

THE GENERAL BOARD

United States Forces, European Theater

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LIAISON AIRCRAFT WITH GROUND FORCE UNITS

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MISSION: Prepare report and recommendations on the provision of liaison aircraft to ground force units and for HORSEFLY control of fighter-bomber close base in support missions.

The General Board was established by General Orders 128, Headquarters European Theater of Operations, US Army, dated 17 June 1945, as amended by General Orders 132, dated 7 August 1945, and General Orders 312 dated 20 November 1945, Headquarters United States Forces, European Theater; to prepare a factual analysis of the strategy, tactics, and administration employed by the United States forces in the European Theater.

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THE GENERAL BOARD  
UNITED STATES FORCES, EUROPEAN THEATER  
APO 408

LIAISON AIRCRAFT WITH GROUND FORCE UNITS

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Appendices:

1. True copy of The General Board's Directive to prepare a Report on "Liaison Aircraft with Ground Force Units", dated 20 August 1945.
2. Training Circular No. 45, War Department, 11 July 1945.
3. Questionnaire on "Provision of Liaison Aircraft to Ground Forces and HORSEFLY" as submitted to Key Commanders, European Theater of Operations by General Board, United States Forces, European Theater.
4. True copies of:  
    TWX from 6th Army Group, 12 April 45.  
    TWX from ETOUSA, 20 April 45.  
    TWX from 12th Army Group, 3 May 45.

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5. True copy of letter to Commanding General, Army Air Forces, Washington, D. C., from Col J. C. Bennett, AC, dated 1 April 1945.
6. True copy of 1st Ind of letter from Commanding General, SHAEF, Air Staff (FWD) by Brigadier General Robert M. Lee, Deputy Commanding General, Ninth Air Force, dated 5 June 1945.
7. True copy of General Board's 4th Ind to letter, 12th Army Group to Theater Commander dated 27 July 1945, Subject:  
"Higher Echelon Maintenance and Supply of Ground Forces Aircraft."

## F O R E W O R D

The mission assigned this committee by the President of the General Board is the preparation of a report and recommendations on the provision of liaison aircraft to ground force units and for HORSEFLY control of fighter-bomber close-in cooperation missions. Copy of directive is attached to this report as Appendix No. 1.

Although for clarity this study has been divided into two parts, the subjects are closely related. The recommendations of Part Two, while not contingent upon the acceptance of the recommendations of Part One, would be facilitated by the organic assignment of liaison aircraft as recommended in Part One.

LIAISON AIRCRAFT WITH GROUND FORCE UNITS

PART ONE

PROVISION OF LIAISON AIRCRAFT TO UNITS OF ARMY GROUND FORCES

CHAPTER 1

ROLE OF LIAISON AIRCRAFT IN EUROPEAN THEATER OF OPERATIONS

SECTION 1

LIAISON AIRCRAFT

1. Definition. The term liaison aircraft is applied to an unarmed and unarmored single engine airplane characterized by low horsepower and light weight. By design this type of aircraft is particularly well adapted for observation, reconnaissance and general utility service behind the front lines or when unopposed by hostile aircraft or antiaircraft fire. Of primary importance to the ground forces is the ability of this type aircraft to operate from relatively small, unprepared fields or roads. Minimum maintenance requirements are an outstanding feature of liaison aircraft.

2. Types. Two models of liaison aircraft were widely used in the European Theater. These were the L-4 type, used generally as the organic field artillery aircraft; and the higher powered L-5 type, with which the Army Air Forces liaison squadrons were equipped. Although obsolete, a small number of L-1 aircraft also were used on occasion.

SECTION 2

ASSIGNMENT OF LIAISON AIRCRAFT IN THE EUROPEAN THEATER

3. Field Artillery Aircraft. Each field artillery battalion, field artillery group, field artillery brigade, division artillery headquarters, and corps artillery headquarters was provided with an organic air observation section as part of its headquarters battery. Each air observation section consisted of two pilots, two liaison type aircraft, two airplane and engine mechanics, organic transportation, communication equipment, and certain maintenance and supply equipment. Also, each field artillery headquarters above the battalion contained an additional pilot who functioned as the artillery air officer and an additional airplane and engine mechanic who functioned as a technical supply sergeant and maintenance inspector. Each field artillery group had from four to twelve aircraft depending upon the number of attached field artillery battalions. The division artillery of infantry and airborne divisions contained ten aircraft while the division artillery of armored divisions contained eight aircraft.<sup>1</sup> Each corps contained approximately 60 to 75 field artillery aircraft and each field army contained approximately 200 to 300 field artillery aircraft (cumulative totals).<sup>1,2</sup> Approximately 1380 field artillery liaison aircraft were operating in the European Theater as of 1 May 1945.<sup>1</sup>

4. Attached Army Air Force Squadrons. a. On 27 December 1943 the War Department addressed a communication<sup>4</sup> to theater commanders on the

subject "Liaison Aircraft for Messenger and Courier Service." The formation of airplane messenger companies was discussed in this letter. These companies were to consist of three platoons of six aircraft each for a total of eighteen aircraft per company. It was further stated in this letter that Army Air Forces liaison squadrons consisting of thirty-two L-5 type aircraft each, and divided into four flights of eight aircraft, were available. Each theater could be supplied liaison squadrons in the ratio of one squadron per army and one squadron for the theater headquarters, First US Army Group and Headquarters European Theater of Operations recommended that three of these liaison squadrons be assigned from the Army Air Forces on the basis of one for each of the existent armies, and one for theater headquarters for the first phase of planned operations and that additional squadrons be assigned for the second phase. Non-concurrence with the proposed messenger company was expressed. The Commanding General, Headquarters United States Air Forces, United Kingdom, concurred with Headquarters European Theater of Operations and the War Department approved these recommendations by cable.<sup>5</sup>

b. The assignment of liaison aircraft as finally decided upon in the letters and cables mentioned above is restated in War Department Training Circular Number 45, dated 11 July 1944 (Appendix No. 2). In this circular, liaison squadrons in the theater of operations were placed under the command of the theater air force commander or the subordinate air force commander designated by him. The allotment of aircraft for the theater of operations was stated as follows:

One squadron per theater or task force headquarters.  
One squadron for each field army.

c. In actuality, air force headquarters in the European Theater of Operations started in the spring and summer of 1944 to assign liaison squadrons to the Ninth Air Force and its tactical air command headquarters for attachment to the field armies and higher headquarters, including one squadron plus a flight for 12th Army Group Headquarters (Successor to 1st Army Group). On 15 November 1944 one squadron was attached by Ninth Air Force to Headquarters Command, Headquarters European Theater of Operations United States Army principally for use by Communication Zone Headquarters. On this same date control of the armies' squadrons was consolidated by attachment of three squadrons to 12th Army Group Headquarters in addition to the augmented squadron already attached. These three squadrons were then allocated by the Army Group Headquarters to the First, Third, and Ninth Armies, with the fourth squadron being retained for Army Group use. On 18 January 1945 an additional squadron was attached to 12th Army Group for use by Fifteenth US Army. A squadron was attached to Supreme Headquarters Allied Expeditionary Forces and another squadron was used jointly by 6th Army Group Headquarters and Seventh US Army Headquarters. These eight squadrons comprised the total in the theater and they continued to serve the headquarters to which they were attached through V-E Day.<sup>6</sup>

### SECTION 3

#### EMPLOYMENT OF LIAISON AIRCRAFT IN THE EUROPEAN THEATER

5. Anticipated Employment. a. Field Artillery Aircraft. In addition to the primary function of locating appropriate targets and adjusting artillery fire, it was anticipated that other missions for organic field artillery aircraft would include: (1) Reconnaissance of position areas and march routes, (2) Security patrolling, (3) Camouflage checks, (4) Obtaining information of friendly and nearby hostile forces, (5) Maintaining liaison for control of march columns.<sup>7</sup>

b. Attached Army Air Forces Liaison Squadrons. In War Department

Training Circular Number 45, 11 July 1944, the mission of the Army Air Forces liaison squadrons was stated as that of providing the theater and task force headquarters and ground force units with general messenger and courier service in areas behind the front lines of friendly troops. This circular anticipated the performance of the following missions within the limitations of aircraft, personnel and equipment available in the liaison squadrons:

- (1) Messenger and courier service.
- (2) Transport and ferry service for ground force personnel and equipment.
- (3) Visual reconnaissance.
- (4) Light photographic reconnaissance and other limited photographic missions.
- (5) Column control.
- (6) Check upon air defense measures, such as camouflage, concealment, and dummy installations.
- (7) Artillery adjustment when required to supplement organic field artillery liaison aviation.
- (8) Limited air evacuation when required.

It was desired at the time this circular was written, that each liaison squadron would be employed as a unit as long as the required liaison service could be provided efficiently through that type of operation. One or more flights could be made available to a unit directly by the army when the situation demanded. Individual aircraft or crews were not to be detached from a flight. This circular also enunciated the respective responsibilities of the air force and ground force commanders in the provision and use of liaison aviation.

6. Actual Employment. a. Field Artillery Aircraft: The primary function of the aerial observation post was performed consistently and with marked success throughout the campaign. In addition, there was a heavy demand made upon the artillery aircraft for a variety of other missions. It is interesting to note that in the case of the Third Army a total of 22,972 hours were flown in the adjustment of fire, 26,260 hours for reconnaissance and 19,034 hours for administrative and patrol purposes. This represents the total flying for the period 1 August 1944 to 8 May 1945 for all organic artillery aircraft of the Third Army and is representative of the activity in the other armies. 1,8,9

- (1) Army headquarters used artillery liaison planes for, (a) Supplementing the attached Army Air Forces liaison aircraft, (b) Courier Service, (c) Transportation of personnel, (d) A replacement pool for aircraft for the lower echelons of the army.
- (2) In the corps these aircraft were used in addition to their primary artillery functions as in the army, and for the following additional missions: (a) Maintaining liaison between widely separated units, (b) Permitting commanders to make terrain studies from the air, (c) Taking oblique photographs, (d) Providing tracking facilities for friendly anti-aircraft artillery units, (e)

Controlling motor units on main routes, (f) Furnishing intelligence information and location of friendly units, (g) HORSEFLY activities. (See PART TWO of this study.)

