developed by [redacted] Purchase a prototype [redacted] for operational testing in future training exercises.

A, B

b. (U) CCT be authorized continued coordination with the scientific community to determine optimal characteristics and requirements for a zone lighting aid.

OTHER RELATED ITEMS: B-2, B-4, C-5, E-2.

PERSONNEL/UNITS INVOLVED: [redacted] DA, G

SUBJECT: Air Operations, General (U) Item No. C-5

AIRFIELD LIGHTING (U)

TOPIC: Landing Zone (LZ) Acquisition & Lighting Test (U)

SUMMARY:

1. (C) On 18 Sep 1980 an LZ acquisition and lighting test was conducted at Eglin Auxiliary Field 6 (Biancur Field) from 2000-2400L). Purpose of the test was to gather data on new and previously used equipment and light patterns and evaluate them in terms of runway acquisition, light pattern acquisition, and aircraft alignment on final approach. Additionally, blue floodlighting of the aircraft cockpit was evaluated. Specific equipment tested/evaluated was as follows:

a. (C) [redacted] runway lights (with two types of IR paper and green lenses).

b. (C) Portable strobe lights (with one type of IR paper and green lenses).

c. [redacted]

d. (U) Portable Visual Approach Slope Indicator (VASI).

e. (C) Blue interior (cockpit) floodlighting.

2. (S) SPECIFIC FINDINGS AND RECOMMENDATIONS:

a. (C) A light pattern consisting of pairs of ELCO lights on opposite runway sides 500' and 1500' from the approach end overrun with a centerline strobe at the far runway end was found to be clearly superior to any other pattern tested. The strobe light on end-of-runway centerline aids visual acquisition at range and provides a geometric relationship for the pilot during the approach. Recommend the use of this pattern (or a variation thereof) for all future night landing operations.

b. (C) The box pattern described (touchdown area) provided the best touchdown zone reference. In cases where a strobe was used in this box pattern, it degraded the touchdown zone presentation to the pilot and caused visual illusions and blanking out of other lights. Recommend that no strobes be used within the box (touchdown area) pattern.

c. (C) Because the human eye is more receptive to the color green at night, when using visual lighting patterns with green lighting (both strobe and steady ELCO), visual acquisition distances were enhanced considerably. Additionally, the flash from a green strobe is less irritating and the light is not so widely dispersed.

d. (C) Blue cockpit floodlighting was evaluated during all approaches and found to be superior to existing cockpit lighting. These lights reduced glare on the aircraft wind screen and allowed crewmembers with or without Night Vision Goggles (NVGs) to see internally and externally. Use of these lights will provide an interim solution to the cockpit lighting glare problem until such time as [redacted] lights are developed for use. Most importantly, use of these blue filters on cockpit floodlighting allows the pilot in control to see both inside and outside the aircraft.

e. (C) Various types of IR and near-IR (theatrical) paper over ELCO and strobe lights were used during the three runs. Using the IR paper previously provided produced poor results for acquisition at ranges above 1.5nm. By using [redacted] and th[redacted], the lights could be acquired using NVGs at distances of [redacted] respectively. This represented a quantum improvement in LZ acquisition range. The near-IR paper did allow some faint light to escape (deep cherry red in color) that could be seen only from the ground at a maximum distance of 100 yds. These type papers should continue to be used for all further night IR lighting operations; the use of other types of IR paper or light sources should continue to be investigated.

RECOMMENDATIONS:

1. (U) Use box pattern without strobes in box and departure end center line strobe.

2. (U) Recommend that immediate steps be taken to fit Combat Talons with blue cockpit floodlights. Blue filters should be developed for cockpit B-4 (map) lights and the copilots horizontal situation indicator.

3. (C) Continue development of [redacted].

4. (U) Continue use and further investigation of various types of IR filters.

OTHER RELATED ITEMS: B-2, C-4

PERSONNEL/UNITS INVOLVED: [redacted]

Subject: Air Operations, General (U) Item No. C-6

LANDING ZONES (U)

TOPIC: Landings on Unprepared Surfaces (U)

SUMMARY:

(U) 1. (U) PROBLEM: Landing transport aircraft on unprepared surfaces is required to infiltrate troops or supplies into areas where an airdrop is not feasible.

(U) 2. (U) DISCUSSION: The ability to land transport aircraft on unprepared surfaces in order to deliver operational troops, equipment and other aircraft can tremendously increase the options of a task force commander. C-130 and C-5 aircraft were designed with such a capability. The JTF refined the procedures and developed the proficiency to fully exploit C-130 capability; and it is imperative that the C-5 potential be similarly expanded.

3. (C) LESSONS LEARNED: Unprepared surface operations in a desert environment provide a significantly larger number of potential staging areas while at the same time reducing enemy capability for detection and quick response.

4. (U) RECOMMENDATION: Complete [redacted] Expand timing and maintenance of such operations to include at least a [redacted] unit.

(C) PERSONNEL/UNITS INVOLVED: HqMAC, 1SOW

SUBJECT: Air Operations, General (U) Item No. C-7

SHORT TAKEOFF AND LANDING (STOL) (U)

TOPIC: [redacted] CREDIBLE SPORT (XC-130) (U)

1. (S) (U) SUMMARY: The Credible Sport program was an OSD sponsored research and development effort undertaken to fabricate and test modifications required to give a standard C-130 an extremely short field take-off and landing capability. Additionally, an avionics suite was developed to provide capabilities for low-level navigation and terrain following similar to that of the MC-130 Combat Talon. The two prototype XC-130s were equipped with in-flight refueling (IFR) systems like that installed on the C-141B and were modified to accept various types of rocket motors to vastly improve short take-off and landing performance. Additionally, there were extensive modifications to the flight control systems and surfaces, all aimed at improved STOL handling characteristics. No ECM or RHAW gear was included in the modification program.

2. (S) LESSONS LEARNED: Most of the goals of the Credible Sport program were met. It was evident that the avionics suite provided low-level navigation capability and accuracy [redacted] The terrain following radar installed on the XC-130s was inferior to that of the MC-130. Two prototypes were completed within thirty days of the target date, and flight characteristics, including STOL performance, exceeded expectations. Take-off rolls [redacted] with a heavily loaded aircraft were demonstrated. The program was halted when, during a rocket assisted [redacted] one of the aircraft was damaged beyond repair. The accident was a result of both human and mechanical error.

3. (S) (U) RECOMMENDATIONS: While the JTF did not originate the requirement for the XC-130 (the project was wholly conceived within the USDRE/AFSC interface), special operations forces have a great need for an aircraft with capabilities such as those found in the XC-130. The exceptional capabilities of the XC-130 aircraft could be essential to the successful execution of certain missions. Undoubtedly, a limited number of these aircraft would greatly enhance our ability to respond rapidly to situations requiring special operations forces. The XC-130 development program should be continued in order to take advantage of new technology. Assuming

successful development, we should proceed immediately to incorporate all or a portion of this technology into the Combat Talon fleet.

PERSONNEL/UNITS INVOLVED: ~~HQ~~ USAF/RD
HQ AFSC/XP
G [redacted] USAF

SUBJECT: Air Operations, General (U) Item No. C-8

MAINTENANCE SUPPORT (U)

TOPIC: Airframe Reliability (U)

1. (U) PROBLEM: Logistics support of special operations units is currently not sufficient to maintain the required level of reliability.

2. (U) DISCUSSION: Maintenance and logistics support problems have degraded the mission capabilities and reliability of airframes to a point where they cannot be relied upon to function in the high risk special operations environment. The surge requirements for units participating in JTF training and exercises outstripped the ability of the logistics system to support them. This inability to support the short term surge requirement of two flying units has surfaced a major problem concerning the ability of the military-industrial complex to support a war effort. The concern for low expenditures and an efficient logistics system on the military side, and high cost high technology parts and tax considerations on the industrial side have depleted the supply system to a dangerous level. During surge operations, lead time on parts was from three to nine months, varying according to system complexity. These problems particularly manifest themselves in the low density weapon systems used for special operations that do not have an extensive supply system to support them.

3. (U) RECOMMENDATION: Insure continued active support of units designated as primary managers of special operations forces. The quick response nature of special operations requires that these units be maintained in a high state of readiness and training. This requirement implies increased support, reprovisioning of spares, upgrade of WRM and BLSS Kits and adjusting the logistics support system to attain and sustain a 75% mission reliability-with a short term surge requirement of 90% reliability.

PERSONNEL/UNITS INVOLVED: HQ USAF/LERX

~~SECRET~~

~~CONFIDENTIAL~~

SUBJECT: Air Operations, Helicopter (U) Item No. D-1

JOINT HELICOPTER OPERATIONS (U)

TOPIC: Operating Procedures (U)

SUMMARY:

1. (U) PROBLEM: Develop USA/USAF joint operating procedures.

2. (U) DISCUSSION: Initial joint helicopter operating procedures were formulated and tested during exercise HONEY BADGER. POTENT CHARGE Planning Conference, 6-8 August 1980, proposed specific procedures; while POTENT CHARGE Phase II operationally tested and refined joint procedures. Procedures found in USA/USAF Joint Helicopter Operations Directive (Draft) 18 August 1980 include information on planning, briefings, radio communications, takeoff, enroute, landing, reception site procedures, hot refueling, SAR, light configuration signals, and miscellaneous. [redacted] and 101st AVBN crews have successfully used the joint manual in local training, POTENT CHARGE I and II, POISON DART, and other joint operations.

3. (U) RECOMMENDATION: Recommend continual refinement and updating of joint procedures and consolidation of the procedures in the Joint Helicopter Operations Directive.

[redacted]

~~SECRET~~

~~CONFIDENTIAL~~

SUBJECT: Air Operations, Helicopter (U) Item No . D-2

JOINT HELICOPTER OPERATIONS (U)

TOPIC: Enroute Formation (U)

SUMMARY:

1. (U) PROBLEM: Develop enroute formation procedures for dissimilar helos.

2. (U) DISCUSSION: HH-53/UH-60, HH-53/CH-47 procedures were developed and tested. The PAVE LOW is especially suited for Pathfinder role due to internal navigation capability. Addition of a second HH-53 in #2 position provides back up navigation capability and gives entire formation a better attitude reference (due to tip path lights). Joint helicopter operations with dissimilar helicopters were successfully conducted during HONEY BADGER, POTENT CHARGE, and POISON DART.

3. (U) RECOMMENDATIONS: The Joint Helicopter procedures should be continually re-examined. Other special operations units should review the procedures for familiarity. Recommend continual refinement and updating of joint procedures manuals and continued close training and coordination between designated special operations units.

SUBJECT: Air Operations, Helicopter (U) Item No. D-3

JOINT HELICOPTER OPERATIONS (U)

TOPIC: Terminal Operations (U)

SUMMARY:

1. (U) Problem: Develop assault techniques for dissimilar helicopters.

2. (U) Discussion: Differences in approach speeds, out of ground effect hover capability, and landing gear stress require specific landing procedures. Techniques were tested and published in a joint operations manual; practiced during HONEY BADGER, POTENT CHARGE, and POISON DART. Poor illumination during night vision goggle operations makes approach parameters difficult to maintain, requiring continued aircrew familiarization and constant practice, especially for flight lead.

3. (U) Recommendations: Recommend continual refinement and updating of joint procedures with a joint headquarters level office maintaining primary responsibility for the manual. Emphasize terminal operations in all future exercises by reducing enroute flight time. Develop unit generated joint continuation training.

SUBJECT: Air Operations, Helicopter (U) Item No. D-4

JOINT HELICOPTER OPERATIONS (U)

TOPIC: Communications (U)

SUMMARY:

1. (U) PROBLEM: Development of secure interplane communications capability.

2. (U) SOLUTION: Aircraft have been outfitted with KY-28s, KY-75s, and SATCOM devices. Secure communication was used in all exercises.

3. (U) UNRESOLVED PROBLEMS: UH-60 is equipped with separate KY-28s for each radio, CH-47 has FM secure only, and HH-53 must alternate secure between UHF and FM. Different Services possess different codes.

4. (U) RECOMMENDATIONS: Add additional KY-28 to HH-53 and secure UHF to CH-47. Spell out codes clearly in Joint CEOIs. When possible, one individual should key all helos involved in an operation to preclude error.

SUBJECT: Air Operations, Helicopter (U) Item No. D-5

JOINT HELICOPTER OPERATIONS (U)

TOPIC: Forward Area Refueling/Rearming Point (FARRP) (U)

1. (U) PROBLEM: Refueling and rearming of helicopters at forward areas is required. These operations must be done as quickly as possible and in some cases, under blacked out conditions. Such a capability did not exist.

2. (U) DISCUSSION: The Airborne Department, U.S. Army Quartermaster School, was tasked to develop a workable FARRP system for JTF operations. The parachute rigging element, formed in November 79 to provide heavy drop support to the JTF successfully undertook the task, modifying their efforts accordingly. The role of the rigging element was modified with a shift from airdrop support to the operational conduct of the Forward Area Refueling/Rearming Point (FARRP) locations. This mission shift forced the augmentation of the rigging element with trained POL pesonnel to perform the actual pumping operation. As this training became more advanced and concentrated, a complete new pumping system had to be developed and tested to replace the standard 100 GPM FARE System in order to achieve the desired pumping pressures and refueling times.

3. (U) TASK FORCE ACHIEVEMENTS: At the present time, the rigging element has the capability to conduct low level airdrops of all POL systems, [redacted] special items of equipment, combat off-load of POL systems and ammunition, and when augmented, the operations of FARRP's. Specifically, the task force has:

a. (U) Developed low level night airdrop techniques for 500 gallon collapsible drums, 100 GPM POL Systems and M-274 weapons carriers in a modified Container Delivery System (CDS) configuration. Drop aircraft tested:

(1) MC-130.

[redacted] C-141A (long range penetration w/in-flight refueling).

b. (U) Developed low level night airdrop techniques for [redacted] motorcycles for use by DELTA/Ranger forces. Personnel ride behind the motorcycles. Modified CDS configuration [redacted] C-130 and C-141B aircraft.

c. (U) Developed low level night airdrop techniques for the follo[redacted] operations: [redacted] Type aircraft used: MC-130, EC-130.

d. (U) (C) Developed combat off-load techniques of POL systems and prime movers from MC-130 and C-141B aircraft.

e. (U) Developed, tested, and trained on an improved (175-300 GPM) lightweight FARE system with the capability of high pressure refueling the PAVE LOW (HH-53), UH-60, AH-1S, [redacted] H-47 helicopters.

f. (U) Developed, in conjunction with the CCT/Pathfinder elements, blackout refueling and rearming techniques.

4. (U) RECOMMENDATIONS:

a. (U) (C) Fifteen new lightweight refueling systems (175-300 GPM pumps, 200 GPM Filter/Separators) along with 15 modified M274 weapons carriers and 40, 500 gallon collapsible drums, plus PLL's are assembled at Fort Campbell, KY, for operational support as necessary.

b. (U) Recommend formal adoption of the special POL team to support future operations.

PERSONNEL/UNITS INVOLVED: [redacted]

~~SECRET~~ ~~CONFIDENTIAL~~

SUBJECT: Air Operations, Helicopter (U) Item No. D-6

GENERAL OPERATIONS (U)

TOPIC: Tactical Capability Development

1. (U) SUMMARY: Review of tactical capability development is indexed as follows:

- Terminal Area Guidance/Target Acquisition
- Command and Control Link
- Low Level Procedures (Zero Light
- Heavyweight Operations
- Extended Range Tactics
- Assault Capability
- Unconventional Warfare Applications
- Mission Planning

2. (U) DISCUSSION:

a. (U) Terminal Area Guidance/Target Acquisition:

(1) (U) REQUIRED: Development of procedures for precise terminal area guidance and target acquisition following extended low level night navigation.

A, B

[redacted]

(3) (U) TRAINING. PAVE LOW operational currency must be maintained in low level night navigation, NVG operations, terrain following/terrain avoidance (TF/TA) [redacted] UH-60 operational currency must be maintained in low level night navigation procedures and NVG operations. [redacted] navigation was practiced during HONEY BADGER, Trainex PHOENIX, POTENT CHARGE, POISON DART and POTENT CHARGE II, with ground [redacted] during HONEY BADGER and local exercises.

A

(4) (C) FOLLOW-ON REQUIREMENTS: Effective PAVE LOW night, low level flight (no illumination) is dependent on the AN/APQ-158 radar, which must be fully operational. Proficiency in NVG operations for all aircrews is essential.

(5) (C) RECOMMENDATION: Current PAVE LOW navigation capability is essential to any mission requiring precise, low level/terrain masking penetration, terminal area guidance/target acquisition and precise TOTs. Operational reliability of the AN/APQ-158 terrain avoidance/terrain following radar must be significantly improved.

b. (U) Command and Control Link-Up:

(1) (C) REQUIRED: Reliable, secure, long distance communication with command and control elements.

(2) (C) IMMEDIATE SOLUTION: Acquired Satellite Communications System (Secure UHF), aircrews trained in SATCOM use.

(3) (C) UNRESOLVED PROBLEMS: Only three HH-53H and four UH-60's have SATCOM installed. This decreases operational/maintenance flexibility due to forced reliance on certain airframes only.

(4) (C) RECOMMENDATION: Modify all aircraft with SATCOM.

c. (U) Refined Low Level Procedures (No Illumination):

(1) (U) REQUIRED: Refine low level formation procedures for conditions of zero illumination.

(2) (C) DISCUSSION: NVGs are useable only to about 20% (equivalent moon disk) outside illumination. Use of HH-53H as pathfinder enables HH-53 SLICKS, CH-47s and UH-60s to fly under conditions of zero illumination. Rotor tip path lights on the HH-53 are adjustable in intensity and can be turned down until they can't be seen by the naked eye. They provide an excellent attitude source for NVG flight.

(3) (C) RECOMMENDATION: Any aircraft considered for use in night formation flight with NVGs should be modified with rotor tip path lights. This significantly reduces pilot fatigue and is especially important on extended flights.

d. (U) Heavyweight Operations: CONFIDENTIAL

(1) (U) PROBLEM:

(a) (U) HH-53 operations are technical order limited to 42,000 lbs gross weight. The 42,000 lb limit may impose unnecessary restrictions to aircraft capability. Experience of other HH-53 operations indicates a capability for operations up to 50,000 lbs GW.

(b) (U) UH-60 and CH-47 max gross weights have been increased to 21,800 lbs and 52,000 lbs respectively.

(2) (U) DISCUSSION: Urgent mission requirements dictated planning at aircraft weights up to 47,500 lbs. [redacted] unofficial tests were conducted to 46,700 lbs, Sikorsky/[redacted] tests were conducted to 50,000 lbs, and US Navy has data on RH-53 to 50,000 lbs. No official permission/tests/engineering studies permit operational above 42,000 lbs at this time.

(3) (U) RECOMMENDATION: AF/Warner Robbins/ALC conduct official heavy gross weight tests on HH-53s. Recommend Warner Robbins issue interim guidance for operations above 42,000 lbs based on data already existing. Care should be taken to monitor for increased wear and failure rates for extensive operations at the increased maximum gross weight.

e. (U) Extended Range:

(1) (U) REQUIRED: Extend helicopter range in night, no light, comm-out environment.

(2) (U) DISCUSSION:

(a) (C) Air refueling capability already existed: probe and drogue system with HC-130 tanker. New tactics were developed to permit lights out, comm-out rendezvous and join up [redacted] Requires pre-mission briefs and accurate control times at the air refueling control points. Light signals permit communications between tanker and receiver.

(b) (C) Ground refueling procedures were developed which enable use of blivets, other aircraft, trucks, or any source capable of single point refueling. 200-300 gpm is desirable as a minimum. HH-53 procedures require personnel to be familiar with refueling through the probe by using an adaptor with the single point nozzle. All operations,

personnel, and fuel spills are out front, away from the rotor disk, in plain sight of the pilot adding an increased safety margin. Ground crews must also be familiar with UH-60 single point and gravity feed systems. internal fuel tanks increase fuel load by

(3) (U) RECOMMENDATION: Continue to refine operational procedures with emphasis on resolution of NVG/ground operations compatibility problems.

e. (U) Assault Capability: HH-53, CH-47:

(1) (U) REQUIRED: Develop HH-53/CH-47 assault procedures.

(2) (U) During POTENT CHARGE II HH-53/CH-47 assault procedures were developed. Due to aircraft size (40 troop or 50-passenger capacity), ability to onload and off-load wheeled vehicles and motorcycles, and ability to operate from LZ's rather than prepared surfaces, the HH-53/CH-47 is suited for the assault role. Internal nav gear permits precise acquisition of the LZ and exact TOTs. Capacity permits maximum flexibility for ground forces and smaller overall assault force. Tactics developed in POTENT CHARGE II indicate elements of three aircraft in diamond formation (1 PAVE LOW lead with SLICKS/CH-47 on wing) is the easiest formation to work with, although the landing formation is dependent on LZ size, shape, approach clearance, and threat. PAVE LOW lead can initiate slow up for landing and approach parameters using internal navigation gear. An initial cadre of personnel was qualified in assault operations.

(3) (U) RECOMMENDATION: Units should continue to develop assault techniques and continue joint tactical training as part of their continuation training prorams. CH-47 internal fuel system conversion should be made easier.

f. (U) Assault Capability: UH-60.

(1) (U) REQUIRED: Develop UH-60 assault procedures.

(2) (U) Potent Charge II developed UH-60 assault procedures. In training, unique procedures were developed for Assault forces were designed

and could all be utilized on a single assault. Tactics developed in POTENT CHARGE II indicate prior planning and close coordination are critical aspects of special operations assault operations.

(3) (U) RECOMMENDATION: Units should continue to develop specialized assault techniques and continue joint tactical training.

g. (U) Unconventional Warfare Applications:

(1) (U) REQUIRED: Establish UW delivery/recovery methods.

(2) (S) DISCUSSION: Multi-ship assault landings, single-ship PAVE LOW approach with hover coupler, hoist, rappel, stabo rig, rope ladder, and rubber raiding craft (RRC) deployment have all been refined. The unique capabilities of the HH-53H, PAVE LOW, make it an ideal weapon system for behind the lines, deep penetration, commando operations. HH-53H's used in conjunction with Army helicopters and assault troops would provide a viable force for use in interdiction, insertion, rescue and troop support. The HH-53H assault team's ability to penetrate low level to avoid detection, take advantage of surprise, distribute forces, nonreliance on fixed landing areas, and immediate withdrawal are its strongest attributes in the assault role. Potential targets include: airfields, industrial areas, second echelon encampments, command centers, storage areas, warheads, anti-air and artillery positions, lines of communication, and hard targets. The RRC deployment is especially suited to the PAVE LOW mission. The HH-53H with internal navigation capability can locate a precise spot over water at night, engage the hover coupler to permit low altitude, no horizon flight over water and insert from one to two RRCs plus personnel. Electronic location finder and ADF ties to the Central Aviation Computer permit acquisition for recovery. HH-53H mission ready crews are proficient in all methods of delivery and maintain currency in insertions/extractions. HONEY BADGER, POTENT CHARGE I & II, and POISON DART emphasized multi-ship assault landings, and joint procedures.

(3) (S) RECOMMENDATION: HH-53H be considered the primary vehicle for single ship UW missions and lead aircraft for multiple ship missions requiring deep penetration, total darkness, precise navigation, and accurate timing.

h. (U) Mission Planning:

(1) (U) REQUIRED: Reduce mission planning time.

(2) (U) DISCUSSION: Counterterrorist/UW mission execution is, by nature, extremely time sensitive and lightning-quick response is often mandatory. Initiation of operational execution is dependent on planning time required. Only after an operation is detailed, can support agencies and air crews finalize their mission planning. Units have made several contributions to help expedite planning i.e., [redacted] has developed pre-printed navigation logs and a mission planning checklist to reduce required planning time. Operations HONEY BADGER, POTENT CHARGE, and POISON DART established a planning checklist, refined planning procedures and demonstrated a significant increase in planning proficiency.

(3) (U) RECOMMENDATION: Follow-on planning exercises should be conducted on a continual basis to familiarize planners at all levels with planning sequences and key personnel in participating agencies. Develop procedural checklists and planning devices at all levels to supplement the joint guidance, established during POTENT CHARGE, and further reduce planning time. Suggestions applicable to all agencies involved with joint planning should be included in the Joint Helicoper Operations Directive.

OTHER RELATED ITEMS: E-10

PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Air Operations, Helicopter (U) Item No. D-7

H-53 OPERATIONS (U)

TOPIC: PAVE LOW as Pathfinder (U)

SUMMARY:

1. (U) REQUIRED: Develop the capability to use PAVE LOW helicopters as pathfinders for other helicopters in isolated/remote areas.

2. (U) DISCUSSION: To make maximum use of the HH-53H capabilities to lead additional aircraft to a target using [redacted] procedures had to be established and practiced. This concept required absolute formation discipline and use of night vision goggles (NVG) to maintain position. Comm-out procedures were desired. Training missions were flown under varied conditions of illumination, occasionally [redacted] altitudes varied from [redacted] Formation composition varied from two to four aircraft with combinations of HH-53, UH-60, and CH-47. Procedures were developed and documented in the Joint Helicopter Operations Directive.

3. (U) RECOMMENDATIONS:

a. (U) Improved exterior IR lights are needed for positioning and signaling while in formation. All special operations helicopters should be fitted with "SLIME" and blade tip lights to assist in maintaining proper formation position.

b. (U) Continued joint training is required between special operations units to refine and improve procedures established in the Joint Helicopter Operations Directive.

PERSONNEL/UNITS INVOLVED: 1SOW, 101st.

SUBJECT: Air Operations, Helicopter (U) Item No. D-8

H-53 OPERATIONS (U)

TOPIC: Dust Out Landings (U)

SUMMARY:

1. (U) PROBLEM: Helicopter operations in desert environments require a capability to land a single helicopter or helicopter formation in extremely dusty landing zones (LZ). The potential for loss of visual cues ("dust out") presents a severe safety hazard. This hazard is compounded at night. Crews & planners did not have sufficient knowledge/proficiency with regard to night, dusty environment landings.

2. (U) SOLUTION: "Dust out" landing tests were conducted at night using NVGs. The capability to land a single helicopter or formations in extremely dusty LZs was demonstrated. Techniques varied from roll-on landings at ground speeds well above translational lift to a vertical descent from 50-100 feet AGL while using the hover coupler.

3. (U) LESSONS LEARNED:

a. (U) Results were partially successful.

b. (U) Swiveling of the HH-53 nose wheels while rolling slowly (approximately 5mph) across soft terrain caused problems. Nose tires blew out on several occasions when they were pinched away from the rims after the nose gear cocked 90 degrees during roll-out. The most serious incident involved aircraft damage when the nose strut collapsed and tore out the cockpit floor under the flight engineer's seat.

c. (U) Total brown out conditions were frequently created by excessive HH-53 rotor downwash. This condition sometimes necessitated an instrument go-around by the HH-53, and often prevented wingmen from landing due to complete loss of visual references.

4. (U) RECOMMENDATIONS:

a. (U) Develop a nose gear centering mechanism for the HH-53 to insure proper position prior to roll-out landing. The nose gear often becomes cocked if the aircraft moves slightly during liftoff and remains in that position without the aircrew's knowledge. This is generally not serious when landing on a hard surface, but becomes a definite hazard in soft desert sand.

b. (U) Install a nose gear locking device similar to that on the H-3 helicopters. Such a device would preclude turning of the nose wheels on soft terrain during rolling landings or slope landings. It would drastically reduce the potential for blown nose tires and/or collapsed nose struts.

c. (U) Continue to practice and develop procedures for safely landing all aircraft in a formation during extremely dusty conditions. Possible solutions include greater distance between landing aircraft on large LZs or establishing spacing between formation aircraft over a known point such as the IP to allow time for the dust to clear before each subsequent aircraft begins its approach.

PERSONNEL/UNITS INVOLVED: 1SOW, 101st.

SUBJECT: Air Operations, Helicopter (U) Item No. D-9

MODIFICATIONS (U)

TOPIC: CH-47C (PLUS) (U)

1. (U) (C) SUMMARY: Major modifications to 16 CH-47C (PLUS) helicopters are indexed as follows:

- Range Extension
- Redundant, Forward Area Refueling System
- NVG Compatible Cockpit
- Avionics Enhancement
  - -- AN/APX-72 Transponder
  - -- 1-HF/AM/SSB Secure Transceiver
  - -- 2-ARC-114 UHF/AM
  - -- 2-KY28 Secure
  - -- AN/APR 39 Radar Warning Receiver
  - -- APN 209 Radar Altimeter
  - -- Cruise Guide Computer
- Omega Precision Long-range Navigation System
- Third Pilot/Navigator Position with Omega Control Head
- Aircrew Oxygen System
- Increase Maximum Gross Weight
- Rapid Removal Tank System (8 Aircraft)
- Rescue Hoist

2. (U) (C) DISCUSSION:

a. (U) Range extension:

(1) (U) REQUIRED: Extend the range of the CH-47 t [redacted] autical miles to be compatible with mission requirements and other capabilities.

