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31, 1973

AIR RESCUE SERVICE

"DEEP LOOK" BRIEFING

(1965)

PROJECT CORONA HARVEST

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PERHAPS ONE OF THE BEST POINTS OF DEPARTURE FOR A
LOOK INTO THE FUTURE IS TO MAKE A BRIEF REVIEW OF THE PAST.

THE HISTORY OF THE AIR RESCUE SERVICE IS A SHORT
ONE, BUT IT IS FULL OF INTEREST AND PROVIDES A NUMBER OF
LESSONS WHICH CAN BE RELATED TO THE FUTURE. ONE OF THE
OBSERVATIONS WHICH CLEARLY EMERGES IS THE FACT THAT
RESCUE GETS A LOT OF ATTENTION WHEN THE SHOOTING STARTS,
BUT IS REGARDED AS MORE OF A LUXURY WHEN THE COMBAT
SITUATION EASES DOWN. IF YOU EXAMINE THE FORCES
SPECIFICALLY EMPLOYED FOR RESCUE SERVICE IN WORLD WAR II
WITH THOSE THAT EXISTED IN THE LATE 40'S, YOU RECEIVE A
CLEAR INDICATION OF WHAT HAPPENED. OF COURSE, THIS WAS
NOT UNIQUE - THE DRASTIC CUTBACKS OCCURRED THROUGHOUT
THE MILITARY SERVICE. AS A RESULT, JUST PRIOR TO KOREA,
RESCUE HAD ONLY A HAND FULL OF ASSORTED AIRCRAFT. _____
MONTHS LATER, THERE WERE 50 SQUADRONS AND 12 GROUPS
DEPLOYED ON A GLOBAL BASIS.

SLIDE # 1 ON

WHEN THE SHOOTING STOPPED, RESCUE WAS ONCE AGAIN
DRASTICALLY REDUCED IN SIZE - DOWN TO THE 12 SQUADRONS

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THAT WE HAVE TODAY. WHEN THE CONFLICT IN VIETNAM STARTED, THE STORY WAS THE SAME - THERE WAS NO COMBAT CAPABILITY IN THE RESCUE SERVICE. TWO YEARS AFTER THE AIR FORCE HAD BEEN OPERATING IN VIETNAM, AND AT A COST OF TWO AND A QUARTER MILLION DOLLARS, WE WERE ABLE TO MUSTER A FORCE OF EXACTLY SIX SMALL HELICOPTERS - HASTILY EQUIPPED WITH SUFFICIENT ARMOR TO PERMIT OUR CREWS TO OPERATE IN A LIMITED COMBAT ENVIRONMENT. THIS LITTLE GROUP IS DOING A MAGNIFICENT JOB, AND THE REACTION OF OUR COMBAT AIRCREWS HAS BEEN MOST IMPRESSIVE, BUT IT IS CERTAINLY A MEAGER EFFORT BY ANY STANDARD.

FROM PERSONAL OBSERVATION, I CAN ASSURE YOU THAT RESCUE IS FULLY APPRECIATED IN SEA, AND OUR DEMONSTRATED PROFESSIONALISM HAS WON THE RESPECT OF ALL CONCERNED.

SLIDE #1 OFF, SLIDE #2 ON

THE PROPOSAL TO PUT 16 LONG-RANGE COMBAT CONFIGURED CH-3C'S IN SOUTHEAST ASIA IS A NATURAL FOLLOW-ON AS WE FINALLY COME UP TO SPEED. BUT IT IS A MATTER OF CONCERN THAT COMBAT RESCUE FORCES ONCE AGAIN HAVE TO BE BUILT FROM SCRATCH. IN TERMS OF WORLD WAR II AND KOREA, WE HAD TIME. NOW THE SITUATION IS DIFFERENT. THE STRATEGIC AND

TACTICAL FORCES ARE

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TACTICAL FORCES ARE KEPT IN A CONTINUOUS STATE OF READINESS, AND IT FOLLOWS ON THE BASIS OF SIMPLE LOGIC THAT RESCUE SERVICE - TO BE EFFECTIVE AND RESPONSIVE - MUST HAVE AN IN-BEING COMBAT AIRCREW RECOVERY CAPABILITY NOW IN THE FORESEEABLE FUTURE. THE SAME GENERAL SITUATION THAT PREVAILS IN VIETNAM COULD EASILY BE EXPERIENCED IN THE CONGO, SOUTH AMERICA, THE MIDDLE EAST, OR ELSEWHERE, AND THIS INCLUDES A VAST AREA OF THE WORLD.

SLIDE OFF - SLIDE #3 ON

FOR EXAMPLE, IN EUCOM AND PACOM ALONE, ARS IS TASKED IN 88 SEPARATE CONTINGENCY PLANS MOST OF WHICH WILL REQUIRE A COMBAT RECOVERY FORCE. MANY COMMANDERS AND STAFF OFFICERS STILL HAVE MEMORIES OF RESCUE IN KOREA IN THE BACKS OF THEIR MINDS AND WITHOUT ACTUAL KNOWLEDGE OF THE SITUATION, SUBCONSCIOUSLY BELIEVE THAT ARS CAN RAPIDLY MUSTER A COMBAT FORCE TO DO THE JOB IN THE SAME MANNER. UNFORTUNATELY, SUCH TRAINED AND EQUIPPED FORCES SIMPLY DO NOT EXIST TODAY NOR CAN THEY BE MADE AVAILABLE VERY RAPIDLY, AS EVIDENCED BY THE VIETNAM SITUATION.

WITH THIS SHORT LOOK AT WHERE WE HAVE BEEN, LET'S TAKE A LOOK AT WHERE WE ARE AND WHERE WE'RE GOING.

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ARS INCLUDES 91 UNITS AT 87 LOCATIONS IN THE UNITED STATES AND 21 FOREIGN COUNTRIES. WITH THE RADIUS OF ACTION OF PRESENTLY ASSIGNED AIRCRAFT, WE CAN PROVIDE RAPID RESCUE COVERAGE FROM HOME BASES TO THE AREAS SHOWN HERE. FOR PRE-PLANNED MISSIONS, WE CAN PROVIDE COVERAGE WHERE AND WHEN NEEDED, BUT IT IS NECESSARY TO DIGRESS A MOMENT TO DISCUSS THE TERM RESCUE.

IN PLAIN LANGUAGE, IT MEANS TO PHYSICALLY PICK SOMEBODY UP AND DELIVERY THEM TO SAFETY. THIS MEANS ANY PERSON, INCLUDING THOSE INCAPABLE OF HELPING THEMSELVES. WE CAN DO THIS WITH THE HELICOPTERS AND, TO A LIMITED DEGREE, WITH THE HU-16.

SLIDE OFF - SLIDE #5 ON

WE SAY TO A LIMITED DEGREE, BECAUSE THE HU-16 CAN LAND ON THE WATER DURING DAYLIGHT ONLY, UNDER RELATIVELY SMOOTH SEA CONDITIONS(@ 500 MILES MAXIMUM). ALTHOUGH A FEW SAVES HAVE BEEN MADE RECENTLY OFF VIETNAM USING THE HU-16, WE HAVE TO ACKNOWLEDGE THAT CONDITIONS WERE JUST RIGHT. FOR EXAMPLE, DURING 1963 AND 1964, HU-16'S MADE ONLY 7 OPERATIONAL WATER LANDINGS SAVING A TOTAL OF

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5 PERSONNEL, AND NONE OF THESE WERE USAF CREWMEMBERS. THE HC-54 AND THE HC-97, OF COURSE, CAN'T EVEN DO THIS MUCH. THEIR CAPABILITY LIES IN FINDING THE INDIVIDUAL AND DROPPING EITHER PARARESCUE TEAMS OR SURVIVAL EQUIPMENT, THEN ARRANGING FOR SOME OTHER VEHICLE TO ACTUALLY RESCUE THEM. SO, IN REALITY, THESE AIRCRAFT ARE RENDERING AID OR ASSISTANCE - NOT RESCUE. THIS HAS BEEN AN ACCEPTABLE METHOD OF PROVIDING ASSISTANCE, PRIMARILY BECAUSE THERE WASN'T ANYTHING BETTER. THIS IS WHERE THE CHALLENGE LIES.

WITH THE GRADUAL BLENDING OF AERONAUTICS AND ASTRONAUTICS, IT HAS BECOME APPARENT THAT WE MUST EXTEND OUR RESCUE/RECOVERY RESOURCES TO COVER SPACE PROJECTS AS WELL AS AIR OPERATIONS.

SLIDE OFF - SLIDE #6 ON

CONCURRENTLY, WE ARE IN THE PROCESS OF RETIRING OUR AGED HC-54 AND HC-97'S AND REPLACING THEM WITH MODERN HC-130'S.

SLIDE OFF - SLIDE #7 ON

WE ALSO HAVE A HANDFUL OF CH-30'S AT PATRICK AFB TO PROVIDE AN EFFECTIVE RESCUE CAPABILITY IN CASE OF LAUNCH

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PAD ABORT, AND TO PARTICIPATE IN MANY OTHER MISSIONS DIRECTLY CONNECTED WITH SPACE OPERATIONS. THIS PROGRAM IS A FIRST STEP IN THE RIGHT DIRECTION BUT IS CERTAINLY NOT AN END IN ITSELF. THIS SUBJECT WILL BE DISCUSSED FURTHER A LITTLE LATER ON. CONSIDER NOW, THE VARIOUS FUNCTIONAL RESPONSIBILITIES BY TYPES OF RESCUE AIRCRAFT AND THE VARIOUS INTER-RELATIONSHIPS.

SLIDE OFF - SLIDE #8 ON

FIRST, FIXED WING AIRCRAFT. AS OF THE FIRST OF JAN 1967, OUR CONVERSION TO HC-130 WILL HAVE BEEN COMPLETED AND THE HC-54'S AND HC-97'S RETIRED OR REASSIGNED TO RESERVE UNITS. AS CURRENTLY PROGRAMMED, THE FORCE WILL CONSIST OF 54 UE HC-130'S WITH 6 ADDITIONAL COMMAND SUPPORT AIRCRAFT AUGMENTED BY 30 HU-16'S WITH 4 ADDITIONAL FOR COMMAND SUPPORT. THIS WOULD BE AN EFFECTIVE FORCE FOR THE NORMAL DAY-TO-DAY FIXED WING MISSION OF PROVIDING PRECAUTIONARY AND EMERGENCY COVERAGE FOR DEPLOYING TACTICAL AIRCRAFT, AND OTHER AREA SEARCH AND RESCUE MISSIONS.

