

ARMY/AIR OPERATIONS

PAMPHLET No. 4

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**AIRBORNE  
AIRTRANSPORTED  
OPERATIONS**

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*Prepared under the direction of  
The Chief of The Imperial General Staff and with the approval of  
The Chief of The Air Staff*

RESTRICTED

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## ARMY/AIR OPERATIONS PAMPHLETS

*This series, when completed, will supersede Army/Air Operations Pamphlets Nos. 1 and 2, 1944, Airborne Operations Pamphlet No. 1, 1943, and Responsibility, Procedure and Ground Organization for Supply and Maintenance of Army Formations by Air, 1944.*

No. 1. AIR SUPPORT. GENERAL.

No. 2. AIR TO GROUND ATTACK.

No. 3. AIR RECONNAISSANCE.

Part I—Air Reconnaissance. General.

Part II—Photographic Reconnaissance.

No. 4. AIRBORNE/AIRTRANSPORTED OPERATIONS.

Chapter 1—Airborne/Airtransported Operations.

Chapter 2—Airborne Forces.

Chapter 3—Airtransported Forces.

*Supplements to Chapter 3:—*

Supplement No. 1. Carriage of army equipment by air.  
General.

No. 2. Carriage of vehicles by air.

No. 3. Carriage of artillery equipment by  
air.

No. 4. Carriage of engineer equipment by  
air.

No. 5. SUPPLY AND MAINTENANCE BY AIR.

<i>Distribution</i>					
Army: All Arms	...	...	...	...	Scale A
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PAMPHLET No. 4

This pamphlet supersedes "Airborne Operations Pamphlet No. 1, 1943 (1<sup>st</sup> rev)". No pamphlet previously existed on the subject of air transported forces.

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Definitions

"A centipede was happy quite  
until the toad in fun  
said 'Pray which leg goes after which  
when you begin to run?'  
This wrought his mind to such a pitch  
he lay distracted in a ditch  
uncertain how to run."

1. A list of definitions is at Appendix 1, but a more detailed description of the different types of army units and formations that operate tactically by air are given here. By popular usage anything that can get into the air "becomes airborne". When dealing with military operations, however, the following distinctions in nomenclature and employment within the army must be made to avoid confusion:—

- (a) *Airborne* is used for those troops, units and their equipment which form part of Airborne Formations and for which specific airborne war establishments exist. They are composed, equipped and trained primarily for the purpose of operating by air and of making assault landings. They include parachute troops and airlanding troops. An airborne formation also includes elements which follow up the assault by land or sea.
- (b) *Airtransported* is used for units, other than those of Airborne Formations, who can be transported by air and employed in a tactical rôle. They may be part of a light (airportable) division already equipped for movement by air in transport aircraft or they may be part of any other formation whose equipment has been exchanged or modified as necessary for a particular operation and for an approach by air instead of by land or sea.

2. The differences in the employment of airborne and airtransported troops are dictated by the standard of training and the method of approach, that is to say, by parachute, by glider or by powered aircraft:—

- (a) *Parachute*.—Parachute troops form part of airborne formations or they may be specially trained independent parachute units. They are not dependent on airstrips or airfields and are capable of making an assault landing.
- (b) *Glider*.—Troops in gliders may be
  - (i) The *airlanding units* of airborne formations.
  - (ii) Airtransported units of formations or Corps troops.

Airtransported units do not normally operate in gliders and as gliders are usually restricted in numbers and can seldom be used more than once in one operation, these airtransported units are generally engineer units for the preparation of airstrips upon which the build-up of the force can be landed in powered aircraft. The question of whether or not airtransported units in gliders can take part in the initial stages of an assault must depend upon their standard of training, their equipment (which must then require no dismantling for carriage by air) and the tactical situation.

Being also independent of airstrips and airfields troops in gliders can normally be landed simultaneously with paratroops or more quickly after them than troops in powered aircraft.

- (c) *Powered transport aircraft.*—This is the normal method of landing airtransported troops and units and HQs required for the ground control, flying control and the organization of the forward landing areas. Transport aircraft depend upon airfields or airstrips, free of enemy fire, for landing. In some cases they may be employed in carrying units and HQs of airborne formations.