(2) (U) DISCUSSION: Off-the-shelf equipment was examined to accomplish this goal. Four 600 gal internal aux tanks were installed to add 2400 gals to internal auxiliary fuel to the system providing the required [redacted] The use of off-the-shelf 600 gal tanks eliminated the long lead time procurement and cost of custom built tanks. In June 1980, 16 aircraft from TF 158 deployed to Norton AFB for the modification of the fuel system and general reconditioning. TSARCOM, with Boeing technical assistance, modified 16 CH-47C (PLUS) with the fuel system. Extensive training and testing confirmed that the [redacted] goal had been achieved without degradation of performance.

(3) (U) RECOMMENDATION: Continual upgrade of the system in order to make the load configuration more flexible and fittings more reliable.

b. (U) Redundant, Forward Area Refueling System:

(1) (U) Development of helicopter tanker capability to increase force flexibility. (See also HH-53 and UH-60 modifications)

(2) (U) DISCUSSION: The need to carry organic logistics support on long duration, deep penetration vertical lift missions dictates that mission aircraft must have the capability of transferring fuel to other aircraft. Refueling operations have been conducted with CH-47, HH-53 B/C/H, UH-60, [redacted] using both single point and "over the wing" techniques from two to six refueling points. In all refueling operations the refueler had backup pumps available.

(3) (U) AREAS OF INTEREST: With the differences in receiver aircraft, close coordination of both equipment needs and training is essential. Ground crews need extensive training in FARRP operations to insure rapid and efficient operations.

(4) (U) RECOMMENDATIONS: Continue joint training with all types of aircraft. Special operations units should develop highly trained FARRP crews to be the cadre for future training.

c. (U) NVG compatible cockpit:

(1) (U) REQUIRED: Develop a cockpit configuration compatible for use with NVG's.

(2) (U) DISCUSSION: When the CH-47 was deployed to Norton AFB the cockpit was retrofitted with NVG compatible blue light capability. Follow on test and evaluation identified several shortcomings that were corrected. The CH-47 presently has one of the best NVG cockpits available.

(3) (U) RECOMMENDATIONS: Continual improvement as state-of-the-art improves.

d. (U) Avionics enhancement:

(1) (U) REQUIRED: Provide the aircraft and aircrew with an avionics package to enhance communications and threat detection.

(2) (U) The need to have a special operations heavy lift/logistics capability for deep penetration missions places heavy demands on command and control systems and survivability. The high risk missions require constant monitoring and close coordination of operational and logistic assets. Communications are especially critical in laager areas or FARRPs where several flights of different type aircraft could come in conflict.

(3) (U) IMMEDIATE SOLUTION: In order to decrease the command and control problem the following communications equipment was installed:

(a) AN/APX 72 transponder for location, identification and tracking

(b) 1 - HF/AM/SSB secure transceiver

(c) 2 - VHF/FM secure

(d) 1 - UHF/AM secure

To enhance survivability in the low/medium threat environment, an AN/APR 39 Radar Warning Receiver was installed. To aid in navigation and pilotage on extended low level flight, an Omega navigation system (discussed later), an APN 209 radar altimeter and a cruise guide computer were added.

e. (U) Omega:

(1) (U) REQUIRED: Precision navigation capability over long distances at night.

(2) (U) DISCUSSION: The ability to perform long range precision navigation is essential for the self-deployability of organic aviation assets and is essential in the execution of special operations missions. The addition of internal auxiliary fuel tanks has permitted extended flight envelopes that can carry the aircraft well out of range of traditional ground navigation stations into desolate areas.

(3) (U) IMMEDIATE SOLUTION: The Litton Omega set was acquired and installed in CH-47 helicopters to provide the needed navigation capability. After proper training for the aircrews, Omega proved to be a reliable navigation system and is suitable for long range deployment and deep penetration by CH-47 helicopters.

(4) (U) FOLLOW ON: This system should be considered for acquisition for use in other special operations assets. Modify the Omega to be compatible with NVGs.

f. (U) Third pilot/navigator position with Omega control lead:

(1) (U) REQUIRED: Ability to precisely navigate low level, at night over desolate terrain for long distances.

(2) (U) DISCUSSION: While flying mission scenarios with NVGs, pilots spent a major portion of their time both looking outside the aircraft and maintaining aircraft control. They had difficulty transitioning inside the cockpit to use maps and other navigation equipment. In the low level environment the requirement for constant attention outside the aircraft for safe flight made precision navigation difficult. In addition, the Omega control head lighting system was too bright for use with the NVGs. Covering the lights solved the NVG compatibility problem; but the Omega was unusable.

(3) (U) IMMEDIATE SOLUTION: To facilitate night navigation and relieve the workload on the pilot and copilot, a navigator station was put in the cargo compartment. The navigator could function with minimal lighting and could operate the Omega navigation system without interfering with the pilot's ability to control the aircraft while on NVGs.

(U) & U CONFIDENTIAL

(4) (U) RECOMMENDATION: Integrate the precision navigation system into existing pilot displays. As an interim, a navigator training course should be established. The training should include low level navigation with and without NVG's; map preparation; wind, time, distance, heading computations; and navigation system operation.

g. (U) Aircrew Oxygen System:

(1) (U) REQUIRED: Capability for long duration flights at high altitude.

(2) (U) DISCUSSION: Mission requirements dictated that the force fly extended legs at or above 10,000 feet in mountainous terrain at night. To avoid the problems associated with decreased night vision above 3,000 feet and the effects of hypoxia (tunnel vision and degraded night vision), a five place oxygen system with 90 minute duration was installed.

(3) (U) UNRESOLVED PROBLEMS: The system functions well but presents some hazards because of the equipment used and the configuration. The bottles are high pressure units with exposed necks that can be broken off during combat or a crash.

(4) (U) RECOMMENDATIONS: Continued development of the system to include permanent racks to secure and protect the bottles, especially the bottle neck. Continued emphasis on the benefits of oxygen, not only for flight at or above 10,000 feet, but also for flights at or above 3,000 feet at night.

h. (U) Increase maximum gross weight (MGW):

(1) (U) REQUIRED: Operations above 50,000 MGW.

(2) (U) DISCUSSION: CH-47 operations were limited to 50,000 lbs MGW. Mission requirements dictated that 52,000 lbs MGW would be more advantageous for mission success. After a conference with Boeing, and considering the aircraft had been newly reconditioned, the MGW was increased to 52,000 lbs.

(3) (U) RECOMMENDATION: Recommend further evaluation of operations at the new MGW and examine the possibility and limitations of higher weights. Care should be taken to monitor for increased wear and failure rates for extensive operations at the increased maximum gross weight.

i. (U) Rapid removal tank system (8 aircraft):

(1) (U) REQUIRED: Capability to rapidly transition the aircraft from a logistics carrier (base) to an ingress/egress lift augmenter or SAR aircraft.

(2) (U) DISCUSSION: The two primary missions for the CH-47 have been to carry fuel and equipment; and to provide the emergency lift capability for the force in case of excessive losses or loss of lift capability. In order to do this the internal tanks should be removable.

(3) (C) IMMEDIATE SOLUTION: Eight aircraft had tank modifications that permitted rapid roll-off of the tanks and rapid transition from a logistics carrier to a troop carrier. The tanks could be removed while either full or empty [redacted]

(4) (U) RECOMMENDATION: Further examination to improve the design and function of the entire refueling system. This system was designed and built with off-the-shelf equipment and could be improved to increase safety and efficiency.

j. (U) Rescue Hoist:

(1) (U) REQUIRED: Capability to provide SAR aircraft to the forces.

(2) (U) DISCUSSION: The deep penetration force would generally provide its own SAR during most phases of the mission. During egress with full capacity, or if some of the primary mission aircraft are lost, the CH-47 would assume the SAR role.

(3) (U) RECOMMENDATION: Aircrew training be conducted on pickup procedures and crew coordination, as well as training on air-ground location and pickup procedures.

OTHER RELATED ITEMS: A-2

PERSONNEL/UNITS INVOLVED: Hq USA, DALO-AV

SUBJECT: Air Operations, Helicopter (U) Item No. D-10

MODIFICATIONS (U)

TOPIC: AH-1 (U)

1. (U) SUMMARY: JTF mission requirements are similar to aircraft design characteristics, so modification requirements were minimal. Modifications accomplished/recommended are summarized as follows:

Description	Recommendation
a. (U) 747 Kamon blades gain 7% in lift. They do not seem to hold up well in desert environment.	Desired - but under further study.
b. (U) Metal Plus Plum diffuser - increase NVG compatibility as well as survivability.	Required
c. (U) UHF Secure - would give back up secure means for air to air and Army to Air Force. Currently, problems exist with UHF and FM secure compatibility. The alternator shuts off the KY-28.	Desired
d. (U) "Silver Slipper" mod for extra ground handling wheels to reduce ground pressure.	Required
e. (U) AN/PR 44 adapted to aircraft to provide continuous wave coverage.	Required
f. (U) Pilot/Gunner HSS mod to allow both goggle and HSS 20mm firing.	Required - Complete
g. (U) IR Searchlight - Position light NVG dim circuit - IR Searchlight on TSU - under study	Required - Complete Required - Complete Desired

OTHER RELATED ITEMS: A-2

PERSONNEL/UNITS INVOLVED: HQ USA, DALO-AV

MODIFICATIONS (U)

TOPIC: [redacted] (U)

1. SUMMARY: Major modifications made to [redacted] helicopters ar indexed as follow:

- NVG Compatibility
- Advanced Avionics Package
  -- UHF Satellite Communications
  -- APR-100 Transponder
  -- APN 209 Radar Altimeter
  -- APR 39 Radar Warning Indicator
- Internal STABO Equipment
- Transportation Equipment

2. DISCUSSION:

a. NVG Compatibility [redacted]

(1) (U) REQUIRED: Aircraft suitable for NVG operations.

(2) DISCUSSION: With the need to support extensive night operations, it was imperative that the aircraft be compatible for use with NVG's. The following were the most significant findings concerning [redacted] compatibility.

(a) (U) Instruments are difficult to read.

(b) (U) Position lights should have an IR capability.

(c) (U) All instruments and indicators should be painted with luminous paint.

(d) Blue-green light should be used in the cockpit to facilitate transition from NVG to night operations.

[redacted]

(3) (C) INTERIM SOLUTION: Cockpits were painted with non-reflective black paint and all lights were covered

AB

[redacted]

(4) (U) RECOMMENDATIONS: The cockpits and exterior should be modified with NVG compatible lighting. The success of the blue-green filter glass for instruments and lighting should be utilized with these aircraft.

b. (U) Advanced Avionics package:

(1) (U) REQUIRED: Sufficient avionics to permit communications, navigation, threat detection, and protection in a low intensity environment.

(2) (U) DISCUSSION: The need to have a special operations capability for clandestine penetration behind enemy lines places heavy demands on command and control and survivability of the force. These high risk missions require constant monitoring in order to avoid committing forces at the wrong place at the wrong time.

(3) (U) IMMEDIATE SOLUTION:

(a) (U) In order to control the forces the following communications equipment was installed.

1 (U) Two command and control aircraft were modified with secure satellite communications.

2 (U) Selected aircraft have an APR 100 transponder for flight following from the E-3A AWACS, positive identification, and improved command and control.

3 (U) Each aircraft has an APN 209 radar altimeter for improved terrain clearance capability.

4 (U) Standard UHF radios were replaced with advanced, lighter ARC-164 units.

(b) (U) In order to enhance survivability in the low/medium threat environment the following were added:

1 (U) APR 39 radar warning receiver.

2 (U) Infrared exterior paint.

(4) (U) RECOMMENDATIONS: Continual improvement and update of [redacted] aircraft to include state-of-the-art penetration aids. Eventual replacement [redacted]

c. (U) Internal Personnel Extraction Equipment (STABO):

(1) (U) REQUIREMENT: System to extract downed aircrew from inaccessible areas.

(2) (U) DISCUSSION: The limited weight and space capability of the [redacted] and the probable mission scenarios on which they would be employed, preclude the availability of SAR forces. The [redacted] therefore, must provide its own SAR capability.

(3) (U) IMMEDIATE SOLUTION: A STABO system was added to the aircraft equipment. The system is normally stowed and can be activated by the pilot who can drop the STABO line to the stranded crew/passengers on the ground. The personnel can then be transported to a safe area for pickup by an aircraft.

(4) (U) RECOMMENDATION: Further examination and testing of the system to insure a man-safe system. Also examine the possibility of an emergency extraction system on other Special Operations aircraft.

d. (U) Transportability equipment:

[redacted]

(2) (U) DISCUSSION: Concept was developed and tested early in June 1980. [redacted] Special equipment was either developed or applied to new uses as a result of load operations.

A

(3) (U) EQUIPMENT REQUIREMENTS:

[redacted] Examination and improvement of equipment to improve reliability.

A,B

OTHER RELATED ITEMS: A-2

PERSONNEL/UNITS INVOLVED: Hq USA, DALO-AV

SUBJECT: Air Operations, Helicopter (U) Item No. D-12

MODIFICATIONS (U)

TOPIC: [redacted] (U)(C)

A [redacted]

- NVG compatibility
- 2 - ARC 114 VHF/FM#1
- 1 - ARC 164 VHF/AM
- 2 - KY-28 Secure
- APN-89 ADF

A

- [redacted] Radar Altimeter
- Omega Litton long range navigation system
- APX-100 Transponder
- APR-39 Radar Warning Receiver
- APR-44 Radar Warning Receiver

A [redacted]

NOTE: The rationale for these modifications is covered under similar modifications to other JTF helicopters.

OTHER RELATED ITEMS: A-2

SUBJECT: Air Operations, Helicopter (U) Item No. D-13

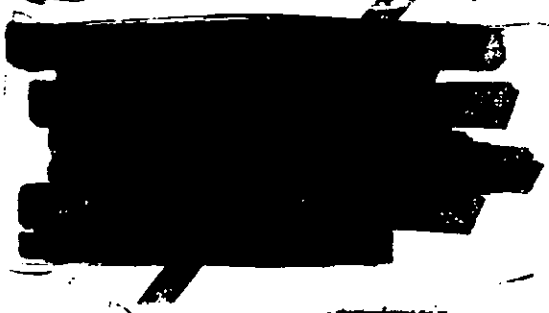
MODIFICATIONS (U)

TOPIC: OH-58C (ELN) (U)(C)

1. (C) SUMMARY: 6 OH-58 helicopters were modified as follows:

- NVG compatibility
- 2 - ARC 114 VHF/FM#1
- 1 - ARC 164 VHF/AM
- 2 - KY-28 Secure
- APN-89 ADF
- APN-209 Radar Altimeter
- Omega Litton long range navigation system
- APX-100 Transponder
- APR-39 Radar Warning Receiver
- APR-44 Radar Warning Receiver

A



NOTE: [redacted] rationale for these modifications is covered under similar modifications to other JTF helicopters.

OTHER RELATED ITEMS: A-2

SUBJECT: Air Operations, Helicopter (U) Item No. D-14

MODIFICATIONS (U)

TOPIC: UH-60 (BLACKHAWK) (U)

1. (C) SUMMARY: Major modifications made to UH-60 helicopters are indexed as follows:

- Range Extension Fuel Tanks
- NVG-Compatible Cockpit
- Enhanced Avionics Capability
- Provisions for Third Pilot/Navigator
- Max Gross Weight Increase Certification
- Supplemental Oxygen System
- External Fuel Transfer System

a. (U) Range Extension:

(1) (C) REQUIRED: Objective was to extend the UH-60 range to [redacted] nautical miles.

(2) (C) DISCUSSION: The Department of the Army contracted with Sikorsky in early June to develop a preliminary design and prototype. A design criterion, based on intuitive awareness that the manufacture of fuel tank bladders was a long lead time item, was that existing UH-1 range extension tanks be used, if feasible. The final design yielded a system with six 150-gallon UH-1 tanks arranged in a cluster of four (mid-cabin) and two (aft-cabin) with fuel transfer managed through an integrated control panel. The prototype was flown to the Pentagon, where the concept and design were approved by CJTF, with VCOS, USA, present. DCSLOG directed the transfer of all UH-1 range extension tanks in the Army inventory to Norton AFB, where a TSARCOM depot team inspected and repaired them. TSARCOM, with Sikorsky technical assistance and factory fabrication support, modified 30 UH60s with the systems, at Norton, between 10 and 22 June 1980. Extensive training and testing confirmed that the [redacted] goal had been achieved without serious degradation of performance.

(3) (U) RECOMMENDATIONS: Recommend DA direct that UH-60 deliveries in the future include hard points and plumbing for installation of external range extension tanks. The use of such external tanks will make the cabin section available for troops and cargo in quantities inversely proportional to required external fuel load. The current configuration requires removal of tanks to obtain cabin use.

b. (U) NVG-compatible Cockpit:

(1) (U) REQUIRED: Develop lighting compatible with use of NVG's.

(2) (U) DISCUSSION: Existing auxiliary cockpit lighting is not satisfactory and aircraft searchlights are not compatible for NVG operations or clandestine operations. With the need for extensive night operations, it is imperative that aircraft be compatible with NVG usage. Many light systems in the cockpit cannot be dimmed enough to avoid interference with NVG operations. With lights turned off, necessary instruments are not readable. Many systems that have to be used must be shielded from the pilots. Exterior lights also present a problem to the aircrew and crews in other aircraft. Windshields must be in good condition since scratches or dirt reflect and diffuse light in the cockpit. The following are the most significant findings concerning UH-60A NVG compatibility:

(a) (U) Trim Ball on VSI not visible - should be larger and lighted.

(b) (U) Replace plastic windshields when they become scratched.

(c) (U) Position lights should have an IR capability.

(d) (U) IR illuminators or blue-green illuminators should be available in the cockpit.

(e) (U) All instruments and indicators should be painted with luminous paint.

(f) (U) Blue-green light should be used where possible to facilitate transition from NVG to night operations.

(3) (U) IMMEDIATE SOLUTION: The immediate solutions are interim measures until better measures can be implemented. Protective covers (hoods or shields) were placed on instruments or equipment emitting too much light. Tape was used to cover light sources that

could not be eliminated - i.e. warning lights, marker lights, control lights, navigation and position lights, to dim them to acceptable levels. Red lens flashlights covered with tape were used for personal or emergency lighting. An IR searchlight was added.

(4) (S) FOLLOW-ON: Examine state-of-the-art technology for follow-on aircraft. The blue-green spectrum glass and special IR lights, both interior and exterior, would solve many of the lighting problems.

c. (U) Avionics Enhancement:

(1) (U) REQUIRED: Provide the aircraft and aircrew with an avionics package to enhance communications and threat detection.

(2) (U) DISCUSSION: The need to have a special operations capability for deep penetration behind enemy lines places heavy demands on command and control systems and survival of the force. These high risk missions require constant monitoring in order to avoid committing forces at the wrong place at the wrong time.

(3) (U) IMMEDIATE SOLUTION:

(a) (U) In order to accomplish the above, the following communications equipment was installed:

1. (U) UHF/AM secure
2. (U) VHF/FM secure
3. (U) VHF/AM
4. (U) HF/AM/SSB secure
5. (U) UHF SATCOM secure (selected airframes)
6. (U) APX 100 transponder

(b) (U) To enhance survivability in the low/medium threat environment the following equipment was added:

1. (U) Full aircraft survivability suite filled, including overwater package.
2. (U) AN/APR 39 radar warning receiver.
3. (U) AN/APR 44 radar warning receiver.
4. (U) M-130 Chaff Dispenser.
5. (U) IR absorbent paint.

(c) (U) Modifications were accomplished in coordination with ODCSOPS, DA; ODCSLOG, DA; and DARCOM, as necessary. Equipment was identified and installations initiated at Norton AFB, between 10 and 22 June 1980. Subsequent testing and training confirmed the utility of the installed systems.

(4) (U) FOLLOW-ON: Continued emphasis is needed to enhance the capabilities of the 101st, TF 158, UH-60s. Consideration of a Forward Looking Infrared (FLIR) system would greatly enhance the UH-60 capabilities and usefulness in the special operations role. An inflight refueling capability is essential.

(5) (U) RECOMMENDATION: Continual improvement and update of special operations-configured BLACKHAWK's, to include state-of-the-art penetration aids.

d. (U) Provisions for third pilot/navigator augmentation.

(1) (U) REQUIRED: Ability to precisely navigate long distances over desolate terrain, low level, at night.

(2) (U) DISCUSSION: While flying the mission scenarios with NVG's, pilots spent a major portion of their time looking outside the aircraft and had difficulty transitioning inside the cockpit to use maps or the doppler. The requirement for constant attention outside the aircraft for safe flight made precise navigation difficult. The doppler by itself is not reliable enough as a sole means of navigation, and requires constant updating.

(3) (U) IMMEDIATE SOLUTION: To facilitate night navigation and relieve the workload on the pilot and copilot, a navigator station was put in the UH-60 and CH-47. The UH-60 navigator was placed behind the center console with access to the radios and Doppler navigation system.

(4) (U) RECOMMENDATION:

(a) (U) Purchase and install an Inertial Navigation System, forward looking infra-red system (FLIR), and/or an Omega system to enhance the mission reliability and capabilities of the UH-60.

(b) (U) As an interim solution, for units with long range, low level, night penetration requirements, a navigator training course should be established. The training should include low level navigation with and without NVGs; map preparation; wind, time, distance, heading computations; and navigation system operation.

e. (U) Max Gross Weight Increase:

(1) (U) REQUIRED: Operations up to 21,800 lbs (GW).

(2) (U) DISCUSSION: UH-60 operations are tech-order-limited to 20,250 lbs gross weight (GW). With the added capabilities that the internal and/or external auxiliary tanks provide, operating weight reached 21,800 lbs GW. Present limits imposed unnecessary restrictions to aircraft capability. After checking with the Sikorsky Company, it was decided that the higher gross weight would present no hazard.

(3) (U) RECOMMENDATION: Recommend further evaluation of operations at the new maximum gross weight and examine the possibility and limitations of higher weights. Care should be taken to monitor for increased wear and failure rates for extensive operations at the increased maximum gross weight.

f. (U) Aircrew Oxygen System:

(1) (U) REQUIRED: Capability for long duration flights at high altitudes.

(2) (U) DISCUSSION: Mission requirements dictated that the force fly extended legs at or above 10,000 feet. To avoid the problems of hypoxia (tunnel vision, and degraded night vision at night) a five-place oxygen system with 90 minute duration was installed.

(3) (U) UNRESOLVED PROBLEMS: The system functioned well but presented some hazards because of the configuration and type bottles that were used. The bottle necks are exposed and can be broken off during combat or crash.

(4) (U) RECOMMENDATIONS: Continued development of the system to include permanent racks to secure and protect the bottles, especially the bottle neck. Continued emphasis on the benefits of oxygen for night and high altitude flight (3000' and above).

g. (U) External fuel transfer system (UH-60):

(1) (U) REQUIRED: Development of helicopter tanker capability to increase force flexibility. (See also HH-53 and CH-47 modifications)

(2) (U) DISCUSSION: The need to carry organic logistics support on long duration, deep penetration missions dictates that mission aircraft must have the

capability of transferring fuel to other aircraft. The UH-60 transfer system, designed by Sikorsky, operates from AC power provided by the aircraft. Refueling operations have been conducted with CH-47, UH-60 and OH-6 aircraft using previously established procedures with no procedural problems noted.

(3) (C) UNRESOLVED PROBLEMS: The UH-60 operator's manual states that at specific temperatures there is no restriction on time limits for operation of the APU; however, experience has proven that prolonged operation of the APU will cause overheating and shutdown. This not only stops the refueling but renders the aircraft inoperative because it cannot be started.

(4) (U) IMMEDIATE SOLUTION: Utilize the APU for short duration then crank the engines and allow the APU to cool.

(5) (U) RECOMMENDATION: Examine the long running characteristics of the APU to establish realistic operating limitations to design an adequate cooling system. Design a mobile auxiliary power source to provide AC power to the refueling system.

2. (U) RECOMMENDATIONS:

a. (U) Modify UH-60 for in-flight refueling.

b. (U) Modify UH-60 for external tanks.

c. (U) Modify cockpits to be compatible with NVGs.

d. (U) Continued upgrade of aircraft with penetration aids.

e. (U) Upgrade navigation systems.

f. (U) Evaluate max gross weight limits.

g. (U) Refine oxygen system.

h. (U) Improve "tanker" fuel transfer capabilities.

OTHER RELATED ITEMS: A-2.

PERSONNEL/UNITS INVOLVED: 101st, TSARCOM, AVRADCOM, Sikorsky, HQ USA, DALO-AV.

SECRET

SUBJECT: Air Operations, Helicopter (U) Item No. D-15

MODIFICATIONS (U)

TOPIC: HH-53 (PAVE LOW & SLICK)

1. (U) SUMMARY: Major modifications made to H-53 helicopters are indexed as follows:

- Weapons
- Radar Warning Receivers (ALR-69)
- Infrared/Radar Countermeasures (ALE-40)
- Cockpit Lighting
- Exterior Illumination
- Fuel Tanks
- Secure Communications (KY-28/KY-75)
- Palletized Initial Navigation System (PINS)
- HH-53 B/C Tanker
- PAVE LOW Radar Improvements

a. (U) Weapons:

(1) (U) REQUIRED: Develop suppressive fire capability against lightly armored vehicles and armed helicopters.

(2) (U) IMMEDIATE SOLUTION: Installed .50 cal machine guns on each side and ramp using soft mounts. Installation began on 22 May 1980 and continued until 27 June 1980.

(3) (U) FOLLOW-ON: Need viable mix of .50 cal and 7.62 mini-gun based on anticipated threat. Might want to further develop an offensive capability also.

(4) (U) RECOMMENDATION: Installation of XM-93 AC powered mini-gun system. May prove more reliable than the battery (DC) powered system. Tests have been completed at the 1550 ATTW, Kirtland AFB.

b. (U) ALR-69 Radar Warning Receiver:

(1) REQUIRED: Correct deficiencies in the standard ALR-46 V3/5 RWR including ability to indicate [redacted]

[redacted]

(2) IMMEDIATE SOLUTION: Installed ALR-69. ALR-69 is best RWR available and solved [redacted] ALR-69 crew training began in mid-June with HONEY BADGER crews and continued with assigned crews. Training was conducted on Eglin AFB threat range.

c. (U) ALR-40 Flare/Chaff Dispenser:

(1) (S) REQUIRED: Develop IR missile/radar threat deterrent for use during low level maneuvering flight.

(2) IMMEDIATE SOLUTION: Installation of ALE-40 system.

(3) Training began in June with HONEY BADGER personnel and continued with assigned personnel. All systems evaluated in flight over Eglin AFB threat range, against high speed fighter aircraft.

(4) (U) FOLLOW-On: Minor switching problem. Modification team scheduled to resolve problem.

d. (U) Cockpit Lighting:

(1) REQUIRED: Develop cockpit lighting compatible for use with NVGs.

(2) IMMEDIATE SOLUTION: Initial testing done on electro-illuminescent lighting proved unsatisfactory because too many parts were involved. Installation of special spectrum "blue-glass" in cockpit floodlights proved very successful. Improved rheostats enhanced the capability.

(3) Crews were given introduction to minimum lighting and have successfully used it during normal training. Compatibility problems exist with FLIR display, RWR, PMD, and Fire handles. Temporary solution has been to divide cockpit using homemade light elimination devices (LEDs).

(4) (U) RECOMMENDATION: Continuing emphasis by PAVE LOW SPO at ASD to solve compatibility problems.

e. (U) Exterior Illumination:

(1) (U) Required: HH-53 B, C, and H require sufficient artificial illumination for NVG operation under limited or no moon conditions, especially during final approach and landing.

(2) (U) IMMEDIATE SOLUTION: Pilot's adjustable spotlights [redacted] Also, [redacted] were secured in adjustable mounts forward of the right crew entrance door on all HH-53s.

(3) (U) Initial training and OT&E with [redacted] and illuminators accomplished during [redacted] Intensive training accomplished at [redacted] work well enough to illuminate approach for all aircraft in 3-ship formation.

(4) (U) UNRESOLVED PROBLEMS: [redacted] lenses fail, due to extreme heat generated by [redacted] Lack of left side illuminator reduces safety margin when co-pilot flies the approach.

(5) (U) RECOMMENDATION: PAVE LOW SPO at ASD continue development of viable [redacted] Also, SPO should develop a second generation illuminator. Make adequate "buy" of illuminators and install second illuminator on left side of aircraft.

f. (U) Internal/External Fuel Tanks:

(1) (U) REQUIRED: Extend range from current limit of 4 1/2 hours range with 450 gal tanks.

(2) (U) IMMEDIATE SOLUTION: 650 gal external tanks (with Foam) were installed. Basic range is now 6 1/2 hours. Some aircraft were modified to accept 1-5 additional internal fuel tanks (250 gal/ea).

(3) (U) 1SOW tested tanks and aircraft at various gross weights. 650 gal external tanks were installed on all airplanes and were used during all exercises. Internal tanks were installed for some training scenarios.

(4) (U) UNRESOLVED PROBLEM: Aircraft fuel gauges must be continually calibrated.

(5) (U) RECOMMENDATION: Procurement of enough internal tank switch panels to equip all HH-53 B/C/H assets.

g. (U) Secure Communications:

(1) (U) REQUIRED: UHF/HF secure communications. HH-53 aircraft were equipped with a single KY-28 permitting secure UHF or FM on an alternating basis.

