Introduction

The Type TVTS1 Test Set is a portable instrument designed for the field testing of MicroVersaTrip® solid-state programmers. The complete trip system is comprised of the following components:

1. Solid-state programmer
2. Phase Current Sensors
3. Flux Shift Magnetic Trip Device
4. When applicable, a Neutral Sensor for units containing a Ground Fault trip element.

All components, except the Neutral Sensor, are integrally mounted in the circuit breaker. When used, the Neutral Sensor is separately mounted in the bus or cable compartment of the switchgear. In drawout construction, it is automatically connected to the programmer in the breaker via a drawout secondary disconnect block.

Two basic types of solid-state programmers will be tested. See Fig. 1.

The Test Set is used to perform various programmer tests in two basic modes:

Testing the Solid-state Programmer Only—Mode "1"

Testing the Complete Trip System—Mode "2"

WARNING: *THESE TESTS CAN BE CONDUCTED ONLY ON A DE-ENERGIZED BREAKER—ONE WHICH IS COMPLETELY DISCONNECTED FROM ITS PRIMARY AND CONTROL POWER SOURCES.*
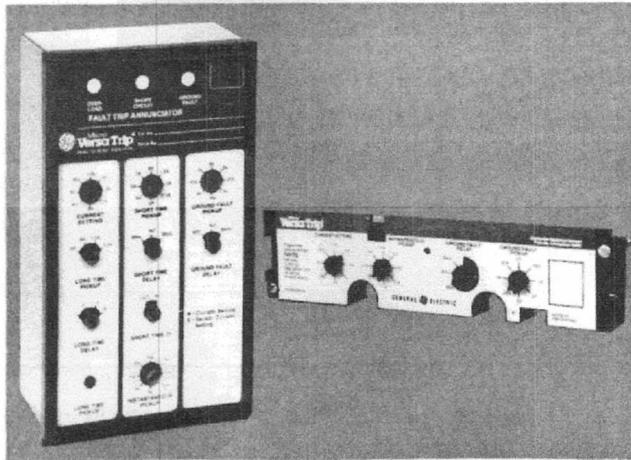
MicroVersaTrip®
TP4VT, TP9VT,
TAVT programmers

MicroVersaTrip®
T4VT programmer

Fig. 1

Testing the Solid-state Programmer Only—Mode "1"

A test mode is used where only the solid-state programmer is tested, and is particularly useful in testing spare or alternate programmers.

It should be noted however, that there can be no substitute for complete testing of the trip system per Mode "2". See Fig. 5. Since the programmer is only a part of the complete trip system, the *PROGRAMMER ONLY* tests should be recognized as only a partial system test.

Test Scope

1. Verify the time-current characteristics and pickup calibration of the various trip elements.

Designations for the trip elements are abbreviated as follows:

LT—LONG TIME	ST—SHORT TIME
INST.—INSTANTANEOUS	GF—GROUND FAULT

2. Verify performance of the ZONE SELECTIVE INTERLOCKING functions on programmers so equipped.

3. Verify the integrity of key electronic components in the solid-state programmer.

4. Verify operation of the Fault Trip annunciators on programmers so equipped.

Testing the Complete Trip System—Mode "2"

For these tests, the programmer is connected to the breaker through the test set.

Test Scope

1. All programmer tests previously described, plus the provision to optionally switch the programmer's output to activate the Flux Shift Magnetic Trip Device to verify its operation by physically tripping the breaker.

2. Check continuity of the Phase Sensors.

Applicable Time-current Curves

GES 6198—Four-function (T4VT; TP4VT)
       MicroVersaTrip® : LT; ST; INST.
GES 6199—Full-function MicroVersaTrip® : LT; ST; INST.
GES 6195—Ground Fault

Specifications

Input: 105-125 Vac, 50/60 Hz
Power Consumption: 60 Watts
Weight: 30 Pounds
Overall Dimensions (Inches): 22⅝ L x 12⅝ W x 9⅞ H.