- (3) In the division the artillery aircraft were used, in addition to their primary function for: (a) Reconnaissance and terrain studies, (b) Command and staff reconnaissance, (c) Liaison, (d) Column control, (e) Photography, (f) Transportation of key personnel, (g) Courier service, (h) Radio relay, (i) Wire laying, (j) Emergency resupply, (k) Evacuation, (l) Camouflage checks.<sup>8,9</sup>

b. Attached Army Air Force Liaison Squadrons:

- (1) Supreme Headquarters Allied Expeditionary Forces used its attached liaison squadron for transporting key personnel and liaison officers, and to maintain a courier service between its forward and rear echelons.
- (2) Communication Zone Headquarters also required frequent air transport for its key personnel, but the majority of aircraft in the attached liaison squadron were occupied with courier runs. Flights were detached to Advanced Section, Communication Zone Headquarters and to some of the Base Sections, where their duties were similar to those at Communication Zone Headquarters. Where possible, single aircraft, or more often, a pair of aircraft were assigned to key points such as Regulating Stations. Communication Zone Headquarters found liaison aircraft to be particularly valuable for making surveys of road and railroad facilities. Fuel pipe lines were inspected and tentative pipe line routes were reconnoitered by liaison aircraft.<sup>6</sup>
- (3) Army Groups. The 12th Army Group used its augmented squadron for the transportation of key personnel and courier runs, but considerable command reconnaissance and the transportation of liaison personnel also were normal activities for the squadron. In addition, in this Army Group it was the practice to allot aircraft to the General Staff Sections and to the Signal Section. In the latter case the amount of official mail being carried to and from the armies of the group was such that the Signal Section's aircraft quota was, of necessity, consistently the largest.

As 6th Army Group became operational in September 1944 an attached liaison squadron, which had come from the Mediterranean Theater, was put to much the same use as in 12th Army Group. The number of aircraft available to 6th Army Group Headquarters was reduced by the assignment of a part of the squadron to Headquarters Seventh Army.<sup>6</sup>

- (4) Army Headquarters employment of liaison aircraft was more diversified than in the higher echelons. In addition to transporting key personnel and couriers, the use of liaison aircraft for prompt reconnaissance of routes of communication proved to be of inestimable value. The Seventh US Army<sup>10</sup> low altitude reconnaissance including photographs, permitted early and accurate

decisions by the engineers as to which bridges should be reconstructed and the type of reconstruction to be attempted. Oblique aerial photos were taken with the K-20 aerial camera and were developed and printed by the army's liaison squadron which was equipped with a photo trailer. Finished photos were delivered to the corps of the Seventh Army within six hours of the time the photo was taken.<sup>2</sup> In ninth US Army the photo section of the 125th Liaison Squadron performed its mission of providing low altitude front line photos in a superior manner. Due entirely to the initiative and research of this squadron, with the K-22 camera installed in an L-5 airplane, photographs of an intelligence and tactical value, not available through any other source, were obtained for the army. From 1 November 1944 to 8 May 1945 this squadron flew some 50 photo missions, with the resulting photos being of great value to the infantry, artillery, and engineer units of Ninth Army. Photos of the major rivers, (Roer, Rhine, Weser, and Elbe) taken with a 36-inch focal length lens in the K-22 camera provided information which elicited great praise from the subordinate units. Here, as in the liaison squadrons of the other armies, the photo equipment, (camera, developing, printing, et cetera) was not organic, but was procured by the squadron itself to satisfy the need for such equipment.<sup>8</sup> In most instances the army liaison squadrons delivered the finished prints from the army photo interpretation detachment as well as from their own photographic laboratory to the corps and divisions of the armies.

Emergency resupply within the armies, particularly of medical items, was made by the liaison squadrons in several instances. Because of the limitations of space within the aircraft, resupply of more bulky items was not practical, although in extreme emergencies Class I and Class V items were delivered to isolated units.

- (5) Corps. Allocations of liaison type aircraft from the various armies to corps were necessarily limited<sup>9</sup> and this prevented a completely satisfactory exploitation of the Army Air Forces liaison aircraft at that level. The corps used their liaison aircraft for missions similar to those prescribed by armies but, despite the dearth of aircraft, made considerably more use of them in the tactical sense. Fast moving columns were patrolled; friendly and hostile troop dispositions, troop movements, and traffic were reconnoitered. Road, railroad and bridge reconnaissance was pursued. Artillery smoke was adjusted upon targets which were to undergo fighter-bomber attack, and the results following such attacks were reported. Aircraft of the L-5 type also were used to direct fighter bombers to their targets on close cooperation missions. By equipping the aircraft with VHF radios, direct communication was possible between the observer in the liaison plane and the flights of fighter bombers making an attack against close-in ground objectives. Thus there developed an unusually effective means of directing fighter aircraft on a pre-briefed target, or in other instances, of directing these same aircraft to various targets of opportunity discovered. This procedure was known as the HORSEFLY method, and is discussed in detail in Part Two of this study.

REQUIREMENTS OF GROUND FORCES FOR ADDITIONAL LIAISON AIRCRAFT

SECTION 1

OPINIONS OF QUALIFIED AIR AND GROUND PERSONNEL AND AGENCIES

7. General. a. Ground force commanders in the European Theater of Operations have indicated an almost unanimous belief that the successful employment of liaison type aircraft for a wide variety of missions justifies an increase in the numbers of such aircraft with ground force units. A similar opinion was expressed by Colonel John C. Bennett, AC, and Lieutenant Colonel Robert R. Williams, FA, in a report to the Commanding General, Army Air Forces, 1 April 1945, on the subject of "Liaison Type Aircraft in Air and Ground Force Units." (Appendix No. 5). This recommendation was based on "a thorough study of the use and specific requirements for liaison type aircraft in both air forces and ground forces in the European Theater of Operations." Following is an excerpt from the recommendations contained in this letter:

"a. Liaison type aircraft in the Field Artillery: The present employment and organization of aircraft in the field artillery has been eminently successful. No changes are indicated other than minor changes in tables of organization and equipment which will be recommended through channels as a result of a conference of the Army Artillery Air Officers of this theater.

"b. Liaison type aircraft required in the Division and Cavalry Group for other than artillery missions: There is a definite requirement for liaison type aircraft in infantry, armored, and airborne divisions, and in the cavalry group for mission other than artillery. Many of these missions are now being flown using the airplanes of the artillery to the detriment of the artillery. Many more missions should be flown which are not possible at the present time, because the right type and a sufficient number of aircraft are not available."

b. Findings of Questionnaires. Definite statements of opinion on the need for organic assignment of liaison type aircraft with ground force units (in addition to those now provided to the field artillery) have been obtained through two questionnaires, one submitted by 12th Army Group<sup>8</sup>, and the other (Appendix No. 6) by The General Board, United States Forces, European Theater<sup>9</sup>. Answers to these questionnaires came from four armies, thirteen corps and thirty divisions. The consolidated recommendations of these key commanders are expressed in Column "A" of the chart below, while Column "B" shows the recommendations agreed upon by the 12th and 6th Army Groups as a result of previous studies in this field (Appendix No. 4). It is of particular interest to note that the recommendations of the two army groups are identical and, as to the number of aircraft needed, are generally sustained by the recommendations of key commanders. Differences of opinion between the two army groups and key commanders as to type of aircraft are as shown.

	"A"		"B"	
	Opinions of Key Commanders		Recommendations of 6th and 12th Army Groups	
	Type	No.	Type	No.
<u>ARMY HEADQUARTERS</u>	L-5	16	L-5	16
<u>CORPS HEADQUARTERS</u>	L-4	3	L-5	8
	L-5	5		
<u>DIVISIONS</u>				
<u>INF DIV HQ</u>	L-4	4	L-5	6
	L-5	2		
<u>ARM'D DIV HQ</u>	L-4	4	L-5	6
	L-5	2		
<u>CAVALRY GROUP &amp; SQDN</u>				
<u>GROUP HQ</u>	L-4	1	L-4	2
	L-5	1		
<u>SQDN HQ</u>	L-4	2		None
<u>TANK &amp; TD GROUP &amp; BN</u>				
<u>GROUP HQ</u>	L-4	2		None
<u>BN HQ</u>	L-4	2	L-4	2
<u>INFANTRY REGIMENT</u>	L-4	1		None
	L-5	1		None

8. Added Factors. a. The provision of additional liaison aircraft to units indicated in the preceding chart is deemed adequate except for the allocation to army headquarters and to armored divisions.

b. For the army headquarters it is believed that more aircraft are needed. A parallel study by this General Board on "The Utilization of Tactical Air Force Reconnaissance Units of the Army Air Forces to Secure Information for Ground Forces in the European Theater" demonstrates the necessity for a sufficient number of liaison type aircraft at the air strip of the reconnaissance group associated with the army for the purpose of quick delivery of aerial photographs to subordinate units of the army. This mission was not exploited fully in the European Campaign. The Board is convinced that the provision of adequate aircraft for this purpose will go a long way towards rectifying one of the major complaints of corps and divisions to the effect that aerial photography frequently did not reach them in time to be of maximum use. Therefore, it is considered that for the army headquarters a squadron of 32 liaison aircraft should be available. This will provide a sufficient number of planes for the purpose just discussed and with a margin to meet unforeseen contingencies. For the army headquarters it is not considered necessary for the pilots to be trained in ground force tactics and technique. For this reason it is believed desirable that this squadron be attached to army by the Army Air Forces.

c. For the armored division, it is believed that more liaison aircraft are needed also. This arises from a study and recommendations now being prepared by this General Board on the "Organization, Equipment,

and Tactics of the Armored Division." Contemplated recommendations in this respect indicate that eight liaison aircraft, comprised of four L-4 type and four L-5 type, will be required for the armored division.

d. The members of the Air Section of The General Board concur in the need expressed in these paragraphs for additional liaison aircraft with ground force units, but do not concur in their organic assignment. The air force members believe that the Army Air Forces should be charged with providing technical information and be generally responsible for air force units, as well as for procurement, training, supply and maintenance functions. For these reasons, the air members believe that the needs of ground force units should be met by the attachment of Army Air Forces liaison squadrons. They point out, for example, that the provision of flights or sections of aircraft to meet the requirements shown in paragraph 7 and chart could be accomplished by attaching to each army headquarters four Army Air Forces liaison squadrons, and so recommend. This recommendation is based on the standard type army employed in the European Theater, with each army composed of three corps headquarters and corps units, and each corps comprised of three or four divisions.

It may be well to point out here that the entire Board agrees that the needs of the army and higher echelons should be met by the attachment of Army Air Force units.

## SECTION 2

### COMPARISON OF METHODS OF PROVIDING GROUND FORCES WITH LIAISON TYPE AIRCRAFT

9. Organic Assignment.<sup>8,9</sup> During operations in the European Theater of Operations the only organic aircraft in the ground forces were those of the field artillery. These aircraft were obtained from the air forces and third and fourth echelon maintenance was provided by the air forces. Parts and supplies necessary for first and second echelon maintenance were obtained by the field artillery from the air forces through normal supply channels. Pilots for these aircraft were field artillery officers who received basic flight training from the Army Air Forces liaison pilot's schools. After receiving a liaison pilot rating at this school they received advanced training in the Liaison Pilot's Course at the Field Artillery School. Here they were given a short course in field procedure, low altitude maneuvers and other instruction peculiar to the performance of the primary mission of this aircraft with field artillery. Mechanics were field artillery enlisted personnel trained by the Department of Air Training, Field Artillery School.

a. Advantages of organic assignment include:

- (1) The aircraft are more readily available to the using unit
- (2) Command and control of the aircraft are simplified because the pilots are officers of the using unit.
- (3) Procurement of personnel to fly and maintain these aircraft is simplified. (Complications have appeared, on the other hand, in the procurement of personnel for attached aircraft units)
- (4) Liaison pilots who have been trained in the basic tactics of the using arm appreciate better the problems of the ground unit, feel that they are members of a team, and become imbued with the "esprit de corps" of the unit.