## Introduction

3. This pamphlet is intended for those concerned in the tactical movement of the army by air. The increase in suitable aircraft has made movement by air the concern of the army as a whole as well as of airborne forces. The increase in number and size, and the improved loading facilities, of aircraft show that movement by air will become an alternative method of approach; army formations must therefore be prepared to substitute movement by air for movement by land or sea at short notice. All staff officers must be competent to deal with the military responsibilities involved in tactical air moves; these must not become the preserve of specialists; they must be regarded as a part of normal Staff Duties and only by a sound knowledge can the effective and essential co-operation with the air force at all levels be achieved.

4. This pamphlet deals specifically with tactical movement by air and the tactical loading of aircraft. It deals only indirectly with administrative air moves for which units and their equipment are loaded as bulk freight for economy in airlift and which cover moves between secure bases and staging airfields. Much of the information is, however, common to both tactical and administrative moves.

5. Lord Fisher once stated, "The British army should be a projectile fired by the British navy". Much the same might be said of the air force and the army in an air movement rôle. The launching of a ground force by air, particularly if it includes airborne and airtransported formations, will always be a major air operation. It requires offensive air support with fighters and bombers as well as the transport air support to provide the lift. For such an operation much of the air effort has to be drawn from strategical air tasks or other tasks in support of the army.

6. The principles and procedure established through experience by airborne forces are largely applicable to the army as a whole in an airtransported rôle though the increased requirements for the latter have introduced a number of new conditions. It is essential, for the sake of speed in planning, flexibility and economy, that the basic organization should, with minimum variations, be capable of handling airborne or airtransported forces or both. Moreover, supply and maintenance by air (Pamphlet No. 5) is normally carried out simultaneously from the same airfields and has claims upon the same aircraft: thus it must form an integral part of the general system of ground movement and organization.

7. Chapter 1 of this pamphlet, therefore, deals with the characteristics and principles of airborne and airtransported forces as a whole including the planning, command and control, army/air responsibilities and ground organization. Chapter 2 deals with the composition and organization of an airborne division and information peculiar to the movement of airborne assault forces. Chapter 3 deals with airtransported forces, the particular problems arising from the use of transport aircraft and the details in which airtransported units differ from airborne. In its supplements, Chapter 3 contains data for the carriage of equipment by air including dismantling, loading and lashing, and also information about transport aircraft.

8. The varying conditions in different theatres have so direct an influence upon the employment of the army by air and the organization required that this pamphlet can only set out the basic principles and data on which operations should be planned and executed. These must be applied and filled in in detail to suit geographic and tactical circumstances.

## CHAPTER 1. — AIRBORNE/AIRTRANSPORTED OPERATIONS

### Characteristics

#### 9. Characteristics of airborne and airtransported troops

The factors upon which these characteristics are based are described later in some detail since they affect the planning and execution of all operations.

- (a) *Dependence on weather*, which may be the deciding factor on both the original assault and subsequent build up and maintenance. If the operation is an essential part of a ground and/or seaborne assault the whole operation becomes directly dependent upon the weather. The plan must therefore allow for postponement. All other characteristics may therefore be dependent upon weather.
- (b) *Dependence on air superiority* since aircraft used for transport support, particularly gliders and their tugs, are vulnerable to enemy air attack and anti-aircraft fire. The ability to counterbalance this by fighter cover and air to ground attack on enemy airfields and gun emplacements is an essential condition.
- (c) *Ability to overcome obstacles*. An ability to overcome geographical barriers and hostile areas, at high speed and long range with little warning to the enemy.
- (d) *Power to effect surprise* by attacking at unexpected times and places in unsuspected strength and by employing deceptions which can be carried out with economy of force.
- (e) *Flexibility*; an ability to choose from a wide selection of objectives for assault, to change the objective with little delay within the radius of action of the supporting aircraft and to vary the composition of the force at the last moment to suit the changing tactical situation.
- (f) *Great moral effect* upon own troops; and a demoralizing effect upon the enemy by seizing the initiative, causing confusion by interrupting the enemy's communications and forcing his commanders into an unsound dispersal of reserves.
- (g) *Restricted mobility after landing*. The difficulty of carrying transport, reconnaissance and gun towing vehicles by air restricts the mobility of the force when landed to that of heavily laden marching troops. Although the ability to land supplies on the forward airstrip may make the force independent of a land L of C, and although forward troops may be maintained by air, the difficulty of getting supplies and reinforcements forward from the airstrip will normally restrict the radius of action of the force.
- (h) *Restricted fire power* owing to the difficulty of carrying heavier artillery equipment and gun towing vehicles by air and the large airlift required for ammunition. This deficiency in fire power must be counterbalanced by offensive air support in the initial plan and arrangements made for air to ground attacks in support of the forward troops as the ground battle develops.

