



## **Field Modification FM25013**

### **VS-TC and VS-TC-HP: Upgrading Firmware to Support Dummy Load Interlock Function**

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# FM25013 – VS-TC and VS-TC-HP: Upgrading Firmware to Support Dummy Load Interlock Function

## FIELD MODIFICATION

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### 1 INTRODUCTION

This document provides instructions for Nautel customers or their appointed agents to upgrade the firmware of the VS-TC or VS-TC-HP Transfer Controller.

#### 1.1 Reason for Modification

Existing versions of the VS-TC and VS-TC-HP Transfer Controllers do not have a dummy load interlock function. This modification upgrades the firmware and essentially replaces the 'maintenance mode select' input with a 'dummy load interlock' input pair.

This input allows the external dummy load interlock circuit status to control the operation of the standby transmitter based on its state. The standby transmitter is safe to operate when the interlock circuit is intact (shorted). The standby transmitter is inhibited when the interlock circuit is not intact (open circuit).

#### **NOTE**

*Once this modification is complete, it is the user's responsibility to account for the dummy load interlock function. For systems that do not have a dummy load with an interlock, you must add a shorting jumper between A1J5-10 and A1J5-11 on the rear panel **REMOTE I/O** connector. For systems that have a dummy load with an interlock function, connect the interlock as described in the replacement Technical Instruction Manual provided in the link in paragraph 1.8. Until the applicable step is complete, a **Dummy Load Intlk Open** alarm will appear in the serial menu **Show Faults** list and the RF Routing LED for the transmitter routed to the dummy load will blink off-on repeated, and the standby transmitter will not be permitted to operate in maintenance mode.*

#### 1.2 Equipment Affected

This modification affects all VS-TC (Nautel Part # NAX271, NAX271A and NAX271B) and VS-TC-HP (Nautel Part # NAX280 and NAX280A).

##### 1.2.1 Minimum Software Requirement

There is no minimum software version requirement. The firmware update in this procedure will make the software version equivalent to VS-TC SW 2.0.0.

#### 1.3 Responsibility for Implementation of Procedure

This modification is written for qualified maintenance personnel who are familiar with operating and upgrading firmware on the VS-TC or VS-TC-HP.

#### 1.4 Scheduling

Implement this modification as soon as the maintenance schedule permits. The transmitter system will be 'off-air' during this procedure.

#### 1.5 Manpower Requirements

This procedure requires one (1) person approximately 30 minutes to complete.



## 1.6 Special Tools/Test Equipment, Download Requirements

See also the Requirements in the 'Upgrading Firmware' procedure in the 'Operating Instructions' section of the VS-TC or VS-TC-HP Technical Instruction Manual.

- USB cable (Nautel Part # UB98, provided in the VS-TC or VS-TC-HP ancillary kit)
- PC or laptop with a terminal program installed such as PuTTY or Teraterm (this procedure assumes PuTTY is installed)
- latest version of NCodeUploader.exe installed. If necessary, download it from: <http://www3.nautel.com/Utilities/NCodeUploader/>
- VS-TC\_NAPC166\_V2.0.0.3.hex file from [http://www3.nautel.com/pub/VS-TC\\_Series/VS-TC\\_SW\\_2.0.0/](http://www3.nautel.com/pub/VS-TC_Series/VS-TC_SW_2.0.0/)

## 1.7 Material Required

Table 1 lists the items in the Field Modification Kit to aid in completing this procedure.

**Table 1:** Field Mod Kit, VS-TC and VS-TC-HP - Upgrading Firmware to Support Dummy Load Interlock Function (Nautel Part # 230-5582)

Component	Qty	Part #/Description
FM25013	1	Documentation
230-5583	1	Label, VS-TC Software
230-5119	1	Label, Dummy Load Interlock, VS-TC

## 1.8 Publications Affected

Several sections of the VS-TC and VS-TC-HP Technical Instruction Manuals are impacted by the addition of the dummy load interlock function. Obtain a replacement Technical Instruction Manual from:

[http://www3.nautel.com/pub/VS-TC\\_Series/VS-TC\\_SW\\_2.0.0/Handbooks/](http://www3.nautel.com/pub/VS-TC_Series/VS-TC_SW_2.0.0/Handbooks/)

## 1.9 Identification of Modified Assemblies/Parts

Identifying modified assemblies informs future maintainers of the current configuration. Mark the rear panel of the VS-TC or VS-TC-HP with "FM25013" next to the serial number label (see Figure 1) using indelible ink to indicate it has been modified.

