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SB-003

Service Bulletin

INSTALLING MODIFICATION WORK ORDER MWO-04 ON THE DFP-1000 DF BEARING PROCESSOR AND DFR-1000 DUAL-BAND VHF/UHF DF RECEIVER

MWO-04 is a user-installable modification to the DFP-1000 DF Bearing Processor and DFR-1000 Dual-Band VHF/UHF DF Receiver that disables the PLL and thereby prevents operators from inadvertently activating it.

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I SB-003 OVERVIEW

The DFP/DFR-1000 was originally designed in 1991 with a front-panel selectable PLL (phase-locked loop) coherent demodulator that was intended to improve DF performance under some signal conditions. Although the PLL functioned as intended, it was confusing to most operators, required careful tuning, and in general was not especially useful for most DF applications. Furthermore, if the PLL was inadvertently activated, poor DF performance could result for certain signal formats or if there was a slight tuning error.

In response to user feedback, this feature was eliminated in the subsequent DFP/DFR-1000A that replaced the DFP/DFR-1000 in 1996 and its associated front-panel control removed. Although the front-panel **PLL** control can simply be left in its **OFF** position for existing DFP/DFR-1000s to avoid most of the problems, the control can still be inadvertently activated as discussed above. MWO-04 is a very simple modification that prevents the PLL from activating regardless of the **PLL** control setting.

MWO-04 is applicable to all DFP-1000 DF Bearing Processors having serial numbers 099 and below and all DFR-1000 DF Receivers having serial numbers 119 and below. *Since units with higher serial numbers are DFP/DFR-1000As that do not contain PLLs, MWO-04 should not be applied these units.*

We strongly recommend that the DFR-1000 Dual-Band VHF/UHF DF Receiver User Functional Test Procedure or DFP-1000 DF Bearing Processor User Functional Test Procedure (whichever is appropriate) be conducted prior to implementing MWO-04. By doing so, users can repeat this test following MWO installation to verify that the unit has not been inadvertently damaged in the process. These procedures are available in PDF format from the "DF Applications Literature" page of our web site).

MWO-04 should not be attempted on DFP-1000s supplied without IF boards. These units are designated by the "/NIF" suffix on the model number printed on their serial number labels.

Users preferring not to implement MWO-04 on their own may alternatively return the unit to the factory for retrofit and recalibration. In this event, please contact us in advance to make the necessary arrangements.

II MWO-04 INSTALLATION PROCEDURE

Installing MWO-04 is a straightforward procedure requiring only basic electronic shop tools. No parts are required other than a short length of bare wire. To install MWO-04, proceed as follows:

- 1__ Disconnect the DFP/DFR-1000 from its power source. Set the unit upside down on the bench and remove the four #6 stainless-steel screws securing the outer cabinet to the chassis.
- 2__ Remove the chassis from the outer cabinet by sliding it out backwards through the

cabinet rear opening.

- 3__ Set the chassis upright on the bench so that the front-panel faces toward the right (this exposes the IF board).
- 4__ Remove the two #6 zinc-plated screws (and their lockwashers) securing the PC board to its support rail and turn the DFP/DFR-1000 so that it is resting on its right side (CRT down).
- 5__ Fold-out the PC board so that it is resting on the bench (this exposes the component side).
- 6__ Using Figure 1 as a guide, locate R125 (a stand-up 1/8 watt 10k stand-up resistor with a silk-screen label). Using a long-nosed plier, remove this resistor by gently bending it side-to-side until its leads break. Carefully inspect the remaining wire lead stubs to verify that they are not shorting each other or adjacent component pads or leads.
- 7__ Using Figure 1 as a guide, locate Q23 (a 2N4124 plastic transistor with a silk-screen label located to the right of U16). Using a long-nosed plier, remove this transistor by gently bending it side-to-side until its leads break. Carefully inspect the remaining wire lead stubs to verify that they are not shorting each other or adjacent component pads or leads.
- 8__ Using Figure 1 as a guide, locate JP5 and JP6. Cut the wire bridging JP5's two pads and solder an uninsulated wire jumper between the two pads of JP6. Carefully inspect JP5 to verify that the wire is completely cut and the remaining stubs not shorting each other or adjacent component pads or leads. Trim the protruding wires from the circuit side of the board underneath JP6 as required.

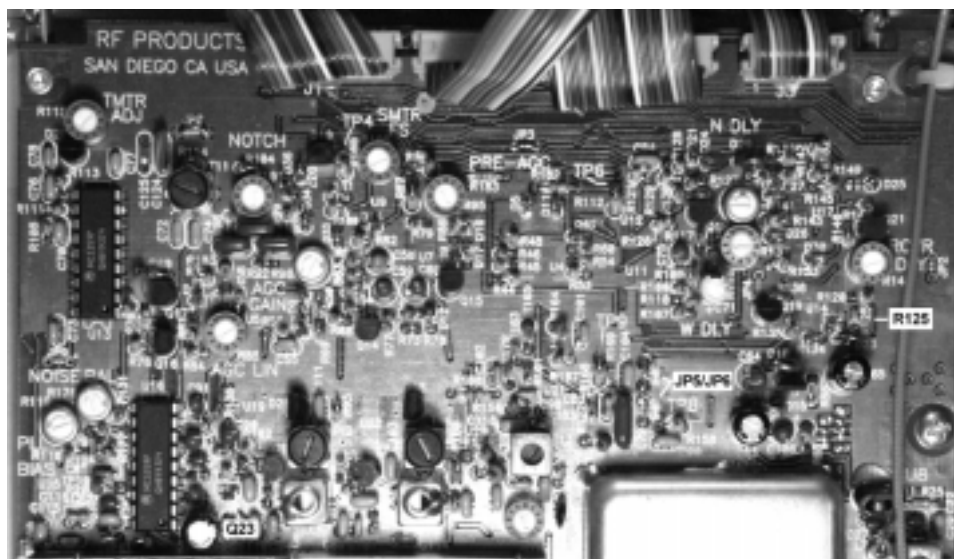


Figure 1 - Modified DFP/DFR-1000 IF Board (component side)

- 9__ Fold the board back into the DFP/DFR-1000 chassis and secure it using its two #6 zinc-plated screws and lockwashers.
- 10__ Reinstall the DFP/DFR-1000 chassis back into its outer cabinet, sliding the unit forward

into the cabinet rear opening.

- 11__ Secure the cabinet to the chassis using the four #6 stainless-steel screws.
- 12__ Using a laundry marking pen or other indelible writing instrument, mark "MWO-04" in a prominent location on the rear-panel.
- 13__ Conduct the appropriate User Functional Test Procedure to confirm that the unit has not been inadvertently damaged during the above procedure.
- 14__ Verify that the unit works properly regardless of the setting of the **PLL** control. Performance should be identical with the **PLL** control set to either **OFF** or **ON**. Also, check the **SIGNAL STRENGTH** meter to verify that it functions normally with the **PLL** control set to either **OFF** or **ON**.
- 15__ Verify that the **SIGNAL STRENGTH** meter functions as a zero-center tuning meter when the **PLL** control is set to **TUNE**.