- (i) *Ability to operate independently of ground forces* for a time varying with the enemy's fire power and ability to concentrate a superior force and our own ability to reinforce and maintain the force effectively by air. When the operation is an assault in advance of a major offensive against a well-armed and mobile enemy, this time should be limited to 48 hours.
- (j) *Vulnerability during landing and assembly*. The aim must be to land troops in areas which cannot be covered by enemy fire and which are immune from enemy counter-attack for sufficient time to enable troops to assemble for co-ordinated offensive action. Owing to the restricted size and number of anti-tank guns and anti-tank mines that can be flown in, the troops are particularly vulnerable to tank attack.
- (k) *Ability to operate at night* under some circumstances if essential to the plan.
- (l) *Necessity for acting without ground reconnaissance*. For the initial landing there will rarely have been time or opportunity for commanders to reconnoitre. The detailed plan and location of RVs and assembly areas must therefore be decided beforehand on information normally provided by air photographs and models. Briefing must be carried out in great detail in order to familiarize all personnel with the appearance of the ground.
- (m) *Need for considerable and detailed staff work*. This is analogous to a seaborne assault; it includes detailed briefing of troops.
- (n) *Need for close army/air co-operation*. The intimate nature of the co-ordination required between the army and the transport and offensive air support makes it essential that planning, training and execution be carried out in the closest co-operation at all times.

#### 10. Additional characteristics peculiar to parachute troops

- (a) *Dispersed arrival and vulnerability*. Even in the most favourable circumstances parachute troops make a dispersed landing on the dropping zone. A stick of twenty parachute troops normally covers a length of 500 yards. They are very vulnerable while dropping in daylight, while assembling into sub-units and while collecting spare equipment, which may fall some distance away. A brigade or battalion may take up to 60 minutes by day or two hours by night before it can take action as a whole. Errors in locating the dropping zones are to be expected and may lead to such wide dispersal that some parachute troops may not join up for the first phase of the attack.
- (b) *Lack of supporting weapons*. Parachute troops drop only with weapons that can be carried. As many weapons as possible are dropped in kitbags attached to the men since the collection of weapons from containers takes time and increases the period during which a parachutist is vulnerable. Moreover, all containers may not be recovered. Parachute troops must therefore normally be reinforced with supporting weapons dropped by parachute or with airlanding troops, or both.

- (c) *Wide choice of dropping zones.* Parachute troops can be dropped on any open and reasonably flat country, and are not dependent on airstrips and airfields.
- (d) *Need for individual initiative and high standard of training.* No paratroop operation can be expected to go exactly according to plan. The need for independent action and individual initiative is great.
- (e) *Ability to drop by day or night.*
- (f) *Wind.* Paratroops are not normally capable of dropping in winds over 25 mph without sustaining high landing casualties.
- (g) *Dependence on satisfactory dropping zone locating devices for effective concentration.*
- (h) *Need for a glider element with transport and heavier equipment.*