OVERLAY #1

BUT SUPERIMPOSED ON TOP OF THE NORMAL MISSION REQUIREMENTS IS THE SPACE RECOVERY MISSION WHICH REQUIRES

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EXTENSIVE DEPLOYMENT, AS SHOWN ON THIS SLIDE. THIS IS TYPICAL OF THE DEPLOYMENT REQUIRED, HOWEVER, SPECIFIC LOCATIONS MAY CHANGE FROM TIME TO TIME DEPENDING ON THE PLANNED GROUND TRACK OF THE ORBITING SPACECRAFT. GENERALLY SPEAKING, HOWEVER, THIS FORCE MUST BE DEPLOYED SO AS TO LOCATE THE SPACECRAFT IN ANY LOCATION AROUND THE GLOBE FROM 40° N TO 40° S, AND THEN TO RECOVER OR RENDER AID TO THE CREW WITHIN AN 18-HR PERIOD AFTER THE SPACECRAFT HAS REENTERED THE EARTH'S ATMOSPHERE. THIS, OF COURSE, WOULD BE IN THE CASE OF CONTINGENCY RE-ENTRY FOR WHICH WE HAVE 36 ACFT DEPLOYED. IN ADDITION TO CONTINGENCY DEPLOYMENT, WE WILL ALSO PROVIDE 10 HC-130'S FOR PINPOINTING THE SPACECRAFT IN THE PLANNED LANDING AREA WHICH IN THE CASE OF

SLIDE OFF - SLIDE #9 ON

APOLLO MISSIONS HAVE A LANDING FOOTPRINT OF 1000 BY 5000 MILES. THE TOTAL REQUIREMENT ADDS UP TO 46 HC-130'S FOR THE SPACE RECOVERY MISSION. THIS EQUATES TO APPROXIMATELY 76% OF THE 60 AIRCRAFT FOR WHICH WE ARE PROGRAMMED. HOWEVER, 6 OF THIS NUMBER ARE COMMAND SUPPORT SO THAT AIRCREWS AND ADDITIONAL MAINTENANCE PERSONNEL MUST COME OUT OF OUR HIDE TO MEET THE 46 AIRCRAFT REQUIREMENT.

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WE FEEL ONE OF THE FIRST ACTIONS WE MUST TAKE TO ESTABLISH AN EFFECTIVE SPACE RECOVERY FORCE IS TO HAVE THESE 6 COMMAND SUPPORT AIRCRAFT DESIGNATED AS UE. AT THESE DEPLOYED LOCATIONS OUR AUGMENTED CREWS AND MAINTENANCE PERSONNEL WILL BE ON CONTINUOUS RAPID REACTION ALERT FOR THE DURATION OF THE SPACE SHOT. AN ADDITIONAL SIX AIRCRAFT DESIGNATED AS UE WILL ALLEVIATE THIS SITUATION TO A DEGREE BY PROVIDING ADDITIONAL MANPOWER SPACES.

SLIDE OFF - SLIDE #10 ON

WHILE OUR HC-130 FLEET IS TOTALLY INVOLVED IN THE SPACE RECOVERY BUSINESS, THE REMAINDER OF THE RESCUE FLEET THEORETICALLY PICKS UP ALL REMAINING SEARCH, RESCUE AND RECOVERY MISSIONS. IN ACTUAL PRACTICE, THE HC-130'S ON SPACE ALERT WILL RESPOND TO AN EMERGENCY REQUIREMENT OF ANY SORT SO THAT, IN FACT, OUR BASE AREA OF OPERATIONS AROUND THE GLOBE IS EXPANDED. HOWEVER, THE ACTUAL NUMBERS OF AIRCRAFT ON THE LINES OF COMMUNICATION ARE DIMINISHED, AND, IN FACT, DIMINISHED TO AN UNACCEPTABLE DEGREE.

SLIDE OFF - SLIDE #11 ON

DEPLOYMENT OF THE IN-COMMISSION HC-130 FLEET WILL LEAVE 30 HU-16'S IN FOUR SQUADRONS TO RESPOND TO ALL

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OTHER USAF SAR REQUIREMENTS AROUND THE GLOBE.

OVERLAY #1

THREE OF THESE, BY TAIL NUMBER, ARE ASSIGNED TO THE HU-16 SCHOOL AT EGLIN WHERE THEY ARE REQUIRED TO INSURE THE FLOW OF QUALIFIED PERSONNEL TO OUR OVERSEAS HU-16 UNITS. APPLYING THE STANDARD IN-COMMISSION RATE OF 71% TO THE REMAINDER OF 27,

OVERLAY #2

WE COME UP WITH 19 AIRCRAFT FOR THE TOTAL NORMAL SAR FUNCTION.

OVERLAY #3

FIVE OF THESE ARE DEPLOYED IN VIETNAM ON A ROTATIONAL BASIS, LEAVING A TOTAL OF 14 AVAILABLE.

OVERLAY #4

TWO ARE ON CONTINUOUS DEPLOYMENT TO HOMESTEAD AFB FOR CARIBBEAN COVERAGE, WHICH IS AN INDEFINITE COMMITMENT, LEAVING 12 AVAILABLE WORLD-WIDE.

OVERLAY #5

OF THESE 12, FIVE WILL BE REQUIRED FOR EMERGENCY ALERT AT EACH SQUADRON LOCATION NOT COVERED BY THE HC-130

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FLEET, LEAVING AN AVERAGE OF 7 HU-16'S PER DAY.

OVERLAY #6

ADVANCED BASE STRIP ALERT REQUIREMENTS OF 3 AIRCRAFT PER DAY DIMINISH THIS NUMBER TO 4 HU-16'S TO MEET ALL OTHER USAF GLOBAL REQUIREMENTS, OTHER THAN EMERGENCY. EVEN THIS FIGURE IS SOMEWHAT SUSPECT IF WE CAN JUDGE BY RECENT IRAN AVERAGES OF 7 HU-16'S AT A GIVEN TIME, WHICH IS 3 MORE THAN THE 4 AIRCRAFT COMMAND SUPPORT CUSHION. POSSIBLY A REACTION TO THIS RUNDOWN COULD BE SOMETHING LIKE - YOU CAN PROVE ANTHING BY USING STATISTICS TO SHOW A POINT - AND BESIDES, THESE SPACE SHOTS ARE ONLY FOR A COUPLE OF DAYS, ANYHOW. LET ME DISPELL SUCH A THOUGHT TREND, IF IT EXISTS.

FIRST, THESE ARE AIRFRAMES WE'RE TALKING ABOUT - NOT STATISTICS - AND, AS MUCH AS WE'D LIKE TO, WE CAN'T JUGGLE AIRFRAMES LIKE WE MANIPULATE STATISTICS. SECONDLY, WE'RE NOT TALKING ABOUT PERIODS OF TWO OR THREE DAYS FOR SPACE RECOVERY DEPLOYMENT BECAUSE DURING THIS PERIOD WE'RE COMING INTO A SITUATION WHERE THE SPACE PROGRAMS OVERLAP -

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GEMINI, APOLLO AND MOL - AND SO DO OUR DEPLOYMENT REQUIREMENTS. THE FREQUENCY AND OVERLAP OF SPACE LAUNCHES INCREASES THROUGH 1967, UNTIL IN 1968, THE HC-130 FLEET WILL BE DEPLOYED AT LEAST 50% OF THE TIME. FOR EXAMPLE, IN JULY, AUGUST AND SEPTEMBER OF 1968, TENTATIVE SCHEDULES CALL FOR TWO APOLLO LUNAR MISSIONS OF 10 DAYS EACH AND ONE MOL MISSION OF 30 DAYS. THESE COULD OCCUR ALL IN THE SAME 30 DAY PERIOD, BUT WE HAVE TO PLAN FOR THE WORST SITUATION. BY TACKING ON THREE DAYS ON EACH END OF EACH MISSION FOR DEPLOYING, RE-DEPLOYING AND EXERCISING, IT IS POSSIBLE THAT THE HC-130'S WILL BE DEPLOYED 75% OF THE TIME. IN EITHER CASE, IN EXCESS OF 50% APPEARS TO BE A REASONABLE ASSUMPTION. BY 1970, CURRENT FORECASTS LEAD US TO BELIEVE THAT THERE WILL BE MEN IN SPACE CONTINUOUSLY AND, AT ANY TIME, AT ANY LOCATION AROUND THE GLOBE, AN EMERGENCY IN THE SPACECRAFT MAY REQUIRE IMMEDIATE RE-ENTRY FOR A CONTINGENCY LANDING. THIS MEANS CONTINGENCY DEPLOYMENT 100% OF THE TIME WHEN THIS COMES TO PASS.

THIS THEN, IS HOW THE FUTURE LOOKS FOR THE FIXED-WING AIRCRAFT IN AIR RESCUE SERVICE AS CURRENTLY PROGRAMMED - AND IT LOOKS DIM, UNLESS SUFFICIENT ADDITIONAL RESOURCES ARE MADE AVAILABLE TO DO THE JOB PROFESSIONALLY.

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SPECIFICALLY, AN AUGMENTATION OF 41 UE HC-130H AIRCRAFT IS REQUIRED TO REPLACE THE HU-16'S STARTING IN THE THIRD QUARTER OF FISCAL 67. THE HU-16 HAS PLAYED AN IMPORTANT ROLE IN RESCUE IN THE PAST BUT IS TIME-WORN, OBSOLESCE, AND INCREASINGLY DIFFICULT AND COSTLY TO MAINTAIN. THE USAF IG RECOGNIZED THIS IN THEIR RECENT APS CAPABILITY REPORT, AND FIRM ACTIONS MUST BE TAKEN NOW IF WE ARE TO PROGRAM REPLACEMENT IN FISCAL 67.

