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31 AUG 1965

MEMORANDUM FOR THE RECORD

SUBJECT: U-2 Fleet Modification

1. On 27 August the meeting was convened at AFIGO-S to consider schedule and cost of modifying the SAC U-2 fleet. The following people were present: Colonel Clason Saunders, AFIGO-S; Colonel Ellsworth Powell, SAC; Colonel Hagreen, AFIGO-S; [redacted] OSA, Mr.

[redacted]

Depot; Lt. Colonel Robert Honeywell, AFIGO-S; Lt. Colonel Wayne Freas, Wright/Patterson; [redacted].

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2. The first subject discussed was the modification schedule and its attendant problems. The limiting factor in production timing is the conversion and/or new production of J-75 P-13B engines. It was generally agreed that, although we can put three U-2A's into modification and supply engines for them without delay, the modification line would have to be interrupted for approximately five months before any more engines would become available. Alternatively, the initial modifications could use presently available P-13 engines until the 13B becomes available in late 1965 or early 1966. This means that several SAC aircraft as well as ours would be returned for installation of 13B engines.

3. If we start modification in September 1965, we reach a critical point in December 1966 when we would have three spare engines for sixteen aircraft. This assumes that the P-13B conversions would continue apace. Another option is to delay the entire modification line to meet the new production of engines. This, however, will not meet the 1967 completion date specified by D/NRO. AFIGO-S agreed to look for four more J-75 engines so that the P-13B conversion program and the aircraft modifications can be started right away. It was made clear to all that the J-75 P-13 engine will fit and work in either the present aircraft and inlet duct system or the one modified for the P-13B engine. The P-13B engine requires the modified ducts.

4. SAC advised that no more than two J-57 U-2's could be in plant modification at one time. Sixteen weeks are required to convert a U-2A to a J-75 standard configuration,

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GROUP 1  
Excluded from automatic  
downgrading and

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presumably a U-2C. SAC evinced no interest in a carrier version, and the two refueling versions they now possess will remain so equipped after modification.

5. LAC has developed a modification schedule calling for the first aircraft in the factory 25 October 1965, to be completed 21 February 1966. Subsequently, a U-2 will enter every eight weeks with the last one in 22 May 1966 and ready for service 11 September 1966.

6. J-75 engines will be required four weeks prior to completion of modifications. The first J-75 P-13 engine will be delivered to LAC to meet the conversion schedule the week of 24 January 1966. An additional J-75 will be scheduled into LAC every eight weeks thereafter until all J-57 aircraft are configured to the J-75 engine.

7. It was agreed that the current J-75 P-13 inventory cannot be modified to the P-13B version at this time. Twenty new J-75 P-13B engines have been ordered by USAF with the first delivery scheduled December 1966. Delivery after that will be at two per month.

8. Although the question was never completely discussed or settled, it was suggested that OSA manage the total J-75 engine inventory for both users. This is a must for effective control of limited engine assets.

9. [redacted] sought clarification for provision purposes<sup>25X1</sup> of how many separate locations he should plan on for both projects. Colonel Powell stated that he was obliged to maintain three operating locations, and I stated that OSA also was required to maintain the capability to operate from three locations simultaneously. This establishes a total of six operating locations for which [redacted] will provision spares<sup>25X1</sup> and FAK. An interesting sidelight to this discussion was Colonel Saunders' remark that either SAC or the Agency might operate from the same location.

10. AFSC aircraft, although assumed to be included in the modification program at a later date, will be specifically excepted from consideration in the answer to D/NRO.

11. We then turn to consideration of the basic configuration for modified aircraft. As agreed at this meeting, a J-75C model will incorporate the following features:

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- A. J-75 engine with continuous ignition and oil temp indicator. The continuous ignition features will be included until 13B engines and oxygen augmentation is available.
- B. Enlarged engine intake scoops.
- C. Horizontal stabilizer leading edge camberchange.
- D. Elevator trim position indicator.
- E. Extendable stall strips.
- F. Fuel dump system.
- G. 150 degree sugar scoop for reduction of I.R. detection.
- H. Improved EPR system.
- I. Additional 750 VA inverter acting as backup for the No. 1 inverter for inverter bus loads, or as backup for the AC generator for system 13A.
- J. Larger Bendix AC generator with improved fault protection.
- K. 618T-3 transceiver relocated to nose for the following reasons:
  - 1. Present pressure box too tall to fit beneath larger tailpipe.
  - 2. Present cooling system is operating at maximum capability. Environment adjacent to J-75 tailpipe is considerably higher temperature.
- L. Windshield defroster.
- M. Time code generator.
- N. Birdwatcher - provides an automatic data link for the transmission of functional flight information to ground base from the aircraft during malfunctioning situations. From such a data link, information reflected by the state of specific sensors in the aircraft can be transmitted to the ground station where cause and effect

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of the emergency can be analyzed. The HF radio provides the data link for this system. Ground station equipment is not a part of this configuration. The improved keyer-modulator will be added when available.