- (5) Organic assignment expedites supply and maintenance of items other than Air Corps items.
  - (6) Administrative problems such as maintenance of records and proper provision of messing, billeting and medical supplies and facilities, are simplified.
- b. Disadvantages of Organic Assignment are:
- (1) Maximum economy in the use of the aircraft might not be effected through failure to coordinate and combine missions.
  - (2) Air force facilities such as weather information, traffic and flight regulations, and services offered at air fields might become less readily available.
  - (3) The necessity for establishment of additional training facilities to meet the demand for increased air training on the part of the ground forces might also be uneconomical.
  - (4) The maintenance burden would require the establishment of additional units and complication of supply problems.

10. Attachment of Army Air Force Liaison Aircraft to Ground Force Units. 6,8,9 The War Department directed that the air forces retain the responsibility for organizing, training, and equipping Army Air Forces liaison squadrons in this theater and for delivering them to the using ground force units. (Appendix No. 2)

a. Advantages of this procedure are:

- (1) Ground force unit commanders to whom Army Air Force liaison squadrons are provided are relieved of supply, maintenance and other administrative responsibilities, except for certain functions such as messing and quartering.
- (2) The availability of air force information and technical experience is assured when communications to the liaison squadrons' parent air force unit are available.
- (3) Facilities now exist within the air forces to train pilots and to equip and supply liaison units.
- (4) Centralized control of liaison squadrons permits attachment to ground force units as prescribed by theater or army group headquarters, thereby assuring the economical use of the aircraft.

b. Disadvantages include:

- (1) The ground unit served suffers because:
  - (a) The temporary nature of attachment makes it difficult for the commander to rely on the continued use of the aircraft.
  - (b) Personnel not trained by the ground forces are not of maximum value to ground force units (See paragraph 9, a).

- (c) Command responsibility is divided between air and ground force commanders in accordance with the general policies laid down in War Department Training Circular Number 45; complete control of the units by either force is not possible.
- (2) The attached liaison squadron also suffers as a result of divided responsibility to both air and ground force commanders. Supply, maintenance and administration are complicated as a result of separation from their own higher headquarters. A morale problem also is encountered because the nature of the attachment and the lack of training with the ground forces unit results in a lack of "esprit de corps" within the squadron. This is further complicated by a feeling among the liaison personnel that they are "orphaned" from their own unit.

### CHAPTER 3

#### CONCLUSIONS AND RECOMMENDATIONS\*

##### SECTION 1

##### CONCLUSIONS

11. Status of Assignment and Attachment. After thorough consideration of the various opinions, recommendations, and enumerated advantages and disadvantages preceding, it is concluded that Army Air Force liaison squadrons should be attached to army and higher headquarters, and that organic assignment of liaison aircraft should be made to corps and lower echelons. The ground force members of the Board feel that in the corps and lower units the requirement that the personnel operating the liaison aircraft be ground force liaison pilot officers thoroughly familiar with the tactics and technique of ground force units is an over-riding consideration. They believe that this factor, together with the other advantages enumerated for organic assignment, far outweigh the disadvantages for these lower units. The air force members of the Board do not agree with the organic assignment of liaison aircraft to army ground force units for the reasons stated in paragraph 8, d.

No change should be made in the present organic assignment of field artillery liaison aircraft.

##### 12. Number of Liaison Aircraft Required by Ground Forces.

a. The General Board concludes that liaison type aircraft should be provided to the various ground force echelons below army headquarters in the numbers and type as shown in chart form below, in addition to those aircraft organically assigned to the field artillery. In the infantry, airborne, and armored divisions, the liaison aircraft organic with the division, except for the organic field artillery aircraft, should

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\*Nothing in these conclusions and recommendations should be construed to indicate any change in the present status of organic Field Artillery liaison type aircraft.

be pooled as a unit under control of the division commander, available for the use of regiments, combat commands, or other organic or attached units of the division.

BOARD

	<u>Type</u>	<u>Number</u>
<u>CORPS HEADQUARTERS</u>	L-4	3
	L-5	5
<u>DIVISIONS</u>		
<u>INF DIV HQ</u>	L-4	4
	L-5	2
<u>AIRBORNE DIV HQ</u>	L-4	4
	L-5	2
<u>ARMED DIV HQ</u>	L-4	4
	L-5	4
<u>CAVALRY GROUP &amp; SQDN</u>		
<u>GROUP HQ</u>	L-4	1
	L-5	1
<u>SQDN HQ</u>	None	None
<u>TANK &amp; TD GROUP &amp; BN</u>		
<u>GROUP HQ</u>	None	None
<u>BN HQ</u>	L-4	2

b. It will be noted that the numbers of aircraft shown in the above chart correspond generally to those recommended by the 6th and 12th Army Groups except for army and armored division headquarters; also, that the type corresponds to the recommendations of subordinate units but does not agree with those of the army groups. In view of the present capabilities of L-4 and L-5 aircraft, it is felt that both should be available to all echelons except at army or high headquarters. This is deemed advisable as long as landing and take-off facilities are limited by terrain. However, recommendations as to the type of aircraft to be used are only of a temporary nature in view of the probability of change in aircraft design and construction and capabilities. It is considered most probable that a standardized, ground force liaison type aircraft can be developed that will satisfactorily suit all requirements of the ground forces. Such a type aircraft has been recommended to the War Department by a committee of the senior artillery air officers of the European Theater of Operations.<sup>1,2</sup>

c. It is further concluded that Army Air Force liaison aircraft units should be provided to headquarters higher than the corps according to the needs of such headquarters with at least one squadron authorized for each theater, theater service force, army group, and field army headquarters. Augmentation of the squadron with each of these headquarters would be dependent upon demonstrated need and availability of the type aircraft.

13. Procurement, Maintenance, and Repair. It is believed that the aircraft should be supplied by the Army Air Forces, but that all first and second echelon maintenance of aircraft organically assigned to and operated by Army Ground Forces personnel should be performed by the unit to which

they are assigned; third and fourth echelon maintenance should be performed by Army Air Forces units. The agencies for performance of third and fourth echelon maintenance are at present Army Air Forces units and are not considered a proper subject of this study, but it should be noted here that as additional aircraft are placed in ground force units, air force maintenance agencies will have to be increased to meet the enlarged demands upon them. Recommendations covering this matter previously have been submitted to higher headquarters. (Appendix No. 7)

#### 14. Source and Training of Personnel.

a. No change in the source and training of personnel in Army Air Forces liaison squadrons is considered necessary. Furthermore, there should be no change in the method now in use of supplying and training personnel for field artillery liaison aircraft.

b. When liaison aircraft are assigned to any other arm (cavalry, tanks, tank destroyer, et cetera) the pilots should be provided by that arm to assure that they have the necessary tactical and technical knowledge for effective operation with that arm. For the same reason, pilots for planes assigned to the headquarters of armored divisions should come from the armored forces. For the headquarters of other types of divisions and for corps headquarters it is believed that a knowledge of the tactics and technique of the infantry is the best background for the liaison pilot and that the pilots for the liaison aircraft assigned to these headquarters should therefore, come from the infantry. When selected for pilot training, officers of the arms indicated should be given a basic flight training course by the Army Air Forces culminating in a liaison pilot rating. They should then return to their basic arm for additional operational training peculiar to that arm. Each arm concerned would operate a school for this additional training similar to the school conducted by the field artillery. Enlisted personnel for maintenance should be furnished by the same arm as the pilots and should be given a course of technical training at an Army Air Forces school.

### SECTION 2

#### RECOMMENDATIONS

15. In view of the preceding discussion and conclusions it is recommended that:

a. Liaison aircraft be provided to ground force units, in addition to those aircraft organically a part of the field artillery, in the numbers and types shown by the chart following paragraph 12 a. It is further recommended that Army Air Forces liaison squadrons be allocated to headquarters higher than the corps as outlined in paragraph 12 c.

b. Liaison aircraft be procured for the Army Ground Forces by Army Air Forces, and maintained and repaired as provided in paragraph 13.

c. In the corps, and subordinate units shown in paragraph 12, a, liaison aircraft be organically assigned; and that in higher echelons, liaison squadrons be attached from Army Air Forces as stated in paragraph 12, c. (See paragraph 8, d, for Air Section non-concurrence in organic assignment).

d. The additional aircraft made organic to the ground forces be flown and maintained by ground force personnel trained as described in paragraph 14, b.

e. Pertinent doctrines, techniques, T/O's and T/E's affected by these recommendations be amended by appropriate agencies of the War Department.

# B I B L I O G R A P H Y

## (PART ONE)

- 1 - Consolidated Army Artillery Air Operations Reports for First, Third, Seventh, Ninth, and Fifteenth US Armies, covering period of Operations in European Theater of Operations.
- 2 - "Summary Air Operations VI Corps Artillery, 15 August 1944 to 9 May 1945."
- 3 - Army Air Force Projects for Ground Forces European Theater of Operations, Numbers 93000R, 92943R, 92972R.
- 4 - Adjutant General Records, United States Forces European Theater of Operations. War Department Letter, 27 December 1944 to CINC SWPA CG's ETO, NA CBI Headquarters, Subject, "Liaison Aircraft for Messenger and Courier Service", and First, Second, and Third Indorsements thereto.
- 5 - War Department Cable WARX 14399, 26 March 1944.
- 6 - Historical File, Ninth Air Force for Operations in European Theater of Operations and Ninth Air Force letter to Commanding General, Fifteenth US Army, dated 7 October 1945, Subject: "Liaison Squadrons in European Theater of Operations".
- 7 - "Organic Field Artillery Air Observations" - Field Manual Number 6-150.
- 8 - Answers to Questionnaire for Key Commanders on "Effects of Strategical and Tactical Air Power on Military Operations in European Theater of Operations" as compiled by Air Effects Committee 12th Army Group, 1945. On file in Adjutant General Records of the General Board, United States Forces, European Theater.
- 9 - Answers to Questionnaire for Key Commanders, Subject: "Liaison Aircraft" submitted by the General Board, United States Forces, European Theater of Operations, September 1945. On file Adjutant General Records of The General Board, United States Forces, European Theater of Operations.
- 10 - "Battle Experiences" (Consolidated) prepared by Battle Experience Section, Headquarters, European Theater of Operations, United States Army.
- 11 - "Effect of Air Power on Military Operations Western Europe" prepared by the Air Effects Committee, 12th Army Group, July 1945.
- 12 - "Proposed Military Characteristics of Field Artillery Observation Aircraft" prepared by a committee of senior Artillery Air Officers, European Theater of Operations, 9 October 1945.
- 13 - Adjutant General Records, United States Forces, European Theater of Operations, file on "Liaison Aircraft".
- 14 - "G-3 After Action Report", 12th Army Group.

