THE TRANSPORT GLIDER

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Introduction

During the Second World War airborne ground forces were employed for the first time in a major conflict, and on a scale never subsequently equalled. These soldiers and their equipment were delivered on or near their objectives in three ways, viz by parachute, by glider and by powered aircraft landing on captured airfields.

Since the end of that war airborne forces have continued to play a considerable role in the various smaller military clashes around the globe. However, the advent of the more versatile helicopter totally eclipsed the glider, and to a lesser extent supplanted parachute-delivered troops. The immense sizes of post-war powered aircraft coupled with developments in parachuting technology and techniques have contributed to the fact that the glider today occupies no place in military thinking.

Nevertheless, the demise of the glider may well have been a circumstantial oversight, and there may in fact still be a significant role for such aircraft to play, particularly in the present military situation in Southern Africa.

Early Developments

Between the two World Wars the sailplane had become something of increasing interest amongst sportsmen. Yet only Germany and Russia had seriously considered transforming the sailplane into a weapon of war.

Due to the restrictions on development and production of powered aircraft imposed on Germany by the Treaty of Versailles in 1919, a widespread national enthusiasm for sports gliding and soaring became evident during the late 1920's. By 1932 Germany had produced a glider, towed by a powered aircraft and capable of carrying meteorological equipment, and attendant scientists in addition to the pilot.

Hitler took a personal interest in this *flying observatory (OBS)*, and it was not long before the first German troop-carrying transport gliders made their appearance.

The Soviet Union began to encourage gliding within five years of the Revolution of 1917. By 1932 a Russian glider could fly two passengers for more than four hours on a single flight. The Russians subsequently produced 20-passenger gliders even before the Germans had transformed their *OBS* into a proper transport aircraft. Such large gliders were soon adapted to meet military requirements at a time when war-clouds were rapidly developing above Europe.

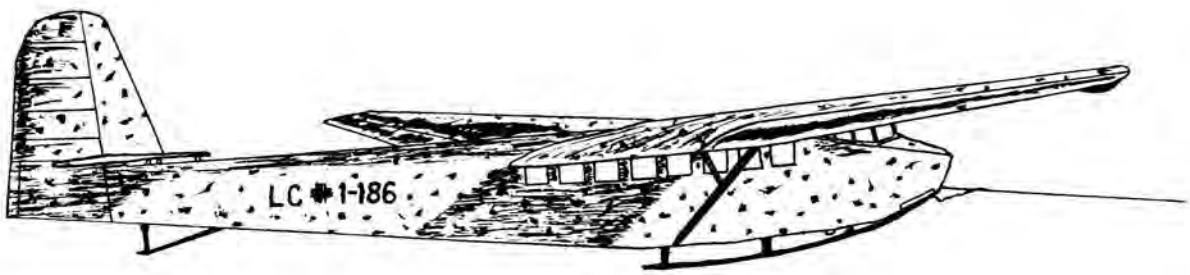

Fig 1.

The German DFS230B-1 was flown by one pilot and carried nine troops. The glider weighed 180kg and could carry up to 1 260kg of cargo. It had a wing-span of 22,32 metres and was 11,62 metres long.

World War II

The Blitzkrieg tactics of the Germans in the opening months of World War II took the World by surprise. The speed and shock effect of the vast armoured and mechanised colums heralded a very different type of conflict to that experienced during most of the First World War. Equally stunning was the German employment of air power and airborne troops. In the occupation of Norway and the rape of the Low Countries, the defending forces were caught off balance by this integration of another dimension into the long established land and sea environments of military operations.

On 10 May 1940, a force of seventy eight Germans in ten gliders landed on top of the important Belgian fortress of Eben-Emael. Within 28 hours they had silenced and captured this 'impregnable' bastion manned by 780 Belgian soldiers. German pantzers surged through the gap created in the Belgian defences, and on 27 May the Belgains capitulated.

Eben-Emael proved that the silent glider could be used with tactical surprise. The Germans, all doubts regarding their new weapon now dispelled, increased the production of their gliders, while the Allies were shocked into the realisation that without a similar aircraft they were at a distinct disadvantage. Development and production programmes in both Britain and the United States were rapidly initiated.

