

ITN 0183
121217 PP YKN RUXSBAA1132 2182233 00056-XXXX--RUXPDAA.
ZNY XXXXX YKN ZNM
P 052210Z
BT
XXXXX



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DISTRIBUTION	
HANDLE VIA	INITIALS
SAFOS	
OSIPAL SYSTEM	
SAFUSS	✓
SAFSS	✓
EXEC	✓
L&A	✓
P&B	✓
S&T	✓
SAP/SPE	⓪
TC	
REGISTRY	
COMM	
RF	

~~SECRET~~ 052210Z AUG 80 CITE BISON 8017

PRIORITY [REDACTED]
HANDLE VIA BYEMAN CHANNELS ONLY
GAMBIT/HEXAGON/

[REDACTED] FOR J. HILL [REDACTED] INFO: [REDACTED] FOR I. CRESS;

KWDITTO FOR [REDACTED] FROM L. MC CHRISTIAN [REDACTED]

SUBJ: GAMBIT LAUNCH OPTIONS

REF: (A) [REDACTED] 0970, GAMBIT LAUNCH OPTIONS, 23 JUL 80
(B) BISON 7460, PROPOSED GAMBIT/HEXAGON FLYOUT OPTIONS,
21 JUL 80

1. SINCE APRIL, WE HAVE BEEN WORKING WITH PTO/COMIREX IN THE DEVELOPMENT OF GAMBIT DUAL MODE SIMULATION GUIDANCE FOR A VARIETY OF STANDARD AND CONTINGENCY GAMBIT MISSIONS. AS OF THIS DATE, WE HAVE RECEIVED GUIDANCE AND TARGET FILES TO SIMULATE THE EMPLOYMENT OF GAMBIT IN A [REDACTED] SITUATION. THE OBJECTIVE OF THIS GAMBIT MISSION IS TO PROVIDE CONTINUITY OF COLLECTION COVERAGE FOR THE FULL SPECTRUM OF INTELLIGENCE PROBLEMS IN THE EVENT OF A [REDACTED] FAILURE OR DERATED CAPABILITY FOR AN EXTENDED PERIOD. MORE RECENT GUIDANCE HAS ADDED SOVIET AND CHINESE AGRICULTURAL PROBLEM SETS TO COVER THE CONTINGENCY OF A GRAIN CROP COLLECTION SHORTFALL, AN EXPANDED TARGET FILE, AND AN EFFECTIVE 30 PERCENT LAUNCH FILM INCREASE DUE TO THINNER BASE FILMS AND INDEPENDENT USE OF THE 5 INCH CAMERA. EARLY RESULTS INDICATE THAT A SINGLE GAMBIT VEHICLE IN A 450 NM ORBIT SHOULD NEARLY SATISFY THE NFIB 80 PERCENT STATUS REQUIREMENT AGAINST THE SHORT TERM (2,4,6,6/9, AND 12 MO) STANDING MODE VALID SEARCH. ANTICIPATED LOW ALTITUDE HIGH RESOLUTION IMPROVEMENTS OVER VEHICLE 50 ARE AN INCREASE OF GROSS TARGETS IMAGED FROM 37,989 TO 50,000 AND OF UNIQUE TARGETS IMAGED FROM 8,018 TO 10,000. ANTICIPATED WEATHER RETURNS SHOULD REMAIN ABOUT THE SAME AS VEHICLE 50 AT 68 PERCENT FOR A 120 DAY MISSION.
2. ASSUMING THAT OUR SIMULATION GUIDANCE WILL BE FINALIZED THIS WEEK, WE ARE HOPEFUL THAT THE ACTUAL SIMULATIONS CAN BE RUN, THE DATA ANALYZED, AND BRIEFINGS PREPARED BY NID SEP, WITH PRESENTATIONS IN WASHINGTON BY LATE SEP, EARLY OCT.
3. ONLY GENERALIZED ANSWERS CAN BE PROVIDED AT THIS TIME TO THE QUESTIONS POSED IN THE REFERENCE A. DEFINITIVE ANSWERS WILL BE PROVIDED BASED ON THE ABOVE SIMULATION WORK. BOTH VEHICLES 4351 AND 4352 CAN BE FLOWN IN THE DUAL 145//5 NM ORBIT STATED IN REFERENCE A. HOWEVER, 4351 IS A BETTER CHOICE FOR THIS OPTION IN THE SPRING OF 1981 FOR TWO REASONS. FIRST, IT IS AN INEFFICIENT USE OF 4352, A DUAL MODE MODIFIED VEHICLE WITH A MUCH HIGHER ALTITUDE/SEARCH CAPABILITY THAN 4351. SECOND, AS POINTED OUT IN