## PART TWO

# MORSEFLY CONTROL OF FIGHTER-BOMBERS

## PART TWO

# HORSEFLY CONTROL OF FIGHTER-BOMBERS

## INTRODUCTION

Definition. HORSEFLY technique may be defined as the procedure whereby a forward controller, flying in a liaison type aircraft equipped with VHF (very high frequency) radio, communicates directly to pilots of fighter-bomber and other high performance aircraft and assists them in locating other close-in targets upon which ground force units desire an air strike, or targets of opportunity, the attack of which would aid the ground units.

Origin. The adapting of the liaison plane to a new role as a spotter for tactical air operations in a rapid advance was tried first in Italy. Flying over advance elements of friendly armored columns, an airborne controller and a ground force observer guided attacking fighters to primary enemy targets. When released by the HORSEFLY plane, fighter-bombers went on to secondary targets, on which they had previously been briefed. The need for this method of airborne control of close air cooperation missions over an armored column arose during the rapid advance of the 1st Armored Division north of Rome. Due to the fluid situation, it was necessary to make certain that our planes be advised of the location of the most advanced elements of friendly armor. The object of HORSEFLY as used there was the same as that of the fighter-bomber and tank team which was devised and successfully used in the European Theater of Operations in the sweep across France.<sup>1</sup>

## CHAPTER 1

### EMPLOYMENT OF HORSEFLY TECHNIQUE

#### SECTION 1

#### HORSEFLY AS EMPLOYED IN THE EUROPEAN THEATER OF OPERATIONS

16. Using Units. The HORSEFLY technique was used in the European Theater of Operations principally by units of XII Tactical Air Command in cooperation with units of Seventh Army and by the XIX Tactical Air Command in cooperation with units of Third Army. The employment was the same as devised originally in Italy, with minor modifications. The successful application of the HORSEFLY system required at least local air superiority and, if necessary to fly over enemy territory, a minimum of enemy flak.

17. Restrictions on Attack Areas. In the Seventh Army, the corps established a close support line which indicated generally the forward line of troops, and a bomblines which was placed well out along a clearly recognizable terrain feature. HORSEFLY controlled air strikes usually were conducted against targets between the close support line and the bomb safety line. All missions requested by higher headquarters and armed reconnaissance missions were kept outside the bomb-safety line. HORSEFLY aircraft hovered where the target could be seen. Ordinarily the HORSEFLY aircraft remained over friendly territory and did not fly deep into hostile territory in any case. The same general principles were employed by Third Army and XIX Tactical Air Command except that these units did not establish a close support line. Fighter-bomber attacks on targets within the Third Army bomblines were governed by the establishment of a local bomblines or artillery marking of targets by smoke, or both.

18. Duties of Pilot and Observer. The liaison aircraft and flying personnel provided by the tactical air command for HORSEFLY operations normally were based at a corps airstrip. When a HORSEFLY mission was desired by a division, a ground officer would be briefed by the division G-3 Air and sent to the corps airstrip to accompany the HORSEFLY pilot as an observer. This officer observer knew the general and specific ground situation and had designated points to check as either certain or probable locations for targets. The mission desired might be to assist a fighter-bomber flight in locating a pre-briefed target or to direct it to targets of opportunity.

19. Air-Ground Facilities Required.

a. General. The facilities provided by air and ground forces for other methods of air-ground liaison and forward control of air strikes close-in on the front of ground units were available for HORSEFLY missions. Additional equipment required was a liaison aircraft equipped with VHF radio.

b. By Ground Forces. Division and corps G-3 Air Officers worked very closely with the attached tactical air liaison officer, furnishing him with the scheme of maneuver and the location of the forward elements. The division G-3 Air had direct telephone communication to the artillery fire direction center to enable the immediate relay of a request to have the target marked by artillery smoke shells. There was also telephone and HF (high frequency) radio communication between G-3 Air of division and corps. Panels were sometimes displayed by the front line troops, to assist the pilots in the identification and location of forward friendly elements.

c. By Air Forces. The normal procedure was for the tactical air command to furnish a corps the necessary liaison type aircraft and the flying personnel to be used on HORSEFLY missions. VHF radio equipment in the liaison plane, and with the division and corps tactical air liaison officers, was also furnished by the tactical air command.

20. Procedure.

a. Pre-briefed missions. On a pre-briefed mission the HORSEFLY pilot and/or observer was briefed in regard to the target and the surrounding terrain from aerial photographs and maps. He was then directed to rendezvous with the fighter-bomber flight at an initial point (IP) behind the friendly front line. When both visual and radio contact with the flight had been established at the IP, the HORSEFLY led the flight to the vicinity of the target area and described the target with reference to easily recognizable terrain features. The division tactical air party through radio communication with HORSEFLY arranged to have artillery smoke fired when requested to aid in the target identification. A similar method of target identification sometimes was employed in VI Corps where red smoke rifle grenades were dropped from the liaison plane on a point near the target and the target location described with reference to the red smoke. The HORSEFLY observed the attack, indicating whether additional action was necessary, and reported the results immediately.

b. Targets of opportunity. In many instances a HORSEFLY mission was sent up to reconnoiter an area for targets of opportunity. When one was discovered the HORSEFLY called the division or corps forward controller with whom he was working. The next flight reporting to the controller was told to proceed to a certain point and call HORSEFLY. HORSEFLY was given the initial point, the call sign, proper radio channel and estimated time of arrival of a flight. The HORSEFLY took over as forward controller at the IP and directed the attack as described for pre-briefed targets. If there were no pre-scheduled fighter-bomber flights, the ground forward controller could make a request for one; if the target was of a high enough

priority a flight already airborne could be diverted from some less urgent target and a rendezvous made with HORSEFLY over the general area. Should any other liaison plane pick up a target it sent the information immediately to the corps forward controller and a HORSEFLY was ordered to the area to direct the attack.

## 21. Examples of use of system.

a. In the breach of the Siefried Line by XXI Corps, the air plan called for an L-5 aircraft with an observer from the 63d Infantry Division to operate during the day over the 44th Division and 63d Division zones, and an L-5 aircraft with an observer from the 70th Infantry Division to operate over the 70th Division and 101st Cavalry Group zones. Beginning at H minus thirty, or as soon as weather and visibility permitted, the planes were to report observations to the division and corps controllers and to be prepared to assist in the control of fighter-bomber aircraft in the attack on targets in their respective zones.<sup>2</sup> It was customary for the daily air plan of XXI Corps to include a paragraph setting forth the HORSEFLY mission for reconnaissance, target observation, and for location of targets of opportunity.

b. Third Army initially used the HORSEFLY technique in the Saar Campaign. During that army's drive to the Rhine and beyond, two L-5 aircraft gave dawn to dusk coverage and worked with the fighter-bombers as aerial controllers on pre-arranged and opportunity targets.<sup>3</sup>

c. The 9th Infantry Division used liaison aircraft to assist in guiding fighter-bombers to targets and stated they were extremely effective on targets of opportunity where there was insufficient time to pre-brief fighter pilots.<sup>4</sup>

d. The VI Corps stated that HORSEFLY was responsible for such missions as the bombing of Siegfried Line fortifications within 500 yards of forward infantry elements, destroying great quantities of material in the drive to the Rhine in March-April 1945, and disorganizing the enemy during the pursuit into Bavaria and Austria.<sup>3</sup>

## SECTION 2

### EVALUATION OF THE SYSTEM

22. General. The HORSEFLY system of providing airborne control for attacks of fighter-bombers on close-in targets was of considerable benefit to the ground units. In addition to combining effectively the usual method of direction of fighter bomber aircraft on targets close in on the front of ground units, i. e., artillery smoke marking of target, panels, and VHF radio conversation of forward ground controller with the flight leader, the HORSEFLY system placed the forward controller or his representative in the air with the same perspective as the pilot of the attacking aircraft. The relative advantages and disadvantages of HORSEFLY over other methods of forward control of fighter-bombers usually available are discussed more fully in paragraphs 23 and 24 below.

## 23. Advantages.

a. The HORSEFLY aircraft and pilot can be based well forward at corps or division liaison aircraft landing strips where they are readily available for the performance of HORSEFLY missions. This also makes the aircraft accessible for a ground observer thoroughly familiar with the situation, and desires of the ground commander.

b. The greater observation facilities offered by HORSEFLY permits more effective attack of targets which cannot be seen or anticipated by the ground controller.

c. HORSEFLY can assist both air and ground forces greatly in the identification of friendly armor and other vehicles when properly briefed on the ground situation.

d. Targets of opportunity may be located and engaged readily by having daily, and where warranted, continuous patrols by HORSEFLY aircraft.

e. In a fluid situation, HORSEFLY patrols are particularly useful for locating friendly forward elements, and warning them of road blocks or other obstacles.

f. The HORSEFLY achieves surprise, until enemy troops learn the identity of the plane as a spotter for fighter attacks. Moreover, the presence of the HORSEFLY (or other liaison spotter) aircraft in the air often had a deterring effect on enemy artillery since the German was reluctant to fire and disclose his position unless detected or attacked.

#### 24. Disadvantages.

a. The liaison aircraft used for HORSEFLY operations are vulnerable to enemy flak and fighter aircraft. Maximum exploitation of the technique is dependent upon at least local air supremacy. (Most of the experience with HORSEFLY in this theater occurred under conditions of total absence of hostile air re-action). Penetration of the HORSEFLY beyond the friendly front lines for an actual "lead-in" of fighter-bombers to the target cannot be effected if the enemy is able to put up any considerable amount of flak, or if friendly fighters cannot provide protection.

b. Location and identification of the HORSEFLY by friendly fighter-bombers sometimes is difficult, although this can be overcome to a great extent by painting distinctive markings on the upper wing surface or the fuselage of the liaison aircraft.

c. Failure of one of the added steps necessary to get the HORSEFLY into the air and make a successful rendezvous with the fighter-bomber aircraft introduces the possibility of an abortive mission.

d. The system also places an increased load on the usually overcrowded VHF radio channels.

e. After initial usage of the HORSEFLY technique, the presence of the craft may give warning to the enemy of an imminent air strike.

### CHAPTER 2

#### USE OF HIGH PERFORMANCE RECONNAISSANCE AIRCRAFT FOR AIRBORNE

##### CONTROL OF FIGHTER-BOMBER AIRCRAFT

25. General. Concurrently with the development and use of the HORSEFLY system, the tactical air forces in the European Theater of Operations developed a highly successful method of airborne control and lead-in of fighter-bombers to a target by the use of high performance reconnaissance aircraft, usually the armed P-51 used for visual reconnaissance. The system was very effective but was not as applicable to close-in

missions as was the HORSEFLY technique. It is felt that a discussion of the system should be included in this study especially in view of the comments of a leading air force commander contained in Appendix No. 6 hereto, and as discussed more fully in a succeeding chapter.

