

## INSTRUCTION SHEET D-3971-1 Voltage/Tachometer Follower Kit Model 14C223

The equipment described below should be installed only by qualified electrical maintenance personnel familiar with the construction and operation of the equipment and the hazards involved.

### DESCRIPTION

The Voltage/Tachometer Follower Kit allows the FlexPak Plus and MinPak Plus to be controlled **automatically** in response to a speed reference generated by a tachometer connected to an entirely separate machine unit. Ideal applications include automatic control systems where a "second" slave drive must closely follow the speed of a master drive, or machine. (Refer to Figure 1).

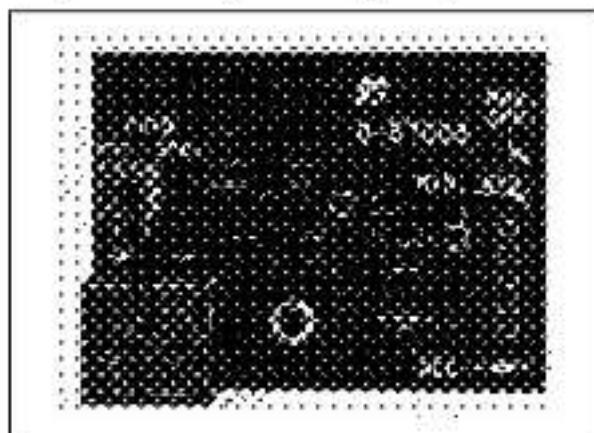


Figure 1 - Voltage/Tachometer Follower

This modification kit was originally designed to be used with FlexPak<sup>®</sup>/MinPak<sup>™</sup> D-C drives and has been adapted to mount directly to the HR2000 Interface Kit (M/N 3HI2000). See D5-3039 Instruction Manual for instructions that are specific to the HR2000 Interface Kit.

The Kit is designed to accept an input signal of 25 to 250 VDC to obtain maximum speed. (The maximum permissible input voltage is 250 VDC.) The input impedance between terminals is approximately 80,000 ohms. Therefore, 100 VDC draw approximately 1.25 mA current from the voltage source.

The Kit contains the Module and a mounting screw. Although the FlexPak Plus and MinPak Plus can use the Kit for exclusive automatic speed control, if manual override control is needed, an AUTO/MANUAL selector switch must be used on the Operator Control Station. In the MANUAL position, the drive responds to the SPEED Potentiometer setting. In AUTO, it follows **only** the external signal

and does not respond to manually input speed change commands.

The user must also supply required lengths of the specified signal wire. No other equipment is necessary although some changes may be necessary on the Module.

### DANGER

**DO NOT INSTALL THIS MODIFICATION KIT WITH POWER APPLIED TO THE CONTROLLER UNIT AND CABINET. DISCONNECT AND LOCK OUT INCOMING POWER BEFORE ATTEMPTING SUCH INSTALLATION. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.**

1. Orient the Voltage/Tachometer Follower Module over the REFERENCE area on the Regulator Module, just over the five pins. (Refer to Figure 2). Lower it so that the pins pass through the guides on the Module. (It may be necessary to remove a protective plastic cap from the pins.) Secure the Module with the screw.
2. Connect the wires from the tachometer to the terminal strip on the Module. Plus (+) is on the left, minus (-) on the right. Do not strip more than  $\frac{1}{8}$  inch (3 mm) of insulation off since shorts occur at exposed points. Maintain the twisted character as long as possible.
3. If an AUTO/MANUAL selector switch is used, it is necessary to remove jumper J1 on the Module. (Refer to Figure 3.) If, however, the controller is designed to run automatically **without** manual speed control, J1 remains in place. In addition, remove jumper J4 on the Regulator Module if an AUTO/MANUAL selector switch is used.
4. This Step assumes that the complete drive system, including the controller, has been successfully started up and debugged. (If this has not been accomplished, refer to the start up instruction section of your Controller Instruction Manual.)

It is now necessary to carry out a power-on test. Start the drive and place it in the AUTO mode, if so equipped.