OVERLAY #1

THESE ADDITIONAL HC-130'S WILL BE ASSIGNED TO EXISTING SQUADRONS, WITH THE EXCEPTION OF FIVE AIRCRAFT, WHICH WILL FORM THE FIXED WING ELEMENT OF A SQUADRON TO BE ACTIVATED IN ALASKA. JUSTIFICATION FOR THIS NEW UNIT IS CONTAINED IN THE DOCUMENT BUT, SIMPLY STATED, THERE IS A LARGE GAP IN RESCUE CAPABILITY IN THE POLAR REGIONS WITH SUFFICIENT AND SIGNIFICANT MILITARY TRAFFIC TO JUSTIFY THE ESTABLISHMENT OF A NEW UNIT. WITH THIS UNIT IN ALASKA, LONG RANGE HELICOPTERS AT THULE AB, AND THE 67TH SQ OPERATING FROM PRESTWICK, WE WILL HAVE A CAPABILITY TO COVER THE ENTIRE NORTH POLAR REGION, AS SHOWN ON THIS SLIDE.

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OUR HELICOPTER REQUIREMENTS WILL BE DETAILED SHORTLY BUT FIRST; TO SUMMARIZE THE FIXED WING AIRCRAFT REQUIREMENTS WE BELIEVE THE FOLLOWING ACTIONS ARE REQUIRED TO PROVIDE THE AIRCRAFT NECESSARY TO MEET ASSIGNED FIXED-WING MISSIONS:

SLIDE OFF - SLIDE #15 ON

1. RE-DESIGNATE THE SIX HC-130H COMMAND SUPPORT AIRCRAFT AS UE AIRCRAFT.
2. COMMENCE PHASE-OUT OF THE HU-16, STARTING
IN FQ 3/67.
3. REPLACE THE HU-16'S WITH HC-130H'S, BUILDING TO A TOTAL FORCE OF 101 UE WITH 10 COMMAND SUPPORT AIRCRAFT BY FQ 4/68.
4. ACTIVATE THE XX AR SQ AT ELMENDORF AFB, ALASKA IN FQ 3/68.

THIS IS NOT A PROGRAM DESIGNED TO FATTEN RESCUE - ON THE CONTRARY, THE REQUIREMENT FOR EACH AIRCRAFT IS DOCUMENTED IN OUR STUDY, AND THE FORCE WILL REMAIN LEAN AND HUNGRY THROUGHOUT THE PERIOD IN RELATION TO THE JOBS TO BE DONE.

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RELATING BACK TO SOME OPENING COMMENTS REGARDING AID OR ASSISTANCE VERSUS RESCUE MIGHT LEAD TO AN OPINION THAT EXPENDITURES FOR ADDITIONAL HC-130H'S CAN NOT BE JUSTIFIED ON THE BASIS OF AID TO BE RENDERED RATHER THAN RESCUES TO BE PERFORMED. THE FACTS ARE THAT THE DISTRESSED PERSONNEL MUST BE FOUND BEFORE THEY CAN BE RESCUED AND RAPID LOCATION IS OF THE UTMOST IMPORTANCE. THE CHANCES FOR SURVIVAL DECREASE RAPIDLY FOLLOWING A CRASH OR BAIL-OUT, DUE TO SHOCK, INJURY, OR EXPOSURE. THIS DICTATES THAT THE PRIMARY SEARCH AIRCRAFT HAVE SUFFICIENT SPEED, RANGE, AND ENDURANCE CAPABILITIES TO COPE WITH THE LOCATION PROBLEM SUPPLEMENTED BY A CAPABILITY TO PROVIDE ON-SCENE ASSISTANCE BY DROPPING SURVIVAL GEAR OR PARARESCUE TEAMS, IF REQUIRED. THE HC-130H FILL THE BILL FOR THIS REQUIREMENT IN THE CASE OF THE SPACE RECOVERY MISSION OR THE NORMAL LOC MISSION. IT ALSO HAS THE CAPABILITY TO RETRIEVE INDIVIDUALS OR SMALL GROUPS BY EMPLOYMENT OF THE FULTON RECOVERY SYSTEM. WE HAVE A SHORT FILM WITH US WHICH WILL SHOW YOU HOW THE FULTON SYSTEM WILL BE USED BY OUR HC-130'S:

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AT FIRST EXPOSURE, THE FULTON SYSTEM DOESN'T APPEAR VERY PALATABLE TO THE AVERAGE CREW MEMBER. THIS IS UNDERSTANDABLE BECAUSE IT IS A NEW CONCEPT. THE THOUGHT OF GOING FROM A STANDSTILL TO 120 KNOTS IN A MATTER OF SECONDS ON THE END OF A LONG ROPE ISN'T EXACTLY APPEALING BUT THIS IS PRIMARILY A MATTER OF AIRCREW EDUCATION. THE FACTS ARE THAT THERE IS PRACTICALLY NO LIFTING SHOCK - THE SENSATION IS MORE ONE OF TUGGING RATHER THAN A JERK OR A JOLT. THOSE OF YOU WHO HAVE MADE A PARACHUTE JUMP MAY RELATE IT TO LESS THAN ONE-THIRD OF THE "G" FORCES ENCOUNTERED WHEN THE PARACHUTE OPENS.

AS TIME PASSES, AND SUCCESSFUL RECOVERIES ARE MADE, THE FULTON SYSTEM WILL COME INTO ITS OWN - BUT ONLY IN THE CASE OF INDIVIDUALS IN SUITABLE MENTAL AND PHYSICAL CONDITION. THIS IS THE MAJOR LIMITATION OF THE FULTON SYSTEM, BUT AFS RESPONSIBILITY DOES NOT END HERE. IF THE RECOVERY REQUIREMENT EXCEEDS THE HC-130 SYSTEM CAPABILITIES, THE OPTIONS ARE TO ATTEMPT RESCUE BY OPPORTUNE SURFACE MEANS, OR TO PROVIDE A COMPLEMENTARY SYSTEM, WHICH, IN OUR OPINION, IS EXEMPLIFIED BY THE CH-3C HELICOPTER.

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WE ARE PARTICULARLY ENTHUSIASTIC ABOUT THE CH-3C, AS A RESULT OF THE CATEGORY III TESTS CONDUCTED FOR USAF BY OUR DETACHMENT AT PATRICK AFB. IN ALL CASES, PERFORMANCE OF THIS VTOL AIRCRAFT HAS EXCEEDED THE MANUFACTURER'S CLAIMS. THE CH-3C, WHEN MATED WITH THE HC-130H, WILL PROVIDE ARS WITH THE CAPABILITY TO RETRIEVE PERSONNEL AND HARDWARE FROM ANY SURFACE OR LOCATION IN ACCESSIBLE AIRSPACE.

OUR ULTIMATE GOAL IS AN AIR RESCUE FORCE CONSISTING OF ONE TYPE OF ORGANIC AIRCRAFT. ^{by parked separately down} THIS AIRCRAFT ^{indicate that it is not a new concept but a modification of existing concepts} MUST POSSESS OCEAN SPANNING RANGE AND HIGH-SPEED, PLUS THE LOW-DOWNWASH HOVERING AND CONTROL QUALITIES OF THE HELICOPTER. IT MUST ALSO BE CONVERTIBLE TO A HEAVYLIFT AERIAL CRANE CONFIGURATION. THIS TYPE, NOW WITHIN THE STATE OF THE ART, WILL BE DISCUSSED LATER.

UNTIL SUCH A VEHICLE IS OPERATIONAL, LONG-RANGE FIXED-WING AIRCRAFT, IN COMBINATION WITH HIGH-PERFORMANCE HELICOPTERS, WILL BE REQUIRED TO ENABLE ARS TO RESCUE PEOPLE AND RECOVER HARDWARE FROM ANYPLACE AT ANY TIME.

IN ESSENCE, THIS IS NOT A NEW CONCEPT. HU-16'S TEAMED WITH H5'S AND H-19'S TO RESCUE 9680 PEOPLE DURING THE

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KOREAN WAR. THE HU-16 DID THE SEARCH-LOCATION JOB AND
WHEN CONDITIONS WERE RIGHT, ALSO PERFORMED THE ACTUAL
RESCUE. 9219 TIMES IN THAT WAR, CONDITIONS WEREN'T
RIGHT - AND THE RESCUE WAS PERFORMED BY OUR FLIMSY
HELICOPTERS OF THAT DAY.

THE CONCEPT OF MATING THE HELICOPTER AND THE
FIXED-WING AIRCRAFT CONTINUED AFTER KOREA, BUT NO
SUBSTANTIAL IMPROVEMENTS WERE MADE IN EITHER VEHICLE
TO ENHANCE THE COMBAT RESCUE FORCE. THIS COMBAT AIR
RESCUE FORCE NOT ONLY DWINDLED IN SIZE, BUT NONE OF
THE MEANINGFUL DEVELOPMENTS IN VTOL AIRCRAFT WERE
INCORPORATED IN AIR RESCUE SERVICE EQUIPMENT TO KEEP
AND UPDATE THE CONCEPT. TO THE CONTRARY, BY 1961, THIS
STILL VALID CONCEPT WAS DORMANT. USAF'S COMBAT AIR RESCUE
FORCE CONSISTED OF 56 FIXED-WING AIRCRAFT - TWENTY SA-16'S AND
36 C-54'S. WE COULD SEARCH, LOCATE, RENDER AID (PARARESCUE)
AND ACTUALLY RESCUE A FEW PEOPLE, BUT ONLY WITHIN THE
LIMITED CAPABILITY OF THE SA-16. SOMETHING LIKE HAVING
BOMBERS IN SAC WITHOUT BOMBS.