## 26. Development.

a. Use of high performance reconnaissance aircraft for the airborne controller of fighter-bomber aircraft in close-in cooperation missions began early in Normandy when bombers and fighter-bombers requested pin-point photographs of all targets following their bombardment. These pin-point photographic missions assigned to tactical reconnaissance units were combined with another mission of tactical reconnaissance -- the pin-pointing of enemy movement. This development led to the reconnaissance pilots calling their observations of pin-point targets into the central controller prior to their return to base. Airborne fighter-bombers were vectored to the area and disrupted the enemy movement over the main road networks.

b. The next phase of the development came with the Battle of St Lo. These reconnaissance aircraft spotted many lucrative targets in the great mass of withdrawing enemy columns. Due to the confusion of the battle area, these reconnaissance pilots, after contacting the central controller and informing him of their observation, were told to wait in the target area, meet the fighter-bombers, and lead them to the targets. It was finally decided to use a mutual radio channel for the reconnaissance pilots and the fighter-bomber pilots. This channel had been set up primarily for homings, but it served the secondary purpose of air-to-air communications admirably.<sup>5</sup>

## 27. Examples of use of high performance aircraft.

a. After the breakthrough at St Lo in late July and early August 1944, the Germans aimed a strong armored attack toward Avranches, with the purpose of cutting through to the Golfe de St Malo and stopping our southward flanking drive. The action was centered in the vicinity of Mortain. During this critical interval there were many unrecorded instances of teamwork between the reconnaissance aircraft and the fighter-bombers as described in the preceding paragraph.

b. Results of another mission against escaping Germans along the Seine River above Rouen reveal the effectiveness of this cooperation. Reconnaissance aircraft discovered the retreating enemy columns in the late afternoon and sent a hurried radio call for fighter-bombers. Despite poor weather and failing light three groups responded. The reconnaissance pilots led them down through the haze. Resulting claims were:<sup>5</sup>

419 M/T destroyed	58 probables	27 damaged
22 Tanks destroyed	2 probables	6 damaged
22 Barges destroyed	2 probables	7 damaged

c. On 21 January 1945 reconnaissance pilots led a squadron of fighter-bombers through a 1500 foot overcast to attack a mass of enemy equipment, bumper to bumper on the roads out of the Ardennes "bulge", with the following claims resulting:<sup>5</sup>

83 M/T destroyed	8 probables	51 damaged
1 Tank destroyed	0 probables	4 damaged

d. During the Ninth Army's attack on the west bank of the Roer commencing 16 November 1944, and ending 9 December 1944, P-51s were frequently used as a "bird-dog" for the fighter-bombers and to lead them to lucrative targets that otherwise would not have been hit.<sup>4</sup>

28. Evaluation of Method. The advantages and disadvantages of using the pilot of a high performance aircraft as a controller are as discussed below:

a. Advantages include:

- (1) The characteristics of the aircraft allows it to lead-in the fighter-bombers from a rendezvous point some distance behind the front lines.
- (2) Due to the fighter characteristics of the reconnaissance aircraft it is less vulnerable to enemy flak and enemy fighter-aircraft than a liaison type aircraft, and can penetrate deeper into hostile territory.
- (3) The reconnaissance aircraft can use forward fire as pointer to target for fighter-bombers.
- (4) Additional striking power is provided in that the tactical reconnaissance planes can aid in strafing the target area after the bombing run.

b. Disadvantages include:

- (1) Due to its speed the terrain study is not as thorough as can be made by a liaison pilot and numerous targets which could be located from a liaison aircraft are bypassed.
- (2) The tactical reconnaissance aircraft cannot carry an observer, thus prohibiting the use of a ground force officer who was thoroughly familiar with the ground situation.
- (3) Normally the high performance aircraft cannot be based at a forward landing strip and thus are not readily available for the performance of a HORSEFLY mission. This also denies to the pilot that close contact with the forward ground force units which is essential to the most effective results.

### CHAPTER 3

#### COMPARISON OF THE TWO SYSTEMS

29. General. The two systems of lead-in, or airborne spotting of targets for attack by fighter-bomber aircraft, were used effectively. However, in reviewing the examples cited for the use of the high performance aircraft it must be remembered that in the majority of these instances the reconnaissance planes were on scheduled reconnaissance missions which covered a fairly large frontage. Visual reconnaissance was usually conducted at 6000 feet over the army and corps zones. The corps zones extended up to thirty miles in advance of the front lines. Targets were not, in all instances, those that would be considered close support targets, but rather were targets in the enemy rear areas and on main roads leading to the front. Generally, reconnaissance pilots did not wait in an area as the HORSEFLY pilot did, but proceeded on their primary reconnaissance mission after reporting fully the location of the target to fighter control.

30. Advantages and disadvantages. Detailed statements of the advantages and disadvantages of the use of both liaison and high performance aircraft for airborne control of fighter-bombers are as discussed in relative paragraphs of the preceding chapter.

31. Opinions of air and ground commanders relative to the two methods of control.

a. Air Forces. The Commanding General, Ninth Air Force, in the first indorsement to a letter to the Commanding General, Supreme Headquarters Allied Expeditionary Force on the subject "Organization and Employment of Liaison Type Aircraft" which is included herein under Appendix 6, has expressed the opinion that the liaison type aircraft is not the best aircraft for lead-in of fighter-bombers in close-in cooperation missions because of its inherent limitation, namely, vulnerability to flak. This commander felt that high performance reconnaissance aircraft were better suited generally for this type of work, although it was stated that there are occasions in special situations in which the use of liaison aircraft for direction of fighter-bombers may be possible and profitable.

b. Ground Forces. For the opinions of ground force commanders, a questionnaire prepared by the General Board (Appendix 3) was sent to two armies, six corps and fifteen division commanders. A compilation of the replies from this questionnaire showed that ground force commanders felt the liaison type aircraft could be used profitably to assist fighter-bombers during close-in attacks. The following opinions have been extracted as reflecting the views of the majority of ground commanders questioned.

- (1) That the HORSEFLY system using liaison aircraft to control fighter-bombers in close-in cooperative missions should be developed and expanded.
- (2) That a liaison type aircraft for this control is definitely superior to the marking of air targets by artillery with colored smoke, to panel marking to show the direction of the target, or to any other form of target marking or control.
- (3) That the tactical air liaison officer attached to the division, or other qualified personnel provided by the air forces, would be a logical choice for the HORSEFLY pilot.
- (4) That the liaison aircraft and equipment for this use should be made available to divisions.
- (5) That a ground force observer, thoroughly familiar with the local problem and situation should accompany the HORSEFLY.

## CHAPTER 4

### CONCLUSIONS AND RECOMMENDATIONS

#### SECTION 1

##### CONCLUSIONS

32. It is not believed that the opinions of air and ground commanders as discussed in Chapter 3 represent a serious divergence of views. For an actual "lead-in" to a target in enemy territory, the high performance reconnaissance aircraft undoubtedly is better suited due to its ability to travel at comparable speeds with the aircraft making the strike. As a consequence the reconnaissance aircraft can point out the target accurately by making a "pass" at the target itself. The speed and maneuverability of the reconnaissance aircraft place it in the same category as to vulnerability to flak as the fighter-bombers themselves. Reconnaissance aircraft, however, usually have the primary mission of reconnaissance deep to the front and flanks of ground forces, on an army front of one or more corps, and normally are not as available for work with a specific division as liaison aircraft assigned to a division would be.

33. For a minute and detailed terrain study for air targets on the immediate front of a corps or division the liaison type aircraft, on the other hand, usually could be made available. Because of the inherent qualities of liaison type aircraft they provide an accessible and highly effective means of airborne control of fighter-bombers on close-in targets.

34. If the recommendation for the organic assignment of liaison aircraft at division level, as contained in Part One of this report, is accepted, liaison aircraft for HORSEFLY operations would be readily available at each division. Observer personnel would be furnished by the ground force commander. Flying personnel for the operation of these aircraft on HORSEFLY missions could be provided in one of several ways as follows:

a. By the attachment of additional pilots from the tactical air command to the tactical air liaison section of corps and division, for use in HORSEFLY operations when such are warranted by the situation.

b. By having organic ground force flying personnel with each corps or division conduct HORSEFLY operations.

c. By the use of the tactical air liaison officer attached from the tactical air command to each corps and division for air-ground liaison purposes.

35. It is believed that method a. is the most desirable. Pilots so attached, normally would be combat pilots skilled in the technique of fighter-bomber operations. They could be rotated as desired by the tactical air command. When attached to a division for HORSEFLY operations the pilot could serve as an assistant to the tactical air liaison officer, and thus made familiar with the division commander's desires and plans. Method b. would provide an emergency substitute in the event the attached air force pilot was not available. Method c. is not considered feasible since the tactical air liaison officer should remain at his post on the ground, as forward controller, performing his primary mission as forward operations officer for the tactical air command. He should be readily available at all times to make decisions on other possible missions that may arise.

SECTION 2

RECOMMENDATIONS

36. As a result of this study, it is recommended that:

a. The HORSEFLY technique of control of fighter-bombers in close-in ground attacks be developed and expanded as an additional method of forward control of fighter-bomber aircraft in attack of targets close-in on the front of ground force units.

b. The liaison type aircraft be used where the situation permits for HORSEFLY control of fighter-bomber close cooperation missions.

c. The liaison aircraft to be used in HORSEFLY operations be provided from the two L-5 type aircraft recommended to be furnished the division in Part One of this study.

d. The necessary VHF radio sets to equip these aircraft be furnished from appropriate sources.

e. The liaison aircraft used in HORSEFLY normally be piloted by an assistant to the tactical air liaison officer attached to the division from the tactical air command, with an organically assigned division liaison pilot substituting when occasion requires.

f. When practicable, a ground force officer familiar with details of the ground situation and desires of the ground force commander, accompany each HORSEFLY mission.

g. Pertinent doctrines, techniques, T/O's and T/E's affected by these recommendations be amended by appropriate agencies of the War Department.

# B I B L I O G R A P H Y

(PART TWO)

1. Air Operations Briefs, Volume 4, prepared by Office of the Commanding General Army Air Forces, 12 February 1945.
2. Air Plan of XXI Corps for Breach of Siegfried Line. Prepared by XXI Corps Hq from Annex to Field Order.
3. Answers to Questionnaire for Key Commanders, Subject: "Liaison Aircraft", submitted by the General Board United States Forces, European Theater of Operations, September 1945.
4. Answers to Questionnaire for Key Commanders on "Effects of Strategical and Tactical Air Power on Military Operations in European Theater of Operations" as compiled by Air Effects Committee 12th Army Group, 1945.
5. Headquarters 67th Tactical Reconnaissance Group report on "The Employment and Effectiveness of Tactical and Photo Reconnaissance in Relation to Close-in Cooperation Missions", dated 18 April 1945.
6. Immediate Report No. 34 (Combat Observations) Headquarters ETOUSA, 26 January 1945.
7. Report on "Effectiveness of Close-in Air Cooperation", prepared by Headquarters IX Tactical Air Command, dated 27 April 1945.

