Glass-lined Cabins

New "Blanket Insulation" for Curtiss Commando : Weight Only 185 Pounds per Machine

THE Curtiss-Wright Corporation announces a new development in thermal insulation, achieved by their engineers at the St. Louis works of the corporation's aircraft division in conjunction with the Owens-Corning Fiberglass Corporation of Toledo, Ohio. The material used for reducing temperature transfer through the walls of an aircraft cabin is a "blanket" made of glass fibres set in a synthetic resin. Woven from glass threads only 0.0002in. thick the "blanket" can be made in any desired thickness. For the Curtiss Commando the thickness is half an inch and, with the resin used for setting, the weight is only 1 oz. per sq. ft. For an aircraft like the Commando, which has a cargo compartment of about 2,300 cu. ft. capacity, the weight of the insulation is only 185 lb., which represents a weight-saving of some 200 lb. compared with the material previously used. It is pointed out that this saving alone, stepped up to 1,000 aircraft flights over the Himalayan "Hump" into China, means an extra 200,000 lb. of war material, ammunition, fuel for the Superfortresses, food, medical supplies, guns, jeeps or repair parts.

In addition to its light weight, the new material has other advantages. For example, it is so pliable that it can be fitted over any shape, including windows, air ducts, control boxes, corners, and electrical outlets. Being chemically inert, the material does not cause corrosion of metals, and will not support any kind of fungus growth. It is also non-inflammable, and the combination of glass and resin has been found to have very low moisture absorption. Lengthy tests carried out in the laboratory showed that when subjected to tropical heat and humidity, the increase in weight due to moisture absorption was only 1 per cent., compared with something like 190 per cent. for kapok. The advantage of this will be obvious when it is recalled that the insulating material is in contact with the metal walls of the cabin, where condensation of moisture caused by differences between inside and outside temperatures is greatest. Yet another advantage is that, owing to the thinness of the glass threads, the material does not disintegrate under vibration.

The resin-set glass material is also quite effective for soundproofing. The half-inch thickness used in the Commando, plus the aluminium-finish trim cloth by means of which it is installed, was found to give a sound attenuation of 63 decibels. In the Commando a thicker "blanket" has been used in the pilots' compartment. This is one inch thick, and has been found to make the cabin very quiet, a very important factor in reducing fatigue on long flights.

No Tools Required

Ease of installation is another advantage of the new material. The blanket is attached to the aircraft structure by snap fasteners, so that it can be put into place or removed in an instant. If, for example, a machine is variously used for transporting cargo and troops or casualties, the material can be removed and reinstalled very quickly. The complete insulating equipment for an aircraft can be rolled into compact bundles and sent to centres and stations for installation. No tools are required, and the necessary instructions are simplicity itself.

The new blanket material will be used in the Curtiss CW-20 post-war version of the Commando. This machine will carry 36 passengers and will be powered by two Wright Cyclone engines driving Curtiss electric airscrews. Two major U.S. airlines have planned for the inclusion of CW-20s in their post-war operations. It will be possible to keep the cabin temperature at a comfortable level even when the outside temperature is 40 deg. F. below zero.

INSIDE A COMMANDO : The walls are lined with Fiberglass "blankets" made of very thin glass threads set in a synthetic resin ¼in. thick. The weight of the material is only 1 oz. per sq. ft.

RELEASE OF LIGHT METALS

FOR the first four years of war, the use of aluminium and magnesium had to be restricted almost entirely to military applications, predominantly aircraft. Even for this purpose, substitutes had largely to be adopted to conserve supplies. During the past year it has been possible to make them freely available for other military purposes while still meeting the needs of the aircraft programme.

The stage has now been reached where light metals can once more be released to manufacturers for civilian production, subject, of course, to their labour and capacity not being required for more urgent and important purposes. Light metals are also available for work on prototypes to form the basis for subsequent bulk production and for samples required in preparation for reopening markets for established uses.

Manufacturers can also now apply for release of material to build up working stocks in advance, against the time when machine tools, space and labour will become available for peacetime activities.