The airborne invasion of Crete, although costly in casualties, further indicated the offensive potential of the new weapon. As the tide of war turned in favour of the Allies, airborne operations became a growing feature of the liberating forces' tactics, and gliders played an important role in supplementing the paratroops employed against the Germans. On D Day (6 June 1944) over 1 000 gliders delivered men and equipment of the *US* 82nd and 101st Airborne Divisions and the British 6th Airborne Division together with the thousands of paratroopers who landed in Normandy. Amongst these gliders were the giant British Hamilcars which each carried a specially made Tetrarch light tank.

In August 1944 *Operation Dragoon* took place. This was a mission to drop troops in the Argens River valley, well behind the Mediterranean coast of Southern France, and to cut off German units in the coastal area from German forces to the north. Some 400 gliders participated.

Nearly 2 500 gliders took part in *Operation Market-Garden* (which included the ill-fated attempt to capture the Arnhem bridge) during Montgomery's effort to cross the Rhine in September 1944. Gliders such as the *CG13A* were also used successfully to get supplies through to the beleaguered *US* 101st Airborne Division at Bastogne, and over 1 300 gliders contributed largely to the success of the eventual Rhine crossing during *Operation Varsity*.

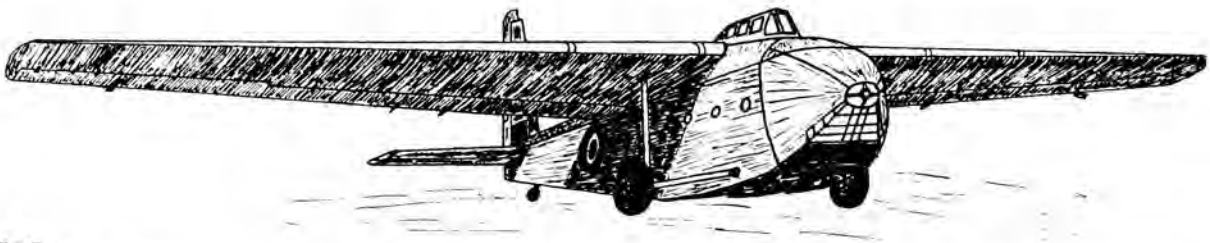

Fig 2.
The Hamilcar, built by General Aircraft Ltd in England, was the largest Allied glider. Crewed by a pilot and co-pilot, the Hamilcar succesfully transported Tetrach Mark IV and Locust tanks onto Landing Zones in support of Airborne Troops.

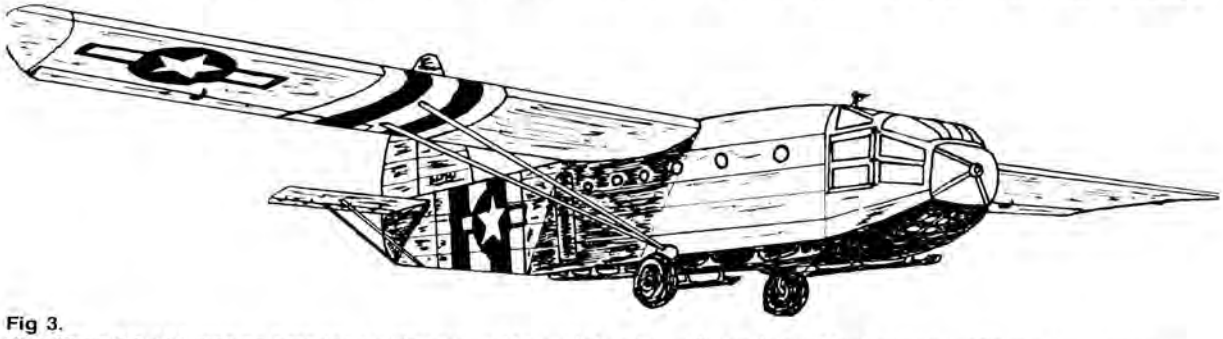

Fig 3.
The Waco CG-13A was an American glider crewed by a pilot and co-pilot and capable of carrying 40 fully equipped troops, or a M2 105mm howitzer with ¼ ton 4 x 4 truck, ammunition and gun crew.

In the Far East theatre of the war, General Orde Wingate conducted the only really strategic airborne operation employing transport gliders undertaken by the Allies. Wingate used gliders to land his Chindits in clearings in the Burma jungle from where they operated against the Japanese lines of communication. He also used gliders for reconnaissance and to bring in supplies to his marching columns. Unfortunately this greatest proponent of glider warfare was killed in an air crash in 1944, and his adaptation of Lawrence of Arabia's tactics to glider-warfare appeared to die with him.

