A final note on preventive maintenance that applies to propellers, boots, and in fact all rubber parts. The ozone in the air causes premature aging of all natural and synthetic rubber. Sure signs of ozone damage are pinholes, cracks, crazing, and hardening. It is money in the bank to coat all rubber parts with Age-Master No. 1 every 150 flight hours or at least twice a year. This is probably the best protection against ozone damage currently available.

For de-icing surfaces, follow up that treatment with an application of ICEX II if it is the icing season. It reduces ice's ability to adhere to the rubber surface, making the de-icing system more efficient, but it does not maintain or preserve the boots in any way. The manufacturer recommends applying it every 50 hours to boots and 15 hours to propellers. If you are going to do it after an application of Age-Master No.1, hold off a minimum of 24 hours for curing. You can occupy those hours by using one of the few positive aspects of ice—cooling your favorite libation as you contemplate how to keep the negative kind off your airplane.

THE TKS WEEPING WING

Weeping is more than creeping into general aviation, and while it is a highly effective method of de-icing and anti-icing, it is still an expensive option. TKS ice protection offers a significantly high level of ice protection. It has the major advantage of providing anti-ice capability, as opposed to de-ice. The end result is an ice protection system that keeps ice off the aircraft while maintaining aircraft performance in the icing environment, unlike the inherent aerodynamic problems associated with pneumatic de-icing boots. This level of protection, coupled with the ease of use of the system, provides effective, simple ice protection. TKS ice protection systems have been extensively tested by NASA and have been standard equipment on the Hawker BAe-125 business jet for over 25 years.

The TKS ice protection method is based upon the freezing point depressant concept. An antifreeze solution is pumped from panels mounted on the leading edges of the wings and horizontal and vertical stabilizers. The solution mixes with the supercooled water in the cloud, depresses its freezing point, and allows the mixture to flow off of the aircraft without freezing.

The system is designed to anti-ice, but it is also capable of de-icing an aircraft. When ice has accumulated on the leading edges, the antifreeze solution will chemically break down the bond between the ice and airframe, allowing the aerodynamic forces on the ice to carry it away. This capability allows the system to clear the airframe of accumulated ice before transitioning to anti-ice protection.

A valuable side effect of TKS ice protection is the reduction of runback icing on the wings and tail. Once fluid departs the panel on the leading edge of the surface, it flows aft over the upper and lower surfaces and departs the aircraft at the trailing edge. This runback effect keeps ice accumulation in check aft of the panels from runback or from impact of larger water droplets. This side effect is a positive benefit in today's environment of concern for ice protection during large droplet encounters.

TKS ice protection systems have been developed for a number of aircraft around the world, with a majority of the recent developments occurring here in the United States. Systems have been developed for several general-aviation Beech, Mooney, Cessna, Aero Commander, and Socata aircraft, ranging from safety of flight installation supplemental