## **PROPELLER ANTI-ICE - DESCRIPTION AND OPERATION**

## 1. General

A. Model 208 propeller is protected from ice by an electrical anti-ice system.

## 2. Description and Operation

The system is of an electrothermal type, consisting of electrically heated de-ice boots bonded to each propeller blade, a Α. slip ring assembly for power distribution to the propeller de-ice boots, a brush block assembly to transfer electrical power to the rotating slip ring and a timer, installed on a diagonal brace on the aft, left side of the firewall, to cycle electrical power to the de-ice boots in proper sequence. A three position toggle switch labeled PROP, located on the de-ice/anti-ice switch panel, on lower left instrument panel, controls the engine propeller de-ice systems. Two circuit breakers; a heater circuit breaker, labeled PROP ANT-ICE protects the propeller anti-ice heating circuit, and a control circuit breaker, labeled PROP ANTHCE CONTROL protects the propeller anti-ice timer circuit. Both circuit breakers are located on the left sidewall circuit breaker panel. A propeller anti-ice ammeter, located on the left instrument panel, indicates amperage for the propeller anti-ice system. The anti-ice system applies heat to the surfaces of the propeller blades where ice would normally adhere. This heat, plus centrifugal force and the blast from the airstream, removes accumulated ice. Because excessive anti-ice heat may damage the propeller blades which are constructed of composite materials, an oil pressure switch in the electrical circuit is utilized to prevent the propeller anti-ice from being turned on without the engine operating. When the PROP anti- ice switch is placed in the AUTO (upper) position, the timer controls electrical power through the brush block and slip ring to the three propeller anti-ice boots in intervals of 90 seconds on and 90 seconds off. The anti-ice system is off when the switch is placed in the center position. In the event of a malfunction in the propeller anti-ice timer circuit, the switch can be held in the momentary MANUAL (lower) position to bypass the timer circuit and achieve propeller anti-icing. Operation of the propeller anti-ice system can be checked by monitoring the prop anti-ice ammeter. The anti-ice system is operating correctly when ammeter is indicating within the green arc. The anti-ice system incorporates lightning protection which consist of a metal oxide varistor mounted on the left upper forward side of the firewall, and three overspark brackets installed beneath the brush block terminal strips.