## A P P E N D I C E S

- Appendix 1 True copy of The General Board's Directive to prepare a Report on "Liaison Aircraft with Ground Force Units", dated 20 August 1945.
- Appendix 2 Training Circular No. 45, War Department 11 July 1945.
- Appendix 3 Questionnaire on "Provision of Liaison Aircraft to Ground Forces and HORSEFLY" as submitted to key commanders, European Theater of Operations by The General Board, United States Forces, European Theater.
- Appendix 4 True copies of:  
TWX from 6th Army Group 12 April 45.  
TWX from ETOUSA 20 April 45.  
TWX from 12th Army Group 3 May 45.
- Appendix 5 True copy of letter to Commanding General, Army Air Forces, Washington, D. C., from Col. J. C. Bennett, AC, dated 1 April 1945.
- Appendix 6 True copy of 1st Ind of letter from Commanding General, SHAEF, Air Staff (FWD) by Brigadier General Robert M. Lee, Deputy Commanding General, Ninth Air Force, dated 5 June 1945.
- Appendix 7 True copy of General Board's 4th Ind to letter, 12th Army Group to Theater Commander dated 27 July 1945, Subject: "Higher Echelon Maintenance and Supply of Ground Forces Aircraft."

C-O-N-F-I-D-E-N-T-I-A-L

HEADQUARTERS  
U. S. FORCES, EUROPEAN THEATER

(S: 15 Sept 45)  
BHL/EMJ/jc

AG 452 GCT-AGO

(Main)-APO 757  
14 August 1945

SUBJECT: Use of Liaison Type Aircraft for other than  
Field Artillery

TO : President of the General Board, U.S. Forces,  
European Theater

1. The Commanding Generals of the 6th and 12th Army Groups recommended "That 12 Liaison aircraft (L-5 type), to be flown by air force tactical pilots and maintained by air force personnel, be provided each Air Force Tactical Air Command for "Horse-Fly" control of fighter-bomber close base in support missions". (See Inclosure 1).

2. This recommendation was submitted to the Commanding General, Ninth Air Force, for comment and concurrence. Commanding General, Ninth Air Force, does not concur in the recommendation and considers that the proposal is unsound insofar as the air forces are concerned. (See Inclosure 2).

3. It is desired that the subject be studied by the General Board, U.S. Forces, European Theater, and that the recommended action be submitted to this headquarters.

BY COMMAND OF GENERAL EISENHOWER:

/s/ L. Wurzel  
/t/ L. WURZEL  
Captain, AGD

Assistant Adjutant General

2 Incls:

- Incl 1 - Cables from 6th  
and 12th Army Groups
- Incl 2 - Comments of CG, Ninth Air Force

C-O-N-F-I-D-E-N-T-I-A-L

A TRUE COPY:

*John H. Huckins*  
JOHN H. HUCKINS,  
Lt. Col., CAV.

C O N F I D E N T I A L

THE GENERAL BOARD  
UNITED STATES FORCES, EUROPEAN THEATER  
APO 408

R 452.1/2 TGBSY

20 August 1945

DIRECTIVE: Committee Number 18.

TO : Chief, G-3 Section.

SUBJECT : Liaison Aircraft with Ground Force Units.

1. Mission.

Prepare report and recommendations on the provision of liaison aircraft to ground force units and for "HORSEFLY" control of fighter-bomber close base in support missions.

2. Scope.

a. Report and recommendation will include:

- (1) Requirements for liaison aircraft at Army Headquarters, Corps Headquarters, Infantry and Armored Division Headquarters, Cavalry Group and Squadron Headquarters, Tank and Tank Destroyer Battalion and other Headquarters.
- (2) Type of liaison aircraft.
- (3) Source of personnel to fly and maintain the liaison aircraft.

b. Report and recommendation will also include:

- (1) Requirements for liaison aircraft to provide Air Force Tactical Air Command "HORSEFLY" control of fighter-bomber close base in support missions.
- (2) Source of personnel to fly and maintain such liaison aircraft, if such is recommended.

3. Source Material.

a. Attached letter, Eq USFET, file AG 452 GCT-A-00, dated 14 August 1945, subject: "Use of Liaison Type Aircraft for other than Field Artillery."

b. Records and personnel of agencies under command of USFET.

4. Composition of Committee.

APPENDIX # 1

C O N F I D E N T I A L

C O N F I D E N T I A L

SUBJECT: Liaison Aircraft with Ground Force Units.

- a. Chairman - Chief, G-3 Section.
- b. Interested Sections:

Air Force  
G-2

Arty  
Arm'd

Signal

5. Instructions.

- a. See Plan of Operation, The General Board.

b. Responsible chief of section (G-3) will submit recommendations to the Secretariat, by name, for members of the committee.

c. Priority will be given to the report and recommendations called for in paragraph 2b, above.

d. See Memorandum, The General Board, dated 20 August 1945, subject: "Primary Interest of G-3 Section in all Matters Pertaining to Air-Ground Liaison."

FOR THE PRESIDENT OF THE BOARD:

s/t/ R. B. PATTERSON,  
Colonel, A. G. D.,  
Secretary.

1 Incl:

Ltr Eq USFET, dtd  
14 Aug 45, w/2 Incls.

REPRODUCED THE GENERAL BOARD  
10 September 1945

A TRUE COPY:

JOHN E. HUCKINS,  
Lt Col, CAV.

C O N F I D E N T I A L

R E S T R I C T E D

Training Circular  
No. 45

WAR DEPARTMENT  
Washington 25, D.C., 11 July 1944.

(Effective until 11 July 1945, unless previously rescinded.)

1. Employment of Army Air Forces Liaison Squadrons. 1. Mission.-- The mission of Army Air Forces Liaison Squadrons is to provide theater and task force headquarters and ground force units with general liaison, messenger and courier service in areas behind the front lines of friendly troops. Army Air Forces liaison squadrons hereinafter referred to as liaison squadrons, are organized, trained and equipped for this purpose. (See T/O&E 1-997) This service is provided by the performance of the following types of air missions, within the limitations of aircraft, personnel, and equipment available in the liaison squadron.

- a. Messenger and courier service.
- b. Transport and ferry service for ground force personnel and equipment.
- c. Visual reconnaissance.
- d. Light photographic reconnaissance and other limited photographic missions.
- e. Column control.
- f. Check upon passive air defense measures, such as camouflage, cover, concealment, dispersion and dummy installations.
- g. Artillery adjustment, when required in emergencies.

2. Command.--a. In theaters of operations, liaison squadrons will be under the command of the theater air force commander or a subordinate air force commander designated by him.

b. In the continental United States, liaison squadrons will be under the command of the Commanding General, Army Air Forces, or a subordinate air force commander designated by him.

c. Each liaison squadron, whether operating as a single unit or separated into flights, is under the direct command of the squadron commander.

3. Employment.--a. Each liaison squadron will be employed as a unit as long as the required liaison service can be provided efficiently through this type of operation. Such employment provides--

(1) More efficient training and supervision of personnel.

(2) Centralized supply and maintenance of aircraft and equipment.

(3) Maximum use of available aircraft and personnel.

(4) Flexibility in providing liaison service.

b. One or more flights will be separated from the squadron and made available directly to a unit designated by the Army, when the rendition of efficient liaison aviation service so requires. Flights are capable of operating separately for an extended period when provided the facilities indicated in paragraph 6c.

c. Individual aircraft or crew will not be detached from the squadron or a flight. Individual aircraft will not be based where necessary supply and maintenance service is not available.

R-E-S-T-R-I-C-T-E-D

R-E-S-T-R-I-C-T-E-D

4. Distribution.--Liaison squadrons will normally be provided as follows:

a. In theaters of operations:

(1) One squadron per theater or task force headquarters.

(2) One squadron per field army.

b. In the continental United States, ground force units engaged in large scale maneuvers (involving two or more divisions) will normally be provided liaison aviation as follows:

(1) One squadron per field army.

(2) One flight per independent corps.

(3) One flight per independent division.

5. Responsibilities of air force commanders.--a. To provide the liaison aviation service required by the headquarters and units listed in paragraph 4, in accordance with the principles stated herein.

b. To provide the necessary liaison squadrons organized, trained, and equipped to perform liaison missions.

c. To maintain the operating efficiency of liaison squadrons.

d. To provide personnel, aircraft, supplies, equipment, and maintenance necessary to insure that these units are at full operating strength as indicated in the approved T/O&E.

e. To select field and bases from which efficient liaison service can be rendered.

f. To provide observers, when required in the performance of photographic missions.

g. To process, print, and deliver photographs taken by the liaison squadron. The number of prints provided will be limited and quantity reproduction is not a function of this organization.

h. To act as advisors concerning the employment of liaison aviation.

i. Liaison squadron commanders and commanders of separate flights will use their initiative in promoting the utility of liaison aviation.

6. Responsibilities of commanders to whom liaison aviation is made available.--a. To designate the agencies or personnel authorized to request liaison missions, establish priorities for the performance of liaison missions, and inform the liaison squadron or flight commander concerned accordingly.

b. To insure that the mission requested meet the requirements for liaison service and conform to the principles contained herein.

c. To provide messing and quartering facilities when required by liaison squadron personnel.

d. To assist in the establishment of the necessary landing fields and bases.

e. To provide additional guards for aircraft, landing fields, or bases when required.

f. To provide qualified staff officers or observers when the liaison mission being performed requires their participation. The number of observers included in the liaison squadron is limited and this will generally require that a qualified ground force officer participate in the artillery missions.

7. General.--The provisions of this circular will not be construed as prohibiting the employment of liaison aircraft upon any mission for which they are suitable.

By order of the Secretary of War:

R-E-S-T-R-I-C-T-E-D

R-E-S-T-R-I-C-T-E-D

G. C. MARSHALL,  
Chief of Staff.

OFFICIAL:

J. A. ULIO,  
Major General,  
The Adjutant General.

A TRUE COPY:

*John H. Huckins*  
JOHN H. HUCKINS,  
Lt. Col., CAV.

R-E-S-T-R-I-C-T-E-D

## PREFACE TO QUESTIONNAIRE

1. The General Board, United States Forces, European Theatre, has been directed by the Theatre Commander to prepare a report and recommendation on the provision of liaison aircraft to ground force units, and for "HORSEFLY" control of fighter bomber close base in support missions. This report is to include recommendation on the requirements for liaison aircraft with ground force units, type and number of aircraft required, and the source of personnel to fly and maintain the aircraft.