FORTUNATELY, DURING THIS LULL, SOME MEANINGFUL
IMPROVEMENTS IN HELICOPTERS DID TAKE SHAPE IN THE U. S.
NAVY. TWIN-TURBINE, HIGH SPEED, ALL WEATHER S61A

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HELICOPTERS WERE

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HELICOPTERS WERE DEVELOPED AS A PRIME WEAPON SYSTEM FOR USE IN ANTI-SUBMARINE WARFARE. THIS IS SIGNIFICANT BECAUSE MANY OF THE REQUIREMENTS AND ELEMENTS OF THE ASW MISSION HAVE VALID APPLICATION IN THE COMBAT AIR RESCUE HELICOPTER MISSION. THESE ELEMENTS ARE THE ABILITY TO TRANSIT ALL-WEATHER CONDITIONS, INCREASED RANGE FOR SEARCH-PROLONGED HOVER, SELF-CONTAINED DOPPLER NAVIGATION SYSTEM, INCREASED CRUISE SPEED, AND A TRI-PHIBIOUS CAPABILITY. THESE AND OTHER IMPROVEMENTS WERE INCORPORATED IN THE SIKORSKY S-61 HELICOPTER WHICH IS THE FORERUNNER OF THE CH3C WAS PROCURED ARE THOSE FOR WHICH WE ARE RESPONSIBLE. YET, NONE OF THE 107 AIRFRAMES PROGRAMMED INTO USAF FOR AIRLIFT, AEROSPACE HARDWARE RECOVERY, AND WAR CASUALTY RECOVERY WERE PROGRAMMED INTO ARS. THEY WERE FRAGMENTED AND PROGRAMMED INTO SAC, ADC, AFSC, ADC, APCS, AND AWS. MATS, ADC, AND ATC WERE ALTERNATELY DESIGNATED AS THE "USING" COMMAND TO CONDUCT CATEGORY III OPERATIONAL SUITABILITY TESTS. AS YOU KNOW, IN MAY 1964, USAF REDIRECTED MATS AS THE CH3C "USING COMMAND." ARS TOOK OVER THE ACTUAL CAT III FLIGHT TEST PROGRAM FROM ATC. SINCE THIS PROGRAM HAS BEEN ASSIGNED AND PERFORMED BY ARS, IT'S STAYED ON, OR AHEAD

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OF, SCHEDULE. THIS, EVEN THOUGH ONLY ONE OF THREE DESIGNATED CH-3C'S WAS ASSIGNED FOR THE GREATER PART OF THE SCHEDULED TEST SERIES, AND IT WAS LOANED TO TAC FOR TWO WEEKS TO ASSIST IN PROJECT SOUTH SHORE. 97% OF THE CAT III TEST PROGRAM IS NOW COMPLETED. WE'RE NOT LOOKING FOR A PAT ON THE BACK. WHAT IS IMPORTANT, HOWEVER, IS THAT THE AIR RESCUE SERVICE, WITH AN IN-BEING STAFF, ORIENTED TO HELICOPTER OPERATIONS, MADE ON SCHEDULE PROGRESS, WHERE OTHERS FOUNDERED. HAD ARS NOT BEEN ASSIGNED THIS TEST PROGRAM, IT'S DOUBTFUL THAT THE ON-PAD CH-3C LAUNCH RESCUE FORCE WOULD HAVE BEEN QUALIFIED AND IN-BEING IN TIME FOR THE ASTRONAUT RECOVERY MISSION DURING GT-3. TODAY, ONLY FOUR CH-3C'S ARE ASSIGNED IN ARS AT PATRICK. FOUR MORE ARE PROGRAMMED INTO OUR DETACHMENT AT GOODFELLOW. A MEAGER TOTAL OF EIGHT CH-3C'S ARE NOW PROGRAMMED. EVEN PRIOR TO THESE EVENTS, ARS VIEWED THE CH-3C'S AS THE BEST AVAILABLE. VTOL AIRCRAFT TO COMPLIMENT PROGRAMMED FIXED-WING HC-130'S TO FORM AN UPDATED COMBAT RESCUE AND HARDWARE RECOVERY FORCE. EXCELLENT CATEGORY III TEST RESULTS CONFIRMED OUR

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VIEW, AND ARS SUBMITTED QOR'S TO BETTER ADAPT THE CH-3C FOR THE ARS MISSION TO INCLUDE AIR TO AIR REFUELING FROM THE HC-130H. ASD PRELIMINARY FLIGHT TESTS INITIALLY INDICATE AIR TO AIR REFUELING FEASIBLE, BUT NO FURTHER ACTIONS HAVE BEEN TAKEN TO DATE. WE'VE PROVEN THAT THE CH-3C HAS A PRACTICAL 1000 MILE RANGE USING INTERNAL AUXILIARY TANK, TAKING OFF AND LANDING VERTICALLY. WE BELIEVE RUNNING TAKE-OFFS WOULD INCREASE THE RANGE TO ABOUT 1500 NM. THIS HAS NOT BEEN TESTED AND ISN'T IN THE CAT III TEST SERIES YET. THE ABILITY TO AIR-TO-AIR REFUEL WOULD GIVE CH3C UNPARALLELED RESCUE CAPABILITY IN THE FORM OF OCEAN SPANNING LOW ALL WEATHER VTOL CAPABILITY WITHOUT DEPENDENCE ON OR DEPLETION OF CRITICAL AIRLIFT FORCES. RESCUE WHERE IT'S NEEDED, WHEN NEEDED, WITHOUT COSTLY TEAR-DOWN, OR REASSEMBLY. THE EXPENDITURES IN PRECIOUS TIME AND ADDITIONAL HARDWARE TO MAKE AIR-TRANSPORTABILITY WORK, CAN ALSO BE SAVED BY THIS RANGE EXTENSION METHOD.

WITH AIR-TO-AIR REFUELING A PRACTICAL REALITY, RECOVERY OF INJURED OR NON-AMBULATORY ASTRONAUTS ALSO

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BECOMES A PRACTICAL REALITY AT GREATER RANGES. THE FIRST OF 27 PROJECT APOLLO MISSIONS IS PROGRAMMED FOR THE FIRST QUARTER OF CALENDAR YEAR 1966. THE MANNED OR "500" SERIES MISSIONS BEGIN IN THE THIRD QUARTER OF CALENDAR 1967. WE KNOW THAT 60 UE HC-130H'S WILL BE IN THE ARS INVENTORY BY THIS TIME. UNLESS THE "HH"-3C, CAPABLE OF BEING AERIAL REFUELED IS ALSO IN THE INVENTORY, OUR RECOVERY FORCE IS LIMITED TO COMPLETE DEPENDENCE UPON THE FULTON RECOVERY SYSTEM. WE KNOW THAT SAFETY OF THE ASTRONAUTS, FROM LAUNCH TO RECOVERY IS OF PARAMOUNT CONCERN IN ALL U. S. MANNED SPACE MISSIONS. WE HAVE GOOD REASON TO BELIEVE THAT REDUNDANCE IN RECOVERY SYSTEMS WILL CONTINUE TO BE REQUIRED BY NASA. (COMPLETE RELIANCE UPON THE MAN-RATED FULTON RECOVERY SYSTEM IS ALREADY BEING QUESTIONED BY NASA RECOVERY OFFICIALS. THEY PHYSICAL AND MENTAL CONDITION OF THE ASTRONAUTS MAY ENTIRELY RULE OUT EMPLOYMENT OF THE SYSTEM FOR SPACE RECOVERY MISSIONS, OR AT BEST, IT'S USE WILL BECOME A LAST DITCH METHOD.) EIGHTEEN HOUR ACCESS TIME, AND THE ECONOMICS OF EMPLOYING NUMEROUS U. S. NAVY SHIPS OF-THE-LINE AS HELICOPTER CARRIERS MITIGATE AGAINST THEIR CONTINUED USE. A GLOBAL

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AIR RECOVERY

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AIR RECOVERY MIXED FORCE IS REQUIRED NOW AND THROUGHOUT THE 1975 TIME PERIOD, AND THE MOST URGENT REQUIREMENT IS FOR AN ARS FORCE OF CH3C'S TO OPERATE IN CONJUNCTION WITH THE HC-130H FORCE.

SLIDE OFF - SLIDE OR FLIP

THESE ARE SHOWN HERE. WITH THIS FORCE WE HAVE REAL RESCUE COVERAGE AND A CAPABILITY TO GO TO WAR.

LBR - WHEN THE CH3C'S ARE IN THE INVENTORY, WE WILL REPLACE LIMITED PURPOSE LOCAL BASE RESCUE HELICOPTERS ON THOSE BASES WHERE WE'VE PROGRAMMED THE CH3C. THIS IS POSSIBLE BECAUSE THE CH3C IS ALSO AN EXCELLENT FIRE-SUPPRESSION HELICOPTER, ABLE TO BE SCRAMBLED IN 3 MINUTES OR LESS. WE ARE OF THE OPINION THAT THE CONCEPT OF LOCAL BASE RESCUE IS VALID AT ALL AIR FORCE BASES WHERE FLYING IS CONDUCTED. BUT WE ALSO BELIEVE IT A LUXURY WE CAN'T AFFORD AT ALL BASES. THE CONCEPT IS VALID, AND WE RECOMMEND IT BE CONTINUED THROUGHOUT THE TIME PERIOD BUT ONLY AT AIR TRAINING COMMAND BASES, TACTICAL TRAINING BASES, AND AT ALL GUNNERY RANGES. TODAY, THERE IS NO PROGRAM TO UPDATE THESE AIRCRAFT ALTHOUGH THE FIRST AIRCRAFT RECEIVED IN 1958 HAVE EXCEEDED THESE FIRST LINE LIFE. NUMBERS OF LBR DETACHMENTS MAY EVEN BE REDUCED

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BECAUSE WE BELIEVE THE LBR REQUIREMENT IS JUSTIFIED ONLY UNDER HIGH RISK CONDITIONS. THE REPLACEMENT LBR HELICOPTER MUST BE A TWIN-TURBINE MACHINE, WITH IFR CAPABILITY. WE BELIEVE A REPLACEMENT HELICOPTER FOR THIS MISSION CAN BE PROCURED FOR LESS THAN HALF THE COST OF THE PRESENT MACHINE. A SMALL OFF-THE-SHELF HELICOPTER COULD MEET THIS REQUIREMENT. OUR QOR FOR A REPLACEMENT TWIN TURBINE LBR HELICOPTER IS INCLOSED IN OUR STUDY.

A LIMITED NUMBER OF HEAVY-LIFT HELICOPTERS EXEMPLIFIED BY THE U. S. ARMY CH-47 CHINOOK OR THE U. S. MARINE CH-53A ²⁸ARE NEEDED TO ASSURE RECOVERY OF HEAVY AEROSPACE HARDWARE. THE APOLLO SPACECRAFT WEIGHS 10,000 LBS WHICH IS 4000 LBS BEYOND THE EXTERNAL SLING-LOAD CAPABILITY OF THE CH3C.