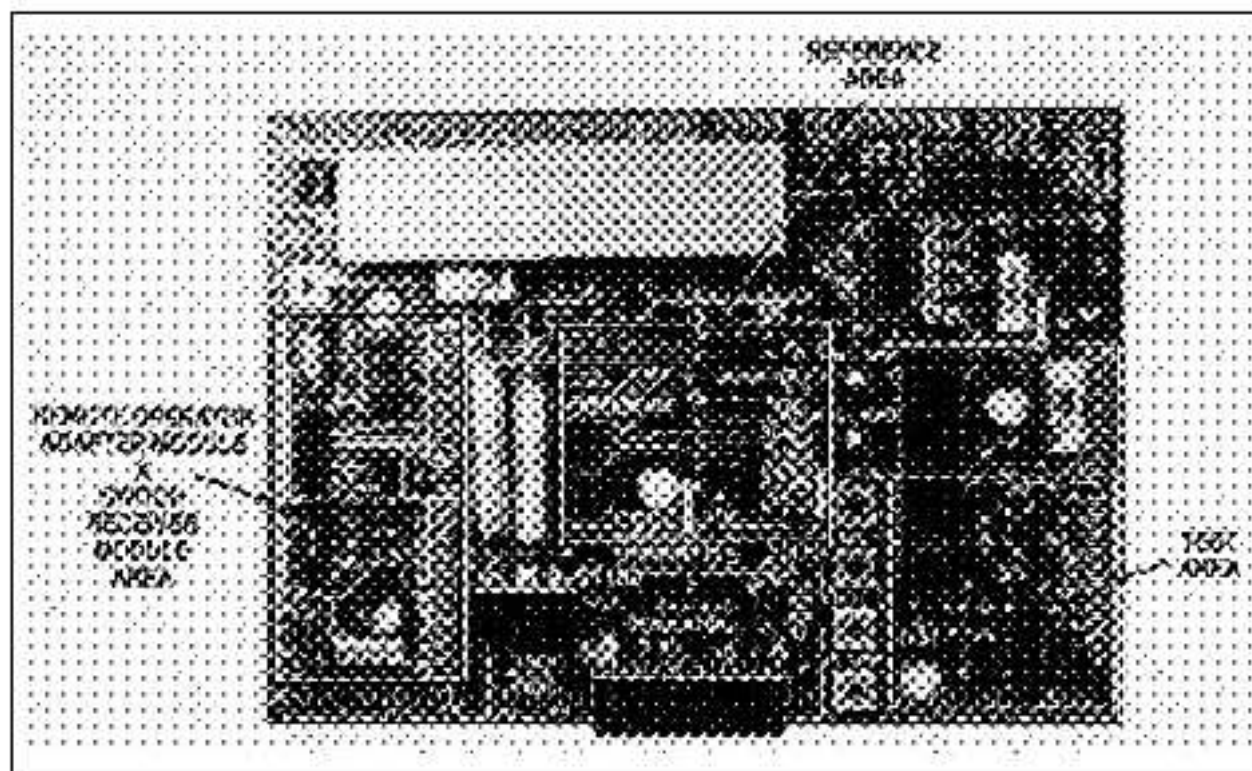


Figure 2 – Regulator Module Kit Locations



Figure 3 – Jumper J1

With a small, insulated screwdriver, adjust the Auto Speed Calibration Potentiometer on the Tachometer/Follower Module until the drive reaches the desired speed in relation to the reference input signal being received.

#### WARNING

THE KIT IS INTENDED TO OPERATE AT A PREDETERMINED MINIMUM SPEED UNLESS DISCONNECTED FROM THE POWER SOURCE. IF THE APPLICATION REQUIRES ZERO SPEED OPERATION WITHOUT SUCH DISCONNECTION, THE USER IS RESPONSIBLE FOR ASSURING SAFE CONDITIONS FOR OPERATING PERSONNEL BY PROVIDING GUARDS, AUDIBLE OR VISUAL ALARMS, OR OTHER DEVICES. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN BODILY INJURY.

