IMPORTANT NOTE

THIS DOCUMENT PROVIDES AN OVERVIEW OF HOW PAT TESTERS PERFORM TESTS ON APPLIANCES.

PLEASE SEE THE OPERATION MANUAL / APPLICATION NOTES ON THE TRANSMILLE 2100/3200 TO LEARN HOW THE 2100/3200 CHECKS THE OPERATION OF A PAT TESTER.

EARTH CONTINUITY TESTING

This test is performed on CLASS 1 equipment or mains cords and is used to verify the integrity of the connection between the protective conductor and all exposed metal parts intended to be connected to the protective conductor.

Testing includes 2 methods as appropriate :

- A continuity measurement with a short circuit test current with the range of 20mA to 200mA

or

- A continuity measurement with a test current not greater than 1.5 times the rating of the fuse and no greater than 25A for a period of between 5 and 20 seconds

INSULATION RESISTANCE TESTING

Insulation resistance is measured by applying a test voltage of 500V DC and measuring the resistance. Then testing a Class 1 appliance the voltage is applied between both live conductors (phase and neutral) and the protective conductor (earth). When testing a Class II appliance, the test voltage is applied between both live conductors (phase and neutral) and a test probe.

The test probe should be applied to any exposed metal parts and any suspected parts of the enclosure where conductive material may have accumulated. Multiple test may be required.

Modern portable appliance testers produce a test voltage which is current limited.

This test should be performed wit the equipment switch ON. Some electronic equipment may contain mains filter circuits connected between live/neutral and earth.

FLASH TESTING

This test is also known as the high voltage leakage test , hipot test or dielectric strength test and is a Type Approval test or Production test.

Test voltages or 1500V or 3000V AC are used to perform this test. The 1500V AC is applied at the mains plug of the appliance under test, between the protective earth conductor and the live / neutral conductors connected together.

The 30000V AC test is applied between the live / neutral conductors connected together at the mains plug and a high voltage test probe applied to the enclosure of the appliance under test. No other connection is necessary.

During flash testing, close proximity to the high level charge present could case damage to certain types of electronic equipment incorporating semi-conductor devices. The advice of the equipment manufacturer should be sought before testing when such conditions are suspected.

For in-service testing this type of test is not recommended / required.

LEAKAGE MEASUREMENT

Alternative or substitute leakage is measured using a technique similar to that used when measuring insulation resistance. A test voltage is applied between both live conductors (phase and neutral) and the protective conductor (earth) during a Class I test or a test probe connected to the equipment enclosure during a Class II test.

The resultant current is measured and then scaled to indicate the current that would flow at the normal supply voltage.

The test voltage is current limited and so there is no hazard to the test operative. As the test voltage has the same nominal frequency as the mains supply the leakage paths are similar to those found when the equipment is in operation. Similarly, because the test voltage is not greater than the nominal supply voltage of the equipment under test measurements are not affected by transient suppressors or other voltage limiting devices.

Portable appliance testers automatically make the necessary connection between the live and neutral conductors and apply