



RF PRODUCTS
6476 Bounty Court
San Diego, CA, USA
Tel: 1-619-583-2024 Fax: 1-619-583-2140
E-Mail: mail@rfproducts-rdf.com

SB-001

Service Bulletin

INSTALLING MODIFICATION WORK ORDER MWO-01/02 ON THE DTI-100A DF BEARING SYNTHESIZER

MWO-01/02 are user-installable modifications to the DTI-100A DF Bearing Synthesizer. MWO-01 provides additional protection against possible damage caused by output short-circuits. MWO-02 remedies a possibly defective output switch that can result in intermittent bearings.

About RF Products Service Bulletins...

RF Products Service Bulletins are short advisories intended to provide users with the benefits of product or procedural enhancements to RF Products equipment and software. These bulletins provide specific information regarding fixes, enhancements, and improved operating procedures. Where applicable, user procedures are provided for installing applicable Modification Work Orders (MWOs).

About Adobe Acrobat...

RF Products Service Bulletins are published as Adobe Acrobat portable documentation files (PDFs). Although documents published in PDF format can be viewed on a wide variety of computer platforms and operating systems, they require that the Adobe Acrobat Reader be installed on the recipient's computer. This reader is free and a suitable version for almost any computer operating system can be downloaded from Adobe's web site at www.adobe.com.

If the print quality of a Acrobat PDF document is unsatisfactory, review the following guidelines:

1. If the printer is Post Script compatible, use the Post Script print driver if possible. This usually results in best print quality.
2. Use the most current version of the Acrobat Reader (V4.0) if available. This version contains specific improvements for better graphics printing quality and is strongly recommended. It also provides improved print quality for the large number of printers employing HP PCL print drivers.
3. Other specific recommendations made by Adobe for non Post Script printers are to select the raster (rather than vector) graphics mode and to disable dithering. Note that these selection options are not available for all printers, however. Furthermore, since these recommendations have not been verified by RF Products, users should experimentally adjust printer driver settings for best results for their systems.

Reported anomalies other than poor graphics quality include vertical lines to the immediate right of printed graphics images, font mismatches, and text deformatting. These all result from yet-to-be-resolved deficiencies in Adobe Acrobat itself. All Acrobat documents produced by RF Products have been carefully mastered for good screen and print quality *as viewed on RF Products' computer system*.

I SB-001 OVERVIEW

A problem has been identified with the DTI-100/DTI-100A DF Bearing Synthesizer whereby a direct short-circuit to ground from the **HIGH AUDIO OUT** phono connector can result in damage to the output tone amplifier. Although the problem appears not to occur in most units, it nonetheless warrants general corrective action.

The required corrective action is embodied in Modification Work Order MWO-01. MWO-01 is a simple procedure whereby the DTI-100A is modified by adding a 100 ohm resistor in series with the **HIGH AUDIO OUT** connector. This procedure is presented below.

MWO-01 is applicable to all DTI-100/DTI-100A DF Bearing Synthesizers having serial numbers 057 and below. Units with serial numbers 058 and above already incorporate this improvement.

Another problem has been identified relevant to the **BREAK** switch. This momentary switch temporarily opens the output circuit to disable bearings. A problem has emerged with some switches in that continuity can become intermittent in the normally-closed position, thereby resulting in intermittent bearings.

The required correction action is to either 1) replace the switch with one of better quality, or 2) bypass the switch. The latter approach is more convenient in the majority of applications where the **BREAK** switch is not required. MWO-02 is applicable to all DTI-100/DTI-100A DF Bearing Synthesizers.

We strongly recommend that the User Functional Test Procedure presented in Appendix C of the DTI-100A Operator's Manual be conducted prior to implementing MWO-01 and MWO-02. By doing so, users can repeat this test following MWO installation to verify that the unit has not been inadvertently damaged in the process.

Users preferring not to implement MWO-01 on their own may alternatively return the unit to the factory for retrofit and recalibration. This will be done free of charge for units still within their 1-year warranty period.

II MWO-01 INSTALLATION PROCEDURE

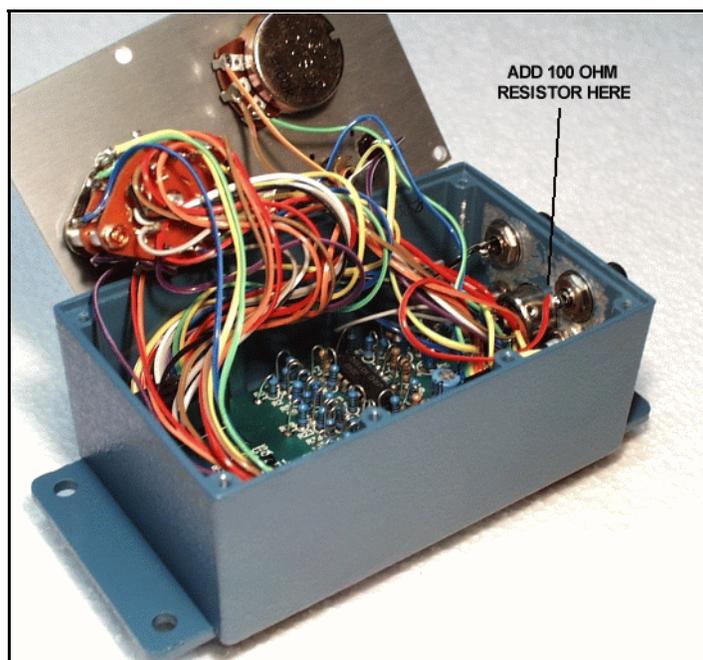
Installing MWO-01 is a straightforward procedure requiring only basic electronic shop tools. To install MWO-01, proceed as follows:

