

■ ■ T102 ■ ■

COMPUTER DIRECT-LINE™ DIGITAL TUNER

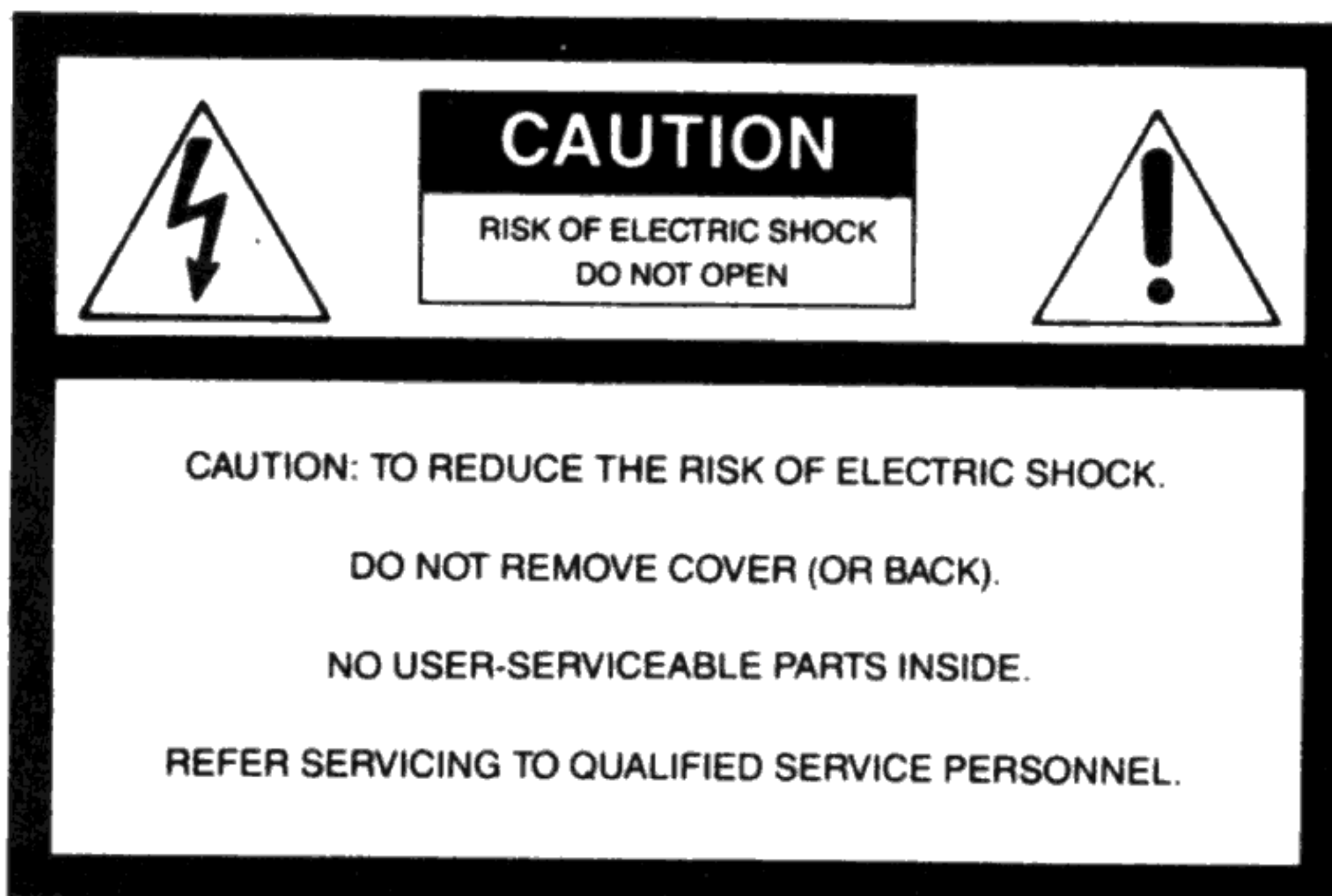
SAE

OWNERS
MANUAL

SCIENTIFIC AUDIO ELECTRONICS, INC.

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This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" with the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Attention: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.

WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

INTRODUCTION

The T102 is the culmination of SAE's efforts to combine the latest audio and computer technology. From these efforts have sprung a group of products offering advanced sonic performance, unique flexibility and touch control convenience. The T102 is designed as a system providing complementary capabilities which, when combined, provide flexibility far greater than conventional systems.

UNPACKING

As a routine part of our systematic quality control, your T102 tuner was carefully inspected for flaws before it was packed. However, should you find any physical flaws after unpacking your unit, immediately notify your dealer and request the name of the carrier. A written claim to cover the damages must be initiated.

THE RIGHT TO ANY CLAIM AGAINST A PUBLIC CARRIER CAN BE FORFEITED IF THE CARRIER IS NOT NOTIFIED PROMPTLY, AND IF THE SHIPPING CARTON AND PACKING MATERIALS ARE NOT AVAILABLE FOR INSPECTION BY THE CARRIER. SAVE ALL PACKING MATERIALS UNTIL THE CLAIM HAS BEEN SETTLED.

INSTALLATION

The T102 is designed so that it can be mounted in a standard 19 inch rack. In conventional rack-mounting applications, the T102 can be mounted by the front panel only. If extended shipping is anticipated, we suggest the addition of side or rear supports to protect the unit during rough handling.

The T102 also has rubber feet for shelf or counter placement. It will operate in a vertical or horizontal position.

Regardless of placement position, the T102 should not be totally enclosed with other heat-producing components. Adequate ventilation will extend the trouble-free life of your unit.

Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Attention: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.

REAR PANEL CONNECTIONS

Whenever rear panel connections are being made, the T102 and all associated components should be switched off.

MAIN OUT — Connect audio cables from these MAIN OUTPUTS A and B to the tuner A and B inputs on the I102 or the left and right inputs respectively on other preamps and integrated amps.

ANTENNA: The performance of the tuner section will be directly affected by the type and location of antenna used.

