

Source:

[Russisch-deutsches Projekt zur Digitalisierung deutscher Dokumente in den Archiven der Russischen Föderation | Akte 248. Leitfaden Lufttaktik \(Arbeitsunterlagen für Lufttaktiklehrer\), herg. von der Inspektion des Erziehungs- und Bildungswesens der Luftwaffe, Kommando der Luftkriegsschulen. Teil B6. Schlachtflieger. Teil B2. Jagdflieger. Teil C. \(germandocsinrussia.org\)](#)

Pages 45 - 52

<sup>1</sup> - Tactical Area = Area roughly 30-60 km beyond the frontline

<sup>2</sup> - Battle Area = Area up to 30km beyond the frontline

## **Tactical Guidelines**

### **Schlachtflieger**

#### ***Memorandum***

#### ***on the employment of Ground-Attack Aircraft***

##### **I. General Notes**

- A) Significance and Role of Ground-Attack Aircraft
- B) Effect and Ordinance of the Ground-Attack Aircraft

##### **II. Employment of Ground-Attack Aircraft**

- A) General Remarks
- B) Employment in conjunction with Army Operations
- C) Employment in the Tactical Area<sup>1</sup>
- D) Employment in conjunction with other Luftwaffe forces
- E) Preconditions for the employment of ground-attack aviation
- F) Attack profiles
- G) Reconnaissance
- H) Tasking and Leadership
- I) Communications

##### **III. Using Destroyers in the ground-attack role**

##### **IV. Tank-Busting by ground-attack aircraft**

# I. General Notes

## A. Significance and Role of Ground-Attack Aircraft

1. Ground-Attack Aircraft are an important weapon for supporting ground operations. The significance of the ground-attack aircraft rests in its ability to reach beyond the range and visibility range of ground-based weapons, that it can operate above areas that cannot be observed from the ground and that it can operate well into the depth of the **Battle Area**<sup>2</sup> and even into the **Tactical Area**<sup>1</sup>.
2. Ground-Attack Aircraft are high-value assets. They are to be concentrated at the central points of ground operations. The ground-attack pilot considers himself a "Hunter of Ground Targets" whose central aim is to provide support to his hard-pressed comrades on the ground through his intrepid spirit of attack.

Note: The typical era wording is both difficult to translate (Erdjäger is really a typical "word creation" of the timeframe and simply doesn't exist in everyday german today). The entire paragraph sounds weird to our modern ears.

3. The task of the ground-attack aircraft is to support army operations over their Schwerpunkt. They can achieve a large effect on enemy forces over the **Battle Area**<sup>2</sup> up to 30km beyond the frontlines by strafing with MG and cannons as well as dropping bombs from low or medium altitudes. During a ground offensive he is to keep pressure on the enemy via rolling attacks and force him to take cover while bolstering morale amongst our attacking ground forces.
4. In the **Tactical Area**<sup>1</sup> (up to 100km beyond the frontlines) the ground-attack aircraft can shake, weaken or even decimate the enemy forces so that they cannot conduct operations as planned.  
They attack enemy marching formations, command posts, reserves and troop movements of any kind on roads and via railways. Apart from supporting ground operations the following tasks can be assigned to ground-attack aircraft:
  - a) attacking enemy airfields, suppression of enemy AA defenses
  - b) support of own air-landing operations
  - c) attacking enemy air-landing operations
5. Above the **Battle Area**<sup>2</sup> the ground-attack aircraft attacks enemy strongpoints, MG positions, trench systems, artillery, tanks and anti-tank guns as well as any kind of troop concentrations.
6. With its 3cm gun and special ammunition the ground-attack aircraft is able to destroy enemy tanks. These operations are to be focused on enemy tanks that have penetrated the front as the lack of AA defenses allows for low-level attack profiles and close-in attacks.

## B. Effect and Ordnance of the Ground-Attack Aircraft

7. The ground-attack aircraft achieves effects:
  - a) through its MG and cannons against point and living targets. Use of tracers increases the moral effects on the enemy.
  - b) with the 3cm gun as tank-hunter,
  - c) through a great variety of small bombs (SD 2) with considerable fragmentation,
  - d) bundles of 10kg bombs up to 50kg (Bundle C10) as well as SC and SD 50,
  - e) SC 250 and SC 500,

- f) smoke and incendiary ammunition.
- 8. The effect of bombs is to be maximized by their employment from medium to low altitude. The fixed gun armament destroys point targets from close range.