THE CH3C IS FAR MORE ECONOMICAL TO OPERATE AND MEETS 90% OF OUR MISSION REQUIREMENTS. FOR THIS REASON ONLY A LIMITED NUMBER OF HEAVY LIFT HELICOPTERS WILL BE REQUIRED FOR APOLLO CAPSULE RECOVERY IN THE PLANNED LANDING AREAS. IT APPEARS REASONABLE TO ASSUME THAT ADDITIONAL HEAVY LIFT MISSIONS WILL BE REQUIRED IN FURTHER SPACE RESEARCH AND DEVELOPMENT PROGRAMS.

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SECTION VI - SUPPORTING SYSTEMS

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SECTION VI - SUPPORTING SYSTEMS

1. ACQUISITION OF AIRCRAFT ALONE WILL NOT PROVIDE A COMPLETE RESCUE SYSTEM BUT MUST BE SUPPORTED BY OTHER ELEMENTS. ANY SYSTEMS IN SUPPORT OF THE RESCUE/RECOVERY MISSION REGARDLESS OF SPECIFIC TIME FRAMES MUST LEND THEMSELVES TO COMPLETE FLEXIBILITY. THEY MUST BE CAPABLE OF EXPANDING AND ADAPTING TO CHANGING CONCEPTS OR UPDATING OF EQUIPMENT BROUGHT ABOUT BY STATE-OF-THE-ART IMPROVEMENTS.
2. WITHIN THE MATERIEL AREA THE VAST SYSTEM NECESSARY TO SUPPORT WORLD-WIDE DEPLOYMENT AND DISPERSAL IS ALREADY IN-BEING AND LENDS ITSELF QUITE ADEQUATELY TO SUPPORTING OUR MISSION. AFLC'S YEARS OF EXPERIENCE IN SUPPORTING TACTICAL AIR COMMAND, COMPOSITE AIR STRIKE FORCES, MATS AIRLIFT EXERCISES AND SAC REFLEX ACTIONS HAVE REFINED AND POLISHED THEIR SUPPORTING SYSTEMS. GIVEN SUFFICIENT PRIORITY AND PRECEDENCE RATINGS THIS SYSTEM SHOULD PROVE EFFECTIVE IN SUPPORTING ARS GLOBAL REQUIREMENTS. DURING DEPLOYMENT THE USE OF MISSION SUPPORT KITS (MSK'S) AND ACCOMPANYING MAINTENANCE PERSONNEL WILL PERMIT LIMITED MAINTENANCE IN THE FIELD. ALL SCHEDULED MAINTENANCE AND PHASE INSPECTIONS WILL BE ACCOMPLISHED AT HOME STATION. WHILE A CONSOLIDATED MAINTENANCE SYSTEM

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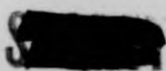
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IS EFFECTIVE FOR GENERAL MAINTENANCE IT DOES NOT LEND ITSELF TO ADEQUATELY SUPPORTING THE AIR RESCUE SERVICE IN THOSE AVIONICS AREAS WHERE WE OPERATE SYSTEMS PECULIAR TO US ALONE. ALTHOUGH THIS PROBLEM IS NOT UNIQUE AND MAY SEEM EASILY SOLVED IT CANNOT BE SOLVED UNLESS SPECIFIC AUTHORITY IS INCLUDED IN APPROPRIATE MANNING AND EQUIPPING DOCUMENTS. WE HAVE REQUESTED SUCH AUTHORITY WITHIN OUR STUDY.]

3. UPDATING OF PRESENT EQUIPMENT TO EXPLOIT ITS FULL POTENTIAL, ADAPTATION AND USE OF EXISTING SIGNALLING DEVICES AND A GENUINE AWARENESS OF A NEED FOR NEW IDEAS IS NECESSARY TO IMPROVE RESCUE EFFECTIVENESS. ARS HAS TAKEN ACTION BY SUBMITTING QUALITATIVE OPERATIONAL REQUIREMENTS AND CLASS V MODIFICATION REQUESTS TO IMPROVE OUR CAPABILITIES. FOR EXAMPLE, WE MENTIONED A QOR FOR AN AIR-TO-AIR REFUELING SYSTEM FOR THE CH3C HELICOPTER WHICH WAS SUBMITTED ON 7 AUGUST 1964.

WE ALSO ESTABLISHED A QOR FOR AN AERIAL RETRIEVAL SYSTEM FOR THE CH3C HELICOPTER. ON 17 APRIL 1964 TO PERMIT AERIAL RECOVERY OF HIGH VALUE HARDWARE SUCH AS ROCKET BOOSTERS AND CAMERA CASSETTES ON THE NATIONAL MISSILE RANGES. IT WILL PREVENT LOSS OR DAMAGE TO EQUIPMENT DUE TO HARD IMPACT LANDINGS OR WATER IMMERSION.

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TO EFFECTIVELY EMPLOY THE CH3C ON LONG RANGE MISSIONS AND TO INSURE ACCURATE NAVIGATION OVER REMOTE LAND MASSES AND AT SEA, AN ADEQUATE LONG RANGE NAVIGATION SYSTEM IS REQUIRED. CONSEQUENTLY, A CLASS V MODIFICATION FOR INSTALLATION OF LORAN "C" AN/ARN 78 RADIO NAVIGATION EQUIPMENT WAS SUBMITTED ON 4 JANUARY 1965.

IN THE AREA OF LOCATION DEVICES WE SUBMITTED A QOR FOR A SOUND FIXING AND RANGING (SOFAR) OCEAN CRASH LOCATOR SYSTEM ON 13 JAN 1964. THIS LOCATING SYSTEM IS PRESENTLY UTILIZED IN THE MISSILE IMPACT LOCATION SYSTEM (MILS) TO PINPOINT MISSILE IMPACT AREAS ON THE NATIONAL MISSILE RANGES. DESPITE THE FACT THAT SOFAR CHARGES ARE CARRIED ABOARD USAF, NAVY, AND FAA AIRCRAFT OPERATING FROM HAWAII, THE POTENTIAL OF THIS LOCATING DEVICE HAS NOT BEEN EXPLOITED OR FULLY EXAMINED.

4. ADDITIONAL QUALITATIVE OPERATIONAL REQUIREMENTS AND REQUESTS FOR MODIFICATIONS TO EXISTING EQUIPMENT ARE CONTAINED WITHIN THE STUDY. ALL ARE THOROUGHLY JUSTIFIED ON THE BASIS OF INCREASED MISSION EFFECTIVENESS.

SECTION VII - BRIEFING PAPER

DURING THE SUCCESSFUL GEMINI MISSION ON 23 MARCH, AIR RESCUE SERVICE PROVIDED RESCUE COVERAGE FROM LAUNCH

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TO FINAL RECOVERY

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TO FINAL RECOVERY, WITH ONE EXCEPTION. WE HAD FOUR CH3C'S COVERING THE PAD AT CAPE KENNEDY IN CASE OF PAD ABORT, OR EJECTION OF THE ASTRONAUTS BELOW 13,500 FEET. BETWEEN FLORIDA AND AFRICA, OUR HC-54'S AND HC-97'S COVERED THE LAUNCH ABORT AREA. IN SOUTH AMERICA, AFRICA, THE INDIAN OCEAN, AUSTRALIA, AND THE SOUTH PACIFIC, RESCUE AIRCRAFT STOOD BY FOR A CONTINGENCY LANDING WITH PARARESCUE PERSONNEL ABOARD TO SECURE THE COMMAND MODULE AND TO PROVIDE ASSISTANCE AND MEDICAL AID, IF NECESSARY. IN THE PLANNED LANDING AREA, AN ADDITIONAL FOUR AIRCRAFT WERE AVAILABLE IN CASE OF OVERSHOOT OR UNDERSHOOT FOR A TOTAL OF 37 FIXED-WING AND 4 HELICOPTERS INVOLVED.

ONE OF OUR HC-54'S FOUND THE SPACECRAFT AND PARACHUTED PARARESCUE PERSONNEL TO PROVIDE CAPSULE FLOTATION AND MEDICAL AID. IF WE'D HAD HEAVY LIFT HELICOPTERS AT GRAND TURK ISLAND, THE CARRIER "INTREPID" COULD HAVE BEEN ENGAGED IN ITS NORMAL FUNCTIONS AND ARS COULD HAVE RETRIEVED THE ASTRONAUTS AND THE CAPSULE.

BUT THIS IS NOT THE EXCEPTION OR GAP IN COVERAGE THAT WAS SO OBVIOUS. ALL FACETS OF THE MISSION WERE COVERED EXCEPT FOR SPACE ITSELF.

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IF ONE OF THE MAJOR SUB-SYSTEMS OF THE GEMINI CAPSULE HAD FAILED, THUS PREVENTING RE-ENTRY, THE NATION WOULD HAVE HAD A STEP BY STEP TELEVISION AND RADIO DESCRIPTION OF HOW THE UNINJURED AND UNHARMED ASTRONAUTS WERE DYING WITHOUT HOPE OF RESCUE. WHEN THE PUBLIC REALIZED THAT NO ACTION WHATSOEVER COULD BE TAKEN TO ATTEMPT RESCUE, THE PRESSURES ON THE ADMINISTRATION WOULD, AT A MINIMUM, RESULT IN A REAPPRAISAL OF SPACE GOALS: OR AN INDEFINITE DELAY, REORGANIZATION, OR POSSIBLY CANCELLATION, OF PLANNED SPACE PROGRAMS. IN EARLY MERCURY SHOTS, A FAILURE MIGHT HAVE BEEN ACCEPTED. BUT AS OF TODAY, A FAILURE WHICH WOULD RESULT IN MAROONING U. S. ASTRONAUTS IN SPACE, WOULD REPRESENT A NATIONAL DELINQUENCY WHICH COULD PRODUCE UNPLEASANT REACTION, NOT ONLY BY THE U. S. PUBLIC, BUT BY OUR ALLIES AND OTHER UNCOMMITTED COUNTRIES WHO MIGHT LOOK TO THE RUSSIANS FOR TECHNOLOGICAL LEADERSHIP AS A RESULT OF SUCH A BLATANT FAILURE. SUCH AN EVENT COULD MARK A TURNING POINT IN HISTORY, OF UNFORESEEABLE DURATION AND IMPACT.