F.M.: The T102 comes with a dipole antenna. This should be connected to the terminals marked 300 Ohms. Once this has been done and all other connections made, turn unit on and tune to a local station. Next, orient the antenna for best possible reception. The antenna may require repositioning when tuning to different stations. In most cases, the dipole antenna will suffice. If an FM/TV antenna is to be used, a choice of terminations is available; (1) 300-Ohm flat cable screw terminals for use with twin lead; (2) 75-Ohm terminals (screw type) for coaxial type cables (bare wire hookup); and (3) an "F" type 75-Ohm coaxial connector. (For pre-assembled cable).

NOTE: FM antenna boosters and amplifiers are not recommended except in rural or fringe areas. The use of these devices will cause an overload condition in the tuner section and will lower the tuner's sensitivity.

A.M.: For A.M. reception, the T102 provides a loop antenna (located rear center). This will provide acceptable reception in most areas. The antenna is detachable and can be remotely mounted for improved reception. If the antenna's performance is not adequate, try using a single insulated wire (22-18 GA) and locate as high as possible. Connect this wire to the terminal marked "A.M." Use another insulated wire (same gauge) and connect to the terminal marked "GND" (don't confuse this ground with turntable ground). Take the opposite end of this wire and connect to the center screw of an A.C. wall outlet (newer homes only) or an outside water pipe (best location).

STANDBY CONTROL

The T102 can be remotely turned on or off via the P102 preamplifier. Connect a cable from the STANDBY OUT on the P102 to the STANDBY IN on the T102. This 12 volt DC circuit maintains the computer memories of the '02' products yet shuts off the AC to the audio circuits. If you wish to control the A202, A502 power amps, D102 compact disc player or C102 cassette deck in the same manner, merely connect a cable from the STANDBY OUT terminal of each component to the next component's STANDBY IN terminal. Any order may be chosen (D102, A202, C102, T102 etc.) so long as the P102 provides the originating STANDBY OUT signal. Without a P102 in your system, this feature is not operative.

CAUTION: NEVER USE NATURAL GAS LINES FOR GROUND REFERENCE.

TYPICAL HOOKUP

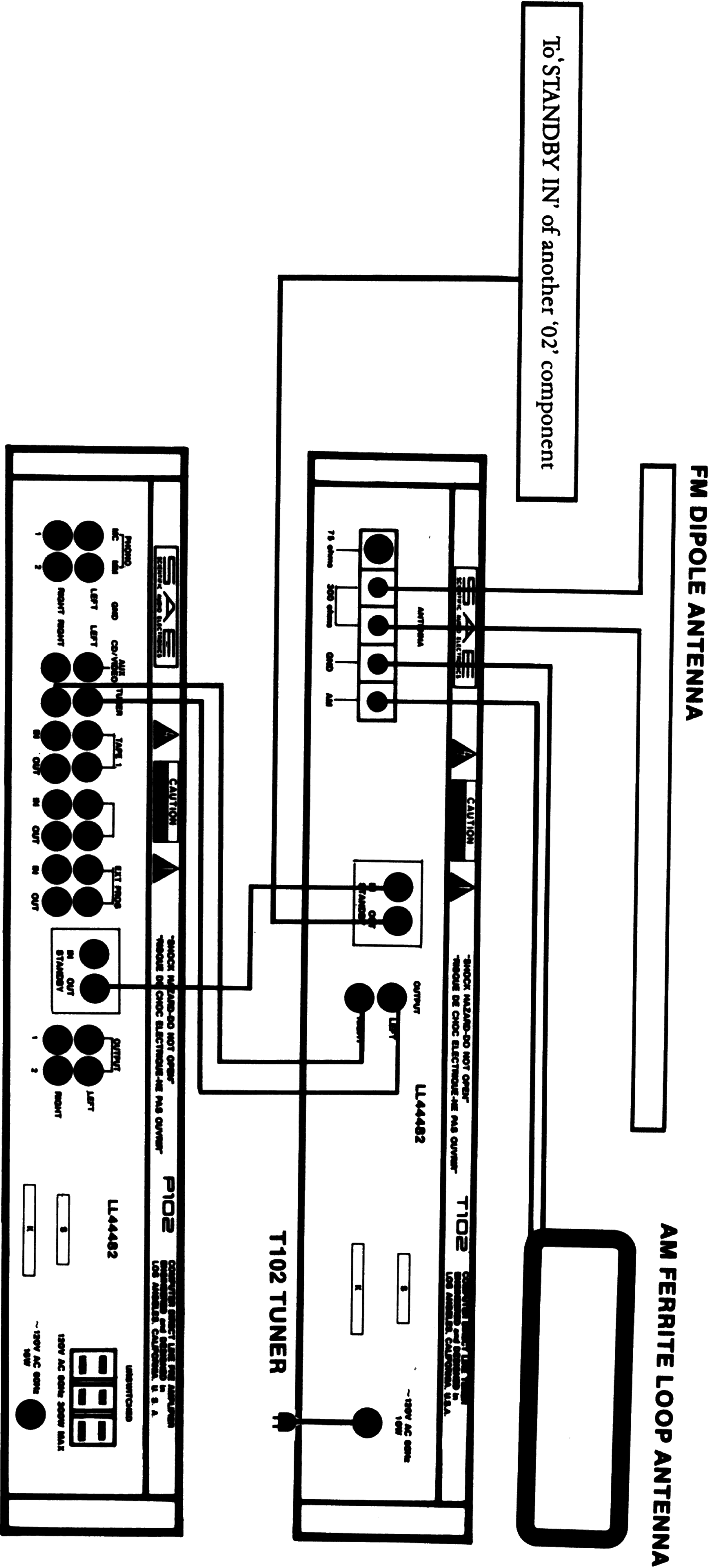
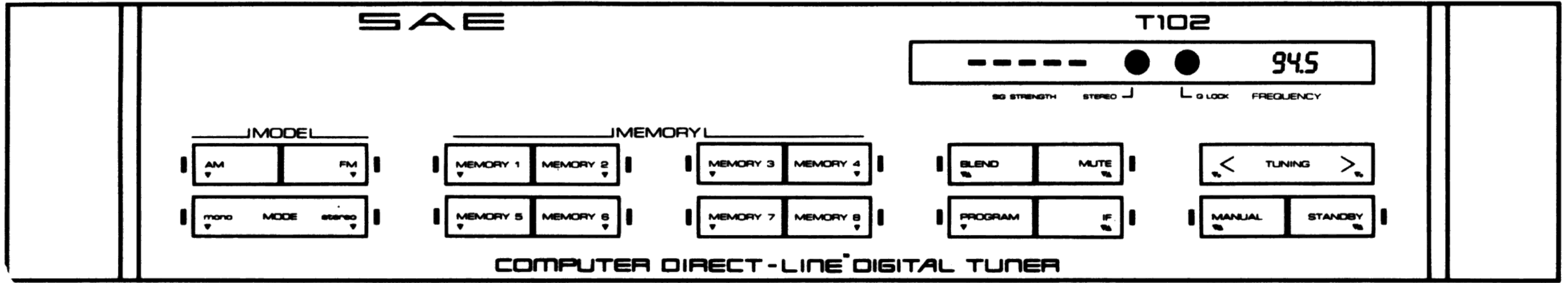