(2) (U) IMMEDIATE SOLUTION: KY-75 installed to permit secure HF communication.

(3) (U) UNRESOLVED PROBLEM: HH-53 single KY-28 incompatible with UH-60 dual KY-28 system, as HH-53 UHF or FM cannot be secure at the same time. KY-75 mod may have to be moved to permit mini-gun installation.

(4) (U) RECOMMENDATION: Install an additional KY-28 and control head in HH-53.

h. (U) Palletized Inertial Navigation System (PINS):

(1) (U) REQUIRED: Precision navigation capability in HH-53Cs. HH-53 B/C aircraft lacked adequate internal navigation capability for long range missions.

(2) (U) IMMEDIATE SOLUTION: Carousel IV-E PINS installed in all HH-53 B/C models in June 1980.

(3) (U) FOLLOW-UP REQUIREMENT: PINS is an excellent navigation aid; however, a backup system is needed because some features of PINS are not operational.

(4) (U) RECOMMENDATIONS: Procure and install the PAVE LOW AN-221 Marconi Doppler in the HH-53 B/C. Integrate the PINS, Doppler, and AFCS. This single modification would give crews a programmable flight computer, capable of lat/long, UTM, grid navigation, and search patterns. The PINS input would provide an accurate heading reference for the AN-221 Doppler. Connection to the AFCS will enhance hover coupler and AFCS attitude (gyro related) reliability.

i. (U) HH-53 B/C/H Tanker:

(1) (U) REQUIRED: Development of helicopter tanker capability to increase force flexibility.

(2) (U) IMMEDIATE SOLUTION: HH-53B was modified with 4 (250 gal) internal tanks. Internal tanks are the same used to extend aircraft range, but were modified with a standpipe system. This modification permits use of the HH-53 as a tanker, compatible with the FAARP system. A major advantage of the HH-53 tanker is its ability to aerial refuel. The HH-53 tank is limited only by availability of HC-130s. It can penetrate long distances, aerial refuel, transfer fuel to other aircraft, and then aerial refuel to egress the area.

(3) (U) UNRESOLVED PROBLEM: HH-53 B/C models limited to four internal tanks until the PINS and ALR-69 are relocated.

(4) (U) RECOMMENDATION: Procure large capacity pumps and lightweight hose. Develop procedures to refuel Army and AF special operations assets from HH-53 B/C/H models.

j. (U) Radar Improvements:

(1) (U) REQUIRED: PAVE LOW AN/APQ-158 radar gain adjustment and internal warning systems need improvement due to documented deficiencies.

(2) (U) SOLUTIONS:

a. (U) Texas Instruments has been tasked to improve the radar.

b. (U) OT&E is being conducted on aircraft #433 at Kirtland AFB, NM. Modifications will increase radar dynamic range adjustment, produce a better radar presentation, improve radar monitor circuits, and improve maintenance reliability.

(3) (U) RECOMMENDATIONS: Additional testing and procurement of radar improvements. This is a critical PAVE LOW operational requirement.

2. (U) MAJOR RECOMMENDATIONS:

a. (U) Install improved mini-gun system.

b. (U) Resolve cockpit lighting/NVG compatibility situation.

c. (U) Develop adequate [redacted] system.

d. (U) Install PAVE LOW doppler (AN-221) on SLICKS. Integrate PINS, Doppler and Automatic Flight Control System (AFCS).

e. (U) Procure high capacity pumps and refueling systems for H-53 tankers.

f. (U) Complete PAVE LOW radar (AN/APQ-158) improvements.

g. (U) Second generation PAVE LOW upgrade of the system to state of the art.

OTHER RELATED ITEMS: A-2

PERSONNEL/UNITS INVOLVED: 1SOW, HQ USAF/RDPJ [redacted]

SUBJECT: Air Operations, Helicopter (U) Item No. D-16

PRECISION NAVIGATION (U)

TOPIC: OMEGA (U)

1. (U) PROBLEM: Precision navigation capability available to special operations air crews lacks desired accuracy for extremely long missions.

2. (U) DISCUSSION: Special operations are often conducted in extremely remote locations at night. Without precision navigation equipment, low level map reading and dead reckoning become the primary means of navigation on missions where pinpoint navigation is essential. Unfortunately, remote locations do not always have good visual clues for navigation; and, if the problem is compounded by poor illumination, navigation becomes an extremely critical problem. Generally speaking, the remote and isolated conditions that are conducive to successful ground operations are not conducive to successful air operations. Navigation systems that provide fixes rather than a running dead reckoning position are more useful. The inertia and doppler systems presently used (in special operations aircraft) are fairly accurate but do not have the required reliability without constant updating. The Omega system can provide a continual update fix on aircraft position and does not rely on visible ground references.

3. (U) RECOMMENDATION: Conduct an immediate evaluation of Omega navigation systems as primary or backup precision navigation aid for pathfinder aircraft in larger units and operations; and, in the case of the HH-53H, for all aircraft.

PERSONNEL/UNITS INVOLVED: 1SOW, 101st

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-1

MC-130 OPERATIONS (U)

TOPIC: Assault Team Offload (U)

SUMMARY:

1. (C) TASK: MC-130s were tasked to rapidly insert a company sized force, including weapons and [redacted]. Typical load for each aircraft is [redacted] and associated personnel.

2. (C) SOLUTION: Procedures were developed to ensure the safe and rapid off-load of men and equipment, to include operations in totally blacked out conditions. Loadmasters were trained in the use of NVGs and special landing procedures were developed to [redacted] to a period of about [redacted] from aircraft touchdown in a totally blacked out environment. Numerous training exercises have been conducted [redacted]

3. (C) RECOMMENDATIONS: Continue training with associated [redacted] to maintain proficiency of both units.

(C) PERSONNEL/UNITS INVOLVED: [redacted]

[redacted]

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-2

MC-130 OPERATIONS (U)

TOPIC: Rigging and Dropping Motorcycles and Troops(U)

SUMMARY:

1. (U) TASK: Provide an expeditious means to [redacted] using a minimum number of ground troops and equipment; a combination airdrop of motorcycles and troops.

2. (U) DISCUSSION: Problems were encountered in rigging the motorcycles, preparing them for airdrop, and coordinating the simultaneous drop of cycles and troops. These problems were overcome when cycles were rigged and bundled with sufficient padding to withstand forces associated with airdropping. The cycle bundles were dropped from one side of the ramp followed very closely by airborne troops. Upon landing, protective gear was stripped from cycles and discarded; then cycles provided a [redacted] ground troops accomplished the same on foot.

3. (U) RECOMMENDATION: Continue training [redacted] refine techniques and maintain proficiency.

OTHER RELATED ITEMS: C-4

PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-3

MODIFICATIONS (U)

TOPIC: MC-130 COMBAT TALON (U)

SUMMARY:

1. (C) MC-130 Modifications Accomplished:
   - AAQ-8 [IRCM] Pol Improvement
   - ALE-40 Flare Dispenser
   - ALR-69 Radar Warning Receiver
   - Bensen Tank System
   - Communications Improvements
2. (U) Currently Outstanding MC-130 Requirements:
   - ECM Modification
   - Dual Rail System/EWO Equipment Rack Mod
   - Dual UHF and/or FM Secure Radios
   - Dynafix ECCM System
   - Dual Inertial Navigation System (INS)
   - Forward Looking Infrared (FLIR) System
3. (U) DISCUSSION OF COMPLETED MODIFICATIONS:

a. (U) AAQ-8 IRCM Pod Improvement:

[redacted]

A, B

(3) (U) UNRESOLVED: Requirement for a long-term, permanent fix.

(4) (U) RECOMMENDATION: This modification should be developed (packaged) by Detachment 4, Lockheed Air Service (Det 4, LAS) and furnished as a locally installed modification.

b. (U) ALE-40 Flare Dispenser:

(1) (U) PROBLEM: The MC-130 did not have an adequate infrared countermeasure capability.

(2) (U) IMMEDIATE SOLUTION: The ALE-40 flare dispenser system was installed as part of Project Rivet Wildcat. System was tested and performs satisfactorily.

(3) (U) UNRESOLVED PROBLEM: Switch location is unsatisfactory for flight engineer use, and the dispense program switchology is not optimum. Results of the USAFTAWC SOF ECM Test should reveal proper setting and switchology. Det 4, LAS will relocate dispense switch when redesigning the flight engineer's overhead panel.

(4) (U) RECOMMENDATION: Continue to improve the installation. Closely monitor progress of modifications at the unit level.

c. (U) ALR-69 Radar Warning Receiver:

(1) (U) PROBLEM: The ALR-46 Radar Warning Receiver [redacted] on the aircraft [redacted]

A, B

(2) (U) IMMEDIATE SOLUTION: The ALR-69 system was installed as a part of Project Rivet Wildcat. The ALR-69 system expanded [redacted]

d. (U) Bensen Tank System:

(1) (U) PROBLEM: The unrefueled range of the MC-130 TALONS was inadequate.

(2) (U) IMMEDIATE SOLUTION: Modified internal auxiliary (Bensen) tanks were installed to extend MC-130 range. Use of the tank system has proven very effective. The system enables MC-130 aircraft to make longer range deployments when tanker support is not available or inadvisable; and adds the capability of ground refueling support to other aircraft, i.e., helicopters.

(3) (U) RECOMMENDATION: Provide sufficient Bensen tank systems and spares for all MC-130 aircraft assigned to TAC and PACAF as follows:

(a) (U) Seven immediately to 1SOW (one for each assigned aircraft plus one spare).

(b) (U) Five at a later date to PACAF (one for each assigned aircraft plus one spare).

e. (U) Communications Improvements

(1) (U) PROBLEM: MC-130 lacked secure communications.

(2) (U) IMMEDIATE SOLUTION: The KY-75 HF secure system and SATCOM were installed.

4. (U) DISCUSSION OF CURRENTLY OUTSTANDING MODIFICATION REQUIREMENT:

a. (U) ECM Modification (ALQ-117/ALQ-155):

[redacted] 1SOW TALONS need a more comprehensive ECM package. [redacted] A comprehensive test of ECM capabilities should be conducted to determine what direction should be taken to meet mission requirements.

(2) (U) REQUIRED: Transfer one aircraft from [redacted] to the 1SOW for complete testing. [redacted]

b. (U) Dual Rail System/EWO Equipment Rack Modification:

(1) (U) PROBLEM: Present concepts require long range penetration and aerial delivery [redacted] With the present dual rail system, this load exceeds rear center of gravity limits. The TALONS cannot legally takeoff (rear C.G. out of limits), fly long distances nor airdrop the load.

(2) (U) DISCUSSION: Present rail system limits load weights to 20,000 pounds. This is due to required floor positioning of the load within the cargo compartment caused by insufficient restraining locks. Modification of the present EWO equipment rack would allow an eighty inch extension of the dual rail system to accommodate an additional two to three locks, depending on space required for ratchet and swivel controls. This would permit the aircraft to carry and airdrop loads in the 30,000 pound class with the fuel load and C.G. within limits. The present EWO equipment racks must be redesigned/moved; possibly the EWO/RO console would have to be reconfigured to provide the required eighty inches of additional space.

(3) (U) RECOMMENDATION: Modify the dual rail system.

c. (U) Dual UHF and/or FM Secure Radios:

(1) (U) PROBLEM: Aircrews have difficulty maintaining effective communications with other agencies due to the present radio configuration which allows secure communications on only one radio at a time, either UHF or FM. This could be very detrimental to mission accomplishment in a clandestine environment.

(2) (U) DISCUSSION: Aircrews often maintain formation integrity (proper landing sequences and/or timing separation) via interplane communications, and simultaneously are frequently required to monitor/talk with ground controlling parties and airborne command and control or strike aircraft. With the present radio setup, the aircrews must constantly change from UHF secure to FM secure, or make nonsecure radio calls to exchange information. Additionally, certain FM frequencies are unusable when operating in the TF/TA mode because transmissions cause a fail/fly-up indication on the pilot's ADI due to interference with the TF receiver. Aircraft should be modified to allow simultaneous use of UHF and FM secure, or have either dual UHF or dual FM radios installed. The new UHF/FM radio package must also be capable of transmitting/receiving data burst messages.

(3) (U) RECOMMENDATIONS:

(a) (U) Modify the MC-130 fleet with dual secure UHF/FM capability.

(b) (U) Eliminate FM signal interference that causes fail/fly-up indications when operating in TF/TA mode.

(U) Include data burst message capability.

d. (U) Dynafix ECCM System:

(1) PROBLEM: [redacted] could cause mission compromise and/or subsequent loss of an aircraft.

(2) DISCUSSION: Two sorties using the Dynafix prototype were flown at Nellis AFB in July 1979. Preliminary [redacted] The original contract for this single production prototype system expired in April 1980. Estimated contractor cost to modify the system is $50-60,000 and time to modify is approximately 7 days. Drawings for Group A wiring/connectors are at Det 4, LAS, while aircraft 64-561 assigned to the 7 SOS in USAFE has Group A installed.

(3) RECOMMENDATION: Modify and retest Dynafix ECCM system on the [redacted] level terrain) and Nellis AFB (mountainous terrain). LAS Ontario should be tasked to provide airborne videotape instrumentation of the test. If the testing is completed successfully, the entire MC-130 fleet (14 aircraft) should be retrofitted.

e. (U) Dual Inertial Navigation System (INS):

(1) (U) PROBLEM: In order to perform its mission successfully, the COMBAT TALON requires a highly reliable, self-contained navigation system that will permit autonomous operations and allow precision flight to an objective.

(2) (U) DISCUSSION: Present navigation systems include a single INS (LN-15J) which has an excessive drift rate (1/2 - 1 nm/hr), and a low mean-time-between-failure rate (70 hours, est). Additionally, the AN/ASN-153 Doppler and AN/ASN-25 computer is not sufficiently accurate as a backup system for the single INS, especially during TF/TA flight in mountainous terrain. Air Force recently bought the Honeywell AN/ASN-136 Standard Precision Navigation/Gimballed

Electrically Suspended Gyro Aircraft Navigation System (SPN/GEANS) for upgrading the SAC B-52 fleet. During recent testing the system demonstrated drift rates on the order of 0.06 nm/hr (10 times the accuracy of current TALON systems), a mean-time-between failure on the order of 1750 hours, and a mean-time-to-repair of 20 minutes. Such performance would allow little or no reliance on other navigation aids and would provide a truly enhanced, self-contained capability.

(3) (U) RECOMMENDATION: Retrofit the COMBAT TALON fleet with an integrated dual state-of-the-art inertial navigation system.

f. (U) Forward Looking Infrared (FLIR):

(1) (U) PROBLEM: Only half of the TALON aircraft are equipped with FLIR. All aircraft are wired to accept the system. The FLIR is located immediately aft of the nose landing gear door and cannot be used when the landing gear is extended.

(2) (U) DISCUSSION: Aircrews have been tasked to land at large, blacked out [redacted] airfields at night. [redacted] had to land at a [redacted] because of different loads to be delivered. Use of the FLIR could have prevented these go-arounds, but current limitations prevent its use for positively locating and identifying blacked out airstrips/landing zones. Present aircrew procedures involve retraction of the FLIR prior to configuring the aircraft for landing. One pilot uses NVGs to execute the landing while assisted by the other pilot on cockpit instruments and the [redacted] using the aircraft radar to perform [redacted] approach (ARA).

(3) (U) RECOMMENDATION: The following actions should be taken:

(a) (U) Procure additional FLIR sets.

(b) (U) Relocate the FLIR turret or:

(c) (U) Install a small, forward-looking FLIR detector at some other location on the aircraft (e.g. in one of the external pylon fuel tank bullnoses) to augment the existing system which would then be retained for updating the INS (assuming a FLIR-INS interface) and for airdrop and [redacted]

(d) (U) Install a high-intensity IR light source at a location on the aircraft (e.g. the other pylon fuel tank bullnose) that could be used in conjunction with the additional FLIR detector mentioned above.

(e) (U) Modify all existing FLIR sets with a radar interface capability to allow the navigator to position radar cursors on a target and have the FLIR slew to a position to view that target or, conversely, slew the FLIR to view a visual target and have the radar cursors follow in like fashion.

(f) (U) Modify the navigator's station as follows:

1. (U) Remove the LORAN C equipment and reposition FLIR monitor and controls to the left navigator's position.

2. (U) The left navigator should be given a duplicate set of the right navigator's radar cursor control (or a single control moved to a central location) so that the left navigator may operate the FLIR when it is tied to the radar cursors.

(g) (U) The FLIR system should be boresighted, to provide [redacted]

A (U) PERSONNEL/UNITS INVOLVED: 1SOW, Hq USAF/RDPJ/LERX

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-4

AC-130 OPERATIONS (U)

TOPIC: Low Level Tactics (U)

SUMMARY:

1. (U) PROBLEM: [redacted]

2. (U) DISCUSSION: Capability for LATN is an operational requirement. LATN is now flown on a regular basis using MC-130 low-level routes; however, MC-130s have precision navigation equipment and Terrain Avoidance/Terrain Following (TA/TF) radar. In contrast, Doppler radar and map reading are primary means of AC-130 navigation.

3. (U) REQUIRED: Better navigation systems are needed to provide accuracy for night operations in mountainous, unfamiliar terrain.

4. (U) RECOMMENDATION: Provide precision navigation and TA/TF radar in AC-130 aircraft.

(U) PERSONNEL/UNITS INVOLVED: 1SOW

SUBJECT: Air Operations: Fixed Wing (U) Item No. E-5

AC-130 OPERATIONS (U)

TOPIC: Variant Firing Techniques (U)

SUMMARY:

1. (U) PROBLEM: Standard AC-130 firing techniques were not adequately flexible to cover HONEY BADGER requirements.

2. (S) SOLUTION: Variant firing techniques [redacted]

3. (S) LESSONS LEARNED: Training has been conducted on all three techniques and found to be effective.

4. (U) RECOMMENDATION: Continue testing these techniques and perform more tests to expand ordnance delivery options and acquire additional operational data.

(U) PERSONNEL/UNITS INVOLVED: 1SOW

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-6

AC-130 GUNSHIP OPERATIONS (U)

TOPIC: AC-130 Fire Control System (U)

SUMMARY:

1. (U) TASK: Determine the effectiveness of the AC-130H Fire Control System on unimproved surfaces and in a desert environment.

2. (U) DESIRED GOALS:

a. (U) The ability to operate from unimproved areas.

b. (U) Provide better interface with sensor/navigation systems.

c. (U) Decrease target acquisition time.

3. (U) DISCUSSION: The current fire control computer is a digital, tube-type device which is based on 1960s technology. The system must be treated gently to keep the computer from dumping part or all of the program, or damaging tubes. There is currently no way to reprogram the computer during flight. If the system dumps, the aircraft must land to be re-programmed. It is also impossible to determine if the computer has dumped a portion of the program until firing geometry is achieved and rounds expended.

4. (U) LESSONS LEARNED: On two specific live-fire missions the computer could not solve the fire control problem. It is presently unknown if the computer dumped some of its program or the turbulence associated with unimproved short field or desert environment caused the problem.

5. (U) RECOMMENDATION: Replace the current fire control computer with a state-of-the-art, easily programmable computer with increased memory storage that is programmable in flight.

PERSONNEL/UNITS INVOLVED: 1SOW, Hq USAF/RDQL

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-7

AC-130 OPERATIONS (U)

TOPIC: Firing with External Fuel Tanks (U)

SUMMARY:

1. (U) PROBLEM: AC-130 technical orders prohibit firing of any weapons with external tanks installed.

2. (U) DISCUSSION: Tanks are necessary for medium to long range deployment. Aircraft cannot be moved forward in a mission-ready configuration when tanks are required for deployment. Consequently, an intermediate stop for tank removal is required and employment range is limited.

3. (U) IMMEDIATE SOLUTION: The [redacted] conducted inflight firing tests with external tanks under a one time waiver from HQ USAF. Test results were positive.

4. (U) RECOMMENDATION: Resume testing by WRALC, Lockheed-Georgia, 3246 Eglin Test Wing, and the [redacted]n an accelerated basis to develop conclusive results for an approved external tank combat configuration.

(U) PERSONNEL/UNITS INVOLVED: 1SOW

[redacted] SECRET

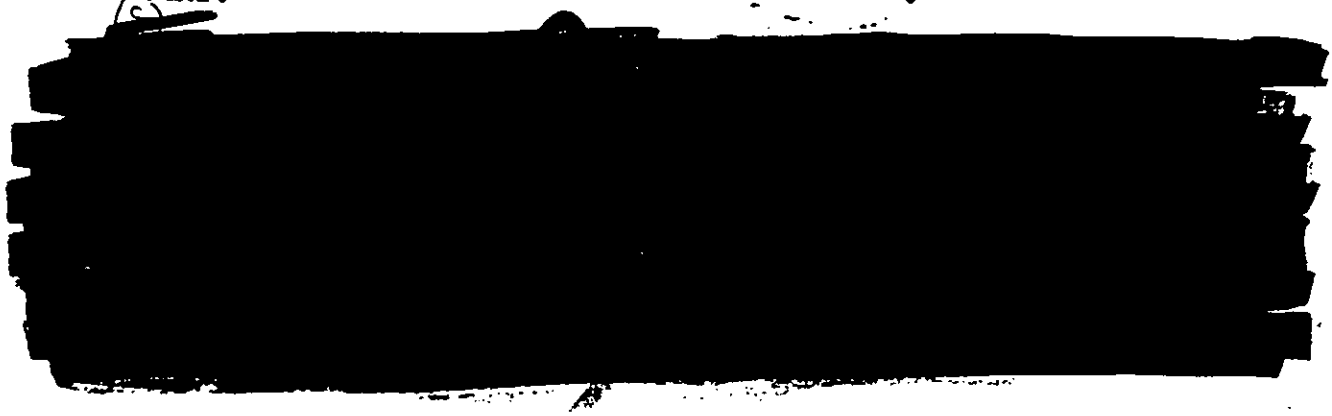
SUBJECT: Air Operations, Fixed Wing (U) Item No. E-8

AC-130 OPERATIONS (U)

TOPIC: Munitions Requirements (U)

SUMMARY:

A,B



PERSONNEL/UNITS INVOLVED: 1SOW

[redacted]

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-9

MODIFICATIONS (U)

TOPIC: AC-130 Spectre Gunships (U)

SUMMARY:

1. (U) AC-130 Modifications accomplished:

- ECM Improvement
- Communications Improvements

2. (U) Currently Outstanding AC-130 Requirements:

- Navigation Equipment
- Fire Control System
- Air-to-Air Beacons
- Aft Cargo Door Dual Activators
- Cockpit Lighting
- Environmental Improvements

3. (U) DISCUSSION OF COMPLETED MODIFICATIONS:

a. (U) ECM Improvements:

(1) (S) PROBLEM: [redacted] limits [redacted]

(2) (U) IMMEDIATE SOLUTION: Installed ALE-40 flare/chaff Dispensers and ALR-69 Radar Warning Receivers. [redacted] are currently being evaluated for problem areas and effectiveness.

[redacted]

(5) (S) RECOMMENDATION: Install wiring to the outboard pylons to accommodate the ALQ-119 and AAQ-8 pods.

[redacted]

b. (U) Communications Improvements:

(1) (U) PROBLEM: AC-130 communications are severely limited.

(2) (U) IMMEDIATE SOLUTION: The KY-75 HF secure system and SATCOM were installed. A capability to monitor FM secure was accomplished as an in-house modification. All systems are extremely effective.

(3) (U) REQUIRED: Dual KY-28 encoding/decoding equipment to permit using the UHF and FM secure simultaneously and a radio operator's position for a SATCOM operator are still required. Additionally, the in-house FM secure modification in the booth should have a permanent aux listen panel.

(4) (U) RECOMMENDATION: Install Dual KY-28 systems in all aircraft, a radio operator's position, and the aux listen panel.

4. (S) DISCUSSION OF CURRENTLY OUTSTANDING AC-130 REQUIREMENTS:

a. (U) Precision Navigation Capability:

(1) (S) PROBLEM: Present navigation systems are antiquated and unreliable. The APN-59B radar is unacceptable for low level navigation, the inertial system is extremely unreliable for low level penetration, and computerized Loran C does not have world-wide coverage.

(2) (S) DISCUSSION: The role of the Gunship requires [redacted] An inertial system [redacted] is also required.

(3) (S) RECOMMENDATION: Install the AN/APQ-122 Radar with TF capability, the SPN/GEANS inertial [redacted] and replace Loran C with an Omega System. A dual INS would be an alternative in lieu of Omega.

b. (U) Fire Control System:

(1) (S) PROBLEM: The present fire control system is of early 1960s technology and needs updating.

(2) (S) DISCUSSION: The system is vacuum tube-type and has a high rate of failure. It cannot be programmed by the aircrew and is not programmable in the air. If it fails while airborne, the pilot must manually aim and fire the weapons. This would be impossible in darknss. (90% of present flying is conducted at night.) Several fire control failures have been experienced in recent deployments and exercises.

(3) (S) REQUIRED: An updated, solid state fire control system with increased memory storage capable of reprogramming by the aircrew inflight is required.

(4) (S) RECOMMENDATION: Install an updated fire control system to increase accuracy, reliability, and reduce aircraft weight.

c. (U) Air-to-Air Beacons:

(1) (S) PROBLEM: The air-to-air SST-181 beacon is inadequate for air refueling (AR) missions. Tankers cannot pick up the Gunship's beacon 90% of the time. A missed refueling can significantly affect the success of a mission.

(2) (S) RECOMMENDATION: Remove the SST-181 beacons and replace with the AN/APN 69 beacons which are compatible with all other Air Force aircraft.

d. (U) Aft Cargo Door Dual Actuators:

(1) (C) PROBLEM: Emergency egress is difficult in a combat environment. The single actuator system for the aft cargo door could prove disastrous if the door required opening. The MC-130 Talons have dual actuator systems on all aircraft and have proven the system to be very effective.

(2) (U) RECOMMENDATION: Install dual actuators on all Gunshi

e. (U) Cockpit Lighting:

(1) (U) PROBLEM: [redacted]

(2) (U) RECOMMENDATION: Accomplish cockpit lighting enhancem program in the Gunship.

f. (U) Environmental Improvement:

(1) (U) PROBLEM: Crew comfort, which is inadequate for long missions, is a continual problem. Cold weather, high altitudes, and long flying hours increase the probability of fatigue which could result in a degradation of capabilitie

(2) (U) REQUIRED: An environmental package enabling the aircraft to pressurize is needed to permit flight at higher altitudes and an added benefit would be increased range.

(3) (U) RECOMMENDATION: Crew rest facilities should be installed as a permanent fixture, the crew entrance door should be completely isolated from the flight deck, and additional modification done to enable pressurized flight to an altitude of 16,000 feet MSL (minimum) with no more than a 10,000 foot cabin altitude.

(U) PERSONNEL/UNITS INVOLVED: 1SOW Hq USAF/LERX

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-10

HC-130 OPERATIONS (U)

TOPIC: Helicopter Aerial Refueling Procedures (U)

SUMMARY:

1. (U) PROBLEM: Develop procedures for covert operations including aerial refueling between HC-130 and helicopters. It was determined that aircrews would require proficiency in night, low-level navigation in all types of terrain, low-level aerial refueling while maintaining radio silence, and formation flight using night vision goggles (NVGs).

2. (U) IMMEDIATE SOLUTION: These capabilities were developed and published in a planning directive.

3. (U) LESSONS LEARNED: More night refueling proficiency was required. Initial training laid the foundation for developing necessary new techniques and procedures. Most of the follow-on training has been aimed at night low-level refueling.

4. (U) RECOMMENDATIONS: Continue refinement of procedures and maintain a high degree of proficiency through increased night time training.

OTHER RELATED ITEMS: D-6

PERSONNEL/UNITS INVOLVED: Hq ARRS/DO, 1SOW

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-11

HC-130 OPERATIONS (U)

TOPIC: Tanker and Receiver Forward Operating Locations (FOLs) (U)

SUMMARY:

(U) C 4

1. (U) PROBLEM: Adequate tanker/receiver coordination is difficult to maintain. Some exercises were planned with separate forward operating locations (FOL's) to minimize logistic problems.

C

2. (U) LESSONS LEARNED: Refueling operations require intense planning and close coordination. Tanker and receiver aircrews should brief "face-to-face" prior to missions, especially when flying night, comm-out procedures. Post-mission debriefs are especially productive when testing new procedures/ techniques. Last minute mission changes without face-to-face contact can severely degrade air refueling operations. Tanker and receiver forces should be deployed to the same FOL whenever possible. Operations/logistics tradeoffs should be weighted heavier toward operational considerations.

(U)

PERSONNEL/UNITS INVOLVED: HqARRS/DO

SECRET

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-12

HC-130 OPERATIONS (U)

TOPIC: Exercise/Contingency Planning (U)

SUMMARY:

1. (U) PROBLEM: HC-130 tanker force planners were not included early enough in the planning cycle.

2. (U) DISCUSSION: Helicopter aerial refueling operations were introduced into early scenarios without adequate planning inputs from aerial refueling operators. This resulted in less than accurate inputs and last minute planning changes.

3. (U) LESSONS LEARNED: Night, long range, low level helicopter/fixed wing aerial refueling operations are considerably more complex than normal refueling operations and require active participation by tanker force planners from the start. Maintenance of contingency aerial refueling capabilities is dependent on all units playing an active role in every planning exercise. Mission planners from tanker and receiver units must interface at the earliest possible point and maintain a close, coordinated relationship until mission completion.

