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April 14, 2010

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington D.C. 20555-0001

Subject: 10CFR21 Reporting of Defects and Non-Compliance
Thomas & Betts Printed Circuit Board P/N 41-01-251512

The enclosed report addresses a reportable notification for a Thomas & Betts Printed Circuit Board P/N 41-01-251512.

A copy of the report has been mailed to our affected nuclear customers.

Sincerely,

Robert B. Hale
President

Enclosures
1. Report 20100414_Notification_41-01-251512, 3 pages
2. Inspection Instruction for R336 and R347 Location on Thomas & Betts P/N 41-01-251512, 1 page

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10CFR21 REPORTING OF DEFECTS AND NON-COMPLIANCE

COMPONENT: Thomas & Betts Printed Circuit Board P/N 41-01-251512

SYSTEM: Cyberex 20 kVA Model AC Power Supply

CONCLUSION: Defect reportable in accordance with 10CFR21

REPORT ID: 20100414_Notification_41-01-251512
File: 20100414_Notification_41-01-251512.doc

Reviewed By: Malika Abdeen Date: 4/14/10
Engineering

Reviewed By: Divya Reddy Date: 4/14/10
Engineering

Approved By: [signature] Date: 4/14/2010
Quality Assurance

COMPONENT

Thomas & Betts Printed Circuit Board
Thomas & Betts P/N: 41-01-251512

PURPOSE

This report documents the supply of faulty Modulation Index Control (MIC) circuit boards for a Cyberex 20 kVA Model AC Power Supply.

SUMMARY

UCI personnel witnessed system level functional testing of three MIC circuit boards in a spare unit on March 9-10, 2010 at the PSEG Nuclear LLC training center as part of the dedication process. Initially, the boards were accepted based on the test results but later irregularities were noticed on the output side of another card (reference oscillator) in the system. The OEM (Thomas & Betts) began troubleshooting the issue and determined that two resistors (R336 and R347) had one leg each terminated in the wrong location. Subsequent repair and testing confirmed this to be the issue and that once corrected the irregularities were gone.

Utilizing technical support from Thomas & Betts, UCI personnel began an evaluation to determine the potential effects of the incorrectly installed resistors. On March 12, 2010, Thomas & Betts provided the following statement in an email from Steve Wendell, Director – Service Support Technologies for Thomas & Betts Global Solutions:

> *The Inverter THD specification is < 5% and RMS voltage regulation is +/- 2%. The test results are within these parameters though the THD appears to be temperature sensitive and requires adjustment with any change in ambient temp. However, placement of resistors R336 and R347 in the "short" holes, as found on the 3 boards returned from the site, alters the operation of IC305 and IC306.*
>
> *Consequently the circuits cannot function as designed. We believe the temperature sensitivity is a result of the incorrect resistors and are awaiting results of further testing from the site to confirm our suspicions.*
>
> *It is our recommendation that all applicable MIC cards be inspected as soon as practical and corrected as necessary. It is our belief only five MIC boards are affected by this manufacturing issue and all those boards have been identified and corrected.*

As stated by Thomas & Betts above, the incorrect installation of the two resistors is believed to be limited to five boards originally supplied under PSEG Nuclear LLC purchase order 4500482392. Two boards from previous orders (S/N 2172-1-CS from PO 4500361396 and S/N UCI-3047-9-2 from PO 4500471119) were verified to be correct. However, they do recommend that the existing population be inspected as soon as practical.

AFFECTED USERS

PSEG Nuclear LLC – Salem and Hope Creek Nuclear Generating Stations

According to UCI records, a total of 15 Modulation Index Control circuit boards (P/N 41-01-251512) were supplied by Thomas & Betts to UCI to fulfill PSEG Nuclear LLC orders. The current status of these 15 circuit boards is shown in table 1 below.