WE, AS A NATION, MUST ASK OURSELVES THE QUESTION -
"DO WE REALLY BELIEVE THAT OUR NATIONAL ETHICS, TRADITIONS,
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AND HUMANITARIAN VALUES END AT THE EDGE OF SPACE?" IF THE ANSWER IS YES, WE HAVE NO BUSINESS IN SPACE AT ALL. IF THE ANSWER IS "NO, THEN THESE VALUES REMAIN PART AND PARCEL OF THE AMERICAN SYSTEM, AND WE'D BETTER GET ON WITH THE JOB TO DEFINE AND BUILD A SPACE RESCUE SYSTEM. WHEN THIS DONE, WE CAN PRACTICE THESE BELIEFS, INSTEAD OF FINDING OURSELVES IN THE SAME FIX WE WERE IN WHEN THE KOREAN WAR AND THE VIETNAM STRUGGLE STARTED, THAT IS, WITHOUT A RESCUE CAPABILITY ADEQUATE TO MEET THE REQUIREMENT.

FULLY REALIZING THAT WHAT HAS BEEN SAID IS MORE OR LESS OF AN EMOTIONAL APPROACH TO A PROBLEM, WHICH DOESN'T HAVE MANY OF THE QUALITIES NECESSARY TO PENETRATE THE COST EFFECTIVENESS BARRIER, THERE ARE OTHER PRACTICAL ASPECTS OF A SPACE RESCUE SYSTEM WHICH CAN'T BE OVERLOOKED.

FIRST OF THESE, WE BELIEVE, IS THE REQUIREMENT TO PHYSICALLY EXAMINE THE SPACECRAFT IN SPACE IF AN EMERGENCY OR FAILURE OCCURS RESULTING IN DISASTER. THE REASONS FOR FAILURE MUST BE PINPOINTED SO THAT SUBSEQUENT MANNED PROGRAMS ARE NOT JEOPARDIZED. IN OUR OWN AVIATION REALM, WE SPEND THOUSANDS OF MANHOURS PIECING TOGETHER CRASHED

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AIRCRAFT FOR IDENTICAL REASONS. THE ONLY SURE WAY TO FIND OUT WHAT HAPPENED IS TO GAIN DIRECT ACCESS TO WHATEVER IS LEFT - CONJECTURE CAN'T PROVIDE A POSITIVE FIX.

SECOND, A RAPID RESPONSE FOR RESCUE MAY ALSO PROVIDE A RAPID RESPONSE FOR REPAIR. THIS COULD MEAN REPLACEMENT OF A BLACK BOX OR THE REPAIR OF AN OXYGEN LEAK. MANY DIFFICULTIES COULD OCCUR BEYOND THE CAPABILITY OF THE PRIMARY CREW TO REPAIR, BUT WITHIN THE CAPABILITIES OF AN AUXILIARY CREW EQUIPPED WITH REPLACEMENT COMPONENTS FOR MALFUNCTIONING SYB-SYSTEMS. REPAIR IN THIS SENSE IS A MEANS OF RESCUE SINCE REPAIR WOULD PERMIT THE CREW TO COMPLETE THE MISSION AND BE RECOVERED IN THE NORMAL MANNER.

THIRD, EQUIPPING EACH SPACE VEHICLE WITH AN ESCAPE MODULE WOULD BE PROHIBITIVELY COSTLY IN TERMS OF THE ADDITIONAL BOOST REQUIRED FOR EACH SPACECRAFT AND THE REDUNDANCY REQUIRED. FURTHER, ESCAPE AND REENTRY BY AUXILIARY MODULE WOULD MERELY REMOVE THE CREW FROM ONE HOSTILE ENVIRONMENT INTO ANOTHER - THAT IS, INTO THE OCEAN, JUNGLES, OR MOUNTAINS OR, IN THE CASE OF A POLAR ORBIT, INTO THE ARCTIC, ANTARCTIC, OR ASIAN COMMUNIST LAND MASSES.

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FOURTH, THE CAPABILITY TO INTERCEPT, IDENTIFY, OR GAIN ACCESS TO SPACE VEHICLES, COOPERATIVE, PASSIVE, OR UNCOOPERATIVE, WILL BE A VALID MILITARY REQUIREMENT IN THE SPACE AGE. THE TECHNIQUES DEVELOPED AND EMPLOYED FOR THE SPACE RESCUE ROLE MAY BE OF FAR GREATER IMPORTANCE THAN THE PURE RESCUE FUNCTION. DEVELOPING THIS CAPABILITY WITHIN THE CONNOTATION OF HUMANITARIAN RESCUE APPEARS TO BE A MOST ACCEPTABLE METHOD IN TERMS OF IMPACT ON NATIONAL AND WORLD OPINION.

ONCE AGAIN RESCUE IS TRAILING BEHIND SYSTEM DEVELOPMENT. APPARENTLY THIS IS BASED ON EXTREME CONFIDENCE IN QUALITY CONTROL OF EACH ELEMENT OF THE MANNED SPACE SYSTEMS. THIS LEADS TO THE UNSPOKEN BELIEF THAT IT IS VIRTUALLY IMPOSSIBLE FOR A MALFUNCTION TO OCCUR WHICH COULD MAROON MAN IN SPACE. THIS SEEMS TO BE A RATHER CURIOUS VIEWPOINT WHEN WE CONSIDER THAT THE SPACE INDUSTRY IS ESSENTIALLY AN ARM OF THE AVIATION INDUSTRY, WHOSE PRODUCT FAILURES KEEP AIR RESCUE SERVICE IN BUSINESS.

IT MAY BE TOO LATE RIGHT NOW TO DEVELOP A SYSTEM IN TIME TO PREVENT THE LOSS OF MEN IN SPACE. WE BELIEVE THAT IMMEDIATE ACTIONS MUST BE TAKEN TO DEFINE AND PRODUCE A

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RESCUE SYSTEM WHICH WILL MEET THE RESCUE REQUIREMENTS OF THE SPACE AGE. TO THIS END, WE SEEK YOUR ACTIVE ASSISTANCE IN GETTING THIS PROGRAM OFF THE GROUND.

SECTION VIII

WE'VE DISCUSSED SYSTEMS AND SUB-SYSTEMS, NOW LET'S TALK A LITTLE BIT ABOUT ORGANIZATION AND MANPOWER. WITHIN THE PAST TWO MONTHS, THE MATS STAFF WAS BRIEFED ON THE PROPOSED REORGANIZATION OF AIR RESCUE SERVICE SO WE'LL MERELY HIT THE HIGHLIGHTS OF THE BRIEFING. ESSENTIALLY, THE PROPOSAL IS TO ESTABLISH ^{Three} ~~THESE~~ RESCUE WINGS SUBORDINATE TO ARS HEADQUARTERS TO HANDLE

SLIDE - 3 WING ORGANIZATION & JSARC'S

DAY-TO-DAY OPERATIONS. OVERALL PLANNING AND OPERATIONAL CONTROL OF THE RESCUE FORCES WILL REMAIN WITH THE HEADQUARTERS THUS PERMITTING CENTRALIZED CONTROL AND DECENTRALIZED EXECUTION. WE BELIEVE THIS ORGANIZATIONAL STRUCTURE WILL PROVIDE THE FLEXIBILITY NECESSARY TO MEET, OR ADAPT TO, EXISTING AND CHANGING USAF AND DOD RESCUE AND RECOVERY REQUIREMENTS FOR THE NEXT DECADE. WE HOPE HERE THE THREE WING STRUCTURES IN BEING BY THE THIRD QUARTER

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SLIDE - MANPOWER

THE MANPOWER REQUIRED TO SUPERVISE, MAINTAIN, AND CREW THE AIRCRAFT WHICH WE HAVE DISCUSSED TODAY ARE REFLECTED ON THE NEXT CHART. FROM OUR PRESENT AUTHORIZATIONS FOR 3458 SPACES, THE FORCE BUILDS UP AS THE AIRCRAFT ARE PHASED INTO THE SYSTEM, UNTIL ALL AIRCRAFT ARE ON HAND IN THE FOURTH QUARTER OF FISCAL 68. THIS INVOLVES A GRADUAL BUILDUP OF MANPOWER RESOURCES FOR AN ADDITIVE REQUIREMENT OF 2436 AT THE COMPLETION OF THE FORCE BUILDUP.

SECTION IX - ADVANCED CONCEPTS

THE PERIOD WE'VE BEEN EMPHASIZING IS REALLY WITHIN THE NEXT THREE YEARS BUT WE MUST LOOK BEYOND THAT TIME SINCE CONCURRENT DEVELOPMENT OF AIRCRAFT TO KEEP PACE WITH OUR USER'S REQUIREMENTS IS A MUST. PAST FRAGMENTED EFFORTS TO GET AN OPERATIONAL VTOL OR V/STOL RESCUE/RECOVERY AIRCRAFT OF PRACTICAL VALUE INTO THE INVENTORY HAVE BEEN EMBROILED IN MORE CONFUSED EFFORT AND PARTIAL RESULTS THAN CAN BE ENUMERATED. DOLLARS HAVE BEEN EXPENDED ON EVERYTHING FROM GEMS TO JETS. THAT IS FROM GROUND EFFECT MACHINES TO LIFT ENGINE TYPE V/STOL AIRCRAFT .