PERSONNEL/UNITS INVOLVED: [redacted] Eglin AFB, FL.

Hq ARRS/DO
Scott AFB, IL.

1SOW

SECRET

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-13

HC-130 OPERATIONS (U)

TOPIC: Navigator Manning (U)

SUMMARY:

1. (U) PROBLEM: ARRS tanker squadrons are inadequately manned to support special operations missions.

2. (U) DISCUSSIONS: Each HONEY BADGER participating squadron was authorized six navigators. At that manning level, only one navigator per aircraft could be provided. One navigator is task-saturated to monitor the airborne radar, map read, update the Doppler and Omega; and simultaneously operate the newly installed PINS, ALE-40 and ALR-69 systems, from the navigator station.

3. (U) RECOMMENDATIONS: Increase navigator authorizations to a minimum of 10 per unit, allowing dual navigators on special operations missions which are, by nature, more demanding.

PERSONNEL/UNITS INVOLVED: Hq ARRS/DO

[redacted]

SUBJECT: Air Operations, Fixed Wing (U) Item No. E-14

MODIFICATIONS (U)

TOPIC: HC-130 Tankers (U)

1. (U) SUMMARY: Aerospace Rescue and Recovery Service HC-130 Modifications:

- Secure Communications.
- On-board Defensive Equipment.
- Navigation Systems.
- Capability to Receive Fuel In-flight.

2. (U) DISCUSSION:

a. (U) Secure Communications:

(1) (U) PROBLEM: HC-130 tankers had no secure communications capability.

(2) (U) DISCUSSION: Secure HF airborne communications are imperative for effective command and control during special contingency operations. Additionally, inter-plane communications by secure means are essential to mission success. Prior to ARRS involvement in HONEY BADGER neither capability was available in unit aircraft.

(3) (U) IMMEDIATE SOLUTION: KY-75(HF) and KY-28(UHF) radios were installed in eight (8) ARRS assigned HC-130 aircraft. Each HF and UHF secure radio is coded and checked prior to unit training sorties. Although mission execution and training are normally accomplished in a "comm-out" environment, a secure communications capability is essential. This modification has proved effective and no further improvements are currently required.

b. (U) On-board Defensive Equipment:

B

(1) (U) PROBLEM: [redacted]

[redacted]

(2) (U) IMMEDIATE SOLUTION: [redacted]

B

(3) (U) DISCUSSION: Every aircrew has flown missions [redacted] Each crew activated chaff and flare systems and observed threat symbology depictions on the ALR-69. Additionally, one aircrew from each squadron has attended the Special Operations and Warfare Course conducted by the 1st SOW at Hurlburt. The 1st SOW is assisting in the development of defensive tactics tailored to our mission and equipment.

A

B

(4) (U) RECOMMENDATION: [redacted] training. Incorporate MC-130 ALE-40 improvements to HC-130s upon availability.

c. (U) Navigation Systems:

(1) (U) PROBLEM: [redacted]. Night, low-level operations in mountainous terrain require precise navigation. [redacted]

B

(2) (U) IMMEDIATE SOLUTION: Carousel IV-3, Palletized Inertial Navigation Systems (PINS) were provided.

(3) (U) DISCUSSION:

(S) (U) (a) While the [redacted] significantly improved navigational [redacted] it does not provide sufficient accuracy [redacted]

B

The APN-59 airborne radar, when it works, can provide a minimum acceptable back-up. However, the APN-59 is old and prone to failure.

(S) (U) (b) (S) Pilots have no instrument presentation for an accurate cross-check of current aircraft position relative to desired course. While utilizing terrain masking techniques, the pilot must be continually advised of position relative to center line by a task-burdened navigator.

(4) (U) RECOMMENDATIONS:

a. (C) Acquire the APQ-122/V-8 airborne radar system to replace the antiquated radar system, supplement the NVG capability, and reduce limitations imposed by natural illumination.

b. (C) Modify the flight director system to accept course guidance from the PINS to give pilots positive, accurate course guidance. Integrate the auto-pilot and INS to allo the navigator greater flexibility.

d. (U) Capability to Receive Fuel In-flight:

(1) (C) PROBLEM: A lack of HC-130 capability to receive fuel in-flight limits its support range.

(2) (U) DISCUSSION: PAVE LOW operations dependent upon in-flight refueling are limited by HC-130 radius of action. This radius is determined by location of support base and number of PAVE LOW helicopters to be supported. Short radii can seriously reduce employment options.

(3) (U) IMMEDIATE SOLUTION: Internal auxiliary (Bensen) tanks were installed to increase HC-130 fuel capacity.

(4) (U) ACTION REQUIRED: A modification kit is available that will provide the HC-130 the capability to receive fuel in-flight from KC-135 tankers. Such a modification would enable the HC-130s to extend PAVE LOW range so that it would only be limited by the endurance of the crews, and eliminate the necessity for intermediate staging bases. Further, the capability to take on fuel in-flight will allow a single HC-130 to service more helicopters, thereby reducing the number of tankers required.

3. (U) RECOMMENDATION: Modify at least eight HC-130s with in-fligh refueling receptors.

(U) PERSONNEL/UNITS INVOLVED: HQ ARRS/DO
Scott AFB, IL
[redacted]
55 ARRW
Eglin AFB, FL

[redacted] SECRET

SUBJECT: Air Defense (U)

GENERAL (U)

(S) Planning for the hostage rescue mission illuminated the requirement to provide rapid reaction and unconventional warfare forces with self-defense from air attack during both day and night operations. As a result, two light Army air defense (AD) weapon systems were investigated, [redacted] Parallel efforts were directed toward developing a command, control, and communications scheme that was simple, effective, reliable, and secure. Finally, it was discovered that a dearth of knowledge existed about friendly and neutral air defense systems capabilities and exploitable limitations (vulnerabilities). The discussion of the air defense analysis will be addressed with the following areas:

a. (U) Stinger

b. (U) Vulcan

c. (U) Command, Control and Communications (C^3)

[redacted]

[redacted] SECRET

SUBJECT: Air Defense (U) Item No. F-1

STINGER (U)

A,C [redacted]

a. (U) The Stinger weapon system, successor to the Redeye missile system, entered production in 1980. It will enter the Army inventory in 1981; however, over 50 weapons have been in the prime contractor's (General Dynamics Pomona Division) depot storage facility for quite some time.

A,B [redacted]

A total of twenty Stinger Field Handling Trainers (FHT) were delivered to increase training realism.

[redacted]

3. (C) TRAINING CONDUCTED: Training was inhibited by the lack of FHT's (delivered 18 Dec 80). Eighteen individuals were Redeye qualified and Stinger transition training was conducted 5-7 Jan 81. (This resulted in the Redeye-to-Stinger conversion of the training facility several years ahead of schedule. This was necessary for OPSEC reasons, and to provide a close-by training facility for continuing and last-minute pre-deployment refresher training.) Unit training was conducted [redacted] alone; however, future exercises should be conducted with the [redacted]

4. (U) (S) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (U) (C) The Army has yet to accept delivery on tactical Stinger rounds. It, therefore, would be necessary to use emergency procurement procedures to acquire the weapons for actual deployment. This problem will be resolved as the Army begins accepting the weapons during 1981.

[redacted]

A, B

A, B

[redacted]

[redacted]

A, B

5. (U) RECOMMENDATIONS:

[redacted]

A

PERSONNEL/UNITS INVOLVED:

- [redacted]

A, G - (U) Stinger Project

- [redacted]

- (U) Joint Test Directorate: [redacted]

VULCAN (U)

1. [redacted]

2. (U) SUMMARY:

a. (U) The Vulcan Air Defense Gun was developed during the Vietnam War as a successor to the Quad-50 Machine Gun. It has numerous shortcomings, but in its towed configuration is suitable for some clandestine missions. It was considered as a complementary air defense weapon to the Stinger weapon system for the hostage rescue mission [redacted]

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (U) In order to deliver a system rapidly for the hostage rescue mission, certain technical compromises had to be made,

[redacted]

4. (U) RECOMMENDATIONS:

[redacted]

PERSONNEL/UNITS INVOLVED: (U)

[redacted]

- (U) FORSCOM:

- Joint Test Directorate:

[redacted]

SUBJECT: Air Defense Item No. F-3

(U) COMMAND, CONTROL AND COMMUNICATIONS (C^3). (U)

1. (U) REQUIRED: Provide C^3 for ground air defense forces during clandestine operations.

2. (U) (S) SUMMARY:

a. (U) (S) The control of ground-based friendly air defense force is difficult under the best conditions. Attempting to do so for a clandestine mission without a conventional AD C^3 hierarchy demands more simplified assumptions which could normally be totally unacceptable.

(c)

[redacted]

A, B

3. (U) Unresolved Problems/Requirements:

a. [redacted]

b. [redacted]

4. (U) RECOMMENDATIONS: That the Army develop, procure, and field a passive 360 degree air search system.

PERSONNEL/UNITS INVOLVED:

[redacted]

Joint Test Directorate:

EXECUTIVE SUMMARY
IRANIAN HOSTAGE RESCUE MISSION JTF
COMMAND, CONTROL AND COMMUNICATIONS

1. (S) This section of the report addresses JTF 1-79 Command, Control, and Communications (C^3) accomplishments during the period November 1979 - December 1980. The presentation is in the form of problem statements followed by a discussion of problem resolution. The solutions evolved through test efforts and from lessons learned during Operation RICEBOWL and subsequent training exercises.

2. (S) There are three key dates associated with Iranian hostage rescue planning: November 1979, April 1980, and December 1980.

a. (S) In November 1979 there was little specialized communications equipment available to support a rescue effort. There were no secure voice satellite terminals for either aircraft or mobile ground forces. High Frequency, Single Sideband (HF/SSB) equipment was low power and non-secure. Requirements at that time were to provide long range secure voice communications between and within the JTF headquarters and JTF elements, and between the JTF headquarters and National Command Authorities (NCA). Early efforts provided a minimum acceptable capability.

b. (S) By April 1980 there was a small number of secure voice satellite terminals available for aircraft, ground terminals, and man-portable terminals. After the rescue attempt, communications requirements were expanded and efforts were directed toward increasing the capability of the JTF. JTF C^3 planning was approached on three levels:

(1) what is available to execute a mission today,
(2) what could be available in 60 to 90 days, and
(3) longer term solutions.

c. (C) The need to obtain as much capability as possible led to pursuit of any option that showed promise, with selection of those solutions which added the greatest capability soonest. Thus the range was from a "tinkering in a bicycle shop" approach to the full support of service logistics and R&D commands. Service assets

[redacted]

were borrowed when available. Commercial and military equipment was adapted or modified. Numerous training exercises were conducted to test newly developed equipment, operating techniques, and concepts. Special communications personnel (planners, engineers and radio operators) were selected, brought on board, and employed. As a result, a considerably greater capability had been assembled by December 1980.

3. (U) Experience gained over the past year also pointed out two significant permanent requirements:

a. (U) A dedicated communications unit is essential to sustain this type of activity. The Joint Communications Support Element (JCSE) provided outstanding support to the JTF, but the cost in terms of denying JCSE support to CINCRED and COMRDJTF, and the cost in terms of morale on the heavily taxed JCSE pointed out the need for a dedicated unit to support future tasked units.

b. (U) A compartmented, high quality, in-garrison, secure voice and message capability is essential for security and rapid communications. This would provide the ability to have [redacted] for communications circuits emanating from a tasked unit to locations throughout the world, thus greatly enhancing OPSEC for counterterrorist operations.

4. (U) Solutions developed for these two major requirements were approved, on 24 December 1980, for implementation.

5. (U) The JTF J-6 staff consisted of the following personnel:

a. November 1979 - May 1980:

(1) Col [redacted] USAF
(2) LTC [redacted]
(3) Lt [redacted] USAF
(4) Cdr [redacted] USN

b. May 1980 - January 1981:

(1) Col [redacted] USAF
(2) Col [redacted] USA
(3) Lt [redacted] USAF

6. (U) An Index of the items addressed in the Command, Control, and Communications section follows:

COMMAND, CONTROL, AND COMMUNICATIONS

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SUBJECT: Command, Control, Communications (U) Item No. G-1

JTF COMMAND AND CONTROL (U)

TOPIC: Command Structure and Doctrine (U)

1. (U) PROBLEM: Develop an effective command and control methodology responsive to the unique conditions presented by a JTF in the conduct of a complex special operations mission.

2. (U) DISCUSSION:

a. (U) The conduct of special operations demands approaches to command and control which can be individually tailored to each mission. The scope of these missions can range from a few individuals performing a surgical extraction in a friendly environment to brigade sized incursions, supported by land, sea, and air, moving deep into hostile territory.

b. (U) In the latter, and many intermediate cases, the units may move over great distances (well beyond conventional lines of sight radio range), participate in several highly complex phases, are usually joint in nature (thereby not inherently accustomed to working together), and operate under constraints that may require near simultaneous execution of key elements in the plan. Consequently, the standard approach of establishing a single, rigid chain of command is not a practical solution.

3. (U) SOLUTION:

a. (U) The JTF developed and expanded a specialized command and control concept which was informally designated "Imperative Activity/Dominant Authority". By definition:

(1) Imperative Activity is that portion of the operation which, at a given point in time, is critical to successful mission completion.

(2) Dominant Authority denotes the first level commander responsible, at that time, for execution of the Imperative Activity.

b. (U) Under this concept:

(U) (1) (U) The Commander, JTF, is in full overall command of all forces, during all phases of the operation.

[redacted]

(2) (U) First level JTF subordinate commanders are designated to command mission segments and resource packages; not just their own single Service units.

(3) (U) The number of mission segments established is tailored to the overall JTF mission and the resources and techniques available/utilized to accomplish it.

c. (U) The Dominant Authority concept implies temporary OPCON of one or more lateral elements; not a formal transfer of command. For example, during an airfield seizure phase, the Ground Commander has the Imperative Activity and for that period, is the Dominant Authority. The Air Mission Commander who had just landed, would remain in the JTF Command Net, but would be prepared to execute, on order of the Ground Commander (under the monitoring of the Commander, JTF), various tasks necessary to successfully complete the seizure phase of the operation.

d. (U) In a complex JTF operation there may be as many as eight to ten first level subordinate commanders. This would seem to imply an excessive span of control. However, the sequential nature of the mission segments and the extensive communications resources available to the JTF commander insure positive control of forces at all times.

e. (U) At certain times during an operation, there may be more than one Dominant Authority. An example might be the Air Support Commander defending against an air attack over the target area at the same time the ground assault or extraction phase was in progress. In those instances the general situation and the nature of events would dictate which commanders respond to the requirements of the others. Priorities are monitored and adjusted, and positive command guidance inserted when required, by the JTF Commander.

4. (U) RECOMMENDATIONS: JCS adopt this command and control concept as validated special operations doctrine.

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O - [redacted]

ATTACHMENTS: Command and Control Diagram for Joint Training Exercise "Storm Cloud"

[redacted]

COMMAND AND (ROL STRUCTURE

JTF TRAINING EXERCISE "STORM CLOUD"

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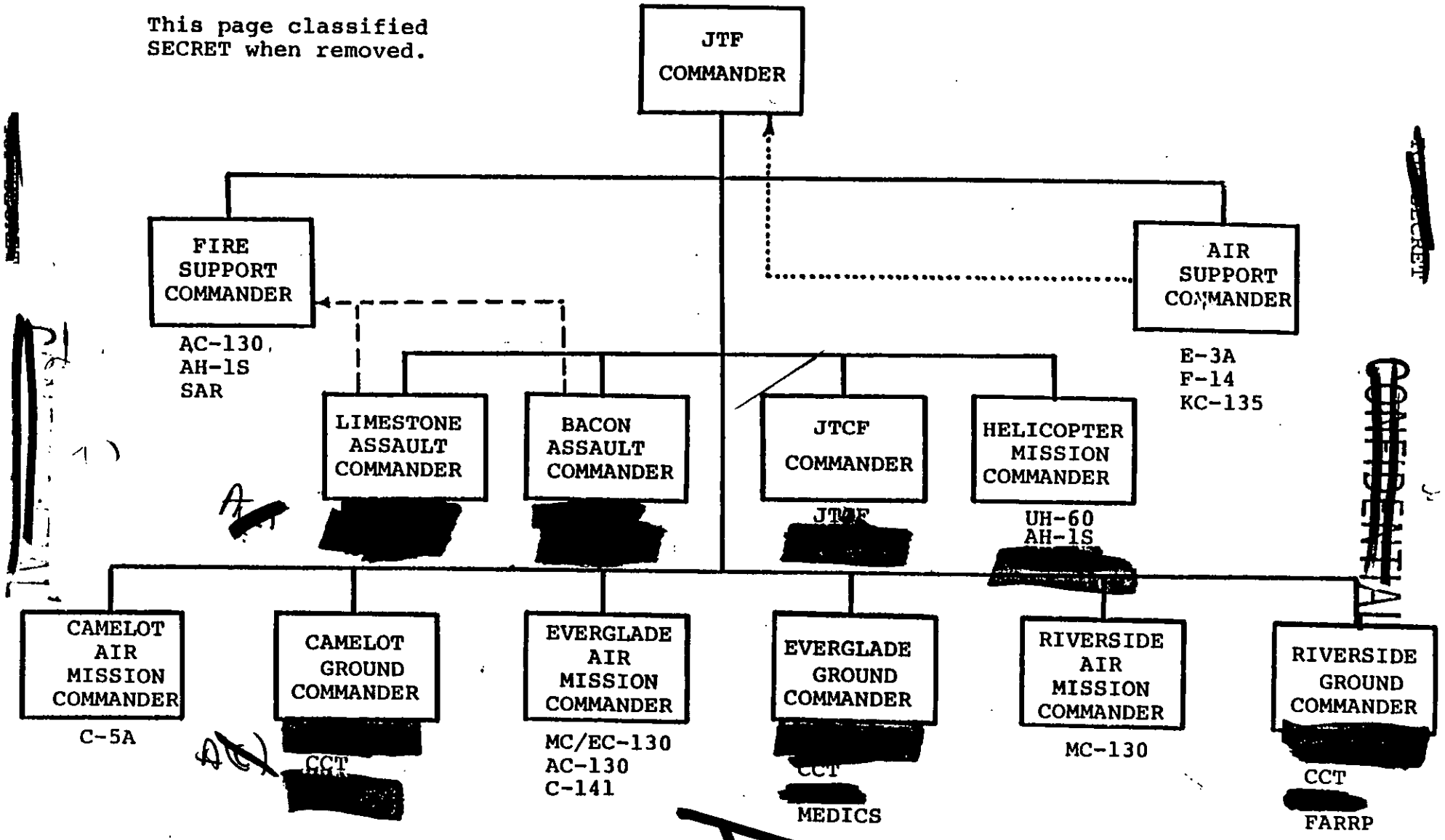

G-7

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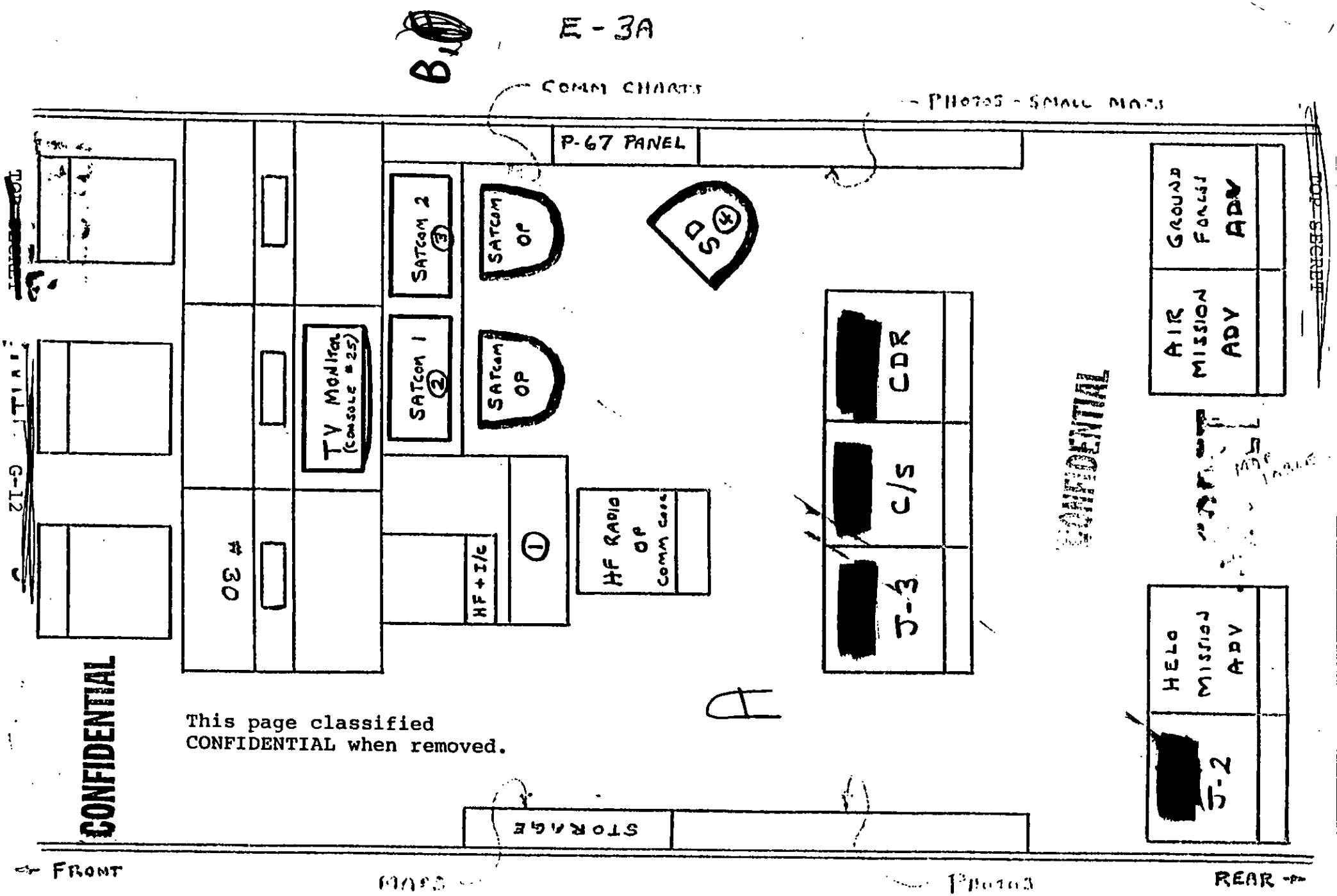

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CONFIDENTIAL when removed.

① HF OPERATOR/COMM COORDINATOR HAS SECURE HF & IC TO RO AN/ARC-171
②,③ SATC OPERATORS HAVE WSC-2 OR REMOTE
④ SD - DIRECT TO CONSOLE #25 WITH ALL RA. I, IC, ETC.

} ALL FOUR POSITIONS HAVE "Y" CORDS WITH TWO SEPAR KEYING BUTTONS.

RH

SUBJECT: Command, Control, Communications (U) Item No. G-2

JTF COMMAND AND CONTROL (U)

TOPIC: Forward Command Post (U)

1. (U) PROBLEM: Provide a compact, mobile, easily identified JTF command post and communications central for employment in forward areas.

2. (U) DISCUSSION:

a. (U) In many special operations scenarios the JTF commander would be located either in a building (at an established base camp) or possibly onboard various types of ships or aircraft as the mission progressed. However, there can also be instances where forward staging areas are required, and the JTF or Site Commander must operate dismounted for a time in locations where fixed facilities are non-existant. Desert One in the Iranian rescue mission is an example.

b. (U) Under such circumstances it is important that a command post be planned for and established which not only provides minimum essential communications and work space, but also serves as an easily recognizable central point of command and control for that phase of the operation.

3. (S) SOLUTION:

a. (U) Two types of portable communications packages plus appropriate personnel were assembled to accompany the JTF Commander.

b. (U) The first type consisted of a minimum JTF headquarters staff (nominally two officers), and three enlisted communicators as follows:

(1) Radio operator with SATCOM (PRT-250).

(2) Radio operator with FM radio (AN/PRC-77).

(3) Messenger/runner with handi-talkie (MX-360).

c. (U) The second type was formed around a communications vehicle assembled by the JCSE. Two versions were built,

both using metal enclosed 1/4 ton trucks as a base. Each vehicle was configured as follows:

(1) WSC-3 SATCOM radio with PARKHILL secure equipment.

(2) Helix high gain SATCOM antenna.

(3) SUNAIRE 100 watt HF radio with PARKHILL secure equipment.

(4) HF antenna tuner.

(5) Vehicle mount whip antenna (HF).

(6) Long wire HF antenna with supports.

(7) Portable gasoline powered generators were included to provide AC power and two folding field tables (to set up beside the vehicle for work space) were strapped to the hoods.

(8) Each vehicle was accompanied by two enlisted radio operators/repairmen from JCSE and one of the field grade communications officers from the cadre of communicators trained by the [redacted]

(U) (9) The 1/4 ton truck took up minimum space on one inbound aircraft and within three minutes of rolling down the ramp provided the commander with an easily recognizable command post and secure voice communications over powerful SATCOM and HF radios.

4. (U) TRAINING CONDUCTED: The packages were used individually in several exercises.

5. (U) RECOMMENDATION: Continue the development of command post vehicles and exercise this concept.

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O -
H -

SECRET

SUBJECT: Command, Control, Communications (U) Item No. G-3

JTF COMMAND AND CONTROL (U)

TOPIC: E-3A Airborne Command Post (U)

1. (U) PROBLEM: Develop a concept utilizing E-3A (AWACS) aircraft in a JTF command and control role.

2. (U) DISCUSSION/SOLUTION:

a. (U) Throughout the existence of JTF 1-79 various command and control configurations were investigated, using aircraft, ground locations, and ships. One of the most promising options tried was the E-3A (AWACS) aircraft. An E-3A carried the JTF commander during both nights of Joint Training Exercise POISON DART.

b. (U) Two SATCOM radios were moved into the JTF staff area (where the HF radio terminal was already located. Thus all long range, secure tactical communications means were co-located with the JTF Commander and his staff.

c. (U) A TV monitor was also installed in that area to provide both video and audio connectivity with console position number 25.

3. (U) TRAINING CONDUCTED: No formal training was conducted. However, experience was gained by staff and communications personnel during the exercise.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: If the E-3A is to be used as a command and control platform for special operations it should be carefully tested with flight profiles which duplicate exact mission times, stand-off distances, and altitudes in comparison with actual missions to be flown. This may involve times of reduced command and control effectiveness when the E-3A does not have the mission force within its radar range, and line-of-sight (LOS) communications is not available.

5. (U) RECOMMENDATIONS:

a. (S) Thoroughly test the improved E-3A communications systems (using its own integral AN/ARC-171 radios, power amplifiers, shorter feed lines, and better antennas) and its modified internal configuration (seating, map space, console monitors, and so on).

SECRET

b. (U)(S) Conduct testing of the E-3A in a command and control role insuring that the flight profiles flown match realistically (time, distance, and altitude) those that would be found in various real-world special operations missions.

OTHER RELATED ITEMS: G-37

PERSONNEL/UNITS INVOLVED: POC - [redacted] G

ATTACHMENTS: Interim Diagram

SUBJECT: Command, Control, Communications (U) Item No. G-4

JTF COMMAND AND CONTROL (U)

TOPIC: CEOI (U)

1. (U) PROBLEM: Develop and produce a standard Communications Electronics Operating Instructions (CEOI) for the JTF.

2. (U) DISCUSSION:

a. (S) In the rescue attempt and the first [redacted] exercise the CEOI was issued in the form of electrically transmitted teletypewriter messages. While this facilitated rapid issue over long distances and last minute changes, the message format was hard to read and use. It was also difficult to provide good local reproduction in sufficient copies for the wide distribution necessary. There was no assurance that each unit had received an error-free copy, or, when additional corrections were made, that everyone had actually received the changes.

b. (S) The use of messages also induced subordinate units to issue extracts by message and on several occasions in exercise PHOENIX the information in the extracts seriously conflicted with the original CEOI. Therefore in all subsequent exercises the CEOI was prepared with typed masters which were centrally duplicated in required quantities on a photocopy machine.

c. (S) There are major differences between the Services involved in the JTF, relative to their methods of creating, publishing, distributing, and using CEOI material. Even within the same service [redacted] the units were accustomed to their own variations in format and techniques. As an example of a major Service difference, the following are the methods employed for radio voice call signs:

(1) Army: Changes [redacted]

(2) Navy: [redacted]

(3) Air Force: Changes [redacted]

It was necessary to select one approach and stick to it, to insure simplicity and standardization throughout the JTF. [redacted]

d. (U) There is a significant amount of command and control information, and coordination details which are standard operating procedures in conventional forces commands and can thus be published in permanent SOP's. However, in joint special operations these data usually change with every mission or exercise. Because the JTF 1-79 force structure did change significantly with each option, and because the command and control structure is so vital to a successful special operation, it was necessary to develop and publish new guidance each time. The CEOI was often used as the medium for dissemination because of its wide distribution and the close relationship of Command and Control to Communications.

e. (U) This led to comments that the CEOI was too long and complex. However, these comments were often accompanied by requests that an additional item (relating to that command's portion of the operation) be added to the CEOI. Not suprisingly every unit was interested primarily in its own material and considered many other items as complicating and unnecessary.

f. (U) The solution was to publish extracts. For JTX STORM CLOUD each command was asked to determine the composition of its own extract. As it turned out the shortest extract was still 23 pages long and the average was over 30 pages (from a 50 page master CEOI).

g. (U) In a special operations mission the CEOI is used under a variety of physical/environmental conditions, and often under severe time pressure. For these reasons it was usually printed in a one page format (only one radio net per page, with just the frequencies and callwords of the participants in that net included). This made the document longer but much easier to use (and to extract from).

