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

JCSM-129-68  
29 February 1968

MEMORANDUM FOR THE SECRETARY OF DEFENSE

Subject: The Use of Propeller and Jet Aircraft in Laos (U)

1. (U) Reference is made to your memorandum, dated 25 January 1968, subject as above.

2. (U) Airstrike forces in Southeast Asia require a mix of types of aircraft to perform with optimum effectiveness in both the unsophisticated air defense environment found in Laos and South Vietnam and the heavily defended area of North Vietnam. Reduction of the flow of materials to South Vietnam is more effectively achieved by striking as close to the source as possible. It is, of course, essential to keep these materials under attack throughout the infiltration system. Whenever the choice exists, however, the primary emphasis must be to stop or destroy this equipment before it is dispersed throughout the maze of highways, roads, and trails in North Vietnam and Laos. To attack at the source requires a force that can operate in the highly defended areas of Hanoi and Haiphong at maximum strength. Specialized forces, which can survive only in relatively undefended areas, should be in addition to, not as a substitute for, the force capable of striking the source. Any reduction of the existing F-4 force in Southeast Asia would materially limit the ability to strike the supply source. Therefore, the total mission objective in Southeast Asia should be considered when structuring the force mix to optimize capabilities in the different defense environments.

3. (U) Both the OSD study and the 18 December 1967 7th Air Force "Comparative Analysis of Propeller vs Jet Aircraft" are addressed to a comparison of propeller aircraft and jet aircraft. However, a more proper comparison is between low and high wing-loaded aircraft. Low wing-loaded jet aircraft such as the B-57 and A-37 have performance characteristics more closely aligned

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with the low-level/permissive environment capabilities of the A-1, A-26, and T-28 than with the characteristics of the F-4 and F-105. In further discussion in this paper, this comparison is made instead of the more simple but less correct comparison between propeller and jet aircraft. An analysis of the relative effectiveness of low wing-loaded versus high wing-loaded aircraft operations against trucks in Laos should consider: (a) general aircraft capabilities (Appendix A); (b) type mission executed (Appendix B); (c) amount of effort which is applied against trucks (Appendix A); and (d) a comparison of aircraft vulnerability within its area of operations (Appendix C). Comments on these factors are included in the Appendices hereto.

4. ~~(S)~~ With respect to improvements, maximum use is being made of road watch teams, electronic sensors, and night observation devices, i.e., STARLIGHT SCOPE, side-looking infrared radar, and low light-level television, to improve the probability of detecting vehicles, waterborne craft, and personnel. The development of a suitable antivehicle mine and improved area ordnance for high-performance jet aircraft is receiving priority attention. GUNSHIP II should further contribute to this program.

5. ~~(S)~~ The requirement for a balanced force mix in Southeast Asia and additional considerations contained in the Appendices support the following conclusions:

a. Low wing-loaded aircraft also have demonstrated high effectiveness in the night route interdiction mission in a relatively permissive defense environment. However, employment in highly defended areas is precluded because of vulnerability.

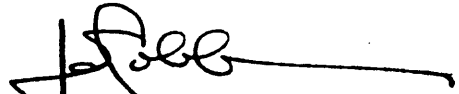
b. High wing-loaded aircraft provide an excellent capability against the total Southeast Asia environment. If these aircraft were assigned the primary task of truck interdiction, their relative effectiveness against this target element would improve. However, the existing F-4 force is the minimum required to accomplish effectively the overall mission. Any reduction or diversion of this force would proportionately reduce the capability that can be applied against the most critical points of the enemy's supply distribution system: Hanoi and Haiphong.

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c. The interdiction effort in Laos is a team effort. The extensive daylight jet strikes against truck parks, transfer points, roads, and supply depots force enemy trucks to travel almost exclusively at night. This has improved the target opportunity and, consequently, the effectiveness of night operations of low wing-loaded aircraft. This balanced approach to interdiction would be adversely affected by substitution of A-1 for F-4 squadrons. Therefore, the aircraft approved for deployment in Program 5 should be additive to, not a substitution for, F-4 assets in Southeast Asia.

