

## SAFETY PRECAUTIONS

1. **Before returning the instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items:

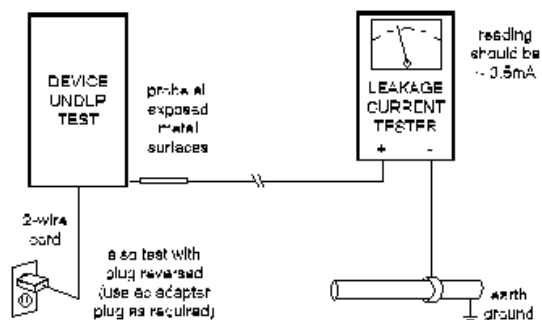
- a. Be sure that no built-in protective devices are defective and/or have been defeated during servicing. (1) Protective shields are provided on this instrument to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reassembling the instrument, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage, and may expose themselves and others to possible injury.**

- b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) excessively wide cabinet ventilation slots, and (2) improperly fitted and/or incorrectly secured cabinet covers.

- c. **Leakage Cold Check** - With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the *on* position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each push button/customer control, exposed metal screws, metallized overlays and to each cable connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the AC switch in the *off* position.

- d. **Leakage Current Hot Check**

On completely assembled instrument, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester



or a metering system that complies with American National Standards Institute (ANSI) *C101.1 Leakage Current for Appliances* and Underwriters Laboratories (UL) 1492 (Section 67). Measure for current from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal or conductive parts of the instrument (antenna connections, handle bracket, metal cabinet, screwheads, metallic overlays, push-buttons, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse the instrument power cord plug in the outlet and repeat the test.

**ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING TO ANTENNA OR ACCESSORIES.**

- e. **Interconnected Equipment AC Leakage Test**

Avoid shock hazards. The instrument, accessory, or cable(s) to which this instrument is connected should have the applicable sections of the leakage resistance cold check and the leakage current hot check performed. Do not connect this instrument to an antenna, cable or accessory that exhibits excessive leakage currents.

2. Read and comply with all caution and safety-related notes on or inside the instrument cabinet, and on the chassis.

3. **Design Alteration Warning** - *Do not* alter or add to the mechanical or electrical design of this instrument. Design alterations and additions, including, but not limited to, circuit modifications and the addition of items such as auxiliary audio output connections, cables and accessories, etc., might alter the safety characteristics of this instrument and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and will make you, the servicer responsible for personal injury or property damage resulting therefrom.

4. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: (a) near sharp edges, (b) near thermally hot parts - be sure that leads and components do not touch thermally hot parts, and (c) the AC supply. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between components and the printed-circuit board. Check AC power cord for damage.

5. Components, parts and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

6. **PRODUCT SAFETY NOTICE** - Many electrical and mechanical parts have special safety-related characteristics, some of which are often not evident from visual inspection, nor can the protection they give be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified in this service data by a (A) on schematics and in the parts list. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part in this service data parts list might create shock, fire and/or other hazards. Product Safety is under review continuously and new instructions are issued whenever appropriate. For the latest information, always consult the appropriate current service literature.