



## Service Information Letter

SIL# 1-29529-0805 Rev. A  
October 31, 2005

SUBJECT: TEMPERATURE SENSOR ASSEMBLY

MODELS: Temperature Sensor Assembly P/N 29529-002  
Battery Models: BTSP-4445L, P/N 32248-001  
M<sup>3</sup>-44-8, P/N 32845-001

### SUMMARY:

The Temperature Sensor Assembly utilized in the BTSP-4445L and the M<sup>3</sup>-44-8 batteries has been modified in order to eliminate temperature misinterpretations when interfaced with the EICAS system on-board the Embraer 145 series aircraft.

### BACKGROUND:

In the 1970's Marathon developed an analog temperature sensing and display system consisting of thermistor based temperature sensors, and a meter, mounted in the cockpit, to indicate the internal temperature of a battery. This system is still in use on Jetstream 31, Embraer 110 and 120 and deHaviland Dash 7 and 8 aircraft. Because of the high reliability of the system it was decided to utilize the sensor assembly in the ERJ-145 aircraft. It has since been determined that the digital EICAS system utilized on the ERJ-145 series aircraft requires a higher degree of precision when interfacing with temperature sensing devices. Small fluctuations in resistance readings and interference by electrical leakage in battery temperature sensing devices can be misinterpreted by today's sensitive avionics software causing false temperature readings. For these reasons MarathonNorco Aerospace (MNAI) engineering redesigned the universal temperature sensor to improve the interface qualities of battery temperature sensing on-board the ERJ-145 series aircraft. A new part number has been created for the redesigned temperature sensor assembly with plates. Routing of the temperature sensor wires has been changed in order to allow for easier testing and servicing. (Refer to Figure 1 on page 4).

### PRODUCTION CUT-IN:

The new temperature sensor assembly will be identified as 29529-003. Part number 29529-002 will continue to be manufactured for use in analog applications.

The new P/N will consist of the following components:

- 1) Sensor Assembly, P/N 29630-003, 1 each
- 2) Sensor plates, P/N 32427-001, 2 each

The temperature sensor assembly will be marked with the serial number of the temperature sensor assembly.

Battery production cut-in will be evident by the new revision level:

<u>Battery Type</u>	<u>MNAI P/N</u>	<u>Old Revision</u>	<u>New Revision</u>
BTSP-4445L	32248-001	T	U
M <sup>3</sup> -44-8	32845-001	L	M

#### INTERCHANGEABILITY INFORMATION:

During the development of a new ERJ-145 battery temperature sensor assembly a temporary P/N was assigned to field test sensor assemblies. This temporary P/N is 29630-484, and its continued use is acceptable.

Continued use of batteries with temperature sensor assembly 29529-002 is acceptable, however, the sensor testing criteria for temperature sensor assembly 29529-003 should be adopted.

Batteries with temperature sensor assemblies 29529-002, 29529-003 and those with sensor assembly 29630-484 may be interchanged and intermixed only on Embraer 145 series aircraft.

#### APPROVAL:

Approval for this change has been received from Embraer.

#### PUBLICATIONS AFFECTED:

IPL-1015

CMM 24-34-04

CMM 24-34-08

IM BA-24-34-00

#### NEW SENSOR TEST PROCEDURES

The following procedures will be incorporated into the next revision of the above-mentioned manuals.

Inspect wiring and receptacle for insulation damage, corrosion, and crimping or other defects.

Perform a functional test on the sensor assembly. Pins B-C and E-F shall have a resistance reading as given below for at least 2 of the given temperatures.

A resistance reading outside of the given limits constitutes a failure and the sensor must be replaced.

°F	$\Omega$ +/-10%	°C	$\Omega$ +/-10%
60	48519	10	62354
65	41882	15	48519
70	36242	20	38022
75	31439	25	30000
80	28634	30	23827
85	24937	35	19044
90	21768	40	15314

Perform a dielectric test as follows:

Use a Dielectric (Hi-Pot) Tester capable of measuring a current flow of 25 micro amps ( $\mu$ A) at 500 volts DC. Place sensor leads in a small container filled with deionized water, allowing the sensor to be completely submerged. Submerge the negative (-) lead of the Dielectric Tester in the container with the sensors. While holding the sensor assembly receptacle, probe pins B, C, E and F with the Positive (+) lead of the Dielectric Tester to check for current leakage. A current flow greater than 25 micro amps ( $\mu$ A) constitutes a failure and the sensor must be replaced.