FIGURE 1

OPERATION



FUNCTION

DISPLAY

OPERATION



Selects and engages AM tuner section. Press to activate.



Selects and engages FM tuner section. Press to activate.



Combines left and right channels, deactivates stereo pilot. Press to activate.



Engages multiplex and pilot for stereo operation. Press to activate.

NOTE: Unit will return to stereo operation when one of the following functions is activated: TUNING, MEMORY, FM, AND STANDBY.

OPERATION

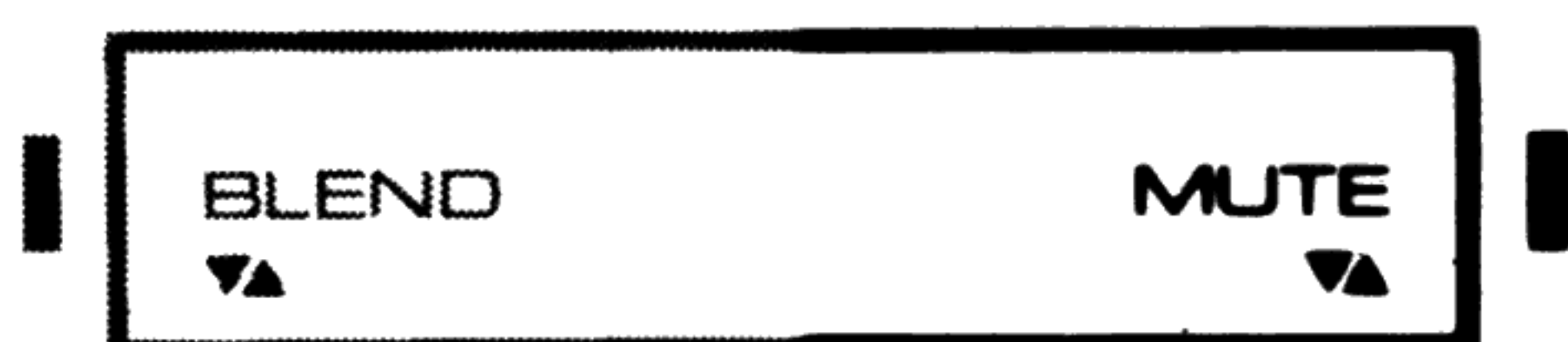
FUNCTION

DISPLAY

OPERATION



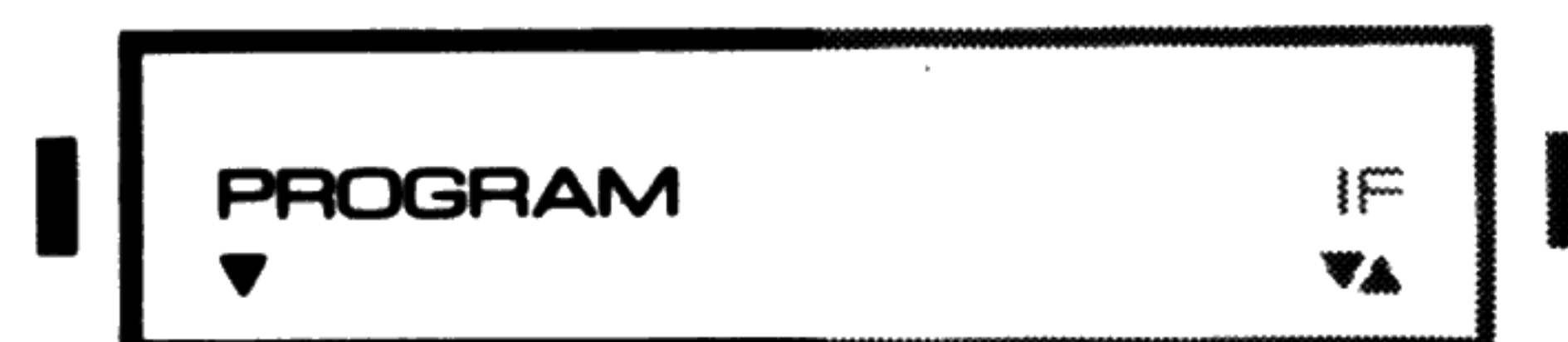
Combines left and right channels at high frequencies for noise cancellation (hiss). Press on, Press off.