## **II. Employment of Ground-Attack Aircraft**

### **A. General Remarks:**

- 9. Ground-Attack aircraft are to employed at the Schwerpunkt of ground operations. If possible they are to be given only tasks that cannot be fulfilled by other weapons (i.e. artillery). The success of ground-attack operations rests upon the ruthless effort to break enemy resistance and keep own ground attacks from stalling or to break the enemy's momentum when supporting defense operations.
- 10. Due to the rapidly changing situations of modern ground combat short and effective communication lines are essential for effective employment of ground-attack aircraft. As a general rule a ground-attack wing should be subordinated to a dedicated close-support Air Corps. The Corps decides time and location of their employment.
- 11. The closer the frontline airfields are situated to the frontlines the more often ground-attack aircraft can be employed. All lines of communication between Corps and Wing and between the wing's own units must function seamlessly.
- 12. Apart from the Air Situation the situation on the ground must be known in all details. Tasks, targets and attack times of ground forces must be known in detail. Only then the ground-attack unit will be able to achieve success in supporting ground operations.
- 13. In case of disrupted or (due to large distances) insecure lines of communication between the wing and the corps the wing is to closely coordinate with the command post leading ground operations in the Schwerpunkt. Apart from personal contacts between the ground-attack wing's command and the Army's command the wing has to place a dedicated liaison officer at the Army's command post when ordered by the Corps. The Liaison's task is to report developments, plans and situational reports to the wing via telephone lines or radio.
- 14. The nature of ground-attack operations demand either a concentrated attack in the area of the Schwerpunkt or rolling attacks, meaning a ceaseless continuation of attacks in the area of the Schwerpunkt. The former type are to be targeted at specific areas, river crossings and defensive strongpoints to achieve maximum impact on the enemy while supporting ground operations. The latter type is to be used if the Army needs continuous support over a longer amount of time.
- 15. Operational employment of ground-attack aircraft depend on the following factors: weather, aerial situation, ground-based defenses and terrain.
  - a) Weather:  
Broken clouds at medium altitude which provide some form of cover are especially advantageous. Clouds are for the ground-attack pilot what cover is for the infantryman. The pilot should use clouds to avoid enemy AA and fighter defenses while approaching the target.
  - b) Aerial Situation:  
The ground-attack aircraft is inferior to the fighter when surprised and/or when enemy fighters are persistent in their attacks. In case of enemy air superiority ground-attack aircraft need fighter cover. In case of a limited enemy air superiority and inferior fighters the ground-attack aircraft can afford to remain longer in the target area for strafing attacks or attacking enemy aircraft.
  - c) Ground-based defenses:

The most dangerous enemy of the ground-attack aircraft are small-caliber automatic AA guns, AA MGs and rifle fire. Surprise can limit the effectiveness of ground-based defenses. Surprise is to be achieved by utilizing clouds and sudden dive attacks; splintering enemy ground defenses can be achieved by attacking from multiple directions at the same time and/or by rapid changes in altitude already on the approach. Parts of the ground-attack unit can be detailed to attack the enemy AA defenses.

d) Terrain:

The terrain structure dictates the most effective tactic, the attack altitude and direction. Enemy troop movements can be attacked with great effect at choke points like narrow river crossings; the own unit can reassemble over less or undefended areas (i.e. swamps, lakes, forests).

### **B. Employment in conjunction with Army Operations**

16. When conducting air support for ground operations the ground-attack aircraft can influence our own ground assault against a specific area, an enemy defensive line or a strongpoint.

The exact moment of the ground-attack must be predetermined by appropriate planning. Prior to the ground assault our ground-attack aviation shocks the enemy via a concentrated mass employment, after the commencement of the assault it supports the ground operations by rolling attacks of smaller forces in order to force the enemy to stay in cover. The fighter-bombers target fixed defensive positions, heavy infantry weapons, artillery and local reserves moving towards the break-in area while the cannon-armed ground-attack aircraft are targeting infantry weapons and force the enemy to remain in cover.

The ground-attack unit commences its attack at the same time as the ground forces. The frontline must not be overflown prematurely. Enemy artillery positions are to be identified during the approach as experience has shown the enemy guns will cease their fire if aircraft are overhead. To maximize the impact of our attack the time over target must not be extended too much.

Ground-attack aircraft can be tasked with attacking and destroying enemy artillery. Bomb-carrying aircraft concentrate on artillery on the march or during changes of position, gun-carrying aircraft concentrate on artillery in their positions. Prior reconnaissance is central. Ranges of enemy artillery systems must be known to the ground-attack pilot to distinguish an enemy artillery concentration.