#### WARRANTY

Temperature sensor assemblies P/N 29529-002 that do not meet the above test requirements during the 2-year warranty period will be replaced with temperature sensor assemblies P/N 29529-003 on a free of charge basis. Warranty claims and suspected defective temperature sensor assemblies must be submitted to MarathonNorco Aerospace. MarathonNorco Aerospace will determine free of charge warranty replacement based upon time in service and performance of the sensor in accordance with the *New Sensor Test Procedures* described in this service information letter.

Temperature sensor assemblies P/N 29529-002 that do not meet the above test requirements in the third and fourth year of service will be replaced with temperature sensor assemblies P/N 29529-003 at the reduced price of \$922.80 each for orders placed prior to September 1, 2006. Warranty claims and suspected defective temperature sensor assemblies must be submitted prior to September 1, 2006. MarathonNorco Aerospace will determine replacements based upon time in service and performance of the sensors in accordance with the *New Sensor Test Procedure* described in this service information letter.

After September 1, 2006, new temperature assemblies 29529-003 will be available directly from any Marathon authorized distributor at the then current price.

This special consideration does not supersede or amend the standard MarathonNorco Aerospace warranty.

MARATHONNORCO AEROSPACE CONTACT INFORMATION

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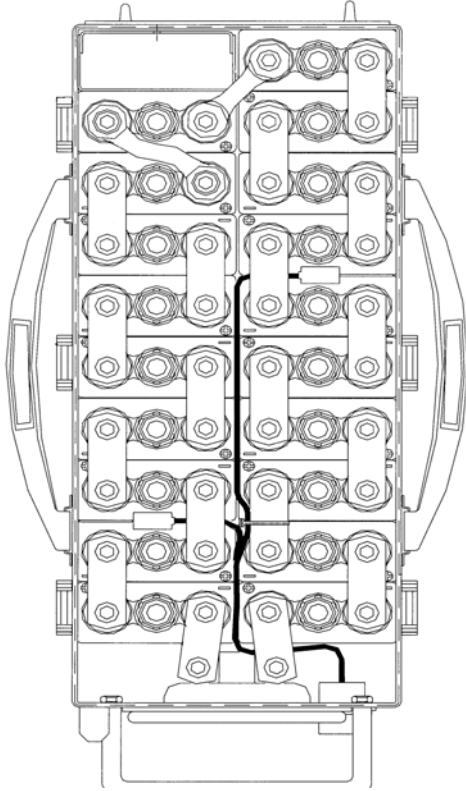
For technical questions please contact:

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SHIPPING ADDRESS

MarathonNorco Aerospace, Inc.  
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Waco, Texas 76712-6588  
USA

Old Routing



New Routing

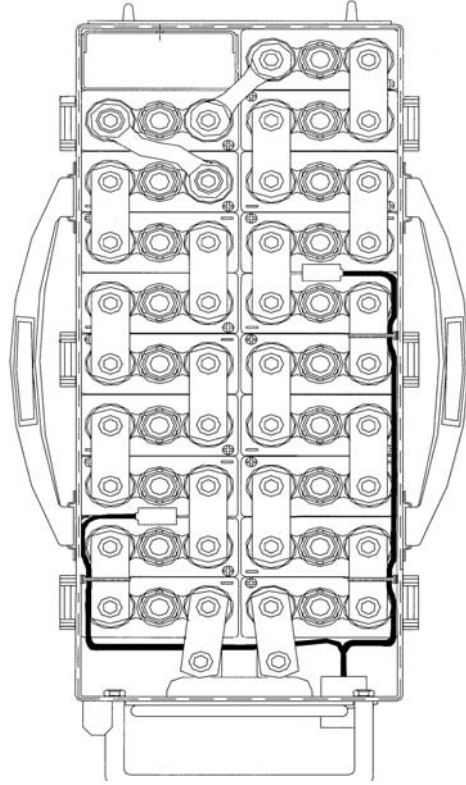


Figure 1