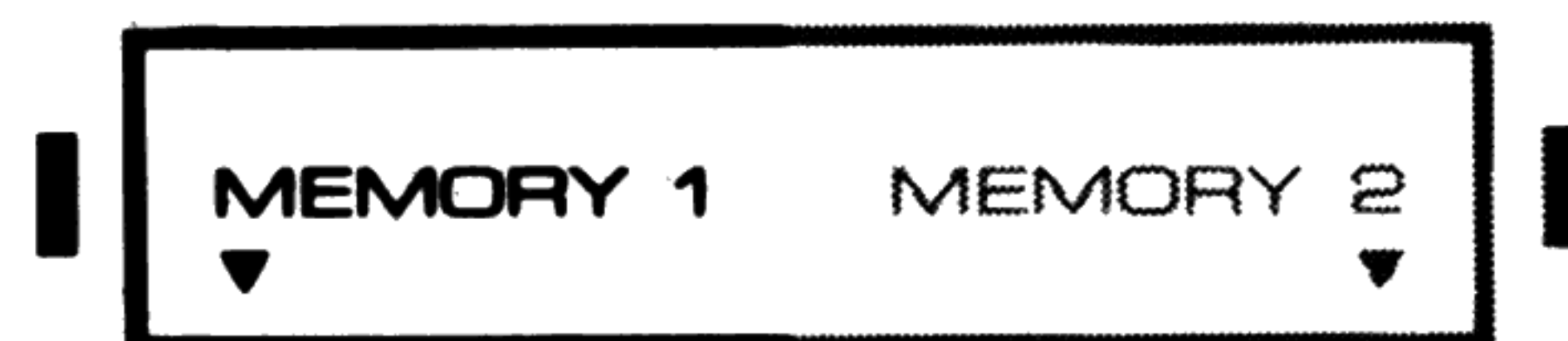
Defeats between station mute. Press on, Press off.



Narrows IF bandwidth to decrease adjacent station interference. Press on, Press off.



To operate, tune to desired station (AM or FM), press PROGRAM (LED ON). Then select desired memory (1-8). LED will light to indicate that the station displayed is now stored in the memory chosen.



Accesses memories (1-8) AM or FM. Press to recall (to store, see PROGRAM).

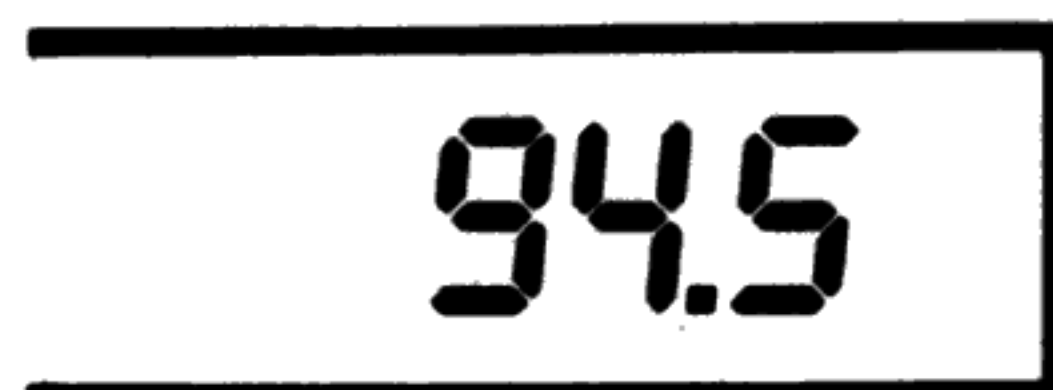
NOTE: Program light will extinguish after 6 seconds if no memory is selected.

OPERATION

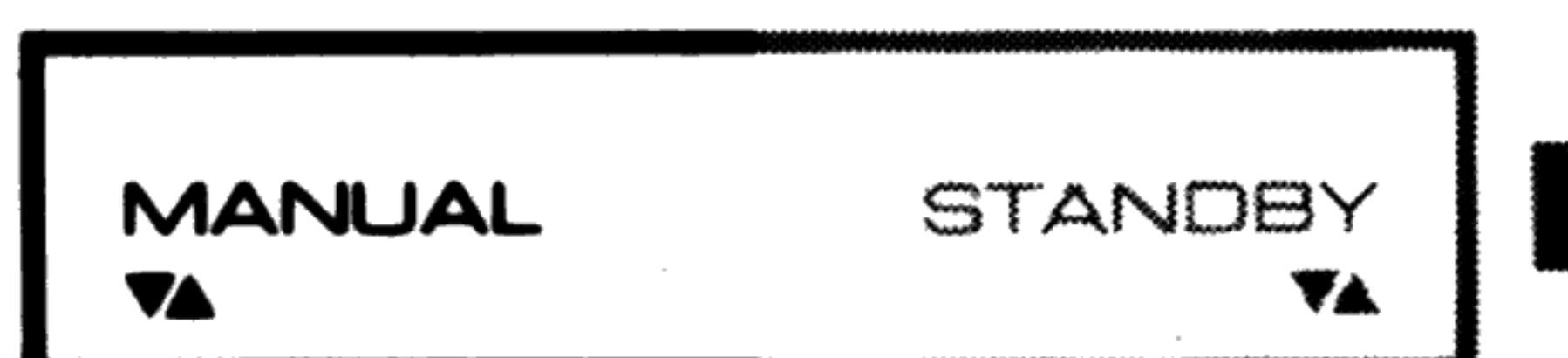
FUNCTION

DISPLAY

OPERATION



Selects AM or FM stations automatically. Press and release.



Overrides automatic tuning mode, allows single step operation. Press on, press off.



Deactivates audio section and front panel control circuits. The computer remains on to retain memory and control settings.

NOTE: Unit may be disconnected from A.C. source for more than 24 hours without loss of memory.

DISPLAYS

FREQUENCY — This LED digital frequency readout is a precise quartz reference, frequency counter controlled by the T102's computer. It displays either FM frequencies in MHz (millions of cycles) or AM frequencies in KHz (thousands of cycles).

STEREO — The stereo indicator becomes illuminated when an FM stereo (or multiplex) signal is being received by the T102. In some instances, the signal at the antenna may be so low that the noise generated in stereo will be unacceptable for listening purposes. In such cases, it is recommended that MONO be selected on the mode switch. This will reduce noise and defeat the stereo circuit. However, this should only be done in the case of an extremely weak stereo signal.

Q-LOCK — when lit indicates that the station's frequency has been locked to the quartz reference and optimum reception is being obtained.