#### 11. Additional characteristics of troops in gliders and aircraft

- (a) *Arrival in tactical sub-units.* Glider and aircraft loads are composed of tactical sub-units sufficiently complete to take offensive action independently if necessary, so that they will not be neutralized by the loss of aircraft containing complementary loads. Their landing is less dispersed than that of parachute troops.
- (b) *Ability to carry support weapons and vehicles.* This gives them a greater offensive power than parachute troops and makes them an essential complement to parachute units. Glider troops may be landed simultaneously with parachute troops. Airlanding troops of an airborne formation are normally equipped with guns, jeeps and trailers which can be loaded without dismantling into Horsa or Hadrian gliders and carriers and armoured cars which can be loaded without dismantling into the Hamilcar glider. This permits quick deplaning and speed into action. When time is permissible for assembly in the forward areas, secure from enemy attack, airtransported units can be flown in gliders or aircraft with larger, dismantled, equipment to provide heavier offensive fire power and to increase mobility. The need to reassemble equipment will lengthen the time within which units can get into action.
- (c) *Dependence on secure deplaning areas.* Transport aircraft and gliders are particularly vulnerable when landing and during unloading. Troops are vulnerable when deplaning and unloading. The training of airborne units envisages the possibility of deplaning from gliders under fire if it is not an alert and organized opposition. Airtransported troops in gliders (unless trained to airborne standard) and troops in powered aircraft should not be expected to land unless the deplaning area is secure from enemy fire.
- (d) *Dependence on weather and landing aids.* The towing of gliders through cloud increases the strain on the glider pilots, owing to the bumpy conditions and the lack of visibility between glider and tug. The need for a visual approach to the landing zone means that a glider should not be released in cloud and that in order to allow the pilot time to locate his landing zone and to calculate

his approach the decision to employ a low, medium (1,500 ft) or remote (6,000 ft) release point method may depend entirely upon the height of the cloud base. Artificial aids to locating landing zones are important particularly at night and will increase the number of accurate landings. Such aids can be set up by parachute troops dropped in advance. If absolute surprise is essential and there are good natural landmarks landing aids are not employed. Gliders can be landed by moonlight but not in winds exceeding 40 mph without the likelihood of heavy casualties. Powered aircraft can operate in less favourable weather than gliders or parachute troops. Permissible conditions will depend upon their locating aids and, in the case of the simultaneous movement of a large number of aircraft, upon the need for intervisibility between aircraft during flight, and flying control on arrival.

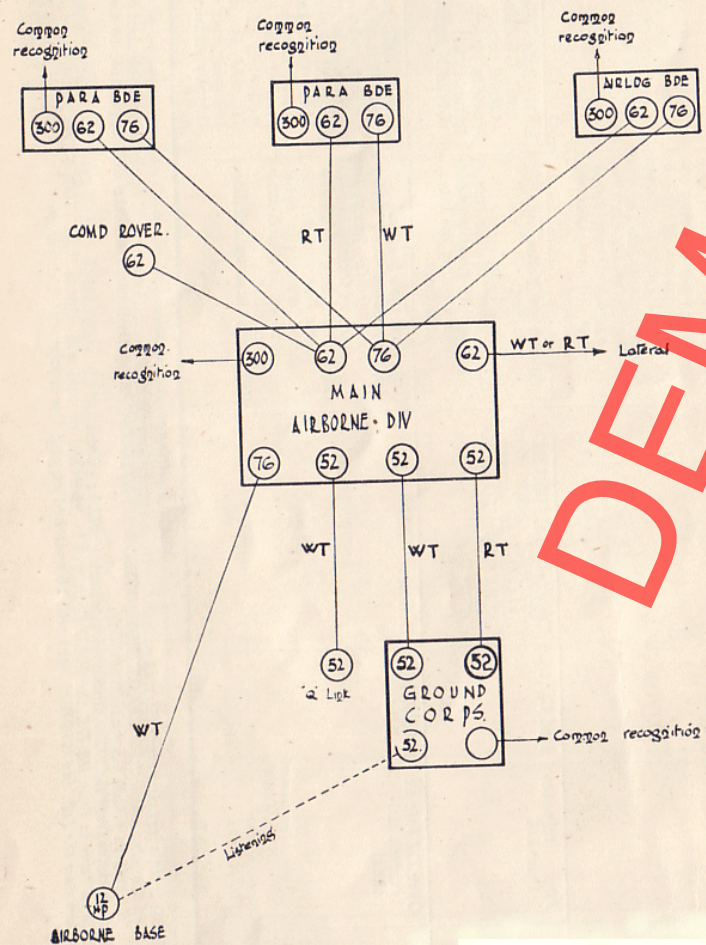
- (e) *Ability of gliders to make a silent approach.* Gliders can be released at a considerable distance from their landing zone. At night or in poor visibility airlanding units in gliders may be able to surprise the enemy more than parachutists owing to the noise of the aircraft carrying the latter. Gliders are not, however, immune from enemy radar detection. They are valuable for "coup de main" operations.
- (f) *Ability to land gliders in areas unsuitable for powered aircraft.* Gliders do not depend upon airstrips and airfields. They can land under difficult conditions, through hedges, on slopes of up to approximately 1 in 15 and can crash-land without damage to troops and equipment. Landing zones should, however, be as open and level as possible and must have an approach clear of high obstruction. As a guide only, an area of 1,000 yards by 1,000 yards may be expected to accommodate the landing of 100 Horsa gliders at the rate of one per ten seconds.
- (g) *Ability to land gliders in tactical formation.* If landing zones permit the landing of gliders in tactical formation, the time in which troops can be ready for co-ordinated action is decreased.
- (h) *Necessity for a ground organization when landing powered aircraft.*—When powered aircraft are to operate to and from a forward airstrip an army and air force ground organization needs to be flown in as early as possible in order to control movement in the landing and unloading areas and to control the approach, the landing and the take-off of aircraft.

