

HTT-1
Function Tester

Instruction Manual

COMPLIANCE
WEST_{USA}

Dear Customer:

Congratulations! Compliance West USA is proud to present you with your HTT-1. The operating instructions are included in the Manual, so please retain this information for future use.

Thank you for your trust and confidence.

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Section 1

Operating Instructions

Theory of Operation

The HTT-1 is designed to be a solution for fast, easy function testing of all dielectric withstand and continuity testers, including high current models delivering up to 30 amps. It allows function tests of all three failure modes to ensure that your tester is functioning properly.

The HTT-1 is not designed to verify calibration points except as noted in the Specifications Section of this manual. Optional calibration point verification is available as an option. Contact the factory for details.

The HTT-1, used daily, will prove function of the safety testers before shifts or before testing of a lot of products. It is provided with three switches which simulate passing and failing equipment for ground continuity, high leakage between primary circuits and ground, and dielectric withstand failure between primary and ground circuits. While all three switches can be simultaneously set for failing modes, we recommend that the HTT-1 be set with one failure at a time to ensure that your testers are functioning correctly.

A proper test plan would be constituted of the following tests:

1. Connect HTT-1 to the tester outputs.
2. Set all three switches on the HTT-1 to 'PASS'.
3. Verify passing result on the Tester.
4. Set Continuity switch on the HTT-1 to 'FAIL'; set both other switches to 'PASS'.
5. Verify continuity failure on the Tester.
6. Set Leakage switch on the HTT-1 to 'FAIL'; set both other switches to 'PASS'.
7. Verify leakage current failure on the Tester.
8. Set Hipot switch on the HTT-1 to 'FAIL'; set both other switches to 'PASS'.
9. Confirm high voltage output by watching for spark in Arc Detect window of HTT-1; verify dielectric breakdown failure on the Tester.

The above plan is presented in more detail in the Operation Section of this Manual; showing proper connection of the HTT-1 to any dielectric tester and any high current ground continuity tester you may wish to test.

If any of the tests above return unanticipated results, you may have a problem with your tester. It is recommended that it be removed from service until the problem can be resolved. Section 4 of this manual also has troubleshooting information to help you determine if the HTT-1 is functioning correctly.

Section 2

Introduction and Specifications

Introduction

This manual contains complete operating, maintenance and calibration instructions for the Compliance West USA Model HTT-1 Function Tester.

The instrument is a portable function tester used to verify proper operation of hipot and ground continuity testers. Unless optionally equipped as shown in the Specification Section of this

manual, the HTT-1 is not intended as a calibration verification tool.

The HTT-1 is warranted for a period of one year upon shipment to the original purchaser.

Specifications

Specifications for the HTT-1 are listed in Table 1.

Specification of the HTT-1

Maximum current capability of GROUND test circuit:	30 Amps
Setting of PASS for Ground Circuit:	0 ohm
Setting of FAIL for Ground Circuit:	open circuit
Setting of PASS for Leakage Current:	open circuit
Setting of FAIL for Leakage Current:	short-circuit
Maximum voltage capability of HIPOT test circuit:	3000 V
Setting of PASS for Hipot test:	open circuit
Setting of FAIL for Hipot test:	arc-over at 750 V \pm 400V

Table 1: Specifications of the HTT-1

Section 3

Operation

This section describes how to set up and use the HTT-1.

Setting up the HTT-1

As shipped from the factory, the HTT-1 container contains the following items:

- ?? The HTT-1 Function Tester
- ?? This manual
- ?? Optional cables, if ordered.

Remove the HTT-1 from the container and place it on a non-conductive test bench. Plug the cord of the HTT-1 into the receptacle on the Hipot tester and connect the return the front of the Compliance West hipot or continuity tester. To begin testing, follow the directions in Section 1 above.

Note: This setup will work for any hipot tester having a standard wall receptacle and return jack on the front panel.

For other setups, consult the Setup Procedure below.

Front Panel Features

The front panel features of the HTT-1 are shown in Figure 1 and described in Table 2.

Setup Procedure: Hipot Tester

This procedure will describe connection of the HTT-1 to a hipot tester or a combination hipot tester/ground continuity tester. Because of the varying types of tester output, cables are not provided with the HTT-1. For custom cables, please contact Compliance West USA.

- 1) Connect the hipot tester to the HTT-1.
 - a) On your hipot tester, identify the high voltage output. Using a test lead, connect it to the 'OUTPUT' receptacle of the HTT-1.
 - b) On your hipot tester, identify the return lead of the high voltage output. This is

connected to the 'RETURN' receptacle of the HTT-1.