GENERAL MAINTENANCE

COSMETICS — Your T102 has been carefully designed to look as good as it sounds. The front panel is constructed of the highest grade aluminum, finished with a specially developed mil-spec black anodize, while the chassis is constructed of 18 ga. steel wrapped in a durable vinyl. The unique SAE-designed switches are fabricated of black epoxy resin. If either should become fingerprinted or soiled, they can be cleaned with a soft cloth dampened in a solution of **LIQUID DETERGENT** and water. Spray liquid onto the cloth, not onto the unit. **UNDER NO CIRCUMSTANCES SHOULD A LYE SOLUTION OR AN ABRASIVE CLEANER SUCH AS SCOURING POWDER BE USED ON ANY PART OF THE TUNER.**

SERVICE

SAE has a Customer Service Department to answer all questions pertinent to the installation and operation of your unit. Please feel free to write us at any time and we shall endeavor to offer prompt and complete advice regarding your unit. If a problem arises which cannot be resolved through our combined efforts, we will refer you to a local authorized repair agency or the factory. To aid us in selecting a service station convenient to you, please indicate which major city is closest to your home. Please address inquiries to:

**Customer Service Department
SAE Inc.
1734 Gage Rd.
Montebello, CA 90640**

Be sure to include the model number and the serial number of your unit. In the event your unit must be returned, an authorization **MUST BE OBTAINED** from SAE prior to its return.

UNDER NO CIRCUMSTANCES SHOULD YOUR UNIT BE SHIPPED TO THE FACTORY WITHOUT PRIOR AUTHORIZATION.

If the original shipping carton has been lost or discarded, or if the carton is not in good condition, a duplicate carton may be obtained from our Service Department for a minimal charge.

Always ship via recognized freight carriers. Suggested carriers will be given in SAE's Customer Service Department reply. Do not ship via Parcel Post. **ALL PARCEL POST SHIPMENTS WILL BE REFUSED.**

SERVICE COVERAGE

U.S. (ONLY)

SAE is proud to offer you a two-year limited warranty

on your component. In order to receive this valuable protection, please observe the following:

- 1) **RETAIN YOUR BILL OF SALE OR OTHER PROOF OF PURCHASE** — In the unlikely circumstance that your unit should require service, the bill-of-sale will act as your proof of ownership and effective date of warranty.
- 2) **SEND IN THE WARRANTY CARD** — To ensure your name is on file as owner of this unit, please send in the warranty card. This is one way to enable SAE to establish the date of purchase of your product, as well as provide you with better customer service and improvements in future products. Failure to return the card **WILL NOT** affect your rights under this warranty so long as you retain other proof of purchase such as bill-of-sale.
- 3) **READ THE WARRANTY** — SAE has offered you certain rights under the warranty, **AND** required certain conditions be met by you. Please read the warranty to understand it thoroughly.
- 4) **FILL OUT THE PRODUCT RECORD** — In this manual is a product record. Please fill it out. It will provide a convenient reference for future needs.

INTERNATIONAL

As stated above, the SAE 2 year limited warranty is valid only in the United States. Service in other countries will be provided by the exclusive SAE representative or his agents. Because of varying governmental regulations and conditions, the service period may differ from country to country. However, in every instance, the service agreement can be honored only in the country where the unit was purchased. In the event that there is no SAE representative in your country, please contact SAE.

SPECIFICATIONS

(per IHF-T-200)

FM Section:	WIDE	NARROW
IHF Usable Sensitivity:		
Mono	2uV	
Stereo	4uV	
50dB Quieting Sensitivity:		
Mono	2.9uV	
Stereo	34uV	
S/N Ratio (IHF):		
Mono	-75dB	
Stereo	-70dB	
Harmonic Distortion:		
Mono	0.10%	0.30%
Stereo	0.15%	0.80%
Capture Ratio:	1.7dB	
Alternate Channel Selectivity:	-30dB	-80dB
Separation: @ 1KHz	45dB	35dB
@ 100-10KHz	40dB	32dB
Frequency Response 40-15KHz	±1.5dB	
Image Rejection Ratio:	-78dB	
Spurious Response Ratio:	-88dB	
IF Rejection Ratio:	-88dB	
AM Suppression:	-55dB	
Output Level:	500mV	
AM Section:		
IHF Usable Sensitivity:	15uV	
S/N Ratio:	50dB	
Selectivity (IHF)	32dB	
Harmonic Distortion:	0.50%	
IF Rejection @ 1KHz:	55dB	
Image Rejection Ratio:	45dB	
Output Level:	150mV	
Dimensions:		
Height	3.5/89mm	
Width	19/483mm	
Depth	14/356mm	

TWO YEAR LIMITED WARRANTY

This SAE product is warranted against defects in materials and workmanship for two years from the date of purchase by the original owner presenting a Scientific Audio Electronics Customer Service Facility the original or a copy of the original purchase receipt or sales slip showing from whom the product was purchased, the date of purchase and the purchase price of the unit. In the event proof of purchase cannot be established as stated in the preceding sentence, the warranty period shall commence to run on the date of manufacture, provided the serial number on the unit has not been altered in any manner. This warranty shall apply only to the original purchasers and shall not apply to purchases solely for commercial or industrial use.

During the warranty period, Scientific Audio Electronics will repair or, at its option, replace at no charge components that prove to be defective, provided the product is returned in accordance with the shipping instructions which are contained with the unit, shipping prepaid, to Scientific Audio Electronics Customer Service Facility. (Refer to shipping instructions). This warranty does not apply if the unit has been damaged by accident or misuse, or as a result of service or modification by other than a Scientific Audio Electronics Customer Service Facility authorized to service the product. For the latest list of Customer Repair Facilities, write or call Scientific Audio Electronics.

SCIENTIFIC AUDIO ELECTRONICS SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THERE ARE NO WARRANTIES GIVEN BY SCIENTIFIC AUDIO ELECTRONICS WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. ALL IMPLIED WARRANTIES OF FITNESS FOR PURPOSE SOLD, MERCHANTABILITY, DESCRIPTION, QUALITY, PRODUCTIVENESS OR ANY OTHER MATTERS ARE LIMITED TO THE TWO YEAR TERM OF THE EXPRESS WARRANTY HEREIN STATED.