Dissolution of Glider Forces

After the end of World War II most nations dispensed with their gliders. The *US*, Canada and Australia retained gliders into the 1950's. But today no military force appears to use these aircraft anymore, with the possible exception of Russia. Some sources claim that the Soviet Air Force has a small, select group of glider pilots (which would serve as a cadre in the event of a rapid expansion of their glider fleet) and a substantial number of gliders in storage. The last Soviet glider regiments were disbanded as recently as 1965.

However, the glamorous image of the paratrooper led the majority of military organisations to stress development of parachuting, at the cost of the transport glider. Another reason for such a lack of interest in the glider was doubtless the availability of large numbers of powered transport aircraft after the war, together with the need to scale down the numbers of airborne units in peace-time armies.

Advantages of the Glider

In the field of production, the glider lends itself to the South African situation. The tubular metal or wooden frame covered with fabric would not be difficult for South Africa's local aircraft industry to produce, and would be cheaper than producing a powered transport aircraft. The possibility of securing a licence to build transport aircraft to extend the *RSA's* existing fleet of Dakotas, *C-160* Transalls and *C-130* Hercules' is in any case singularly remote as a result of the application of the *UN* arms embargo aganst this country. The transport glider offers a means of partially overcoming this setback.

South African Technology has undoubtedly reached the stage where the development and production, from scratch, of a transport glider programme is not beyond our capability. Furthermore, because of the relative cheapness of their production, gliders would be more expendable than powered aircraft. Produced with our own resources, a lost glider would be far easier to replace than a lost powered aircraft.

Improvements in modern technology, increased aeronautical and meteorological knowledge, and the existence of larger and more powerful tow-planes than existed during World War II have further widened the potential of gliders today. If the Germans succeeded in utilizing the gargantuan Messerschmitt *Me 321* 'Gigant' glider, which could carry 24 tons or 200 fully-equipped men (equal to the cargo capacity of the Boeing *707-320B jet)*, with the relatively small tow-planes then available, the heights towards which a glider programme could strive today could be much greater.

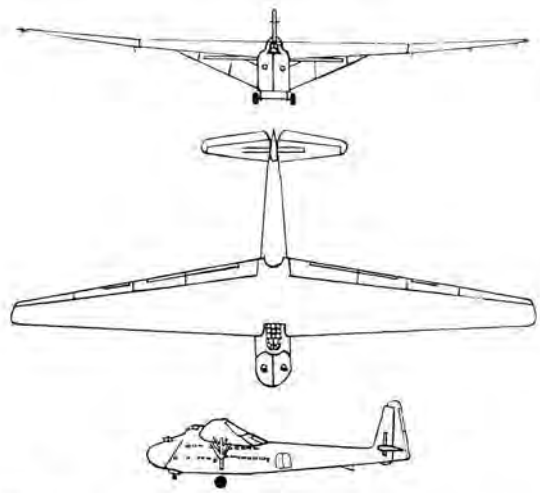

Fig 4.

The largest glider ever built was the Messerschmitt Me 321 Gigant (Giant). It had a wing-span of (56,1 metres), was (28,8 metres) long and carried 24 tons. It could carry a heavy tank, or an 88mm anti-tank gun and prime mover, or 200 fully-equipped troops.

Training of Glidermen

The training involved in qualifying a glider pilot would doubtless be less complex and lengthy than that required for the pilot of a powered aircraft, although the selection criteria would nonetheless have to be high. Glider pilots would probably have to be army personnel, trained to play a constructive role in ground operations after having deliverd their load. This would be necessitated by the fact that, unless the glider were to be 'snatched' up and returned to its departure point by a powered aircraft, the glider pilot would have to remain with the ground forces he had delivered his load to.

A major advantage of the glider being used as a troop transport is that the troops would not have to undergo lengthy periods of training, as is the case with paratroops. A few orientation flights and landings would be sufficient to prepare the troops for operational employment.

In addition climatic and physiological conditions in Southern Africa favour employment of gliders. This part of the world has excellent gliding conditions with thermals enabling sailplanes to remain airborne for many hours. Wind, although a limiting factor for paratroops is not a disadvantage to gliders. In fact, the contrary is often true; winds improve the performance of gliders, especially when landing.