### NOTE

*The software label on the rear panel of the VS-TC or VS-TC-HP will also be updated to reflect the firmware update performed in this procedure.*

## 2 UPGRADING FIRMWARE

Perform the following procedure to upgrade the firmware on the VS-TC's transfer control PWB:

- (a) Download the VS-TC\_NAPC166\_V2.0.0.3.hex file from [http://www3.nautel.com/pub/VS-TC\\_Series/VS-TC\\_SW\\_2.0.0/](http://www3.nautel.com/pub/VS-TC_Series/VS-TC_SW_2.0.0/) to the laptop/PC.

### NOTE

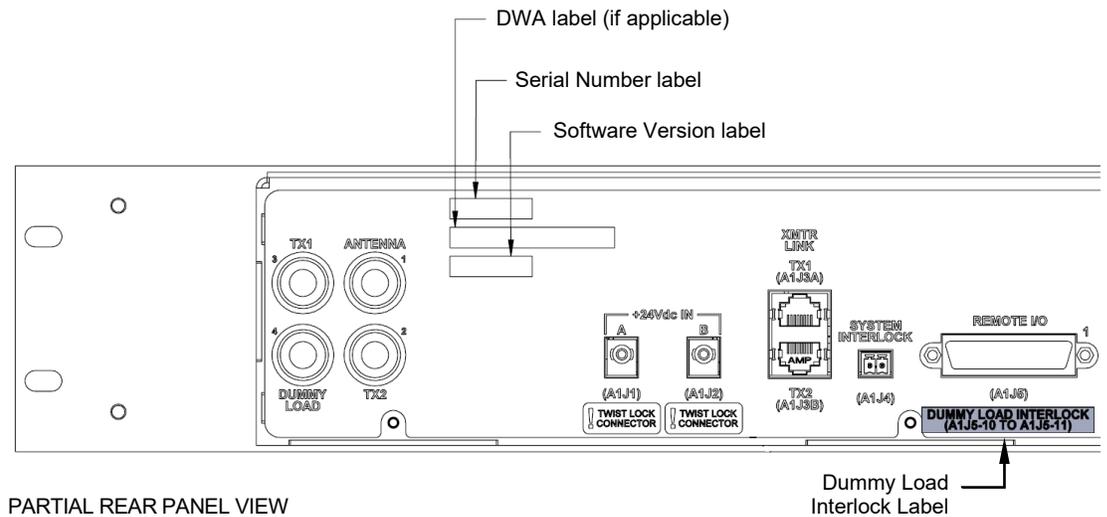
*The transmitter system will be 'off-air' during the firmware upgrade in step (b).*

- (b) Perform the 'Upgrading Firmware' procedure in the 'Operating Instructions' section of the VS-TC or VS-TC-HP Technical Instruction Manual. Note that in step 14 of the procedure, you are browsing for the file downloaded in step (a).



### 3 APPLYING SOFTWARE VERSION AND DUMMY LOAD INTERLOCK LABELS

- (a) Obtain the VS-TC software label (Nautel Part # 230-5583) and the Dummy Load Interlock label (230-5119) from the Field Modification kit.
- (b) Peel off the backing of the 230-5583 label, indicating 'VS-TC SW 2.0.0', and place it over the existing software label on the rear panel of the VS-TC or VS-TC-HP (see Figure 1 for location).
- (c) Peel off the backing of the 230-5119 label and place it below the **REMOTE I/O** connector (A1J5) on the rear panel of the VS-TC or VS-TC-HP (see Figure 1 for location).



**Figure 1: Location of Software and Dummy Load Interlock Labels (VS-TC shown for reference)**

If you have any questions or require additional assistance, please contact Nautel's Customer Service Department at:

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