Some states do not allow limitations on how long an implied warranty may last, so the above limitation may not apply to you.

Obligation To Make Changes

Products are sold on the basis of specification applicable at the time of sale, Scientific Audio Electronics shall have no obligation to modify or update products once sold. This warranty gives you specific rights, and you may also have other rights which vary from state to state.

Customer Service Department
SAE Inc.
1734 Gage Rd.
Montebello, CA 90640

PRODUCT RECORD

Serial No. _____

Purchased From:

Name _____

Address _____

Date Purchased _____

Sales Invoice No. _____

Salesman _____

Date Warranty Card Mailed _____

IMPORTANT SAFEGUARDS

1. **Read Instructions** — All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Water and Moisture** — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
6. **Carts and Stands** — The appliance should be used only with a cart or stand that is recommended by the manufacturer.
6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. **Wall or Ceiling Mounting** — The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Grounding or Polarization** — This appliance is equipped with a polarized plug and must be used with a polarized receptical. The polarization or grounding of plug should not be defeated. If type of receptical being used is not polarized an electrician should be contacted.
12. **Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Cleaning** — The appliance should be cleaned only as recommended by the manufacturer.
14. **Power Lines** — An outdoor antenna should be located away from power lines.



PORTABLE CART WARNING

15. Outdoor Antenna Grounding — If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.

16. Nonuse Periods — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

17. Object and Liquid Entry — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

18. Damage Requiring Service — The appliance should be serviced by qualified service personnel when:

A. The power-supply cord or the plug has been damaged; or

B. Objects have fallen, or liquid has been spilled into the appliance; or

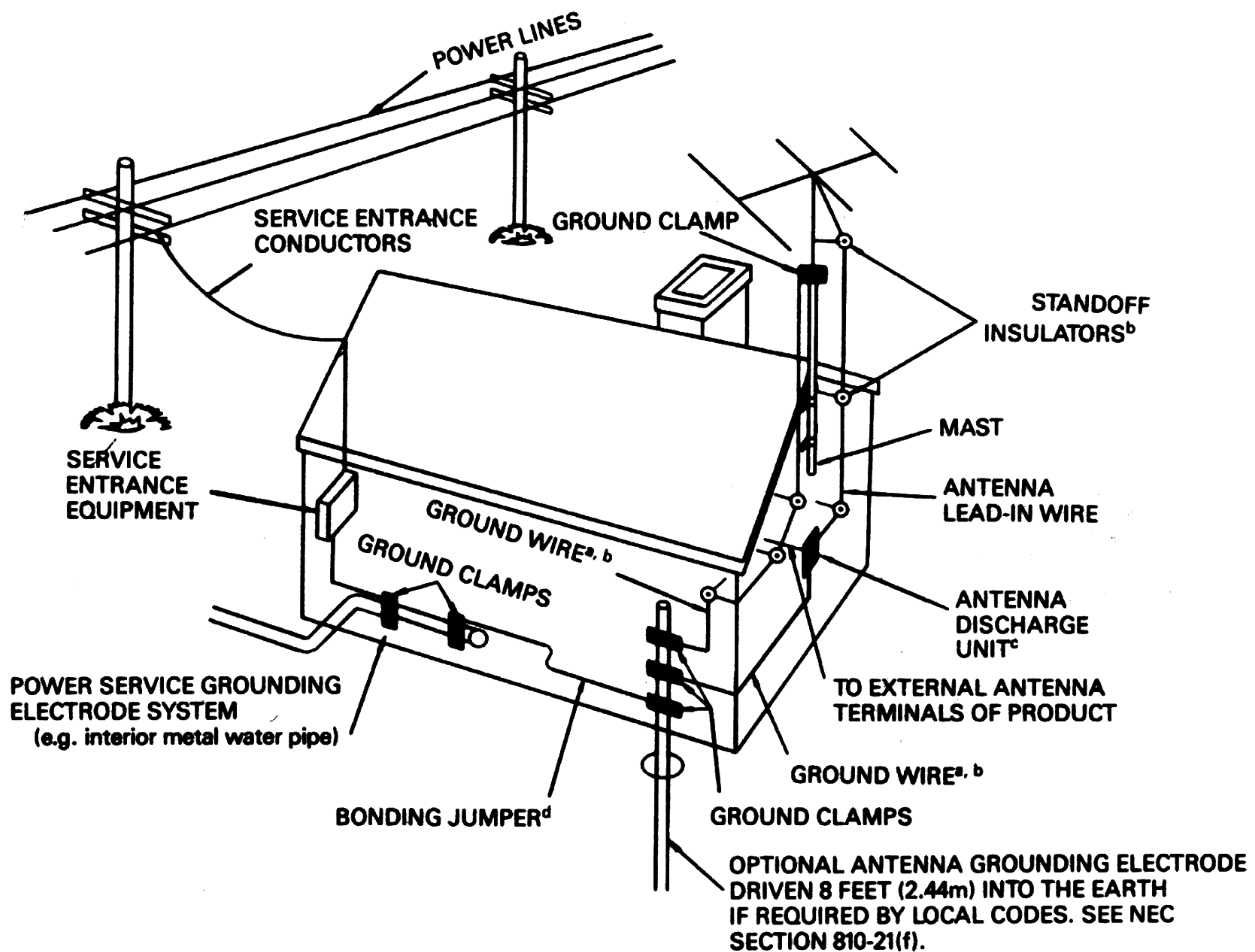
C. The appliance has been exposed to rain; or

D. The appliance does not appear to operate normally or exhibits a marked change in performance; or

E. The appliance has been dropped, or the enclosure damaged.

19. Servicing — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

**FIGURE 1
EXAMPLE OF ANTENNA GROUNDING ACCORDING
TO NATIONAL ELECTRICAL CODE INSTRUCTIONS
CONTAINED IN ARTICLE 810 — "RADIO AND
TELEVISION EQUIPMENT"**



^a Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as a ground wire.

^b Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4-6 feet (1.22-1.83 m) apart.