The plains of Africa with their vast open spaces, offer ideal landing zones. Even in the bushier parts of Southern Africa, the glider has potential, as it requires only an unprepared clearing some few hundred metres long in which to land.

Complimentary Role

The employment of glider-borne troops would in no way lead to the exclusion of paratroops. The two would compliment one another, and the same troops could even be trained for both roles (as was often the case with the Germans in World War II).

The major advantage of using transport gliders with paratroops would be the ability of the former to deliver armoured cars and light artillery, as well as large quantities of reserve ammunition and even light vehicles to improve the firepower and mobility of the paratroopers.

Another role for the transport glider would be one of *delivering heavy equipment and supplies speedily to an advancing ground force*. Gliders could land alongside an advancing column, or on a road just behind it, supplying almost any need without losing momentum. The dangers of over-extended lines of communication could at least partially be overcome by gliders which do not have to rely on airports, and do not carry such limited loads as troops are able to deliver by parachute.

Tactical Possibilities

Supplementing the air-lift capacity of powered aircraft is the first advantage of gliders which comes to mind. With this in view, the British built a glider capable of delivering paratroops. Also, because they are towed to a release-point near their objective, gliders possess a far greater range potential than the helicopters generally used for the tactical transportation of troops today.

A glider is also *exposed to anti-aircraft fire only once* during an airborne operation. Powered transport aircraft delivering paratroops onto an objective are, in sharp contrast, exposed both during their approach and during their return after despatching the parachutists. A glider which is released from its tow-plane a safe

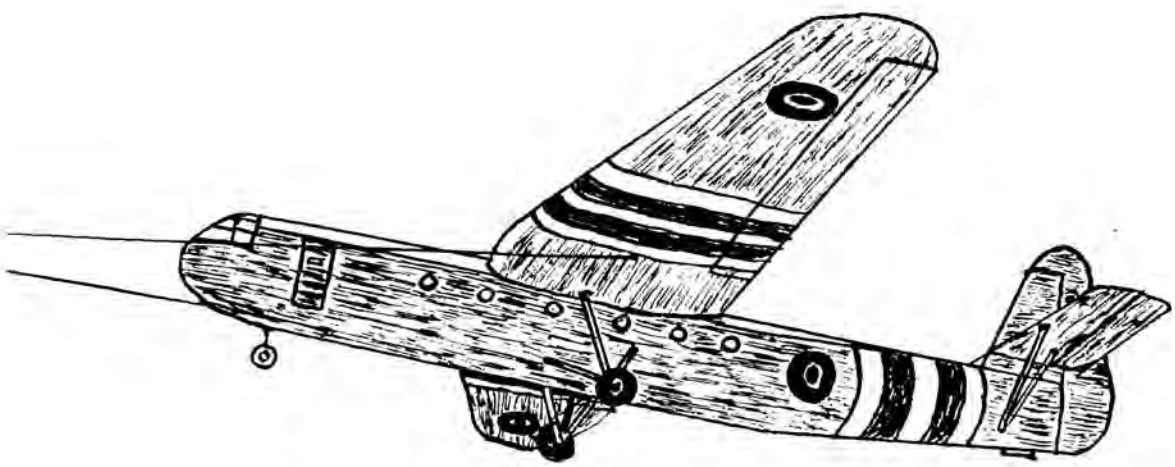

Fig 5.
Britain's mainstay of her glider forces was the Airspeed Horsa, a transport glider also capable of dropping paratroops. It carried 28 troops, or a 75mm howitzer with truck, ammunition and gun crew. Largely of wooden construction, its plywood skin was attached to stout circular wooden ribs.

distance from the objective runs the gauntlet of fire during its approach — but there is no return journey.

A further advantage of the glider under operational conditions is naturally its *silence*. Being capable of the ultimate in surprise, this weapon conforms with one of the cardinal principals of attack.

Surface-to-air missiles, one of the geatest fears of the modern airman, especially when operating under low-level conditions necessitated by troop transporting, remain a major source of concern for any potential glider force. However, with no engine to generate the heat required to attract the missile, a glider has a marked advantage over powered aircraft in this one respect.

Accuracy and Consolidation

A major failure in most of the larger airborne operations during and since the Second World War has been the inaccuracy of parachuting troops onto the desired dropping zone, especially at night. Considerable effort has been made to correct this problem, including the American-developed Adverse Weather Aerial Delivery System (AWADS). Unfortunately such solutions involve fitting the transport aircraft with elaborate and expensive electronic computer-equipment.