6. (S) Based on these conclusions, the Joint Chiefs of Staff recommend that the proposed substitution of A-1 for F-4 squadrons suggested in the OSD study be removed from further consideration.

For the Joint Chiefs of Staff:



J. O. COBB  
Rear Admiral, USN  
Deputy Director, Joint Staff

Attachments

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APPENDIX A

AIRCRAFT EFFECTIVENESS VERSUS INHERENT CHARACTERISTICS (U)

1. (S) The OSD study is based on a study of one type aircraft and one aspect of the total 7AF mission--the interdiction campaign in Laos. The study compares aircraft of limited capability, considering total mission requirements, and narrows the area of analysis to one element of the interdiction campaign--the destruction of trucks.
2. (S) The LOC interdiction campaign in Laos includes elements in addition to the destruction of trucks. Much of this effort--destruction of weapon sites and guns, storage areas, repair facilities, interdiction of choke points--was not considered. A weapon system, in accordance with its particular characteristics, is primarily employed against the element for which it is best suited. However, the priority of employment and the application of any weapon system are also influenced by its capability for employment in other missions.
3. (S) The effort that can be applied to LOC interdiction and particularly the destruction of trucks in Laos is very sensitive to seasonal weather. Starting in mid-May and extending through September, the enemy significantly reduces his use of LOC in the Laos Panhandle due to monsoon weather. During this period, the North Vietnamese Army shifts its logistic effort to LOC in Route Package I, North Vietnam. The inherent slow speed characteristic of current propeller aircraft, which makes them more effective against trucks in Laos, preclude their prudent employment in Route Package I. Thus, during this period, their contribution to the interdiction program is minimal. The F-4, on the other hand, can operate in all areas of North Vietnam, South Vietnam, and Laos.

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4. ( ) The OSD study concluded that the A-1 was approxi- 1  
mately nine times more effective against trucks than the F-4. 2  
However, statistics contained in a 7th Air Force study, 3  
"Comparative Analysis of Propeller versus Jet Aircraft," 4  
December 1967, reveal that during the 10-month sample period, 5  
January 1967 - October 1967, 13.1 percent of the total pro- 6  
peller sorties were directed against trucks versus 5.6 per- 7  
cent for jets. Analysis of empirical data indicates that the 8  
rate of effectiveness in Laos of trucks destroyed/damaged per 9  
ordnance delivery attack (ODA) against trucks by the A-1 was 10  
.6 per attack for day and 1.1 for night attacks. The rate 11  
for the F-4 was .3 per ODA for day and .3 per ODA at night. 12

5. (TS) It is inappropriate to conclude the effectiveness 13  
of a given weapon system or class of weapon systems can be 14  
measured by statistics which consider only one unique element 15  
of the total target spectrum, such as truck destruction. 16  
Viewed in another perspective, the A-1 is a more effective 17  
weapon system in killing trucks than the F-4 in the same way 18  
that the O-1 is a better controller aircraft than the F-100. 19  
Both statements are accurate; however, the A-1 and O-1 can 20  
operate only in the areas of permissive environment in Laos 21  
and RVN. To accomplish those aspects of the 7AF mission that 22  
must be conducted in areas in which the air defenses preclude 23  
the use of A-1 and O-1 aircraft, the F-4 and F-100 are used 24  
to destroy trucks and control attack aircraft. The particular 25  
type of aircraft used, therefore, becomes a trade-off 26  
between the ability to survive and the ability to accomplish 27  
the mission with maximum effectiveness. 28

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APPENDIX B

TYPE MISSION EXECUTED (U)

1. (S) The conclusions and recommendations of the OSD 1  
study were based primarily on a comparison of total sorties 2  
flown in Laos, with only limited consideration for the mis- 3  
sion executed on these sorties. For example, it includes in 4  
the jet category the F-102s, which have no air-ground cap- 5  
ability; F-104s, which were primarily used for CAP/escort and 6  
flew only four ordnance delivery attacks against trucks; 7  
F-100s which were primarily scheduled against fixed targets 8  
and conducted only 88 ordnance delivery attacks against 9  
trucks, out of a total of 1,274 ordnance delivery attacks. 10  
To make a meaningful comparison of two types of aircraft 11  
against a particular type of target, only missions executed 12  
against that type of target should be considered. 13