3.(C) RECOMMENDATIONS:

a. (U) Continue to produce a universal JTF CEOI with a basic, standardized format throughout. Simple approaches to callword and suffix assignments, and complete communications and coordination instructions should be included.

b. (U) Continue to make the CEOI sufficiently comprehensive to serve the JTF commanders and staffs as a complete command, control and communications document, but continue to produce shorter, reduced size, extracts for radio operator use as well.

c. (U) Obtain a portable word processor, and a portable copier with reduction capability, to produce CEOI masters and multiple copies in the field.

PERSONNEL/UNITS INVOLVED: POC [redacted] G

O

H

SUBJECT: Command, Control, Communications (U) Item No. G-5

JTF COMMAND AND CONTROL (U)

TOPIC: Establishing a Special JTF Time Standard (U)

1. (U) PROBLEM: Provide a timekeeping system for special operations task forces which can be easily adjusted to compensate for unexpected delays during mission execution.

2. (U) DISCUSSION:

a. (U) There are two basic timekeeping methods presently in use by US military forces throughout the world:

(1) (U) REAL TIME - Usually measured in either local time or UTC (ZULU time). Events are planned and executed at whatever time is appropriate on the fixed, non-adjustable scales of world (solar) time. Real time is used for messages, day to day business, and for most military operations.

(2) (U) SINGLE MAJOR EVENT TIME - Usually measured in hours and minutes remaining until the point in time at which the major key event occurs, and then in hours and minutes of elapsed time after that point. This time system is used in operations in which all activities center around one major significant event which, upon occurrence, makes irreversible the rest of the operation. Examples are rocket, missile, and target drone launches, and the National Command Center clocks which track events leading up to and following SIOP execution. In these systems planned events are scheduled at fixed points on a time scale which surrounds the key event; but that entire time scale is then shifted (held back or advanced) as required to make the key event occur at the zero time point. The zero time point does not directly relate to any real time system, although the zero point must often be made to fall within a given real time window or the operation must be postponed or cancelled.

b. (U) Most special operations are also centered around a single critical event at a specific point in time; the assault, or "H-Hour" concept. JTF interest is in the timing/completion of events leading up to H-Hour (backed off from that point in time) and in the irreversible timing of events after H-Hour (elapsed time thereafter). Thus a major key event form of timekeeping is often appropriate for special operations employment.

c. (S) To complete the discussion, although real time using UTC (ZULU) is most often used by the military throughout the world, it normally bears no useful relationship to local time or to actual light conditions. Thus, once planning is completed and execution begins, there is no real advantage in a special operations force continuing to use ZULU time. Further, on the disadvantages side, the usual technique of setting a fixed ZULU time for each individual significant event has the result of every occurrence and every report being off schedule, if the mission launch is delayed due to weather, maintenance, or other cause.

d. (S) As an example of the difficulties created by the use of fixed ZULU time, consider JTF Training Exercise POISON DART where the main event, the assault time, was established as 0536 hours (ZULU). That odd time was already somewhat difficult to use, but if there had been, say a 38-minute delay in mission launch, every participant would have had to mentally adjust the assault time to 0614, and add 38 minutes to every other event as well.

e. (C) A Special Operations Task Force, from the JTF headquarters down, normally operates only in a closed communications world. Thus there is no reason to maintain a universal standard time for cordination with external forces. An element is either part of the task force or communications with it does not exist.

3. (S) SOLUTION:

a. (C) Most key event timing systems use expensive clocks which can be periodically stopped or put on hold during the countdown phase. Special operations forces could achieve the same effective results, with no additional cost by simply establishing their own closed JTF time standard.

b. (S) In each exercise or operation the most significant key event (H-Hour assault time) would be arbitrarily fixed at exactly 2400 JTF Time. If the force launch was required five hours and twenty-three minutes prior, in order to meet that H-Hour, then the launch time would be backed off to 1837, and all clocks/ watches would be set to 1837 JTF time when the launch took place, regardless of whatever delays had occurred prior to the launch. In effect, we would have been "holding" at minus five hours and twenty three minutes until the task force was actually launched.

c. (S) One-way broadcast messages from base stations on secure SATCOM and secure HF Radio would periodically announce the correct JTF time to keep all elements of the operation informed as events moved toward the assault.

(U) [redacted]

d. (S) Adjustments would be made prior to the final assault when required. For example, delays during the inbound flights or perhaps during helicopter refueling on the ground at a final staging location would be compensated for by broadcasting a readjusted JTF time to coincide with helo liftoff for the flight to the target area. Each member of the force would reset his watch or clock when announced.

(U) [redacted]

4. (S) TRAINING CONDUCTED: This concept has <u>not</u> been tested in a JTF exercise.

(U) [redacted]

5. (S) RECOMMENDATIONS: Review this concept and test it for adoption by employment in one or more special operations exercises.

PERSONNEL/UNITS INVOLVED: POC [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-6

JTF COMMUNICATIONS DOCTRINE (U)

TOPIC: Secure Long-Haul Communications for the JTF (U)

1. (U) PROBLEM: Develop reliable methods of providing secure, long-haul tactical command and control communications for highly mobile special operations forces.

2. (U) DISCUSSION:

a. (U) Of all the means of establishing long-haul communications, only two, high frequency (HF) radio and communication satellite (SATCOM) have any practical application in the tactical long-haul segment of special operations.

b. (C) When secure voice tactical SATCOM was developed for special operations, using PARKHILL COMSEC equipment and the Navy Fleet Satellite (FLTSAT) and Air Force Satellite (AFSAT) transponders, it immediately became the primary tactical long haul means of command and control communications for the JTF. High frequency radio was rarely exercised and considered unreliable; a back-up system in name only, which provided no really useful capability.

f. (U) The high level of confidence now placed on SATCOM must be tempered by consideration of these potential problem areas:

(1) (C) Because of various power and size limitations most of the tactical SATCOM equipment/antenna configurations employed within the JTF provide a very small margin between successful communications and failure. In many JTF transmit/receive path combinations the signal loss margin is so small that any additional loss from even minor transmitter/receiver malfunctions or antenna/feed line problems can result in a lost comm situation.

(2) (C) It is extremely easy for an aggressor to deliberately transmit interference signals and "jam" the satellite. This could totally eliminate the JTF's ability to use any of its assigned channels. The UHF satellite "footprint" covers more than 90 million square miles. Anyone, anywhere in that entire area could, with a few thousand dollars worth of equipment and parts, put together jamming transmitters to block

every frequency. This could even be, literally, a basement workshop/backyard antenna project with mostly locally purchased parts.

(3) (U) Some of the satellite channels employ a shared power system. On these, a strong jammer or even a strong US military user transmission on another channel, can pull down the power on all of the channels and make them all unusable.

(4) (U) Unlike HF radio, which has some 4,000 voice channels available (in the 4-16 MHz portion of the band), the satellites have a very limited number of channels available. The JTF normally uses the FLTSAT which has only 10 channels, of which no more than two or three can be assigned to the JTF due to other high priority requirements. The exact frequencies of all of the satellite channels are a matter of published public record (UNCLASSIFIED) and thus easily accessible to anyone wishing to monitor, or interfere with the satellite.

g. (C) (U) The JTF has taken action to make certain improvements in SATCOM equipment, methods of installation, antenna configurations, and choice of channels [avoiding shared power channels]. However, there is no question that the entire JTF SATCOM system could prove to be ineffective at critical points in an operation.

h. (C) (U) Should this happen there would be no time, and probably no means, to restore satellite communications for the task force. [The entire operation would depend on the JTF ability to communicate via secure HF radio.]

i. (U) For this reason HF radio must not be written off as being unreliable; and concurrently the JTF must not allow itself to fall into the trap of placing all its dependence in SATCOM as the sole means of command and control communications.

3. (C) SOLUTION:

a. (U) It is not nearly sufficient to simply make policy and doctrine statements that state: "Back-up communications will be provided by HF radio". In preparing for special operations that sort of "lip-service" approach may ultimately lead to disaster. The following must be accomplished:

(1) (U) Procure and install additional powerful, highly stable, state-of-the-art HF radio equipment where required.

(U) (2) (U) Professionally inspect and improve antenna systems and installations.

(U) (3) (U) Improve maintenance capability and procedures.

(U) (4) (U) Greatly improve the training, ability, and especially experience of HF radio operators.

(U) (5) (U) Develop comprehensive operating techniques and net procedures suited to each type of special operation.

(U) (6) (U) Work closely with J-3 personnel to insure that, to the degree politically and geographically feasible, the JTF forward base and radio relay sites, as well as the task force ingress and egress routes are all selected in such a manner as to maximize HF radio performance by taking advantage of propogation characteristics. Relay locations facilitating both single-skip and double-skip propogation should be established if possible, and the flight routes should "arc" on the primary ground radio relay station.

(U) (7) (U) Work closely with frequency assignment and propogation forecasting agencies to insure availability of a large number of frequencies in the appropriate band(s).

(U) (8) (U) Utilize other technology advances, such as chirp sounders, to obtain maximum results from available assets.

(U) b. (U) Above all, the HF radio capability should be frequently tested and utilized, and should be fully employed, over approximately correct propogation paths, during every joint training exercise.

4. (S) TRAINING CONDUCTED:

(U) a. (U) Three day radio operators school for field grade communications/operations officers:

(U) b. (U) Extensive HF operations during exercises Storm Cloud, Trade Wind Comm I, and Trade Wind Comm II.

(U) c. (U) Limited unit training.

5. (S) RECOMMENDATIONS:

(U) a. (U) Initiate/continue all actions listed in paragraph 3 above.

b. (S) Utilize the cadre of field grade radio officers in each joint exercise to provide radio supervision, technical expertise and training, and a high level of operating ability at base and relay stations; and, as required, on command aircraft and at forward command posts. The employment of these officers should continue to be through the established [redacted]

OTHER RELATED ITEMS: G-7, G-8, G-9, G-15

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O -
H -

[redacted] SECRET

SUBJECT: Command, Control, Communications (U) Item No. G-7

JTF COMMUNICATIONS DOCTRINE (U)

TOPIC: Operational COMSEC Doctrine (U)

1. (U) PROBLEM: Develop communications doctrine utilizing methods and techniques which are reasonably simple to employ, and which provide effective command and control communications for the JTF, but which concurrently minimize probabilities of communications detection and intercept leading to mission compromise.

2. (U) DISCUSSION:

a. (U) The conduct of a special operations mission is by definition a high risk undertaking. This risk must be extended to a certain degree into communications planning. Communications doctrine must be carefully tailored to each mission and structured against the known/perceived threat. At the same time however, the commander and staff planners must not permit development of a doctrine which concentrates so much on minimizing the risk of communications detection/intercept that it greatly increases the probability that the mission itself will fail due to incomplete or missing information during execution.

b. [redacted] This is always good general advice, but it reinforced the extremely restrictive communications policies already decided on by members of the helicopter force; who then did not transmit even under conditions of severe difficulty which were leading to aircraft abort situations.

A, C

c. (U) Had, instead, those localized communications policy decisions encouraged brief status and emergency reports, followed by headquarters relay broadcasts to provide guidance (if available) on mechanical problems and/or the unexpected weather (suspended dust phenomenon), at least one additional helicopter might have reached Desert One.

[redacted]

[redacted] SECRET

[redacted]

(S) [redacted]

d. (S) NSA takes very firm positions on a number of communications issues. Some 25 items relating to JTF communications have been provided by NSA and are included in the security section of this after action report. Many are good, solid COMSEC/OPSEC procedures, valid under all circumstances. These include recommendations such as standardizing the duration of keying tones on all PARKHILL's; [redacted] and having a single JTF manager for all callsigns/codewords.

e. (U)(S) Other NSA recommendations however, when used within the framework of special operations, may tend to cause more harm than good. For example:

(1) (U)(S) NSA advocates the use of the standard tri-graph (three letter) brevity code employed by almost all other military forces. The rationale is that intercept of such a coded message would not reveal which type of military operation was in progress. The problem with this philosophy is that the JTF may not want the adversary to know that any kind of a military operation is ongoing. Receipt of a military tri-graph means instant detection/confirmation. On the other hand, receipt of only a few random numbers (ZEBRA code) may delay confirmation of a military presence for a significant period of time.

(2) (U)(S) NSA recommends that aircraft (and all other JTF radio stations) use voice callsigns consisting of letter-number-letter-number-number (M7T28), in lieu of the presently employed callword and single digit suffix (TONIC 4). Joint special operations are extremely rapid moving and complex as it is. The addition of multiple character callsigns, difficult to remember and use, along with other NSA recommendations such as using different sets of callsigns in each different net, greatly complicate an already tenuous situation. Since the JTF voice callwords are used only on secure nets prior to the assault (ZEBRA number callsigns are used for non-secure transmissions) there is little to be gained from an OPSEC point of view. Furthermore, continuing to issue aircraft callwords which are always the standard five letters in length keeps things simple for the JTF and also makes it less likely an aircraft crew will create suspicion if there is a need to transmit to civilian ground control stations for any reason.

[redacted]

[redacted]

(S)

3. (S) RECOMMENDATIONS: [redacted] and carefully consider the advice and suggestions received. However, make certain that the final decisions on communications utilization, techniques, and methods are based on employment in the atypical joint special operations environment, and not on rigid conventional forces doctrine.

OTHER RELATED ITEMS: G-4, G-6, G-9, I-8, I-9

PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-8

JTF COMMUNICATIONS DOCTRINE (U)

TOPIC: Senior Communications Operators (U)

1. (U) PROBLEM: Provide a cadre of highly skilled, experienced communications operators for the JTF.

2. (U) DISCUSSION: The rescue attempt and subsequent joint training exercises underlined the need for a cadre of experienced, trained communicators with a level of expertise well above that normally found in radio-telephone operators. The need was most urgent for the JTF base and relay command radio stations, and for the JTF forward CP.

3. (U) SOLUTION: A group of Army and Air Force field grade officers who were also licensed amateur radio operators was selected. After several days training on the specific radios in use and on the joint operational techniques being employed, they were ready for immediate deployment to either exercise or actual operation sites, as needed.

4. (U) [redacted] followed by classroom instruction and a number of hands-on equipment practical exercises. The classroom training included briefings on the joint exercise and participating units, and on the Operations Order, CEOI and other documentation. The group participated in three joint field training exercises. This training, combined with their previous skills and experience produced the highly polished radio operators needed to provide adequate command and control support to the commander of the Joint Task Force.

5. (U) UNRESOLVED PROBLEMS/REQUIREMENTS:

[redacted]

b. (U) Eventually some members of this communications group may retire or be transferred. Depending on anticipated requirements, some thought should be given to selecting and training a second group of officers as early as the Summer of 1981.

6. (U) RECOMMENDATIONS:

a. (U) Use this specialized communications capability and evaluate the need to train a second group.

b. [redacted]

OTHER RELATED ITEMS: G-6, G-9

PERSONNEL/UNITS INVOLVED: POC [redacted]

NOTE: A longer, more detailed version of this item has been prepared and distributed to appropriate organizations.

SUBJECT: Command, Control, Communications (U) Item No. G-9

JTF COMMUNICATIONS DOCTRINE (U)

TOPIC: ZEBRA Communications Concept (U)

1. (U) PROBLEM: The successful conduct of special operations requires reliable and redundant command and control communications, but the use of those communications may cause force compromise and mission failure.

2. (U) DISCUSSION:

a. (U) The actual conduct of special operations poses a difficult two-sided communications/OPSEC problem. On one hand the very nature of rapidly moving, closely timed and controlled, small force excursions into a hostile, relatively unknown environment, demands extensive, reliable, and redundant real-time communications for command and control. At the same time, OPSEC and COMSEC considerations usually dictate an absolute minimum of communications; in fact no transmissions at all if that is possible.

b. (U) In the absence of frequent communications, the necessary control may be lost, and incorrect decisions may be made based on incomplete and/or misinterpreted data. Conversely, even a single regular transmission made by the inbound units might be monitored and reveal the presence or objectives of the force.

[redacted]

A,B

d. (U) A method or system was needed which would maximize the transfer of command information, over multiple means, to, from, and within the special operations forces, but which presented a relatively low possibility of hostile detection or intercept.

e. (U) In developing a solution there were a number of technical communications facts which could be used to advantage. These included propogation characteristics, equipment capabilities, and transmission techniques.

3. (C) SOLUTION: After studying these facts a command and control communications concept was developed, and nicknamed "ZEBRA". ZEBRA uses techniques of lengthy, pre-established,

A

established frequencies, from the in-country force.

4. (S) TRAINING CONDUCTED:

a. (S) The cadre of nine field grade officer communications operators and approximately 25 JCSE personnel received training in the ZEBRA concept during the three exercises.

b. (S) In all exercises, communications base and relay stations

propogation directions and distances.

c. (S) Weather forecasts, mission status, and numerous other reports were sent out while a substantial number of "ZEBRA" messages were originated command post stations after off-loading from the MC-130's in the objective area.

d. (U) Unassigned HF radio frequencies were used, and changed often, for the brief ZEBRA coded transmissions. It appeared that hostile intercept stations would have had considerable difficulty in detecting the short transmissions, which used only voice modulation, and even more difficulty locating the aircraft positions and/or decoding the numbers. It would also have been difficult for an intercept station to draw a connection between the in-the-clear number transmission on HF and the PARKHILL secure replies broadcast on SATCOM or on different HF radio frequencies.

(U) e. (S) Due to the cancellations of all but the communications portions of the last two major joint exercises (STORM CLOUD and TRADE WIND) only a small number of personnel (four MC-130 crews) from JTF units have been exposed to the ZEBRA concept.

5. (U) RECOMMENDATIONS:

a. (S) Continue to refine and exercise the ZEBRA, or a similar command and control communications concept.

b. (S) Develop an include other appropriate messages.

(U)

c. (U) Continue discussions with NSA to determine the best way to provide reliable two-way communciations with a low probability of detection, when applied to various operational mission scenarios.

OTHER RELATED ITEMS: G-6, G-7, G-8

PERSONNEL/UNITS INVOLVED: POC [redacted] G

NOTE: A longer, more detailed version of this item was prepared and distributed to cognizant elements along with an after action report on the communications exercises.

SUBJECT: Command, Control, Communications (U) Item No. G-10

FIXED BASE COMMUNICATIONS (U)

TOPIC: Compartmented Garrison Communications (U)

1. (U) (C) PROBLEM: Provide compartmented communications at various JTF 1-79 unit headquarters.

2. (S) DISCUSSION/SOLUTION: Satellite and land line secure voice and teletype communications were necessary between JTF 1-79 headquarters planning elements and force element headquarters. This was provided by deploying equipment and personnel from the Joint Communications Support Element (JCSE) at MacDill AFB. After the rescue attempt the services were asked to program long term support to replace JCSE resources. At the Pentagon, the Pentagon Telecommunications Center (PTC) replaced JCSE teletype equipment but not the operators or the satellite equipment. Secure voice and teletype capabilities have been installed at HQ MAC, Scott AFB; 552nd AWAC Wing, Tinker AFB; [redacted] 101st Airborne Division, Ft. Campbell; [redacted] JCSE, MacDill AFB; and J3/SOD, the Pentagon. The Services have replaced some but not all of the JCSE resources.

3. (U) (S) TRAINING CONDUCTED: Dedicated satellite and dial-up secure voice and teletype circuits have been used from initial planning through the current time. They were used for training exercises as well as for the rescue attempt.

4. (S) UNRESOLVED PROBLEMS/REQUIREMENTS: JCSE communication equipment or personnel are still being used at [redacted] the Pentagon; and 552nd AWAC Wing, Tinker AFB. Actions are underway to replace JCSE support.

5. (C) RECOMMENDATION: Replace JCSE teletype, secure voice and satellite equipment and personnel at all locations.

OTHER RELATED ITEMS: G-11

PERSONNEL/UNITS INVOLVED: POC [redacted]

[redacted] SECRET

SUBJECT: Command, Control, Communications (U) Item No. G-11

FIXED BASE COMMUNICATIONS (U)

TOPIC: [redacted] Access [redacted]

1. (S) PROBLEM: Provide access t[redacted] communications for [redacted] mission planning.

2. (S) DISCUSSION/SOLUTION: Direct teletype and secure voice access [redacted] from the OJCS Special Operations Division was required for compartmented intelligence support To obtain this support, a teletype capability was installed using a dial-up circuit with CIA 13 NOV 79, and a point-to-point circuit with [redacted] Also dial-up secure voice circuits were installed to [redacted] 26 DEC 79. This capability was provided quickly and numerous installation short cuts were taken. For example, [redacted] and teletype capability was provided over a 1.544 megabit per second circuit. The cables carrying the circuits were routed from the Pentagon technical control [redacted] through the window to room 2C840. The cable was routed this way in November 1979 and is still in place. This ad hoc capability will be replaced during 1981 to provide high quality communications between the NCA, Joint Task Force and supporting agencies. This will provide great flexibility for quickly establishing circuits as required to support each crisis in the future, and the ability to use [redacted] for [redacted] rerouting/re-routing.

3. (U) (S) TRAINING CONDUCTED: This capability has been used constantly since the initiation of planning in November 1979.

4. (U) (S) UNRESOLVED PROBLEMS/REQUIREMENTS: Circuits need to be routed through the Pentagon Technical Control Facility to the J-3/SOD area through the protected conduit. Personnel of the JCSE should be replaced at the Pentagon.

5. (U) RECOMMENDATIONS: Route the circuits in an approved manner to SOD. Replace JCSE communications center personnel with the Joint Communications Unit (JCU) personnel.

OTHER RELATED ITEMS: G-10

PERSONNEL/UNITS INVOLVED: [redacted]

G

[redacted] SECRET

SUBJECT: Command, Control, Communications (U) Item No. G-12

FIXED BASE COMMUNICATIONS (U)

TOPIC: Base Stations for Unit Training (U)

1. (U) PROBLEM: Provide JTF 1-79 force elements with communications equipment for base stations to assist in conducting unit training and to maintain a SATCOM secure voice signature for OPSEC purposes.

2. (C) DISCUSSION/SOLUTION: This requirement developed because of unique communications equipment capabilities being installed on the MC-130, AC-130, EC-130, HC-130, HH-53 C/H, [redacted] UH-60, CH-47, C-141, KC-135 and C-5 aircraft. However, the [redacted] AWACW, MAC C-141/C-5 units, SAC KC-135 units, 101st and [redacted] did not have an organic capability to also participate in unit training from ground command posts. A capability was required to communicate over UHF satellite circuits secured with Parkhill and HF SSB links secured with Parkhill. To solve this problem initially, JCSE equipment and some operators were deployed to [redacted] and the Pentagon. 3CCG and JCSE assets were used at the [redacted] AWACW. To replace some of this equipment SUNAIR 19D0D HF SSB radios were purchased for the [redacted]. The [redacted] also has the capability to use an MX-850 as a base station with a 28 volt D.C power supply and a satellite antenna borrowed from JCSE.

3. (C) TRAINING CONDUCTED: This base station equipment is necessary to enable individual units to refine techniques and for proficiency training. Training using borrowed equipment has enabled units to attain a high level of capability in a short period of time. Communications Command Post Exercises were conducted preceding all training exercises after July 1980.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: To maintain this high level of capability the borrowed base station communications capability should be replaced with equipment types organic to the respective units. For this the following equipment must be procured.

a. [redacted] Thirty ampere, 28 volt D.C. power supply and a suitable antenna (helix or umbrella).

b. (U) 552 AWACS Modify an ARC-171 radio for command post installation, procure a suitable power supply (28 volt D.C., 100 amperes), and a suitable antenna.

c. (U) [redacted] Plan to use an MX-850 and procure 30 ampere power supply and suitable antenna.

d. (U) [Pentagon:] Procure two WSC-3, two helix antennas, and two SUNAIR 1900D HF SSB radios.

e. (U) [SAC and MAC units:] MX-850, 30 ampere 28 volt D.C. power supply and suitable satellite antenna.

5. (U) RECOMMENDATIONS: Insure units have the necessary communications equipment for ground command post elements to participate in unit training, to maintain OPSEC signatures, and participate in communications CPXs.

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O
H

SUBJECT: Command, Control, Communications (U) Item No. G-13

FIXED BASE COMMUNICATIONS (U)

TOPIC: KY-70 Secure Voice Devices (U)

1. (U) PROBLEM: Provide good quality secure voice service between selected JTF elements, the National Command Authorities, and other governmental agencies equipped with KY-70's.

2. (S) DISCUSSION/SOLUTION:

a. (C) The KY-70 secure voice equipment was purchased for non-DOD governmental agencies connected to the Executive Secure Voice Network (ESVN). It was determined that the KY-70 provides good secure voice quality over marginal tactical communications circuits as well as AUTOVON and commercial telephone networks from one KY-70 to another.

b. (C) KY-70's were borrowed from [redacted] to support the JTF at the Pentagon, [redacted] and at forward deployed locations during the rescue attempt and subsequent training exercises. Borrowed KY-70's were returned to [redacted] and nine other KY-70's were obtained for permanent retention within DOD. The office of the Director, National Communications System; [redacted] OSD/C^{3}I; and OJCS/TC^{3}S assisted in obtaining these assets.

c. (C) An interface device was installed at the Pentagon 758C secure voice switch. The interface enables the interconnection of Pentagon Red Phones and AUTOSEVOCOM wideband terminals to KY-70 terminals. The interface is used daily to maintain operator proficiency and to assure proper operation. Two KY-70's support the interface which is operated and maintained by the 2044th Comm Group.

d. (C) KY-70 contingency terminals are held by the Joint Communications Support Element (JCSE). The KY-70 has proven to be a versatile secure voice contingency asset.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: Additional KY-70's are needed to support joint operations.

4. (U) RECOMMENDATIONS:

a. (U) Keep the interface active. Use the KY-70's as much as possible to keep the system functioning well, but do not permit use for routine administrative calls.

b. (U) [OJCS/TC3S] obtain additional KY-70's.

PERSONNEL/UNITS INVOLVED:

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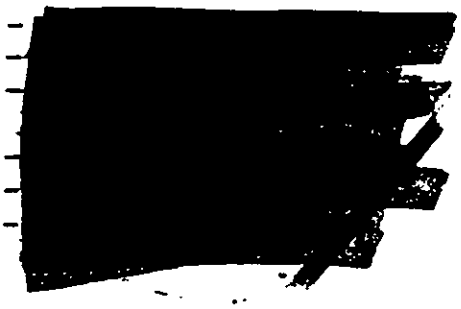

SUBJECT: Command, Control, Communications (U) Item No. G-14

OPERATIONAL COMMUNICATIONS (U)

TOPIC: Long Range Communications (U)

1. (U) PROBLEM: Provide a primary means of long range secure voice communications with a low probability of detection.

2. (U) DISCUSSION/SOLUTION:

a. (S) Command and control of covertly employed special operations forces requires the use of a secure voice communications system that will not divulge the operation for the longest possible time. Secure voice communications are required between deployed airborne and ground force elements and the headquarters even if separated by thousands of miles. Options for long range secure voice are High Frequency (HF) radios and Ultra High Frequency (UHF) satellite radios. PARKHILL is the only crypto equipment currently available for securing HF radios. UHF satellite radios which can be secured with PARKHILL or VINSON crypto equipment, were selected as the primary means.

b. (C) In November 1979, UHF satellite secure voice terminals were very scarce. There were no secure voice satellite terminals in any JTF 1-79 aircraft. During the April rescue attempt, there were six aircraft configured with satellite radios, 18 man-portable terminals, nine fixed ground terminals, and one terminal afloat. By December 1980, 37 man-portable radios had been acquired and approximately 50 other terminals were available to the JTF for fixed ground sites or for use onboard a variety of aircraft: AC/EC/HC/MC-130, HH-53H, C-141, KC-135, E-3A, C-5, [redacted] UH-60, and CH-47. Approximately 100 additional radios are scheduled for delivery during 1981. All of these satellite radios are interoperable, except for the man-portable PSC-1's (three on hand) which can only net with each other.

3. (U) (C) TRAINING CONDUCTED: Various configurations of the satellite terminals and HF radios sets were employed during training and command post exercises.