A flashback to the days of combat gliders, however, produces some interesting comparative figures regarding the accuracy of parachute drops and glider landings. During *Operation Dragoon* in August 1944 the 400-odd gliders participating achieved a 90%-95% accuracy delivery of troops on or near landing zones, as opposed to a 50% accuracy delivery of paratroops on their drop zones. The gliders used during the German invasion of Crete achieved 80% accuracy in landing. The dramatic rescue of Mussolini from where he was imprisoned in a hotel on the Gran Sasso in the Abruzzi mountains by a glider force led by Hitler's indomitable commando, Major Otto Skorzeny, is further proof of the *accuracy achieved by glider landings*. His force of gliders landed on a small, triangular, sloping and boulder-bestrewn ledge beside the hotel, at an altitude where the atmosphere was so thin and winds so treacherous that parachutists would have been dashed to pieces.

Consolidation after landing , always a problem for paratroops who are often scattered over a large area, is far easier for glider troops. Gliders land with the troops already able to fight as a group. An American officer who flew into combat in gliders has explained it very succinctly: 'Unlike parachutists they landed with guns that did not have to be laboriously put together, and squads (sections) did not have to be untangled from parachutes and gradually assembled. Glider units landed ready to shoot, and — barring accidents — they were not dazed oor disoriented as many a paratrooper is liable to be, especially if he has landed on his tail and snapped his neck a bit!

In addition there is the possibility of arming gliders, as the Germans did in World War II. A machine-gun mounted in the nose of a glider can deliver fire during the glider's final approach to keep down enemy fire when the aircraft is at its most vulnerable. A light machine gun mounted on a ring around a hatch on top of the glider could be manned by one man, thus giving the debussing troops covering fire until they are clear of the open landing zone.

Guerrilla Support

The Russians were the only ones to make large-scale use of gliders in guerrilla support role. Russian areas which had been occupied by the Germans contained many partisan groups which were persistently annoying to the German forces. In support of these guerrillas, Russian gliders *transported rations, weapons, medical supplies,* and at the same time *provided partisans with key personnel and important orders and information*. Gliders landed by night on emergency airfields and during the winter on the ice of frozen lakes well in the rear of the German lines. The resultant successes of the guerrillas are indicative of the value of gliders in such a role; a fact not to be overlooked in today's era of insurgency.

Drawbacks

The two greatest accusations levelled at the combat glider remain its *low speed and thus vulnerability,* as well as its *tendency* to cause *high casualties due to crash-landings*.

The speed, firstly, is no slower than that of a powered transport dropping paratroops, except during the final approach to landing. The glider is then so low that it is almost on top of the enemy before being spotted (due to the silence of its approach). Nonetheless, the possibility does exist of fitting gliders with motors which could be used to increase speed, range and control when necessary.

Casualties caused by bad landings during the Second World War were almost all due to obstacles on landing zones, poor glider-pilot training and gliders being released form their tug-aircraft at the wrong point. These causes could all, to some extent, be overcome by employing clandestine, high altitude free-fall parachutists to clear landing zones of obstacles, and by achieving a higher standard of training amongst both glider-pilots and the crews of tug-aircraft.

A further problem in the employment of gliders would doubtless be the *limited availability of tug-aircraft*. Yet even this problem could be overcome by experimenting with combinations such as the German 'pick-a-back' (Mistelschlepp) method of getting a glider close to its objective. Rather than use the more difficult to come by transports as tugs, a single-engined Focke-Wulf *FW56* or a Messerschmitt *Me 109 Bf* was mounted on top of a *DFS 230* glider (capable of carrying ten men). This odd combination then took off and flew to the release point.

Although radar would undoubtedly prove a problem, it is one which again exists equally for a powered aircraft delivering paratroops. Still, in a defensive war against any potentail African aggressor, the existence of a comprehensive enemy radar network is somewhat unlikely.

Conclusion

In the capitalist West with its emphasis on profits, expensive powered aeroplanes and helicopters have received considerable attention. The existence of many industries supporting the world of aircraft technology has been in accordance with the capitalistic economic ideals. The simpler glider has thus passed into history.

As the transport glider promises an increased military airlift capacity for South Africa's armed forces, it is doubtless one such project which deserves serious consideration.

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