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WE CERTAINLY CAN'T GO INTO GREAT DETAIL IN STUDYING OR DISCUSSING SUCH A BROAD SPECTRUM OF V/STOL POSSIBILITIES AND MUST THEREFORE WEED OUT THE LESS PROMISING CONFIGURATION AND CONCENTRATE MORE THOROUGHLY ON THOSE WHICH GIVE REAL PROMISE OF FUTURE APPLICATION IN THE GLOBAL AIR RECOVERY FORCE. ONE CENTRAL CRITERIA IS SET. THAT IS THE AIRCRAFT MUST BE ABLE TO RESCUE PEOPLE AND BE ADAPTABLE TO THE RECOVERY OF AEROSPACE HARDWARE FROM ANY PLACE AT ANY TIME. THIS MEANS FROM UNPREPARED AREAS, AND IT MEANS LOW, 15 PSF OR LESS, DOWNWASH VELOCITIES. WE VISUALIZE ONE TYPE VEHICLE, CONVERTIBLE AND EASILY ADAPTABLE TO OUR COMPLETE RECOVERY MISSION. THE RESEARCH WORK THAT HAS BEEN DONE BY THE MILITARY AND INDUSTRY OVER THE PAST SEVERAL YEARS IS PROVIDING MANY MORE TECHNICAL AND ECONOMIC OPTIONS IN V/STOL THAN HERETOFORE, AND CONSEQUENTLY, A GREATER DIVERSITY OF TASKS CAN BE FORESEEN FOR V/STOL AIRCRAFT FOR THE FORESEEABLE FUTURE. WE EMPHASIZE THAT THIS GROWING DIVERSITY OF OPTIONS AND TASKS MAKES IT MUCH MORE URGENT THAN EVER, THAT AIRCRAFT SYSTEMS CHARACTERISTICS BE MATCHED PRECISELY AND CAREFULLY TO OPERATIONAL REQUIREMENTS. WE BELIEVE WE CAN CLEARLY DEFINE OUR REQUIREMENTS.

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ADVANCED RESCUE

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ADVANCED RESCUE AIRCRAFT CONCEPTS

THE GROUND RULES WE'VE ADOPTED IN OUR ADVANCED CONCEPTS IS THAT AN INCREASE IN CAPABILITY MUST ENTAIL NO INCREASE IN COMPLEXITY THAT WOULD AFFECT COST, PRODUCIBILITY, MAINTENANCE, OR RELIABILITY OF THE SYSTEM. RECOMMENDED TO MEET OUR FORESEEABLE RESCUE/RECOVERY MISSION REQUIREMENTS.

WE MIGHT FIRST TAKE A LOOK AT THE SPECTRUM OF V/STOL RELATED TO SPEED SHOWN IN FIGURE #1. HERE WE HAVE ARRANGED V/STOL TYPES FROM LEFT TO RIGHT IN INCREASING ORDER OF SPEED. THE PURE ROTOR TYPES ARE AT THE LOW SPEED END, THE PROPELLER LIFT TYPES FALL IN THE MIDDLE, AND THE JET-LIFT TYPES OCCUR, AS WOULD BE EXPECTED, AT THE HIGH SPEED END. THE RESULT, HOWEVER, IS NOT AS SIMPLE AS IT MAY APPEAR. FOR EXAMPLE, IT IS POSSIBLE TO EXTEND THE CAPABILITY OF THE ROTOR TYPES BEYOND THE RANGE SHOWN, BY STOPPING THE ROTOR. YOU WILL ALSO NOTE THAT THE SPEED OF THE ROTOR TYPES CAN BE FURTHER AND GREATLY INCREASED IN AN AIRCRAFT WHICH PROVIDES FOR STOWING OR RETRACTING A STOPPED ROTOR. IN THIS CONCEPT, BOTH THE ROTOR-PROPULSION SYSTEM AND HIGH-SPEED CONVENTIONAL FLIGHT ARE ACHIEVED FROM JETS DIVERTED

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AS NECESSARY. FIGURE #2 SHOWS AN EXAMPLE OF THE SYSTEM IN A .9 MACH HOT-CYCLE STOWED ROTOR. THIS AIRCRAFT INCORPORATES A ROTOR SMALL AND SIMPLE ENOUGH TO BE RETRACTED WITHIN THE FUSELAGE. THE GROSS WEIGHT FOR THE MACHINE AND THE WEIGHT EMPTY, ARE APPROXIMATELY THE SAME AS THOSE OF THE F-86 (17,500 LBS AND 11,000 LBS). THIS APPARENTLY IMPOSSIBLE FEAT IS ENTIRELY PRACTICAL SINCE THE ENTIRE PROPULSION SYSTEM AND ROTOR IN THIS AIRCRAFT WEIGH, TOGETHER, SOMEWHAT LESS THAN DID THE EARLY VENTAGE ENGINE OF THE F-86. ANALYSIS OF THIS SIMPLE SYSTEM, WHICH ELIMINATES COMPLEX TRANSMISSIONS, POWER SHAFTING, AND GEAR TRAINS, WAS FIRST MADE SOME 15 YEARS AGO. AT THAT TIME,, SATISFACTORY HIGH TEMPERATURE STRUCTURAL MATERIALS WERE NOT AVAILABLE, BUT SUCH IS NOT THE CASE TODAY. THE HUGHES OV-9A PURE HELICOPTER, EMPLOYING THE HOT-CYCLE PRINCIPLE, IS FLYING TODAY.

THE QUESTION MAY BE ASKED: WHY EMPLOY, OR CONSIDER, A ROTOR? INSTALLED THRUST-TO-WEIGHT RATIOS OF LIFE-ENGINES, EXCLUSIVE OF THE CRUISE PROPULSIVE SYSTEM, COULD BE TWICE THAT OF THE STOWED-ROTOR SYSTEM. THE ANSWER IS

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SIMPLY THAT, THE TACTICAL RESCUE MISSION (WHETHER FOR ASTRONAUT OR DOWNED COMBAT AIRCREW) REQUIRES EXTENDED HOVER, AND FLIGHT AND MANEUVER AT HELICOPTER SPEEDS. OF KEY SIGNIFICANCE, IS THAT THE MACHINE MUST OPERATE TO AND FROM COMPLETELY UNPREPARED SITES. NEITHER HIGH DOWN-WASH VELOCITIES NOR EXCESSIVE HOVER FUEL FLOW CAN BE TOLERATED. THE ROTOR SYSTEM GENERATES LOW DOWNWASH VELOCITIES AND PERMITS EXTENDED FLIGHT AT EVERY LOW SPEEDS WITHOUT APPRECIABLE INCREASE IN MISSION FUEL LOAD. RESULT? EXCELLENT OPERATIONAL FLEXIBILITY. WE BELIEVE THE CONCEPT HAS VERY PROMISING APPLICATION AS A HIGH-PERFORMANCE RESCUE-RETRIEVAL VEHICLE. IT COULD BE AIR-TO-AIR REFUELED FROM KC-135'S OR KC-130'S IN THE SAME MANNER AS TACTICAL FIGHTERS. IT COULD ACCOMPANY AIR STRIKES OR STAND STRIP ALERT AT ADVANCED UNPREPARED SITES, PERFORMING IMMEDIATE RESCUE OF DOWNED TACTICAL FIGHTER-BOMBER CREWS. STRIKES IN NORTH VIETNAM, EXEMPLIFY ITS APPLICATION. IT WOULD DENY THE ENEMY A PRIME SOURCE OF INTELLIGENCE DATA. ITS COVERT USE IS OBVIOUS.

REFERRING AGAIN TO FIGURE #2, WE MUST ELIMINATE THE TILT-WING AND/OR TILT-PROP ON AT LEAST TWO COUNTS. FIRST,

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THAT NEITHER BY THEIR VERY NATURE, WILL POSSESS THE OPERATIONAL FLEXIBILITY DEMANDED IN OUR MISSION WHICH REQUIRES THAT WE BE ABLE TO PERFORM THE RESCUE FROM ANY PLACE AT ANY TIME. THEY CANNOT OPERATE EFFECTIVELY NOR SAFELY FROM UNPREPARED SITES. SECONDLY, THEY ARE HIGHLY COMPLEX, AND BY THEIR VERY NATURE, WILL REMAIN SO. TILT-WINGS SUCH AS THE SC-142, HAVE ELEVEN TRANSMISSIONS AND ASSOCIATED DRIVE SHAFTING, SO THEY ARE COMPLETELY DEPENDENT UPON AUTOMATIC STABILIZATION DEVICES. THE RESULT? THE MAINTENANCE MAN-HOUR PER FLYING HOUR (MMHFH) RATIO IS EXCESSIVE. THE SC142 IS PREDICTED AT 86 MMHFH VERSUS 10.7 MMHFH FOR THE CH3C. ALTHOUGH DIRECT LINE TURBO FANS AND TURBO JETS ARE LESS COMPLEX, THEY PAY SEVERE PENALTIES IN FUEL-FLOW WHICH REDUCES HOVER TIME. THE DOWN-WASH PROBLEM IS NOT OVERCOME. IN FACT, SOME NEW PROBLEMS ARE INTRODUCED WITH THESE TYPES. BRIEFLY, ENOUGH HEAT (425°F) IS GENERATED TO MELT ASPHALT, COUPLED WITH UNACCEPTABLY HIGH DOWN-WASH VELOCITIES.

A SECOND PROMISING APPLICATION OF THE HOT-CYCLE IS THE ROTOR-WING SHOWN IN FIGURE #3. THE ROTOR-WING IS A NEW CONCEPT FOR A HIGH-SPEED VTOL AIRCRAFT THAT HAS THE

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HOVERING EFFICIENCY WITH LOW DOWN-WASH VELOCITIES OF A HELICOPTER, COUPLED WITH AN OUTSTANDING PAYLOAD-CARRYING ABILITY. THE ROTOR-WING IS A UNIQUE, DUAL-PURPOSE LIFTING DEVICE, THAT IS BASICALLY A HOT CYCLE, HIGH SOLIDITY ROTOR WITH AN UNUSUALLY LARGE HUB. IN ONE ELEMENT, IT COMBINES A TIP-JET POWERED ROTOR FOR VERTICAL AND LOW-SPEED FLIGHT THAT STOPS DURING FLIGHT TO BECOME A LOW-ASPECT RATIO FIXED WING FOR CRUISE. BY STOPPING THE ROTOR IN FORWARD FLIGHT, THE SPEED LIMITATIONS OF THE HELICOPTER ROTOR ARE REMOVED.

THE HOT-CYCLE PROPULSION SYSTEM THAT POWERS THIS VEHICLE IS CHARACTERIZED BY LIGHT WEIGHT AND SIMPLICITY FACTORS THAT PROMISE A PAYLOAD CAPABILITY FOR THE ROTOR-WING AIRCRAFT, MARKEDLY SUPERIOR TO OTHER HIGH-SPEED VTOL AIRCRAFT.