4. (U) (S) (TS) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (TS) The use of PARKHILL secure voice on UHF satellite 25 kHz channels was the primary medium, with HF used as

back-up to achieve the required results. PARKHILL has a distinctive electronic audio signature. The use of PARKHILL poses a potential OPSEC problem.

b. (U) Another limiting factor is that the UHF satellites were not designed to support secure voice links for special operations. While UHF 25 kHz channels provide an excellent medium for command and control over vast distances the access is always at the expense of primary satellite channel users. The need for satellite channels to support JTF 1-79 was of a sufficiently high priority to make channels available. While it is reasonable to assume that this type of mission will continue to have sufficient national priority to preempt primary users when necessary, the satellite channel capacity is still limited, and consideration should be given to shifting to 5 kHz channels.

c. (U) It is technically feasible at this time to use secure voice over 5 kHz channels. A typical 5 kHz secure voice satellite terminal might consist of a VINSON secure voice device, a modem, and a WSC-3 or MX-850 satellite radio. Other combinations of vocoders, cryptographic devices and modems can be recommended by the AFSATCOM manager POC. In comparison to PARKHILL, these may offer better voice recognition and provide a means of eliminating the potential PARKHILL OPSEC problem discussed above. However, the weight and size of man-portable terminals is a very important factor, and may rule out the 5 kHz channelization if significant additional size/weight is required.

d. (U) UHF satellites are useable only in the absence of jamming.

5. (S) RECOMMENDATIONS: Consider using 5 kHz channels. Plan and implement a transition from PARKHILL to VINSON, using 25 kHz channels, and consider shifting to 5 kHz channels in the future with VINSON.

OTHER RELATED ITEMS: G-6, G-26, G-40

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O - [redacted]
H - [redacted]

G

POC - [redacted]
O - [redacted] Offutt AFB)

SUBJECT: Command, Control, Communications (U) CONFIDENTIAL Item No. G-15

OPERATIONAL COMMUNICATIONS (U)

TOPIC: Back-up Long Range Communications (HF) (U)

1. (U)(C) PROBLEM: Provide an alternate means of long range secure communications system for airborne elements.

2. (U)(C) DISCUSSION/SOLUTION: The JTF 1-79 headquarters, airborne and ground elements have secure voice UHF satellite communications available. However, the satellite link is subject to jamming, fading, marginal circuits, and inoperative equipment; thus a backup system is required. HF/SSB is the only other viable system. In November 1979 only nonsecure HF/SSB radios existed on aircraft assigned to the JTF. Although not a player at that time, the E-3A had Parkhill secure HF/SSB radios installed. Through JTD efforts MC-130, AC-130, EC-130, HC-130, HH-53 C/H CH-47 and UH-60 aircraft now have Parkhill secured HF/SSB permanently installed. There are additionally 10 secure voice consoles available for use with the HF/SSB and UHF radios installed on C-141 aircraft. Portable consoles are under construction for 10 of the KC-135 aircraft.

3. (U)(S) TRAINING CONDUCTED: Command and control communications using backup HF/SSB systems were used during the rescue attempt and during each exercise since.

4. (U)(S) UNRESOLVED PROBLEMS/REQUIREMENTS: As indicated, Parkhill HF/SSB consoles are under construction for 10 KC-135 aircraft. Consoles should remain with local unit Component Repair Squadron when not in use.

5. (C)(U) (S) RECOMMENDATIONS: This effort should be monitored by OJCS/TC3S until action is complete. More KC-135, and C-141 Parkhill secure voice pallets should be constructed to provide greater flexibility. C-5 aircraft should also be equipped with a number of Parkhill HF/SSB pallets.

OTHER RELATED ITEMS: G-6

PERSONNEL/UNITS INVOLVED: POC [redacted]
O [redacted]
H [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-16

OPERATIONAL COMMUNICATIONS (U)

TOPIC: SATCOM Systems Optimization (U)

1. (U) PROBLEM: Develop operating procedures for JTF 1-79 SATCOM terminals.

2. (U) DISCUSSION/SOLUTION: The proliferation of JTF 1-79 UHF secure voice satellite terminals created a requirement for standardized operating procedures and for radio performance data. Operating procedures are required for proper operator discipline due to the small number of satellite channels available. Without these procedures, effective use of the system is impossible. Radio performance data is required to properly plan network configuration. This is dictated by design differences between the FLTSAT and AFSAT transponders, the insufficient number of frequencies available, anomalies in the atmosphere, and by the different performance levels of various terminal configurations. Satellite channels have been in use since planning began for the rescue mission and during each exercise. Numerous problems have been observed such as selective path fading, channel overcrowding, improper use of uplink power and satellite nonavailability.

3. (U) SOLUTION: A detailed evaluation of equipment characteristics was undertaken. This evaluation included performance of all airborne and ground terminals. It also included network configuration for optimum command and control connectivity.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: Similar efforts need to continue until a manual is published for all system participants to use. Draft procedures were requested from all JTF 1-79 operating elements.

5. (U) RECOMMENDATIONS: Continue work to publish standardized operating procedures. The publication should contain procedures for operation as well as system performance characteristics and recommended system configurations. Preliminary findings indicate the following:

a. (U) Hatch mounted antennas are being damaged while stored and transported. Procedures should be developed for minimizing this damage.

b. (U) Aircraft crewmembers should use SATCOM systems routinely to remain proficient. This would also allow malfunctions to be quickly detected.

~~TOP SECRET~~

c. (U) There are many separate components in the MX-850 satellite terminal system. All are required for the system to function properly. A method of positively checking each component prior to a mission should be developed.

d. (U) It has been observed that some Dorne-Margolin antennas are improperly connected. All antennas should be checked for this problem. An improperly wired antenna may attenuate the signal as much as 14-20db.

e. (U) Satellite radio operators need to use SATCOM systems routinely for training and equipment tests. Continued access to a FLTSAT channel is required.

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O -
H -

SPECIAL COMMUNICATIONS DEVICES (U)

TOPIC: Unattended Weather Reporting Station (U)

1. (U) PROBLEM: To develop a means of providing a Special Operations Force with on the ground, real-time weather information from within an unfriendly country.

2. (U) DISCUSSION:

a. (S) A number of past incidents, the most recent being the unexpected suspended dust phenomenon encountered during the April 1979 hostage rescue attempt in Iran, have underscored the need for local, accurate, real-time weather reports, to improve the chances for success in the conduct of special operations.

b. (C) The most obvious, and probably most effective solution would be the insertion of a number of live observers with two-way communications. That option will be assumed non-feasible for the remainder of this discussion.

c. (C) In the absence of live observers, mechanical substitutes are needed. The package would consist of a suitable housing (strong, lightweight, waterproof, inconspicuous) and four major components:

(1) Sensors

(2) Control System

(3) Communications

(4) Power Supply

d. (S) There may be some ongoing efforts to develop a remote weather sensor package providing the following five readings:

(1) Temperature

(2) Wind Direction

(3) Wind Speed

(4) Barometric Pressure

(5) Dew Point or Relative Humidity

e. (U) However, in discussions conducted with weather specialists, it was learned that even frequent receipt of those five readings would improve present forecasting/reporting ability and accuracy by no more than two or three percent, and therefore the construction/insertion of such a basic device is not worth the trouble/cost/risk.

f. (U) On the other hand, if four additional readings could be obtained and transmitted, the concept would be extremely useful and of great value in mission planning and execution. These additional readings are:

(1) Ceiling

(2) Visibility

(3) Precipitation (present or absent)

(4) Dust in atmosphere (present or absent)

3. (U) SUGGESTED SOLUTION:

a. (U) A package should be developed in four integrated sections as listed in paragraph 2-C.

b. (U) The sensor package should provide (to the control package) real-time measurements of all nine of the readings listed in paragraphs 2-d and 2-f. (The dust sensor might be an add-on module depending on planned deployment.) A vertically oriented laser, or other light source, along with a rotating mirror arrangement might be used to provide certain of the critical readings. A light level sensor with day/night filters might also be helpful. Multiple function devices should be employed whenever possible. For example, a single vertical wand might serve as the radio antenna, and also provide wind direction and velocity readings by utilizing the moment at its base as it bends under horizontal wind force.

c. (U) The control system would be complex. It should take advantage of small chip technology to provide various timers, data storage registers (2 hour, 8 hour, and 24 hour maximum, minimum, and average readings), sensor and communications on/off and keying circuitry, decoding (semi-secure) for receiving instructions, and encoding registers for semi-secure burst transmissions of the stored and real-time data. Six-bit registers would provide 64 levels or increments for each reading which should be satisfactory in all cases (one degree temperature, six degrees direction, 500 feet distance, and so on).

d. (U) The communications package would consist of a very simple, fairly sensitive receiver with automatic tone

squelch and low current requirements. It would probably operate on channels in the UHF SATCOM frequency band and be turned on periodically by the timers to receive various commands and interrogation requests. The transmitter would probably also utilize UHF SATCOM in a short duration, high peak power, burst transmission mode. Either two-tone or multi-tone modulation schemes should satisfactorily transmit (dump) the weather data from the storage registers.

e. (U) The power supply would probably consist of long life dry batteries, although an A/C power converter might be useful in rare instances. Small solar cell battery chargers might also be considered.

f. (U) The packaging should be developed in several versions based on anticipated employment scenarios such as air-dropped in open country, placed by hand on a building rooftop, buried (except for the antenna and sensors on top) in earth or sand, and so on.

4. (U) RECOMMENDATIONS: Pursue the development of such a device.

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O - [redacted]
H - [redacted]

POC - [redacted]
O - [redacted] (Andrews AFB)
H - [redacted]

G

SUBJECT: Command, Control, Communications (U) Item No. G-18

SPECIAL COMMUNICATIONS DEVICES (U)

TOPIC: Monitor Loudspeakers (U)

1. (U) PROBLEM: Provide a loudspeaker to amplify the voice output at base stations.

2. (U) DISCUSSION/SOLUTION: With several SATCOM and HF voice radios located at one base location it is difficult for operators and staff officers to effectively monitor and communicate on all nets using handsets alone. A loudspeaker output was required. To provide a quick solution, low cost Radio Shack telephone amplifiers were procured and employed to amplify the handset output. The results were excellent, permitting several staff members to listen to both sides of important transmissions. Since no electrical connections are required, potential COMSEC problems were somewhat reduced.

3. (U) TRAINING CONDUCTED: This speaker system was used at base station sites during several training exercises and CPX's.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: These $17.00 Radio Shack amplifiers work very well with the tactical handsets usually employed with secure voice equipment on SATCOM radios but not as well with the gray, telephone style handsets associated with the WSC-3.

5. (U) RECOMMENDATIONS: Obtain additional telephone amplifiers for base and relay stations if needed. Avoid using these devices in the proximity of non-secure telephones.

(U) NOTE: A total of 17 of these telephone amplifiers are presently on hand; 12 issued to the JCSE for base and relay communications stations, and five at the headquarters.

PERSONNEL/UNITS INVOLVED: POC [redacted]
O
H

G

SUBJECT: Command, Control, Communications (U) Item No. G-19

SPECIAL COMMUNICATIONS DEVICES (U)

TOPIC: Wireline Secure Voice Capability (U)

1. (U) PROBLEM: Provide highly portable secure voice systems that can be quickly installed at fixed bases.

2. (U) DISCUSSION/SOLUTION: Portable secure voice devices capable of being quickly installed on two or four wire commercial, autovon, and field telephones are required. These are needed at exercise base sites, various headquarters, and at fixed forward operating locations. The Parkhill secure voice system equipped with a fabricated wire line adapter provided by the JCSE was used to provide this capability, and it proved effective.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

4. (U) RECOMMENDATIONS: None.

PERSONNEL/UNITS INVOLVED: POC - [redacted] G
O -
H -

SUBJECT: Command, Control, Communications (U) Item No. G-20

SPECIAL COMMUNICATIONS TECHNIQUES (U)

TOPIC: Coded Transmissions to In-Country Forces (U)

1. [redacted]

[redacted] this purpose.

[redacted] receiver but signal strength is not always constant and other factors [redacted]

[redacted] provide a backup, or may have to serve as the primary system.

3. TRAINING CONDUCTED: This method of transmitting [redacted] was used during training exercises conducted in the Western US. For these exercises the [redacted] was used as part of a worldwide propogation test. Specific antenna headings were ordered to insure transmissions were directed across the planned location of the reception party. [redacted] personnel were provided with [redacted]

4. UNRESOLVED PROBLEMS/REQUIREMENTS:

[redacted]

b. No one in [redacted] was aware that they were participating in a JTF test. The cover story was difficult to "carry off" but this was accomplished. There are probably areas of the world which do not have [redacted]

5. (S) RECOMMENDATION: Continue to look for ways to improve the ability of [redacted] develop a connection with the service programs.

OTHER RELATED ITEMS: G-21

PERSONNEL/UNITS INVOLVED: POC - Col [redacted]

[redacted]

[redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-21

SPECIAL COMMUNICATIONS TECHNIQUES (U)

TOPIC: [redacted] Reception of In-Country Transmissions (U)

1. (U) PROBLEM: Insure positive reception of messages transmitted by JTF elements from within [redacted]

2. (U) DISCUSSION/INTERIM SOLUTION: The rescue force was equipped with limited UHF satellite and HF radio transmission equipment. Messages consisted of short codewords, usually to be transmitted only once. Highly reliable methods of positively receiving these messages needed to be assured. Therefore, in addition to JTF-79 base stations, the [redacted] and Mystic Star system operators were asked to use their [redacted] facilities to monitor specific frequencies and to report immediately any messages received. This concept was used during the rescue attempt.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: Techniques for transmitting/receiving brief one-way messages need to be further refined. This has been accomplished with the Zebra system. (See separate item).

4. (U) RECOMMENDATION: Continue to improve one-way message transmission/reception techniques.

OTHER RELATED ITEMS: G-9

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O -
POC -
O
H

G

[redacted]

[redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-22

SPECIAL COMMUNICATIONS TECHNIQUES (U)

TOPIC: Scintillation (U)

1. (U) PROBLEM: Reduce the effects of UHF satellite scintillation.

2. (U) DISCUSSION/SOLUTION: Scintillation is a phenomenon that occurs along the equatorial regions of the world and affects UHF satellite transmissions. Increased ionization causes a ripple in the upper atmosphere. This ripple causes radio signals to be suppressed at some ground locations while increasing the signal at other ground locations. This effect can be somewhat overcome by increasing power, and by deploying communications relay stations. If the transmitter is within the footprint of two satellites a different satellite could also be used.

3. (U) TRAINING CONDUCTED: Communications relay stations were used in an informal manner during the rescue attempt and during the first few training exercise. The concept was formalized and multiple stations were deployed during the final two exercises.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

5. (U) RECOMMENDATIONS: Deployment planning should take the scintillation effect into consideration. Since the use of several relay stations also provides multiple HF radio propogation paths and other advantages, this is the approach that normally should be taken.

OTHER RELATED ITEMS: G-9, G-15

PERSONNEL/UNITS INVOLVED:

G

POC [redacted]
O

POC [redacted]
O
H

POC [redacted]
O
H

G

SUBJECT: Command, Control, Communications (U) Item No. G-23

SPECIAL COMMUNICATIONS TECHNIQUES (U)

TOPIC: SATCOM Jamming (U)

1. (U) PROBLEM: Provide a method to overcome jamming of the UHF satellite.

2. (U) DISCUSSION/SOLUTION: It is well recognized that in the Frequency Modulation (FM) mode used by the JTF, the UHF satellite can be easily jammed, simply by transmitting a high power signal to the satellite. Since JTF satellite terminals have relatively low power output a high power jamming station could "capture" the channel and blank out all JTF stations, and make it impossible to pass traffic or even tell the other stations in the net to change frequencies. To overcome this problem, a 1,000 watt UHF transmitter and a very high gain Quad helix antenna system were located, brought in, and evaluated for use in a "Blind Broadcast" mode if needed. The system was deployed on one exercise as a reserve to overcome a jamming signal if needed. However, since the AFSAT transponder was being used and no formal jamming sources were available the results were inconclusive.

3. (U) TRAINING CONDUCTED: One terminal on one exercise.

4. (U) UNRESOLVED PROBLEM/REQUIREMENTS: The UHF satellite is always subject to being jammed and effective methods of overcoming this jamming have not been positively identified. The high power station will probably work but has not been thoroughly tested.

5. (U) RECOMMENDATIONS: Develop a method to reduce the jamming threat on UHF satellites. Accelerate R&D on EHF SATCOM technology. Work to improve back-up (non-satellite) means of communications. Test the high power terminal in a realistic environment.

OTHER RELATED ITEMS: G-14, G-15

PERSONNEL/UNITS INVOLVED: POC [redacted] G
O
H

[redacted] SECRET CONFIDENTIAL

SUBJECT: Command, Control, Communications (U) Item No. G-24

SPECIAL COMMUNICATIONS TECHNIQUES (U)

TOPIC: PARKHILL Signature on the Indian ocean Satellite (U)

1. (U) PROBLEM: Reduce OPSEC problems created by secure transmissions through the Indian Ocean satellite.

2. (U) DISCUSSION/SOLUTION: Should another special operations rescue mission be conducted in the Mideast/Africa part of the world, it would probably again be necessary to use the Indian Ocean FLTSAT satellite. The mode of operation would probably still be Parkhill secure voice. Because the Parkhill transmits a very distinctive audio signature, it is immediately detectable by anyone monitoring the SATCOM frequencies. A Parkhill signature should be established early on and maintained as a normal mode of communications in any area where there is a reasonable possibility of a mission. For example PARKHILL, WSC-3, and ARC-171 radio equipment were deployed with the E-3A aircraft supporting ELF-1 at [redacted] in the anticipation of another rescue mission.

3. [redacted] UNRESOLVED PROBLEMS/REQUIREMENTS: Conversion of PARKHILL to VINSON.

4. (U) RECOMMENDATIONS: Continue to consider the signature problem. A separate item addresses the PARKHILL/VINSON conversion situation.

OTHER RELATED ITEMS: G-14, G-40

PERSONNEL/UNITS INVOLVED: POC [redacted]
O
H

[redacted] CONFIDENTIAL

[redacted] SECRET

SUBJECT: Command, Control, Communications (U) Item No. G-25

SPECIAL COMMUNICATIONS TECHNIQUES (U)

TOPIC: Unique Cryptographic Keys (U)

1. (U) PROBLEM: Provide unique cryptographic key lists and authenticators.

2. (U) DISCUSSION/SOLUTION: Cryptographic keying material was required for COMSEC equipments including KY-65/75 (PARKHILL), KY-8/28/38 (NESTOR), and KYV-2/KY-57 (VINSON). Because JCSE provided the majority of communications equipment and personnel for the rescue mission, they also provided common keying material. This was not a problem prior to the rescue attempt since all elements with satellite access were training for the rescue, and everyone involved was briefed for JTF 1-79. However, a number of elements involved in training after the rescue attempt did not know of the continued existence of JTF 1-79. When it became necessary to discuss JTF 1-79 matters over the secure satellite system unique Parkhill crypto key settings were required. On JTD request, NSA provided special cryptographic products which were held by JTF 1-79 headquarters and distributed as required. Other unique crypto material was obtained for NESTOR and VINSON use. These unique crypto keys were used for privacy during the exercises which were conducted after the rescue mission.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

4. (U) RECOMMENDATIONS: Continue the use of unique crypto material for PARKHILL, NESTOR, and VINSON within special operations JTF headquarters and participating elements.

(U) PERSONNEL/UNITS INVOLVED:

POC
O
H

[redacted]

POC
O

SUBJECT: Command, Control, Communications (U) CONFIDENTIAL Item No. G-26

COMMUNICATIONS ADMINISTRATION (U)

TOPIC: Satellite Access Approval (U)

1. (U) PROBLEM: Obtain satellite access for JTF and Parkhill secure voice operations.

2. (U) DISCUSSION/SOLUTION: Ultra high frequency (UHF) satellite terminals under the control of the JTF are compatible with the FLTSAT 25 kHz, AFSAT 500 kHz, and GAPSAT 25 kHz transponders. However, the doctrine concerning use of these satellites has not previously included authorization for the mode of operation the JTF employs. This mode is Parkhill secure voice using WSC-3 and compatible satellite radios operating with Frequency Modulation (FM). Satellite access has been obtained through the OJCS/TC3S who requested channel assignment from the military Services.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: Satellite access using FM on 25 kHz UHF channels continues at this time to be a very important requirement for special operations forces.

4. (U) RECOMMENDATIONS: OJCS/TC3S continue to request UHF satellite access for special operations as needed in the future.

OTHER RELATED ITEMS: G-14

PERSONNEL/UNITS INVOLVED: POC [redacted]
O
H

SUBJECT: Command, Control, Communications (U) Item No. G-27

COMMUNICATIONS ADMINISTRATION (U)

TOPIC: Obtaining Training Frequencies (U)

1. (U) PROBLEMS: Obtain cleared frequencies for use during training exercises.

2. (U) DISCUSSION/SOLUTION: Prior to and during the rescue attempt, the radio frequencies used were those recommended by NSA based on monitoring. Following the rescue attempt, training frequencies were initially obtained through REDCOM. However, this procedure proved to be slow, and most frequency authorizations were subsequently obtained from joint resources by going through the Air Force Frequency Management Office at Buzzard Point, Washington, D.C. Other frequencies were obtained through local/regional Frequency Coordinators. Normally frequencies can be obtained quickly in an emergency; however, TACAN identifiers require at least 3 days to obtain as they must come from the FAA. The method of obtaining frequencies through the Air Force Frequency Management Office was used for each exercise and proved to be satisfactory with the exception of emergency requests for TACAN identifiers and some locally obtained frequencies.

3. (U) UNRESOLVED PROBLEMS: A way should be found to obtain TACAN identifiers in less than three days and on weekends or holidays. Also, a good method is needed to obtain frequency clearances on short notice without raising unnecessary interest among local frequency coordinators, or placing undue strain on the frequency coordination process, creating both ill feelings and OPSEC problems.

4. (U) RECOMMENDATIONS: Work with frequency management offices to improve procedures for obtaining frequencies and TACAN identifiers. Obtain a block of frequencies to be assigned/available on a permanent basis.

PERSONNEL/UNITS INVOLVED: POC [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-28

COMMUNICATIONS ADMINISTRATION (U)

TOPIC: COMSEC Monitoring (U)

1. (U) PROBLEM: COMSEC monitoring was needed to detect OPSEC violations and prevent further occurrences.

2. (S) DISCUSSION/SOLUTION: Prior to the rescue attempt, NSA was requested to monitor communications links to determine if classified information could be obtained over nonsecure telephones and tactical radio circuits. After the rescue attempt, NSA was requested to monitor communications circuits at the JTF and subordinate element headquarters, and on the tactical radio circuits used during training exercises. Thus COMSEC monitoring was used periodically throughout the existence of JTF 1-79.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

4. (S) RECOMMENDATIONS: Request NSA monitor various circuits periodically in the future to determine if sensitive/classified information is being passed over nonsecure circuits.

PERSONNEL/UNITS INVOLVED: POC [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-29

COMMUNICATIONS ADMINISTRATION (U)

TOPIC: MX-360 Radio Standardization (U)

1. ~~(TS)~~ PROBLEM:

a. ~~(S)~~ The increasing number of MX-360 Radios (241 throughout the JTF at December 1980 count) and a variety of different unit approaches to channelization, produced inter-operability problems.

b. ~~(TS)~~ Twenty MX-360 radios were lost in-country during the rescue attempt and the four frequencies set up in those radios may be compromised.

2. ~~(TS)~~ DISCUSSION:

a. ~~(S)~~ All MX-360 radios should be channelized according to a standard plan for simplicity, and every radio should have a common JTF "scene-of-action" channel, appearing as the same channel number on all radios.

b. ~~(S)~~ In addition, all JTF MX-360 radios which operate in the repeater mode should have a common "scene-of-action" repeater channel, appearing as the same channel number on all radios.

c. ~~(S)~~ All unit command nets should be on the same channel number.

d. ~~(TS)~~ The four potentially compromised frequencies should be replaced to offset the possibility of in-country monitoring/jamming.

e. ~~(S)~~ Extra sets of crystals should be available to permit last minute mission "tailoring" for additional unit interface.

3. ~~(TS)~~ SOLUTION:

a. ~~(S)~~ A comprehensive channel plan was developed and distributed [redacted]

b. ~~(TS)~~ A number of new frequencies were cleared for additional JTF units, and to replace the four [redacted] simplex frequencies possibly compromised.

c. ~~(S)~~ 585 new sets of crystals were purchased for the

new frequencies. Extra crystals for "tailoring" were included in that quantity.

d. (TS) The seven new repeaters ordered for the JTF (two for the headquarters and five for JTCF) were channelized to serve as universal repeaters/base stations.

4. (S) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (TS) For training operations in the CONUS, [redacted] could continue to use the other three (old) simplex frequencies or could switch now to the three new simplex frequencies (with a risk of the new frequencies being detected before a mission launch). This decision must be made. OPSEC personnel indicate that the risk is about the same either way.

b. (S) JTCF requirements have not been finalized. Additional MX-360 radios and repeaters may be required.

5. (S) RECOMMENDATIONS:

a. (S) Closely monitor crystal installations in MX-360 radios and repeaters to insure standardization. Continue to control MX-360 utilization in the future.

b. (S) Finalize decision to install the new [redacted] simplex crystals now, or just prior to mission launch.

c. (U) (S) Finalize JTCF organization/funding requirements to determine if, and how, additional MX-360 purchases should be made, or if JTD radios should be diverted to JTCF.

NOTE: A longer version of this report item, with five detailed inclosures, has been produced, and provided to cognizant units.

OTHER RELATED ITEMS: G-39

PERSONNEL/UNITS INVOLVED: POC - [redacted]
O - [redacted]
H - [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-30

COMMUNICATIONS ADMINISTRATION (U)

TOPIC: Compatibility of Crypto Material (U)

1. (U) PROBLEM: Insure COMSEC compatibility.

2. (U) DISCUSSION/SOLUTION: When the rescue effort was expanded to involve forces in both USCINCEUR and CINCPAC areas of control several instances of cryptographic key list incompatibilities were discovered. For example it was determined that the two theaters did not hold common NESTOR crypto keys. While common KW-7 keys were available, PACOM used the card form and EUCOM used book form. The KW-7 problem was discovered when the JCSE deployed KW-7 equipment to [redacted] with plans to use the CINCPAC crypto key. Common crypto keys were then positioned in both theaters and were used during the rescue attempt.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

4. (U) RECOMMENDATIONS: Review holdings of various commands that might be involved in any future missions.

PERSONNEL/UNITS INVOLVED: POC [redacted]
O

POC [redacted]
O
H

SUBJECT: Command, Control, Communications (U) Item No. G-31

COMMUNICATIONS LOGISTICS (U)

TOPIC: Resource Procurement (U)

1. (U) PROBLEM: Normalize the procurement of communications resources.

2. (S) DISCUSSION/SOLUTION: From November 1979 through May 1980 the procurement of resources such as satellite radios, and antennas was essentially by word-of-mouth. After the rescue mission this was recognized as a method that could not continue to produce desired results. Therefore Service points of contact for the procurement of communications equipment were identified and tasked to operate [redacted] In this framework it was also necessary to assign a FAD I to compete with other military requirements for satellite radios [redacted] was further directed to begin obtaining approval from the Service Operations Deputies prior to procurement of equipment or modification of aircraft.

3. (C) UNRESOLVED PROBLEMS/REQUIREMENTS: Without a FAD I, problems may be encountered in obtaining spare parts, connectors and similar items. Aircraft satellite radio modification may also require the FAD I for timely completion.

4. (U) RECOMMENDATION: Review the continued need for a FAD I.

PERSONNEL/UNITS INVOLVED: POC [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-32

COMMUNICATIONS LOGISTICS (U)

TOPIC: Manpack SATCOM Terminals (U)

1. (U) PROBLEM: A small manpack satellite radio was required for isolated ground force elements.

2. (U) DISCUSSION/SOLUTION: When planning for the rescue mission began, there was no manpack-portable satellite radio available to provide command and control communications links from the JTF 1-79 headquarters to highly mobile ground forces. The PSC-1 radio was still in research and development and there were only four in existence. A disadvantage of this radio was its CVSD type of modulation which caused it to be incompatible with existing WSC-3 base station terminals. After continuing the search for a suitable radio, it was discovered that a manpack PT-25 UHF radio could be modified slightly and used as a satellite radio compatible with the WSC-3. This concept was refined and used during the rescue attempt. The PSC-1's were also used, but in a dedicated satellite network. Since the rescue attempt, Motorola has improved some features of the PT-25 and changed its nomenclature to the PRT-250. 34 of these units are on hand within the JTF. [redacted] provided maintenance for all manpack SATCOM terminals for all elements of JTF 1-79.

3. (U) TRAINING CONDUCTED: These terminals were used by ground elements during the rescue mission and have been used during each exercise since. Numerous special training classes have been conducted.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: Although the PRT-250 terminal is relatively small it is still much too heavy and bulky, especially when employed with Parkhill. Smaller, lighter radios and secure voice crypto devices must be developed.

5. (U) RECOMMENDATIONS: Pursue the development of an ultra small/lightweight satellite terminal compatible with other SATCOM radios, and obtain lightweight secure voice equipment.

OTHER RELATED ITEMS: G-33

PERSONNEL/UNITS INVOLVED: POC [redacted] AG

POC [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-33

COMMUNICATIONS LOGISTICS (U)

TOPIC: Manpack SATCOM Antennas (U)

1. (U) PROBLEM: Obtain a small satellite antenna for use with manpack satellite communications equipment.