#### Types of Tactical Operations

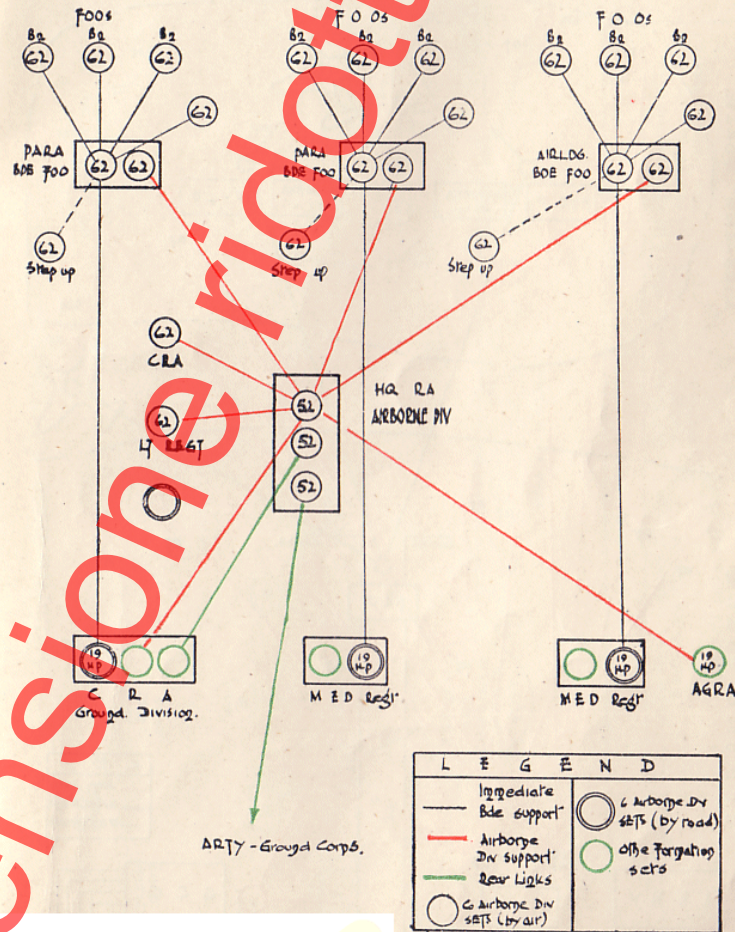
12. The possible variations in the employment of airborne and airtransported forces with or without ground or seaborne forces are endless. The degree of co-operation between parachute troops, airlanding troops, troops in powered aircraft or gliders, ground forces and seaborne forces must vary with every operation. But the main types of tactical operations may be grouped as:—

- (a) Airborne troops co-operating closely with a main force.
- (b) Airborne and airtransported troops operating together.