CONCLUSIONS:

FIRST, THE HOT-CYCLE JET PROPULSION ROTOR-WING SYSTEM INCREASES SUBSTANTIALLY THE RESCUE MISSION CAPABILITY. IT MEETS OUR CRITERIA WHICH DEMANDS NO INCREASE IN COMPLEXITY THAT WOULD AFFECT COST, PRODUCIBILITY, MAINTENANCE, OR RELIABILITY.

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SELF-CONTAINED GUIDANCE SYSTEM USED IN THE MACE A MISSILE TO GUIDE ITSELF OVER A PRE-DETERMINED COURSE FROM LAUNCH TO TARGET. THE SYSTEM COMPARES AIRBORNE RADAR INFORMATION WITH PRE-PLOTTED VIDEO MAP INFORMATION STORED ON 35 MM FILM. CAPABLE OF OPERATION OVER LAND ONLY, THE SYSTEM IS ENGAGED OVER A KNOWN POINT AFTER WHICH THE AIRCRAFT IS FLOWN BY THE SYSTEM THROUGH THE AUTOMATIC PILOT TO THE PRE-PLOTTED DESTINATION ARRIVING WITH AN AVERAGE ERROR OF LESS THAN 300 FEET, REGARDLESS OF THE DISTANCE TRAVELED. ALTITUDE CORRECTIONS ARE PROVIDED BY THE FILM STRIP BY PROGRAMMING RADAR ALTITUDE CHECK POINTS ON THE FILM AS FREQUENTLY AS DESIRED. THIS SYSTEM, IN OUR HC-130'S OR CH-3C'S, WOULD PERMIT PENETRATIONS INTO HOSTILE TERRITORY AT NIGHT OR IN ACTUAL WEATHER CONDITIONS FLYING AT 500 FEET ABOVE THE GROUND WITH A MINIMUM CREW FATIGUE FACTOR. WE BELIEVE THAT SUCH EQUIPMENT COULD PROVIDE AN INHERENTLY SAFE INFILTRATION OR EXFILTRATION CAPABILITY NEVER BEFORE ENJOYED BY THE USAF.

CURIOUSLY ENOUGH, THIS SYSTEM WAS BEEN USED IN THE AIR FORCE FOR A NUMBER OF YEARS BUT USED ONLY IN THE MISSILES. PERHAPS THIS WAS BECAUSE OF THE SECURITY SURROUNDING THE MISSILE SYSTEMS, BUT A MAJOR POINT HERE

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IS THAT THE ENTIRE SYSTEM IS AIR FORCE OWNED AND NOT AVAILABLE TO THE OTHER SERVICES. OF PARTICULAR SIGNIFICANCE IS THE PROGRAMMED PHASE-OUT OF THE MACE A SYSTEM IN THE LATTER PART OF 1966. THIS WILL MAKE 88 SETS OF THE GUIDANCE SYSTEM AVAILABLE TO BE USED OR SCRAPPED.

WE HAVEN'T HAD AN OPPORTUNITY TO FULLY EXAMINE THE POSSIBILITIES OF USING ATRAN SYSTEM FOR COMBAT RESCUE OR FOR OTHER PURPOSES. MANY APPLICATIONS APPEAR FEASIBLE FOR PEACETIME USES SUCH AS NAVIGATION IN REMOTE AREAS, AUTOMATIC LETDOWNS AT REMOTE AIRFIELDS WITHOUT AN APPROACH AID, OR EVEN EMERGENCY LETDOWNS IF THE APPROACH AID BECOMES INOPERATIVE. IF WE DETERMINE DEFINITE APPLICATION TO THE AIR RESCUE MISSION, WE PLAN TO REQUEST AN ENGINEERING STUDY TO DETERMINE THE COSTS OF REMOVAL FROM THE MACE, REDESIGN, AND INSTALLATION IN THE HC-130H.

SECTION IX

IN ADDITION TO ADVANCED AIRCRAFT AND ATRAN, WE ARE ALSO LOOKING AT THE POSSIBILITIES OF DEVELOPING A SYSTEM, OR SYSTEMS, WHICH WILL DETECT PERSONS OR AIRCRAFT CONCEALED FROM VISUAL OBSERVATIONS, AND NOT EQUIPPED

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WITH BEACONRY. THIS MAY BE A FORM OF A LIGHT AMPLIFICATION SYSTEM, INFRA-RED APPLICATIONS OR MAGNETIC DEVICES.

WE ALSO FEEL THAT SATELLITE SYSTEMS MAY BE ADAPTED TO EMERGENCY AIRCRAFT OR PERSONNEL BEACONRY TO RECEIVE AND RELAY DISTRESS SIGNALS FIXING A LOCATION ON EARTH WITHIN REASONABLE SEARCH PARAMETERS. SATELLITES MAY ALSO BE EMPLOYED FOR RELAYING LOCATION AND IDENTIFICATION OF PERSONNEL DOWNED IN HOSTILE TERRITORY AND FOR PROVIDING A SECURE MEANS OF COMMUNICATING RECOVERY INFORMATION.

SUMMARY - BRIEFING

WE'VE COVERED A RATHER LARGE QUANTITY OF MATERIAL IN A RELATIVELY SHORT TIME, INCLUDING SOME PHILOSOPHIES AND CONCEPTS WHICH HAVE NOT BEEN PREVIOUSLY PRESENTED. RATHER THAN TO ATTEMPT A COMPLETE SUMMARY OF THE PRESENTATION, WE'D LIKE TO PRESENT AN OVERALL VIEW OF THE RESCUE AND RECOVERY MISSION AND FORCES VERSUS THE REQUIREMENTS.

SLIDE ON

FIRST, WE NEED A FIXED-WING FORCE TO MEET FORECAST RESCUE COVERAGE REQUIREMENTS FOR THE MANNED SPACE

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PROGRAMS. THIS IS PROGRAMMED AND THE REQUIREMENT
WILL BE MET - BUT ONLY AT A COST OF DILUTING THE

OVERLAY #1

yes
CONVENTIONAL SAR FIXED-WING CAPABILITY TO AN INEFFECTIVE
HANDFUL OF TIME-WORN AIRCRAFT. ^{SECOND} TO DO OUR JOB PROPERLY
THE CONVENTIONAL SAR FORCES MUST BE UPDATED AND INCREASED
IN NUMBERS. AS YOU CAN SEE, THESE FORCES ARE MUTUALLY
SUPPORTING AND, IN FACT, ARE IDENTICAL IN CAPABILITY,
WHICH WILL PROVIDE THE NECESSARY DEPTH IN FIXED-WING
RESOURCES, ESSENTIAL TO MEET OUR GLOBAL RESPONSIBILITIES.

OVERLAY #2

~~THEY~~
~~WENT DANE OUR~~ HIGH PERFORMANCE HELICOPTERS ~~WHICH~~
WILL BE THE BACKBONE OF OUR COMBAT RECOVERY FORCES, BUT
~~THEY~~ ~~WHICH~~ ARE ALSO ESSENTIAL TO THE PEACETIME MISSION. THESE
AIRCRAFT ARE AS CLOSE AS WE CAN COME TO A ~~TIME~~ VI STOL
CAPABILITY DURING THE PERIOD THEY ARE REQUIRED. THE
INTERRELATIONSHIP WITH THE SPACE RECOVERY FORCES AND
THE CONVENTIONAL SAR FORCES CAN, AND MUST, BE TIGHTENED
BY AN AIR-TO-AIR REFUELING SYSTEM, WHICH WILL GIVE ARS
A ~~TIME~~ GLOBAL RESCUE CAPABILITY FOR INJURED PERSONNEL

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OR GROUPS. THIS TEAM WILL PAY ITS WAY BY ELIMINATING THE REQUIREMENT FOR SUBSTANTIAL NUMBERS OF COMBAT SHIPS TIED UP IN SPACE RECOVERY PROGRAMS.

OVERLAY #3

THE FOURTH ELEMENT OF THE RESCUE FAMILY IS THE LOCAL BASE RESCUE HELICOPTER FORCES WHICH MORE THAN PAY FOR THEMSELVES EACH YEAR. THE INTERRELATIONSHIP STILL HOLDS WITH THE OTHER RESCUE FORCES BY PROVIDING A VERTICAL LIFT CAPABILITY TO SUPPLEMENT THE FIXED-WING FORCES, IF REQUIRED, AND A HIGH ALTITUDE CAPABILITY TO SUPPLEMENT THE LARGER HELICOPTERS AS THEY ARE DOING TODAY IN ETHIOPIA.

OVERLAY #4

EACH RESCUE ELEMENT HAS ITS JOB AND EACH CAN COMPLEMENT THE OTHER DEPENDING ON THE SITUATION. THESE CHARACTERISTICS WILL PERMIT US TO TAILOR A FORCE AS REQUIRED IN THE COMBAT SITUATION FROM RESCUE COVERAGE DURING TAKE OFF, ALONG THE ROUTES TO THE COMBAT AREA, PICKUP WITHIN THE COMBAT AREA EITHER SHORT RANGE OR LONG RANGE, AND DURING THE FINAL LANDING AT HOME BASE.

WE WANT TO REITERATE THAT RESCUE IS NOT A LUXURY BUT IS A FORCE WHICH TENDS TO PAY ITS WAY IN PEACETIME BY

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CONSERVING HUMAN AND MATERIAL RESOURCES. IN THE COMBAT SITUATION, WE NOT ONLY BALANCE OUR CHECKBOOK BUT GET AHEAD - NOT BY DESTROYING BUT BY SAVING. WE'RE GOING TO NEED A LOT OF HELP IN REACHING THE POSTURE WE BELIEVE NECESSARY TO BECOME A TRUE GLOBAL RESCUE ORGANIZATION. THERE ARE MANY DETAILS IN OUR PAPER WHICH HAVE NOT BEEN COVERED TODAY DUE TO LACK OF TIME. WE ARE LOOKING FORWARD TO YOUR COMMENTS AFTER REVIEW OF THE STUDY AND ARE ALSO SEEKING YOUR ACTIVE SUPPORT IN ATTAINING AND MAINTAINING A GLOBAL RESCUE CAPABILITY, IN PEACE AND IN WAR, IN THE SENSIBLE ATMOSPHERE AND SPACE.

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