2. (U) DISCUSSION/SOLUTION: Isolated, fast moving units require a small satellite terminal capable of being carried as a backpack unit. As a separate action, a suitable antenna was required for this unit. Such an antenna did not exist in November 1979. The antenna built for the PSC-1 was too fragile and bulky. A different antenna was obtained from other government sources which was better but still too bulky. The SATCOM Agency at Ft. Monmouth then built an umbrella type antenna that was satisfactory. It folds into a ~~12~~ inch long, 3 inch diameter cylinder. Unfolded it provides a 6dbi gain and can be hand held or set up on its tripod.

3. (U) TRAINING CONDUCTED: All three antenna types were used in the rescue mission. Since then the umbrella antenna has been used exclusively on each exercise and during numerous special training sessions. It satisfies most requirements for manpack satellite terminals.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

5. (C) RECOMMENDATIONS: Procure additional umbrella antennas for use with ground operated WSC-3 and MX-850 terminals where high gain antennas are not required, where there is insufficient space to install a large helix [redacted]

OTHER RELATED ITEMS: G-32

PERSONNEL/UNITS INVOLVED: [redacted]

six radios (this figure includes three spares) were purchased from Magnavox for delivery in February and March 1981. The Air Force is ready to proceed with the permanent installation beginning in January 1981.

c. (S) From December 1980 through December 1981 an additional 86 ARC-164/(V12) radios will be procured for installation onboard aircraft that would be required to support a rescue type mission. These radios are to be installed on HH-53H, CH-47, [redacted] UH-60, KC-135 and C-141 aircraft. The installation of these radios should be monitored by OJCS/TC^{3}S due to the application these radios have to other missions.

4. (U) RECOMMENDATIONS:

a. (U) The return of USAF, USMC, Navy and Army assets should be monitored by OJCS/TC^{3}S as these assets support Service programs.

b. (U) The actions involving aircraft radio modifications should be monitored by OJCS/TC^{3}S in conjunction with the military Services.

PERSONNEL/UNITS INVOLVED: POC O H [redacted]

POC O H [redacted]

[redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-35

COMMUNICATIONS LOGISTICS (U)

TOPIC: Airborne WSC-3 Power Sources (U)

1. (U) PROBLEM: Provide a power source for WSC-3 satellite radios used aboard aircraft.

2. (U) DISCUSSION/SOLUTION: The WSC-3 can provide reliable satellite communications from an airborne platform. However, a limitation of the WSC-3 is its requirement for a 60 HZ power supply. To operate from an aircraft 400HZ power system an inverter is necessary. Several power inverters were tested and all but one proved unsatisfactory. The acceptable unit was obtained from the EC-135C System Program Office. After further testing a total of 32 of these units was obtained. Four were borrowed prior to the rescue attempt and used as part of the mission. After the rescue attempt, 28 additional units were purchased. The largest quantity of power inverters used at any one time was 11. Based on failure rates, three should be retained for backup, making a total of 14 required. Therefore, 14 of the 28 were returned to the Air Force.

3. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

4. (U) RECOMMENDATIONS: Retain 14 power inverters.

PERSONNEL/UNITS INVOLVED: [redacted]

[redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-36

COMMUNICATIONS LOGISTICS (U)

TOPIC: SATCOM Preamplifiers (U)

1. (U) PROBLEM: Obtain Radio Frequency (RF) Preamplifiers for UHF satellite terminals.

2. (U) DISCUSSION/SOLUTION: After initial testing it was determined that a UHF satellite terminal could best be operated from an aircraft if one of the components was an RF preamplifier for the satellite receiver. During the rescue mission only five RF preamplifiers were required since the limiting factor was a lack of other components of the system. After the rescue mission the installation of additional airborne terminals was undertaken. Additional components, including 15 RF preamplifiers were procured. These units are designated AM-1205A and manufactured by the ECI Division of E-Systems. Twenty-one additional preamplifiers of a different design were procured as part of a contract for 21 SATCOM terminals from Magnavox. These units do not have a numeric designator. Eight modified ARC-171 radios onboard the E-3A aircraft use an AFSATCOM RF preamplifier designated AM-6992.

3. (U) TRAINING CONDUCTED: Satellite terminals equipped with RF preamplifiers were used during the rescue mission and during each training exercise since.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

5. (U) RECOMMENDATIONS: None.

PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-37

COMMUNICATIONS LOGISTICS (U)

TOPIC: Airborne SATCOM Antennas (U)

1. (U) PROBLEM: Find a suitable antenna for airborne satellite operation.

2. (S) DISCUSSION/SOLUTION: In November 1979 when the requirement for an airborne satellite capability was identified various antennas were tested on aircraft. It was determined that UHF blade antennas will work if the elevation angle to the satellite is not much above 65 degrees. However, the Dorne-Margolin turnstile/blade antenna combination works just as well at the low angles and provides a 3db performance margin at angles above 45 degrees. A batwing antenna proved to be adaptable for helicopter use and also provides a 3db margin at higher angles, but reduced performance below 45 degrees, as it does not include a vertical element. The smaller size made the batwing ideal for some helicopter installations. It was also found that satisfactory performance was obtained when antennas were mounted on an upper escape hatch on C-130, C-141 and C-5 aircraft. Suitable hatch mounts were fabricated by Lockheed, in Ontario, California, for C-130 and C-141 aircraft. AFLC subsequently fabricated additional hatch mounted antennas for C-141's and one for a C-5A. It is necessary to hard mount the antenna on E-3A, KC-135, HH-53, UH-60, [redacted] and CH-47 aircraft.

3. (S) TRAINING CONDUCTED: Airborne satellite communications was used on the rescue mission and during each exercise conducted since.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: Additional antennas are on contract for delivery. Antennas can be installed even though radios may not be available in the same timeframe.

5. (U) RECOMMENDATIONS: Monitor the installation schedule for these antennas.

PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-38

COMMUNICATIONS LOGISTICS (U)

TOPIC: E-3A Radio Modifications (U)

1. (U) PROBLEM: Modify radios onboard the E-3A to operate in UHF satellite mode using Parkhill.

2. (U) DISCUSSION/SOLUTION: When the E-3A was tested for possible use as a JTF airborne command post, it was necessary to install two UHF satellite radios. During this effort it was discovered that the ARC-171 radio already installed on the E-3A could be modified for satellite compatibility and the audio switching matrix could be modified to switch Parkhill secure equipment to the ARC-171 FM port. This was accomplished to provide one satellite terminal. The other terminal was provided by installing a Dorne-Margolin antenna, an RF preamplifier, a WSC-3 and a Parkhill. The ARC-171 modification is a permanent modification to eight aircraft and there are plans to modify additional aircraft. The WSC-3 modification is not permanent since a WSC-3 is installed only when required. The Dorne-Margolin antenna is hard-mounted but not connected to a radio when the WSC-3 is not installed.

3. (U) TRAINING CONDUCTED: WSC-3s installed onboard the E-3A have been used during JTF training exercises, however, the modified ARC-171 has not been used in an exercise since modified. E-3As deployed to [redacted] supporting ELF-1, have WSC-3 and ARC-171 SATCOM radios with PARKHILL. This deployment was to establish the PARKHILL signature in the Middle East for OPSEC desensitization, as well as to provide SATCOM connectivity from ELF-1 to HQ EUCOM.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: None.

5. (U) RECOMMENDATION: Periodically exercise this capability.

OTHER RELATED ITEMS: G-3, G-24

PERSONNEL/UNITS INVOLVED: [redacted]

SUBJECT: Command, Control, Communications (U) Item No. G-39

COMMUNICATIONS LOGISTICS (U)

TOPIC: JTCF Communications Equipment Package (U)

1. (U) PROBLEM: Provide a basic communications package for a new special operations organization, the Joint Tactical Concepts Facility (JTCF).

2. (U) DISCUSSION: When the JTCF was formed, its size, mission capabilities, and internal organizational configurations were unclear. Estimates were made in order to provide a basis for obtaining an initial issue of communications equipment.

3. (U) SOLUTION:

a. (U) A strength of approximately 25 operational personnel was predicted, tentatively organized into five teams. For communications purposes it was decided to procure equipment on the basis of five equal teams.

b. (S) Capabilities were to be FM line-of-sight (LOS) radio, VHF "secure" handie-talkies with repeater capability, HF broadcast receivers, HF SSB transceivers, and secure SATCOM terminals.

c. (U) Based on past experience, and limited research and testing, the following list was prepared:

ITEM	PER TEAM	JTCF TOTAL
(1) AN/PRC-77 (FM Voice)	2	10
(2) MX-360 (VHF Hand Held)	5	25
(3) MICOR VHF Repeater	1	5
(4) Kenwood R-1000 HF Receiver	2	10
(5) AN/PRC-104 (HF SSB)	2	10
(6) AN/PRT-250 (SATCOM) w/PARKHILL	2	10

d. (U) Additional communications equipment was obtained through other channels. Included were AN/PRC-66 air/ground radios, and AN/PRC-90 hand-held ELT transceivers, among other items.

4. (S) (U) TRAINING CONDUCTED: Extensive internal unit training was conducted on all items as they became available. In some cases substitute radios were used for training before designated items became available (such as the AN/PRC-68 in lieu of the MX-360 handie-talkies).

5. (S) (U) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (S) (U) Determine ultimate size, mission, and communications requirements for the JTCF.

b. (C) (U) Acquire additional equipment needed, and establish proper accountability of all equipment previously procured.

6. (U) RECOMMENDATIONS: Accomplish actions listed in paragraph 5 above.

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OTHER RELATED ITEMS: G-29

PERSONNEL/UNITS INVOLVED: [redacted] G

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SUBJECT: Command, Control, Communications (U) Item No. G-40

COMMUNICATIONS LOGISTICS (U)

TOPIC: Replacement of PARKHILL COMSEC Equipment (U)

1. (U) PROBLEM: Reduce communications security (COMSEC) equipment signatures on satellite transmissions.

2. (U) DISCUSSION/SOLUTION: Operational Security (OPSEC) is a vital concern due to the necessity of conducting special operations missions in a covert manner. Various types of voice encryption offer different audio frequency/ radio frequency (AF/RF) signatures. The PARKHILL encryption devices used by the JTF put out a quickly recognizable and positively identifiable signature. This is due to analog method of encryption and the fact that Parkhill is primarily used on the satellite for crisis communications links. Although the down link signal cannot be countered with direction finding, it does provide a high degree of assurance that a United States military tactical unit is in the area. In an effort to reduce this problem in the future, all satellite radios have been tested for compatibility with Vinson. Vinson is a digital voice encryption device which has a much less distinctive signature than Parkhill.

3. (U) TRAINING CONDUCTED: N/A.

4. (U) UNRESOLVED PROBLEMS/REQUIREMENTS: Vinson has not been installed on JTF SATCOM terminals due to the small quantity of Vinson equipment available and a limited maintenance capability. As the Vinson becomes available in greater quantities it should be obtained for all SATCOM radios. The ultimate requirement is to provide a voice encryption device and/or transmission technique that provides no detectable signature.

5. (U) RECOMMENDATION: Install Vinson on all SATCOM radios. Continue to pursue the development of a voice encryption device and/or transmission technique that provides an even less distinctive signature, or no signature at all.

OTHER RELATED ITEMS: G-14, G-24

PERSONNEL/UNITS INVOLVED: POC [redacted]

SUBJECT: Logistics (U) Item No. H-1

GENERAL (U)

TOPIC: Introduction (U)

1. (U) Summary: Support of JTF elements was primarily a service responsibility. A J-4 staff coordinated actions as required. For OPSEC reasons, prior to the April rescue attempt, coordination was conducted on an informal, personal-contact basis. After April, support was coordinated under the more formal cover of the "Honey Badger" [redacted] Specific areas of support are outlined below and covered in detail in this section:

- Equipping the Force.
- Airlift.
- Aerial Delivery of Heavy Supplies and Equipment.
- Night Vision Equipment.
- Support While Deployed.
- Medical.

[redacted] BY DIRECTOR, J-3
[redacted]

SUBJECT: Logistics (U) Item No. H-2

EQUIPPING THE FORCE (U)

TOPIC: Equip the Force While Retaining Operational Security (U)

1. (U) In conventional large-scale joint operations, the JTF commander provides a mission statement, and the respective Services organize and equip their components to perform the assigned task.

2. (S) The compartmentalized classified nature of rescue planning prohibited these procedures from being utilized. As an example, [redacted] Airfield seizure missions [redacted] normal procedures would have required that a properly justified change to authorizations be submitted through channels and approved before issue.

3. (U) Prior to the April mission, equipment to meet this type of requirement was generally provided via temporary loan, thus avoiding the authorization issue. XVIII Airborne Corps and other FORSCOM units provided the majority of this equipment. Selected items came from the depots, with issue arranged without requisitions or fund cites. It was intended to return all the equipment upon termination of the mission.

4. (S) With mission continuation, it was realized that for OPSEC and funding reasons, and for more efficient use of DOD assets, improved, more conventional procedures were required. [redacted] with "HONEY BADGER/ELITE GUARD/ELEGANT LADY" nicknames and the JCS project code 9WW was the result. Additionally, Force Activity Designator I's (FAD I) were assigned by OSD to the [redacted] and satellite communications portions of the program.

5. (U) A secure, point-to-point, hard-copy teletype capability between JTF elements facilitated coordination of actions.

6. (U) Logistics activities of the Services and DLA provided support to "HONEY BADGER" as follows:

a. (C) All activities responded to 9WW-coded requisitions which had been submitted thru normal logistics channels. Except for [redacted] as indicated below, this procedure was the norm.

b. (U) DARCOM designated TSARCOM as their executive agent for the HONEY BADGER program. This assignment proved exceptionally beneficial to the expeditious completion of the project. As required, this office operated on a 24-hour basis. Additionally, DARCOM authorized direct coordination between JTF and the Electro-Optics and Night Vision Laboratory at Ft. Belvoir.

c. (U) Air Force support was coordinated at Air Staff level by the Logistics Readiness Center.

(1) (U) As required, selected sub-sets of support; e.g., aircraft modifications or provision of Logistics Assistance Teams, were tasked to AFLC for action.

(2) (U) Requirements for USAF support of training sites, (Fuel, Crash and Fire Support, Aerospace Ground Equipment and Engineer "Red Horse" support) was tasked as required to MAC numbered Air Forces and TAC.

d. (U) DLA focal office was the Emergency Supply Operations Center. This office responded to requisitions and to JTF verbal requests. As required, reimbursement was supplied at a later date.

e. (U) Navy Systems Command provided support to the USMC helicopter detachment used in the April mission. Subsequent USN or USMC involvement was minimal (F-14's), and was supported directly by Navy Systems Command. On an exception basis, temporary loan of selected items [redacted] etc.) was coordinated by JTF with OPNAV or HQMC.

7. (C) Procedures used by units varied as follows:

a. (U) [redacted] and the [redacted] submitted requisitions directly into Service channels. As required, selected items were coodinated "off-line" with respective Service staff points of contact.

b. (U) For OPSEC reasons, requirements for the [redacted] were forwarded to the Army Staff and the Defense Logistics Agency (DLA) for fill. Reimbursement against 9WW project code shipments was provided to DARCOM and DLA by HQDA.

[redacted]

[redacted]

c. (U) Selected items for [redacted] were purchased through [redacted]

8. (U) Requests for cross-service loan of equipment were initially accomplished by a letter of request from the [redacted] Later this process evolved to a directive being issued by the Director, Joint Staff, OJCS.

9. (U) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (U) Similar procedures which expedite provision of selected equipment to future tasked elements are required.

b. (U) Because selected equipment provided units is mission-unique and in excess of formal authorizations, a Service decision to retain or turn-in equipment will be required.

c. (U) A list of on-going supply-related actions has been retained.

10. (U) RECOMMENDATION: Procedures to provide equipment must follow unclassified Service procedures to the maximum extent possible and be consistent with OPSEC. This notwithstanding, establishment of a system or network to handle off-line or short-notice requirements is needed. Points of contact are essential. A document which formalizes special procedures is recommended. Additionally, because logistics support coordination is potentially a weak link in the OPSEC chain, special procedures should be fully coordinated with counter-intelligence personnel. A periodic exercise of the system as developed would be beneficial. If properly done, this could be combined with an OPSEC [redacted] plan.

[redacted]

SUBJECT: Logistics (U) [redacted] Item No. H-3

AIRLIFT (U)

TOPIC: Ensure Efficient Use of MAC Airlift (U)

1. (U) Early experience indicated a single point of contact at JTF was necessary to coordinate/validate all airlift requests for JTF elements. Once established, this process assisted in efficient use of assets. JTF requirements were combined, and in some cases, requirements could be adjusted to meet available MAC "aircraft of opportunity".

2. (U) Under the arrangement as developed, units submitted requirements directly to JTF using the format in DD Form 1249. After validation by JTF, the request was passed to MAC points of contact.

3. (U) Because of the compartmented nature of the program, fund cites for airlift were handled as follows:

a. (U) Army elements obtained fund cites from their installations, and provided them with the request. On a selected basis, DA DCSOPS obtained fund cites directly from FORSCOM.

b. (U) Air Force elements were supported by funds positioned at HQ MAC.

4. (U) Unless the mission involved movement of unusual cargo or destinations, all training support missions were handled as unclassified requirements. The rationale was that an attempt to classify missions would be unsuccessful and only raise OPSEC questions.

5. (U) (C) MAC airlift was used extensively in the movement of helicopters. The following is a summary of findings:

A,B

a. [redacted]

b. [redacted]

[redacted]

[redacted]

[redacted]

6. (U) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (U) When helicopters are moved with strategic lift, the amount of fuel which they can carry internally is limited to 3/4 of a tank, due to fuel expansion at altitudes above 8,000 feet. This must be considered when helicopters are to be tactically employed immediately upon arrival.

b. [redacted] The C-141 needs a device to prevent [redacted] from falling between tail ramp extensions when aircraft are being unloaded.

7. (U) Recommendation: Continue single point validation procedures in future operations.

Other Related Items: A-3, A-4, A-5, A-6, A-7

SUBJECT: Logistics (U) Item No. H-4

AERIAL DELIVERY OF HEAVY SUPPLIES AND EQUIPMENT (U)

TOPIC: Provide Responsive Conventional and Unconventional Heavy Resupply Support to Subordinate Elements. (U)

1. (U) (C) General: Anticipated clandestine heavy resupply requirements dictated that specialized aerial delivery techniques be developed. Therefore, a provisional parachute rigging element was formed on 19 November 1979. This section summarizes salient activities of that team and highlights techniques it developed.

2. (U) The core of the team was assigned to the Airborne Department of the US Army Quartermaster School, and was led by the Chief of that department. The techniques developed are available for integration Army-wide and are found in a more technically oriented report.

3. (U) (C) In general, resupply concepts transitioned from air drop insertion of POL, to ground-landed combat off-loads. The role of the rigging element was also modified from provision of only airdrop support, to the operation of the Forward Area Refueling/Rearming Points (FARRPs). This mission shift forced the augmentation of the rigging element with trained POL personnel to perform the actual pumping operation.

4. (U) (S) SPECIFIC DEVELOPMENTS/ACHIEVEMENTS:

a. (U) (S) Developed low-level night airdrop techniques for 500 gallon collapsible drums, 100 GPM FARE Systems and M-274 weapons carriers. Drop aircraft used were MC-130 and C-141B.

b. (U) (S) Developed low-level night airdrop techniques for motorcycles. A modified Container Delivery System (CDS) configuration was used in drops from MC-130 and C-141B aircraft in which personnel jumped behind the motorcycles.

c. (U) (S) Developed low-level night airdrop techniques [redacted] Drops were made from MC-130 and EC-130 aircraft. Drop altitude was 650' - 1100' [redacted] Nine jumpers followed the vehicle on the same pass.

d. (U) Developed combat off-load techniques of POL systems and prime movers from MC-130 and C-141B aircraft.

e. (C) Developed, tested, and trained personnel in the use of an improved (175-300 GPM) lightweight FARE system. These systems were used in high-pressure refueling for the Pave Low/HH-53, UH-60, [redacted] and CH-47 helicopters.

f. (S) Developed, in conjunction with the CCT/Pathfinder elements, blackout refueling and rearming techniques.

g. (U) (C) Tactical refueling was also conducted between rotary wing aircraft of the JTF. The following are examples of capabilities which were developed and tested:

1. (U) UH-60 and CH-47 can refuel other aircraft within the JTF (PAVE LOW/HH-53 and [redacted] however, the UH-60 has never actually refueled an HH-53.

2. (U) (C) Six UH-60 helicopters were modified as refuelers.

3. (U) (C) The CH-47 delivered 5,000 lbs of fuel to a 250 mile radius. A two-to-six point 100 GPM system can be operated from the aircraft.

5. (C) UNRESOLVED PROBLEMS/REQUIREMENTS:

a. (U) (C) FARE support to future tasked elements needs to be formalized. Equipment is currently with XVIII Airborne Corps.

b. (U) (C) Additional training to achieve depth in qualified refueling personnel is required.

6. (U). RECOMMENDATION: (U) Take follow-up actions to resolve above problems.

Other Related Items: B-1, D-14

SUBJECT: Logistics (U) Item No. H-5

NIGHT VISION EQUIPMENT (U)

TOPIC: Improve Night Fighting Capability of Forces (U)

1. (U) Initial night fighting capability of the force was marginal, particularly with regard to flight operations. Under the EC-79 and HONEY BADGER programs, close liaison was established with the US Army Electro-Optics and Night Vision Labs. Lockheed Aircraft Services Company and the Army Aviation Center and School did additional work. "Quick-fix" techniques developed by field users were also notable. The following are salient capabilities developed for either the initial mission or for follow-on training:

a. (U) Lighting enhancements. Third generation night vision goggles now being developed can be used in nearly total darkness. Second generation AV/PVS-5A goggles currently fielded and used by JTF elements required provision of infrared (IR) filtered lights to allow use under conditions of extreme darkness. Minimum moon illumination for safe flight using AN/PVS-5A goggles was found to be 20% illumination with the moon at least 20 degrees above the horizon. If ambient light was enough to allow use of AN/PVS-5 goggles alone, IR lights remained off during operations. Lights developed were:

A [redacted]

(3) (U) IR-filtered aircraft landing and taxi lights were mounted on all fixed and rotary wing aircraft. Commercial filters from industry were used as were those fabricated using IR filter paper purchased from Kodak. Filters for adjustable [redacted] were also installed on HH-53 series aircraft.

A

(4) (U) Cyanamid Company - IR Chemical Lights were used as markers for ground forces.

(5) (U) Small IR filters for flashlights and instruments were made with either IR filter paper or with IR paint (paint that dries to form an IR filter).

(6) (U) IR filters for "Beanbag" lights. These were made with IR paint, and used by [redacted]

(7) (U) Combat Control Team lighting:

(a) (U) Initially, only white light capability existed, and CCT personnel had no night vision goggles.

(b) (U) As operations increased in complexity, the need for beacons and better navigation aids became immediately apparent. Two problems were identified: first, the nonavailability of beacons/nav aids with desired capabilities and second, the lack of beacon-trained air crews.

(c) [redacted]

(d) [redacted]

(e) (U) Strobe lights which work in the IR spectrum and modified IR marshalling wands were also developed.

(f) (U) Both ground troops and aircrews were trained in the use of all newly acquired beacons and navigation aids. Ground personnel were trained in newly developed lighting patterns (LZ/HLZ). Additionally, the 1SOW/CCT and other ground personnel were trained in the use of NVGs, to include work with vehicles.

8. (U) Cockpit lighting.

(a) (U) Normal cockpit lights are not compatible with Night Vision Goggles, and cause an IR "fog" as conventional lights reflect off canopy and internal surfaces.

(b) (U) Installation of special spectrum "blue-glass" proved very successful in controlling this problem. Improved rheostats were also used with good results. (This modification was applied to both USAF and Army aircraft.)

[redacted]

3. (U) REMAINING PROBLEMS:

a. (U) Within 1SOW aircraft, NVG/interior lighting compatibility problems exist with displays of the Forward Looking Infrared Sensor, Radar Warning Receiver, Projected Map Display and with the lights on Fire Handles. A temporary solution has been to divide cockpits using homemade light elimination devices.

b. (U) Filter "burn-out" problems continue, particularly with high temperature aircraft landing lights. Additional work in cooling of lights is required.

c. (C) A requirement still exists for a high intensity [redacted] to enable DZ/LZ identification in either day or night. [redacted]

The light must be portable: small and light enough to [redacted] to carry sufficient numbers for outlining an LZ.

d. (U) Experience with the limited quantities of third generation goggles which were available, validated the urgent need for expedited development of this item, particularly those designed for use with aircraft helmets.

e. (U) The PPN-18 may be a valuable navigation aid for the HH-53H PAVE LOW aircraft. Further evaluation is recommended.

(U) f, (U) The plexiglass center windshield on the UH-60 scratches easily, particularly when flying in sandy conditions, which hampers the use of NVGs. Use of a glass windshield may solve this problem.

Other Related Items: A-2

Unclass

SUPPORT WHILE DEPLOYED (U)

TOPIC: Provide Support to Both Mission and Training Forces (U)

1. (U) (S) JTF elements involved in the April mission were provided logistics support as indicated:

a. (U) (S) Primary Base: A main logistics base was established, colocated with the JTF Hq/J4. With the exception of support provided by the carrier Nimitz, and as indicated below, all logistics support was coordinated and funneled through this base.

b. (U) (S) Forward Staging Base: This was established on a temporary basis. With the exception of aviation fuel and water, which were prepositioned, all other logistics support (tents, rations, repair parts, etc) were brought from the primary base.

c. (U) (U) Nimitz: The carrier Nimitz provided logistical support to the embarked USMC helicopter element.

d. [redacted] provided base support at the primary base.

(1) [redacted] and base support personnel at the primary base were not briefed about the concept or intent of the operation then being staged which caused some problems in coordinating logistics support of the JTF [redacted] received overall base support requirements from the primary base commander. Included within overall needs were requirements which either directly or indirectly supported the JTF, e.g., rations, POL, etc.

(3) (U) (S) Urgent JTF operational requirements were passed from the JTF HQ to the JTF rear element in the Pentagon over a separate and secure communications net. This was necessary for OPSEC reasons.

(4) (U) (S) When possible, operational requirements were satisfied by the JTF rear element from CONUS sources, and moved to the primary base with later deploying forces.

(5) (S) On an exception basis [redacted] tasked by JCS/JTF rear to assist in filling operational requirements, e.g. provision of critical aircraft spares not readily available from CONUS. These operational requirements were additive to those base support requirements already being handled [redacted]

A, E

(6) (S) For OPSEC purposes, JTF planners attempted to minimize the numbers of aircraft resupplying the primary base [redacted] However, unforeseen requirements caused a backlog of base support and operational requirements to build up [redacted]

A, E

(7) (S) To resolve the problem and allow movement of supplies in accordance with a priority system without markedly increasing the number of aircraft, the JTF element in the Pentagon obtained a listing of items awaiting transportation [redacted] The list was provided to JTF at [redacted] primary base where a priority of movement was established. The JTF at the Pentagon then relayed this priority listing [redacted] which resulted in the movement of the supplies.

A, E

(8) (U) Initially, operational requirements caused transportation of base support needs to be delayed. This delay lasted, at most, two days. After an initial surge of unforeseen operational requirements, caused by battery servicing needs at the base subsided, the transportation system caught up with base support requirements, and all supplies were moved.

(9) (S) Experience gained during the April mission led to the establishment of a refined base support requirements list with tasking passed [redacted] was directed to have specified supplies and equipment available for a primary and a forward staging base within a specified time constraint.

A, E

A [redacted] 2. (S) Follow-on CONUS training directed by the HONEY BADGER was conducted at selected installations. These included Dugway and Yuma Proving Grounds, Ft Bliss, White Sands Missile Range, Ft Bragg, Hunter AAF, Camp A. P. Hill, Fallon Naval Air Station, Eglin AFB Range Area, Nellis AFB Range Area, Reece AFB, and Norton AFB. Support at these bases was coordinated by advance parties, and funded using the 9WW project code and Service funds.

(U) 3. (U) Frequent intensive-use deployments within the CONUS validated and refined unit requirements for accompanying supplies and equipment (WRSK and PLLs). All training emphasized deployment of austere but adequate packages of essential items. This was because of the anticipated short duration of any operation and the need to use, for OPSEC reasons, only minimum numbers of strategic lift aircraft.

4. (U) The Army developed, for UH-60 and CH-47 aircraft, an on-aircraft stock of essential repair parts. This listing was developed based upon anticipated use, time/crew capability to change the part, and weight/cube of the item. [redacted]

(U) 5. (C) RECOMMENDATION: Services should capture and exploit CONUS deployment experience data from HONEY BADGER participating units, particularly 1SOW and 101st Airborne Division (Air Assault).

MEDICAL SUPPORT (U)

1. (S) BACKGROUND: In November 1979 a special operations medical package established [redacted] was validated by Headquarters Department of the Army [redacted]

2. (S) DISCUSSION:

a. (U) Although the concept of the medical support plans remained unchanged following the RICEBOWL operation, it became necessary to provide medical coverage to a much larger and more complex task force. The total medical force numbered approximately 40 personnel, which included the placement of medical resuscitation teams throughout the JTF.

b. (U) The RICEBOWL experience revealed two major areas of concern:

(1) (U) The final preparations at the primary forward staging base during RICEBOWL pointed up a potential problem with sanitation of food, water, waste disposal, etc. Accordingly, an experienced Preventive Medicine officer was designated to deploy with the advance elements.