### Normal Airborne Div Wireless Comms (Less RA & Offensive Air Support)



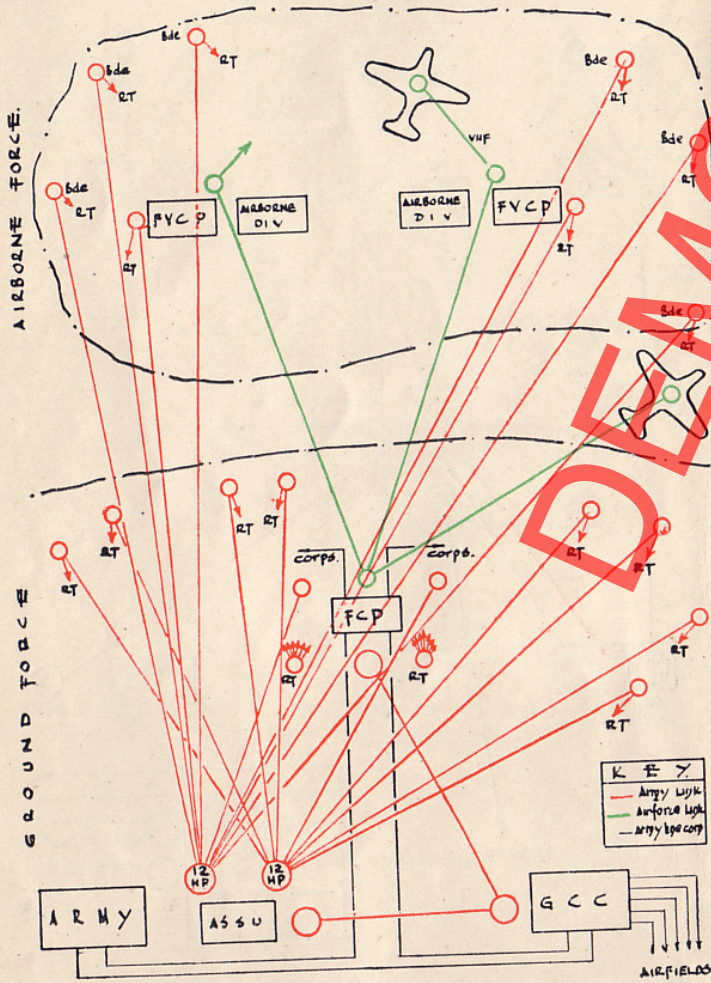
### Normal Airborne Div RA Comms



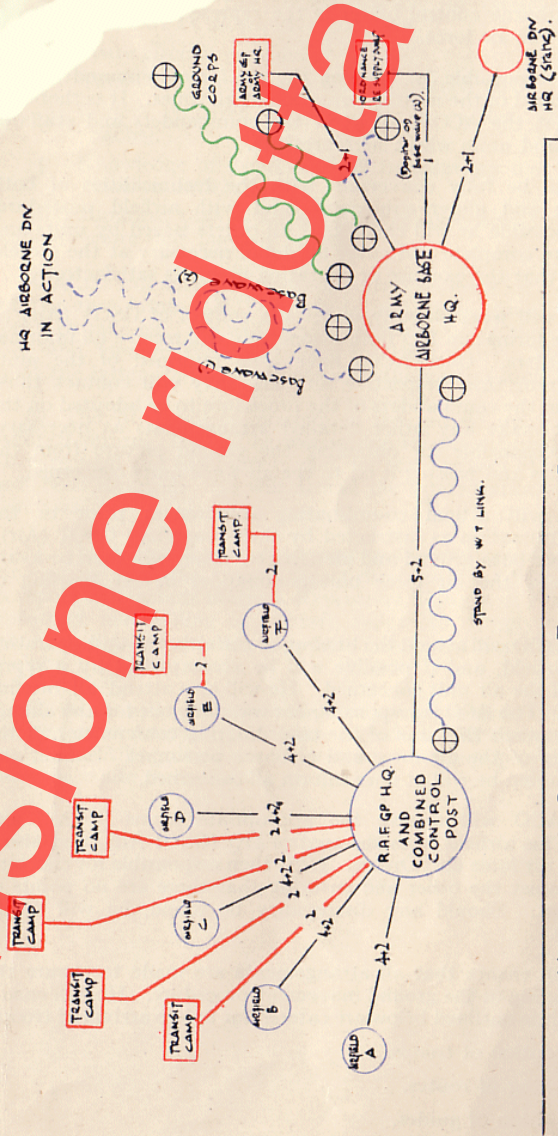
L E G E N D	
— Immediate Bde support	○ Airborne Div sets (by road)
— Airborne Div support	○ Other frequencies sets
— Rear links	○ Airborne Div sets (by air)
○ Airborne Div sets (by air)	