- c) On your hipot tester, identify the ground lead, usually connected directly to the chassis of the hipot tester. This is connected to the 'CHASSIS' receptacle of the HTT-1.
- 2) Conduct a simulated PASSING test by setting all three switches of the HTT-1 to the PASS (green) setting and initiating a hipot test by starting your hipot tester.
 - a) Your hipot tester should indicate 'PASS'.
- 3) If your tester checks for ground continuity, conduct a simulated GROUND OPEN test by setting the GROUND switch on the HTT-1 to 'FAIL'. (All other switches on the HTT-1 should be set to 'PASS'.) Begin testing by starting your hipot tester.
 - a) Your hipot tester should indicate 'FAIL', stop testing, and sound a buzzer or otherwise warn the operator of a problem.
- 4) Conduct a simulated EXCESS LEAKAGE test by setting the LEAKAGE switch on the HTT-1 to 'FAIL'. (All other switches on the HTT-1 should be set to 'PASS'). Begin testing by starting your hipot tester.
 - a) Your hipot tester should indicate 'FAIL', stop testing, and sound a buzzer or otherwise warn the operator of a problem.
- 5) Conduct a simulated HIPOT FAILURE test by setting the HIPOT switch on the HTT-1 to 'FAIL'. (All other switches on the HTT-1 should be set to 'PASS'.) Begin testing by starting your hipot tester.
 - a) The dielectric breakdown will be visible as an arc in the ARC VIEW window of the HTT-1.
 - b) Your hipot tester should indicate 'FAIL', stop testing and sound a buzzer or otherwise warn the operator of a problem.

Setup Procedure: Ground Continuity Tester

This procedure will describe connection of the HTT-1 to a ground continuity tester. Because of the varying types of tester output, cables are not provided with the HTT-1. For custom cables, please contact Compliance West USA.

- 1) Connect the ground continuity tester to the HTT-1.
 - a) On your ground continuity tester, identify the high current output. Using a test lead, connect it to the 'RETURN' receptacle of the HTT-1.
 - b) On your ground continuity tester, identify the return lead of the high voltage output. This is connected to the 'CHASSIS' receptacle of the HTT-1.
- 2) Conduct a simulated PASSING test by setting all three switches of the HTT-1 to the PASS (green) setting and initiating a ground continuity test by starting your ground continuity tester.
 - a) Your ground continuity tester should indicate 'PASS'.
- 3) Conduct a simulated GROUND OPEN test by setting the GROUND switch on the HTT-1 to 'FAIL'. (All other switches on the HTT-1 should be set to 'PASS'.) Begin testing by starting your ground continuity tester.
 - a) Your ground continuity tester should indicate 'FAIL', stop testing, and sound a buzzer or otherwise warn the operator of a problem.

Unanticipated Results

The HTT-1 test may cause your tester to give results not consistent with those anticipated by the switch setting of the HTT-1. Until the problem is resolved, your tester should be removed from service.

If there is a question regarding the proper operation of the HTT-1, troubleshooting information in Section 4 can be used to verify proper operation of the HTT-1.



Figure 1: HTT-1 Front Panel Features

Item	Name	Function
1	Return Banana Receptacle	Connected to the Return Lead on the Hipot or Ground Continuity Tester, which is normally connected to dead metal parts of the equipment undergoing dielectric test.
2	Output Banana Receptacle	Connected to the high voltage output of the Hipot Tester being checked. If a Ground Continuity Tester is being checked, there is no connection to this receptacle.
3	Arc View	When Dielectric Breakdown function is being checked, a spark will visually demonstrate the breakdown occurred.
4	Hipot Test Switch	When set to FAIL, a dielectric breakdown will be simulated and a spark can be seen in the Arc View window. When set to PASS, a normal passing result is simulated. Used for Dielectric Testers only.
5	Leakage Test Switch	Used for Dielectric Testers only. When set to FAIL, an excess leakage condition is simulated and the tester should stop testing and indicate a failure. When set to PASS, a normal passing result is simulated.
6	Ground Test Switch	When set to FAIL, an open ground is simulated and the tester should stop testing and indicate a failure. When set to PASS, a normal passing result is simulated.

Table 2: Controls, Indicators, and Connectors: Model HTT-1 Panel

Section 4

Troubleshooting the HTT-1

The HTT-1 does not require calibration. If the HTT-1 does not operate as described in the Theory of Operation section, and the equipment connected to the HTT-1 has been verified to be in good working condition, then the HTT-1 should be returned to Compliance West USA for inspection and/or repair.

Table 3 shows expected results for a known good hipot tester for all recommended operating modes.

Switch designation / Switch position			Operating mode
GROUND	LEAKAGE	HIPOT	
PASS	PASS	PASS	No failure: the tester connected to the HTT-1 should indicate test completion with a passing result.
FAIL	PASS	PASS	Ground Fail: the tester connected to the HTT-1 should indicate a “ground open” or “ground fail” condition.
PASS	FAIL	PASS	Leakage Fail: the tester connected to the HTT-1 should indicate an “excess leakage” or “excess current” failure.
PASS	PASS	FAIL	Hipot Fail: The tester connected to the HTT-1 should indicate a “hipot fail” or “dielectric failure”. The high-voltage arc that occurs to create the simulated test failure is visible through the ARC VIEW window.

Table 3: HTT-1 Normal operating modes and expected results.

Section 5

Technical Assistance

For Technical Assistance

Phone: (800) 748-6224

Technical Assistance is available from Compliance West USA between the hours of 8:30 AM and 4:30 PM Pacific Time.

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