2. The attached questionnaire has been prepared in order to obtain the best opinions from key commanders and their staffs, based on operational experience in this Theatre. Comment is desired from commanders of all echelons from the army headquarters down to and including regiment, armored combat command; and cavalry, tank, tank destroyer, engineer, or similar group, with each commander discussing that part appropriate to his command (Army commanders to comment on the need at all echelons, corps commanders from the corps downward, division commanders from division downward, etc.).

3. It is realized and expected that commanders will have had varying experience, and that this fact will preclude answers in every instance. It is realized also that certain commanders will desire to offer additional comments other than as covered in the questionnaire. Such comments are encouraged.

\*The "HORSEFLY" method is defined as a liaison type aircraft equipped with VHF radio used as a forward controller for fighter bombers in close in air-ground cooperation.

- I. What uses, other than the primary mission of air OP, were made of organically assigned artillery liaison aircraft by the army, corps or division headquarters? (Enumerate by type of mission.).
- II. How many AAF liaison aircraft normally were attached to army headquarters?
- a. Was the number subject to radical or frequent changes?
  - b. What allocation was made by army headquarters to subordinate units?
    1. Corps?
    2. Division?
    3. Other units?
- III. What uses were made of the attached AAF liaison aircraft by army or lower unit headquarters? (Enumerate by type of mission).
- IV. a. Is there a need for additional AAF liaison aircraft at army headquarters?
- b. If answer to a. is affirmative, give reasons to include a statement of:
1. Numbers required.
  2. Type required.
- c. Would it be preferable to have liaison aircraft assigned organically to army headquarters, rather than attached from AAF.
1. Discuss the advantages and disadvantages of having such liaison aircraft assigned organically and flown and maintained by ground force personnel, to include comments on:
    - (a) Personnel, both officer and enlisted, necessary for efficient operation and maintenance of liaison aircraft at each echelon of command.
    - (b) Source of such personnel.
    - (c) Should pilots and/or observers be given basic flight training by air forces, to be followed by advanced training, by branch, at ground force schools. (Similar to field artillery method).
    - (d) Should enlisted technicians be trained by air or ground forces or both.
    - (e) Should field artillery system of maintenance and repair of aircraft be adopted by ground force units to which liaison aircraft may be assigned.

2. Discuss the advantages and disadvantages of having liaison aircraft flown and maintained by attached air force personnel.

V. What are the needs of the following units for liaison aircraft? Discuss as indicated below:

a. Corps

1. Uses.
2. Number.
3. Type.\*
4. Assignment Status.\*\*

b. Division (Infantry - Armored - Airborne)

1. Uses.
2. Number.
3. Type.\*
4. Assignment Status.\*\*

c. Lower Units.

1. Infantry regiment, armored combat command, or parachute regiment.
  - (a) Uses.
  - (b) Number.
  - (c) Type.\*
  - (d) Assignment Status.\*\*
2. Cavalry group and squadrons. (Mecz)
  - (a) Uses.
  - (b) Number.
  - (c) Type.\*
  - (d) Assignment Status.\*\*
3. Tank and tank destroyer group and battalion.
  - (a) Uses.
  - (b) Number.
  - (c) Type.\*
  - (d) Assignment Status.\*\*
4. Engineer group and battalion. (C)
  - (a) Uses.
  - (b) Number.

- (c) Type.\*
  - (d) Assignment Status.\*\*
5. Other units when attached to a division.
- (a) Uses.
  - (b) Number.
  - (c) Type.\*
  - (d) Assignment Status.\*\*

\*Under type state in each instance whether a low h.p. craft similar to L-4 type or higher h.p. craft similar to or better than the L-5 type is desirable.

\*\*Assignment similar to field artillery system or attached from AAF. Discuss under same subheadings as in IV c. 1 and 2 of questionnaire.

- VI. If answers to V above indicate a need for additional liaison type aircraft, state opinion as to whether such aircraft should be pooled at division level or assigned to lower echelons as indicated in question V. Give reasons.
- VII. a. What experience have you had with the "HORSE-FLY" method of control of fighter bomber close base in support mission? Discuss briefly.
- b. From your own experiences or personal knowledge, how effective was this method of control of fighter bombers?
- c. What are its advantages over the following methods of ground control of fighter bombers?
1. Tactical air liaison officer with VHF radio on the ground.
  2. Marking of targets by artillery with colored smoke.
  3. Panel marking to show direction of target.
  4. Other.
- d. Should the "HORSEFLY" method be developed and expanded to provide for its frequent use in close support air-ground missions? If the answer is "yes":
1. Should the tactical air forces be responsible for providing the necessary personnel and equipment?
  2. Would it be logical:
    - (a) For the tactical air liaison officer with each corps or division to be equipped with the necessary aircraft with VHF radio to perform these missions? Discuss.

(b) Or for the tactical air command co-operating with each army to attach to divisions of that army one combat pilot and liaison aircraft with VHF radio (in addition to the regularly attached TALO) when the tactical situation warrants it? Discuss.

3. Would it be advisable to have a ground officer go on each mission in an observers role?
4. Would you recommend that ground forces assume the responsibility for the "HORSEFLY" method of control (if liaison type aircraft are assigned organically to ground forces.).

R-E-S-T-R-I-C-T-E-D

WAR DEPARTMENT  
M E S S A G E F O R M

File No. 452.1 (G-3)

Date: 3 May 1945

Office of origin: Hq 12th Army Group: G-3 R-1831  
Section Symbol

Address: APO 655

TO: Commanding General  
European Theater of Operations Main  
APO 887

MESSAGE:

REFERENCE YOUR TWX EX-35226 DATED 22 APRIL 1945,  
CONCUR WITH PROPOSALS IN PARAGRAPHS A, B, C, D, E, F,  
AND G. RECOMMEND THAT IN EACH FLIGHT ASSIGNED TO CORPS  
AND ARMY ONE PLANE BE EQUIPPED FOR PHOTOGRAPHIC WORK  
AND THE NECESSARY PHOTOGRAPHIC LABORATORY EQUIPMENT  
BE PROVIDED IN APPROPRIATE T/O & E. FURTHER RECOM-  
MEND T/O & E OF HEADQUARTERS AND HEADQUARTERS BATTERY,  
CORPS ARTILLERY BE AMENDED TO INCLUDE NECESSARY PHO-  
TOGRAPHIC EQUIPMENT FOR ONE PLANE AND NECESSARY PHO-  
TOGRAPHIC LABORATORY EQUIPMENT.

FOR THE ARMY GROUP COMMANDER:

/s/ Walter Sczudlo  
/t/ WALTER SCZUDLO  
Lt Col, AGD  
Asst Adj. Gen

Info Copy to:  
SCAEF

A TRUE COPY: *John H. Huckins*

JOHN H. HUCKINS;  
Lt. Col., CAV.

## STAFF MESSAGE CONTROL

WFH/hf

## OUTGOING CLASSIFIED MESSAGE

DATED APR 20 2149B '45

## RESTRICTED-ROUTINE

FROM : ETOUSA signed Eisenhower (Multiple)  
ACTION TO : Twelfth Army Group  
INFO TO : SHAEF (Forward) (G-3 O & E)  
REF NO : EX-35226

Making reference to our EX-21441 dated 16 March and your QX-13992 reply dated 14 April, Sixth Group agrees with your reference need for liaison type aircraft in division (in addition to organic field artillery aircraft now provided) for purposes you recommend.

In addition Sixth Group recommends.

a. That two liaison aircraft (L-5 type) be added to T/O and E of each cavalry group Hq and that two liaison aircraft (L-4 type) be added to T/O & E of each cavalry squadron Hq for command and staff observation and liaison, route reconnaissance, radio relay and emergency courier service.

b. That two liaison aircraft (L-4 type) be added to the T/O and E of each separate tank and tank destroyer Bn Hq for command of staff observation and liaison, tactical reconnaissance and route reconnaissance.

c. The above aircraft should be flown and maintained by personnel of the arm to which the aircraft is assigned.

d. That two flights, each of eight (L-5 type) aircraft, be attached to each Army Hq for command and staff observation and courier service.

e. That one flight of eight (Type L-5) aircraft be attached to each Corps Hq to be used for courier service, command and staff observation and liaison, photography, and route reconnaissance.

f. That aircraft in E and D above should be flown and maintained by ground force personnel assigned to the Army and Corps Hq.

g. That 12 liaison aircraft (L-5 type), to be flown by air force tactical pilots and maintained by air force personnel, be provided each air force tactical air command for "HORSEFLY" control of fighter bomber close base in support of missions.

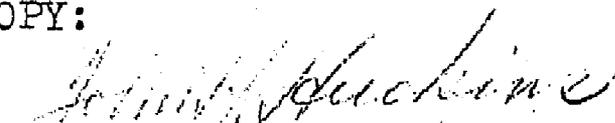
Your comments by 27 April are needed prior determination firm Theater recommendation to meet request by War Department.

REFERENCE: ETOUSA EX-21441 (Orig by Arty Section)  
(ETO OUT 70727)  
Twelfth Army Gp QX-13992 (Action G-3)  
(ETO IN 24233)

ORIGINATOR: (OE-ICM/hmr/2337)

INFO : SGS  
G-2  
G-4  
AG Opns  
Arty Section  
AFV & W Section  
Signals  
Summary

A TRUE COPY:

  
JOHN H. HUCKINS,  
Lt. Col., CAV.

STAFF MESSAGE CONTROL

INCOMING CLASSIFIED MESSAGE

CORRECTED COPY

Destroy all others.

DATED APR 120855 '45

RECD APR 121955B

CONFIDENTIAL-ROUTINE

FROM : Sixth Army Group (Tac) signed Devers (Multiple)  
ACTION TO : Seventh US Army  
ETOUSA  
REF NO : BAX 25744

This answers your EX-18828 dated 10 March 1945. The following is recommended:

a. That 6 liaison aircraft (L-5 type) be added to the present T/O & E of each Infantry and Armored Division Headquarters, to be used for command and staff observation and liaison, tactical reconnaissance, route reconnaissance, radio relay, and aerial photography.

b. That 2 liaison aircraft (L-5 type) be added to the T/O & E of each Cavalry Group Headquarters, and that 2 liaison aircraft (L-4 type) be added to the T/O & E of each Cavalry Squadron Headquarters, for command and staff observation and liaison, route reconnaissance, radio relay, and emergency courier service.

c. That 2 liaison aircraft (L-4 type) be added to the T/O & E of each separate Tank and Tank Destroyer Bn Headquarters for command and staff observation and liaison, tactical reconnaissance, and route reconnaissance.

