

## SECTION 1: INTRODUCTION

### 1.1 GENERAL INFORMATION

The Trip Unit Test Kit is used to test and verify the pickup levels and time delay settings of a breaker's Trip Unit. The original Test Kits were developed to test the Amptector Trip Units of the DS Breaker. With the introduction of microprocessor based Trip Units (Digitrip, Optim, etc), modifications to the original Test Kits (-G01 and -G02) were required to accommodate lower power requirements of the microprocessor. These modifications, in combination with various Test Kit Adapters, allow maintenance personnel to utilize the Test Kit they already own when testing the newer generations of Trip Units.

The Test Kit Adapter (Style # 8779C02G04) for the Magnum DS Digitrip Trip Units, converts the 11-pin banana plug on the Test Kit, to a 14-pin plug. This 14-pin plug, plugs into the Trip Unit Test Port, located on the face of the Trip Unit. (see Figure 4)

## SECTION 2: TEST KIT / BREAKER INFORMATION

### 2.1 TEST KIT / ADAPTER INFORMATION

#### 2.1.1 TEST KIT CONTROLS (SEE FIGURE 1)

The following are the identifications and functions of the Test Kit controls. Any time these are referred to in the following portions of this publication they will be in italics and underlined as shown in the following definitions of the functions.

*POWER ON/OFF* – Turns on power to the Test Kit.

*STOP* – This switch manually cuts off the test current to the Trip Unit.

*LONG DELAY PICKUP* - This light is not functional for Magnum DS trip units.

*TEST* – Starts the test.

*RESET* – Resets the Test Kit after a test.

*CALIB* – Used in conjunction with *CURRENT ADJUST* allowing for setting a pre-determined current level prior to a test.

*INST Operative / Read Amps* – For testing the Instantaneous function on Amptector Trip Units. (Not functional with Magnum DS trip units.)

*SHORT DELAY Operative / Read Amps* – For testing the Short Delay function.

*GROUND TEST* – For testing the Ground Fault function.

*EXT. AM* – Allows for connection of an external ammeter to read current levels. Jumper must be installed when not using external ammeter.

*CIRCUIT SELECTOR* - Permits checking of all Trip Unit phase input circuits. Since all feed into a common pickup and timing circuit, it is only necessary to use one phase to test all the solid state circuitry functions. It is only necessary to use one circuit function (e.g., long delay pickup) to verify that each phase (A, B, and C) performs similarly.

*TIMER ON/OFF* – The timer is used to calculate and display the time-delay functions of the Trip Unit.

*RESET (Timer)* - Resets the timer after a test.

*HI / LO AMPS* – Selects the “level” of current to be injected. (LO AMPS is typically for checking Long Delay Pickup or Ground Fault Pickup, and HI AMPS is for checking Short Delay Pickup or Instantaneous Level)

*CURRENT ADJUSTMENT* – Adjusts the secondary current injected into the Trip Unit.

#### 2.1.2 TEST KIT ADAPTER

The Magnum DS Test Kit Adapter (8779C02G04) is used to connect the Test Kit's 11-pin plug to the Magnum DS Digitrip Trip Unit 14-pin test port. In addition, the Auxiliary Power Module (PRTAAPM), which is permanently connected to the Adapter, must be connected to a 120 V, 50/60 HZ source to supply control power to the Trip Unit. (see Figure 2)

#### 2.1.3 ZONE INTERLOCK SHORTING PLUG

The Zone Interlock Shorting Plug (8779C02G06) is required when the breaker is removed from the switchgear cell for testing. The Shorting Plug must be installed on the breaker secondary contacts to defeat zone-interlock wiring. (see Figure 3)

#### 2.1.4 TEST KIT OPERATION GUIDELINES

To minimize thermal stress on the Test Kit and Trip Unit, hold *CALIB* (momentary) toggle switch for no more than 15 to 20 seconds at a time.

If current persists after the test is complete, use *STOP* switch to turn off the current.

When checking settings on the Trip Unit, the general procedure is to start with the high current settings and work down to the lowest current setting. This avoids unnecessary dial changes after calibration.