

## TKS ANTI-ICE SYSTEM - SERVICING

### 1. General

- A. The TKS anti-ice system fluid tank is attached to the bottom of the fuselage. Airplanes can have the TKS installed in the cargo pod or in the optional fairing. On airplanes with the cargo pod, the filler opening is on the left side of the pod. On airplanes with the fairing, the filler opening is on the left side of the fuselage. The fluid tank is vented overboard by vent lines in the top of the tank. A sight glass is installed in the left side of the fluid tank to give a visual indication of the fluid level.
- B. The TKS anti-ice system fluid tank is serviced with approved anti-icing fluids only. For a list of approved TKS anti-icing fluids, refer to Deicing/Anti-Icing - Description and Operation.

### 2. Servicing

**WARNING: Keep anti-icing fluid away from heat, sparks, and open flame. Anti-icing fluid is classified as a combustible liquid. It is also harmful or fatal if swallowed. Avoid prolonged or repeated breathing of vapors. Avoid prolonged skin contact. Do not store in open or unlabeled containers. If swallowed, induce vomiting and get medical attention immediately. If fluid comes in contact with eyes, flush with large amounts of water and get medical attention immediately.**

**WARNING: For health and environmental data, review the applicable Safety Data Sheet (SDS).**

**CAUTION: Use only approved TKS fluids in accordance with specification DTD 406B. Fluid density is approximately 9.2 lbs/gal.**

#### A. Cleanliness Precautions

- (1) The TKS system has filtration to protect the components against damage and blockage from particulate matter, but they are not always effective for liquid contaminants. To extend the life of the filter element and strainer, the following precautions are recommended:
  - (a) Where possible minimize the number of containers that you use to store and fill the airplane anti-ice fluid tank. Purchase anti-ice fluid in small (2.5 gallon) containers that you can use to pour it directly in the airplanes fluid tank.
  - (b) Always clean the top of the containers before you remove the cap to pour from the container.
  - (c) Always replace the cap on the fluid containers that you use for the transfer of the fluid.
  - (d) If you transfer fluid from the original container to other containers for storage, make sure that these containers are clean and of correct materials.
 

**NOTE: Tin plated steel or similar containers that can rust are not the correct type.**
  - (e) Keep a set of containers and implements solely for use with anti-ice fluid.
  - (f) Keep the area around the airplane TKS filler clean. Keep the filler cap clean.
  - (g) Always replace the filler cap on the airplane immediately after you fill the tank.

#### B. Service the TKS Fluid Tank (Refer to Figure 301 for fairing installation and, Figure 302 for cargo pod installation as applicable).

- (1) Supply external electrical power to the airplane.
- (2) Monitor the fluid level indications in the cockpit to make sure the indications agree with the sight gage level.
- (3) On airplanes with the fairing open the fluid filler cap.
- (4) On airplanes with the cargo pod, open the cargo pod forward center door to get access to the fluid tank.
- (5) Remove the fluid filler cap.
- (6) Fill the fluid tank and continue to monitor fluid level indications as follows:
  - (a) On airplanes with the fairing, monitor the fluid tank sight glass at the TKS fluid window.
  - (b) On airplanes with the cargo pod, monitor the fluid tank sight glass at the cargo pod forward center door.
- (7) After you service the fluid tank, install the fluid filler cap and close the cargo pod door.
- (8) Check the fluid indication in the cockpit.
- (9) Remove external electrical power from the airplane.

### 3. TKS Deicing Porous Panel Care

A. General

- (1) The TKS Anti-Ice system is a durable system that requires little attention for day to day care. The basic care is cosmetic and preventive in nature, and will maintain the appearance and promote proper system operation.

B. Cleanliness Precautions

- (1) The TKS system has filtration to protect the components against damage and blockage from particulate matter, but they are not always effective for liquid contaminants. To extend the life of the filter element and strainer, the following precautions are recommended:

- (a) Where possible minimize the number of containers that you use to store and fill the airplane anti-ice fluid tank. Purchase anti-ice fluid in small (2.5 gallon) (9.4607 liter) containers that you can use to pour it directly in the airplanes fluid tank.
- (b) Always clean the top of the containers before you remove the cap to pour from the container.
- (c) Always replace the cap on the fluid containers that you use for the transfer of the fluid.
- (d) If you transfer fluid from the original container to other containers for storage, make sure that these containers are clean and of correct materials.

**NOTE:** Tin plated steel or similar containers that can rust are not the correct type.

- (e) Keep a set of containers and implements solely for use with anti-ice fluid.
- (f) Keep the area around the airplane TKS filler clean. Keep the filler cap clean.
- (g) Always replace the filler cap on the airplane immediately after you fill the tank.

C. Porous Panel Cleaning

**CAUTION:** Porous panels contain a plastic membrane that can be damaged by certain solvents, especially methyl ethyl ketone (MEK), acetone, paint thinners, paint stripper, and other types of thinners and solvents. Do not use these materials to clean the panels. Put tape on the panels with non-porous solvent resistant material if you use solvents of this type on adjacent parts of the airplane.

**CAUTION:** Do not paint the outer surface of the porous panels.

**CAUTION:** Do not polish the surface of the porous panels when you polish painted surfaces. Wax or silicone polishes decrease the wetting qualities of the de-icing fluids and can degrade the ice protection efficiency. Repeated or intensive porous panel polishing can also block some of the pores in the panels.

- (1) Clean dirt and insect debris from the panels when you clean the exterior of the airplane.

**NOTE:** From the functional aspect porous panels are self cleaned by the back flushing action of the de-icing fluid when the system is operated. However additional cleaning is recommended when you clean the airplane.

- (2) Operate the ice protection system for a sufficient period of time to wet the leading edge TKS panels with fluid before you clean them. Approved ice protection fluid has a softening effect on insect debris.
- (3) Spread the fluid over the insect encrusted area with a cloth or sponge while the ice protection system operates. Stop the system and let the fluid stand for about ten minutes before you clean the porous panels.

**WARNING:** Take appropriate precautions to prevent fire.

**CAUTION:** Only use the solvents that are listed below.

- Water (Soaps and detergents are permitted)
- DTD 406B Ice Protection Fluid
- Isopropyl Alcohol

- (4) Clean deposits of oils, greases, adhesives, paint, etc.

**NOTE:** The removal of the deposit can be assisted by the use of "Scotch-Brite"™ and/or careful scraping.

D. Polishing of Porous Panels

**CAUTION:** Do not use liquid or wax polish on the TKS porous panels.

- (1) Use "Scotch-Brite"™ to restore the panels to their initial condition. Refer to Chapter 30, Ice and Rain Protection-General.

**NOTE:** If you use "Scotch-Brite"<sup>™</sup> and polish the panels again and again it can cause a blockage of some of the pores in the panel.

- (a) Put low-adhesive tape on the airplane skin adjacent to the panel, where necessary, to prevent damage to the paint.
- (b) Polish the porous panel with "Scotch-Brite"<sup>™</sup> in a chordwise direction to get an initial surface texture.
- (c) Clean and polish the porous panels with a Very Fine grade of "Scotch-Brite"<sup>™</sup>. Then clean and polish the panels with a Ultra Fine Grade of "Scotch-Brite"<sup>™</sup>.

**E. TKS Propeller Feed Shoes**

- (1) You can get a longer service life out of the propeller feed shoes and reduce the adhesion of ice to them if you apply AGE MASTER No. 1 and ICEX II or SHINEMASTER PREP, SHINEMASTER, and ICEX II to the them. Refer to Deicing/Anti-icing - Servicing Deicing Boot Preservation for application instructions.