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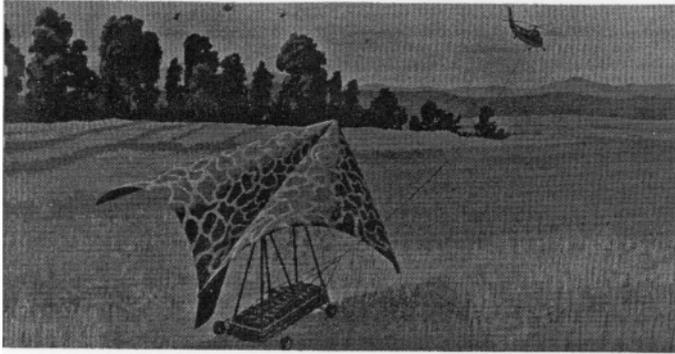

Pinpoint Glider System

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The enemy had been driven from the hill, and the infantry battalion was consolidating on the objective. Company commanders were pushing their men hard in the new positions as there were intelligence reports of enemy infantry battalions, reinforced by armor, massing for a counterattack. The direct support artillery battalion was having its problems. The infantry attack of the hill had met with stiffer resistance than anticipated; thus the supporting artillery batteries had nearly exhausted their supply of ammunition. Other artillery battalions were out of range and heavily engaged. The battalion ammunition vehicles would return within the hour. However, the pending counterattack on the supported infantry positions demanded adequate defensive fire support. The emergency ammunition request to division artillery was forwarded to the division support command. Aerial resupply was the only alternative that would be timely.

Instead of using three medium transport helicopters for resupply of the artillery battalion, it was decided to use one towing two remote controlled cargo gliders. Little time was lost in loading and dispatching the helicopter with its gliders in tow. As the helicopter passed over the first battery position, a cargo glider load of ammunition was released and electronically guided to the battery; the same process was repeated at the second battery area. The helicopter was quickly unloaded after arriving at the third battery. It was none too soon; no sooner had the ammunition been distributed to the guns, then the battalion began receiving fire missions. The counterattacking enemy was disrupted short of the new infantry positions by devastating artillery fire. Employment of remote controlled cargo gliders had enabled the artillery to be quickly and effectively resupplied with critical ammunition.

Impossible resupply? Currently, the answer is yes, but in the near future, the Army could add this air cargo glider system to its logistic

capability. Now under development by the Army are flex-wing gliders, which, at first glance have the appearance of a kite that would be the envy of any cub scout. The flex-wing glider (fig 1) is a device developed for aerial delivery of cargo by fixed-wing or rotary-wing aircraft into minimum clearance landing areas with a degree of accuracy not attainable with standard parachute delivery systems. In addition, the glider contains a remote control and automatic homing guidance which provides a capability for conducting all-weather, precise-delivery supply missions.

CARGO GLIDER

The flexible wing cargo glider (fig 1) is used for unmanned delivery of large quantities of cargo with aircraft currently in the Army as the towing vehicles. Briefly, the air cargo glider system operates as follows: The flex-wings are installed on cargo containers, vehicles or other equipment. The glider then is attached to and towed by the tow helicopter or fixed-wing aircraft.

The glider can be released from the tow aircraft by two methods. The first method is remote release. When the tow aircraft is several miles from the resupply point, it releases the flex-wing, which is then guided to its predescribed area by means of automatic homing to a ground beacon or command-control from the ground or tow aircraft. The second method is ground-contact release. The tow aircraft flies low over the resupply area until the glider makes ground contact. At this point, the flex-wing automatically releases from the tow aircraft.

The flex-wing system (fig 1) consists of the wing (three structural members and a flexible membrane), the suspension system, the cargo container (aluminum sheet platform), and the control station (a homing or remote control receiving device).

PRECISION DROP GLIDER

The precision drop glider, using inflatable leading edges and keel as shown in figure 2, is designed to deliver cargo into landing areas of limited space. To perform the precision drop mission, the flex-wing is

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