2. (S) The majority of opportunities for confirmed 14  
destruction of trucks in Laos occur during the conduct of 15  
armed reconnaissance missions. Over 75 percent of the pro- 16  
peller sorties considered were specifically scheduled for 17  
this mission. The factors of mission planning, target study, 18  
and weaponeering of ordnance loads to cause maximum damage 19  
to specified targets all contribute to optimizing the results 20  
achieved from the conduct of these missions. By contrast, 21  
33 percent of the jet sorties were flown on armed reconnais- 22  
sance missions. The majority of the jet sorties in Laos, 23  
67 percent, was flown against types of targets that rarely 24  
produce confirmed truck kills; i.e., interdiction points, 25  
structures, suspected truck parks, and assembly areas. Of 26  
those sorties scheduled against fixed targets and weaponeered 27  
accordingly, a significant portion of the jet sorties in 28  
Laos resulted from missions rescheduled from targets in Route 29  
Packages V and VI to secondary targets in Laos. 30

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3. (S) These diversions resulted in jet attacks against 1  
trucks with ordnance not suited for maximum effect or delivery 2  
against fleeting targets. Therefore, the majority of these 3  
strikes was flown against prebriefed fixed type secondary 4  
targets. Ninety-three percent of the 2,402 weather/night 5  
level bombing sorties (SKYSPOT/MSQ-77) conducted during the 6  
period considered in the OSD study were flown by jet air- 7  
craft. Although not measurable in terms of trucks destroyed, 8  
the cumulative disruptive effect of all strikes on the enemy 9  
transportation system is an essential element of the overall 10  
air campaign in Laos. Of particular value to the truck 11  
interdiction program are those strikes against fixed targets 12  
that result in highway and intersection cratering, landslides, 13  
and destruction of bridges that cause traffic bottlenecks 14  
that can be exploited by follow-on strikes. 15

4. (S) Without the daytime disruption of enemy LOCs by 16  
jet aircraft, propeller aircraft night truck attacks probably 17  
would be less successful. 18

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APPENDIX C

ENEMY AIR DEFENSES

1. ( ) The air defense environment in Laos varies with 1  
the season. During the southwest monsoon, June through 2  
October, it is minimal and the environment is considered 3  
generally permissive. During this bad weather season, truck 4  
traffic is much reduced, and weather limits the number of 5  
possible attacks against trucks. In 1967, propeller aircraft 6  
attacks against trucks declined from 992 in the dry season 7  
to 395 in the wet season; jet aircraft attacks against 8  
trucks declined from 959 in the dry season to 158 in the 9  
wet season. During the dry northeast monsoon season, 10  
November through May, the defenses in specific areas 11  
increase substantially and, in 1966-67, caused the T-28 and 12  
A-26 aircraft to be withdrawn from daylight operations in these 13  
areas. The 1967-68 rate of air defense buildup during the 14  
northeast monsoon has been higher than in the past. During 15  
the 10 month period, January 1967 - October 1967, the prop 16  
loss rate per 1,000 attack sorties in Laos was five times 17  
greater than jets. Firing incidents in Laos increased 400 18  
percent in 1967 over 1966. To counter this increased 19  
defense reaction, new tactics were employed by prop aircraft 20  
to reduce vulnerability during the attack phase. 21

2. ( ) Analysis indicates the trend of increased defenses 22  
will probably continue. It is possible that they could 23  
increase to the point that a prop-type aircraft would sustain 24  
prohibitive loss rates and necessitate, as has occurred in 25  
Route Package I and a few areas of Laos, replacement of 26  
propeller aircraft with more survivable aircraft. However, 27  
the immediate future does not portend enemy defenses pre- 28  
cluding the employment of propeller aircraft against the 29  
Laotian LOC structure. 30