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Jim
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HANDLE VIA [REDACTED]

REF B, A NLT JULY 81 FLIGHT OF VEHICLE 4351 ALLOWS ITS USE PRIOR TO THE EXPIRATION OF SHELF LIFE ON A NUMBER OF CRITICAL PAYLOAD ITEMS. A DELAY PAST THIS DATE WILL REQUIRE EXTENSIVE RETROFIT OF THE VEHICLE. THE MOST EFFECTIVE REFURBISHMENT WOULD BE TO RETROFIT TO THE DUAL MODE CONFIGURATION, THEREBY NEGATING THE SAVINGS TAKEN IN DECEMBER 79 WITH THE CHANGE TO THE BASELINE PROGRAM.

4. GAMBIT 4351 IS CAPABLE OF FLYING UP TO 120 DAYS AT AN ALTITUDE OF 145 NM. FOR THE MISSION SCENARIO IN REF A, PERFORMING 145 NM SEARCH FOLLOWED BY LOW ALTITUDE HIGH RESOLUTION SURVEILLANCE, IT IS ONLY POSSIBLE TO FLY UP TO APPROXIMATELY 50 DAYS AT 75 NM AFTER FLYING AT 145 NM. ANY NUMBER OF DAYS MAY BE SPENT AT 145 NM UP TO A TOTAL DURATION OF 120 DAYS. IT SHOULD BE NOTED THAT SOME ORBIT CASES MAY REQUIRE CHANGES TO THE NOMINAL LIFTOFF TIME TO MAINTAIN THE BETA ANGLE AT LESS THAN 16 DEGREES TO INSURE SUFFICIENT ELECTRICAL OUTPUT FROM THE SOLAR ARRAYS FOR A 120 DAY MISSION.

5. IT MAY ALSO BE POSSIBLE TO FLY 4351 ENTIRELY IN THE LOW MODE AT 75 NM FOR UP TO 120 DAYS AND COLLECT AGAINST BOTH THE HIGH RESOLUTION AND AGRICULTURAL AND DRUG INTELLIGENCE REQUIREMENTS. THIS WOULD REQUIRE MODIFYING THE NINE INCH FILM STACK TO INCLUDE IR FILM. (THE EFFECTS OF RADIATION ON IR FILM ARE MINIMAL AT ALTITUDES BELOW 250-350 NM). WE WOULD THEN IMAGE, USING A SAMPLING STRATEGY, THE AGRICULTURAL/DRUG TARGETS AS LATERAL TRIPLETS ON THE 9 INCH CAMERA TO MAXIMIZE COVERAGE. THIS WOULD ALLOW FOR CONTINUOUS COLLECTION OF THE HIGH RESOLUTION S AND T TARGETS ON THE 5 INCH CAMERA. WE WILL MAKE COMPARISONS OF THESE TWO OPTIONS WITH OUR SIMULATIONS.

6. WE WILL KEEP YOU ADVISED OF THE STATUS OF OUR SIMULATION STUDIES, AND FINALIZE OUR RECOMMENDED DATE FOR PRESENTATION OF THE RESULTS.

REVW 5 AUG 80

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HANDLE VIA BYEMAN
CONTROL SYSTEM