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PROGRAM INFORMATION BULLETIN NO. P09-22



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SUBJECT: Re-Issue of P05-21 - Non-Conforming Circuit Boards  
Used in GAI-Tronics GM1000A Ground Wire Monitors

**Who needs this information?**

Underground mine operators, Mine Safety and Health Administration (MSHA) enforcement personnel and repair shops need this information.

**Why is MSHA issuing this Program Information Bulletin?**

This Program Information Bulletin (PIB) is being issued because MSHA has found evidence that some GAI-Tronics Model GM1000A Ground Wire Monitors contain non-conforming circuit boards that do not meet the GM1000A Acceptance 030380FE criteria. These boards may not operate as intended. While the acceptance criteria are not an MSHA "approval," it provides assurance to the owner of the ground wire monitors that the equipment is safe to use in underground gassy mines.

**What needs to be done?**

MSHA recommends that all non-conforming boards be removed from service and be replaced with circuit boards that meet the GM1000A Acceptance 030380FE criteria. Circuit boards that meet this acceptance criteria can be identified through the model number, WB3528B, plated on the bottom (trace side) of the circuit board (Fig.1) and WBA3528B screened on the top (component side) of the circuit board [Fig. 2(a)]. There may be an additional letter at the end of the model number designating the circuit board revision. In addition, there is a test point pin (TP1) [Fig. 2(b)] in the center of the circuit board.

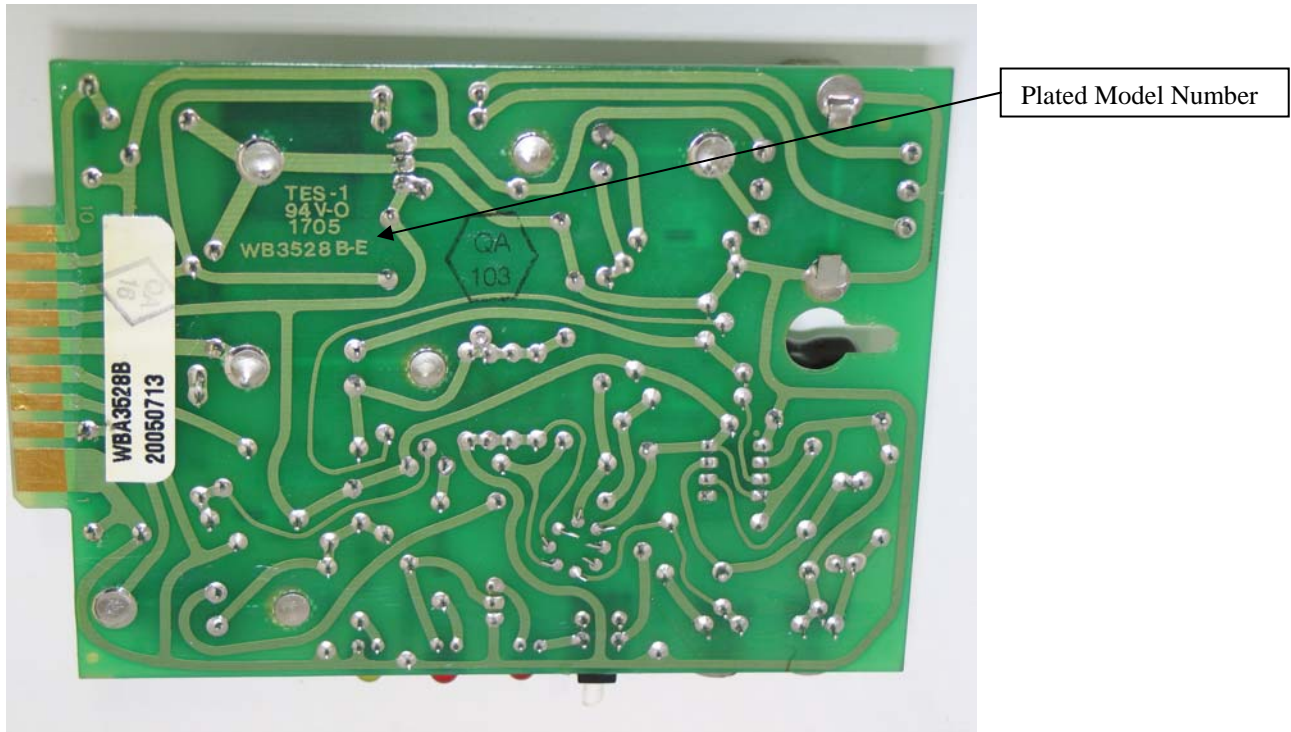


Figure 1 - Accepted Circuit Board Trace Side (Bottom)