Normal Airborne Div Offensive Air Support Comms



Airborne Base Communications



- |  |  |   |                      |  |
|--|--|---|----------------------|--|
| N  | O  | T   | E                    | S  |
| (a) Normal Army & RAF lines —  | (c) To lift an Airborne Division 8 airfields are required. | (f) WT Links opening after Airborne Forces have landed.                                 | (g) contd.—Group HQ. | (h) No. of Circuits shown thus 2+1 & 2 speech 1 telegraph. |
| (b) Transit Cap Lines — (Transit camps may be connected either direct with RAF HQs or if geographically adjacent to a particular airfield as shown in airfields E & F above. | (d) Planning WT Links                                      | (g) RAF point to point WT Links are available between each Airfield & on a "com-basis". |                      |  |

## APPENDIX 28

### *Duties of Airborne Control Officers (ACOs)*

1. The airborne control officer is the representative of Airborne Forces with the air force.

2. He is responsible for keeping the air force commanders concerned informed of the military situation at all times. It is therefore essential that the ACO shall know the commanders and staffs of formations and units whom he represents.

3. He will be fully conversant with the technicalities of both parachuting and glider equipment, and with airfield procedure. Wherever possible he will check that all orders issued by units and sub units are complete and cover all detail necessary at the airfield and ensure that the exercise or operation proceeds satisfactorily.

4. ACOs will work directly under the control of GSO1 (Air) at the air force formation HQ from whom they will receive all information and orders. Once ACOs have been informed of the units operating from their respective airfields, they will contact those units, inform the commanders of the procedure to be adopted on the airfield and make any other detailed arrangements as necessary. They are responsible for obtaining the ground picture from the airborne units and passing it on to the air force units concerned.

5. ACOs will attend co-ordinating conferences prior to the exercise or operation as instructed by their respective GSO1 (Air); they will note both ground and air aspects. They will then be available to assist the air force unit commander in the briefing of aircrews.

6. Each ACO will attend the briefing of the airborne unit operating from his airfield, and if possible will be accompanied by a representative of the air unit concerned. He will also attend all briefing of aircrews. The ACO is responsible for watching out for any change in detail between the time of the co-ordinating conference and the final briefing of the air force and airborne personnel. Should any change be noted he will at once inform all concerned.

7. The ACO will receive the appropriate forms "AA" and "AB" for his airfield from the control HQ (GSO1 Air), and also a copy of the air force unit Orders. He is then responsible for checking the one against the other and ensuring that there are no points of disagreement. Should any discrepancy be found, he will notify control HQ.

8. He will ensure that all arrangements are made to ensure the smooth running of the ground movement procedure. He will ensure that the points outlined below are catered for before arrival of troops.

- (a) Reception of troops.
- (b) Marking of routes.
- (c) Provision of guides.
- (d) Container spare parts and REME repair detachment available.

- = (e) All aircraft or gliders correctly numbered in accordance with Forms "AA" or "AB".
- = (f) Preparation of parking diagrams.
- = (g) Marshalling of aircraft.
- = (h) Provision of the correct number of parachutes in each aircraft as shown on Form "AA".
- = (i) Spare aircraft provided.
- = (j) Time of emplaning and take-off of each block.
- = (k) Gliders prepared for loads to be carried (including rifle racks).
- = (l) Knowledge of location of all installations and accommodation on airfield.

Points marked thus = are an air force responsibility but the ACO should ensure that they are covered.

9. ACOs will make the necessary arrangements for the collection of the two forms "B" parachute and glider from each aircraft prior to take-off. He will hand over one copy to the air force unit HQ and forward the other copy to GSO1 (Air). He will ensure that the latter copy is complete with the unit of each individual.

10. The ACO will be present on the airfield when parachuting aircraft return. He will be responsible for the return to their units of personnel and equipment, who, for some reason or another, have not been dropped. He will attend the interrogation of pilots and aircrews.

11. The ACO will submit a report on the conduct of any operation or exercise from the ground aspect direct to the GSO1 (Air). Such a report will include matters of incorrect filling in of Proforma "B" incorrect marshalling of aircraft, failure to comply with exercise timings, details regarding container failure and any other important points.

12. ACOs will ensure that any army equipment left in the aircraft or gliders is returned to a place of safety and the unit concerned notified. All applications for release of lost equipment will invariably be made to the ACO.