- 1__ Set the unit in its normal upright position on the bench and remove the four 4-40 x 1/4" Phillips panel screws using a #2 Phillips screwdriver. Note: Some earlier units may employ eight rather than four panel screws.
- 2__ Carefully lift the panel straight up and then gently push it to the left so that it overhangs the left edge of the box as illustrated below.

*** CAUTION ***

Handle the panel carefully so as to avoid breaking any wires.

- 3__ Unsolder the red wire from the **HIGH AUDIO OUT** phono connector (see illustration) and clear excess solder from the connector pin hole.
- 4__ Obtain a 100 ohm 1/4 watt 5% carbon film resistor and trim both leads to 1/4". Using a long-nose plier, bend a hook in each lead.
- 5__ Place either lead of the 100 ohm resistor through the connector pin hole and then solder the lead to the pin.



- 6__ Slide a 1/2" length of heat-shrink tubing onto the red wire. The tubing diameter should be sufficiently wide to fit over the 100 ohm resistor. Note: Omit this step if heat-shrink tubing and a heat gun are not available.
- 7__ Bend a hook in the exposed lead of the red wire, hook it onto the unconnected end of the 100 ohm resistor, and then solder this connection. If necessary, first cut the exposed lead of the red wire to remove excess solder and strip off 1/4" of insulation.
- 8__ Slide the heat-shrink tubing over the 100 ohm resistor so that it completely covers the resistor body and the soldered connection to the red wire, then shrink the tubing to a comfortable fit using a heat gun. Note: If heat-shrink tubing is not available, substitute electrical tape instead.
- 9__ Reinstall the panel and secure it using the 4-40 x 1/4" Phillips screws.

*** CAUTION ***

Handle the panel carefully so as to avoid breaking any wires. If excessive force is required to reinstall the panel, check the wire positions to clear any blockages. Also be sure that no wires are pinched between the panel and the box rim or screw mounting pedestals.

If the recommended User Functional Test Procedure was conducted prior to implementing MWO-01, repeat this test (after installing MWO-01 below as applicable) to confirm that the unit has not been inadvertently damaged during the above procedure.

III MWO-02 INSTALLATION PROCEDURE

Installing MWO-02 is a straightforward procedure requiring only basic electronic shop tools. To install MWO-02, proceed as follows:

- 1__ Set the unit in its normal upright position on the bench and remove the four 4-40 x 1/4" Phillips panel screws using a #2 Phillips screwdriver. Note: Some earlier units may employ eight rather than four panel screws.
- 2__ Carefully lift the panel straight up and then gently push it to the left so that it overhangs the left edge of the box as illustrated below.

*** CAUTION ***

Handle the panel carefully so as to avoid breaking any wires.

- 3__ Locate the **BREAK** switch. If the **BREAK** function is required, unsolder the two wires from the switch terminals, remove the switch, and replace it with a similar unit of known good quality (the panel hole size is 9/32"). Resolder the wires to the new switch terminal (polarity is unimportant).
- 4__ If the **BREAK** function is not required, simply solder a short uninsulated jumper wire between the two existing **BREAK** switch terminals.
- 5__ Reinstall the panel and secure it using the 4-40 x 1/4" Phillips screws.

*** CAUTION ***

Handle the panel carefully so as to avoid breaking any wires. If excessive force is required to reinstall the panel, check the wire positions to clear any blockages. Also be sure that no wires are pinched between the panel and the box rim or screw mounting pedestals.

If the recommended User Functional Test Procedure was conducted prior to implementing MWO-02, repeat this test now to confirm that the unit has not been inadvertently damaged during the above procedure.

IV MISCELLANEOUS

Performance of the DTI-100A is not adversely affected in any respect as a result of incorporating MWO-01, with all unit specifications remaining unchanged.

If the unit has already been damaged as the result of a **HIGH AUDIO OUT** short-circuit prior to installation of MWO-01, the remedy is to replace U1 (the LM324 integrated circuit located near the edge of the circuit board between J2 and J3). This should be attempted only by experienced electronic assembly or technical personnel. Extreme caution should be exercised to avoid breaking wires or causing other damage to the unit.

If the **BREAK** switch is bypassed in the course of installing MWO-02, the **BREAK** switch will be non-operational.