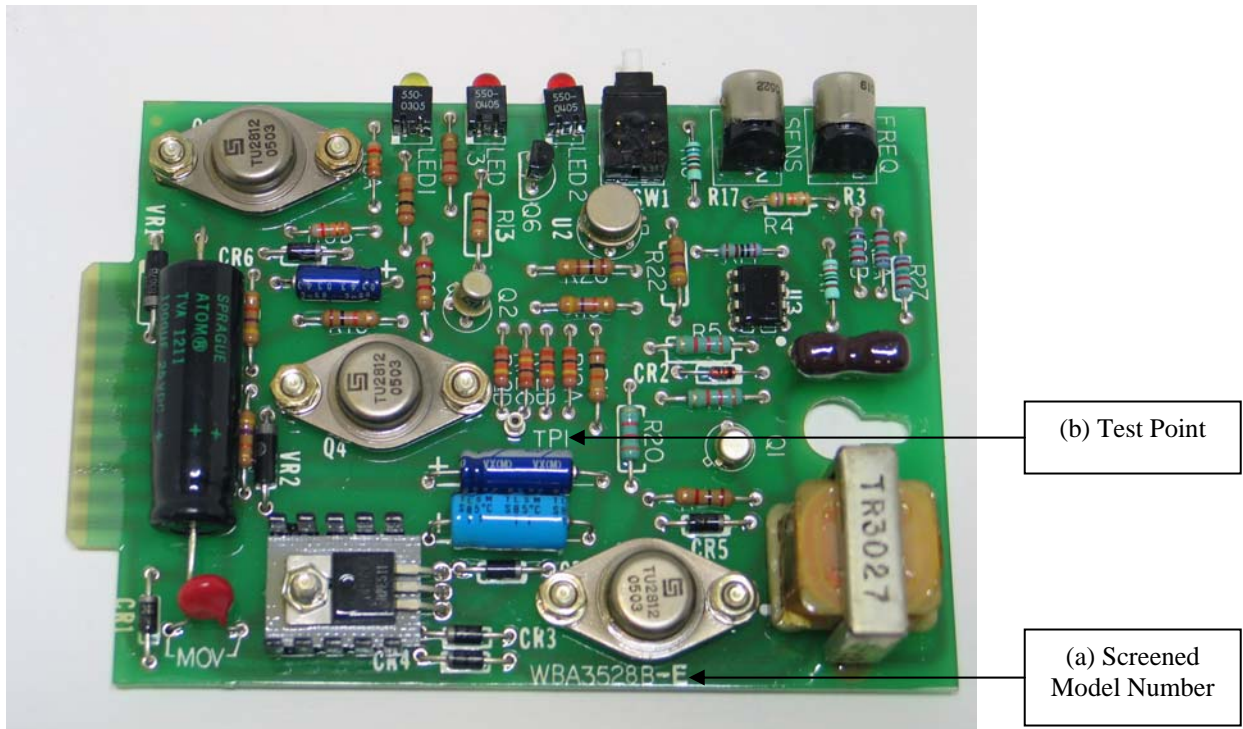


Figure 2 - Accepted Circuit Board Component Side (Top)

Non-conforming circuit boards will not have a model number identification on either side of the circuit board as shown in Figure 3 – Non-conforming Circuit Board Component Side and Figure 4 – Non-conforming Circuit Board Trace Side. The non-conforming circuit boards as shown in Figure 3 will not have the identification screening shown in Figure 2 on the component side of the circuit board. The non-conforming circuit board will not have the test point pin shown in Figure 2 – Accepted Circuit Board and labeled in Figure 3 – Non-conforming Circuit Board. Another identifying characteristic of the non-conforming circuit board is the transposition of diode VR2 and resistor R15. Non-conforming circuit boards will have diode VR2 closer to the edge connector of the circuit board as shown in Figure 5a – Non-conforming Circuit Board instead as in Figure 5b – Accepted Circuit Board.

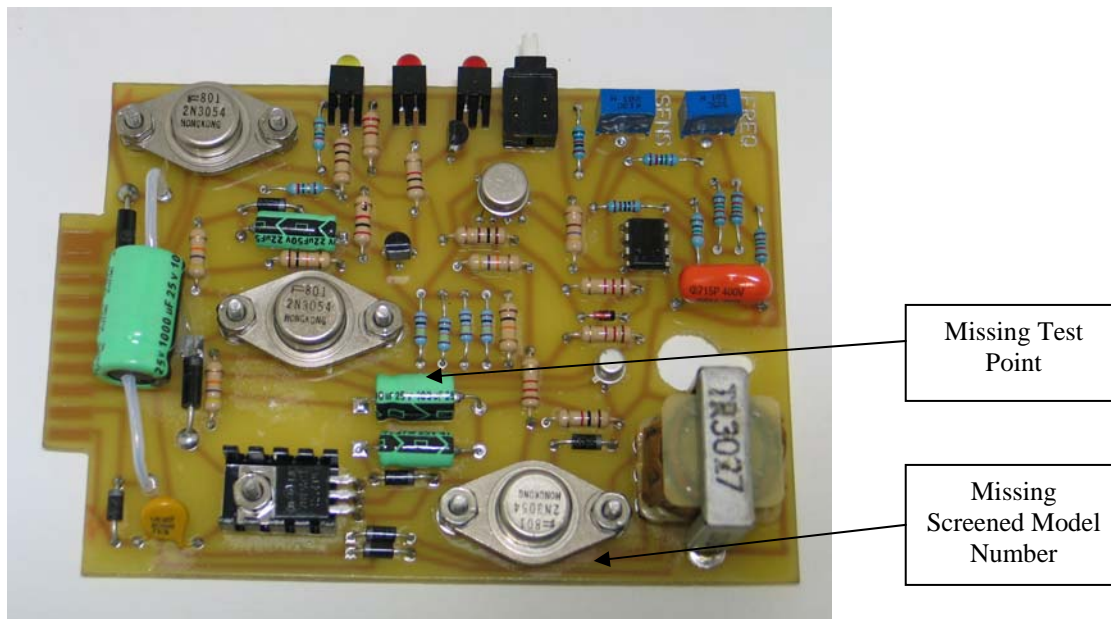


Figure 3 – Non-conforming Circuit Board Component Side (Top)