Ground-attack aircraft can achieve special success in the pursuit of a beaten enemy. A major task of aviation is to prevent the enemy from reforming his defense away from our pursuing ground forces. Rolling attacks are to be employed to ensure the success of the ground forces. Choke points, river crossings or loading points (I think railway stations, even harbors or locations where non-motorized troops are being loaded onto trucks are meant.)

In defensive operations the prime target of ground-attack aircraft are enemy troop concentrations. After the commencement of an enemy ground attack aviation is to concentrate on the enemy's first echelon to break the enemy's momentum.

Ground-attack aviation can also be assigned the task of covering the flanks of moving ground forces.

17. During **Sweeps** ground-attack aviation is to be assigned an area in which it is to operate

independently but according to the intentions and plans of the ground forces. Targets during sweeps are all enemy movements on roads and alleys, troop concentrations, enemy columns on the march, tank concentrations, loading points, railway traffic, supply distribution points and hubs. The moving targets can be identified and reported by recon aircraft assigned to the ground-attack wing or the wing's own aircraft sent out ahead of an attack on reconnaissance.

### **C. Employment in the Tactical Area**

18. The main strength of ground-attack aviation and the greatest chance of a decisive impact on ground operations can be achieved in the Tactical Area (30-60 km behind the frontlines). Targets in this area are: troop movements of any kind, troop concentrations, supply lines, lines of communication and command posts.

### **D. Employment in conjunction with other Luftwaffe forces**

19. This mission is flown in cooperation with other Luftwaffe units. It can contain the following tasks:
  - a) suppression or destruction of enemy AA defenses in the path of our transport aircraft
  - b) suppression of enemy defenses during deployment of parachute forces/Air landing forces
  - c) attacking enemy troops moving towards the landing zones
  - d) supporting own air landing forces
  - e) Attacking enemy airfields situated closely to the landing zones can seriously weaken the enemy's ability to employ his own air force against the landings. This task remains secondary to direct ground support, though.

### **E. Preconditions for the employment of ground-attack aviation**

20. Close cooperation between ground forces and ground-attack aviation is essential for successful operation. That requires an exact designation of targets for ground-attack aviation in the area, clear and marking of our own frontlines and consequent application of specified visual markings. Thorough marking of own forces via smoke signs, swastika flags or waving and designation of targets with smoke, tracer fire, visual directional signs saves the ground-attack pilot a lot of time. Effective and functional lines of communication between the ground-attack wing, the Air Corps and Army command are essential. Developments on the ground have to be communicated immediately. A liaison consists of one officer and a small radio troop.
21. Detailed knowledge of the terrain is to be acquired via reconnaissance photos, maps, briefings and orientation flights.
22. Detailed studies of the target area are to be conducted (i.e. designating areas with no ground-based defenses).
23. Concentration of ground-attack aviation closely behind the front to shorten approach and return flights and allow for more missions to be flown.
24. Detailed briefing of all ground-attack pilots on aerial situation, own frontline, reports of enemy movements and the ground forces' intentions prior to every take-off. Every Staff and every squadron is to keep a detailed and up-to-date situational map.

## F. Attack Profiles

25. A ground-attack mission consists of approach, ingress, attack, egress and return flight.
26. The approach is flown in a concentrated yet somewhat loose formation. Every pilot has to work towards retaining of the unit's cohesion.
27. Ingress depends on the ground situation, terrain and weather. The unit remains as long as possible over own territory (if possible), conducts abrupt changes in heading to confuse enemy spotters and avoids areas with concentrated ground-based defenses. In bad weather a geographical feature (lake, river, railway lines or built-up areas) can be used to simplify finding the target area. Formation for ingress is **Gefechtsreihe** (I'm struggling with a translation, it's neither a line nor anything else), meaning a loose chess-board like formation with random intervals between aircraft, made less predictable by constant movements of the aircraft behind the leader. In case of a larger target area and if enemy fighters are expected the unit takes on the formation of **Echelon Left/Right** to ensure the space behind all aircraft can be kept under surveillance.

Detailing a top cover in this case is advisable. The main unit flies in formation Echelon Left/Right, the top cover some 300 to 400m above and slightly offset to the sides.