Table 1

No.	UCI Serial Number	PSEG Purchase Order	Current Status	Current Location
1	2172-1-CS	4500361396	Correct as-built	UCI
2	UCI-2172-1-1	4500361396	Unknown	PSEG
3	UCI-2496-3-1	4500406519	Unknown	PSEG
4	UCI-2711-1-1	4500430804	Unknown	PSEG
5	UCI-2711-1-2	4500430804	Unknown	PSEG
6	UCI-2711-1-3	4500430804	Unknown	PSEG
7	UCI-2711-1-4	4500430804	Unknown	PSEG
8	UCI-3047-9-1	4500471119	Unknown	PSEG
9	UCI-3047-9-2	4500471119	Correct as-built	PSEG
10	UCI-3135-1-1	4500482392	Corrected	PSEG
11	UCI-3135-1-2	4500482392	Corrected	UCI
12	UCI-3135-1-3	4500482392	Corrected	UCI
13	UCI-3135-1-4	4500482392	Corrected	UCI
14	UCI-3135-1-5	4500482392	Corrected	UCI
15	003466-01-0001	4500521319	Unknown	PSEG

CORRECTIVE ACTIONS

Correction Performed

The five boards from UCI job 3135 supplied under PSEG order 4500482392 have been corrected and one (S/N UCI-3135-1-1) has been tested on-site at PSEG and confirmed to be functional. The remaining four are in controlled storage at UCI and can be tested at PSEG as-needed for installation.

Correction to be Performed

Pending any inspection (see Attachment 1 for instructions) performed by PSEG on field population, any defective units found will be reworked to original specifications and dedicated accordingly.

Corrective Action

UCI has revised the applicable dedication procedure (CGDS-308) to include a component level inspection with specific instructions for the configuration of the two subject resistors. Additionally, a system level functional test at PSEG has been added.

ATTACHMENTS

1. Inspection Instruction for R336 and R347 Location on Thomas & Betts P/N 41-01-251512

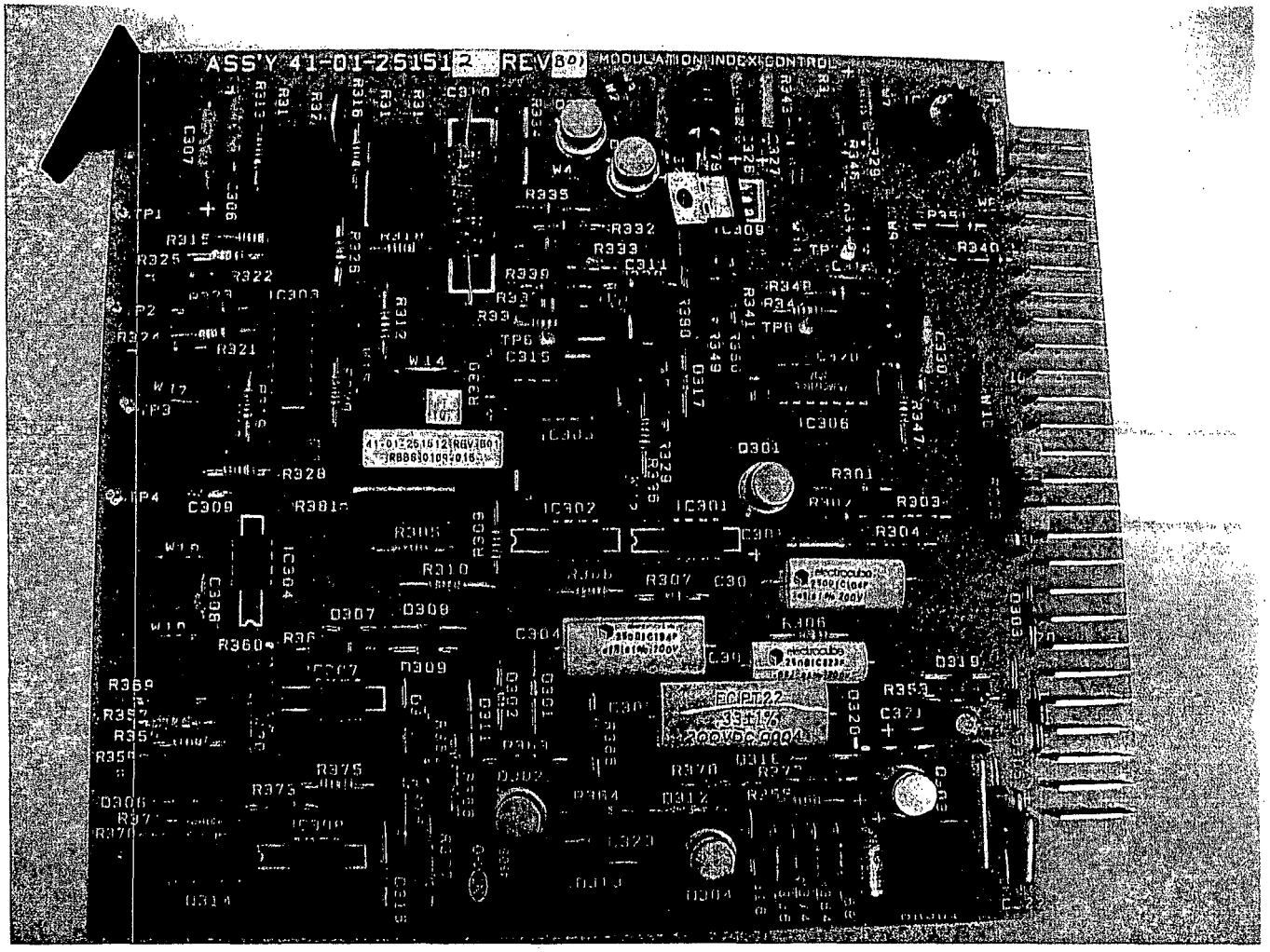
Attachment 1
Page 1 of 2
INSPECTION INSTRUCTION FOR
R336 AND R347 LOCATION ON THOMAS AND BETTS P/N: 41-01-251512