^c Mount antenna discharge unit as close as possible to where lead-in enters house.

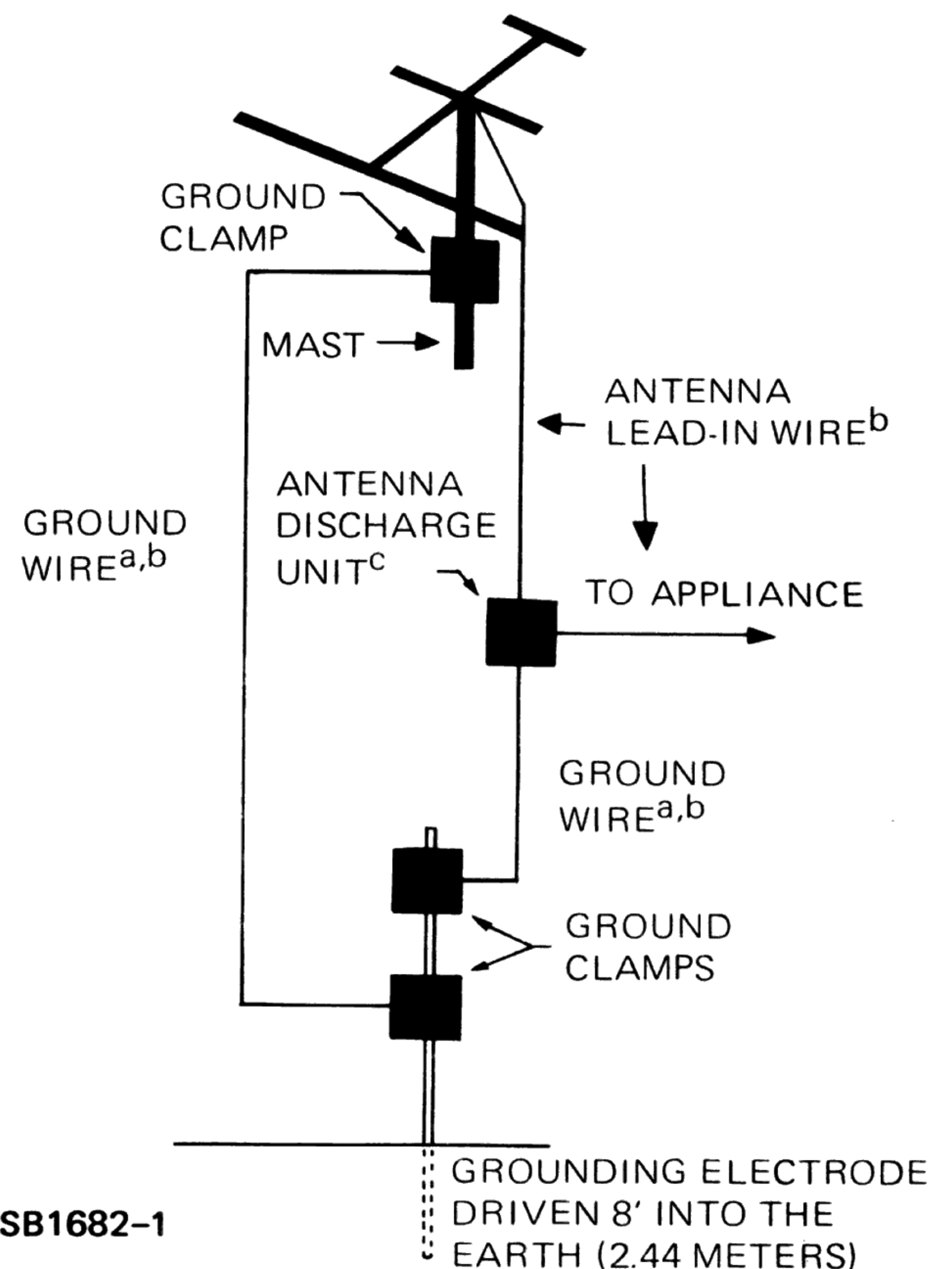
^d Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).

SAFETY INSTRUCTIONS

1. **READ INSTRUCTIONS** – All the safety and operating instructions should be read before the appliance is operated.
2. **RETAIN INSTRUCTIONS** – The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS** – All warnings on the appliance and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS** – All operating and use instructions should be followed.
5. **WATER AND MOISTURE** – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. **VENTILATION** – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
7. **HEAT** – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
8. **POWER SOURCES** – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
9. **POWER-CORD PROTECTION** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
10. **CLEANING** – The appliance should be cleaned only as recommended by the manufacturer.

