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INSTRUCTION: TN02800
BATTERY HEATER
Rev. 11-01-2010 DNE
APPROVAL: _____

INSTALLATION 200 SERIES BATTERY

Preparation:

Technicians performing replacement and/or installation of new battery belt heat elements should thoroughly review these procedures before proceeding with any installation.

Description:

The 200 Series Battery heat systems are for both Lead Acid and Ni-Cad Batteries.

The battery heat system is thermostatically controlled, permanently installed, powered by ground/shore power and is not operational in flight. It may be installed as an independent system, or as an accessory to an existing Tanis engine preheat system,

The battery heat system consists of battery heat element(s) wrapped around the vertical surface of the battery in a belt like fashion, and a cabling assembly with a thermostat and independent circuit protection.

Amperage draw varies from less than a tenth of an amp to no more than four amps. There are both 115V, with North American NEMA 5-15P plug type and 230V, with Europe CEE 7/7 plug type. Country of operation may install certified power plugs that meet regional requirements.

Installed weights vary from less than one pound to upwards of two pounds for dual systems. Individual component weights are negligible, a complete system should be considered for weight and balance calculations.

Element Installation:

Remove the battery and clean. Contaminants such as dirt, grease, and/or *processing lubricants*, must be removed prior to installing a heat element onto a battery. Wrap the element around the perimeter of the vertical surface with the flat side toward the battery. The element should be smaller than the circumference of the battery and ends should not overlap. Using supplied cable-ties lace the element together avoiding power lugs and sensor connectors. See Figure 1.



Figure 1

Using alternating cable-ties draw the belt ends toward each other. Be careful not to pull too hard, this could result in damage the belt or in pulling grommets out. An adaptor panel, TB02645 is available for custom fitting around lugs, etc., or as required.

Installations which have a battery box may need a hole drilled in the box for the element lead to pass through. If this is the case, locate the hole adjacent to the battery heat element lead as installed on the battery and install supplied grommet and seal with AC-1230, bonding sealant.

When installing a battery with a 200 series element in a battery box, a cardboard protector can be used to protect the element from sharp edges and aid in easing the battery into the box. Remove the cardboard once the battery is installed.

Cabling and Sensor Installation:

Determine the source for power supply options: Dedicated independent ground power plug, engine preheat system or systems main power plug. If installed independently, 115V and 230V ground power plugs are available through Tanis Aircraft Products, see figure 2.

Route cabling:

A suggested routing is with the battery cables using existing penetration when possible. If a separate penetration is required through fire barrier use fireproof grommet (FPG), TG01056, Or use appropriate MIL specific connectors such as a MIL-C-38999 connector. All firewall penetrations should conform to 14 CFR part 23-1191/AC20-135. Installation is to comply with AC43:13 1B.

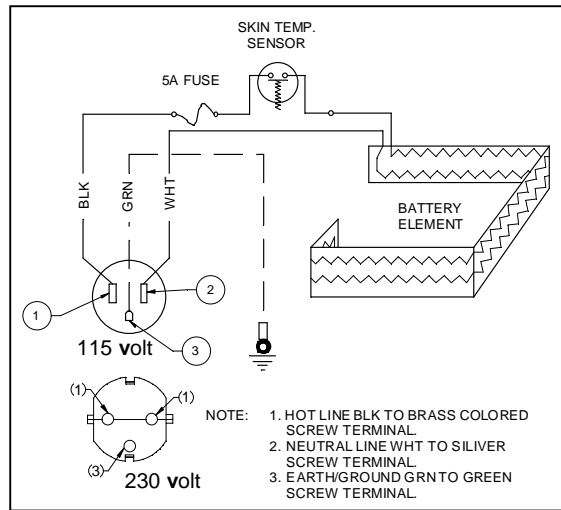


Figure 2

Secure the temperature sensor, in the vicinity of the battery, to the aircraft skin or structure using supplied CB92 mount installation kit. Once the cable is routed and secured, connect the battery element.

System check:

Once the system is in place and labeled, connect element(s) to corresponding cable connectors. Check to be sure system components are secure and verify installation is per AC43.13 1B.

Check the system as follows:

- From the power plug that the battery heat system is connected to, there should be no continuity between the power pins and the airframe.
 - Continuity should exist between the airframe and the ground pin.
 - There should be resistance between the two power pins, (see below for values).
 - To test the operation, cool the skin temperature sensor to below 32° F with an ice pack or a circuit cooler spray. When the temperature sensor is below freezing, an ohmmeter should read across the power leads, or plug the system into appropriate ground shore power, and keep the thermostat in a freezing condition and after about ten minutes the element should feel warm to the touch.
- If not already installed ensure a placard stating; “Tanis”, and the system voltage is located near the power plug being used to power the system.
Make a log entry to comply with 14 CFR Part 43.9.

Approximate install weights for systems with a 15 foot power lead and a single element:

TB02800-22: 0.81 lbs TB02800-28: 0.94 lbs TB02800-31: 1.00 lbs TB02800-38: 1.13 lbs

Instruction for Continued Airworthiness summary

Maintenance while in use:

While the Tanis battery heat system is in regular use, check fluid levels on lead acid batteries weekly.

Maintenance summary:

Inspect the Tanis battery heat system at each annual or equivalently scheduled inspection. A minimum of 1 check per 12-month cycle is required. This inspection is a complete visual and operational inspection requiring only a single logbook entry. Inspections shall be accomplished by an appropriately rated mechanic assigned to this aircraft. Inspections and other maintenance requirements are to be performed under 14 CFR AC 43.13-1B Chapter 11 of the Federal Aviations Regulations unless an alternative FAA approved program is in force.

1. Examine the system for security of attachment.
2. Inspect the cable leads, and connections.
If any portion of the cabling shows signs of fatigue due to chafing, flexing, airflow, or vibration, re-secure or repair as required conforming to AC 43.13-1B.
3. Inspect all battery belt element(s) for proper installation and operation. When servicing the battery use care not to snag the element on sharp edges. Should such a snag occur, small tears and abrasions can be repaired with AC-1230. If any of the element wire is exposed the element should be replaced.

For more information refer to Tanis ICA TCA0002, and Service Bulletins, available on line:
www.tanisaircraft.com.

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