(2) (U) During RICEBOWL, a small one table operating room was established at the forward staging base. The limited equipment and personnel for this "field operating room" would require expansion during subsequent planning/operations.

c. (U) A more sophisticated surgical capability was necessary for Operation Snowbird [redacted]. The major additions to the medical planning centered on an improved surgical capability within the immediate evacuation route.

[redacted]

(C) [redacted]

A,B

(2) (C) An additional surgical capability was available aboard Navy LHA ships operating in the Indian Ocean. The initial ship possessed a full medical crew augmented by a Special Naval Surgical Augmentation Detachment, composed of 16 additional surgical personnel, including surgeons, anesthetists and operating room technicians. The ship had three primary operating rooms and 45 intensive care beds. The relieving ship was also augmented with an additional surgical team.

(3) (U) (C) Provisions were made for the teams to carry whole blood as far forward as possible. Planning called for approximately 20 units of whole blood per evacuation aircraft, either C-130 or C-141. Additionally, whole blood would have been brought with the deploying medical teams for placement with the CSH surgical unit. Arrangements were made to maintain an above normal inventory of units of whole blood in CONUS and at an overseas location.

3. (S) RECOMMENDATIONS: The medical augmentation package

A,B [redacted] The annual cost to maintain such a team is minimal, while the capability is unprecedented within DOD.

PERSONNEL/UNITS INVOLVED: [redacted] G

[redacted]

SUBJECT: Security (U) [redacted] Item No. I-1

GENERAL (U)

TOPIC: Introduction (U)

1. (U) This section outlines measures taken to protect JTF activities. After briefly qualifying the tactical situation, security problems and solutions are listed in three general categories: Program Administration, Communications, and Operations.

2. (U) There are two general situations for planning and conducting low visibility operations: US action is or is not anticipated. In the first case, the opposition and third parties are alert to any sign of activity. In this case, OPSEC/COMSEC must include more elaborate cover and deception in order to mislead the opposition. In the second case good conventional operational security (OPSEC), communications security (COMSEC), and cover procedures will probably deny information to the opposition.

3. (C) For the most part this was the case which confronted the participants in this project. Conventional security measures were combined [redacted] In fact on occasion, because of anticipated intense scrutiny, conventional security measures such as armed guards, fences, etc. would have been counter-productive. The attached table is a simplified description of threat and countermeasures employed.

A

4. (U) While all of the security problems addressed in this section are important, not all are of equal significance. Often, individual problems become significant because they occur in combination with others. For example, aircraft requests for weather information may only be significant if unusual call signs are employed, or unusual traffic on satellite channels may only be significant if it can be correlated with media or other reports of unusual military activities.

5. (C) Two measures could assist security planning for future operations. First, a more accurate understanding of the threat and possible countermeasures could be developed [redacted] The resulting data base is valuable. It is also recommended that operational analysis techniques be used to quantify the significance of individual OPSEC problems. [redacted]

A, B, C

[redacted]

6. (U) Finally, this list of security problems should not give the impression that the security situation involved only mistakes and partially solved problems. The fact is that the US was able to plan,equip, train, and and deploy a force and then rebuild the force on a much larger scale in total secrecy. Commenting on this on 15 Dec 80, CJCS stated that the successful security had been a "remarkable achievement".

ATTACHMENT: Security Situation Table.

SECRET

SECURITY SITUATION

PHASE	THREAT	COUNTERS
PLANNING/ TRAINING	MEDIA HUMINT [redacted]	[redacted]
INITIAL DEPLOYMENT	MEDIA HUMINT/ [redacted] OPEN SOURCES (For example ICAO DIP Clearances)	[redacted]
FINAL DEPLOYMENT	[redacted] HUMINT IMINT MEDIA	[redacted]
EXECUTION	[redacted] RADINT HUMINT	[redacted]

[redacted]

SUBJECT: Security (U) Item No. I-2

PROGRAM ADMINISTRATION (U)

TOPIC: Access Control (U)

1. (U) PROBLEM: Controlling access to the project while it was rapidly expanding.

2. (U) ACTION TAKEN: Access was initially strictly limited and documented by signed security statements. The approving authority for access was CJTF. With every passing week the number increased. For the most part, these personnel were carefully briefed by members of the JTF. However, in the July-September 1980 period, a significant increase occurred in the number of personnel authorized access, resulting in a decrease in the quality of the in-briefing and deterioration in access rosters administration. To correct this situation, an experienced security officer was assigned the task of administering the program; a standardized security in-briefing was developed and disseminated to all units; all personnel were repeatedly reminded that access was approved only by CJTF and not by subordinate units; and all units provided updated lists of those personnel having current or terminated access.

3. (U) RECOMMENDATION: A standardized project In-Briefing Guide will counter the tendency to dilute the integrity of the security program. The approving authority(ies) and procedures should be clearly understood by the staff and subordinate units. Periodic verification of rosters should be conducted.

SUBJECT: Security (U) CONFIDENTIAL Item No. I-3

PROGRAM ADMINISTRATION (U)

TOPIC: Document Security (U)

1. (U) PROBLEM: Control of increased volume of documents.

2. (U)(C) ACTION TAKEN: Documentation containing RICEBOWL or SNOWBIRD (S) information was avoided whenever possible. This effort was most successful during RICEBOWL when the organization was smaller and JCS staffing was less formal. In fact, during the earliest days of the operation, documents going to the White House were hand written. Papers requiring coordination within the Pentagon were hand carried and left only with "briefed" personnel. Maps and other illustrations were generally prepared within the JTF, although on some occasions professional graphics specialists were used in order to improve the quality of JTF briefings. Due to work pressures, many JTF documents were originally classified in blanket fashion as Top Secret Working Papers. The development of a security classification guide reduced but did not totally correct this situation. Documents which are to be retained must be reviewed to insure that they conform to this classification guide.

3. (U)(C) RECOMMENDATION: Standard procedures for handling documents should be implemented which emphasize limiting the quantity; strict avoidance of non-dedicated message or administrative channels by specifying hand-carrying to eyes only addressee; the use of dedicated secure comm vice any non-dedicated (even SSO) communications, avoiding the temptation to use graphics specialists to "beautify" briefings. As soon as feasible, a security guide should be developed for a mission and a security specialist should be assigned to administer the document security program.

CONFIDENTIAL

SUBJECT: Security (U)

Item No. I-4

PROGRAM ADMINISTRATION (U)

TOPIC: Access Control (U)

1. (U) PROBLEM: Controlling access to information within the JTF. The sense of comraderie and general flow of business tends to break down legitimate barriers and allows some personnel to have more than necessary access. This makes it difficult to identify the source of a leak. Additionally, where the possibility of capture exists, this provides an opponent with a potential windfall of information (e.g. in-country support, involvement of other nations, alternate plans, etc.).

2. (U) ACTION TAKEN: Within the JTF, selected information was "compartmented" with varying degrees of success. Information concerning intelligence collection methods and operations was limited to the J-2 section and commander. Code names were assigned to some sensitive projects and an attempt was made to limit knowledge of these projects. The HONEY BADGER cover also was a means to limit access for support personnel on the periphery of the operation. Nonetheless, some activities received unnecessary exposure.

3. (U) RECOMMENDATION:

a. (U) Units should establish standard operating procedure for access divided into various levels. All personnel should be aware of this policy and respect it while performing duties. A logical system would be as follows:

(1) (U) Full Access - required for commander and selected staff officers.

(2) (U) Limited Access - The limitation should be stated (e.g. helo operations or only information in support of unit X).

(3) (U) Peripheral Access - for those persons who need to know only that their activity is classified and nothing more.

b. (C) Selected activities such as in-country support should be provided with additional protection by being given separate codeword and administrative procedures such as cover sheets which state that access is limited to those cleared for the assigned code word.

SUBJECT: Security (U) Item No. I-5

PROGRAM ADMINISTRATION (U)

TOPIC: Planning Conference Security (U)

1. (U) PROBLEM: Planning conferences were a continuing source of security problems. The gathering of larger than normal numbers of personnel in unfamiliar facilities tended to reduce security effectiveness.

2. (U) ACTION TAKEN: The responsibility for conference security was clearly fixed by designating a host organization for each conference and listing minimum essential security requirements. These included: providing adequate "swept" space, developing a list of authorized conference attendees, physically controlling access to the conference, providing storage space for classified conference material, and conducting a post conference double check of classified material. The clear designation of conference security responsibility resulted in improved security but did not totally eliminate problems.

3. (U) RECOMMENDATION: Continue the practice of clearly fixing conference responsibility. The conference should be opened with an explanation of security procedures. Subsequent sessions should contain brief security reminders with ironclad examples of any violations noted (e.g. documents left uncontrolled, poor telephone security, etc).

SUBJECT: Security (U) Item No. I-6

COMMUNICATIONS (U)

TOPIC: Pre-Deployment Security (U).

1. (U) PROBLEM: Secure the mass of voice and printed pre-deployment coordination between the headquarters and participating units.

2. (U) ACTION TAKEN: Rather than use existing communications (even SSO), a dedicated secure voice and printed net was established. For the most part, this net used telephone lines in the pre-deployment phase. This decreased but did not eliminate the likelihood of detection. Any information which was obviously associated with a rescue mission was limited to JTF dedicated comms. Our suspicions concerning non-dedicated comms were confirmed with the RICEBOWL deployment order when, despite the fact that it was classified SSO, Eyes Only for the Chiefs of Services and selected CINCs, the order received additional distribution. Fortunately, the deployment order only reflected the [redacted] The usefulness of secure DACOM (facsimile transmission) was demonstrated on several occasions. Besides words, DACOM has the ability to transmit drawings. In many ways DACOM is the most secure system once established since conversants may transmit and receive information without even exposing it to a communicator. Unfortunately, the number of locations with DACOM is limited.

3. (C) RECOMMENDATION: Dedicated secure comms to include DACOM should be established between units with covert missions. These comm links should be "embedded" in other links in order to complicate and defeat hostile traffic analysis.

SUBJECT: Security (U) Item No. I-7

COMMUNICATIONS (U)

TOPIC: Radio Frequencies (U)

1. (C) PROBLEM: Some of the HF frequencies authorized for use during exercises/rehearsals were also authorized for [redacted]

2. (C) ACTION TAKEN: Proposed frequency assignments were reviewed [redacted]

3. (C) PROBLEM: HF frequency assignments included those which were [redacted]

4. (C) ACTION TAKEN: Care was taken to ensure a wide separation between HF frequencies.

[redacted]

6. (U) ACTION TAKEN: Digraphic frequency designators were assigned in the CEOI for each frequency; however, failure to encode frequency designators still allows some potential for exploitation.

7. (U) RECOMMENDATION: Encode or encrypt frequency changes.

SECRET
CONFIDENTIAL

SUBJECT: Security (U) Item No. I-8

COMMUNICATIONS (U)

TOPIC: Call Signs (U)

1. (U) PROBLEM: In some instances callsign configurations can reveal the types of units transmitting. For example, callsigns of five characters or less, suffixed with two digits, are indicative of aircraft. Patterns in suffix assignments may reveal size or composition of air elements. Family callsigns, e.g., names of trees, automobiles, etc., which were used on one occasion, reflect common interests or concern.

2. (U) ACTION TAKEN: Problem noted; family callsigns were discontinued.

3. (U) RECOMMENDATION: Aircraft should use non-distinctive callsigns. Tests of a changing, letter-number-letter-number-number, callsign system are now scheduled with MAC. If the tests are successful, an effort will be made to have this configuration of callsigns used for all US and NATO aircraft. (NATO aircraft currently use alphanumeric callsigns.)

4. (U) ITEM: During one of the rehearsals for the rescue operation, voice callsigns were transmitted by CW (morse). Since this was extremely unusual, it attracted the special attention of intercept operators and analysts.

5. (U) ACTION TAKEN: Conventional CW callsigns are now used for all morse communications.

6. (U) ITEM: The same callsigns were used by exercise/rehearsal participants on both unsecured satellite and unsecured HF communications. This comprised an indicator to analysts that the communications were related to the same military activity. Furthermore, simultaneous use of both HF and satellite communications for an apparent tactical operation, as observed by analysts, was considered very unusual and indicative of widely dispersed forces with remote command centers.

7. (U) ACTION TAKEN. Problem noted.

8. (U) RECOMMENDATION: The same callsigns should not be used on different nets, modes, and means of communication. In general, every effort should be made to avoid using callsigns, COMSEC equipments, procedures, etc., which would allow analysts to relate one set of communications to another.

COMMUNICATIONS (U)

TOPIC: Codes (U)

1. (S) PROBLEM: Unchanging codewords have been used to signify key events, places, etc. Although usually intended as brevity codes on secured communications links, the codewords have been used in the clear. The code words do not convey sufficient information, and often must be used in combination with plain text, thus providing [redacted] clues to their meaning. The codewords have also been repeated on successive operations, such as air refueling, and in those instances provided little or no security. Perhaps most importantly, the use of codewords in obvious tactical communications has long been a unique characteristic of special operations, and comprises a signature of such operations (almost all other US and NATO forces use approved, trigraphic operations codes).

2. (U) ACTION TAKEN: Problem noted.

3. (U) RECOMMENDATION: Use approved trigraphic operations codes, or codes especially configured to conform to radio traffic in the operating area.

4. (U) ITEM: Uniquely distinctive, homemade, digital codes have been used. The use of any code is indicative of ongoing or impending "tactical operations," and, as noted above, can provide adversary analysts with insights to meanings. Perhaps even more importantly, if the code groups, e.g., words or combinations of numbers, are unique in appearance and used only by specific forces or for specific types of operations, they will comprise signatures of those forces and type operations.

5. (U) RECOMMENDATION: Approved operations codes, having appropriate vocabularies and variants, should be used. Such codes have common external characteristics and cannot be associated with specific types of forces or operations.

6. (U) ITEM: Avoiding confusion or compromise of codewords/nicknames/callsigns.

7. (U) ACTION TAKEN: When several sets of JTF nickname/codewords were noted, a single manager was appointed.

8. (U) RECOMMENDATIONS: While codewords and nicknames are an efficient means of providing extra security to cover sensitive personalities, locations, equipment and projects they must be managed by a single section within the organization, and must be checked to ensure that they have not been previously associated with high interest projects or operations.

COMMUNICATIONS (U)

TOPIC: Plaintext Transmissions (U)

1. (C) PROBLEM: The extension of DCS circuitry to and from operations areas is generally evident in unsecured orderwire communications since DCS stations identify themselves by place names, e.g., Detrick, Landstuhl, etc., rather than by callsigns. Furthermore, circuit designators which signify specific circuit routing and terminations, are described in unclassified publications and are referred to in unsecured communications (the establishment of one SIGINT support circuit was so revealed in unsecured DSCS communications).

2. (U) ACTION TAKEN: Problem noted.

3. (C) RECOMMENDATION: DCS stations should use changing callsigns; circuit designators should be classified.

4 (U) (C) PROBLEM: Telephone security. Not all information could be transmitted on secure lines. This was especially true during efforts to expand and retrain forces after RICEBOWL. Specific TELSEC problems encountered included people trying to "talk around" classified information, conducting classified discussions in areas where non-secure phones were in use, failing to break telephone circuits when not in use by depressing the hold button after hanging up the phone; failure to follow "Red/Black" criteria in separating secure and unsecure telephones and lines by the required three feet and frequent unclassified conversations which, when compiled, would reveal classified information.

5. (U) (C) ACTION TAKEN: Constant verbal and written reminders were addressed to the staff or JTF as a whole. Reminders were also made on an individual basis when discrepancies were observed. The results of telephone monitoring at subordinate units by INSCOM provided valuable feedback to JTF security. Selected examples from this monitoring were used to give added impact during periodic TELSEC reminders. There were many indications that unsecured telephone communications to and from the JTF could have provided a significant source of intelligence information. Proposals to monitor these communications to assess the seriousness of the problem were not implemented because of procedural problems associated with obtaining approval for telephone monitoring in the Washington, DC area.

6. (U) RECOMMENDATIONS: Good TELSEC procedures should become standard. Where new units or personnel are being added to a JTF they should be referred to the applicable SOP. Periodic telephone monitoring should be conducted to provide feedback. [OSD should also be requested to ease the constraints currently placed on telephone monitoring in the Washington area.]

7. (U) (C) ITEM: DSCS orderwire communications associated with the establishment of OCONUS command and control circuitry in support of the rescue operation were not secured at the time the C3 establishment began. COMSEC monitoring revealed that an adversary intercepting those communications could have perceived that:

a. (U) Circuitry was being extended to a subscriber.

b. (U) A high degree of urgency was associated with the establishment of C3 circuitry -- equipment was flown in, pressure was being placed on the Services, technicians were working overtime, etc.

c. (C) Involvement of SOD, [redacted] could be [redacted].

d. (U) Weather circuitry was being extended to a new subscriber.

e. (C) [redacted]

8. (C) ACTION TAKEN: DSCS orderwire communications were secured as quickly as possible with KG-27 equipment.

9. (C) RECOMMENDATION: All tech control/order wire communications should be secured. If not feasible, all such communications associated with special operations should be secured long in advance of an operation.

10. (U) ITEM: SOD involvement in rescue operation planning was revealed to NSA analysts by an individual answering the telephone with his name and organization.

11. (U) ACTION TAKEN: All personnel were advised not to answer phones with the organization designator. Later, a relatively innocuous cover name was used; however, the use of such a designator still provides a common reference by which analysts can piece together the various activities conducted under the auspices of the designator.

[redacted]

12 (S) RECOMMENDATION: Do not use organizational designators in connection with compartmented activity; [redacted]

A,B

13. (S) ITEM: [redacted] involvement in the rescue operation was revealed to [redacted] analysts by an open microphone (connected to an unsecured circuit) in the tape preparation section of a communications center.

A,C

14. (U) ACTION TAKEN: Incident reported.

15. (U) RECOMMENDATION: Microphones in comunications spaces should be press-to-talk only, and not have a locking feature.

SUBJECT: Security (U) Item No. I-11

COMMUNICATIONS (U)

TOPIC: Traffic Analytic Problems (U)

1. (U) PROBLEM: PARKHILL communications on satellite channels have been almost exclusively those of JTF and JTF-related entities. COMSEC analysts have associated this use of PARKHILL with preparations for the rescue operation and subsequent, related activity. They consider PARKHILL communications on satellite channels to be synonymous with special operations. (Current PARKHILL communications on the Indian Ocean FLTSAT were not so considered).

2. (U) ACTION TAKEN: Alternate means for secure communications are being considered.

3. (U) PROBLEM: The timing and volume of PARKHILL communications associated with exercises and rehearsals has generally followed patterns associated with pre-exercise/operation buildup and execution, i.e., traffic would increase and decrease concurrent with planning and operations activity.

4. (U) ACTION TAKEN: An attempt has been made to create a misleading pattern of PARKHILL communications, one which would not be indicative of pre-execution and execution phases of an exercise or operation.

5. (U) RECOMMENDATION: Bogus traffic should be implemented and satellite communications channels should be monitored occasionally to determine if these traffic levels are adequately protecting exercise/operational communications against traffic analysis.

6. (U) PROBLEM: The number of satellite channels carrying PARKHILL communications during exercises/rehearsals are indicative of the number of force elements involved. It can be generally inferred that each channel comprises a separate command, control, and communications link. Further, the pattern of satellite use could be an indicator of actual operations. For example, a pattern evident on the 100 degree W FLTSAT during exercises, suddenly appearing on the Indian Ocean FLTSAT, could indicate the exercise forces moving into an operational mode.

7. (U) ACTION TAKEN: Limited bogus traffic program was initiated. NSA has also monitored the Indian Ocean satellite to identify existing traffic patterns. These data are available to gauge communications and intelligence implications of additional PARKHILL or other traffic being placed on the satellite.

SUBJECT: Security (U) SECRET Item No. I-12

COMMUNICATIONS (U)

TOPIC: PARKHILL Problems (U)

1. (U) (S) PROBLEM: Analysis of PARKHILL signal structures has shown large variances in the lengths of initial power peaking subcarrier frequencies prior to initiation of preamble clocking sequences. The differences in the length of these tones (called the "time out") allow analysts to associate radio traffic with specific PARKHILL/Transmitter equipment. The analysts can identify stations which are communicating with one another, even when they are communicating on different networks or frequencies. This, in turn, allows inferences to be made regarding command structure, and gives an insight to the types of activity to which the communications pertain.

2. (U) (S) ACTION TAKEN: The JTF directed all PARKHILL users to set "time outs" to a constant of 800 Msec (+ or - 15 Msec). Monitoring PARKHILL satellite communications during Exercise TRADEWIND indicated that variances in the duration of the "time out" are still evident in all stations except those observed on the 253.650 Mhz downlink. Of the stations operating on that frequency, all but one appeared to have adjusted to a constant of approximately 800 Msec.

3. (U) (S) RECOMMENDATIONS: A controlled test aimed at identifying the specific anomalies of each PARKHILL/transmitter combination should be conducted. Such a test is now being arranged with NSA.

4. (U) (S) ITEM: Several PARKHILL units are apparently enciphering portions of key after the preamble sequence has been completed. This is indicative of an equipment malfunction which could aid in derivation of plain text, but perhaps more importantly, it serves to immediately identify the transmitting station.

5. (U) RECOMMENDATION: Conduct a controlled test, as recommended above.

6. (U) (S) ITEM: In each exercise, tones have been observed in PARKHILL transmissions. The problem, probably attributable to faulty installation, does not appear to be widespread, but is significant since it greatly facilitates derivation of plain text. During Exercise TRADEWIND, it appeared that one PARKHILL was encrypting the keyboard sounds of a collocated teleprinter. Also noted during Exercise TRADEWIND were PARKHILL transmissions which contained an incidental frequency modulation, apparently caused by 60 Hz powerline radiation

on the power peaking subcarrier frequency (the "time out"). Although not a cryptographic problem, this modulation allows identification of the transmitting station.

7. (S) RECOMMENDATION: Conduct a controlled test of equipment, as recommended above.

SUBJECT: Security (U) Item No. I-13

COMMUNICATIONS (U)

TOPIC: Other Problems (U)

1. (U) PROBLEM: Aircraft participating in exercises have been observed requesting weather information for destinations via unsecured HF voice communications. Even though a destination may not be specifically identified the weather itself could provide an indication of the destination.

2. (U) ACTION TAKEN: Unknown.

3. (U) RECOMMENDATION: Use secure communications, going, if necessary, through an intermediate station which has secure communications equipment.

4. (C) PROBLEM: JCS project code 9WW was repeatedly referenced in unsecured communications concerning a wide variety of subjects, including equipment, air transportation, etc. The project code was a common reference by which analysts could have pieced together the diverse subjects of concern to the JTF.

5. (U) RECOMMENDATION: Explore use of no project code or multiple project codes.

6. (U) PROBLEM: On occasion the same operational call signs are used for FAA/ICAO communications. This practice, since FAA/ICAO communications can permit identification of type aircraft and location, provides adversary analysts with insight about the nature of the operation or exercise.

7. (U) Recommendation: Different call signs should be used for each type of traffic.

OPERATIONS (U)

TOPIC: Media (U)

1. (S) PROBLEM: Avoiding detection by the media. This was a major problem during planning, training, and initial phases of the deployment. After RICEBOWL the danger was increased since some key personalities, units, and methods of operation had been exposed. Potential exposure by the media reached a high point during large exercises. The media proved to be extremely timely but only semi-accurate.

2. (S) ACTION TAKEN: Experience showed that the best means to handle the threat from media was to [redacted] respond rapidly to any media inquiry, and tightly control any exchange with the media. [redacted] what might be exposed and then emphasizing certain aspects [redacted] of unconventional warfare or Iran. Several of the larger exercises therefore focused on AWACS and command and control while avoiding any mention of helos, specific units, etc. At no time was false information contained in a press release. Exchanges with the media or civilians were controlled by providing exercise participants with clear and concise guidance for answering inquiries. This was particularly important in the event of forced landing or other incidents. In these cases, direction was to acknowledge the obvious, i.e. name, type aircraft, unit of assignment and participation in an exercise or cross-country training. Participants were directed to avoid provocative terms such as "classified mission". Further inquiries were to be directed to Public Affairs channels. This avoided allowing a variety of stories to develop which would then cause inconsistency. Where this policy was not implemented inquiries from the media multiplied and became extremely pointed. Every effort was also made to respond rapidly (same day or less) to an inquiry. This ability was attained by having points of contact within the OSD, JCS, and service Public Affairs channels. These POCs were never briefed on the actual operation. At best they received only [redacted] This proved to be sufficient. In addition, during the actual RICEBOWL deployment, US and foreign news services were [redacted]red. This combination of actions was able to sidetrack numerous inquiries and to blunt or obscure the impact of those which resulted in a media story.

3. (C) RECOMMENDATION: Continue to develop [redacted] tightly control Public Affairs exchanges and respond rapidly to inquiries.

4. (U) PROBLEM: To secure deployment from home bases despite intense media and hostile intelligence interest.

5. [redacted]

During the SNOWBIRD [redacted] phase, [redacted] activity was so frequent that [redacted] concerned were conditioned to accept frequent short notice exercises. [redacted]

6. [redacted]

back-up material.

7. (U) PROBLEM: Maintain security on the deployment into the objective region.

[redacted]

9. (U) RECOMMENDATION: Future efforts to insert a force securely should adopt a similar methodology.

[redacted]

In large operations, good logistics planning and discipline must be maintained or there will be a tendency to violate the pre-established "norm" in an area.

4. (U) PROBLEM: Provide secure logistics support to the force. The US military logistics community normally responds in unclassified channels. Attempts to use classified channels slows responsiveness and frequently draws added attention.

11. (U) (S) ACTION TAKEN: Initially, informal Flag Officer level requests were made to counterparts in Service logistics systems which requested subtle assistance to insure that selected units or weapons systems were supported in a timely fashion. They were specifically requested not to take any actions which would highlight this activity. This request then opened expedited channels for JTF logistic staff officers. In addition, JTF would frequently arrange to receive an item or to send it to a [redacted] location. This measure provided additional security. During the SNOWBIRD (S) phase, the HONEY BADGER cover story provided sufficient rationale and priority to provide rapid logistic support without compromising mission [redacted].

12. (U) PROBLEM: Administrative matters such as orders, TDY vouchers, passports, visas, [redacted] records, etc., had the potential for disclosing mission details.

13. (S) ACTION TAKEN: This vulnerability was recognized from the first moments of the operation and was [redacted] variety of ways [redacted]

[redacted] The initial work in developing OCONUS bases was handled by designating these bases as exercise areas Alpha and Bravo. Without being briefed on the location or mission, the DOD

[redacted]

[redacted]

14. (U) RECOMMENDATION: Headquarters and subordinate units must be aware of the potential security dangers in personnel/administrative matters. Before any action is taken, the security impact should be considered. Preplanning and the establishment of SOPs will help. For example, all personnel should have [redacted] should also be available as well as cash.

15. (U) PROBLEM: Timely and secure funding requirements.

16. (S) ACTION TAKEN: During the RICEBOWL phase, in most cases by working with points of contact, we were able to operate on a credit system (e.g., MAC and logistic depots). However, even during that phase there occasionally were requirements for the transfer of funds (e.g., $300,000 required for the use of fuel stocks at one of our OCONUS operating bases). Here, Service points of contact were able to arrange the transfer without exposing the location or purpose. Conditions after RICEBOWL (later in fiscal year, anticipated high costs) necessitated procedural changes. The HONEY BADGER [redacted]

17. (S) RECOMMENDATION: The existence of a permanent organization with funds would solve many of the financial problems faced by JTF 1-79. [redacted] matters are generally handled in unclassified channels and may be a [redacted]

[redacted]

~~SECRET~~

SUBJECT: Intelligence (U) Item Number: J-1

Intelligence Historical Report
J2, JTF 1-79 (U)

SUMMARY:

[redacted]

1. (~~S~~) Overall intelligence support for mission planning, training and execution was responsive, professional and generally adequate with one major limitation . . . the lack of [redacted] total intelligence picture, as summarized here, is discussed in detail in a separately distributed document.

a. (~~TS~~) Throughout the entire period re[illegible]ue planning was severely constrained by [redacted]

b. (C) DIA acted as broker for most general intelligence requirements, satisfying in excess of 700 specific requests, largely of an analytical nature.

c. (C) DMA provided mapping, charting, and geodetic support, producing no less than twenty-four special map and photo products designed to satisfy tactical requirements, and provided data reduced coordinates for use in the navigation systems of all mission aircraft.

d. [redacted]

[redacted]

[redacted]

[redacted]

Efforts [redacted] deficiency. A combined photo interpretation team was formed and exercise[redacted]

[redacted]

h. All of these agencies, [redacted] provided specific points of contact or permanent liaison officers which greatly simplified coordination.

[redacted]

[redacted]

Efforts [redacted] deficiency. A combined [redacted] photo interpretation team was formed and exercise[redacted]

[redacted]

h. All of these agencies, [redacted] provided specific points of contact or permanent liaison officers which greatly simplified coordination.

[redacted]