Figure 4 - Non-conforming Circuit Board Trace Side (Bottom)

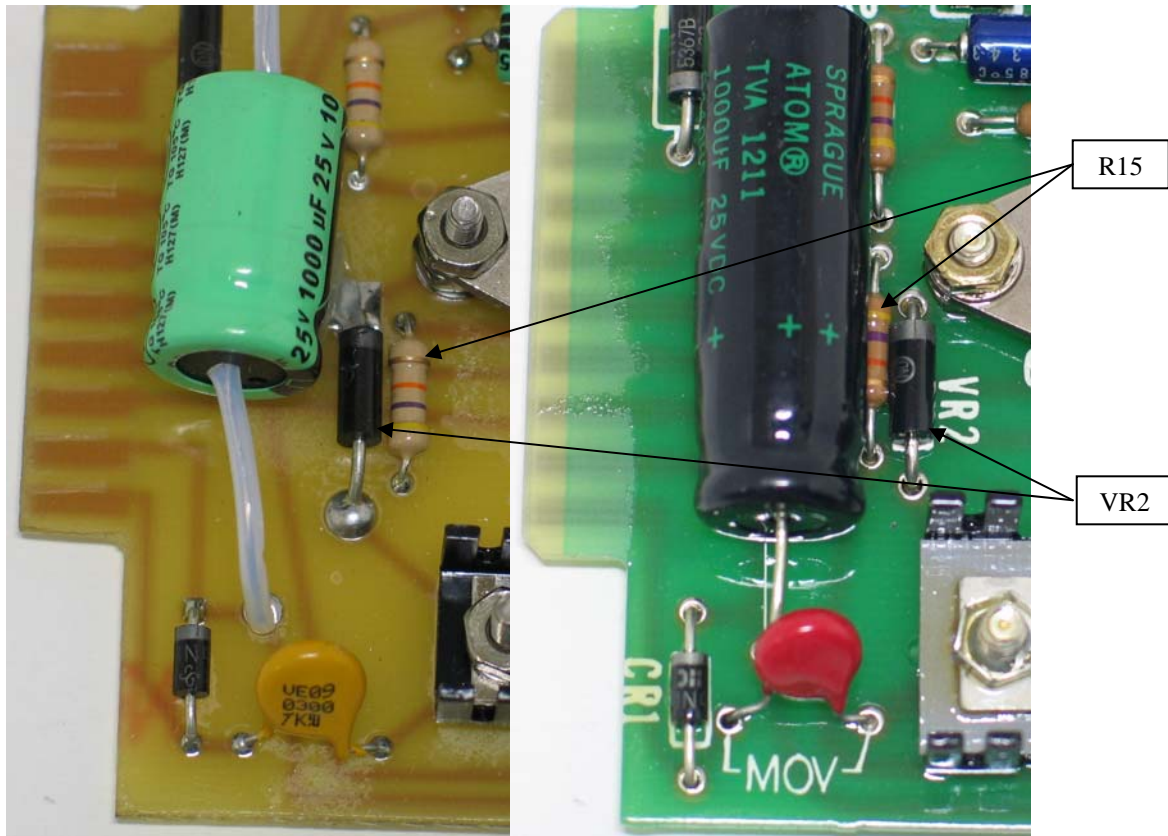


Figure 5a - Non-conforming Circuit Board

Figure 5b - Accepted Circuit Board

**What is the background of this PIB?**

MSHA has discovered non-conforming circuit boards in GAI-Tronics GM1000A Ground Wire Monitors. The manufacturer of these non-conforming circuit boards is not known. After examination of the non-conforming circuit board, it has been determined that these circuit boards contain components that are not listed in the GM1000A Acceptance and therefore do not meet the acceptance criteria for the ground wire monitor. Because these circuit boards use non-conforming components and there appears to be no manufacturing controls with respect to the non-conforming boards, each circuit board may be built with different components giving each board a different operating characteristic. As a result, these circuit boards could pose an electrical danger which could cause serious or fatal injuries.

**What is the authority for this PIB?**

Federal Mine Safety and Health Act of 1977; 30 C.F.R. §§ 75.803 and 75.902

**Is this PIB available on the Internet?**

This PIB may be viewed on the World Wide Web by accessing the MSHA home page (<http://www.msha.gov>) and choosing "Compliance Info" and "Program Information Bulletins."

**Who are the MSHA contact persons for this PIB?**

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