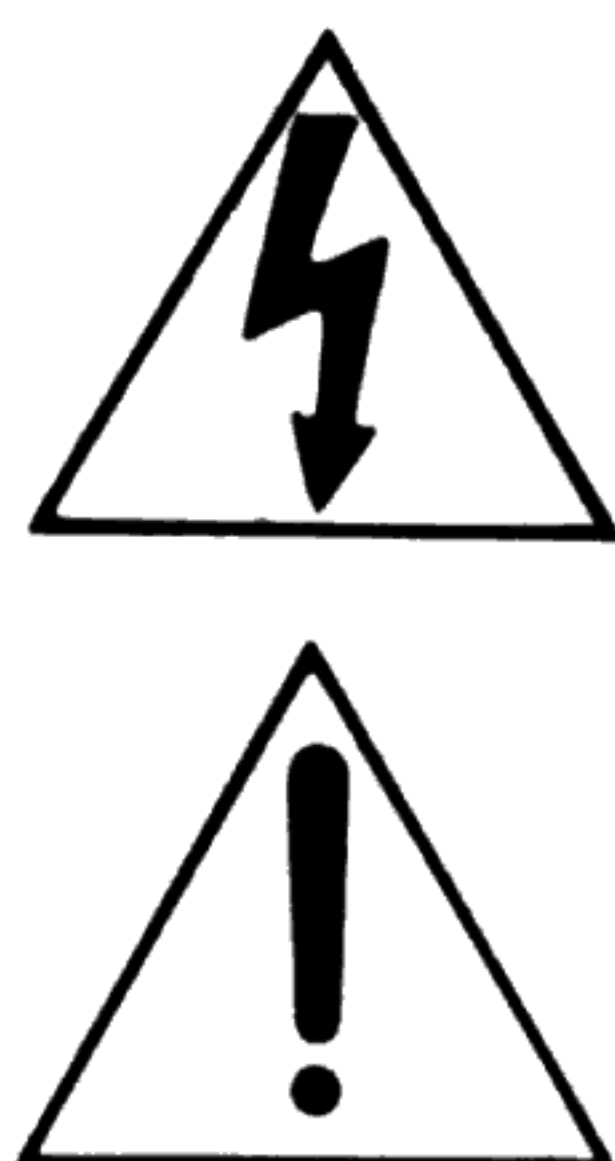
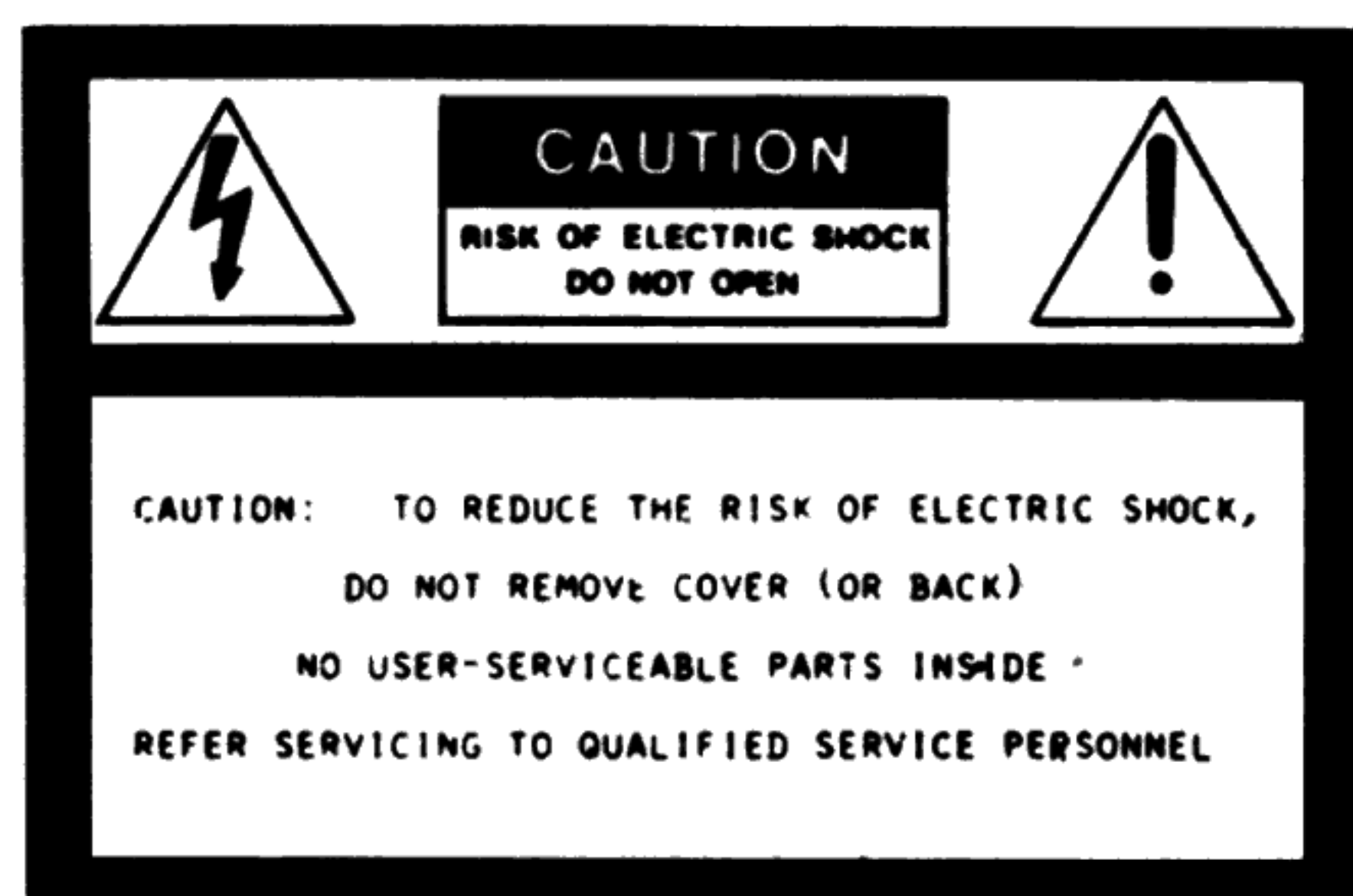
11. **POWER LINES** – An outdoor antenna should be located away from power lines.
12. **OUTDOOR ANTENNA GROUNDING** – If an outside antenna is connected to the appliance, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1981, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode, See Figure 65.1

FIGURE 65.1
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS



- a. Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as ground wire.
 - b. Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 m) to 6 feet (1.83 m) apart.
 - c. Mount antenna discharge unit as close as possible to where lead-in enters house.
13. **NONUSE PERIODS** – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
14. **OBJECT AND LIQUID ENTRY** – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

15. **DAMAGE REQUIRING SERVICE** – The appliance should be serviced by qualified service personnel when:
- A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
16. **SERVICING** – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING—READ BEFORE PLUGGING IN.

“As a safety feature, this plug will fit into a polarized outlet only one way. If it does not fit fully in outlet, reverse plug. If it still does not fit, contact a qualified electrician.

Never use with an extension cord unless plug can be fully inserted. Do not attempt to defeat this safety feature.”

Main office: SCIENTIFIC AUDIO ELECTRONICS, INC.

P.O. Box 60271, Terminal Annex, Los Angeles, California 90060. Tlx: 188-138 SAE LSA

In Canada: Tri-Tel Associates, 105 Sparks Avenue, Willowdale, Ontario, Canada, M2H 2S5.