28. The attack is to be commenced in a dive from an altitude between 800 and 1,500m. A Schwarm (4 aircraft) has proven to be the most useful tactical formation as it is both maneuverable and powerful enough to attack a target (i.e. strongpoint, artillery position and small columns). During an attack a Staffel is divided into an attacking Schwarm and one providing top cover.

By cooperating (and exchanging roles) both Schwärme splinter the attention of enemy ground-based defenses. The top cover initiates its attack as soon as the bombs of the attacking Schwarm have impacted/exploded. Ground-based defenses must not be given time to recuperate and reorganize.

In areas with strong AA defenses it is advisable to leave after a single attack and reassemble for a new attack outside the range of the AA. A **Gefechtsreihe** provides more defenses against AA, **Echelon Left/Right** offers more protection against enemy fighters.

29. Egress is conducted either at low level (if that offers the fastest way to leave the range of enemy defenses, i.e. across lakes, forests, own territory etc) or by utilizing the speed accumulated in the dive to climb to 600 - 1,000m in a shallow turn to throw off the aim of enemy AA.
30. The return flight is conducted after reassembling over an undefended area at an altitude of 300 to 1,000m away from major roads in order not to alarm own ground forces.

## G. Reconnaissance

Means of reconnaissance for a ground-attack unit can be:

- a) own aircraft sent out on reconnaissance sorties
  - b) reports from returning Luftwaffe units
  - c) dedicated tactical recon units in the area
31. The unit's own reconnaissance aircraft are tasked with acquiring target data and to ascertain the weather situation in the target area and to bridge the time in between concentrated attacks during which no ground-attack aircraft can be present over the target so that any changes in the situation on the ground can be incorporated into the planning of further missions. They can also be deployed to assess the impact of previous missions.

32. It is imperative to keep close contact with the tactical reconnaissance units operating in the same area. The ground-attack unit's own radio station has to listen in to the reconnaissance aircrafts' radio messages with special focus on weather reports.

#### **H. Tasking and Leadership**

33. Ground-attack units are usually subordinated to a Close Support Corps or a Close Support Leader who will always keep close ties to the ground elements they are supposed to support.

Should lines of communication with the superior command be disrupted the unit leader has to employ his unit independently based upon previously given guidelines and according to his knowledge of the situation on the ground.

34. The commander of the ground-attack unit leads via radio and from the air. Radio discipline is to be kept by all pilots. Pre-flight briefing has to be so detailed and in-depth that radio messages in the air can be kept short and to a minimum.
35. The aspiration is for the leadership of our first echelon of ground forces (i.e. Command Tanks) to have a direct radio communication capability with ground-attack aircraft. It is advisable to deploy a control center for ground-attack aviation during operations of considerable significance so that experienced ground-attack officers take over target allocation for the pilots.

This can happen through installation of FuG VII or FuG X in command tanks, armored reconnaissance cars or Fieseler Storch liaison aircraft.

#### **I. Communications**

36. Radio communications are to be kept in the clear with simple callsigns. Callsigns / Aliases are to contain many vowels and are not to be changed since the short time between radio message and attack usually prevents the enemy from enacting countermeasures in time.

### **III. Using Destroyers in the ground-attack role**

If destroyer units are being employed in the ground-attack role the following points are to be considered:

37. Using destroyers over the **Battle Area** must remain an exception as this requires a specific training and experience that is the prerogative of dedicated ground-attack units. Which is why the destroyer operates against targets up to 100km behind the enemy frontlines such as railway stations, airfields, railway traffic, columns and general road traffic. Operations shall begin from the furthest point and continue towards the front.
38. To effectively utilize the capabilities and equipment of destroyers their operations must follow fighter doctrine and tactics. As destroyers usually operate without fighter cover they must operate in small loose formations who must be concentrated for effect prior to an attack via radio.

Destroyer units are to be divided into attack formation and covering element whose roles change in between during missions. The loose formation and small numbers are predominantly to keep watch of the blind spot behind and below the aircraft so that attacking enemy fighters can be spotted in time to take countermeasures.

39. Destroyers are usually able to counter even numerically strong enemy fighter opposition and to retreat from superior forces to own territory. Only when operating beyond 30km behind the front and when facing strong enemy fighter forces they may need fighter cover.
40. Due to the large operational area of destroyers accurate and detailed reconnaissance results

are of utmost importance.

41. For destroyers it has proven to define a fixed "bomb drop line" as they are usually unable to distinguish own ground forces and positions from enemy forces.
42. Otherwise the employment of destroyers follows the same guidelines as laid out for Schlachtfliieger.