O. Relocated ATC transponder and function tester from right check to Q-bay.

P. Provisions for the following:

1. System 6 - ELINT system operating in the frequency range from 50 to 14,000 mc covering the P, L, S and X bands. This system incorporates most of the present system 1 and 3 components. SAC will configure some, but not all, of their aircraft. The number is to be determined later.
2. System 9B - an active ECM operating against X band, conical scan airborne interceptor tracking radar. 9B deceptive repeater functions together with system 12B radar warning receiver as a countermeasure to confuse the interceptor fire control radar. Provides greater RF power output than system 9A. Provides coverage 360 degrees around aircraft, whereas 9A provides 35 degrees either side of center line from rear only. Black boxes will also have to be procured.
3. System 12B - presently authorized for incorporation in J-57 articles. Provides S, C and X band coverage. Passive system only. Operates with system 9B as described above. Displays the direction and nature of the threat, airborne or ground.
4. System 13A - S and C band active ECM. Provides jamming against radar for ground launched missiles and essentially affords same protection as systems 13, 14, and 15. Black boxes will also have to be procured. Installed in fuselage beneath tailpipe to afford the following:
  - a. Weight savings of 450 to 500 lbs. over use of wing pods.

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- b. Cockpit space savings through elimination of pod pressurization control panel.
  - c. Elimination of engine bleed air drain required for pods.
  - d. Improved flight characteristics and performance without pods.
5. Oscar Sierra - A passive ECM with a broad band receiver operating in the L band frequency range. The system provides an indication when the guidance command transmitter, usually associated with an SA-2 missile site, is operating at full power output and thus capable of controlling a missile. O/S provisions will be incorporated only. Procurement of black boxes will await evaluation of improved models.
6. Delta 3 - stereo camera. Hatches and hand controls will have to be procured. Delta 3 systems will be allocated to the user complete with all necessary accessories including hatches and hand controls.
7. FFD-3 - I.R. photo equipment. Hatches and controls go with the basic sensor equipment.
- Q. Extended elevator and elevator tab.
- R. Drop tank provision.
- S. Fuel re-tank will wait for flight test results before acceptance.
- T. Doppler system - Decision will await flight test.
- U. The 914 ATC transponder installation depends upon the Doppler flight test. (Space problem if a Doppler unit is located in the canoe.)
- V. QRC 445 hard seat packs and oxygen system configuration. This option will wait for a SAC evaluation to determine whether or not to change from the soft pack to the hard pack.

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- W. QRC 192 decision will wait for a SAC evaluation, but, as of this writing, will be for SAC aircraft only. This will make some SAC aircraft exceptions to the standard configuration.
- X. Extended fairing atop fuselage for installation of electronic components.

12. The standard configuration will be policy in conversions, but we recognize some inevitable differences. There was considerable discussion about the "H" camera and the QRC 192 ELINT package. According to Col. Freas, the "H" camera and hand control have to be precisely mated to the aircraft because of peculiar vibration and roll characteristics and limitations. Colonel Powell had great praise for the QRC 192 which we find not responsive to our mission. It is my impression that the "H" camera and the QRC 192 will be used on SAC aircraft without further reference. We then arrive at several probable non-standard configurations: "H" camera, QRC 192, FFD-3, Delta 3.

13. A provisioning meeting will be held at AFIGO-S on 9 September to determine the inventory and cost of spares, AGE, and test equipment for the additional eleven aircraft.

14. Colonel Saunders mentioned a trade or a loan of Agency aircraft to SAC; but, according to my guidance, I offered no reply or opinion. Colonel Geary has told him (Colonel Saunders) to contact Colonel Senger on this subject. Colonel Saunders also mentioned the proposal that D/OSA has seen on this same subject, but indicated that he had never read the paper. This indicates to me that the request for a loan of at least two J-75 U-2's to SAC is in the immediate offing.

*William A. Seward, Jr.*

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Lt. Colonel USAF  
Chief, Plans for Field Activities, OSA

Plans/FA/OSA, [redacted] :lem (30 Aug 65)

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- #1 - D/OSA
- #2 - D/FA/OSA
- #3 - IDEA/OSA
- #4 - PS/OSA
- #5 - MD/OSA
- #6 - C&FE/OSA
- #7 - Plans/FA/OSA
- #8 - RB/OSA
- #9 - Cont/OSA

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