In addition, it is recommended:

e. That 2 Flights, each of 8 (L-5 type) aircraft, be attached to each Army Headquarters for command and staff observation and courier service.

f. That one Flight of 8 (Type L-5) aircraft, be attached to each Corps Headquarters to be used for courier service, command and staff observation and liaison, photography, and route reconnaissance.

g. The aircraft in e. and f. above should be flown and maintained by Ground Force personnel assigned to the Army and Corps Headquarters.

h. That 12 liaison aircraft (L-5 type), to be flown by Air Force tactical pilots and maintained by Air Force personnel, be provided each Air Force Tactical Air Command for "HORSEFLY" control of fighter-bomber close base in support missions.

REFERENCE : ETOUSA EX-18828 (Orig by Arty Section) (ETO OUT 67877)

ACTION : Arty Section

INFO : SGS

G-3

G-4

Medical

Signals

AG Opns

Summary

AG Records

NOTE BY SMC:

Underlined portions (Action Agency and Distribution) are corrections received via service from Sixth Army Gp 130400B.

CORRECTED COPY

Destroy all others.

A TRUE COPY:

*John H. Huckins*  
JOHN H. HUCKINS,  
Lt. Col., CAV.

S E C R E T

C O P Y

1 April 1945

SUBJECT: Liaison Type Aircraft in Air Forces and Ground Forces.

TO : Commanding General, Army Air Forces, Washington, D. C.  
(Attn: AC/AS OC and R Requirements Division and AC/AS Plans Post War Division)

1. The following recommendations are based upon a thorough study of the use and possible requirements for liaison type aircraft in both Air Forces and Ground Forces in ETO. This study was conducted by personal contact with individuals shown under Tab A.

2. Recommendations:

a. Liaison type aircraft in the Field Artillery:  
The present employment and organization of aircraft in the Field Artillery has been eminently successful. No changes are indicated other than minor changes in T/O & E which will be recommended through channels as a result of a conference of the Army Artillery Air Officers of this theater.

b. Liaison type aircraft required in the Division and Cavalry Group for other than artillery missions:  
There is a definite requirement for liaison type aircraft in Infantry, Armored and Airborne Divisions and in the Cavalry Group for missions other than artillery. Many of these missions are now being flown using the airplanes of the Artillery to the detriment of the Artillery. Many more missions should be flown which are not possible at the present time, because the right type and a sufficient number of aircraft are not available. For list of missions and explanation see Tab B. Based on this requirement the following recommendations are submitted:

(1) It is recommended that liaison aircraft be added to the T/O & E of the following units in the numbers indicated:

- one per Infantry Regiment in the Infantry Divs.
- two per Infantry Division Headquarters.
- one per Airborne Infantry Regiment.
- two per Airborne Division Headquarters.
- one per Combat Command in the Armored Division.
- two per Armored Division Headquarters.
- one per Cavalry Squadron of Cavalry Groups.
- two per Cavalry Group Headquarters.

(2) Of the two current types of liaison airplanes it is recommended that L-4 type be provided for Infantry Regiments, Combat Commands and Cavalry Squadrons and L-5 type be provided for Division and Cavalry Group Headquarters.

(3) It is recommended that for Infantry and Airborne Divisions the pilots be Infantry Officers, for Armored Divisions the pilots be Armored Force (Infantry) Officers, and for Cavalry units the pilots be Cavalry Officers.

APPENDIX #5

(over)

S E C R E T

(4) It is recommended that organization, supervision, maintenance and supply for these additional aircraft be patterned after the current organization, policies and procedures employed by the Field Artillery.

c. Liaison aircraft for use by Armies and Corps: The present employment of Liaison Squadrons attached to Armies and Corps for operational control is deemed satisfactory. No changes are indicated with the exception of minor changes in T/O & E and detailed method of operational control. For explanation of these deficiencies see Tab C.

d. Depot Unit, Army: The principle of the Depot Unit, Army is sound; however, the present T/O & E is decidedly inadequate. At the present time the First, Third, and Ninth Armies are employing MR and R Squadrons (organizations three times the size of a Depot Unit, Army) in lieu of Depot Units, Army. The Depot Unit, Army, must be large enough to take care of all airplanes assigned to Ground Forces to include those now in the Artillery and those recommended to be added plus the liaison squadron attached to the Army. This proposed T/O & E is based on the experience of the three MR and R Squadrons and one Depot Unit, Army now in this theater. An additional column will have to be added to the T/O & E when additional aircraft are placed in Ground Forces. Immediate approval of the Proposed T/O & E is urged.

e. Horsefly: The "Horsefly" has been employed with marked success for a considerable length of time by both the Seventh and Third Armies. It is considered by both the air and ground officers who have used it as one of the outstanding developments in air-ground cooperations. The First and Ninth Armies are preparing to use this method also. For details of the most successful organization for employment of the "Horsefly" see Tab E. To provide this service it is recommended that ten L-5 type aircraft equipped with VHF radios and sufficient maintenance personnel be added to the T/O & E of each Tactical Air Command.

f. Liaison aircraft for administrative uses by Air Force Headquarters: Many Air Force Headquarters in this theater are now using liaison type aircraft for administrative flights. All Air Force Headquarters have indicated a requirement for liaison type aircraft. Liaison pilots will not be required for these airplanes. It is recommended that aircraft of the L-5 type be authorized for the following headquarters in the numbers shown:

four per Air Force and Air Command Headquarters  
two per Wing Headquarters  
one per Group Headquarters except Troop Carrier.

g. Production of L-5 type aircraft: It is recommended that production of L-5 type aircraft be increased immediately to meet the imminent increase in demands as indicated in the above recommendations.

3. These recommendations are based on experience in ETO. At the completion of our visit to other theaters a complete report will be submitted including the statements of the individuals contacted. It is believed that the basic principles recommended above apply to all theaters and information obtained in other theaters will call for slight modifications of the above at most.

S E C R E T

ROBERT R. WILLIAMS  
Lt. Colonel, F.A.

JOHN C. BENNETT  
Colonel, A.C.

A TRUE COPY:

*John H. Huckins*  
JOHN H. HUCKINS,  
Lt. Col., CAV.

S E C R E T

C O N F I D E N T I A L

SUPREME HEADQUARTERS  
ALLIED EXPEDITIONARY FORCE (FWD)  
AIR STAFF

31 May 1945

SUBJECT: Organization and Employment of Liaison Type Aircraft.

TO : Commanding General, Ninth Air Force (Adv).  
APO 696.

1. Your views are requested as to the propriety of the Action Recommended in the attached Staff Study.

2. Return of subject Study to this Headquarters by 5 June 1945 is desired.

For the Assistant Chief of Staff, A-3

M. H. Mc KINNON,  
Col., A. C. ,  
Deputy Assistant Chief of Staff, A-3

1 Incl.

Staff Study, subj: "Use of  
Liaison Aircraft for Other  
Than Field Artillery."

1st Ind.

HEADQUARTERS, NINTH AIR FORCE, APO 696, US Army, 5 June 1945

TO: Commanding General, SHAEF, Air Staff (FWD), APO 755,  
US Army.

1. With reference to paragraph 3d proposed cable, experience in this Air Force has shown that the employment of L-5 type aircraft for so-called "Horse-fly" control of fighter-bombers is impractical. Marked success of leading fighter-bombers to targets by high performance tactical reconnaissance aircraft was experienced. Upon rare occasions, there may be a special situation in which the use of L-5 type aircraft may be possible and profitable. On those occasions, aircraft of a liaison squadron or one of those assigned to the tactical unit may be used. In general, the light flak and small arms fire over and on the enemy side of the front lines is too intense to permit this technique of operation. It is recommended that paragraph 3d proposed cable be deleted.

2. The following comments are offered relative to the action recommended in Inclosure No. 1.

a. It is recommended that liaison type aircraft for Army Ground Forces, other than Field Artillery, continue to be provided from liaison squadrons.

b. It is further recommended that the responsibility remain in Army Air Forces to organize, train, and equip liaison squadrons and furnish them to each theater of operations.

(over)

C O N F I D E N T I A L

C O N F I D E N T I A L

c. The above recommendations are made because facilities exist within Army Air Forces to more adequately train, equip, and supply liaison units.

3. If the War Department directs that ground force agencies other than Artillery be authorized liaison aircraft, such liaison aircraft and pilots should be limited to the same horse power aircraft as was provided the Field Artillery.

4. Paragraph 3 of Memorandum to Assistant Chief of Staff, G-3, SHAEF, dated 30 May 1945, refers to Tab G, a report of Army Air Forces representatives. Statements made in Tab G infer that opinions of the subject matter were obtained by personal contact with members of this Air Force. While Ninth Air Force (Advanced) was located in Luxembourg Col. Bennet visited the headquarters, stating that he had no particular mission except familiarize himself with tactical air operations in general. At no time during his visit did he discuss with me or other responsible members of this headquarters the requirement for liaison type aircraft in T/O & E of the Ground Forces other than Artillery.

For the Commanding General:

ROBERT M. LEE,  
Brigadier General, USA  
Deputy Commanding General  
for Operations.

Incl: n/c

A TRUE COPY:

JOHN H. HUCKINS,  
Lt. Col., CAV.

(Ltr, Hq 12th Army Group, 452.1 (Arty), Subject: "Higher Echelon Maintenance and Supply of Ground Force Aircraft", dtd 27 July 1945)

R 452.1 TGBDC  
(27 Jul 45)

4th Ind.

IBR/cdo

THE GENERAL BOARD, UNITED STATES FORCES, EUROPEAN THEATER, APO 408, US ARMY

TO: Commanding General, United States Forces, European Theater, APO 757, US Army.

Recommendations contained in basic communication and 2nd Indorsement thereto have been studied. The questions asked in paragraph 1 of your 3rd Indorsement are answered in corresponding sub-paragraphs below:

a. The proposed organization should be an air force unit composed of air force personnel. The air forces should have responsibility for organization, training, technical supervision and technical supply. The air forces should also have administrative control at all times, and command responsibility except when the unit is attached to an army.

b. The organization should not be a ground force unit.

c. For operations the unit should be attached to an army for command (less technical and certain administrative matters) and for supply and services common to ground and air force units.

d. Command should be effected as indicated above. The army which the unit supports should communicate directly with the air force service command or its agency on all matters requiring coordination.

e. The unit should not be organized under a cellular table of organization and equipment for the following reasons:

- (1) An organization operates more efficiently if it is organized and trained as a unit.
- (2) An organization could not maintain its sense of responsibility as a unit and continuity of efficient maintenance if its personnel were frequently shifted to care for anticipated changes in maintenance requirements.
- (3) The use of a cellular table would not eliminate any of the objections attached to the use of a standard size unit to carry a fluctuating maintenance burden, as the maintenance requirements would change much faster than the capabilities of the unit could be adjusted by adding or deleting cells.

FOR THE PRESIDENT OF THE BOARD:

A. FRANKLIN KIBLER,  
Brigadier General, GSG,  
A. C. of S., G-3.

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n/c

APPENDIX #7.

(over)

A TRUE COPY:

*John H. Huckins*  
JOHN H. HUCKINS,  
Lt. Col., CAV.