1. See figure 1 below for a picture of the Cyberex logic power supply board, p/n: 41-01-251512.

2. Inspect the board for the correct location of the resistor leads as shown in figure 2.

3. If resistor lead is installed as shown in figure 3 then notify UCI and an RMA will be issued for the repair.

Figure 1, Modulation Index Control Card P/N: 41-01-251512



INSPECTION INSTRUCTION FOR
R336 AND R347 LOCATION ON THOMAS AND BETTS P/N: 41-01-251512

Figure 2, Correct location of resistor leads

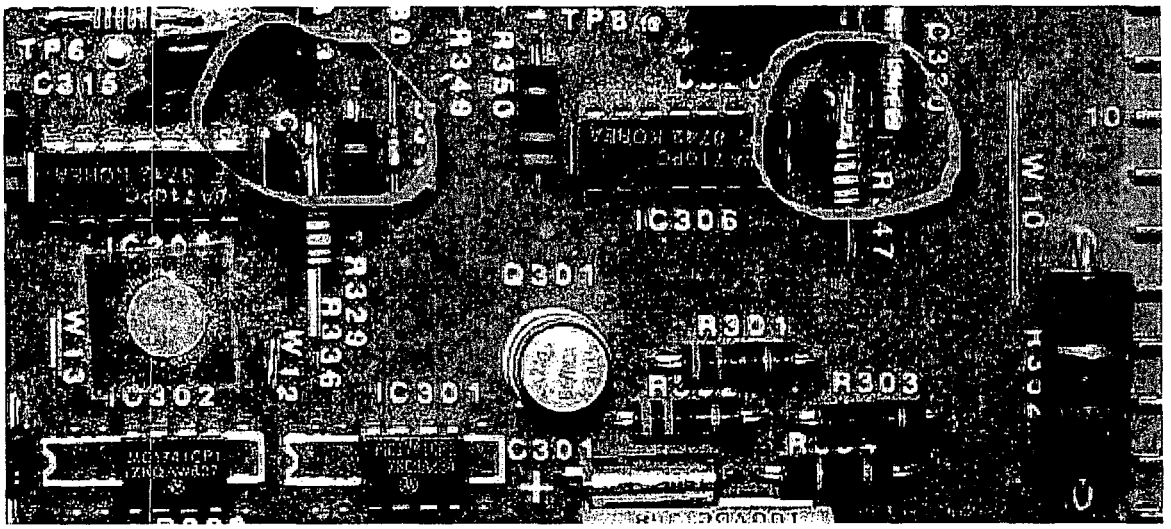


Figure 3, Incorrect location of the resistor leads