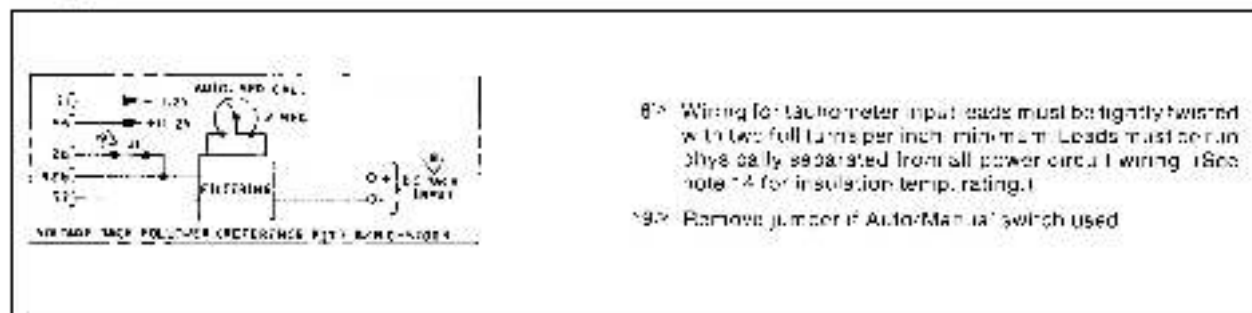


Figure 5 – Voltage/Tachometer Follower Kit Schematic

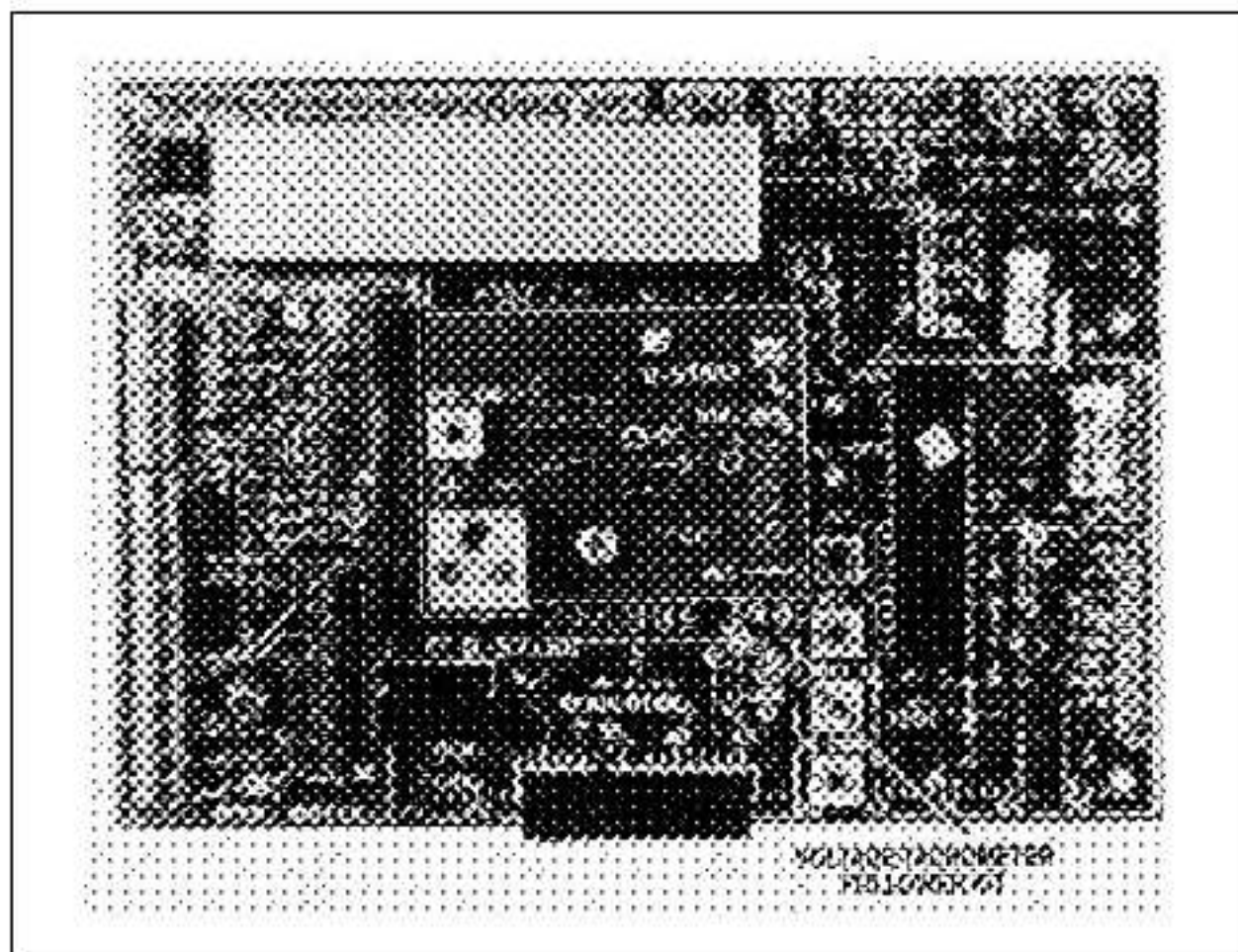


Figure 4 – Voltage/Tachometer Follower Kit Mounted To Regulator Module

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