



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

MAINTENANCE MANUAL SUPPLEMENT

CONCORDE TS-C10 TEMPERATURE SENSOR

This Document must Be Used in Conjunction with the Basic Maintenance Manual for the Aircraft When the Concorde Lead-acid Battery and Temperature Sensor Are Installed.
 This Maintenance Manual Supplement Modifies / Augments Portions of the Basic Maintenance Manual.

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1. Scope: This Maintenance Manual Supplement provides the additional data required to insure satisfactory operation, maintenance, and repair of the Concorde TS-C10 Temperature Sensor.
2. Purpose: This manual sets forth the instructions for determining continued airworthiness of a Concorde TS-C10 Temperature Sensor.
3. Application: Used in engine starting and non-engine starting applications in conjunction with Concorde batteries. This temp sensor is comparable to SAFT 415280.
4. Precautions:
 - a. **CAUTION:** Aircraft batteries are certified to have certain minimum capacity for emergency operations in the event of a electrical generator system failure. Never dispatch an aircraft that has a discharged or 'dead' battery.
 - b. **WARNING: ELECTRIC SHOCK HAZARD.** Do not touch uninsulated portion of the connector or the battery terminals. A possibility of serious electrical shock exists.
 - c. **WARNING: ELECTRIC SHOCK HAZARD.** Do not lay tools or other metal objects on the battery as arcing or explosion could occur. Remove conductive jewelry before working around battery, charger, or test equipment.
 - d. **WARNING:** Batteries on charge or discharge produce hydrogen gas, which can explode if ignited. Do not smoke, use an open flame, or cause sparking near a battery. Charge, service or test a battery only in a well ventilated area. The use of exhaust fans may reduce the risk of explosion.
 - e. **WARNING:** Batteries contain sulfuric acid which will cause burns. **DO NOT TOUCH EYES AFTER TOUCHING BATTERY.** Do not get acid in your eyes, or on your skin, or clothing. In the event of acid in the eyes, flush thoroughly with clean cool water for several minutes. Get professional medical attention. Refer to battery MSDS for additional information.
 - f. **WARNING:** Wear proper eye, face and hand protection at all times when working with batteries. Know the location and use of emergency eyewash and shower nearest the battery charging area.
 - g. **CAUTION:** To prevent damage to the connector, arc burns on the hands, or explosion, batteries should never be connected or disconnected with the charger or analyzer operating. Batteries must be connected or disconnected only when the ammeter reads Zero. Push the "OFF" switch to shut down the charger or analyzer.
 - h. **CAUTION:** Batteries contain hazardous materials. Know the location and proper use of emergency response materials. Refer to battery Material Safety Data Sheet (MSDS) for additional information.
5. Airworthiness Limitations: This temperature sensor is not required on lead-acid batteries. Therefore, this equipment need not be operational for the aircraft and battery installation to be airworthy. No airworthiness limitations are associated with

this equipment. This sensor is not required for Minimum Equipment List (MEL).

NOTE: The purpose of the temperature sensor is to make a lead-acid battery fully compatible with aircraft systems required for the temperature monitoring of Nickel-Cadmium batteries in accordance with FAR Parts 23, 25, 27, and 29 para 1353.

6. Installation and Removal: **NOTE:** The following instructions are generic. See airframe manufacturer's maintenance manuals or STC for instructions specific to a particular aircraft or battery model.
 - a. Installation procedure:
 - i. Install temperature sensor onto the battery - see Concorde drawing 5-0117.
 - ii. Install battery in accordance with the instructions for the battery installation.
 - iii. Connect temperature sensor to the aircraft temperature monitoring system using the connector in the aircraft.
 - iv. Annotate log book with sensor serial number and date of installation.

7. Inspection Requirements and Overhaul Schedule:
 - a. Inspection Requirements:
 - i. Scheduled inspections: None
 - ii. Non-scheduled inspections: A check of the sensor is required if it appears to be malfunctioning.
 - b. Inspection Procedure:
 - i. Equipment required:
 - (1) Temperature chamber or bath
 - (2) Ohmmeter
 - (3) Thermometer
 - (4) Voltmeter, 20 K-ohm per volt
 - ii. With the sensor mounted on the battery, check for any measureable voltage between the battery negative terminal and each of the sensor pins. If any measurable voltage is found, replace the sensor.
 - iii. The sensor may be checked at room temperature or in a temperature chamber or bath. If a test at other than room temperature is used, place the sensor in a temperature chamber and allow sufficient time to stabilize at the test temperature. If a bath is used, the container should be covered.
 - iv. Set the ohmmeter to the most sensitive scale.
 - v. Read the resistance across pins:
 - (1) A-B
 - (2) C-D
 - vi. If the resistance falls within $\pm 10\%$ of the values below, return to service. If not, replace sensor. It is only required to check the resistance values at temperatures above 24°C.

Pins	Temperature Degrees C (F)	Resistance
A-B	71°C ± 2.8°C (+160°F ± 5°F)	Normally open thermal switch to close on rising temperature.
C-D	-29°C (-20°F)	5.5 M-ohms
	-18°C (0°F)	3.05 M-ohms
	0°C (+32°F)	1.08 M-ohms
	24°C (+75°F)	300 K-ohms
	49°C (+120°F)	102 K-ohms
	66°C (+150°F)	51.1 K-ohms
	77°C (+170°F)	33.2 K-ohms

vii. Reinstall per para 7 above.

c. Component Overhaul Schedule:

No component overhaul required for this type design change.

8. Troubleshooting:

Symptom	Probable Cause	Corrective Action
No temperature reading, (Infinite resistance across pins C-D)	Sensor failure	Replace sensor
Sensor out of range	Sensor failure	Replace sensor
Voltage reading between any sensor pin and the battery negative terminal.	Sensor failure	Replace sensor

9. Replacement / Repair:

- a. The temperature sensor is non-repairable.
- b. Replacement may be made by removing and installing a new temperature sensor in accordance with the instructions of this supplement.

10. Facilities: The temperature sensor may be installed and serviced by a certified aircraft maintenance technician.

11. Storage Limitations: None.
12. Disposal: Temperature sensor contain no hazardous materials and may be disposed of in the regular trash.

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